SAR EVALUATION REPORT

Applicant Name:
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PCTEST Lab, Columbia, MD, USA
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FCC ID: **A3LSMT837P**

APPLICANT: **SAMSUNG ELECTRONICS CO., LTD.**

DUT Type: Portable Tablet
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SM-T837P

Equipment Class	Band & Mode	Tx Frequency	SAR 1g Body (W/kg)
PCB	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	1.25
PCB	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	1.37
PCB	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	1.09
PCB	LTE Band 12	699.7 - 715.3 MHz	0.73
PCB	LTE Band 13	779.5 - 784.5 MHz	1.07
PCB	LTE Band 26 (Cell)	814.7 - 848.3 MHz	1.35
PCB	LTE Band 5 (Cell)	824.7 - 848.3 MHz	1.40
PCB	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	1.37
PCB	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	1.18
PCB	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A
PCB	LTE Band 7	2502.5 - 2567.5 MHz	0.91
PCB	LTE Band 41	2498.5 - 2687.5 MHz	1.07
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.59
NII	U-NII-1	5180 - 5240 MHz	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.86
NII	U-NII-2C	5500 - 5720 MHz	1.01
NII	U-NII-3	5745 - 5825 MHz	1.18
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.50
Simultaneous SAR per KDB 690783 D01v01r03:			1.59

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.7 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

Randy Ortanez
President

ACCREDITED
TESTING CERT#2041.01

The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfai.info.

T A B L E O F C O N T E N T S

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
CDMA/EVDO BC10 (§90S)	Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Data	1851.25 - 1908.75 MHz
LTE Band 12	Data	699.7 - 715.3 MHz
LTE Band 13	Data	779.5 - 784.5 MHz
LTE Band 26 (Cell)	Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Data	824.7 - 848.3 MHz
LTE Band 4 (AWS)	Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Data	1850.7 - 1909.3 MHz
LTE Band 7	Data	2502.5 - 2567.5 MHz
LTE Band 41	Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Data	2412 - 2462 MHz
U-NII-1	Data	5180 - 5240 MHz
U-NII-2A	Data	5260 - 5320 MHz
U-NII-2C	Data	5500 - 5720 MHz
U-NII-3	Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
ANT+	Data	2402 - 2480 MHz

1.2 Power Reduction for SAR

This device uses a power reduction mechanism for SAR compliance. The power reduction mechanism is activated when the device is used in close proximity to the user's body. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device. Detailed descriptions of the power reduction mechanism are included in the operational description.

1.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06.

1.3.1 Maximum PCB Output Power

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**25.0**
	Nominal	**24.0**
CDMA/EVDO BC0 (§22H)	Maximum	**25.5**
	Nominal	**24.5**
PCS CDMA/EVDO	Maximum	**25.5**
	Nominal	**24.5**

Mode / Band		Modulated Average (dBm)
LTE Band 12	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 13	Maximum	**24.5**
	Nominal	**23.5**
LTE Band 26 (Cell)	Maximum	**24.5**
	Nominal	**23.5**
LTE Band 5 (Cell)	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 4 (AWS)	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 25 (PCS)	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 2 (PCS)	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 7	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 41 PC3	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 41 PC2	Maximum	**28.0**
	Nominal	**27.0**

1.3.2 Reduced PCB Output Power

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**14.0**
	Nominal	**13.0**
CDMA/EVDO BC0 (§22H)	Maximum	**16.0**
	Nominal	**15.0**
PCS CDMA/EVDO	Maximum	**14.0**
	Nominal	**13.0**

Mode / Band		Modulated Average (dBm)
LTE Band 12	Maximum	**14.0**
	Nominal	**13.0**
LTE Band 13	Maximum	**14.0**
	Nominal	**13.0**
LTE Band 26 (Cell)	Maximum	**14.0**
	Nominal	**13.0**
LTE Band 5 (Cell)	Maximum	**16.0**
	Nominal	**15.0**
LTE Band 4 (AWS)	Maximum	**13.0**
	Nominal	**12.0**
LTE Band 25 (PCS)	Maximum	**14.0**
	Nominal	**13.0**
LTE Band 2 (PCS)	Maximum	**13.5**
	Nominal	**12.5**
LTE Band 7	Maximum	**13.0**
	Nominal	**12.0**
LTE Band 41 PC3	Maximum	**15.0**
	Nominal	**14.0**
LTE Band 41 PC2	Maximum	**15.0**
	Nominal	**14.0**

1.3.3 Maximum WLAN and Bluetooth Output Power

Mode / Band		Modulated Average - Single Tx Chain (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	**14.0**
	Nominal	**13.0**
IEEE 802.11g (2.4 GHz)	Maximum	**14.0**
	Nominal	**13.0**
IEEE 802.11n (2.4 GHz)	Maximum	**14.0**
	Nominal	**13.0**

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**14.0**		
	Nominal	**13.0**		
IEEE 802.11n (5 GHz)	Maximum	**14.0**	**14.0**	
	Nominal	**13.0**	**13.0**	
IEEE 802.11ac (5 GHz)	Maximum	**13.0**	**13.0**	**13.0**
	Nominal	**12.0**	**12.0**	**12.0**

Mode / Band		Modulated Average - MIMO (dBm)
IEEE 802.11n (2.4 GHz)	Maximum	**17.0**
	Nominal	**16.0**
IEEE 802.11g (2.4 GHz)	Maximum	**17.0**
	Nominal	**16.0**

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**17.0**		
	Nominal	**16.0**		
IEEE 802.11n (5 GHz)	Maximum	**17.0**	**17.0**	
	Nominal	**16.0**	**16.0**	
IEEE 802.11ac (5 GHz)	Maximum	**16.0**	**16.0**	**16.0**
	Nominal	**15.0**	**15.0**	**15.0**

Mode / Band		Modulated Average - Single Tx Chain (dBm)
Bluetooth	Maximum	**9.5**
	Nominal	**8.5**
Bluetooth LE	Maximum	**2.6**
	Nominal	**1.6**

1.3.4 Reduced WLAN Output Power

Mode / Band		Modulated Average - Single Tx Chain (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	**13.0**
	Nominal	**12.0**
IEEE 802.11g (2.4 GHz)	Maximum	**13.0**
	Nominal	**12.0**
IEEE 802.11n (2.4 GHz)	Maximum	**13.0**
	Nominal	**12.0**

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**10.0**		
	Nominal	**9.0**		
IEEE 802.11n (5 GHz)	Maximum	**10.0**	**10.0**	
	Nominal	**9.0**	**9.0**	
IEEE 802.11ac (5 GHz)	Maximum	**10.0**	**10.0**	**10.0**
	Nominal	**9.0**	**9.0**	**9.0**

Mode / Band		Modulated Average - MIMO (dBm)
IEEE 802.11n (2.4 GHz)	Maximum	**16.0**
	Nominal	**15.0**
IEEE 802.11g (2.4 GHz)	Maximum	**16.0**
	Nominal	**15.0**

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	**13.0**		
	Nominal	**12.0**		
IEEE 802.11n (5 GHz)	Maximum	**13.0**	**13.0**	
	Nominal	**12.0**	**12.0**	
IEEE 802.11ac (5 GHz)	Maximum	**13.0**	**13.0**	**13.0**
	Nominal	**12.0**	**12.0**	**12.0**

1.4 DUT Antenna Locations

The overall diagonal dimension of the device is > 200 mm. A diagram showing the location of the device antennas can be found in Appendix F. Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC filings.

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Top	Bottom	Right	Left
EVDO BC10 (§90S)	Yes	Yes	No	Yes	Yes
EVDO BC0 (§22H)	Yes	Yes	No	Yes	Yes
PCS EVDO	Yes	Yes	No	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes
LTE Band 13	Yes	Yes	No	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes
LTE Band 5 (Cell)	Yes	Yes	No	Yes	Yes
LTE Band 4 (AWS)	Yes	Yes	No	Yes	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	Yes
LTE Band 7	Yes	Yes	No	Yes	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	Yes	No
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	Yes	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	Yes	No
5 GHz WLAN Ant 2	Yes	Yes	Yes	Yes	Yes
Bluetooth	Yes	Yes	Yes	Yes	No

Note: Per FCC KDB Publication 616217 D04v01r01, particular edges were not required to be evaluated for SAR based on the SAR exclusion threshold in KDB 447498 D01V06. Additional edges may have been evaluated for simultaneous transmission analysis.

1.5 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 4.3.2 procedures.

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Body
1	LTE + 2.4 GHz WI-FI	Yes
2	LTE + 5 GHz WI-FI	Yes
3	LTE + 2.4 GHz Bluetooth	Yes
4	LTE + 2.4 GHz WI-FI MIMO	Yes
5	LTE + 5 GHz WI-FI MIMO	Yes
6	LTE + 2.4 GHz WI-FI Ant 1 + 5 GHz WI-FI Ant 2	Yes
7	CDMA/EVDO data + 2.4 GHz WI-FI	Yes
8	CDMA/EVDO data + 5 GHz WI-FI	Yes
9	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes
10	CDMA/EVDO data + 2.4 GHz WI-FI MIMO	Yes
11	CDMA/EVDO data + 5 GHz WI-FI MIMO	Yes
12	CDMA/EVDO data + 2.4 GHz WI-FI Ant 1 + 5 GHz WI-FI Ant 2	Yes

1. All licensed modes share the same antenna path and cannot transmit simultaneously.
2. This device supports 2x2 MIMO Tx for WLAN 802.11n/ac. 802.11a/g/n/ac supports CDD and STBC and 802.11n/ac additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.

1.6 Miscellaneous SAR Test Considerations

(A) WIFI/BT

Since U-NII-1 and U-NII-2A bands have the same maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg, SAR is not required for U-NII-1 band according to FCC KDB Publication 248227 D01v02r02.

This device supports IEEE 802.11ac with the following features:
a) Up to 80 MHz Bandwidth only
b) No aggregate channel configurations
c) 2 Tx antenna output
d) 256 QAM is supported
e) TDWR and Band gap channels are supported

(B) Licensed Transmitter(s)

LTE SAR for the higher modulations and lower bandwidths were not tested since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth; and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02r04.

This device supports LTE Carrier Aggregation (CA) in the downlink. All uplink communications are identical to Release 8 specifications. Per FCC KDB Publication 941225 D05A v01r02, SAR for LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive. The downlink carrier aggregation exclusion analysis can be found in Appendix H.

This device supports downlink 4x4 MIMO operations for some LTE Bands. Per May 2017 TCB Workshop Guidance, SAR for downlink 4x4 MIMO was not needed since the maximum average output power in 4x4 downlink MIMO mode was not > 0.25 dB higher than the maximum output power with downlink 4x4 MIMO inactive.

This device supports LTE capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE Band falls completely within an LTE band with a larger transmission frequency range, both LTE bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both LTE bands share the same transmission path and signal characteristics, SAR was only assessed for the band with the larger transmission frequency range.

This device supports both Power Class 2 (PC2) and Power Class 3 (PC3) for LTE Band 41. Per May 2017 TCB Workshop Notes, SAR tests were performed with Power Class 3 (given the specific UL/DL limitations for Power Class 2). Additionally, SAR testing for the power class condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 13.1).

This device supports LTE Carrier Aggregation (CA) for LTE Band 41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

1.7 Guidance Applied

- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (3G/4G)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 616217 D04v01r02 (Tablet)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO, LTE Band 41 Power Class 2/3)
- October 2017 TCB Workshop Notes (ULCA)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

1.8 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 10.

2 LTE INFORMATION

LTE Information

FCC ID	**A3LSMT837P**
Form Factor	Portable Tablet
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)
	LTE Band 13 (779.5 - 784.5 MHz)
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)
	LTE Band 7 (2502.5 - 2567.5 MHz)
	LTE Band 41 (2498.5 - 2687.5 MHz)
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz
	LTE Band 13: 5 MHz, 10 MHz
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz

Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)	841.5 (26965)	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 7: 5 MHz	2502.5 (20775)		2535 (21100)	2567.5 (21425)	
LTE Band 7: 10 MHz	2505 (20800)		2535 (21100)	2565 (21400)	
LTE Band 7: 15 MHz	2507.5 (20825)		2535 (21100)	2562.5 (21375)	
LTE Band 7: 20 MHz	2510 (20850)		2535 (21100)	2560 (21350)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)

UE Category	DL UE Cat 13 (QPSK, 16QAM, 64QAM, 256QAM) UL UE Cat 5 (QPSK, 16QAM, 64QAM)
Modulations Supported in UL	QPSK, 16QAM, 64QAM
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES
A-MPR (Additional MPR) disabled for SAR Testing?	YES
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations
LTE Additional Information	LTE Release 14 Information and this device does not support full CA features on 3GPP Release 14. It supports carrier aggregation and downlink MIMO features as shown in Section 9 and Appendix H. All other uplink communications are identical to the Release 8 specifications. Uplink communications are done on the PCC unless otherwise specified. The following LTE Release 14 Features are not supported: Relay, HetNet, Enhanced eICIC, MDH, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.

3 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

3.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 3-1).

Equation 3-1
SAR Mathematical Equation

$$\boxed{SAR = \frac{d}{dt}\left(\frac{dU}{dm}\right) = \frac{d}{dt}\left(\frac{dU}{\rho dv}\right)}$$

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

where:

σ = conductivity of the tissue-simulating material (S/m)
ρ = mass density of the tissue-simulating material (kg/m^3)
E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

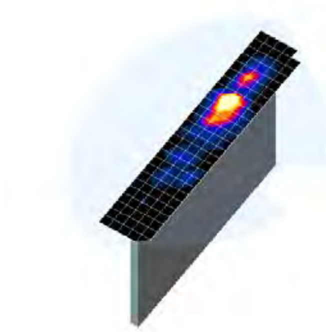


Figure 4-1
Sample SAR Area Scan

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
    a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
    b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
    c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

Table 4-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

Frequency	Maximum Area Scan Resolution (mm) (Δx_{area}, Δy_{area})	Maximum Zoom Scan Resolution (mm) (Δx_{zoom}, Δy_{zoom})	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
			$\Delta z_{zoom}(n)$	$\Delta z_{zoom}(1)$*	$\Delta z_{zoom}(n>1)$*	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 22

*Also compliant to IEEE 1528-2013 Table 6

5 TEST CONFIGURATION POSITIONS

5.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity $\varepsilon = 3$ and loss tangent $\delta = 0.02$.

5.2 SAR Testing for Tablet per KDB Publication 616217 D04v01r02

Per FCC KDB Publication 616217 D04v01r02, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Exclusion Threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

5.3 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close the user's body.

When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Appendix G.

The sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the sensor entirely covers the antennas.

6 RF EXPOSURE LIMITS

6.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

6.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 6-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

7 FCC MEASUREMENT PROCEDURES

Power measurements for licensed transmitters are performed using a base station simulator under digital average power.

7.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

7.2 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01v03r01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is ≤ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is ≤ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

7.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01 "3G SAR Measurement Procedures."

The device is placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test are evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device is tested throughout the SAR test at maximum output power, the SAR measurement system measures a "point SAR" at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviates by more than 5%, the SAR test and drift measurements are repeated.

7.4 SAR Measurement Conditions for CDMA2000

The following procedures were performed according to FCC KDB Publication 941225 D01v03r01 "3G SAR Measurement Procedures."

7.4.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by FCC KDB Publication 941225 D01v03r01 "3G SAR Measurement Procedures." Maximum output power is verified on the High, Middle and Low channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in the "All Up" condition.

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 7-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH_0 and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 7-2 was applied.

Table 7-1
Parameters for Max. Power for RC1

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23 MHz	-104
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Traffic } E_c}{I_{or}}$	dB	-7.4

Table 7-2
Parameters for Max. Power for RC3

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23 MHz	-86
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Traffic } E_c}{I_{or}}$	dB	-7.4

5. FCHs were configured at full rate for maximum SAR with “All Up” power control bits.

7.4.2 Body SAR Measurements for EVDO Body

Body Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. The 3G SAR test reduction procedure is applied to Rev. A, Subtype 2 Physical layer configuration, with Rev. 0 as the primary mode; otherwise, SAR is measured for Rev. A using the highest reported SAR configuration for body-worn accessory exposure in Rev. 0. The AT is tested with a Reverse Data Channel rate of 153.6 kbps in Subtype 0/1 Physical Layer configurations; and a Reverse Data Channel payload size of 4096 bits and Termination Target of 16 slots in Subtype 2 Physical Layer configurations.

For EVDO data devices that also support 1x RTT voice and/or data operations, the 3G SAR test reduction procedure is applied to 1x RTT RC3 and RC1 with EVDO Rev. 0 and Rev. A as the respective primary modes. Otherwise, the ‘Body-Worn Accessory SAR’ procedures in the ‘3GPP2 CDMA 2000 1x Handsets’ section are applied.

7.5 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r04 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

7.5.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

7.5.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

7.5.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

7.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
    i. The required channel and offset combination with the highest maximum output power is required for SAR.
    ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
    iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

7.5.5 TDD

LTE TDD testing is performed using the SAR test guidance provided in FCC KDB 941225 D05v02r04. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05v02r04. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211 Section 4.

7.5.6 Downlink Only Carrier Aggregation

Conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. Additional conducted output powers are measured with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band. Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for downlink only carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive.

7.6 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

7.6.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

7.6.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg.

7.6.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless band gap channels are permanently disabled, SAR must be considered for these channels. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

7.6.4 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is › 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed.

7.6.5 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

7.6.6 Initial Test Configuration Procedure

For OFDM, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order IEEE 802.11 mode. The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 7.6.5).

7.6.7 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required.

7.6.8 MIMO SAR considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

8 RF CONDUCTED POWERS

8.1 CDMA Conducted Powers

Table 8-1
Maximum Conducted Power

Band	Channel	Rule Part	Frequency	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	24.80	24.82	24.65	24.69
Cellular	1013	22H	824.7	24.79	24.79	24.81	24.71
	384	22H	836.52	24.73	24.74	24.75	24.65
	777	22H	848.31	24.27	24.25	24.27	24.23
PCS	25	24E	1851.25	23.98	23.97	24.01	23.85
	600	24E	1880	23.79	23.81	23.77	23.72
	1175	24E	1908.75	24.66	24.65	24.69	24.62

Table 8-2
Reduced Conducted Power

Band	Channel	Rule Part	Frequency	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	13.37	13.39	13.40	13.41
Cellular	1013	22H	824.7	15.28	15.32	15.34	15.33
	384	22H	836.52	15.25	15.27	15.29	15.30
	777	22H	848.31	15.01	15.04	15.03	15.06
PCS	25	24E	1851.25	13.16	13.15	13.16	13.19
	600	24E	1880	12.93	12.94	12.95	12.93
	1175	24E	1908.75	13.86	13.89	13.91	13.96

Note: For FCC Rule Part 90S, Per FCC KDB Publication 447498 D01v06 4.1.g), only one channel is required since the device operates within the transmission range of 817.90 – 823.10 MHz.

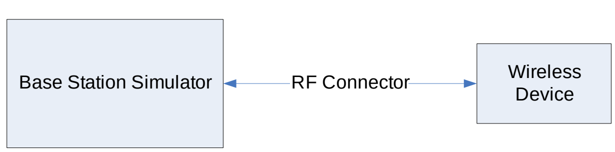


Figure 8-1
Power Measurement Setup

8.2 LTE Conducted Powers

8.2.1 LTE Band 12

Table 8-3
LTE Band 12 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**23.53**	0	0
	1	25	23.35		0
	1	49	23.23		0
	25	0	**22.45**	0-1	1
	25	12	22.43		1
	25	25	22.34		1
	50	0	22.37		1
16QAM	1	0	22.57	0-1	1
	1	25	22.43		1
	1	49	22.35		1
	25	0	21.43	0-2	2
	25	12	21.40		2
	25	25	21.29		2
	50	0	21.40		2
64QAM	1	0	21.57	0-2	2
	1	25	21.49		2
	1	49	21.37		2
	25	0	20.48	0-3	3
	25	12	20.46		3
	25	25	20.39		3
	50	0	20.44		3

Note: LTE Band 12 at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-4
LTE Band 12 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.48	23.49	23.50	0	0
	1	12	23.40	23.40	23.42		0
	1	24	23.37	23.39	23.41		0
	12	0	22.50	22.50	22.54	0-1	1
	12	6	22.50	22.53	22.56		1
	12	13	22.43	22.47	22.48		1
	25	0	22.40	22.45	22.51		1
16QAM	1	0	22.67	22.79	22.72	0-1	1
	1	12	22.60	22.69	22.69		1
	1	24	22.61	22.60	22.62		1
	12	0	21.49	21.48	21.59	0-2	2
	12	6	21.48	21.53	21.57		2
	12	13	21.46	21.48	21.51		2
	25	0	21.45	21.43	21.52		2
64QAM	1	0	21.65	21.63	21.72	0-2	2
	1	12	21.60	21.60	21.62		2
	1	24	21.55	21.55	21.56		2
	12	0	20.54	20.47	20.54	0-3	3
	12	6	20.49	20.55	20.57		3
	12	13	20.45	20.48	20.51		3
	25	0	20.45	20.48	20.51		3

Table 8-5
LTE Band 12 Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.32	23.43	23.44	0	0
	1	7	23.43	23.47	23.50		0
	1	14	23.29	23.35	23.38		0
	8	0	22.33	22.49	22.50	0-1	1
	8	4	22.34	22.45	22.50		1
	8	7	22.31	22.44	22.45		1
	15	0	22.35	22.44	22.47		1
16QAM	1	0	22.58	22.67	22.62	0-1	1
	1	7	22.63	22.76	22.74		1
	1	14	22.50	22.63	22.61		1
	8	0	21.40	21.54	21.55	0-2	2
	8	4	21.44	21.50	21.54		2
	8	7	21.36	21.48	21.52		2
	15	0	21.33	21.42	21.44		2
64QAM	1	0	21.52	21.59	21.64	0-2	2
	1	7	21.55	21.75	21.70		2
	1	14	21.43	21.59	21.54		2
	8	0	20.38	20.49	20.52	0-3	3
	8	4	20.37	20.51	20.52		3
	8	7	20.35	20.47	20.51		3
	15	0	20.36	20.44	20.47		3

Table 8-6
LTE Band 12 Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.27	23.34	23.33	0	0
	1	2	23.28	23.38	23.40		0
	1	5	23.22	23.32	23.32		0
	3	0	23.27	23.38	23.35		0
	3	2	23.32	23.40	23.41		0
	3	3	23.26	23.34	23.37		0
	6	0	22.26	22.39	22.38	0-1	1
16QAM	1	0	22.48	22.59	22.60	0-1	1
	1	2	22.51	22.67	22.68		1
	1	5	22.47	22.56	22.56		1
	3	0	22.35	22.46	22.49		1
	3	2	22.43	22.49	22.56		1
	3	3	22.40	22.44	22.49		1
	6	0	21.36	21.45	21.47	0-2	2
64QAM	1	0	21.40	21.51	21.50	0-2	2
	1	2	21.50	21.59	21.54		2
	1	5	21.41	21.48	21.51		2
	3	0	21.37	21.43	21.45		2
	3	2	21.39	21.48	21.50		2
	3	3	21.34	21.44	21.41		2
	6	0	20.28	20.42	20.43	0-3	3

Table 8-7
LTE Band 12 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**12.89**	0	0
	1	25	12.83		0
	1	49	12.78		0
	25	0	**12.96**	0-1	0
	25	12	12.95		0
	25	25	12.92		0
	50	0	12.85		0
16QAM	1	0	13.27	0-1	0
	1	25	13.24		0
	1	49	13.18		0
	25	0	13.01	0-2	0
	25	12	13.00		0
	25	25	12.99		0
	50	0	13.00		0
64QAM	1	0	13.24	0-2	0
	1	25	13.15		0
	1	49	13.05		0
	25	0	13.10	0-3	0
	25	12	13.16		0
	25	25	13.02		0
	50	0	13.09		0

Note: LTE Band 12 at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-8
LTE Band 12 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	12.81	12.84	12.88	0	0
	1	12	12.77	12.75	12.79		0
	1	24	12.72	12.74	12.73		0
	12	0	12.83	12.87	12.86	0-1	0
	12	6	12.84	12.86	12.86		0
	12	13	12.79	12.79	12.83		0
	25	0	12.83	12.81	12.85		0
16QAM	1	0	13.07	13.08	13.15	0-1	0
	1	12	12.98	12.97	13.06		0
	1	24	12.96	12.96	12.97		0
	12	0	12.82	12.82	12.87	0-2	0
	12	6	12.83	12.83	12.88		0
	12	13	12.77	12.81	12.84		0
	25	0	12.80	12.77	12.81		0
64QAM	1	0	13.02	13.03	13.07	0-2	0
	1	12	12.96	12.98	12.98		0
	1	24	12.88	12.89	13.00		0
	12	0	12.81	12.79	12.90	0-3	0
	12	6	12.82	12.85	12.91		0
	12	13	12.76	12.80	12.87		0
	25	0	12.80	12.86	12.86		0

Table 8-9
LTE Band 12 Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	12.73	12.81	12.83	0	0
	1	7	12.79	12.88	12.89		0
	1	14	12.66	12.74	12.75		0
	8	0	12.71	12.81	12.82	0-1	0
	8	4	12.74	12.85	12.84		0
	8	7	12.69	12.83	12.80		0
	15	0	12.73	12.77	12.83		0
16QAM	1	0	12.91	12.99	13.06	0-1	0
	1	7	13.04	13.14	13.15		0
	1	14	12.90	13.00	12.96		0
	8	0	12.73	12.85	12.83	0-2	0
	8	4	12.75	12.85	12.87		0
	8	7	12.70	12.81	12.81		0
	15	0	12.69	12.76	12.78		0
64QAM	1	0	12.88	12.96	13.00	0-2	0
	1	7	12.96	13.08	13.06		0
	1	14	12.85	12.91	12.95		0
	8	0	12.76	12.82	12.87	0-3	0
	8	4	12.73	12.83	12.88		0
	8	7	12.73	12.83	12.83		0
	15	0	12.71	12.81	12.81		0

Table 8-10
LTE Band 12 Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	12.60	12.70	12.71	0	0
	1	2	12.67	12.73	12.80		0
	1	5	12.59	12.70	12.66		0
	3	0	12.62	12.73	12.73		0
	3	2	12.69	12.79	12.74		0
	3	3	12.62	12.71	12.71		0
	6	0	12.67	12.72	12.74	0-1	0
16QAM	1	0	12.89	12.91	12.94	0-1	0
	1	2	12.88	13.03	13.02		0
	1	5	12.80	12.98	12.95		0
	3	0	12.73	12.82	12.81		0
	3	2	12.75	12.88	12.84		0
	3	3	12.70	12.80	12.81		0
	6	0	12.71	12.77	12.79	0-2	0
64QAM	1	0	12.79	12.88	12.90	0-2	0
	1	2	12.88	12.95	12.95		0
	1	5	12.75	12.87	12.83		0
	3	0	12.70	12.77	12.84		0
	3	2	12.80	12.84	12.88		0
	3	3	12.69	12.79	12.82		0
	6	0	12.67	12.77	12.77	0-3	0

8.2.2 LTE Band 13

Table 8-11
LTE Band 13 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**23.78**	0	0
	1	25	23.67		0
	1	49	23.58		0
	25	0	**22.77**	0-1	1
	25	12	22.72		1
	25	25	22.67		1
	50	0	22.72		1
16QAM	1	0	23.06	0-1	1
	1	25	22.88		1
	1	49	22.82		1
	25	0	21.79	0-2	2
	25	12	21.73		2
	25	25	21.62		2
	50	0	21.71		2
64QAM	1	0	21.85	0-2	2
	1	25	21.68		2
	1	49	21.59		2
	25	0	20.68	0-3	3
	25	12	20.67		3
	25	25	20.57		3
	50	0	20.66		3

Table 8-12
LTE Band 13 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.57	0	0
	1	12	23.49		0
	1	24	23.44		0
	12	0	22.52	0-1	1
	12	6	22.53		1
	12	13	22.49		1
	25	0	22.53		1
16QAM	1	0	22.82	0-1	1
	1	12	22.71		1
	1	24	22.69		1
	12	0	21.56	0-2	2
	12	6	21.60		2
	12	13	21.52		2
	25	0	21.51		2
64QAM	1	0	21.82	0-2	2
	1	12	21.62		2
	1	24	21.67		2
	12	0	20.59	0-3	3
	12	6	20.57		3
	12	13	20.51		3
	25	0	20.55		3

Note: LTE Band 13 at 5 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-13
LTE Band 13 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**13.12**	0	0
	1	25	12.96		0
	1	49	12.93		0
	25	0	13.07	0-1	0
	25	12	**13.11**		0
	25	25	13.07		0
	50	0	13.10		0
16QAM	1	0	13.28	0-1	0
	1	25	13.20		0
	1	49	13.10		0
	25	0	13.12	0-2	0
	25	12	13.14		0
	25	25	13.11		0
	50	0	13.15		0
64QAM	1	0	13.37	0-2	0
	1	25	13.25		0
	1	49	13.12		0
	25	0	13.20	0-3	0
	25	12	13.21		0
	25	25	13.15		0
	50	0	13.17		0

Table 8-14
LTE Band 13 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	13.02	0	0
	1	12	12.97		0
	1	24	12.91		0
	12	0	12.97	0-1	0
	12	6	13.01		0
	12	13	12.93		0
	25	0	13.00		0
16QAM	1	0	13.21	0-1	0
	1	12	13.17		0
	1	24	13.09		0
	12	0	13.10	0-2	0
	12	6	13.03		0
	12	13	12.98		0
	25	0	12.98		0
64QAM	1	0	13.18	0-2	0
	1	12	13.09		0
	1	24	13.08		0
	12	0	13.01	0-3	0
	12	6	13.05		0
	12	13	12.98		0
	25	0	12.99		0

Note: LTE Band 13 at 5 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

8.2.3 LTE Band 26 (Cell)

Table 8-15
LTE Band 26 (Cell) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**23.76**	0	0
	1	36	23.73		0
	1	74	23.57		0
	36	0	22.78	0-1	1
	36	18	**22.79**		1
	36	37	22.70		1
	75	0	22.71		1
16QAM	1	0	23.01	0-1	1
	1	36	22.88		1
	1	74	22.89		1
	36	0	21.77	0-2	2
	36	18	21.75		2
	36	37	21.66		2
	75	0	21.71		2
64QAM	1	0	21.92	0-2	2
	1	36	21.78		2
	1	74	21.64		2
	36	0	20.82	0-3	3
	36	18	20.77		3
	36	37	20.66		3
	75	0	20.75		3

Note: LTE Band 26 (Cell) at 15 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-16
LTE Band 26 (Cell) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.85	23.69	23.55	0	0
	1	25	23.80	23.62	23.45		0
	1	49	23.78	23.58	23.39		0
	25	0	22.85	22.72	22.57	0-1	1
	25	12	22.87	22.68	22.54		1
	25	25	22.84	22.66	22.49		1
	50	0	22.82	22.72	22.55		1
16QAM	1	0	23.09	23.07	22.94	0-1	1
	1	25	23.00	23.03	22.90		1
	1	49	22.99	23.00	22.83		1
	25	0	21.86	21.71	21.60	0-2	2
	25	12	21.89	21.69	21.57		2
	25	25	21.86	21.68	21.52		2
	50	0	21.89	21.63	21.52		2
64QAM	1	0	22.11	22.21	22.05	0-2	2
	1	25	22.03	22.15	22.01		2
	1	49	22.00	22.11	21.95		2
	25	0	20.82	20.70	20.55	0-3	3
	25	12	20.79	20.73	20.56		3
	25	25	20.77	20.69	20.53		3
	50	0	20.87	20.74	20.56		3

Table 8-17
LTE Band 26 (Cell) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26715 (816.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.84	23.71	23.50	0	0
	1	12	23.83	23.66	23.47		0
	1	24	23.82	23.67	23.44		0
	12	0	22.86	22.71	22.55	0-1	1
	12	6	22.91	22.74	22.55		1
	12	13	22.84	22.67	22.47		1
	25	0	22.87	22.69	22.51		1
16QAM	1	0	22.94	22.77	22.58	0-1	1
	1	12	22.84	22.68	22.49		1
	1	24	22.90	22.70	22.52		1
	12	0	21.82	21.65	21.47	0-2	2
	12	6	21.85	21.65	21.48		2
	12	13	21.81	21.64	21.44		2
	25	0	21.92	21.77	21.57		2
64QAM	1	0	22.35	22.17	22.01	0-2	2
	1	12	22.34	22.15	21.97		2
	1	24	22.35	22.16	21.98		2
	12	0	20.97	20.82	20.63	0-3	3
	12	6	20.98	20.80	20.62		3
	12	13	20.96	20.79	20.56		3
	25	0	20.90	20.71	20.54		3

Table 8-18
LTE Band 26 (Cell) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26705 (815.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27025 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.78	23.60	23.48	0	0
	1	7	23.88	23.69	23.57		0
	1	14	23.79	23.54	23.45		0
	8	0	22.80	22.65	22.51	0-1	1
	8	4	22.84	22.70	22.52		1
	8	7	22.79	22.69	22.47		1
	15	0	22.82	22.68	22.50		1
16QAM	1	0	23.01	23.09	22.69	0-1	1
	1	7	23.09	23.10	22.76		1
	1	14	23.03	23.05	22.66		1
	8	0	21.83	21.61	21.46	0-2	2
	8	4	21.79	21.63	21.48		2
	8	7	21.79	21.61	21.47		2
	15	0	21.74	21.65	21.41		2
64QAM	1	0	22.00	22.13	21.68	0-2	2
	1	7	22.13	22.23	21.79		2
	1	14	22.04	22.12	21.68		2
	8	0	20.73	20.42	20.42	0-3	3
	8	4	20.75	20.46	20.43		3
	8	7	20.73	20.39	20.39		3
	15	0	20.74	20.43	20.42		3

Table 8-19
LTE Band 26 (Cell) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26697 (814.7 MHz)	26865 (831.5 MHz)	27033 (848.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.84	23.61	23.34	0	0
	1	2	23.77	23.67	23.39		0
	1	5	23.81	23.60	23.31		0
	3	0	23.79	23.62	23.42		0
	3	2	23.83	23.65	23.46		0
	3	3	23.78	23.60	23.43		0
	6	0	22.81	22.63	22.40	0-1	1
16QAM	1	0	23.04	22.85	22.77	0-1	1
	1	2	23.08	22.91	22.83		1
	1	5	23.03	22.85	22.73		1
	3	0	23.00	22.83	22.60		1
	3	2	23.04	22.86	22.63		1
	3	3	23.01	22.82	22.59		1
	6	0	21.67	21.50	21.35	0-2	2
64QAM	1	0	22.03	21.85	21.87	0-2	2
	1	2	22.09	21.94	21.94		2
	1	5	22.03	21.85	21.87		2
	3	0	21.75	21.57	21.24		2
	3	2	21.79	21.61	21.27		2
	3	3	21.73	21.56	21.21		2
	6	0	20.81	20.66	20.41	0-3	3

Table 8-20
LTE Band 26 (Cell) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	**13.12**	0	0
	1	36	13.03		0
	1	74	12.92		0
	36	0	13.16	0-1	0
	36	18	**13.17**		0
	36	37	13.06		0
	75	0	13.10		0
16QAM	1	0	13.39	0-1	0
	1	36	13.38		0
	1	74	13.26		0
	36	0	13.17	0-2	0
	36	18	13.16		0
	36	37	13.10		0
	75	0	13.08		0
64QAM	1	0	13.31	0-2	0
	1	36	13.26		0
	1	74	13.07		0
	36	0	13.20	0-3	0
	36	18	13.24		0
	36	37	13.09		0
	75	0	13.14		0

Note: LTE Band 26 (Cell) at 15 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-21
LTE Band 26 (Cell) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	13.14	13.01	12.89	0	0
	1	25	13.04	12.93	12.79		0
	1	49	12.96	12.83	12.70		0
	25	0	13.12	13.03	12.87	0-1	0
	25	12	13.11	13.04	12.88		0
	25	25	13.07	12.93	12.81		0
	50	0	13.09	12.98	12.85		0
16QAM	1	0	13.32	13.26	13.06	0-1	0
	1	25	13.25	13.11	12.97		0
	1	49	13.16	13.09	12.87		0
	25	0	13.12	12.98	12.85	0-2	0
	25	12	13.14	12.97	12.84		0
	25	25	13.04	12.89	12.71		0
	50	0	13.10	12.97	12.84		0
64QAM	1	0	13.29	13.16	13.03	0-2	0
	1	25	13.22	13.09	12.91		0
	1	49	13.15	13.01	12.89		0
	25	0	13.11	13.00	12.90	0-3	0
	25	12	13.13	13.01	12.87		0
	25	25	13.05	12.93	12.79		0
	50	0	13.10	13.00	12.86		0

Table 8-22
LTE Band 26 (Cell) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26715 (816.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	13.13	12.97	12.79	0	0
	1	12	13.08	12.89	12.76		0
	1	24	13.05	12.89	12.71		0
	12	0	13.15	12.98	12.81	0-1	0
	12	6	13.14	12.99	12.83		0
	12	13	13.08	12.98	12.77		0
	25	0	13.12	12.97	12.79		0
16QAM	1	0	13.42	13.21	13.05	0-1	0
	1	12	13.32	13.09	12.91		0
	1	24	13.26	13.10	12.95		0
	12	0	13.14	13.00	12.82	0-2	0
	12	6	13.13	13.01	12.83		0
	12	13	13.10	12.91	12.79		0
	25	0	13.10	12.97	12.75		0
64QAM	1	0	13.31	13.16	12.94	0-2	0
	1	12	13.28	13.08	12.91		0
	1	24	13.27	13.04	12.88		0
	12	0	13.14	12.98	12.83	0-3	0
	12	6	13.12	13.01	12.82		0
	12	13	13.09	12.92	12.79		0
	25	0	13.08	12.98	12.80		0

Table 8-23
LTE Band 26 (Cell) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26705 (815.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27025 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	13.09	12.92	12.76	0	0
	1	7	13.19	13.00	12.83		0
	1	14	13.07	12.89	12.71		0
	8	0	13.11	12.97	12.78	0-1	0
	8	4	13.14	12.95	12.78		0
	8	7	13.08	12.91	12.74		0
	15	0	13.10	12.95	12.75		0
16QAM	1	0	13.38	13.06	12.99	0-1	0
	1	7	13.44	13.22	13.07		0
	1	14	13.27	13.11	12.98		0
	8	0	13.14	12.96	12.78	0-2	0
	8	4	13.18	12.97	12.82		0
	8	7	13.13	12.93	12.80		0
	15	0	13.09	12.91	12.75		0
64QAM	1	0	13.28	13.06	12.89	0-2	0
	1	7	13.33	13.17	13.02		0
	1	14	13.21	13.07	12.83		0
	8	0	13.12	12.97	12.79	0-3	0
	8	4	13.14	12.95	12.79		0
	8	7	13.10	12.94	12.75		0
	15	0	13.07	12.94	12.76		0

Table 8-24
LTE Band 26 (Cell) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26697 (814.7 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27033 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	13.03	12.82	12.67	0	0
	1	2	13.11	12.88	12.71		0
	1	5	12.99	12.81	12.63		0
	3	0	13.02	12.84	12.67		0
	3	2	13.08	12.89	12.73		0
	3	3	13.05	12.84	12.66		0
	6	0	13.05	12.88	12.69	0-1	0
16QAM	1	0	13.32	12.99	12.85	0-1	0
	1	2	13.34	13.09	12.98		0
	1	5	13.30	13.00	12.83		0
	3	0	13.09	12.98	12.77		0
	3	2	13.15	13.01	12.79		0
	3	3	13.14	12.97	12.76		0
	6	0	13.07	12.89	12.74	0-2	0
64QAM	1	0	13.19	12.96	12.85	0-2	0
	1	2	13.25	13.03	12.85		0
	1	5	13.14	12.98	12.82		0
	3	0	13.11	12.91	12.76		0
	3	2	13.14	12.98	12.75		0
	3	3	13.10	12.95	12.73		0
	6	0	13.03	12.84	12.67	0-3	0

8.2.4 LTE Band 5 (Cell)

Table 8-25
LTE Band 5 (Cell) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**23.96**	0	0
	1	25	23.63		0
	1	49	23.54		0
	25	0	**22.75**	0-1	1
	25	12	22.74		1
	25	25	22.66		1
	50	0	22.71		1
16QAM	1	0	22.96	0-1	1
	1	25	22.88		1
	1	49	22.82		1
	25	0	21.71	0-2	2
	25	12	21.74		2
	25	25	21.62		2
	50	0	21.72		2
64QAM	1	0	21.91	0-2	2
	1	25	21.83		2
	1	49	21.73		2
	25	0	20.85	0-3	3
	25	12	20.81		3
	25	25	20.75		3
	50	0	20.83		3

Note: LTE Band 5 (Cell) at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-26
LTE Band 5 (Cell) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20425 (826.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20625 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.29	23.97	23.95	0	0
	1	12	24.23	23.93	23.89		0
	1	24	24.21	23.93	23.89		0
	12	0	23.26	23.12	23.00	0-1	1
	12	6	23.27	23.10	22.96		1
	12	13	23.23	23.06	22.91		1
	25	0	23.24	23.10	22.97		1
16QAM	1	0	23.66	23.45	23.33	0-1	1
	1	12	23.59	23.41	23.28		1
	1	24	23.58	23.37	23.26		1
	12	0	22.30	22.14	22.03	0-2	2
	12	6	22.30	22.16	22.02		2
	12	13	22.26	22.11	22.00		2
	25	0	22.24	22.11	22.02		2
64QAM	1	0	22.02	21.96	21.86	0-2	2
	1	12	21.98	21.97	21.83		2
	1	24	21.90	21.85	21.78		2
	12	0	20.91	20.84	20.68	0-3	3
	12	6	20.89	20.86	20.71		3
	12	13	20.84	20.79	20.67		3
	25	0	20.84	20.79	20.68		3

Table 8-27
LTE Band 5 (Cell) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20415 (825.5 MHz)	20525 (836.5 MHz)	20635 (847.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.15	24.01	23.82	0	0
	1	7	24.21	24.10	23.91		0
	1	14	24.09	23.98	23.79		0
	8	0	23.26	23.09	22.94	0-1	1
	8	4	23.24	23.04	22.97		1
	8	7	23.23	23.04	22.92		1
	15	0	23.24	23.08	22.92		1
16QAM	1	0	23.36	23.13	23.18	0-1	1
	1	7	23.42	23.22	23.30		1
	1	14	23.28	23.05	23.14		1
	8	0	22.31	21.96	21.88	0-2	2
	8	4	22.29	21.96	21.88		2
	8	7	22.25	21.93	21.84		2
	15	0	22.19	22.05	21.92		2
64QAM	1	0	21.98	21.98	21.80	0-2	2
	1	7	22.08	22.01	21.87		2
	1	14	21.87	21.86	21.73		2
	8	0	20.86	20.82	20.65	0-3	3
	8	4	20.85	20.83	20.67		3
	8	7	20.82	20.81	20.64		3
	15	0	20.86	20.76	20.63		3

Table 8-28
LTE Band 5 (Cell) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20407 (824.7 MHz)	20525 (836.5 MHz)	20643 (848.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.21	23.86	23.74	0	0
	1	2	24.29	23.92	23.80		0
	1	5	24.23	23.85	23.74		0
	3	0	24.15	23.95	23.79		0
	3	2	24.15	24.01	23.86		0
	3	3	24.14	23.95	23.80		0
	6	0	23.14	23.02	22.81	0-1	1
16QAM	1	0	23.06	23.06	22.83	0-1	1
	1	2	23.11	23.14	22.89		1
	1	5	23.07	23.08	22.83		1
	3	0	23.16	22.93	22.95		1
	3	2	23.20	23.02	23.00		1
	3	3	23.16	22.99	22.92		1
	6	0	22.25	21.97	21.80	0-2	2
64QAM	1	0	21.86	21.83	21.66	0-2	2
	1	2	21.94	21.97	21.79		2
	1	5	21.86	21.83	21.68		2
	3	0	21.79	21.77	21.62		2
	3	2	21.83	21.84	21.65		2
	3	3	21.81	21.78	21.58		2
	6	0	20.75	20.71	20.56	0-3	3

Table 8-29
LTE Band 5 (Cell) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**15.10**	0	0
	1	25	15.06		0
	1	49	14.93		0
	25	0	**15.13**	0-1	0
	25	12	15.12		0
	25	25	15.03		0
	50	0	15.06		0
16QAM	1	0	15.20	0-1	0
	1	25	15.14		0
	1	49	15.03		0
	25	0	15.12	0-2	0
	25	12	15.13		0
	25	25	15.04		0
	50	0	15.12		0
64QAM	1	0	15.24	0-2	0
	1	25	15.18		0
	1	49	15.16		0
	25	0	15.16	0-3	0
	25	12	15.21		0
	25	25	15.11		0
	50	0	15.13		0

Note: LTE Band 5 (Cell) at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-30
LTE Band 5 (Cell) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20425 (826.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20625 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	14.98	15.00	14.84	0	0
	1	12	14.92	14.95	14.81		0
	1	24	14.91	14.84	14.80		0
	12	0	15.00	15.01	14.89	0-1	0
	12	6	15.02	15.01	14.91		0
	12	13	14.93	14.97	14.84		0
	25	0	15.00	14.96	14.85		0
16QAM	1	0	15.23	15.28	15.09	0-1	0
	1	12	15.17	15.21	15.07		0
	1	24	15.18	15.18	15.05		0
	12	0	15.05	15.04	14.95	0-2	0
	12	6	15.05	15.05	14.92		0
	12	13	14.99	15.02	14.88		0
	25	0	14.96	15.00	14.83		0
64QAM	1	0	15.22	15.22	15.09	0-2	0
	1	12	15.13	15.16	14.97		0
	1	24	15.14	15.12	14.97		0
	12	0	15.03	15.03	14.92	0-3	0
	12	6	15.02	15.04	14.91		0
	12	13	15.01	14.99	14.87		0
	25	0	15.02	14.99	14.88		0

Table 8-31
LTE Band 5 (Cell) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20415 (825.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20635 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	15.02	14.94	14.82	0	0
	1	7	15.08	15.04	14.91		0
	1	14	14.87	14.93	14.81		0
	8	0	14.96	14.97	14.82	0-1	0
	8	4	15.02	14.97	14.87		0
	8	7	14.93	14.92	14.81		0
	15	0	14.98	14.94	14.80		0
16QAM	1	0	15.24	15.15	15.06	0-1	0
	1	7	15.32	15.27	15.13		0
	1	14	15.22	15.17	15.04		0
	8	0	15.00	15.04	14.90	0-2	0
	8	4	15.07	15.02	14.91		0
	8	7	14.98	14.98	14.87		0
	15	0	14.98	14.95	14.82		0
64QAM	1	0	15.19	15.17	15.02	0-2	0
	1	7	15.28	15.23	15.12		0
	1	14	15.13	15.13	14.98		0
	8	0	15.04	14.97	14.85	0-3	0
	8	4	15.01	15.03	14.88		0
	8	7	15.01	14.96	14.81		0
	15	0	14.98	14.95	14.83		0

Table 8-32
LTE Band 5 (Cell) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20407 (824.7 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20643 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	14.91	14.87	14.69	0	0
	1	2	14.96	14.90	14.80		0
	1	5	14.90	14.83	14.70		0
	3	0	14.91	14.87	14.73		0
	3	2	14.98	14.94	14.80		0
	3	3	14.92	14.87	14.75		0
	6	0	14.92	14.89	14.76	0-1	0
16QAM	1	0	15.14	15.09	15.03	0-1	0
	1	2	15.20	15.22	15.03		0
	1	5	15.06	15.08	14.94		0
	3	0	15.02	14.99	14.89		0
	3	2	15.06	15.07	14.91		0
	3	3	14.98	15.02	14.85		0
	6	0	14.97	14.94	14.82	0-2	0
64QAM	1	0	15.10	15.09	14.92	0-2	0
	1	2	15.15	15.11	14.93		0
	1	5	15.06	15.05	14.92		0
	3	0	15.03	14.97	14.85		0
	3	2	15.09	15.05	14.88		0
	3	3	15.00	14.95	14.82		0
	6	0	14.97	14.91	14.75	0-3	0

8.2.5 LTE Band 4 (AWS)

Table 8-33
LTE Band 4 (AWS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 4 (AWS) 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20175 (1732.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.06**	0	0
	1	50	23.81		0
	1	99	23.74		0
	50	0	**23.01**	0-1	1
	50	25	22.92		1
	50	50	22.89		1
	100	0	22.94		1
16QAM	1	0	23.28	0-1	1
	1	50	23.05		1
	1	99	23.01		1
	50	0	21.98	0-2	2
	50	25	21.91		2
	50	50	21.87		2
	100	0	21.94		2
64QAM	1	0	22.10	0-2	2
	1	50	21.91		2
	1	99	21.89		2
	50	0	20.96	0-3	3
	50	25	20.90		3
	50	50	20.87		3
	100	0	20.90		3

Note: LTE Band 4 (AWS) at 20 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-34
LTE Band 4 (AWS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 4 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20025 (1717.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20325 (1747.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.06	23.98	24.13	0	0
	1	36	23.94	23.78	23.92		0
	1	74	23.95	23.79	23.97		0
	36	0	22.82	22.91	22.94	0-1	1
	36	18	22.97	22.85	22.99		1
	36	37	22.99	22.80	23.03		1
	75	0	23.04	22.88	23.06		1
16QAM	1	0	23.18	23.26	23.35	0-1	1
	1	36	23.16	23.06	23.17		1
	1	74	23.18	23.05	23.30		1
	36	0	21.79	21.90	22.02	0-2	2
	36	18	21.98	21.89	22.05		2
	36	37	22.01	21.84	22.05		2
	75	0	22.05	21.88	22.08		2
64QAM	1	0	22.21	22.17	22.35	0-2	2
	1	36	22.11	21.97	22.18		2
	1	74	22.17	21.99	22.20		2
	36	0	20.93	20.93	21.16	0-3	3
	36	18	21.06	20.88	21.11		3
	36	37	21.01	20.82	21.07		3
	75	0	21.03	20.86	21.12		3

Table 8-35
LTE Band 4 (AWS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 4 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20000 (1715.0 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20350 (1750.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.02	23.91	24.08	0	0
	1	25	23.87	23.77	24.12		0
	1	49	23.96	23.78	24.10		0
	25	0	22.77	22.90	23.09	0-1	1
	25	12	22.79	22.86	23.15		1
	25	25	22.86	22.81	23.11		1
	50	0	22.64	22.83	23.16		1
16QAM	1	0	23.25	23.15	23.35	0-1	1
	1	25	23.00	22.96	23.28		1
	1	49	23.15	23.00	23.31		1
	25	0	21.74	21.89	22.15	0-2	2
	25	12	21.79	21.86	22.17		2
	25	25	21.88	21.79	22.12		2
	50	0	21.72	21.87	22.18		2
64QAM	1	0	22.20	22.03	22.38	0-2	2
	1	25	22.09	21.95	22.27		2
	1	49	22.11	21.98	22.25		2
	25	0	20.94	20.92	21.21	0-3	3
	25	12	20.94	20.88	21.22		3
	25	25	21.01	20.82	21.14		3
	50	0	20.91	20.88	21.20		3

Table 8-36
LTE Band 4 (AWS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 4 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 19975 (1712.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20375 (1752.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.03	23.83	24.17	0	0
	1	12	23.94	23.78	24.13		0
	1	24	23.79	23.76	24.09		0
	12	0	22.93	22.85	23.16	0-1	1
	12	6	22.87	22.88	23.13		1
	12	13	22.76	22.81	23.08		1
	25	0	22.84	22.86	23.14		1
16QAM	1	0	23.29	23.05	23.41	0-1	1
	1	12	23.19	23.08	23.35		1
	1	24	23.07	23.03	23.37		1
	12	0	22.01	21.88	22.20	0-2	2
	12	6	21.95	21.86	22.18		2
	12	13	21.83	21.86	22.15		2
	25	0	21.81	21.81	22.12		2
64QAM	1	0	22.20	22.11	22.33	0-2	2
	1	12	22.18	21.99	22.29		2
	1	24	22.06	21.95	22.32		2
	12	0	21.08	20.88	21.19	0-3	3
	12	6	21.01	20.89	21.18		3
	12	13	20.90	20.81	21.13		3
	25	0	20.91	20.84	21.14		3

Table 8-37
LTE Band 4 (AWS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 4 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 19965 (1711.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20385 (1753.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.98	23.83	24.21	0	0
	1	7	23.94	23.89	24.27		0
	1	14	23.71	23.77	24.20		0
	8	0	23.02	22.84	23.27	0-1	1
	8	4	22.96	22.84	23.26		1
	8	7	22.85	22.83	23.25		1
	15	0	22.80	22.81	23.29		1
16QAM	1	0	23.17	23.07	23.40	0-1	1
	1	7	23.23	23.09	23.51		1
	1	14	23.06	23.03	23.50		1
	8	0	21.99	21.88	22.32	0-2	2
	8	4	21.91	21.89	22.35		2
	8	7	21.77	21.89	22.30		2
	15	0	21.86	21.84	22.26		2
64QAM	1	0	22.16	21.99	22.46	0-2	2
	1	7	22.21	22.10	22.51		2
	1	14	22.06	21.99	22.44		2
	8	0	21.07	20.89	21.33	0-3	3
	8	4	21.03	20.91	21.36		3
	8	7	20.94	20.88	21.30		3
	15	0	21.03	20.86	21.30		3

Table 8-38
LTE Band 4 (AWS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 4 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 19957 (1710.7 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20393 (1754.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.89	23.75	24.15	0	0
	1	2	23.93	23.81	24.21		0
	1	5	23.85	23.74	24.15		0
	3	0	23.87	23.78	24.18		0
	3	2	23.85	23.78	24.22		0
	3	3	23.73	23.79	24.19		0
	6	0	22.90	22.80	23.21	0-1	1
16QAM	1	0	23.10	22.96	23.38	0-1	1
	1	2	23.23	23.13	23.46		1
	1	5	23.04	23.04	23.41		1
	3	0	22.99	22.92	23.27		1
	3	2	23.05	22.93	23.30		1
	3	3	22.90	22.86	23.28		1
	6	0	21.98	21.83	22.29	0-2	2
64QAM	1	0	22.11	21.95	22.37	0-2	2
	1	2	22.20	22.03	22.42		2
	1	5	22.10	21.90	22.36		2
	3	0	21.99	21.88	22.27		2
	3	2	22.06	21.93	22.32		2
	3	3	22.00	21.88	22.28		2
	6	0	20.98	20.80	21.23	0-3	3

Table 8-39
LTE Band 4 (AWS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 4 (AWS) 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20175 (1732.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**12.01**	0	0
	1	50	11.79		0
	1	99	11.75		0
	50	0	**11.95**	0-1	0
	50	25	11.82		0
	50	50	11.77		0
	100	0	11.86		0
16QAM	1	0	12.12	0-1	0
	1	50	12.00		0
	1	99	11.82		0
	50	0	11.92	0-2	0
	50	25	11.86		0
	50	50	11.82		0
	100	0	11.87		0
64QAM	1	0	12.11	0-2	0
	1	50	11.96		0
	1	99	11.95		0
	50	0	11.92	0-3	0
	50	25	11.87		0
	50	50	11.82		0
	100	0	11.85		0

Note: LTE Band 4 (AWS) at 20 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 8-40
LTE Band 4 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 4 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20025 (1717.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20325 (1747.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	12.21	12.04	12.23	0	0
	1	36	12.02	11.82	12.12		0
	1	74	12.03	11.78	12.10		0
	36	0	12.18	11.97	12.27	0-1	0
	36	18	12.11	11.94	12.20		0
	36	37	12.09	11.88	12.15		0
	75	0	12.13	11.94	12.23		0
16QAM	1	0	12.29	12.21	12.42	0-1	0
	1	36	12.18	12.10	12.24		0
	1	74	12.26	12.07	12.36		0
	36	0	12.14	11.97	12.23	0-2	0
	36	18	12.12	11.95	12.21		0
	36	37	12.05	11.93	12.16		0
	75	0	12.09	11.95	12.20		0
64QAM	1	0	12.34	12.23	12.51	0-2	0
	1	36	12.26	12.09	12.36		0
	1	74	12.20	12.12	12.28		0
	36	0	12.13	12.00	12.27	0-3	0
	36	18	12.11	11.93	12.22		0
	36	37	12.10	11.90	12.19		0
	75	0	12.09	11.96	12.20		0

Table 8-41
LTE Band 4 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 4 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20000 (1715.0 MHz)	20175 (1732.5 MHz)	20350 (1750.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	12.14	11.82	12.23	0	0
	1	25	11.99	11.75	12.12		0
	1	49	11.98	11.74	12.13		0
	25	0	12.15	11.88	12.27	0-1	0
	25	12	12.15	11.89	12.23		0
	25	25	12.11	11.83	12.20		0
	50	0	12.05	11.80	12.16		0
16QAM	1	0	12.28	12.12	12.35	0-1	0
	1	25	12.15	11.91	12.27		0
	1	49	12.10	11.91	12.21		0
	25	0	12.05	11.84	12.15	0-2	0
	25	12	12.03	11.88	12.14		0
	25	25	11.96	11.76	12.06		0
	50	0	12.01	11.82	12.12		0
64QAM	1	0	12.25	12.03	12.36	0-2	0
	1	25	12.19	11.97	12.28		0
	1	49	12.14	11.96	12.23		0
	25	0	12.15	11.96	12.28	0-3	0
	25	12	12.11	11.94	12.25		0
	25	25	12.07	11.88	12.21		0
	50	0	12.13	11.91	12.26		0

Table 8-42
LTE Band 4 (AWS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 4 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19975 (1712.5 MHz)	20175 (1732.5 MHz)	20375 (1752.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	12.05	11.78	12.16	0	0
	1	12	11.97	11.73	12.09		0
	1	24	11.98	11.71	12.08		0
	12	0	12.08	11.81	12.16	0-1	0
	12	6	12.05	11.80	12.15		0
	12	13	12.04	11.75	12.14		0
	25	0	12.05	11.77	12.14		0
16QAM	1	0	12.22	12.04	12.36	0-1	0
	1	12	12.11	11.96	12.27		0
	1	24	12.14	11.90	12.14		0
	12	0	12.02	11.85	12.17	0-2	0
	12	6	12.03	11.86	12.15		0
	12	13	12.02	11.81	12.10		0
	25	0	11.99	11.79	12.09		0
64QAM	1	0	12.22	12.02	12.32	0-2	0
	1	12	12.19	11.98	12.29		0
	1	24	12.19	11.93	12.26		0
	12	0	12.09	11.90	12.20	0-3	0
	12	6	12.11	11.89	12.24		0
	12	13	12.05	11.85	12.19		0
	25	0	12.09	11.87	12.21		0

Table 8-43
LTE Band 4 (AWS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 4 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19965 (1711.5 MHz)	20175 (1732.5 MHz)	20385 (1753.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	12.03	11.82	12.25	0	0
	1	7	12.16	11.88	12.36		0
	1	14	12.01	11.74	12.20		0
	8	0	12.08	11.84	12.28	0-1	0
	8	4	12.11	11.81	12.28		0
	8	7	12.08	11.80	12.29		0
	15	0	12.11	11.82	12.25		0
16QAM	1	0	12.21	11.99	12.33	0-1	0
	1	7	12.33	11.97	12.49		0
	1	14	12.19	11.95	12.37		0
	8	0	12.12	11.88	12.31	0-2	0
	8	4	12.12	11.89	12.31		0
	8	7	12.09	11.88	12.29		0
	15	0	12.09	11.85	12.28		0
64QAM	1	0	12.25	11.94	12.40	0-2	0
	1	7	12.29	12.10	12.43		0
	1	14	12.16	11.91	12.34		0
	8	0	12.08	11.87	12.28	0-3	0
	8	4	12.09	11.88	12.32		0
	8	7	12.02	11.85	12.29		0
	15	0	12.07	11.84	12.29		0

Table 8-44
LTE Band 4 (AWS) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 4 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19957 (1710.7 MHz)	20175 (1732.5 MHz)	20393 (1754.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.97	11.67	12.18	0	0
	1	2	12.03	11.75	12.21		0
	1	5	11.97	11.67	12.14		0
	3	0	11.99	11.74	12.17		0
	3	2	12.03	11.76	12.21		0
	3	3	11.98	11.74	12.15		0
	6	0	12.00	11.74	12.18	0-1	0
16QAM	1	0	12.12	11.90	12.40	0-1	0
	1	2	12.14	12.03	12.39		0
	1	5	12.14	11.91	12.35		0
	3	0	12.08	11.94	12.31		0
	3	2	12.17	11.95	12.38		0
	3	3	12.08	11.82	12.27		0
	6	0	12.01	11.82	12.20	0-2	0
64QAM	1	0	12.18	11.88	12.28	0-2	0
	1	2	12.22	11.92	12.41		0
	1	5	12.05	11.91	12.31		0
	3	0	12.04	11.83	12.27		0
	3	2	12.09	11.92	12.31		0
	3	3	12.07	11.83	12.26		0
	6	0	12.00	11.75	12.21	0-3	0

8.2.6 LTE Band 25 (PCS)

Table 8-45
LTE Band 25 (PCS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.12	23.92	**24.41**	0	0
	1	50	23.86	23.72	24.21		0
	1	99	23.78	23.65	24.19		0
	50	0	23.04	22.82	**23.37**	0-1	1
	50	25	22.96	22.77	23.28		1
	50	50	22.90	22.69	23.25		1
	100	0	22.98	22.76	23.32		1
16QAM	1	0	23.33	23.12	23.61	0-1	1
	1	50	23.16	22.96	23.40		1
	1	99	23.06	22.90	23.38		1
	50	0	22.06	21.85	22.34	0-2	2
	50	25	21.96	21.77	22.29		2
	50	50	21.89	21.74	22.21		2
	100	0	21.98	21.79	22.29		2
64QAM	1	0	22.23	22.02	22.59	0-2	2
	1	50	22.10	21.86	22.29		2
	1	99	21.81	21.74	22.39		2
	50	0	21.07	20.88	21.41	0-3	3
	50	25	21.01	20.82	21.27		3
	50	50	20.94	20.75	21.27		3
	100	0	21.00	20.81	21.31		3

Table 8-46
LTE Band 25 (PCS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.10	23.92	24.38	0	0
	1	36	23.94	23.71	24.20		0
	1	74	23.93	23.73	24.18		0
	36	0	23.07	22.80	23.31	0-1	1
	36	18	23.05	22.78	23.28		1
	36	37	22.99	22.74	23.24		1
	75	0	23.01	22.77	23.27		1
16QAM	1	0	23.31	23.14	23.59	0-1	1
	1	36	23.13	22.94	23.38		1
	1	74	23.15	23.03	23.44		1
	36	0	22.08	21.86	22.34	0-2	2
	36	18	22.03	21.79	22.29		2
	36	37	21.97	21.75	22.27		2
	75	0	22.03	21.80	22.31		2
64QAM	1	0	22.36	22.07	22.58	0-2	2
	1	36	22.19	21.94	22.45		2
	1	74	22.15	21.90	22.44		2
	36	0	21.08	20.84	21.34	0-3	3
	36	18	21.04	20.81	21.30		3
	36	37	21.01	20.75	21.26		3
	75	0	21.05	20.81	21.29		3

Table 8-47
LTE Band 25 (PCS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.05	23.80	24.40	0	0
	1	25	23.95	23.71	24.28		0
	1	49	23.93	23.68	24.27		0
	25	0	23.03	22.76	23.37	0-1	1
	25	12	23.00	22.80	23.37		1
	25	25	22.99	22.71	23.31		1
	50	0	23.02	22.77	23.34		1
16QAM	1	0	23.19	23.02	23.56	0-1	1
	1	25	23.19	22.91	23.60		1
	1	49	23.15	22.92	23.43		1
	25	0	22.06	21.77	22.36	0-2	2
	25	12	22.03	21.76	22.37		2
	25	25	21.95	21.74	22.30		2
	50	0	22.02	21.78	22.36		2
64QAM	1	0	22.22	21.97	22.55	0-2	2
	1	25	22.11	21.87	22.48		2
	1	49	22.08	21.92	22.46		2
	25	0	21.07	20.81	21.35	0-3	3
	25	12	21.04	20.79	21.35		3
	25	25	21.02	20.74	21.33		3
	50	0	21.03	20.79	21.35		3

Table 8-48
LTE Band 25 (PCS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.95	23.74	24.30	0	0
	1	12	23.92	23.65	24.26		0
	1	24	23.93	23.70	24.26		0
	12	0	22.98	22.75	23.30	0-1	1
	12	6	23.00	22.74	23.29		1
	12	13	22.96	22.73	23.27		1
	25	0	22.98	22.72	23.27		1
16QAM	1	0	23.22	22.94	23.52	0-1	1
	1	12	23.20	22.94	23.43		1
	1	24	23.12	22.88	23.45		1
	12	0	22.02	21.75	22.32	0-2	2
	12	6	22.02	21.77	22.32		2
	12	13	22.00	21.75	22.30		2
	25	0	21.99	21.73	22.27		2
64QAM	1	0	22.18	21.90	22.47	0-2	2
	1	12	22.13	21.89	22.47		2
	1	24	22.11	21.87	22.40		2
	12	0	21.01	20.72	21.22	0-3	3
	12	6	21.02	20.75	21.22		3
	12	13	21.01	20.79	21.22		3
	25	0	20.99	20.71	21.29		3

Table 8-49
LTE Band 25 (PCS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.91	23.68	24.37	0	0
	1	7	24.02	23.77	24.50		0
	1	14	23.91	23.67	24.29		0
	8	0	22.96	22.69	23.37	0-1	1
	8	4	22.97	22.70	23.38		1
	8	7	22.97	22.70	23.39		1
	15	0	22.93	22.70	23.20		1
16QAM	1	0	23.15	22.92	23.60	0-1	1
	1	7	23.28	22.99	23.69		1
	1	14	23.14	22.90	23.57		1
	8	0	22.00	21.74	22.39	0-2	2
	8	4	22.02	21.77	22.44		2
	8	7	22.00	21.75	22.41		2
	15	0	21.95	21.69	22.36		2
64QAM	1	0	22.09	21.88	22.56	0-2	2
	1	7	22.25	21.92	22.65		2
	1	14	22.12	21.81	22.52		2
	8	0	21.02	20.76	21.23	0-3	3
	8	4	21.02	20.77	21.24		3
	8	7	21.00	20.73	21.21		3
	15	0	20.99	20.71	21.38		3

Table 8-50
LTE Band 25 (PCS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.86	23.60	24.24	0	0
	1	2	23.92	23.69	24.29		0
	1	5	23.86	23.58	24.26		0
	3	0	23.87	23.64	24.28		0
	3	2	23.93	23.66	24.31		0
	3	3	23.91	23.63	24.32		0
	6	0	22.89	22.66	23.30	0-1	1
16QAM	1	0	23.11	22.87	23.54	0-1	1
	1	2	23.17	22.89	23.51		1
	1	5	23.08	22.83	23.46		1
	3	0	22.97	22.70	23.41		1
	3	2	23.05	22.80	23.47		1
	3	3	23.03	22.74	23.38		1
	6	0	21.96	21.72	22.36	0-2	2
64QAM	1	0	22.08	21.80	22.46	0-2	2
	1	2	22.12	21.89	22.52		2
	1	5	22.05	21.79	22.45		2
	3	0	21.97	21.75	22.20		2
	3	2	22.01	21.74	22.23		2
	3	3	21.97	21.73	22.23		2
	6	0	20.92	20.66	21.32	0-3	3

Table 8-51
LTE Band 25 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	13.11	12.88	**13.35**	0	0
	1	50	12.85	12.65	13.16		0
	1	99	12.84	12.65	13.11		0
	50	0	13.06	12.80	**13.32**	0-1	0
	50	25	12.94	12.78	13.26		0
	50	50	12.87	12.73	13.21		0
	100	0	12.98	12.80	13.25		0
16QAM	1	0	13.19	12.98	13.57	0-1	0
	1	50	13.04	12.80	13.35		0
	1	99	13.02	12.77	13.31		0
	50	0	13.04	12.85	13.32	0-2	0
	50	25	12.97	12.74	13.26		0
	50	50	12.88	12.67	13.21		0
	100	0	12.97	12.76	13.28		0
64QAM	1	0	13.18	13.09	13.58	0-2	0
	1	50	13.06	12.81	13.36		0
	1	99	13.14	12.83	12.62		0
	50	0	13.11	12.89	13.35	0-3	0
	50	25	12.96	12.80	13.31		0
	50	50	12.96	12.69	13.23		0
	100	0	12.96	12.78	13.27		0

Table 8-52
LTE Band 25 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	13.09	12.86	13.28	0	0
	1	36	12.92	12.64	13.18		0
	1	74	12.88	12.68	13.13		0
	36	0	13.05	12.81	13.29	0-1	0
	36	18	13.02	12.76	13.24		0
	36	37	12.96	12.74	13.22		0
	75	0	13.01	12.79	13.26		0
16QAM	1	0	13.28	13.08	13.55	0-1	0
	1	36	13.03	12.84	13.37		0
	1	74	13.07	12.81	13.33		0
	36	0	13.03	12.81	13.31	0-2	0
	36	18	13.00	12.78	13.28		0
	36	37	12.96	12.70	13.22		0
	75	0	12.96	12.74	13.27		0
64QAM	1	0	13.29	13.04	13.54	0-2	0
	1	36	13.15	12.91	13.33		0
	1	74	13.12	12.87	13.35		0
	36	0	13.04	12.82	13.29	0-3	0
	36	18	13.03	12.77	13.30		0
	36	37	12.95	12.72	13.21		0
	75	0	13.02	12.79	13.24		0

Table 8-53
LTE Band 25 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	13.00	12.76	13.31	0	0
	1	25	12.90	12.63	13.23		0
	1	49	12.89	12.62	13.19		0
	25	0	12.99	12.74	13.32	0-1	0
	25	12	13.01	12.72	13.32		0
	25	25	12.94	12.67	13.27		0
	50	0	13.00	12.73	13.30		0
16QAM	1	0	13.18	12.90	13.49	0-1	0
	1	25	13.07	12.81	13.34		0
	1	49	13.08	12.89	13.42		0
	25	0	13.01	12.74	13.28	0-2	0
	25	12	12.96	12.75	13.30		0
	25	25	12.92	12.71	13.25		0
	50	0	12.99	12.74	13.31		0
64QAM	1	0	13.19	12.93	13.45	0-2	0
	1	25	13.11	12.78	13.42		0
	1	49	13.06	12.80	13.41		0
	25	0	13.01	12.82	13.34	0-3	0
	25	12	13.03	12.75	13.34		0
	25	25	13.00	12.74	13.28		0
	50	0	13.02	12.77	13.34		0

Table 8-54
LTE Band 25 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	12.94	12.72	13.26	0	0
	1	12	12.91	12.68	13.18		0
	1	24	12.91	12.66	13.14		0
	12	0	12.99	12.71	13.30	0-1	0
	12	6	12.98	12.74	13.28		0
	12	13	12.95	12.70	13.25		0
	25	0	12.99	12.69	13.25		0
16QAM	1	0	13.17	12.83	13.48	0-1	0
	1	12	13.08	12.80	13.36		0
	1	24	13.08	12.82	13.41		0
	12	0	13.06	12.77	13.27	0-2	0
	12	6	12.99	12.74	13.31		0
	12	13	12.97	12.74	13.27		0
	25	0	12.98	12.68	13.24		0
64QAM	1	0	13.16	12.92	13.43	0-2	0
	1	12	13.12	12.85	13.37		0
	1	24	13.13	12.84	13.35		0
	12	0	13.02	12.77	13.24	0-3	0
	12	6	13.02	12.76	13.21		0
	12	13	12.99	12.76	13.23		0
	25	0	13.00	12.73	13.30		0

Table 8-55
LTE Band 25 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	12.94	12.66	13.31	0	0
	1	7	13.02	12.73	13.41		0
	1	14	12.92	12.62	13.24		0
	8	0	12.96	12.69	13.33	0-1	0
	8	4	12.97	12.73	13.33		0
	8	7	12.96	12.67	13.33		0
	15	0	12.98	12.72	13.19		0
16QAM	1	0	13.08	12.94	13.46	0-1	0
	1	7	13.16	12.91	13.49		0
	1	14	13.14	12.80	13.48		0
	8	0	13.02	12.73	13.38	0-2	0
	8	4	13.02	12.75	13.42		0
	8	7	12.99	12.74	13.36		0
	15	0	12.93	12.68	13.34		0
64QAM	1	0	13.03	12.79	13.46	0-2	0
	1	7	13.15	12.89	13.57		0
	1	14	13.04	12.83	13.42		0
	8	0	12.98	12.73	13.20	0-3	0
	8	4	12.99	12.72	13.18		0
	8	7	13.02	12.73	13.19		0
	15	0	12.96	12.74	13.34		0

Table 8-56
LTE Band 25 (PCS) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	12.83	12.60	13.21	0	0
	1	2	12.87	12.65	13.24		0
	1	5	12.82	12.55	13.19		0
	3	0	12.88	12.62	13.24		0
	3	2	12.91	12.62	13.27		0
	3	3	12.87	12.58	13.24		0
	6	0	12.87	12.60	13.26	0-1	0
16QAM	1	0	13.01	12.70	13.48	0-1	0
	1	2	13.07	12.89	13.52		0
	1	5	13.00	12.73	13.40		0
	3	0	13.00	12.74	13.38		0
	3	2	13.03	12.75	13.48		0
	3	3	12.97	12.75	13.35		0
	6	0	12.89	12.65	13.35	0-2	0
64QAM	1	0	12.98	12.82	13.35	0-2	0
	1	2	13.04	12.82	13.47		0
	1	5	12.97	12.76	13.40		0
	3	0	12.92	12.73	13.12		0
	3	2	12.94	12.71	13.17		0
	3	3	12.93	12.69	13.14		0
	6	0	12.91	12.61	13.26	0-3	0

8.2.7 LTE Band 7

Table 8-57
LTE Band 7 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20850 (2510.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21350 (2560.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.56	**24.63**	24.41	0	0
	1	50	24.27	24.39	24.19		0
	1	99	24.11	24.16	24.05		0
	50	0	23.48	**23.58**	23.34	0-1	1
	50	25	23.37	23.45	23.29		1
	50	50	23.23	23.40	23.21		1
	100	0	23.35	23.47	23.26		1
16QAM	1	0	23.76	23.85	23.59	0-1	1
	1	50	23.55	23.54	23.48		1
	1	99	23.36	23.62	23.27		1
	50	0	22.46	22.56	22.36	0-2	2
	50	25	22.34	22.51	22.27		2
	50	50	22.24	22.39	22.21		2
	100	0	22.36	22.50	22.26		2
64QAM	1	0	22.54	22.67	22.36	0-2	2
	1	50	22.33	22.42	22.15		2
	1	99	22.07	22.28	22.01		2
	50	0	21.35	21.42	21.22	0-3	3
	50	25	21.27	21.35	21.01		3
	50	50	21.12	21.29	21.02		3
	100	0	21.22	21.34	21.09		3

Table 8-58
LTE Band 7 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20825 (2507.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21375 (2562.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.35	24.53	24.45	0	0
	1	36	24.16	24.43	24.28		0
	1	74	24.11	24.42	24.24		0
	36	0	23.30	23.53	23.42	0-1	1
	36	18	23.28	23.52	23.38		1
	36	37	23.17	23.47	23.31		1
	75	0	23.25	23.51	23.35		1
16QAM	1	0	23.53	23.74	23.63	0-1	1
	1	36	23.40	23.62	23.54		1
	1	74	23.37	23.63	23.45		1
	36	0	22.32	22.51	22.43	0-2	2
	36	18	22.31	22.52	22.42		2
	36	37	22.26	22.49	22.34		2
	75	0	22.25	22.49	22.38		2
64QAM	1	0	22.54	22.74	22.68	0-2	2
	1	36	22.40	22.64	22.50		2
	1	74	22.30	22.67	22.41		2
	36	0	21.31	21.50	21.45	0-3	3
	36	18	21.30	21.54	21.41		3
	36	37	21.24	21.48	21.31		3
	75	0	21.26	21.50	21.40		3

Table 8-59
LTE Band 7 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20800 (2505.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21400 (2565.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.31	24.49	24.41	0	0
	1	25	24.22	24.48	24.33		0
	1	49	24.15	24.44	24.22		0
	25	0	23.31	23.48	23.37	0-1	1
	25	12	23.29	23.49	23.39		1
	25	25	23.21	23.47	23.26		1
	50	0	23.26	23.46	23.33		1
16QAM	1	0	23.51	23.66	23.57	0-1	1
	1	25	23.40	23.64	23.50		1
	1	49	23.38	23.60	23.44		1
	25	0	22.29	22.46	22.37	0-2	2
	25	12	22.28	22.48	22.35		2
	25	25	22.20	22.46	22.29		2
	50	0	22.26	22.47	22.35		2
64QAM	1	0	22.45	22.62	22.57	0-2	2
	1	25	22.38	22.61	22.44		2
	1	49	22.33	22.64	22.40		2
	25	0	21.34	21.49	21.41	0-3	3
	25	12	21.31	21.54	21.40		3
	25	25	21.22	21.47	21.30		3
	50	0	21.28	21.52	21.37		3

Table 8-60
LTE Band 7 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20775 (2502.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21425 (2567.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.26	24.42	24.30	0	0
	1	12	24.21	24.41	24.25		0
	1	24	24.16	24.40	24.18		0
	12	0	23.27	23.44	23.33	0-1	1
	12	6	23.26	23.47	23.35		1
	12	13	23.23	23.43	23.26		1
	25	0	23.25	23.45	23.29		1
16QAM	1	0	23.49	23.57	23.48	0-1	1
	1	12	23.39	23.63	23.49		1
	1	24	23.36	23.58	23.37		1
	12	0	22.31	22.48	22.34	0-2	2
	12	6	22.33	22.52	22.33		2
	12	13	22.24	22.48	22.32		2
	25	0	22.28	22.43	22.29		2
64QAM	1	0	22.40	22.58	22.48	0-2	2
	1	12	22.42	22.63	22.45		2
	1	24	22.34	22.55	22.36		2
	12	0	21.32	21.48	21.37	0-3	3
	12	6	21.34	21.53	21.34		3
	12	13	21.27	21.46	21.32		3
	25	0	21.27	21.49	21.32		3

Table 8-61
LTE Band 7 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20850 (2510.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21350 (2560.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	12.40	**12.48**	12.25	0	0
	1	50	12.14	12.21	12.07		0
	1	99	11.98	12.15	11.85		0
	50	0	12.30	**12.39**	12.16	0-1	0
	50	25	12.23	12.32	12.04		0
	50	50	12.08	12.24	11.97		0
	100	0	12.19	12.35	12.06		0
16QAM	1	0	12.59	12.69	12.39	0-1	0
	1	50	12.48	12.49	12.20		0
	1	99	12.21	12.37	12.05		0
	50	0	12.28	12.43	12.08	0-2	0
	50	25	12.22	12.38	12.06		0
	50	50	12.10	12.27	11.99		0
	100	0	12.20	12.31	12.05		0
64QAM	1	0	12.37	12.70	12.28	0-2	0
	1	50	12.51	12.43	12.11		0
	1	99	12.11	12.25	12.01		0
	50	0	12.29	12.44	12.11	0-3	0
	50	25	12.23	12.38	12.07		0
	50	50	12.14	12.31	12.03		0
	100	0	12.20	12.38	12.05		0

Table 8-62
LTE Band 7 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20825 (2507.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21375 (2562.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	12.23	12.41	12.32	0	0
	1	36	12.06	12.29	12.20		0
	1	74	12.01	12.27	12.10		0
	36	0	12.17	12.40	12.28	0-1	0
	36	18	12.17	12.41	12.25		0
	36	37	12.09	12.38	12.19		0
	75	0	12.15	12.42	12.25		0
16QAM	1	0	12.46	12.59	12.52	0-1	0
	1	36	12.18	12.51	12.40		0
	1	74	12.16	12.58	12.29		0
	36	0	12.19	12.42	12.30	0-2	0
	36	18	12.16	12.42	12.29		0
	36	37	12.11	12.40	12.18		0
	75	0	12.16	12.42	12.29		0
64QAM	1	0	12.44	12.57	12.48	0-2	0
	1	36	12.27	12.52	12.39		0
	1	74	12.18	12.48	12.26		0
	36	0	12.21	12.42	12.31	0-3	0
	36	18	12.18	12.44	12.28		0
	36	37	12.11	12.38	12.23		0
	75	0	12.16	12.40	12.23		0

Table 8-63
LTE Band 7 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20800 (2505.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21400 (2565.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	12.21	12.38	12.28	0	0
	1	25	12.07	12.31	12.16		0
	1	49	12.03	12.29	12.09		0
	25	0	12.22	12.43	12.28	0-1	0
	25	12	12.20	12.41	12.23		0
	25	25	12.09	12.35	12.16		0
	50	0	12.12	12.39	12.23		0
16QAM	1	0	12.36	12.54	12.50	0-1	0
	1	25	12.23	12.58	12.38		0
	1	49	12.24	12.56	12.28		0
	25	0	12.18	12.40	12.24	0-2	0
	25	12	12.18	12.40	12.25		0
	25	25	12.08	12.37	12.14		0
	50	0	12.15	12.40	12.23		0
64QAM	1	0	12.31	12.54	12.46	0-2	0
	1	25	12.23	12.48	12.38		0
	1	49	12.22	12.49	12.31		0
	25	0	12.21	12.40	12.26	0-3	0
	25	12	12.20	12.41	12.29		0
	25	25	12.11	12.39	12.21		0
	50	0	12.16	12.42	12.24		0

Table 8-64
LTE Band 7 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20775 (2502.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21425 (2567.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	12.16	12.33	12.18	0	0
	1	12	12.12	12.31	12.15		0
	1	24	12.05	12.30	12.11		0
	12	0	12.17	12.37	12.23	0-1	0
	12	6	12.22	12.43	12.23		0
	12	13	12.15	12.39	12.18		0
	25	0	12.19	12.38	12.18		0
16QAM	1	0	12.39	12.52	12.37	0-1	0
	1	12	12.32	12.53	12.35		0
	1	24	12.30	12.52	12.34		0
	12	0	12.21	12.44	12.24	0-2	0
	12	6	12.23	12.48	12.26		0
	12	13	12.19	12.42	12.23		0
	25	0	12.17	12.38	12.19		0
64QAM	1	0	12.32	12.49	12.36	0-2	0
	1	12	12.23	12.47	12.31		0
	1	24	12.22	12.48	12.28		0
	12	0	12.21	12.41	12.27	0-3	0
	12	6	12.20	12.44	12.26		0
	12	13	12.17	12.38	12.20		0
	25	0	12.16	12.38	12.22		0

8.2.8 LTE Band 41

Table 8-65
LTE Band 41 PC3 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.26	24.52	**24.93**	24.73	24.24	0	0
	1	50	23.97	24.33	24.65	24.47	23.93		0
	1	99	23.84	24.32	24.56	24.38	23.83		0
	50	0	23.14	23.46	**23.87**	23.64	23.09	0-1	1
	50	25	23.08	23.41	23.78	23.58	23.02		1
	50	50	22.97	23.37	23.70	23.48	22.92		1
	100	0	23.05	23.40	23.81	23.58	23.01		1
16QAM	1	0	23.35	23.59	23.99	23.81	23.30	0-1	1
	1	50	23.06	23.43	23.75	23.57	23.03		1
	1	99	22.94	23.41	23.68	23.50	22.95		1
	50	0	22.19	22.49	22.89	22.71	22.14	0-2	2
	50	25	22.07	22.44	22.79	22.65	22.06		2
	50	50	21.99	22.41	22.71	22.55	21.94		2
	100	0	22.14	22.51	22.86	22.69	22.10		2
64QAM	1	0	22.55	22.90	22.80	22.58	22.56	0-2	2
	1	50	22.34	22.67	22.62	22.34	22.36		2
	1	99	22.15	22.56	22.51	22.14	22.26		2
	50	0	21.57	21.90	21.84	21.56	21.57	0-3	3
	50	25	21.51	21.82	21.78	21.50	21.52		3
	50	50	21.44	21.72	21.67	21.37	21.43		3
	100	0	21.46	21.81	21.76	21.45	21.50		3

Table 8-66
LTE Band 41 PC3 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.38	24.58	24.98	24.73	24.34	0	0
	1	36	24.21	24.39	24.80	24.50	24.10		0
	1	74	24.13	24.30	24.73	24.40	24.00		0
	36	0	23.13	23.51	23.96	23.65	23.23	0-1	1
	36	18	23.25	23.44	23.91	23.59	23.15		1
	36	37	23.20	23.41	23.87	23.52	23.07		1
	75	0	23.21	23.45	23.91	23.60	23.17		1
16QAM	1	0	23.45	23.68	24.00	23.85	23.45	0-1	1
	1	36	23.27	23.48	23.89	23.61	23.20		1
	1	74	23.23	23.43	23.82	23.50	23.09		1
	36	0	22.35	22.55	22.99	22.71	22.26	0-2	2
	36	18	22.29	22.48	22.93	22.63	22.25		2
	36	37	22.21	22.44	22.91	22.57	22.10		2
	75	0	22.26	22.47	22.91	22.63	22.18		2
64QAM	1	0	21.61	22.52	22.94	22.65	22.28	0-2	2
	1	36	21.85	22.35	22.75	22.47	22.09		2
	1	74	21.87	22.31	22.70	22.38	21.97		2
	36	0	21.27	21.50	21.97	21.66	21.25	0-3	3
	36	18	21.27	21.47	21.92	21.59	21.20		3
	36	37	21.19	21.40	21.82	21.52	21.11		3
	75	0	21.29	21.50	21.95	21.66	21.20		3

Table 8-67
LTE Band 41 PC3 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.33	24.56	24.97	24.70	24.29	0	0
	1	25	24.23	24.43	24.85	24.55	24.15		0
	1	49	24.14	24.36	24.78	24.45	24.04		0
	25	0	23.27	23.50	23.92	23.68	23.22	0-1	1
	25	12	23.24	23.47	23.92	23.60	23.18		1
	25	25	23.18	23.43	23.84	23.56	23.12		1
	50	0	23.21	23.45	23.91	23.59	23.16		1
16QAM	1	0	23.37	23.58	23.99	23.75	23.33	0-1	1
	1	25	23.29	23.49	23.92	23.62	23.20		1
	1	49	23.22	23.44	23.85	23.54	23.15		1
	25	0	22.19	22.42	22.89	22.60	22.16	0-2	2
	25	12	22.19	22.39	22.85	22.54	22.15		2
	25	25	22.13	22.35	22.79	22.50	22.02		2
	50	0	22.26	22.45	22.95	22.64	22.20		2
64QAM	1	0	22.22	22.44	22.84	22.56	22.17	0-2	2
	1	25	22.12	22.33	22.75	22.45	22.07		2
	1	49	22.07	22.30	22.69	22.39	21.97		2
	25	0	21.34	21.57	21.99	21.74	21.29	0-3	3
	25	12	21.36	21.58	21.97	21.70	21.30		3
	25	25	21.27	21.50	21.93	21.62	21.17		3
	50	0	21.27	21.49	21.95	21.64	21.23		3

Table 8-68
LTE Band 41 PC3 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.23	24.46	24.87	24.58	24.19	0	0
	1	12	24.21	24.42	24.83	24.52	24.13		0
	1	24	24.13	24.37	24.78	24.46	24.07		0
	12	0	23.22	23.46	23.89	23.58	23.16	0-1	1
	12	6	23.22	23.42	23.90	23.60	23.15		1
	12	13	23.18	23.40	23.83	23.56	23.11		1
	25	0	23.21	23.43	23.87	23.58	23.14		1
16QAM	1	0	23.32	23.54	23.95	23.66	23.30	0-1	1
	1	12	23.29	23.49	23.93	23.64	23.24		1
	1	24	23.25	23.51	23.88	23.59	23.19		1
	12	0	22.25	22.50	22.96	22.66	22.20	0-2	2
	12	6	22.26	22.52	22.98	22.66	22.23		2
	12	13	22.23	22.45	22.93	22.60	22.15		2
	25	0	22.17	22.39	22.83	22.52	22.13		2
64QAM	1	0	22.19	22.42	22.83	22.53	22.15	0-2	2
	1	12	22.17	22.41	22.80	22.49	22.10		2
	1	24	22.12	22.36	22.78	22.43	22.04		2
	12	0	21.21	21.42	21.87	21.57	21.14	0-3	3
	12	6	21.21	21.41	21.87	21.58	21.15		3
	12	13	21.16	21.38	21.81	21.53	21.13		3
	25	0	21.32	21.53	21.98	21.68	21.26		3

Table 8-69
LTE Band 41 PC3 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	14.02	14.24	**14.60**	14.35	13.95	0	0
	1	50	13.86	14.27	14.44	14.19	13.77		0
	1	99	13.69	13.92	14.39	13.96	13.60		0
	50	0	14.01	14.25	**14.61**	14.32	13.85	0-1	0
	50	25	13.91	14.18	14.54	14.22	13.76		0
	50	50	13.84	14.11	14.48	14.09	13.68		0
	100	0	13.92	14.22	14.52	14.24	13.80		0
16QAM	1	0	14.17	14.45	14.69	14.48	14.01	0-1	0
	1	50	13.93	14.50	14.73	14.24	13.80		0
	1	99	13.80	14.12	14.35	14.01	13.71		0
	50	0	14.05	14.27	14.63	14.36	13.89	0-2	0
	50	25	13.95	14.28	14.55	14.28	13.82		0
	50	50	13.86	14.13	14.47	14.17	13.74		0
	100	0	13.96	14.29	14.60	14.28	13.86		0
64QAM	1	0	14.04	14.33	14.63	14.39	13.90	0-2	0
	1	50	13.94	14.13	14.44	14.12	13.69		0
	1	99	13.71	13.97	14.33	13.96	13.55		0
	50	0	14.05	14.31	14.61	14.30	13.92	0-3	0
	50	25	14.04	14.26	14.57	14.35	13.81		0
	50	50	13.91	14.11	14.52	14.21	13.77		0
	100	0	13.97	14.27	14.57	14.29	13.82		0

Table 8-70
LTE Band 41 PC3 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	14.20	14.44	14.85	14.60	14.19	0	0
	1	36	14.04	14.24	14.65	14.39	13.94		0
	1	74	13.99	14.17	14.57	14.24	13.85		0
	36	0	14.17	14.37	14.78	14.51	14.09	0-1	0
	36	18	14.13	14.32	14.73	14.45	14.04		0
	36	37	14.05	14.27	14.65	14.35	13.94		0
	75	0	14.10	14.32	14.70	14.42	14.02		0
16QAM	1	0	14.34	14.21	14.95	14.68	14.33	0-1	0
	1	36	14.13	14.42	14.76	14.48	14.10		0
	1	74	14.06	14.37	14.68	14.36	14.00		0
	36	0	14.20	14.43	14.82	14.54	14.17	0-2	0
	36	18	14.17	14.38	14.77	14.47	14.09		0
	36	37	14.09	14.30	14.72	14.40	14.01		0
	75	0	14.14	14.36	14.74	14.47	14.06		0
64QAM	1	0	14.18	14.41	14.78	14.53	14.16	0-2	0
	1	36	14.01	14.92	14.60	14.34	13.97		0
	1	74	13.97	14.24	14.56	14.24	13.86		0
	36	0	14.18	14.38	14.77	14.52	14.14	0-3	0
	36	18	14.16	14.41	14.79	14.47	14.09		0
	36	37	14.08	14.30	14.72	14.38	13.98		0
	75	0	14.17	14.39	14.77	14.49	14.10		0

Table 8-71
LTE Band 41 PC3 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	14.16	14.37	14.76	14.50	14.11	0	0
	1	25	14.05	14.26	14.66	14.34	13.96		0
	1	49	13.96	14.20	14.57	14.25	13.87		0
	25	0	14.09	14.36	14.76	14.45	14.05	0-1	0
	25	12	14.10	14.30	14.74	14.40	14.02		0
	25	25	14.01	14.25	14.68	14.35	13.95		0
	50	0	14.09	14.28	14.67	14.40	14.01		0
16QAM	1	0	14.24	14.48	14.86	14.58	14.21	0-1	0
	1	25	14.11	14.38	14.77	14.45	14.09		0
	1	49	14.05	14.35	14.70	14.39	14.01		0
	25	0	14.03	14.31	14.71	14.42	14.05	0-2	0
	25	12	14.03	14.31	14.71	14.35	14.02		0
	25	25	13.97	14.25	14.63	14.30	13.91		0
	50	0	14.12	14.38	14.76	14.45	14.05		0
64QAM	1	0	14.08	14.32	14.69	14.43	14.07	0-2	0
	1	25	13.98	14.24	14.60	14.30	13.93		0
	1	49	13.91	14.19	14.53	14.24	13.85		0
	25	0	14.24	14.44	14.84	14.55	14.17	0-3	0
	25	12	14.21	14.46	14.83	14.53	14.16		0
	25	25	14.13	14.39	14.77	14.45	14.05		0
	50	0	14.12	14.37	14.76	14.46	14.11		0

Table 8-72
LTE Band 41 PC3 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	14.07	14.31	14.71	14.41	14.05	0	0
	1	12	14.05	14.25	14.65	14.36	13.96		0
	1	24	14.02	14.22	14.61	14.30	13.91		0
	12	0	14.10	14.29	14.68	14.42	14.02	0-1	0
	12	6	14.08	14.34	14.73	14.42	14.00		0
	12	13	14.04	14.29	14.68	14.37	13.94		0
	25	0	14.10	14.30	14.69	14.39	13.99		0
16QAM	1	0	14.19	14.45	14.84	14.53	14.17	0-1	0
	1	12	14.14	14.41	14.77	14.46	14.08		0
	1	24	14.12	14.38	14.75	14.42	14.03		0
	12	0	14.12	14.37	14.73	14.46	14.07	0-2	0
	12	6	14.13	14.39	14.79	14.45	14.08		0
	12	13	14.08	14.35	14.74	14.40	14.03		0
	25	0	14.00	14.27	14.67	14.34	13.93		0
64QAM	1	0	14.06	14.27	14.65	14.35	13.98	0-2	0
	1	12	13.99	14.22	14.60	14.32	13.93		0
	1	24	13.99	14.20	14.72	14.27	13.92		0
	12	0	14.07	14.28	14.66	14.36	14.00	0-3	0
	12	6	14.04	14.30	14.69	14.37	14.00		0
	12	13	14.04	14.28	14.67	14.31	13.96		0
	25	0	14.15	14.39	14.79	14.50	14.10		0

Table 8-73
LTE Band 41 PC2 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	27.56	27.57	27.98	27.64	27.42	0	0
	1	50	27.53	27.42	27.70	27.47	27.27		0
	1	99	27.36	27.41	27.63	27.41	27.03		0
	50	0	26.62	26.50	26.87	26.58	26.39	0-1	1
	50	25	26.58	26.42	26.81	26.59	26.31		1
	50	50	26.46	26.38	26.68	26.49	26.20		1
	100	0	26.58	26.46	26.68	26.22	26.34		1
16QAM	1	0	26.88	26.85	26.99	26.97	26.51	0-1	1
	1	50	26.81	26.68	26.98	26.76	26.51		1
	1	99	26.66	26.69	26.87	26.66	26.36		1
	50	0	25.72	25.53	25.90	25.71	25.46	0-2	2
	50	25	25.64	25.50	25.84	25.67	25.37		2
	50	50	25.53	25.41	25.71	25.58	25.27		2
	100	0	25.62	25.54	25.84	25.47	25.37		2
64QAM	1	0	25.88	25.96	25.99	25.86	25.85	0-2	2
	1	50	25.80	25.89	25.80	25.56	25.59		2
	1	99	25.77	25.99	25.73	25.40	25.55		2
	50	0	24.69	24.98	24.73	24.38	24.45	0-3	3
	50	25	24.60	24.94	24.65	24.36	24.41		3
	50	50	24.57	24.81	24.60	24.21	24.32		3
	100	0	24.57	24.87	24.61	24.30	24.35		3

Table 8-74
LTE Band 41 PC2 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	27.36	27.65	27.92	27.69	27.30	0	0
	1	36	27.21	27.46	27.87	27.51	27.13		0
	1	74	27.17	27.44	27.85	27.46	27.06		0
	36	0	26.33	26.52	26.94	26.65	26.27	0-1	1
	36	18	26.24	26.49	26.95	26.60	26.23		1
	36	37	26.18	26.40	26.85	26.56	26.14		1
	75	0	26.22	26.47	26.88	26.58	26.20		1
16QAM	1	0	26.64	26.94	27.00	27.00	26.59	0-1	1
	1	36	26.51	26.76	26.97	26.79	26.45		1
	1	74	26.43	26.72	26.98	26.70	26.33		1
	36	0	25.33	25.57	26.00	25.71	25.30	0-2	2
	36	18	25.28	25.52	25.93	25.66	25.25		2
	36	37	25.21	25.47	25.91	25.60	25.16		2
	75	0	25.26	25.52	25.90	25.64	25.26		2
64QAM	1	0	25.43	25.66	25.98	25.83	25.41	0-2	2
	1	36	25.29	25.51	25.92	25.61	25.24		2
	1	74	25.20	25.43	25.83	25.49	25.11		2
	36	0	24.35	24.61	24.91	24.72	24.36	0-3	3
	36	18	24.31	24.55	24.94	24.66	24.28		3
	36	37	24.22	24.52	24.90	24.55	24.15		3
	75	0	24.31	24.57	24.96	24.66	24.27		3

Table 8-75
LTE Band 41 PC2 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.32	27.59	27.99	27.63	27.27	0	0
	1	25	27.22	27.49	27.88	27.54	27.17		0
	1	49	27.18	27.45	27.83	27.52	27.13		0
	25	0	26.29	26.55	26.94	26.65	26.25	0-1	1
	25	12	26.27	26.51	26.96	26.61	26.21		1
	25	25	26.22	26.47	26.88	26.57	26.14		1
	50	0	26.27	26.51	26.92	26.57	26.19		1
16QAM	1	0	26.60	26.87	27.00	26.91	26.56	0-1	1
	1	25	26.50	26.80	26.93	26.81	26.46		1
	1	49	26.47	26.74	26.82	26.74	26.36		1
	25	0	25.25	25.51	25.91	25.64	25.20	0-2	2
	25	12	25.23	25.48	25.93	25.60	25.19		2
	25	25	25.14	25.39	25.85	25.50	25.12		2
	50	0	25.25	25.54	25.93	25.66	25.23		2
64QAM	1	0	25.37	25.59	25.78	25.72	25.36	0-2	2
	1	25	25.28	25.52	25.93	25.62	25.23		2
	1	49	25.20	25.44	25.87	25.54	25.15		2
	25	0	24.39	24.63	24.80	24.76	24.36	0-3	3
	25	12	24.37	24.62	24.80	24.74	24.33		3
	25	25	24.31	24.56	24.97	24.65	24.27		3
	50	0	24.31	24.55	24.98	24.68	24.29		3

Table 8-76
LTE Band 41 PC2 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.25	27.53	27.89	27.54	27.18	0	0
	1	12	27.23	27.47	27.87	27.52	27.15		0
	1	24	27.24	27.47	27.87	27.50	27.15		0
	12	0	26.24	26.47	26.88	26.59	26.23	0-1	1
	12	6	26.25	26.50	26.89	26.63	26.19		1
	12	13	26.20	26.44	26.84	26.52	26.14		1
	25	0	26.24	26.48	26.88	26.58	26.20		1
16QAM	1	0	26.57	26.85	26.98	26.87	26.53	0-1	1
	1	12	26.51	26.79	26.92	26.83	26.48		1
	1	24	26.50	26.78	26.88	26.78	26.42		1
	12	0	25.32	25.56	25.96	25.69	25.29	0-2	2
	12	6	25.35	25.60	26.00	25.73	25.31		2
	12	13	25.26	25.51	25.96	25.61	25.25		2
	25	0	25.20	25.46	25.84	25.57	25.15		2
64QAM	1	0	25.31	25.57	25.97	25.66	25.29	0-2	2
	1	12	25.30	25.57	25.98	25.63	25.24		2
	1	24	25.24	25.49	25.87	25.56	25.18		2
	12	0	24.23	24.49	24.89	24.60	24.22	0-3	3
	12	6	24.26	24.52	24.90	24.59	24.21		3
	12	13	24.18	24.44	24.85	24.55	24.15		3
	25	0	24.31	24.58	24.99	24.68	24.30		3

Table 8-77
LTE Band 41 PC2 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	14.07	14.37	**14.68**	14.40	13.89	0	0
	1	50	13.90	14.24	14.53	14.14	13.71		0
	1	99	13.85	14.07	14.51	13.95	13.58		0
	50	0	13.98	14.32	**14.58**	14.31	13.87	0-1	0
	50	25	13.90	14.26	14.46	14.23	13.75		0
	50	50	13.85	14.19	14.48	14.11	13.68		0
	100	0	13.92	14.23	14.55	14.24	13.78		0
16QAM	1	0	14.30	14.70	14.95	14.75	14.24	0-1	0
	1	50	14.19	14.72	14.79	14.46	14.34		0
	1	99	14.02	14.37	14.70	14.28	13.92		0
	50	0	14.07	14.37	14.65	14.37	13.89	0-2	0
	50	25	13.96	14.34	14.61	14.32	13.82		0
	50	50	13.91	14.25	14.52	14.18	13.84		0
	100	0	13.97	14.27	14.62	14.31	13.85		0
64QAM	1	0	14.44	14.74	14.96	14.78	14.28	0-2	0
	1	50	14.60	14.52	14.81	14.52	14.05		0
	1	99	14.05	14.38	14.67	14.29	13.65		0
	50	0	14.10	14.36	14.75	14.39	13.98	0-3	0
	50	25	14.03	14.19	14.59	14.31	13.88		0
	50	50	13.92	14.31	14.54	14.16	13.79		0
	100	0	13.99	14.26	14.58	14.27	13.80		0

Table 8-78
LTE Band 41 PC2 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	14.34	14.61	15.00	14.71	14.31	0	0
	1	36	14.17	14.40	14.79	14.46	14.06		0
	1	74	14.08	14.34	14.75	14.38	14.01		0
	36	0	14.25	14.44	14.88	14.58	14.17	0-1	0
	36	18	14.20	14.39	14.79	14.51	14.14		0
	36	37	14.11	14.33	14.74	14.42	14.01		0
	75	0	14.21	14.39	14.83	14.52	14.13		0
16QAM	1	0	14.65	14.96	15.00	14.99	14.69	0-1	0
	1	36	14.51	14.77	14.98	14.78	14.45		0
	1	74	14.41	14.69	14.90	14.69	14.34		0
	36	0	14.27	14.57	14.94	14.66	14.30	0-2	0
	36	18	14.24	14.53	14.94	14.58	14.21		0
	36	37	14.17	14.48	14.86	14.52	14.12		0
	75	0	14.23	14.49	14.87	14.57	14.18		0
64QAM	1	0	14.41	14.69	14.98	14.78	14.42	0-2	0
	1	36	14.28	14.53	14.85	14.61	14.19		0
	1	74	14.20	14.48	14.79	14.50	14.13		0
	36	0	14.31	14.52	14.95	14.66	14.26	0-3	0
	36	18	14.30	14.49	14.88	14.58	14.21		0
	36	37	14.22	14.42	14.79	14.47	14.11		0
	75	0	14.28	14.52	14.91	14.57	14.22		0

Table 8-79
LTE Band 41 PC2 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	14.29	14.53	14.92	14.65	14.25	0	0
	1	25	14.17	14.42	14.81	14.49	14.10		0
	1	49	14.12	14.35	14.72	14.41	14.05		0
	25	0	14.25	14.45	14.88	14.57	14.15	0-1	0
	25	12	14.24	14.46	14.86	14.54	14.13		0
	25	25	14.17	14.40	14.77	14.46	14.08		0
	50	0	14.22	14.41	14.82	14.54	14.12		0
16QAM	1	0	14.57	14.83	15.00	14.92	14.57	0-1	0
	1	25	14.45	14.74	14.99	14.78	14.44		0
	1	49	14.38	14.72	14.97	14.72	14.39		0
	25	0	14.17	14.43	14.87	14.56	14.15	0-2	0
	25	12	14.16	14.44	14.40	14.53	14.15		0
	25	25	14.09	14.37	14.79	14.46	14.07		0
	50	0	14.21	14.50	14.90	14.57	14.22		0
64QAM	1	0	14.38	14.59	14.98	14.67	14.31	0-2	0
	1	25	14.27	14.53	14.84	14.58	14.16		0
	1	49	14.17	14.47	14.85	14.47	14.13		0
	25	0	14.36	14.62	14.99	14.72	14.32	0-3	0
	25	12	14.34	14.61	14.96	14.66	14.32		0
	25	25	14.28	14.56	14.90	14.61	14.23		0
	50	0	14.27	14.53	14.90	14.62	14.23		0

Table 8-80
LTE Band 41 PC2 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	14.21	14.47	14.88	14.56	14.15	0	0
	1	12	14.19	14.39	14.77	14.49	14.13		0
	1	24	14.14	14.41	14.78	14.47	14.07		0
	12	0	14.16	14.41	14.80	14.49	14.08	0-1	0
	12	6	14.20	14.44	14.83	14.50	14.12		0
	12	13	14.15	14.34	14.77	14.45	14.05		0
	25	0	14.16	14.42	14.80	14.48	14.07		0
16QAM	1	0	14.53	14.80	15.00	14.82	14.49	0-1	0
	1	12	14.45	14.74	14.99	14.79	14.43		0
	1	24	14.44	14.71	14.95	14.73	14.36		0
	12	0	14.26	14.51	14.87	14.57	14.22	0-2	0
	12	6	14.26	14.54	14.94	14.57	14.21		0
	12	13	14.21	14.48	14.89	14.52	14.14		0
	25	0	14.11	14.38	14.80	14.43	14.05		0
64QAM	1	0	14.30	14.51	14.89	14.63	14.23	0-2	0
	1	12	14.25	14.51	14.92	14.56	14.22		0
	1	24	14.22	14.42	14.82	14.52	14.10		0
	12	0	14.18	14.42	14.79	14.48	14.12	0-3	0
	12	6	14.19	14.44	14.84	14.51	14.10		0
	12	13	14.13	14.40	14.80	14.44	14.07		0
	25	0	14.26	14.52	14.92	14.58	14.23		0

8.2.9 LTE Uplink Carrier Aggregation Conducted Powers

Table 8-81
Reduced LTE Uplink Carrier Aggregation Conducted Powers

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C (1)	LTE B41	20	41490	2680.0	QPSK	50	0	LTE B41	20	41292	2660.2	QPSK	50	50	14.50	13.85

Notes:
1. This device supports uplink carrier aggregation for LTE CA_41C with a maximum of two 20 MHz component carriers. For intraband contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when non-contiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.
2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
3. Uplink carrier aggregation is only possible when the device is operating with Power Class 3 for LTE Band 41.

Figure 8-2
Power Measurement Setup

 REV 20.11 M 06/19/2018

8.3 WLAN Conducted Powers

Table 8-82
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	**13.32**	13.10	12.94
2437	6	12.99	12.79	12.67
2462	11	13.31	13.37	13.19

Table 8-83
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	**13.32**	13.17	13.05
2437	6	12.89	12.73	12.51
2462	11	12.97	12.85	12.66

Table 8-84
5 GHz WLAN Maximum Average RF Power – Ant 1

5GHz (40MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11n
		Average
5190	38	13.43
5230	46	13.29
5270	54	12.98
5310	62	**13.19**
5510	102	**13.14**
5590	118	12.87
5630	126	13.06
5710	142	12.73
5755	151	**12.92**
5795	159	12.45

Table 8-85
5 GHz WLAN Maximum Average RF Power – Ant 2

5GHz (40MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11n
		Average
5190	38	13.54
5230	46	12.69
5270	54	12.61
5310	62	**13.12**
5510	102	13.37
5590	118	**13.48**
5630	126	13.42
5710	142	13.36
5755	151	13.10
5795	159	**13.42**

Table 8-86
2.4 GHz WLAN Reduced Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	**12.45**	12.32	12.16
2437	6	12.14	12.04	11.85
2462	11	12.44	12.46	12.41

Table 8-87
2.4 GHz WLAN Reduced Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	11.60	12.47	12.34
2437	6	**12.48**	12.26	12.11
2462	11	11.87	11.77	12.45

Table 8-88
5 GHz WLAN Reduced Average RF Power – Ant 1

5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11ac
		Average
5210	42	9.43
5290	58	**8.47**
5530	106	9.04
5610	122	**9.16**
5690	138	8.77
5775	155	**9.26**

Table 8-89
5 GHz WLAN Reduced Average RF Power – Ant 2

5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11ac
		Average
5210	42	9.21
5290	58	**9.47**
5530	106	**9.17**
5610	122	9.13
5690	138	8.78
5775	155	**8.88**

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.
- The bolded data rate and channel above were tested for SAR.

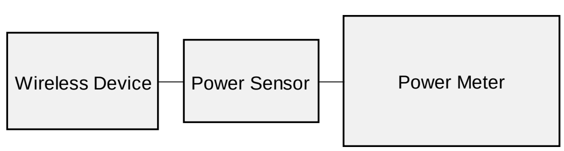


Figure 8-3
Power Measurement Setup

8.4 Bluetooth Conducted Powers

Table 8-90
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	7.44	5.551
2441	1.0	39	6.92	4.921
2480	1.0	78	**8.32**	6.787
2402	2.0	0	6.82	4.808
2441	2.0	39	6.36	4.328
2480	2.0	78	7.75	5.955
2402	3.0	0	6.87	4.862
2441	3.0	39	6.41	4.378
2480	3.0	78	7.80	6.027

Note: The bolded data rates and channel above were tested for SAR.

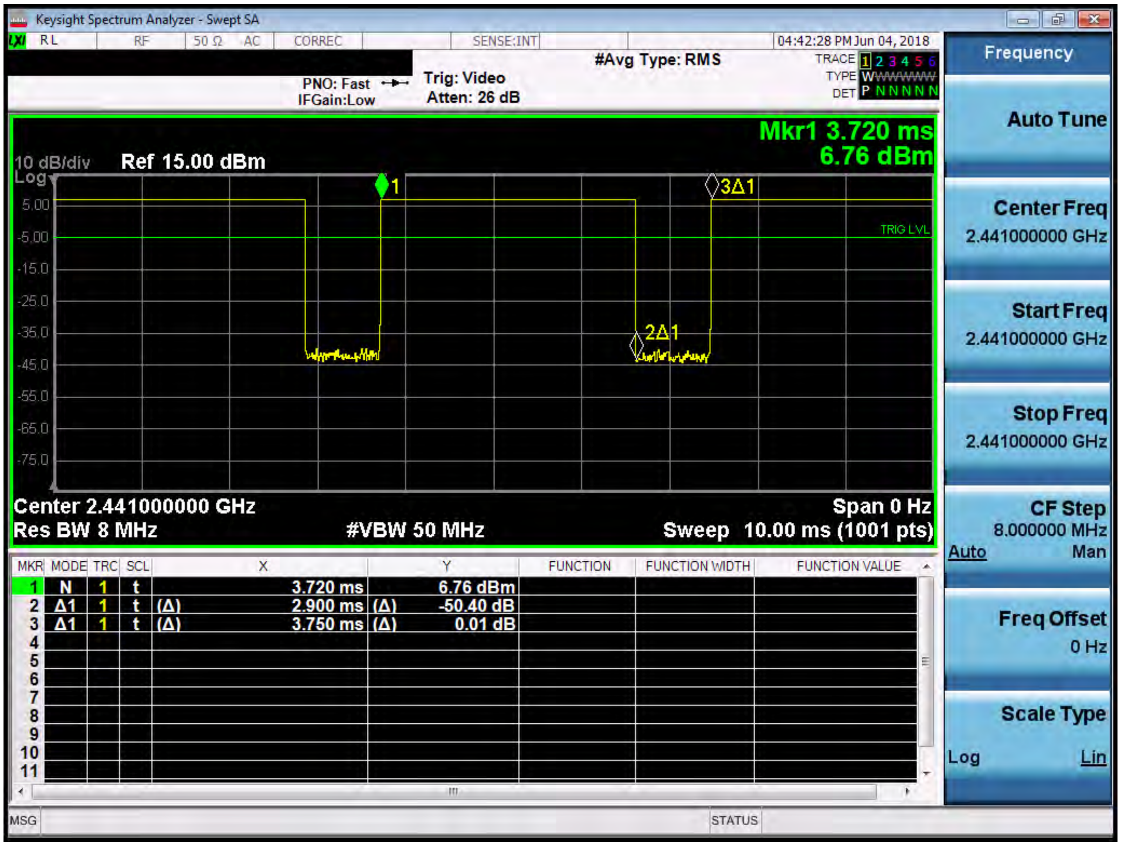


Figure 8-4
Bluetooth Transmission Plot

Equation 8-1
Bluetooth Duty Cycle Calculation

$$\boldsymbol{Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.90s}{3.75ms} * 100\% = 77.3\%}$$

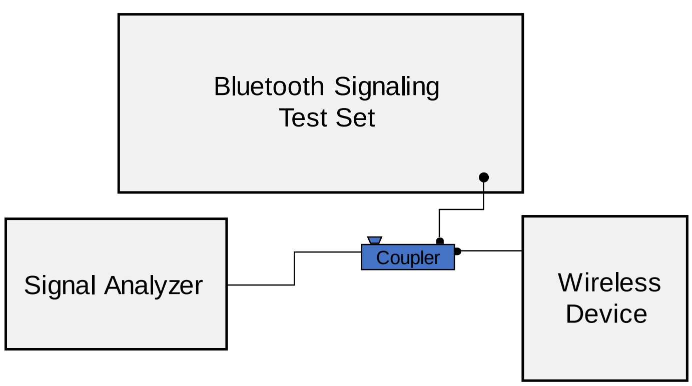


Figure 8-5
Power Measurement Setup

9 SYSTEM VERIFICATION

9.1 Tissue Verification

Table 9-1
Measured Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	%dev σ	%dev ε
06/13/2018	750B	21.1	700	0.940	53.357	0.959	55.726	-1.98%	-4.25%
			710	0.943	53.334	0.960	55.687	-1.77%	-4.23%
			740	0.955	53.279	0.963	55.570	-0.83%	-4.12%
			755	0.960	53.233	0.964	55.512	-0.41%	-4.11%
			770	0.966	53.183	0.965	55.453	0.10%	-4.09%
			785	0.972	53.137	0.966	55.395	0.62%	-4.08%
06/14/2018	835B	20.2	820	0.980	53.143	0.969	55.258	1.14%	-3.83%
			835	0.986	53.116	0.970	55.200	1.65%	-3.78%
			850	0.993	53.067	0.988	55.154	0.51%	-3.78%
06/18/2018	835B	22.0	820	0.978	54.328	0.969	55.258	0.93%	-1.68%
			835	0.984	54.308	0.970	55.200	1.44%	-1.62%
			850	0.990	54.276	0.988	55.154	0.20%	-1.59%
06/19/2018	1750B	22.1	1710	1.446	53.130	1.463	53.537	-1.16%	-0.76%
			1750	1.478	53.073	1.488	53.432	-0.67%	-0.67%
			1790	1.501	53.058	1.514	53.326	-0.86%	-0.50%
06/11/2018	1900B	22.2	1850	1.504	52.381	1.520	53.300	-1.05%	-1.72%
			1880	1.541	52.341	1.520	53.300	1.38%	-1.80%
			1910	1.572	52.227	1.520	53.300	3.42%	-2.01%
06/18/2018	1900B	22.0	1850	1.519	51.741	1.520	53.300	-0.07%	-2.92%
			1880	1.554	51.642	1.520	53.300	2.24%	-3.11%
			1910	1.586	51.548	1.520	53.300	4.34%	-3.29%
06/18/2018	2450B	23.3	2450	1.974	51.100	1.950	52.700	1.23%	-3.04%
			2500	2.039	50.930	2.021	52.636	0.89%	-3.24%
			2550	2.109	50.754	2.092	52.573	0.81%	-3.46%
			2600	2.178	50.574	2.163	52.509	0.69%	-3.69%
06/21/2018	2450B	23.0	2400	1.914	52.599	1.902	52.767	0.63%	-0.32%
			2450	1.981	52.417	1.950	52.700	1.59%	-0.54%
			2500	2.050	52.230	2.021	52.636	1.43%	-0.77%
06/26/2018	2450B	22.6	2450	2.025	50.962	1.950	52.700	3.85%	-3.30%
			2500	2.083	50.820	2.021	52.636	3.07%	-3.45%
			2550	2.142	50.697	2.092	52.573	2.39%	-3.57%
			2600	2.201	50.515	2.163	52.509	1.76%	-3.80%
			2650	2.261	50.392	2.234	52.445	1.21%	-3.91%
			2700	2.321	50.226	2.305	52.382	0.69%	-4.12%
06/18/2018	5200B-5800B	22.1	5240	5.442	47.528	5.346	48.960	1.80%	-2.92%
			5260	5.471	47.483	5.369	48.933	1.90%	-2.96%
			5280	5.476	47.468	5.393	48.906	1.54%	-2.94%
			5300	5.508	47.400	5.416	48.879	1.70%	-3.03%
			5320	5.547	47.378	5.439	48.851	1.99%	-3.02%
			5500	5.772	47.078	5.650	48.607	2.16%	-3.15%
			5520	5.799	47.077	5.673	48.580	2.22%	-3.09%
			5540	5.828	47.042	5.696	48.553	2.32%	-3.11%
			5580	5.893	46.940	5.743	48.499	2.61%	-3.21%
			5600	5.918	46.913	5.766	48.471	2.64%	-3.21%
			5620	5.934	46.911	5.790	48.444	2.49%	-3.16%
			5745	6.132	46.651	5.936	48.275	3.30%	-3.36%
			5765	6.153	46.692	5.959	48.248	3.26%	-3.23%
			5785	6.175	46.623	5.982	48.220	3.23%	-3.31%
			5800	6.197	46.610	6.000	48.200	3.28%	-3.30%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

9.2 Test System Verification

Prior to SAR assessment, the system is verified to ±10% of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix E.

Table 9-2
System Verification Results

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
J	750	BODY	06/13/2018	21.0	21.1	0.200	1003	3347	1.680	8.580	8.400	-2.10%
J	835	BODY	06/14/2018	20.7	20.2	0.200	4d132	3347	2.100	9.710	10.500	8.14%
J	835	BODY	06/18/2018	21.5	22.0	0.200	4d132	3914	2.040	9.710	10.200	5.05%
G	1750	BODY	06/19/2018	22.6	21.7	0.100	1150	3332	3.670	36.500	36.700	0.55%
I	1900	BODY	06/11/2018	21.3	21.8	0.100	5d148	3287	4.270	39.600	42.700	7.83%
I	1900	BODY	06/18/2018	21.6	21.6	0.100	5d148	7406	4.200	39.600	42.000	6.06%
H	2450	BODY	06/18/2018	21.5	22.0	0.100	981	7410	4.850	50.800	48.500	-4.53%
H	2450	BODY	06/21/2018	21.2	22.3	0.100	981	7410	4.930	50.800	49.300	-2.95%
K	2450	BODY	06/26/2018	22.8	21.3	0.100	882	3319	5.020	50.200	50.200	0.00%
H	2600	BODY	06/18/2018	21.5	22.0	0.100	1071	7410	5.300	54.200	53.000	-2.21%
K	2600	BODY	06/26/2018	22.8	21.3	0.100	1004	3319	5.600	54.800	56.000	2.19%
D	5250	BODY	06/18/2018	23.5	22.1	0.050	1237	7357	3.550	76.900	71.000	-7.67%
D	5600	BODY	06/18/2018	23.5	22.1	0.050	1237	7357	3.950	78.500	79.000	0.64%
D	5750	BODY	06/18/2018	23.5	22.1	0.050	1237	7357	3.600	77.100	72.000	-6.61%

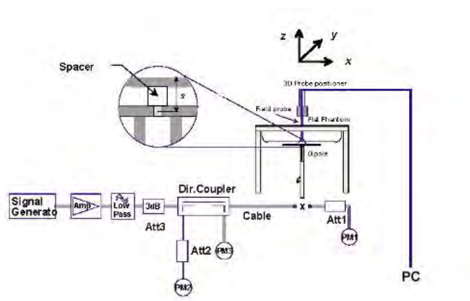


Figure 9-1
System Verification Setup Diagram

Figure 9-2
System Verification Setup Photo

10 SAR DATA SUMMARY

10.1 Standalone Body SAR Data

Table 10-1
EVDO Body SAR Data

MEASUREMENT RESULTS														
FREQUENCY MHz	FREQUENCY Ch.	Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.65	-0.03	16 mm	42109	1:1	back	0.815	1.084	0.883	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.65	-0.01	16 mm	42109	1:1	top	1.150	1.084	1.247	A1
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.65	-0.02	0 mm	42109	1:1	right	0.256	1.084	0.278	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.65	-0.16	0 mm	42109	1:1	left	0.138	1.084	0.150	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	14.0	13.40	-0.14	0 mm	42299	1:1	back	0.484	1.148	0.556	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	14.0	13.40	-0.05	0 mm	42299	1:1	top	0.499	1.148	0.573	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.81	0.03	16 mm	42109	1:1	back	0.849	1.172	0.995	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.75	-0.02	16 mm	42109	1:1	back	0.753	1.189	0.895	
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.27	0.07	16 mm	42109	1:1	back	0.614	1.327	0.815	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.81	-0.04	16 mm	42109	1:1	top	1.170	1.172	1.371	A2
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.75	-0.04	16 mm	42109	1:1	top	1.060	1.189	1.260	
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.27	0.10	16 mm	42109	1:1	top	0.854	1.327	1.133	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.81	0.12	0 mm	42109	1:1	right	0.253	1.172	0.297	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.81	-0.09	0 mm	42109	1:1	left	0.152	1.172	0.178	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	16.0	15.34	-0.11	0 mm	42299	1:1	back	0.757	1.164	0.881	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	16.0	15.29	-0.11	0 mm	42299	1:1	back	0.718	1.178	0.846	
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	16.0	15.03	-0.12	0 mm	42299	1:1	back	0.691	1.250	0.864	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	16.0	15.34	-0.05	0 mm	42299	1:1	top	0.795	1.164	0.925	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	16.0	15.29	-0.03	0 mm	42299	1:1	top	0.765	1.178	0.901	
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	16.0	15.03	-0.04	0 mm	42299	1:1	top	0.745	1.250	0.931	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	24.81	-0.06	16 mm	42109	1:1	top	1.160	1.172	1.360	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.5	24.69	-0.03	16 mm	42109	1:1	back	0.525	1.205	0.633	
1851.25	25	PCS CDMA	EVDO Rev. 0	25.5	24.01	0.03	16 mm	42109	1:1	top	0.730	1.409	1.029	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.5	23.77	0.01	16 mm	42109	1:1	top	0.672	1.489	1.001	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.5	24.69	-0.07	16 mm	42109	1:1	top	0.706	1.205	0.851	
1851.25	25	PCS CDMA	EVDO Rev. 0	25.5	24.01	-0.01	0 mm	42109	1:1	right	0.619	1.409	0.872	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.5	23.77	0.06	0 mm	42109	1:1	right	0.693	1.489	1.032	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.5	24.69	0.09	0 mm	42109	1:1	right	0.690	1.205	0.831	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.5	24.69	0.02	0 mm	42109	1:1	left	0.310	1.205	0.374	
1851.25	25	PCS CDMA	EVDO Rev. 0	14.0	13.16	0.02	0 mm	42125	1:1	back	0.853	1.213	1.035	
1880.00	600	PCS CDMA	EVDO Rev. 0	14.0	12.95	0.02	0 mm	42125	1:1	back	0.854	1.274	1.088	
1908.75	1175	PCS CDMA	EVDO Rev. 0	14.0	13.91	0.05	0 mm	42125	1:1	back	0.918	1.021	0.937	A3
1908.75	1175	PCS CDMA	EVDO Rev. 0	14.0	13.91	-0.03	0 mm	42125	1:1	top	0.757	1.021	0.773	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram						

Note: Blue entry indicates variability measurement.

Table 10-2
LTE Band 12 Body SAR

MEASUREMENT RESULTS

FREQUENCY MHz	Ch.		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
707.50	23095	Mid	LTE Band 12	10	25.0	23.53	-0.03	0	42299	QPSK	1	0	16 mm	back	1:1	0.478	1.403	0.671	
707.50	23095	Mid	LTE Band 12	10	24.0	22.45	-0.03	1	42299	QPSK	25	0	16 mm	back	1:1	0.386	1.429	0.552	
707.50	23095	Mid	LTE Band 12	10	25.0	23.53	-0.18	0	42299	QPSK	1	0	16 mm	top	1:1	0.522	1.403	0.732	A4
707.50	23095	Mid	LTE Band 12	10	24.0	22.45	-0.02	1	42299	QPSK	25	0	16 mm	top	1:1	0.405	1.429	0.579	
707.50	23095	Mid	LTE Band 12	10	25.0	23.53	0.02	0	42299	QPSK	1	0	0 mm	right	1:1	0.134	1.403	0.188	
707.50	23095	Mid	LTE Band 12	10	24.0	22.45	0.15	1	42299	QPSK	25	0	0 mm	right	1:1	0.098	1.429	0.140	
707.50	23095	Mid	LTE Band 12	10	25.0	23.53	-0.01	0	42299	QPSK	1	0	0 mm	left	1:1	0.178	1.403	0.250	
707.50	23095	Mid	LTE Band 12	10	24.0	22.45	-0.02	1	42299	QPSK	25	0	0 mm	left	1:1	0.128	1.429	0.183	
707.50	23095	Mid	LTE Band 12	10	14.0	12.89	-0.09	0	42299	QPSK	1	0	0 mm	back	1:1	0.398	1.291	0.514	
707.50	23095	Mid	LTE Band 12	10	14.0	12.96	-0.10	0	42299	QPSK	25	0	0 mm	back	1:1	0.401	1.271	0.510	
707.50	23095	Mid	LTE Band 12	10	14.0	12.89	-0.05	0	42299	QPSK	1	0	0 mm	top	1:1	0.387	1.291	0.500	
707.50	23095	Mid	LTE Band 12	10	14.0	12.96	-0.05	0	42299	QPSK	25	0	0 mm	top	1:1	0.390	1.271	0.496	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram

Table 10-3
LTE Band 13 Body SAR

MEASUREMENT RESULTS

FREQUENCY MHz	Ch.		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
782.00	23230	Mid	LTE Band 13	10	24.5	23.78	-0.06	0	42299	QPSK	1	0	16 mm	back	1:1	0.725	1.180	0.856	
782.00	23230	Mid	LTE Band 13	10	23.5	22.77	-0.04	1	42299	QPSK	25	0	16 mm	back	1:1	0.582	1.183	0.689	
782.00	23230	Mid	LTE Band 13	10	23.5	22.72	-0.03	1	42299	QPSK	50	0	16 mm	back	1:1	0.573	1.197	0.686	
782.00	23230	Mid	LTE Band 13	10	24.5	23.78	-0.02	0	42299	QPSK	1	0	16 mm	top	1:1	0.905	1.180	1.068	A5
782.00	23230	Mid	LTE Band 13	10	23.5	22.77	-0.01	1	42299	QPSK	25	0	16 mm	top	1:1	0.681	1.183	0.806	
782.00	23230	Mid	LTE Band 13	10	23.5	22.72	-0.06	1	42299	QPSK	50	0	16 mm	top	1:1	0.702	1.197	0.840	
782.00	23230	Mid	LTE Band 13	10	24.5	23.78	0.10	0	42299	QPSK	1	0	0 mm	right	1:1	0.238	1.180	0.281	
782.00	23230	Mid	LTE Band 13	10	23.5	22.77	-0.09	1	42299	QPSK	25	0	0 mm	right	1:1	0.163	1.183	0.193	
782.00	23230	Mid	LTE Band 13	10	24.5	23.78	-0.16	0	42299	QPSK	1	0	0 mm	left	1:1	0.186	1.180	0.219	
782.00	23230	Mid	LTE Band 13	10	23.5	22.77	-0.03	1	42299	QPSK	25	0	0 mm	left	1:1	0.142	1.183	0.168	
782.00	23230	Mid	LTE Band 13	10	14.0	13.12	-0.06	0	42299	QPSK	1	0	0 mm	back	1:1	0.454	1.225	0.556	
782.00	23230	Mid	LTE Band 13	10	14.0	13.11	-0.08	0	42299	QPSK	25	12	0 mm	back	1:1	0.454	1.227	0.557	
782.00	23230	Mid	LTE Band 13	10	14.0	13.12	-0.02	0	42299	QPSK	1	0	0 mm	top	1:1	0.471	1.225	0.577	
782.00	23230	Mid	LTE Band 13	10	14.0	13.11	-0.03	0	42299	QPSK	25	12	0 mm	top	1:1	0.476	1.227	0.584	
782.00	23230	Mid	LTE Band 13	10	24.5	23.78	0.07	0	42299	QPSK	1	0	16 mm	top	1:1	0.888	1.180	1.048	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram

Note: Blue entry indicates variability measurement.

Table 10-4
LTE Band 26 (Cell) Body SAR

MEASUREMENT RESULTS

FREQUENCY MHz	Ch.		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.76	-0.04	0	42299	QPSK	1	0	16 mm	back	1:1	0.872	1.186	1.034	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.5	22.79	-0.01	1	42299	QPSK	36	18	16 mm	back	1:1	0.681	1.178	0.802	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.5	22.71	0.03	1	42299	QPSK	75	0	16 mm	back	1:1	0.672	1.199	0.806	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.76	-0.01	0	42299	QPSK	1	0	16 mm	top	1:1	1.140	1.186	1.352	A6
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.5	22.79	-0.02	1	42299	QPSK	36	18	16 mm	top	1:1	0.882	1.178	1.039	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.5	22.71	-0.03	1	42299	QPSK	75	0	16 mm	top	1:1	0.865	1.199	1.037	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.76	0.01	0	42299	QPSK	1	0	0 mm	right	1:1	0.213	1.186	0.253	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.5	22.79	-0.08	1	42299	QPSK	36	18	0 mm	right	1:1	0.167	1.178	0.197	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.76	-0.07	0	42299	QPSK	1	0	0 mm	left	1:1	0.124	1.186	0.147	
831.50	26865	Mid	LTE Band 26 (Cell)	15	23.5	22.79	-0.04	1	42299	QPSK	36	18	0 mm	left	1:1	0.084	1.178	0.099	
831.50	26865	Mid	LTE Band 26 (Cell)	15	14.0	13.12	-0.12	0	42299	QPSK	1	0	0 mm	back	1:1	0.447	1.225	0.548	
831.50	26865	Mid	LTE Band 26 (Cell)	15	14.0	13.17	-0.10	0	42299	QPSK	36	18	0 mm	back	1:1	0.441	1.211	0.534	
831.50	26865	Mid	LTE Band 26 (Cell)	15	14.0	13.12	-0.06	0	42299	QPSK	1	0	0 mm	top	1:1	0.488	1.225	0.598	
831.50	26865	Mid	LTE Band 26 (Cell)	15	14.0	13.17	-0.06	0	42299	QPSK	36	18	0 mm	top	1:1	0.487	1.211	0.590	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram

Table 10-5
LTE Band 5 (Cell) Body SAR

MEASUREMENT RESULTS

FREQUENCY MHz	Ch.		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	23.96	-0.04	0	42299	QPSK	1	0	16 mm	back	1:1	0.836	1.271	1.063	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	22.75	-0.04	1	42299	QPSK	25	0	16 mm	back	1:1	0.666	1.334	0.888	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	22.71	0.02	1	42299	QPSK	50	0	16 mm	back	1:1	0.657	1.346	0.884	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	23.96	0.02	0	42299	QPSK	1	0	16 mm	top	1:1	1.100	1.271	1.398	A7
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	22.75	-0.05	1	42299	QPSK	25	0	16 mm	top	1:1	0.848	1.334	1.131	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	22.71	-0.02	1	42299	QPSK	50	0	16 mm	top	1:1	0.832	1.346	1.120	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	23.96	0.04	0	42299	QPSK	1	0	0 mm	right	1:1	0.227	1.271	0.289	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	22.75	0.01	1	42299	QPSK	25	0	0 mm	right	1:1	0.164	1.334	0.219	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	23.96	-0.11	0	42299	QPSK	1	0	0 mm	left	1:1	0.148	1.271	0.188	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	22.75	-0.01	1	42299	QPSK	25	0	0 mm	left	1:1	0.114	1.334	0.152	
836.50	20525	Mid	LTE Band 5 (Cell)	10	16.0	15.10	-0.12	0	42299	QPSK	1	0	0 mm	back	1:1	0.693	1.230	0.852	
836.50	20525	Mid	LTE Band 5 (Cell)	10	16.0	15.13	-0.11	0	42299	QPSK	25	0	0 mm	back	1:1	0.691	1.222	0.844	
836.50	20525	Mid	LTE Band 5 (Cell)	10	16.0	15.06	-0.10	0	42299	QPSK	50	0	0 mm	back	1:1	0.682	1.242	0.847	
836.50	20525	Mid	LTE Band 5 (Cell)	10	16.0	15.10	-0.04	0	42299	QPSK	1	0	0 mm	top	1:1	0.761	1.230	0.936	
836.50	20525	Mid	LTE Band 5 (Cell)	10	16.0	15.13	-0.06	0	42299	QPSK	25	0	0 mm	top	1:1	0.762	1.222	0.931	
836.50	20525	Mid	LTE Band 5 (Cell)	10	16.0	15.06	-0.06	0	42299	QPSK	50	0	0 mm	top	1:1	0.756	1.242	0.939	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram

Table 10-6
LTE Band 4 (AWS) Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	25.0	24.06	0.02	0	42299	QPSK	1	0	16 mm	back	1:1	0.547	1.242	0.679	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.01	-0.01	1	42299	QPSK	50	0	16 mm	back	1:1	0.422	1.256	0.530	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	25.0	24.06	-0.03	0	42299	QPSK	1	0	16 mm	top	1:1	0.650	1.242	0.807	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.01	-0.03	1	42299	QPSK	50	0	16 mm	top	1:1	0.504	1.256	0.633	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	22.94	0.07	1	42299	QPSK	100	0	16 mm	top	1:1	0.500	1.276	0.638	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	25.0	24.06	-0.20	0	42299	QPSK	1	0	0 mm	right	1:1	1.100	1.242	1.366	A8
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.01	-0.10	1	42299	QPSK	50	0	0 mm	right	1:1	0.857	1.256	1.076	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	22.94	-0.12	1	42299	QPSK	100	0	0 mm	right	1:1	0.848	1.276	1.082	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	25.0	24.06	-0.05	0	42299	QPSK	1	0	0 mm	left	1:1	0.448	1.242	0.556	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.01	-0.01	1	42299	QPSK	50	0	0 mm	left	1:1	0.332	1.256	0.417	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	13.0	12.01	0.01	0	42299	QPSK	1	0	0 mm	back	1:1	0.852	1.256	1.070	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	13.0	11.95	0.04	0	42299	QPSK	50	0	0 mm	back	1:1	0.859	1.274	1.094	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	13.0	11.86	0.05	0	42299	QPSK	100	0	0 mm	back	1:1	0.859	1.300	1.117	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	13.0	12.01	-0.08	0	42299	QPSK	1	0	0 mm	top	1:1	0.845	1.256	1.061	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	13.0	11.95	-0.08	0	42299	QPSK	50	0	0 mm	top	1:1	0.840	1.274	1.070	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	13.0	11.86	-0.09	0	42299	QPSK	100	0	0 mm	top	1:1	0.823	1.300	1.070	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	25.0	24.06	-0.08	0	42299	QPSK	1	0	0 mm	right	1:1	1.100	1.242	1.366	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Blue entry indicates variability measurement.

Table 10-7
LTE Band 25 (PCS) Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.41	0.00	0	42158	QPSK	1	0	16 mm	back	1:1	0.678	1.146	0.777	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.37	-0.01	1	42158	QPSK	50	0	16 mm	back	1:1	0.529	1.156	0.612	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.41	0.00	0	42158	QPSK	1	0	16 mm	top	1:1	0.443	1.146	0.508	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.37	-0.05	1	42158	QPSK	50	0	16 mm	top	1:1	0.359	1.156	0.415	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.41	-0.01	0	42158	QPSK	1	0	0 mm	right	1:1	0.339	1.146	0.388	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.37	-0.05	1	42158	QPSK	50	0	0 mm	right	1:1	0.271	1.156	0.313	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	24.41	0.01	0	42158	QPSK	1	0	0 mm	left	1:1	0.247	1.146	0.283	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.37	0.04	1	42158	QPSK	50	0	0 mm	left	1:1	0.182	1.156	0.210	
1860.00	26140	Low	LTE Band 25 (PCS)	20	14.0	13.11	-0.04	0	42158	QPSK	1	0	0 mm	back	1:1	0.861	1.227	1.056	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	14.0	12.88	-0.05	0	42158	QPSK	1	0	0 mm	back	1:1	0.854	1.294	1.105	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.35	-0.07	0	42158	QPSK	1	0	0 mm	back	1:1	0.956	1.161	1.110	
1860.00	26140	Low	LTE Band 25 (PCS)	20	14.0	13.06	-0.07	0	42158	QPSK	50	0	0 mm	back	1:1	0.860	1.242	1.068	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	14.0	12.80	-0.06	0	42158	QPSK	50	0	0 mm	back	1:1	0.854	1.318	1.126	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.32	-0.08	0	42158	QPSK	50	0	0 mm	back	1:1	0.971	1.169	1.135	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.25	-0.15	0	42158	QPSK	100	0	0 mm	back	1:1	0.961	1.189	1.143	
1860.00	26140	Low	LTE Band 25 (PCS)	20	14.0	13.11	-0.02	0	42158	QPSK	1	0	0 mm	top	1:1	0.590	1.227	0.724	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	14.0	12.88	-0.04	0	42158	QPSK	1	0	0 mm	top	1:1	0.641	1.294	0.829	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.35	-0.14	0	42158	QPSK	1	0	0 mm	top	1:1	0.765	1.161	0.888	
1860.00	26140	Low	LTE Band 25 (PCS)	20	14.0	13.06	-0.01	0	42158	QPSK	50	0	0 mm	top	1:1	0.598	1.242	0.743	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	14.0	12.80	-0.04	0	42158	QPSK	50	0	0 mm	top	1:1	0.665	1.318	0.876	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.32	-0.04	0	42158	QPSK	50	0	0 mm	top	1:1	0.798	1.169	0.933	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.25	-0.06	0	42158	QPSK	100	0	0 mm	top	1:1	0.790	1.189	0.939	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.32	0.03	0	42158	QPSK	50	0	0 mm	back	1:1	1.010	1.169	1.181	A9
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Blue entry indicates variability measurement.

Table 10-8
LTE Band 7 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2535.00	21100	Mid	LTE Band 7	20	25.0	24.63	-0.04	0	42133	QPSK	1	0	16 mm	back	1:1	0.658	1.089	0.717	
2535.00	21100	Mid	LTE Band 7	20	24.0	23.58	-0.02	1	42133	QPSK	50	0	16 mm	back	1:1	0.521	1.102	0.574	
2535.00	21100	Mid	LTE Band 7	20	25.0	24.63	0.01	0	42133	QPSK	1	0	16 mm	top	1:1	0.529	1.089	0.576	
2535.00	21100	Mid	LTE Band 7	20	24.0	23.58	0.00	1	42133	QPSK	50	0	16 mm	top	1:1	0.416	1.102	0.458	
2535.00	21100	Mid	LTE Band 7	20	25.0	24.63	-0.02	0	42133	QPSK	1	0	0 mm	right	1:1	0.424	1.089	0.462	
2535.00	21100	Mid	LTE Band 7	20	24.0	23.58	-0.06	1	42133	QPSK	50	0	0 mm	right	1:1	0.365	1.102	0.402	
2535.00	21100	Mid	LTE Band 7	20	25.0	24.63	0.05	0	42133	QPSK	1	0	0 mm	left	1:1	0.225	1.089	0.245	
2535.00	21100	Mid	LTE Band 7	20	24.0	23.58	0.03	1	42133	QPSK	50	0	0 mm	left	1:1	0.165	1.102	0.182	
2510.00	20850	Low	LTE Band 7	20	13.0	12.40	0.13	0	42133	QPSK	1	0	0 mm	back	1:1	0.705	1.148	0.809	
2535.00	21100	Mid	LTE Band 7	20	13.0	12.48	-0.17	0	42133	QPSK	1	0	0 mm	back	1:1	0.767	1.127	0.864	A10
2560.00	21350	High	LTE Band 7	20	13.0	12.25	0.15	0	42133	QPSK	1	0	0 mm	back	1:1	0.745	1.189	0.886	
2510.00	20850	Low	LTE Band 7	20	13.0	12.30	0.21	0	42133	QPSK	50	0	0 mm	back	1:1	0.681	1.175	0.800	
2535.00	21100	Mid	LTE Band 7	20	13.0	12.39	0.19	0	42133	QPSK	50	0	0 mm	back	1:1	0.747	1.151	0.860	
2560.00	21350	High	LTE Band 7	20	13.0	12.16	0.19	0	42133	QPSK	50	0	0 mm	back	1:1	0.749	1.213	0.909	
2535.00	21100	Mid	LTE Band 7	20	13.0	12.35	0.19	0	42133	QPSK	100	0	0 mm	back	1:1	0.739	1.161	0.858	
2535.00	21100	Mid	LTE Band 7	20	13.0	12.48	-0.16	0	42133	QPSK	1	0	0 mm	top	1:1	0.484	1.127	0.545	
2535.00	21100	Mid	LTE Band 7	20	13.0	12.39	-0.14	0	42133	QPSK	50	0	0 mm	top	1:1	0.491	1.151	0.565	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 10-9
LTE Band 41 Body SAR

MEASUREMENT RESULTS																					
1 CC Uplink | 2 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.93	0.01	0	42125	QPSK	1	0	16 mm	back	1:1.58	0.499	1.016	0.507	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.87	-0.08	1	42125	QPSK	50	0	16 mm	back	1:1.58	0.354	1.030	0.365	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.93	0.01	0	42125	QPSK	1	0	16 mm	top	1:1.58	0.348	1.016	0.354	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.87	0.00	1	42125	QPSK	50	0	16 mm	top	1:1.58	0.278	1.030	0.286	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.93	-0.07	0	42125	QPSK	1	0	0 mm	right	1:1.58	0.360	1.016	0.366	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.87	0.20	1	42125	QPSK	50	0	0 mm	right	1:1.58	0.307	1.030	0.316	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	24.93	-0.01	0	42125	QPSK	1	0	0 mm	left	1:1.58	0.135	1.016	0.137	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.0	23.87	0.06	1	42125	QPSK	50	0	0 mm	left	1:1.58	0.101	1.030	0.104	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	15.0	14.02	0.20	0	13589	QPSK	1	0	0 mm	back	1:1.58	0.802	1.253	1.005	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	15.0	14.27	0.15	0	13589	QPSK	1	50	0 mm	back	1:1.58	0.830	1.183	0.982	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	15.0	14.60	0.14	0	13589	QPSK	1	0	0 mm	back	1:1.58	0.851	1.096	0.933	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	15.0	14.35	0.10	0	13589	QPSK	1	0	0 mm	back	1:1.58	0.854	1.161	0.991	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	15.0	13.95	0.12	0	13589	QPSK	1	0	0 mm	back	1:1.58	0.840	1.274	1.070	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	15.0	14.01	0.14	0	13589	QPSK	50	0	0 mm	back	1:1.58	0.823	1.256	1.034	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	15.0	14.25	0.13	0	13589	QPSK	50	0	0 mm	back	1:1.58	0.822	1.189	0.977	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	15.0	14.61	0.16	0	13589	QPSK	50	0	0 mm	back	1:1.58	0.851	1.094	0.931	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	15.0	14.32	0.15	0	13589	QPSK	50	0	0 mm	back	1:1.58	0.838	1.169	0.980	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	15.0	13.85	0.16	0	13589	QPSK	50	0	0 mm	back	1:1.58	0.823	1.303	1.072	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	15.0	14.52	0.14	0	13589	QPSK	100	0	0 mm	back	1:1.58	0.841	1.117	0.939	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	15.0	13.87	0.06	0	13589	QPSK	50	0	0 mm	back	1:2.31	0.566	1.297	0.734	
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	15.0	14.50	0.16	0	13589	QPSK	50	0	0 mm	back	1:1.58	0.901	1.122	1.011	A11
2 CC Uplink - Power Class 3	SCC	2660.20	41292	High								QPSK	50	50							
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	15.0	14.60	-0.17	0	13589	QPSK	1	0	0 mm	top	1:1.58	0.465	1.096	0.510	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	15.0	14.61	0.19	0	13589	QPSK	50	0	0 mm	top	1:1.58	0.453	1.094	0.496	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	15.0	14.01	-0.06	0	13589	QPSK	50	0	0 mm	back	1:1.58	0.754	1.256	0.947	
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	15.0	14.50	0.16	0	13589	QPSK	50	0	0 mm	back	1:1.58	0.844	1.122	0.947	
2 CC Uplink - Power Class 3	SCC	2660.20	41292	High								QPSK	50	50							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Blue entry indicates variability measurement.

Table 10-10
2.4 GHz WLAN Body SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	14.0	13.32	0.12	5 mm	1	19107	1	back	98.9	0.258	0.188	1.169	1.011	0.222	
2412	1	802.11b	DSSS	22	14.0	13.32	0.13	0 mm	1	19107	1	top	98.9	0.001	0.009	1.169	1.011	0.011	
2412	1	802.11b	DSSS	22	14.0	13.32	-0.12	0 mm	1	19107	1	bottom	98.9	0.381	0.273	1.169	1.011	0.323	
2412	1	802.11b	DSSS	22	14.0	13.32	0.16	0 mm	1	19107	1	right	98.9	0.077	0.065	1.169	1.011	0.077	
2412	1	802.11b	DSSS	22	13.0	12.45	-0.09	0 mm	1	19107	1	back	98.9	1.138	0.485	1.135	1.011	0.557	
2412	1	802.11b	DSSS	22	14.0	13.32	-0.05	5 mm	2	19107	1	back	99.0	0.449	0.214	1.169	1.010	0.253	
2412	1	802.11b	DSSS	22	14.0	13.32	0.13	0 mm	2	19107	1	top	99.0	0.003	0.002	1.169	1.010	0.002	
2412	1	802.11b	DSSS	22	14.0	13.32	0.09	0 mm	2	19107	1	bottom	99.0	0.169	0.097	1.169	1.010	0.115	
2412	1	802.11b	DSSS	22	14.0	13.32	0.17	0 mm	2	19107	1	right	99.0	0.012	0.008	1.169	1.010	0.009	
2412	1	802.11b	DSSS	22	14.0	13.32	0.19	0 mm	2	19107	1	left	99.0	0.011	0.005	1.169	1.010	0.006	
2437	6	802.11b	DSSS	22	13.0	12.48	-0.10	0 mm	2	19107	1	back	99.0	0.893	0.514	1.127	1.010	0.585	A12
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 10-11
5 GHz WLAN Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5310	62	802.11n	OFDM	40	14.0	13.19	0.21	5 mm	1	19107	13.5	back	94.2	0.462	0.287	1.205	1.062	0.367	
5310	62	802.11n	OFDM	40	14.0	13.19	0.14	0 mm	1	19107	13.5	top	94.2	0.019	0.004	1.205	1.062	0.005	
5310	62	802.11n	OFDM	40	14.0	13.19	-0.12	0 mm	1	19107	13.5	bottom	94.2	0.953	0.332	1.205	1.062	0.425	
5310	62	802.11n	OFDM	40	14.0	13.19	0.19	0 mm	1	19107	13.5	right	94.2	0.122	0.044	1.205	1.062	0.056	
5290	58	802.11ac	OFDM	80	10.0	8.47	-0.10	0 mm	1	19107	29.3	back	87.3	1.434	0.525	1.422	1.145	0.855	
5310	62	802.11n	OFDM	40	14.0	13.12	0.14	5 mm	2	19107	13.5	back	94.4	0.223	0.120	1.225	1.059	0.156	
5310	62	802.11n	OFDM	40	14.0	13.12	-0.16	0 mm	2	19107	13.5	top	94.4	0.002	0.000	1.225	1.059	0.000	
5310	62	802.11n	OFDM	40	14.0	13.12	0.12	0 mm	2	19107	13.5	bottom	94.4	0.353	0.146	1.225	1.059	0.189	
5310	62	802.11n	OFDM	40	14.0	13.12	0.00	0 mm	2	19107	13.5	right	94.4	0.001	0.000	1.225	1.059	0.000	
5310	62	802.11n	OFDM	40	14.0	13.12	0.17	0 mm	2	19107	13.5	left	94.4	0.216	0.062	1.225	1.059	0.080	
5290	58	802.11ac	OFDM	80	10.0	9.47	-0.11	0 mm	2	19107	29.3	back	89.2	0.739	0.343	1.130	1.121	0.434	
5510	102	802.11n	OFDM	40	14.0	13.14	-0.16	5 mm	1	19107	13.5	back	94.2	0.488	0.318	1.219	1.062	0.412	
5510	102	802.11n	OFDM	40	14.0	13.14	-0.14	0 mm	1	19107	13.5	top	94.2	0.008	0.002	1.219	1.062	0.003	
5510	102	802.11n	OFDM	40	14.0	13.14	-0.03	0 mm	1	19107	13.5	bottom	94.2	0.680	0.233	1.219	1.062	0.302	
5510	102	802.11n	OFDM	40	14.0	13.14	0.18	0 mm	1	19107	13.5	right	94.2	0.139	0.044	1.219	1.062	0.057	
5530	106	802.11ac	OFDM	80	10.0	9.04	-0.04	0 mm	1	19107	29.3	back	87.3	0.743	0.534	1.247	1.145	0.762	
5610	122	802.11ac	OFDM	80	10.0	9.16	-0.19	0 mm	1	19107	29.3	back	87.3	2.115	0.724	1.213	1.145	1.006	
5590	118	802.11n	OFDM	40	14.0	13.48	0.19	5 mm	2	19107	13.5	back	94.4	0.488	0.261	1.127	1.059	0.312	
5590	118	802.11n	OFDM	40	14.0	13.48	0.00	0 mm	2	19107	13.5	top	94.4	0.003	0.000	1.127	1.059	0.000	
5590	118	802.11n	OFDM	40	14.0	13.48	0.16	0 mm	2	19107	13.5	bottom	94.4	0.708	0.301	1.127	1.059	0.359	
5590	118	802.11n	OFDM	40	14.0	13.48	0.00	0 mm	2	19107	13.5	right	94.4	0.000	0.000	1.127	1.059	0.000	
5590	118	802.11n	OFDM	40	14.0	13.48	0.11	0 mm	2	19107	13.5	left	94.4	0.179	0.048	1.127	1.059	0.057	
5530	106	802.11ac	OFDM	80	10.0	9.17	0.14	0 mm	2	19107	29.3	back	89.2	1.019	0.421	1.211	1.121	0.572	
5755	151	802.11n	OFDM	40	14.0	12.92	0.04	5 mm	1	19107	13.5	back	94.2	0.447	0.283	1.282	1.062	0.385	
5755	151	802.11n	OFDM	40	14.0	12.92	0.20	0 mm	1	19107	13.5	top	94.2	0.001	0.000	1.282	1.062	0.000	
5755	151	802.11n	OFDM	40	14.0	12.92	0.14	0 mm	1	19107	13.5	bottom	94.2	0.486	0.155	1.282	1.062	0.211	
5755	151	802.11n	OFDM	40	14.0	12.92	0.19	0 mm	1	19107	13.5	right	94.2	0.091	0.022	1.282	1.062	0.030	
5775	155	802.11ac	OFDM	80	10.0	9.26	-0.15	0 mm	1	19107	29.3	back	87.3	2.141	0.861	1.186	1.145	1.169	
5795	159	802.11n	OFDM	40	14.0	13.42	-0.06	5 mm	2	19107	13.5	back	94.4	0.380	0.183	1.143	1.059	0.222	
5795	159	802.11n	OFDM	40	14.0	13.42	0.20	0 mm	2	19107	13.5	top	94.4	0.007	0.000	1.143	1.059	0.000	
5795	159	802.11n	OFDM	40	14.0	13.42	0.13	0 mm	2	19107	13.5	bottom	94.4	0.581	0.210	1.143	1.059	0.254	
5795	159	802.11n	OFDM	40	14.0	13.42	0.00	0 mm	2	19107	13.5	right	94.4	0.002	0.000	1.143	1.059	0.000	
5795	159	802.11n	OFDM	40	14.0	13.42	-0.13	0 mm	2	19107	13.5	left	94.4	0.101	0.027	1.143	1.059	0.033	
5775	155	802.11ac	OFDM	80	10.0	8.88	-0.15	0 mm	2	19107	29.3	back	89.2	1.490	0.434	1.294	1.121	0.630	
5775	155	802.11ac	OFDM	80	10.0	9.26	-0.14	0 mm	1	19107	29.3	back	87.3	2.186	0.866	1.186	1.145	1.176	A13
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Note: Blue entry indicates variability measurement.

Table 10-12
DSS Body SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2480	78	Bluetooth	FHSS	9.5	8.32	-0.11	0 mm	19107	1	back	77.3	0.295	1.312	1.294	**0.501**	A14
2480	78	Bluetooth	FHSS	9.5	8.32	0.16	0 mm	19107	1	top	77.3	0.000	1.312	1.294	0.000	
2480	78	Bluetooth	FHSS	9.5	8.32	0.04	0 mm	19107	1	bottom	77.3	0.112	1.312	1.294	0.190	
2480	78	Bluetooth	FHSS	9.5	8.32	0.18	0 mm	19107	1	right	77.3	0.028	1.312	1.294	0.048	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram									

10.2 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 616217 D04v01r02 and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 12 for variability analysis.
7. FCC KDB Publication 616217 D04v01r02 Section 4.3, SAR tests are required for the back surface and edges of the tablet with the tablet touching the phantom. The SAR Exclusion Threshold in FCC KDB 447498 D01v06 was applied to determine SAR test exclusion for adjacent edge configurations.

CDMA/EVDO Notes:

1. CDMA Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01v03r01 procedures for data devices. Wireless Router SAR tests for Subtype 2 of Rev.A and 1x RTT configurations were not required per the 3G SAR Test Reduction Policy in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 7.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

4. Per FCC KDB Publication 447498 D01v06, when the reported LTE Band 41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions. Please see Section 13 for linearity results.
8. For LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

WLAN Notes:
1. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 7.6.4 for more information.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 7.6.5 for more information.
3. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Section 11 for complete analysis.
4. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

Bluetooth Notes
1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 8.4 for the time domain plot and calculation for the duty factor of the device.

11 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

11.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to devices with built-in unlicensed transmitters such as 802.11 and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

11.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6 W/kg. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g SAR.

11.3 Body SAR Simultaneous Transmission Analysis

Table 11-1
Simultaneous Transmission Scenario with 2.4 GHz WLAN

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.883	0.557	0.585	1.440	**1.468**	See Note 1	0.01	0.01	0.01
	Top	1.247	0.011	0.002	1.258	1.249	1.260	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	0.278	0.077	0.009	0.355	0.287	0.364	N/A	N/A	N/A
	Left	0.150	0.400	0.006	0.550	0.156	0.556	N/A	N/A	N/A

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.995	0.557	0.585	1.552	**1.580**	See Note 1	0.01	0.01	0.01
	Top	1.371	0.011	0.002	1.382	1.373	1.384	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	0.297	0.077	0.009	0.374	0.306	0.383	N/A	N/A	N/A
	Left	0.178	0.400	0.006	0.578	0.184	0.584	N/A	N/A	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.088	0.557	0.585	See Note 1	See Note 1	See Note 1	0.01	0.01	0.01
	Top	1.029	0.011	0.002	1.040	1.031	1.042	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	1.032	0.077	0.009	1.109	1.041	**1.118**	N/A	N/A	N/A
	Left	0.374	0.400	0.006	0.774	0.380	0.780	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.671	0.557	0.585	1.228	**1.256**	See Note 1	0.01	0.01	0.01
	Top	0.732	0.011	0.002	0.743	0.734	0.745	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	0.188	0.077	0.009	0.265	0.197	0.274	N/A	N/A	N/A
	Left	0.250	0.400	0.006	0.650	0.256	0.656	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.856	0.557	0.585	1.413	**1.441**	See Note 1	0.01	0.01	0.01
	Top	1.068	0.011	0.002	1.079	1.070	1.081	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	0.281	0.077	0.009	0.358	0.290	0.367	N/A	N/A	N/A
	Left	0.219	0.400	0.006	0.619	0.225	0.625	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.034	0.557	0.585	**1.591**	See Note 1	See Note 1	0.01	0.01	0.01
	Top	1.352	0.011	0.002	1.363	1.354	1.365	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	0.253	0.077	0.009	0.330	0.262	0.339	N/A	N/A	N/A
	Left	0.147	0.400	0.006	0.547	0.153	0.553	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.063	0.557	0.585	See Note 1	See Note 1	See Note 1	0.01	0.01	0.01
	Top	1.398	0.011	0.002	1.409	1.400	**1.411**	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	0.289	0.077	0.009	0.366	0.298	0.375	N/A	N/A	N/A
	Left	0.188	0.400	0.006	0.588	0.194	0.594	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.117	0.557	0.585	See Note 1	See Note 1	See Note 1	0.01	0.01	0.01
	Top	1.070	0.011	0.002	1.081	1.072	1.083	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	1.366	0.077	0.009	1.443	1.375	**1.452**	N/A	N/A	N/A
	Left	0.556	0.400	0.006	0.956	0.562	0.962	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.181	0.557	0.585	See Note 1	See Note 1	See Note 1	0.01	0.01	0.01
	Top	0.939	0.011	0.002	0.950	0.941	**0.952**	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	0.388	0.077	0.009	0.465	0.397	0.474	N/A	N/A	N/A
	Left	0.283	0.400	0.006	0.683	0.289	0.689	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 7 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.909	0.557	0.585	1.466	**1.494**	See Note 1	0.01	0.01	0.01
	Top	0.576	0.011	0.002	0.587	0.578	0.589	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	0.838	N/A	N/A	N/A
	Right	0.462	0.077	0.009	0.539	0.471	0.548	N/A	N/A	N/A
	Left	0.245	0.400	0.006	0.645	0.251	0.651	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.072	0.557	0.585	See Note 1	See Note 1	See Note 1	0.01	0.01	0.01
	Top	0.510	0.011	0.002	0.521	0.512	0.523	N/A	N/A	N/A
	Bottom	0.400	0.323	0.115	0.723	0.515	**0.838**	N/A	N/A	N/A
	Right	0.366	0.077	0.009	0.443	0.375	0.452	N/A	N/A	N/A
	Left	0.137	0.400	0.006	0.537	0.143	0.543	N/A	N/A	N/A

Table 11-2
Simultaneous Transmission Scenario with 5 GHz WLAN

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.883	1.176	0.630	See Note 1	**1.513**	See Note 1	0.01	0.01	0.02
	Top	1.247	0.005	0.000	1.252	1.247	1.252	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	1.184	N/A	N/A	N/A
	Right	0.278	0.057	0.000	0.335	0.278	0.335	N/A	N/A	N/A
	Left	0.150	0.400	0.080	0.550	0.230	0.630	N/A	N/A	N/A

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.995	1.176	0.630	See Note 1	See Note 1	See Note 1	0.01	0.01	0.02
	Top	1.371	0.005	0.000	**1.376**	1.371	**1.376**	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	1.184	N/A	N/A	N/A
	Right	0.297	0.057	0.000	0.354	0.297	0.354	N/A	N/A	N/A
	Left	0.178	0.400	0.080	0.578	0.258	0.658	N/A	N/A	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.088	1.176	0.630	See Note 1	See Note 1	See Note 1	0.01	0.01	0.02
	Top	1.029	0.005	0.000	1.034	1.029	1.034	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	**1.184**	N/A	N/A	N/A
	Right	1.032	0.057	0.000	1.089	1.032	1.089	N/A	N/A	N/A
	Left	0.374	0.400	0.080	0.774	0.454	0.854	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.671	1.176	0.630	See Note 1	**1.301**	See Note 1	0.01	0.01	0.02
	Top	0.732	0.005	0.000	0.737	0.732	0.737	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	1.184	N/A	N/A	N/A
	Right	0.188	0.057	0.000	0.245	0.188	0.245	N/A	N/A	N/A
	Left	0.250	0.400	0.080	0.650	0.330	0.730	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.856	1.176	0.630	See Note 1	**1.486**	See Note 1	0.01	0.01	0.02
	Top	1.068	0.005	0.000	1.073	1.068	1.073	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	1.184	N/A	N/A	N/A
	Right	0.281	0.057	0.000	0.338	0.281	0.338	N/A	N/A	N/A
	Left	0.219	0.400	0.080	0.619	0.299	0.699	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.034	1.176	0.630	See Note 1	See Note 1	See Note 1	0.01	0.01	0.02
	Top	1.352	0.005	0.000	**1.357**	1.352	**1.357**	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	1.184	N/A	N/A	N/A
	Right	0.253	0.057	0.000	0.310	0.253	0.310	N/A	N/A	N/A
	Left	0.147	0.400	0.080	0.547	0.227	0.627	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.063	1.176	0.630	See Note 1	See Note 1	See Note 1	0.01	0.01	0.02
	Top	1.398	0.005	0.000	**1.403**	1.398	**1.403**	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	1.184	N/A	N/A	N/A
	Right	0.289	0.057	0.000	0.346	0.289	0.346	N/A	N/A	N/A
	Left	0.188	0.400	0.080	0.588	0.268	0.668	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.117	1.176	0.630	See Note 1	See Note 1	See Note 1	0.01	0.01	0.02
	Top	1.070	0.005	0.000	1.075	1.070	1.075	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	1.184	N/A	N/A	N/A
	Right	1.366	0.057	0.000	**1.423**	1.366	**1.423**	N/A	N/A	N/A
	Left	0.556	0.400	0.080	0.956	0.636	1.036	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.181	1.176	0.630	See Note 1	See Note 1	See Note 1	0.01	0.01	0.02
	Top	0.939	0.005	0.000	0.944	0.939	0.944	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	**1.184**	N/A	N/A	N/A
	Right	0.388	0.057	0.000	0.445	0.388	0.445	N/A	N/A	N/A
	Left	0.283	0.400	0.080	0.683	0.363	0.763	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 7 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.909	1.176	0.630	See Note 1	**1.539**	See Note 1	0.01	0.01	0.02
	Top	0.576	0.005	0.000	0.581	0.576	0.581	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	1.184	N/A	N/A	N/A
	Right	0.462	0.057	0.000	0.519	0.462	0.519	N/A	N/A	N/A
	Left	0.245	0.400	0.080	0.645	0.325	0.725	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.072	1.176	0.630	See Note 1	See Note 1	See Note 1	0.01	0.01	0.02
	Top	0.510	0.005	0.000	0.515	0.510	0.515	N/A	N/A	N/A
	Bottom	0.400	0.425	0.359	0.825	0.759	**1.184**	N/A	N/A	N/A
	Right	0.366	0.057	0.000	0.423	0.366	0.423	N/A	N/A	N/A
	Left	0.137	0.400	0.080	0.537	0.217	0.617	N/A	N/A	N/A

Table 11-3
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.883	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	1.247	0.011	0.000	**1.258**	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	1.082	N/A	N/A	N/A
	Right	0.278	0.077	0.000	0.355	N/A	N/A	N/A
	Left	0.150	0.400	0.080	0.630	N/A	N/A	N/A

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.995	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	1.371	0.011	0.000	**1.382**	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	1.082	N/A	N/A	N/A
	Right	0.297	0.077	0.000	0.374	N/A	N/A	N/A
	Left	0.178	0.400	0.080	0.658	N/A	N/A	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.088	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	1.029	0.011	0.000	1.040	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	1.082	N/A	N/A	N/A
	Right	1.032	0.077	0.000	**1.109**	N/A	N/A	N/A
	Left	0.374	0.400	0.080	0.854	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.671	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	0.732	0.011	0.000	0.743	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	**1.082**	N/A	N/A	N/A
	Right	0.188	0.077	0.000	0.265	N/A	N/A	N/A
	Left	0.250	0.400	0.080	0.730	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.856	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	1.068	0.011	0.000	1.079	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	**1.082**	N/A	N/A	N/A
	Right	0.281	0.077	0.000	0.358	N/A	N/A	N/A
	Left	0.219	0.400	0.080	0.699	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.034	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	1.352	0.011	0.000	1.363	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	1.082	N/A	N/A	N/A
	Right	0.253	0.077	0.000	0.330	N/A	N/A	N/A
	Left	0.147	0.400	0.080	0.627	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.063	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	1.398	0.011	0.000	**1.409**	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	1.082	N/A	N/A	N/A
	Right	0.289	0.077	0.000	0.366	N/A	N/A	N/A
	Left	0.188	0.400	0.080	0.668	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.117	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	1.070	0.011	0.000	1.081	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	1.082	N/A	N/A	N/A
	Right	1.366	0.077	0.000	**1.443**	N/A	N/A	N/A
	Left	0.556	0.400	0.080	1.036	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.181	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	0.939	0.011	0.000	0.950	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	**1.082**	N/A	N/A	N/A
	Right	0.388	0.077	0.000	0.465	N/A	N/A	N/A
	Left	0.283	0.400	0.080	0.763	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 7 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	0.909	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	0.576	0.011	0.000	0.587	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	**1.082**	N/A	N/A	N/A
	Right	0.462	0.077	0.000	0.539	N/A	N/A	N/A
	Left	0.245	0.400	0.080	0.725	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body SAR	Back	1.072	0.557	0.630	See Note 1	0.01	0.01	0.01
	Top	0.510	0.011	0.000	0.521	N/A	N/A	N/A
	Bottom	0.400	0.323	0.359	**1.082**	N/A	N/A	N/A
	Right	0.366	0.077	0.000	0.443	N/A	N/A	N/A
	Left	0.137	0.400	0.080	0.617	N/A	N/A	N/A

Table 11-4
Simultaneous Transmission Scenario with Bluetooth

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	0.883	0.501	**1.384**
	Top	1.247	0.000	1.247
	Bottom	0.400	0.190	0.590
	Right	0.278	0.048	0.326
	Left	0.150	0.400	0.550

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	0.995	0.501	**1.496**
	Top	1.371	0.000	1.371
	Bottom	0.400	0.190	0.590
	Right	0.297	0.048	0.345
	Left	0.178	0.400	0.578

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	1.088	0.501	**1.589**
	Top	1.029	0.000	1.029
	Bottom	0.400	0.190	0.590
	Right	1.032	0.048	1.080
	Left	0.374	0.400	0.774

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	0.671	0.501	**1.172**
	Top	0.732	0.000	0.732
	Bottom	0.400	0.190	0.590
	Right	0.188	0.048	0.236
	Left	0.250	0.400	0.650

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	0.856	0.501	**1.357**
	Top	1.068	0.000	1.068
	Bottom	0.400	0.190	0.590
	Right	0.281	0.048	0.329
	Left	0.219	0.400	0.619

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	1.034	0.501	**1.535**
	Top	1.352	0.000	1.352
	Bottom	0.400	0.190	0.590
	Right	0.253	0.048	0.301
	Left	0.147	0.400	0.547

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	1.063	0.501	**1.564**
	Top	1.398	0.000	1.398
	Bottom	0.400	0.190	0.590
	Right	0.289	0.048	0.337
	Left	0.188	0.400	0.588

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body SAR	Back	1.117	0.501	See Note 1	0.01
	Top	1.070	0.000	1.070	N/A
	Bottom	0.400	0.190	0.590	N/A
	Right	1.366	0.048	**1.414**	N/A
	Left	0.556	0.400	0.956	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body SAR	Back	1.181	0.501	See Note 1	0.01
	Top	0.939	0.000	**0.939**	N/A
	Bottom	0.400	0.190	0.590	N/A
	Right	0.388	0.048	0.436	N/A
	Left	0.283	0.400	0.683	N/A

Simult Tx	Configuration	LTE Band 7 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	0.909	0.501	**1.410**
	Top	0.576	0.000	0.576
	Bottom	0.400	0.190	0.590
	Right	0.462	0.048	0.510
	Left	0.245	0.400	0.645

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	1.072	0.501	**1.573**
	Top	0.510	0.000	0.510
	Bottom	0.400	0.190	0.590
	Right	0.366	0.048	0.414
	Left	0.137	0.400	0.537

Notes:

1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 11.4 for detailed SPLS ratio analysis.
2. For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.
3. When the antenna separation distance was > 50 mm, an estimated SAR of 0.4 W/kg was used to determine the simultaneous transmission SAR exclusion for test positions excluded per FCC KDB Publication 447498 D01v06.

11.4 SPLSR Evaluation and Analysis

Per FCC KDB Publication 447498 D01v06, when the sum of the standalone transmitters is more than 1.6 W/kg for 1g, the SAR sum to peak locations can be analyzed to determine SAR distribution overlaps. When the SAR peak to location ratio (shown below) for each pair of antennas is $\leq$ 0.04 for 1g, simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formula.

$$\text{Distance}_{Tx1-Tx2} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

$$\text{SPLS Ratio} = \frac{(SAR_1 + SAR_2)^{1.5}}{R_i}$$

11.4.1 Back Side SPLSR Evaluation and Analysis

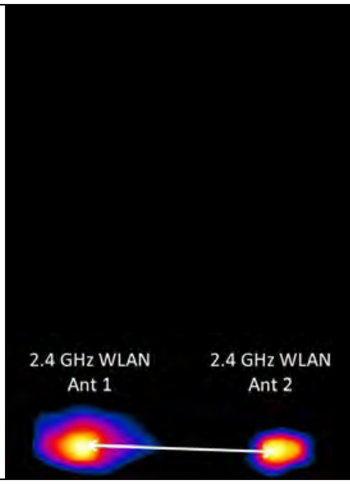
Table 11-5
Peak SAR Locations for Body Back Side

Mode/Band	x (mm)	y (mm)
2.4 GHz WLAN Ant 1	-68.00	-112.00
2.4 GHz WLAN Ant 2	29.20	-122.80
5 GHz WLAN Ant 1	-64.00	-120.00
5 GHz WLAN Ant 2	36.00	-119.00
Bluetooth	-63.00	-114.80
EVDO BC10 (§90S)	-26.00	125.50
EVDO BC0 (§22H)	-21.50	127.00
PCS EVDO	-35.00	116.50
LTE Band 12	-20.00	130.00
LTE Band 13	-23.00	128.50
LTE Band 26 (Cell)	-21.50	127.00
LTE Band 5 (Cell)	-20.00	127.00
LTE Band 4 (AWS)	-38.00	116.50
LTE Band 25 (PCS)	-41.50	124.50
LTE Band 7	-42.80	120.40
LTE Band 41	-47.80	121.60

Table 11-6
Back Side SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
2.4 GHz WLAN Ant 1	2.4 GHz WLAN Ant 2	0.557	0.585	1.142	97.80	0.01	1
5 GHz WLAN Ant 1	5 GHz WLAN Ant 2	1.176	0.63	1.806	100.00	0.02	2
2.4 GHz WLAN Ant 1	5 GHz WLAN Ant 2	0.557	0.63	1.187	104.24	0.01	3
2.4 GHz WLAN Ant 1	EVDO BC10 (§90S)	0.557	0.883	1.440	241.19	0.01	4, 6
2.4 GHz WLAN Ant 2	EVDO BC10 (§90S)	0.585	0.883	1.468	254.36	0.01	4
5 GHz WLAN Ant 1	EVDO BC10 (§90S)	1.176	0.883	2.059	248.42	0.01	5
5 GHz WLAN Ant 2	EVDO BC10 (§90S)	0.63	0.883	1.513	252.24	0.01	5, 6
2.4 GHz WLAN Ant 1	EVDO BC0 (§22H)	0.557	0.995	1.552	243.48	0.01	7, 9
2.4 GHz WLAN Ant 2	EVDO BC0 (§22H)	0.585	0.995	1.580	254.89	0.01	7
5 GHz WLAN Ant 1	EVDO BC0 (§22H)	1.176	0.995	2.171	250.63	0.01	8
5 GHz WLAN Ant 2	EVDO BC0 (§22H)	0.63	0.995	1.625	252.63	0.01	8, 9
2.4 GHz WLAN Ant 1	PCS EVDO	0.557	1.088	1.645	230.87	0.01	10, 12
2.4 GHz WLAN Ant 2	PCS EVDO	0.585	1.088	1.673	247.76	0.01	10
5 GHz WLAN Ant 1	PCS EVDO	1.176	1.088	2.264	238.27	0.01	11
5 GHz WLAN Ant 2	PCS EVDO	0.63	1.088	1.718	245.97	0.01	11, 12
2.4 GHz WLAN Ant 1	LTE Band 12	0.557	0.671	1.228	246.71	0.01	13, 15
2.4 GHz WLAN Ant 2	LTE Band 12	0.585	0.671	1.256	257.54	0.01	13
5 GHz WLAN Ant 1	LTE Band 12	1.176	0.671	1.847	253.84	0.01	14
5 GHz WLAN Ant 2	LTE Band 12	0.63	0.671	1.301	255.22	0.01	14, 15
2.4 GHz WLAN Ant 1	LTE Band 13	0.557	0.856	1.413	244.67	0.01	16, 18
2.4 GHz WLAN Ant 2	LTE Band 13	0.585	0.856	1.441	256.66	0.01	16
5 GHz WLAN Ant 1	LTE Band 13	1.176	0.856	2.032	251.86	0.01	17
5 GHz WLAN Ant 2	LTE Band 13	0.63	0.856	1.486	254.44	0.01	17, 18
2.4 GHz WLAN Ant 1	LTE Band 26 (Cell)	0.557	1.034	1.591	243.48	0.01	19, 21
2.4 GHz WLAN Ant 2	LTE Band 26 (Cell)	0.585	1.034	1.619	254.89	0.01	19
5 GHz WLAN Ant 1	LTE Band 26 (Cell)	1.176	1.034	2.210	250.63	0.01	20
5 GHz WLAN Ant 2	LTE Band 26 (Cell)	0.63	1.034	1.664	252.63	0.01	20, 21
2.4 GHz WLAN Ant 1	LTE Band 5 (Cell)	0.557	1.063	1.620	243.77	0.01	22, 24
2.4 GHz WLAN Ant 2	LTE Band 5 (Cell)	0.585	1.063	1.648	254.60	0.01	22
5 GHz WLAN Ant 1	LTE Band 5 (Cell)	1.176	1.063	2.239	250.89	0.01	23
5 GHz WLAN Ant 2	LTE Band 5 (Cell)	0.63	1.063	1.693	252.29	0.01	23, 24
2.4 GHz WLAN Ant 1	LTE Band 4 (AWS)	0.557	1.117	1.674	230.46	0.01	25, 27
2.4 GHz WLAN Ant 2	LTE Band 4 (AWS)	0.585	1.117	1.702	248.56	0.01	25
5 GHz WLAN Ant 1	LTE Band 4 (AWS)	1.176	1.117	2.293	237.92	0.01	26
5 GHz WLAN Ant 2	LTE Band 4 (AWS)	0.63	1.117	1.747	246.85	0.01	26, 27
2.4 GHz WLAN Ant 1	LTE Band 25 (PCS)	0.557	1.181	1.738	237.98	0.01	28, 30
2.4 GHz WLAN Ant 2	LTE Band 25 (PCS)	0.585	1.181	1.766	257.21	0.01	28
5 GHz WLAN Ant 1	LTE Band 25 (PCS)	1.176	1.181	2.357	245.53	0.01	29
5 GHz WLAN Ant 2	LTE Band 25 (PCS)	0.63	1.181	1.811	255.54	0.01	29, 30
2.4 GHz WLAN Ant 1	LTE Band 7	0.557	0.909	1.466	233.76	0.01	31, 33
2.4 GHz WLAN Ant 2	LTE Band 7	0.585	0.909	1.494	253.63	0.01	31
5 GHz WLAN Ant 1	LTE Band 7	1.176	0.909	2.085	241.33	0.01	32
5 GHz WLAN Ant 2	LTE Band 7	0.63	0.909	1.539	252.04	0.01	32, 33
2.4 GHz WLAN Ant 1	LTE Band 41	0.557	1.072	1.629	234.47	0.01	34, 36
2.4 GHz WLAN Ant 2	LTE Band 41	0.585	1.072	1.657	256.24	0.01	34
5 GHz WLAN Ant 1	LTE Band 41	1.176	1.072	2.248	242.14	0.01	35
5 GHz WLAN Ant 2	LTE Band 41	0.63	1.072	1.702	254.78	0.01	35, 36
Bluetooth	LTE Band 4 (AWS)	0.501	1.117	1.618	232.65	0.01	37
Bluetooth	LTE Band 25 (PCS)	0.501	1.181	1.682	240.26	0.01	38

Table 11-7
Back Side SAR to Peak Location Separation Ratio Plots



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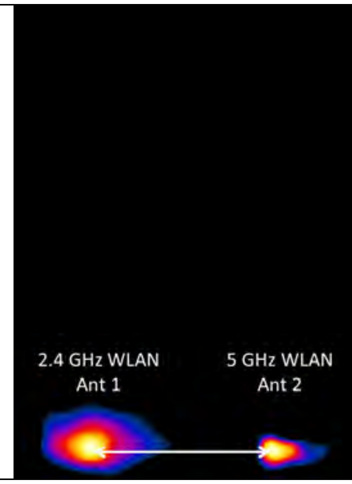

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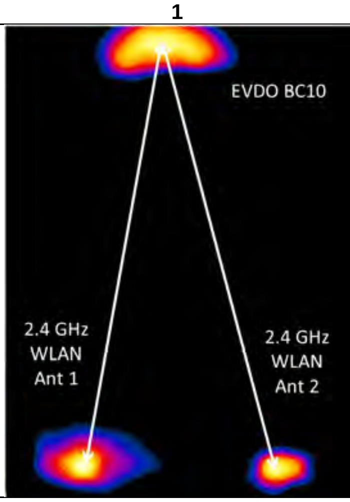

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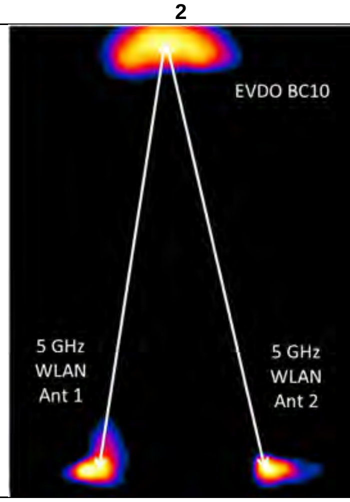

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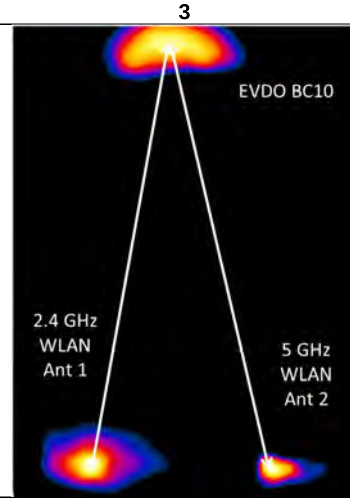

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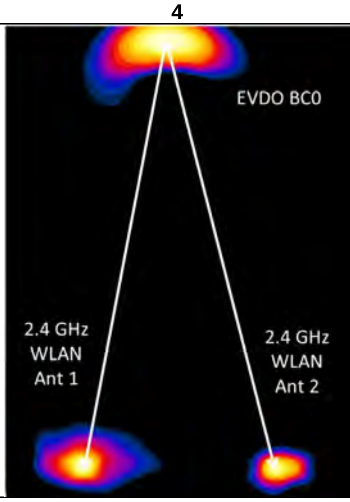

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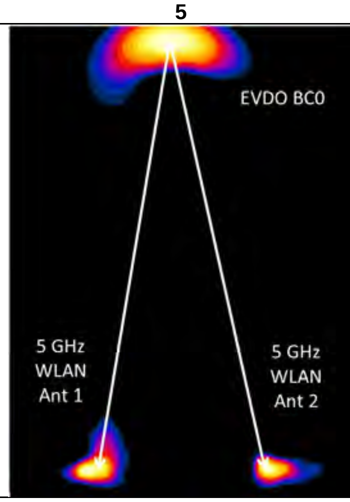

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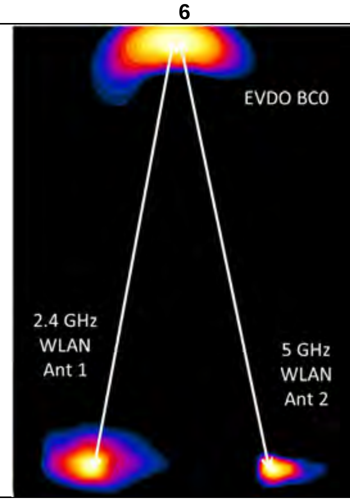

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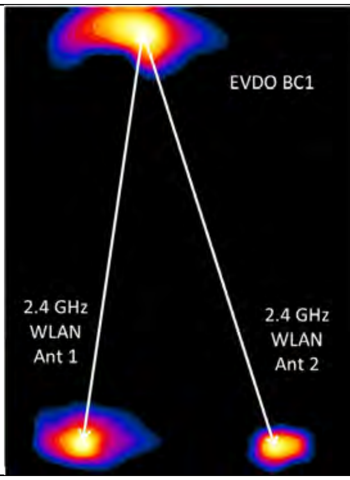

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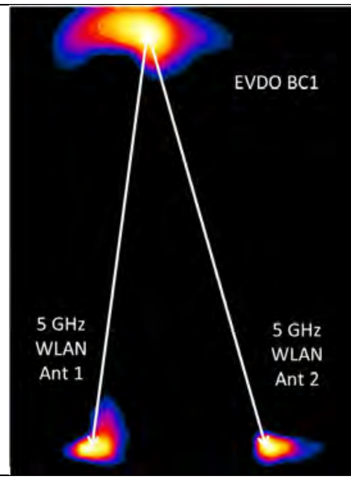

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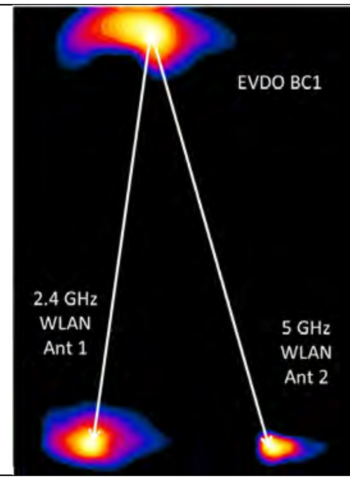

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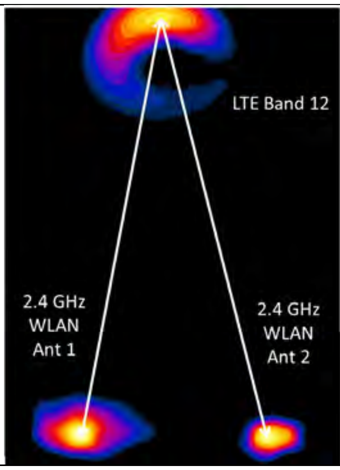

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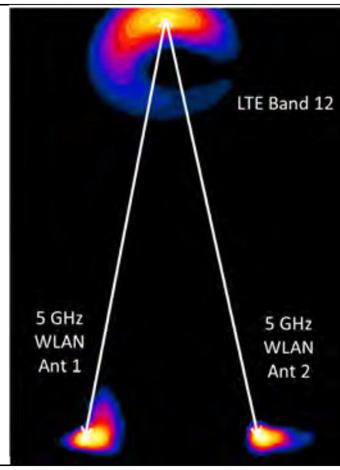

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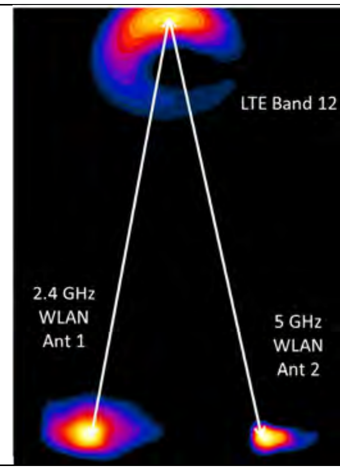

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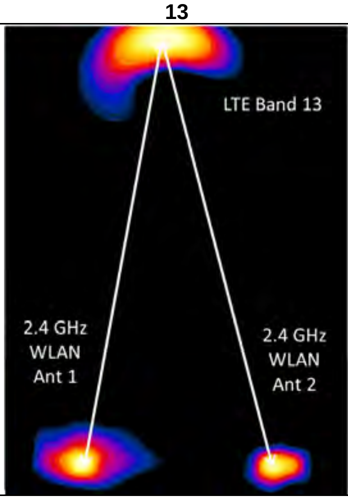

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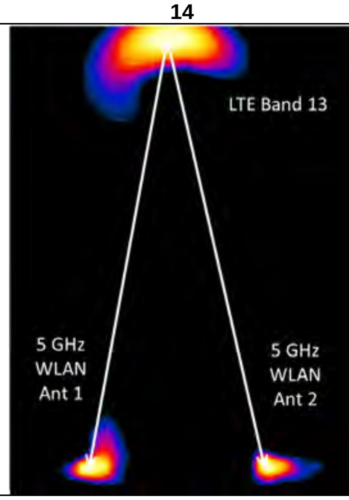

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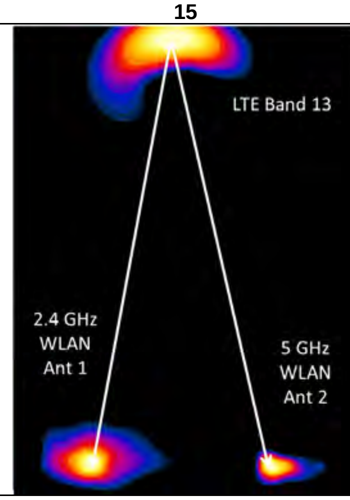

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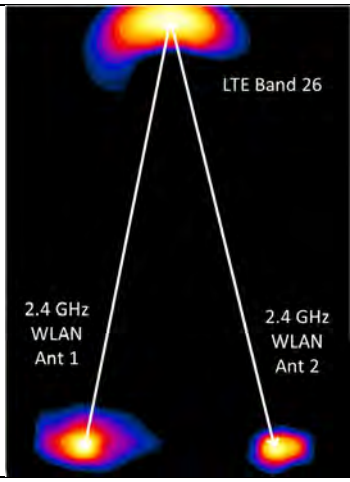

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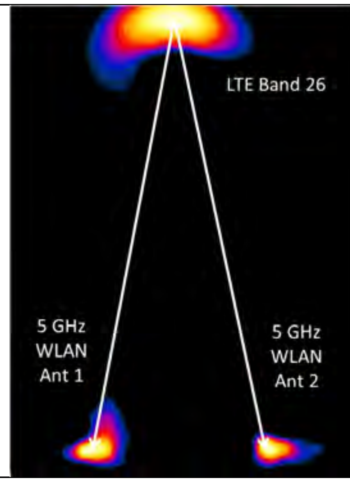

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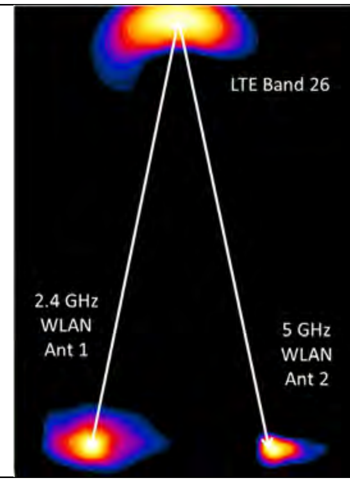

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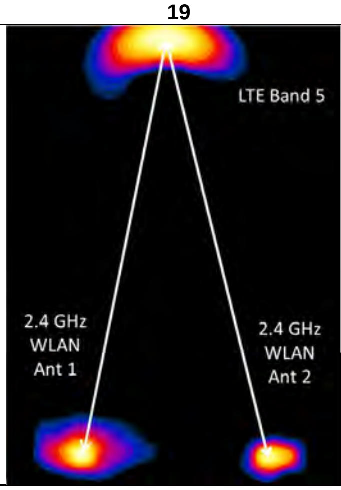

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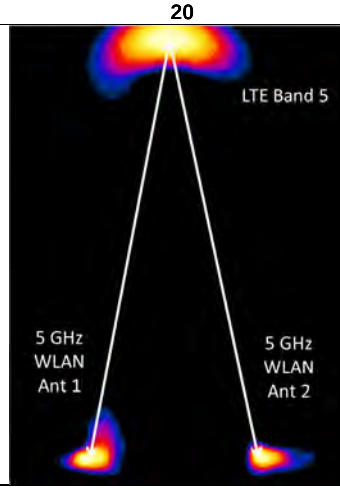

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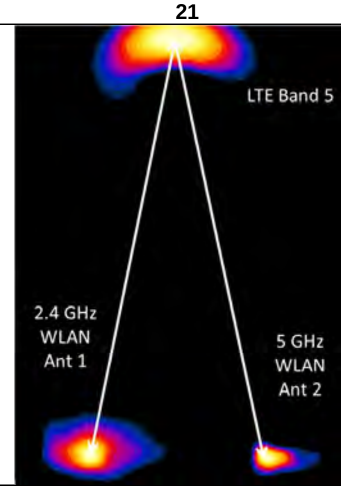

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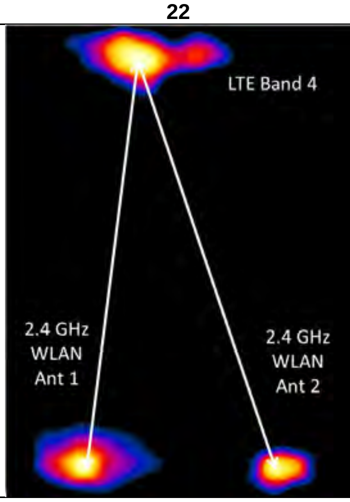

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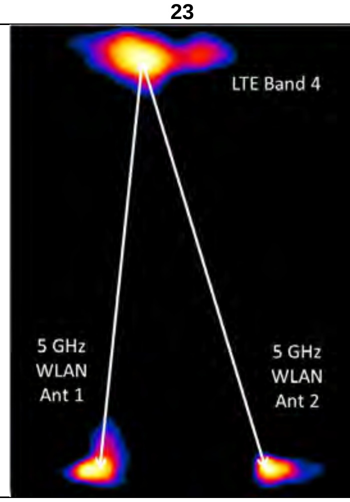

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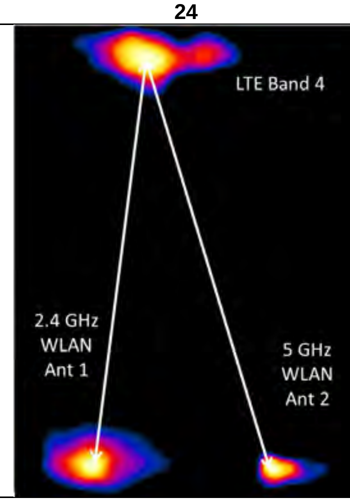

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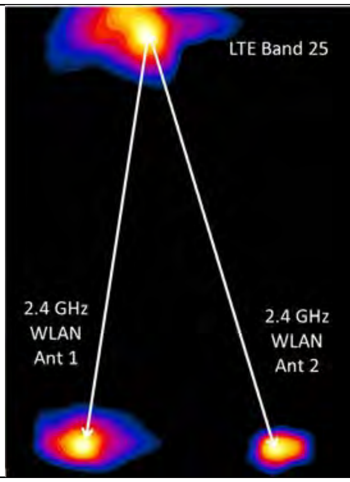

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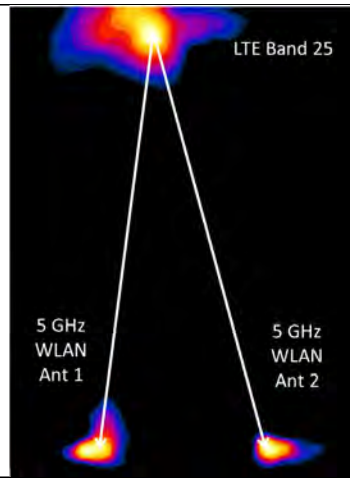

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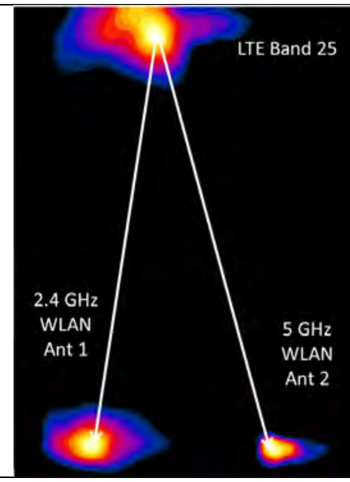

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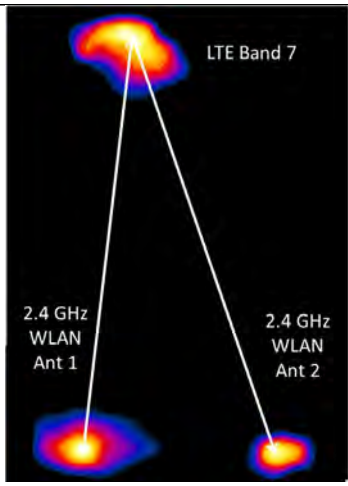

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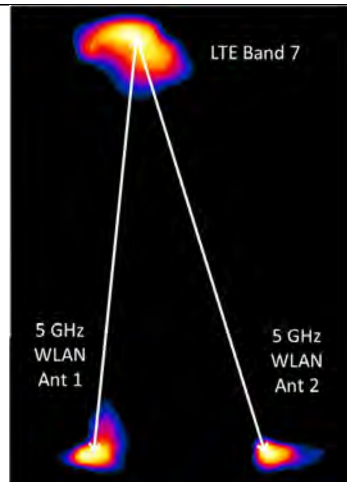

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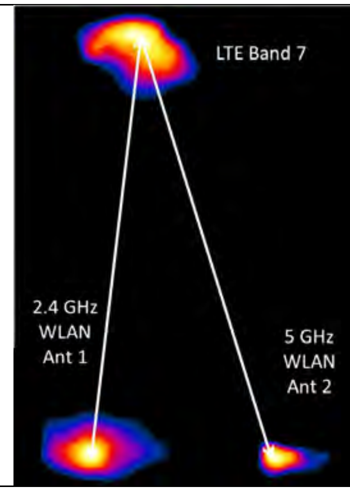

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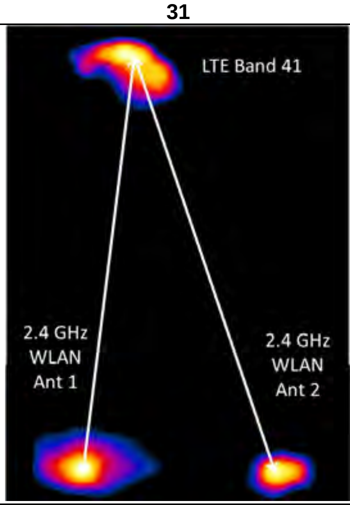

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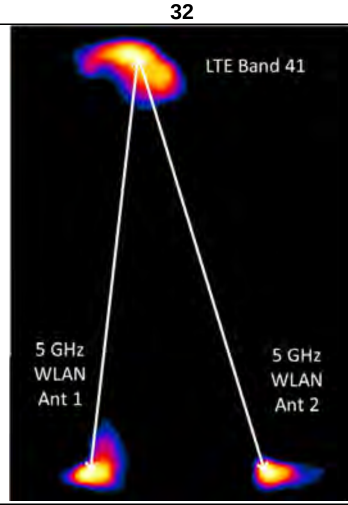

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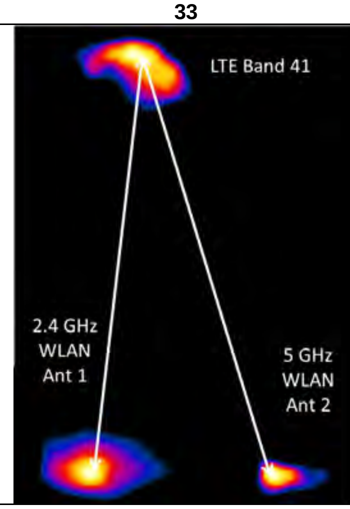

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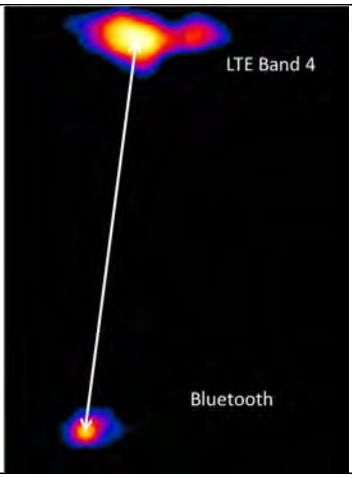
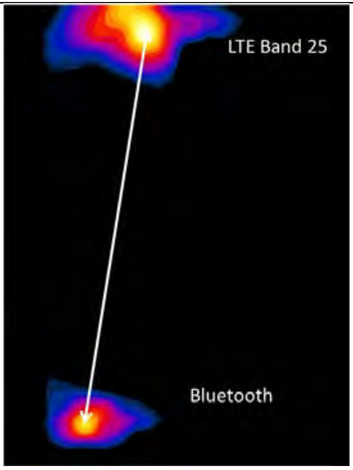
	
37	**38**

11.5 Simultaneous Transmission Conclusion

The above numerical summed SAR results and SPLSR analysis are sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528- 2013 Section 6.3.4.1.

12 SAR MEASUREMENT VARIABILITY

12.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1g SAR limit).
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

Table 12-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS															
Band	Component Carrier	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
		MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
750	N/A	782.00	23230	LTE Band 13, 10 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	N/A	top	16 mm	0.905	0.888	1.02	N/A	N/A	N/A	N/A
835	N/A	824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	N/A	top	16 mm	1.170	1.160	1.01	N/A	N/A	N/A	N/A
1750	N/A	1732.50	20175	LTE Band 4 (AWS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	N/A	right	0 mm	1.100	1.100	1.00	N/A	N/A	N/A	N/A
1900	N/A	1905.00	26590	LTE Band 25 (PCS), 20 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	N/A	back	0 mm	0.971	1.010	1.04	N/A	N/A	N/A	N/A
2450	N/A	2506.00	39750	LTE Band 41, 20 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	N/A	back	0 mm	0.823	0.754	1.09	N/A	N/A	N/A	N/A
2600	PCC	2680.00	41490	LTE Band 41, 20 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	N/A	back	0 mm	0.901	0.844	1.07	N/A	N/A	N/A	N/A
	SCC	2660.20	41292		QPSK, 50 RB, 50 RB Offset										
5750	N/A	5775.00	155	802.11ac, 80 MHz Bandwidth	OFDM, ANT 1	29.3	back	0 mm	0.861	0.866	1.01	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram							

12.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

13 ADDITIONAL TESTING PER FCC GUIDANCE

13.1 LTE Band 41 Power Class 2 and Power Class 3 Linearity

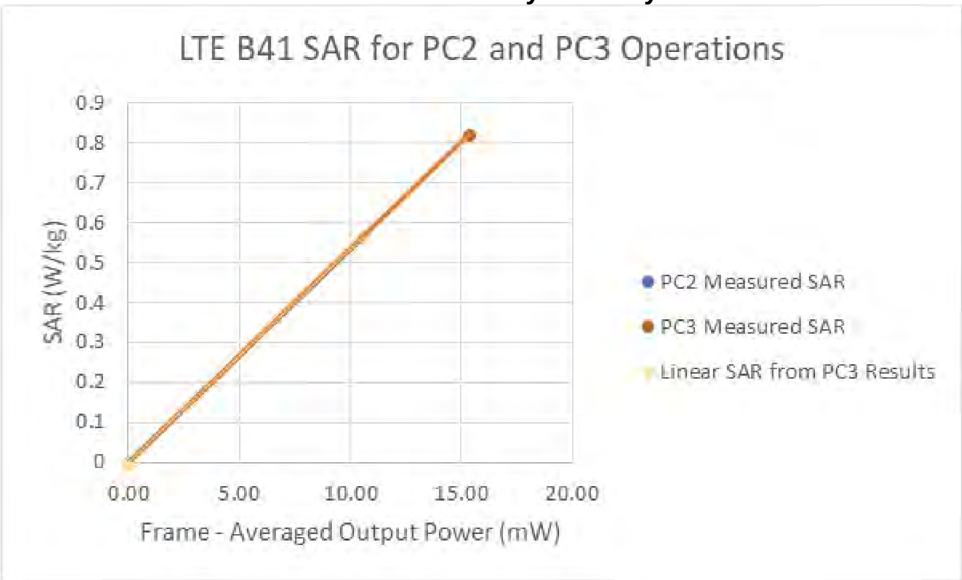
This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the highest power and available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR for each exposure condition. The linearity between the Power Class 2 and Power Class 3 SAR results and the respective frame averaged powers was calculated to determine that the results were linear. Per May 2017 TCB Workshop, no additional SAR measurements were required since the linearity between power classes as < 10% and all reported SAR values were < 1.4 W/kg for 1g and < 3.5 W/kg for 10g.

LTE Band 41 SAR testing with power class 2 at the highest power and available duty factor was additionally performed for the power class 3 configuration with the highest SAR for each exposure condition.

Table 13-1
LTE Band 41 Body Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	15	15
Measured Output Power (dBm)	13.85	13.87
Measured SAR (W/kg)	0.823	0.566
Measured Power (mW)	24.27	24.38
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	15.36	10.56
% deviation from expected linearity		0.08%

Figure 13-1
LTE Band 41 Body Linearity



14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/17/2017	Annual	8/17/2018	MY40003841
Agilent	8753ES	S-Parameter Network Analyzer	2/8/2018	Annual	2/8/2019	US39170122
Agilent	E4432B	ESG-D Series Signal Generator	4/19/2018	Annual	4/19/2019	US40053896
Agilent	E4438C	ESG Vector Signal Generator	3/24/2017	Biennial	3/24/2019	MY42082385
Agilent	E4438C	ESG Vector Signal Generator	3/23/2017	Biennial	3/23/2019	MY42082659
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	11/15/2017	Annual	11/15/2018	GB42230325
Agilent	E5515C	Wireless Communications Test Set	5/22/2018	Biennial	5/22/2020	GB43193563
Agilent	E5515C	Wireless Communications Test Set	2/7/2018	Triennial	2/7/2021	GB43304447
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Agilent	N5182A	MXG Vector Signal Generator	11/1/2017	Annual	11/1/2018	MY47420603
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	Annual	1/24/2019	US46470561
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433972
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1231535
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1231538
Anritsu	MA2411B	Pulse Power Sensor	3/2/2018	Annual	3/2/2019	1207364
Anritsu	MA2411B	Pulse Power Sensor	3/2/2018	Annual	3/2/2019	1339018
Anritsu	ML2495A	Power Meter	10/22/2017	Annual	10/22/2018	941001
Anritsu	ML2495A	Power Meter	11/28/2017	Annual	11/28/2018	1039008
Anritsu	MT8820C	Radio Communication Analyzer	1/5/2018	Annual	1/5/2019	6201144418
Anritsu	MT8820C	Radio Communication Analyzer	3/20/2018	Annual	3/20/2019	6201144419
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/8/2018	Annual	1/8/2019	160473909
Control Company	4352	Ultra Long Stem Thermometer	1/8/2018	Annual	1/8/2019	160508097
Intelligent Weigh	PD-3000	Electronic Balance	CBT	N/A	CBT	11081534
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini Circuits	PWR-4GHS	USB Power Sensor	1/22/2018	Annual	1/22/2019	11710030062
Mini Circuits	PWR-4GHS	USB Power Sensor	1/20/2018	Annual	1/20/2019	11710030063
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	NC-100	Torque Wrench	4/18/2018	Annual	4/18/2019	1445
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
Rohde & Schwarz	CMW500	Radio Communication Tester	11/3/2017	Annual	11/3/2018	100976
Rohde & Schwarz	CMW500	Radio Communication Tester	5/21/2018	Annual	5/21/2019	101699
Rohde & Schwarz	CMW500	Radio Communication Tester	10/13/2017	Annual	10/13/2018	102060
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	7/20/2017	Annual	7/20/2018	132885
Rohde & Schwarz	CMW500	Radio Communication tester	7/14/2017	Annual	7/14/2018	140144
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	1/19/2018	Annual	1/19/2019	164948
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	21053
SPEAG	D750V3	750 MHz SAR Dipole	1/15/2018	Annual	1/15/2019	1003
SPEAG	D835V2	835 MHz SAR Dipole	1/15/2018	Annual	1/15/2019	4d132
SPEAG	D1750V2	1750 MHz SAR Dipole	7/14/2016	Biennial	7/14/2018	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	2/7/2018	Annual	2/7/2019	5d148
SPEAG	D2450V2	2450 MHz SAR Dipole	2/7/2018	Annual	2/7/2019	882
SPEAG	D2450V2	2450 MHz SAR Dipole	7/25/2016	Biennial	7/25/2018	981
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Annual	4/11/2019	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	9/13/2016	Biennial	9/13/2018	1071
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/15/2017	Annual	8/15/2018	1237
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2018	Annual	2/15/2019	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/22/2018	Annual	5/22/2019	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/13/2017	Annual	7/13/2018	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/9/2017	Annual	8/9/2018	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/21/2017	Annual	6/21/2018	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/7/2018	Annual	3/7/2019	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2018	Annual	4/11/2019	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/9/2017	Annual	11/9/2018	1450
SPEAG	DAK-3.5	Dielectric Assessment Kit	9/12/2017	Annual	9/12/2018	1091
SPEAG	ES3DV3	SAR Probe	9/18/2017	Annual	9/18/2018	3287
SPEAG	ES3DV3	SAR Probe	3/13/2018	Annual	3/13/2019	3319
SPEAG	ES3DV3	SAR Probe	8/14/2017	Annual	8/14/2018	3332
SPEAG	ES3DV3	SAR Probe	3/27/2018	Annual	3/27/2019	3347
SPEAG	EX3DV4	SAR Probe	2/14/2018	Annual	2/14/2019	3914
SPEAG	EX3DV4	SAR Probe	4/18/2018	Annual	4/18/2019	7357
SPEAG	EX3DV4	SAR Probe	5/22/2018	Annual	5/22/2019	7406
SPEAG	EX3DV4	SAR Probe	7/17/2017	Annual	7/17/2018	7410

Note:

1. CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.
2. Each equipment was used solely within its calibration period.

15 MEASUREMENT UNCERTAINTIES

a	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	Tol. (± %)	Prob. Dist.	Div.	c_i 1gm	c_i 10 gms	1gm u_i (± %)	10gms u_i (± %)	v_i
Measurement System								
Probe Calibration	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	2.0	R	1.73	1.0	1.0	1.2	1.2	∞
Linearity	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	0.25	R	1.73	1.0	1.0	0.1	0.1	∞
Readout Electronics	0.3	N	1	1.0	1.0	0.3	0.3	∞
Response Time	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions - Noise	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
RF Ambient Conditions - Reflections	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	6.7	R	1.73	1.0	1.0	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	2.7	N	1	1.0	1.0	2.7	2.7	35
Device Holder Uncertainty	1.67	N	1	1.0	1.0	1.7	1.7	5
Output Power Variation - SAR drift measurement	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
SAR Scaling	0.0	R	1.73	1.0	1.0	0.0	0.0	∞
Phantom & Tissue Parameters								
Phantom Uncertainty (Shape & Thickness tolerances)	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	4.2	N	1	0.78	0.71	3.3	3.0	10
Liquid Permittivity - measurement uncertainty	4.1	N	1	0.23	0.26	1.0	1.1	10
Liquid Conductivity - Temperature Uncertainty	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Unceritainty	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)		RSS				11.5	11.3	60
Expanded Uncertainty (95% CONFIDENCE LEVEL)		k=2				23.0	22.6	

16 CONCLUSION

16.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42109

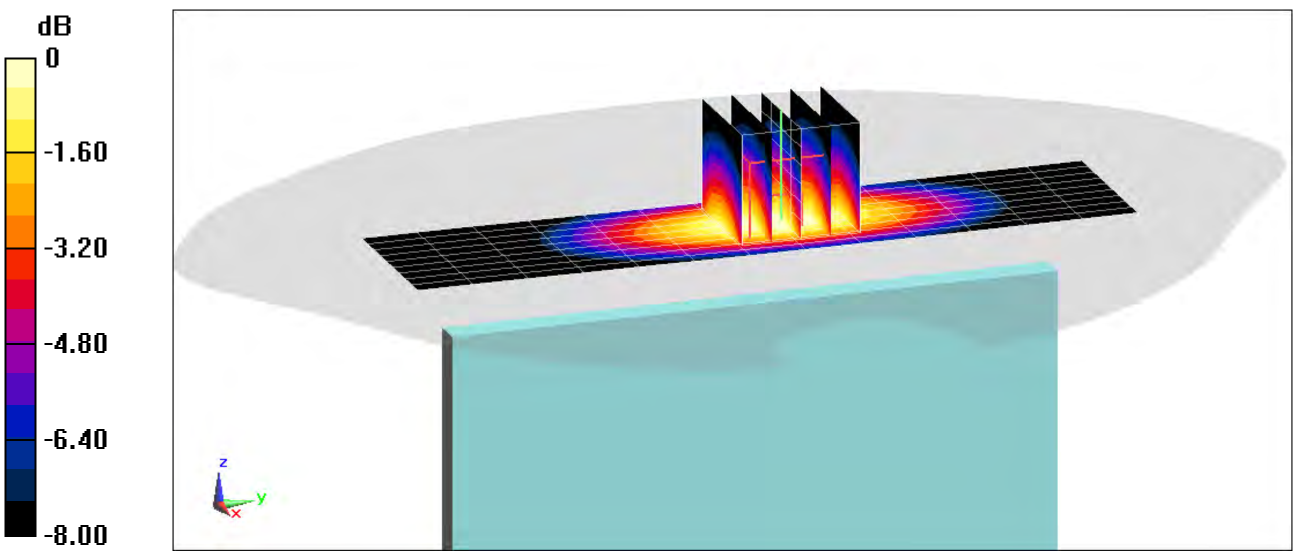
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.978 S/m; ε_r = 54.328; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.6 cm

Test Date: 06-18-2018; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3914; ConvF(9.57, 9.57, 9.57); Calibrated: 2/14/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: Cell. BC10 EVDO, Rule Part 90S, Body SAR, Top Edge, Mid.ch

Area Scan (10x14x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.47 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 1.15 W/kg



0 dB = 1.52 W/kg = 1.82 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42109

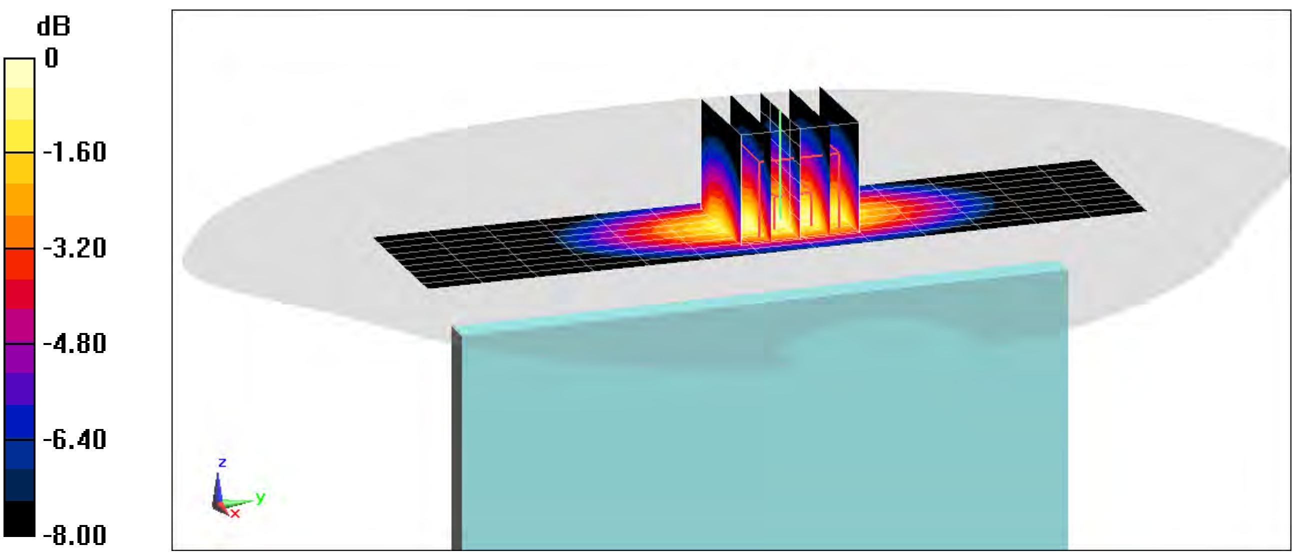
Communication System: UID 0, CDMA; Frequency: 824.7 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
$f = 824.7$ MHz; $\sigma = 0.98$ S/m; $\varepsilon_r = 54.322$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.6 cm

Test Date: 06-18-2018; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3914; ConvF(9.57, 9.57, 9.57); Calibrated: 2/14/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: Cell. EVDO, Rule Part 22H, Body SAR, Top Edge, Low.ch

Area Scan (10x14x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.64 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 1.17 W/kg



0 dB = 1.54 W/kg = 1.88 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42125

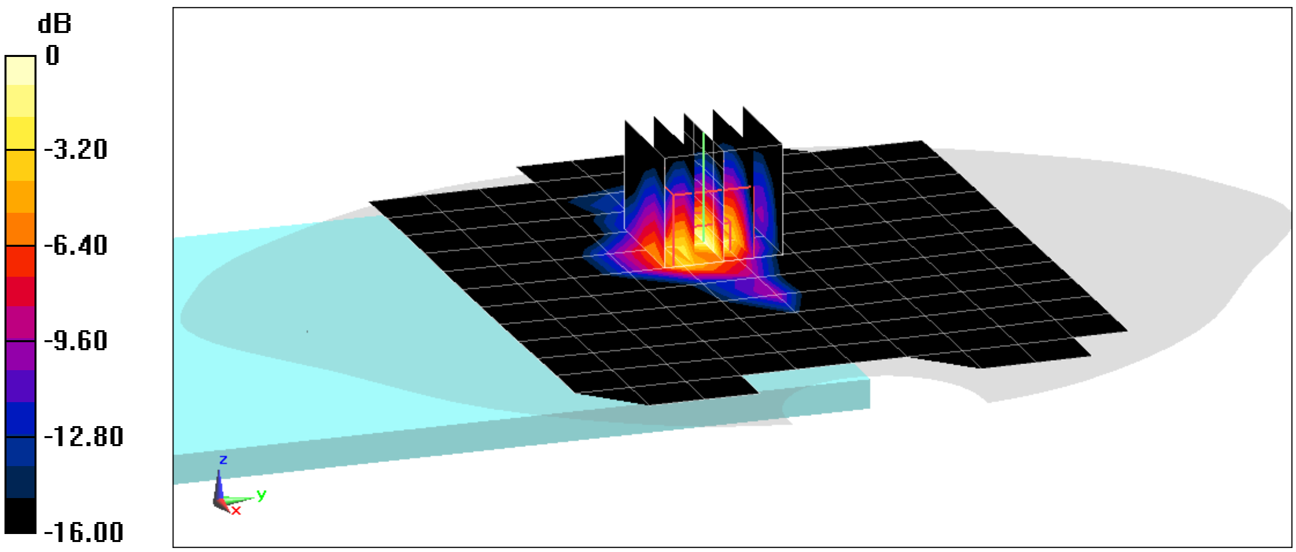
Communication System: UID 0, CDMA; Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1908.75 MHz; σ = 1.571 S/m; ε_r = 52.232; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-11-2018; Ambient Temp: 21.3°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3287; ConvF(5, 5, 5); Calibrated: 9/18/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 6/21/2017
Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: PCS EVDO, Body SAR, Back Side, High.ch

Area Scan (15x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.31 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 0.918 W/kg



0 dB = 1.34 W/kg = 1.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42299

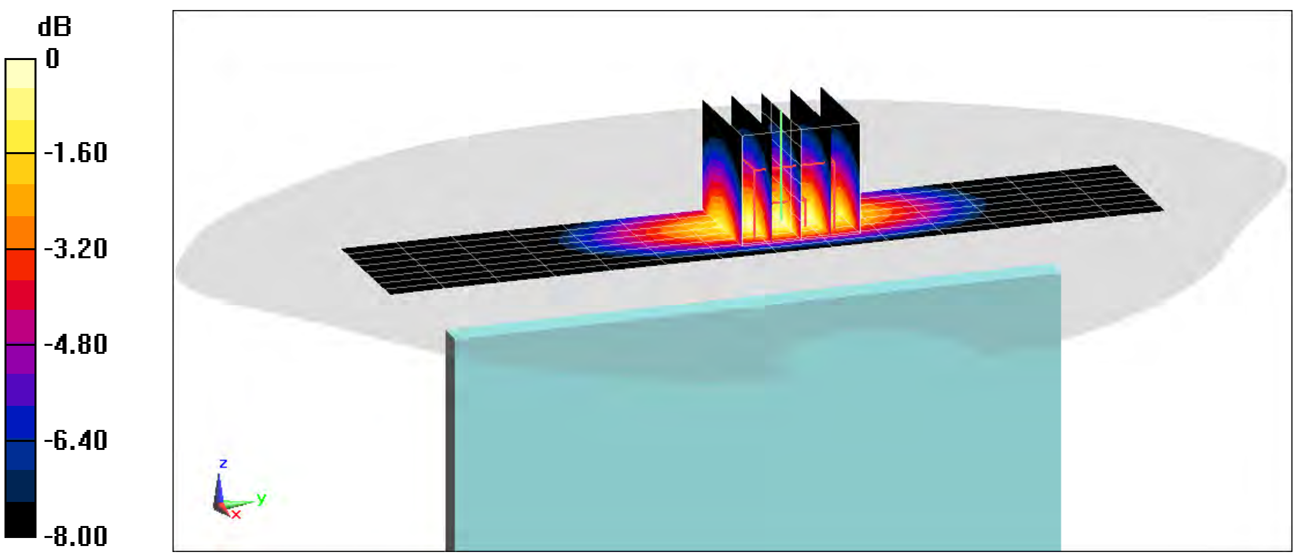
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
$f = 707.5$ MHz; $\sigma = 0.942$ S/m; $\varepsilon_r = 53.34$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.6 cm

Test Date: 06-13-2018; Ambient Temp: 21.0°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3347; ConvF(6.59, 6.59, 6.59); Calibrated: 3/27/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 11/9/2017
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: LTE Band 12, Body SAR, Top Edge, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.95 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.756 W/kg
SAR(1 g) = 0.522 W/kg



0 dB = 0.611 W/kg = -2.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42299

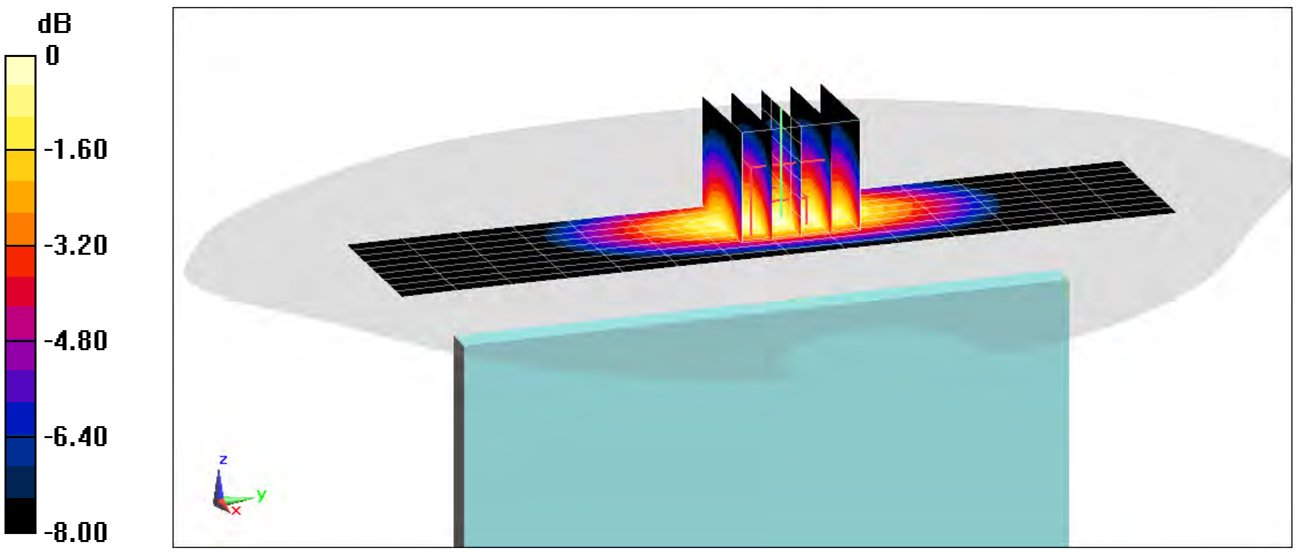
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 782 MHz; $\sigma = 0.971$ S/m; $\varepsilon_r = 53.146$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.6 cm

Test Date: 06-13-2018; Ambient Temp: 21.0°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3347; ConvF(6.59, 6.59, 6.59); Calibrated: 3/27/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 11/9/2017
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: LTE Band 13, Body SAR, Top Edge, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x15x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.92 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.905 W/kg



0 dB = 1.02 W/kg = 0.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42299

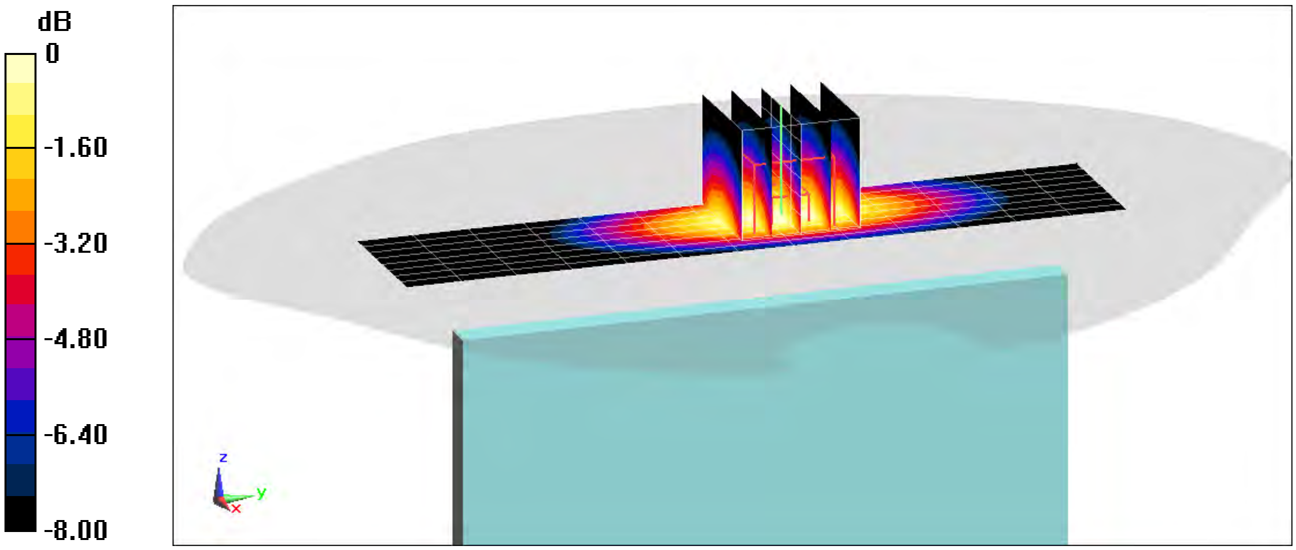
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.985 S/m; ε_r = 53.122; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.6 cm

Test Date: 06-14-2018; Ambient Temp: 20.7°C; Tissue Temp: 20.2°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37); Calibrated: 3/27/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 11/9/2017
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: LTE Band 26 (Cell.), Body SAR, Top Edge, Mid.ch, 15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x14x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.79 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 1.14 W/kg



0 dB = 1.33 W/kg = 1.24 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42299

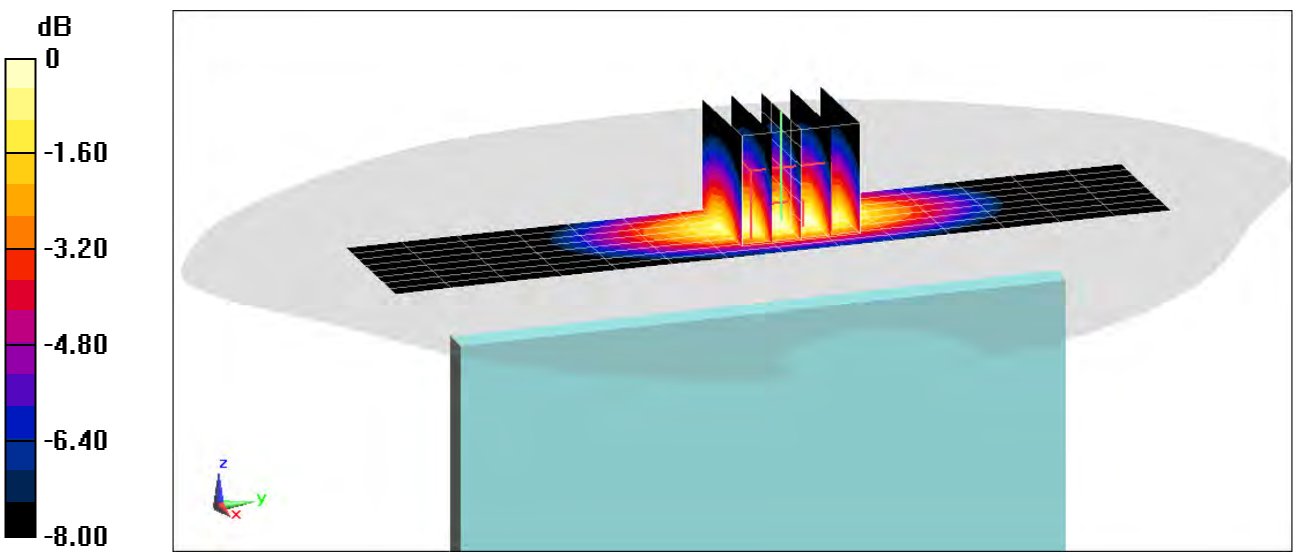
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.987 S/m; ε_r = 53.111; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.6 cm

Test Date: 06-14-2018; Ambient Temp: 20.7°C; Tissue Temp: 20.2°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37); Calibrated: 3/27/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 11/9/2017
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: LTE Band 5 (Cell.), Body SAR, Top Edge, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.05 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.60 W/kg
SAR(1 g) = 1.1 W/kg



0 dB = 1.28 W/kg = 1.07 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42299

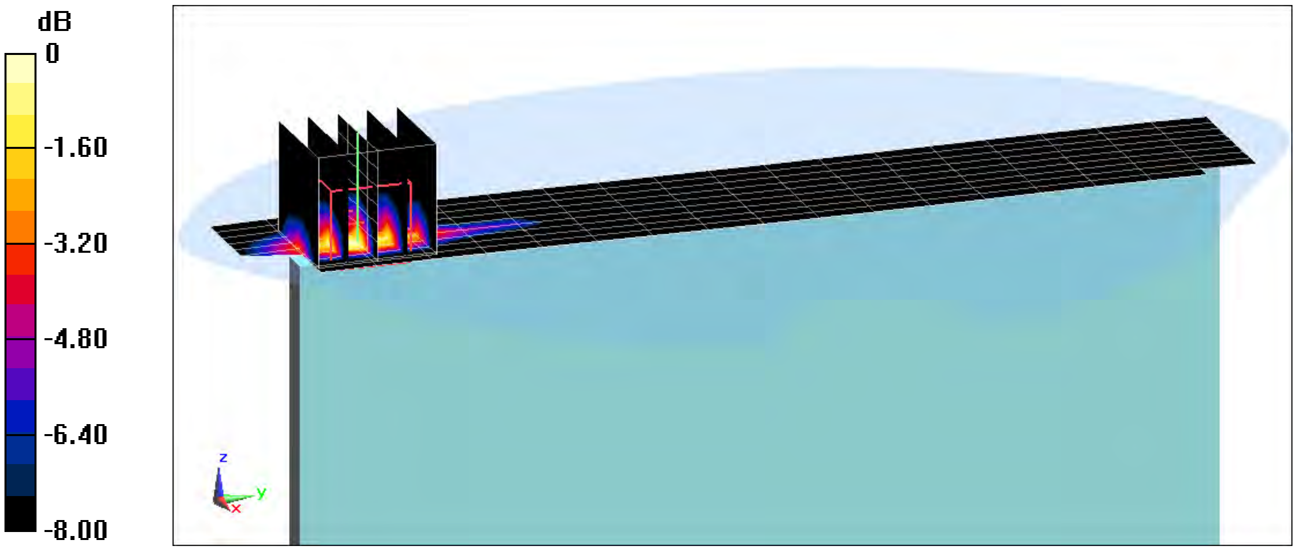
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.464 S/m; ε_r = 53.098; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-19-2018; Ambient Temp: 22.6°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3332; ConvF(5.16, 5.16, 5.16); Calibrated: 8/14/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 8/9/2017
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: LTE Band 4 (AWS), Body SAR, Right Edge, Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x19x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.33 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 2.35 W/kg
SAR(1 g) = 1.1 W/kg



0 dB = 1.54 W/kg = 1.88 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42158

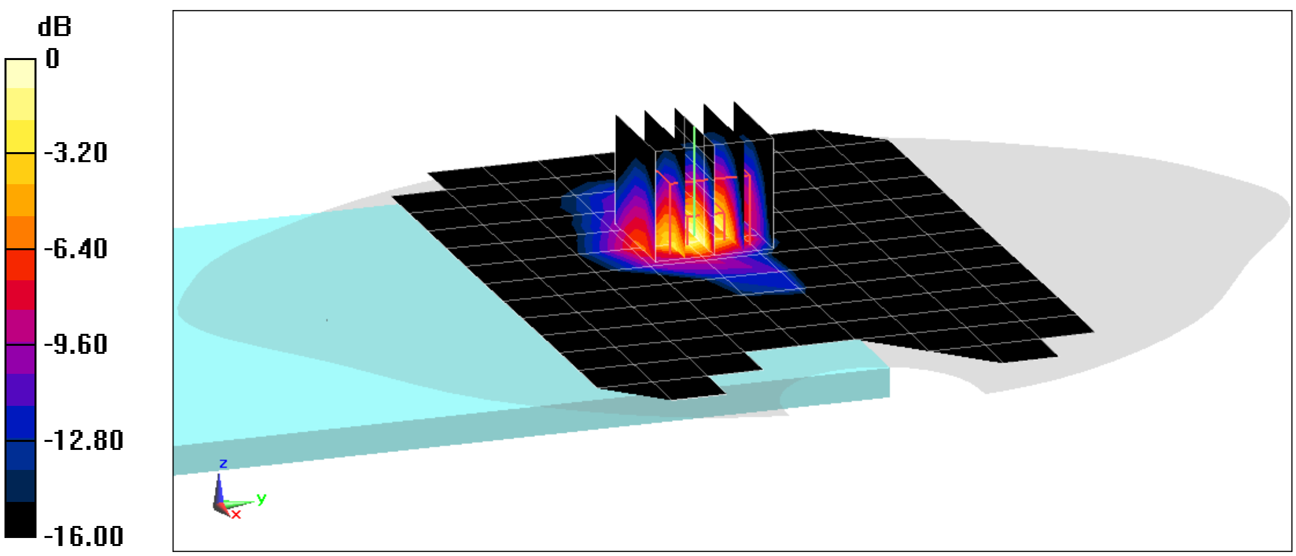
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1905 MHz; σ = 1.581 S/m; ε_r = 51.564; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-18-2018; Ambient Temp: 21.6°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7406; ConvF(7.74, 7.74, 7.74); Calibrated: 5/22/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: LTE Band 25 (PCS), Body SAR, Back Side, High.ch, 20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset

Area Scan (15x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.37 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.28 W/kg
SAR(1 g) = 1.01 W/kg



0 dB = 1.48 W/kg = 1.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 42133

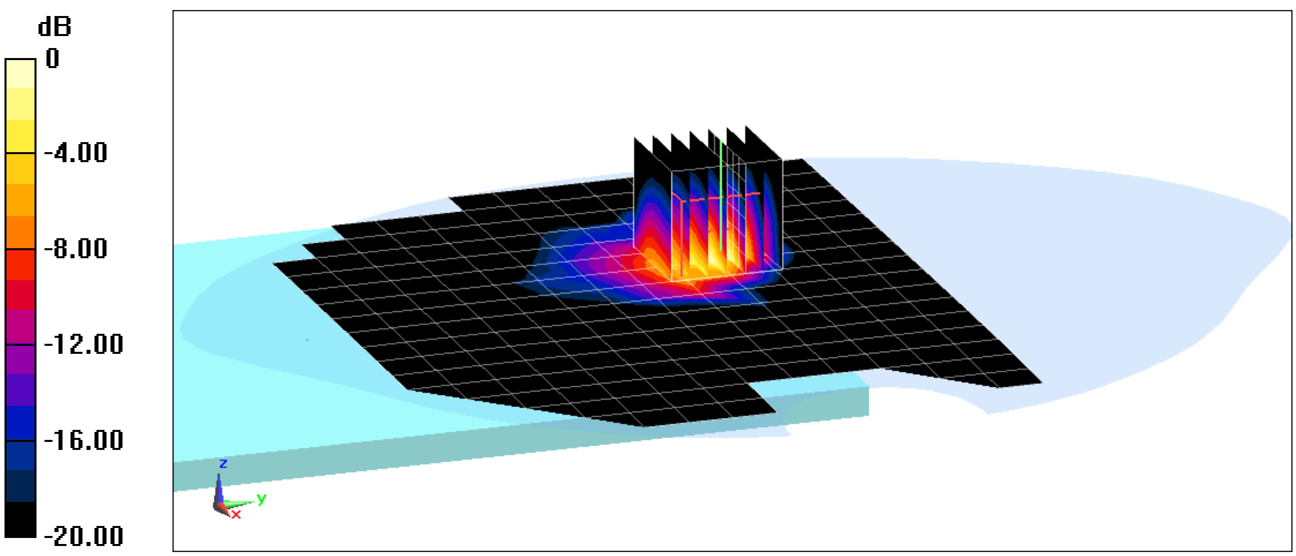
Communication System: UID 0, LTE Band 7; Frequency: 2535 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2535 MHz; σ = 2.088 S/m; ε_r = 50.807; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-18-2018; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7410; ConvF(7.43, 7.43, 7.43); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: LTE Band 7, Body SAR, Back Side, Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (19x14x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 73.31 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 2.17 W/kg
SAR(1 g) = 0.767 W/kg



0 dB = 1.39 W/kg = 1.43 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 13589

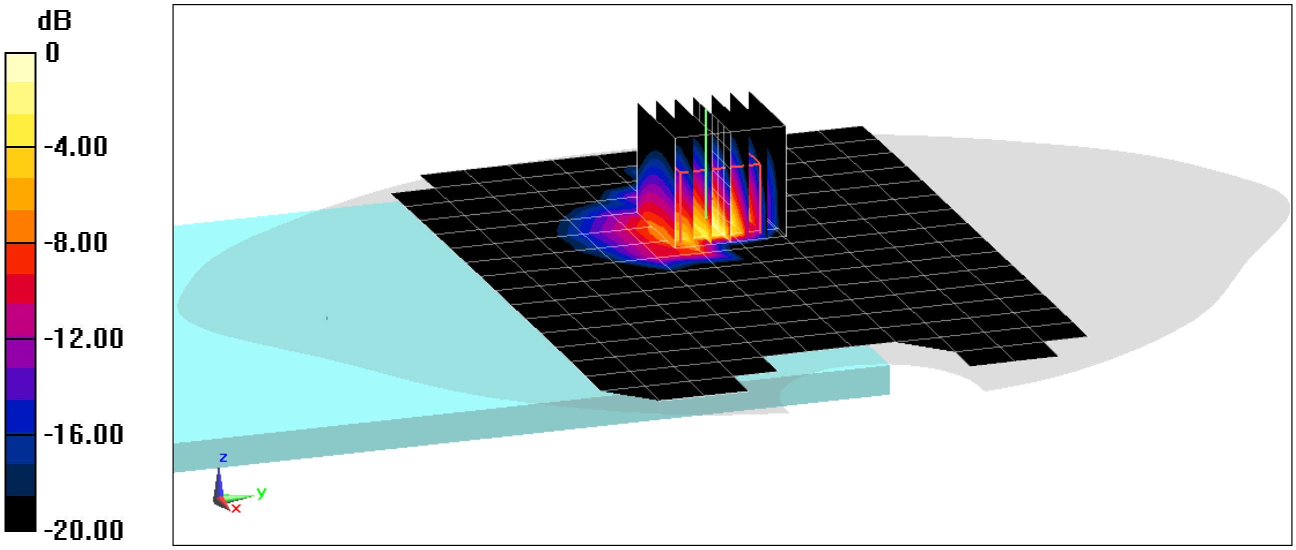
Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body; Medium parameters used (interpolated):
$f = 2680$ MHz; $\sigma = 2.297$ S/m; $\varepsilon_r = 50.292$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-26-2018; Ambient Temp: 22.8°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33); Calibrated: 3/13/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: LTE Band 41 PC3 ULCA, Body SAR, Back Side,
PCC: 20 MHz Bandwidth, QPSK, Ch. 41490 50 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch. 41292, 50 RB, 50 RB Offset

Area Scan (13x8x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.85 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 2.91 W/kg
SAR(1 g) = 0.901 W/kg



0 dB = 1.37 W/kg = 1.37 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 19107

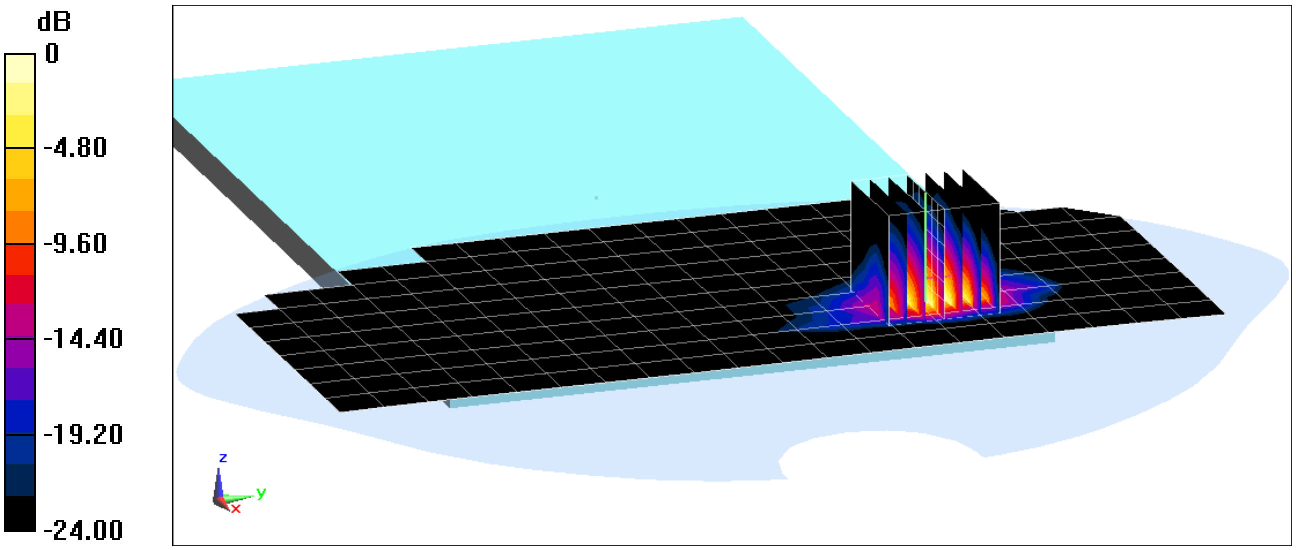
Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.964 S/m; ε_r = 52.464; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-21-2018; Ambient Temp: 21.2°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7410; ConvF(7.69, 7.69, 7.69); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth, Body SAR, Back Side, Ch 06, 1 Mbps

Area Scan (11x21x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.54 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.95 W/kg
SAR(1 g) = 0.514 W/kg



0 dB = 1.20 W/kg = 0.79 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 19107

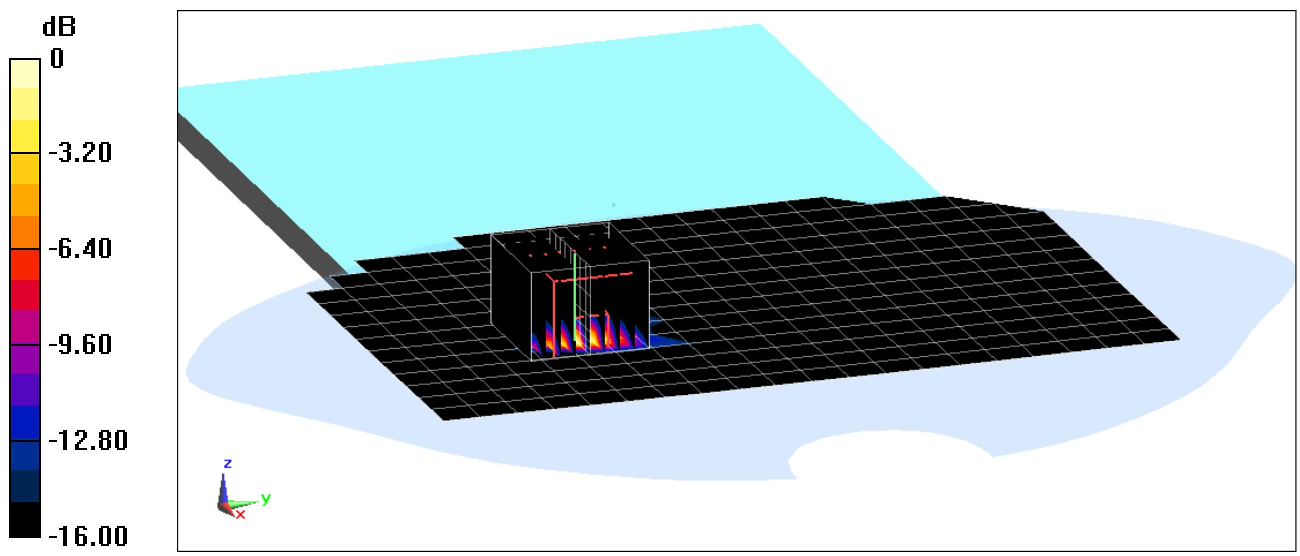
Communication System: UID 0, 802.11ac 5.2-5.8 GHz Band; Frequency: 5775 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
$f = 5775$ MHz; $\sigma = 6.164$ S/m; $\varepsilon_r = 46.657$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-18-2018; Ambient Temp: 23.5°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7357; ConvF(4.21, 4.21, 4.21); Calibrated: 4/18/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: IEEE 802.11ac, U-NII-3, Antenna 1, 80 MHz Bandwidth, Body SAR, Back Side, Ch 155, 29.3 Mbps

Area Scan (15x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 11.69 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 8.29 W/kg
SAR(1 g) = 0.866 W/kg



0 dB = 3.05 W/kg = 4.84 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT837P; Type: Portable Tablet; Serial: 19107

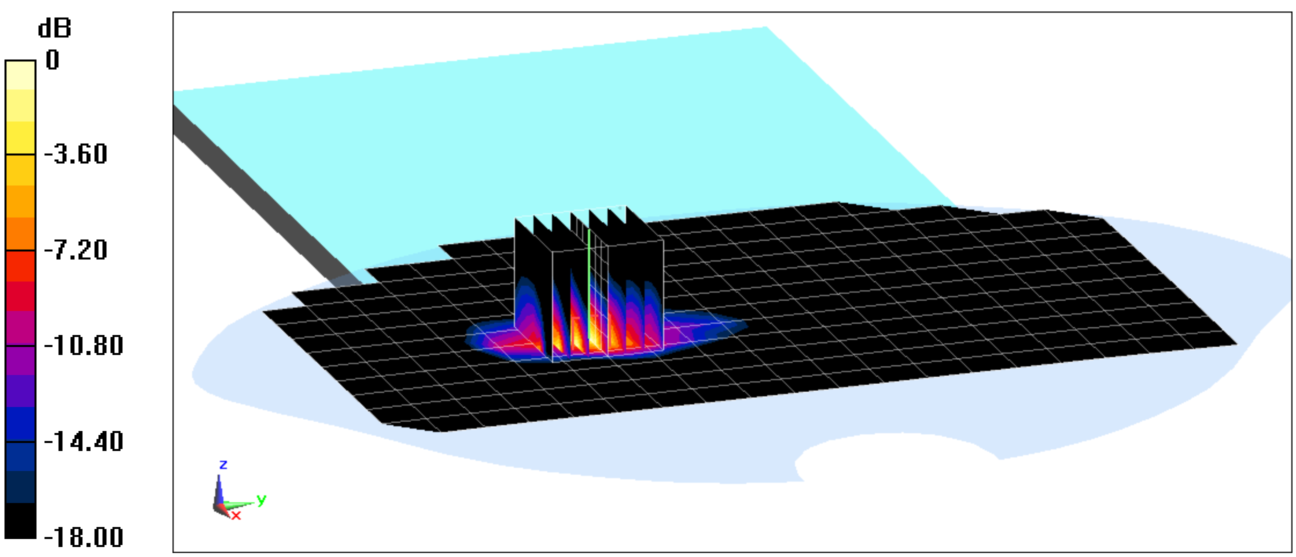
Communication System: UID 0, Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1.294
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2480 MHz; σ = 2.022 S/m; ε_r = 52.305; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 06-21-2018; Ambient Temp: 21.2°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7410; ConvF(7.69, 7.69, 7.69); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

Mode: Bluetooth, Body SAR, Ch 78, 1 Mbps, Back Side

Area Scan (14x20x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.76 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.295 W/kg



0 dB = 0.683 W/kg = -1.66 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1003

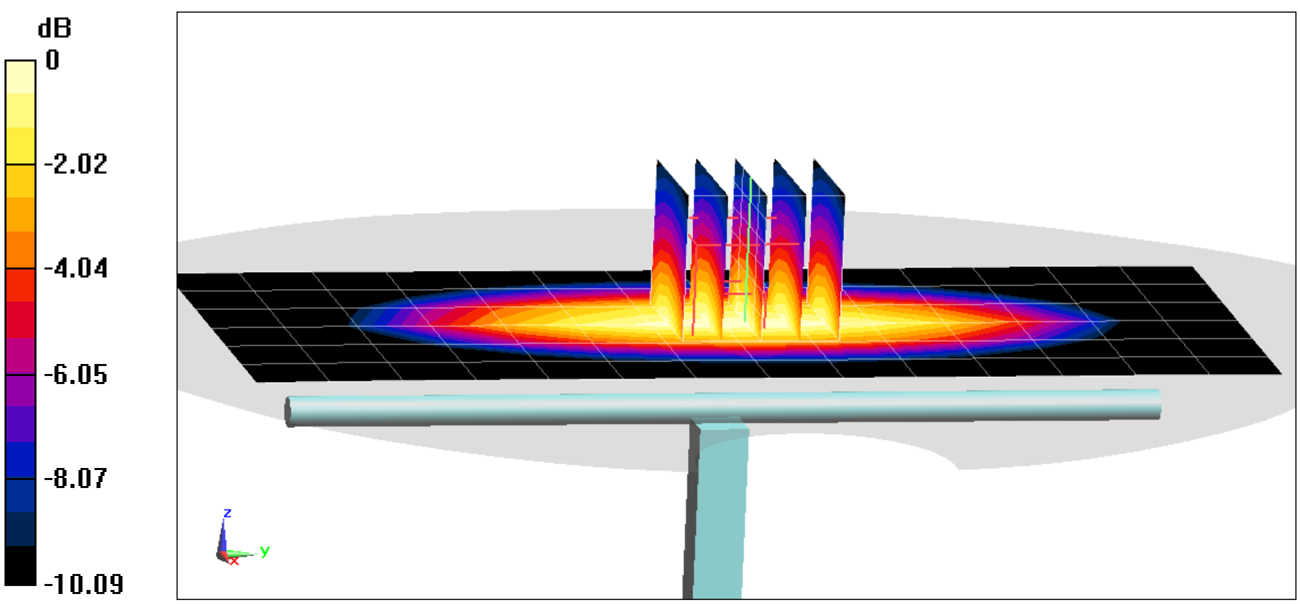
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
$f = 750$ MHz; $\sigma = 0.958$ S/m; $\varepsilon_r = 53.248$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-13-2018; Ambient Temp: 21.0°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3347; ConvF(6.59, 6.59, 6.59); Calibrated: 3/27/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 11/9/2017
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.46 W/kg
SAR(1 g) = 1.68 W/kg
Deviation(1 g) = -2.10%



0 dB = 1.96 W/kg = 2.92 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

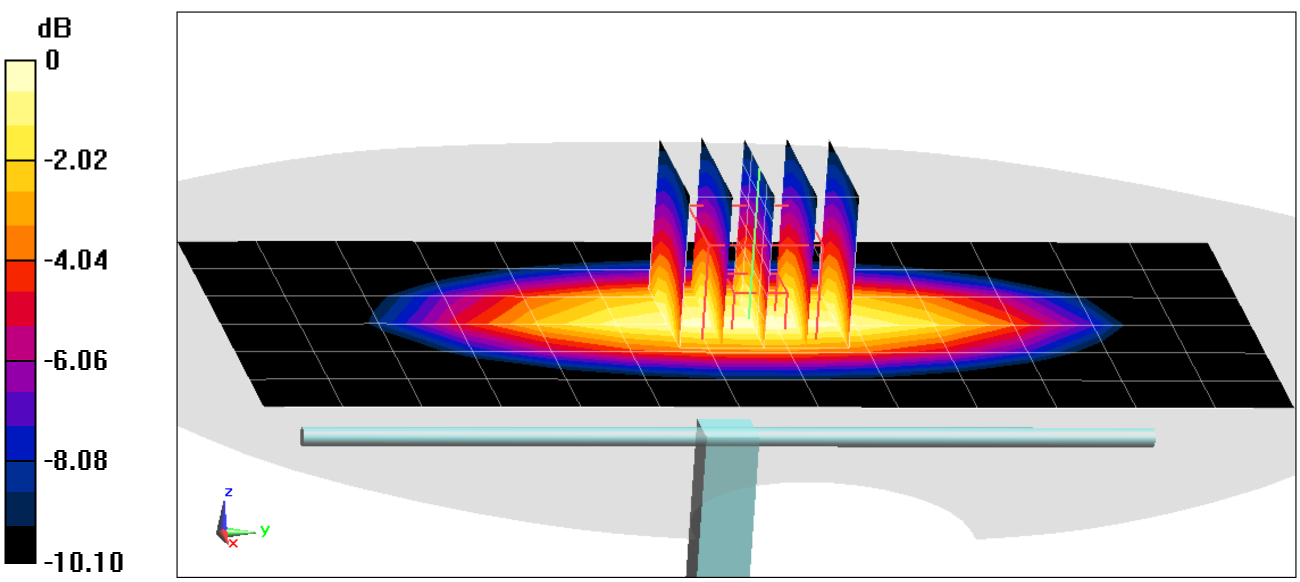
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used:
f = 835 MHz; σ = 0.986 S/m; ε_r = 53.116; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-14-2018; Ambient Temp: 20.7°C; Tissue Temp: 20.2°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37); Calibrated: 3/27/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 11/9/2017
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.06 W/kg
SAR(1 g) = 2.1 W/kg
Deviation(1 g) = 8.14%



0 dB = 2.45 W/kg = 3.89 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

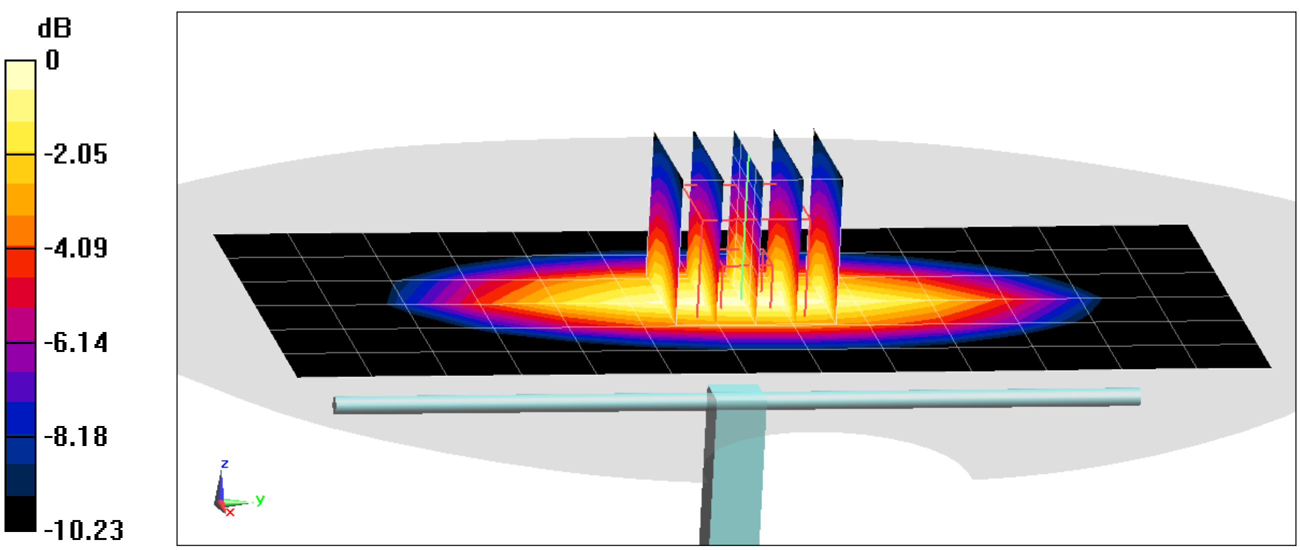
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used:
f = 835 MHz; σ = 0.984 S/m; ε_r = 54.308; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-18-2018; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3914; ConvF(9.57, 9.57, 9.57); Calibrated: 2/14/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0 Right; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.03 W/kg
SAR(1 g) = 2.04 W/kg
Deviation(1 g) = 5.05%



0 dB = 2.71 W/kg = 4.33 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

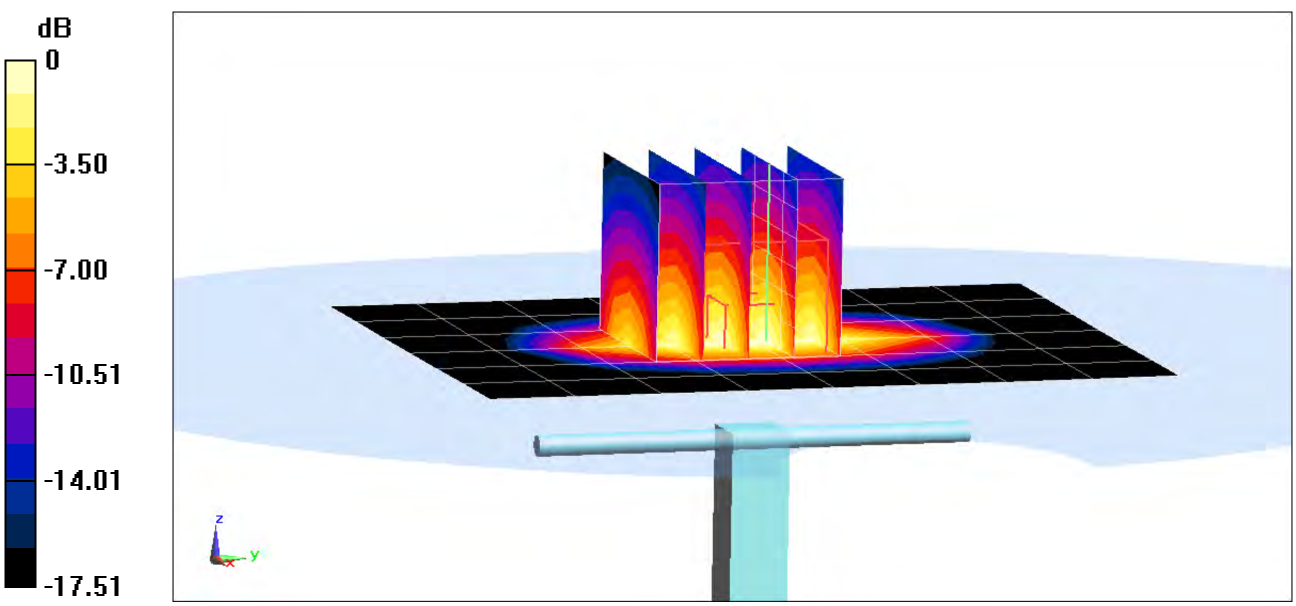
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.478 S/m; ε_r = 53.073; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-19-2018; Ambient Temp: 22.6°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3332; ConvF(5.16, 5.16, 5.16); Calibrated: 8/14/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 8/9/2017
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.43 W/kg
SAR(1 g) = 3.67 W/kg
Deviation(1 g) = 0.55%



0 dB = 4.57 W/kg = 6.60 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

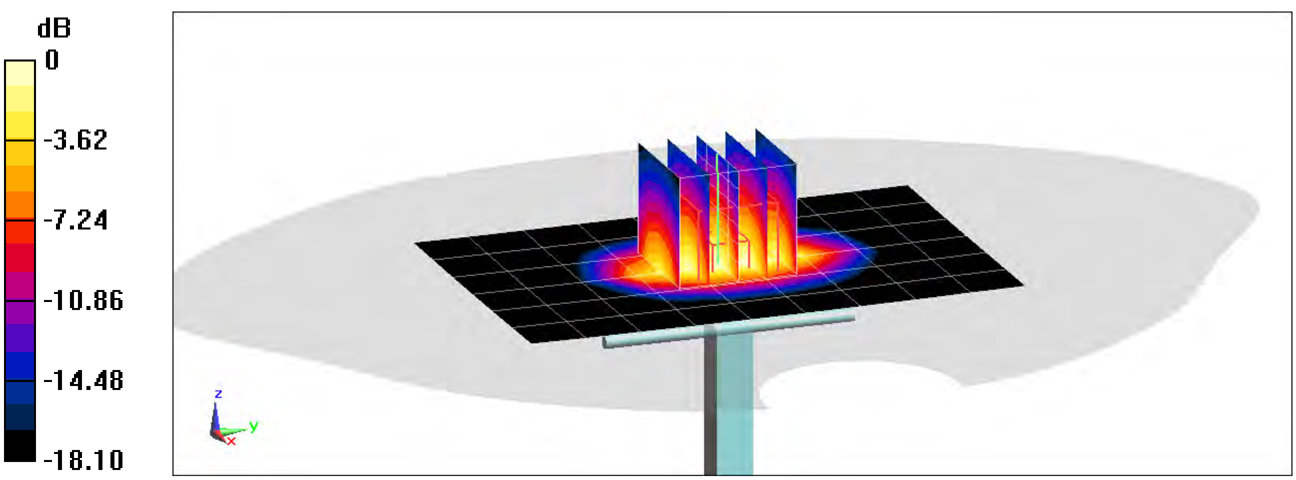
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.562 S/m; ε_r = 52.265; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-11-2018; Ambient Temp: 21.3°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3287; ConvF(5, 5, 5); Calibrated: 9/18/2017;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 6/21/2017
Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.70 W/kg
SAR(1 g) = 4.27 W/kg
Deviation(1 g) = 7.83%



0 dB = 5.42 W/kg = 7.34 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

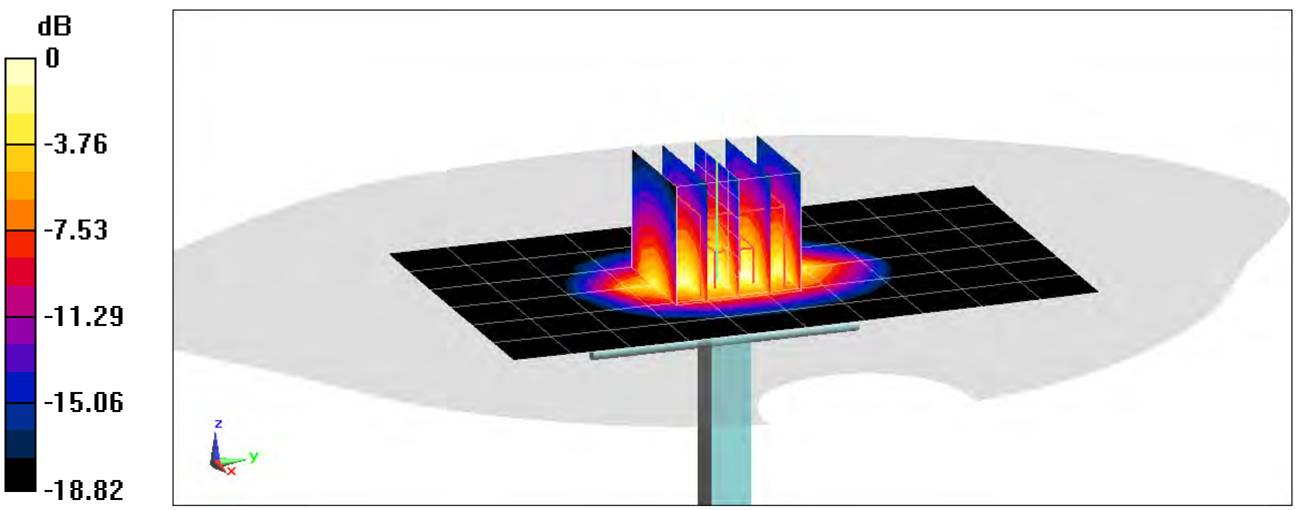
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.575 S/m; ε_r = 51.579; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-18-2018; Ambient Temp: 21.6°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7406; ConvF(7.74, 7.74, 7.74); Calibrated: 5/22/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.83 W/kg
SAR(1 g) = 4.2 W/kg
Deviation(1 g) = 6.06%



0 dB = 6.51 W/kg = 8.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 981

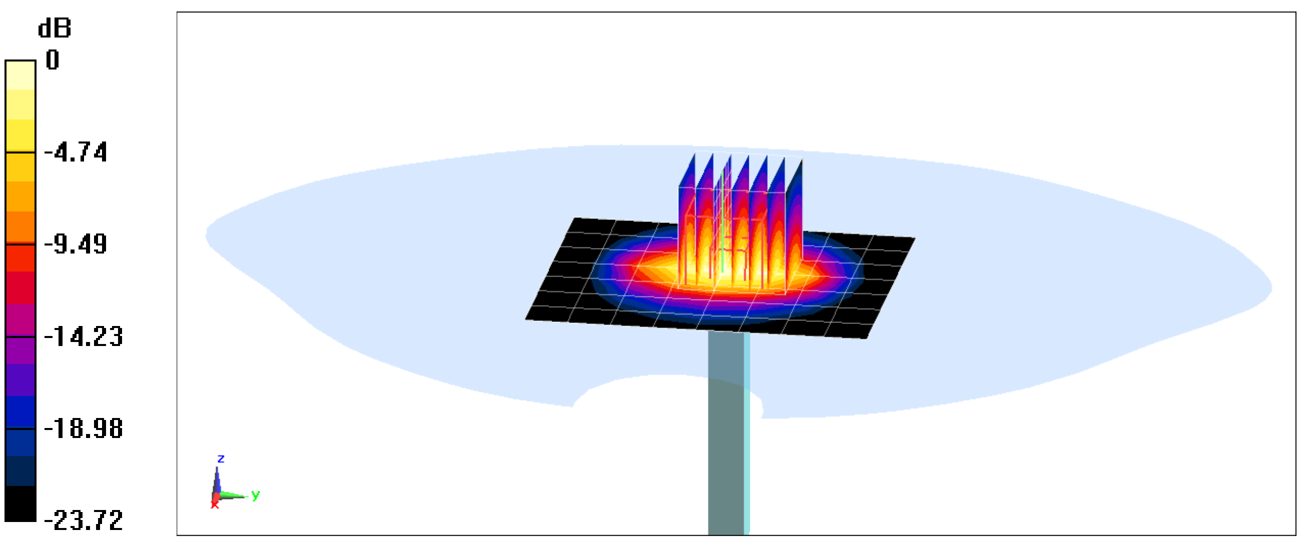
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 1.974 S/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-18-2018; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7410; ConvF(7.69, 7.69, 7.69); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.2 W/kg
SAR(1 g) = 4.85 W/kg
Deviation(1 g) = -4.53%



0 dB = 8.15 W/kg = 9.11 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 882

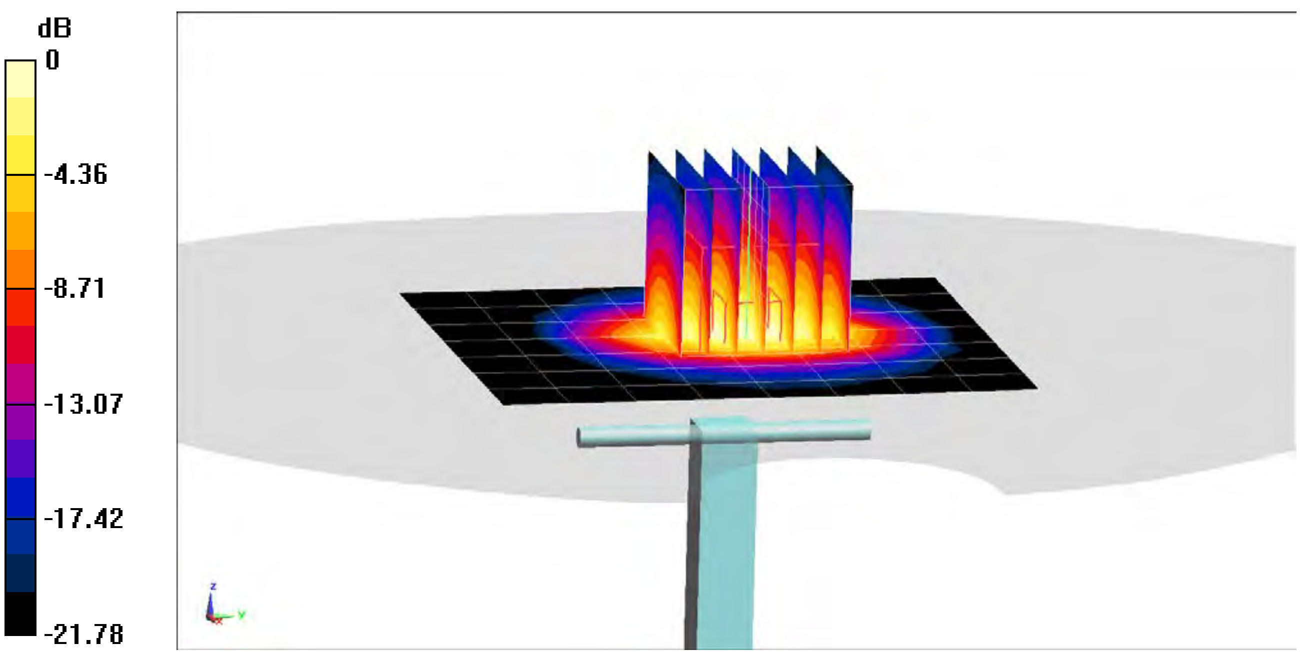
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.025 S/m; ε_r = 50.962; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-26-2018; Ambient Temp: 22.8°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51); Calibrated: 3/13/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.5 W/kg
SAR(1 g) = 5.02 W/kg
Deviation(1 g) = 0.00%



0 dB = 6.69 W/kg = 8.25 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

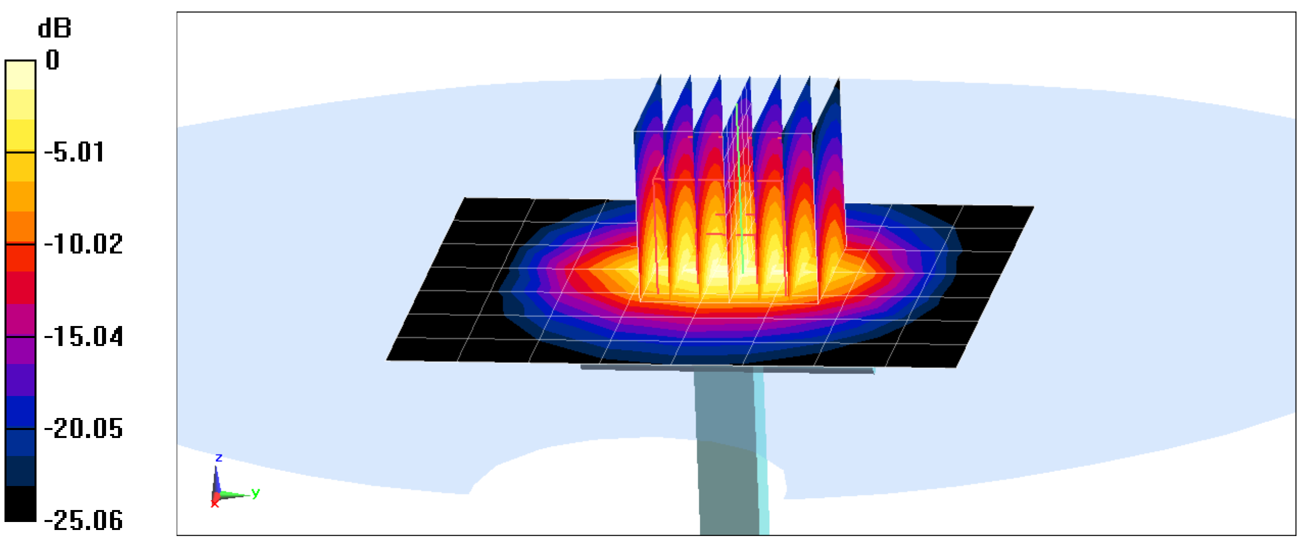
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2600 MHz; σ = 2.178 S/m; ε_r = 50.574; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-18-2018; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7410; ConvF(7.43, 7.43, 7.43); Calibrated: 7/17/2017;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.7 W/kg
SAR(1 g) = 5.3 W/kg
Deviation(1 g) = -2.21%



0 dB = 9.17 W/kg = 9.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1004

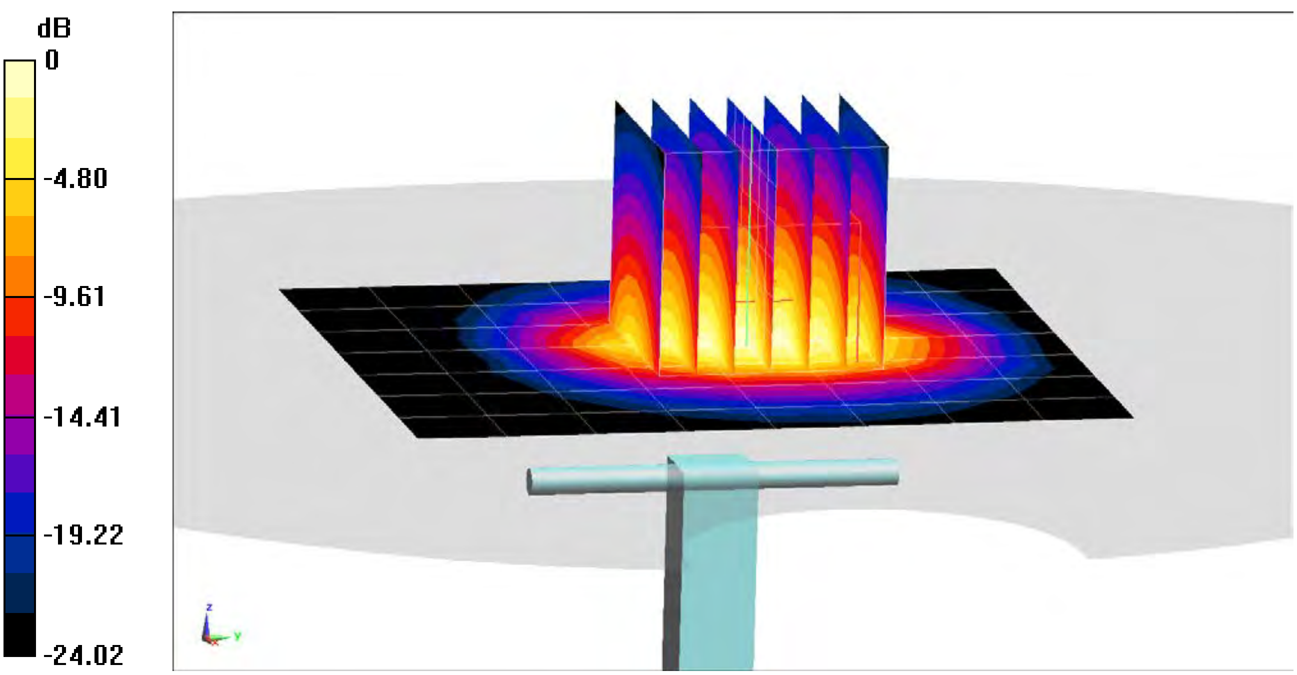
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2600 MHz; σ = 2.201 S/m; ε_r = 50.515; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-26-2018; Ambient Temp: 22.8°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33); Calibrated: 3/13/2018;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 12.2 W/kg
SAR(1 g) = 5.6 W/kg
Deviation(1 g) = 2.19%



0 dB = 7.42 W/kg = 8.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

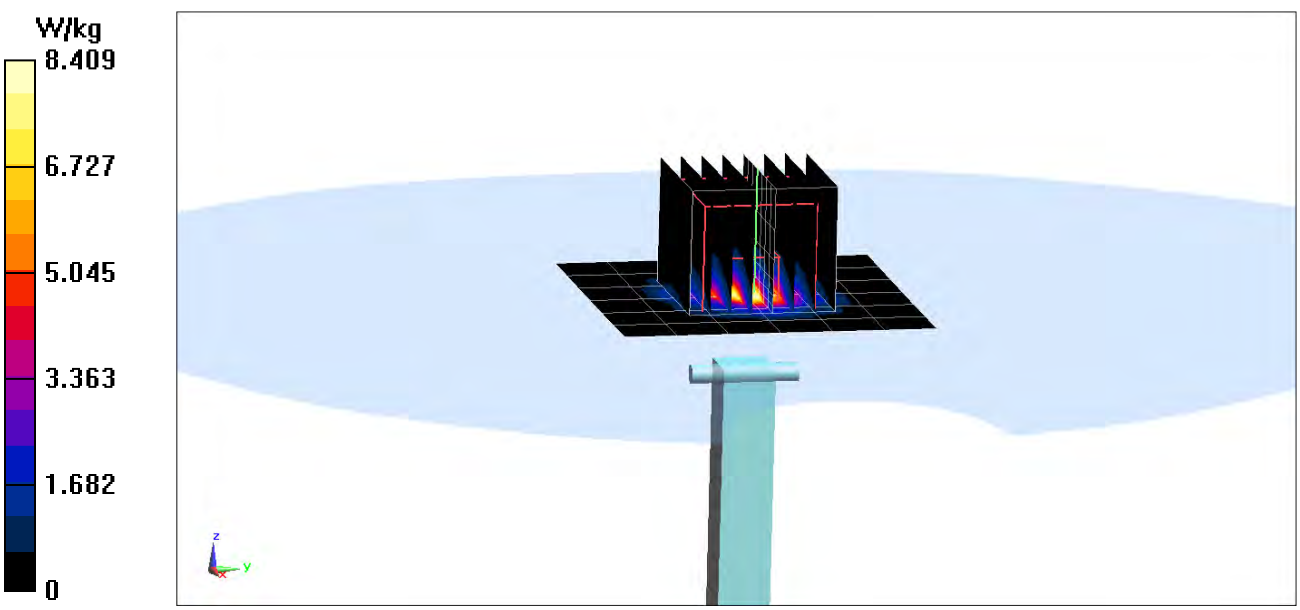
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5250 MHz; σ = 5.457 S/m; ε_r = 47.505; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-18-2018; Ambient Temp: 23.5°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7357; ConvF(4.78, 4.78, 4.78); Calibrated: 4/18/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 14.3 W/kg
SAR(1 g) = 3.55 W/kg
Deviation(1 g) = -7.67%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

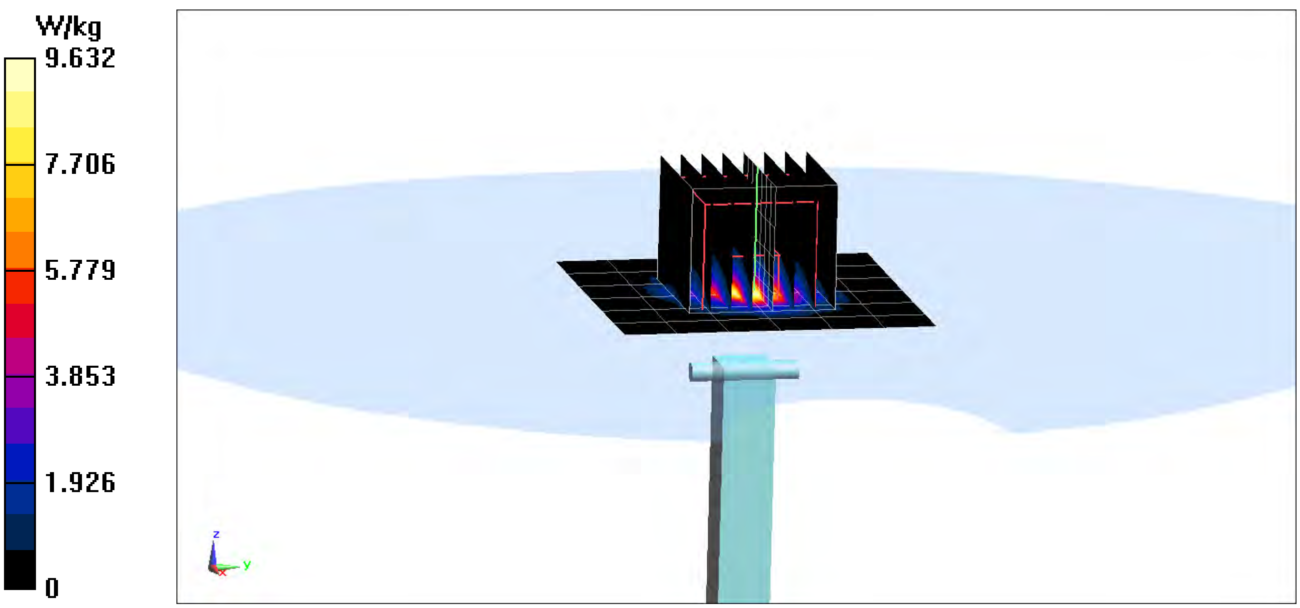
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used:
f = 5600 MHz; σ = 5.918 S/m; ε_r = 46.913; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-18-2018; Ambient Temp: 23.5°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7357; ConvF(4.2, 4.2, 4.2); Calibrated: 4/18/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 17.5 W/kg
SAR(1 g) = 3.95 W/kg
Deviation(1 g) = 0.64%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

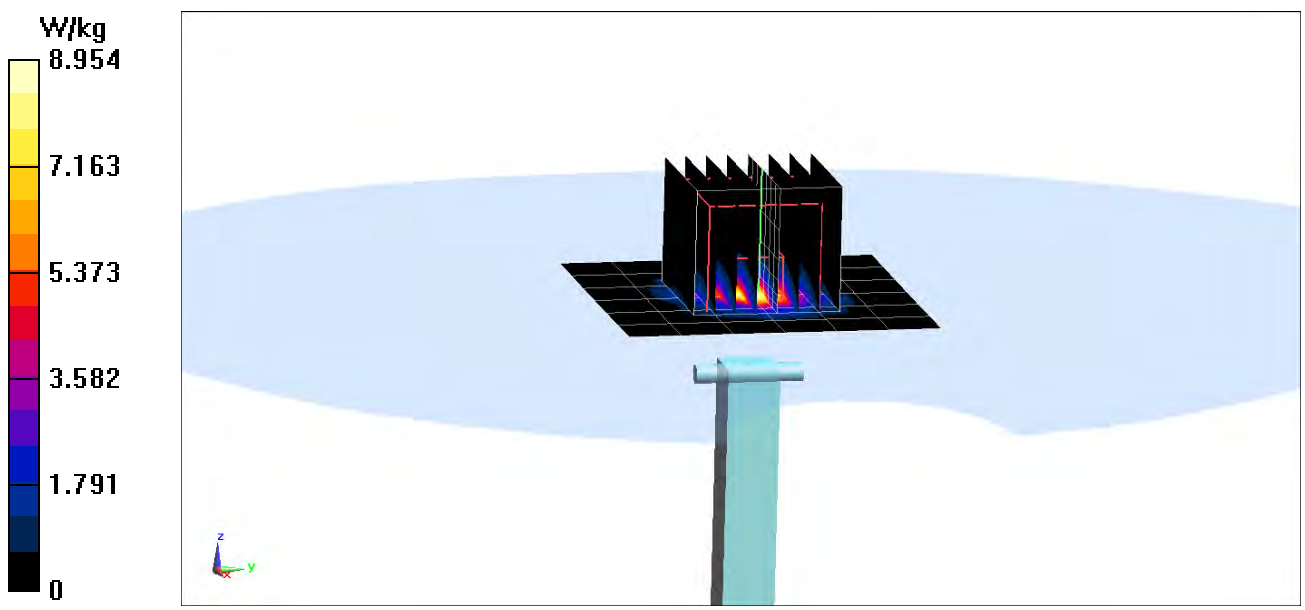
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5750 MHz; σ = 6.137 S/m; ε_r = 46.661; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-18-2018; Ambient Temp: 23.5°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7357; ConvF(4.21, 4.21, 4.21); Calibrated: 4/18/2018;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.6 W/kg
SAR(1 g) = 3.60 W/kg
Deviation(1 g) = -6.61%



APPENDIX C: PROBE CALIBRATION

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D750V3-1003_Jan18**

CALIBRATION CERTIFICATE

Object	D750V3 - SN:1003
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	January 15, 2018

BN
01-25-2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	Leif Klysner
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 15, 2018

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5.0 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.9 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.10 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.28 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.37 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.42 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.0 ± 6 %	0.96 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.15 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**8.58 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.43 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**5.71 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.8 Ω - 2.1 jΩ
Return Loss	- 27.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.2 Ω - 6.2 jΩ
Return Loss	- 24.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.043 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	January 21, 2009

Appendix (Additional assessments outside the scope of SCS 0108)

Measurement Conditions

DASY system configuration, as far as not given on page 1 and 3.

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L

SAR result with SAM Head (Top)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.98 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**7.94 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.32 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Mouth)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.05 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.22 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.52 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Neck)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.01 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.06 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.52 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Ear)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.67 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.70 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.15 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**4.60 W/kg ± 16.9 % (k=2)**

DASY5 Validation Report for Head TSL

Date: 12.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1003

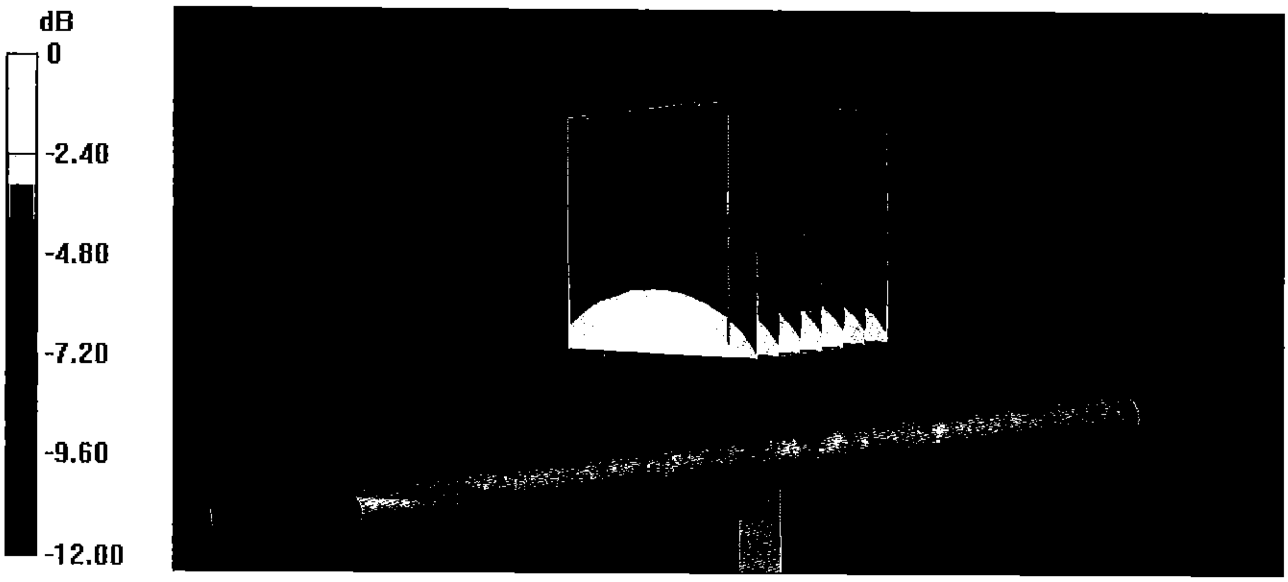
Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.9 S/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.22, 10.22, 10.22); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

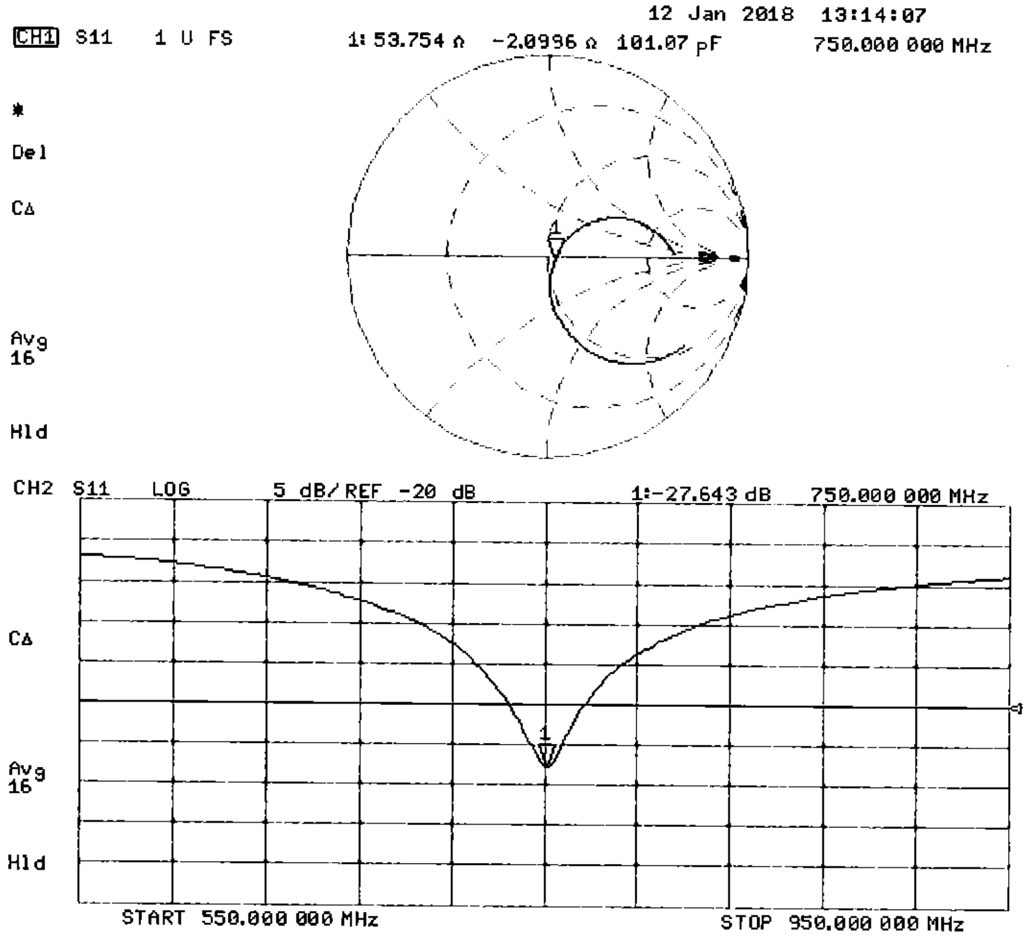
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.11 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.15 W/kg
SAR(1 g) = 2.1 W/kg; SAR(10 g) = 1.37 W/kg
Maximum value of SAR (measured) = 2.80 W/kg



0 dB = 2.80 W/kg = 4.47 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 12.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1003

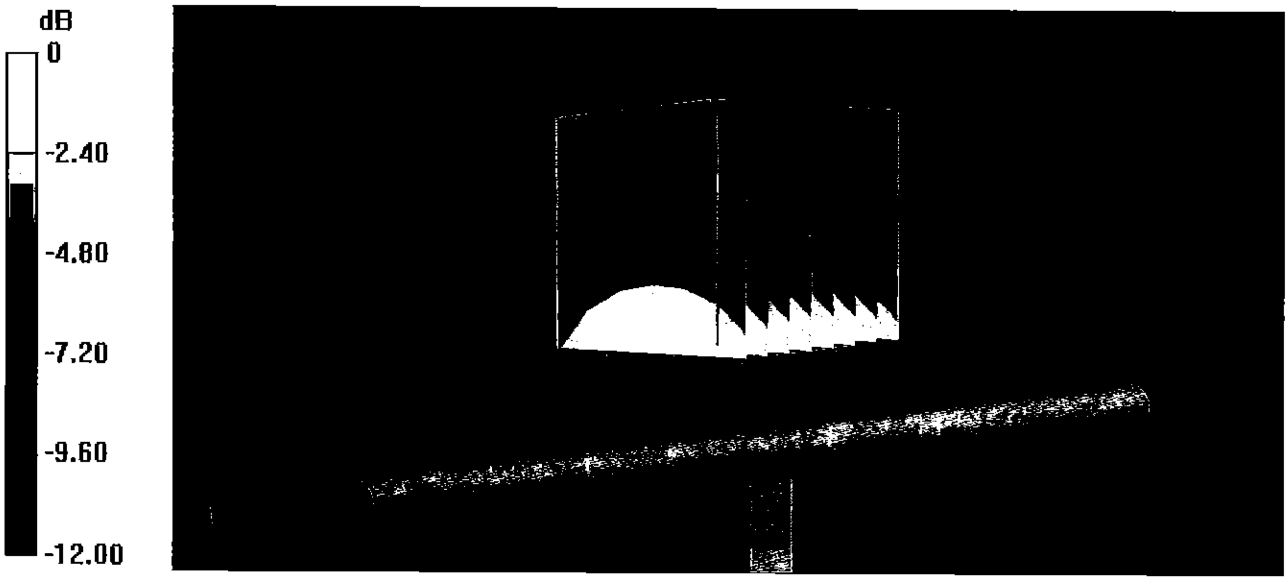
Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.96 S/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.19, 10.19, 10.19); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

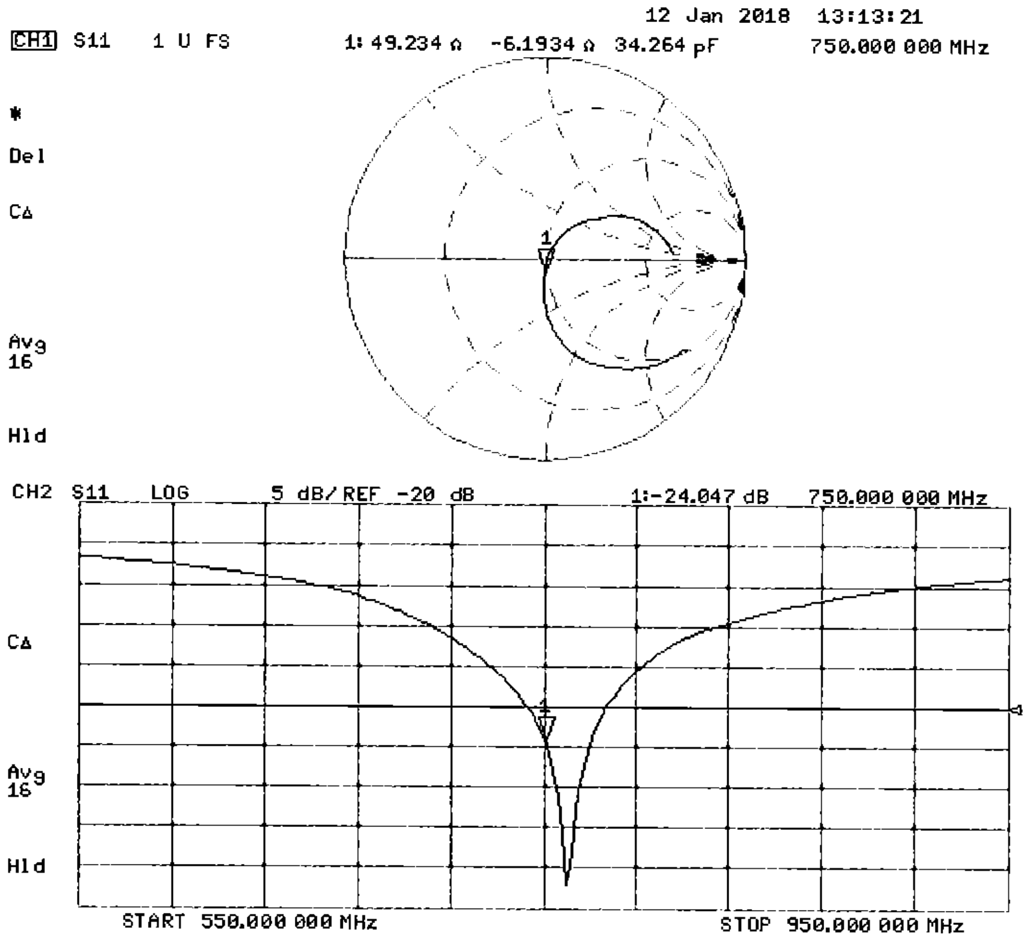
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x8x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.31 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.17 W/kg
SAR(1 g) = 2.15 W/kg; SAR(10 g) = 1.43 W/kg
Maximum value of SAR (measured) = 2.83 W/kg



0 dB = 2.83 W/kg = 4.52 dBW/kg

Impedance Measurement Plot for Body TSL



Date: 15.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1003

Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; $\sigma = 0.9$ S/m; $\varepsilon_r = 44.2$; $\rho = 1000$ kg/m^3
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

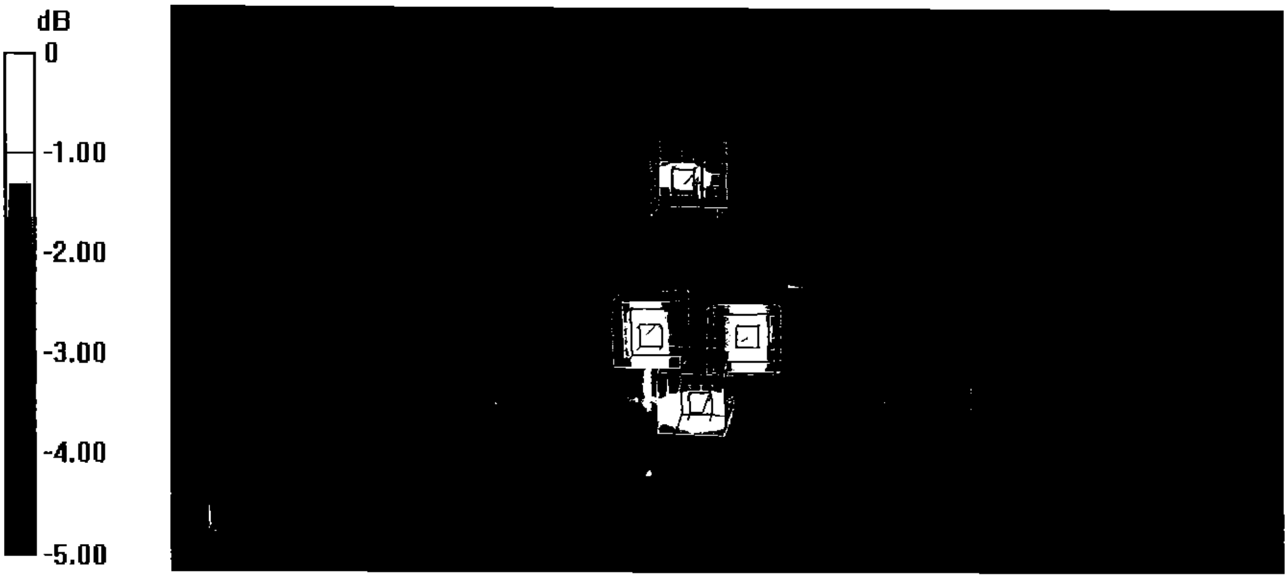
- Probe: EX3DV4 - SN7349; ConvF(10.22, 10.22, 10.22); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: SAM Head
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

SAM Head/Top/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.79 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 2.89 W/kg
SAR(1 g) = 1.98 W/kg; SAR(10 g) = 1.33 W/kg
Maximum value of SAR (measured) = 2.58 W/kg

SAM Head/Mouth/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.85 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.94 W/kg
SAR(1 g) = 2.05 W/kg; SAR(10 g) = 1.38 W/kg
Maximum value of SAR (measured) = 2.62 W/kg

SAM Head/Neck/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.29 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 2.78 W/kg
SAR(1 g) = 2.01 W/kg; SAR(10 g) = 1.38 W/kg
Maximum value of SAR (measured) = 2.56 W/kg

SAM Head/Ear/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.01 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.31 W/kg
SAR(1 g) = 1.67 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 2.11 W/kg



0 dB = 2.58 W/kg = 4.12 dBW/kg

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D835V2-4d132_Jan18

CALIBRATION CERTIFICATE

Object: D835V2 - SN:4d132

Calibration procedure(s): QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz

BN ✓
01-25-2018

Calibration date: January 15, 2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	Leif Klysner
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 15, 2018

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5.0 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.7 ± 6 %	0.92 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.36 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.10 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.8 ± 6 %	0.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.47 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**9.71 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.62 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**6.39 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.8 Ω - 2.9 jΩ
Return Loss	- 29.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.4 Ω - 5.7 jΩ
Return Loss	- 23.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.386 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 22, 2011

Appendix (Additional assessments outside the scope of SCS 0108)

Measurement Conditions

DASY system configuration, as far as not given on page 1 and 3.

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L

SAR result with SAM Head (Top)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.41 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.58 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.21 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Mouth)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.47 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.69 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.64 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.45 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Neck)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.22 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.59 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.25 W/kg ± 16.9 % (k=2)**

SAR result with SAM Head (Ear)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.03 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**7.96 W/kg ± 17.5 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.37 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.39 W/kg ± 16.9 % (k=2)**

DASY5 Validation Report for Head TSL

Date: 08.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

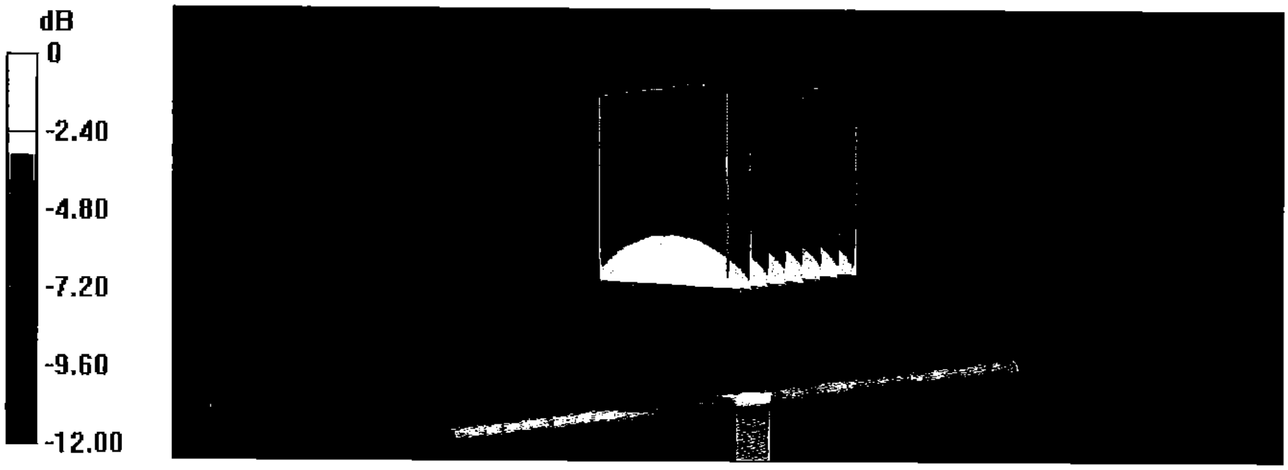
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d132

Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.92 S/m; ε_r = 40.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

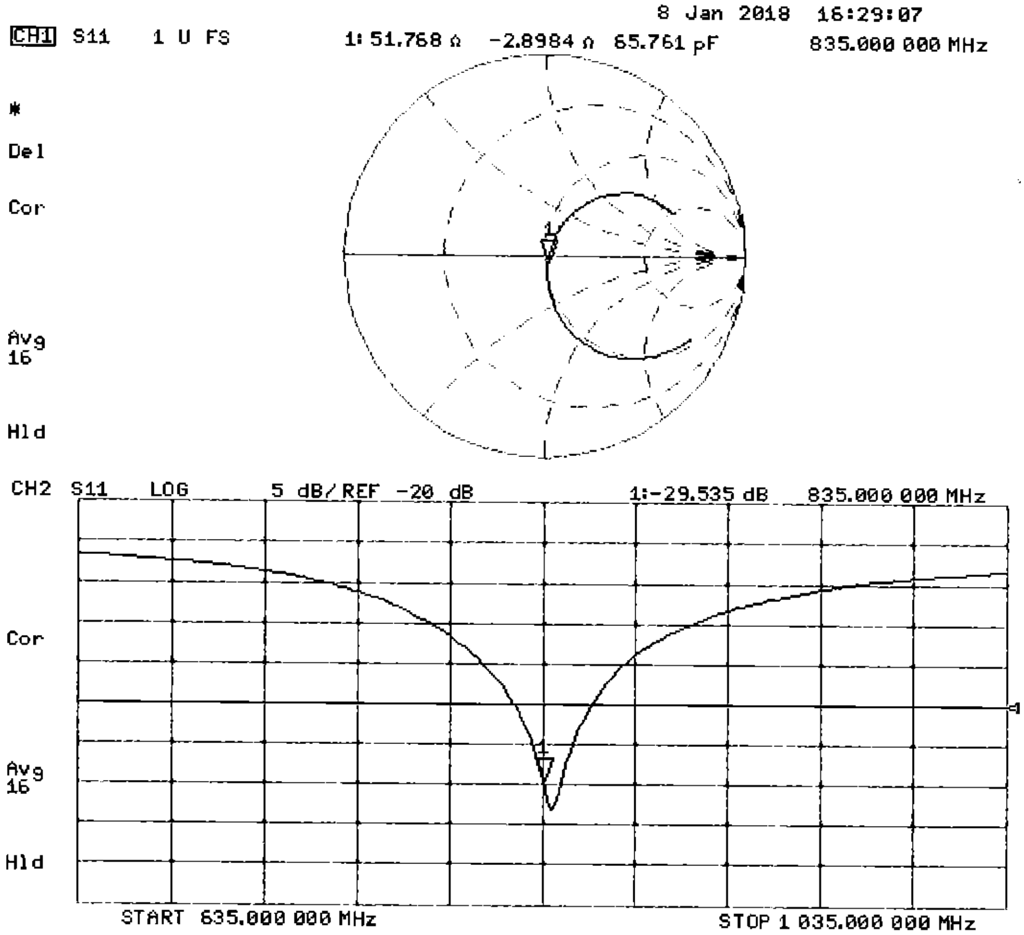
- Probe: EX3DV4 - SN7349; ConvF(9.9, 9.9, 9.9); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 63.23 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.64 W/kg
SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (measured) = 3.22 W/kg



0 dB = 3.22 W/kg = 5.08 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 08.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d132

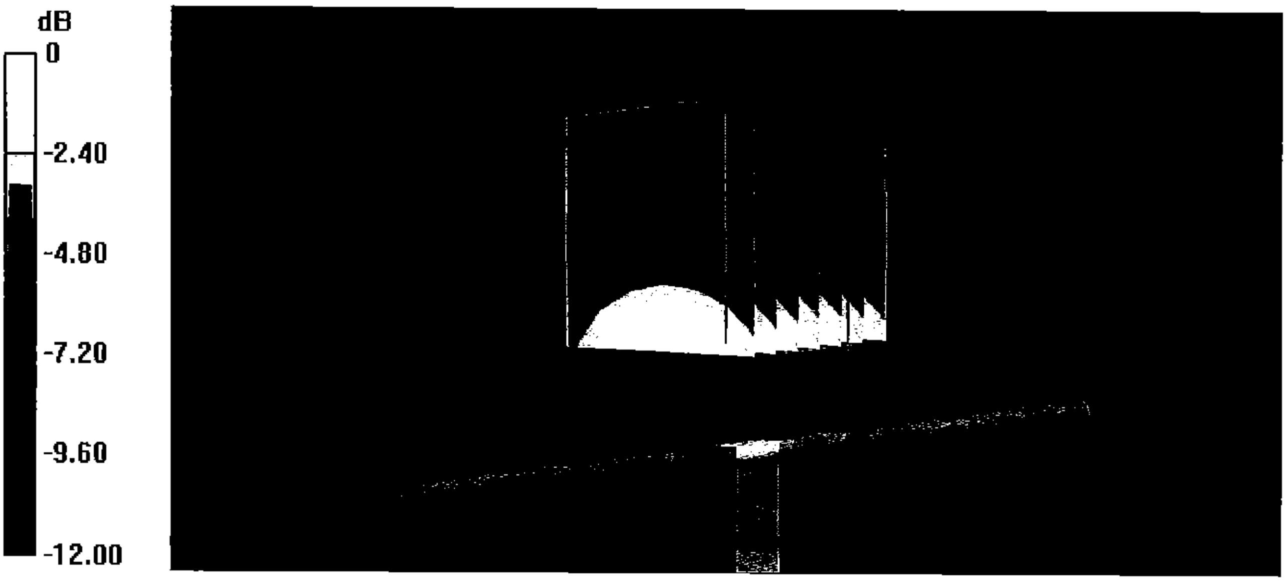
Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.99 S/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.05, 10.05, 10.05); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

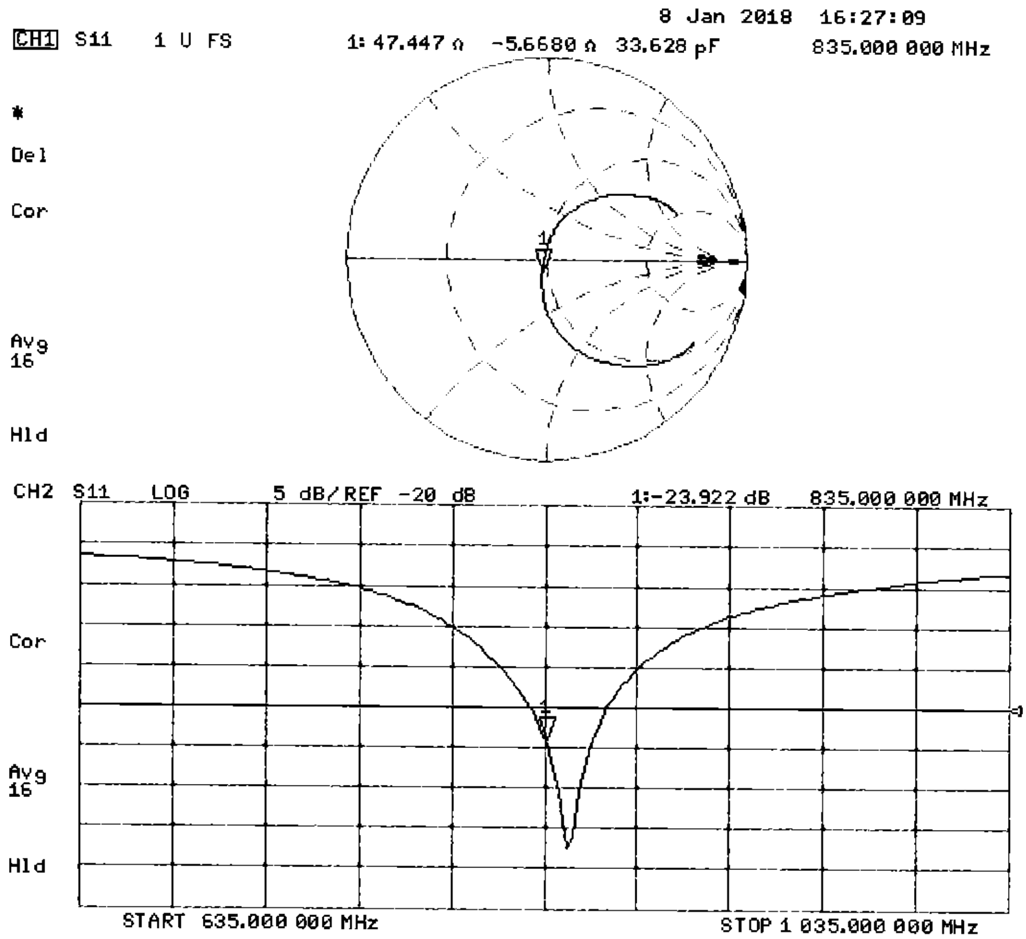
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.55 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 3.66 W/kg
SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.62 W/kg
Maximum value of SAR (measured) = 3.24 W/kg



0 dB = 3.24 W/kg = 5.11 dBW/kg

Impedance Measurement Plot for Body TSL



DASY5 Validation Report for SAM Head

Date: 15.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d132

Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.94 S/m; ε_r = 44.1; ρ = 1000 kg/m^3
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

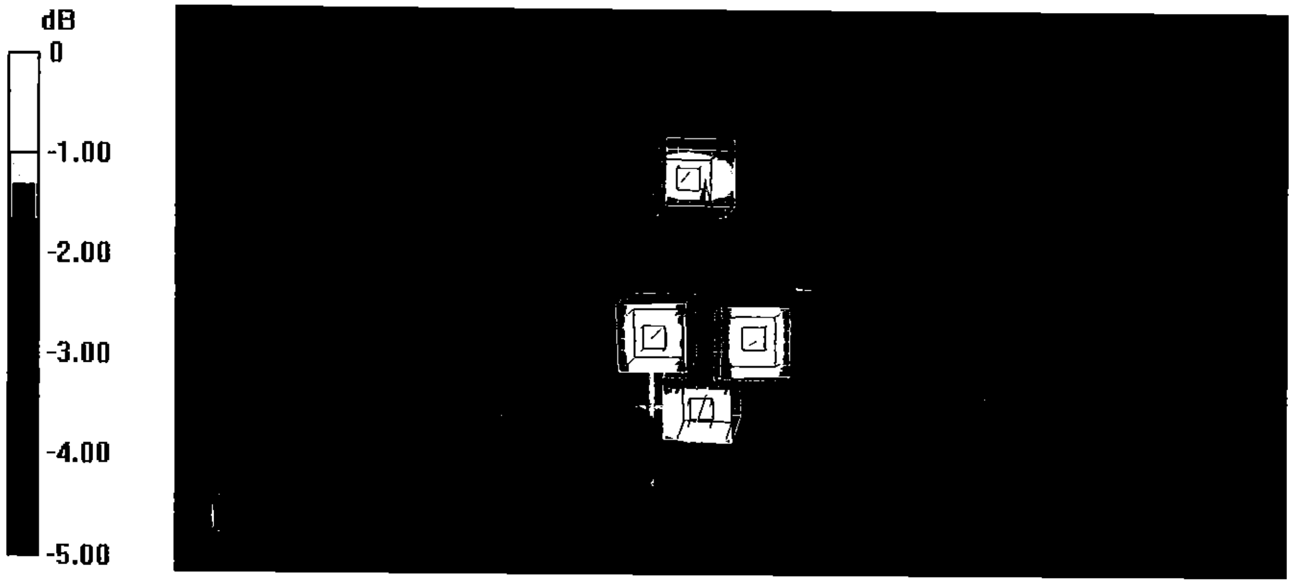
- Probe: EX3DV4 - SN7349; ConvF(9.9, 9.9, 9.9); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: SAM Head
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

SAM Head/Top/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 61.00 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.56 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.58 W/kg
Maximum value of SAR (measured) = 3.16 W/kg

SAM Head/Mouth/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.99 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.65 W/kg
SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.64 W/kg
Maximum value of SAR (measured) = 3.19 W/kg

SAM Head/Neck/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.20 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 3.33 W/kg
SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.59 W/kg
Maximum value of SAR (measured) = 3.04 W/kg

SAM Head/Ear/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.03 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 2.90 W/kg
SAR(1 g) = 2.03 W/kg; SAR(10 g) = 1.37 W/kg
Maximum value of SAR (measured) = 2.61 W/kg



0 dB = 2.61 W/kg = 4.17 dBW/kg

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D1750V2-1150_Jul16

CALIBRATION CERTIFICATE

Object	D1750V2 - SN:1150
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 14, 2016

√PM
8/9/16
Extended
9/2017
SC ✓

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	15-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 14, 2016

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.8 ± 6 %	1.36 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.06 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**36.1 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.80 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**19.2 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.4 ± 6 %	1.48 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.09 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**36.5 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.85 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**19.5 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.9 Ω + 0.4 jΩ
Return Loss	- 40.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.4 Ω - 0.5 jΩ
Return Loss	- 28.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.218 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	April 10, 2015

DASY5 Validation Report for Head TSL

Date: 14.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:1150

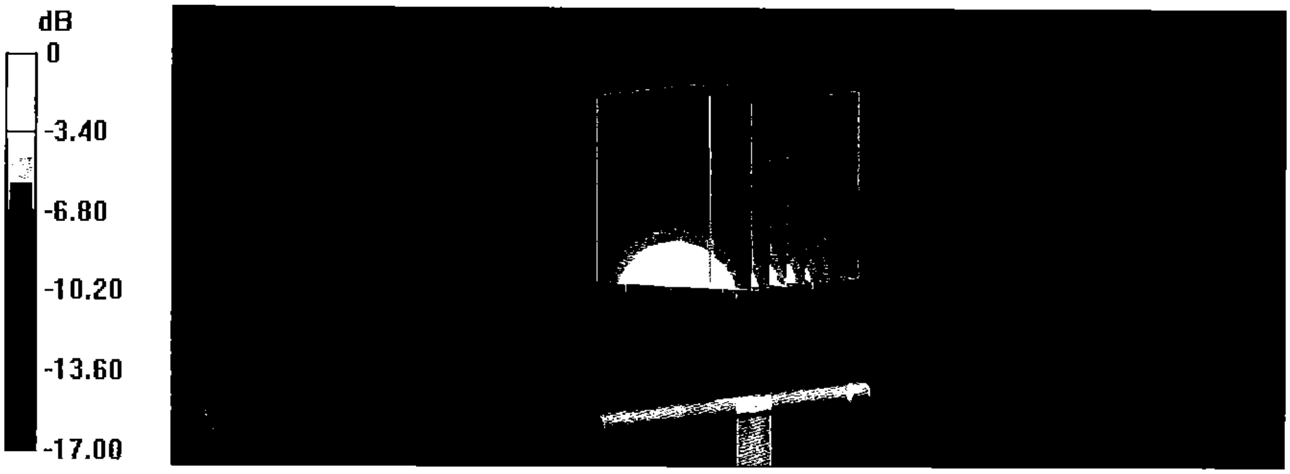
Communication System: UID 0 - CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.36 S/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.46, 8.46, 8.46); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

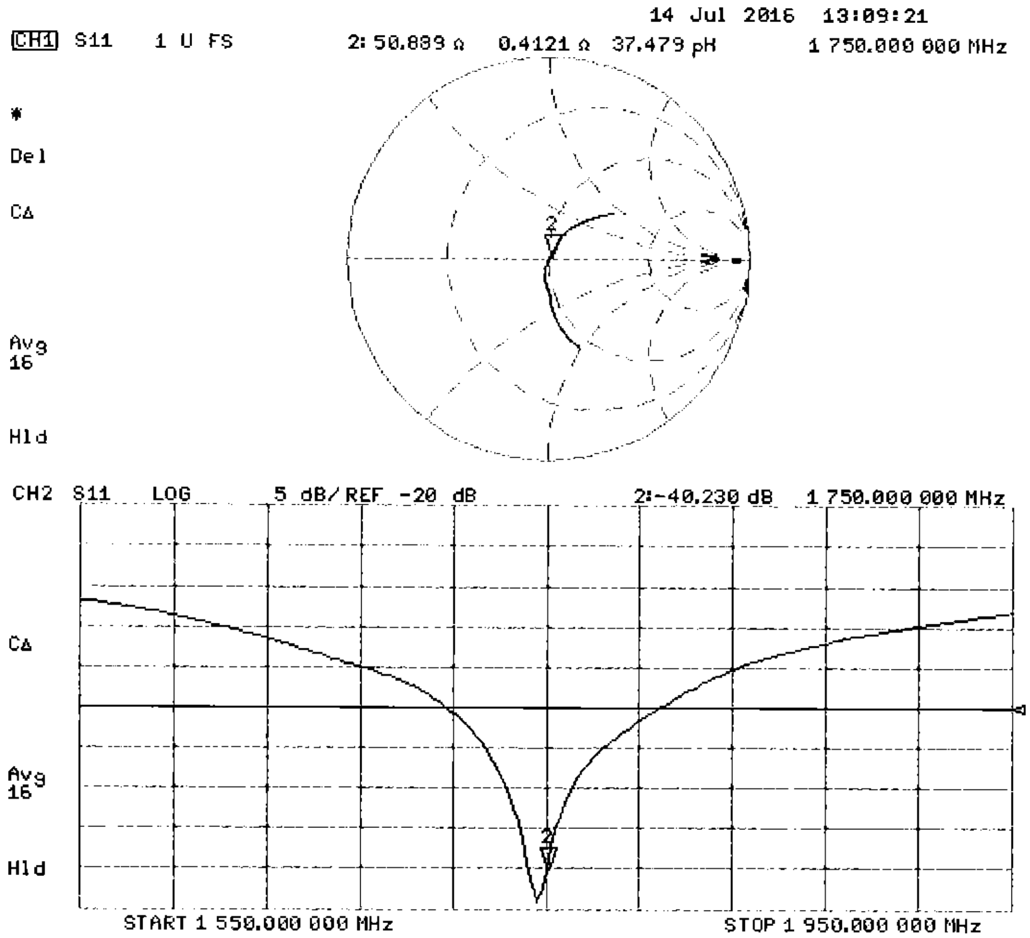
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 104.4 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 16.6 W/kg
SAR(1 g) = 9.06 W/kg; SAR(10 g) = 4.8 W/kg
Maximum value of SAR (measured) = 13.9 W/kg



0 dB = 13.9 W/kg = 11.43 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 14.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:1150

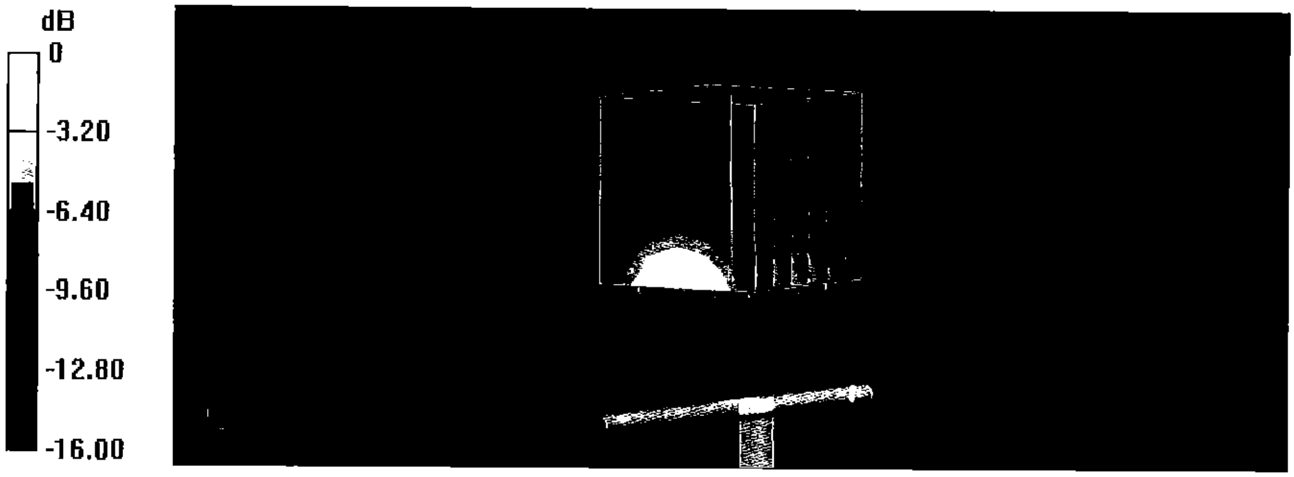
Communication System: UID 0 - CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.48 S/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.25, 8.25, 8.25); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

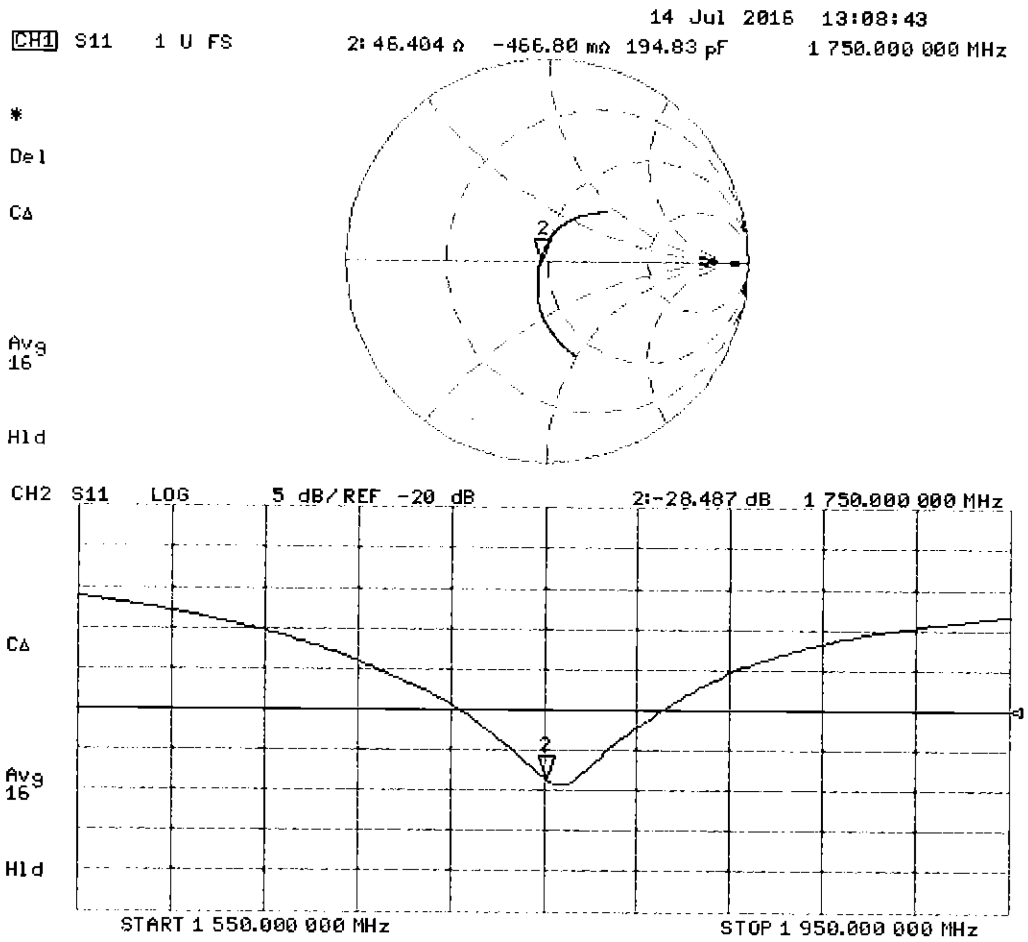
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.4 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 16.0 W/kg
SAR(1 g) = 9.09 W/kg; SAR(10 g) = 4.85 W/kg
Maximum value of SAR (measured) = 13.7 W/kg



0 dB = 13.7 W/kg = 11.37 dBW/kg

Impedance Measurement Plot for Body TSL



Certification of Calibration

Object	D1750V2 – SN: 1150
Calibration procedure(s)	Procedure for Calibration Extension for SAR Dipoles.
Calibration date:	July 07, 2017
Description:	SAR Validation Dipole at 1750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330156
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/1/2017	Annual	6/1/2018	MY53401181
Agilent	8753ES	S-Parameter Network Analyzer	10/26/2016	Annual	10/26/2017	US39170118
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/8/2017	Annual	3/8/2018	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/13/2017	Annual	3/13/2018	1415
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	ES3DV3	SAR Probe	3/14/2017	Annual	3/14/2018	3209
SPEAG	ES3DV3	SAR Probe	3/14/2017	Annual	3/14/2018	3319
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1207364
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1339018
Anritsu	ML2495A	Power Meter	10/16/2015	Biennial	10/16/2017	941001
Agilent	N5182A	MXG Vector Signal Generator	2/28/2017	Annual	2/28/2018	MY47420800
Seekonk	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A

Measurement Uncertainty = ±23% (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halbfoster	Test Engineer	BRODIE HALBFOSTER
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	KOK

DIPOLE CALIBRATION EXTENSION

Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

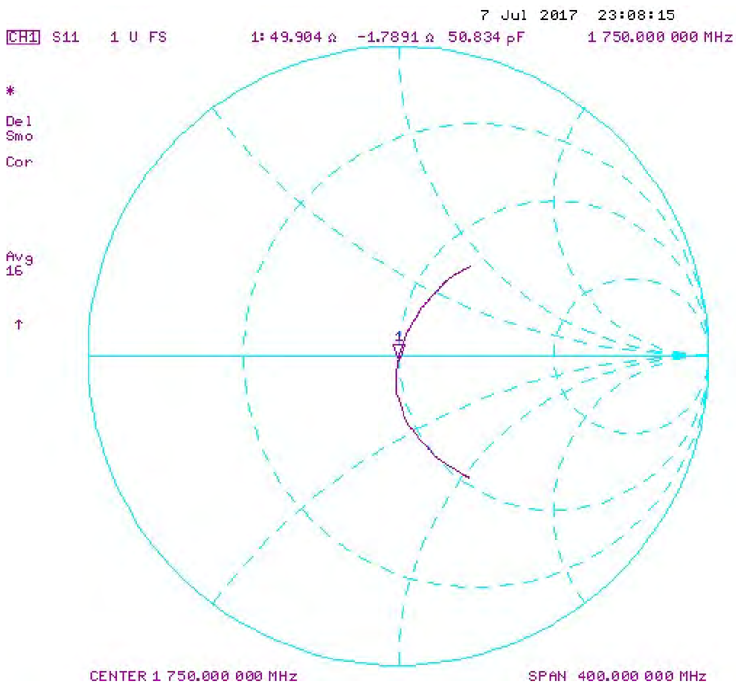
1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

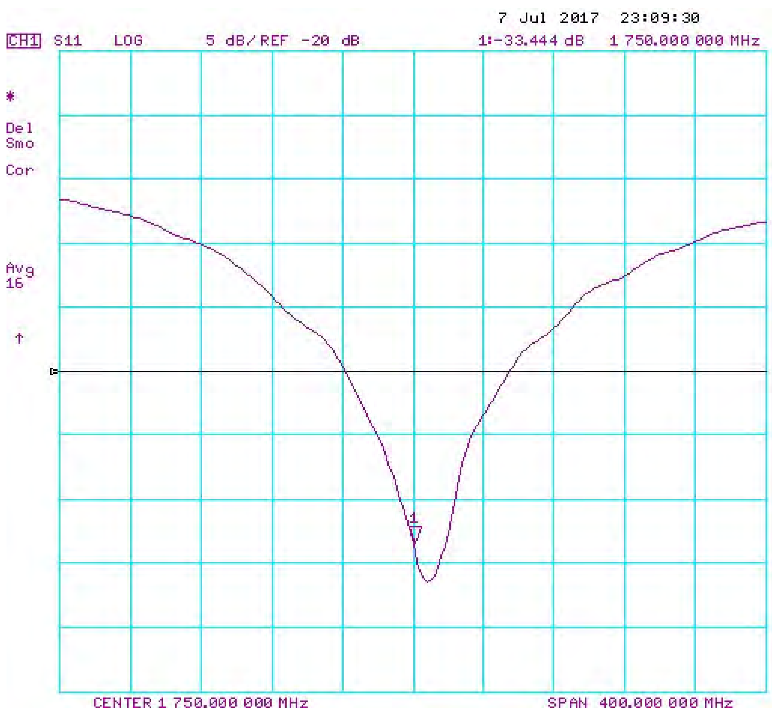
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 20.0 dBm	Measured Head SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
7/14/2016	7/7/2017	1.218	3.61	3.57	-1.11%	1.92	1.88	-2.08%	50.9	49.9	1	0.4	-1.8	2.1	-40.2	-33.4	16.90%	PASS

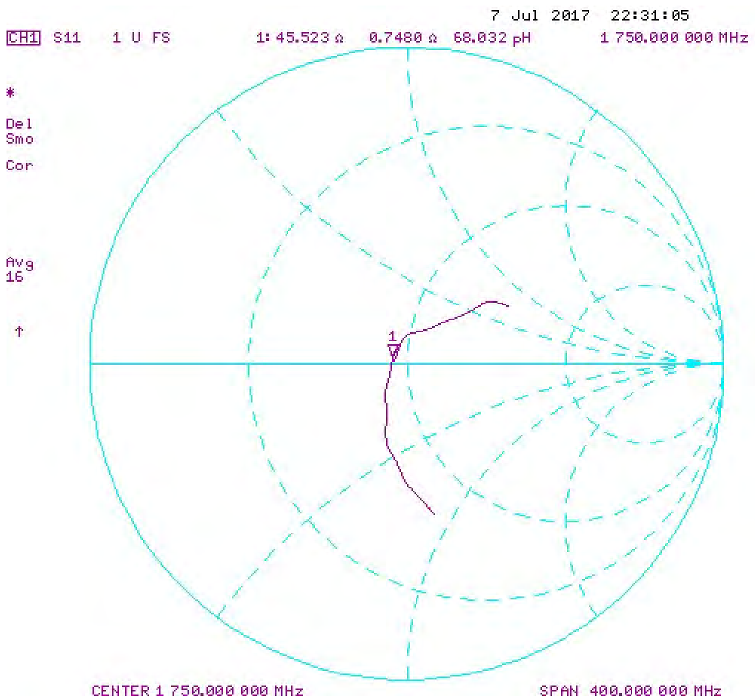
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 20.0 dBm	Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm	Measured Body SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
7/14/2016	7/7/2017	1.218	3.65	3.68	0.82%	1.95	1.97	1.03%	46.4	45.5	0.9	-0.5	0.7	1.2	-28.5	-23.6	17.20%	PASS

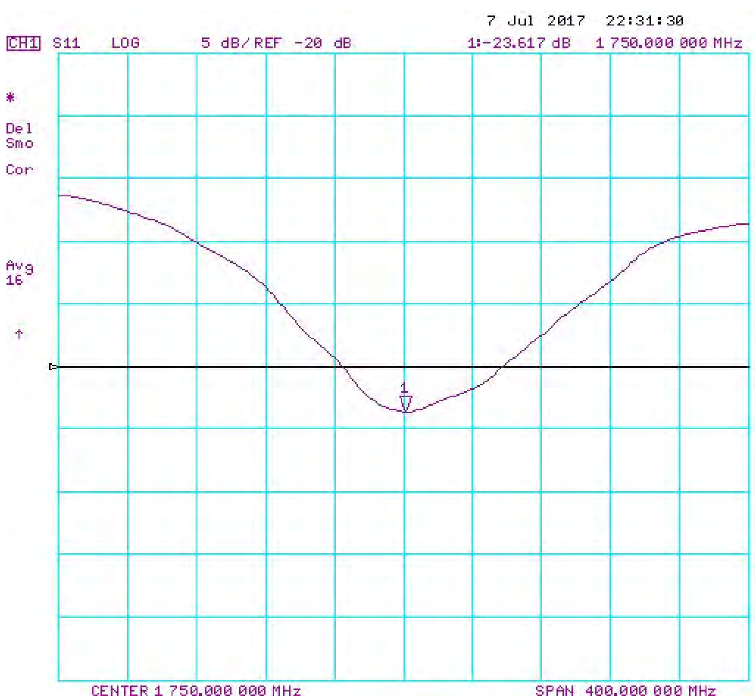
Impedance & Return-Loss Measurement Plot for Head TSL





Impedance & Return-Loss Measurement Plot for Body TSL





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Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D1900V2-5d148_Feb18

CALIBRATION CERTIFICATE

Object	D1900V2 - SN:5d148
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	February 07, 2018

BN
03-02-2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 7, 2018

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Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.7 ± 6 %	1.39 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.95 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**40.1 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**21.0 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.2 ± 6 %	1.48 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.68 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**39.6 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.9 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.1 Ω + 5.8 jΩ
Return Loss	- 24.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.8 Ω + 6.5 jΩ
Return Loss	- 23.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.199 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 11, 2011

DASY5 Validation Report for Head TSL

Date: 07.02.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d148

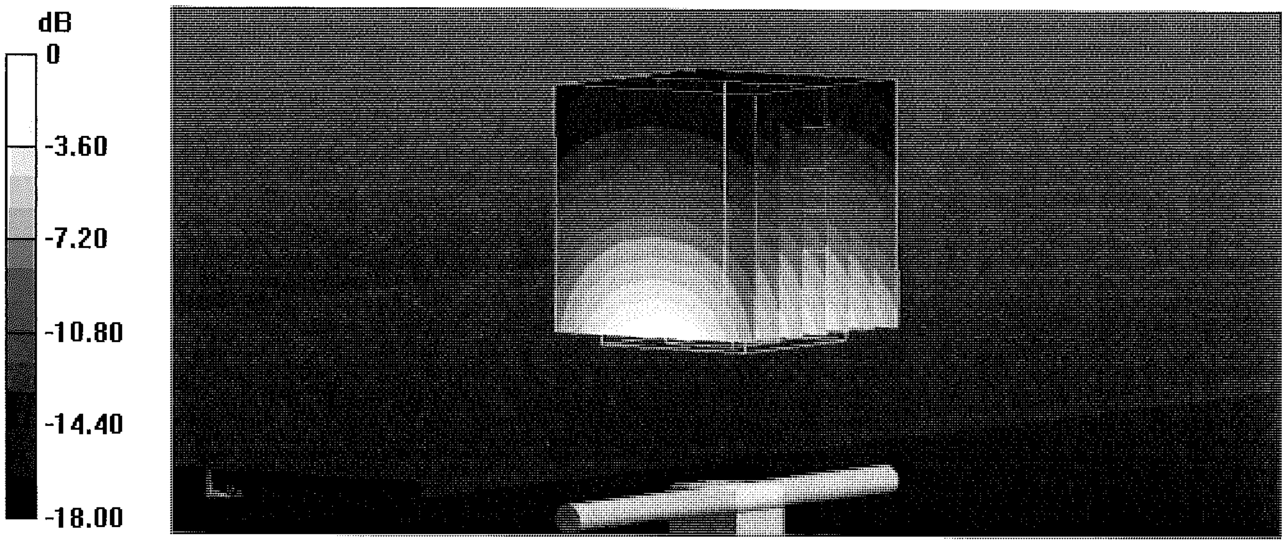
Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.39 S/m; ε_r = 40.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.18, 8.18, 8.18); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

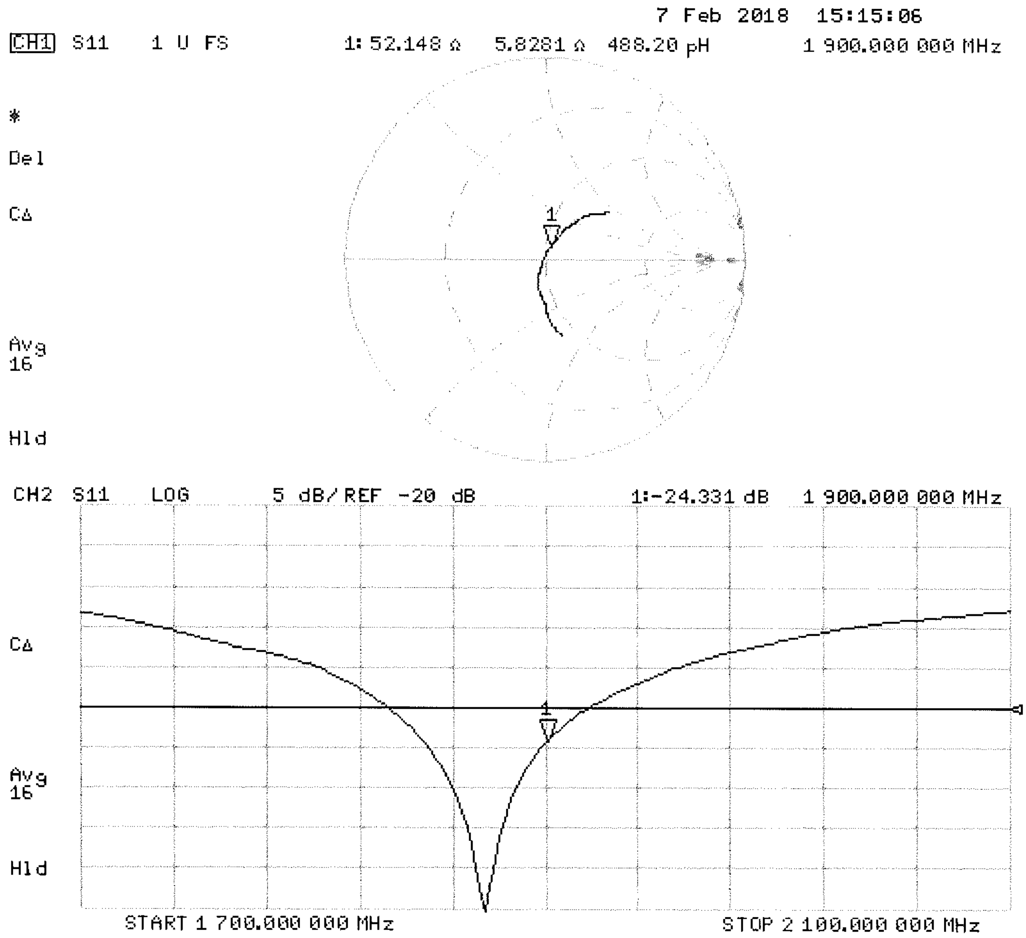
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.6 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 9.95 W/kg; SAR(10 g) = 5.22 W/kg
Maximum value of SAR (measured) = 15.3 W/kg



0 dB = 15.3 W/kg = 11.85 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 07.02.2018

Test Laboratory: SPEAG, Zurich, Switzerland

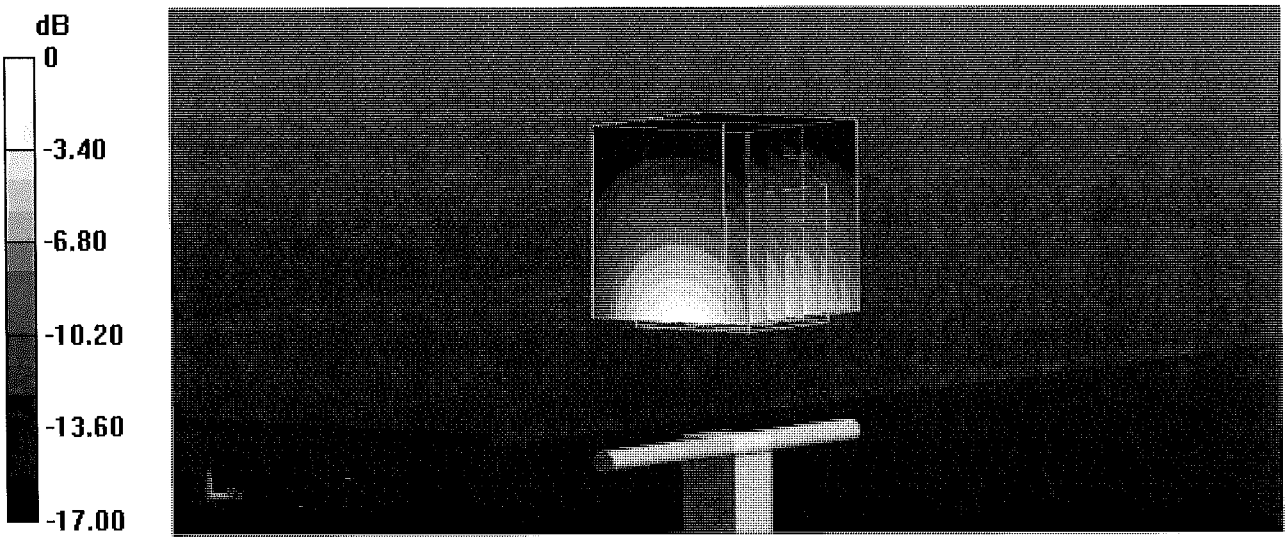
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d148

Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.48 S/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

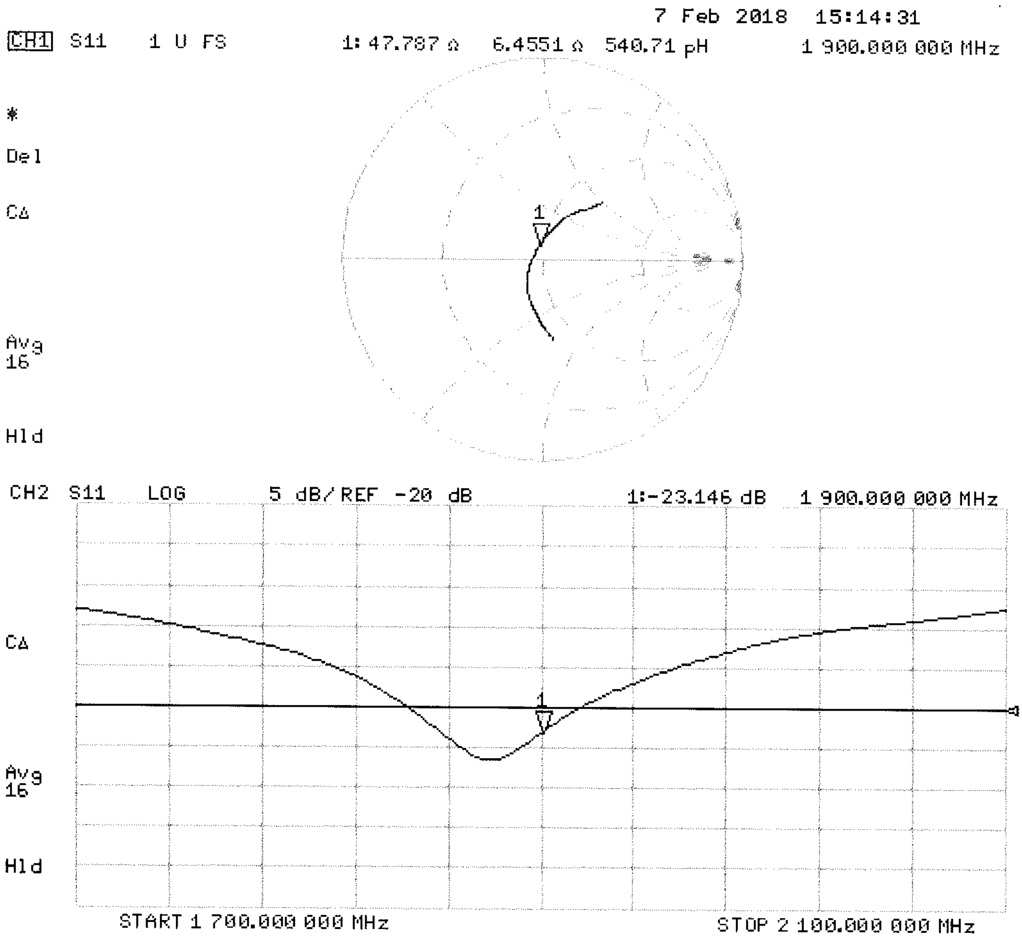
- Probe: EX3DV4 - SN7349; ConvF(8.15, 8.15, 8.15); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 103.0 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.68 W/kg; SAR(10 g) = 5.14 W/kg
Maximum value of SAR (measured) = 14.4 W/kg



0 dB = 14.4 W/kg = 11.58 dBW/kg

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 0108

Client PC Test

Certificate No: D2450V2-981_Jul16

CALIBRATION CERTIFICATE

Object	D2450V2 - SN:981
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 25, 2016

vPM
8/9/16
Extended
7/2017
SC

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	15-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	M.Weber
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 27, 2016

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.0 ± 6 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**52.8 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.7 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.8 ± 6 %	2.03 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.0 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**50.8 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.04 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**23.8 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.2 Ω + 3.4 jΩ
Return Loss	- 26.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.2 Ω + 4.5 jΩ
Return Loss	- 27.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.162 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 30, 2014

DASY5 Validation Report for Head TSL

Date: 13.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:981

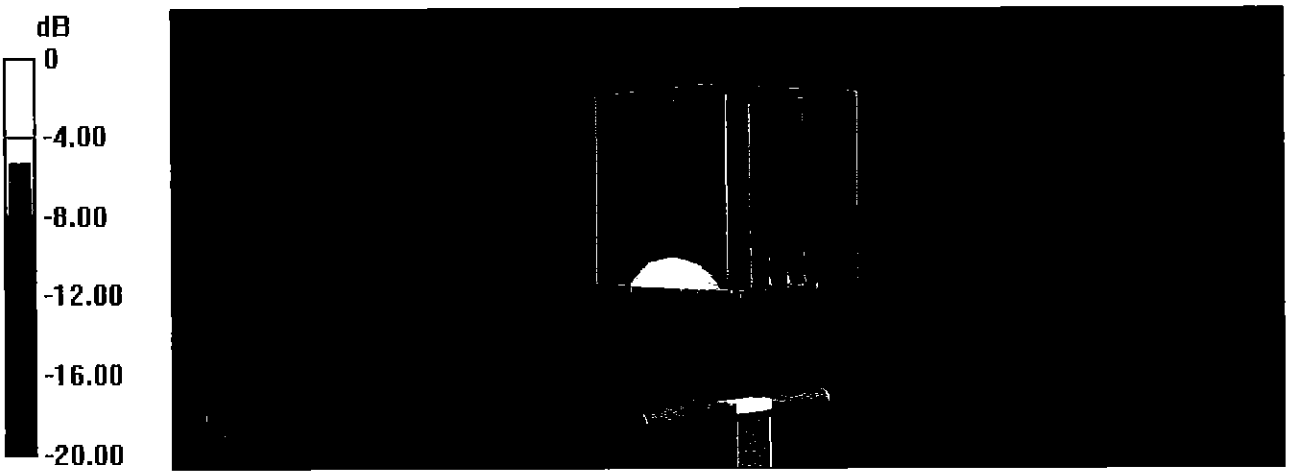
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; $\sigma = 1.86$ S/m; $\varepsilon_r = 38$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.72, 7.72, 7.72); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

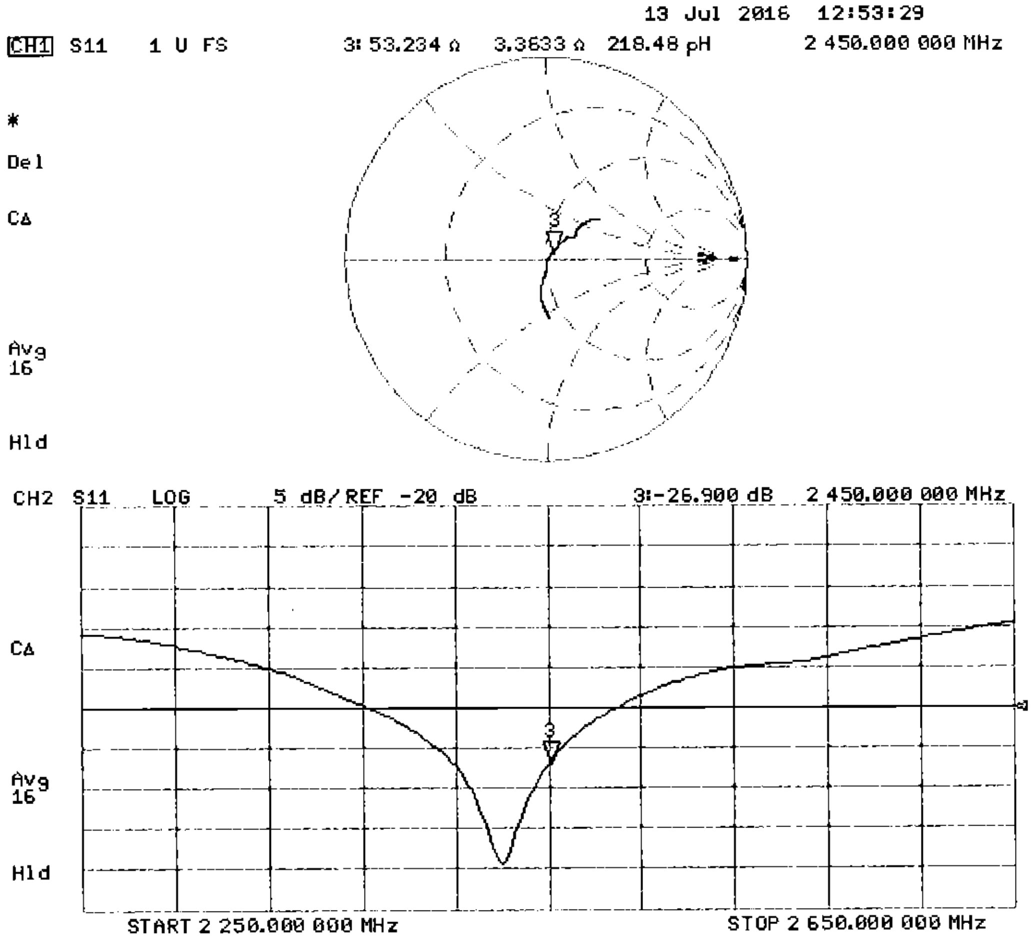
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 115.8 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 27.4 W/kg
SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.26 W/kg
Maximum value of SAR (measured) = 22.5 W/kg



0 dB = 22.5 W/kg = 13.52 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:981

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; $\sigma = 2.03$ S/m; $\varepsilon_r = 51.8$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

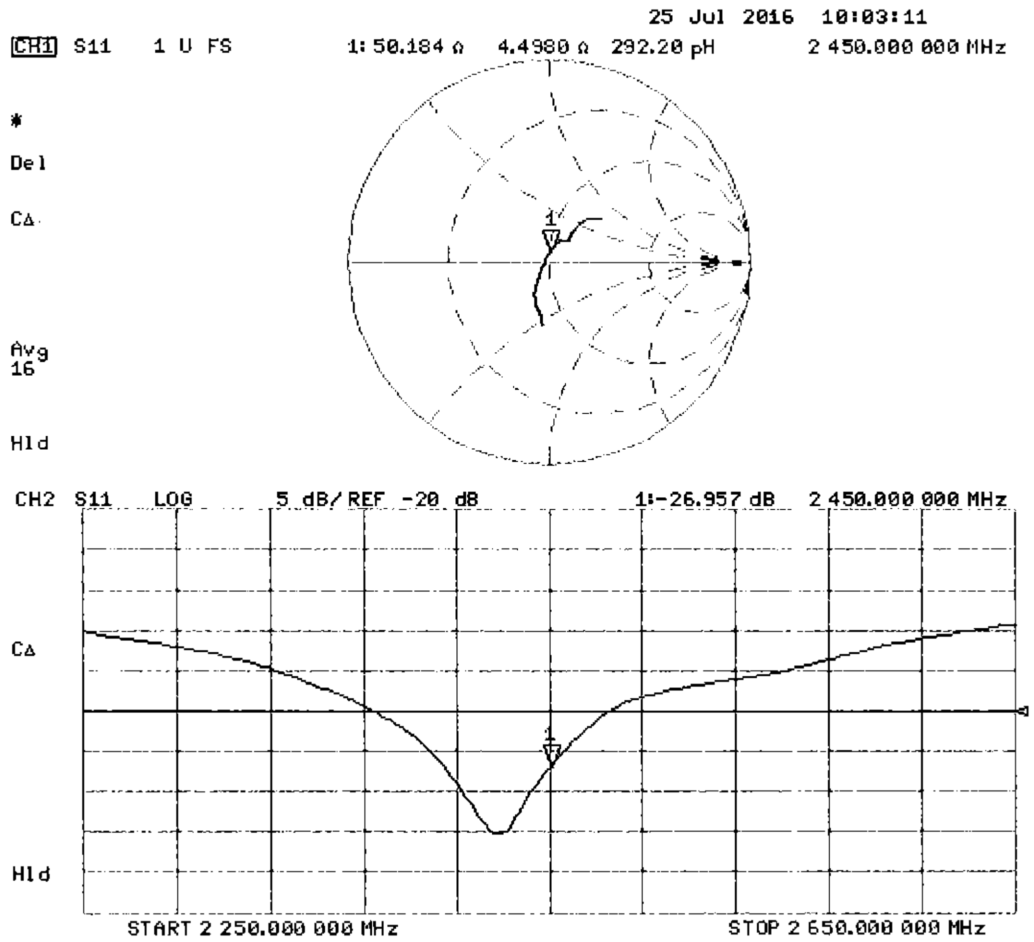
DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.79, 7.79, 7.79); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.1 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 26.0 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 6.04 W/kg
Maximum value of SAR (measured) = 21.4 W/kg

0 dB = 21.4 W/kg = 13.30 dBW/kg

Impedance Measurement Plot for Body TSL



PCTEST ENGINEERING LABORATORY, INC.
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. +1.410.290.6652 / Fax +1.410.290.6654
http://www.pctest.com

Certification of Calibration

Object	D2450V2 – SN: 981
Calibration procedure(s)	Procedure for Calibration Extension for SAR Dipoles.
Calibration date:	July 24, 2017
Description:	SAR Validation Dipole at 2450 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330156
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/1/2017	Annual	6/1/2018	MY53401181
Agilent	8753ES	S-Parameter Network Analyzer	10/26/2016	Annual	10/26/2017	US39170118
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/14/2016	Annual	9/14/2017	1408
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2017	Annual	2/9/2018	1272
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	ES3DV3	SAR Probe	9/19/2016	Annual	9/19/2017	3287
SPEAG	ES3DV3	SAR Probe	2/10/2017	Annual	2/10/2018	3213
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1207364
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1339018
Anritsu	ML2495A	Power Meter	10/16/2015	Biennial	10/16/2017	941001
Agilent	N5182A	MXG Vector Signal Generator	2/28/2017	Annual	2/28/2018	MY47420800
Seekonk	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A

Measurement Uncertainty = ±23% (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halbfoster	Test Engineer	BRODIE HALBFOSTER
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	KOK

DIPOLE CALIBRATION EXTENSION

Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

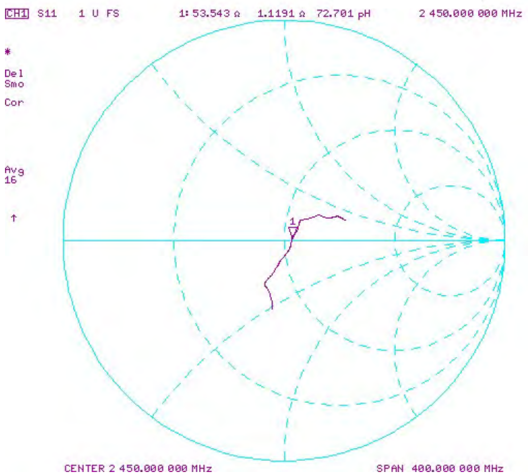
1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

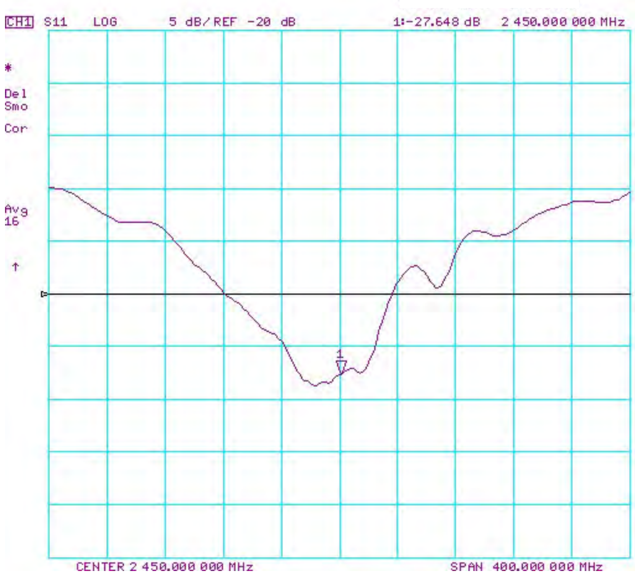
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 20.0 dBm	Measured Head SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
7/25/2016	7/24/2017	1.162	5.28	5.57	5.49%	2.47	2.56	3.64%	53.2	53.5	0.3	3.4	1.1	2.3	-26.9	-27.6	-2.60%	PASS

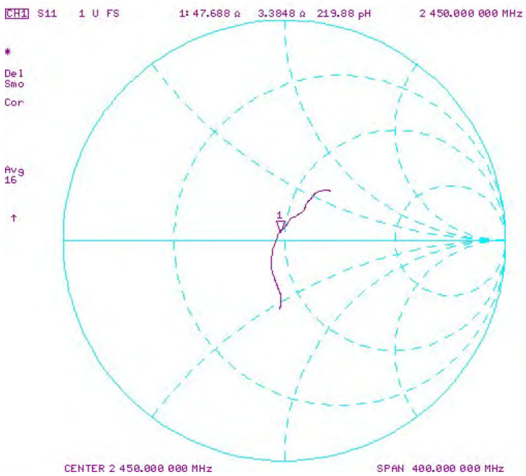
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 20.0 dBm	Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm	Measured Body SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
7/25/2016	7/24/2017	1.162	5.08	5.34	5.12%	2.38	2.39	0.42%	50.2	47.7	2.5	4.5	3.4	1.1	-27.0	-27.6	-2.20%	PASS

Impedance & Return-Loss Measurement Plot for Head TSL





Impedance & Return-Loss Measurement Plot for Body TSL



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D2450V2-882_Feb18

CALIBRATION CERTIFICATE

Object	D2450V2 - SN:882
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	February 07, 2018

BN
03-02-2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 7, 2018

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.9 ± 6 %	1.87 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**52.2 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.5 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.4 ± 6 %	2.04 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**50.2 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.98 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**23.6 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω + 1.3 jΩ
Return Loss	- 32.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.8 Ω + 3.7 jΩ
Return Loss	- 28.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.156 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 06, 2011

DASY5 Validation Report for Head TSL

Date: 07.02.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:882

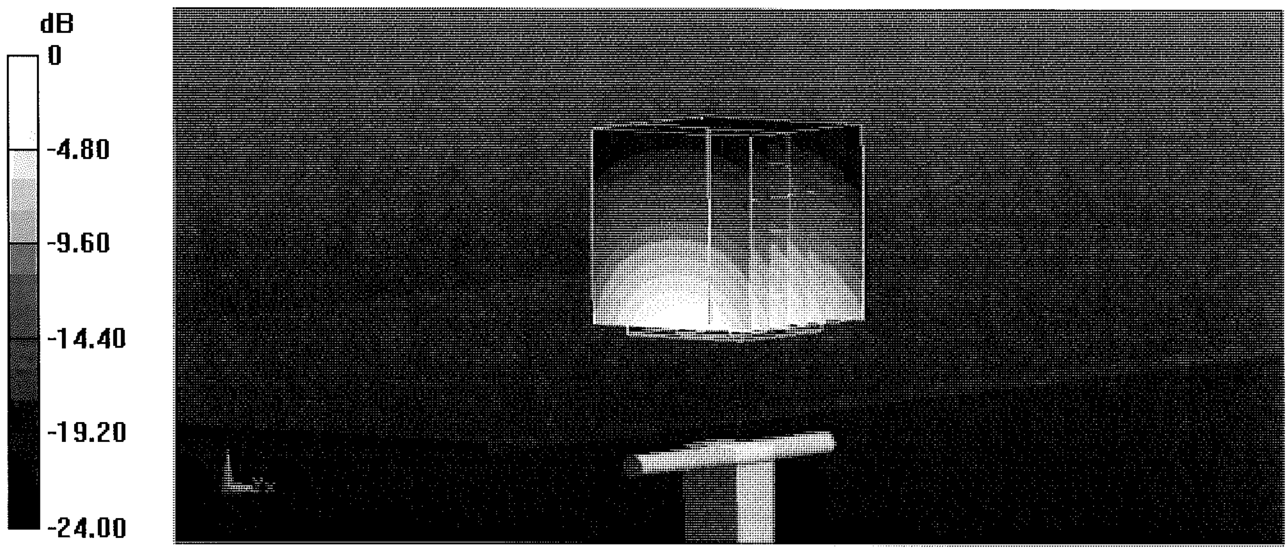
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.87 S/m; ε_r = 37.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.88, 7.88, 7.88); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

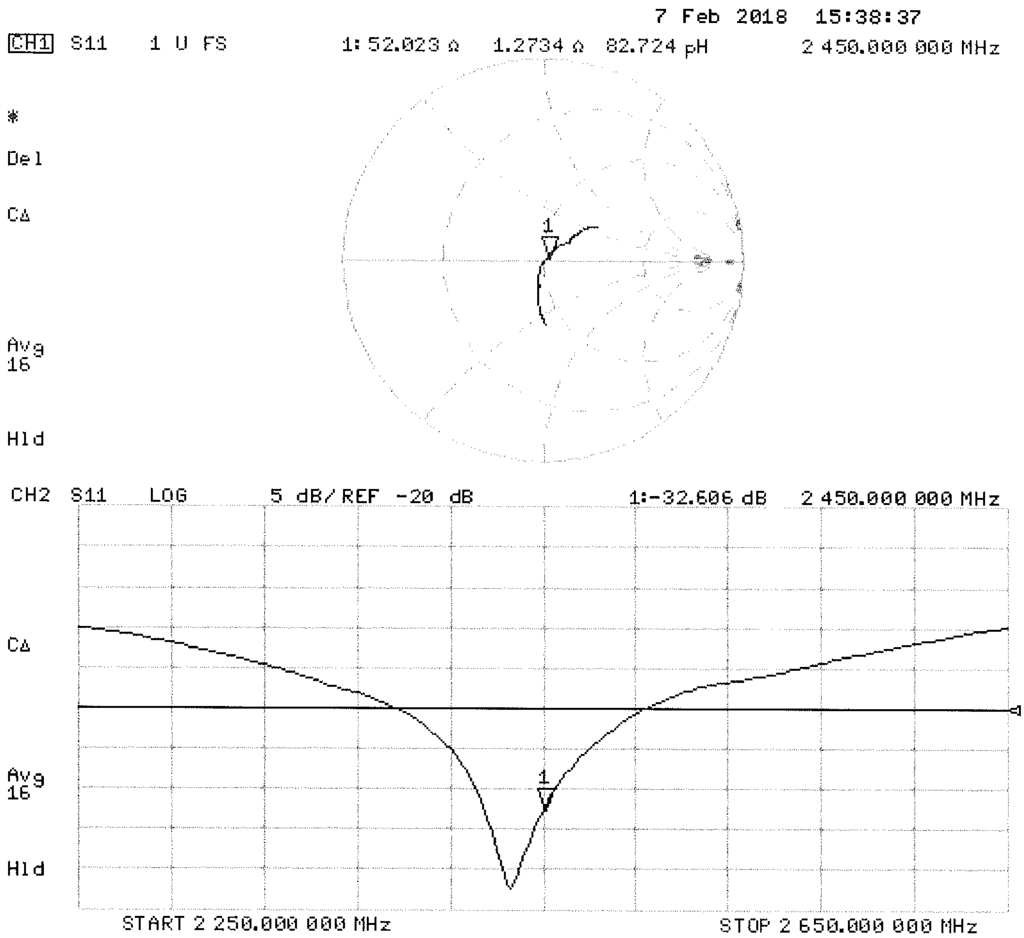
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 112.2 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 27.1 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.22 W/kg
Maximum value of SAR (measured) = 21.6 W/kg



0 dB = 21.6 W/kg = 13.34 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 07.02.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:882

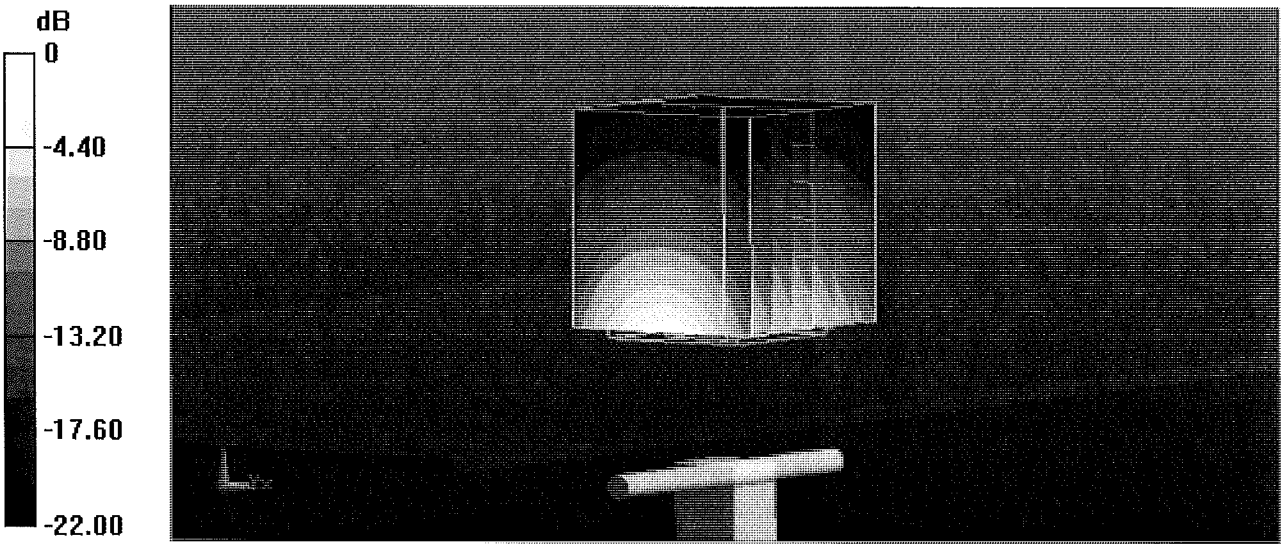
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.04 S/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.01, 8.01, 8.01); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

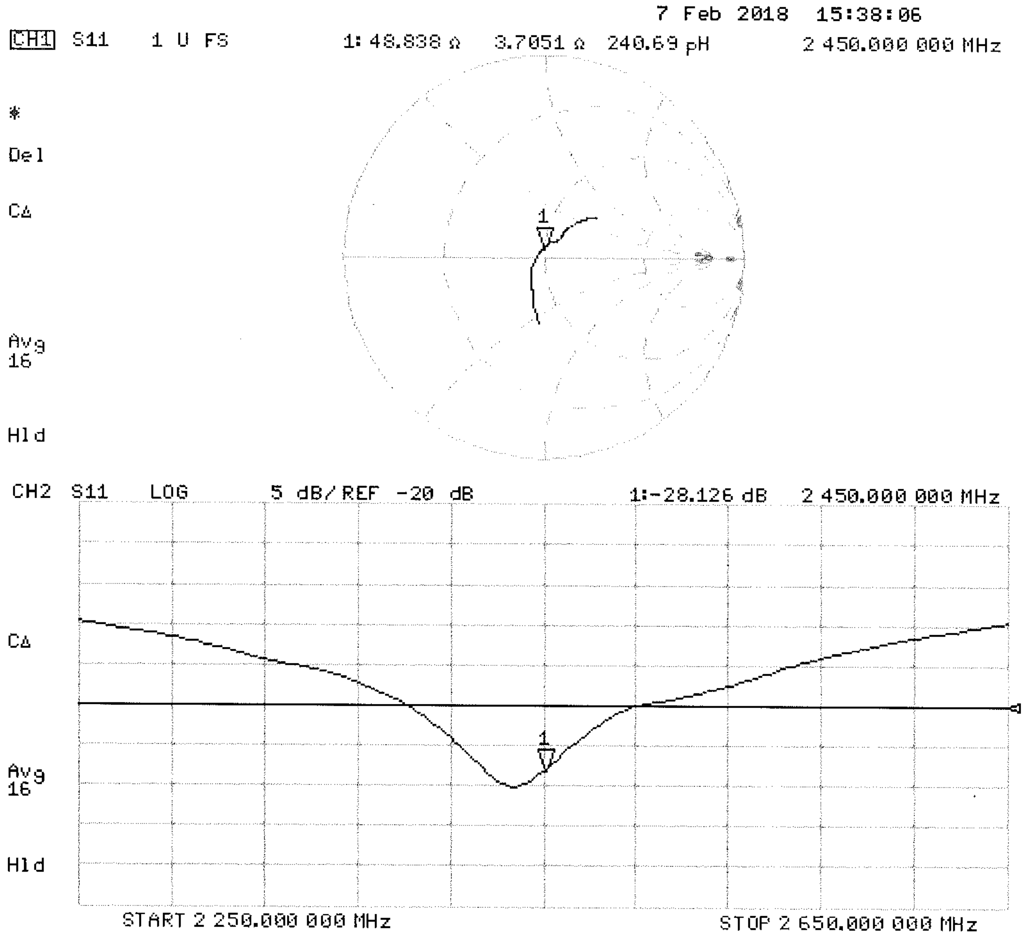
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.8 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 25.9 W/kg
SAR(1 g) = 12.9 W/kg; SAR(10 g) = 5.98 W/kg
Maximum value of SAR (measured) = 21.2 W/kg



0 dB = 21.2 W/kg = 13.26 dBW/kg

Impedance Measurement Plot for Body TSL



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
C Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D2600V2-1071_Sep16

CALIBRATION CERTIFICATE

Object: D2600V2 - SN:1071

Calibration procedure(s): QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz

BNV
09-28-2016
Extended
9/2017
SC

Calibration date: September 13, 2016

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	15-Jun-16 (No. EX3-7349_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 13, 2016

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.3 ± 6 %	2.05 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**56.3 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.45 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**25.3 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.1 ± 6 %	2.22 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.8 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**54.2 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.20 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.5 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.9 Ω - 6.7 jΩ
Return Loss	- 23.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.1 Ω - 2.1 jΩ
Return Loss	- 26.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.153 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 17, 2013

DASY5 Validation Report for Head TSL

Date: 13.09.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1071

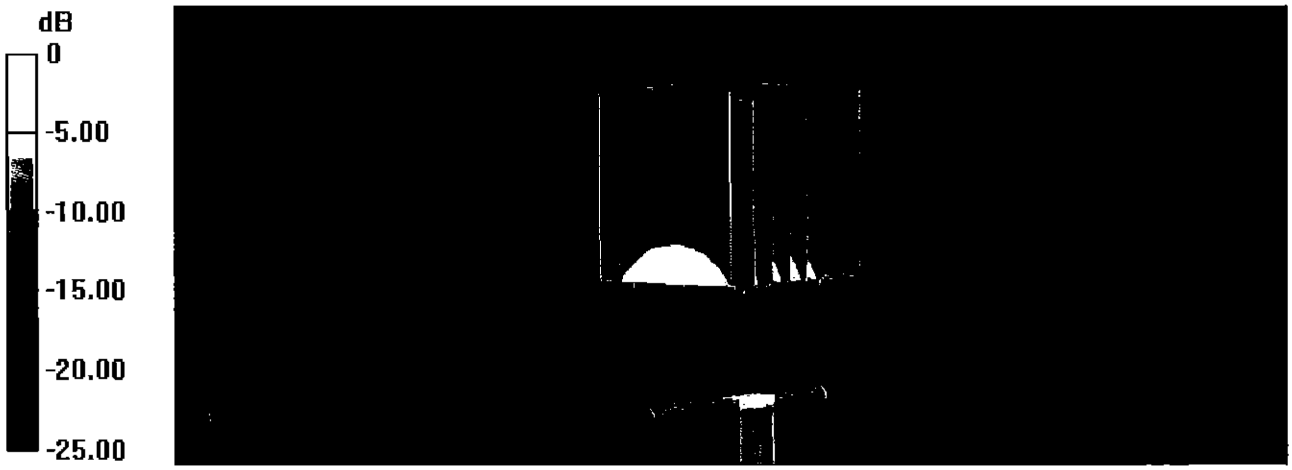
Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; $\sigma = 2.05$ S/m; $\varepsilon_r = 37.3$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.56, 7.56, 7.56); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

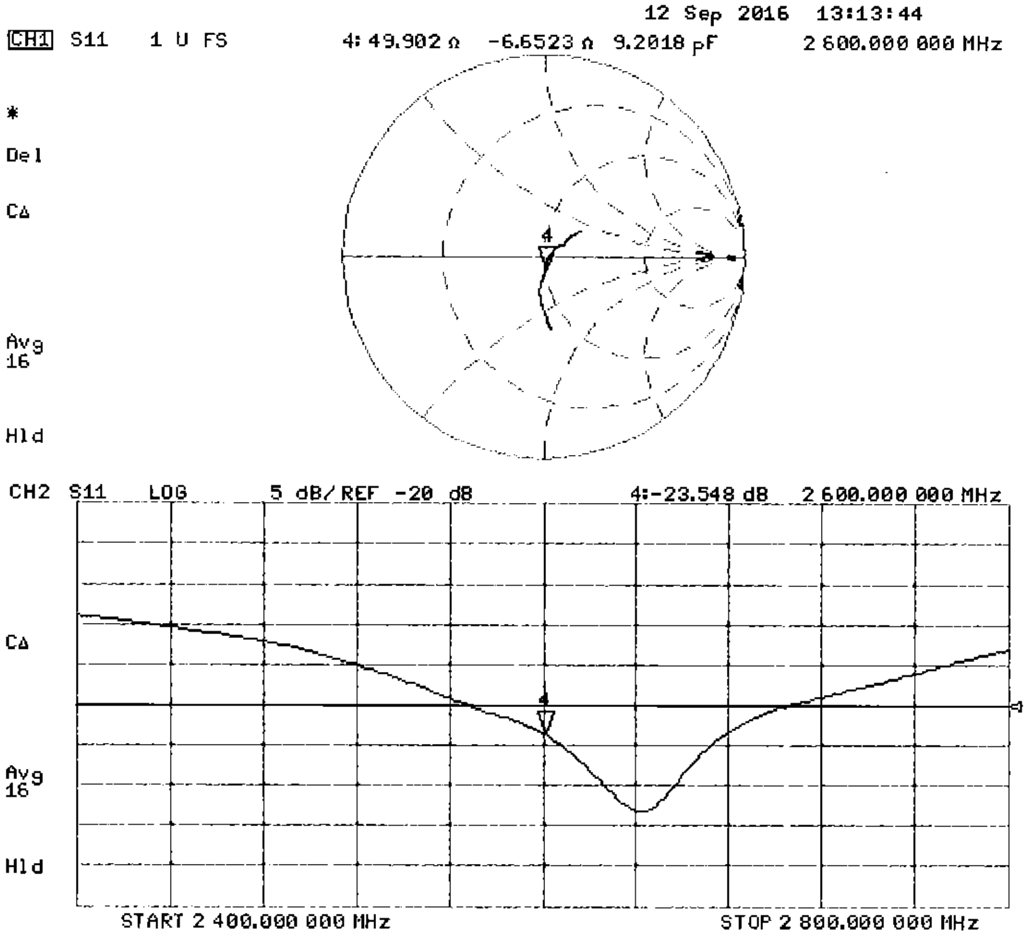
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 115.1 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 30.4 W/kg
SAR(1 g) = 14.5 W/kg; SAR(10 g) = 6.45 W/kg
Maximum value of SAR (measured) = 24.6 W/kg



0 dB = 24.6 W/kg = 13.91 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 13.09.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1071

Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.22 S/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

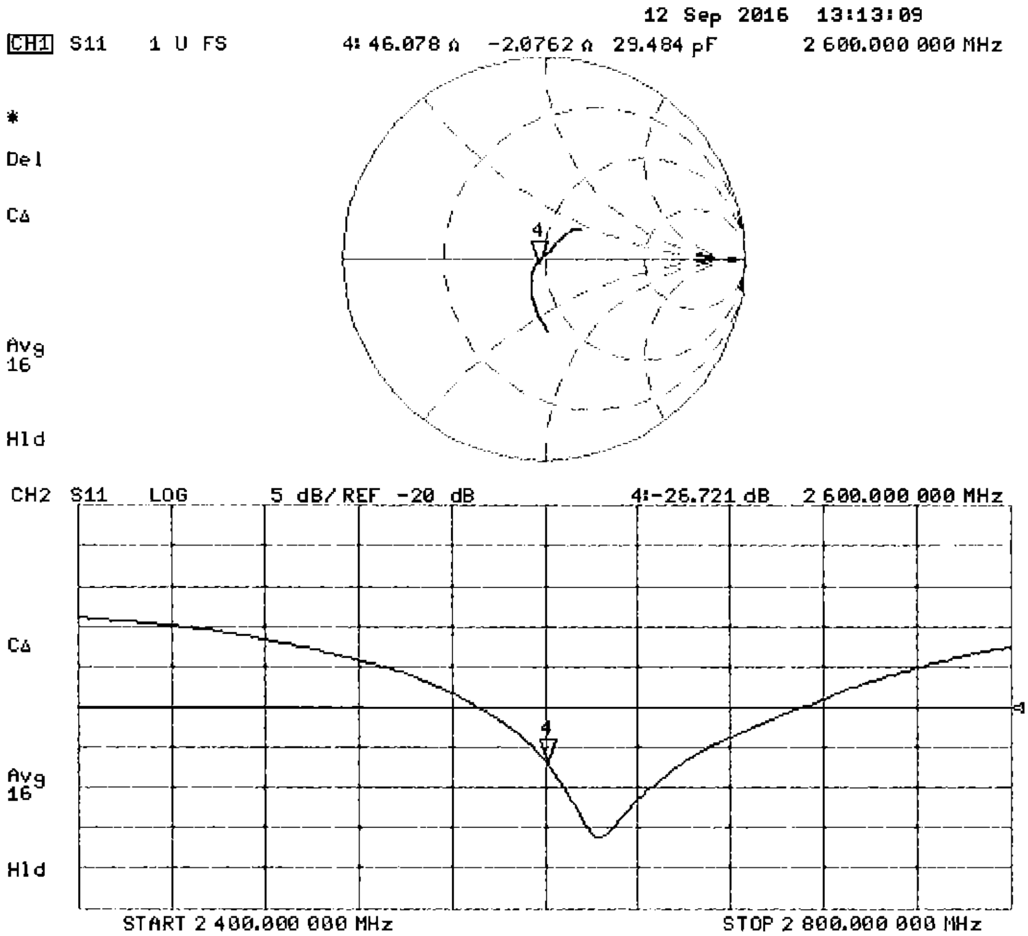
- Probe: EX3DV4 - SN7349; ConvF(7.48, 7.48, 7.48); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.7 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.2 W/kg
Maximum value of SAR (measured) = 23.3 W/kg

0 dB = 23.3 W/kg = 13.67 dBW/kg

Impedance Measurement Plot for Body TSL



Certification of Calibration

Object	D2600V2 – SN: 1071
Calibration procedure(s)	Procedure for Calibration Extension for SAR Dipoles.
Calibration date:	09/07/2017
Description:	SAR Validation Dipole at 2600 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330156
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/1/2017	Annual	6/1/2018	MY53401181
Agilent	8753ES	S-Parameter Network Analyzer	10/26/2016	Annual	10/26/2017	US39170118
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/13/2017	Annual	7/13/2018	1322
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	EX3DV4	SAR Probe	7/17/2017	Annual	7/17/2018	7410
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1207364
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1339018
Anritsu	ML2495A	Power Meter	10/16/2015	Biennial	10/16/2017	941001
Agilent	N5182A	MXG Vector Signal Generator	2/28/2017	Annual	2/28/2018	MY47420800
Seekonk	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path.

Measurement Uncertainty = ±23% (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halbfoster	Test Engineer	BRODIE HALBFOSTER
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	KOK

DIPOLE CALIBRATION EXTENSION

Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

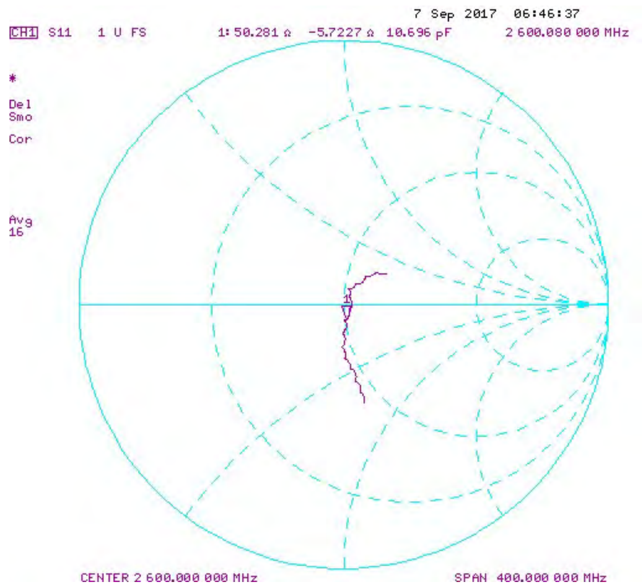
1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

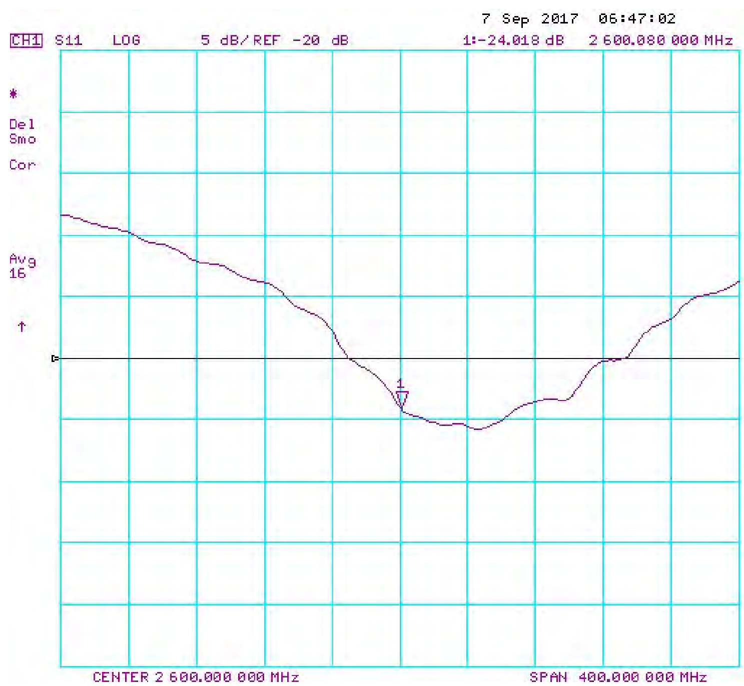
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 20.0 dBm	Measured Head SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
9/13/2016	9/7/2017	1.153	5.63	5.73	1.78%	2.53	2.52	-0.40%	49.9	50.3	0.4	-6.7	-5.7	1.0	-23.5	-24.0	-2.10%	PASS

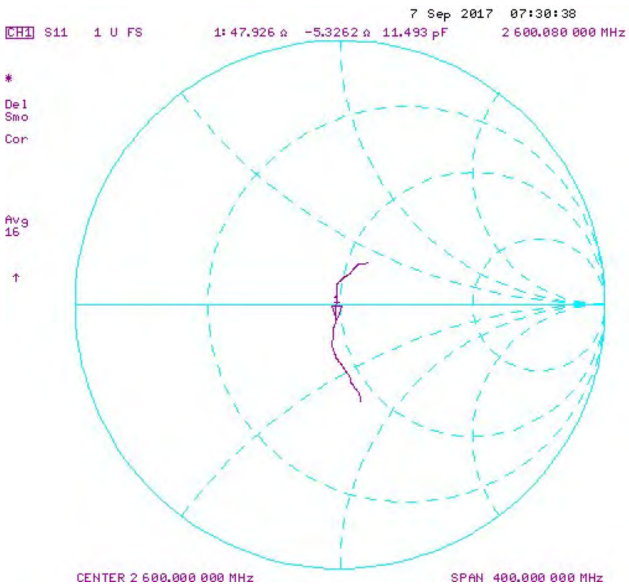
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 20.0 dBm	Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm	Measured Body SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
9/13/2016	9/7/2017	1.153	5.42	5.34	-1.48%	2.45	2.33	-4.90%	46.1	47.9	1.8	-2.1	-5.3	3.2	-26.7	-25.0	6.40%	PASS

Impedance & Return-Loss Measurement Plot for Head TSL





Impedance & Return-Loss Measurement Plot for Body TSL



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S **Schweizerischer Kalibrierdienst**
C **Service suisse d'étalonnage**
S **Servizio svizzero di taratura**
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client PC Test

Certificate No: D2600V2-1004_Apr18

CALIBRATION CERTIFICATE

Object	D2600V2 - SN:1004
Calibration procedure(s)	QA CAL-05.v10 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	April 11, 2018

BN✓
05-01-2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-19
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	M.Weber
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 12, 2018

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.8 ± 6 %	2.03 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**55.9 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**25.1 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.1 ± 6 %	2.19 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.8 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**54.8 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.20 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.7 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	47.7 Ω - 5.7 jΩ
Return Loss	- 24.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.0 Ω - 3.8 jΩ
Return Loss	- 24.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.149 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 23, 2006

DASY5 Validation Report for Head TSL

Date: 11.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1004

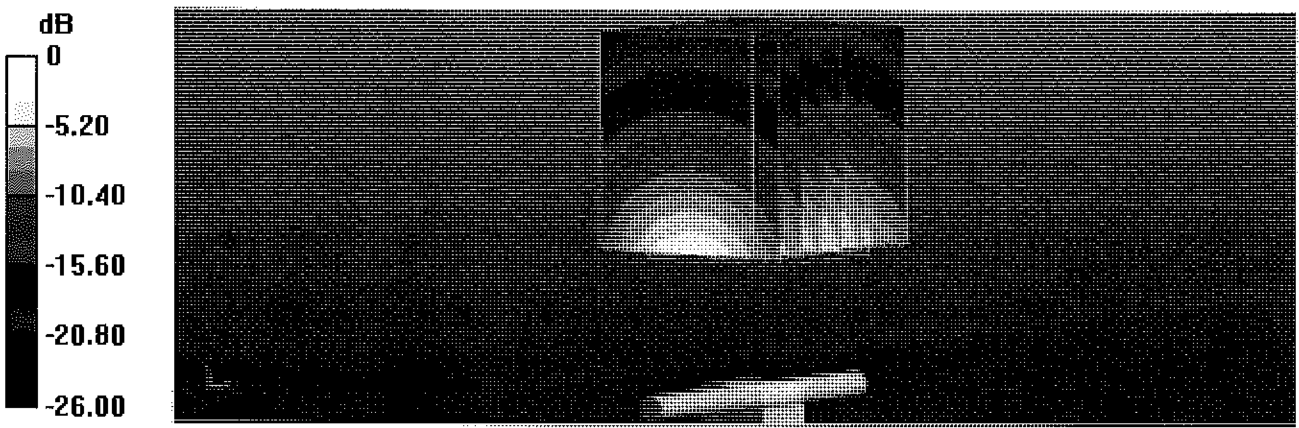
Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.03 S/m; ε_r = 37.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.7, 7.7, 7.7); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

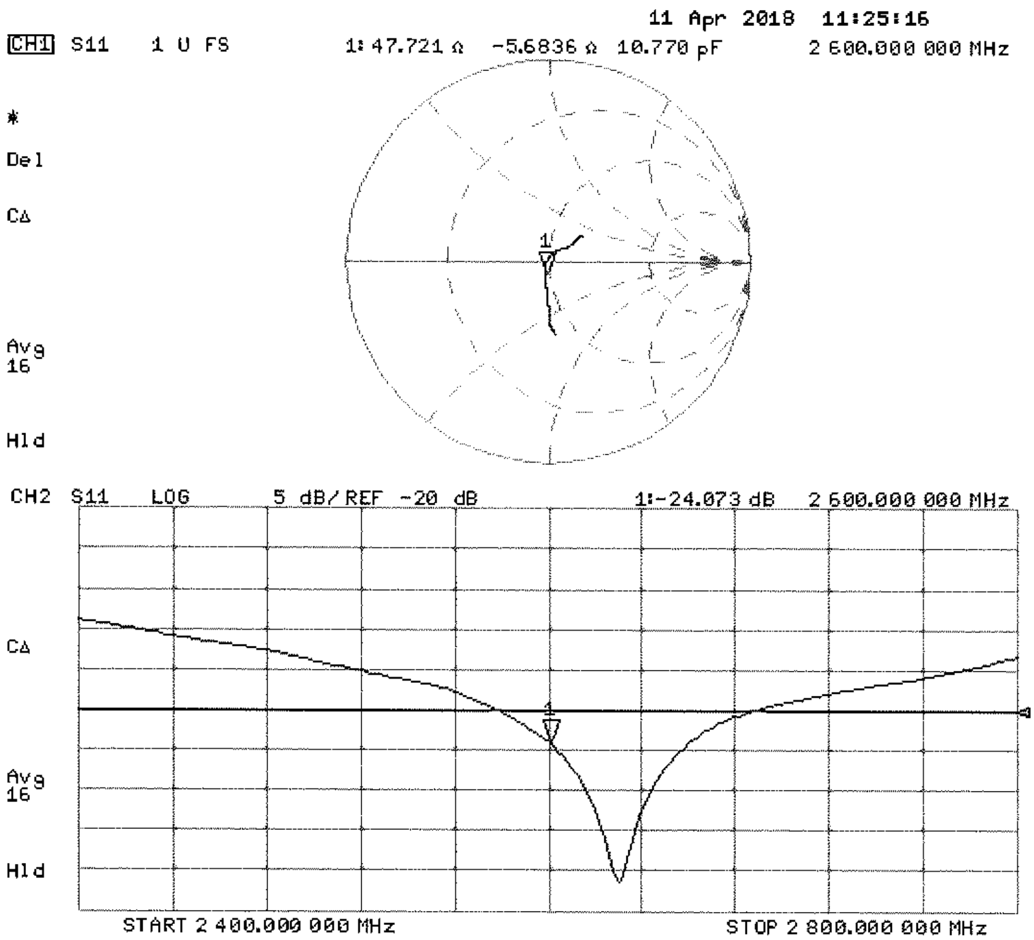
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 118.5 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 28.6 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.35 W/kg
Maximum value of SAR (measured) = 23.9 W/kg



0 dB = 23.9 W/kg = 13.78 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 11.04.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1004

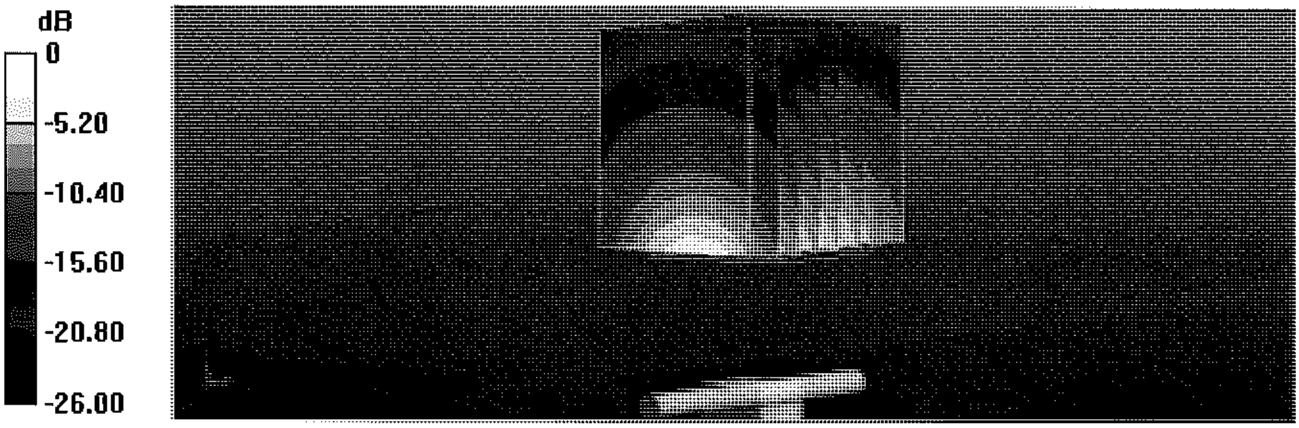
Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.19 S/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.81, 7.81, 7.81); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

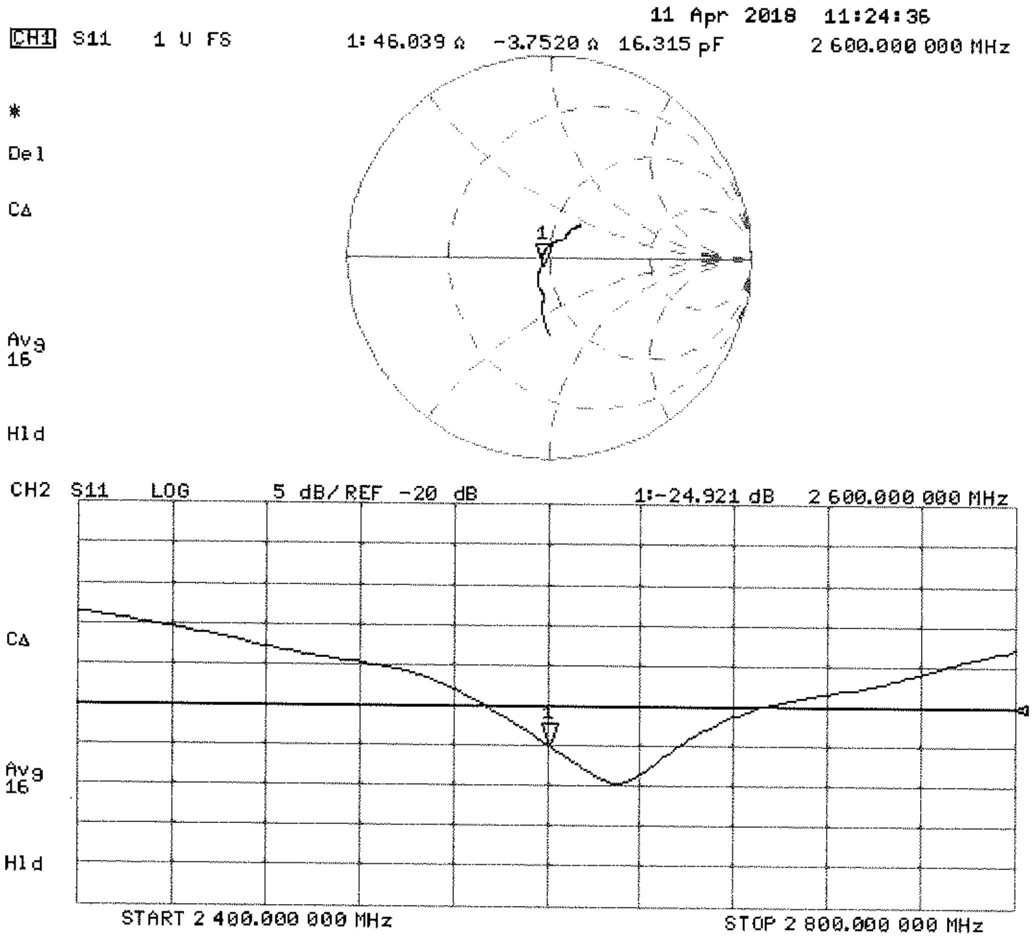
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.5 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.2 W/kg
Maximum value of SAR (measured) = 22.9 W/kg



0 dB = 22.9 W/kg = 13.60 dBW/kg

Impedance Measurement Plot for Body TSL



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Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D5GHzV2-1237_Aug17**

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN:1237
Calibration procedure(s)	QA CAL-22.v2 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	August 15, 2017

PM ✓ 8/27/17

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 3503	31-Dec-16 (No. EX3-3503_Dec16)	Dec-17
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Johannes Kurikka	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 16, 2017

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.7 ± 6 %	4.49 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**80.7 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.0 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.2 ± 6 %	4.84 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**82.5 W / kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.5 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.0 ± 6 %	4.99 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.10 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**80.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.31 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.8 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.0 ± 6 %	5.46 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.75 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**76.9 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.4 ± 6 %	5.93 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.91 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**78.5 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.1 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.3	5.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.2 ± 6 %	6.13 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.77 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**77.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.4 W/kg ± 19.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	49.9 Ω - 5.3 jΩ
Return Loss	- 25.5 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	51.9 Ω + 2.3 jΩ
Return Loss	- 30.7 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	55.6 Ω - 0.5 jΩ
Return Loss	- 25.5 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	46.9 Ω - 4.2 jΩ
Return Loss	- 25.4 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	50.2 Ω + 3.0 jΩ
Return Loss	- 30.4 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	53.4 Ω + 0.2 jΩ
Return Loss	- 29.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.194 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	May 04, 2015

DASY5 Validation Report for Head TSL

Date: 15.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1237

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; $\sigma = 4.49$ S/m; $\varepsilon_r = 34.7$; $\rho = 1000$ kg/m^3 ,
Medium parameters used: f = 5600 MHz; $\sigma = 4.84$ S/m; $\varepsilon_r = 34.2$; $\rho = 1000$ kg/m^3 ,
Medium parameters used: f = 5750 MHz; $\sigma = 4.99$ S/m; $\varepsilon_r = 34$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

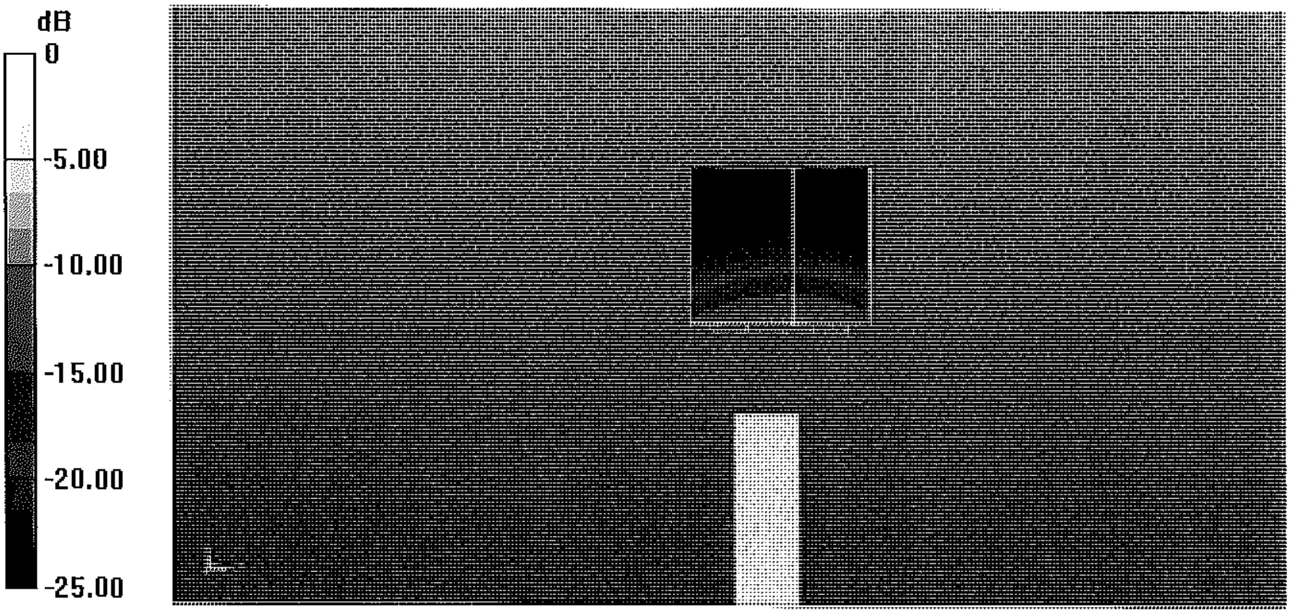
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.58, 5.58, 5.58); Calibrated: 31.12.2016, ConvF(5.09, 5.09, 5.09); Calibrated: 31.12.2016, ConvF(5.02, 5.02, 5.02); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.08 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 30.6 W/kg
SAR(1 g) = 8.14 W/kg; SAR(10 g) = 2.33 W/kg
Maximum value of SAR (measured) = 19.2 W/kg

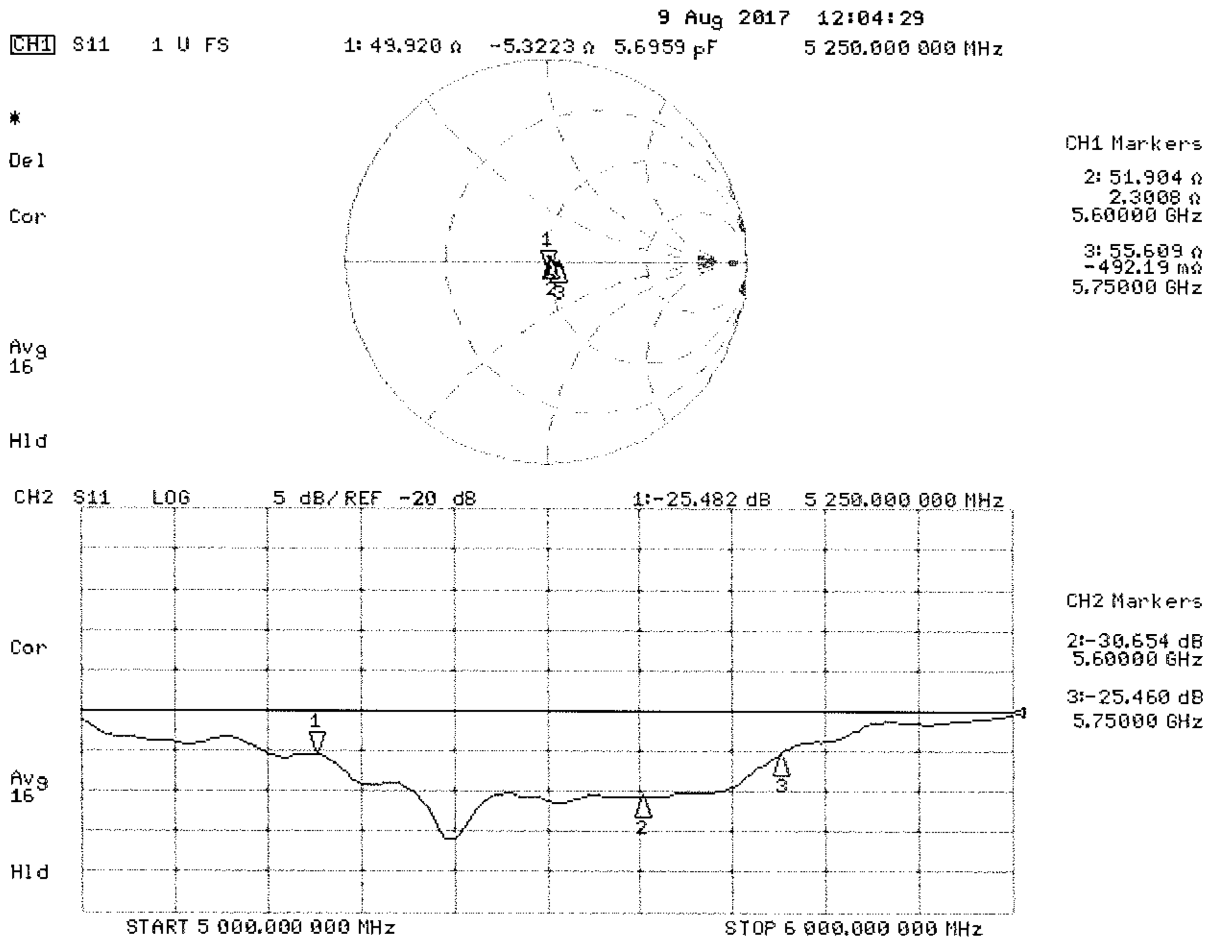
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.04 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 32.7 W/kg
SAR(1 g) = 8.33 W/kg; SAR(10 g) = 2.38 W/kg
Maximum value of SAR (measured) = 19.8 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 69.11 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(1 g) = 8.1 W/kg; SAR(10 g) = 2.31 W/kg
Maximum value of SAR (measured) = 19.6 W/kg



0 dB = 19.2 W/kg = 12.83 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 08.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1237

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 5.46 S/m; ε_r = 47; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 5.93 S/m; ε_r = 46.4; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5750 MHz; σ = 6.13 S/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

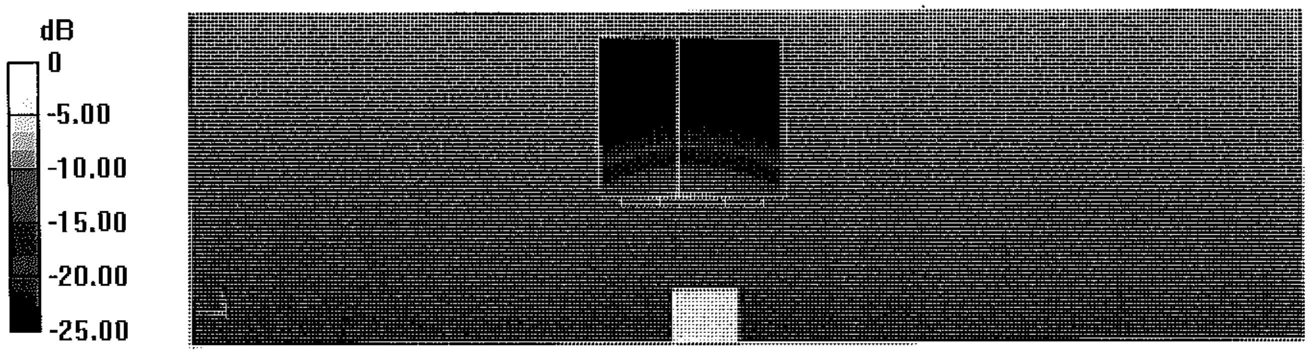
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.14, 5.14, 5.14); Calibrated: 31.12.2016, ConvF(4.57, 4.57, 4.57); Calibrated: 31.12.2016, ConvF(4.51, 4.51, 4.51); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.87 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 29.9 W/kg
SAR(1 g) = 7.75 W/kg; SAR(10 g) = 2.17 W/kg
Maximum value of SAR (measured) = 18.4 W/kg

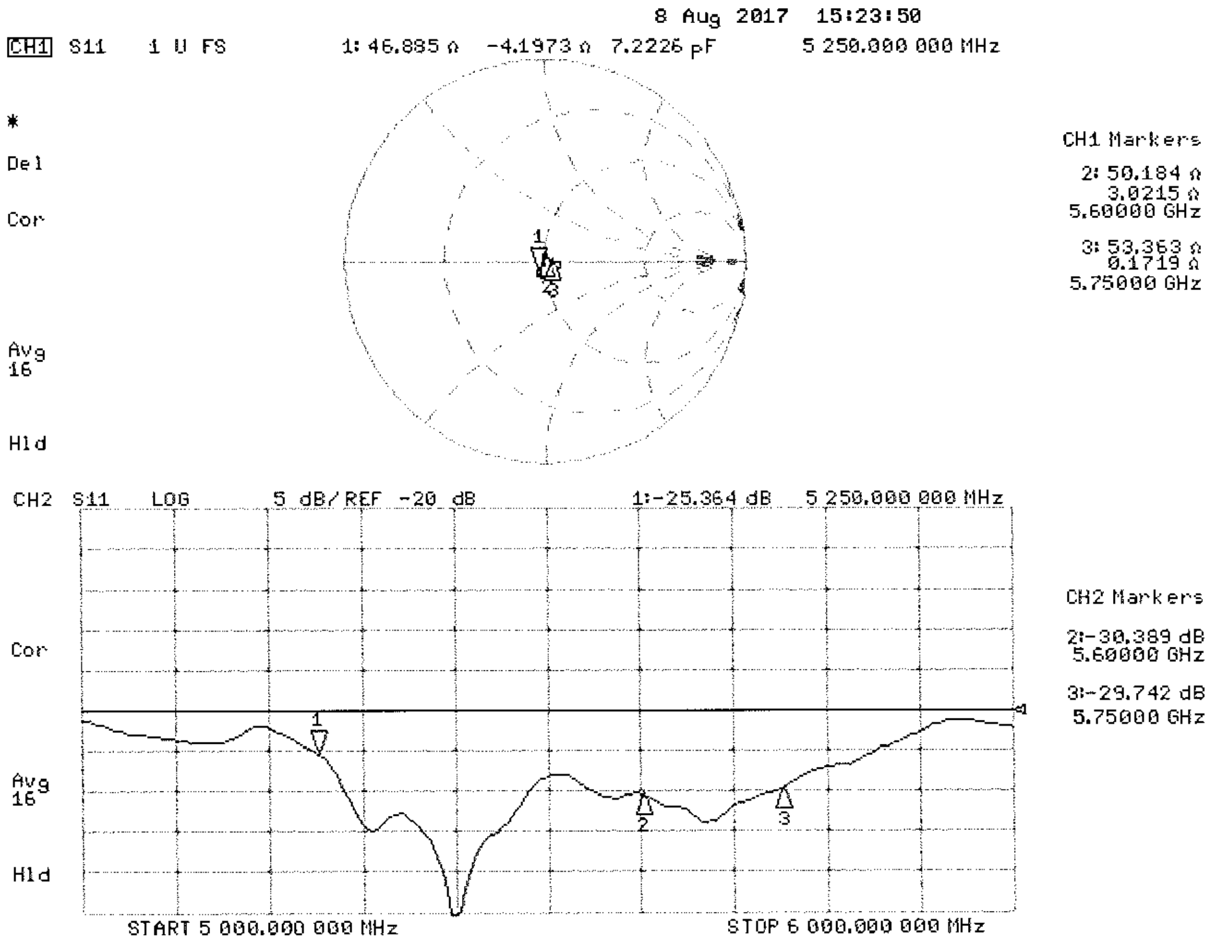
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.11 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 33.0 W/kg
SAR(1 g) = 7.91 W/kg; SAR(10 g) = 2.23 W/kg
Maximum value of SAR (measured) = 19.3 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.64 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 33.8 W/kg
SAR(1 g) = 7.77 W/kg; SAR(10 g) = 2.16 W/kg
Maximum value of SAR (measured) = 19.1 W/kg



0 dB = 18.4 W/kg = 12.65 dBW/kg

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: **ES3-3347_Mar18**

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3347

Calibration procedure(s): QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

BN 04-05-2018

Calibration date: March 27, 2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02525)	Apr-18
Reference 20 dB Attenuator	SN: S5277 (20x)	07-Apr-17 (No. 217-02528)	Apr-18
Reference Probe ES3DV2	SN: 3013	30-Dec-17 (No. ES3-3013_Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	M.Weber
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 27, 2018

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe ES3DV3

SN:3347

Manufactured:	March 15, 2012
Repaired:	March 15, 2018
Calibrated:	March 27, 2018

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3347

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.15	1.18	1.21	± 10.1 %
DCP (mV)[B]	101.9	105.1	102.9	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB$\sqrt{\mu V}$	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	201.8	±3.3 %
		Y	0.0	0.0	1.0		203.9	
		Z	0.0	0.0	1.0		204.8	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	52.41	376.6	35.43	28.01	1.852	5.10	0.578	0.488	1.008
Y	42.65	300.9	34.31	25.12	1.310	5.10	1.279	0.204	1.011
Z	48.12	344.8	35.26	27.10	1.587	5.10	0.868	0.385	1.009

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3347

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	6.77	6.77	6.77	0.65	1.32	± 12.0 %
835	41.5	0.90	6.41	6.41	6.41	0.40	1.64	± 12.0 %
1750	40.1	1.37	5.58	5.58	5.58	0.54	1.42	± 12.0 %
1900	40.0	1.40	5.36	5.36	5.36	0.80	1.16	± 12.0 %
2300	39.5	1.67	5.11	5.11	5.11	0.74	1.29	± 12.0 %
2450	39.2	1.80	4.81	4.81	4.81	0.80	1.24	± 12.0 %
2600	39.0	1.96	4.66	4.66	4.66	0.75	1.25	± 12.0 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

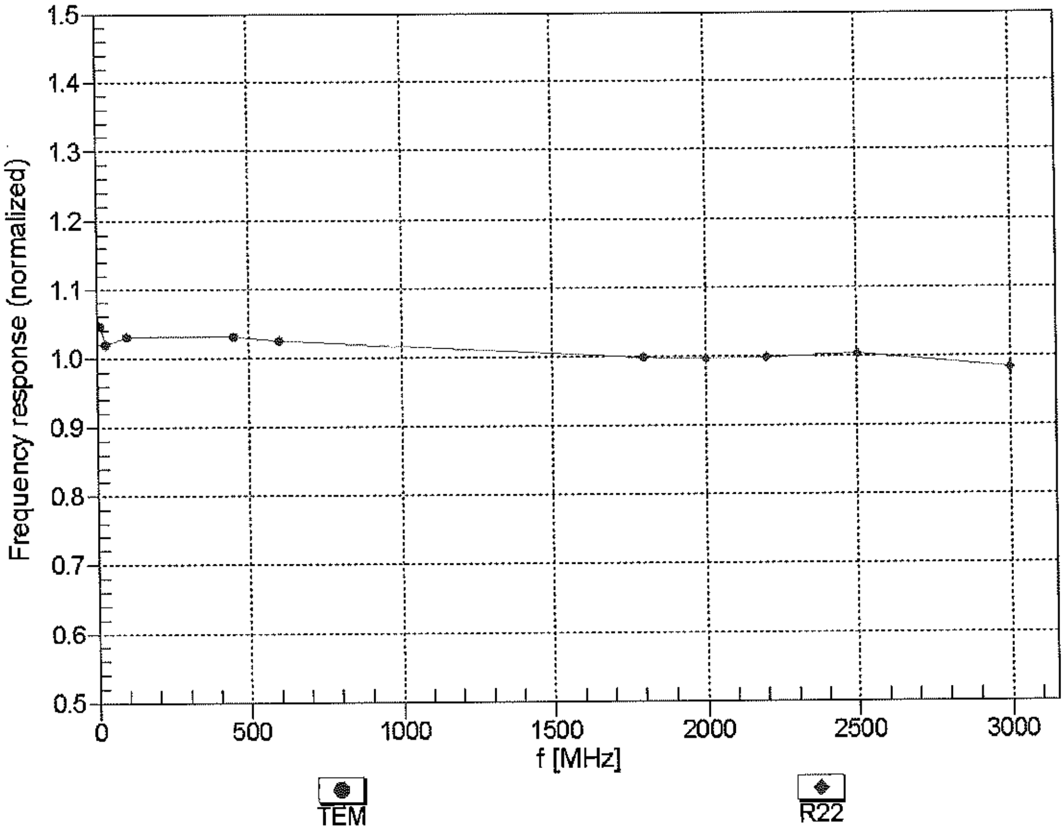
DASY/EASY - Parameters of Probe: ES3DV3 - SN:3347

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	6.59	6.59	6.59	0.77	1.22	± 12.0 %
835	55.2	0.97	6.37	6.37	6.37	0.80	1.17	± 12.0 %
1750	53.4	1.49	5.17	5.17	5.17	0.49	1.59	± 12.0 %
1900	53.3	1.52	4.94	4.94	4.94	0.52	1.49	± 12.0 %
2300	52.9	1.81	4.74	4.74	4.74	0.80	1.25	± 12.0 %
2450	52.7	1.95	4.64	4.64	4.64	0.75	1.20	± 12.0 %
2600	52.5	2.16	4.49	4.49	4.49	0.80	1.20	± 12.0 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

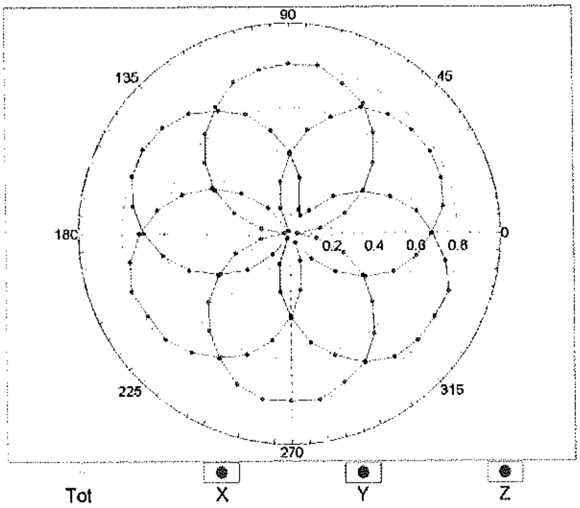
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



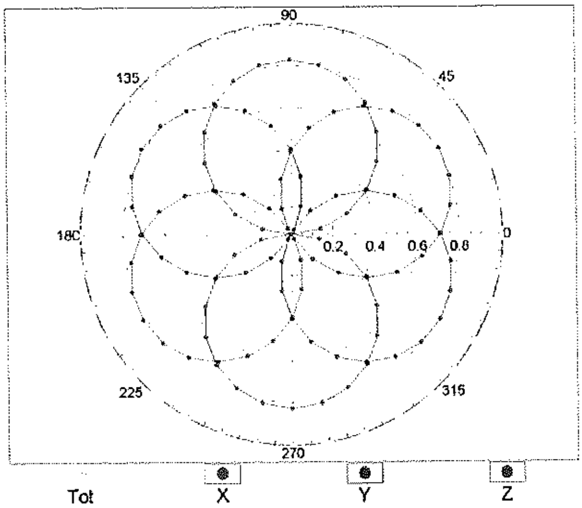
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

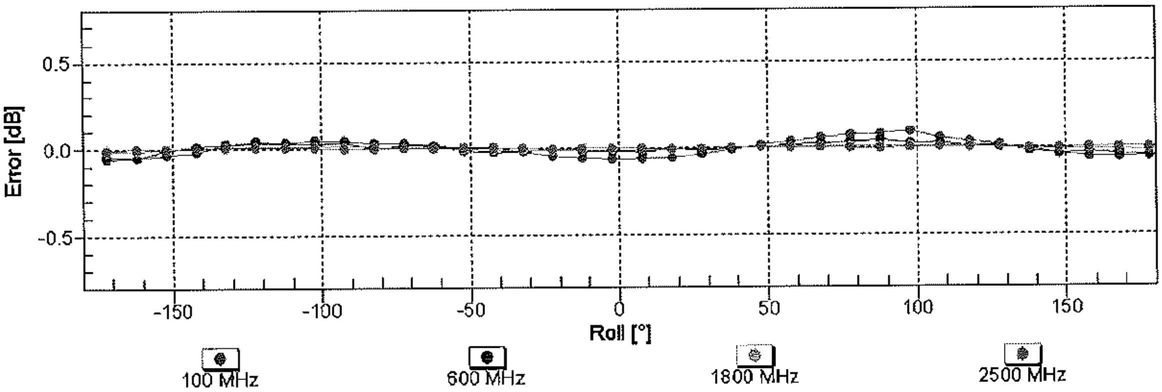
Receiving Pattern (φ), $\vartheta = 0°$

f=600 MHz,TEM



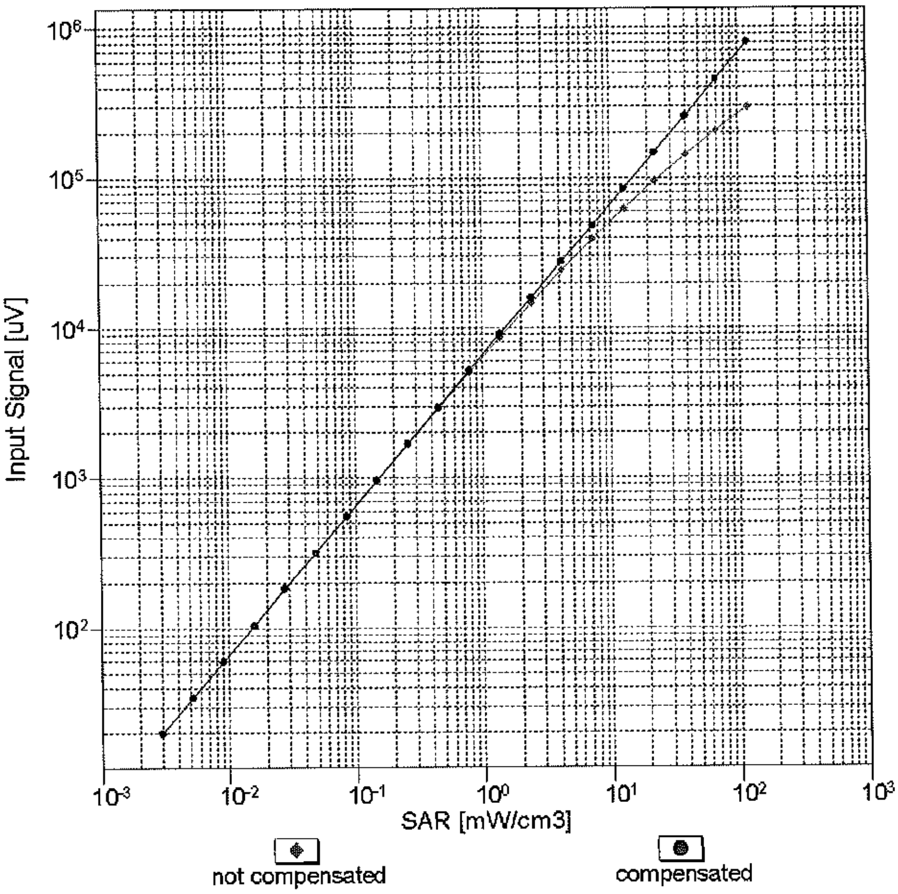
f=1800 MHz,R22

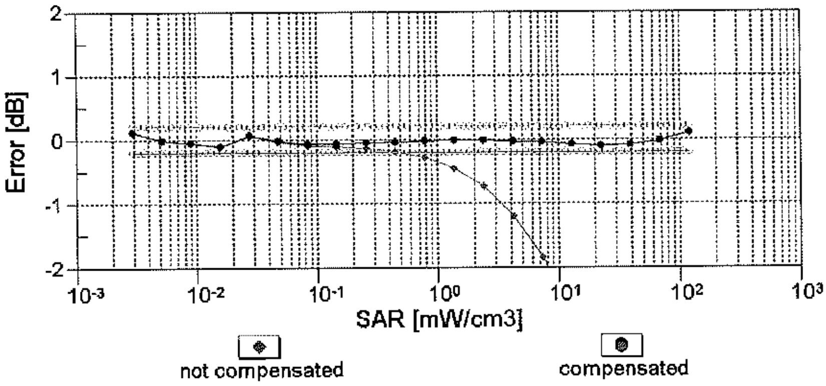




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)

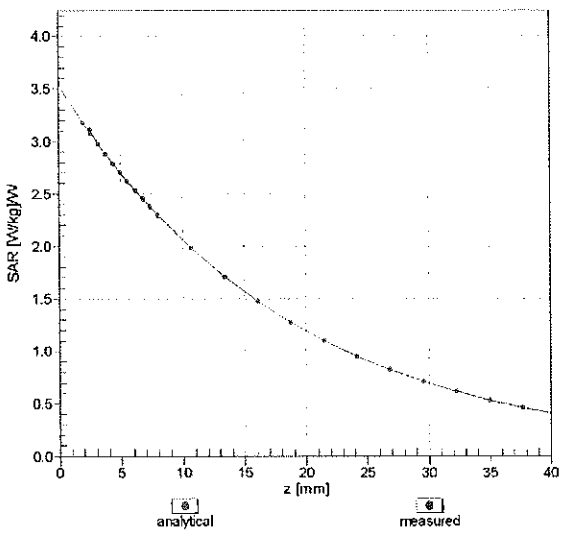




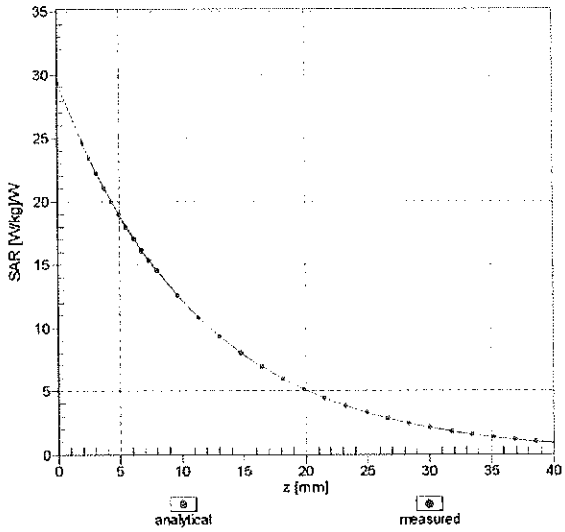
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

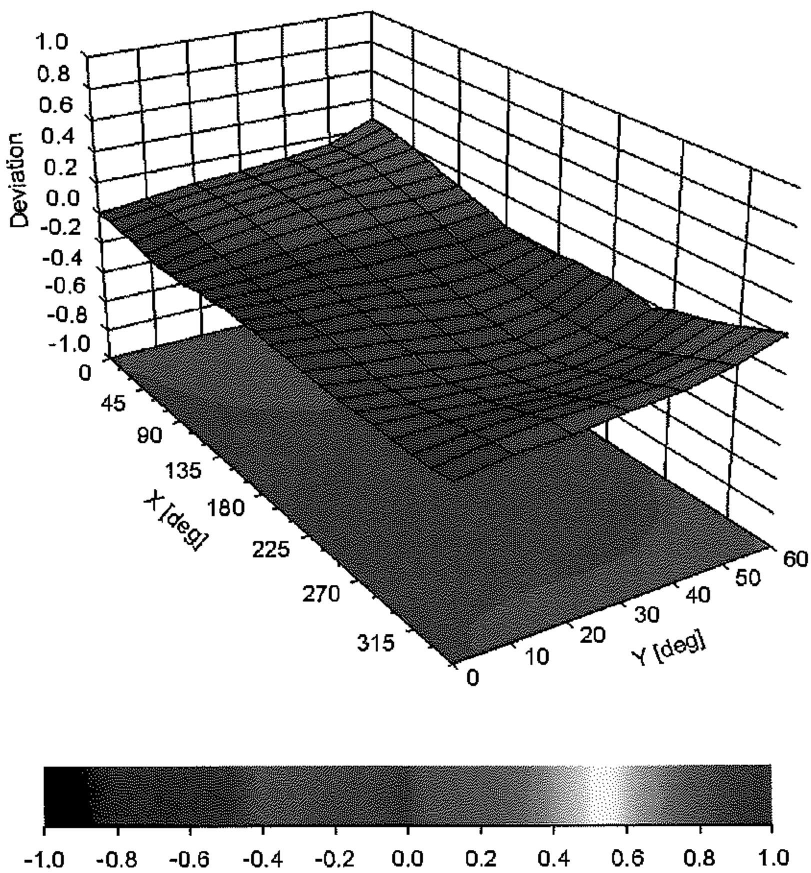


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3347

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-16.5
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	201.8	± 3.3 %
		Y	0.00	0.00	1.00		203.9	
		Z	0.00	0.00	1.00		204.8	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	7.57	78.06	17.49	10.00	25.0	± 9.6 %
		Y	9.85	82.39	18.69		25.0	
		Z	7.35	77.81	17.08		25.0	
10011-CAB	UMTS-FDD (WCDMA)	X	0.93	66.02	14.08	0.00	150.0	± 9.6 %
		Y	0.97	66.67	14.52		150.0	
		Z	0.93	66.21	14.17		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.22	64.40	15.16	0.41	150.0	± 9.6 %
		Y	1.24	64.68	15.35		150.0	
		Z	1.21	64.49	15.23		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	5.02	67.09	17.26	1.46	150.0	± 9.6 %
		Y	4.93	67.32	17.31		150.0	
		Z	4.97	67.16	17.27		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	91.36	118.07	31.34	9.39	50.0	± 9.6 %
		Y	100.00	119.30	31.14		50.0	
		Z	100.00	118.75	31.10		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	58.54	111.16	29.65	9.57	50.0	± 9.6 %
		Y	100.00	119.20	31.14		50.0	
		Z	100.00	118.71	31.13		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	115.85	28.82	6.56	60.0	± 9.6 %
		Y	100.00	116.32	28.70		60.0	
		Z	100.00	115.26	28.36		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	19.84	109.66	41.73	12.57	50.0	± 9.6 %
		Y	49.03	143.08	53.86		50.0	
		Z	21.37	113.26	43.24		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	21.22	106.46	36.65	9.56	60.0	± 9.6 %
		Y	31.58	119.85	41.69		60.0	
		Z	22.56	108.96	37.62		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	114.36	27.28	4.80	80.0	± 9.6 %
		Y	100.00	115.58	27.56		80.0	
		Z	100.00	113.91	26.92		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	113.86	26.30	3.55	100.0	± 9.6 %
		Y	100.00	115.98	27.02		100.0	
		Z	100.00	113.53	26.01		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	12.94	95.02	31.64	7.80	80.0	± 9.6 %
		Y	14.07	99.40	33.81		80.0	
		Z	12.89	95.72	32.02		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	113.99	27.43	5.30	70.0	± 9.6 %
		Y	100.00	114.60	27.41		70.0	
		Z	100.00	113.38	26.98		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	111.77	23.93	1.88	100.0	± 9.6 %
		Y	100.00	115.39	25.33		100.0	
		Z	100.00	111.26	23.59		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	111.85	22.94	1.17	100.0	± 9.6 %
		Y	100.00	118.40	25.59		100.0	
		Z	100.00	111.34	22.62		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	23.91	101.19	27.41	5.30	70.0	± 9.6 %
		Y	36.18	107.81	28.88		70.0	
		Z	30.63	104.89	28.18		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	6.24	84.08	20.44	1.88	100.0	± 9.6 %
		Y	7.24	85.92	20.55		100.0	
		Z	6.85	85.19	20.50		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	3.29	76.95	17.63	1.17	100.0	± 9.6 %
		Y	3.58	78.09	17.57		100.0	
		Z	3.42	77.43	17.51		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	32.79	106.39	28.91	5.30	70.0	± 9.6 %
		Y	55.24	114.58	30.68		70.0	
		Z	45.73	111.34	29.95		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	5.86	83.28	20.13	1.88	100.0	± 9.6 %
		Y	6.54	84.66	20.12		100.0	
		Z	6.31	84.13	20.12		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	3.39	77.59	17.96	1.17	100.0	± 9.6 %
		Y	3.66	78.64	17.87		100.0	
		Z	3.53	78.11	17.85		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.52	69.16	14.18	0.00	150.0	± 9.6 %
		Y	1.40	68.90	13.55		150.0	
		Z	1.46	69.03	13.83		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	114.62	28.47	7.78	50.0	± 9.6 %
		Y	100.00	114.70	28.14		50.0	
		Z	100.00	113.88	27.92		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.01	121.88	0.68	0.00	150.0	± 9.6 %
		Y	0.00	97.83	1.91		150.0	
		Z	0.01	122.55	0.35		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	17.94	92.17	26.06	13.80	25.0	± 9.6 %
		Y	42.19	107.21	29.95		25.0	
		Z	24.74	97.63	27.36		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	22.69	96.29	25.94	10.79	40.0	± 9.6 %
		Y	68.20	113.74	30.23		40.0	
		Z	32.65	101.85	27.19		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	16.99	92.79	25.84	9.03	50.0	± 9.6 %
		Y	27.63	101.84	28.34		50.0	
		Z	20.13	95.81	26.57		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	9.12	87.95	28.36	6.55	100.0	± 9.6 %
		Y	8.98	89.45	29.43		100.0	
		Z	8.90	88.06	28.51		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.37	66.39	16.16	0.61	110.0	± 9.6 %
		Y	1.38	66.59	16.33		110.0	
		Z	1.36	66.49	16.23		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	128.08	31.98	1.30	110.0	± 9.6 %
		Y	100.00	131.22	33.31		110.0	
		Z	100.00	128.65	32.15		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	9.25	94.71	26.12	2.04	110.0	± 9.6 %
		Y	9.59	96.73	27.06		110.0	
		Z	10.28	96.95	26.85		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.74	66.85	16.53	0.49	100.0	± 9.6 %
		Y	4.66	67.04	16.57		100.0	
		Z	4.70	66.90	16.54		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.78	67.00	16.67	0.72	100.0	± 9.6 %
		Y	4.69	67.19	16.70		100.0	
		Z	4.73	67.05	16.68		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	5.09	67.32	16.93	0.86	100.0	± 9.6 %
		Y	4.97	67.46	16.94		100.0	
		Z	5.03	67.35	16.93		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.99	67.34	17.10	1.21	100.0	± 9.6 %
		Y	4.88	67.46	17.11		100.0	
		Z	4.93	67.36	17.10		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	5.05	67.46	17.33	1.46	100.0	± 9.6 %
		Y	4.92	67.57	17.33		100.0	
		Z	4.98	67.48	17.32		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.36	67.67	17.81	2.04	100.0	± 9.6 %
		Y	5.25	67.92	17.88		100.0	
		Z	5.30	67.73	17.82		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.48	67.95	18.15	2.55	100.0	± 9.6 %
		Y	5.33	68.04	18.16		100.0	
		Z	5.40	67.94	18.13		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.56	67.94	18.35	2.67	100.0	± 9.6 %
		Y	5.42	68.11	18.40		100.0	
		Z	5.49	67.96	18.34		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	5.16	67.32	17.64	1.99	100.0	± 9.6 %
		Y	5.07	67.53	17.70		100.0	
		Z	5.11	67.37	17.65		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	5.20	67.83	17.95	2.30	100.0	± 9.6 %
		Y	5.09	67.99	18.00		100.0	
		Z	5.14	67.86	17.96		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.32	68.17	18.37	2.83	100.0	± 9.6 %
		Y	5.22	68.36	18.44		100.0	
		Z	5.26	68.20	18.38		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	5.35	68.22	18.60	3.30	100.0	± 9.6 %
		Y	5.26	68.43	18.68		100.0	
		Z	5.29	68.25	18.61		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.48	68.62	19.07	3.82	90.0	± 9.6 %
		Y	5.35	68.73	19.11		90.0	
		Z	5.40	68.60	19.05		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.50	68.45	19.21	4.15	90.0	± 9.6 %
		Y	5.40	68.64	19.31		90.0	
		Z	5.44	68.46	19.21		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.54	68.54	19.31	4.30	90.0	± 9.6 %
		Y	5.44	68.76	19.43		90.0	
		Z	5.48	68.56	19.32		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.74	64.32	11.31	0.00	150.0	± 9.6 %
		Y	0.70	64.20	10.81		150.0	
		Z	0.71	64.15	10.92		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	1.69	62.26	7.32	4.77	80.0	± 9.6 %
		Y	1.49	62.02	6.99		80.0	
		Z	1.55	61.83	6.90		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	115.94	28.89	6.56	60.0	± 9.6 %
		Y	100.00	116.39	28.75		60.0	
		Z	100.00	115.35	28.42		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.73	66.76	14.97	0.00	150.0	± 9.6 %
		Y	1.76	67.41	15.16		150.0	
		Z	1.72	67.00	15.02		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.69	66.71	14.93	0.00	150.0	± 9.6 %
		Y	1.72	67.36	15.13		150.0	
		Z	1.69	66.94	14.98		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	21.17	106.37	36.62	9.56	60.0	± 9.6 %
		Y	31.53	119.75	41.66		60.0	
		Z	22.53	108.88	37.59		60.0	
10100-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	3.02	69.66	16.13	0.00	150.0	± 9.6 %
		Y	2.98	69.86	16.33		150.0	
		Z	2.99	69.71	16.19		150.0	
10101-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.20	67.30	15.63	0.00	150.0	± 9.6 %
		Y	3.15	67.42	15.72		150.0	
		Z	3.17	67.31	15.65		150.0	
10102-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.31	67.28	15.74	0.00	150.0	± 9.6 %
		Y	3.26	67.39	15.81		150.0	
		Z	3.27	67.30	15.76		150.0	
10103-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	8.39	78.42	21.27	3.98	65.0	± 9.6 %
		Y	8.55	79.75	21.92		65.0	
		Z	8.43	78.92	21.50		65.0	
10104-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	8.28	76.92	21.52	3.98	65.0	± 9.6 %
		Y	8.11	77.48	21.85		65.0	
		Z	8.18	77.09	21.61		65.0	
10105-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	7.63	75.31	21.13	3.98	65.0	± 9.6 %
		Y	7.72	76.48	21.73		65.0	
		Z	7.57	75.55	21.26		65.0	
10108-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.65	68.92	15.95	0.00	150.0	± 9.6 %
		Y	2.59	69.14	16.15		150.0	
		Z	2.61	68.99	16.01		150.0	
10109-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.86	67.08	15.50	0.00	150.0	± 9.6 %
		Y	2.80	67.24	15.55		150.0	
		Z	2.82	67.11	15.51		150.0	
10110-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.15	67.97	15.52	0.00	150.0	± 9.6 %
		Y	2.09	68.27	15.68		150.0	
		Z	2.11	68.06	15.56		150.0	
10111-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.54	67.60	15.65	0.00	150.0	± 9.6 %
		Y	2.49	67.90	15.64		150.0	
		Z	2.51	67.74	15.66		150.0	

10112-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.98	67.08	15.57	0.00	150.0	± 9.6 %
		Y	2.92	67.27	15.62		150.0	
		Z	2.94	67.13	15.58		150.0	
10113-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.70	67.76	15.81	0.00	150.0	± 9.6 %
		Y	2.63	68.07	15.78		150.0	
		Z	2.66	67.92	15.82		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.13	67.22	16.34	0.00	150.0	± 9.6 %
		Y	5.06	67.35	16.39		150.0	
		Z	5.10	67.28	16.37		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.46	67.47	16.48	0.00	150.0	± 9.6 %
		Y	5.32	67.42	16.43		150.0	
		Z	5.39	67.43	16.46		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.25	67.46	16.39	0.00	150.0	± 9.6 %
		Y	5.15	67.53	16.41		150.0	
		Z	5.20	67.47	16.40		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.10	67.11	16.30	0.00	150.0	± 9.6 %
		Y	5.03	67.22	16.34		150.0	
		Z	5.06	67.11	16.31		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.56	67.71	16.61	0.00	150.0	± 9.6 %
		Y	5.40	67.63	16.55		150.0	
		Z	5.48	67.67	16.59		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.22	67.39	16.37	0.00	150.0	± 9.6 %
		Y	5.13	67.49	16.40		150.0	
		Z	5.18	67.42	16.38		150.0	
10140-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.35	67.28	15.66	0.00	150.0	± 9.6 %
		Y	3.29	67.41	15.73		150.0	
		Z	3.31	67.30	15.68		150.0	
10141-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.47	67.38	15.84	0.00	150.0	± 9.6 %
		Y	3.41	67.52	15.90		150.0	
		Z	3.43	67.42	15.86		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.91	67.75	15.10	0.00	150.0	± 9.6 %
		Y	1.84	68.07	15.11		150.0	
		Z	1.87	67.86	15.08		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.37	68.04	15.25	0.00	150.0	± 9.6 %
		Y	2.29	68.28	15.02		150.0	
		Z	2.33	68.17	15.16		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.20	66.14	13.84	0.00	150.0	± 9.6 %
		Y	2.08	66.17	13.48		150.0	
		Z	2.13	66.11	13.65		150.0	
10145-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.17	64.40	11.32	0.00	150.0	± 9.6 %
		Y	0.99	63.23	9.93		150.0	
		Z	1.08	63.80	10.61		150.0	
10146-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	2.07	66.79	12.08	0.00	150.0	± 9.6 %
		Y	1.74	65.46	10.58		150.0	
		Z	1.93	66.25	11.43		150.0	
10147-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	2.41	68.68	13.11	0.00	150.0	± 9.6 %
		Y	2.02	67.13	11.50		150.0	
		Z	2.26	68.13	12.45		150.0	

10149-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.87	67.13	15.54	0.00	150.0	± 9.6 %
		Y	2.81	67.29	15.59		150.0	
		Z	2.83	67.17	15.55		150.0	
10150-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.99	67.13	15.61	0.00	150.0	± 9.6 %
		Y	2.93	67.31	15.66		150.0	
		Z	2.95	67.18	15.62		150.0	
10151-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	9.21	81.33	22.45	3.98	65.0	± 9.6 %
		Y	9.55	83.12	23.24		65.0	
		Z	9.38	82.15	22.79		65.0	
10152-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	7.89	77.12	21.32	3.98	65.0	± 9.6 %
		Y	7.75	77.78	21.62		65.0	
		Z	7.80	77.32	21.39		65.0	
10153-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	8.33	78.05	22.06	3.98	65.0	± 9.6 %
		Y	8.20	78.76	22.36		65.0	
		Z	8.27	78.34	22.17		65.0	
10154-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.19	68.34	15.77	0.00	150.0	± 9.6 %
		Y	2.13	68.58	15.88		150.0	
		Z	2.15	68.43	15.80		150.0	
10155-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.54	67.61	15.66	0.00	150.0	± 9.6 %
		Y	2.49	67.93	15.66		150.0	
		Z	2.51	67.76	15.67		150.0	
10156-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.75	67.70	14.83	0.00	150.0	± 9.6 %
		Y	1.67	67.86	14.67		150.0	
		Z	1.70	67.75	14.73		150.0	
10157-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.01	66.49	13.77	0.00	150.0	± 9.6 %
		Y	1.89	66.41	13.28		150.0	
		Z	1.95	66.44	13.53		150.0	
10158-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.70	67.82	15.85	0.00	150.0	± 9.6 %
		Y	2.64	68.13	15.83		150.0	
		Z	2.67	67.98	15.86		150.0	
10159-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.11	66.90	14.04	0.00	150.0	± 9.6 %
		Y	1.98	66.74	13.50		150.0	
		Z	2.04	66.83	13.79		150.0	
10160-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.69	68.21	15.87	0.00	150.0	± 9.6 %
		Y	2.64	68.50	16.02		150.0	
		Z	2.66	68.34	15.93		150.0	
10161-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.88	67.04	15.53	0.00	150.0	± 9.6 %
		Y	2.82	67.25	15.56		150.0	
		Z	2.84	67.11	15.53		150.0	
10162-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.99	67.17	15.64	0.00	150.0	± 9.6 %
		Y	2.93	67.43	15.68		150.0	
		Z	2.96	67.27	15.66		150.0	
10166-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.67	69.76	19.07	3.01	150.0	± 9.6 %
		Y	3.59	70.61	19.72		150.0	
		Z	3.64	70.17	19.36		150.0	
10167-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.60	72.78	19.56	3.01	150.0	± 9.6 %
		Y	4.59	74.59	20.58		150.0	
		Z	4.60	73.54	19.97		150.0	

10168-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	5.10	75.00	20.86	3.01	150.0	± 9.6 %
		Y	5.17	77.15	22.00		150.0	
		Z	5.18	76.08	21.41		150.0	
10169-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	3.14	69.82	19.09	3.01	150.0	± 9.6 %
		Y	2.99	70.11	19.57		150.0	
		Z	3.08	69.99	19.30		150.0	
10170-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	4.48	76.11	21.47	3.01	150.0	± 9.6 %
		Y	4.42	77.92	22.61		150.0	
		Z	4.51	77.09	22.03		150.0	
10171-AAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	3.64	71.74	18.65	3.01	150.0	± 9.6 %
		Y	3.56	73.31	19.70		150.0	
		Z	3.59	72.29	19.01		150.0	
10172-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	21.10	104.74	32.18	6.02	65.0	± 9.6 %
		Y	44.31	124.23	38.59		65.0	
		Z	24.87	109.58	33.89		65.0	
10173-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	37.36	109.91	31.76	6.02	65.0	± 9.6 %
		Y	100.00	131.53	37.83		65.0	
		Z	66.45	121.49	34.95		65.0	
10174-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	28.71	103.81	29.50	6.02	65.0	± 9.6 %
		Y	93.12	128.22	36.43		65.0	
		Z	36.57	109.34	31.20		65.0	
10175-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	3.10	69.50	18.83	3.01	150.0	± 9.6 %
		Y	2.96	69.84	19.35		150.0	
		Z	3.04	69.66	19.04		150.0	
10176-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	4.49	76.13	21.48	3.01	150.0	± 9.6 %
		Y	4.43	77.95	22.63		150.0	
		Z	4.52	77.11	22.04		150.0	
10177-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	3.13	69.65	18.93	3.01	150.0	± 9.6 %
		Y	2.98	69.97	19.42		150.0	
		Z	3.07	69.81	19.14		150.0	
10178-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	4.43	75.88	21.35	3.01	150.0	± 9.6 %
		Y	4.39	77.75	22.52		150.0	
		Z	4.47	76.86	21.91		150.0	
10179-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	4.01	73.75	19.90	3.01	150.0	± 9.6 %
		Y	3.96	75.54	21.04		150.0	
		Z	4.01	74.52	20.37		150.0	
10180-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	3.63	71.66	18.60	3.01	150.0	± 9.6 %
		Y	3.55	73.25	19.66		150.0	
		Z	3.59	72.21	18.96		150.0	
10181-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	3.13	69.64	18.92	3.01	150.0	± 9.6 %
		Y	2.98	69.95	19.42		150.0	
		Z	3.06	69.80	19.13		150.0	
10182-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	4.42	75.86	21.34	3.01	150.0	± 9.6 %
		Y	4.38	77.72	22.51		150.0	
		Z	4.46	76.83	21.90		150.0	
10183-AAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	3.62	71.63	18.59	3.01	150.0	± 9.6 %
		Y	3.55	73.22	19.65		150.0	
		Z	3.58	72.19	18.94		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	3.14	69.68	18.95	3.01	150.0	± 9.6 %
		Y	2.99	69.99	19.44		150.0	
		Z	3.07	69.84	19.16		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	4.45	75.93	21.38	3.01	150.0	± 9.6 %
		Y	4.40	77.80	22.55		150.0	
		Z	4.48	76.92	21.94		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	3.64	71.70	18.62	3.01	150.0	± 9.6 %
		Y	3.56	73.30	19.69		150.0	
		Z	3.60	72.26	18.98		150.0	
10187-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	3.15	69.73	19.01	3.01	150.0	± 9.6 %
		Y	3.00	70.06	19.51		150.0	
		Z	3.08	69.90	19.22		150.0	
10188-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	4.60	76.65	21.77	3.01	150.0	± 9.6 %
		Y	4.55	78.49	22.93		150.0	
		Z	4.65	77.69	22.36		150.0	
10189-AAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	3.72	72.15	18.90	3.01	150.0	± 9.6 %
		Y	3.65	73.76	19.97		150.0	
		Z	3.69	72.74	19.28		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.52	66.58	16.02	0.00	150.0	± 9.6 %
		Y	4.45	66.79	16.05		150.0	
		Z	4.48	66.63	16.03		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.70	66.91	16.15	0.00	150.0	± 9.6 %
		Y	4.60	67.08	16.18		150.0	
		Z	4.65	66.95	16.16		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.74	66.94	16.17	0.00	150.0	± 9.6 %
		Y	4.65	67.11	16.20		150.0	
		Z	4.69	66.98	16.18		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.53	66.65	16.05	0.00	150.0	± 9.6 %
		Y	4.44	66.83	16.06		150.0	
		Z	4.48	66.69	16.05		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.72	66.93	16.16	0.00	150.0	± 9.6 %
		Y	4.62	67.10	16.19		150.0	
		Z	4.66	66.97	16.17		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.75	66.96	16.18	0.00	150.0	± 9.6 %
		Y	4.64	67.13	16.21		150.0	
		Z	4.69	67.00	16.19		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.48	66.66	16.00	0.00	150.0	± 9.6 %
		Y	4.39	66.84	16.01		150.0	
		Z	4.43	66.70	16.00		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.71	66.91	16.16	0.00	150.0	± 9.6 %
		Y	4.61	67.06	16.18		150.0	
		Z	4.66	66.94	16.16		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.76	66.89	16.17	0.00	150.0	± 9.6 %
		Y	4.65	67.06	16.20		150.0	
		Z	4.70	66.93	16.18		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.08	67.11	16.29	0.00	150.0	± 9.6 %
		Y	5.00	67.21	16.33		150.0	
		Z	5.03	67.12	16.30		150.0	

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.40	67.34	16.44	0.00	150.0	± 9.6 %
		Y	5.30	67.47	16.48		150.0	
		Z	5.35	67.37	16.45		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.12	67.22	16.27	0.00	150.0	± 9.6 %
		Y	5.04	67.32	16.31		150.0	
		Z	5.08	67.23	16.28		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.77	65.87	15.07	0.00	150.0	± 9.6 %
		Y	2.71	66.11	14.95		150.0	
		Z	2.73	65.95	15.01		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	40.90	111.69	32.33	6.02	65.0	± 9.6 %
		Y	100.00	131.74	37.97		65.0	
		Z	76.08	124.13	35.71		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	32.04	105.79	30.14	6.02	65.0	± 9.6 %
		Y	100.00	129.20	36.63		65.0	
		Z	56.03	116.66	33.17		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	32.49	113.40	34.73	6.02	65.0	± 9.6 %
		Y	63.93	131.79	40.55		65.0	
		Z	42.68	120.45	36.94		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	37.48	109.96	31.78	6.02	65.0	± 9.6 %
		Y	100.00	131.51	37.84		65.0	
		Z	66.68	121.54	34.97		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	29.78	104.42	29.68	6.02	65.0	± 9.6 %
		Y	100.00	129.07	36.54		65.0	
		Z	50.21	114.61	32.57		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	30.12	111.79	34.20	6.02	65.0	± 9.6 %
		Y	57.30	129.38	39.87		65.0	
		Z	38.78	118.39	36.30		65.0	
10232-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	37.48	109.97	31.78	6.02	65.0	± 9.6 %
		Y	100.00	131.53	37.84		65.0	
		Z	66.72	121.56	34.98		65.0	
10233-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	29.77	104.42	29.68	6.02	65.0	± 9.6 %
		Y	100.00	129.09	36.55		65.0	
		Z	50.19	114.62	32.57		65.0	
10234-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	28.05	110.17	33.63	6.02	65.0	± 9.6 %
		Y	51.99	127.09	39.16		65.0	
		Z	35.54	116.41	35.65		65.0	
10235-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	37.64	110.05	31.80	6.02	65.0	± 9.6 %
		Y	100.00	131.54	37.84		65.0	
		Z	67.18	121.70	35.01		65.0	
10236-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	30.09	104.58	29.72	6.02	65.0	± 9.6 %
		Y	100.00	129.03	36.52		65.0	
		Z	50.96	114.84	32.62		65.0	
10237-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	30.42	112.00	34.26	6.02	65.0	± 9.6 %
		Y	58.39	129.80	39.98		65.0	
		Z	39.25	118.66	36.38		65.0	
10238-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	37.48	109.98	31.78	6.02	65.0	± 9.6 %
		Y	100.00	131.54	37.84		65.0	
		Z	66.77	121.59	34.98		65.0	

10239-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	29.75	104.43	29.68	6.02	65.0	± 9.6 %
		Y	100.00	129.11	36.55		65.0	
		Z	50.17	114.63	32.57		65.0	
10240-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	30.30	111.94	34.24	6.02	65.0	± 9.6 %
		Y	58.14	129.72	39.96		65.0	
		Z	39.09	118.59	36.36		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	11.80	86.80	27.35	6.98	65.0	± 9.6 %
		Y	13.67	92.53	29.81		65.0	
		Z	12.27	88.56	28.08		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	10.15	83.59	26.03	6.98	65.0	± 9.6 %
		Y	12.26	90.20	28.90		65.0	
		Z	10.49	85.23	26.75		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	8.15	80.45	25.67	6.98	65.0	± 9.6 %
		Y	9.07	85.16	28.03		65.0	
		Z	8.20	81.43	26.18		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	8.77	79.58	20.12	3.98	65.0	± 9.6 %
		Y	8.68	79.98	19.73		65.0	
		Z	8.93	80.10	20.07		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	8.56	78.94	19.83	3.98	65.0	± 9.6 %
		Y	8.27	79.00	19.30		65.0	
		Z	8.60	79.28	19.71		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	9.05	82.96	21.42	3.98	65.0	± 9.6 %
		Y	8.67	82.79	20.89		65.0	
		Z	9.07	83.18	21.25		65.0	
10247-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	7.31	77.47	20.01	3.98	65.0	± 9.6 %
		Y	6.88	77.10	19.42		65.0	
		Z	7.16	77.42	19.78		65.0	
10248-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	7.23	76.85	19.75	3.98	65.0	± 9.6 %
		Y	6.75	76.40	19.13		65.0	
		Z	7.04	76.72	19.48		65.0	
10249-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	10.55	85.88	23.24	3.98	65.0	± 9.6 %
		Y	11.23	87.71	23.62		65.0	
		Z	11.08	87.02	23.49		65.0	
10250-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	8.37	79.97	22.44	3.98	65.0	± 9.6 %
		Y	8.25	80.64	22.58		65.0	
		Z	8.37	80.40	22.54		65.0	
10251-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	7.79	77.55	21.17	3.98	65.0	± 9.6 %
		Y	7.62	78.12	21.26		65.0	
		Z	7.71	77.78	21.18		65.0	
10252-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	10.26	85.03	23.77	3.98	65.0	± 9.6 %
		Y	11.07	87.53	24.67		65.0	
		Z	10.72	86.30	24.20		65.0	
10253-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	7.69	76.53	21.09	3.98	65.0	± 9.6 %
		Y	7.57	77.22	21.35		65.0	
		Z	7.61	76.75	21.15		65.0	
10254-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	8.11	77.42	21.76	3.98	65.0	± 9.6 %
		Y	7.99	78.11	22.01		65.0	
		Z	8.04	77.70	21.84		65.0	

10255-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	8.87	80.90	22.51	3.98	65.0	± 9.6 %
		Y	9.18	82.66	23.26		65.0	
		Z	9.01	81.69	22.82		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	7.19	76.04	17.83	3.98	65.0	± 9.6 %
		Y	6.37	74.72	16.60		65.0	
		Z	6.91	75.63	17.34		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	6.95	75.20	17.41	3.98	65.0	± 9.6 %
		Y	6.01	73.59	16.03		65.0	
		Z	6.60	74.62	16.84		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	7.08	78.57	19.08	3.98	65.0	± 9.6 %
		Y	5.96	76.36	17.58		65.0	
		Z	6.63	77.70	18.41		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	7.72	78.37	20.87	3.98	65.0	± 9.6 %
		Y	7.43	78.48	20.58		65.0	
		Z	7.64	78.54	20.77		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	7.71	78.04	20.75	3.98	65.0	± 9.6 %
		Y	7.37	78.04	20.41		65.0	
		Z	7.60	78.14	20.63		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	9.91	84.71	23.20	3.98	65.0	± 9.6 %
		Y	10.51	86.66	23.72		65.0	
		Z	10.31	85.78	23.47		65.0	
10262-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	8.35	79.91	22.40	3.98	65.0	± 9.6 %
		Y	8.23	80.57	22.53		65.0	
		Z	8.35	80.33	22.49		65.0	
10263-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	7.78	77.53	21.17	3.98	65.0	± 9.6 %
		Y	7.61	78.09	21.25		65.0	
		Z	7.70	77.76	21.18		65.0	
10264-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	10.16	84.83	23.68	3.98	65.0	± 9.6 %
		Y	10.94	87.30	24.57		65.0	
		Z	10.60	86.08	24.10		65.0	
10265-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	7.89	77.12	21.33	3.98	65.0	± 9.6 %
		Y	7.75	77.78	21.62		65.0	
		Z	7.80	77.33	21.40		65.0	
10266-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	8.32	78.04	22.05	3.98	65.0	± 9.6 %
		Y	8.20	78.75	22.36		65.0	
		Z	8.26	78.33	22.16		65.0	
10267-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	9.19	81.29	22.44	3.98	65.0	± 9.6 %
		Y	9.53	83.07	23.22		65.0	
		Z	9.36	82.10	22.77		65.0	
10268-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	8.37	76.65	21.54	3.98	65.0	± 9.6 %
		Y	8.20	77.22	21.85		65.0	
		Z	8.27	76.83	21.63		65.0	
10269-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	8.29	76.22	21.43	3.98	65.0	± 9.6 %
		Y	8.13	76.76	21.72		65.0	
		Z	8.20	76.38	21.51		65.0	
10270-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	8.55	78.25	21.44	3.98	65.0	± 9.6 %
		Y	8.58	79.32	21.98		65.0	
		Z	8.56	78.72	21.66		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.53	66.08	14.88	0.00	150.0	± 9.6 %
		Y	2.52	66.54	14.91		150.0	
		Z	2.51	66.24	14.87		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.51	66.90	14.72	0.00	150.0	± 9.6 %
		Y	1.52	67.44	14.98		150.0	
		Z	1.50	67.06	14.77		150.0	
10277-CAA	PHS (QPSK)	X	4.49	67.07	11.86	9.03	50.0	± 9.6 %
		Y	3.76	65.67	10.51		50.0	
		Z	4.09	66.15	11.03		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	8.37	78.55	19.37	9.03	50.0	± 9.6 %
		Y	7.19	76.56	17.89		50.0	
		Z	7.75	77.39	18.52		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	8.51	78.75	19.47	9.03	50.0	± 9.6 %
		Y	7.31	76.76	18.01		50.0	
		Z	7.88	77.58	18.63		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.28	66.85	12.83	0.00	150.0	± 9.6 %
		Y	1.15	66.36	12.07		150.0	
		Z	1.21	66.57	12.40		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.73	64.15	11.20	0.00	150.0	± 9.6 %
		Y	0.69	64.04	10.71		150.0	
		Z	0.69	63.98	10.82		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	0.85	66.79	12.92	0.00	150.0	± 9.6 %
		Y	0.83	67.15	12.67		150.0	
		Z	0.82	66.81	12.63		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	1.14	70.77	15.25	0.00	150.0	± 9.6 %
		Y	1.22	72.07	15.35		150.0	
		Z	1.16	71.38	15.20		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	11.92	86.64	24.71	9.03	50.0	± 9.6 %
		Y	15.63	91.98	26.09		50.0	
		Z	13.21	88.61	25.13		50.0	
10297-AAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.66	69.01	16.01	0.00	150.0	± 9.6 %
		Y	2.60	69.22	16.21		150.0	
		Z	2.62	69.08	16.08		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.46	66.51	13.33	0.00	150.0	± 9.6 %
		Y	1.32	65.99	12.56		150.0	
		Z	1.39	66.26	12.94		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.70	69.70	14.37	0.00	150.0	± 9.6 %
		Y	2.67	70.31	14.00		150.0	
		Z	2.72	70.11	14.27		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	2.09	65.56	11.69	0.00	150.0	± 9.6 %
		Y	1.84	65.02	10.77		150.0	
		Z	1.98	65.35	11.29		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	5.46	67.87	18.50	4.17	80.0	± 9.6 %
		Y	5.32	68.03	18.43		80.0	
		Z	5.39	67.94	18.48		80.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.85	67.98	18.95	4.96	80.0	± 9.6 %
		Y	5.80	68.69	19.24		80.0	
		Z	5.75	67.96	18.88		80.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	5.66	67.92	18.92	4.96	80.0	± 9.6 %
		Y	5.61	68.61	19.19		80.0	
		Z	5.56	67.86	18.83		80.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	5.35	67.35	18.18	4.17	80.0	± 9.6 %
		Y	5.30	68.04	18.43		80.0	
		Z	5.26	67.36	18.12		80.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	7.05	76.99	23.82	6.02	50.0	± 9.6 %
		Y	7.19	78.32	24.16		50.0	
		Z	6.80	76.50	23.43		50.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	5.82	69.84	20.44	6.02	50.0	± 9.6 %
		Y	5.84	70.99	20.86		50.0	
		Z	6.02	71.90	21.62		50.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	6.31	73.07	22.13	6.02	50.0	± 9.6 %
		Y	5.83	71.38	20.88		50.0	
		Z	6.11	72.72	21.84		50.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	6.39	73.64	22.41	6.02	50.0	± 9.6 %
		Y	5.90	71.88	21.13		50.0	
		Z	6.20	73.31	22.13		50.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	5.91	70.12	20.60	6.02	50.0	± 9.6 %
		Y	5.91	71.23	21.02		50.0	
		Z	6.11	72.19	21.79		50.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	6.22	72.50	21.95	6.02	50.0	± 9.6 %
		Y	5.84	71.19	20.88		50.0	
		Z	6.05	72.25	21.70		50.0	
10311-AAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.00	68.33	15.71	0.00	150.0	± 9.6 %
		Y	2.96	68.52	15.89		150.0	
		Z	2.97	68.38	15.77		150.0	
10313-AAA	iDEN 1:3	X	6.99	77.76	18.02	6.99	70.0	± 9.6 %
		Y	8.29	81.34	19.42		70.0	
		Z	7.24	78.54	18.23		70.0	
10314-AAA	iDEN 1:6	X	10.49	86.54	23.63	10.00	30.0	± 9.6 %
		Y	12.83	91.81	25.63		30.0	
		Z	11.85	89.04	24.41		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.08	63.85	14.84	0.17	150.0	± 9.6 %
		Y	1.11	64.19	15.04		150.0	
		Z	1.08	63.97	14.91		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.62	66.77	16.25	0.17	150.0	± 9.6 %
		Y	4.54	66.97	16.29		150.0	
		Z	4.57	66.82	16.26		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.62	66.77	16.25	0.17	150.0	± 9.6 %
		Y	4.54	66.97	16.29		150.0	
		Z	4.57	66.82	16.26		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.70	66.97	16.15	0.00	150.0	± 9.6 %
		Y	4.59	67.15	16.19		150.0	
		Z	4.64	67.01	16.16		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.41	67.24	16.37	0.00	150.0	± 9.6 %
		Y	5.32	67.38	16.42		150.0	
		Z	5.38	67.33	16.41		150.0	

10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.66	67.55	16.37	0.00	150.0	± 9.6 %
		Y	5.56	67.58	16.37		150.0	
		Z	5.60	67.52	16.36		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.28	66.85	12.83	0.00	115.0	± 9.6 %
		Y	1.15	66.36	12.07		115.0	
		Z	1.21	66.57	12.40		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.28	66.85	12.83	0.00	115.0	± 9.6 %
		Y	1.15	66.36	12.07		115.0	
		Z	1.21	66.57	12.40		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	31.97	105.65	26.52	0.00	100.0	± 9.6 %
		Y	100.00	119.11	28.78		100.0	
		Z	100.00	120.25	29.60		100.0	
10410-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	X	100.00	119.16	29.68	3.23	80.0	± 9.6 %
		Y	100.00	122.81	30.98		80.0	
		Z	100.00	120.19	29.97		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	0.96	62.46	13.98	0.00	150.0	± 9.6 %
		Y	0.99	62.90	14.23		150.0	
		Z	0.95	62.59	14.06		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.53	66.62	16.09	0.00	150.0	± 9.6 %
		Y	4.45	66.83	16.13		150.0	
		Z	4.48	66.68	16.10		150.0	
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.53	66.62	16.09	0.00	150.0	± 9.6 %
		Y	4.45	66.83	16.13		150.0	
		Z	4.48	66.68	16.10		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.51	66.76	16.09	0.00	150.0	± 9.6 %
		Y	4.44	67.00	16.16		150.0	
		Z	4.47	66.83	16.12		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.54	66.72	16.10	0.00	150.0	± 9.6 %
		Y	4.46	66.94	16.15		150.0	
		Z	4.49	66.78	16.12		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.66	66.73	16.13	0.00	150.0	± 9.6 %
		Y	4.57	66.94	16.17		150.0	
		Z	4.61	66.79	16.14		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.83	67.07	16.25	0.00	150.0	± 9.6 %
		Y	4.72	67.22	16.28		150.0	
		Z	4.77	67.10	16.25		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.75	67.01	16.22	0.00	150.0	± 9.6 %
		Y	4.64	67.18	16.25		150.0	
		Z	4.69	67.05	16.23		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.37	67.43	16.45	0.00	150.0	± 9.6 %
		Y	5.26	67.46	16.45		150.0	
		Z	5.32	67.43	16.46		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.37	67.44	16.46	0.00	150.0	± 9.6 %
		Y	5.28	67.55	16.49		150.0	
		Z	5.33	67.49	16.49		150.0	

10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.38	67.41	16.44	0.00	150.0	± 9.6 %
		Y	5.27	67.46	16.44		150.0	
		Z	5.33	67.43	16.45		150.0	
10430-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.17	70.27	17.81	0.00	150.0	± 9.6 %
		Y	4.03	70.48	17.58		150.0	
		Z	4.14	70.57	17.85		150.0	
10431-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.21	67.11	16.05	0.00	150.0	± 9.6 %
		Y	4.09	67.33	16.03		150.0	
		Z	4.15	67.18	16.04		150.0	
10432-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.51	67.03	16.15	0.00	150.0	± 9.6 %
		Y	4.40	67.23	16.17		150.0	
		Z	4.46	67.08	16.15		150.0	
10433-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.76	67.04	16.24	0.00	150.0	± 9.6 %
		Y	4.66	67.21	16.27		150.0	
		Z	4.71	67.08	16.24		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.23	70.97	17.72	0.00	150.0	± 9.6 %
		Y	4.07	71.14	17.40		150.0	
		Z	4.21	71.31	17.74		150.0	
10435-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	118.98	29.60	3.23	80.0	± 9.6 %
		Y	100.00	122.59	30.87		80.0	
		Z	100.00	119.99	29.88		80.0	
10447-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.49	66.99	15.32	0.00	150.0	± 9.6 %
		Y	3.34	67.16	15.09		150.0	
		Z	3.41	67.04	15.22		150.0	
10448-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	4.04	66.88	15.90	0.00	150.0	± 9.6 %
		Y	3.94	67.12	15.89		150.0	
		Z	3.99	66.95	15.89		150.0	
10449-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.32	66.84	16.03	0.00	150.0	± 9.6 %
		Y	4.23	67.04	16.06		150.0	
		Z	4.27	66.90	16.04		150.0	
10450-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.51	66.79	16.08	0.00	150.0	± 9.6 %
		Y	4.44	66.97	16.11		150.0	
		Z	4.47	66.83	16.09		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.37	67.12	14.92	0.00	150.0	± 9.6 %
		Y	3.19	67.13	14.54		150.0	
		Z	3.28	67.11	14.76		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.23	67.99	16.62	0.00	150.0	± 9.6 %
		Y	6.17	68.10	16.67		150.0	
		Z	6.19	67.99	16.63		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.77	65.25	15.79	0.00	150.0	± 9.6 %
		Y	3.75	65.50	15.83		150.0	
		Z	3.75	65.32	15.80		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.87	70.16	17.10	0.00	150.0	± 9.6 %
		Y	3.71	70.34	16.66		150.0	
		Z	3.84	70.49	17.05		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	5.00	67.94	17.87	0.00	150.0	± 9.6 %
		Y	4.81	68.13	17.56		150.0	
		Z	4.96	68.23	17.89		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.79	66.34	14.61	0.00	150.0	± 9.6 %
		Y	0.84	67.16	15.15		150.0	
		Z	0.79	66.65	14.76		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	122.59	31.33	3.29	80.0	± 9.6 %
		Y	100.00	128.70	33.71		80.0	
		Z	100.00	124.88	32.17		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	21.46	90.49	19.92	3.23	80.0	± 9.6 %
		Y	100.00	107.87	23.85		80.0	
		Z	100.00	106.49	23.49		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.25	74.65	14.70	3.23	80.0	± 9.6 %
		Y	19.71	88.51	18.38		80.0	
		Z	7.19	78.06	15.56		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	120.34	30.14	3.23	80.0	± 9.6 %
		Y	100.00	126.35	32.46		80.0	
		Z	100.00	122.50	30.92		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	11.73	83.97	18.05	3.23	80.0	± 9.6 %
		Y	100.00	107.24	23.55		80.0	
		Z	41.80	97.17	21.26		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.09	72.04	13.74	3.23	80.0	± 9.6 %
		Y	8.97	80.87	16.24		80.0	
		Z	4.77	73.97	14.19		80.0	
10467-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	120.57	30.24	3.23	80.0	± 9.6 %
		Y	100.00	126.64	32.58		80.0	
		Z	100.00	122.76	31.03		80.0	
10468-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	13.52	85.52	18.51	3.23	80.0	± 9.6 %
		Y	100.00	107.47	23.65		80.0	
		Z	60.78	101.09	22.20		80.0	
10469-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.11	72.11	13.77	3.23	80.0	± 9.6 %
		Y	9.29	81.22	16.33		80.0	
		Z	4.83	74.11	14.24		80.0	
10470-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	120.59	30.24	3.23	80.0	± 9.6 %
		Y	100.00	126.67	32.59		80.0	
		Z	100.00	122.78	31.03		80.0	
10471-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	13.37	85.38	18.46	3.23	80.0	± 9.6 %
		Y	100.00	107.40	23.62		80.0	
		Z	59.33	100.79	22.11		80.0	
10472-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.08	72.03	13.72	3.23	80.0	± 9.6 %
		Y	9.15	81.05	16.27		80.0	
		Z	4.78	73.98	14.18		80.0	
10473-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	120.56	30.23	3.23	80.0	± 9.6 %
		Y	100.00	126.64	32.58		80.0	
		Z	100.00	122.75	31.02		80.0	
10474-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	13.19	85.24	18.42	3.23	80.0	± 9.6 %
		Y	100.00	107.40	23.61		80.0	
		Z	57.55	100.49	22.04		80.0	
10475-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.06	71.97	13.71	3.23	80.0	± 9.6 %
		Y	8.99	80.90	16.23		80.0	
		Z	4.73	73.90	14.15		80.0	

10477-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	11.86	84.06	18.05	3.23	80.0	± 9.6 %
		Y	100.00	107.19	23.51		80.0	
		Z	43.65	97.56	21.32		80.0	
10478-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.02	71.87	13.66	3.23	80.0	± 9.6 %
		Y	8.76	80.61	16.13		80.0	
		Z	4.66	73.74	14.09		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	14.17	93.60	25.28	3.23	80.0	± 9.6 %
		Y	63.86	118.32	31.85		80.0	
		Z	30.71	105.97	28.68		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	12.48	86.47	21.39	3.23	80.0	± 9.6 %
		Y	53.06	106.13	26.31		80.0	
		Z	23.73	95.20	23.69		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	9.79	82.49	19.78	3.23	80.0	± 9.6 %
		Y	26.62	95.88	23.20		80.0	
		Z	15.46	88.60	21.40		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.76	76.35	18.33	2.23	80.0	± 9.6 %
		Y	4.38	75.77	17.66		80.0	
		Z	4.74	76.54	18.16		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.86	78.09	18.71	2.23	80.0	± 9.6 %
		Y	7.58	79.80	18.72		80.0	
		Z	7.91	80.19	19.17		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	6.29	76.73	18.22	2.23	80.0	± 9.6 %
		Y	6.51	77.64	17.97		80.0	
		Z	6.95	78.27	18.51		80.0	
10485-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.21	77.92	19.79	2.23	80.0	± 9.6 %
		Y	5.14	78.56	19.82		80.0	
		Z	5.34	78.68	19.95		80.0	
10486-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.30	72.12	17.19	2.23	80.0	± 9.6 %
		Y	4.02	71.85	16.65		80.0	
		Z	4.23	72.22	17.03		80.0	
10487-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.25	71.63	16.98	2.23	80.0	± 9.6 %
		Y	3.95	71.26	16.39		80.0	
		Z	4.16	71.66	16.79		80.0	
10488-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.17	76.41	19.90	2.23	80.0	± 9.6 %
		Y	5.01	76.93	20.15		80.0	
		Z	5.17	76.91	20.10		80.0	
10489-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.47	71.61	18.14	2.23	80.0	± 9.6 %
		Y	4.30	71.84	18.12		80.0	
		Z	4.42	71.84	18.19		80.0	
10490-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.53	71.33	18.05	2.23	80.0	± 9.6 %
		Y	4.36	71.56	18.01		80.0	
		Z	4.48	71.55	18.09		80.0	
10491-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.06	74.04	19.16	2.23	80.0	± 9.6 %
		Y	4.88	74.37	19.37		80.0	
		Z	5.01	74.33	19.30		80.0	
10492-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.71	70.55	18.02	2.23	80.0	± 9.6 %
		Y	4.54	70.71	18.05		80.0	
		Z	4.64	70.68	18.06		80.0	

10493-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.76	70.36	17.96	2.23	80.0	± 9.6 %
		Y	4.58	70.52	17.98		80.0	
		Z	4.69	70.49	18.00		80.0	
10494-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.60	75.75	19.64	2.23	80.0	± 9.6 %
		Y	5.37	76.02	19.87		80.0	
		Z	5.56	76.06	19.81		80.0	
10495-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.78	71.03	18.23	2.23	80.0	± 9.6 %
		Y	4.59	71.11	18.27		80.0	
		Z	4.71	71.14	18.28		80.0	
10496-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.83	70.65	18.12	2.23	80.0	± 9.6 %
		Y	4.64	70.74	18.15		80.0	
		Z	4.75	70.76	18.17		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.37	71.45	15.57	2.23	80.0	± 9.6 %
		Y	2.72	69.17	13.95		80.0	
		Z	3.09	70.50	14.83		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.40	64.81	11.76	2.23	80.0	± 9.6 %
		Y	1.75	62.03	9.60		80.0	
		Z	2.07	63.39	10.68		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.32	64.18	11.33	2.23	80.0	± 9.6 %
		Y	1.68	61.41	9.14		80.0	
		Z	1.99	62.76	10.23		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.05	76.85	19.69	2.23	80.0	± 9.6 %
		Y	4.98	77.59	19.85		80.0	
		Z	5.12	77.53	19.88		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.38	71.91	17.55	2.23	80.0	± 9.6 %
		Y	4.19	72.01	17.27		80.0	
		Z	4.33	72.13	17.50		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.41	71.66	17.40	2.23	80.0	± 9.6 %
		Y	4.21	71.71	17.09		80.0	
		Z	4.36	71.85	17.33		80.0	
10503-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.10	76.19	19.80	2.23	80.0	± 9.6 %
		Y	4.94	76.71	20.05		80.0	
		Z	5.10	76.67	19.99		80.0	
10504-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.44	71.51	18.08	2.23	80.0	± 9.6 %
		Y	4.28	71.74	18.06		80.0	
		Z	4.39	71.73	18.13		80.0	
10505-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.51	71.23	18.00	2.23	80.0	± 9.6 %
		Y	4.34	71.46	17.96		80.0	
		Z	4.45	71.44	18.03		80.0	
10506-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.55	75.59	19.57	2.23	80.0	± 9.6 %
		Y	5.33	75.87	19.80		80.0	
		Z	5.51	75.90	19.73		80.0	
10507-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.76	70.96	18.19	2.23	80.0	± 9.6 %
		Y	4.57	71.05	18.23		80.0	
		Z	4.69	71.07	18.24		80.0	

10508-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.81	70.58	18.08	2.23	80.0	± 9.6 %
		Y	4.62	70.68	18.11		80.0	
		Z	4.73	70.68	18.12		80.0	
10509-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.59	73.58	18.84	2.23	80.0	± 9.6 %
		Y	5.39	73.76	19.02		80.0	
		Z	5.53	73.76	18.95		80.0	
10510-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.20	70.42	18.08	2.23	80.0	± 9.6 %
		Y	4.99	70.43	18.12		80.0	
		Z	5.11	70.45	18.12		80.0	
10511-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.22	70.10	18.00	2.23	80.0	± 9.6 %
		Y	5.03	70.13	18.04		80.0	
		Z	5.14	70.14	18.03		80.0	
10512-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.02	75.44	19.39	2.23	80.0	± 9.6 %
		Y	5.78	75.56	19.57		80.0	
		Z	5.97	75.65	19.51		80.0	
10513-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.12	70.82	18.23	2.23	80.0	± 9.6 %
		Y	4.91	70.75	18.25		80.0	
		Z	5.03	70.83	18.26		80.0	
10514-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	5.09	70.31	18.08	2.23	80.0	± 9.6 %
		Y	4.90	70.27	18.11		80.0	
		Z	5.01	70.33	18.11		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.92	62.60	13.99	0.00	150.0	± 9.6 %
		Y	0.95	63.05	14.27		150.0	
		Z	0.91	62.72	14.07		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.48	67.26	14.71	0.00	150.0	± 9.6 %
		Y	0.54	68.48	15.75		150.0	
		Z	0.49	67.82	15.05		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.75	64.05	14.24	0.00	150.0	± 9.6 %
		Y	0.79	64.60	14.65		150.0	
		Z	0.75	64.23	14.37		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.52	66.69	16.06	0.00	150.0	± 9.6 %
		Y	4.44	66.90	16.10		150.0	
		Z	4.47	66.75	16.07		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.71	66.95	16.20	0.00	150.0	± 9.6 %
		Y	4.60	67.11	16.21		150.0	
		Z	4.65	66.98	16.20		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.56	66.90	16.11	0.00	150.0	± 9.6 %
		Y	4.46	67.05	16.12		150.0	
		Z	4.50	66.93	16.11		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.49	66.89	16.09	0.00	150.0	± 9.6 %
		Y	4.39	67.03	16.11		150.0	
		Z	4.44	66.91	16.09		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.55	66.96	16.17	0.00	150.0	± 9.6 %
		Y	4.45	67.16	16.21		150.0	
		Z	4.50	67.02	16.19		150.0	

10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.43	66.81	16.00	0.00	150.0	± 9.6 %
		Y	4.35	67.05	16.07		150.0	
		Z	4.38	66.88	16.02		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.50	66.89	16.14	0.00	150.0	± 9.6 %
		Y	4.39	67.08	16.18		150.0	
		Z	4.44	66.94	16.15		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.47	65.92	15.72	0.00	150.0	± 9.6 %
		Y	4.40	66.15	15.78		150.0	
		Z	4.43	65.98	15.74		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.65	66.29	15.87	0.00	150.0	± 9.6 %
		Y	4.55	66.47	15.91		150.0	
		Z	4.59	66.34	15.88		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.57	66.25	15.81	0.00	150.0	± 9.6 %
		Y	4.47	66.43	15.85		150.0	
		Z	4.52	66.29	15.82		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.58	66.27	15.84	0.00	150.0	± 9.6 %
		Y	4.49	66.45	15.88		150.0	
		Z	4.53	66.31	15.85		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.58	66.27	15.84	0.00	150.0	± 9.6 %
		Y	4.49	66.45	15.88		150.0	
		Z	4.53	66.31	15.85		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.58	66.38	15.85	0.00	150.0	± 9.6 %
		Y	4.46	66.51	15.87		150.0	
		Z	4.52	66.40	15.86		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.44	66.22	15.78	0.00	150.0	± 9.6 %
		Y	4.33	66.36	15.80		150.0	
		Z	4.38	66.25	15.78		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.59	66.30	15.83	0.00	150.0	± 9.6 %
		Y	4.49	66.51	15.88		150.0	
		Z	4.54	66.36	15.84		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.13	66.43	15.94	0.00	150.0	± 9.6 %
		Y	5.04	66.54	15.97		150.0	
		Z	5.08	66.45	15.95		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.20	66.61	16.01	0.00	150.0	± 9.6 %
		Y	5.10	66.71	16.05		150.0	
		Z	5.15	66.64	16.04		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.06	66.54	15.96	0.00	150.0	± 9.6 %
		Y	4.98	66.67	16.01		150.0	
		Z	5.01	66.57	15.98		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.12	66.52	15.95	0.00	150.0	± 9.6 %
		Y	5.03	66.63	15.99		150.0	
		Z	5.07	66.54	15.97		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.22	66.56	16.02	0.00	150.0	± 9.6 %
		Y	5.11	66.64	16.04		150.0	
		Z	5.16	66.56	16.02		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.14	66.57	16.03	0.00	150.0	± 9.6 %
		Y	5.04	66.62	16.05		150.0	
		Z	5.10	66.60	16.05		150.0	

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.11	66.43	15.96	0.00	150.0	± 9.6 %
		Y	5.02	66.51	15.98		150.0	
		Z	5.07	66.45	15.97		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.27	66.51	16.02	0.00	150.0	± 9.6 %
		Y	5.18	66.61	16.04		150.0	
		Z	5.22	66.53	16.03		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.36	66.57	16.06	0.00	150.0	± 9.6 %
		Y	5.24	66.63	16.08		150.0	
		Z	5.30	66.57	16.07		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.43	66.55	15.94	0.00	150.0	± 9.6 %
		Y	5.37	66.65	15.97		150.0	
		Z	5.40	66.56	15.95		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.64	67.00	16.11	0.00	150.0	± 9.6 %
		Y	5.55	67.08	16.15		150.0	
		Z	5.60	67.02	16.13		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.50	66.78	16.02	0.00	150.0	± 9.6 %
		Y	5.41	66.80	16.02		150.0	
		Z	5.46	66.76	16.01		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.58	66.83	16.03	0.00	150.0	± 9.6 %
		Y	5.49	66.87	16.05		150.0	
		Z	5.53	66.81	16.03		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.89	67.94	16.56	0.00	150.0	± 9.6 %
		Y	5.69	67.68	16.43		150.0	
		Z	5.80	67.83	16.51		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.53	66.79	16.03	0.00	150.0	± 9.6 %
		Y	5.46	66.91	16.08		150.0	
		Z	5.49	66.81	16.05		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.53	66.82	16.01	0.00	150.0	± 9.6 %
		Y	5.44	66.85	16.02		150.0	
		Z	5.49	66.83	16.02		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.44	66.61	15.91	0.00	150.0	± 9.6 %
		Y	5.38	66.72	15.95		150.0	
		Z	5.40	66.62	15.92		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.53	66.66	15.96	0.00	150.0	± 9.6 %
		Y	5.45	66.72	15.99		150.0	
		Z	5.48	66.65	15.97		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.84	66.93	16.04	0.00	150.0	± 9.6 %
		Y	5.78	67.01	16.06		150.0	
		Z	5.81	66.94	16.05		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.98	67.25	16.17	0.00	150.0	± 9.6 %
		Y	5.90	67.29	16.19		150.0	
		Z	5.94	67.25	16.18		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.00	67.29	16.19	0.00	150.0	± 9.6 %
		Y	5.93	67.35	16.21		150.0	
		Z	5.96	67.30	16.20		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.96	67.20	16.16	0.00	150.0	± 9.6 %
		Y	5.88	67.23	16.17		150.0	
		Z	5.92	67.18	16.16		150.0	

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	6.01	67.37	16.26	0.00	150.0	± 9.6 %
		Y	5.92	67.38	16.26		150.0	
		Z	5.97	67.35	16.26		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.01	67.21	16.22	0.00	150.0	± 9.6 %
		Y	5.92	67.24	16.23		150.0	
		Z	5.96	67.19	16.22		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.93	67.18	16.25	0.00	150.0	± 9.6 %
		Y	5.85	67.23	16.26		150.0	
		Z	5.89	67.18	16.25		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	6.07	67.61	16.46	0.00	150.0	± 9.6 %
		Y	5.94	67.50	16.40		150.0	
		Z	6.01	67.54	16.43		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.39	68.16	16.69	0.00	150.0	± 9.6 %
		Y	6.02	67.41	16.31		150.0	
		Z	6.19	67.71	16.48		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.86	66.83	16.26	0.46	150.0	± 9.6 %
		Y	4.78	67.03	16.31		150.0	
		Z	4.81	66.87	16.27		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	5.09	67.28	16.58	0.46	150.0	± 9.6 %
		Y	4.98	67.43	16.60		150.0	
		Z	5.03	67.31	16.59		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.93	67.13	16.40	0.46	150.0	± 9.6 %
		Y	4.82	67.27	16.42		150.0	
		Z	4.87	67.15	16.40		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.95	67.50	16.74	0.46	150.0	± 9.6 %
		Y	4.84	67.61	16.74		150.0	
		Z	4.90	67.52	16.74		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.85	66.93	16.19	0.46	150.0	± 9.6 %
		Y	4.74	67.12	16.24		150.0	
		Z	4.79	66.97	16.19		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.91	67.57	16.79	0.46	150.0	± 9.6 %
		Y	4.82	67.76	16.84		150.0	
		Z	4.86	67.64	16.82		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.94	67.43	16.73	0.46	150.0	± 9.6 %
		Y	4.84	67.60	16.77		150.0	
		Z	4.89	67.48	16.75		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.25	65.19	15.53	0.46	130.0	± 9.6 %
		Y	1.27	65.45	15.71		130.0	
		Z	1.24	65.29	15.60		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.27	65.79	15.87	0.46	130.0	± 9.6 %
		Y	1.28	66.03	16.05		130.0	
		Z	1.26	65.90	15.96		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	2.61	85.52	21.81	0.46	130.0	± 9.6 %
		Y	2.97	88.51	23.34		130.0	
		Z	3.01	88.05	22.71		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.44	71.64	18.59	0.46	130.0	± 9.6 %
		Y	1.44	71.68	18.74		130.0	
		Z	1.45	72.00	18.80		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.68	66.71	16.37	0.46	130.0	± 9.6 %
		Y	4.59	66.91	16.41		130.0	
		Z	4.63	66.76	16.38		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.70	66.86	16.43	0.46	130.0	± 9.6 %
		Y	4.61	67.07	16.47		130.0	
		Z	4.65	66.92	16.44		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.91	67.16	16.60	0.46	130.0	± 9.6 %
		Y	4.79	67.31	16.62		130.0	
		Z	4.85	67.20	16.60		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.81	67.32	16.69	0.46	130.0	± 9.6 %
		Y	4.69	67.44	16.70		130.0	
		Z	4.75	67.35	16.70		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.58	66.65	16.03	0.46	130.0	± 9.6 %
		Y	4.47	66.80	16.06		130.0	
		Z	4.52	66.66	16.02		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.63	66.68	16.05	0.46	130.0	± 9.6 %
		Y	4.52	66.87	16.11		130.0	
		Z	4.57	66.71	16.05		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.71	67.36	16.64	0.46	130.0	± 9.6 %
		Y	4.60	67.52	16.66		130.0	
		Z	4.65	67.41	16.65		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.53	66.42	15.83	0.46	130.0	± 9.6 %
		Y	4.41	66.60	15.88		130.0	
		Z	4.46	66.43	15.82		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.68	66.71	16.37	0.46	130.0	± 9.6 %
		Y	4.59	66.91	16.41		130.0	
		Z	4.63	66.76	16.38		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.70	66.86	16.43	0.46	130.0	± 9.6 %
		Y	4.61	67.07	16.47		130.0	
		Z	4.65	66.92	16.44		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.91	67.16	16.60	0.46	130.0	± 9.6 %
		Y	4.79	67.31	16.62		130.0	
		Z	4.85	67.20	16.60		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.81	67.32	16.69	0.46	130.0	± 9.6 %
		Y	4.69	67.44	16.70		130.0	
		Z	4.75	67.35	16.70		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.58	66.65	16.03	0.46	130.0	± 9.6 %
		Y	4.47	66.80	16.06		130.0	
		Z	4.52	66.66	16.02		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.63	66.68	16.05	0.46	130.0	± 9.6 %
		Y	4.52	66.87	16.11		130.0	
		Z	4.57	66.71	16.05		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.71	67.36	16.64	0.46	130.0	± 9.6 %
		Y	4.60	67.52	16.66		130.0	
		Z	4.65	67.41	16.65		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.53	66.42	15.83	0.46	130.0	± 9.6 %
		Y	4.41	66.60	15.88		130.0	
		Z	4.46	66.43	15.82		130.0	

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.83	66.77	16.47	0.46	130.0	± 9.6 %
		Y	4.74	66.96	16.50		130.0	
		Z	4.78	66.82	16.48		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.98	67.10	16.60	0.46	130.0	± 9.6 %
		Y	4.87	67.27	16.63		130.0	
		Z	4.93	67.14	16.61		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.91	67.02	16.48	0.46	130.0	± 9.6 %
		Y	4.80	67.17	16.51		130.0	
		Z	4.85	67.05	16.49		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.96	67.18	16.63	0.46	130.0	± 9.6 %
		Y	4.85	67.33	16.66		130.0	
		Z	4.90	67.22	16.64		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.93	67.14	16.53	0.46	130.0	± 9.6 %
		Y	4.82	67.31	16.57		130.0	
		Z	4.87	67.18	16.54		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.87	67.14	16.54	0.46	130.0	± 9.6 %
		Y	4.76	67.30	16.57		130.0	
		Z	4.81	67.18	16.54		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.82	67.05	16.42	0.46	130.0	± 9.6 %
		Y	4.71	67.19	16.44		130.0	
		Z	4.76	67.07	16.42		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.80	67.28	16.68	0.46	130.0	± 9.6 %
		Y	4.69	67.37	16.67		130.0	
		Z	4.74	67.29	16.67		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.50	67.33	16.69	0.46	130.0	± 9.6 %
		Y	5.40	67.43	16.72		130.0	
		Z	5.46	67.38	16.72		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.67	67.87	16.93	0.46	130.0	± 9.6 %
		Y	5.53	67.86	16.92		130.0	
		Z	5.61	67.87	16.94		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.54	67.56	16.79	0.46	130.0	± 9.6 %
		Y	5.42	67.61	16.80		130.0	
		Z	5.48	67.56	16.80		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.63	67.58	16.72	0.46	130.0	± 9.6 %
		Y	5.55	67.79	16.82		130.0	
		Z	5.59	67.64	16.76		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.71	67.86	16.99	0.46	130.0	± 9.6 %
		Y	5.61	68.00	17.05		130.0	
		Z	5.65	67.89	17.01		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.50	67.29	16.70	0.46	130.0	± 9.6 %
		Y	5.49	67.68	16.88		130.0	
		Z	5.47	67.39	16.75		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.63	67.69	16.90	0.46	130.0	± 9.6 %
		Y	5.53	67.80	16.94		130.0	
		Z	5.59	67.74	16.92		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.39	67.07	16.45	0.46	130.0	± 9.6 %
		Y	5.27	67.10	16.45		130.0	
		Z	5.31	66.99	16.41		130.0	

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.65	66.04	16.07	0.46	130.0	± 9.6 %
		Y	4.58	66.26	16.12		130.0	
		Z	4.61	66.10	16.08		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.85	66.45	16.23	0.46	130.0	± 9.6 %
		Y	4.74	66.63	16.28		130.0	
		Z	4.79	66.50	16.25		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.74	66.30	16.07	0.46	130.0	± 9.6 %
		Y	4.63	66.48	16.11		130.0	
		Z	4.68	66.35	16.08		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.79	66.46	16.23	0.46	130.0	± 9.6 %
		Y	4.68	66.63	16.27		130.0	
		Z	4.73	66.50	16.25		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.70	66.28	16.09	0.46	130.0	± 9.6 %
		Y	4.60	66.45	16.12		130.0	
		Z	4.65	66.31	16.10		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.72	66.43	16.13	0.46	130.0	± 9.6 %
		Y	4.60	66.61	16.18		130.0	
		Z	4.66	66.47	16.14		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.72	66.33	16.02	0.46	130.0	± 9.6 %
		Y	4.60	66.47	16.05		130.0	
		Z	4.66	66.35	16.02		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.66	66.50	16.24	0.46	130.0	± 9.6 %
		Y	4.55	66.62	16.25		130.0	
		Z	4.60	66.53	16.25		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.71	66.12	15.87	0.46	130.0	± 9.6 %
		Y	4.60	66.33	15.93		130.0	
		Z	4.65	66.16	15.88		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.31	66.56	16.28	0.46	130.0	± 9.6 %
		Y	5.21	66.65	16.31		130.0	
		Z	5.26	66.57	16.29		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.38	66.74	16.35	0.46	130.0	± 9.6 %
		Y	5.29	66.86	16.39		130.0	
		Z	5.34	66.79	16.37		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.26	66.74	16.36	0.46	130.0	± 9.6 %
		Y	5.18	66.87	16.40		130.0	
		Z	5.22	66.77	16.38		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.29	66.59	16.22	0.46	130.0	± 9.6 %
		Y	5.19	66.67	16.25		130.0	
		Z	5.23	66.58	16.22		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.38	66.62	16.29	0.46	130.0	± 9.6 %
		Y	5.27	66.70	16.31		130.0	
		Z	5.32	66.62	16.29		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.37	66.71	16.45	0.46	130.0	± 9.6 %
		Y	5.27	66.80	16.47		130.0	
		Z	5.32	66.74	16.47		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.39	66.89	16.53	0.46	130.0	± 9.6 %
		Y	5.29	66.97	16.55		130.0	
		Z	5.34	66.92	16.55		130.0	

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.26	66.41	16.17	0.46	130.0	± 9.6 %
		Y	5.16	66.51	16.20		130.0	
		Z	5.21	66.44	16.19		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.45	66.63	16.34	0.46	130.0	± 9.6 %
		Y	5.35	66.71	16.36		130.0	
		Z	5.40	66.64	16.35		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.87	67.75	16.95	0.46	130.0	± 9.6 %
		Y	5.59	67.32	16.72		130.0	
		Z	5.77	67.62	16.89		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.59	66.61	16.24	0.46	130.0	± 9.6 %
		Y	5.53	66.71	16.27		130.0	
		Z	5.56	66.63	16.25		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.86	67.23	16.51	0.46	130.0	± 9.6 %
		Y	5.77	67.31	16.54		130.0	
		Z	5.82	67.26	16.53		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.64	66.75	16.20	0.46	130.0	± 9.6 %
		Y	5.54	66.76	16.20		130.0	
		Z	5.59	66.73	16.20		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.74	66.86	16.25	0.46	130.0	± 9.6 %
		Y	5.63	66.85	16.25		130.0	
		Z	5.67	66.78	16.22		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.27	68.62	17.13	0.46	130.0	± 9.6 %
		Y	5.98	68.12	16.89		130.0	
		Z	6.16	68.44	17.05		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.08	68.18	17.10	0.46	130.0	± 9.6 %
		Y	5.89	67.92	16.96		130.0	
		Z	6.00	68.07	17.05		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.81	67.25	16.65	0.46	130.0	± 9.6 %
		Y	5.73	67.36	16.70		130.0	
		Z	5.78	67.29	16.68		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.70	66.88	16.30	0.46	130.0	± 9.6 %
		Y	5.61	66.94	16.32		130.0	
		Z	5.64	66.86	16.29		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.68	66.90	16.36	0.46	130.0	± 9.6 %
		Y	5.59	66.94	16.37		130.0	
		Z	5.63	66.89	16.36		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.57	66.28	15.80	0.46	130.0	± 9.6 %
		Y	5.47	66.33	15.83		130.0	
		Z	5.52	66.25	15.79		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.01	67.00	16.34	0.46	130.0	± 9.6 %
		Y	5.95	67.08	16.37		130.0	
		Z	5.98	67.00	16.35		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.18	67.41	16.53	0.46	130.0	± 9.6 %
		Y	6.10	67.45	16.54		130.0	
		Z	6.14	67.41	16.54		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.18	67.38	16.49	0.46	130.0	± 9.6 %
		Y	6.10	67.42	16.51		130.0	
		Z	6.14	67.38	16.50		130.0	

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.15	67.32	16.51	0.46	130.0	± 9.6 %
		Y	6.07	67.34	16.50		130.0	
		Z	6.11	67.30	16.50		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.17	67.36	16.47	0.46	130.0	± 9.6 %
		Y	6.07	67.36	16.47		130.0	
		Z	6.11	67.32	16.45		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.20	67.22	16.42	0.46	130.0	± 9.6 %
		Y	6.14	67.34	16.48		130.0	
		Z	6.17	67.26	16.44		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.24	67.47	16.71	0.46	130.0	± 9.6 %
		Y	6.15	67.50	16.71		130.0	
		Z	6.19	67.46	16.71		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.08	67.18	16.46	0.46	130.0	± 9.6 %
		Y	6.01	67.25	16.50		130.0	
		Z	6.04	67.18	16.47		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.27	67.76	16.77	0.46	130.0	± 9.6 %
		Y	6.11	67.57	16.67		130.0	
		Z	6.19	67.64	16.72		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.75	68.75	17.22	0.46	130.0	± 9.6 %
		Y	6.24	67.62	16.66		130.0	
		Z	6.47	68.11	16.92		130.0	
10646-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	46.96	124.69	40.77	9.30	60.0	± 9.6 %
		Y	100.00	148.37	48.20		60.0	
		Z	67.01	134.85	43.85		60.0	
10647-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	46.42	125.36	41.11	9.30	60.0	± 9.6 %
		Y	100.00	149.72	48.78		60.0	
		Z	63.71	134.73	44.00		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.63	62.54	9.79	0.00	150.0	± 9.6 %
		Y	0.58	62.24	9.19		150.0	
		Z	0.59	62.30	9.35		150.0	
10652-AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	4.19	68.34	17.06	2.23	80.0	± 9.6 %
		Y	4.08	68.62	17.03		80.0	
		Z	4.14	68.48	17.06		80.0	
10653-AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.68	67.61	17.18	2.23	80.0	± 9.6 %
		Y	4.56	67.77	17.19		80.0	
		Z	4.62	67.66	17.19		80.0	
10654-AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.63	67.27	17.19	2.23	80.0	± 9.6 %
		Y	4.54	67.39	17.21		80.0	
		Z	4.58	67.31	17.20		80.0	
10655-AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.69	67.27	17.23	2.23	80.0	± 9.6 %
		Y	4.60	67.35	17.25		80.0	
		Z	4.64	67.28	17.23		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	19.17	92.59	24.24	10.00	50.0	± 9.6 %
		Y	41.94	104.68	27.26		50.0	
		Z	24.50	96.17	24.98		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	100.00	114.36	28.32	6.99	60.0	± 9.6 %
		Y	100.00	114.20	27.89		60.0	
		Z	100.00	113.56	27.75		60.0	

10660-AAA	Pulse Waveform (200Hz, 40%)	X	100.00	111.43	25.50	3.98	80.0	± 9.6 %
		Y	100.00	112.46	25.73		80.0	
		Z	100.00	110.79	25.07		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	100.00	110.47	23.74	2.22	100.0	± 9.6 %
		Y	100.00	113.22	24.78		100.0	
		Z	100.00	109.90	23.38		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	100.00	107.83	20.92	0.97	120.0	± 9.6 %
		Y	100.00	115.39	23.98		120.0	
		Z	100.00	107.00	20.48		120.0	

[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

Calibration Laboratory of
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S Schweizerischer Kalibrierdienst
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Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: EX3-3914_Feb18

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3914
Calibration procedure(s)	QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	February 14, 2018

BN
02-23-2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02525)	Apr-18
Reference 20 dB Attenuator	SN: S5277 (20x)	07-Apr-17 (No. 217-02528)	Apr-18
Reference Probe ES3DV2	SN: 3013	30-Dec-17 (No. ES3-3013_Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 14, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z* = *NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe EX3DV4

SN:3914

Manufactured: December 18, 2012
Calibrated: February 14, 2018

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.47	0.41	0.44	± 10.1 %
DCP (mV)[B]	98.1	103.5	99.1	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB$\sqrt{\mu V}$	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	157.3	±3.5 %
		Y	0.0	0.0	1.0		143.4	
		Z	0.0	0.0	1.0		153.1	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 ms.V^{-2}	T2 ms.V^{-1}	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	44.52	338.7	36.78	11.30	0.699	5.054	0.000	0.544	1.006
Y	43.63	317.9	34.18	13.04	0.623	5.031	2.000	0.164	1.007
Z	41.48	314.2	36.51	10.96	0.847	5.054	0.251	0.494	1.008

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
6	55.5	0.75	21.06	21.06	21.06	0.00	1.00	± 13.3 %
13	55.5	0.75	17.97	17.97	17.97	0.00	1.00	± 13.3 %
750	41.9	0.89	10.18	10.18	10.18	0.58	0.80	± 12.0 %
835	41.5	0.90	9.70	9.70	9.70	0.52	0.80	± 12.0 %
1750	40.1	1.37	8.34	8.34	8.34	0.40	0.80	± 12.0 %
1900	40.0	1.40	7.98	7.98	7.98	0.41	0.84	± 12.0 %
2300	39.5	1.67	7.58	7.58	7.58	0.37	0.87	± 12.0 %
2450	39.2	1.80	7.26	7.26	7.26	0.43	0.84	± 12.0 %
2600	39.0	1.96	7.04	7.04	7.04	0.29	0.86	± 12.0 %
3500	37.9	2.91	6.99	6.99	6.99	0.25	1.20	± 13.1 %
3700	37.7	3.12	6.72	6.72	6.72	0.23	1.20	± 13.1 %
5250	35.9	4.71	5.41	5.41	5.41	0.30	1.80	± 13.1 %
5600	35.5	5.07	4.79	4.79	4.79	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.78	4.78	4.78	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

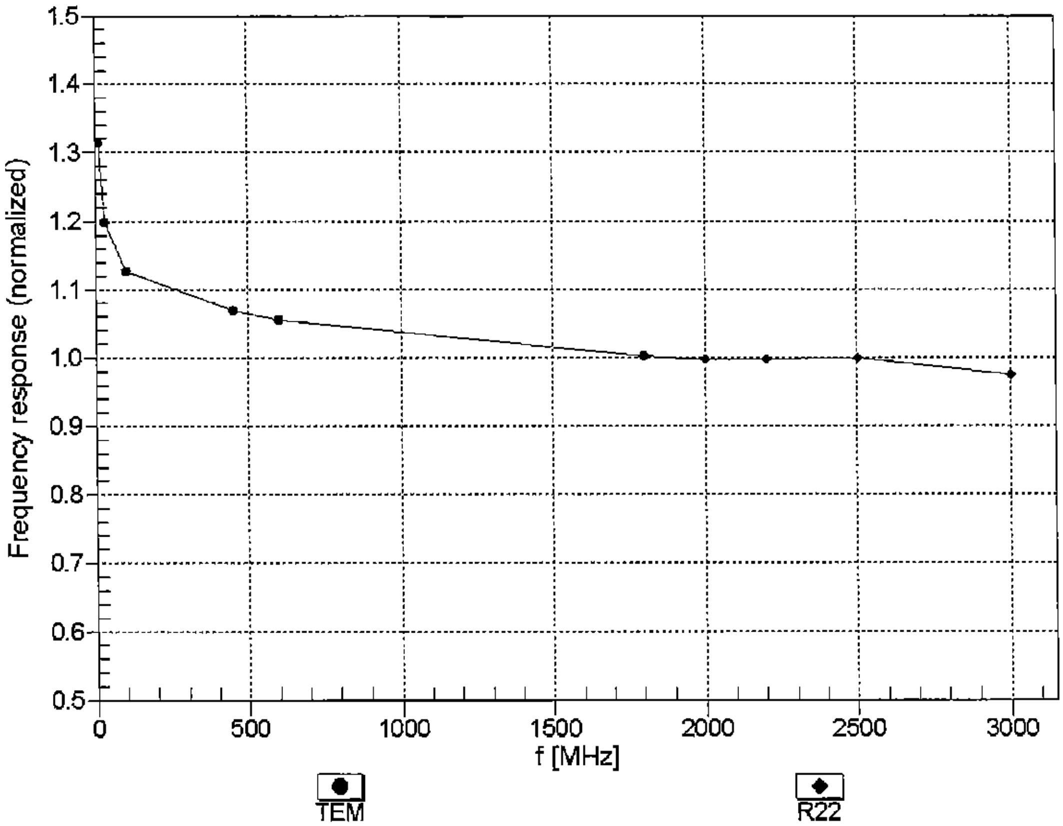
DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.75	9.75	9.75	0.47	0.80	± 12.0 %
835	55.2	0.97	9.57	9.57	9.57	0.44	0.89	± 12.0 %
1750	53.4	1.49	7.91	7.91	7.91	0.37	0.80	± 12.0 %
1900	53.3	1.52	7.62	7.62	7.62	0.29	1.01	± 12.0 %
2300	52.9	1.81	7.46	7.46	7.46	0.40	0.88	± 12.0 %
2450	52.7	1.95	7.39	7.39	7.39	0.39	0.86	± 12.0 %
2600	52.5	2.16	7.05	7.05	7.05	0.28	1.05	± 12.0 %
3500	51.3	3.31	6.81	6.81	6.81	0.30	1.25	± 13.1 %
3700	51.0	3.55	6.64	6.64	6.64	0.30	1.25	± 13.1 %
5250	48.9	5.36	4.81	4.81	4.81	0.35	1.90	± 13.1 %
5600	48.5	5.77	4.09	4.09	4.09	0.40	1.90	± 13.1 %
5750	48.3	5.94	4.22	4.22	4.22	0.40	1.90	± 13.1 %

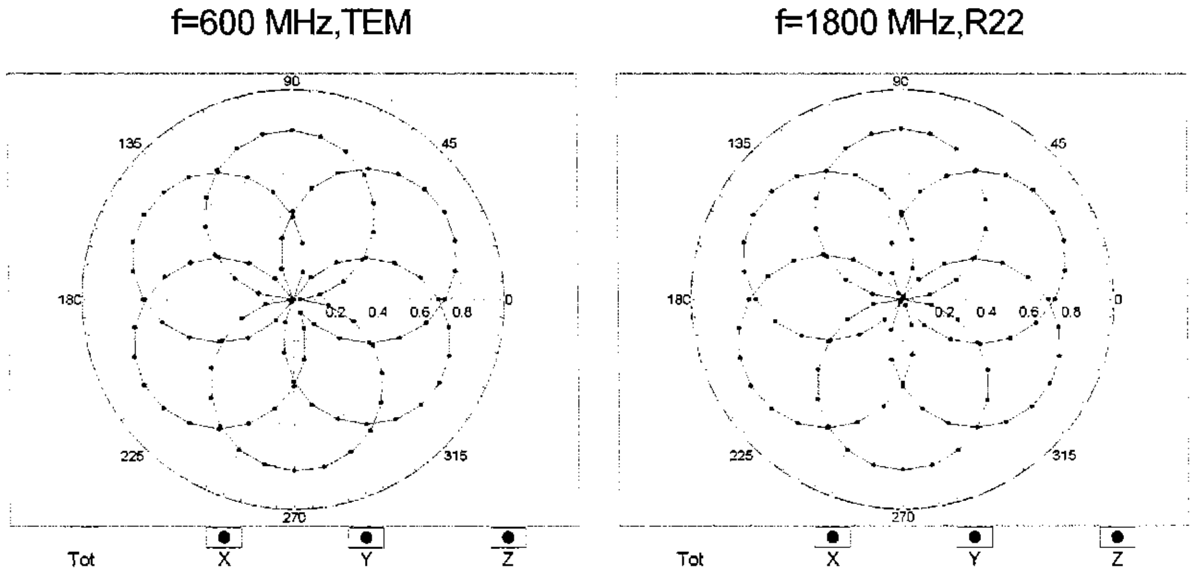
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

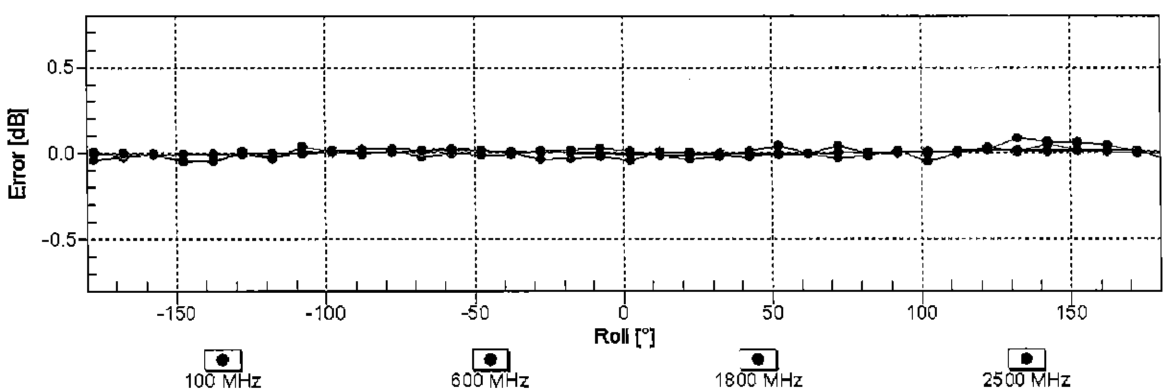
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

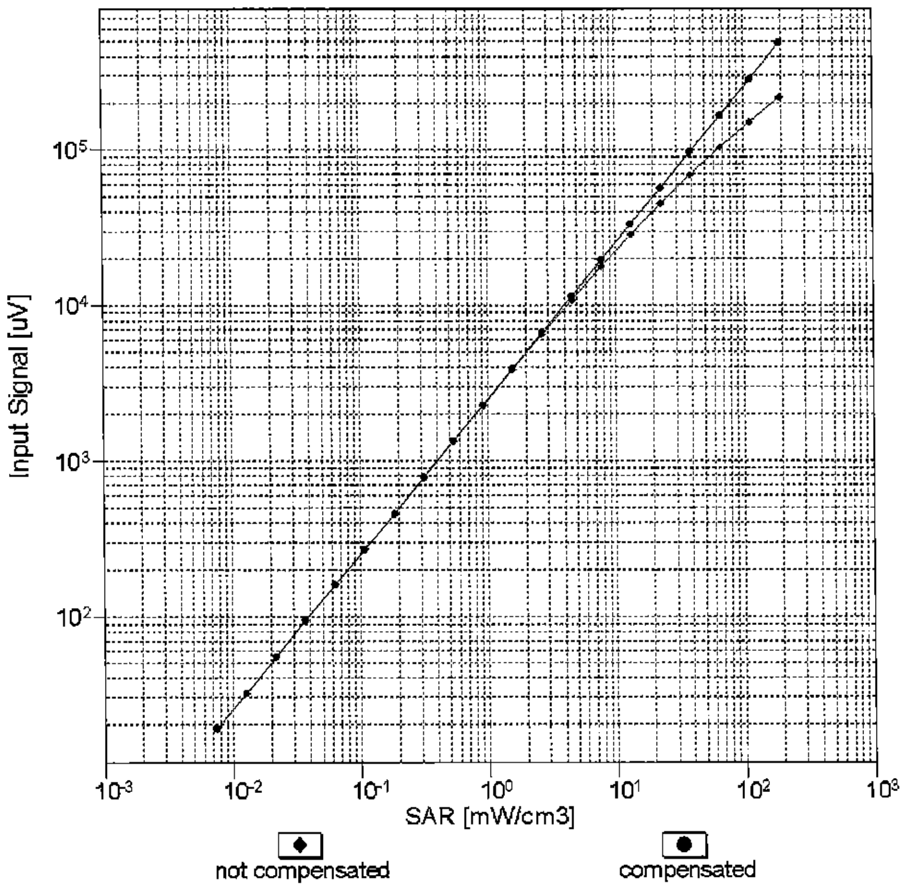
Receiving Pattern (ϕ), $\vartheta = 0°$

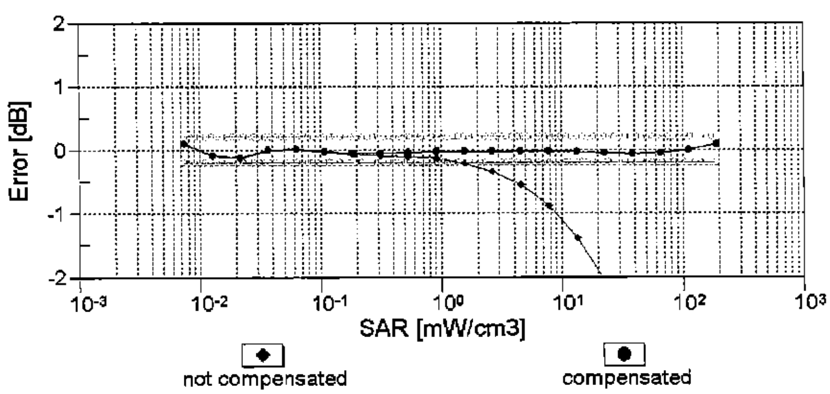




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)

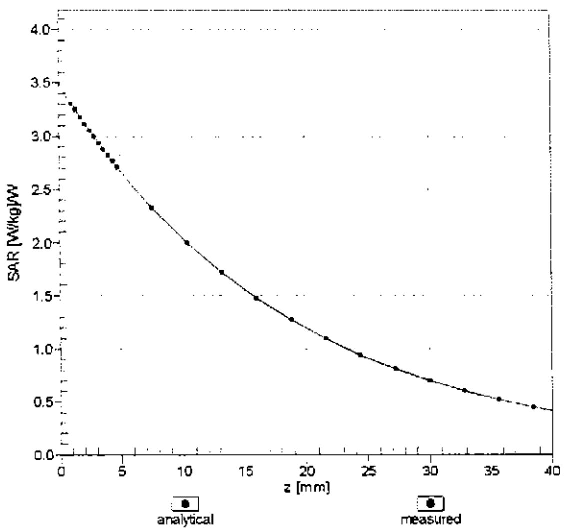




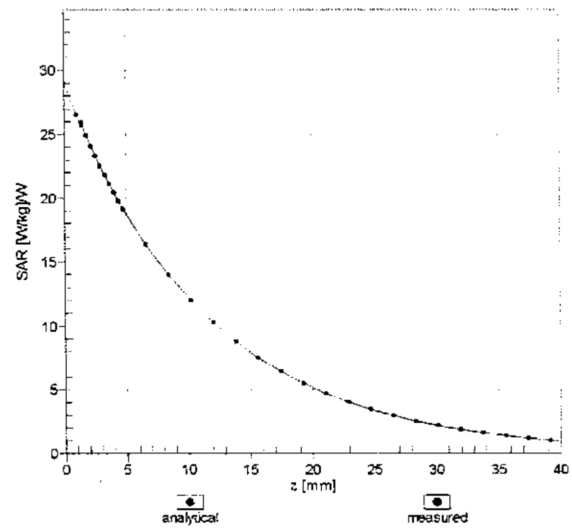
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

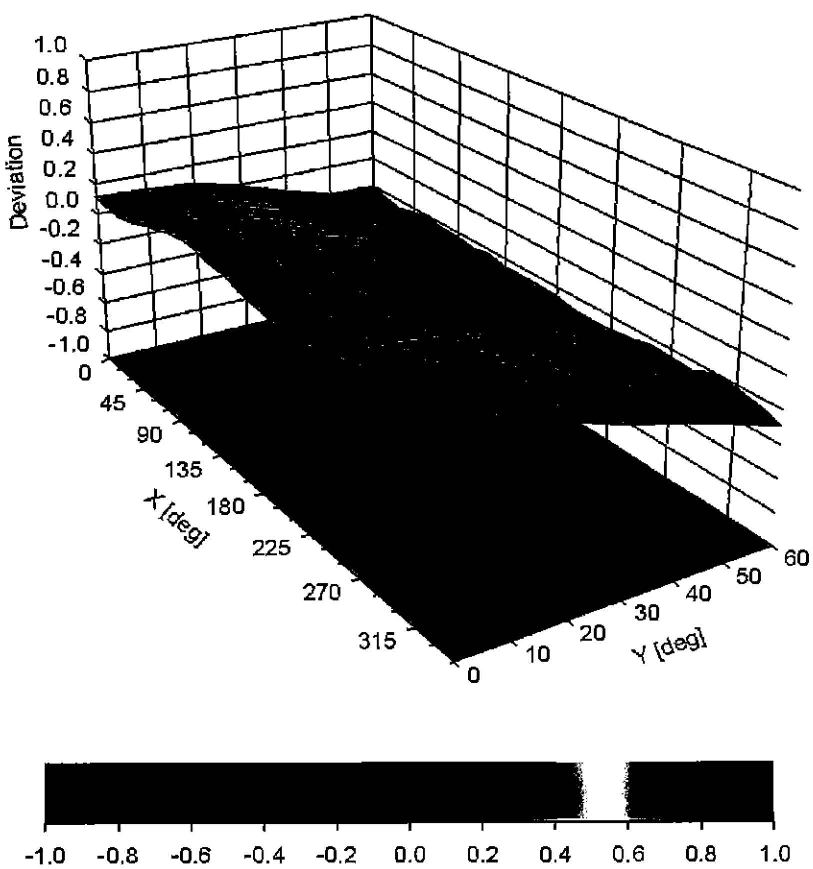


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3914

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	132.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	157.3	± 3.5 %
		Y	0.00	0.00	1.00		143.4	
		Z	0.00	0.00	1.00		153.1	
10010-CAA	SAR Validation (Square, 100ms, 10ms)	X	2.02	63.97	9.10	10.00	20.0	± 9.6 %
		Y	2.59	66.85	10.84		20.0	
		Z	2.31	65.14	9.98		20.0	
10011-CAB	UMTS-FDD (WCDMA)	X	0.89	66.39	14.20	0.00	150.0	± 9.6 %
		Y	1.06	68.74	16.01		150.0	
		Z	0.90	66.80	14.44		150.0	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.06	63.38	14.79	0.41	150.0	± 9.6 %
		Y	1.17	64.37	15.54		150.0	
		Z	1.07	63.61	14.94		150.0	
10013-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.75	66.53	16.97	1.46	150.0	± 9.6 %
		Y	4.80	66.78	17.02		150.0	
		Z	4.73	66.65	17.01		150.0	
10021-DAC	GSM-FDD (TDMA, GMSK)	X	100.00	110.09	25.45	9.39	50.0	± 9.6 %
		Y	100.00	112.00	26.43		50.0	
		Z	100.00	111.93	26.50		50.0	
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	100.00	109.83	25.39	9.57	50.0	± 9.6 %
		Y	100.00	111.69	26.33		50.0	
		Z	100.00	111.63	26.42		50.0	
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	107.43	23.14	6.56	60.0	± 9.6 %
		Y	100.00	110.61	24.77		60.0	
		Z	100.00	109.57	24.26		60.0	
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	4.03	68.96	25.05	12.57	50.0	± 9.6 %
		Y	5.30	77.15	29.41		50.0	
		Z	4.06	68.52	24.65		50.0	
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	8.87	91.28	32.17	9.56	60.0	± 9.6 %
		Y	10.08	94.25	33.27		60.0	
		Z	8.65	90.32	31.77		60.0	
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	105.82	21.66	4.80	80.0	± 9.6 %
		Y	100.00	111.09	24.24		80.0	
		Z	100.00	108.42	22.93		80.0	
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	104.11	20.26	3.55	100.0	± 9.6 %
		Y	100.00	112.84	24.34		100.0	
		Z	100.00	107.37	21.76		100.0	
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	5.57	80.93	27.02	7.80	80.0	± 9.6 %
		Y	6.11	82.68	27.69		80.0	
		Z	5.53	80.55	26.85		80.0	
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	104.99	21.59	5.30	70.0	± 9.6 %
		Y	100.00	109.04	23.62		70.0	
		Z	100.00	107.17	22.68		70.0	
10031-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	0.46	62.47	6.17	1.88	100.0	± 9.6 %
		Y	100.00	111.97	22.67		100.0	
		Z	100.00	95.35	15.52		100.0	

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	0.19	60.00	3.78	1.17	100.0	± 9.6 %
		Y	100.00	120.03	24.95		100.0	
		Z	0.19	60.00	4.15		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	13.55	95.45	24.90	5.30	70.0	± 9.6 %
		Y	18.76	100.49	26.60		70.0	
		Z	13.36	94.67	24.55		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	2.70	75.51	16.71	1.88	100.0	± 9.6 %
		Y	4.49	82.47	19.70		100.0	
		Z	2.90	76.09	16.70		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	1.71	70.85	14.56	1.17	100.0	± 9.6 %
		Y	2.70	76.95	17.56		100.0	
		Z	1.78	71.24	14.48		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	22.62	103.29	27.18	5.30	70.0	± 9.6 %
		Y	32.35	108.98	28.96		70.0	
		Z	21.86	102.15	26.73		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	2.48	74.51	16.30	1.88	100.0	± 9.6 %
		Y	3.96	80.90	19.14		100.0	
		Z	2.61	74.90	16.23		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	1.74	71.34	14.88	1.17	100.0	± 9.6 %
		Y	2.75	77.52	17.90		100.0	
		Z	1.82	71.77	14.82		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.34	68.49	13.13	0.00	150.0	± 9.6 %
		Y	2.27	75.66	16.89		150.0	
		Z	1.29	68.35	12.80		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	34.99	94.66	19.93	7.78	50.0	± 9.6 %
		Y	100.00	108.11	23.89		50.0	
		Z	100.00	107.01	23.40		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.17	126.30	3.13	0.00	150.0	± 9.6 %
		Y	0.00	107.81	5.46		150.0	
		Z	0.15	126.17	2.27		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	10.11	79.88	18.52	13.80	25.0	± 9.6 %
		Y	23.48	91.75	22.45		25.0	
		Z	12.25	82.71	19.92		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	11.72	83.69	18.67	10.79	40.0	± 9.6 %
		Y	40.84	100.05	23.71		40.0	
		Z	15.78	87.97	20.48		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	18.86	95.31	25.05	9.03	50.0	± 9.6 %
		Y	26.98	101.35	27.04		50.0	
		Z	17.19	93.67	24.60		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	4.30	76.01	24.21	6.55	100.0	± 9.6 %
		Y	4.66	77.31	24.71		100.0	
		Z	4.30	75.85	24.15		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.10	64.51	15.41	0.61	110.0	± 9.6 %
		Y	1.22	65.59	16.19		110.0	
		Z	1.11	64.78	15.58		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	40.70	121.16	30.62	1.30	110.0	± 9.6 %
		Y	100.00	138.01	35.59		110.0	
		Z	76.47	130.66	32.92		110.0	

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	2.97	81.68	22.34	2.04	110.0	± 9.6 %
		Y	3.52	84.01	23.42		110.0	
		Z	3.16	82.63	22.73		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.54	66.50	16.38	0.49	100.0	± 9.6 %
		Y	4.60	66.81	16.49		100.0	
		Z	4.51	66.59	16.41		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.56	66.59	16.48	0.72	100.0	± 9.6 %
		Y	4.62	66.89	16.58		100.0	
		Z	4.53	66.70	16.52		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.84	66.85	16.71	0.86	100.0	± 9.6 %
		Y	4.89	67.12	16.79		100.0	
		Z	4.80	66.93	16.74		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.71	66.74	16.80	1.21	100.0	± 9.6 %
		Y	4.76	67.01	16.87		100.0	
		Z	4.67	66.83	16.83		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.72	66.77	16.97	1.46	100.0	± 9.6 %
		Y	4.77	67.02	17.03		100.0	
		Z	4.69	66.86	17.00		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.02	66.97	17.43	2.04	100.0	± 9.6 %
		Y	5.06	67.18	17.45		100.0	
		Z	4.99	67.10	17.47		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.06	66.99	17.64	2.55	100.0	± 9.6 %
		Y	5.10	67.19	17.65		100.0	
		Z	5.03	67.09	17.67		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.14	67.01	17.83	2.67	100.0	± 9.6 %
		Y	5.18	67.19	17.83		100.0	
		Z	5.11	67.11	17.86		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.84	66.62	17.27	1.99	100.0	± 9.6 %
		Y	4.89	66.85	17.31		100.0	
		Z	4.83	66.75	17.32		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.82	66.93	17.48	2.30	100.0	± 9.6 %
		Y	4.86	67.16	17.51		100.0	
		Z	4.80	67.06	17.53		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.88	67.11	17.81	2.83	100.0	± 9.6 %
		Y	4.92	67.32	17.83		100.0	
		Z	4.87	67.25	17.87		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.87	67.01	17.95	3.30	100.0	± 9.6 %
		Y	4.91	67.22	17.97		100.0	
		Z	4.87	67.19	18.02		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.90	67.11	18.25	3.82	90.0	± 9.6 %
		Y	4.95	67.32	18.26		90.0	
		Z	4.91	67.27	18.31		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.92	66.92	18.38	4.15	90.0	± 9.6 %
		Y	4.97	67.13	18.38		90.0	
		Z	4.94	67.11	18.46		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.95	66.99	18.48	4.30	90.0	± 9.6 %
		Y	5.00	67.21	18.49		90.0	
		Z	4.97	67.20	18.56		90.0	

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.61	63.26	9.90	0.00	150.0	± 9.6 %
		Y	0.87	67.43	13.01		150.0	
		Z	0.58	63.10	9.56		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	2.50	65.17	5.97	4.77	80.0	± 9.6 %
		Y	0.75	60.00	4.55		80.0	
		Z	0.72	60.00	4.31		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	107.54	23.21	6.56	60.0	± 9.6 %
		Y	100.00	110.64	24.80		60.0	
		Z	100.00	109.67	24.33		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.69	67.19	15.08	0.00	150.0	± 9.6 %
		Y	1.88	68.79	16.18		150.0	
		Z	1.71	67.59	15.23		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.65	67.13	15.04	0.00	150.0	± 9.6 %
		Y	1.84	68.75	16.15		150.0	
		Z	1.67	67.53	15.19		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	8.93	91.41	32.21	9.56	60.0	± 9.6 %
		Y	10.16	94.39	33.31		60.0	
		Z	8.70	90.44	31.80		60.0	
10100-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	2.94	69.72	16.26	0.00	150.0	± 9.6 %
		Y	3.18	71.08	17.07		150.0	
		Z	2.94	69.89	16.39		150.0	
10101-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.09	67.13	15.64	0.00	150.0	± 9.6 %
		Y	3.21	67.85	16.08		150.0	
		Z	3.07	67.21	15.70		150.0	
10102-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.20	67.14	15.76	0.00	150.0	± 9.6 %
		Y	3.32	67.82	16.17		150.0	
		Z	3.18	67.23	15.82		150.0	
10103-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	5.93	75.11	20.17	3.98	65.0	± 9.6 %
		Y	6.63	76.82	20.78		65.0	
		Z	5.91	75.14	20.21		65.0	
10104-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	5.89	73.03	20.08	3.98	65.0	± 9.6 %
		Y	6.25	73.91	20.36		65.0	
		Z	5.90	73.09	20.11		65.0	
10105-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.51	71.58	19.75	3.98	65.0	± 9.6 %
		Y	6.10	73.31	20.41		65.0	
		Z	5.86	72.81	20.30		65.0	
10108-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.55	69.01	16.09	0.00	150.0	± 9.6 %
		Y	2.75	70.30	16.89		150.0	
		Z	2.54	69.20	16.22		150.0	
10109-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.74	66.99	15.50	0.00	150.0	± 9.6 %
		Y	2.87	67.79	16.01		150.0	
		Z	2.72	67.11	15.56		150.0	
10110-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.04	68.09	15.59	0.00	150.0	± 9.6 %
		Y	2.23	69.47	16.51		150.0	
		Z	2.03	68.32	15.72		150.0	
10111-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.46	67.87	15.72	0.00	150.0	± 9.6 %
		Y	2.64	69.03	16.47		150.0	
		Z	2.45	68.15	15.81		150.0	

10112-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.87	67.02	15.59	0.00	150.0	± 9.6 %
		Y	3.00	67.79	16.07		150.0	
		Z	2.85	67.16	15.65		150.0	
10113-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.61	68.07	15.89	0.00	150.0	± 9.6 %
		Y	2.79	69.17	16.59		150.0	
		Z	2.61	68.36	15.98		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.01	67.03	16.34	0.00	150.0	± 9.6 %
		Y	5.06	67.33	16.45		150.0	
		Z	4.97	67.05	16.35		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.27	67.10	16.38	0.00	150.0	± 9.6 %
		Y	5.32	67.38	16.48		150.0	
		Z	5.22	67.11	16.39		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.09	67.20	16.35	0.00	150.0	± 9.6 %
		Y	5.14	67.50	16.46		150.0	
		Z	5.06	67.23	16.37		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	4.97	66.87	16.27	0.00	150.0	± 9.6 %
		Y	5.03	67.20	16.40		150.0	
		Z	4.94	66.93	16.31		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.35	67.31	16.50	0.00	150.0	± 9.6 %
		Y	5.39	67.55	16.57		150.0	
		Z	5.30	67.32	16.50		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.08	67.16	16.34	0.00	150.0	± 9.6 %
		Y	5.12	67.45	16.45		150.0	
		Z	5.04	67.20	16.36		150.0	
10140-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.23	67.13	15.67	0.00	150.0	± 9.6 %
		Y	3.35	67.82	16.08		150.0	
		Z	3.21	67.22	15.73		150.0	
10141-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.36	67.28	15.87	0.00	150.0	± 9.6 %
		Y	3.48	67.94	16.26		150.0	
		Z	3.34	67.38	15.93		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.80	67.92	15.04	0.00	150.0	± 9.6 %
		Y	2.02	69.71	16.23		150.0	
		Z	1.78	68.19	15.11		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.28	68.33	15.13	0.00	150.0	± 9.6 %
		Y	2.56	70.16	16.27		150.0	
		Z	2.27	68.61	15.13		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.03	65.81	13.36	0.00	150.0	± 9.6 %
		Y	2.22	67.14	14.29		150.0	
		Z	1.98	65.83	13.22		150.0	
10145-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	0.92	62.55	9.46	0.00	150.0	± 9.6 %
		Y	1.17	65.32	11.54		150.0	
		Z	0.84	61.98	8.80		150.0	
10146-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.39	62.93	9.23	0.00	150.0	± 9.6 %
		Y	1.99	66.57	11.19		150.0	
		Z	1.31	62.53	8.72		150.0	
10147-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.52	63.83	9.83	0.00	150.0	± 9.6 %
		Y	2.52	69.22	12.51		150.0	
		Z	1.42	63.36	9.28		150.0	

10149-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.75	67.05	15.55	0.00	150.0	± 9.6 %
		Y	2.88	67.86	16.07		150.0	
		Z	2.73	67.18	15.62		150.0	
10150-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.88	67.08	15.63	0.00	150.0	± 9.6 %
		Y	3.01	67.85	16.12		150.0	
		Z	2.86	67.22	15.70		150.0	
10151-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.32	77.90	21.36	3.98	65.0	± 9.6 %
		Y	6.91	79.14	21.77		65.0	
		Z	6.41	78.22	21.50		65.0	
10152-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	5.42	72.95	19.71	3.98	65.0	± 9.6 %
		Y	5.78	73.88	20.03		65.0	
		Z	5.43	73.04	19.72		65.0	
10153-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	5.81	74.06	20.59	3.98	65.0	± 9.6 %
		Y	6.20	74.97	20.87		65.0	
		Z	5.84	74.21	20.62		65.0	
10154-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.09	68.53	15.87	0.00	150.0	± 9.6 %
		Y	2.29	69.96	16.81		150.0	
		Z	2.08	68.78	15.99		150.0	
10155-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.46	67.89	15.74	0.00	150.0	± 9.6 %
		Y	2.64	69.05	16.49		150.0	
		Z	2.46	68.18	15.84		150.0	
10156-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.63	67.76	14.61	0.00	150.0	± 9.6 %
		Y	1.89	69.98	16.07		150.0	
		Z	1.61	67.98	14.61		150.0	
10157-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	1.84	66.10	13.16	0.00	150.0	± 9.6 %
		Y	2.08	67.93	14.40		150.0	
		Z	1.79	66.07	12.96		150.0	
10158-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.62	68.14	15.95	0.00	150.0	± 9.6 %
		Y	2.80	69.25	16.65		150.0	
		Z	2.62	68.44	16.04		150.0	
10159-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	1.94	66.53	13.44	0.00	150.0	± 9.6 %
		Y	2.21	68.50	14.73		150.0	
		Z	1.88	66.49	13.23		150.0	
10160-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.59	68.31	15.97	0.00	150.0	± 9.6 %
		Y	2.73	69.19	16.57		150.0	
		Z	2.58	68.51	16.08		150.0	
10161-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.77	67.03	15.54	0.00	150.0	± 9.6 %
		Y	2.91	67.84	16.05		150.0	
		Z	2.75	67.18	15.60		150.0	
10162-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.88	67.21	15.67	0.00	150.0	± 9.6 %
		Y	3.02	68.01	16.17		150.0	
		Z	2.86	67.38	15.74		150.0	
10166-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.37	69.04	18.77	3.01	150.0	± 9.6 %
		Y	3.72	71.09	19.82		150.0	
		Z	3.38	69.53	19.11		150.0	
10167-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.04	71.49	19.00	3.01	150.0	± 9.6 %
		Y	5.05	75.77	20.88		150.0	
		Z	4.12	72.30	19.44		150.0	

10168-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.56	74.09	20.53	3.01	150.0	± 9.6 %
		Y	5.99	79.40	22.74		150.0	
		Z	4.72	75.27	21.13		150.0	
10169-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.74	67.94	18.26	3.01	150.0	± 9.6 %
		Y	3.25	71.55	20.05		150.0	
		Z	2.77	68.38	18.59		150.0	
10170-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	3.65	73.29	20.42	3.01	150.0	± 9.6 %
		Y	6.00	83.03	24.31		150.0	
		Z	3.81	74.44	21.04		150.0	
10171-AAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	2.98	69.09	17.51	3.01	150.0	± 9.6 %
		Y	4.17	75.40	20.24		150.0	
		Z	3.05	69.77	17.92		150.0	
10172-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	6.26	85.95	26.48	6.02	65.0	± 9.6 %
		Y	13.49	101.43	31.66		65.0	
		Z	6.07	85.72	26.58		65.0	
10173-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	11.36	93.09	26.93	6.02	65.0	± 9.6 %
		Y	61.90	122.46	34.86		65.0	
		Z	13.00	96.00	28.02		65.0	
10174-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	8.36	86.77	24.30	6.02	65.0	± 9.6 %
		Y	35.10	110.72	31.17		65.0	
		Z	8.86	88.32	24.99		65.0	
10175-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.71	67.63	18.00	3.01	150.0	± 9.6 %
		Y	3.19	71.11	19.75		150.0	
		Z	2.74	68.04	18.32		150.0	
10176-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	3.66	73.32	20.43	3.01	150.0	± 9.6 %
		Y	6.01	83.07	24.33		150.0	
		Z	3.81	74.46	21.05		150.0	
10177-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.73	67.78	18.10	3.01	150.0	± 9.6 %
		Y	3.23	71.31	19.86		150.0	
		Z	2.76	68.20	18.41		150.0	
10178-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	3.63	73.10	20.31	3.01	150.0	± 9.6 %
		Y	5.90	82.67	24.15		150.0	
		Z	3.78	74.24	20.93		150.0	
10179-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.28	71.01	18.80	3.01	150.0	± 9.6 %
		Y	4.94	78.87	22.07		150.0	
		Z	3.38	71.91	19.31		150.0	
10180-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	2.98	69.03	17.47	3.01	150.0	± 9.6 %
		Y	4.15	75.28	20.17		150.0	
		Z	3.04	69.71	17.88		150.0	
10181-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.73	67.76	18.09	3.01	150.0	± 9.6 %
		Y	3.22	71.29	19.85		150.0	
		Z	2.75	68.18	18.41		150.0	
10182-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	3.62	73.08	20.30	3.01	150.0	± 9.6 %
		Y	5.88	82.63	24.13		150.0	
		Z	3.77	74.21	20.92		150.0	
10183-AAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	2.97	69.01	17.46	3.01	150.0	± 9.6 %
		Y	4.14	75.24	20.16		150.0	
		Z	3.04	69.68	17.87		150.0	

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.74	67.80	18.11	3.01	150.0	± 9.6 %
		Y	3.24	71.35	19.88		150.0	
		Z	2.77	68.22	18.43		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	3.64	73.15	20.34	3.01	150.0	± 9.6 %
		Y	5.93	82.75	24.19		150.0	
		Z	3.79	74.29	20.96		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	2.99	69.07	17.49	3.01	150.0	± 9.6 %
		Y	4.16	75.34	20.20		150.0	
		Z	3.05	69.75	17.90		150.0	
10187-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.75	67.86	18.18	3.01	150.0	± 9.6 %
		Y	3.25	71.43	19.96		150.0	
		Z	2.78	68.29	18.51		150.0	
10188-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	3.76	73.83	20.74	3.01	150.0	± 9.6 %
		Y	6.30	84.02	24.77		150.0	
		Z	3.92	75.04	21.38		150.0	
10189-AAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	3.05	69.47	17.77	3.01	150.0	± 9.6 %
		Y	4.32	76.05	20.59		150.0	
		Z	3.12	70.18	18.19		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.39	66.44	16.00	0.00	150.0	± 9.6 %
		Y	4.46	66.83	16.18		150.0	
		Z	4.36	66.53	16.02		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.55	66.74	16.13	0.00	150.0	± 9.6 %
		Y	4.63	67.12	16.30		150.0	
		Z	4.51	66.81	16.16		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.59	66.77	16.15	0.00	150.0	± 9.6 %
		Y	4.67	67.15	16.32		150.0	
		Z	4.55	66.84	16.18		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.39	66.48	16.01	0.00	150.0	± 9.6 %
		Y	4.46	66.87	16.19		150.0	
		Z	4.35	66.57	16.03		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.56	66.75	16.14	0.00	150.0	± 9.6 %
		Y	4.64	67.14	16.31		150.0	
		Z	4.53	66.83	16.17		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.59	66.78	16.16	0.00	150.0	± 9.6 %
		Y	4.67	67.16	16.33		150.0	
		Z	4.55	66.85	16.19		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.34	66.50	15.97	0.00	150.0	± 9.6 %
		Y	4.41	66.90	16.15		150.0	
		Z	4.30	66.59	15.99		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.56	66.72	16.13	0.00	150.0	± 9.6 %
		Y	4.63	67.10	16.30		150.0	
		Z	4.52	66.79	16.15		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.60	66.71	16.14	0.00	150.0	± 9.6 %
		Y	4.67	67.09	16.31		150.0	
		Z	4.56	66.79	16.17		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	4.94	66.87	16.27	0.00	150.0	± 9.6 %
		Y	5.00	67.20	16.40		150.0	
		Z	4.91	66.93	16.30		150.0	

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.26	67.15	16.43	0.00	150.0	± 9.6 %
		Y	5.29	67.39	16.51		150.0	
		Z	5.21	67.16	16.44		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	4.98	66.98	16.25	0.00	150.0	± 9.6 %
		Y	5.05	67.32	16.38		150.0	
		Z	4.95	67.03	16.28		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.65	65.82	14.94	0.00	150.0	± 9.6 %
		Y	2.77	66.54	15.42		150.0	
		Z	2.63	65.96	14.93		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	12.29	94.61	27.52	6.02	65.0	± 9.6 %
		Y	76.74	126.49	35.96		65.0	
		Z	14.23	97.75	28.67		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	11.60	92.16	26.09	6.02	65.0	± 9.6 %
		Y	58.51	119.10	33.33		65.0	
		Z	13.58	95.42	27.28		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	8.07	91.29	28.44	6.02	65.0	± 9.6 %
		Y	14.98	103.75	32.45		65.0	
		Z	8.37	92.43	29.01		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	11.46	93.21	26.98	6.02	65.0	± 9.6 %
		Y	62.74	122.68	34.92		65.0	
		Z	13.11	96.13	28.07		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	10.78	90.84	25.59	6.02	65.0	± 9.6 %
		Y	48.68	115.84	32.42		65.0	
		Z	12.46	93.85	26.71		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	7.66	90.18	27.97	6.02	65.0	± 9.6 %
		Y	13.86	102.08	31.86		65.0	
		Z	7.92	91.24	28.52		65.0	
10232-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	11.44	93.19	26.97	6.02	65.0	± 9.6 %
		Y	62.67	122.68	34.92		65.0	
		Z	13.08	96.11	28.07		65.0	
10233-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	10.75	90.81	25.58	6.02	65.0	± 9.6 %
		Y	48.50	115.79	32.41		65.0	
		Z	12.42	93.82	26.70		65.0	
10234-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	7.34	89.19	27.51	6.02	65.0	± 9.6 %
		Y	12.98	100.59	31.27		65.0	
		Z	7.57	90.21	28.04		65.0	
10235-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	11.45	93.23	26.99	6.02	65.0	± 9.6 %
		Y	63.03	122.79	34.95		65.0	
		Z	13.11	96.15	28.08		65.0	
10236-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	10.87	90.96	25.62	6.02	65.0	± 9.6 %
		Y	49.65	116.13	32.49		65.0	
		Z	12.57	93.99	26.75		65.0	
10237-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	7.67	90.24	28.00	6.02	65.0	± 9.6 %
		Y	13.91	102.19	31.90		65.0	
		Z	7.93	91.30	28.54		65.0	
10238-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	11.41	93.16	26.96	6.02	65.0	± 9.6 %
		Y	62.56	122.66	34.91		65.0	
		Z	13.06	96.08	28.06		65.0	

10239-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	10.72	90.78	25.57	6.02	65.0	± 9.6 %
		Y	48.29	115.74	32.40		65.0	
		Z	12.38	93.78	26.69		65.0	
10240-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	7.65	90.20	27.98	6.02	65.0	± 9.6 %
		Y	13.86	102.14	31.88		65.0	
		Z	7.91	91.26	28.53		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	7.49	79.94	24.73	6.98	65.0	± 9.6 %
		Y	9.15	84.52	26.53		65.0	
		Z	7.78	81.10	25.24		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.76	77.82	23.76	6.98	65.0	± 9.6 %
		Y	8.56	83.16	25.93		65.0	
		Z	7.57	80.56	24.94		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.55	74.73	23.33	6.98	65.0	± 9.6 %
		Y	6.44	78.27	24.91		65.0	
		Z	5.56	75.03	23.50		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	4.91	73.06	16.84	3.98	65.0	± 9.6 %
		Y	6.23	76.34	18.14		65.0	
		Z	4.96	73.17	16.71		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	4.78	72.39	16.50	3.98	65.0	± 9.6 %
		Y	5.96	75.43	17.72		65.0	
		Z	4.79	72.41	16.32		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	4.86	76.58	18.54	3.98	65.0	± 9.6 %
		Y	5.74	78.81	19.49		65.0	
		Z	4.75	76.10	18.16		65.0	
10247-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	4.54	72.63	17.68	3.98	65.0	± 9.6 %
		Y	5.00	73.89	18.23		65.0	
		Z	4.50	72.44	17.41		65.0	
10248-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	4.51	72.01	17.39	3.98	65.0	± 9.6 %
		Y	4.93	73.18	17.90		65.0	
		Z	4.45	71.77	17.09		65.0	
10249-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	6.38	81.20	21.41	3.98	65.0	± 9.6 %
		Y	7.34	83.11	22.13		65.0	
		Z	6.46	81.34	21.34		65.0	
10250-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	5.54	75.67	20.83	3.98	65.0	± 9.6 %
		Y	5.99	76.71	21.17		65.0	
		Z	5.60	75.87	20.83		65.0	
10251-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	5.22	73.28	19.41	3.98	65.0	± 9.6 %
		Y	5.60	74.26	19.76		65.0	
		Z	5.22	73.35	19.34		65.0	
10252-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	6.60	81.03	22.49	3.98	65.0	± 9.6 %
		Y	7.35	82.49	22.99		65.0	
		Z	6.74	81.46	22.63		65.0	
10253-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	5.32	72.45	19.46	3.98	65.0	± 9.6 %
		Y	5.67	73.38	19.78		65.0	
		Z	5.34	72.58	19.46		65.0	
10254-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	5.67	73.46	20.23	3.98	65.0	± 9.6 %
		Y	6.04	74.36	20.52		65.0	
		Z	5.70	73.62	20.25		65.0	

10255-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.00	77.17	21.28	3.98	65.0	± 9.6 %
		Y	6.54	78.36	21.67		65.0	
		Z	6.09	77.51	21.41		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	3.55	68.31	13.56	3.98	65.0	± 9.6 %
		Y	4.31	70.70	14.63		65.0	
		Z	3.47	67.95	13.18		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	3.46	67.65	13.15	3.98	65.0	± 9.6 %
		Y	4.12	69.78	14.12		65.0	
		Z	3.37	67.24	12.73		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	3.31	70.56	15.03	3.98	65.0	± 9.6 %
		Y	3.93	72.68	16.08		65.0	
		Z	3.14	69.68	14.40		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	4.95	73.85	18.86	3.98	65.0	± 9.6 %
		Y	5.40	75.01	19.32		65.0	
		Z	4.95	73.84	18.70		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	4.97	73.54	18.73	3.98	65.0	± 9.6 %
		Y	5.40	74.66	19.18		65.0	
		Z	4.96	73.50	18.55		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	6.09	80.15	21.50	3.98	65.0	± 9.6 %
		Y	6.88	81.79	22.11		65.0	
		Z	6.20	80.42	21.51		65.0	
10262-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	5.53	75.60	20.77	3.98	65.0	± 9.6 %
		Y	5.97	76.64	21.12		65.0	
		Z	5.58	75.79	20.77		65.0	
10263-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	5.21	73.26	19.40	3.98	65.0	± 9.6 %
		Y	5.59	74.24	19.76		65.0	
		Z	5.21	73.32	19.33		65.0	
10264-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	6.52	80.79	22.38	3.98	65.0	± 9.6 %
		Y	7.26	82.25	22.87		65.0	
		Z	6.65	81.20	22.51		65.0	
10265-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	5.42	72.95	19.72	3.98	65.0	± 9.6 %
		Y	5.78	73.89	20.03		65.0	
		Z	5.43	73.04	19.72		65.0	
10266-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	5.81	74.04	20.57	3.98	65.0	± 9.6 %
		Y	6.19	74.96	20.86		65.0	
		Z	5.84	74.19	20.60		65.0	
10267-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.31	77.85	21.33	3.98	65.0	± 9.6 %
		Y	6.90	79.09	21.75		65.0	
		Z	6.39	78.16	21.48		65.0	
10268-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	6.05	72.91	20.14	3.98	65.0	± 9.6 %
		Y	6.40	73.76	20.40		65.0	
		Z	6.06	73.00	20.17		65.0	
10269-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	6.03	72.50	20.01	3.98	65.0	± 9.6 %
		Y	6.37	73.34	20.27		65.0	
		Z	6.05	72.60	20.04		65.0	
10270-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.14	75.03	20.36	3.98	65.0	± 9.6 %
		Y	6.59	76.06	20.69		65.0	
		Z	6.19	75.26	20.47		65.0	

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.45	66.18	14.83	0.00	150.0	± 9.6 %
		Y	2.58	67.05	15.42		150.0	
		Z	2.44	66.39	14.86		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.45	67.15	14.79	0.00	150.0	± 9.6 %
		Y	1.65	68.98	16.07		150.0	
		Z	1.46	67.49	14.94		150.0	
10277-CAA	PHS (QPSK)	X	2.05	60.99	6.61	9.03	50.0	± 9.6 %
		Y	2.14	61.42	6.98		50.0	
		Z	2.15	61.21	6.84		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	3.88	69.24	13.58	9.03	50.0	± 9.6 %
		Y	4.38	71.00	14.54		50.0	
		Z	3.84	68.69	13.30		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	4.00	69.55	13.78	9.03	50.0	± 9.6 %
		Y	4.51	71.31	14.73		50.0	
		Z	3.94	68.96	13.47		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.07	65.69	11.52	0.00	150.0	± 9.6 %
		Y	1.53	70.26	14.37		150.0	
		Z	1.01	65.37	11.10		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.60	63.10	9.79	0.00	150.0	± 9.6 %
		Y	0.85	67.12	12.84		150.0	
		Z	0.57	62.93	9.45		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	0.74	66.24	11.75	0.00	150.0	± 9.6 %
		Y	1.46	75.17	16.76		150.0	
		Z	0.73	66.36	11.54		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	1.24	72.67	15.10	0.00	150.0	± 9.6 %
		Y	5.17	93.05	23.35		150.0	
		Z	1.42	74.33	15.45		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	9.92	85.20	23.12	9.03	50.0	± 9.6 %
		Y	9.50	84.91	23.23		50.0	
		Z	10.83	86.02	23.20		50.0	
10297-AAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.57	69.12	16.16	0.00	150.0	± 9.6 %
		Y	2.77	70.42	16.97		150.0	
		Z	2.55	69.32	16.30		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.27	65.66	12.33	0.00	150.0	± 9.6 %
		Y	1.58	68.64	14.32		150.0	
		Z	1.21	65.43	11.98		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.00	66.49	12.18	0.00	150.0	± 9.6 %
		Y	3.31	72.57	14.96		150.0	
		Z	1.99	66.70	12.06		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.58	63.09	9.74	0.00	150.0	± 9.6 %
		Y	1.99	65.54	11.08		150.0	
		Z	1.51	62.92	9.42		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.69	65.76	17.48	4.17	50.0	± 9.6 %
		Y	4.64	65.55	17.37		50.0	
		Z	4.67	65.93	17.49		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.09	65.93	17.93	4.96	50.0	± 9.6 %
		Y	5.12	66.18	18.09		50.0	
		Z	5.09	66.17	17.98		50.0	

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.84	65.58	17.76	4.96	50.0	± 9.6 %
		Y	4.88	65.83	17.92		50.0	
		Z	4.85	65.84	17.81		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.65	65.44	17.26	4.17	50.0	± 9.6 %
		Y	4.69	65.73	17.44		50.0	
		Z	4.65	65.69	17.31		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.44	68.14	19.56	6.02	35.0	± 9.6 %
		Y	4.41	68.01	19.60		35.0	
		Z	4.62	69.17	19.86		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.68	66.85	19.08	6.02	35.0	± 9.6 %
		Y	4.67	66.81	19.12		35.0	
		Z	4.77	67.53	19.30		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.59	67.04	19.05	6.02	35.0	± 9.6 %
		Y	4.58	66.99	19.09		35.0	
		Z	4.69	67.75	19.27		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.57	67.28	19.21	6.02	35.0	± 9.6 %
		Y	4.56	67.23	19.25		35.0	
		Z	4.69	68.04	19.45		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.73	67.04	19.22	6.02	35.0	± 9.6 %
		Y	4.72	66.99	19.24		35.0	
		Z	4.82	67.69	19.42		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.63	66.94	19.07	6.02	35.0	± 9.6 %
		Y	4.63	66.90	19.11		35.0	
		Z	4.74	67.65	19.30		35.0	
10311-AAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	2.92	68.38	15.85	0.00	150.0	± 9.6 %
		Y	3.14	69.67	16.60		150.0	
		Z	2.91	68.56	15.97		150.0	
10313-AAA	iDEN 1:3	X	2.95	70.69	14.66	6.99	70.0	± 9.6 %
		Y	3.98	74.43	16.48		70.0	
		Z	3.15	71.48	15.14		70.0	
10314-AAA	iDEN 1:6	X	5.04	79.92	21.00	10.00	30.0	± 9.6 %
		Y	6.78	84.92	23.16		30.0	
		Z	5.73	81.64	21.73		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	0.97	63.25	14.68	0.17	150.0	± 9.6 %
		Y	1.08	64.33	15.52		150.0	
		Z	0.98	63.49	14.85		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.44	66.48	16.13	0.17	150.0	± 9.6 %
		Y	4.51	66.82	16.27		150.0	
		Z	4.41	66.56	16.16		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.44	66.48	16.13	0.17	150.0	± 9.6 %
		Y	4.51	66.82	16.27		150.0	
		Z	4.41	66.56	16.16		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.53	66.78	16.11	0.00	150.0	± 9.6 %
		Y	4.61	67.15	16.28		150.0	
		Z	4.49	66.84	16.14		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.27	67.03	16.34	0.00	150.0	± 9.6 %
		Y	5.28	67.17	16.36		150.0	
		Z	5.22	67.01	16.33		150.0	

10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.50	67.24	16.31	0.00	150.0	± 9.6 %
		Y	5.56	67.57	16.43		150.0	
		Z	5.47	67.27	16.33		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.07	65.69	11.52	0.00	115.0	± 9.6 %
		Y	1.53	70.26	14.37		115.0	
		Z	1.01	65.37	11.10		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.07	65.69	11.52	0.00	115.0	± 9.6 %
		Y	1.53	70.26	14.37		115.0	
		Z	1.01	65.37	11.10		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	23.46	102.23	25.39	0.00	100.0	± 9.6 %
		Y	100.00	115.29	27.21		100.0	
		Z	100.00	120.73	29.57		100.0	
10410-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	X	55.06	113.36	27.76	3.23	80.0	± 9.6 %
		Y	100.00	120.25	29.20		80.0	
		Z	100.00	122.59	30.17		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	0.91	62.47	14.11	0.00	150.0	± 9.6 %
		Y	1.00	63.52	14.99		150.0	
		Z	0.91	62.68	14.27		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.39	66.47	16.07	0.00	150.0	± 9.6 %
		Y	4.46	66.85	16.24		150.0	
		Z	4.36	66.56	16.10		150.0	
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.39	66.47	16.07	0.00	150.0	± 9.6 %
		Y	4.46	66.85	16.24		150.0	
		Z	4.36	66.56	16.10		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.38	66.64	16.10	0.00	150.0	± 9.6 %
		Y	4.46	67.04	16.28		150.0	
		Z	4.35	66.74	16.14		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.40	66.59	16.10	0.00	150.0	± 9.6 %
		Y	4.48	66.98	16.27		150.0	
		Z	4.37	66.68	16.13		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.51	66.58	16.11	0.00	150.0	± 9.6 %
		Y	4.59	66.96	16.28		150.0	
		Z	4.48	66.67	16.14		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.67	66.88	16.22	0.00	150.0	± 9.6 %
		Y	4.74	67.25	16.38		150.0	
		Z	4.62	66.95	16.24		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.59	66.83	16.19	0.00	150.0	± 9.6 %
		Y	4.67	67.21	16.36		150.0	
		Z	4.55	66.90	16.22		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.20	67.12	16.39	0.00	150.0	± 9.6 %
		Y	5.25	67.39	16.48		150.0	
		Z	5.17	67.16	16.41		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.23	67.21	16.43	0.00	150.0	± 9.6 %
		Y	5.26	67.44	16.50		150.0	
		Z	5.19	67.25	16.45		150.0	

10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.23	67.14	16.39	0.00	150.0	± 9.6 %
		Y	5.27	67.40	16.48		150.0	
		Z	5.18	67.14	16.40		150.0	
10430-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.20	71.33	18.23	0.00	150.0	± 9.6 %
		Y	4.38	72.12	18.67		150.0	
		Z	4.24	71.88	18.40		150.0	
10431-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.04	67.01	16.00	0.00	150.0	± 9.6 %
		Y	4.14	67.47	16.25		150.0	
		Z	4.00	67.12	16.01		150.0	
10432-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.35	66.89	16.12	0.00	150.0	± 9.6 %
		Y	4.44	67.29	16.32		150.0	
		Z	4.31	66.97	16.15		150.0	
10433-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.61	66.86	16.21	0.00	150.0	± 9.6 %
		Y	4.68	67.24	16.38		150.0	
		Z	4.57	66.94	16.24		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.31	72.22	18.13	0.00	150.0	± 9.6 %
		Y	4.57	73.29	18.72		150.0	
		Z	4.37	72.83	18.28		150.0	
10435-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	46.38	110.94	27.14	3.23	80.0	± 9.6 %
		Y	100.00	119.98	29.08		80.0	
		Z	100.00	122.32	30.05		80.0	
10447-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.31	66.87	15.09	0.00	150.0	± 9.6 %
		Y	3.44	67.57	15.54		150.0	
		Z	3.26	66.97	15.03		150.0	
10448-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	3.89	66.79	15.86	0.00	150.0	± 9.6 %
		Y	3.98	67.27	16.12		150.0	
		Z	3.85	66.90	15.88		150.0	
10449-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.17	66.71	16.01	0.00	150.0	± 9.6 %
		Y	4.26	67.14	16.23		150.0	
		Z	4.14	66.80	16.04		150.0	
10450-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.38	66.63	16.06	0.00	150.0	± 9.6 %
		Y	4.46	67.03	16.25		150.0	
		Z	4.35	66.71	16.09		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.16	66.87	14.55	0.00	150.0	± 9.6 %
		Y	3.31	67.71	15.09		150.0	
		Z	3.09	66.88	14.41		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.10	67.71	16.58	0.00	150.0	± 9.6 %
		Y	6.13	67.95	16.63		150.0	
		Z	6.10	67.81	16.63		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.68	65.12	15.78	0.00	150.0	± 9.6 %
		Y	3.75	65.52	15.96		150.0	
		Z	3.67	65.23	15.81		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.88	71.11	17.24	0.00	150.0	± 9.6 %
		Y	4.15	72.36	17.96		150.0	
		Z	3.88	71.47	17.22		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	5.03	68.93	18.26	0.00	150.0	± 9.6 %
		Y	5.12	69.27	18.40		150.0	
		Z	5.02	69.28	18.31		150.0	

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.76	67.21	14.98	0.00	150.0	± 9.6 %
		Y	0.95	70.10	17.17		150.0	
		Z	0.78	67.84	15.35		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	124.22	31.05	3.29	80.0	± 9.6 %
		Y	100.00	126.59	32.12		80.0	
		Z	100.00	126.67	32.13		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.13	62.20	9.29	3.23	80.0	± 9.6 %
		Y	1.76	66.14	10.65		80.0	
		Z	1.32	63.88	10.13		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.91	60.00	7.67	3.23	80.0	± 9.6 %
		Y	0.95	60.52	7.63		80.0	
		Z	0.89	60.00	7.73		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	47.59	111.65	27.34	3.23	80.0	± 9.6 %
		Y	100.00	123.29	30.45		80.0	
		Z	100.00	123.26	30.40		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.05	61.52	8.89	3.23	80.0	± 9.6 %
		Y	1.46	64.47	9.90		80.0	
		Z	1.18	62.83	9.59		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.91	60.00	7.62	3.23	80.0	± 9.6 %
		Y	0.90	60.08	7.36		80.0	
		Z	0.89	60.00	7.68		80.0	
10467-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	72.09	117.06	28.59	3.23	80.0	± 9.6 %
		Y	100.00	123.66	30.60		80.0	
		Z	100.00	123.63	30.56		80.0	
10468-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.07	61.70	9.00	3.23	80.0	± 9.6 %
		Y	1.53	64.89	10.09		80.0	
		Z	1.22	63.12	9.74		80.0	
10469-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.91	60.00	7.62	3.23	80.0	± 9.6 %
		Y	0.90	60.09	7.36		80.0	
		Z	0.89	60.00	7.68		80.0	
10470-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	74.02	117.39	28.66	3.23	80.0	± 9.6 %
		Y	100.00	123.68	30.61		80.0	
		Z	100.00	123.65	30.56		80.0	
10471-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.07	61.65	8.96	3.23	80.0	± 9.6 %
		Y	1.51	64.78	10.03		80.0	
		Z	1.21	63.05	9.70		80.0	
10472-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.91	60.00	7.61	3.23	80.0	± 9.6 %
		Y	0.89	60.04	7.32		80.0	
		Z	0.89	60.00	7.66		80.0	
10473-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	72.58	117.11	28.59	3.23	80.0	± 9.6 %
		Y	100.00	123.64	30.59		80.0	
		Z	100.00	123.61	30.54		80.0	
10474-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.06	61.62	8.95	3.23	80.0	± 9.6 %
		Y	1.50	64.73	10.01		80.0	
		Z	1.20	63.02	9.68		80.0	
10475-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.91	60.00	7.61	3.23	80.0	± 9.6 %
		Y	0.89	60.02	7.32		80.0	
		Z	0.89	60.00	7.66		80.0	

10477-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.04	61.46	8.85	3.23	80.0	± 9.6 %
		Y	1.44	64.36	9.83		80.0	
		Z	1.17	62.77	9.54		80.0	
10478-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.91	60.00	7.60	3.23	80.0	± 9.6 %
		Y	0.89	60.00	7.29		80.0	
		Z	0.89	60.00	7.65		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	8.21	87.49	22.94	3.23	80.0	± 9.6 %
		Y	20.18	101.14	27.13		80.0	
		Z	18.46	99.74	26.54		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	5.14	76.02	17.14	3.23	80.0	± 9.6 %
		Y	17.56	91.22	21.83		80.0	
		Z	8.18	81.93	19.01		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.78	71.70	15.15	3.23	80.0	± 9.6 %
		Y	9.36	82.53	18.82		80.0	
		Z	4.98	75.18	16.32		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.35	69.25	15.02	2.23	80.0	± 9.6 %
		Y	3.01	72.46	16.59		80.0	
		Z	2.33	69.25	14.80		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.09	69.06	14.42	2.23	80.0	± 9.6 %
		Y	4.90	74.92	16.84		80.0	
		Z	3.31	69.99	14.61		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.93	68.12	14.03	2.23	80.0	± 9.6 %
		Y	4.36	73.23	16.22		80.0	
		Z	3.05	68.75	14.10		80.0	
10485-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.95	72.33	17.49	2.23	80.0	± 9.6 %
		Y	3.47	74.53	18.53		80.0	
		Z	3.08	73.09	17.68		80.0	
10486-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.76	67.89	15.02	2.23	80.0	± 9.6 %
		Y	3.16	69.70	15.94		80.0	
		Z	2.75	68.00	14.88		80.0	
10487-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.75	67.50	14.83	2.23	80.0	± 9.6 %
		Y	3.13	69.21	15.71		80.0	
		Z	2.74	67.55	14.66		80.0	
10488-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.27	71.87	18.23	2.23	80.0	± 9.6 %
		Y	3.61	73.22	18.84		80.0	
		Z	3.35	72.44	18.47		80.0	
10489-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.21	68.44	16.77	2.23	80.0	± 9.6 %
		Y	3.45	69.44	17.24		80.0	
		Z	3.25	68.82	16.89		80.0	
10490-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.29	68.29	16.72	2.23	80.0	± 9.6 %
		Y	3.53	69.24	17.16		80.0	
		Z	3.33	68.65	16.82		80.0	
10491-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.51	70.39	17.81	2.23	80.0	± 9.6 %
		Y	3.78	71.45	18.28		80.0	
		Z	3.55	70.76	17.99		80.0	
10492-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.56	67.76	16.86	2.23	80.0	± 9.6 %
		Y	3.76	68.54	17.20		80.0	
		Z	3.58	68.03	16.97		80.0	

10493-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.62	67.64	16.82	2.23	80.0	± 9.6 %
		Y	3.82	68.40	17.14		80.0	
		Z	3.64	67.90	16.91		80.0	
10494-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.79	71.83	18.26	2.23	80.0	± 9.6 %
		Y	4.13	73.06	18.79		80.0	
		Z	3.85	72.23	18.46		80.0	
10495-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.59	68.11	17.06	2.23	80.0	± 9.6 %
		Y	3.79	68.91	17.40		80.0	
		Z	3.61	68.36	17.17		80.0	
10496-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.67	67.87	17.00	2.23	80.0	± 9.6 %
		Y	3.86	68.62	17.31		80.0	
		Z	3.69	68.11	17.10		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.45	63.41	11.17	2.23	80.0	± 9.6 %
		Y	1.92	66.56	12.95		80.0	
		Z	1.35	62.71	10.54		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.28	60.00	8.33	2.23	80.0	± 9.6 %
		Y	1.38	60.59	8.91		80.0	
		Z	1.25	60.00	8.01		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.30	60.00	8.19	2.23	80.0	± 9.6 %
		Y	1.33	60.08	8.49		80.0	
		Z	1.27	60.00	7.87		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.04	71.93	17.72	2.23	80.0	± 9.6 %
		Y	3.46	73.67	18.54		80.0	
		Z	3.15	72.64	17.94		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.98	68.33	15.79	2.23	80.0	± 9.6 %
		Y	3.31	69.74	16.50		80.0	
		Z	3.01	68.63	15.79		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.03	68.16	15.65	2.23	80.0	± 9.6 %
		Y	3.36	69.55	16.35		80.0	
		Z	3.05	68.42	15.63		80.0	
10503-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.23	71.65	18.12	2.23	80.0	± 9.6 %
		Y	3.56	73.00	18.74		80.0	
		Z	3.30	72.21	18.35		80.0	
10504-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.19	68.33	16.71	2.23	80.0	± 9.6 %
		Y	3.43	69.33	17.17		80.0	
		Z	3.23	68.71	16.82		80.0	
10505-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.27	68.19	16.66	2.23	80.0	± 9.6 %
		Y	3.51	69.14	17.10		80.0	
		Z	3.31	68.54	16.75		80.0	
10506-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.76	71.67	18.18	2.23	80.0	± 9.6 %
		Y	4.10	72.90	18.71		80.0	
		Z	3.81	72.07	18.38		80.0	
10507-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.57	68.04	17.02	2.23	80.0	± 9.6 %
		Y	3.78	68.84	17.36		80.0	
		Z	3.59	68.29	17.13		80.0	

10508-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.65	67.79	16.95	2.23	80.0	± 9.6 %
		Y	3.85	68.55	17.26		80.0	
		Z	3.67	68.04	17.05		80.0	
10509-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.11	70.47	17.71	2.23	80.0	± 9.6 %
		Y	4.41	71.52	18.16		80.0	
		Z	4.14	70.76	17.87		80.0	
10510-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.05	67.79	17.05	2.23	80.0	± 9.6 %
		Y	4.24	68.50	17.33		80.0	
		Z	4.06	67.96	17.14		80.0	
10511-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.11	67.57	17.00	2.23	80.0	± 9.6 %
		Y	4.30	68.25	17.26		80.0	
		Z	4.12	67.74	17.08		80.0	
10512-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.27	71.92	18.15	2.23	80.0	± 9.6 %
		Y	4.64	73.17	18.68		80.0	
		Z	4.32	72.22	18.32		80.0	
10513-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.94	68.01	17.14	2.23	80.0	± 9.6 %
		Y	4.13	68.75	17.43		80.0	
		Z	3.95	68.18	17.23		80.0	
10514-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.97	67.63	17.03	2.23	80.0	± 9.6 %
		Y	4.15	68.33	17.30		80.0	
		Z	3.98	67.79	17.12		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.87	62.63	14.14	0.00	150.0	± 9.6 %
		Y	0.97	63.74	15.08		150.0	
		Z	0.87	62.85	14.30		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.49	69.66	15.70	0.00	150.0	± 9.6 %
		Y	0.68	73.95	19.23		150.0	
		Z	0.52	70.86	16.45		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.71	64.33	14.51	0.00	150.0	± 9.6 %
		Y	0.83	66.01	15.95		150.0	
		Z	0.72	64.67	14.76		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.38	66.55	16.05	0.00	150.0	± 9.6 %
		Y	4.46	66.94	16.23		150.0	
		Z	4.35	66.64	16.08		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.55	66.77	16.16	0.00	150.0	± 9.6 %
		Y	4.62	67.14	16.33		150.0	
		Z	4.51	66.84	16.19		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.40	66.71	16.07	0.00	150.0	± 9.6 %
		Y	4.48	67.10	16.26		150.0	
		Z	4.37	66.78	16.10		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.34	66.70	16.06	0.00	150.0	± 9.6 %
		Y	4.42	67.10	16.25		150.0	
		Z	4.30	66.76	16.08		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.40	66.82	16.16	0.00	150.0	± 9.6 %
		Y	4.48	67.21	16.34		150.0	
		Z	4.36	66.90	16.19		150.0	

10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.29	66.70	16.01	0.00	150.0	± 9.6 %
		Y	4.37	67.12	16.22		150.0	
		Z	4.26	66.81	16.06		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.34	66.74	16.12	0.00	150.0	± 9.6 %
		Y	4.42	67.13	16.31		150.0	
		Z	4.30	66.82	16.16		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.34	65.80	15.73	0.00	150.0	± 9.6 %
		Y	4.43	66.22	15.92		150.0	
		Z	4.32	65.90	15.77		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.50	66.14	15.86	0.00	150.0	± 9.6 %
		Y	4.58	66.55	16.05		150.0	
		Z	4.46	66.22	15.90		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.42	66.09	15.80	0.00	150.0	± 9.6 %
		Y	4.50	66.52	16.00		150.0	
		Z	4.38	66.18	15.84		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.44	66.11	15.83	0.00	150.0	± 9.6 %
		Y	4.52	66.53	16.03		150.0	
		Z	4.40	66.19	15.87		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.44	66.11	15.83	0.00	150.0	± 9.6 %
		Y	4.52	66.53	16.03		150.0	
		Z	4.40	66.19	15.87		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.42	66.18	15.83	0.00	150.0	± 9.6 %
		Y	4.50	66.61	16.03		150.0	
		Z	4.37	66.25	15.86		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.29	66.04	15.76	0.00	150.0	± 9.6 %
		Y	4.37	66.48	15.97		150.0	
		Z	4.25	66.11	15.79		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.44	66.17	15.83	0.00	150.0	± 9.6 %
		Y	4.53	66.60	16.03		150.0	
		Z	4.41	66.26	15.87		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	4.98	66.20	15.91	0.00	150.0	± 9.6 %
		Y	5.05	66.57	16.06		150.0	
		Z	4.95	66.26	15.95		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.05	66.39	16.00	0.00	150.0	± 9.6 %
		Y	5.11	66.72	16.13		150.0	
		Z	5.01	66.43	16.03		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	4.92	66.34	15.95	0.00	150.0	± 9.6 %
		Y	4.99	66.70	16.10		150.0	
		Z	4.89	66.40	15.99		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	4.98	66.30	15.94	0.00	150.0	± 9.6 %
		Y	5.04	66.66	16.08		150.0	
		Z	4.95	66.35	15.97		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.06	66.31	15.98	0.00	150.0	± 9.6 %
		Y	5.12	66.65	16.12		150.0	
		Z	5.02	66.35	16.01		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	4.99	66.30	16.00	0.00	150.0	± 9.6 %
		Y	5.05	66.64	16.13		150.0	
		Z	4.95	66.33	16.02		150.0	

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	4.97	66.19	15.93	0.00	150.0	± 9.6 %
		Y	5.03	66.55	16.07		150.0	
		Z	4.93	66.22	15.95		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.12	66.28	15.99	0.00	150.0	± 9.6 %
		Y	5.19	66.62	16.12		150.0	
		Z	5.09	66.32	16.02		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.19	66.29	16.02	0.00	150.0	± 9.6 %
		Y	5.25	66.63	16.15		150.0	
		Z	5.15	66.34	16.05		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.31	66.31	15.91	0.00	150.0	± 9.6 %
		Y	5.37	66.66	16.05		150.0	
		Z	5.28	66.35	15.94		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.50	66.75	16.09	0.00	150.0	± 9.6 %
		Y	5.54	67.02	16.18		150.0	
		Z	5.47	66.79	16.11		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.36	66.48	15.97	0.00	150.0	± 9.6 %
		Y	5.42	66.83	16.10		150.0	
		Z	5.33	66.50	15.98		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.43	66.54	15.99	0.00	150.0	± 9.6 %
		Y	5.49	66.87	16.11		150.0	
		Z	5.40	66.57	16.01		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.66	67.42	16.40	0.00	150.0	± 9.6 %
		Y	5.65	67.55	16.42		150.0	
		Z	5.60	67.37	16.38		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.40	66.56	16.02	0.00	150.0	± 9.6 %
		Y	5.45	66.87	16.13		150.0	
		Z	5.37	66.62	16.05		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.39	66.55	15.97	0.00	150.0	± 9.6 %
		Y	5.45	66.88	16.09		150.0	
		Z	5.35	66.53	15.97		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.32	66.38	15.89	0.00	150.0	± 9.6 %
		Y	5.38	66.76	16.04		150.0	
		Z	5.29	66.43	15.92		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.39	66.39	15.93	0.00	150.0	± 9.6 %
		Y	5.45	66.75	16.07		150.0	
		Z	5.36	66.42	15.95		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.72	66.67	16.01	0.00	150.0	± 9.6 %
		Y	5.77	67.00	16.12		150.0	
		Z	5.70	66.69	16.02		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.84	66.96	16.13	0.00	150.0	± 9.6 %
		Y	5.88	67.25	16.23		150.0	
		Z	5.81	66.97	16.14		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.87	67.02	16.15	0.00	150.0	± 9.6 %
		Y	5.91	67.31	16.25		150.0	
		Z	5.84	67.04	16.17		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.83	66.90	16.11	0.00	150.0	± 9.6 %
		Y	5.87	67.22	16.22		150.0	
		Z	5.80	66.91	16.13		150.0	

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.87	67.06	16.20	0.00	150.0	± 9.6 %
		Y	5.91	67.36	16.31		150.0	
		Z	5.83	67.06	16.21		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.86	66.91	16.17	0.00	150.0	± 9.6 %
		Y	5.92	67.23	16.28		150.0	
		Z	5.83	66.92	16.18		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.80	66.89	16.20	0.00	150.0	± 9.6 %
		Y	5.84	67.19	16.30		150.0	
		Z	5.77	66.91	16.21		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.89	67.20	16.35	0.00	150.0	± 9.6 %
		Y	5.93	67.48	16.44		150.0	
		Z	5.84	67.16	16.34		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.00	67.15	16.29	0.00	150.0	± 9.6 %
		Y	6.02	67.38	16.35		150.0	
		Z	5.93	67.06	16.25		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.70	66.60	16.19	0.46	150.0	± 9.6 %
		Y	4.77	66.96	16.34		150.0	
		Z	4.67	66.68	16.22		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.92	67.06	16.53	0.46	150.0	± 9.6 %
		Y	4.99	67.39	16.67		150.0	
		Z	4.88	67.12	16.55		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.75	66.88	16.33	0.46	150.0	± 9.6 %
		Y	4.82	67.22	16.47		150.0	
		Z	4.71	66.94	16.35		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.79	67.31	16.72	0.46	150.0	± 9.6 %
		Y	4.86	67.67	16.87		150.0	
		Z	4.75	67.38	16.75		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.66	66.64	16.08	0.46	150.0	± 9.6 %
		Y	4.73	66.98	16.23		150.0	
		Z	4.62	66.69	16.09		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.76	67.45	16.81	0.46	150.0	± 9.6 %
		Y	4.83	67.82	16.96		150.0	
		Z	4.73	67.57	16.86		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.78	67.26	16.71	0.46	150.0	± 9.6 %
		Y	4.85	67.62	16.86		150.0	
		Z	4.74	67.35	16.75		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.05	63.78	14.98	0.46	130.0	± 9.6 %
		Y	1.16	64.84	15.77		130.0	
		Z	1.06	64.03	15.14		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.06	64.35	15.34	0.46	130.0	± 9.6 %
		Y	1.17	65.47	16.16		130.0	
		Z	1.07	64.63	15.52		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	1.81	84.33	21.65	0.46	130.0	± 9.6 %
		Y	2.93	92.85	25.80		130.0	
		Z	2.19	87.52	22.91		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.15	70.21	18.29	0.46	130.0	± 9.6 %
		Y	1.33	72.12	19.55		130.0	
		Z	1.19	70.90	18.68		130.0	

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.49	66.39	16.24	0.46	130.0	± 9.6 %
		Y	4.55	66.72	16.36		130.0	
		Z	4.46	66.48	16.26		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.51	66.57	16.31	0.46	130.0	± 9.6 %
		Y	4.58	66.91	16.44		130.0	
		Z	4.48	66.67	16.34		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.70	66.85	16.48	0.46	130.0	± 9.6 %
		Y	4.77	67.17	16.60		130.0	
		Z	4.67	66.93	16.51		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.60	67.01	16.59	0.46	130.0	± 9.6 %
		Y	4.67	67.35	16.72		130.0	
		Z	4.57	67.10	16.62		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.36	66.21	15.83	0.46	130.0	± 9.6 %
		Y	4.42	66.54	15.97		130.0	
		Z	4.32	66.26	15.84		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.40	66.27	15.86	0.46	130.0	± 9.6 %
		Y	4.46	66.59	16.00		130.0	
		Z	4.36	66.33	15.88		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.50	67.05	16.53	0.46	130.0	± 9.6 %
		Y	4.57	67.39	16.67		130.0	
		Z	4.47	67.15	16.57		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.29	65.96	15.60	0.46	130.0	± 9.6 %
		Y	4.35	66.28	15.74		130.0	
		Z	4.25	66.00	15.61		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.49	66.39	16.24	0.46	130.0	± 9.6 %
		Y	4.55	66.72	16.36		130.0	
		Z	4.46	66.48	16.26		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.51	66.57	16.31	0.46	130.0	± 9.6 %
		Y	4.58	66.91	16.44		130.0	
		Z	4.48	66.67	16.34		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.70	66.85	16.48	0.46	130.0	± 9.6 %
		Y	4.77	67.17	16.60		130.0	
		Z	4.67	66.93	16.51		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.60	67.01	16.59	0.46	130.0	± 9.6 %
		Y	4.67	67.35	16.72		130.0	
		Z	4.57	67.10	16.62		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.36	66.21	15.83	0.46	130.0	± 9.6 %
		Y	4.42	66.54	15.97		130.0	
		Z	4.32	66.26	15.84		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.40	66.27	15.86	0.46	130.0	± 9.6 %
		Y	4.46	66.59	16.00		130.0	
		Z	4.36	66.33	15.88		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.50	67.05	16.53	0.46	130.0	± 9.6 %
		Y	4.57	67.39	16.67		130.0	
		Z	4.47	67.15	16.57		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.29	65.96	15.60	0.46	130.0	± 9.6 %
		Y	4.35	66.28	15.74		130.0	
		Z	4.25	66.00	15.61		130.0	

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.64	66.47	16.35	0.46	130.0	± 9.6 %
		Y	4.70	66.79	16.47		130.0	
		Z	4.61	66.56	16.38		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.78	66.80	16.49	0.46	130.0	± 9.6 %
		Y	4.84	67.11	16.60		130.0	
		Z	4.75	66.87	16.51		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.70	66.68	16.35	0.46	130.0	± 9.6 %
		Y	4.76	67.00	16.47		130.0	
		Z	4.66	66.75	16.37		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.76	66.86	16.52	0.46	130.0	± 9.6 %
		Y	4.82	67.18	16.63		130.0	
		Z	4.72	66.94	16.54		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.72	66.81	16.41	0.46	130.0	± 9.6 %
		Y	4.78	67.13	16.53		130.0	
		Z	4.68	66.89	16.44		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.66	66.80	16.40	0.46	130.0	± 9.6 %
		Y	4.72	67.12	16.53		130.0	
		Z	4.62	66.87	16.43		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.60	66.68	16.27	0.46	130.0	± 9.6 %
		Y	4.67	67.01	16.40		130.0	
		Z	4.57	66.74	16.29		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.59	66.93	16.55	0.46	130.0	± 9.6 %
		Y	4.66	67.26	16.68		130.0	
		Z	4.56	67.00	16.58		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.32	67.00	16.59	0.46	130.0	± 9.6 %
		Y	5.34	67.19	16.62		130.0	
		Z	5.28	67.04	16.61		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.45	67.42	16.77	0.46	130.0	± 9.6 %
		Y	5.44	67.51	16.75		130.0	
		Z	5.41	67.45	16.79		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.34	67.16	16.66	0.46	130.0	± 9.6 %
		Y	5.36	67.35	16.69		130.0	
		Z	5.30	67.21	16.68		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.45	67.27	16.63	0.46	130.0	± 9.6 %
		Y	5.48	67.47	16.67		130.0	
		Z	5.43	67.37	16.68		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.52	67.55	16.90	0.46	130.0	± 9.6 %
		Y	5.54	67.72	16.93		130.0	
		Z	5.50	67.66	16.96		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.38	67.16	16.70	0.46	130.0	± 9.6 %
		Y	5.41	67.36	16.73		130.0	
		Z	5.38	67.32	16.78		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.44	67.34	16.78	0.46	130.0	± 9.6 %
		Y	5.45	67.47	16.78		130.0	
		Z	5.41	67.37	16.80		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.17	66.57	16.25	0.46	130.0	± 9.6 %
		Y	5.21	66.82	16.32		130.0	
		Z	5.14	66.65	16.29		130.0	

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.48	65.79	15.98	0.46	130.0	± 9.6 %
		Y	4.55	66.14	16.12		130.0	
		Z	4.46	65.89	16.02		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.65	66.17	16.14	0.46	130.0	± 9.6 %
		Y	4.72	66.52	16.28		130.0	
		Z	4.61	66.26	16.18		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.54	66.00	15.96	0.46	130.0	± 9.6 %
		Y	4.61	66.36	16.11		130.0	
		Z	4.51	66.08	15.99		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.59	66.17	16.14	0.46	130.0	± 9.6 %
		Y	4.66	66.53	16.28		130.0	
		Z	4.56	66.26	16.17		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.51	65.97	15.97	0.46	130.0	± 9.6 %
		Y	4.57	66.32	16.12		130.0	
		Z	4.47	66.05	16.01		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.51	66.11	16.01	0.46	130.0	± 9.6 %
		Y	4.58	66.46	16.16		130.0	
		Z	4.47	66.19	16.05		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.51	65.96	15.88	0.46	130.0	± 9.6 %
		Y	4.57	66.31	16.02		130.0	
		Z	4.46	66.02	15.90		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.46	66.18	16.13	0.46	130.0	± 9.6 %
		Y	4.53	66.55	16.29		130.0	
		Z	4.43	66.26	16.17		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.50	65.78	15.73	0.46	130.0	± 9.6 %
		Y	4.57	66.13	15.88		130.0	
		Z	4.46	65.86	15.76		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.13	66.23	16.19	0.46	130.0	± 9.6 %
		Y	5.18	66.52	16.28		130.0	
		Z	5.10	66.28	16.22		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.21	66.44	16.26	0.46	130.0	± 9.6 %
		Y	5.24	66.68	16.33		130.0	
		Z	5.17	66.48	16.29		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.09	66.44	16.28	0.46	130.0	± 9.6 %
		Y	5.14	66.73	16.37		130.0	
		Z	5.07	66.51	16.32		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.10	66.22	16.10	0.46	130.0	± 9.6 %
		Y	5.14	66.49	16.19		130.0	
		Z	5.07	66.27	16.13		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.19	66.25	16.17	0.46	130.0	± 9.6 %
		Y	5.23	66.52	16.25		130.0	
		Z	5.15	66.30	16.20		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.20	66.42	16.38	0.46	130.0	± 9.6 %
		Y	5.25	66.70	16.46		130.0	
		Z	5.17	66.46	16.41		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.21	66.59	16.46	0.46	130.0	± 9.6 %
		Y	5.25	66.84	16.53		130.0	
		Z	5.16	66.58	16.46		130.0	

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.08	66.07	16.06	0.46	130.0	± 9.6 %
		Y	5.13	66.35	16.15		130.0	
		Z	5.04	66.08	16.07		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.27	66.29	16.24	0.46	130.0	± 9.6 %
		Y	5.32	66.55	16.31		130.0	
		Z	5.24	66.33	16.26		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.56	67.05	16.67	0.46	130.0	± 9.6 %
		Y	5.57	67.20	16.69		130.0	
		Z	5.45	66.85	16.58		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.45	66.29	16.15	0.46	130.0	± 9.6 %
		Y	5.49	66.58	16.24		130.0	
		Z	5.42	66.33	16.18		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.69	66.90	16.42	0.46	130.0	± 9.6 %
		Y	5.70	67.08	16.45		130.0	
		Z	5.66	66.94	16.45		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.46	66.33	16.07	0.46	130.0	± 9.6 %
		Y	5.50	66.60	16.14		130.0	
		Z	5.42	66.33	16.07		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.54	66.41	16.10	0.46	130.0	± 9.6 %
		Y	5.57	66.66	16.17		130.0	
		Z	5.51	66.44	16.12		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	5.93	67.80	16.79	0.46	130.0	± 9.6 %
		Y	5.86	67.72	16.70		130.0	
		Z	5.85	67.67	16.74		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.84	67.65	16.92	0.46	130.0	± 9.6 %
		Y	5.86	67.82	16.94		130.0	
		Z	5.79	67.61	16.91		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.66	66.99	16.61	0.46	130.0	± 9.6 %
		Y	5.68	67.19	16.65		130.0	
		Z	5.64	67.07	16.66		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.53	66.52	16.20	0.46	130.0	± 9.6 %
		Y	5.57	66.82	16.28		130.0	
		Z	5.50	66.56	16.22		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.51	66.55	16.27	0.46	130.0	± 9.6 %
		Y	5.56	66.86	16.37		130.0	
		Z	5.48	66.58	16.29		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.38	65.83	15.63	0.46	130.0	± 9.6 %
		Y	5.42	66.12	15.72		130.0	
		Z	5.34	65.82	15.63		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.87	66.66	16.24	0.46	130.0	± 9.6 %
		Y	5.90	66.93	16.31		130.0	
		Z	5.85	66.69	16.27		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.02	67.05	16.42	0.46	130.0	± 9.6 %
		Y	6.04	67.25	16.46		130.0	
		Z	5.99	67.06	16.43		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.02	67.01	16.38	0.46	130.0	± 9.6 %
		Y	6.04	67.26	16.44		130.0	
		Z	5.99	67.04	16.40		130.0	