FCC SAR Test Report

APPLICANT	:	**ZTE CORPORATION**
EQUIPMENT	:	**LTE/CDMA Multi-Mode Digital Mobile Phone**
BRAND NAME	:	**ZTE**
MODEL NAME	:	**Z6410S**
FCC ID	:	**SRQ-Z6410S**
STANDARD	:	**FCC 47 CFR Part 2 (2.1093)** **ANSI/IEEE C95.1-1992** **IEEE 1528-2013**

We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.

Mark Qu

Approved by: Mark Qu / Manager

NVLAP TESTING NVLAP LAB CODE 600155-0

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Jiangsu Province 215335, China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA840202	Rev. 01	Initial issue of report	Sep. 03, 2018

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **ZTE CORPORATION, LTE/CDMA Multi-Mode Digital Mobile Phone, Z6410S,** are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.34	0.44	0.38	1.59
		GSM1900	0.15	0.73	0.34	
	WCDMA	Band V	0.27	0.47	0.33	
		Band II	0.26	**1.19**	0.60	
		Band IV	0.16	**1.19**	**0.63**	
	CDMA2000	BC0	0.30	0.50	0.42	
		BC10	0.30	0.59	0.49	
		BC1	0.22	0.93	0.59	
	LTE	Band 12	0.35	0.54	0.44	
		Band 13	0.22	0.34	0.26	
		Band 26/Band 5	0.35	0.58	0.42	
		Band 25/Band 2	0.25	0.92	0.53	
		Band 4	0.17	1.11	0.51	
		Band 7	**0.77**	1.15	0.31	
		Band 41	0.59	0.85	0.51	
DTS	WLAN	2.4GHz WLAN	0.54	0.15	<0.10	1.34
NII		5GHz WLAN	0.35	0.51	0.32	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.18			1.48

Highest 10g SAR Summary			
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)
Licensed	CDMA2000	BC1	**3.79**
Date of Testing:			2018/8/7 ~ 2018/8/17

Remark: This device supports LTE B2 / B5 and B25 / B26. Since the supported frequency span for LTE B2 / B5 falls completely within the supports frequency span for LTE B25 / B26, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B25 / B26.

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

2. Administration Data

Testing Laboratory	
Test Site	Sporton International (Kunshan) Inc.
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone, Jiangsu Province 215335, China TEL : +86-512-57900158 FAX : +86-512-57900958

Applicant	
Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

Manufacturer	
Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

3. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	LTE/CDMA Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	Z6410S
FCC ID	SRQ-Z6410S
IMEI Code	99001041000714
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz CDMA 2000 BC10: 817.9 MHz ~ 823.1 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ : 16QAM (uplink is not supported) CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) LTE: QPSK, 16QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40 Bluetooth BR/EDR/LE
HW Version	Z6410SHW1.0
SW Version	Z6410SV1.0.0B01
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. This device supports VoIP in GPRS, EGPRS, CDMA, WCDMA and LTE (e.g. for 3rd-party VoIP) and LTE supports VoLTE operation.
2. This device support Bluetooth tethering applications.
3. This device 2.4GHz WLAN/5.2GHz/5.8GHz WLAN support hotspot operation, and 5.2GHz/5.8GHz WLAN supports WiFi Direct (GC/GO).
4. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 12.
5. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of CDMA2000 BC1 and LTE B2 / B25 / B41-HPUE(with power class 2).
6. For LTE band 41CA intra band uplink/downlink limited to power class 3 level.
7. The device can adjust uplink/downlink configuration automatically according to the transmitting power class level for LTE band 41, as the following table. HPUE(High Power UE)with power class 2 for LTE band 41 can select uplink-downlink

configuration from 1 to 5.

LTE TDD Band	Power Class	support uplink/downlink
LTE Band 41	2	1,2,3,4,5
	3	0,1,2,3,4,5,6

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	SRQ-Z6410S
Equipment Name	LTE/CDMA Multi-Mode Digital Mobile Phone
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM
LTE Voice / Data requirements	Voice and Data
LTE Release Version	R10, Cat6
CA Support	Yes, Uplink and Downlink
LTE MPR permanently built-in by design	MPR used for this device is permanently built-in and can't modified based on channel bandwidth, modulation combination and Configuration with RB allocations.
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
Power reduction applied to satisfy SAR compliance	Yes, when operating in hotspot mode that LTE B2 / B25 / B41-HPUE power reduction applied to satisfy SAR compliance.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 12.
LTE Carrier Aggregation Additional Information	This device does not support full CA features on 3GPP Release 10. It supports a maximum of 2carrier intra band contiguous in the uplink. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844
LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560
LTE Band 12								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711
LTE Band 13						
	Bandwidth 5 MHz			Bandwidth 10 MHz		
	Channel #		Freq.(MHz)	Channel #		Freq.(MHz)
L	23205		779.5	23230		782
M	23230		782			
H	23255		784.5			

LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

LTE Band 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

5. RF Exposure Limits

5.1 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.

5.2 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. The 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.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

6. Specific Absorption Rate (SAR)

6.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

6.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

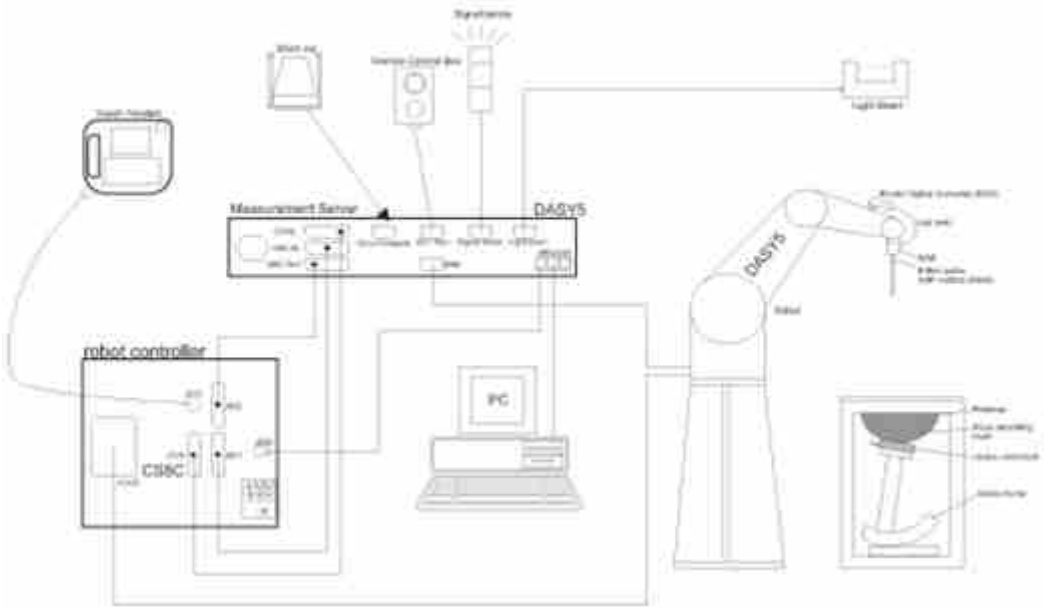
SAR is expressed in units of Watts per kilogram (W/kg)

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^2}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

7. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

7.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 μW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 μW/g)
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm

7.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)
Filling Volume	Approx. 30 liters
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm

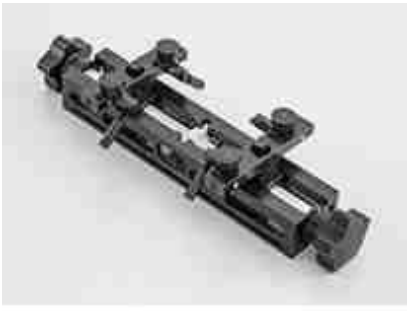
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.

Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix D demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

8.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

8.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

8.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

8.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1065	2017/12/4	2018/12/3
SPEAG	835MHz System Validation Kit	D835V2	4d091	2017/12/5	2018/12/4
SPEAG	1750MHz System Validation Kit	D1750V2	1069	2017/12/5	2018/12/4
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	2017/12/6	2018/12/5
SPEAG	2450MHz System Validation Kit	D2450V2	840	2017/12/7	2018/12/6
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2017/12/7	2018/12/6
SPEAG	5000MHz System Validation Kit	D5GHzV2	1006	2017/9/26	2018/9/25
SPEAG	Data Acquisition Electronics	DAE4	1279	2018/1/3	2019/1/2
SPEAG	Dosimetric E-Field Probe	EX3DV4	3293	2017/9/25	2018/9/24
SPEAG	Dosimetric E-Field Probe	EX3DV4	3935	2017/12/14	2018/12/13
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1503	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1479	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1697	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1842	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201563814	2018/1/18	2019/1/17
Anritsu	Radio communication analyzer	MT8821C	6201432831	2018/4/11	2019/4/10
Agilent	Wireless Communication Test Set	E5515C	MY52102706	2018/4/17	2019/4/16
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	2018/4/17	2019/4/16
SPEAG	DAK Kit	DAK3.5	1138	2017/11/28	2018/11/27
Anritsu	Vector Signal Generator	MG3710A	6201682672	2018/2/6	2019/2/5
Anritsu	Power Meter	ML2495A	1419002	2018/5/14	2019/5/13
Anritsu	Power Sensor	MA2411B	1339124	2018/5/14	2019/5/13
Anritsu	Power Meter	ML2495A	1218006	2017/10/6	2018/10/5
Anritsu	Power Sensor	MA2411B	1207363	2017/10/6	2018/10/5
R&S	CBT BLUETOOTH TESTER	CBT	101246	2018/1/26	2019/1/25
R&S	CBT BLUETOOTH TESTER	CBT	100783	2018/8/7	2019/8/6
EXA	Spectrum Analyzer	FSV7	101742	2018/1/19	2019/1/18
Testo	Hygrometer	608-H1	1241332096	2017/8/21	2018/8/20
FLUKE	DIGITAC THERMOMETER	51II	97240029	2018/8/2	2019/8/1
ARRA	Power Divider	A3200-2	N/A	Note	
Agilent	Dual Directional Coupler	778D	50422	Note	
PASTERNACK	Dual Directional Coupler	PE2214-10	N/A	Note	
MCL	Attenuation1	BW-S10W5+	N/A	Note	
MCL	Attenuation2	BW-S10W5+	N/A	Note	
MCL	Attenuation3	BW-S10W5+	N/A	Note	
AR	Amplifier	5S1G4	333096	Note	
mini-circuits	Amplifier	ZVE-3W-83+	162601250	Note	

Note:
Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.

10. System Verification

10.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

Fig 10.1Photo of Liquid Height for Head SAR

Fig 10.2 Photo of Liquid Height for Body SAR

10.2 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.8	0.919	43.113	0.89	41.90	3.26	2.89	±5	2018/8/7
835	Head	22.8	0.915	40.862	0.90	41.50	1.67	-1.54	±5	2018/8/8
1750	Head	22.8	1.404	41.476	1.37	40.10	2.48	3.43	±5	2018/8/9
1900	Head	22.8	1.416	39.148	1.40	40.00	1.14	-2.13	±5	2018/8/8
2450	Head	22.8	1.864	39.568	1.80	39.20	3.56	0.94	±5	2018/8/16
2600	Head	22.8	2.045	38.932	1.96	39.00	4.34	-0.17	±5	2018/8/16
5250	Head	22.8	4.677	36.261	4.71	35.90	-0.70	1.01	±5	2018/8/17
5750	Head	22.8	5.193	35.532	5.22	35.40	-0.52	0.37	±5	2018/8/17
750	Body	22.8	0.966	57.307	0.96	55.50	0.63	3.26	±5	2018/8/13
835	Body	22.8	0.984	56.510	0.97	55.20	1.44	2.37	±5	2018/8/13
1750	Body	22.8	1.478	53.626	1.49	53.40	-0.81	0.42	±5	2018/8/9
1900	Body	22.7	1.537	53.469	1.52	53.30	1.12	0.32	±5	2018/8/14
2450	Body	22.8	2.008	52.873	1.95	52.70	2.97	0.33	±5	2018/8/9
2600	Body	22.8	2.222	51.221	2.16	52.50	2.87	-2.44	±5	2018/8/9
5250	Body	22.7	5.480	48.954	5.36	48.90	2.24	0.11	±5	2018/8/17
5750	Body	22.7	6.157	48.116	5.94	48.30	3.65	-0.38	±5	2018/8/17

10.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2018/8/7	750	Head	250	1065	3293	1279	2.09	8.33	8.36	0.36
2018/8/8	835	Head	250	4d091	3293	1279	2.33	9.48	9.32	-1.69
2018/8/9	1750	Head	250	1069	3293	1279	9.07	37.00	36.28	-1.95
2018/8/8	1900	Head	250	5d118	3293	1279	10.60	39.70	42.4	6.80
2018/8/16	2450	Head	250	840	3293	1358	13.70	52.60	54.8	4.18
2018/8/16	2600	Head	250	1061	3293	1279	13.90	58.20	55.6	-4.47
2018/8/17	5250	Head	100	1006	3935	1279	7.28	78.30	72.8	-7.02
2018/8/17	5750	Head	100	1006	3935	1279	7.45	78.50	74.5	-5.10
2018/8/13	750	Body	250	1065	3293	1279	2.02	8.72	8.08	-7.34
2018/8/13	835	Body	250	4d091	3293	1279	2.36	9.72	9.44	-2.88
2018/8/9	1750	Body	250	1069	3293	1279	8.92	38.00	35.68	-6.11
2018/8/14	1900	Body	250	5d118	3293	1279	9.30	40.40	37.2	-7.92
2018/8/9	2450	Body	250	840	3293	1279	12.90	51.90	51.6	-0.58
2018/8/9	2600	Body	250	1061	3293	1279	13.30	56.40	53.2	-5.67
2018/8/17	5250	Body	100	1006	3935	1279	7.61	77.00	76.1	-1.17
2018/8/17	5750	Body	100	1006	3935	1279	7.74	75.10	77.4	3.06

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2018/8/14	1900	Body	250	5d118	3293	1279	4.94	21.10	19.76	-6.35

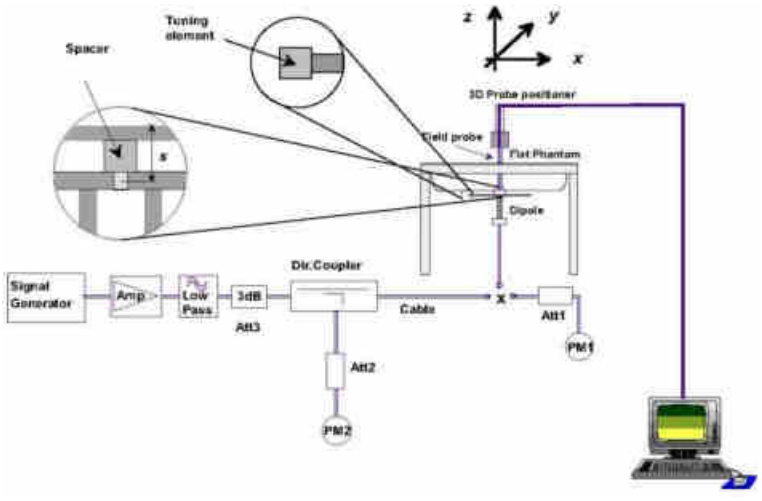


Fig 10.3.1 System Performance Check Setup

Fig 10.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

Figure 11.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 11.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 11.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 11.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

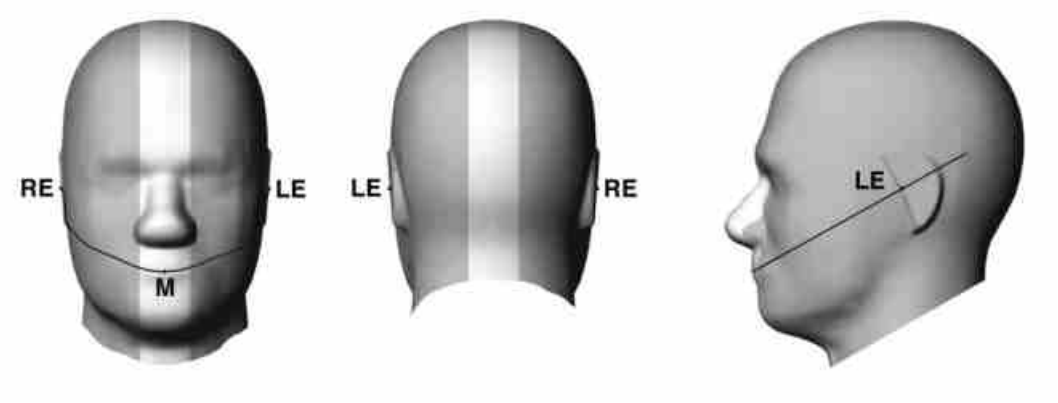


Fig 11.1.1 Front, back, and side views of SAM twin phantom

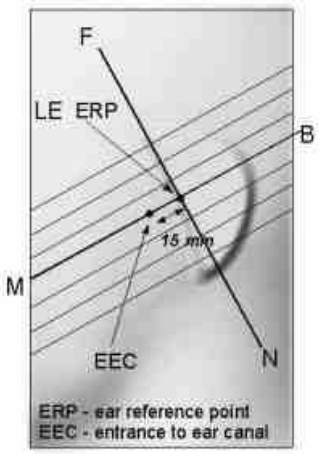


Fig 11.1.2 Close-up side view of phantom showing the ear region.

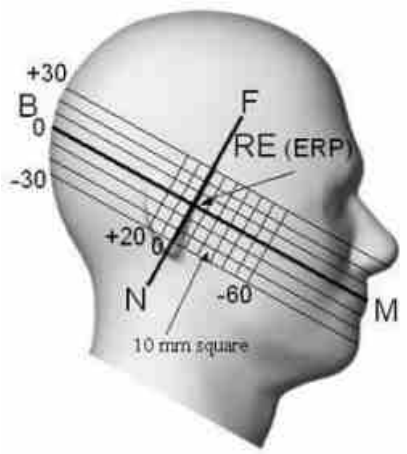


Fig 11.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width wt of the handset at the level of the acoustic output (point A in Figure 11.2.1 and Figure 11.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 11.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 11.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 11.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 11.2.3. The actual rotation angles should be documented in the test report.

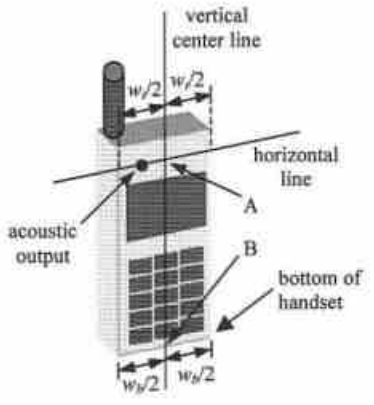


Fig 11.2.1 Handset vertical and horizontal reference lines—"fixed case

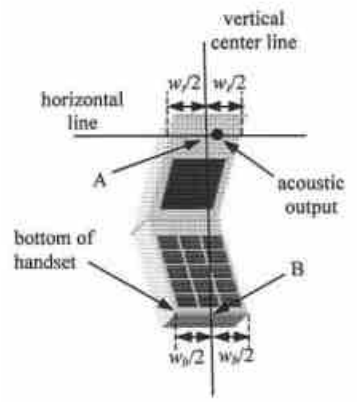


Fig 11.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

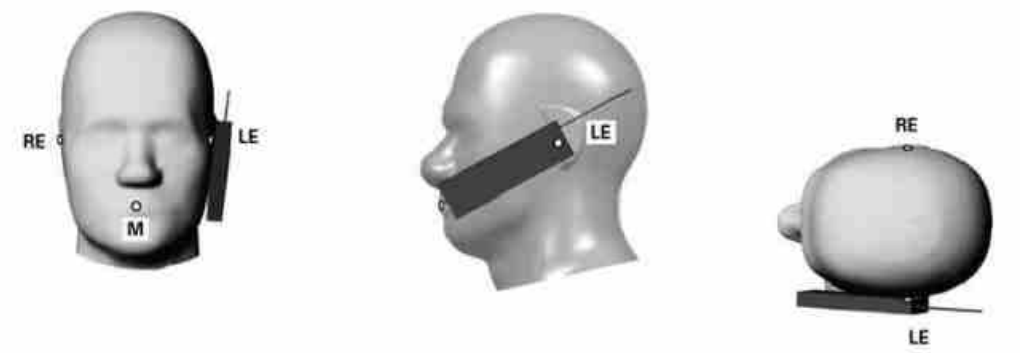


Fig 11.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 11.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

Fig 11.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 11.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

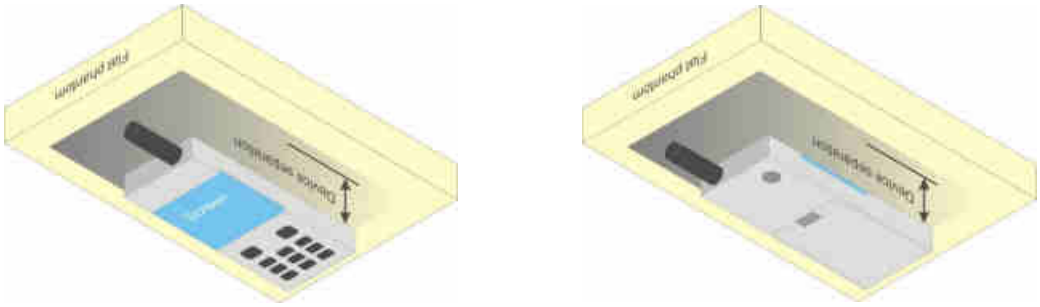


Fig 11.4 Body Worn Position

11.5 Product Specific 10g SAR Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

11.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850 and GPRS (3Tx slots) for GSM1900 are considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<Full Power Mode>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
Tx Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.22	32.21	32.30	33.00	23.22	23.21	23.30	24.00
GPRS 1 Tx slot	32.21	32.20	32.29	33.00	23.21	23.20	23.29	24.00
GPRS 2 Tx slots	31.38	31.43	31.48	32.00	25.38	25.43	25.48	26.00
GPRS 3 Tx slots	29.29	29.34	29.31	30.00	25.03	25.08	25.05	25.74
GPRS 4 Tx slots	28.10	28.05	28.17	29.00	25.10	25.05	25.17	26.00
EDGE 1 Tx slot	26.39	26.34	26.34	27.00	17.39	17.34	17.34	18.00
EDGE 2 Tx slots	25.31	25.22	25.25	26.00	19.31	19.22	19.25	20.00
EDGE 3 Tx slots	23.17	23.15	23.23	24.00	18.91	18.89	18.97	19.74
EDGE 4 Tx slots	23.22	23.25	23.47	24.00	20.22	20.25	20.47	21.00
GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
Tx Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.77	29.62	29.58	30.00	20.77	20.62	20.58	21.00
GPRS 1 Tx slot	29.76	29.61	29.57	30.00	20.76	20.61	20.57	21.00
GPRS 2 Tx slots	27.78	27.80	27.86	28.50	21.78	21.80	21.86	22.50
GPRS 3 Tx slots	26.26	26.37	26.32	27.00	22.00	22.11	22.06	22.74
GPRS 4 Tx slots	25.20	25.19	25.16	25.50	22.20	22.19	22.16	22.50
EDGE 1 Tx slot	26.21	26.15	26.05	27.00	17.21	17.15	17.05	18.00
EDGE 2 Tx slots	24.66	24.60	24.59	25.00	18.66	18.60	18.59	19.00
EDGE 3 Tx slots	23.00	22.93	22.89	23.50	18.74	18.67	18.63	19.24
EDGE 4 Tx slots	21.80	21.70	21.65	22.50	18.80	18.70	18.65	19.50

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.
The calculated method are shown as below:
Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB
Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB
Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$, and Δ_{CQI} = 24/15 with $\beta_{hs} = 24/15 * \beta_c$.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Setup Configuration

HSUPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
   iii. Set Cell Power = -86 dBm
   iv. Set Channel Type = 12.2k + HSPA
   v. Set UE Target Power
   vi. Power Ctrl Mode= Alternating bits
   vii. Set and observe the E-TFCI
   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c.

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set RMC 12.2Kbps + HSDPA mode.
   ii. Set Cell Power = -25 dBm
   iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
   iv. Select HSDPA Uplink Parameters
   v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
      a). Subtest 1: β_c/β_d=2/15
      b). Subtest 2: β_c/β_d=12/15
      c). Subtest 3: β_c/β_d=15/8
      d). Subtest 4: β_c/β_d=15/4
   vi. Set Delta ACK, Delta NACK and Delta CQI = 8
   vii. Set Ack-Nack Repetition Factor to 3
   viii. Set CQI Feedback Cycle (k) to 4 ms
   ix. Set CQI Repetition Factor to 2
   x. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
A summary of these settings are illustrated below:

C.8.1.12 Fixed Reference Channel Definition H-Set 12

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Proces ses	6
Information Bit Payload (N_{Inf})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

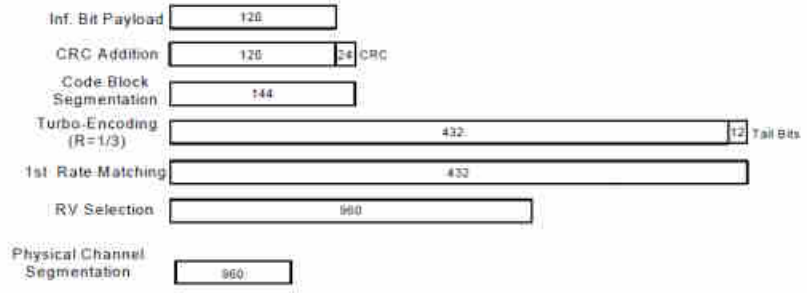


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

<Full Power Mode>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band V			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	24.16	24.01	24.06	24.50	24.08	24.15	23.89	24.50	24.06	24.20	24.26	24.50
3GPP Rel 99	RMC 12.2Kbps	24.17	24.02	24.07	24.50	24.09	24.16	23.90	24.50	24.07	24.21	24.27	24.50
3GPP Rel 6	HSDPA Subtest-1	23.18	23.21	22.90	23.50	23.27	23.33	23.09	23.50	23.03	23.13	23.20	23.50
3GPP Rel 6	HSDPA Subtest-2	23.13	23.19	23.24	23.50	23.28	23.36	23.09	23.50	23.05	23.14	23.21	23.50
3GPP Rel 6	HSDPA Subtest-3	22.51	22.69	22.78	23.00	22.80	22.83	22.58	23.00	22.56	22.60	22.71	23.00
3GPP Rel 6	HSDPA Subtest-4	22.54	22.68	22.89	23.00	22.81	22.86	22.58	23.00	22.53	22.61	22.71	23.00
3GPP Rel 8	DC-HSDPA Subtest-1	23.15	23.22	22.81	23.50	23.25	23.35	23.05	23.50	23.08	23.15	23.18	23.50
3GPP Rel 8	DC-HSDPA Subtest-2	23.16	23.15	23.18	23.50	23.21	23.31	23.08	23.50	23.10	23.08	23.25	23.50
3GPP Rel 8	DC-HSDPA Subtest-3	22.41	22.63	22.71	23.00	22.82	22.78	22.51	23.00	22.51	22.71	22.65	23.00
3GPP Rel 8	DC-HSDPA Subtest-4	22.51	22.65	22.78	23.00	22.78	22.69	22.51	23.00	22.56	22.61	22.73	23.00
3GPP Rel 6	HSUPA Subtest-1	23.17	23.06	22.96	23.50	23.34	23.34	23.13	23.50	23.02	23.08	23.21	23.50
3GPP Rel 6	HSUPA Subtest-2	21.15	21.19	21.05	21.50	21.32	21.29	21.12	21.50	21.03	21.06	21.26	21.50
3GPP Rel 6	HSUPA Subtest-3	22.16	22.14	22.16	22.50	22.35	22.29	22.08	22.50	22.01	22.11	22.32	22.50
3GPP Rel 6	HSUPA Subtest-4	21.16	20.91	21.09	21.50	21.37	21.27	21.13	21.50	21.02	21.09	21.31	21.50
3GPP Rel 6	HSUPA Subtest-5	23.10	23.10	23.10	23.50	22.00	22.10	22.20	23.50	23.00	23.10	23.20	23.50

<CDMA2000 Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, SAR for head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03r01, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.
3. Per KDB 941225 D01v03r01, for Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH), with FCH only as the primary mode.

<Full Power Mode>

Band	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)	CDMA2000 BC10			Tune-up Limit (dBm)
Tx Channel	1013	384	777		25	600	1175		476	580	684	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75		817.9	820.5	823.1	
RC1 SO55	24.38	24.45	24.51	25.00	24.38	24.41	24.36	25.00	24.58	24.63	24.72	25.00
RC3 SO55	24.44	24.50	24.65	25.00	24.41	24.44	24.30	25.00	24.63	24.83	24.84	25.00
RC3 SO32 (F+SCH)	24.50	24.58	24.69	25.00	24.34	24.45	24.20	25.00	24.72	24.81	24.85	25.00
RC3 SO32 (+SCH)	24.55	24.57	24.67	25.00	24.28	24.39	24.43	25.00	24.65	24.72	24.75	25.00
RTAP 153.6Kbps	24.50	24.58	24.63	25.00	24.35	24.38	24.34	25.00	24.59	24.62	24.63	25.00
RETAP 4096Bits	24.58	24.51	24.62	25.00	24.31	24.38	24.41	25.00	24.65	24.61	24.68	25.00

<Reduced Power Mode for Hotspot On>

Band	CDMA2000 BC1			Tune-up Limit (dBm)
Tx Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RC1 SO55	23.10	23.01	22.99	23.50
RC3 SO55	23.15	23.15	23.00	23.50
RC3 SO32 (F+SCH)	23.13	23.17	23.00	23.50
RC3 SO32 (+SCH)	23.12	23.15	23.12	23.50
RTAP 153.6Kbps	22.95	23.00	22.92	23.50
RETAP 4096Bits	22.97	23.10	22.90	23.50

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B13 / B26 / B66 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, 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.
9. LTE B2 / B5 SAR test was covered by B25 / B26; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
    a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
    b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

<Full Power Mode>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	23.95	23.95	23.86	24.5
20	QPSK	1	49	23.70	23.62	24.10	
20	QPSK	1	99	23.85	23.84	23.95	
20	QPSK	50	0	22.66	22.78	22.66	23.5
20	QPSK	50	24	22.70	22.66	22.66	
20	QPSK	50	50	22.75	22.61	22.79	
20	QPSK	100	0	22.72	22.72	22.76	
20	16QAM	1	0	23.08	23.35	23.16	23.5
20	16QAM	1	49	22.86	22.86	22.89	
20	16QAM	1	99	23.07	23.10	23.20	
20	16QAM	50	0	21.77	21.74	21.68	22.5
20	16QAM	50	24	21.66	21.66	21.67	
20	16QAM	50	50	21.72	21.60	21.70	
20	16QAM	100	0	21.72	21.68	21.78	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	23.86	23.81	23.83	24.5
15	QPSK	1	37	23.61	23.44	23.44	
15	QPSK	1	74	23.68	23.81	23.76	
15	QPSK	36	0	22.69	22.65	22.68	23.5
15	QPSK	36	20	22.63	22.61	22.68	
15	QPSK	36	39	22.71	22.68	22.73	
15	QPSK	75	0	22.78	22.70	22.81	
15	16QAM	1	0	23.00	23.14	23.04	23.5
15	16QAM	1	37	22.77	22.78	22.85	
15	16QAM	1	74	22.98	22.86	23.07	
15	16QAM	36	0	21.63	21.68	21.66	22.5
15	16QAM	36	20	21.63	21.63	21.67	
15	16QAM	36	39	21.68	21.71	21.75	
15	16QAM	75	0	21.71	21.69	21.77	

Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	23.91	23.81	23.70	24.5
10	QPSK	1	25	23.52	23.55	23.71	
10	QPSK	1	49	23.75	23.79	23.99	
10	QPSK	25	0	22.72	22.78	22.96	23.5
10	QPSK	25	12	22.56	22.65	22.88	
10	QPSK	25	25	22.71	22.67	22.94	
10	QPSK	50	0	22.67	22.71	22.87	
10	16QAM	1	0	23.05	23.08	23.21	23.5
10	16QAM	1	25	22.83	22.81	22.99	
10	16QAM	1	49	22.99	22.99	23.30	
10	16QAM	25	0	21.64	21.67	21.92	22.5
10	16QAM	25	12	21.63	21.63	21.85	
10	16QAM	25	25	21.70	21.68	21.93	
10	16QAM	50	0	21.60	21.68	21.86	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	23.52	23.48	23.44	24.5
5	QPSK	1	12	23.21	23.29	23.40	
5	QPSK	1	24	23.27	23.39	23.48	
5	QPSK	12	0	22.42	22.43	22.50	23.5
5	QPSK	12	7	22.50	22.44	22.60	
5	QPSK	12	13	22.29	22.33	22.56	
5	QPSK	25	0	22.49	22.39	22.58	
5	16QAM	1	0	22.73	22.73	22.81	23.5
5	16QAM	1	12	22.50	22.61	22.76	
5	16QAM	1	24	22.40	22.59	22.72	
5	16QAM	12	0	21.47	21.44	21.53	22.5
5	16QAM	12	7	21.49	21.45	21.62	
5	16QAM	12	13	21.34	21.35	21.55	
5	16QAM	25	0	21.46	21.41	21.60	

Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	23.58	23.52	23.65	24.5
3	QPSK	1	8	23.60	23.58	23.60	
3	QPSK	1	14	23.43	23.49	23.61	
3	QPSK	8	0	22.63	22.60	22.77	23.5
3	QPSK	8	4	22.65	22.63	22.78	
3	QPSK	8	7	22.58	22.54	22.73	
3	QPSK	15	0	22.55	22.60	22.76	
3	16QAM	1	0	22.91	22.88	22.98	23.5
3	16QAM	1	8	22.94	22.86	23.00	
3	16QAM	1	14	22.71	22.76	22.92	
3	16QAM	8	0	21.67	21.65	21.83	22.5
3	16QAM	8	4	21.66	21.69	21.80	
3	16QAM	8	7	21.59	21.60	21.81	
3	16QAM	15	0	21.60	21.64	21.74	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	23.48	23.52	23.54	24.5
1.4	QPSK	1	3	23.61	23.57	23.73	
1.4	QPSK	1	5	23.41	23.47	23.56	
1.4	QPSK	3	0	23.55	23.53	23.68	
1.4	QPSK	3	1	23.58	23.59	23.69	
1.4	QPSK	3	3	23.58	23.55	23.68	
1.4	QPSK	6	0	22.58	22.58	22.70	23.5
1.4	16QAM	1	0	22.85	22.80	23.02	23.5
1.4	16QAM	1	3	22.86	22.82	22.96	
1.4	16QAM	1	5	22.81	22.73	22.95	
1.4	16QAM	3	0	22.60	22.58	22.75	
1.4	16QAM	3	1	22.64	22.61	22.68	
1.4	16QAM	3	3	22.61	22.57	22.72	
1.4	16QAM	6	0	21.66	21.65	21.74	22.5

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	23.57	23.41	23.72	24.5
20	QPSK	1	49	23.82	23.82	23.53	
20	QPSK	1	99	23.40	23.50	23.60	
20	QPSK	50	0	22.70	22.78	22.80	23.5
20	QPSK	50	24	22.77	22.82	22.81	
20	QPSK	50	50	22.72	22.66	22.72	
20	QPSK	100	0	22.72	22.79	22.75	
20	16QAM	1	0	23.27	23.12	23.46	23.5
20	16QAM	1	49	23.40	23.41	23.45	
20	16QAM	1	99	23.10	23.10	23.12	
20	16QAM	50	0	21.78	21.79	21.79	22.5
20	16QAM	50	24	21.85	21.79	21.87	
20	16QAM	50	50	21.68	21.70	21.64	
20	16QAM	100	0	21.63	21.62	21.75	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	23.39	23.75	23.67	24.5
15	QPSK	1	37	23.33	23.51	23.28	
15	QPSK	1	74	23.43	23.47	23.42	
15	QPSK	36	0	22.47	22.52	22.36	23.5
15	QPSK	36	20	22.38	22.53	22.27	
15	QPSK	36	39	22.40	22.40	22.48	
15	QPSK	75	0	22.43	22.38	22.52	
15	16QAM	1	0	23.17	23.08	23.08	23.5
15	16QAM	1	37	22.95	23.12	22.86	
15	16QAM	1	74	22.85	22.99	22.71	
15	16QAM	36	0	21.47	21.52	21.40	22.5
15	16QAM	36	20	21.51	21.58	21.33	
15	16QAM	36	39	21.35	21.37	21.43	
15	16QAM	75	0	21.37	21.44	21.38	

Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	23.88	23.61	23.74	24.5
10	QPSK	1	25	23.65	23.69	23.54	
10	QPSK	1	49	24.01	23.81	23.83	
10	QPSK	25	0	22.61	22.50	22.61	23.5
10	QPSK	25	12	22.66	22.55	22.59	
10	QPSK	25	25	22.80	22.65	22.79	
10	QPSK	50	0	22.69	22.55	22.69	
10	16QAM	1	0	23.39	23.20	23.07	23.5
10	16QAM	1	25	23.00	23.05	22.89	
10	16QAM	1	49	23.35	23.28	23.11	
10	16QAM	25	0	21.58	21.46	21.59	22.5
10	16QAM	25	12	21.68	21.41	21.52	
10	16QAM	25	25	21.70	21.64	21.68	
10	16QAM	50	0	21.62	21.58	21.63	
Channel				19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	23.59	23.46	23.56	24.5
5	QPSK	1	12	23.46	23.48	23.30	
5	QPSK	1	24	23.41	23.45	23.47	
5	QPSK	12	0	22.67	22.58	22.59	23.5
5	QPSK	12	7	22.57	22.45	22.56	
5	QPSK	12	13	22.51	22.54	22.54	
5	QPSK	25	0	22.58	22.49	22.53	
5	16QAM	1	0	23.03	23.07	22.95	23.5
5	16QAM	1	12	22.89	23.16	22.92	
5	16QAM	1	24	22.77	22.81	22.83	
5	16QAM	12	0	21.66	21.58	21.69	22.5
5	16QAM	12	7	21.57	21.53	21.56	
5	16QAM	12	13	21.55	21.53	21.57	
5	16QAM	25	0	21.53	21.52	21.54	

Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	23.41	23.53	23.46	24.5
3	QPSK	1	8	23.85	23.48	23.45	
3	QPSK	1	14	23.45	23.43	23.44	
3	QPSK	8	0	22.60	22.50	22.49	23.5
3	QPSK	8	4	22.61	22.50	22.54	
3	QPSK	8	7	22.43	22.49	22.49	
3	QPSK	15	0	22.53	22.49	22.56	
3	16QAM	1	0	22.84	22.89	22.77	23.5
3	16QAM	1	8	22.88	23.01	23.00	
3	16QAM	1	14	22.80	22.80	22.74	
3	16QAM	8	0	21.80	21.57	21.54	22.5
3	16QAM	8	4	21.69	21.52	21.70	
3	16QAM	8	7	21.64	21.71	21.55	
3	16QAM	15	0	21.63	21.52	21.56	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	23.30	23.56	23.62	24.5
1.4	QPSK	1	3	23.53	23.33	23.50	
1.4	QPSK	1	5	23.51	23.51	23.51	
1.4	QPSK	3	0	23.52	23.38	23.49	
1.4	QPSK	3	1	23.59	23.49	23.53	
1.4	QPSK	3	3	23.56	23.46	23.57	
1.4	QPSK	6	0	22.57	22.40	22.41	23.5
1.4	16QAM	1	0	23.01	23.40	23.14	23.5
1.4	16QAM	1	3	23.50	23.07	23.01	
1.4	16QAM	1	5	23.44	23.05	23.05	
1.4	16QAM	3	0	22.64	22.49	22.57	
1.4	16QAM	3	1	22.70	22.70	22.54	
1.4	16QAM	3	3	22.75	22.68	22.72	
1.4	16QAM	6	0	21.49	21.37	21.44	22.5

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	23.93	23.91	23.94	25
10	QPSK	1	25	23.95	23.98	24.12	
10	QPSK	1	49	24.00	24.23	24.39	
10	QPSK	25	0	22.69	22.84	23.00	24
10	QPSK	25	12	22.74	22.96	23.02	
10	QPSK	25	25	22.64	22.99	23.08	
10	QPSK	50	0	22.69	22.84	23.04	
10	16QAM	1	0	22.92	23.07	23.28	24
10	16QAM	1	25	22.91	23.08	23.12	
10	16QAM	1	49	23.15	23.38	23.21	
10	16QAM	25	0	21.72	21.87	21.97	23
10	16QAM	25	12	21.74	22.02	22.05	
10	16QAM	25	25	21.73	22.02	22.00	
10	16QAM	50	0	21.77	21.89	22.14	
Channel				20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	24.28	24.15	23.95	25
5	QPSK	1	12	24.13	24.32	24.18	
5	QPSK	1	24	24.12	24.34	23.85	
5	QPSK	12	0	23.14	23.37	23.23	24
5	QPSK	12	7	23.06	23.43	23.15	
5	QPSK	12	13	23.15	23.42	23.21	
5	QPSK	25	0	23.17	23.42	23.28	
5	16QAM	1	0	23.35	23.50	23.30	24
5	16QAM	1	12	23.37	23.44	23.26	
5	16QAM	1	24	23.10	23.49	23.27	
5	16QAM	12	0	22.16	22.41	22.24	23
5	16QAM	12	7	22.11	22.43	22.11	
5	16QAM	12	13	22.17	22.42	22.12	
5	16QAM	25	0	22.19	22.40	22.27	

Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	24.17	24.10	24.04	25
3	QPSK	1	8	24.19	24.33	24.22	
3	QPSK	1	14	24.05	24.38	23.95	
3	QPSK	8	0	23.11	23.36	23.30	24
3	QPSK	8	4	23.07	23.41	23.46	
3	QPSK	8	7	23.08	23.38	23.38	
3	QPSK	15	0	23.10	23.37	23.36	
3	16QAM	1	0	23.28	23.47	23.42	24
3	16QAM	1	8	23.32	23.48	23.48	
3	16QAM	1	14	23.12	23.42	23.24	
3	16QAM	8	0	22.17	22.41	22.35	23
3	16QAM	8	4	22.19	22.47	22.49	
3	16QAM	8	7	22.10	22.43	22.43	
3	16QAM	15	0	22.13	22.39	22.33	
Channel				20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	
1.4	QPSK	1	0	24.10	24.15	24.07	25
1.4	QPSK	1	3	24.16	24.35	24.33	
1.4	QPSK	1	5	24.00	24.22	24.01	
1.4	QPSK	3	0	24.12	24.31	24.09	
1.4	QPSK	3	1	24.16	24.35	23.85	
1.4	QPSK	3	3	24.16	24.35	23.86	
1.4	QPSK	6	0	23.14	23.32	23.31	24
1.4	16QAM	1	0	23.38	23.43	23.45	24
1.4	16QAM	1	3	23.41	23.43	23.45	
1.4	16QAM	1	5	23.45	23.50	23.37	
1.4	16QAM	3	0	23.17	23.32	23.37	
1.4	16QAM	3	1	23.19	23.35	23.44	
1.4	16QAM	3	3	23.18	23.30	23.36	
1.4	16QAM	6	0	22.29	22.47	22.47	23

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20850	21100	21350	
Frequency (MHz)				2510	2535	2560	
20	QPSK	1	0	23.30	23.31	23.26	24.5
20	QPSK	1	49	23.60	23.55	23.35	
20	QPSK	1	99	23.39	23.40	23.13	
20	QPSK	50	0	22.63	22.60	22.45	23.5
20	QPSK	50	24	22.67	22.64	22.45	
20	QPSK	50	50	22.52	22.64	22.38	
20	QPSK	100	0	22.70	22.55	22.40	
20	16QAM	1	0	22.88	22.83	22.76	23.5
20	16QAM	1	49	22.81	23.06	22.74	
20	16QAM	1	99	22.61	22.84	22.72	
20	16QAM	50	0	21.59	21.63	21.41	22.5
20	16QAM	50	24	21.61	21.67	21.47	
20	16QAM	50	50	21.58	21.63	21.37	
20	16QAM	100	0	21.58	21.58	21.40	
Channel				22.96	21.6	23.23	Tune-up limit (dBm)
Frequency (MHz)				23.35	22.98	23.34	
15	QPSK	1	0	23.18	23.31	23.18	24.5
15	QPSK	1	37	23.48	23.52	23.30	
15	QPSK	1	74	23.50	23.55	23.08	
15	QPSK	36	0	22.62	22.55	22.42	23.5
15	QPSK	36	20	22.66	22.65	22.43	
15	QPSK	36	39	22.71	22.63	22.46	
15	QPSK	75	0	22.62	22.61	22.49	
15	16QAM	1	0	22.99	22.85	22.56	23.5
15	16QAM	1	37	22.90	23.06	22.56	
15	16QAM	1	74	22.75	22.90	22.61	
15	16QAM	36	0	21.64	21.61	21.44	22.5
15	16QAM	36	20	21.69	21.67	21.45	
15	16QAM	36	39	21.67	21.60	21.43	
15	16QAM	75	0	21.64	21.64	21.49	

Channel				23.32	23.24	22.45	Tune-up limit (dBm)
Frequency (MHz)				22.45	22.19	22.32	
10	QPSK	1	0	23.36	23.47	23.30	24.5
10	QPSK	1	25	23.47	23.30	23.34	
10	QPSK	1	49	23.58	23.44	23.32	
10	QPSK	25	0	22.71	22.36	22.55	23.5
10	QPSK	25	12	22.63	22.45	22.50	
10	QPSK	25	25	22.57	22.42	22.63	
10	QPSK	50	0	22.54	22.45	22.52	
10	16QAM	1	0	23.04	22.90	22.79	23.5
10	16QAM	1	25	22.77	22.78	22.72	
10	16QAM	1	49	22.82	22.79	22.54	
10	16QAM	25	0	21.67	21.43	21.53	22.5
10	16QAM	25	12	21.60	21.48	21.48	
10	16QAM	25	25	21.55	21.42	21.48	
10	16QAM	50	0	21.60	21.47	21.49	
Channel				20.84	20.64	20.48	Tune-up limit (dBm)
Frequency (MHz)				20.87	20.6	20.49	
5	QPSK	1	0	23.21	23.37	23.36	24.5
5	QPSK	1	12	23.40	23.27	23.12	
5	QPSK	1	24	23.48	23.16	23.00	
5	QPSK	12	0	22.54	22.46	22.41	23.5
5	QPSK	12	7	22.53	22.39	22.41	
5	QPSK	12	13	22.58	22.39	22.39	
5	QPSK	25	0	22.56	22.45	22.40	
5	16QAM	1	0	22.73	22.81	22.77	23.5
5	16QAM	1	12	22.71	22.53	22.59	
5	16QAM	1	24	22.72	22.75	22.32	
5	16QAM	12	0	21.53	21.48	21.42	22.5
5	16QAM	12	7	21.58	21.49	21.41	
5	16QAM	12	13	21.60	21.41	21.45	
5	16QAM	25	0	21.54	21.46	21.36	

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23060	23095	23130	
Frequency (MHz)				704	707.5	711	
10	QPSK	1	0	24.36	24.08	24.21	25
10	QPSK	1	25	24.04	23.93	23.97	
10	QPSK	1	49	24.40	24.21	24.28	
10	QPSK	25	0	23.15	23.03	23.14	24
10	QPSK	25	12	23.07	22.95	23.12	
10	QPSK	25	25	23.06	22.98	23.15	
10	QPSK	50	0	23.16	23.03	23.15	
10	16QAM	1	0	23.60	23.46	23.30	24
10	16QAM	1	25	23.27	23.14	23.17	
10	16QAM	1	49	23.41	23.43	23.56	
10	16QAM	25	0	22.16	22.03	22.12	23
10	16QAM	25	12	22.03	21.96	22.12	
10	16QAM	25	25	22.06	21.99	22.12	
10	16QAM	50	0	22.21	22.06	22.15	
Channel				23035	23095	23155	Tune-up limit (dBm)
Frequency (MHz)				701.5	707.5	713.5	
5	QPSK	1	0	24.23	23.78	23.82	25
5	QPSK	1	12	24.03	23.99	23.95	
5	QPSK	1	24	23.84	23.99	24.09	
5	QPSK	12	0	23.06	22.86	23.01	24
5	QPSK	12	7	23.02	22.93	23.03	
5	QPSK	12	13	22.96	22.88	23.08	
5	QPSK	25	0	23.04	22.94	23.13	
5	16QAM	1	0	23.35	22.99	23.35	24
5	16QAM	1	12	23.16	23.19	23.42	
5	16QAM	1	24	23.21	23.18	23.30	
5	16QAM	12	0	22.14	21.90	22.00	23
5	16QAM	12	7	22.01	21.91	22.10	
5	16QAM	12	13	21.96	21.90	22.12	
5	16QAM	25	0	22.03	21.86	22.12	

Channel				23025	23095	23165	Tune-up limit (dBm)
Frequency (MHz)				700.5	707.5	714.5	
3	QPSK	1	0	24.12	23.86	23.79	25
3	QPSK	1	8	24.04	24.07	24.18	
3	QPSK	1	14	23.83	23.89	24.15	
3	QPSK	8	0	22.96	22.91	23.09	24
3	QPSK	8	4	22.98	22.98	23.21	
3	QPSK	8	7	22.90	22.93	23.18	
3	QPSK	15	0	22.96	22.94	23.15	
3	16QAM	1	0	23.15	23.21	23.33	24
3	16QAM	1	8	23.32	23.27	23.43	
3	16QAM	1	14	23.12	23.20	23.33	
3	16QAM	8	0	22.02	21.95	22.19	23
3	16QAM	8	4	21.97	22.04	22.36	
3	16QAM	8	7	21.97	22.01	22.22	
3	16QAM	15	0	21.91	22.01	22.18	
Channel				23017	23095	23173	Tune-up limit (dBm)
Frequency (MHz)				699.7	707.5	715.3	
1.4	QPSK	1	0	24.03	23.70	23.86	25
1.4	QPSK	1	3	23.91	23.92	24.16	
1.4	QPSK	1	5	23.80	23.81	24.17	
1.4	QPSK	3	0	24.05	23.88	24.07	
1.4	QPSK	3	1	24.03	23.86	24.17	
1.4	QPSK	3	3	24.10	23.86	24.19	
1.4	QPSK	6	0	22.96	22.81	23.15	24
1.4	16QAM	1	0	23.16	23.26	23.37	24
1.4	16QAM	1	3	23.51	23.34	23.47	
1.4	16QAM	1	5	23.03	23.46	23.52	
1.4	16QAM	3	0	23.01	22.86	23.18	
1.4	16QAM	3	1	22.99	22.92	23.26	
1.4	16QAM	3	3	23.08	23.02	23.22	
1.4	16QAM	6	0	22.03	21.89	22.23	23

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel					23230		
Frequency (MHz)					782		
10	QPSK	1	0		24.32		25
10	QPSK	1	25		24.14		
10	QPSK	1	49		24.16		
10	QPSK	25	0		23.14		24
10	QPSK	25	12		23.13		
10	QPSK	25	25		23.13		
10	QPSK	50	0		23.15		
10	16QAM	1	0		23.61		24
10	16QAM	1	25		23.35		
10	16QAM	1	49		23.50		
10	16QAM	25	0		22.13		23
10	16QAM	25	12		22.16		
10	16QAM	25	25		22.12		
10	16QAM	50	0		22.14		
Channel				23205	23230	23255	Tune-up limit (dBm)
Frequency (MHz)				779.5	782	784.5	
5	QPSK	1	0	24.07	24.02	24.08	25
5	QPSK	1	12	24.24	24.10	24.10	
5	QPSK	1	24	24.12	24.03	24.02	
5	QPSK	12	0	23.17	23.06	23.02	24
5	QPSK	12	7	23.27	23.11	23.09	
5	QPSK	12	13	23.17	23.06	23.05	
5	QPSK	25	0	23.22	23.07	23.09	
5	16QAM	1	0	23.33	23.35	23.35	24
5	16QAM	1	12	23.31	23.24	23.23	
5	16QAM	1	24	23.41	23.22	23.35	
5	16QAM	12	0	22.18	22.08	22.03	23
5	16QAM	12	7	22.21	22.11	22.10	
5	16QAM	12	13	22.20	22.09	22.06	
5	16QAM	25	0	22.16	22.08	22.12	

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				26140	26340	26590	
Frequency (MHz)				1860	1880	1905	
20	QPSK	1	0	24.12	24.11	24.06	24.5
20	QPSK	1	49	24.39	23.92	24.27	
20	QPSK	1	99	23.92	23.90	23.90	
20	QPSK	50	0	23.39	23.00	23.06	23.5
20	QPSK	50	24	23.36	22.97	23.09	
20	QPSK	50	50	23.29	22.95	23.11	
20	QPSK	100	0	23.44	23.02	23.35	
20	16QAM	1	0	23.27	23.31	23.48	23.5
20	16QAM	1	49	23.26	23.06	23.45	
20	16QAM	1	99	23.24	23.03	23.15	
20	16QAM	50	0	22.05	21.96	22.41	22.5
20	16QAM	50	24	22.05	21.99	22.41	
20	16QAM	50	50	22.09	21.94	22.40	
20	16QAM	100	0	22.05	21.95	22.43	
Channel				26115	26340	26615	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1907.5	
15	QPSK	1	0	24.04	24.16	23.94	24.5
15	QPSK	1	37	24.01	23.83	24.17	
15	QPSK	1	74	23.68	23.68	24.03	
15	QPSK	36	0	22.99	22.95	23.25	23.5
15	QPSK	36	20	22.89	22.93	23.22	
15	QPSK	36	39	22.89	22.89	23.38	
15	QPSK	75	0	22.90	22.90	23.34	
15	16QAM	1	0	23.32	23.31	23.47	23.5
15	16QAM	1	37	23.19	23.16	23.42	
15	16QAM	1	74	23.07	23.02	23.34	
15	16QAM	36	0	21.93	21.91	22.28	22.5
15	16QAM	36	20	21.94	21.88	22.27	
15	16QAM	36	39	21.89	21.84	22.24	
15	16QAM	75	0	21.97	21.88	22.29	

Channel				26090	26340	26640	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1910	
10	QPSK	1	0	24.10	24.17	24.20	24.5
10	QPSK	1	25	23.83	23.72	24.01	
10	QPSK	1	49	24.17	23.81	23.75	
10	QPSK	25	0	22.95	22.75	23.07	23.5
10	QPSK	25	12	22.92	22.67	23.02	
10	QPSK	25	25	23.02	22.68	23.06	
10	QPSK	50	0	22.91	22.68	23.06	
10	16QAM	1	0	23.28	23.11	23.45	23.5
10	16QAM	1	25	23.05	22.95	23.17	
10	16QAM	1	49	23.32	23.10	22.95	
10	16QAM	25	0	21.97	21.78	22.12	22.5
10	16QAM	25	12	21.91	21.74	22.03	
10	16QAM	25	25	22.02	21.72	22.04	
10	16QAM	50	0	21.89	21.68	22.09	
Channel				26065	26340	26665	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1912.5	
5	QPSK	1	0	23.99	24.08	24.02	24.5
5	QPSK	1	12	23.88	23.59	23.95	
5	QPSK	1	24	23.86	23.71	23.72	
5	QPSK	12	0	23.01	22.67	23.10	23.5
5	QPSK	12	7	22.94	22.71	23.05	
5	QPSK	12	13	22.97	22.68	23.03	
5	QPSK	25	0	22.93	22.67	23.03	
5	16QAM	1	0	23.35	23.09	23.30	23.5
5	16QAM	1	12	23.23	22.88	23.23	
5	16QAM	1	24	23.12	22.93	22.95	
5	16QAM	12	0	22.07	21.70	22.13	22.5
5	16QAM	12	7	22.05	21.70	22.06	
5	16QAM	12	13	21.95	21.69	22.06	
5	16QAM	25	0	21.99	21.66	22.02	

Channel				26055	26340	26675	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1913.5	
3	QPSK	1	0	23.94	23.91	24.06	24.5
3	QPSK	1	8	23.94	23.67	24.00	
3	QPSK	1	14	23.91	23.59	23.67	
3	QPSK	8	0	22.95	22.63	22.96	23.5
3	QPSK	8	4	22.95	22.65	22.97	
3	QPSK	8	7	22.92	22.59	22.97	
3	QPSK	15	0	22.95	22.68	23.01	
3	16QAM	1	0	23.33	22.94	23.42	23.5
3	16QAM	1	8	23.14	23.01	23.41	
3	16QAM	1	14	23.15	22.98	22.98	
3	16QAM	8	0	22.02	21.72	22.00	22.5
3	16QAM	8	4	21.99	21.73	22.08	
3	16QAM	8	7	21.91	21.63	22.04	
3	16QAM	15	0	21.91	21.67	22.02	
Channel				26047	26340	26683	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1914.3	
1.4	QPSK	1	0	23.84	23.91	23.91	24.5
1.4	QPSK	1	3	23.88	23.69	23.91	
1.4	QPSK	1	5	23.78	23.57	23.60	
1.4	QPSK	3	0	23.96	23.59	23.88	
1.4	QPSK	3	1	23.87	23.61	23.84	
1.4	QPSK	3	3	23.92	23.66	23.74	
1.4	QPSK	6	0	22.88	22.60	22.92	23.5
1.4	16QAM	1	0	23.38	22.92	23.15	23.5
1.4	16QAM	1	3	23.21	23.05	23.17	
1.4	16QAM	1	5	23.27	22.96	22.89	
1.4	16QAM	3	0	22.92	22.61	22.98	
1.4	16QAM	3	1	22.94	22.69	22.96	
1.4	16QAM	3	3	22.89	22.69	22.89	
1.4	16QAM	6	0	21.95	21.66	21.98	22.5

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				26765	26865	26965	
Frequency (MHz)				821.5	831.5	841.5	
15	QPSK	1	0	24.62	24.52	24.51	25
15	QPSK	1	37	24.52	24.54	24.56	
15	QPSK	1	74	24.66	24.86	24.95	
15	QPSK	36	0	23.54	23.70	23.78	24
15	QPSK	36	20	23.39	23.54	23.68	
15	QPSK	36	39	23.32	23.40	23.55	
15	QPSK	75	0	23.42	23.59	23.82	
15	16QAM	1	0	23.63	23.89	23.72	24
15	16QAM	1	37	23.41	23.58	23.55	
15	16QAM	1	74	23.83	23.82	23.83	
15	16QAM	36	0	22.56	22.86	22.93	23
15	16QAM	36	20	22.45	22.58	22.68	
15	16QAM	36	39	22.51	22.43	22.63	
15	16QAM	75	0	22.38	22.62	22.79	
Channel				26740	26865	26990	Tune-up limit (dBm)
Frequency (MHz)				819	831.5	844	
10	QPSK	1	0	24.35	24.53	24.22	25
10	QPSK	1	25	24.22	24.45	24.44	
10	QPSK	1	49	24.41	24.71	24.69	
10	QPSK	25	0	23.22	23.61	23.54	24
10	QPSK	25	12	23.20	23.49	23.56	
10	QPSK	25	25	23.19	23.54	23.61	
10	QPSK	50	0	23.30	23.56	23.56	
10	16QAM	1	0	23.55	23.82	23.85	24
10	16QAM	1	25	23.45	23.60	23.56	
10	16QAM	1	49	23.65	23.90	23.77	
10	16QAM	25	0	22.26	22.65	22.51	23
10	16QAM	25	12	22.25	22.52	22.58	
10	16QAM	25	25	22.24	22.61	22.54	
10	16QAM	50	0	22.27	22.59	22.77	

Channel				26715	26865	27015	Tune-up limit (dBm)
Frequency (MHz)				816.5	831.5	846.5	
5	QPSK	1	0	24.16	24.35	23.96	25
5	QPSK	1	12	24.19	24.37	24.21	
5	QPSK	1	24	24.13	24.30	24.25	
5	QPSK	12	0	23.16	23.55	23.45	24
5	QPSK	12	7	23.27	23.40	23.46	
5	QPSK	12	13	23.17	23.46	23.48	
5	QPSK	25	0	23.24	23.44	23.54	
5	16QAM	1	0	23.38	23.66	23.66	24
5	16QAM	1	12	23.39	23.56	23.79	
5	16QAM	1	24	23.32	23.55	23.63	
5	16QAM	12	0	22.22	22.52	22.50	23
5	16QAM	12	7	22.25	22.41	22.43	
5	16QAM	12	13	22.18	22.50	22.48	
5	16QAM	25	0	22.35	22.41	22.70	
Channel				26705	26865	27025	Tune-up limit (dBm)
Frequency (MHz)				815.5	831.5	847.5	
3	QPSK	1	0	24.06	24.16	23.97	25
3	QPSK	1	8	24.09	24.25	24.38	
3	QPSK	1	14	24.11	24.26	24.30	
3	QPSK	8	0	23.23	23.43	23.43	24
3	QPSK	8	4	23.16	23.37	23.45	
3	QPSK	8	7	23.22	23.41	23.45	
3	QPSK	15	0	23.12	23.36	23.43	
3	16QAM	1	0	23.43	23.77	23.66	24
3	16QAM	1	8	23.56	23.57	23.72	
3	16QAM	1	14	23.34	23.64	23.64	
3	16QAM	8	0	22.25	22.43	22.42	23
3	16QAM	8	4	22.21	22.46	22.56	
3	16QAM	8	7	22.23	22.49	22.47	
3	16QAM	15	0	22.24	22.42	22.70	

Channel				26697	26865	27033	Tune-up limit (dBm)
Frequency (MHz)				814.7	831.5	848.3	
1.4	QPSK	1	0	24.04	24.14	23.93	25
1.4	QPSK	1	3	24.11	24.34	24.36	
1.4	QPSK	1	5	24.10	24.21	24.23	
1.4	QPSK	3	0	24.10	24.23	24.29	
1.4	QPSK	3	1	24.16	24.32	24.31	
1.4	QPSK	3	3	24.13	24.23	24.30	
1.4	QPSK	6	0	23.15	23.37	23.42	24
1.4	16QAM	1	0	23.30	23.56	23.54	24
1.4	16QAM	1	3	23.39	23.66	23.73	
1.4	16QAM	1	5	23.43	23.49	23.65	
1.4	16QAM	3	0	23.15	23.35	23.38	
1.4	16QAM	3	1	23.14	23.30	23.38	
1.4	16QAM	3	3	23.15	23.34	23.42	
1.4	16QAM	6	0	22.31	22.46	22.58	23

<Reduced Power Mode for Hotspot On>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	23.81	23.46	23.53	24
20	QPSK	1	49	22.89	22.90	23.10	
20	QPSK	1	99	23.55	23.42	22.94	
20	QPSK	50	0	22.13	22.18	22.26	23
20	QPSK	50	24	22.05	22.11	22.19	
20	QPSK	50	50	22.10	22.17	22.20	
20	QPSK	100	0	22.19	22.19	22.33	
20	16QAM	1	0	22.60	22.62	22.84	23
20	16QAM	1	49	22.21	22.18	22.28	
20	16QAM	1	99	22.65	22.66	22.23	
20	16QAM	50	0	21.12	21.14	21.24	22
20	16QAM	50	24	21.00	21.12	21.19	
20	16QAM	50	50	21.08	21.18	21.38	
20	16QAM	100	0	21.15	21.19	21.22	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	23.27	23.23	23.61	24
15	QPSK	1	37	22.86	22.87	23.51	
15	QPSK	1	74	23.63	23.42	22.82	
15	QPSK	36	0	22.04	22.19	22.25	23
15	QPSK	36	20	22.03	22.13	22.13	
15	QPSK	36	39	22.20	22.05	22.21	
15	QPSK	75	0	22.16	22.08	22.22	
15	16QAM	1	0	22.63	22.58	22.67	23
15	16QAM	1	37	22.01	22.23	22.24	
15	16QAM	1	74	22.69	22.69	22.13	
15	16QAM	36	0	21.23	21.15	21.26	22
15	16QAM	36	20	21.04	21.02	21.20	
15	16QAM	36	39	21.20	21.12	21.28	
15	16QAM	75	0	21.16	21.13	21.30	

Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	23.23	23.31	23.37	24
10	QPSK	1	25	23.14	23.03	23.11	
10	QPSK	1	49	23.22	23.23	22.53	
10	QPSK	25	0	22.12	22.07	22.19	23
10	QPSK	25	12	22.00	22.02	22.10	
10	QPSK	25	25	22.15	22.06	22.09	
10	QPSK	50	0	22.03	22.02	22.18	
10	16QAM	1	0	22.50	22.48	22.69	23
10	16QAM	1	25	22.09	22.10	22.16	
10	16QAM	1	49	22.42	22.45	21.85	
10	16QAM	25	0	21.14	21.10	21.17	22
10	16QAM	25	12	21.00	21.02	21.17	
10	16QAM	25	25	21.10	21.00	21.20	
10	16QAM	50	0	21.11	21.02	21.14	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	23.04	23.05	23.08	24
5	QPSK	1	12	23.01	22.94	22.86	
5	QPSK	1	24	22.87	22.88	22.77	
5	QPSK	12	0	22.04	21.99	22.02	23
5	QPSK	12	7	21.94	22.04	21.97	
5	QPSK	12	13	21.96	21.96	21.94	
5	QPSK	25	0	22.04	22.00	21.98	
5	16QAM	1	0	22.06	22.23	22.29	23
5	16QAM	1	12	22.17	22.24	22.05	
5	16QAM	1	24	22.13	22.14	22.08	
5	16QAM	12	0	21.00	21.09	21.03	22
5	16QAM	12	7	21.05	20.98	20.97	
5	16QAM	12	13	21.00	20.91	20.97	
5	16QAM	25	0	21.09	20.96	20.97	

Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	23.00	23.00	22.91	24
3	QPSK	1	8	23.04	22.85	22.96	
3	QPSK	1	14	22.92	22.90	22.89	
3	QPSK	8	0	22.03	22.00	22.00	23
3	QPSK	8	4	22.02	22.01	21.92	
3	QPSK	8	7	21.89	21.92	22.00	
3	QPSK	15	0	21.97	21.99	21.91	
3	16QAM	1	0	22.36	22.22	22.13	23
3	16QAM	1	8	22.22	22.21	22.28	
3	16QAM	1	14	22.31	22.06	22.26	
3	16QAM	8	0	21.09	21.02	21.09	22
3	16QAM	8	4	21.06	21.00	20.99	
3	16QAM	8	7	20.98	20.93	21.05	
3	16QAM	15	0	21.07	20.96	20.97	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	22.89	23.03	22.82	24
1.4	QPSK	1	3	22.78	22.96	22.84	
1.4	QPSK	1	5	22.83	22.82	22.90	
1.4	QPSK	3	0	22.98	22.84	22.81	
1.4	QPSK	3	1	22.91	22.96	22.91	
1.4	QPSK	3	3	22.86	22.80	22.87	
1.4	QPSK	6	0	21.86	21.89	21.90	23
1.4	16QAM	1	0	22.14	22.00	22.24	23
1.4	16QAM	1	3	22.17	22.17	22.17	
1.4	16QAM	1	5	22.18	22.13	22.21	
1.4	16QAM	3	0	21.80	21.92	21.95	
1.4	16QAM	3	1	21.87	21.99	21.93	
1.4	16QAM	3	3	21.92	21.87	21.85	
1.4	16QAM	6	0	21.08	21.00	20.94	22

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				26140	26340	26590	
Frequency (MHz)				1860	1880	1905	
20	QPSK	1	0	23.81	23.63	23.75	24
20	QPSK	1	49	23.96	23.94	23.95	
20	QPSK	1	99	23.77	23.51	23.77	
20	QPSK	50	0	22.99	22.58	22.79	23
20	QPSK	50	24	22.57	22.40	22.92	
20	QPSK	50	50	22.63	22.58	22.92	
20	QPSK	100	0	22.92	22.55	22.73	
20	16QAM	1	0	22.99	22.97	22.98	23
20	16QAM	1	49	22.74	22.64	22.94	
20	16QAM	1	99	22.85	22.78	22.91	
20	16QAM	50	0	21.78	21.53	22.00	22
20	16QAM	50	24	21.62	21.48	21.85	
20	16QAM	50	50	21.61	21.52	21.99	
20	16QAM	100	0	21.74	21.56	21.91	
Channel				26115	26340	26615	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1907.5	
15	QPSK	1	0	23.80	23.95	23.91	24
15	QPSK	1	37	23.40	23.48	23.64	
15	QPSK	1	74	23.80	23.68	23.82	
15	QPSK	36	0	22.83	22.58	22.94	23
15	QPSK	36	20	22.63	22.51	22.87	
15	QPSK	36	39	22.75	22.68	22.89	
15	QPSK	75	0	22.76	22.62	22.99	
15	16QAM	1	0	22.81	22.94	22.94	23
15	16QAM	1	37	22.73	22.60	22.95	
15	16QAM	1	74	22.95	22.98	22.97	
15	16QAM	36	0	21.87	21.55	21.92	22
15	16QAM	36	20	21.65	21.49	21.88	
15	16QAM	36	39	21.80	21.66	21.97	
15	16QAM	75	0	21.69	21.61	21.94	

Channel				26090	26340	26640	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1910	
10	QPSK	1	0	23.90	23.66	23.96	24
10	QPSK	1	25	23.48	23.22	23.56	
10	QPSK	1	49	23.79	23.67	23.57	
10	QPSK	25	0	22.66	22.37	22.61	23
10	QPSK	25	12	22.54	22.32	22.53	
10	QPSK	25	25	22.55	22.30	22.55	
10	QPSK	50	0	22.43	22.36	22.61	
10	16QAM	1	0	22.83	22.76	22.95	23
10	16QAM	1	25	22.69	22.56	22.86	
10	16QAM	1	49	22.94	22.83	22.93	
10	16QAM	25	0	21.55	21.35	21.57	22
10	16QAM	25	12	21.54	21.33	21.57	
10	16QAM	25	25	21.56	21.31	21.57	
10	16QAM	50	0	21.61	21.35	21.72	
Channel				26065	26340	26665	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1912.5	
5	QPSK	1	0	23.73	23.61	23.72	24
5	QPSK	1	12	23.54	23.26	23.56	
5	QPSK	1	24	23.65	23.30	23.49	
5	QPSK	12	0	22.60	22.37	22.60	23
5	QPSK	12	7	22.59	22.28	22.59	
5	QPSK	12	13	22.52	22.25	22.61	
5	QPSK	25	0	22.62	22.33	22.64	
5	16QAM	1	0	22.88	22.74	22.89	23
5	16QAM	1	12	22.75	22.49	22.76	
5	16QAM	1	24	22.85	22.42	23.00	
5	16QAM	12	0	21.59	21.41	21.66	22
5	16QAM	12	7	21.66	21.36	21.61	
5	16QAM	12	13	21.54	21.31	21.52	
5	16QAM	25	0	21.73	21.31	21.53	

Channel				26055	26340	26675	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1913.5	
3	QPSK	1	0	23.74	23.41	23.42	24
3	QPSK	1	8	23.61	23.29	23.52	
3	QPSK	1	14	23.59	23.25	23.48	
3	QPSK	8	0	22.64	22.28	22.54	23
3	QPSK	8	4	22.65	22.29	22.46	
3	QPSK	8	7	22.54	22.26	22.55	
3	QPSK	15	0	22.58	22.27	22.48	
3	16QAM	1	0	22.84	22.77	22.80	23
3	16QAM	1	8	22.97	22.52	22.83	
3	16QAM	1	14	22.81	22.54	22.87	
3	16QAM	8	0	21.67	21.34	21.62	22
3	16QAM	8	4	21.64	21.33	21.47	
3	16QAM	8	7	21.62	21.29	21.60	
3	16QAM	15	0	21.60	21.29	21.59	
Channel				26047	26340	26683	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1914.3	
1.4	QPSK	1	0	23.73	23.38	23.52	24
1.4	QPSK	1	3	23.54	23.28	23.70	
1.4	QPSK	1	5	23.76	23.12	23.40	
1.4	QPSK	3	0	23.56	23.25	23.41	
1.4	QPSK	3	1	23.61	23.28	23.48	
1.4	QPSK	3	3	23.62	23.23	23.57	
1.4	QPSK	6	0	22.46	22.24	22.51	23
1.4	16QAM	1	0	22.98	22.65	22.83	23
1.4	16QAM	1	3	22.84	22.56	22.91	
1.4	16QAM	1	5	22.78	22.39	22.81	
1.4	16QAM	3	0	22.57	22.25	22.59	
1.4	16QAM	3	1	22.57	22.28	22.49	
1.4	16QAM	3	3	22.69	22.26	22.49	
1.4	16QAM	6	0	21.69	21.29	21.57	22

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations

b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS

c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

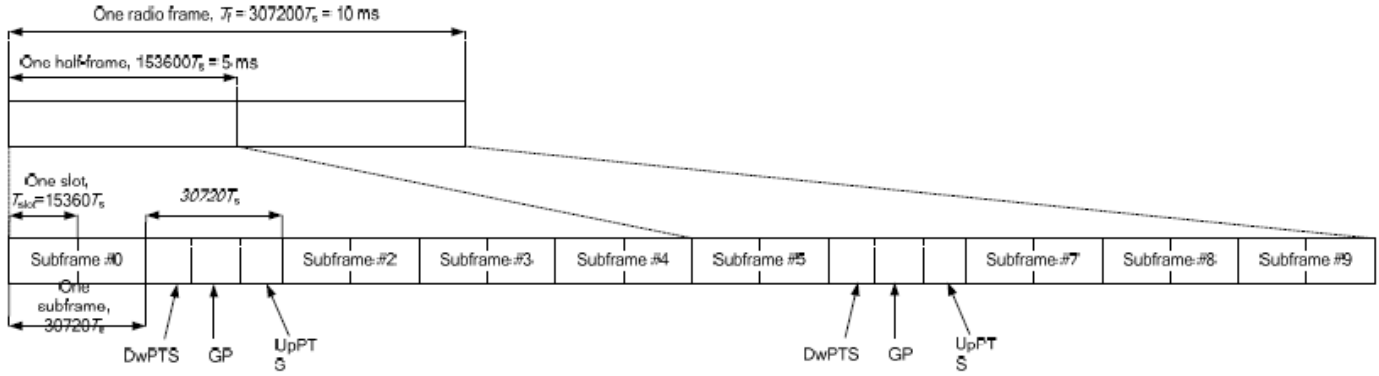


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~4	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~3	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

For LTE Band 41 Power class 2

i. Uplink-downlink configuration: 1. In a half-frame consisted of 5 subfames, uplink operation is in 2 uplink subframes and 1 special subframe.
ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (2+0.167)/5 = 43.3%
iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (2+0.143)/5 = 42.9%
v. For TDD LTE SAR measurement, the duty cycle 1:2.33 (42.9 %) was used perform testing and considering the theoretical duty cycle of 43.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 42.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 43.3%/42.9% = 1.009 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

For LTE Band 41 Power class 3

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.
ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%
iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%
v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

The device can adjust uplink/downlink configuration automatically according to the transmitting power class level, as followings:

LTE TDD Band	Power Class	support uplink/downlink configuration
LTE Band 41	2	1,2,3,4,5
	3	0,1,2,3,4,5,6

<Full Power Mode>

<LTE Band 41>

Power Class 2:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				39750	40185	40620	41055	41490	
Frequency (MHz)				2506	2549.5	2593	2636.5	2680	
20	QPSK	1	0	26.58	26.79	26.41	26.67	26.66	27.5
20	QPSK	1	49	26.77	27.01	26.44	26.51	26.49	
20	QPSK	1	99	26.39	26.23	26.55	26.37	26.36	
20	QPSK	50	0	22.97	23.09	22.59	22.52	22.73	24.5
20	QPSK	50	24	23.08	22.86	22.57	22.68	22.69	
20	QPSK	50	50	22.89	23.07	22.91	22.85	22.75	
20	QPSK	100	0	22.90	23.11	22.53	22.73	22.73	
20	16QAM	1	0	23.56	23.26	22.96	22.55	22.74	24.5
20	16QAM	1	49	23.35	23.48	23.05	23.16	23.03	
20	16QAM	1	99	23.40	23.00	23.16	22.81	22.57	
20	16QAM	50	0	22.55	22.19	21.92	22.03	21.79	23.5
20	16QAM	50	24	22.47	22.48	21.98	21.99	22.00	
20	16QAM	50	50	22.48	22.36	22.03	22.26	22.04	
20	16QAM	100	0	22.29	22.19	22.14	22.12	22.03	
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5	
15	QPSK	1	0	26.94	26.99	26.73	26.95	26.96	27.5
15	QPSK	1	37	26.66	26.97	27.00	25.50	26.85	
15	QPSK	1	74	26.44	26.50	26.50	25.98	26.44	
15	QPSK	36	0	23.12	23.10	22.57	22.56	22.68	24.5
15	QPSK	36	20	23.08	23.13	22.65	22.64	22.60	
15	QPSK	36	39	23.19	23.29	22.79	22.98	22.81	
15	QPSK	75	0	23.03	23.28	22.83	22.78	22.54	
15	16QAM	1	0	23.28	23.07	22.53	22.67	22.70	24.5
15	16QAM	1	37	22.90	23.38	22.60	23.09	22.54	
15	16QAM	1	74	23.06	22.75	22.86	22.73	22.69	
15	16QAM	36	0	22.52	22.30	21.87	21.86	21.78	23.5
15	16QAM	36	20	22.47	22.30	22.26	21.94	21.88	
15	16QAM	36	39	22.39	22.54	22.06	22.11	22.30	
15	16QAM	75	0	22.53	22.28	21.93	21.89	21.93	

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)
Frequency (MHz)				2501	2547	2593	2639	2685	
10	QPSK	1	0	26.08	26.25	25.73	25.76	25.87	27.5
10	QPSK	1	25	26.66	26.36	26.56	26.09	26.32	
10	QPSK	1	49	25.84	25.68	25.59	26.49	26.76	
10	QPSK	25	0	22.99	22.61	22.60	22.53	22.68	24.5
10	QPSK	25	12	23.03	22.84	22.69	22.68	22.69	
10	QPSK	25	25	23.02	22.88	22.78	22.56	22.68	
10	QPSK	50	0	22.95	22.87	22.61	22.50	22.58	
10	16QAM	1	0	23.10	23.16	22.85	22.61	22.64	24.5
10	16QAM	1	25	23.08	22.56	22.63	22.52	22.70	
10	16QAM	1	49	23.11	22.74	22.79	22.68	22.71	
10	16QAM	25	0	21.88	21.91	21.58	21.51	21.72	23.5
10	16QAM	25	12	21.88	21.92	21.58	21.55	21.72	
10	16QAM	25	25	21.78	21.73	21.61	21.61	21.73	
10	16QAM	50	0	21.87	21.80	21.54	21.54	21.59	
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5	
5	QPSK	1	0	26.57	26.91	26.39	26.43	26.76	27.5
5	QPSK	1	12	26.09	26.67	26.47	26.13	26.15	
5	QPSK	1	24	26.36	26.45	26.60	26.19	26.38	
5	QPSK	12	0	22.78	22.68	22.57	22.56	22.58	24.5
5	QPSK	12	7	22.95	22.59	22.62	22.50	22.71	
5	QPSK	12	13	22.73	22.66	22.69	22.56	22.71	
5	QPSK	25	0	22.70	22.85	22.68	22.55	22.52	
5	16QAM	1	0	23.06	23.17	22.69	22.69	22.62	24.5
5	16QAM	1	12	22.86	23.21	22.70	22.54	22.62	
5	16QAM	1	24	23.06	22.94	22.70	22.88	22.63	
5	16QAM	12	0	22.02	22.03	21.55	21.69	21.51	23.5
5	16QAM	12	7	22.08	22.03	21.55	21.52	21.71	
5	16QAM	12	13	22.06	21.64	21.82	21.58	21.74	
5	16QAM	25	0	22.06	21.69	21.72	21.50	21.55	

Power Class 3:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				39750	40185	40620	41055	41490	
Frequency (MHz)				2506	2549.5	2593	2636.5	2680	
20	QPSK	1	0	24.29	24.39	24.02	24.04	24.09	25
20	QPSK	1	49	24.10	24.41	24.05	23.90	23.81	
20	QPSK	1	99	23.98	23.81	23.82	23.99	23.80	
20	QPSK	50	0	23.42	23.37	23.33	23.19	23.09	24
20	QPSK	50	24	23.35	23.56	23.34	23.07	23.21	
20	QPSK	50	50	23.29	23.48	23.30	23.02	23.08	
20	QPSK	100	0	23.41	23.59	23.06	23.02	22.90	
20	16QAM	1	0	23.24	23.49	23.22	23.18	23.17	24
20	16QAM	1	49	23.33	23.15	23.20	23.09	23.03	
20	16QAM	1	99	22.91	23.29	22.87	22.80	22.69	
20	16QAM	50	0	22.41	22.40	22.43	22.09	22.17	23
20	16QAM	50	24	22.28	22.39	22.28	22.25	22.17	
20	16QAM	50	50	22.26	22.21	22.33	22.08	22.09	
20	16QAM	100	0	22.41	22.30	22.24	22.14	22.05	
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5	
15	QPSK	1	0	24.13	24.15	23.70	23.61	23.84	25
15	QPSK	1	37	24.16	23.76	23.61	24.39	23.62	
15	QPSK	1	74	23.66	23.90	23.32	23.10	23.13	
15	QPSK	36	0	23.12	23.42	22.63	22.48	22.94	24
15	QPSK	36	20	23.00	22.58	22.76	22.46	22.30	
15	QPSK	36	39	23.10	23.08	22.48	22.37	22.20	
15	QPSK	75	0	23.21	22.58	22.60	22.58	22.09	
15	16QAM	1	0	23.07	22.90	23.79	22.55	22.77	24
15	16QAM	1	37	22.44	22.10	22.41	22.01	22.10	
15	16QAM	1	74	22.74	22.07	22.48	22.03	22.04	
15	16QAM	36	0	21.59	21.70	22.38	21.28	21.26	23
15	16QAM	36	20	21.34	21.44	22.39	21.18	21.20	
15	16QAM	36	39	21.14	21.25	21.70	21.23	21.16	
15	16QAM	75	0	21.85	21.55	21.75	21.22	21.27	

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)
Frequency (MHz)				2501	2547	2593	2639	2685	
10	QPSK	1	0	23.37	23.75	23.59	23.80	23.92	25
10	QPSK	1	25	24.11	23.97	24.13	23.93	23.87	
10	QPSK	1	49	23.47	23.23	23.50	24.13	23.57	
10	QPSK	25	0	23.36	23.29	23.27	23.17	22.94	24
10	QPSK	25	12	23.49	23.62	23.52	23.21	23.02	
10	QPSK	25	25	23.07	23.40	23.16	23.24	23.18	
10	QPSK	50	0	23.27	23.50	23.00	23.23	23.00	
10	16QAM	1	0	22.72	22.64	22.63	22.67	22.66	24
10	16QAM	1	25	23.23	23.54	23.38	23.20	23.09	
10	16QAM	1	49	22.62	22.74	22.52	23.00	23.24	
10	16QAM	25	0	22.37	22.24	22.29	22.23	22.12	23
10	16QAM	25	12	22.33	22.57	22.43	22.26	22.21	
10	16QAM	25	25	22.35	22.44	22.16	22.38	22.38	
10	16QAM	50	0	22.33	22.33	22.22	22.25	22.18	
10	64QAM	1	0	22.55	22.59	22.73	22.50	22.49	23
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5	
5	QPSK	1	0	24.17	24.36	24.33	24.23	24.27	25
5	QPSK	1	12	24.01	24.18	24.33	24.12	24.34	
5	QPSK	1	24	24.12	24.26	24.30	24.12	24.26	
5	QPSK	12	0	23.33	23.61	23.56	23.36	23.57	24
5	QPSK	12	7	23.32	23.33	23.48	23.25	23.42	
5	QPSK	12	13	23.27	23.33	23.42	23.16	23.44	
5	QPSK	25	0	23.30	23.39	23.51	23.21	23.49	
5	16QAM	1	0	23.23	23.25	23.56	23.24	23.55	24
5	16QAM	1	12	23.23	23.27	23.67	23.27	23.40	
5	16QAM	1	24	23.21	23.23	23.31	23.29	23.36	
5	16QAM	12	0	22.43	22.64	22.58	22.27	22.57	23
5	16QAM	12	7	22.15	22.61	22.50	22.18	22.41	
5	16QAM	12	13	22.32	22.55	22.45	22.19	22.64	
5	16QAM	25	0	22.39	22.22	22.54	22.35	22.52	

<Reduced Power Mode for Hotspot On>

<LTE Band 41>

Power Class 2:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				39750	40185	40620	41055	41490	
Frequency (MHz)				2506	2549.5	2593	2636.5	2680	
20	QPSK	1	0	25.38	25.24	25.02	24.83	25.43	25.5
20	QPSK	1	49	25.09	25.00	25.01	25.45	25.02	
20	QPSK	1	99	25.32	25.16	25.36	25.25	25.15	
20	QPSK	50	0	21.83	21.74	21.63	21.87	21.78	22.5
20	QPSK	50	24	21.81	21.71	21.59	21.72	21.74	
20	QPSK	50	50	21.82	21.80	21.71	21.76	21.70	
20	QPSK	100	0	21.77	21.78	21.65	21.85	21.80	
20	16QAM	1	0	22.04	22.20	21.98	22.23	22.24	22.5
20	16QAM	1	49	21.83	21.90	21.85	21.74	21.81	
20	16QAM	1	99	22.12	22.08	22.15	22.05	22.04	
20	16QAM	50	0	20.78	20.94	20.68	20.77	20.75	21.5
20	16QAM	50	24	20.76	20.81	20.59	20.73	20.78	
20	16QAM	50	50	20.91	20.97	20.81	20.70	20.75	
20	16QAM	100	0	20.89	20.77	20.76	20.78	20.69	
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5	
15	QPSK	1	0	25.46	25.48	25.33	25.46	25.44	25.5
15	QPSK	1	37	25.07	25.24	24.97	24.98	25.02	
15	QPSK	1	74	25.05	25.29	25.12	25.21	24.95	
15	QPSK	36	0	21.70	21.87	21.73	21.68	21.61	22.5
15	QPSK	36	20	21.65	21.65	21.65	21.62	21.43	
15	QPSK	36	39	21.51	21.60	21.68	21.58	21.42	
15	QPSK	75	0	21.69	21.74	21.47	21.73	21.70	
15	16QAM	1	0	22.24	22.39	22.02	22.39	22.38	22.5
15	16QAM	1	37	21.31	21.36	21.33	21.54	21.41	
15	16QAM	1	74	21.83	21.95	21.86	22.03	22.01	
15	16QAM	36	0	20.85	20.78	20.56	20.79	20.76	21.5
15	16QAM	36	20	20.63	20.51	20.63	20.66	20.61	
15	16QAM	36	39	20.66	20.45	20.54	20.62	20.41	
15	16QAM	75	0	20.79	20.65	20.52	20.73	20.68	

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)
Frequency (MHz)				2501	2547	2593	2639	2685	
10	QPSK	1	0	24.58	24.23	24.34	24.52	24.58	25.5
10	QPSK	1	25	24.97	24.89	25.12	24.94	25.00	
10	QPSK	1	49	24.41	24.55	24.50	25.40	25.43	
10	QPSK	25	0	21.70	21.79	21.69	21.78	21.78	22.5
10	QPSK	25	12	21.93	21.87	21.59	21.78	21.80	
10	QPSK	25	25	21.74	21.69	21.39	21.83	22.00	
10	QPSK	50	0	21.76	21.56	21.41	21.88	21.80	
10	16QAM	1	0	21.30	21.30	21.33	21.33	21.24	22.5
10	16QAM	1	25	21.84	22.03	21.77	21.84	21.71	
10	16QAM	1	49	21.33	21.46	21.32	22.37	22.22	
10	16QAM	25	0	20.82	20.77	20.59	20.90	20.85	21.5
10	16QAM	25	12	20.89	20.92	20.71	20.94	20.84	
10	16QAM	25	25	20.81	20.69	20.51	20.99	21.04	
10	16QAM	50	0	20.79	20.73	20.48	20.93	20.88	
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5	
5	QPSK	1	0	25.15	24.94	25.21	25.20	24.85	25.5
5	QPSK	1	12	24.89	24.52	25.17	24.96	25.11	
5	QPSK	1	24	24.99	25.13	25.19	24.98	24.84	
5	QPSK	12	0	21.50	21.67	21.67	21.51	21.38	22.5
5	QPSK	12	7	21.54	21.67	21.61	21.51	21.46	
5	QPSK	12	13	21.52	21.61	21.67	21.47	21.47	
5	QPSK	25	0	21.51	21.61	21.57	21.55	21.50	
5	16QAM	1	0	21.89	21.82	21.96	21.94	21.92	22.5
5	16QAM	1	12	21.65	21.75	21.75	21.74	22.14	
5	16QAM	1	24	21.84	21.83	21.91	21.87	22.07	
5	16QAM	12	0	20.59	20.87	20.79	20.70	20.66	21.5
5	16QAM	12	7	20.75	20.79	20.81	20.64	20.66	
5	16QAM	12	13	20.73	20.49	20.88	20.68	20.65	
5	16QAM	25	0	20.74	20.54	20.70	20.71	20.73	

<LTE Carrier Aggregation>

General Note:

This device supports Carrier Aggregation on downlink for inter and intra band, on uplink for intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.

<Inter-Band for Two Carrier Combination>

E-UTRA CA configuration / Bandwidth combination set										
E-UTRA CA Configuration	Uplink CA configurations	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_25A-26A	-	25		Yes	Yes	Yes	Yes	Yes	35	0
		26	Yes	Yes	Yes	Yes	Yes			
		25		Yes	Yes	Yes			20	1
		26		Yes	Yes	Yes				
		25			Yes	Yes			20	2
		26			Yes	Yes				

<Intra-Band Carrier Combination>

E-UTRA CA configuration / Bandwidth combination set							
		Component carriers in order of increasing carrier frequency					
E-UTRA CA configuration	Uplink CA configurations	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_41C	CA_41C	10	20			40	0
		15	15, 20				
		20	10, 15, 20				
		5, 10	20			40	1
		15	15, 20				
		20	5, 10, 15, 20				
		10	15, 20			40	2
		15	10, 15, 20				
		20	10, 15, 20				
		10	20			40	3
		20	20				

E-UTRA CA configuration / Bandwidth combination set							
		Component carriers in order of increasing carrier frequency					
E-UTRA CA configuration	Uplink CA configurations	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_25A-25A	-	5, 10	5, 10			20	0
		5, 10, 15, 20	5, 10, 15, 20			40	1
CA_41A-41A	-	10, 15, 20	10, 15, 20			40	0
		5, 10, 15, 20	5, 10, 15, 20			40	1

<DL CA power measurement>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.

Index	2CC
2CC	CA_25A-26A
2CC	CA_41C
2CC	CA_25A-25A
2CC	CA_41A-41A

LTE Carrier Aggregation Conducted Power (Downlink)

General Note:

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

iii. The device supports downlink carrier aggregation only. Uplink carrier aggregation is not supported. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.

vi. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.

vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lfloor \frac{BW_{Channel(1)} + BW_{Channel(2)} - 0.1\left|BW_{Channel(1)} - BW_{Channel(2)}\right|}{0.6} \right\rfloor 0.3 \ \text{[MHz]}$$

<Full Power >

Configure		CA Configuration (BCS)	PCC							SCC				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band		CA_25A-26A	Band 25	20M	1860	26140	QPSK	1	49	Band 26	15M	876.5	8865	24.35	24.39
			Band 26	15M	841.5	26965	QPSK	1	74	Band 25	20M	1962.5	8365	24.88	24.95
Intra-Band	Non-Contiguous	CA_25A-25A	Band 25	20M	1860	26140	QPSK	1	49	Band 25	5M	1992.5	8665	24.28	24.39

<LTE Band 41 for Power Class 3>

Configure		CA Configuration (BCS)	PCC							SCC1				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Intra-Band	Non-Contiguous	CA_41A-41A	Band 41	20M	2549.5	40185	QPSK	1	49	Band 41	5M	2687.5	41565	24.40	24.41
	Contiguous	CA_41C	Band 41	20M	2549.5	40185	QPSK	1	49	Band 41	20M	2569.3	40383	24.38	24.41

<Reduced Power >

Configure		CA Configuration (BCS)	PCC							SCC				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band		CA_25A-26A	Band 25	20M	1860	26140	QPSK	1	49	Band 26	15M	876.5	8865	23.85	23.96
			Band 26	15M	841.5	26965	QPSK	1	74	Band 25	20M	1962.5	8365	24.88	24.95
Intra-Band	Non-Contiguous	CA_25A-25A	Band 25	20M	1860	26140	QPSK	1	49	Band 25	5M	1992.5	8665	23.91	23.96

LTE Carrier Aggregation Conducted Power (Uplink)

1. This device supports uplink carrier aggregation for CA_41C with a maximum of two 20MHz component carriers. For intra band 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. For the non-contiguously allocated resource blocks which the MPR level is determined by various RB separation and RB sizes requirement, and the allowed MPR levels, settings and the conducted powers are permanently implemented in this device per the 3GPP 36.36.101 section 6.2.3A.1.3 requirements.
2. According to November 2017 TCB workshop, the output power with uplink CA active was measured for the high / middle / low channel configuration with the highest reported SAR for each exposure condition, the power was measured with wideband signal integration over both component carriers.
3. In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs
4. Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05. The required test channel should be associated with the UL PCC. For channels at the ends of a frequency band, the SCC and subsequent CCs are added to the side within the transmission band. Otherwise, the CCs should be added alternatively to either side of the PCC.

<Power Measurement Setup>

<CA_41C for Power Class 3>

Power State	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	ULCA Tx. Power (dBm)	ULCA Tune up Power (dBm)	Single Carrier Target. Power (dBm)
Full	CA_41C	LTE B41	20	39750	2506	QPSK	1	49	LTE B41	20	39948	2525.8	QPSK	0	0	24.35	25.00	25.00
		LTE B41	20	40185	2549.5	QPSK	1	49	LTE B41	20	40383	2569.3	QPSK	0	0	24.38	25.00	25.00
		LTE B41	20	40620	2593	QPSK	1	49	LTE B41	20	40818	2612.8	QPSK	0	0	24.13	25.00	25.00
		LTE B41	20	41055	2636.5	QPSK	1	49	LTE B41	20	41253	2656.3	QPSK	0	0	24.18	25.00	25.00
		LTE B41	20	41490	2680	QPSK	1	49	LTE B41	20	41292	2660.2	QPSK	0	0	24.05	25.00	25.00

<WLAN Conducted Power>

General Note:

1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	14.96	15.50	97.59
		6	2437	15.13	15.50	
		11	2462	14.67	15.50	
	802.11g 6Mbps	1	2412	14.07	15.00	87.50
		6	2437	14.00	15.00	
		11	2462	13.82	15.00	
	802.11n-HT20 MCS0	1	2412	13.07	14.00	86.27
		6	2437	13.01	14.00	
		11	2462	12.91	14.00	
	802.11n-HT40 MCS0	3	2422	12.30	13.50	85.53
		6	2437	12.80	13.50	
		9	2452	12.69	13.50	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	13.12	13.50	87.20
		40	5200	13.10	13.50	
		44	5220	13.03	13.50	
		48	5240	12.96	13.50	
	802.11n-HT20 MCS0	36	5180	13.18	13.50	86.02
		40	5200	13.16	13.50	
		44	5220	13.09	13.50	
		48	5240	13.04	13.50	
	802.11n-HT40 MCS0	38	5190	12.91	13.00	86.47
		46	5230	12.54	13.00	
	802.11ac-VHT20 MCS0	36	5180	13.14	13.50	82.92
		40	5200	13.09	13.50	
		44	5220	13.05	13.50	
		48	5240	12.93	13.50	
	802.11ac-VHT40 MCS0	38	5190	12.85	13.00	71.13
		46	5230	12.46	13.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	13.21	13.50	87.20
		157	5785	13.10	13.50	
		165	5825	13.08	13.50	
	802.11n-HT20 MCS0	149	5745	13.32	13.50	86.02
		157	5785	13.18	13.50	
		165	5825	13.13	13.50	
	802.11n-HT40 MCS0	151	5755	12.97	13.00	86.47
		159	5795	12.84	13.00	
	802.11ac-VHT20 MCS0	149	5745	13.27	13.50	82.92
		157	5785	13.15	13.50	
		165	5825	13.09	13.50	
	802.11ac-VHT40 MCS0	151	5755	12.93	13.00	71.13
		159	5795	12.79	13.00	

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.67% as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation

Mode	Channel	Frequency (MHz)	Data Rate
			1Mbps
BR/EDR	CH 00	2402	9.56
	CH 39	2441	**11.04**
	CH 78	2480	9.68
Tune-up Limit (dBm)			11.50

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	0.48
	CH 19	2440	**1.67**
	CH 39	2480	0.19
Tune-up Limit			2.00

13. Bluetooth Exclusions Applied

Mode Band	Average power(dBm)	
	BR/EDR	LE
2.4GHz Bluetooth	11.50	2.00

Note:

Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

Bluetooth Max Power (dBm)	Frequency (GHz)	Separation Distance (mm)	Exclusion Thresholds
11.50	2.48	10	2.2

Note:

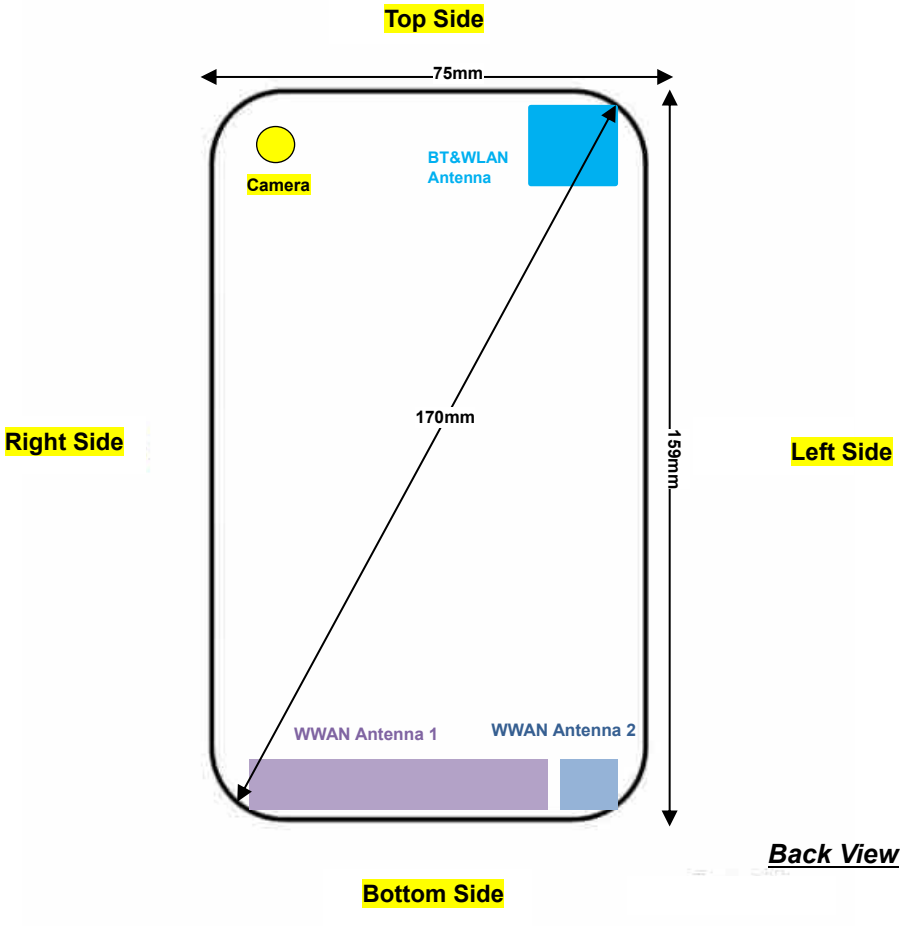
Per KDB 447498 D01v06, a distance of 10 mm is applied to determine 1g SAR test exclusion. The test exclusion threshold is 2.2 which is <= 3, Hotspot SAR testing is not required.

Bluetooth Max Power (dBm)	Frequency (GHz)	Separation Distance (mm)	Exclusion Thresholds
11.50	2.48	15	1.5

Note:

Per KDB 447498 D01v06, a distance of 15 mm is applied to determine 1g SAR test exclusion. The test exclusion threshold is 1.5 which is <= 3, Body-worn SAR testing is not required.

14. Antenna Location



Antenna	Support Band
WWAN Antenna 1	GSM: 850 /1900 WCDMA: B2 / B4 / B5 CDMA: BC0/BC1/BC10 LTE: B2 / B4 / B5 / B12 / B13 / B25 / B26
WWAN Antenna 2	LTE: B7/B41
Bluetooth & WLAN Antenna	Bluetooth WLAN 2.4GHz WLAN 5GHz

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Antenna 1	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
WWAN Antenna 2	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm	≤ 25mm
Bluetooth & WLAN Antenna	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Antenna 1	Yes	Yes	No	Yes	Yes	Yes
WWAN Antenna 2	Yes	Yes	No	Yes	No	Yes
Bluetooth & WLAN Antenna	Yes	Yes	Yes	No	No	Yes

General Note:

Referring to KDB 941225 D06 v02r01, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold, for this device only back/ bottom side SAR for WWAN transmitter (CDMA BC1) scaled to maximum output power is higher than 1.2W/kg, therefore product specific SAR for CDMA BC1 is necessary.
5. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
6. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of CDMA2000 BC1 and LTE B2 / B25 / B41-HPUE(with power class 2).
7. For Bluetooth head SAR, only the worst case of WLAN 2.4GHz head SAR was evaluated due to Bluetooth and WLAN 2.4GHz share the same antenna with consistent pattern.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 4Tx slots for GSM850 and GPRS 3Tx slots for GSM1900 are considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

WCDMA Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

CDMA2000 Note:

1. Per KDB 941225 D01v03r01, SAR for next to the ear head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03r01, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.
3. Per KDB 941225 D01v03r01, for Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH), with FCH only as the primary mode.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. According to November 2017 TCB workshop, the following applied to intra-band contiguous UL CA only;
   a. Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05. The required test channel should be associated with the UL PCC. For channels at the ends of a frequency band, the SCC and subsequent CCs are added to the side within the transmission band. Otherwise, the CCs should be added alternatively to either side of the PCC.
   b. UL CA SAR is measured for each exposure condition in each frequency band using the highest SAR configuration tested in standalone LTE mode to establish the UL CA PCC. The SCC and subsequent CC must use configurations similar to the PCC to establish conservative or worst case equivalent SAR test conditions.
   c. When the SAR configuration tested in step b) has a maximum output power specification more than ¼ dB lower than the highest maximum output power conditions measured in the power measurements in step a) above and the reported SAR in step b) is larger than 1.2 W/kg, SAR measurement is also required for the configuration in step a)
   d. All standalone SAR configurations with SAR > 1.2 W/kg must also be tested by applying the procedures in step b)
7. For LTE B4 / B5 / B12 / B13 / B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, 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. LTE B2 / B5 SAR test was covered by B25 / B26; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. The maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion.
   b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
3. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
4. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

15.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	GSM 850	GPRS (4 Tx slots)	Right Cheek	Full	251	848.8	28.17	29.00	1.211	-0.04	0.278	**0.337**
	GSM 850	GPRS (4 Tx slots)	Right Tilted	Full	251	848.8	28.17	29.00	1.211	0.02	0.159	0.192
	GSM 850	GPRS (4 Tx slots)	Left Cheek	Full	251	848.8	28.17	29.00	1.211	0.01	0.239	0.289
	GSM 850	GPRS (4 Tx slots)	Left Tilted	Full	251	848.8	28.17	29.00	1.211	0.17	0.167	0.202
02	GSM 1900	GPRS (3 Tx slots)	Right Cheek	Full	661	1880	26.37	27.00	1.156	0.01	0.126	**0.146**
	GSM 1900	GPRS (3 Tx slots)	Right Tilted	Full	661	1880	26.37	27.00	1.156	0.01	0.055	0.064
	GSM 1900	GPRS (3 Tx slots)	Left Cheek	Full	661	1880	26.37	27.00	1.156	-0.07	0.113	0.131
	GSM 1900	GPRS (3 Tx slots)	Left Tilted	Full	661	1880	26.37	27.00	1.156	-0.06	0.094	0.109

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
03	WCDMA Band V	RMC 12.2Kbps	Right Cheek	Full	4233	846.6	24.27	24.50	1.054	0.07	0.257	**0.271**
	WCDMA Band V	RMC 12.2Kbps	Right Tilted	Full	4233	846.6	24.27	24.50	1.054	0.01	0.148	0.156
	WCDMA Band V	RMC 12.2Kbps	Left Cheek	Full	4233	846.6	24.27	24.50	1.054	0.06	0.248	0.261
	WCDMA Band V	RMC 12.2Kbps	Left Tilted	Full	4233	846.6	24.27	24.50	1.054	0.04	0.123	0.130
04	WCDMA Band II	RMC 12.2Kbps	Right Cheek	Full	9262	1852.4	24.17	24.50	1.079	0.02	0.244	**0.263**
	WCDMA Band II	RMC 12.2Kbps	Right Tilted	Full	9262	1852.4	24.17	24.50	1.079	0.01	0.084	0.091
	WCDMA Band II	RMC 12.2Kbps	Left Cheek	Full	9262	1852.4	24.17	24.50	1.079	-0.02	0.201	0.217
	WCDMA Band II	RMC 12.2Kbps	Left Tilted	Full	9262	1852.4	24.17	24.50	1.079	0.01	0.172	0.186
05	WCDMA Band IV	RMC 12.2Kbps	Right Cheek	Full	1413	1732.6	24.16	24.50	1.081	0.05	0.146	**0.158**
	WCDMA Band IV	RMC 12.2Kbps	Right Tilted	Full	1413	1732.6	24.16	24.50	1.081	0.08	0.062	0.067
	WCDMA Band IV	RMC 12.2Kbps	Left Cheek	Full	1413	1732.6	24.16	24.50	1.081	0.06	0.097	0.105
	WCDMA Band IV	RMC 12.2Kbps	Left Tilted	Full	1413	1732.6	24.16	24.50	1.081	0.1	0.088	0.095

<CDMA2000 SAR>

Plot No.	Band	Mode	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
06	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	777	848.31	24.65	25.00	1.084	0.07	0.278	**0.301**
	CDMA2000 BC0	RC3 SO55	Right Tilted	Full	777	848.31	24.65	25.00	1.084	0.02	0.172	0.186
	CDMA2000 BC0	RC3 SO55	Left Cheek	Full	777	848.31	24.65	25.00	1.084	0.01	0.253	0.274
	CDMA2000 BC0	RC3 SO55	Left Tilted	Full	777	848.31	24.65	25.00	1.084	0.01	0.154	0.167
07	CDMA2000 BC10	RC3 SO55	Right Cheek	Full	684	823.1	24.84	25.00	1.038	0.01	0.290	**0.301**
	CDMA2000 BC10	RC3 SO55	Right Tilted	Full	684	823.1	24.84	25.00	1.038	0.01	0.194	0.201
	CDMA2000 BC10	RC3 SO55	Left Cheek	Full	684	823.1	24.84	25.00	1.038	0.11	0.225	0.233
	CDMA2000 BC10	RC3 SO55	Left Tilted	Full	684	823.1	24.84	25.00	1.038	0.11	0.141	0.146
	CDMA2000 BC1	RC3 SO55	Right Cheek	Full	600	1880	24.44	25.00	1.138	0.01	0.183	0.208
	CDMA2000 BC1	RC3 SO55	Right Tilted	Full	600	1880	24.44	25.00	1.138	0.01	0.099	0.113
08	CDMA2000 BC1	RC3 SO55	Left Cheek	Full	600	1880	24.44	25.00	1.138	0.13	0.190	**0.216**
	CDMA2000 BC1	RC3 SO55	Left Tilted	Full	600	1880	24.44	25.00	1.138	0.01	0.147	0.167

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
09	LTE Band 12	10M	QPSK	1	49	Right Cheek	Full	23095	707.5	24.21	25.00	1.199	0.02	0.290	**0.348**
	LTE Band 12	10M	QPSK	25	0	Right Cheek	Full	23095	707.5	23.03	24.00	1.250	0.09	0.215	0.269
	LTE Band 12	10M	QPSK	1	49	Right Tilted	Full	23095	707.5	24.21	25.00	1.199	0.01	0.238	0.285
	LTE Band 12	10M	QPSK	25	0	Right Tilted	Full	23095	707.5	23.03	24.00	1.250	-0.09	0.173	0.216
	LTE Band 12	10M	QPSK	1	49	Left Cheek	Full	23095	707.5	24.21	25.00	1.199	0.01	0.279	0.335
	LTE Band 12	10M	QPSK	25	0	Left Cheek	Full	23095	707.5	23.03	24.00	1.250	0.02	0.224	0.280
	LTE Band 12	10M	QPSK	1	49	Left Tilted	Full	23095	707.5	24.21	25.00	1.199	0.01	0.158	0.190
	LTE Band 12	10M	QPSK	25	0	Left Tilted	Full	23095	707.5	23.03	24.00	1.250	-0.02	0.117	0.146
10	LTE Band 13	10M	QPSK	1	0	Right Cheek	Full	23230	782	24.32	25.00	1.169	-0.01	0.185	**0.216**
	LTE Band 13	10M	QPSK	25	0	Right Cheek	Full	23230	782	23.14	24.00	1.219	0.01	0.136	0.166
	LTE Band 13	10M	QPSK	1	0	Right Tilted	Full	23230	782	24.32	25.00	1.169	0.01	0.154	0.180
	LTE Band 13	10M	QPSK	25	0	Right Tilted	Full	23230	782	23.14	24.00	1.219	0.02	0.114	0.139
	LTE Band 13	10M	QPSK	1	0	Left Cheek	Full	23230	782	24.32	25.00	1.169	0.01	0.185	0.216
	LTE Band 13	10M	QPSK	25	0	Left Cheek	Full	23230	782	23.14	24.00	1.219	0.01	0.130	0.158
	LTE Band 13	10M	QPSK	1	0	Left Tilted	Full	23230	782	24.32	25.00	1.169	0.03	0.073	0.085
	LTE Band 13	10M	QPSK	25	0	Left Tilted	Full	23230	782	23.14	24.00	1.219	0.09	0.057	0.070
11	LTE Band 26	15M	QPSK	1	74	Right Cheek	Full	26865	831.5	24.86	25.00	1.033	0.01	0.337	**0.348**
	LTE Band 26	15M	QPSK	36	0	Right Cheek	Full	26865	831.5	23.70	24.00	1.072	0.01	0.231	0.248
	LTE Band 26	15M	QPSK	1	74	Right Tilted	Full	26865	831.5	24.86	25.00	1.033	0.01	0.182	0.188
	LTE Band 26	15M	QPSK	36	0	Right Tilted	Full	26865	831.5	23.70	24.00	1.072	0.01	0.126	0.135
	LTE Band 26	15M	QPSK	1	74	Left Cheek	Full	26865	831.5	24.86	25.00	1.033	0.01	0.224	0.231
	LTE Band 26	15M	QPSK	36	0	Left Cheek	Full	26865	831.5	23.70	24.00	1.072	0.01	0.209	0.224
	LTE Band 26	15M	QPSK	1	74	Left Tilted	Full	26865	831.5	24.86	25.00	1.033	0.02	0.172	0.178
	LTE Band 26	15M	QPSK	36	0	Left Tilted	Full	26865	831.5	23.70	24.00	1.072	0.01	0.132	0.141
12	LTE Band 25	20M	QPSK	1	49	Right Cheek	Full	26140	1860	24.39	24.50	1.026	-0.11	0.241	**0.247**
	LTE Band 25	20M	QPSK	50	0	Right Cheek	Full	26140	1860	23.39	23.50	1.026	0.01	0.196	0.201
	LTE Band 25	20M	QPSK	1	49	Right Tilted	Full	26140	1860	24.39	24.50	1.026	0.05	0.088	0.090
	LTE Band 25	20M	QPSK	50	0	Right Tilted	Full	26140	1860	23.39	23.50	1.026	-0.05	0.068	0.070
	LTE Band 25	20M	QPSK	1	49	Left Cheek	Full	26140	1860	24.39	24.50	1.026	-0.06	0.232	0.238
	LTE Band 25	20M	QPSK	50	0	Left Cheek	Full	26140	1860	23.39	23.50	1.026	-0.05	0.185	0.190
	LTE Band 25	20M	QPSK	1	49	Left Tilted	Full	26140	1860	24.39	24.50	1.026	0.07	0.118	0.121
	LTE Band 25	20M	QPSK	50	0	Left Tilted	Full	26140	1860	23.39	23.50	1.026	0.11	0.100	0.102
13	LTE Band 4	20M	QPSK	1	49	Right Cheek	Full	20175	1732.5	23.82	24.50	1.169	0.06	0.146	**0.171**
	LTE Band 4	20M	QPSK	50	24	Right Cheek	Full	20175	1732.5	22.82	23.50	1.169	-0.09	0.116	0.136
	LTE Band 4	20M	QPSK	1	49	Right Tilted	Full	20175	1732.5	23.82	24.50	1.169	0.03	0.065	0.076
	LTE Band 4	20M	QPSK	50	24	Right Tilted	Full	20175	1732.5	22.82	23.50	1.169	0.09	0.050	0.059
	LTE Band 4	20M	QPSK	1	49	Left Cheek	Full	20175	1732.5	23.82	24.50	1.169	-0.09	0.121	0.142
	LTE Band 4	20M	QPSK	50	24	Left Cheek	Full	20175	1732.5	22.82	23.50	1.169	0.14	0.095	0.111
	LTE Band 4	20M	QPSK	1	49	Left Tilted	Full	20175	1732.5	23.82	24.50	1.169	0.13	0.128	0.150
	LTE Band 4	20M	QPSK	50	24	Left Tilted	Full	20175	1732.5	22.82	23.50	1.169	-0.01	0.102	0.119
	LTE Band 7	20M	QPSK	1	49	Right Cheek	Full	20850	2510	23.60	24.50	1.230	0.04	0.328	0.404
	LTE Band 7	20M	QPSK	50	24	Right Cheek	Full	20850	2510	22.67	23.50	1.211	0.02	0.279	0.338
	LTE Band 7	20M	QPSK	1	49	Right Tilted	Full	20850	2510	23.60	24.50	1.230	-0.16	0.242	0.298
	LTE Band 7	20M	QPSK	50	24	Right Tilted	Full	20850	2510	22.67	23.50	1.211	0.06	0.213	0.258
14	LTE Band 7	20M	QPSK	1	49	Left Cheek	Full	20850	2510	23.60	24.50	1.230	0.01	0.624	**0.768**
	LTE Band 7	20M	QPSK	50	24	Left Cheek	Full	20850	2510	22.67	23.50	1.211	0.01	0.516	0.625

	LTE Band 7	20M	QPSK	1	49	Left Tilted	Full	20850	2510	23.60	24.50	1.230	0.08	0.150	0.185
	LTE Band 7	20M	QPSK	50	24	Left Tilted	Full	20850	2510	22.67	23.50	1.211	0.01	0.138	0.167

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Class	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Right Cheek	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	0.01	0.337	0.388
	LTE Band 41	20M	QPSK	50	24	Right Cheek	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	0.01	0.280	0.312
	LTE Band 41	20M	QPSK	1	49	Right Tilted	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	0.01	0.221	0.255
	LTE Band 41	20M	QPSK	50	24	Right Tilted	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	0.08	0.182	0.203
	LTE Band 41	20M	QPSK	1	49	Left Cheek	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	0.19	0.464	0.535
	LTE Band 41	20M	QPSK	1	49	Left Cheek	3	Full	40185(PCC) + 40383(SCC)	2549.5(PCC) + 2569.3(SCC)	24.38	25.00	1.153	62.9	1.006	0.01	0.425	0.493
	LTE Band 41	20M	QPSK	50	24	Left Cheek	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	-0.01	0.421	0.469
	LTE Band 41	20M	QPSK	1	49	Left Tilted	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	0.11	0.151	0.174
	LTE Band 41	20M	QPSK	50	24	Left Tilted	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	0.01	0.104	0.116
15	LTE Band 41	20M	QPSK	1	49	Left Cheek	2	Full	40185	2549.5	27.01	27.50	1.119	42.9	1.009	-0.16	0.525	**0.593**
	LTE Band 41	20M	QPSK	50	0	Left Cheek	2	Full	40185	2549.5	23.09	24.50	1.384	42.9	1.009	0.17	0.189	0.264

<WLAN2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Max Area Scan SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
16	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	6	2437	15.13	15.5	1.089	97.59	1.025	0.612	-0.07	0.484	**0.540**
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	6	2437	15.13	15.5	1.089	97.59	1.025	0.487	0.05	0.347	0.387
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	6	2437	15.13	15.5	1.089	97.59	1.025	0.211			
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	6	2437	15.13	15.5	1.089	97.59	1.025	0.237			

<WLAN5GHz SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Max Area Scan SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
17	WLAN5.2GHz	802.11a 6Mbps	Right Cheek	36	5180	13.12	13.50	1.091	87.2	1.147	0.672	0.04	0.280	**0.351**
	WLAN5.2GHz	802.11a 6Mbps	Right Tilted	36	5180	13.12	13.50	1.091	87.2	1.147	0.481			
	WLAN5.2GHz	802.11a 6Mbps	Left Cheek	36	5180	13.12	13.50	1.091	87.2	1.147	0.227			
	WLAN5.2GHz	802.11a 6Mbps	Left Tilted	36	5180	13.12	13.50	1.091	87.2	1.147	0.227			
18	WLAN 5.8GHz	802.11a 6Mbps	Right Cheek	149	5745	13.21	13.50	1.069	87.2	1.147	0.570	0.08	0.232	**0.284**
	WLAN 5.8GHz	802.11a 6Mbps	Right Tilted	149	5745	13.21	13.50	1.069	87.2	1.147	0.342			
	WLAN 5.8GHz	802.11a 6Mbps	Left Cheek	149	5745	13.21	13.50	1.069	87.2	1.147	0.229			
	WLAN 5.8GHz	802.11a 6Mbps	Left Tilted	149	5745	13.21	13.50	1.069	87.2	1.147	0.279			

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Right Cheek	39	2441	11.04	11.5	1.112	76.67	1.086	-0.01	0.098	0.118
19	Bluetooth	1Mbps	Right Cheek	0	2402	9.56	11.5	1.562	76.67	1.086	-0.05	0.103	**0.175**
	Bluetooth	1Mbps	Right Cheek	78	2480	9.68	11.5	1.519	76.67	1.086	0.02	0.095	0.157

15.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (4 Tx slots)	Front	10	Full	251	848.8	28.17	29.00	1.211	-0.17	0.192	0.232
20	GSM850	GPRS (4 Tx slots)	Back	10	Full	251	848.8	28.17	29.00	1.211	-0.14	0.361	**0.437**
	GSM850	GPRS (4 Tx slots)	Left Side	10	Full	251	848.8	28.17	29.00	1.211	-0.04	0.195	0.236
	GSM850	GPRS (4 Tx slots)	Right Side	10	Full	251	848.8	28.17	29.00	1.211	0.04	0.210	0.254
	GSM850	GPRS (4 Tx slots)	Bottom Side	10	Full	251	848.8	28.17	29.00	1.211	0.01	0.100	0.121
	GSM1900	GPRS (3 Tx slots)	Front	10	Full	661	1880	26.37	27.00	1.156	0.01	0.446	0.516
	GSM1900	GPRS (3 Tx slots)	Back	10	Full	661	1880	26.37	27.00	1.156	-0.06	0.623	0.720
	GSM1900	GPRS (3 Tx slots)	Left Side	10	Full	661	1880	26.37	27.00	1.156	-0.08	0.150	0.173
	GSM1900	GPRS (3 Tx slots)	Right Side	10	Full	661	1880	26.37	27.00	1.156	0.01	0.088	0.102
21	GSM1900	GPRS (3 Tx slots)	Bottom Side	10	Full	661	1880	26.37	27.00	1.156	-0.09	0.633	**0.732**

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA Band V	RMC 12.2Kbps	Front	10	Full	4233	846.6	24.27	24.50	1.054	0.01	0.191	0.201
22	WCDMA Band V	RMC 12.2Kbps	Back	10	Full	4233	846.6	24.27	24.50	1.054	0.12	0.450	**0.474**
	WCDMA Band V	RMC 12.2Kbps	Left Side	10	Full	4233	846.6	24.27	24.50	1.054	0.01	0.219	0.231
	WCDMA Band V	RMC 12.2Kbps	Right Side	10	Full	4233	846.6	24.27	24.50	1.054	0.01	0.237	0.250
	WCDMA Band V	RMC 12.2Kbps	Bottom Side	10	Full	4233	846.6	24.27	24.50	1.054	0.01	0.238	0.251
	WCDMA Band II	RMC 12.2Kbps	Front	10	Full	9262	1852.4	24.17	24.50	1.079	-0.1	0.623	0.672
	WCDMA Band II	RMC 12.2Kbps	Back	10	Full	9262	1852.4	24.17	24.50	1.079	0.04	0.863	0.931
	WCDMA Band II	RMC 12.2Kbps	Back	10	Full	9400	1880	24.02	24.50	1.117	-0.04	0.943	1.053
	WCDMA Band II	RMC 12.2Kbps	Back	10	Full	9538	1907.6	24.07	24.50	1.104	0.04	0.984	1.086
	WCDMA Band II	RMC 12.2Kbps	Left Side	10	Full	9262	1852.4	24.17	24.50	1.079	0.02	0.217	0.234
	WCDMA Band II	RMC 12.2Kbps	Right Side	10	Full	9262	1852.4	24.17	24.50	1.079	0.01	0.191	0.206
23	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	Full	9262	1852.4	24.17	24.50	1.079	-0.06	1.100	**1.187**
	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	Full	9400	1880	24.02	24.50	1.117	0.11	1.010	1.128
	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	Full	9538	1907.6	24.07	24.50	1.104	-0.08	1.040	1.148
	WCDMA Band IV	RMC 12.2Kbps	Front	10	Full	1413	1732.6	24.16	24.50	1.081	0.01	0.539	0.583
	WCDMA Band IV	RMC 12.2Kbps	Back	10	Full	1413	1732.6	24.16	24.50	1.081	0.03	1.010	1.092
24	WCDMA Band IV	RMC 12.2Kbps	Back	10	Full	1312	1712.4	24.09	24.50	1.099	-0.09	1.080	**1.187**
	WCDMA Band IV	RMC 12.2Kbps	Back	10	Full	1513	1752.6	23.90	24.50	1.148	0.03	0.914	1.049
	WCDMA Band IV	RMC 12.2Kbps	Left Side	10	Full	1413	1732.6	24.16	24.50	1.081	-0.02	0.113	0.122
	WCDMA Band IV	RMC 12.2Kbps	Right Side	10	Full	1413	1732.6	24.16	24.50	1.081	-0.01	0.091	0.098
	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	Full	1413	1732.6	24.16	24.50	1.081	-0.12	0.998	1.079
	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	Full	1312	1712.4	24.09	24.50	1.099	-0.07	1.020	1.121
	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	Full	1513	1752.6	23.90	24.50	1.148	0.03	0.969	1.113

<CDMA2000 SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA2000 BC0	RTAP 153.6Kbps	Front	10	Full	777	848.31	24.63	25.00	1.089	-0.07	0.249	0.271
25	CDMA2000 BC0	RTAP 153.6Kbps	Back	10	Full	777	848.31	24.63	25.00	1.089	-0.12	0.456	**0.497**
	CDMA2000 BC0	RTAP 153.6Kbps	Left Side	10	Full	777	848.31	24.63	25.00	1.089	-0.06	0.250	0.272
	CDMA2000 BC0	RTAP 153.6Kbps	Right Side	10	Full	777	848.31	24.63	25.00	1.089	-0.06	0.311	0.339
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Side	10	Full	777	848.31	24.63	25.00	1.089	0.11	0.123	0.134
	CDMA2000 BC10	RTAP 153.6Kbps	Front	10	Full	684	823.1	24.63	25.00	1.089	-0.01	0.279	0.304
26	CDMA2000 BC10	RTAP 153.6Kbps	Back	10	Full	684	823.1	24.63	25.00	1.089	0.02	0.538	**0.586**
	CDMA2000 BC10	RTAP 153.6Kbps	Left Side	10	Full	684	823.1	24.63	25.00	1.089	-0.04	0.249	0.271
	CDMA2000 BC10	RTAP 153.6Kbps	Right Side	10	Full	684	823.1	24.63	25.00	1.089	-0.01	0.323	0.352
	CDMA2000 BC10	RTAP 153.6Kbps	Bottom Side	10	Full	684	823.1	24.63	25.00	1.089	-0.03	0.096	0.105
	CDMA2000 BC1	RTAP 153.6Kbps	Front	10	Reduced	600	1880	23.00	23.50	1.122	-0.08	0.630	0.707
	CDMA2000 BC1	RTAP 153.6Kbps	Back	10	Reduced	600	1880	23.00	23.50	1.122	-0.12	0.811	0.910
27	CDMA2000 BC1	RTAP 153.6Kbps	Back	10	Reduced	25	1851.25	22.95	23.50	1.135	-0.1	0.822	**0.933**
	CDMA2000 BC1	RTAP 153.6Kbps	Back	10	Reduced	1175	1908.75	22.92	23.50	1.143	-0.14	0.780	0.891
	CDMA2000 BC1	RTAP 153.6Kbps	Left Side	10	Reduced	600	1880	23.00	23.50	1.122	0.06	0.219	0.246
	CDMA2000 BC1	RTAP 153.6Kbps	Right Side	10	Reduced	600	1880	23.00	23.50	1.122	-0.04	0.111	0.125
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	10	Reduced	600	1880	23.00	23.50	1.122	-0.06	0.815	0.914
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	10	Reduced	25	1851.25	22.95	23.50	1.135	0.01	0.747	0.848
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	10	Reduced	1175	1908.75	22.92	23.50	1.143	-0.06	0.786	0.898

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1	49	Front	10	Full	23095	707.5	24.21	25.00	1.199	-0.02	0.271	0.325
	LTE Band 12	10M	QPSK	25	0	Front	10	Full	23095	707.5	23.03	24.00	1.250	-0.11	0.204	0.255
28	LTE Band 12	10M	QPSK	1	49	Back	10	Full	23095	707.5	24.21	25.00	1.199	-0.14	0.448	**0.537**
	LTE Band 12	10M	QPSK	25	0	Back	10	Full	23095	707.5	23.03	24.00	1.250	0.05	0.344	0.430
	LTE Band 12	10M	QPSK	1	49	Left Side	10	Full	23095	707.5	24.21	25.00	1.199	0.02	0.256	0.307
	LTE Band 12	10M	QPSK	25	0	Left Side	10	Full	23095	707.5	23.03	24.00	1.250	0.05	0.188	0.235
	LTE Band 12	10M	QPSK	1	49	Right Side	10	Full	23095	707.5	24.21	25.00	1.199	0.03	0.328	0.393
	LTE Band 12	10M	QPSK	25	0	Right Side	10	Full	23095	707.5	23.03	24.00	1.250	-0.05	0.243	0.304
	LTE Band 12	10M	QPSK	1	49	Bottom Side	10	Full	23095	707.5	24.21	25.00	1.199	0.01	0.058	0.070
	LTE Band 12	10M	QPSK	25	0	Bottom Side	10	Full	23095	707.5	23.03	24.00	1.250	0.01	0.042	0.052
	LTE Band 13	10M	QPSK	1	0	Front	10	Full	23230	782	24.32	25.00	1.169	-0.03	0.142	0.166
	LTE Band 13	10M	QPSK	25	0	Front	10	Full	23230	782	23.14	24.00	1.219	-0.08	0.113	0.138
	LTE Band 13	10M	QPSK	1	0	Back	10	Full	23230	782	24.32	25.00	1.169	0.07	0.241	0.282
	LTE Band 13	10M	QPSK	25	0	Back	10	Full	23230	782	23.14	24.00	1.219	0.06	0.194	0.236
	LTE Band 13	10M	QPSK	1	0	Left Side	10	Full	23230	782	24.32	25.00	1.169	0.03	0.219	0.256
	LTE Band 13	10M	QPSK	25	0	Left Side	10	Full	23230	782	23.14	24.00	1.219	0.06	0.175	0.213
29	LTE Band 13	10M	QPSK	1	0	Right Side	10	Full	23230	782	24.32	25.00	1.169	-0.01	0.293	**0.343**
	LTE Band 13	10M	QPSK	25	0	Right Side	10	Full	23230	782	23.14	24.00	1.219	0.02	0.220	0.268
	LTE Band 13	10M	QPSK	1	0	Bottom Side	10	Full	23230	782	24.32	25.00	1.169	0.01	0.067	0.079
	LTE Band 13	10M	QPSK	25	0	Bottom Side	10	Full	23230	782	23.14	24.00	1.219	0.01	0.054	0.066

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 26	15M	QPSK	1	74	Front	10	Full	26865	831.5	24.86	25.00	1.033	0.03	0.321	0.332
	LTE Band 26	15M	QPSK	36	0	Front	10	Full	26865	831.5	23.70	24.00	1.072	0.1	0.240	0.257
30	LTE Band 26	15M	QPSK	1	74	Back	10	Full	26865	831.5	24.86	25.00	1.033	0.03	0.559	**0.577**
	LTE Band 26	15M	QPSK	36	0	Back	10	Full	26865	831.5	23.70	24.00	1.072	-0.09	0.400	0.429
	LTE Band 26	15M	QPSK	1	74	Left Side	10	Full	26865	831.5	24.86	25.00	1.033	0.03	0.380	0.392
	LTE Band 26	15M	QPSK	36	0	Left Side	10	Full	26865	831.5	23.70	24.00	1.072	0.02	0.301	0.323
	LTE Band 26	15M	QPSK	1	74	Right Side	10	Full	26865	831.5	24.86	25.00	1.033	-0.02	0.322	0.333
	LTE Band 26	15M	QPSK	36	0	Right Side	10	Full	26865	831.5	23.70	24.00	1.072	0.03	0.307	0.329
	LTE Band 26	15M	QPSK	1	74	Bottom Side	10	Full	26865	831.5	24.86	25.00	1.033	0.09	0.140	0.145
	LTE Band 26	15M	QPSK	36	0	Bottom Side	10	Full	26865	831.5	23.70	24.00	1.072	-0.07	0.095	0.102
	LTE Band 25	20M	QPSK	1	49	Front	10	Reduced	26140	1860	23.96	24.00	1.009	0.12	0.587	0.592
	LTE Band 25	20M	QPSK	50	0	Front	10	Reduced	26140	1860	22.99	23.00	1.002	-0.11	0.468	0.469
	LTE Band 25	20M	QPSK	1	49	Back	10	Reduced	26140	1860	23.96	24.00	1.009	-0.04	0.803	0.810
	LTE Band 25	20M	QPSK	1	49	Back	10	Reduced	26340	1880	23.94	24.00	1.014	-0.09	0.773	0.784
	LTE Band 25	20M	QPSK	1	49	Back	10	Reduced	26590	1905	23.95	24.00	1.012	-0.07	0.870	0.880
	LTE Band 25	20M	QPSK	50	0	Back	10	Reduced	26140	1860	22.99	23.00	1.002	-0.1	0.602	0.603
	LTE Band 25	20M	QPSK	50	0	Back	10	Reduced	26340	1880	22.58	23.00	1.102	-0.06	0.605	0.666
	LTE Band 25	20M	QPSK	50	0	Back	10	Reduced	26590	1905	22.79	23.00	1.050	-0.05	0.680	0.714
	LTE Band 25	20M	QPSK	100	0	Back	10	Reduced	26140	1860	22.92	23.00	1.019	-0.05	0.676	0.689
	LTE Band 25	20M	QPSK	1	49	Left Side	10	Reduced	26140	1860	23.96	24.00	1.009	-0.03	0.203	0.205
	LTE Band 25	20M	QPSK	50	0	Left Side	10	Reduced	26140	1860	22.99	23.00	1.002	-0.13	0.175	0.175
	LTE Band 25	20M	QPSK	1	49	Right Side	10	Reduced	26140	1860	23.96	24.00	1.009	-0.12	0.096	0.097
	LTE Band 25	20M	QPSK	50	0	Right Side	10	Reduced	26140	1860	22.99	23.00	1.002	-0.01	0.074	0.074
	LTE Band 25	20M	QPSK	1	49	Bottom Side	10	Reduced	26140	1860	23.96	24.00	1.009	-0.07	0.853	0.861
	LTE Band 25	20M	QPSK	1	49	Bottom Side	10	Reduced	26340	1880	23.94	24.00	1.014	0.01	0.761	0.772
31	LTE Band 25	20M	QPSK	1	49	Bottom Side	10	Reduced	26590	1905	23.95	24.00	1.012	-0.15	0.908	**0.919**
	LTE Band 25	20M	QPSK	50	0	Bottom Side	10	Reduced	26140	1860	22.99	23.00	1.002	-0.15	0.755	0.757
	LTE Band 25	20M	QPSK	100	0	Bottom Side	10	Reduced	26140	1860	22.92	23.00	1.019	-0.15	0.749	0.763
	LTE Band 4	20M	QPSK	1	49	Front	10	Full	20175	1732.5	23.82	24.50	1.169	-0.03	0.484	0.566
	LTE Band 4	20M	QPSK	50	24	Front	10	Full	20175	1732.5	22.82	23.50	1.169	0.01	0.348	0.407
	LTE Band 4	20M	QPSK	1	49	Back	10	Full	20175	1732.5	23.82	24.50	1.169	-0.04	0.911	1.065
	LTE Band 4	20M	QPSK	50	24	Back	10	Full	20175	1732.5	22.82	23.50	1.169	-0.02	0.790	0.924
	LTE Band 4	20M	QPSK	100	0	Back	10	Full	20175	1732.5	22.79	23.50	1.178	0.02	0.776	0.914
	LTE Band 4	20M	QPSK	1	49	Left Side	10	Full	20175	1732.5	23.82	24.50	1.169	0.07	0.119	0.139
	LTE Band 4	20M	QPSK	50	24	Left Side	10	Full	20175	1732.5	22.82	23.50	1.169	-0.07	0.088	0.103
	LTE Band 4	20M	QPSK	1	49	Right Side	10	Full	20175	1732.5	23.82	24.50	1.169	0.01	0.090	0.106
	LTE Band 4	20M	QPSK	50	24	Right Side	10	Full	20175	1732.5	22.82	23.50	1.169	0.07	0.072	0.084
32	LTE Band 4	20M	QPSK	1	49	Bottom Side	10	Full	20175	1732.5	23.82	24.50	1.169	-0.13	0.946	**1.106**
	LTE Band 4	20M	QPSK	50	24	Bottom Side	10	Full	20175	1732.5	22.82	23.50	1.169	0.01	0.693	0.810
	LTE Band 4	20M	QPSK	100	0	Bottom Side	10	Full	20175	1732.5	22.79	23.50	1.178	0.01	0.695	0.818

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 7	20M	QPSK	1	49	Front	10	Full	20850	2510	23.60	24.50	1.230	-0.05	0.780	0.960
	LTE Band 7	20M	QPSK	1	49	Front	10	Full	21100	2535	23.55	24.50	1.245	0.01	0.787	0.979
	LTE Band 7	20M	QPSK	1	49	Front	10	Full	21350	2560	23.35	24.50	1.303	-0.01	0.819	1.067
	LTE Band 7	20M	QPSK	50	24	Front	10	Full	20850	2510	22.67	23.50	1.211	0.02	0.687	0.832
	LTE Band 7	20M	QPSK	50	24	Front	10	Full	21100	2535	22.64	23.50	1.219	0.01	0.766	0.934
	LTE Band 7	20M	QPSK	50	24	Front	10	Full	21350	2560	22.45	23.50	1.274	0.01	0.823	1.048
	LTE Band 7	20M	QPSK	100	0	Front	10	Full	20850	2510	22.7	23.50	1.202	0.02	0.681	0.819
	LTE Band 7	20M	QPSK	1	49	Back	10	Full	20850	2510	23.60	24.50	1.230	-0.04	0.607	0.747
	LTE Band 7	20M	QPSK	50	24	Back	10	Full	20850	2510	22.67	23.50	1.211	0.05	0.587	0.711
	LTE Band 7	20M	QPSK	1	49	Left Side	10	Full	20850	2510	23.60	24.50	1.230	0.01	0.931	1.145
	LTE Band 7	20M	QPSK	1	49	Left Side	10	Full	21100	2535	23.55	24.50	1.245	0.1	0.679	0.845
33	LTE Band 7	20M	QPSK	1	49	Left Side	10	Full	21350	2560	23.35	24.50	1.303	0.07	0.880	**1.147**
	LTE Band 7	20M	QPSK	50	24	Left Side	10	Full	20850	2510	22.67	23.50	1.211	0.01	0.784	0.949
	LTE Band 7	20M	QPSK	50	24	Left Side	10	Full	21100	2535	22.64	23.50	1.219	-0.09	0.708	0.863
	LTE Band 7	20M	QPSK	50	24	Left Side	10	Full	21350	2560	22.45	23.50	1.274	0.12	0.787	1.002
	LTE Band 7	20M	QPSK	100	0	Left Side	10	Full	20850	2510	22.7	23.50	1.202	-0.02	0.655	0.787
	LTE Band 7	20M	QPSK	1	49	Bottom Side	10	Full	20850	2510	23.60	24.50	1.230	-0.04	0.349	0.429
	LTE Band 7	20M	QPSK	50	24	Bottom Side	10	Full	20850	2510	22.67	23.50	1.211	-0.08	0.263	0.318

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Class	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Front	10	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	-0.08	0.658	0.758
	LTE Band 41	20M	QPSK	1	49	Front	10	3	Full	39750	2506	24.10	25.00	1.230	62.9	1.006	-0.12	0.574	0.710
	LTE Band 41	20M	QPSK	1	49	Front	10	3	Full	40620	2593	24.05	25.00	1.245	62.9	1.006	-0.08	0.666	0.834
	LTE Band 41	20M	QPSK	1	49	Front	10	3	Full	41055	2636.5	23.90	25.00	1.288	62.9	1.006	-0.02	0.614	0.796
	LTE Band 41	20M	QPSK	1	49	Front	10	3	Full	41490	2680	23.81	25.00	1.315	62.9	1.006	-0.01	0.483	0.639
	LTE Band 41	20M	QPSK	50	24	Front	10	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	-0.09	0.420	0.468
	LTE Band 41	20M	QPSK	100	0	Front	10	3	Full	40185	2549.5	23.59	24.00	1.099	62.9	1.006	-0.08	0.411	0.454
	LTE Band 41	20M	QPSK	1	49	Back	10	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	-0.1	0.613	0.706
	LTE Band 41	20M	QPSK	1	49	Back	10	3	Full	39750	2506	24.10	25.00	1.230	62.9	1.006	-0.01	0.578	0.715
	LTE Band 41	20M	QPSK	1	49	Back	10	3	Full	40620	2593	24.05	25.00	1.245	62.9	1.006	-0.14	0.583	0.730
34	LTE Band 41	20M	QPSK	1	49	Back	10	3	Full	41055	2636.5	23.90	25.00	1.288	62.9	1.006	-0.05	0.657	**0.851**
	LTE Band 41	20M	QPSK	1	49	Back	10	3	Full	41490	2680	23.81	25.00	1.315	62.9	1.006	-0.15	0.509	0.673
	LTE Band 41	20M	QPSK	1	49	Back	10	3	Full	41055(PCC) + 40353(SCC)	2636.5(PCC) + 2656.3(SCC)	24.18	25.00	1.208	62.9	1.006	0.05	0.489	0.594
	LTE Band 41	20M	QPSK	50	24	Back	10	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	-0.13	0.513	0.571
	LTE Band 41	20M	QPSK	100	0	Back	10	3	Full	40185	2549.5	23.59	24.00	1.099	62.9	1.006	-0.1	0.537	0.594
	LTE Band 41	20M	QPSK	1	49	Left Side	10	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	-0.15	0.493	0.568
	LTE Band 41	20M	QPSK	50	24	Left Side	10	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	-0.02	0.415	0.462
	LTE Band 41	20M	QPSK	1	49	Bottom Side	10	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	-0.05	0.223	0.257
	LTE Band 41	20M	QPSK	50	24	Bottom Side	10	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	-0.08	0.184	0.205
	LTE Band 41	20M	QPSK	1	49	Back	10	2	Reduced	41055	2636.5	25.45	25.50	1.012	42.9	1.009	-0.03	0.537	0.548
	LTE Band 41	20M	QPSK	1	49	Back	10	2	Reduced	39750	2506	25.09	25.50	1.099	42.9	1.009	-0.02	0.426	0.472
	LTE Band 41	20M	QPSK	1	49	Back	10	2	Reduced	40185	2549.5	25.00	25.50	1.122	42.9	1.009	0.02	0.521	0.590
	LTE Band 41	20M	QPSK	1	49	Back	10	2	Reduced	40620	2593	25.01	25.50	1.119	42.9	1.009	0.05	0.570	0.644
	LTE Band 41	20M	QPSK	1	49	Back	10	2	Reduced	41490	2680	25.02	25.50	1.117	42.9	1.009	-0.04	0.630	0.710
	LTE Band 41	20M	QPSK	50	0	Back	10	2	Reduced	41055	2636.5	21.87	22.50	1.156	42.9	1.009	-0.17	0.371	0.433
	LTE Band 41	20M	QPSK	100	0	Back	10	2	Reduced	41055	2636.5	21.85	22.50	1.161	42.9	1.009	0.14	0.429	0.503

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Max Area Scan SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 2.4GHz	802.11b 1Mbps	Front	10	6	2437	15.13	15.5	1.089	97.59	1.025	0.132			
	WLAN 2.4GHz	802.11b 1Mbps	Back	10	6	2437	15.13	15.5	1.089	97.59	1.025	0.171			
35	WLAN 2.4GHz	802.11b 1Mbps	Left Side	10	6	2437	15.13	15.5	1.089	97.59	1.025	0.211	-0.04	0.137	**0.153**
	WLAN 2.4GHz	802.11b 1Mbps	Top Side	10	6	2437	15.13	15.5	1.089	97.59	1.025	0.062			

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Max Area Scan SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Front	10	36	5180	13.12	13.50	1.091	87.2	1.147	0.135			
36	WLAN5.2GHz	802.11a 6Mbps	Back	10	36	5180	13.12	13.50	1.091	87.2	1.147	0.331	0.11	0.107	**0.134**
	WLAN5.2GHz	802.11a 6Mbps	Left Side	10	36	5180	13.12	13.50	1.091	87.2	1.147	0.149	0.03	0.061	0.076
	WLAN5.2GHz	802.11a 6Mbps	Top Side	10	36	5180	13.12	13.50	1.091	87.2	1.147	0.059			
	WLAN5.8GHz	802.11a 6Mbps	Front	10	149	5745	13.21	13.50	1.069	87.2	1.147	0.133			
37	WLAN5.8GHz	802.11a 6Mbps	Back	10	149	5745	13.21	13.50	1.069	87.2	1.147	1.012	-0.05	0.412	**0.505**
	WLAN5.8GHz	802.11a 6Mbps	Left Side	10	149	5745	13.21	13.50	1.069	87.2	1.147	0.195	0.12	0.074	0.091
	WLAN5.8GHz	802.11a 6Mbps	Top Side	10	149	5745	13.21	13.50	1.069	87.2	1.147	0.078			

15.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (4 Tx slots)	Front	15	Full	251	848.8	28.17	29.00	1.211	0.04	0.214	0.259
38	GSM850	GPRS (4 Tx slots)	Back	15	Full	251	848.8	28.17	29.00	1.211	0.09	0.315	**0.381**
	GSM1900	GPRS (3 Tx slots)	Front	15	Full	661	1880	26.37	27.00	1.156	-0.13	0.210	0.243
39	GSM1900	GPRS (3 Tx slots)	Back	15	Full	661	1880	26.37	27.00	1.156	-0.12	0.291	**0.336**

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA Band V	RMC 12.2Kbps	Front	15	Full	4233	846.6	24.27	24.50	1.054	0	0.208	0.219
40	WCDMA Band V	RMC 12.2Kbps	Back	15	Full	4233	846.6	24.27	24.50	1.054	0.01	0.313	**0.330**
	WCDMA Band II	RMC 12.2Kbps	Front	15	Full	9262	1852.4	24.17	24.50	1.079	0.01	0.416	0.449
41	WCDMA Band II	RMC 12.2Kbps	Back	15	Full	9262	1852.4	24.17	24.50	1.079	-0.01	0.556	**0.600**
	WCDMA Band IV	RMC 12.2Kbps	Front	15	Full	1413	1732.6	24.16	24.50	1.081	-0.02	0.339	0.367
42	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1413	1732.6	24.16	24.50	1.081	0.01	0.578	**0.625**

<CDMA2000 SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	15	Full	777	848.31	24.69	25.00	1.074	0.07	0.244	0.262
43	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	15	Full	777	848.31	24.69	25.00	1.074	-0.01	0.388	**0.417**
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Front	15	Full	684	823.1	24.85	25.00	1.035	0.08	0.321	0.332
44	CDMA2000 BC10	RC3 SO32 (F+SCH)	Back	15	Full	684	823.1	24.85	25.00	1.035	-0.07	0.476	**0.493**
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Front	15	Full	600	1880	24.45	25.00	1.135	0.01	0.370	0.420
45	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	15	Full	600	1880	24.45	25.00	1.135	-0.01	0.515	**0.585**

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1	49	Front	15	Full	23095	707.5	24.21	25.00	1.199	0.02	0.264	0.317
	LTE Band 12	10M	QPSK	25	0	Front	15	Full	23095	707.5	23.03	24.00	1.250	0.01	0.200	0.250
46	LTE Band 12	10M	QPSK	1	49	Back	15	Full	23095	707.5	24.21	25.00	1.199	-0.02	0.368	**0.441**
	LTE Band 12	10M	QPSK	25	0	Back	15	Full	23095	707.5	23.03	24.00	1.250	0.03	0.348	0.435
	LTE Band 13	10M	QPSK	1	0	Front	15	Full	23230	782	24.32	25.00	1.169	0.01	0.152	0.178
	LTE Band 13	10M	QPSK	25	0	Front	15	Full	23230	782	23.14	24.00	1.219	-0.07	0.122	0.149
47	LTE Band 13	10M	QPSK	1	0	Back	15	Full	23230	782	24.32	25.00	1.169	-0.01	0.226	**0.264**
	LTE Band 13	10M	QPSK	25	0	Back	15	Full	23230	782	23.14	24.00	1.219	-0.15	0.177	0.216
	LTE Band 26	15M	QPSK	1	74	Front	15	Full	26865	831.5	24.86	25.00	1.033	-0.07	0.279	0.288
	LTE Band 26	15M	QPSK	36	0	Front	15	Full	26865	831.5	23.70	24.00	1.072	0.01	0.215	0.230
48	LTE Band 26	15M	QPSK	1	74	Back	15	Full	26865	831.5	24.86	25.00	1.033	-0.04	0.411	**0.424**
	LTE Band 26	15M	QPSK	36	0	Back	15	Full	26865	831.5	23.70	24.00	1.072	-0.04	0.334	0.358
	LTE Band 25	20M	QPSK	1	49	Front	15	Full	26140	1860	24.39	24.50	1.026	0.01	0.303	0.311
	LTE Band 25	20M	QPSK	50	0	Front	15	Full	26140	1860	23.39	23.50	1.026	0.18	0.295	0.303
49	LTE Band 25	20M	QPSK	1	49	Back	15	Full	26140	1860	24.39	24.50	1.026	0.01	0.521	**0.534**
	LTE Band 25	20M	QPSK	50	0	Back	15	Full	26140	1860	23.39	23.50	1.026	-0.01	0.397	0.407
	LTE Band 4	20M	QPSK	1	49	Front	15	Full	20175	1732.5	23.82	24.50	1.169	0.01	0.223	0.261
	LTE Band 4	20M	QPSK	50	24	Front	15	Full	20175	1732.5	22.82	23.50	1.169	-0.01	0.206	0.241
50	LTE Band 4	20M	QPSK	1	49	Back	15	Full	20175	1732.5	23.82	24.50	1.169	0.11	0.439	**0.513**
	LTE Band 4	20M	QPSK	50	24	Back	15	Full	20175	1732.5	22.82	23.50	1.169	0.01	0.393	0.460
51	LTE Band 7	20M	QPSK	1	49	Front	15	Full	20850	2510	23.60	24.50	1.230	-0.01	0.255	**0.314**
	LTE Band 7	20M	QPSK	50	24	Front	15	Full	20850	2510	22.67	23.50	1.211	0.13	0.232	0.281
	LTE Band 7	20M	QPSK	1	49	Back	15	Full	20850	2510	23.60	24.50	1.230	-0.03	0.246	0.303
	LTE Band 7	20M	QPSK	50	24	Back	15	Full	20850	2510	22.67	23.50	1.211	-0.04	0.235	0.284

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Class	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Front	15	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	0.04	0.340	0.392
	LTE Band 41	20M	QPSK	50	24	Front	15	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	-0.02	0.288	0.321
	LTE Band 41	20M	QPSK	1	49	Back	15	3	Full	40185	2549.5	24.41	25.00	1.146	62.9	1.006	0.08	0.355	0.409
	LTE Band 41	20M	QPSK	1	49	Back	15	3	Full	40185(PCC) + 40383(SCC)	2549.5(PCC) + 2569.3(SCC)	24.38	25.00	1.153	62.9	1.006	0.05	0.328	0.381
	LTE Band 41	20M	QPSK	50	24	Back	15	3	Full	40185	2549.5	23.56	24.00	1.107	62.9	1.006	0.01	0.305	0.340
52	LTE Band 41	20M	QPSK	1	49	Back	15	2	Full	40185	2549.5	27.01	27.50	1.119	42.9	1.009	-0.17	0.448	**0.506**
	LTE Band 41	20M	QPSK	50	0	Back	15	2	Full	40185	2549.5	23.09	24.50	1.384	42.9	1.009	-0.09	0.169	0.236

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Max Area Scan SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 2.4GHz	802.11b 1Mbps	Front	15	6	2437	15.13	15.5	1.089	97.59	1.025	0.070			
53	WLAN 2.4GHz	802.11b 1Mbps	Back	15	6	2437	15.13	15.5	1.089	97.59	1.025	0.089	0.14	0.061	**0.068**

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Max Area Scan SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Front	15	36	5180	13.12	13.50	1.091	87.2	1.147	0.067			
54	WLAN5.2GHz	802.11a 6Mbps	Back	15	36	5180	13.12	13.50	1.091	87.2	1.147	0.181	-0.01	0.082	**0.102**
	WLAN5.8GHz	802.11a 6Mbps	Front	15	149	5745	13.21	13.50	1.069	87.2	1.147	0.075			
55	WLAN5.8GHz	802.11a 6Mbps	Back	15	149	5745	13.21	13.50	1.069	87.2	1.147	0.617	0.04	0.262	**0.321**

15.4 Product specific 10g SAR

<CDMA2000 SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	CDMA2000 BC1	RTAP 153.6Kbps	Back	0	Full	600	1880	24.38	25.00	1.153	0.03	3.000	3.460
56	CDMA2000 BC1	RTAP 153.6Kbps	Back	0	Full	25	1851.25	24.35	25.00	1.161	-0.05	3.260	**3.786**
	CDMA2000 BC1	RTAP 153.6Kbps	Back	0	Full	1175	1908.75	24.34	25.00	1.164	0.08	2.870	3.341
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0	Full	600	1880	24.38	25.00	1.153	0.1	2.720	3.137
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0	Full	25	1851.25	24.35	25.00	1.161	0.03	2.880	3.345
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0	Full	1175	1908.75	24.34	25.00	1.164	-0.02	2.670	3.108

15.5 TDD LTE Band 41(HPUE) Linearity Data Analysis

LTE Band 41(HPUE)-Linearity Data for Head		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	25.00	27.50
Reported 1g SAR (W/kg)	0.535	0.593
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	200.17	243.49
Linearity SAR (W/kg)	0.651	
% deviation from expected linearity		-8.88%

LTE Band 41(HPUE)-Linearity Data for Hotspot		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	25.00	25.50
Reported 1g SAR (W/kg)	0.851	0.710
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	200.17	153.63
Linearity SAR (W/kg)	0.653	
% deviation from expected linearity		8.70%

LTE Band 41(HPUE)-Linearity Data for Body-worn		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	25.00	27.50
Reported 1g SAR (W/kg)	0.409	0.506
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	200.17	243.49
Linearity SAR (W/kg)	0.498	
% deviation from expected linearity		1.71%

General Note:

1. The device can adjust uplink/downlink configuration automatically according to the transmitting power class level for LTE band 41, as the following table:

LTE TDD Band	Power Class	support uplink/downlink
LTE Band 41	3	1,2,3,4,5
	2	0,1,2,3,4,5,6

2. According to TCB Workshop May 2017, Rel. 14 has introduced HPUE Power Class 2 for Band 41. HPUE Power Class 2 does not support uplink downlink configurations 0 and 6.
3. Power class 3 is expected to be the dominant use configuration; therefore, SAR should be tested as normally required.
4. Power class 2 is tested using the highest SAR test configuration in power class 3 of each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in power class 2.
5. Separate SAR testing for Power Class 2 is not required when
   – the reported SAR vs. output power can be linearly scaled with < 10%
   – discrepancy between power classes and all *reported* SAR are < 1.4 W/kg

15.6 Repeated SAR Measurement

<1g SAR>

No.	Band	Mode	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA Band II	RMC 12.2Kbps	-	-	-	-	Bottom Side	10	Full	9262	1852.4	24.17	24.50	1.079	-	-	-0.06	1.100	1	1.187
2nd	WCDMA Band II	RMC 12.2Kbps	-	-	-	-	Bottom Side	10	Full	9262	1852.4	24.17	24.50	1.079	-	-	0.02	1.080	1.019	1.165
1st	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Back	10	Full	1312	1712.4	24.09	24.50	1.099	-	-	-0.09	1.080	1	1.187
2nd	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Back	10	Full	1312	1712.4	24.09	24.50	1.099	-	-	0.07	1.060	1.019	1.165
1st	LTE Band 7	-	20M	QPSK	1	49	Left Side	10	Full	20850	2510	23.60	24.50	1.230	-	-	0.01	0.931	1	1.145
2nd	LTE Band 7	-	20M	QPSK	1	49	Left Side	10	Full	20850	2510	23.60	24.50	1.230	-	-	-0.05	0.925	1.006	1.138

<10g SAR>

No.	Band	Mode	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	CDMA2000 BC1	RTAP 153.6Kbps	-	-	-	-	Back	0	Full	25	1851.25	24.35	25.00	1.161	-	-	-0.05	3.260	1	3.786
2nd	CDMA2000 BC1	RTAP 153.6Kbps	-	-	-	-	Back	0	Full	25	1851.25	24.35	25.00	1.161	-	-	-0.01	3.230	1.009	3.751

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The ratio is the difference in percentage between original and repeated *measured SAR*.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			Note
		Head	Body-worn	Hotspot	
1.	GSM Voice + WLAN2.4GHz	Yes	Yes		
2.	GPRS/EDGE + WLAN2.4GHz	Yes	Yes	Yes	WLAN Hotspot
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes	WLAN Hotspot
4.	CDMA + WLAN2.4GHz	Yes	Yes	Yes	WLAN Hotspot
5.	LTE + WLAN2.4GHz	Yes	Yes	Yes	WLAN Hotspot
6.	GSM Voice + WLAN5.2/5.8GHz	Yes	Yes		
7.	GPRS/EDGE + WLAN5.2/5.8GHz	Yes	Yes	Yes	WLAN Hotspot/Direct(GC/GO)
8.	WCDMA + WLAN5.2/5.8GHz	Yes	Yes	Yes	WLAN Hotspot/Direct(GC/GO)
9.	CDMA + WLAN5.2/5.8GHz	Yes	Yes	Yes	WLAN Hotspot/Direct(GC/GO)
10.	LTE + WLAN5.2/5.8GHz	Yes	Yes	Yes	WLAN Hotspot/Direct(GC/GO)
11.	GSM Voice + Bluetooth	Yes	Yes		
12.	GPRS/EDGE + Bluetooth	Yes	Yes	Yes	BT Tethering
13.	WCDMA + Bluetooth	Yes	Yes	Yes	BT Tethering
14.	CDMA + Bluetooth	Yes	Yes	Yes	BT Tethering
15.	LTE + Bluetooth	Yes	Yes	Yes	BT Tethering

General Note:

1. This device supports VoIP in GPRS, EGPRS, CDMA, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. EUT will choose each GSM, WCDMA, CDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
3. WLAN and Bluetooth share the same antenna, so can't transmit simultaneously.
4. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
5. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
6. This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO).
7. All licensed modes share the same antenna part and cannot transmit simultaneously.
8. Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
9. The reported SAR summation is calculated based on the same configuration and test position.
10. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
    i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
    ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
    iii) If SPLSR ≤ 0.04 for 1g SAR, SPLSR ≤ 0.10 for 10g SAR simultaneously transmission SAR measurement is not necessary.
    iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
    v) The SPLSR calculated results please refer to section 16.4.
11. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
    i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
    ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
    iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.

Bluetooth Max Power (dBm)	Exposure Position	Hotspot	Body worn
	Test separation	10 mm	15 mm
11.5	Estimated 1g SAR (W/kg)	0.297	0.198

16.1 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850	Right Cheek	0.337	0.540	0.351	0.175	0.88	0.69	0.51
		Right Tilted	0.192	0.540	0.351	0.175	0.73	0.54	0.37
		Left Cheek	0.289	0.540	0.351	0.175	0.83	0.64	0.46
		Left Tilted	0.202	0.540	0.351	0.175	0.74	0.55	0.38
	GSM1900	Right Cheek	0.146	0.540	0.351	0.175	0.69	0.50	0.32
		Right Tilted	0.064	0.540	0.351	0.175	0.60	0.42	0.24
		Left Cheek	0.131	0.540	0.351	0.175	0.67	0.48	0.31
		Left Tilted	0.109	0.540	0.351	0.175	0.65	0.46	0.28
WCDMA	Band V	Right Cheek	0.271	0.540	0.351	0.175	0.81	0.62	0.45
		Right Tilted	0.156	0.540	0.351	0.175	0.70	0.51	0.33
		Left Cheek	0.261	0.540	0.351	0.175	0.80	0.61	0.44
		Left Tilted	0.130	0.540	0.351	0.175	0.67	0.48	0.31
	Band II	Right Cheek	0.263	0.540	0.351	0.175	0.80	0.61	0.44
		Right Tilted	0.091	0.540	0.351	0.175	0.63	0.44	0.27
		Left Cheek	0.217	0.540	0.351	0.175	0.76	0.57	0.39
		Left Tilted	0.186	0.540	0.351	0.175	0.73	0.54	0.36
	Band IV	Right Cheek	0.158	0.540	0.351	0.175	0.70	0.51	0.33
		Right Tilted	0.067	0.540	0.351	0.175	0.61	0.42	0.24
		Left Cheek	0.105	0.540	0.351	0.175	0.65	0.46	0.28
		Left Tilted	0.095	0.540	0.351	0.175	0.64	0.45	0.27
CDMA	BC0	Right Cheek	0.301	0.540	0.351	0.175	0.84	0.65	0.48
		Right Tilted	0.186	0.540	0.351	0.175	0.73	0.54	0.36
		Left Cheek	0.274	0.540	0.351	0.175	0.81	0.63	0.45
		Left Tilted	0.167	0.540	0.351	0.175	0.71	0.52	0.34
	BC10	Right Cheek	0.301	0.540	0.351	0.175	0.84	0.65	0.48
		Right Tilted	0.201	0.540	0.351	0.175	0.74	0.55	0.38
		Left Cheek	0.233	0.540	0.351	0.175	0.77	0.58	0.41
		Left Tilted	0.146	0.540	0.351	0.175	0.69	0.50	0.32
	BC1	Right Cheek	0.208	0.540	0.351	0.175	0.75	0.56	0.38
		Right Tilted	0.113	0.540	0.351	0.175	0.65	0.46	0.29
		Left Cheek	0.216	0.540	0.351	0.175	0.76	0.57	0.39
		Left Tilted	0.167	0.540	0.351	0.175	0.71	0.52	0.34

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
LTE	Band 12	Right Cheek	0.348	0.540	0.351	0.175	0.89	0.70	0.52
		Right Tilted	0.285	0.540	0.351	0.175	0.83	0.64	0.46
		Left Cheek	0.335	0.540	0.351	0.175	0.88	0.69	0.51
		Left Tilted	0.190	0.540	0.351	0.175	0.73	0.54	0.37
	Band 13	Right Cheek	0.216	0.540	0.351	0.175	0.76	0.57	0.39
		Right Tilted	0.180	0.540	0.351	0.175	0.72	0.53	0.36
		Left Cheek	0.216	0.540	0.351	0.175	0.76	0.57	0.39
		Left Tilted	0.085	0.540	0.351	0.175	0.63	0.44	0.26
	Band 26	Right Cheek	0.348	0.540	0.351	0.175	0.89	0.70	0.52
		Right Tilted	0.188	0.540	0.351	0.175	0.73	0.54	0.36
		Left Cheek	0.231	0.540	0.351	0.175	0.77	0.58	0.41
		Left Tilted	0.178	0.540	0.351	0.175	0.72	0.53	0.35
	Band 25	Right Cheek	0.247	0.540	0.351	0.175	0.79	0.60	0.42
		Right Tilted	0.090	0.540	0.351	0.175	0.63	0.44	0.27
		Left Cheek	0.238	0.540	0.351	0.175	0.78	0.59	0.41
		Left Tilted	0.121	0.540	0.351	0.175	0.66	0.47	0.30
	Band 4	Right Cheek	0.171	0.540	0.351	0.175	0.71	0.52	0.35
		Right Tilted	0.076	0.540	0.351	0.175	0.62	0.43	0.25
		Left Cheek	0.142	0.540	0.351	0.175	0.68	0.49	0.32
		Left Tilted	0.150	0.540	0.351	0.175	0.69	0.50	0.33
	Band 7	Right Cheek	0.404	0.540	0.351	0.175	0.94	0.76	0.58
		Right Tilted	0.298	0.540	0.351	0.175	0.84	0.65	0.47
		Left Cheek	0.768	0.540	0.351	0.175	1.31	1.12	0.94
		Left Tilted	0.185	0.540	0.351	0.175	0.73	0.54	0.36
	Band 41	Right Cheek	0.388	0.540	0.351	0.175	0.93	0.74	0.56
		Right Tilted	0.255	0.540	0.351	0.175	0.80	0.61	0.43
		Left Cheek	0.593	0.540	0.351	0.175	1.13	0.94	0.77
		Left Tilted	0.174	0.540	0.351	0.175	0.71	0.53	0.35

16.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3			1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		Summed 1g SAR (W/kg)	SPLSR	Case No	
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Estimated 1g SAR (W/kg)					
GSM	GSM850	Front	0.232	0.153	0.505	0.297	0.39	0.74			0.53
		Back	0.437	0.153	0.505	0.297	0.59	0.94			0.73
		Left Side	0.236	0.153	0.091	0.297	0.39	0.33			0.53
		Right Side	0.254				0.25	0.25			0.25
		Top Side		0.153	0.505	0.297	0.15	0.51			0.30
		Bottom Side	0.121				0.12	0.12			0.12
	GSM1900	Front	0.516	0.153	0.505	0.297	0.67	1.02			0.81
		Back	0.720	0.153	0.505	0.297	0.87	1.23			1.02
		Left Side	0.173	0.153	0.091	0.297	0.33	0.26			0.47
		Right Side	0.102				0.10	0.10			0.10
		Top Side		0.153	0.505	0.297	0.15	0.51			0.30
		Bottom Side	0.732				0.73	0.73			0.73
WCDMA	Band V	Front	0.201	0.153	0.505	0.297	0.35	0.71			0.50
		Back	0.474	0.153	0.505	0.297	0.63	0.98			0.77
		Left Side	0.231	0.153	0.091	0.297	0.38	0.32			0.53
		Right Side	0.250				0.25	0.25			0.25
		Top Side		0.153	0.505	0.297	0.15	0.51			0.30
		Bottom Side	0.251				0.25	0.25			0.25
	Band II	Front	0.672	0.153	0.505	0.297	0.83	1.18			0.97
		Back	1.086	0.153	0.505	0.297	1.24	**1.59**			1.38
		Left Side	0.234	0.153	0.091	0.297	0.39	0.33			0.53
		Right Side	0.206				0.21	0.21			0.21
		Top Side		0.153	0.505	0.297	0.15	0.51			0.30
		Bottom Side	1.187				1.19	1.19			1.19
	Band IV	Front	0.583	0.153	0.505	0.297	0.74	1.09			0.88
		Back	1.187	0.153	0.505	0.297	**1.34**	**1.69**	**0.01**	**#01**	**1.48**
		Left Side	0.122	0.153	0.091	0.297	0.28	0.21			0.42
		Right Side	0.098				0.10	0.10			0.10
		Top Side		0.153	0.505	0.297	0.15	0.51			0.30
		Bottom Side	1.121				1.12	1.12			1.12
CDMA	BC0	Front	0.271	0.153	0.505	0.297	0.42	0.78			0.57
		Back	0.497	0.153	0.505	0.297	0.65	1.00			0.79
		Left Side	0.272	0.153	0.091	0.297	0.43	0.36			0.57
		Right Side	0.339				0.34	0.34			0.34
		Top Side		0.153	0.505	0.297	0.15	0.51			0.30
		Bottom Side	0.134				0.13	0.13			0.13
	BC10	Front	0.304	0.153	0.505	0.297	0.46	0.81			0.60
		Back	0.586	0.153	0.505	0.297	0.74	1.09			0.88
		Left Side	0.271	0.153	0.091	0.297	0.42	0.36			0.57
		Right Side	0.352				0.35	0.35			0.35
		Top Side		0.153	0.505	0.297	0.15	0.51			0.30
		Bottom Side	0.105				0.11	0.11			0.11
	BC1	Front	0.707	0.153	0.505	0.297	0.86	1.21			1.00
		Back	0.933	0.153	0.505	0.297	1.09	1.23			1.13
		Left Side	0.246	0.153	0.091	0.297	0.40	0.34			0.54
		Right Side	0.125				0.13	0.13			0.13
		Top Side		0.153	0.505	0.297	0.15	0.51			0.30
		Bottom Side	0.914				0.91	0.91			0.91

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	4 Bluetooth Estimated 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
LTE	Band 12	Front	0.325	0.153	0.505	0.297	0.48	0.83	0.62
		Back	0.537	0.153	0.505	0.297	0.69	1.04	0.83
		Left Side	0.307	0.153	0.091	0.297	0.46	0.40	0.60
		Right Side	0.393				0.39	0.39	0.39
		Top Side		0.153	0.505	0.297	0.15	0.51	0.30
		Bottom Side	0.070				0.07	0.07	0.07
	Band 13	Front	0.166	0.153	0.505	0.297	0.32	0.67	0.46
		Back	0.282	0.153	0.505	0.297	0.44	0.79	0.58
		Left Side	0.256	0.153	0.091	0.297	0.41	0.35	0.55
		Right Side	0.343				0.34	0.34	0.34
		Top Side		0.153	0.505	0.297	0.15	0.51	0.30
		Bottom Side	0.079				0.08	0.08	0.08
	Band 26	Front	0.332	0.153	0.505	0.297	0.49	0.84	0.63
		Back	0.577	0.153	0.505	0.297	0.73	1.08	0.87
		Left Side	0.392	0.153	0.091	0.297	0.55	0.48	0.69
		Right Side	0.333				0.33	0.33	0.33
		Top Side		0.153	0.505	0.297	0.15	0.51	0.30
		Bottom Side	0.145				0.15	0.15	0.15
	Band 25	Front	0.592	0.153	0.505	0.297	0.75	1.10	0.89
		Back	0.880	0.153	0.505	0.297	1.03	1.39	1.18
		Left Side	0.205	0.153	0.091	0.297	0.36	0.30	0.50
		Right Side	0.097				0.10	0.10	0.10
		Top Side		0.153	0.505	0.297	0.15	0.51	0.30
		Bottom Side	0.919				0.92	0.92	0.92
	Band 4	Front	0.566	0.153	0.505	0.297	0.72	1.07	0.86
		Back	1.065	0.153	0.505	0.297	1.22	1.57	1.36
		Left Side	0.139	0.153	0.091	0.297	0.29	0.23	0.44
		Right Side	0.106				0.11	0.11	0.11
		Top Side		0.153	0.505	0.297	0.15	0.51	0.30
		Bottom Side	1.106				1.11	1.11	1.11
	Band 7	Front	1.067	0.153	0.505	0.297	1.22	1.57	1.36
		Back	0.747	0.153	0.505	0.297	0.90	1.25	1.04
		Left Side	1.147	0.153	0.091	0.297	1.30	1.24	1.44
		Right Side					0.00	0.00	0.00
		Top Side		0.153	0.505	0.297	0.15	0.51	0.30
		Bottom Side	0.429				0.43	0.43	0.43
	Band 41	Front	0.834	0.153	0.505	0.297	0.99	1.34	1.13
		Back	0.851	0.153	0.505	0.297	1.00	1.36	1.15
		Left Side	0.568	0.153	0.091	0.297	0.72	0.66	0.87
		Right Side							
		Top Side		0.153	0.505	0.297	0.15	0.51	0.30
		Bottom Side	0.257				0.26	0.26	0.26

16.3 Body-Worn Accessory Exposure Conditions

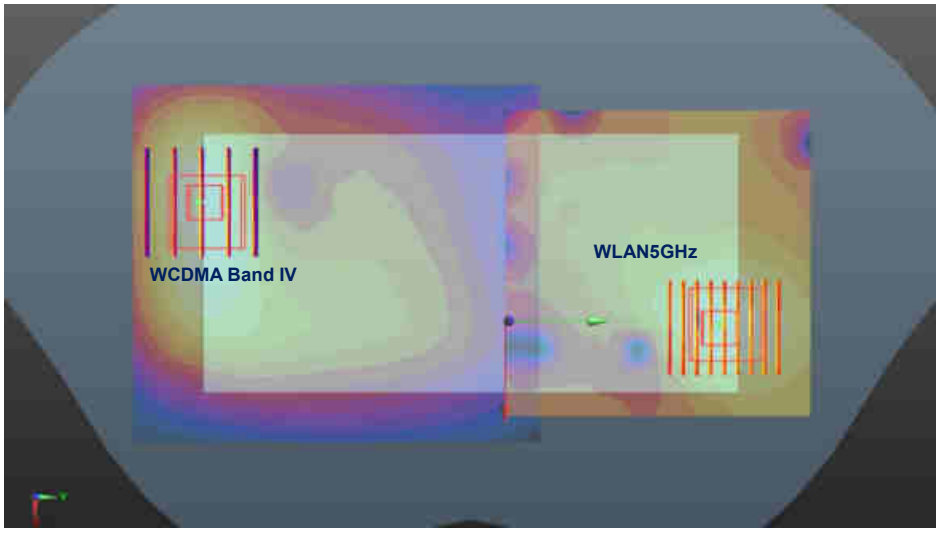
WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Estimated 1g SAR (W/kg)			
GSM	GSM850	Front	0.259	0.068	0.321	0.198	0.33	0.58	0.46
		Back	0.381	0.068	0.321	0.198	0.45	0.70	0.58
	GSM1900	Front	0.243	0.068	0.321	0.198	0.31	0.56	0.44
		Back	0.336	0.068	0.321	0.198	0.40	0.66	0.53
WCDMA	Band V	Front	0.219	0.068	0.321	0.198	0.29	0.54	0.42
		Back	0.330	0.068	0.321	0.198	0.40	0.65	0.53
	Band II	Front	0.449	0.068	0.321	0.198	0.52	0.77	0.65
		Back	0.600	0.068	0.321	0.198	0.67	0.92	0.80
	Band IV	Front	0.367	0.068	0.321	0.198	0.44	0.69	0.57
		Back	0.625	0.068	0.321	0.198	0.69	0.95	0.82
CDMA	BC0	Front	0.262	0.068	0.321	0.198	0.33	0.58	0.46
		Back	0.417	0.068	0.321	0.198	0.49	0.74	0.62
	BC10	Front	0.332	0.068	0.321	0.198	0.40	0.65	0.53
		Back	0.493	0.068	0.321	0.198	0.56	0.81	0.69
	BC1	Front	0.420	0.068	0.321	0.198	0.49	0.74	0.62
		Back	0.585	0.068	0.321	0.198	0.65	0.91	0.78
LTE	Band 12	Front	0.317	0.068	0.321	0.198	0.39	0.64	0.52
		Back	0.441	0.068	0.321	0.198	0.51	0.76	0.64
	Band 13	Front	0.178	0.068	0.321	0.198	0.25	0.50	0.38
		Back	0.264	0.068	0.321	0.198	0.33	0.59	0.46
	Band 26	Front	0.288	0.068	0.321	0.198	0.36	0.61	0.49
		Back	0.424	0.068	0.321	0.198	0.49	0.75	0.62
	Band 25	Front	0.311	0.068	0.321	0.198	0.38	0.63	0.51
		Back	0.534	0.068	0.321	0.198	0.60	0.86	0.73
	Band 4	Front	0.261	0.068	0.321	0.198	0.33	0.58	0.46
		Back	0.513	0.068	0.321	0.198	0.58	0.83	0.71
	Band 7	Front	0.314	0.068	0.321	0.198	0.38	0.64	0.51
		Back	0.303	0.068	0.321	0.198	0.37	0.62	0.50
	Band 41	Front	0.392	0.068	0.321	0.198	0.46	0.71	0.59
		Back	0.506	0.068	0.321	0.198	0.57	0.83	0.70

16.4 SPLSR Evaluation and Analysis

General Note:

1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of [(x1−x2)2 + (y1−y2)2 + (z1−z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04 for 1g SAR and SPLSR ≤ 0.10 for 10g SAR, simultaneously transmission SAR measurement is not necessary.

Case #1	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA Band IV	Back	1.187	10	-18	-77.3	-1.54	154.9	1.69	0.01	Not required
	WLAN5GHz		0.505	10	18.6	73.2	-2.12				



Test Engineer：Nick Hu

17. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

18. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[6] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.

[7] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[8] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

[9] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[10] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[11] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[12] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[13] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.7

System Check_Head_750MHz

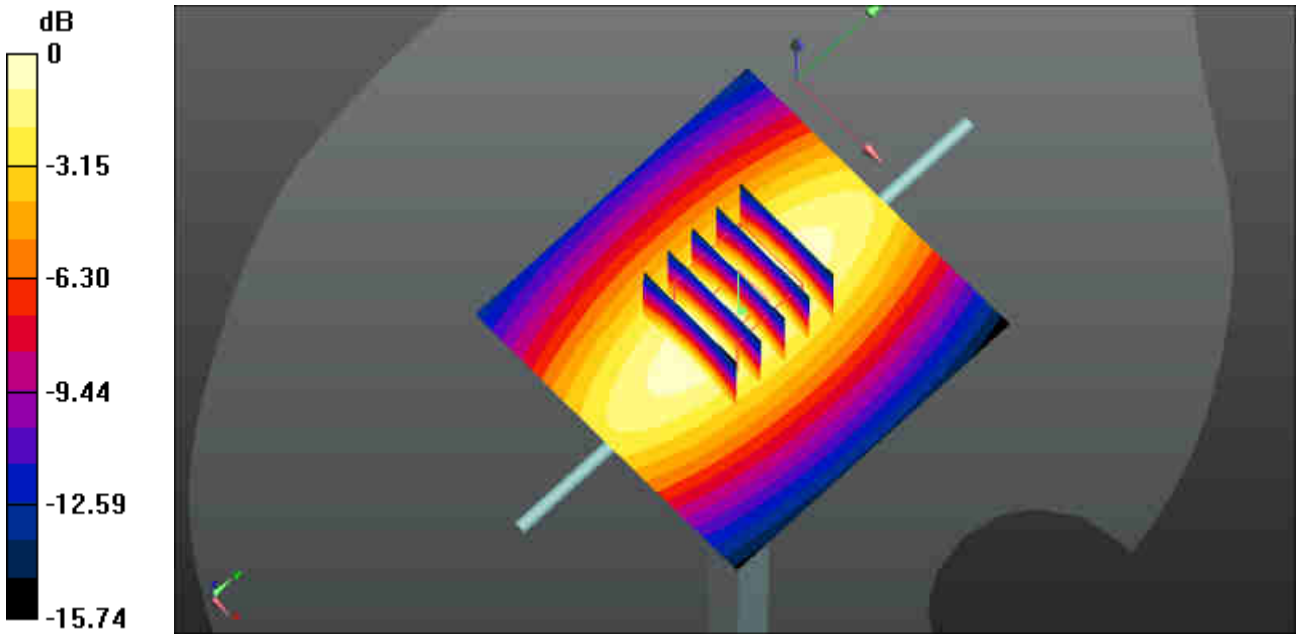
DUT: D750V3 - SN:1065

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 750 MHz; σ = 0.919 S/m; ε_r = 43.113; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.47, 6.47, 6.47); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.57 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.46 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.74 W/kg
SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.47 W/kg
Maximum value of SAR (measured) = 2.48 W/kg



0 dB = 2.48 W/kg = 3.94 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.8

System Check_Head_835MHz

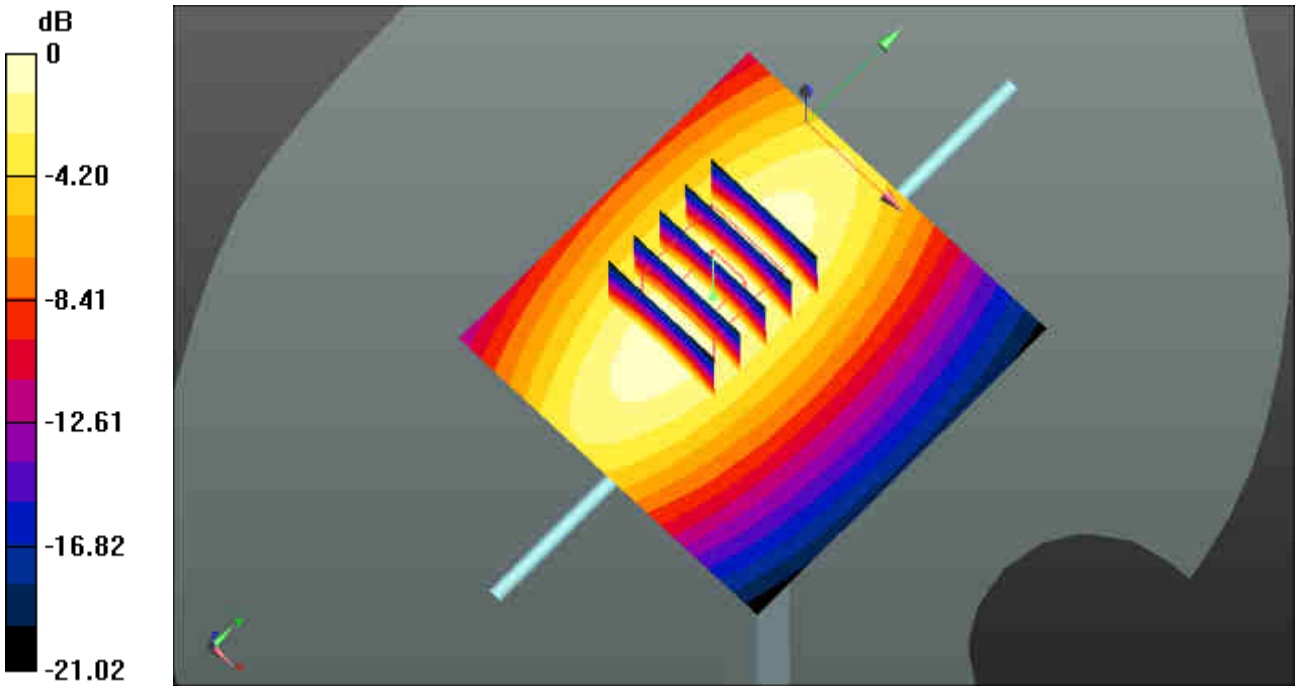
DUT: D835V2 - SN:4d091

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 835 MHz; σ = 0.915 S/m; ε_r = 40.862; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.3, 6.3, 6.3); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.47 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 45.71 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 4.12 W/kg
SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.68 W/kg
Maximum value of SAR (measured) = 3.48 W/kg



0 dB = 3.47 W/kg = 5.40 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.9

System Check_Head_1750MHz

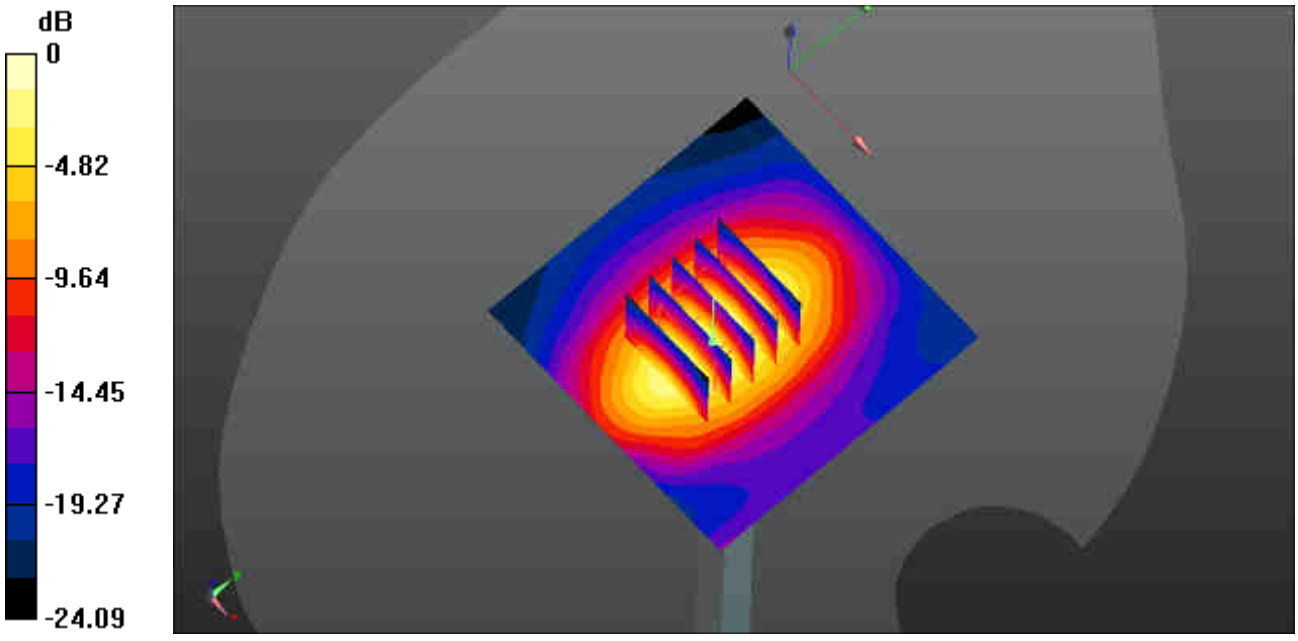
DUT: D1750V2 - SN:1069

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1750 MHz; σ = 1.404 S/m; ε_r = 41.476; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.32, 5.32, 5.32); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 12.4 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 77.82 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 13.8 W/kg
SAR(1 g) = 9.07 W/kg; SAR(10 g) = 5.26 W/kg
Maximum value of SAR (measured) = 12.0 W/kg



0 dB = 12.4 W/kg = 10.93dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.8

System Check_Head_1900MHz

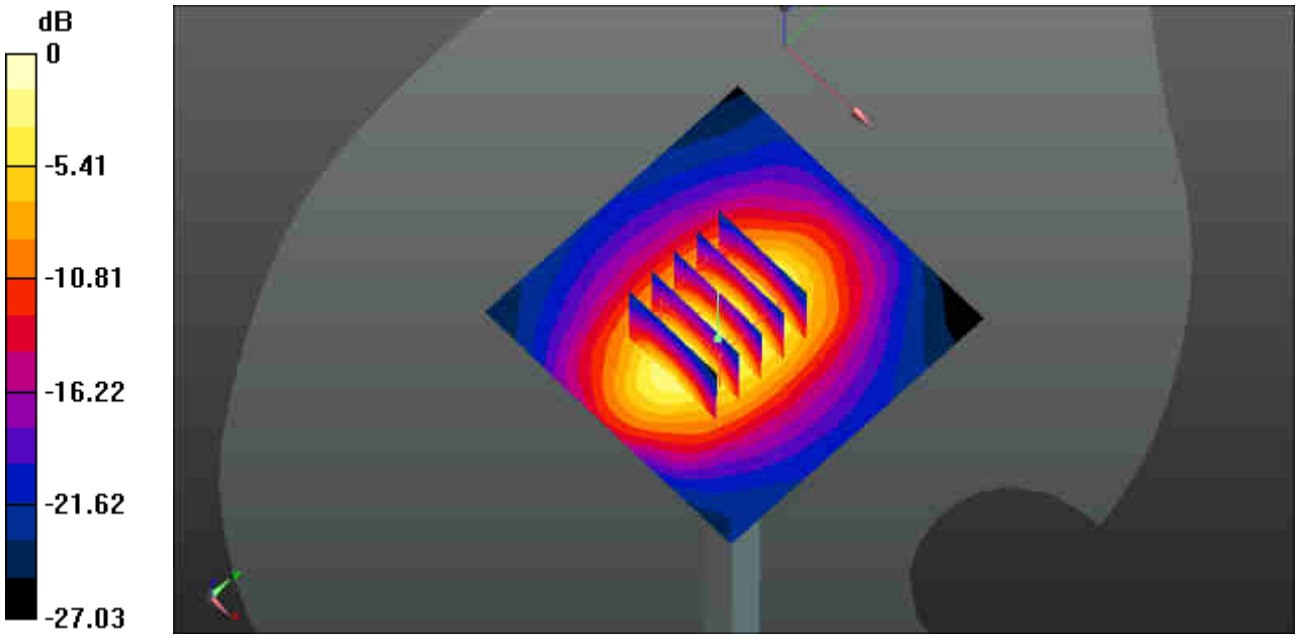
DUT: D1900V2 - SN:5d118

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1900 MHz; σ = 1.416 S/m; ε_r = 39.148; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.23, 5.23, 5.23); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.8 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 84.29 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 16.8 W/kg
SAR(1 g) = 10.6 W/kg; SAR(10 g) = 5.55 W/kg
Maximum value of SAR (measured) = 14.3 W/kg



0 dB = 14.8 W/kg = 11.70 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.16

System Check_Head_2450MHz

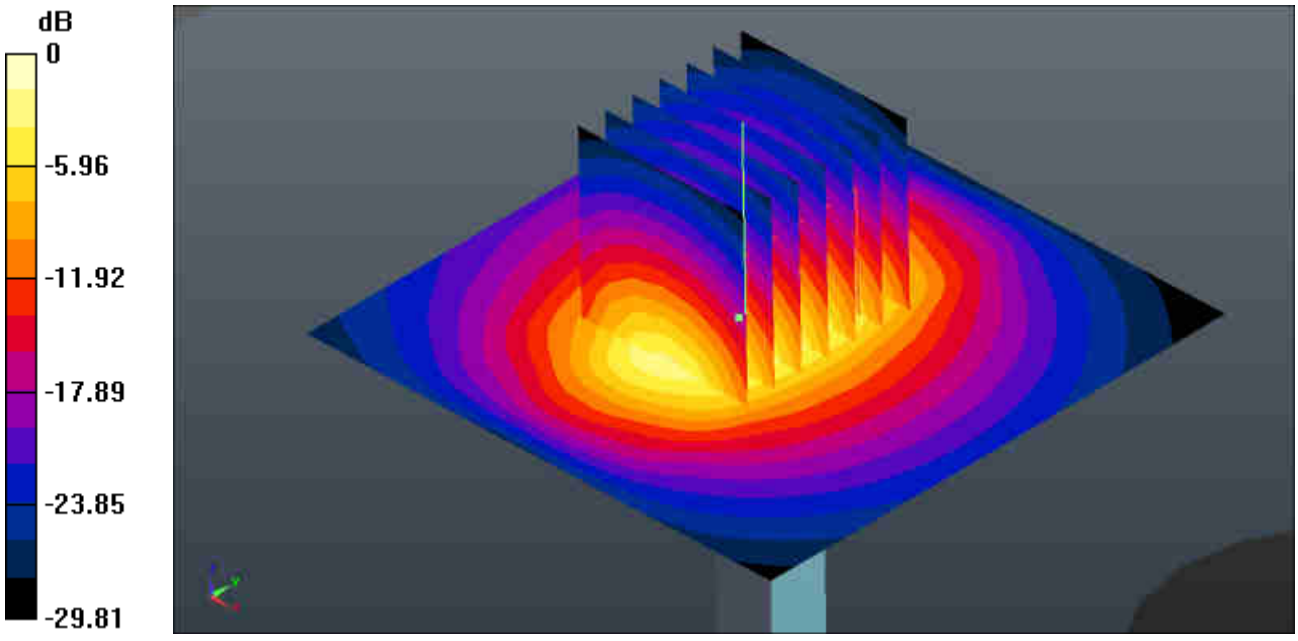
DUT: D2450V2 - SN:840

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450 Medium parameters used: f = 2450 MHz; σ = 1.864 S/m; ε_r = 39.568; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(4.73, 4.73, 4.73); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1479
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 21.3 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 88.32 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 27.9 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.48 W/kg
Maximum value of SAR (measured) = 20.8 W/kg



0 dB = 20.8 W/kg = 13.18 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.16

System Check_Head_2600MHz

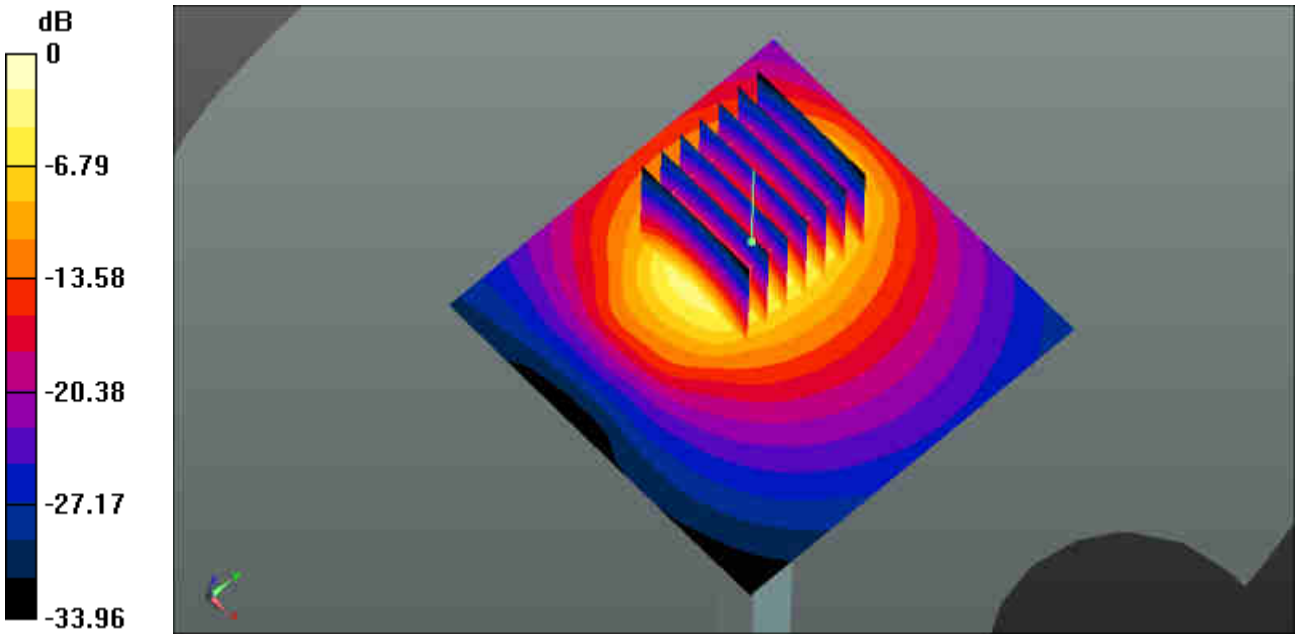
DUT: D2600V2 - SN:1061

Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: f = 2600 MHz; σ = 2.045 S/m; ε_r = 38.932; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(4.5, 4.5, 4.5); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.5 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.4 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 34.6 W/kg
SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.13 W/kg
Maximum value of SAR (measured) = 19.6 W/kg



0 dB = 18.8 W/kg = 12.74 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.17

System Check_Head_5250MHz

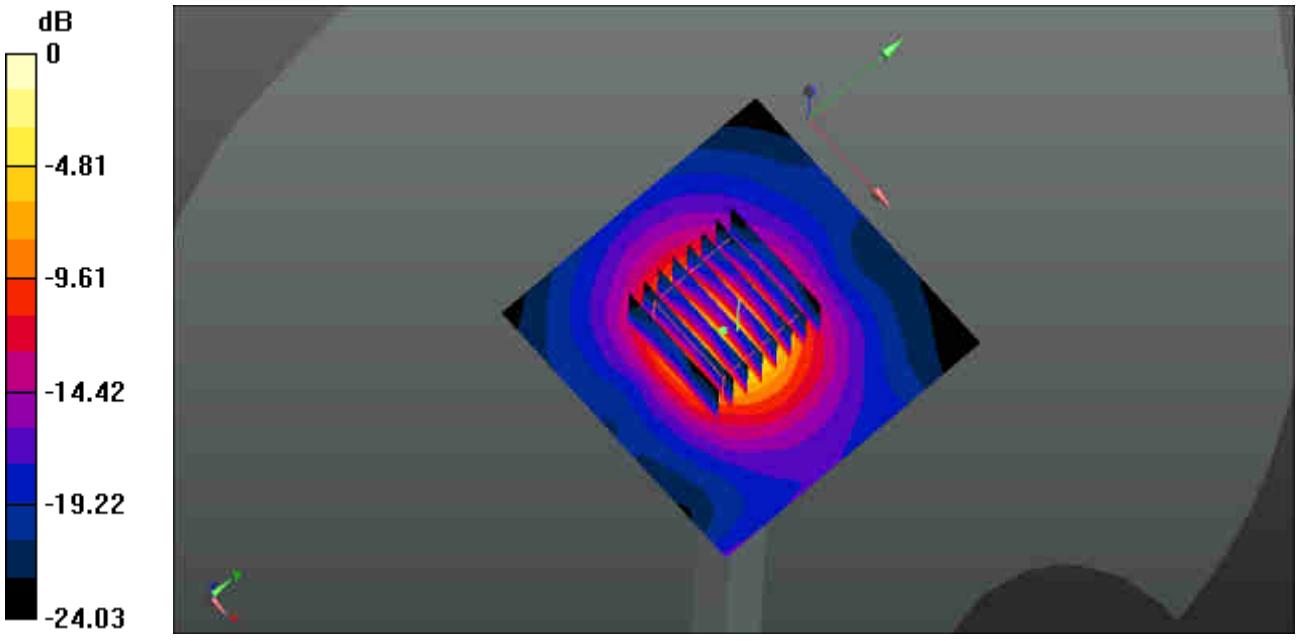
DUT: D5GHzV2-SN:1006

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5250 MHz; σ = 4.677 S/m; ε_r = 36.261; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(5.91, 5.91, 5.91); Calibrated: 2017.12.14;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 14.1 W/kg

Pin=250mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 36.46 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 23.6 W/kg
SAR(1 g) = 7.28 W/kg; SAR(10 g) = 2.40 W/kg
Maximum value of SAR (measured) = 14.0 W/kg



0 dB = 14.1 W/kg = 11.49 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.17

System Check_Head_5750MHz

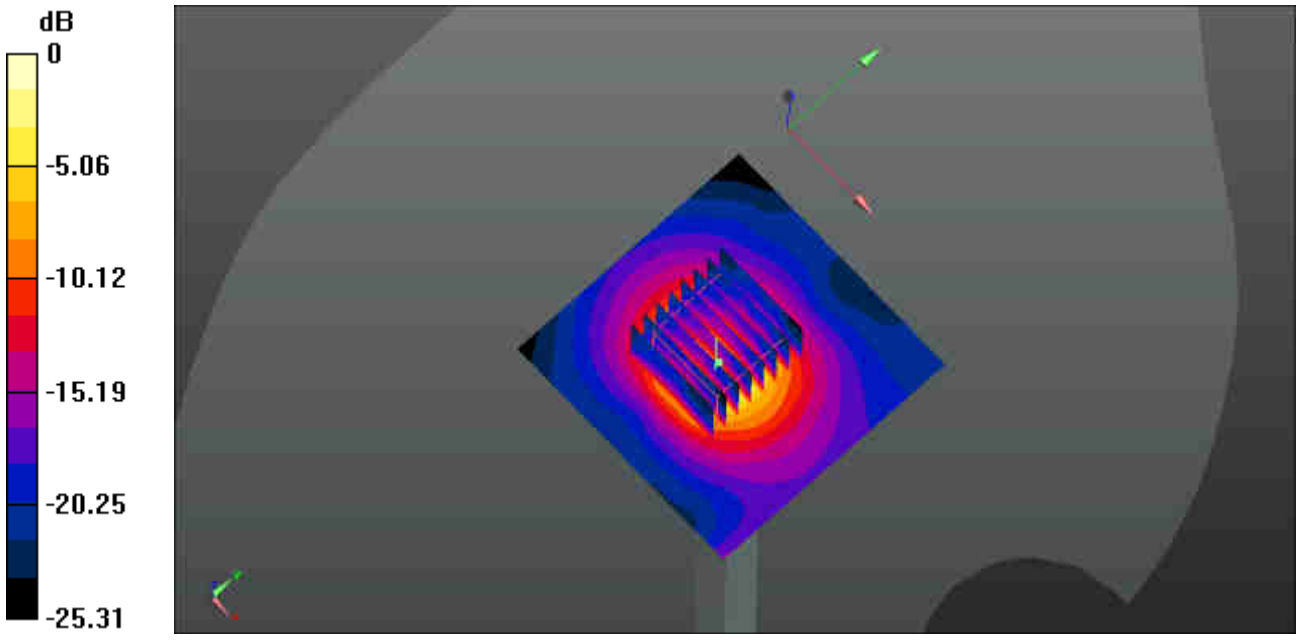
DUT: D5GHzV2-SN:1006

Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5750 MHz; σ = 5.193 S/m; ε_r = 35.532; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(5.15, 5.15, 5.15); Calibrated: 2017.12.14;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 14.4 W/kg

Pin=250mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 33.38 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 26.0 W/kg
SAR(1 g) = 7.45 W/kg; SAR(10 g) = 2.33 W/kg
Maximum value of SAR (measured) = 14.6 W/kg



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

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.13

System Check_Body_750MHz

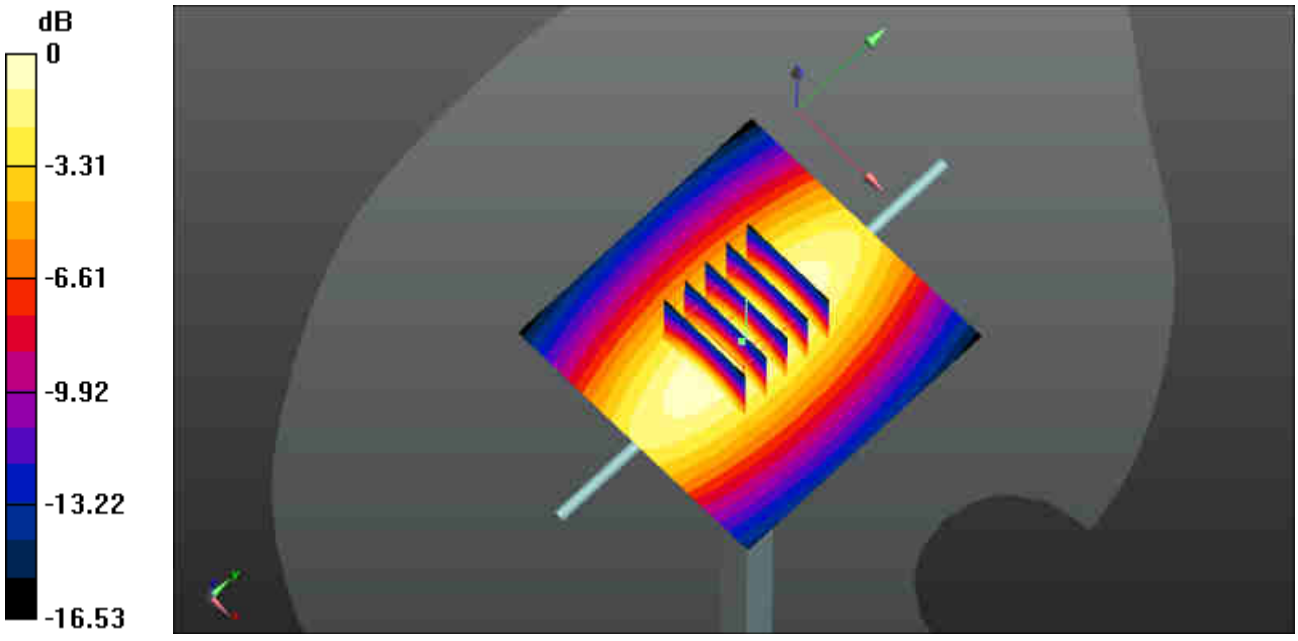
DUT: D750V3 - SN:1065

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750 Medium parameters used: f = 750 MHz; σ = 0.966 S/m; ε_r = 57.307; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.43, 6.43, 6.43); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.46 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.79 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 2.64 W/kg
SAR(1 g) = 2.02 W/kg; SAR(10 g) = 1.38 W/kg
Maximum value of SAR (measured) = 2.44 W/kg



0 dB = 2.46 W/kg = 3.91 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.13

System Check_Body_835MHz

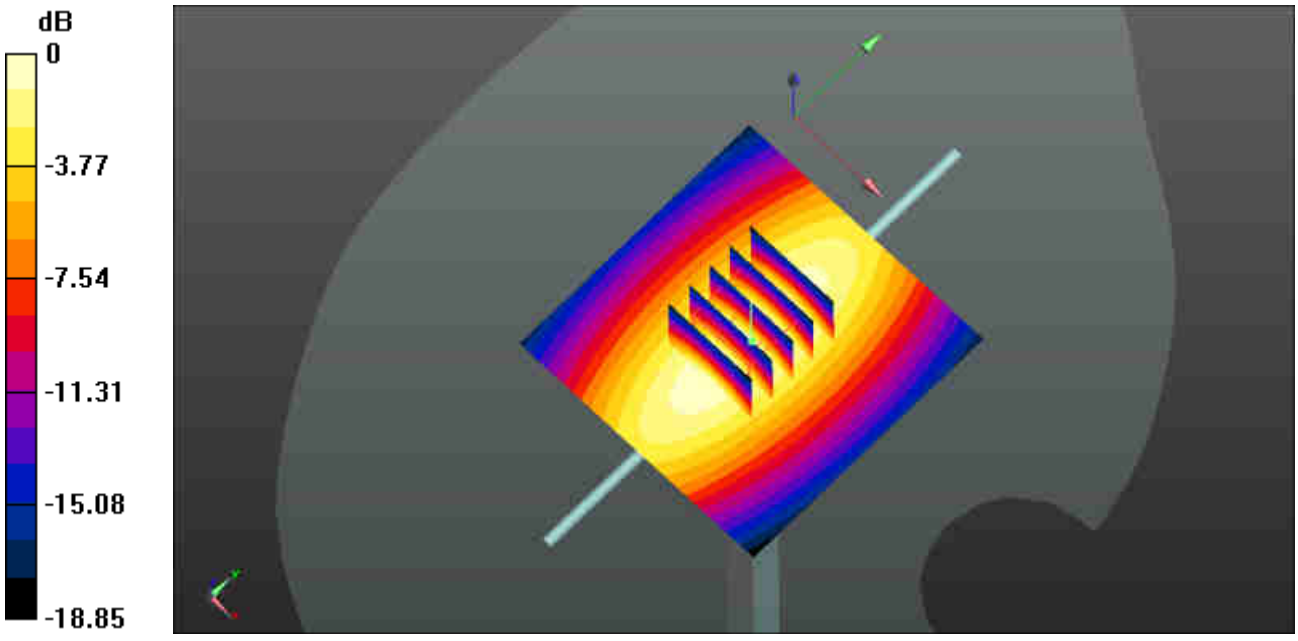
DUT: D835V2 - SN:4d091

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_835 Medium parameters used: f = 835 MHz; σ = 0.984 S/m; ε_r = 56.51; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.19, 6.19, 6.19); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.36 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.11 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.95 W/kg
SAR(1 g) = 2.36 W/kg; SAR(10 g) = 1.53 W/kg
Maximum value of SAR (measured) = 3.3 W/kg



0 dB = 3.30 W/kg = 5.19 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.9

System Check_Body_1750MHz

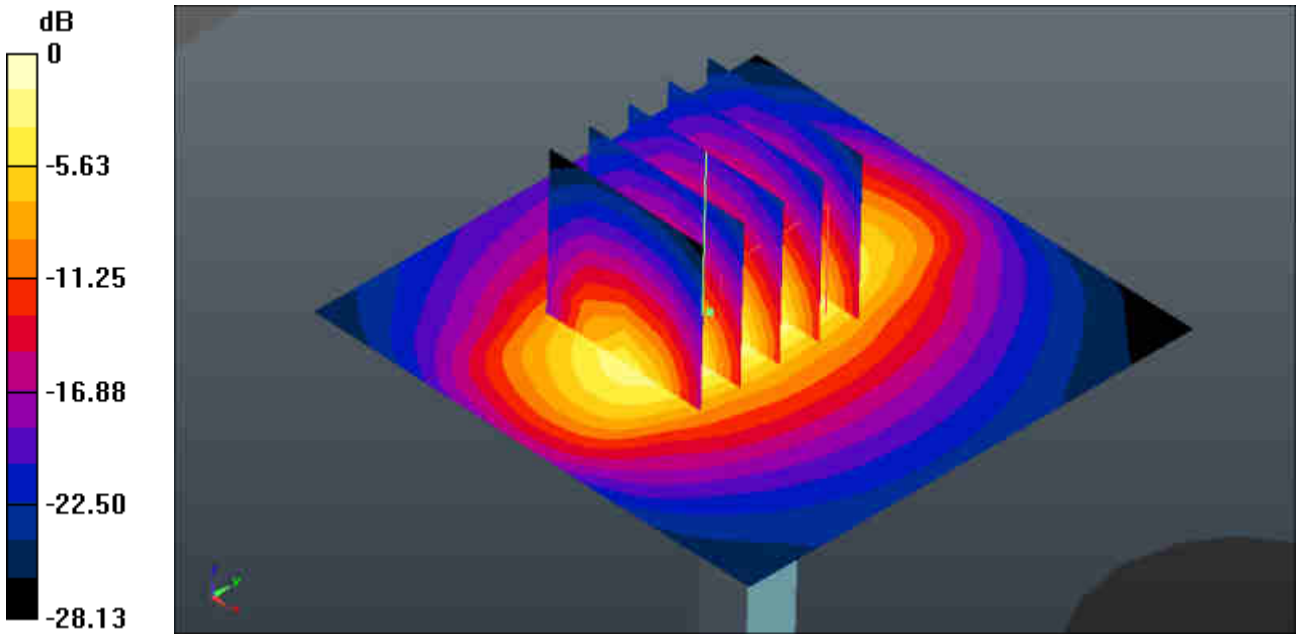
DUT: D1750V2 - SN:1069

Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: MSL_1750 Medium parameters used: f = 1750 MHz; σ = 1.478 S/m; ε_r = 53.626; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.05, 5.05, 5.05); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 11.0 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 74.85 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 12.2 W/kg
SAR(1 g) = 8.92 W/kg; SAR(10 g) = 4.88 W/kg
Maximum value of SAR (measured) = 10.9 W/kg



0 dB = 11.0 W/kg = 10.41 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.14

System Check_Body_1900MHz

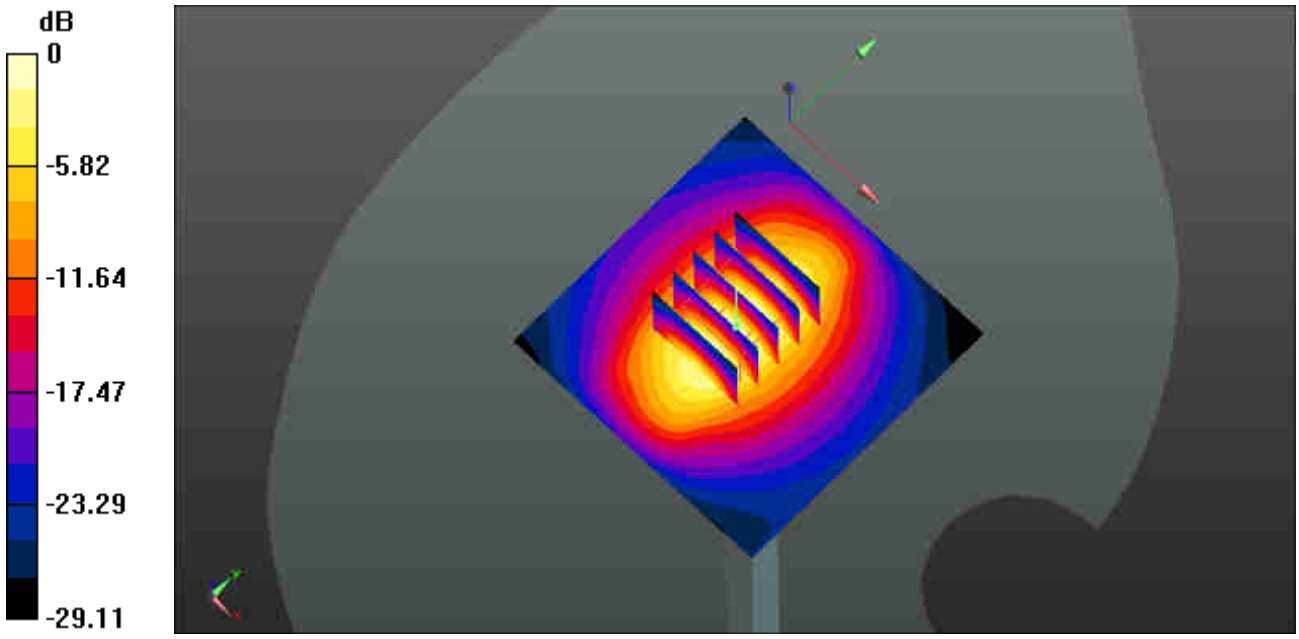
DUT: D1900V2 - SN:5d118

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900 Medium parameters used: f = 1900 MHz; σ = 1.537 S/m; ε_r = 53.469; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(4.86, 4.86, 4.86); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 11.3 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 78.46 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 12.7 W/kg
SAR(1 g) = 9.30 W/kg; SAR(10 g) = 4.94 W/kg
Maximum value of SAR (measured) = 11.5 W/kg



0 dB = 11.3 W/kg = 10.53 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.9

System Check_Body_2450MHz

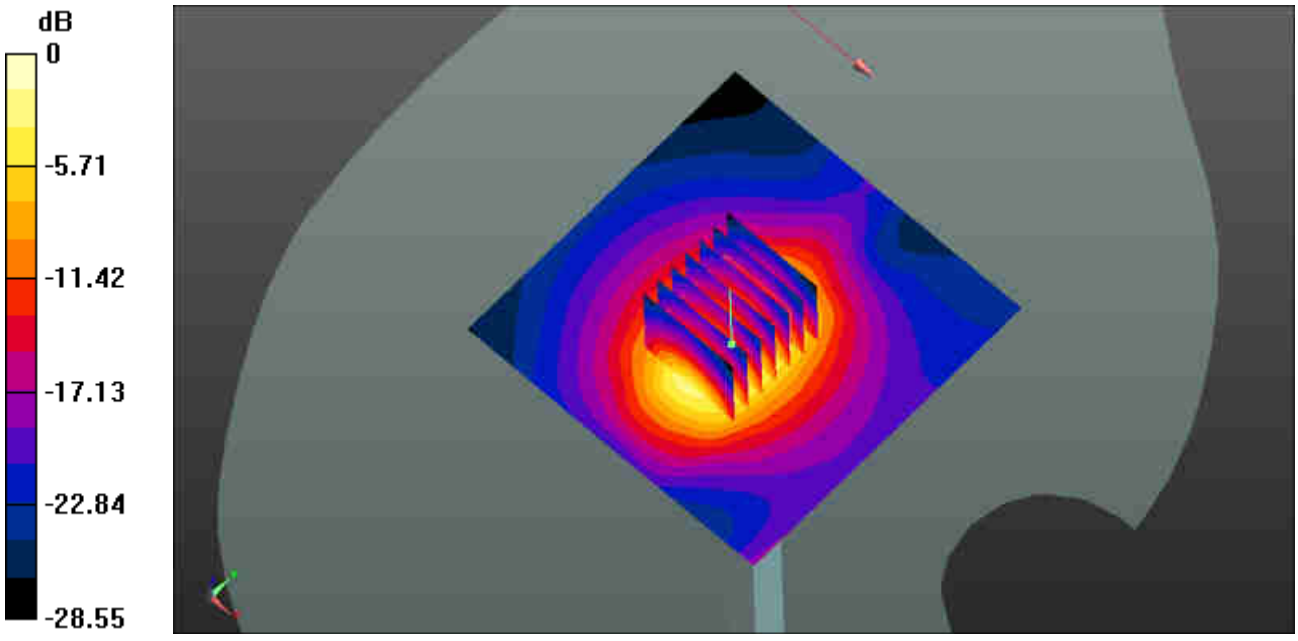
DUT: D2450V2 - SN:840

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: MSL_2450 Medium parameters used: f = 2450 MHz; σ = 2.008 S/m; ε_r = 52.873; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(4.39, 4.39, 4.39); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1842
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 19.3 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 85.48 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6.05 W/kg
Maximum value of SAR (measured) = 19.3 W/kg



0 dB = 19.1 W/kg = 12.81 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.9

System Check_Body_2600MHz

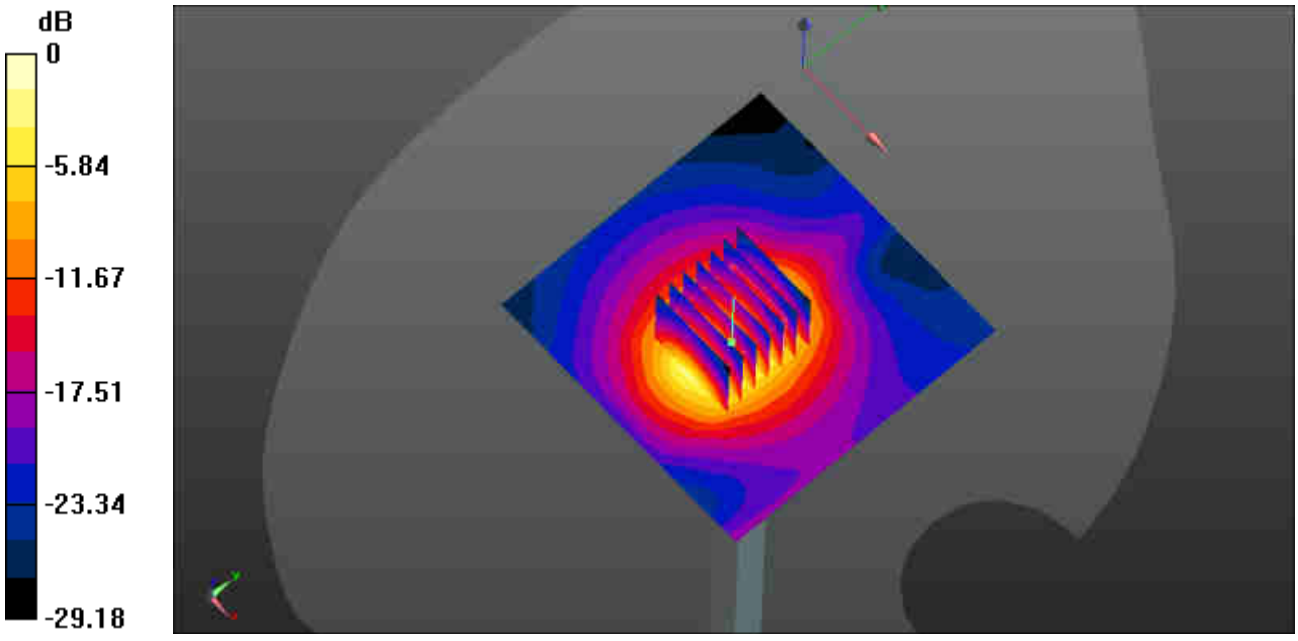
DUT: D2600V2 - SN:1061

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: MSL_2600 Medium parameters used: f = 2600 MHz; σ = 2.222 S/m; ε_r = 51.221; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(4.16, 4.16, 4.16); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 19.3 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 82.15 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 22.3 W/kg
SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.31 W/kg
Maximum value of SAR (measured) = 19.1 W/kg



0 dB = 19.3 W/kg = 12.86 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.17

System Check_Body_5250MHz

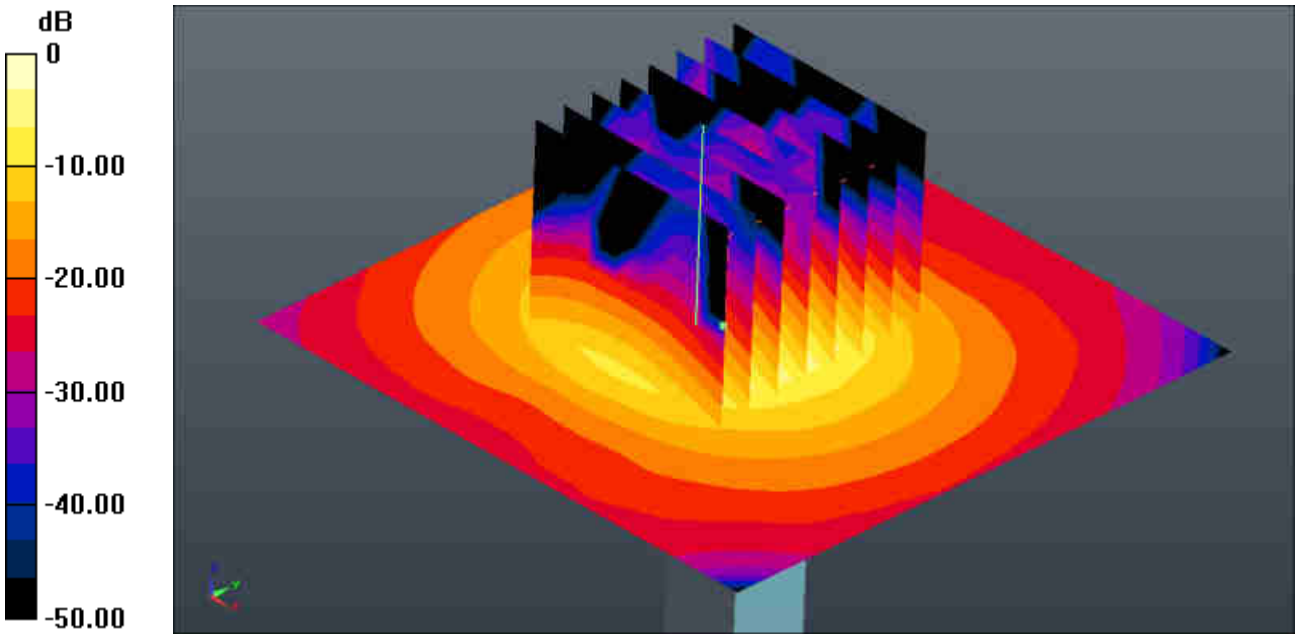
DUT: D5GHzV2-SN:1006

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: MSL_5000 Medium parameters used: f = 5250 MHz; σ = 5.48 S/m; ε_r = 48.954; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(5.41, 5.41, 5.41); Calibrated: 2017.12.14;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1479
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 13.0 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 33.66 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 22.8 W/kg
SAR(1 g) = 7.61 W/kg; SAR(10 g) = 2.3 W/kg
Maximum value of SAR (measured) = 12.9 W/kg



0 dB = 13.0 W/kg = 11.14 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.17

System Check_Body_5750MHz

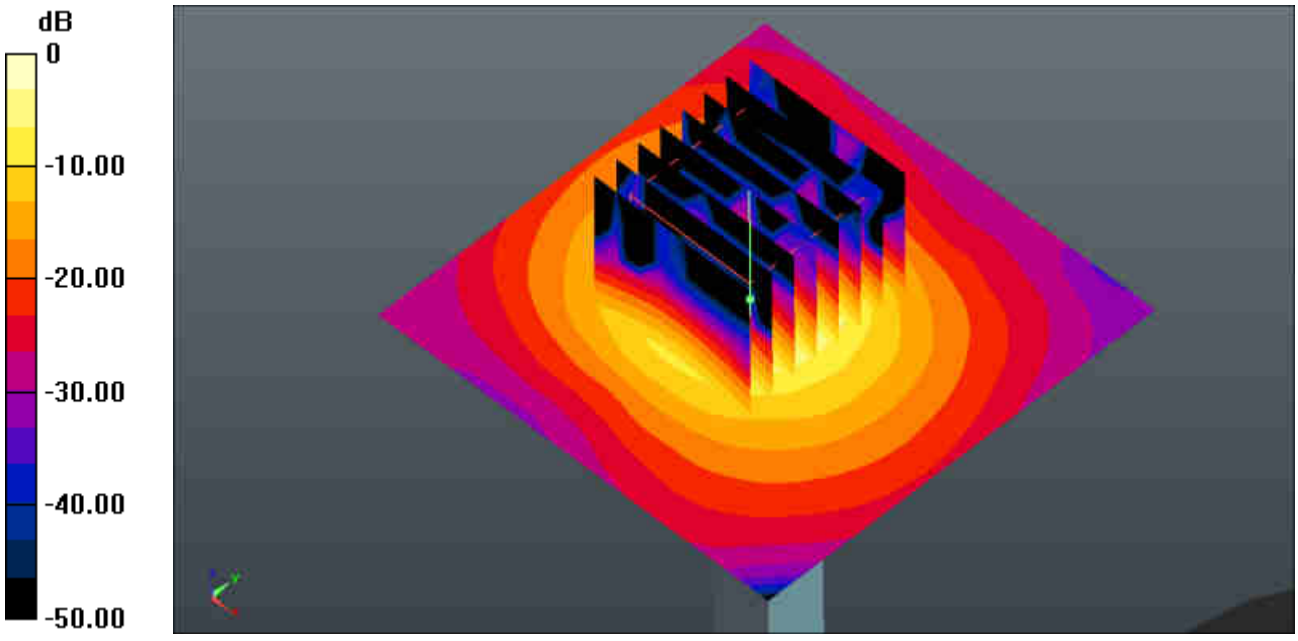
DUT: D5GHzV2-SN:1006

Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: MSL_5000 Medium parameters used: f = 5750 MHz; σ = 6.157 S/m; ε_r = 48.116; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(4.64, 4.64, 4.64); Calibrated: 2017.12.14;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1479
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 14.5 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 32.62 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 27.8 W/kg
SAR(1 g) = 7.74 W/kg; SAR(10 g) = 2.27 W/kg
Maximum value of SAR (measured) = 14.7 W/kg



0 dB = 14.5 W/kg = 11.61 dBW/kg

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.8

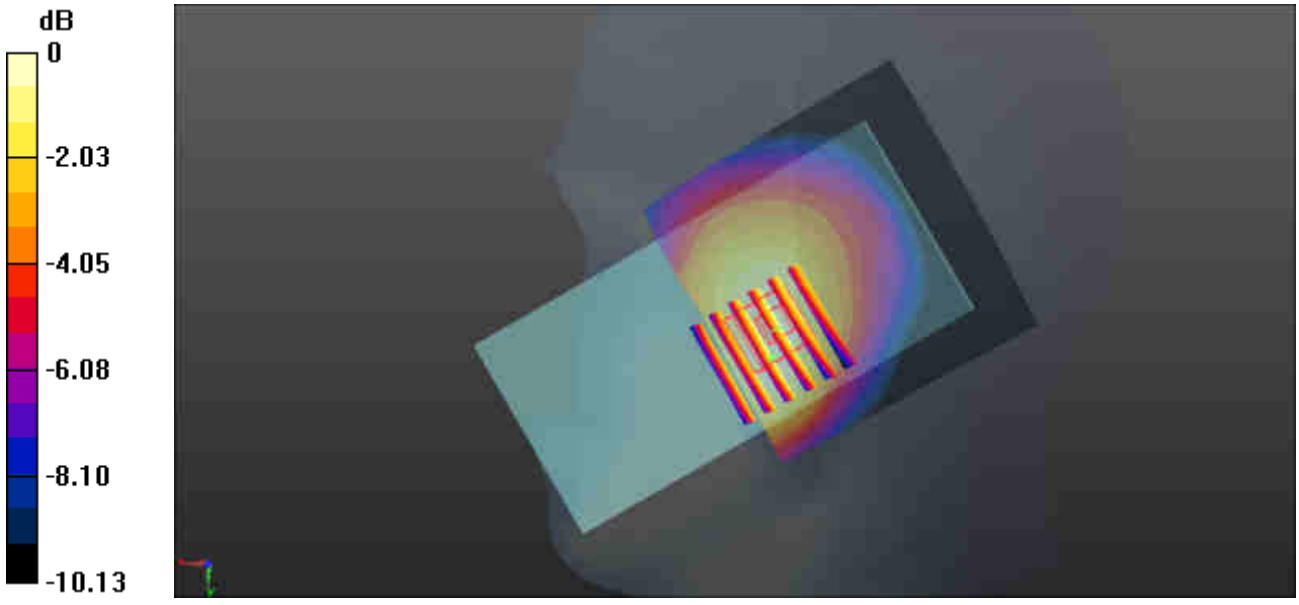
01_GSM850_GPRS (4 Tx slots)_Right Cheek_0mm_Off_Ch251

Communication System: UID 0, GPRS/EDGE (4 Tx slots) (0); Frequency: 848.8 MHz;Duty Cycle: 1:2.08
Medium: HSL_850 Medium parameters used: f = 848.8 MHz; σ = 0.931 S/m; ε_r = 42.875; ρ = $1000 kg/m^3$
Ambient Temperature：23.5 ℃； Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.3, 6.3, 6.3); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch251/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.312 W/kg

Ch251/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.42 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.367 W/kg
SAR(1 g) = 0.278 W/kg; SAR(10 g) = 0.208 W/kg
Maximum value of SAR (measured) = 0.313 W/kg



0 dB = 0.313 W/kg = -5.04 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.8

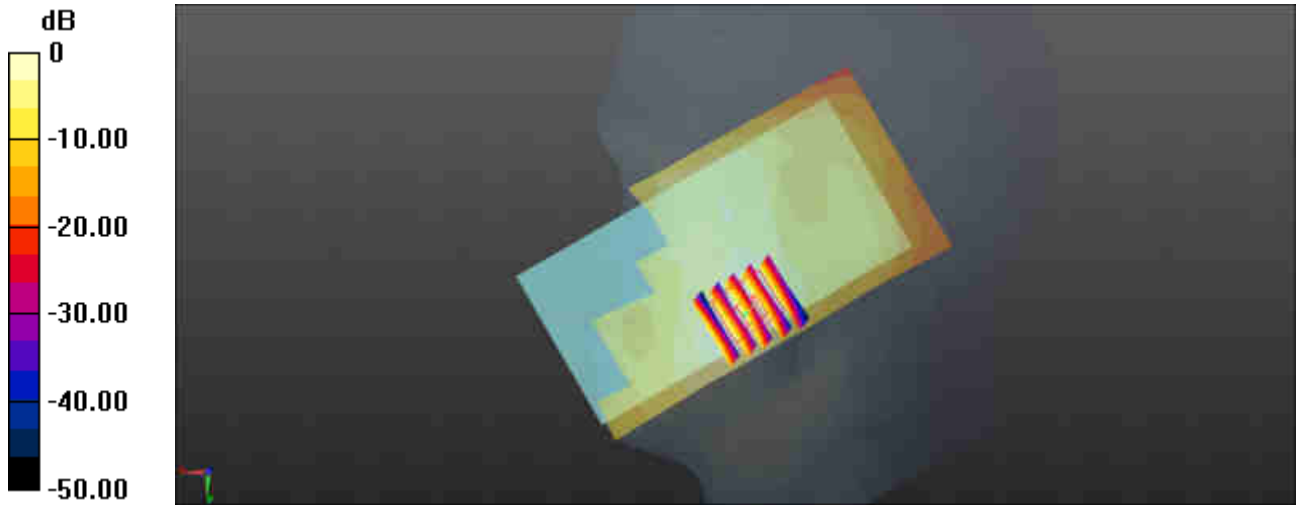
02_GSM1900_GPRS (3 Tx slots)_Right Cheek_0mm_Ch661

Communication System: UID 0, PCS (0); Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium: HSL_1900 Medium parameters used: f = 1880 MHz; σ = 1.395 S/m; ε_r = 39.221; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.23, 5.23, 5.23); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch661/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.182 W/kg

Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.2640 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.126 W/kg; SAR(10 g) = 0.078 W/kg
Maximum value of SAR (measured) = 0.167 W/kg



0 dB = 0.182 W/kg = -7.40 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.8

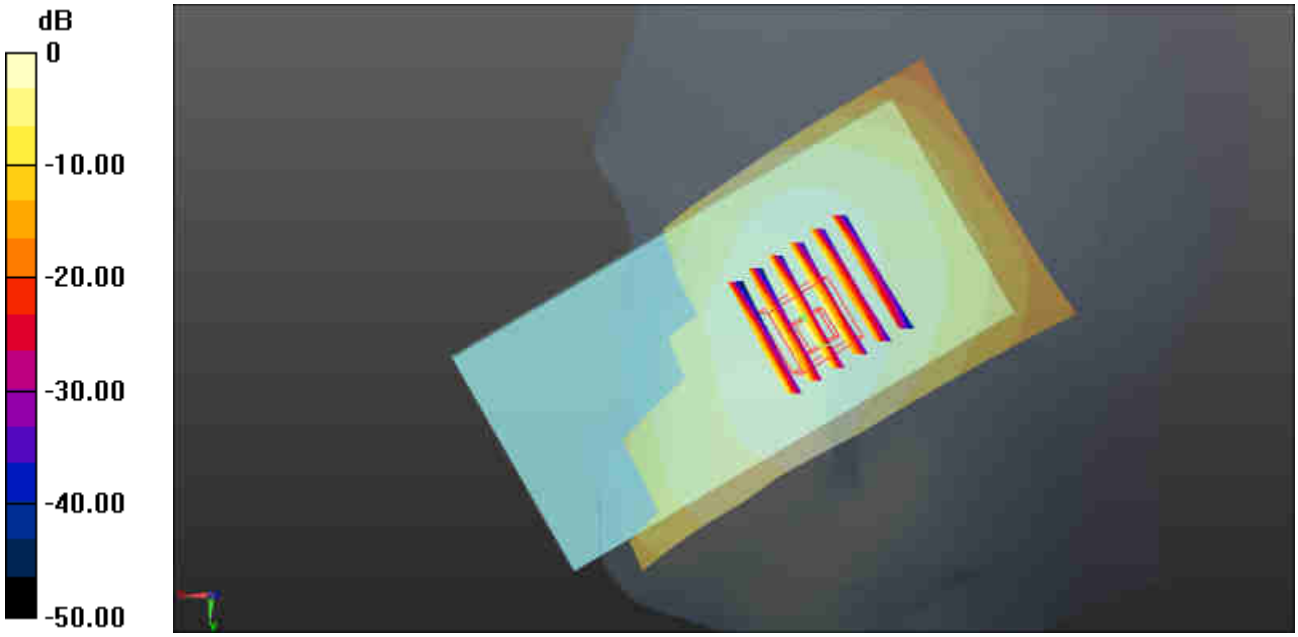
03_WCDMA V_RMC 12.2Kbps_Right Cheek_0mm_Ch4233

Communication System: UID 0, UMTS (0); Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 846.6 MHz; σ = 0.927 S/m; ε_r = 40.709; ρ = $1000 kg/m^3$
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.3, 6.3, 6.3); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch4233/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.293 W/kg

Ch4233/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.77 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.337 W/kg
SAR(1 g) = 0.257 W/kg; SAR(10 g) = 0.195 W/kg
Maximum value of SAR (measured) = 0.293 W/kg



0 dB = 0.293 W/kg = -5.33 dBW/kg

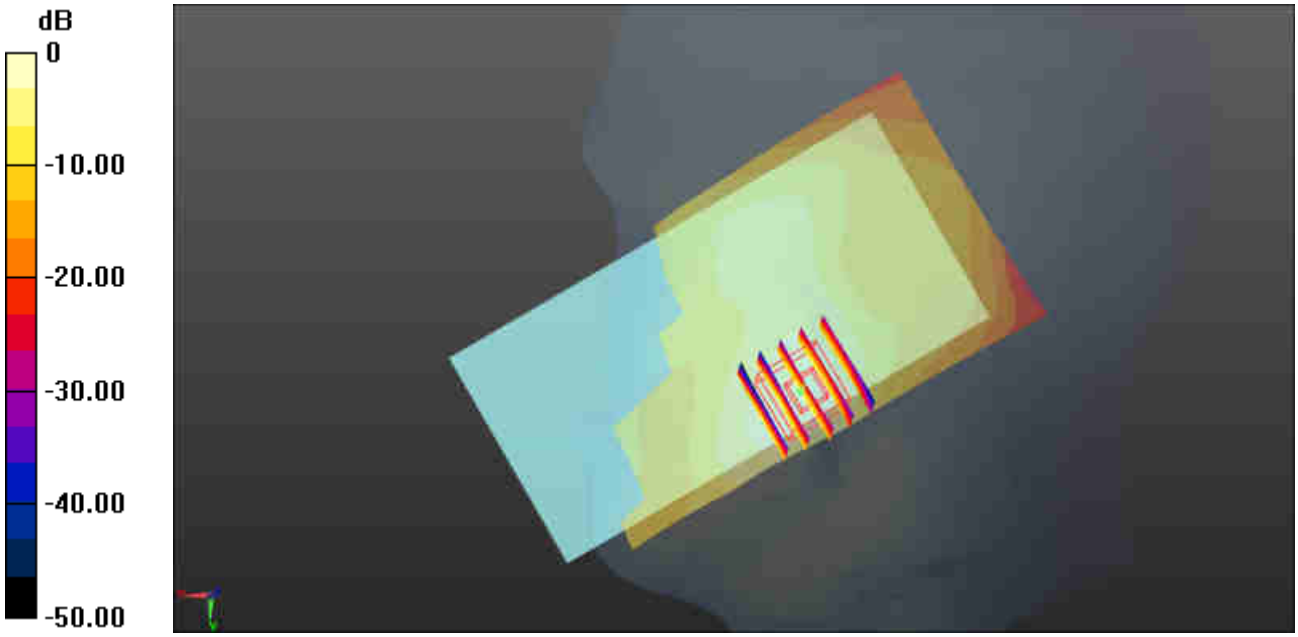
04_WCDMA II_RMC 12.2Kbps_Right Cheek_0mm_Ch9262

Communication System: UID 0, UMTS (0); Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1852.4 MHz; σ = 1.368 S/m; ε_r = 39.338; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.23, 5.23, 5.23); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch9262/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.302 W/kg

Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.01 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.399 W/kg
SAR(1 g) = 0.244 W/kg; SAR(10 g) = 0.145 W/kg
Maximum value of SAR (measured) = 0.295 W/kg



0 dB = 0.302 W/kg = -5.20 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.9

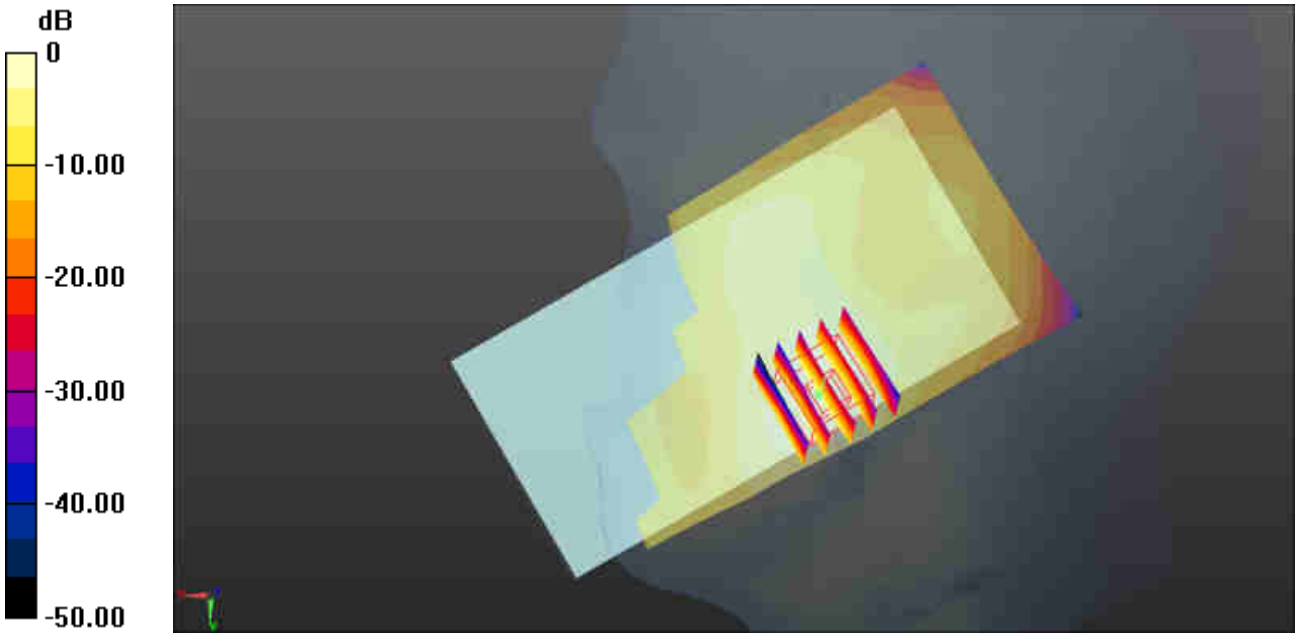
05_WCDMA IV_RMC 12.2Kbps_Right Cheek_0mm_Ch1413

Communication System: UID 0, UMTS (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1732.6 MHz; σ = 1.385 S/m; ε_r = 41.53; ρ = $1000 kg/m^3$
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.32, 5.32, 5.32); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch1413/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.177 W/kg

Ch1413/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.88 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.234 W/kg
SAR(1 g) = 0.146 W/kg; SAR(10 g) = 0.090 W/kg
Maximum value of SAR (measured) = 0.173 W/kg



0 dB = 0.177 W/kg = -7.52 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.8

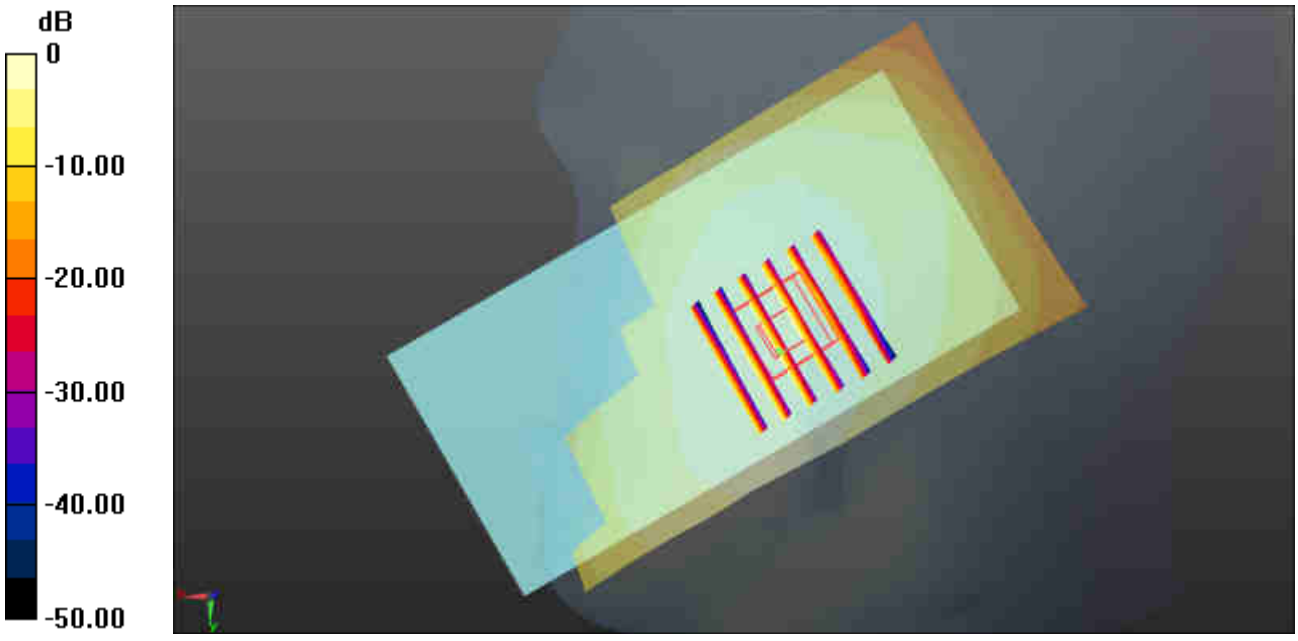
06_CDMA BC0_RC3 SO55_Right Cheek_0mm_Ch777

Communication System: UID 0, CDMA2000 (0); Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 848.31 MHz; σ = 0.928 S/m; ε_r = 40.693; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.3, 6.3, 6.3); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch777/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.323 W/kg

Ch777/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.59 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.356 W/kg
SAR(1 g) = 0.278 W/kg; SAR(10 g) = 0.212 W/kg
Maximum value of SAR (measured) = 0.305 W/kg



0 dB = 0.323 W/kg = -4.91 dBW/kg

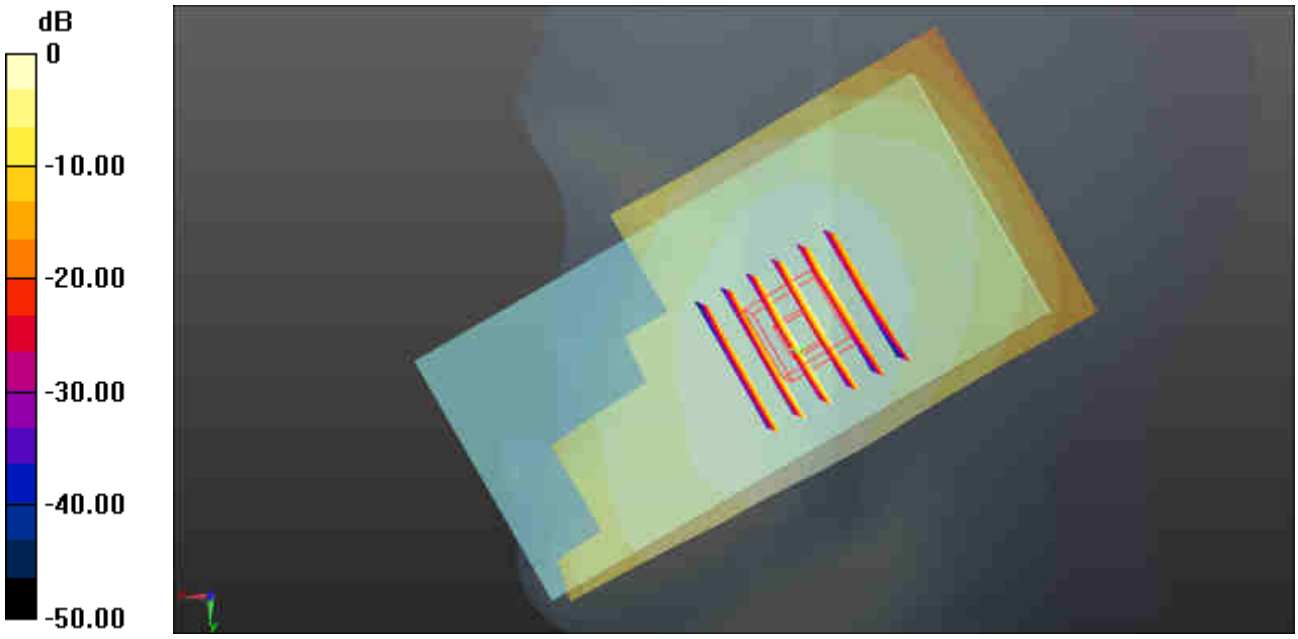
07_CDMA BC10_RC3 SO55_Right Cheek_0mm_Ch684

Communication System: UID 0, CDMA2000 (0); Frequency: 823.1 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 823.1 MHz; σ = 0.904 S/m; ε_r = 41.015; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.3, 6.3, 6.3); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch684/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.325 W/kg

Ch684/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.59 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.368 W/kg
SAR(1 g) = 0.290 W/kg; SAR(10 g) = 0.222 W/kg
Maximum value of SAR (measured) = 0.316 W/kg



0 dB = 0.325 W/kg = -4.88 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.8

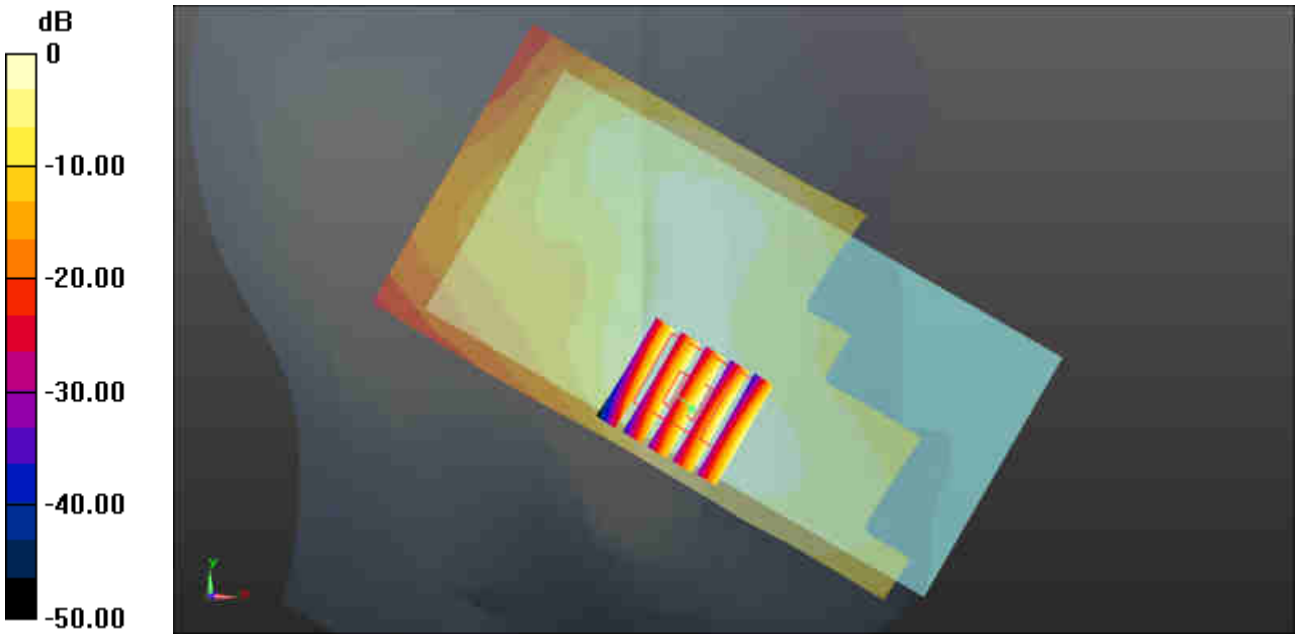
08_CDMA BC1_RC3 SO55_Left Cheek_0mm_Ch600

Communication System: UID 0, CDMA2000 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1880 MHz; σ = 1.395 S/m; ε_r = 39.221; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.23, 5.23, 5.23); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch600/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.235 W/kg

Ch600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.77 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.284 W/kg
SAR(1 g) = 0.190 W/kg; SAR(10 g) = 0.120 W/kg
Maximum value of SAR (measured) = 0.220 W/kg



0 dB = 0.235 W/kg = -6.29 dBW/kg

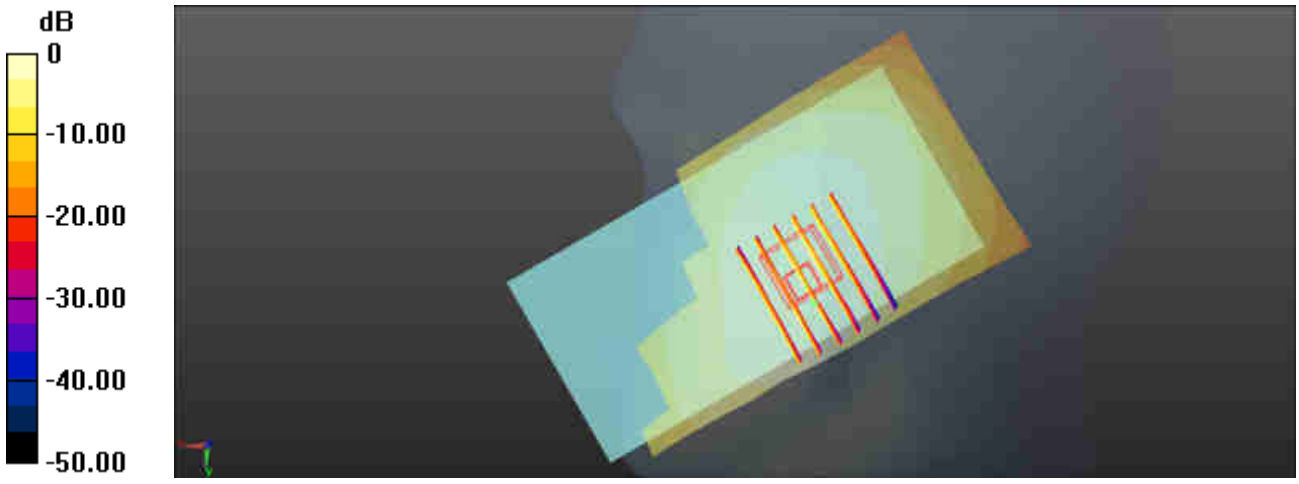
09_LTE Band 12_10M_QPSK_1RB_49offset_Right Cheek_0mm_Ch23095

Communication System: UID 0, FDD_LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 707.5 MHz; σ = 0.879 S/m; ε_r = 43.676; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.47, 6.47, 6.47); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch23095/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.322 W/kg

Ch23095/Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.56 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.356 W/kg
SAR(1 g) = 0.290 W/kg; SAR(10 g) = 0.234 W/kg
Maximum value of SAR (measured) = 0.318 W/kg



0 dB = 0.322 W/kg = -4.92 dBW/kg

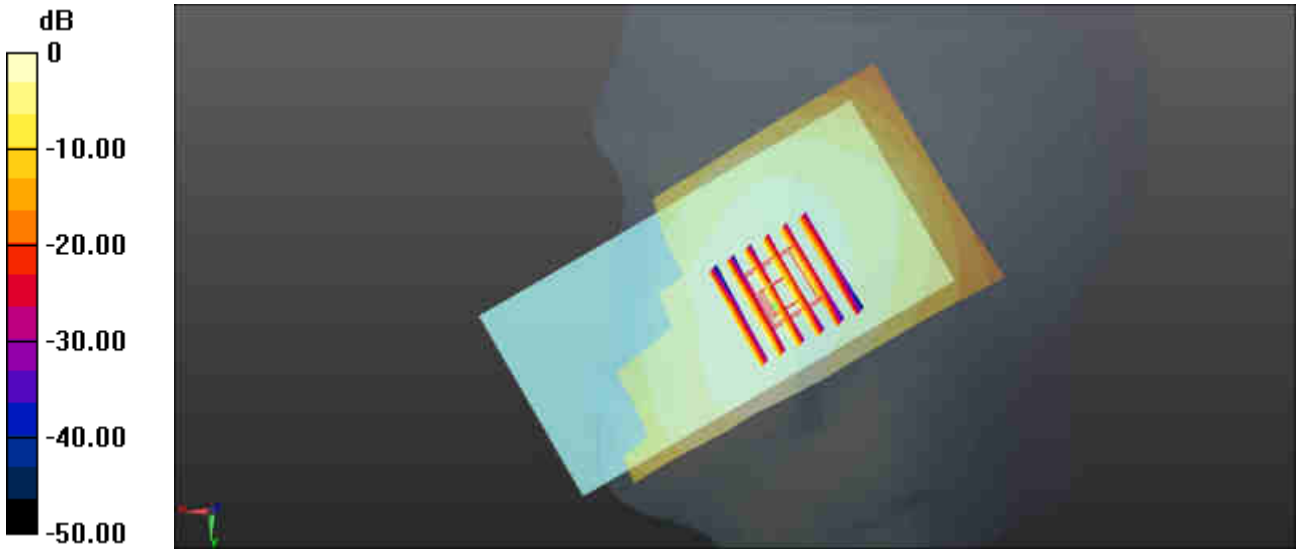
10_LTE Band 13_10M_QPSK_1RB_0offset_Right Cheek_0mm_Ch23230

Communication System: UID 0, FDD_LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 782 MHz; σ = 0.949 S/m; ε_r = 42.676; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.47, 6.47, 6.47); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch23230/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.208 W/kg

Ch23230/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.90 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.243 W/kg
SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.144 W/kg
Maximum value of SAR (measured) = 0.206 W/kg



0 dB = 0.208 W/kg = -6.82 dBW/kg

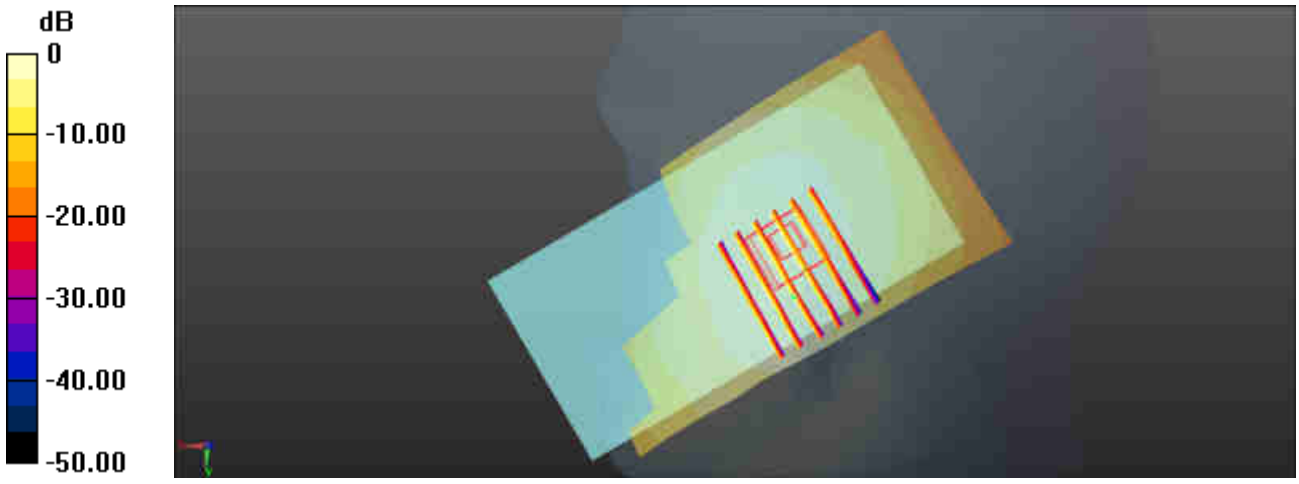
11_LTE Band 26_15M_QPSK_1RB_74offset_Right Cheek_0mm_Ch26865

Communication System: UID 0, FDD_LTE (0); Frequency: 831.5 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 831.5 MHz; σ = 0.912 S/m; ε_r = 40.907; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.3, 6.3, 6.3); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch26865/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.386 W/kg

Ch26865/Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.61 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.436 W/kg
SAR(1 g) = 0.337 W/kg; SAR(10 g) = 0.255 W/kg
Maximum value of SAR (measured) = 0.366 W/kg



0 dB = 0.386 W/kg = -4.13 dBW/kg

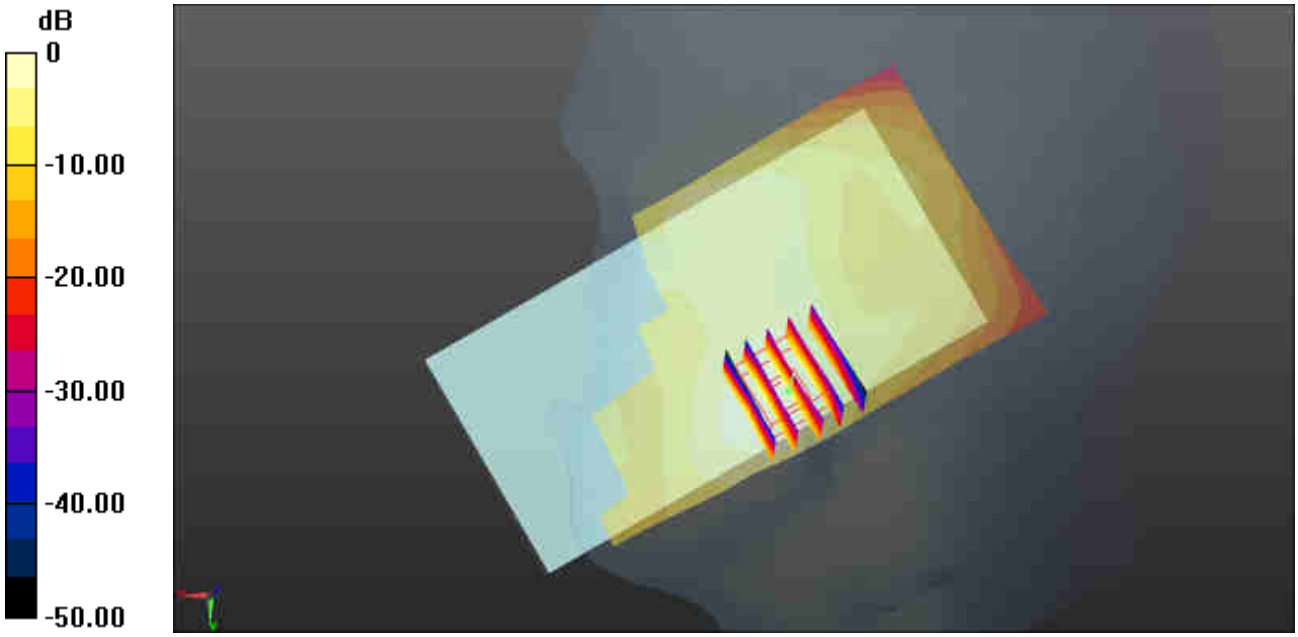
12_LTE Band 25_20M_QPSK_1RB_49offset_Right Cheek_0mm_Ch26140

Communication System: UID 0, FDD_LTE (0); Frequency: 1860 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1860 MHz; σ = 1.376 S/m; ε_r = 39.311; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.23, 5.23, 5.23); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch26140/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.322 W/kg

Ch26140/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.40 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.371 W/kg
SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.146 W/kg
Maximum value of SAR (measured) = 0.289 W/kg



0 dB = 0.322 W/kg = -4.92 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.9

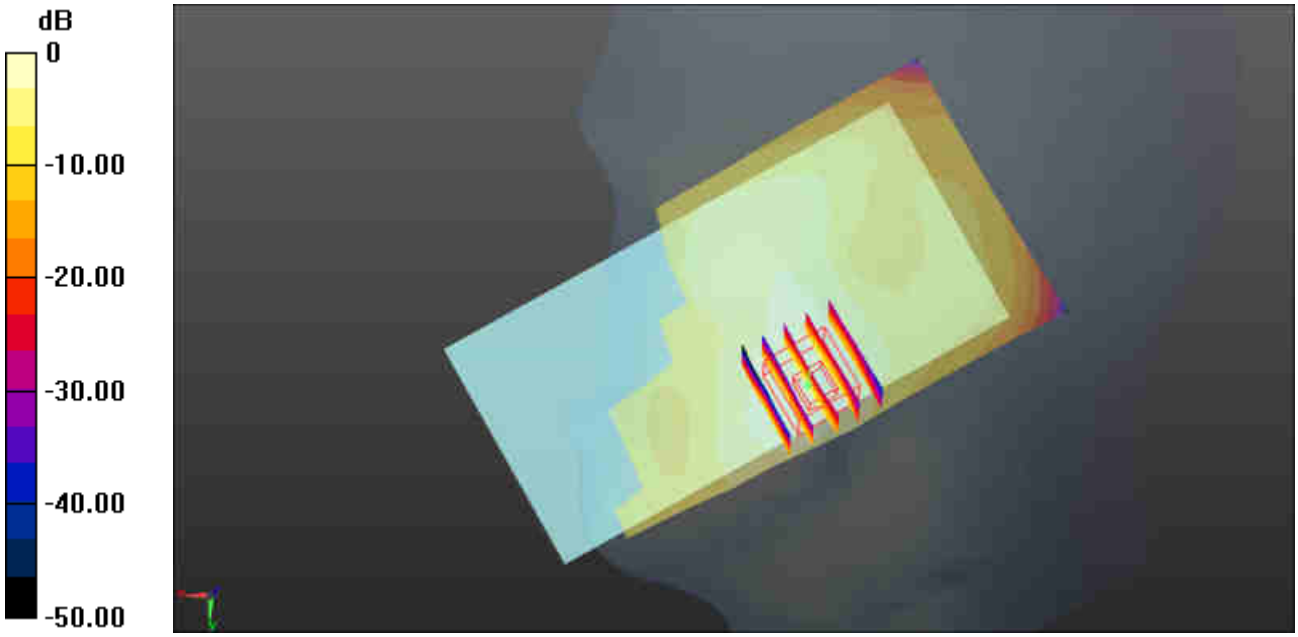
13_LTE Band 4_20M_QPSK_1RB_49offset_Right Cheek_0mm_Ch20175

Communication System: UID 0, FDD_LTE (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1732.5 MHz; σ = 1.384 S/m; ε_r = 41.531; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(5.32, 5.32, 5.32); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM2; Type:SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch20175/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.155 W/kg

Ch20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.76 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.251 W/kg
SAR(1 g) = 0.146 W/kg; SAR(10 g) = 0.090 W/kg
Maximum value of SAR (measured) = 0.182 W/kg



0 dB = 0.155 W/kg = -8.10 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2018.8.16

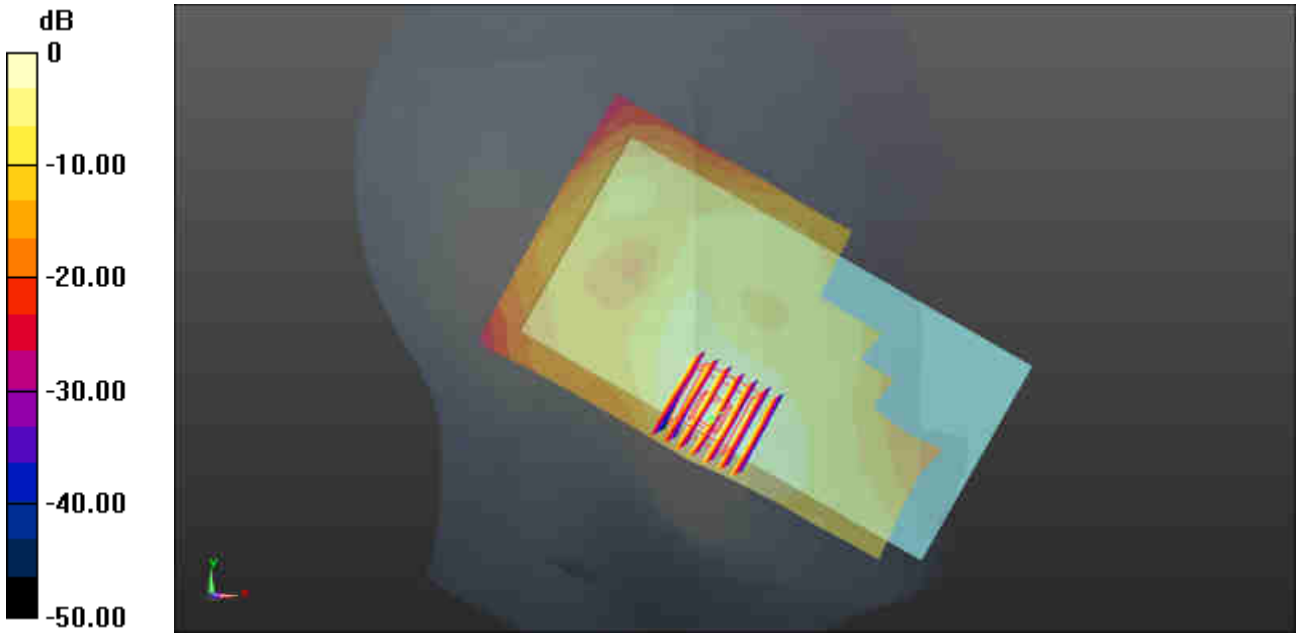
14_LTE Band 7_20M_QPSK_1RB_49offset_Left Cheek_0mm_Ch20850

Communication System: UID 0, FDD_LTE (0); Frequency: 2510 MHz;Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: f = 2510 MHz; σ = 1.936 S/m; ε_r = 39.305; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(4.5, 4.5, 4.5); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch20850/Area Scan (81x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.898 W/kg

Ch20850/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.74 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.624 W/kg; SAR(10 g) = 0.329 W/kg
Maximum value of SAR (measured) = 0.706 W/kg



0 dB = 0.898 W/kg = -0.47 dBW/kg

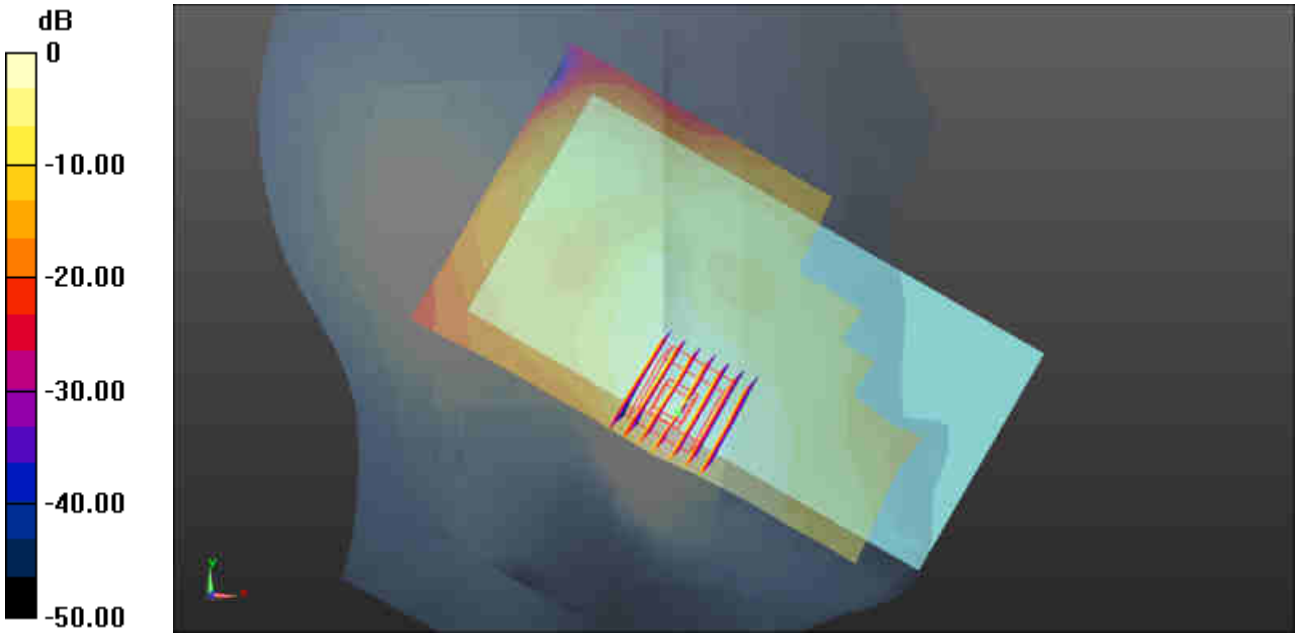
15_LTE Band 41-HPUE_20M_QPSK_1RB_49offset_Left Cheek_0mm_Ch40185

Communication System: UID 0, TDD_LTE (0); Frequency: 2549.5 MHz;Duty Cycle: 1:2.331
Medium: HSL_2600 Medium parameters used: f = 2549.5 MHz; σ = 1.984 S/m; ε_r = 39.143; ρ = $1000 kg/m^3$
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(4.5, 4.5, 4.5); Calibrated: 2017.9.25;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2018.1.3
- Phantom: SAM1; Type:SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch40185/Area Scan (81x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.814 W/kg

Ch40185/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.34 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.525 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.751 W/kg



0 dB = 0.814 W/kg = -0.89 dBW/kg