FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT1929-1
FCC ID	:	IHDT56XE2
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA811821-02	Rev. 01	Initial issue of report	Mar. 28, 2018

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Motorola Mobility LLC, Mobile Cellular Phone, XT1929-1, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 5mm)	Hotspot (Separation 5mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	GSM850	0.27	1.16	1.16		1.59
	GSM1900	0.25	1.04	1.19	2.90	
	WCDMA II	0.29	1.13	1.19	3.15	
	WCDMA IV	0.41	1.01	1.11	2.96	
	WCDMA V	0.40	1.10	1.10		
	CDMA BC0	0.37	1.01	0.91		
	CDMA BC1	0.34	1.18	1.07	2.96	
	LTE Band 2	0.28	0.98	1.19	2.92	
	LTE Band 5	0.37	1.09	1.09		
	LTE Band 7	0.44	1.07	1.07		
	LTE Band 13	0.25	0.97	0.97		
	LTE Band 4 / 66	0.37	1.01	1.12	2.86	
DTS	2.4GHz WLAN	1.12	0.80	0.84		1.57
NII	5GHz WLAN	1.14	0.74	0.94	0.97	1.59
DSS	Bluetooth	0.26	0.12	0.16		1.28
Date of Testing:		2018/2/21 ~ 2018/3/7				

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

2. Administration Data

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
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Applicant	
Company Name	Motorola Mobility LLC
Address	222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

Manufacturer	
Company Name	Motorola Mobility LLC
Address	222 W,Merchandise Mart Plaza, Chicago IL 60654 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 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT1929-1
FCC ID	IHDT56XE2
IMEI Code	351885090010389
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz 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 13: 779.5 MHz ~ 784.5 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 ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS AMR / RMC 12.2Kbps HSDPA HSUPA DC-HSDPA CDMA2000 : 1xRTT/1xEv-Do(Rel.0)/1xEv-Do(Rev.A) LTE: QPSK, 16QAM, 64QAM 2.4GHz WLAN: 802.11b/g/n HT20 5GHz WLAN: 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK

Product Feature & Specification	
HW Version	DVT2
SW Version	ODW28.22
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. This device 2.4GHz / 5.8GHz WLAN & Bluetooth supports Hotspot operation.
2. This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, this technique is employed in the GSM, WCDMA and LTE modes but not supports LTE B7. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner are included in the operational description and supplemental data for additional information on section16.
3. When operating in a call in talk position at the head, the device utilizes the At-Head power table. When operating in a body-worn condition, with proximity of the user's body at the front or back of the device, the device operates in the Body-Worn power table. If neither the At-Head or Body-Worn condition is detected, but the device is operating in WiFi Hotspot mode, the device utilizes the Hotspot power table. When operating in any other radiated condition, the device uses the Default power table.
4. The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device. The control logic is such that, when this front or back body-worn condition is detected and the device is operating in a mode where on-body operation may be expected, the conducted power is applied in the Body-Worn power table. In this condition (user's body detected at front or back face of the device), the Body-Worn power table is applied regardless whether or not the Wi-Fi hotspot mode is active.
5. Note that the Body-Worn Reduced power tables and detection schemes described above are sufficient to assure that body-worn SAR limits are met, regardless whether the Wi-Fi hotspot feature is active or not. However, because FCC has an additional specific test definition and limit for Wi-Fi hotspot mode operation, the additional Hotspot power table is applied if hand-held operation is indicated (i.e., not At-Head or Body-Worn) when the Wi-Fi hotspot feature is active. This ensures the 4 edges of the device comply with the letter of the Wi-Fi Hotspot requirement.
6. The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna (if that antenna may require reduced power relative the Default power table in order to meet extremity SAR limits). The control logic is such that, if the Body-Worn, At-Head or WiFi Hotspot conditions are not detected, but tissue (as a finger or hand, for example) is detected near the transmitting antenna, the Handheld Reduced power table will be applied
7. Reduced power for different RF exposure conditions:

   Head: If audio is present at the earpiece, the device will reduce output powers on the WLAN transmitter for held-to-ear and detail descriptions of the power reduction mechanism are included in the operational description.

   Body worn: The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device, when operating in near-body condition by end user, the device will reduced maximum output powers on the GSM850 / 1900, WCDMA B2 / B4 / B5, CDMA BC0 / BC1 and LTE B2 / B4 / B5 / B7 / B66 and WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.

   Hotspot: When the mobile hotspot session is turn on by end user, the device will reduced output powers on the GSM850 / 1900, WCDMA B2 / B4 / B5, CDMA BC0 / BC1 and LTE B2 / B4 / B5 / B7 / B66 and WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.

   Handheld: The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna, the device will reduced output powers on the WCDMA B2 / B4, CDMA BC1 and LTE B2 / B4 / B7 / B14 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	IHDT56XE2
Equipment Name	Mobile Cellular Phone
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz
Channel Bandwidth	LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 13: 5MHz, 10MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM / 64QAM
LTE Voice / Data requirements	Voice and Data
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	Yes, power reduction mechanisms applied to satisfy SAR compliance for LTE B2 / B4 / B5 / B7 / B66
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations as below page and the detail power verification please referred to section 12.
LTE Carrier Aggregation Additional Information	This device does not support full CA features on 3GPP Release 10. It supports a maximum of 2 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

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

LTE Band 2

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

LTE Band 4

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

LTE Band 5

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

LTE Band 7

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

LTE Band 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		

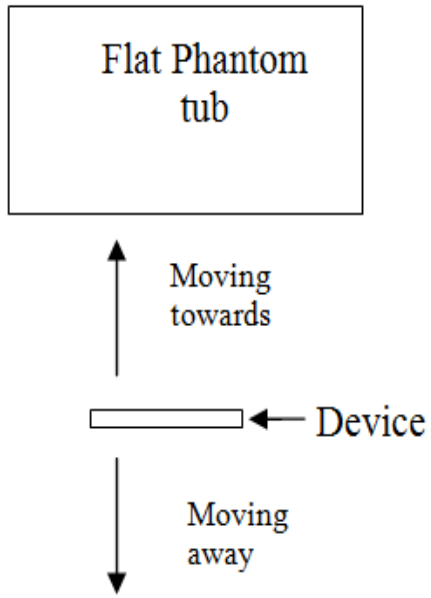
LTE Band 66

	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

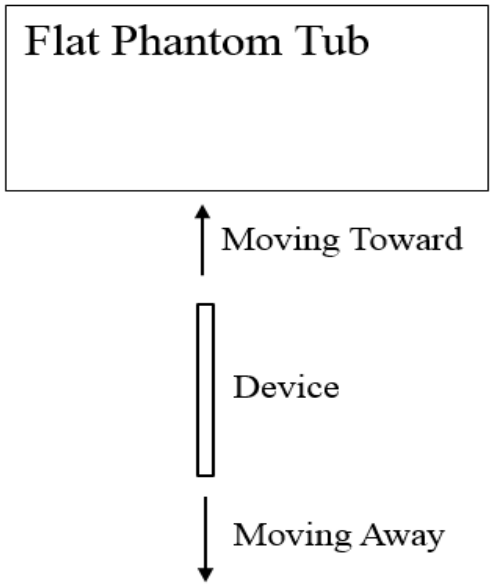
4.3 Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

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 (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body (Body-Worn condition) at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
5. The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna (if that antenna may require reduced power relative the Default power table in order to meet extremity SAR limits). The control logic is such that, if the Body-Worn, At-Head or WiFi Hotspot conditions are not detected, but tissue (as a finger or hand, for example) is detected near the transmitting antenna, the Handheld Reduced power table will be applied
6. When the sensor is active, the device will reduced maximum output powers on the GSM850 / 1900, WCDMA B2 / B4 / B5, CDMA BC0 / BC1 and LTE B2 / B4 / B5 / B7 / B66 transmitter.



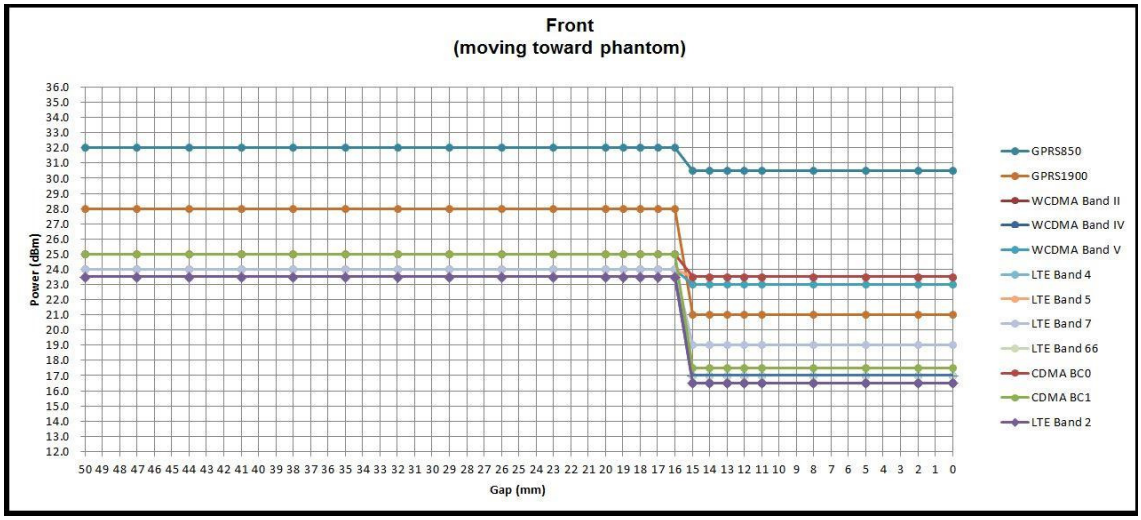
Sensor detection test set-up, front and back faces

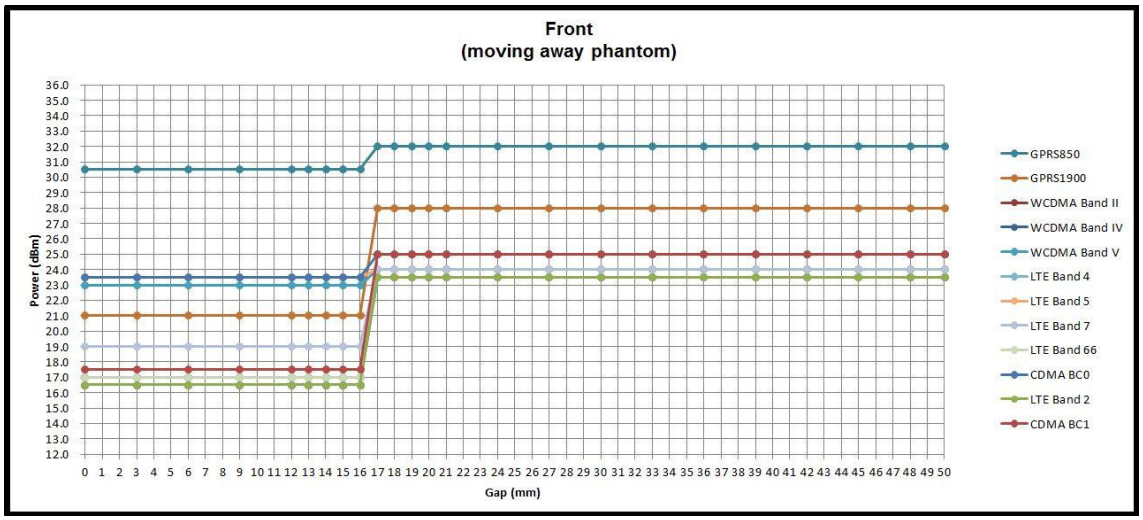


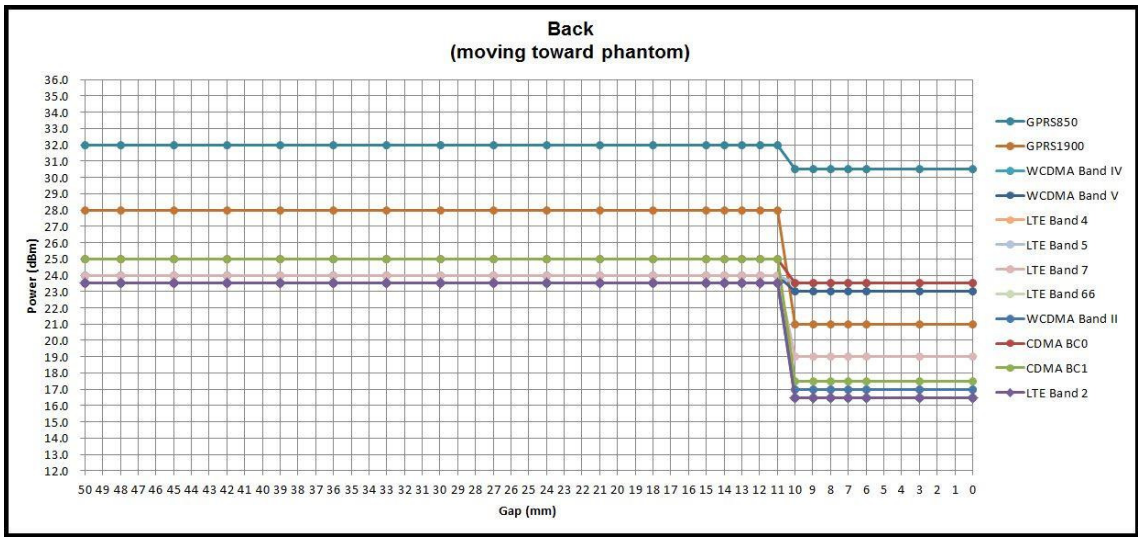
Sensor detection test set-up, bottom face, left side, right side

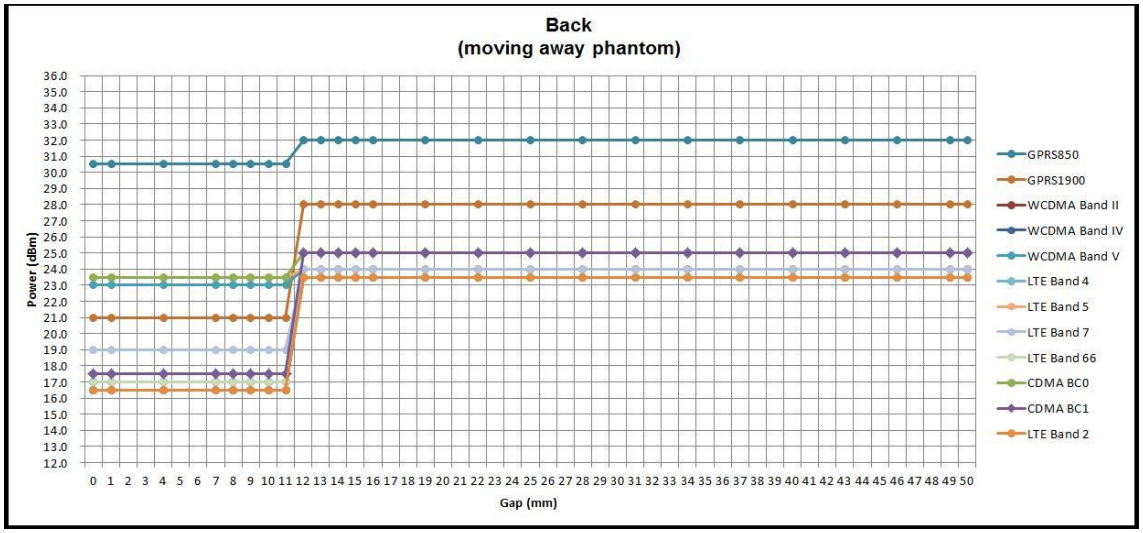
Proximity Sensor Trigger Distance (mm)										
Position	Front		Back		Bottom Side		Right Side		Left Side	
Position	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	15	16	10	11	5	6	5	6	5	6

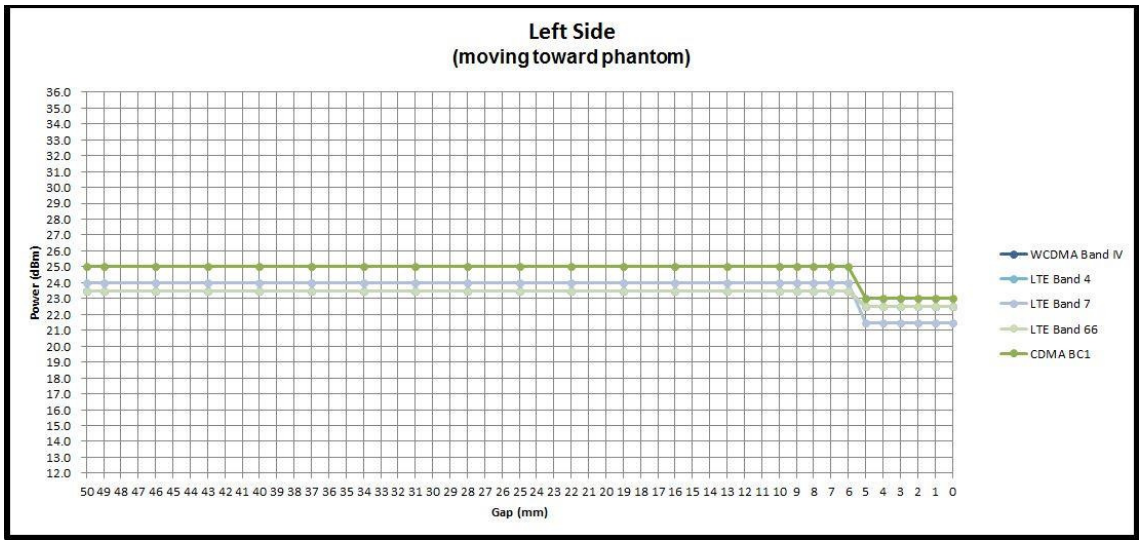
<Sensor triggers distance V.S Measure power>

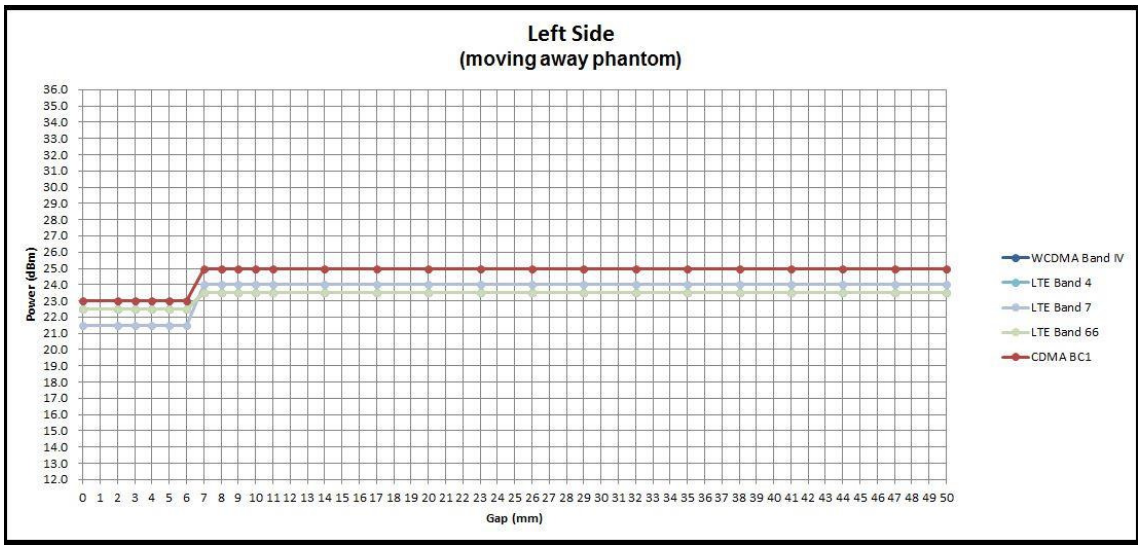


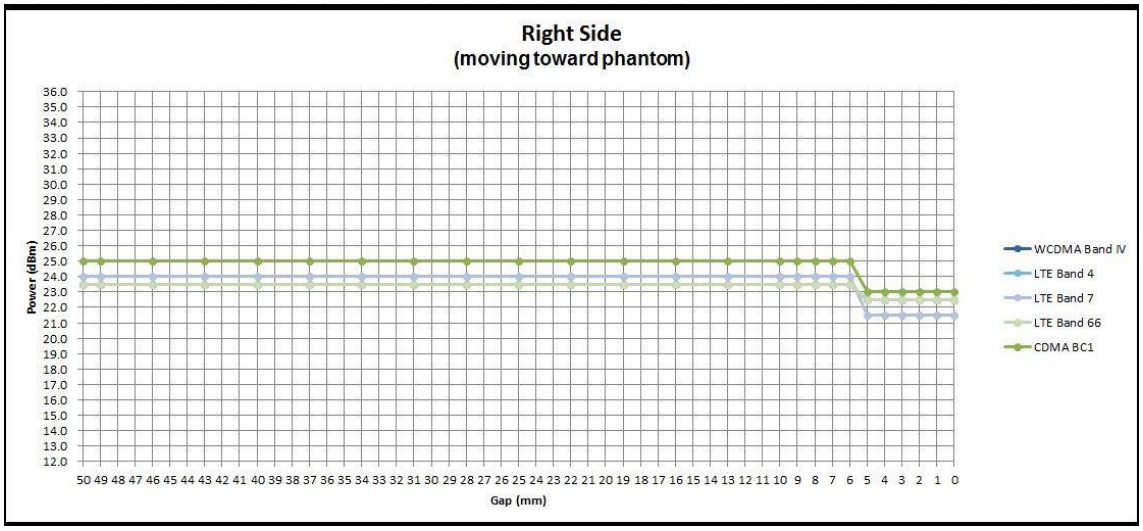


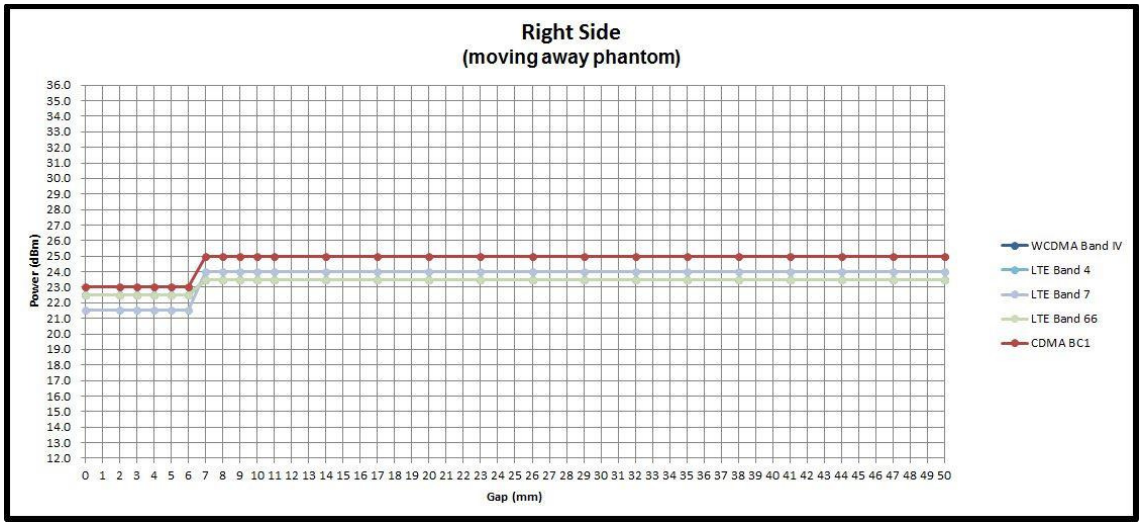

Back
(moving toward phantom)
Power (dBm)
Gap (mm)
GPRS850
GPRS1900
WCDMA Band IV
WCDMA Band V
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 66
WCDMA Band II
CDMA BC0
CDMA BC1
LTE Band 2

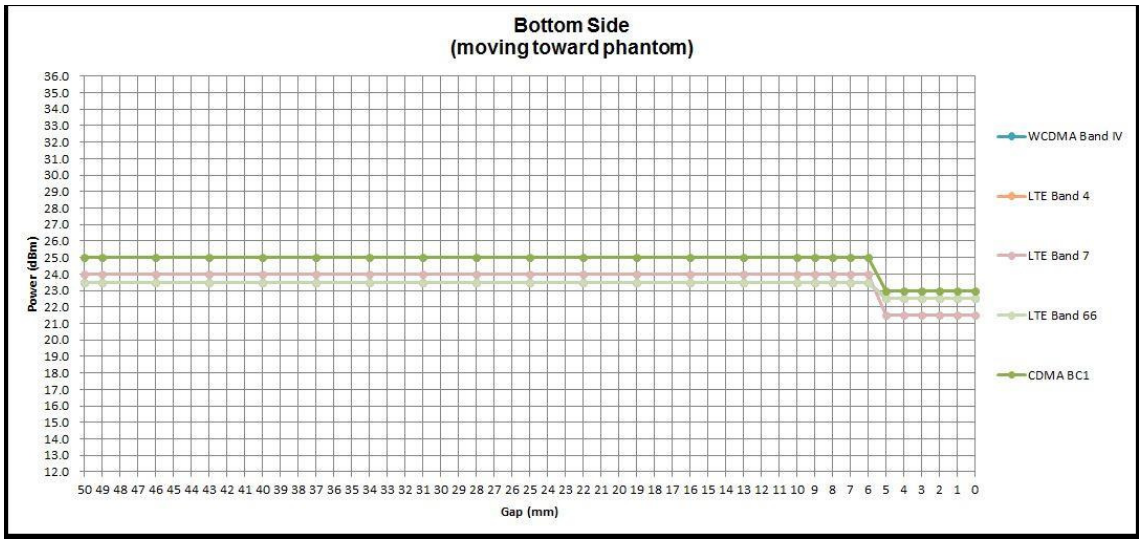

Back
(moving away phantom)
Power (dBm)
Gap (mm)
GPRS850
GPRS1900
WCDMA Band II
WCDMA Band IV
WCDMA Band V
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 66
CDMA BC0
CDMA BC1
LTE Band 2

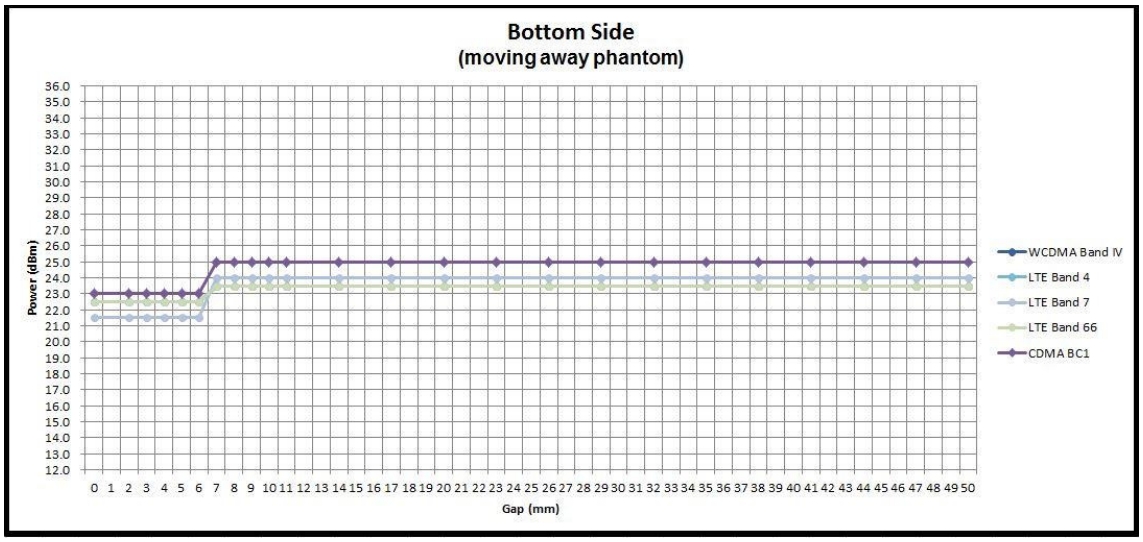

Left Side
(moving toward phantom)
Power (dBm)
Gap (mm)
WCDMA Band IV
LTE Band 4
LTE Band 7
LTE Band 66
CDMA BC1


Left Side
(moving away phantom)
Power (dBm)
Gap (mm)
WCDMA Band IV
LTE Band 4
LTE Band 7
LTE Band 66
CDMA BC1


Right Side
(moving toward phantom)
Power (dBm)
Gap (mm)
WCDMA Band IV
LTE Band 4
LTE Band 7
LTE Band 66
CDMA BC1


Right Side
(moving away phantom)
Power (dBm)
Gap (mm)
WCDMA Band IV
LTE Band 4
LTE Band 7
LTE Band 66
CDMA BC1


Bottom Side
(moving toward phantom)
Power (dBm)
Gap (mm)
WCDMA Band IV
LTE Band 4
LTE Band 7
LTE Band 66
CDMA BC1


Bottom Side
(moving away phantom)
Power (dBm)
Gap (mm)
WCDMA Band IV
LTE Band 4
LTE Band 7
LTE Band 66
CDMA BC1

5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

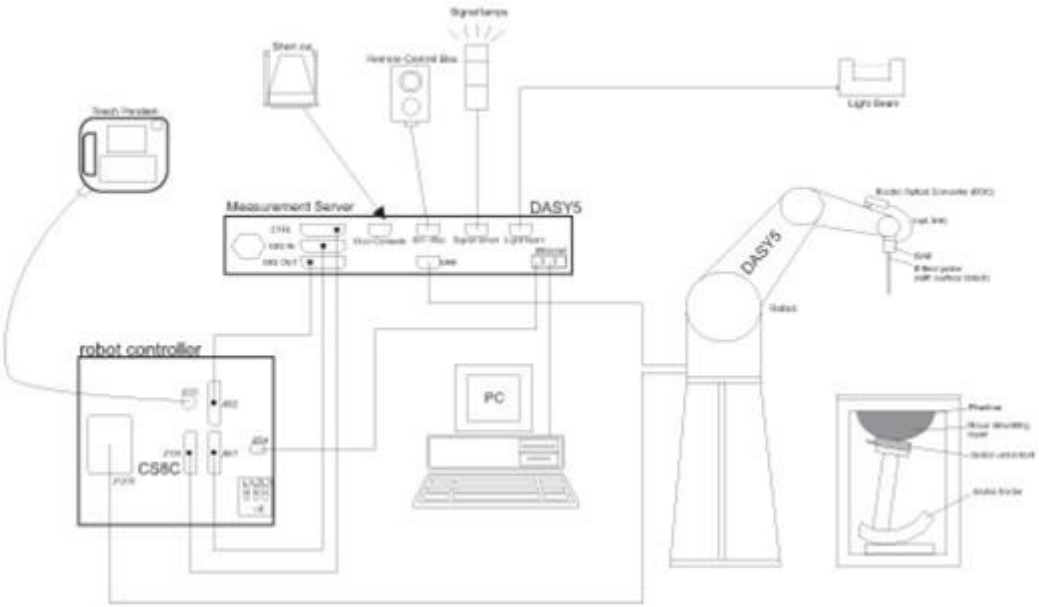
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<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	

7.2 Data Acquisition Electronics (DAE)

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

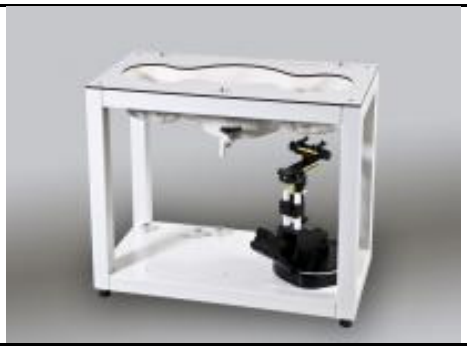
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

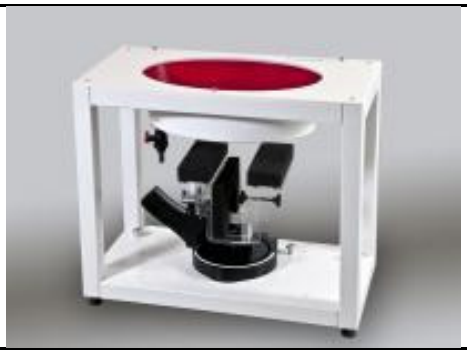
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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

<ELI Phantom>

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



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

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

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

8.4 Zoom Scan

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

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1012	May. 22, 2017	May. 21, 2018
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 21, 2017	Mar. 20, 2018
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 15, 2017	Nov. 14, 2018
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 28, 2017	Sep. 27, 2018
SPEAG	2450MHz System Validation Kit	D2450V2	736	Sep. 18, 2017	Sep. 17, 2018
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Sep. 18, 2017	Sep. 17, 2018
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 26, 2017	Sep. 25, 2018
SPEAG	Data Acquisition Electronics	DAE3	495	May. 22, 2017	May. 21, 2018
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 16, 2017	Nov. 15, 2018
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 25, 2017	Sep. 24, 2018
SPEAG	Data Acquisition Electronics	DAE4	854	May. 02, 2017	May. 01, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	Jan. 23, 2018	Jan. 22, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 29, 2017	Sep. 28, 2018
SPEAG	Dosimetric E-Field Probe	ES3DV3	3169	May. 11, 2017	May. 10, 2018
SPEAG	Dosimetric E-Field Probe	ES3DV3	3170	Oct. 26, 2017	Oct. 25, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 24, 2017	Jul. 23, 2018
WonDer	Thermometer	WD-5016	TM642-1	Mar. 17, 2017	Mar. 16, 2018
WonDer	Thermometer	WD-5016	TM642-2	Mar. 17, 2017	Mar. 16, 2018
WonDer	Thermometer	WD-5016	TM281-1	Mar. 17, 2017	Mar. 16, 2018
WonDer	Thermometer	WD-5016	TM281-2	Mar. 17, 2017	Mar. 16, 2018
WonDer	Thermometer	WD-5016	TM560-1	Mar. 17, 2017	Mar. 16, 2018
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 20, 2017	Apr. 19, 2018
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 30, 2017	May. 29, 2018
R&S	BT Base Station	CBT32	100522	Mar. 14, 2017	Mar. 13, 2018
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Dec. 07, 2017	Dec. 06, 2018
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 17, 2018	Jan. 16, 2019
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 26, 2017	Sep. 25, 2018
LINE SEIKI	Digital Thermometer	LKMelectronic	DTM3000SPEZIAL	Sep. 06, 2017	Sep. 05, 2018
Anritsu	Power Meter	ML2495A	1419002	May. 15, 2017	May. 14, 2018
Anritsu	Power Sensor	MA2411B	1339124	May. 15, 2017	May. 14, 2018
Anritsu	Power Meter	ML2495A	1218006	Oct. 06, 2017	Oct. 05, 2018
Anritsu	Power Sensor	MA2411B	1207363	Oct. 06, 2017	Oct. 05, 2018
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 23, 2017	Aug. 22, 2018
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 26, 2017	Jun. 25, 2018
Mini-Circuits	Power Amplifier	ZVE-8G+	D120604	Mar. 09, 2017	Mar. 08, 2018
Mini-Circuits	Power Amplifier	ZHL-42W+	QA1344002	Mar. 09, 2017	Mar. 08, 2018
AR	Power Amplifier	5S1G4	0325228	Jul. 06, 2017	Jul. 05, 2018
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

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

10. System Verification

10.1 Tissue Simulating Liquids

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

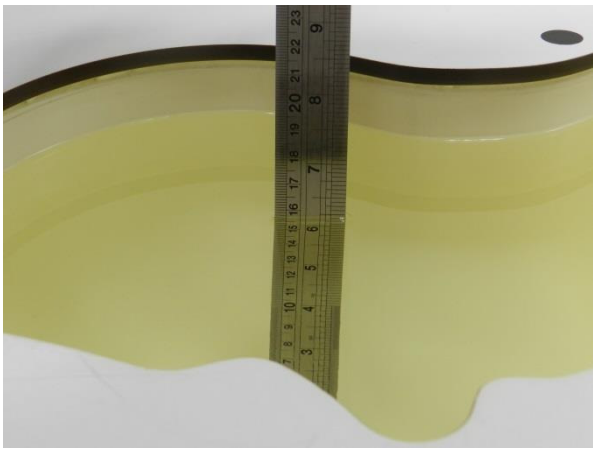


Fig 10.1Photo of Liquid Height for Head SAR

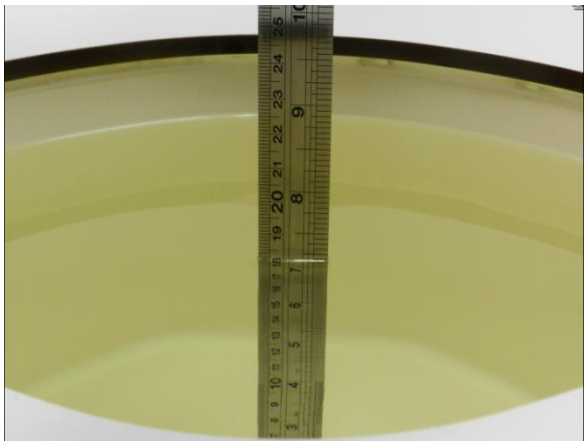


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	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
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
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	HSL	22.5	0.892	43.159	0.89	41.90	0.22	3.00	±5	2018/2/21
750	MSL	22.6	0.957	56.072	0.96	55.50	-0.31	1.03	±5	2018/3/5
835	HSL	22.5	0.875	41.503	0.90	41.50	-2.78	0.01	±5	2018/2/21
835	HSL	22.4	0.895	42.835	0.90	41.50	-0.56	3.22	±5	2018/2/24
835	MSL	22.8	0.969	57.045	0.97	55.20	-0.10	3.34	±5	2018/2/22
835	MSL	22.6	0.985	55.422	0.97	55.20	1.55	0.40	±5	2018/3/5
835	MSL	22.5	0.984	55.325	0.97	55.20	1.44	0.23	±5	2018/3/6
1750	HSL	22.4	1.372	38.723	1.37	40.10	0.15	-3.43	±5	2018/3/2
1750	MSL	22.7	1.451	55.266	1.49	53.40	-2.62	3.49	±5	2018/3/4
1900	HSL	22.7	1.432	39.244	1.40	40.00	2.29	-1.89	±5	2018/2/28
1900	HSL	22.6	1.411	40.419	1.40	40.00	0.79	1.05	±5	2018/3/3
1900	MSL	22.7	1.559	53.793	1.52	53.30	2.57	0.92	±5	2018/3/3
1900	MSL	22.5	1.557	53.733	1.52	53.30	2.43	0.81	±5	2018/3/5
2450	HSL	22.2	1.768	39.477	1.80	39.20	-1.78	0.71	±5	2018/3/5
2450	HSL	22.5	1.808	40.602	1.80	39.20	0.44	3.58	±5	2018/3/7
2450	MSL	22.7	1.935	52.986	1.95	52.70	-0.77	0.54	±5	2018/3/3
2600	HSL	22.6	1.940	38.612	1.96	39.00	-1.02	-0.99	±5	2018/3/3
2600	MSL	22.6	2.154	52.740	2.16	52.50	-0.28	0.46	±5	2018/3/6
2600	MSL	22.6	2.154	52.740	2.16	52.50	-0.28	0.46	±5	2018/3/6
5250	HSL	22.2	4.582	37.219	4.71	35.95	-2.72	3.53	±5	2018/3/5
5250	MSL	22.6	5.457	49.207	5.36	48.95	1.81	0.53	±5	2018/3/4
5600	HSL	22.2	4.939	36.719	5.07	35.50	-2.58	3.43	±5	2018/3/5
5600	MSL	22.6	5.942	48.578	5.77	48.50	2.98	0.16	±5	2018/3/4
5750	HSL	22.2	5.098	36.511	5.22	35.35	-2.34	3.28	±5	2018/3/5
5750	MSL	22.6	6.162	48.310	5.94	48.28	3.74	0.06	±5	2018/3/4

10.3 System Performance Check Results

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

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2018/2/21	750	HSL	250	D750V3-1012	ES3DV3 - SN3170	DAE3 Sn577	2.03	8.22	8.12	-1.22
2018/3/5	750	MSL	250	D750V3-1012	EX3DV4 - SN3976	DAE3 Sn495	2.23	8.71	8.92	2.41
2018/2/21	835	HSL	250	D835V2-499	ES3DV3 - SN3170	DAE3 Sn577	2.23	9.45	8.92	-5.61
2018/2/24	835	HSL	250	D835V2-499	EX3DV4 - SN7306	DAE4 Sn854	2.43	9.45	9.72	2.86
2018/2/22	835	MSL	250	D835V2-499	EX3DV4 - SN3931	DAE4 Sn1399	2.51	9.67	10.04	3.83
2018/3/5	835	MSL	250	D835V2-499	EX3DV4 - SN3976	DAE3 Sn495	2.51	9.67	10.04	3.83
2018/3/6	835	MSL	250	D835V2-499	EX3DV4 - SN7306	DAE4 Sn854	2.59	9.67	10.36	7.14
2018/3/2	1750	HSL	250	D1750V2-1068	ES3DV3 - SN3169	DAE4 Sn1399	8.55	36.70	34.2	-6.81
2018/3/4	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3976	DAE3 Sn495	8.98	37.20	35.92	-3.44
2018/2/28	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE3 Sn495	9.87	40.50	39.48	-2.52
2018/3/3	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn1399	10.10	40.50	40.4	-0.25
2018/3/3	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE3 Sn495	10.40	40.70	41.6	2.21
2018/3/5	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE3 Sn495	10.70	40.70	42.8	5.16
2018/3/5	2450	HSL	250	D2450V2-736	EX3DV4 - SN3931	DAE4 Sn1399	12.30	52.40	49.2	-6.11
2018/3/7	2450	HSL	250	D2450V2-736	EX3DV4 - SN3976	DAE3 Sn495	12.20	52.40	48.8	-6.87
2018/3/3	2450	MSL	250	D2450V2-736	EX3DV4 - SN3931	DAE4 Sn1399	12.10	50.80	48.4	-4.72
2018/3/3	2600	HSL	250	D2600V2-1008	EX3DV4 - SN3931	DAE4 Sn1399	13.60	56.80	54.4	-4.23
2018/3/6	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3976	DAE3 Sn495	14.10	55.00	56.4	2.55
2018/3/6	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3931	DAE4 Sn1399	13.80	55.00	55.2	0.36
2018/3/5	5250	HSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.65	78.30	76.5	-2.30
2018/3/4	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.10	77.00	71	-7.79
2018/3/5	5600	HSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	8.73	85.00	87.3	2.71
2018/3/4	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	8.03	80.10	80.3	0.25
2018/3/5	5750	HSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.73	78.50	77.3	-1.53
2018/3/4	5750	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.26	75.10	72.6	-3.33

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2018/3/4	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3976	DAE3 Sn495	4.88	19.70	19.52	-0.91
2018/3/3	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE3 Sn495	5.44	21.40	21.76	1.68
2018/3/5	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE3 Sn495	5.57	21.40	22.28	4.11
2018/3/4	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	2.03	21.30	20.3	-4.69
2018/3/4	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	2.27	22.40	22.7	1.34

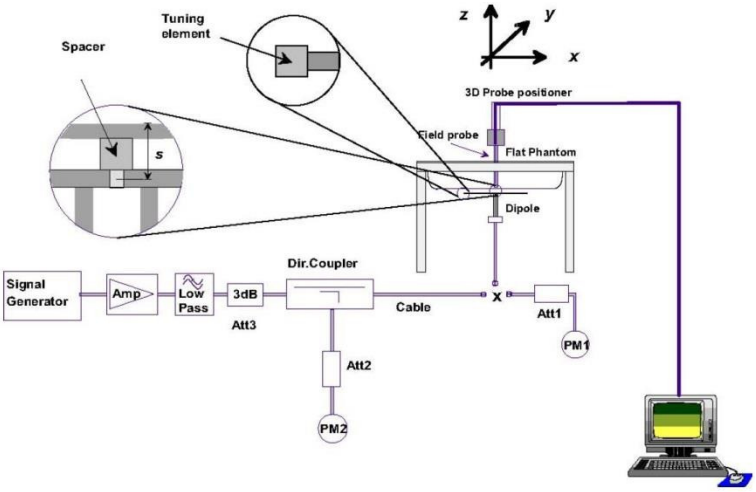


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 9.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 9.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

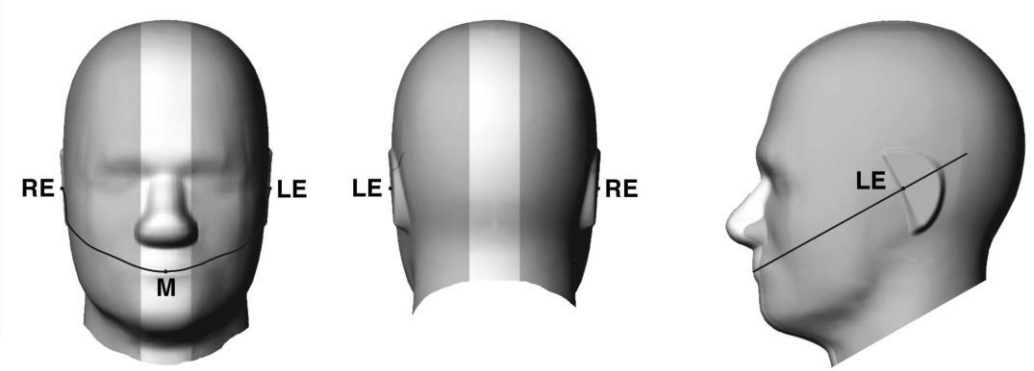


Fig 9.1.1 Front, back, and side views of SAM twin phantom

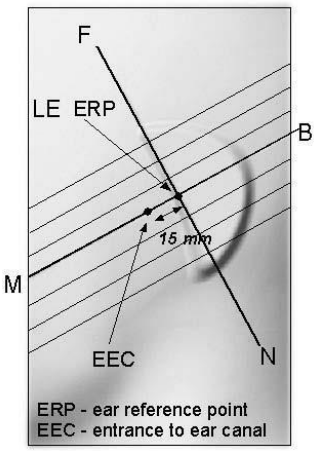


Fig 9.1.2 Close-up side view of phantom showing the ear region.

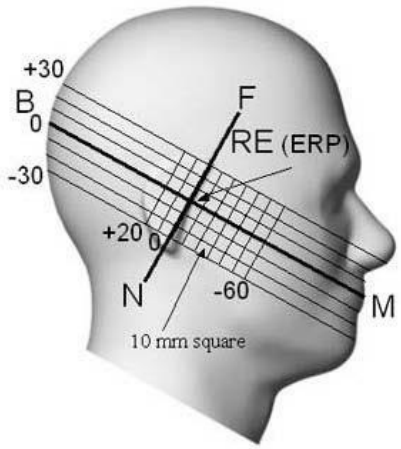


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width wt of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 9.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 9.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 9.2.3. The actual rotation angles should be documented in the test report.

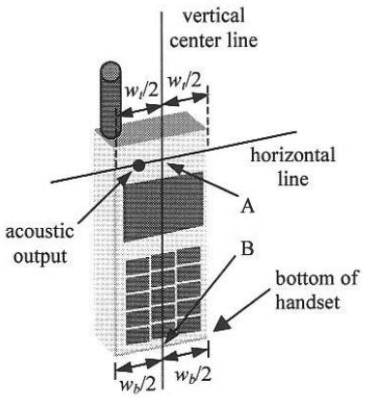


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

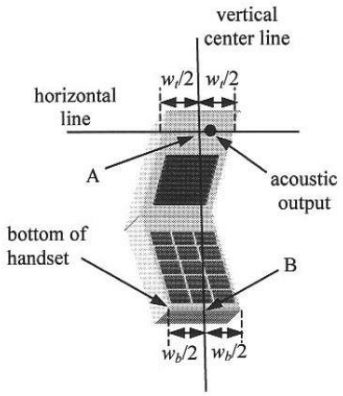


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

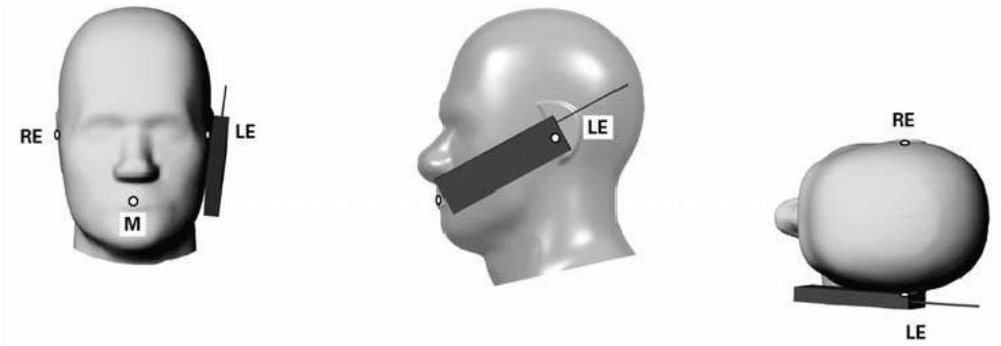


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 9.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

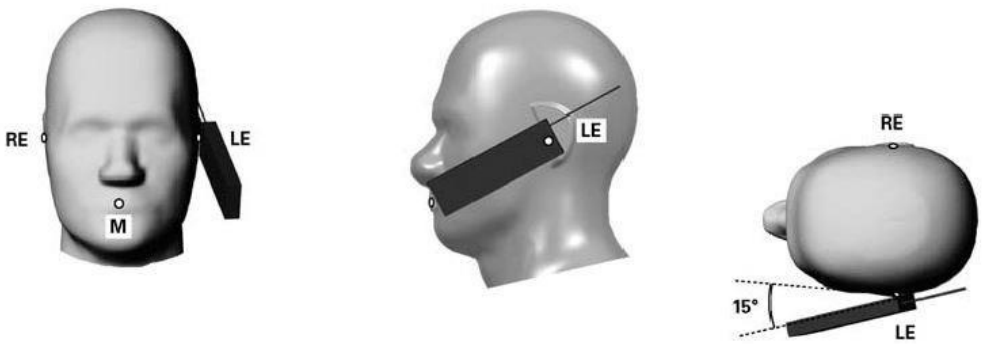


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 9.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

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

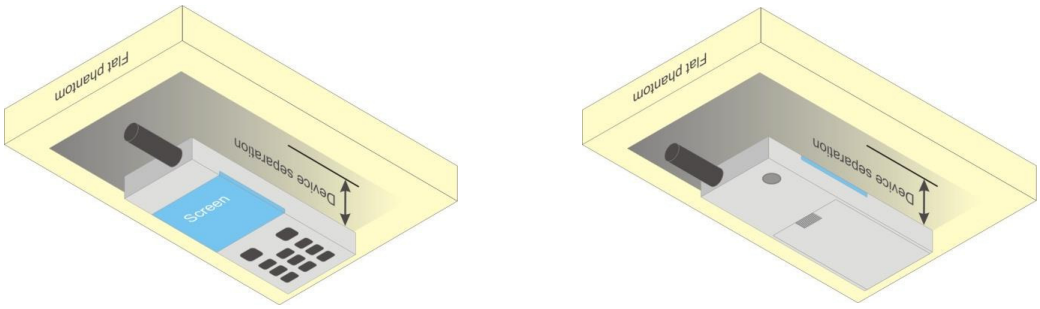


Fig 9.4 Body Worn Position

11.5 Product Specific

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

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

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

11.6 Wireless Router

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

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

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

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

<Default Power Mode>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.21	32.64	32.24	33.50	23.21	23.64	23.24	24.50
GPRS 1 Tx slot	32.20	32.63	32.23	33.50	23.20	23.63	23.23	24.50
GPRS 2 Tx slots	30.81	31.01	31.05	32.00	24.81	25.01	25.05	26.00
GPRS 3 Tx slots	29.19	29.34	29.45	30.00	24.93	25.08	25.19	25.74
GPRS 4 Tx slots	27.51	27.65	27.45	28.00	24.51	24.65	24.45	25.00
EDGE 1 Tx slot	26.17	26.14	26.17	27.00	17.17	17.14	17.17	18.00
EDGE 2 Tx slots	24.95	25.01	24.94	26.00	18.95	19.01	18.94	20.00
EDGE 3 Tx slots	23.22	23.32	23.24	24.50	18.96	19.06	18.98	20.24
EDGE 4 Tx slots	21.52	21.66	21.60	22.50	18.52	18.66	18.60	19.50

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.26	29.23	29.06	30.50	20.26	20.23	20.06	21.50
GPRS 1 Tx slot	29.32	29.24	29.07	30.50	20.32	20.24	20.07	21.50
GPRS 2 Tx slots	27.95	27.93	27.90	29.50	21.95	21.93	21.90	23.50
GPRS 3 Tx slots	26.28	26.29	26.29	28.00	22.02	22.03	22.03	23.74
GPRS 4 Tx slots	24.51	24.50	24.53	26.50	21.51	21.50	21.53	23.50
EDGE 1 Tx slot	24.95	25.07	25.22	26.00	15.95	16.07	16.22	17.00
EDGE 2 Tx slots	23.82	23.95	24.11	25.00	17.82	17.95	18.11	19.00
EDGE 3 Tx slots	22.27	22.34	22.49	23.00	18.01	18.08	18.23	18.74
EDGE 4 Tx slots	20.62	20.75	20.89	22.00	17.62	17.75	17.89	19.00

<Near to Body Power Mode>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.69	32.38	32.72	33.00	23.69	23.38	23.72	24.00
GPRS 1 Tx slot	32.66	32.43	32.74	33.00	23.66	23.43	23.74	24.00
GPRS 2 Tx slots	28.57	28.55	28.67	30.50	22.57	22.55	22.67	24.50
GPRS 3 Tx slots	26.91	27.23	27.23	28.00	22.65	22.97	22.97	23.74
GPRS 4 Tx slots	25.22	25.36	25.57	26.50	22.22	22.36	22.57	23.50
EDGE 1 Tx slot	26.37	26.34	26.37	27.00	17.37	17.34	17.37	18.00
EDGE 2 Tx slots	25.15	25.21	25.14	26.00	19.15	19.21	19.14	20.00
EDGE 3 Tx slots	23.42	23.52	23.44	24.50	19.16	19.26	19.18	20.24
EDGE 4 Tx slots	21.72	21.86	21.80	22.50	18.72	18.86	18.80	19.50

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	23.90	24.10	24.25	25.50	14.90	15.10	15.25	16.50
GPRS 1 Tx slot	23.93	24.02	24.30	25.50	14.93	15.02	15.30	16.50
GPRS 2 Tx slots	20.64	20.86	21.08	22.50	14.64	14.86	15.08	16.50
GPRS 3 Tx slots	19.24	19.37	19.46	21.00	14.98	15.11	15.20	16.74
GPRS 4 Tx slots	17.53	17.74	17.84	19.50	14.53	14.74	14.84	16.50
EDGE 1 Tx slot	23.91	24.10	24.30	25.50	14.91	15.10	15.30	16.50
EDGE 2 Tx slots	20.94	21.10	21.34	22.50	14.94	15.10	15.34	16.50
EDGE 3 Tx slots	19.40	19.54	19.74	21.00	15.14	15.28	15.48	16.74
EDGE 4 Tx slots	17.85	17.97	18.22	19.50	14.85	14.97	15.22	16.50

<Hotspot Power Mode>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.69	32.38	32.72	33.00	23.69	23.38	23.72	24.00
GPRS 1 Tx slot	32.66	32.43	32.74	33.00	23.66	23.43	23.74	24.00
GPRS 2 Tx slots	28.57	28.55	28.67	30.50	22.57	22.55	22.67	24.50
GPRS 3 Tx slots	26.91	27.23	27.23	28.00	22.65	22.97	22.97	23.74
GPRS 4 Tx slots	25.22	25.36	25.57	26.50	22.22	22.36	22.57	23.50
EDGE 1 Tx slot	26.37	26.34	26.37	27.00	17.37	17.34	17.37	18.00
EDGE 2 Tx slots	25.15	25.21	25.14	26.00	19.15	19.21	19.14	20.00
EDGE 3 Tx slots	23.42	23.52	23.44	24.50	19.16	19.26	19.18	20.24
EDGE 4 Tx slots	21.72	21.86	21.80	22.50	18.72	18.86	18.80	19.50

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	23.90	24.10	24.25	24.50	14.90	15.10	15.25	15.50
GPRS 1 Tx slot	23.93	24.02	24.30	24.50	14.93	15.02	15.30	15.50
GPRS 2 Tx slots	20.64	20.86	21.08	21.50	14.64	14.86	15.08	15.50
GPRS 3 Tx slots	19.24	19.37	19.46	20.00	14.98	15.11	15.20	15.74
GPRS 4 Tx slots	17.53	17.74	17.84	18.50	14.53	14.74	14.84	15.50
EDGE 1 Tx slot	23.91	24.10	24.30	24.50	14.91	15.10	15.30	15.50
EDGE 2 Tx slots	20.94	21.10	21.34	21.50	14.94	15.10	15.34	15.50
EDGE 3 Tx slots	19.40	19.54	19.74	20.00	15.14	15.28	15.48	15.74
EDGE 4 Tx slots	17.85	17.97	18.22	18.50	14.85	14.97	15.22	15.50

<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_{ed} can not be set directly; it is set by Absolute Grant Value.

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	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.		

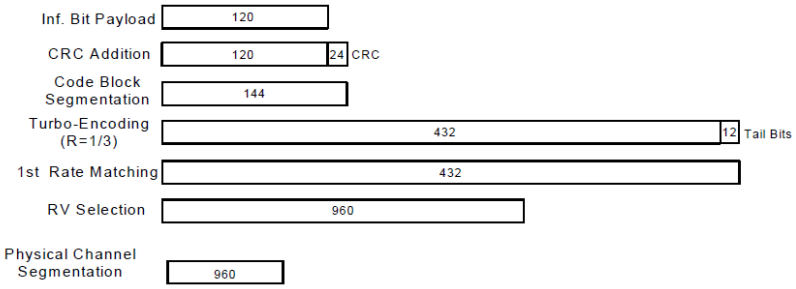


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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.

<Default Power Mode>

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	AMR 12.2Kbps	22.25	22.43	22.63	23.50	22.02	22.05	22.51	23.50	22.38	22.41	22.48	24.00
3GPP Rel 99	RMC 12.2Kbps	22.27	22.47	22.66	23.50	22.03	22.07	22.52	23.50	22.41	22.48	22.50	24.00
3GPP Rel 6	HSDPA Subtest-1	21.29	21.49	21.67	22.50	21.05	21.10	21.53	22.50	21.42	21.49	21.52	23.00
3GPP Rel 6	HSDPA Subtest-2	21.28	21.46	21.65	22.50	21.06	21.08	21.51	22.50	21.41	21.46	21.50	23.00
3GPP Rel 6	HSDPA Subtest-3	20.82	20.93	21.14	22.00	20.55	20.60	21.03	22.00	20.93	20.98	21.00	22.50
3GPP Rel 6	HSDPA Subtest-4	20.81	20.90	21.12	22.00	20.53	20.58	21.02	22.00	20.90	20.95	21.00	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.26	21.49	21.48	22.50	21.00	21.10	21.36	22.50	21.34	21.39	21.47	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.26	21.31	21.51	22.50	21.02	21.07	21.41	22.50	21.27	21.28	21.46	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	20.72	20.83	21.01	22.00	20.50	20.51	20.97	22.00	20.75	20.91	21.00	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	20.70	20.81	20.95	22.00	20.50	20.57	20.87	22.00	20.73	20.88	20.84	22.50
3GPP Rel 6	HSUPA Subtest-1	21.26	21.47	21.62	22.50	21.02	21.06	21.50	22.50	21.40	21.47	21.50	23.00
3GPP Rel 6	HSUPA Subtest-2	19.21	19.45	19.60	20.50	19.01	19.03	19.49	20.50	19.38	19.43	19.47	21.00
3GPP Rel 6	HSUPA Subtest-3	20.24	20.46	20.58	21.50	20.04	20.08	20.47	21.50	20.42	20.48	20.49	22.00
3GPP Rel 6	HSUPA Subtest-4	19.20	19.43	19.53	20.50	19.02	19.05	19.44	20.50	19.37	19.45	19.46	21.00
3GPP Rel 6	HSUPA Subtest-5	21.30	21.50	21.67	22.50	21.06	21.09	21.53	22.50	21.42	21.50	21.53	23.00

<Near to Body Power Mode>

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	AMR 12.2Kbps	15.97	16.16	16.37	17.00	14.54	14.60	15.02	16.50	21.37	21.46	21.48	23.00
3GPP Rel 99	RMC 12.2Kbps	15.98	16.18	16.39	17.00	14.56	14.63	15.05	16.50	21.40	21.49	21.50	23.00
3GPP Rel 6	HSDPA Subtest-1	14.83	15.01	15.19	16.00	13.56	13.59	14.07	15.50	20.40	20.49	20.54	22.00
3GPP Rel 6	HSDPA Subtest-2	14.84	15.04	15.21	16.00	13.57	13.61	14.08	15.50	20.42	20.53	20.55	22.00
3GPP Rel 6	HSDPA Subtest-3	14.53	14.55	14.72	15.50	13.06	13.10	13.56	15.00	19.93	20.02	20.05	21.50
3GPP Rel 6	HSDPA Subtest-4	14.52	14.55	14.72	15.50	13.07	13.12	13.58	15.00	19.95	20.03	20.06	21.50
3GPP Rel 8	DC-HSDPA Subtest-1	14.81	14.99	15.17	16.00	13.55	13.57	14.06	15.50	20.38	20.47	20.53	22.00
3GPP Rel 8	DC-HSDPA Subtest-2	14.82	15.02	15.19	16.00	13.54	13.58	14.07	15.50	20.41	20.51	20.53	22.00
3GPP Rel 8	DC-HSDPA Subtest-3	14.51	14.53	14.70	15.50	13.05	13.08	13.55	15.00	19.91	20.00	20.03	21.50
3GPP Rel 8	DC-HSDPA Subtest-4	14.48	14.51	14.69	15.50	13.06	13.11	13.56	15.00	19.93	20.01	20.04	21.50
3GPP Rel 6	HSUPA Subtest-1	14.83	15.01	15.19	16.00	13.55	13.60	14.03	15.50	20.40	20.49	20.53	22.00
3GPP Rel 6	HSUPA Subtest-2	12.81	13.02	13.17	14.00	11.54	11.58	12.02	13.50	18.41	18.51	18.52	20.00
3GPP Rel 6	HSUPA Subtest-3	13.82	14.01	14.18	15.00	12.53	12.59	13.04	14.50	19.42	19.50	19.54	21.00
3GPP Rel 6	HSUPA Subtest-4	12.82	13.01	13.18	14.00	11.55	11.59	12.03	13.50	18.42	18.53	18.55	20.00
3GPP Rel 6	HSUPA Subtest-5	14.81	15.01	15.18	16.00	13.54	13.59	14.03	15.50	20.41	20.51	20.55	22.00

<Hotspot Power Mode>

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	AMR 12.2Kbps	13.54	13.65	13.85	15.50	14.54	14.60	15.02	16.00	21.37	21.46	21.48	23.00
3GPP Rel 99	RMC 12.2Kbps	13.55	13.68	13.89	15.50	14.56	14.63	15.05	16.00	21.40	21.49	21.50	23.00
3GPP Rel 6	HSDPA Subtest-1	12.69	12.98	13.16	14.50	13.56	13.59	14.07	15.00	20.40	20.49	20.54	22.00
3GPP Rel 6	HSDPA Subtest-2	12.68	12.86	13.15	14.50	13.57	13.61	14.08	15.00	20.42	20.53	20.55	22.00
3GPP Rel 6	HSDPA Subtest-3	12.22	12.37	12.63	14.00	13.06	13.10	13.56	14.50	19.93	20.02	20.05	21.50
3GPP Rel 6	HSDPA Subtest-4	12.23	12.36	12.54	14.00	13.07	13.12	13.58	14.50	19.95	20.03	20.06	21.50
3GPP Rel 8	DC-HSDPA Subtest-1	12.67	12.99	12.93	14.50	13.55	13.57	14.06	15.00	20.38	20.47	20.53	22.00
3GPP Rel 8	DC-HSDPA Subtest-2	12.66	12.71	12.94	14.50	13.54	13.58	14.07	15.00	20.41	20.51	20.53	22.00
3GPP Rel 8	DC-HSDPA Subtest-3	12.18	12.29	12.51	14.00	13.05	13.08	13.55	14.50	19.91	20.00	20.03	21.50
3GPP Rel 8	DC-HSDPA Subtest-4	12.14	12.29	12.41	14.00	13.06	13.11	13.56	14.50	19.93	20.01	20.04	21.50
3GPP Rel 6	HSUPA Subtest-1	12.69	12.96	13.07	14.50	13.55	13.60	14.03	15.00	20.40	20.49	20.53	22.00
3GPP Rel 6	HSUPA Subtest-2	10.66	10.91	11.09	12.50	11.54	11.58	12.02	13.00	18.41	18.51	18.52	20.00
3GPP Rel 6	HSUPA Subtest-3	11.65	11.96	12.01	13.50	12.53	12.59	13.04	14.00	19.42	19.50	19.54	21.00
3GPP Rel 6	HSUPA Subtest-4	10.62	10.87	10.96	12.50	11.55	11.59	12.03	13.00	18.42	18.53	18.55	20.00
3GPP Rel 6	HSUPA Subtest-5	12.74	12.98	13.07	14.50	13.54	13.59	14.03	15.00	20.41	20.51	20.55	22.00

<Product Specific Power Mode>

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	AMR 12.2Kbps	21.86	22.02	22.20	23.50	21.59	21.60	22.05	22.50
3GPP Rel 99	RMC 12.2Kbps	21.86	22.04	22.22	23.50	21.59	21.61	22.08	22.50
3GPP Rel 6	HSDPA Subtest-1	20.87	21.03	21.23	22.50	20.58	20.63	21.10	21.50
3GPP Rel 6	HSDPA Subtest-2	20.89	21.08	21.26	22.50	20.59	20.64	21.12	21.50
3GPP Rel 6	HSDPA Subtest-3	20.37	20.57	20.75	22.00	20.07	20.13	20.61	21.00
3GPP Rel 6	HSDPA Subtest-4	20.36	20.55	20.73	22.00	20.09	20.16	20.63	21.00
3GPP Rel 8	DC-HSDPA Subtest-1	20.85	21.01	21.22	22.50	20.56	20.62	21.08	21.50
3GPP Rel 8	DC-HSDPA Subtest-2	20.87	21.06	21.24	22.50	20.57	20.61	21.09	21.50
3GPP Rel 8	DC-HSDPA Subtest-3	20.35	20.54	20.73	22.00	20.05	20.11	20.59	21.00
3GPP Rel 8	DC-HSDPA Subtest-4	20.34	20.52	20.71	22.00	20.06	20.14	20.61	21.00
3GPP Rel 6	HSUPA Subtest-1	20.84	21.02	21.25	22.50	20.56	20.61	21.08	21.50
3GPP Rel 6	HSUPA Subtest-2	18.85	19.05	19.22	20.50	18.54	18.62	19.06	19.50
3GPP Rel 6	HSUPA Subtest-3	19.86	20.05	20.21	21.50	19.52	19.63	20.05	20.50
3GPP Rel 6	HSUPA Subtest-4	18.86	19.03	19.24	20.50	18.53	18.61	19.05	19.50
3GPP Rel 6	HSUPA Subtest-5	20.87	21.05	21.22	22.50	20.55	20.62	21.09	21.50

<CDMA2000 Conducted Power>

General Note:

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

<Default Power Mode>

Band	CDMA BC0			Tune-up Limit (dBm)	CDMA BC1			Tune-up Limit (dBm)
TX Channel	1013	384	777		25	600	1175	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75	
RC1 SO55	23.68	23.75	23.75	25.00	23.73	23.74	23.75	25.00
RC3 SO55	23.67	23.74	23.77	25.00	23.74	23.76	23.78	25.00
RC3 SO32 (F+SCH)	23.69	23.76	23.80	25.00	23.81	23.77	23.82	25.00
RC3 SO32 (+SCH)	23.66	23.74	23.78	25.00	23.78	23.75	23.79	25.00
RTAP 153.6Kbps	23.74	23.79	23.82	25.00	23.80	23.81	23.83	25.00
RETAP 4096Bits	23.64	23.74	23.80	25.00	23.79	23.74	23.78	25.00

<Near to Body Power Mode>

Band	CDMA BC0			Tune-up Limit (dBm)	CDMA BC1			Tune-up Limit (dBm)
TX Channel	1013	384	777		25	600	1175	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75	
RC1 SO55	23.17	23.25	23.25	23.50	16.98	17.05	17.18	17.50
RC3 SO55	23.19	23.26	23.28	23.50	16.97	17.10	17.16	17.50
RC3 SO32 (F+SCH)	23.11	23.15	23.27	23.50	16.90	17.09	17.19	17.50
RC3 SO32 (+SCH)	23.09	23.17	23.26	23.50	16.99	17.15	17.17	17.50
RTAP 153.6Kbps	23.13	23.21	23.35	23.50	17.02	17.16	17.20	17.50
RETAP 4096Bits	23.09	23.17	23.29	23.50	17.01	17.17	17.19	17.50

<Hotspot Power Mode>

Band	CDMA BC0			Tune-up Limit (dBm)	CDMA BC1			Tune-up Limit (dBm)
TX Channel	1013	384	777		25	600	1175	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75	
RC1 SO55	23.17	23.25	23.25	23.50	14.99	15.00	15.17	15.50
RC3 SO55	23.19	23.26	23.28	23.50	14.94	15.09	15.13	15.50
RC3 SO32 (F+SCH)	23.11	23.15	23.27	23.50	14.92	15.03	15.10	15.50
RC3 SO32 (+SCH)	23.09	23.17	23.26	23.50	14.90	15.10	15.08	15.50
RTAP 153.6Kbps	23.13	23.21	23.35	23.50	14.95	15.10	15.18	15.50
RETAP 4096Bits	23.09	23.17	23.29	23.50	14.94	15.12	15.17	15.50

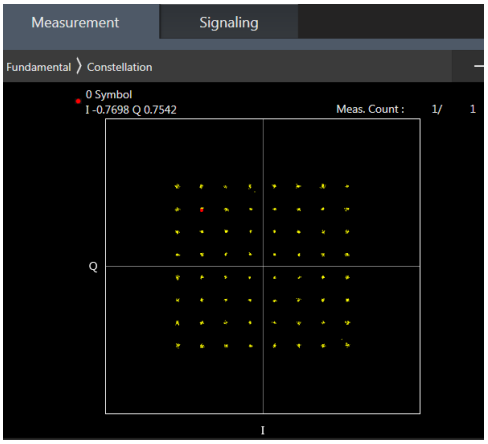
<Product Specific Power Mode>

Band	CDMA BC1			Tune-up Limit (dBm)
TX Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RC1 SO55	22.84	22.95	22.97	23.00
RC3 SO55	22.82	22.97	22.99	23.00
RC3 SO32 (F+SCH)	22.93	22.97	22.99	23.00
RC3 SO32 (+SCH)	22.80	22.94	22.98	23.00
RTAP 153.6Kbps	22.86	22.99	23.00	23.00
RETAP 4096Bits	22.85	22.94	22.95	23.00

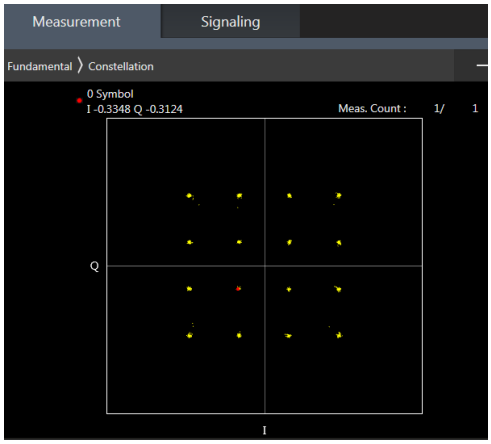
<LTE Conducted Power>

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 B5 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 band 4 SAR test was covered by Band 66; 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
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM



16QAM

<Default Power Mode>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	23.50	23.22	23.01	23.5	0
20	QPSK	1	49	23.17	22.93	22.94		
20	QPSK	1	99	23.25	23.08	22.96		
20	QPSK	50	0	22.29	22.06	22.03	22.5	1
20	QPSK	50	24	22.21	22.02	21.95		
20	QPSK	50	50	22.10	22.03	21.97		
20	QPSK	100	0	22.17	22.06	21.93		
20	16QAM	1	0	22.50	22.49	22.38	22.5	1
20	16QAM	1	49	22.45	22.22	22.30		
20	16QAM	1	99	22.50	22.44	22.25		
20	16QAM	50	0	21.39	21.18	21.09	21.5	2
20	16QAM	50	24	21.38	21.15	21.11		
20	16QAM	50	50	21.24	21.13	21.08		
20	16QAM	100	0	21.26	21.11	20.98		
20	64QAM	1	0	21.34	21.25	21.06	21.5	2
20	64QAM	1	49	21.04	20.94	21.03		
20	64QAM	1	99	21.03	21.04	20.95		
20	64QAM	50	0	20.09	19.94	19.91	20.5	3
20	64QAM	50	24	20.09	19.92	19.92		
20	64QAM	50	50	19.87	19.85	19.87		
20	64QAM	100	0	19.95	19.91	19.81		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.33	23.08	23.08	23.5	0
15	QPSK	1	37	23.15	22.92	22.91		
15	QPSK	1	74	23.21	22.93	22.96		
15	QPSK	36	0	22.27	22.06	22.04	22.5	1
15	QPSK	36	20	22.26	22.00	22.01		
15	QPSK	36	39	22.21	21.99	21.96		
15	QPSK	75	0	22.25	22.02	22.00		
15	16QAM	1	0	22.45	22.39	22.35	22.5	1
15	16QAM	1	37	22.46	22.24	22.28		
15	16QAM	1	74	22.49	22.26	22.30		
15	16QAM	36	0	21.35	21.19	21.10	21.5	2
15	16QAM	36	20	21.37	21.13	21.07		
15	16QAM	36	39	21.33	21.08	21.06		
15	16QAM	75	0	21.33	21.12	21.08		
15	64QAM	1	0	21.28	21.08	21.15	21.5	2
15	64QAM	1	37	21.12	20.94	21.01		
15	64QAM	1	74	21.08	20.93	20.96		
15	64QAM	36	0	20.08	19.95	19.97	20.5	3
15	64QAM	36	20	20.04	19.92	19.93		
15	64QAM	36	39	20.01	19.87	19.89		
15	64QAM	75	0	20.05	19.88	19.89		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.41	23.22	22.98	23.5	0
10	QPSK	1	25	23.17	22.95	22.91		
10	QPSK	1	49	23.38	23.13	22.92		
10	QPSK	25	0	22.21	22.05	21.94	22.5	1
10	QPSK	25	12	22.25	22.01	21.96		
10	QPSK	25	25	22.19	21.98	21.94		
10	QPSK	50	0	22.21	21.99	21.92		
10	16QAM	1	0	22.49	22.47	22.40	22.5	1
10	16QAM	1	25	22.46	22.19	22.27		
10	16QAM	1	49	22.49	22.38	22.27		
10	16QAM	25	0	21.35	21.14	21.07	21.5	2
10	16QAM	25	12	21.33	21.12	21.05		
10	16QAM	25	25	21.32	21.10	21.02		
10	16QAM	50	0	21.31	21.12	21.07		
10	64QAM	1	0	21.34	21.17	21.03	21.5	2
10	64QAM	1	25	21.09	20.93	20.97		
10	64QAM	1	49	21.25	21.10	20.90		
10	64QAM	25	0	20.07	19.90	19.90	20.5	3
10	64QAM	25	12	20.04	19.91	19.88		
10	64QAM	25	25	19.99	19.86	19.85		
10	64QAM	50	0	20.03	19.86	19.86		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.27	22.99	22.91	23.5	0
5	QPSK	1	12	23.19	22.93	22.90		
5	QPSK	1	24	23.21	22.95	22.90		
5	QPSK	12	0	22.22	21.95	21.97	22.5	1
5	QPSK	12	7	22.21	21.99	21.97		
5	QPSK	12	13	22.20	21.93	21.95		
5	QPSK	25	0	22.18	21.94	21.92		
5	16QAM	1	0	22.46	22.35	22.26	22.5	1
5	16QAM	1	12	22.47	22.32	22.26		
5	16QAM	1	24	22.50	22.29	22.16		
5	16QAM	12	0	21.31	21.12	21.04	21.5	2
5	16QAM	12	7	21.32	21.11	21.05		
5	16QAM	12	13	21.35	21.07	21.01		
5	16QAM	25	0	21.30	21.10	21.00		
5	64QAM	1	0	21.17	20.97	21.01	21.5	2
5	64QAM	1	12	21.11	20.91	20.95		
5	64QAM	1	24	21.10	20.91	20.90		
5	64QAM	12	0	20.05	19.88	19.89	20.5	3
5	64QAM	12	7	20.02	19.90	19.92		
5	64QAM	12	13	20.00	19.87	19.87		
5	64QAM	25	0	19.98	19.83	19.84		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	23.25	22.94	22.90	23.5	0
3	QPSK	1	8	23.20	22.89	22.87		
3	QPSK	1	14	23.15	22.90	22.87		
3	QPSK	8	0	22.19	21.94	21.91	22.5	1
3	QPSK	8	4	22.25	22.00	21.96		
3	QPSK	8	7	22.17	21.94	21.90		
3	QPSK	15	0	22.21	21.95	21.88		
3	16QAM	1	0	22.49	22.23	22.24	22.5	1
3	16QAM	1	8	22.44	22.17	22.26		
3	16QAM	1	14	22.42	22.15	22.21		
3	16QAM	8	0	21.32	21.09	21.05	21.5	2
3	16QAM	8	4	21.35	21.10	21.10		
3	16QAM	8	7	21.39	21.12	21.05		
3	16QAM	15	0	21.30	21.07	20.99		
3	64QAM	1	0	21.08	20.93	20.96	21.5	2
3	64QAM	1	8	21.08	20.93	20.94		
3	64QAM	1	14	21.06	20.92	20.92		
3	64QAM	8	0	20.00	19.86	19.88	20.5	3
3	64QAM	8	4	20.04	19.88	19.89		
3	64QAM	8	7	20.00	19.84	19.86		
3	64QAM	15	0	19.96	19.81	19.83		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.07	22.85	22.80	23.5	0
1.4	QPSK	1	3	23.18	22.94	22.89		
1.4	QPSK	1	5	23.15	22.84	22.79		
1.4	QPSK	3	0	23.15	22.88	22.86		
1.4	QPSK	3	1	23.20	22.94	22.90		
1.4	QPSK	3	3	23.13	22.86	22.85		
1.4	QPSK	6	0	22.13	21.89	21.87	22.5	1
1.4	16QAM	1	0	22.38	22.21	22.20	22.5	1
1.4	16QAM	1	3	22.45	22.21	22.12		
1.4	16QAM	1	5	22.48	22.20	22.11		
1.4	16QAM	3	0	22.13	21.97	21.90		
1.4	16QAM	3	1	22.29	21.99	21.98		
1.4	16QAM	3	3	22.19	21.90	21.90		
1.4	16QAM	6	0	21.26	21.05	21.01	21.5	2
1.4	64QAM	1	0	21.03	20.88	20.89	21.5	2
1.4	64QAM	1	3	21.11	20.95	20.96		
1.4	64QAM	1	5	21.03	20.88	20.90		
1.4	64QAM	3	0	21.03	20.86	20.87		
1.4	64QAM	3	1	21.05	20.91	20.91		
1.4	64QAM	3	3	21.01	20.84	20.83		
1.4	64QAM	6	0	19.89	19.77	19.74	20.5	3

<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	22.96	22.79	22.88	23.5	0
20	QPSK	1	49	22.79	22.60	22.63		
20	QPSK	1	99	22.65	22.60	22.75		
20	QPSK	50	0	21.92	21.77	22.05	22.5	1
20	QPSK	50	24	21.77	21.70	22.04		
20	QPSK	50	50	21.73	21.66	22.02		
20	QPSK	100	0	21.76	21.69	22.03		
20	16QAM	1	0	22.30	22.14	22.48	22.5	1
20	16QAM	1	49	22.08	21.99	22.15		
20	16QAM	1	99	22.00	21.98	22.49		
20	16QAM	50	0	21.01	20.84	21.20	21.5	2
20	16QAM	50	24	20.86	20.79	21.14		
20	16QAM	50	50	20.80	20.73	21.11		
20	16QAM	100	0	20.83	20.77	21.11		
20	64QAM	1	0	20.92	20.84	20.80	21.5	2
20	64QAM	1	49	20.75	20.64	20.71		
20	64QAM	1	99	20.60	20.56	20.57		
20	64QAM	50	0	19.77	19.63	19.60	20.5	3
20	64QAM	50	24	19.57	19.55	19.51		
20	64QAM	50	50	19.51	19.48	19.54		
20	64QAM	100	0	19.58	19.55	19.52		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.95	22.78	22.69	23.5	0
15	QPSK	1	37	22.80	22.62	22.60		
15	QPSK	1	74	22.73	22.62	22.66		
15	QPSK	36	0	21.92	21.70	21.63	22.5	1
15	QPSK	36	20	21.78	21.65	21.70		
15	QPSK	36	39	21.73	21.62	21.65		
15	QPSK	75	0	21.77	21.66	21.58		
15	16QAM	1	0	22.32	22.11	22.02	22.5	1
15	16QAM	1	37	22.07	21.97	21.99		
15	16QAM	1	74	22.07	21.95	21.91		
15	16QAM	36	0	20.99	20.82	20.70	21.5	2
15	16QAM	36	20	20.85	20.78	20.79		
15	16QAM	36	39	20.82	20.74	20.74		
15	16QAM	75	0	20.84	20.78	20.65		
15	64QAM	1	0	20.89	20.83	20.79	21.5	2
15	64QAM	1	37	20.74	20.63	20.70		
15	64QAM	1	74	20.62	20.58	20.61		
15	64QAM	36	0	19.75	19.62	19.57	20.5	3
15	64QAM	36	20	19.59	19.56	19.62		
15	64QAM	36	39	19.50	19.50	19.52		
15	64QAM	75	0	19.55	19.54	19.48		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.90	22.71	22.72	23.5	0
10	QPSK	1	25	22.82	22.63	22.65		
10	QPSK	1	49	22.83	22.58	22.60		
10	QPSK	25	0	21.87	21.68	21.68	22.5	1
10	QPSK	25	12	21.83	21.70	21.66		
10	QPSK	25	25	21.84	21.60	21.64		
10	QPSK	50	0	21.84	21.68	21.66		
10	16QAM	1	0	22.24	22.05	21.98	22.5	1
10	16QAM	1	25	22.06	21.96	21.87		
10	16QAM	1	49	22.18	21.85	21.88		
10	16QAM	25	0	20.96	20.79	20.82	21.5	2
10	16QAM	25	12	20.95	20.76	20.78		
10	16QAM	25	25	20.91	20.69	20.73		
10	16QAM	50	0	20.92	20.74	20.80		
10	64QAM	1	0	20.78	20.72	20.78	21.5	2
10	64QAM	1	25	20.74	20.63	20.65		
10	64QAM	1	49	20.68	20.58	20.59		
10	64QAM	25	0	19.71	19.53	19.62	20.5	3
10	64QAM	25	12	19.67	19.53	19.56		
10	64QAM	25	25	19.62	19.47	19.50		
10	64QAM	50	0	19.64	19.55	19.56		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.86	22.67	22.67	23.5	0
5	QPSK	1	12	22.82	22.63	22.60		
5	QPSK	1	24	22.84	22.63	22.58		
5	QPSK	12	0	21.86	21.65	21.63	22.5	1
5	QPSK	12	7	21.84	21.64	21.63		
5	QPSK	12	13	21.80	21.62	21.62		
5	QPSK	25	0	21.86	21.64	21.62		
5	16QAM	1	0	22.09	21.95	21.90	22.5	1
5	16QAM	1	12	22.12	21.92	21.87		
5	16QAM	1	24	22.13	21.85	21.89		
5	16QAM	12	0	20.92	20.72	20.73	21.5	2
5	16QAM	12	7	20.91	20.74	20.71		
5	16QAM	12	13	20.93	20.72	20.73		
5	16QAM	25	0	20.94	20.73	20.72		
5	64QAM	1	0	20.73	20.65	20.65	21.5	2
5	64QAM	1	12	20.67	20.61	20.59		
5	64QAM	1	24	20.68	20.59	20.58		
5	64QAM	12	0	19.69	19.56	19.61	20.5	3
5	64QAM	12	7	19.70	19.55	19.59		
5	64QAM	12	13	19.65	19.52	19.55		
5	64QAM	25	0	19.64	19.50	19.49		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.86	22.64	22.66	23.5	0
3	QPSK	1	8	22.83	22.60	22.59		
3	QPSK	1	14	22.86	22.63	22.58		
3	QPSK	8	0	21.85	21.63	21.59	22.5	1
3	QPSK	8	4	21.88	21.64	21.64		
3	QPSK	8	7	21.86	21.63	21.60		
3	QPSK	15	0	21.84	21.62	21.62		
3	16QAM	1	0	22.03	21.94	21.96	22.5	1
3	16QAM	1	8	21.97	21.91	21.93		
3	16QAM	1	14	22.04	21.83	21.87		
3	16QAM	8	0	20.96	20.76	20.78	21.5	2
3	16QAM	8	4	20.96	20.82	20.75		
3	16QAM	8	7	20.93	20.74	20.76		
3	16QAM	15	0	20.93	20.71	20.69		
3	64QAM	1	0	20.73	20.61	20.58	21.5	2
3	64QAM	1	8	20.72	20.60	20.58		
3	64QAM	1	14	20.68	20.56	20.55		
3	64QAM	8	0	19.67	19.50	19.53	20.5	3
3	64QAM	8	4	19.65	19.54	19.54		
3	64QAM	8	7	19.64	19.47	19.52		
3	64QAM	15	0	19.64	19.48	19.48		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.75	22.54	22.47	23.5	0
1.4	QPSK	1	3	22.80	22.62	22.60		
1.4	QPSK	1	5	22.75	22.53	22.51		
1.4	QPSK	3	0	22.79	22.58	22.55		
1.4	QPSK	3	1	22.84	22.61	22.59		
1.4	QPSK	3	3	22.81	22.60	22.54		
1.4	QPSK	6	0	21.78	21.51	21.53	22.5	1
1.4	16QAM	1	0	21.97	21.86	21.72	22.5	1
1.4	16QAM	1	3	22.08	21.84	21.90		
1.4	16QAM	1	5	21.93	21.79	21.81		
1.4	16QAM	3	0	21.75	21.61	21.61		
1.4	16QAM	3	1	21.82	21.68	21.69		
1.4	16QAM	3	3	21.78	21.64	21.61		
1.4	16QAM	6	0	20.88	20.70	20.70	21.5	2
1.4	64QAM	1	0	20.63	20.52	20.56	21.5	2
1.4	64QAM	1	3	20.72	20.62	20.61		
1.4	64QAM	1	5	20.65	20.53	20.53		
1.4	64QAM	3	0	20.64	20.52	20.53		
1.4	64QAM	3	1	20.69	20.57	20.59		
1.4	64QAM	3	3	20.66	20.53	20.52		
1.4	64QAM	6	0	19.54	19.39	19.42	20.5	3

<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	22.93	22.79	22.79	24	0
10	QPSK	1	25	22.85	22.76	22.75		
10	QPSK	1	49	22.78	22.71	22.75		
10	QPSK	25	0	21.95	21.80	21.80	23	1
10	QPSK	25	12	21.88	21.78	21.74		
10	QPSK	25	25	21.85	21.72	21.78		
10	QPSK	50	0	21.91	21.78	21.73		
10	16QAM	1	0	22.33	22.22	22.01	23	1
10	16QAM	1	25	22.25	22.12	22.12		
10	16QAM	1	49	22.09	22.02	22.10		
10	16QAM	25	0	21.03	20.94	20.82	22	2
10	16QAM	25	12	21.00	20.90	20.92		
10	16QAM	25	25	20.95	20.87	20.86		
10	16QAM	50	0	21.01	20.90	20.84		
10	64QAM	1	0	20.81	20.71	20.65	22	2
10	64QAM	1	25	20.72	20.65	20.68		
10	64QAM	1	49	20.63	20.55	20.62		
10	64QAM	25	0	19.63	19.53	19.47	21	3
10	64QAM	25	12	19.63	19.55	19.59		
10	64QAM	25	25	19.54	19.44	19.51		
10	64QAM	50	0	19.59	19.52	19.47		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.92	22.80	22.82	24	0
5	QPSK	1	12	22.91	22.75	22.84		
5	QPSK	1	24	22.85	22.73	22.78		
5	QPSK	12	0	21.91	21.82	21.80	23	1
5	QPSK	12	7	21.96	21.80	21.84		
5	QPSK	12	13	21.88	21.79	21.79		
5	QPSK	25	0	21.90	21.81	21.77		
5	16QAM	1	0	22.25	22.10	22.08	23	1
5	16QAM	1	12	22.17	22.08	22.12		
5	16QAM	1	24	22.11	22.03	22.10		
5	16QAM	12	0	21.00	20.90	20.90	22	2
5	16QAM	12	7	20.98	20.92	20.89		
5	16QAM	12	13	20.95	20.84	20.94		
5	16QAM	25	0	20.97	20.89	20.93		
5	64QAM	1	0	20.80	20.65	20.71	22	2
5	64QAM	1	12	20.73	20.61	20.68		
5	64QAM	1	24	20.70	20.59	20.65		
5	64QAM	12	0	19.68	19.58	19.56	21	3
5	64QAM	12	7	19.68	19.54	19.59		
5	64QAM	12	13	19.64	19.52	19.52		
5	64QAM	25	0	19.64	19.48	19.48		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.92	22.74	22.83	24	0
3	QPSK	1	8	22.90	22.71	22.81		
3	QPSK	1	14	22.88	22.76	22.77		
3	QPSK	8	0	21.93	21.76	21.81	23	1
3	QPSK	8	4	21.94	21.79	21.80		
3	QPSK	8	7	21.90	21.79	21.81		
3	QPSK	15	0	21.90	21.78	21.80		
3	16QAM	1	0	22.23	22.13	22.10	23	1
3	16QAM	1	8	22.24	22.08	22.20		
3	16QAM	1	14	22.26	22.12	22.09		
3	16QAM	8	0	21.08	20.92	20.93	22	2
3	16QAM	8	4	21.08	20.96	20.99		
3	16QAM	8	7	21.05	20.90	20.92		
3	16QAM	15	0	21.00	20.87	20.89		
3	64QAM	1	0	20.74	20.65	20.67	22	2
3	64QAM	1	8	20.76	20.43	20.65		
3	64QAM	1	14	20.72	20.59	20.66		
3	64QAM	8	0	19.67	19.53	19.54	21	3
3	64QAM	8	4	19.68	19.53	19.57		
3	64QAM	8	7	19.64	19.49	19.50		
3	64QAM	15	0	19.62	19.46	19.47		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.79	22.68	22.67	24	0
1.4	QPSK	1	3	22.87	22.72	22.76		
1.4	QPSK	1	5	22.80	22.66	22.70		
1.4	QPSK	3	0	22.88	22.74	22.74		
1.4	QPSK	3	1	22.89	22.74	22.77		
1.4	QPSK	3	3	22.85	22.70	22.71		
1.4	QPSK	6	0	21.88	21.71	21.71	23	1
1.4	16QAM	1	0	22.06	21.98	22.09	23	1
1.4	16QAM	1	3	22.27	22.15	22.10		
1.4	16QAM	1	5	22.16	22.06	21.95		
1.4	16QAM	3	0	21.97	21.82	21.83		
1.4	16QAM	3	1	22.00	21.84	21.84		
1.4	16QAM	3	3	21.98	21.79	21.82		
1.4	16QAM	6	0	20.99	20.87	20.87	22	2
1.4	64QAM	1	0	20.69	20.55	20.60	22	2
1.4	64QAM	1	3	20.75	20.64	20.65		
1.4	64QAM	1	5	20.69	20.56	20.59		
1.4	64QAM	3	0	20.68	20.55	20.55		
1.4	64QAM	3	1	20.72	20.59	20.60		
1.4	64QAM	3	3	20.67	20.54	20.56		
1.4	64QAM	6	0	19.55	19.42	19.42	21	3

<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	23.03	22.69	22.81	24	0
20	QPSK	1	49	22.92	22.62	22.72		
20	QPSK	1	99	22.78	22.60	22.58		
20	QPSK	50	0	21.93	21.70	21.75	23	1
20	QPSK	50	24	21.90	21.65	21.71		
20	QPSK	50	50	21.86	21.65	21.63		
20	QPSK	100	0	21.87	21.65	21.70		
20	16QAM	1	0	22.27	22.00	21.86	23	1
20	16QAM	1	49	22.31	21.86	22.03		
20	16QAM	1	99	22.12	21.99	22.19		
20	16QAM	50	0	21.03	20.72	20.67	22	2
20	16QAM	50	24	21.04	20.76	20.78		
20	16QAM	50	50	20.94	20.73	20.85		
20	16QAM	100	0	20.95	20.72	20.81		
20	64QAM	1	0	20.56	20.46	20.50	22	2
20	64QAM	1	49	20.71	20.58	20.76		
20	64QAM	1	99	20.62	20.65	20.93		
20	64QAM	50	0	19.51	19.38	19.52	21	3
20	64QAM	50	24	19.53	19.51	19.67		
20	64QAM	50	50	19.48	19.55	19.74		
20	64QAM	100	0	19.50	19.46	19.62		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.99	22.67	22.62	24	0
15	QPSK	1	37	22.99	22.61	22.77		
15	QPSK	1	74	22.93	22.62	22.89		
15	QPSK	36	0	21.96	21.64	21.66	23	1
15	QPSK	36	20	21.91	21.68	21.80		
15	QPSK	36	39	21.93	21.63	21.79		
15	QPSK	75	0	21.89	21.66	21.73		
15	16QAM	1	0	22.33	22.02	21.96	23	1
15	16QAM	1	37	22.30	21.94	22.03		
15	16QAM	1	74	22.15	21.91	22.12		
15	16QAM	36	0	21.01	20.70	20.74	22	2
15	16QAM	36	20	21.00	20.76	20.84		
15	16QAM	36	39	20.98	20.75	20.85		
15	16QAM	75	0	20.96	20.73	20.79		
15	64QAM	1	0	20.64	20.55	20.64	22	2
15	64QAM	1	37	20.72	20.64	20.86		
15	64QAM	1	74	20.68	20.65	20.95		
15	64QAM	36	0	19.51	19.42	19.58	21	3
15	64QAM	36	20	19.55	19.57	19.75		
15	64QAM	36	39	19.55	19.56	19.77		
15	64QAM	75	0	19.46	19.50	19.64		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.94	22.69	22.70	24	0
10	QPSK	1	25	22.96	22.63	22.84		
10	QPSK	1	49	23.01	22.60	22.82		
10	QPSK	25	0	21.94	21.63	21.77	23	1
10	QPSK	25	12	22.02	21.68	21.81		
10	QPSK	25	25	22.02	21.65	21.81		
10	QPSK	50	0	21.95	21.64	21.76		
10	16QAM	1	0	22.30	21.89	21.99	23	1
10	16QAM	1	25	22.21	21.92	22.09		
10	16QAM	1	49	22.38	21.85	22.21		
10	16QAM	25	0	21.02	20.72	20.80	22	2
10	16QAM	25	12	21.10	20.76	20.90		
10	16QAM	25	25	21.09	20.75	20.94		
10	16QAM	50	0	21.03	20.73	20.86		
10	64QAM	1	0	20.65	20.57	20.72	22	2
10	64QAM	1	25	20.71	20.61	20.88		
10	64QAM	1	49	20.73	20.61	20.96		
10	64QAM	25	0	19.53	19.47	19.68	21	3
10	64QAM	25	12	19.57	19.54	19.78		
10	64QAM	25	25	19.62	19.52	19.76		
10	64QAM	50	0	19.53	19.52	19.70		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.99	22.59	22.77	24	0
5	QPSK	1	12	23.01	22.66	22.83		
5	QPSK	1	24	22.98	22.58	22.88		
5	QPSK	12	0	22.10	21.68	21.84	23	1
5	QPSK	12	7	21.97	21.68	21.86		
5	QPSK	12	13	21.98	21.68	21.88		
5	QPSK	25	0	21.97	21.68	21.82		
5	16QAM	1	0	22.29	21.89	22.14	23	1
5	16QAM	1	12	22.34	21.89	22.18		
5	16QAM	1	24	22.25	21.96	22.24		
5	16QAM	12	0	21.20	20.74	20.86	22	2
5	16QAM	12	7	21.11	20.76	20.90		
5	16QAM	12	13	21.05	20.78	20.93		
5	16QAM	25	0	21.06	20.76	20.90		
5	64QAM	1	0	20.69	20.55	20.82	22	2
5	64QAM	1	12	20.75	20.59	20.91		
5	64QAM	1	24	20.67	20.59	20.97		
5	64QAM	12	0	19.72	19.48	19.75	21	3
5	64QAM	12	7	19.61	19.57	19.84		
5	64QAM	12	13	19.60	19.57	19.85		
5	64QAM	25	0	19.53	19.50	19.77		

<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	22.62			24	0
10	QPSK	1	25	22.56				
10	QPSK	1	49	22.50				
10	QPSK	25	0	22.17			23	1
10	QPSK	25	12	22.15				
10	QPSK	25	25	22.12				
10	QPSK	50	0	22.15				
10	16QAM	1	0	22.33			23	1
10	16QAM	1	25	22.40				
10	16QAM	1	49	22.36				
10	16QAM	25	0	20.71			22	2
10	16QAM	25	12	20.74				
10	16QAM	25	25	20.67				
10	16QAM	50	0	20.70				
10	64QAM	1	0	20.77			22	2
10	64QAM	1	25	20.81				
10	64QAM	1	49	20.78				
10	64QAM	25	0	19.74			21	3
10	64QAM	25	12	19.71				
10	64QAM	25	25	19.71				
10	64QAM	50	0	19.71				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.55	22.60	22.56	24	0
5	QPSK	1	12	22.51	22.57	22.54		
5	QPSK	1	24	22.60	22.55	22.52		
5	QPSK	12	0	22.08	22.11	22.12	23	1
5	QPSK	12	7	22.19	22.13	22.13		
5	QPSK	12	13	22.16	22.08	22.11		
5	QPSK	25	0	22.16	22.11	22.08		
5	16QAM	1	0	22.34	22.40	22.38	23	1
5	16QAM	1	12	22.33	22.39	22.37		
5	16QAM	1	24	22.42	22.37	22.26		
5	16QAM	12	0	20.65	20.71	20.68	22	2
5	16QAM	12	7	20.78	20.72	20.68		
5	16QAM	12	13	20.72	20.72	20.64		
5	16QAM	25	0	20.74	20.70	20.68		
5	64QAM	1	0	20.82	20.87	20.79	22	2
5	64QAM	1	12	20.77	20.80	20.76		
5	64QAM	1	24	20.86	20.76	20.80		
5	64QAM	12	0	19.70	19.79	19.71	21	3
5	64QAM	12	7	19.79	19.78	19.73		
5	64QAM	12	13	19.79	19.76	19.69		
5	64QAM	25	0	19.72	19.72	19.70		

<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	22.94	22.80	22.80	23.5	0
20	QPSK	1	49	22.74	22.60	22.62		
20	QPSK	1	99	22.74	22.58	22.70		
20	QPSK	50	0	21.89	21.76	21.76	22.5	1
20	QPSK	50	24	21.84	21.68	21.73		
20	QPSK	50	50	21.78	21.64	21.70		
20	QPSK	100	0	21.84	21.70	21.73		
20	16QAM	1	0	22.31	22.17	22.10	22.5	1
20	16QAM	1	49	22.00	22.00	21.93		
20	16QAM	1	99	22.10	21.91	22.06		
20	16QAM	50	0	20.99	20.86	20.87	21.5	2
20	16QAM	50	24	20.93	20.82	20.82		
20	16QAM	50	50	20.89	20.73	20.83		
20	16QAM	100	0	20.94	20.77	20.84		
20	64QAM	1	0	20.88	20.88	20.87	21.5	2
20	64QAM	1	49	20.69	20.68	20.64		
20	64QAM	1	99	20.66	20.55	20.67		
20	64QAM	50	0	19.71	19.67	19.69	20.5	3
20	64QAM	50	24	19.65	19.59	19.61		
20	64QAM	50	50	19.58	19.50	19.58		
20	64QAM	100	0	19.67	19.60	19.63		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.93	22.79	22.78	23.5	0
15	QPSK	1	37	22.75	22.58	22.64		
15	QPSK	1	74	22.79	22.60	22.73		
15	QPSK	36	0	21.88	21.73	21.75	22.5	1
15	QPSK	36	20	21.84	21.69	21.74		
15	QPSK	36	39	21.79	21.61	21.71		
15	QPSK	75	0	21.83	21.69	21.72		
15	16QAM	1	0	22.21	22.12	22.11	22.5	1
15	16QAM	1	37	22.06	21.98	22.00		
15	16QAM	1	74	22.17	21.92	22.09		
15	16QAM	36	0	20.98	20.81	20.84	21.5	2
15	16QAM	36	20	20.96	20.76	20.80		
15	16QAM	36	39	20.87	20.70	20.81		
15	16QAM	75	0	20.92	20.78	20.80		
15	64QAM	1	0	20.90	20.87	20.87	21.5	2
15	64QAM	1	37	20.71	20.71	20.68		
15	64QAM	1	74	20.71	20.60	20.71		
15	64QAM	36	0	19.69	19.68	19.67	20.5	3
15	64QAM	36	20	19.66	19.59	19.60		
15	64QAM	36	39	19.60	19.55	19.54		
15	64QAM	75	0	19.64	19.57	19.60		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.87	22.68	22.70	23.5	0
10	QPSK	1	25	22.75	22.60	22.65		
10	QPSK	1	49	22.74	22.56	22.67		
10	QPSK	25	0	21.85	21.70	21.70	22.5	1
10	QPSK	25	12	21.86	21.68	21.70		
10	QPSK	25	25	21.78	21.62	21.69		
10	QPSK	50	0	21.84	21.65	21.66		
10	16QAM	1	0	22.11	22.08	22.06	22.5	1
10	16QAM	1	25	22.14	21.96	21.97		
10	16QAM	1	49	21.99	21.84	22.02		
10	16QAM	25	0	20.94	20.75	20.80	21.5	2
10	16QAM	25	12	20.93	20.77	20.79		
10	16QAM	25	25	20.92	20.72	20.77		
10	16QAM	50	0	20.96	20.74	20.78		
10	64QAM	1	0	20.80	20.73	20.77	21.5	2
10	64QAM	1	25	20.72	20.69	20.67		
10	64QAM	1	49	20.67	20.55	20.63		
10	64QAM	25	0	19.66	19.58	19.59	20.5	3
10	64QAM	25	12	19.64	19.56	19.56		
10	64QAM	25	25	19.59	19.49	19.54		
10	64QAM	50	0	19.66	19.53	19.56		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.83	22.65	22.68	23.5	0
5	QPSK	1	12	22.79	22.61	22.62		
5	QPSK	1	24	22.78	22.63	22.62		
5	QPSK	12	0	21.85	21.68	21.65	22.5	1
5	QPSK	12	7	21.85	21.65	21.69		
5	QPSK	12	13	21.84	21.63	21.63		
5	QPSK	25	0	21.84	21.61	21.68		
5	16QAM	1	0	22.15	21.92	21.94	22.5	1
5	16QAM	1	12	22.12	21.98	22.05		
5	16QAM	1	24	22.06	21.91	22.00		
5	16QAM	12	0	20.91	20.77	20.77	21.5	2
5	16QAM	12	7	20.94	20.74	20.82		
5	16QAM	12	13	20.92	20.73	20.76		
5	16QAM	25	0	20.90	20.71	20.78		
5	64QAM	1	0	20.77	20.67	20.72	21.5	2
5	64QAM	1	12	20.70	20.64	20.72		
5	64QAM	1	24	20.71	20.61	20.70		
5	64QAM	12	0	19.67	19.56	19.61	20.5	3
5	64QAM	12	7	19.66	19.58	19.60		
5	64QAM	12	13	19.63	19.54	19.59		
5	64QAM	25	0	19.62	19.52	19.55		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.79	22.61	22.62	23.5	0
3	QPSK	1	8	22.78	22.57	22.62		
3	QPSK	1	14	22.78	22.58	22.63		
3	QPSK	8	0	21.82	21.64	21.64	22.5	1
3	QPSK	8	4	21.86	21.65	21.69		
3	QPSK	8	7	21.82	21.61	21.66		
3	QPSK	15	0	21.80	21.64	21.68		
3	16QAM	1	0	22.04	21.84	21.98	22.5	1
3	16QAM	1	8	22.17	21.89	21.95		
3	16QAM	1	14	22.00	21.85	21.98		
3	16QAM	8	0	20.98	20.75	20.81	21.5	2
3	16QAM	8	4	20.95	20.77	20.82		
3	16QAM	8	7	20.94	20.74	20.80		
3	16QAM	15	0	20.88	20.72	20.77		
3	64QAM	1	0	20.70	20.59	20.68	21.5	2
3	64QAM	1	8	20.70	20.64	20.52		
3	64QAM	1	14	20.67	20.57	20.66		
3	64QAM	8	0	19.62	19.54	19.60	20.5	3
3	64QAM	8	4	19.64	19.57	19.60		
3	64QAM	8	7	19.61	19.52	19.56		
3	64QAM	15	0	19.59	19.49	19.52		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.72	22.52	22.54	23.5	0
1.4	QPSK	1	3	22.77	22.62	22.69		
1.4	QPSK	1	5	22.72	22.49	22.55		
1.4	QPSK	3	0	22.79	22.56	22.59		
1.4	QPSK	3	1	22.77	22.62	22.67		
1.4	QPSK	3	3	22.76	22.57	22.62		
1.4	QPSK	6	0	21.74	21.57	21.58	22.5	1
1.4	16QAM	1	0	22.03	21.78	21.92	22.5	1
1.4	16QAM	1	3	22.01	21.78	21.98		
1.4	16QAM	1	5	21.98	21.87	21.84		
1.4	16QAM	3	0	21.78	21.61	21.67		
1.4	16QAM	3	1	21.86	21.59	21.76		
1.4	16QAM	3	3	21.76	21.57	21.73		
1.4	16QAM	6	0	20.90	20.70	20.70	21.5	2
1.4	64QAM	1	0	20.64	20.53	20.64	21.5	2
1.4	64QAM	1	3	20.71	20.59	20.69		
1.4	64QAM	1	5	20.61	20.50	20.62		
1.4	64QAM	3	0	20.62	20.51	20.61		
1.4	64QAM	3	1	20.67	20.57	20.65		
1.4	64QAM	3	3	20.63	20.56	20.61		
1.4	64QAM	6	0	19.53	19.43	19.49	20.5	3

<Near to Body Power Mode>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	15.03	14.83	14.81	16.5	0
20	QPSK	1	49	14.52	14.53	14.53		
20	QPSK	1	99	14.60	14.64	14.52		
20	QPSK	50	0	14.71	14.66	14.68	16.5	0
20	QPSK	50	24	14.53	14.56	14.55		
20	QPSK	50	50	14.50	14.56	14.52		
20	QPSK	100	0	14.68	14.55	14.53		
20	16QAM	1	0	14.93	14.87	14.95	16.5	0
20	16QAM	1	49	14.78	14.79	14.78		
20	16QAM	1	99	14.94	14.94	14.93		
20	16QAM	50	0	14.62	14.60	14.61	16.5	0
20	16QAM	50	24	14.58	14.56	14.56		
20	16QAM	50	50	14.64	14.56	14.53		
20	16QAM	100	0	14.69	14.59	14.57		
20	64QAM	1	0	15.02	14.77	14.78	16.5	0
20	64QAM	1	49	14.66	14.71	14.71		
20	64QAM	1	99	14.98	14.95	14.86		
20	64QAM	50	0	14.63	14.61	14.64	16.5	0
20	64QAM	50	24	14.56	14.57	14.57		
20	64QAM	50	50	14.65	14.55	14.55		
20	64QAM	100	0	14.74	14.59	14.59		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	15.00	14.98	15.02	16.5	0
15	QPSK	1	37	14.85	14.86	14.98		
15	QPSK	1	74	14.85	14.89	15.02		
15	QPSK	36	0	14.96	14.96	14.97	16.5	0
15	QPSK	36	20	14.93	14.95	14.92		
15	QPSK	36	39	14.90	14.92	15.02		
15	QPSK	75	0	14.91	14.91	14.91		
15	16QAM	1	0	14.95	14.94	14.95	16.5	0
15	16QAM	1	37	14.78	14.78	14.88		
15	16QAM	1	74	14.79	14.86	14.99		
15	16QAM	36	0	14.62	14.61	14.62	16.5	0
15	16QAM	36	20	14.60	14.61	14.59		
15	16QAM	36	39	14.57	14.56	14.66		
15	16QAM	75	0	14.57	14.58	14.55		
15	64QAM	1	0	14.85	14.83	14.87	16.5	0
15	64QAM	1	37	14.65	14.68	14.81		
15	64QAM	1	74	14.69	14.74	14.86		
15	64QAM	36	0	14.65	14.63	14.65	16.5	0
15	64QAM	36	20	14.63	14.59	14.62		
15	64QAM	36	39	14.57	14.61	14.70		
15	64QAM	75	0	14.57	14.56	14.58		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	14.96	14.56	14.50	16.5	0
10	QPSK	1	25	14.82	14.81	14.95		
10	QPSK	1	49	15.02	14.60	14.96		
10	QPSK	25	0	14.90	14.92	14.93	16.5	0
10	QPSK	25	12	14.88	14.89	14.99		
10	QPSK	25	25	14.86	14.89	14.97		
10	QPSK	50	0	14.88	14.89	14.91		
10	16QAM	1	0	14.81	14.79	14.85	16.5	0
10	16QAM	1	25	14.77	14.77	14.91		
10	16QAM	1	49	14.98	15.01	14.92		
10	16QAM	25	0	14.57	14.58	14.55	16.5	0
10	16QAM	25	12	14.54	14.56	14.66		
10	16QAM	25	25	14.52	14.56	14.63		
10	16QAM	50	0	14.55	14.55	14.54		
10	64QAM	1	0	14.95	14.93	14.76	16.5	0
10	64QAM	1	25	14.68	14.69	14.79		
10	64QAM	1	49	14.90	14.91	14.83		
10	64QAM	25	0	14.57	14.56	14.57	16.5	0
10	64QAM	25	12	14.55	14.56	14.68		
10	64QAM	25	25	14.52	14.55	14.65		
10	64QAM	50	0	14.55	14.56	14.56		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	14.87	14.87	14.96	16.5	0
5	QPSK	1	12	14.81	14.84	14.92		
5	QPSK	1	24	14.83	14.86	14.96		
5	QPSK	12	0	14.90	14.89	14.99	16.5	0
5	QPSK	12	7	14.87	14.88	15.00		
5	QPSK	12	13	14.84	14.87	14.96		
5	QPSK	25	0	14.84	14.86	14.94		
5	16QAM	1	0	14.81	14.83	14.91	16.5	0
5	16QAM	1	12	14.76	14.75	14.87		
5	16QAM	1	24	14.76	14.80	14.90		
5	16QAM	12	0	14.57	14.56	14.64	16.5	0
5	16QAM	12	7	14.51	14.55	14.67		
5	16QAM	12	13	14.52	14.54	14.64		
5	16QAM	25	0	14.50	14.50	14.61		
5	64QAM	1	0	14.73	14.76	14.86	16.5	0
5	64QAM	1	12	14.64	14.68	14.82		
5	64QAM	1	24	14.66	14.69	14.78		
5	64QAM	12	0	14.57	14.59	14.71	16.5	0
5	64QAM	12	7	14.56	14.57	14.72		
5	64QAM	12	13	14.56	14.57	14.68		
5	64QAM	25	0	14.56	14.50	14.65		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	14.82	14.83	14.93	16.5	0
3	QPSK	1	8	14.80	14.81	14.91		
3	QPSK	1	14	14.78	14.83	14.91		
3	QPSK	8	0	14.86	14.87	14.96	16.5	0
3	QPSK	8	4	14.86	14.88	14.96		
3	QPSK	8	7	14.85	14.84	14.95		
3	QPSK	15	0	14.83	14.85	14.92		
3	16QAM	1	0	14.76	14.79	14.87	16.5	0
3	16QAM	1	8	14.73	14.77	14.79		
3	16QAM	1	14	14.73	14.75	14.83		
3	16QAM	8	0	14.57	14.58	14.64	16.5	0
3	16QAM	8	4	14.58	14.60	14.69		
3	16QAM	8	7	14.55	14.58	14.64		
3	16QAM	15	0	14.51	14.50	14.60		
3	64QAM	1	0	14.67	14.68	14.79	16.5	0
3	64QAM	1	8	14.66	14.67	14.79		
3	64QAM	1	14	14.64	14.68	14.76		
3	64QAM	8	0	14.56	14.60	14.66	16.5	0
3	64QAM	8	4	14.58	14.61	14.71		
3	64QAM	8	7	14.55	14.57	14.68		
3	64QAM	15	0	14.52	14.50	14.62		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	14.72	14.76	14.84	16.5	0
1.4	QPSK	1	3	14.80	14.82	14.90		
1.4	QPSK	1	5	14.76	14.74	14.83		
1.4	QPSK	3	0	14.76	14.77	14.87		
1.4	QPSK	3	1	14.82	14.83	14.89		
1.4	QPSK	3	3	14.76	14.78	14.87		
1.4	QPSK	6	0	14.73	14.77	14.84	16.5	0
1.4	16QAM	1	0	14.68	14.67	14.73	16.5	0
1.4	16QAM	1	3	14.76	14.76	14.83		
1.4	16QAM	1	5	14.66	14.68	14.75		
1.4	16QAM	3	0	14.56	14.52	14.53		
1.4	16QAM	3	1	14.60	14.51	14.57		
1.4	16QAM	3	3	14.52	14.55	14.52		
1.4	16QAM	6	0	14.53	14.56	14.56	16.5	0
1.4	64QAM	1	0	14.59	14.59	14.70	16.5	0
1.4	64QAM	1	3	14.63	14.65	14.77		
1.4	64QAM	1	5	14.58	14.60	14.70		
1.4	64QAM	3	0	14.55	14.58	14.67		
1.4	64QAM	3	1	14.61	14.65	14.70		
1.4	64QAM	3	3	14.53	14.60	14.69		
1.4	64QAM	6	0	14.63	14.65	14.51	16.5	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	15.45	15.50	15.32	17	0
20	QPSK	1	49	15.00	15.14	15.19		
20	QPSK	1	99	15.10	15.01	15.23		
20	QPSK	50	0	15.10	15.28	15.23	17	0
20	QPSK	50	24	15.00	15.11	15.16		
20	QPSK	50	50	15.09	15.05	15.21		
20	QPSK	100	0	15.07	15.25	15.21		
20	16QAM	1	0	15.40	15.10	15.39	17	0
20	16QAM	1	49	15.27	15.40	15.39		
20	16QAM	1	99	15.45	15.41	15.36		
20	16QAM	50	0	15.23	15.25	15.29	17	0
20	16QAM	50	24	15.14	15.22	15.28		
20	16QAM	50	50	15.20	15.19	15.35		
20	16QAM	100	0	15.14	15.22	15.31		
20	64QAM	1	0	15.42	15.34	15.44	17	0
20	64QAM	1	49	15.24	15.40	15.37		
20	64QAM	1	99	15.20	15.29	15.05		
20	64QAM	50	0	15.25	15.40	15.31	17	0
20	64QAM	50	24	15.16	15.22	15.28		
20	64QAM	50	50	15.23	15.16	15.01		
20	64QAM	100	0	15.18	15.24	15.31		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	15.33	15.16	15.29	17	0
15	QPSK	1	37	15.15	15.01	15.17		
15	QPSK	1	74	15.08	15.05	15.29		
15	QPSK	36	0	15.29	15.11	15.23	17	0
15	QPSK	36	20	15.14	15.04	15.15		
15	QPSK	36	39	15.11	15.11	15.24		
15	QPSK	75	0	15.13	15.02	15.17		
15	16QAM	1	0	15.02	15.47	15.45	17	0
15	16QAM	1	37	15.27	15.25	15.48		
15	16QAM	1	74	15.41	15.42	15.43		
15	16QAM	36	0	15.03	15.21	15.35	17	0
15	16QAM	36	20	15.27	15.10	15.32		
15	16QAM	36	39	15.22	15.09	15.33		
15	16QAM	75	0	15.24	15.16	15.30		
15	64QAM	1	0	15.20	15.41	15.48	17	0
15	64QAM	1	37	15.11	15.23	15.10		
15	64QAM	1	74	15.29	15.36	15.12		
15	64QAM	36	0	15.12	15.27	15.37	17	0
15	64QAM	36	20	15.05	15.20	15.04		
15	64QAM	36	39	15.20	15.11	15.05		
15	64QAM	75	0	15.15	15.17	15.11		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	15.25	15.04	15.17	17	0
10	QPSK	1	25	15.16	15.01	15.16		
10	QPSK	1	49	15.14	15.01	15.26		
10	QPSK	25	0	15.25	15.07	15.16	17	0
10	QPSK	25	12	15.22	15.11	15.21		
10	QPSK	25	25	15.19	15.05	15.20		
10	QPSK	50	0	15.23	15.01	15.26		
10	16QAM	1	0	15.14	15.40	15.49	17	0
10	16QAM	1	25	15.34	15.27	15.39		
10	16QAM	1	49	15.38	15.40	15.47		
10	16QAM	25	0	15.02	15.15	15.28	17	0
10	16QAM	25	12	15.10	15.09	15.33		
10	16QAM	25	25	15.10	15.05	15.30		
10	16QAM	50	0	15.06	15.11	15.37		
10	64QAM	1	0	15.11	15.39	15.38	17	0
10	64QAM	1	25	15.22	15.24	15.02		
10	64QAM	1	49	15.21	15.34	15.22		
10	64QAM	25	0	15.09	15.17	15.06	17	0
10	64QAM	25	12	15.12	15.13	15.11		
10	64QAM	25	25	15.11	15.11	15.12		
10	64QAM	50	0	15.05	15.14	15.12		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	15.22	15.01	15.20	17	0
5	QPSK	1	12	15.17	15.02	15.22		
5	QPSK	1	24	15.16	15.04	15.22		
5	QPSK	12	0	15.24	15.00	15.22	17	0
5	QPSK	12	7	15.22	15.00	15.20		
5	QPSK	12	13	15.19	15.02	15.28		
5	QPSK	25	0	15.19	15.00	15.18		
5	16QAM	1	0	15.45	15.33	15.38	17	0
5	16QAM	1	12	15.23	15.24	15.42		
5	16QAM	1	24	15.47	15.33	15.43		
5	16QAM	12	0	15.07	15.09	15.31	17	0
5	16QAM	12	7	15.08	15.08	15.33		
5	16QAM	12	13	15.21	15.06	15.41		
5	16QAM	25	0	15.13	15.10	15.30		
5	64QAM	1	0	15.11	15.31	15.40	17	0
5	64QAM	1	12	15.10	15.23	15.02		
5	64QAM	1	24	15.05	15.32	15.10		
5	64QAM	12	0	15.02	15.16	15.04	17	0
5	64QAM	12	7	15.03	15.16	15.11		
5	64QAM	12	13	15.03	15.13	15.12		
5	64QAM	25	0	15.05	15.09	15.12		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	15.16	15.11	15.22	17	0
3	QPSK	1	8	15.15	15.12	15.22		
3	QPSK	1	14	15.12	15.10	15.18		
3	QPSK	8	0	15.17	15.02	15.25	17	0
3	QPSK	8	4	15.19	15.00	15.18		
3	QPSK	8	7	15.20	15.11	15.23		
3	QPSK	15	0	15.17	15.01	15.26		
3	16QAM	1	0	15.25	15.27	15.44	17	0
3	16QAM	1	8	15.19	15.26	15.34		
3	16QAM	1	14	15.38	15.21	15.40		
3	16QAM	8	0	15.01	15.08	15.42	17	0
3	16QAM	8	4	15.04	15.10	15.47		
3	16QAM	8	7	15.07	15.05	15.45		
3	16QAM	15	0	15.01	15.07	15.38		
3	64QAM	1	0	15.06	15.23	15.13	17	0
3	64QAM	1	8	15.05	15.21	15.02		
3	64QAM	1	14	15.11	15.19	15.00		
3	64QAM	8	0	15.02	15.11	15.01	17	0
3	64QAM	8	4	15.11	15.15	15.06		
3	64QAM	8	7	15.12	15.11	15.11		
3	64QAM	15	0	15.11	15.09	15.05		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	15.06	15.02	15.12	17	0
1.4	QPSK	1	3	15.14	15.03	15.20		
1.4	QPSK	1	5	15.06	15.12	15.12		
1.4	QPSK	3	0	15.10	15.12	15.16		
1.4	QPSK	3	1	15.13	15.11	15.21		
1.4	QPSK	3	3	15.12	15.02	15.17		
1.4	QPSK	6	0	15.11	15.11	15.17	17	0
1.4	16QAM	1	0	15.04	15.16	15.43	17	0
1.4	16QAM	1	3	15.14	15.24	15.41		
1.4	16QAM	1	5	15.10	15.14	15.32		
1.4	16QAM	3	0	15.03	15.02	15.34		
1.4	16QAM	3	1	15.03	15.01	15.34		
1.4	16QAM	3	3	15.05	15.02	15.31		
1.4	16QAM	6	0	15.08	15.04	15.38	17	0
1.4	64QAM	1	0	15.11	15.14	15.06	17	0
1.4	64QAM	1	3	15.12	15.21	15.03		
1.4	64QAM	1	5	15.05	15.12	15.05		
1.4	64QAM	3	0	15.04	15.16	15.09		
1.4	64QAM	3	1	15.03	15.17	15.11		
1.4	64QAM	3	3	15.11	15.15	15.05		
1.4	64QAM	6	0	15.02	15.02	15.02	17	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	21.78	21.80	21.68	23.5	0
10	QPSK	1	25	21.71	21.70	21.75		
10	QPSK	1	49	21.76	21.66	21.70		
10	QPSK	25	0	21.78	21.79	21.70	22.5	1
10	QPSK	25	12	21.77	21.78	21.68		
10	QPSK	25	25	21.64	21.69	21.65		
10	QPSK	50	0	21.84	21.74	21.71		
10	16QAM	1	0	22.03	22.14	22.03	22.5	1
10	16QAM	1	25	22.08	22.05	22.10		
10	16QAM	1	49	22.05	22.02	22.09		
10	16QAM	25	0	20.86	20.87	20.81	21.5	2
10	16QAM	25	12	20.96	20.86	20.89		
10	16QAM	25	25	20.92	20.82	20.86		
10	16QAM	50	0	20.97	20.85	20.80		
10	64QAM	1	0	21.05	21.05	20.96	21.5	2
10	64QAM	1	25	20.98	20.98	21.01		
10	64QAM	1	49	21.05	20.94	20.99		
10	64QAM	25	0	19.87	19.88	19.80	20.5	3
10	64QAM	25	12	19.99	19.87	19.92		
10	64QAM	25	25	19.94	19.81	19.86		
10	64QAM	50	0	19.94	19.85	19.80		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.77	21.72	21.74	23.5	0
5	QPSK	1	12	21.75	21.70	21.70		
5	QPSK	1	24	21.71	21.70	21.72		
5	QPSK	12	0	21.77	21.74	21.77	22.5	1
5	QPSK	12	7	21.81	21.74	21.77		
5	QPSK	12	13	21.76	21.73	21.76		
5	QPSK	25	0	21.77	21.73	21.74		
5	16QAM	1	0	22.12	22.13	22.09	22.5	1
5	16QAM	1	12	22.10	22.05	22.09		
5	16QAM	1	24	22.12	22.03	22.08		
5	16QAM	12	0	20.89	20.86	20.86	21.5	2
5	16QAM	12	7	20.91	20.86	20.87		
5	16QAM	12	13	20.89	20.84	20.84		
5	16QAM	25	0	20.88	20.84	20.85		
5	64QAM	1	0	21.07	21.04	21.04	21.5	2
5	64QAM	1	12	21.01	21.01	21.02		
5	64QAM	1	24	21.00	20.98	20.98		
5	64QAM	12	0	19.94	19.91	19.92	20.5	3
5	64QAM	12	7	19.95	19.90	19.93		
5	64QAM	12	13	19.92	19.86	19.90		
5	64QAM	25	0	19.88	19.83	19.86		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.75	21.71	21.72	23.5	0
3	QPSK	1	8	21.73	21.67	21.68		
3	QPSK	1	14	21.73	21.68	21.68		
3	QPSK	8	0	21.78	21.73	21.74	22.5	1
3	QPSK	8	4	21.82	21.73	21.74		
3	QPSK	8	7	21.76	21.72	21.71		
3	QPSK	15	0	21.77	21.71	21.72		
3	16QAM	1	0	22.11	22.05	22.04	22.5	1
3	16QAM	1	8	22.11	22.06	22.07		
3	16QAM	1	14	22.08	22.02	22.03		
3	16QAM	8	0	20.94	20.87	20.87	21.5	2
3	16QAM	8	4	20.95	20.89	20.90		
3	16QAM	8	7	20.92	20.88	20.89		
3	16QAM	15	0	20.88	20.84	20.82		
3	64QAM	1	0	21.05	21.00	20.99	21.5	2
3	64QAM	1	8	21.02	20.99	21.00		
3	64QAM	1	14	21.02	20.98	21.00		
3	64QAM	8	0	19.93	19.86	19.87	20.5	3
3	64QAM	8	4	19.95	19.88	19.90		
3	64QAM	8	7	19.90	19.85	19.87		
3	64QAM	15	0	19.91	19.82	19.83		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.69	21.62	21.61	23.5	0
1.4	QPSK	1	3	21.74	21.68	21.70		
1.4	QPSK	1	5	21.68	21.60	21.62		
1.4	QPSK	3	0	21.74	21.65	21.68		
1.4	QPSK	3	1	21.75	21.67	21.68		
1.4	QPSK	3	3	21.73	21.67	21.66		
1.4	QPSK	6	0	21.71	21.66	21.66	22.5	1
1.4	16QAM	1	0	22.02	21.95	21.97	22.5	1
1.4	16QAM	1	3	22.12	22.04	22.05		
1.4	16QAM	1	5	22.02	21.95	21.98		
1.4	16QAM	3	0	21.82	21.76	21.77		
1.4	16QAM	3	1	21.85	21.79	21.80		
1.4	16QAM	3	3	21.79	21.75	21.76		
1.4	16QAM	6	0	20.87	20.82	20.82	21.5	2
1.4	64QAM	1	0	20.95	20.90	20.90	21.5	2
1.4	64QAM	1	3	21.00	20.98	20.97		
1.4	64QAM	1	5	20.95	20.91	20.90		
1.4	64QAM	3	0	20.93	20.87	20.88		
1.4	64QAM	3	1	20.99	20.91	20.92		
1.4	64QAM	3	3	20.93	20.89	20.88		
1.4	64QAM	6	0	19.82	19.75	19.74	20.5	3

<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	17.34	17.31	17.30	19	0
20	QPSK	1	49	17.30	17.27	17.13		
20	QPSK	1	99	17.24	17.23	17.21		
20	QPSK	50	0	17.30	17.28	17.23	19	0
20	QPSK	50	24	17.24	17.24	17.19		
20	QPSK	50	50	17.21	17.28	17.16		
20	QPSK	100	0	17.31	17.28	17.18		
20	16QAM	1	0	17.45	17.43	17.29	19	0
20	16QAM	1	49	17.51	17.50	17.39		
20	16QAM	1	99	17.58	17.52	17.52		
20	16QAM	50	0	17.28	17.23	17.22	19	0
20	16QAM	50	24	17.37	17.42	17.27		
20	16QAM	50	50	17.43	17.45	17.32		
20	16QAM	100	0	17.31	17.34	17.23		
20	64QAM	1	0	17.41	17.39	17.19	19	0
20	64QAM	1	49	17.55	17.51	17.35		
20	64QAM	1	99	17.56	17.56	17.41		
20	64QAM	50	0	17.37	17.27	17.22	19	0
20	64QAM	50	24	17.37	17.44	17.26		
20	64QAM	50	50	17.45	17.52	17.35		
20	64QAM	100	0	17.34	17.42	17.23		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	17.22	17.19	17.11	19	0
15	QPSK	1	37	17.28	17.28	17.19		
15	QPSK	1	74	17.33	17.30	17.24		
15	QPSK	36	0	17.22	17.20	17.20	19	0
15	QPSK	36	20	17.37	17.33	17.23		
15	QPSK	36	39	17.30	17.37	17.28		
15	QPSK	75	0	17.31	17.31	17.21		
15	16QAM	1	0	17.55	17.48	17.32	19	0
15	16QAM	1	37	17.57	17.53	17.44		
15	16QAM	1	74	17.55	17.52	17.52		
15	16QAM	36	0	17.27	17.30	17.23	19	0
15	16QAM	36	20	17.41	17.41	17.28		
15	16QAM	36	39	17.35	17.46	17.35		
15	16QAM	75	0	17.38	17.34	17.24		
15	64QAM	1	0	17.46	17.44	17.31	19	0
15	64QAM	1	37	17.55	17.55	17.40		
15	64QAM	1	74	17.54	17.55	17.43		
15	64QAM	36	0	17.32	17.33	17.29	19	0
15	64QAM	36	20	17.46	17.45	17.32		
15	64QAM	36	39	17.39	17.50	17.39		
15	64QAM	75	0	17.39	17.40	17.27		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	17.23	17.22	17.07	19	0
10	QPSK	1	25	17.23	17.27	17.11		
10	QPSK	1	49	17.29	17.25	17.15		
10	QPSK	25	0	17.18	17.22	17.13	19	0
10	QPSK	25	12	17.29	17.36	17.25		
10	QPSK	25	25	17.31	17.34	17.16		
10	QPSK	50	0	17.28	17.27	17.22		
10	16QAM	1	0	17.53	17.46	17.36	19	0
10	16QAM	1	25	17.57	17.54	17.39		
10	16QAM	1	49	17.52	17.51	17.45		
10	16QAM	25	0	17.30	17.30	17.19	19	0
10	16QAM	25	12	17.34	17.39	17.30		
10	16QAM	25	25	17.41	17.42	17.23		
10	16QAM	50	0	17.37	17.35	17.24		
10	64QAM	1	0	17.44	17.43	17.26	19	0
10	64QAM	1	25	17.48	17.47	17.31		
10	64QAM	1	49	17.48	17.47	17.39		
10	64QAM	25	0	17.24	17.28	17.20	19	0
10	64QAM	25	12	17.38	17.43	17.28		
10	64QAM	25	25	17.31	17.50	17.36		
10	64QAM	50	0	17.31	17.34	17.27		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	17.23	17.20	17.05	19	0
5	QPSK	1	12	17.28	17.26	17.11		
5	QPSK	1	24	17.22	17.31	17.18		
5	QPSK	12	0	17.30	17.28	17.08	19	0
5	QPSK	12	7	17.34	17.31	17.15		
5	QPSK	12	13	17.26	17.34	17.17		
5	QPSK	25	0	17.25	17.31	17.13		
5	16QAM	1	0	17.56	17.47	17.36	19	0
5	16QAM	1	12	17.50	17.51	17.38		
5	16QAM	1	24	17.56	17.56	17.39		
5	16QAM	12	0	17.35	17.30	17.17	19	0
5	16QAM	12	7	17.46	17.37	17.20		
5	16QAM	12	13	17.37	17.40	17.24		
5	16QAM	25	0	17.30	17.33	17.17		
5	64QAM	1	0	17.46	17.44	17.25	19	0
5	64QAM	1	12	17.56	17.48	17.32		
5	64QAM	1	24	17.50	17.52	17.32		
5	64QAM	12	0	17.41	17.38	17.17	19	0
5	64QAM	12	7	17.51	17.43	17.28		
5	64QAM	12	13	17.44	17.43	17.28		
5	64QAM	25	0	17.31	17.39	17.18		

<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	15.38	15.48	15.25	17	0
20	QPSK	1	49	15.17	15.32	15.07		
20	QPSK	1	99	15.24	15.27	15.05		
20	QPSK	50	0	15.32	15.49	15.33	17	0
20	QPSK	50	24	15.31	15.42	15.15		
20	QPSK	50	50	15.30	15.32	15.12		
20	QPSK	100	0	15.36	15.45	15.15		
20	16QAM	1	0	15.10	15.70	15.69	17	0
20	16QAM	1	49	15.58	15.74	15.47		
20	16QAM	1	99	15.64	15.44	15.48		
20	16QAM	50	0	15.34	15.62	15.34	17	0
20	16QAM	50	24	15.48	15.51	15.28		
20	16QAM	50	50	15.41	15.46	15.22		
20	16QAM	100	0	15.47	15.55	15.27		
20	64QAM	1	0	15.10	15.67	15.10	17	0
20	64QAM	1	49	15.00	15.59	15.37		
20	64QAM	1	99	15.55	15.11	15.39		
20	64QAM	50	0	15.10	15.61	15.36	17	0
20	64QAM	50	24	15.01	15.53	15.29		
20	64QAM	50	50	15.41	14.86	15.24		
20	64QAM	100	0	15.11	15.46	15.29		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	15.28	15.36	15.18	17	0
15	QPSK	1	37	15.08	15.23	15.12		
15	QPSK	1	74	15.21	15.25	15.02		
15	QPSK	36	0	15.21	15.39	15.12	17	0
15	QPSK	36	20	15.19	15.34	15.06		
15	QPSK	36	39	15.25	15.26	15.02		
15	QPSK	75	0	15.26	15.33	15.06		
15	16QAM	1	0	15.04	15.68	15.61	17	0
15	16QAM	1	37	15.28	15.67	15.41		
15	16QAM	1	74	15.64	15.62	15.40		
15	16QAM	36	0	15.05	15.52	15.22	17	0
15	16QAM	36	20	15.29	15.46	15.20		
15	16QAM	36	39	15.37	15.40	15.16		
15	16QAM	75	0	15.39	15.47	15.20		
15	64QAM	1	0	15.22	15.65	15.33	17	0
15	64QAM	1	37	15.12	15.39	15.30		
15	64QAM	1	74	15.28	15.00	15.30		
15	64QAM	36	0	15.20	15.52	15.28	17	0
15	64QAM	36	20	15.11	15.33	15.21		
15	64QAM	36	39	15.12	14.81	15.19		
15	64QAM	75	0	15.05	15.27	15.17		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	15.19	15.32	15.04	17	0
10	QPSK	1	25	15.08	15.21	15.11		
10	QPSK	1	49	15.10	15.18	15.12		
10	QPSK	25	0	15.15	15.32	15.03	17	0
10	QPSK	25	12	15.16	15.27	15.03		
10	QPSK	25	25	15.13	15.25	15.05		
10	QPSK	50	0	15.14	15.29	15.01		
10	16QAM	1	0	15.19	15.73	15.47	17	0
10	16QAM	1	25	15.36	15.63	15.38		
10	16QAM	1	49	15.49	15.59	15.38		
10	16QAM	25	0	15.04	15.45	15.16	17	0
10	16QAM	25	12	15.10	15.41	15.14		
10	16QAM	25	25	15.09	15.38	15.12		
10	16QAM	50	0	15.06	15.41	15.16		
10	64QAM	1	0	15.11	15.63	15.37	17	0
10	64QAM	1	25	15.09	15.40	15.29		
10	64QAM	1	49	15.05	15.05	15.25		
10	64QAM	25	0	15.06	15.43	15.19	17	0
10	64QAM	25	12	15.05	15.33	15.16		
10	64QAM	25	25	15.03	15.01	15.13		
10	64QAM	50	0	15.02	15.32	15.14		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	15.13	15.25	15.00	17	0
5	QPSK	1	12	15.07	15.22	15.11		
5	QPSK	1	24	15.11	15.22	15.11		
5	QPSK	12	0	15.15	15.30	15.02	17	0
5	QPSK	12	7	15.14	15.27	15.03		
5	QPSK	12	13	15.14	15.23	15.01		
5	QPSK	25	0	15.11	15.26	15.12		
5	16QAM	1	0	15.47	15.68	15.42	17	0
5	16QAM	1	12	15.24	15.65	15.37		
5	16QAM	1	24	15.51	15.61	15.36		
5	16QAM	12	0	15.09	15.42	15.17	17	0
5	16QAM	12	7	15.08	15.41	15.18		
5	16QAM	12	13	15.20	15.39	15.12		
5	16QAM	25	0	15.13	15.38	15.12		
5	64QAM	1	0	15.10	15.61	15.34	17	0
5	64QAM	1	12	15.05	15.47	15.27		
5	64QAM	1	24	15.11	15.51	15.28		
5	64QAM	12	0	15.12	15.44	15.17	17	0
5	64QAM	12	7	15.11	15.40	15.19		
5	64QAM	12	13	15.12	15.36	15.18		
5	64QAM	25	0	15.02	15.36	15.11		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	15.09	15.21	15.05	17	0
3	QPSK	1	8	15.07	15.17	15.12		
3	QPSK	1	14	15.05	15.19	15.15		
3	QPSK	8	0	15.14	15.25	15.11	17	0
3	QPSK	8	4	15.15	15.28	15.00		
3	QPSK	8	7	15.08	15.23	15.15		
3	QPSK	15	0	15.08	15.21	15.10		
3	16QAM	1	0	15.25	15.63	15.36	17	0
3	16QAM	1	8	15.16	15.60	15.37		
3	16QAM	1	14	15.37	15.56	15.33		
3	16QAM	8	0	15.00	15.43	15.18	17	0
3	16QAM	8	4	15.03	15.42	15.20		
3	16QAM	8	7	15.06	15.41	15.18		
3	16QAM	15	0	15.02	15.36	15.09		
3	64QAM	1	0	15.11	15.43	15.27	17	0
3	64QAM	1	8	15.02	15.49	15.26		
3	64QAM	1	14	15.20	15.47	15.23		
3	64QAM	8	0	15.11	15.41	15.18	17	0
3	64QAM	8	4	15.10	15.41	15.19		
3	64QAM	8	7	15.12	15.35	15.16		
3	64QAM	15	0	15.11	15.36	15.10		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	15.10	15.11	15.12	17	0
1.4	QPSK	1	3	15.03	15.23	15.11		
1.4	QPSK	1	5	15.12	15.11	15.05		
1.4	QPSK	3	0	15.02	15.14	15.09		
1.4	QPSK	3	1	15.04	15.18	15.11		
1.4	QPSK	3	3	15.02	15.19	15.15		
1.4	QPSK	6	0	15.02	15.15	15.10	17	0
1.4	16QAM	1	0	15.05	15.52	15.28	17	0
1.4	16QAM	1	3	15.12	15.57	15.34		
1.4	16QAM	1	5	15.07	15.51	15.24		
1.4	16QAM	3	0	15.31	15.31	15.07		
1.4	16QAM	3	1	15.37	15.34	15.10		
1.4	16QAM	3	3	15.32	15.28	15.03		
1.4	16QAM	6	0	15.38	15.34	15.10	17	0
1.4	64QAM	1	0	15.02	15.45	15.20	17	0
1.4	64QAM	1	3	15.05	15.52	15.26		
1.4	64QAM	1	5	15.06	15.42	15.18		
1.4	64QAM	3	0	15.06	15.43	15.17		
1.4	64QAM	3	1	15.03	15.46	15.20		
1.4	64QAM	3	3	15.06	15.39	15.16		
1.4	64QAM	6	0	15.03	15.29	15.03	17	0

<Hotspot Power Mode>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	15.03	14.83	14.81	16	0
20	QPSK	1	49	14.52	14.53	14.53		
20	QPSK	1	99	14.60	14.64	14.52		
20	QPSK	50	0	14.71	14.66	14.68	16	0
20	QPSK	50	24	14.53	14.56	14.55		
20	QPSK	50	50	14.50	14.56	14.52		
20	QPSK	100	0	14.68	14.55	14.53		
20	16QAM	1	0	14.93	14.87	14.95	16	0
20	16QAM	1	49	14.78	14.79	14.78		
20	16QAM	1	99	14.94	14.94	14.93		
20	16QAM	50	0	14.62	14.60	14.61	16	0
20	16QAM	50	24	14.58	14.56	14.56		
20	16QAM	50	50	14.64	14.56	14.53		
20	16QAM	100	0	14.69	14.59	14.57		
20	64QAM	1	0	15.02	14.77	14.78	16	0
20	64QAM	1	49	14.66	14.71	14.71		
20	64QAM	1	99	14.98	14.95	14.86		
20	64QAM	50	0	14.63	14.61	14.64	16	0
20	64QAM	50	24	14.56	14.57	14.57		
20	64QAM	50	50	14.65	14.55	14.55		
20	64QAM	100	0	14.74	14.59	14.59		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	15.00	14.98	15.02	16	0
15	QPSK	1	37	14.85	14.86	14.98		
15	QPSK	1	74	14.85	14.89	15.02		
15	QPSK	36	0	14.96	14.96	14.97	16	0
15	QPSK	36	20	14.93	14.95	14.92		
15	QPSK	36	39	14.90	14.92	15.02		
15	QPSK	75	0	14.91	14.91	14.91		
15	16QAM	1	0	14.95	14.94	14.95	16	0
15	16QAM	1	37	14.78	14.78	14.88		
15	16QAM	1	74	14.79	14.86	14.99		
15	16QAM	36	0	14.62	14.61	14.62	16	0
15	16QAM	36	20	14.60	14.61	14.59		
15	16QAM	36	39	14.57	14.56	14.66		
15	16QAM	75	0	14.57	14.58	14.55		
15	64QAM	1	0	14.85	14.83	14.87	16	0
15	64QAM	1	37	14.65	14.68	14.81		
15	64QAM	1	74	14.69	14.74	14.86		
15	64QAM	36	0	14.65	14.63	14.65	16	0
15	64QAM	36	20	14.63	14.59	14.62		
15	64QAM	36	39	14.57	14.61	14.70		
15	64QAM	75	0	14.57	14.56	14.58		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	14.96	14.56	14.50	16	0
10	QPSK	1	25	14.82	14.81	14.95		
10	QPSK	1	49	15.02	14.60	14.96		
10	QPSK	25	0	14.90	14.92	14.93	16	0
10	QPSK	25	12	14.88	14.89	14.99		
10	QPSK	25	25	14.86	14.89	14.97		
10	QPSK	50	0	14.88	14.89	14.91		
10	16QAM	1	0	14.81	14.79	14.85	16	0
10	16QAM	1	25	14.77	14.77	14.91		
10	16QAM	1	49	14.98	15.01	14.92		
10	16QAM	25	0	14.57	14.58	14.55	16	0
10	16QAM	25	12	14.54	14.56	14.66		
10	16QAM	25	25	14.52	14.56	14.63		
10	16QAM	50	0	14.55	14.55	14.54		
10	64QAM	1	0	14.95	14.93	14.76	16	0
10	64QAM	1	25	14.68	14.69	14.79		
10	64QAM	1	49	14.90	14.91	14.83		
10	64QAM	25	0	14.57	14.56	14.57	16	0
10	64QAM	25	12	14.55	14.56	14.68		
10	64QAM	25	25	14.52	14.55	14.65		
10	64QAM	50	0	14.55	14.56	14.56		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	14.87	14.87	14.96	16	0
5	QPSK	1	12	14.81	14.84	14.92		
5	QPSK	1	24	14.83	14.86	14.96		
5	QPSK	12	0	14.90	14.89	14.99	16	0
5	QPSK	12	7	14.87	14.88	15.00		
5	QPSK	12	13	14.84	14.87	14.96		
5	QPSK	25	0	14.84	14.86	14.94		
5	16QAM	1	0	14.81	14.83	14.91	16	0
5	16QAM	1	12	14.76	14.75	14.87		
5	16QAM	1	24	14.76	14.80	14.90		
5	16QAM	12	0	14.57	14.56	14.64	16	0
5	16QAM	12	7	14.51	14.55	14.67		
5	16QAM	12	13	14.52	14.54	14.64		
5	16QAM	25	0	14.50	14.50	14.61		
5	64QAM	1	0	14.73	14.76	14.86	16	0
5	64QAM	1	12	14.64	14.68	14.82		
5	64QAM	1	24	14.66	14.69	14.78		
5	64QAM	12	0	14.57	14.59	14.71	16	0
5	64QAM	12	7	14.56	14.57	14.72		
5	64QAM	12	13	14.56	14.57	14.68		
5	64QAM	25	0	14.56	14.50	14.65		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	14.82	14.83	14.93	16	0
3	QPSK	1	8	14.80	14.81	14.91		
3	QPSK	1	14	14.78	14.83	14.91		
3	QPSK	8	0	14.86	14.87	14.96	16	0
3	QPSK	8	4	14.86	14.88	14.96		
3	QPSK	8	7	14.85	14.84	14.95		
3	QPSK	15	0	14.83	14.85	14.92		
3	16QAM	1	0	14.76	14.79	14.87	16	0
3	16QAM	1	8	14.73	14.77	14.79		
3	16QAM	1	14	14.73	14.75	14.83		
3	16QAM	8	0	14.57	14.58	14.64	16	0
3	16QAM	8	4	14.58	14.60	14.69		
3	16QAM	8	7	14.55	14.58	14.64		
3	16QAM	15	0	14.51	14.50	14.60		
3	64QAM	1	0	14.67	14.68	14.79	16	0
3	64QAM	1	8	14.66	14.67	14.79		
3	64QAM	1	14	14.64	14.68	14.76		
3	64QAM	8	0	14.56	14.60	14.66	16	0
3	64QAM	8	4	14.58	14.61	14.71		
3	64QAM	8	7	14.55	14.57	14.68		
3	64QAM	15	0	14.52	14.50	14.62		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	14.72	14.76	14.84	16	0
1.4	QPSK	1	3	14.80	14.82	14.90		
1.4	QPSK	1	5	14.76	14.74	14.83		
1.4	QPSK	3	0	14.76	14.77	14.87		
1.4	QPSK	3	1	14.82	14.83	14.89		
1.4	QPSK	3	3	14.76	14.78	14.87		
1.4	QPSK	6	0	14.73	14.77	14.84	16	0
1.4	16QAM	1	0	14.68	14.67	14.73	16	0
1.4	16QAM	1	3	14.76	14.76	14.83		
1.4	16QAM	1	5	14.66	14.68	14.75		
1.4	16QAM	3	0	14.56	14.52	14.53		
1.4	16QAM	3	1	14.60	14.51	14.57		
1.4	16QAM	3	3	14.52	14.55	14.52		
1.4	16QAM	6	0	14.53	14.56	14.56	16	0
1.4	64QAM	1	0	14.59	14.59	14.70	16	0
1.4	64QAM	1	3	14.63	14.65	14.77		
1.4	64QAM	1	5	14.58	14.60	14.70		
1.4	64QAM	3	0	14.55	14.58	14.67		
1.4	64QAM	3	1	14.61	14.65	14.70		
1.4	64QAM	3	3	14.53	14.60	14.69		
1.4	64QAM	6	0	14.63	14.65	14.51	16	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	15.45	15.50	15.32	16.5	0
20	QPSK	1	49	15.00	15.14	15.19		
20	QPSK	1	99	15.10	15.01	15.23		
20	QPSK	50	0	15.10	15.28	15.23	16.5	0
20	QPSK	50	24	15.00	15.11	15.16		
20	QPSK	50	50	15.09	15.05	15.21		
20	QPSK	100	0	15.07	15.25	15.21		
20	16QAM	1	0	15.40	15.10	15.39	16.5	0
20	16QAM	1	49	15.27	15.40	15.39		
20	16QAM	1	99	15.45	15.41	15.36		
20	16QAM	50	0	15.23	15.25	15.29	16.5	0
20	16QAM	50	24	15.14	15.22	15.28		
20	16QAM	50	50	15.20	15.19	15.35		
20	16QAM	100	0	15.14	15.22	15.31		
20	64QAM	1	0	15.42	15.34	15.44	16.5	0
20	64QAM	1	49	15.24	15.40	15.37		
20	64QAM	1	99	15.20	15.29	15.05		
20	64QAM	50	0	15.25	15.40	15.31	16.5	0
20	64QAM	50	24	15.16	15.22	15.28		
20	64QAM	50	50	15.23	15.16	15.01		
20	64QAM	100	0	15.18	15.24	15.31		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	15.33	15.16	15.29	16.5	0
15	QPSK	1	37	15.15	15.01	15.17		
15	QPSK	1	74	15.08	15.05	15.29		
15	QPSK	36	0	15.29	15.11	15.23	16.5	0
15	QPSK	36	20	15.14	15.04	15.15		
15	QPSK	36	39	15.11	15.11	15.24		
15	QPSK	75	0	15.13	15.02	15.17		
15	16QAM	1	0	15.02	15.47	15.45	16.5	0
15	16QAM	1	37	15.27	15.25	15.48		
15	16QAM	1	74	15.41	15.42	15.43		
15	16QAM	36	0	15.03	15.21	15.35	16.5	0
15	16QAM	36	20	15.27	15.10	15.32		
15	16QAM	36	39	15.22	15.09	15.33		
15	16QAM	75	0	15.24	15.16	15.30		
15	64QAM	1	0	15.20	15.41	15.48	16.5	0
15	64QAM	1	37	15.11	15.23	15.10		
15	64QAM	1	74	15.29	15.36	15.12		
15	64QAM	36	0	15.12	15.27	15.37	16.5	0
15	64QAM	36	20	15.05	15.20	15.04		
15	64QAM	36	39	15.20	15.11	15.05		
15	64QAM	75	0	15.15	15.17	15.11		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	15.25	15.04	15.17	16.5	0
10	QPSK	1	25	15.16	15.01	15.16		
10	QPSK	1	49	15.14	15.01	15.26		
10	QPSK	25	0	15.25	15.07	15.16	16.5	0
10	QPSK	25	12	15.22	15.11	15.21		
10	QPSK	25	25	15.19	15.05	15.20		
10	QPSK	50	0	15.23	15.01	15.26		
10	16QAM	1	0	15.14	15.40	15.49	16.5	0
10	16QAM	1	25	15.34	15.27	15.39		
10	16QAM	1	49	15.38	15.40	15.47		
10	16QAM	25	0	15.02	15.15	15.28	16.5	0
10	16QAM	25	12	15.10	15.09	15.33		
10	16QAM	25	25	15.10	15.05	15.30		
10	16QAM	50	0	15.06	15.11	15.37		
10	64QAM	1	0	15.11	15.39	15.38	16.5	0
10	64QAM	1	25	15.22	15.24	15.02		
10	64QAM	1	49	15.21	15.34	15.22		
10	64QAM	25	0	15.09	15.17	15.06	16.5	0
10	64QAM	25	12	15.12	15.13	15.11		
10	64QAM	25	25	15.11	15.11	15.12		
10	64QAM	50	0	15.05	15.14	15.12		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	15.22	15.01	15.20	16.5	0
5	QPSK	1	12	15.17	15.02	15.22		
5	QPSK	1	24	15.16	15.04	15.22		
5	QPSK	12	0	15.24	15.00	15.22	16.5	0
5	QPSK	12	7	15.22	15.00	15.20		
5	QPSK	12	13	15.19	15.02	15.28		
5	QPSK	25	0	15.19	15.00	15.18		
5	16QAM	1	0	15.45	15.33	15.38	16.5	0
5	16QAM	1	12	15.23	15.24	15.42		
5	16QAM	1	24	15.47	15.33	15.43		
5	16QAM	12	0	15.07	15.09	15.31	16.5	0
5	16QAM	12	7	15.08	15.08	15.33		
5	16QAM	12	13	15.21	15.06	15.41		
5	16QAM	25	0	15.13	15.10	15.30		
5	64QAM	1	0	15.11	15.31	15.40	16.5	0
5	64QAM	1	12	15.10	15.23	15.02		
5	64QAM	1	24	15.05	15.32	15.10		
5	64QAM	12	0	15.02	15.16	15.04	16.5	0
5	64QAM	12	7	15.03	15.16	15.11		
5	64QAM	12	13	15.03	15.13	15.12		
5	64QAM	25	0	15.05	15.09	15.12		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	15.16	15.11	15.22	16.5	0
3	QPSK	1	8	15.15	15.12	15.22		
3	QPSK	1	14	15.12	15.10	15.18		
3	QPSK	8	0	15.17	15.02	15.25	16.5	0
3	QPSK	8	4	15.19	15.00	15.18		
3	QPSK	8	7	15.20	15.11	15.23		
3	QPSK	15	0	15.17	15.01	15.26		
3	16QAM	1	0	15.25	15.27	15.44	16.5	0
3	16QAM	1	8	15.19	15.26	15.34		
3	16QAM	1	14	15.38	15.21	15.40		
3	16QAM	8	0	15.01	15.08	15.42	16.5	0
3	16QAM	8	4	15.04	15.10	15.47		
3	16QAM	8	7	15.07	15.05	15.45		
3	16QAM	15	0	15.01	15.07	15.38		
3	64QAM	1	0	15.06	15.23	15.13	16.5	0
3	64QAM	1	8	15.05	15.21	15.02		
3	64QAM	1	14	15.11	15.19	15.00		
3	64QAM	8	0	15.02	15.11	15.01	16.5	0
3	64QAM	8	4	15.11	15.15	15.06		
3	64QAM	8	7	15.12	15.11	15.11		
3	64QAM	15	0	15.11	15.09	15.05		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	15.06	15.02	15.12	16.5	0
1.4	QPSK	1	3	15.14	15.03	15.20		
1.4	QPSK	1	5	15.06	15.12	15.12		
1.4	QPSK	3	0	15.10	15.12	15.16		
1.4	QPSK	3	1	15.13	15.11	15.21		
1.4	QPSK	3	3	15.12	15.02	15.17		
1.4	QPSK	6	0	15.11	15.11	15.17	16.5	0
1.4	16QAM	1	0	15.04	15.16	15.43	16.5	0
1.4	16QAM	1	3	15.14	15.24	15.41		
1.4	16QAM	1	5	15.10	15.14	15.32		
1.4	16QAM	3	0	15.03	15.02	15.34		
1.4	16QAM	3	1	15.03	15.01	15.34		
1.4	16QAM	3	3	15.05	15.02	15.31		
1.4	16QAM	6	0	15.08	15.04	15.38	16.5	0
1.4	64QAM	1	0	15.11	15.14	15.06	16.5	0
1.4	64QAM	1	3	15.12	15.21	15.03		
1.4	64QAM	1	5	15.05	15.12	15.05		
1.4	64QAM	3	0	15.04	15.16	15.09		
1.4	64QAM	3	1	15.03	15.17	15.11		
1.4	64QAM	3	3	15.11	15.15	15.05		
1.4	64QAM	6	0	15.02	15.02	15.02	16.5	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	21.78	21.80	21.68	23.5	0
10	QPSK	1	25	21.71	21.70	21.75		
10	QPSK	1	49	21.76	21.66	21.70		
10	QPSK	25	0	21.78	21.79	21.70	22.5	1
10	QPSK	25	12	21.77	21.78	21.68		
10	QPSK	25	25	21.64	21.69	21.65		
10	QPSK	50	0	21.84	21.74	21.71		
10	16QAM	1	0	22.03	22.14	22.03	22.5	1
10	16QAM	1	25	22.08	22.05	22.10		
10	16QAM	1	49	22.05	22.02	22.09		
10	16QAM	25	0	20.86	20.87	20.81	21.5	2
10	16QAM	25	12	20.96	20.86	20.89		
10	16QAM	25	25	20.92	20.82	20.86		
10	16QAM	50	0	20.97	20.85	20.80		
10	64QAM	1	0	21.05	21.05	20.96	21.5	2
10	64QAM	1	25	20.98	20.98	21.01		
10	64QAM	1	49	21.05	20.94	20.99		
10	64QAM	25	0	19.87	19.88	19.80	20.5	3
10	64QAM	25	12	19.99	19.87	19.92		
10	64QAM	25	25	19.94	19.81	19.86		
10	64QAM	50	0	19.94	19.85	19.80		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.77	21.72	21.74	23.5	0
5	QPSK	1	12	21.75	21.70	21.70		
5	QPSK	1	24	21.71	21.70	21.72		
5	QPSK	12	0	21.77	21.74	21.77	22.5	1
5	QPSK	12	7	21.81	21.74	21.77		
5	QPSK	12	13	21.76	21.73	21.76		
5	QPSK	25	0	21.77	21.73	21.74		
5	16QAM	1	0	22.12	22.13	22.09	22.5	1
5	16QAM	1	12	22.10	22.05	22.09		
5	16QAM	1	24	22.12	22.03	22.08		
5	16QAM	12	0	20.89	20.86	20.86	21.5	2
5	16QAM	12	7	20.91	20.86	20.87		
5	16QAM	12	13	20.89	20.84	20.84		
5	16QAM	25	0	20.88	20.84	20.85		
5	64QAM	1	0	21.07	21.04	21.04	21.5	2
5	64QAM	1	12	21.01	21.01	21.02		
5	64QAM	1	24	21.00	20.98	20.98		
5	64QAM	12	0	19.94	19.91	19.92	20.5	3
5	64QAM	12	7	19.95	19.90	19.93		
5	64QAM	12	13	19.92	19.86	19.90		
5	64QAM	25	0	19.88	19.83	19.86		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.75	21.71	21.72	23.5	0
3	QPSK	1	8	21.73	21.67	21.68		
3	QPSK	1	14	21.73	21.68	21.68		
3	QPSK	8	0	21.78	21.73	21.74	22.5	1
3	QPSK	8	4	21.82	21.73	21.74		
3	QPSK	8	7	21.76	21.72	21.71		
3	QPSK	15	0	21.77	21.71	21.72		
3	16QAM	1	0	22.11	22.05	22.04	22.5	1
3	16QAM	1	8	22.11	22.06	22.07		
3	16QAM	1	14	22.08	22.02	22.03		
3	16QAM	8	0	20.94	20.87	20.87	21.5	2
3	16QAM	8	4	20.95	20.89	20.90		
3	16QAM	8	7	20.92	20.88	20.89		
3	16QAM	15	0	20.88	20.84	20.82		
3	64QAM	1	0	21.05	21.00	20.99	21.5	2
3	64QAM	1	8	21.02	20.99	21.00		
3	64QAM	1	14	21.02	20.98	21.00		
3	64QAM	8	0	19.93	19.86	19.87	20.5	3
3	64QAM	8	4	19.95	19.88	19.90		
3	64QAM	8	7	19.90	19.85	19.87		
3	64QAM	15	0	19.91	19.82	19.83		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.69	21.62	21.61	23.5	0
1.4	QPSK	1	3	21.74	21.68	21.70		
1.4	QPSK	1	5	21.68	21.60	21.62		
1.4	QPSK	3	0	21.74	21.65	21.68		
1.4	QPSK	3	1	21.75	21.67	21.68		
1.4	QPSK	3	3	21.73	21.67	21.66		
1.4	QPSK	6	0	21.71	21.66	21.66	22.5	1
1.4	16QAM	1	0	22.02	21.95	21.97	22.5	1
1.4	16QAM	1	3	22.12	22.04	22.05		
1.4	16QAM	1	5	22.02	21.95	21.98		
1.4	16QAM	3	0	21.82	21.76	21.77		
1.4	16QAM	3	1	21.85	21.79	21.80		
1.4	16QAM	3	3	21.79	21.75	21.76		
1.4	16QAM	6	0	20.87	20.82	20.82	21.5	2
1.4	64QAM	1	0	20.95	20.90	20.90	21.5	2
1.4	64QAM	1	3	21.00	20.98	20.97		
1.4	64QAM	1	5	20.95	20.91	20.90		
1.4	64QAM	3	0	20.93	20.87	20.88		
1.4	64QAM	3	1	20.99	20.91	20.92		
1.4	64QAM	3	3	20.93	20.89	20.88		
1.4	64QAM	6	0	19.82	19.75	19.74	20.5	3

<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	17.34	17.31	17.30	19	0
20	QPSK	1	49	17.30	17.27	17.13		
20	QPSK	1	99	17.24	17.23	17.21		
20	QPSK	50	0	17.30	17.28	17.23	19	0
20	QPSK	50	24	17.24	17.24	17.19		
20	QPSK	50	50	17.21	17.28	17.16		
20	QPSK	100	0	17.31	17.28	17.18		
20	16QAM	1	0	17.45	17.43	17.29	19	0
20	16QAM	1	49	17.51	17.50	17.39		
20	16QAM	1	99	17.58	17.52	17.52		
20	16QAM	50	0	17.28	17.23	17.22	19	0
20	16QAM	50	24	17.37	17.42	17.27		
20	16QAM	50	50	17.43	17.45	17.32		
20	16QAM	100	0	17.31	17.34	17.23		
20	64QAM	1	0	17.41	17.39	17.19	19	0
20	64QAM	1	49	17.55	17.51	17.35		
20	64QAM	1	99	17.56	17.56	17.41		
20	64QAM	50	0	17.37	17.27	17.22	19	0
20	64QAM	50	24	17.37	17.44	17.26		
20	64QAM	50	50	17.45	17.52	17.35		
20	64QAM	100	0	17.34	17.42	17.23		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	17.22	17.19	17.11	19	0
15	QPSK	1	37	17.28	17.28	17.19		
15	QPSK	1	74	17.33	17.30	17.24		
15	QPSK	36	0	17.22	17.20	17.20	19	0
15	QPSK	36	20	17.37	17.33	17.23		
15	QPSK	36	39	17.30	17.37	17.28		
15	QPSK	75	0	17.31	17.31	17.21		
15	16QAM	1	0	17.55	17.48	17.32	19	0
15	16QAM	1	37	17.57	17.53	17.44		
15	16QAM	1	74	17.55	17.52	17.52		
15	16QAM	36	0	17.27	17.30	17.23	19	0
15	16QAM	36	20	17.41	17.41	17.28		
15	16QAM	36	39	17.35	17.46	17.35		
15	16QAM	75	0	17.38	17.34	17.24		
15	64QAM	1	0	17.46	17.44	17.31	19	0
15	64QAM	1	37	17.55	17.55	17.40		
15	64QAM	1	74	17.54	17.55	17.43		
15	64QAM	36	0	17.32	17.33	17.29	19	0
15	64QAM	36	20	17.46	17.45	17.32		
15	64QAM	36	39	17.39	17.50	17.39		
15	64QAM	75	0	17.39	17.40	17.27		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	17.23	17.22	17.07	19	0
10	QPSK	1	25	17.23	17.27	17.11		
10	QPSK	1	49	17.29	17.25	17.15		
10	QPSK	25	0	17.18	17.22	17.13	19	0
10	QPSK	25	12	17.29	17.36	17.25		
10	QPSK	25	25	17.31	17.34	17.16		
10	QPSK	50	0	17.28	17.27	17.22		
10	16QAM	1	0	17.53	17.46	17.36	19	0
10	16QAM	1	25	17.57	17.54	17.39		
10	16QAM	1	49	17.52	17.51	17.45		
10	16QAM	25	0	17.30	17.30	17.19	19	0
10	16QAM	25	12	17.34	17.39	17.30		
10	16QAM	25	25	17.41	17.42	17.23		
10	16QAM	50	0	17.37	17.35	17.24		
10	64QAM	1	0	17.44	17.43	17.26	19	0
10	64QAM	1	25	17.48	17.47	17.31		
10	64QAM	1	49	17.48	17.47	17.39		
10	64QAM	25	0	17.24	17.28	17.20	19	0
10	64QAM	25	12	17.38	17.43	17.28		
10	64QAM	25	25	17.31	17.50	17.36		
10	64QAM	50	0	17.31	17.34	17.27		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	17.23	17.20	17.05	19	0
5	QPSK	1	12	17.28	17.26	17.11		
5	QPSK	1	24	17.22	17.31	17.18		
5	QPSK	12	0	17.30	17.28	17.08	19	0
5	QPSK	12	7	17.34	17.31	17.15		
5	QPSK	12	13	17.26	17.34	17.17		
5	QPSK	25	0	17.25	17.31	17.13		
5	16QAM	1	0	17.56	17.47	17.36	19	0
5	16QAM	1	12	17.50	17.51	17.38		
5	16QAM	1	24	17.56	17.56	17.39		
5	16QAM	12	0	17.35	17.30	17.17	19	0
5	16QAM	12	7	17.46	17.37	17.20		
5	16QAM	12	13	17.37	17.40	17.24		
5	16QAM	25	0	17.30	17.33	17.17		
5	64QAM	1	0	17.46	17.44	17.25	19	0
5	64QAM	1	12	17.56	17.48	17.32		
5	64QAM	1	24	17.50	17.52	17.32		
5	64QAM	12	0	17.41	17.38	17.17	19	0
5	64QAM	12	7	17.51	17.43	17.28		
5	64QAM	12	13	17.44	17.43	17.28		
5	64QAM	25	0	17.31	17.39	17.18		

<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	15.38	15.48	15.25	16.5	0
20	QPSK	1	49	15.17	15.32	15.07		
20	QPSK	1	99	15.24	15.27	15.05		
20	QPSK	50	0	15.32	15.49	15.33	16.5	0
20	QPSK	50	24	15.31	15.42	15.15		
20	QPSK	50	50	15.30	15.32	15.12		
20	QPSK	100	0	15.36	15.45	15.15		
20	16QAM	1	0	15.10	15.70	15.69	16.5	0
20	16QAM	1	49	15.58	15.74	15.47		
20	16QAM	1	99	15.64	15.44	15.48		
20	16QAM	50	0	15.34	15.62	15.34	16.5	0
20	16QAM	50	24	15.48	15.51	15.28		
20	16QAM	50	50	15.41	15.46	15.22		
20	16QAM	100	0	15.47	15.55	15.27		
20	64QAM	1	0	15.10	15.67	15.10	16.5	0
20	64QAM	1	49	15.00	15.59	15.37		
20	64QAM	1	99	15.55	15.11	15.39		
20	64QAM	50	0	15.10	15.61	15.36	16.5	0
20	64QAM	50	24	15.01	15.53	15.29		
20	64QAM	50	50	15.41	14.86	15.24		
20	64QAM	100	0	15.11	15.46	15.29		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	15.28	15.36	15.18	16.5	0
15	QPSK	1	37	15.08	15.23	15.12		
15	QPSK	1	74	15.21	15.25	15.02		
15	QPSK	36	0	15.21	15.39	15.12	16.5	0
15	QPSK	36	20	15.19	15.34	15.06		
15	QPSK	36	39	15.25	15.26	15.02		
15	QPSK	75	0	15.26	15.33	15.06		
15	16QAM	1	0	15.04	15.68	15.61	16.5	0
15	16QAM	1	37	15.28	15.67	15.41		
15	16QAM	1	74	15.64	15.62	15.40		
15	16QAM	36	0	15.05	15.52	15.22	16.5	0
15	16QAM	36	20	15.29	15.46	15.20		
15	16QAM	36	39	15.37	15.40	15.16		
15	16QAM	75	0	15.39	15.47	15.20		
15	64QAM	1	0	15.22	15.65	15.33	16.5	0
15	64QAM	1	37	15.12	15.39	15.30		
15	64QAM	1	74	15.28	15.00	15.30		
15	64QAM	36	0	15.20	15.52	15.28	16.5	0
15	64QAM	36	20	15.11	15.33	15.21		
15	64QAM	36	39	15.12	14.81	15.19		
15	64QAM	75	0	15.05	15.27	15.17		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	15.19	15.32	15.04	16.5	0
10	QPSK	1	25	15.08	15.21	15.11		
10	QPSK	1	49	15.10	15.18	15.12		
10	QPSK	25	0	15.15	15.32	15.03	16.5	0
10	QPSK	25	12	15.16	15.27	15.03		
10	QPSK	25	25	15.13	15.25	15.05		
10	QPSK	50	0	15.14	15.29	15.01		
10	16QAM	1	0	15.19	15.73	15.47	16.5	0
10	16QAM	1	25	15.36	15.63	15.38		
10	16QAM	1	49	15.49	15.59	15.38		
10	16QAM	25	0	15.04	15.45	15.16	16.5	0
10	16QAM	25	12	15.10	15.41	15.14		
10	16QAM	25	25	15.09	15.38	15.12		
10	16QAM	50	0	15.06	15.41	15.16		
10	64QAM	1	0	15.11	15.63	15.37	16.5	0
10	64QAM	1	25	15.09	15.40	15.29		
10	64QAM	1	49	15.05	15.05	15.25		
10	64QAM	25	0	15.06	15.43	15.19	16.5	0
10	64QAM	25	12	15.05	15.33	15.16		
10	64QAM	25	25	15.03	15.01	15.13		
10	64QAM	50	0	15.02	15.32	15.14		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	15.13	15.25	15.00	16.5	0
5	QPSK	1	12	15.07	15.22	15.11		
5	QPSK	1	24	15.11	15.22	15.11		
5	QPSK	12	0	15.15	15.30	15.02	16.5	0
5	QPSK	12	7	15.14	15.27	15.03		
5	QPSK	12	13	15.14	15.23	15.01		
5	QPSK	25	0	15.11	15.26	15.12		
5	16QAM	1	0	15.47	15.68	15.42	16.5	0
5	16QAM	1	12	15.24	15.65	15.37		
5	16QAM	1	24	15.51	15.61	15.36		
5	16QAM	12	0	15.09	15.42	15.17	16.5	0
5	16QAM	12	7	15.08	15.41	15.18		
5	16QAM	12	13	15.20	15.39	15.12		
5	16QAM	25	0	15.13	15.38	15.12		
5	64QAM	1	0	15.10	15.61	15.34	16.5	0
5	64QAM	1	12	15.05	15.47	15.27		
5	64QAM	1	24	15.11	15.51	15.28		
5	64QAM	12	0	15.12	15.44	15.17	16.5	0
5	64QAM	12	7	15.11	15.40	15.19		
5	64QAM	12	13	15.12	15.36	15.18		
5	64QAM	25	0	15.02	15.36	15.11		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	15.09	15.21	15.05	16.5	0
3	QPSK	1	8	15.07	15.17	15.12		
3	QPSK	1	14	15.05	15.19	15.15		
3	QPSK	8	0	15.14	15.25	15.11	16.5	0
3	QPSK	8	4	15.15	15.28	15.00		
3	QPSK	8	7	15.08	15.23	15.15		
3	QPSK	15	0	15.08	15.21	15.10		
3	16QAM	1	0	15.25	15.63	15.36	16.5	0
3	16QAM	1	8	15.16	15.60	15.37		
3	16QAM	1	14	15.37	15.56	15.33		
3	16QAM	8	0	15.00	15.43	15.18	16.5	0
3	16QAM	8	4	15.03	15.42	15.20		
3	16QAM	8	7	15.06	15.41	15.18		
3	16QAM	15	0	15.02	15.36	15.09		
3	64QAM	1	0	15.11	15.43	15.27	16.5	0
3	64QAM	1	8	15.02	15.49	15.26		
3	64QAM	1	14	15.20	15.47	15.23		
3	64QAM	8	0	15.11	15.41	15.18	16.5	0
3	64QAM	8	4	15.10	15.41	15.19		
3	64QAM	8	7	15.12	15.35	15.16		
3	64QAM	15	0	15.11	15.36	15.10		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	15.10	15.11	15.12	16.5	0
1.4	QPSK	1	3	15.03	15.23	15.11		
1.4	QPSK	1	5	15.12	15.11	15.05		
1.4	QPSK	3	0	15.02	15.14	15.09		
1.4	QPSK	3	1	15.04	15.18	15.11		
1.4	QPSK	3	3	15.02	15.19	15.15		
1.4	QPSK	6	0	15.02	15.15	15.10	16.5	0
1.4	16QAM	1	0	15.05	15.52	15.28	16.5	0
1.4	16QAM	1	3	15.12	15.57	15.34		
1.4	16QAM	1	5	15.07	15.51	15.24		
1.4	16QAM	3	0	15.31	15.31	15.07		
1.4	16QAM	3	1	15.37	15.34	15.10		
1.4	16QAM	3	3	15.32	15.28	15.03		
1.4	16QAM	6	0	15.38	15.34	15.10	16.5	0
1.4	64QAM	1	0	15.02	15.45	15.20	16.5	0
1.4	64QAM	1	3	15.05	15.52	15.26		
1.4	64QAM	1	5	15.06	15.42	15.18		
1.4	64QAM	3	0	15.06	15.43	15.17		
1.4	64QAM	3	1	15.03	15.46	15.20		
1.4	64QAM	3	3	15.06	15.39	15.16		
1.4	64QAM	6	0	15.03	15.29	15.03	16.5	0

<Product Specific Power Mode>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.37	22.45	22.39	23.5	0
20	QPSK	1	49	22.02	22.01	22.03		
20	QPSK	1	99	22.30	22.29	22.15		
20	QPSK	50	0	21.98	21.94	21.97	23.5	0
20	QPSK	50	24	21.93	21.92	21.93		
20	QPSK	50	50	21.97	21.89	21.89		
20	QPSK	100	0	22.04	21.94	21.95		
20	16QAM	1	0	22.21	22.38	22.36	23.5	0
20	16QAM	1	49	22.13	22.14	22.20		
20	16QAM	1	99	22.34	22.38	22.14		
20	16QAM	50	0	21.09	21.06	21.09	22.5	1
20	16QAM	50	24	21.00	21.06	21.06		
20	16QAM	50	50	21.13	21.00	21.01		
20	16QAM	100	0	21.15	21.03	21.04		
20	64QAM	1	0	21.36	21.39	21.30	22.5	1
20	64QAM	1	49	21.09	21.15	21.13		
20	64QAM	1	99	21.35	21.35	21.07		
20	64QAM	50	0	20.09	20.05	20.10	21.5	2
20	64QAM	50	24	20.05	20.04	20.04		
20	64QAM	50	50	20.12	20.00	20.01		
20	64QAM	100	0	20.12	20.03	20.05		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.20	22.18	22.22	23.5	0
15	QPSK	1	37	22.02	22.03	22.14		
15	QPSK	1	74	22.06	22.11	22.18		
15	QPSK	36	0	21.95	21.93	21.94	23.5	0
15	QPSK	36	20	21.90	21.89	21.92		
15	QPSK	36	39	21.88	21.87	22.00		
15	QPSK	75	0	21.90	21.91	21.91		
15	16QAM	1	0	22.28	22.25	22.33	23.5	0
15	16QAM	1	37	22.15	22.14	22.30		
15	16QAM	1	74	22.19	22.22	22.09		
15	16QAM	36	0	21.03	21.03	21.07	22.5	1
15	16QAM	36	20	21.04	21.03	21.02		
15	16QAM	36	39	20.99	21.02	21.10		
15	16QAM	75	0	21.00	21.03	21.02		
15	64QAM	1	0	21.27	21.21	21.27	22.5	1
15	64QAM	1	37	21.09	21.10	21.22		
15	64QAM	1	74	21.13	21.10	21.11		
15	64QAM	36	0	20.09	20.07	20.09	21.5	2
15	64QAM	36	20	20.06	20.06	20.06		
15	64QAM	36	39	20.01	20.03	20.12		
15	64QAM	75	0	20.03	20.02	20.03		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.33	22.29	22.10	23.5	0
10	QPSK	1	25	22.03	22.03	22.13		
10	QPSK	1	49	22.24	22.26	22.16		
10	QPSK	25	0	21.89	21.92	21.89	23.5	0
10	QPSK	25	12	21.89	21.92	21.97		
10	QPSK	25	25	21.85	21.90	21.98		
10	QPSK	50	0	21.89	21.89	21.89		
10	16QAM	1	0	22.37	22.41	22.29	23.5	0
10	16QAM	1	25	22.12	22.16	22.29		
10	16QAM	1	49	22.35	22.35	21.96		
10	16QAM	25	0	21.03	21.03	21.02	22.5	1
10	16QAM	25	12	21.00	21.00	21.09		
10	16QAM	25	25	20.96	21.00	21.08		
10	16QAM	50	0	20.99	21.03	21.01		
10	64QAM	1	0	21.34	21.37	21.19	22.5	1
10	64QAM	1	25	21.06	21.08	21.16		
10	64QAM	1	49	21.27	21.30	21.05		
10	64QAM	25	0	20.02	20.03	20.02	21.5	2
10	64QAM	25	12	20.01	20.01	20.12		
10	64QAM	25	25	20.01	20.00	20.07		
10	64QAM	50	0	20.02	20.00	20.01		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.11	22.09	22.18	23.5	0
5	QPSK	1	12	22.02	22.04	22.14		
5	QPSK	1	24	22.04	22.07	22.17		
5	QPSK	12	0	21.90	21.90	21.99	23.5	0
5	QPSK	12	7	21.87	21.88	21.99		
5	QPSK	12	13	21.83	21.88	21.90		
5	QPSK	25	0	21.85	21.86	21.97		
5	16QAM	1	0	22.15	22.20	22.33	23.5	0
5	16QAM	1	12	22.14	22.17	22.26		
5	16QAM	1	24	22.14	22.15	21.80		
5	16QAM	12	0	20.97	21.00	21.09	22.5	1
5	16QAM	12	7	20.96	20.99	21.08		
5	16QAM	12	13	20.94	21.00	21.05		
5	16QAM	25	0	20.95	20.99	21.06		
5	64QAM	1	0	21.12	21.14	21.23	22.5	1
5	64QAM	1	12	21.05	21.08	21.18		
5	64QAM	1	24	21.05	21.11	21.00		
5	64QAM	12	0	20.00	20.03	20.12	21.5	2
5	64QAM	12	7	20.03	20.03	20.12		
5	64QAM	12	13	20.00	20.03	20.11		
5	64QAM	25	0	20.05	20.01	20.08		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.01	21.96	22.13	23.5	0
3	QPSK	1	8	22.03	22.03	22.11		
3	QPSK	1	14	22.01	21.95	22.10		
3	QPSK	8	0	21.86	21.86	21.87	23.5	0
3	QPSK	8	4	21.89	21.90	21.98		
3	QPSK	8	7	21.82	21.85	21.77		
3	QPSK	15	0	21.82	21.82	21.94		
3	16QAM	1	0	22.12	22.17	22.22	23.5	0
3	16QAM	1	8	22.10	22.16	22.16		
3	16QAM	1	14	22.03	22.13	21.80		
3	16QAM	8	0	20.97	21.02	21.07	22.5	1
3	16QAM	8	4	20.99	21.02	21.01		
3	16QAM	8	7	20.95	21.00	20.97		
3	16QAM	15	0	20.93	20.95	21.04		
3	64QAM	1	0	21.03	21.09	21.17	22.5	1
3	64QAM	1	8	21.04	20.92	21.04		
3	64QAM	1	14	21.02	21.08	20.82		
3	64QAM	8	0	19.97	20.02	20.08	21.5	2
3	64QAM	8	4	20.02	20.05	20.12		
3	64QAM	8	7	19.99	20.01	19.98		
3	64QAM	15	0	19.93	19.96	20.04		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.95	21.96	22.05	23.5	0
1.4	QPSK	1	3	22.01	22.02	22.13		
1.4	QPSK	1	5	21.94	21.98	22.04		
1.4	QPSK	3	0	21.95	22.01	22.06		
1.4	QPSK	3	1	22.00	22.05	22.10		
1.4	QPSK	3	3	21.95	22.02	22.07		
1.4	QPSK	6	0	21.77	21.79	21.66	23.5	0
1.4	16QAM	1	0	21.99	22.11	22.00	23.5	0
1.4	16QAM	1	3	22.11	22.14	22.01		
1.4	16QAM	1	5	22.01	22.07	21.73		
1.4	16QAM	3	0	21.84	21.87	21.77		
1.4	16QAM	3	1	21.88	21.93	21.74		
1.4	16QAM	3	3	21.82	21.87	21.55		
1.4	16QAM	6	0	20.92	20.95	20.82	22.5	1
1.4	64QAM	1	0	21.02	21.01	21.01	22.5	1
1.4	64QAM	1	3	21.04	21.10	20.88		
1.4	64QAM	1	5	20.96	21.01	20.72		
1.4	64QAM	3	0	20.97	21.04	20.95		
1.4	64QAM	3	1	21.02	21.07	20.96		
1.4	64QAM	3	3	20.97	21.01	20.77		
1.4	64QAM	6	0	19.88	19.90	19.83	21.5	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	21.95	22.00	21.94	22.5	0
20	QPSK	1	49	21.83	21.66	21.79		
20	QPSK	1	99	21.62	21.75	21.91		
20	QPSK	50	0	21.45	21.32	21.39	22.5	0
20	QPSK	50	24	21.29	21.23	21.41		
20	QPSK	50	50	21.19	21.24	21.38		
20	QPSK	100	0	21.31	21.24	21.40		
20	16QAM	1	0	21.88	21.75	21.81	22.5	0
20	16QAM	1	49	21.69	21.55	21.71		
20	16QAM	1	99	21.51	21.65	21.82		
20	16QAM	50	0	20.56	20.42	20.49	21.5	1
20	16QAM	50	24	20.38	20.37	20.51		
20	16QAM	50	50	20.33	20.37	20.51		
20	16QAM	100	0	20.38	20.34	20.49		
20	64QAM	1	0	20.81	20.67	20.72	21.5	1
20	64QAM	1	49	20.61	20.50	20.64		
20	64QAM	1	99	20.44	20.57	20.74		
20	64QAM	50	0	19.58	19.45	19.50	20.5	2
20	64QAM	50	24	19.41	19.37	19.53		
20	64QAM	50	50	19.35	19.39	19.54		
20	64QAM	100	0	19.42	19.37	19.53		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.98	21.86	21.99	22.5	0
15	QPSK	1	37	21.82	21.67	21.90		
15	QPSK	1	74	21.68	21.74	21.98		
15	QPSK	36	0	21.44	21.29	21.44	22.5	0
15	QPSK	36	20	21.27	21.27	21.39		
15	QPSK	36	39	21.25	21.20	21.42		
15	QPSK	75	0	21.30	21.23	21.38		
15	16QAM	1	0	21.88	21.73	21.89	22.5	0
15	16QAM	1	37	21.68	21.58	21.77		
15	16QAM	1	74	21.57	21.61	21.85		
15	16QAM	36	0	20.55	20.42	20.55	21.5	1
15	16QAM	36	20	20.40	20.34	20.49		
15	16QAM	36	39	20.35	20.27	20.53		
15	16QAM	75	0	20.40	20.35	20.50		
15	64QAM	1	0	20.79	20.66	20.80	21.5	1
15	64QAM	1	37	20.61	20.50	20.73		
15	64QAM	1	74	20.50	20.52	20.77		
15	64QAM	36	0	19.58	19.46	19.61	20.5	2
15	64QAM	36	20	19.43	19.39	19.55		
15	64QAM	36	39	19.37	19.32	19.56		
15	64QAM	75	0	19.39	19.35	19.49		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.95	21.80	21.94	22.5	0
10	QPSK	1	25	21.81	21.64	21.87		
10	QPSK	1	49	21.65	21.67	21.98		
10	QPSK	25	0	21.41	21.24	21.40	22.5	0
10	QPSK	25	12	21.21	21.22	21.37		
10	QPSK	25	25	21.17	21.20	21.39		
10	QPSK	50	0	21.20	21.18	21.36		
10	16QAM	1	0	21.86	21.67	21.80	22.5	0
10	16QAM	1	25	21.61	21.54	21.67		
10	16QAM	1	49	21.55	21.51	21.79		
10	16QAM	25	0	20.54	20.32	20.52	21.5	1
10	16QAM	25	12	20.33	20.26	20.45		
10	16QAM	25	25	20.33	20.20	20.47		
10	16QAM	50	0	20.37	20.34	20.50		
10	64QAM	1	0	20.73	20.62	20.70	21.5	1
10	64QAM	1	25	20.54	20.47	20.67		
10	64QAM	1	49	20.41	20.48	20.77		
10	64QAM	25	0	19.50	19.36	19.60	20.5	2
10	64QAM	25	12	19.37	19.31	19.49		
10	64QAM	25	25	19.34	19.28	19.51		
10	64QAM	50	0	19.32	19.29	19.46		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.97	21.78	21.92	22.5	0
5	QPSK	1	12	21.78	21.58	21.81		
5	QPSK	1	24	21.64	21.67	21.91		
5	QPSK	12	0	21.35	21.20	21.41	22.5	0
5	QPSK	12	7	21.25	21.26	21.35		
5	QPSK	12	13	21.17	21.19	21.37		
5	QPSK	25	0	21.28	21.19	21.31		
5	16QAM	1	0	21.86	21.63	21.84	22.5	0
5	16QAM	1	12	21.68	21.56	21.71		
5	16QAM	1	24	21.54	21.52	21.76		
5	16QAM	12	0	20.47	20.33	20.49	21.5	1
5	16QAM	12	7	20.31	20.27	20.45		
5	16QAM	12	13	20.35	20.18	20.46		
5	16QAM	25	0	20.32	20.34	20.48		
5	64QAM	1	0	20.78	20.62	20.75	21.5	1
5	64QAM	1	12	20.51	20.50	20.72		
5	64QAM	1	24	20.43	20.52	20.69		
5	64QAM	12	0	19.49	19.39	19.56	20.5	2
5	64QAM	12	7	19.40	19.30	19.50		
5	64QAM	12	13	19.28	19.26	19.55		
5	64QAM	25	0	19.36	19.35	19.44		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.90	21.85	21.94	22.5	0
3	QPSK	1	8	21.73	21.61	21.85		
3	QPSK	1	14	21.62	21.64	21.91		
3	QPSK	8	0	21.37	21.19	21.37	22.5	0
3	QPSK	8	4	21.25	21.23	21.35		
3	QPSK	8	7	21.15	21.13	21.32		
3	QPSK	15	0	21.21	21.23	21.37		
3	16QAM	1	0	21.83	21.70	21.87	22.5	0
3	16QAM	1	8	21.65	21.50	21.76		
3	16QAM	1	14	21.51	21.54	21.75		
3	16QAM	8	0	20.51	20.32	20.48	21.5	1
3	16QAM	8	4	20.30	20.29	20.46		
3	16QAM	8	7	20.31	20.26	20.44		
3	16QAM	15	0	20.37	20.34	20.41		
3	64QAM	1	0	20.78	20.56	20.77	21.5	1
3	64QAM	1	8	20.54	20.43	20.69		
3	64QAM	1	14	20.44	20.49	20.77		
3	64QAM	8	0	19.50	19.37	19.53	20.5	2
3	64QAM	8	4	19.36	19.35	19.46		
3	64QAM	8	7	19.30	19.31	19.48		
3	64QAM	15	0	19.31	19.33	19.44		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.78	21.60	21.91	22.5	0
1.4	QPSK	1	3	21.85	21.66	21.97		
1.4	QPSK	1	5	21.78	21.57	21.87		
1.4	QPSK	3	0	21.81	21.61	21.92		
1.4	QPSK	3	1	21.84	21.66	21.95		
1.4	QPSK	3	3	21.79	21.63	21.91		
1.4	QPSK	6	0	21.30	21.11	21.43	22.5	0
1.4	16QAM	1	0	21.65	21.45	21.75	22.5	0
1.4	16QAM	1	3	21.71	21.54	21.84		
1.4	16QAM	1	5	21.62	21.45	21.74		
1.4	16QAM	3	0	21.44	21.26	21.56		
1.4	16QAM	3	1	21.46	21.28	21.60		
1.4	16QAM	3	3	21.41	21.23	21.54		
1.4	16QAM	6	0	20.48	20.28	20.61	21.5	1
1.4	64QAM	1	0	20.58	20.39	20.71	21.5	1
1.4	64QAM	1	3	20.65	20.44	20.76		
1.4	64QAM	1	5	20.56	20.38	20.71		
1.4	64QAM	3	0	20.56	20.39	20.68		
1.4	64QAM	3	1	20.59	20.41	20.72		
1.4	64QAM	3	3	20.56	20.36	20.68		
1.4	64QAM	6	0	19.42	19.24	19.54	20.5	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	21.40	21.32	21.29	21.5	0
20	QPSK	1	49	21.30	21.27	21.16		
20	QPSK	1	99	21.38	21.28	21.26		
20	QPSK	50	0	21.35	21.34	21.32	21.5	0
20	QPSK	50	24	21.30	21.37	21.24		
20	QPSK	50	50	21.34	21.22	21.30		
20	QPSK	100	0	21.37	21.31	21.20		
20	16QAM	1	0	21.43	21.49	21.34	21.5	0
20	16QAM	1	49	21.46	21.48	21.47		
20	16QAM	1	99	21.48	21.47	21.48		
20	16QAM	50	0	20.72	20.73	20.69	21.5	0
20	16QAM	50	24	20.74	20.85	20.72		
20	16QAM	50	50	20.84	20.96	20.79		
20	16QAM	100	0	20.74	20.81	20.67		
20	64QAM	1	0	20.80	20.83	20.64	21.5	0
20	64QAM	1	49	20.95	20.98	20.77		
20	64QAM	1	99	20.99	20.99	20.89		
20	64QAM	50	0	19.75	19.73	19.68	21.5	0
20	64QAM	50	24	19.79	19.84	19.73		
20	64QAM	50	50	19.85	19.93	19.82		
20	64QAM	100	0	19.75	19.82	19.70		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.25	21.23	21.13	21.5	0
15	QPSK	1	37	21.33	21.32	21.21		
15	QPSK	1	74	21.36	21.38	21.28		
15	QPSK	36	0	21.28	21.24	21.26	21.5	0
15	QPSK	36	20	21.37	21.35	21.29		
15	QPSK	36	39	21.32	21.43	21.33		
15	QPSK	75	0	21.37	21.34	21.25		
15	16QAM	1	0	21.46	21.47	21.34	21.5	0
15	16QAM	1	37	21.43	21.46	21.33		
15	16QAM	1	74	21.48	21.44	21.36		
15	16QAM	36	0	20.71	20.71	20.73	21.5	0
15	16QAM	36	20	20.83	20.85	20.75		
15	16QAM	36	39	20.83	20.88	20.82		
15	16QAM	75	0	20.79	20.81	20.71		
15	64QAM	1	0	20.88	20.92	20.75	21.5	0
15	64QAM	1	37	20.98	20.98	20.87		
15	64QAM	1	74	21.00	20.93	20.90		
15	64QAM	36	0	19.79	19.76	19.74	21.5	0
15	64QAM	36	20	19.90	19.91	19.80		
15	64QAM	36	39	19.83	19.94	19.84		
15	64QAM	75	0	19.82	19.82	19.72		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.25	21.27	21.11	21.5	0
10	QPSK	1	25	21.28	21.29	21.14		
10	QPSK	1	49	21.35	21.31	21.22		
10	QPSK	25	0	21.22	21.29	21.21	21.5	0
10	QPSK	25	12	21.32	21.36	21.28		
10	QPSK	25	25	21.37	21.37	21.23		
10	QPSK	50	0	21.29	21.34	21.27		
10	16QAM	1	0	21.48	21.48	21.41	21.5	0
10	16QAM	1	25	21.47	21.43	21.44		
10	16QAM	1	49	21.33	21.33	21.36		
10	16QAM	25	0	20.72	20.77	20.67	21.5	0
10	16QAM	25	12	20.78	20.82	20.75		
10	16QAM	25	25	20.84	20.86	20.69		
10	16QAM	50	0	20.80	20.82	20.74		
10	64QAM	1	0	20.89	20.93	20.74	21.5	0
10	64QAM	1	25	20.94	20.95	20.77		
10	64QAM	1	49	21.01	20.91	20.85		
10	64QAM	25	0	19.74	19.75	19.68	21.5	0
10	64QAM	25	12	19.82	19.84	19.77		
10	64QAM	25	25	19.82	19.89	19.73		
10	64QAM	50	0	19.81	19.82	19.74		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.27	21.20	21.08	21.5	0
5	QPSK	1	12	21.33	21.29	21.16		
5	QPSK	1	24	21.28	21.31	21.20		
5	QPSK	12	0	21.32	21.29	21.16	21.5	0
5	QPSK	12	7	21.41	21.33	21.21		
5	QPSK	12	13	21.30	21.37	21.21		
5	QPSK	25	0	21.26	21.34	21.17		
5	16QAM	1	0	21.44	21.46	21.39	21.5	0
5	16QAM	1	12	21.47	21.33	21.47		
5	16QAM	1	24	21.45	21.44	21.31		
5	16QAM	12	0	20.82	20.79	20.63	21.5	0
5	16QAM	12	7	20.85	20.86	20.71		
5	16QAM	12	13	20.77	20.87	20.71		
5	16QAM	25	0	20.73	20.80	20.68		
5	64QAM	1	0	20.93	20.88	20.67	21.5	0
5	64QAM	1	12	20.95	20.93	20.76		
5	64QAM	1	24	20.90	21.00	20.80		
5	64QAM	12	0	19.85	19.79	19.67	21.5	0
5	64QAM	12	7	19.93	19.86	19.75		
5	64QAM	12	13	19.84	19.88	19.74		
5	64QAM	25	0	19.78	19.80	19.68		

<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	21.94	22.08	21.96	22.5	0
20	QPSK	1	49	21.73	21.94	21.75		
20	QPSK	1	99	21.74	21.83	21.67		
20	QPSK	50	0	21.44	21.63	21.41	22.5	0
20	QPSK	50	24	21.43	21.52	21.33		
20	QPSK	50	50	21.32	21.44	21.26		
20	QPSK	100	0	21.40	21.53	21.35		
20	16QAM	1	0	21.74	21.92	21.77	22.5	0
20	16QAM	1	49	21.55	21.77	21.60		
20	16QAM	1	99	21.56	21.68	21.52		
20	16QAM	50	0	20.47	20.71	20.50	21.5	1
20	16QAM	50	24	20.51	20.61	20.47		
20	16QAM	50	50	20.43	20.55	20.38		
20	16QAM	100	0	20.49	20.62	20.45		
20	64QAM	1	0	20.69	20.84	20.71	21.5	1
20	64QAM	1	49	20.51	20.70	20.54		
20	64QAM	1	99	20.55	20.59	20.46		
20	64QAM	50	0	19.50	19.72	19.55	20.5	2
20	64QAM	50	24	19.51	19.65	19.47		
20	64QAM	50	50	19.46	19.56	19.39		
20	64QAM	100	0	19.53	19.61	19.47		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	21.84	22.03	21.95	22.5	0
15	QPSK	1	37	21.71	21.92	21.74		
15	QPSK	1	74	21.71	21.76	21.59		
15	QPSK	36	0	21.36	21.60	21.39	22.5	0
15	QPSK	36	20	21.35	21.50	21.33		
15	QPSK	36	39	21.23	21.42	21.21		
15	QPSK	75	0	21.38	21.43	21.29		
15	16QAM	1	0	21.71	21.85	21.74	22.5	0
15	16QAM	1	37	21.55	21.73	21.58		
15	16QAM	1	74	21.46	21.64	21.48		
15	16QAM	36	0	20.40	20.61	20.43	21.5	1
15	16QAM	36	20	20.46	20.54	20.45		
15	16QAM	36	39	20.34	20.52	20.33		
15	16QAM	75	0	20.43	20.60	20.35		
15	64QAM	1	0	20.67	20.84	20.62	21.5	1
15	64QAM	1	37	20.49	20.66	20.53		
15	64QAM	1	74	20.54	20.54	20.37		
15	64QAM	36	0	19.43	19.66	19.51	20.5	2
15	64QAM	36	20	19.45	19.56	19.43		
15	64QAM	36	39	19.36	19.46	19.36		
15	64QAM	75	0	19.45	19.52	19.47		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	21.91	21.99	21.88	22.5	0
10	QPSK	1	25	21.65	21.92	21.71		
10	QPSK	1	49	21.73	21.79	21.61		
10	QPSK	25	0	21.39	21.57	21.40	22.5	0
10	QPSK	25	12	21.39	21.43	21.24		
10	QPSK	25	25	21.23	21.36	21.20		
10	QPSK	50	0	21.32	21.46	21.35		
10	16QAM	1	0	21.64	21.91	21.75	22.5	0
10	16QAM	1	25	21.46	21.70	21.53		
10	16QAM	1	49	21.47	21.60	21.44		
10	16QAM	25	0	20.43	20.71	20.46	21.5	1
10	16QAM	25	12	20.51	20.54	20.39		
10	16QAM	25	25	20.39	20.45	20.35		
10	16QAM	50	0	20.45	20.61	20.38		
10	64QAM	1	0	20.63	20.84	20.68	21.5	1
10	64QAM	1	25	20.51	20.62	20.47		
10	64QAM	1	49	20.52	20.58	20.39		
10	64QAM	25	0	19.49	19.63	19.48	20.5	2
10	64QAM	25	12	19.44	19.61	19.46		
10	64QAM	25	25	19.43	19.48	19.38		
10	64QAM	50	0	19.51	19.54	19.47		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	21.93	22.07	21.86	22.5	0
5	QPSK	1	12	21.65	21.85	21.65		
5	QPSK	1	24	21.73	21.78	21.61		
5	QPSK	12	0	21.38	21.63	21.39	22.5	0
5	QPSK	12	7	21.39	21.42	21.25		
5	QPSK	12	13	21.31	21.41	21.21		
5	QPSK	25	0	21.35	21.47	21.32		
5	16QAM	1	0	21.66	21.84	21.73	22.5	0
5	16QAM	1	12	21.53	21.69	21.60		
5	16QAM	1	24	21.49	21.68	21.42		
5	16QAM	12	0	20.47	20.63	20.48	21.5	1
5	16QAM	12	7	20.45	20.54	20.47		
5	16QAM	12	13	20.35	20.48	20.37		
5	16QAM	25	0	20.47	20.58	20.36		
5	64QAM	1	0	20.69	20.78	20.71	21.5	1
5	64QAM	1	12	20.48	20.65	20.53		
5	64QAM	1	24	20.55	20.49	20.44		
5	64QAM	12	0	19.40	19.69	19.45	20.5	2
5	64QAM	12	7	19.49	19.56	19.44		
5	64QAM	12	13	19.44	19.46	19.29		
5	64QAM	25	0	19.44	19.56	19.47		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	21.88	22.05	21.87	22.5	0
3	QPSK	1	8	21.69	21.90	21.65		
3	QPSK	1	14	21.65	21.81	21.66		
3	QPSK	8	0	21.34	21.63	21.41	22.5	0
3	QPSK	8	4	21.35	21.43	21.24		
3	QPSK	8	7	21.28	21.44	21.20		
3	QPSK	15	0	21.36	21.47	21.32		
3	16QAM	1	0	21.73	21.87	21.67	22.5	0
3	16QAM	1	8	21.46	21.77	21.60		
3	16QAM	1	14	21.48	21.58	21.44		
3	16QAM	8	0	20.46	20.67	20.48	21.5	1
3	16QAM	8	4	20.47	20.59	20.38		
3	16QAM	8	7	20.34	20.53	20.31		
3	16QAM	15	0	20.41	20.58	20.37		
3	64QAM	1	0	20.68	20.82	20.62	21.5	1
3	64QAM	1	8	20.43	20.67	20.48		
3	64QAM	1	14	20.53	20.55	20.36		
3	64QAM	8	0	19.42	19.63	19.52	20.5	2
3	64QAM	8	4	19.43	19.55	19.40		
3	64QAM	8	7	19.41	19.49	19.32		
3	64QAM	15	0	19.43	19.58	19.38		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	21.70	21.86	21.69	22.5	0
1.4	QPSK	1	3	21.77	21.93	21.76		
1.4	QPSK	1	5	21.67	21.86	21.67		
1.4	QPSK	3	0	21.71	21.89	21.72		
1.4	QPSK	3	1	21.76	21.92	21.74		
1.4	QPSK	3	3	21.71	21.88	21.73		
1.4	QPSK	6	0	21.24	21.39	21.22	22.5	0
1.4	16QAM	1	0	21.51	21.67	21.52	22.5	0
1.4	16QAM	1	3	21.58	21.75	21.63		
1.4	16QAM	1	5	21.51	21.67	21.54		
1.4	16QAM	3	0	21.31	21.47	21.33		
1.4	16QAM	3	1	21.33	21.52	21.37		
1.4	16QAM	3	3	21.32	21.46	21.31		
1.4	16QAM	6	0	20.38	20.55	20.41	21.5	1
1.4	64QAM	1	0	20.46	20.61	20.49	21.5	1
1.4	64QAM	1	3	20.50	20.68	20.55		
1.4	64QAM	1	5	20.43	20.62	20.46		
1.4	64QAM	3	0	20.42	20.62	20.44		
1.4	64QAM	3	1	20.47	20.65	20.50		
1.4	64QAM	3	3	20.43	20.60	20.43		
1.4	64QAM	6	0	19.35	19.51	19.33	20.5	2

<LTE Carrier Aggregation combinations>

General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.

2 bands / 2 CC	2 bands / 3 CC	3 bands / 3 CC
CA_2A-4A		CA_2A-4A-5A
CA_2A-5A	CA_2A-2A-5A	
CA_4A_5A	CA_4A_4A_5A	
CA_2A-13A	CA_2A-2A-13A	CA_2A-4A-13A
CA_4A_13A	CA_4A_4A_13A	
CA_2A-5A	CA_2A-2A-5A	CA_2A-5A-66A
CA_5A_66A	CA_5A_66A_66A	
	CA_5A_66B	
	CA_5A_66C	
CA_13A_66A	CA_13A_66A_66A	CA_2A_13A_66A
CA_2A-66A	CA_2A-2A-66A	
	CA_2A-66A-66A	
	CA_2A_66C	
	CA_13A_66B	
	CA_13A_66C	

	Intra-Band Contigous	Intra-Band non-Contigous
Band 2		CA_2A_2A
Band 4		CA_4A_4A
Band 5	CA_5B	CA_5A_5A
Band 66	CA_66B	CA_66A_66A
	CA_66C	

<Power verification when LTE Carrier Aggregation Active>

General Note:

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

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

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

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

v. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

vi. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band.

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

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

<Two Carrier power verification>

Configure		CA Configuration (BCS)	PCC							SCC				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Intra-Band	Non-Contiguous	CA_2A-2A	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	23.48	23.45
		CA_4A-4A	4	20	1720	20050	QPSK	1	0	4	5	2152.5	2375	22.94	22.92
		CA_5A-5A	5	10	829	20450	QPSK	1	0	5	5	891.5	2625	22.93	22.89
		CA_66A-66A	66	20	1720	132072	QPSK	1	0	66	5	2197.5	67311	22.93	22.92
	Contiguous	CA_5B	5	10	829	20450	QPSK	1	0	5	10	883.9	2549	22.93	22.90
		CA_66B	66	15	1717.5	132047	QPSK	1	0	66	5	2126.8	66604	22.93	22.93
		CA_66C	66	20	1720	132072	QPSK	1	0	66	20	2139.8	66734	22.92	22.92

<Three Carrier power verification>

Configure	CA Configuration (BCS)	PCC							SCC				SCC2				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	CA_2A-66C	2	20	1860	18700	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	23.47	23.46
		66	20	1720	132072	QPSK	1	0	66	20	2139.8	66734	2	20	1960	900	22.93	22.93
	CA_5A-66B	5	10	829	20450	QPSK	1	0	66	15	2155	66886	66	5	2154.3	66879	22.93	22.92
		66	15	1717.5	132047	QPSK	1	0	66	5	2126.8	66604	5	10	881.5	2525	22.92	22.92
	CA_5A-66C	5	10	829	20450	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	22.93	22.92
		66	20	1720	132072	QPSK	1	0	66	20	2139.8	66734	5	10	881.5	2525	22.93	22.93
	CA_13A-66B	13	10	782	23230	QPSK	1	0	66	15	2155	66886	66	5	2154.3	66879	22.61	22.61
		66	15	1717.5	132047	QPSK	1	0	66	5	2126.8	66604	13	10	751	5230	22.92	22.92
	CA_13A-66C	13	10	782	23230	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	22.61	22.61
		66	20	1720	132072	QPSK	1	0	66	20	2139.8	66734	13	10	751	5230	22.93	22.93
	CA_2A-4A-5A	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	23.49	23.48
		4	20	1720	20050	QPSK	1	0	2	20	1960	900	5	10	881.5	2525	22.95	22.94
		5	10	829	20450	QPSK	1	0	2	20	1960	900	4	20	2132.5	2175	22.92	22.92
	CA_2A-4A-13A	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	23.49	23.48
		4	20	1720	20050	QPSK	1	0	2	20	1960	900	13	10	751	5230	22.95	22.94
		13	10	782	23230	QPSK	1	0	2	20	1960	900	4	20	2132.5	2175	22.61	22.60
	CA_2A-5A-66A	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	66	20	2155	66886	23.49	23.49
		5	10	829	20450	QPSK	1	0	2	20	1960	900	66	20	2155	66886	22.92	22.91
		66	20	1720	132072	QPSK	1	0	2	20	1960	900	5	10	881.5	2525	22.93	22.93
	CA_2A-13A-66A	2	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	23.49	23.48
		13	10	782	23230	QPSK	1	0	2	20	1960	900	66	20	2155	66886	22.61	22.60
		66	20	1720	132072	QPSK	1	0	2	20	1960	900	13	10	751	5230	22.93	22.93

<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.

<Default Power Mode>

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	18.66	19.00	98.89
		6	2437	18.97	19.00	
		11	2462	18.77	19.00	
	802.11g 6Mbps	1	2412	16.83	17.00	94.50
		6	2437	16.97	17.00	
		11	2462	16.86	17.00	
	802.11n-HT20 MCS0	1	2412	16.68	17.00	94.12
		6	2437	16.88	17.00	
		11	2462	16.64	17.00	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.95	17.00	94.98
		40	5200	16.91	17.00	
		44	5220	16.85	17.00	
		48	5240	16.87	17.00	
	802.11n-HT20 MCS0	36	5180	16.80	17.00	94.38
		40	5200	16.86	17.00	
		44	5220	16.79	17.00	
		48	5240	16.78	17.00	
	802.11n-HT40 MCS0	38	5190	15.85	16.00	90.48
		46	5230	15.75	16.00	
	802.11ac-VHT20 MCS0	36	5180	15.97	16.00	94.15
		40	5200	15.91	16.00	
		44	5220	15.92	16.00	
		48	5240	15.93	16.00	
	802.11ac-VHT40 MCS0	38	5190	14.74	15.00	90.48
		46	5230	14.60	15.00	
	802.11ac-VHT80 MCS0	42	5210	14.60	15.00	86.05

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	16.88	17.00	94.98
		56	5280	16.81	17.00	
		60	5300	16.77	17.00	
		64	5320	16.63	17.00	
	802.11n-HT20 MCS0	52	5260	16.81	17.00	94.38
		56	5280	16.77	17.00	
		60	5300	16.72	17.00	
		64	5320	16.61	17.00	
	802.11n-HT40 MCS0	54	5270	15.79	16.00	90.48
		62	5310	15.77	16.00	
	802.11ac-VHT20 MCS0	52	5260	15.91	16.00	94.15
		56	5280	15.85	16.00	
		60	5300	15.77	16.00	
		64	5320	15.67	16.00	
	802.11ac-VHT40 MCS0	54	5270	14.59	15.00	90.48
		62	5310	14.51	15.00	
	802.11ac-VHT80 MCS0	58	5290	14.56	15.00	86.05

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	16.71	17.00	94.98
		116	5580	16.58	17.00	
		124	5620	16.65	17.00	
		132	5660	16.63	17.00	
		140	5700	16.61	17.00	
		144	5720	16.65	17.00	
	802.11n-HT20 MCS0	100	5500	16.66	17.00	94.38
		116	5580	16.53	17.00	
		124	5620	16.60	17.00	
		132	5660	16.56	17.00	
		140	5700	16.56	17.00	
		144	5720	16.60	17.00	
	802.11n-HT40 MCS0	102	5510	15.88	16.00	90.48
		110	5550	15.75	16.00	
		126	5630	15.71	16.00	
		134	5670	15.79	16.00	
		142	5710	15.94	16.00	
	802.11ac-VHT20 MCS0	100	5500	15.88	16.00	94.15
		116	5580	15.80	16.00	
		124	5620	15.78	16.00	
		132	5660	15.70	16.00	
		140	5700	15.84	16.00	
		144	5720	15.88	16.00	
	802.11ac-VHT40 MCS0	102	5510	14.80	15.00	90.48
		110	5550	14.76	15.00	
		126	5630	14.69	15.00	
		134	5670	14.68	15.00	
		142	5710	14.81	15.00	
	802.11ac-VHT80 MCS0	106	5530	14.84	15.00	86.05
		122	5610	14.73	15.00	
		138	5690	14.91	15.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	16.96	17.00	94.98
		157	5785	16.88	17.00	
		165	5825	16.94	17.00	
	802.11n-HT20 MCS0	149	5745	16.93	17.00	94.38
		157	5785	16.86	17.00	
		165	5825	16.91	17.00	
	802.11n-HT40 MCS0	151	5755	15.91	16.00	90.48
		159	5795	15.96	16.00	
	802.11ac-VHT20 MCS0	149	5745	15.90	16.00	94.15
		157	5785	15.66	16.00	
		165	5825	15.79	16.00	
	802.11ac-VHT40 MCS0	151	5755	14.89	15.00	90.48
		159	5795	14.86	15.00	
	802.11ac-VHT80 MCS0	155	5775	14.93	15.00	86.05

<At-head Power Mode>

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	16.91	18.00	95.09
		6	2437	16.89	18.00	
		11	2462	16.94	18.00	
	802.11g 6Mbps	1	2412	16.83	17.00	94.50
		6	2437	16.97	17.00	
		11	2462	16.86	17.00	
	802.11n-HT20 MCS0	1	2412	16.68	17.00	94.12
		6	2437	16.88	17.00	
		11	2462	16.64	17.00	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.47	16.50	94.98
		40	5200	16.42	16.50	
		44	5220	16.46	16.50	
		48	5240	16.43	16.50	
	802.11n-HT20 MCS0	36	5180	16.30	16.50	94.38
		40	5200	16.23	16.50	
		44	5220	16.24	16.50	
		48	5240	16.17	16.50	
	802.11n-HT40 MCS0	38	5190	15.79	16.00	90.48
		46	5230	15.77	16.00	
	802.11ac-VHT20 MCS0	36	5180	15.91	16.00	94.15
		40	5200	15.85	16.00	
		44	5220	15.77	16.00	
		48	5240	15.67	16.00	
	802.11ac-VHT40 MCS0	38	5190	14.59	15.00	90.48
		46	5230	14.51	15.00	
	802.11ac-VHT80 MCS0	42	5210	14.56	15.00	86.05

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	16.41	16.50	94.98
		56	5280	16.39	16.50	
		60	5300	16.43	16.50	
		64	5320	16.28	16.50	
	802.11n-HT20 MCS0	52	5260	16.27	16.50	94.38
		56	5280	16.26	16.50	
		60	5300	16.28	16.50	
		64	5320	16.48	16.50	
	802.11n-HT40 MCS0	54	5270	15.79	16.00	90.48
		62	5310	15.77	16.00	
	802.11ac-VHT20 MCS0	52	5260	15.91	16.00	94.15
		56	5280	15.85	16.00	
		60	5300	15.77	16.00	
		64	5320	15.67	16.00	
	802.11ac-VHT40 MCS0	54	5270	14.59	15.00	90.48
		62	5310	14.51	15.00	
	802.11ac-VHT80 MCS0	58	5290	14.56	15.00	86.05

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	16.48	16.50	94.98
		116	5580	16.20	16.50	
		124	5620	16.23	16.50	
		132	5660	16.19	16.50	
		140	5700	16.21	16.50	
		144	5720	16.25	16.50	
	802.11n-HT20 MCS0	100	5500	16.49	16.50	94.38
		116	5580	16.45	16.50	
		124	5620	16.44	16.50	
		132	5660	16.39	16.50	
		140	5700	16.44	16.50	
		144	5720	16.20	16.50	
	802.11n-HT40 MCS0	102	5510	15.88	16.00	90.48
		110	5550	15.75	16.00	
		126	5630	15.71	16.00	
		134	5670	15.79	16.00	
		142	5710	15.94	16.00	
	802.11ac-VHT20 MCS0	100	5500	15.88	16.00	94.15
		116	5580	15.80	16.00	
		124	5620	15.78	16.00	
		132	5660	15.70	16.00	
		140	5700	15.84	16.00	
		144	5720	15.88	16.00	
	802.11ac-VHT40 MCS0	102	5510	14.80	15.00	90.48
		110	5550	14.76	15.00	
		126	5630	14.69	15.00	
		134	5670	14.68	15.00	
		142	5710	14.81	15.00	
	802.11ac-VHT80 MCS0	106	5530	14.84	15.00	86.05
		122	5610	14.73	15.00	
		138	5690	14.91	15.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	16.30	16.50	94.98
		157	5785	16.20	16.50	
		165	5825	16.49	16.50	
	802.11n-HT20 MCS0	149	5745	16.48	16.50	94.38
		157	5785	16.47	16.50	
		165	5825	16.44	16.50	
	802.11n-HT40 MCS0	151	5755	15.91	16.00	90.48
		159	5795	15.96	16.00	
	802.11ac-VHT20 MCS0	149	5745	15.90	16.00	94.15
		157	5785	15.66	16.00	
		165	5825	15.79	16.00	
	802.11ac-VHT40 MCS0	151	5755	14.89	15.00	90.48
		159	5795	14.86	15.00	
	802.11ac-VHT80 MCS0	155	5775	14.93	15.00	86.05

<2.4GHz Bluetooth>

General Note:

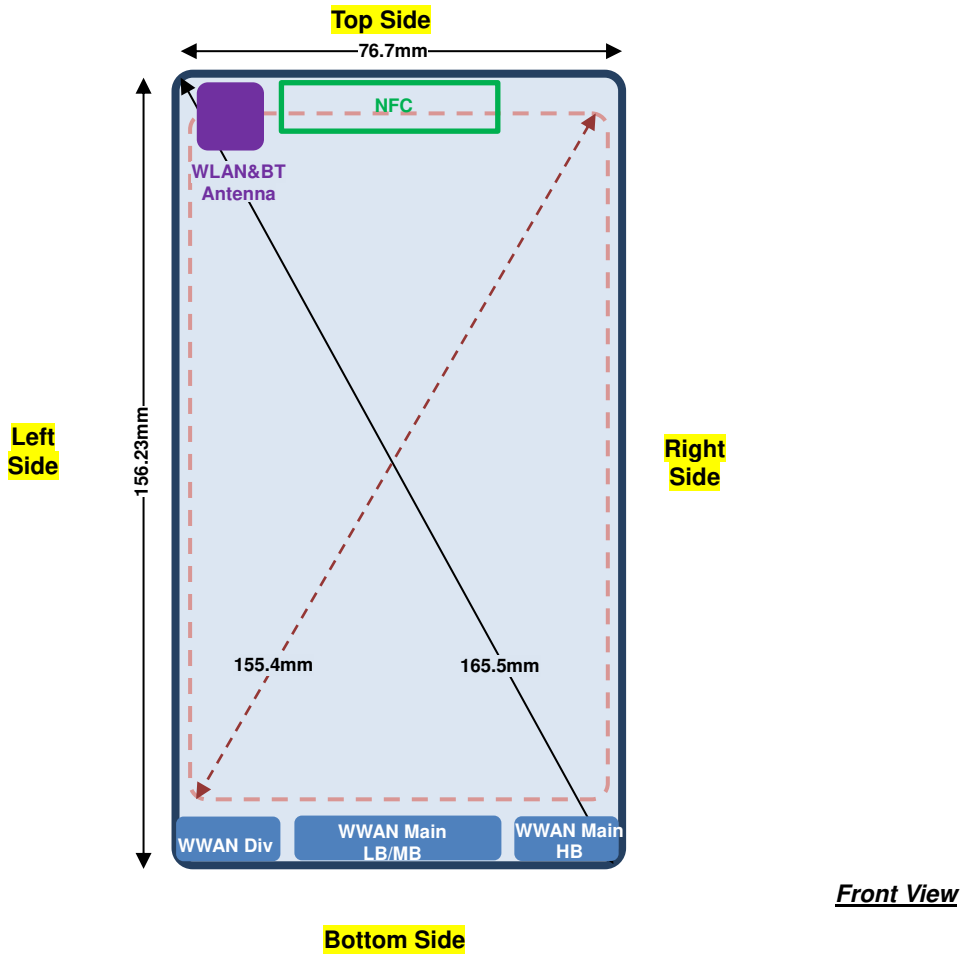
1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps and duty cycle is 76.6% considered in SAR testing.

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	12.26	9.79	9.81
	CH 39	2441	10.89	7.99	8.01
	CH 78	2480	11.11	8.76	8.77
Tune-up Limit			13.00	10.00	10.00

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	12.15	12.35
	CH 19	2440	10.75	10.82
	CH 39	2480	10.95	10.86
Tune-up Limit			13.00	13.00

13. Antenna Location

<Mobile Phone>



Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main_LB/MB	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
WWAN Main_HB	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm	≤ 25mm
WWAN Div	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	>25mm
BT&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 Main_LB/MB	Yes	Yes	No	Yes	Yes	Yes
WWAN Main_HB	Yes	Yes	No	Yes	No	Yes
WWAN Div	Yes	Yes	No	Yes	Yes	No
BT&WLAN	Yes	Yes	Yes	No	No	Yes

General Note:

1. Referring to KDB 941225 D06 v02r01, when the overall device length and width are < 9cm*5cm, the test distance is 5 mm. SAR must be measured for all sides and surfaces.
2. The WWAN Div antenna only supports LTE B7.
3. LB: Low Band as 1GHz below, MB: middle band as 2GHz below, HB: high band as 2GHz above.

14. 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/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
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. While the device operating in near-body condition by end user, the device will limit different maximum output powers on the GSM850 / 1900, WCDMA B2 / B4 / B5, CDMA BC0 / BC1 and LTE B2 / B4 / B5 / B7 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
5. While the device operating in mobile hotspot session, the device will reduced output powers on the GSM1900, WCDMA B2 / B4 / B5, CDMA BC0 / BC1 / BC10 and LTE B2 / B4 / B5 / B7 / B14 / B25 / B26 / B30 / B66 / B38 / B41 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
6. While the device operating in handheld condition, the device will limit different maximum output powers on the WCDMA B2 / B4, CDMA BC1 and LTE B2 / B4 / B7 / B14 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
7. While the device operating in Held to head session, the device will limit different maximum output powers on the WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
8. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
9. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
10. For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is > 16cm.

GSM Note:

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

UMTS 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.

CDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM 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 B5 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 band 4 SAR test was covered by Band 66; 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.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. 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.
4. 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.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 Head SAR

<GSM 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)
	GSM850	GPRS (2 Tx slots)	Right Cheek	0mm	OFF	251	848.8	31.05	32.00	1.245	0.05	0.160	0.199
	GSM850	GPRS (2 Tx slots)	Right Tilted	0mm	OFF	251	848.8	31.05	32.00	1.245	0.02	0.094	0.117
01	GSM850	GPRS (2 Tx slots)	Left Cheek	0mm	OFF	251	848.8	31.05	32.00	1.245	-0.06	0.214	0.266
	GSM850	GPRS (2 Tx slots)	Left Tilted	0mm	OFF	251	848.8	31.05	32.00	1.245	-0.02	0.096	0.119
02	GSM1900	GPRS (3 Tx slots)	Right Cheek	0mm	OFF	810	1909.8	26.29	28.00	1.483	0.02	0.171	0.254
	GSM1900	GPRS (3 Tx slots)	Right Tilted	0mm	OFF	810	1909.8	26.29	28.00	1.483	-0.02	0.070	0.104
	GSM1900	GPRS (3 Tx slots)	Left Cheek	0mm	OFF	810	1909.8	26.29	28.00	1.483	0.02	0.100	0.148
	GSM1900	GPRS (3 Tx slots)	Left Tilted	0mm	OFF	810	1909.8	26.29	28.00	1.483	0.01	0.091	0.135

<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)
03	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	OFF	9538	1907.6	22.66	23.50	1.213	-0.03	0.235	0.285
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	OFF	9538	1907.6	22.66	23.50	1.213	0.04	0.064	0.078
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	OFF	9538	1907.6	22.66	23.50	1.213	-0.06	0.121	0.147
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	OFF	9538	1907.6	22.66	23.50	1.213	0.03	0.108	0.131
04	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	OFF	1513	1752.6	22.52	23.50	1.253	-0.17	0.324	0.406
	WCDMA IV	RMC 12.2Kbps	Right Tilted	0mm	OFF	1513	1752.6	22.52	23.50	1.253	0.14	0.119	0.149
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	OFF	1513	1752.6	22.52	23.50	1.253	-0.04	0.164	0.206
	WCDMA IV	RMC 12.2Kbps	Left Tilted	0mm	OFF	1513	1752.6	22.52	23.50	1.253	0.13	0.117	0.147
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	OFF	4233	846.6	22.50	24.00	1.413	-0.17	0.205	0.290
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	OFF	4233	846.6	22.50	24.00	1.413	-0.02	0.113	0.160
05	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	OFF	4233	846.6	22.50	24.00	1.413	0.01	0.280	0.396
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	OFF	4233	846.6	22.50	24.00	1.413	0.09	0.142	0.201

<CDMA 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)
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	OFF	777	848.31	23.77	25.00	1.327	-0.01	0.212	0.281
	CDMA BC0	1xRTT RC3 SO55	Right Tilted	0mm	OFF	777	848.31	23.77	25.00	1.327	0.05	0.116	0.154
06	CDMA BC0	1xRTT RC3 SO55	Left Cheek	0mm	OFF	777	848.31	23.77	25.00	1.327	-0.03	0.278	0.369
	CDMA BC0	1xRTT RC3 SO55	Left Tilted	0mm	OFF	777	848.31	23.77	25.00	1.327	0.07	0.114	0.151
07	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	OFF	1175	1908.75	23.78	25.00	1.324	0.02	0.260	0.344
	CDMA BC1	1xRTT RC3 SO55	Right Tilted	0mm	OFF	1175	1908.75	23.78	25.00	1.324	0	0.073	0.097
	CDMA BC1	1xRTT RC3 SO55	Left Cheek	0mm	OFF	1175	1908.75	23.78	25.00	1.324	0.02	0.136	0.180
	CDMA BC1	1xRTT RC3 SO55	Left Tilted	0mm	OFF	1175	1908.75	23.78	25.00	1.324	0	0.137	0.181

<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)
08	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	OFF	18700	1860	23.50	23.50	1.000	0.02	0.284	0.284
	LTE Band 2	20M	QPSK	50	0	Right Cheek	0mm	OFF	18700	1860	22.29	22.50	1.050	0.04	0.172	0.181
	LTE Band 2	20M	QPSK	1	0	Right Tilted	0mm	OFF	18700	1860	23.50	23.50	1.000	0.06	0.105	0.105
	LTE Band 2	20M	QPSK	50	0	Right Tilted	0mm	OFF	18700	1860	22.29	22.50	1.050	0.05	0.061	0.064
	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	OFF	18700	1860	23.50	23.50	1.000	0.03	0.135	0.135
	LTE Band 2	20M	QPSK	50	0	Left Cheek	0mm	OFF	18700	1860	22.29	22.50	1.050	0	0.081	0.085
	LTE Band 2	20M	QPSK	1	0	Left Tilted	0mm	OFF	18700	1860	23.50	23.50	1.000	-0.03	0.131	0.131
	LTE Band 2	20M	QPSK	50	0	Left Tilted	0mm	OFF	18700	1860	22.29	22.50	1.050	-0.04	0.077	0.081
	LTE Band 5	10M	QPSK	1	0	Right Cheek	0mm	OFF	20525	836.5	22.79	24.00	1.321	0	0.229	0.303
	LTE Band 5	10M	QPSK	25	0	Right Cheek	0mm	OFF	20525	836.5	21.80	23.00	1.318	0.03	0.123	0.162
	LTE Band 5	10M	QPSK	1	0	Right Tilted	0mm	OFF	20525	836.5	22.79	24.00	1.321	-0.1	0.111	0.147
	LTE Band 5	10M	QPSK	25	0	Right Tilted	0mm	OFF	20525	836.5	21.80	23.00	1.318	-0.07	0.064	0.084
09	LTE Band 5	10M	QPSK	1	0	Left Cheek	0mm	OFF	20525	836.5	22.79	24.00	1.321	0.01	0.279	0.369
	LTE Band 5	10M	QPSK	25	0	Left Cheek	0mm	OFF	20525	836.5	21.80	23.00	1.318	0.01	0.158	0.208
	LTE Band 5	10M	QPSK	1	0	Left Tilted	0mm	OFF	20525	836.5	22.79	24.00	1.321	0.1	0.117	0.155
	LTE Band 5	10M	QPSK	25	0	Left Tilted	0mm	OFF	20525	836.5	21.80	23.00	1.318	0.11	0.066	0.087
10	LTE Band 7_Main	20M	QPSK	1	0	Right Cheek	0mm	OFF	20850	2510	23.03	24.00	1.250	-0.02	0.355	0.444
	LTE Band 7_Main	20M	QPSK	50	0	Right Cheek	0mm	OFF	20850	2510	21.93	23.00	1.279	-0.01	0.245	0.313
	LTE Band 7_Main	20M	QPSK	1	0	Right Tilted	0mm	OFF	20850	2510	23.03	24.00	1.250	-0.07	0.213	0.266
	LTE Band 7_Main	20M	QPSK	50	0	Right Tilted	0mm	OFF	20850	2510	21.93	23.00	1.279	0.1	0.122	0.156
	LTE Band 7_Main	20M	QPSK	1	0	Left Cheek	0mm	OFF	20850	2510	23.03	24.00	1.250	0.01	0.234	0.293
	LTE Band 7_Main	20M	QPSK	50	0	Left Cheek	0mm	OFF	20850	2510	21.93	23.00	1.279	-0.05	0.133	0.170
	LTE Band 7_Main	20M	QPSK	1	0	Left Tilted	0mm	OFF	20850	2510	23.03	24.00	1.250	-0.06	0.251	0.314
	LTE Band 7_Main	20M	QPSK	50	0	Left Tilted	0mm	OFF	20850	2510	21.93	23.00	1.279	-0.1	0.141	0.180
	LTE Band 7_Aux	20M	QPSK	1	0	Right Cheek	0mm	OFF	20850	2510	23.03	24.00	1.250	-0.04	0.104	0.130
	LTE Band 7_Aux	20M	QPSK	50	0	Right Cheek	0mm	OFF	20850	2510	21.93	23.00	1.279	-0.09	0.057	0.073
	LTE Band 7_Aux	20M	QPSK	1	0	Right Tilted	0mm	OFF	20850	2510	23.03	24.00	1.250	0.04	0.071	0.089
	LTE Band 7_Aux	20M	QPSK	50	0	Right Tilted	0mm	OFF	20850	2510	21.93	23.00	1.279	0.05	0.041	0.052
	LTE Band 7_Aux	20M	QPSK	1	0	Left Cheek	0mm	OFF	20850	2510	23.03	24.00	1.250	-0.03	0.219	0.274
	LTE Band 7_Aux	20M	QPSK	50	0	Left Cheek	0mm	OFF	20850	2510	21.93	23.00	1.279	-0.07	0.124	0.159
	LTE Band 7_Aux	20M	QPSK	1	0	Left Tilted	0mm	OFF	20850	2510	23.03	24.00	1.250	-0.11	0.061	0.076
	LTE Band 7_Aux	20M	QPSK	50	0	Left Tilted	0mm	OFF	20850	2510	21.93	23.00	1.279	-0.06	0.033	0.042
	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	OFF	23230	782	22.62	24.00	1.374	0.02	0.134	0.184
	LTE Band 13	10M	QPSK	25	0	Right Cheek	0mm	OFF	23230	782	22.17	23.00	1.211	0.03	0.116	0.140
	LTE Band 13	10M	QPSK	1	0	Right Tilted	0mm	OFF	23230	782	22.62	24.00	1.374	0.04	0.083	0.114
	LTE Band 13	10M	QPSK	25	0	Right Tilted	0mm	OFF	23230	782	22.17	23.00	1.211	0.05	0.076	0.092
11	LTE Band 13	10M	QPSK	1	0	Left Cheek	0mm	OFF	23230	782	22.62	24.00	1.374	0.03	0.181	0.249
	LTE Band 13	10M	QPSK	25	0	Left Cheek	0mm	OFF	23230	782	22.17	23.00	1.211	0.04	0.155	0.188
	LTE Band 13	10M	QPSK	1	0	Left Tilted	0mm	OFF	23230	782	22.62	24.00	1.374	0.04	0.086	0.118
	LTE Band 13	10M	QPSK	25	0	Left Tilted	0mm	OFF	23230	782	22.17	23.00	1.211	0.06	0.075	0.091
12	LTE Band 66	20M	QPSK	1	0	Right Cheek	0mm	OFF	132072	1720	22.94	23.50	1.138	0.04	0.327	0.372
	LTE Band 66	20M	QPSK	50	0	Right Cheek	0mm	OFF	132072	1720	21.89	22.50	1.151	0.09	0.181	0.208
	LTE Band 66	20M	QPSK	1	0	Right Tilted	0mm	OFF	132072	1720	22.94	23.50	1.138	0.06	0.153	0.174
	LTE Band 66	20M	QPSK	50	0	Right Tilted	0mm	OFF	132072	1720	21.89	22.50	1.151	0.03	0.083	0.096
	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	OFF	132072	1720	22.94	23.50	1.138	0.01	0.156	0.177
	LTE Band 66	20M	QPSK	50	0	Left Cheek	0mm	OFF	132072	1720	21.89	22.50	1.151	0.12	0.089	0.102
	LTE Band 66	20M	QPSK	1	0	Left Tilted	0mm	OFF	132072	1720	22.94	23.50	1.138	0.04	0.103	0.117
	LTE Band 66	20M	QPSK	50	0	Left Tilted	0mm	OFF	132072	1720	21.89	22.50	1.151	0.03	0.058	0.067

<WLAN 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	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	ON	11	2462	16.94	18.00	1.276	95.05	1.052	0.04	0.836	1.123
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	ON	1	2412	16.91	18.00	1.285	95.05	1.052	0.04	0.764	1.033
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	ON	11	2462	16.94	18.00	1.276	95.05	1.052	0.12	0.467	0.627
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	ON	11	2462	16.94	18.00	1.276	95.05	1.052	0	0.236	0.317
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	ON	11	2462	16.94	18.00	1.276	95.05	1.052	0.05	0.243	0.326
14	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	60	5300	16.43	16.50	1.015	94.98	1.053	0.06	0.855	0.914
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	52	5260	16.41	16.50	1.020	94.98	1.053	0.16	0.713	0.766
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	ON	60	5300	16.43	16.50	1.015	94.98	1.053	0.14	0.487	0.521
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	ON	60	5300	16.43	16.50	1.015	94.98	1.053	0.01	0.233	0.249
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	ON	60	5300	16.43	16.50	1.015	94.98	1.053	0	0.190	0.203
15	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	100	5500	16.48	16.50	1.004	94.98	1.053	0.06	1.080	1.142
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	144	5720	16.25	16.50	1.058	94.98	1.053	0.14	0.942	1.050
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	ON	100	5500	16.48	16.50	1.004	94.98	1.053	0.16	0.694	0.734
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	ON	100	5500	16.48	16.50	1.004	94.98	1.053	-0.14	0.342	0.361
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	ON	100	5500	16.48	16.50	1.004	94.98	1.053	-0.07	0.112	0.118
16	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	165	5825	16.49	16.50	1.001	94.98	1.053	0.11	0.911	0.961
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	149	5745	16.30	16.50	1.046	94.98	1.053	0.17	0.871	0.960
	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	ON	165	5825	16.49	16.50	1.001	94.98	1.053	0.15	0.559	0.589
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	ON	165	5825	16.49	16.50	1.001	94.98	1.053	-0.11	0.181	0.191
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	ON	165	5825	16.49	16.50	1.001	94.98	1.053	-0.14	0.083	0.088

<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	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
17	Bluetooth	1Mbps	Right Cheek	0mm	OFF	00	2402	12.26	13.00	1.186	0.06	0.220	0.261
	Bluetooth	1Mbps	Right Tilted	0mm	OFF	00	2402	12.26	13.00	1.186	0.14	0.132	0.157
	Bluetooth	1Mbps	Left Cheek	0mm	OFF	00	2402	12.26	13.00	1.186	0.07	0.065	0.077
	Bluetooth	1Mbps	Left Tilted	0mm	OFF	00	2402	12.26	13.00	1.186	-0.03	0.065	0.077

14.2 Hotspot SAR

<GSM 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)
	GSM850	GPRS (2 Tx slots)	Front	5mm	ON	251	848.8	28.67	30.50	1.524	-0.13	0.633	0.965
	GSM850	GPRS (2 Tx slots)	Front	5mm	ON	128	824.2	28.57	30.50	1.560	-0.15	0.562	0.876
	GSM850	GPRS (2 Tx slots)	Front	5mm	ON	189	836.4	28.55	30.50	1.567	-0.08	0.601	0.942
18	GSM850	GPRS (2 Tx slots)	Back	5mm	ON	251	848.8	28.67	30.50	1.524	0.17	0.759	1.157
	GSM850	GPRS (2 Tx slots)	Back	5mm	ON	128	824.2	28.57	30.50	1.560	0.12	0.501	0.781
	GSM850	GPRS (2 Tx slots)	Back	5mm	ON	189	836.4	28.55	30.50	1.567	0.11	0.684	1.072
	GSM850	GPRS (2 Tx slots)	Left Side	5mm	ON	251	848.8	28.67	30.50	1.524	0.08	0.311	0.474
	GSM850	GPRS (2 Tx slots)	Right Side	5mm	ON	251	848.8	28.67	30.50	1.524	-0.01	0.179	0.273
	GSM850	GPRS (2 Tx slots)	Bottom Side	5mm	ON	251	848.8	28.67	30.50	1.524	0.09	0.360	0.549
	GSM1900	GPRS (3 Tx slots)	Front	5mm	ON	810	1909.8	19.46	20.00	1.132	-0.1	0.676	0.766
	GSM1900	GPRS (3 Tx slots)	Back	5mm	ON	810	1909.8	19.46	20.00	1.132	-0.08	0.726	0.822
	GSM1900	GPRS (3 Tx slots)	Back	5mm	ON	512	1850.2	19.24	20.00	1.191	-0.04	0.591	0.704
	GSM1900	GPRS (3 Tx slots)	Back	5mm	ON	661	1880	19.37	20.00	1.156	0	0.685	0.792
	GSM1900	GPRS (3 Tx slots)	Left Side	5mm	ON	810	1909.8	19.46	20.00	1.132	0.07	0.027	0.031
	GSM1900	GPRS (3 Tx slots)	Right Side	5mm	ON	810	1909.8	19.46	20.00	1.132	-0.08	0.070	0.079
19	GSM1900	GPRS (3 Tx slots)	Bottom Side	5mm	ON	810	1909.8	19.46	20.00	1.132	0.03	1.050	1.189
	GSM1900	GPRS (3 Tx slots)	Bottom Side	5mm	ON	512	1850.2	19.24	20.00	1.191	-0.14	0.881	1.049
	GSM1900	GPRS (3 Tx slots)	Bottom Side	5mm	ON	661	1880	19.37	20.00	1.156	-0.18	0.992	1.147

<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 II	RMC 12.2Kbps	Front	5mm	ON	9538	1907.6	13.89	15.50	1.449	-0.11	0.465	0.674
	WCDMA II	RMC 12.2Kbps	Back	5mm	ON	9538	1907.6	13.89	15.50	1.449	-0.02	0.510	0.739
	WCDMA II	RMC 12.2Kbps	Left Side	5mm	ON	9538	1907.6	13.89	15.50	1.449	-0.07	0.018	0.026
	WCDMA II	RMC 12.2Kbps	Right Side	5mm	ON	9538	1907.6	13.89	15.50	1.449	0.01	0.048	0.070
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	ON	9538	1907.6	13.89	15.50	1.449	-0.03	0.763	1.105
20	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	ON	9262	1852.4	13.55	15.50	1.567	-0.04	0.761	1.192
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	ON	9400	1880	13.68	15.50	1.521	-0.04	0.763	1.160
	WCDMA IV	RMC 12.2Kbps	Front	5mm	ON	1513	1752.6	15.05	16.00	1.245	-0.1	0.668	0.831
	WCDMA IV	RMC 12.2Kbps	Front	5mm	ON	1312	1712.4	14.56	16.00	1.393	-0.13	0.621	0.865
	WCDMA IV	RMC 12.2Kbps	Front	5mm	ON	1413	1732.6	14.63	16.00	1.371	-0.14	0.641	0.879
	WCDMA IV	RMC 12.2Kbps	Back	5mm	ON	1513	1752.6	15.05	16.00	1.245	-0.01	0.666	0.829
	WCDMA IV	RMC 12.2Kbps	Back	5mm	ON	1312	1712.4	14.56	16.00	1.393	-0.19	0.641	0.893
	WCDMA IV	RMC 12.2Kbps	Back	5mm	ON	1413	1732.6	14.63	16.00	1.371	-0.07	0.657	0.901
	WCDMA IV	RMC 12.2Kbps	Left Side	5mm	ON	1513	1752.6	15.05	16.00	1.245	0.07	0.027	0.034
	WCDMA IV	RMC 12.2Kbps	Right Side	5mm	ON	1513	1752.6	15.05	16.00	1.245	-0.1	0.082	0.102
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	ON	1513	1752.6	15.05	16.00	1.245	-0.09	0.828	1.030
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	ON	1312	1712.4	14.56	16.00	1.393	-0.09	0.776	1.081
21	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	ON	1413	1732.6	14.63	16.00	1.371	-0.09	0.808	1.108
	WCDMA V	RMC 12.2Kbps	Front	5mm	ON	4233	846.6	21.50	23.00	1.413	-0.01	0.519	0.733
22	WCDMA V	RMC 12.2Kbps	Back	5mm	ON	4233	846.6	21.50	23.00	1.413	0.16	0.780	1.102
	WCDMA V	RMC 12.2Kbps	Back	5mm	ON	4132	826.4	21.40	23.00	1.445	0.18	0.721	1.042
	WCDMA V	RMC 12.2Kbps	Back	5mm	ON	4182	836.4	21.49	23.00	1.416	0.15	0.759	1.075
	WCDMA V	RMC 12.2Kbps	Left Side	5mm	ON	4233	846.6	21.50	23.00	1.413	-0.03	0.237	0.335
	WCDMA V	RMC 12.2Kbps	Right Side	5mm	ON	4233	846.6	21.50	23.00	1.413	0.02	0.126	0.178
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	ON	4233	846.6	21.50	23.00	1.413	0.14	0.301	0.425

<CDMA 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)
	CDMA BC0	RTAP 153.6Kbps	Front	5mm	ON	777	848.31	23.35	23.50	1.035	-0.19	0.680	0.704
	CDMA BC0	RTAP 153.6Kbps	Back	5mm	ON	777	848.31	23.35	23.50	1.035	0.05	0.849	0.879
	CDMA BC0	RTAP 153.6Kbps	Back	5mm	ON	1013	824.7	23.13	23.50	1.089	0.13	0.833	0.907
23	CDMA BC0	RTAP 153.6Kbps	Back	5mm	ON	384	836.52	23.21	23.50	1.069	0.15	0.850	0.909
	CDMA BC0	RTAP 153.6Kbps	Left Side	5mm	ON	777	848.31	23.35	23.50	1.035	-0.05	0.391	0.405
	CDMA BC0	RTAP 153.6Kbps	Right Side	5mm	ON	777	848.31	23.35	23.50	1.035	-0.02	0.169	0.175
	CDMA BC0	RTAP 153.6Kbps	Bottom Side	5mm	ON	777	848.31	23.35	23.50	1.035	0.02	0.384	0.397
	CDMA BC1	RTAP 153.6Kbps	Front	5mm	ON	1175	1908.75	15.18	15.50	1.076	-0.08	0.619	0.666
	CDMA BC1	RTAP 153.6Kbps	Back	5mm	ON	1175	1908.75	15.18	15.50	1.076	0	0.624	0.672
	CDMA BC1	RTAP 153.6Kbps	Left Side	5mm	ON	1175	1908.75	15.18	15.50	1.076	-0.09	0.023	0.025
	CDMA BC1	RTAP 153.6Kbps	Right Side	5mm	ON	1175	1908.75	15.18	15.50	1.076	-0.13	0.065	0.070
24	CDMA BC1	RTAP 153.6Kbps	Bottom Side	5mm	ON	1175	1908.75	15.18	15.50	1.076	-0.04	0.995	1.071
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	5mm	ON	25	1851.25	14.95	15.50	1.135	-0.02	0.920	1.044
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	5mm	ON	600	1880	15.10	15.50	1.096	-0.03	0.952	1.044

<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 2	20M	QPSK	1	0	Front	5mm	ON	18700	1860	15.03	16.00	1.250	-0.14	0.609	0.761
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ON	18700	1860	14.71	16.00	1.346	-0.17	0.579	0.779
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	18700	1860	15.03	16.00	1.250	-0.14	0.582	0.728
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	18700	1860	14.71	16.00	1.346	0.07	0.568	0.764
	LTE Band 2	20M	QPSK	1	0	Left Side	5mm	ON	18700	1860	15.03	16.00	1.250	0.01	0.019	0.024
	LTE Band 2	20M	QPSK	50	0	Left Side	5mm	ON	18700	1860	14.71	16.00	1.346	0.09	0.019	0.026
	LTE Band 2	20M	QPSK	1	0	Right Side	5mm	ON	18700	1860	15.03	16.00	1.250	-0.11	0.059	0.074
	LTE Band 2	20M	QPSK	50	0	Right Side	5mm	ON	18700	1860	14.71	16.00	1.346	-0.02	0.056	0.075
	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	ON	18700	1860	15.03	16.00	1.250	-0.18	0.892	1.115
25	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	ON	18900	1880	14.83	16.00	1.309	-0.13	0.905	1.185
	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	ON	19100	1900	14.81	16.00	1.315	-0.09	0.878	1.155
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	ON	18700	1860	14.71	16.00	1.346	-0.12	0.859	1.156
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	ON	18900	1880	14.66	16.00	1.361	-0.11	0.861	1.172
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	ON	19100	1900	14.68	16.00	1.355	-0.1	0.866	1.174
	LTE Band 2	20M	QPSK	100	0	Bottom Side	5mm	ON	18700	1860	14.68	16.00	1.355	-0.05	0.863	1.170
	LTE Band 5	10M	QPSK	1	0	Front	5mm	ON	20525	836.5	21.80	23.50	1.479	-0.12	0.538	0.796
	LTE Band 5	10M	QPSK	25	0	Front	5mm	ON	20525	836.5	21.79	22.50	1.178	-0.14	0.535	0.630
26	LTE Band 5	10M	QPSK	1	0	Back	5mm	ON	20525	836.5	21.80	23.50	1.479	0.11	0.738	1.092
	LTE Band 5	10M	QPSK	25	0	Back	5mm	ON	20525	836.5	21.79	22.50	1.178	0.17	0.751	0.884
	LTE Band 5	10M	QPSK	50	0	Back	5mm	ON	20525	836.5	21.74	22.50	1.191	0.12	0.722	0.860
	LTE Band 5	10M	QPSK	1	0	Left Side	5mm	ON	20525	836.5	21.80	23.50	1.479	0.02	0.273	0.404
	LTE Band 5	10M	QPSK	25	0	Left Side	5mm	ON	20525	836.5	21.79	22.50	1.178	0.05	0.287	0.338
	LTE Band 5	10M	QPSK	1	0	Right Side	5mm	ON	20525	836.5	21.80	23.50	1.479	0.05	0.144	0.213
	LTE Band 5	10M	QPSK	25	0	Right Side	5mm	ON	20525	836.5	21.79	22.50	1.178	0.03	0.146	0.172
	LTE Band 5	10M	QPSK	1	0	Bottom Side	5mm	ON	20525	836.5	21.80	23.50	1.479	-0.01	0.287	0.425
	LTE Band 5	10M	QPSK	25	0	Bottom Side	5mm	ON	20525	836.5	21.79	22.50	1.178	-0.01	0.289	0.340

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 7_Main	20M	QPSK	1	0	Front	5mm	ON	20850	2510	17.34	19.00	1.466	-0.16	0.371	0.544
	LTE Band 7_Main	20M	QPSK	50	0	Front	5mm	ON	20850	2510	17.30	19.00	1.479	-0.03	0.366	0.541
	LTE Band 7_Main	20M	QPSK	1	0	Back	5mm	ON	20850	2510	17.34	19.00	1.466	0.13	0.712	1.043
	LTE Band 7_Main	20M	QPSK	1	0	Back	5mm	ON	21100	2535	17.31	19.00	1.476	0.09	0.712	1.051
	LTE Band 7_Main	20M	QPSK	1	0	Back	5mm	ON	21350	2560	17.30	19.00	1.479	0.03	0.690	1.021
	LTE Band 7_Main	20M	QPSK	50	0	Back	5mm	ON	20850	2510	17.30	19.00	1.479	0.15	0.724	1.071
27	LTE Band 7_Main	20M	QPSK	50	0	Back	5mm	ON	21100	2535	17.28	19.00	1.486	0.08	0.722	1.073
	LTE Band 7_Main	20M	QPSK	50	0	Back	5mm	ON	21350	2560	17.23	19.00	1.503	0.16	0.712	1.070
	LTE Band 7_Main	20M	QPSK	100	0	Back	5mm	ON	20850	2510	17.31	19.00	1.476	0.01	0.724	1.068
	LTE Band 7_Main	20M	QPSK	1	0	Right Side	5mm	ON	20850	2510	17.34	19.00	1.466	0.06	0.443	0.649
	LTE Band 7_Main	20M	QPSK	50	0	Right Side	5mm	ON	20850	2510	17.30	19.00	1.479	0.17	0.435	0.643
	LTE Band 7_Main	20M	QPSK	1	0	Bottom Side	5mm	ON	20850	2510	17.34	19.00	1.466	0.05	0.124	0.182
	LTE Band 7_Main	20M	QPSK	50	0	Bottom Side	5mm	ON	20850	2510	17.30	19.00	1.479	0.04	0.125	0.185
	LTE Band 7_Aux	20M	QPSK	1	0	Front	5mm	ON	20850	2510	17.34	19.00	1.466	-0.15	0.200	0.293
	LTE Band 7_Aux	20M	QPSK	50	0	Front	5mm	ON	20850	2510	17.30	19.00	1.479	-0.18	0.203	0.300
	LTE Band 7_Aux	20M	QPSK	1	0	Back	5mm	ON	20850	2510	17.34	19.00	1.466	-0.12	0.246	0.361
	LTE Band 7_Aux	20M	QPSK	50	0	Back	5mm	ON	20850	2510	17.30	19.00	1.479	-0.11	0.250	0.370
	LTE Band 7_Aux	20M	QPSK	1	0	Left Side	5mm	ON	20850	2510	17.34	19.00	1.466	-0.03	0.167	0.245
	LTE Band 7_Aux	20M	QPSK	50	0	Left Side	5mm	ON	20850	2510	17.30	19.00	1.479	0.05	0.179	0.265
	LTE Band 7_Aux	20M	QPSK	1	0	Bottom Side	5mm	ON	20850	2510	17.34	19.00	1.466	0.14	0.037	0.054
	LTE Band 7_Aux	20M	QPSK	50	0	Bottom Side	5mm	ON	20850	2510	17.30	19.00	1.479	0.05	0.039	0.058
	LTE Band 13	10M	QPSK	1	0	Front	5mm	OFF	23230	782	22.62	24.00	1.374	-0.15	0.484	0.665
	LTE Band 13	10M	QPSK	25	0	Front	5mm	OFF	23230	782	22.17	23.00	1.211	-0.14	0.393	0.476
28	LTE Band 13	10M	QPSK	1	0	Back	5mm	OFF	23230	782	22.62	24.00	1.374	0.16	0.702	0.965
	LTE Band 13	10M	QPSK	25	0	Back	5mm	OFF	23230	782	22.17	23.00	1.211	0.12	0.575	0.696
	LTE Band 13	10M	QPSK	50	0	Back	5mm	OFF	23230	782	22.15	23.00	1.216	0.16	0.567	0.690
	LTE Band 13	10M	QPSK	1	0	Left Side	5mm	OFF	23230	782	22.62	24.00	1.374	0.17	0.351	0.482
	LTE Band 13	10M	QPSK	25	0	Left Side	5mm	OFF	23230	782	22.17	23.00	1.211	-0.01	0.300	0.363
	LTE Band 13	10M	QPSK	1	0	Right Side	5mm	OFF	23230	782	22.62	24.00	1.374	0.04	0.224	0.308
	LTE Band 13	10M	QPSK	25	0	Right Side	5mm	OFF	23230	782	22.17	23.00	1.211	0	0.195	0.236
	LTE Band 13	10M	QPSK	1	0	Bottom Side	5mm	OFF	23230	782	22.62	24.00	1.374	-0.18	0.285	0.392
	LTE Band 13	10M	QPSK	25	0	Bottom Side	5mm	OFF	23230	782	22.17	23.00	1.211	-0.08	0.235	0.284

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	5mm	ON	132322	1745	15.48	16.50	1.265	-0.15	0.636	0.804
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132072	1720	15.38	16.50	1.294	-0.09	0.626	0.810
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132572	1770	15.25	16.50	1.334	-0.06	0.678	0.904
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132322	1745	15.49	16.50	1.262	-0.1	0.639	0.806
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132072	1720	15.32	16.50	1.312	-0.07	0.645	0.846
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132572	1770	15.33	16.50	1.309	-0.15	0.686	0.898
	LTE Band 66	20M	QPSK	100	0	Front	5mm	ON	132322	1745	15.45	16.50	1.274	-0.13	0.651	0.829
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132322	1745	15.48	16.50	1.265	-0.05	0.642	0.812
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132072	1720	15.38	16.50	1.294	-0.11	0.640	0.828
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132572	1770	15.25	16.50	1.334	-0.11	0.673	0.897
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132322	1745	15.49	16.50	1.262	-0.11	0.642	0.810
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132072	1720	15.32	16.50	1.312	-0.03	0.655	0.859
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132572	1770	15.33	16.50	1.309	-0.08	0.680	0.890
	LTE Band 66	20M	QPSK	100	0	Back	5mm	ON	132322	1745	15.45	16.50	1.274	-0.1	0.632	0.805
	LTE Band 66	20M	QPSK	1	0	Left Side	5mm	ON	132322	1745	15.48	16.50	1.265	0.06	0.051	0.065
	LTE Band 66	20M	QPSK	50	0	Left Side	5mm	ON	132322	1745	15.49	16.50	1.262	0.19	0.051	0.064
	LTE Band 66	20M	QPSK	1	0	Right Side	5mm	ON	132322	1745	15.48	16.50	1.265	-0.1	0.048	0.061
	LTE Band 66	20M	QPSK	50	0	Right Side	5mm	ON	132322	1745	15.49	16.50	1.262	-0.12	0.050	0.063
	LTE Band 66	20M	QPSK	1	0	Bottom Side	5mm	ON	132322	1745	15.48	16.50	1.265	-0.03	0.812	1.027
	LTE Band 66	20M	QPSK	1	0	Bottom Side	5mm	ON	132072	1720	15.38	16.50	1.294	-0.04	0.799	1.034
29	LTE Band 66	20M	QPSK	1	0	Bottom Side	5mm	ON	132572	1770	15.25	16.50	1.334	-0.03	0.843	1.124
	LTE Band 66	20M	QPSK	50	0	Bottom Side	5mm	ON	132322	1745	15.49	16.50	1.262	0.01	0.813	1.026
	LTE Band 66	20M	QPSK	50	0	Bottom Side	5mm	ON	132072	1720	15.32	16.50	1.312	-0.07	0.792	1.039
	LTE Band 66	20M	QPSK	50	0	Bottom Side	5mm	ON	132572	1770	15.33	16.50	1.309	-0.01	0.846	1.108
	LTE Band 66	20M	QPSK	100	0	Bottom Side	5mm	ON	132322	1745	15.45	16.50	1.274	0	0.806	1.026

<WLAN 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	5mm	OFF	6	2437	18.97	19.00	1.007	98.89	1.011	0.07	0.433	0.441
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	OFF	6	2437	18.97	19.00	1.007	98.89	1.011	-0.03	0.784	0.798
30	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	OFF	6	2437	18.97	19.00	1.007	98.89	1.011	-0.11	0.829	0.844
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	OFF	1	2412	18.66	19.00	1.081	98.89	1.011	-0.1	0.576	0.630
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	OFF	6	2437	18.97	19.00	1.007	98.89	1.011	-0.1	0.152	0.155
	WLAN5GHz	802.11a 6Mbps	Front	5mm	OFF	36	5180	16.95	17.00	1.011	94.98	1.053	-0.15	0.405	0.431
	WLAN5GHz	802.11a 6Mbps	Back	5mm	OFF	36	5180	16.95	17.00	1.011	94.98	1.053	-0.08	0.479	0.510
31	WLAN5GHz	802.11a 6Mbps	Left Side	5mm	OFF	36	5180	16.95	17.00	1.011	94.98	1.053	-0.04	0.621	0.661
	WLAN5GHz	802.11a 6Mbps	Top Side	5mm	OFF	36	5180	16.95	17.00	1.011	94.98	1.053	-0.12	0.088	0.094
	WLAN5GHz	802.11a 6Mbps	Front	5mm	OFF	149	5745	16.96	17.00	1.008	94.98	1.053	0.1	0.631	0.670
	WLAN5GHz	802.11a 6Mbps	Back	5mm	OFF	149	5745	16.96	17.00	1.008	94.98	1.053	-0.14	0.648	0.688
	WLAN5GHz	802.11a 6Mbps	Left Side	5mm	OFF	149	5745	16.96	17.00	1.008	94.98	1.053	-0.08	0.848	0.900
32	WLAN5GHz	802.11a 6Mbps	Left Side	5mm	OFF	165	5825	16.94	17.00	1.013	94.98	1.053	-0.07	0.882	0.941
	WLAN5GHz	802.11a 6Mbps	Top Side	5mm	OFF	149	5745	16.96	17.00	1.008	94.98	1.053	-0.12	0.091	0.097

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	Bluetooth	1Mbps	Front	5mm	00	2402	12.26	13.00	1.186	0.08	0.076	0.090
	Bluetooth	1Mbps	Back	5mm	00	2402	12.26	13.00	1.186	-0.11	0.103	0.122
33	Bluetooth	1Mbps	Left Side	5mm	00	2402	12.26	13.00	1.186	-0.11	0.135	0.160
	Bluetooth	1Mbps	Top Side	5mm	00	2402	12.26	13.00	1.186	-0.02	0.029	0.034

14.3 Product Specific SAR

<GSM 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 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	GSM1900	GPRS (3 Tx slots)	Bottom Side	0mm	OFF	810	1909.8	26.29	28.00	1.483	-0.19	1.500	2.224
34	GSM1900	GPRS (3 Tx slots)	Bottom Side	0mm	OFF	512	1850.2	26.28	28.00	1.486	-0.19	1.950	2.898
	GSM1900	GPRS (3 Tx slots)	Bottom Side	0mm	OFF	661	1880	26.29	28.00	1.483	-0.14	1.690	2.505

<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 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	ON	9538	1907.6	22.22	23.50	1.343	-0.16	2.050	2.753
35	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	ON	9262	1852.4	21.86	23.50	1.459	0.12	2.160	3.151
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	ON	9400	1880	22.04	23.50	1.400	-0.14	2.180	3.051
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	ON	1413	1732.6	21.61	22.50	1.227	-0.1	2.350	2.884
36	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	ON	1312	1712.4	21.59	22.50	1.233	-0.08	2.400	2.959
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	ON	1513	1752.6	22.08	22.50	1.102	-0.11	2.170	2.390

<CDMA 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 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	ON	1175	1908.75	23.00	23.00	1.000	-0.05	2.410	2.410
37	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	ON	25	1851.25	22.86	23.00	1.033	-0.01	2.870	2.964
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	ON	600	1880	22.99	23.00	1.002	-0.02	2.650	2.656

<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 10g SAR (W/kg)	Reported 10g SAR (W/kg)
38	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	ON	18900	1880	22.45	23.50	1.274	0.07	2.290	2.916
	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	ON	18700	1860	22.37	23.50	1.297	0.07	2.190	2.841
	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	ON	19100	1900	22.39	23.50	1.291	0.06	2.110	2.724
	LTE Band 66	20M	QPSK	1	0	Bottom Side	0mm	ON	132572	1770	21.96	22.50	1.132	-0.19	2.270	2.571
39	LTE Band 66	20M	QPSK	1	0	Bottom Side	0mm	ON	132072	1720	21.94	22.50	1.138	-0.13	2.510	2.855
	LTE Band 66	20M	QPSK	1	0	Bottom Side	0mm	ON	132322	1745	22.08	22.50	1.102	-0.12	2.340	2.578

<WLAN 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 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Front	0mm	OFF	52	5260	16.88	17.00	1.027	94.98	1.053	0.14	0.377	0.408
	WLAN5GHz	802.11a 6Mbps	Back	0mm	OFF	52	5260	16.88	17.00	1.027	94.98	1.053	-0.04	0.254	0.275
40	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	OFF	52	5260	16.88	17.00	1.027	94.98	1.053	-0.11	0.781	0.845
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	OFF	52	5260	16.88	17.00	1.027	94.98	1.053	-0.07	0.091	0.098
	WLAN5GHz	802.11a 6Mbps	Front	0mm	OFF	100	5500	16.71	17.00	1.068	94.98	1.053	-0.09	0.353	0.397
	WLAN5GHz	802.11a 6Mbps	Back	0mm	OFF	100	5500	16.71	17.00	1.068	94.98	1.053	0.16	0.282	0.317
41	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	OFF	100	5500	16.71	17.00	1.068	94.98	1.053	-0.09	0.860	0.967
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	OFF	100	5500	16.71	17.00	1.068	94.98	1.053	-0.1	0.125	0.141

14.4 Body Worn Accessory SAR

<GSM 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)
	GSM850	GPRS (2 Tx slots)	Front	5mm	ON	251	848.8	28.67	30.50	1.524	-0.13	0.633	0.965
	GSM850	GPRS (2 Tx slots)	Front	5mm	ON	128	824.2	28.57	30.50	1.560	-0.15	0.562	0.876
	GSM850	GPRS (2 Tx slots)	Front	5mm	ON	189	836.4	28.55	30.50	1.567	-0.08	0.601	0.942
42	GSM850	GPRS (2 Tx slots)	Back	5mm	ON	251	848.8	28.67	30.50	1.524	0.17	0.759	1.157
	GSM850	GPRS (2 Tx slots)	Back	5mm	ON	128	824.2	28.57	30.50	1.560	0.12	0.501	0.781
	GSM850	GPRS (2 Tx slots)	Back	5mm	ON	189	836.4	28.55	30.50	1.567	0.11	0.684	1.072
	GSM1900	GPRS (3 Tx slots)	Front	5mm	ON	810	1909.8	19.46	21.00	1.426	-0.1	0.676	0.964
	GSM1900	GPRS (3 Tx slots)	Front	5mm	ON	512	1850.2	19.24	21.00	1.500	-0.16	0.610	0.915
	GSM1900	GPRS (3 Tx slots)	Front	5mm	ON	661	1880	19.37	21.00	1.455	-0.05	0.689	1.003
43	GSM1900	GPRS (3 Tx slots)	Back	5mm	ON	810	1909.8	19.46	21.00	1.426	-0.08	0.726	1.035
	GSM1900	GPRS (3 Tx slots)	Back	5mm	ON	512	1850.2	19.24	21.00	1.500	-0.04	0.591	0.886
	GSM1900	GPRS (3 Tx slots)	Back	5mm	ON	661	1880	19.37	21.00	1.455	0	0.685	0.997

<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 II	RMC 12.2Kbps	Front	5mm	ON	9538	1907.6	16.39	17.00	1.151	-0.08	0.849	0.977
44	WCDMA II	RMC 12.2Kbps	Front	5mm	ON	9262	1852.4	15.98	17.00	1.265	-0.05	0.891	1.127
	WCDMA II	RMC 12.2Kbps	Front	5mm	ON	9400	1880	16.18	17.00	1.208	-0.07	0.870	1.051
	WCDMA II	RMC 12.2Kbps	Back	5mm	ON	9538	1907.6	16.39	17.00	1.151	-0.03	0.847	0.975
	WCDMA II	RMC 12.2Kbps	Back	5mm	ON	9262	1852.4	15.98	17.00	1.265	-0.08	0.881	1.114
	WCDMA II	RMC 12.2Kbps	Back	5mm	ON	9400	1880	16.18	17.00	1.208	-0.04	0.858	1.036
	WCDMA IV	RMC 12.2Kbps	Front	5mm	ON	1513	1752.6	15.05	16.50	1.396	-0.1	0.668	0.933
	WCDMA IV	RMC 12.2Kbps	Front	5mm	ON	1312	1712.4	14.56	16.50	1.563	-0.13	0.621	0.971
	WCDMA IV	RMC 12.2Kbps	Front	5mm	ON	1413	1732.6	14.63	16.50	1.538	-0.14	0.641	0.986
	WCDMA IV	RMC 12.2Kbps	Back	5mm	ON	1513	1752.6	15.05	16.50	1.396	-0.01	0.666	0.930
	WCDMA IV	RMC 12.2Kbps	Back	5mm	ON	1312	1712.4	14.56	16.50	1.563	-0.19	0.641	1.002
45	WCDMA IV	RMC 12.2Kbps	Back	5mm	ON	1413	1732.6	14.63	16.50	1.538	-0.07	0.657	1.011
	WCDMA V	RMC 12.2Kbps	Front	5mm	ON	4233	846.6	21.50	23.00	1.413	-0.01	0.519	0.733
46	WCDMA V	RMC 12.2Kbps	Back	5mm	ON	4233	846.6	21.50	23.00	1.413	0.16	0.780	1.102
	WCDMA V	RMC 12.2Kbps	Back	5mm	ON	4132	826.4	21.40	23.00	1.445	0.18	0.721	1.042
	WCDMA V	RMC 12.2Kbps	Back	5mm	ON	4182	836.4	21.49	23.00	1.416	0.15	0.759	1.075

<CDMA 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)
	CDMA BC0	1xRTT RC3 SO32	Front	5mm	ON	777	848.31	23.27	23.50	1.054	-0.14	0.671	0.707
	CDMA BC0	1xRTT RC3 SO32	Back	5mm	ON	777	848.31	23.27	23.50	1.054	0.03	0.873	0.920
	CDMA BC0	1xRTT RC3 SO32	Back	5mm	ON	1013	824.7	23.11	23.50	1.094	0.17	0.874	0.956
47	CDMA BC0	1xRTT RC3 SO32	Back	5mm	ON	384	836.52	23.15	23.50	1.084	0.11	0.933	1.011
	CDMA BC1	1xRTT RC3 SO32	Front	5mm	ON	1175	1908.75	17.19	17.50	1.074	0.03	1.020	1.095
48	CDMA BC1	1xRTT RC3 SO32	Front	5mm	ON	25	1851.25	16.90	17.50	1.148	-0.01	1.030	1.183
	CDMA BC1	1xRTT RC3 SO32	Front	5mm	ON	600	1880	17.09	17.50	1.099	-0.08	1.010	1.110
	CDMA BC1	1xRTT RC3 SO32	Back	5mm	ON	1175	1908.75	17.19	17.50	1.074	0.05	1.020	1.095
	CDMA BC1	1xRTT RC3 SO32	Back	5mm	ON	25	1851.25	16.90	17.50	1.148	0.02	1.000	1.148
	CDMA BC1	1xRTT RC3 SO32	Back	5mm	ON	600	1880	17.09	17.50	1.099	0.02	0.992	1.090

<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 2	20M	QPSK	1	0	Front	5mm	ON	18700	1860	15.03	16.50	1.403	-0.14	0.609	0.854
49	LTE Band 2	20M	QPSK	1	0	Front	5mm	ON	18900	1880	14.83	16.50	1.469	-0.1	0.664	0.975
	LTE Band 2	20M	QPSK	1	0	Front	5mm	ON	19100	1900	14.81	16.50	1.476	-0.07	0.555	0.819
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ON	18700	1860	14.71	16.50	1.510	-0.17	0.579	0.874
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ON	18900	1880	14.66	16.50	1.528	-0.18	0.547	0.836
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ON	19100	1900	14.68	16.50	1.521	-0.11	0.551	0.838
	LTE Band 2	20M	QPSK	100	0	Front	5mm	ON	18700	1860	14.68	16.50	1.521	-0.18	0.560	0.852
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	18700	1860	15.03	16.50	1.403	-0.14	0.582	0.816
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	18900	1880	14.83	16.50	1.469	-0.05	0.597	0.877
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	19100	1900	14.81	16.50	1.476	-0.01	0.585	0.863
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	18700	1860	14.71	16.50	1.510	0.07	0.568	0.858
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	18900	1880	14.66	16.50	1.528	-0.06	0.572	0.874
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	19100	1900	14.68	16.50	1.521	-0.05	0.589	0.896
	LTE Band 2	20M	QPSK	100	0	Back	5mm	ON	18700	1860	14.68	16.50	1.521	-0.05	0.574	0.873
	LTE Band 5	10M	QPSK	1	0	Front	5mm	ON	20525	836.5	21.80	23.50	1.479	-0.12	0.538	0.796
	LTE Band 5	10M	QPSK	25	0	Front	5mm	ON	20525	836.5	21.79	22.50	1.178	-0.14	0.535	0.630
50	LTE Band 5	10M	QPSK	1	0	Back	5mm	ON	20525	836.5	21.80	23.50	1.479	0.11	0.738	1.092
	LTE Band 5	10M	QPSK	25	0	Back	5mm	ON	20525	836.5	21.79	22.50	1.178	0.17	0.751	0.884
	LTE Band 7_Main	20M	QPSK	1	0	Front	5mm	ON	20850	2510	17.34	19.00	1.466	-0.16	0.371	0.544
	LTE Band 7_Main	20M	QPSK	50	0	Front	5mm	ON	20850	2510	17.30	19.00	1.479	-0.03	0.366	0.541
	LTE Band 7_Main	20M	QPSK	1	0	Back	5mm	ON	20850	2510	17.34	19.00	1.466	0.13	0.712	1.043
	LTE Band 7_Main	20M	QPSK	1	0	Back	5mm	ON	21100	2535	17.31	19.00	1.476	0.09	0.712	1.051
	LTE Band 7_Main	20M	QPSK	1	0	Back	5mm	ON	21350	2560	17.30	19.00	1.479	0.03	0.690	1.021
	LTE Band 7_Main	20M	QPSK	50	0	Back	5mm	ON	20850	2510	17.30	19.00	1.479	0.15	0.724	1.071
51	LTE Band 7_Main	20M	QPSK	50	0	Back	5mm	ON	21100	2535	17.28	19.00	1.486	0.08	0.722	1.073
	LTE Band 7_Main	20M	QPSK	50	0	Back	5mm	ON	21350	2560	17.23	19.00	1.503	0.16	0.712	1.070
	LTE Band 7_Main	20M	QPSK	100	0	Back	5mm	ON	20850	2510	17.31	19.00	1.476	0.01	0.724	1.068
	LTE Band 7_Aux	20M	QPSK	1	0	Front	5mm	ON	20850	2510	17.34	19.00	1.466	-0.15	0.200	0.293
	LTE Band 7_Aux	20M	QPSK	50	0	Front	5mm	ON	20850	2510	17.30	19.00	1.479	-0.18	0.203	0.300
	LTE Band 7_Aux	20M	QPSK	1	0	Back	5mm	ON	20850	2510	17.34	19.00	1.466	-0.12	0.246	0.361
	LTE Band 7_Aux	20M	QPSK	50	0	Back	5mm	ON	20850	2510	17.30	19.00	1.479	-0.11	0.250	0.370
	LTE Band 13	10M	QPSK	1	0	Front	5mm	OFF	23230	782	22.62	24.00	1.374	-0.15	0.484	0.665
	LTE Band 13	10M	QPSK	25	0	Front	5mm	OFF	23230	782	22.17	23.00	1.211	-0.14	0.393	0.476
52	LTE Band 13	10M	QPSK	1	0	Back	5mm	OFF	23230	782	22.62	24.00	1.374	0.16	0.702	0.965
	LTE Band 13	10M	QPSK	25	0	Back	5mm	OFF	23230	782	22.17	23.00	1.211	0.12	0.575	0.696
	LTE Band 13	10M	QPSK	50	0	Back	5mm	OFF	23230	782	22.15	23.00	1.216	0.16	0.567	0.690
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132322	1745	15.48	17.00	1.419	-0.15	0.636	0.903
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132072	1720	15.38	17.00	1.452	-0.09	0.626	0.909
53	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132572	1770	15.25	17.00	1.496	-0.06	0.678	1.014
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132322	1745	15.49	17.00	1.416	-0.1	0.639	0.905
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132072	1720	15.32	17.00	1.472	-0.07	0.645	0.950
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132572	1770	15.33	17.00	1.469	-0.15	0.686	1.008
	LTE Band 66	20M	QPSK	100	0	Front	5mm	ON	132322	1745	15.45	17.00	1.429	-0.13	0.651	0.930
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132322	1745	15.48	17.00	1.419	-0.05	0.642	0.911
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132072	1720	15.38	17.00	1.452	-0.11	0.640	0.929
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132572	1770	15.25	17.00	1.496	-0.11	0.673	1.007
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132322	1745	15.49	17.00	1.416	-0.11	0.642	0.909
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132072	1720	15.32	17.00	1.472	-0.03	0.655	0.964
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132572	1770	15.33	17.00	1.469	-0.08	0.680	0.999
	LTE Band 66	20M	QPSK	100	0	Back	5mm	ON	132322	1745	15.45	17.00	1.429	-0.1	0.632	0.903

<WLAN 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	5mm	OFF	6	2437	18.97	19.00	1.007	98.89	1.011	0.07	0.433	0.441
54	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	OFF	6	2437	18.97	19.00	1.007	98.89	1.011	-0.03	0.784	0.798
	WLAN5GHz	802.11a 6Mbps	Front	5mm	OFF	52	5260	16.88	17.00	1.027	94.98	1.053	-0.11	0.425	0.460
55	WLAN5GHz	802.11a 6Mbps	Back	5mm	OFF	52	5260	16.88	17.00	1.027	94.98	1.053	-0.06	0.502	0.543
	WLAN5GHz	802.11a 6Mbps	Front	5mm	OFF	100	5500	16.71	17.00	1.068	94.98	1.053	0.12	0.523	0.588
56	WLAN5GHz	802.11a 6Mbps	Back	5mm	OFF	100	5500	16.71	17.00	1.068	94.98	1.053	-0.09	0.657	0.739
	WLAN5GHz	802.11a 6Mbps	Front	5mm	OFF	149	5745	16.96	17.00	1.008	94.98	1.053	0.1	0.631	0.670
57	WLAN5GHz	802.11a 6Mbps	Back	5mm	OFF	149	5745	16.96	17.00	1.008	94.98	1.053	-0.14	0.648	0.688

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	Bluetooth	1Mbps	Front	5mm	00	2402	12.26	13.00	1.186	0.08	0.076	0.090
58	Bluetooth	1Mbps	Back	5mm	00	2402	12.26	13.00	1.186	-0.11	0.103	0.122

14.5 Repeated SAR Measurement

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)	Ratio	Reported 1g SAR (W/kg)
1st	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	ON	11	2462	16.94	18.00	1.276	95.05	1.052	0.04	0.836		1.123
2nd	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	ON	11	2462	16.94	18.00	1.276	95.05	1.052	0.12	0.818	1.02	1.098
1st	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	60	5300	16.43	16.50	1.015	94.98	1.053	0.06	0.855		0.914
2nd	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	60	5300	16.43	16.50	1.015	94.98	1.053	0.15	0.851	1.00	0.910
1st	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	100	5500	16.48	16.50	1.004	94.98	1.053	0.06	1.080		1.142
2nd	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	100	5500	16.48	16.50	1.004	94.98	1.053	0.11	1.010	1.07	1.068
1st	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	165	5825	16.49	16.50	1.001	94.98	1.053	0.11	0.911		0.961
2nd	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	ON	165	5825	16.49	16.50	1.001	94.98	1.053	0.11	0.895	1.02	0.944
1st	GSM1900	GPRS (3 Tx slots)	Bottom Side	5mm	ON	810	1909.8	19.46	20.00	1.132	-	-	0.03	1.050		1.189
2nd	GSM1900	GPRS (3 Tx slots)	Bottom Side	5mm	ON	810	1909.8	19.46	20.00	1.132	-	-	-0.18	1.040	1.01	1.178
1st	LTE Band 66	20M_QPSK_50_0	Bottom Side	5mm	ON	132572	1770	15.33	16.50	1.309	-	-	-0.01	0.846		1.108
2nd	LTE Band 66	20M_QPSK_50_0	Bottom Side	5mm	ON	132572	1770	15.33	16.50	1.309	-	-	-0.01	0.830	1.02	1.087
1st	CDMA BC0	1xRTT RC3 SO32	Back	5mm	ON	384	836.52	23.15	23.50	1.084	-	-	0.11	0.933		1.011
2nd	CDMA BC0	1xRTT RC3 SO32	Back	5mm	ON	384	836.52	23.15	23.50	1.084	-	-	0.11	0.916	1.02	0.993

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 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	ON	25	1851.25	22.86	23.00	1.033	-0.01	2.870	1.01	2.964
2nd	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	ON	25	1851.25	22.86	23.00	1.033	-0.02	2.850		2.943
1st	LTE Band 66	20M_QPSK_1_0	Bottom Side	0mm	ON	132072	1720	21.94	22.50	1.138	-0.13	2.510	1.01	2.855
2nd	LTE Band 66	20M_QPSK_1_0	Bottom Side	0mm	ON	132072	1720	21.94	22.50	1.138	-0.15	2.490	1.01	2.833

General Note:

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

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	GSM Voice + WLAN2.4GHz	Yes	Yes		Yes
2.	GPRS/EDGE + WLAN2.4GHz	Yes	Yes	Yes	Yes
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes	Yes
4.	LTE + WLAN2.4GHz	Yes	Yes	Yes	Yes
5.	GSM Voice + Bluetooth	Yes	Yes		Yes
6.	GPRS/EDGE + Bluetooth	Yes	Yes	Yes	Yes
7.	WCDMA+ Bluetooth	Yes	Yes	Yes	Yes
8.	LTE + Bluetooth	Yes	Yes	Yes	Yes
9.	GSM Voice + WLAN5GHz	Yes	Yes		Yes
10.	GPRS/EDGE + WLAN5GHz	Yes	Yes	Yes	Yes
11.	WCDMA + WLAN5GHz	Yes	Yes	Yes	Yes
12.	LTE + WLAN5GHz	Yes	Yes	Yes	Yes

General Note:

1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. 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.
4. The Scaled SAR summation is calculated based on the same configuration and test position.
5. 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.
   v) The SPLSR calculated results please refer to section 15.4.

15.1 Head 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)	1+2 SPLSR	1+2 Case No	1+3 SPLSR	1+3 Case No
GSM	GSM850	Right Cheek	0.199	1.123	1.142	0.261	**1.322**	**1.341**	**0.460**				
		Right Tilted	0.117	0.627	0.734	0.157	**0.744**	**0.851**	**0.274**				
		Left Cheek	0.266	0.317	0.361	0.077	**0.583**	**0.627**	**0.343**				
		Left Tilted	0.119	0.326	0.203	0.077	**0.445**	**0.322**	**0.196**				
	GSM1900	Right Cheek	0.254	1.123	1.142	0.261	**1.377**	**1.396**	**0.515**				
		Right Tilted	0.104	0.627	0.734	0.157	**0.731**	**0.838**	**0.261**				
		Left Cheek	0.148	0.317	0.361	0.077	**0.465**	**0.509**	**0.225**				
		Left Tilted	0.135	0.326	0.203	0.077	**0.461**	**0.338**	**0.212**				
WCDMA	WCDMA II	Right Cheek	0.285	1.123	1.142	0.261	**1.408**	**1.427**	**0.546**				
		Right Tilted	0.078	0.627	0.734	0.157	**0.705**	**0.812**	**0.235**				
		Left Cheek	0.147	0.317	0.361	0.077	**0.464**	**0.508**	**0.224**				
		Left Tilted	0.131	0.326	0.203	0.077	**0.457**	**0.334**	**0.208**				
	WCDMA IV	Right Cheek	0.406	1.123	1.142	0.261	**1.529**	**1.548**	**0.667**				
		Right Tilted	0.149	0.627	0.734	0.157	**0.776**	**0.883**	**0.306**				
		Left Cheek	0.206	0.317	0.361	0.077	**0.523**	**0.567**	**0.283**				
		Left Tilted	0.147	0.326	0.203	0.077	**0.473**	**0.350**	**0.224**				
	WCDMA V	Right Cheek	0.290	1.123	1.142	0.261	**1.413**	**1.432**	**0.551**				
		Right Tilted	0.160	0.627	0.734	0.157	**0.787**	**0.894**	**0.317**				
		Left Cheek	0.396	0.317	0.361	0.077	**0.713**	**0.757**	**0.473**				
		Left Tilted	0.201	0.326	0.203	0.077	**0.527**	**0.404**	**0.278**				
CDMA	CDMA BC0	Right Cheek	0.281	1.123	1.142	0.261	**1.404**	**1.423**	**0.542**				
		Right Tilted	0.154	0.627	0.734	0.157	**0.781**	**0.888**	**0.311**				
		Left Cheek	0.369	0.317	0.361	0.077	**0.686**	**0.730**	**0.446**				
		Left Tilted	0.151	0.326	0.203	0.077	**0.477**	**0.354**	**0.228**				
	CDMA BC1	Right Cheek	0.344	1.123	1.142	0.261	**1.467**	**1.486**	**0.605**				
		Right Tilted	0.097	0.627	0.734	0.157	**0.724**	**0.831**	**0.254**				
		Left Cheek	0.180	0.317	0.361	0.077	**0.497**	**0.541**	**0.257**				
		Left Tilted	0.181	0.326	0.203	0.077	**0.507**	**0.384**	**0.258**				
LTE	LTE Band 2	Right Cheek	0.284	1.123	1.142	0.261	**1.407**	**1.426**	**0.545**				
		Right Tilted	0.105	0.627	0.734	0.157	**0.732**	**0.839**	**0.262**				
		Left Cheek	0.135	0.317	0.361	0.077	**0.452**	**0.496**	**0.212**				
		Left Tilted	0.131	0.326	0.203	0.077	**0.457**	**0.334**	**0.208**				
	LTE Band 5	Right Cheek	0.303	1.123	1.142	0.261	**1.426**	**1.445**	**0.564**				
		Right Tilted	0.147	0.627	0.734	0.157	**0.774**	**0.881**	**0.304**				
		Left Cheek	0.369	0.317	0.361	0.077	**0.686**	**0.730**	**0.446**				
		Left Tilted	0.155	0.326	0.203	0.077	**0.481**	**0.358**	**0.232**				
	LTE Band 7_Main	Right Cheek	0.444	1.123	1.142	0.261	**1.567**	**1.586**	**0.705**				
		Right Tilted	0.266	0.627	0.734	0.157	**0.893**	**1.000**	**0.423**				
		Left Cheek	0.293	0.317	0.361	0.077	**0.610**	**0.654**	**0.370**				
		Left Tilted	0.314	0.326	0.203	0.077	**0.640**	**0.517**	**0.391**				
	LTE Band 7_Aux	Right Cheek	0.130	1.123	1.142	0.261	**1.253**	**1.272**	**0.391**				
		Right Tilted	0.089	0.627	0.734	0.157	**0.716**	**0.823**	**0.246**				
		Left Cheek	0.274	0.317	0.361	0.077	**0.591**	**0.635**	**0.351**				
		Left Tilted	0.076	0.326	0.203	0.077	**0.402**	**0.279**	**0.153**				
	LTE Band 13	Right Cheek	0.184	1.123	1.142	0.261	**1.307**	**1.326**	**0.445**				
		Right Tilted	0.114	0.627	0.734	0.157	**0.741**	**0.848**	**0.271**				
		Left Cheek	0.249	0.317	0.361	0.077	**0.566**	**0.610**	**0.326**				
		Left Tilted	0.118	0.326	0.203	0.077	**0.444**	**0.321**	**0.195**				
	LTE Band 66	Right Cheek	0.372	1.123	1.142	0.261	**1.495**	**1.514**	**0.633**				
		Right Tilted	0.174	0.627	0.734	0.157	**0.801**	**0.908**	**0.331**				
		Left Cheek	0.177	0.317	0.361	0.077	**0.494**	**0.538**	**0.254**				
		Left Tilted	0.117	0.326	0.203	0.077	**0.443**	**0.320**	**0.194**				

15.2 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)	1+2 SPLSR	1+2 Case No	1+3 SPLSR	1+3 Case No
GSM	GSM850	Front	0.965	0.441	0.670	0.090	**1.406**	**1.635**	**1.055**			0.01	Case 9
		Back	1.157	0.798	0.688	0.122	**1.955**	**1.845**	**1.279**	0.02	Case 1	0.02	Case 10
		Left side	0.474	0.844	0.941	0.160	**1.318**	**1.415**	**0.634**				
		Right side	0.273				**0.273**	**0.273**	**0.273**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	0.549				**0.549**	**0.549**	**0.549**				
	GSM1900	Front	0.766	0.441	0.670	0.090	**1.207**	**1.436**	**0.856**				
		Back	0.822	0.798	0.688	0.122	**1.620**	**1.510**	**0.944**	0.01	Case 2		
		Left side	0.031	0.844	0.941	0.160	**0.875**	**0.972**	**0.191**				
		Right side	0.079	0.032	0.001	0.007	**0.111**	**0.080**	**0.086**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	1.189				**1.189**	**1.189**	**1.189**				
WCDMA	WCDMA II	Front	0.674	0.441	0.670	0.090	**1.115**	**1.344**	**0.764**				
		Back	0.739	0.798	0.688	0.122	**1.537**	**1.427**	**0.861**				
		Left side	0.026	0.844	0.941	0.160	**0.870**	**0.967**	**0.186**				
		Right side	0.070	0.032	0.001	0.007	**0.102**	**0.071**	**0.077**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	1.192				**1.192**	**1.192**	**1.192**				
	WCDMA IV	Front	0.879	0.441	0.670	0.090	**1.320**	**1.549**	**0.969**				
		Back	0.901	0.798	0.688	0.122	**1.699**	**1.589**	**1.023**	0.02	Case 3		
		Left side	0.034	0.844	0.941	0.160	**0.878**	**0.975**	**0.194**				
		Right side	0.102	0.032	0.001	0.007	**0.134**	**0.103**	**0.109**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	1.108				**1.108**	**1.108**	**1.108**				
	WCDMA V	Front	0.733	0.441	0.670	0.090	**1.174**	**1.403**	**0.823**				
		Back	1.102	0.798	0.688	0.122	**1.900**	**1.790**	**1.224**	0.02	Case 4	0.02	Case 11
		Left side	0.335	0.844	0.941	0.160	**1.179**	**1.276**	**0.495**				
		Right side	0.178	0.032	0.001	0.007	**0.210**	**0.179**	**0.185**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	0.425				**0.425**	**0.425**	**0.425**				
CDMA	CDMA BC0	Front	0.704	0.441	0.670	0.090	**1.145**	**1.374**	**0.794**				
		Back	0.909	0.798	0.688	0.122	**1.707**	**1.597**	**1.031**	0.02	Case 5	0.01	Case 12
		Left side	0.405	0.844	0.941	0.160	**1.249**	**1.346**	**0.565**				
		Right side	0.175	0.032	0.001	0.007	**0.207**	**0.176**	**0.182**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	0.397				**0.397**	**0.397**	**0.397**				
	CDMA BC1	Front	0.666	0.441	0.670	0.090	**1.107**	**1.336**	**0.756**				
		Back	0.672	0.798	0.688	0.122	**1.470**	**1.360**	**0.794**				
		Left side	0.025	0.844	0.941	0.160	**0.869**	**0.966**	**0.185**				
		Right side	0.070	0.032	0.001	0.007	**0.102**	**0.071**	**0.077**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	1.071				**1.071**	**1.071**	**1.071**				

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)	1+2 SPLSR	1+2 Case No	1+3 SPLSR	1+3 Case No
LTE	LTE Band 2	Front	0.779	0.441	0.670	0.090	**1.220**	**1.449**	**0.869**				
		Back	0.764	0.798	0.688	0.122	**1.562**	**1.452**	**0.886**				
		Left side	0.026	0.844	0.941	0.160	**0.870**	**0.967**	**0.186**				
		Right side	0.075	0.032	0.001	0.007	**0.107**	**0.076**	**0.082**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	1.185				**1.185**	**1.185**	**1.185**				
	LTE Band 5	Front	0.796	0.441	0.670	0.090	**1.237**	**1.466**	**0.886**				
		Back	1.092	0.798	0.688	0.122	**1.890**	**1.780**	**1.214**	0.02	Case 6	0.02	Case 13
		Left side	0.404	0.844	0.941	0.160	**1.248**	**1.345**	**0.564**				
		Right side	0.213	0.032	0.001	0.007	**0.245**	**0.214**	**0.220**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	0.425				**0.425**	**0.425**	**0.425**				
	LTE Band 7_Main	Front	0.544	0.441	0.670	0.090	**0.985**	**1.214**	**0.634**				
		Back	1.073	0.798	0.688	0.122	**1.871**	**1.761**	**1.195**	0.02	Case 45	0.02	Case 46
		Left side		0.844	0.941	0.160	**0.844**	**0.941**	**0.160**				
		Right side	0.649	0.032	0.001	0.007	**0.681**	**0.650**	**0.656**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	0.185				**0.185**	**0.185**	**0.185**				
	LTE Band 7_Aux	Front	0.300	0.441	0.670	0.090	**0.741**	**0.970**	**0.390**				
		Back	0.370	0.798	0.688	0.122	**1.168**	**1.058**	**0.492**				
		Left side	0.265	0.844	0.941	0.160	**1.109**	**1.206**	**0.425**				
		Right side		0.032	0.001	0.007	**0.032**	**0.001**	**0.007**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	0.058				**0.058**	**0.058**	**0.058**				
	LTE Band 13	Front	0.665	0.441	0.670	0.090	**1.106**	**1.335**	**0.755**				
		Back	0.965	0.798	0.688	0.122	**1.763**	**1.653**	**1.087**	0.02	Case 7	0.01	Case 14
		Left side	0.482	0.844	0.941	0.160	**1.326**	**1.423**	**0.642**				
		Right side	0.308	0.032	0.001	0.007	**0.340**	**0.309**	**0.315**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	0.392				**0.392**	**0.392**	**0.392**				
	LTE Band 66	Front	0.904	0.441	0.670	0.090	**1.345**	**1.574**	**0.994**				
		Back	0.897	0.798	0.688	0.122	**1.695**	**1.585**	**1.019**	0.02	Case 8		
		Left side	0.065	0.844	0.941	0.160	**0.909**	**1.006**	**0.225**				
		Right side	0.063	0.032	0.001	0.007	**0.095**	**0.064**	**0.070**				
		Top side		0.155	0.097	0.034	**0.155**	**0.097**	**0.034**				
		Bottom side	1.124				**1.124**	**1.124**	**1.124**				

15.3 Product Specific Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 10g SAR (W/kg)	2 2.4GHz WLAN 10g SAR (W/kg)	3 5GHz WLAN 10g SAR (W/kg)	4 Bluetooth 10g SAR (W/kg)	1+2 Summed 10g SAR (W/kg)	1+3 Summed 10g SAR (W/kg)	1+4 Summed 10g SAR (W/kg)
GSM	GSM1900	Front			0.408			**0.408**	
		Back			0.317			**0.317**	
		Left side			0.967			**0.967**	
		Right side							
		Top side			0.141			**0.141**	
		Bottom side	2.898				**2.898**	**2.898**	**2.898**
WCDMA	WCDMA II	Front			0.408			**0.408**	
		Back			0.317			**0.317**	
		Left side			0.967			**0.967**	
		Right side							
		Top side			0.141			**0.141**	
		Bottom side	3.151				**3.151**	**3.151**	**3.151**
	WCDMA IV	Front			0.408			**0.408**	
		Back			0.317			**0.317**	
		Left side			0.967			**0.967**	
		Right side							
		Top side			0.141			**0.141**	
		Bottom side	2.959				**2.959**	**2.959**	**2.959**
CDMA	CDMA BC1	Front			0.408			**0.408**	
		Back			0.317			**0.317**	
		Left side			0.967			**0.967**	
		Right side							
		Top side			0.141			**0.141**	
		Bottom side	2.964				**2.964**	**2.964**	**2.964**
LTE	LTE Band 2	Front			0.408			**0.408**	
		Back			0.317			**0.317**	
		Left side			0.967			**0.967**	
		Right side							
		Top side			0.141			**0.141**	
		Bottom side	2.916				**2.916**	**2.916**	**2.916**
	LTE Band 66	Front			0.408			**0.408**	
		Back			0.317			**0.317**	
		Left side			0.967			**0.967**	
		Right side							
		Top side			0.141			**0.141**	
		Bottom side	2.855				**2.855**	**2.855**	**2.855**

15.4 Body-Worn Accessory Exposure Conditions

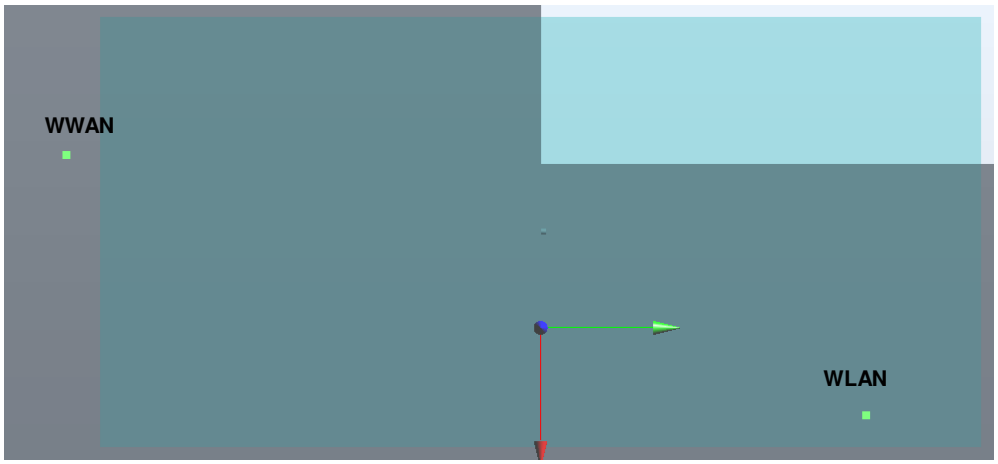
WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 5GHz WLAN 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+2 SPLSR	1+2 Case No	1+3 SPLSR	1+3 Case No
GSM	GSM850	Front	0.965	0.441	0.670	0.090	**1.406**	**1.635**	**1.055**			0.01	Case 26
		Back	1.157	0.798	0.739	0.122	**1.955**	**1.896**	**1.279**	0.02	Case 1	0.02	Case 27
	GSM1900	Front	1.003	0.441	0.670	0.090	**1.444**	**1.673**	**1.093**			0.01	Case 28
		Back	1.035	0.798	0.739	0.122	**1.833**	**1.774**	**1.157**	0.02	Case 15	0.02	Case 29
WCDMA	WCDMA II	Front	1.127	0.441	0.670	0.090	**1.568**	**1.797**	**1.217**			0.02	Case 30
		Back	1.114	0.798	0.739	0.122	**1.912**	**1.853**	**1.236**	0.02	Case 16	0.02	Case 31
	WCDMA IV	Front	0.986	0.441	0.670	0.090	**1.427**	**1.656**	**1.076**			0.01	Case 32
		Back	1.011	0.798	0.739	0.122	**1.809**	**1.750**	**1.133**	0.02	Case 17	0.02	Case 33
	WCDMA V	Front	0.733	0.441	0.670	0.090	**1.174**	**1.403**	**0.823**				
		Back	1.102	0.798	0.739	0.122	**1.900**	**1.841**	**1.224**	0.02	Case 4	0.02	Case 34
CDMA	CDMA BC0	Front	0.707	0.441	0.670	0.090	**1.148**	**1.377**	**0.797**				
		Back	1.011	0.798	0.739	0.122	**1.809**	**1.750**	**1.133**	0.02	Case 18	0.02	Case 35
	CDMA BC1	Front	1.183	0.441	0.670	0.090	**1.624**	**1.853**	**1.273**	0.01	Case 19	0.02	Case 36
		Back	1.148	0.798	0.739	0.122	**1.946**	**1.887**	**1.270**	0.02	Case 20	0.02	Case 37
LTE	LTE Band 2	Front	0.975	0.441	0.670	0.090	**1.416**	**1.645**	**1.065**			0.01	Case 38
		Back	0.896	0.798	0.739	0.122	**1.694**	**1.635**	**1.018**	0.02	Case 21	0.01	Case 39
	LTE Band 5	Front	0.796	0.441	0.670	0.090	**1.237**	**1.466**	**0.886**				
		Back	1.092	0.798	0.739	0.122	**1.890**	**1.831**	**1.214**	0.02	Case 22	0.02	Case 40
	LTE Band 7_Main	Front	0.544	0.441	0.670	0.090	**0.985**	**1.214**	**0.634**				
		Back	1.073	0.798	0.739	0.122	**1.871**	**1.812**	**1.195**	0.02	Case 23	0.02	Case 41
	LTE Band 7_Aux	Front	0.300	0.441	0.670	0.090	**0.741**	**0.970**	**0.390**				
		Back	0.370	0.798	0.739	0.122	**1.168**	**1.109**	**0.492**				
	LTE Band 13	Front	0.665	0.441	0.670	0.090	**1.106**	**1.335**	**0.755**				
		Back	0.965	0.798	0.739	0.122	**1.763**	**1.704**	**1.087**	0.02	Case 24	0.02	Case 42
	LTE Band 66	Front	1.014	0.441	0.670	0.090	**1.455**	**1.684**	**1.104**			0.01	Case 43
		Back	1.007	0.798	0.739	0.122	**1.805**	**1.746**	**1.129**	0.02	Case 25	0.02	Case 44

15.5 SPLSR Evaluation and Analysis

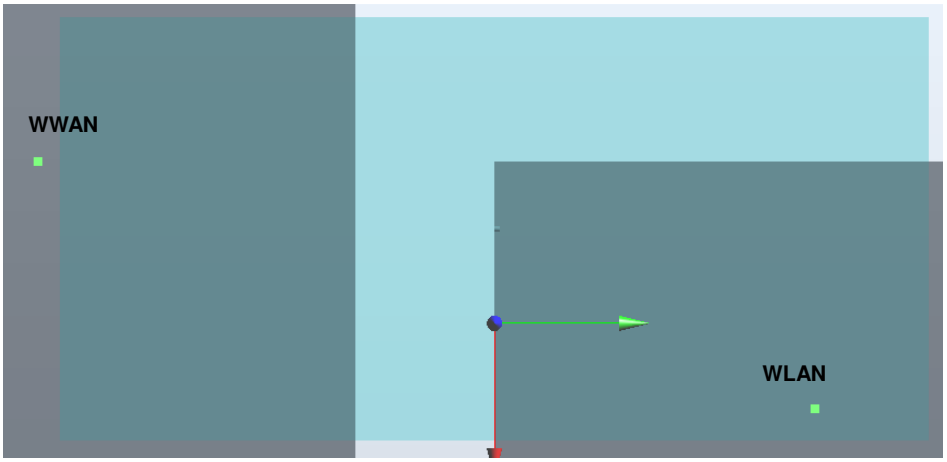
General Note:

1. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

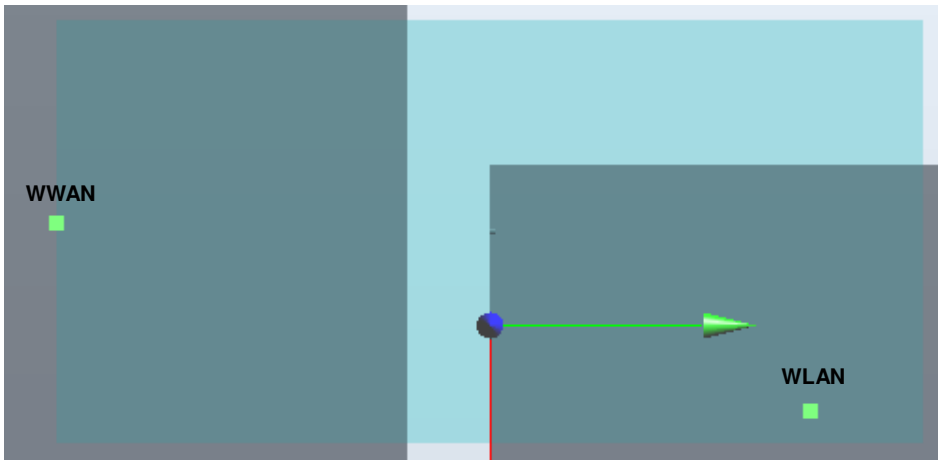
Case 1	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Back	1.157	5	-12.9	-83	-1.31	149.6	1.96	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



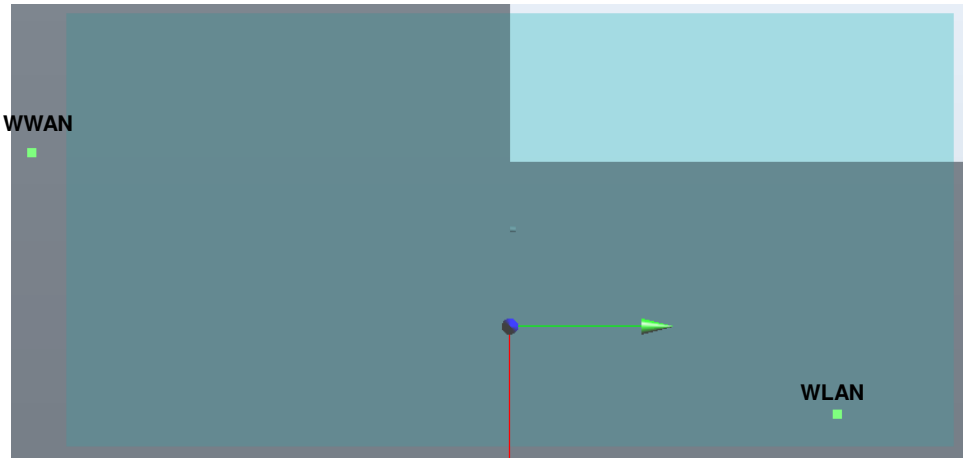
Case 2	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Back	0.822	5	-11.4	-77.8	-1.31	144.2	1.62	0.01	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



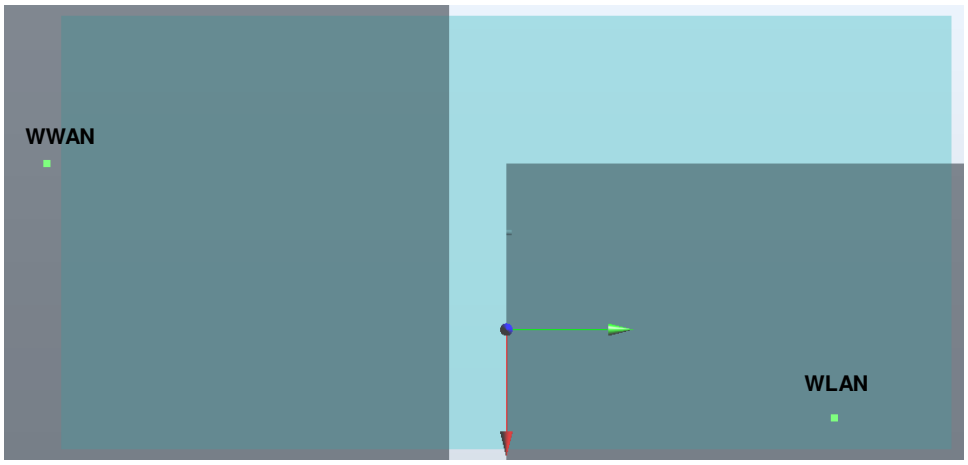
Case 3	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Back	0.901	5	-2.5	-78.6	-1.28	142.5	1.70	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



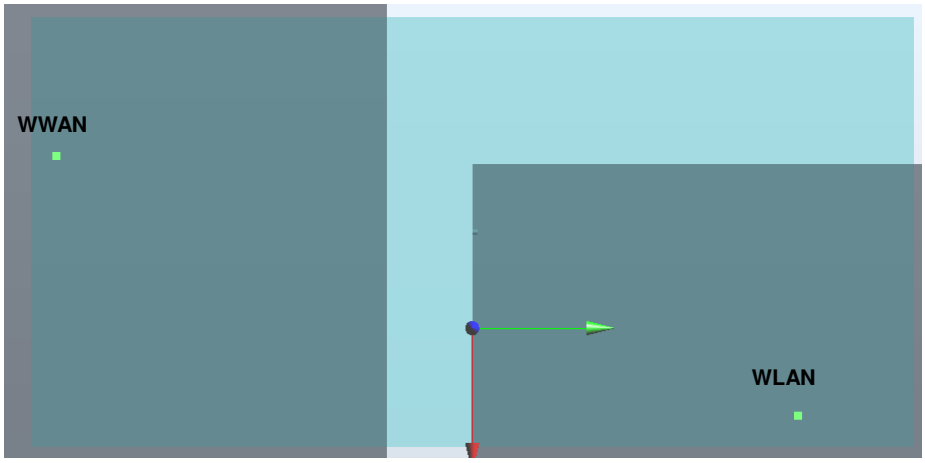
Case 4	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Back	1.102	5	-12.9	-83	-13.1	150.1	1.90	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



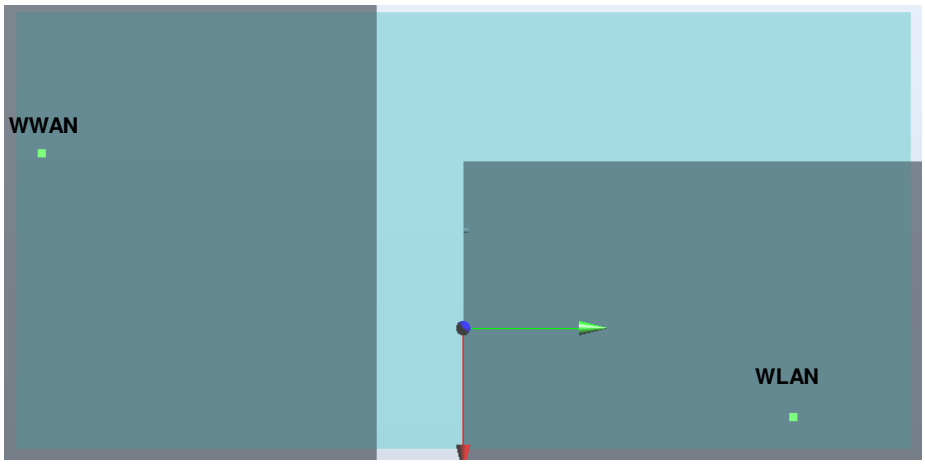
Case 5	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC0	Back	0.909	5	-13	-77.9	-1.33	144.8	1.71	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



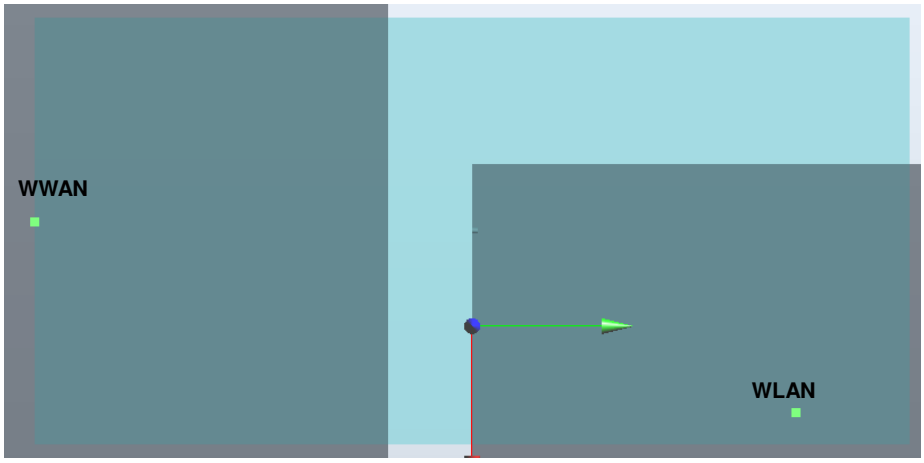
Case 6	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Back	1.092	5	-12.9	-78.9	-1.34	145.7	1.89	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



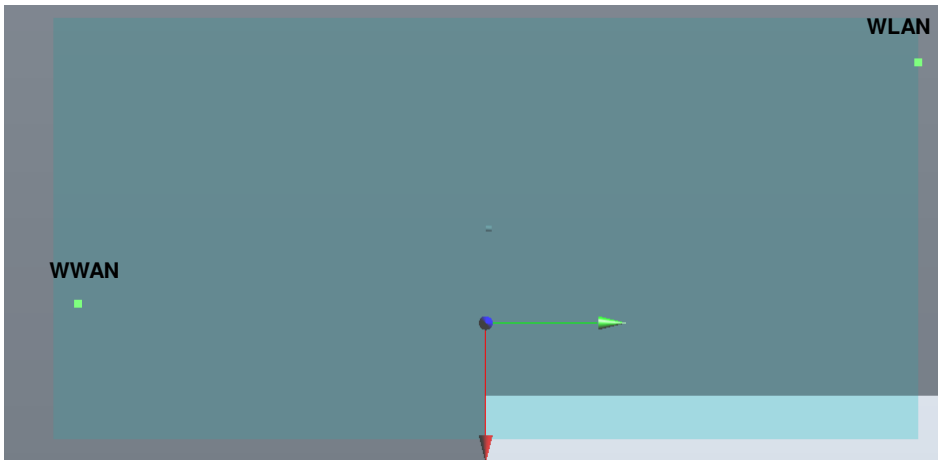
Case 7	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 13	Back	0.965	5	-14.5	-72.5	-1.34	140.2	1.76	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



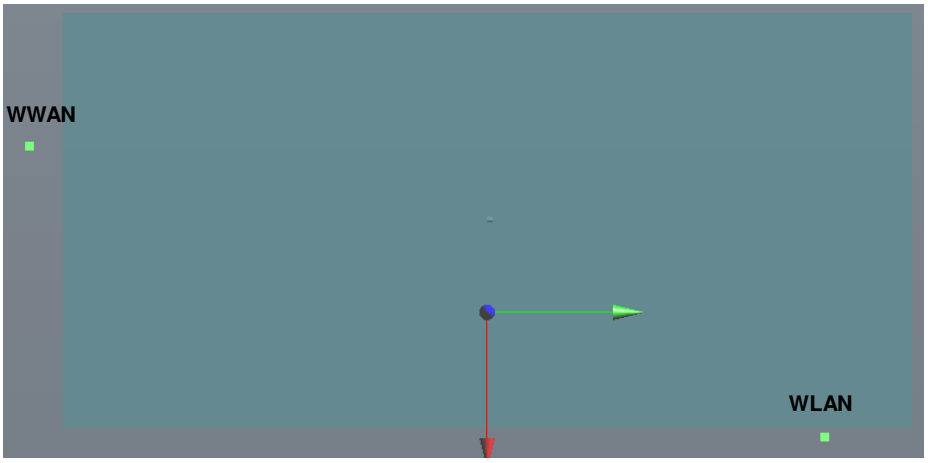
Case 8	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 66	Back	0.897	5	-2.5	-78.6	-1.3	142.5	1.70	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



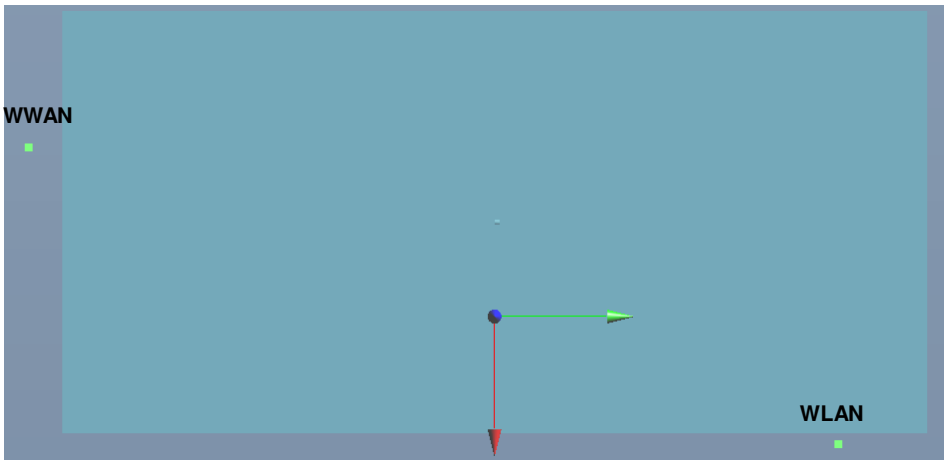
Case 9	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Front	0.965	5	6.1	-82.1	-1.27	159.7	1.64	0.01	Not required
	WLAN5GHz		0.67	5	-33.4	72.6	-0.45				



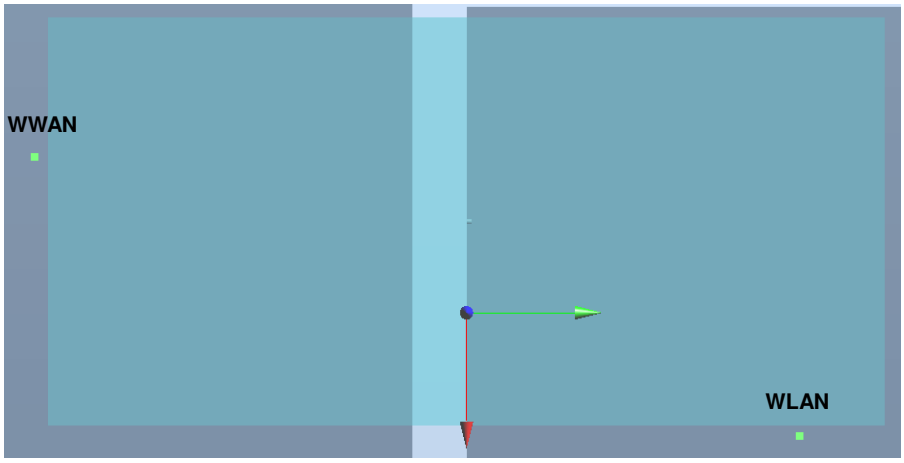
Case 10	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Back	1.157	5	-12.9	-83	-1.31	156.7	1.85	0.02	Not required
	WLAN5GHz		0.688	5	39.8	64.6	-0.08				



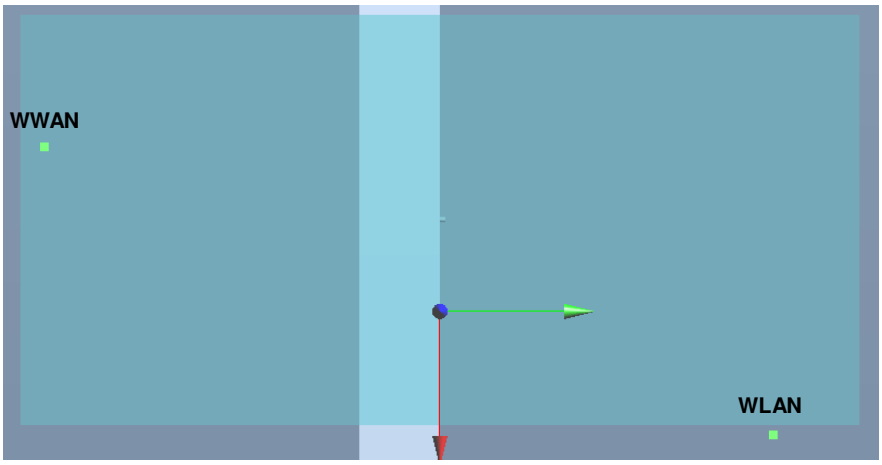
Case 11	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Back	1.102	5	-12.9	-83	-13.1	157.3	1.79	0.02	Not required
	WLAN5GHz		0.688	5	39.8	64.6	-0.08				



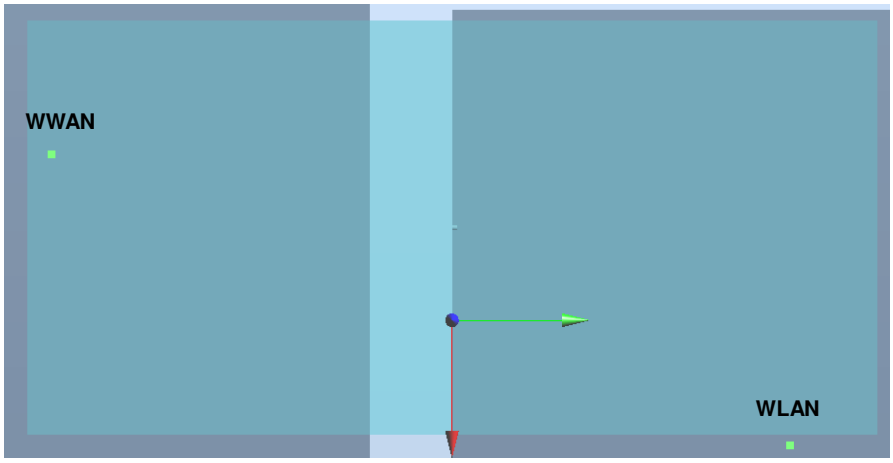
Case 12	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC0	Back	0.909	5	-13	-77.9	-1.33	152.0	1.60	0.01	Not required
	WLAN5GHz		0.688	5	39.8	64.6	-0.08				



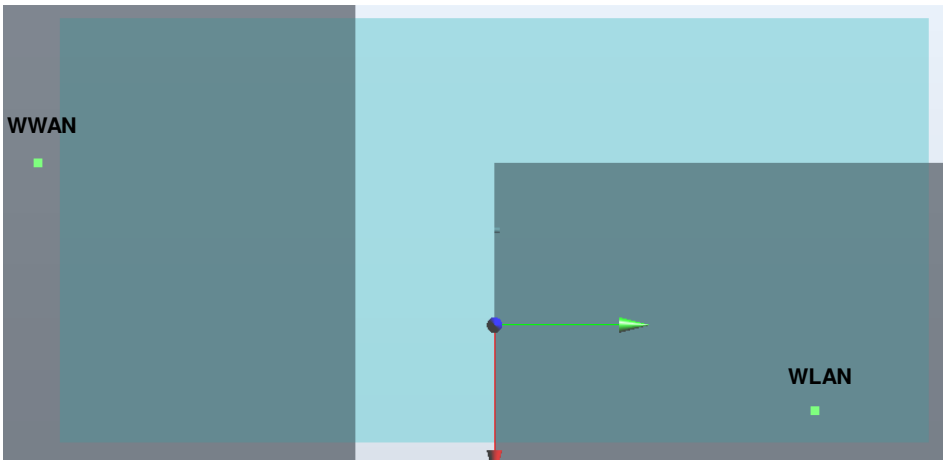
Case 13	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Back	1.092	5	-12.9	-78.9	-1.34	152.9	1.78	0.02	Not required
	WLAN5GHz		0.688	5	39.8	64.6	-0.08				



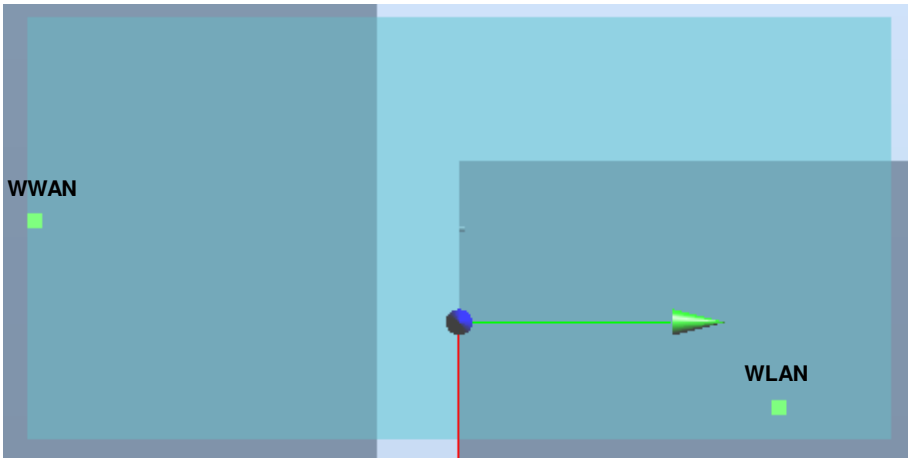
Case 14	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 13	Back	0.965	5	-14.5	-72.5	-1.34	147.5	1.65	0.01	Not required
	WLAN5GHz		0.688	5	39.8	64.6	-0.08				



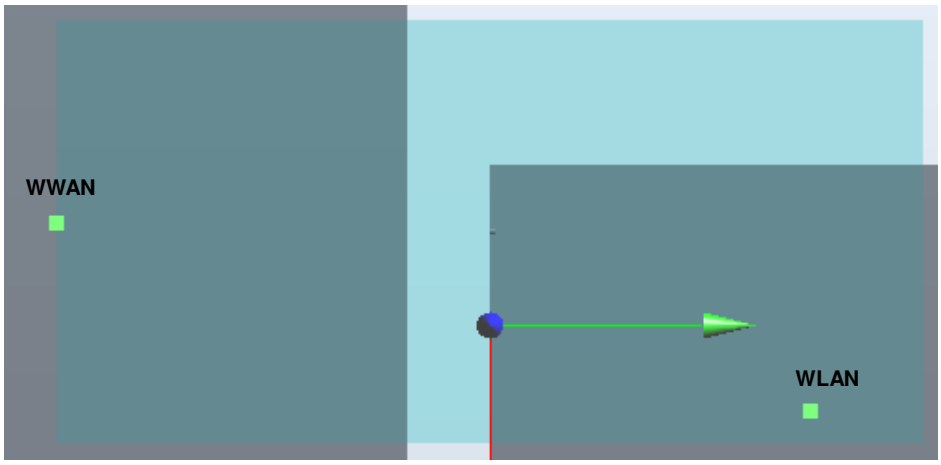
Case 15	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Back	1.035	5	-11.4	-77.8	-1.31	144.2	1.83	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



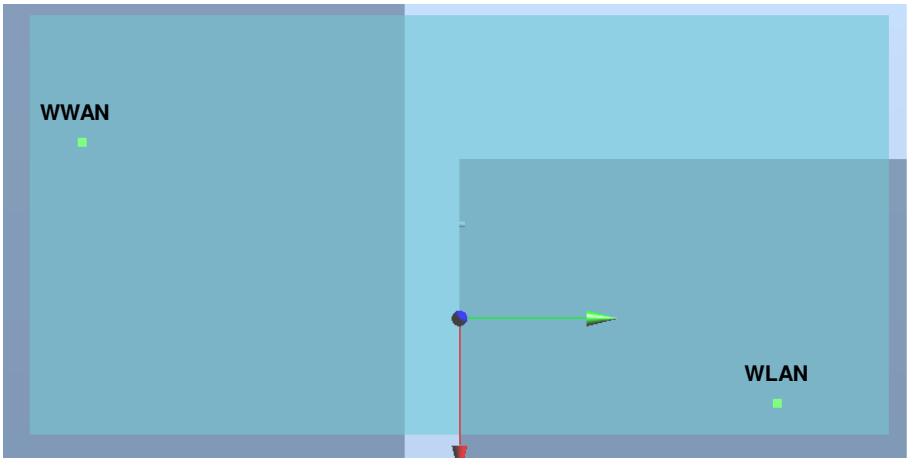
Case 16	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Back	1.114	5	-8.9	-77.1	-1.3	142.8	1.91	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



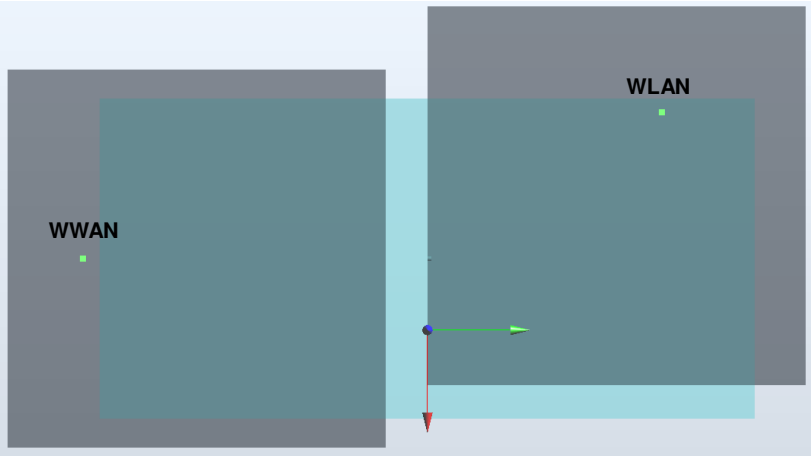
Case 17	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Back	1.011	5	-2.5	-78.6	-1.28	142.5	1.81	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



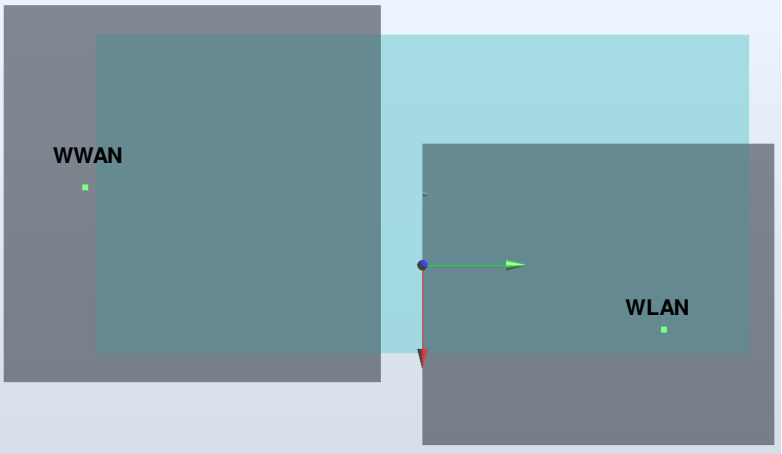
Case 18	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC0	Back	1.011	5	-16	-75.5	-1.4	143.5	1.81	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



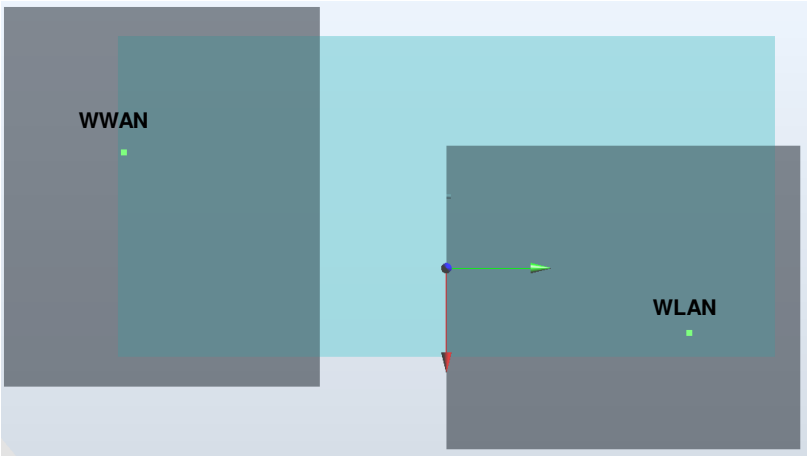
Case 19	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC1	Front	1.183	5	2.2	-77.8	-1.23	144.4	1.62	0.01	Not required
	WLAN2.4GHz		0.441	5	-34.8	61.8	-1.61				



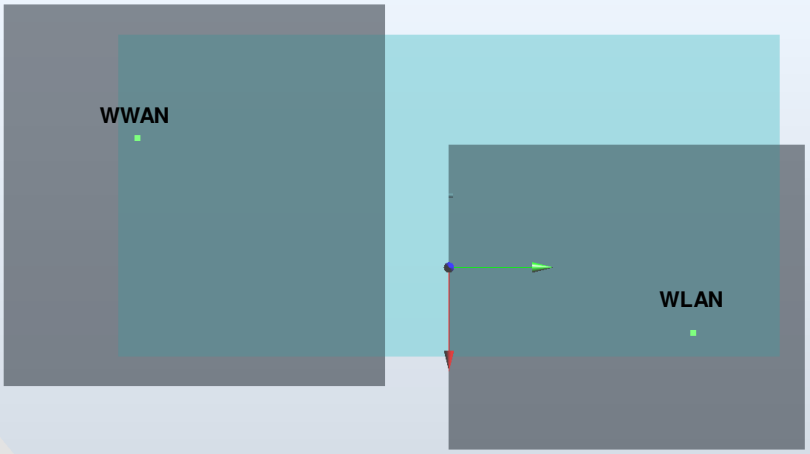
Case 20	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC1	Back	1.148	5	-8.9	-77.9	-1.25	143.6	1.95	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



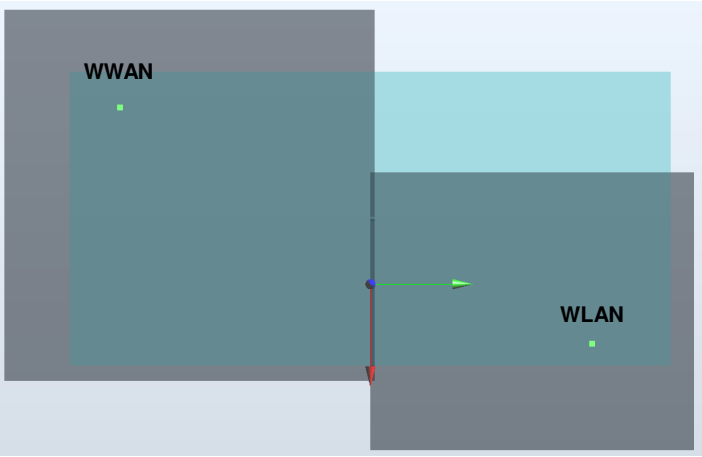
Case 21	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2	Back	0.896	5	-9.9	-77.1	-1.33	143.1	1.69	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



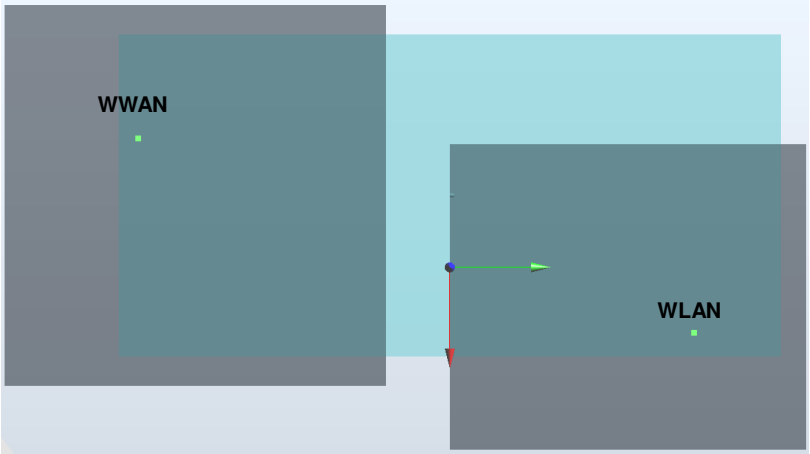
Case 22	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Back	1.092	5	-12.9	-78.9	-1.34	145.7	1.89	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



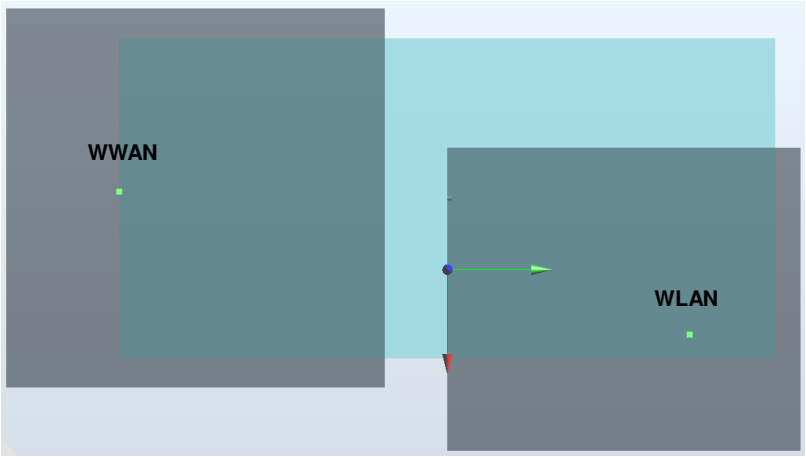
Case 23	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back	1.073	5	-32.8	-64	-1.63	139.7	1.87	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



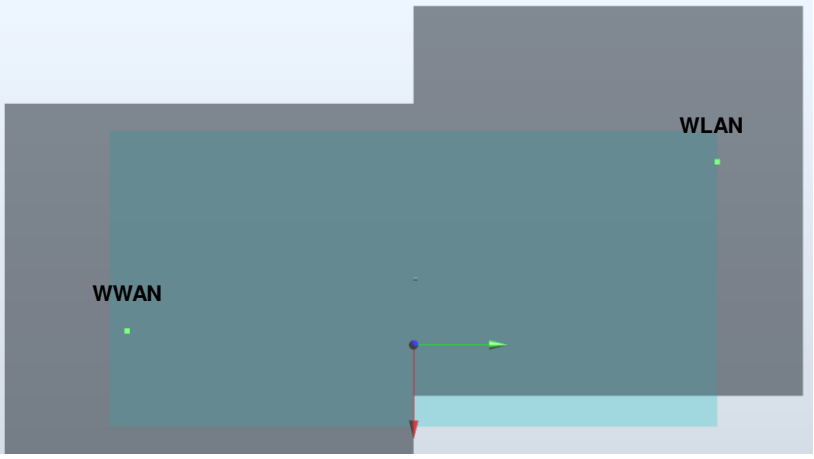
Case 24	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 13	Back	0.965	5	-14.5	-72.5	-1.34	140.2	1.76	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



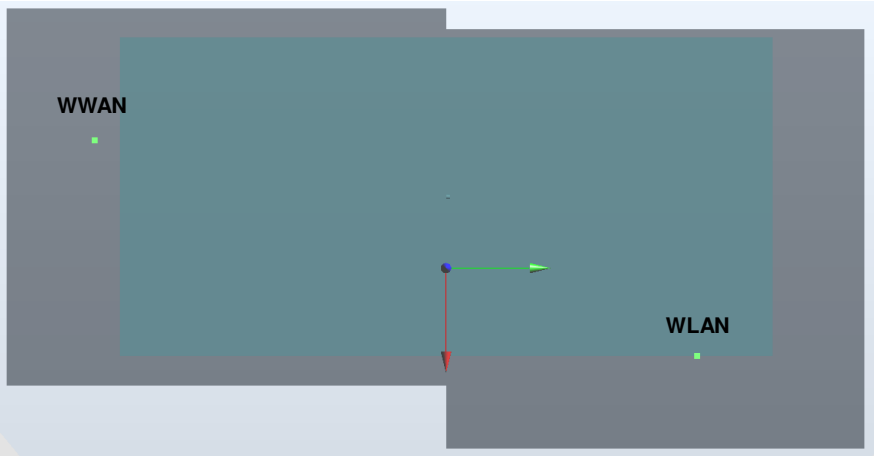
Case 25	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 66	Back	1.007	5	-2.5	-78.6	-1.3	142.5	1.81	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



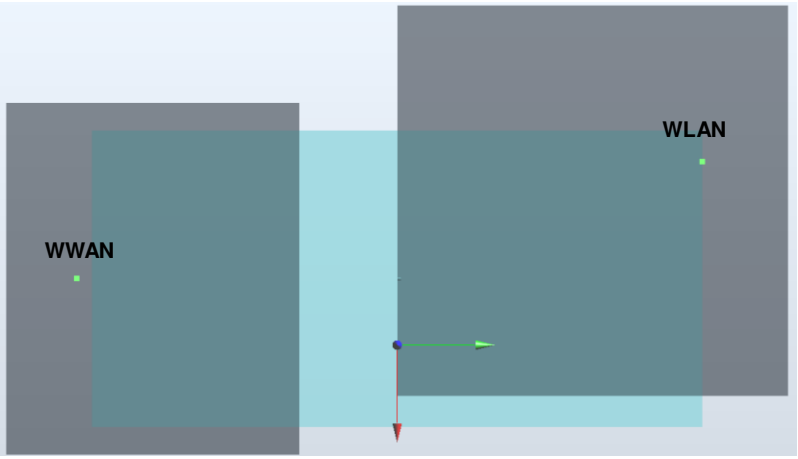
Case 26	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Front	0.965	5	-6.1	-82.1	-1.27	157.1	1.64	0.01	Not required
	WLAN5GHz		0.67	5	-33.4	72.6	-0.45				



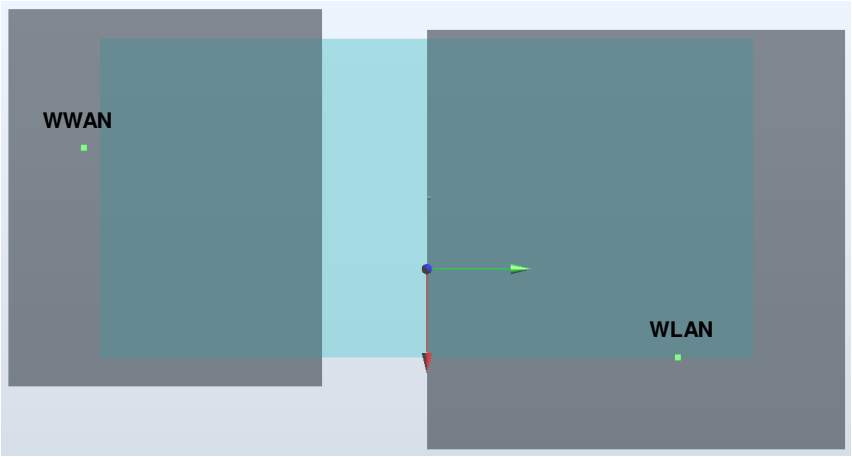
Case 27	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Back	1.157	5	-12.9	-83	-1.31	156.9	1.90	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



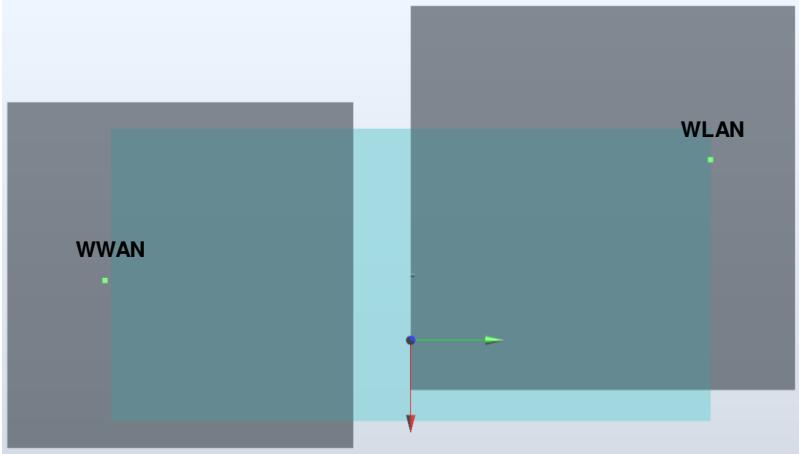
Case 28	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Front	1.003	5	2.2	-79.4	-1.19	156.1	1.67	0.01	Not required
	WLAN5GHz		0.67	5	-33.4	72.6	-0.45				



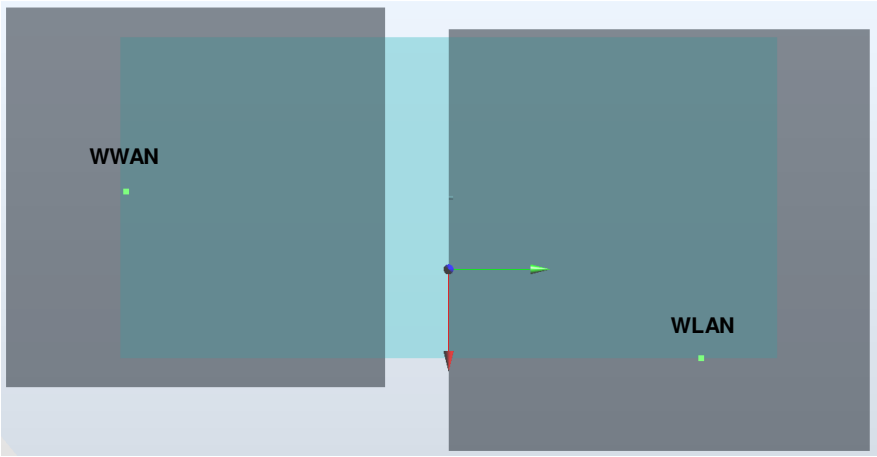
Case 29	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Back	1.035	5	-11.4	-77.8	-1.31	151.5	1.77	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



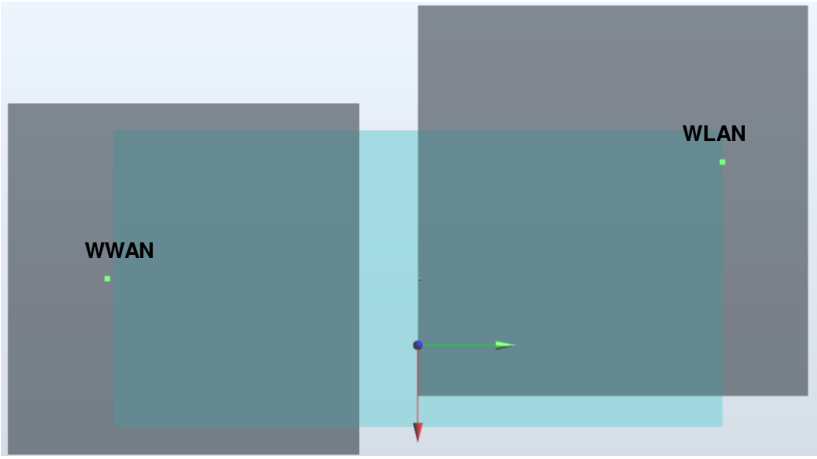
Case 30	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Front	1.127	5	0.5	-80.1	-1.26	156.4	1.80	0.02	Not required
	WLAN5GHz		0.67	5	-33.4	72.6	-0.45				



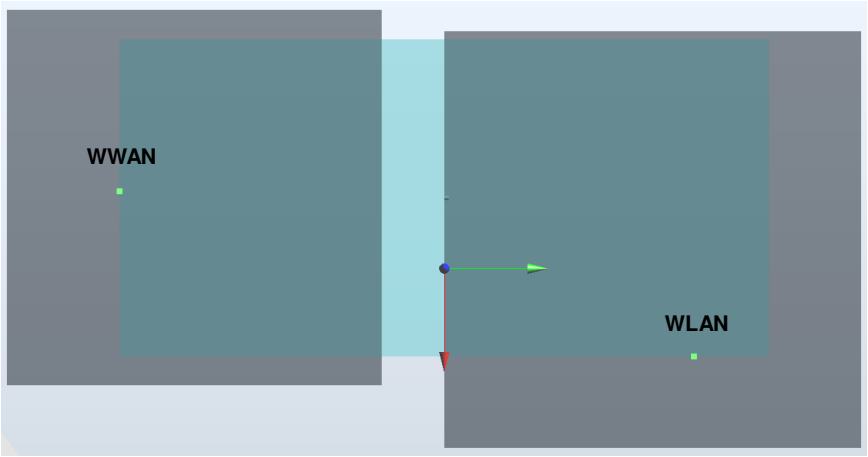
Case 31	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Back	1.035	5	-8.9	-77.1	-1.3	150.1	1.77	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



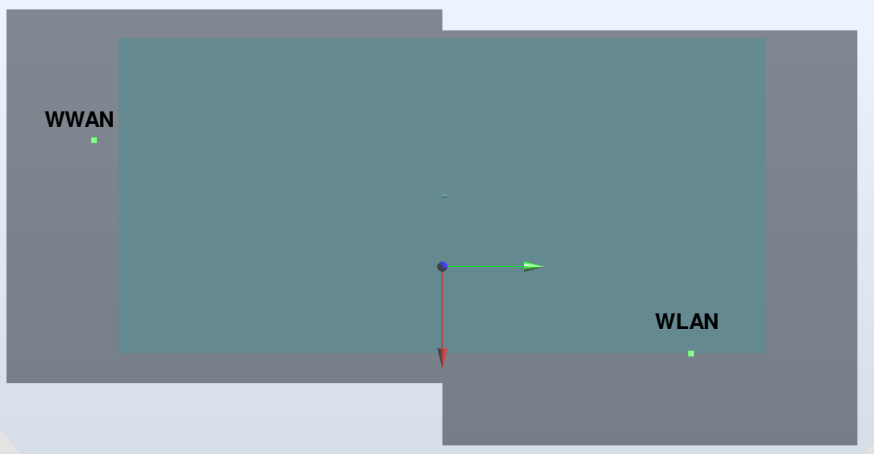
Case 32	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Front	0.986	5	-1	-80.1	-1.27	156.1	1.66	0.01	Not required
	WLAN5GHz		0.67	5	-33.4	72.6	-0.45				



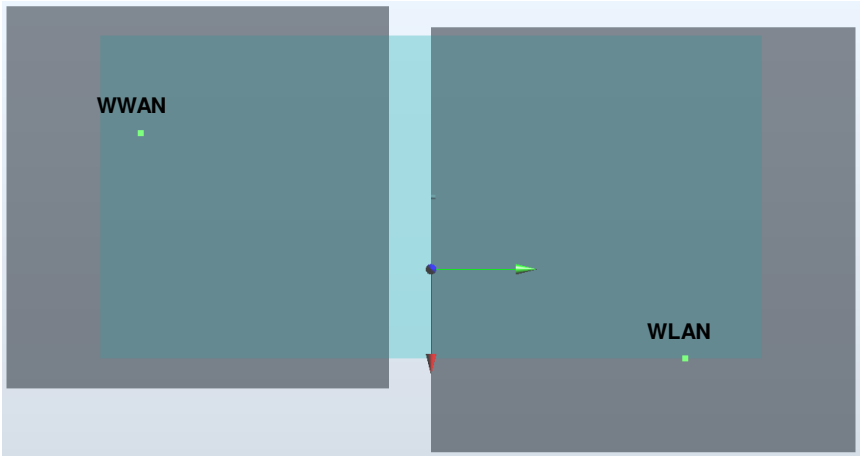
Case 33	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Back	1.011	5	-2.5	-78.6	-1.28	149.7	1.75	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



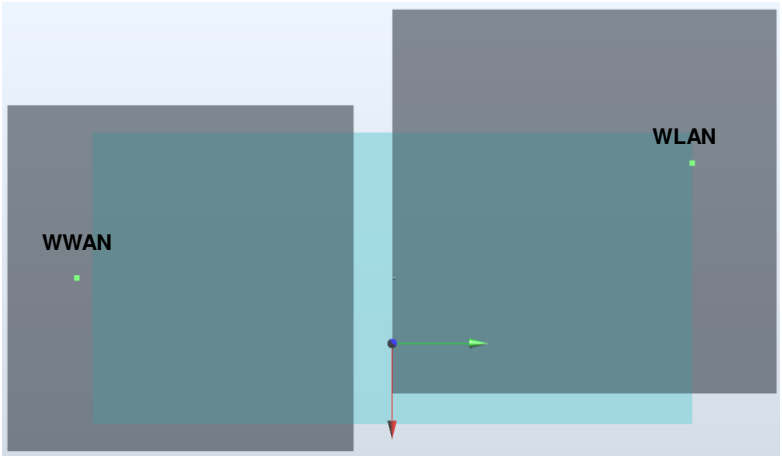
Case 34	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Back	1.102	5	-12.9	-83	-13.1	157.5	1.84	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



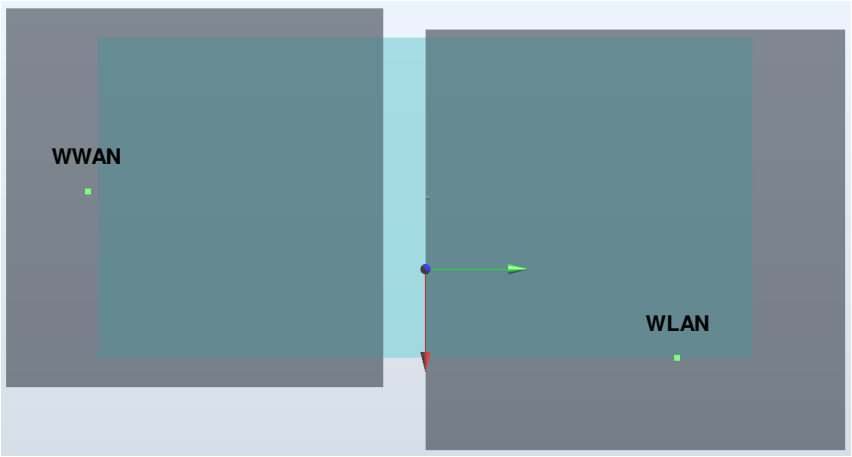
Case 35	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC0	Back	1.011	5	-16	-75.5	-1.4	150.9	1.75	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



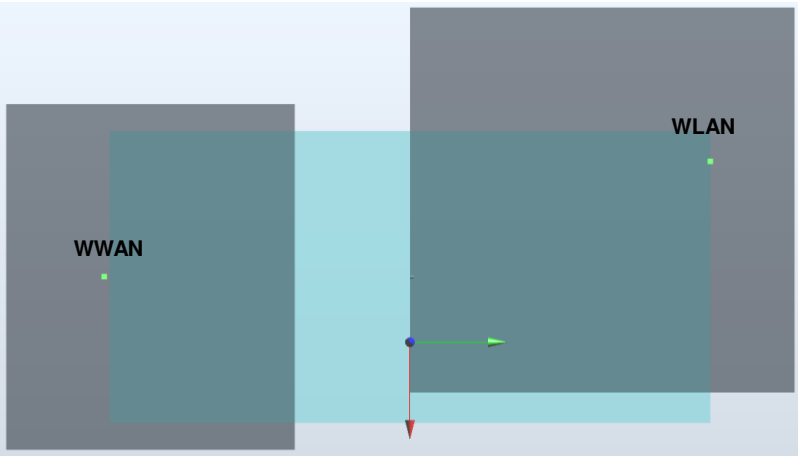
Case 36	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC1	Front	1.183	5	2.2	-77.8	-1.23	154.6	1.85	0.02	Not required
	WLAN5GHz		0.67	5	-33.4	72.6	-0.45				



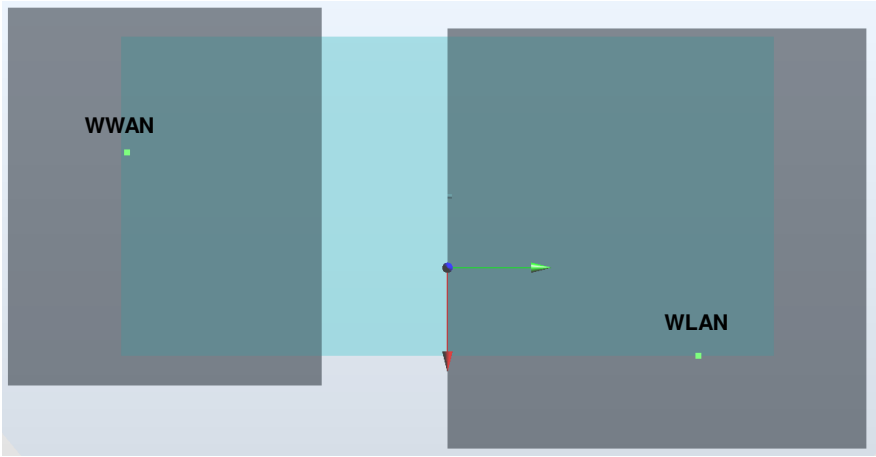
Case 37	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA BC1	Back	1.148	5	-8.9	-77.9	-1.25	150.9	1.89	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



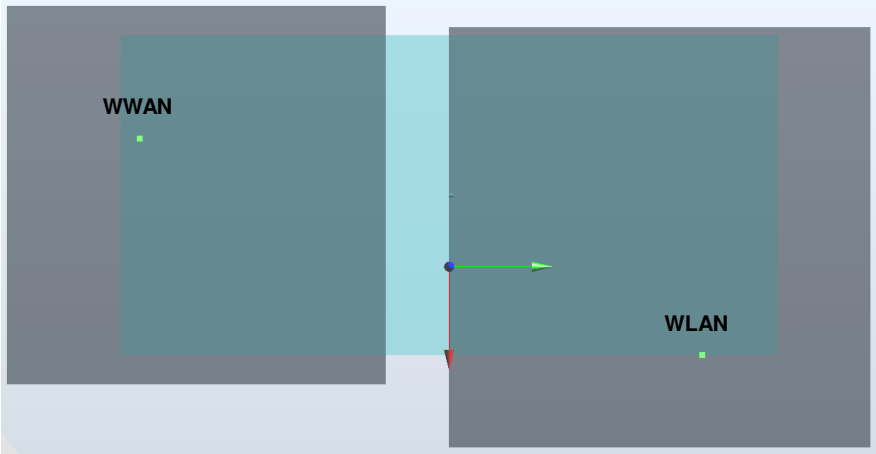
Case 38	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2	Front	0.975	5	-1	-80.1	-1.3	156.1	1.65	0.01	Not required
	WLAN5GHz		0.67	5	-33.4	72.6	-0.45				



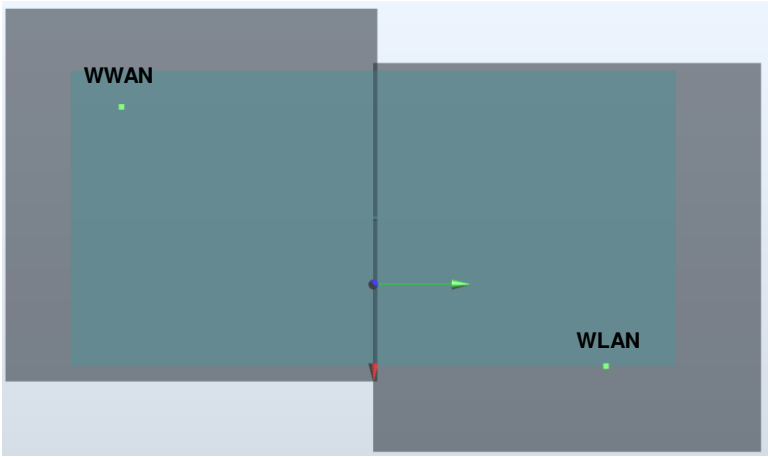
Case 39	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2	Back	0.896	5	-9.9	-77.1	-1.33	150.4	1.64	0.01	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



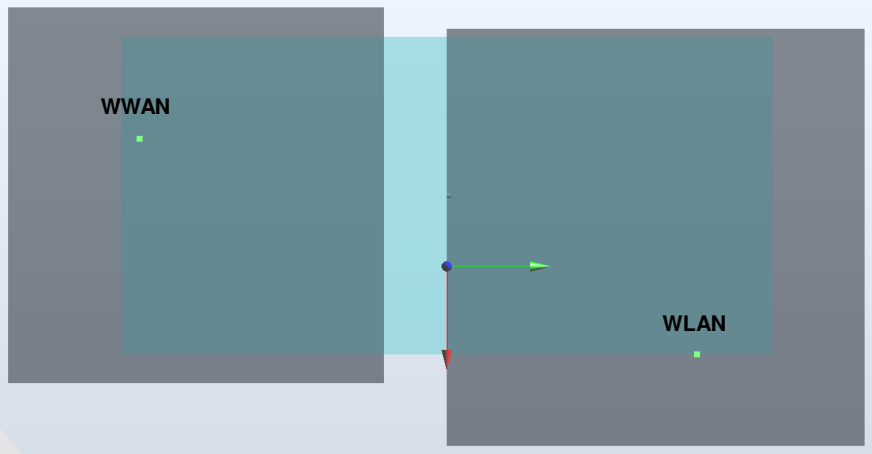
Case 40	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Back	1.092	5	-12.9	-78.9	-1.34	153.1	1.83	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



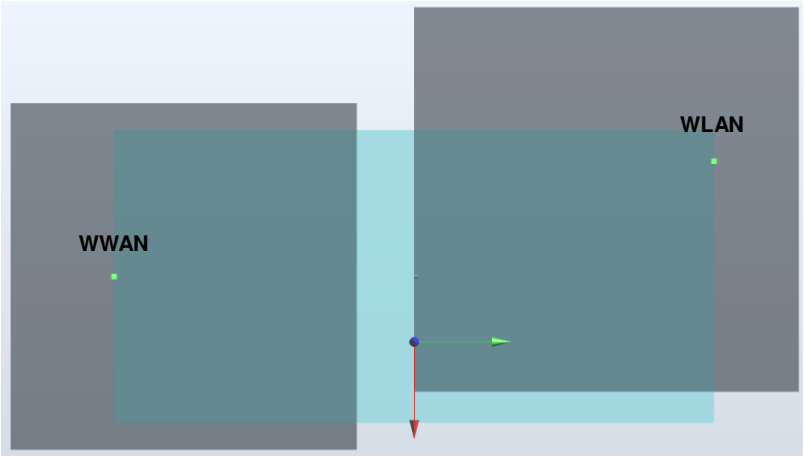
Case 41	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back	1.073	5	-32.8	-64	-1.63	147.4	1.81	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



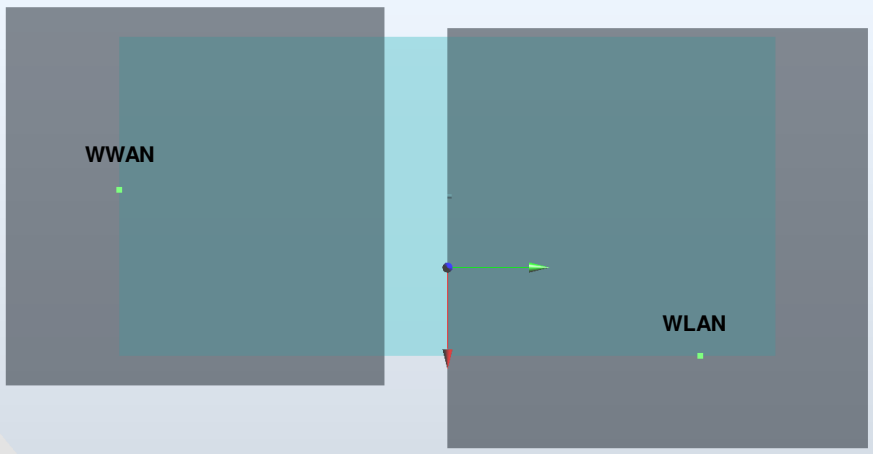
Case 42	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 13	Back	0.965	5	-14.5	-72.5	-1.34	147.6	1.70	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



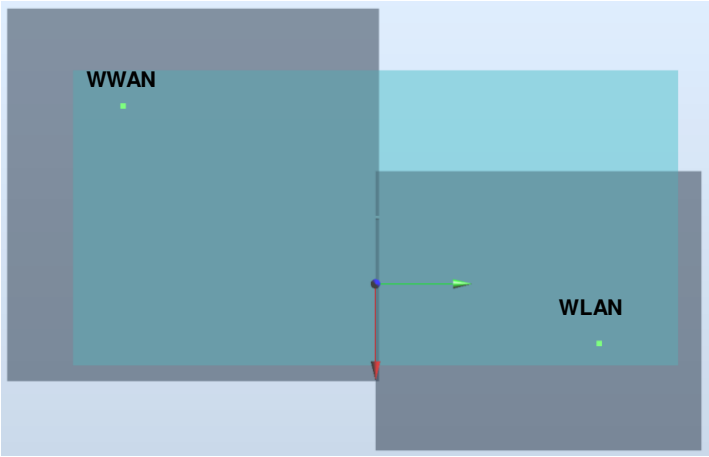
Case 43	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 66	Front	1.014	5	-1	-80.2	-1.28	156.2	1.68	0.01	Not required
	WLAN5GHz		0.67	5	-33.4	72.6	-0.45				



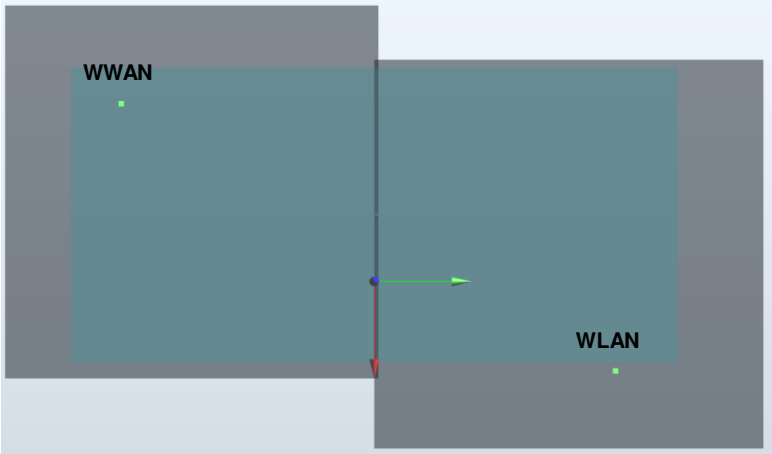
Case 44	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 66	Back	1.007	5	-2.5	-78.6	-1.3	149.7	1.75	0.02	Not required
	WLAN5GHz		0.739	5	37	65.8	-0.2				



Case 45	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back	1.073	5	-32.8	-64	-1.63	139.7	1.87	0.02	Not required
	WLAN2.4GHz		0.798	5	32.4	59.6	-1.23				



Case 46	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back	1.073	5	-32.8	-64	-1.63	147.7	1.76	0.02	Not required
	WLAN5GHz		0.688	5	39.8	64.6	-0.08				



16. Supplemental tuner tests results

General Note:

1. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
2. To evaluate all of the tuner states, the 144 tuner states are divided evenly among band, mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination. The bands which are dynamically tuned are split into two separate antennas, so each antenna system will have its own test plan to cover the corresponding 144 tuner states.
3. The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

16.1 Supplemental Head SAR results

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	0	12	24	36	48	60	72	84	96	108	120	132
GSM850	GPRS (2 Tx slots)	848.8	251	N/A	N/A	Left Cheek	0mm	0.214	0.23	0.059	0.054	0.199	0.009	0.068	0.106	0.014	0.059	0.174	0.005	0.077	0.044
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	1	13	25	37	49	61	73	85	97	109	121	133
GSM1900	GPRS (3 Tx slots)	1909.8	810	N/A	N/A	Right Cheek	0mm	0.171	0.216	0.211	0.118	0.134	0.206	0.112	0.114	0.211	0.116	0.125	0.195	0.102	0.101
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	2	14	26	38	50	62	74	86	98	110	122	134
WCDMA B2	RMC12.2K	1907.6	9538	N/A	N/A	Right Cheek	0mm	0.235	0.343	0.331	0.1947	0.188	0.291	0.163	0.153	0.329	0.178	0.169	0.263	0.143	0.133
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	3	15	27	39	51	63	75	87	99	111	123	135
WCDMA B4	RMC12.2K	1752.6	1513	N/A	N/A	Right Cheek	0mm	0.324	0.356	0.309	0.246	0.289	0.331	0.228	0.266	0.321	0.236	0.283	0.343	0.218	0.256
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	4	16	28	40	52	64	76	88	100	112	124	136
WCDMA B5	RMC12.2K	846.6	4233	N/A	N/A	Left Cheek	0mm	0.28	0.29	0.163	0.105	0.13	0.093	0.1	0.184	0.115	0.103	0.168	0.055	0.097	0.232
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	5	17	29	41	53	65	77	89	101	113	125	137
CDMA BC0	1xRTT RC3 SO55	848.31	777	N/A	N/A	Left Cheek	0mm	0.278	0.318	0.216	0.041	0.131	0.146	0.029	0.178	0.177	0.033	0.165	0.086	0.023	0.219
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	6	18	30	42	54	66	78	90	102	114	126	138
CDMA BC1	1xRTT RC3 SO55	1908.75	1175	N/A	N/A	Right Cheek	0mm	0.26	0.351	0.279	0.254	0.142	0.241	0.237	0.117	0.261	0.247	0.129	0.129	0.231	0.101
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	7	19	31	43	55	67	79	91	103	115	127	139
LTE B2	QPSK	1860	18700	1	0	Right Cheek	0mm	0.284	0.38	0.337	0.316	0.204	0.292	0.307	0.169	0.313	0.314	0.185	0.265	0.305	0.149
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	8	20	32	44	56	68	80	92	104	116	128	140
LTE B4	QPSK	1732.5	20175	1	0	Right Cheek	0mm	0.317	0.351	0.327	0.323	0.317	0.332	0.345	0.302	0.334	0.335	0.309	0.341	0.348	0.285
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	9	21	33	45	57	69	81	93	105	117	129	141
LTE B5	QPSK	836.5	20525	1	0	Left Cheek	0mm	0.279	0.3	0.199	0.057	0.104	0.281	0.029	0.113	0.254	0.036	0.112	0.299	0.019	0.118
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	10	22	34	46	58	70	82	94	106	118	130	142
LTE B13	QPSK	782	23230	1	0	Left Cheek	0mm	0.181	0.185	0.183	0.061	0.192	0.198	0.024	0.179	0.172	0.033	0.176	0.13	0.014	0.181
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	11	23	35	47	59	71	83	95	107	119	131	143
LTE B66	QPSK	1720	132072	1	0	Right Cheek	0mm	0.327	0.373	0.372	0.363	0.368	0.365	0.362	0.345	0.366	0.369	0.355	0.364	0.37	0.326

16.2 Supplemental Body SAR results

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	0	12	24	36	48	60	72	84	96	108	120	132
GSM850	GPRS (2 Tx slots)	848.8	251	N/A	N/A	Back	5mm	0.759	1.217	0.283	0.338	1.214	0.068	0.35	0.765	0.097	0.348	1.183	0.036	0.355	0.293
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	1	13	25	37	49	61	73	85	97	109	121	133
GSM1900	GPRS (3 Tx slots)	1909.8	810	N/A	N/A	Bottom Side	5mm	1.05	1.599	1.545	1.077	1.374	1.588	1.074	1.281	1.572	1.077	1.327	1.597	1.023	1.21
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	2	14	26	38	50	62	74	86	98	110	122	134
WCDMA B2	RMC12.2K	1852.4	9262	N/A	N/A	Bottom Side	5mm	0.761	1.177	1.164	0.799	0.956	1.164	0.713	0.857	1.165	0.751	0.903	1.14	0.648	0.791
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	3	15	27	39	51	63	75	87	99	111	123	135
WCDMA B4	RMC12.2K	1732.6	1413	N/A	N/A	Bottom Side	5mm	0.808	1.187	1.109	1.013	1.137	1.15	0.973	1.035	1.137	0.994	1.081	1.134	0.921	0.957
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	4	16	28	40	52	64	76	88	100	112	124	136
WCDMA B5	RMC12.2K	847	4233	N/A	N/A	Back	5mm	0.78	1.32	0.741	0.498	0.586	0.489	0.458	0.788	0.599	0.417	0.734	0.412	0.432	0.955
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	5	17	29	41	53	65	77	89	101	113	125	137
CDMA BC0	1xRTT RC3 SO32	836.52	384	N/A	N/A	Back	5mm	0.933	1.634	1.118	0.227	0.775	0.702	0.161	1.037	0.848	0.184	0.962	0.43	0.126	1.241
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	6	18	30	42	54	66	78	90	102	114	126	138
CDMA BC1	1xRTT RC3 SO32	1851.25	25	N/A	N/A	Front	5mm	1.03	1.426	1.382	1.244	0.919	1.271	1.274	0.784	1.315	1.259	0.84	1.2	1.298	0.702
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	7	19	31	43	55	67	79	91	103	115	127	139
LTE B2	QPSK	1880	18900	1	0	Bottom Side	5mm	0.905	1.335	1.207	1.185	0.777	1.097	1.132	0.664	1.151	1.16	0.711	1.004	1.101	0.586
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	8	20	32	44	56	68	80	92	104	116	128	140
LTE B4	QPSK	1732.5	20175	1	0	Bottom Side	5mm	0.806	1.219	1.215	1.213	1.054	1.218	1.2	0.952	1.217	1.214	0.995	1.19	1.143	0.866
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	9	21	33	45	57	69	81	93	105	117	129	141
LTE B5	QPSK	836.5	20525	1	0	Back	5mm	0.738	1.214	0.829	0.335	0.427	1.098	0.154	0.437	1.026	0.198	0.442	1.206	0.09	0.447
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	10	22	34	46	58	70	82	94	106	118	130	142
LTE B13	QPSK	782	23230	1	0	Back	5mm	0.702	1.182	1.162	0.401	1.015	1.115	0.167	1.122	1.112	0.215	1.176	0.92	0.098	1.179
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)												
									Auto-Tune	11	23	35	47	59	71	83	95	107	119	131	143
LTE B66	QPSK	1770	132572	1	0	Bottom Side	5mm	0.843	1.285	1.279	1.262	1.095	1.248	1.2	0.98	1.271	1.235	1.035	1.195	1.141	0.887

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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 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

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

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

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

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

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

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

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

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