Test Report

Applicant	:	ASUSTeK COMPUTER INC.
Applicant Address	:	1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
Product Type	:	LTE module
Trade Name	:	FIBOCOM
Model Number	:	NL668-AM-00
Applicable Standard	:	47 CFR Part §2.1093
Received Date	:	Jun. 08, 2021
Test Period	:	Jul. 05 ~ Jul. 08, 2021
Issued Date	:	Aug. 02, 2021

Issued by

Approved By : Kris Pan

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Taiwan Accreditation Foundation accreditation number: 1330
Test Firm MRA designation number: TW0010

Note:

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Jul. 13, 2021	Initial Issue	Nicole Chu
01	Jul. 28, 2021	Revised 3 chapter (P.05~ P.06) Revised 4 chapter (P.09) Revised 11.2.5.2 chapter (P.35~P.36) Revised 11.3 chapter (P.41~P.53) Revised 11.6 chapter (P.71)	Nicole Chu
02	Jul. 29, 2021	Revised 4 chapter (P.09)	Nicole Chu
03	Aug. 02, 2021	Revised 3 chapter (P.05)	Nicole Chu

Contents

1. General Information

1.1 Reference Testing Standards

Standard	Description	Version
IEC/IEEE 62209-1528	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)	2020
IEEE 1528	Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques	2013
IEEE C95.1	American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 KHz to 100 GHz, New York	1992
47 CFR Part §2.1093	Radiofrequency radiation exposure evaluation: portable devices	-
KDB 248227 D01	SAR guidance for IEEE 802.11 (Wi-Fi) transmitters	v02r02
KDB 447498 D01	RF exposure procedures and equipment authorization policies for mobile and portable devices	v06
KDB 616217 D04	SAR evaluation considerations for laptop, notebook and tablet computers	v01r02
KDB 865664 D01	SAR measurement requirement for 100 MHz to 6 GHz	v01r04
KDB 865664 D02	RF exposure compliance reporting and documentation considerations	v01r02
KDB 941225 D05	SAR evaluation considerations for LTE devices	v02r05
KDB 941225 D05A	REL. 10 LTE SAR test guidance and KDB inquiries	v01r02
KDB 941225 D06	SAR evaluation procedures for portable devices with wireless router capabilities	v02r01

2. Test Site Environment

Temperature (°C)	21-23

3. Description of Device Under Test (DUT)

Applicant	ASUSTeK COMPUTER INC. 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
Manufacture	ASUSTeK COMPUTER INC. 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
Product Type	LTE module
Trade Name	FIBOCOM
Model Number	NL668-AM-00
IMEI No.	867958050028900
FCC ID	MSQNL668AM00
Class II Permissive Change	(1) This is to request a Class II permissive change for FCC ID: MSQNL668AM00 , originally granted on 2021/07/11 Modification: -Change #1: Additional chassis added, ASUSTeK, model number: CR1100FK, CR1100CK Models differences: All models are electrically identical, different model names are for marketing purpose and the flip angle of panel, as below. CR1100FK is for 360 degree；CR1100CK is for 180 degree -Change #2: This filing also addresses co-location with WLAN, BT module FCC ID: MSQAX201D2. -Change #3: Add two antennas which have PIFA antenna type, and each antenna gain is lower as original grant. -Change #4: Disable the LTE Band 17 by software.
Host Information	Product Type: Chromebook Trade Name: ASUS Model Name: CR1100FK, CR1100CK All models are electrically identical, different model names are for marketing purpose and the flip angle of panel, as below. CR1100FK is for 360 degree；CR1100CK is for 180 degree

	Operate Bands	Operate Frequency (GHz)
Frequency Range	WCDMA Band II	1852.4 - 1907.6
	WCDMA Band IV	1712.4 - 1752.6
	WCDMA Band V	826.4 - 846.6
	LTE Band 2 (BW 1.4, 3, 5, 10, 15, 20 MHz)	1850.7 - 1909.3
	LTE Band 4 (BW 1.4, 3, 5, 10, 15, 20 MHz)	1710.7 - 1754.3
	LTE Band 5 (BW 1.4, 3, 5, 10 MHz)	824.7 - 848.3
	LTE Band 12 (BW 1.4, 3, 5, 10 MHz)	699.7 - 715.3
	LTE Band 13 (BW 5, 10 MHz)	779.5 - 784.5
	LTE Band 66 (BW 1.4, 3, 5, 10, 15, 20 MHz)	1710.7 - 1779.3
	LTE Band 71 (BW 5, 10, 15, 20 MHz)	665.5 - 695.5
Modulations	WCDMA: RMC 12.2Kbps/HSPA+ LTE: QPSK/16QAM	
Device Category	Portable Device	
Application Type	Certification	

Note:

1. The above information of DUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description**.**

Antenna list：

Antenna Source	ANT	Manufacturer	Part No. (Vendor)	Type	Max. Gain (dBi)		
					Band	NB	PAD
1	Chain A	SHENZHEN SOUTH STAR TECHNOLOGY CO., LTD	N19-0866-R0A	PIFA Antenna	WCDMA Band II	-1.12	-2.5
					WCDMA Band IV	-1.45	-3.36
					WCDMA Band V	-5.56	-6.64
					LTE Band 2	-1.12	-2.5
					LTE Band 4	-1.45	-3.36
					LTE Band 5	-5.56	-6.64
					LTE Band 12	-5.2	-3.58
					LTE Band 13	-3.91	-5.21
					LTE Band 66	-1.45	-3.36
					LTE Band 71	-4	-3.09
	Chain B	SHENZHEN SOUTH STAR TECHNOLOGY CO., LTD	N19-0866-R0A	PIFA Antenna	WCDMA Band II	0.31	-3.01
					WCDMA Band IV	0.47	-2.06
					WCDMA Band V	-4.67	-5.12
					LTE Band 2	0.31	-3.01
					LTE Band 4	0.47	-2.06
					LTE Band 5	-4.67	-5.12
					LTE Band 12	-3.96	-3.52
					LTE Band 13	-3.69	-2.92
					LTE Band 66	0.47	-2.06
					LTE Band 71	-2.06	-3.18

Antenna Source	ANT	Manufacturer	Part No. (Vendor)	Type	Max. Gain (dBi)		
					Band	NB	PAD
2	Chain A	AWAN	AXFMY-300002	PIFA Antenna	WCDMA Band II	-0.97	-1.95
					WCDMA Band IV	-1.3	-2.81
					WCDMA Band V	-5.41	-6.09
					LTE Band 2	-0.97	-1.95
					LTE Band 4	-1.3	-2.81
					LTE Band 5	-5.41	-6.09
					LTE Band 12	-4.85	-3.03
					LTE Band 13	-3.76	-4.66
					LTE Band 66	-1.3	-2.81
					LTE Band 71	-3.85	-2.54
	Chain B	AWAN	AXFMY-300002	PIFA Antenna	WCDMA Band II	0.76	-2.79
					WCDMA Band IV	0.92	-1.84
					WCDMA Band V	-4.22	-4.9
					LTE Band 2	0.76	-2.79
					LTE Band 4	0.92	-1.84
					LTE Band 5	-4.22	-4.9
					LTE Band 12	-3.51	-3.30
					LTE Band 13	-3.24	-2.70
					LTE Band 66	0.92	-1.84
					LTE Band 71	-1.61	-2.96

Note :
1. Antenna Source 2 (AWAN) gain is higher. Hence, it is regarded as the initial configuration, and then tested and recorded in this report.
2. Antenna Source 1 (SHENZHEN SOUTH STAR TECHNOLOGY CO., LTD) and Antenna Source 2 (AWAN) are the same type of antenna, only different in manufacturer.
3. The Chain A is connected to AUX port / Chain B is connected to Main port of module.

4. Summary of Maximum Value

Equipment Class	Mode	Highest Reported 1g SAR (W/kg)			
		Tablet/SKU1		Notebook/SKU2	
		Body standalone SAR $_{1g}$(W/kg)	Highest Simultaneous Transmission SAR	Body standalone SAR $_{1g}$(W/kg)	Highest Simultaneous Transmission SAR
Licensed	WCDMA Band II	0.75	1.59	0.57	0.89
	WCDMA Band IV	0.59		0.48	
	WCDMA Band V	1.11		0.11	
	LTE Band 2	0.90		0.41	
	LTE Band 5	0.95		0.11	
	LTE Band 12	1.13		0.12	
	LTE Band 13	0.86		0.13	
	LTE Band 66/4	0.40		0.30	
	LTE Band 71	0.93		0.09	
DTS	WLAN2.4GHz Ant Main	0.33	1.4	0.07	0.72
	WLAN2.4GHz Ant Aux	0.72		0.46	
U-NII	WLAN5GHz Ant Main	0.53	1.59	0.16	0.89
	WLAN5GHz Ant Aux	1.11		0.74	
DSS	Bluetooth Ant Aux	0.14	1.55	0.08	0.89

Note:

1. The SAR limit (Head & Body: SAR1g 1.6 W/kg) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992.
2. This device has two kinds of SKU, SKU 1 is 360 convertible laptop computer, SKU 2 is laptop only. All circuit designs, circuit board and other related designs are electrically identical.
3. According to October 2014 TCB workshop SAR guidance for overlapping bands that support roaming using multiple frequency band indicator. This device supports LTE 12 and B4/66 Since the supported frequency span falls complerely wiinin the suppors frequency span, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore,SAR was assessed 66..
4. SAR testing for WCDMA V, LTE 5/12/13 and 71 was performed on the maximum power mode.
5. WLAN of the SAR value reference to the FCC ID MSQAX201D2 of the report no. 2107FS11. The Devices evaluated Spot Check, please see as below: 11.10 Spot Check.

5. Introduction

5.1 SAR Definition

Specific Absorption Rate (SAR) is defined as 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:

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

SAR measurement can be related to the electrical field in the tissue by

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

Where：

σ = conductivity of the tissue (S/m)

ρ = mass density of the tissue (kg/m^3)

E = RMS electric field strength (V/m)

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

5.2 RF Exposure Limits

Table 1 Safety Limits for Controlled / Uncontrolled Environment Exposure

SAR Exposure Limit		
	General Population / Uncontrolled Exposure [1] (W/kg)	**Occupational / Controlled Exposure [2] (W/kg)**
Spatial Peak SAR [3] (head or Body)	1.60	8.00
Spatial Peak SAR [4] (Whole Body)	0.08	0.40
Spatial Peak SAR [5] (Hands / Feet / Ankle / Wrist)	4.00	20.00

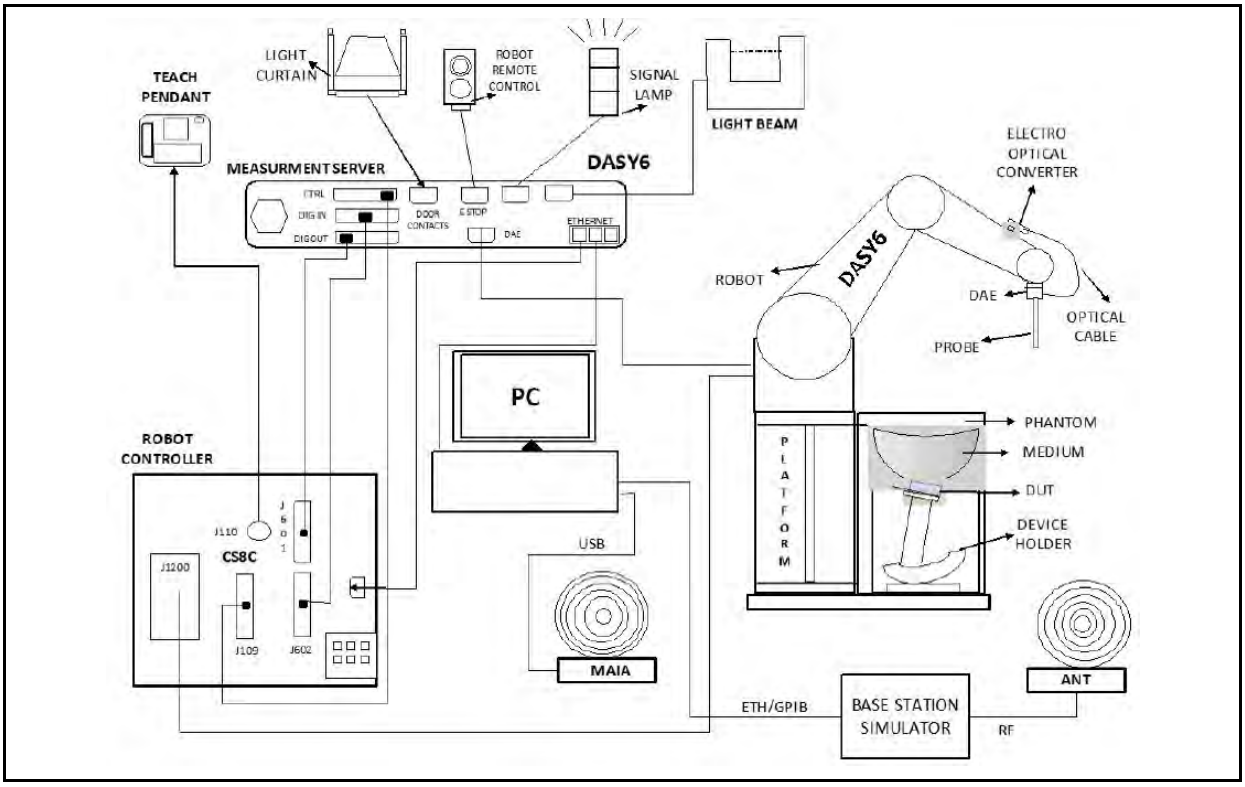
Notes：

1. **General Population / Uncontrolled Environments** are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.
2. **Occupational / 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).
3. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
4. The Spatial Average value of the SAR averaged over the whole body.
5. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

6. System Describtion

6.1 SAR Measurement System

The DASY6 system in cDASY6/DASY5 V5.2 SAR Configuration is shown below:



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

1. A standard high precision 6-axis robot (Stäubli TX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. An isotropic field probe optimized and calibrated for the targeted measurements.
3. 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.
4. 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.
5. 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.
6. The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
7. A computer running Win7/Win8/Win10 professional operating system and the cDASY6 and DASY5 V5.2 software.
8. Remote controls with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
9. The phantom, the device holder and other accessories according to the targeted measurement.
10. Tissue simulating liquid mixed according to the given recipes.
11. The validation dipole has been calibrated within and the system performance check has been successful.

<DASY E-Field Probe System>

The SAR measurements were conducted with the dosimetric probe (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probes is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multi-fiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped when reaching the maximum.

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	4 MHz to 10 GHz Linearity: ± 0.2 dB (30 MHz to 10 GHz)
Directivity	±0.1 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)
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
Calibration	ISO/IEC 17025 calibration service available

EX3DV4 E-Field Probe

Probe setup on robot

<Data Acquisition Electronic (DAE) System>

Model	DAE4	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4 mV, 400 mV)	
Input Offset Voltage	< 5 µV (with auto zero)	
Input Bias Current	< 50 fA	
Dimensions	60 x 60 x 68 mm	

<Robot>

Positioner	Stäubli Unimation Corp.	
Robot Model	TX90XL	
Number of Axes	6	
Norminal Load	5 kg	
Reach	1450 mm	
Repeatability	± 0.035 mm	

<Device Holder>

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε=3 and loss tangent δ=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

	
Device Holder 1	Device Holder 2

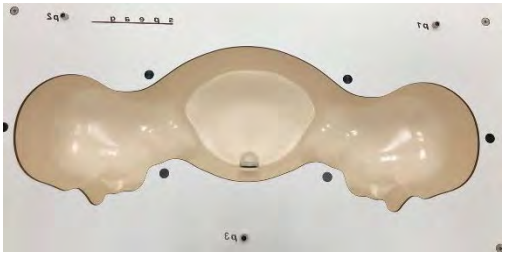
<Oval Flat Phantom – ELI>

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (Oval Flat) phantom defined in IEEE 1528, IEC 62209-2 and IEC/IEEE 62209-1528. It enables the dosimetric evaluation of wireless portable device usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.

Shell Thickness	2 ±0.2 mm	
Filling Volume	Approx. 30 liters	
Dimensions	190×600×400 mm (H × L × W)	

<SAM Phantom>

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528, IEC 62209-1 and IEC/IEEE 62209-1528. It enables the dosimetric evaluation of left and right hand phone usage as well as body-mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Shell Thickness	2 ±0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm Width: 500 mm Height: adjustable feet	

6.2 Tissue Simulating Liquids (TSL)

<Tissue Dielectric Parameters in IEEE 1528-2013 and IEC/IEEE 62209-1528>

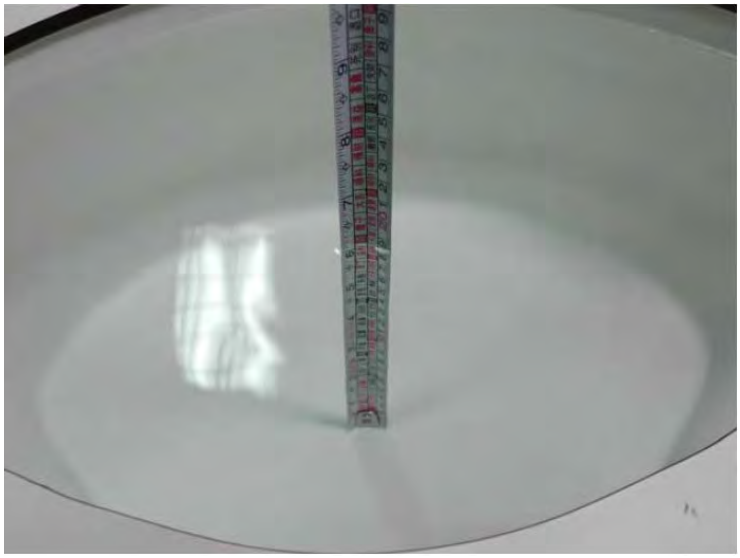
The following table incorporates the tissue dielectric parameters of head recommended by IEEE 1528-2013 and IEC/IEEE 62209-1528. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in human head. Other head and body tissue parameters that have not been specified are derived from the tissue dielectric parameters which computed by the 4-Cole-Cole equation according to the above-mentioned standards.

Table 2 Dielectric properties of the tissue-equivalent liquid material

Frequency	Real part of the complex relative	Conductivity, σ
30	55.0	0.75
150	52.3	0.76
300	45.3	0.87
450	43.5	0.87
750	41.9	0.89
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1800	40.0	1.40
1900	40.0	1.40
1950	40.0	1.40
2000	40.0	1.40
2100	39.8	1.49
2450	39.2	1.80
2600	39.0	1.98
3000	38.5	2.40
3500	37.9	2.91
4000	37.4	3.43
4500	36.8	3.94
5000	36.2	4.45
5200	36.0	4.66
5400	35.8	4.86
5600	35.5	5.07
5800	35.3	5.27
6000	35.1	5.48
6500	34.5	6.07
7000	33.9	6.65
7500	33.3	7.24
8000	32.7	7.84
8500	32.1	8.46
9000	31.6	9.08
9500	31.0	9.71
10000	30.4	10.4

<Liquid Depth>

The depth of tissue-equivalent liquid in a phantom must be ≧ 15.0 cm to ensure that the probe is immersed sufficiently in the tissue medium.



Tissue-equivalent Liquid Heigh

<Liquid Check>

1. The dielectric parameters of the liquids were verified prior to the SAR evaluation using a DAKS 3.5 Probe Kit.
2. The SAR testing with IEC tissue parameters as an alternative option to Head and body parameters. The head TSL were applied to body SAR tests with restrictions below:

   The mixing and matching of head TSL and body TSL for body SAR testing in a single application are not permitted. For example, testing body SAR with head TSL and then switch to Body TSL for body SAR test is not allowed. The consistency of TSL is required.

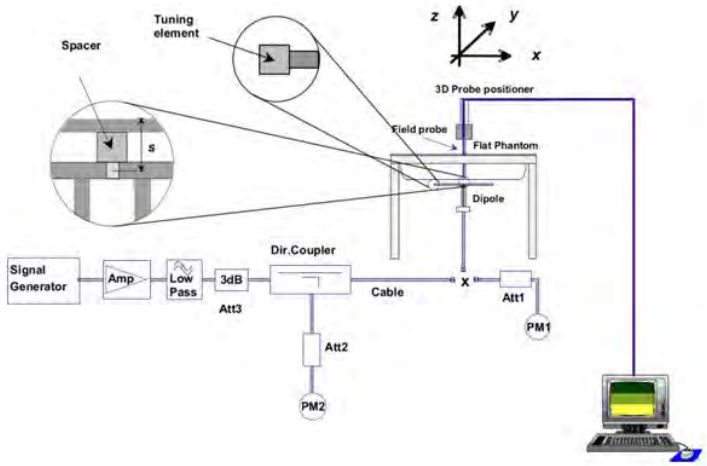
Tissue Temp (°C)	Liquid Type	Frequency (MHz)	Cond.	Perm.	target Cond.	target Perm.	σ (Delta) (%)	εr (Delta) (%)	Limit (%)	Date
			σ	εr	σ	εr				
22.4	Head	1852.4 MHz	1.37	40.42	1.40	40.00	-2.13	1.06	±5	Jul. 05, 2021
22.4	Head	1880 MHz	1.40	40.25	1.40	40.00	0.23	0.63	±5	Jul. 05, 2021
22.4	Head	1907.6 MHz	1.44	40.28	1.40	40.00	2.59	0.70	±5	Jul. 05, 2021
22.4	Head	1860 MHz	1.38	40.36	1.40	40.00	-1.40	0.90	±5	Jul. 05, 2021
22.4	Head	1880 MHz	1.40	40.25	1.40	40.00	0.23	0.63	±5	Jul. 05, 2021
22.4	Head	1900 MHz	1.43	40.26	1.40	40.00	2.07	0.65	±5	Jul. 05, 2021
22.8	Head	1712.4 MHz	1.33	40.51	1.35	40.13	-1.71	0.96	±5	Jul. 06, 2021
22.8	Head	1732.6 MHz	1.35	40.46	1.36	40.10	-1.20	0.91	±5	Jul. 06, 2021
22.8	Head	1752.6 MHz	1.36	40.38	1.37	40.07	-0.88	0.78	±5	Jul. 06, 2021
22.8	Head	1720 MHz	1.34	40.50	1.35	40.11	-1.36	0.97	±5	Jul. 06, 2021
22.8	Head	1732.5 MHz	1.35	40.46	1.36	40.10	-1.20	0.91	±5	Jul. 06, 2021
22.8	Head	1745 MHz	1.36	40.42	1.37	40.08	-0.99	0.84	±5	Jul. 06, 2021
22.8	Head	1720 MHz	1.34	40.50	1.35	40.11	-1.43	0.97	±5	Jul. 06, 2021
22.8	Head	1745 MHz	1.36	40.42	1.37	40.08	-0.99	0.84	±5	Jul. 06, 2021
22.8	Head	1770 MHz	1.38	40.33	1.38	40.04	-0.54	0.71	±5	Jul. 06, 2021
22.5	Head	704 MHz	0.89	42.56	0.89	42.15	0.65	0.97	±5	Jul. 07, 2021
22.5	Head	707.5 MHz	0.90	42.51	0.89	42.12	0.93	0.92	±5	Jul. 07, 2021
22.5	Head	711 MHz	0.90	42.46	0.89	42.11	1.48	0.82	±5	Jul. 07, 2021
22.5	Head	782 MHz	0.93	41.47	0.89	41.75	4.03	-0.67	±5	Jul. 07, 2021
22.5	Head	683 MHz	0.88	42.87	0.89	42.26	-0.23	1.45	±5	Jul. 07, 2021
22.7	Head	826.4 MHz	0.89	42.45	0.90	41.54	-0.67	2.18	±5	Jul. 08, 2021
22.7	Head	836.4 MHz	0.90	42.31	0.90	41.50	0.11	1.94	±5	Jul. 08, 2021
22.7	Head	846.6 MHz	0.91	42.16	0.91	41.50	0.04	1.60	±5	Jul. 08, 2021
22.7	Head	829 MHz	0.90	42.41	0.90	41.53	-0.37	2.12	±5	Jul. 08, 2021
22.7	Head	836.5 MHz	0.90	42.30	0.90	41.50	0.13	1.94	±5	Jul. 08, 2021
22.7	Head	844 MHz	0.91	42.20	0.91	41.50	0.09	1.67	±5	Jul. 08, 2021

7. System Verification

7.1 SAR System Verification

<Symmetric Dipoles for SAR System Verification>

Construction	Symmetrical dipole with λ/4 balun enables measurement of feed point impedance with NWA matched for use near flat phantoms filled with head simulating solutions Includes distance holder and tripod adaptor Calibration Calibrated SAR value for specified position and input power at the flat phantom in head simulating solutions.
Return Loss	> 20 dB at specified verification position.
Options	Dipoles for other frequencies or solutions and other calibration conditions are available upon request.



System Verification Setup Diagram

Validation Kit

7.1.1 SAR Verification Summary

Prior to the assessment, the validation data compared to the original value provided by SPEAG should be within its specifications of ±10%. The measured SAR will be normalized to 1 W input power. The result indicates the system check can meet the variation criterion and plots can be referred to Appendix A of this report.

Mixture Type	Frequency (MHz)	Power	Probe	Dipole	$SAR_{1\,g}$ (W/Kg)	Normalize to 1 Watt 1 g (W/Kg)	1 W Target $SAR_{1\,g}$ (W/Kg)	$SAR_{10\,g}$ (W/Kg)	Normalize to 1 Watt 10 g (W/Kg)	1 W Target $SAR_{10\,g}$ (W/Kg)	Difference percentage 1 g	Difference percentage 10 g	Date
			Model / Serial No.	Model / Serial No.									
Head	750	250 mW	EX3DV4-SN 7647	D750V3 – SN1004	2.24	8.96	8.37	1.48	5.92	5.48	7.0%	8.0%	Jul. 07, 2021
Head	835	250 mW	EX3DV4-SN 7647	D835V2 – SN4d082	2.45	9.8	9.49	1.63	6.52	6.17	3.3%	5.7%	Jul. 08, 2021
Head	1750	250 mW	EX3DV4-SN 7647	D1750V2 – SN1111	9.33	37.32	36.40	4.84	19.36	19.00	2.5%	1.9%	Jul. 06, 2021
Head	1900	250 mW	EX3DV4-SN 7647	D1900V2 – SN5d111	9.92	39.68	40.10	5.23	20.92	20.70	-1.0%	1.1%	Jul. 05, 2021

8. Test Equipment List

8.1 SAR Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Cal. Date	Cal.Period
SPEAG	750MHz System Validation Kit	D750V3	1004	2020/09/17	1 year
SPEAG	835MHz System Validation Kit	D835V2	4d082	2020/09/17	1 year
SPEAG	1750MHz System Validation Kit	D1750V2	1111	2021/04/14	1 year
SPEAG	1900MHz System Validation Kit	D1900V2	5d111	2020/09/18	1 year
SPEAG	Dosimetric E-Field Probe	EX3DV4	7647	2021/04/15	1 year
SPEAG	Data Acquisition Electronics	DAE4	1253	2020/12/16	1 year
SPEAG	Measurement Server	SE UMS 011 BB	1241	NCR	
SPEAG	Device Holder	N/A	N/A	NCR	
SPEAG	Phantom	ELI V5.0	1175	NCR	
SPEAG	Robot	Staubli TX90XL	F11/5G9EA1/A/01	NCR	
SPEAG	Software	DASY52 V52.10 (3)	N/A	NCR	
SPEAG	Software	SEMCAD X V14.6.13 (7474)	N/A	NCR	
R&S	Wireless Communication Test Set	CMU200	112387	2021/03/17	1 year
Anritsu	Radio Communication Analyzer	MT8820C	6201342039	2020/12/03	1 year
R&S	Wideband Radio Communication Tester	CMW500	103168	2020/11/20	1 year
SPEAG	Network Analyzer	DAKS_VNA R140	0010318	2021/05/26	1 year
SPEAG	Dielectric Probe Kit	DAKS-3.5	1101	2021/05/26	1 year
HILA	Digital Thermometer	TM-906A	1500033	2020/10/28	1 year
Anritsu	Power Sensor	MA2411B	1126022	2020/09/01	1 year
Anritsu	Power Meter	ML2495A	1135009	2020/09/01	1 year
Agilent	Signal Generator	E8257D	MY44320425	2021/02/18	1 year
Agilent	Spectrum Analyzer	N9030A	MT-112	2021/01/08	1 year
Agilent	Dual Directional Coupler	778D	50334	NCR	
Woken	Dual Directional Coupler	0100AZ20200801O	11012409517	NCR	
Mini-Circuits	Power Amplifier	EMC014225P	980292	NCR	
Mini-Circuits	Power Amplifier	EMC2830P	980293	NCR	
Aisi	Attenuator	IEAT 3dB	N/A	NCR	

Testing Engineer: Jason Tsao / Ted Hsieh

9. Measurement Procedure

9.1 SAR Measurement Procedure

The measurement procedures are as follows:

1. The DUT is installed engineering testing software that provides continuous transmitting signal.
2. Measure output power through RF cable and power meter
3. Set scan area, grid size and other setting on the DASY software
4. Find out the largest SAR result on these testing positions of each band
5. Measure SAR results for other channels in worst SAR testing position if the 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:

1. Power reference measurement
2. Area scan
3. Zoom scan
4. Power drift measurement

9.1.1 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures points and step size follow as below. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution.

The measure settings are referred to KDB 865664 D01v01r04 :

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 mm ± 1 mm</td><td>½·δ·ln(2) mm ± 0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">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.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">Graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 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.</td></tr>
</table>

9.1.2 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 1 g aggregate SAR, the DUT 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.

9.1.3 Power Drift Monitoring

All SAR testing is under the DUT 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 DUT 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.

9.1.4 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1 g and 10 g, 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 1 g and 10 g 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 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

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

10. Measurement Uncertainty

10.1 SAR Measurement Uncertainty

Uncertainty Budget for frequency range 300 MHz to 3 GHz:

Measurement uncertainty (0.3GHz ~3 GHz)								
Uncertainty component	**Tol.**	**Prob. Dist.**	**Div.**	**C_i - 1g**	**C_i - 10g**	**u_i - 1g (± %)**	**u_i - 10g (± %)**	**v_i**
Measurement system								
Probe calibration	6.1	N	1	1	1	6.1	6.1	∞
Axial isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9	∞
Hemispherical isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9	∞
Boundary effect	1	R	1.732	1	1	0.6	0.6	∞
Linearity	4.7	R	1.732	1	1	2.7	2.7	∞
System detection limits	0.25	R	1.732	1	1	0.1	0.1	∞
Readout electronics	0.3	N	1	1	1	0.3	0.3	∞
Response time	0.8	R	1.732	1	1	0.5	0.5	∞
Integration time	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Noise	3	R	1.732	1	1	1.7	1.7	∞
RF Ambient Reflections	3	R	1.732	1	1	1.7	1.7	∞
Probe Positioner	0.02	R	1.732	1	1	0	0	∞
Probe Positioning	0.4	R	1.732	1	1	0.2	0.2	∞
Max. SAR evaluation	2	R	1.732	1	1	1.2	1.2	∞
Test sample related								
Test sample positioning	2.9	N	1	1	1	2.9	2.9	145
Device holder uncertainty	3.6	N	1	1	1	3.6	3.6	5
SAR drift measurement	5	R	1.732	1	1	2.9	2.9	∞
Phantom and tissue parameters								
Phantom shell uncertainty	7.6	R	1.732	1	1	4.4	4.4	∞
Liquid Conductivity (target)	5	R	1.732	0.78	0.71	2.3	2	∞
Liquid Conductivity (measurement)	4.8	R	1.732	0.78	0.71	2.2	2	∞
Liquid Permittivity (target)	5	R	1.732	0.23	0.26	0.7	0.8	∞
Liquid Permittivity (measurement)	4.8	R	1.732	0.23	0.26	0.6	0.7	∞
Combined standard uncertainty								
-	-	RSS	-	-	-	11.5	11.5	515
Expanded uncertainty (95% confidence interval)								
-	-	k =2	-	-	-	23.1	22.9	

Uncertainty Budget for frequency range 3 GHz to 6 GHz:

Measurement uncertainty (3 GHz~6 GHz)								
Uncertainty component	**Tol.**	**Prob. Dist.**	**Div.**	**C_i - 1g**	**C_i - 10g**	**u_i - 1g (± %)**	**u_i - 10g (± %)**	**v_i**
Measurement system								
Probe calibration	6.7	N	1	1	1	6.7	6.7	∞
Axial isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9	∞
Hemispherical isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9	∞
Boundary effect	2	R	1.732	1	1	1.2	1.2	∞
Linearity	4.7	R	1.732	1	1	2.7	2.7	∞
System detection limits	0.25	R	1.732	1	1	0.1	0.1	∞
Readout electronics	0.3	N	1	1	1	0.3	0.3	∞
Response time	0	R	1.732	1	1	0	0	∞
Integration time	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Noise	3	R	1.732	1	1	1.7	1.7	∞
RF Ambient Reflections	3	R	1.732	1	1	1.7	1.7	∞
Probe Positioner	0.04	R	1.732	1	1	0.02	0.02	∞
Probe Positioning	0.8	R	1.732	1	1	0.5	0.5	∞
Max. SAR evaluation	4	R	1.732	1	1	2.3	2.3	∞
Test sample related								
Test sample positioning	2.9	N	1	1	1	2.9	2.9	145
Device holder uncertainty	3.6	N	1	1	1	3.6	3.6	7
SAR drift measurement	5	R	1.732	1	1	2.9	2.9	∞
Phantom and tissue parameters								
Phantom shell uncertainty	7.6	R	1.732	1	1	4.4	4.4	∞
Liquid Conductivity (target)	5	R	1.732	0.78	0.71	2.3	2	∞
Liquid Conductivity (measurement)	4.8	R	1.732	0.78	0.71	2.2	2	∞
Liquid Permittivity (target)	5	R	1.732	0.23	0.26	0.7	0.8	∞
Liquid Permittivity (measurement)	4.8	R	1.732	0.23	0.26	0.6	0.7	∞
Combined standard uncertainty								
-	-	RSS	-	-	-	12.1	12.0	859
Expanded uncertainty (95% confidence interval)								
-	-	k =2	-	-	-	24.1	24.0	-

Uncertainty Budget for frequency range 6 GHz to 10 GHz:

Measurement uncertainty (6 GHz~10 GHz)								
Uncertainty component	**Tol.**	**Prob. Dist.**	**Div.**	**C_i - 1g**	**C_i - 10g**	**u_i - 1g (± %)**	**u_i - 10g (± %)**	**v_i**
Measurement system								
Probe calibration	9.3	N	1	1	1	9.3	9.3	∞
Axial isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9	∞
Hemispherical isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9	∞
Boundary effect	2	R	1.732	1	1	1.2	1.2	∞
Linearity	4.7	R	1.732	1	1	2.7	2.7	∞
System detection limits	0.25	R	1.732	1	1	0.1	0.1	∞
Readout electronics	0.3	N	1	1	1	0.3	0.3	∞
Response time	0.8	R	1.732	1	1	0.5	0.5	∞
Integration time	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Noise	3	R	1.732	1	1	1.7	1.7	∞
RF Ambient Reflections	3	R	1.732	1	1	1.7	1.7	∞
Probe Positioner	0.04	R	1.732	1	1	0	0	∞
Probe Positioning	1.6	R	1.732	1	1	0.9	0.9	∞
Max. SAR evaluation	6	R	1.732	1	1	3.5	3.5	∞
Test sample related								
Test sample positioning	2.9	N	1	1	1	2.9	2.9	145
Device holder uncertainty	3.6	N	1	1	1	3.6	3.6	5
SAR drift measurement	5	R	1.732	1	1	2.9	2.9	∞
Phantom and tissue parameters								
Phantom shell uncertainty	6.6	R	1.732	1	1	3.3	3.3	∞
Liquid Conductivity (target)	5	R	1.732	0.78	0.71	2.3	2	∞
Liquid Conductivity (measurement)	4.8	N	1	0.78	0.71	3.7	3.4	∞
Liquid Permittivity (target)	5	R	1.732	0.23	0.26	0.7	0.8	∞
Liquid Permittivity (measurement)	4.8	N	1	0.23	0.26	1.1	1.2	∞
Combined standard uncertainty								
-	-	RSS	-	-	-	14.2	14.1	1174
Expanded uncertainty (95% confidence interval)								
-	-	k =2	-	-	-	28.3	28.1	-

11. Measurement Evaluation

11.1 Positioning of the DUT in Relation to the Phantom

The following measurement procedure shall be according to RSS-102 Supplementary procedures (SPR-001):

Unless the side(s)/edge(s) of the laptop type computer (laptop mode/tablet mode) containing the built-in antenna(s) was already tested against the flat phantom.

Industry Canada requires SAR measurements to be performed with the side(s)/edge(s) of the display screen containing the built-in antenna(s) pointing towards the flat phantom.

1. If the integrated antenna(s) are located in the back side of the display screen, the back side shall be facing towards the flat phantom at a distance not exceeding 25 mm.
2. If the integrated antenna(s) are installed along the edge(s) of the display screen, the edge(s) shall be facing towards the flat phantom at a distance not exceeding 25 mm.

According to KDB 616217 D04:

1. When antennas are incorporated in the keyboard section of a laptop computer, SAR is required for the bottom surface of the keyboard. Provided tablet use conditions are not supported by the laptop computer, SAR tests for bystander exposure from the edges of the keyboard.
2. Some 2-in-1 tablets may operate with the display folded on top of the keyboard. Most recent tablets are designed with an interactive display that may not require a physical keyboard. Both configurations are used in similar manners and require SAR evaluation for the back surface and edges of the tablet. For keyboards that can be unfolded like a laptop, the procedures for laptop platform should also be applied.

11.2 SAR Testing with RF Transmitter

11.2.1 SAR Testing with WCDMA

<General requirements>

1. The default test configuration is to measure SAR with an established radio link between the handset and a communication test set using a 12.2 kbps RMC (reference measurement channel) configured in Test Loop Mode 1.
2. SAR must be measured according to these maximum output conditions and requirements in KDB Publication 447498 D01.
3. **Head SAR**:
   - SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
4. **Body-Worn Accessory SAR**:
   - SAR for body-worn accessory configurations is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
   - The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode.

<Setup >

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

- Step1: set a Test Mode 1 loop back with a 12.2 kbps Reference Measurement Channel (RMC).
- Step 2: set and send continuously up power control commands to the device.
- Step 3: measure the power at the device antenna connector using the power meter with average detector and test SAR.

11.2.2 SAR Testing with HSDPA / HSUPA

<General requirements>

1. The following procedures are applicable to HSPA (HSUPA/HSDPA) data devices operating under 3GPP Release 6. Body exposure conditions generally apply to these devices, including handsets and data modems operating in various electronic devices.
2. HSUPA operates in conjunction with WCDMA and HSDPA. SAR is initially measured in WCDMA test configurations without HSPA. The default test configuration is to establish a radio link between the DUT and a communication test set to configure a 12.2 kbps RMC (reference measurement channel) in Test Loop Mode 1.
3. SAR for HSPA is selectively measured with HS-DPCCH, EDPCCH and E-DPDCH, all enabled, along with a 12.2 kbps RMC using the highest SAR configuration in WCDMA with 12.2 kbps RMC only. An FRC is configured according to HSDPCCH Sub-test 1 using H-set 1 and QPSK. HSPA is configured according to E-DCH Subtest 5 requirements.

SAR for other HSPA sub-test configurations is also confirmed selectively according to output power, exposure conditions and E-DCH UE Category. Maximum output power is verified according to procedures in applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. The UE Categories for HSDPCCH and HSPA should be clearly identified in the SAR report. The following procedures are applicable only if Maximum Power Reduction (MPR) is implemented according to Cubic Metric (CM) requirements.

4. When voice transmission and head exposure conditions are applicable to a WCDMA/HSPA data device, head exposure is measured according to the 'Head SAR Measurements' procedures in the 'WCDMA Handsets' section of this document.
5. SAR for body exposure configurations are measured according to the 'Body SAR Measurements' procedures in the 'WCDMA Handsets' section of this document. In addition, body SAR is also measured for HSPA when the maximum average output of each RF channel with HSPA active is at least ¼ dB higher than that measured without HSPA using 12.2 kbps RMC or the maximum SAR for 12.2 kbps RMC is above 75% of the SAR limit.
6. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP is applicable for head exposure, SAR is not required when the maximum output of each RF channel with HSPA is less than ¼ dB higher than that measured using 12.2 kbps RMC; otherwise, the same HSPA configuration used for body measurements should be used to test for head exposure.
7. Due to inner loop power control requirements in HSPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA should be configured according to the β values indicated below as well as other applicable procedures described in the 'WCDMA Handset' and 'Release 5 HSDPA Data Devices' sections of this document.

<Setup >

HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(βc, βd), and HS-DPCCH power offset parameters (ΔACK, ΔNACK, ΔCQI) should be set according to values indicated in the Table below. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Setup for Release 5 HSDPA							
Sub-test	βc	βd	βd (SF)	βc/βd	βhs(1,2)	CM(3) (dB)	MRP(3) (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15(4)	15/15(4)	64	12/15(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} = 8 ⇔ Ahs = βhs/βc = 30/15 ⇔ βhs= 30/15 *βc
2. For theHS-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 βhs = 30/15 *βc and Δ_{CQI} = 24/15 with βhs = 24/15*βc
3. CM = 1 for βc/βd =12/15, βhs/βc=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.
4. For subtest 2 the βc/βd ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to βc = 11/15 and βd = 15/15.

11.2.3 SAR Testing with LTE

<FDD Setup >

All SAR measurements for LTE were performed using the Anritsu MT8820C. A closed loop power control setting allowed the UE to transmit at the maximum output power during the SAR measurements.Configure the basestation to support LTE tests in respect to the 3GPP 36.521-1,and set ch , RB allocation number ,RB allocation offset , and send continuously Up power control commands to the device.
MPR was enabled for this device. A-MPR was disabled for all SAR test measurements.

<TDD Setup >

All SAR measurements for LTE were performed using the Anritsu MT8820C. A closed loop power control setting allowed the UE to transmit at the maximum output power during the SAR measurements.Configure the basestation to support LTE tests in respect to the 3GPP 36.521-1,and set ch , TDD mode , RB allocation number ,RB allocation offset , and send continuously Up power control commands to the device.
MPR was enabled for this device. A-MPR was disabled for all SAR test measurements.
For 3GPP table 4.2.1 as below, support configurations and worst-case UpPTS information into the table.

The EUT only supports the 40 % case, which is Table 4.2.2, configuration #1 below.

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

<Maximum power reduction (MPR) >

Identify the LTE voice/data requirements in each operating mode and exposure condition with respect to head and body test configurations, antenna locations, handset flip-cover or slide positions, antenna diversity conditions etc.

The voice and data transmission:

- ◆ Data only device.

Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design:

- ◆ Maximum Power Reduction (MPR) is mandatory, i.e. built-in by design.
- ◆ A-MPR (additional MPR) must be disabled
- ◆ A-MPR was disabled during testing.

Maximum Power Reduction (MPR) for Power Class 1, 2 and 3							
Channel bandwidth / Transmission bandwidth configuration (RB)							
Modulation	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20MHz	MPR (dB)
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

11.2.4 SAR Testing with LTE

<General requirements>

1. 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. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel.
3. When the highest reported SAR for 1 RB and 50% RB allocation are > 0.8 W/kg, SAR is measured for the highest output power channel in 100%RB.
4. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
5. The procedures required for 1 RB allocation are applied to measure the SAR for QPSK with 50% RB allocation.
6. 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.
7. SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.
8. According to 5.3 of KDB 941225 D05, that about the test reduction for other channel bandwidth, if the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg, then SAR need to test.
9. 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; therefore, the requirement for H, M, and L channels may not fully apply.

<FDD Setup >

All SAR measurements for LTE were performed using the Anritsu MT8820C. A closed loop power control setting allowed the UE to transmit at the maximum output power during the SAR measurements.Configure the basestation to support LTE tests in respect to the 3GPP 36.521-1,and set ch , RB allocation number ,RB allocation offset , and send continuously Up power control commands to the device.

MPR was enabled for this device. A-MPR was disabled for all SAR test measurements.

<TDD Setup >

All SAR measurements for LTE were performed using the Anritsu MT8820C. A closed loop power control setting allowed the UE to transmit at the maximum output power during the SAR measurements.Configure the basestation to support LTE tests in respect to the 3GPP 36.521-1,and set ch , TDD mode , RB allocation number ,RB allocation offset , and send continuously Up power control commands to the device.

MPR was enabled for this device. A-MPR was disabled for all SAR test measurements.

For 3GPP table 4.2.1 as below, support configurations and worst-case UpPTS information into the table.

3GPP 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			EUT Support Special subframe	Worst case UpPTS
	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×Ts	2192×Ts	2560×Ts	7680×Ts	2192×Ts	2560×Ts	□	□
1	19760×Ts			20480×Ts			□	□
2	21952×Ts			23040×Ts			□	□
3	24144×Ts			25600×Ts			■	□
4	26336×Ts			7680×Ts	4384×Ts	5120×Ts	■	□
5	6592×Ts	4384×Ts	5120×Ts	20480×Ts			□	□
6	19760×Ts			23040×Ts			□	□
7	21952×Ts			12800×Ts			■	■
8	24144×Ts			-	-	-	□	□
9	13168×Ts			-	-	-	□	□
Duty cycle(maximum)								43.33 %

The EUT only supports the 40 % case, which is Table 4.2.2, configuration #1 below.

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

<Maximum power reduction (MPR) >

Identify the LTE voice/data requirements in each operating mode and exposure condition with respect to head and body test configurations, antenna locations, handset flip-cover or slide positions, antenna diversity conditions etc.

The voice and data transmission:

- ◆ Data only device.

Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design:

- ◆ Maximum Power Reduction (MPR) is mandatory, i.e. built-in by design.
- ◆ A-MPR (additional MPR) must be disabled
- ◆ A-MPR was disabled during testing.

Maximum Power Reduction (MPR) for Power Class 1, 2 and 3							
Channel bandwidth / Transmission bandwidth configuration (RB)							
Modulation	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20MHz	MPR (dB)
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

11.2.5 Proximity Sensor

11.2.5.1. Proximity Sensor Evaluation and Test

The device supports WWAN, WLAN, and Bluetooth capabilities. It is designed with a proximity sensor which can trigger/not trigger power reduction for WCDMA and LTE on Bottom Face and Side 1 of DUT for SAR compliance. The power reduction is not implemented in the other RF capability.

11.2.5.2. Procedures for determining proximity sensor triggering distances

The proximity sensor triggering distance was determined per KDB 616217 for rear face and applicable edge.Summary for power verification per distance was tabulated in the below table.

Depending on how the antenna and sensor are overlapping, Since The proximity sensor which is combined with antenna in one component, the procedure for proximity sensor coverage is not required.

Bottom Face (Near to Far)											
Gap (mm)	15	16	17	18	19	20	21	22	23	24	25
Band	on	on	on	on	on	on	off	off	off	off	off
WCDMA Band II	17.00	17.00	17.00	17.00	17.00	17.00	24.50	24.50	24.50	24.50	24.50

Bottom Face (Far to Near)											
Gap (mm)	25	24	23	22	21	20	19	18	17	16	15
Band	off	off	off	off	off	on	on	on	on	on	on
WCDMA Band II	24.50	24.50	24.50	24.50	24.50	17.00	17.00	17.00	17.00	17.00	17.00

Side 1(Near to Far)											
Gap (mm)	15	16	17	18	19	20	21	22	23	24	25
Band	on	on	on	on	on	on	off	off	off	off	off
WCDMA Band II	17.00	17.00	17.00	17.00	17.00	17.00	24.50	24.50	24.50	24.50	24.50
WCDMA Band IV	17.50	17.50	17.50	17.50	17.50	17.50	24.50	24.50	24.50	24.50	24.50
LTE Band2	16.00	16.00	16.00	16.00	16.00	16.00	24.00	24.00	24.00	24.00	24.00
LTE Band4	16.00	16.00	16.00	16.00	16.00	16.00	24.00	24.00	24.00	24.00	24.00
LTE Band66	16.00	16.00	16.00	16.00	16.00	16.00	24.00	24.00	24.00	24.00	24.00

Side 1(Far to Near)											
Gap (mm)	25	24	23	22	21	20	19	18	17	16	15
Band	off	off	off	off	off	on	on	on	on	on	on
WCDMA Band II	24.50	24.50	24.50	24.50	24.50	17.00	17.00	17.00	17.00	17.00	17.00
WCDMA Band IV	24.50	24.50	24.50	24.50	24.50	17.50	17.50	17.50	17.50	17.50	17.50
LTE Band2	24.00	24.00	24.00	24.00	24.00	16.00	16.00	16.00	16.00	16.00	16.00
LTE Band4	24.00	24.00	24.00	24.00	24.00	16.00	16.00	16.00	16.00	16.00	16.00
LTE Band66	24.00	24.00	24.00	24.00	24.00	16.00	16.00	16.00	16.00	16.00	16.00

11.2.5.3. Procedures for determining tablet tilt angle influences to proximity sensor triggering

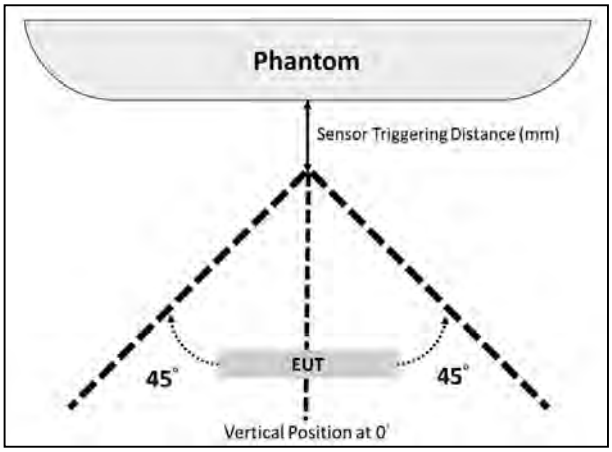
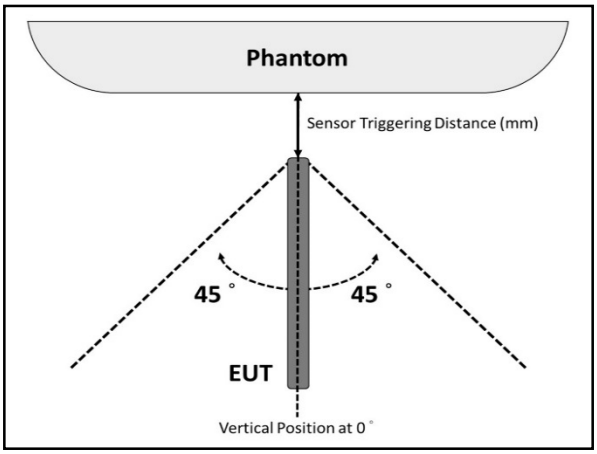
The influence of table tilt angles to proximity sensor triggering is determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at the smallest sensor triggering test distance determined in KDB 616217. Summary for proximity sensor tilt angle influence is shown in below table.

WWAN Antenna _Trigger Distance Test (Bottom Face of tablet)		
Sensor Triggering Distance (mm)		
Actual Test	Far to Near	Near to Far
	20	21
Average triggering distance	20	20
Sensor on distance	20	20

WWAN Antenna _Trigger Distance Test (Side 1 of tablet)		
Sensor Triggering Distance (mm)		
Actual Test	Far to Near	Near to Far
	20	21
Average triggering distance	20	20
Sensor on distance	20	20

WWAN Antenna _Trigger Distance Test (Bottom Face of tablet)			
Angle change	Sensor Triggering Distance (mm)		
	Far to Near	Near to Far	Min trigger distance
0 degree	20	21	20
10 degree	Front toward to the phantom		20
20 degree			20
30 degree			19
40 degree			19
45 degree			18
-10 degree	Back toward to the phantom		20
-20 degree			20
-30 degree			19
-40 degree			19
-45 degree			18

WWAN Antenna _Trigger Distance Test (Side 1 of tablet)			
Angle change	Sensor Triggering Distance (mm)		
	Far to Near	Near to Far	Min trigger distance
0 degree	20	21	20
10 degree	Front toward to the phantom		20
20 degree			20
30 degree			20
40 degree			19
45 degree			18
-10 degree	Back toward to the phantom		20
-20 degree			20
-30 degree			20
-40 degree			19
-45 degree			18

Bottom Face	Side 1
	

11.2.5.4. Proximity sensor triggering testing summary

The smallest power sensor triggering distance is 20 mm for DUT.
For the influence of tilt angle, test performed at the above separation distance untill proximity sensor no longer release and the output power remained in reduced mode. The smallest separation distancce for tilt angle influence is 18 mm consequently, and then subtract 1 mm for SAR measurement.
Considering SAR compliance and the conservative distance for sensor triggering, SAR test with power reduction was performed at 0 mm for Bottom Face and Side 1, and performed without power reduciton at 17 mm.
The power reduction is determinded by proximity sensor input, and the proximity sensor function is set by manual operation with engineering testing software during SAR measurement.

11.3 Conducted Power Measurements

Band	Modulation	Date Rate or Sub-test	CH		Frequency	Avg Conducted power (dBm)	Tune up (dBm)
WCDMA II	RMC12.2K	---	Lowest	9262	1852.4	22.62	24.50
			Middle	9400	1880.0	22.64	24.50
			Highest	9538	1907.6	22.57	24.50
HSDPA II	QPSK	1	Lowest	9262	1852.4	22.13	24.00
			Middle	9400	1880.0	22.39	24.00
			Highest	9538	1907.6	22.36	24.00
		2	Lowest	9262	1852.4	22.11	24.00
			Middle	9400	1880.0	22.33	24.00
			Highest	9538	1907.6	22.27	24.00
		3	Lowest	9262	1852.4	21.64	23.50
			Middle	9400	1880.0	21.90	23.50
			Highest	9538	1907.6	21.82	23.50
		4	Lowest	9262	1852.4	21.64	23.50
			Middle	9400	1880.0	21.90	23.50
			Highest	9538	1907.6	21.85	23.50
HSUPA II		1	Lowest	9262	1852.4	22.14	24.00
			Middle	9400	1880.0	22.34	24.00
			Highest	9538	1907.6	22.32	24.00
		2	Lowest	9262	1852.4	20.09	22.00
			Middle	9400	1880.0	20.33	22.00
			Highest	9538	1907.6	20.30	22.00
		3	Lowest	9262	1852.4	21.11	23.00
			Middle	9400	1880.0	21.37	23.00
			Highest	9538	1907.6	21.33	23.00
		4	Lowest	9262	1852.4	20.12	22.00
			Middle	9400	1880.0	20.36	22.00
			Highest	9538	1907.6	20.32	22.00
		5	Lowest	9262	1852.4	22.14	24.00
			Middle	9400	1880.0	22.33	24.00
			Highest	9538	1907.6	22.34	24.00

Band	Modulation	Date Rate or Sub-test	CH		Frequency (MHz)	Avg Conducted power (dBm)	Tune up (dBm)
WCDMA IV	RMC12.2K	---	Lowest	1312	1712.4	22.53	24.50
			Middle	1413	1732.6	22.54	24.50
			Highest	1513	1752.6	22.58	24.50
HSDPA IV	QPSK	1	Lowest	1312	1712.4	22.30	23.50
			Middle	1413	1732.6	22.31	23.50
			Highest	1513	1752.6	22.47	23.50
		2	Lowest	1312	1712.4	22.29	23.50
			Middle	1413	1732.6	22.31	23.50
			Highest	1513	1752.6	22.44	23.50
		3	Lowest	1312	1712.4	21.80	23.00
			Middle	1413	1732.6	21.87	23.00
			Highest	1513	1752.6	21.92	23.00
		4	Lowest	1312	1712.4	21.81	23.00
			Middle	1413	1732.6	21.82	23.00
			Highest	1513	1752.6	21.95	23.00
HSUPA IV		1	Lowest	1312	1712.4	22.30	23.50
			Middle	1413	1732.6	22.38	23.50
			Highest	1513	1752.6	22.42	23.50
		2	Lowest	1312	1712.4	20.33	21.50
			Middle	1413	1732.6	20.36	21.50
			Highest	1513	1752.6	20.48	21.50
		3	Lowest	1312	1712.4	21.25	22.50
			Middle	1413	1732.6	21.38	22.50
			Highest	1513	1752.6	21.46	22.50
		4	Lowest	1312	1712.4	20.32	21.50
			Middle	1413	1732.6	20.37	21.50
			Highest	1513	1752.6	20.46	21.50
		5	Lowest	1312	1712.4	22.32	23.50
			Middle	1413	1732.6	22.39	23.50
			Highest	1513	1752.6	22.40	23.50

Band	Modulation	Date Rate or Sub-test	CH		Frequency (MHz)	Avg Conducted power (dBm)	Tune up (dBm)
WCDMA V	RMC12.2K	---	Lowest	4132	826.4	22.87	24.50
			Middle	4182	836.4	22.89	24.50
			Highest	4233	846.6	22.91	24.50
HSDPA V	QPSK	1	Lowest	4132	826.4	22.28	24.00
			Middle	4182	836.4	22.12	24.00
			Highest	4233	846.6	22.48	24.00
		2	Lowest	4132	826.4	22.27	24.00
			Middle	4182	836.4	22.14	24.00
			Highest	4233	846.6	22.49	24.00
		3	Lowest	4132	826.4	21.74	23.50
			Middle	4182	836.4	21.62	23.50
			Highest	4233	846.6	21.91	23.50
		4	Lowest	4132	826.4	21.74	23.50
			Middle	4182	836.4	21.61	23.50
			Highest	4233	846.6	22.01	23.50
HSUPA V		1	Lowest	4132	826.4	22.28	24.00
			Middle	4182	836.4	22.17	24.00
			Highest	4233	846.6	22.42	24.00
		2	Lowest	4132	826.4	20.30	22.00
			Middle	4182	836.4	20.15	22.00
			Highest	4233	846.6	20.47	22.00
		3	Lowest	4132	826.4	21.31	23.00
			Middle	4182	836.4	21.21	23.00
			Highest	4233	846.6	21.46	23.00
		4	Lowest	4132	826.4	20.31	22.00
			Middle	4182	836.4	20.21	22.00
			Highest	4233	846.6	20.42	22.00
		5	Lowest	4132	826.4	22.24	24.00
			Middle	4182	836.4	22.21	24.00
			Highest	4233	846.6	22.46	24.00

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18607	18900	19193	Channel				
1850.7	1880	1909.3	Freq. (MHz)				
22.34	22.55	22.36	24	QPSK	1.4MHz	1	0
22.37	22.58	22.47	24	QPSK	1.4MHz	1	2
22.44	22.42	22.38	24	QPSK	1.4MHz	1	5
22.68	22.54	22.55	24	QPSK	1.4MHz	3	0
22.72	22.51	22.54	24	QPSK	1.4MHz	3	1
22.69	22.58	22.48	24	QPSK	1.4MHz	3	3
21.42	21.35	21.48	23	QPSK	1.4MHz	6	0
21.31	21.13	21.15	23	16QAM	1.4MHz	1	0
21.18	21.74	21.60	23	16QAM	1.4MHz	1	2
21.37	21.09	21.15	23	16QAM	1.4MHz	1	5
21.35	21.70	21.42	23	16QAM	1.4MHz	3	0
21.38	21.58	21.39	23	16QAM	1.4MHz	3	1
21.19	21.83	21.49	23	16QAM	1.4MHz	3	3
20.57	20.27	20.51	22	16QAM	1.4MHz	6	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18615	18900	19185	Channel				
1851.5	1880	1908.5	Freq. (MHz)				
22.59	22.59	22.51	24	QPSK	3MHz	1	0
22.43	22.56	22.58	24	QPSK	3MHz	1	7
22.61	22.37	22.64	24	QPSK	3MHz	1	14
21.52	21.53	21.59	23	QPSK	3MHz	8	0
21.61	21.54	21.62	23	QPSK	3MHz	8	3
21.66	21.50	21.50	23	QPSK	3MHz	8	7
21.50	21.47	21.55	23	QPSK	3MHz	15	0
21.87	21.58	21.20	23	16QAM	3MHz	1	0
21.62	21.15	21.13	23	16QAM	3MHz	1	7
21.16	21.49	21.80	23	16QAM	3MHz	1	14
20.61	20.50	20.69	22	16QAM	3MHz	8	0
20.78	20.66	20.59	22	16QAM	3MHz	8	3
20.56	20.38	20.54	22	16QAM	3MHz	8	7
20.59	20.39	20.69	22	16QAM	3MHz	15	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18625	18900	19175	Channel				
1852.5	1880	1907.5	Freq. (MHz)				
22.49	22.45	22.48	24	QPSK	5MHz	1	0
22.49	22.77	22.30	24	QPSK	5MHz	1	12
22.43	22.24	22.34	24	QPSK	5MHz	1	24
21.42	21.30	21.65	23	QPSK	5MHz	12	0
21.50	21.34	21.44	23	QPSK	5MHz	12	6
21.33	21.34	21.44	23	QPSK	5MHz	12	13
21.48	21.45	21.45	23	QPSK	5MHz	25	0
21.22	21.06	21.42	23	16QAM	5MHz	1	0
21.39	21.22	21.19	23	16QAM	5MHz	1	12
21.40	21.01	21.08	23	16QAM	5MHz	1	24
20.52	20.28	20.68	22	16QAM	5MHz	12	0
20.44	20.32	20.49	22	16QAM	5MHz	12	6
20.33	20.36	20.64	22	16QAM	5MHz	12	13
20.54	20.27	20.26	22	16QAM	5MHz	25	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18650	18900	19150	Channel				
1855	1880	1905	Freq. (MHz)				
22.21	22.23	22.25	24	QPSK	10MHz	1	0
22.07	22.05	22.43	24	QPSK	10MHz	1	24
22.13	22.18	22.08	24	QPSK	10MHz	1	49
21.13	21.11	21.10	23	QPSK	10MHz	25	0
21.03	21.02	21.12	23	QPSK	10MHz	25	12
21.01	21.07	21.06	23	QPSK	10MHz	25	25
21.02	21.03	21.10	23	QPSK	10MHz	50	0
21.01	21.03	21.06	23	16QAM	10MHz	1	0
21.03	21.01	21.02	23	16QAM	10MHz	1	24
21.00	21.02	21.03	23	16QAM	10MHz	1	49
20.17	20.12	20.15	22	16QAM	10MHz	25	0
20.17	20.15	20.14	22	16QAM	10MHz	25	12
20.01	20.16	20.03	22	16QAM	10MHz	25	25
20.02	20.14	20.06	22	16QAM	10MHz	50	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18675	18900	19125	Channel				
1857.5	1880	1902.5	Freq. (MHz)				
22.51	22.32	22.37	24	QPSK	15MHz	1	0
22.47	22.57	22.79	24	QPSK	15MHz	1	37
22.24	22.41	22.31	24	QPSK	15MHz	1	74
21.44	21.45	21.43	23	QPSK	15MHz	36	0
21.45	21.53	21.47	23	QPSK	15MHz	36	19
21.46	21.57	21.58	23	QPSK	15MHz	36	39
21.49	21.49	21.49	23	QPSK	15MHz	75	0
21.51	21.85	21.17	23	16QAM	15MHz	1	0
21.33	21.91	21.55	23	16QAM	15MHz	1	37
21.06	21.32	21.58	23	16QAM	15MHz	1	74
20.50	20.42	20.49	22	16QAM	15MHz	36	0
20.57	20.50	20.57	22	16QAM	15MHz	36	19
20.43	20.55	20.44	22	16QAM	15MHz	36	39
20.55	20.60	20.45	22	16QAM	15MHz	75	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18700	18900	19100	Channel				
1860	1880	1900	Freq. (MHz)				
22.72	22.44	22.89	24	QPSK	20MHz	1	0
22.61	22.56	22.47	24	QPSK	20MHz	1	49
22.02	22.55	22.18	24	QPSK	20MHz	1	99
21.50	21.51	21.61	23	QPSK	20MHz	50	0
21.53	21.60	21.58	23	QPSK	20MHz	50	25
21.42	21.50	21.55	23	QPSK	20MHz	50	50
21.51	21.54	21.58	23	QPSK	20MHz	100	0
21.74	21.98	21.09	23	16QAM	20MHz	1	0
21.37	21.17	21.54	23	16QAM	20MHz	1	49
21.45	21.56	21.01	23	16QAM	20MHz	1	99
20.56	20.52	20.61	22	16QAM	20MHz	50	0
20.68	20.54	20.65	22	16QAM	20MHz	50	25
20.45	20.44	20.57	22	16QAM	20MHz	50	50
20.61	20.52	20.55	22	16QAM	20MHz	100	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
19957	20175	20393	Channel				
1710.7	1732.5	1754.3	Freq. (MHz)				
22.03	22.21	22.07	24	QPSK	1.4MHz	1	0
22.00	22.30	22.27	24	QPSK	1.4MHz	1	2
22.05	22.06	22.07	24	QPSK	1.4MHz	1	5
22.23	22.48	22.19	24	QPSK	1.4MHz	3	0
22.03	22.42	22.19	24	QPSK	1.4MHz	3	1
22.01	22.38	22.22	24	QPSK	1.4MHz	3	3
21.03	21.26	21.21	23	QPSK	1.4MHz	6	0
21.53	21.23	21.04	23	16QAM	1.4MHz	1	0
21.32	21.18	21.04	23	16QAM	1.4MHz	1	2
21.33	21.11	21.48	23	16QAM	1.4MHz	1	5
21.01	21.04	21.10	23	16QAM	1.4MHz	3	0
21.02	21.28	21.24	23	16QAM	1.4MHz	3	1
21.03	21.32	21.09	23	16QAM	1.4MHz	3	3
20.16	20.24	20.14	22	16QAM	1.4MHz	6	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
19965	20175	20385	Channel				
1711.5	1732.5	1753.5	Freq. (MHz)				
22.33	22.40	22.14	24	QPSK	3MHz	1	0
22.42	22.32	22.10	24	QPSK	3MHz	1	7
22.13	22.16	22.22	24	QPSK	3MHz	1	14
21.11	21.26	21.13	23	QPSK	3MHz	8	0
21.12	21.21	21.15	23	QPSK	3MHz	8	3
21.05	21.25	21.12	23	QPSK	3MHz	8	7
21.06	21.36	21.07	23	QPSK	3MHz	15	0
21.25	21.08	21.07	23	16QAM	3MHz	1	0
21.07	21.05	21.01	23	16QAM	3MHz	1	7
21.02	21.17	21.24	23	16QAM	3MHz	1	14
20.06	20.37	20.51	22	16QAM	3MHz	8	0
20.01	20.29	20.46	22	16QAM	3MHz	8	3
20.20	20.27	20.15	22	16QAM	3MHz	8	7
20.25	20.30	20.13	22	16QAM	3MHz	15	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
19975	20175	20375	Channel				
1712.5	1732.5	1752.5	Freq. (MHz)				
22.01	22.40	22.05	24	QPSK	5MHz	1	0
22.03	22.29	22.21	24	QPSK	5MHz	1	12
22.04	22.15	22.24	24	QPSK	5MHz	1	24
21.01	21.20	21.19	23	QPSK	5MHz	12	0
21.07	21.24	21.23	23	QPSK	5MHz	12	6
21.02	21.07	21.14	23	QPSK	5MHz	12	13
21.02	21.17	21.10	23	QPSK	5MHz	25	0
21.01	21.04	21.05	23	16QAM	5MHz	1	0
21.01	21.00	21.20	23	16QAM	5MHz	1	12
21.01	21.25	21.03	23	16QAM	5MHz	1	24
20.01	20.22	20.19	22	16QAM	5MHz	12	0
20.07	20.14	20.03	22	16QAM	5MHz	12	6
20.12	20.15	20.10	22	16QAM	5MHz	12	13
20.06	20.33	20.14	22	16QAM	5MHz	25	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20000	20175	20350	Channel				
1715	1732.5	1750	Freq. (MHz)				
22.25	22.40	22.30	24	QPSK	10MHz	1	0
22.27	22.64	22.52	24	QPSK	10MHz	1	24
22.54	22.63	22.52	24	QPSK	10MHz	1	49
21.41	21.64	21.52	23	QPSK	10MHz	25	0
21.53	21.60	21.64	23	QPSK	10MHz	25	12
21.49	21.60	21.59	23	QPSK	10MHz	25	25
21.47	21.70	21.54	23	QPSK	10MHz	50	0
21.39	21.87	21.62	23	16QAM	10MHz	1	0
21.73	21.45	21.58	23	16QAM	10MHz	1	24
21.55	21.14	21.46	23	16QAM	10MHz	1	49
20.36	20.71	20.51	22	16QAM	10MHz	25	0
20.38	20.87	20.63	22	16QAM	10MHz	25	12
20.37	20.83	20.73	22	16QAM	10MHz	25	25
20.43	20.67	20.53	22	16QAM	10MHz	50	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20025	20175	20325	Channel				
1717.5	1732.5	1747.5	Freq. (MHz)				
22.01	22.23	22.45	24	QPSK	15MHz	1	0
22.29	22.48	22.34	24	QPSK	15MHz	1	37
22.13	22.24	22.11	24	QPSK	15MHz	1	74
21.06	21.30	21.29	23	QPSK	15MHz	36	0
21.16	21.37	21.24	23	QPSK	15MHz	36	19
21.15	21.24	21.24	23	QPSK	15MHz	36	39
21.14	21.23	21.20	23	QPSK	15MHz	75	0
21.32	21.01	21.21	23	16QAM	15MHz	1	0
21.30	21.02	21.23	23	16QAM	15MHz	1	37
21.60	21.30	21.15	23	16QAM	15MHz	1	74
20.01	20.24	20.15	22	16QAM	15MHz	36	0
20.01	20.33	20.17	22	16QAM	15MHz	36	19
20.03	20.13	20.23	22	16QAM	15MHz	36	39
20.12	20.23	20.22	22	16QAM	15MHz	75	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20050	20175	20300	Channel				
1720	1732.5	1745	Freq. (MHz)				
22.01	22.03	22.47	24	QPSK	20MHz	1	0
22.27	22.65	22.52	24	QPSK	20MHz	1	49
22.39	22.02	22.07	24	QPSK	20MHz	1	99
21.14	21.25	21.41	23	QPSK	20MHz	50	0
21.11	21.29	21.22	23	QPSK	20MHz	50	25
21.25	21.32	21.18	23	QPSK	20MHz	50	50
21.19	21.31	21.27	23	QPSK	20MHz	100	0
21.07	21.33	21.02	23	16QAM	20MHz	1	0
21.08	21.52	21.03	23	16QAM	20MHz	1	49
21.13	21.01	21.29	23	16QAM	20MHz	1	99
20.02	20.20	20.27	22	16QAM	20MHz	50	0
20.16	20.36	20.17	22	16QAM	20MHz	50	25
20.26	20.21	20.29	22	16QAM	20MHz	50	50
20.04	20.29	20.24	22	16QAM	20MHz	100	0

LTE Band 5							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20407	20525	20643	Channel				
824.7	836.5	848.3	Freq. (MHz)				
22.11	22.13	22.02	24	QPSK	1.4MHz	1	0
22.05	22.08	22.13	24	QPSK	1.4MHz	1	2
22.13	22.13	22.01	24	QPSK	1.4MHz	1	5
22.07	22.13	22.14	24	QPSK	1.4MHz	3	0
22.07	22.09	22.08	24	QPSK	1.4MHz	3	1
22.06	22.11	22.10	24	QPSK	1.4MHz	3	3
21.24	21.10	21.12	23	QPSK	1.4MHz	6	0
21.01	21.10	21.05	23	16QAM	1.4MHz	1	0
21.50	21.33	21.13	23	16QAM	1.4MHz	1	2
21.02	21.28	21.02	23	16QAM	1.4MHz	1	5
21.11	21.33	21.19	23	16QAM	1.4MHz	3	0
21.15	21.21	21.27	23	16QAM	1.4MHz	3	1
21.32	21.30	21.29	23	16QAM	1.4MHz	3	3
20.13	20.01	20.06	22	16QAM	1.4MHz	6	0

LTE Band 5							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20415	20525	20635	Channel				
825.5	836.5	847.5	Freq. (MHz)				
22.03	22.03	22.14	24	QPSK	3MHz	1	0
22.12	22.09	22.13	24	QPSK	3MHz	1	7
22.12	22.06	22.01	24	QPSK	3MHz	1	14
21.20	21.14	21.06	23	QPSK	3MHz	8	0
21.30	21.18	21.17	23	QPSK	3MHz	8	3
21.29	21.17	21.11	23	QPSK	3MHz	8	7
21.31	21.16	21.08	23	QPSK	3MHz	15	0
21.57	21.13	21.17	23	16QAM	3MHz	1	0
21.01	21.02	21.13	23	16QAM	3MHz	1	7
21.08	21.10	21.09	23	16QAM	3MHz	1	14
20.25	20.16	20.07	22	16QAM	3MHz	8	0
20.19	20.15	20.01	22	16QAM	3MHz	8	3
20.35	20.36	20.02	22	16QAM	3MHz	8	7
20.38	20.25	20.02	22	16QAM	3MHz	15	0

LTE Band 5							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20425	20525	20625	Channel				
826.5	836.5	846.5	Freq. (MHz)				
22.11	22.11	22.03	24	QPSK	5MHz	1	0
22.14	22.09	22.01	24	QPSK	5MHz	1	12
22.08	22.04	22.07	24	QPSK	5MHz	1	24
21.14	21.06	21.06	23	QPSK	5MHz	12	0
21.16	21.10	21.03	23	QPSK	5MHz	12	6
21.18	21.10	21.02	23	QPSK	5MHz	12	13
21.16	21.09	21.14	23	QPSK	5MHz	25	0
21.03	21.06	21.09	23	16QAM	5MHz	1	0
21.07	21.08	21.06	23	16QAM	5MHz	1	12
21.07	21.04	21.02	23	16QAM	5MHz	1	24
20.10	20.01	20.02	22	16QAM	5MHz	12	0
20.13	20.03	20.12	22	16QAM	5MHz	12	6
20.14	20.07	20.08	22	16QAM	5MHz	12	13
20.23	20.22	20.13	22	16QAM	5MHz	25	0

LTE Band 5							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20450	20525	20600	Channel				
829	836.5	844	Freq. (MHz)				
22.08	22.15	22.13	24	QPSK	10MHz	1	0
22.13	22.01	22.11	24	QPSK	10MHz	1	24
22.08	22.09	22.02	24	QPSK	10MHz	1	49
21.17	21.08	21.14	23	QPSK	10MHz	25	0
21.12	21.11	21.16	23	QPSK	10MHz	25	12
21.06	21.18	21.09	23	QPSK	10MHz	25	25
21.14	21.17	21.14	23	QPSK	10MHz	50	0
21.13	21.50	21.01	23	16QAM	10MHz	1	0
21.09	21.25	21.06	23	16QAM	10MHz	1	24
21.16	21.08	21.07	23	16QAM	10MHz	1	49
20.21	20.02	20.01	22	16QAM	10MHz	25	0
20.49	20.20	20.06	22	16QAM	10MHz	25	12
20.38	20.29	20.02	22	16QAM	10MHz	25	25
20.19	20.16	20.13	22	16QAM	10MHz	50	0

LTE Band 12							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
23017	23095	23173	Channel				
699.7	707.5	715.3	Freq. (MHz)				
22.01	22.28	22.23	24	QPSK	1.4MHz	1	0
22.31	22.14	22.22	24	QPSK	1.4MHz	1	2
22.09	22.14	22.13	24	QPSK	1.4MHz	1	5
22.14	22.26	22.22	24	QPSK	1.4MHz	3	0
22.10	22.32	22.24	24	QPSK	1.4MHz	3	1
22.10	22.17	22.08	24	QPSK	1.4MHz	3	3
21.18	21.14	21.19	23	QPSK	1.4MHz	6	0
21.23	21.29	21.36	23	16QAM	1.4MHz	1	0
21.02	21.14	21.17	23	16QAM	1.4MHz	1	2
21.12	21.09	21.08	23	16QAM	1.4MHz	1	5
21.17	21.20	21.15	23	16QAM	1.4MHz	3	0
21.13	21.28	21.28	23	16QAM	1.4MHz	3	1
21.06	21.16	21.09	23	16QAM	1.4MHz	3	3
20.07	20.06	20.12	22	16QAM	1.4MHz	6	0

LTE Band 12							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
23025	23095	23165	Channel				
700.5	707.5	714.5	Freq. (MHz)				
22.14	22.02	22.16	24	QPSK	3MHz	1	0
22.07	22.31	22.38	24	QPSK	3MHz	1	7
22.11	22.02	22.18	24	QPSK	3MHz	1	14
21.10	21.21	21.25	23	QPSK	3MHz	8	0
21.03	21.21	21.10	23	QPSK	3MHz	8	3
21.00	21.15	21.07	23	QPSK	3MHz	8	7
21.09	21.22	21.16	23	QPSK	3MHz	15	0
21.08	21.09	21.13	23	16QAM	3MHz	1	0
21.18	21.04	21.33	23	16QAM	3MHz	1	7
21.05	21.03	21.06	23	16QAM	3MHz	1	14
20.17	20.24	20.19	22	16QAM	3MHz	8	0
20.02	20.05	20.10	22	16QAM	3MHz	8	3
20.09	20.18	20.19	22	16QAM	3MHz	8	7
20.07	20.16	20.07	22	16QAM	3MHz	15	0

LTE Band 12							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
23035	23095	23155	Channel				
701.5	707.5	713.5	Freq. (MHz)				
22.14	22.13	22.10	24	QPSK	5MHz	1	0
22.23	22.08	22.43	24	QPSK	5MHz	1	12
22.28	22.32	22.50	24	QPSK	5MHz	1	24
21.06	21.05	21.15	23	QPSK	5MHz	12	0
21.12	21.24	21.02	23	QPSK	5MHz	12	6
21.09	21.21	21.05	23	QPSK	5MHz	12	13
21.14	21.17	21.12	23	QPSK	5MHz	25	0
21.03	21.07	21.11	23	16QAM	5MHz	1	0
21.45	21.02	21.32	23	16QAM	5MHz	1	12
21.66	21.00	21.22	23	16QAM	5MHz	1	24
20.12	20.15	20.16	22	16QAM	5MHz	12	0
20.13	20.22	20.32	22	16QAM	5MHz	12	6
20.18	20.26	20.33	22	16QAM	5MHz	12	13
20.22	20.12	20.08	22	16QAM	5MHz	25	0

LTE Band 12							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
23060	23095	23130	Channel				
704	707.5	711	Freq. (MHz)				
22.23	22.13	22.32	24	QPSK	10MHz	1	0
22.18	22.51	22.34	24	QPSK	10MHz	1	24
22.43	22.45	22.49	24	QPSK	10MHz	1	49
21.03	21.05	21.19	23	QPSK	10MHz	25	0
21.01	21.20	21.09	23	QPSK	10MHz	25	12
21.05	21.02	21.13	23	QPSK	10MHz	25	25
21.01	21.16	21.14	23	QPSK	10MHz	50	0
21.78	21.79	21.68	23	16QAM	10MHz	1	0
21.58	21.67	21.66	23	16QAM	10MHz	1	24
21.36	21.43	21.18	23	16QAM	10MHz	1	49
20.22	20.19	20.18	22	16QAM	10MHz	25	0
20.23	20.30	20.01	22	16QAM	10MHz	25	12
20.28	20.31	20.33	22	16QAM	10MHz	25	25
20.13	20.14	20.17	22	16QAM	10MHz	50	0

LTE Band 13							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
23205	23230	23255	Channel				
779.5	782	784.5	Freq. (MHz)				
22.43	22.49	22.51	24	QPSK	5MHz	1	0
22.18	22.23	22.32	24	QPSK	5MHz	1	12
22.23	22.27	22.33	24	QPSK	5MHz	1	24
21.55	21.58	21.63	23	QPSK	5MHz	12	0
21.39	21.40	21.41	23	QPSK	5MHz	12	6
21.38	21.41	21.42	23	QPSK	5MHz	12	13
21.27	21.38	21.34	23	QPSK	5MHz	25	0
21.21	21.26	21.04	23	16QAM	5MHz	1	0
21.45	21.33	21.14	23	16QAM	5MHz	1	12
21.17	21.74	21.84	23	16QAM	5MHz	1	24
20.15	20.42	20.31	22	16QAM	5MHz	12	0
20.14	20.41	20.33	22	16QAM	5MHz	12	6
20.22	20.37	20.21	22	16QAM	5MHz	12	13
20.33	20.29	20.37	22	16QAM	5MHz	25	0

LTE Band 13						
Maximum Average Power (dBm)	Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	
23230	Channel					
782	Freq. (MHz)					
22.68	24	QPSK	10MHz	1	0	
22.57	24	QPSK	10MHz	1	24	
22.58	24	QPSK	10MHz	1	49	
21.33	23	QPSK	10MHz	25	0	
21.02	23	QPSK	10MHz	25	12	
21.32	23	QPSK	10MHz	25	25	
21.33	23	QPSK	10MHz	50	0	
21.46	23	16QAM	10MHz	1	0	
21.02	23	16QAM	10MHz	1	24	
21.06	23	16QAM	10MHz	1	49	
20.03	22	16QAM	10MHz	25	0	
20.08	22	16QAM	10MHz	25	12	
20.01	22	16QAM	10MHz	25	25	
20.13	22	16QAM	10MHz	50	0	

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
131979	132322	132665	Channel				
1710.7	1745	1779.3	Freq. (MHz)				
22.52	22.35	22.29	24	QPSK	1.4MHz	1	0
22.58	22.50	22.51	24	QPSK	1.4MHz	1	2
22.50	22.43	22.58	24	QPSK	1.4MHz	1	5
22.49	22.57	22.57	24	QPSK	1.4MHz	3	0
22.62	22.64	22.55	24	QPSK	1.4MHz	3	1
22.59	22.72	22.74	24	QPSK	1.4MHz	3	3
21.63	21.63	21.48	23	QPSK	1.4MHz	6	0
21.54	21.62	21.58	23	16QAM	1.4MHz	1	0
21.58	21.92	21.01	23	16QAM	1.4MHz	1	2
21.92	21.24	21.13	23	16QAM	1.4MHz	1	5
21.69	21.61	21.46	23	16QAM	1.4MHz	3	0
21.51	21.55	21.73	23	16QAM	1.4MHz	3	1
21.60	21.50	21.89	23	16QAM	1.4MHz	3	3
20.50	20.49	20.47	22	16QAM	1.4MHz	6	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
131987	132322	132657	Channel				
1711.5	1745	1778.5	Freq. (MHz)				
22.56	22.58	22.57	24	QPSK	3MHz	1	0
22.37	22.63	22.66	24	QPSK	3MHz	1	7
22.52	22.62	22.53	24	QPSK	3MHz	1	14
21.55	21.75	21.65	23	QPSK	3MHz	8	0
21.58	21.71	21.66	23	QPSK	3MHz	8	3
21.54	21.72	21.68	23	QPSK	3MHz	8	7
21.63	21.67	21.67	23	QPSK	3MHz	15	0
21.03	21.57	21.83	23	16QAM	3MHz	1	0
21.25	21.40	21.80	23	16QAM	3MHz	1	7
21.14	21.91	21.78	23	16QAM	3MHz	1	14
20.95	20.78	20.57	22	16QAM	3MHz	8	0
20.85	20.69	20.53	22	16QAM	3MHz	8	3
20.68	20.71	20.71	22	16QAM	3MHz	8	7
20.69	20.57	20.45	22	16QAM	3MHz	15	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
131997	132322	132647	Channel				
1712.5	1745	1777.5	Freq. (MHz)				
22.56	22.49	22.50	24	QPSK	5MHz	1	0
22.61	22.64	22.73	24	QPSK	5MHz	1	12
22.43	22.58	22.67	24	QPSK	5MHz	1	24
21.57	21.56	21.56	23	QPSK	5MHz	12	0
21.54	21.67	21.71	23	QPSK	5MHz	12	6
21.46	21.53	21.59	23	QPSK	5MHz	12	13
21.51	21.55	21.57	23	QPSK	5MHz	25	0
21.15	21.07	21.12	23	16QAM	5MHz	1	0
21.82	21.12	21.18	23	16QAM	5MHz	1	12
21.25	21.34	21.17	23	16QAM	5MHz	1	24
20.38	20.54	20.53	22	16QAM	5MHz	12	0
20.60	20.59	20.52	22	16QAM	5MHz	12	6
20.42	20.60	20.44	22	16QAM	5MHz	12	13
20.70	20.56	20.65	22	16QAM	5MHz	25	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
132022	132322	132622	Channel				
1715	1745	1775	Freq. (MHz)				
22.33	22.44	22.40	24	QPSK	10MHz	1	0
22.63	22.85	22.89	24	QPSK	10MHz	1	24
22.35	22.50	22.76	24	QPSK	10MHz	1	49
21.57	21.73	21.59	23	QPSK	10MHz	25	0
21.66	21.65	21.60	23	QPSK	10MHz	25	12
21.56	21.60	21.55	23	QPSK	10MHz	25	25
21.63	21.67	21.57	23	QPSK	10MHz	50	0
21.90	21.18	21.18	23	16QAM	10MHz	1	0
21.47	21.23	21.11	23	16QAM	10MHz	1	24
21.10	21.52	21.20	23	16QAM	10MHz	1	49
20.68	20.84	20.63	22	16QAM	10MHz	25	0
20.72	20.57	20.48	22	16QAM	10MHz	25	12
20.66	20.57	20.45	22	16QAM	10MHz	25	25
20.66	20.57	20.61	22	16QAM	10MHz	50	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
132047	132322	132597	Channel				
1717.5	1745	1772.5	Freq. (MHz)				
22.45	22.81	22.54	24	QPSK	15MHz	1	0
22.73	22.93	22.84	24	QPSK	15MHz	1	37
22.76	22.64	22.65	24	QPSK	15MHz	1	74
21.65	21.88	21.78	23	QPSK	15MHz	36	0
21.65	21.73	21.79	23	QPSK	15MHz	36	19
21.66	21.69	21.72	23	QPSK	15MHz	36	39
21.64	21.81	21.75	23	QPSK	15MHz	75	0
21.26	21.49	21.44	23	16QAM	15MHz	1	0
21.37	21.40	21.33	23	16QAM	15MHz	1	37
21.74	21.64	21.58	23	16QAM	15MHz	1	74
20.64	20.90	20.62	22	16QAM	15MHz	36	0
20.58	20.64	20.71	22	16QAM	15MHz	36	19
20.62	20.64	20.58	22	16QAM	15MHz	36	39
20.66	20.74	20.78	22	16QAM	15MHz	75	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
132072	132322	132572	Channel				
1720	1745	1770	Freq. (MHz)				
22.38	22.70	22.63	24	QPSK	20MHz	1	0
22.91	22.99	22.87	24	QPSK	20MHz	1	49
22.79	22.54	22.78	24	QPSK	20MHz	1	99
21.56	21.90	21.70	23	QPSK	20MHz	50	0
21.66	21.72	21.75	23	QPSK	20MHz	50	25
21.68	21.68	21.72	23	QPSK	20MHz	50	50
21.58	21.86	21.78	23	QPSK	20MHz	100	0
21.80	21.94	21.47	23	16QAM	20MHz	1	0
21.39	21.39	21.79	23	16QAM	20MHz	1	49
21.28	21.68	21.59	23	16QAM	20MHz	1	99
20.70	20.95	20.65	22	16QAM	20MHz	50	0
20.69	20.74	20.79	22	16QAM	20MHz	50	25
20.77	20.76	20.75	22	16QAM	20MHz	50	50
20.63	20.77	20.73	22	16QAM	20MHz	100	0

LTE Band 71							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
133147	133247	133447	Channel				
665.5	675.5	695.5	Freq. (MHz)				
22.43	22.41	22.40	24	QPSK	5MHz	1	0
22.53	22.47	22.44	24	QPSK	5MHz	1	12
22.32	22.25	22.39	24	QPSK	5MHz	1	24
21.36	21.36	21.44	23	QPSK	5MHz	12	0
21.52	21.49	21.46	23	QPSK	5MHz	12	6
21.46	21.48	21.41	23	QPSK	5MHz	12	13
21.52	21.37	21.42	23	QPSK	5MHz	25	0
21.28	21.32	21.35	23	16QAM	5MHz	1	0
21.00	21.63	21.05	23	16QAM	5MHz	1	12
21.33	21.37	21.43	23	16QAM	5MHz	1	24
20.26	20.41	20.40	22	16QAM	5MHz	12	0
20.58	20.29	20.44	22	16QAM	5MHz	12	6
20.56	20.31	20.40	22	16QAM	5MHz	12	13
20.59	20.48	20.47	22	16QAM	5MHz	25	0

LTE Band 71							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
133172	133272	133422	Channel				
668	678	693	Freq. (MHz)				
22.51	22.60	22.56	24	QPSK	10MHz	1	0
22.52	22.57	22.31	24	QPSK	10MHz	1	24
22.49	22.75	22.19	24	QPSK	10MHz	1	49
21.54	21.51	21.51	23	QPSK	10MHz	25	0
21.46	21.63	21.54	23	QPSK	10MHz	25	12
21.51	21.48	21.44	23	QPSK	10MHz	25	25
21.43	21.55	21.49	23	QPSK	10MHz	50	0
21.03	21.39	21.39	23	16QAM	10MHz	1	0
21.66	21.20	21.27	23	16QAM	10MHz	1	24
21.79	21.04	21.83	23	16QAM	10MHz	1	49
20.74	20.42	20.61	22	16QAM	10MHz	25	0
20.84	20.59	20.54	22	16QAM	10MHz	25	12
20.75	20.60	20.43	22	16QAM	10MHz	25	25
20.52	20.67	20.44	22	16QAM	10MHz	50	0

LTE Band 71							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
133197	133297	133397	Channel				
670.5	680.5	690.5	Freq. (MHz)				
22.36	22.54	22.37	24	QPSK	15MHz	1	0
22.67	22.52	22.46	24	QPSK	15MHz	1	37
22.48	22.54	22.40	24	QPSK	15MHz	1	74
21.40	21.56	21.55	23	QPSK	15MHz	36	0
21.60	21.63	21.52	23	QPSK	15MHz	36	19
21.47	21.62	21.54	23	QPSK	15MHz	36	39
21.48	21.49	21.42	23	QPSK	15MHz	75	0
21.72	21.92	21.83	23	16QAM	15MHz	1	0
21.25	21.58	21.78	23	16QAM	15MHz	1	37
21.04	21.13	21.04	23	16QAM	15MHz	1	74
20.44	20.60	20.57	22	16QAM	15MHz	36	0
20.55	20.68	20.47	22	16QAM	15MHz	36	19
20.41	20.55	20.42	22	16QAM	15MHz	36	39
20.39	20.41	20.34	22	16QAM	15MHz	75	0

LTE Band 71							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
133222	133322	133372	Channel				
673	683	688	Freq. (MHz)				
22.33	22.30	22.47	24	QPSK	20MHz	1	0
22.33	23.11	23.04	24	QPSK	20MHz	1	49
22.09	22.04	22.19	24	QPSK	20MHz	1	99
21.52	21.65	21.59	23	QPSK	20MHz	50	0
21.53	21.59	21.53	23	QPSK	20MHz	50	25
21.50	21.49	21.47	23	QPSK	20MHz	50	50
21.48	21.49	21.46	23	QPSK	20MHz	100	0
21.49	21.31	21.08	23	16QAM	20MHz	1	0
21.51	21.48	21.20	23	16QAM	20MHz	1	49
21.35	21.20	21.02	23	16QAM	20MHz	1	99
20.61	20.70	20.75	22	16QAM	20MHz	50	0
20.61	20.75	20.71	22	16QAM	20MHz	50	25
20.46	20.62	20.52	22	16QAM	20MHz	50	50
20.40	20.51	20.44	22	16QAM	20MHz	100	0

11.4 Power Reduction

Band	Modulation	Date Rate or Sub-test	CH		Frequency	Avg Conducted power (dBm)	Tune up (dBm)
WCDMA II	RMC12.2K	---	Lowest	9262	1852.4	16.84	17.00
			Middle	9400	1880.0	16.85	17.00
			Highest	9538	1907.6	16.71	17.00
HSDPA II	QPSK	1	Lowest	9262	1852.4	15.40	16.00
			Middle	9400	1880.0	15.75	16.00
			Highest	9538	1907.6	15.27	16.00
		2	Lowest	9262	1852.4	15.43	16.00
			Middle	9400	1880.0	15.67	16.00
			Highest	9538	1907.6	15.33	16.00
		3	Lowest	9262	1852.4	14.78	15.50
			Middle	9400	1880.0	15.17	15.50
			Highest	9538	1907.6	14.72	15.50
		4	Lowest	9262	1852.4	15.09	16.00
			Middle	9400	1880.0	15.28	16.00
			Highest	9538	1907.6	14.84	16.00
HSUPA II		1	Lowest	9262	1852.4	15.43	16.00
			Middle	9400	1880.0	15.76	16.00
			Highest	9538	1907.6	15.26	16.00
		2	Lowest	9262	1852.4	15.34	16.00
			Middle	9400	1880.0	15.72	16.00
			Highest	9538	1907.6	15.26	16.00
		3	Lowest	9262	1852.4	15.36	16.00
			Middle	9400	1880.0	15.69	16.00
			Highest	9538	1907.6	15.28	16.00
		4	Lowest	9262	1852.4	15.30	16.00
			Middle	9400	1880.0	15.69	16.00
			Highest	9538	1907.6	14.79	16.00
		5	Lowest	9262	1852.4	15.39	16.00
			Middle	9400	1880.0	15.68	16.00
			Highest	9538	1907.6	15.24	16.00

Band	Modulation	Date Rate or Sub-test	CH		Frequency (MHz)	Avg Conducted power (dBm)	Tune up (dBm)
WCDMA IV	RMC12.2K	---	Lowest	1312	1712.4	17.11	17.50
			Middle	1413	1732.6	17.02	17.50
			Highest	1513	1752.6	16.86	17.50
HSDPA IV	QPSK	1	Lowest	1312	1712.4	15.91	16.00
			Middle	1413	1732.6	15.17	16.00
			Highest	1513	1752.6	15.16	16.00
		2	Lowest	1312	1712.4	15.89	16.00
			Middle	1413	1732.6	15.36	16.00
			Highest	1513	1752.6	15.19	16.00
		3	Lowest	1312	1712.4	15.43	15.50
			Middle	1413	1732.6	15.36	15.50
			Highest	1513	1752.6	15.32	15.50
		4	Lowest	1312	1712.4	15.63	16.00
			Middle	1413	1732.6	15.47	16.00
			Highest	1513	1752.6	15.39	16.00
HSUPA IV		1	Lowest	1312	1712.4	15.95	16.00
			Middle	1413	1732.6	15.53	16.00
			Highest	1513	1752.6	15.32	16.00
		2	Lowest	1312	1712.4	15.89	16.00
			Middle	1413	1732.6	15.32	16.00
			Highest	1513	1752.6	15.16	15.50
		3	Lowest	1312	1712.4	15.49	15.50
			Middle	1413	1732.6	15.17	15.50
			Highest	1513	1752.6	15.16	15.50
		4	Lowest	1312	1712.4	15.97	16.00
			Middle	1413	1732.6	15.43	16.00
			Highest	1513	1752.6	15.33	16.00
		5	Lowest	1312	1712.4	16.16	16.50
			Middle	1413	1732.6	15.52	16.50
			Highest	1513	1752.6	15.50	16.50

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18607	18900	19193	Channel				
1850.7	1880	1909.3	Freq. (MHz)				
15.15	14.98	15.18	16	QPSK	1.4MHz	1	0
15.34	15.14	15.12	16	QPSK	1.4MHz	1	2
15.23	14.91	14.88	16	QPSK	1.4MHz	1	5
15.23	15.08	15.09	16	QPSK	1.4MHz	3	0
15.28	15.06	15.15	16	QPSK	1.4MHz	3	1
15.35	14.99	15.02	16	QPSK	1.4MHz	3	3
15.19	15.06	15.12	16	QPSK	1.4MHz	6	0
15.32	15.19	15.04	16	16QAM	1.4MHz	1	0
15.43	15.23	14.98	16	16QAM	1.4MHz	1	2
15.66	14.80	14.87	16	16QAM	1.4MHz	1	5
15.34	15.22	14.88	16	16QAM	1.4MHz	3	0
15.45	15.24	15.10	16	16QAM	1.4MHz	3	1
15.58	15.02	15.05	16	16QAM	1.4MHz	3	3
15.56	15.36	15.04	16	16QAM	1.4MHz	6	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18615	18900	19185	Channel				
1851.5	1880	1908.5	Freq. (MHz)				
15.67	15.30	15.72	16	QPSK	3MHz	1	0
15.58	15.61	15.54	16	QPSK	3MHz	1	7
15.77	15.63	15.40	16	QPSK	3MHz	1	14
15.63	15.38	15.68	16	QPSK	3MHz	8	0
15.74	15.37	15.55	16	QPSK	3MHz	8	3
15.68	15.30	15.47	16	QPSK	3MHz	8	7
15.69	15.41	15.58	16	QPSK	3MHz	15	0
15.51	15.18	15.15	16	16QAM	3MHz	1	0
15.23	15.31	15.24	16	16QAM	3MHz	1	7
15.45	15.41	15.39	16	16QAM	3MHz	1	14
15.79	15.18	15.56	16	16QAM	3MHz	8	0
15.68	15.15	15.54	16	16QAM	3MHz	8	3
15.68	15.54	15.40	16	16QAM	3MHz	8	7
15.71	15.44	15.41	16	16QAM	3MHz	15	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18625	18900	19175	Channel				
1852.5	1880	1907.5	Freq. (MHz)				
15.71	15.55	15.63	16	QPSK	5MHz	1	0
15.68	15.41	15.46	16	QPSK	5MHz	1	12
15.36	15.32	15.26	16	QPSK	5MHz	1	24
15.68	15.42	15.49	16	QPSK	5MHz	12	0
15.62	15.34	15.43	16	QPSK	5MHz	12	6
15.67	15.52	15.36	16	QPSK	5MHz	12	13
15.62	15.47	15.31	16	QPSK	5MHz	25	0
15.12	14.94	15.22	16	16QAM	5MHz	1	0
15.28	14.99	15.17	16	16QAM	5MHz	1	12
15.66	15.70	15.01	16	16QAM	5MHz	1	24
15.61	15.57	15.36	16	16QAM	5MHz	12	0
15.54	15.43	15.37	16	16QAM	5MHz	12	6
15.57	15.44	15.36	16	16QAM	5MHz	12	13
15.60	15.25	15.30	16	16QAM	5MHz	25	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18650	18900	19150	Channel				
1855	1880	1905	Freq. (MHz)				
15.67	15.54	15.29	16	QPSK	10MHz	1	0
15.62	15.32	15.67	16	QPSK	10MHz	1	24
15.58	15.24	15.25	16	QPSK	10MHz	1	49
15.60	15.56	15.42	16	QPSK	10MHz	25	0
15.61	15.48	15.44	16	QPSK	10MHz	25	12
15.64	15.43	15.41	16	QPSK	10MHz	25	25
15.65	15.41	15.46	16	QPSK	10MHz	50	0
15.43	15.71	15.11	16	16QAM	10MHz	1	0
15.63	15.20	15.07	16	16QAM	10MHz	1	24
15.22	15.35	15.16	16	16QAM	10MHz	1	49
15.65	15.35	15.49	16	16QAM	10MHz	25	0
15.68	15.38	15.59	16	16QAM	10MHz	25	12
15.61	15.54	15.56	16	16QAM	10MHz	25	25
15.66	15.50	15.55	16	16QAM	10MHz	50	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18675	18900	19125	Channel				
1857.5	1880	1902.5	Freq. (MHz)				
15.36	15.57	15.32	16	QPSK	15MHz	1	0
15.67	15.39	15.64	16	QPSK	15MHz	1	37
15.60	15.25	15.38	16	QPSK	15MHz	1	74
15.63	15.52	15.54	16	QPSK	15MHz	36	0
15.64	15.42	15.56	16	QPSK	15MHz	36	19
15.61	15.48	15.50	16	QPSK	15MHz	36	39
15.64	15.47	15.48	16	QPSK	15MHz	75	0
15.23	15.37	15.26	16	16QAM	15MHz	1	0
15.67	14.67	15.37	16	16QAM	15MHz	1	37
15.21	15.37	15.35	16	16QAM	15MHz	1	74
15.75	15.34	15.51	16	16QAM	15MHz	36	0
15.68	15.26	15.44	16	16QAM	15MHz	36	19
15.66	15.32	15.47	16	16QAM	15MHz	36	39
15.68	15.39	15.47	16	16QAM	15MHz	75	0

LTE Band 2							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
18700	18900	19100	Channel				
1860	1880	1900	Freq. (MHz)				
15.52	15.43	15.19	16	QPSK	20MHz	1	0
15.88	15.72	15.80	16	QPSK	20MHz	1	49
15.38	15.24	15.28	16	QPSK	20MHz	1	99
15.77	15.50	15.38	16	QPSK	20MHz	50	0
15.45	15.45	15.45	16	QPSK	20MHz	50	25
15.59	15.45	15.50	16	QPSK	20MHz	50	50
15.54	15.45	15.49	16	QPSK	20MHz	100	0
15.53	14.95	14.93	16	16QAM	20MHz	1	0
15.47	15.28	15.32	16	16QAM	20MHz	1	49
15.15	15.59	15.53	16	16QAM	20MHz	1	99
15.76	15.38	15.42	16	16QAM	20MHz	50	0
15.56	15.39	15.55	16	16QAM	20MHz	50	25
15.51	15.51	15.62	16	16QAM	20MHz	50	50
15.53	15.46	15.50	16	16QAM	20MHz	100	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
19957	20175	20393	Channel				
1710.7	1732.5	1754.3	Freq. (MHz)				
14.70	14.54	15.62	16	QPSK	1.4MHz	1	0
14.78	14.67	15.81	16	QPSK	1.4MHz	1	2
14.78	14.57	15.65	16	QPSK	1.4MHz	1	5
14.84	14.55	15.77	16	QPSK	1.4MHz	3	0
15.12	14.75	15.88	16	QPSK	1.4MHz	3	1
14.77	14.55	15.89	16	QPSK	1.4MHz	3	3
14.82	14.59	15.76	16	QPSK	1.4MHz	6	0
15.37	14.45	15.87	16	16QAM	1.4MHz	1	0
15.15	14.75	15.66	16	16QAM	1.4MHz	1	2
15.39	14.65	15.52	16	16QAM	1.4MHz	1	5
15.17	14.69	15.75	16	16QAM	1.4MHz	3	0
15.24	14.65	15.83	16	16QAM	1.4MHz	3	1
15.06	14.68	15.84	16	16QAM	1.4MHz	3	3
15.15	14.66	15.92	16	16QAM	1.4MHz	6	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
19965	20175	20385	Channel				
1711.5	1732.5	1753.5	Freq. (MHz)				
15.86	15.69	15.49	16	QPSK	3MHz	1	0
15.60	15.92	15.67	16	QPSK	3MHz	1	7
15.84	15.91	15.62	16	QPSK	3MHz	1	14
15.84	15.73	15.56	16	QPSK	3MHz	8	0
15.71	15.85	15.72	16	QPSK	3MHz	8	3
15.67	15.91	15.77	16	QPSK	3MHz	8	7
15.63	15.79	15.68	16	QPSK	3MHz	15	0
15.74	15.87	15.82	16	16QAM	3MHz	1	0
15.92	15.46	15.57	16	16QAM	3MHz	1	7
15.59	15.78	15.36	16	16QAM	3MHz	1	14
15.85	15.57	15.65	16	16QAM	3MHz	8	0
15.71	15.76	15.74	16	16QAM	3MHz	8	3
15.82	15.67	15.69	16	16QAM	3MHz	8	7
15.75	15.71	15.74	16	16QAM	3MHz	15	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
19975	20175	20375	Channel				
1712.5	1732.5	1752.5	Freq. (MHz)				
15.84	15.81	15.67	16	QPSK	5MHz	1	0
15.68	15.77	15.69	16	QPSK	5MHz	1	12
15.59	15.42	15.81	16	QPSK	5MHz	1	24
15.54	15.52	15.54	16	QPSK	5MHz	12	0
15.48	15.69	15.50	16	QPSK	5MHz	12	6
15.50	15.75	15.61	16	QPSK	5MHz	12	13
15.52	15.74	15.53	16	QPSK	5MHz	25	0
15.62	15.37	15.72	16	16QAM	5MHz	1	0
14.95	15.38	15.54	16	16QAM	5MHz	1	12
15.33	15.36	15.67	16	16QAM	5MHz	1	24
15.53	15.59	15.54	16	16QAM	5MHz	12	0
15.45	15.53	15.41	16	16QAM	5MHz	12	6
15.42	15.67	15.60	16	16QAM	5MHz	12	13
15.49	15.61	15.56	16	16QAM	5MHz	25	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20000	20175	20350	Channel				
1715	1732.5	1750	Freq. (MHz)				
15.66	15.37	15.58	16	QPSK	10MHz	1	0
15.35	15.64	15.76	16	QPSK	10MHz	1	24
15.27	15.76	15.89	16	QPSK	10MHz	1	49
15.70	15.62	15.65	16	QPSK	10MHz	25	0
15.65	15.73	15.62	16	QPSK	10MHz	25	12
15.50	15.71	15.62	16	QPSK	10MHz	25	25
15.60	15.74	15.69	16	QPSK	10MHz	50	0
15.52	15.12	15.06	16	16QAM	10MHz	1	0
15.87	15.57	15.40	16	16QAM	10MHz	1	24
14.99	15.51	15.55	16	16QAM	10MHz	1	49
15.77	15.72	15.71	16	16QAM	10MHz	25	0
15.76	15.70	15.83	16	16QAM	10MHz	25	12
15.47	15.59	15.72	16	16QAM	10MHz	25	25
15.63	15.69	15.68	16	16QAM	10MHz	50	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20025	20175	20325	Channel				
1717.5	1732.5	1747.5	Freq. (MHz)				
15.80	15.46	15.60	16	QPSK	15MHz	1	0
15.55	15.85	15.85	16	QPSK	15MHz	1	37
15.55	15.72	15.22	16	QPSK	15MHz	1	74
15.74	15.58	15.66	16	QPSK	15MHz	36	0
15.51	15.75	15.80	16	QPSK	15MHz	36	19
15.47	15.84	15.73	16	QPSK	15MHz	36	39
15.49	15.76	15.75	16	QPSK	15MHz	75	0
15.64	15.76	15.60	16	16QAM	15MHz	1	0
15.30	15.64	15.91	16	16QAM	15MHz	1	37
15.38	15.20	15.82	16	16QAM	15MHz	1	74
15.65	15.59	15.71	16	16QAM	15MHz	36	0
15.44	15.73	15.84	16	16QAM	15MHz	36	19
15.42	15.88	15.72	16	16QAM	15MHz	36	39
15.58	15.80	15.88	16	16QAM	15MHz	75	0

LTE Band 4							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
20050	20175	20300	Channel				
1720	1732.5	1745	Freq. (MHz)				
15.76	15.60	15.86	16	QPSK	20MHz	1	0
15.20	15.84	15.93	16	QPSK	20MHz	1	49
15.38	15.71	15.82	16	QPSK	20MHz	1	99
15.72	15.63	15.90	16	QPSK	20MHz	50	0
15.49	15.78	15.70	16	QPSK	20MHz	50	25
15.51	15.81	15.61	16	QPSK	20MHz	50	50
15.52	15.74	15.84	16	QPSK	20MHz	100	0
15.82	15.84	15.86	16	16QAM	20MHz	1	0
15.16	15.56	15.42	16	16QAM	20MHz	1	49
15.31	15.48	15.70	16	16QAM	20MHz	1	99
15.57	15.77	15.83	16	16QAM	20MHz	50	0
15.35	15.84	15.78	16	16QAM	20MHz	50	25
15.56	15.85	15.65	16	16QAM	20MHz	50	50
15.47	15.80	15.89	16	16QAM	20MHz	100	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
131979	132322	132665	Channel				
1710.7	1745	1779.3	Freq. (MHz)				
15.15	15.14	15.31	16	QPSK	1.4MHz	1	0
15.09	15.24	15.23	16	QPSK	1.4MHz	1	2
15.18	15.16	15.22	16	QPSK	1.4MHz	1	5
15.21	15.22	15.17	16	QPSK	1.4MHz	3	0
15.20	15.21	15.20	16	QPSK	1.4MHz	3	1
15.18	15.16	15.16	16	QPSK	1.4MHz	3	3
15.07	15.04	15.04	16	QPSK	1.4MHz	6	0
15.62	15.20	15.61	16	16QAM	1.4MHz	1	0
15.65	15.15	15.60	16	16QAM	1.4MHz	1	2
15.67	15.57	15.08	16	16QAM	1.4MHz	1	5
15.15	15.28	15.01	16	16QAM	1.4MHz	3	0
15.31	15.00	14.99	16	16QAM	1.4MHz	3	1
15.08	15.01	15.09	16	16QAM	1.4MHz	3	3
15.23	15.27	15.18	16	16QAM	1.4MHz	6	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
131987	132322	132657	Channel				
1711.5	1745	1778.5	Freq. (MHz)				
15.41	15.62	15.41	16	QPSK	3MHz	1	0
15.43	15.33	15.27	16	QPSK	3MHz	1	7
15.35	15.05	15.43	16	QPSK	3MHz	1	14
15.28	15.23	15.21	16	QPSK	3MHz	8	0
15.43	15.30	15.32	16	QPSK	3MHz	8	3
15.31	15.34	15.41	16	QPSK	3MHz	8	7
15.39	15.28	15.32	16	QPSK	3MHz	15	0
15.15	15.10	14.88	16	16QAM	3MHz	1	0
15.08	14.86	15.08	16	16QAM	3MHz	1	7
15.67	15.33	15.11	16	16QAM	3MHz	1	14
15.13	15.30	15.04	16	16QAM	3MHz	8	0
15.17	15.40	15.18	16	16QAM	3MHz	8	3
15.17	15.40	15.31	16	16QAM	3MHz	8	7
15.16	15.39	15.41	16	16QAM	3MHz	15	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
131997	132322	132647	Channel				
1712.5	1745	1777.5	Freq. (MHz)				
15.23	14.74	15.30	16	QPSK	5MHz	1	0
15.37	15.35	15.20	16	QPSK	5MHz	1	12
14.94	15.18	15.44	16	QPSK	5MHz	1	24
15.34	15.24	15.25	16	QPSK	5MHz	12	0
15.28	15.37	15.22	16	QPSK	5MHz	12	6
15.20	15.31	15.24	16	QPSK	5MHz	12	13
15.22	15.32	15.30	16	QPSK	5MHz	25	0
15.58	15.74	15.51	16	16QAM	5MHz	1	0
14.85	15.46	15.33	16	16QAM	5MHz	1	12
15.43	14.99	15.15	16	16QAM	5MHz	1	24
15.35	15.31	15.25	16	16QAM	5MHz	12	0
15.12	15.26	15.29	16	16QAM	5MHz	12	6
15.24	15.36	15.32	16	16QAM	5MHz	12	13
15.11	15.44	15.56	16	16QAM	5MHz	25	0

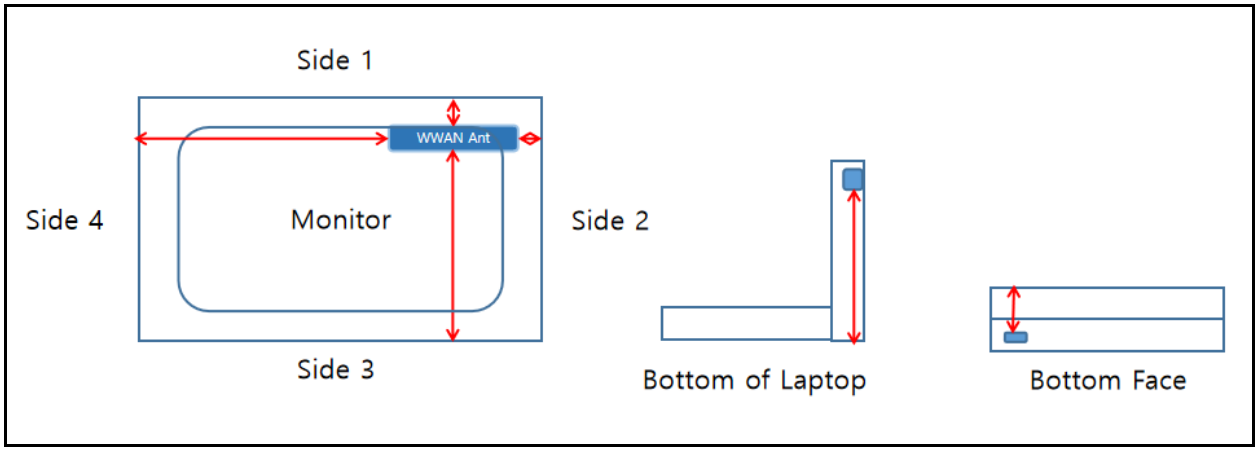
LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
132022	132322	132622	Channel				
1715	1745	1775	Freq. (MHz)				
15.32	15.29	15.14	16	QPSK	10MHz	1	0
15.17	15.41	15.06	16	QPSK	10MHz	1	24
15.01	15.43	15.13	16	QPSK	10MHz	1	49
15.45	15.47	15.20	16	QPSK	10MHz	25	0
15.28	15.37	15.35	16	QPSK	10MHz	25	12
15.24	15.44	15.32	16	QPSK	10MHz	25	25
15.36	15.37	15.26	16	QPSK	10MHz	50	0
15.33	15.64	14.94	16	16QAM	10MHz	1	0
14.73	15.17	15.44	16	16QAM	10MHz	1	24
14.99	15.25	15.30	16	16QAM	10MHz	1	49
15.22	15.47	15.30	16	16QAM	10MHz	25	0
15.21	15.37	15.53	16	16QAM	10MHz	25	12
15.41	15.59	15.33	16	16QAM	10MHz	25	25
15.35	15.46	15.38	16	16QAM	10MHz	50	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
132047	132322	132597	Channel				
1717.5	1745	1772.5	Freq. (MHz)				
15.51	15.45	15.19	16	QPSK	15MHz	1	0
15.60	15.74	15.37	16	QPSK	15MHz	1	37
15.53	15.38	15.18	16	QPSK	15MHz	1	74
15.40	15.47	15.27	16	QPSK	15MHz	36	0
15.36	15.46	15.38	16	QPSK	15MHz	36	19
15.32	15.45	15.31	16	QPSK	15MHz	36	39
15.33	15.53	15.29	16	QPSK	15MHz	75	0
15.29	14.92	15.23	16	16QAM	15MHz	1	0
14.77	15.01	14.75	16	16QAM	15MHz	1	37
15.41	15.66	14.80	16	16QAM	15MHz	1	74
15.38	15.42	15.16	16	16QAM	15MHz	36	0
15.31	15.44	15.22	16	16QAM	15MHz	36	19
15.35	15.43	15.20	16	16QAM	15MHz	36	39
15.32	15.64	15.26	16	16QAM	15MHz	75	0

LTE Band 66							
Maximum Average Power (dBm)			Tune up (dBm)	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset
132072	132322	132572	Channel				
1720	1745	1770	Freq. (MHz)				
15.50	15.27	15.77	16	QPSK	20MHz	1	0
15.28	15.41	15.13	16	QPSK	20MHz	1	49
15.11	15.64	15.42	16	QPSK	20MHz	1	99
15.40	15.59	15.32	16	QPSK	20MHz	50	0
15.45	15.34	15.26	16	QPSK	20MHz	50	25
15.46	15.45	15.24	16	QPSK	20MHz	50	50
15.29	15.49	15.30	16	QPSK	20MHz	100	0
15.38	15.70	15.58	16	16QAM	20MHz	1	0
15.41	15.67	14.97	16	16QAM	20MHz	1	49
15.10	15.14	14.80	16	16QAM	20MHz	1	99
15.19	15.54	15.31	16	16QAM	20MHz	50	0
15.40	15.53	15.20	16	16QAM	20MHz	50	25
15.37	15.50	15.39	16	16QAM	20MHz	50	50
15.27	15.47	15.18	16	16QAM	20MHz	100	0

11.5 Antenna location

Antenna	Bottom of Laptop (mm)	Bottom Face (mm)	Side 1 (mm)	Side 2 (mm)	Side 3 (mm)	Side 4 (mm)
WWAN	187.23	<5	<5	26.75	187.23	183.85



11.6 SAR Test Exclusion

Body SAR test reduction																	
Ant. Used	Band	Frequency	Tune-Power		Distance of Ant. To User (mm)						Calculated value and evaluated result (mW)						exclusion threshold
		(GHz)	(dBm)	(mW)	Bottom of laptop	Bottom Face	Side1	Side2	Side3	Side4	Bottom of laptop	Bottom Face	Side1	Side2	Side3	Side4	
WWAN Antenna	WCDMA II	1.907	24.5	282	187.23	5	5	26.75	187.23	183.85	1481.0	77.9	77.9	14.6	1481.0	1447.0	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	WCDMA IV	1.750	24.5	282	187.23	5	5	26.75	187.23	183.85	1486.0	74.6	74.6	14.0	1486.0	1452.0	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	WCDMA V	0.846	24.5	282	187.23	5	5	26.75	187.23	183.85	937.1	51.9	51.9	9.7	937.1	918.0	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	LTE 2	1.909	24	251	187.23	5	5	26.75	187.23	183.85	1481.0	69.4	69.4	13.0	1481.0	1447.0	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	LTE 4	1.754	24	251	187.23	5	5	26.75	187.23	183.85	1486.0	66.5	66.5	12.4	1486.0	1452.0	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	LTE 5	0.848	24	251	187.23	5	5	26.75	187.23	183.85	938.7	46.2	46.2	8.6	938.7	919.6	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	LTE 12	0.715	24	251	187.23	5	5	26.75	187.23	183.85	831.5	42.5	42.5	7.9	831.5	815.4	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	LTE 13	0.783	24	251	187.23	5	5	26.75	187.23	183.85	885.9	44.4	44.4	8.3	885.9	868.2	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	LTE 66	1.779	24	251	187.23	5	5	26.75	187.23	183.85	1485.0	67.0	67.0	12.5	1485.0	1451.0	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	
	LTE 71	0.696	24	251	187.23	5	5	26.75	187.23	183.85	816.2	41.9	41.9	7.8	816.2	800.5	3
											EXEMPT	MEASURE	MEASURE	MEASURE	EXEMPT	EXEMPT	

Note:

1. The test reduction for distance less than 50 mm and more than 50 mm. Use the max power to make sure minimum distance by evaluated for SAR testing.
2. For 100 MHz to 6 GHz and test separation distances > 50 mm, According to KDB 447498, if the calculated Power threshold is less than the output power then SAR testing is required.
3. For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:
   According to KDB 447498, if the calculated threshold values are >3 then Body SAR and >7.5 then Limbs, SAR testing are required. Calculated Value only include number format, that means through compare output power with threshold, if the Calculated value more than 3, the SAR test should be perform. Otherwise, the SAR test could be exempt. (<50 mm)
4. The threshold P_{th} (mW) described in §1.1307(b)(3)(i)(B) was also considered and compared with the calculated values from KDB447498 v06. The most conservative values compared between KDB447498 v06 method and §1.1307 method were select as the threshold in this report.
5. When an antenna qualifies for the standalone SAR test exclusion and also transmits simultaneously with other antennas, the standalone SAR value must be estimated in accordance with KDB 447498.
6. Power and distance are rounded to the nearest mW and mm before calculation.
7. The result is rounded to one decimal place for comparison.
8. The SAR test has included the exemption part in practice.

11.7 Test Results

11.7.1 SAR Test Result

Index.	Band	Frequency		Modulation or Sub-Test	Test Position	Spacing	SAR 1 g	Burst Avg Power (dBm)	Max tune-up (dBm)	Reported SAR 1 g	Antenna	Note
		Ch.	MHz			(mm)	(W/Kg)					
	WCDMA Band II	9400	1880	RMC12.2K	Bottom of laptop	0	0.01	22.64	24.5	0.015	AWAN	
	WCDMA Band II	9400	1880	RMC12.2K	Back of display screen	25	0.373	22.64	24.5	0.572	AWAN	
	WCDMA Band II	9400	1880	RMC12.2K	Bottom Face	0	0.226	16.85	17	0.234	AWAN	Power Reduce
	WCDMA Band II	9400	1880	RMC12.2K	Bottom Face	17	0.134	22.64	24.5	0.206	AWAN	
#4	WCDMA Band II	9400	1880	RMC12.2K	Side 1	0	0.721	16.85	17	0.746	AWAN	Power Reduce
	WCDMA Band II	9400	1880	RMC12.2K	Side 1	0	0.608	16.85	17	0.629	South Star	Power Reduce
	WCDMA Band II	9400	1880	RMC12.2K	Side 1	17	0.479	22.64	24.5	0.735	AWAN	
	WCDMA Band II	9400	1880	RMC12.2K	Side 2	0	0.01	22.64	24.5	0.015	AWAN	
	WCDMA Band II	9400	1880	RMC12.2K	Side 3	0	0.01	22.64	24.5	0.015	AWAN	
	WCDMA Band II	9400	1880	RMC12.2K	Side 4	0	0.01	22.64	24.5	0.015	AWAN	
	WCDMA Band IV	1513	1752.6	RMC12.2K	Bottom of laptop	0	0.041	22.58	24.5	0.064	AWAN	
	WCDMA Band IV	1513	1752.6	RMC12.2K	Back of display screen	25	0.311	22.58	24.5	0.484	AWAN	
#12	WCDMA Band IV	1513	1752.6	RMC12.2K	Bottom Face	0	0.38	22.58	24.5	0.591	AWAN	
	WCDMA Band IV	1312	1712.4	RMC12.2K	Side 1	0	0.482	17.11	17.5	0.527	AWAN	Power Reduce
	WCDMA Band IV	1513	1752.6	RMC12.2K	Side 1	17	0.421	22.58	24.5	0.655	AWAN	
#5	WCDMA Band IV	1513	1752.6	RMC12.2K	Side 1	17	0.425	22.58	24.5	0.661	South Star	
	WCDMA Band IV	1513	1752.6	RMC12.2K	Side 2	0	0.071	22.58	24.5	0.110	AWAN	
	WCDMA Band IV	1513	1752.6	RMC12.2K	Side 3	0	0.01	22.58	24.5	0.016	AWAN	
	WCDMA Band IV	1513	1752.6	RMC12.2K	Side 4	0	0.01	22.58	24.5	0.016	AWAN	
	WCDMA Band V	4233	846.6	RMC12.2K	Bottom of laptop	0	0.01	22.91	24.5	0.014	AWAN	
	WCDMA Band V	4233	846.6	RMC12.2K	Back of display screen	25	0.079	22.91	24.5	0.114	AWAN	
	WCDMA Band V	4233	846.6	RMC12.2K	Bottom Face	0	0.303	22.91	24.5	0.437	AWAN	
	WCDMA Band V	4233	846.6	RMC12.2K	Side 1	0	0.758	22.91	24.5	1.093	AWAN	
#10	WCDMA Band V	4233	846.6	RMC12.2K	Side 1	0	0.77	22.91	24.5	1.110	South Star	
	WCDMA Band V	4132	826.4	RMC12.2K	Side 1	0	0.744	22.87	24.5	1.083	AWAN	
	WCDMA Band V	4182	836.4	RMC12.2K	Side 1	0	0.752	22.89	24.5	1.089	AWAN	
	WCDMA Band V	4233	846.6	RMC12.2K	Side 2	0	0.048	22.91	24.5	0.069	AWAN	
	WCDMA Band V	4233	846.6	RMC12.2K	Side 3	0	0.01	22.91	24.5	0.014	AWAN	
	WCDMA Band V	4233	846.6	RMC12.2K	Side 4	0	0.01	22.91	24.5	0.014	AWAN	

Index.	Band	Frequency		Bandwidth	Modulation	RB Size	RB Offset	Test Position	Spacing	SAR 1 g	Burst Avg Power (dBm)	Max tune-up (dBm)	Reported SAR 1 g	Antenna	Note
		Ch.	MHz						(mm)	(W/Kg)					
	LTE Band 2	19100	1900	20M	QPSK	1	0	Bottom of laptop	0	0.01	22.89	24	0.013	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	50	0	Bottom of laptop	0	0.01	21.61	23	0.014	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	1	0	Back of display screen	25	0.318	22.89	24	0.411	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	50	0	Back of display screen	25	0.247	21.61	23	0.340	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	1	0	Bottom Face	0	0.668	22.89	24	0.863	AWAN	
	LTE Band 2	18700	1860	20M	QPSK	1	0	Bottom Face	0	0.389	22.72	24	0.522	AWAN	
#1	LTE Band 2	18900	1880	20M	QPSK	1	49	Bottom Face	0	0.649	22.56	24	0.904	AWAN	
	LTE Band 2	18900	1880	20M	QPSK	1	49	Bottom Face	0	0.594	22.56	24	0.828	South Star	
	LTE Band 2	19100	1900	20M	QPSK	50	0	Bottom Face	0	0.538	21.61	23	0.741	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	100	0	Bottom Face	0	0.534	21.58	23	0.741	AWAN	
	LTE Band 2	18700	1860	20M	QPSK	1	49	Side 1	0	0.484	15.88	16	0.498	AWAN	Power Reduce
	LTE Band 2	18700	1860	20M	QPSK	50	0	Side 1	0	0.456	15.77	16	0.481	AWAN	Power Reduce
	LTE Band 2	19100	1900	20M	QPSK	1	0	Side 1	17	0.431	22.89	24	0.557	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	50	0	Side 1	17	0.342	21.61	23	0.471	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	1	0	Side 2	0	0.01	22.89	24	0.013	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	50	0	Side 2	0	0.01	21.61	23	0.014	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	1	0	Side 3	0	0.01	22.89	24	0.013	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	50	0	Side 3	0	0.01	21.61	23	0.014	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	1	0	Side 4	0	0.01	22.89	24	0.013	AWAN	
	LTE Band 2	19100	1900	20M	QPSK	50	0	Side 4	0	0.01	21.61	23	0.014	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	1	0	Bottom of laptop	0	0.01	22.15	24	0.015	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	25	25	Bottom of laptop	0	0.01	21.18	23	0.015	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	1	0	Back of display screen	25	0.069	22.15	24	0.106	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	25	25	Back of display screen	25	0.054	21.18	23	0.082	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	1	0	Bottom Face	0	0.182	22.15	24	0.279	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	25	25	Bottom Face	0	0.152	21.18	23	0.231	AWAN	
#6	LTE Band 5	20525	836.5	10M	QPSK	1	0	Side 1	0	0.617	22.15	24	0.945	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	1	0	Side 1	0	0.611	22.15	24	0.935	South Star	
	LTE Band 5	20525	836.5	10M	QPSK	25	25	Side 1	0	0.473	21.18	23	0.719	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	50	0	Side 1	0	0.489	21.17	23	0.745	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	1	0	Side 2	0	0.044	22.15	24	0.067	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	25	25	Side 2	0	0.01	21.18	23	0.015	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	1	0	Side 3	0	0.01	22.15	24	0.015	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	25	25	Side 3	0	0.01	21.18	23	0.015	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	1	0	Side 4	0	0.01	22.15	24	0.015	AWAN	
	LTE Band 5	20525	836.5	10M	QPSK	25	25	Side 4	0	0.01	21.18	23	0.015	AWAN	

Index.	Band	Frequency		Bandwidth	Modulation	RB Size	RB Offset	Test Position	Spacing	SAR 1 g	Burst Avg Power (dBm)	Max tune-up (dBm)	Reported SAR 1 g	Antenna	Note
		Ch.	MHz						(mm)	(W/Kg)					
	LTE Band 12	23095	707.5	10M	QPSK	1	24	Bottom of laptop	0	0.01	22.51	24	0.014	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	25	12	Bottom of laptop	0	0.01	21.2	23	0.015	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	1	24	Back of display screen	25	0.083	22.51	24	0.117	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	25	12	Back of display screen	25	0.066	21.2	23	0.100	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	1	24	Bottom Face	0	0.191	22.51	24	0.269	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	25	12	Bottom Face	0	0.146	21.2	23	0.221	AWAN	
#7	LTE Band 12	23095	707.5	10M	QPSK	1	24	Side 1	0	0.803	22.51	24	1.132	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	1	24	Side 1	0	0.736	22.51	24	1.037	South Star	
	LTE Band 12	23095	707.5	10M	QPSK	25	12	Side 1	0	0.607	21.2	23	0.919	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	50	0	Side 1	0	0.611	21.16	23	0.933	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	1	24	Side 2	0	0.047	22.51	24	0.066	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	25	12	Side 2	0	0.01	21.2	23	0.015	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	1	24	Side 3	0	0.01	22.51	24	0.014	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	25	12	Side 3	0	0.01	21.2	23	0.015	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	1	24	Side 4	0	0.01	22.51	24	0.014	AWAN	
	LTE Band 12	23095	707.5	10M	QPSK	25	12	Side 4	0	0.01	21.2	23	0.015	AWAN	
	LTE Band 13	23230	782	10M	QPSK	1	0	Bottom of laptop	0	0.01	22.68	24	0.014	AWAN	
	LTE Band 13	23230	782	10M	QPSK	25	0	Bottom of laptop	0	0.01	21.33	23	0.015	AWAN	
	LTE Band 13	23230	782	10M	QPSK	1	0	Back of display screen	25	0.093	22.68	24	0.126	AWAN	
	LTE Band 13	23230	782	10M	QPSK	25	0	Back of display screen	25	0.068	21.33	23	0.100	AWAN	
	LTE Band 13	23230	782	10M	QPSK	1	0	Bottom Face	0	0.18	22.68	24	0.244	AWAN	
	LTE Band 13	23230	782	10M	QPSK	25	0	Bottom Face	0	0.142	21.33	23	0.209	AWAN	
#8	LTE Band 13	23230	782	10M	QPSK	1	0	Side 1	0	0.634	22.68	24	0.859	AWAN	
	LTE Band 13	23230	782	10M	QPSK	1	0	Side 1	0	0.581	22.68	24	0.787	South Star	
	LTE Band 13	23230	782	10M	QPSK	25	0	Side 1	0	0.481	21.33	23	0.707	AWAN	
	LTE Band 13	23230	782	10M	QPSK	50	0	Side 1	0	0.483	21.33	23	0.709	AWAN	
	LTE Band 13	23230	782	10M	QPSK	1	0	Side 2	0	0.046	22.68	24	0.062	AWAN	
	LTE Band 13	23230	782	10M	QPSK	25	0	Side 2	0	0.01	21.33	23	0.015	AWAN	
	LTE Band 13	23230	782	10M	QPSK	1	0	Side 3	0	0.01	22.68	24	0.014	AWAN	
	LTE Band 13	23230	782	10M	QPSK	25	0	Side 3	0	0.01	21.33	23	0.015	AWAN	
	LTE Band 13	23230	782	10M	QPSK	1	0	Side 4	0	0.01	22.68	24	0.014	AWAN	
	LTE Band 13	23230	782	10M	QPSK	25	0	Side 4	0	0.01	21.33	23	0.015	AWAN	

Index.	Band	Frequency		Bandwidth	Modulation	RB Size	RB Offset	Test Position	Spacing	SAR 1 g	Burst Avg Power (dBm)	Max tune-up (dBm)	Reported SAR 1 g	Antenna	Note
		Ch.	MHz						(mm)	(W/Kg)					
	LTE Band 66	132322	1745	20M	QPSK	1	49	Bottom of laptop	0	0.01	22.99	24	0.013	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	50	0	Bottom of laptop	0	0.01	21.9	23	0.013	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	1	49	Back of display screen	25	0.24	22.99	24	0.303	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	50	0	Back of display screen	25	0.184	21.9	23	0.237	AWAN	
#3	LTE Band 66	132322	1745	20M	QPSK	1	49	Bottom Face	0	0.314	22.99	24	0.396	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	1	49	Bottom Face	0	0.308	22.99	24	0.389	South Star	
	LTE Band 66	132322	1745	20M	QPSK	50	0	Bottom Face	0	0.201	21.9	23	0.259	AWAN	
	LTE Band 66	132572	1770	20M	QPSK	1	0	Side 1	0	0.245	15.77	16	0.258	AWAN	Power Reduce
	LTE Band 66	132322	1745	20M	QPSK	50	0	Side 1	0	0.303	15.59	16	0.333	AWAN	Power Reduce
	LTE Band 66	132322	1745	20M	QPSK	1	49	Side 1	17	0.282	22.99	24	0.356	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	50	0	Side 1	17	0.212	21.9	23	0.273	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	1	49	Side 2	0	0.047	22.99	24	0.059	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	50	0	Side 2	0	0.042	21.9	23	0.054	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	1	49	Side 3	0	0.01	22.99	24	0.013	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	50	0	Side 3	0	0.01	21.9	23	0.013	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	1	49	Side 4	0	0.01	22.99	24	0.013	AWAN	
	LTE Band 66	132322	1745	20M	QPSK	50	0	Side 4	0	0.01	21.9	23	0.013	AWAN	
#2	LTE Band 4	20175	1732.5	20M	QPSK	1	49	Bottom Face	0	0.279	22.65	24	0.381	AWAN	
	LTE Band 71	133322	683	20M	QPSK	1	49	Bottom of laptop	0	0.01	23.11	24	0.012	AWAN	
	LTE Band 71	133322	683	20M	QPSK	50	0	Bottom of laptop	0	0.01	21.65	23	0.014	AWAN	
	LTE Band 71	133322	683	20M	QPSK	1	49	Back of display screen	25	0.075	23.11	24	0.092	AWAN	
	LTE Band 71	133322	683	20M	QPSK	50	0	Back of display screen	25	0.063	21.65	23	0.086	AWAN	
	LTE Band 71	133322	683	20M	QPSK	1	49	Bottom Face	0	0.173	23.11	24	0.212	AWAN	
	LTE Band 71	133322	683	20M	QPSK	50	0	Bottom Face	0	0.133	21.65	23	0.181	AWAN	
#9	LTE Band 71	133322	683	20M	QPSK	1	49	Side 1	0	0.761	23.11	24	0.934	AWAN	
	LTE Band 71	133322	683	20M	QPSK	1	49	Side 1	0	0.627	23.11	24	0.770	South Star	
	LTE Band 71	133322	683	20M	QPSK	50	0	Side 1	0	0.541	21.65	23	0.738	AWAN	
	LTE Band 71	133322	683	20M	QPSK	100	0	Side 1	0	0.544	21.49	23	0.770	AWAN	
	LTE Band 71	133322	683	20M	QPSK	1	49	Side 2	0	0.05	23.11	24	0.061	AWAN	
	LTE Band 71	133322	683	20M	QPSK	50	0	Side 2	0	0.041	21.65	23	0.056	AWAN	
	LTE Band 71	133322	683	20M	QPSK	1	49	Side 3	0	0.01	23.11	24	0.012	AWAN	
	LTE Band 71	133322	683	20M	QPSK	50	0	Side 3	0	0.01	21.65	23	0.014	AWAN	
	LTE Band 71	133322	683	20M	QPSK	1	49	Side 4	0	0.01	23.11	24	0.012	AWAN	
	LTE Band 71	133322	683	20M	QPSK	50	0	Side 4	0	0.01	21.65	23	0.014	AWAN	

11.8 Simultaneous Transmission Evaluation

11.8.1 Simultaneous Transmission Configurations

Condition(s)	Band					
	WWAN	WLAN 2.4GHz Ant Main	WLAN 2.4GHz Ant Aux	WLAN 5GHz Ant Main	WLAN 5GHz Ant Aux	Bluetooth
1	V	V	--	--	--	--
2	V	--	V	--	--	--
3	V	V	V	--	--	--
4	V	V	--	--	--	V
5	V	--	--	V	--	--
6	V	--	--	--	V	--
7	V	--	--	V	V	--
8	V	--	--	V		V
9	V	--	--	V	V	V

11.8.2 Simultaneous Transmission Result

When the sum of 1-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration.

Sum of 1-g SAR of summary is shown as below:

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2 ∑ 1g SAR (W/kg)	1+3 ∑ 1g SAR (W/kg)	1+2+3 ∑ 1g SAR (W/kg)	1+2+6 ∑ 1g SAR (W/kg)	1+4 ∑ 1g SAR (W/kg)	1+5 ∑ 1g SAR (W/kg)	1+4+5 ∑ 1g SAR (W/kg)	1+4+6 ∑ 1g SAR (W/kg)	1+4+5+6 ∑ 1g SAR (W/kg)	SPLSR No.	
			WWAN	WLAN 2.4GHz Ant Main	WLAN 2.4GHz Ant Aux	WLAN 5GHz Ant Main	WLAN 5GHz Ant Aux	Bluetooth Ant Aux											
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)											
WCDMA	WCDMA Band II	Bottom Face at 0mm -	0.234	0.088	0.716	0.010	1.109	0.138	0.322	0.950	1.038	0.460	0.244	1.343	1.353	0.382	1.491		
		side 1 at 0mm -	0.746	0.060	0.128	0.217	0.426	0.049	0.806	0.874	0.934	0.855	0.963	1.172	1.389	1.012	1.438		
		side 2 at 0mm -	0.015	0.013	0.013	0.010	0.013	0.013	0.028	0.028	0.041	0.041	0.025	0.028	0.038	0.038	0.051		
		side 3 at 0mm -	0.015	0.079	0.013	0.010	0.013	0.013	0.094	0.028	0.107	0.107	0.025	0.028	0.038	0.038	0.051		
		side 4 at 0mm -	0.015	0.333	0.054	0.526	0.242	0.050	0.348	0.069	0.402	0.398	0.541	0.257	0.783	0.591	0.833		
	WCDMA Band IV	Bottom Face at 0mm -	0.591	0.088	0.716	0.010	1.109	0.138	0.679	1.307	1.395	0.817	0.601	1.700	1.710	0.739	1.848		#1
		side 1 at 0mm -	0.527	0.060	0.128	0.217	0.426	0.049	0.587	0.655	0.715	0.636	0.744	0.953	1.170	0.793	1.219		
		side 2 at 0mm -	0.110	0.013	0.013	0.010	0.013	0.013	0.123	0.123	0.136	0.136	0.120	0.123	0.133	0.133	0.146		
		side 3 at 0mm -	0.016	0.079	0.013	0.010	0.013	0.013	0.095	0.029	0.108	0.108	0.026	0.029	0.039	0.039	0.052		
		side 4 at 0mm -	0.016	0.333	0.054	0.526	0.242	0.050	0.349	0.070	0.403	0.399	0.542	0.258	0.784	0.592	0.834		
	WCDMA Band V	Bottom Face at 0mm -	0.437	0.088	0.716	0.010	1.109	0.138	0.525	1.153	1.241	0.663	0.447	1.546	1.556	0.585	1.694		
		side 1 at 0mm -	1.110	0.060	0.128	0.217	0.426	0.049	1.170	1.238	1.298	1.219	1.327	1.536	1.753	1.376	1.802		
		side 2 at 0mm -	0.069	0.013	0.013	0.010	0.013	0.013	0.082	0.082	0.095	0.095	0.079	0.082	0.092	0.092	0.105		
		side 3 at 0mm -	0.014	0.079	0.013	0.010	0.013	0.013	0.093	0.027	0.106	0.106	0.024	0.027	0.037	0.037	0.050		
		side 4 at 0mm -	0.014	0.333	0.054	0.526	0.242	0.050	0.347	0.068	0.401	0.397	0.540	0.256	0.782	0.590	0.832		

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2 ∑ 1g SAR (W/kg)	1+3 ∑ 1g SAR (W/kg)	1+2+3 ∑ 1g SAR (W/kg)	1+2+6 ∑ 1g SAR (W/kg)	1+4 ∑ 1g SAR (W/kg)	1+5 ∑ 1g SAR (W/kg)	1+4+5 ∑ 1g SAR (W/kg)	1+4+6 ∑ 1g SAR (W/kg)	1+4+5+6 ∑ 1g SAR (W/kg)	SPLSR No.	
			WWAN	WLAN 2.4GHz Ant Main	WLAN 2.4GHz Ant Aux	WLAN 5GHz Ant Main	WLAN 5GHz Ant Aux	Bluetooth Ant Aux											
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)											
LTE	LTE Band 2	Bottom Face at 0mm -	0.904	0.088	0.716	0.010	1.109	0.138	0.992	1.620	1.708	1.130	0.914	2.013	2.023	1.052	2.161	#2	#3
		side 1 at 0mm -	0.498	0.060	0.128	0.217	0.426	0.049	0.558	0.626	0.686	0.607	0.715	0.924	1.141	0.764	1.190		
		side 2 at 0mm -	0.014	0.013	0.013	0.010	0.013	0.013	0.027	0.027	0.040	0.040	0.024	0.027	0.037	0.037	0.050		
		side 3 at 0mm -	0.014	0.079	0.013	0.010	0.013	0.013	0.093	0.027	0.106	0.106	0.024	0.027	0.037	0.037	0.050		
		side 4 at 0mm -	0.014	0.333	0.054	0.526	0.242	0.050	0.347	0.068	0.401	0.397	0.540	0.256	0.782	0.590	0.832		
	LTE Band 5	Bottom Face at 0mm -	0.279	0.088	0.716	0.010	1.109	0.138	0.367	0.995	1.083	0.505	0.289	1.388	1.398	0.427	1.536		
		side 1 at 0mm -	0.945	0.060	0.128	0.217	0.426	0.049	1.005	1.073	1.133	1.054	1.162	1.371	1.588	1.211	1.637		
		side 2 at 0mm -	0.067	0.013	0.013	0.010	0.013	0.013	0.080	0.080	0.093	0.093	0.077	0.080	0.090	0.090	0.103		
		side 3 at 0mm -	0.015	0.079	0.013	0.010	0.013	0.013	0.094	0.028	0.107	0.107	0.025	0.028	0.038	0.038	0.051		
		side 4 at 0mm -	0.015	0.333	0.054	0.526	0.242	0.050	0.348	0.069	0.402	0.398	0.541	0.257	0.783	0.591	0.833		
	LTE Band 12	Bottom Face at 0mm -	0.269	0.088	0.716	0.010	1.109	0.138	0.357	0.985	1.073	0.495	0.279	1.378	1.388	0.417	1.526		
		side 1 at 0mm -	1.132	0.060	0.128	0.217	0.426	0.049	1.192	1.260	1.320	1.241	1.349	1.558	1.775	1.398	1.824		
		side 2 at 0mm -	0.066	0.013	0.013	0.010	0.013	0.013	0.079	0.079	0.092	0.092	0.076	0.079	0.089	0.089	0.102		
		side 3 at 0mm -	0.015	0.079	0.013	0.010	0.013	0.013	0.094	0.028	0.107	0.107	0.025	0.028	0.038	0.038	0.051		
		side 4 at 0mm -	0.015	0.333	0.054	0.526	0.242	0.050	0.348	0.069	0.402	0.398	0.541	0.257	0.783	0.591	0.833		
	LTE Band 13	Bottom Face at 0mm -	0.244	0.088	0.716	0.010	1.109	0.138	0.332	0.960	1.048	0.470	0.254	1.353	1.363	0.392	1.501		
		side 1 at 0mm -	0.859	0.060	0.128	0.217	0.426	0.049	0.919	0.987	1.047	0.968	1.076	1.285	1.502	1.125	1.551		
		side 2 at 0mm -	0.062	0.013	0.013	0.010	0.013	0.013	0.075	0.075	0.088	0.088	0.072	0.075	0.085	0.085	0.098		
		side 3 at 0mm -	0.015	0.079	0.013	0.010	0.013	0.013	0.094	0.028	0.107	0.107	0.025	0.028	0.038	0.038	0.051		
		side 4 at 0mm -	0.015	0.333	0.054	0.526	0.242	0.050	0.348	0.069	0.402	0.398	0.541	0.257	0.783	0.591	0.833		
	LTE Band 66/4	Bottom Face at 0mm -	0.396	0.088	0.716	0.010	1.109	0.138	0.484	1.112	1.200	0.622	0.406	1.505	1.515	0.544	1.653		
		side 1 at 0mm -	0.333	0.060	0.128	0.217	0.426	0.049	0.393	0.461	0.521	0.442	0.550	0.759	0.976	0.599	1.025		
		side 2 at 0mm -	0.059	0.013	0.013	0.010	0.013	0.013	0.072	0.072	0.085	0.085	0.069	0.072	0.082	0.082	0.095		
		side 3 at 0mm -	0.013	0.079	0.013	0.010	0.013	0.013	0.092	0.026	0.105	0.105	0.023	0.026	0.036	0.036	0.049		
		side 4 at 0mm -	0.013	0.333	0.054	0.526	0.242	0.050	0.346	0.067	0.400	0.396	0.539	0.255	0.781	0.589	0.831		
	LTE Band 71	Bottom Face at 0mm -	0.212	0.088	0.716	0.010	1.109	0.138	0.300	0.928	1.016	0.438	0.222	1.321	1.331	0.360	1.469		
		side 1 at 0mm -	0.934	0.060	0.128	0.217	0.426	0.049	0.994	1.062	1.122	1.043	1.151	1.360	1.577	1.200	1.626		
		side 2 at 0mm -	0.061	0.013	0.013	0.010	0.013	0.013	0.074	0.074	0.087	0.087	0.071	0.074	0.084	0.084	0.097		
		side 3 at 0mm -	0.014	0.079	0.013	0.010	0.013	0.013	0.093	0.027	0.106	0.106	0.024	0.027	0.037	0.037	0.050		
		side 4 at 0mm -	0.014	0.333	0.054	0.526	0.242	0.050	0.347	0.068	0.401	0.397	0.540	0.256	0.782	0.590	0.832		

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2 ∑ 1g SAR (W/kg)	1+3 ∑ 1g SAR (W/kg)	1+2+3 ∑ 1g SAR (W/kg)	1+2+6 ∑ 1g SAR (W/kg)	1+4 ∑ 1g SAR (W/kg)	1+5 ∑ 1g SAR (W/kg)	1+4+5 ∑ 1g SAR (W/kg)	1+4+6 ∑ 1g SAR (W/kg)	1+4+5+6 ∑ 1g SAR (W/kg)	SPLSR No.	
			WWAN	WLAN 2.4GHz Ant Main	WLAN 2.4GHz Ant Aux	WLAN 5GHz Ant Main	WLAN 5GHz Ant Aux	Bluetooth Ant Aux											
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)											
WCDMA	WCDMA Band II	Bottom of laptop at 0mm -	0.015	0.013	0.464	0.010	0.737	0.080	0.028	0.479	0.492	0.108	0.025	0.752	0.762	0.105	0.842		
		Back of display screen at 25mm -	0.572	0.068	0.013	0.159	0.013	0.080	0.640	0.585	0.653	0.720	0.731	0.585	0.744	0.811	0.824		
	WCDMA Band IV	Bottom of laptop at 0mm -	0.064	0.013	0.464	0.010	0.737	0.080	0.077	0.528	0.541	0.157	0.074	0.801	0.811	0.154	0.891		
		Back of display screen at 25mm -	0.484	0.068	0.013	0.159	0.013	0.080	0.552	0.497	0.565	0.632	0.643	0.497	0.656	0.723	0.736		
	WCDMA Band V	Bottom of laptop at 0mm -	0.014	0.013	0.464	0.010	0.737	0.080	0.027	0.478	0.491	0.107	0.024	0.751	0.761	0.104	0.841		
		Back of display screen at 25mm -	0.114	0.068	0.013	0.159	0.013	0.080	0.182	0.127	0.195	0.262	0.273	0.127	0.286	0.353	0.366		
LTE	LTE Band 2	Bottom of laptop at 0mm -	0.014	0.013	0.464	0.010	0.737	0.080	0.027	0.478	0.491	0.107	0.024	0.751	0.761	0.104	0.841		
		Back of display screen at 25mm -	0.411	0.068	0.013	0.159	0.013	0.080	0.479	0.424	0.492	0.559	0.570	0.424	0.583	0.650	0.663		
	LTE Band 5	Bottom of laptop at 0mm -	0.015	0.013	0.464	0.010	0.737	0.080	0.028	0.479	0.492	0.108	0.025	0.752	0.762	0.105	0.842		
		Back of display screen at 25mm -	0.106	0.068	0.013	0.159	0.013	0.080	0.174	0.119	0.187	0.254	0.265	0.119	0.278	0.345	0.358		
	LTE Band 12	Bottom of laptop at 0mm -	0.015	0.013	0.464	0.010	0.737	0.080	0.028	0.479	0.492	0.108	0.025	0.752	0.762	0.105	0.842		
		Back of display screen at 25mm -	0.117	0.068	0.013	0.159	0.013	0.080	0.185	0.130	0.198	0.265	0.276	0.130	0.289	0.356	0.369		
	LTE Band 13	Bottom of laptop at 0mm -	0.015	0.013	0.464	0.010	0.737	0.080	0.028	0.479	0.492	0.108	0.025	0.752	0.762	0.105	0.842		
		Back of display screen at 25mm -	0.126	0.068	0.013	0.159	0.013	0.080	0.194	0.139	0.207	0.274	0.285	0.139	0.298	0.365	0.378		
	LTE Band 66/4	Bottom of laptop at 0mm -	0.013	0.013	0.464	0.010	0.737	0.080	0.026	0.477	0.490	0.106	0.023	0.750	0.760	0.103	0.840		
		Back of display screen at 25mm -	0.303	0.068	0.013	0.159	0.013	0.080	0.371	0.316	0.384	0.451	0.462	0.316	0.475	0.542	0.555		
	LTE Band 71	Bottom of laptop at 0mm -	0.014	0.013	0.464	0.010	0.737	0.080	0.027	0.478	0.491	0.107	0.024	0.751	0.761	0.104	0.841		
		Back of display screen at 25mm -	0.092	0.068	0.013	0.159	0.013	0.080	0.160	0.105	0.173	0.240	0.251	0.105	0.264	0.331	0.344		

11.8.3 SAR to peak location separation (SPLSR)

According to KDB 447498, when the sum of SAR is greater than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio (SPLSR), and the simultaneously transmitting antennas must be considered one pair at a time. The ratio is determined by **(SAR1+SAR2)$^{1.5}$ / (separation distance between the peak SAR locations for the antenna pair, mm)**, round to two decimal digits, and must be ≦ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

If the sum of SAR is under the SAR limit, SPLSR analysis is not required.

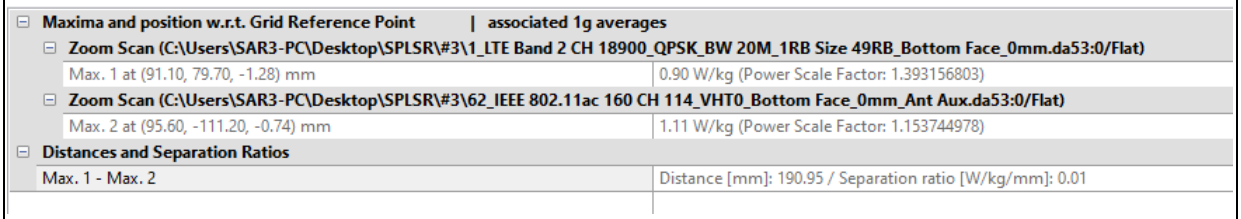
#1_WCDMA IV + 5GHz Aux						
Antenna	Index	Frequency (GHz)	Reported SAR1g (W/Kg)	Σ Reported SAR1g (W/Kg)	Antenna pair(mm)	Peak location separation ratio
WCDMA IV	12	1.7526	0.591	1.70	188.03	0.01
5GHz Aux	62	5.57	1.109			

Maxima and position w.r.t. Grid Reference Point	**associated 1g averages**
Zoom Scan (C:\Users\SAR3-PC\Desktop\SPLSR\#1\12_WCDMA Band IV CH 1513_Bottom Face_0mm.da53:0/Flat)	
Max. 1 at (92.60, 76.80, -1.40) mm	0.59 W/kg (Power Scale Factor: 1.555965632)
Zoom Scan (C:\Users\SAR3-PC\Desktop\SPLSR\#1\62_IEEE 802.11ac 160 CH 114_VHT0_Bottom Face_0mm_Ant Aux.da53:0/Flat)	
Max. 2 at (95.60, -111.20, -0.74) mm	1.11 W/kg (Power Scale Factor: 1.153744978)
Distances and Separation Ratios	
Max. 1 - Max. 2	Distance [mm]: 188.03 / Separation ratio [W/kg/mm]: 0.01

#2_LTE Band 2 + 2.4GHz Aux						
Antenna	Index	Frequency (GHz)	Reported SAR1g (W/Kg)	Σ Reported SAR1g (W/Kg)	Antenna pair(mm)	Peak location separation ratio
LTE Band 2	1	1.88	0.904	1.62	192.51	0.01
2.4GHz Aux	22	2.412	0.716			

Maxima and position w.r.t. Grid Reference Point	**associated 1g averages**
Zoom Scan (C:\Users\SAR3-PC\Desktop\SPLSR\#2\1_LTE Band 2 CH 18900_QPSK_BW 20M_1RB Size 49RB_Bottom Face_0mm.da53:0/Flat)	
Max. 1 at (91.10, 79.70, -1.28) mm	0.90 W/kg (Power Scale Factor: 1.393156803)
Zoom Scan (C:\Users\SAR3-PC\Desktop\SPLSR\#2\22_IEEE 802.11 b CH 11_1M_Bottom Face_0mm_Ant Aux.da53:0/Flat)	
Max. 2 at (89.00, -112.80, -1.20) mm	0.72 W/kg (Power Scale Factor: 1.295806595)
Distances and Separation Ratios	
Max. 1 - Max. 2	Distance [mm]: 192.51 / Separation ratio [W/kg/mm]: 0.01

#3_LTE Band 2 + 5GHz Aux						
Antenna	Index	Frequency (GHz)	Reported SAR1g (W/Kg)	Σ Reported SAR1g (W/Kg)	Antenna pair(mm)	Peak location separation ratio
LTE Band 2	1	1.88	0.904	2.01	190.95	0.01
5GHz Aux	62	5.57	1.109			



11.9 Measurement Variability

Band	Frequency		Bandwidth	Modulation or Sub-Test	RB Size	RB Offset	Test Position	Spacing	Note	Original SAR_{1g}	First SAR_{1g}	First Ratio SAR_{1g}
	Ch.	MHz						(mm)		(W/kg)	(W/kg)	
LTE Band 12	23095	707.5	10M	QPSK	1	24	Side 1	0	original #7_once	0.803	0.789	1.74%

According to KDB 865664 D01v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required:

1. The original highest measured Reported SAR 1-g is ＜0.80 W/kg, repeated that measurement once.

2. Perform a second repeated measurement the ratio of the largest to the smallest SAR for the original and first repeated measurements is <1.2 W/kg, or when the original or repeated measurement is ≧1.45 W/kg (~10% from the 1-g SAR limit).

11.10 Spot Check

Band	Mode	Frequency		Data Rate	Test Position	Spacing	SAR 1 g	Burst Avg Power (dBm)	Max tune-up (dBm)	Duty Cycle (%)	Reported SAR 1 g	Antenna	Note	Deviation
		Ch.	MHz			(mm)	(W/Kg)							
WLAN2.4GHz	802.11b	11	2462	1 Mbps	Side 4	0	0.257	15.92	17	99.11	0.333	Ant Main	AWAN	
WLAN2.4GHz	802.11b	11	2462	1 Mbps	Side 4	0	0.249	15.92	17	99.11	0.322	Ant Main	AWAN	-3.30%
WLAN2.4GHz	802.11b	11	2462	1 Mbps	Bottom Face	0	0.556	15.95	17	98.96	0.716	Ant Aux	AWAN	
WLAN2.4GHz	802.11b	11	2462	1 Mbps	Bottom Face	0	0.544	15.95	17	98.96	0.700	Ant Aux	AWAN	-2.23%
Bluetooth		78	2480	1 Mbps	Bottom Face	0	0.104	8.37	8.5	77.60	0.138	Ant Aux	AWAN	
Bluetooth		78	2480	1 Mbps	Bottom Face	0	0.092	8.37	8.5	77.60	0.122	Ant Aux	AWAN	-11.59%
WLAN5GHz	802.11ac 80 MHz	58	5290	VHT0	Side 4	0	0.414	13.98	14	98.52	0.422	Ant Main	AWAN	
WLAN5GHz	802.11ac 80 MHz	58	5290	VHT0	Side 4	0	0.413	13.98	14	98.52	0.421	Ant Main	AWAN	-0.24%
WLAN5GHz	802.11ac 80 MHz	58	5290	VHT0	Bottom Face	0	0.698	10.96	12	98.43	0.901	Ant Aux	AWAN	
WLAN5GHz	802.11ac 80 MHz	58	5290	VHT0	Bottom Face	0	0.663	10.96	12	98.43	0.856	Ant Aux	AWAN	-4.99%
									d					
WLAN5GHz	802.11ac 80 MHz	106	5530	VHT0	Side 4	0	0.436	13.96	14	98.52	0.447	Ant Main	AWAN	
WLAN5GHz	802.11ac 80 MHz	106	5530	VHT0	Side 4	0	0.407	13.96	14	98.52	0.417	Ant Main	AWAN	-6.71%
WLAN5GHz	802.11ac 160 MHz	114	5570	VHT0	Bottom Face	0	0.961	11.46	12	98.15	1.109	Ant Aux	South Star	
WLAN5GHz	802.11ac 160 MHz	114	5570	VHT0	Bottom Face	0	0.899	11.46	12	98.15	1.037	Ant Aux	South Star	-6.49%
WLAN5GHz	802.11n 40 MHz	151	5755	HT0	Side 4	0	0.514	13.98	14	98.12	0.526	Ant Main	AWAN	
WLAN5GHz	802.11n 40 MHz	151	5755	HT0	Side 4	0	0.487	13.98	14	98.12	0.499	Ant Main	AWAN	-5.13%
WLAN5GHz	802.11n 40 MHz	151	5755	HT0	Bottom Face	0	0.845	11.47	12	98.03	0.974	Ant Aux	AWAN	
WLAN5GHz	802.11n 40 MHz	151	5755	HT0	Bottom Face	0	0.829	11.47	12	98.03	0.955	Ant Aux	AWAN	-1.95%

11.11 Requirements on the Uncertainty Evaluation

Decision Rule

■ Uncertainty is not included.

☐ Uncertainty is included.

The highest measured 1-g SAR is less than 1.5 W/kg and the highest measured 10-g SAR is less than 3.75 W/kg. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis described in IEEE 1528-2013 and IEC/IEEE 62209-1528 is not required.

12. Conclusion

The SAR test values found for the device are below the maximum limit of 1.6 W/kg.

Appendix A - System Performance Check

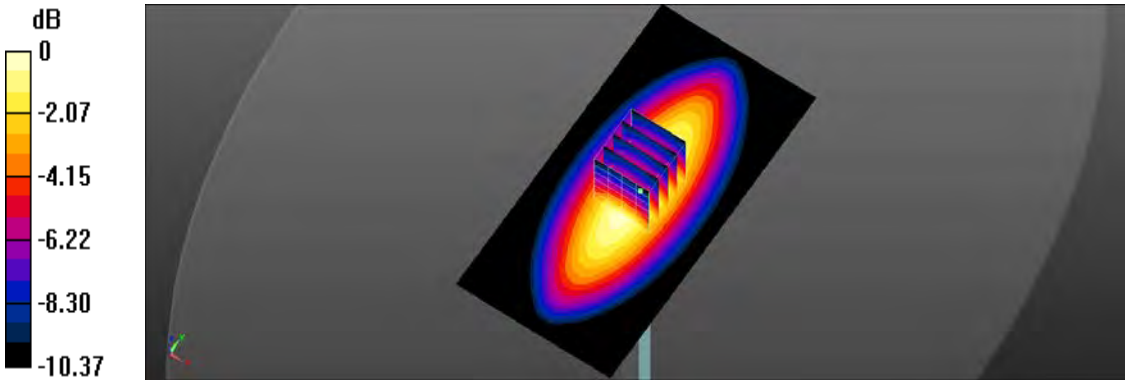
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/7
System Performance Check at 750MHz_Head
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1004

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.903 S/m; ε_r = 41.896; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(10.03, 10.03, 10.03) @ 750 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

System Performance Check at 750MHz/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.97 W/kg

System Performance Check at 750MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 60.90 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.35 W/kg
SAR(1 g) = 2.24 W/kg; SAR(10 g) = 1.48 W/kg
Smallest distance from peaks to all points 3 dB below = 19.5 mm
Ratio of SAR at M2 to SAR at M1 = 66.8%
Maximum value of SAR (measured) = 2.99 W/kg



0 dB = 2.99 W/kg = 4.76 dBW/kg

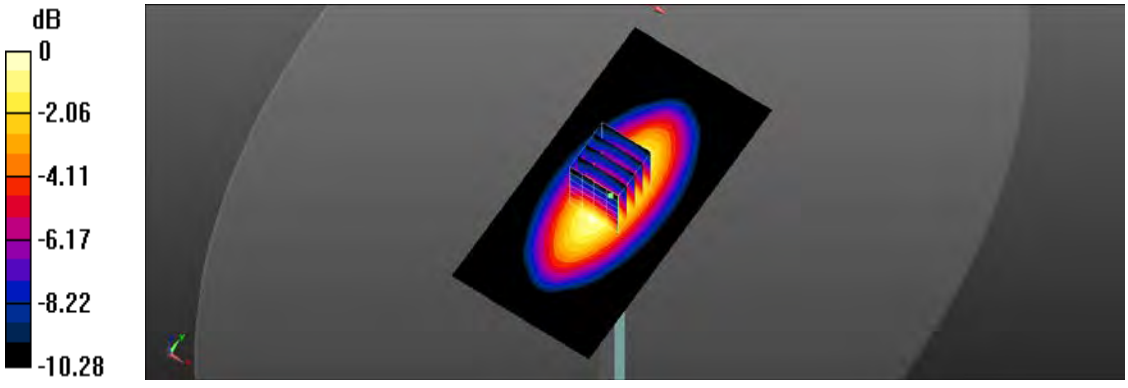
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/8
System Performance Check at 835MHz_Head
DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d082

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.902 S/m; ε_r = 42.326; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(9.76, 9.76, 9.76) @ 835 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

System Performance Check at 835MHz/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.19 W/kg

System Performance Check at 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 62.72 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 3.58 W/kg
SAR(1 g) = 2.45 W/kg; SAR(10 g) = 1.63 W/kg
Smallest distance from peaks to all points 3 dB below = 16 mm
Ratio of SAR at M2 to SAR at M1 = 68.4%
Maximum value of SAR (measured) = 3.22 W/kg



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

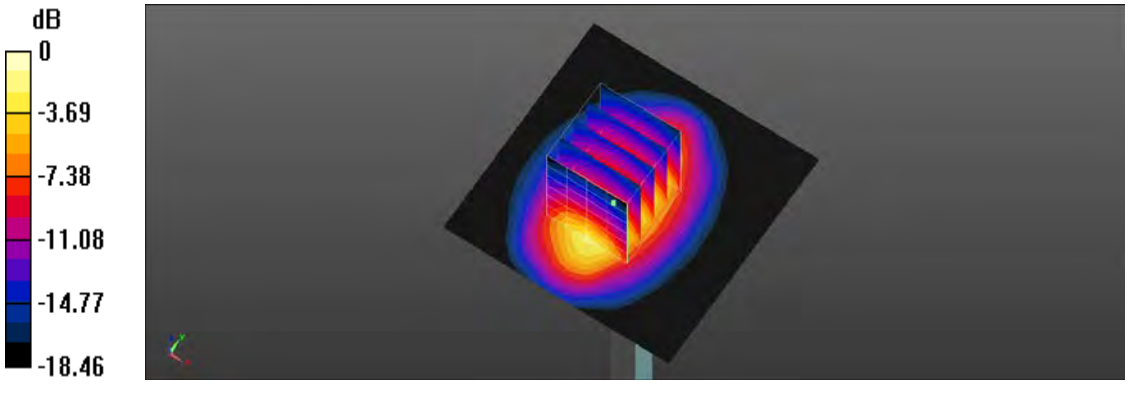
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/6
System Performance Check at 1750MHz_Head
DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1111

Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1750 MHz; σ = 1.359 S/m; ε_r = 40.392; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(9.05, 9.05, 9.05) @ 1750 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

System Performance Check at 1750MHz/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.7 W/kg

System Performance Check at 1750MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 103.8 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 17.3 W/kg
SAR(1 g) = 9.33 W/kg; SAR(10 g) = 4.84 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 53.6%
Maximum value of SAR (measured) = 14.5 W/kg



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

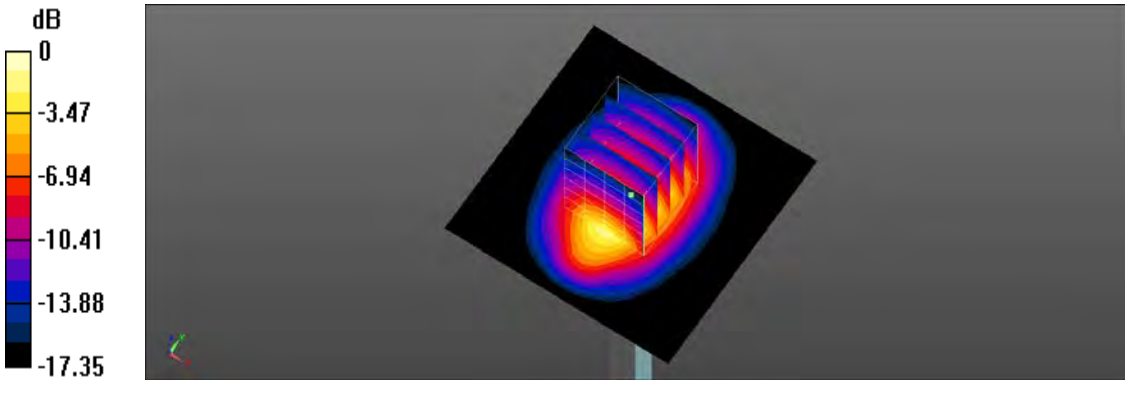
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/5
System Performance Check at 1900MHz_Head
DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d111

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.429 S/m; ε_r = 40.262; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(8.6, 8.6, 8.6) @ 1900 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

System Performance Check at 1900MHz/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.2 W/kg

System Performance Check at 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 107.5 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.9 W/kg
SAR(1 g) = 9.92 W/kg; SAR(10 g) = 5.23 W/kg
Smallest distance from peaks to all points 3 dB below = 9.6 mm
Ratio of SAR at M2 to SAR at M1 = 55.3%
Maximum value of SAR (measured) = 15.3 W/kg



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

Appendix B - Measurement Data

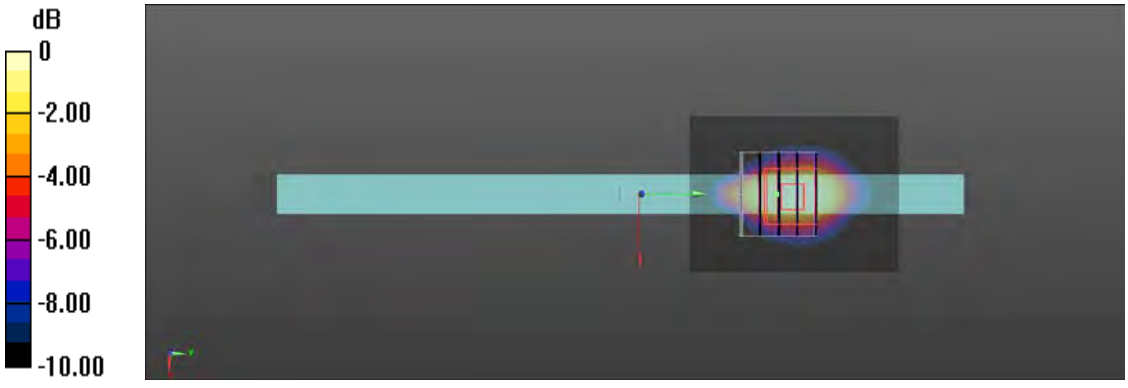
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/5
4_WCDMA Band II CH 9400_Side 1_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, WCDMA Band II (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.403 S/m; ε_r = 40.252; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(8.6, 8.6, 8.6) @ 1880 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.21 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.62 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.721 W/kg; SAR(10 g) = 0.370 W/kg
Smallest distance from peaks to all points 3 dB below = 8 mm
Ratio of SAR at M2 to SAR at M1 = 49.4%
Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.12 W/kg = 0.49 dBW/kg

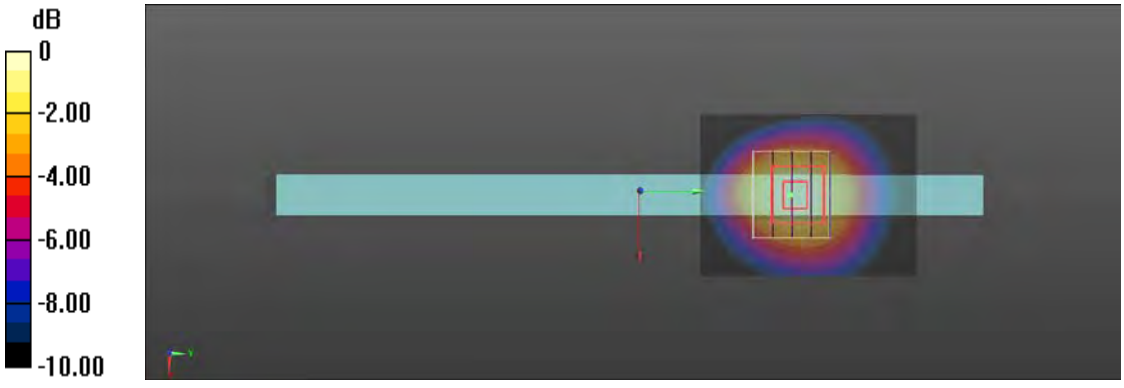
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/6
5_WCDMA Band IV CH 1513_Side 1_17mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, WCDMA Band IV (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1753 MHz; σ = 1.361 S/m; ε_r = 40.38; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(9.05, 9.05, 9.05) @ 1752.6 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.579 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.34 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.665 W/kg
SAR(1 g) = 0.425 W/kg; SAR(10 g) = 0.258 W/kg
Smallest distance from peaks to all points 3 dB below = 16 mm
Ratio of SAR at M2 to SAR at M1 = 64.6%
Maximum value of SAR (measured) = 0.581 W/kg



0 dB = 0.581 W/kg = -2.36 dBW/kg

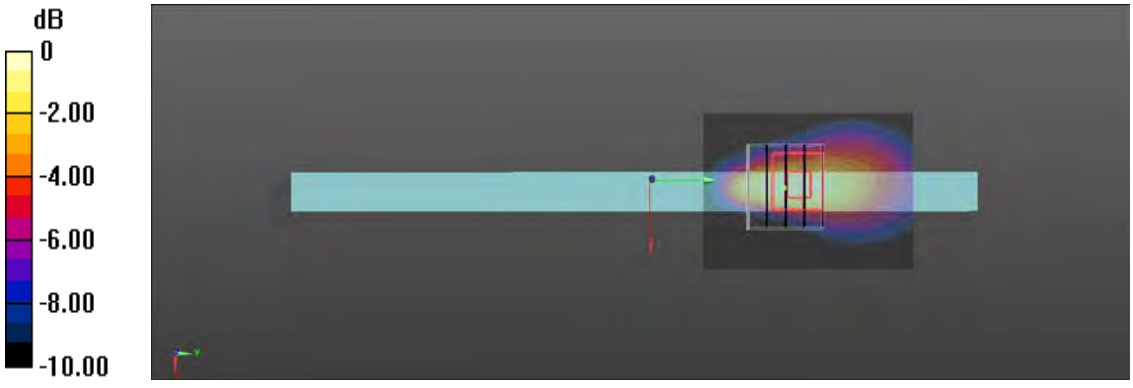
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/8
10_WCDMA Band V CH 4233_Side 1_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, WCDMA Band V (0); Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 MHz; σ = 0.914 S/m; ε_r = 42.157; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(9.76, 9.76, 9.76) @ 846.6 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.53 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.77 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 0.770 W/kg; SAR(10 g) = 0.395 W/kg
Smallest distance from peaks to all points 3 dB below = 6.4 mm
Ratio of SAR at M2 to SAR at M1 = 38.8%
Maximum value of SAR (measured) = 1.42 W/kg



0 dB = 1.42 W/kg = 1.52 dBW/kg

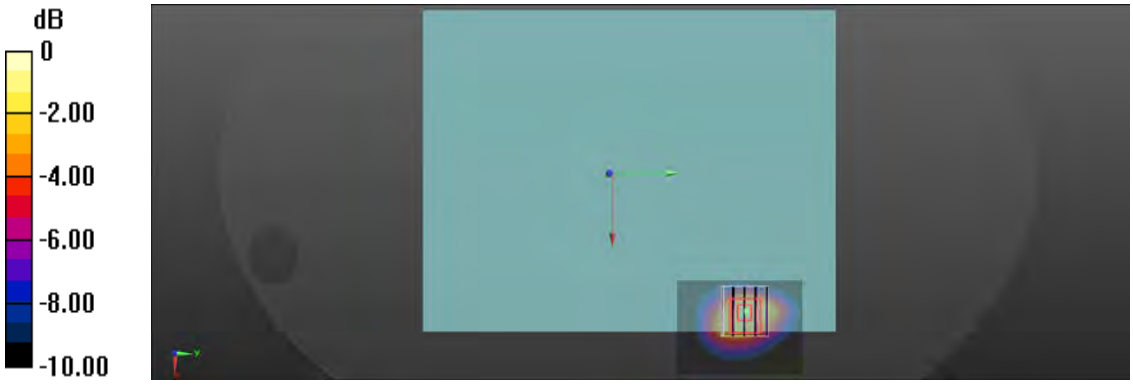
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/5
1_LTE Band 2 CH 18900_QPSK_BW 20M_1RB Size 49RB_Bottom Face_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.403 S/m; ε_r = 40.252; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(8.6, 8.6, 8.6) @ 1880 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.03 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.25 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.649 W/kg; SAR(10 g) = 0.357 W/kg
Smallest distance from peaks to all points 3 dB below = 10.7 mm
Ratio of SAR at M2 to SAR at M1 = 64.6%
Maximum value of SAR (measured) = 0.910 W/kg



0 dB = 0.910 W/kg = -0.41 dBW/kg

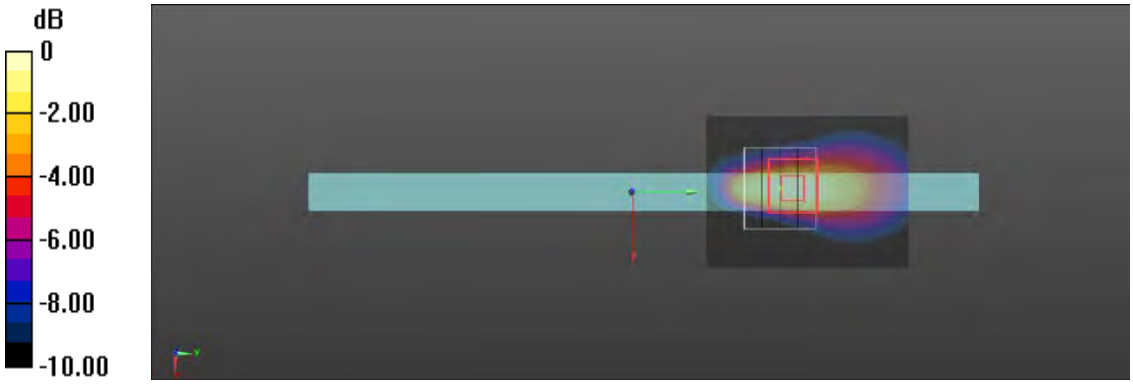
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/8
6_LTE Band 5 CH 20525_QPSK_BW 10M_1RB Size 0RB_Side 1_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, Generic LTE (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.903 S/m; ε_r = 42.303; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(9.76, 9.76, 9.76) @ 836.5 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.28 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 38.01 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.56 W/kg
SAR(1 g) = 0.617 W/kg; SAR(10 g) = 0.309 W/kg
Smallest distance from peaks to all points 3 dB below = 6.4 mm
Ratio of SAR at M2 to SAR at M1 = 37.2%
Maximum value of SAR (measured) = 1.19 W/kg



0 dB = 1.19 W/kg = 0.76 dBW/kg

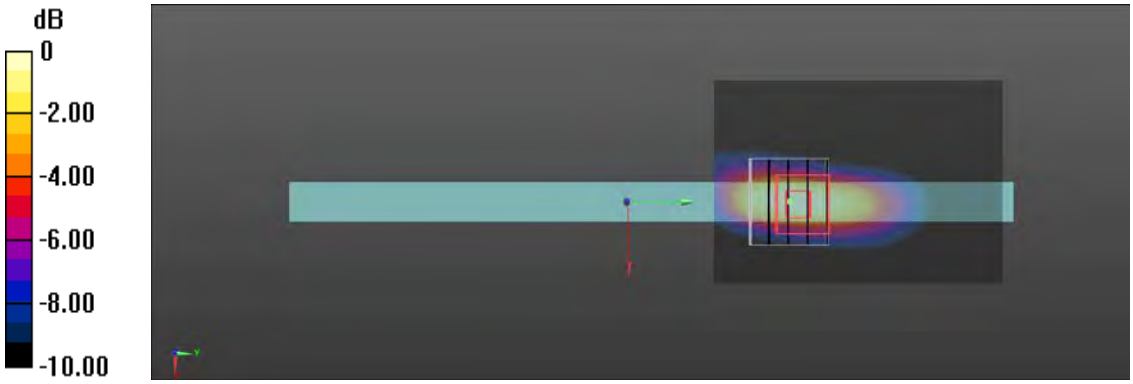
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/7
7_LTE Band 12 CH 23095_QPSK_BW 10M_1RB Size 24RB_Side 1_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, Generic LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.896 S/m; ε_r = 42.506; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(10.03, 10.03, 10.03) @ 707.5 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (51x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.63 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 43.14 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 2.02 W/kg
SAR(1 g) = 0.803 W/kg; SAR(10 g) = 0.416 W/kg
Smallest distance from peaks to all points 3 dB below = 6.4 mm
Ratio of SAR at M2 to SAR at M1 = 38.6%
Maximum value of SAR (measured) = 1.56 W/kg



0 dB = 1.56 W/kg = 1.93 dBW/kg

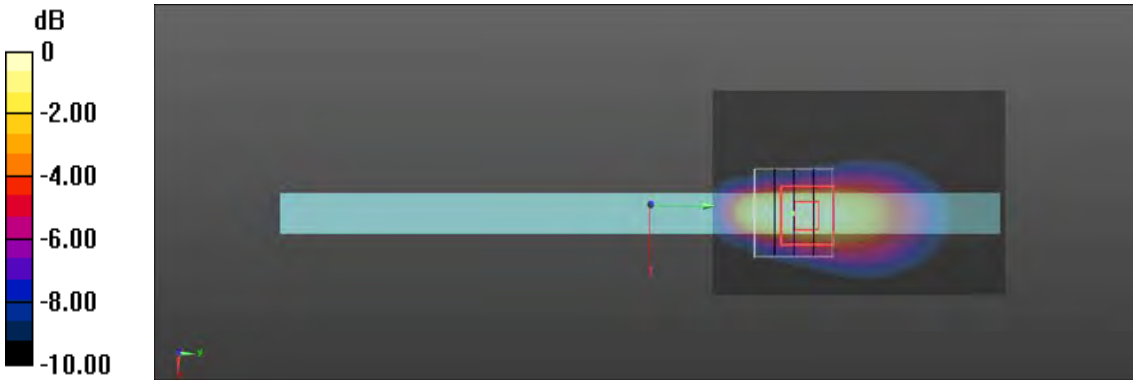
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/7
8_LTE Band 13 CH 23230_QPSK_BW 10M_1RB Size 0RB_Side 1_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, Generic LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used: f = 782 MHz; σ = 0.93 S/m; ε_r = 41.469; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(10.03, 10.03, 10.03) @ 782 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (51x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.17 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 36.51 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.634 W/kg; SAR(10 g) = 0.336 W/kg
Smallest distance from peaks to all points 3 dB below = 6.6 mm
Ratio of SAR at M2 to SAR at M1 = 42.6%
Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.12 W/kg = 0.49 dBW/kg

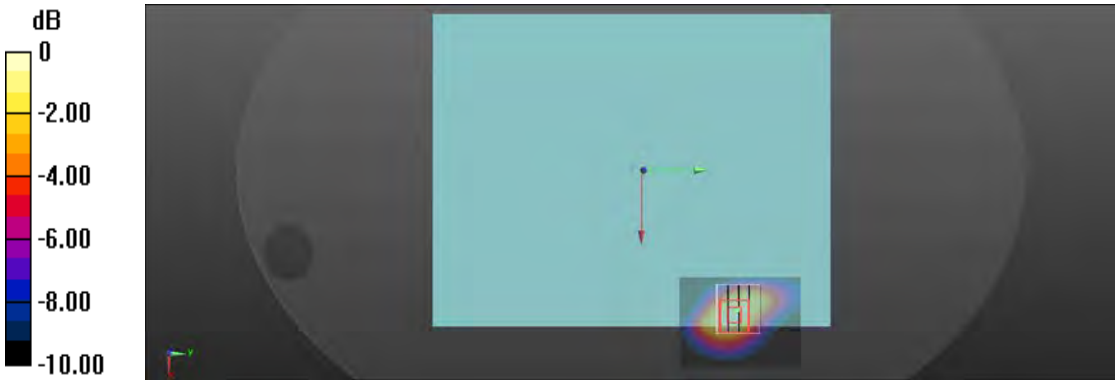
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/6
3_LTE Band 66 CH 132322_QPSK_BW 20M_1RB Size 49RB_Bottom Face_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, Generic LTE (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1745 MHz; σ = 1.355 S/m; ε_r = 40.417; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(9.05, 9.05, 9.05) @ 1745 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.449 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.87 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.531 W/kg
SAR(1 g) = 0.314 W/kg; SAR(10 g) = 0.176 W/kg
Smallest distance from peaks to all points 3 dB below = 10.7 mm
Ratio of SAR at M2 to SAR at M1 = 62.5%
Maximum value of SAR (measured) = 0.431 W/kg



0 dB = 0.431 W/kg = -3.66 dBW/kg

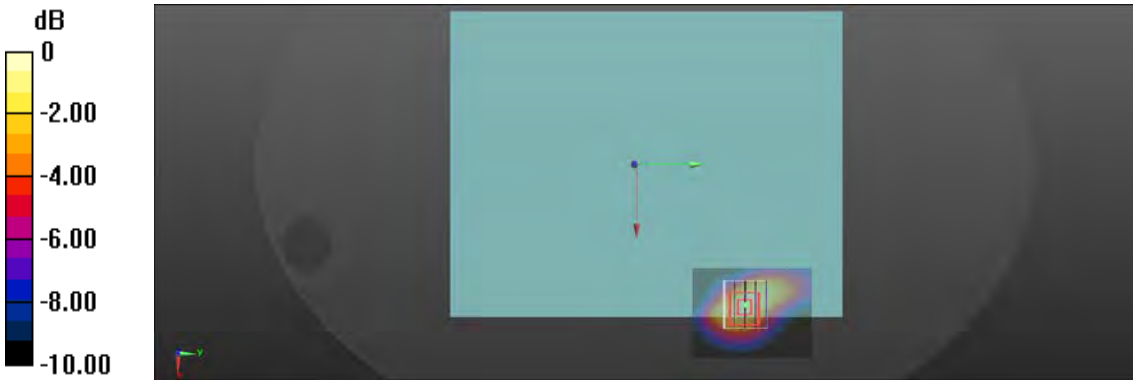
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/6
2_LTE Band 4 CH 20175_QPSK_BW 20M_1RB Size 49RB_Bottom Face_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, Generic LTE (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.345 S/m; ε_r = 40.463; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(9.05, 9.05, 9.05) @ 1732.5 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.396 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.72 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.465 W/kg
SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.159 W/kg
Smallest distance from peaks to all points 3 dB below = 11.3 mm
Ratio of SAR at M2 to SAR at M1 = 60.8%
Maximum value of SAR (measured) = 0.397 W/kg



0 dB = 0.397 W/kg = -4.01 dBW/kg

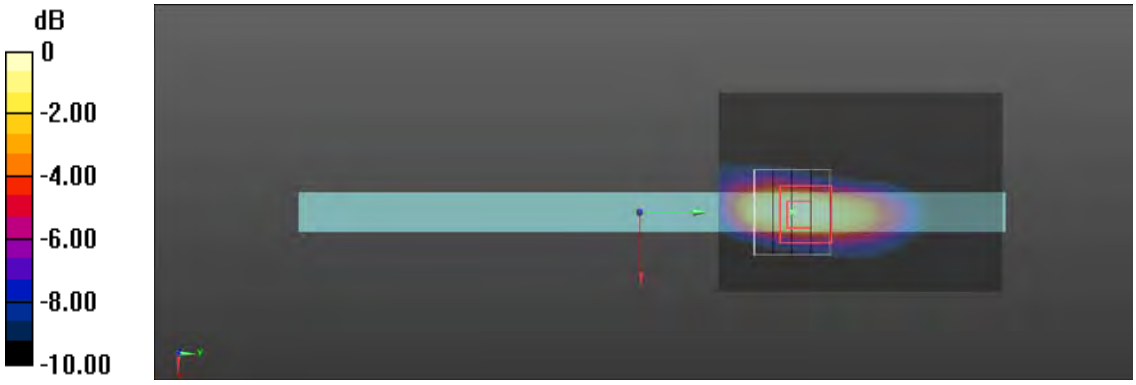
Test Laboratory: A Test Lab Techno Corp.
Date: 2021/7/7
9_LTE Band 71 CH 133322_QPSK_BW 20M_1RB Size 49RB_Side 1_0mm
DUT: CR1100FK, CR1100CK; Type: Chromebook

Communication System: UID 0, Generic LTE (0); Frequency: 683 MHz;Duty Cycle: 1:1
Medium parameters used (extrapolated): f = 683 MHz; σ = 0.884 S/m; ε_r = 42.872; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7647; ConvF(10.03, 10.03, 10.03) @ 683 MHz; Calibrated: 2021/4/15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1253; Calibrated: 2020/12/16
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Area Scan (51x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.59 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 43.36 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 0.761 W/kg; SAR(10 g) = 0.381 W/kg
Smallest distance from peaks to all points 3 dB below = 6.4 mm
Ratio of SAR at M2 to SAR at M1 = 35.3%
Maximum value of SAR (measured) = 1.56 W/kg



0 dB = 1.56 W/kg = 1.93 dBW/kg

Appendix C - Calibration

All of the instruments Calibration information are listed below.

- Dipole _ D750V3 SN: 1004
- Dipole _ D8350V2 SN: 4d082
- Dipole _ D1750V2 SN: 1111
- Dipole _ D1900V2 SN: 5d111
- Probe _ EX3DV4 SN: 7647
- DAE _ DAE4 SN: 1253

In Collaboration with
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ST-044_20-185
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn
CALIBRATION
CNAS L0570

Client ATL Certificate No: Z20-60365

CALIBRATION CERTIFICATE

Object D750V3 - SN: 1004

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: September 17, 2020

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	12-May-20 (CTTL, No.J20X02965)	May-21
Power sensor NRP6A	101369	12-May-20 (CTTL, No.J20X02965)	May-21
ReferenceProbe EX3DV4	SN 3617	30-Jan-20(SPEAG,No.EX3-3617_Jan20)	Jan-21
DAE4	SN 771	10-Feb-20(CTTL-SPEAG,No.Z20-60017)	Feb-21
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Feb-20 (CTTL, No.J20X00516)	Feb-21
NetworkAnalyzer E5071C	MY46110673	10-Feb-20 (CTTL, No.J20X00515)	Feb-21

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: September 22, 2020

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CALIBRATION LABORATORY
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Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.3 ± 6 %	0.88 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.07 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.37 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.48 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.9Ω+ 1.70jΩ
Return Loss	- 29.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.900 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 09.17.2020

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1004

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: f = 750 MHz; σ = 0.88 S/m; ε_r = 42.25; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(10.07, 10.07, 10.07) @ 750 MHz; Calibrated: 2020-01-30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn771; Calibrated: 2020-02-10
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.56 V/m; Power Drift = -0.01 dB

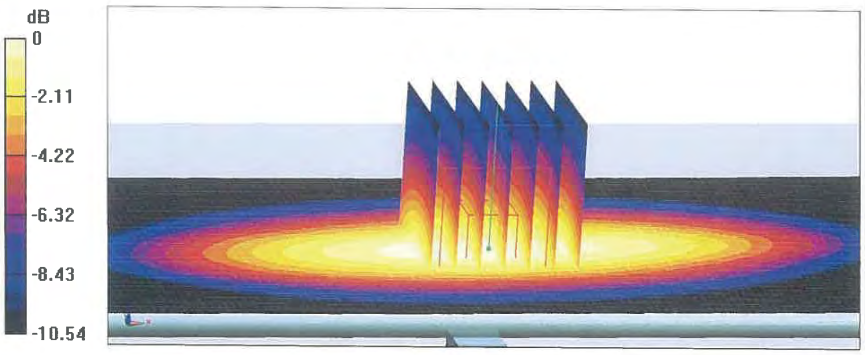
Peak SAR (extrapolated) = 3.08 W/kg

SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.36 W/kg

Smallest distance from peaks to all points 3 dB below = 18.9 mm

Ratio of SAR at M2 to SAR at M1 = 67%

Maximum value of SAR (measured) = 2.75 W/kg



0 dB = 2.75 W/kg = 4.39 dBW/kg

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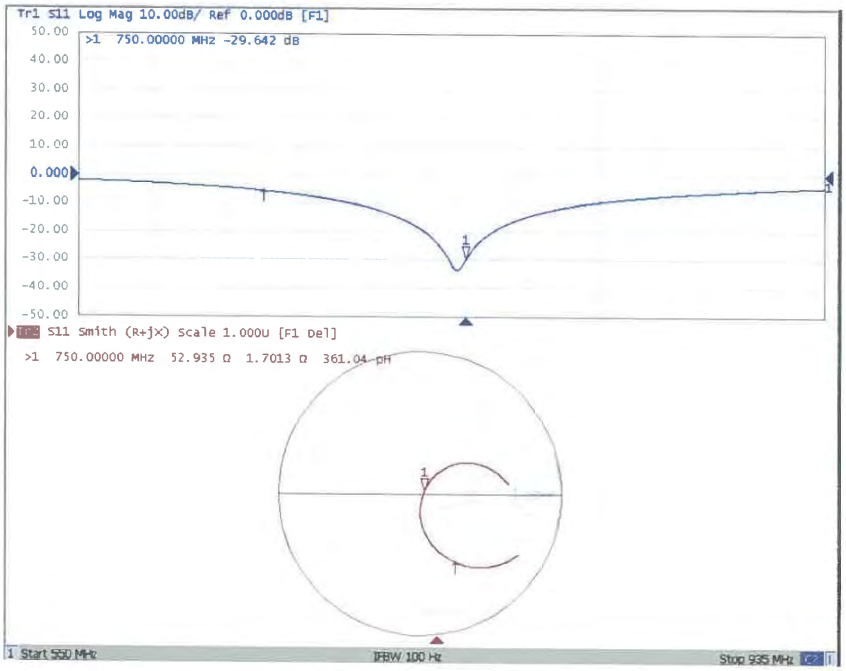
Impedance Measurement Plot for Head TSL



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ST-037_20-183

CALIBRATION CNAS L0570

Client ATL Certificate No: Z20-60366

CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d082

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: September 17, 2020

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	12-May-20 (CTTL, No.J20X02965)	May-21
Power sensor NRP6A	101369	12-May-20 (CTTL, No.J20X02965)	May-21
ReferenceProbe EX3DV4	SN 3617	30-Jan-20(SPEAG,No.EX3-3617_Jan20)	Jan-21
DAE4	SN 771	10-Feb-20(CTTL-SPEAG,No.Z20-60017)	Feb-21
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	25-Feb-20 (CTTL, No.J20X00516)	Feb-21
NetworkAnalyzer E5071C	MY46110673	10-Feb-20 (CTTL, No.J20X00515)	Feb-21

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: September 22, 2020

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Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.9 ± 6 %	0.87 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.49 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.52 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.17 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.8Ω- 2.36jΩ
Return Loss	- 30.7dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.253 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 09.17.2020

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d082

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ = 0.874 S/m; ε_r = 40.86; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.66, 9.66, 9.66) @ 835 MHz; Calibrated: 2020-01-30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn771; Calibrated: 2020-02-10
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 58.90 V/m; Power Drift = 0.04 dB

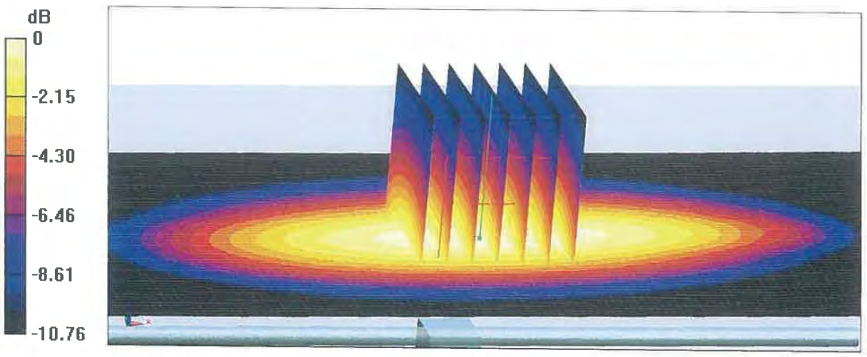
Peak SAR (extrapolated) = 3.48 W/kg

SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.52 W/kg

Smallest distance from peaks to all points 3 dB below = 16.6 mm

Ratio of SAR at M2 to SAR at M1 = 66.7%

Maximum value of SAR (measured) = 3.12 W/kg



0 dB = 3.12 W/kg = 4.94 dBW/kg

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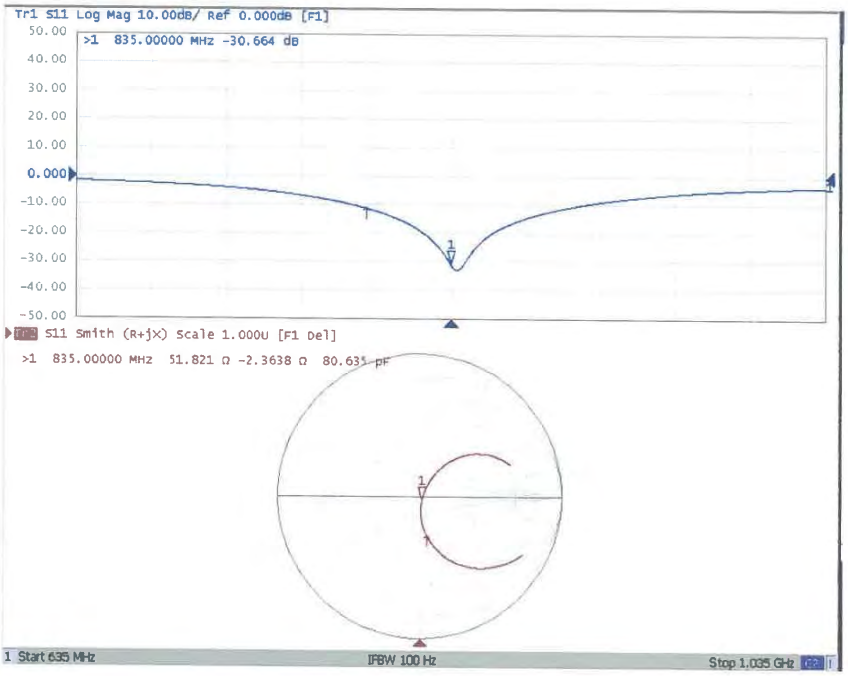
Impedance Measurement Plot for Head TSL



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CALIBRATION
CNAS L0570

Client AUDEN Certificate No: Z21-60099

CALIBRATION CERTIFICATE

Object	D1750V2 - SN: 1111
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	April 14, 2021

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	12-May-20 (CTTL, No.J20X02965)	May-21
Power sensor NRP6A	101369	12-May-20 (CTTL, No.J20X02965)	May-21
ReferenceProbe EX3DV4	SN 7307	29-May-20(SPEAG,No.EX3-7307_May20)	May-21
DAE4	SN 777	08-Jan-21(CTTL-SPEAG,No.Z21-60003)	Jan-22
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: April 19, 2021

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Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.5 ± 6 %	1.39 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**36.4 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	4.78 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**19.0 W/kg ± 18.7 % (k=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.9Ω- 4.12jΩ
Return Loss	- 27.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.125 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

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E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL Date: 04.14.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1111

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1750 MHz; σ = 1.391 S/m; ε_r = 40.52; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7307; ConvF(8.64, 8.64, 8.64) @ 1750 MHz; Calibrated: 2020-05-29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn777; Calibrated: 2021-01-08
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.69 V/m; Power Drift = -0.08 dB

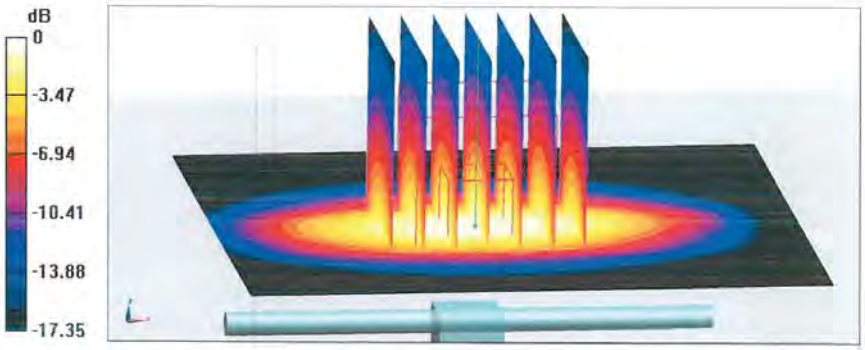
Peak SAR (extrapolated) = 17.3 W/kg

SAR(1 g) = 9.16 W/kg; SAR(10 g) = 4.78 W/kg

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 53.3%

Maximum value of SAR (measured) = 14.4 W/kg



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

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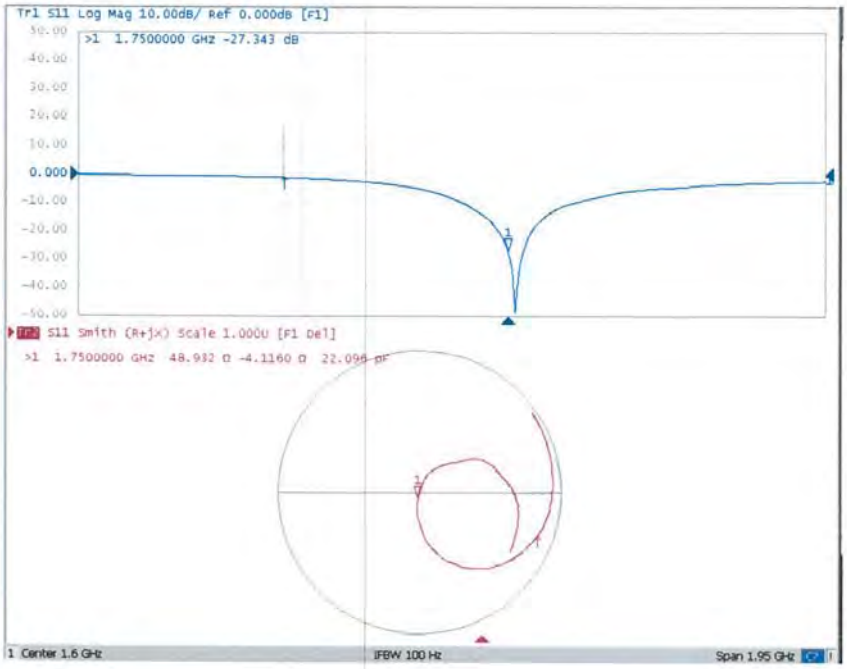
Impedance Measurement Plot for Head TSL



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中国认可 国际互认 校准 CALIBRATION CNAS L0570

Client ATL Certificate No: Z20-60367

CALIBRATION CERTIFICATE

Object D1900V2 - SN: 5d111

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: September 18, 2020

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	12-May-20 (CTTL, No.J20X02965)	May-21
Power sensor NRP6A	101369	12-May-20 (CTTL, No.J20X02965)	May-21
ReferenceProbe EX3DV4	SN 3617	30-Jan-20(SPEAG,No.EX3-3617_Jan20)	Jan-21
DAE4	SN 771	10-Feb-20(CTTL-SPEAG,No.Z20-60017)	Feb-21
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Feb-20 (CTTL, No.J20X00516)	Feb-21
NetworkAnalyzer E5071C	MY46110673	10-Feb-20 (CTTL, No.J20X00515)	Feb-21

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: September 22, 2020

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lossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.9 ± 6 %	1.40 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.0 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**40.1 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**20.7 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.1Ω+ 6.43jΩ
Return Loss	- 23.9dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.066 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

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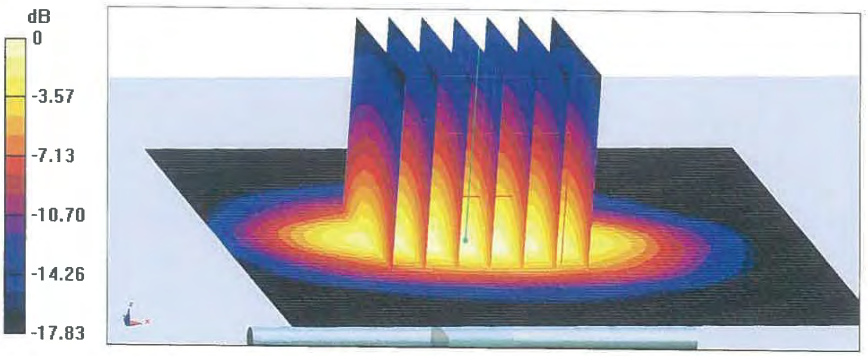
DASY5 Validation Report for Head TSL Date: 09.18.2020
Test Laboratory: CTTL, Beijing, China
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d111
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.395 S/m; ε_r = 39.89; ρ = 1000 kg/m^3
Phantom section: Center Section
DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(8.14, 8.14, 8.14) @ 1900 MHz; Calibrated: 2020-01-30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn771; Calibrated: 2020-02-10
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.0 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 19.2 W/kg
SAR(1 g) = 10 W/kg; SAR(10 g) = 5.17 W/kg
Smallest distance from peaks to all points 3 dB below = 9.8 mm
Ratio of SAR at M2 to SAR at M1 = 52.5%
Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 12.01 dBW/kg

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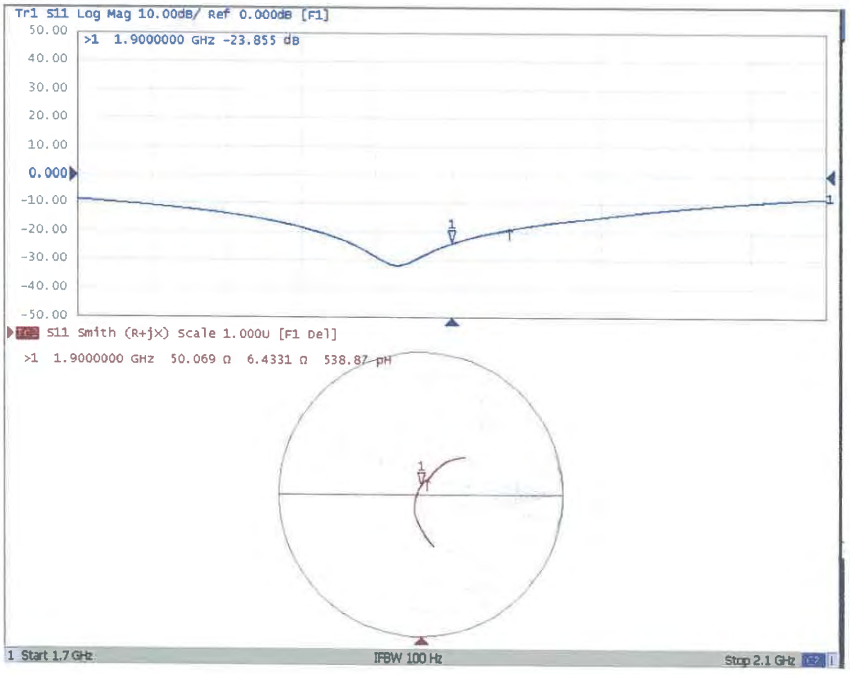
Impedance Measurement Plot for Head TSL



EX-073_21-141

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Accreditation No.: SCS 0108

Client ATL (Auden)

Certificate No: EX3-7647_Apr21

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:7647

Calibration procedure(s): QA CAL-01.v9, QA CAL-14.v6, QA CAL-23.v5, QA CAL-25.v7
Calibration procedure for dosimetric E-field probes

Calibration date: April 15, 2021

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/0292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Reference 20 dB Attenuator	SN: CC2552 (20x)	09-Apr-21 (No. 217-03343)	Apr-22
DAE4	SN: 660	23-Dec-20 (No. DAE4-660_Dec20)	Dec-21
Reference Probe ES3DV2	SN: 3013	30-Dec-20 (No. ES3-3013_Dec20)	Dec-21
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

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

Issued: April 15, 2021

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Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z*: *A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7647

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.57	0.54	0.55	± 10.1 %
DCP (mV)[B]	111.3	107.3	106.3	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√µV	C	D dB	VR mV	Max dev.	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	153.4	± 3.0 %	± 4.7 %
		Y	0.00	0.00	1.00		159.5		
		Z	0.00	0.00	1.00		146.2		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	2.27	64.32	8.96	10.00	60.0	± 3.2 %	± 9.6 %
		Y	1.46	60.55	6.56		60.0		
		Z	1.98	63.09	8.25		60.0		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	1.18	62.22	7.15	6.99	80.0	± 2.4 %	± 9.6 %
		Y	0.82	60.00	5.27		80.0		
		Z	0.89	60.56	6.08		80.0		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.56	60.98	5.83	3.98	95.0	± 1.8 %	± 9.6 %
		Y	10.00	70.00	7.00		95.0		
		Z	0.42	60.00	4.91		95.0		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.32	60.93	5.41	2.22	120.0	± 1.8 %	± 9.6 %
		Y	12.45	151.64	7.95		120.0		
		Z	0.24	60.00	4.35		120.0		
10387-AAA	QPSK Waveform, 1 MHz	X	0.56	62.39	11.45	1.00	150.0	± 3.8 %	± 9.6 %
		Y	0.62	64.20	12.76		150.0		
		Z	0.52	61.74	11.22		150.0		
10388-AAA	QPSK Waveform, 10 MHz	X	1.28	64.49	13.14	0.00	150.0	± 1.2 %	± 9.6 %
		Y	1.41	66.05	13.98		150.0		
		Z	1.25	64.20	13.00		150.0		
10396-AAA	64-QAM Waveform, 100 kHz	X	1.76	64.60	15.54	3.01	150.0	± 0.9 %	± 9.6 %
		Y	1.71	64.45	15.99		150.0		
		Z	1.60	63.25	15.13		150.0		
10399-AAA	64-QAM Waveform, 40 MHz	X	2.78	65.76	14.62	0.00	150.0	± 1.5 %	± 9.6 %
		Y	2.77	65.74	14.80		150.0		
		Z	2.74	65.48	14.56		150.0		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	3.78	65.50	14.86	0.00	150.0	± 2.8 %	± 9.6 %
		Y	3.90	66.23	15.35		150.0		
		Z	3.73	65.32	14.83		150.0		

Note: For details on UID parameters see Appendix

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

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7647

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	10.6	73.34	30.98	6.48	0.00	4.96	0.67	0.00	1.00
Y	9.6	69.36	33.09	4.40	0.00	4.90	0.29	0.00	1.00
Z	10.1	72.12	32.41	4.26	0.00	4.95	0.32	0.00	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-130.1
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Note: Measurement distance from surface can be increased to 3-4 mm for an *Area Scan* job.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7647

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	10.03	10.03	10.03	0.57	0.85	± 12.0 %
835	41.5	0.90	9.76	9.76	9.76	0.52	0.89	± 12.0 %
900	41.5	0.97	9.67	9.67	9.67	0.52	0.80	± 12.0 %
1750	40.1	1.37	9.05	9.05	9.05	0.44	0.86	± 12.0 %
1810	40.0	1.40	8.88	8.88	8.88	0.39	0.86	± 12.0 %
1900	40.0	1.40	8.60	8.60	8.60	0.40	0.86	± 12.0 %
2000	40.0	1.40	8.41	8.41	8.41	0.38	0.86	± 12.0 %
2300	39.5	1.67	8.26	8.26	8.26	0.37	0.90	± 12.0 %
2450	39.2	1.80	8.10	8.10	8.10	0.35	0.90	± 12.0 %
2600	39.0	1.96	8.00	8.00	8.00	0.30	0.90	± 12.0 %
3300	38.2	2.71	7.50	7.50	7.50	0.35	1.30	± 13.1 %
3500	37.9	2.91	7.47	7.47	7.47	0.35	1.30	± 13.1 %
3700	37.7	3.12	7.45	7.45	7.45	0.35	1.30	± 13.1 %
5250	35.9	4.71	5.75	5.75	5.75	0.40	1.80	± 13.1 %
5600	35.5	5.07	5.25	5.25	5.25	0.40	1.80	± 13.1 %
5750	35.4	5.22	5.23	5.23	5.23	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

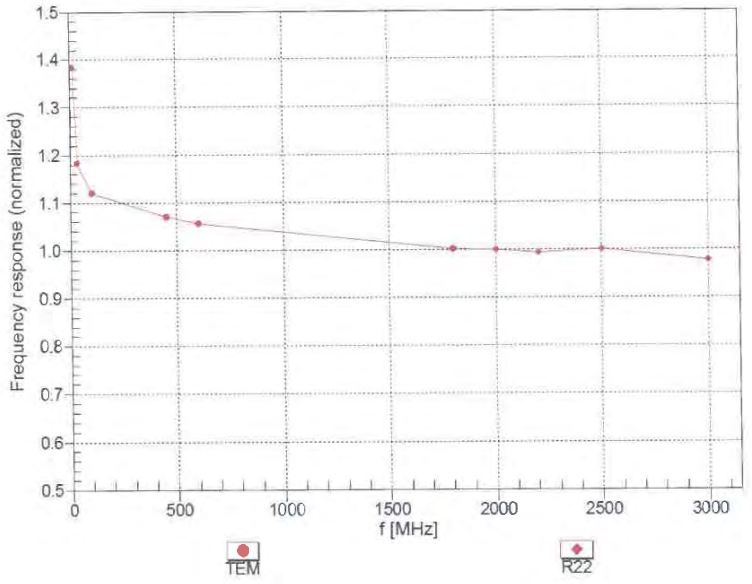
DASY/EASY - Parameters of Probe: EX3DV4 - SN:7647

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
6500	34.5	6.07	5.75	5.75	5.75	0.20	2.50	± 18.6 %

[C] Frequency validity above 6GHz is ± 700 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies 6-10 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz; below ± 2% for frequencies between 3-6 GHz; and below ± 4% for frequencies between 6-10 GHz at any distance larger than half the probe tip diameter from the boundary.

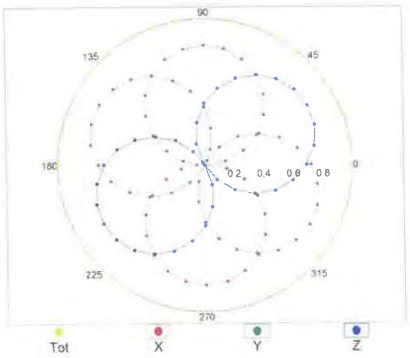
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



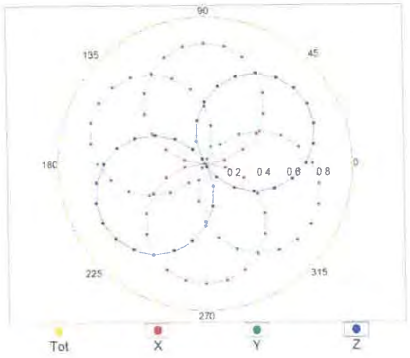
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

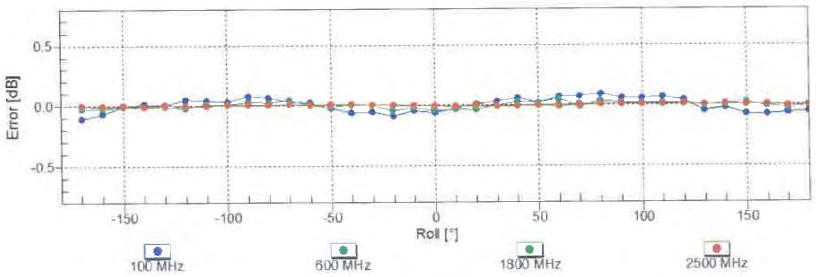
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



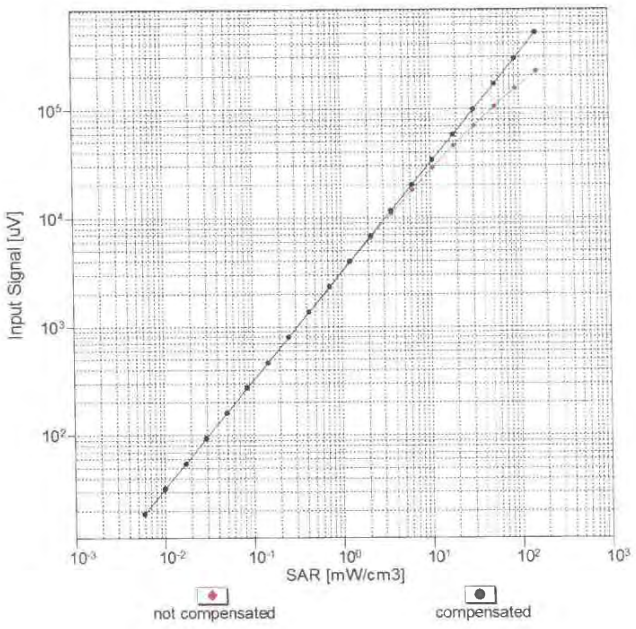
f=1800 MHz,R22

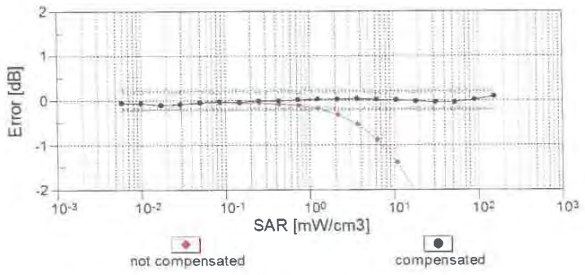




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)

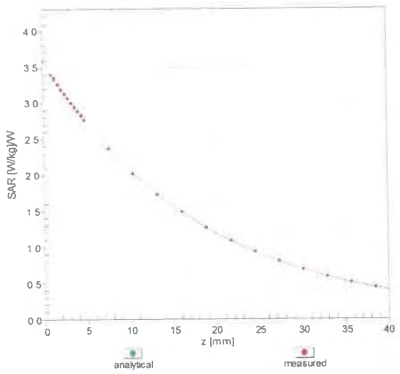




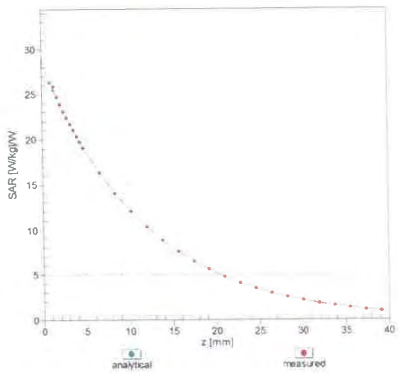
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

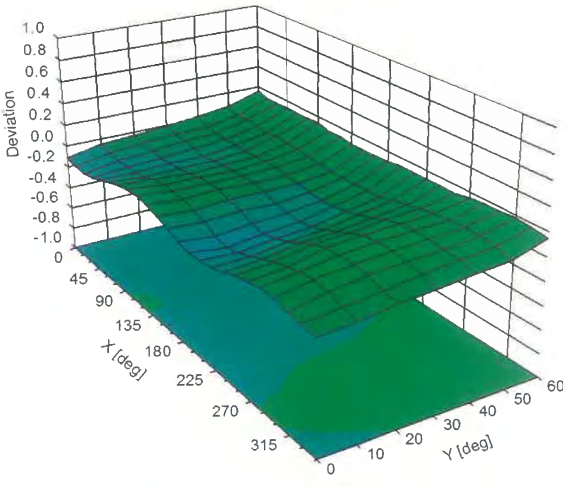


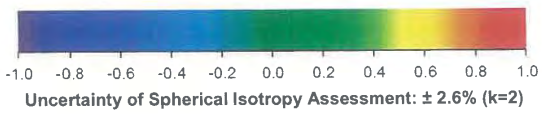
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc^E (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	± 9.6 %
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 %
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	± 9.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6 %
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	± 9.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	± 9.6 %
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	± 9.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	± 9.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	± 9.6 %
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	± 9.6 %
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	± 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	± 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	± 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	± 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	± 9.6 %
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	± 9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	± 9.6 %
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	± 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	± 9.6 %
10062	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	± 9.6 %
10068	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	± 9.6 %
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	± 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	± 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	± 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	± 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	± 9.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	± 9.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	± 9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	± 9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	DAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %

10099	CAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	DAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %
10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAG	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAG	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAG	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAG	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAD	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAD	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	AAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %

10181	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAI	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10187	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	AAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAE	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	AAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAF	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAF	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %
10220	AAF	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAD	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAD	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAD	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	DAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %

10260	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10269	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAD	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAD	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAD	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAG	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	CAG	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	CAG	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	CAG	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	CAG	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	CAG	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %
10300	CAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10301	CAC	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	± 9.6 %
10302	CAB	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3CTRL)	WiMAX	12.57	± 9.6 %
10303	CAB	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	± 9.6 %
10304	CAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	± 9.6 %
10305	CAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	15.24	± 9.6 %
10306	CAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	14.67	± 9.6 %
10307	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WiMAX	14.49	± 9.6 %
10308	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	± 9.6 %
10309	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM,AMC 2x3)	WiMAX	14.58	± 9.6 %
10310	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3	WiMAX	14.57	± 9.6 %
10311	AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	± 9.6 %
10313	AAD	iDEN 1:3	iDEN	10.51	± 9.6 %
10314	AAD	iDEN 1:6	iDEN	13.48	± 9.6 %
10315	AAD	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc dc)	WLAN	1.71	± 9.6 %
10316	AAD	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10317	AAA	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	± 9.6 %
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	± 9.6 %
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	± 9.6 %
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.22	± 9.6 %
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	± 9.6 %
10387	AAA	QPSK Waveform, 1 MHz	Generic	5.10	± 9.6 %
10388	AAA	QPSK Waveform, 10 MHz	Generic	5.22	± 9.6 %
10396	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	± 9.6 %
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	± 9.6 %
10400	AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc dc)	WLAN	8.37	± 9.6 %
10401	AAA	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	± 9.6 %
10402	AAA	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc dc)	WLAN	8.53	± 9.6 %
10403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	± 9.6 %
10404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	± 9.6 %
10406	AAD	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	± 9.6 %

10410	AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	± 9.6 %
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc dc)	WLAN	1.54	± 9.6 %
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10417	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Long)	WLAN	8.14	± 9.6 %
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Short)	WLAN	8.19	± 9.6 %
10422	AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAE	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	± 9.6 %
10425	AAE	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	± 9.6 %
10426	AAE	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %
10427	AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	± 9.6 %
10430	AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10434	AAG	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	± 9.6 %
10435	AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10447	AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	± 9.6 %
10448	AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	± 9.6 %
10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	± 9.6 %
10453	AAC	Validation (Square, 10ms, 1ms)	Test	10.00	± 9.6 %
10456	AAC	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc dc)	WLAN	8.63	± 9.6 %
10457	AAC	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAC	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAC	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAC	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.30	± 9.6 %
10463	AAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10467	AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10468	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10469	AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10470	AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10471	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10472	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10473	AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10474	AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10475	AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10477	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10478	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10480	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	± 9.6 %
10481	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10482	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	± 9.6 %
10483	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	± 9.6 %
10484	AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	± 9.6 %
10485	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.59	± 9.6 %
10486	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	± 9.6 %
10487	AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.60	± 9.6 %

10488	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.70	± 9.6 %
10489	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	± 9.6 %
10493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.37	± 9.6 %
10496	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10497	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10498	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.40	± 9.6 %
10499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.68	± 9.6 %
10500	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10501	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.44	± 9.6 %
10502	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.52	± 9.6 %
10503	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	± 9.6 %
10504	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10505	AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10506	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10507	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.36	± 9.6 %
10508	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.99	± 9.6 %
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.49	± 9.6 %
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.51	± 9.6 %
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.42	± 9.6 %
10514	AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10515	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10516	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc dc)	WLAN	1.57	± 9.6 %
10517	AAF	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10518	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10519	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc dc)	WLAN	8.39	± 9.6 %
10520	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc dc)	WLAN	8.12	± 9.6 %
10521	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc dc)	WLAN	7.97	± 9.6 %
10522	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10523	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc dc)	WLAN	8.08	± 9.6 %
10524	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc dc)	WLAN	8.27	± 9.6 %
10525	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc dc)	WLAN	8.36	± 9.6 %
10526	AAF	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc dc)	WLAN	8.42	± 9.6 %
10527	AAF	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc dc)	WLAN	8.21	± 9.6 %
10528	AAF	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc dc)	WLAN	8.36	± 9.6 %
10529	AAF	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc dc)	WLAN	8.36	± 9.6 %
10531	AAF	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc dc)	WLAN	8.43	± 9.6 %
10532	AAF	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10533	AAE	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc dc)	WLAN	8.38	± 9.6 %
10534	AAE	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc dc)	WLAN	8.45	± 9.6 %
10535	AAE	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc dc)	WLAN	8.45	± 9.6 %
10536	AAF	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc dc)	WLAN	8.32	± 9.6 %
10537	AAF	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc dc)	WLAN	8.44	± 9.6 %
10538	AAF	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc dc)	WLAN	8.54	± 9.6 %
10540	AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc dc)	WLAN	8.39	± 9.6 %
10541	AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc dc)	WLAN	8.46	± 9.6 %
10542	AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc dc)	WLAN	8.65	± 9.6 %
10543	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc dc)	WLAN	8.65	± 9.6 %
10544	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc dc)	WLAN	8.47	± 9.6 %
10545	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %

10546	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc dc)	WLAN	8.35	± 9.6 %
10547	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc dc)	WLAN	8.49	± 9.6 %
10548	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc dc)	WLAN	8.37	± 9.6 %
10550	AAC	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc dc)	WLAN	8.38	± 9.6 %
10551	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc dc)	WLAN	8.50	± 9.6 %
10552	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc dc)	WLAN	8.42	± 9.6 %
10553	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc dc)	WLAN	8.45	± 9.6 %
10554	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc dc)	WLAN	8.48	± 9.6 %
10555	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc dc)	WLAN	8.47	± 9.6 %
10556	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc dc)	WLAN	8.50	± 9.6 %
10557	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc dc)	WLAN	8.52	± 9.6 %
10558	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc dc)	WLAN	8.61	± 9.6 %
10560	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc dc)	WLAN	8.73	± 9.6 %
10561	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc dc)	WLAN	8.56	± 9.6 %
10562	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc dc)	WLAN	8.69	± 9.6 %
10563	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc dc)	WLAN	8.77	± 9.6 %
10564	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc dc)	WLAN	8.25	± 9.6 %
10565	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10566	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc dc)	WLAN	8.13	± 9.6 %
10567	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc dc)	WLAN	8.00	± 9.6 %
10568	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc dc)	WLAN	8.37	± 9.6 %
10569	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc dc)	WLAN	8.10	± 9.6 %
10570	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc dc)	WLAN	8.30	± 9.6 %
10571	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10572	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10573	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10574	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10575	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10576	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10577	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10578	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10579	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10580	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10581	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10582	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10583	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10584	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10585	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10586	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10587	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10588	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10589	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10590	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10591	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc dc)	WLAN	8.63	± 9.6 %
10592	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10593	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc dc)	WLAN	8.64	± 9.6 %
10594	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10595	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc dc)	WLAN	8.74	± 9.6 %
10596	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc dc)	WLAN	8.71	± 9.6 %
10597	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc dc)	WLAN	8.72	± 9.6 %
10598	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc dc)	WLAN	8.50	± 9.6 %
10599	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc dc)	WLAN	8.79	± 9.6 %
10600	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10601	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc dc)	WLAN	8.82	± 9.6 %
10602	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc dc)	WLAN	8.94	± 9.6 %
10603	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc dc)	WLAN	9.03	± 9.6 %

10604	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc dc)	WLAN	8.76	± 9.6 %
10605	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc dc)	WLAN	8.97	± 9.6 %
10606	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10607	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc dc)	WLAN	8.64	± 9.6 %
10608	AAC	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc dc)	WLAN	8.77	± 9.6 %
10609	AAC	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc dc)	WLAN	8.57	± 9.6 %
10610	AAC	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc dc)	WLAN	8.78	± 9.6 %
10611	AAC	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10612	AAC	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10613	AAC	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc dc)	WLAN	8.94	± 9.6 %
10614	AAC	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc dc)	WLAN	8.59	± 9.6 %
10615	AAC	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10616	AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc dc)	WLAN	8.82	± 9.6 %
10617	AAC	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc dc)	WLAN	8.81	± 9.6 %
10618	AAC	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc dc)	WLAN	8.58	± 9.6 %
10619	AAC	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc dc)	WLAN	8.86	± 9.6 %
10620	AAC	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc dc)	WLAN	8.87	± 9.6 %
10621	AAC	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10622	AAC	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc dc)	WLAN	8.68	± 9.6 %
10623	AAC	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10624	AAC	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc dc)	WLAN	8.96	± 9.6 %
10625	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc dc)	WLAN	8.96	± 9.6 %
10626	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10627	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10628	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc dc)	WLAN	8.71	± 9.6 %
10629	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10630	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc dc)	WLAN	8.72	± 9.6 %
10631	AAC	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc dc)	WLAN	8.81	± 9.6 %
10632	AAC	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10633	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc dc)	WLAN	8.83	± 9.6 %
10634	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dc)	WLAN	8.80	± 9.6 %
10635	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10636	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10637	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10638	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc dc)	WLAN	8.86	± 9.6 %
10639	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10640	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dc)	WLAN	8.98	± 9.6 %
10641	AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dc)	WLAN	9.06	± 9.6 %
10642	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dc)	WLAN	9.06	± 9.6 %
10643	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc dc)	WLAN	8.89	± 9.6 %
10644	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc dc)	WLAN	9.05	± 9.6 %
10645	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc dc)	WLAN	9.11	± 9.6 %
10646	AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10647	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10648	AAC	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6 %
10652	AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	± 9.6 %
10653	AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	± 9.6 %
10654	AAC	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	± 9.6 %
10655	AAC	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	± 9.6 %
10658	AAC	Pulse Waveform (200Hz, 10%)	Test	10.00	± 9.6 %
10659	AAC	Pulse Waveform (200Hz, 20%)	Test	6.99	± 9.6 %
10660	AAC	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6 %
10661	AAC	Pulse Waveform (200Hz, 60%)	Test	2.22	± 9.6 %
10662	AAC	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6 %
10670	AAC	Bluetooth Low Energy	Bluetooth	2.19	± 9.6 %
10671	AAD	IEEE 802.11ax (20MHz, MCS0, 90pc dc)	WLAN	9.09	± 9.6 %

10672	AAD	IEEE 802.11ax (20MHz, MCS1, 90pc dc)	WLAN	8.57	± 9.6 %
10673	AAD	IEEE 802.11ax (20MHz, MCS2, 90pc dc)	WLAN	8.78	± 9.6 %
10674	AAD	IEEE 802.11ax (20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10675	AAD	IEEE 802.11ax (20MHz, MCS4, 90pc dc)	WLAN	8.90	± 9.6 %
10676	AAD	IEEE 802.11ax (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10677	AAD	IEEE 802.11ax (20MHz, MCS6, 90pc dc)	WLAN	8.73	± 9.6 %
10678	AAD	IEEE 802.11ax (20MHz, MCS7, 90pc dc)	WLAN	8.78	± 9.6 %
10679	AAD	IEEE 802.11ax (20MHz, MCS8, 90pc dc)	WLAN	8.89	± 9.6 %
10680	AAD	IEEE 802.11ax (20MHz, MCS9, 90pc dc)	WLAN	8.80	± 9.6 %
10681	AAG	IEEE 802.11ax (20MHz, MCS10, 90pc dc)	WLAN	8.62	± 9.6 %
10682	AAF	IEEE 802.11ax (20MHz, MCS11, 90pc dc)	WLAN	8.83	± 9.6 %
10683	AAA	IEEE 802.11ax (20MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10684	AAC	IEEE 802.11ax (20MHz, MCS1, 99pc dc)	WLAN	8.26	± 9.6 %
10685	AAC	IEEE 802.11ax (20MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10686	AAC	IEEE 802.11ax (20MHz, MCS3, 99pc dc)	WLAN	8.28	± 9.6 %
10687	AAE	IEEE 802.11ax (20MHz, MCS4, 99pc dc)	WLAN	8.45	± 9.6 %
10688	AAE	IEEE 802.11ax (20MHz, MCS5, 99pc dc)	WLAN	8.29	± 9.6 %
10689	AAD	IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN	8.55	± 9.6 %
10690	AAE	IEEE 802.11ax (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10691	AAB	IEEE 802.11ax (20MHz, MCS8, 99pc dc)	WLAN	8.25	± 9.6 %
10692	AAA	IEEE 802.11ax (20MHz, MCS9, 99pc dc)	WLAN	8.29	± 9.6 %
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99pc dc)	WLAN	8.25	± 9.6 %
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99pc dc)	WLAN	8.57	± 9.6 %
10695	AAA	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.78	± 9.6 %
10696	AAA	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.91	± 9.6 %
10697	AAA	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.61	± 9.6 %
10698	AAA	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.89	± 9.6 %
10699	AAA	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.82	± 9.6 %
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.70	± 9.6 %
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.69	± 9.6 %
10706	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.66	± 9.6 %
10707	AAC	IEEE 802.11ax (40MHz, MCS0, 99pc dc)	WLAN	8.32	± 9.6 %
10708	AAC	IEEE 802.11ax (40MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10709	AAC	IEEE 802.11ax (40MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10710	AAC	IEEE 802.11ax (40MHz, MCS3, 99pc dc)	WLAN	8.29	± 9.6 %
10711	AAC	IEEE 802.11ax (40MHz, MCS4, 99pc dc)	WLAN	8.39	± 9.6 %
10712	AAC	IEEE 802.11ax (40MHz, MCS5, 99pc dc)	WLAN	8.67	± 9.6 %
10713	AAC	IEEE 802.11ax (40MHz, MCS6, 99pc dc)	WLAN	8.33	± 9.6 %
10714	AAC	IEEE 802.11ax (40MHz, MCS7, 99pc dc)	WLAN	8.26	± 9.6 %
10715	AAC	IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.45	± 9.6 %
10716	AAC	IEEE 802.11ax (40MHz, MCS9, 99pc dc)	WLAN	8.30	± 9.6 %
10717	AAC	IEEE 802.11ax (40MHz, MCS10, 99pc dc)	WLAN	8.48	± 9.6 %
10718	AAC	IEEE 802.11ax (40MHz, MCS11, 99pc dc)	WLAN	8.24	± 9.6 %
10719	AAC	IEEE 802.11ax (80MHz, MCS0, 90pc dc)	WLAN	8.81	± 9.6 %
10720	AAC	IEEE 802.11ax (80MHz, MCS1, 90pc dc)	WLAN	8.87	± 9.6 %
10721	AAC	IEEE 802.11ax (80MHz, MCS2, 90pc dc)	WLAN	8.76	± 9.6 %
10722	AAC	IEEE 802.11ax (80MHz, MCS3, 90pc dc)	WLAN	8.55	± 9.6 %
10723	AAC	IEEE 802.11ax (80MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10724	AAC	IEEE 802.11ax (80MHz, MCS5, 90pc dc)	WLAN	8.90	± 9.6 %
10725	AAC	IEEE 802.11ax (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10726	AAC	IEEE 802.11ax (80MHz, MCS7, 90pc dc)	WLAN	8.72	± 9.6 %
10727	AAC	IEEE 802.11ax (80MHz, MCS8, 90pc dc)	WLAN	8.66	± 9.6 %

10728	AAC	IEEE 802.11ax (80MHz, MCS9, 90pc dc)	WLAN	8.65	± 9.6 %
10729	AAC	IEEE 802.11ax (80MHz, MCS10, 90pc dc)	WLAN	8.64	± 9.6 %
10730	AAC	IEEE 802.11ax (80MHz, MCS11, 90pc dc)	WLAN	8.67	± 9.6 %
10731	AAC	IEEE 802.11ax (80MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10732	AAC	IEEE 802.11ax (80MHz, MCS1, 99pc dc)	WLAN	8.46	± 9.6 %
10733	AAC	IEEE 802.11ax (80MHz, MCS2, 99pc dc)	WLAN	8.40	± 9.6 %
10734	AAC	IEEE 802.11ax (80MHz, MCS3, 99pc dc)	WLAN	8.25	± 9.6 %
10735	AAC	IEEE 802.11ax (80MHz, MCS4, 99pc dc)	WLAN	8.33	± 9.6 %
10736	AAC	IEEE 802.11ax (80MHz, MCS5, 99pc dc)	WLAN	8.27	± 9.6 %
10737	AAC	IEEE 802.11ax (80MHz, MCS6, 99pc dc)	WLAN	8.36	± 9.6 %
10738	AAC	IEEE 802.11ax (80MHz, MCS7, 99pc dc)	WLAN	8.42	± 9.6 %
10739	AAC	IEEE 802.11ax (80MHz, MCS8, 99pc dc)	WLAN	8.29	± 9.6 %
10740	AAC	IEEE 802.11ax (80MHz, MCS9, 99pc dc)	WLAN	8.48	± 9.6 %
10741	AAC	IEEE 802.11ax (80MHz, MCS10, 99pc dc)	WLAN	8.40	± 9.6 %
10742	AAC	IEEE 802.11ax (80MHz, MCS11, 99pc dc)	WLAN	8.43	± 9.6 %
10743	AAC	IEEE 802.11ax (160MHz, MCS0, 90pc dc)	WLAN	8.94	± 9.6 %
10744	AAC	IEEE 802.11ax (160MHz, MCS1, 90pc dc)	WLAN	9.16	± 9.6 %
10745	AAC	IEEE 802.11ax (160MHz, MCS2, 90pc dc)	WLAN	8.93	± 9.6 %
10746	AAC	IEEE 802.11ax (160MHz, MCS3, 90pc dc)	WLAN	9.11	± 9.6 %
10747	AAC	IEEE 802.11ax (160MHz, MCS4, 90pc dc)	WLAN	9.04	± 9.6 %
10748	AAC	IEEE 802.11ax (160MHz, MCS5, 90pc dc)	WLAN	8.93	± 9.6 %
10749	AAC	IEEE 802.11ax (160MHz, MCS6, 90pc dc)	WLAN	8.90	± 9.6 %
10750	AAC	IEEE 802.11ax (160MHz, MCS7, 90pc dc)	WLAN	8.79	± 9.6 %
10751	AAC	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10752	AAC	IEEE 802.11ax (160MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10753	AAC	IEEE 802.11ax (160MHz, MCS10, 90pc dc)	WLAN	9.00	± 9.6 %
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 90pc dc)	WLAN	8.94	± 9.6 %
10755	AAC	IEEE 802.11ax (160MHz, MCS0, 99pc dc)	WLAN	8.64	± 9.6 %
10756	AAC	IEEE 802.11ax (160MHz, MCS1, 99pc dc)	WLAN	8.77	± 9.6 %
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99pc dc)	WLAN	8.77	± 9.6 %
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99pc dc)	WLAN	8.69	± 9.6 %
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99pc dc)	WLAN	8.58	± 9.6 %
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99pc dc)	WLAN	8.49	± 9.6 %
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99pc dc)	WLAN	8.58	± 9.6 %
10762	AAC	IEEE 802.11ax (160MHz, MCS7, 99pc dc)	WLAN	8.49	± 9.6 %
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99pc dc)	WLAN	8.53	± 9.6 %
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99pc dc)	WLAN	8.54	± 9.6 %
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99pc dc)	WLAN	8.54	± 9.6 %
10766	AAC	IEEE 802.11ax (160MHz, MCS11, 99pc dc)	WLAN	8.51	± 9.6 %
10767	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	± 9.6 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10769	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10770	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10771	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10772	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	± 9.6 %
10773	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	± 9.6 %
10774	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10775	AAC	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10776	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10778	AAC	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10780	AAC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10781	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10782	AAC	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10783	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %

10784	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	± 9.6 %
10785	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10786	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10787	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	± 9.6 %
10788	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10789	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10790	AAC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10791	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 9.6 %
10793	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 9.6 %
10794	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10795	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	± 9.6 %
10796	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10797	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10799	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10801	AAC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10802	AAC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 9.6 %
10803	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10805	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10809	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10817	AAD	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10818	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	± 9.6 %
10820	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10821	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10822	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10823	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10824	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10825	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10827	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10830	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	± 9.6 %
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	± 9.6 %
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	± 9.6 %
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	± 9.6 %
10835	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	± 9.6 %
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	± 9.6 %
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10840	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	± 9.6 %
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	± 9.6 %
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	± 9.6 %
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %

10860	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10866	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10868	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	± 9.6 %
10869	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10870	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	± 9.6 %
10871	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 9.6 %
10873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 9.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 9.6 %
10878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 9.6 %
10880	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 9.6 %
10881	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10882	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	± 9.6 %
10883	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	± 9.6 %
10884	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 9.6 %
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10886	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 9.6 %
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 9.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	± 9.6 %
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 9.6 %
10892	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10897	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 9.6 %
10898	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10899	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10900	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10901	AAD	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10902	AAD	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10903	AAD	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10904	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10907	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	± 9.6 %
10908	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10909	AAD	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	± 9.6 %
10910	AAD	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10911	AAD	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10912	AAD	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10914	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	± 9.6 %
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10918	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10919	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10920	AAD	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10921	AAD	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %

10922	AAD	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	± 9.6 %
10923	AAD	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10925	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	± 9.6 %
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10930	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10931	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10932	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10933	AAA	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10934	AAA	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10935	AAA	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10937	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	± 9.6 %
10938	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10939	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	± 9.6 %
10940	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	± 9.6 %
10941	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10942	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10943	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	± 9.6 %
10944	AAB	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	± 9.6 %
10945	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10947	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10948	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10949	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10950	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10951	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	± 9.6 %
10952	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	± 9.6 %
10953	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	± 9.6 %
10954	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	± 9.6 %
10955	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	± 9.6 %
10956	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	± 9.6 %
10957	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	± 9.6 %
10958	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	± 9.6 %
10959	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	± 9.6 %
10960	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	± 9.6 %
10961	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	± 9.6 %
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	± 9.6 %
10963	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10964	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	± 9.6 %
10965	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	± 9.6 %
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10967	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10968	AAB	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	± 9.6 %
10972	AAB	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	± 9.6 %
10973	AAB	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	± 9.6 %
10974	AAB	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.28	± 9.6 %

[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

MR-275_21-003

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Accreditation No.: SCS 0108

Client Auden-KS **Certificate No:** DAE4-1253_Dec20

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BM - SN: 1253
Calibration procedure(s)	QA CAL-06.v30 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	December 16, 2020

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	07-Sep-20 (No:28647)	Sep-21
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Auto DAE Calibration Unit	SE UWS 053 AA 1001	09-Jan-20 (in house check)	In house check: Jan-21
Calibrator Box V2.1	SE UMS 006 AA 1002	09-Jan-20 (in house check)	In house check: Jan-21

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Laboratory Technician	
Approved by:	Sven Kühn	Deputy Manager	i.V.

Issued: December 16, 2020

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Accreditation No.: SCS 0108

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100…+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1…….+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.356 ± 0.02% (k=2)	404.540 ± 0.02% (k=2)	404.466 ± 0.02% (k=2)
Low Range	3.96086 ± 1.50% (k=2)	3.98759 ± 1.50% (k=2)	3.97759 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	353.0 ° ± 1 °

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200034.00	2.90	0.00
Channel X	+ Input	20005.12	-0.09	-0.00
Channel X	- Input	-20004.14	1.09	-0.01
Channel Y	+ Input	200029.40	-2.26	-0.00
Channel Y	+ Input	20003.43	-1.67	-0.01
Channel Y	- Input	-20005.68	-0.28	0.00
Channel Z	+ Input	200029.53	-1.36	-0.00
Channel Z	+ Input	20002.84	-2.24	-0.01
Channel Z	- Input	-20006.49	-1.02	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.19	-0.08	-0.00
Channel X	+ Input	201.48	0.23	0.11
Channel X	- Input	-198.78	0.09	-0.04
Channel Y	+ Input	2001.18	0.04	0.00
Channel Y	+ Input	200.43	-0.64	-0.32
Channel Y	- Input	-199.48	-0.55	0.28
Channel Z	+ Input	2001.63	0.59	0.03
Channel Z	+ Input	199.65	-1.36	-0.68
Channel Z	- Input	-200.08	-1.02	0.51

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-7.42	-8.91
	- 200	9.59	8.14
Channel Y	200	-11.03	-11.34
	- 200	9.30	9.38
Channel Z	200	-13.13	-13.17
	- 200	11.97	11.44

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	-0.02	-4.91
Channel Y	200	6.53	-	1.55
Channel Z	200	8.50	4.53	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15759	16091
Channel Y	16178	15874
Channel Z	16183	16058

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.41	-0.80	1.71	0.38
Channel Y	-0.81	-1.75	-0.21	0.31
Channel Z	-0.60	-1.75	0.45	0.36

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	–0.01	-8	-9

---- END ----