FCC SAR Test Report

APPLICANT	:	Republic Wireless Inc.
EQUIPMENT	:	Relay+
BRAND NAME	:	Relay by Republic Wireless
MODEL NAME	:	RW2266
FCC ID	:	2AMBHRW2266
STANDARD	:	FCC 47 CFR PART 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

The product was received on May 08, 2019 and testing was started from Oct. 25, 2019 and completed on Feb. 26, 2020. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Rose Wang

Reviewed by: Rose Wang / Supervisor

Kat Yin

Approved by: Kat Yin / Manager

ACCREDITED
Cert #5145.02

Sporton International (Kunshan) Inc.
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People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA950807	Rev. 01	Initial issue of report	Mar. 06, 2020

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Republic Wireless Inc., Relay+, RW2266**, are as follows.

Highest Standalone SAR Summary						
Equipment Class	Frequency Band		Head (Separation 5mm) 1g SAR (W/kg)	Hotspot (Separation 5mm) 1g SAR (W/kg)	Body-worn (Separation 5mm) 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA	Band V	0.99	**1.19**	**1.19**	1.59
		Band IV	1.10	1.10	1.10	
		Band II	1.01	1.17	1.01	
	LTE	Band 12	0.57	0.77	0.77	
		Band 13	0.59	0.95	0.95	
		Band 26/5	0.88	1.16	1.16	
		Band 25/2	0.90	**1.19**	0.90	
		Band 66/4	**1.16**	1.16	1.16	
		Band 7	0.75	1.18	0.75	
		Band 41	0.96	1.17	0.96	
DTS	WLAN	2.4GHz WLAN	0.27	0.46	0.27	1.43
NII		5GHz WLAN	0.43	0.38	0.43	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.11	0.15	0.11	1.27
DTS	LoRa	902MHz~928MHz			0.38	
Date of Testing:		2019/10/25 ~ 2020/2/26				
Remark: This device supports LTE B4 / B5 / B2 and LTE B66 / B26 / B25. Since the supported frequency span for LTE B4 / B5 / B2 falls completely within the supports frequency span for LTE B66 / B26 / B25, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66 / B26 / B25.						

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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

2. Administration Data

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory		
Test Firm	Sporton International (Kunshan) Inc.	
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958	
Test Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CN1257	314309

Applicant	
Company Name	Republic Wireless Inc.
Address	940 Main Campus Drive, Ste 300, Raleigh, NC 27606, USA

Manufacturer	
Company Name	Republic Wireless Inc.
Address	940 Main Campus Drive, Ste 300, Raleigh, NC 27606, USA

3. Guidance Applied

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Relay+
Brand Name	Relay by Republic Wireless
Model Name	RW2266
FCC ID	2AMBHRW2266
Wireless Technology and Frequency Range	WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz LoRa: 902MHz~928MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM WLAN 2.4GHz : 802.11b/g/n HT20/HT40 WLAN 5GHz : 802.11a/n HT20/HT40 Bluetooth BR/EDR/LE/HS NFC:ASK LoRa: FSK
HW Version	B2
SW Version	1.15.0.28-DF
EUT Stage	Identical Prototype

Remark:

1. WLAN operation in 5600 MHz ~ 5650 MHz is notched.
2. This device has PTT (Push-To-Talk) function, so in-front-of the face SAR (head SAR) has been evaluated with 5mm distance using head liquid under the flat phantom.
3. The device employs proximity sensors and when the sensor detects a user is touching the device on or near to the antenna the device reduces the maximum allowed output power. When detected the presence of the user's body at the front, back faces or left side of the device, WCDMA band IV/II and LTE band 2/4/5/7/25/26/41/66 reduced power will be active. So for hotspot/body-worn SAR, sensor on reduced power will be active at front/back/left side faces for above WWAN bands, other WWAN bands are all full power mode.

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	2AMBHRW2266
Equipment Name	Relay+
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
Uplink Modulations used	QPSK / 16QAM
LTE Voice / Data requirements	Data only
LTE Release Version	R9, Cat 4
LTE MPR permanently built-in by design	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 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
256 QAM	≥ 1						≤ 5

LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
Power reduction applied to satisfy SAR compliance	1. Yes, Proximity Sensor. 2. Power reduction will be active at LTE band 2/4/5/7/25/26/41/66.

Transmission (H, M, L) channel numbers and frequencies in each LTE band

LTE Band 2

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900

LTE Band 4

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 5

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844

LTE Band 7

	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560

LTE Band 12

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711

LTE Band 13

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		

LTE Band 25

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

LTE Band 26

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

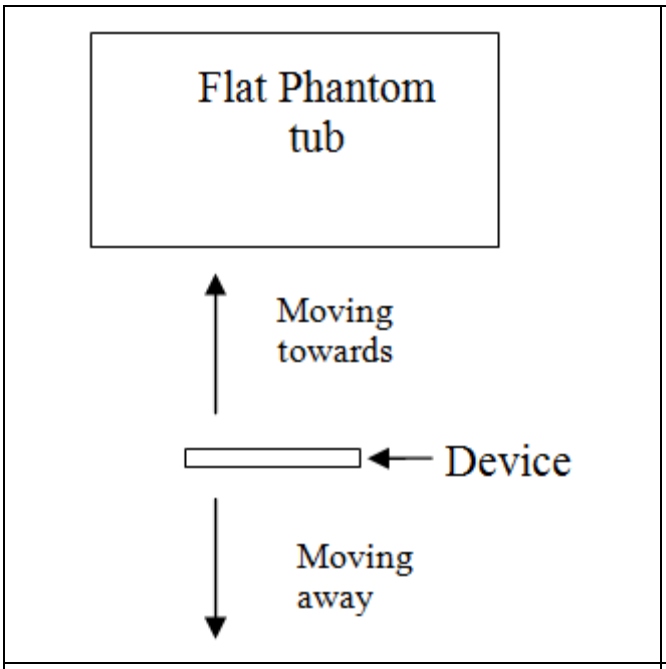
LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593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

LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

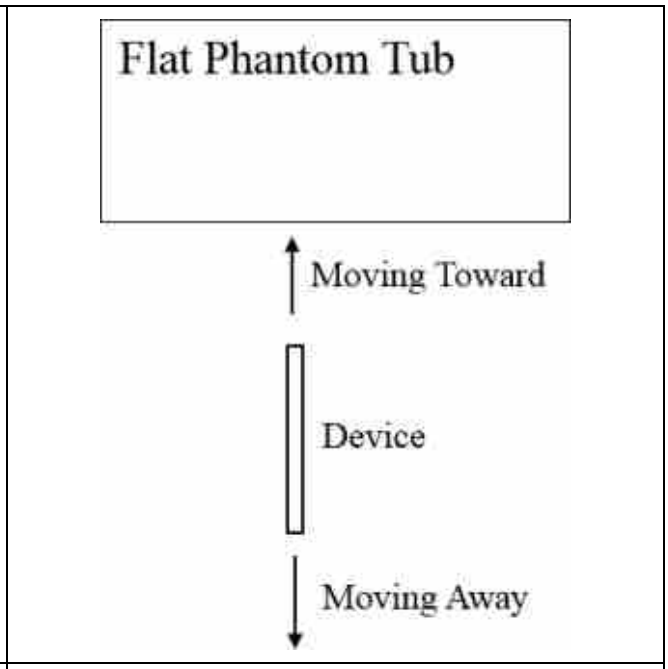
5. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (2600MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensor placed coincident with antenna elements are utilized to determine when the device comes in proximity of the user's body at the front, back or left surface of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
3. When the sensor is active, WCDMA band II /IV and LTE band 2/4/5/7/25/26/41/66 reduced power will be active.
4. The sensors used to detect the proximity of the user's body at the front, back or left surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
5. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   - Front: 16 mm
   - Back: 13 mm
   - Left: 16 mm



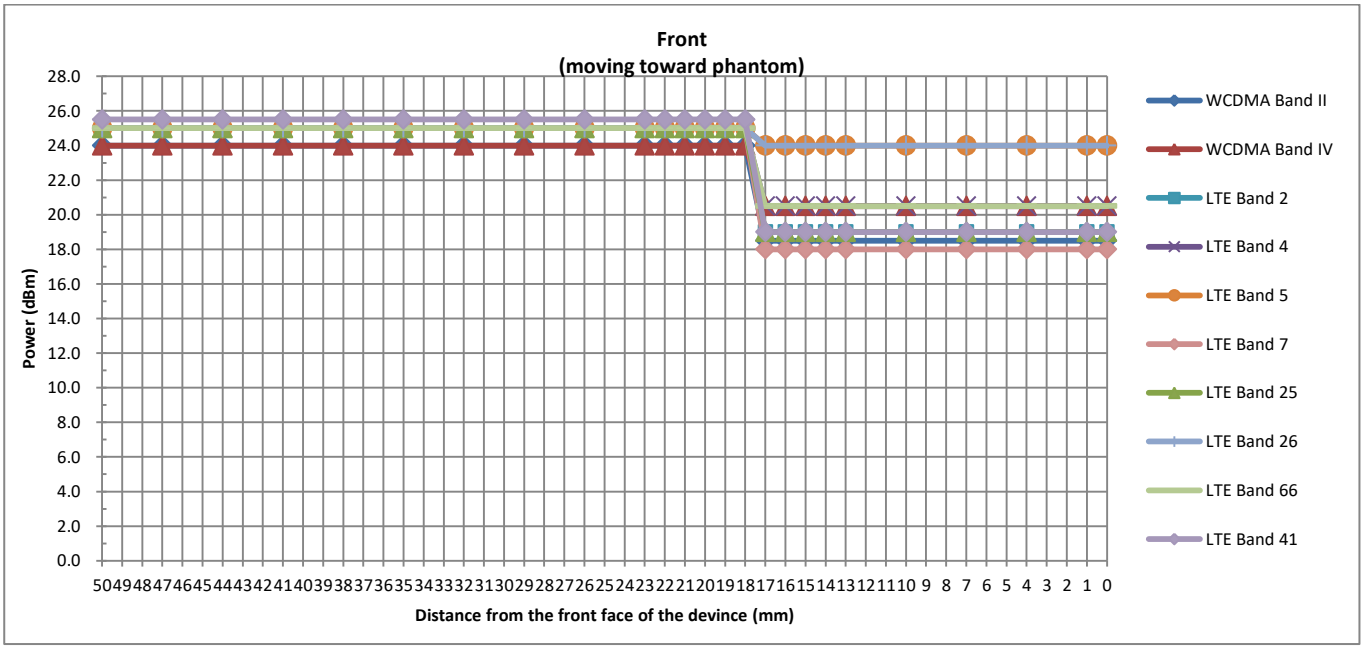
Sensor detection test set-up, front and back faces

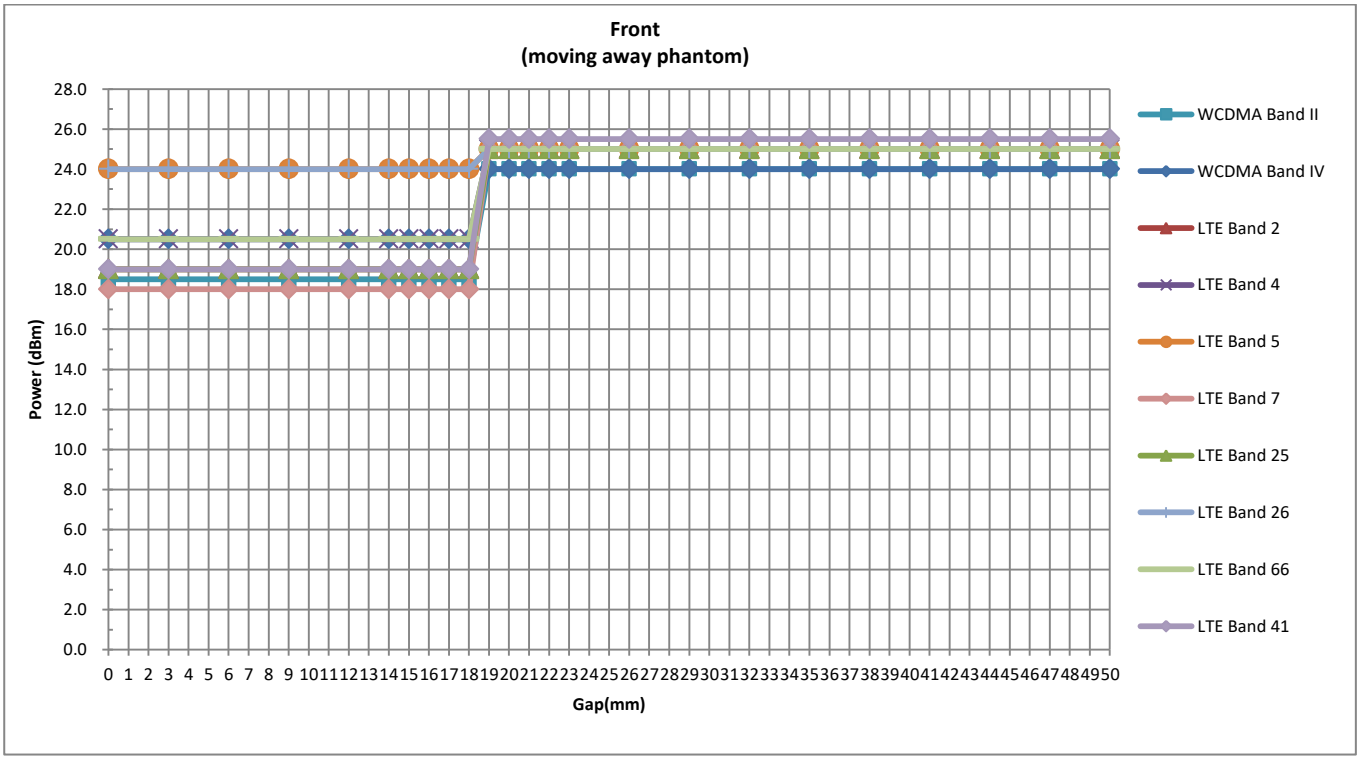


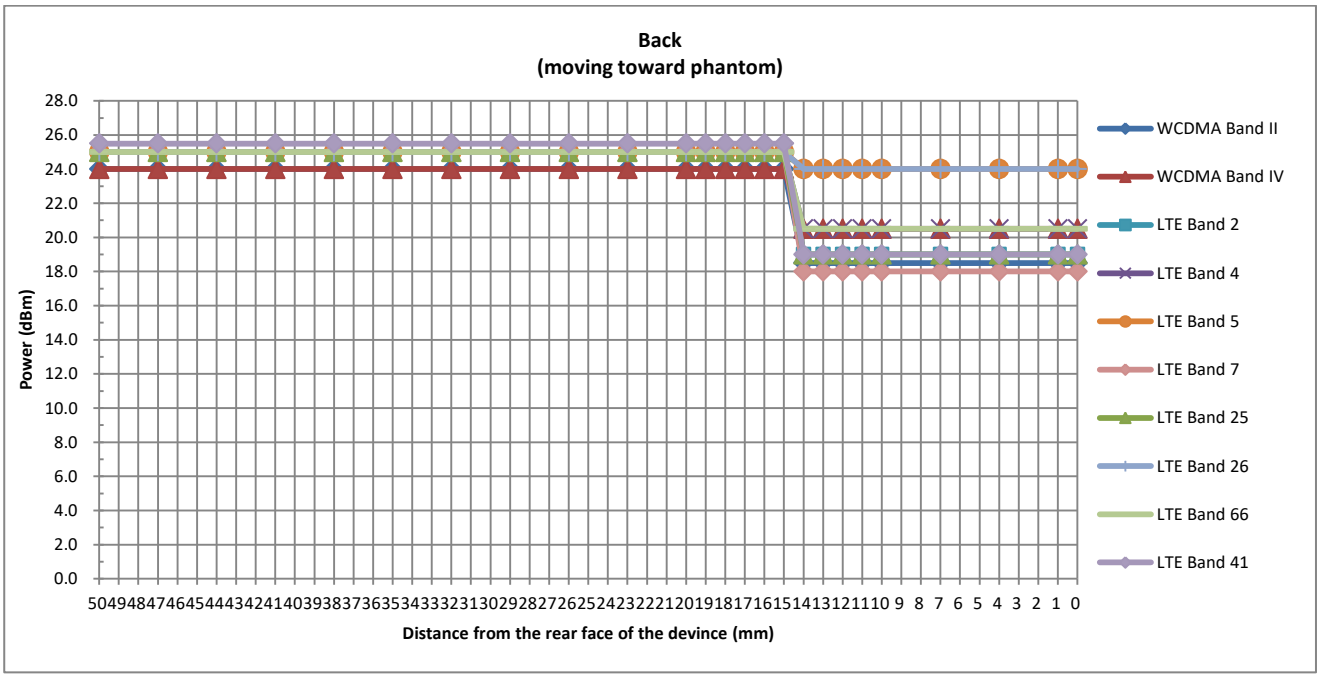
Sensor detection test set-up, left side

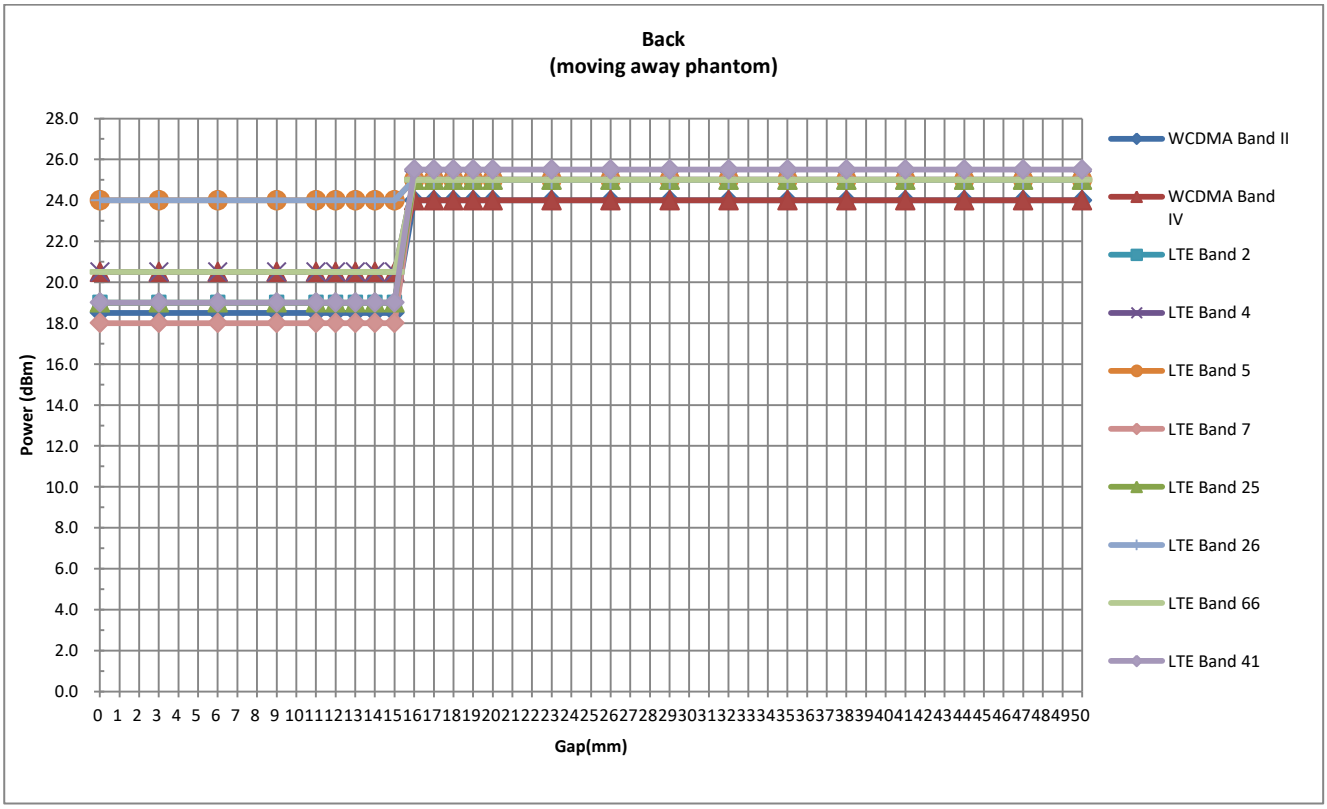
Position	Front		Back		Left Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	17	18	14	15	17	18

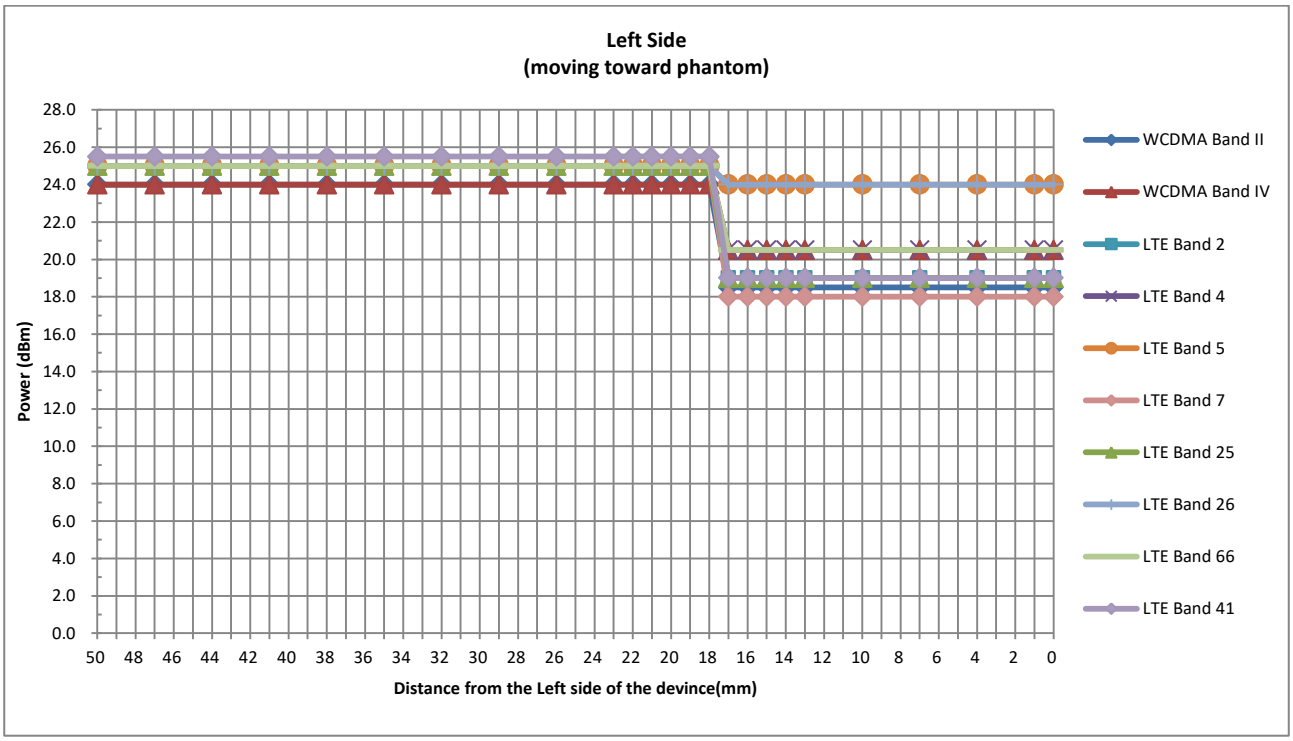
<Sensor Trigger Distance and Measured Power>

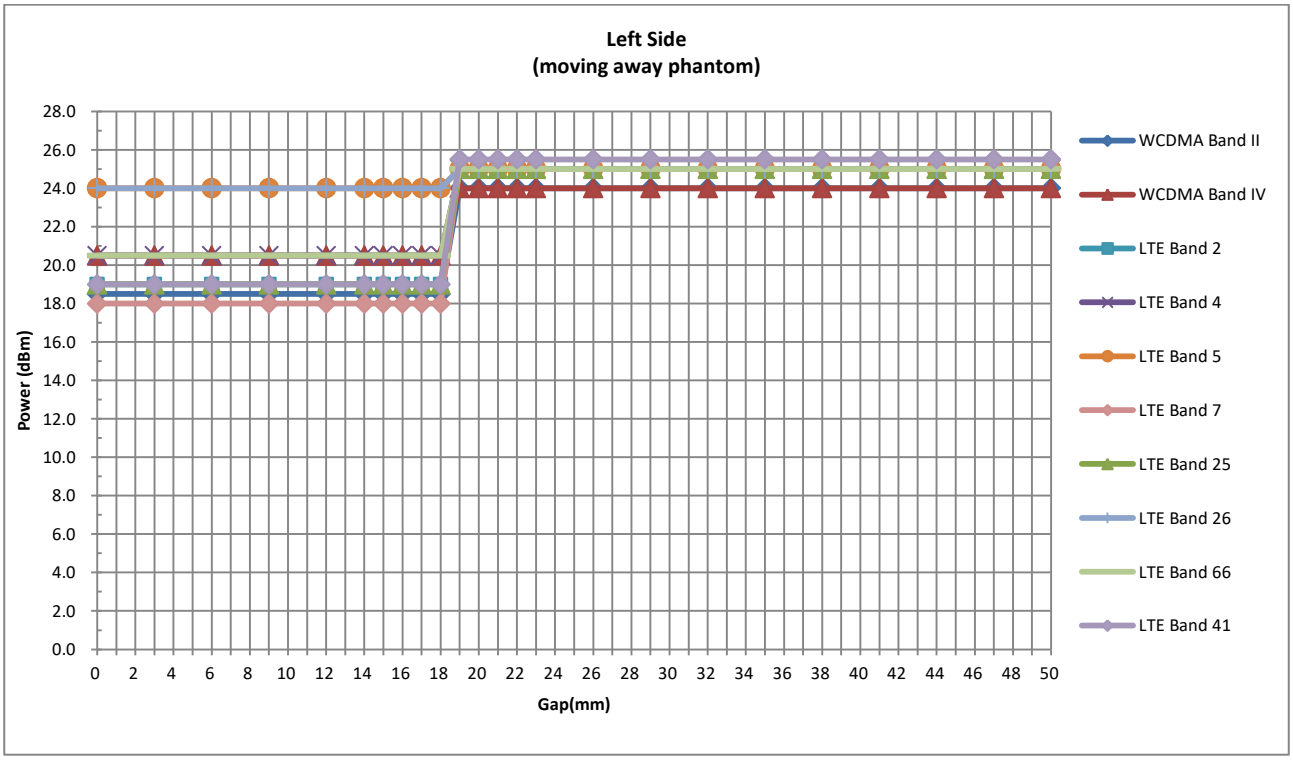





Back
(moving toward phantom)
Power (dBm)
Distance from the rear face of the devince (mm)
WCDMA Band II
WCDMA Band IV
LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 25
LTE Band 26
LTE Band 66
LTE Band 41


Back
(moving away phantom)
Power (dBm)
Gap(mm)
WCDMA Band II
WCDMA Band IV
LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 25
LTE Band 26
LTE Band 66
LTE Band 41


Left Side
(moving toward phantom)
Power (dBm)
28.0
26.0
24.0
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0
Distance from the Left side of the devince(mm)
WCDMA Band II
WCDMA Band IV
LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 25
LTE Band 26
LTE Band 66
LTE Band 41


Left Side
(moving away phantom)
Power (dBm)
28.0
26.0
24.0
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
Gap(mm)
WCDMA Band II
WCDMA Band IV
LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 25
LTE Band 26
LTE Band 66
LTE Band 41

6. RF Exposure Limits

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

7. Specific Absorption Rate (SAR)

7.1 Introduction

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

7.2 SAR Definition

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

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

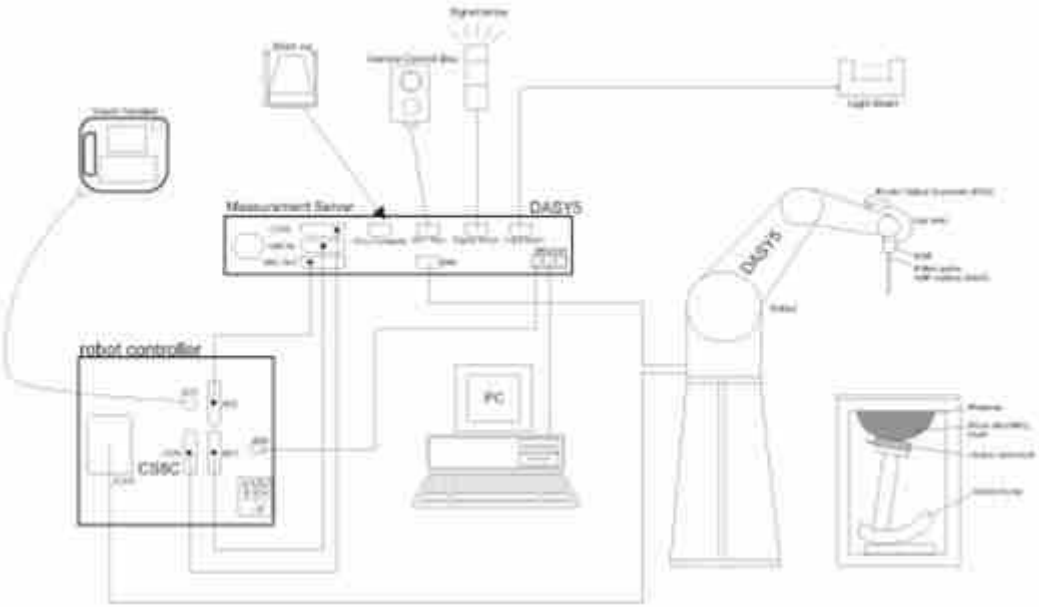
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. System Description and Setup

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



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

8.1 E-Field Probe

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

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)
Directivity	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)
Dynamic Range	5 µW/g – >100 mW/g; Linearity: ±0.2 dB
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm

<EX3DV4 Probe>

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

8.2 Data Acquisition Electronics (DAE)

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

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

Photo of DAE

8.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

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

8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

9.1 Spatial Peak SAR Evaluation

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

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

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

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

9.2 Power Reference Measurement

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

9.3 Area Scan

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

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

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

9.4 Zoom Scan

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

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

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

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

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

9.5 Volume Scan Procedures

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

9.6 Power Drift Monitoring

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

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2019/3/27	2020/3/26
SPEAG	835MHz System Validation Kit	D835V2	4d151	2019/3/27	2020/3/26
SPEAG	900MHz System Validation Kit	D900V2	1d137	2019/3/28	2020/3/27
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2019/3/27	2020/3/26
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2019/3/26	2020/3/25
SPEAG	2450MHz System Validation Kit	D2450V2	908	2019/3/25	2020/3/24
SPEAG	2600MHz System Validation Kit	D2600V2	1078	2019/3/6	2020/3/5
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2020/9/23
SPEAG	Data Acquisition Electronics	DAE4	1338	2019/11/20	2020/11/19
SPEAG	Data Acquisition Electronics	DAE4	690	2019/1/23	2020/1/22
SPEAG	Dosimetric E-Field Probe	ES3DV3	3293	2019/11/25	2020/11/24
SPEAG	Dosimetric E-Field Probe	EX3DV4	3843	2019/9/26	2020/9/25
SPEAG	Dosimetric E-Field Probe	EX3DV4	3935	2018/11/26	2019/11/26
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1503	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1754	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1697	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2019/4/17	2020/4/16
Agilent	Wireless Communication Test Set	E5515C	MY52102706	2019/4/17	2020/4/16
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	2019/4/17	2020/4/16
SPEAG	Dielectric Probe Kit	DAK-3.5	1071	2019/10/28	2020/10/27
Anritsu	Vector Signal Generator	MG3710A	6201682672	2020/1/8	2021/1/7
R&S	Power Meter	NRVD	102081	2019/8/15	2020/8/14
R&S	Power Sensor	NRV-Z5	100538	2019/8/14	2020/8/13
R&S	Power Sensor	NRV-Z5	100539	2019/8/14	2020/8/13
R&S	CBT BLUETOOTH TESTER	CBT	101641	2020/1/8	2021/1/7
EXA	Spectrum Analyzer	FSV7	101631	2020/1/8	2021/1/7
Testo	Hygrometer	608-H1	1241332126	2020/1/8	2021/1/7
FLUKE	DIGITAC THERMOMETER	51II	97240029	2019/8/15	2020/8/14
ARRA	Power Divider	A3200-2	N/A	Note	
MCL	Attenuation1	BW-S10W5+	N/A	Note	
MCL	Attenuation2	BW-S10W5+	N/A	Note	
MCL	Attenuation3	BW-S10W5+	N/A	Note	
Agilent	Dual Directional Coupler	778D	20500	Note	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note	
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note	

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

11. System Verification

11.1 Tissue Simulating Liquids

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

Fig 10.1Photo of Liquid Height for Head SAR

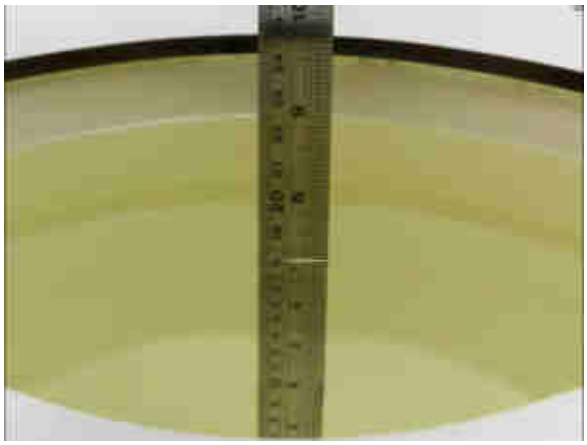


Fig 10.2 Photo of Liquid Height for Body SAR

11.2 Tissue Verification

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

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

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.8	0.895	41.700	0.89	41.90	0.56	-0.48	±5	2019/10/31
835	Head	22.7	0.929	42.225	0.90	41.50	3.22	1.75	±5	2019/10/27
900	Head	22.8	0.980	40.708	0.97	41.50	1.03	-1.91	±5	2020/2/26
1750	Head	22.6	1.382	39.703	1.37	40.10	0.88	-0.99	±5	2019/10/25
1900	Head	22.9	1.414	39.443	1.40	40.00	1.00	-1.39	±5	2019/11/3
2450	Head	22.7	1.757	40.039	1.80	39.20	-2.39	2.14	±5	2019/11/6
2600	Head	22.8	2.022	37.786	1.96	39.00	3.16	-3.11	±5	2019/11/8
5250	Head	22.7	4.595	36.402	4.71	35.90	-2.44	1.40	±5	2019/11/10
5600	Head	22.6	4.985	35.825	5.07	35.50	-1.68	0.92	±5	2019/11/9
5750	Head	22.7	5.161	35.569	5.22	35.40	-1.13	0.48	±5	2019/11/13

11.3 System Performance Check Results

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

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2019/10/31	750	Head	250	1087	3935	690	2.10	8.36	8.40	0.48
2019/10/27	835	Head	250	4d151	3935	690	2.48	9.30	9.92	6.67
2020/2/26	900	Head	250	1d137	3293	1338	2.74	10.80	10.96	1.48
2019/10/25	1750	Head	250	1090	3935	690	9.13	36.40	36.52	0.33
2019/11/3	1900	Head	250	5d170	3935	690	9.36	39.00	37.44	-4.00
2019/11/6	2450	Head	250	908	3935	690	12.30	52.80	49.20	-6.82
2019/11/8	2600	Head	250	1078	3935	690	14.00	57.60	56.00	-2.78
2019/11/10	5250	Head	100	1113	3843	690	7.49	80.50	74.90	-6.96
2019/11/9	5600	Head	100	1113	3843	690	8.32	83.40	83.20	-0.24
2019/11/13	5750	Head	100	1113	3843	690	7.88	80.00	78.80	-1.50

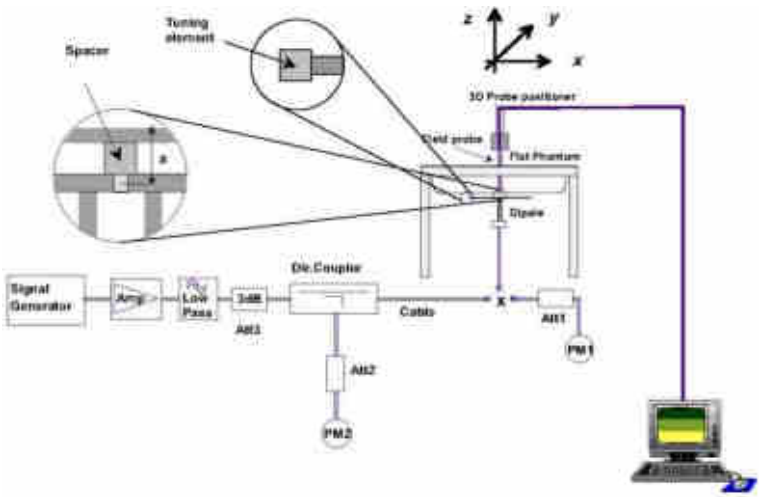


Fig 10.3.1 System Performance Check Setup

Fig 10.3.2 Setup Photo

12. RF Exposure Positions

12.1 Wireless Router

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

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

<EUT Setup Photos>

Please refer to Appendix D for the test setup photos.

13. Conducted RF Output Power (Unit: dBm)

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

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

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

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

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

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

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

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

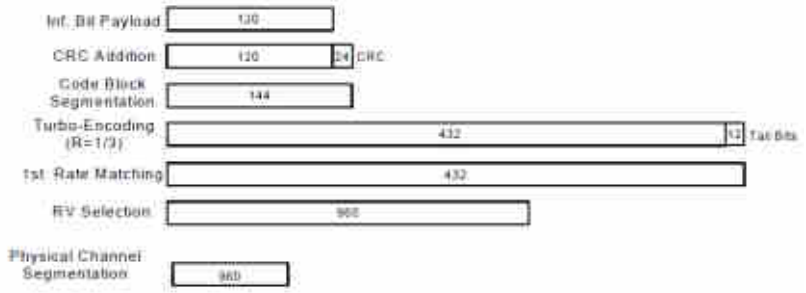


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

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

<Maximum Average RF Power (Proximity Sensor Inactive)>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	RMC 12.2Kbps	23.63	**23.70**	23.68	24.00	**23.79**	23.57	23.70	24.00	**23.92**	23.90	23.89	24.00
3GPP Rel 6	HSDPA Subtest-1	22.48	22.59	22.64	23.00	22.34	22.30	22.43	23.00	22.48	22.41	22.54	23.00
3GPP Rel 6	HSDPA Subtest-2	22.60	22.66	22.56	23.00	22.67	22.70	22.56	23.00	22.25	22.20	22.64	23.00
3GPP Rel 6	HSDPA Subtest-3	21.81	21.80	21.67	22.50	21.50	21.63	21.45	22.50	21.65	21.73	21.80	22.50
3GPP Rel 6	HSDPA Subtest-4	21.90	21.91	21.80	22.50	21.43	21.54	21.23	22.50	21.76	21.63	21.45	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	22.45	22.57	22.60	23.00	22.32	22.26	22.40	23.00	22.44	22.38	22.52	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	22.57	22.64	22.52	23.00	22.65	22.66	22.53	23.00	22.21	22.17	22.62	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.78	21.78	21.63	22.50	21.48	21.59	21.42	22.50	21.61	21.70	21.78	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.87	21.89	21.76	22.50	21.41	21.50	21.20	22.50	21.72	21.60	21.43	22.50
3GPP Rel 6	HSUPA Subtest-1	22.30	22.38	22.18	23.00	22.78	22.82	22.65	23.00	22.49	22.60	22.13	23.00
3GPP Rel 6	HSUPA Subtest-2	20.59	20.57	20.52	21.00	20.14	20.20	20.15	21.00	20.26	20.15	20.18	21.00
3GPP Rel 6	HSUPA Subtest-3	21.73	21.72	21.60	22.00	21.49	21.65	21.48	22.00	21.81	21.85	21.50	22.00
3GPP Rel 6	HSUPA Subtest-4	20.16	20.15	20.03	21.00	20.10	20.00	20.19	21.00	20.24	20.14	20.20	21.00
3GPP Rel 6	HSUPA Subtest-5	22.59	22.58	22.46	23.00	22.35	22.51	22.34	23.00	22.67	22.71	22.97	23.00

<Maximum Average RF Power (Proximity Sensor Active)>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	RMC 12.2Kbps	17.88	**17.94**	17.85	18.50	**20.31**	20.25	20.24	20.50
3GPP Rel 6	HSDPA Subtest-1	16.78	16.74	16.71	17.50	18.35	18.37	18.50	19.50
3GPP Rel 6	HSDPA Subtest-2	16.80	16.87	16.63	17.50	18.69	18.77	18.63	19.50
3GPP Rel 6	HSDPA Subtest-3	16.22	16.17	15.74	17.00	17.55	17.68	17.47	19.00
3GPP Rel 6	HSDPA Subtest-4	16.02	16.32	15.78	17.00	17.60	17.88	17.27	19.00
3GPP Rel 8	DC-HSDPA Subtest-1	16.59	16.78	16.58	17.50	18.31	18.33	18.47	19.50
3GPP Rel 8	DC-HSDPA Subtest-2	16.84	16.89	16.67	17.50	18.79	18.73	18.60	19.50
3GPP Rel 8	DC-HSDPA Subtest-3	16.07	16.05	15.67	17.00	17.62	17.66	17.39	19.00
3GPP Rel 8	DC-HSDPA Subtest-4	16.09	16.12	15.76	17.00	17.52	17.67	17.27	19.00
3GPP Rel 6	HSUPA Subtest-1	16.69	16.79	16.12	17.50	18.89	18.89	18.72	19.50
3GPP Rel 6	HSUPA Subtest-2	14.91	14.90	14.57	15.50	16.29	16.30	16.22	17.50
3GPP Rel 6	HSUPA Subtest-3	15.97	15.89	15.57	16.50	17.49	17.72	17.55	18.50
3GPP Rel 6	HSUPA Subtest-4	14.35	14.52	15.16	15.50	16.10	15.91	16.26	17.50
3GPP Rel 6	HSUPA Subtest-5	16.69	16.90	16.53	17.50	18.21	18.58	18.41	19.50

<LTE Conducted Power>

General Note:

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

<Maximum Average RF Power (Proximity Sensor Inactive)>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	24.34	**24.58**	24.38	25	0
20	QPSK	1	49	24.35	24.53	24.15		
20	QPSK	1	99	24.12	24.31	24.23		
20	QPSK	50	0	23.34	23.47	23.29	24	1
20	QPSK	50	24	23.37	23.46	23.10		
20	QPSK	50	50	23.25	23.25	23.23		
20	QPSK	100	0	23.29	23.40	23.19		
20	16QAM	1	0	22.52	22.72	22.77	24	1
20	16QAM	1	49	22.76	22.90	22.83		
20	16QAM	1	99	22.80	22.86	22.75		
20	16QAM	50	0	22.37	22.44	22.37	23	2
20	16QAM	50	24	22.41	22.48	22.22		
20	16QAM	50	50	22.29	22.38	22.26		
20	16QAM	100	0	22.40	22.34	22.23		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	24.07	24.43	24.28	25	0
15	QPSK	1	37	24.29	24.49	24.23		
15	QPSK	1	74	24.25	24.40	24.22		
15	QPSK	36	0	23.36	23.32	23.32	24	1
15	QPSK	36	20	23.28	23.32	23.13		
15	QPSK	36	39	23.07	23.28	23.24		
15	QPSK	75	0	23.15	23.36	23.23		
15	16QAM	1	0	23.47	23.31	23.12	24	1
15	16QAM	1	37	23.41	23.40	23.03		
15	16QAM	1	74	23.10	23.31	23.08		
15	16QAM	36	0	22.28	22.26	22.23	23	2
15	16QAM	36	20	22.32	22.36	22.25		
15	16QAM	36	39	22.18	22.38	22.17		
15	16QAM	75	0	22.34	22.40	22.34		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	24.33	24.33	24.25	25	0
10	QPSK	1	25	24.39	24.47	24.29		
10	QPSK	1	49	24.31	24.54	24.50		
10	QPSK	25	0	23.37	23.35	23.18	24	1
10	QPSK	25	12	23.36	23.37	23.19		
10	QPSK	25	25	23.23	23.33	23.33		
10	QPSK	50	0	23.20	23.37	23.19		
10	16QAM	1	0	23.07	23.28	22.96	24	1
10	16QAM	1	25	23.08	23.37	22.94		
10	16QAM	1	49	23.08	23.33	23.01		
10	16QAM	25	0	22.31	22.30	22.24	23	2
10	16QAM	25	12	22.22	22.31	22.32		
10	16QAM	25	25	22.35	22.37	22.36		
10	16QAM	50	0	22.23	22.41	22.41		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	24.19	24.29	24.19	25	0
5	QPSK	1	12	24.31	24.33	24.17		
5	QPSK	1	24	24.25	24.28	24.21		
5	QPSK	12	0	23.15	23.31	23.27	24	1
5	QPSK	12	7	23.23	23.35	23.19		
5	QPSK	12	13	23.26	23.32	23.22		
5	QPSK	25	0	23.24	23.30	23.33		
5	16QAM	1	0	23.44	23.07	23.32	24	1
5	16QAM	1	12	23.54	23.13	23.12		
5	16QAM	1	24	23.23	23.08	23.37		
5	16QAM	12	0	22.06	22.16	22.30	23	2
5	16QAM	12	7	22.16	22.30	22.22		
5	16QAM	12	13	22.19	22.37	22.25		
5	16QAM	25	0	22.36	22.45	22.54		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	24.30	24.16	24.28	25	0
3	QPSK	1	8	24.20	24.14	24.18		
3	QPSK	1	14	24.20	24.18	24.18		
3	QPSK	8	0	23.21	23.24	23.19	24	1
3	QPSK	8	4	23.35	23.16	23.33		
3	QPSK	8	7	23.37	23.19	23.35		
3	QPSK	15	0	23.29	23.30	23.27		
3	16QAM	1	0	22.90	23.29	22.90	24	1
3	16QAM	1	8	22.98	23.09	22.96		
3	16QAM	1	14	22.98	23.34	22.96		
3	16QAM	8	0	21.99	22.27	21.97	23	2
3	16QAM	8	4	22.11	22.19	22.09		
3	16QAM	8	7	22.41	22.22	22.39		
3	16QAM	15	0	22.41	22.51	22.39		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	24.08	24.29	24.08	25	0
1.4	QPSK	1	3	24.21	24.43	24.14		
1.4	QPSK	1	5	24.21	24.28	24.28		
1.4	QPSK	3	0	24.18	24.55	24.28		
1.4	QPSK	3	1	24.33	24.49	24.34		
1.4	QPSK	3	3	24.35	24.47	24.33		
1.4	QPSK	6	0	23.15	23.35	23.26	24	1
1.4	16QAM	1	0	23.01	22.90	23.39	24	1
1.4	16QAM	1	3	23.25	23.34	23.39		
1.4	16QAM	1	5	22.99	23.36	23.26		
1.4	16QAM	3	0	23.12	23.30	23.30		
1.4	16QAM	3	1	23.17	23.42	23.53		
1.4	16QAM	3	3	23.05	23.51	23.52		
1.4	16QAM	6	0	22.20	22.25	22.42	23	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	23.94	23.99	**24.27**	25	0
20	QPSK	1	49	23.97	23.89	24.02		
20	QPSK	1	99	24.06	23.81	24.11		
20	QPSK	50	0	23.09	23.05	23.04	24	1
20	QPSK	50	24	23.03	22.97	23.03		
20	QPSK	50	50	22.99	22.93	23.04		
20	QPSK	100	0	23.04	22.94	23.01		
20	16QAM	1	0	23.05	23.05	23.19	24	1
20	16QAM	1	49	22.97	22.76	22.95		
20	16QAM	1	99	22.88	22.91	22.98		
20	16QAM	50	0	22.01	22.11	22.10	23	2
20	16QAM	50	24	22.15	21.95	22.07		
20	16QAM	50	50	22.10	21.95	22.12		
20	16QAM	100	0	22.02	21.92	22.08		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	23.92	23.94	24.18	25	0
15	QPSK	1	37	24.07	23.99	24.24		
15	QPSK	1	74	23.91	24.04	23.97		
15	QPSK	36	0	22.92	23.13	23.07	24	1
15	QPSK	36	20	22.94	23.00	23.13		
15	QPSK	36	39	22.99	23.14	23.17		
15	QPSK	75	0	22.93	23.03	23.07		
15	16QAM	1	0	23.06	22.64	22.65	24	1
15	16QAM	1	37	22.71	22.70	22.79		
15	16QAM	1	74	22.70	22.68	23.08		
15	16QAM	36	0	21.84	21.96	22.01	23	2
15	16QAM	36	20	21.98	21.98	22.00		
15	16QAM	36	39	21.95	21.92	22.14		
15	16QAM	75	0	21.98	22.11	22.10		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	23.74	23.95	24.00	25	0
10	QPSK	1	25	23.77	23.86	24.10		
10	QPSK	1	49	24.09	23.71	23.92		
10	QPSK	25	0	22.96	23.02	23.10	24	1
10	QPSK	25	12	22.86	22.93	23.11		
10	QPSK	25	25	23.10	22.95	23.20		
10	QPSK	50	0	23.03	22.91	23.08		
10	16QAM	1	0	22.97	23.14	23.31	24	1
10	16QAM	1	25	22.91	23.02	23.33		
10	16QAM	1	49	22.97	22.92	22.95		
10	16QAM	25	0	22.13	22.09	22.17	23	2
10	16QAM	25	12	22.02	22.02	22.18		
10	16QAM	25	25	22.00	22.03	22.47		
10	16QAM	50	0	22.08	21.97	22.16		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	23.92	23.94	24.19	25	0
5	QPSK	1	12	24.19	24.19	24.25		
5	QPSK	1	24	23.91	24.03	24.23		
5	QPSK	12	0	22.76	23.02	23.09	24	1
5	QPSK	12	7	22.83	22.99	23.06		
5	QPSK	12	13	22.82	22.92	23.07		
5	QPSK	25	0	22.86	22.91	23.14		
5	16QAM	1	0	22.63	22.57	22.92	24	1
5	16QAM	1	12	22.65	22.73	22.83		
5	16QAM	1	24	22.64	22.76	22.91		
5	16QAM	12	0	21.70	21.85	21.79	23	2
5	16QAM	12	7	21.78	21.89	21.87		
5	16QAM	12	13	21.77	21.82	22.15		
5	16QAM	25	0	21.92	22.00	22.08		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	24.09	23.91	24.03	25	0
3	QPSK	1	8	23.72	23.71	23.96		
3	QPSK	1	14	23.75	23.96	24.07		
3	QPSK	8	0	22.79	23.02	22.97	24	1
3	QPSK	8	4	22.86	23.01	22.93		
3	QPSK	8	7	22.78	22.89	22.97		
3	QPSK	15	0	22.80	22.98	23.04		
3	16QAM	1	0	22.84	22.84	22.82	24	1
3	16QAM	1	8	22.58	22.65	22.83		
3	16QAM	1	14	22.84	22.77	22.63		
3	16QAM	8	0	21.84	22.03	21.80	23	2
3	16QAM	8	4	21.87	22.05	22.06		
3	16QAM	8	7	21.87	22.00	22.25		
3	16QAM	15	0	21.85	22.08	22.12		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	23.87	23.93	23.82	25	0
1.4	QPSK	1	3	23.93	24.03	24.00		
1.4	QPSK	1	5	23.89	23.98	24.20		
1.4	QPSK	3	0	24.00	24.25	24.06		
1.4	QPSK	3	1	23.94	24.19	24.07		
1.4	QPSK	3	3	23.92	24.09	23.97		
1.4	QPSK	6	0	22.79	23.08	23.00	24	1
1.4	16QAM	1	0	22.84	22.96	22.75	24	1
1.4	16QAM	1	3	22.63	22.91	22.79		
1.4	16QAM	1	5	22.80	22.97	22.69		
1.4	16QAM	3	0	22.59	22.93	22.79		
1.4	16QAM	3	1	22.64	22.97	22.84		
1.4	16QAM	3	3	22.90	22.93	22.83		
1.4	16QAM	6	0	21.81	22.05	21.93	23	2

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	24.16	24.44	24.40	25	0
10	QPSK	1	25	24.18	24.40	24.41		
10	QPSK	1	49	24.22	23.96	24.20		
10	QPSK	25	0	23.47	23.52	23.40	24	1
10	QPSK	25	12	23.46	23.44	23.27		
10	QPSK	25	25	23.48	23.51	23.33		
10	QPSK	50	0	23.50	23.51	23.39		
10	16QAM	1	0	22.92	23.29	23.29	24	1
10	16QAM	1	25	23.04	23.08	23.25		
10	16QAM	1	49	22.93	22.84	22.91		
10	16QAM	25	0	22.55	22.49	22.40	23	2
10	16QAM	25	12	22.54	22.54	22.26		
10	16QAM	25	25	22.56	22.41	22.16		
10	16QAM	50	0	22.59	22.42	22.32		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	24.39	24.35	24.38	25	0
5	QPSK	1	12	24.34	24.32	24.42		
5	QPSK	1	24	24.38	24.42	24.14		
5	QPSK	12	0	23.74	23.64	23.67	24	1
5	QPSK	12	7	23.67	23.68	23.60		
5	QPSK	12	13	23.62	23.63	23.56		
5	QPSK	25	0	23.76	23.70	23.49		
5	16QAM	1	0	23.05	23.02	23.02	24	1
5	16QAM	1	12	23.42	23.40	23.45		
5	16QAM	1	24	23.10	23.08	23.26		
5	16QAM	12	0	22.57	22.53	22.44	23	2
5	16QAM	12	7	22.53	22.64	22.45		
5	16QAM	12	13	22.58	22.51	22.42		
5	16QAM	25	0	22.74	22.78	22.49		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	24.10	24.29	24.37	25	0
3	QPSK	1	8	24.20	24.32	24.23		
3	QPSK	1	14	24.39	24.41	24.00		
3	QPSK	8	0	23.65	23.52	23.49	24	1
3	QPSK	8	4	23.67	23.62	23.47		
3	QPSK	8	7	23.61	23.57	23.51		
3	QPSK	15	0	23.80	23.77	23.64		
3	16QAM	1	0	23.71	23.66	23.74	24	1
3	16QAM	1	8	23.81	23.82	23.35		
3	16QAM	1	14	23.80	23.85	23.42		
3	16QAM	8	0	22.82	22.82	22.78	23	2
3	16QAM	8	4	22.85	22.85	22.46		
3	16QAM	8	7	22.86	22.89	22.77		
3	16QAM	15	0	22.89	22.79	22.84		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	24.29	24.11	24.18	25	0
1.4	QPSK	1	3	24.40	24.15	24.09		
1.4	QPSK	1	5	24.33	24.41	24.08		
1.4	QPSK	3	0	24.35	24.24	24.17		
1.4	QPSK	3	1	24.38	24.30	24.14		
1.4	QPSK	3	3	24.34	24.43	24.22		
1.4	QPSK	6	0	23.41	23.35	23.21	24	1
1.4	16QAM	1	0	23.32	23.36	23.78	24	1
1.4	16QAM	1	3	23.54	23.53	23.79		
1.4	16QAM	1	5	23.35	23.32	23.75		
1.4	16QAM	3	0	23.73	23.37	23.82		
1.4	16QAM	3	1	23.68	23.68	23.79		
1.4	16QAM	3	3	23.69	23.62	23.53		
1.4	16QAM	6	0	22.61	22.69	22.49	23	2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	24.56	**24.84**	24.68	25	0
20	QPSK	1	49	24.72	24.81	24.80		
20	QPSK	1	99	24.67	24.50	24.63		
20	QPSK	50	0	23.60	23.72	23.55	24	1
20	QPSK	50	24	23.64	23.70	23.66		
20	QPSK	50	50	23.54	23.62	23.63		
20	QPSK	100	0	23.61	23.72	23.63		
20	16QAM	1	0	23.67	23.23	23.55	24	1
20	16QAM	1	49	23.21	23.68	23.71		
20	16QAM	1	99	23.26	23.34	23.34		
20	16QAM	50	0	22.55	22.67	22.80	23	2
20	16QAM	50	24	22.59	22.63	22.86		
20	16QAM	50	50	22.48	22.81	22.76		
20	16QAM	100	0	22.55	22.74	22.66		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	24.69	24.68	24.79	25	0
15	QPSK	1	37	24.54	24.72	24.63		
15	QPSK	1	74	24.64	24.78	24.58		
15	QPSK	36	0	23.74	23.74	23.73	24	1
15	QPSK	36	20	23.63	23.75	23.67		
15	QPSK	36	39	23.56	23.65	23.88		
15	QPSK	75	0	23.61	23.72	23.66		
15	16QAM	1	0	23.47	23.84	23.77	24	1
15	16QAM	1	37	23.47	23.78	23.75		
15	16QAM	1	74	23.45	23.50	23.34		
15	16QAM	36	0	22.59	22.66	22.72	23	2
15	16QAM	36	20	22.67	22.71	22.80		
15	16QAM	36	39	22.59	22.74	22.71		
15	16QAM	75	0	22.72	22.82	22.70		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	24.45	24.27	24.47	25	0
10	QPSK	1	25	24.47	24.45	24.75		
10	QPSK	1	49	24.27	24.36	24.71		
10	QPSK	25	0	23.50	23.58	23.66	24	1
10	QPSK	25	12	23.53	23.58	23.66		
10	QPSK	25	25	23.48	23.56	23.49		
10	QPSK	50	0	23.57	23.51	23.65		
10	16QAM	1	0	23.14	23.17	23.14	24	1
10	16QAM	1	25	23.34	23.60	23.11		
10	16QAM	1	49	23.11	23.22	23.43		
10	16QAM	25	0	22.51	22.58	22.77	23	2
10	16QAM	25	12	22.63	22.68	22.89		
10	16QAM	25	25	22.49	22.57	22.64		
10	16QAM	50	0	22.57	22.54	22.69		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	24.33	24.48	24.53	25	0
5	QPSK	1	12	24.55	24.71	24.61		
5	QPSK	1	24	24.33	24.29	24.31		
5	QPSK	12	0	23.57	23.62	23.55	24	1
5	QPSK	12	7	23.58	23.54	23.60		
5	QPSK	12	13	23.53	23.58	23.52		
5	QPSK	25	0	23.57	23.61	23.57		
5	16QAM	1	0	23.22	23.36	23.67	24	1
5	16QAM	1	12	23.60	23.32	23.36		
5	16QAM	1	24	23.29	23.27	23.24		
5	16QAM	12	0	22.34	22.55	22.61	23	2
5	16QAM	12	7	22.42	22.66	22.67		
5	16QAM	12	13	22.38	22.61	22.79		
5	16QAM	25	0	22.49	22.72	22.83		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	24.72	**25.22**	24.80	25.5	0
10	QPSK	1	25	24.91	24.95	25.04		
10	QPSK	1	49	25.12	25.17	25.13		
10	QPSK	25	0	24.08	24.15	24.07	24.5	1
10	QPSK	25	12	24.14	24.06	24.14		
10	QPSK	25	25	24.03	24.11	24.10		
10	QPSK	50	0	24.09	24.05	24.08		
10	16QAM	1	0	23.57	23.64	23.64	24.5	1
10	16QAM	1	25	23.64	23.56	23.64		
10	16QAM	1	49	23.52	23.53	23.56		
10	16QAM	25	0	23.04	23.09	23.19	23.5	2
10	16QAM	25	12	23.19	23.19	23.15		
10	16QAM	25	25	23.17	23.24	23.07		
10	16QAM	50	0	22.97	23.19	23.11		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	24.70	24.92	24.87	25.5	0
5	QPSK	1	12	25.07	25.05	24.78		
5	QPSK	1	24	24.85	25.07	24.78		
5	QPSK	12	0	24.07	23.96	24.01	24.5	1
5	QPSK	12	7	24.10	24.14	23.96		
5	QPSK	12	13	23.99	24.08	24.04		
5	QPSK	25	0	24.03	24.02	24.06		
5	16QAM	1	0	23.48	23.50	23.73	24.5	1
5	16QAM	1	12	23.60	23.58	23.73		
5	16QAM	1	24	23.50	23.39	23.65		
5	16QAM	12	0	23.12	22.84	22.88	23.5	2
5	16QAM	12	7	23.15	22.98	23.11		
5	16QAM	12	13	23.06	23.22	22.98		
5	16QAM	25	0	23.16	23.15	23.12		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	24.95	24.83	25.12	25.5	0
3	QPSK	1	8	24.98	24.92	25.02		
3	QPSK	1	14	24.88	25.03	25.11		
3	QPSK	8	0	24.16	24.02	24.30	24.5	1
3	QPSK	8	4	24.13	24.06	24.10		
3	QPSK	8	7	24.12	24.12	24.16		
3	QPSK	15	0	24.12	24.04	24.12		
3	16QAM	1	0	23.50	23.59	23.61	24.5	1
3	16QAM	1	8	23.51	23.55	23.48		
3	16QAM	1	14	23.52	23.44	23.40		
3	16QAM	8	0	23.15	23.02	23.05	23.5	2
3	16QAM	8	4	23.19	23.16	23.17		
3	16QAM	8	7	23.12	23.28	23.07		
3	16QAM	15	0	23.21	23.15	23.12		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	25.10	24.82	25.05	25.5	0
1.4	QPSK	1	3	25.16	24.89	25.02		
1.4	QPSK	1	5	25.11	24.99	25.12		
1.4	QPSK	3	0	25.12	25.07	25.18		
1.4	QPSK	3	1	25.16	25.15	25.01		
1.4	QPSK	3	3	25.01	25.20	25.01		
1.4	QPSK	6	0	24.05	24.00	24.11	24.5	1
1.4	16QAM	1	0	23.56	23.46	23.66	24.5	1
1.4	16QAM	1	3	23.63	23.72	23.60		
1.4	16QAM	1	5	23.27	23.67	23.42		
1.4	16QAM	3	0	23.73	23.89	23.98		
1.4	16QAM	3	1	23.69	24.10	24.00		
1.4	16QAM	3	3	23.65	23.87	24.01		
1.4	16QAM	6	0	22.91	22.87	23.07	23.5	2

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23230				
Frequency (MHz)				782				
10	QPSK	1	0		25.36		25.5	0
10	QPSK	1	25		25.06			
10	QPSK	1	49		25.03			
10	QPSK	25	0		24.35		24.5	1
10	QPSK	25	12		24.34			
10	QPSK	25	25		24.28			
10	QPSK	50	0		24.28			
10	16QAM	1	0		24.12		24.5	1
10	16QAM	1	25		24.35			
10	16QAM	1	49		23.89			
10	16QAM	25	0		23.25		23.5	2
10	16QAM	25	12		23.45			
10	16QAM	25	25		23.45			
10	16QAM	50	0		23.49			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	25.16	25.15	25.13	25.5	0
5	QPSK	1	12	25.10	25.18	25.07		
5	QPSK	1	24	25.23	25.15	24.83		
5	QPSK	12	0	24.25	24.30	24.20	24.5	1
5	QPSK	12	7	24.30	24.09	24.08		
5	QPSK	12	13	24.31	24.24	24.19		
5	QPSK	25	0	24.24	24.15	24.11		
5	16QAM	1	0	23.64	23.79	23.78	24.5	1
5	16QAM	1	12	23.96	23.96	24.14		
5	16QAM	1	24	23.66	23.83	23.85		
5	16QAM	12	0	23.32	23.10	23.11	23.5	2
5	16QAM	12	7	23.26	23.05	23.00		
5	16QAM	12	13	23.42	23.29	23.04		
5	16QAM	25	0	23.24	23.13	23.20		

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	24.50	**24.64**	24.49	25	0
20	QPSK	1	49	24.53	24.63	24.53		
20	QPSK	1	99	24.33	24.47	24.55		
20	QPSK	50	0	23.58	23.66	23.49	24	1
20	QPSK	50	24	23.53	23.57	23.51		
20	QPSK	50	50	23.41	23.47	23.43		
20	QPSK	100	0	23.53	23.43	23.45		
20	16QAM	1	0	23.13	23.21	23.36	24	1
20	16QAM	1	49	23.38	23.11	23.37		
20	16QAM	1	99	23.38	23.41	23.36		
20	16QAM	50	0	22.68	22.80	22.49	23	2
20	16QAM	50	24	22.47	22.61	22.44		
20	16QAM	50	50	22.52	22.58	22.45		
20	16QAM	100	0	22.52	22.53	22.45		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	24.46	24.57	24.46	25	0
15	QPSK	1	37	24.56	24.49	24.44		
15	QPSK	1	74	24.36	24.59	24.55		
15	QPSK	36	0	23.54	23.45	23.54	24	1
15	QPSK	36	20	23.46	23.56	23.64		
15	QPSK	36	39	23.31	23.58	23.64		
15	QPSK	75	0	23.41	23.49	23.57		
15	16QAM	1	0	23.36	23.47	23.45	24	1
15	16QAM	1	37	23.47	23.39	23.36		
15	16QAM	1	74	23.47	23.47	23.13		
15	16QAM	36	0	22.47	22.55	22.63	23	2
15	16QAM	36	20	22.50	22.58	22.53		
15	16QAM	36	39	22.34	22.58	22.64		
15	16QAM	75	0	22.42	22.58	22.66		

Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	24.23	24.31	24.40	25	0
10	QPSK	1	25	24.32	24.51	24.29		
10	QPSK	1	49	24.16	24.53	24.16		
10	QPSK	25	0	23.47	23.41	23.51	24	1
10	QPSK	25	12	23.45	23.42	23.46		
10	QPSK	25	25	23.41	23.48	23.52		
10	QPSK	50	0	23.39	23.43	23.50		
10	16QAM	1	0	23.33	23.18	23.30	24	1
10	16QAM	1	25	23.31	23.21	23.62		
10	16QAM	1	49	23.27	23.47	23.33		
10	16QAM	25	0	22.40	22.54	22.69	23	2
10	16QAM	25	12	22.48	22.55	22.47		
10	16QAM	25	25	22.34	22.60	22.57		
10	16QAM	50	0	22.49	22.55	22.53		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	24.35	24.44	24.33	25	0
5	QPSK	1	12	24.39	24.45	24.52		
5	QPSK	1	24	24.24	24.60	24.38		
5	QPSK	12	0	23.37	23.52	23.40	24	1
5	QPSK	12	7	23.45	23.48	23.42		
5	QPSK	12	13	23.48	23.46	23.45		
5	QPSK	25	0	23.36	23.44	23.50		
5	16QAM	1	0	23.23	23.16	23.50	24	1
5	16QAM	1	12	23.21	23.23	23.35		
5	16QAM	1	24	23.39	23.38	23.18		
5	16QAM	12	0	22.49	22.38	22.53	23	2
5	16QAM	12	7	22.51	22.42	22.41		
5	16QAM	12	13	22.56	22.41	22.53		
5	16QAM	25	0	22.38	22.37	22.45		

Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	24.57	24.50	24.49	25	0
3	QPSK	1	8	24.45	24.30	24.32		
3	QPSK	1	14	24.48	24.59	24.32		
3	QPSK	8	0	23.41	23.45	23.47	24	1
3	QPSK	8	4	23.46	23.52	23.47		
3	QPSK	8	7	23.49	23.52	23.44		
3	QPSK	15	0	23.50	23.48	23.50		
3	16QAM	1	0	23.54	23.45	23.29	24	1
3	16QAM	1	8	23.13	23.35	23.33		
3	16QAM	1	14	23.13	23.20	23.08		
3	16QAM	8	0	22.47	22.53	22.63	23	2
3	16QAM	8	4	22.53	22.52	22.67		
3	16QAM	8	7	22.46	22.43	22.51		
3	16QAM	15	0	22.50	22.61	22.65		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	24.34	24.48	24.47	25	0
1.4	QPSK	1	3	24.48	24.53	24.61		
1.4	QPSK	1	5	24.40	24.39	24.25		
1.4	QPSK	3	0	24.49	24.53	24.40		
1.4	QPSK	3	1	24.45	24.50	24.36		
1.4	QPSK	3	3	24.48	24.62	24.51		
1.4	QPSK	6	0	23.45	23.44	23.43	24	1
1.4	16QAM	1	0	23.59	23.28	23.24	24	1
1.4	16QAM	1	3	23.64	23.41	23.20		
1.4	16QAM	1	5	23.56	23.54	23.24		
1.4	16QAM	3	0	23.59	23.51	23.33		
1.4	16QAM	3	1	23.63	23.53	23.27		
1.4	16QAM	3	3	23.56	23.41	23.23		
1.4	16QAM	6	0	22.33	22.43	22.55	23	2

<LTE Band 26>

0	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	21.16	22.67	24.30	25	0
15	QPSK	1	37	22.66	24.19	24.21		
15	QPSK	1	74	24.04	**24.46**	23.02		
15	QPSK	36	0	22.05	23.37	22.98	24	1
15	QPSK	36	20	21.63	23.17	23.33		
15	QPSK	36	39	22.11	23.11	23.37		
15	QPSK	75	0	22.03	23.01	23.31		
15	16QAM	1	0	19.74	21.90	22.78	24	1
15	16QAM	1	37	21.39	22.84	23.50		
15	16QAM	1	74	22.72	22.92	21.31		
15	16QAM	36	0	20.83	21.96	22.21	23	2
15	16QAM	36	20	20.62	22.17	22.41		
15	16QAM	36	39	21.05	22.10	22.48		
15	16QAM	75	0	21.02	22.10	22.40		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	21.08	24.34	24.23	25	0
10	QPSK	1	25	23.08	24.30	24.17		
10	QPSK	1	49	22.46	24.39	22.78		
10	QPSK	25	0	22.22	23.16	23.37	24	1
10	QPSK	25	12	22.09	23.24	23.37		
10	QPSK	25	25	21.62	23.23	23.31		
10	QPSK	50	0	21.84	23.21	23.26		
10	16QAM	1	0	19.64	22.95	22.88	24	1
10	16QAM	1	25	22.09	23.19	22.97		
10	16QAM	1	49	21.53	22.84	21.44		
10	16QAM	25	0	21.22	22.29	22.38	23	2
10	16QAM	25	12	20.99	22.38	22.38		
10	16QAM	25	25	20.61	22.34	22.33		
10	16QAM	50	0	20.85	22.20	22.18		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	20.98	24.02	23.87	25	0
5	QPSK	1	12	21.43	24.37	22.55		
5	QPSK	1	24	22.80	24.29	22.50		
5	QPSK	12	0	20.10	23.29	23.35	24	1
5	QPSK	12	7	20.09	23.18	21.82		
5	QPSK	12	13	21.91	23.15	21.79		
5	QPSK	25	0	22.07	23.09	23.39		
5	16QAM	1	0	20.34	23.19	22.80	24	1
5	16QAM	1	12	20.20	22.90	21.63		
5	16QAM	1	24	21.90	23.13	21.28		
5	16QAM	12	0	19.00	22.04	22.19	23	2
5	16QAM	12	7	19.18	22.19	20.64		
5	16QAM	12	13	20.89	22.27	20.59		
5	16QAM	25	0	21.37	22.48	22.42		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	20.78	24.15	23.85	25	0
3	QPSK	1	8	21.41	24.28	22.45		
3	QPSK	1	14	22.78	24.10	22.50		
3	QPSK	8	0	20.10	23.21	23.24	24	1
3	QPSK	8	4	20.05	23.10	21.82		
3	QPSK	8	7	21.79	23.50	21.84		
3	QPSK	15	0	22.01	23.01	23.39		
3	16QAM	1	0	20.31	23.09	22.89	24	1
3	16QAM	1	8	20.10	22.87	21.64		
3	16QAM	1	14	21.87	23.11	21.24		
3	16QAM	8	0	18.98	22.03	22.17	23	2
3	16QAM	8	4	19.12	22.17	20.64		
3	16QAM	8	7	20.89	22.26	20.58		
3	16QAM	15	0	21.34	22.18	22.41		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	20.84	24.01	23.78	25	0
1.4	QPSK	1	3	21.43	24.45	22.45		
1.4	QPSK	1	5	22.65	24.29	22.50		
1.4	QPSK	3	0	20.10	23.21	23.25		
1.4	QPSK	3	1	20.10	23.18	21.82		
1.4	QPSK	3	3	21.91	23.02	21.74		
1.4	QPSK	6	0	22.05	23.09	23.39	24	1
1.4	16QAM	1	0	20.34	23.09	22.68	24	1
1.4	16QAM	1	3	20.03	22.90	21.63		
1.4	16QAM	1	5	21.90	23.03	21.21		
1.4	16QAM	3	0	19.03	22.04	22.19		
1.4	16QAM	3	1	19.18	22.15	20.61		
1.4	16QAM	3	3	20.91	22.27	20.59		
1.4	16QAM	6	0	21.39	22.38	22.28	23	2

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	24.12	**24.28**	24.06	25	0
20	QPSK	1	49	24.10	24.01	23.92		
20	QPSK	1	99	23.91	23.90	23.97		
20	QPSK	50	0	22.99	23.18	22.85	24	1
20	QPSK	50	24	23.08	23.17	22.81		
20	QPSK	50	50	22.94	23.06	22.76		
20	QPSK	100	0	22.98	23.02	22.84		
20	16QAM	1	0	22.68	22.63	22.63	24	1
20	16QAM	1	49	22.92	22.65	23.01		
20	16QAM	1	99	22.91	22.78	23.00		
20	16QAM	50	0	22.06	22.09	22.00	23	2
20	16QAM	50	24	22.24	22.18	21.90		
20	16QAM	50	50	22.24	22.11	21.83		
20	16QAM	100	0	22.15	22.06	21.88		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	23.98	24.01	23.95	25	0
15	QPSK	1	37	23.91	24.05	23.73		
15	QPSK	1	74	24.20	24.04	23.72		
15	QPSK	36	0	22.84	23.08	22.84	24	1
15	QPSK	36	20	22.91	23.06	22.77		
15	QPSK	36	39	23.02	23.12	22.71		
15	QPSK	75	0	22.94	23.09	22.78		
15	16QAM	1	0	22.54	22.67	22.75	24	1
15	16QAM	1	37	22.64	22.88	22.81		
15	16QAM	1	74	22.71	22.56	22.68		
15	16QAM	36	0	21.88	22.15	21.88	23	2
15	16QAM	36	20	22.05	22.13	21.73		
15	16QAM	36	39	22.10	22.11	21.70		
15	16QAM	75	0	22.10	22.18	21.85		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	23.65	24.05	23.95	25	0
10	QPSK	1	25	23.93	23.86	23.66		
10	QPSK	1	49	23.70	24.13	23.72		
10	QPSK	25	0	22.86	23.01	22.78	24	1
10	QPSK	25	12	22.87	23.02	22.88		
10	QPSK	25	25	22.77	23.00	22.70		
10	QPSK	50	0	22.87	22.96	22.72		
10	16QAM	1	0	22.63	22.59	22.61	24	1
10	16QAM	1	25	22.97	22.68	22.63		
10	16QAM	1	49	23.02	22.62	22.53		
10	16QAM	25	0	21.85	22.10	21.82	23	2
10	16QAM	25	12	21.95	22.05	22.03		
10	16QAM	25	25	21.84	22.04	21.81		
10	16QAM	50	0	21.93	22.02	21.84		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	23.80	23.85	23.54	25	0
5	QPSK	1	12	23.97	23.98	23.51		
5	QPSK	1	24	23.77	23.97	23.58		
5	QPSK	12	0	22.64	23.02	22.69	24	1
5	QPSK	12	7	22.73	22.86	22.64		
5	QPSK	12	13	22.70	22.90	22.68		
5	QPSK	25	0	22.76	22.96	22.65		
5	16QAM	1	0	22.63	22.62	22.86	24	1
5	16QAM	1	12	22.82	22.68	22.83		
5	16QAM	1	24	22.58	22.68	22.69		
5	16QAM	12	0	21.61	22.05	21.66	23	2
5	16QAM	12	7	21.59	21.80	21.56		
5	16QAM	12	13	21.68	21.76	21.58		
5	16QAM	25	0	21.73	22.01	21.76		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	23.70	23.91	23.59	25	0
3	QPSK	1	8	23.55	23.76	23.74		
3	QPSK	1	14	23.72	23.80	23.73		
3	QPSK	8	0	22.72	22.87	22.72	24	1
3	QPSK	8	4	22.83	22.88	22.68		
3	QPSK	8	7	22.75	22.90	22.64		
3	QPSK	15	0	22.78	22.93	22.63		
3	16QAM	1	0	22.86	22.93	22.97	24	1
3	16QAM	1	8	22.76	22.83	22.82		
3	16QAM	1	14	22.61	22.91	22.57		
3	16QAM	8	0	21.74	22.00	21.71	23	2
3	16QAM	8	4	21.86	22.02	21.73		
3	16QAM	8	7	21.87	21.87	21.76		
3	16QAM	15	0	21.87	21.85	21.73		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	23.81	23.96	23.64	25	0
1.4	QPSK	1	3	23.76	24.09	23.71		
1.4	QPSK	1	5	23.74	24.02	23.65		
1.4	QPSK	3	0	23.80	24.08	23.73		
1.4	QPSK	3	1	23.86	24.02	23.75		
1.4	QPSK	3	3	23.85	24.11	23.69		
1.4	QPSK	6	0	22.70	22.92	22.69	24	1
1.4	16QAM	1	0	22.92	22.83	22.52	24	1
1.4	16QAM	1	3	22.72	22.75	22.91		
1.4	16QAM	1	5	22.66	22.66	22.63		
1.4	16QAM	3	0	22.60	22.98	22.60		
1.4	16QAM	3	1	22.82	23.02	22.61		
1.4	16QAM	3	3	22.74	22.93	22.60		
1.4	16QAM	6	0	21.67	21.78	21.58	23	2

<Maximum Average RF Power (Proximity Sensor Active)>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	17.53	17.44	17.32	19	0
20	QPSK	1	49	17.61	17.77	17.46		
20	QPSK	1	99	17.31	17.17	17.19		
20	QPSK	50	0	17.49	17.62	17.45	19	0
20	QPSK	50	24	17.47	17.65	17.42		
20	QPSK	50	50	17.38	17.50	17.40		
20	QPSK	100	0	17.38	17.50	17.42		
20	16QAM	1	0	17.42	17.45	17.66	19	0
20	16QAM	1	49	17.46	**17.83**	17.47		
20	16QAM	1	99	17.15	17.25	17.56		
20	16QAM	50	0	17.44	17.60	17.43	19	0
20	16QAM	50	24	17.63	17.60	17.35		
20	16QAM	50	50	17.55	17.54	17.38		
20	16QAM	100	0	17.32	17.55	17.37		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	17.45	17.40	17.42	19	0
15	QPSK	1	37	17.63	17.82	17.63		
15	QPSK	1	74	17.59	17.30	17.47		
15	QPSK	36	0	17.42	17.62	17.48	19	0
15	QPSK	36	20	17.46	17.70	17.47		
15	QPSK	36	39	17.51	17.51	17.48		
15	QPSK	75	0	17.43	17.54	17.44		
15	16QAM	1	0	17.39	17.30	17.57	19	0
15	16QAM	1	37	17.55	17.72	17.73		
15	16QAM	1	74	17.20	17.22	17.64		
15	16QAM	36	0	17.37	17.68	17.43	19	0
15	16QAM	36	20	17.52	17.74	17.29		
15	16QAM	36	39	17.46	17.56	17.44		
15	16QAM	75	0	17.48	17.59	17.59		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	17.36	17.52	17.38	19	0
10	QPSK	1	25	17.27	17.78	17.43		
10	QPSK	1	49	17.26	17.56	17.34		
10	QPSK	25	0	17.40	17.72	17.37	19	0
10	QPSK	25	12	17.48	17.72	17.43		
10	QPSK	25	25	17.51	17.69	17.50		
10	QPSK	50	0	17.46	17.65	17.43		
10	16QAM	1	0	17.47	17.14	17.05	19	0
10	16QAM	1	25	17.45	17.47	17.44		
10	16QAM	1	49	17.17	17.26	17.18		
10	16QAM	25	0	17.49	17.69	17.46	19	0
10	16QAM	25	12	17.54	17.76	17.38		
10	16QAM	25	25	17.47	17.74	17.37		
10	16QAM	50	0	17.53	17.70	17.40		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	17.36	17.61	17.37	19	0
5	QPSK	1	12	17.54	17.44	17.47		
5	QPSK	1	24	17.42	17.40	17.52		
5	QPSK	12	0	17.43	17.64	17.39	19	0
5	QPSK	12	7	17.54	17.63	17.46		
5	QPSK	12	13	17.42	17.64	17.34		
5	QPSK	25	0	17.48	17.68	17.46		
5	16QAM	1	0	17.10	17.72	17.32	19	0
5	16QAM	1	12	17.25	17.61	17.28		
5	16QAM	1	24	17.31	17.63	17.11		
5	16QAM	12	0	17.30	17.48	17.38	19	0
5	16QAM	12	7	17.39	17.58	17.22		
5	16QAM	12	13	17.39	17.51	17.44		
5	16QAM	25	0	17.46	17.54	17.46		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	17.28	17.54	17.29	19	0
3	QPSK	1	8	17.36	17.50	17.19		
3	QPSK	1	14	17.36	17.52	17.35		
3	QPSK	8	0	17.40	17.73	17.53	19	0
3	QPSK	8	4	17.49	17.75	17.54		
3	QPSK	8	7	17.51	17.67	17.50		
3	QPSK	15	0	17.45	17.69	17.41		
3	16QAM	1	0	17.48	17.71	17.60	19	0
3	16QAM	1	8	17.58	17.75	17.16		
3	16QAM	1	14	17.63	17.67	17.64		
3	16QAM	8	0	17.29	17.73	17.50	19	0
3	16QAM	8	4	17.37	17.63	17.44		
3	16QAM	8	7	17.49	17.78	17.49		
3	16QAM	15	0	17.60	17.66	17.18		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	17.38	17.55	17.41	19	0
1.4	QPSK	1	3	17.55	17.69	17.57		
1.4	QPSK	1	5	17.41	17.51	17.39		
1.4	QPSK	3	0	17.49	17.66	17.55		
1.4	QPSK	3	1	17.53	17.80	17.58		
1.4	QPSK	3	3	17.54	17.74	17.62		
1.4	QPSK	6	0	17.55	17.69	17.47	19	0
1.4	16QAM	1	0	17.51	17.50	17.11	19	0
1.4	16QAM	1	3	17.60	17.80	17.32		
1.4	16QAM	1	5	17.43	17.73	17.25		
1.4	16QAM	3	0	17.25	17.62	17.17		
1.4	16QAM	3	1	17.36	17.65	17.20		
1.4	16QAM	3	3	17.39	17.61	17.11		
1.4	16QAM	6	0	17.38	17.52	17.27	19	0

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	18.71	18.64	18.86	20.5	0
20	QPSK	1	49	18.76	18.55	18.74		
20	QPSK	1	99	18.58	18.51	18.91		
20	QPSK	50	0	18.87	18.69	18.87	20.5	0
20	QPSK	50	24	18.83	18.65	18.93		
20	QPSK	50	50	18.82	18.66	18.92		
20	QPSK	100	0	18.86	18.69	18.92		
20	16QAM	1	0	18.88	18.73	19.11	20.5	0
20	16QAM	1	49	19.01	18.59	19.10		
20	16QAM	1	99	18.54	18.53	19.07		
20	16QAM	50	0	18.81	18.60	18.83	20.5	0
20	16QAM	50	24	18.85	18.55	18.94		
20	16QAM	50	50	18.83	18.60	18.98		
20	16QAM	100	0	18.83	18.61	18.87		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	18.72	18.79	18.75	20.5	0
15	QPSK	1	37	18.86	18.54	19.02		
15	QPSK	1	74	18.83	18.52	19.04		
15	QPSK	36	0	18.68	18.74	18.98	20.5	0
15	QPSK	36	20	18.81	18.64	18.99		
15	QPSK	36	39	18.87	18.65	18.96		
15	QPSK	75	0	18.82	18.66	19.02		
15	16QAM	1	0	18.97	18.97	19.12	20.5	0
15	16QAM	1	37	**19.26**	18.70	19.00		
15	16QAM	1	74	19.04	18.72	19.07		
15	16QAM	36	0	18.79	18.65	18.90	20.5	0
15	16QAM	36	20	18.81	18.63	18.97		
15	16QAM	36	39	18.77	18.70	18.90		
15	16QAM	75	0	18.78	18.60	19.06		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	18.54	18.62	18.65	20.5	0
10	QPSK	1	25	18.71	18.59	19.20		
10	QPSK	1	49	18.67	18.59	19.14		
10	QPSK	25	0	18.81	18.67	18.95	20.5	0
10	QPSK	25	12	18.84	18.57	19.02		
10	QPSK	25	25	18.81	18.63	19.01		
10	QPSK	50	0	18.76	18.66	19.04		
10	16QAM	1	0	18.56	18.78	18.55	20.5	0
10	16QAM	1	25	18.50	18.59	18.60		
10	16QAM	1	49	18.52	18.56	18.53		
10	16QAM	25	0	18.72	18.50	18.92	20.5	0
10	16QAM	25	12	18.73	18.50	19.14		
10	16QAM	25	25	18.86	18.54	19.06		
10	16QAM	50	0	18.80	18.71	19.11		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	18.79	18.59	18.96	20.5	0
5	QPSK	1	12	18.77	18.59	19.05		
5	QPSK	1	24	18.80	18.52	19.03		
5	QPSK	12	0	18.77	18.76	18.86	20.5	0
5	QPSK	12	7	18.75	18.62	19.03		
5	QPSK	12	13	18.71	18.58	19.06		
5	QPSK	25	0	18.73	18.63	18.95		
5	16QAM	1	0	18.69	18.89	18.57	20.5	0
5	16QAM	1	12	18.52	18.55	18.56		
5	16QAM	1	24	19.11	18.57	18.59		
5	16QAM	12	0	18.70	18.82	18.70	20.5	0
5	16QAM	12	7	18.74	18.55	19.09		
5	16QAM	12	13	18.72	18.63	18.94		
5	16QAM	25	0	18.75	18.57	18.92		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	18.80	18.55	18.60	20.5	0
3	QPSK	1	8	18.69	18.59	18.69		
3	QPSK	1	14	18.69	18.51	18.77		
3	QPSK	8	0	18.75	18.71	18.83	20.5	0
3	QPSK	8	4	18.79	18.70	18.92		
3	QPSK	8	7	18.72	18.64	18.93		
3	QPSK	15	0	18.75	18.68	18.82		
3	16QAM	1	0	18.88	18.75	18.72	20.5	0
3	16QAM	1	8	18.72	18.60	18.85		
3	16QAM	1	14	18.99	18.70	19.01		
3	16QAM	8	0	18.80	18.69	18.55	20.5	0
3	16QAM	8	4	18.71	18.56	18.93		
3	16QAM	8	7	18.56	18.59	19.00		
3	16QAM	15	0	18.72	18.51	18.82		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	18.53	18.64	18.62	20.5	0
1.4	QPSK	1	3	18.56	18.69	18.69		
1.4	QPSK	1	5	18.55	18.54	18.59		
1.4	QPSK	3	0	18.81	18.80	18.79		
1.4	QPSK	3	1	18.88	18.81	18.87		
1.4	QPSK	3	3	18.75	18.79	18.80		
1.4	QPSK	6	0	18.71	18.74	18.74	20.5	0
1.4	16QAM	1	0	18.86	18.76	18.94	20.5	0
1.4	16QAM	1	3	19.05	18.79	19.11		
1.4	16QAM	1	5	18.84	18.72	18.96		
1.4	16QAM	3	0	18.82	18.76	18.81		
1.4	16QAM	3	1	18.87	18.77	18.74		
1.4	16QAM	3	3	18.74	18.60	18.82		
1.4	16QAM	6	0	18.67	18.64	18.73	20.5	0

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	23.49	23.33	23.20	24	0
10	QPSK	1	25	23.33	23.32	23.30		
10	QPSK	1	49	23.15	23.41	23.40		
10	QPSK	25	0	23.40	23.30	23.19	24	0
10	QPSK	25	12	23.44	23.23	23.12		
10	QPSK	25	25	23.39	23.18	23.07		
10	QPSK	50	0	23.46	23.32	23.21		
10	16QAM	1	0	22.78	22.91	22.87	24	0
10	16QAM	1	25	23.16	22.98	22.87		
10	16QAM	1	49	23.24	23.09	23.28		
10	16QAM	25	0	22.15	21.95	22.43	23	1
10	16QAM	25	12	22.21	22.21	22.23		
10	16QAM	25	25	22.12	22.15	22.15		
10	16QAM	50	0	22.18	22.07	22.21		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	23.01	23.37	23.39	24	0
5	QPSK	1	12	23.05	23.38	23.25		
5	QPSK	1	24	23.31	23.17	23.02		
5	QPSK	12	0	23.25	23.37	23.25	24	0
5	QPSK	12	7	23.23	23.39	23.17		
5	QPSK	12	13	23.27	23.33	23.24		
5	QPSK	25	0	23.40	23.32	23.24		
5	16QAM	1	0	23.20	23.03	23.02	24	0
5	16QAM	1	12	23.11	23.23	22.81		
5	16QAM	1	24	23.18	23.12	23.07		
5	16QAM	12	0	22.41	22.25	21.98	23	1
5	16QAM	12	7	22.18	22.25	22.03		
5	16QAM	12	13	22.31	21.95	22.03		
5	16QAM	25	0	21.80	22.01	22.17		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	23.27	23.03	23.13	24	0
3	QPSK	1	8	23.24	23.05	23.14		
3	QPSK	1	14	23.34	23.09	22.93		
3	QPSK	8	0	23.20	23.22	23.21	24	0
3	QPSK	8	4	23.19	23.20	23.14		
3	QPSK	8	7	23.21	23.24	23.09		
3	QPSK	15	0	23.23	23.37	23.23		
3	16QAM	1	0	22.95	23.37	22.92	24	0
3	16QAM	1	8	23.07	23.08	22.89		
3	16QAM	1	14	23.06	23.15	22.89		
3	16QAM	8	0	22.01	22.03	21.95	23	1
3	16QAM	8	4	21.98	21.93	22.41		
3	16QAM	8	7	22.09	21.93	21.99		
3	16QAM	15	0	22.01	22.15	22.08		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.37	23.39	23.42	24	0
1.4	QPSK	1	3	23.41	23.41	23.35		
1.4	QPSK	1	5	23.36	23.35	23.31		
1.4	QPSK	3	0	23.43	23.34	23.24		
1.4	QPSK	3	1	23.25	23.45	23.17		
1.4	QPSK	3	3	23.13	23.35	23.20		
1.4	QPSK	6	0	23.45	23.24	23.34	24	0
1.4	16QAM	1	0	23.44	23.34	23.27	24	0
1.4	16QAM	1	3	23.46	23.29	23.23		
1.4	16QAM	1	5	23.48	23.37	23.16		
1.4	16QAM	3	0	22.90	23.38	22.69		
1.4	16QAM	3	1	23.02	23.24	23.12		
1.4	16QAM	3	3	22.91	23.23	22.93		
1.4	16QAM	6	0	21.95	21.96	22.03	23	1

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	17.64	**17.92**	17.60	18	0
20	QPSK	1	49	17.66	17.64	17.70		
20	QPSK	1	99	17.49	17.75	17.79		
20	QPSK	50	0	17.56	17.90	17.88	18	0
20	QPSK	50	24	17.58	17.86	17.85		
20	QPSK	50	50	17.48	17.88	17.80		
20	QPSK	100	0	17.61	17.84	17.75		
20	16QAM	1	0	17.55	17.27	17.30	18	0
20	16QAM	1	49	17.45	17.59	17.72		
20	16QAM	1	99	17.25	17.37	17.45		
20	16QAM	50	0	17.57	17.77	17.88	18	0
20	16QAM	50	24	17.60	17.83	17.91		
20	16QAM	50	50	17.49	17.80	17.87		
20	16QAM	100	0	17.50	17.87	17.84		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	17.51	17.68	17.75	18	0
15	QPSK	1	37	17.72	17.83	17.90		
15	QPSK	1	74	17.50	17.89	17.79		
15	QPSK	36	0	17.63	17.79	17.82	18	0
15	QPSK	36	20	17.63	17.81	17.90		
15	QPSK	36	39	17.59	17.88	17.84		
15	QPSK	75	0	17.62	17.82	17.89		
15	16QAM	1	0	17.42	17.39	17.76	18	0
15	16QAM	1	37	17.35	17.51	17.39		
15	16QAM	1	74	17.44	17.54	17.79		
15	16QAM	36	0	17.64	17.84	17.88	18	0
15	16QAM	36	20	17.58	17.82	17.84		
15	16QAM	36	39	17.60	17.90	17.83		
15	16QAM	75	0	17.64	17.89	17.87		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	17.44	17.61	17.74	18	0
10	QPSK	1	25	17.83	17.85	17.89		
10	QPSK	1	49	17.54	17.79	17.82		
10	QPSK	25	0	17.62	17.87	17.89	18	0
10	QPSK	25	12	17.66	17.88	17.84		
10	QPSK	25	25	17.56	17.83	17.86		
10	QPSK	50	0	17.68	17.88	17.85		
10	16QAM	1	0	17.22	17.48	17.66	18	0
10	16QAM	1	25	17.32	17.66	17.49		
10	16QAM	1	49	17.39	17.32	17.60		
10	16QAM	25	0	17.75	17.81	17.85	18	0
10	16QAM	25	12	17.78	17.89	17.90		
10	16QAM	25	25	17.66	17.88	17.88		
10	16QAM	50	0	17.75	17.85	17.83		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	17.51	17.61	17.91	18	0
5	QPSK	1	12	17.79	17.86	17.88		
5	QPSK	1	24	17.54	17.69	17.72		
5	QPSK	12	0	17.58	17.85	17.87	18	0
5	QPSK	12	7	17.70	17.81	17.82		
5	QPSK	12	13	17.64	17.81	17.90		
5	QPSK	25	0	17.62	17.84	17.91		
5	16QAM	1	0	17.20	17.58	17.18	18	0
5	16QAM	1	12	17.25	17.52	17.48		
5	16QAM	1	24	17.22	17.64	17.28		
5	16QAM	12	0	17.51	17.69	17.90	18	0
5	16QAM	12	7	17.76	17.79	17.89		
5	16QAM	12	13	17.74	17.74	17.90		
5	16QAM	25	0	17.68	17.83	17.85		

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	18.49	**18.83**	18.62	19	0
20	QPSK	1	49	18.70	18.64	18.72		
20	QPSK	1	99	18.39	18.48	18.49		
20	QPSK	50	0	18.68	18.75	18.70	19	0
20	QPSK	50	24	18.57	18.54	18.57		
20	QPSK	50	50	18.37	18.47	18.59		
20	QPSK	100	0	18.47	18.65	18.52		
20	16QAM	1	0	18.44	18.29	18.12	19	0
20	16QAM	1	49	18.22	18.40	18.10		
20	16QAM	1	99	18.07	18.50	18.27		
20	16QAM	50	0	18.70	18.58	18.67	19	0
20	16QAM	50	24	18.64	18.59	18.40		
20	16QAM	50	50	18.41	18.49	18.57		
20	16QAM	100	0	18.44	18.58	18.44		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	18.68	18.55	18.67	19	0
15	QPSK	1	37	18.65	18.64	18.64		
15	QPSK	1	74	18.35	18.66	18.37		
15	QPSK	36	0	18.61	18.74	18.70	19	0
15	QPSK	36	20	18.61	18.55	18.66		
15	QPSK	36	39	18.41	18.59	18.64		
15	QPSK	75	0	18.48	18.67	18.63		
15	16QAM	1	0	18.41	18.41	18.62	19	0
15	16QAM	1	37	18.13	18.20	18.55		
15	16QAM	1	74	18.25	18.43	18.40		
15	16QAM	36	0	18.46	18.70	18.55	19	0
15	16QAM	36	20	18.66	18.56	18.54		
15	16QAM	36	39	18.33	18.63	18.71		
15	16QAM	75	0	18.52	18.65	18.66		

Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	18.52	18.54	18.65	19	0
10	QPSK	1	25	18.59	18.64	18.52		
10	QPSK	1	49	18.23	18.38	18.51		
10	QPSK	25	0	18.67	18.76	18.55	19	0
10	QPSK	25	12	18.54	18.61	18.76		
10	QPSK	25	25	18.60	18.55	18.74		
10	QPSK	50	0	18.68	18.60	18.71		
10	16QAM	1	0	18.26	18.39	18.36	19	0
10	16QAM	1	25	18.23	18.15	18.65		
10	16QAM	1	49	18.45	18.60	18.24		
10	16QAM	25	0	18.68	18.79	18.41	19	0
10	16QAM	25	12	18.71	18.78	18.69		
10	16QAM	25	25	18.72	18.76	18.62		
10	16QAM	50	0	18.70	18.74	18.65		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	18.50	18.73	18.78	19	0
5	QPSK	1	12	18.42	18.57	18.45		
5	QPSK	1	24	18.36	18.66	18.54		
5	QPSK	12	0	18.57	18.58	18.78	19	0
5	QPSK	12	7	18.54	18.52	18.78		
5	QPSK	12	13	18.52	18.49	18.66		
5	QPSK	25	0	18.64	18.55	18.73		
5	16QAM	1	0	17.69	17.89	17.86	19	0
5	16QAM	1	12	17.52	17.63	17.74		
5	16QAM	1	24	17.58	17.65	17.81		
5	16QAM	12	0	18.53	18.60	18.61	19	0
5	16QAM	12	7	18.71	18.58	18.57		
5	16QAM	12	13	18.61	18.59	18.49		
5	16QAM	25	0	18.52	18.74	18.75		

Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	18.51	18.70	18.82	19	0
3	QPSK	1	8	18.45	18.57	18.75		
3	QPSK	1	14	18.48	18.60	18.46		
3	QPSK	8	0	18.64	18.62	18.69	19	0
3	QPSK	8	4	18.78	18.61	18.66		
3	QPSK	8	7	18.76	18.55	18.68		
3	QPSK	15	0	18.78	18.58	18.73		
3	16QAM	1	0	18.48	18.61	18.47	19	0
3	16QAM	1	8	18.52	18.21	18.36		
3	16QAM	1	14	18.45	18.43	18.50		
3	16QAM	8	0	18.64	18.45	18.81	19	0
3	16QAM	8	4	18.75	18.54	18.64		
3	16QAM	8	7	18.72	18.66	18.76		
3	16QAM	15	0	18.75	18.51	18.74		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	18.52	18.29	18.52	19	0
1.4	QPSK	1	3	18.71	18.38	18.60		
1.4	QPSK	1	5	18.58	18.22	18.57		
1.4	QPSK	3	0	18.72	18.52	18.79		
1.4	QPSK	3	1	18.80	18.67	18.64		
1.4	QPSK	3	3	18.78	18.61	18.69		
1.4	QPSK	6	0	18.76	18.53	18.59	19	0
1.4	16QAM	1	0	18.77	18.65	18.41	19	0
1.4	16QAM	1	3	18.76	18.42	18.77		
1.4	16QAM	1	5	18.52	18.38	18.63		
1.4	16QAM	3	0	18.78	18.44	18.78		
1.4	16QAM	3	1	18.39	18.65	18.79		
1.4	16QAM	3	3	18.77	18.69	18.75		
1.4	16QAM	6	0	18.62	18.40	18.75	19	0

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	21.53	22.15	23.00	24	0
15	QPSK	1	37	21.65	23.13	23.23		
15	QPSK	1	74	23.05	**23.53**	23.32		
15	QPSK	36	0	22.08	23.34	23.32	24	0
15	QPSK	36	20	21.47	23.24	23.29		
15	QPSK	36	39	22.04	23.29	23.31		
15	QPSK	75	0	22.03	23.28	23.24		
15	16QAM	1	0	20.08	21.85	22.83	24	0
15	16QAM	1	37	21.21	22.97	23.15		
15	16QAM	1	74	22.22	22.75	21.99		
15	16QAM	36	0	21.44	22.53	22.76	23	1
15	16QAM	36	20	21.09	22.62	22.84		
15	16QAM	36	39	21.41	22.74	22.69		
15	16QAM	75	0	21.20	22.65	22.81		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	21.31	23.10	23.14	24	0
10	QPSK	1	25	21.75	23.39	23.39		
10	QPSK	1	49	21.09	23.17	23.24		
10	QPSK	25	0	21.95	23.27	23.45	24	0
10	QPSK	25	12	21.82	23.38	23.35		
10	QPSK	25	25	21.65	23.32	23.29		
10	QPSK	50	0	21.74	23.21	23.33		
10	16QAM	1	0	20.18	22.80	23.41	24	0
10	16QAM	1	25	21.93	22.87	23.26		
10	16QAM	1	49	20.96	22.89	21.84		
10	16QAM	25	0	21.33	22.85	22.85	23	1
10	16QAM	25	12	21.27	22.96	22.83		
10	16QAM	25	25	21.10	22.89	22.80		
10	16QAM	50	0	21.12	22.88	22.74		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	21.38	23.07	23.27	24	0
5	QPSK	1	12	21.64	23.20	23.24		
5	QPSK	1	24	21.64	23.15	23.00		
5	QPSK	12	0	20.48	23.23	23.34	24	0
5	QPSK	12	7	20.61	23.36	22.38		
5	QPSK	12	13	21.80	23.32	22.23		
5	QPSK	25	0	21.91	23.27	23.28		
5	16QAM	1	0	20.30	23.13	22.84	24	0
5	16QAM	1	12	20.67	23.46	21.87		
5	16QAM	1	24	21.84	23.08	21.36		
5	16QAM	12	0	19.36	22.58	22.68	23	1
5	16QAM	12	7	19.59	22.83	21.12		
5	16QAM	12	13	21.12	22.80	21.04		
5	16QAM	25	0	21.23	22.65	22.81		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	21.47	22.96	23.19	24	0
3	QPSK	1	8	21.47	23.12	23.03		
3	QPSK	1	14	21.44	23.26	23.21		
3	QPSK	8	0	20.56	23.41	22.33	24	0
3	QPSK	8	4	20.67	23.31	22.30		
3	QPSK	8	7	20.64	23.38	22.33		
3	QPSK	15	0	20.51	23.25	22.33		
3	16QAM	1	0	20.16	23.50	22.37	24	0
3	16QAM	1	8	19.92	23.40	22.41		
3	16QAM	1	14	19.95	23.30	22.31		
3	16QAM	8	0	19.74	22.55	21.38	23	1
3	16QAM	8	4	19.73	22.84	21.01		
3	16QAM	8	7	19.70	22.89	21.23		
3	16QAM	15	0	19.62	22.91	21.19		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	21.48	23.31	23.32	24	0
1.4	QPSK	1	3	21.55	23.17	23.35		
1.4	QPSK	1	5	21.33	23.00	23.10		
1.4	QPSK	3	0	21.50	23.27	23.35		
1.4	QPSK	3	1	21.64	23.32	23.49		
1.4	QPSK	3	3	21.67	23.38	23.45		
1.4	QPSK	6	0	20.73	23.24	22.34	24	0
1.4	16QAM	1	0	20.07	23.20	22.52	24	0
1.4	16QAM	1	3	20.42	23.22	22.44		
1.4	16QAM	1	5	19.90	23.28	22.49		
1.4	16QAM	3	0	20.48	23.48	22.28		
1.4	16QAM	3	1	20.61	23.50	22.26		
1.4	16QAM	3	3	20.48	23.42	22.30		
1.4	16QAM	6	0	19.46	22.65	21.22	23	1

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	19.47	**19.74**	19.56	20.5	0
20	QPSK	1	49	19.49	19.60	19.37		
20	QPSK	1	99	19.35	19.47	19.42		
20	QPSK	50	0	19.45	19.47	19.32	20.5	0
20	QPSK	50	24	19.44	19.46	19.13		
20	QPSK	50	50	19.36	19.44	19.14		
20	QPSK	100	0	19.44	19.46	19.21		
20	16QAM	1	0	18.82	18.91	19.21	20.5	0
20	16QAM	1	49	19.03	18.86	18.98		
20	16QAM	1	99	18.94	19.19	18.82		
20	16QAM	50	0	19.49	19.35	19.17	20.5	0
20	16QAM	50	24	19.48	19.50	19.22		
20	16QAM	50	50	19.46	19.55	19.12		
20	16QAM	100	0	19.45	19.44	19.22		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	19.23	19.50	19.30	20.5	0
15	QPSK	1	37	19.42	19.35	19.10		
15	QPSK	1	74	19.17	19.29	19.27		
15	QPSK	36	0	19.23	19.34	19.28	20.5	0
15	QPSK	36	20	19.33	19.40	19.07		
15	QPSK	36	39	19.39	19.38	19.03		
15	QPSK	75	0	19.39	19.41	19.09		
15	16QAM	1	0	19.15	18.89	19.20	20.5	0
15	16QAM	1	37	19.30	19.30	19.13		
15	16QAM	1	74	19.10	19.22	19.14		
15	16QAM	36	0	19.28	19.20	19.09	20.5	0
15	16QAM	36	20	19.33	19.37	19.01		
15	16QAM	36	39	19.37	19.35	18.97		
15	16QAM	75	0	19.43	19.47	19.11		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	19.23	19.22	19.21	20.5	0
10	QPSK	1	25	19.29	19.45	19.24		
10	QPSK	1	49	19.19	19.56	19.25		
10	QPSK	25	0	19.16	19.36	19.19	20.5	0
10	QPSK	25	12	19.28	19.42	19.11		
10	QPSK	25	25	19.28	19.32	19.03		
10	QPSK	50	0	19.26	19.38	19.10		
10	16QAM	1	0	18.64	18.71	18.72	20.5	0
10	16QAM	1	25	18.62	18.66	18.90		
10	16QAM	1	49	18.57	18.77	19.03		
10	16QAM	25	0	19.16	19.27	19.07	20.5	0
10	16QAM	25	12	19.31	19.34	19.12		
10	16QAM	25	25	19.37	19.33	19.12		
10	16QAM	50	0	19.45	19.31	19.24		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	19.22	19.20	19.26	20.5	0
5	QPSK	1	12	19.35	19.24	19.28		
5	QPSK	1	24	19.23	19.16	19.29		
5	QPSK	12	0	19.18	19.33	19.14	20.5	0
5	QPSK	12	7	19.33	19.32	19.07		
5	QPSK	12	13	19.27	19.38	19.15		
5	QPSK	25	0	19.25	19.44	19.18		
5	16QAM	1	0	19.21	19.25	19.54	20.5	0
5	16QAM	1	12	19.31	19.10	19.46		
5	16QAM	1	24	19.21	19.26	19.23		
5	16QAM	12	0	19.07	19.23	18.98	20.5	0
5	16QAM	12	7	19.10	19.26	19.04		
5	16QAM	12	13	19.22	19.12	19.03		
5	16QAM	25	0	19.60	19.27	19.22		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	19.33	19.31	19.29	20.5	0
3	QPSK	1	8	19.11	19.17	19.27		
3	QPSK	1	14	19.21	19.22	19.35		
3	QPSK	8	0	19.21	19.29	19.17	20.5	0
3	QPSK	8	4	19.34	19.40	19.25		
3	QPSK	8	7	19.40	19.37	19.27		
3	QPSK	15	0	19.30	19.36	19.21		
3	16QAM	1	0	18.92	19.13	19.04	20.5	0
3	16QAM	1	8	18.72	18.86	18.88		
3	16QAM	1	14	18.69	18.82	18.81		
3	16QAM	8	0	18.98	18.97	18.98	20.5	0
3	16QAM	8	4	19.03	19.13	19.06		
3	16QAM	8	7	19.12	19.01	19.07		
3	16QAM	15	0	19.46	19.53	19.10		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	19.20	19.25	19.24	20.5	0
1.4	QPSK	1	3	19.44	19.39	19.42		
1.4	QPSK	1	5	19.31	19.28	19.22		
1.4	QPSK	3	0	19.37	19.35	19.48		
1.4	QPSK	3	1	19.30	19.43	19.37		
1.4	QPSK	3	3	19.54	19.39	19.41		
1.4	QPSK	6	0	19.42	19.38	19.38	20.5	0
1.4	16QAM	1	0	18.66	18.74	18.98	20.5	0
1.4	16QAM	1	3	19.05	18.85	19.13		
1.4	16QAM	1	5	19.02	18.65	18.95		
1.4	16QAM	3	0	19.30	19.28	19.34		
1.4	16QAM	3	1	19.16	19.33	19.34		
1.4	16QAM	3	3	19.37	19.42	19.29		
1.4	16QAM	6	0	19.12	19.35	19.23	20.5	0

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

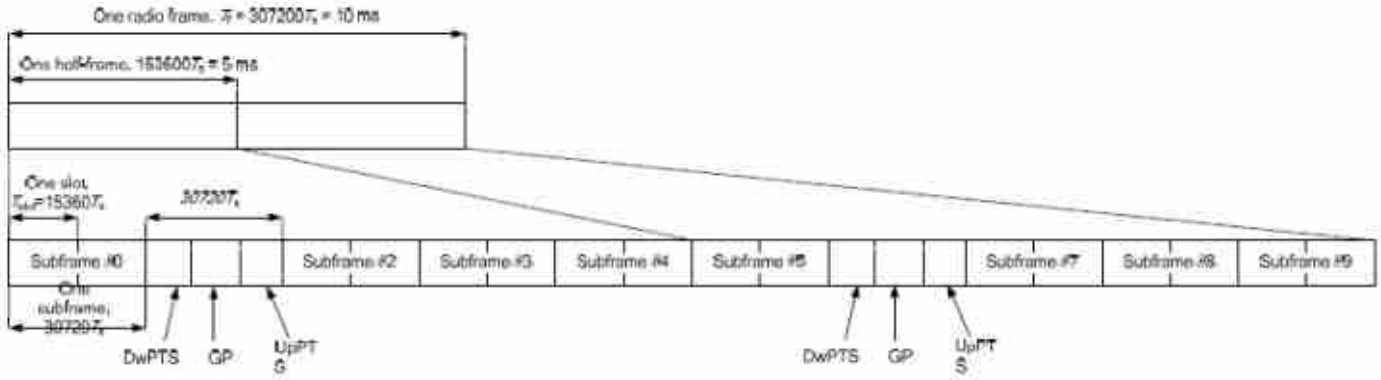


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

For LTE Band 41 Power class 2

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

For LTE Band 41 Power class 3

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

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

LTE TDD Band	Power Class level	support uplink/downlink configuration
LTE Band 41	> 23	1,2,3,4,5
	=23	0,1,2,3,4,5,6
	< 23	0,1,2,3,4,5,6

<Maximum Average RF Power (Proximity Sensor Inactive)>

<LTE Band 41>

Power Class 3:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	24.66	**25.15**	25.00	24.70	24.68	25.5	0
20	QPSK	1	49	25.04	25.10	24.98	25.00	24.78		
20	QPSK	1	99	24.72	24.86	24.81	24.78	24.76		
20	QPSK	50	0	24.20	24.45	24.24	24.44	24.30	24.5	1
20	QPSK	50	24	24.35	24.37	24.38	24.22	24.34		
20	QPSK	50	50	24.35	24.31	24.36	24.43	24.23		
20	QPSK	100	0	24.18	24.42	24.35	24.25	24.26		
20	16QAM	1	0	23.85	23.54	23.42	23.60	23.76	24.5	1
20	16QAM	1	49	23.70	23.83	23.87	23.49	23.76		
20	16QAM	1	99	23.78	23.73	23.77	23.77	23.41		
20	16QAM	50	0	23.13	23.44	23.38	23.37	23.11	23.5	2
20	16QAM	50	24	23.27	23.42	23.45	23.38	23.29		
20	16QAM	50	50	23.26	23.41	23.47	23.46	23.28		
20	16QAM	100	0	23.20	23.38	23.48	23.26	23.19		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	24.76	24.89	24.92	24.86	24.77	25.5	0
15	QPSK	1	37	25.07	25.12	25.14	24.86	25.05		
15	QPSK	1	74	24.88	25.06	25.04	25.10	24.75		
15	QPSK	36	0	24.08	24.36	24.42	24.26	24.03	24.5	1
15	QPSK	36	20	24.01	24.38	24.45	24.27	24.03		
15	QPSK	36	39	23.98	24.09	24.02	24.14	24.02		
15	QPSK	75	0	23.96	24.18	24.32	24.04	24.00		
15	16QAM	1	0	23.64	23.78	23.84	23.60	23.58	24.5	1
15	16QAM	1	37	23.92	23.87	23.95	23.96	23.54		
15	16QAM	1	74	23.65	23.71	23.59	23.58	23.51		
15	16QAM	36	0	22.89	23.23	23.30	22.99	22.98	23.5	2
15	16QAM	36	20	22.96	23.19	23.23	23.12	22.92		
15	16QAM	36	39	22.94	23.11	23.15	23.13	22.97		
15	16QAM	75	0	23.18	23.14	23.38	23.19	22.93		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	24.88	24.92	24.92	24.97	24.89	25.5	0
10	QPSK	1	25	25.11	25.08	25.13	25.04	24.73		
10	QPSK	1	49	25.08	25.08	24.93	25.04	24.81		
10	QPSK	25	0	24.23	24.31	24.26	24.16	23.99	24.5	1
10	QPSK	25	12	24.14	24.38	24.41	24.17	24.04		
10	QPSK	25	25	23.98	24.06	24.26	24.01	24.10		
10	QPSK	50	0	24.09	24.18	24.31	24.00	23.83		
10	16QAM	1	0	23.74	23.70	23.87	23.76	23.43	24.5	1
10	16QAM	1	25	23.45	23.84	23.86	23.71	23.63		
10	16QAM	1	49	23.72	23.68	23.47	23.78	23.42		
10	16QAM	25	0	23.14	23.26	23.30	23.23	22.97	23.5	2
10	16QAM	25	12	23.13	23.33	23.29	23.33	23.03		
10	16QAM	25	25	23.21	23.29	23.23	23.31	22.98		
10	16QAM	50	0	23.05	23.22	23.12	23.15	22.74		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	24.74	24.90	24.84	24.79	24.56	25.5	0
5	QPSK	1	12	25.00	24.89	24.94	24.81	24.74		
5	QPSK	1	24	24.69	24.91	24.99	24.92	24.60		
5	QPSK	12	0	23.89	24.05	24.23	24.02	23.74	24.5	1
5	QPSK	12	7	24.04	24.21	24.21	24.02	23.81		
5	QPSK	12	13	24.20	24.23	24.21	23.99	23.80		
5	QPSK	25	0	24.18	24.21	24.24	24.11	23.79		
5	16QAM	1	0	23.51	23.63	23.67	23.67	23.55	24.5	1
5	16QAM	1	12	23.95	23.93	23.97	23.99	23.56		
5	16QAM	1	24	23.72	23.94	23.70	23.75	23.52		
5	16QAM	12	0	22.83	22.95	23.02	22.87	22.69	23.5	2
5	16QAM	12	7	22.95	23.09	23.14	23.12	22.85		
5	16QAM	12	13	23.00	23.12	23.08	23.06	22.67		
5	16QAM	25	0	23.23	23.25	23.21	23.14	22.94		

Power Class 2:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	27.31	**27.73**	27.61	27.39	27.56	28	0
20	QPSK	1	49	27.61	27.71	27.54	27.61	27.34		
20	QPSK	1	99	27.41	27.43	27.35	27.47	27.36		
20	QPSK	50	0	26.70	26.83	26.83	26.70	26.59	27	1
20	QPSK	50	24	26.84	26.84	26.92	26.79	26.59		
20	QPSK	50	50	26.78	26.85	26.68	26.79	26.62		
20	QPSK	100	0	26.70	26.84	26.75	26.84	26.41		
20	16QAM	1	0	26.33	26.51	26.39	26.46	26.26	27	1
20	16QAM	1	49	26.69	26.55	26.66	26.59	26.40		
20	16QAM	1	99	26.42	26.41	26.22	26.35	26.35		
20	16QAM	50	0	25.78	25.78	25.78	25.81	25.80	26	2
20	16QAM	50	24	25.94	25.76	25.95	25.87	25.81		
20	16QAM	50	50	25.88	25.91	25.88	25.86	25.79		
20	16QAM	100	0	25.70	25.87	25.79	25.85	25.44		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	27.42	27.53	27.49	27.55	27.39	28	0
15	QPSK	1	37	27.68	27.60	27.60	27.57	27.53		
15	QPSK	1	74	27.59	27.66	27.50	27.61	27.33		
15	QPSK	36	0	26.72	26.83	26.85	26.91	26.92	27	1
15	QPSK	36	20	26.71	26.97	26.91	26.86	26.89		
15	QPSK	36	39	26.78	26.85	26.68	26.85	26.89		
15	QPSK	75	0	26.66	26.85	26.78	26.88	26.47		
15	16QAM	1	0	26.41	26.51	26.51	26.52	26.31	27	1
15	16QAM	1	37	26.50	26.69	26.58	26.51	26.41		
15	16QAM	1	74	26.51	26.49	26.32	26.48	26.21		
15	16QAM	36	0	25.57	25.91	25.90	25.89	25.89	26	2
15	16QAM	36	20	25.78	25.76	25.85	25.94	25.82		
15	16QAM	36	39	25.85	25.94	25.85	25.87	25.83		
15	16QAM	75	0	25.76	25.70	25.91	26.00	25.80		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	27.62	27.68	27.46	27.62	27.37	28	0
10	QPSK	1	25	27.62	27.61	27.67	27.68	27.47		
10	QPSK	1	49	27.53	27.57	27.47	27.53	27.29		
10	QPSK	25	0	26.71	26.79	26.67	26.80	26.45	27	1
10	QPSK	25	12	26.81	26.76	26.77	26.78	26.54		
10	QPSK	25	25	26.85	26.71	26.72	26.67	26.40		
10	QPSK	50	0	26.91	26.86	26.75	26.92	26.50		
10	16QAM	1	0	26.52	26.51	26.50	26.65	26.38	27	1
10	16QAM	1	25	26.76	26.71	26.68	26.63	26.46		
10	16QAM	1	49	26.51	26.45	26.34	26.47	26.35		
10	16QAM	25	0	25.85	25.78	25.88	25.89	25.87	26	2
10	16QAM	25	12	25.82	25.82	25.89	25.88	25.91		
10	16QAM	25	25	25.81	25.88	25.82	25.78	25.91		
10	16QAM	50	0	25.90	25.97	25.81	26.00	25.81		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	27.40	27.44	27.37	27.44	27.29	28	0
5	QPSK	1	12	27.64	27.59	27.61	27.60	27.20		
5	QPSK	1	24	27.52	27.41	27.52	27.50	27.17		
5	QPSK	12	0	26.86	26.87	26.81	26.88	26.47	27	1
5	QPSK	12	7	26.85	26.83	26.82	26.94	26.44		
5	QPSK	12	13	26.79	26.91	26.82	26.88	26.72		
5	QPSK	25	0	26.76	26.62	26.73	26.64	26.32		
5	16QAM	1	0	26.44	26.42	26.45	26.48	26.26	27	1
5	16QAM	1	12	26.49	26.50	26.66	26.31	26.19		
5	16QAM	1	24	26.52	26.49	26.47	26.33	26.16		
5	16QAM	12	0	25.74	25.91	25.93	25.83	25.79	26	2
5	16QAM	12	7	25.71	25.75	25.80	25.92	25.71		
5	16QAM	12	13	25.72	25.82	25.93	25.81	25.70		
5	16QAM	25	0	25.88	25.79	25.96	25.87	25.79		

<Maximum Average RF Power (Proximity Sensor Active)>

<LTE Band 41>

Power Class 2/3:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	18.13	**18.47**	18.24	18.24	18.16	19	0
20	QPSK	1	49	18.13	18.05	18.20	18.22	18.02		
20	QPSK	1	99	18.09	18.05	18.04	18.03	18.05		
20	QPSK	50	0	18.07	18.24	18.20	18.22	17.99	19	0
20	QPSK	50	24	18.19	18.08	18.11	18.12	18.00		
20	QPSK	50	50	18.10	18.05	18.07	18.19	17.79		
20	QPSK	100	0	18.14	18.15	18.10	18.14	17.90		
20	16QAM	1	0	17.65	17.44	17.61	17.69	17.56	19	0
20	16QAM	1	49	17.90	17.80	17.92	17.81	17.85		
20	16QAM	1	99	17.56	17.45	17.61	17.51	17.45		
20	16QAM	50	0	18.05	18.12	18.10	18.06	17.92	19	0
20	16QAM	50	24	18.07	18.08	18.06	17.96	17.97		
20	16QAM	50	50	18.08	18.13	18.02	18.10	17.78		
20	16QAM	100	0	18.12	17.99	18.12	18.08	17.88		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	18.03	17.84	18.03	18.00	17.86	19	0
15	QPSK	1	37	18.30	18.08	18.20	18.11	18.21		
15	QPSK	1	74	18.05	17.88	18.03	17.97	17.87		
15	QPSK	36	0	18.17	18.05	18.16	18.21	17.92	19	0
15	QPSK	36	20	18.11	18.08	18.15	18.12	17.99		
15	QPSK	36	39	18.11	17.97	18.15	18.09	17.84		
15	QPSK	75	0	18.15	18.09	18.06	18.12	17.91		
15	16QAM	1	0	17.65	17.56	17.67	17.65	17.58	19	0
15	16QAM	1	37	17.89	17.63	17.89	17.82	17.81		
15	16QAM	1	74	17.65	17.60	17.74	17.55	17.40		
15	16QAM	36	0	17.96	18.10	17.97	18.08	17.83	19	0
15	16QAM	36	20	17.95	18.12	17.97	18.01	17.94		
15	16QAM	36	39	17.99	17.99	18.19	17.97	17.77		
15	16QAM	75	0	18.12	17.95	18.14	18.13	17.87		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	18.00	17.81	17.75	17.86	17.77	19	0
10	QPSK	1	25	18.17	18.00	18.02	18.15	17.87		
10	QPSK	1	49	17.90	17.88	17.80	17.80	17.83		
10	QPSK	25	0	18.27	18.03	18.18	18.10	17.99	19	0
10	QPSK	25	12	18.27	18.00	18.16	18.15	17.90		
10	QPSK	25	25	18.13	18.03	18.11	18.10	17.84		
10	QPSK	50	0	18.23	18.09	18.15	18.15	17.87		
10	16QAM	1	0	17.85	17.62	17.71	17.82	17.61	19	0
10	16QAM	1	25	17.91	17.66	17.86	17.73	17.79		
10	16QAM	1	49	17.55	17.57	17.47	17.44	17.41		
10	16QAM	25	0	18.30	18.14	18.10	18.04	18.18	19	0
10	16QAM	25	12	18.40	18.10	18.21	18.19	18.04		
10	16QAM	25	25	18.33	18.23	18.30	18.04	17.93		
10	16QAM	50	0	18.27	18.07	18.13	18.09	17.86		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	17.85	17.76	17.95	17.95	17.77	19	0
5	QPSK	1	12	18.04	17.97	18.07	18.14	17.89		
5	QPSK	1	24	17.97	17.72	17.92	17.83	17.68		
5	QPSK	12	0	18.08	18.02	18.05	18.05	17.94	19	0
5	QPSK	12	7	18.14	17.97	18.16	18.05	17.98		
5	QPSK	12	13	18.03	17.87	18.02	18.01	17.90		
5	QPSK	25	0	18.14	17.99	18.07	18.06	17.91		
5	16QAM	1	0	17.54	17.40	17.52	17.60	17.42	19	0
5	16QAM	1	12	17.68	17.70	17.61	17.63	17.59		
5	16QAM	1	24	17.68	17.45	17.46	17.52	17.42		
5	16QAM	12	0	18.08	17.81	18.15	17.88	17.83	19	0
5	16QAM	12	7	18.03	17.95	18.16	17.98	17.86		
5	16QAM	12	13	17.90	17.96	18.04	17.84	17.96		
5	16QAM	25	0	18.04	17.99	18.28	17.97	17.90		

<WLAN Conducted Power>

General Note:

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

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	14.96	15.50	97.59
		6	2437	15.00	15.50	
		11	2462	**15.08**	15.50	
	802.11g 6Mbps	1	2412	12.35	12.50	87.04
		6	2437	13.08	13.50	
		11	2462	11.11	11.50	
	802.11n-HT20 MCS0	1	2412	11.39	11.50	86.27
		6	2437	11.92	12.00	
		11	2462	9.69	10.00	
	802.11n-HT40 MCS0	3	2422	10.20	10.50	85.79
		6	2437	11.80	12.00	
		9	2452	8.96	9.00	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	10.15	11.00	87.50
		40	5200	10.20	11.00	
		44	5220	10.13	11.00	
		48	5240	10.27	11.00	
	802.11n-HT20 MCS0	36	5180	10.26	11.00	86.76
		40	5200	**10.29**	11.00	
		44	5220	10.21	11.00	
		48	5240	9.88	11.00	
	802.11n-HT40 MCS0	38	5190	10.18	11.00	86.29
		46	5230	9.80	11.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	10.07	11.00	87.50
		56	5280	**10.24**	11.00	
		60	5300	10.06	11.00	
		64	5320	10.22	11.00	
	802.11n-HT20 MCS0	52	5260	10.15	11.00	86.76
		56	5280	9.91	11.00	
		60	5300	9.96	11.00	
		64	5320	10.15	11.00	
	802.11n-HT40 MCS0	54	5270	10.12	11.00	86.29
		62	5310	10.07	11.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	10.17	11.00	87.50
		116	5580	9.70	11.00	
		132	5660	10.22	11.00	
		140	5700	9.96	11.00	
	802.11n-HT20 MCS0	100	5500	10.18	11.00	86.76
		116	5580	9.75	11.00	
		132	5660	**10.23**	11.00	
		140	5700	9.98	11.00	
	802.11n-HT40 MCS0	102	5510	10.12	11.00	86.29
		110	5550	9.81	11.00	
		134	5670	10.11	11.00	

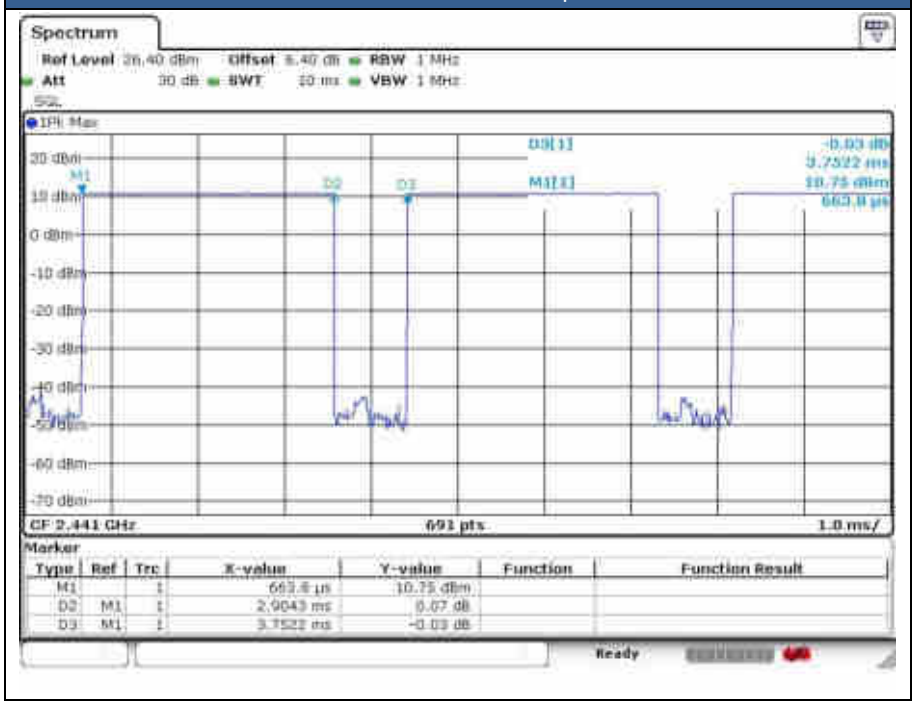
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	9.99	11.00	87.50
		157	5785	9.84	11.00	
		165	5825	10.07	11.00	
	802.11n-HT20 MCS0	149	5745	9.93	11.00	86.76
		157	5785	9.86	11.00	
		165	5825	10.11	11.00	
	802.11n-HT40 MCS0	151	5755	9.88	11.00	86.29
		159	5795	**10.16**	11.00	

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 77.40 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation.

Bluetooth time-domain plot



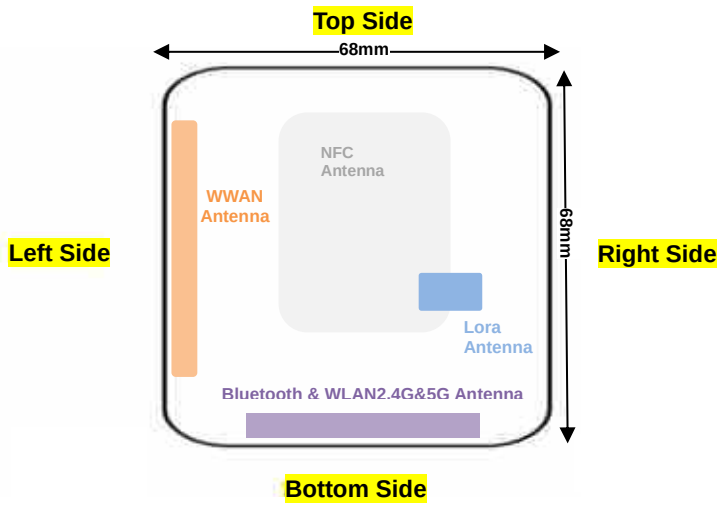
Mode	Channel	Frequency (MHz)	Average power (dBm)
			1Mbps
BR/EDR	CH 00	2402	**10.74**
	CH 39	2441	10.71
	CH 78	2480	10.62
Tune-up limit (dBm)			12.50

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	**1.95**
	CH 19	2440	1.53
	CH 39	2480	1.28
Tune-up Limit			3.00

<LoRa>

Mode	Channel	Frequency (MHz)	Average power (dBm)
			FSK
LoRa	CH 1	904	**27.94**
	CH 12	915	27.58
	CH 23	926	27.10
Tune-up Limit			29.00

14. Antenna Location



Front View

Antenna	Support Band
WWAN Antenna	WCDMA: B2 / B4 / B5 LTE: B2 / B4 / B5 / B7 / B12 / B13 / B25 / B26 / B41 / B66
Bluetooth & WLAN Antenna	WLAN 2.4GHz WLAN 5GHz Bluetooth
NFC Antenna	NFC
Lora Antenna	Lora

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

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

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

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   · ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   · ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   · ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. The device employs proximity sensors and when the sensor detects a user is touching the device on or near to the antenna the device reduces the maximum allowed output power. When detected the presence of the user's body at the front, back or left faces of the device, WCDMA band IV/II and LTE band 2/4/5/7/25/26/41/66 reduced power will be active. And for speak to face SAR, reduced power will be also active for above WWAN bands. And for hotspot SAR, sensor on reduced power will be active at front/back/left side faces for above WWAN bands, other WWAN bands are all full power mode. Detailed descriptions of the proximity sensor trigger power reduction mechanism are included in the operational description.
5. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   · Front: 16 mm
   · Back: 13 mm
   · Left: 16 mm

WCDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B12/B26/B66 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4 / B5 / B2 SAR test was covered by B66 / B26 / B25; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. The maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion.
   b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.
8. This device supports HPUE for LTE band 41 with class 2 level, so HPUE SAR has been performed.

WLAN/Bluetooth Note:

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

LoRa:

1. This product is a low transmission duty factor device and the maximum duty cycle for LoRa is 13.6%.
2. We using the actual duty cycle 13.41% to perform SAR test and scaled it to the maximum 13.6%.

15.1 Head SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	WCDMA Band V	RMC 12.2Kbps	In front of Face	5	Off	4132	826.4	23.92	24.00	1.019	0.04	0.976	**0.994**
	WCDMA Band V	RMC 12.2Kbps	In front of Face	5	Off	4182	836.4	23.90	24.00	1.023	0.09	0.925	0.947
	WCDMA Band V	RMC 12.2Kbps	In front of Face	5	Off	4233	846.6	23.89	24.00	1.026	-0.12	0.874	0.896
	WCDMA Band IV	RMC 12.2Kbps	In front of Face	5	On	1312	1712.4	20.31	20.50	1.045	0.04	0.996	1.041
	WCDMA Band IV	RMC 12.2Kbps	In front of Face	5	On	1413	1732.6	20.25	20.50	1.059	-0.09	0.953	1.009
02	WCDMA Band IV	RMC 12.2Kbps	In front of Face	5	On	1513	1752.6	20.24	20.50	1.062	0.09	1.040	**1.104**
	WCDMA Band II	RMC 12.2Kbps	In front of Face	5	On	9400	1880	17.94	18.50	1.138	0.18	0.779	0.886
	WCDMA Band II	RMC 12.2Kbps	In front of Face	5	On	9262	1852.4	17.88	18.50	1.153	0.05	0.709	0.818
03	WCDMA Band II	RMC 12.2Kbps	In front of Face	5	On	9538	1907.6	17.85	18.50	1.161	0.05	0.872	**1.013**

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
04	LTE Band 12	10M	QPSK	1	0	In front of Face	5	Off	23095	707.5	25.22	25.50	1.067	0.06	0.532	**0.567**
	LTE Band 12	10M	QPSK	25	0	In front of Face	5	Off	23095	707.5	24.15	24.50	1.084	0.01	0.426	0.462
	LTE Band 13	10M	QPSK	1	0	In front of Face	5	Off	23230	782	25.36	25.50	1.033	0.02	0.560	0.578
05	LTE Band 13	10M	QPSK	25	0	In front of Face	5	Off	23230	782	24.35	24.50	1.035	0.01	0.565	**0.585**
	LTE Band 26	15M	QPSK	1	74	In front of Face	5	On	26865	831.5	23.53	24.00	1.114	0.03	0.698	0.778
	LTE Band 26	15M	QPSK	36	0	In front of Face	5	On	26865	831.5	23.34	24.00	1.164	0.08	0.748	0.871
06	LTE Band 26	15M	QPSK	75	0	In front of Face	5	On	26865	831.5	23.28	24.00	1.180	0.02	0.743	**0.877**
	LTE Band 25	20M	QPSK	1	0	In front of Face	5	On	26340	1880	18.83	19.00	1.040	0.01	0.794	0.826
	LTE Band 25	20M	QPSK	1	0	In front of Face	5	On	26140	1860	18.49	19.00	1.125	0.02	0.790	0.888
07	LTE Band 25	20M	QPSK	1	0	In front of Face	5	On	26590	1905	18.62	19.00	1.091	-0.1	0.827	**0.903**
	LTE Band 25	20M	QPSK	50	0	In front of Face	5	On	26340	1880	18.75	19.00	1.059	0.03	0.770	0.816
	LTE Band 25	20M	QPSK	50	0	In front of Face	5	On	26140	1860	18.68	19.00	1.076	0.01	0.781	0.841
	LTE Band 25	20M	QPSK	50	0	In front of Face	5	On	26590	1905	18.70	19.00	1.072	0.01	0.797	0.854
	LTE Band 25	20M	QPSK	100	0	In front of Face	5	On	26340	1880	18.65	19.00	1.084	0.03	0.768	0.832
	LTE Band 66	20M	QPSK	1	0	In front of Face	5	On	132322	1745	19.74	20.50	1.191	0.01	0.918	1.094
	LTE Band 66	20M	QPSK	1	0	In front of Face	5	On	132072	1720	19.47	20.50	1.268	0.03	0.909	1.152
08	LTE Band 66	20M	QPSK	1	0	In front of Face	5	On	132572	1770	19.56	20.50	1.242	-0.07	0.935	**1.161**
	LTE Band 66	20M	QPSK	50	0	In front of Face	5	On	132322	1745	19.47	20.50	1.268	0.01	0.780	0.989
	LTE Band 66	20M	QPSK	50	0	In front of Face	5	On	132072	1720	19.45	20.50	1.274	0.01	0.761	0.969
	LTE Band 66	20M	QPSK	50	0	In front of Face	5	On	132572	1770	19.32	20.50	1.312	0.08	0.825	1.083
	LTE Band 66	20M	QPSK	100	0	In front of Face	5	On	132322	1745	19.46	20.50	1.271	0.01	0.801	1.018
	LTE Band 7	20M	QPSK	1	0	In front of Face	5	On	21100	2535	17.92	18.00	1.019	0.07	0.718	0.731
	LTE Band 7	20M	QPSK	1	0	In front of Face	5	On	20850	2510	17.64	18.00	1.086	-0.02	0.547	0.594
	LTE Band 7	20M	QPSK	1	0	In front of Face	5	On	21350	2560	17.60	18.00	1.096	0.09	0.665	0.729
09	LTE Band 7	20M	QPSK	50	0	In front of Face	5	On	21100	2535	17.90	18.00	1.023	0.02	0.731	**0.748**

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Power Class	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	3	40185	2549.5	18.47	19.00	1.130	62.9	1.006	0.05	0.692	0.787
10	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	3	39750	2506	18.13	19.00	1.222	62.9	1.006	0.06	0.782	**0.961**
	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	3	40620	2593	18.24	19.00	1.191	62.9	1.006	0.01	0.735	0.881
	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	3	41055	2636.5	18.24	19.00	1.191	62.9	1.006	-0.02	0.496	0.594
	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	3	41490	2680	18.16	19.00	1.213	62.9	1.006	0.03	0.431	0.526
	LTE Band 41	20M	QPSK	50	0	In front of Face	5	On	3	40185	2549.5	18.24	19.00	1.191	62.9	1.006	0.02	0.708	0.848
	LTE Band 41	20M	QPSK	50	0	In front of Face	5	On	3	39750	2506	18.07	19.00	1.239	62.9	1.006	0.03	0.765	0.953
	LTE Band 41	20M	QPSK	50	0	In front of Face	5	On	3	40620	2593	18.20	19.00	1.202	62.9	1.006	0.01	0.529	0.640
	LTE Band 41	20M	QPSK	50	0	In front of Face	5	On	3	41055	2636.5	18.22	19.00	1.197	62.9	1.006	0.08	0.562	0.677
	LTE Band 41	20M	QPSK	50	0	In front of Face	5	On	3	41490	2680	17.99	19.00	1.262	62.9	1.006	-0.05	0.47	0.597
	LTE Band 41	20M	QPSK	100	0	In front of Face	5	On	3	40185	2549.5	18.15	19.00	1.216	62.9	1.006	0.04	0.683	0.836
11	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	2	40185	2549.5	18.47	19.00	1.130	42.9	1.009	0.02	0.524	**0.597**
	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	2	39750	2506	18.13	19.00	1.222	42.9	1.009	0.06	0.337	0.415
	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	2	40620	2593	18.24	19.00	1.191	42.9	1.009	0.05	0.267	0.321
	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	2	41055	2636.5	18.24	19.00	1.191	42.9	1.009	0.01	0.270	0.325
	LTE Band 41	20M	QPSK	1	0	In front of Face	5	On	2	41490	2680	18.16	19.00	1.213	42.9	1.009	0.06	0.224	0.274
	LTE Band 41	20M	QPSK	50	0	In front of Face	5	On	2	40185	2549.5	18.24	19.00	1.191	42.9	1.009	0.01	0.440	0.529

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
12	WLAN2.4GHz	802.11b 1Mbps	In front of Face	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	-0.09	0.235	**0.266**
	WLAN2.4GHz	802.11b 1Mbps	In front of Face	5	Off	1	2437	14.96	15.50	1.133	97.59	1.025	0.05	0.219	0.254
	WLAN2.4GHz	802.11b 1Mbps	In front of Face	5	Off	6	2462	15.00	15.50	1.123	97.59	1.025	-0.02	0.205	0.236

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
13	Bluetooth	1Mbps	In front of Face	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	-0.06	0.066	**0.106**
	Bluetooth	1Mbps	In front of Face	5	Off	39	2441	10.71	12.50	1.509	77.4	1.076	0.09	0.031	0.051
	Bluetooth	1Mbps	In front of Face	5	Off	78	2480	10.62	12.50	1.541	77.4	1.076	0.06	0.033	0.055

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
14	WLAN5.2GHz	802.11n-HT40 MCS0	In front of Face	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	-0.01	0.248	**0.347**
	WLAN5.2GHz	802.11n-HT40 MCS0	In front of Face	5	Off	46	5230	9.80	11.00	1.318	86.29	1.159	0.01	0.207	0.316
15	WLAN5.3GHz	802.11n-HT40 MCS0	In front of Face	5	Off	54	5270	10.12	11.00	1.225	86.29	1.159	-0.01	0.236	**0.335**
	WLAN5.3GHz	802.11n-HT40 MCS0	In front of Face	5	Off	62	5310	10.07	11.00	1.239	86.29	1.159	0.02	0.180	0.258
16	WLAN5.5GHz	802.11n-HT40 MCS0	In front of Face	5	Off	102	5510	10.12	11.00	1.225	86.29	1.159	-0.04	0.305	**0.433**
	WLAN5.5GHz	802.11n-HT40 MCS0	In front of Face	5	Off	110	5550	9.81	11.00	1.315	86.29	1.159	0.02	0.218	0.332
	WLAN5.5GHz	802.11n-HT40 MCS0	In front of Face	5	Off	134	5670	10.11	11.00	1.227	86.29	1.159	0.05	0.201	0.286
17	WLAN5.8GHz	802.11n-HT40 MCS0	In front of Face	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	-0.09	0.065	**0.091**
	WLAN5.8GHz	802.11n-HT40 MCS0	In front of Face	5	Off	151	5755	9.88	11.00	1.294	86.29	1.159	0.07	0.058	0.087

15.2 Hotspot SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA Band V	RMC 12.2Kbps	Front	5	Off	4132	826.4	23.92	24.00	1.019	0.04	0.976	0.994
	WCDMA Band V	RMC 12.2Kbps	Front	5	Off	4182	836.4	23.90	24.00	1.023	0.09	0.925	0.947
	WCDMA Band V	RMC 12.2Kbps	Front	5	Off	4233	846.6	23.89	24.00	1.026	-0.12	0.874	0.896
18	WCDMA Band V	RMC 12.2Kbps	Back	5	Off	4132	826.4	23.92	24.00	1.019	-0.03	1.170	**1.192**
	WCDMA Band V	RMC 12.2Kbps	Back	5	Off	4182	836.4	23.90	24.00	1.023	0.02	1.080	1.105
	WCDMA Band V	RMC 12.2Kbps	Back	5	Off	4233	846.6	23.89	24.00	1.026	0.02	1.010	1.036
	WCDMA Band V	RMC 12.2Kbps	Left Side	5	Off	4132	826.4	23.92	24.00	1.019	0.13	0.751	0.765
	WCDMA Band V	RMC 12.2Kbps	Right Side	5	Off	4132	826.4	23.92	24.00	1.019	0.01	0.049	0.050
	WCDMA Band V	RMC 12.2Kbps	Top Side	5	Off	4132	826.4	23.92	24.00	1.019	0.01	0.311	0.317
	WCDMA Band V	RMC 12.2Kbps	Bottom Side	5	Off	4132	826.4	23.92	24.00	1.019	0.02	0.180	0.183
	WCDMA Band IV	RMC 12.2Kbps	Front	5	On	1312	1712.4	20.31	20.50	1.045	0.04	0.996	1.041
	WCDMA Band IV	RMC 12.2Kbps	Front	5	On	1413	1732.6	20.25	20.50	1.059	-0.09	0.953	1.009
19	WCDMA Band IV	RMC 12.2Kbps	Front	5	On	1513	1752.6	20.24	20.50	1.062	0.09	1.040	**1.104**
	WCDMA Band IV	RMC 12.2Kbps	Back	5	On	1312	1712.4	20.31	20.50	1.045	0.09	0.601	0.628
	WCDMA Band IV	RMC 12.2Kbps	Left Side	5	On	1312	1712.4	20.31	20.50	1.045	0.13	1.010	1.055
	WCDMA Band IV	RMC 12.2Kbps	Left Side	5	On	1413	1732.6	20.25	20.50	1.059	0.05	0.934	0.989
	WCDMA Band IV	RMC 12.2Kbps	Left Side	5	On	1513	1752.6	20.24	20.50	1.062	-0.1	1.020	1.083
	WCDMA Band IV	RMC 12.2Kbps	Right Side	5	Off	1312	1712.4	23.79	24.00	1.050	0.03	0.106	0.111
	WCDMA Band IV	RMC 12.2Kbps	Top Side	5	Off	1312	1712.4	23.79	24.00	1.050	0.05	0.567	0.595
	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	5	Off	1312	1712.4	23.79	24.00	1.050	0.03	0.094	0.099
	WCDMA Band II	RMC 12.2Kbps	Front	5	On	9400	1880	17.94	18.50	1.138	0.18	0.779	0.886
	WCDMA Band II	RMC 12.2Kbps	Front	5	On	9262	1852.4	17.88	18.50	1.153	0.05	0.709	0.818
	WCDMA Band II	RMC 12.2Kbps	Front	5	On	9538	1907.6	17.85	18.50	1.161	0.05	0.872	1.013
	WCDMA Band II	RMC 12.2Kbps	Back	5	On	9400	1880	17.94	18.50	1.138	-0.18	0.444	0.505
	WCDMA Band II	RMC 12.2Kbps	Left Side	5	On	9400	1880	17.94	18.50	1.138	0.11	0.876	0.997
	WCDMA Band II	RMC 12.2Kbps	Left Side	5	On	9262	1852.4	17.88	18.50	1.153	0.09	0.743	0.857
20	WCDMA Band II	RMC 12.2Kbps	Left Side	5	On	9538	1907.6	17.85	18.50	1.161	0.02	1.010	**1.173**
	WCDMA Band II	RMC 12.2Kbps	Right Side	5	Off	9400	1880	23.70	24.00	1.072	0.02	0.072	0.077
	WCDMA Band II	RMC 12.2Kbps	Top Side	5	Off	9400	1880	23.70	24.00	1.072	0.01	0.480	0.514
	WCDMA Band II	RMC 12.2Kbps	Bottom Side	5	Off	9400	1880	23.70	24.00	1.072	0.02	0.092	0.098

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1	0	Front	5	Off	23095	707.5	25.22	25.50	1.067	0.06	0.532	0.567
	LTE Band 12	10M	QPSK	25	0	Front	5	Off	23095	707.5	24.15	24.50	1.084	0.01	0.426	0.462
21	LTE Band 12	10M	QPSK	1	0	Back	5	Off	23095	707.5	25.22	25.50	1.067	0.08	0.723	**0.771**
	LTE Band 12	10M	QPSK	25	0	Back	5	Off	23095	707.5	24.15	24.50	1.084	0.01	0.601	0.651
	LTE Band 12	10M	QPSK	1	0	Left Side	5	Off	23095	707.5	25.22	25.50	1.067	0.01	0.382	0.407
	LTE Band 12	10M	QPSK	25	0	Left Side	5	Off	23095	707.5	24.15	24.50	1.084	0.02	0.301	0.326
	LTE Band 12	10M	QPSK	1	0	Right Side	5	Off	23095	707.5	25.22	25.50	1.067	0.01	0.252	0.269
	LTE Band 12	10M	QPSK	25	0	Right Side	5	Off	23095	707.5	24.15	24.50	1.084	0.05	0.196	0.212
	LTE Band 12	10M	QPSK	1	0	Top Side	5	Off	23095	707.5	25.22	25.50	1.067	0.02	0.281	0.300
	LTE Band 12	10M	QPSK	25	0	Top Side	5	Off	23095	707.5	24.15	24.50	1.084	0.01	0.255	0.276
	LTE Band 12	10M	QPSK	1	0	Bottom Side	5	Off	23095	707.5	25.22	25.50	1.067	0.03	0.141	0.150
	LTE Band 12	10M	QPSK	25	0	Bottom Side	5	Off	23095	707.5	24.15	24.50	1.084	0.01	0.085	0.092
	LTE Band 13	10M	QPSK	1	0	Front	5	Off	23230	782	25.36	25.50	1.033	0.02	0.560	0.578
	LTE Band 13	10M	QPSK	25	0	Front	5	Off	23230	782	24.35	24.50	1.035	0.01	0.565	0.585
	LTE Band 13	10M	QPSK	1	0	Back	5	Off	23230	782	25.36	25.50	1.033	0.06	0.908	0.938
22	LTE Band 13	10M	QPSK	25	0	Back	5	Off	23230	782	24.35	24.50	1.035	0.19	0.918	**0.950**
	LTE Band 13	10M	QPSK	50	0	Back	5	Off	23230	782	24.28	24.50	1.052	-0.01	0.890	0.936
	LTE Band 13	10M	QPSK	25	0	Left Side	5	Off	23230	782	24.35	24.50	1.035	0.02	0.565	0.585
	LTE Band 13	10M	QPSK	1	0	Left Side	5	Off	23230	782	25.36	25.50	1.033	-0.07	0.490	0.506
	LTE Band 13	10M	QPSK	25	0	Right Side	5	Off	23230	782	24.35	24.50	1.035	0.01	0.040	0.042
	LTE Band 13	10M	QPSK	1	0	Right Side	5	Off	23230	782	25.36	25.50	1.033	0.02	0.035	0.036
	LTE Band 13	10M	QPSK	25	0	Top Side	5	Off	23230	782	24.35	24.50	1.035	0.08	0.189	0.196
	LTE Band 13	10M	QPSK	1	0	Top Side	5	Off	23230	782	25.36	25.50	1.033	0.06	0.181	0.187
	LTE Band 13	10M	QPSK	1	0	Bottom Side	5	Off	23230	782	25.36	25.50	1.033	0.01	0.192	0.198
	LTE Band 13	10M	QPSK	25	0	Bottom Side	5	Off	23230	782	24.35	24.50	1.035	0.02	0.164	0.170

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 26	15M	QPSK	1	74	Front	5	On	26865	831.5	23.53	24.00	1.114	0.03	0.698	0.778
	LTE Band 26	15M	QPSK	36	0	Front	5	On	26865	831.5	23.34	24.00	1.164	0.08	0.748	0.871
	LTE Band 26	15M	QPSK	75	0	Front	5	On	26865	831.5	23.28	24.00	1.180	0.02	0.743	0.877
	LTE Band 26	15M	QPSK	1	74	Back	5	On	26865	831.5	23.53	24.00	1.114	-0.02	0.887	0.988
23	LTE Band 26	15M	QPSK	36	0	Back	5	On	26865	831.5	23.34	24.00	1.164	-0.01	0.998	**1.162**
	LTE Band 26	15M	QPSK	75	0	Back	5	On	26865	831.5	23.28	24.00	1.180	-0.05	0.958	1.131
	LTE Band 26	15M	QPSK	1	74	Left Side	5	On	26865	831.5	23.53	24.00	1.114	0.02	0.778	0.867
	LTE Band 26	15M	QPSK	36	0	Left Side	5	On	26865	831.5	23.34	24.00	1.164	0.05	0.795	0.925
	LTE Band 26	15M	QPSK	75	0	Left Side	5	On	26865	831.5	23.28	24.00	1.180	0.09	0.728	0.859
	LTE Band 26	15M	QPSK	1	74	Right Side	5	Off	26865	831.5	24.46	25.00	1.132	0.03	0.119	0.135
	LTE Band 26	15M	QPSK	36	0	Right Side	5	Off	26865	831.5	23.37	24.00	1.156	-0.02	0.087	0.100
	LTE Band 26	15M	QPSK	1	74	Top Side	5	Off	26865	831.5	24.46	25.00	1.132	0.05	0.301	0.341
	LTE Band 26	15M	QPSK	36	0	Top Side	5	Off	26865	831.5	23.37	24.00	1.156	-0.04	0.264	0.305
	LTE Band 26	15M	QPSK	1	74	Bottom Side	5	Off	26865	831.5	24.46	25.00	1.132	0.01	0.222	0.251
	LTE Band 26	15M	QPSK	36	0	Bottom Side	5	Off	26865	831.5	23.37	24.00	1.156	0.01	0.167	0.193
	LTE Band 25	20M	QPSK	1	0	Front	5	On	26340	1880	18.83	19.00	1.040	0.01	0.794	0.826
	LTE Band 25	20M	QPSK	1	0	Front	5	On	26140	1860	18.49	19.00	1.125	0.02	0.790	0.888
	LTE Band 25	20M	QPSK	1	0	Front	5	On	26590	1905	18.62	19.00	1.091	-0.1	0.827	0.903
	LTE Band 25	20M	QPSK	50	0	Front	5	On	26340	1880	18.75	19.00	1.059	0.03	0.770	0.816
	LTE Band 25	20M	QPSK	50	0	Front	5	On	26140	1860	18.68	19.00	1.076	0.01	0.781	0.841
	LTE Band 25	20M	QPSK	50	0	Front	5	On	26590	1905	18.70	19.00	1.072	0.01	0.797	0.854
	LTE Band 25	20M	QPSK	100	0	Front	5	On	26340	1880	18.65	19.00	1.084	0.03	0.768	0.832
	LTE Band 25	20M	QPSK	1	0	Back	5	On	26340	1880	18.83	19.00	1.040	0.03	0.312	0.324
	LTE Band 25	20M	QPSK	50	0	Back	5	On	26340	1880	18.75	19.00	1.059	-0.02	0.358	0.379
	LTE Band 25	20M	QPSK	1	0	Left Side	5	On	26340	1880	18.83	19.00	1.040	0.01	0.755	0.785
	LTE Band 25	20M	QPSK	50	0	Left Side	5	On	26340	1880	18.75	19.00	1.059	0.01	0.943	0.999
	LTE Band 25	20M	QPSK	50	0	Left Side	5	On	26140	1860	18.68	19.00	1.076	0.03	0.856	0.921
24	LTE Band 25	20M	QPSK	50	0	Left Side	5	On	26590	1905	18.70	19.00	1.072	0.02	1.110	**1.189**
	LTE Band 25	20M	QPSK	100	0	Left Side	5	On	26340	1880	18.65	19.00	1.084	0.04	0.962	1.043
	LTE Band 25	20M	QPSK	1	0	Right Side	5	Off	26340	1880	24.64	25.00	1.086	0.02	0.068	0.074
	LTE Band 25	20M	QPSK	50	0	Right Side	5	Off	26340	1880	23.66	24.00	1.081	0.02	0.052	0.056
	LTE Band 25	20M	QPSK	1	0	Top Side	5	Off	26340	1880	24.64	25.00	1.086	-0.03	0.535	0.581
	LTE Band 25	20M	QPSK	50	0	Top Side	5	Off	26340	1880	23.66	24.00	1.081	-0.09	0.447	0.483
	LTE Band 25	20M	QPSK	1	0	Bottom Side	5	Off	26340	1880	24.64	25.00	1.086	0.02	0.077	0.084
	LTE Band 25	20M	QPSK	50	0	Bottom Side	5	Off	26340	1880	23.66	24.00	1.081	0.02	0.062	0.067

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 66	20M	QPSK	1	0	Front	5	On	132322	1745	19.74	20.50	1.191	0.01	0.918	1.094
	LTE Band 66	20M	QPSK	1	0	Front	5	On	132072	1720	19.47	20.50	1.268	0.03	0.909	1.152
25	LTE Band 66	20M	QPSK	1	0	Front	5	On	132572	1770	19.56	20.50	1.242	-0.07	0.935	**1.161**
	LTE Band 66	20M	QPSK	50	0	Front	5	On	132322	1745	19.47	20.50	1.268	0.01	0.780	0.989
	LTE Band 66	20M	QPSK	50	0	Front	5	On	132072	1720	19.45	20.50	1.274	0.01	0.761	0.969
	LTE Band 66	20M	QPSK	50	0	Front	5	On	132572	1770	19.32	20.50	1.312	0.08	0.825	1.083
	LTE Band 66	20M	QPSK	100	0	Front	5	On	132322	1745	19.46	20.50	1.271	0.01	0.801	1.018
	LTE Band 66	20M	QPSK	1	0	Back	5	On	132322	1745	19.74	20.50	1.191	0.01	0.345	0.411
	LTE Band 66	20M	QPSK	50	0	Back	5	On	132322	1745	19.47	20.50	1.268	0.01	0.278	0.352
	LTE Band 66	20M	QPSK	1	0	Left Side	5	On	132322	1745	19.74	20.50	1.191	0.01	0.764	0.910
	LTE Band 66	20M	QPSK	1	0	Left Side	5	On	132072	1720	19.47	20.50	1.268	0.02	0.716	0.908
	LTE Band 66	20M	QPSK	1	0	Left Side	5	On	132572	1770	19.56	20.50	1.242	0.01	0.785	0.975
	LTE Band 66	20M	QPSK	50	0	Left Side	5	On	132322	1745	19.47	20.50	1.268	0.02	0.766	0.971
	LTE Band 66	20M	QPSK	50	0	Left Side	5	On	132072	1720	19.45	20.50	1.274	0.07	0.750	0.955
	LTE Band 66	20M	QPSK	50	0	Left Side	5	On	132572	1770	19.32	20.50	1.312	0.04	0.806	1.058
	LTE Band 66	20M	QPSK	100	0	Left Side	5	On	132322	1745	19.46	20.50	1.271	0.01	0.763	0.969
	LTE Band 66	20M	QPSK	1	0	Right Side	5	Off	132322	1745	24.28	25.00	1.180	0.02	0.029	0.035
	LTE Band 66	20M	QPSK	50	0	Right Side	5	Off	132322	1745	23.18	24.00	1.208	0.01	0.020	0.024
	LTE Band 66	20M	QPSK	1	0	Top Side	5	Off	132322	1745	24.28	25.00	1.180	-0.16	0.459	0.542
	LTE Band 66	20M	QPSK	50	0	Top Side	5	Off	132322	1745	23.18	24.00	1.208	-0.07	0.349	0.422
	LTE Band 66	20M	QPSK	1	0	Bottom Side	5	Off	132322	1745	24.28	25.00	1.180	0.02	0.038	0.045
	LTE Band 66	20M	QPSK	50	0	Bottom Side	5	Off	132322	1745	23.18	24.00	1.208	0.03	0.025	0.030
	LTE Band 7	20M	QPSK	1	0	Front	5	On	21100	2535	17.92	18.00	1.019	0.07	0.718	0.731
	LTE Band 7	20M	QPSK	1	0	Front	5	On	20850	2510	17.64	18.00	1.086	-0.02	0.547	0.594
	LTE Band 7	20M	QPSK	1	0	Front	5	On	21350	2560	17.60	18.00	1.096	0.09	0.665	0.729
	LTE Band 7	20M	QPSK	50	0	Front	5	On	21100	2535	17.90	18.00	1.023	0.02	0.731	0.748
	LTE Band 7	20M	QPSK	1	0	Back	5	On	21100	2535	17.92	18.00	1.019	-0.12	0.331	0.337
	LTE Band 7	20M	QPSK	50	0	Back	5	On	21100	2535	17.90	18.00	1.023	-0.01	0.363	0.371
	LTE Band 7	20M	QPSK	1	0	Left Side	5	On	21100	2535	17.92	18.00	1.019	0.06	0.982	1.000
	LTE Band 7	20M	QPSK	1	0	Left Side	5	On	20850	2510	17.64	18.00	1.086	0.02	1.08	1.173
26	LTE Band 7	20M	QPSK	1	0	Left Side	5	On	21350	2560	17.60	18.00	1.096	0.03	1.080	**1.184**
	LTE Band 7	20M	QPSK	50	0	Left Side	5	On	21100	2535	17.90	18.00	1.023	0.18	0.978	1.001
	LTE Band 7	20M	QPSK	50	0	Left Side	5	On	20850	2510	17.56	18.00	1.107	0.12	0.956	1.058
	LTE Band 7	20M	QPSK	50	0	Left Side	5	On	21350	2560	17.88	18.00	1.028	-0.18	0.938	0.964
	LTE Band 7	20M	QPSK	100	0	Left Side	5	On	21100	2535	17.84	18.00	1.038	0.18	0.971	1.007
	LTE Band 7	20M	QPSK	1	0	Right Side	5	Off	21100	2535	24.84	25.00	1.038	0.02	0.250	0.259
	LTE Band 7	20M	QPSK	50	0	Right Side	5	Off	21100	2535	23.72	24.00	1.067	0.09	0.215	0.229
	LTE Band 7	20M	QPSK	1	0	Top Side	5	Off	21100	2535	24.84	25.00	1.038	0.01	0.301	0.312
	LTE Band 7	20M	QPSK	50	0	Top Side	5	Off	21100	2535	23.72	24.00	1.067	0.03	0.287	0.306
	LTE Band 7	20M	QPSK	1	0	Bottom Side	5	Off	21100	2535	24.84	25.00	1.038	0.05	0.416	0.432
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5	Off	21100	2535	23.72	24.00	1.067	0.01	0.383	0.409

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Power Class	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	40185	2549.5	18.47	19.00	1.130	62.9	1.006	0.05	0.692	0.787
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	39750	2506	18.13	19.00	1.222	62.9	1.006	0.06	0.782	0.961
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	40620	2593	18.24	19.00	1.191	62.9	1.006	0.01	0.735	0.881
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	41055	2636.5	18.24	19.00	1.191	62.9	1.006	-0.02	0.496	0.594
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	41490	2680	18.16	19.00	1.213	62.9	1.006	0.03	0.431	0.526
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	40185	2549.5	18.24	19.00	1.191	62.9	1.006	0.02	0.708	0.848
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	39750	2506	18.07	19.00	1.239	62.9	1.006	0.03	0.765	0.953
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	40620	2593	18.20	19.00	1.202	62.9	1.006	0.01	0.529	0.640
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	41055	2636.5	18.22	19.00	1.197	62.9	1.006	0.08	0.562	0.677
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	41490	2680	17.99	19.00	1.262	62.9	1.006	-0.05	0.47	0.597
	LTE Band 41	20M	QPSK	100	0	Front	5	On	3	40185	2549.5	18.15	19.00	1.216	62.9	1.006	0.04	0.683	0.836
	LTE Band 41	20M	QPSK	1	0	Back	5	On	3	40185	2549.5	18.47	19.00	1.130	62.9	1.006	0.01	0.319	0.363
	LTE Band 41	20M	QPSK	50	0	Back	5	On	3	40185	2549.5	18.24	19.00	1.191	62.9	1.006	0.05	0.328	0.393
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	3	40185	2549.5	18.47	19.00	1.130	62.9	1.006	-0.01	0.845	0.960
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	3	39750	2506	18.13	19.00	1.222	62.9	1.006	0.11	0.848	1.042
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	3	40620	2593	18.24	19.00	1.191	62.9	1.006	-0.07	0.682	0.817
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	3	41055	2636.5	18.24	19.00	1.191	62.9	1.006	-0.07	0.714	0.856
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	3	41490	2680	18.16	19.00	1.213	62.9	1.006	-0.07	0.569	0.695
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	3	40185	2549.5	18.24	19.00	1.191	62.9	1.006	0.04	0.91	1.091
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	3	39750	2506	18.07	19.00	1.239	62.9	1.006	0.06	0.889	1.108
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	3	40620	2593	18.20	19.00	1.202	62.9	1.006	0.08	0.76	0.919
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	3	41055	2636.5	18.22	19.00	1.197	62.9	1.006	-0.02	0.756	0.910
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	3	41490	2680	17.99	19.00	1.262	62.9	1.006	0.02	0.611	0.776
27	LTE Band 41	20M	QPSK	100	0	Left Side	5	On	3	40185	2549.5	18.15	19.00	1.216	62.9	1.006	0.03	0.955	**1.168**
	LTE Band 41	20M	QPSK	1	0	Right Side	5	Off	3	40185	2549.5	25.15	25.50	1.084	62.9	1.006	0.02	0.18	0.196
	LTE Band 41	20M	QPSK	50	0	Right Side	5	Off	3	40185	2549.5	24.45	24.50	1.012	62.9	1.006	0.02	0.157	0.160
	LTE Band 41	20M	QPSK	1	0	Top Side	5	Off	3	40185	2549.5	25.15	25.50	1.084	62.9	1.006	0.06	0.191	0.208
	LTE Band 41	20M	QPSK	50	0	Top Side	5	Off	3	40185	2549.5	24.45	24.50	1.012	62.9	1.006	0.01	0.154	0.157
	LTE Band 41	20M	QPSK	1	0	Bottom Side	5	Off	3	40185	2549.5	25.15	25.50	1.084	62.9	1.006	0.09	0.477	0.520
	LTE Band 41	20M	QPSK	50	0	Bottom Side	5	Off	3	40185	2549.5	24.45	24.50	1.012	62.9	1.006	-0.05	0.384	0.391

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Power Class	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	40185	2549.5	18.47	19.00	1.130	42.9	1.009	0.02	0.524	0.597
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	39750	2506	18.13	19.00	1.222	42.9	1.009	0.06	0.337	0.415
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	40620	2593	18.24	19.00	1.191	42.9	1.009	0.05	0.267	0.321
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	41055	2636.5	18.24	19.00	1.191	42.9	1.009	0.01	0.270	0.325
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	41490	2680	18.16	19.00	1.213	42.9	1.009	0.06	0.224	0.274
	LTE Band 41	20M	QPSK	50	0	Front	5	On	2	40185	2549.5	18.24	19.00	1.191	42.9	1.009	0.01	0.440	0.529
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	2	40185	2549.5	18.47	19.00	1.130	42.9	1.009	0.02	0.616	0.702
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	2	39750	2506	18.13	19.00	1.222	42.9	1.009	0.04	0.634	0.782
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	2	40620	2593	18.24	19.00	1.191	42.9	1.009	0.01	0.571	0.686
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	2	41055	2636.5	18.24	19.00	1.191	42.9	1.009	0.02	0.566	0.680
	LTE Band 41	20M	QPSK	1	0	Left Side	5	On	2	41490	2680	18.16	19.00	1.213	42.9	1.009	0.05	0.446	0.546
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	2	40185	2549.5	18.24	19.00	1.191	42.9	1.009	0.06	0.640	0.769
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	2	39750	2506	18.07	19.00	1.239	42.9	1.009	0.01	0.615	0.769
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	2	40620	2593	18.20	19.00	1.202	42.9	1.009	0.03	0.570	0.691
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	2	41055	2636.5	18.22	19.00	1.197	42.9	1.009	0.08	0.471	0.569
	LTE Band 41	20M	QPSK	50	0	Left Side	5	On	2	41490	2680	17.99	19.00	1.262	42.9	1.009	0.02	0.403	0.513
28	LTE Band 41	20M	QPSK	100	0	Left Side	5	On	2	40185	2549.5	18.15	19.00	1.216	42.9	1.009	-0.12	0.637	**0.782**

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	-0.09	0.235	0.266
	WLAN2.4GHz	802.11b 1Mbps	Front	5	Off	1	2437	14.96	15.50	1.133	97.59	1.025	0.05	0.219	0.254
	WLAN2.4GHz	802.11b 1Mbps	Front	5	Off	6	2462	15.00	15.50	1.123	97.59	1.025	-0.02	0.205	0.236
	WLAN2.4GHz	802.11b 1Mbps	Back	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	0.06	0.118	0.133
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	-0.04	0.038	0.043
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	0.02	0.009	0.011
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	-0.16	0.002	0.003
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	-0.17	0.275	0.311
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	5	Off	1	2437	14.96	15.50	1.133	97.59	1.025	0.05	0.340	0.395
29	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	5	Off	6	2462	15.00	15.50	1.123	97.59	1.025	0.05	0.403	**0.464**

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	-0.06	0.066	0.106
	Bluetooth	1Mbps	Front	5	Off	39	2441	10.71	12.50	1.509	77.4	1.076	0.09	0.031	0.051
	Bluetooth	1Mbps	Front	5	Off	78	2480	10.62	12.50	1.541	77.4	1.076	0.06	0.033	0.055
	Bluetooth	1Mbps	Back	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	0.03	0.031	0.051
	Bluetooth	1Mbps	Left Side	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	0.03	0.009	0.014
	Bluetooth	1Mbps	Right Side	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	-0.01	<0.001	<0.001
	Bluetooth	1Mbps	Top Side	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	-0.03	0.002	0.003
30	Bluetooth	1Mbps	Bottom Side	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	0.17	0.091	**0.147**
	Bluetooth	1Mbps	Bottom Side	5	Off	39	2441	10.71	12.50	1.509	77.4	1.076	0.03	0.039	0.063
	Bluetooth	1Mbps	Bottom Side	5	Off	78	2480	10.62	12.50	1.541	77.4	1.076	0.06	0.040	0.065

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	-0.01	0.248	0.347
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	5	Off	46	5230	9.80	11.00	1.318	86.29	1.159	0.01	0.207	0.316
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	-0.09	0.023	0.032
	WLAN5.2GHz	802.11n-HT40 MCS0	Left Side	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	0.07	0.012	0.017
	WLAN5.2GHz	802.11n-HT40 MCS0	Right Side	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	0.01	0.013	0.017
	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	0.01	0.007	0.010
31	WLAN5.2GHz	802.11n-HT40 MCS0	Bottom Side	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	-0.19	0.268	**0.375**
	WLAN5.2GHz	802.11n-HT40 MCS0	Bottom Side	5	Off	46	5230	8.00	9.80	11.00	1.318	86.29	1.159	-0.12	0.243
	WLAN5.8GHz	802.11n-HT40 MCS0	Front	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	-0.09	0.065	0.091
	WLAN5.8GHz	802.11n-HT40 MCS0	Front	5	Off	151	5755	9.88	11.00	1.294	86.29	1.159	0.07	0.058	0.087
	WLAN5.8GHz	802.11n-HT40 MCS0	Back	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	0.02	0.051	0.071
	WLAN5.8GHz	802.11n-HT40 MCS0	Left Side	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	0.03	0.027	0.038
	WLAN5.8GHz	802.11n-HT40 MCS0	Right Side	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	-0.02	0.012	0.017
	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	-0.05	0.002	0.003
34	WLAN5.8GHz	802.11n-HT40 MCS0	Bottom Side	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	0.06	0.199	**0.280**
	WLAN5.8GHz	802.11n-HT40 MCS0	Bottom Side	5	Off	151	5755	9.88	11.00	1.294	86.29	1.159	0.06	0.137	0.205

15.3 Body Worn Accessory SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA Band V	RMC 12.2Kbps	Front	5	Off	4132	826.4	23.92	24.00	1.019	0.04	0.976	0.994
	WCDMA Band V	RMC 12.2Kbps	Front	5	Off	4182	836.4	23.90	24.00	1.023	0.09	0.925	0.947
	WCDMA Band V	RMC 12.2Kbps	Front	5	Off	4233	846.6	23.89	24.00	1.026	-0.12	0.874	0.896
35	WCDMA Band V	RMC 12.2Kbps	Back	5	Off	4132	826.4	23.92	24.00	1.019	-0.03	1.170	**1.192**
	WCDMA Band V	RMC 12.2Kbps	Back	5	Off	4182	836.4	23.90	24.00	1.023	0.02	1.080	1.105
	WCDMA Band V	RMC 12.2Kbps	Back	5	Off	4233	846.6	23.89	24.00	1.026	0.02	1.010	1.036
	WCDMA Band IV	RMC 12.2Kbps	Front	5	On	1312	1712.4	20.31	20.50	1.045	0.04	0.996	1.041
	WCDMA Band IV	RMC 12.2Kbps	Front	5	On	1413	1732.6	20.25	20.50	1.059	-0.09	0.953	1.009
36	WCDMA Band IV	RMC 12.2Kbps	Front	5	On	1513	1752.6	20.24	20.50	1.062	0.09	1.040	**1.104**
	WCDMA Band IV	RMC 12.2Kbps	Back	5	On	1312	1712.4	20.31	20.50	1.045	0.09	0.601	0.628
	WCDMA Band II	RMC 12.2Kbps	Front	5	On	9400	1880	17.94	18.50	1.138	0.18	0.779	0.886
	WCDMA Band II	RMC 12.2Kbps	Front	5	On	9262	1852.4	17.88	18.50	1.153	0.05	0.709	0.818
37	WCDMA Band II	RMC 12.2Kbps	Front	5	On	9538	1907.6	17.85	18.50	1.161	0.05	0.872	**1.013**
	WCDMA Band II	RMC 12.2Kbps	Back	5	On	9400	1880	17.94	18.50	1.138	-0.18	0.444	0.505

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1	0	Front	5	Off	23095	707.5	25.22	25.50	1.067	0.06	0.532	0.567
	LTE Band 12	10M	QPSK	25	0	Front	5	Off	23095	707.5	24.15	24.50	1.084	0.01	0.426	0.462
38	LTE Band 12	10M	QPSK	1	0	Back	5	Off	23095	707.5	25.22	25.50	1.067	0.08	0.723	**0.771**
	LTE Band 12	10M	QPSK	25	0	Back	5	Off	23095	707.5	24.15	24.50	1.084	0.01	0.601	0.651
	LTE Band 13	10M	QPSK	1	0	Front	5	Off	23230	782	25.36	25.50	1.033	0.02	0.560	0.578
	LTE Band 13	10M	QPSK	25	0	Front	5	Off	23230	782	24.35	24.50	1.035	0.01	0.565	0.585
	LTE Band 13	10M	QPSK	1	0	Back	5	Off	23230	782	25.36	25.50	1.033	0.06	0.908	0.938
39	LTE Band 13	10M	QPSK	25	0	Back	5	Off	23230	782	24.35	24.50	1.035	0.19	0.918	**0.950**
	LTE Band 13	10M	QPSK	50	0	Back	5	Off	23230	782	24.28	24.50	1.052	-0.01	0.890	0.936
	LTE Band 26	15M	QPSK	1	74	Front	5	On	26865	831.5	23.53	24.00	1.114	0.03	0.698	0.778
	LTE Band 26	15M	QPSK	36	0	Front	5	On	26865	831.5	23.34	24.00	1.164	0.08	0.748	0.871
	LTE Band 26	15M	QPSK	75	0	Front	5	On	26865	831.5	23.28	24.00	1.180	0.02	0.743	0.877
	LTE Band 26	15M	QPSK	1	74	Back	5	On	26865	831.5	23.53	24.00	1.114	-0.02	0.887	0.988
40	LTE Band 26	15M	QPSK	36	0	Back	5	On	26865	831.5	23.34	24.00	1.164	-0.01	0.998	**1.162**
	LTE Band 26	15M	QPSK	75	0	Back	5	On	26865	831.5	23.28	24.00	1.180	-0.05	0.958	1.131

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 25	20M	QPSK	1	0	Front	5	On	26340	1880	18.83	19.00	1.040	0.01	0.794	0.826
	LTE Band 25	20M	QPSK	1	0	Front	5	On	26140	1860	18.49	19.00	1.125	0.02	0.790	0.888
41	LTE Band 25	20M	QPSK	1	0	Front	5	On	26590	1905	18.62	19.00	1.091	-0.1	0.827	**0.903**
	LTE Band 25	20M	QPSK	50	0	Front	5	On	26340	1880	18.75	19.00	1.059	0.03	0.770	0.816
	LTE Band 25	20M	QPSK	50	0	Front	5	On	26140	1860	18.68	19.00	1.076	0.01	0.781	0.841
	LTE Band 25	20M	QPSK	50	0	Front	5	On	26590	1905	18.70	19.00	1.072	0.01	0.797	0.854
	LTE Band 25	20M	QPSK	100	0	Front	5	On	26340	1880	18.65	19.00	1.084	0.03	0.768	0.832
	LTE Band 25	20M	QPSK	1	0	Back	5	On	26340	1880	18.83	19.00	1.040	0.03	0.312	0.324
	LTE Band 25	20M	QPSK	50	0	Back	5	On	26340	1880	18.75	19.00	1.059	-0.02	0.358	0.379
	LTE Band 66	20M	QPSK	1	0	Front	5	On	132322	1745	19.74	20.50	1.191	0.01	0.918	1.094
	LTE Band 66	20M	QPSK	1	0	Front	5	On	132072	1720	19.47	20.50	1.268	0.03	0.909	1.152
42	LTE Band 66	20M	QPSK	1	0	Front	5	On	132572	1770	19.56	20.50	1.242	-0.07	0.935	**1.161**
	LTE Band 66	20M	QPSK	50	0	Front	5	On	132322	1745	19.47	20.50	1.268	0.01	0.780	0.989
	LTE Band 66	20M	QPSK	50	0	Front	5	On	132072	1720	19.45	20.50	1.274	0.01	0.761	0.969
	LTE Band 66	20M	QPSK	50	0	Front	5	On	132572	1770	19.32	20.50	1.312	0.08	0.825	1.083
	LTE Band 66	20M	QPSK	100	0	Front	5	On	132322	1745	19.46	20.50	1.271	0.01	0.801	1.018
	LTE Band 66	20M	QPSK	1	0	Back	5	On	132322	1745	19.74	20.50	1.191	0.01	0.345	0.411
	LTE Band 66	20M	QPSK	50	0	Back	5	On	132322	1745	19.47	20.50	1.268	0.01	0.278	0.352
	LTE Band 7	20M	QPSK	1	0	Front	5	On	21100	2535	17.92	18.00	1.019	0.07	0.718	0.731
	LTE Band 7	20M	QPSK	1	0	Front	5	On	20850	2510	17.64	18.00	1.086	-0.02	0.547	0.594
	LTE Band 7	20M	QPSK	1	0	Front	5	On	21350	2560	17.60	18.00	1.096	0.09	0.665	0.729
43	LTE Band 7	20M	QPSK	50	0	Front	5	On	21100	2535	17.90	18.00	1.023	0.02	0.731	**0.748**
	LTE Band 7	20M	QPSK	1	0	Back	5	On	21100	2535	17.92	18.00	1.019	-0.12	0.331	0.337
	LTE Band 7	20M	QPSK	50	0	Back	5	On	21100	2535	17.90	18.00	1.023	-0.01	0.363	0.371

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Power Class	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	40185	2549.5	18.47	19.00	1.130	62.9	1.006	0.05	0.692	0.787
44	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	39750	2506	18.13	19.00	1.222	62.9	1.006	0.06	0.782	**0.961**
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	40620	2593	18.24	19.00	1.191	62.9	1.006	0.01	0.735	0.881
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	41055	2636.5	18.24	19.00	1.191	62.9	1.006	-0.02	0.496	0.594
	LTE Band 41	20M	QPSK	1	0	Front	5	On	3	41490	2680	18.16	19.00	1.213	62.9	1.006	0.03	0.431	0.526
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	40185	2549.5	18.24	19.00	1.191	62.9	1.006	0.02	0.708	0.848
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	39750	2506	18.07	19.00	1.239	62.9	1.006	0.03	0.765	0.953
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	40620	2593	18.20	19.00	1.202	62.9	1.006	0.01	0.529	0.640
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	41055	2636.5	18.22	19.00	1.197	62.9	1.006	0.08	0.562	0.677
	LTE Band 41	20M	QPSK	50	0	Front	5	On	3	41490	2680	17.99	19.00	1.262	62.9	1.006	-0.05	0.47	0.597
	LTE Band 41	20M	QPSK	100	0	Front	5	On	3	40185	2549.5	18.15	19.00	1.216	62.9	1.006	0.04	0.683	0.836
	LTE Band 41	20M	QPSK	1	0	Back	5	On	3	40185	2549.5	18.47	19.00	1.130	62.9	1.006	0.01	0.319	0.363
	LTE Band 41	20M	QPSK	50	0	Back	5	On	3	40185	2549.5	18.24	19.00	1.191	62.9	1.006	0.05	0.328	0.393
45	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	40185	2549.5	18.47	19.00	1.130	42.9	1.009	0.02	0.524	**0.597**
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	39750	2506	18.13	19.00	1.222	42.9	1.009	0.06	0.337	0.415
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	40620	2593	18.24	19.00	1.191	42.9	1.009	0.05	0.267	0.321
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	41055	2636.5	18.24	19.00	1.191	42.9	1.009	0.01	0.270	0.325
	LTE Band 41	20M	QPSK	1	0	Front	5	On	2	41490	2680	18.16	19.00	1.213	42.9	1.009	0.06	0.224	0.274
	LTE Band 41	20M	QPSK	50	0	Front	5	On	2	40185	2549.5	18.24	19.00	1.191	42.9	1.009	0.01	0.440	0.529

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
46	WLAN2.4GHz	802.11b 1Mbps	Front	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	-0.09	0.235	**0.266**
	WLAN2.4GHz	802.11b 1Mbps	Front	5	Off	1	2437	14.96	15.50	1.133	97.59	1.025	0.05	0.219	0.254
	WLAN2.4GHz	802.11b 1Mbps	Front	5	Off	6	2462	15.00	15.50	1.123	97.59	1.025	-0.02	0.205	0.236
	WLAN2.4GHz	802.11b 1Mbps	Back	5	Off	11	2462	15.08	15.50	1.103	97.59	1.025	0.06	0.118	0.133

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
47	Bluetooth	1Mbps	Front	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	-0.06	0.066	**0.106**
	Bluetooth	1Mbps	Front	5	Off	39	2441	10.71	12.50	1.509	77.4	1.076	0.09	0.031	0.051
	Bluetooth	1Mbps	Front	5	Off	78	2480	10.62	12.50	1.541	77.4	1.076	0.06	0.033	0.055
	Bluetooth	1Mbps	Back	5	Off	0	2402	10.74	12.50	1.500	77.4	1.076	0.03	0.031	0.051

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
48	WLAN5.2GHz	802.11n-HT40 MCS0	Front	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	-0.01	0.248	**0.347**
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	5	Off	46	5230	9.80	11.00	1.318	86.29	1.159	0.01	0.207	0.316
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	5	Off	38	5190	10.18	11.00	1.208	86.29	1.159	-0.09	0.023	0.032
49	WLAN5.3GHz	802.11n-HT40 MCS0	Front	5	Off	54	5270	10.12	11.00	1.225	86.29	1.159	-0.01	0.236	**0.335**
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	5	Off	62	5310	10.07	11.00	1.239	86.29	1.159	0.02	0.180	0.258
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5	Off	54	5270	10.12	11.00	1.225	86.29	1.159	0.03	0.057	0.080
50	WLAN5.5GHz	802.11n-HT40 MCS0	Front	5	Off	102	5510	10.12	11.00	1.225	86.29	1.159	-0.04	0.305	**0.433**
	WLAN5.5GHz	802.11n-HT40 MCS0	Front	5	Off	110	5550	9.81	11.00	1.315	86.29	1.159	0.02	0.218	0.332
	WLAN5.5GHz	802.11n-HT40 MCS0	Front	5	Off	134	5670	10.11	11.00	1.227	86.29	1.159	0.05	0.201	0.286
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	5	Off	102	5510	10.12	11.00	1.225	86.29	1.159	0.01	0.140	0.199
51	WLAN5.8GHz	802.11n-HT40 MCS0	Front	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	-0.09	0.065	**0.091**
	WLAN5.8GHz	802.11n-HT40 MCS0	Front	5	Off	151	5755	9.88	11.00	1.294	86.29	1.159	0.07	0.058	0.087
	WLAN5.8GHz	802.11n-HT40 MCS0	Back	5	Off	159	5795	10.16	11.00	1.213	86.29	1.159	0.02	0.051	0.071

<LoRa>

Plot No.	Band	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LoRa	Front	5	Off	1	904	27.94	29.00	1.276	13.41	1.014	-0.04	0.284	0.368
52	LoRa	Front	5	Off	23	926	27.10	29.00	1.549	13.41	1.014	0.03	0.240	**0.377**
	LoRa	Front	5	Off	12	915	27.58	29.00	1.387	13.41	1.014	0.08	0.256	0.360
	LoRa	Back	5	Off	1	904	27.94	29.00	1.276	13.41	1.014	-0.09	0.058	0.075

15.4 Verified SAR for Proximity Sensor Off

<WCDMA SAR>

Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WCDMA Band IV	RMC 12.2Kbps	Front	16	Off	1312	1712.4	23.79	24.00	1.050	0.06	0.423	0.444
WCDMA Band IV	RMC 12.2Kbps	Back	13	Off	1312	1712.4	23.79	24.00	1.050	0.01	0.374	0.393
WCDMA Band IV	RMC 12.2Kbps	Left Side	16	Off	1312	1712.4	23.79	24.00	1.050	0.12	0.369	0.387
WCDMA Band II	RMC 12.2Kbps	Front	16	Off	9400	1880	23.70	24.00	1.072	0.01	0.711	0.762
WCDMA Band II	RMC 12.2Kbps	Back	13	Off	9400	1880	23.70	24.00	1.072	0.01	0.458	0.491
WCDMA Band II	RMC 12.2Kbps	Left Side	16	Off	9400	1880	23.70	24.00	1.072	0.03	0.583	0.625

<FDD LTE SAR>

Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
LTE Band 26	15M	QPSK	1	74	Front	16	Off	26865	831.5	24.46	25.00	1.132	0.03	0.390	0.442
LTE Band 26	15M	QPSK	1	74	Back	13	Off	26865	831.5	24.46	25.00	1.132	0.01	0.598	0.677
LTE Band 26	15M	QPSK	1	74	Left Side	16	Off	26865	831.5	24.46	25.00	1.132	0.05	0.232	0.263
LTE Band 25	20M	QPSK	1	0	Front	16	Off	26340	1880	24.64	25.00	1.086	0	0.665	0.722
LTE Band 25	20M	QPSK	1	0	Back	13	Off	26340	1880	24.64	25.00	1.086	-0.01	0.615	0.668
LTE Band 25	20M	QPSK	1	0	Left Side	16	Off	26340	1880	24.64	25.00	1.086	0.05	0.646	0.702
LTE Band 66	20M	QPSK	1	0	Front	16	Off	132322	1745	24.28	25.00	1.180	-0.05	0.416	0.491
LTE Band 66	20M	QPSK	1	0	Back	13	Off	132322	1745	24.28	25.00	1.180	0.07	0.291	0.343
LTE Band 66	20M	QPSK	1	0	Left Side	16	Off	132322	1745	24.28	25.00	1.180	-0.03	0.358	0.423
LTE Band 7	20M	QPSK	1	0	Front	16	Off	21100	2535	24.84	25.00	1.038	0.03	1.040	1.079
LTE Band 7	20M	QPSK	1	0	Front	16	Off	20850	2510	24.56	25.00	1.107	0.02	0.796	0.881
LTE Band 7	20M	QPSK	1	0	Front	16	Off	21350	2560	24.68	25.00	1.076	0.02	0.964	1.038
LTE Band 7	20M	QPSK	1	0	Back	13	Off	21100	2535	24.84	25.00	1.038	0.01	0.756	0.784
LTE Band 7	20M	QPSK	1	0	Left Side	16	Off	21100	2535	24.84	25.00	1.038	0.01	1.050	1.089
LTE Band 7	20M	QPSK	1	0	Left Side	16	Off	20850	2510	24.56	25.00	1.107	-0.01	0.925	1.024
LTE Band 7	20M	QPSK	1	0	Left Side	16	Off	21350	2560	24.68	25.00	1.076	0.03	1.020	1.098

<TDD LTE SAR>

Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Power Class	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
LTE Band 41	20M	QPSK	1	0	Front	16	Off	3	40185	2549.5	25.15	25.50	1.084	62.9	1.006	0.03	0.416	0.454
LTE Band 41	20M	QPSK	1	0	Back	13	Off	3	40185	2549.5	25.15	25.50	1.084	62.9	1.006	0.03	0.579	0.631
LTE Band 41	20M	QPSK	1	0	Back	13	Off	3	39750	2506	24.66	25.50	1.213	62.9	1.006	0.01	0.386	0.471
LTE Band 41	20M	QPSK	1	0	Back	13	Off	3	40620	2593	25.00	25.50	1.122	62.9	1.006	0.06	0.326	0.368
LTE Band 41	20M	QPSK	1	0	Back	13	Off	3	41055	2636.5	24.70	25.50	1.202	62.9	1.006	0.05	0.277	0.335
LTE Band 41	20M	QPSK	1	0	Back	13	Off	3	41490	2680	24.68	25.50	1.208	62.9	1.006	0.05	0.23	0.279
LTE Band 41	20M	QPSK	1	0	Left Side	16	Off	3	40185	2549.5	25.15	25.50	1.084	62.9	1.006	0.06	0.495	0.540

15.5 TDD LTE Band 41(HPUE) Linearity Data Analysis

LTE Band 41(HPUE)-Linearity Data for Head		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	19.00	19.00
Reported 1g SAR (W/kg)	0.961	0.597
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	50.28	34.39
Linearity SAR (W/kg)	0.657	
% deviation from expected linearity		-9.18%

LTE Band 41(HPUE)-Linearity Data for Hotspot		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	19.00	19.00
Reported 1g SAR (W/kg)	1.168	0.782
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	50.28	34.39
Linearity SAR (W/kg)	0.799	
% deviation from expected linearity		-2.12%

General Note:

1. The device can adjust uplink/downlink configuration automatically according to the transmitting power class level for LTE band 41.
2. According to TCB Workshop May 2017, Rel. 14 has introduced HPUE Power Class 2 for Band 41. HPUE Power Class 2 does not support uplink downlink configurations 0 and 6.
3. Power class 3 is expected to be the dominant use configuration; therefore, SAR should be tested as normally required.
4. Power class 2 is tested using the highest SAR test configuration in power class 3 of each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in power class 2.
5. Separate SAR testing for Power Class 2 is not required when
   – the reported SAR vs. output power can be linearly scaled with < 10%
   – discrepancy between power classes and all *reported* 1g SAR are < 1.4 W/kg (The same procedures should be adapted for measurements according to extremity limits by applying a factor of 2.5 for extremity exposure.)

15.6 Repeated SAR Measurement

No.	Band	Mode	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA Band V	RMC 12.2Kbps	-	-	-	-	Back	5	Off	4132	826.4	23.92	24.00	1.019	-0.03	1.170	1	1.192
2nd	WCDMA Band V	RMC 12.2Kbps	-	-	-	-	Back	5	Off	4132	826.4	23.92	24.00	1.019	-0.09	1.150	1.017	1.171
1st	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Front	5	On	1513	1752.6	20.24	20.50	1.062	0.09	1.040	1	1.104
2nd	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Front	5	On	1513	1752.6	20.24	20.50	1.062	-0.01	1.020	1.020	1.083
1st	LTE Band 13	-	10M	QPSK	25	0	Back	5	Off	23230	782	24.35	24.50	1.035	0.19	0.918	1	0.95
2nd	LTE Band 13	-	10M	QPSK	25	0	Back	5	Off	23230	782	24.35	24.50	1.035	-0.06	0.913	1.005	0.945
1st	LTE Band 25	-	20M	QPSK	50	0	Left Side	5	On	26590	1905	18.70	19.00	1.072	0.02	1.110	1	1.189
2nd	LTE Band 25	-	20M	QPSK	50	0	Left Side	5	On	26590	1905	18.70	19.00	1.072	-0.02	1.080	1.028	1.157
1st	LTE Band 7	-	20M	QPSK	1	0	Left Side	5	On	21350	2560	17.60	18.00	1.096	0.03	1.080	1	1.184
2nd	LTE Band 7	-	20M	QPSK	1	0	Left Side	5	On	21350	2560	17.60	18.00	1.096	-0.03	1.060	1.019	1.162

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Head	Body-worn	Hotspot
1.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes
2.	LTE + WLAN2.4GHz	Yes	Yes	Yes
3.	WCDMA + 5GHz WLAN	Yes	Yes	Yes
4.	LTE + 5GHz WLAN	Yes	Yes	Yes
5.	WCDMA + Bluetooth	Yes	Yes	Yes
6.	LTE + Bluetooth	Yes	Yes	Yes

General Note:

1. EUT will choose each WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
2. This device WLAN2.4GHz/5.2GHz/5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
3. WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
4. According to the EUT character, WLAN 5GHz and Bluetooth can't transmit simultaneously.
5. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
6. Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
7. All licensed modes share the same antenna part and cannot transmit simultaneously.
8. The reported SAR summation is calculated based on the same configuration and test position
9. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

16.1 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
WCDMA	Band II	In front of Face	1.013	0.266	0.433	0.106	1.28	1.45	1.12
	Band IV	In front of Face	1.104	0.266	0.433	0.106	1.37	1.54	1.21
	Band V	In front of Face	0.994	0.266	0.433	0.106	1.26	1.43	1.10
LTE	Band 7	In front of Face	0.748	0.266	0.433	0.106	1.01	1.18	0.85
	Band 12	In front of Face	0.567	0.266	0.433	0.106	0.83	1.00	0.67
	Band 13	In front of Face	0.585	0.266	0.433	0.106	0.85	1.02	0.69
	Band 25	In front of Face	0.903	0.266	0.433	0.106	1.17	1.34	1.01
	Band 26	In front of Face	0.877	0.266	0.433	0.106	1.14	1.31	0.98
	Band 66	In front of Face	1.161	0.266	0.433	0.106	**1.43**	**1.59**	**1.27**
	Band 41	In front of Face	0.961	0.266	0.433	0.106	1.23	1.39	1.07
	Band 41 (HPUE)	In front of Face	0.597	0.266	0.433	0.106	0.86	1.03	0.70

16.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
WCDMA	Band II	Front	1.013	0.266	0.347	0.106	1.28	1.36	1.12
		Back	0.505	0.133	0.071	0.051	0.64	0.58	0.56
		Left side	1.173	0.043	0.038	0.014	1.22	1.21	1.19
		Right side	0.077	0.011	0.017	0.001	0.09	0.09	0.08
		Top side	0.514	0.003	0.010	0.003	0.52	0.52	0.52
		Bottom side	0.098	0.464	0.375	0.147	0.56	0.47	0.25
	Band IV	Front	1.104	0.266	0.347	0.106	1.37	1.45	1.21
		Back	0.628	0.133	0.071	0.051	0.76	0.70	0.68
		Left side	1.083	0.043	0.038	0.014	1.13	1.12	1.10
		Right side	0.111	0.011	0.017	0.001	0.12	0.13	0.11
		Top side	0.595	0.003	0.010	0.003	0.60	0.61	0.60
		Bottom side	0.099	0.464	0.375	0.147	0.56	0.47	0.25
	Band V	Front	0.994	0.266	0.347	0.106	1.26	1.34	1.10
		Back	1.192	0.133	0.071	0.051	1.33	1.26	1.24
		Left side	0.765	0.043	0.038	0.014	0.81	0.80	0.78
		Right side	0.050	0.011	0.017	0.001	0.06	0.07	0.05
		Top side	0.317	0.003	0.010	0.003	0.32	0.33	0.32
		Bottom side	0.183	0.464	0.375	0.147	0.65	0.56	0.33
LTE	Band 7	Front	0.748	0.266	0.347	0.106	1.01	1.10	0.85
		Back	0.371	0.133	0.071	0.051	0.50	0.44	0.42
		Left side	1.184	0.043	0.038	0.014	1.23	1.22	1.20
		Right side	0.259	0.011	0.017	0.001	0.27	0.28	0.26
		Top side	0.312	0.003	0.010	0.003	0.32	0.32	0.32
		Bottom side	0.432	0.464	0.375	0.147	0.90	0.81	0.58
	Band 12	Front	0.567	0.266	0.347	0.106	0.83	0.91	0.67
		Back	0.771	0.133	0.071	0.051	0.90	0.84	0.82
		Left side	0.407	0.043	0.038	0.014	0.45	0.45	0.42
		Right side	0.269	0.011	0.017	0.001	0.28	0.29	0.27
		Top side	0.300	0.003	0.010	0.003	0.30	0.31	0.30
		Bottom side	0.150	0.464	0.375	0.147	0.61	0.53	0.30

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
LTE	Band 13	Front	0.585	0.266	0.347	0.106	0.85	0.48	0.69
		Back	0.950	0.133	0.071	0.051	1.08	1.10	1.00
		Left side	0.585	0.043	0.038	0.014	0.63	0.05	0.60
		Right side	0.042	0.011	0.017	0.001	0.05	0.55	0.04
		Top side	0.196	0.003	0.010	0.003	0.20	0.42	0.20
		Bottom side	0.198	0.464	0.375	0.147	0.66	1.31	0.35
	Band 25	Front	0.903	0.266	0.347	0.106	1.17	0.46	1.01
		Back	0.379	0.133	0.071	0.051	0.51	1.21	0.43
		Left side	1.189	0.043	0.038	0.014	1.23	0.21	1.20
		Right side	0.074	0.011	0.017	0.001	0.09	0.22	0.08
		Top side	0.581	0.003	0.010	0.003	0.58	0.90	0.58
		Bottom side	0.084	0.464	0.375	0.147	0.55	0.94	0.23
	Band 26	Front	0.877	0.266	0.347	0.106	1.14	0.85	0.98
		Back	1.162	0.133	0.071	0.051	1.30	0.82	1.21
		Left side	0.925	0.043	0.038	0.014	0.97	0.80	0.94
		Right side	0.135	0.011	0.017	0.001	0.15	0.79	0.14
		Top side	0.341	0.003	0.010	0.003	0.34	1.16	0.34
		Bottom side	0.251	0.464	0.375	0.147	0.72	0.48	0.40
	Band 66	Front	1.161	0.266	0.347	0.106	1.43	1.10	1.27
		Back	0.411	0.133	0.071	0.051	0.54	0.05	0.46
		Left side	1.058	0.043	0.038	0.014	1.10	0.55	1.07
		Right side	0.035	0.011	0.017	0.001	0.05	0.42	0.04
		Top side	0.542	0.003	0.010	0.003	0.55	1.31	0.55
		Bottom side	0.045	0.464	0.375	0.147	0.51	0.46	0.19
	Band 41	Front	0.961	0.266	0.347	0.106	1.23	1.21	1.07
		Back	0.393	0.133	0.071	0.051	0.53	0.21	0.44
		Left side	1.168	0.043	0.038	0.014	1.21	0.22	1.18
		Right side	0.196	0.011	0.017	0.001	0.21	0.90	0.20
		Top side	0.208	0.003	0.010	0.003	0.21	0.94	0.21
		Bottom side	0.520	0.464	0.375	0.147	0.98	0.85	0.67
	Band 41 (HPUE)	Front	0.597	0.266	0.347	0.106	0.86	0.82	0.70
		Back	0.782	0.133	0.071	0.051	0.92	0.80	0.83
		Left side	0.782	0.043	0.038	0.014	0.83	0.79	0.80
		Right side	0.782	0.011	0.017	0.001	0.79	1.16	0.78
		Top side	0.782	0.003	0.010	0.003	0.79	0.48	0.79
		Bottom side	0.782	0.464	0.375	0.147	1.25	1.10	0.93

16.3 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
WCDMA	Band II	Front	1.013	0.266	0.433	0.106	1.28	1.45	1.12
		Back	0.505	0.133	0.199	0.051	0.64	0.70	0.56
	Band IV	Front	1.104	0.266	0.433	0.106	1.37	1.54	1.21
		Back	0.628	0.133	0.199	0.051	0.76	0.83	0.68
	Band V	Front	0.994	0.266	0.433	0.106	1.26	1.43	1.10
		Back	1.192	0.133	0.199	0.051	1.33	1.39	1.24
LTE	Band 7	Front	0.748	0.266	0.433	0.106	1.01	1.18	0.85
		Back	0.371	0.133	0.199	0.051	0.50	0.57	0.42
	Band 12	Front	0.567	0.266	0.433	0.106	0.83	1.00	0.67
		Back	0.771	0.133	0.199	0.051	0.90	0.97	0.82
	Band 13	Front	0.585	0.266	0.433	0.106	0.85	1.02	0.69
		Back	0.950	0.133	0.199	0.051	1.08	1.15	1.00
	Band 25	Front	0.903	0.266	0.433	0.106	1.17	1.34	1.01
		Back	0.379	0.133	0.199	0.051	0.51	0.58	0.43
	Band 26	Front	0.877	0.266	0.433	0.106	1.14	1.31	0.98
		Back	1.162	0.133	0.199	0.051	1.30	1.36	1.21
	Band 66	Front	1.161	0.266	0.433	0.106	1.43	1.59	1.27
		Back	0.411	0.133	0.199	0.051	0.54	0.61	0.46
	Band 41	Front	0.961	0.266	0.433	0.106	1.23	1.39	1.07
		Back	0.393	0.133	0.199	0.051	0.53	0.59	0.44
	Band 41 (HPUE)	Front	0.597	0.266	0.433	0.106	0.86	1.03	0.70
		Back	0.597	0.133	0.199	0.051	0.73	0.80	0.65

16.4 Verified SAR for Proximity Sensor Off

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
WCDMA	WCDMA II	Front 16mm	0.762	0.266	0.433	0.106	1.03	1.20	0.87
		Back 13mm	0.491	0.133	0.199	0.051	0.62	0.69	0.54
		Left side 16mm	0.625	0.043	0.038	0.014	0.67	0.66	0.64
	WCDMA IV	Front 16mm	0.444	0.266	0.433	0.106	0.71	0.88	0.55
		Back 13mm	0.393	0.133	0.199	0.051	0.53	0.59	0.44
		Left side 16mm	0.387	0.043	0.038	0.014	0.43	0.43	0.40
LTE	LTE Band 7	Front 16mm	1.079	0.266	0.433	0.106	1.35	1.51	1.19
		Back 13mm	0.784	0.133	0.199	0.051	0.92	0.98	0.84
		Left side 16mm	1.098	0.043	0.038	0.014	1.14	1.14	1.11
	LTE Band 25	Front 16mm	0.722	0.266	0.433	0.106	0.99	1.16	0.83
		Back 13mm	0.668	0.133	0.199	0.051	0.80	0.87	0.72
		Left side 16mm	0.702	0.043	0.038	0.014	0.75	0.74	0.72
	LTE Band 26	Front 16mm	0.442	0.266	0.433	0.106	0.71	0.88	0.55
		Back 13mm	0.677	0.133	0.199	0.051	0.81	0.88	0.73
		Left side 16mm	0.263	0.043	0.038	0.014	0.31	0.30	0.28
	LTE Band 66	Front 16mm	0.491	0.266	0.433	0.106	0.76	0.92	0.60
		Back 13mm	0.343	0.133	0.199	0.051	0.48	0.54	0.39
		Left side 16mm	0.423	0.043	0.038	0.014	0.47	0.46	0.44
	LTE Band 41	Front 16mm	0.454	0.266	0.433	0.106	0.72	0.89	0.56
		Back 13mm	0.642	0.133	0.199	0.051	0.78	0.84	0.69
		Left side 16mm	0.540	0.043	0.038	0.014	0.58	0.58	0.55

Test Engineer : Nick Hu, Yuan Zhao, Jiaxing Chang, Yuankai Kong

17. Uncertainty Assessment

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

18. References

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

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

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

[4] SPEAG DASY System Handbook

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

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

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

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

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

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

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

[12] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

------THE END------

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/10/31

System Check_Head_750MHz

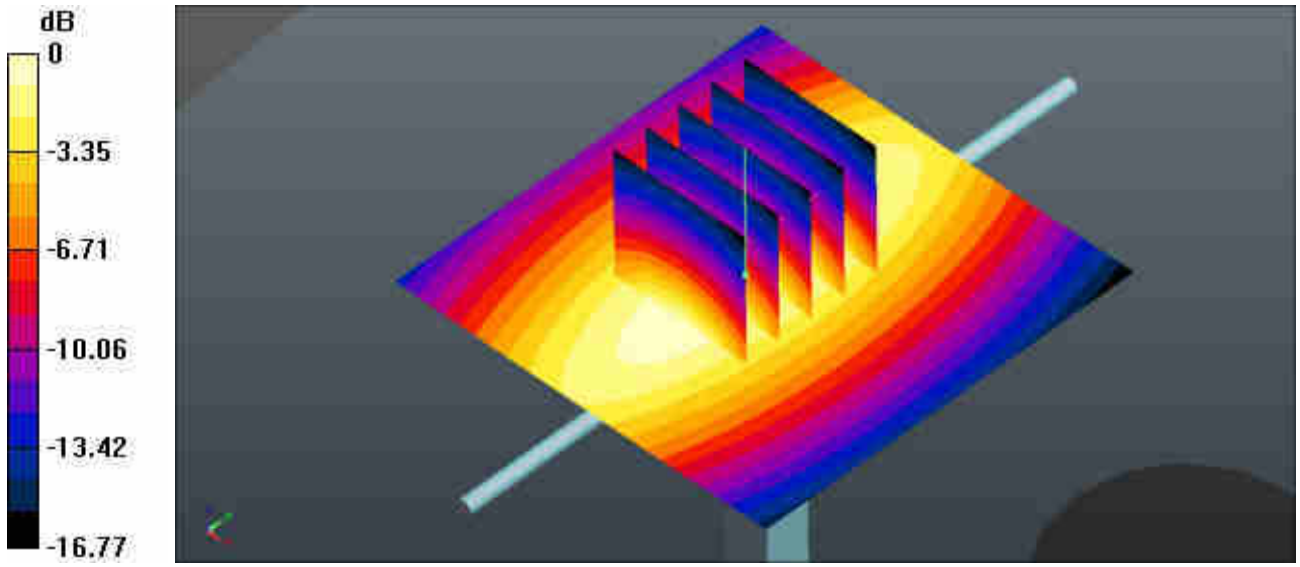
DUT: D750V3 - SN:1087

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 750 MHz; σ = 0.895 S/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.83, 10.83, 10.83); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.70 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.66 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.00 W/kg
SAR(1 g) = 2.1 W/kg; SAR(10 g) = 1.42 W/kg
Maximum value of SAR (measured) = 2.70 W/kg



0 dB = 2.70 W/kg = 4.31 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/10/27

System Check_Head_835MHz

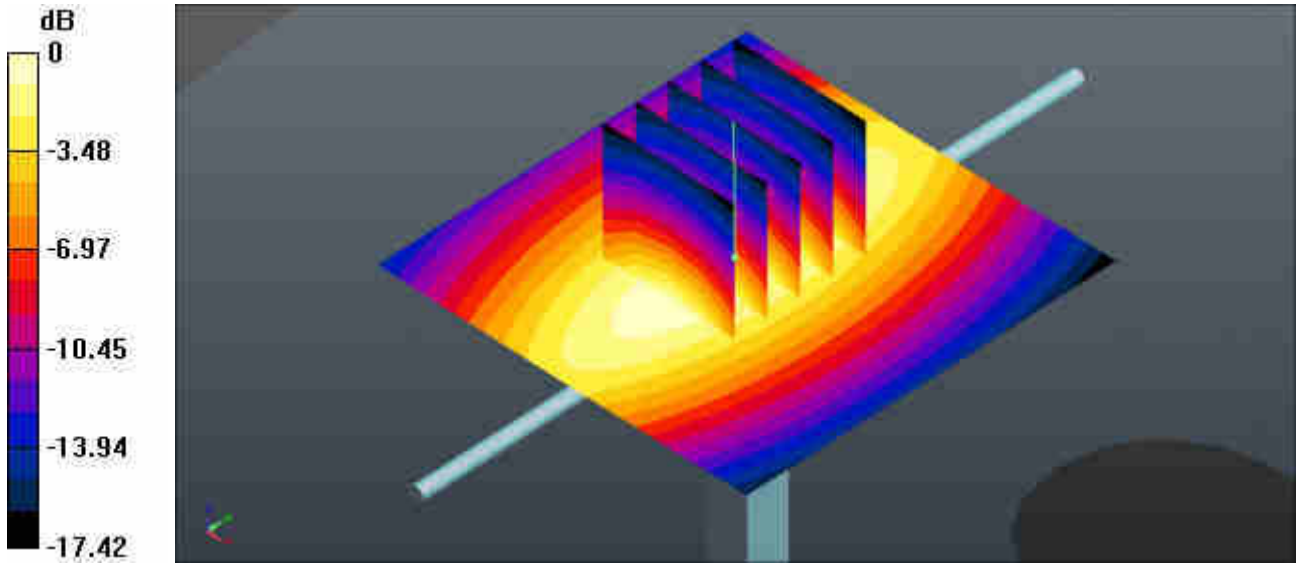
DUT: D835V2 - SN:4d151

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 835 MHz; σ = 0.929 S/m; ε_r = 42.225; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.29 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 61.03 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 3.68 W/kg
SAR(1 g) = 2.48 W/kg; SAR(10 g) = 1.63 W/kg
Maximum value of SAR (measured) = 3.30 W/kg



0 dB = 3.29 W/kg = 5.17 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020/2/26

System Check_Head_900MHz

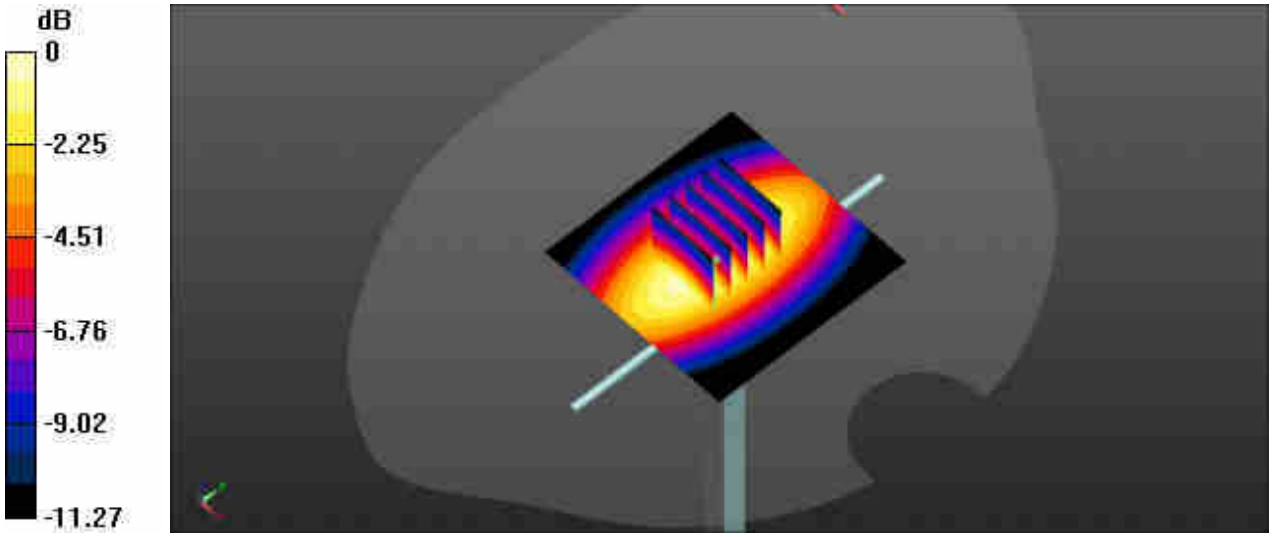
DUT: D900V2 - SN:1d137

Communication System: UID 0, CW (0); Frequency: 900 MHz;Duty Cycle: 1:1
Medium: HSL_900 Medium parameters used: f = 900 MHz; σ = 0.98 S/m; ε_r = 40.708; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.23, 6.23, 6.23); Calibrated: 2019/11/25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019/11/20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=250mw/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.22 W/kg

Pin=250mw/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.43 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 4.27 W/kg
SAR(1 g) = 2.74 W/kg; SAR(10 g) = 1.76 W/kg
Maximum value of SAR (measured) = 3.24 W/kg



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

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/10/25

System Check_Head_1750MHz

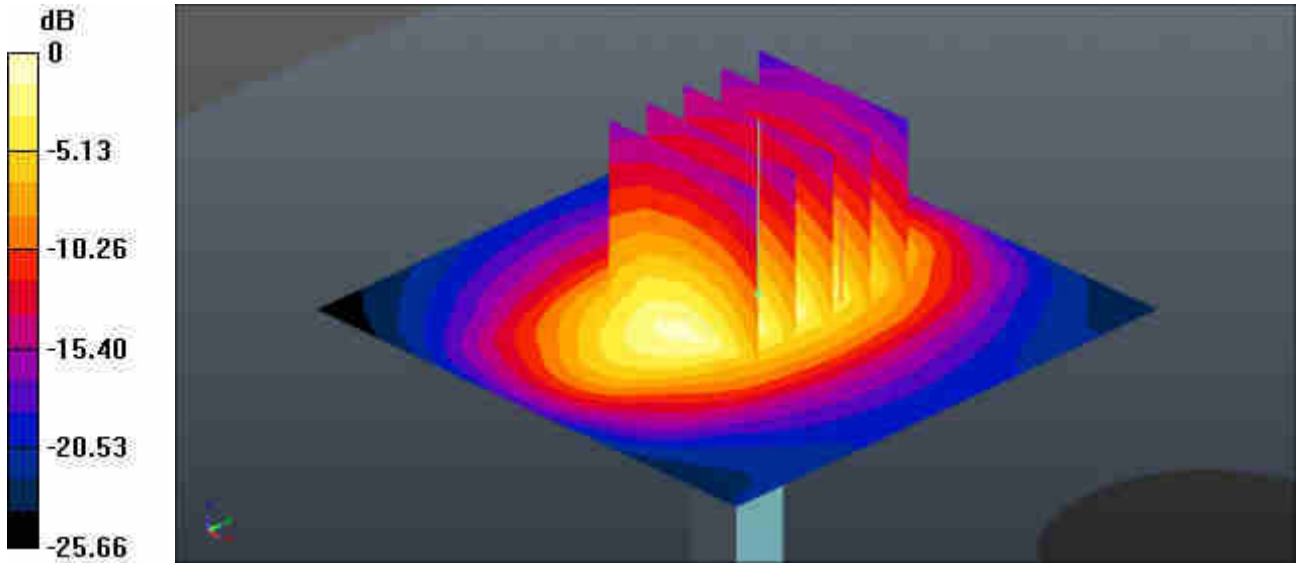
DUT: D1750V2 - SN:1090

Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1750 MHz; σ = 1.382 S/m; ε_r = 39.703; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.91, 8.91, 8.91); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 85.10 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 16.7 W/kg
SAR(1 g) = 9.13 W/kg; SAR(10 g) = 4.8 W/kg
Maximum value of SAR (measured) = 12.9 W/kg



0 dB = 13.2 W/kg = 11.21 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/3

System Check_Head_1900MHz

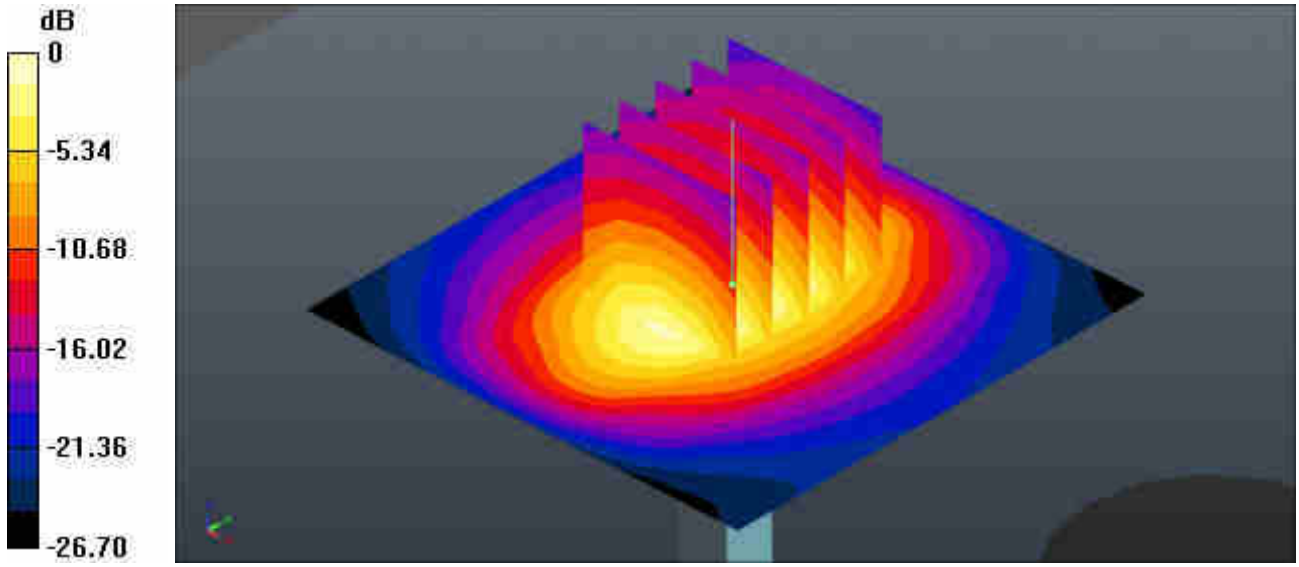
DUT: D1900V2 - SN:5d170

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1900 MHz; σ = 1.414 S/m; ε_r = 39.443; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.9 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 86.40 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 18.0 W/kg
SAR(1 g) = 9.36 W/kg; SAR(10 g) = 4.75 W/kg
Maximum value of SAR (measured) = 13.7 W/kg



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

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/6

System Check_Head_2450MHz

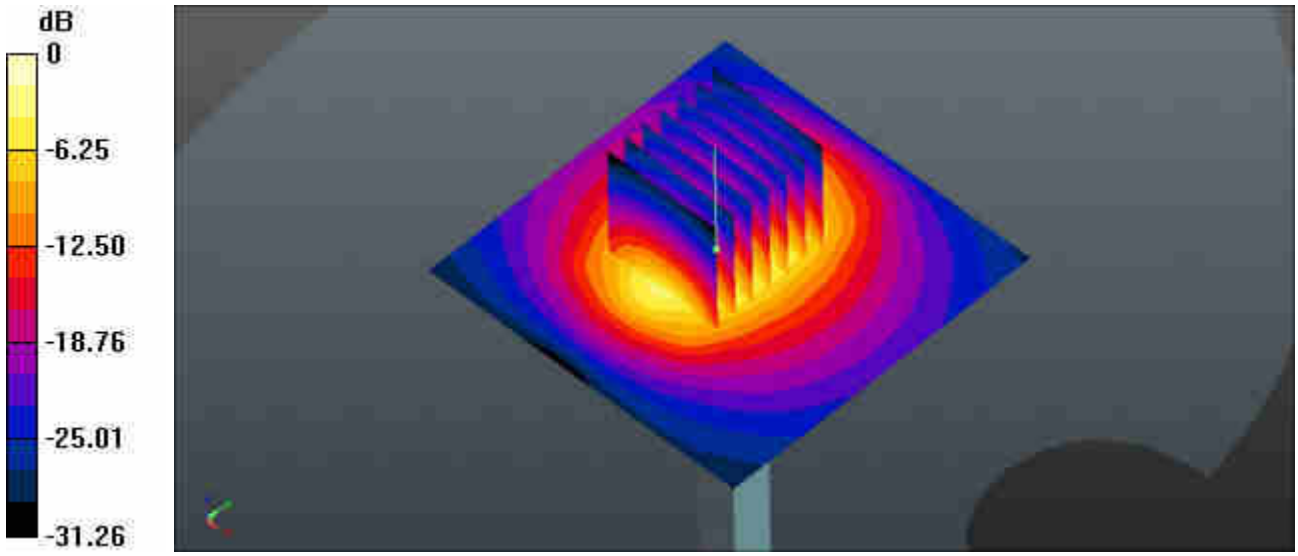
DUT: D2450V2 - SN:908

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450 Medium parameters used: f = 2450 MHz; σ = 1.757 S/m; ε_r = 40.039; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.69, 7.69, 7.69); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 19.4 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 81.26 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 27.2 W/kg
SAR(1 g) = 12.3 W/kg; SAR(10 g) = 5.51 W/kg
Maximum value of SAR (measured) = 19.3 W/kg



0 dB = 19.4 W/kg = 12.88 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/8

System Check_Head_2600MHz

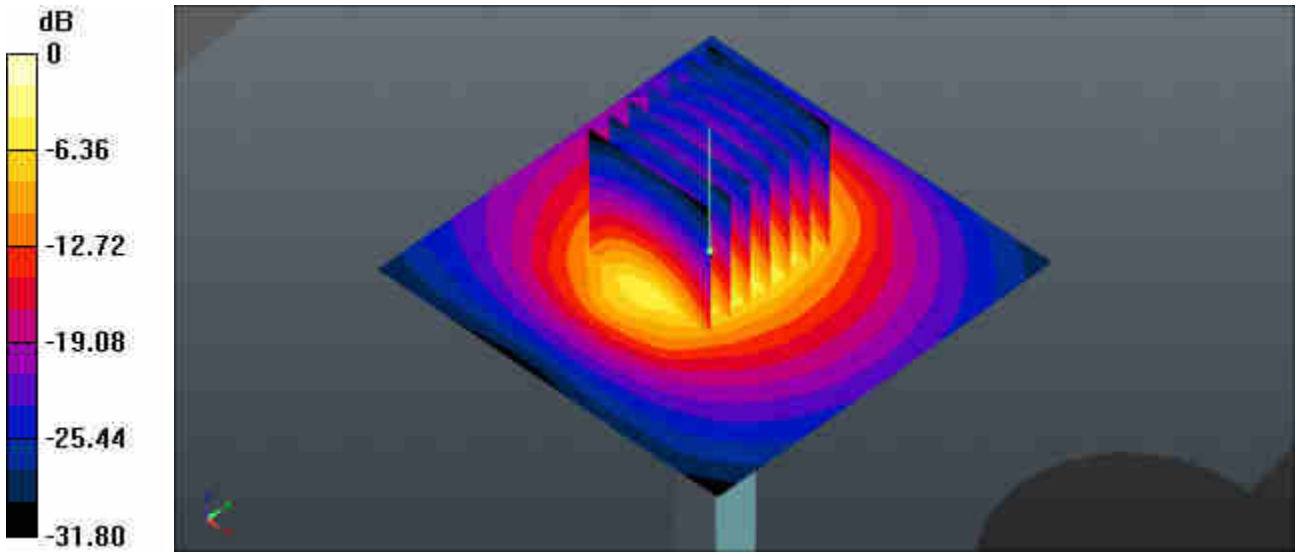
DUT: D2600V2 - SN:1078

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: f = 2600 MHz; σ = 2.022 S/m; ε_r = 37.786; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 22.3 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 83.24 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 32.2 W/kg
SAR(1 g) = 14 W/kg; SAR(10 g) = 6.02 W/kg
Maximum value of SAR (measured) = 22.5 W/kg



0 dB = 22.3 W/kg = 13.48 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/10

System Check_Head_5250MHz

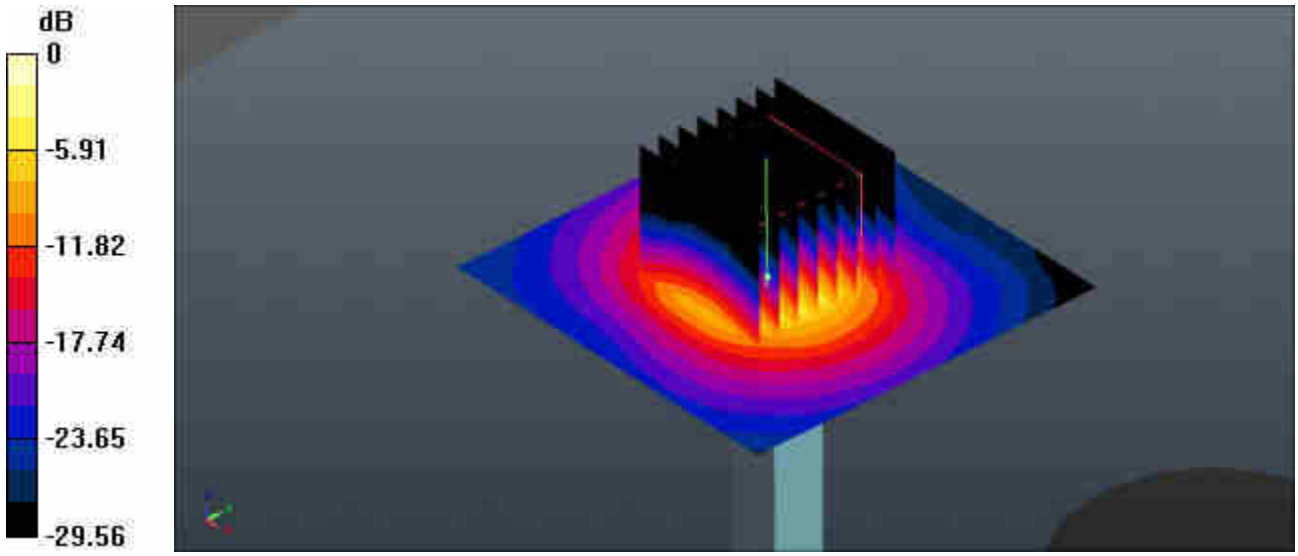
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5250 MHz; σ = 4.595 S/m; ε_r = 36.402; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3843; ConvF(4.74, 4.74, 4.74); Calibrated: 2019/9/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 17.8 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 43.01 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 31.2 W/kg
SAR(1 g) = 7.49 W/kg; SAR(10 g) = 2.18 W/kg
Maximum value of SAR (measured) = 17.6 W/kg



0 dB = 17.8 W/kg = 12.50 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/9

System Check_Head_5600MHz

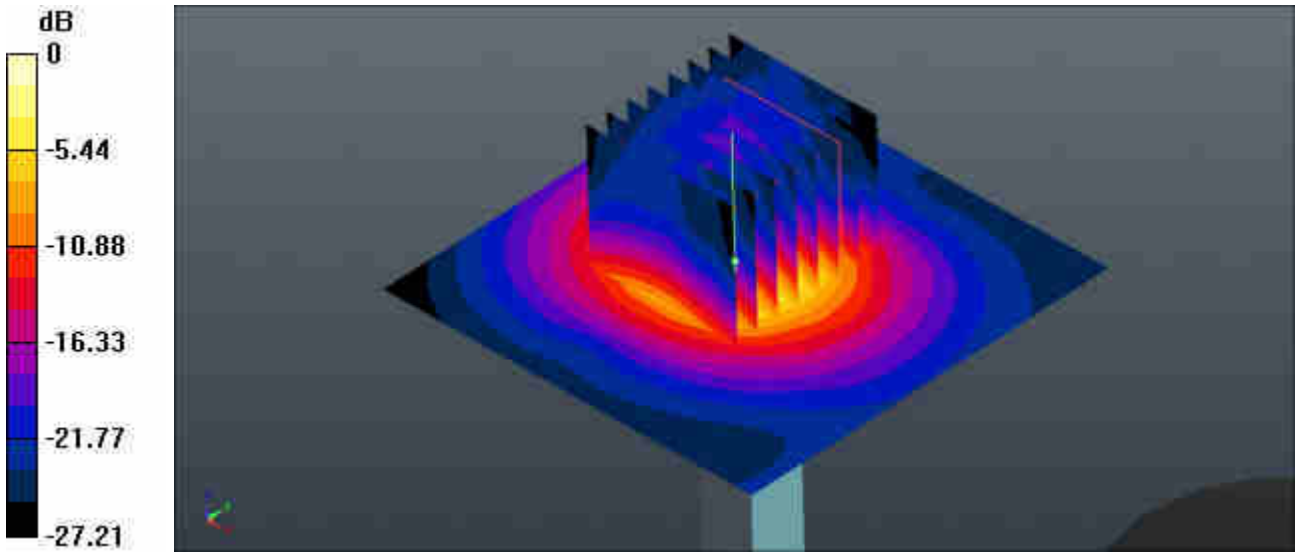
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5600 MHz; σ = 4.985 S/m; ε_r = 35.825; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3843; ConvF(4.47, 4.47, 4.47); Calibrated: 2019/9/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 20.7 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 40.01 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 34.0 W/kg
SAR(1 g) = 8.32 W/kg; SAR(10 g) = 2.43 W/kg
Maximum value of SAR (measured) = 19.8 W/kg



0 dB = 20.7 W/kg = 13.16 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/13

System Check_Head_5750MHz

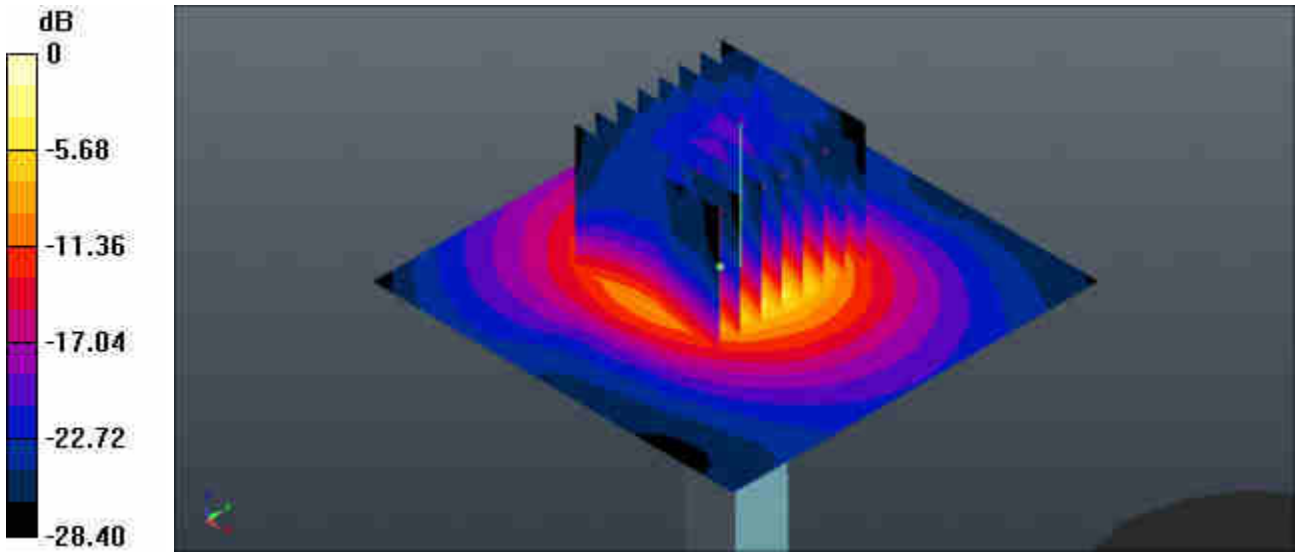
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5750 MHz; σ = 5.161 S/m; ε_r = 35.569; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3843; ConvF(4.44, 4.44, 4.44); Calibrated: 2019/9/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 20.1 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 37.93 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 33.5 W/kg
SAR(1 g) = 7.88 W/kg; SAR(10 g) = 2.31 W/kg
Maximum value of SAR (measured) = 18.6 W/kg



0 dB = 20.1 W/kg = 13.03 dBW/kg

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

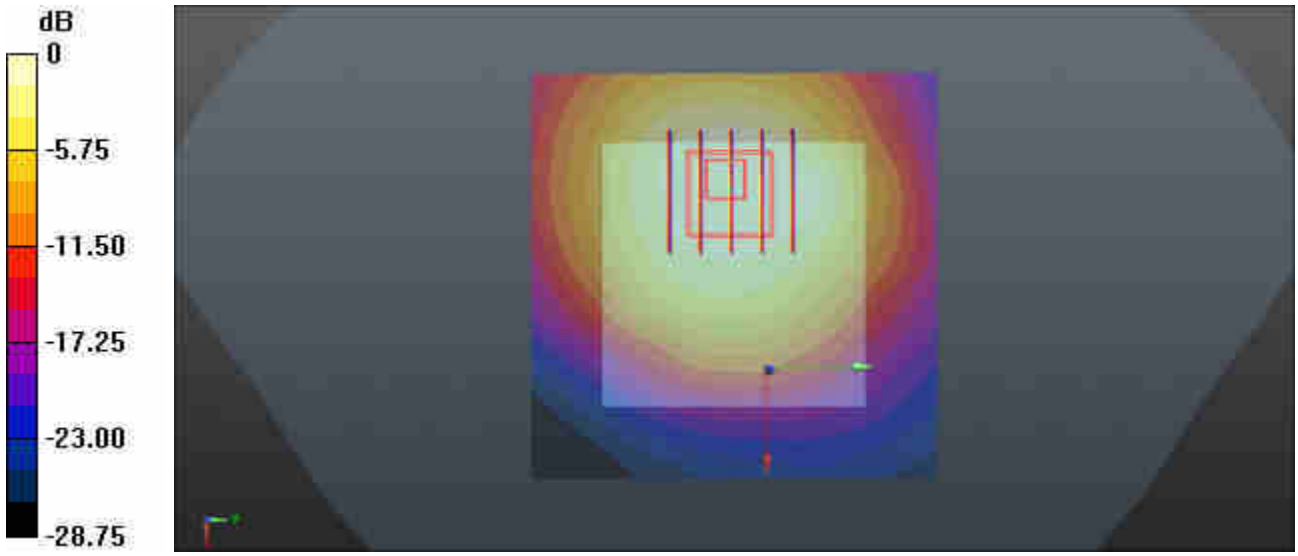
01_WCDMA Band V_RMC 12.2Kbps_In front of Face_5mm_Ch4132

Communication System: UID 0, WCDMA (0); Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 826.4 MHz; σ = 0.92 S/m; ε_r = 42.315; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch4132/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.24 W/kg

Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.78 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.976 W/kg; SAR(10 g) = 0.637 W/kg
Maximum value of SAR (measured) = 1.30 W/kg



0 dB = 1.24 W/kg = 0.93 dBW/kg

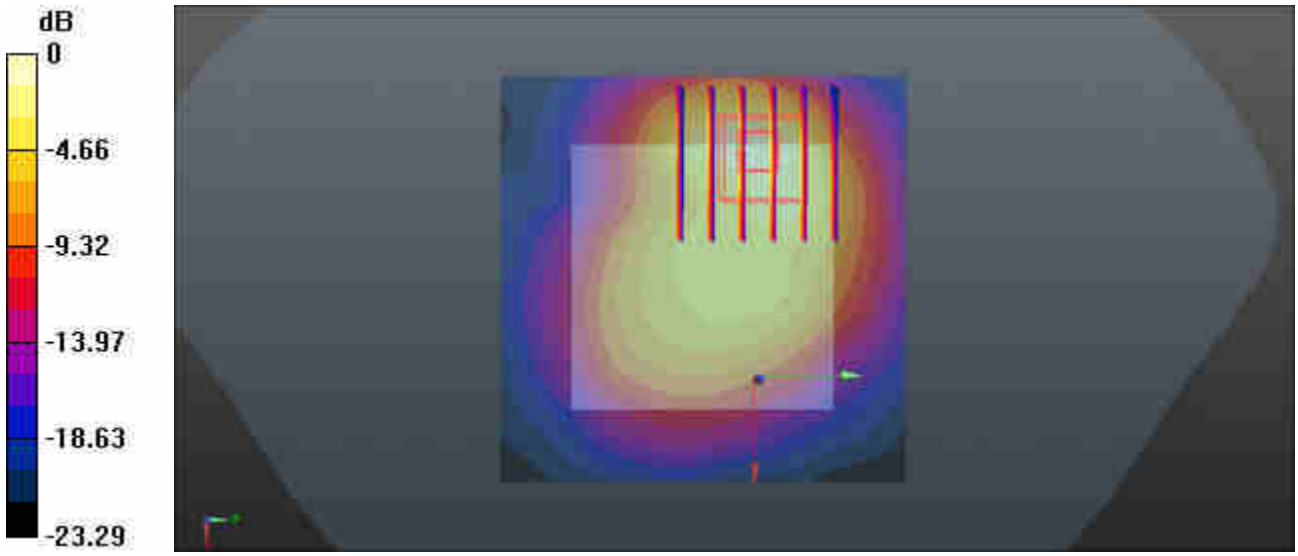
02_WCDMA Band IV_RMC 12.2Kbps_In front of Face_5mm_Ch1513

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1752.6 MHz; σ = 1.385 S/m; ε_r = 39.691; ρ =1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.91, 8.91, 8.91); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch1513/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.62 W/kg

Ch1513/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.19 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.545 W/kg
Maximum value of SAR (measured) = 1.58 W/kg



0 dB = 1.62 W/kg = 2.10 dBW/kg

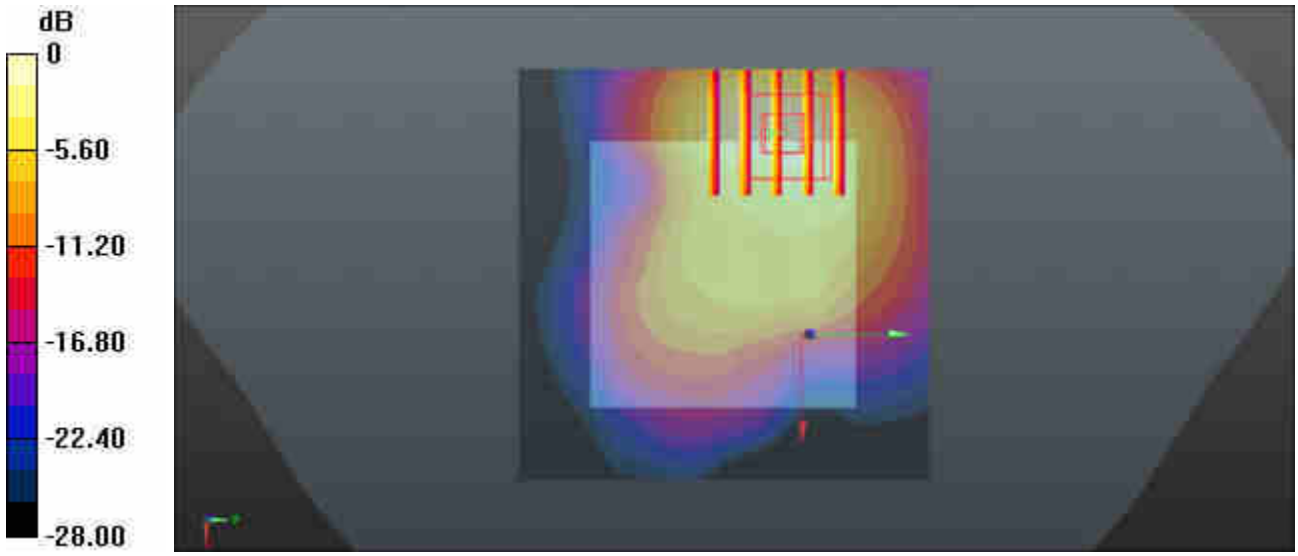
03_WCDMA Bnad II_RMC 12.2Kbps_In front of Face_5mm_Ch9538

Communication System: UID 0, WCDMA (0); Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1907.6 MHz; σ = 1.421 S/m; ε_r = 39.413; ρ =1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch9538/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.36 W/kg

Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.54 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 0.872 W/kg; SAR(10 g) = 0.443 W/kg
Maximum value of SAR (measured) = 1.40 W/kg



0 dB = 1.36 W/kg = 1.34 dBW/kg

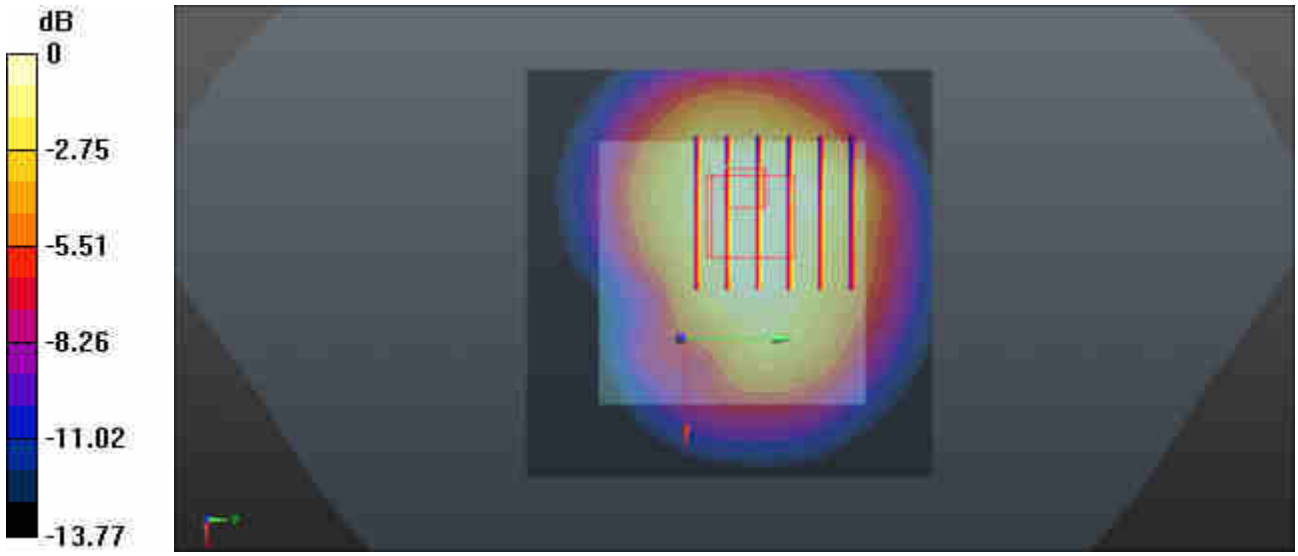
04_LTE Band 12_10M_QPSK_1RB_0Offset_In front of Face_5mm_Ch23095

Communication System: UID 0, LTE-FDD (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 707.5 MHz; σ = 0.852 S/m; ε_r = 42.282; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.83, 10.83, 10.83); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch23095/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.684 W/kg

Ch23095/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.08 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.851 W/kg
SAR(1 g) = 0.532 W/kg; SAR(10 g) = 0.371 W/kg
Maximum value of SAR (measured) = 0.716 W/kg



0 dB = 0.716 W/kg = -1.45 dBW/kg

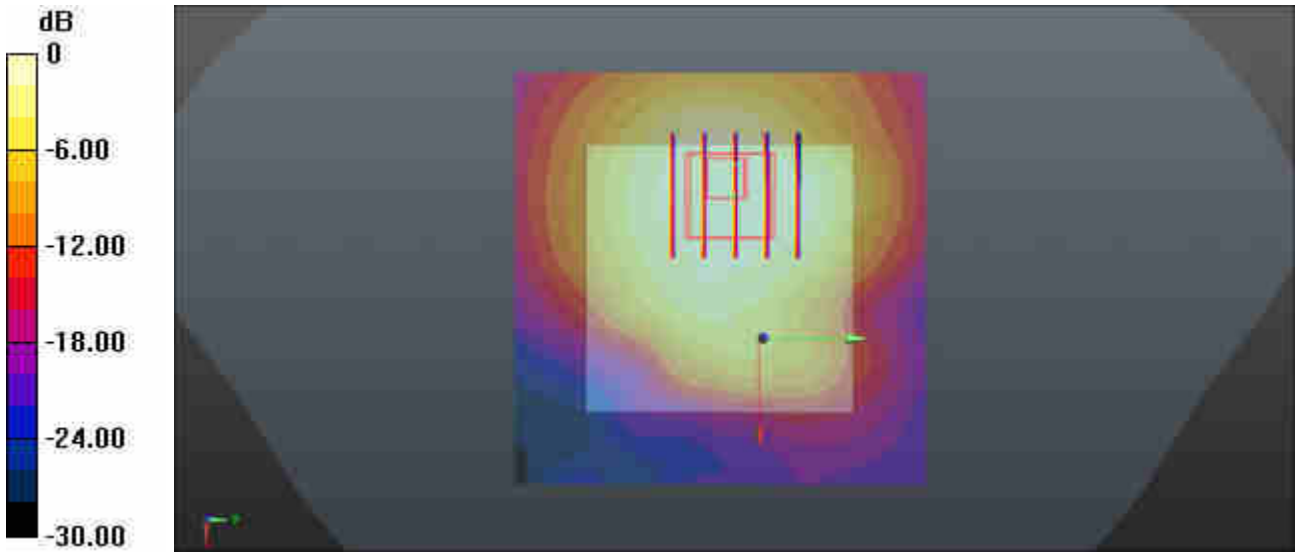
05_LTE Band 13_10M_QPSK_25RB_0Offset_In front of Face_5mm_Ch23230

Communication System: UID 0, LTE-FDD (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 782 MHz; σ = 0.923 S/m; ε_r = 41.296; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.83, 10.83, 10.83); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch23230/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.719 W/kg

Ch23230/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.979 W/kg
SAR(1 g) = 0.565 W/kg; SAR(10 g) = 0.364 W/kg
Maximum value of SAR (measured) = 0.801 W/kg



0 dB = 0.719 W/kg = -1.43 dBW/kg

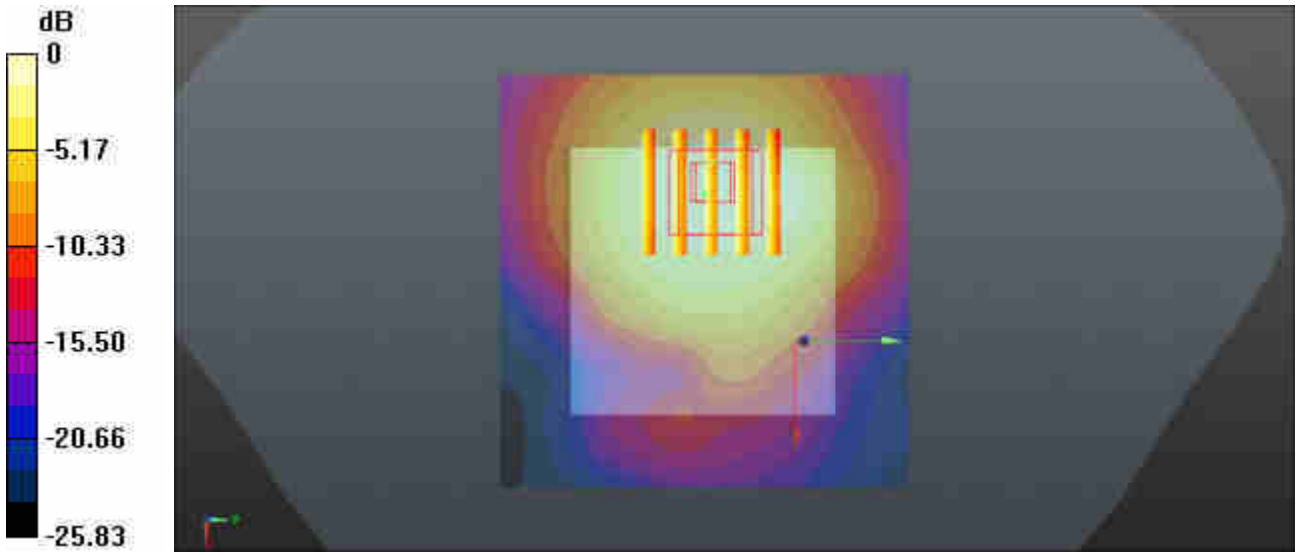
06_LTE Band 26_15M_QPSK_75RB_0Offset_In front of Face_5mm_Ch26865

Communication System: UID 0, LTE-FDD (0); Frequency: 831.5 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 831.5 MHz; σ = 0.925 S/m; ε_r = 42.258; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃； Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 201/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch26865/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.961 W/kg

Ch26865/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.46 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.743 W/kg; SAR(10 g) = 0.476 W/kg
Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 0.961 W/kg = -0.17 dBW/kg

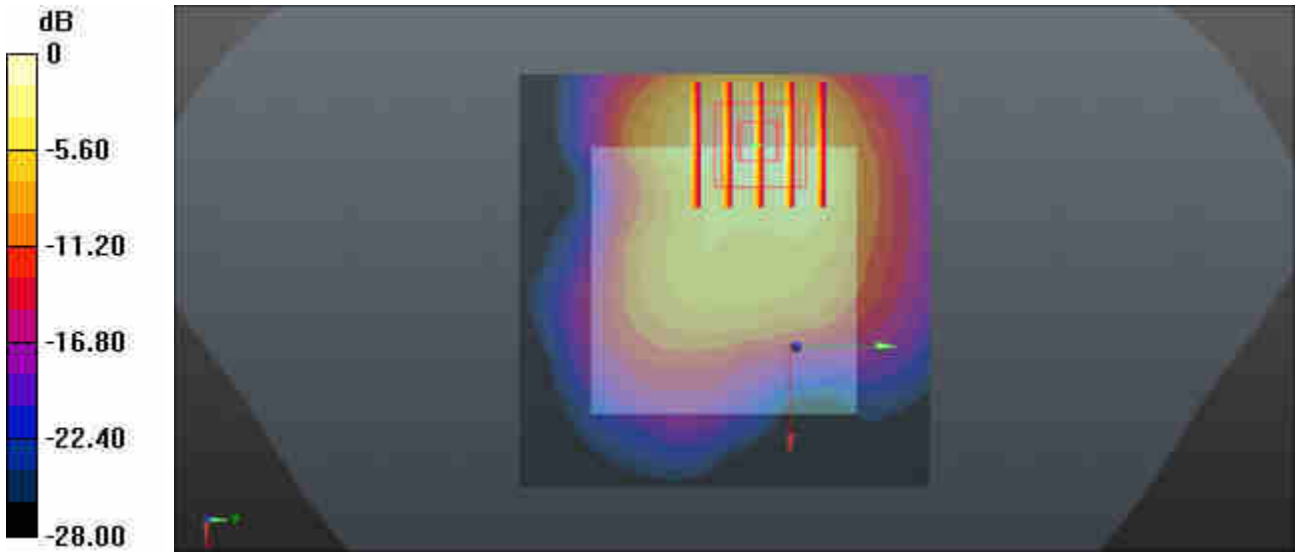
07_LTE Band 25_20M_QPSK_1RB_0Offset_In front of Face_5mm_Ch26590

Communication System: UID 0, LTE-FDD (0); Frequency: 1905 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1905 MHz; σ = 1.419 S/m; ε_r = 39.424; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch26590/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.38 W/kg

Ch26590/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.26 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 0.827 W/kg; SAR(10 g) = 0.423 W/kg
Maximum value of SAR (measured) = 1.33 W/kg



0 dB = 1.38 W/kg = 1.40 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/10/25

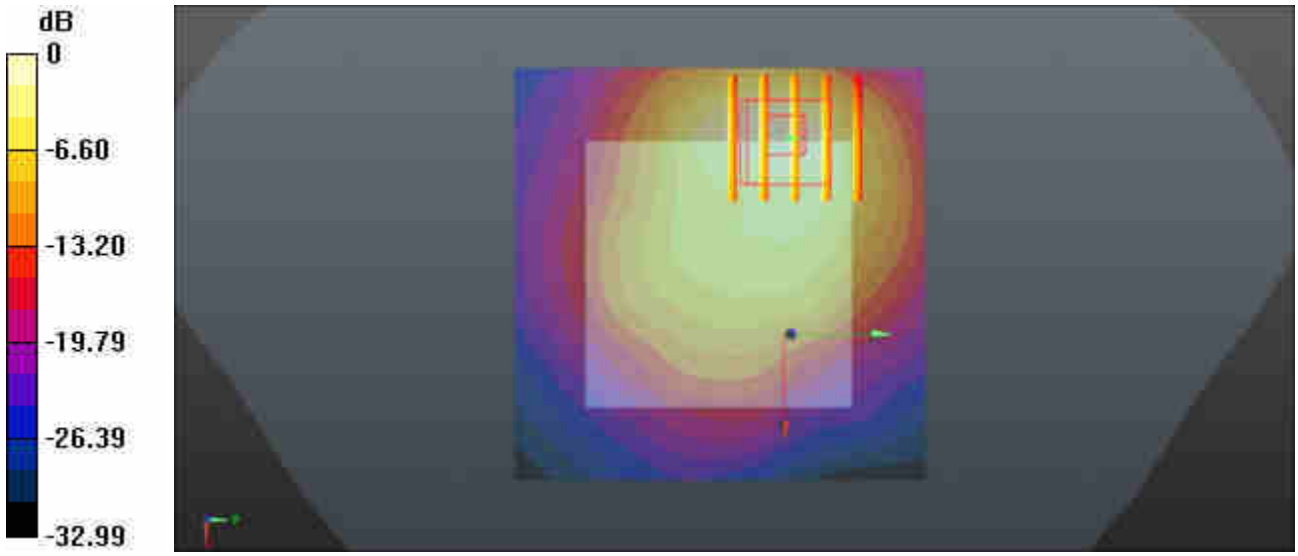
08_LTE Band 66_20M_QPSK_1RB_0Offset_In front of Face_5mm_Ch132572

Communication System: UID 0, LTE-FDD (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1770 MHz; σ = 1.401 S/m; ε_r = 39.629; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.91, 8.91, 8.91); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch132572/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.40 W/kg

Ch132572/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.49 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.935 W/kg; SAR(10 g) = 0.495 W/kg
Maximum value of SAR (measured) = 1.45 W/kg



0 dB = 1.40 W/kg = 1.46 dBW/kg

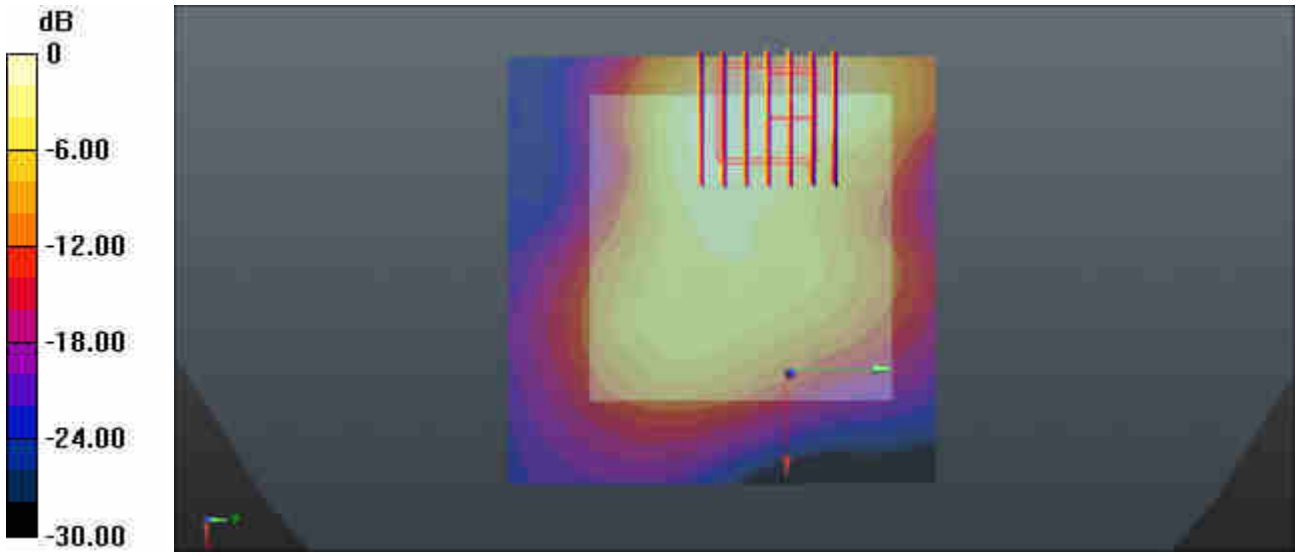
09_LTE Band 7_20M_QPSK_50RB_0Offset_In front of Face_5mm_Ch21100

Communication System: UID 0, LTE-FDD (0); Frequency: 2535 MHz;Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: f = 2535 MHz; σ = 1.969 S/m; ε_r = 38.504; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch21100/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.12 W/kg

Ch21100/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.24 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.68 W/kg
SAR(1 g) = 0.731 W/kg; SAR(10 g) = 0.353 W/kg
Maximum value of SAR (measured) = 1.30 W/kg



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

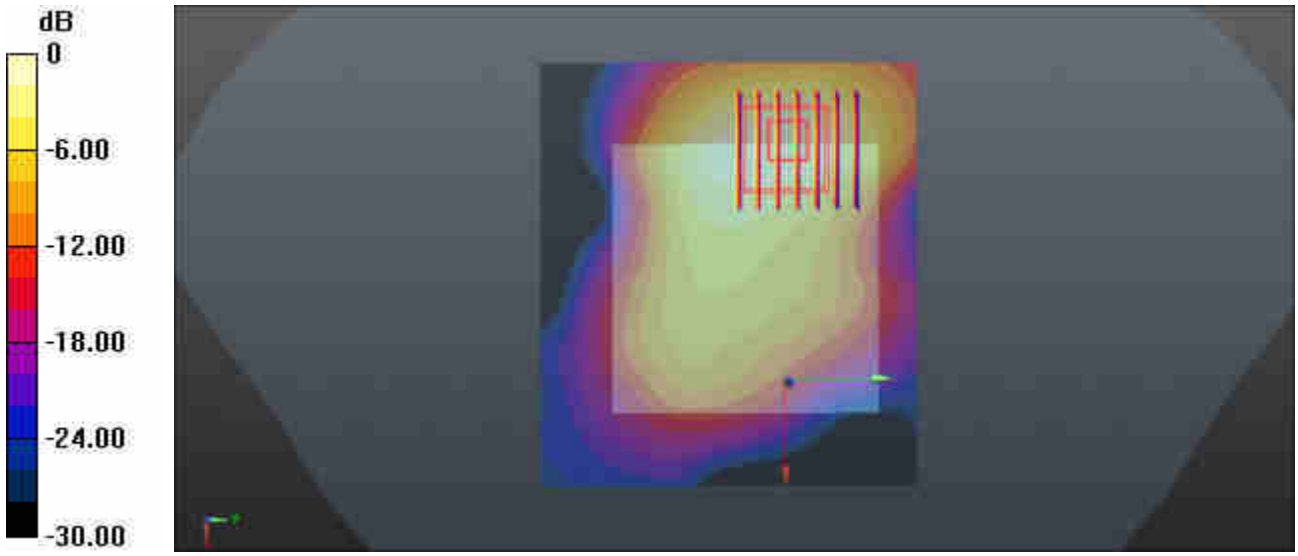
10_LTE Band 41_20M_QPSK_1RB_0Offset_In front of Face_5mm_Ch39750

Communication System: UID 0, LTE-TDD (0); Frequency: 2506 MHz;Duty Cycle: 1:1.59
Medium: HSL_2600 Medium parameters used: f = 2506 MHz; σ = 1.933 S/m; ε_r = 38.627; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃； Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch39750/Area Scan (91x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.15 W/kg

Ch39750/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.65 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 0.782 W/kg; SAR(10 g) = 0.355 W/kg
Maximum value of SAR (measured) = 1.43 W/kg



0 dB = 1.15 W/kg = 0.61 dBW/kg

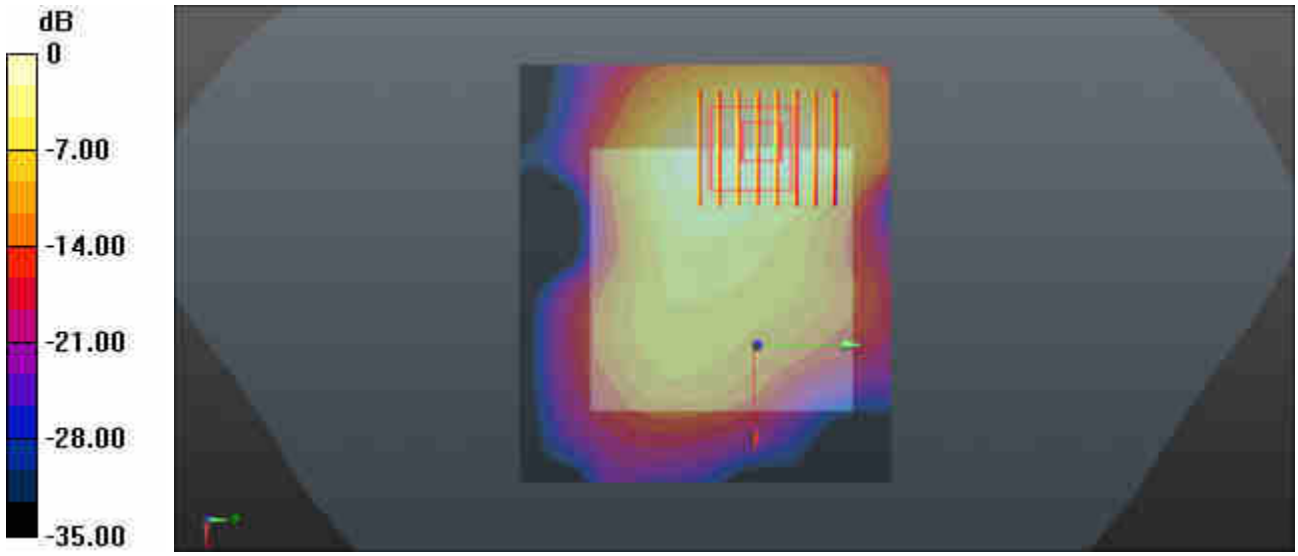
11_LTE Band 41(HPUE)_20M_QPSK_1RB_0Offset_In front of Face_5mm_Ch40185

Communication System: UID 0, LTE-TDD (0); Frequency: 2549.5 MHz;Duty Cycle: 1:2.33
Medium: HSL_2600 Medium parameters used: f = 2549.5 MHz; σ = 1.989 S/m; ε_r = 38.447; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃； Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch40185/Area Scan (91x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.799 W/kg

Ch40185/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.821 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.524 W/kg; SAR(10 g) = 0.240 W/kg
Maximum value of SAR (measured) = 0.909 W/kg



0 dB = 0.799 W/kg = -0.97 dBW/kg

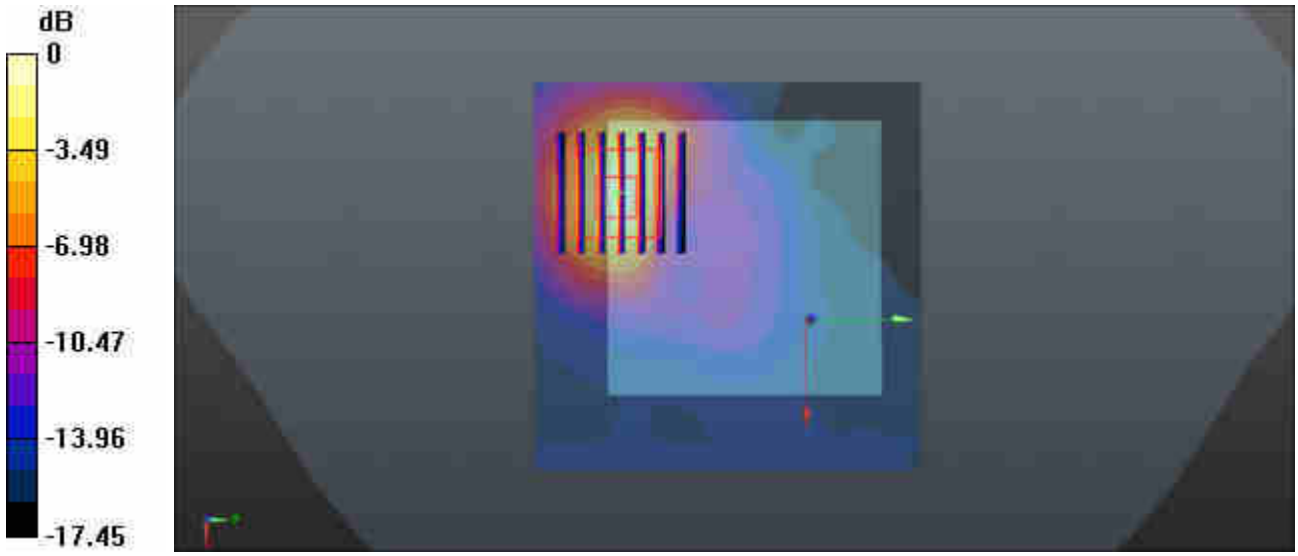
12_WLAN2.4GHz_802.11b 1Mbps_In front of Face_5mm_Ch11

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz;Duty Cycle: 1:1.025
Medium: HSL_2450 Medium parameters used: f = 2462 MHz; σ = 1.769 S/m; ε_r = 40.01; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.69, 7.69, 7.69); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch11/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.309 W/kg

Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.167 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.544 W/kg
SAR(1 g) = 0.235 W/kg; SAR(10 g) = 0.098 W/kg
Maximum value of SAR (measured) = 0.322 W/kg



0 dB = 0.309 W/kg = -5.10 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/6

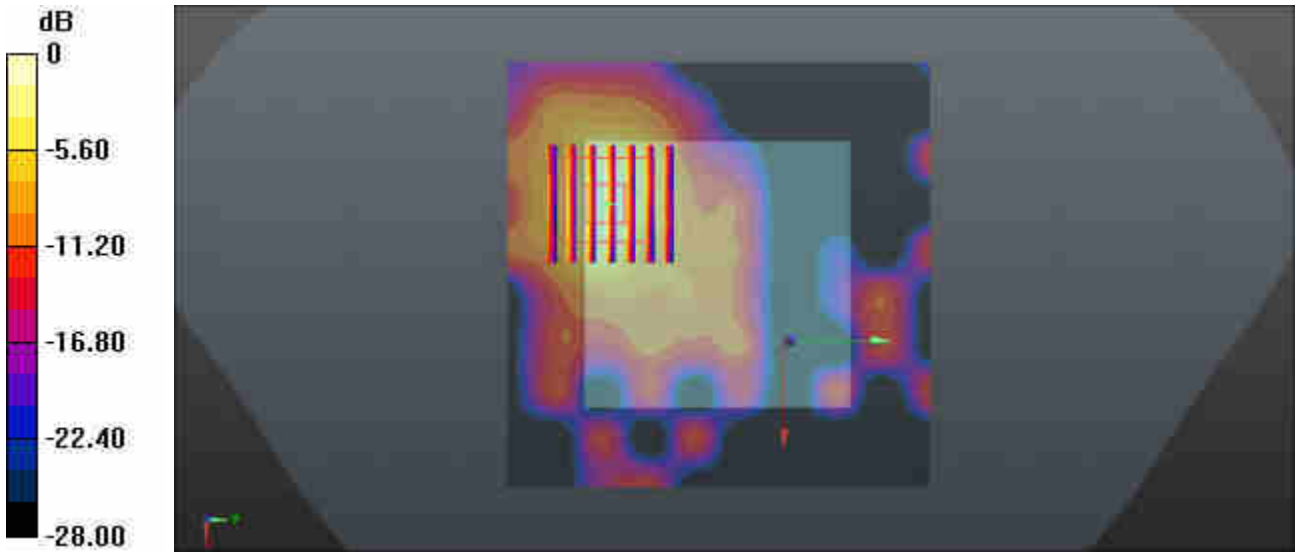
13_Bluetooth_1Mbps_In front of Face_5mm_Ch0

Communication System: UID 0, Bluetooth (0); Frequency: 2402 MHz;Duty Cycle: 1:1.292
Medium: HSL_2450 Medium parameters used: f = 2402 MHz; σ = 1.704 S/m; ε_r = 40.239; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.69, 7.69, 7.69); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch0/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.110 W/kg

Ch0/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.574 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.153 W/kg
SAR(1 g) = 0.066 W/kg; SAR(10 g) = 0.027 W/kg
Maximum value of SAR (measured) = 0.122 W/kg



0 dB = 0.110 W/kg = -9.59 dBW/kg

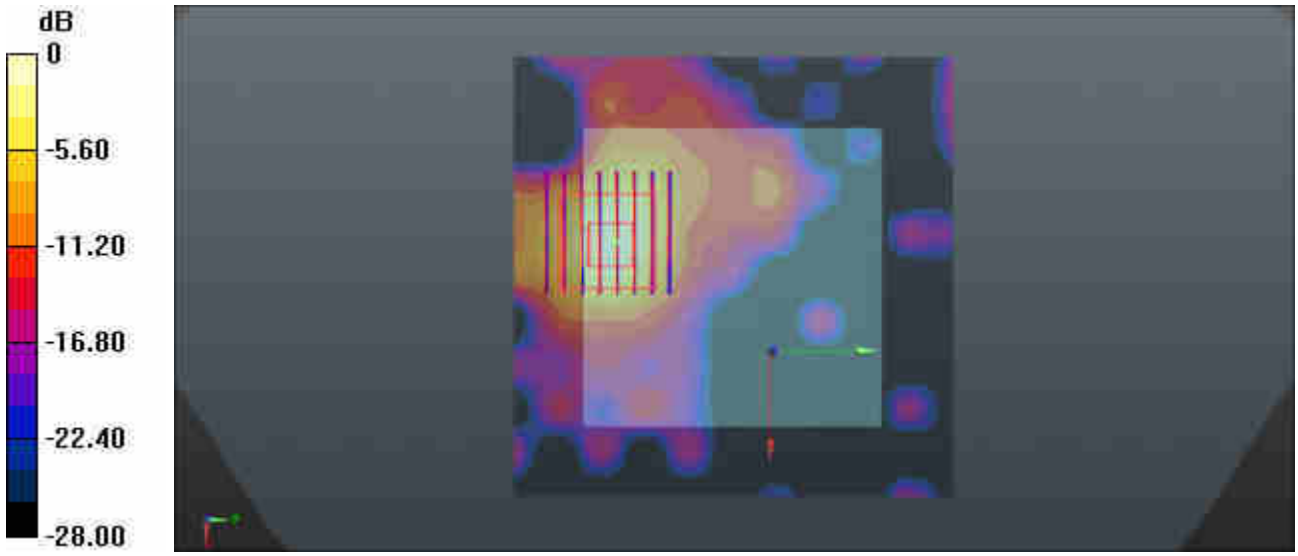
14_WLAN5.2GHz_802.11n-HT40 MCS0_In front of Face_5mm_Ch38

Communication System: UID 0, 802.11n (0); Frequency: 5190 MHz;Duty Cycle: 1:1.159
Medium: HSL_5000 Medium parameters used: f = 5190 MHz; σ = 4.521 S/m; ε_r = 36.525; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3843; ConvF(4.74, 4.74, 4.74); Calibrated: 2019/9/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch38/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.524 W/kg

Ch38/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.588 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.805 W/kg
SAR(1 g) = 0.248 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.545 W/kg



0 dB = 0.524 W/kg = -2.81 dBW/kg

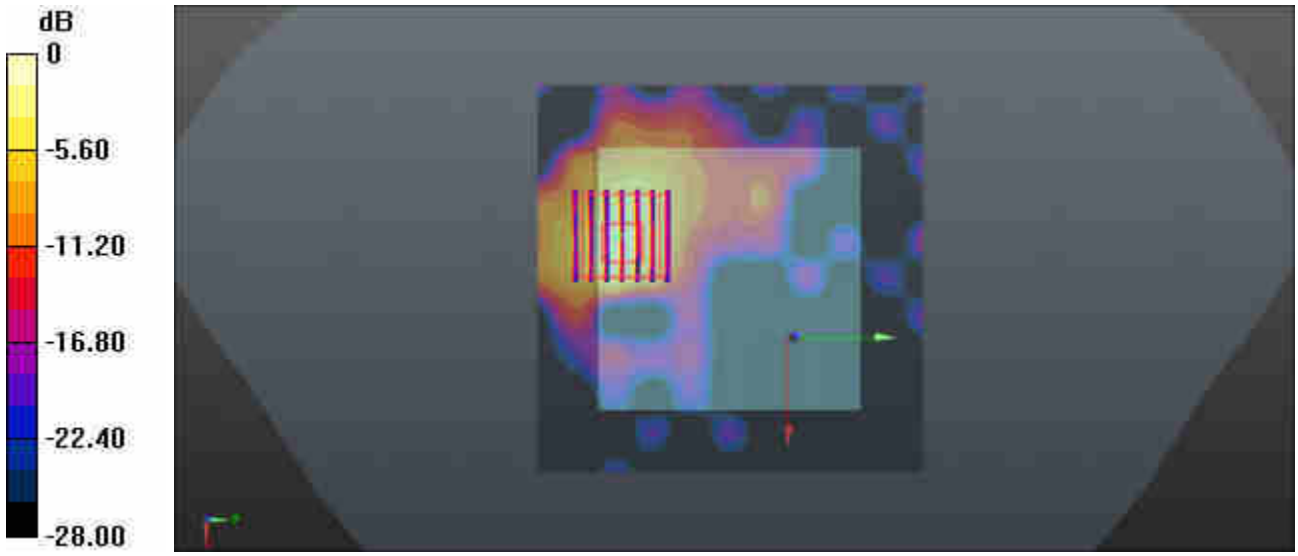
15_WLAN5.3GHz_802.11n-HT40 MCS0_In front of Face_5mm_Ch54

Communication System: UID 0, 802.11n (0); Frequency: 5270 MHz;Duty Cycle: 1:1.159
Medium: HSL_5000 Medium parameters used: f = 5270 MHz; σ = 4.623 S/m; ε_r = 36.391; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3843; ConvF(4.74, 4.74, 4.74); Calibrated: 2019/9/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch54/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.536 W/kg

Ch54/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.159 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.780 W/kg
SAR(1 g) = 0.236 W/kg; SAR(10 g) = 0.071 W/kg
Maximum value of SAR (measured) = 0.522 W/kg



0 dB = 0.536 W/kg = -2.71 dBW/kg

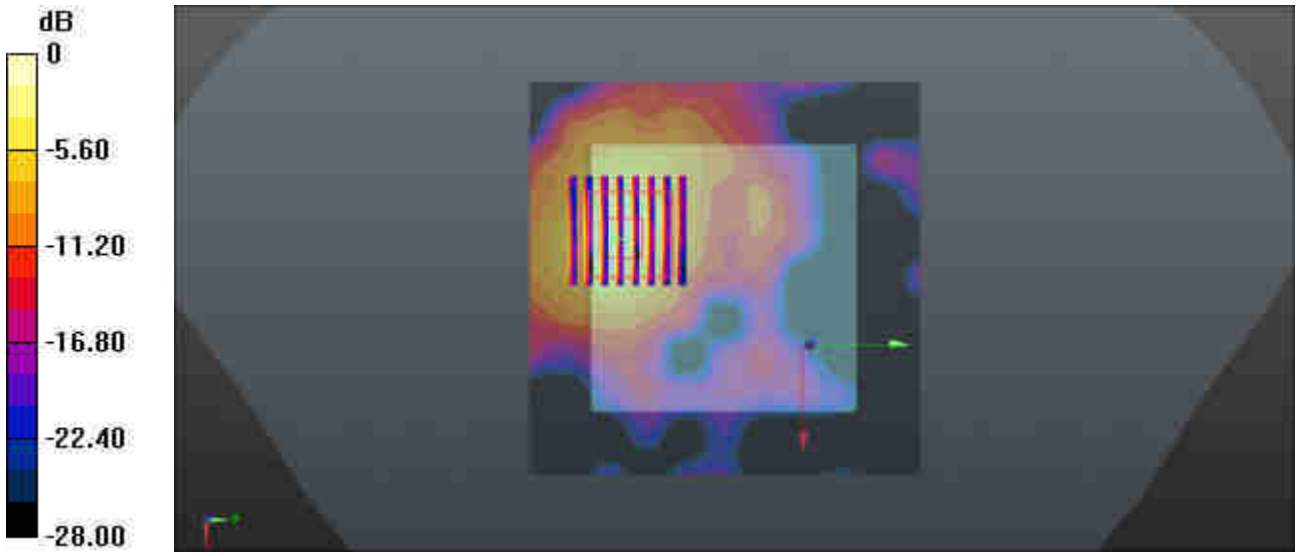
16_WLAN5.5GHz_802.11n-HT40 MCS0_In front of Face_5mm_Ch102

Communication System: UID 0, 802.11n (0); Frequency: 5510 MHz;Duty Cycle: 1:1.159
Medium: HSL_5000 Medium parameters used: f = 5510 MHz; σ = 4.883 S/m; ε_r = 35.979; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3843; ConvF(4.47, 4.47, 4.47); Calibrated: 2019/9/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch102/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.731 W/kg

Ch102/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.989 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.305 W/kg; SAR(10 g) = 0.095 W/kg
Maximum value of SAR (measured) = 0.700 W/kg



0 dB = 0.731 W/kg = -1.36 dBW/kg

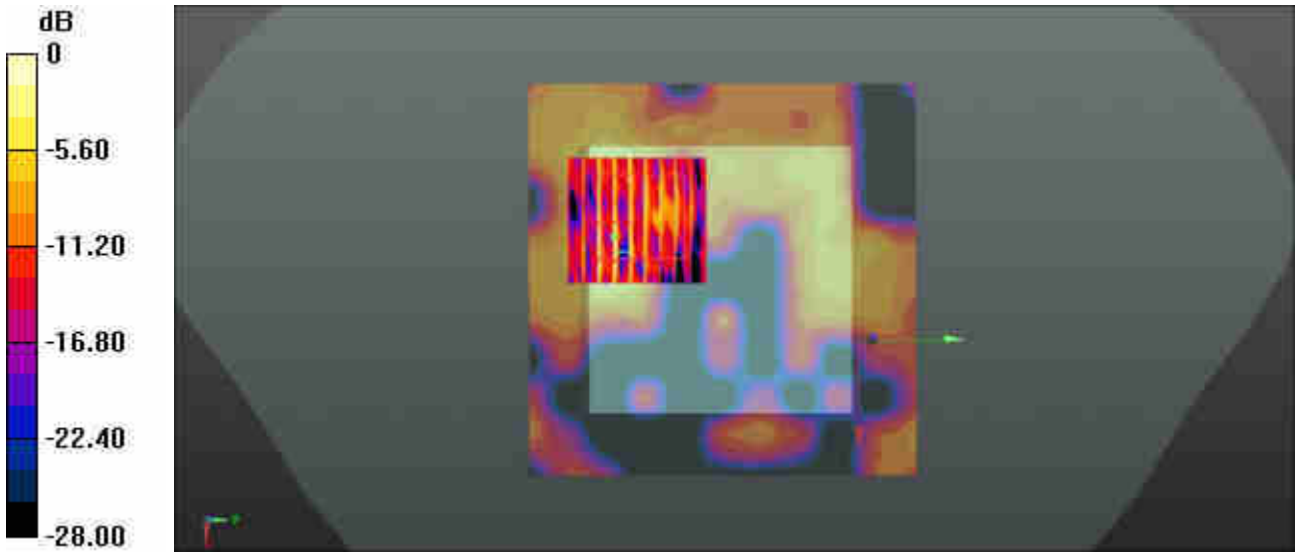
17_WLAN5.8GHz_802.11n-HT40 MCS0_In front of Face_5mm_Ch159

Communication System: UID 0, 802.11n (0); Frequency: 5795 MHz;Duty Cycle: 1:1.159
Medium: HSL_5000 Medium parameters used: f = 5795 MHz; σ = 5.207 S/m; ε_r = 35.516; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3843; ConvF(4.44, 4.44, 4.44); Calibrated: 2019/9/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch159/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.212 W/kg

Ch159/Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.624 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.321 W/kg
SAR(1 g) = 0.065 W/kg; SAR(10 g) = 0.020 W/kg
Maximum value of SAR (measured) = 0.215 W/kg



0 dB = 0.212 W/kg = -6.74 dBW/kg

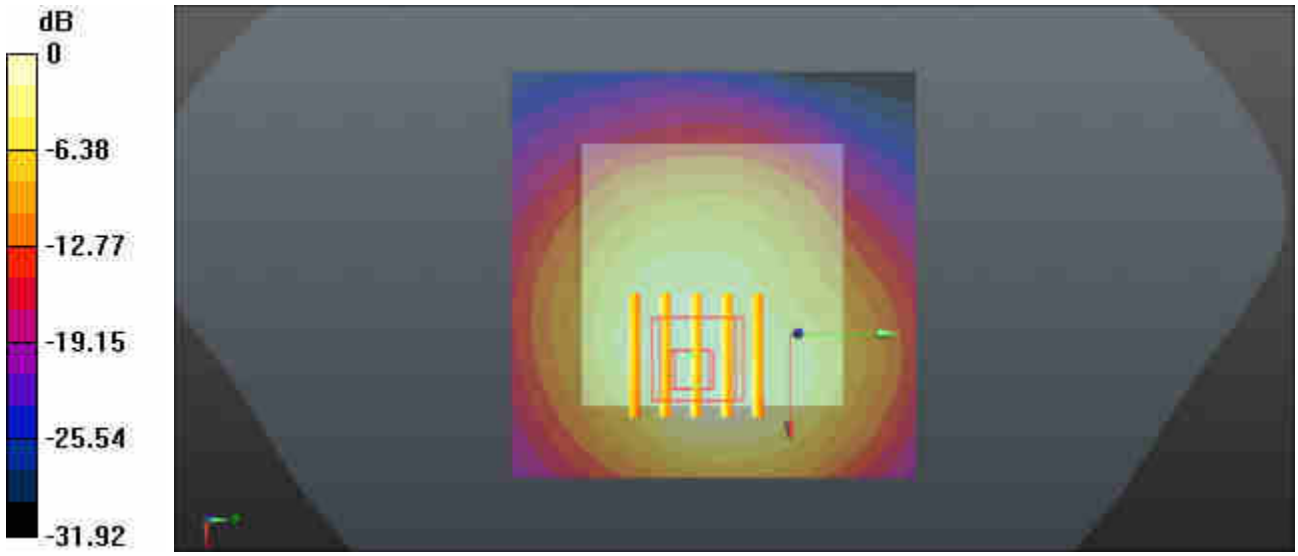
18_WCDMA Band V_RMC 12.2Kbps_Back_5mm_Ch4132

Communication System: UID 0, WCDMA (0); Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 826.4 MHz; σ = 0.92 S/m; ε_r = 42.315; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch4132/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.76 W/kg

Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.77 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2.13 W/kg
SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.703 W/kg
Maximum value of SAR (measured) = 1.73 W/kg



0 dB = 1.76 W/kg = 2.46 dBW/kg

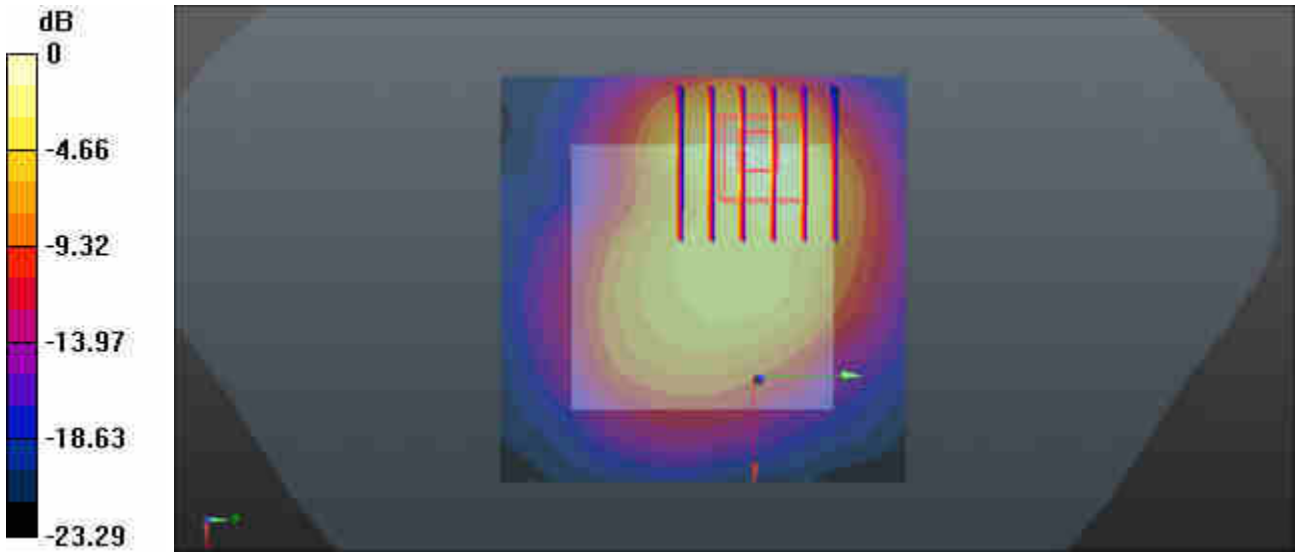
19_WCDMA Band IV_RMC 12.2Kbps_Front_5mm_Ch1513

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1753 MHz; σ = 1.385 S/m; ε_r = 39.691; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.91, 8.91, 8.91); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch1513/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.62 W/kg

Ch1513/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.19 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.545 W/kg
Maximum value of SAR (measured) = 1.58 W/kg



0 dB = 1.62 W/kg = 2.10 dBW/kg

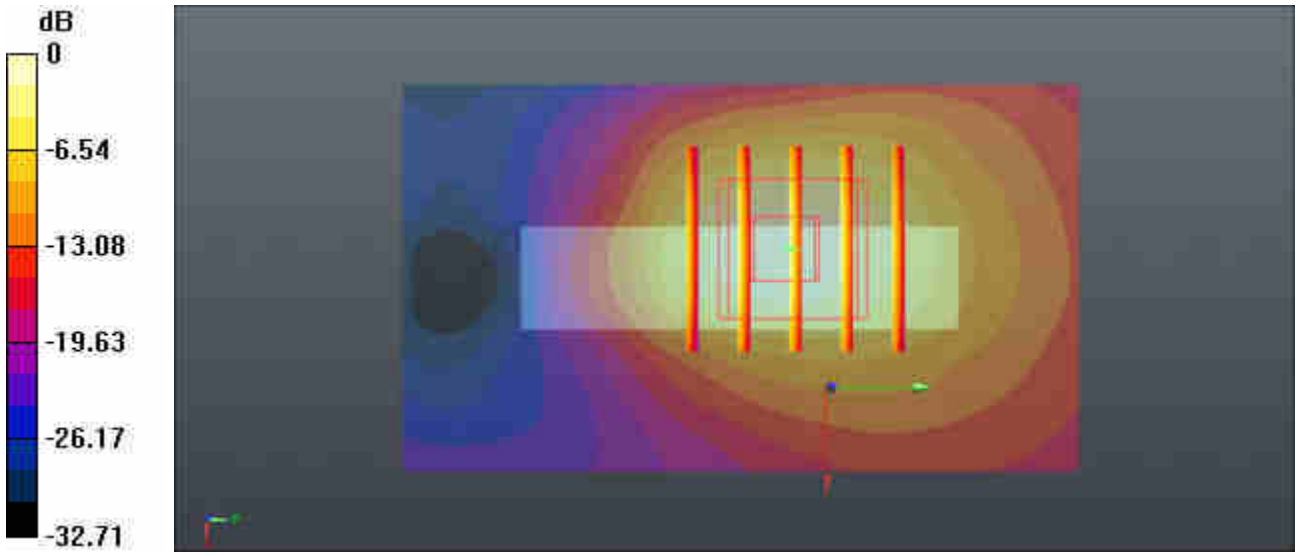
20_WCDMA Band II_RMC 12.2Kbps_Left Side_5mm_Ch9538

Communication System: UID 0, WCDMA (0); Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1908 MHz; σ = 1.421 S/m; ε_r = 39.413; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch9538/Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.61 W/kg

Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.79 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.04 W/kg
SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.479 W/kg
Maximum value of SAR (measured) = 1.68 W/kg



0 dB = 1.61 W/kg = 2.07 dBW/kg

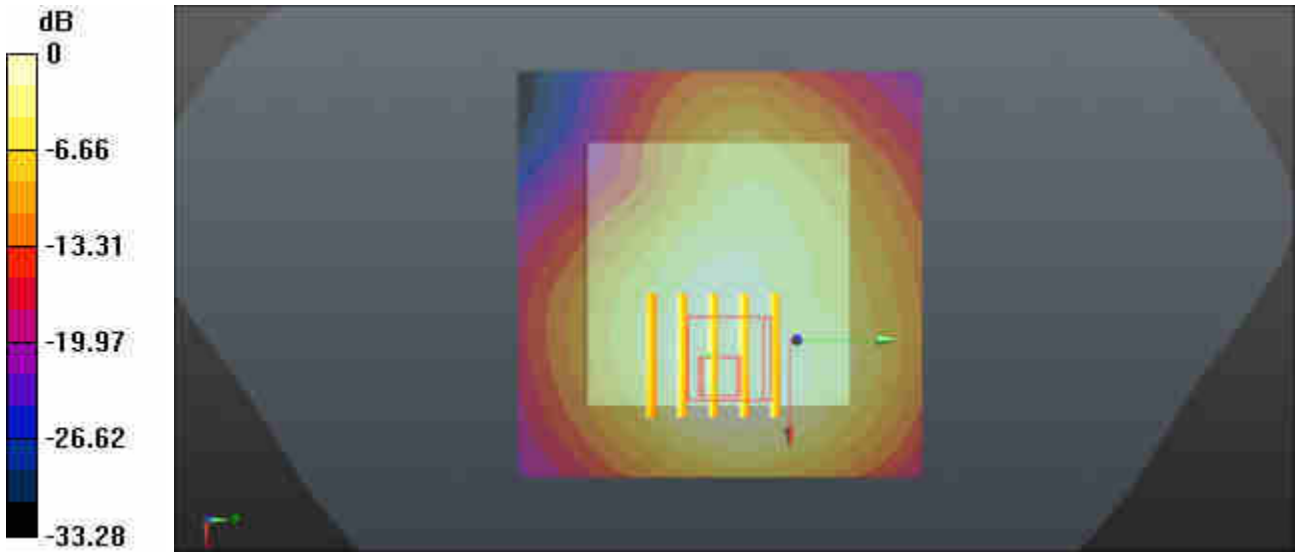
21_LTE Band 12_10M_QPSK_1RB_0Offset_Back_5mm_Ch23095

Communication System: UID 0, LTE-FDD (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 707.5 MHz; σ = 0.852 S/m; ε_r = 42.282; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.83, 10.83, 10.83); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch23095/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.971 W/kg

Ch23095/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.85 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.723 W/kg; SAR(10 g) = 0.441 W/kg
Maximum value of SAR (measured) = 1.08 W/kg



0 dB = 0.971 W/kg = -0.13 dBW/kg

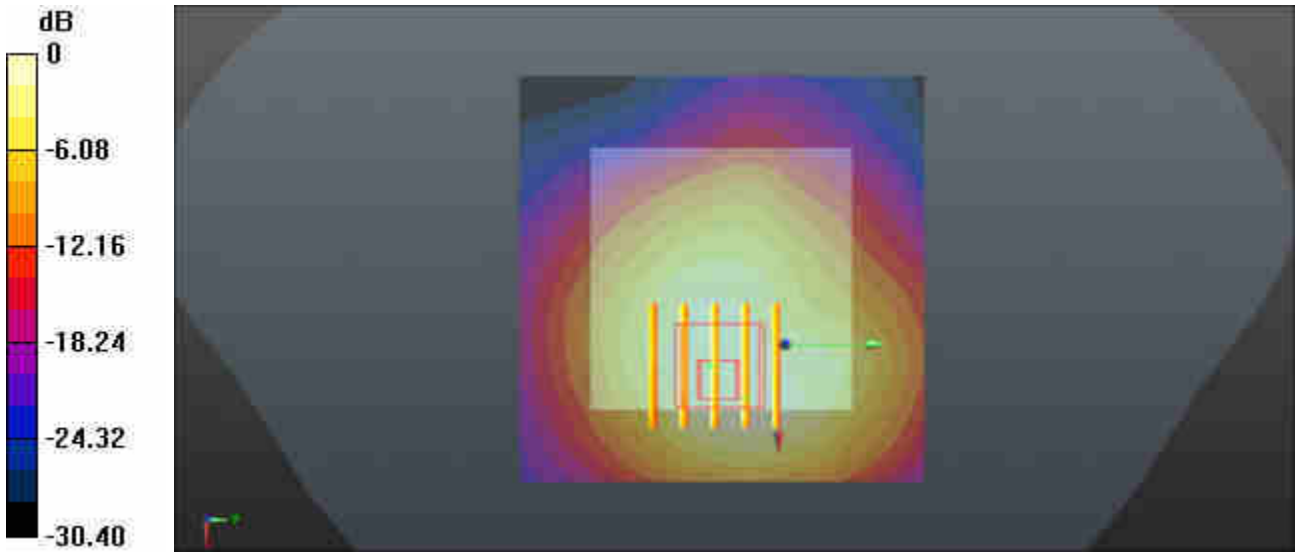
22_LTE Band 13_10M_QPSK_25RB_0Offset_Back_5mm_Ch23230

Communication System: UID 0, LTE-FDD (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 782 MHz; σ = 0.923 S/m; ε_r = 41.296; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.83, 10.83, 10.83); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch23230/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.06 W/kg

Ch23230/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.61 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.918 W/kg; SAR(10 g) = 0.512 W/kg
Maximum value of SAR (measured) = 1.21 W/kg



0 dB = 1.06 W/kg = 0.25 dBW/kg

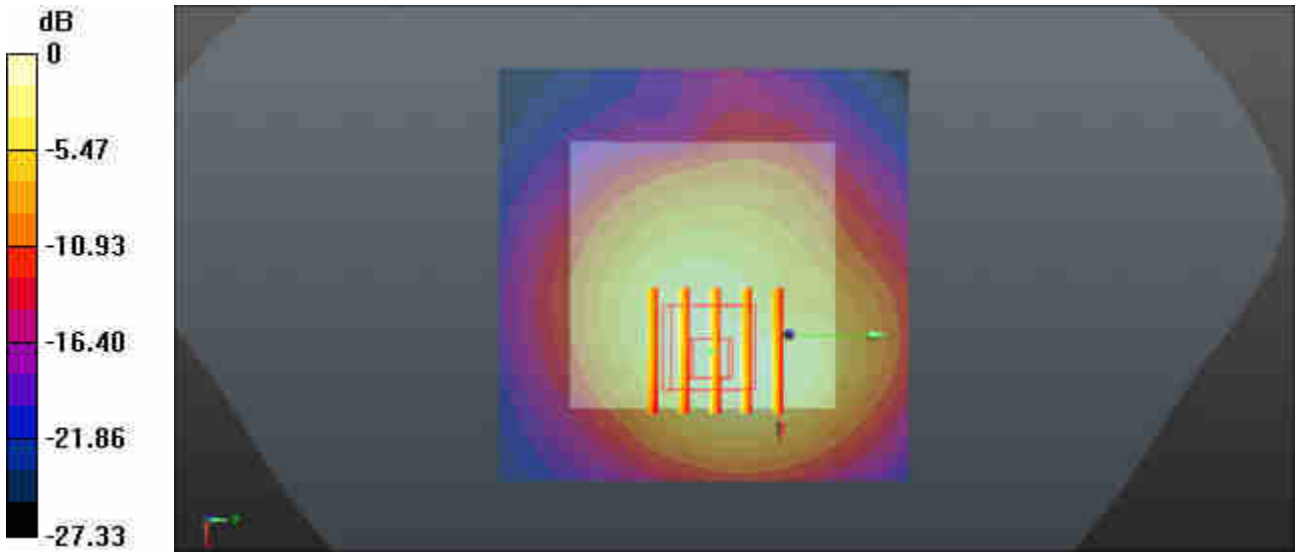
23_LTE Band 26_15M_QPSK_36RB_0Offset_Back_5mm_Ch26865

Communication System: UID 0, LTE-FDD (0); Frequency: 831.5 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 831.5 MHz; σ = 0.925 S/m; ε_r = 42.258; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃； Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch26865/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.32 W/kg

Ch26865/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.43 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 0.998 W/kg; SAR(10 g) = 0.541 W/kg
Maximum value of SAR (measured) = 1.27 W/kg



0 dB = 1.32 W/kg = 1.21 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/3

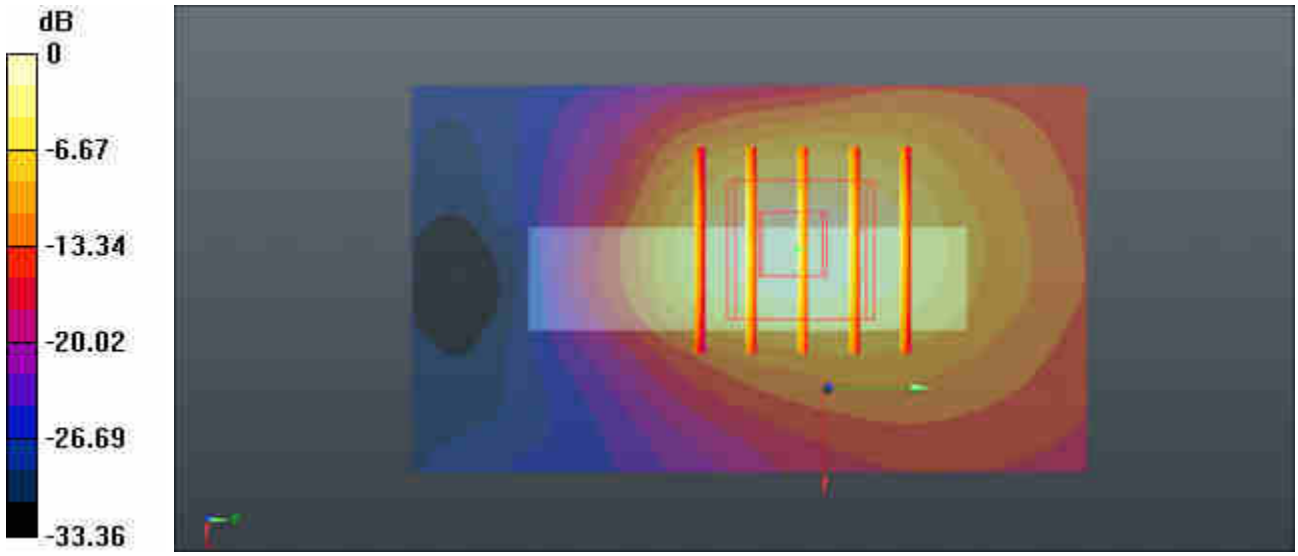
24_LTE Band 25_20M_QPSK_50RB_0Offset_Left Side_5mm_Ch26590

Communication System: UID 0, LTE-FDD (0); Frequency: 1905 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1905 MHz; σ = 1.419 S/m; ε_r = 39.424; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch26590/Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.68 W/kg

Ch26590/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.74 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.19 W/kg
SAR(1 g) = 1.11 W/kg; SAR(10 g) = 0.528 W/kg
Maximum value of SAR (measured) = 1.82 W/kg



0 dB = 1.68 W/kg = 2.25 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/10/25

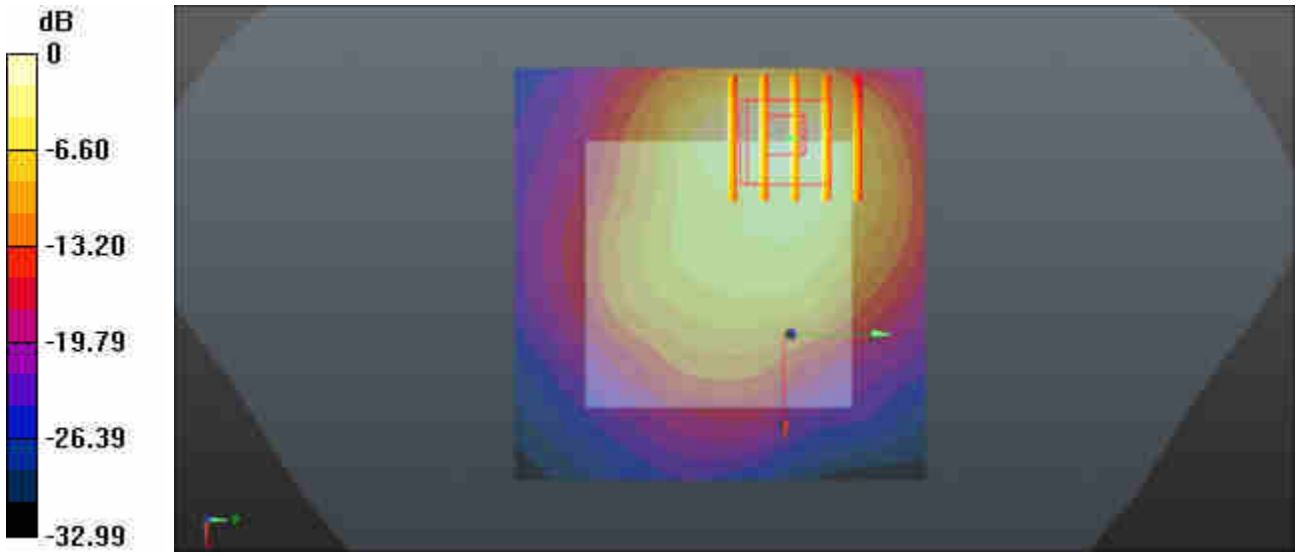
25_LTE Band 66_20M_QPSK_1RB_0Offset_Front_5mm_Ch132572

Communication System: UID 0, LTE-FDD (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1770 MHz; σ = 1.401 S/m; ε_r = 39.629; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.91, 8.91, 8.91); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch132572/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.40 W/kg

Ch132572/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.49 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.935 W/kg; SAR(10 g) = 0.495 W/kg
Maximum value of SAR (measured) = 1.45 W/kg



0 dB = 1.40 W/kg = 1.46 dBW/kg

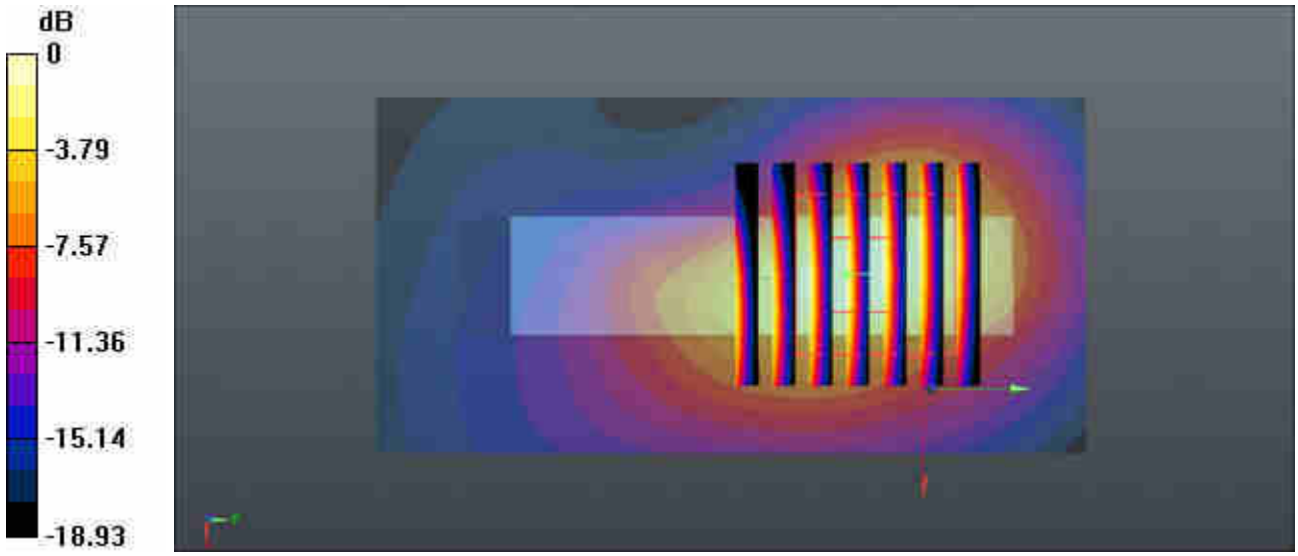
26_LTE Band 7_20M_QPSK_1RB_0Offset_Left Side_5mm_Ch21350

Communication System: UID 0, LTE-FDD (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: f = 2560 MHz; σ = 2.003 S/m; ε_r = 38.419; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch21350/Area Scan (41x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.60 W/kg

Ch21350/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.06 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.40 W/kg
SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.461 W/kg
Maximum value of SAR (measured) = 1.89 W/kg



0 dB = 1.60 W/kg = 2.04 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2019/11/8

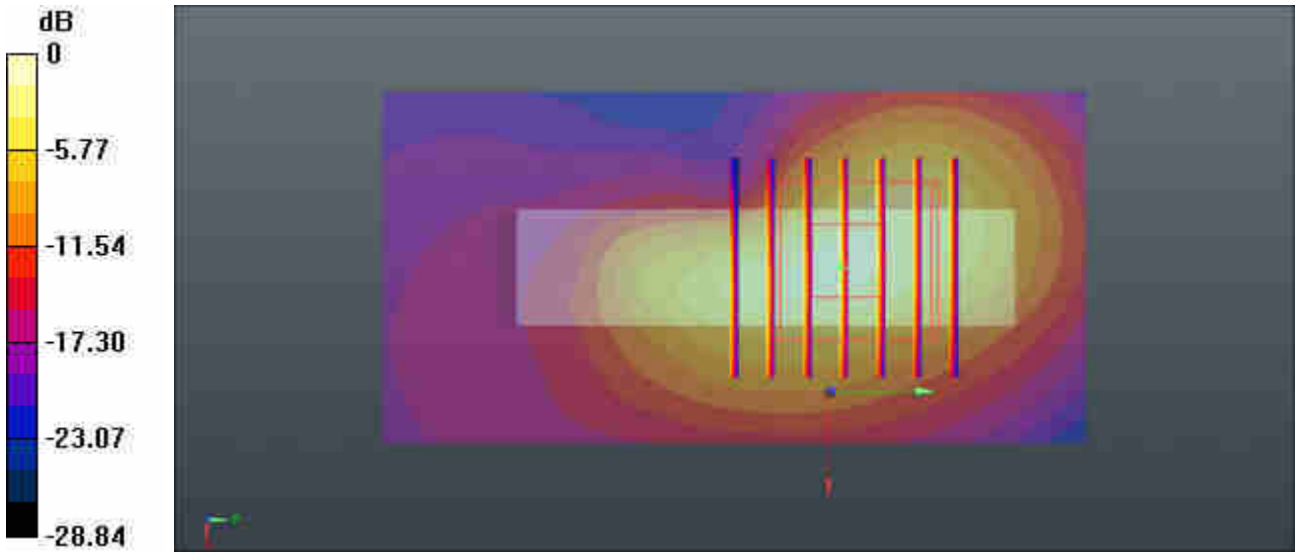
27_LTE Band 41_20M_QPSK_100RB_0Offset_Left Side_5mm_Ch40185

Communication System: UID 0, LTE-TDD (0); Frequency: 2549.5 MHz;Duty Cycle: 1:1.59
Medium: HSL_2600 Medium parameters used: f = 2549.5 MHz; σ = 1.989 S/m; ε_r = 38.447; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018/11/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019/1/23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch40185/Area Scan (41x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.33 W/kg

Ch40185/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.53 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.18 W/kg
SAR(1 g) = 0.955 W/kg; SAR(10 g) = 0.401 W/kg
Maximum value of SAR (measured) = 1.69 W/kg



0 dB = 1.69 W/kg = 2.28 dBW/kg