



SAR TEST REPORT

Applicant Xiaomi Communications Co., Ltd.
FCC ID 2AFZZN86G
Product Mobile Phone
Brand Redmi
Model 22120RN86G
Report No. R2209A0817-S1V1
Issue Date December 5, 2022

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **IEEE 1528-2013, ANSI C95.1: 1992, IEEE C95.1: 1991**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Wei Fangying

Fan Guangchang

Prepared by: Wei Fangying

Approved by: Fan Guangchang

TA Technology (Shanghai) Co., Ltd.

Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

Table of Contents

1	Test Laboratory.....	5
1.1	Notes of the Test Report.....	5
1.2	Test Facility.....	5
1.3	Testing Location.....	5
1.4	Laboratory Environment.....	5
2	Statement of Compliance.....	6
3	Description of Equipment Under Test.....	8
4	Test Specification, Methods and Procedures.....	10
5	Operational Conditions during Test.....	11
5.1	Test Positions.....	11
5.1.1	Against Phantom Head.....	11
5.1.2	Body Worn Configuration.....	11
5.1.3	Phablet SAR Test Considerations.....	12
5.2	Measurement Variability.....	13
5.3	Test Configuration.....	14
5.3.1	GSM Test Configuration.....	14
5.3.2	WCDMA Test Configuration.....	14
5.3.3	LTE Test Configuration.....	18
5.3.4	Additional Requirements for TDD LTE Specification.....	19
5.3.5	Wi-Fi Test Configuration.....	21
5.3.6	Bluetooth Test Configuration.....	23
5.3.7	Proximity Sensor Configuration.....	24
5.3.8	Procedures for Determining Proximity Sensor Triggering Distances.....	28
5.3.9	Procedures For Determining Device Tilt Angle Influences to Proximity Sensor Triggering.....	29
5.3.10	SAR Detection Mechanism Specification.....	31
6	SAR Measurements System Configuration.....	32
6.1	SAR Measurement Set-up.....	32
6.2	DASY5 E-field Probe System.....	33
6.3	SAR Measurement Procedure.....	34
7	Main Test Equipment.....	36
8	Tissue Dielectric Parameter Measurements & System Check.....	37
8.1	Tissue Verification.....	37
8.2	System Check.....	39
8.3	SAR System Validation.....	42
9	Normal and Maximum Output Power.....	43
9.1	GSM Mode.....	43
9.2	WCDMA Mode.....	48
9.3	LTE Mode.....	52
9.4	WLAN Mode.....	104
9.5	Bluetooth Mode.....	110



10	Measured and Reported (Scaled) SAR Results	111
10.1	EUT Antenna Locations	111
10.2	Measured SAR Results	112
10.3	Simultaneous Transmission Analysis	131
11	Measurement Uncertainty	134
	ANNEX A: Test Layout	135
	ANNEX B: System Check Results	137
	ANNEX C: Highest Graph Results	155
	ANNEX D: Probe Calibration Certificate	177
	ANNEX E: D835V2 Dipole Calibration Certificate	199
	ANNEX F: D1900V2 Dipole Calibration Certificate	207
	ANNEX G: D2450V2 Dipole Calibration Certificate	215
	ANNEX H: D2600V2 Dipole Calibration Certificate	223
	ANNEX I: D5GHzV2 Dipole Calibration Certificate	229
	ANNEX J: DAE4 Calibration Certificate	243
	ANNEX K: The EUT Appearance	246
	ANNEX L: Test Setup Photos	247
	ANNEX M: Product Change Description	248



Version	Revision description	Issue Date
Rev.0	Initial issue of report.	November 18, 2022
Rev.1	Update data.	December 5, 2022

Note: This revised report (Report No.: R2209A0817-S1V1) supersedes and replaces the previously issued report (Report No.: R2209A0817-S1). Please discard or destroy the previously issued report and dispose of it accordingly.



1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2 Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
 Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
 City: Shanghai
 Post code: 201201
 Country: P. R. China
 Contact: Fan Guangchang
 Telephone: +86-021-50791141/2/3
 Fax: +86-021-50791141/2/3-8000
 Website: <http://www.ta-shanghai.com>
 E-mail: fanguangchang@ta-shanghai.com

1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for the EUT are as follows:

Table 1: Highest Reported SAR

Mode	Highest Reported SAR (W/kg)			
	1g SAR Head	1g SAR Body-worn	1g SAR Body	Product Specific 10-g SAR (Separation 0mm)
GSM 850	1.02	0.58	0.58	NA
GSM 1900	0.56	0.64	0.64	NA
WCDMA Band V	0.97	0.56	0.56	NA
LTE FDD 5	1.08	0.48	0.48	NA
LTE FDD 7	0.78	0.64	0.98	2.05
LTE TDD 38	0.87	0.53	0.85	NA
LTE TDD 41	1.07	0.61	0.99	NA
Wi-Fi (2.4G)	0.50	0.29	0.29	NA
Wi-Fi (5G)	0.53	0.64	0.69	1.77
Bluetooth	0.18	0.13	0.13	NA

Date of Testing: (Original& Variant): October 11, 2022 ~ October 31, 2022

Date of Sample Received: (Original& Variant): October 8, 2022

Note:

- The device is in compliance with SAR for Uncontrolled Environment /General Population exposure limits (1.6 W/kg and 4.0 W/kg) specified in ANSI C95.1: 1992/IEEE C95.1: 1991, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.
- All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

1) According to TCB workshop October, 2014 RF Exposure Procedures Update (Overlapping LTE Bands):

- Low and Upper Antenna SAR for LTE Band 4 (Frequency range 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to similar frequency range, same maximum tune up limit and same channel bandwidth.

The device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits according to the FCC rule § 2.1093, the ANSI C95.1: 1992/IEEE C95.1: 1991, and had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013.



Table 2: Highest Simultaneous Transmission SAR

Exposure Configuration	1g SAR Head	1g SAR Body-worn (Separation 10mm)	1g SAR Hotspot (Separation 10mm)	Product Specific 10-g SAR (Separation 0mm)
Highest Simultaneous Transmission SAR (W/kg)	1.58	1.41	1.50	3.24

Note: The detail for simultaneous transmission consideration is described in chapter 10.3.

22120RN86G (Report No.: R2209A0817-S1V1) is a variant model of 2212ARNC4L (Report No.: R2209A0813-S1V2).

Tested band refer to the following table.

Band	Original	Variant
GSM 850	Pass	Only tested with worst case of Original
GSM 1900	Pass	
WCDMA Band V	Pass	
LTE FDD 5	Pass	
LTE FDD 7	Pass	
LTE TDD 38	Pass	
LTE TDD 41	Pass	
Wi-Fi (2.4G)	Pass	
Wi-Fi (5G)	Pass	
Bluetooth	Pass	

The detailed product change description please refers to the *Difference Declaration Letter*.

3 Description of Equipment Under Test

Client Information

Applicant	Xiaomi Communications Co., Ltd.
Applicant address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer	Xiaomi Communications Co., Ltd.
Manufacturer address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

General Technologies

Application Purpose	Class II Permissive Change	
EUT Stage	Identical Prototype	
Model	22120RN86G	
IMEI	Original (2212ARNC4L)	IMEI 1: 861591060034366 IMEI 2: 861591060034374
	Variant (22120RN86G)	IMEI 1: 863075060009469 IMEI 2: 863075060009477
Hardware Version	P1.1	
Software Version	MIUI 13	
Antenna Type	PIFA Antenna	
Device Class	B	
Wi-Fi Hotspot	Wi-Fi 2.4G Wi-Fi 5G U-NII-1&U-NII-3	
Power Class	GSM 850: 4 GSM 1900: 1 WCDMA Band V: 3 LTE FDD 5/7: 3 LTE TDD 38/41: 3	
Power Level	GSM 850: level 5 GSM 1900: level 0 WCDMA Band V: all up bits LTE FDD 5/7: max power LTE TDD 38/41: max power	
Note: The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.		

**Wireless Technology and Frequency Range**

Wireless Technology		Modulation	Operating mode	Tx (MHz)
GSM	850	Voice(GMSK) GPRS(GMSK) EGPRS(GMSK,8PSK)	<input type="checkbox"/> Multi-slot Class:8-1UP <input type="checkbox"/> Multi-slot Class:10-2UP <input checked="" type="checkbox"/> Multi-slot Class:12-4UP <input type="checkbox"/> Multi-slot Class:33-4UP	824 ~ 849
	1900			1850 ~ 1910
Does this device support DTM (Dual Transfer Mode)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
WCDMA	Band V	QPSK	HSDPA UE Category:4 HSUPA UE Category:5	824 ~ 849
LTE	FDD 5	QPSK, 16QAM, 64QAM	Category 5	824 ~ 849
	FDD 7			2500 ~ 2570
	TDD 38			2570 ~ 2620
	TDD 41			2496 ~ 2690
Does this device support Carrier Aggregation (CA) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Bluetooth	2.4G	Version 5.1 BR/EDR + LE		2402 ~2480
Wi-Fi	2.4G	DSSS, OFDM	802.11b/g/n HT20	2412 ~ 2462
	5G	OFDM	802.11a/n HT20/ HT40/ ac VHT20/ VHT40/ VHT80	5150 ~ 5350 5470 ~ 5850
Does this device support MIMO <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				



4 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE 1528- 2013, ANSI C95.1: 1992, IEEE C95.1: 1991, the following FCC Published RF exposure KDB procedures:

Reference Standards

KDB 248227 D01 802.11Wi-Fi SAR v02r02

KDB 447498 D01 General RF Exposure Guidance v06

KDB 648474 D04 Handset SAR v01r03

KDB 690783 D01 SAR Listings on Grants v01r03

KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04

KDB 865664 D02 RF Exposure Reporting v01r02

KDB 941225 D01 3G SAR Procedures v03r01

KDB 941225 D05 SAR for LTE Devices v02r05

KDB 941225 D06 Hotspot Mode v02r01

5 Operational Conditions during Test

5.1 Test Positions

5.1.1 Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2013 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

5.1.2 Body Worn Configuration

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

5.1.3 Phablet SAR Test Considerations

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

- a) The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
- b) The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for product specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions. The 1-g SAR at 5 mm for UMPC mini-tablets is not required. When hotspot mode applies, product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold. The normal tablet procedures in KDB Publication 616217 are required when the overall diagonal dimension of the device is > 20.0 cm. Hotspot mode SAR is not required when normal tablet procedures are applied. Product specific 10-g SAR is also not required for the front (top) surface of larger form factor full size tablets. The more conservative normal tablet SAR results can be used to support phablet mode product specific 10-g SAR.
- c) The simultaneous transmission operating configurations applicable to voice and data transmissions for both phone and mini-tablet modes must be taken into consideration separately for 1-g and 10-g SAR to determine the simultaneous transmission SAR test exclusion and measurement requirements for the relevant wireless modes and exposure conditions.

5.2 Measurement Variability

Per FCC KDB Publication 865664 D01, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

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

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

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

5.3 Test Configuration

5.3.1 GSM Test Configuration

According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot. The allowed power reduction in the multi-slot configuration is as following:

Output power of reductions:

Table 3: The allowed power reduction in the multi-slot configuration

Number of timeslots in uplink assignment	Permissible nominal reduction of maximum output power (dB)
1	0
2	0 to 3,0
3	1,8 to 4,8
4	3,0 to 6,0

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. GSM voice and GPRS data use GMSK, which is a constant amplitude modulation with minimal peak to average power difference within the time-slot burst. For EDGE, GMSK is used for MCS 1 – MCS 4 and 8-PSK is used for MCS 5 – MCS 9; where 8-PSK has an inherently higher peak-to-average power ratio. The GMSK and 8-PSK EDGE configurations are considered separately for SAR compliance. The GMSK EDGE configurations are grouped with GPRS and considered with respect to time-averaged maximum output power to determine compliance. The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode.

5.3.2 WCDMA Test Configuration

5.3.2.1 3G SAR Test Reduction Procedure

The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations modes according to output power, exposure conditions and device operating capabilities. Maximum output power is verified by applying the applicable versions of 3GPP TS 34.121.

5.3.2.2 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". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest SAR configuration in 12.2 kbps RMC for head exposure.

5.3.2.3 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 EUT with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the EUT, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC

5.3.2.4 Release 5 HSDPA Test Configuration

The 3G SAR test reduction procedure is applied to HSDPA body-worn accessory configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSDPA using the HSDPA body SAR procedures in the “Release 5 HSDPA Data Devices” section of this document, for the highest SAR body-worn accessory exposure configuration in 12.2 kbps RMC. EUT with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

HSDPA should be configured according to the UE category of a test device. The number of HSDSCH/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 (β_c , β_d), and HS-DPCCH power offset parameters (Δ_{ACK} , Δ_{NACK} , Δ_{CQI}) 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.

Table 4: Subtests for WCDMA Release 5 HSDPA

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

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
 Note 2: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$.
 Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TFC1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

5.3.2.5 Release 6 HSUPA Test Configuration

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body-worn accessory configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures in the “Release 6 HSPA Data Devices” section of this document, for the highest body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When VOIP is applicable for next to the ear head exposure in HSPA, the 3G SAR test reduction procedure is applied to HSPA with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body-worn accessory measurements is tested for next to the ear head exposure.

Due to inner loop power control requirements in HSPA, a communication test set is required for output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA are configured according to the β values indicated in Table 2 and other applicable procedures described in the ‘WCDMA EUT’ and ‘Release 5 HSDPA Data Devices’ sections of this document

Table 5: Sub-Test 5 Setup for Release 6 HSUPA

Sub-set	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.

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

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

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Figure 5.1g.

Note 6: β_{ed} cannot be set directly; it is set by Absolute Grant Value.

Table 6: HSUPA UE Category

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCHTTI (ms)	Minimum Spreading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592



4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	2	2 SF2 & 2	11484	5.76
	4	4	10	SF4	20000	2.00
7 (No DPDCH)	4	8	2	2 SF2 & 2 SF4	22996	?
	4	4	10		20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.

UE Categories 1 to 6 supports QPSK only. UE Category 7 supports QPSK and 16QAM. (TS25.306-7.3.0)

5.3.2.6 HSPA and DC-HSDPA Test Configuration

SAR test exclusion may apply to 3GPP Rel. 6 HSPA and Rel. 8 DC-HSDPA. When SAR measurement is required for HSPA or DC-HSDPA, a KDB inquiry is required to confirm that the wireless mode configurations in the test setup have remained stable throughout the SAR measurements. Without prior KDB confirmation to determine the SAR results are acceptable, a PAG is required for equipment approval.

SAR test exclusion for HSPA and DC-HSDPA is determined according to the following:

1) The HSPA procedures are applied to configure 3GPP Rel. 6 HSPA devices in the required sub-test mode(s) to determine SAR test exclusion.

2) SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

3) Regardless of whether a PBA is required, the following information must be verified and included in the SAR report for devices supporting HSPA or DC-HSDPA:

a) The output power measurement results and applicable release version(s) of 3GPP TS 34.121.

Power measurement difficulties due to test equipment setup or availability must be resolved between the grantee and its test lab.

b) The power measurement results are in agreement with the individual device implementation and specifications. When Enhanced MPR (E-MPR) applies, the normal MPR targets may be modified according to the Cubic Metric (CM) measured by the device, which must be taken into consideration.

c) The UE category, operating parameters, such as the β and Δ values used to configure the device for testing, power setback procedures described in 3GPP TS 34.121 for the power measurements, and HSPA channel conditions (active and stable) for the entire duration of the measurement according to the required E-TFCI and AG index values.

4) When SAR measurement is required, the test configurations, procedures and power measurement results must be clearly described to confirm that the required test parameters are used, including E-TFCI and AG index stability and output power conditions.

Table 7: HS-DSCH UE Category

HS-DSCH category	Maximum number of HS-DSCH codes received	Minimum inter-TTI interval	Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI NOTE 1	Total number of soft channel bits	Supported modulations without MIMO operation or dual cell operation	Supported modulations with MIMO operation and without dual cell operation	Supported modulations with dual cell operation	
Category 1	5	3	7298	19200	QPSK, 16QAM	Not applicable (MIMO not supported)	Not applicable (dual cell operation not supported)	
Category 2	5	3	7298	28800				
Category 3	5	2	7298	28800				
Category 4	5	2	7298	38400				
Category 5	5	1	7298	57600				
Category 6	5	1	7298	67200				
Category 7	10	1	14411	115200				
Category 8	10	1	14411	134400				
Category 9	15	1	20251	172800				
Category 10	15	1	27952	172800				
Category 11	5	2	3630	14400				QPSK
Category 12	5	1	3630	28800				QPSK, 16QAM, 64QAM
Category 13	15	1	35280	259200				QPSK, 16QAM, 64QAM
Category 14	15	1	42192	259200				QPSK, 16QAM, 64QAM
Category 15	15	1	23370	345600	QPSK, 16QAM			
Category 16	15	1	27952	345600	QPSK, 16QAM			
Category 17 NOTE 2	15	1	35280	259200	QPSK, 16QAM, 64QAM	-		
			23370	345600	-	QPSK, 16QAM		
Category 18 NOTE 3	15	1	42192	259200	QPSK, 16QAM, 64QAM	-		
			27952	345600	-	QPSK, 16QAM		
Category 19	15	1	35280	518400	QPSK, 16QAM, 64QAM			
Category 20	15	1	42192	518400	QPSK, 16QAM, 64QAM			
Category 21	15	1	23370	345600	-	-	QPSK, 16QAM	
Category 22	15	1	27952	345600				
Category 23	15	1	35280	518400				
Category 24	15	1	42192	518400				

5.3.3 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR. The R&S CMW500 was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

A) Spectrum Plots for RB Configurations

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

B) MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to

3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

C) A-MPR

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

D) Largest Channel Bandwidth Standalone SAR Test Requirements

1) QPSK with 1 RB allocation

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. 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. 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.

2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

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 in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

E) Other Channel Bandwidth Standalone SAR Test Requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2}$ 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.

5.3.4 Additional Requirements for TDD LTE Specification

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

TDD LTE Band supports 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table: Uplink-downlink configurations for uplink-downlink configurations and Table: Configuration of special subframe (lengths of DwPTS/GP/UpPTS) for Special subframe configurations.

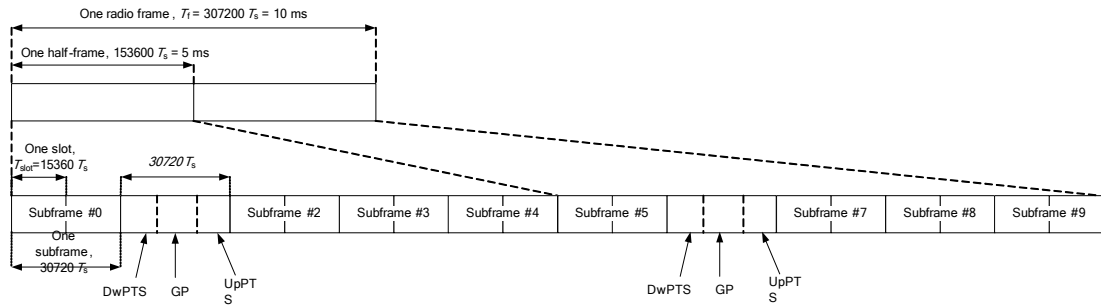


Figure 1: Frame structure type 2

Table 8: Configuration of Special Subframe (Lengths of DwPTS/GP/UpPTS)

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

Table 9: Uplink-Downlink Configurations

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

According to Figure 1, one radio frame is configured by 10 subframes, which consist of Uplink-subframe, Downlink-subframe and Special subframe. For TDD-LTE, the Duty Cycle should be calculated on Uplink-subframes and Special subframes, due to Special subframe containing both Uplink transmissions. So for one radio frame, Duty Cycle can be calculated with formula as below. The count of Uplink subframes are according to Table: Uplink-downlink configurations:

$$\text{Duty cycle} = (30720T_s \cdot \text{Ups} + \text{Uplink Component} \cdot \text{Specials}) / (307200T_s)$$

About the uplink component of Special subframes, we can figure out by Table: Configuration of special subframe (lengths of DwPTS/GP/UpPTS):

$$\text{Uplink Component} = \text{UpPTS}$$

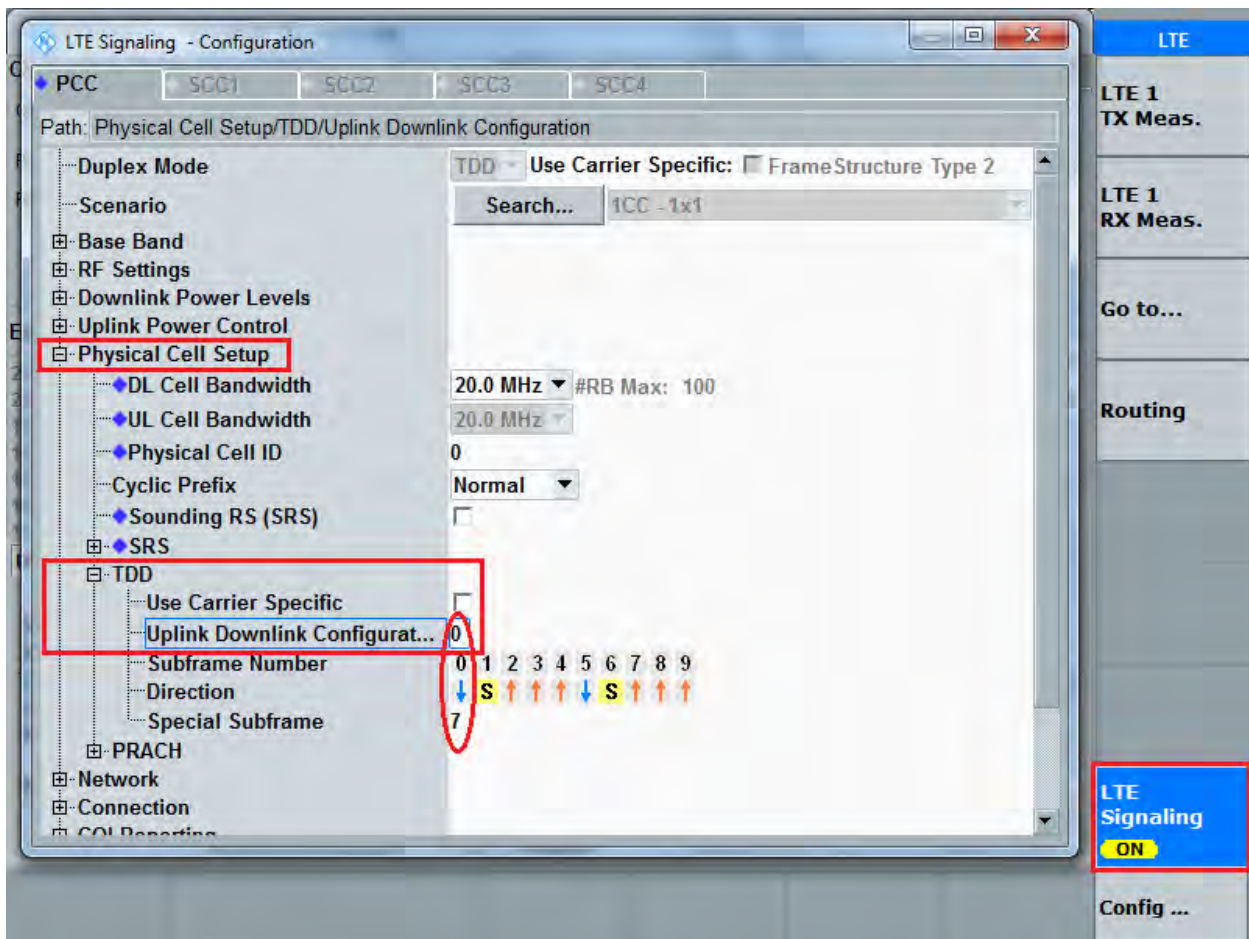
In conclusion, for the TDD LTE Band, Duty Cycle can be calculated with formula as below. All these sets are ok when we test, or we can set as below.

$$\text{Duty cycle} = \frac{[(30720Ts * \text{Ups}) + \text{UpPTS} * \text{Specials}]}{(30720Ts)}$$

And we can get different Duty cycles under different configurations:

Uplink-downlink configuration	Subframe number			Configuration of special subframe							
				Normal cyclic prefix in downlink				Extended cyclic prefix in downlink			
	D	S	U	Normal cyclic prefix in uplink		Extended cyclic prefix in uplink		Normal cyclic prefix in uplink		Extended cyclic prefix in uplink	
				configuration 0~4	configuration 5~9	configuration 0~4	configuration 5~9	configuration 0~3	configuration 4~7	configuration 0~3	configuration 4~7
0	2	2	6	61.43%	62.85%	61.67%	63.33%	61.43%	62.85%	61.67%	63.33%
1	4	2	4	41.43%	42.85%	41.67%	43.33%	41.43%	42.85%	41.67%	43.33%
2	6	2	2	21.43%	22.85%	21.67%	23.33%	21.43%	22.85%	21.67%	23.33%
3	6	1	3	30.71%	31.43%	30.83%	31.67%	30.71%	31.43%	30.83%	31.67%
4	7	1	2	20.71%	21.43%	20.83%	21.67%	20.71%	21.43%	20.83%	21.67%
5	8	1	1	10.71%	11.43%	10.83%	11.67%	10.71%	11.43%	10.83%	11.67%
6	3	2	5	51.43%	52.85%	51.67%	53.33%	51.43%	52.85%	51.67%	53.33%

SAR test Plan: For TDD LTE, SAR should be tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7 for Frame structure type



5.3.5 Wi-Fi Test Configuration

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for

certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; These are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the *initial test position(s)* by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The *initial test position(s)* is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the *reported SAR* for the *initial test position* is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the *initial test position* to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the *reported SAR* is ≤ 0.8 W/kg or all required test positions are tested.
 - ✧ For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
 - ✧ When it is unclear, all equivalent conditions must be tested.
- For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported SAR* is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported SAR* is ≤ 1.2 W/kg or all required test channels are considered.
 - ✧ The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.

To determine the initial test position, Area Scans were performed to determine the position with the Maximum Value of SAR (measured). The position that produced the highest Maximum Value of SAR is considered the worst case position; thus used as the initial test position.

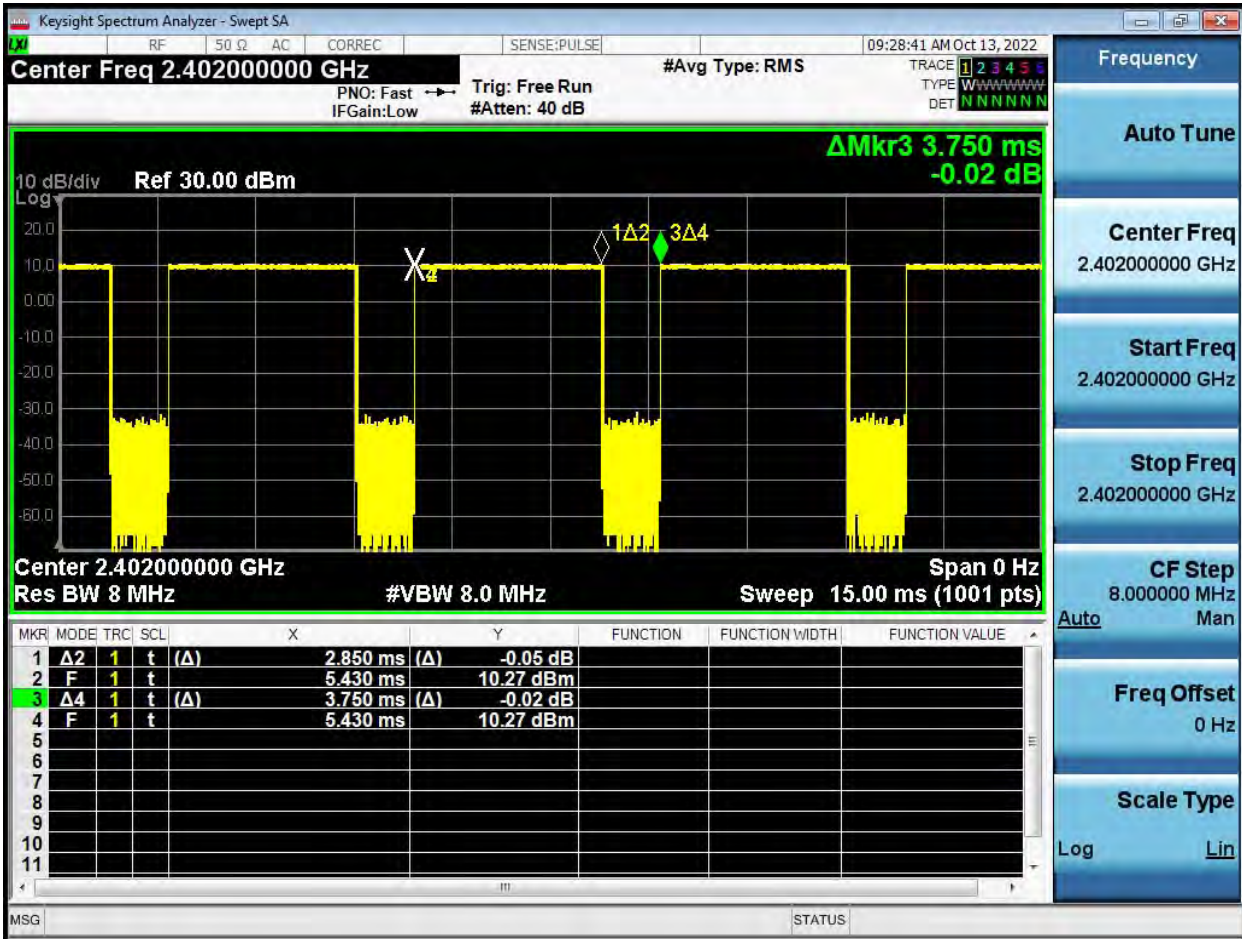
A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.



5.3.6 Bluetooth Test Configuration

For Bluetooth SAR testing, Bluetooth engineering testing software installed on the EUT can provide continuous transmitting RF signal with maximum output power. And the CBT control the EUT operating with hopping off and data rate set for DH5.

The SAR measurement takes full account of the Bluetooth duty cycle and is reflected in the report, and the duty factor of the device is as follow:



Note: Duty factor= Ton (ms)/ T(on+off) (ms)=2.850/3.750*100%=76%

5.3.7 Proximity Sensor Configuration

Due to the operating configurations and exposure conditions required by the device, the proximity sensor is used to indicate when the device is held close to a user's body exposure condition. It utilizes the proximity sensor to reduce the output power in specific wireless and operating modes of Low Antenna and Upper Antenna to ensure SAR compliance. It is also set an output power leveled to the lowest one to make sure that in any case of SAR sensor hardware failure, the SAR requirements can still be satisfied.

The following tables summarize the key power reduction information for proximity sensor. The test procedures be applied to determine proximity sensor triggering distances, and sensor coverage for normal and tilt positions. To ensure all production units are compliant, it is generally necessary to reduce the triggering distance determined from the triggering tests by 1 mm, or more if it is necessary, and use the smallest distance for movements to and from the phantom, minus 1 mm, as the sensor triggering distance for determining the SAR measurement distance.

Low Antenna				
Band	Test Position	Sensor Trigger Distance Range (DUT to Phantom)	Power Reduction Amount(dB)	Power Level
GSM 850	Back Side	0mm≤Distance≤17mm	0	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	0	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	/	0	DSI-2
	Bottom Edge	0mm≤Distance≤17mm	0	DSI-4
17mm<Distance		0	DSI-2	
GSM 1900	Back Side	0mm≤Distance≤17mm	2.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	2.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	/	0	DSI-2
	Bottom Edge	0mm≤Distance≤17mm	2.5	DSI-4
17mm<Distance		0	DSI-2	
WCDMA B5	Back Side	0mm≤Distance≤17mm	0.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	0.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	/	0	DSI-2
	Bottom Edge	0mm≤Distance≤17mm	0.5	DSI-4



		17mm<Distance	0	DSI-2
LTE B5	Back Side	0mm≤Distance≤17mm	0.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	0.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	/	0	DSI-2
	Bottom Edge	0mm≤Distance≤17mm	0.5	DSI-4
17mm<Distance		0	DSI-2	
LTE B7	Back Side	0mm≤Distance≤17mm	5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	/	0	DSI-2
	Bottom Edge	0mm≤Distance≤17mm	5	DSI-4
17mm<Distance		0	DSI-2	
LTE B38	Back Side	0mm≤Distance≤17mm	2.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	2.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	/	0	DSI-2
	Bottom Edge	0mm≤Distance≤17mm	2.5	DSI-4
17mm<Distance		0	DSI-2	
LTE B41	Back Side	0mm≤Distance≤17mm	2.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	2.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	/	0	DSI-2
	Bottom Edge	0mm≤Distance≤17mm	2.5	DSI-4
17mm<Distance		0	DSI-2	



Upper Antenna				
Band	Test Position	Sensor Trigger Distance Range (DUT to Phantom)	Power Reduction Amount(dB)	Power Level
GSM 850	Back Side	0mm≤Distance≤17mm	0.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	0.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	0mm≤Distance≤17mm	0.5	DSI-4
		17mm<Distance	0	DSI-2
Bottom Edge	/	0	DSI-2	
GSM 1900	Back Side	0mm≤Distance≤17mm	5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	0mm≤Distance≤17mm	5	DSI-4
		17mm<Distance	0	DSI-2
Bottom Edge	/	0	DSI-2	
WCDMA B5	Back Side	0mm≤Distance≤17mm	0.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	0.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	0mm≤Distance≤17mm	0.5	DSI-4
		17mm<Distance	0	DSI-2
Bottom Edge	/	0	DSI-2	
LTE B5	Back Side	0mm≤Distance≤17mm	1.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	1.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	0mm≤Distance≤17mm	1.5	DSI-4
		17mm<Distance	0	DSI-2
Bottom Edge	/	0	DSI-2	
LTE B7	Back Side	0mm≤Distance≤17mm	1.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	1.5	DSI-4



		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	0mm≤Distance≤17mm	1.5	DSI-4
		17mm<Distance	0	DSI-2
	Bottom Edge	/	0	DSI-2
LTE B38	Back Side	0mm≤Distance≤17mm	0.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	0.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	0mm≤Distance≤17mm	0.5	DSI-4
		17mm<Distance	0	DSI-2
Bottom Edge	/	0	DSI-2	
LTE B41	Back Side	0mm≤Distance≤17mm	1.5	DSI-4
		17mm<Distance	0	DSI-2
	Front Side	0mm≤Distance≤10mm	1.5	DSI-4
		10mm<Distance	0	DSI-2
	Left Edge	/	0	DSI-2
	Right Edge	/	0	DSI-2
	Top Edge	0mm≤Distance≤17mm	1.5	DSI-4
		17mm<Distance	0	DSI-2
Bottom Edge	/	0	DSI-2	

Note:

To ensure all production units are compliant, the smallest separation distance determined by the sensor triggering and sensor coverage for normal and tilt positions for all usage conditions and applicable sides, minus 1 mm, must be used as the test separation distance for additional SAR testing of each higher power stage.

For the other sides or other frequency bands of the device, SAR is still tested at the maximum full power level with sensor off

5.3.8 Procedures for Determining Proximity Sensor Triggering Distances

The device was tested by the test lab to determine the proximity sensor triggering distances for the backside, top side and bottom edge of the device. To ensure all production units are compliant, the smallest separation distance determined by the sensor triggering minus 1 mm, must be used as the test separation distance for SAR testing.

The Proximity sensor triggering distance measurement method are as below:



Picture : Proximity Sensor Triggering Distances Assessment(Back/Front Side) Picture : Proximity Sensor Triggering Distances Assessment(Top/Bottom Edge)

Table: Summary of Trigger Distances for Low Antenna

Band	Trigger Distance-Back Side		Trigger Distance-Front Side		Trigger Distance-Bottom Edge	
	Moving Toward Phantom	Moving Away from Phantom	Moving Toward Phantom	Moving Away from Phantom	Moving Toward Phantom	Moving Away from Phantom
GSM 850	17	17	10	10	17	17
GSM 1900	17	17	10	10	17	17
WCDMA B5	17	17	10	10	17	17
LTE B5	17	17	10	10	17	17
LTE B7	17	17	10	10	17	17
LTE B38	17	17	10	10	17	17
LTE B41	17	17	10	10	17	17

Table: Summary of Trigger Distances for Upper Antenna

Band	Trigger Distance-Back Side		Trigger Distance-Front Side		Trigger Distance-Top Edge	
	Moving Toward Phantom	Moving Away from Phantom	Moving Toward Phantom	Moving Away from Phantom	Moving Toward Phantom	Moving Away from Phantom
GSM 850	17	17	10	10	17	17
GSM 1900	17	17	10	10	17	17
WCDMA B5	17	17	10	10	17	17
LTE B5	17	17	10	10	17	17
LTE B7	17	17	10	10	17	17
LTE B38	17	17	10	10	17	17
LTE B41	17	17	10	10	17	17

Conclusion: It can be ensured that the proximity sensor can be valid triggered for the body exposure condition(GSM 850/1900, WCDMA Band 5, LTE Band 5/7/38/41 with Low Antenna;
GSM 850/1900, WCDMA Band 5, LTE Band 5/7/38/41 with Upper Antenna)



The Detailed Conducted Power Measurement Data to Determine the Triggering Distances is as Below

Table: Full Power and Reduced Power (Moving Toward Phantom)

Position	Ant	Band	Power Reduction Status(dBm)																																				
			37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Back Side	Low Antenna	GSM 850	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	
Back Side	Low Antenna	GSM 1900	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06
Back Side	Low Antenna	WCDMA R5	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16	23.16
Back Side	Low Antenna	LTE B5	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69
Back Side	Low Antenna	LTE B7	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39
Back Side	Low Antenna	LTE B38	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Back Side	Low Antenna	LTE B41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41	23.41

Table: Full Power and Reduced Power (Moving Away from Phantom)

Position	Ant	Band	Power Reduction Status(dBm)																																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
Back Side	Low Antenna	GSM 850	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	29.39	
Back Side	Low Antenna	GSM 1900	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	29.06	
Back Side	Low Antenna	WCDMA R5	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	23.17	
Back Side	Low Antenna	LTE B5	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	
Back Side	Low Antenna	LTE B7	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39	23.39
Back Side	Low Antenna	LTE B38	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	
Back Side	Low Antenna	LTE B41	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	

5.3.9 Procedures For Determining Device Tilt Angle Influences to Proximity Sensor Triggering

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Bottom Edge and Top Edge parallel to the base of the flat phantom for each band.

The EUT was rotated about Bottom Edge and Top Edge for angles up to +/- 45°. If the output power

increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to +/- 45°. The proximity sensor triggering tilt measurement method are as below:

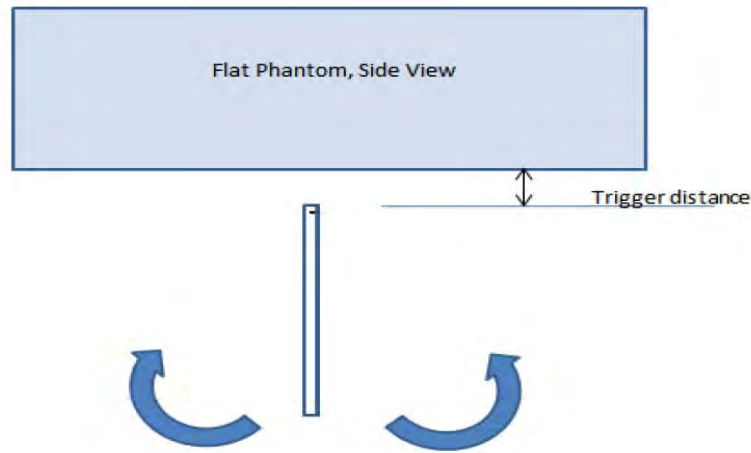


Table: Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Bottom/Top Edge)

Band (MHz)	Position	Minimum Trigger Distance at which Power Reduction was Maintained over ±45°	Power Reduction Status										
			-45°	-35°	-25°	-15°	-5°	0°	5°	15°	25°	35°	45°
GSM 850	Bottom Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
GSM 1900	Bottom Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
WCDMA B5	Bottom Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
LTE B5	Bottom Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
LTE B7	Bottom Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
LTE B38	Bottom Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
LTE B41	Bottom Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
GSM 850	Top Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
GSM 1900	Top Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
WCDMA B5	Top Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
LTE B5	Top Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
LTE B7	Top Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
LTE B38	Top Edge	17mm	on	on	on	on	on	on	on	on	on	on	on
LTE B41	Top Edge	17mm	on	on	on	on	on	on	on	on	on	on	on

Conclusion: It can be ensured that the proximity sensor can be valid triggered for the DUT tilt coverage exposure condition.



5.3.10 SAR Detection Mechanism Specification

This device support the receiver and sensor detection mechanism, the main purpose is to minimize triggering associated with power reduction scenarios and provide enhanced user experience.

More details information followings:

Low Antenna			Power Reduction Level Amount (dB)							
Power Reduction Scenario	Power Level	Receiver/Sensor Mode	GSM850	GSM1900	WCDMA B5	LTE B5	LTE B7	LTE B38	LTE B41	
Full power	Full power	Receiver off+Sensor off	33.50	31.00	25.00	25.00	25.00	25.00	25.00	
Standalone	DSI1	Receiver on	0.00	1.00	0.50	0.50	0.00	2.50	0.50	
	DSI2	Receiver off+Sensor off	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	DSI4	Receiver off+Sensor on	0.00	2.50	0.50	0.50	5.00	0.50	2.50	
Simultaneous	Wi-Fi on	DSI1	Receiver on	0.00	1.00	0.50	0.50	0.00	2.50	0.50
		DSI2	Receiver off+Sensor off	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		DSI4	Receiver off+Sensor on	0.00	2.50	0.50	0.50	5.00	0.50	2.50

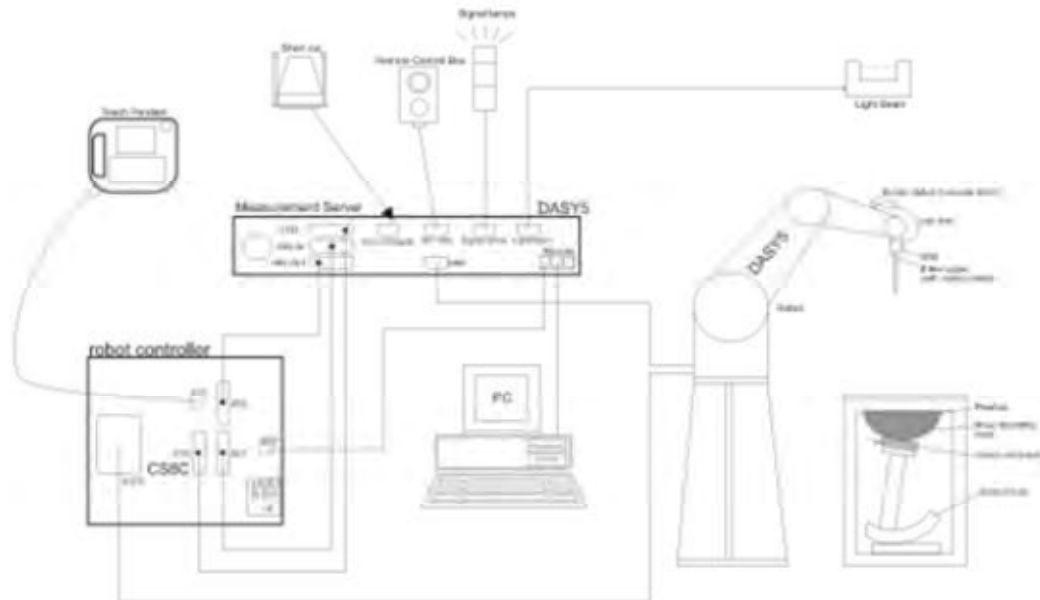
Upper Antenna			Power Reduction Level Amount (dB)							
Power Reduction Scenario	Power Level	Receiver/Sensor Mode	GSM850	GSM1900	WCDMA B5	LTE B5	LTE B7	LTE B38	LTE B41	
Full power	Full power	Receiver off+Sensor off	33.50	31.00	25.00	25.00	25.00	25.00	25.00	
Standalone	DSI1	Receiver on	0.00	1.50	1.50	0.50	4.00	1.00	1.00	
	DSI2	Receiver off+Sensor off	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	DSI4	Receiver off+Sensor on	0.50	5.00	0.50	1.50	1.50	0.50	1.50	
Simultaneous	Wi-Fi on	DSI1	Receiver on	0.00	1.50	1.50	0.50	4.00	1.00	1.00
		DSI2	Receiver off+Sensor off	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		DSI4	Receiver off+Sensor on	0.50	5.00	0.50	1.50	1.50	0.50	1.50

Wi-Fi Antenna		Power Reduction Level Amount (dBm)								
Power Reduction Scenario	Receiver Mode	WiFi 2.4G 11b	WiFi 2.4G 11g	WiFi 2.4G 11n HT20	WiFi 5G 11a	WiFi 5G 11n HT20	WiFi 5G 11n HT40	WiFi 5G 802.11ac-VHT20	WiFi 5G 802.11ac-VHT40	WiFi 5G 802.11ac-VHT80
Full power	off	18.50	17.50	17.50	16.50	15.50	13.50	13.50	13.50	13.50
	on	2.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00
Standalone	off	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	on	2.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00
Simultaneous with 2G&3G&4G	on	2.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00
	off	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

6 SAR Measurements System Configuration

6.1 SAR Measurement Set-up

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



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

6.2 DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

EX3DV4 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure Scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.



E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than $\pm 10\%$. The spherical isotropy was evaluated and found to be better than ± 0.25 dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C \Delta T / \Delta t$$

Where: Δt = Exposure time (30 seconds),
 C = Heat capacity of tissue (brain or muscle),
 ΔT = Temperature increase due to RF exposure.

Or

$$SAR = |E|^2 \sigma / \rho$$

Where: σ = Simulated tissue conductivity,
 ρ = Tissue density (kg/m^3).

6.3 SAR Measurement Procedure

Power Reference Measurement

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

Area Scan

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

Area scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

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

Zoom Scan

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

Zoom scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

			≤3GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{zoom} \Delta y_{zoom}$			≤2GHz: ≤8mm 2 – 3GHz: ≤5mm*	3 – 4GHz: ≤5mm* 4 – 6GHz: ≤4mm*
Maximum zoom scan spatial resolution, normal to phantom surface	Uniform grid: $\Delta z_{zoom}(n)$		≤5mm	3 – 4GHz: ≤4mm 4 – 5GHz: ≤3mm 5 – 6GHz: ≤2mm
	Graded grid	$\Delta z_{zoom}(1)$: between 1 st two points closest to phantom surface	≤4mm	3 – 4GHz: ≤3mm 4 – 5GHz: ≤2.5mm 5 – 6GHz: ≤2mm
		$\Delta z_{zoom}(n > 1)$: between subsequent points	≤1.5• $\Delta z_{zoom}(n-1)$	
Minimum zoom scan volume	X, y, z		≥30mm	3 – 4GHz: ≥28mm 4 – 5GHz: ≥25mm 5 – 6GHz: ≥22mm
<p>Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.</p> <p>* When zoom scan is required and the <u>reported</u> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4W/kg, ≤8mm, ≤7mm and ≤5mm zoom scan resolution may be applied, respectively, for 2GHz to 3GHz, 3GHz to 4GHz and 4GHz to 6GHz.</p>				

Volume Scan Procedures

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

Power Drift Monitoring

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



7 Main Test Equipment

Name of Equipment	Manufacturer	Type/Model	Serial Number	Last Cal.	Cal. Due Date
Network Analyzer	Agilent	E5071B	MY42404014	2022-05-14	2023-05-13
Dielectric Probe Kit	Agilent	85070E	US44020115	/	/
Power Meter	Agilent	E4417A	GB41291714	2022-05-14	2023-05-13
Power Sensor	Agilent	N8481H	MY50350004	2022-05-14	2023-05-13
Power Sensor	Agilent	E9327A	US40441622	2022-05-14	2023-05-13
Power Sensor	Agilent	NRP18S	101955	2022-05-14	2023-05-13
Signal Generator	Agilent	N5181A	MY50140143	2022-05-14	2023-05-13
Dual Directional Coupler	UCL	UCL-DDC0 56G-S	20010600118	/	/
Amplifier	INDEXSAR	TPA-005060 G01	13030502	2022-05-14	2023-05-13
Wireless Communication Tester	Anritsu	MT8820C	6201342015	2021-12-12	2022-12-11
Wireless Communication Tester	Agilent	E5515C	MY48360988	2021-12-12	2022-12-11
Wireless Communication Tester	R&S	CMW 500	146734	2022-05-14	2023-05-13
E-field Probe	SPEAG	EX3DV4	3677	2022-07-08	2023-07-07
DAE	SPEAG	DAE4	1317	2022-06-13	2023-06-12
Validation Kit 835MHz	SPEAG	D835V2	4d020	2020-08-28	2023-08-27
Validation Kit 1900MHz	SPEAG	D1900V2	5d060	2020-08-27	2023-08-26
Validation Kit 2450MHz	SPEAG	D2450V2	786	2020-08-27	2023-08-26
Validation Kit 2600MHz	SPEAG	D2600V2	1025	2021-04-23	2024-04-22
Validation Kit 5GHz	SPEAG	D5GHzV2	1151	2020-02-27	2023-02-26
Software for Tissue	Agilent	85070	/	/	/
Temperature Probe	Tianjin jinming	JM222	381	2022-05-14	2023-05-13
Twin SAM Phantom	SPEAG	SAM1	1534	/	/
Hygrothermograph	Anymetr	HTC - 1	TY2020A003	2022-05-14	2023-05-13
TX90 XL	SPEAG	Staubli TX90 XL	/	/	/
Software for Test	SPEAG	DASY52	52.10.4.1527	/	/

8 Tissue Dielectric Parameter Measurements & System Check

8.1 Tissue Verification

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 24 hours of use; or earlier if the dielectric parameters can become out of tolerance.

Target values

Frequency (MHz)	ϵ_r	$\sigma(\text{s/m})$
835	41.5	0.90
1900	40.0	1.40
2450	39.2	1.80
2600	39.0	1.96
5250	35.9	4.71
5600	35.5	5.07
5750	35.4	5.22

Measurements results

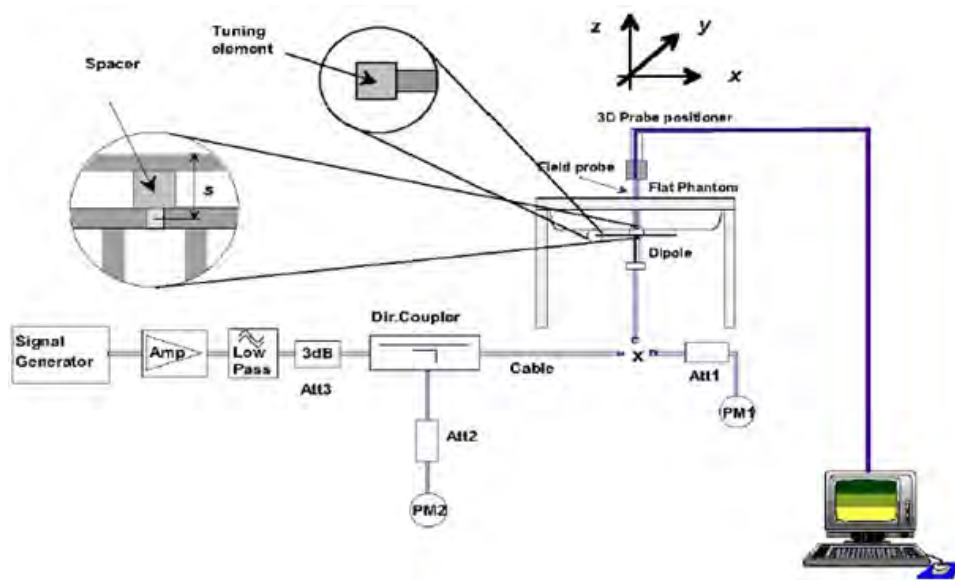
Frequency (MHz)	Test Date	Temp °C	Measured Dielectric Parameters		Target Dielectric Parameters		Limit (Within ±5%)	
			ϵ_r	σ (s/m)	ϵ_r	σ (s/m)	Dev ϵ_r (%)	Dev σ (%)
835	2022/10/13	21.5	41.4	0.88	41.5	0.90	-0.24	-2.22
	2022/10/14	21.5	41.3	0.87	41.5	0.90	-0.48	-3.33
	2022/10/15	21.5	41.4	0.92	41.5	0.90	-0.24	2.22
	2022/10/17	21.5	41.3	0.89	41.5	0.90	-0.48	-1.11
	2022/10/18	21.5	41.4	0.92	41.5	0.90	-0.24	2.22
1900	2022/10/19	21.5	40.1	1.41	40.0	1.40	0.25	0.71
	2022/10/20	21.5	40.2	1.43	40.0	1.40	0.50	2.14
	2022/10/21	21.5	40.0	1.40	40.0	1.40	0.00	0.00
2450	2022/10/22	21.5	38.6	1.81	39.2	1.80	-1.53	0.56
2600	2022/10/24	21.5	38.2	2.01	39.0	1.96	-2.05	2.55
	2022/10/25	21.5	38.4	1.94	39.0	1.96	-1.54	-1.02
	2022/10/26	21.5	38.3	1.99	39.0	1.96	-1.79	1.53
	2022/10/27	21.5	38.5	1.95	39.0	1.96	-1.28	-0.51
	2022/10/28	21.5	38.2	1.96	39.0	1.96	-2.05	0.00
5250	2022/10/23	21.5	35.5	4.80	35.9	4.71	-1.11	1.91
	2022/10/31	21.5	35.7	4.74	35.9	4.71	-0.56	0.64
5600	2022/10/29	21.5	34.2	5.21	35.5	5.07	-3.66	2.76
5750	2022/10/30	21.5	34.9	5.21	35.4	5.22	-1.41	-0.19

Note: The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.

8.2 System Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured using the dielectric probe kit and the network analyzer. A system check measurement for every day was made following the determination of the dielectric parameters of the Tissue simulates, using the dipole validation kit. The dipole antenna was placed under the flat section of the twin SAM phantom.

System check is performed regularly on all frequency bands where tests are performed with the DASY system.



Picture 1 System Check setup



Picture 2 Setup Photo

**Justification for Extended SAR Dipole Calibrations**

Usage of SAR dipoles calibrated less than 3 years ago but more than 1 year ago were confirmed in maintaining return loss (< -20 dB, within 20% of prior calibration) and impedance (within 5 ohm from prior calibration) requirements per extended calibrations in KDB 865664 D01:

Dipole		Date of Measurement	Return Loss (dB)	Δ %	Impedance (Ω)			
					Real	$\Delta\Omega$	Imaginary	$\Delta\Omega$
Dipole D835V2 SN: 4d020	Head Liquid	8/28/2020	26.2	/	54.8	/	1.73	/
		8/27/2021	26.5	1.1	55.2	0.4	1.74	0.01
		8/26/2022	27.2	2.6	55.5	0.3	1.74	0
Dipole D1900V2 SN: 5d060	Head Liquid	8/27/2020	23.3	/	52.5	/	6.58	/
		8/26/2021	23.0	-1.3	51.9	-0.6	6.54	-0.04
		8/25/2022	22.2	-3.5	51.2	-0.7	6.53	-0.01
Dipole D2450V2 SN: 786	Head Liquid	8/27/2020	27.1	0.7	53.8	-0.7	1.43	-0.01
		8/26/2021	27.4	1.1	53.4	-0.4	1.43	0
		8/25/2022	22.9	/	50.1	/	-7.19	/
Dipole D2600V2 SN: 1025	Head Liquid	4/23/2021	22.4	-2.2	50.7	0.6	-7.23	-0.04
		4/22/2022	27.5	/	48.2	/	3.80	/
Dipole D5GHzV2 SN: 1151 (5250MHz)	Head Liquid	2/27/2020	23.4	/	52.4	/	-6.47	/
		2/26/2021	23.8	1.7	50.0	-2.4	-6.31	0.16
		2/25/2022	23.9	0.4	49.3	-0.7	-6.42	-0.11
Dipole D5GHzV2 SN: 1151 (5600MHz)	Head Liquid	2/27/2020	22.6	/	57.0	/	-3.86	/
		2/26/2021	21.5	-4.9	56.5	-0.9	-3.77	0.09
		2/25/2022	20.9	-2.8	56.3	-0.4	-3.83	-0.06
Dipole D5GHzV2 SN: 1151 (5750MHz)	Head Liquid	2/27/2020	25.0	/	55.9	/	0.16	/
		2/26/2021	26.8	-1.8	52.5	-3.4	0.15	-0.01
		2/25/2022	27.1	1.1	52.1	-0.4	0.16	0.01



System Check results

Frequency (MHz)	Test Date	Temp °C	250mW Measured SAR _{1g} (W/kg)	1W Normalized SAR _{1g} (W/kg)	1W Target SAR _{1g} (W/kg)	Δ % (Limit ±10%)	Plot No.
835	2022/10/13	21.5	2.44	9.76	9.65	1.14	1
	2022/10/14	21.5	2.46	9.84	9.65	1.97	2
	2022/10/15	21.5	2.43	9.72	9.65	0.73	3
	2022/10/17	21.5	2.51	10.04	9.65	4.04	4
	2022/10/18	21.5	2.43	9.72	9.65	0.73	5
1900	2022/10/19	21.5	9.88	39.52	39.50	0.05	6
	2022/10/20	21.5	9.85	39.40	39.50	-0.25	7
	2022/10/21	21.5	9.55	38.20	39.50	-3.29	8
2450	2022/10/22	21.5	13.70	54.80	52.30	4.78	9
2600	2022/10/24	21.5	13.90	55.60	56.10	-0.89	10
	2022/10/25	21.5	13.88	55.52	56.10	-1.03	11
	2022/10/26	21.5	13.94	55.76	56.10	-0.61	12
	2022/10/27	21.5	13.90	55.60	56.10	-0.89	13
	2022/10/28	21.5	13.90	55.60	56.10	-0.89	14
Frequency (MHz)	Test Date	Temp °C	100mW Measured SAR _{1g} (W/kg)	1W Normalized SAR _{1g} (W/kg)	1W Target SAR _{1g} (W/kg)	Δ % (Limit ±10%)	Plot No.
5250	2022/10/23	21.5	7.87	78.70	78.00	0.90	15
	2022/10/31	21.5	7.54	75.40	78.00	-3.33	16
5600	2022/10/29	21.5	7.67	76.70	80.50	-4.72	17
5750	2022/10/30	21.5	7.66	76.60	77.40	-1.03	18
Note: Target Values used derive from the calibration certificate Data Storage and Evaluation.							

8.3 SAR System Validation

Per FCC KDB 865664 D02v01, SAR system verification is required to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles are used with the required tissue-equivalent media for system validation, according to the procedures outlined in FCC KDB 865664 D01 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point must be validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status, measurement frequencies, SAR probes, calibrated signal type(s) and tissue dielectric parameters has been included.

Frequency [MHz]	Date	Probe SN	Probe Type	Probe Cal Point		PERM (Er)	COND (Σ)	CW Validation		
								Sensitivity	Probe Linearity	Probe Isotropy
835	2022/7/8	3677	EX3DV4	835	Head	41.5	0.90	PASS	PASS	PASS
1900	2022/7/8	3677	EX3DV4	1900	Head	40.0	1.40	PASS	PASS	PASS
2450	2022/7/8	3677	EX3DV4	2450	Head	39.2	1.80	PASS	PASS	PASS
2600	2022/7/8	3677	EX3DV4	2600	Head	39.0	1.96	PASS	PASS	PASS
5250	2022/7/8	3677	EX3DV4	5250	Head	35.9	4.71	PASS	PASS	PASS
5600	2022/7/8	3677	EX3DV4	5600	Head	35.5	5.07	PASS	PASS	PASS
5750	2022/7/8	3677	EX3DV4	5750	Head	35.4	5.22	PASS	PASS	PASS

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664D01v01 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5dB), such as OFDM according to KDB 865664.

9 Normal and Maximum Output Power

KDB 447498 D01 at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit.

9.1 GSM Mode

Low - Antenna

GSM 850 DS1&DS14		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	128 /824.2	190 /836.6	251 /848.8		MAX	128 /824.2	190 /836.6	251 /848.8
GSM	CS	33.50	31.73	31.78	31.66	9.03	24.47	22.70	22.75	22.63
GPRS/ EGPRS (GMSK)	1 Tx Slot	33.50	31.79	31.74	31.72	9.03	24.47	22.76	22.71	22.69
	2 Tx Slots	30.50	29.47	29.39	29.40	6.02	24.48	23.45	23.37	23.38
	3 Tx Slots	28.00	26.42	26.32	26.29	4.26	23.74	22.16	22.06	22.03
	4 Tx Slots	27.00	25.48	25.36	25.36	3.01	23.99	22.47	22.35	22.35
EGPRS (8PSK)	1 Tx Slot	27.50	26.61	26.89	26.37	9.03	18.47	17.58	17.86	17.34
	2 Tx Slots	24.50	22.94	23.06	22.91	6.02	18.48	16.92	17.04	16.89
	3 Tx Slots	21.00	20.07	20.17	19.86	4.26	16.74	15.81	15.91	15.60
	4 Tx Slots	20.00	18.64	18.54	18.47	3.01	16.99	15.63	15.53	15.46
GSM 850 Full Power&DS12		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	128 /824.2	190 /836.6	251 /848.8		MAX	128 /824.2	190 /836.6	251 /848.8
GSM	CS	33.50	31.73	31.78	31.66	9.03	24.47	22.70	22.75	22.63
GPRS/ EGPRS (GMSK)	1 Tx Slot	33.50	31.79	31.74	31.72	9.03	24.47	22.76	22.71	22.69
	2 Tx Slots	31.00	29.47	29.39	29.40	6.02	24.98	23.45	23.37	23.38
	3 Tx Slots	28.00	26.42	26.32	26.29	4.26	23.74	22.16	22.06	22.03
	4 Tx Slots	27.00	25.48	25.36	25.36	3.01	23.99	22.47	22.35	22.35
EGPRS (8PSK)	1 Tx Slot	27.50	26.61	26.89	26.37	9.03	18.47	17.58	17.86	17.34
	2 Tx Slots	24.50	22.94	23.06	22.91	6.02	18.48	16.92	17.04	16.89
	3 Tx Slots	21.50	20.07	20.17	19.86	4.26	17.24	15.81	15.91	15.60
	4 Tx Slots	20.00	18.64	18.54	18.47	3.01	16.99	15.63	15.53	15.46

Notes: The worst-case configuration and mode for SAR testing is determined to be as follows:
 Standalone: GSM 850 GMSK (GPRS) mode with 2 time slots for Max power, based on the output power measurements above..



GSM 1900 Full Power&DSI2		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	512 /1710.2	698 /1747.4	885 /1784.8		MAX	512 /1710.2	698 /1747.4	885 /1784.8
GSM	CS	31.00	29.49	29.75	29.64	9.03	21.97	20.46	20.72	20.61
GPRS/ EGPRS (GMSK)	1 Tx Slot	31.00	29.70	29.98	29.58	9.03	21.97	20.67	20.95	20.55
	2 Tx Slots	27.50	26.11	26.96	26.82	6.02	21.48	20.09	20.94	20.80
	3 Tx Slots	24.50	22.97	23.85	23.75	4.26	20.24	18.71	19.59	19.49
	4 Tx Slots	23.50	22.02	22.94	22.82	3.01	20.49	19.01	19.93	19.81
EGPRS (8PSK)	1 Tx Slot	27.00	25.43	25.72	25.60	9.03	17.97	16.40	16.69	16.57
	2 Tx Slots	24.00	22.65	22.74	22.61	6.02	17.98	16.63	16.72	16.59
	3 Tx Slots	21.50	19.90	19.73	19.65	4.26	17.24	15.64	15.47	15.39
	4 Tx Slots	20.50	18.80	18.61	18.84	3.01	17.49	15.79	15.60	15.83
GSM 1900 DSI1		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	512 /1850.2	661 /1880	810 /1909.8		MAX	512 /1850.2	661 /1880	810 /1909.8
GSM	CS	30.00	29.29	29.00	28.90	9.03	20.97	20.26	19.97	19.87
GPRS/ EGPRS (GMSK)	1 Tx Slot	30.00	29.24	29.05	28.87	9.03	20.97	20.21	20.02	19.84
	2 Tx Slots	27.50	26.11	26.02	25.99	6.02	21.48	20.09	20.00	19.97
	3 Tx Slots	24.50	22.97	22.87	22.89	4.26	20.24	18.71	18.61	18.63
	4 Tx Slots	23.50	22.02	21.97	21.99	3.01	20.49	19.01	18.96	18.98
EGPRS (8PSK)	1 Tx Slot	26.50	25.16	25.15	25.03	9.03	17.47	16.13	16.12	16.00
	2 Tx Slots	23.50	21.79	22.05	22.35	6.02	17.48	15.77	16.03	16.33
	3 Tx Slots	20.50	19.02	19.33	19.03	4.26	16.24	14.76	15.07	14.77
	4 Tx Slots	19.50	17.63	17.65	18.04	3.01	16.49	14.62	14.64	15.03
GSM 1900 DSI4		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	512 /1850.2	661 /1880	810 /1909.8		MAX	512 /1850.2	661 /1880	810 /1909.8
GSM	CS	28.50	27.79	27.64	27.56	9.03	19.47	18.76	18.61	18.53
GPRS/ EGPRS (GMSK)	1 Tx Slot	28.50	27.80	27.63	27.55	9.03	19.47	18.77	18.60	18.52
	2 Tx Slots	26.00	24.61	24.50	24.52	6.02	19.98	18.59	18.48	18.50
	3 Tx Slots	23.00	21.60	21.51	21.59	4.26	18.74	17.34	17.25	17.33
	4 Tx Slots	22.00	20.61	20.53	20.66	3.01	18.99	17.60	17.52	17.65
EGPRS (8PSK)	1 Tx Slot	26.50	24.73	24.55	24.81	9.03	17.47	15.70	15.52	15.78
	2 Tx Slots	23.50	21.66	21.62	21.82	6.02	17.48	15.64	15.60	15.80
	3 Tx Slots	20.50	18.56	18.53	18.78	4.26	16.24	14.30	14.27	14.52
	4 Tx Slots	19.50	17.60	17.55	17.52	3.01	16.49	14.59	14.54	14.51



Notes: The worst-case configuration and mode for SAR testing is determined to be as follows:
 Standalone: GSM 1900 GMSK (GPRS) mode with 2 time slots for Max power, based on the output power measurements above.

Upper- Antenna

GSM 850 Full Power		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	128 /824.2	190 /836.6	251 /848.8		MAX	128 /824.2	190 /836.6	251 /848.8
GSM	CS	33.50	32.51	32.45	32.31	9.03	24.47	23.48	23.42	23.28
GPRS/EGPRS (GMSK)	1 Tx Slot	33.50	32.50	32.45	32.30	9.03	24.47	23.47	23.42	23.27
	2 Tx Slots	31.00	30.14	30.08	29.96	6.02	24.98	24.12	24.06	23.94
	3 Tx Slots	28.00	27.04	26.97	26.81	4.26	23.74	22.78	22.71	22.55
	4 Tx Slots	27.00	26.08	26.00	25.87	3.01	23.99	23.07	22.99	22.86
EGPRS (8PSK)	1 Tx Slot	28.00	26.34	27.07	26.65	9.03	18.97	17.31	18.04	17.62
	2 Tx Slots	25.00	23.11	23.43	23.38	6.02	18.98	17.09	17.41	17.36
	3 Tx Slots	21.50	20.39	20.09	19.93	4.26	17.24	16.13	15.83	15.67
	4 Tx Slots	20.50	19.32	18.99	18.93	3.01	17.49	16.31	15.98	15.92
GSM 850 DSI1		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	128 /824.2	190 /836.6	251 /848.8		MAX	128 /824.2	190 /836.6	251 /848.8
GSM	CS	33.50	32.51	32.45	32.31	9.03	24.47	23.48	23.42	23.28
GPRS/EGPRS (GMSK)	1 Tx Slot	33.50	32.50	32.45	32.30	9.03	24.47	23.47	23.42	23.27
	2 Tx Slots	30.50	30.14	30.08	29.96	6.02	24.48	24.12	24.06	23.94
	3 Tx Slots	28.00	27.04	26.97	26.81	4.26	23.74	22.78	22.71	22.55
	4 Tx Slots	27.00	26.08	26.00	25.87	3.01	23.99	23.07	22.99	22.86
EGPRS (8PSK)	1 Tx Slot	28.00	26.34	27.07	26.65	9.03	18.97	17.31	18.04	17.62
	2 Tx Slots	25.00	23.11	23.43	23.38	6.02	18.98	17.09	17.41	17.36
	3 Tx Slots	21.50	20.39	20.09	19.93	4.26	17.24	16.13	15.83	15.67
	4 Tx Slots	20.50	19.32	18.99	18.93	3.01	17.49	16.31	15.98	15.92
GSM 850 DSI4		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	128 /824.2	190 /836.6	251 /848.8		MAX	128 /824.2	190 /836.6	251 /848.8
GSM	CS	33.00	31.84	31.77	31.63	9.03	23.97	22.81	22.74	22.60
GPRS/EGPRS (GMSK)	1 Tx Slot	33.00	31.83	31.77	31.63	9.03	23.97	22.80	22.74	22.60
	2 Tx Slots	30.00	29.06	28.99	28.86	6.02	23.98	23.04	22.97	22.84
	3 Tx Slots	27.50	26.08	25.99	25.87	4.26	23.24	21.82	21.73	21.61
	4 Tx Slots	26.50	24.99	24.90	24.73	3.01	23.49	21.98	21.89	21.72



EGPRS (8PSK)	1 Tx Slot	26.50	25.18	24.84	24.78	9.03	17.47	16.15	15.81	15.75
	2 Tx Slots	23.00	21.70	21.44	21.35	6.02	16.98	15.68	15.42	15.33
	3 Tx Slots	20.00	18.53	18.39	18.43	4.26	15.74	14.27	14.13	14.17
	4 Tx Slots	19.00	17.54	17.21	17.41	3.01	15.99	14.53	14.20	14.40

Notes: The worst-case configuration and mode for SAR testing is determined to be as follows:

Standalone: GSM 850 GMSK (GPRS) mode with 2 time slots for Max power, based on the output power measurements above..

GSM 1900 Full Power		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	512 /1710.2	698 /1747.4	885 /1784.8		MAX	512 /1710.2	698 /1747.4	885 /1784.8
GSM	CS	31.00	29.90	29.75	29.53	9.03	21.97	20.87	20.72	20.50
GPRS/ EGPRS (GMSK)	1 Tx Slot	31.00	29.90	29.74	29.52	9.03	21.97	20.87	20.71	20.49
	2 Tx Slots	28.00	26.76	26.54	26.57	6.02	21.98	20.74	20.52	20.55
	3 Tx Slots	25.00	23.59	23.43	23.44	4.26	20.74	19.33	19.17	19.18
	4 Tx Slots	24.00	22.66	22.50	22.53	3.01	20.99	19.65	19.49	19.52
EGPRS (8PSK)	1 Tx Slot	27.50	25.53	25.65	25.62	9.03	18.47	16.50	16.62	16.59
	2 Tx Slots	24.50	22.70	22.75	22.52	6.02	18.48	16.68	16.73	16.50
	3 Tx Slots	21.50	19.62	19.65	19.75	4.26	17.24	15.36	15.39	15.49
	4 Tx Slots	20.50	19.26	19.30	18.83	3.01	17.49	16.25	16.29	15.82
GSM 1900 DSI1		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	512 /1850.2	661 /1880	810 /1909.8		MAX	512 /1850.2	661 /1880	810 /1909.8
GSM	CS	29.50	29.43	29.25	29.07	9.03	20.47	20.40	20.22	20.04
GPRS/ EGPRS (GMSK)	1 Tx Slot	29.50	29.43	29.25	29.08	9.03	20.47	20.40	20.22	20.05
	2 Tx Slots	27.00	26.23	26.02	26.01	6.02	20.98	20.21	20.00	19.99
	3 Tx Slots	24.00	23.14	22.96	22.99	4.26	19.74	18.88	18.70	18.73
	4 Tx Slots	23.00	22.11	21.97	22.04	3.01	19.99	19.10	18.96	19.03
EGPRS (8PSK)	1 Tx Slot	26.50	25.25	25.03	25.27	9.03	17.47	16.22	16.00	16.24
	2 Tx Slots	23.50	22.62	22.13	22.06	6.02	17.48	16.60	16.11	16.04
	3 Tx Slots	20.50	19.63	18.81	19.34	4.26	16.24	15.37	14.55	15.08
	4 Tx Slots	19.50	18.28	17.64	17.77	3.01	16.49	15.27	14.63	14.76
GSM 1900 DSI4		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	512 /1850.2	661 /1880	810 /1909.8		MAX	512 /1850.2	661 /1880	810 /1909.8
GSM	CS	26.00	25.15	24.97	24.97	9.03	16.97	16.12	15.94	15.94
GPRS/	1 Tx Slot	26.00	25.14	24.96	24.97	9.03	16.97	16.11	15.93	15.94



EGPRS (GMSK)	2 Tx Slots	23.50	22.11	21.98	22.05	6.02	17.48	16.09	15.96	16.03
	3 Tx Slots	20.50	19.08	19.00	19.24	4.26	16.24	14.82	14.74	14.98
	4 Tx Slots	19.50	18.08	18.06	18.28	3.01	16.49	15.07	15.05	15.27
EGPRS (8PSK)	1 Tx Slot	23.00	21.78	21.35	21.45	9.03	13.97	12.75	12.32	12.42
	2 Tx Slots	20.00	18.62	18.24	18.41	6.02	13.98	12.60	12.22	12.39
	3 Tx Slots	17.00	15.46	15.38	15.41	4.26	12.74	11.20	11.12	11.15
	4 Tx Slots	16.00	14.57	14.42	14.27	3.01	12.99	11.56	11.41	11.26

Notes: The worst-case configuration and mode for SAR testing is determined to be as follows:

Standalone: GSM 1900 GMSK (GPRS) mode with 2 time slots for Max power, based on the output power measurements above..

9.2 WCDMA Mode

The following tests were completed according to the test requirements outlined in the 3GPP TS34.121 specification.

Low - Antenna

WCDMA Band V					
Full Power&DSI2		Maximum Output Power (dBm)			
		Channel/Frequency(MHz)			Tune-up
		4132/826.4	4183/836.6	4233/846.6	
RMC	12.2k	23.19	23.18	23.13	25.00
AMR	12.2k	23.11	23.06	23.13	25.00
HSDPA	Subtest 1	22.03	22.16	22.03	23.50
	Subtest 2	22.07	22.06	21.99	23.50
	Subtest 3	21.83	21.56	21.57	23.00
	Subtest 4	21.81	21.72	21.69	23.00
HSUPA	Subtest 1	20.35	20.12	20.29	22.00
	Subtest 2	20.31	20.34	19.97	21.50
	Subtest 3	21.03	21.06	21.03	23.00
	Subtest 4	19.67	19.84	19.67	21.00
	Subtest 5	21.03	21.16	21.09	22.50
DC-HSDPA	Subtest 1	22.11	22.10	22.05	23.50
	Subtest 2	22.19	22.12	22.17	23.50
	Subtest 3	21.67	21.54	21.59	23.00
	Subtest 4	21.69	21.64	21.47	23.00
WCDMA Band V					
DS1&DSI4		Maximum Output Power (dBm)			
		Channel/Frequency(MHz)			Tune-up
		4132/826.4	4183/836.6	4233/846.6	
RMC	12.2k	23.15	23.17	23.09	24.50
AMR	12.2k	23.23	23.03	23.15	24.50
HSDPA	Subtest 1	22.15	22.27	22.09	23.50
	Subtest 2	22.05	22.01	22.15	23.50
	Subtest 3	21.61	21.57	21.45	23.00
	Subtest 4	21.67	21.55	21.47	23.00
HSUPA	Subtest 1	20.15	20.33	20.15	22.00
	Subtest 2	20.23	20.31	20.17	21.50
	Subtest 3	21.13	21.17	21.11	22.00
	Subtest 4	19.55	19.79	19.61	21.00
	Subtest 5	21.13	21.07	20.95	22.50
DC-HSDPA	Subtest 1	22.11	22.05	22.13	23.50
	Subtest 2	22.23	22.31	22.25	23.50
	Subtest 3	21.81	21.75	21.73	23.00



	Subtest 4	21.75	21.75	21.67	23.00
Note: Per KDB 941225 D01, SAR for each exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".					

Upper - Antenna

WCDMA Band V					
Full Power&DSI2		Maximum Output Power (dBm)			
		Channel/Frequency(MHz)			Tune-up
		4132/826.4	4183/836.6	4233/846.6	
RMC	12.2k	23.01	23.06	23.02	25.00
AMR	12.2k	23.07	23.18	23.01	25.00
HSDPA	Subtest 1	21.85	22.14	21.96	23.50
	Subtest 2	21.93	22.22	22.02	23.50
	Subtest 3	21.43	21.66	21.40	23.00
	Subtest 4	21.59	21.54	21.48	23.00
HSUPA	Subtest 1	20.07	20.06	20.03	22.00
	Subtest 2	19.91	20.02	19.98	21.50
	Subtest 3	21.03	21.18	21.14	23.00
	Subtest 4	19.45	19.64	19.46	21.00
	Subtest 5	21.15	21.14	20.88	22.50
DC-HSDPA	Subtest 1	21.99	21.90	22.06	23.50
	Subtest 2	21.93	22.14	22.12	23.50
	Subtest 3	21.41	21.56	21.58	23.00
	Subtest 4	21.53	21.66	21.64	23.00
WCDMA Band V					
DSI1		Maximum Output Power (dBm)			
		Channel/Frequency(MHz)			Tune-up
		4132/826.4	4183/836.6	4233/846.6	
RMC	12.2k	22.08	22.03	22.05	23.50
AMR	12.2k	22.06	21.97	21.89	23.50
HSDPA	Subtest 1	21.16	21.19	21.19	22.50
	Subtest 2	21.14	20.91	20.95	22.50
	Subtest 3	20.66	20.39	20.53	22.00
	Subtest 4	20.42	20.65	20.69	22.00
HSUPA	Subtest 1	19.56	19.63	19.61	21.00
	Subtest 2	19.02	19.19	19.13	20.50
	Subtest 3	19.64	19.43	19.47	21.00
	Subtest 4	18.72	18.37	18.47	20.00
	Subtest 5	20.18	20.09	19.89	21.50
DC-HSDPA	Subtest 1	20.96	21.11	21.01	22.50
	Subtest 2	21.06	20.99	21.03	22.50
	Subtest 3	20.52	20.67	20.61	22.00
	Subtest 4	20.52	20.43	20.61	22.00



WCDMA Band V					
DSI4		Maximum Output Power (dBm)			
		Channel/Frequency(MHz)			Tune-up
		4132/826.4	4183/836.6	4233/846.6	
RMC	12.2k	22.95	22.93	22.86	24.50
AMR	12.2k	22.99	23.09	22.78	24.50
HSDPA	Subtest 1	21.93	21.97	21.92	23.50
	Subtest 2	21.95	22.07	21.88	23.50
	Subtest 3	21.61	21.37	21.22	23.00
	Subtest 4	21.43	21.51	21.52	23.00
HSUPA	Subtest 1	20.39	20.33	20.36	22.00
	Subtest 2	19.85	19.99	19.90	21.50
	Subtest 3	20.33	20.53	20.20	22.00
	Subtest 4	19.31	19.53	19.42	21.00
	Subtest 5	21.09	20.91	20.94	22.50
DC-HSDPA	Subtest 1	22.05	21.91	21.86	23.50
	Subtest 2	22.09	21.77	21.94	23.50
	Subtest 3	21.49	21.31	21.30	23.00
	Subtest 4	21.57	21.53	21.32	23.00

Note: Per KDB 941225 D01, SAR for each exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".

9.3 LTE Mode

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
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

Low- Antenna

LTE Band5							
Full Power&DSI2				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	23.56	23.58	23.58	25.00
		1	2	23.72	23.70	23.60	25.00
		1	5	23.60	23.56	23.54	25.00
		3	0	23.66	23.63	23.67	25.00
		3	2	23.60	23.67	23.62	25.00
		3	3	23.58	23.58	23.52	25.00
	16QAM	6	0	22.70	22.73	22.71	24.00
		1	0	22.78	22.84	22.84	24.00
		1	2	22.97	22.98	22.88	24.00
		1	5	22.88	22.84	22.76	24.00
		3	0	22.65	22.57	22.62	24.00
		3	2	22.62	22.61	22.62	24.00
		3	3	22.62	22.56	22.47	24.00
	64QAM	6	0	21.73	21.68	21.71	23.00
		1	0	21.77	21.78	21.79	23.00
		1	2	21.90	21.90	21.88	23.00
		1	5	21.77	21.83	21.71	23.00
		3	0	21.66	21.58	21.62	23.00
		3	2	21.61	21.62	21.59	23.00
		3	3	21.60	21.59	21.50	23.00
	6	0	20.71	20.70	20.73	22.00	
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
3MHz	QPSK	1	0	20415/825.5	20525/836.5	20635/847.5	
3MHz	QPSK	1	0	23.57	23.61	23.60	25.00



		1	7	23.71	23.74	23.65	25.00	
		1	14	23.62	23.60	23.57	25.00	
		8	0	22.76	22.75	22.80	24.00	
		8	4	22.73	22.78	22.73	24.00	
		8	7	22.68	22.71	22.63	24.00	
		15	0	22.74	22.78	22.76	24.00	
	16QAM	1	0	22.82	22.85	22.86	24.00	
		1	7	23.01	23.00	22.92	24.00	
		1	14	22.90	22.88	22.78	24.00	
		8	0	21.77	21.71	21.75	23.00	
		8	4	21.72	21.73	21.73	23.00	
		8	7	21.72	21.68	21.60	23.00	
	64QAM	15	0	21.77	21.73	21.73	23.00	
		1	0	21.79	21.79	21.81	23.00	
		1	7	21.93	21.92	21.90	23.00	
		1	14	21.79	21.82	21.73	23.00	
		8	0	20.78	20.72	20.75	22.00	
		8	4	20.71	20.74	20.70	22.00	
	5MHz	QPSK	8	7	20.70	20.71	20.63	22.00
			15	0	20.75	20.75	20.75	22.00
			1	0	23.56	23.57	23.58	25.00
1			13	23.69	23.73	23.62	25.00	
1			24	23.59	23.55	23.53	25.00	
12			0	22.74	22.71	22.77	24.00	
16QAM		12	6	22.70	22.73	22.69	24.00	
		12	13	22.65	22.68	22.59	24.00	
		25	0	22.72	22.74	22.71	24.00	
		1	0	22.80	22.83	22.84	24.00	
		1	13	22.99	22.97	22.90	24.00	
		1	24	22.88	22.84	22.75	24.00	
64QAM		12	0	21.74	21.69	21.72	23.00	
		12	6	21.69	21.68	21.69	23.00	
		12	13	21.70	21.64	21.57	23.00	
		25	0	21.74	21.68	21.69	23.00	
		1	0	21.74	21.77	21.79	23.00	
		1	13	21.91	21.89	21.88	23.00	
			1	24	21.80	21.81	21.74	23.00
			12	0	20.77	20.74	20.76	22.00
			12	6	20.69	20.71	20.69	22.00
	12		13	20.68	20.67	20.60	22.00	
	25		0	20.72	20.70	20.71	22.00	
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				20425/826.5	20525/836.5	20625/846.5		



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20450/829	20525/836.5	20600/844	
10MHz	QPSK	1	0	23.53	23.53	23.55	25.00
		1	25	23.68	23.69	23.60	25.00
		1	49	23.57	23.54	23.50	25.00
		25	0	22.71	22.66	22.73	24.00
		25	13	22.68	22.69	22.66	24.00
		25	25	22.62	22.63	22.55	24.00
		50	0	22.69	22.69	22.67	24.00
	16QAM	1	0	22.77	22.79	22.79	24.00
		1	25	22.96	22.95	22.86	24.00
		1	49	22.85	22.81	22.73	24.00
		25	0	21.71	21.65	21.69	23.00
		25	13	21.66	21.66	21.66	23.00
		25	25	21.67	21.59	21.53	23.00
		50	0	21.72	21.64	21.66	23.00
	64QAM	1	0	21.72	21.73	21.74	23.00
		1	25	21.87	21.87	21.84	23.00
		1	49	21.74	21.75	21.68	23.00
		25	0	20.72	20.66	20.69	22.00
		25	13	20.65	20.67	20.63	22.00
		25	25	20.65	20.62	20.56	22.00
		50	0	20.70	20.66	20.68	22.00

LTE Band5							
DSI1&DSI4				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	23.60	23.65	23.60	24.50
		1	2	23.74	23.71	23.68	24.50
		1	5	23.62	23.58	23.55	24.50
		3	0	23.72	23.68	23.73	24.50
		3	2	23.66	23.69	23.67	24.50
		3	3	23.65	23.59	23.59	24.50
		6	0	22.77	22.71	22.73	23.50
	16QAM	1	0	22.85	22.95	22.92	23.50
		1	2	22.98	23.04	22.97	23.50
		1	5	22.95	22.91	22.79	23.50
		3	0	22.68	22.61	22.66	23.50
		3	2	22.66	22.65	22.65	23.50
		3	3	22.63	22.63	22.50	23.50
		6	0	21.75	21.73	21.74	22.50
	64QAM	1	0	21.78	21.80	21.82	22.50



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				20415/825.5	20525/836.5	20635/847.5		
		1	2	21.91	21.94	21.88	22.50	
		1	5	21.83	21.87	21.74	22.50	
		3	0	21.66	21.62	21.65	22.50	
		3	2	21.66	21.62	21.62	22.50	
		3	3	21.63	21.63	21.55	22.50	
		6	0	20.76	20.71	20.74	21.50	
3MHz	QPSK	1	0	23.59	23.67	23.59	24.50	
		1	7	23.70	23.70	23.69	24.50	
		1	14	23.62	23.58	23.55	24.50	
		8	0	22.79	22.75	22.82	23.50	
		8	4	22.76	22.75	22.74	23.50	
		8	7	22.73	22.68	22.65	23.50	
		15	0	22.77	22.74	22.74	23.50	
	16QAM	1	0	22.85	22.93	22.92	23.50	
		1	7	22.98	23.02	22.98	23.50	
		1	14	22.94	22.93	22.78	23.50	
		8	0	21.77	21.70	21.75	22.50	
		8	4	21.74	21.73	21.73	22.50	
		8	7	21.70	21.70	21.59	22.50	
		15	0	21.76	21.73	21.72	22.50	
	64QAM	1	0	21.78	21.82	21.82	22.50	
		1	7	21.91	21.96	21.87	22.50	
		1	14	21.86	21.84	21.73	22.50	
		8	0	20.75	20.71	20.78	21.50	
		8	4	20.74	20.70	20.70	21.50	
		8	7	20.70	20.70	20.64	21.50	
		15	0	20.77	20.71	20.72	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					20425/826.5	20525/836.5	20625/846.5	
	5MHz	QPSK	1	0	23.60	23.64	23.60	24.50
1			13	23.71	23.74	23.70	24.50	
1			24	23.61	23.57	23.54	24.50	
12			0	22.80	22.76	22.83	23.50	
12			6	22.76	22.75	22.74	23.50	
12			13	22.72	22.69	22.66	23.50	
25			0	22.79	22.72	22.73	23.50	
16QAM		1	0	22.87	22.94	22.92	23.50	
		1	13	23.00	23.03	22.99	23.50	
		1	24	22.95	22.91	22.78	23.50	
		12	0	21.77	21.73	21.76	22.50	
		12	6	21.73	21.72	21.72	22.50	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				20450/829	20525/836.5	20600/844		
10MHz	64QAM	12	13	21.71	21.71	21.60	22.50	
		25	0	21.76	21.73	21.72	22.50	
		1	0	21.75	21.79	21.82	22.50	
		1	13	21.92	21.93	21.88	22.50	
		1	24	21.86	21.85	21.77	22.50	
		12	0	20.77	20.78	20.79	21.50	
		12	6	20.74	20.71	20.72	21.50	
		12	13	20.71	20.71	20.65	21.50	
	25	0	20.77	20.71	20.72	21.50		
	10MHz	QPSK	1	0	23.57	23.60	23.57	24.50
			1	25	23.70	23.70	23.68	24.50
			1	49	23.59	23.56	23.51	24.50
			25	0	22.77	22.71	22.79	23.50
			25	13	22.74	22.71	22.71	23.50
			25	25	22.69	22.64	22.62	23.50
			50	0	22.76	22.67	22.69	23.50
16QAM		1	0	22.84	22.90	22.87	23.50	
		1	25	22.97	23.01	22.95	23.50	
		1	49	22.92	22.88	22.76	23.50	
		25	0	21.74	21.69	21.73	22.50	
		25	13	21.70	21.70	21.69	22.50	
		25	25	21.68	21.66	21.56	22.50	
		50	0	21.74	21.69	21.69	22.50	
64QAM		1	0	21.73	21.75	21.77	22.50	
		1	25	21.88	21.91	21.84	22.50	
		1	49	21.80	21.79	21.71	22.50	
		25	0	20.72	20.70	20.72	21.50	
	25	13	20.70	20.67	20.66	21.50		
	25	25	20.68	20.66	20.61	21.50		
	50	0	20.75	20.67	20.69	21.50		

LTE Band7							
Full Power&DSI2				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	23.03	23.21	23.17	24.50
		1	13	23.34	23.39	23.37	24.50
		1	24	23.16	23.24	23.21	24.50
		12	0	22.19	22.49	22.40	23.50
		12	6	22.33	22.50	22.46	23.50
		12	13	22.39	22.50	22.38	23.50



	16QAM	25	0	22.27	22.52	22.43	23.50
		1	0	22.32	22.46	22.48	23.50
		1	13	22.65	22.70	22.73	23.50
		1	24	22.49	22.57	22.47	23.50
		12	0	21.24	21.45	21.39	22.50
		12	6	21.38	21.46	21.49	22.50
		12	13	21.36	21.45	21.37	22.50
		25	0	21.27	21.42	21.34	22.50
	64QAM	1	0	21.26	21.41	21.44	22.50
		1	13	21.52	21.68	21.69	22.50
		1	24	21.38	21.53	21.50	22.50
		12	0	20.24	20.43	20.40	21.50
		12	6	20.37	20.45	20.46	21.50
		12	13	20.38	20.44	20.35	21.50
25		0	20.31	20.41	20.36	21.50	
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	23.05	23.22	23.20	24.50
		1	25	23.37	23.44	23.41	24.50
		1	49	23.18	23.28	23.24	24.50
		25	0	22.22	22.54	22.44	23.50
		25	13	22.36	22.55	22.50	23.50
		25	25	22.41	22.54	22.43	23.50
		50	0	22.31	22.54	22.47	23.50
	16QAM	1	0	22.36	22.49	22.50	23.50
		1	25	22.69	22.74	22.76	23.50
		1	49	22.52	22.59	22.50	23.50
		25	0	21.27	21.50	21.43	22.50
		25	13	21.40	21.50	21.52	22.50
		25	25	21.39	21.50	21.41	22.50
		50	0	21.30	21.47	21.38	22.50
	64QAM	1	0	21.28	21.40	21.46	22.50
		1	25	21.55	21.68	21.72	22.50
		1	49	21.37	21.55	21.53	22.50
		25	0	20.27	20.48	20.40	21.50
		25	13	20.39	20.49	20.49	21.50
		25	25	20.41	20.49	20.39	21.50
		50	0	20.34	20.46	20.40	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	23.04	23.18	23.18	24.50
		1	38	23.35	23.43	23.38	24.50
		1	74	23.15	23.23	23.20	24.50



		36	0	22.20	22.50	22.41	23.50	
		36	18	22.33	22.50	22.46	23.50	
		36	39	22.38	22.51	22.39	23.50	
		75	0	22.29	22.50	22.42	23.50	
	16QAM	1	0	22.34	22.47	22.48	23.50	
		1	38	22.67	22.71	22.74	23.50	
		1	74	22.50	22.55	22.47	23.50	
		36	0	21.24	21.48	21.40	22.50	
		36	18	21.37	21.45	21.48	22.50	
		36	39	21.37	21.46	21.38	22.50	
		75	0	21.27	21.42	21.34	22.50	
		64QAM	1	0	21.23	21.38	21.44	22.50
	1		38	21.53	21.65	21.70	22.50	
	1		74	21.38	21.54	21.54	22.50	
	36		0	20.26	20.50	20.41	21.50	
	36		18	20.37	20.46	20.48	21.50	
	36		39	20.39	20.45	20.36	21.50	
	75		0	20.31	20.41	20.36	21.50	
	Bandwidth		Modulation	RB allocation	offset	Channel/Frequency(MHz)		
		20850/2510				21100/2535	21350/2560	
	20MHz	QPSK	1	0	23.01	23.14	23.15	24.50
1			50	23.34	23.39	23.40	24.50	
1			99	23.13	23.22	23.17	24.50	
50			0	22.17	22.45	22.37	23.50	
50			25	22.31	22.46	22.43	23.50	
50			50	22.35	22.46	22.35	23.50	
100			0	22.26	22.45	22.38	23.50	
16QAM		1	0	22.31	22.43	22.43	23.50	
		1	50	22.64	22.69	22.70	23.50	
		1	99	22.47	22.52	22.45	23.50	
		50	0	21.21	21.44	21.37	22.50	
		50	25	21.34	21.43	21.45	22.50	
		50	50	21.34	21.41	21.34	22.50	
		100	0	21.25	21.38	21.31	22.50	
64QAM		1	0	21.21	21.34	21.39	22.50	
		1	50	21.49	21.63	21.66	22.50	
		1	99	21.32	21.48	21.48	22.50	
		50	0	20.21	20.42	20.34	21.50	
		50	25	20.33	20.42	20.42	21.50	
		50	50	20.36	20.40	20.32	21.50	
		100	0	20.29	20.37	20.33	21.50	



LTE Band7							
DSI1				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	23.08	23.19	23.25	24.50
		1	13	23.34	23.47	23.49	24.50
		1	24	23.27	23.33	23.33	24.50
		12	0	22.29	22.59	22.47	23.50
		12	6	22.38	22.55	22.57	23.50
		12	13	22.48	22.51	22.45	23.50
		25	0	22.35	22.55	22.48	23.50
	16QAM	1	0	22.45	22.56	22.63	23.50
		1	13	22.72	22.75	22.82	23.50
		1	24	22.59	22.60	22.63	23.50
		12	0	21.27	21.53	21.44	22.50
		12	6	21.41	21.55	21.55	22.50
		12	13	21.44	21.54	21.45	22.50
		25	0	21.32	21.54	21.46	22.50
	64QAM	1	0	21.40	21.51	21.50	22.50
		1	13	21.72	21.72	21.75	22.50
		1	24	21.53	21.59	21.55	22.50
		12	0	20.26	20.52	20.43	21.50
		12	6	20.42	20.53	20.54	21.50
		12	13	20.43	20.52	20.43	21.50
		25	0	20.34	20.52	20.45	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	23.07	23.18	23.24	24.50
		1	25	23.35	23.48	23.50	24.50
		1	49	23.26	23.32	23.32	24.50
		25	0	22.29	22.59	22.47	23.50
		25	13	22.39	22.56	22.56	23.50
		25	25	22.48	22.53	22.46	23.50
		50	0	22.39	22.56	22.50	23.50
	16QAM	1	0	22.49	22.55	22.62	23.50
		1	25	22.76	22.77	22.82	23.50
		1	49	22.59	22.60	22.62	23.50
		25	0	21.28	21.54	21.45	22.50
		25	13	21.40	21.54	21.54	22.50
		25	25	21.44	21.54	21.45	22.50
		50	0	21.33	21.55	21.45	22.50
	64QAM	1	0	21.39	21.50	21.49	22.50
1		25	21.72	21.74	21.75	22.50	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				20825/2507.5	21100/2535	21375/2562.5		
		1	49	21.53	21.59	21.54	22.50	
		25	0	20.27	20.53	20.44	21.50	
		25	13	20.41	20.52	20.53	21.50	
		25	25	20.43	20.52	20.43	21.50	
		50	0	20.35	20.53	20.44	21.50	
15MHz	QPSK	1	0	23.06	23.14	23.22	24.50	
		1	38	23.33	23.47	23.47	24.50	
		1	74	23.23	23.27	23.28	24.50	
		36	0	22.27	22.55	22.44	23.50	
		36	18	22.36	22.51	22.52	23.50	
		36	39	22.45	22.50	22.42	23.50	
		75	0	22.37	22.52	22.45	23.50	
	16QAM	1	0	22.47	22.53	22.60	23.50	
		1	38	22.74	22.74	22.80	23.50	
		1	74	22.57	22.56	22.59	23.50	
		36	0	21.25	21.52	21.42	22.50	
		36	18	21.37	21.49	21.50	22.50	
		36	39	21.42	21.50	21.42	22.50	
		75	0	21.30	21.50	21.41	22.50	
	64QAM	1	0	21.34	21.48	21.47	22.50	
		1	38	21.70	21.71	21.73	22.50	
		1	74	21.54	21.58	21.55	22.50	
		36	0	20.26	20.55	20.45	21.50	
		36	18	20.39	20.49	20.52	21.50	
		36	39	20.41	20.48	20.40	21.50	
		75	0	20.32	20.48	20.40	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					20850/2510	21100/2535	21350/2560	
	20MHz	QPSK	1	0	23.03	23.10	23.19	24.50
1			50	23.32	23.43	23.45	24.50	
1			99	23.21	23.26	23.25	24.50	
50			0	22.24	22.50	22.40	23.50	
50			25	22.34	22.47	22.49	23.50	
50			50	22.42	22.45	22.38	23.50	
100			0	22.34	22.47	22.41	23.50	
16QAM		1	0	22.44	22.49	22.55	23.50	
		1	50	22.71	22.72	22.76	23.50	
		1	99	22.54	22.53	22.57	23.50	
		50	0	21.22	21.48	21.39	22.50	
		50	25	21.34	21.47	21.47	22.50	
		50	50	21.39	21.45	21.38	22.50	



	64QAM	100	0	21.28	21.46	21.38	22.50
		1	0	21.32	21.44	21.42	22.50
		1	50	21.66	21.69	21.69	22.50
		1	99	21.48	21.52	21.49	22.50
		50	0	20.21	20.47	20.38	21.50
		50	25	20.35	20.45	20.46	21.50
		50	50	20.38	20.43	20.36	21.50
		100	0	20.30	20.44	20.37	21.50

LTE Band7							
DSI4				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	17.93	18.07	18.00	19.50
		1	13	18.28	18.30	18.17	19.50
		1	24	18.08	18.08	18.05	19.50
		12	0	18.05	18.25	18.09	19.50
		12	6	18.16	18.20	18.17	19.50
		12	13	18.20	18.24	18.10	19.50
		25	0	18.09	18.26	18.15	19.50
	16QAM	1	0	18.42	18.48	18.46	19.50
		1	13	18.67	18.81	18.70	19.50
		1	24	18.54	18.56	18.45	19.50
		12	0	18.05	18.23	18.10	19.50
		12	6	18.18	18.27	18.17	19.50
		12	13	18.18	18.25	18.09	19.50
		25	0	18.06	18.22	18.07	19.50
	64QAM	1	0	18.22	18.27	18.16	19.50
		1	13	18.66	18.51	18.60	19.50
		1	24	18.40	18.41	18.20	19.50
		12	0	18.05	18.18	18.15	19.50
		12	6	18.20	18.24	18.16	19.50
		12	13	18.16	18.24	18.06	19.50
		25	0	18.11	18.22	18.02	19.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	17.95	18.08	18.03	19.50
		1	25	18.31	18.35	18.21	19.50
		1	49	18.10	18.12	18.08	19.50
		25	0	18.08	18.30	18.13	19.50
		25	13	18.19	18.25	18.21	19.50
		25	25	18.22	18.28	18.15	19.50
		50	0	18.13	18.28	18.19	19.50



	16QAM	1	0	18.46	18.51	18.48	19.50
		1	25	18.71	18.85	18.73	19.50
		1	49	18.57	18.58	18.48	19.50
		25	0	18.08	18.28	18.14	19.50
		25	13	18.20	18.31	18.20	19.50
		25	25	18.21	18.30	18.13	19.50
		50	0	18.09	18.27	18.11	19.50
	64QAM	1	0	18.24	18.26	18.18	19.50
		1	25	18.69	18.51	18.63	19.50
		1	49	18.39	18.43	18.23	19.50
		25	0	18.08	18.23	18.15	19.50
		25	13	18.22	18.28	18.19	19.50
		25	25	18.19	18.29	18.10	19.50
		50	0	18.14	18.27	18.06	19.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	17.94	18.04	18.01	19.50
		1	38	18.29	18.34	18.18	19.50
		1	74	18.07	18.07	18.04	19.50
		36	0	18.06	18.26	18.10	19.50
		36	18	18.16	18.20	18.17	19.50
		36	39	18.19	18.25	18.11	19.50
		75	0	18.11	18.24	18.14	19.50
	16QAM	1	0	18.44	18.49	18.46	19.50
		1	38	18.69	18.82	18.71	19.50
		1	74	18.55	18.54	18.45	19.50
		36	0	18.05	18.26	18.11	19.50
		36	18	18.17	18.26	18.16	19.50
		36	39	18.19	18.26	18.10	19.50
		75	0	18.06	18.22	18.07	19.50
	64QAM	1	0	18.19	18.24	18.16	19.50
		1	38	18.67	18.48	18.61	19.50
		1	74	18.40	18.42	18.24	19.50
		36	0	18.07	18.25	18.16	19.50
		36	18	18.20	18.25	18.18	19.50
		36	39	18.17	18.25	18.07	19.50
		75	0	18.11	18.22	18.02	19.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	17.91	18.00	17.98	19.50
		1	50	18.28	18.30	18.16	19.50
		1	99	18.05	18.06	18.01	19.50
		50	0	18.03	18.21	18.06	19.50



		50	25	18.14	18.16	18.14	19.50			
		50	50	18.16	18.20	18.07	19.50			
		100	0	18.08	18.19	18.10	19.50			
	16QAM		1	0	18.41	18.45	18.41	19.50		
			1	50	18.66	18.80	18.67	19.50		
			1	99	18.52	18.51	18.43	19.50		
			50	0	18.02	18.22	18.08	19.50		
			50	25	18.14	18.24	18.13	19.50		
			50	50	18.16	18.21	18.06	19.50		
			100	0	18.04	18.18	18.04	19.50		
			64QAM		1	0	18.17	18.20	18.11	19.50
					1	50	18.63	18.46	18.57	19.50
	1	99			18.34	18.36	18.18	19.50		
	50	0			18.02	18.17	18.09	19.50		
	50	25			18.16	18.21	18.12	19.50		
	50	50			18.14	18.20	18.03	19.50		
	100	0			18.09	18.18	17.99	19.50		

LTE Band38								
Full Power&DSI2				Maximum Output Power (dBm)			Tune-up	
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)				
				37775/2572.5	38000/2595	38225/2617.5		
5MHz	QPSK	1	0	23.08	23.14	23.09	25.00	
		1	13	23.30	23.30	23.33	25.00	
		1	24	23.15	23.17	23.11	25.00	
		12	0	22.22	22.23	22.23	24.00	
		12	6	22.28	22.30	22.29	24.00	
		12	13	22.31	22.25	22.22	24.00	
		25	0	22.22	22.25	22.25	24.00	
	16QAM		1	0	22.24	22.26	22.28	24.00
			1	13	22.54	22.48	22.55	24.00
			1	24	22.34	22.34	22.30	24.00
			12	0	21.25	21.23	21.24	23.00
			12	6	21.33	21.34	21.37	23.00
			12	13	21.32	21.29	21.27	23.00
			25	0	21.29	21.25	21.28	23.00
	64QAM		1	0	21.23	21.14	21.12	23.00
			1	13	21.45	21.37	21.41	23.00
			1	24	21.18	21.22	21.10	23.00
			12	0	20.23	20.22	20.25	22.00
			12	6	20.29	20.28	20.33	22.00
			12	13	20.31	20.31	20.24	22.00
			25	0	20.26	20.25	20.28	22.00



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				37800/2575	38000/2595	38200/2615	
10MHz	QPSK	1	0	23.07	23.13	23.08	25.00
		1	25	23.31	23.31	23.34	25.00
		1	49	23.14	23.16	23.10	25.00
		25	0	22.22	22.23	22.23	24.00
		25	13	22.29	22.31	22.28	24.00
		25	25	22.31	22.27	22.23	24.00
		50	0	22.26	22.26	22.27	24.00
	16QAM	1	0	22.28	22.25	22.27	24.00
		1	25	22.58	22.50	22.55	24.00
		1	49	22.34	22.34	22.29	24.00
		25	0	21.26	21.24	21.25	23.00
		25	13	21.32	21.33	21.36	23.00
		25	25	21.32	21.29	21.27	23.00
		50	0	21.30	21.26	21.27	23.00
	64QAM	1	0	21.22	21.13	21.11	23.00
		1	25	21.45	21.39	21.41	23.00
		1	49	21.18	21.22	21.09	23.00
		25	0	20.24	20.23	20.26	22.00
		25	13	20.28	20.27	20.32	22.00
		25	25	20.31	20.31	20.24	22.00
		50	0	20.27	20.26	20.27	22.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
15MHz	QPSK	1	0	23.06	23.09	23.06	25.00
		1	38	23.29	23.30	23.31	25.00
		1	74	23.11	23.11	23.06	25.00
		36	0	22.20	22.19	22.20	24.00
		36	18	22.26	22.26	22.24	24.00
		36	39	22.28	22.24	22.19	24.00
		75	0	22.24	22.22	22.22	24.00
	16QAM	1	0	22.26	22.23	22.25	24.00
		1	38	22.56	22.47	22.53	24.00
		1	74	22.32	22.30	22.26	24.00
		36	0	21.23	21.22	21.22	23.00
		36	18	21.29	21.28	21.32	23.00
		36	39	21.30	21.25	21.24	23.00
		75	0	21.27	21.21	21.23	23.00
	64QAM	1	0	21.17	21.11	21.09	23.00
		1	38	21.43	21.36	21.39	23.00
		1	74	21.19	21.21	21.10	23.00
		36	0	20.23	20.25	20.27	22.00



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				37850/2580	38000/2595	38150/2610	
				36	18	20.26	
36	39	20.29	20.27	20.21	22.00		
75	0	20.24	20.21	20.23	22.00		
20MHz	QPSK	1	0	23.03	23.05	23.03	25.00
		1	50	23.28	23.26	23.29	25.00
		1	99	23.09	23.10	23.03	25.00
		50	0	22.17	22.14	22.16	24.00
		50	25	22.24	22.22	22.21	24.00
		50	50	22.25	22.19	22.15	24.00
		100	0	22.21	22.17	22.18	24.00
	16QAM	1	0	22.23	22.19	22.20	24.00
		1	50	22.53	22.45	22.49	24.00
		1	99	22.29	22.27	22.24	24.00
		50	0	21.20	21.18	21.19	23.00
		50	25	21.26	21.26	21.29	23.00
		50	50	21.27	21.20	21.20	23.00
		100	0	21.25	21.17	21.20	23.00
	64QAM	1	0	21.15	21.07	21.04	23.00
		1	50	21.39	21.34	21.35	23.00
		1	99	21.13	21.15	21.04	23.00
		50	0	20.18	20.17	20.20	22.00
		50	25	20.22	20.20	20.25	22.00
		50	50	20.26	20.22	20.17	22.00
		100	0	20.22	20.17	20.20	22.00

LTE Band38							
DSI4				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				37775/2572.5	38000/2595	38225/2617.5	
5MHz	QPSK	1	0	20.83	20.77	20.62	22.50
		1	13	20.91	20.89	20.62	22.50
		1	24	20.75	20.70	20.78	22.50
		12	0	20.85	20.80	20.80	22.50
		12	6	20.91	20.84	20.76	22.50
		12	13	20.88	20.82	20.79	22.50
		25	0	20.83	20.84	20.90	22.50
	16QAM	1	0	21.03	20.91	21.12	22.50
		1	13	21.19	21.07	20.86	22.50
		1	24	20.94	20.93	20.81	22.50
		12	0	20.90	20.78	20.85	22.50
		12	6	21.00	20.87	20.77	22.50



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				37800/2575	38000/2595	38200/2615		
		12	13	20.91	20.79	20.79	22.50	
		25	0	20.88	20.80	20.73	22.50	
	64QAM	1	0	20.90	20.80	20.96	22.50	
		1	13	21.05	20.96	20.65	22.50	
		1	24	20.83	20.75	20.58	22.50	
		12	0	19.90	19.81	19.87	21.50	
		12	6	19.95	19.79	19.74	21.50	
		12	13	19.90	19.79	19.82	21.50	
		25	0	19.83	19.81	19.83	21.50	
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
10MHz	QPSK	1	0	20.85	20.78	20.65	22.50	
		1	25	20.94	20.94	20.66	22.50	
		1	49	20.77	20.74	20.81	22.50	
		25	0	20.88	20.85	20.84	22.50	
		25	13	20.94	20.89	20.80	22.50	
		25	25	20.90	20.86	20.84	22.50	
		50	0	20.87	20.86	20.94	22.50	
	16QAM	1	0	21.07	20.94	21.14	22.50	
		1	25	21.23	21.11	20.89	22.50	
		1	49	20.97	20.95	20.84	22.50	
		25	0	20.93	20.83	20.89	22.50	
		25	13	21.02	20.91	20.80	22.50	
		25	25	20.94	20.84	20.83	22.50	
		50	0	20.91	20.85	20.77	22.50	
	64QAM	1	0	20.92	20.79	20.98	22.50	
		1	25	21.08	20.96	20.68	22.50	
		1	49	20.82	20.77	20.61	22.50	
		25	0	19.93	19.86	19.87	21.50	
		25	13	19.97	19.83	19.77	21.50	
		25	25	19.93	19.84	19.86	21.50	
		50	0	19.86	19.86	19.87	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
	15MHz	QPSK	1	0	20.84	20.74	20.63	22.50
			1	38	20.92	20.93	20.63	22.50
1			74	20.74	20.69	20.77	22.50	
36			0	20.86	20.81	20.81	22.50	
36			18	20.91	20.84	20.76	22.50	
36			39	20.87	20.83	20.80	22.50	
75			0	20.85	20.82	20.89	22.50	
16QAM		1	0	21.05	20.92	21.12	22.50	
		1	38	21.21	21.08	20.87	22.50	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up		
				37850/2580	38000/2595	38150/2610			
		1	74	20.95	20.91	20.81	22.50		
		36	0	20.90	20.81	20.86	22.50		
		36	18	20.99	20.86	20.76	22.50		
		36	39	20.92	20.80	20.80	22.50		
		75	0	20.88	20.80	20.73	22.50		
	64QAM	1	0	20.87	20.77	20.96	22.50		
		1	38	21.06	20.93	20.66	22.50		
		1	74	20.83	20.76	20.62	22.50		
		36	0	19.92	19.88	19.88	21.50		
		36	18	19.95	19.80	19.76	21.50		
		36	39	19.91	19.80	19.83	21.50		
		75	0	19.83	19.81	19.83	21.50		
		20MHz	QPSK	1	0	20.81	20.70	20.60	22.50
				1	50	20.91	20.89	20.61	22.50
1	99			20.72	20.68	20.74	22.50		
50	0			20.83	20.76	20.77	22.50		
50	25			20.89	20.80	20.73	22.50		
50	50			20.84	20.78	20.76	22.50		
100	0			20.82	20.77	20.85	22.50		
16QAM	1		0	21.02	20.88	21.07	22.50		
	1		50	21.18	21.06	20.83	22.50		
	1		99	20.92	20.88	20.79	22.50		
	50		0	20.87	20.77	20.83	22.50		
	50		25	20.96	20.84	20.73	22.50		
	50		50	20.89	20.75	20.76	22.50		
	100		0	20.86	20.76	20.70	22.50		
64QAM	1		0	20.85	20.73	20.91	22.50		
	1		50	21.02	20.91	20.62	22.50		
	1		99	20.77	20.70	20.56	22.50		
	50		0	19.87	19.80	19.81	21.50		
	50		25	19.91	19.76	19.70	21.50		
	50		50	19.88	19.75	19.79	21.50		
	100		0	19.81	19.77	19.80	21.50		

LTE Band38							
DSI1				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				37775/2572.5	38000/2595	38225/2617.5	
5MHz	QPSK	1	0	23.12	23.15	23.11	24.50
		1	13	23.34	23.34	23.37	24.50
		1	24	23.16	23.17	23.16	24.50



		12	0	22.22	22.21	22.25	23.50
		12	6	22.31	22.28	22.31	23.50
		12	13	22.31	22.27	22.25	23.50
		25	0	22.26	22.27	22.30	23.50
	16QAM	1	0	22.35	22.27	22.32	23.50
		1	13	22.59	22.55	22.59	23.50
		1	24	22.34	22.34	22.33	23.50
		12	0	21.27	21.22	21.27	22.50
		12	6	21.40	21.33	21.35	22.50
		12	13	21.33	21.31	21.30	22.50
		25	0	21.29	21.26	21.28	22.50
	64QAM	1	0	21.21	21.18	21.19	22.50
		1	13	21.47	21.43	21.43	22.50
		1	24	21.23	21.21	21.17	22.50
		12	0	20.25	20.25	20.30	21.50
		12	6	20.33	20.28	20.37	21.50
		12	13	20.27	20.29	20.26	21.50
		25	0	20.27	20.28	20.28	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				37800/2575	38000/2595	38200/2615	
10MHz	QPSK	1	0	23.14	23.16	23.14	24.50
		1	25	23.37	23.39	23.41	24.50
		1	49	23.18	23.21	23.19	24.50
		25	0	22.25	22.26	22.29	23.50
		25	13	22.34	22.33	22.35	23.50
		25	25	22.33	22.31	22.30	23.50
		50	0	22.30	22.29	22.34	23.50
	16QAM	1	0	22.39	22.30	22.34	23.50
		1	25	22.63	22.59	22.62	23.50
		1	49	22.37	22.36	22.36	23.50
		25	0	21.30	21.27	21.31	22.50
		25	13	21.42	21.37	21.38	22.50
		25	25	21.36	21.36	21.34	22.50
		50	0	21.32	21.31	21.32	22.50
	64QAM	1	0	21.23	21.17	21.21	22.50
		1	25	21.50	21.43	21.46	22.50
		1	49	21.22	21.23	21.20	22.50
		25	0	20.28	20.30	20.30	21.50
		25	13	20.35	20.32	20.40	21.50
		25	25	20.30	20.34	20.30	21.50
		50	0	20.30	20.33	20.32	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				37825/2577.5	38000/2595	38175/2612.5	



15MHz	QPSK	1	0	23.13	23.12	23.12	24.50
		1	38	23.35	23.38	23.38	24.50
		1	74	23.15	23.16	23.15	24.50
		36	0	22.23	22.22	22.26	23.50
		36	18	22.31	22.28	22.31	23.50
		36	39	22.30	22.28	22.26	23.50
		75	0	22.28	22.25	22.29	23.50
	16QAM	1	0	22.37	22.28	22.32	23.50
		1	38	22.61	22.56	22.60	23.50
		1	74	22.35	22.32	22.33	23.50
		36	0	21.27	21.25	21.28	22.50
		36	18	21.39	21.32	21.34	22.50
		36	39	21.34	21.32	21.31	22.50
		75	0	21.29	21.26	21.28	22.50
	64QAM	1	0	21.18	21.15	21.19	22.50
		1	38	21.48	21.40	21.44	22.50
		1	74	21.23	21.22	21.21	22.50
		36	0	20.27	20.32	20.31	21.50
		36	18	20.33	20.29	20.39	21.50
		36	39	20.28	20.30	20.27	21.50
		75	0	20.27	20.28	20.28	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				37850/2580	38000/2595	38150/2610	
20MHz	QPSK	1	0	23.10	23.08	23.09	24.50
		1	50	23.34	23.34	23.36	24.50
		1	99	23.13	23.15	23.12	24.50
		50	0	22.20	22.17	22.22	23.50
		50	25	22.29	22.24	22.28	23.50
		50	50	22.27	22.23	22.22	23.50
		100	0	22.25	22.20	22.25	23.50
	16QAM	1	0	22.34	22.24	22.27	23.50
		1	50	22.58	22.54	22.56	23.50
		1	99	22.32	22.29	22.31	23.50
		50	0	21.24	21.21	21.25	22.50
		50	25	21.36	21.30	21.31	22.50
		50	50	21.31	21.27	21.27	22.50
		100	0	21.27	21.22	21.25	22.50
	64QAM	1	0	21.16	21.11	21.14	22.50
		1	50	21.44	21.38	21.40	22.50
		1	99	21.17	21.16	21.15	22.50
		50	0	20.22	20.24	20.24	21.50
		50	25	20.29	20.25	20.33	21.50
		50	50	20.25	20.25	20.23	21.50



		100	0	20.25	20.24	20.25	21.50
--	--	-----	---	-------	-------	-------	-------

LTE Band41									
Full Power&DSI2				Maximum Output Power (dBm)					Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					
				39675/2498.5	40148/2545.8	40620/2593	41093/2640.3	41565/2687.5	
5MHz	QPSK	1	0	23.25	23.22	23.09	23.10	23.10	25.00
		1	13	23.52	23.42	23.42	23.38	23.34	25.00
		1	24	23.28	23.14	23.17	23.13	23.07	25.00
		12	0	22.37	22.37	22.26	22.26	22.28	24.00
		12	6	22.48	22.43	22.35	22.27	22.35	24.00
		12	13	22.47	22.39	22.30	22.29	22.31	24.00
		25	0	22.40	22.45	22.32	22.29	22.32	24.00
	16QAM	1	0	22.41	22.39	22.34	22.29	22.29	24.00
		1	13	22.73	22.70	22.61	22.58	22.58	24.00
		1	24	22.43	22.46	22.35	22.30	22.34	24.00
		12	0	21.41	21.37	21.28	21.29	21.28	23.00
		12	6	21.49	21.46	21.36	21.34	21.40	23.00
		12	13	21.44	21.41	21.33	21.31	21.33	23.00
		25	0	21.41	21.42	21.32	21.32	21.32	23.00
	64QAM	1	0	21.35	21.25	21.19	21.18	21.21	23.00
		1	13	21.61	21.61	21.47	21.47	21.51	23.00
		1	24	21.34	21.26	21.22	21.20	21.22	23.00
		12	0	20.40	20.35	20.32	20.30	20.24	22.00
		12	6	20.49	20.42	20.36	20.38	20.33	22.00
		12	13	20.46	20.40	20.37	20.29	20.31	22.00
		25	0	20.38	20.39	20.33	20.32	20.27	22.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39700/2501	40160/2547	40620/2593	41080/2639	41540/2685	
10MHz	QPSK	1	0	23.27	23.23	23.12	23.12	23.11	25.00
		1	25	23.55	23.47	23.46	23.41	23.39	25.00
		1	49	23.30	23.18	23.20	23.15	23.11	25.00
		25	0	22.40	22.42	22.30	22.29	22.33	24.00
		25	13	22.51	22.48	22.39	22.30	22.40	24.00
		25	25	22.49	22.43	22.35	22.31	22.35	24.00
		50	0	22.44	22.47	22.36	22.33	22.34	24.00
	16QAM	1	0	22.45	22.42	22.36	22.33	22.32	24.00
		1	25	22.77	22.74	22.64	22.62	22.62	24.00
		1	49	22.46	22.48	22.38	22.33	22.36	24.00
		25	0	21.44	21.42	21.32	21.32	21.33	23.00
		25	13	21.51	21.50	21.39	21.36	21.44	23.00
		25	25	21.47	21.46	21.37	21.34	21.38	23.00
		50	0	21.44	21.47	21.36	21.35	21.37	23.00



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up	
				39725/2503.5	40173/2548.3	40620/2593	41068/2637.8	41515/2682.5		
	64QAM	1	0	21.37	21.24	21.21	21.20	21.20	23.00	
		1	25	21.64	21.61	21.50	21.50	21.51	23.00	
		1	49	21.33	21.28	21.25	21.19	21.24	23.00	
		25	0	20.43	20.40	20.32	20.33	20.29	22.00	
		25	13	20.51	20.46	20.39	20.40	20.37	22.00	
		25	25	20.49	20.45	20.41	20.32	20.36	22.00	
		50	0	20.41	20.44	20.37	20.35	20.32	22.00	
15MHz	QPSK	1	0	23.26	23.19	23.10	23.11	23.07	25.00	
		1	38	23.53	23.46	23.43	23.39	23.38	25.00	
		1	74	23.27	23.13	23.16	23.12	23.06	25.00	
		36	0	22.38	22.38	22.27	22.27	22.29	24.00	
		36	18	22.48	22.43	22.35	22.27	22.35	24.00	
		36	39	22.46	22.40	22.31	22.28	22.32	24.00	
		75	0	22.42	22.43	22.31	22.31	22.30	24.00	
	16QAM	1	0	22.43	22.40	22.34	22.31	22.30	24.00	
		1	38	22.75	22.71	22.62	22.60	22.59	24.00	
		1	74	22.44	22.44	22.35	22.31	22.32	24.00	
		36	0	21.41	21.40	21.29	21.29	21.31	23.00	
		36	18	21.48	21.45	21.35	21.33	21.39	23.00	
		36	39	21.45	21.42	21.34	21.32	21.34	23.00	
		75	0	21.41	21.42	21.32	21.32	21.32	23.00	
	64QAM	1	0	21.32	21.22	21.19	21.15	21.18	23.00	
		1	38	21.62	21.58	21.48	21.48	21.48	23.00	
		1	74	21.34	21.27	21.26	21.20	21.23	23.00	
		36	0	20.42	20.42	20.33	20.32	20.31	22.00	
		36	18	20.49	20.43	20.38	20.38	20.34	22.00	
		36	39	20.47	20.41	20.38	20.30	20.32	22.00	
		75	0	20.38	20.39	20.33	20.32	20.27	22.00	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
					39750/2506	40185/2549.5	40620/2593	41055/2636.5	41490/2680	
	20MHz	QPSK	1	0	23.23	23.15	23.07	23.08	23.03	25.00
			1	50	23.52	23.42	23.41	23.38	23.34	25.00
			1	99	23.25	23.12	23.13	23.10	23.05	25.00
			50	0	22.35	22.33	22.23	22.24	22.24	24.00
			50	25	22.46	22.39	22.32	22.25	22.31	24.00
50			50	22.43	22.35	22.27	22.25	22.27	24.00	
100			0	22.39	22.38	22.27	22.28	22.25	24.00	
16QAM		1	0	22.40	22.36	22.29	22.28	22.26	24.00	
		1	50	22.72	22.69	22.58	22.57	22.57	24.00	
		1	99	22.41	22.41	22.33	22.28	22.29	24.00	
		50	0	21.38	21.36	21.26	21.26	21.27	23.00	



		50	25	21.45	21.43	21.32	21.30	21.37	23.00
		50	50	21.42	21.37	21.30	21.29	21.29	23.00
		100	0	21.39	21.38	21.29	21.30	21.28	23.00
	64QAM	1	0	21.30	21.18	21.14	21.13	21.14	23.00
		1	50	21.58	21.56	21.44	21.44	21.46	23.00
		1	99	21.28	21.21	21.20	21.14	21.17	23.00
		50	0	20.37	20.34	20.26	20.27	20.23	22.00
		50	25	20.45	20.39	20.32	20.34	20.30	22.00
		50	50	20.44	20.36	20.34	20.27	20.27	22.00
		100	0	20.36	20.35	20.30	20.30	20.23	22.00

LTE Band41									
DSI1				Maximum Output Power (dBm)					Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					
				39675/2498.5	40148/2545.8	40620/2593	41093/2640.3	41565/2687.5	
5MHz	QPSK	1	0	23.16	23.13	23.14	23.13	23.20	24.50
		1	13	23.44	23.42	23.39	23.36	23.32	24.50
		1	24	23.17	23.20	23.23	23.11	23.17	24.50
		12	0	22.38	22.31	22.27	22.26	22.37	23.50
		12	6	22.43	22.37	22.36	22.31	22.34	23.50
		12	13	22.40	22.38	22.34	22.29	22.26	23.50
		25	0	22.38	22.38	22.34	22.27	22.35	23.50
	16QAM	1	0	22.43	22.34	22.33	22.29	22.44	23.50
		1	13	22.70	22.65	22.59	22.55	22.56	23.50
		1	24	22.43	22.39	22.37	22.34	22.35	23.50
		12	0	21.40	21.31	21.31	21.29	21.23	22.50
		12	6	21.46	21.41	21.38	21.34	21.25	22.50
		12	13	21.39	21.39	21.35	21.25	21.26	22.50
		25	0	21.38	21.36	21.33	21.23	21.34	22.50
	64QAM	1	0	21.28	21.24	21.21	21.23	21.22	22.50
		1	13	21.53	21.55	21.51	21.46	21.49	22.50
		1	24	21.31	21.27	21.24	21.15	21.07	22.50
		12	0	20.39	20.28	20.34	20.29	20.23	21.50
		12	6	20.43	20.37	20.39	20.34	20.31	21.50
		12	13	20.37	20.36	20.35	20.28	20.37	21.50
		25	0	20.38	20.36	20.33	20.27	20.26	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
10MHz	QPSK	1	0	39700/2501	40160/2547	40620/2593	41080/2639	41540/2685	24.50
		1	25	23.18	23.14	23.17	23.15	23.21	24.50
		1	49	23.47	23.47	23.43	23.39	23.37	24.50
		25	0	23.19	23.24	23.26	23.13	23.21	24.50
		25	13	22.41	22.36	22.31	22.29	22.42	23.50
				22.46	22.42	22.40	22.34	22.39	23.50



		25	25	22.42	22.42	22.39	22.31	22.30	23.50	
		50	0	22.42	22.40	22.38	22.31	22.37	23.50	
	16QAM	1	0	22.47	22.37	22.35	22.33	22.47	23.50	
		1	25	22.74	22.69	22.62	22.59	22.60	23.50	
		1	49	22.46	22.41	22.40	22.37	22.37	23.50	
		25	0	21.43	21.36	21.35	21.32	21.28	22.50	
		25	13	21.48	21.45	21.41	21.36	21.29	22.50	
		25	25	21.42	21.44	21.39	21.28	21.31	22.50	
	64QAM	50	0	21.41	21.41	21.37	21.26	21.39	22.50	
		1	0	21.30	21.23	21.23	21.25	21.21	22.50	
		1	25	21.56	21.55	21.54	21.49	21.49	22.50	
		1	49	21.30	21.29	21.27	21.14	21.09	22.50	
		25	0	20.42	20.33	20.34	20.32	20.28	21.50	
		25	13	20.45	20.41	20.42	20.36	20.35	21.50	
15MHz	QPSK	25	25	21.42	21.44	21.39	21.28	21.31	22.50	
		50	0	20.41	20.41	20.37	20.30	20.31	21.50	
		1	0	23.17	23.10	23.15	23.14	23.17	24.50	
		1	38	23.45	23.46	23.40	23.37	23.36	24.50	
		1	74	23.16	23.19	23.22	23.10	23.16	24.50	
		36	0	22.39	22.32	22.28	22.27	22.38	23.50	
		36	18	22.43	22.37	22.36	22.31	22.34	23.50	
	16QAM	36	39	22.39	22.39	22.35	22.28	22.27	23.50	
		75	0	22.40	22.36	22.33	22.29	22.33	23.50	
		1	0	22.45	22.35	22.33	22.31	22.45	23.50	
		1	38	22.72	22.66	22.60	22.57	22.57	23.50	
		1	74	22.44	22.37	22.37	22.35	22.33	23.50	
		36	0	21.40	21.34	21.32	21.29	21.26	22.50	
		36	18	21.45	21.40	21.37	21.33	21.24	22.50	
64QAM	36	39	21.40	21.40	21.36	21.26	21.27	22.50		
	75	0	21.38	21.36	21.33	21.23	21.34	22.50		
	1	0	21.25	21.21	21.21	21.20	21.19	22.50		
	1	38	21.54	21.52	21.52	21.47	21.46	22.50		
	1	74	21.31	21.28	21.28	21.15	21.08	22.50		
	36	0	20.41	20.35	20.35	20.31	20.30	21.50		
	36	18	20.43	20.38	20.41	20.34	20.32	21.50		
20MHz	QPSK	36	39	20.38	20.37	20.36	20.29	20.38	21.50	
		75	0	20.38	20.36	20.33	20.27	20.26	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
					39725/2503.5	40173/2548.3	40620/2593	41068/2637.8	41515/2682.5	
	20MHz	QPSK	1	0	23.14	23.06	23.12	23.11	23.13	24.50
			1	50	23.44	23.42	23.38	23.36	23.32	24.50
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
					39750/2506	40185/2549.5	40620/2593	41055/2636.5	41490/2680	



		1	99	23.14	23.18	23.19	23.08	23.15	24.50
		50	0	22.36	22.27	22.24	22.24	22.33	23.50
		50	25	22.41	22.33	22.33	22.29	22.30	23.50
		50	50	22.36	22.34	22.31	22.25	22.22	23.50
		100	0	22.37	22.31	22.29	22.26	22.28	23.50
	16QAM	1	0	22.42	22.31	22.28	22.28	22.41	23.50
		1	50	22.69	22.64	22.56	22.54	22.55	23.50
		1	99	22.41	22.34	22.35	22.32	22.30	23.50
		50	0	21.37	21.30	21.29	21.26	21.22	22.50
		50	25	21.42	21.38	21.34	21.30	21.22	22.50
		50	50	21.37	21.35	21.32	21.23	21.22	22.50
		100	0	21.36	21.32	21.30	21.21	21.30	22.50
	64QAM	1	0	21.23	21.17	21.16	21.18	21.15	22.50
		1	50	21.50	21.50	21.48	21.43	21.44	22.50
		1	99	21.25	21.22	21.22	21.09	21.02	22.50
		50	0	20.36	20.27	20.28	20.26	20.22	21.50
		50	25	20.39	20.34	20.35	20.30	20.28	21.50
		50	50	20.35	20.32	20.32	20.26	20.33	21.50
		100	0	20.36	20.32	20.30	20.25	20.22	21.50

LTE Band41									
DSI4				Maximum Output Power (dBm)					Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					
				39675/2498.5	40148/2545.8	40620/2593	41093/2640.3	41565/2687.5	
5MHz	QPSK	1	0	21.92	21.88	21.53	21.54	21.58	22.50
		1	13	22.20	22.03	21.80	21.71	21.64	22.50
		1	24	21.95	21.74	21.55	21.55	21.53	22.50
		12	0	22.02	21.97	21.72	21.54	21.60	22.50
		12	6	22.19	22.07	21.77	21.70	21.72	22.50
		12	13	22.15	22.02	21.70	21.67	21.67	22.50
		25	0	22.05	21.99	21.69	21.57	21.65	22.50
	16QAM	1	0	22.09	21.98	21.77	21.60	21.61	22.50
		1	13	22.41	22.27	22.00	21.92	21.81	22.50
		1	24	22.09	21.93	21.72	21.62	21.65	22.50
		12	0	21.12	21.00	20.69	20.66	20.67	22.50
		12	6	21.19	21.09	20.77	20.67	20.75	22.50
		12	13	21.24	21.04	20.73	20.68	20.71	22.50
		25	0	21.08	20.99	20.68	20.61	20.65	22.50
	64QAM	1	0	20.99	20.96	20.60	20.57	20.58	22.50
		1	13	21.31	21.14	20.81	20.81	20.79	22.50
		1	24	21.04	20.88	20.56	20.59	20.59	22.50
		12	0	20.12	20.07	19.78	19.63	19.63	21.50
		12	6	20.21	20.10	19.84	19.77	19.80	21.50



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up	
				39700/2501	40160/2547	40620/2593	41080/2639	41540/2685		
				12	13	20.22	20.04	19.79		19.66
		25	0	20.08	20.00	19.68	19.58	19.63	21.50	
10MHz	QPSK	1	0	21.94	21.89	21.56	21.56	21.59	22.50	
		1	25	22.23	22.08	21.84	21.74	21.69	22.50	
		1	49	21.97	21.78	21.58	21.57	21.57	22.50	
		25	0	22.05	22.02	21.76	21.57	21.65	22.50	
		25	13	22.22	22.12	21.81	21.73	21.77	22.50	
		25	25	22.17	22.06	21.75	21.69	21.71	22.50	
		50	0	22.09	22.01	21.73	21.61	21.67	22.50	
	16QAM	1	0	22.13	22.01	21.79	21.64	21.64	22.50	
		1	25	22.45	22.31	22.03	21.96	21.85	22.50	
		1	49	22.12	21.95	21.75	21.65	21.67	22.50	
		25	0	21.15	21.05	20.73	20.69	20.72	22.50	
		25	13	21.21	21.13	20.80	20.69	20.79	22.50	
		25	25	21.27	21.09	20.77	20.71	20.76	22.50	
		50	0	21.11	21.04	20.72	20.64	20.70	22.50	
	64QAM	1	0	21.01	20.95	20.62	20.59	20.57	22.50	
		1	25	21.34	21.14	20.84	20.84	20.79	22.50	
		1	49	21.03	20.90	20.59	20.58	20.61	22.50	
		25	0	20.15	20.12	19.78	19.66	19.68	21.50	
		25	13	20.23	20.14	19.87	19.79	19.84	21.50	
		25	25	20.25	20.09	19.83	19.69	19.72	21.50	
		50	0	20.11	20.05	19.72	19.61	19.68	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
					39725/2503.5	40173/2548.3	40620/2593	41068/2637.8	41515/2682.5	
					12	13	20.22	20.04	19.79	
		25	0	20.08	20.00	19.68	19.58	19.63	21.50	
15MHz	QPSK	1	0	21.93	21.85	21.54	21.55	21.55	22.50	
		1	38	22.21	22.07	21.81	21.72	21.68	22.50	
		1	74	21.94	21.73	21.54	21.54	21.52	22.50	
		36	0	22.03	21.98	21.73	21.55	21.61	22.50	
		36	18	22.19	22.07	21.77	21.70	21.72	22.50	
		36	39	22.14	22.03	21.71	21.66	21.68	22.50	
		75	0	22.07	21.97	21.68	21.59	21.63	22.50	
	16QAM	1	0	22.11	21.99	21.77	21.62	21.62	22.50	
		1	38	22.43	22.28	22.01	21.94	21.82	22.50	
		1	74	22.10	21.91	21.72	21.63	21.63	22.50	
		36	0	21.12	21.03	20.70	20.66	20.70	22.50	
		36	18	21.18	21.08	20.76	20.66	20.74	22.50	
		36	39	21.25	21.05	20.74	20.69	20.72	22.50	
		75	0	21.08	20.99	20.68	20.61	20.65	22.50	
	64QAM	1	0	20.96	20.93	20.60	20.54	20.55	22.50	
		1	38	21.32	21.11	20.82	20.82	20.76	22.50	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39750/2506	40185/2549.5	40620/2593	41055/2636.5	41490/2680	
20MHz		1	74	21.04	20.89	20.60	20.59	20.60	22.50
		36	0	20.14	20.14	19.79	19.65	19.70	21.50
		36	18	20.21	20.11	19.86	19.77	19.81	21.50
		36	39	20.23	20.05	19.80	19.67	19.68	21.50
		75	0	20.08	20.00	19.68	19.58	19.63	21.50
	QPSK	1	0	21.10	21.01	20.71	20.72	20.71	22.50
		1	50	21.40	21.23	20.99	20.91	20.84	22.50
		1	99	21.12	20.92	20.71	20.72	20.71	22.50
		50	0	21.20	21.13	20.89	20.72	20.76	22.50
		50	25	21.37	21.23	20.94	20.88	20.88	22.50
		50	50	21.31	21.18	20.87	20.83	20.83	22.50
		100	0	21.24	21.12	20.84	20.76	20.78	22.50
	16QAM	1	0	21.28	21.15	20.92	20.79	20.78	22.50
		1	50	21.60	21.46	21.17	21.11	21.00	22.50
		1	99	21.27	21.08	20.90	20.80	20.80	22.50
		50	0	21.09	20.99	20.67	20.63	20.66	22.50
		50	25	21.15	21.06	20.73	20.63	20.72	22.50
		50	50	21.22	21.00	20.70	20.66	20.67	22.50
		100	0	21.06	20.95	20.65	20.59	20.61	22.50
	64QAM	1	0	20.94	20.89	20.55	20.52	20.51	22.50
		1	50	21.28	21.09	20.78	20.78	20.74	22.50
1		99	20.98	20.83	20.54	20.53	20.54	22.50	
50		0	20.09	20.06	19.72	19.60	19.62	21.50	
50		25	20.17	20.07	19.80	19.73	19.77	21.50	
50		50	20.20	20.00	19.76	19.64	19.63	21.50	
100		0	20.06	19.96	19.65	19.56	19.59	21.50	



Upper- Antenna

LTE Band5							
Full Power&DSI2				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	23.38	23.44	23.40	25.00
		1	2	23.57	23.56	23.48	25.00
		1	5	23.47	23.41	23.43	25.00
		3	0	23.53	23.53	23.53	25.00
		3	2	23.49	23.52	23.49	25.00
		3	3	23.46	23.48	23.41	25.00
		6	0	22.59	22.59	22.55	24.00
	16QAM	1	0	22.69	22.77	22.77	24.00
		1	2	22.88	22.87	22.84	24.00
		1	5	22.79	22.76	22.71	24.00
		3	0	22.53	22.47	22.48	24.00
		3	2	22.47	22.49	22.50	24.00
		3	3	22.43	22.48	22.34	24.00
		6	0	21.58	21.56	21.55	23.00
	64QAM	1	0	21.63	21.61	21.57	23.00
		1	2	21.78	21.71	21.65	23.00
		1	5	21.61	21.67	21.56	23.00
		3	0	21.50	21.46	21.47	23.00
		3	2	21.46	21.46	21.49	23.00
		3	3	21.42	21.47	21.38	23.00
		6	0	20.54	20.58	20.54	22.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20415/825.5	20525/836.5	20635/847.5	
3MHz	QPSK	1	0	23.39	23.47	23.42	25.00
		1	7	23.56	23.60	23.53	25.00
		1	14	23.49	23.45	23.46	25.00
		8	0	22.63	22.65	22.66	24.00
		8	4	22.62	22.63	22.60	24.00
		8	7	22.56	22.61	22.52	24.00
		15	0	22.63	22.64	22.60	24.00
	16QAM	1	0	22.73	22.78	22.79	24.00
		1	7	22.92	22.89	22.88	24.00
		1	14	22.81	22.80	22.73	24.00
		8	0	21.65	21.61	21.61	23.00
		8	4	21.57	21.61	21.61	23.00
		8	7	21.53	21.60	21.47	23.00
		15	0	21.62	21.61	21.57	23.00
	64QAM	1	0	21.65	21.62	21.59	23.00



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				20425/826.5	20525/836.5	20625/846.5		
		1	7	21.81	21.73	21.67	23.00	
		1	14	21.63	21.66	21.58	23.00	
		8	0	20.62	20.60	20.60	22.00	
		8	4	20.56	20.58	20.60	22.00	
		8	7	20.52	20.59	20.51	22.00	
		15	0	20.58	20.63	20.56	22.00	
5MHz	QPSK	1	0	23.38	23.43	23.40	25.00	
		1	13	23.54	23.59	23.50	25.00	
		1	24	23.46	23.40	23.42	25.00	
		12	0	22.61	22.61	22.63	24.00	
		12	6	22.59	22.58	22.56	24.00	
		12	13	22.53	22.58	22.48	24.00	
		25	0	22.61	22.60	22.55	24.00	
	16QAM	1	0	22.71	22.76	22.77	24.00	
		1	13	22.90	22.86	22.86	24.00	
		1	24	22.79	22.76	22.70	24.00	
		12	0	21.62	21.59	21.58	23.00	
		12	6	21.54	21.56	21.57	23.00	
		12	13	21.51	21.56	21.44	23.00	
		25	0	21.59	21.56	21.53	23.00	
	64QAM	1	0	21.60	21.60	21.57	23.00	
		1	13	21.79	21.70	21.65	23.00	
		1	24	21.64	21.65	21.59	23.00	
		12	0	20.61	20.62	20.61	22.00	
		12	6	20.54	20.55	20.59	22.00	
		12	13	20.50	20.55	20.48	22.00	
		25	0	20.55	20.58	20.52	22.00	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					20450/829	20525/836.5	20600/844	
	10MHz	QPSK	1	0	23.35	23.39	23.37	25.00
1			25	23.55	23.55	23.48	25.00	
1			49	23.44	23.39	23.39	25.00	
25			0	22.60	22.56	22.59	24.00	
25			13	22.57	22.54	22.53	24.00	
25			25	22.50	22.53	22.44	24.00	
50			0	22.58	22.55	22.51	24.00	
16QAM		1	0	22.68	22.72	22.72	24.00	
		1	25	22.87	22.84	22.82	24.00	
		1	49	22.76	22.73	22.68	24.00	
		25	0	21.59	21.55	21.55	23.00	
		25	13	21.51	21.54	21.54	23.00	



		25	25	21.48	21.51	21.40	23.00
		50	0	21.57	21.52	21.50	23.00
	64QAM	1	0	21.58	21.56	21.52	23.00
		1	25	21.75	21.68	21.61	23.00
		1	49	21.58	21.59	21.53	23.00
		25	0	20.56	20.54	20.54	22.00
		25	13	20.50	20.51	20.53	22.00
		25	25	20.47	20.50	20.44	22.00
		50	0	20.53	20.54	20.49	22.00

LTE Band5							
DSI1				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	23.41	23.49	23.41	24.50
		1	2	23.56	23.52	23.47	24.50
		1	5	23.46	23.44	23.42	24.50
		3	0	23.54	23.52	23.51	24.50
		3	2	23.46	23.52	23.48	24.50
		3	3	23.46	23.48	23.39	24.50
		6	0	22.57	22.58	22.57	23.50
	16QAM	1	0	22.69	22.74	22.73	23.50
		1	2	22.81	22.85	22.76	23.50
		1	5	22.77	22.72	22.69	23.50
		3	0	22.50	22.48	22.48	23.50
		3	2	22.48	22.48	22.49	23.50
		3	3	22.44	22.47	22.34	23.50
		6	0	21.56	21.57	21.51	22.50
	64QAM	1	0	21.66	21.70	21.61	22.50
		1	2	21.79	21.80	21.73	22.50
		1	5	21.71	21.73	21.61	22.50
		3	0	21.50	21.42	21.46	22.50
		3	2	21.50	21.48	21.46	22.50
		3	3	21.42	21.46	21.34	22.50
		6	0	20.53	20.57	20.50	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
3MHz	QPSK	1	0	23.40	23.51	23.40	24.50
		1	7	23.52	23.51	23.48	24.50
		1	14	23.46	23.44	23.42	24.50
		8	0	22.61	22.59	22.60	23.50
		8	4	22.56	22.58	22.55	23.50
		8	7	22.54	22.57	22.45	23.50



	16QAM	15	0	22.57	22.61	22.58	23.50
		1	0	22.69	22.72	22.73	23.50
		1	7	22.81	22.83	22.77	23.50
		1	14	22.76	22.74	22.68	23.50
		8	0	21.59	21.57	21.57	22.50
		8	4	21.56	21.56	21.57	22.50
		8	7	21.51	21.54	21.43	22.50
		15	0	21.57	21.57	21.49	22.50
	64QAM	1	0	21.66	21.72	21.61	22.50
		1	7	21.79	21.82	21.72	22.50
		1	14	21.74	21.70	21.60	22.50
		8	0	20.59	20.51	20.59	21.50
		8	4	20.58	20.56	20.54	21.50
		8	7	20.49	20.53	20.43	21.50
		15	0	20.54	20.57	20.48	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20425/826.5	20525/836.5	20625/846.5	
5MHz	QPSK	1	0	23.41	23.48	23.41	24.50
		1	13	23.53	23.55	23.49	24.50
		1	24	23.45	23.43	23.41	24.50
		12	0	22.62	22.60	22.61	23.50
		12	6	22.56	22.58	22.55	23.50
		12	13	22.53	22.58	22.46	23.50
		25	0	22.59	22.59	22.57	23.50
	16QAM	1	0	22.71	22.73	22.73	23.50
		1	13	22.83	22.84	22.78	23.50
		1	24	22.77	22.72	22.68	23.50
		12	0	21.59	21.60	21.58	22.50
		12	6	21.55	21.55	21.56	22.50
		12	13	21.52	21.55	21.44	22.50
		25	0	21.57	21.57	21.49	22.50
	64QAM	1	0	21.63	21.69	21.61	22.50
		1	13	21.80	21.79	21.73	22.50
		1	24	21.74	21.71	21.64	22.50
		12	0	20.61	20.58	20.60	21.50
		12	6	20.58	20.57	20.56	21.50
		12	13	20.50	20.54	20.44	21.50
		25	0	20.54	20.57	20.48	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20450/829	20525/836.5	20600/844	
10MHz	QPSK	1	0	23.38	23.44	23.38	24.50
		1	25	23.52	23.51	23.47	24.50
		1	49	23.43	23.42	23.38	24.50



		25	0	22.59	22.55	22.57	23.50
		25	13	22.54	22.54	22.52	23.50
		25	25	22.50	22.53	22.42	23.50
		50	0	22.56	22.54	22.53	23.50
	16QAM	1	0	22.68	22.69	22.68	23.50
		1	25	22.80	22.82	22.74	23.50
		1	49	22.74	22.69	22.66	23.50
		25	0	21.56	21.56	21.55	22.50
		25	13	21.52	21.53	21.53	22.50
		25	25	21.49	21.50	21.40	22.50
		50	0	21.55	21.53	21.46	22.50
	64QAM	1	0	21.61	21.65	21.56	22.50
		1	25	21.76	21.77	21.69	22.50
		1	49	21.68	21.65	21.58	22.50
		25	0	20.56	20.50	20.53	21.50
		25	13	20.54	20.53	20.50	21.50
		25	25	20.47	20.49	20.40	21.50
		50	0	20.52	20.53	20.45	21.50

LTE Band5							
DSI4				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	22.47	22.56	22.52	23.50
		1	2	22.59	22.60	22.57	23.50
		1	5	22.52	22.55	22.51	23.50
		3	0	22.63	22.66	22.61	23.50
		3	2	22.58	22.60	22.61	23.50
		3	3	22.55	22.58	22.49	23.50
		6	0	22.59	22.61	22.60	23.50
	16QAM	1	0	22.71	22.79	22.82	23.50
		1	2	22.94	22.84	22.91	23.50
		1	5	22.80	22.78	22.75	23.50
		3	0	22.52	22.45	22.51	23.50
		3	2	22.49	22.51	22.47	23.50
		3	3	22.45	22.47	22.34	23.50
		6	0	21.57	21.58	21.56	22.50
	64QAM	1	0	21.65	21.67	21.66	22.50
		1	2	21.74	21.76	21.65	22.50
		1	5	21.64	21.61	21.54	22.50
		3	0	21.52	21.48	21.47	22.50
		3	2	21.49	21.47	21.47	22.50
		3	3	21.42	21.48	21.36	22.50



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20415/825.5	20525/836.5	20635/847.5	
				6	0	20.55	
3MHz	QPSK	1	0	22.44	22.54	22.48	23.50
		1	7	22.57	22.56	22.54	23.50
		1	14	22.49	22.50	22.47	23.50
		8	0	22.60	22.61	22.57	23.50
		8	4	22.56	22.56	22.56	23.50
		8	7	22.53	22.56	22.45	23.50
		15	0	22.59	22.60	22.58	23.50
	16QAM	1	0	22.71	22.75	22.79	23.50
		1	7	22.94	22.82	22.88	23.50
		1	14	22.77	22.76	22.71	23.50
		8	0	21.61	21.54	21.60	22.50
		8	4	21.57	21.59	21.55	22.50
		8	7	21.52	21.54	21.43	22.50
		15	0	21.58	21.58	21.54	22.50
	64QAM	1	0	21.65	21.69	21.66	22.50
		1	7	21.74	21.78	21.64	22.50
		1	14	21.67	21.58	21.53	22.50
		8	0	20.61	20.57	20.60	21.50
		8	4	20.57	20.55	20.55	21.50
		8	7	20.49	20.55	20.45	21.50
		15	0	20.56	20.56	20.48	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20425/826.5	20525/836.5	20625/846.5	
				6	0	20.55	
5MHz	QPSK	1	0	22.45	22.51	22.49	23.50
		1	13	22.58	22.60	22.55	23.50
		1	24	22.48	22.49	22.46	23.50
		12	0	22.61	22.62	22.58	23.50
		12	6	22.56	22.56	22.56	23.50
		12	13	22.52	22.57	22.46	23.50
		25	0	22.61	22.58	22.57	23.50
	16QAM	1	0	22.73	22.76	22.79	23.50
		1	13	22.96	22.83	22.89	23.50
		1	24	22.78	22.74	22.71	23.50
		12	0	21.61	21.57	21.61	22.50
		12	6	21.56	21.58	21.54	22.50
		12	13	21.53	21.55	21.44	22.50
		25	0	21.58	21.58	21.54	22.50
	64QAM	1	0	21.62	21.66	21.66	22.50
		1	13	21.75	21.75	21.65	22.50
		1	24	21.67	21.59	21.57	22.50



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				20450/829	20525/836.5	20600/844		
10MHz	QPSK	12	0	20.63	20.64	20.61	21.50	
		12	6	20.57	20.56	20.57	21.50	
		12	13	20.50	20.56	20.46	21.50	
		25	0	20.56	20.56	20.48	21.50	
	16QAM	1	0	22.42	22.47	22.46	23.50	
		1	25	22.57	22.56	22.53	23.50	
		1	49	22.46	22.48	22.43	23.50	
		25	0	22.58	22.57	22.54	23.50	
		25	13	22.54	22.52	22.53	23.50	
		25	25	22.49	22.52	22.42	23.50	
		50	0	22.58	22.53	22.53	23.50	
		64QAM	1	0	22.70	22.72	22.74	23.50
			1	25	22.93	22.81	22.85	23.50
			1	49	22.75	22.71	22.69	23.50
			25	0	21.58	21.53	21.58	22.50
			25	13	21.53	21.56	21.51	22.50
			25	25	21.50	21.50	21.40	22.50
			50	0	21.56	21.54	21.51	22.50
	64QAM	1	0	21.60	21.62	21.61	22.50	
		1	25	21.71	21.73	21.61	22.50	
		1	49	21.61	21.53	21.51	22.50	
		25	0	20.58	20.56	20.54	21.50	
		25	13	20.53	20.52	20.51	21.50	
		25	25	20.47	20.51	20.42	21.50	
		50	0	20.54	20.52	20.45	21.50	

LTE Band7							
Full Power&DSI2				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	23.23	23.29	23.11	25.00
		1	13	23.45	23.45	23.32	25.00
		1	24	23.30	23.23	23.13	25.00
		12	0	22.37	22.52	22.37	24.00
		12	6	22.49	22.51	22.41	24.00
		12	13	22.52	22.48	22.31	24.00
		25	0	22.41	22.55	22.36	24.00
	16QAM	1	0	22.55	22.51	22.49	24.00
		1	13	22.81	22.70	22.73	24.00
		1	24	22.60	22.57	22.44	24.00
		12	0	21.35	21.48	21.36	23.00



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				20800/2505	21100/2535	21400/2565		
	64QAM	12	6	21.51	21.47	21.42	23.00	
		12	13	21.46	21.51	21.29	23.00	
		25	0	21.43	21.48	21.29	23.00	
		1	0	21.56	21.54	21.39	23.00	
		1	13	21.75	21.72	21.60	23.00	
		1	24	21.56	21.53	21.33	23.00	
		12	0	20.35	20.45	20.33	22.00	
		12	6	20.51	20.47	20.38	22.00	
		12	13	20.47	20.47	20.29	22.00	
		25	0	20.40	20.48	20.31	22.00	
10MHz	QPSK	1	0	23.25	23.30	23.14	25.00	
		1	25	23.48	23.50	23.36	25.00	
		1	49	23.32	23.27	23.16	25.00	
		25	0	22.40	22.57	22.41	24.00	
		25	13	22.52	22.56	22.45	24.00	
		25	25	22.54	22.52	22.36	24.00	
		50	0	22.45	22.57	22.40	24.00	
	16QAM	1	0	22.59	22.54	22.51	24.00	
		1	25	22.85	22.74	22.76	24.00	
		1	49	22.63	22.59	22.47	24.00	
		25	0	21.38	21.53	21.40	23.00	
		25	13	21.53	21.51	21.45	23.00	
		25	25	21.49	21.56	21.33	23.00	
		50	0	21.46	21.53	21.33	23.00	
	64QAM	1	0	21.58	21.53	21.41	23.00	
		1	25	21.78	21.72	21.63	23.00	
		1	49	21.55	21.55	21.36	23.00	
		25	0	20.38	20.50	20.33	22.00	
		25	13	20.53	20.51	20.41	22.00	
		25	25	20.50	20.52	20.33	22.00	
		50	0	20.43	20.53	20.35	22.00	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					20825/2507.5	21100/2535	21375/2562.5	
	15MHz	QPSK	1	0	23.24	23.26	23.12	25.00
1			38	23.46	23.49	23.33	25.00	
1			74	23.29	23.22	23.12	25.00	
36			0	22.38	22.53	22.38	24.00	
36			18	22.49	22.51	22.41	24.00	
36			39	22.51	22.49	22.32	24.00	
75			0	22.43	22.53	22.35	24.00	
16QAM		1	0	22.57	22.52	22.49	24.00	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20850/2510	21100/2535	21350/2560	
20MHz	64QAM	1	38	22.83	22.71	22.74	24.00
		1	74	22.61	22.55	22.44	24.00
		36	0	21.35	21.51	21.37	23.00
		36	18	21.50	21.46	21.41	23.00
		36	39	21.47	21.52	21.30	23.00
		75	0	21.43	21.48	21.29	23.00
		75	0	20.40	20.48	20.31	22.00
	QPSK	1	0	23.21	23.22	23.09	25.00
		1	50	23.45	23.41	23.31	25.00
		1	99	23.27	23.21	23.09	25.00
		50	0	22.35	22.48	22.34	24.00
		50	25	22.47	22.47	22.38	24.00
		50	50	22.48	22.44	22.28	24.00
		100	0	22.40	22.48	22.31	24.00
16QAM	1	0	22.54	22.48	22.44	24.00	
	1	50	22.80	22.69	22.70	24.00	
	1	99	22.58	22.52	22.42	24.00	
	50	0	21.32	21.47	21.34	23.00	
	50	25	21.47	21.44	21.38	23.00	
	50	50	21.44	21.47	21.26	23.00	
	100	0	21.41	21.44	21.26	23.00	
64QAM	1	0	21.51	21.47	21.34	23.00	
	1	50	21.72	21.67	21.57	23.00	
	1	99	21.50	21.48	21.31	23.00	
	50	0	20.32	20.44	20.27	22.00	
	50	25	20.47	20.44	20.34	22.00	
	50	50	20.45	20.43	20.26	22.00	
	100	0	20.38	20.44	20.28	22.00	

LTE Band7							
DSI1				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	19.62	19.54	19.48	21.00
		1	13	19.85	19.73	19.68	21.00



		1	24	19.69	19.54	19.49	21.00	
		12	0	19.69	19.72	19.68	21.00	
		12	6	19.84	19.73	19.74	21.00	
		12	13	19.82	19.64	19.63	21.00	
		25	0	19.66	19.75	19.65	21.00	
	16QAM	1	0	19.83	19.76	19.81	21.00	
		1	13	20.11	20.02	20.03	21.00	
		1	24	19.94	19.88	19.76	21.00	
		12	0	19.70	19.71	19.67	21.00	
		12	6	19.87	19.74	19.75	21.00	
		12	13	19.80	19.69	19.60	21.00	
		25	0	19.77	19.72	19.65	21.00	
	64QAM	1	0	19.88	19.83	19.71	21.00	
		1	13	20.11	19.95	19.88	21.00	
		1	24	19.94	19.69	19.66	21.00	
		12	0	19.69	19.73	19.71	21.00	
		12	6	19.86	19.70	19.71	21.00	
		12	13	19.81	19.72	19.63	21.00	
		25	0	19.76	19.74	19.61	21.00	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	19.64	19.55	19.51	21.00	
		1	25	19.88	19.78	19.72	21.00	
		1	49	19.71	19.58	19.52	21.00	
		25	0	19.72	19.77	19.72	21.00	
		25	13	19.87	19.78	19.78	21.00	
		25	25	19.84	19.68	19.68	21.00	
		50	0	19.70	19.77	19.69	21.00	
	16QAM	1	0	19.87	19.79	19.83	21.00	
		1	25	20.15	20.06	20.06	21.00	
		1	49	19.97	19.90	19.79	21.00	
		25	0	19.73	19.76	19.71	21.00	
		25	13	19.89	19.78	19.78	21.00	
		25	25	19.83	19.74	19.64	21.00	
		50	0	19.80	19.77	19.69	21.00	
	64QAM	1	0	19.90	19.82	19.73	21.00	
		1	25	20.14	19.95	19.91	21.00	
		1	49	19.93	19.71	19.69	21.00	
		25	0	19.72	19.78	19.71	21.00	
		25	13	19.88	19.74	19.74	21.00	
		25	25	19.84	19.77	19.67	21.00	
		50	0	19.79	19.79	19.65	21.00	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	19.63	19.51	19.49	21.00
		1	38	19.86	19.77	19.69	21.00
		1	74	19.68	19.53	19.48	21.00
		36	0	19.70	19.73	19.69	21.00
		36	18	19.84	19.73	19.74	21.00
		36	39	19.81	19.65	19.64	21.00
		75	0	19.68	19.73	19.64	21.00
	16QAM	1	0	19.85	19.77	19.81	21.00
		1	38	20.13	20.03	20.04	21.00
		1	74	19.95	19.86	19.76	21.00
		36	0	19.70	19.74	19.68	21.00
		36	18	19.86	19.73	19.74	21.00
		36	39	19.81	19.70	19.61	21.00
		75	0	19.77	19.72	19.65	21.00
	64QAM	1	0	19.85	19.80	19.71	21.00
		1	38	20.12	19.92	19.89	21.00
		1	74	19.94	19.70	19.70	21.00
		36	0	19.71	19.80	19.72	21.00
		36	18	19.86	19.71	19.73	21.00
		36	39	19.82	19.73	19.64	21.00
		75	0	19.76	19.74	19.61	21.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
20MHz	QPSK	1	0	19.60	19.47	19.46	21.00
		1	50	19.85	19.73	19.67	21.00
		1	99	19.66	19.52	19.45	21.00
		50	0	19.67	19.68	19.65	21.00
		50	25	19.82	19.69	19.71	21.00
		50	50	19.78	19.60	19.60	21.00
		100	0	19.65	19.68	19.60	21.00
	16QAM	1	0	19.82	19.73	19.76	21.00
		1	50	20.10	20.01	20.00	21.00
		1	99	19.92	19.83	19.74	21.00
		50	0	19.67	19.70	19.65	21.00
		50	25	19.83	19.71	19.71	21.00
		50	50	19.78	19.65	19.57	21.00
		100	0	19.75	19.68	19.62	21.00
	64QAM	1	0	19.83	19.76	19.66	21.00
		1	50	20.08	19.90	19.85	21.00
		1	99	19.88	19.64	19.64	21.00



		50	0	19.66	19.72	19.65	21.00
		50	25	19.82	19.67	19.67	21.00
		50	50	19.79	19.68	19.60	21.00
		100	0	19.74	19.70	19.58	21.00

LTE Band7							
DSI4				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	22.22	22.33	22.19	23.50
		1	13	22.51	22.46	22.39	23.50
		1	24	22.33	22.27	22.16	23.50
		12	0	22.37	22.52	22.36	23.50
		12	6	22.51	22.51	22.37	23.50
		12	13	22.48	22.50	22.30	23.50
		25	0	22.44	22.53	22.34	23.50
	16QAM	1	0	22.51	22.56	22.51	23.50
		1	13	22.75	22.73	22.70	23.50
		1	24	22.59	22.55	22.45	23.50
		12	0	21.38	21.48	21.33	22.50
		12	6	21.50	21.48	21.39	22.50
		12	13	21.47	21.50	21.29	22.50
		25	0	21.43	21.48	21.31	22.50
	64QAM	1	0	21.50	21.52	21.33	22.50
		1	13	21.72	21.79	21.55	22.50
		1	24	21.60	21.48	21.28	22.50
		12	0	20.38	20.45	20.34	21.50
		12	6	20.51	20.48	20.39	21.50
		12	13	20.47	20.48	20.25	21.50
		25	0	20.40	20.47	20.29	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	22.24	22.34	22.22	23.50
		1	25	22.54	22.51	22.43	23.50
		1	49	22.35	22.31	22.19	23.50
		25	0	22.40	22.57	22.40	23.50
		25	13	22.54	22.56	22.41	23.50
		25	25	22.50	22.54	22.35	23.50
		50	0	22.48	22.55	22.38	23.50
	16QAM	1	0	22.55	22.59	22.53	23.50
		1	25	22.79	22.77	22.73	23.50
		1	49	22.62	22.57	22.48	23.50
		25	0	21.41	21.53	21.37	22.50



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				20825/2507.5	21100/2535	21375/2562.5		
	64QAM	25	13	21.52	21.52	21.42	22.50	
		25	25	21.50	21.55	21.33	22.50	
		50	0	21.46	21.53	21.35	22.50	
		1	0	21.52	21.51	21.35	22.50	
		1	25	21.75	21.79	21.58	22.50	
		1	49	21.59	21.50	21.31	22.50	
		25	0	20.41	20.50	20.34	21.50	
		25	13	20.53	20.52	20.42	21.50	
		25	25	20.50	20.53	20.29	21.50	
		50	0	20.43	20.52	20.33	21.50	
15MHz	QPSK	1	0	22.23	22.30	22.20	23.50	
		1	38	22.52	22.50	22.40	23.50	
		1	74	22.32	22.26	22.15	23.50	
		36	0	22.38	22.53	22.37	23.50	
		36	18	22.51	22.51	22.37	23.50	
		36	39	22.47	22.51	22.31	23.50	
		75	0	22.46	22.51	22.33	23.50	
	16QAM	1	0	22.53	22.57	22.51	23.50	
		1	38	22.77	22.74	22.71	23.50	
		1	74	22.60	22.53	22.45	23.50	
		36	0	21.38	21.51	21.34	22.50	
		36	18	21.49	21.47	21.38	22.50	
		36	39	21.48	21.51	21.30	22.50	
		75	0	21.43	21.48	21.31	22.50	
	64QAM	1	0	21.47	21.49	21.33	22.50	
		1	38	21.73	21.76	21.56	22.50	
		1	74	21.60	21.49	21.32	22.50	
		36	0	20.40	20.52	20.35	21.50	
		36	18	20.51	20.49	20.41	21.50	
		36	39	20.48	20.49	20.26	21.50	
		75	0	20.40	20.47	20.29	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					20850/2510	21100/2535	21350/2560	
	20MHz	QPSK	1	0	22.20	22.26	22.17	23.50
1			50	22.51	22.46	22.38	23.50	
1			99	22.30	22.25	22.12	23.50	
50			0	22.35	22.48	22.33	23.50	
50			25	22.49	22.47	22.34	23.50	
50			50	22.44	22.46	22.27	23.50	
100			0	22.43	22.46	22.29	23.50	
16QAM		1	0	22.50	22.53	22.46	23.50	



		1	50	22.74	22.72	22.67	23.50
		1	99	22.57	22.50	22.43	23.50
		50	0	21.35	21.47	21.31	22.50
		50	25	21.46	21.45	21.35	22.50
		50	50	21.45	21.46	21.26	22.50
		100	0	21.41	21.44	21.28	22.50
		1	0	21.45	21.45	21.28	22.50
	64QAM	1	50	21.69	21.74	21.52	22.50
		1	99	21.54	21.43	21.26	22.50
		50	0	20.35	20.44	20.28	21.50
		50	25	20.47	20.45	20.35	21.50
		50	50	20.45	20.44	20.22	21.50
		100	0	20.38	20.43	20.26	21.50

LTE Band38							
Full Power&DSI2				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				37775/2572.5	38000/2595	38225/2617.5	
5MHz	QPSK	1	0	23.05	23.12	23.06	25.00
		1	13	23.25	23.22	23.26	25.00
		1	24	23.05	23.05	23.07	25.00
		12	0	22.14	22.12	22.12	24.00
		12	6	22.23	22.19	22.18	24.00
		12	13	22.24	22.17	22.15	24.00
		25	0	22.16	22.19	22.20	24.00
	16QAM	1	0	22.28	22.22	22.26	24.00
		1	13	22.49	22.44	22.48	24.00
		1	24	22.28	22.27	22.21	24.00
		12	0	21.21	21.13	21.16	23.00
		12	6	21.27	21.22	21.25	23.00
		12	13	21.25	21.21	21.17	23.00
		25	0	21.20	21.20	21.20	23.00
	64QAM	1	0	21.19	21.11	21.06	23.00
		1	13	21.40	21.37	21.33	23.00
		1	24	21.13	21.09	21.11	23.00
		12	0	20.17	20.13	20.19	22.00
		12	6	20.22	20.19	20.25	22.00
		12	13	20.21	20.18	20.19	22.00
		25	0	20.16	20.17	20.17	22.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
10MHz	QPSK	1	0	37800/2575	38000/2595	38200/2615	25.00
		1	25	23.08	23.14	23.10	25.00



		1	49	23.08	23.10	23.11	25.00	
		25	0	22.17	22.17	22.16	24.00	
		25	13	22.25	22.23	22.23	24.00	
		25	25	22.26	22.19	22.19	24.00	
		50	0	22.16	22.20	22.22	24.00	
	16QAM	1	0	22.28	22.26	22.29	24.00	
		1	25	22.49	22.46	22.51	24.00	
		1	49	22.31	22.29	22.25	24.00	
		25	0	21.23	21.17	21.19	23.00	
		25	13	21.30	21.27	21.29	23.00	
		25	25	21.28	21.26	21.21	23.00	
		50	0	21.22	21.24	21.25	23.00	
	64QAM	1	0	21.22	21.11	21.09	23.00	
		1	25	21.43	21.35	21.36	23.00	
		1	49	21.12	21.11	21.15	23.00	
		25	0	20.19	20.17	20.18	22.00	
		25	13	20.25	20.24	20.29	22.00	
		25	25	20.24	20.23	20.23	22.00	
		50	0	20.18	20.21	20.22	22.00	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					37825/2577.5	38000/2595	38175/2612.5	
15MHz	QPSK	1	0	23.06	23.09	23.07	25.00	
		1	38	23.26	23.26	23.27	25.00	
		1	74	23.04	23.04	23.06	25.00	
		36	0	22.15	22.13	22.13	24.00	
		36	18	22.23	22.19	22.18	24.00	
		36	39	22.23	22.18	22.16	24.00	
		75	0	22.18	22.17	22.19	24.00	
	16QAM	1	0	22.30	22.23	22.26	24.00	
		1	38	22.51	22.45	22.49	24.00	
		1	74	22.29	22.25	22.21	24.00	
		36	0	21.21	21.16	21.17	23.00	
		36	18	21.26	21.21	21.24	23.00	
		36	39	21.26	21.22	21.18	23.00	
		75	0	21.20	21.20	21.20	23.00	
	64QAM	1	0	21.16	21.08	21.06	23.00	
		1	38	21.41	21.34	21.34	23.00	
		1	74	21.13	21.10	21.15	23.00	
		36	0	20.19	20.20	20.20	22.00	
		36	18	20.22	20.20	20.27	22.00	
		36	39	20.22	20.19	20.20	22.00	
		75	0	20.16	20.17	20.17	22.00	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				37850/2580	38000/2595	38150/2610	
20MHz	QPSK	1	0	23.03	23.05	23.04	25.00
		1	50	23.25	23.22	23.25	25.00
		1	99	23.02	23.03	23.03	25.00
		50	0	22.12	22.08	22.09	24.00
		50	25	22.21	22.15	22.15	24.00
		50	50	22.20	22.13	22.12	24.00
		100	0	22.15	22.12	22.15	24.00
	16QAM	1	0	22.27	22.19	22.21	24.00
		1	50	22.48	22.43	22.45	24.00
		1	99	22.26	22.22	22.19	24.00
		50	0	21.18	21.12	21.14	23.00
		50	25	21.23	21.19	21.21	23.00
		50	50	21.23	21.17	21.14	23.00
		100	0	21.18	21.16	21.17	23.00
	64QAM	1	0	21.14	21.04	21.01	23.00
		1	50	21.37	21.32	21.30	23.00
		1	99	21.07	21.04	21.09	23.00
		50	0	20.14	20.12	20.13	22.00
		50	25	20.18	20.16	20.21	22.00
		50	50	20.19	20.14	20.16	22.00
		100	0	20.14	20.13	20.14	22.00

LTE Band38							
DSI1				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				37775/2572.5	38000/2595	38225/2617.5	
5MHz	QPSK	1	0	22.25	22.27	22.29	24.00
		1	13	22.45	22.36	22.46	24.00
		1	24	22.25	22.27	22.27	24.00
		12	0	21.94	21.84	21.92	23.00
		12	6	22.03	21.92	21.98	23.00
		12	13	22.04	21.89	21.95	23.00
		25	0	21.96	21.92	21.99	23.00
	16QAM	1	0	22.08	21.93	22.06	23.00
		1	13	22.29	22.16	22.28	23.00
		1	24	22.08	21.99	22.01	23.00
		12	0	21.01	20.85	20.96	22.00
		12	6	21.07	20.94	21.05	22.00
		12	13	21.05	20.93	20.97	22.00
		25	0	21.00	20.90	21.00	22.00



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				37800/2575	38000/2595	38200/2615		
	64QAM	1	0	20.99	20.83	20.86	22.00	
		1	13	21.20	21.04	21.13	22.00	
		1	24	20.93	20.80	20.91	22.00	
		12	0	19.97	19.89	19.99	21.00	
		12	6	20.02	19.99	20.05	21.00	
		12	13	20.01	19.96	19.99	21.00	
		25	0	19.96	19.90	19.97	21.00	
10MHz	QPSK	1	0	22.27	22.28	22.32	24.00	
		1	25	22.48	22.41	22.50	24.00	
		1	49	22.27	22.31	22.30	24.00	
		25	0	21.97	21.89	21.96	23.00	
		25	13	22.06	21.97	22.02	23.00	
		25	25	22.06	21.93	22.00	23.00	
		50	0	22.00	21.94	22.03	23.00	
	16QAM	1	0	22.12	21.96	22.08	23.00	
		1	25	22.33	22.20	22.31	23.00	
		1	49	22.11	22.01	22.04	23.00	
		25	0	21.04	20.90	21.00	22.00	
		25	13	21.09	20.98	21.08	22.00	
		25	25	21.08	20.98	21.01	22.00	
		50	0	21.03	20.95	21.04	22.00	
	64QAM	1	0	21.01	20.82	20.88	22.00	
		1	25	21.23	21.04	21.16	22.00	
		1	49	20.92	20.82	20.94	22.00	
		25	0	20.00	19.94	19.99	21.00	
		25	13	20.04	20.03	20.08	21.00	
		25	25	20.04	20.01	20.03	21.00	
		50	0	19.99	19.95	20.01	21.00	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					37825/2577.5	38000/2595	38175/2612.5	
	15MHz	QPSK	1	0	22.26	22.24	22.30	24.00
			1	38	22.46	22.40	22.47	24.00
			1	74	22.24	22.26	22.26	24.00
			36	0	21.95	21.85	21.93	23.00
			36	18	22.03	21.92	21.98	23.00
36			39	22.03	21.90	21.96	23.00	
75			0	21.98	21.90	21.98	23.00	
16QAM		1	0	22.10	21.94	22.06	23.00	
		1	38	22.31	22.17	22.29	23.00	
		1	74	22.09	21.97	22.01	23.00	
		36	0	21.01	20.88	20.97	22.00	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up	
				37850/2580	38000/2595	38150/2610		
20MHz	64QAM	36	18	21.06	20.93	21.04	22.00	
		36	39	21.06	20.94	20.98	22.00	
		75	0	21.00	20.90	21.00	22.00	
		1	0	20.96	20.80	20.86	22.00	
		1	38	21.21	21.01	21.14	22.00	
		1	74	20.93	20.81	20.95	22.00	
		36	0	19.99	19.96	20.00	21.00	
		36	18	20.02	20.00	20.07	21.00	
		36	39	20.02	19.97	20.00	21.00	
	75	0	19.96	19.90	19.97	21.00		
	20MHz	QPSK	1	0	22.23	22.20	22.27	24.00
			1	50	22.45	22.36	22.45	24.00
			1	99	22.22	22.25	22.23	24.00
			50	0	21.92	21.80	21.89	23.00
			50	25	22.01	21.88	21.95	23.00
			50	50	22.00	21.85	21.92	23.00
			100	0	21.95	21.85	21.94	23.00
		16QAM	1	0	22.07	21.90	22.01	23.00
1			50	22.28	22.15	22.25	23.00	
1			99	22.06	21.94	21.99	23.00	
50			0	20.98	20.84	20.94	22.00	
50			25	21.03	20.91	21.01	22.00	
50			50	21.03	20.89	20.94	22.00	
100			0	20.98	20.86	20.97	22.00	
64QAM		1	0	20.94	20.76	20.81	22.00	
		1	50	21.17	20.99	21.10	22.00	
		1	99	20.87	20.75	20.89	22.00	
		50	0	19.94	19.88	19.93	21.00	
		50	25	19.98	19.96	20.01	21.00	
		50	50	19.99	19.92	19.96	21.00	
		100	0	19.94	19.86	19.94	21.00	

LTE Band38							
DSI4				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				37775/2572.5	38000/2595	38225/2617.5	
5MHz	QPSK	1	0	23.05	23.09	23.09	24.50
		1	13	23.25	23.22	23.26	24.50
		1	24	23.05	23.05	23.07	24.50
		12	0	22.14	22.12	22.12	23.50
		12	6	22.23	22.19	22.18	23.50



		12	13	22.24	22.17	22.15	23.50	
		25	0	22.16	22.19	22.20	23.50	
	16QAM	1	0	22.28	22.22	22.26	23.50	
		1	13	22.49	22.44	22.48	23.50	
		1	24	22.28	22.27	22.21	23.50	
		12	0	21.21	21.13	21.16	22.50	
		12	6	21.27	21.22	21.25	22.50	
		12	13	21.25	21.21	21.17	22.50	
		25	0	21.20	21.20	21.20	22.50	
		64QAM	1	0	21.19	21.11	21.06	22.50
	1		13	21.40	21.37	21.33	22.50	
	1		24	21.13	21.09	21.11	22.50	
	12		0	20.17	20.13	20.19	21.50	
	12		6	20.22	20.19	20.25	21.50	
	12		13	20.21	20.18	20.19	21.50	
	25		0	20.16	20.17	20.17	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
10MHz	QPSK	1	0	23.07	23.10	23.12	24.50	
		1	25	23.28	23.27	23.30	24.50	
		1	49	23.07	23.09	23.10	24.50	
		25	0	22.17	22.17	22.16	23.50	
		25	13	22.26	22.24	22.22	23.50	
		25	25	22.26	22.21	22.20	23.50	
		50	0	22.20	22.21	22.24	23.50	
	16QAM	1	0	22.32	22.25	22.28	23.50	
		1	25	22.53	22.48	22.51	23.50	
		1	49	22.31	22.29	22.24	23.50	
		25	0	21.24	21.18	21.20	22.50	
		25	13	21.29	21.26	21.28	22.50	
		25	25	21.28	21.26	21.21	22.50	
		50	0	21.23	21.25	21.24	22.50	
	64QAM	1	0	21.21	21.10	21.08	22.50	
		1	25	21.43	21.37	21.36	22.50	
		1	49	21.12	21.11	21.14	22.50	
		25	0	20.20	20.18	20.19	21.50	
		25	13	20.24	20.23	20.28	21.50	
		25	25	20.24	20.23	20.23	21.50	
		50	0	20.19	20.22	20.21	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
	15MHz	QPSK	1	0	23.06	23.06	23.10	24.50
			1	38	23.26	23.26	23.27	24.50



		1	74	23.04	23.04	23.06	24.50	
		36	0	22.15	22.13	22.13	23.50	
		36	18	22.23	22.19	22.18	23.50	
		36	39	22.23	22.18	22.16	23.50	
		75	0	22.18	22.17	22.19	23.50	
		16QAM	1	0	22.30	22.23	22.26	23.50
			1	38	22.51	22.45	22.49	23.50
	1		74	22.29	22.25	22.21	23.50	
	36		0	21.21	21.16	21.17	22.50	
	36		18	21.26	21.21	21.24	22.50	
	36		39	21.26	21.22	21.18	22.50	
	75		0	21.20	21.20	21.20	22.50	
	64QAM	1	0	21.16	21.08	21.06	22.50	
		1	38	21.41	21.34	21.34	22.50	
		1	74	21.13	21.10	21.15	22.50	
		36	0	20.19	20.20	20.20	21.50	
		36	18	20.22	20.20	20.27	21.50	
		36	39	20.22	20.19	20.20	21.50	
		75	0	20.16	20.17	20.17	21.50	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
					37850/2580	38000/2595	38150/2610	
20MHz	QPSK	1	0	23.03	23.02	23.07	24.50	
		1	50	23.25	23.22	23.25	24.50	
		1	99	23.02	23.03	23.03	24.50	
		50	0	22.12	22.08	22.09	23.50	
		50	25	22.21	22.15	22.15	23.50	
		50	50	22.20	22.13	22.12	23.50	
		100	0	22.15	22.12	22.14	23.50	
	16QAM	1	0	22.27	22.19	22.21	23.50	
		1	50	22.48	22.43	22.45	23.50	
		1	99	22.26	22.22	22.19	23.50	
		50	0	21.18	21.12	21.14	22.50	
		50	25	21.23	21.19	21.21	22.50	
		50	50	21.23	21.17	21.14	22.50	
		100	0	21.18	21.16	21.17	22.50	
	64QAM	1	0	21.14	21.04	21.01	22.50	
		1	50	21.37	21.32	21.30	22.50	
		1	99	21.07	21.04	21.09	22.50	
		50	0	20.14	20.12	20.13	21.50	
		50	25	20.18	20.16	20.21	21.50	
		50	50	20.19	20.14	20.16	21.50	
		100	0	20.14	20.13	20.14	21.50	



LTE Band41									
Full Power&DSI2-Div Ant				Maximum Output Power (dBm)					Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					
				39675/2498.5	40148/2545.8	40620/2593	41093/2640.3	41565/2687.5	
5MHz	QPSK	1	0	23.29	23.20	23.04	23.11	23.15	25.00
		1	13	23.50	23.39	23.31	23.34	23.45	25.00
		1	24	23.29	23.07	23.05	23.10	23.19	25.00
		12	0	22.43	22.33	22.11	22.21	22.41	24.00
		12	6	22.51	22.39	22.21	22.29	22.47	24.00
		12	13	22.39	22.31	22.17	22.26	22.43	24.00
		25	0	22.46	22.34	22.17	22.29	22.48	24.00
	16QAM	1	0	22.49	22.40	22.19	22.24	22.43	24.00
		1	13	22.72	22.64	22.48	22.51	22.73	24.00
		1	24	22.46	22.34	22.23	22.36	22.45	24.00
		12	0	21.41	21.31	21.12	21.18	21.45	23.00
		12	6	21.54	21.42	21.22	21.32	21.54	23.00
		12	13	21.48	21.34	21.20	21.30	21.47	23.00
		25	0	21.56	21.36	21.14	21.30	21.47	23.00
	64QAM	1	0	21.35	21.25	21.07	21.14	21.28	23.00
		1	13	21.65	21.55	21.35	21.44	21.61	23.00
		1	24	21.35	21.18	21.04	21.17	21.30	23.00
		12	0	20.42	20.31	20.17	20.21	20.42	22.00
		12	6	20.52	20.37	20.21	20.32	20.47	22.00
		12	13	20.46	20.32	20.19	20.30	20.45	22.00
		25	0	20.43	20.34	20.15	20.26	20.41	22.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39700/2501	40160/2547	40620/2593	41080/2639	41540/2685	
10MHz	QPSK	1	0	23.31	23.21	23.07	23.12	23.18	25.00
		1	25	23.53	23.44	23.35	23.39	23.49	25.00
		1	49	23.31	23.11	23.08	23.14	23.22	25.00
		25	0	22.46	22.38	22.15	22.26	22.45	24.00
		25	13	22.54	22.44	22.25	22.34	22.51	24.00
		25	25	22.41	22.35	22.22	22.30	22.48	24.00
		50	0	22.50	22.36	22.21	22.31	22.52	24.00
	16QAM	1	0	22.53	22.43	22.21	22.27	22.45	24.00
		1	25	22.76	22.68	22.51	22.55	22.76	24.00
		1	49	22.49	22.36	22.26	22.38	22.48	24.00
		25	0	21.44	21.36	21.16	21.23	21.49	23.00
		25	13	21.56	21.46	21.25	21.36	21.57	23.00
		25	25	21.51	21.39	21.24	21.35	21.51	23.00
		50	0	21.59	21.41	21.18	21.35	21.51	23.00
64QAM	1	0	21.37	21.24	21.09	21.13	21.30	23.00	



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up	
				39725/2503.5	40173/2548.3	40620/2593	41068/2637.8	41515/2682.5		
		1	25	21.68	21.55	21.38	21.44	21.64	23.00	
		1	49	21.34	21.20	21.07	21.19	21.33	23.00	
		25	0	20.45	20.36	20.17	20.26	20.42	22.00	
		25	13	20.54	20.41	20.24	20.36	20.50	22.00	
		25	25	20.49	20.37	20.23	20.35	20.49	22.00	
		50	0	20.46	20.39	20.19	20.31	20.45	22.00	
15MHz	QPSK	1	0	23.30	23.17	23.05	23.08	23.16	25.00	
		1	38	23.51	23.43	23.32	23.38	23.46	25.00	
		1	74	23.28	23.06	23.04	23.09	23.18	25.00	
		36	0	22.44	22.34	22.12	22.22	22.42	24.00	
		36	18	22.51	22.39	22.21	22.29	22.47	24.00	
		36	39	22.38	22.32	22.18	22.27	22.44	24.00	
		75	0	22.48	22.32	22.16	22.27	22.47	24.00	
	16QAM	1	0	22.51	22.41	22.19	22.25	22.43	24.00	
		1	38	22.74	22.65	22.49	22.52	22.74	24.00	
		1	74	22.47	22.32	22.23	22.34	22.45	24.00	
		36	0	21.41	21.34	21.13	21.21	21.46	23.00	
		36	18	21.53	21.41	21.21	21.31	21.53	23.00	
		36	39	21.49	21.35	21.21	21.31	21.48	23.00	
		75	0	21.56	21.36	21.14	21.30	21.47	23.00	
	64QAM	1	0	21.32	21.22	21.07	21.11	21.28	23.00	
		1	38	21.66	21.52	21.36	21.41	21.62	23.00	
		1	74	21.35	21.19	21.08	21.18	21.34	23.00	
		36	0	20.44	20.38	20.18	20.28	20.43	22.00	
		36	18	20.52	20.38	20.23	20.33	20.49	22.00	
		36	39	20.47	20.33	20.20	20.31	20.46	22.00	
		75	0	20.43	20.34	20.15	20.26	20.41	22.00	
	Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
					39750/2506	40185/2549.5	40620/2593	41055/2636.5	41490/2680	
	20MHz	QPSK	1	0	23.27	23.13	23.02	23.04	23.13	25.00
1			50	23.50	23.39	23.30	23.34	23.44	25.00	
1			99	23.26	23.05	23.01	23.08	23.15	25.00	
50			0	22.41	22.29	22.08	22.17	22.38	24.00	
50			25	22.49	22.35	22.18	22.25	22.44	24.00	
50			50	22.35	22.27	22.14	22.22	22.40	24.00	
100			0	22.45	22.27	22.12	22.22	22.43	24.00	
16QAM		1	0	22.48	22.37	22.14	22.21	22.38	24.00	
		1	50	22.71	22.63	22.45	22.50	22.70	24.00	
		1	99	22.44	22.29	22.21	22.31	22.43	24.00	
		50	0	21.38	21.30	21.10	21.17	21.43	23.00	
		50	25	21.50	21.39	21.18	21.29	21.50	23.00	



64QAM	50	50	21.46	21.30	21.17	21.26	21.44	23.00
	100	0	21.54	21.32	21.11	21.26	21.44	23.00
	1	0	21.30	21.18	21.02	21.07	21.23	23.00
	1	50	21.62	21.50	21.32	21.39	21.58	23.00
	1	99	21.29	21.13	21.02	21.12	21.28	23.00
	50	0	20.39	20.30	20.11	20.20	20.36	22.00
	50	25	20.48	20.34	20.17	20.29	20.43	22.00
	50	50	20.44	20.28	20.16	20.26	20.42	22.00
	100	0	20.41	20.30	20.12	20.22	20.38	22.00

LTE Band41									
DSI1-Div Ant				Maximum Output Power (dBm)					Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					
				39675/2498.5	40148/2545.8	40620/2593	41093/2640.3	41565/2687.5	
5MHz	QPSK	1	0	22.80	22.72	22.55	22.59	22.69	24.00
		1	13	23.03	22.93	22.76	22.84	23.01	24.00
		1	24	22.80	22.64	22.55	22.62	22.78	24.00
		12	0	22.39	22.34	22.09	22.19	22.42	23.00
		12	6	22.49	22.39	22.18	22.29	22.45	23.00
		12	13	22.41	22.27	22.14	22.25	22.42	23.00
		25	0	22.49	22.36	22.14	22.29	22.46	23.00
	16QAM	1	0	22.43	22.38	22.19	22.20	22.40	23.00
		1	13	22.70	22.63	22.46	22.48	22.71	23.00
		1	24	22.45	22.31	22.19	22.32	22.42	23.00
		12	0	21.40	21.33	21.11	21.14	21.41	22.00
		12	6	21.53	21.39	21.21	21.31	21.51	22.00
		12	13	21.45	21.32	21.20	21.27	21.45	22.00
		25	0	21.39	21.36	21.14	21.29	21.45	22.00
	64QAM	1	0	21.37	21.26	21.05	21.05	21.30	22.00
		1	13	21.61	21.54	21.33	21.43	21.59	22.00
		1	24	21.32	21.19	21.05	21.16	21.30	22.00
		12	0	20.42	20.33	20.15	20.20	20.43	21.00
		12	6	20.51	20.35	20.20	20.30	20.46	21.00
		12	13	20.47	20.32	20.17	20.27	20.42	21.00
		25	0	20.41	20.31	20.16	20.25	20.41	21.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39700/2501	40160/2547	40620/2593	41080/2639	41540/2685	
10MHz	QPSK	1	0	22.82	22.73	22.58	22.60	22.72	24.00
		1	25	23.06	22.98	22.80	22.89	23.05	24.00
		1	49	22.82	22.68	22.58	22.66	22.81	24.00
		25	0	22.42	22.39	22.13	22.24	22.46	23.00
		25	13	22.52	22.44	22.22	22.34	22.49	23.00
		25	25	22.43	22.31	22.19	22.29	22.47	23.00



	16QAM	50	0	22.53	22.38	22.18	22.31	22.50	23.00
		1	0	22.47	22.41	22.21	22.23	22.42	23.00
		1	25	22.74	22.67	22.49	22.52	22.74	23.00
		1	49	22.48	22.33	22.22	22.34	22.45	23.00
		25	0	21.43	21.38	21.15	21.19	21.45	22.00
		25	13	21.55	21.43	21.24	21.35	21.54	22.00
		25	25	21.48	21.37	21.24	21.32	21.49	22.00
		50	0	21.42	21.41	21.18	21.34	21.49	22.00
	64QAM	1	0	21.39	21.25	21.07	21.04	21.32	22.00
		1	25	21.64	21.54	21.36	21.43	21.62	22.00
		1	49	21.31	21.21	21.08	21.18	21.33	22.00
		25	0	20.45	20.38	20.15	20.25	20.43	21.00
		25	13	20.53	20.39	20.23	20.34	20.49	21.00
		25	25	20.50	20.37	20.21	20.32	20.46	21.00
50	0	20.44	20.36	20.20	20.30	20.45	21.00		
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39725/2503.5	40173/2548.3	40620/2593	41068/2637.8	41515/2682.5	
15MHz	QPSK	1	0	22.81	22.69	22.56	22.56	22.70	24.00
		1	38	23.04	22.97	22.77	22.88	23.02	24.00
		1	74	22.79	22.63	22.54	22.61	22.77	24.00
		36	0	22.40	22.35	22.10	22.20	22.43	23.00
		36	18	22.49	22.39	22.18	22.29	22.45	23.00
		36	39	22.40	22.28	22.15	22.26	22.43	23.00
		75	0	22.51	22.34	22.13	22.27	22.45	23.00
	16QAM	1	0	22.45	22.39	22.19	22.21	22.40	23.00
		1	38	22.72	22.64	22.47	22.49	22.72	23.00
		1	74	22.46	22.29	22.19	22.30	22.42	23.00
		36	0	21.40	21.36	21.12	21.17	21.42	22.00
		36	18	21.52	21.38	21.20	21.30	21.50	22.00
		36	39	21.46	21.33	21.21	21.28	21.46	22.00
		75	0	21.39	21.36	21.14	21.29	21.45	22.00
	64QAM	1	0	21.34	21.23	21.05	21.02	21.30	22.00
		1	38	21.62	21.51	21.34	21.40	21.60	22.00
		1	74	21.32	21.20	21.09	21.17	21.34	22.00
		36	0	20.44	20.40	20.16	20.27	20.44	21.00
		36	18	20.51	20.36	20.22	20.31	20.48	21.00
		36	39	20.48	20.33	20.18	20.28	20.43	21.00
		75	0	20.41	20.31	20.16	20.25	20.41	21.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39750/2506	40185/2549.5	40620/2593	41055/2636.5	41490/2680	
20MHz	QPSK	1	0	22.78	22.65	22.53	22.52	22.67	24.00
		1	50	23.03	22.93	22.75	22.84	23.00	24.00
		1	99	22.77	22.62	22.51	22.60	22.74	24.00



		50	0	22.37	22.30	22.06	22.15	22.39	23.00
		50	25	22.47	22.35	22.15	22.25	22.42	23.00
		50	50	22.37	22.23	22.11	22.21	22.39	23.00
		100	0	22.48	22.29	22.09	22.22	22.41	23.00
	16QAM	1	0	22.42	22.35	22.14	22.17	22.35	23.00
		1	50	22.69	22.62	22.43	22.47	22.68	23.00
		1	99	22.43	22.26	22.17	22.27	22.40	23.00
		50	0	21.37	21.32	21.09	21.13	21.39	22.00
		50	25	21.49	21.36	21.17	21.28	21.47	22.00
		50	50	21.43	21.28	21.17	21.23	21.42	22.00
		100	0	21.37	21.32	21.11	21.25	21.42	22.00
	64QAM	1	0	21.32	21.19	21.00	20.98	21.25	22.00
		1	50	21.58	21.49	21.30	21.38	21.56	22.00
		1	99	21.26	21.14	21.03	21.11	21.28	22.00
		50	0	20.39	20.32	20.09	20.19	20.37	21.00
		50	25	20.47	20.32	20.16	20.27	20.42	21.00
		50	50	20.45	20.28	20.14	20.23	20.39	21.00
		100	0	20.39	20.27	20.13	20.21	20.38	21.00

LTE Band41									
DSI4-Div Ant				Maximum Output Power (dBm)					Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					
				39675/2498.5	40148/2545.8	40620/2593	41093/2640.3	41565/2687.5	
5MHz	QPSK	1	0	22.30	22.25	22.05	22.10	22.20	23.50
		1	13	22.57	22.45	22.27	22.37	22.55	23.50
		1	24	22.30	22.14	22.05	22.13	22.30	23.50
		12	0	22.39	22.34	22.10	22.21	22.38	23.50
		12	6	22.48	22.39	22.19	22.30	22.47	23.50
		12	13	22.41	22.34	22.15	22.26	22.42	23.50
		25	0	22.50	22.31	22.15	22.29	22.48	23.50
	16QAM	1	0	22.44	22.35	22.20	22.21	22.41	23.50
		1	13	22.70	22.62	22.52	22.48	22.72	23.50
		1	24	22.44	22.34	22.21	22.34	22.42	23.50
		12	0	21.38	21.33	21.09	21.15	21.43	22.50
		12	6	21.51	21.39	21.22	21.30	21.50	22.50
		12	13	21.46	21.32	21.17	21.27	21.46	22.50
		25	0	21.41	21.32	21.15	21.27	21.44	22.50
	64QAM	1	0	21.37	21.26	21.03	21.11	21.28	22.50
		1	13	21.62	21.54	21.33	21.44	21.60	22.50
		1	24	21.36	21.17	21.05	21.18	21.31	22.50
		12	0	20.41	20.31	20.17	20.18	20.43	21.50
		12	6	20.52	20.37	20.22	20.31	20.48	21.50
		12	13	20.48	20.30	20.19	20.27	20.42	21.50



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39700/2501	40160/2547	40620/2593	41080/2639	41540/2685	
		25	0	20.44	20.34	20.15	20.27	20.39	21.50
10MHz	QPSK	1	0	22.32	22.26	22.08	22.11	22.23	23.50
		1	25	22.60	22.50	22.31	22.42	22.59	23.50
		1	49	22.32	22.18	22.08	22.17	22.33	23.50
		25	0	22.42	22.39	22.14	22.26	22.42	23.50
		25	13	22.51	22.44	22.23	22.35	22.51	23.50
		25	25	22.43	22.38	22.20	22.30	22.47	23.50
		50	0	22.54	22.33	22.19	22.31	22.52	23.50
	16QAM	1	0	22.48	22.38	22.22	22.24	22.43	23.50
		1	25	22.74	22.66	22.55	22.52	22.75	23.50
		1	49	22.47	22.36	22.24	22.36	22.45	23.50
		25	0	21.41	21.38	21.13	21.20	21.47	22.50
		25	13	21.53	21.43	21.25	21.34	21.53	22.50
		25	25	21.49	21.37	21.21	21.32	21.50	22.50
		50	0	21.44	21.37	21.19	21.32	21.48	22.50
	64QAM	1	0	21.39	21.25	21.05	21.10	21.30	22.50
		1	25	21.65	21.54	21.36	21.44	21.63	22.50
		1	49	21.35	21.19	21.08	21.20	21.34	22.50
		25	0	20.44	20.36	20.17	20.23	20.43	21.50
		25	13	20.54	20.41	20.25	20.35	20.51	21.50
		25	25	20.51	20.35	20.23	20.32	20.46	21.50
		50	0	20.47	20.39	20.19	20.32	20.43	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39725/2503.5	40173/2548.3	40620/2593	41068/2637.8	41515/2682.5	
15MHz	QPSK	1	0	22.31	22.22	22.06	22.07	22.21	23.50
		1	38	22.58	22.49	22.28	22.41	22.56	23.50
		1	74	22.29	22.13	22.04	22.12	22.29	23.50
		36	0	22.40	22.35	22.11	22.22	22.39	23.50
		36	18	22.48	22.39	22.19	22.30	22.47	23.50
		36	39	22.40	22.35	22.16	22.27	22.43	23.50
		75	0	22.52	22.29	22.14	22.27	22.47	23.50
	16QAM	1	0	22.46	22.36	22.20	22.22	22.41	23.50
		1	38	22.72	22.63	22.53	22.49	22.73	23.50
		1	74	22.45	22.32	22.21	22.32	22.42	23.50
		36	0	21.38	21.36	21.10	21.18	21.44	22.50
		36	18	21.50	21.38	21.21	21.29	21.49	22.50
		36	39	21.47	21.33	21.18	21.28	21.47	22.50
		75	0	21.41	21.32	21.15	21.27	21.44	22.50
	64QAM	1	0	21.34	21.23	21.03	21.08	21.28	22.50
		1	38	21.63	21.51	21.34	21.41	21.61	22.50
		1	74	21.36	21.18	21.09	21.19	21.35	22.50



Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)					Tune-up
				39750/2506	40185/2549.5	40620/2593	41055/2636.5	41490/2680	
20MHz		36	0	20.43	20.38	20.18	20.25	20.44	21.50
		36	18	20.52	20.38	20.24	20.32	20.50	21.50
		36	39	20.49	20.31	20.20	20.28	20.43	21.50
		75	0	20.44	20.34	20.15	20.27	20.39	21.50
	QPSK	1	0	22.28	22.18	22.03	22.03	22.18	23.50
		1	50	22.57	22.45	22.26	22.37	22.54	23.50
		1	99	22.27	22.12	22.01	22.11	22.26	23.50
		50	0	22.37	22.30	22.07	22.17	22.35	23.50
		50	25	22.46	22.35	22.16	22.26	22.44	23.50
		50	50	22.37	22.30	22.12	22.22	22.39	23.50
		100	0	22.49	22.24	22.10	22.22	22.43	23.50
	16QAM	1	0	22.43	22.32	22.15	22.18	22.36	23.50
		1	50	22.69	22.61	22.49	22.47	22.69	23.50
		1	99	22.42	22.29	22.19	22.29	22.40	23.50
		50	0	21.35	21.32	21.07	21.14	21.41	22.50
		50	25	21.47	21.36	21.18	21.27	21.46	22.50
		50	50	21.44	21.28	21.14	21.23	21.43	22.50
		100	0	21.39	21.28	21.12	21.23	21.41	22.50
	64QAM	1	0	21.32	21.19	21.02	21.04	21.23	22.50
		1	50	21.59	21.49	21.30	21.39	21.57	22.50
		1	99	21.30	21.12	21.03	21.13	21.29	22.50
		50	0	20.38	20.30	20.11	20.17	20.37	21.50
		50	25	20.48	20.34	20.18	20.28	20.44	21.50
		50	50	20.46	20.26	20.16	20.23	20.39	21.50
		100	0	20.42	20.30	20.12	20.23	20.36	21.50

9.4 WLAN Mode

Wi-Fi 2.4G Full Power & Receiver Off Mode	Channel /Frequency(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11b (1M)	1/2412	18.50	17.13
	6/2437	18.50	17.48
	11/2462	18.50	17.57
802.11g (6M)	1/2412	17.50	15.95
	6/2437	17.50	16.36
	10/2457	17.50	15.97
	11/2462	15.50	14.10
802.11n-HT20 (MCS0)	1/2412	16.50	14.82
	6/2437	16.50	15.35
	10/2457	16.50	15.01
	11/2462	14.50	12.93

Wi-Fi 2.4G Receiver On Mode	Channel /Frequency(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11b (1M)	1/2412	15.50	13.66
	6/2437	15.50	14.62
	11/2462	15.50	14.63
802.11g (6M)	1/2412	14.50	12.71
	6/2437	14.50	13.57
	10/2457	14.50	13.55
	11/2462	12.50	11.36
802.11n-HT20 (MCS0)	1/2412	13.50	11.58
	6/2437	13.50	12.31
	10/2457	13.50	12.48
	11/2462	11.50	10.23



5GHz Wi-Fi U-NII-1 Full Power& Receiver Off	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	36/5180	16.50	15.19
	40/5200	16.50	15.10
	44/5220	16.50	15.26
	48/5240	16.50	14.75
802.11nHT20(MCS0)	36/5180	15.50	14.01
	40/5200	15.50	13.40
	44/5220	15.50	13.56
	48/5240	15.50	13.48
802.11nHT40(MCS0)	38/5190	13.50	11.83
	46/5230	13.50	11.71
802.11ac-VHT20(MCS0)	36/5180	13.50	11.77
	40/5200	13.50	11.40
	44/5220	13.50	11.86
	48/5240	13.50	11.98
802.11ac-VHT40(MCS0)	38/5190	13.50	11.30
	46/5230	13.50	11.70
802.11ac-VHT80(MCS0)	42/5210	13.50	11.37

5GHz Wi-Fi (U-NII-2A) Full Power& Receiver Off	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	52/5260	16.50	15.10
	56/5280	16.50	15.30
	60/5300	16.50	15.36
	64/5320	16.50	15.26
802.11nHT20(MCS0)	52/5260	15.50	13.37
	56/5280	15.50	13.59
	60/5300	15.50	13.67
	64/5320	15.50	14.16
802.11nHT40(MCS0)	54/5270	13.50	11.21
	62/5310	13.50	11.40
802.11ac-VHT20(MCS0)	52/5260	13.50	11.90
	56/5280	13.50	11.88
	60/5300	13.50	12.00
	64/5320	13.50	11.93
802.11ac-VHT40(MCS0)	54/5270	13.50	11.71
	62/5310	13.50	11.96
802.11ac-VHT80(MCS0)	58/5290	13.50	11.50



5GHz Wi-Fi U-NII-2C Full Power& Receiver Off	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a (6M)	100/5500	15.50	14.42
	116/5580	16.50	14.62
	132/5660	16.50	14.56
	136/5680	16.50	14.95
	140/5700	15.50	13.99
802.11nHT20 (MCS0)	100/5500	15.50	13.91
	116/5580	15.50	13.38
	132/5660	15.50	13.40
	136/5680	14.50	12.79
	140/5700	15.50	13.41
802.11nHT40 (MCS0)	102/5510	13.50	11.03
	110/5550	13.50	11.57
	118/5590	13.50	11.13
	134/5670	13.50	11.05
802.11ac-VHT20 (MCS0)	100/5500	13.50	11.85
	116/5580	13.50	11.20
	132/5660	13.50	11.27
	140/5700	13.50	11.13
802.11ac-VHT40 (MCS0)	102/5510	13.50	11.75
	110/5550	13.50	11.77
	118/5590	13.50	11.24
	134/5670	13.50	11.17
802.11ac-VHT80 (MCS0)	106/5530	13.50	11.36
	122/5610	13.50	11.03

5GHz Wi-Fi U-NII-3 Full Power& Receiver Off	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	149/5745	16.50	15.11
	157/5785	16.50	15.02
	165/5825	16.50	15.01
802.11nHT20(MCS0)	149/5745	15.50	13.85
	157/5785	15.50	13.36
	165/5825	15.50	13.84
802.11nHT40(MCS0)	151/5755	13.50	11.20
	159/5795	13.50	11.03
802.11ac-VHT20(MCS0)	149/5745	13.50	11.66
	157/5785	13.50	11.76
	165/5825	13.50	11.70



802.11ac-VHT40(MCS0)	151/5755	13.50	11.60
	159/5795	13.50	11.56
802.11ac-VHT80(MCS0)	155/5775	13.50	11.33

5GHz Wi-Fi U-NII-1 Receiver On	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	36/5180	13.50	12.26
	40/5200	13.50	12.34
	44/5220	13.50	12.31
	48/5240	13.50	12.37
802.11nHT20(MCS0)	36/5180	12.50	11.14
	40/5200	12.50	11.06
	44/5220	12.50	11.16
	48/5240	12.50	11.23
802.11nHT40(MCS0)	38/5190	10.50	8.79
	46/5230	10.50	8.86
802.11ac-VHT20(MCS0)	36/5180	10.50	8.90
	40/5200	10.50	8.82
	44/5220	10.50	8.92
	48/5240	10.50	8.97
802.11ac-VHT40(MCS0)	38/5190	10.50	8.80
	46/5230	10.50	8.74
802.11ac-VHT80(MCS0)	42/5210	10.50	8.52

5GHz Wi-Fi (U-NII-2A) Receiver On	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	52/5260	14.00	12.72
	56/5280	14.00	12.83
	60/5300	14.00	12.93
	64/5320	14.00	12.95
802.11nHT20(MCS0)	52/5260	13.00	11.76
	56/5280	13.00	11.64
	60/5300	13.00	11.65
	64/5320	13.00	11.72
802.11nHT40(MCS0)	54/5270	11.00	9.53
	62/5310	11.00	9.57
802.11ac-VHT20(MCS0)	52/5260	11.00	9.62
	56/5280	11.00	9.67
	60/5300	11.00	9.68
	64/5320	11.00	9.69



802.11ac-VHT40(MCS0)	54/5270	11.00	9.45
	62/5310	11.00	9.43
802.11ac-VHT80(MCS0)	58/5290	11.00	9.08

5GHz Wi-Fi U-NII-2C Receiver On	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a (6M)	100/5500	13.00	11.72
	116/5580	14.00	12.30
	132/5660	14.00	12.04
	136/5680	14.00	12.04
	140/5700	13.00	11.12
802.11nHT20 (MCS0)	100/5500	13.00	11.56
	116/5580	13.00	11.10
	132/5660	13.00	10.91
	136/5680	12.00	10.91
	140/5700	13.00	10.92
802.11nHT40 (MCS0)	102/5510	11.00	9.43
	110/5550	11.00	9.30
	118/5590	11.00	8.84
	134/5670	11.00	8.63
802.11ac-VHT20 (MCS0)	100/5500	11.00	9.48
	116/5580	11.00	8.92
	132/5660	11.00	8.70
	140/5700	11.00	8.69
802.11ac-VHT40 (MCS0)	102/5510	11.00	9.32
	110/5550	11.00	9.34
	118/5590	11.00	8.72
	134/5670	11.00	8.59
802.11ac-VHT80 (MCS0)	106/5530	11.00	9.18
	122/5610	11.00	8.56

5GHz Wi-Fi U-NII-3 Receiver On	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	149/5745	14.00	12.76
	157/5785	14.00	12.57
	165/5825	14.00	12.76
802.11nHT20(MCS0)	149/5745	13.00	11.56
	157/5785	13.00	11.51
	165/5825	13.00	11.50
802.11nHT40(MCS0)	151/5755	11.00	9.24
	159/5795	11.00	9.23



802.11ac-VHT20(MCS0)	149/5745	11.00	9.33
	157/5785	11.00	9.32
	165/5825	11.00	9.42
802.11ac-VHT40(MCS0)	151/5755	11.00	9.28
	159/5795	11.00	9.27
802.11ac-VHT80(MCS0)	155/5775	11.00	8.94

9.5 Bluetooth Mode

Bluetooth	Conducted Power(dBm)			Tune-up Limit (dBm)
	Channel/Frequency(MHz)			
	Ch 0/2402 MHz	Ch 39/2441 MHz	Ch 78/2480 MHz	
GFSK	10.43	11.50	11.16	12.50
$\pi/4$ DQPSK	7.55	8.34	8.11	8.50
8DPSK	7.54	8.33	8.10	8.50
BLE	Ch 0/2402 MHz	Ch 19/2440 MHz	Ch 39/2480 MHz	Tune-up Limit (dBm)
GFSK(1M)	1.60	2.67	3.60	4.50
GFSK(2M)	1.58	2.66	3.59	4.50

10 Measured and Reported (Scaled) SAR Results

10.1 EUT Antenna Locations

The Detailed Antenna Locations refer to *Antenna Locations*.

Overall (Length x Width): 169 mm x 76mm						
Overall Diagonal: 180 mm/Display Diagonal: 176mm						
Distance of the Antenna to the EUT Surface/Edge						
Antenna	Back Side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
Low Antenna	<25mm	<25mm	<25mm	<25mm	>25mm	<25mm
Upper Antenna	<25mm	<25mm	<25mm	>25mm	<25mm	>25mm
Bluetooth/Wi-Fi Antenna	<25mm	<25mm	>25mm	<25mm	<25mm	>25mm
Hotspot Mode, Positions for SAR Tests						
Mode	Back Side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
Low Antenna	Yes	Yes	Yes	Yes	N/A	Yes
Upper Antenna	Yes	Yes	Yes	N/A	Yes	N/A
Bluetooth/Wi-Fi Antenna	Yes	Yes	N/A	Yes	Yes	N/A
Note:						
<p>1. Per KDB 941225 D06, when the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 10mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.</p> <p>2. For smart phones with an overall diagonal dimension is 180mm. Per KDB 648474 D04, for smart phones with a display diagonal dimension $> 15.0\text{ cm}$ or an overall diagonal dimension $> 16.0\text{ cm}$, product specific 10-g SAR must be tested as a phablet to determine SAR compliance. For Phablet, Since hotspot mode 1-g <i>reported</i> SAR $< 1.2\text{W/kg}$, product specific 10-g SAR is no required.</p> <p>3. Per FCC KDB 447498 D01, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:</p> <p>a) $\leq 0.8\text{ W/kg}$ or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is $\leq 100\text{MHz}$</p> <p>b) $\leq 0.6\text{ W/kg}$ or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.</p> <p>c) $\leq 0.4\text{ W/kg}$ or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.</p> <p>4. When the original highest measured SAR is $\geq 0.80\text{ W/kg}$, the measurement was repeated once.</p> <p>5. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was $\leq 1.2\text{ W/kg}$, no additional SAR evaluations using a headset cable were required.</p>						



10.2 Measured SAR Results

Note:

- The value with blue color is the maximum SAR Value of each test band.
- For GSM, when multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.
- For WCDMA, When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.
- For LTE, QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are $\geq 50\%$ limit (1g).
- The highest reported SAR for a test configuration is > 1.2 W/kg, SAR is required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR. Since the band U-NII-2A does not support hotspot function, hotspot SAR for U-NII-1 is required.
- Accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main EUT configuration.
- Hotspot(10mm) power level is same as body worn, the 10mm SAR value are more stringent than 15mm, so 10mm SAR value can cover body worn 15mm .So this product can meet SAR limit under strict conditions

Head SAR

Band	Antenna	Test Position	Dist. (mm)	Mode	Power Reduction	RB	Offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	Plot No.
GSM 850 (Original)	Low Antenna	Left Cheek	0	GSM	DSI1	-	-	190/836.6	33.50	31.78	0.159	0.040	1.49	0.236	/
		Left Tilt	0	GSM	DSI1	-	-	190/836.6	33.50	31.78	0.071	0.030	1.49	0.105	/
		Right Cheek	0	GSM	DSI1	-	-	190/836.6	33.50	31.78	0.156	0.070	1.49	0.232	/
		Right Tilt	0	GSM	DSI1	-	-	190/836.6	33.50	31.78	0.057	0.080	1.49	0.084	/
	Upper Antenna	Left Cheek	0	GSM	DSI1	-	-	190/836.6	33.50	32.45	0.662	0.030	1.27	0.843	/
		Left Tilt	0	GSM	DSI1	-	-	190/836.6	33.50	32.45	0.348	-0.010	1.27	0.443	/
		Right Cheek	0	GSM	DSI1	-	-	190/836.6	33.50	32.45	0.802	0.010	1.27	1.021	19
		Right Tilt	0	GSM	DSI1	-	-	190/836.6	33.50	32.45	0.678	-0.030	1.27	0.863	/
		Right Cheek	0	GSM	DSI1	-	-	128/824.2	33.50	32.51	0.711	-0.070	1.26	0.893	/
		Right Cheek	0	GSM	DSI1	-	-	251/848.8	33.50	32.31	0.756	0.030	1.32	0.994	/
		Right Cheek Repeat	0	GSM	DSI1	-	-	190/836.6	33.50	32.45	0.782	0.020	1.27	0.996	/
		Right Cheek Battery3	0	GSM	DSI1	-	-	190/836.6	33.50	32.45	0.437	0.010	1.27	0.557	/
		Right Cheek Battery4	0	GSM	DSI1	-	-	190/836.6	33.50	32.45	0.556	0.050	1.27	0.708	/
		Right Cheek Battery1	0	GSM	DSI1	-	-	190/836.6	33.50	32.45	0.768	0.036	1.27	0.978	/
GSM 1900 (Original)	Low Antenna	Left Cheek	0	GSM	DSI1	-	-	661/1880	30.00	29.00	0.100	-0.110	1.26	0.126	/
		Left Tilt	0	GSM	DSI1	-	-	661/1880	30.00	29.00	0.098	0.150	1.26	0.124	/
		Right Cheek	0	GSM	DSI1	-	-	661/1880	30.00	29.00	0.078	0.072	1.26	0.098	/



Upper Antenna	Right Tilt	0	GSM	DSI1	-	-	661/1880	30.00	29.00	0.072	0.050	1.26	0.091	/	
	Left Cheek	0	GSM	DSI1	-	-	661/1880	29.50	29.25	0.299	-0.040	1.06	0.317	/	
	Left Tilt	0	GSM	DSI1	-	-	661/1880	29.50	29.25	0.426	-0.020	1.06	0.451	/	
	Right Cheek	0	GSM	DSI1	-	-	661/1880	29.50	29.25	0.411	0.110	1.06	0.435	/	
	Right Tilt	0	GSM	DSI1	-	-	661/1880	29.50	29.25	0.525	0.080	1.06	0.556	20	
	Right Tilt Battery3	0	GSM	DSI1	-	-	661/1880	29.50	29.25	0.045	0.000	1.06	0.048	/	
	Right Tilt Battery4	0	GSM	DSI1	-	-	661/1880	29.50	29.25	0.125	0.000	1.06	0.132	/	
	Right Tilt Battery1	0	GSM	DSI1	-	-	661/1880	29.50	29.25	0.512	0.045	1.06	0.542	/	
WCDMA V (Original)	Low Antenna	Left Cheek	0	RMC 12.2K	DSI1	-	-	4183/836.6	24.50	23.17	0.129	0.090	1.36	0.175	/
		Left Tilt	0	RMC 12.2K	DSI1	-	-	4183/836.6	24.50	23.17	0.058	0.032	1.36	0.079	/
		Right Cheek	0	RMC 12.2K	DSI1	-	-	4183/836.6	24.50	23.17	0.162	0.040	1.36	0.220	/
		Right Tilt	0	RMC 12.2K	DSI1	-	-	4183/836.6	24.50	23.17	0.074	0.170	1.36	0.100	/
	Upper Antenna	Left Cheek	0	RMC 12.2K	DSI1	-	-	4183/836.6	23.50	22.03	0.577	0.069	1.40	0.809	/
			0	RMC 12.2K	DSI1	-	-	4132/826.4	23.50	22.03	0.452	0.058	1.40	0.634	/
			0	RMC 12.2K	DSI1	-	-	4233/846.6	23.50	22.03	0.392	0.045	1.40	0.550	/
		Left Tilt	0	RMC 12.2K	DSI1	-	-	4183/836.6	23.50	22.03	0.381	0.036	1.40	0.535	/
			0	RMC 12.2K	DSI1	-	-	4183/836.6	23.50	22.03	0.634	0.110	1.40	0.890	/
		Right Cheek	0	RMC 12.2K	DSI1	-	-	4132/826.4	23.50	22.08	0.701	-0.014	1.39	0.972	21
			0	RMC 12.2K	DSI1	-	-	4233/846.6	23.50	22.05	0.630	-0.160	1.40	0.880	/
		Right Tilt	0	RMC 12.2K	DSI1	-	-	4183/836.6	23.50	22.03	0.502	-0.085	1.40	0.704	/
		Right Cheek Battery3	0	RMC 12.2K	DSI1	-	-	4132/826.4	23.50	22.08	0.139	0.010	1.39	0.193	/
		Right Cheek Battery4	0	RMC 12.2K	DSI1	-	-	4132/826.4	23.50	22.08	0.339	0.040	1.39	0.470	/
		Right Cheek Battery1	0	RMC 12.2K	DSI1	-	-	4132/826.4	23.50	22.08	0.679	0.035	1.39	0.942	/
		LTE 5 (Original)	Low Antenna	Left Cheek	0	QPSK	DSI1	1	25	20525/836.5	24.50	23.70	0.160	0.140	1.20
0	QPSK				DSI1	50%	0	20600/844	23.50	22.79	0.125	0.107	1.18	0.147	/
Left Tilt	0			QPSK	DSI1	1	25	20525/836.5	24.50	23.70	0.076	-0.018	1.20	0.091	/
	0			QPSK	DSI1	50%	0	20600/844	23.50	22.79	0.058	0.180	1.18	0.068	/
Right Cheek	0			QPSK	DSI1	1	25	20525/836.5	24.50	23.70	0.153	0.045	1.20	0.184	/
	0			QPSK	DSI1	50%	0	20600/844	23.50	22.79	0.115	0.081	1.18	0.135	/
Right Tilt	0			QPSK	DSI1	1	25	20525/836.5	24.50	23.70	0.067	0.130	1.20	0.080	/
	0			QPSK	DSI1	50%	0	20600/844	23.50	22.79	0.053	0.110	1.18	0.062	/
Upper Antenna	Left Cheek		0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.689	0.010	1.25	0.863	/
			0	QPSK	DSI1	1	25	20525/836.5	25.00	23.51	0.561	-0.020	1.41	0.791	/
			0	QPSK	DSI1	1	25	20600/844	25.00	23.47	0.556	-0.060	1.42	0.791	/
			0	QPSK	DSI1	50%	0	20450/829	23.50	22.59	0.557	-0.020	1.23	0.687	/
	Left Tilt		0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.564	-0.060	1.25	0.707	/
			0	QPSK	DSI1	50%	0	20450/829	23.50	22.59	0.457	-0.020	1.23	0.564	/



		Right Cheek	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.863	0.000	1.25	1.081	22
		Right Cheek SIM2	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.832	0.015	1.25	1.043	/
		Right Cheek 3+32G	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.816	0.032	1.25	1.023	/
		Right Cheek 3+64G	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.851	0.012	1.25	1.066	/
		Right Cheek 4+64G	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.811	0.150	1.25	1.016	/
		Right Cheek	0	QPSK	DSI1	1	25	20525/836.5	24.50	23.51	0.794	-0.011	1.26	0.997	/
		Right Cheek	0	QPSK	DSI1	1	25	20600/844	24.50	23.47	0.743	-0.070	1.27	0.942	/
		Right Cheek	0	QPSK	DSI1	50%	0	20450/829	23.50	22.59	0.760	0.010	1.23	0.937	/
		Right Cheek	0	QPSK	DSI1	50%	0	20525/836.5	23.50	22.55	0.651	-0.010	1.24	0.810	/
		Right Cheek	0	QPSK	DSI1	50%	0	20600/844	23.50	22.57	0.614	0.010	1.24	0.761	/
		Right Cheek	0	QPSK	DSI1	100%	0	20450/829	23.50	22.56	0.658	-0.010	1.24	0.817	/
		Right Cheek	0	QPSK	DSI1	100%	0	20525/836.5	23.50	22.54	0.637	0.000	1.25	0.795	/
		Right Cheek	0	QPSK	DSI1	100%	0	20600/844	23.50	22.53	0.606	-0.030	1.25	0.758	/
		Right Cheek Repeat	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.859	-0.034	1.25	1.076	/
		Right Tilt	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.679	0.030	1.25	0.851	/
	0		QPSK	DSI1	1	25	20525/836.5	24.50	23.51	0.531	-0.020	1.26	0.667	/	
	0		QPSK	DSI1	1	25	20600/844	24.50	23.47	0.510	0.000	1.27	0.647	/	
	0		QPSK	DSI1	50%	0	20450/829	23.50	22.59	0.545	-0.010	1.23	0.672	/	
		Right Cheek Battery3	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.605	0.020	1.25	0.758	/
		Right Cheek Battery4	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.693	-0.160	1.25	0.868	/
		Right Cheek Battery1	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.805	0.036	1.25	1.009	/
LTE 5 (Variant)	Upper Antenna	Right Cheek	0	QPSK	DSI1	1	25	20450/829	24.50	23.52	0.734	0.032	1.25	0.920	/
LTE 7 (Original)	Low Antenna	Left Cheek	0	QPSK	DSI1	1	50	21350/2560	24.50	23.45	0.113	0.033	1.27	0.144	/
			0	QPSK	DSI1	50%	0	21100/2535	23.50	22.50	0.081	0.034	1.26	0.102	/
		Left Tilt	0	QPSK	DSI1	1	50	21350/2560	24.50	23.45	0.141	0.052	1.27	0.180	/
			0	QPSK	DSI1	50%	0	21100/2535	23.50	22.50	0.086	0.060	1.26	0.109	/
		Right Cheek	0	QPSK	DSI1	1	50	21350/2560	24.50	23.45	0.096	0.053	1.27	0.123	/
			0	QPSK	DSI1	50%	0	21100/2535	23.50	22.50	0.058	0.139	1.26	0.073	/
		Right Tilt	0	QPSK	DSI1	1	50	21350/2560	24.50	23.45	0.077	0.029	1.27	0.098	/
			0	QPSK	DSI1	50%	0	21100/2535	23.50	22.50	0.045	0.069	1.26	0.056	/
	Upper Antenna	Left Cheek	0	QPSK	DSI1	1	50	20850/2510	21.00	19.85	0.492	0.160	1.30	0.642	/
			0	QPSK	DSI1	50%	25	20850/2510	21.00	19.82	0.543	0.045	1.31	0.713	/
		Left Tilt	0	QPSK	DSI1	1	50	20850/2510	21.00	19.85	0.597	0.058	1.30	0.778	23
			0	QPSK	DSI1	50%	25	20850/2510	21.00	19.82	0.595	-0.015	1.31	0.781	/



		Right Cheek	0	QPSK	DSI1	1	50	20850/2510	21.00	19.85	0.390	0.075	1.30	0.509	/	
			0	QPSK	DSI1	50%	25	20850/2510	21.00	19.82	0.413	0.045	1.31	0.542	/	
		Right Tilt	0	QPSK	DSI1	1	50	20850/2510	21.00	19.85	0.385	0.160	1.30	0.502	/	
			0	QPSK	DSI1	50%	25	20850/2510	21.00	19.82	0.368	0.025	1.31	0.483	/	
		Left Tilt Battery3	0	QPSK	DSI1	50%	25	20850/2510	21.00	19.82	0.445	0.010	1.31	0.584	/	
		Left Tilt Battery4	0	QPSK	DSI1	50%	25	20850/2510	21.00	19.82	0.452	0.000	1.31	0.593	/	
		Left Tilt Battery1	0	QPSK	DSI1	50%	25	20850/2510	21.00	19.82	0.593	0.015	1.31	0.779	/	
LTE 38 (Original)	Low Antenna	Left Cheek	0	QPSK	DSI1	1	50	38150/2610	24.50	23.36	0.073	0.090	1.30	0.095	/	
			0	QPSK	DSI1	50%	25	37850/2580	23.50	22.29	0.054	0.090	1.32	0.071	/	
		Left Tilt	0	QPSK	DSI1	1	50	38150/2610	24.50	23.36	0.079	0.070	1.30	0.102	/	
			0	QPSK	DSI1	50%	25	37850/2580	23.50	22.29	0.061	0.163	1.32	0.080	/	
		Right Cheek	0	QPSK	DSI1	1	50	38150/2610	24.50	23.36	0.073	-0.076	1.30	0.095	/	
			0	QPSK	DSI1	50%	25	37850/2580	23.50	22.29	0.054	0.077	1.32	0.071	/	
		Right Tilt	0	QPSK	DSI1	1	50	38150/2610	24.50	23.36	0.053	0.041	1.30	0.069	/	
			0	QPSK	DSI1	50%	25	37850/2580	23.50	22.29	0.041	0.080	1.32	0.054	/	
		Upper Antenna	Left Cheek	0	QPSK	DSI1	1	50	37850/2580	24.00	22.45	0.469	0.032	1.43	0.670	/
				0	QPSK	DSI1	50%	25	37850/2580	23.00	22.01	0.344	0.120	1.26	0.432	/
			Left Tilt	0	QPSK	DSI1	1	50	37850/2580	24.00	22.45	0.588	0.119	1.43	0.840	/
				0	QPSK	DSI1	1	50	38000/2595	24.00	22.36	0.498	0.039	1.46	0.727	/
	0			QPSK	DSI1	1	50	38150/2610	24.00	22.45	0.521	-0.063	1.43	0.745	/	
	0			QPSK	DSI1	50%	25	37850/2580	23.00	22.01	0.460	0.058	1.26	0.578	/	
	Right Cheek		0	QPSK	DSI1	100%	0	37850/2580	23.00	21.95	0.367	0.085	1.27	0.468	/	
			0	QPSK	DSI1	1	50	37850/2580	24.00	22.45	0.493	0.045	1.43	0.704	/	
	Right Tilt		0	QPSK	DSI1	50%	25	37850/2580	23.00	22.01	0.370	0.036	1.26	0.464	/	
			0	QPSK	DSI1	1	50	37850/2580	24.00	22.45	0.574	0.052	1.43	0.820	/	
			0	QPSK	DSI1	1	50	38000/2595	24.00	22.36	0.498	-0.096	1.46	0.727	/	
			0	QPSK	DSI1	1	50	38150/2610	24.00	22.45	0.521	0.015	1.43	0.745	/	
	Upper Antenna	Left Tilt Battery3	0	QPSK	DSI1	1	50	37850/2580	24.00	22.45	0.503	0.100	1.43	0.719	/	
			0	QPSK	DSI1	1	50	37850/2580	24.00	22.45	0.569	0.000	1.43	0.813	/	
		Left Tilt Battery4	0	QPSK	DSI1	1	50	37850/2580	24.00	22.45	0.608	0.036	1.43	0.868	24	
			0	QPSK	DSI1	1	50	37850/2580	24.00	22.45	0.608	0.036	1.43	0.868	24	
LTE 41 (Original)	Low Antenna	Left Cheek	0	QPSK	DSI1	1	50	39750/2506	24.50	23.44	0.048	0.163	1.28	0.061	/	
			0	QPSK	DSI1	50%	25	39750/2506	23.50	22.41	0.036	0.153	1.29	0.047	/	
		Left Tilt	0	QPSK	DSI1	1	50	39750/2506	24.50	23.44	0.046	0.077	1.28	0.058	/	
			0	QPSK	DSI1	50%	25	39750/2506	23.50	22.41	0.036	0.150	1.29	0.046	/	
		Right Cheek	0	QPSK	DSI1	1	50	39750/2506	24.50	23.44	0.044	0.198	1.28	0.057	/	
			0	QPSK	DSI1	50%	25	39750/2506	23.50	22.41	0.034	0.090	1.29	0.044	/	



Upper Antenna	Right Tilt	0	QPSK	DSI1	1	50	39750/2506	24.50	23.44	0.024	0.101	1.28	0.030	/	
		0	QPSK	DSI1	50%	25	39750/2506	23.50	22.41	0.018	0.148	1.29	0.024	/	
	Left Cheek	0	QPSK	DSI1	1	50	39750/2506	24.00	23.03	0.337	-0.130	1.25	0.421	/	
		0	QPSK	DSI1	50%	25	39750/2506	23.00	22.47	0.365	-0.020	1.13	0.412	/	
	Left Tilt	0	QPSK	DSI1	1	50	39750/2506	24.00	23.03	0.427	0.040	1.25	0.534	/	
		0	QPSK	DSI1	50%	25	39750/2506	23.00	22.47	0.420	-0.120	1.13	0.475	/	
	Right Cheek	0	QPSK	DSI1	1	50	39750/2506	24.00	23.00	0.640	-0.051	1.26	0.806	/	
		0	QPSK	DSI1	1	50	40185/2549.5	24.00	22.93	0.583	-0.140	1.28	0.746	/	
		0	QPSK	DSI1	1	50	41490/2680	24.00	23.00	0.852	-0.073	1.26	1.073	25	
		0	QPSK	DSI1	50%	25	39750/2506	23.00	22.47	0.553	0.010	1.13	0.625	/	
		0	QPSK	DSI1	100%	0	39750/2506	23.00	22.48	0.478	0.080	1.13	0.539	/	
	Right Cheek Repeat	0	QPSK	DSI1	1	50	41490/2680	24.00	23.00	0.632	-0.080	1.26	0.796	/	
	Right Tilt	0	QPSK	DSI1	1	50	39750/2506	24.00	23.03	0.550	0.100	1.25	0.688	/	
		0	QPSK	DSI1	50%	25	39750/2506	23.00	22.47	0.434	-0.090	1.13	0.490	/	
	Upper Antenna	Right Cheek Battery3	0	QPSK	DSI1	1	50	41490/2680	24.00	23.00	0.587	0.010	1.26	0.739	/
		Right Cheek Battery4	0	QPSK	DSI1	1	50	41490/2680	24.00	23.00	0.683	-0.060	1.26	0.860	/
		Right Cheek Battery1	0	QPSK	DSI1	1	50	41490/2680	24.00	23.00	0.801	0.000	1.26	1.008	/

Band	Antenna	Test Position	Dist. (mm)	Mode	Duty Cycle	Power Reduction	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	Plot No.
2.4G (Original)	Wi-Fi	Left cheek	0	802.11b	98.0%	Receiver on	11/2462	15.50	14.63	0.400	0.020	1.25	0.499	26
		Left Tilt	0	802.11b	98.0%	Receiver on	11/2462	15.50	14.63	0.372	-0.030	1.25	0.464	/
		Right cheek	0	802.11b	98.0%	Receiver on	11/2462	15.50	14.63	0.150	0.140	1.25	0.187	/
		Right Tilt	0	802.11b	98.0%	Receiver on	11/2462	15.50	14.63	0.142	-0.030	1.25	0.177	/
		Left cheek Battery3	0	802.11b	98.0%	Receiver on	11/2462	15.50	14.63	0.341	0.020	1.25	0.425	/
		Left cheek Battery4	0	802.11b	98.0%	Receiver on	11/2462	15.50	14.63	0.388	0.100	1.25	0.484	/
		Left cheek Battery1	0	802.11b	98.0%	Receiver on	11/2462	15.50	14.63	0.365	0.045	1.25	0.455	/
U-NII-1 (Original)	Wi-Fi	Left cheek	0	802.11a	100.0%	Receiver on	48/5240	13.50	12.37	0.245	0.020	1.30	0.318	/
		Left Tilt	0	802.11a	100.0%	Receiver on	48/5240	13.50	12.37	0.329	-0.122	1.30	0.427	/
		Right cheek	0	802.11a	100.0%	Receiver on	48/5240	13.50	12.37	0.151	0.066	1.30	0.196	/
		Right Tilt	0	802.11a	100.0%	Receiver on	48/5240	13.50	12.37	0.187	0.116	1.30	0.243	/
		Left Tilt Battery3	0	802.11a	100.0%	Receiver on	48/5240	13.50	12.37	0.251	0.010	1.30	0.326	/
		Left Tilt Battery4	0	802.11a	100.0%	Receiver on	48/5240	13.50	12.37	0.299	0.000	1.30	0.388	/



		Left Tilt Battery1	0	802.11a	100.0%	Receiver on	48/5240	13.50	12.37	0.352	0.045	1.30	0.457	/
U-NII-2A (Original)	Wi-Fi	Left cheek	0	802.11a	100.0%	Receiver on	64/5320	14.00	12.95	0.275	0.150	1.27	0.350	/
		Left Tilt	0	802.11a	100.0%	Receiver on	64/5320	14.00	12.95	0.381	0.053	1.27	0.485	/
		Right cheek	0	802.11a	100.0%	Receiver on	64/5320	14.00	12.95	0.198	0.133	1.27	0.252	/
		Right Tilt	0	802.11a	100.0%	Receiver on	64/5320	14.00	12.95	0.231	0.160	1.27	0.294	/
		Left Tilt Battery3	0	802.11a	100.0%	Receiver on	64/5320	14.00	12.95	0.355	0.100	1.27	0.452	/
		Left Tilt Battery4	0	802.11a	100.0%	Receiver on	64/5320	14.00	12.95	0.415	0.120	1.27	0.529	27
		Left Tilt Battery1	0	802.11a	100.0%	Receiver on	64/5320	14.00	12.95	0.367	0.025	1.27	0.467	
U-NII-2C (Original)	Wi-Fi	Left cheek	0	802.11a	100.0%	Receiver on	116/5580	14.00	12.30	0.275	0.021	1.48	0.407	/
		Left Tilt	0	802.11a	100.0%	Receiver on	116/5580	14.00	12.30	0.336	0.041	1.48	0.497	/
		Right cheek	0	802.11a	100.0%	Receiver on	116/5580	14.00	12.30	0.236	0.024	1.48	0.349	/
		Right Tilt	0	802.11a	100.0%	Receiver on	116/5580	14.00	12.30	0.286	0.172	1.48	0.423	/
		Left Tilt Battery3	0	802.11a	100.0%	Receiver on	116/5580	14.00	12.30	0.330	0.020	1.48	0.488	/
		Left Tilt Battery4	0	802.11a	100.0%	Receiver on	116/5580	14.00	12.30	0.281	0.010	1.48	0.416	
		Left Tilt Battery1	0	802.11a	100.0%	Receiver on	116/5580	14.00	12.30	0.312	0.065	1.48	0.461	/
U-NII-3 (Original)	Wi-Fi	Left cheek	0	802.11a	100.0%	Receiver on	149/5745	14.00	12.76	0.231	0.181	1.33	0.307	/
		Left Tilt	0	802.11a	100.0%	Receiver on	149/5745	14.00	12.76	0.278	0.097	1.33	0.370	/
		Right cheek	0	802.11a	100.0%	Receiver on	149/5745	14.00	12.76	0.192	0.080	1.33	0.255	/
		Right Tilt	0	802.11a	100.0%	Receiver on	149/5745	14.00	12.76	0.234	0.032	1.33	0.311	/
		Left Tilt Battery3	0	802.11a	100.0%	Receiver on	149/5745	14.00	12.76	0.261	0.020	1.33	0.347	/
		Left Tilt Battery4	0	802.11a	100.0%	Receiver on	149/5745	14.00	12.76	0.273	0.010	1.33	0.363	/
		Left Tilt Battery1	0	802.11a	100.0%	Receiver on	149/5745	14.00	12.76	0.245	0.025	1.33	0.326	/
Bluetooth (Original)	Bluetooth	Left cheek	0	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.031	-0.026	1.66	0.051	/
		Left Tilt	0	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.050	-0.031	1.66	0.083	/
		Right cheek	0	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.025	0.057	1.66	0.041	/
		Right Tilt	0	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.025	-0.036	1.66	0.042	/
		Left Tilt Battery3	0	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.110	0.013	1.66	0.182	28
		Left Tilt Battery4	0	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.098	0.010	1.66	0.162	/
		Left Tilt Battery1	0	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.044	0.021	1.66	0.073	/

Hotspot SAR



Band	Antenna	Test Position	Dist. (mm)	Mode	Power Reduction	RB	offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	Plot No.	
GSM 850 (Original)	Low Antenna	Back Side	10	2TX Slots	DSI4	-	-	190/836.6	30.50	29.39	0.432	0.090	1.29	0.558	/	
		Front Side	10	2TX Slots	DSI4	-	-	190/836.6	30.50	29.39	0.259	0.010	1.29	0.334	/	
		Left Edge	10	2TX Slots	DSI2	-	-	190/836.6	30.50	29.39	0.153	0.110	1.29	0.198	/	
		Right Edge	10	2TX Slots	DSI2	-	-	190/836.6	30.50	29.39	0.168	0.050	1.29	0.217	/	
		Top Edge	10	2TX Slots	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
		Bottom Edge	10	2TX Slots	DSI4	-	-	190/836.6	30.50	29.39	0.229	0.048	1.29	0.296	/	
	Upper Antenna	Back Side	10	2TX Slots	DSI4	-	-	190/836.6	30.00	28.99	0.374	-0.047	1.26	0.472	/	
		Front Side	10	2TX Slots	DSI4	-	-	190/836.6	30.00	28.99	0.189	-0.050	1.26	0.238	/	
		Left Edge	10	2TX Slots	DSI2	-	-	190/836.6	31.00	30.08	0.098	-0.016	1.24	0.121	/	
		Right Edge	10	2TX Slots	DSI2	-	-	190/836.6	31.00	30.08	0.064	-0.017	1.24	0.079	/	
		Top Edge	10	2TX Slots	DSI4	-	-	190/836.6	30.00	28.99	0.183	0.050	1.26	0.231	/	
		Bottom Edge	10	2TX Slots	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
	Low Antenna	Back Side Battery3	10	2TX Slots	DSI4	-	-	190/836.6	30.50	29.39	0.402	0.023	1.29	0.519	/	
		Back Side Battery4	10	2TX Slots	DSI4	-	-	190/836.6	30.50	29.39	0.401	0.021	1.29	0.518	/	
		Back Side Battery1	10	2TX Slots	DSI4	-	-	190/836.6	30.50	29.39	0.452	0.085	1.29	0.584	29	
GSM 1900 (Original)	Low Antenna	Back Side	10	2TX Slots	DSI4	-	-	661/1880	26.00	24.50	0.450	-0.100	1.41	0.636	30	
		Front Side	10	2TX Slots	DSI4	-	-	661/1880	26.00	24.50	0.163	-0.020	1.41	0.230	/	
		Left Edge	10	2TX Slots	DSI2	-	-	661/1880	27.50	26.96	0.094	0.024	1.13	0.107	/	
		Right Edge	10	2TX Slots	DSI2	-	-	661/1880	27.50	26.96	0.066	0.042	1.13	0.075	/	
		Top Edge	10	2TX Slots	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/	
		Bottom Edge	10	2TX Slots	DSI4	-	-	661/1880	26.00	24.50	0.437	0.043	1.41	0.617	/	
	Upper Antenna	Back Side	10	2TX Slots	DSI4	-	-	661/1880	23.50	21.98	0.182	-0.060	1.42	0.258	/	
		Front Side	10	2TX Slots	DSI4	-	-	661/1880	23.50	21.98	0.091	-0.070	1.42	0.129	/	
		Left Edge	10	2TX Slots	DSI2	-	-	661/1880	28.00	26.54	0.018	0.040	1.40	0.025	/	
		Right Edge	10	2TX Slots	DSI2	-	-	661/1880	28.00	26.54	0.130	0.050	1.40	0.182	/	
		Top Edge	10	2TX Slots	DSI4	-	-	661/1880	23.50	21.98	0.307	-0.040	1.42	0.436	/	
		Bottom Edge	10	2TX Slots	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/	
	Low Antenna	Back Side Battery3	10	2TX Slots	DSI4	-	-	661/1880	26.00	24.50	0.449	-0.140	1.41	0.634	/	
		Back Side Battery4	10	2TX Slots	DSI4	-	-	661/1880	26.00	24.50	0.383	0.060	1.41	0.541	/	
		Back Side Battery1	10	2TX Slots	DSI4	-	-	661/1880	26.00	24.50	0.406	0.074	1.41	0.573	/	
WCDMA V (Original)	Low Antenna	Back Side	10	RMC	DSI4	-	-	4183/836.6	24.50	23.17	0.306	0.080	1.36	0.416	/	
		Front Side	10	RMC	DSI4	-	-	4183/836.6	24.50	23.17	0.151	0.025	1.36	0.205	/	
		Left Edge	10	RMC	DSI2	-	-	4183/836.6	25.00	23.18	0.000	0.000	1.52	0.000	/	
		Right Edge	10	RMC	DSI2	-	-	4183/836.6	25.00	23.18	0.089	0.032	1.52	0.135	/	



		Top Edge	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/	
		Bottom Edge	10	RMC	DSI4	-	-	4183/836.6	24.50	23.17	0.176	0.100	1.36	0.239	/
	Upper Antenna	Back Side	10	RMC	DSI4	-	-	4183/836.6	24.50	22.93	0.344	0.010	1.44	0.494	/
			10	RMC	DSI4	-	-	4183/836.6	24.50	22.93	0.203	-0.028	1.44	0.291	/
		Left Edge	10	RMC	DSI2	-	-	4183/836.6	25.00	23.06	0.044	-0.030	1.56	0.069	/
			10	RMC	DSI2	-	-	4183/836.6	25.00	23.06	0.088	0.041	1.56	0.138	/
		Top Edge	10	RMC	DSI4	-	-	4183/836.6	24.50	22.93	0.239	0.022	1.44	0.343	/
		Bottom Edge	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
	Upper Antenna	Back Side Battery3	10	RMC	DSI4	-	-	4183/836.6	24.50	22.93	0.393	0.020	1.44	0.564	31
			10	RMC	DSI4	-	-	4183/836.6	24.50	22.93	0.368	0.016	1.44	0.528	/
Back Side Battery4		10	RMC	DSI4	-	-	4183/836.6	24.50	22.93	0.365	0.025	1.44	0.524	/	
LTE 5 (Original)	Low Antenna	Back Side	10	QPSK	DSI4	1	25	20525/836.5	24.50	23.70	0.333	0.030	1.20	0.400	/
			10	QPSK	DSI4	50%	0	20600/844	23.50	22.79	0.284	0.011	1.18	0.334	/
		Front Side	10	QPSK	DSI4	1	25	20525/836.5	24.50	23.70	0.148	0.038	1.20	0.178	/
			10	QPSK	DSI4	50%	0	20600/844	23.50	22.79	0.107	0.016	1.18	0.126	/
		Left Edge	10	QPSK	DSI2	1	25	20525/836.5	25.00	23.69	0.000	0.000	1.35	0.000	/
			10	QPSK	DSI2	50%	0	20600/844	24.00	22.73	0.000	0.000	1.34	0.000	/
		Right Edge	10	QPSK	DSI2	1	25	20525/836.5	25.00	23.69	0.080	-0.020	1.35	0.108	/
			10	QPSK	DSI2	50%	0	20600/844	24.00	22.73	0.062	-0.015	1.34	0.083	/
		Top Edge	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
			10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
		Bottom Edge	10	QPSK	DSI4	1	25	20525/836.5	24.50	23.70	0.197	0.040	1.20	0.237	/
			10	QPSK	DSI4	50%	0	20600/844	23.50	22.79	0.169	0.024	1.18	0.199	/
	Upper Antenna	Back Side	10	QPSK	DSI4	1	25	20450/829	23.50	22.57	0.338	0.060	1.24	0.419	/
			10	QPSK	DSI4	50%	0	20450/829	23.50	22.58	0.328	0.014	1.24	0.405	/
		Front Side	10	QPSK	DSI4	1	25	20450/829	23.50	22.57	0.201	-0.020	1.24	0.249	/
			10	QPSK	DSI4	50%	0	20450/829	23.50	22.58	0.189	0.068	1.24	0.234	/
		Left Edge	10	QPSK	DSI2	1	25	20450/829	25.00	23.55	0.064	-0.015	1.40	0.089	/
			10	QPSK	DSI2	50%	0	20450/829	24.00	22.60	0.061	0.020	1.38	0.084	/
		Right Edge	10	QPSK	DSI2	1	25	20450/829	25.00	23.55	0.091	0.078	1.40	0.127	/
			10	QPSK	DSI2	50%	0	20450/829	24.00	22.60	0.088	-0.012	1.38	0.121	/
		Top Edge	10	QPSK	DSI4	1	25	20450/829	23.50	22.57	0.203	0.026	1.24	0.251	/
			10	QPSK	DSI4	50%	0	20450/829	23.50	22.58	0.189	0.070	1.24	0.234	/
		Bottom Edge	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
			10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
Upper Antenna	Back Side Battery3	10	QPSK	DSI4	1	25	20450/829	23.50	22.57	0.353	0.015	1.24	0.437	/	
		10	QPSK	DSI4	1	25	20450/829	23.50	22.57	0.354	0.025	1.24	0.439	/	
	Back Side Battery4	10	QPSK	DSI4	1	25	20450/829	23.50	22.57	0.385	0.065	1.24	0.477	32	



		Battery1														
LTE 7 (Original)	Low Antenna	Back Side	10	QPSK	DSI4	1	50	21100/2535	19.50	18.30	0.453	0.085	1.32	0.597	/	
			10	QPSK	DSI4	50%	0	21100/2535	19.50	18.21	0.454	0.063	1.35	0.611	/	
		Front Side	10	QPSK	DSI4	1	50	21100/2535	19.50	18.30	0.150	0.054	1.32	0.197	/	
			10	QPSK	DSI4	50%	0	21100/2535	19.50	18.21	0.150	0.036	1.35	0.201	/	
		Left Edge	10	QPSK	DSI2	1	50	21350/2560	24.50	23.40	0.076	0.085	1.29	0.098	/	
			10	QPSK	DSI2	50%	25	21100/2535	23.50	22.46	0.056	0.045	1.27	0.072	/	
		Right Edge	10	QPSK	DSI2	1	50	21350/2560	24.50	23.40	0.169	0.025	1.29	0.218	/	
			10	QPSK	DSI2	50%	25	21100/2535	23.50	22.46	0.114	0.032	1.27	0.145	/	
		Top Edge	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
			10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
		Bottom Edge	10	QPSK	DSI4	1	50	21100/2535	19.50	18.30	0.599	0.075	1.32	0.789	/	
			10	QPSK	DSI4	50%	0	21100/2535	19.50	18.21	0.588	0.025	1.35	0.791	/	
		Upper Antenna	Back Side	10	QPSK	DSI4	1	50	20850/2510	23.50	22.51	0.323	0.020	1.26	0.406	/
				10	QPSK	DSI4	50%	25	20850/2510	23.50	22.49	0.361	0.100	1.26	0.456	/
	Front Side		10	QPSK	DSI4	1	50	20850/2510	23.50	22.51	0.268	0.020	1.26	0.337	/	
			10	QPSK	DSI4	50%	25	20850/2510	23.50	22.49	0.284	0.080	1.26	0.358	/	
	Left Edge		10	QPSK	DSI2	1	50	20850/2510	25.00	23.45	0.244	0.029	1.43	0.349	/	
			10	QPSK	DSI2	50%	50	20850/2510	24.00	22.48	0.185	0.019	1.42	0.263	/	
	Right Edge		10	QPSK	DSI2	1	50	20850/2510	25.00	23.45	0.117	-0.028	1.43	0.167	/	
			10	QPSK	DSI2	50%	50	20850/2510	24.00	22.48	0.095	0.050	1.42	0.135	/	
	Top Edge		10	QPSK	DSI4	1	50	20850/2510	23.50	22.51	0.635	-0.040	1.26	0.798	/	
			10	QPSK	DSI4	50%	25	20850/2510	23.50	22.49	0.625	0.170	1.26	0.789	/	
	Bottom Edge		10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
			10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
	Upper Antenna		Top Edge Battery3	10	QPSK	DSI4	1	50	20850/2510	23.50	22.51	0.626	0.020	1.26	0.786	/
			Top Edge Battery4	10	QPSK	DSI4	1	50	20850/2510	23.50	22.51	0.574	0.028	1.26	0.721	/
		Top Edge Battery1	10	QPSK	DSI4	1	50	20850/2510	23.50	22.51	0.605	0.087	1.26	0.760	/	
	LTE 38 TDD (Original)	Low Antenna	Back Side	10	QPSK	DSI4	1	50	37850/2580	22.50	20.91	0.364	0.100	1.44	0.525	/
10				QPSK	DSI4	50%	25	37850/2580	22.50	20.89	0.327	-0.026	1.45	0.473	/	
Front Side			10	0.130	DSI4	1	50	37850/2580	22.50	20.91	0.134	-0.022	1.44	0.193	/	
			10	QPSK	DSI4	50%	25	37850/2580	22.50	20.89	0.137	0.011	1.45	0.199	/	
Left Edge			10	QPSK	DSI2	1	50	38150/2610	25.00	23.29	0.064	0.013	1.48	0.094	/	
			10	QPSK	DSI2	50%	25	37850/2580	24.00	22.25	0.039	0.023	1.50	0.058	/	
Right Edge			10	QPSK	DSI2	1	50	38150/2610	25.00	23.29	0.074	0.090	1.48	0.110	/	
			10	QPSK	DSI2	50%	25	37850/2580	24.00	22.25	0.071	0.014	1.50	0.106	/	
Top Edge			10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
			10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
Bottom Edge			10	QPSK	DSI4	1	50	38150/2610	22.50	20.61	0.520	0.130	1.55	0.804	/	
			10	QPSK	DSI4	1	50	37850/2580	22.50	20.91	0.502	0.012	1.44	0.723	/	



Upper Antenna		10	QPSK	DSI4	1	50	38000/2595	22.50	20.89	0.560	-0.167	1.45	0.811	/	
		10	QPSK	DSI4	50%	25	38000/2595	22.50	20.08	0.442	0.038	1.75	0.771	/	
		10	QPSK	DSI4	50%	25	37850/2580	22.50	20.89	0.245	0.120	1.45	0.355	/	
		10	QPSK	DSI4	50%	25	38150/2610	22.50	20.73	0.310	0.010	1.50	0.466	/	
		10	QPSK	DSI4	100%	0	38000/2595	22.50	20.77	0.414	0.010	1.49	0.617	/	
	Back Side	10	QPSK	DSI4	1	50	38150/2610	24.50	23.25	0.244	0.069	1.33	0.325	/	
		10	QPSK	DSI4	50%	25	37850/2580	23.50	22.21	0.228	0.036	1.35	0.307	/	
		Front Side	10	QPSK	DSI4	1	50	38150/2610	24.50	23.25	0.172	0.021	1.33	0.229	/
			10	QPSK	DSI4	50%	25	37850/2580	23.50	22.21	0.128	0.010	1.35	0.172	/
		Left Edge	10	QPSK	DSI2	1	50	38150/2610	25.00	23.25	0.081	0.020	1.50	0.121	/
			10	QPSK	DSI2	50%	25	37850/2580	24.00	22.21	0.056	0.013	1.51	0.085	/
		Right Edge	10	QPSK	DSI2	1	50	38150/2610	25.00	23.25	0.055	-0.048	1.50	0.082	/
			10	QPSK	DSI2	50%	25	37850/2580	24.00	22.21	0.051	0.000	1.51	0.077	/
		Top Edge	10	QPSK	DSI4	1	50	38150/2610	24.50	23.25	0.513	0.160	1.33	0.684	/
			10	QPSK	DSI4	50%	25	37850/2580	23.50	22.21	0.374	0.070	1.35	0.503	/
	Bottom Edge	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/	
		10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/	
	Low Antenna	Bottom Edge Battery3	10	QPSK	DSI4	1	50	38000/2595	22.50	20.89	0.589	0.028	1.45	0.853	33
		Bottom Edge Battery4	10	QPSK	DSI4	1	50	38000/2595	22.50	20.89	0.564	0.021	1.45	0.817	
		Bottom Edge Battery1	10	QPSK	DSI4	1	50	38000/2595	22.50	20.89	0.516	0.078	1.45	0.748	
LTE 41 TDD (Original)	Low Antenna	Back Side	10	QPSK	DSI4	1	50	39750/2506	22.50	21.40	0.462	0.032	1.29	0.595	/
			10	QPSK	DSI4	50%	25	39750/2506	22.50	21.37	0.472	0.036	1.30	0.612	/
		Front Side	10	QPSK	DSI4	1	50	41490/2680	22.50	21.40	0.195	0.016	1.29	0.251	/
			10	QPSK	DSI4	50%	25	39750/2506	22.50	21.37	0.198	0.048	1.30	0.256	/
		Left Edge	10	QPSK	DSI2	1	50	39750/2506	25.00	23.52	0.038	-0.062	1.41	0.054	/
			10	QPSK	DSI2	50%	25	39750/2506	24.00	22.46	0.028	0.020	1.43	0.040	/
		Right Edge	10	QPSK	DSI2	1	50	39750/2506	25.00	23.52	0.099	0.069	1.41	0.139	/
			10	QPSK	DSI2	50%	25	39750/2506	24.00	22.46	0.075	-0.028	1.43	0.107	/
		Top Edge	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
			10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
		Bottom Edge	10	QPSK	DSI4	1	50	39750/2506	22.50	21.40	0.636	-0.014	1.29	0.819	/
		Bottom Edge SIM2	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.642	0.022	1.34	0.861	/
		Bottom Edge	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.621	0.015	1.34	0.832	/
		Bottom Edge 3+32G	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.605	0.032	1.34	0.811	/
		Bottom Edge 3+64G	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.630	-0.150	1.34	0.844	/
Bottom Edge 4+64G	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.628	0.025	1.34	0.841	/		



		Bottom Edge	10	QPSK	DSI4	1	50	41490/2680	22.50	20.84	0.396	0.049	1.47	0.580	/	
		Bottom Edge	10	QPSK	DSI4	50%	25	39750/2506	22.50	21.37	0.644	0.010	1.30	0.835	/	
		Bottom Edge	10	QPSK	DSI4	50%	25	40185/2549.5	22.50	21.23	0.634	0.017	1.34	0.850	/	
		Bottom Edge	10	QPSK	DSI4	50%	25	41490/2680	22.50	20.88	0.446	0.022	1.45	0.648	/	
		Bottom Edge	10	QPSK	DSI4	100%	0	39750/2506	22.50	21.24	0.589	0.012	1.34	0.787	/	
	Upper Antenna	Back Side	10	QPSK	DSI4	1	50	39750/2506	23.50	22.57	0.227	-0.030	1.24	0.281	/	
			10	QPSK	DSI4	50%	25	39750/2506	23.50	22.46	0.221	0.028	1.27	0.281	/	
		Front Side	10	QPSK	DSI4	1	50	39750/2506	23.50	22.57	0.150	0.021	1.24	0.186	/	
			10	QPSK	DSI4	50%	25	39750/2506	23.50	22.46	0.141	0.018	1.27	0.179	/	
		Left Edge	10	QPSK	DSI2	1	50	39750/2506	25.00	23.50	0.101	0.010	1.41	0.143	/	
			10	QPSK	DSI2	50%	25	39750/2506	24.00	22.49	0.080	0.012	1.42	0.113	/	
		Right Edge	10	QPSK	DSI2	1	50	39750/2506	25.00	23.50	0.058	-0.060	1.41	0.082	/	
			10	QPSK	DSI2	50%	25	39750/2506	24.00	22.49	0.051	0.019	1.42	0.072	/	
		Top Edge	10	QPSK	DSI4	1	50	39750/2506	23.50	22.57	0.301	0.097	1.24	0.373	/	
			10	QPSK	DSI4	50%	25	39750/2506	23.50	22.46	0.323	0.023	1.27	0.410	/	
		Bottom Edge	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
			10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	/
		Low Antenna	Bottom Edge Battery3	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.649	0.036	1.34	0.869	/
			Bottom Edge Battery4	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.702	0.027	1.34	0.940	/
			Bottom Edge Battery1	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.611	-0.019	1.34	0.819	/
LTE 41 TDD (Variant)	Low Antenna	Bottom Edge	10	QPSK	DSI4	1	50	40185/2549.5	22.50	21.23	0.735	0.100	1.34	0.985	34	

Band	Antenna	Test Position	Dist. (mm)	Mode	Duty Cycle	Power Reduction	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	Plot No.	
2.4G (Original)	Wi-Fi	Back Side	10	802.11b	98.0%	Receiver off	11/2462	18.50	17.57	0.232	0.055	1.26	0.293	35	
		Front Side	10	802.11b	98.0%	Receiver off	11/2462	18.50	17.57	0.186	-0.090	1.26	0.235	/	
		Left Edge	10	802.11b	98.0%	Receiver off	11/2462	18.50	17.57	0.000	0.108	1.26	0.000	/	
		Right Edge	10	802.11b	98.0%	Receiver off	11/2462	18.50	17.57	0.225	0.150	1.26	0.284	/	
		Top Edge	10	802.11b	98.0%	Receiver off	11/2462	18.50	17.57	0.122	0.190	1.26	0.154	/	
		Bottom Edge	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Back Side Battery3	10	802.11b	98.0%	Receiver off	11/2462	18.50	17.57	0.214	0.016	1.26	0.271	/	
		Back Side Battery4	10	802.11b	98.0%	Receiver off	11/2462	18.50	17.57	0.126	0.024	1.26	0.159	/	
		Back Side Battery1	10	802.11b	98.0%	Receiver off	11/2462	18.50	17.57	0.224	0.030	1.26	0.283	/	
U-NII-1	Wi-Fi	Back Side	10	802.11a	100.0%	Receiver off	44/5220	16.50	15.26	0.484	0.036	1.33	0.644	/	



(Original)		Front Side	10	802.11a	100.0%	Receiver off	44/5220	16.50	15.26	0.127	0.016	1.33	0.169	/
		Left Edge	10	802.11a	100.0%	Receiver off	44/5220	16.50	15.26	0.082	-0.010	1.33	0.109	/
		Right Edge	10	802.11a	100.0%	Receiver off	44/5220	16.50	15.26	0.253	0.000	1.33	0.337	/
		Top Edge	10	802.11a	100.0%	Receiver off	44/5220	16.50	15.26	0.521	-0.040	1.33	0.693	36
		Bottom Edge	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Back Side Battery3	10	802.11a	100.0%	Receiver off	44/5220	16.50	15.26	0.428	0.046	1.33	0.569	/
		Back Side Battery4	10	802.11a	100.0%	Receiver off	44/5220	16.50	15.26	0.506	0.058	1.33	0.673	/
		Back Side Battery1	10	802.11a	100.0%	Receiver off	44/5220	16.50	15.26	0.489	0.036	1.33	0.651	/
U-NII-3 (Original)	Wi-Fi	Back Side	10	802.11a	100.0%	Receiver off	149/5745	16.50	15.11	0.287	0.020	1.38	0.395	/
		Front Side	10	802.11a	100.0%	Receiver off	149/5745	16.50	15.11	0.112	-0.010	1.38	0.154	/
		Left Edge	10	802.11a	100.0%	Receiver off	149/5745	16.50	15.11	0.051	0.034	1.38	0.070	/
		Right Edge	10	802.11a	100.0%	Receiver off	149/5745	16.50	15.11	0.189	0.080	1.38	0.260	/
		Top Edge	10	802.11a	100.0%	Receiver off	149/5745	16.50	15.11	0.273	0.044	1.38	0.376	/
		Bottom Edge	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Back Side Battery3	10	802.11a	100.0%	Receiver off	149/5745	16.50	15.11	0.235	0.064	1.38	0.324	/
		Back Side Battery4	10	802.11a	100.0%	Receiver off	149/5745	16.50	15.11	0.320	0.023	1.38	0.441	/
		Back Side Battery1	10	802.11a	100.0%	Receiver off	149/5745	16.50	15.11	0.305	0.054	1.38	0.420	/
Bluetooth (Original)	Bluetooth	Back Side	10	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.012	0.130	1.66	0.020	/
		Front Side	10	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.005	0.019	1.66	0.008	/
		Left Edge	10	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.000	0.030	1.66	0.000	/
		Right Edge	10	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.000	-0.029	1.66	0.000	/
		Top Edge	10	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.008	0.026	1.66	0.013	/
		Bottom Edge	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Back Side Battery3	10	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.074	0.065	1.66	0.123	/
		Back Side Battery4	10	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.076	0.036	1.66	0.126	37
		Back Side Battery1	10	DH5	76.0%	Full Power	39/2441	12.50	11.50	0.009	0.014	1.66	0.015	



Product-specific 10g SAR Evaluation

Band	Antenna	Test Position	Mode	Power Reduction	RB	offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	0mm SAR
GSM850 (Original)	Low Antenna	Back Side	2TX Slots	DSI4	-	-	190/836.6	30.50	30.50	0.432	0.090	1.00	0.432	NO
		Front Side	2TX Slots	DSI4	-	-	190/836.6	30.50	30.50	0.259	0.010	1.00	0.259	NO
		Left Edge	2TX Slots	DSI2	-	-	190/836.6	30.50	30.50	0.153	0.110	1.00	0.153	NO
		Right Edge	2TX Slots	DSI2	-	-	190/836.6	30.50	30.50	0.168	0.050	1.00	0.168	NO
		Top Edge	2TX Slots	N/A	N/A	N/A	N/A	30.50	N/A	N/A	N/A	NA	NA	NO
		Bottom Edge	2TX Slots	DSI4	-	-	190/836.6	30.50	30.50	0.229	0.048	1.00	0.229	NO
	Upper Antenna	Back Side	2TX Slots	DSI4	-	-	190/836.6	31.00	30.00	0.374	-0.047	1.26	0.471	NO
		Front Side	2TX Slots	DSI4	-	-	190/836.6	31.00	30.00	0.189	-0.050	1.26	0.238	NO
		Left Edge	2TX Slots	DSI2	-	-	190/836.6	31.00	31.00	0.098	-0.016	1.00	0.098	NO
		Right Edge	2TX Slots	DSI2	-	-	190/836.6	31.00	31.00	0.064	-0.017	1.00	0.064	NO
		Top Edge	2TX Slots	DSI4	-	-	190/836.6	31.00	30.00	0.183	0.050	1.26	0.230	NO
		Bottom Edge	2TX Slots	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO
GSM1900 (Original)	Low Antenna	Back Side	2TX Slots	DSI4	-	-	661/1880	27.50	26.00	0.450	-0.100	1.41	0.636	NO
		Front Side	2TX Slots	DSI4	-	-	661/1880	27.50	26.00	0.163	-0.020	1.41	0.230	NO
		Left Edge	2TX Slots	DSI2	-	-	661/1880	27.50	27.50	0.094	0.024	1.00	0.094	NO
		Right Edge	2TX Slots	DSI2	-	-	661/1880	27.50	27.50	0.066	0.042	1.00	0.066	NO
		Top Edge	2TX Slots	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO
		Bottom Edge	2TX Slots	DSI4	-	-	661/1880	27.50	26.00	0.437	0.043	1.41	0.617	NO
	Upper Antenna	Back Side	2TX Slots	DSI4	-	-	661/1880	28.00	23.50	0.182	-0.060	2.82	0.513	NO
		Front Side	2TX Slots	DSI4	-	-	661/1880	28.00	23.50	0.091	-0.070	2.82	0.256	NO
		Left Edge	2TX Slots	DSI2	-	-	661/1880	28.00	28.00	0.018	0.040	1.00	0.018	NO
		Right Edge	2TX Slots	DSI2	-	-	661/1880	28.00	28.00	0.130	0.050	1.00	0.130	NO
		Top Edge	2TX Slots	DSI4	-	-	661/1880	28.00	23.50	0.307	-0.040	2.82	0.865	NO
		Bottom Edge	2TX Slots	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO
WCDMA V (Original)	Low Antenna	Back Side	RMC	DSI4	-	-	4183/836.6	25.00	24.50	0.306	0.080	1.12	0.343	NO
		Front Side	RMC	DSI4	-	-	4183/836.6	25.00	24.50	0.151	0.025	1.12	0.169	NO
		Left Edge	RMC	DSI2	-	-	4183/836.6	25.00	25.00	0.000	0.000	1.00	0.000	NO
		Right Edge	RMC	DSI2	-	-	4183/836.6	25.00	25.00	0.089	0.032	1.00	0.089	NO
		Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO
		Bottom Edge	RMC	DSI4	-	-	4183/836.6	25.00	24.50	0.176	0.100	1.12	0.197	NO
	Upper Antenna	Back Side	RMC	DSI4	-	-	4183/836.6	25.00	24.50	0.344	0.010	1.12	0.386	NO
		Front Side	RMC	DSI4	-	-	4183/836.6	25.00	24.50	0.203	-0.028	1.12	0.228	NO
		Left Edge	RMC	DSI2	-	-	4183/836.6	25.00	25.00	0.044	-0.030	1.00	0.044	NO
		Right Edge	RMC	DSI2	-	-	4183/836.6	25.00	25.00	0.088	0.041	1.00	0.088	NO
		Top Edge	RMC	DSI4	-	-	4183/836.6	25.00	24.50	0.239	0.022	1.12	0.268	NO
		Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO
LTE 5 (Original)	Low Antenna	Back Side	QPSK	DSI4	1	25	20525/836.5	25.00	24.50	0.333	0.030	1.12	0.374	NO
			QPSK	DSI4	50%	0	20600/844	24.00	23.50	0.284	0.011	1.12	0.319	NO
		Front Side	QPSK	DSI4	1	25	20525/836.5	25.00	24.50	0.148	0.038	1.12	0.166	NO



LTE 7 (Original)	Upper Antenna	Left Edge	QPSK	DSI4	50%	0	20600/844	24.00	23.50	0.107	0.016	1.12	0.120	NO	
			QPSK	DSI2	1	25	20525/836.5	25.00	25.00	0.000	0.000	1.00	0.000	NO	
		Right Edge	QPSK	DSI2	50%	0	20600/844	24.00	24.00	0.000	0.000	1.00	0.000	NO	
			QPSK	DSI2	1	25	20525/836.5	25.00	25.00	0.080	-0.020	1.00	0.080	NO	
		Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO	
			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO	
		Bottom Edge	QPSK	DSI4	1	25	20525/836.5	25.00	24.50	0.197	0.040	1.12	0.221	NO	
			QPSK	DSI4	50%	0	20600/844	24.00	23.50	0.169	0.024	1.12	0.190	NO	
		Lower Antenna	Back Side	QPSK	DSI4	1	25	20450/829	25.00	23.50	0.338	0.060	1.41	0.477	NO
				QPSK	DSI4	50%	0	20450/829	24.00	23.50	0.328	0.014	1.12	0.368	NO
			Front Side	QPSK	DSI4	1	25	20450/829	25.00	23.50	0.201	-0.020	1.41	0.284	NO
				QPSK	DSI4	50%	0	20450/829	24.00	23.50	0.189	0.068	1.12	0.212	NO
			Left Edge	QPSK	DSI2	1	25	20450/829	25.00	25.00	0.064	-0.015	1.00	0.064	NO
				QPSK	DSI2	50%	0	20450/829	24.00	24.00	0.061	0.020	1.00	0.061	NO
	Right Edge		QPSK	DSI2	1	25	20450/829	25.00	25.00	0.091	0.078	1.00	0.091	NO	
			QPSK	DSI2	50%	0	20450/829	24.00	24.00	0.088	-0.012	1.00	0.088	NO	
	Top Edge	QPSK	DSI4	1	25	20450/829	25.00	23.50	0.203	0.026	1.41	0.287	NO		
		QPSK	DSI4	50%	0	20450/829	24.00	23.50	0.189	0.070	1.12	0.212	NO		
	Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO		
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO		
	LTE 7 (Original)	Lower Antenna	Back Side	QPSK	DSI4	1	50	21350/2560	24.50	19.50	0.453	0.085	3.16	1.432	YES
				QPSK	DSI4	50%	50	21100/2535	23.50	19.50	0.454	0.063	2.51	1.141	NO
			Front Side	QPSK	DSI4	1	50	21350/2560	24.50	19.50	0.150	0.054	3.16	0.473	NO
				QPSK	DSI4	50%	50	21100/2535	23.50	19.50	0.150	0.036	2.51	0.376	NO
			Left Edge	QPSK	DSI2	1	50	21350/2560	24.50	24.50	0.076	0.085	1.00	0.076	NO
				QPSK	DSI2	50%	0	21100/2535	23.50	23.50	0.056	0.045	1.00	0.056	NO
			Right Edge	QPSK	DSI2	1	50	21350/2560	24.50	24.50	0.169	0.025	1.00	0.169	NO
				QPSK	DSI2	50%	0	21100/2535	23.50	23.50	0.114	0.032	1.00	0.114	NO
Top Edge			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO	
			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO	
Bottom Edge		QPSK	DSI4	1	50	21350/2560	24.50	19.50	0.599	0.075	3.16	1.893	YES		
		QPSK	DSI4	50%	50	21100/2535	23.50	19.50	0.588	0.025	2.51	1.477	YES		
Upper Antenna		Back Side	QPSK	DSI4	1	50	20850/2510	25.00	23.50	0.323	0.020	1.41	0.456	NO	
			QPSK	DSI4	50%	25	20850/2510	24.00	23.50	0.361	0.100	1.12	0.405	NO	
		Front Side	QPSK	DSI4	1	50	20850/2510	25.00	23.50	0.268	0.020	1.41	0.379	NO	
			QPSK	DSI4	50%	25	20850/2510	24.00	23.50	0.284	0.080	1.12	0.319	NO	
		Left Edge	QPSK	DSI2	1	50	20850/2510	25.00	25.00	0.244	0.029	1.00	0.244	NO	
			QPSK	DSI2	50%	50	20850/2510	24.00	24.00	0.185	0.019	1.00	0.185	NO	
		Right Edge	QPSK	DSI2	1	50	20850/2510	25.00	25.00	0.117	-0.028	1.00	0.117	NO	
			QPSK	DSI2	50%	50	20850/2510	24.00	24.00	0.095	0.050	1.00	0.095	NO	
	Top Edge	QPSK	DSI4	1	50	20850/2510	25.00	23.50	0.635	-0.040	1.41	0.897	NO		
		QPSK	DSI4	50%	25	20850/2510	24.00	23.50	0.625	0.170	1.12	0.701	NO		



		Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO
			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA
LTE 38 TDD (Original)	Low Antenna	Back Side	QPSK	DSI4	1	50	38150/2610	25.00	22.50	0.364	0.100	1.78	0.648	NO
			QPSK	DSI4	50%	25	37850/2580	24.00	22.50	0.327	-0.026	1.41	0.461	NO
		Front Side	0.130	DSI4	1	50	38150/2610	25.00	22.50	0.134	-0.022	1.78	0.238	NO
			QPSK	DSI4	50%	25	37850/2580	24.00	22.50	0.137	0.011	1.41	0.194	NO
		Left Edge	QPSK	DSI2	1	50	38150/2610	25.00	25.00	0.064	0.013	1.00	0.064	NO
			QPSK	DSI2	50%	25	37850/2580	24.00	24.00	0.039	0.023	1.00	0.039	NO
		Right Edge	QPSK	DSI2	1	50	38150/2610	25.00	25.00	0.074	0.090	1.00	0.074	NO
			QPSK	DSI2	50%	25	37850/2580	24.00	24.00	0.071	0.014	1.00	0.071	NO
		Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO
			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO
	Bottom Edge	QPSK	DSI4	1	50	38150/2610	25.00	22.50	0.520	0.130	1.78	0.925	NO	
		QPSK	DSI4	1	50	37850/2580	25.00	22.50	0.502	0.012	1.78	0.892	NO	
		QPSK	DSI4	1	50	38000/2595	25.00	22.50	0.560	-0.167	1.78	0.996	NO	
		QPSK	DSI4	50%	25	38000/2595	24.00	22.50	0.442	0.038	1.41	0.624	NO	
		QPSK	DSI4	50%	50	37850/2580	24.00	22.50	0.245	0.120	1.41	0.346	NO	
		QPSK	DSI4	50%	25	38150/2610	24.00	22.50	0.310	0.010	1.41	0.438	NO	
		QPSK	DSI4	100%	0	38000/2595	24.00	22.50	0.414	0.010	1.41	0.585	NO	
		QPSK	DSI4	100%	0	37850/2580	24.00	22.50	0.250	0.032	1.41	0.354	NO	
	QPSK	DSI4	100%	0	38150/2610	24.00	22.50	0.386	-0.040	1.41	0.545	NO		
	QPSK	DSI4	1	50	38000/2595	22.50	22.50	0.550	0.032	1.00	0.550	NO		
Upper Antenna	Back Side	QPSK	DSI4	1	50	38150/2610	25.00	24.50	0.244	0.069	1.12	0.274	NO	
		QPSK	DSI4	50%	25	37850/2580	24.00	23.50	0.228	0.036	1.12	0.256	NO	
	Front Side	QPSK	DSI4	1	50	38150/2610	25.00	24.50	0.172	0.021	1.12	0.193	NO	
		QPSK	DSI4	50%	25	37850/2580	24.00	23.50	0.128	0.010	1.12	0.144	NO	
	Left Edge	QPSK	DSI2	1	50	38150/2610	25.00	25.00	0.081	0.020	1.00	0.081	NO	
		QPSK	DSI2	50%	25	37850/2580	24.00	24.00	0.056	0.013	1.00	0.056	NO	
	Right Edge	QPSK	DSI2	1	50	38150/2610	25.00	25.00	0.055	-0.048	1.00	0.055	NO	
		QPSK	DSI2	50%	25	37850/2580	24.00	24.00	0.051	0.000	1.00	0.051	NO	
	Top Edge	QPSK	DSI4	1	50	38150/2610	25.00	24.50	0.513	0.160	1.12	0.576	NO	
		QPSK	DSI4	50%	25	37850/2580	24.00	23.50	0.374	0.070	1.12	0.420	NO	
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO		
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO		
LTE 41 TDD (Original)	Low Antenna	Back Side	QPSK	DSI4	1	50	39750/2506	25.00	22.50	0.550	0.012	1.78	0.977	NO
			QPSK	DSI4	50%	25	39750/2506	24.00	22.50	0.554	0.090	1.41	0.783	NO
		Front Side	QPSK	DSI4	1	50	41490/2680	25.00	22.50	0.195	0.016	1.78	0.347	NO
			QPSK	DSI4	50%	25	39750/2506	24.00	22.50	0.198	0.048	1.41	0.279	NO
		Left Edge	QPSK	DSI2	1	50	39750/2506	25.00	25.00	0.038	-0.062	1.00	0.038	NO
			QPSK	DSI2	50%	25	39750/2506	24.00	24.00	0.028	0.020	1.00	0.028	NO
	Right Edge	QPSK	DSI2	1	50	39750/2506	25.00	25.00	0.099	0.069	1.00	0.099	NO	
		QPSK	DSI2	50%	25	39750/2506	24.00	24.00	0.075	-0.028	1.00	0.075	NO	
Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO		



		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO	
Upper Antenna	Bottom Edge	QPSK	DSI4	1	50	39750/2506	25.00	22.50	0.636	-0.014	1.78	1.131	NO	
		QPSK	DSI4	1	50	40185/2549.5	25.00	22.50	0.642	0.022	1.78	1.142	NO	
		QPSK	DSI4	1	50	41490/2680	25.00	22.50	0.396	0.049	1.78	0.704	NO	
		QPSK	DSI4	50%	25	39750/2506	24.00	22.50	0.644	0.010	1.41	0.910	NO	
		QPSK	DSI4	50%	25	40185/2549.5	24.00	22.50	0.634	0.017	1.41	0.896	NO	
		QPSK	DSI4	50%	25	41490/2680	24.00	22.50	0.446	0.022	1.41	0.631	NO	
		QPSK	DSI4	100%	0	39750/2506	24.00	22.50	0.589	0.012	1.41	0.832	NO	
	Back Side	QPSK	DSI4	1	50	39750/2506	25.00	23.50	0.227	-0.030	1.41	0.321	NO	
			DSI4	50%	25	39750/2506	24.00	23.50	0.221	0.028	1.12	0.248	NO	
		Front Side	QPSK	DSI4	1	50	39750/2506	25.00	23.50	0.150	0.021	1.41	0.212	NO
			QPSK	DSI4	50%	25	39750/2506	24.00	23.50	0.141	0.018	1.12	0.158	NO
		Left Edge	QPSK	DSI2	1	50	39750/2506	25.00	25.00	0.101	0.010	1.00	0.101	NO
			QPSK	DSI2	50%	25	39750/2506	24.00	24.00	0.080	0.012	1.00	0.080	NO
		Right Edge	QPSK	DSI2	1	50	39750/2506	25.00	25.00	0.058	-0.060	1.00	0.058	NO
QPSK			DSI2	50%	25	39750/2506	24.00	24.00	0.051	0.019	1.00	0.051	NO	
Top Edge		QPSK	DSI4	1	50	39750/2506	25.00	23.50	0.301	0.097	1.41	0.425	NO	
		QPSK	DSI4	50%	25	39750/2506	24.00	23.50	0.323	0.023	1.12	0.362	NO	
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO	
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NO	



Product-specific 10g SAR

Band	Antenna	Test Position	Dist. (mm)	Mode	Power Reduction	RB	offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR10g (W/kg)	Power Drift (dB)	Scaling Factor	Report SAR10g (W/kg)	Plot No.
LTE 7 (Original)	Low Antenna	Back Side	0	QPSK	DS14	1	50	20850/2510	19.50	18.28	1.190	0.099	1.32	1.576	/
		Bottom Edge	0	QPSK	DS14	1	50	21350/2560	19.50	18.16	0.952	0.037	1.36	1.296	/
			0	QPSK	DS14	50%	50	20850/2510	19.50	18.16	1.003	0.032	1.36	1.366	/
		Back Side Battery3	0	QPSK	DS14	1	50	20850/2510	19.50	18.16	0.954	0.140	1.36	1.299	/
		Back Side Battery4	0	QPSK	DS14	1	50	20850/2510	19.50	18.16	0.923	0.023	1.36	1.257	/
		Back Side Battery1	0	QPSK	DS14	1	50	20850/2510	19.50	18.28	0.960	0.160	1.32	1.271	/
LTE 7 (Variant)	Low Antenna	Back Side	0	QPSK	DS14	1	50	20850/2510	19.50	18.28	1.550	0.051	1.32	2.053	38

Band	Antenna	Test Position	Dist. (mm)	Mode	Duty Cycle	Power Reduction	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR10g (W/kg)	Power Drift (dB)	Scaling Factor	Report SAR10g (W/kg)	Plot No.	
U-NII-2A (Original)	Wi-Fi	Back Side	0	802.11a	100.0%	Receiver off	60/5300	16.50	15.36	0.798	0.062	1.30	1.038	/	
		Front Side	0	802.11a	100.0%	Receiver off	60/5300	16.50	15.36	0.289	0.011	1.30	0.376	/	
		Left Edge	0	802.11a	100.0%	Receiver off	60/5300	16.50	15.36	0.031	0.035	1.30	0.040	/	
		Right Edge	0	802.11a	100.0%	Receiver off	60/5300	16.50	15.36	0.305	0.020	1.30	0.397	/	
		Top Edge	0	802.11a	100.0%	Receiver off	60/5300	16.50	15.36	0.956	0.041	1.30	1.243	/	
		Bottom Edge	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Top Edge Battery3	0	802.11a	100.0%	Receiver off	60/5300	16.50	15.36	1.360	0.038	1.30	1.768	39	
		Top Edge Battery4	0	802.11a	100.0%	Receiver off	60/5300	16.50	15.36	1.330	0.021	1.30	1.729	/	
		Top Edge Battery1	0	802.11a	100.0%	Receiver off	60/5300	16.50	15.36	0.932	0.140	1.30	1.212	/	
U-NII-2C (Original)	Wi-Fi	Back Side	0	802.11a	100.0%	Receiver off	136/5680	16.50	14.95	0.536	0.143	1.43	0.766	/	
		Front Side	0	802.11a	100.0%	Receiver off	136/5680	16.50	14.95	0.134	-0.060	1.43	0.191	/	
		Left Edge	0	802.11a	100.0%	Receiver off	136/5680	16.50	14.95	0.009	0.100	1.43	0.013	/	
		Right Edge	0	802.11a	100.0%	Receiver off	136/5680	16.50	14.95	0.201	0.138	1.43	0.287	/	
		Top Edge	0	802.11a	100.0%	Receiver off	136/5680	16.50	14.95	0.362	0.126	1.43	0.517	/	
		Bottom Edge	0	802.11a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Back Side Battery3	0	802.11a	100.0%	Receiver off	136/5680	16.50	14.95	0.524	0.026	1.43	0.749	/	
		Back Side Battery4	0	802.11a	100.0%	Receiver off	136/5680	16.50	14.95	0.831	0.034	1.43	1.187	/	
		Back Side Battery1	0	802.11a	100.0%	Receiver off	136/5680	16.50	14.95	0.544	0.039	1.43	0.777	/	



Additional SAR test at a conservative distance (triggering distance minus 1mm)

Band	Antenna	Dist. (mm)	Test Position	Mode	Power Reduction	Offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	Plot No.	
GSM850 (Original)	Low Antenna	16	Back Side	2TX Slots	DSI2	-	190/836.6	31.00	29.39	0.231	-0.010	1.45	0.335	/	
		9	Front Side	2TX Slots	DSI2	-	190/836.6	31.00	29.39	0.228	0.000	1.45	0.330	/	
		16	Bottom Edge	2TX Slots	DSI2	-	190/836.6	31.00	29.39	0.129	-0.010	1.45	0.187	/	
	Upper Antenna	16	Back Side	2TX Slots	DSI2	-	190/836.6	31.00	30.08	0.227	-0.010	1.24	0.281	/	
		9	Front Side	2TX Slots	DSI2	-	190/836.6	31.00	30.08	0.271	0.010	1.24	0.335	/	
		16	Top Edge	2TX Slots	DSI2	-	190/836.6	31.00	30.08	0.105	0.020	1.24	0.130	/	
GSM1900 (Original)	Low Antenna	16	Back Side	2TX Slots	DSI2	-	661/1880	27.50	26.96	0.145	-0.020	1.13	0.164	/	
		9	Front Side	2TX Slots	DSI2	-	661/1880	27.50	26.96	0.179	0.000	1.13	0.203	/	
		16	Bottom Edge	2TX Slots	DSI2	-	661/1880	27.50	26.96	0.324	0.010	1.13	0.367	/	
	Upper Antenna	16	Back Side	2TX Slots	DSI2	-	661/1880	28.00	26.54	0.191	0.060	1.40	0.267	/	
		9	Front Side	2TX Slots	DSI2	-	661/1880	28.00	26.54	0.228	0.032	1.40	0.319	/	
		16	Top Edge	2TX Slots	DSI2	-	661/1880	28.00	26.54	0.274	0.090	1.40	0.383	/	
WCDMA V (Original)	Low Antenna	16	Back Side	RMC 12.2K	DSI2	-	4183/836.6	25.00	23.18	0.249	0.050	1.52	0.379	/	
		9	Front Side	RMC 12.2K	DSI2	-	4183/836.6	25.00	23.18	0.148	0.018	1.52	0.225	/	
		16	Bottom Edge	RMC 12.2K	DSI2	-	4183/836.6	25.00	23.18	0.090	0.042	1.52	0.137	/	
	Upper Antenna	16	Back Side	RMC 12.2K	DSI2	-	4183/836.6	25.00	23.06	0.236	0.036	1.56	0.369	/	
		9	Front Side	RMC 12.2K	DSI2	-	4183/836.6	25.00	23.06	0.284	0.011	1.56	0.444	/	
		16	Top Edge	RMC 12.2K	DSI2	-	4183/836.6	25.00	23.06	0.096	0.098	1.56	0.150	/	
LTE 5 (Original)	Low Antenna	16	Back Side	QPSK	DSI2	1	25	20525/836.5	25.00	23.69	0.255	0.100	1.35	0.345	/
		9	Front Side	QPSK	DSI2	1	25	20525/836.5	25.00	23.69	0.166	0.096	1.35	0.224	/
		16	Bottom Edge	QPSK	DSI2	1	25	20525/836.5	25.00	23.69	0.093	-0.020	1.35	0.126	/
	Upper Antenna	16	Back Side	QPSK	DSI2	1	25	20450/829	25.00	23.55	0.301	0.030	1.40	0.420	/
		9	Front Side	QPSK	DSI2	1	25	20450/829	25.00	23.55	0.300	0.046	1.40	0.419	/
		16	Top Edge	QPSK	DSI2	1	25	20450/829	25.00	23.55	0.118	0.057	1.40	0.165	/
LTE 7 (Original)	Low Antenna	16	Back Side	QPSK	DSI2	1	50	21350/2560	24.50	23.40	0.495	0.046	1.29	0.638	/
		9	Front Side	QPSK	DSI2	1	50	21350/2560	24.50	23.40	0.500	0.052	1.29	0.644	/
		16	Bottom Edge	QPSK	DSI2	1	50	21350/2560	24.50	23.40	0.742	0.130	1.29	0.956	/
		16	Bottom Edge	QPSK	DSI2	1	50	20850/2510	24.50	23.34	0.752	0.040	1.31	0.982	40
		16	Bottom Edge	QPSK	DSI2	1	50	21100/2535	24.50	23.39	0.649	0.030	1.29	0.838	/
	Upper Antenna	16	Back Side	QPSK	DSI2	1	50	20850/2510	25.00	23.45	0.263	-0.024	1.43	0.376	/
		9	Front Side	QPSK	DSI2	1	50	20850/2510	25.00	23.45	0.346	0.160	1.43	0.494	/
		16	Top Edge	QPSK	DSI2	1	50	20850/2510	25.00	23.45	0.392	0.030	1.43	0.560	/
LTE 38 (Original)	Low Antenna	16	Back Side	QPSK	DSI2	1	50	38150/2610	25.00	23.29	0.326	0.080	1.48	0.483	/
		9	Front Side	QPSK	DSI2	1	50	38150/2610	25.00	23.29	0.310	0.019	1.48	0.460	/
		16	Bottom Edge	QPSK	DSI2	1	50	38150/2610	25.00	23.29	0.409	-0.029	1.48	0.606	/
	Upper Antenna	16	Back Side	QPSK	DSI2	1	50	38150/2610	25.00	23.25	0.165	0.000	1.50	0.247	/
		9	Front Side	QPSK	DSI2	1	50	38150/2610	25.00	23.25	0.232	0.038	1.50	0.347	/
		16	Top Edge	QPSK	DSI2	1	50	38150/2610	25.00	23.25	0.256	0.010	1.50	0.383	/
LTE 41	Low	16	Back Side	QPSK	DSI2	1	50	39750/2506	25.00	23.52	0.406	-0.010	1.41	0.571	/



(Original)	Antenna	9	Front Side	QPSK	DSI2	1	50	39750/2506	25.00	23.52	0.342	-0.040	1.41	0.481	/
		16	Bottom Edge	QPSK	DSI2	1	50	39750/2506	25.00	23.52	0.537	0.022	1.41	0.755	/
	Upper Antenna	16	Back Side	QPSK	DSI2	1	50	39750/2506	25.00	23.50	0.158	0.018	1.41	0.223	/
		9	Front Side	QPSK	DSI2	1	50	39750/2506	25.00	23.50	0.211	0.036	1.41	0.298	/
		16	Top Edge	QPSK	DSI2	1	50	39750/2506	25.00	23.50	0.252	0.020	1.41	0.356	/

10.3 Simultaneous Transmission Analysis

Simultaneous Transmission Configurations	Head	Body-worn	Hotspot	Product Specific 10-g SAR
Low Antenna + Bluetooth	Yes	Yes	Yes	Yes
Upper Antenna + Bluetooth	Yes	Yes	Yes	Yes
Low Antenna + Wi-Fi 2.4GHz	Yes	Yes	Yes	Yes
Upper Antenna + Wi-Fi 2.4GHz	Yes	Yes	Yes	Yes
Low Antenna + Wi-Fi 5GHz	Yes	Yes	Yes	Yes
Upper Antenna + Wi-Fi 5GHz	Yes	Yes	Yes	Yes
Wi-Fi 2.4GHz + Bluetooth	Yes	Yes	Yes	Yes
Wi-Fi 5GHz + Bluetooth	Yes	Yes	Yes	Yes
Low Antenna + Wi-Fi 2.4GHz + Bluetooth	Yes	Yes	Yes	Yes
Upper Antenna + Wi-Fi 2.4GHz + Bluetooth	Yes	Yes	Yes	Yes
Low Antenna + Wi-Fi 5GHz + Bluetooth	Yes	Yes	Yes	Yes
Upper Antenna + Wi-Fi 5GHz + Bluetooth	Yes	Yes	Yes	Yes
Wi-Fi 2.4GHz + Wi-Fi 5GHz	N/A	N/A	N/A	N/A
Upper Antenna + Low Antenna	N/A	N/A	N/A	N/A

General Note:

1. The Scaled SAR summation is calculated based on the same configuration and test position.
2. Per KDB 447498 D01, simultaneous transmission SAR is compliant if,
 - i) Scalar SAR summation < 1.6W/kg, simultaneously transmission SAR measurement is not necessary.
 - ii) $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - iii) If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.



The Maximum SAR_{1g} Value for Low -Antenna

Test Position		SAR _{1g} (W/kg)	GSM 850	GSM 1900	WCDMA Band V	LTE 5	LTE 7	LTE 38	LTE 41	MAX. SAR _{1g}
Head	Left Cheek	0.236	0.126	0.175	0.192	0.144	0.095	0.061	0.236	
	Left Tilt	0.105	0.124	0.079	0.091	0.180	0.102	0.058	0.180	
	Right Cheek	0.232	0.098	0.220	0.184	0.123	0.095	0.057	0.232	
	Right Tilt	0.084	0.091	0.100	0.080	0.098	0.069	0.030	0.100	
Body worn	Back Side	0.584	0.636	0.416	0.400	0.611	0.525	0.612	0.636	
	Front Side	0.334	0.230	0.205	0.178	0.201	0.199	0.256	0.334	
Hotspot	Back Side	0.584	0.636	0.416	0.400	0.611	0.525	0.612	0.636	
	Front Side	0.334	0.230	0.205	0.178	0.201	0.199	0.256	0.334	
	Left Edge	0.198	0.107	0.000	0.000	0.098	0.094	0.054	0.198	
	Right Edge	0.217	0.075	0.135	0.108	0.218	0.110	0.139	0.218	
	Top Edge	NA	NA	NA	NA	NA	NA	NA	NA	
	Bottom Edge	0.296	0.617	0.239	0.237	0.791	0.853	0.985	0.985	
Product Specific 10-g SAR	Back Side	NA	NA	NA	NA	2.053	NA	NA	2.053	
	Front Side	NA	NA	NA	NA	NA	NA	NA	NA	
	Left Edge	NA	NA	NA	NA	NA	NA	NA	NA	
	Right Edge	NA	NA	NA	NA	NA	NA	NA	NA	
	Top Edge	NA	NA	NA	NA	NA	NA	NA	NA	
	Bottom Edge	NA	NA	NA	NA	1.366	NA	NA	1.366	

The Maximum SAR_{1g} Value for Upper-Antenna

Test Position		SAR _{1g} (W/kg)	GSM 850	GSM 1900	WCDMA Band V	LTE 5	LTE 7	LTE 38	LTE 66	MAX. SAR _{1g}
Head	Left Cheek	0.843	0.317	0.809	0.863	0.713	0.670	0.397	0.863	
	Left Tilt	0.443	0.451	0.535	0.707	0.781	0.868	0.460	0.868	
	Right Cheek	1.021	0.435	0.972	1.081	0.542	0.704	0.675	1.081	
	Right Tilt	0.863	0.556	0.740	0.851	0.502	0.820	0.871	0.871	
Body worn	Back Side	0.584	0.258	0.564	0.477	0.456	0.325	0.503	0.584	
	Front Side	0.238	0.129	0.291	0.249	0.358	0.229	0.216	0.358	
Hotspot	Back Side	0.584	0.258	0.564	0.477	0.456	0.325	0.503	0.584	
	Front Side	0.238	0.129	0.291	0.249	0.358	0.229	0.216	0.358	
	Left Edge	0.121	0.025	0.069	0.089	0.349	0.121	0.126	0.349	
	Right Edge	0.079	0.182	0.138	0.127	0.167	0.082	0.053	0.182	
	Top Edge	0.231	0.436	0.343	0.251	0.798	0.684	0.705	0.798	
	Bottom Edge	NA	NA	NA	NA	NA	NA	NA	NA	
Product Specific 10-g SAR	Back Side	NA	NA	NA	NA	NA	NA	NA	NA	
	Front Side	NA	NA	NA	NA	NA	NA	NA	NA	
	Left Edge	NA	NA	NA	NA	NA	NA	NA	NA	
	Right Edge	NA	NA	NA	NA	NA	NA	NA	NA	
	Top Edge	NA	NA	NA	NA	NA	NA	1.314	1.314	
	Bottom Edge	NA	NA	NA	NA	NA	NA	NA	NA	



About Bluetooth, Wi-Fi and Low-Antenna/ Upper-Antenna

Test Position		SAR _{1g/10g} (W/kg)	Low - Antenna	Upper - Antenna	Wi-Fi 2.4G	Wi-Fi 5G				Bluetooth	MAX. Σ SAR _{1g/10g}
						U-NII-1	U-NII-2A	U-NII-2C	U-NII-3		
Head	Left Cheek	0.236	0.863	0.499	0.318	0.350	0.407	0.307	0.051	1.413	
	Left Tilt	0.180	0.868	0.464	0.457	0.529	0.497	0.370	0.182	1.579	
	Right Cheek	0.232	1.081	0.187	0.196	0.252	0.349	0.255	0.041	1.471	
	Right Tilt	0.100	0.871	0.177	0.243	0.294	0.423	0.311	0.042	1.336	
Body worn	Back Side	0.636	0.584	0.293	0.644	N/A	N/A	0.420	0.126	1.406	
	Front Side	0.334	0.358	0.235	0.169	N/A	N/A	0.154	0.008	0.601	
Hotspot	Back Side	0.636	0.584	0.293	0.644	N/A	N/A	0.420	0.126	1.406	
	Front Side	0.334	0.358	0.235	0.169	N/A	N/A	0.154	0.008	0.601	
	Left Edge	0.198	0.349	0.000	0.109	N/A	N/A	0.070	0.000	0.458	
	Right Edge	0.218	0.182	0.284	0.337	N/A	N/A	0.260	0.000	0.555	
	Top Edge	NA	0.798	0.154	0.693	N/A	N/A	0.376	0.013	1.504	
	Bottom Edge	0.985	NA	N/A	N/A	N/A	N/A	N/A	N/A	0.985	
Product Specific 10-g SAR	Back Side	2.053	NA	N/A	N/A	1.038	1.187	N/A	N/A	3.240	
	Front Side	NA	NA	N/A	N/A	0.376	0.191	N/A	N/A	0.376	
	Left Edge	NA	NA	N/A	N/A	0.040	0.013	N/A	N/A	0.040	
	Right Edge	NA	NA	N/A	N/A	0.397	0.287	N/A	N/A	0.397	
	Top Edge	NA	1.314	N/A	N/A	1.768	0.517	N/A	N/A	3.082	
	Bottom Edge	1.366	NA	N/A	N/A	N/A	N/A	N/A	N/A	1.366	

Note:

- The value with blue color is the maximum Σ SAR_{1g/10g} Value.
- MAX. Σ SAR_{1g/10g} =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}
- MAX. Σ SAR_{1g} =1.579W/kg<1.6W/kg and MAX. Σ SAR_{10g} =3.240W/kg<4 W/kg, so the Simultaneous transmission SAR with volume scan are not required for Bluetooth, Wi-Fi and Low-Antenna/ Upper-Antenna.



11 Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528- 2013 is not required in SAR reports submitted for equipment approval. This also applies to the 10-g SAR required for phablets in KDB Publication 648474.

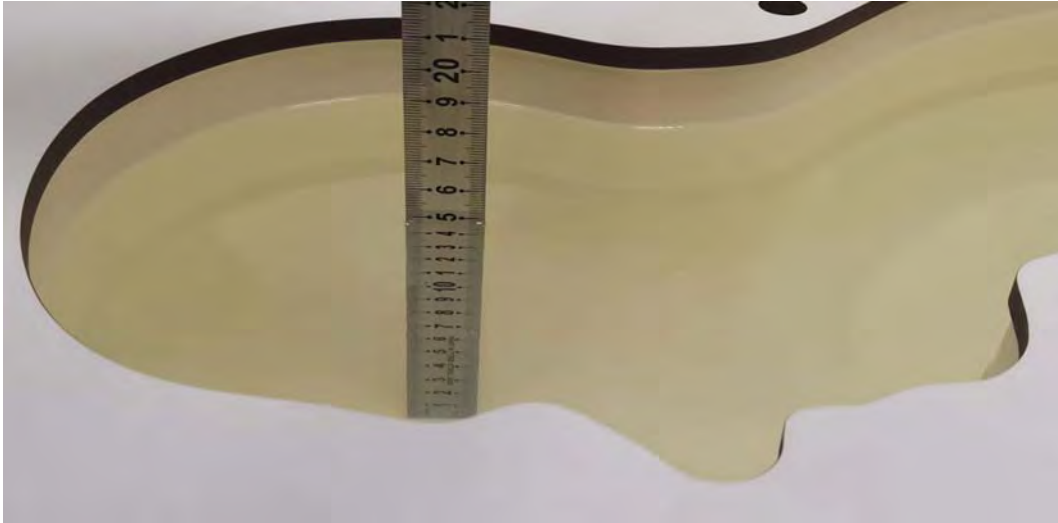
*******END OF REPORT *******

ANNEX A: Test Layout

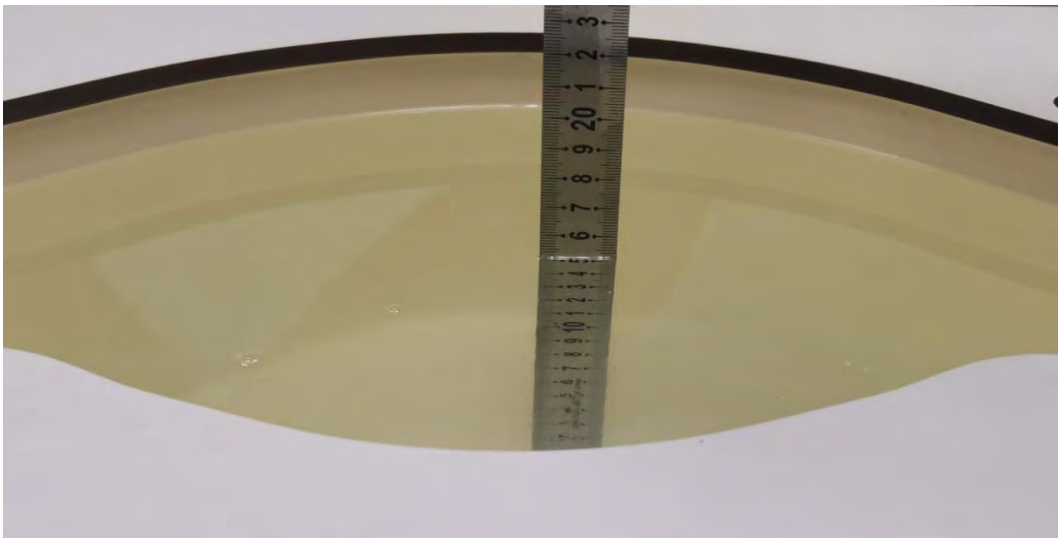


Tissue Simulating Liquids

For the measurement of the field distribution inside the flat phantom with DASy, the phantom must be filled with around 25 liters of homogeneous tissue simulating liquid. For SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is >15 cm, which is shown as below.



Picture 3: liquid depth in the head Phantom



Picture 4: Liquid depth in the flat Phantom

ANNEX B: System Check Results

Plot 1 System Performance Check at 835 MHz TSL

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

Date: 2022/10/13

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.88 \text{ S/m}$; $\epsilon_r = 41.4$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=15mm, Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.58 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.4 V/m; Power Drift = -0.076 dB

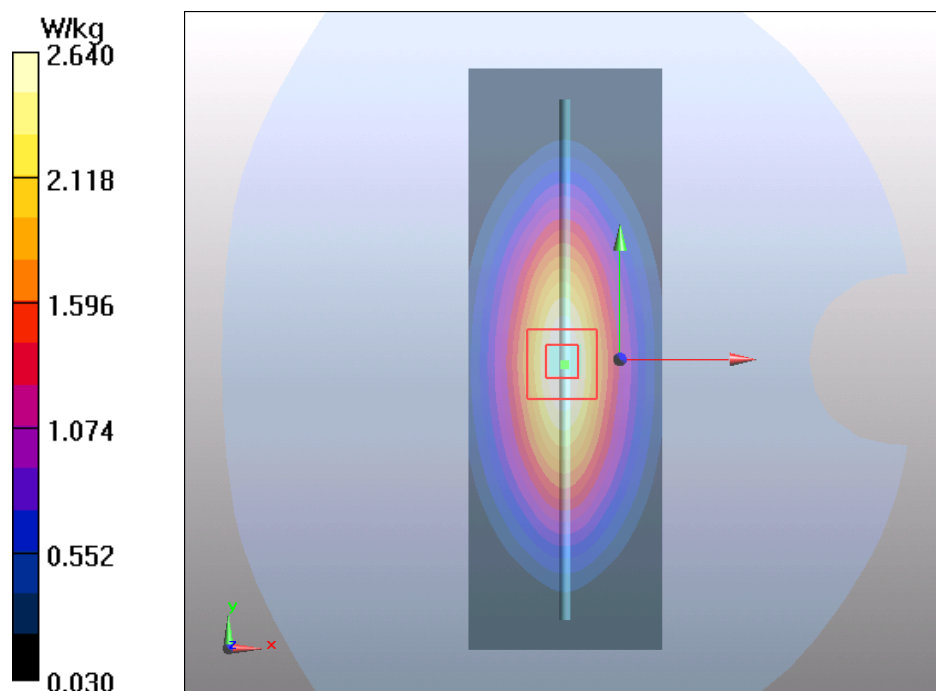
Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.44 W/kg; SAR(10 g) = 1.6 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 68.3%

Maximum value of SAR (measured) = 2.64 W/kg



Plot 2 System Performance Check at 835 MHz TSL

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

Date: 2022/10/14

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.87 \text{ S/m}$; $\epsilon_r = 41.3$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=15mm, Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.59 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.3 V/m; Power Drift = -0.06 dB

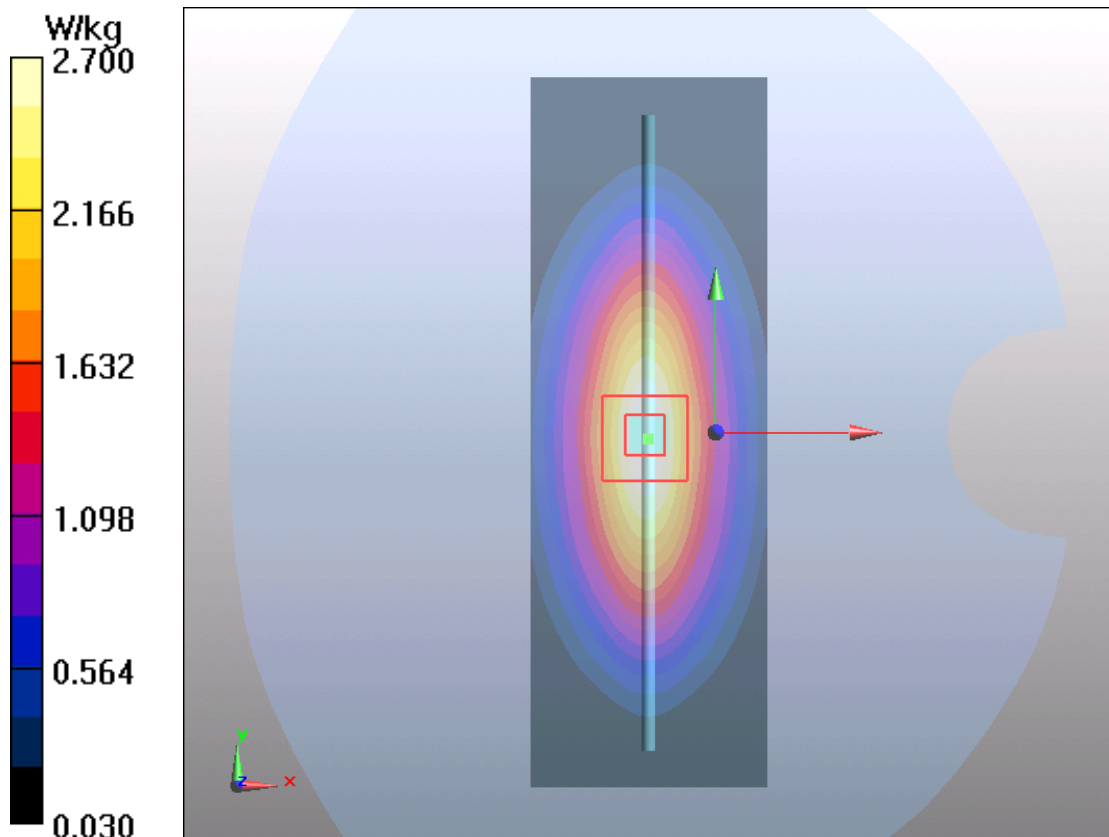
Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.65 W/kg

Smallest distance from peaks to all points 3 dB below = 16.5 mm

Ratio of SAR at M2 to SAR at M1 = 68.2%

Maximum value of SAR (measured) = 2.70 W/kg



Plot 3 System Performance Check at 835 MHz TSL

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

Date: 2022/10/15

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ S/m}$; $\epsilon_r = 41.4$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=15mm, Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.64 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.4 V/m; Power Drift = -0.076 dB

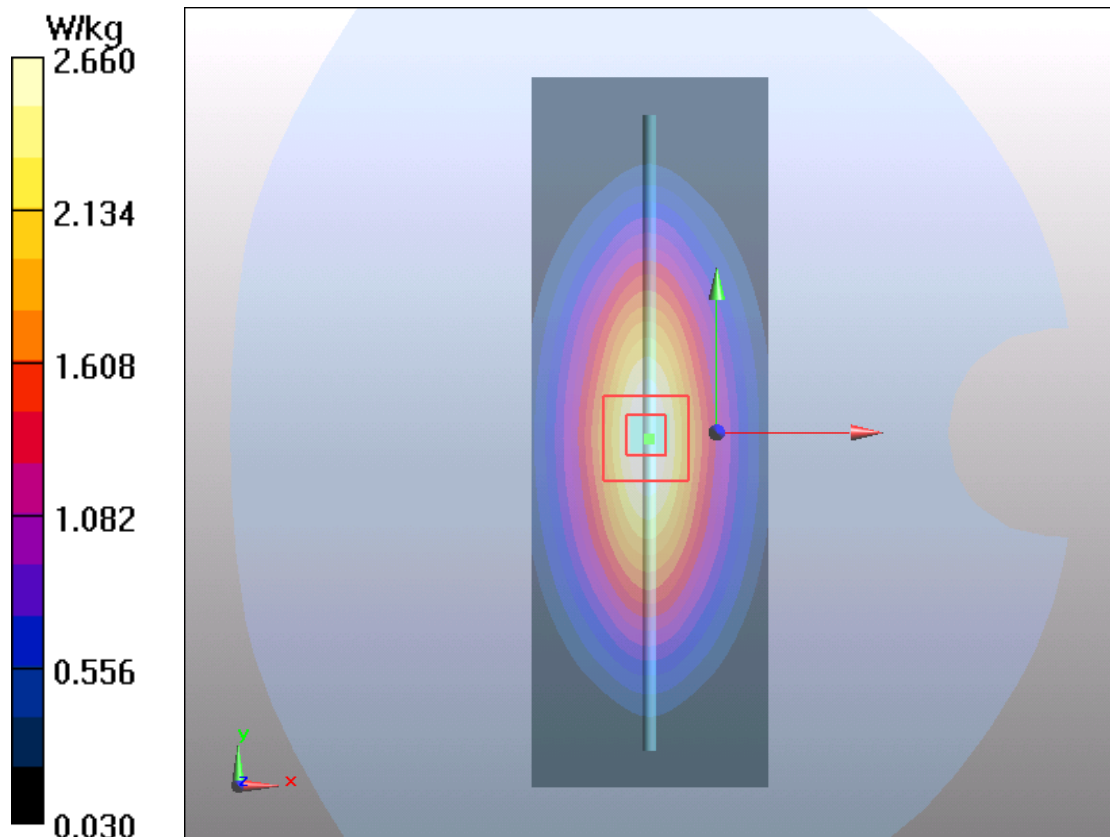
Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.61 W/kg

Smallest distance from peaks to all points 3 dB below = 16.7 mm

Ratio of SAR at M2 to SAR at M1 = 68.5%

Maximum value of SAR (measured) = 2.66 W/kg



Plot 4 System Performance Check at 835 MHz TSL

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

Date: 2022/10/17

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.3$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=15mm, Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.55 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.2 V/m; Power Drift = -0.021 dB

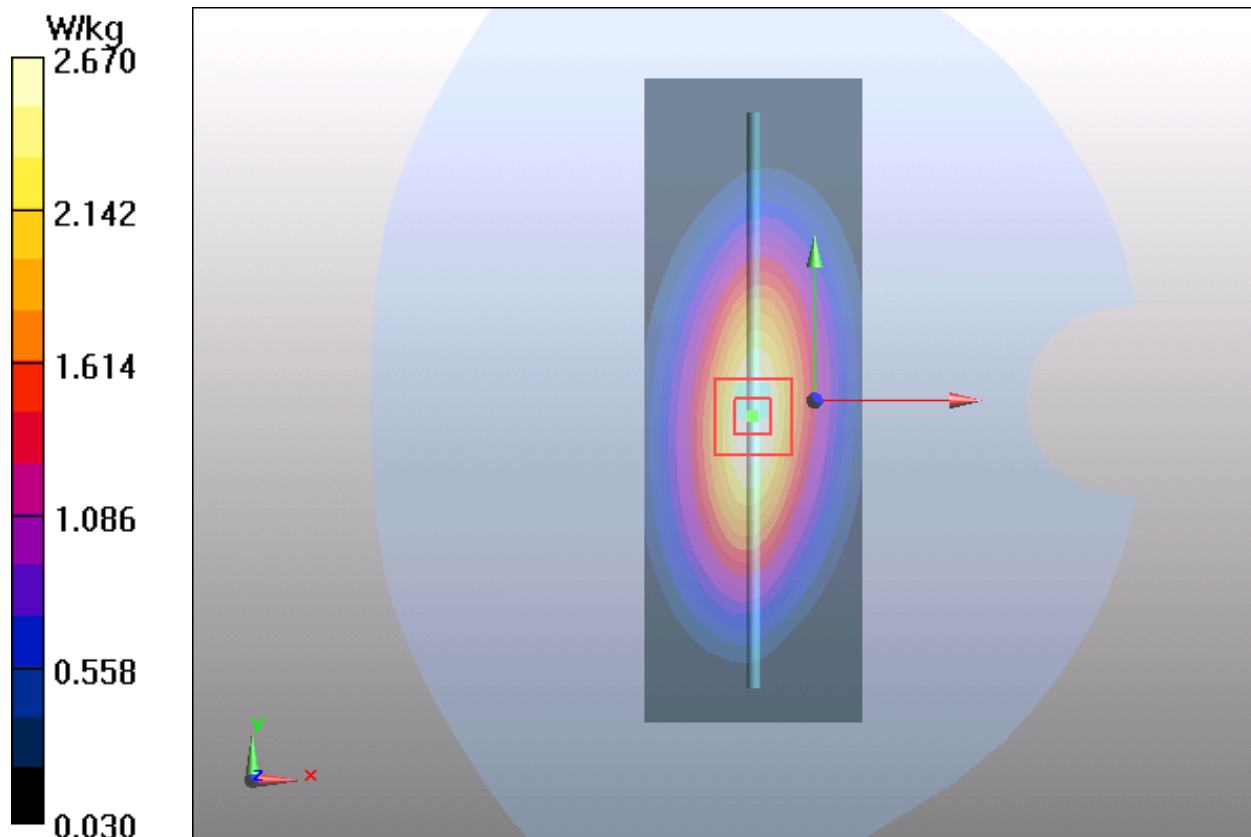
Peak SAR (extrapolated) = 3.79 W/kg

SAR(1 g) = 2.51 W/kg; SAR(10 g) = 1.54 W/kg

Smallest distance from peaks to all points 3 dB below = 16.4 mm

Ratio of SAR at M2 to SAR at M1 = 68.6%

Maximum value of SAR (measured) = 2.67 W/kg



Plot 5 System Performance Check at 835 MHz TSL

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

Date: 2022/10/18

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ S/m}$; $\epsilon_r = 41.4$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=15mm, Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.64 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.4 V/m; Power Drift = -0.076 dB

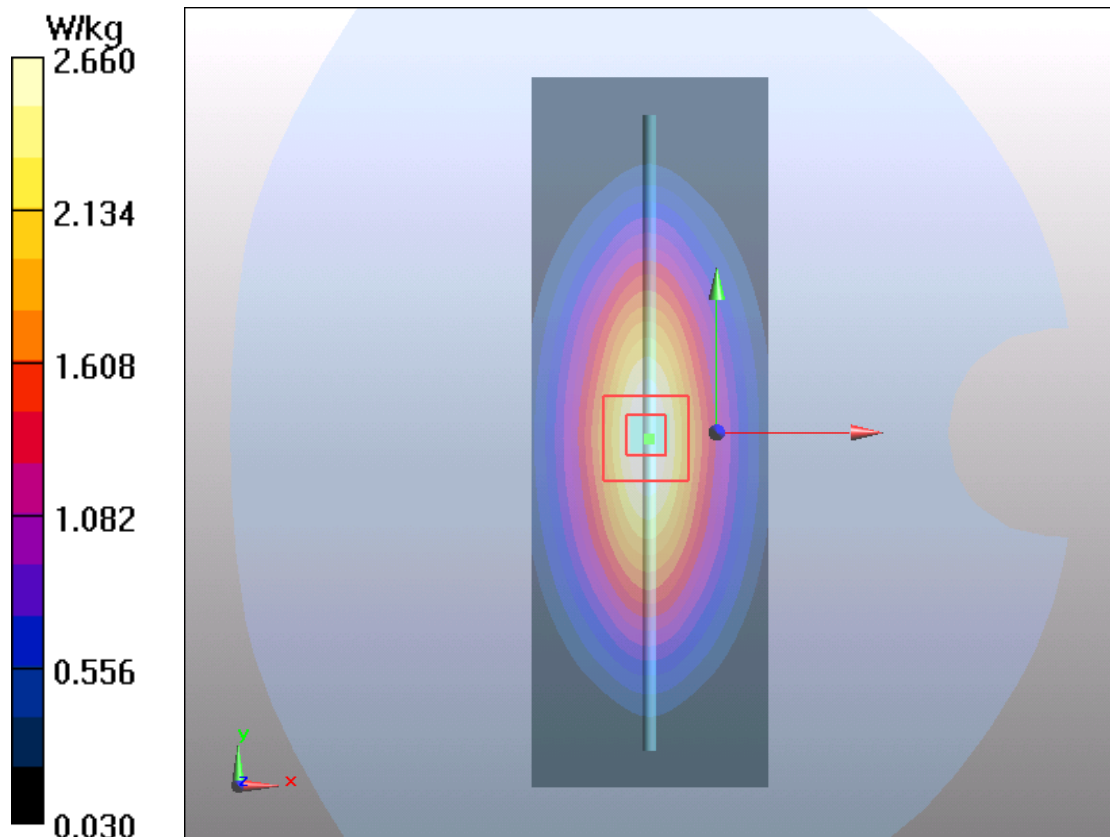
Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.61 W/kg

Smallest distance from peaks to all points 3 dB below = 16.8 mm

Ratio of SAR at M2 to SAR at M1 = 68.6%

Maximum value of SAR (measured) = 2.66 W/kg



Plot 6 System Performance Check at 1900 MHz TSL

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

Date: 2022/10/19

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.41 \text{ S/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.84, 7.84, 7.84); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 10.3 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 85.5 V/m; Power Drift = 0.028 dB

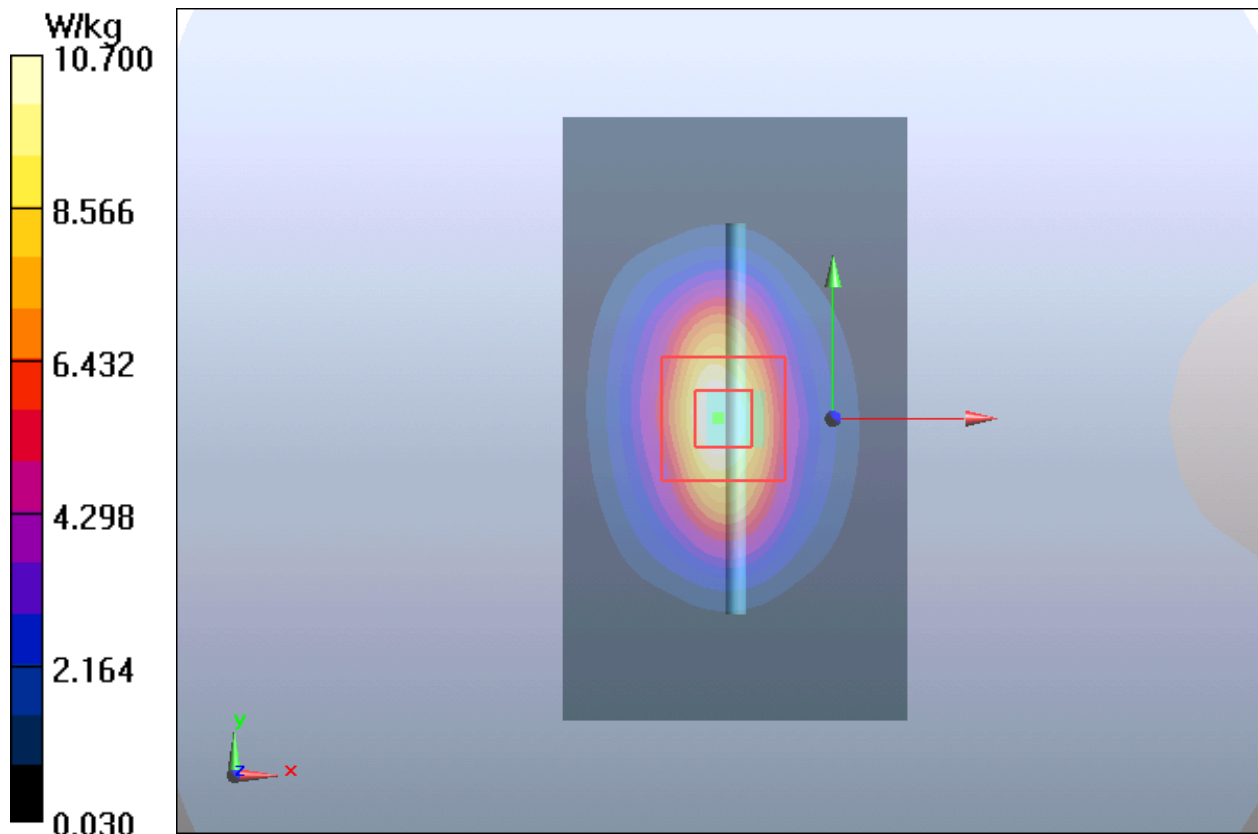
Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 9.88 W/kg; SAR(10 g) = 4.9 W/kg

Smallest distance from peaks to all points 3 dB below = 10.3mm

Ratio of SAR at M2 to SAR at M1 = 53.6%

Maximum value of SAR (measured) = 10.7 W/kg



Plot 7 System Performance Check at 1900 MHz TSL

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

Date: 2022/10/20

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.43$ S/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.84, 7.84, 7.84); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 10.23 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 85.0 V/m; Power Drift = 0.01 dB

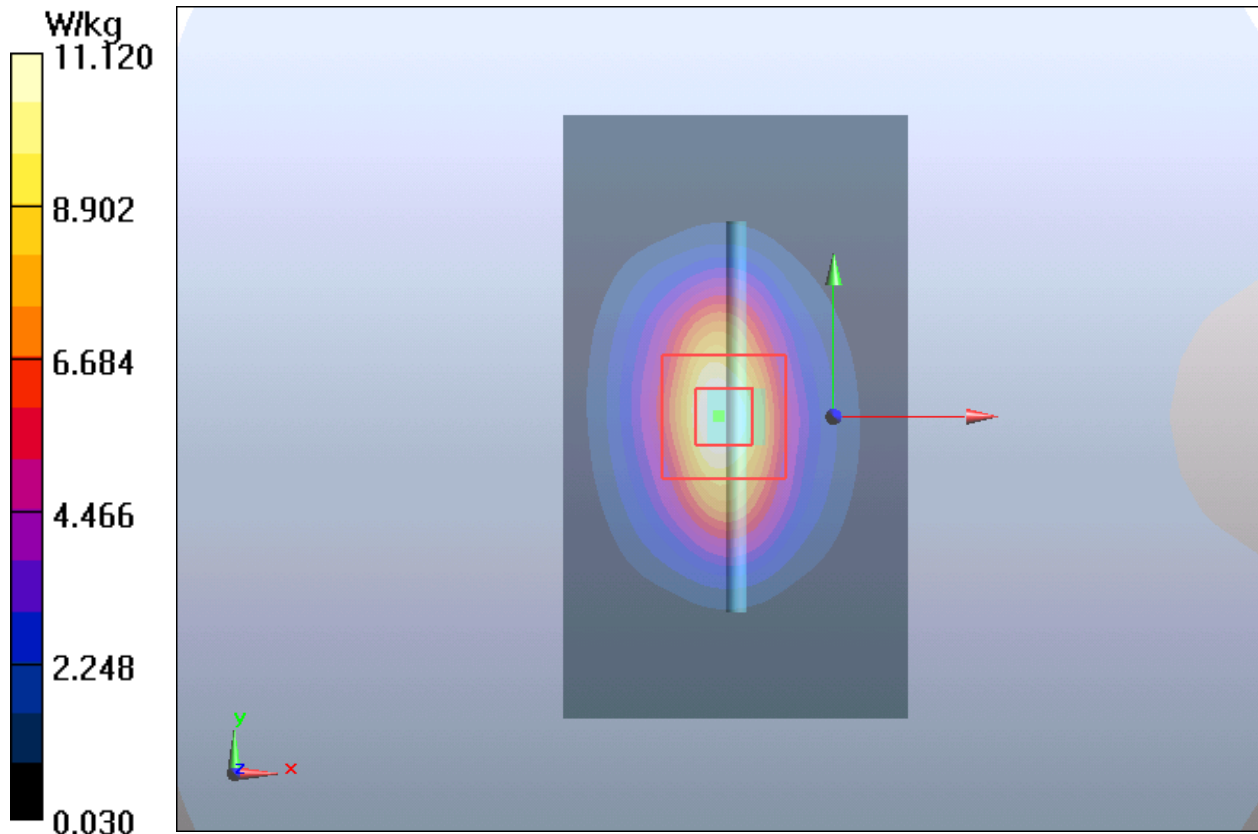
Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 9.85 W/kg; SAR(10 g) = 4.93 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 51.9%

Maximum value of SAR (measured) = 11.12 W/kg



Plot 8 System Performance Check at 1900 MHz

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

Date: 2022/10/21

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.40$ S/m; $\epsilon_r = 40.0$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.84, 7.84, 7.84); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 10.9 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.8 V/m; Power Drift = 0.030 dB

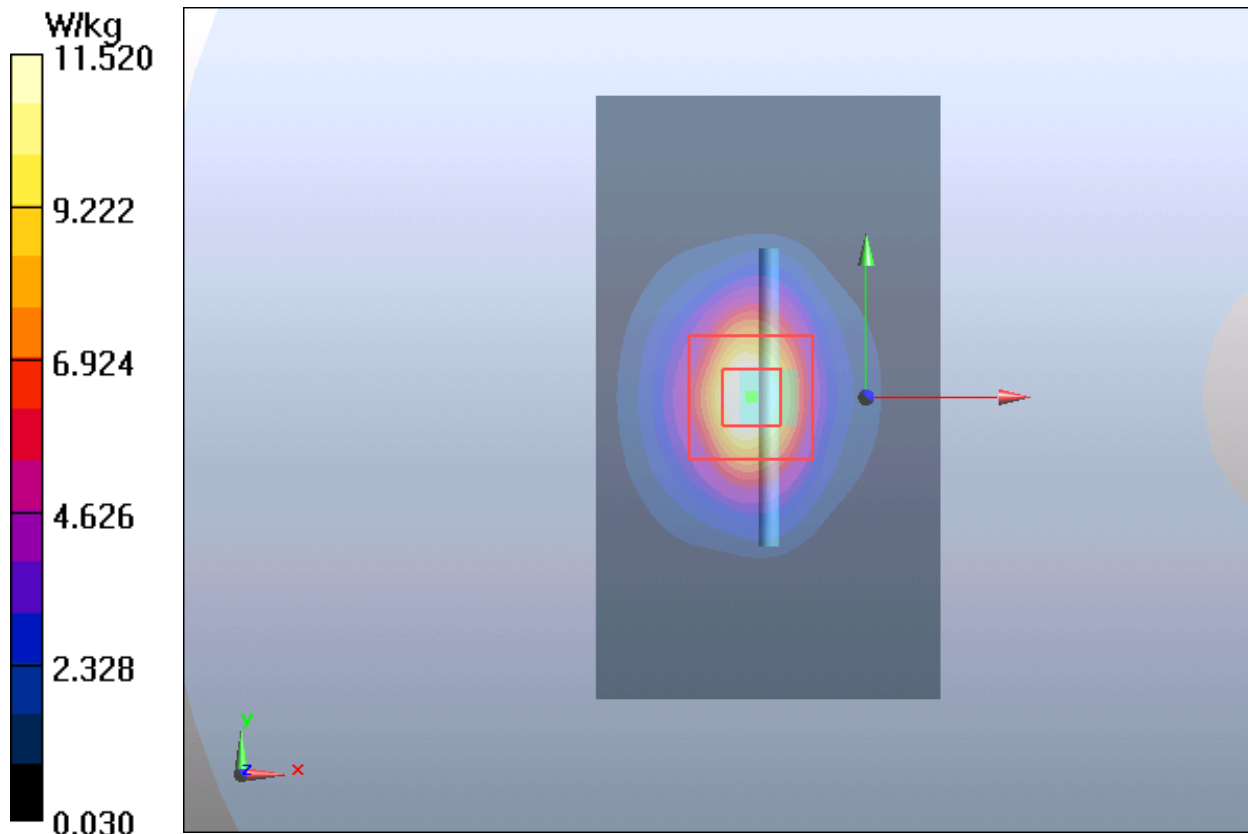
Peak SAR (extrapolated) = 20.1 W/kg

SAR(1 g) = 9.55 W/kg; SAR(10 g) = 4.99 W/kg

Smallest distance from peaks to all points 3 dB below = 10.3 mm

Ratio of SAR at M2 to SAR at M1 = 51.7%

Maximum value of SAR (measured) = 11.52 W/kg



Plot 9 System Performance Check at 2450 MHz TSL

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

Date: 2022/10/22

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.81$ S/m; $\epsilon_r = 38.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 15.2 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.8 V/m; Power Drift = 0.075 dB

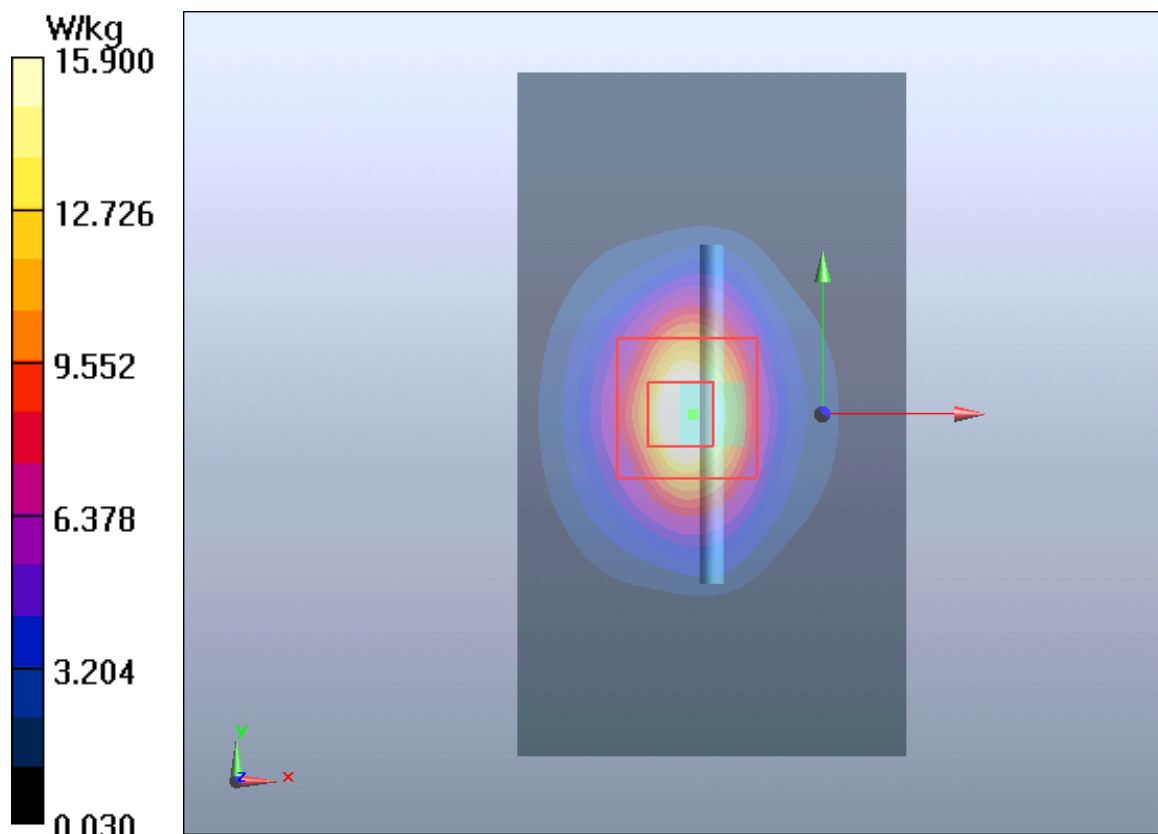
Peak SAR (extrapolated) = 30 W/kg

SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.22 W/kg

Smallest distance from peaks to all points 3 dB below = 8.8 mm

Ratio of SAR at M2 to SAR at M1 = 47.1%

Maximum value of SAR (measured) = 15.9 W/kg



Plot 10 System Performance Check at 2600 MHz TSL

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

Date: 2022/10/24

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.01$ S/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 15.439 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.998 V/m; Power Drift = -0.04 dB

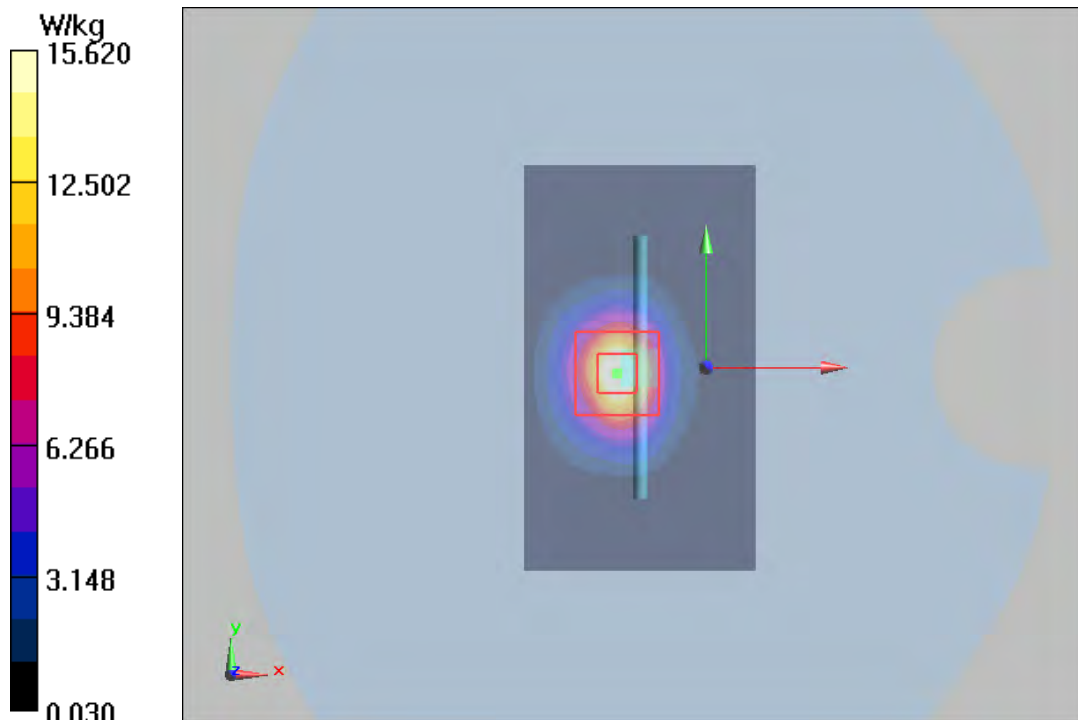
Peak SAR (extrapolated) = 31.858 W/kg

SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.07 W/kg

Smallest distance from peaks to all points 3 dB below = 9.2 mm

Ratio of SAR at M2 to SAR at M1 = 44.1%

Maximum value of SAR (measured) = 15.62 W/kg



Plot 11 System Performance Check at 2600 MHz TSL

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

Date: 2022/10/25

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.94$ S/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 15.59 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.998 V/m; Power Drift = -0.04 dB

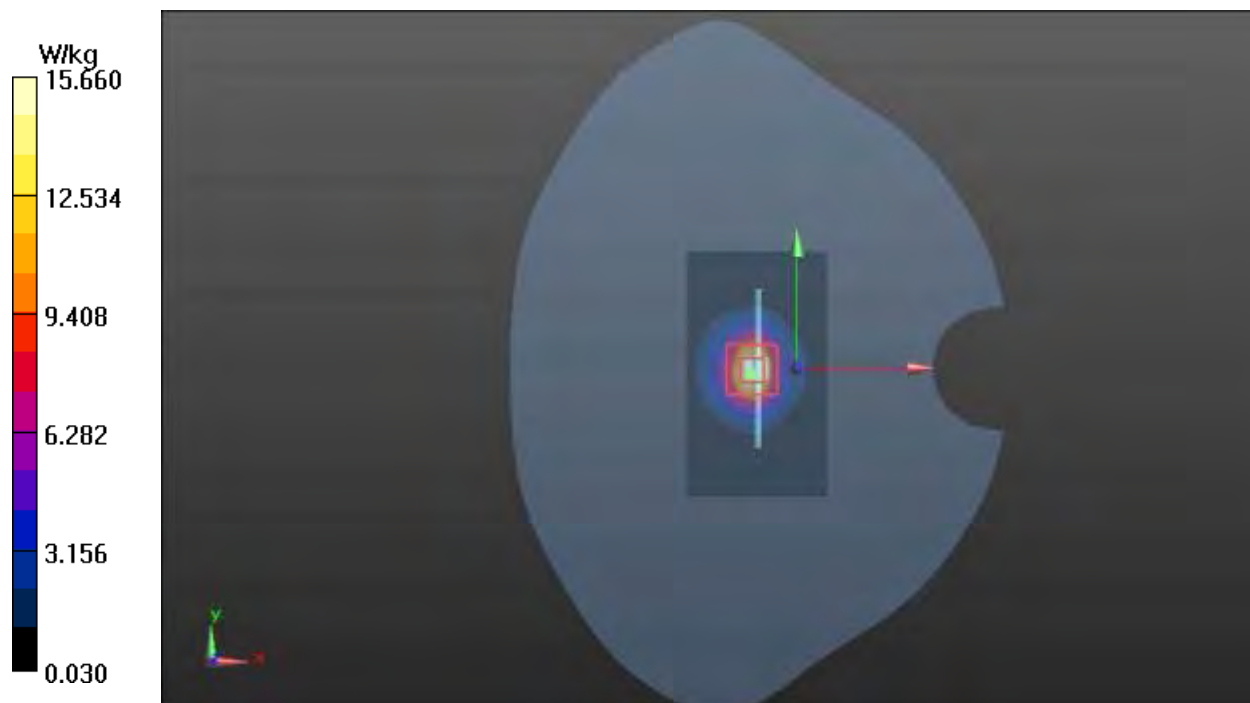
Peak SAR (extrapolated) = 31.858 W/kg

SAR(1 g) = 13.88 W/kg; SAR(10 g) = 6.09 W/kg

Smallest distance from peaks to all points 3 dB below = 9.3 mm

Ratio of SAR at M2 to SAR at M1 = 44.2%

Maximum value of SAR (measured) = 15.66 W/kg



Plot 12 System Performance Check at 2600 MHz TSL

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

Date: 2022/10/26

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.99$ S/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 15.32 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.465 V/m; Power Drift = 0.146 dB

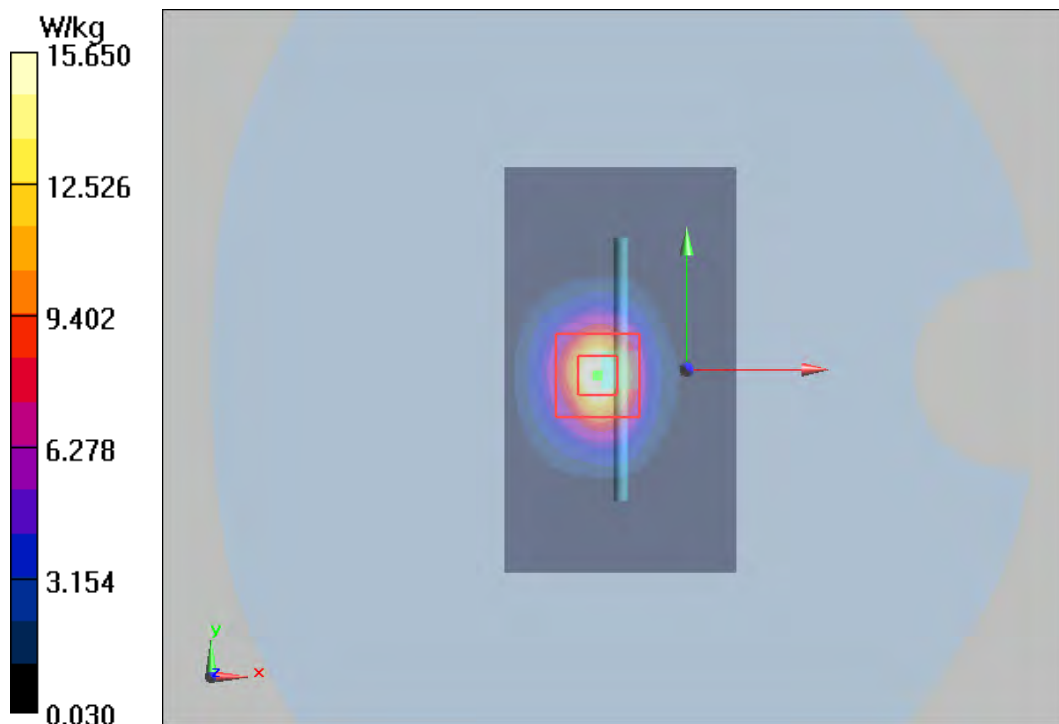
Peak SAR (extrapolated) = 31.85 W/kg

SAR(1 g) = 13.94 W/kg; SAR(10 g) = 6.11 W/kg

Smallest distance from peaks to all points 3 dB below = 9.4 mm

Ratio of SAR at M2 to SAR at M1 = 44.1%

Maximum value of SAR (measured) = 15.65 W/kg



Plot 13 System Performance Check at 2600 MHz TSL**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2**

Date: 2022/10/27

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.95$ S/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (6x10x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 15.59 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.998 V/m; Power Drift = -0.04 dB

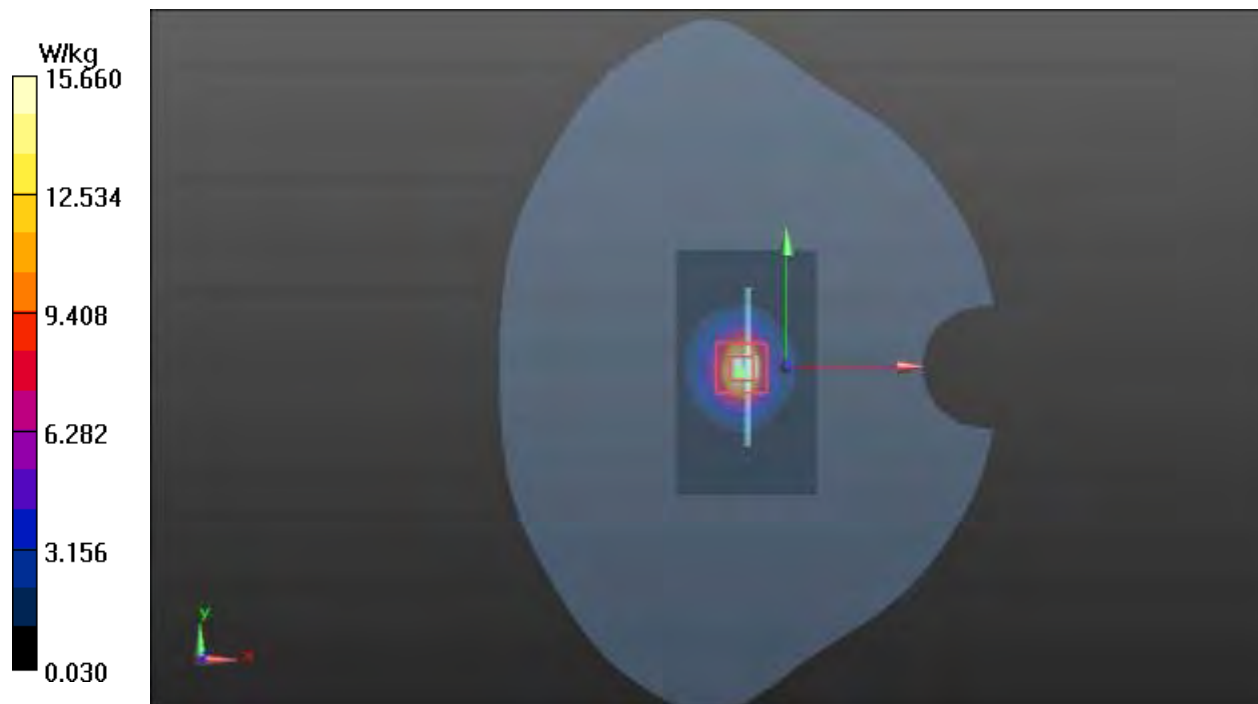
Peak SAR (extrapolated) = 31.858 W/kg

SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.09 W/kg

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 44%

Maximum value of SAR (measured) = 15.66 W/kg



Plot 14 System Performance Check at 2600 MHz TSL

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

Date: 2022/10/28

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (6x10x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 15.439 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.998 V/m; Power Drift = -0.04 dB

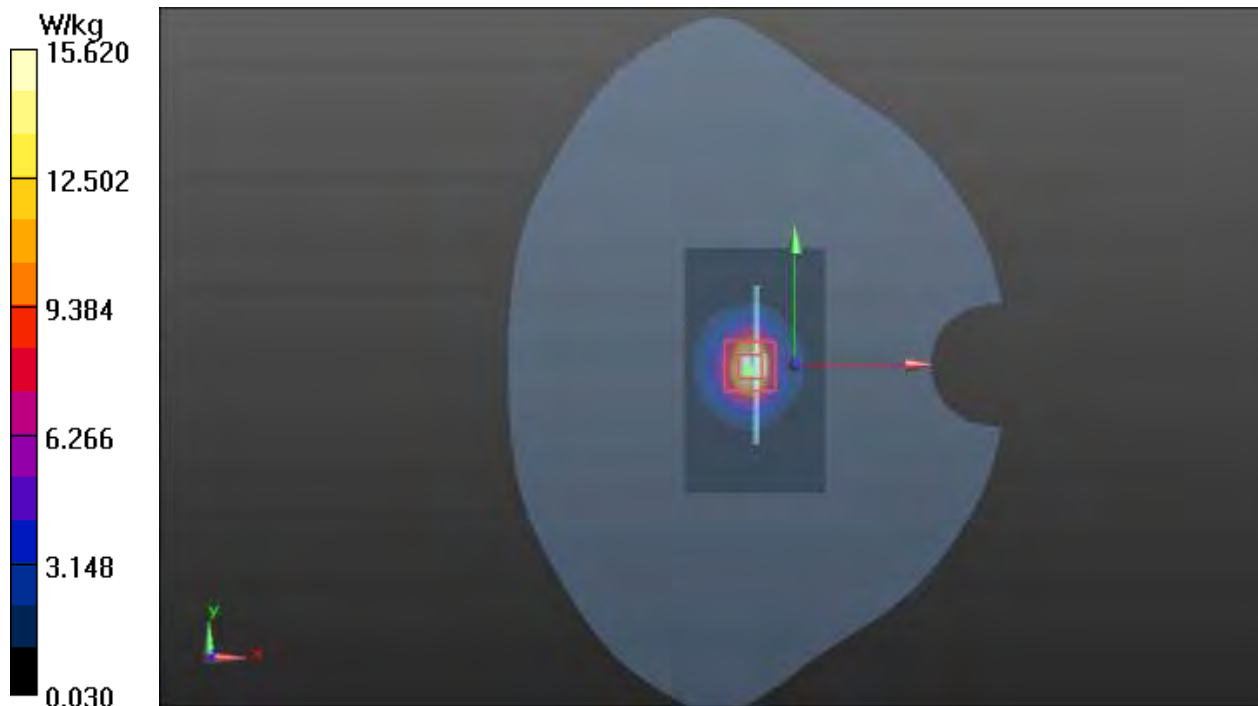
Peak SAR (extrapolated) = 31.858 W/kg

SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.08 W/kg

Smallest distance from peaks to all points 3 dB below = 9.5 mm

Ratio of SAR at M2 to SAR at M1 = 44.3%

Maximum value of SAR (measured) = 15.62 W/kg



Plot 15 System Performance Check at 5250 MHz TSL

DUT: Dipole 5250 MHz; Type: D5GHzV2; Serial: D5GHzV2

Date: 2022/10/23

Communication System: CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.80$ S/m; $\epsilon_r = 35.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.48, 5.48, 5.48); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=100mW/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 9.14 W/kg

d=10mm, Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 33.6 V/m; Power Drift = -0.095 dB

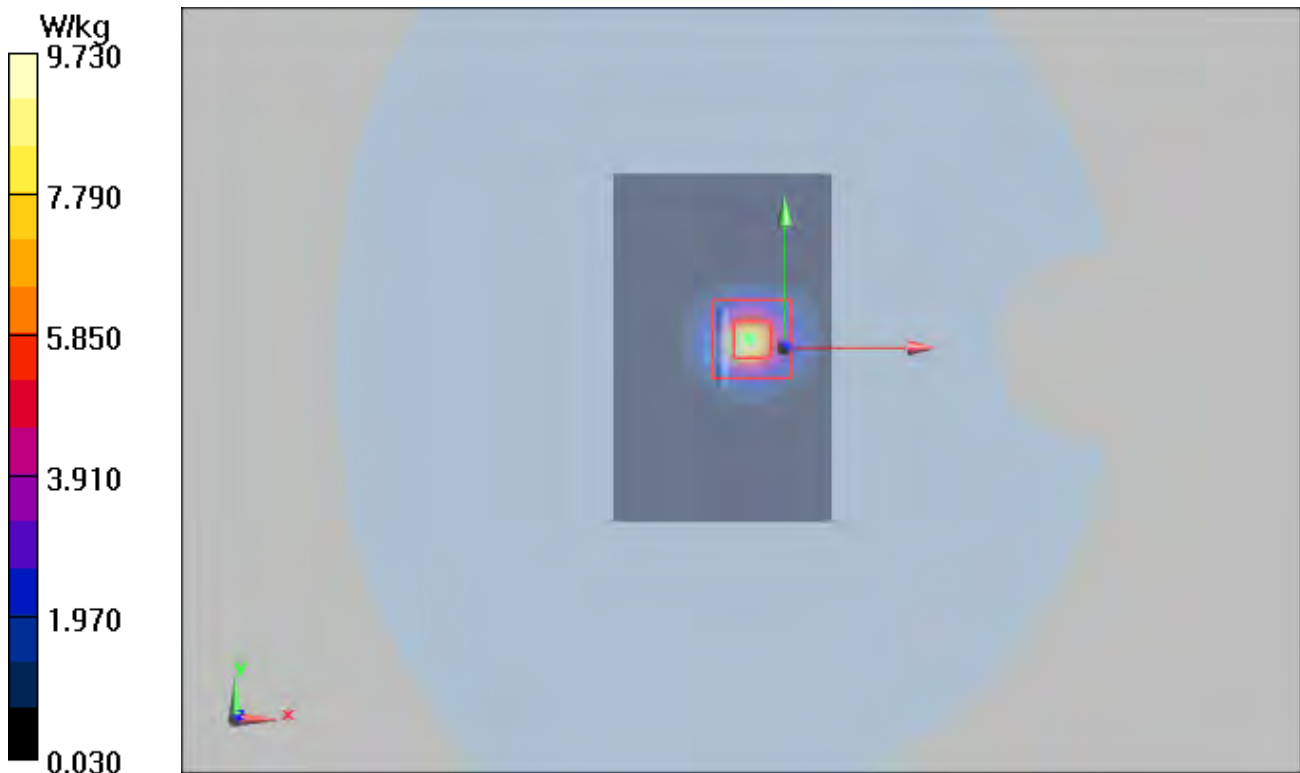
Peak SAR (extrapolated) = 52.2 W/kg

SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.25 W/kg

Smallest distance from peaks to all points 3 dB below = 7.3 mm

Ratio of SAR at M2 to SAR at M1 = 63.5%

Maximum value of SAR (measured) = 9.73 W/kg



Plot 16 System Performance Check at 5250 MHz TSL**DUT: Dipole 5250 MHz; Type: D5GHzV2; Serial: D5GHzV2**

Date: 2022/10/31

Communication System: CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5200$ MHz; $\sigma = 4.74$ S/m; $\epsilon_r = 35.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.48, 5.48, 5.48); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=100mW/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 9.4 W/kg

d=10mm, Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 33.6 V/m; Power Drift = -0.15 dB

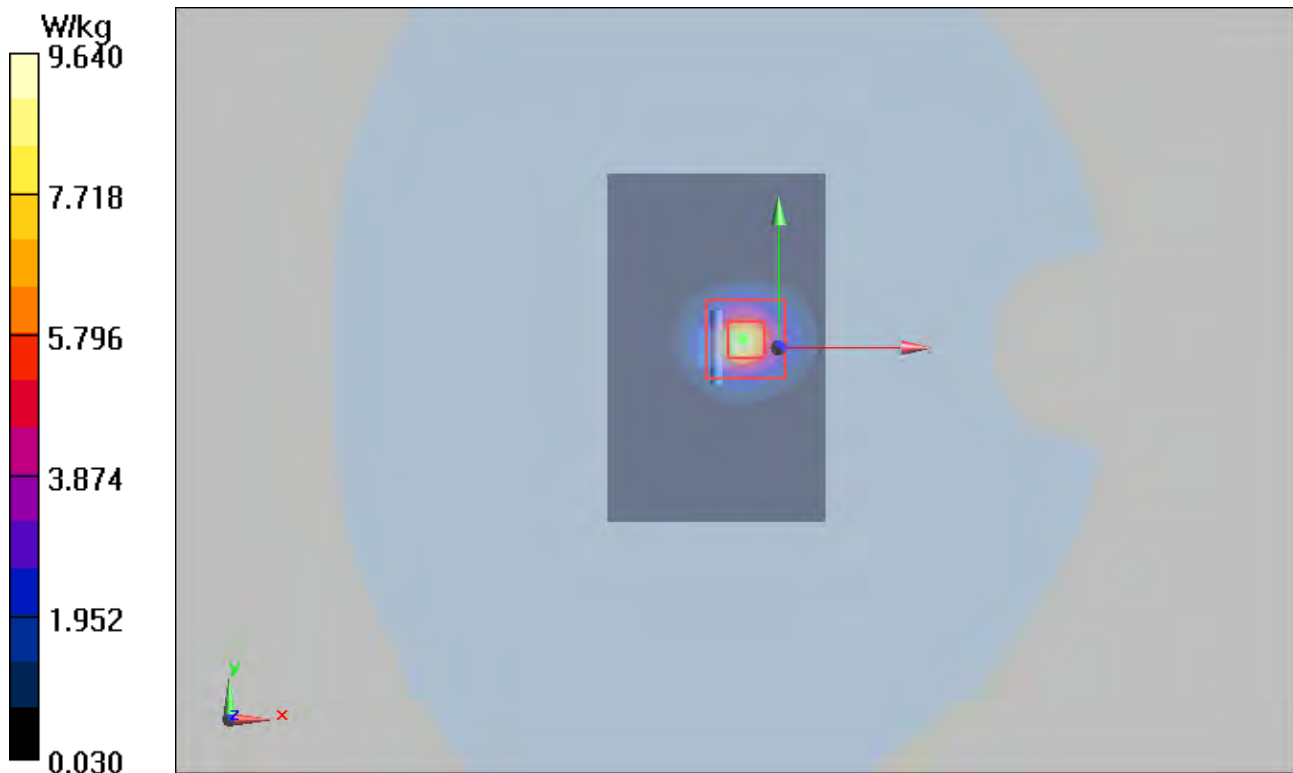
Peak SAR (extrapolated) = 52.2 W/kg

SAR(1 g) = 7.54 W/kg; SAR(10 g) = 2.27 W/kg

Smallest distance from peaks to all points 3 dB below = 7.5 mm

Ratio of SAR at M2 to SAR at M1 = 63.4%

Maximum value of SAR (measured) = 9.64 W/kg



Plot 17 System Performance Check at 5600 MHz TSL

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: D5GHzV2

Date: 2022/10/29

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.21$ S/m; $\epsilon_r = 34.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(4.97, 4.97, 4.97); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=100mW/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 8.25 W/kg

d=10mm, Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 23.1 V/m; Power Drift = -0.028 dB

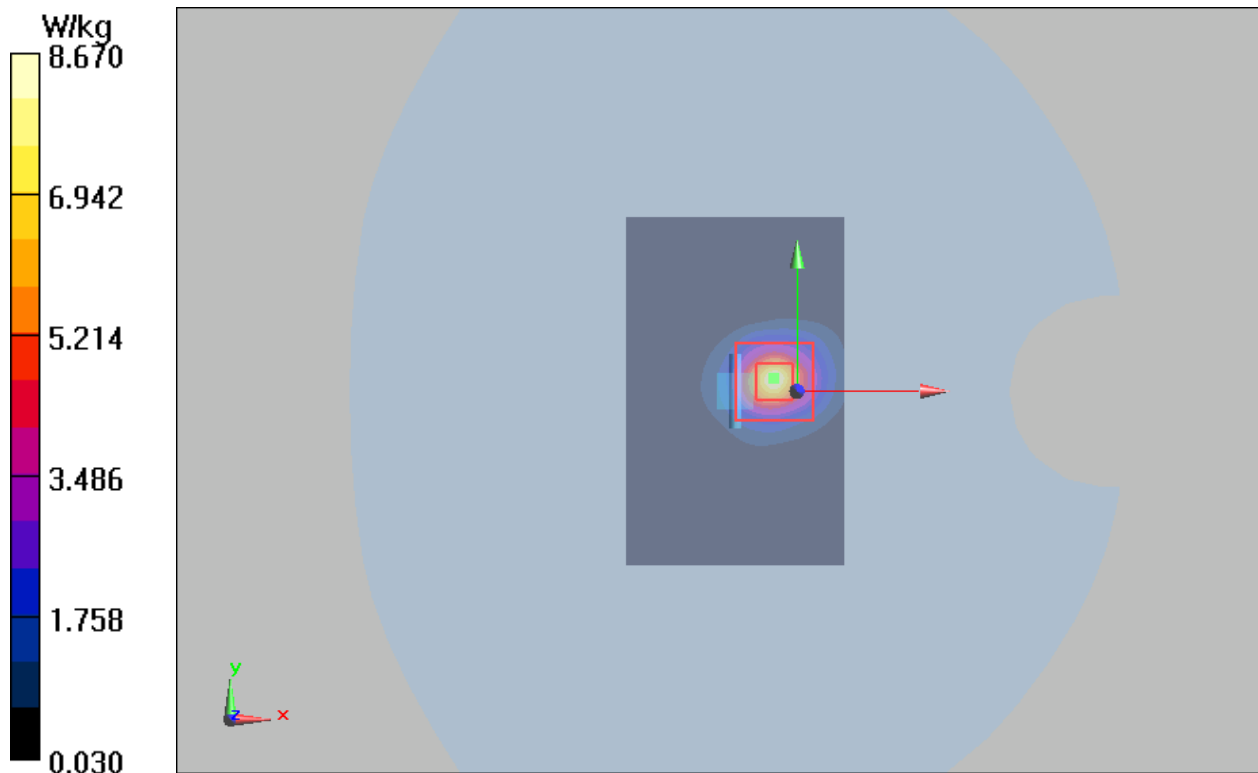
Peak SAR (extrapolated) = 22.9 W/kg

SAR(1 g) = 7.67 W/kg; SAR(10 g) = 2.27 W/kg

Smallest distance from peaks to all points 3 dB below = 7.3 mm

Ratio of SAR at M2 to SAR at M1 = 61.2%

Maximum value of SAR (measured) = 8.67 W/kg



Plot 18 System Performance Check at 5750 MHz TSL**DUT: Dipole 5750 MHz; Type: D5GHzV2; Serial: D5GHzV2**

Date: 2022/10/30

Communication System: CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5750$ MHz; $\sigma = 5.21$ S/m; $\epsilon_r = 34.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.00, 5.00, 5.00); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=100mW/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 8.31 W/kg

d=10mm, Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=1.4mm

Reference Value = 23.1 V/m; Power Drift = 0.044 dB

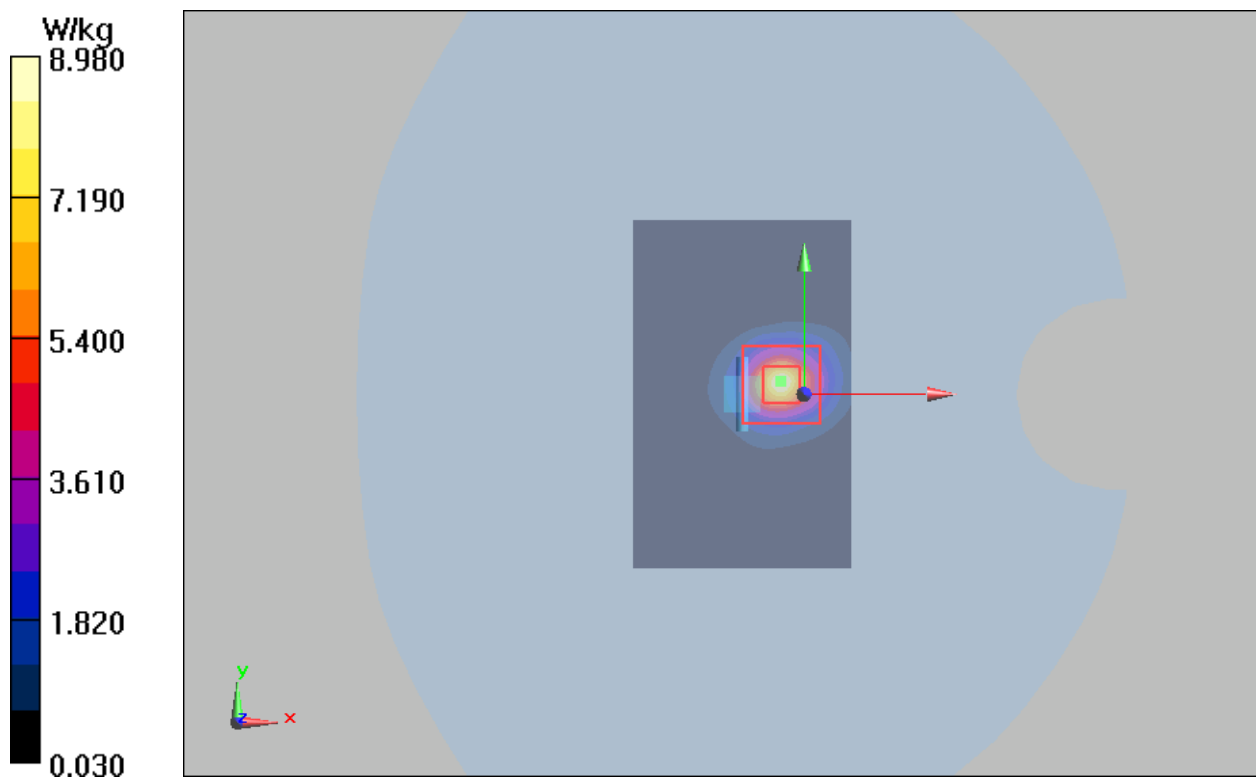
Peak SAR (extrapolated) = 23.4 W/kg

SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.27 W/kg

Smallest distance from peaks to all points 3 dB below = 7.6 mm

Ratio of SAR at M2 to SAR at M1 = 59.6%

Maximum value of SAR (measured) = 8.98 W/kg



ANNEX C: Highest Graph Results

Plot 19 GSM 850 Right Cheek Middle

Date: 2022/10/13

Communication System: UID 0, GSM (0); Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.944$ S/m; $\epsilon_r = 41.288$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.837 W/kg

Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.460 V/m; Power Drift = 0.010 dB

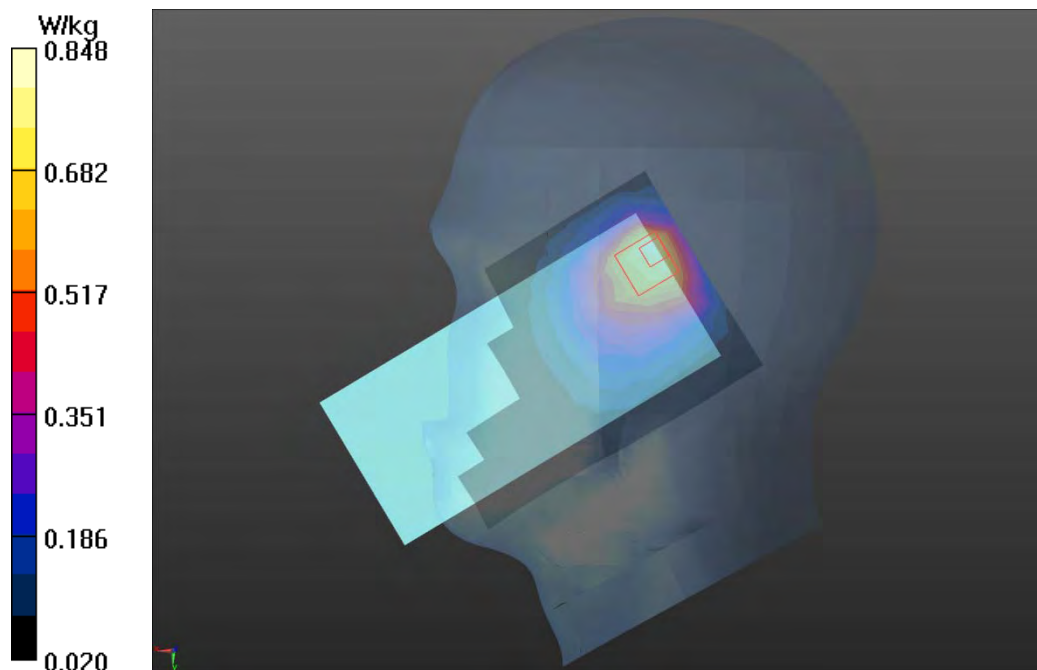
Peak SAR (extrapolated) = 1.500 W/kg

SAR(1 g) = 0.802 W/kg; SAR(10 g) = 0.473 W/kg

Smallest distance from peaks to all points 3 dB below = 11.2 mm

Ratio of SAR at M2 to SAR at M1 = 61.3%

Maximum value of SAR (measured) = 0.848 W/kg



Plot 20 GSM 1900 Right Tilt Middle

Date: 2022/10/19

Communication System: UID 0, GSM (0); Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 38.948$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.84, 7.84, 7.84); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Tilt Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.574 W/kg

Right Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.560 V/m; Power Drift = 0.080 dB

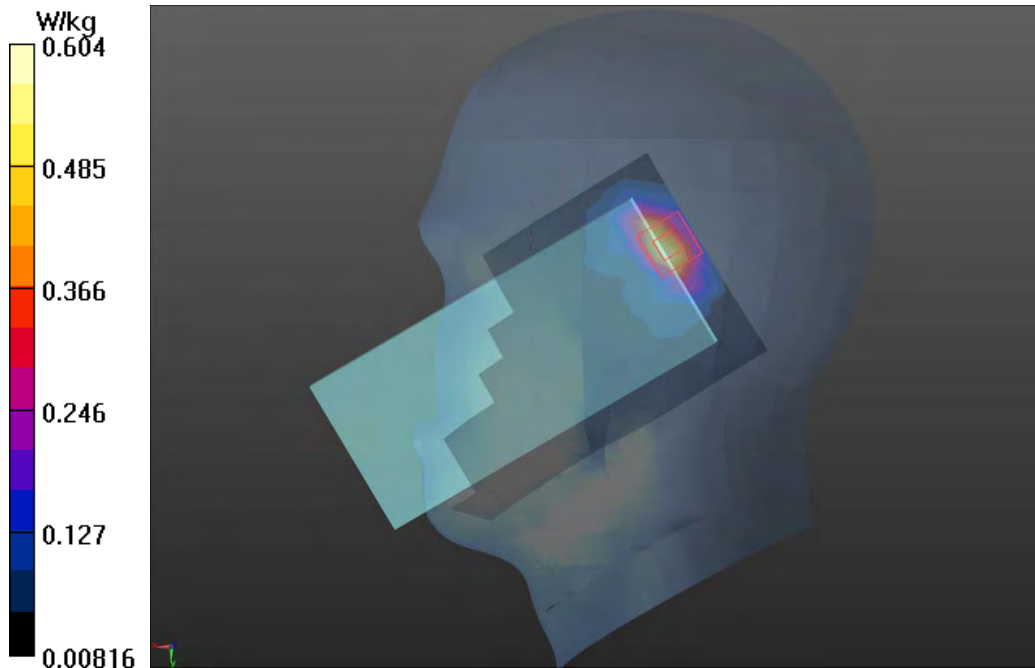
Peak SAR (extrapolated) = 0.996 W/kg

SAR(1 g) = 0.525 W/kg; SAR(10 g) = 0.255 W/kg

Smallest distance from peaks to all points 3 dB below = 9.6 mm

Ratio of SAR at M2 to SAR at M1 = 55.7%

Maximum value of SAR (measured) = 0.604 W/kg



Plot 21 WCDMA Band V Right Cheek Low (Battery1)

Date: 2022/10/13

Communication System: UID 0, WCDMA (0); Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.937$ S/m; $\epsilon_r = 41.378$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Low/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.718 W/kg

Right Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.580 V/m; Power Drift = -0.014 dB

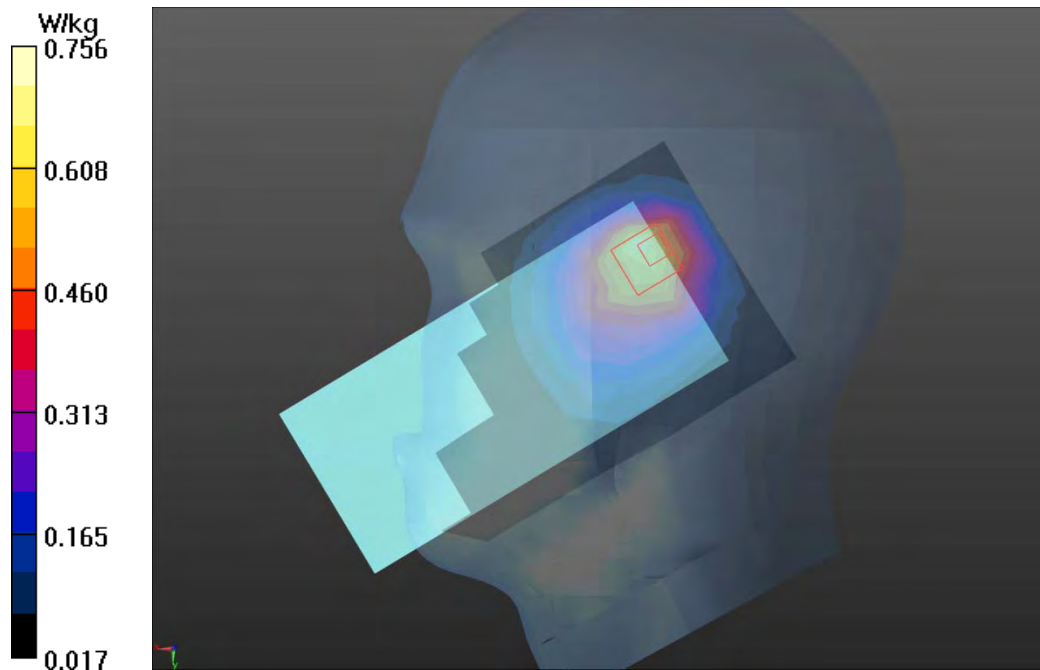
Peak SAR (extrapolated) = 1.300 W/kg

SAR(1 g) = 0.701 W/kg; SAR(10 g) = 0.411 W/kg

Smallest distance from peaks to all points 3 dB below = 13.6 mm

Ratio of SAR at M2 to SAR at M1 = 55.6%

Maximum value of SAR (measured) = 0.756 W/kg



Plot 22 LTE Band 5 1RB Right Cheek Low

Date: 2022/10/13

Communication System: UID 0, LTE (0); Frequency: 829 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 829 \text{ MHz}$; $\sigma = 0.939 \text{ S/m}$; $\epsilon_r = 41.351$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Low/Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.894 W/kg

Right Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 27.460 V/m ; Power Drift = 0.000 dB

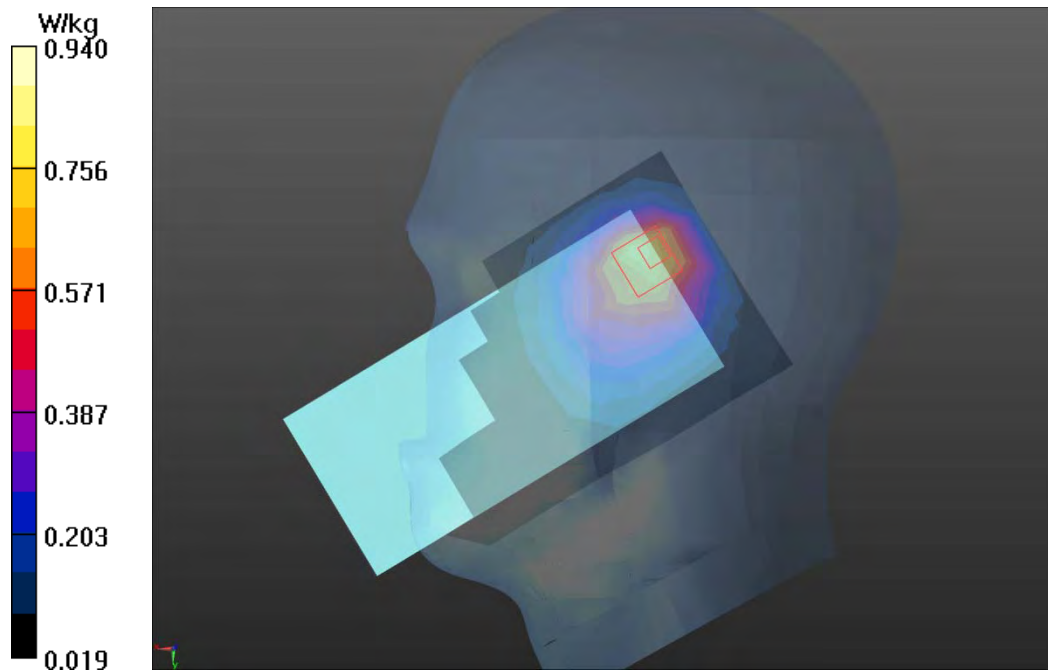
Peak SAR (extrapolated) = 1.640 W/kg

SAR(1 g) = 0.863 W/kg ; SAR(10 g) = 0.498 W/kg

Smallest distance from peaks to all points 3 dB below = 15.2 mm

Ratio of SAR at M2 to SAR at M1 = 56.3%

Maximum value of SAR (measured) = 0.940 W/kg



Plot 23 LTE Band 7 1RB Left Tilt Low

Date: 2022/10/24

Communication System: UID 0, LTE (0); Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2510$ MHz; $\sigma = 1.91$ S/m; $\epsilon_r = 37.398$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Left Tilt Low/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.808 W/kg

Left Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.890 V/m; Power Drift = 0.058 dB

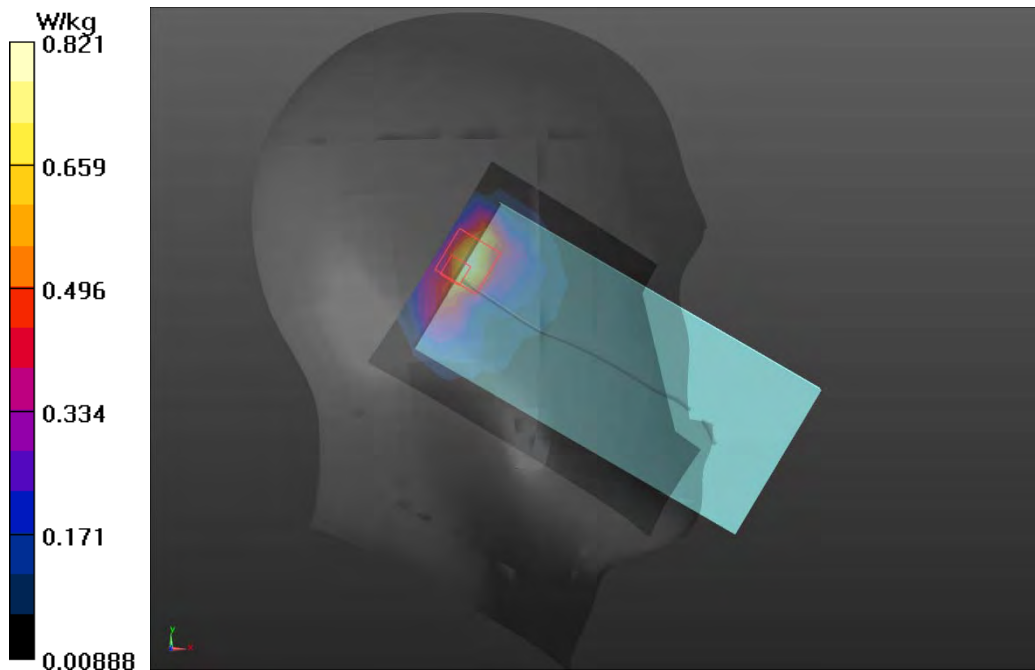
Peak SAR (extrapolated) = 1.970 W/kg

SAR(1 g) = 0.597 W/kg; SAR(10 g) = 0.303 W/kg

Smallest distance from peaks to all points 3 dB below = 13.2 mm

Ratio of SAR at M2 to SAR at M1 = 52.1%

Maximum value of SAR (measured) = 0.821 W/kg



Plot 24 LTE Band 38 1RB Left Tilt Low Battery1

Date: 2022/10/24

Communication System: UID 0, LTE (0); Frequency: 2580 MHz; Duty Cycle: 1:1.58

Medium parameters used: $f = 2580$ MHz; $\sigma = 1.995$ S/m; $\epsilon_r = 37.164$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Left Tilt Low/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.89 W/kg

Left Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.510 V/m; Power Drift = 0.036 dB

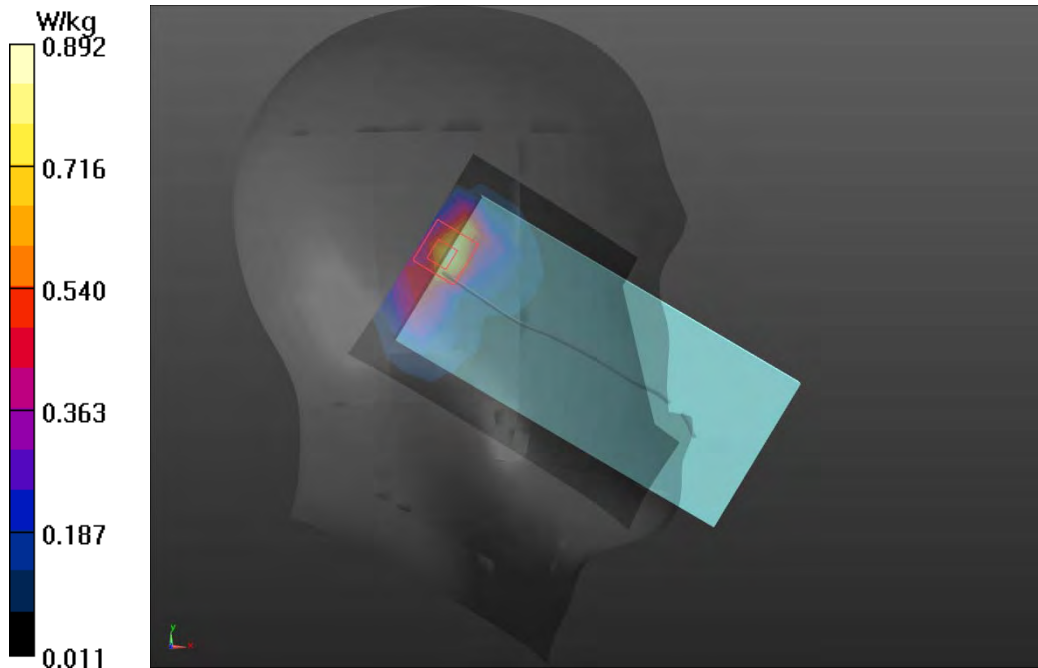
Peak SAR (extrapolated) = 1.350 W/kg

SAR(1 g) = 0.608 W/kg; SAR(10 g) = 0.303 W/kg

Smallest distance from peaks to all points 3 dB below = 8.6 mm

Ratio of SAR at M2 to SAR at M1 = 51.1%

Maximum value of SAR (measured) = 0.892 W/kg



Plot 25 LTE Band 41 1RB Right Cheek High

Date: 2022/10/25

Communication System: UID 0, LTE (0); Frequency: 2680 MHz; Duty Cycle: 1:1.58

Medium parameters used: $f = 2680$ MHz; $\sigma = 2.106$ S/m; $\epsilon_r = 36.793$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek High/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 1.010 W/kg

Right Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.230 V/m; Power Drift = -0.073 dB

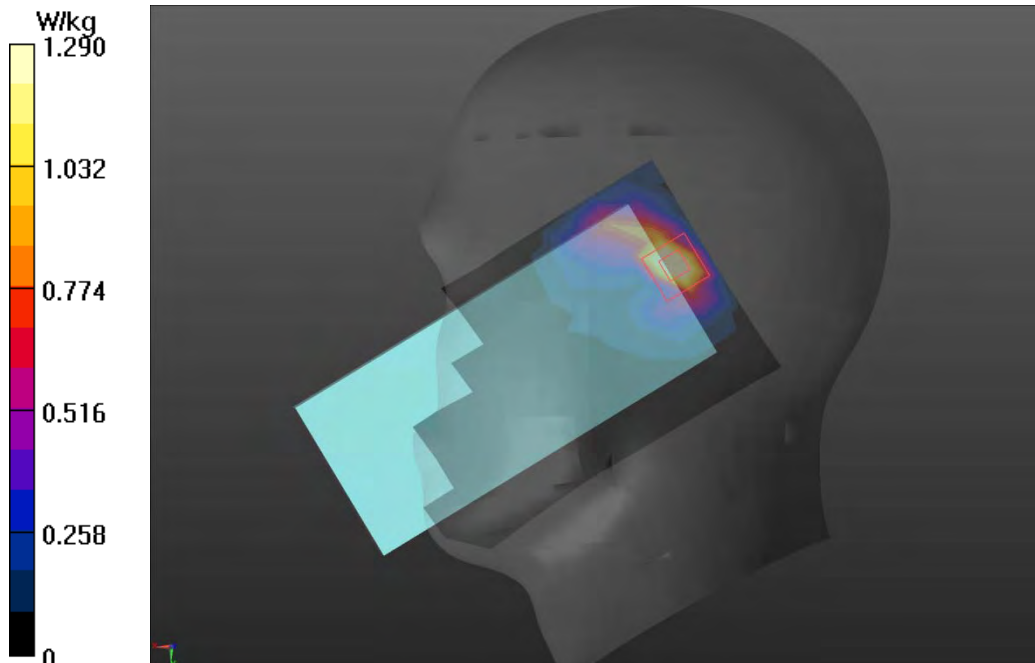
Peak SAR (extrapolated) = 2.160 W/kg

SAR(1 g) = 0.852 W/kg; SAR(10 g) = 0.343 W/kg

Smallest distance from peaks to all points 3 dB below = 17.2 mm

Ratio of SAR at M2 to SAR at M1 = 57.5%

Maximum value of SAR (measured) = 1.290 W/kg



Plot 26 802.11b Left Cheek High

Date: 2022/10/22

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz; Duty Cycle: 1:1.02

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.859$ S/m; $\epsilon_r = 37.58$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Left Cheek High/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.526 W/kg

Left Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.596 V/m; Power Drift = 0.020 dB

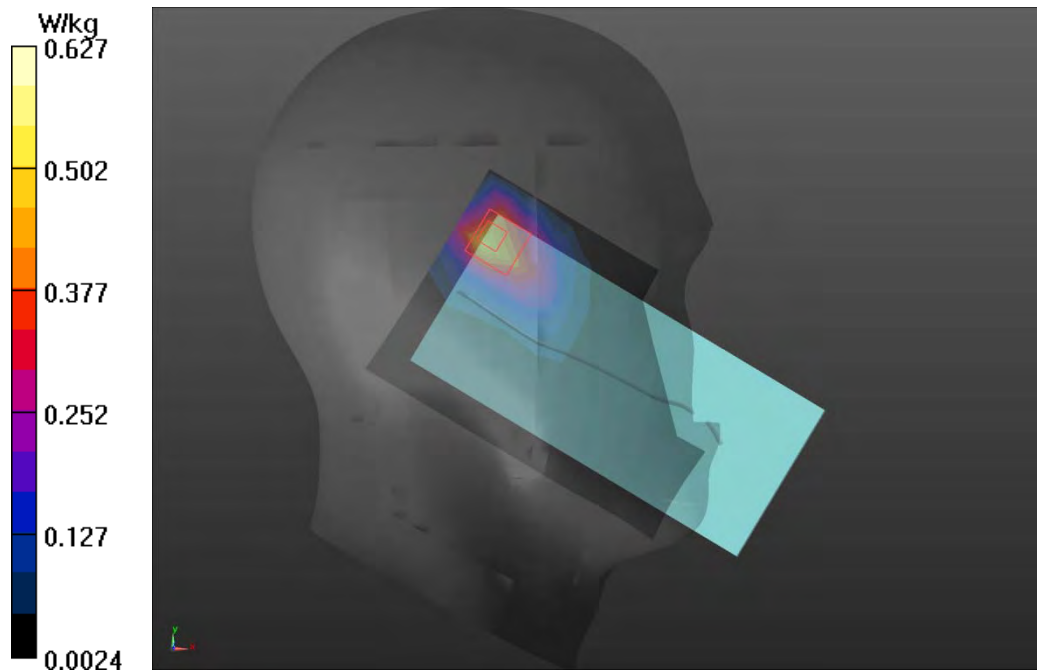
Peak SAR (extrapolated) = 0.841 W/kg

SAR(1 g) = 0.400 W/kg; SAR(10 g) = 0.197 W/kg

Smallest distance from peaks to all points 3 dB below = 9.1 mm

Ratio of SAR at M2 to SAR at M1 = 63.5%

Maximum value of SAR (measured) = 0.627 W/kg



Plot 27 802.11a U-NII-2A Left Tilt High (Battery4)

Date: 2022/10/23

Communication System: UID 0, 802.11a (0); Frequency: 5320 MHz; Duty Cycle: 1:1.02

Medium parameters used: $f = 5320 \text{ MHz}$; $\sigma = 4.729 \text{ S/m}$; $\epsilon_r = 34.1$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.48, 5.48, 5.48); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Left Tilt High/Area Scan (12x23x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.507 W/kg

Left Tilt High/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 2.103 V/m ; Power Drift = 0.12 dB

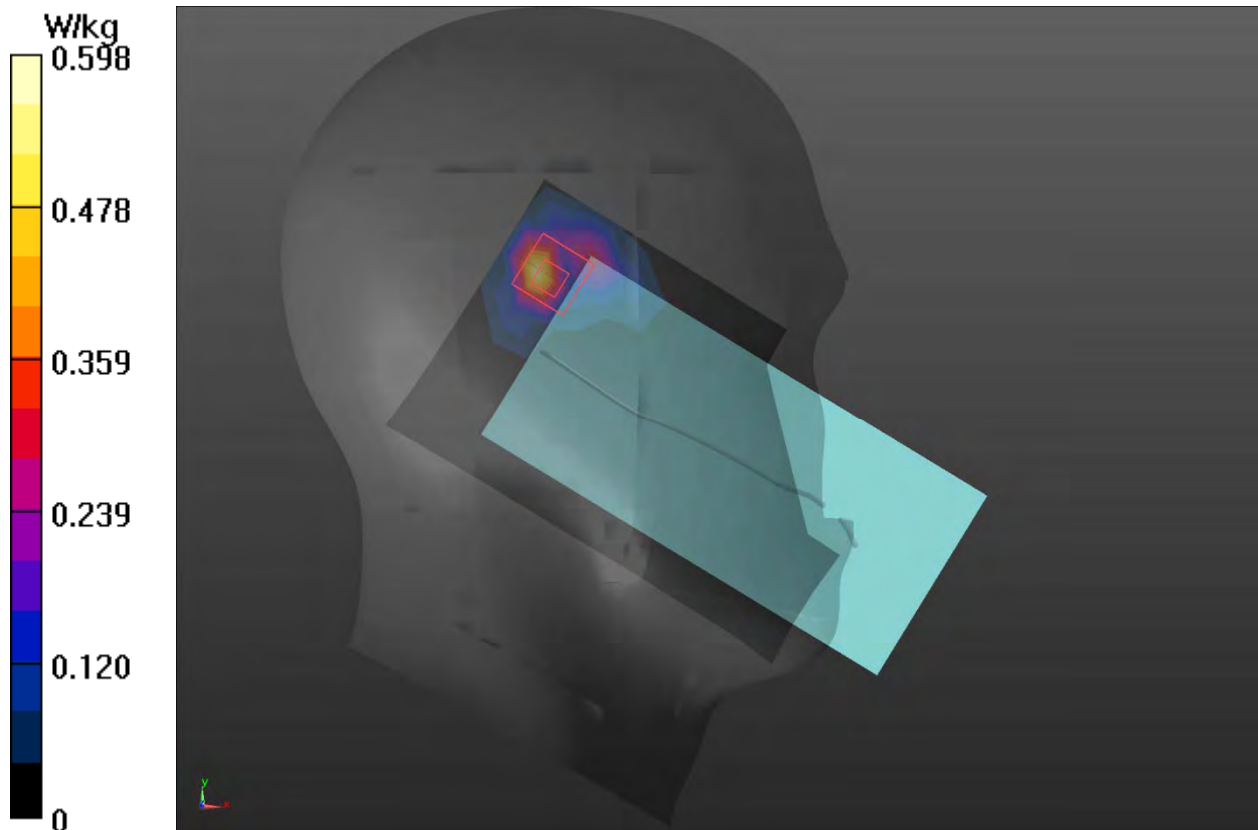
Peak SAR (extrapolated) = 1.600 W/kg

SAR(1 g) = 0.415 W/kg ; SAR(10 g) = 0.128 W/kg

Smallest distance from peaks to all points 3 dB below = 15.8 mm

Ratio of SAR at M2 to SAR at M1 = 58.9%

Maximum value of SAR (measured) = 0.598 W/kg



Plot 28 Bluetooth Left Tilt Middle (Battery3)

Date: 2022/10/22

Communication System: UID 0, BT (0); Frequency: 2441 MHz; Duty Cycle: 1:1.31

Medium parameters used: $f = 2441 \text{ MHz}$; $\sigma = 1.834 \text{ S/m}$; $\epsilon_r = 37.585$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Left Tilt Middle/Area Scan (10x20x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 0.169 W/kg

Left Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.698 V/m ; Power Drift = 0.013 dB

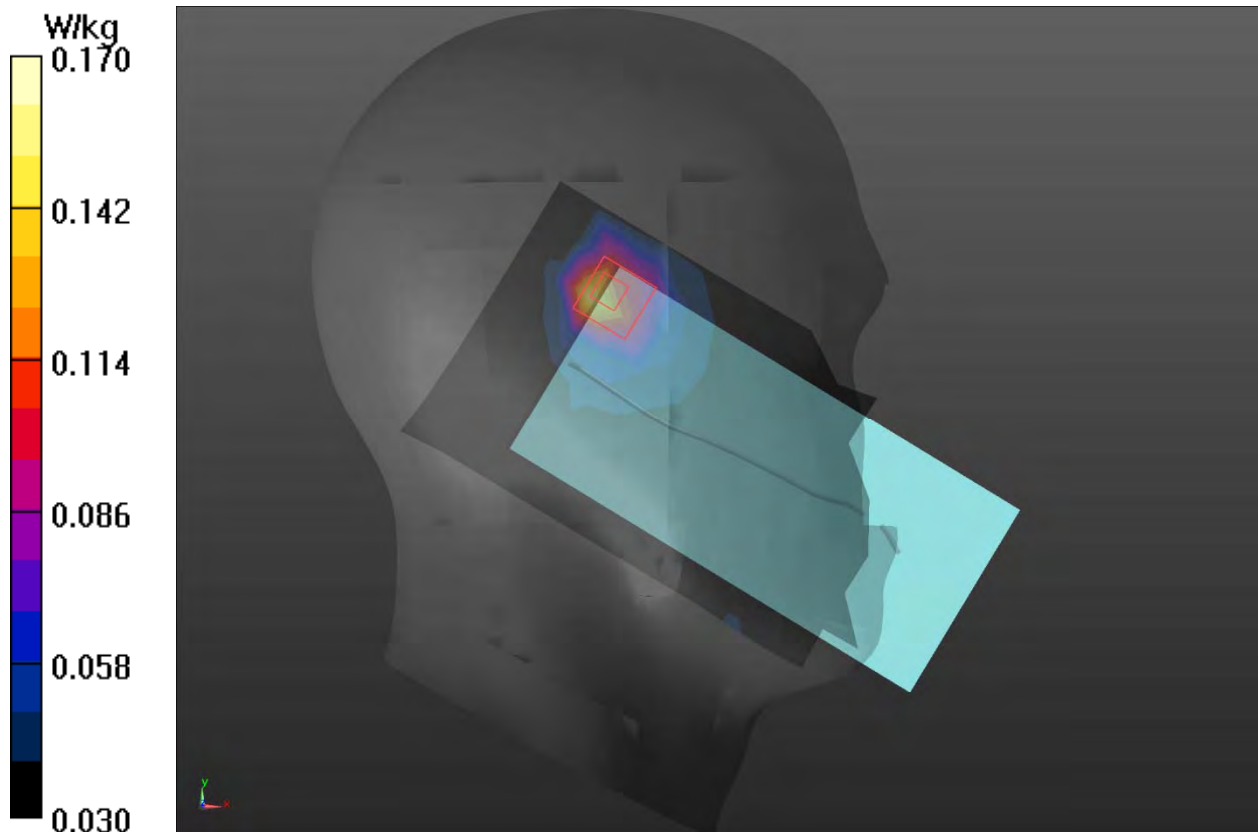
Peak SAR (extrapolated) = 0.206 W/kg

SAR(1 g) = 0.11 W/kg ; SAR(10 g) = 0.054 W/kg

Smallest distance from peaks to all points 3 dB below = 9.2 mm

Ratio of SAR at M2 to SAR at M1 = 60.9%

Maximum value of SAR (measured) = 0.17 W/kg



Plot 29 GSM 850 Back Side Middle (Distance 10mm, Battery1)

Date: 2022/10/14

Communication System: UID 0, GPRS 2TX (0); Frequency: 836.6 MHz; Duty Cycle: 1:4.15

Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.944 \text{ S/m}$; $\epsilon_r = 41.288$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.460 W/kg

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.400 V/m ; Power Drift = 0.085 dB

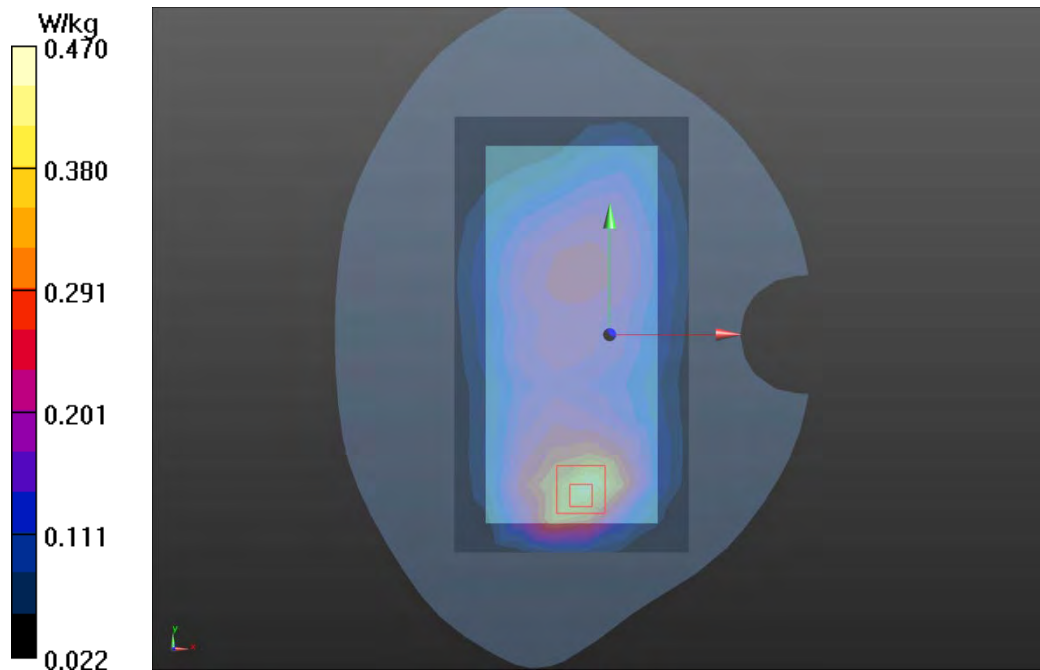
Peak SAR (extrapolated) = 0.744 W/kg

SAR(1 g) = 0.452 W/kg ; SAR(10 g) = 0.256 W/kg

Smallest distance from peaks to all points 3 dB below = 12.5 mm

Ratio of SAR at M2 to SAR at M1 = 57.5%

Maximum value of SAR (measured) = 0.470 W/kg



Plot 30 GSM 1900 Back Side Middle (Distance 10mm)

Date: 2022/10/20

Communication System: UID 0, GPRS 2TX (0); Frequency: 1880 MHz; Duty Cycle: 1:4.15

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.437$ S/m; $\epsilon_r = 37.208$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.84, 7.84, 7.84); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.469 W/kg

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.974 V/m; Power Drift = -0.100 dB

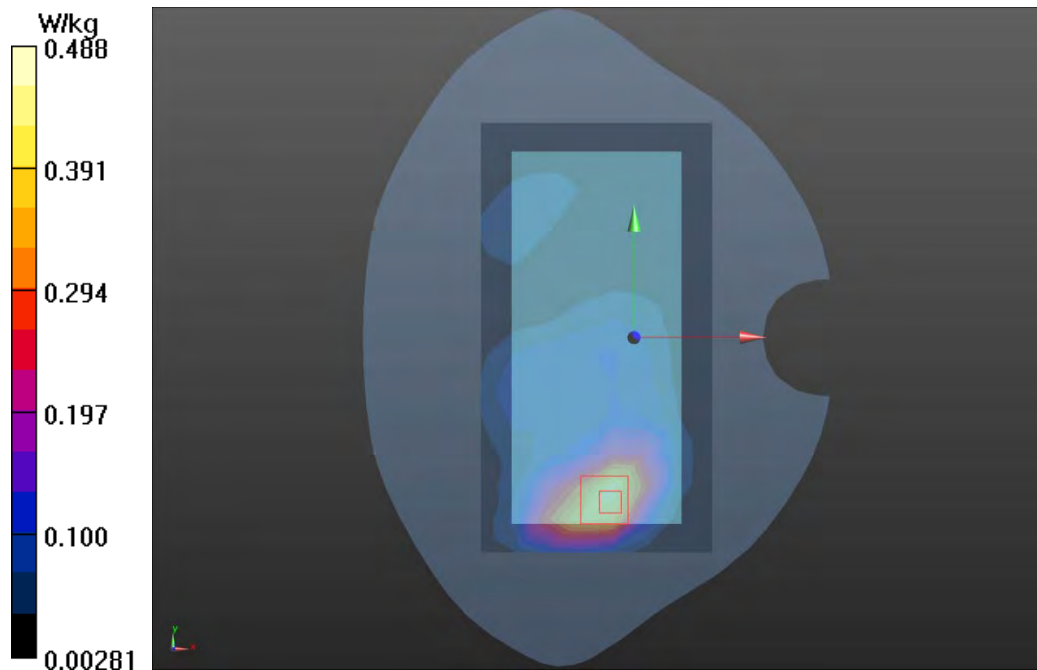
Peak SAR (extrapolated) = 0.846 W/kg

SAR(1 g) = 0.450 W/kg; SAR(10 g) = 0.248 W/kg

Smallest distance from peaks to all points 3 dB below = 11.5 mm

Ratio of SAR at M2 to SAR at M1 = 54.7%

Maximum value of SAR (measured) = 0.488 W/kg



Plot 31 WCDMA Band V Back Side Middle (Distance 10mm Battery3)

Date: 2022/10/14

Communication System: UID 0, WCDMA (0); Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.944 \text{ S/m}$; $\epsilon_r = 41.288$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.397 W/kg

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.380 V/m ; Power Drift = 0.02 dB

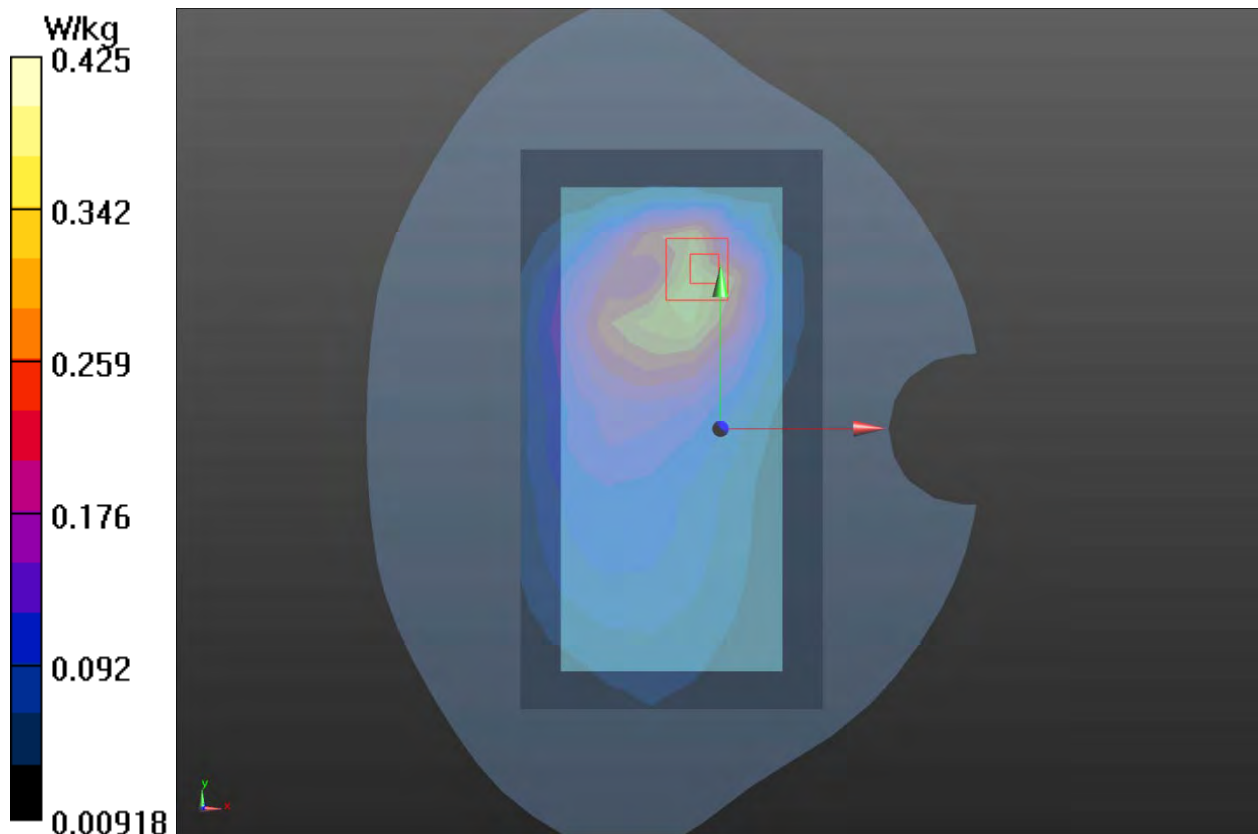
Peak SAR (extrapolated) = 0.587 W/kg

SAR(1 g) = 0.393 W/kg ; SAR(10 g) = 0.232 W/kg

Smallest distance from peaks to all points 3 dB below = 12.5 mm

Ratio of SAR at M2 to SAR at M1 = 60.1%

Maximum value of SAR (measured) = 0.425 W/kg



Plot 32 LTE Band 5 1RB Back Side Low (Distance 10mm Battery1)

Date: 2022/10/15

Communication System: UID 0, LTE (0); Frequency: 829 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 829 \text{ MHz}$; $\sigma = 0.939 \text{ S/m}$; $\epsilon_r = 41.351$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Low/Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.425 W/kg

Back Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.220 V/m ; Power Drift = 0.065 dB

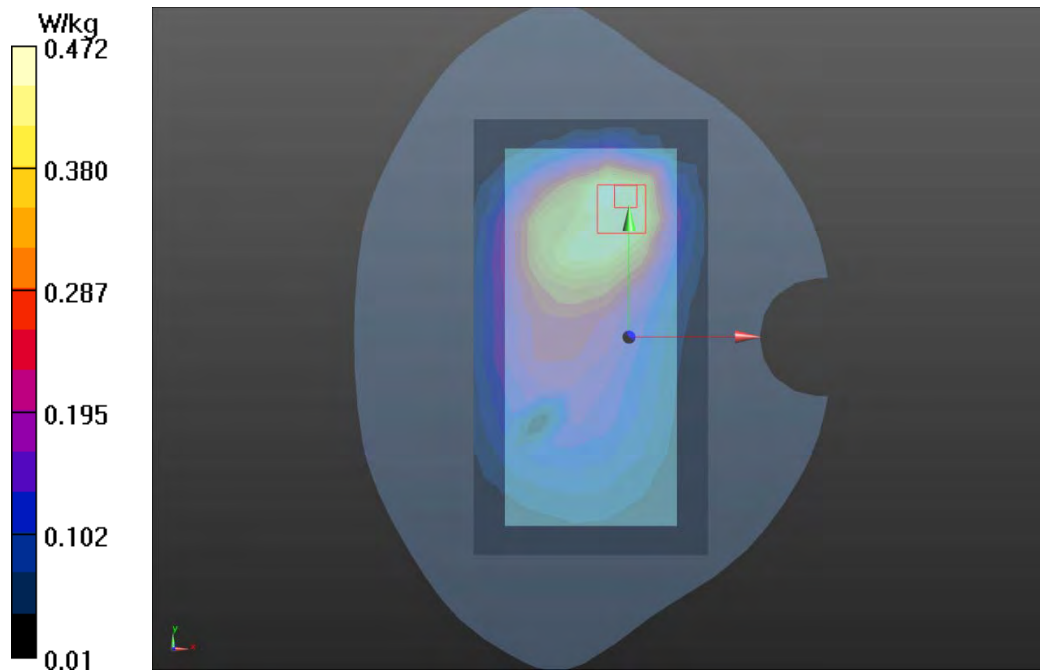
Peak SAR (extrapolated) = 0.602 W/kg

SAR(1 g) = 0.385 W/kg ; SAR(10 g) = 0.235 W/kg

Smallest distance from peaks to all points 3 dB below = 13.6 mm

Ratio of SAR at M2 to SAR at M1 = 58.3%

Maximum value of SAR (measured) = 0.472 W/kg



Plot 33 LTE Band 38 1RB Bottom Edge Middle (Distance 10mm Battery3)

Date: 2022/10/26

Communication System: UID 0, LTE (0); Frequency: 2595 MHz; Duty Cycle: 1:1.58

Medium parameters used: $f = 2595$ MHz; $\sigma = 2.011$ S/m; $\epsilon_r = 37.134$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Bottom Edge Middle/Area Scan (5x10x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.707 W/kg

Bottom Edge Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.560 V/m; Power Drift = 0.028 dB

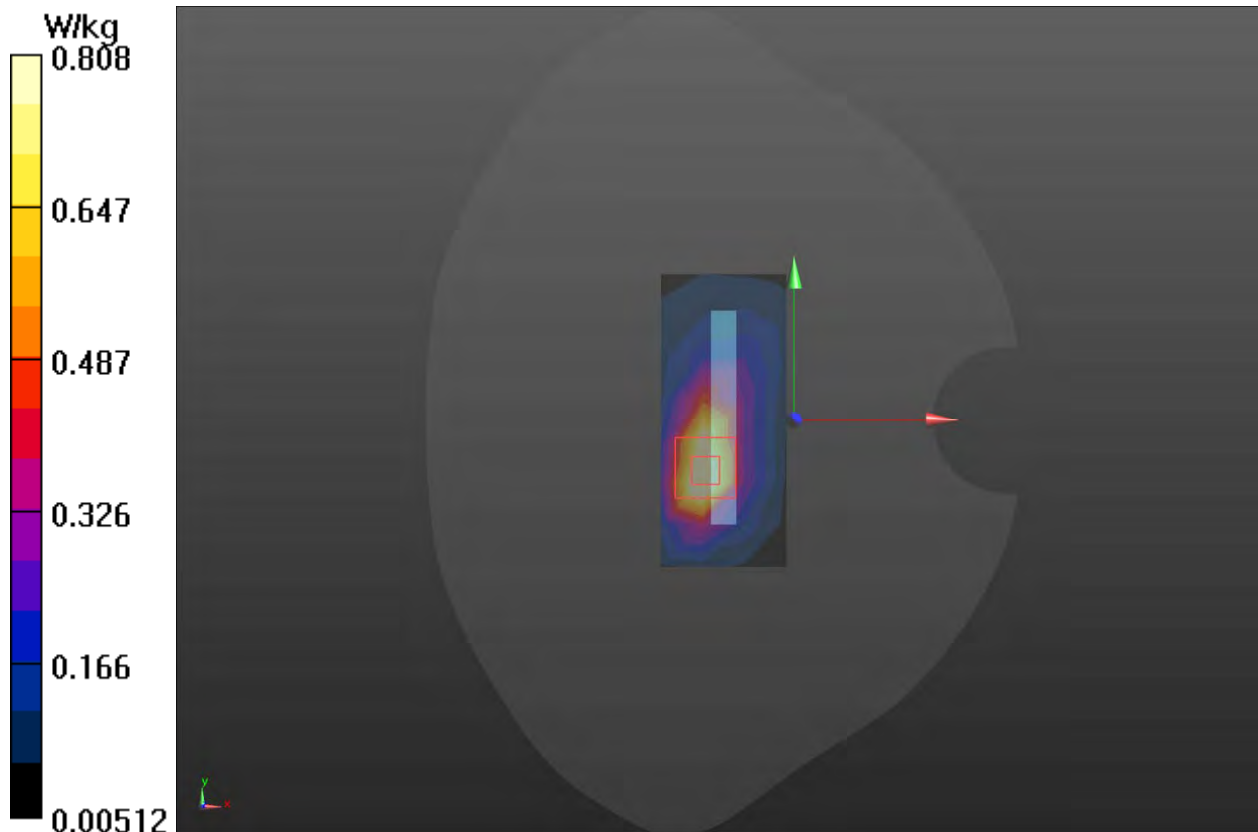
Peak SAR (extrapolated) = 1.900 W/kg

SAR(1 g) = 0.589 W/kg; SAR(10 g) = 0.232 W/kg

Smallest distance from peaks to all points 3 dB below = 9.6 mm

Ratio of SAR at M2 to SAR at M1 = 51.8%

Maximum value of SAR (measured) = 0.808 W/kg



Plot 34 LTE Band 41 1RB Bottom Edge Low (Distance 10mm Battery4)

Date: 2022/10/26

Communication System: UID 0, LTE (0); Frequency: 2549.5 MHz; Duty Cycle: 1:1.58

Medium parameters used (interpolated): $f = 2549.5$ MHz; $\sigma = 1.958$ S/m; $\epsilon_r = 37.264$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Bottom Edge Low/Area Scan (5x10x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.901 W/kg

Bottom Edge Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.81 V/m; Power Drift = 0.10 dB

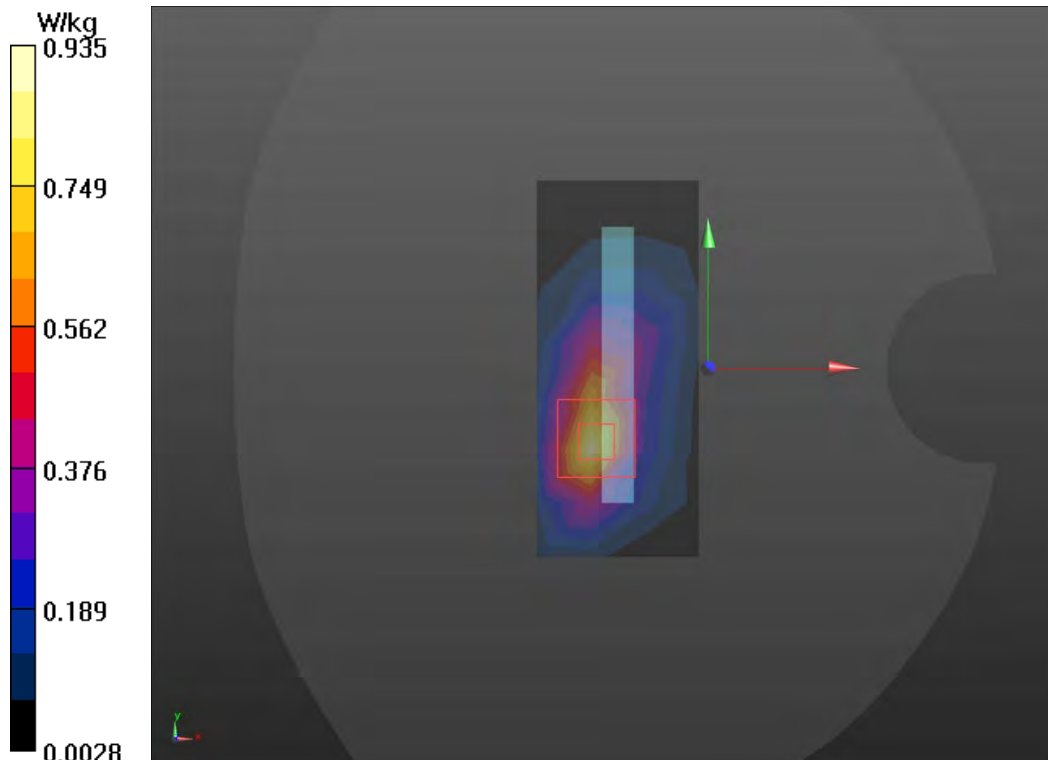
Peak SAR (extrapolated) = 1.77 W/kg

SAR(1 g) = 0.735 W/kg; SAR(10 g) = 0.323 W/kg

Smallest distance from peaks to all points 3 dB below = 12.6 mm

Ratio of SAR at M2 to SAR at M1 = 48.1%

Maximum value of SAR (measured) = 0.935 W/kg



Plot 35 802.11b Back Side High (Distance 10mm)

Date: 2022/10/22

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz; Duty Cycle: 1:1.02

Medium parameters used: $f = 2462$ MHz; $\sigma = 4.86$ S/m; $\epsilon_r = 36.763$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side High/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.452 W/kg

Back Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.000 V/m; Power Drift = 0.055 dB

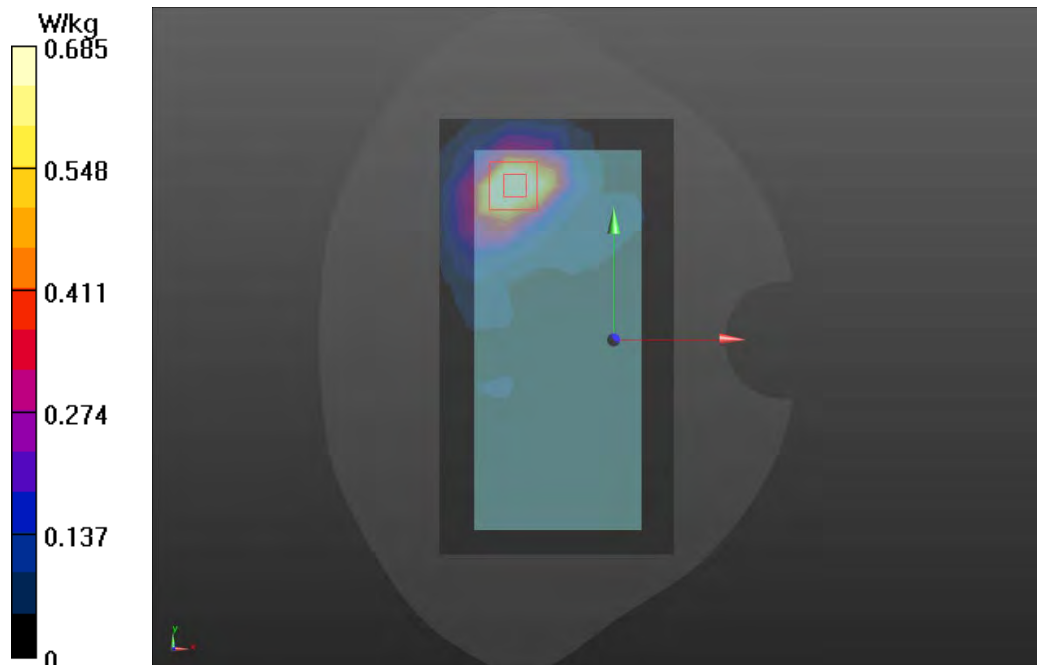
Peak SAR (extrapolated) = 0.710 W/kg

SAR(1 g) = 0.232 W/kg; SAR(10 g) = 0.115 W/kg

Smallest distance from peaks to all points 3 dB below = 10.2 mm

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

Maximum value of SAR (measured) = 0.685 W/kg



Plot 36 802.11a U-NII-1 Top Edge Middle (Distance 10mm)

Date: 2022/10/23

Communication System: UID 0, 802.11a (0); Frequency: 5220 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5220 \text{ MHz}$; $\sigma = 4.86 \text{ S/m}$; $\epsilon_r = 36.763$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.48, 5.48, 5.48); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Top Edge Middle/ Area Scan (12x21x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.602 W/kg

Top Edge Middle/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 4.143 V/m ; Power Drift = -0.04 dB

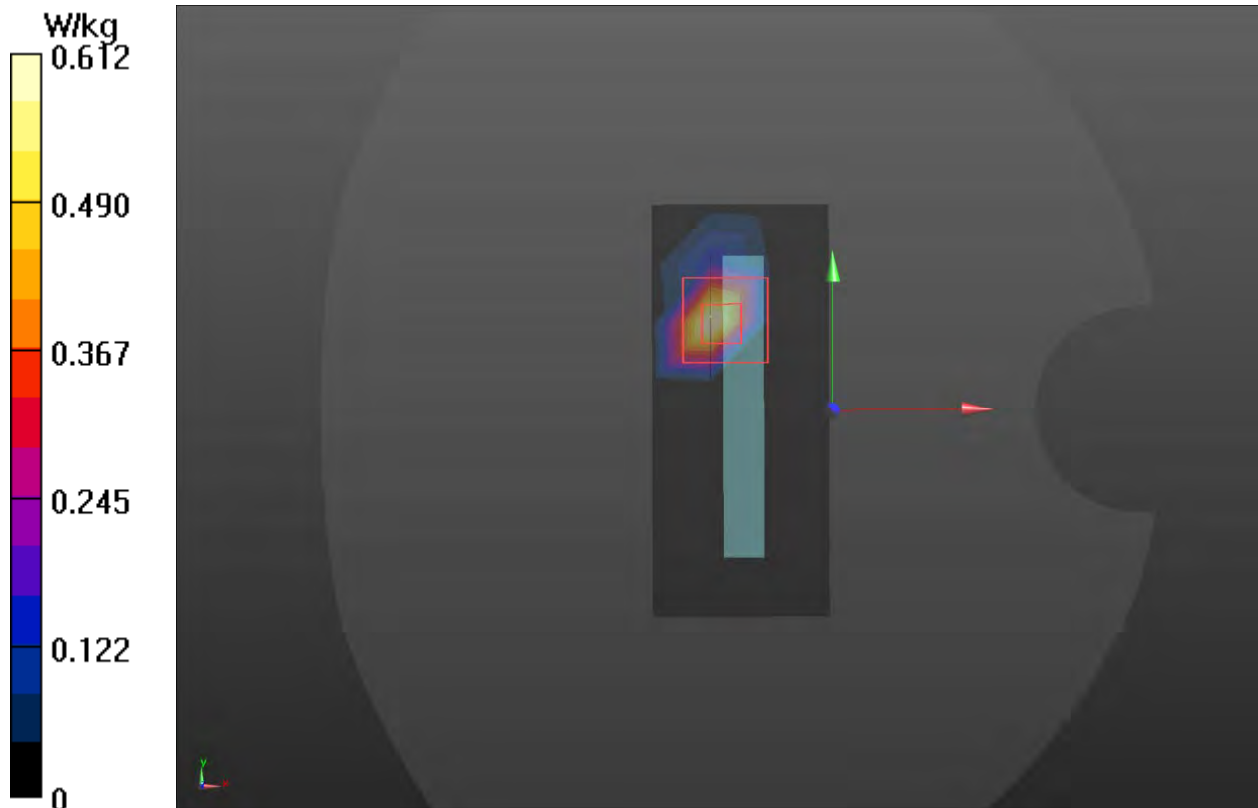
Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.521 W/kg ; SAR(10 g) = 0.208 W/kg

Smallest distance from peaks to all points 3 dB below = 8.8 mm

Ratio of SAR at M2 to SAR at M1 = 43.1%

Maximum value of SAR (measured) = 0.612 W/kg



Plot 37 Bluetooth Back Side Middle (Distance 10mm Battery4)

Date: 2022/10/22

Communication System: UID 0, BT (0); Frequency: 2441 MHz; Duty Cycle: 1:1.32

Medium parameters used: $f = 2441$ MHz; $\sigma = 1.834$ S/m; $\epsilon_r = 37.585$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.080 W/kg

Back Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.064 V/m; Power Drift = 0.036 dB

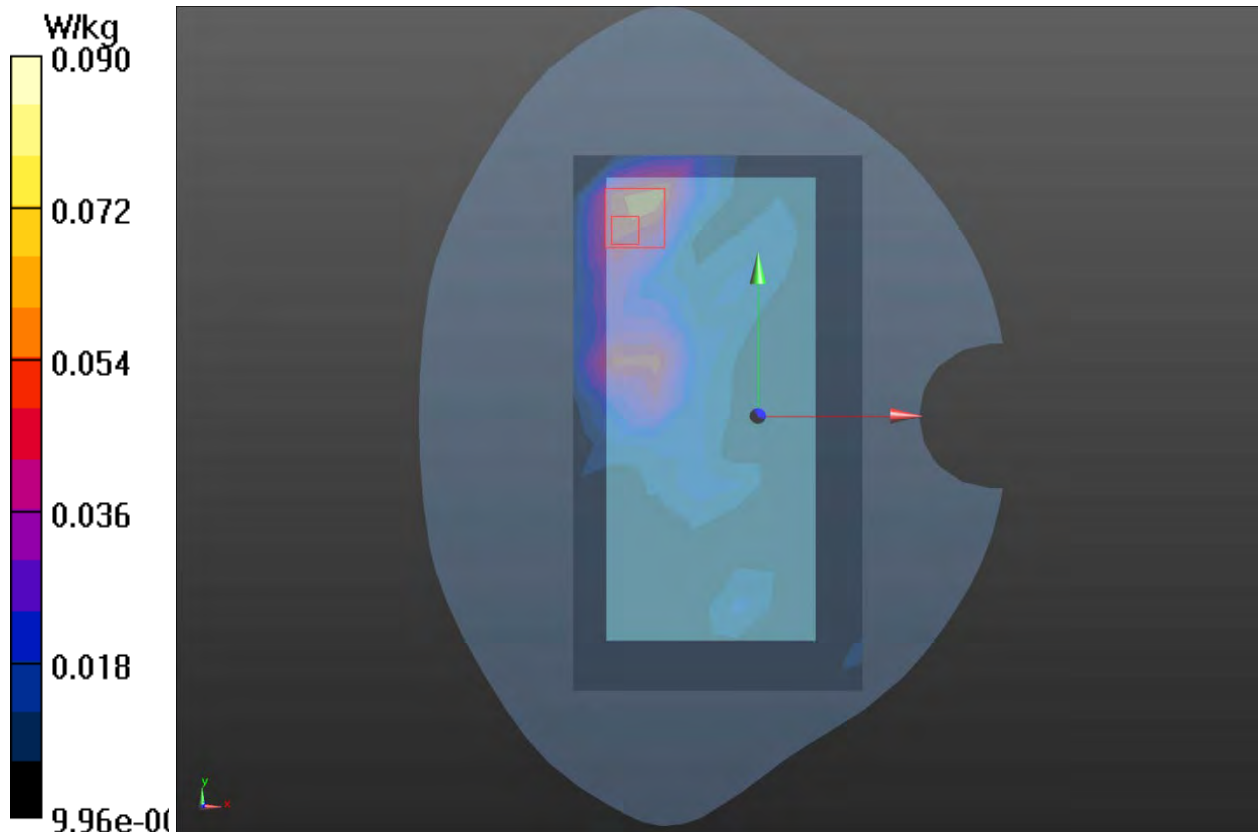
Peak SAR (extrapolated) = 0.184 W/kg

SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.032 W/kg

Smallest distance from peaks to all points 3 dB below = 9.2 mm

Ratio of SAR at M2 to SAR at M1 = 50.3%

Maximum value of SAR (measured) = 0.090 W/kg



Plot 38 LTE Band 7 1RB Back Side Low (Distance 0mm)

Date: 2022/10/27

Communication System: UID 0, LTE (0); Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2510$ MHz; $\sigma = 1.91$ S/m; $\epsilon_r = 37.398$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Low/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 4.82 W/kg

Back Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.592 V/m; Power Drift = 0.051 dB

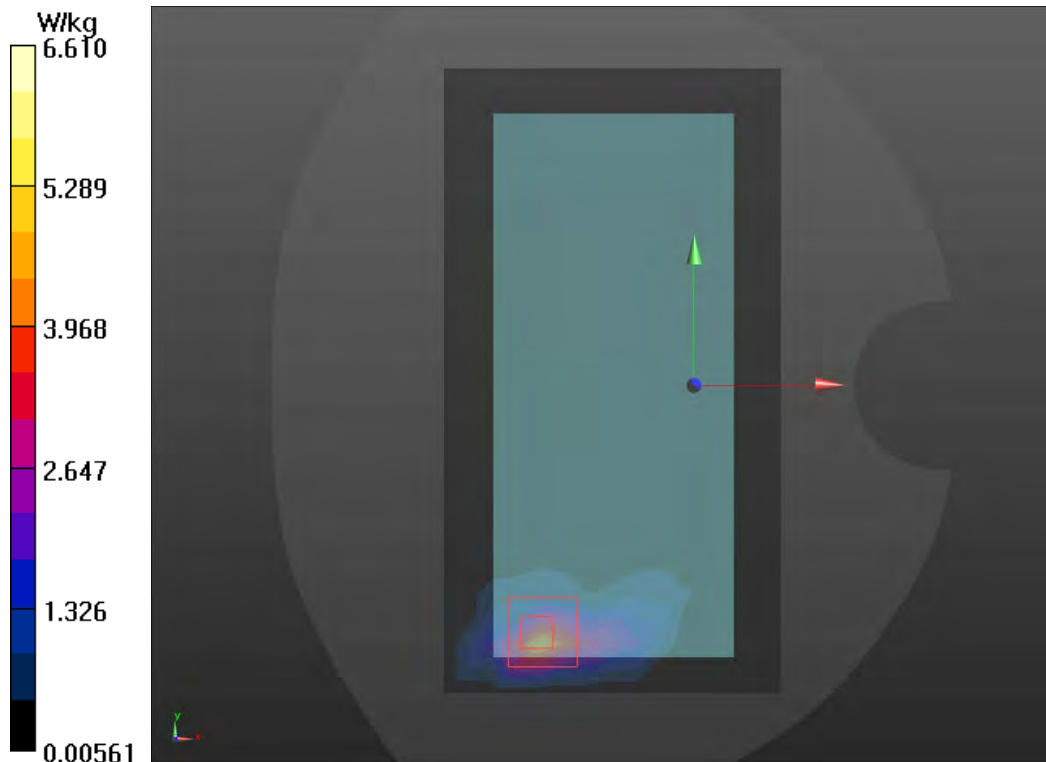
Peak SAR (extrapolated) = 14.9 W/kg

SAR(1 g) = 4.36 W/kg; SAR(10 g) = 1.55 W/kg

Smallest distance from peaks to all points 3 dB below = 13.4 mm

Ratio of SAR at M2 to SAR at M1 = 40.3%

Maximum value of SAR (measured) = 6.61 W/kg



Plot 39 802.11a U-NII-2A Top Edge Low (Distance 0mm Battery3)

Date: 2022/10/31

Communication System: UID 0, 802.11a (0); Frequency: 5300 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5300$ MHz; $\sigma = 4.861$ S/m; $\epsilon_r = 36.478$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.48, 5.48, 5.48); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Top Edge Low/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 6.490 W/kg

Top Edge Low/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.198 V/m; Power Drift = 0.038 dB

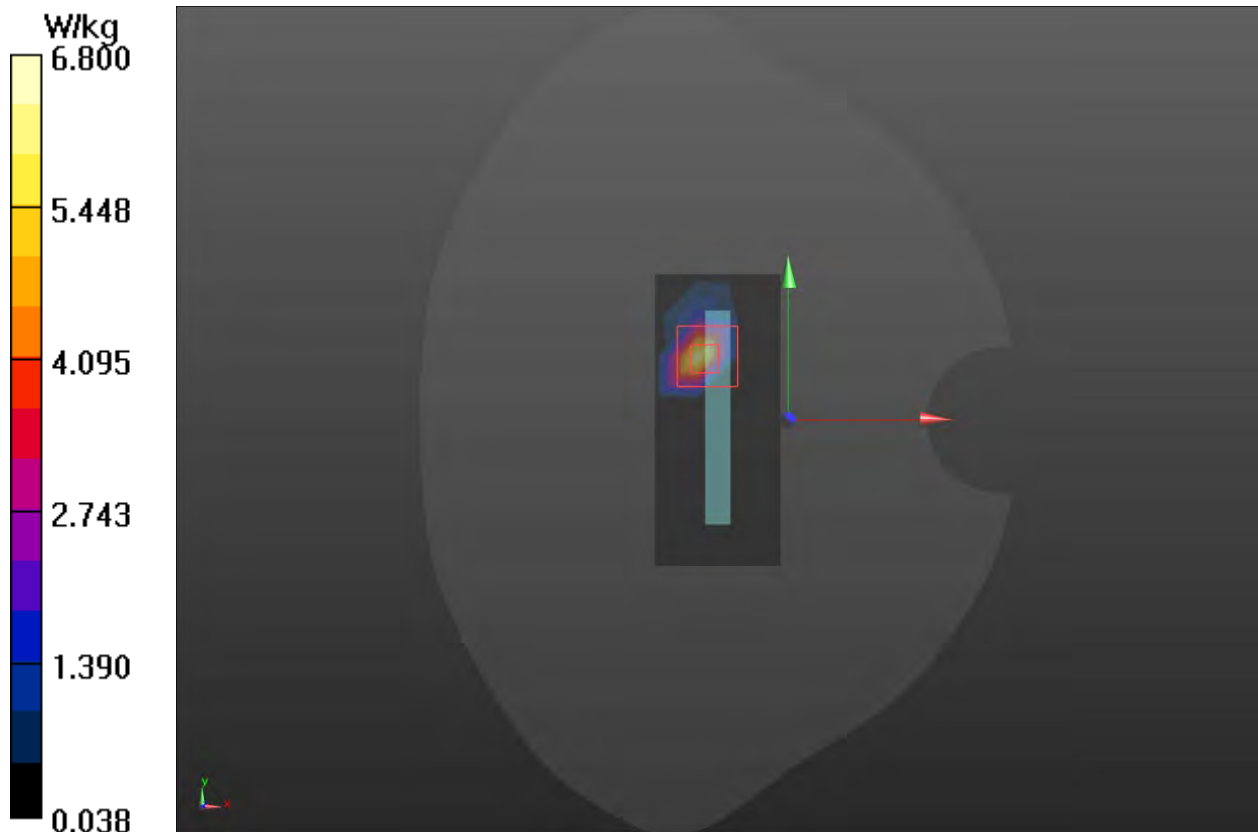
Peak SAR (extrapolated) = 9.290 W/kg

SAR(1 g) = 6.14 W/kg; SAR(10 g) = 1.36 W/kg

Smallest distance from peaks to all points 3 dB below = 15.8 mm

Ratio of SAR at M2 to SAR at M1 = 53.1%

Maximum value of SAR (measured) = 6.8 W/kg





Plot 40 LTE Band 7 1RB Top Edge Low (Distance 16mm)

Date: 2022/10/25

Communication System: UID 0, LTE (0); Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2510$ MHz; $\sigma = 1.91$ S/m; $\epsilon_r = 37.398$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1317; Calibrated: 2022/6/13

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Bottom Edge Low/Area Scan (5x10x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.794 W/kg

Bottom Edge Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.290 V/m; Power Drift = 0.040 dB

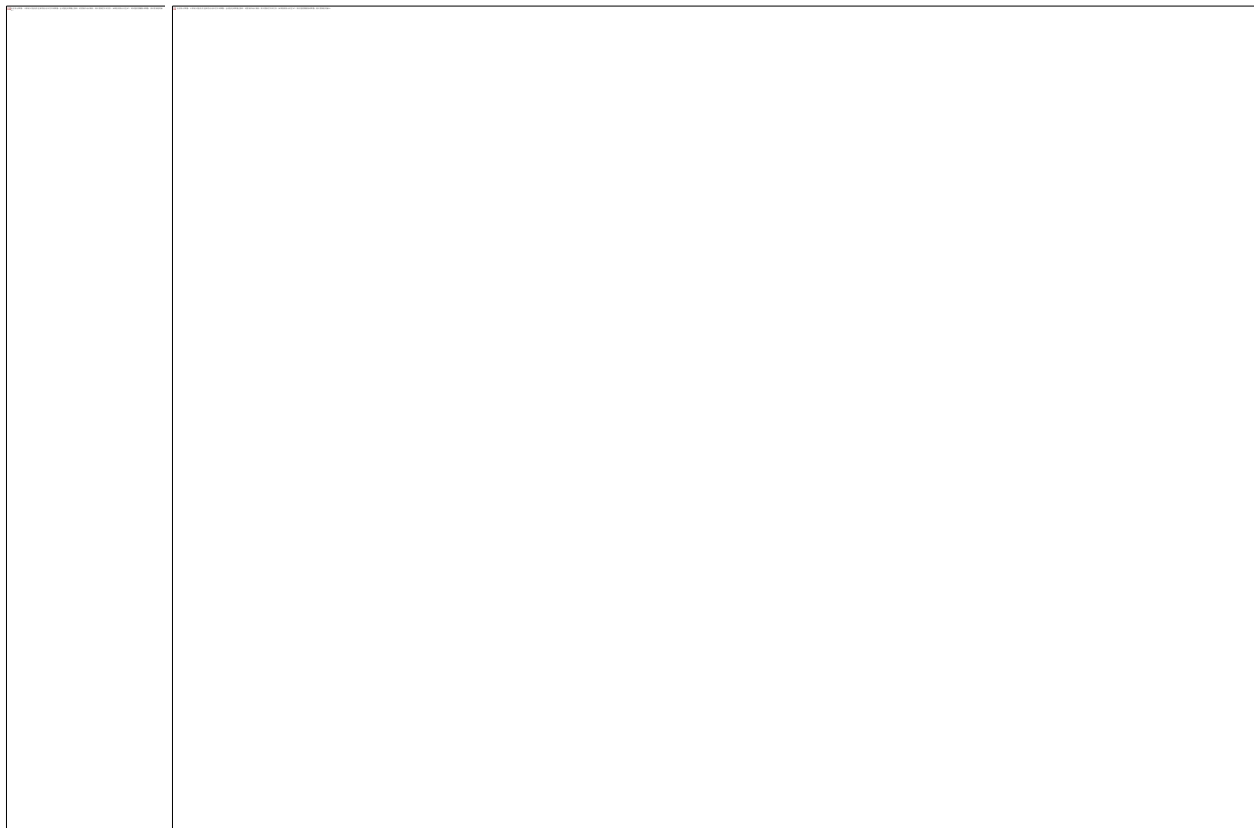
Peak SAR (extrapolated) = 1.400 W/kg

SAR(1 g) = 0.752 W/kg; SAR(10 g) = 0.398 W/kg

Smallest distance from peaks to all points 3 dB below = 14.4 mm

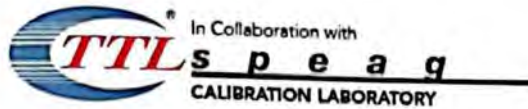
Ratio of SAR at M2 to SAR at M1 = 53.7%

Maximum value of SAR (measured) = 0.833 W/kg





ANNEX D: Probe Calibration Certificate



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com http://www.caict.ac.cn



中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client TA(Shanghai)

Certificate No: Z22-60223

CALIBRATION CERTIFICATE

Object EX3DV4 - SN : 3677

Calibration Procedure(s) FF-Z11-004-02
Calibration Procedures for Dosimetric E-field Probes

Calibration date: July 08, 2022

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(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	14-Jun-22(CTTL, No.J22X04181)	Jun-23
Power sensor NRP-Z91	101547	14-Jun-22(CTTL, No.J22X04181)	Jun-23
Power sensor NRP-Z91	101548	14-Jun-22(CTTL, No.J22X04181)	Jun-23
Reference 10dBAttenuator	18N50W-10dB	20-Jan-21(CTTL, No.J21X00486)	Jan-23
Reference 20dBAttenuator	18N50W-20dB	20-Jan-21(CTTL, No.J21X00485)	Jan-23
Reference Probe EX3DV4	SN 7464	26-Jan-22(SPEAG, No.EX3-7464_Jan22)	Jan-23
DAE4	SN 1555	20-Aug-21(SPEAG, No.DAE4-1555_Aug21/2)	Aug-22
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	14-Jun-22(CTTL, No.J22X04182)	Jun-23
Network Analyzer E5071C	MY46110673	14-Jan-22(CTTL, No.J22X00406)	Jan-23

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

Issued: July 20, 2022

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



In Collaboration with
s p e a g
CALIBRATION LABORATORY



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com http://www.caict.ac.cn

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,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), 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:

- **NORM_{x,y,z}:** Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below ConvF).
- **NORM(f)_{x,y,z} = NORM_{x,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.
- **DCP_{x,y,z}:** DCP are numerical linearization parameters assessed based on the data of power sweep (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.
- **A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}:** A,B,C 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≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f>800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,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 ±50MHz to ±100MHz.
- **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 NORM_x (no uncertainty required).



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com http://www.caict.ac.cn

DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3677

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.42	0.46	0.41	±10.0%
DCP(mV) ^B	100.5	102.7	102.8	

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	0.0	0.0	1.0	0.00	150.8	±2.2%	±4.7%
		Y	0.0	0.0	1.0		161.2		
		Z	0.0	0.0	1.0		150.4		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	1.64	60.07	6.04	10.00	60	±4.8%	±9.6%
		Y	1.81	60.93	6.48		60		
		Z	1.71	60.22	6.24		60		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	1.21	60.00	5.26	6.99	80	±2.9%	±9.6%
		Y	1.14	60.00	5.34		80		
		Z	1.24	60.00	5.39		80		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.78	60.00	4.62	3.98	95	±1.6%	±9.6%
		Y	0.74	60.00	4.64		95		
		Z	0.80	60.00	4.79		95		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.51	60.00	3.94	2.22	120	±1.4%	±9.6%
		Y	0.47	60.00	4.02		120		
		Z	0.51	60.00	4.20		120		
10387-AAA	QPSK Waveform, 1 MHz	X	1.24	63.61	12.00	1.00	150	±3.1%	±9.6%
		Y	1.42	66.07	13.87		150		
		Z	1.27	65.09	12.91		150		
10388-AAA	QPSK Waveform, 10 MHz	X	1.77	65.04	13.47	0.00	150	±1.5%	±9.6%
		Y	1.97	67.16	15.01		150		
		Z	1.81	66.06	14.28		150		
10396-AAA	64-QAM Waveform, 100 kHz	X	2.27	67.24	17.73	3.01	150	±0.9%	±9.6%
		Y	2.50	69.43	19.12		150		
		Z	2.22	67.67	18.11		150		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.59	65.39	15.13	0.00	150	±3.7%	±9.6%
		Y	4.67	65.83	15.53		150		
		Z	4.55	65.64	15.34		150		

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 E²-field uncertainty inside TSL (see Page 5).

^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.



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3677

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	31.29	236.58	35.88	18.80	0.00	4.90	0.00	0.26	1.02
Y	31.84	237.52	35.33	17.20	0.00	4.90	0.23	0.24	1.02
Z	27.77	207.22	35.23	19.61	0.00	4.90	0.18	0.18	1.02

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	117.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com http://www.caict.ac.cn

DASY/EASY – Parameters of Probe: EX3DV4 – SN:3677

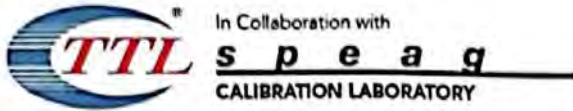
Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	41.9	0.89	9.63	9.63	9.63	0.15	1.35	±12.1%
835	41.5	0.90	9.34	9.34	9.34	0.14	1.46	±12.1%
1750	40.1	1.37	8.25	8.25	8.25	0.26	1.06	±12.1%
1900	40.0	1.40	7.84	7.84	7.84	0.27	1.05	±12.1%
2000	40.0	1.40	7.92	7.92	7.92	0.21	1.27	±12.1%
2300	39.5	1.67	7.76	7.76	7.76	0.65	0.67	±12.1%
2450	39.2	1.80	7.46	7.46	7.46	0.64	0.70	±12.1%
2600	39.0	1.96	7.27	7.27	7.27	0.65	0.68	±12.1%
3300	38.2	2.71	7.02	7.02	7.02	0.45	0.92	±13.3%
3500	37.9	2.91	6.90	6.90	6.90	0.44	0.96	±13.3%
3700	37.7	3.12	6.64	6.64	6.64	0.44	1.01	±13.3%
3900	37.5	3.32	6.58	6.58	6.58	0.40	1.25	±13.3%
4100	37.2	3.53	6.60	6.60	6.60	0.40	1.15	±13.3%
4400	36.9	3.84	6.40	6.40	6.40	0.40	1.25	±13.3%
4600	36.7	4.04	6.31	6.31	6.31	0.45	1.25	±13.3%
4800	36.4	4.25	6.26	6.26	6.26	0.50	1.20	±13.3%
4950	36.3	4.40	6.03	6.03	6.03	0.45	1.30	±13.3%
5250	35.9	4.71	5.48	5.48	5.48	0.50	1.20	±13.3%
5600	35.5	5.07	4.97	4.97	4.97	0.50	1.30	±13.3%
5750	35.4	5.22	5.00	5.00	5.00	0.50	1.32	±13.3%

^C Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

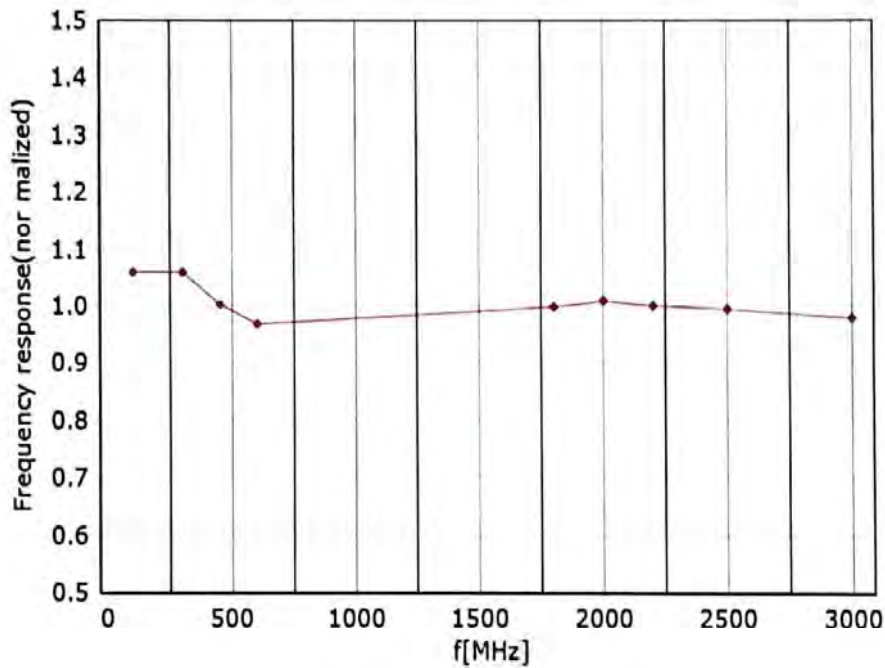
^F At frequency below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



Add: No.52 HunYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

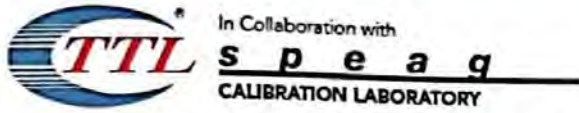
Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



* TEM

* R22

Uncertainty of Frequency Response of E-field: $\pm 7.4\%$ ($k=2$)

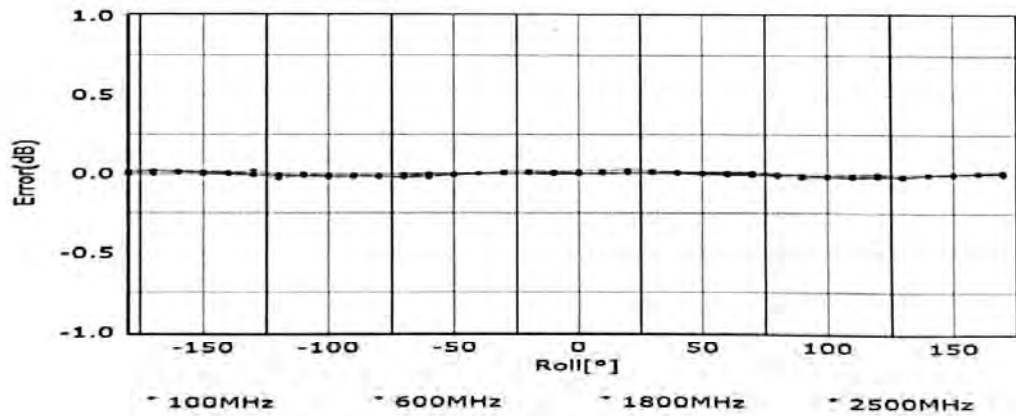
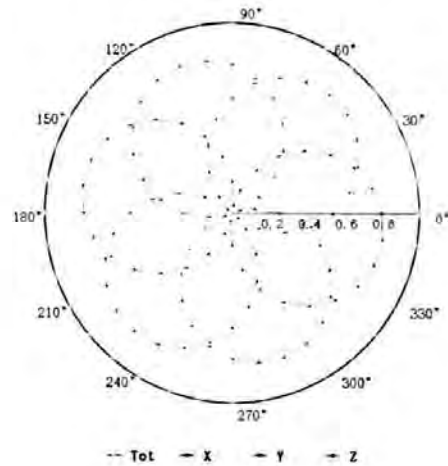
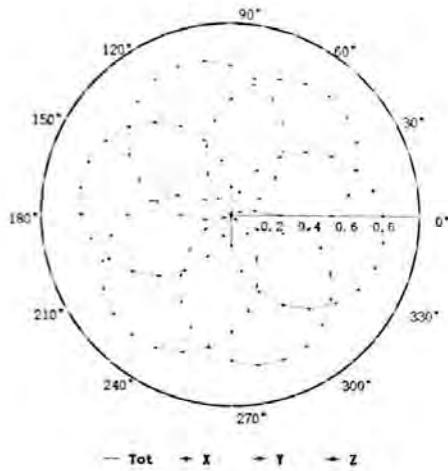


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com http://www.caict.ac.cn

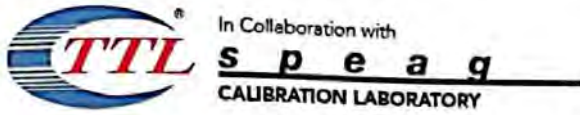
Receiving Pattern (Φ), $\theta=0^\circ$

f=600 MHz, TEM

f=1800 MHz, R22

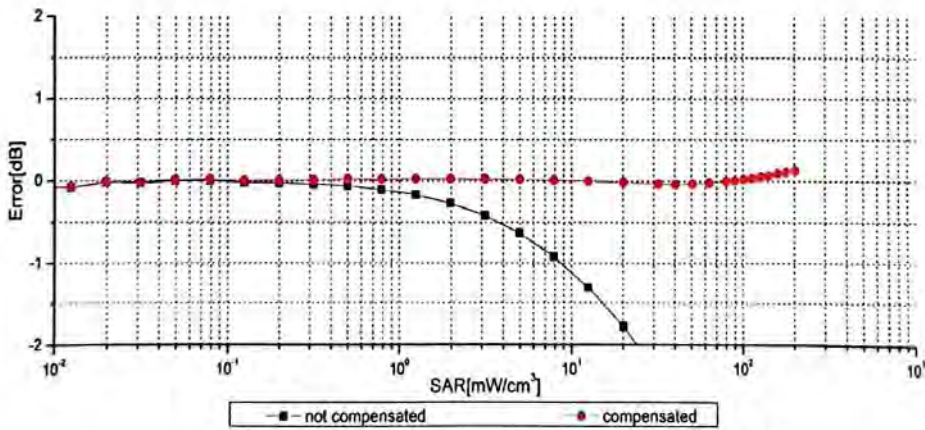
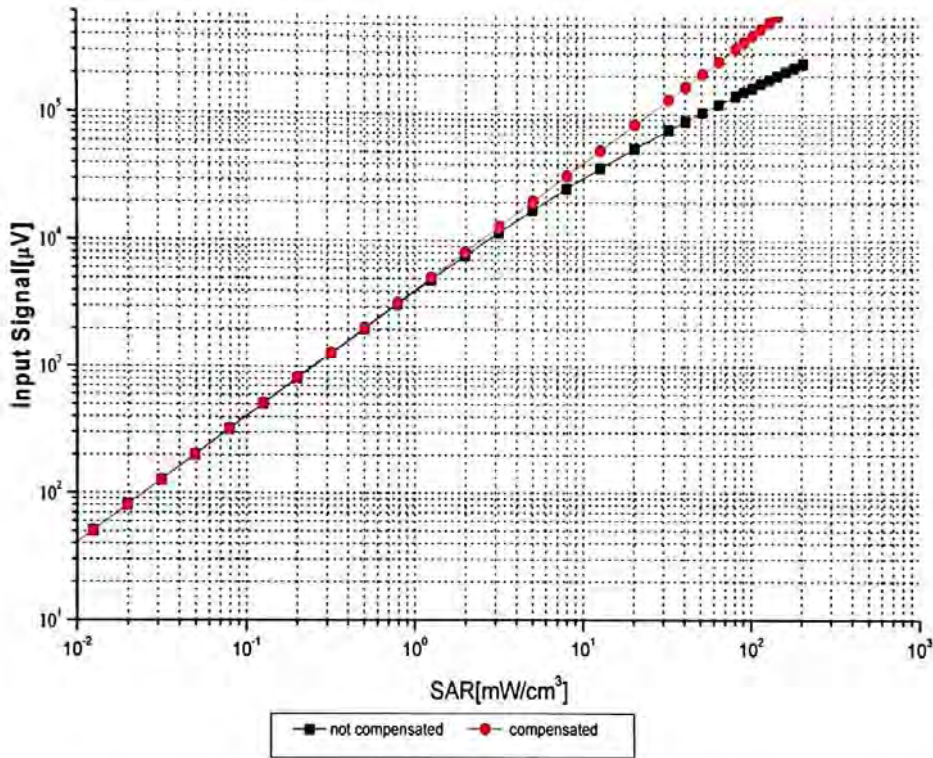


Uncertainty of Axial Isotropy Assessment: $\pm 1.2\%$ ($k=2$)

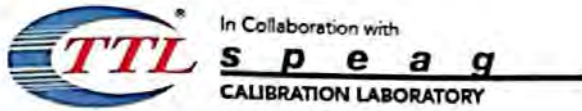


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

Dynamic Range f(SAR_{head}) (TEM cell, f = 900 MHz)



Uncertainty of Linearity Assessment: ±0.9% (k=2)

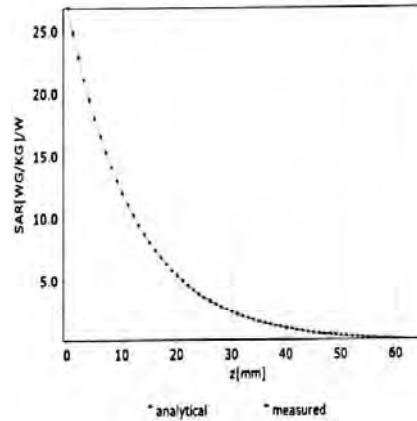
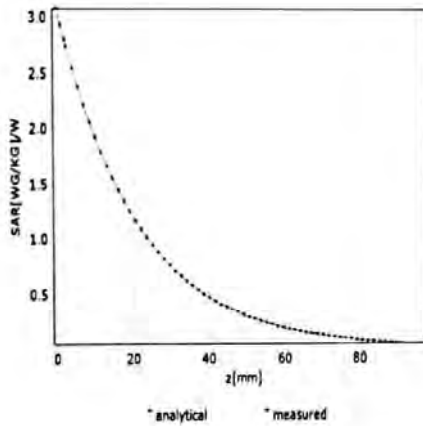


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com http://www.caict.ac.cn

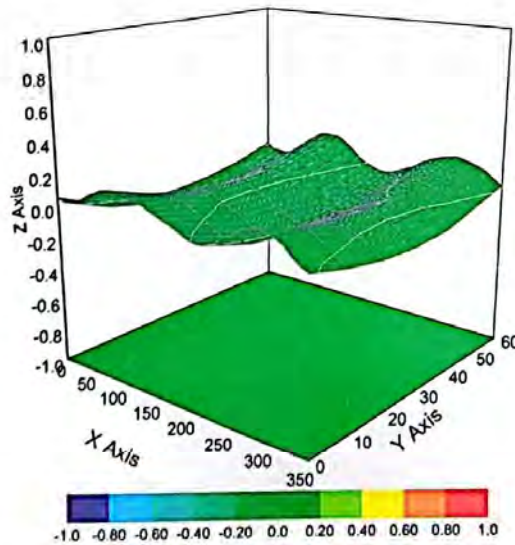
Conversion Factor Assessment

f=750 MHz,WGLS R9(H_convF)

f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 3.2\%$ ($k=2$)



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com http://www.caict.ac.cn

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	UncE (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 %

Certificate No:Z22-60223

Page 10 of 22



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

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%

Certificate No:Z22-60223

Page 11 of 22



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com http://www.caict.ac.cn

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	AAE	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 %

Certificate No:Z22-60223

Page 12 of 22



In Collaboration with
s p e a g
CALIBRATION LABORATORY



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

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 %

Certificate No:Z22-60223

Page 13 of 22

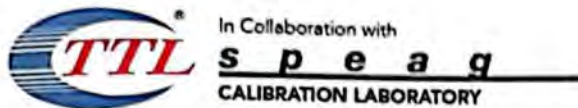


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

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, Clipping 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 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, UL 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 %

Certificate No:Z22-60223

Page 14 of 22



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com <http://www.caict.ac.cn>



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	8.64	± 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	8.30	± 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 %



In Collaboration with
s p e a g
CALIBRATION LABORATORY



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com http://www.caict.ac.cn

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 %

Certificate No:Z22-60223

Page 16 of 22



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cntl@chinattl.com http://www.caict.ac.cn

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 %

Certificate No:Z22-60223

Page 17 of 22



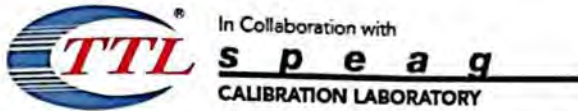
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

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 %



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com http://www.caict.ac.cn

10755	AAC	IEEE 802.11ax (160MHz, MCS0, 99pc dc)	WLAN	8.04	± 0.0 %
10756	AAC	IEEE 802.11ax (160MHz, MCS1, 99pc dc)	WLAN	8.77	± 0.0 %
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99pc dc)	WLAN	8.77	± 0.0 %
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99pc dc)	WLAN	8.09	± 0.0 %
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99pc dc)	WLAN	8.58	± 0.0 %
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99pc dc)	WLAN	8.49	± 0.0 %
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99pc dc)	WLAN	8.58	± 0.0 %
10762	AAC	IEEE 802.11ax (160MHz, MCS7, 99pc dc)	WLAN	8.49	± 0.0 %
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99pc dc)	WLAN	8.53	± 0.0 %
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99pc dc)	WLAN	8.54	± 0.0 %
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99pc dc)	WLAN	8.54	± 0.0 %
10766	AAC	IEEE 802.11ax (160MHz, MCS11, 99pc dc)	WLAN	8.51	± 0.0 %
10767	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	± 0.0 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 0.0 %
10769	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 0.0 %
10770	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 0.0 %
10771	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 0.0 %
10772	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	± 0.0 %
10773	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	± 0.0 %
10774	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 0.0 %
10775	AAC	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 0.0 %
10776	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 0.0 %
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 0.0 %
10778	AAC	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	± 0.0 %
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	± 0.0 %
10780	AAC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 0.0 %
10781	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 0.0 %
10782	AAC	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 0.0 %
10783	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 0.0 %
10784	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	± 0.0 %
10785	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 0.0 %
10786	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 0.0 %
10787	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	± 0.0 %
10788	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 0.0 %
10789	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 0.0 %
10790	AAC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 0.0 %
10791	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 0.0 %
10792	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 0.0 %
10793	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 0.0 %
10794	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 0.0 %
10795	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	± 0.0 %
10796	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 0.0 %
10797	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 0.0 %
10798	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 0.0 %
10799	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 0.0 %
10801	AAC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 0.0 %
10802	AAC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 0.0 %
10803	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 0.0 %
10805	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 0.0 %
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 0.0 %
10809	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 0.0 %
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 0.0 %
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 0.0 %
10817	AAD	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 0.0 %
10818	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 0.0 %
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	± 0.0 %
10820	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	± 0.0 %
10821	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 0.0 %
10822	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 0.0 %

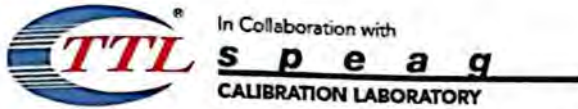


In Collaboration with
s p e a g
CALIBRATION LABORATORY



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

10823	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	± 0.6 %
10824	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	± 0.6 %
10825	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 0.6 %
10827	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	± 0.6 %
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	± 0.6 %
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 0.6 %
10830	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	± 0.6 %
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	± 0.6 %
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	± 0.6 %
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 0.6 %
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	± 0.6 %
10835	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 0.6 %
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	± 0.6 %
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	± 0.6 %
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 0.6 %
10840	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	± 0.6 %
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	± 0.6 %
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	± 0.6 %
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 0.6 %
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 0.6 %
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 0.6 %
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 0.6 %
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 0.6 %
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	± 0.6 %
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 0.6 %
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 0.6 %
10860	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 0.6 %
10861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	± 0.6 %
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 0.6 %
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 0.6 %
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 0.6 %
10866	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 0.6 %
10868	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	± 0.6 %
10869	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 0.6 %
10870	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	± 0.6 %
10871	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	± 0.6 %
10872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 0.6 %
10873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 0.6 %
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 0.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 0.6 %
10876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 0.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 0.6 %
10878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 0.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 0.6 %
10880	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 0.6 %
10881	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 0.6 %
10882	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	± 0.6 %
10883	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	± 0.6 %
10884	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 0.6 %
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 0.6 %
10886	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 0.6 %
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 0.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 0.6 %
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 0.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	± 0.6 %
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 0.6 %
10892	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 0.6 %
10897	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 0.6 %
10898	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 0.6 %

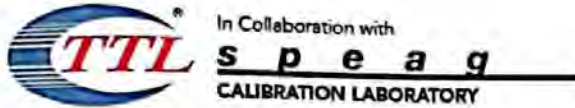


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

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%

Certificate No:Z22-60223

Page 21 of 22



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2117
 E-mail: cttl@chinattl.com http://www.caict.ac.cn

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 %
10978	AAA	ULLA BDR	ULLA	1.16	± 9.6 %
10979	AAA	ULLA HDR4	ULLA	8.58	± 9.6 %
10980	AAA	ULLA HDR8	ULLA	10.32	± 9.6 %
10981	AAA	ULLA HDRp4	ULLA	3.19	± 9.6 %
10982	AAA	ULLA HDRp8	ULLA	3.43	± 9.6 %
10983	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	± 9.6 %
10984	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10985	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	± 9.6 %
10986	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	± 9.6 %
10987	AAA	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	± 9.6 %
10988	AAA	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	± 9.6 %
10989	AAA	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.33	± 9.6 %
10990	AAA	5G NR DL (CP-OFDM, TM 3.1, 90 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.52	± 9.6 %

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



ANNEX E: D835V2 Dipole Calibration Certificate



In Collaboration with
s p e a g
CALIBRATION LABORATORY



中国认可
国际互认
校准
CALIBRATION
CNAS L0570

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

Client TA(Shanghai)

Certificate No: Z20-60296

CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d020

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

Calibration date: August 28, 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(Callibrated 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
Reference Probe 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(Callibrated 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 3, 2020

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: Z20-60296

Page 1 of 8



In Collaboration with
s p e a g
CALIBRATION LABORATORY

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

Glossary:

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

Calibration is Performed According to the Following Standards:

- 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
- 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
- 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
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- 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%.