



# FCC SAR TEST REPORT

FCC ID : IHDT56YJ1  
Equipment : Mobile Cellular Phone  
Brand Name : Motorola  
Applicant : Motorola Mobility, LLC  
222 W Merchandise Mart Plaza, Suite 1800,  
Chicago, IL 60654, United States  
Standard : FCC 47 CFR Part 2 (2.1093)  
ANSI/IEEE C95.1-1992  
IEEE 1528-2013

The product was received on Dec. 30, 2019 and testing was started from Jan. 05, 2020 and completed on Feb. 06, 2020. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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.



Approved by: Cona Huang / Deputy Manager

**Sporton International Inc.**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan



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History of this test report

Report No.	Version	Description	Issued Date
FA9D0635A	01	Initial issue of report	Feb. 10, 2020
FA9D0635A	02	Added simultaneous transmission combination and analysis in section 17.0	Feb. 28, 2020



1. Statement of Compliance

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

Table with columns: Equipment Class, Frequency Band, Highest SAR Summary (Head, Body-worn, Hotspot, Product Specific), Highest Simultaneous Transmission. Includes rows for Licensed, DTS, NII, DSS and testing date 2020/1/5 ~ 2020/2/6.

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. 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

Reviewed by: Jason Wang
Report Producer: Wan Liu

2. 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
FCC KDB 941225 D07 UMPC Mini Tablet v01r02



### 3. Equipment Under Test (EUT) Information

#### 3.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
FCC ID	IHDT56YJ1
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 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 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz 5G NR n260: 37GHz~40GHz 5G NR n261: 27.5GHz~28.35GHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) LTE: QPSK, 16QAM, 64QAM 5GNR: DFT-s-OFDM/CP-OFDM, QPSK / 16QAM / 64QAM WLAN: 802.11a/b/g/n/ac/ax HT20 / HT40 / VHT20 / VHT40 / VHT80 / HE20 / HE40 / HE80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT2
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:	<ol style="list-style-type: none"> <li>This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.</li> <li>The device implements the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the smart transmit will manage to ensure the averaged power level not exceeding the associated power table. Proximity sensors are used to detect the exposure conditions and the verification is illustrated in section 4. Details about the power management decision are provided in the operational description.</li> </ol>



3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																																										
FCC ID	IHDT56YJ1																																																																									
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 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 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 12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz 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	<p align="center"><b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N<sub>RB</sub>)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>												Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						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
Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						MPR (dB)																																																																			
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16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1																																																																			
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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, when operating in hotspot/body-worn/extremity mode that LTE B2 / B4 / B7 / B66 / B48 power reduction applied to satisfy SAR compliance.																																																																									
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 12.																																																																									
LTE Carrier Aggregation Additional Information	This device supports maximum of 7 carriers in the downlink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.																																																																									
<b>Transmission (H, M, L) channel numbers and frequencies in each LTE band</b>																																																																										
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																																																														

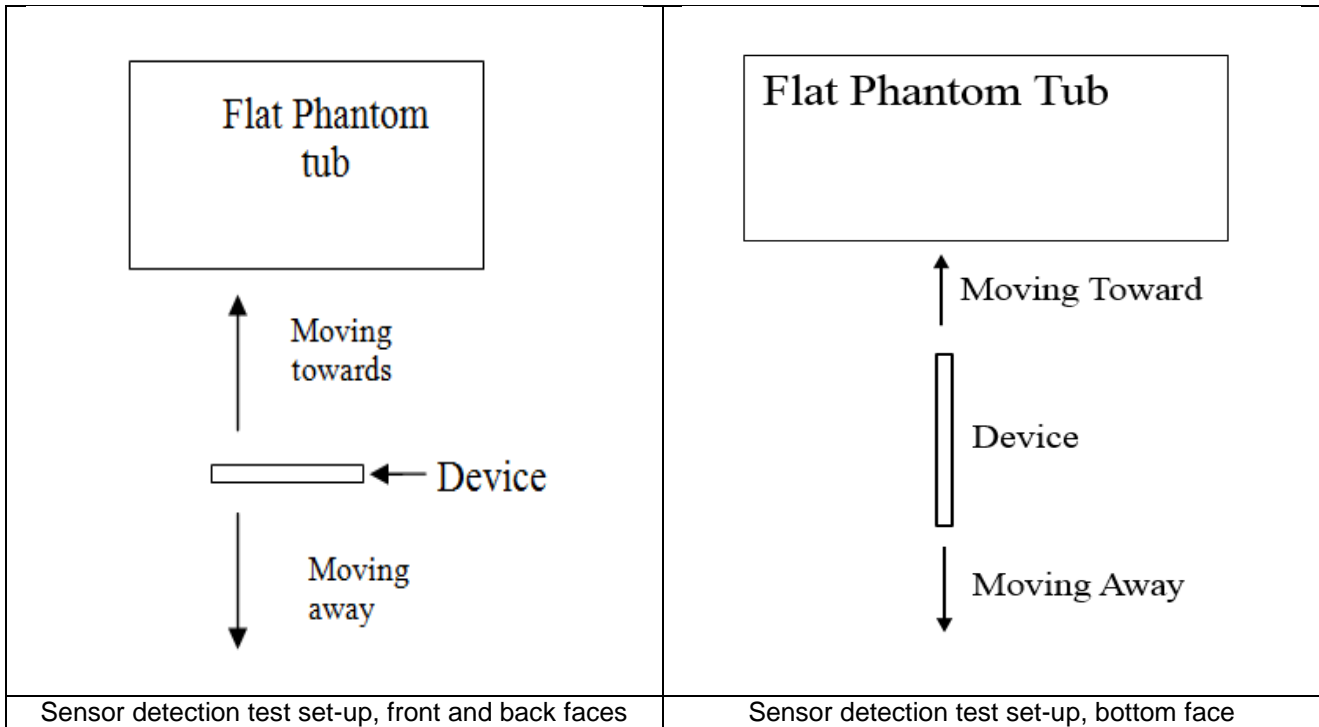


LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	20407	824.7	20415	825.5	20425	826.5	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	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)	Ch. #	Freq. (MHz)		
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560				
LTE Band 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)					
L	23755		706.5		23780		709					
M	23790		710		23790		710					
H	23825		713.5		23800		711					
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
LTE Band 48												
	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)		
L	55265	3552.5	55290	3555	55315	3557.5	55340	3560				
L	55810	3607	55815	3607.5	55820	3608	55830	3609				
M	56170	3643	56165	3642.5	56160	3642	56150	3641				
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690				

### 4. Proximity Sensor Triggering Test

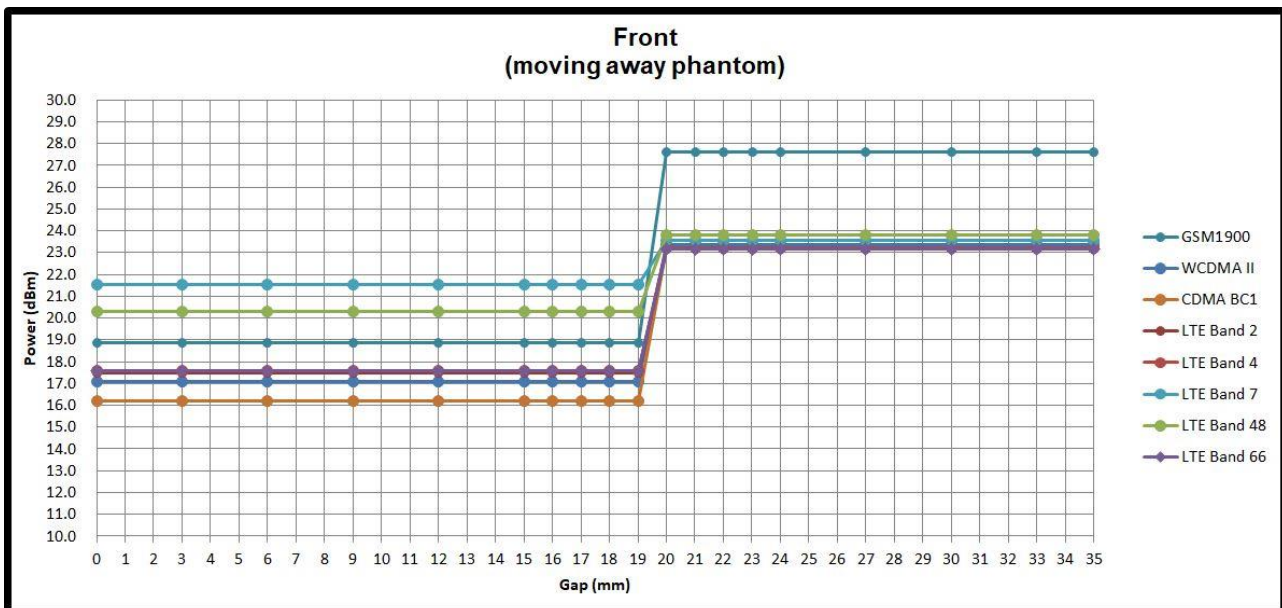
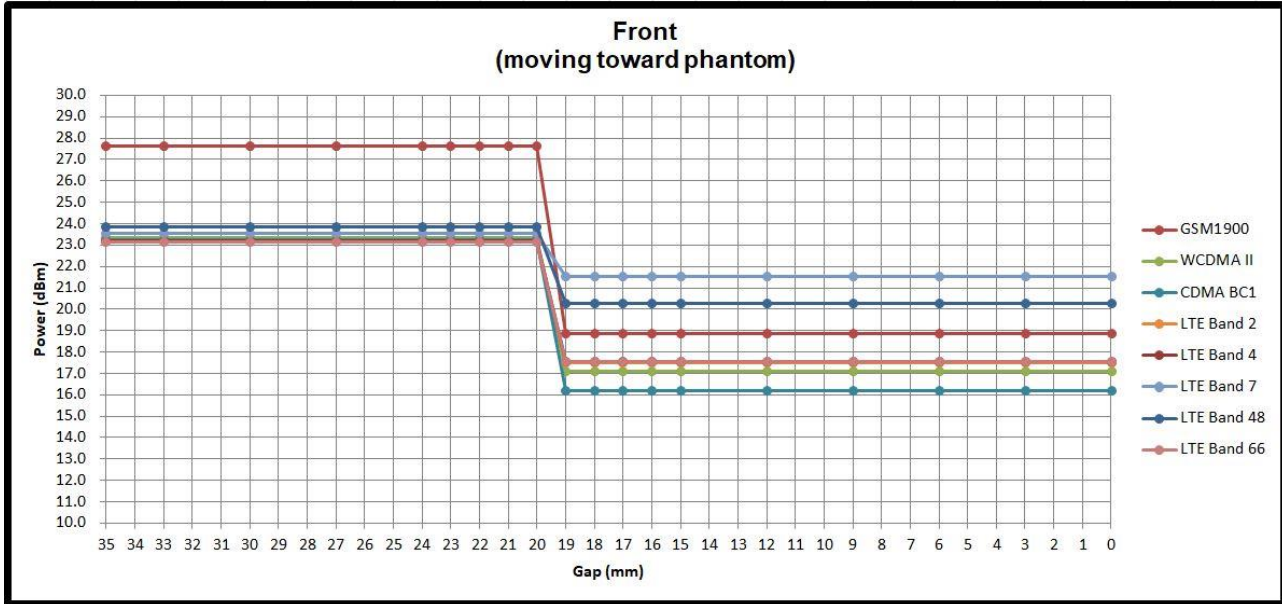
**<Proximity Sensor Triggering Distance>:**

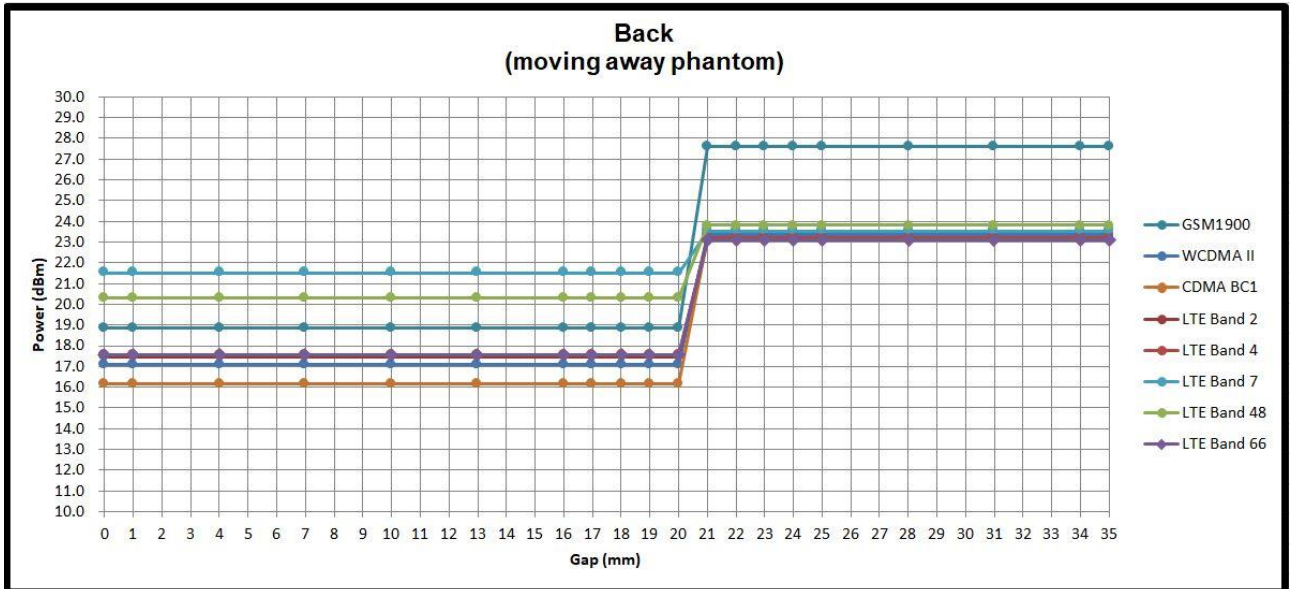
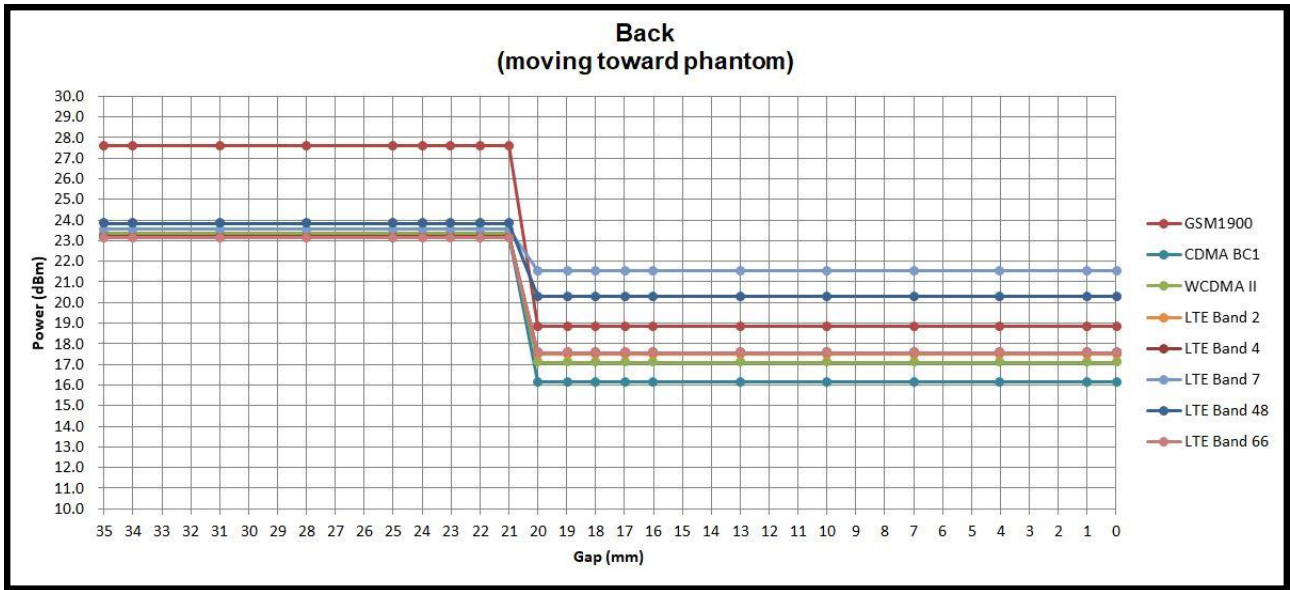
1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (3700MHz) 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. When the sensor is active, the device will reduce maximum output powers on the GSM1900, WCDMA B2, CDMA BC1 and LTE B2 / B4 / B7 / B66 / B48 transmitter.
4. Body-worn/Hotspot SAR was tested at 5mm separation and extremity SAR was tested at 0mm separation, at the reduced power level in each associated power table. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
  - a. For Body-worn:
    - Front: [14 mm](#)
    - Back: [18 mm](#)
  - b. For Extremity::
    - Front: [5 mm](#)
    - Back: [8 mm](#)
    - Bottom: [7 mm](#)





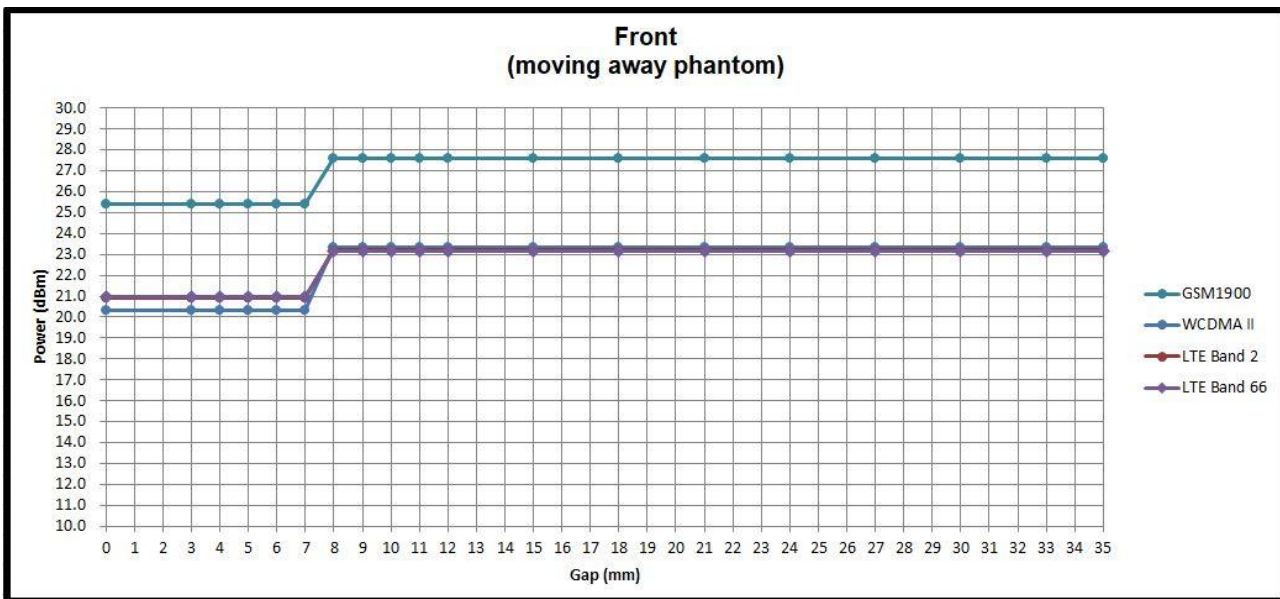
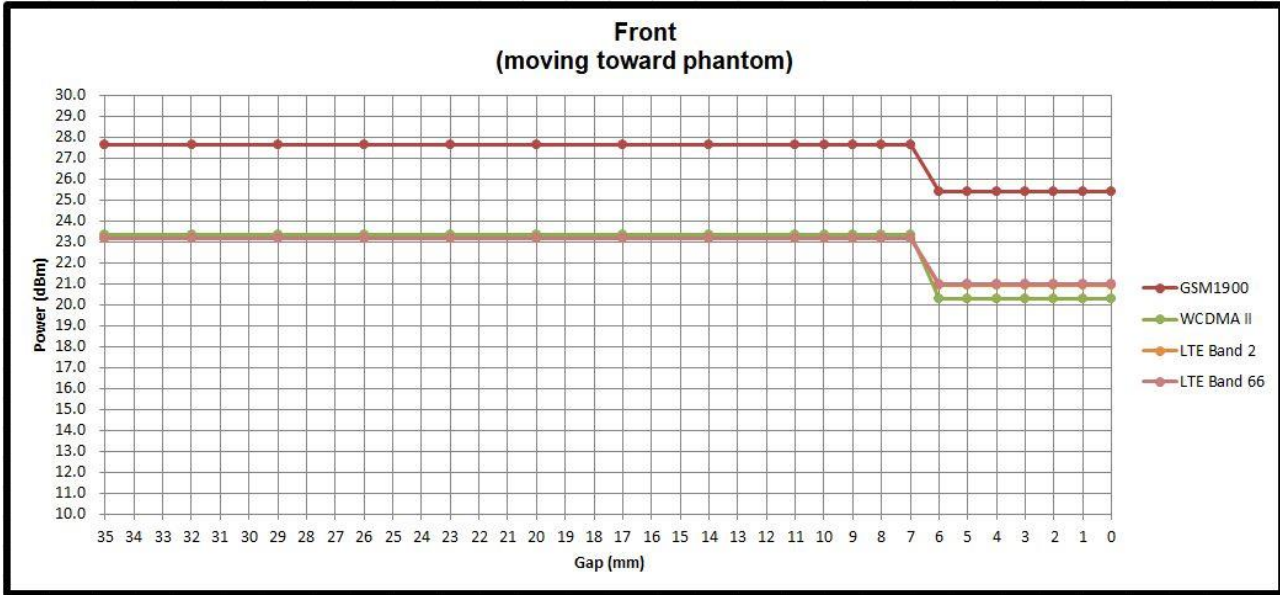
Proximity Top+ Bottom Sensor Trigger Distance for Body-worn(mm)				
Position	Front		Back	
Position	Moving towards	Moving away	Moving towards	Moving away
Minimum	19	19	20	20

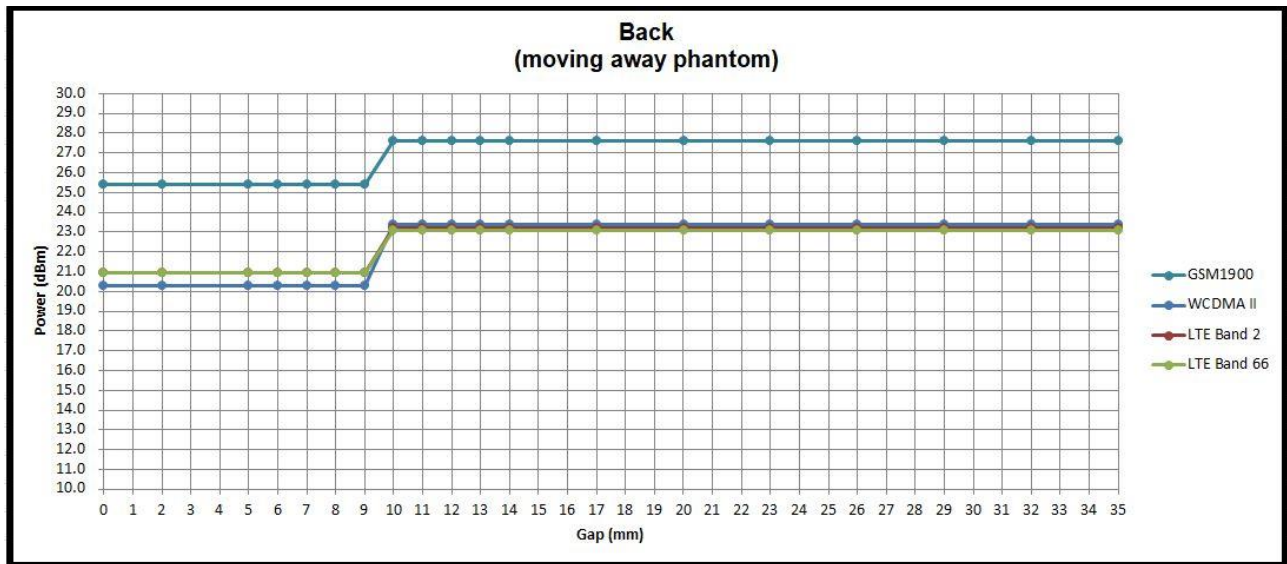
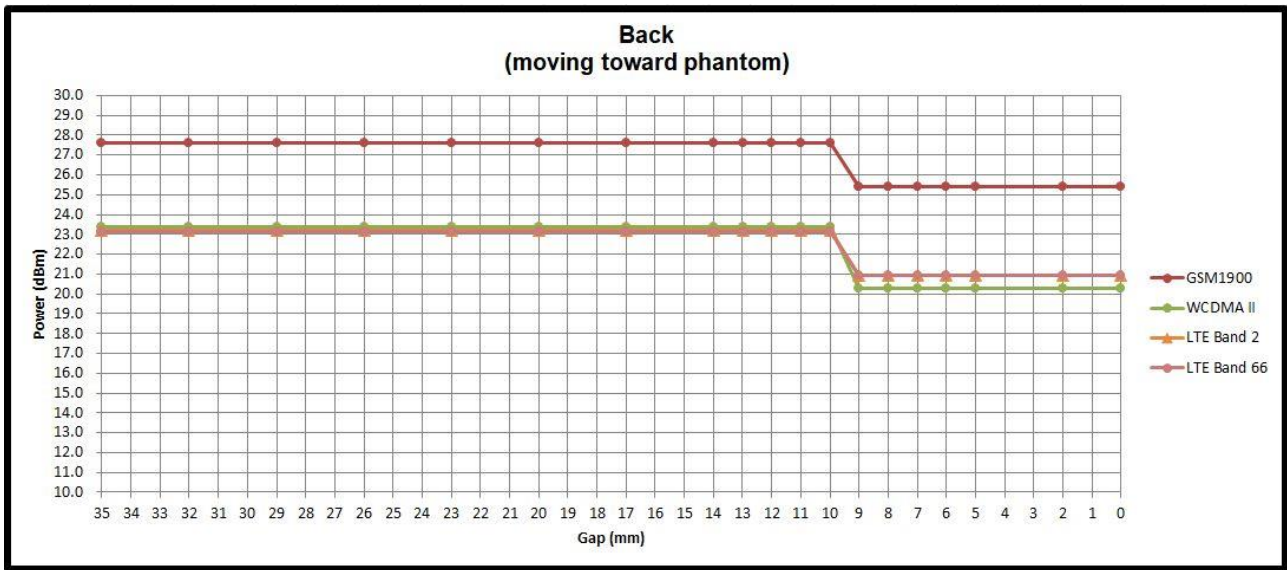


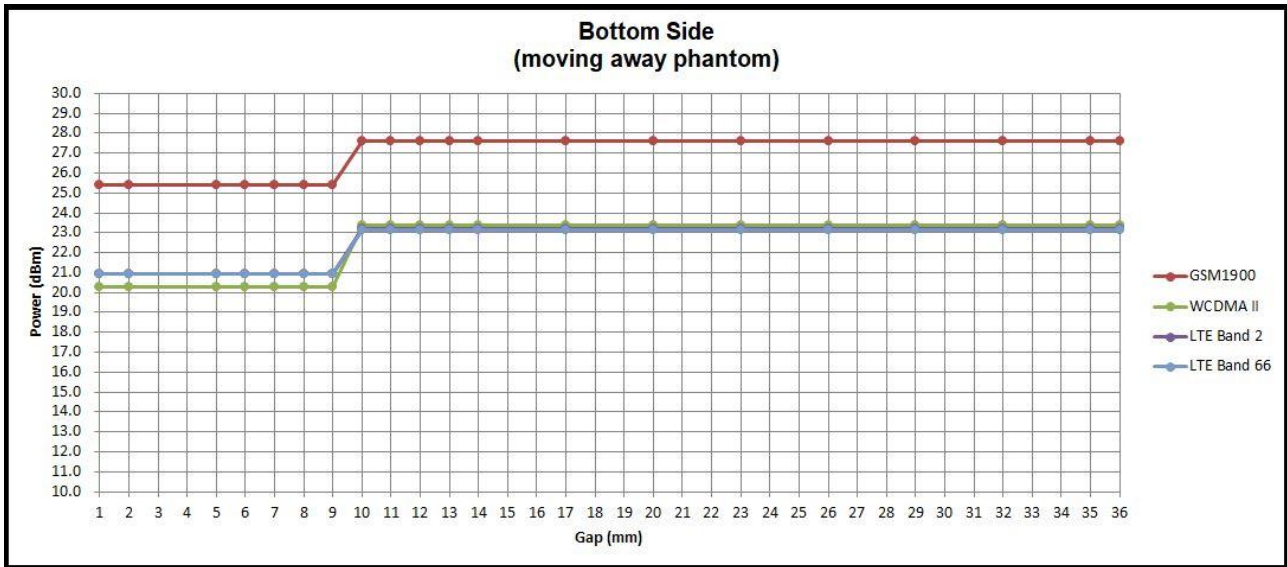
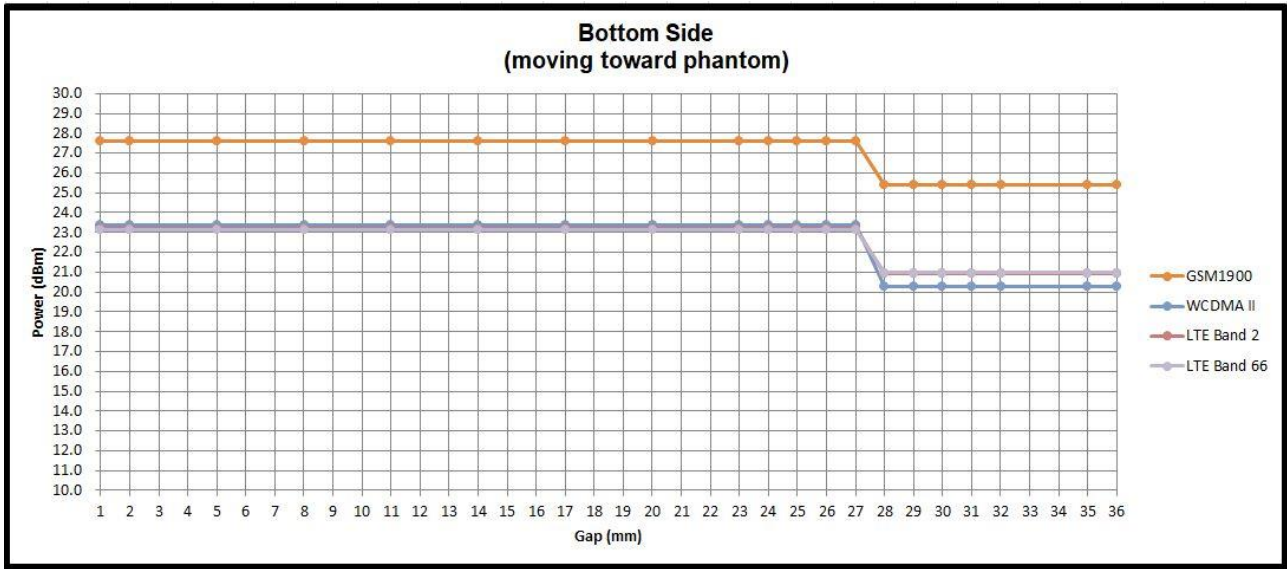




Proximity Bottom Sensor Trigger Distance (mm) for Extremity						
Position	Front		Back		Bottom Side	
Position	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	7	9	9	8	8









**5. Smart Transmit feature for RF Exposure compliance**

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR\_design\_target or PD\_design\_target, below the predefined time-averaged power limit (i.e., input.power.limit for 5G mmW NR), for each characterized technology and band (refer to RF exposure part0 report)

Smart Transmit allows the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit EFS settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Device State Index DSI).

**<P<sub>limit</sub> for supported technologies and bands (P<sub>limit</sub> in EFS file)>**

Tech/Band	Antenna	DSI 2 Head	DSI 3 Body worn/ Hotspot	DSI 6 Extremity	P <sub>max</sub> *
CDMA BC0	Ant 1 (Bottom)	29.3	26.9	25	24
CDMA BC1	Ant 1 (Bottom)	31.5	15.7	20.6	24
GSM 850	Ant 1 (Bottom)	23.5	23.5	23.5	23.5
GSM 1900 (4TX) **	Ant 1 (Bottom)	20.5	13.7	20.0	23
WCDMA B2	Ant 1 (Bottom)	33.3	16.1	19.8	23
WCDMA B5	Ant 1 (Bottom)	33.2	27.5	24.7	23
LTE B2	Ant 1 (Bottom)	32.5	16.8	20.5	23
LTE B66(B4)	Ant 1 (Bottom)	32.9	17.4	20	23
LTE B5	Ant 1 (Bottom)	30.2	27.5	24.5	23
LTE B7	Ant 1 (Bottom)	37.5	20.9	23	23
LTE B12	Ant 1 (Bottom)	30.4	27.3	24	23
LTE B13	Ant 1 (Bottom)	30.4	27.3	24.7	23
LTE B17	Ant 1 (Bottom)	30.4	27.3	24.7	23
LTE B48 **	Ant 3(Top)	15	17.2	23	21

\*P<sub>max</sub> is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + 1dB uncertainty.

\*\*All P<sub>limit</sub> power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).

The max allowed output power is the P<sub>limit</sub> + 1dB device uncertainty, and if P<sub>limit</sub> is higher than P<sub>max</sub>, the device output power will be P<sub>max</sub> instead.



6. RF Exposure Limits

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

Table with 3 columns: Whole-Body, Partial-Body, Hands, Wrists, Feet and Ankles. Values: 0.4, 8.0, 20.0

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

Table with 3 columns: Whole-Body, Partial-Body, Hands, Wrists, Feet and Ankles. Values: 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.



## **7. Specific Absorption Rate (SAR)**

### **7.1 Introduction**

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

### **7.2 SAR Definition**

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

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

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

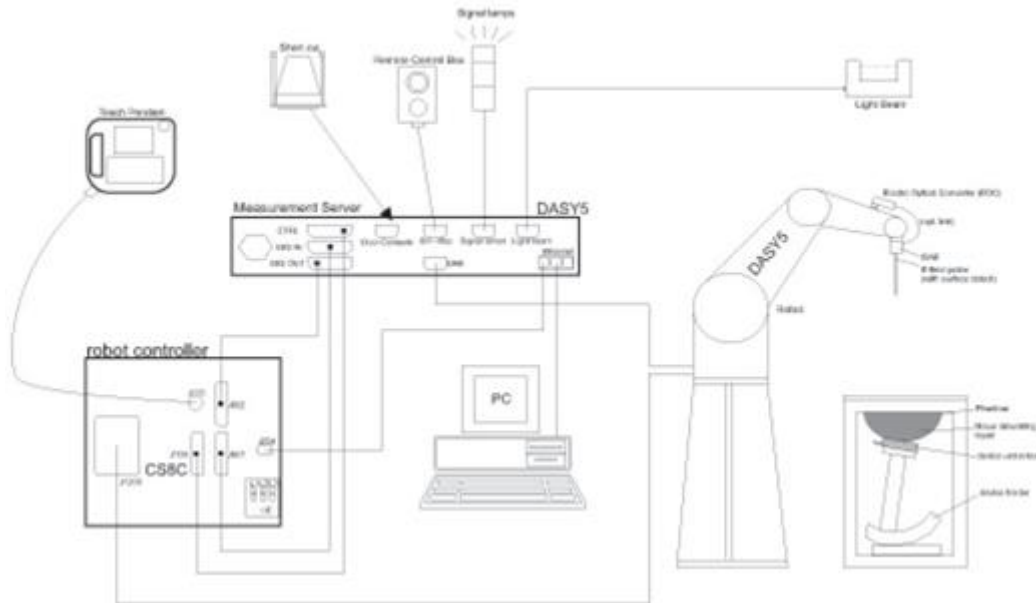
$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and E is the RMS electrical field strength.



## 8. System Description and Setup

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




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


**8.1 E-Field Probe**

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

**<ES3DV3 Probe>**

<b>Construction</b>	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
<b>Frequency</b>	10 MHz – 4 GHz; Linearity: $\pm 0.2$ dB (30 MHz – 4 GHz)	
<b>Directivity</b>	$\pm 0.2$ dB in TSL (rotation around probe axis) $\pm 0.3$ dB in TSL (rotation normal to probe axis)	
<b>Dynamic Range</b>	5 $\mu$ W/g – >100 mW/g; Linearity: $\pm 0.2$ dB	
<b>Dimensions</b>	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>**

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

**8.2 Data Acquisition Electronics (DAE)**

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


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



**Fig 5.1 Photo of DAE**


**8.3 Phantom**

**<SAM Twin Phantom>**

<b>Shell Thickness</b>	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
<b>Filling Volume</b>	Approx. 25 liters	
<b>Dimensions</b>	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
<b>Measurement Areas</b>	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>**

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

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

### **8.4 Device Holder**

#### **<Mounting Device for Hand-Held Transmitter>**

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

## **9. Measurement Procedures**

The measurement procedures are as follows:

### <Conducted power measurement>

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

### <SAR measurement>

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

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

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

### **9.1 Spatial Peak SAR Evaluation**

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

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

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

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



**9.2 Power Reference Measurement**

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

**9.3 Area Scan**

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

Area scan parameters extracted from FCC KDB 865664 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	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

**9.4 Zoom Scan**

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

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

		≤ 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$		$\leq 2$ GHz: $\leq 8$ mm 2 – 3 GHz: $\leq 5$ mm*	3 – 4 GHz: $\leq 5$ mm* 4 – 6 GHz: $\leq 4$ mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	$\leq 5$ mm	3 – 4 GHz: $\leq 4$ mm 4 – 5 GHz: $\leq 3$ mm 5 – 6 GHz: $\leq 2$ mm	
	graded grid	$\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface	$\leq 4$ mm	3 – 4 GHz: $\leq 3$ mm 4 – 5 GHz: $\leq 2.5$ mm 5 – 6 GHz: $\leq 2$ 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	$\geq 30$ mm	3 – 4 GHz: $\geq 28$ mm 4 – 5 GHz: $\geq 25$ mm 5 – 6 GHz: $\geq 22$ mm	
Note: $\delta$ 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 <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is $\leq 1.4$ W/kg, $\leq 8$ mm, $\leq 7$ mm and $\leq 5$ mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

**9.5 Volume Scan Procedures**

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

**9.6 Power Drift Monitoring**

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



10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1107	Mar. 08, 2019	Mar. 07, 2020
SPEAG	835MHz System Validation Kit	D835V2	4d167	Nov. 25, 2019	Nov. 24, 2020
SPEAG	1750MHz System Validation Kit	D1750V2	1112	Mar. 07, 2019	Mar. 06, 2020
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 11, 2018	Sep. 09, 2020
SPEAG	2450MHz System Validation Kit	D2450V2	736	Aug. 31, 2018	Aug. 29, 2020
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 31, 2018	Aug. 29, 2020
SPEAG	2600MHz System Validation Kit	D2600V2	1078	Mar. 06, 2019	Mar. 05, 2020
SPEAG	3500MHz System Validation Kit	D3500V2	1036	Mar. 08, 2019	Mar. 07, 2020
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 27, 2018	Sep. 25, 2020
SPEAG	Data Acquisition Electronics	DAE3	495	May. 21, 2019	May. 20, 2020
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 17, 2019	Sep. 16, 2020
SPEAG	Data Acquisition Electronics	DAE4	376	Dec. 06, 2019	Dec. 05, 2020
SPEAG	Data Acquisition Electronics	DAE4	778	May. 21, 2019	May. 20, 2020
SPEAG	Data Acquisition Electronics	DAE4	1311	Aug. 27, 2019	Aug. 26, 2020
SPEAG	Dosimetric E-Field Probe	ES3DV3	3169	May. 24, 2019	May. 23, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	Sep. 20, 2019	Sep. 19, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 26, 2019	Sep. 25, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 22, 2019	Jul. 21, 2020
Testo	Hygro meter	608-H1	45196600	Nov. 18, 2019	Nov. 17, 2020
Testo	Hygro meter	608-H1	45207528	Nov. 18, 2019	Nov. 17, 2020
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Oct. 31, 2019	Oct. 30, 2020
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 27, 2019	May. 26, 2020
R&S	BT Base Station	CBT32	100522	Mar. 18, 2019	Mar. 17, 2020
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Nov. 20, 2019	Nov. 19, 2020
Agilent	ENA Network Analyzer	E5071C	MY46104758	Sep. 06, 2019	Sep. 05, 2020
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 18, 2019	Sep. 17, 2020
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3169	Sep. 10, 2019	Sep. 09, 2020
Anritsu	Power Meter	ML2495A	1036004	Aug. 08, 2019	Aug. 07, 2020
Anritsu	Power Sensor	MA2411B	1027253	Aug. 08, 2019	Aug. 07, 2020
Anritsu	Power Meter	ML2495A	1419002	May. 29, 2019	May. 28, 2020
Anritsu	Power Sensor	MA2411B	1339124	May. 29, 2019	May. 28, 2020
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 27, 2019	Aug. 26, 2020
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 27, 2019	Jun. 26, 2020
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 16, 2019	Oct. 15, 2020
Mini-Circuits	Power Amplifier	ZVE-8G+	6382	Aug. 12, 2019	Aug. 11, 2020
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.
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole D2600V2, SN: 1008, D1900V2, SN: 5d041, D2450V2, SN: 736, D5GHzV2, SN: 1006, can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.



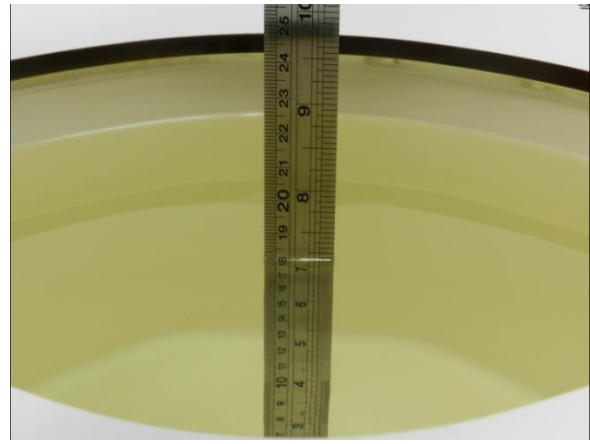
## **11. System Verification**

### **11.1 Tissue Simulating Liquids**

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



**Fig 10.1** Photo of Liquid Height for Head SAR



**Fig 10.2** Photo of Liquid Height for Body SAR



**11.2 Tissue Verification**

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ε <sub>r</sub> )
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

**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)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ε <sub>r</sub> )	Conductivity Target (σ)	Permittivity Target (ε <sub>r</sub> )	Delta (σ) (%)	Delta (ε <sub>r</sub> ) (%)	Limit (%)	Date
750	22.5	0.892	42.360	0.89	41.90	0.22	1.10	±5	2020/1/5
750	22.4	0.887	42.938	0.89	41.90	-0.34	2.48	±5	2020/1/8
835	22.5	0.897	42.276	0.90	41.50	-0.33	1.87	±5	2020/1/5
835	22.4	0.886	42.139	0.90	41.50	-1.56	1.54	±5	2020/1/7
835	22.6	0.899	42.474	0.90	41.50	-0.11	2.35	±5	2020/1/31
1750	22.4	1.383	41.198	1.37	40.10	0.95	2.74	±5	2020/1/6
1750	22.3	1.395	40.719	1.37	40.10	1.82	1.54	±5	2020/2/3
1750	22.5	1.384	40.789	1.37	40.10	1.02	1.72	±5	2020/2/5
1900	22.5	1.453	41.053	1.40	40.00	3.79	2.63	±5	2020/1/5
1900	22.4	1.414	40.714	1.40	40.00	1.00	1.79	±5	2020/1/31
1900	22.4	1.407	40.291	1.40	40.00	0.50	0.73	±5	2020/2/2
1900	22.4	1.407	40.291	1.40	40.00	0.50	0.73	±5	2020/2/2
1900	22.5	1.459	40.944	1.40	40.00	4.21	2.36	±5	2020/2/5
1900	22.5	1.455	39.146	1.40	40.00	3.93	-2.14	±5	2020/2/6
2450	22.7	1.865	39.167	1.80	39.20	3.61	-0.08	±5	2020/1/20
2450	22.5	1.826	38.776	1.80	39.20	1.44	-1.08	±5	2020/2/4
2600	22.4	2.005	38.525	1.96	39.00	2.30	-1.22	±5	2020/1/6
2600	22.5	1.973	38.918	1.96	39.00	0.66	-0.21	±5	2020/2/5
3500	22.5	2.951	39.103	2.91	37.90	1.41	3.17	±5	2020/2/4
5250	22.7	4.684	36.020	4.71	35.95	-0.55	0.19	±5	2020/2/3
5250	22.7	4.541	36.991	4.71	35.95	-3.59	2.90	±5	2020/2/4
5250	22.7	4.526	36.861	4.71	35.95	-3.91	2.53	±5	2020/2/6
5600	22.7	5.091	35.628	5.07	35.50	0.41	0.36	±5	2020/2/3
5600	22.7	4.880	36.479	5.07	35.50	-3.75	2.76	±5	2020/2/4
5600	22.7	4.863	36.349	5.07	35.50	-4.08	2.39	±5	2020/2/6
5750	22.7	5.348	35.284	5.22	35.35	2.45	-0.19	±5	2020/2/3
5750	22.7	5.043	36.259	5.22	35.35	-3.39	2.57	±5	2020/2/4
5750	22.7	5.026	36.129	5.22	35.35	-3.72	2.20	±5	2020/2/6

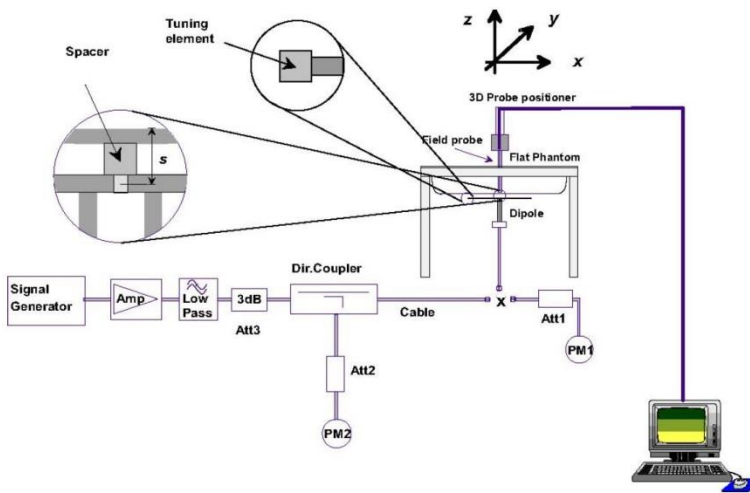


11.3 System Performance Check Results

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

Table with 10 columns: Date, Frequency (MHz), 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 (%). Rows contain test data for various frequencies and dates.

Date	Frequency (MHz)	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)
2020/2/3	1750	250	D1750V2-1112	EX3DV4 - SN7306	DAE3 Sn577	4.69	19.40	18.76
2020/2/5	1750	250	D1750V2-1112	EX3DV4 - SN3925	DAE4 Sn778	4.91	19.40	19.64
2020/2/5	1900	250	D1900V2-5d041	EX3DV4 - SN3925	DAE4 Sn778	5.16	21.20	20.64
2020/2/6	1900	250	D1900V2-5d041	ES3DV3 - SN3169	DAE3 Sn495	5.32	21.20	21.28
2020/2/4	2450	250	D2450V2-736	ES3DV3 - SN3169	DAE3 Sn495	6.19	24.60	24.76
2020/2/5	2600	250	D2600V2-1008	ES3DV3 - SN3169	DAE3 Sn495	6.83	25.30	27.32
2020/2/4	3500	100	D3500V2-1036	EX3DV4 - SN3925	DAE4 Sn778	2.45	25.20	24.5
2020/2/6	5250	100	D5GHzV2-1006-5250	EX3DV4 - SN3925	DAE4 Sn778	2.20	23.20	22
2020/2/6	5600	100	D5GHzV2-1006-5600	EX3DV4 - SN3925	DAE4 Sn778	2.37	23.80	23.7
2020/2/6	5750	100	D5GHzV2-1006-5750	EX3DV4 - SN3925	DAE4 Sn778	2.16	22.90	21.6



**Fig 8.3.1 System Performance Check Setup**



**Fig 8.3.2 Setup Photo**

## 12. RF Exposure Positions

### 12.1 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.

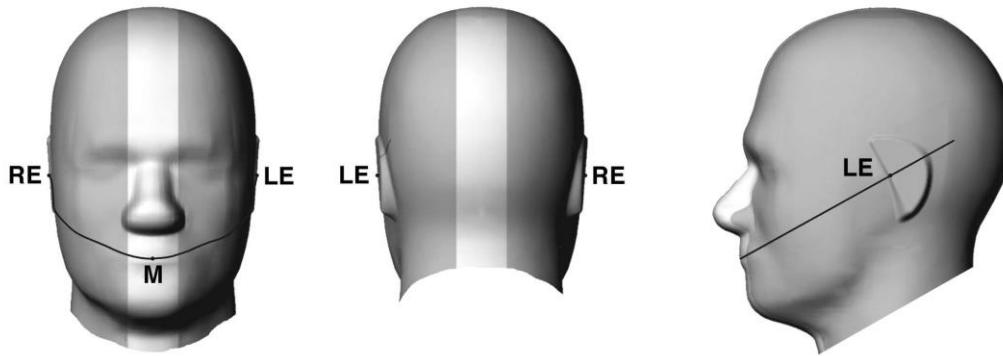


Fig 9.1.1 Front, back, and side views of SAM twin phantom

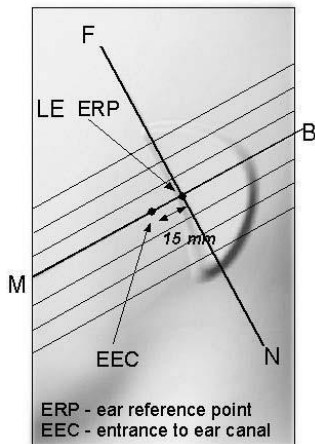


Fig 9.1.2 Close-up side view of phantom showing the ear region.

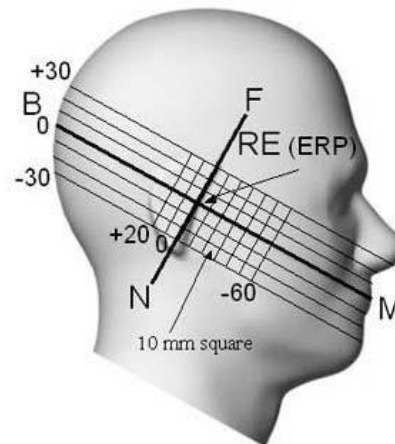
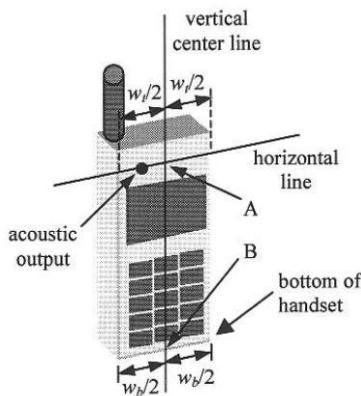


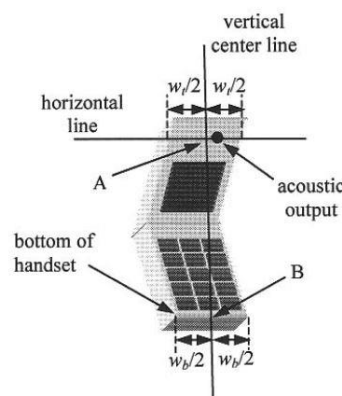
Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

**12.2 Definition of the cheek position**

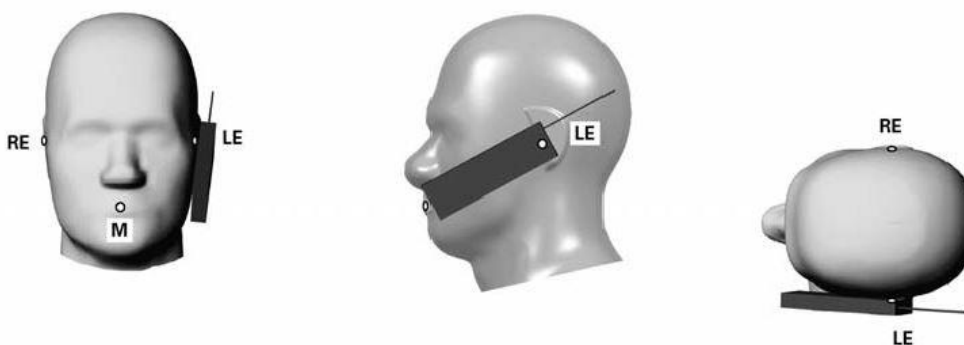
1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width  $w_t$  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  $w_b$  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”**



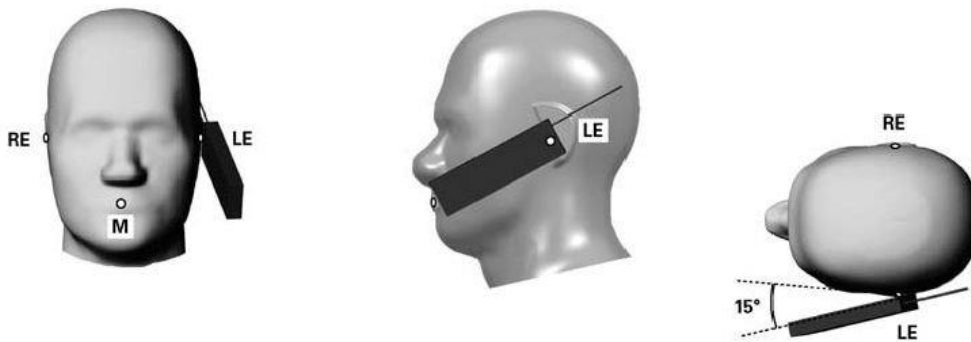
**Fig 9.2.2 Handset vertical and horizontal reference lines—“clam-shell case”**



**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.**

**12.3 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

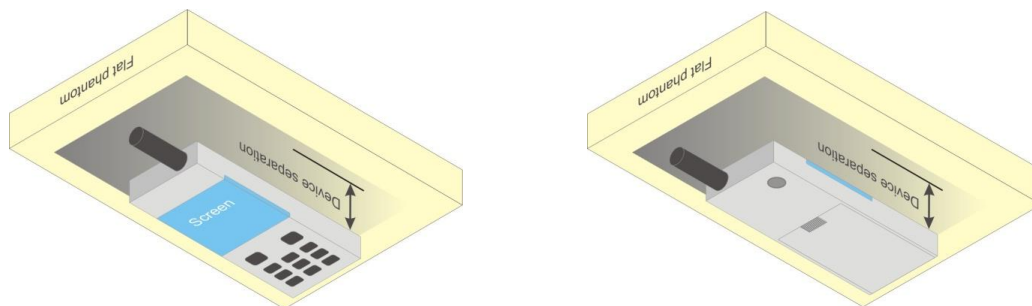


**Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.**

**12.4 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. 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**



### **12.5 Extremity Exposure**

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

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at  $\leq 25$  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.

### **12.6 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 ( $L \times W \geq 9$  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 from 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.





### 13. GSM/UMTS/CDMA/LTE 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 (3Tx slots) for GSM850 and GPRS (2Tx slots) for GSM1900 is 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  $\leq \frac{1}{4}$  dB higher than the primary mode, SAR measurement is not required for the secondary mode
4. Power reduction which is triggered by hotspot mode is implemented in GSM1900 band, for hotspot mode SAR testing EUT was set in reduced power mode and GPRS 4Tx slot due to its highest frame-average power.
5. Power reduction which is triggered by handheld mode is implemented in GSM1900 band, for handheld mode SAR testing EUT was set in reduced power mode and GPRS 2Tx slot due to its highest frame-average power.

**<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	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.60	32.71	32.61	33.50	23.60	23.71	23.61	24.50
GPRS 1 Tx slot	32.66	32.73	32.55	33.50	23.66	23.73	23.55	24.50
GPRS 2 Tx slots	31.72	31.39	31.27	32.00	25.72	25.39	25.27	26.00
GPRS 3 Tx slots	30.44	29.89	29.67	30.50	26.18	25.63	25.41	26.24
GPRS 4 Tx slots	28.75	28.13	27.50	29.00	25.75	25.13	24.50	26.00
EDGE 1 Tx slot	27.17	27.26	27.38	27.50	18.17	18.26	18.38	18.50
EDGE 2 Tx slots	26.01	26.11	26.28	26.50	20.01	20.11	20.28	20.50
EDGE 3 Tx slots	24.40	24.51	24.66	25.00	20.14	20.25	20.40	20.74
EDGE 4 Tx slots	22.83	22.92	23.08	23.50	19.83	19.92	20.08	20.50

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	512	661		810	512	661	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.83	29.85	29.51	30.50	20.83	20.85	20.51	21.50
GPRS 1 Tx slot	29.91	29.86	29.63	30.50	20.91	20.86	20.63	21.50
GPRS 2 Tx slots	29.02	29.08	28.94	30.50	23.02	23.08	22.94	24.50
GPRS 3 Tx slots	27.47	27.61	27.54	28.50	23.21	23.35	23.28	24.24
GPRS 4 Tx slots	25.89	26.05	26.00	27.00	22.89	23.05	23.00	24.00
EDGE 1 Tx slot	25.65	25.62	25.81	26.00	16.65	16.62	16.81	17.00
EDGE 2 Tx slots	25.08	25.06	25.25	25.50	19.08	19.06	19.25	19.50
EDGE 3 Tx slots	23.54	23.54	23.72	24.50	19.28	19.28	19.46	20.24
EDGE 4 Tx slots	22.00	21.95	22.17	22.50	19.00	18.95	19.17	19.50



**<Reduced Power on Hotspot / Body-worn Mode>**

GSM1900 TX Channel	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	23.35	23.57	23.62	23.70	14.35	14.57	14.62	14.70
GPRS 1 Tx slot	23.39	23.61	23.67	23.70	14.39	14.61	14.67	14.70
GPRS 2 Tx slots	20.16	20.33	20.41	20.50	14.16	14.33	14.41	14.50
GPRS 3 Tx slots	18.54	18.85	19.05	19.50	14.28	14.59	14.79	15.24
GPRS 4 Tx slots	17.26	17.61	17.82	18.50	14.26	14.61	14.82	15.50
EDGE 1 Tx slot	23.28	23.47	23.56	23.70	14.28	14.47	14.56	14.70
EDGE 2 Tx slots	20.12	20.30	20.38	20.50	14.12	14.30	14.38	14.50
EDGE 3 Tx slots	18.40	18.73	18.92	19.00	14.14	14.47	14.66	14.74
EDGE 4 Tx slots	17.24	17.58	17.81	18.00	14.24	14.58	14.81	15.00

**<Reduced Power on Product Specific Mode>**

GSM1900 TX Channel	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.52	29.50	29.25	30.00	20.52	20.50	20.25	21.00
GPRS 1 Tx slot	29.55	29.51	29.29	30.00	20.55	20.51	20.29	21.00
GPRS 2 Tx slots	27.38	27.41	27.35	28.00	21.38	21.41	21.35	22.00
GPRS 3 Tx slots	25.35	25.40	25.44	25.50	21.09	21.14	21.18	21.24
GPRS 4 Tx slots	24.06	24.09	24.13	24.50	21.06	21.09	21.13	21.50
EDGE 1 Tx slot	26.25	26.22	26.17	26.50	17.25	17.22	17.17	17.50
EDGE 2 Tx slots	25.67	25.68	25.71	26.00	19.67	19.68	19.71	20.00
EDGE 3 Tx slots	24.32	24.17	24.22	24.50	20.06	19.91	19.96	20.24
EDGE 4 Tx slots	22.69	22.62	22.66	23.00	19.69	19.62	19.66	20.00

**<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 ( $\beta_c$  and  $\beta_d$ ) 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:  $\beta$  values for transmitter characteristics tests with HS-DPCCH**

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note 1, 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:  $\Delta_{ACK}, \Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ .

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

Note 3: CM = 1 for  $\beta_c/\beta_d = 12/15, \beta_{HS}/\beta_c = 24/15$ . For all other combinations of DPCCH, DPDCCH 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  $\beta_c/\beta_d$  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  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

**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 ( $\beta_c$  and  $\beta_d$ ) 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-TFCl
  - viii. Confirm that E-TFCl is equal to the target E-TFCl of 75 for sub-test 1, and other subtest's E-TFCl
- d. The transmitted maximum output power was recorded.

**Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH**

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note1)	$\beta_{ec}$	$\beta_{ed}$ (Note 4) (Note 5)	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCl
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	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	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	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,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ . For sub-test 5,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 5/15$  with  $\beta_{hs} = 5/15 * \beta_c$ .

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

Note 3: For subtest 1 the  $\beta_c/\beta_d$  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  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

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:  $\beta_{ed}$  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:**

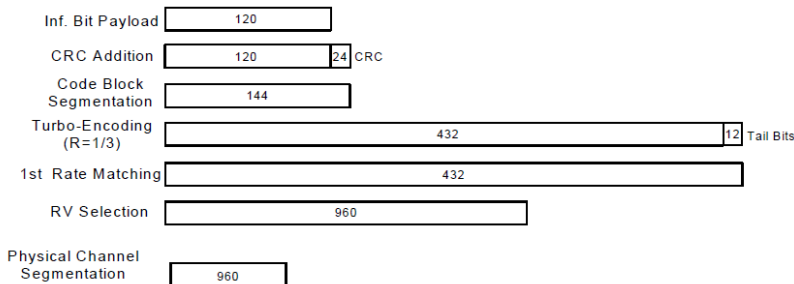
- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set RMC 12.2Kbps + HSDPA mode.
  - ii. Set Cell Power = -25 dBm
  - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
  - iv. Select HSDPA Uplink Parameters
  - v. Set Gain Factors ( $\beta_c$  and  $\beta_d$ ) 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:  $\beta_c/\beta_d=2/15$
    - b). Subtest 2:  $\beta_c/\beta_d=12/15$
    - c). Subtest 3:  $\beta_c/\beta_d=15/8$
    - d). Subtest 4:  $\beta_c/\beta_d=15/4$
  - 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  $\leq \frac{1}{4}$  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  $\leq 1.2$  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  $\frac{1}{4}$  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 V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		4132	4182	4233	
Rx Channel		9662	9800	9938		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6	826.4	836.4	846.6		
3GPP Rel 99	AMR 12.2Kbps	23.21	23.35	23.14	24.00	23.21	23.30	23.25	24.00
3GPP Rel 99	RMC 12.2Kbps	23.22	23.36	23.16	24.00	23.23	23.31	23.27	24.00
3GPP Rel 6	HSDPA Subtest-1	22.24	22.40	22.16	23.00	22.25	22.34	22.32	24.00
3GPP Rel 6	HSDPA Subtest-2	22.25	22.37	22.16	23.00	22.29	22.33	22.33	24.00
3GPP Rel 6	HSDPA Subtest-3	21.77	21.87	21.72	22.50	21.74	21.82	21.82	23.50
3GPP Rel 6	HSDPA Subtest-4	21.76	21.90	21.72	22.50	21.77	21.84	21.80	23.50
3GPP Rel 8	DC-HSDPA Subtest-1	22.14	22.33	22.09	23.00	22.23	22.24	22.23	24.00
3GPP Rel 8	DC-HSDPA Subtest-2	22.15	22.30	22.16	23.00	22.26	22.30	22.28	24.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.73	21.80	21.67	22.50	21.73	21.74	21.77	23.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.70	21.85	21.68	22.50	21.71	21.75	21.78	23.50
3GPP Rel 6	HSUPA Subtest-1	22.27	22.40	22.15	23.00	22.25	22.30	22.29	24.00
3GPP Rel 6	HSUPA Subtest-2	20.27	20.41	20.25	21.00	20.17	20.22	20.15	22.00
3GPP Rel 6	HSUPA Subtest-3	21.25	21.39	21.21	22.00	21.13	21.18	21.17	23.00
3GPP Rel 6	HSUPA Subtest-4	20.32	20.43	20.16	21.00	20.16	20.21	20.16	22.00
3GPP Rel 6	HSUPA Subtest-5	22.30	22.40	22.20	23.00	22.20	22.20	22.20	24.00

**<Reduced Power on Hotspot / Body-worn Mode>**

Band		WCDMA II			Tune-up Limit (dBm)
TX Channel		9262	9400	9538	
Rx Channel		9662	9800	9938	
Frequency (MHz)		1852.4	1880	1907.6	
3GPP Rel 99	AMR 12.2Kbps	16.97	17.07	16.89	17.10
3GPP Rel 99	RMC 12.2Kbps	17.03	17.10	17.08	17.10
3GPP Rel 6	HSDPA Subtest-1	15.94	16.14	15.79	16.50
3GPP Rel 6	HSDPA Subtest-2	15.88	16.05	15.79	16.50
3GPP Rel 6	HSDPA Subtest-3	15.53	15.56	15.50	16.00
3GPP Rel 6	HSDPA Subtest-4	15.41	15.67	15.52	16.00
3GPP Rel 8	DC-HSDPA Subtest-1	15.91	16.06	15.76	16.50
3GPP Rel 8	DC-HSDPA Subtest-2	15.84	16.05	15.93	16.50
3GPP Rel 8	DC-HSDPA Subtest-3	15.43	15.43	15.47	16.00
3GPP Rel 8	DC-HSDPA Subtest-4	15.33	15.46	15.40	16.00
3GPP Rel 6	HSUPA Subtest-1	16.03	16.11	15.76	16.50
3GPP Rel 6	HSUPA Subtest-2	13.97	14.10	13.98	14.50
3GPP Rel 6	HSUPA Subtest-3	14.86	15.08	14.82	15.50
3GPP Rel 6	HSUPA Subtest-4	14.04	14.19	13.80	14.50
3GPP Rel 6	HSUPA Subtest-5	15.99	16.09	16.00	16.50



**<Reduced Power on Product Specific Mode>**

Band		WCDMA II			Tune-up Limit (dBm)
TX Channel		9262	9400	9538	
Rx Channel		9662	9800	9938	
Frequency (MHz)		1852.4	1880	1907.6	
3GPP Rel 99	AMR 12.2Kbps	20.16	20.14	20.09	<b>20.80</b>
3GPP Rel 99	RMC 12.2Kbps	20.25	20.15	20.30	<b>20.80</b>
3GPP Rel 6	HSDPA Subtest-1	19.14	19.34	18.99	20.80
3GPP Rel 6	HSDPA Subtest-2	19.08	19.25	18.99	20.80
3GPP Rel 6	HSDPA Subtest-3	18.73	18.76	18.70	20.30
3GPP Rel 6	HSDPA Subtest-4	18.61	18.87	18.72	20.30
3GPP Rel 8	DC-HSDPA Subtest-1	19.11	19.26	18.96	20.80
3GPP Rel 8	DC-HSDPA Subtest-2	19.04	19.25	19.13	20.80
3GPP Rel 8	DC-HSDPA Subtest-3	18.63	18.63	18.67	20.30
3GPP Rel 8	DC-HSDPA Subtest-4	18.53	18.66	18.60	20.30
3GPP Rel 6	HSUPA Subtest-1	19.23	19.31	18.96	20.80
3GPP Rel 6	HSUPA Subtest-2	17.17	17.30	17.18	18.80
3GPP Rel 6	HSUPA Subtest-3	18.06	18.28	18.02	19.80
3GPP Rel 6	HSUPA Subtest-4	17.24	17.39	17.00	18.80
3GPP Rel 6	HSUPA Subtest-5	19.19	19.29	19.20	20.80



**<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)
	1013	384	777		25	600	1175	
TX Channel	824.7	836.52	848.31		1851.25	1880	1908.75	
Frequency (MHz)								
RC1 SO55	23.56	23.43	23.52	25.00	23.21	23.22	23.02	25.00
RC3 SO55	23.51	23.38	23.47	25.00	23.21	23.20	23.03	25.00
RC3 SO32 (F+SCH)	23.53	23.59	23.58	25.00	23.23	23.17	23.02	25.00
RC3 SO32 (+SCH)	23.52	23.51	23.53	25.00	23.19	23.18	23.03	25.00
RTAP 153.6Kbps	23.52	23.53	23.51	25.00	23.20	23.21	23.01	25.00
RETAP 4096Bits	23.51	23.33	23.52	25.00	23.21	23.21	23.02	25.00

**<Reduced Power on Hotspot / Body-worn Mode>**

Band	CDMA BC1			Tune-up Limit (dBm)
	25	600	1175	
TX Channel	1851.25	1880	1908.75	
Frequency (MHz)				
RC1 SO55	16.00	16.11	15.95	16.70
RC3 SO55	16.15	16.02	15.90	16.70
RC3 SO32 (F+SCH)	16.18	16.05	16.08	16.70
RC3 SO32 (+SCH)	15.95	16.00	16.14	16.70
RTAP 153.6Kbps	16.02	15.84	16.18	16.70
RETAP 4096Bits	15.99	16.07	16.10	16.70

**<Reduced Power on Product Specific Mode>**

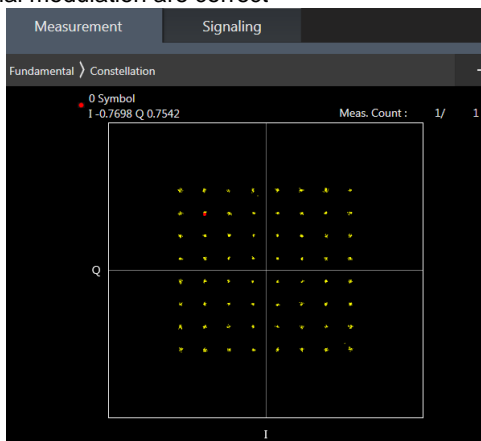
Band	CDMA BC1			Tune-up Limit (dBm)
	25	600	1175	
TX Channel	1851.25	1880	1908.75	
Frequency (MHz)				
RC1 SO55	20.68	20.55	20.68	21.60
RC3 SO55	20.70	20.67	20.62	21.60
RC3 SO32 (F+SCH)	20.71	20.71	20.70	21.60
RC3 SO32 (+SCH)	20.74	20.69	20.69	21.60
RTAP 153.6Kbps	20.76	20.65	20.75	21.80
RETAP 4096Bits	20.70	20.68	20.68	21.60



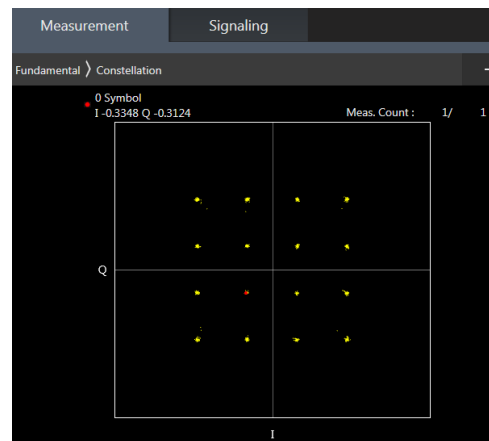
**<LTE Conducted Power>**

**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  $\leq 0.8$  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  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  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  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 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 / 17 SAR test was covered by Band 66 / 12; 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  $\leq$  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	22.99	23.19	23.10	24	0
20	QPSK	1	49	22.83	22.96	22.72		
20	QPSK	1	99	22.83	23.13	22.74		
20	QPSK	50	0	22.06	22.24	22.02	23	1
20	QPSK	50	24	22.05	22.23	21.94		
20	QPSK	50	50	21.96	22.23	21.91		
20	QPSK	100	0	22.02	22.20	21.87	23	1
20	16QAM	1	0	22.36	22.42	22.42		
20	16QAM	1	49	22.24	22.42	22.06		
20	16QAM	1	99	22.21	22.48	22.10	22	2
20	16QAM	50	0	21.15	21.12	21.10		
20	16QAM	50	24	21.15	21.25	21.05		
20	16QAM	50	50	21.08	21.27	21.03	22	2
20	16QAM	100	0	21.04	21.23	20.96		
20	64QAM	1	0	20.77	20.97	20.83		
20	64QAM	1	49	20.69	20.96	20.11	22	2
20	64QAM	1	99	20.69	21.01	20.10		
20	64QAM	50	0	19.72	19.92	19.48		
20	64QAM	50	24	19.68	19.98	19.29	21	3
20	64QAM	50	50	19.65	19.98	19.22		
20	64QAM	100	0	19.65	19.88	19.25		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.18	23.11	22.97	24	0
15	QPSK	1	37	23.10	23.06	22.73		
15	QPSK	1	74	23.14	23.13	22.77		
15	QPSK	36	0	22.27	22.12	21.96	23	1
15	QPSK	36	20	22.29	22.22	21.96		
15	QPSK	36	39	22.21	22.24	21.97		
15	QPSK	75	0	22.22	22.21	21.88	23	1
15	16QAM	1	0	22.42	22.40	22.34		
15	16QAM	1	37	22.45	22.41	22.06		
15	16QAM	1	74	22.43	22.43	22.10	22	2
15	16QAM	36	0	21.28	21.12	21.06		
15	16QAM	36	20	21.29	21.23	21.06		
15	16QAM	36	39	21.27	21.24	21.08	22	2
15	16QAM	75	0	21.28	21.22	20.99		
15	64QAM	1	0	20.92	20.95	20.50		
15	64QAM	1	37	20.96	20.94	20.10	22	2
15	64QAM	1	74	20.92	21.00	20.10		
15	64QAM	36	0	19.93	19.85	19.27		
15	64QAM	36	20	19.88	19.95	19.21	21	3
15	64QAM	36	39	19.82	19.96	19.21		
15	64QAM	75	0	19.81	19.87	19.15		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.98	22.94	23.04	24	0
10	QPSK	1	25	22.76	22.91	22.65		
10	QPSK	1	49	22.79	23.10	22.72		
10	QPSK	25	0	22.04	22.01	21.93	23	1



**FCC SAR TEST REPORT**

**Report No. : FA9D0635A**

10	QPSK	25	12	21.97	22.23	21.94		
10	QPSK	25	25	21.95	22.21	21.87		
10	QPSK	50	0	21.97	22.14	21.78		
10	16QAM	1	0	22.34	22.34	22.39	23	1
10	16QAM	1	25	22.20	22.42	22.06		
10	16QAM	1	49	22.17	22.42	22.01		
10	16QAM	25	0	21.13	21.02	21.03	22	2
10	16QAM	25	12	21.15	21.20	21.00		
10	16QAM	25	25	21.06	21.22	21.01		
10	16QAM	50	0	21.04	21.23	20.94		
10	64QAM	1	0	20.67	20.93	20.78	22	2
10	64QAM	1	25	20.60	20.91	20.02		
10	64QAM	1	49	20.68	20.97	20.09		
10	64QAM	25	0	19.69	19.91	19.42	21	3
10	64QAM	25	12	19.68	19.90	19.29		
10	64QAM	25	25	19.58	19.98	19.18		
10	64QAM	50	0	19.58	19.84	19.16		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.88	22.82	22.87	24	0
5	QPSK	1	12	22.97	22.88	22.90		
5	QPSK	1	24	22.95	22.92	22.85		
5	QPSK	12	0	22.03	21.95	22.06	23	1
5	QPSK	12	7	22.06	22.00	22.08		
5	QPSK	12	13	22.03	22.00	22.03		
5	QPSK	25	0	22.03	21.97	21.92		
5	16QAM	1	0	22.24	22.17	22.09	23	1
5	16QAM	1	12	22.23	22.16	22.26		
5	16QAM	1	24	22.26	22.23	22.16		
5	16QAM	12	0	21.05	20.99	21.14	22	2
5	16QAM	12	7	21.10	21.00	21.18		
5	16QAM	12	13	21.08	21.01	21.15		
5	16QAM	25	0	21.07	20.97	21.09		
5	64QAM	1	0	21.00	20.90	20.26	22	2
5	64QAM	1	12	21.15	21.02	20.36		
5	64QAM	1	24	21.14	21.04	20.28		
5	64QAM	12	0	20.09	19.91	19.30	21	3
5	64QAM	12	7	20.09	19.98	19.33		
5	64QAM	12	13	20.06	19.96	19.30		
5	64QAM	25	0	20.07	19.90	19.21		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.91	22.98	23.07	24	0
3	QPSK	1	8	22.82	22.91	22.62		
3	QPSK	1	14	22.77	23.04	22.64		
3	QPSK	8	0	22.00	22.00	22.00	23	1
3	QPSK	8	4	22.05	22.20	21.93		
3	QPSK	8	7	21.95	22.18	21.85		
3	QPSK	15	0	21.97	22.17	21.79		
3	16QAM	1	0	22.34	22.34	22.37	23	1
3	16QAM	1	8	22.15	22.39	21.96		
3	16QAM	1	14	22.12	22.44	22.00		
3	16QAM	8	0	21.08	21.09	21.10	22	2
3	16QAM	8	4	21.13	21.17	20.98		
3	16QAM	8	7	20.98	21.23	21.01		
3	16QAM	15	0	20.99	21.18	20.86		



**FCC SAR TEST REPORT**

**Report No. : FA9D0635A**

3	64QAM	1	0	20.69	20.90	20.80	22	2
3	64QAM	1	8	20.64	20.96	20.05		
3	64QAM	1	14	20.62	20.98	20.01		
3	64QAM	8	0	19.71	19.92	19.44	21	3
3	64QAM	8	4	19.58	19.93	19.28		
3	64QAM	8	7	19.55	19.91	19.20		
3	64QAM	15	0	19.62	19.83	19.25		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.84	22.73	22.81	24	0
1.4	QPSK	1	3	22.89	22.83	22.83		
1.4	QPSK	1	5	22.82	22.77	22.75		
1.4	QPSK	3	0	22.86	22.77	22.81		
1.4	QPSK	3	1	22.90	22.81	22.86		
1.4	QPSK	3	3	22.87	22.79	22.77		
1.4	QPSK	6	0	21.96	21.88	21.88	23	1
1.4	16QAM	1	0	22.17	22.08	22.04	23	1
1.4	16QAM	1	3	22.22	22.19	22.18		
1.4	16QAM	1	5	22.17	22.10	22.09		
1.4	16QAM	3	0	21.96	21.86	21.98		
1.4	16QAM	3	1	21.98	21.93	21.99		
1.4	16QAM	3	3	21.95	21.85	21.93		
1.4	16QAM	6	0	21.04	20.95	21.09	22	2
1.4	64QAM	1	0	21.09	20.90	20.19	22	2
1.4	64QAM	1	3	21.18	21.01	20.26		
1.4	64QAM	1	5	21.07	20.93	20.22		
1.4	64QAM	3	0	21.07	20.94	20.21		
1.4	64QAM	3	1	21.14	20.93	20.31		
1.4	64QAM	3	3	21.07	20.85	20.20		
1.4	64QAM	6	0	19.96	19.81	19.13	21	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	23.08	23.21	23.14	24	0
20	QPSK	1	49	22.93	23.00	22.95		
20	QPSK	1	99	23.05	23.00	22.94		
20	QPSK	50	0	22.17	22.23	22.22	23	1
20	QPSK	50	24	22.15	22.17	22.16		
20	QPSK	50	50	22.11	22.08	22.07		
20	QPSK	100	0	22.16	22.15	22.13	23	1
20	16QAM	1	0	22.45	22.45	22.50		
20	16QAM	1	49	22.34	22.37	22.27		
20	16QAM	1	99	22.39	22.32	22.29	22	2
20	16QAM	50	0	21.16	21.24	21.25		
20	16QAM	50	24	21.18	21.17	21.17		
20	16QAM	50	50	21.14	21.08	21.09	22	2
20	16QAM	100	0	21.15	21.19	21.14		
20	64QAM	1	0	21.31	21.32	21.45		
20	64QAM	1	49	21.19	21.26	21.18	22	2
20	64QAM	1	99	21.32	21.18	21.21		
20	64QAM	50	0	20.17	20.26	20.27		
20	64QAM	50	24	20.21	20.21	20.18	21	3
20	64QAM	50	50	20.17	20.11	20.11		
20	64QAM	100	0	20.19	20.17	20.19		
Channel				20025	20175	20325		
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	23.08	23.20	23.16	24	0
15	QPSK	1	37	22.98	23.04	22.98		
15	QPSK	1	74	23.03	23.05	22.98		
15	QPSK	36	0	22.13	22.20	22.20	23	1
15	QPSK	36	20	22.13	22.16	22.16		
15	QPSK	36	39	22.10	22.16	22.09		
15	QPSK	75	0	22.14	22.17	22.15	23	1
15	16QAM	1	0	22.42	22.53	22.42		
15	16QAM	1	37	22.26	22.35	22.30		
15	16QAM	1	74	22.31	22.36	22.30	22	2
15	16QAM	36	0	21.14	21.23	21.23		
15	16QAM	36	20	21.15	21.15	21.16		
15	16QAM	36	39	21.11	21.16	21.09	22	2
15	16QAM	75	0	21.15	21.17	21.18		
15	64QAM	1	0	21.25	21.41	21.45		
15	64QAM	1	37	21.25	21.31	21.24	22	2
15	64QAM	1	74	21.24	21.29	21.22		
15	64QAM	36	0	20.16	20.30	20.27		
15	64QAM	36	20	20.17	20.19	20.15	21	3
15	64QAM	36	39	20.16	20.21	20.13		
15	64QAM	75	0	20.17	20.19	20.16		
Channel				20000	20175	20350		
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	23.01	23.09	23.05	24	0
10	QPSK	1	25	22.85	22.99	22.94		
10	QPSK	1	49	22.96	22.92	22.86		
10	QPSK	25	0	22.07	22.23	22.18	23	1
10	QPSK	25	12	22.09	22.11	22.11		



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10	QPSK	25	25	22.01	22.07	22.03		
10	QPSK	50	0	22.13	22.14	22.05		
10	16QAM	1	0	22.42	22.38	22.44		
10	16QAM	1	25	22.28	22.28	22.23	23	1
10	16QAM	1	49	22.38	22.31	22.26		
10	16QAM	25	0	21.13	21.24	21.21		
10	16QAM	25	12	21.11	21.15	21.08	22	2
10	16QAM	25	25	21.05	21.00	21.00		
10	16QAM	50	0	21.13	21.11	21.10		
10	64QAM	1	0	21.22	21.29	21.42		
10	64QAM	1	25	21.19	21.21	21.16	22	2
10	64QAM	1	49	21.22	21.18	21.12		
10	64QAM	25	0	20.14	20.22	20.21		
10	64QAM	25	12	20.17	20.15	20.15	21	3
10	64QAM	25	25	20.16	20.04	20.01		
10	64QAM	50	0	20.18	20.17	20.10		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.81	22.86	22.77		
5	QPSK	1	12	22.89	22.98	22.85	24	0
5	QPSK	1	24	22.82	22.96	22.82		
5	QPSK	12	0	21.93	21.91	21.88		
5	QPSK	12	7	21.95	21.96	21.92	23	1
5	QPSK	12	13	21.93	22.02	21.92		
5	QPSK	25	0	21.90	21.96	21.87		
5	16QAM	1	0	22.17	22.21	22.15		
5	16QAM	1	12	22.17	22.26	22.10	23	1
5	16QAM	1	24	22.17	22.26	22.18		
5	16QAM	12	0	20.92	20.98	20.92		
5	16QAM	12	7	20.97	21.01	20.96	22	2
5	16QAM	12	13	20.96	21.03	20.94		
5	16QAM	25	0	20.93	20.97	20.94		
5	64QAM	1	0	21.08	21.10	21.09		
5	64QAM	1	12	21.09	21.19	21.09	22	2
5	64QAM	1	24	21.14	21.22	21.09		
5	64QAM	12	0	19.96	19.99	19.96		
5	64QAM	12	7	19.99	20.05	20.00	21	3
5	64QAM	12	13	20.00	20.10	19.98		
5	64QAM	25	0	19.96	19.99	19.94		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	23.08	23.08	23.11		
3	QPSK	1	8	22.84	22.97	22.87	24	0
3	QPSK	1	14	22.97	22.92	22.87		
3	QPSK	8	0	22.11	22.15	22.15		
3	QPSK	8	4	22.12	22.10	22.09	23	1
3	QPSK	8	7	22.01	22.08	22.07		
3	QPSK	15	0	22.08	22.14	22.05		
3	16QAM	1	0	22.44	22.44	22.45		
3	16QAM	1	8	22.26	22.33	22.27	23	1
3	16QAM	1	14	22.30	22.22	22.26		
3	16QAM	8	0	21.14	21.20	21.25		
3	16QAM	8	4	21.13	21.08	21.13	22	2
3	16QAM	8	7	21.04	21.01	21.07		
3	16QAM	15	0	21.11	21.13	21.10		
3	64QAM	1	0	21.22	21.31	21.45	22	2



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3	64QAM	1	8	21.19	21.17	21.09	21	3
3	64QAM	1	14	21.28	21.14	21.12		
3	64QAM	8	0	20.08	20.17	20.23		
3	64QAM	8	4	20.19	20.20	20.08		
3	64QAM	8	7	20.10	20.08	20.09		
3	64QAM	15	0	20.18	20.13	20.14		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.78	22.78	22.71	24	0
1.4	QPSK	1	3	22.80	22.91	22.80		
1.4	QPSK	1	5	22.78	22.83	22.74		
1.4	QPSK	3	0	22.78	22.86	22.75		
1.4	QPSK	3	1	22.81	22.89	22.79		
1.4	QPSK	3	3	22.80	22.92	22.76		
1.4	QPSK	6	0	21.86	21.88	21.82	23	1
1.4	16QAM	1	0	22.08	22.12	22.02	23	1
1.4	16QAM	1	3	22.17	22.25	22.12		
1.4	16QAM	1	5	22.12	22.16	22.04		
1.4	16QAM	3	0	21.88	21.91	21.83		
1.4	16QAM	3	1	21.92	22.03	21.88		
1.4	16QAM	3	3	21.89	21.98	21.81		
1.4	16QAM	6	0	20.93	20.95	20.91	22	2
1.4	64QAM	1	0	21.02	21.06	21.00	22	2
1.4	64QAM	1	3	21.14	21.20	21.08		
1.4	64QAM	1	5	21.04	21.10	21.00		
1.4	64QAM	3	0	20.99	21.06	20.94		
1.4	64QAM	3	1	21.04	21.14	21.01		
1.4	64QAM	3	3	21.00	21.10	20.96		
1.4	64QAM	6	0	19.87	19.94	19.87	21	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	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.96	23.03	23.01	24	0
10	QPSK	1	25	22.87	22.95	22.93		
10	QPSK	1	49	22.83	22.99	22.94		
10	QPSK	25	0	21.93	22.08	22.05	23	1
10	QPSK	25	12	21.91	22.00	22.02		
10	QPSK	25	25	21.89	22.00	22.01		
10	QPSK	50	0	21.91	22.06	21.98	23	1
10	16QAM	1	0	22.28	22.27	22.32		
10	16QAM	1	25	22.14	22.32	22.24		
10	16QAM	1	49	22.13	22.26	22.24	22	2
10	16QAM	25	0	20.97	21.09	21.02		
10	16QAM	25	12	20.95	21.04	21.04		
10	16QAM	25	25	20.93	21.06	21.07	22	2
10	16QAM	50	0	21.00	21.06	20.99		
10	64QAM	1	0	21.20	21.27	21.26		
10	64QAM	1	25	21.09	21.18	21.14	22	2
10	64QAM	1	49	21.07	21.27	21.16		
10	64QAM	25	0	20.05	20.16	20.06		
10	64QAM	25	12	20.06	20.08	20.11	21	3
10	64QAM	25	25	19.98	20.08	19.99		
10	64QAM	50	0	19.97	20.02	20.05		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.96	22.98	23.00	24	0
5	QPSK	1	12	22.89	23.01	23.01		
5	QPSK	1	24	22.87	23.01	22.94		
5	QPSK	12	0	22.01	22.08	22.10	23	1
5	QPSK	12	7	22.00	22.04	22.07		
5	QPSK	12	13	21.96	22.08	22.04		
5	QPSK	25	0	21.98	22.06	22.05	23	1
5	16QAM	1	0	22.30	22.30	22.34		
5	16QAM	1	12	22.16	22.35	22.31		
5	16QAM	1	24	22.21	22.31	22.26	22	2
5	16QAM	12	0	21.06	21.13	21.12		
5	16QAM	12	7	21.03	21.11	21.08		
5	16QAM	12	13	21.01	21.10	21.09	22	2
5	16QAM	25	0	21.00	21.10	21.05		
5	64QAM	1	0	21.20	21.27	21.26		
5	64QAM	1	12	21.10	21.24	21.21	22	2
5	64QAM	1	24	21.17	21.30	21.19		
5	64QAM	12	0	20.10	20.20	20.12		
5	64QAM	12	7	20.07	20.14	20.15	21	3
5	64QAM	12	13	20.01	20.14	20.09		
5	64QAM	25	0	20.02	20.09	20.06		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.92	22.97	22.94	24	0
3	QPSK	1	8	22.88	23.00	22.94		
3	QPSK	1	14	22.86	23.01	22.91		
3	QPSK	8	0	21.93	22.06	22.01	23	1
3	QPSK	8	4	21.93	21.96	22.03		





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3	QPSK	8	7	21.96	22.02	21.97		
3	QPSK	15	0	21.93	21.96	22.04		
3	16QAM	1	0	22.29	22.25	22.26	23	1
3	16QAM	1	8	22.12	22.30	22.24		
3	16QAM	1	14	22.21	22.25	22.23		
3	16QAM	8	0	21.00	21.03	21.04	22	2
3	16QAM	8	4	21.00	21.03	21.07		
3	16QAM	8	7	20.93	21.05	21.02		
3	16QAM	15	0	20.96	21.10	20.97		
3	64QAM	1	0	21.17	21.19	21.18	22	2
3	64QAM	1	8	21.07	21.18	21.17		
3	64QAM	1	14	21.09	21.22	21.16		
3	64QAM	8	0	20.03	20.17	20.08	21	3
3	64QAM	8	4	20.04	20.12	20.14		
3	64QAM	8	7	19.93	20.09	20.03		
3	64QAM	15	0	19.93	20.05	19.97		
Channel				20407	20525	20643		
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.87	22.85	22.91	24	0
1.4	QPSK	1	3	22.86	22.99	22.91		
1.4	QPSK	1	5	22.80	22.89	22.85		
1.4	QPSK	3	0	22.86	22.93	22.89		
1.4	QPSK	3	1	22.86	22.96	22.94		
1.4	QPSK	3	3	22.84	22.92	22.85		
1.4	QPSK	6	0	21.94	21.97	21.97	23	1
1.4	16QAM	1	0	22.13	22.24	22.22	23	1
1.4	16QAM	1	3	22.19	22.33	22.26		
1.4	16QAM	1	5	22.13	22.22	22.22		
1.4	16QAM	3	0	21.95	22.03	21.98		
1.4	16QAM	3	1	21.99	22.04	22.02		
1.4	16QAM	3	3	21.90	22.03	21.94		
1.4	16QAM	6	0	20.99	21.03	21.03		
1.4	64QAM	1	0	21.06	21.17	21.19	22	2
1.4	64QAM	1	3	21.13	21.19	21.22		
1.4	64QAM	1	5	21.06	21.24	21.08		
1.4	64QAM	3	0	21.04	21.07	21.14		
1.4	64QAM	3	1	21.10	21.16	21.14		
1.4	64QAM	3	3	21.04	21.12	21.05		
1.4	64QAM	6	0	19.92	20.03	19.99		
							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	23.26	23.45	23.35	24	0
20	QPSK	1	49	23.23	23.28	23.34		
20	QPSK	1	99	23.18	23.38	23.07		
20	QPSK	50	0	22.46	22.55	22.54	23	1
20	QPSK	50	24	22.35	22.47	22.46		
20	QPSK	50	50	22.42	22.34	22.30		
20	QPSK	100	0	22.44	22.47	22.31	23	1
20	16QAM	1	0	22.54	22.52	22.35		
20	16QAM	1	49	22.64	22.63	22.72		
20	16QAM	1	99	22.58	22.73	22.75	22	2
20	16QAM	50	0	21.38	21.37	21.43		
20	16QAM	50	24	21.50	21.48	21.54		
20	16QAM	50	50	21.49	21.52	21.65	22	2
20	16QAM	100	0	21.43	21.48	21.44		
20	64QAM	1	0	21.00	21.19	20.51		
20	64QAM	1	49	21.01	21.37	20.84	22	2
20	64QAM	1	99	20.78	21.04	21.03		
20	64QAM	50	0	19.95	20.22	19.51		
20	64QAM	50	24	19.95	20.34	19.75	21	3
20	64QAM	50	50	19.85	20.25	19.87		
20	64QAM	100	0	19.84	20.19	19.54		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	23.04	23.26	22.87	24	0
15	QPSK	1	37	23.05	23.27	23.22		
15	QPSK	1	74	22.98	23.44	23.11		
15	QPSK	36	0	22.20	22.36	22.23	23	1
15	QPSK	36	20	22.25	22.50	22.39		
15	QPSK	36	39	22.18	22.50	22.29		
15	QPSK	75	0	22.14	22.45	22.14	23	1
15	16QAM	1	0	22.34	22.58	22.20		
15	16QAM	1	37	22.51	22.66	22.74		
15	16QAM	1	74	22.35	22.70	22.51	22	2
15	16QAM	36	0	21.24	21.39	21.25		
15	16QAM	36	20	21.29	21.50	21.52		
15	16QAM	36	39	21.26	21.50	21.40	22	2
15	16QAM	75	0	21.23	21.47	21.27		
15	64QAM	1	0	20.73	21.24	20.41		
15	64QAM	1	37	20.84	21.35	21.03	22	2
15	64QAM	1	74	20.78	21.22	20.99		
15	64QAM	36	0	19.81	20.25	19.72		
15	64QAM	36	20	19.85	20.31	19.92	21	3
15	64QAM	36	39	19.80	20.26	19.82		
15	64QAM	75	0	19.78	20.21	19.60		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	23.19	23.12	23.00	24	0
10	QPSK	1	25	23.24	23.18	23.27		
10	QPSK	1	49	23.18	23.29	23.30		
10	QPSK	25	0	22.29	22.33	22.30	23	1
10	QPSK	25	12	22.44	22.47	22.36		



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10	QPSK	25	25	22.36	22.47	22.54		
10	QPSK	50	0	22.37	22.47	22.30		
10	16QAM	1	0	22.51	22.44	22.33		
10	16QAM	1	25	22.61	22.58	22.68	23	1
10	16QAM	1	49	22.52	22.63	22.72		
10	16QAM	25	0	21.32	21.36	21.39		
10	16QAM	25	12	21.45	21.44	21.48	22	2
10	16QAM	25	25	21.40	21.47	21.59		
10	16QAM	50	0	21.33	21.47	21.43		
10	64QAM	1	0	20.95	21.17	20.47	22	2
10	64QAM	1	25	20.95	21.29	20.77		
10	64QAM	1	49	20.69	21.01	20.95		
10	64QAM	25	0	19.88	20.15	19.49	21	3
10	64QAM	25	12	19.95	20.27	19.65		
10	64QAM	25	25	19.78	20.25	19.78		
10	64QAM	50	0	19.77	20.19	19.45		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	23.05	23.01	23.03	24	0
5	QPSK	1	12	23.10	23.09	22.96		
5	QPSK	1	24	23.09	23.12	22.75		
5	QPSK	12	0	22.21	22.16	22.09	23	1
5	QPSK	12	7	22.21	22.23	22.04		
5	QPSK	12	13	22.22	22.20	21.85		
5	QPSK	25	0	22.12	22.21	21.92		
5	16QAM	1	0	22.30	22.33	22.25	23	1
5	16QAM	1	12	22.36	22.38	22.24		
5	16QAM	1	24	22.41	22.44	22.08		
5	16QAM	12	0	21.22	21.18	21.18	22	2
5	16QAM	12	7	21.20	21.25	21.10		
5	16QAM	12	13	21.24	21.25	20.97		
5	16QAM	25	0	21.21	21.22	21.01		
5	64QAM	1	0	20.77	21.23	20.78		
5	64QAM	1	12	20.84	21.30	20.75	22	2
5	64QAM	1	24	20.90	21.38	20.59		
5	64QAM	12	0	19.76	20.26	19.75		
5	64QAM	12	7	19.83	20.28	19.71	21	3
5	64QAM	12	13	19.83	20.30	19.54		
5	64QAM	25	0	19.70	20.25	19.52		



<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	22.90	23.01	22.98	24	0
10	QPSK	1	25	22.83	22.87	22.92		
10	QPSK	1	49	22.89	22.87	22.77		
10	QPSK	25	0	22.02	22.03	22.01	23	1
10	QPSK	25	12	21.98	21.96	21.97		
10	QPSK	25	25	21.95	21.93	21.96		
10	QPSK	50	0	22.02	22.05	21.99	23	1
10	16QAM	1	0	22.27	22.23	22.24		
10	16QAM	1	25	22.24	22.16	22.22		
10	16QAM	1	49	22.25	22.29	22.20	22	2
10	16QAM	25	0	21.08	20.98	21.00		
10	16QAM	25	12	20.98	20.99	20.98		
10	16QAM	25	25	20.99	21.04	21.06	22	2
10	16QAM	50	0	20.96	21.01	20.97		
10	64QAM	1	0	21.11	21.12	21.08		
10	64QAM	1	25	21.14	21.10	21.11	22	2
10	64QAM	1	49	21.20	21.19	21.19		
10	64QAM	25	0	20.10	20.01	20.06		
10	64QAM	25	12	20.09	20.07	20.02	21	3
10	64QAM	25	25	20.04	20.09	20.04		
10	64QAM	50	0	20.01	20.00	19.96		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.92	22.92	22.87	24	0
5	QPSK	1	12	22.92	22.95	23.00		
5	QPSK	1	24	22.91	22.95	22.99		
5	QPSK	12	0	22.09	22.00	22.05	23	1
5	QPSK	12	7	22.08	22.07	22.05		
5	QPSK	12	13	22.00	22.03	22.04		
5	QPSK	25	0	22.05	22.06	22.02	23	1
5	16QAM	1	0	22.29	22.25	22.24		
5	16QAM	1	12	22.25	22.24	22.30		
5	16QAM	1	24	22.28	22.31	22.28	22	2
5	16QAM	12	0	21.11	21.05	21.07		
5	16QAM	12	7	21.06	21.07	21.05		
5	16QAM	12	13	21.02	21.05	21.07	22	2
5	16QAM	25	0	21.05	21.06	21.04		
5	64QAM	1	0	21.20	21.17	21.16		
5	64QAM	1	12	21.14	21.17	21.20	22	2
5	64QAM	1	24	21.24	21.25	21.25		
5	64QAM	12	0	20.15	20.11	20.14		
5	64QAM	12	7	20.09	20.11	20.11	21	3
5	64QAM	12	13	20.08	20.10	20.11		
5	64QAM	25	0	20.05	20.08	20.05		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.87	22.91	22.79	24	0
3	QPSK	1	8	22.82	22.92	23.00		
3	QPSK	1	14	22.85	22.89	22.92		
3	QPSK	8	0	22.00	21.99	21.95	23	1
3	QPSK	8	4	22.08	22.04	22.04		



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3	QPSK	8	7	21.94	22.02	21.99		
3	QPSK	15	0	21.99	22.02	21.93		
3	16QAM	1	0	22.23	22.22	22.19	23	1
3	16QAM	1	8	22.17	22.15	22.29		
3	16QAM	1	14	22.26	22.26	22.28		
3	16QAM	8	0	21.03	20.95	21.00	22	2
3	16QAM	8	4	21.04	20.98	21.05		
3	16QAM	8	7	20.93	21.03	20.97		
3	16QAM	15	0	20.95	21.01	20.98		
3	64QAM	1	0	21.20	21.07	21.13	22	2
3	64QAM	1	8	21.06	21.16	21.14		
3	64QAM	1	14	21.24	21.19	21.16		
3	64QAM	8	0	20.15	20.03	20.04	21	3
3	64QAM	8	4	20.02	20.09	20.03		
3	64QAM	8	7	20.01	20.09	20.05		
3	64QAM	15	0	19.99	20.02	20.04		
Channel				23017	23095	23173		
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.70	22.78	22.87	24	0
1.4	QPSK	1	3	22.91	22.89	22.88		
1.4	QPSK	1	5	22.66	22.85	22.83		
1.4	QPSK	3	0	22.90	22.84	22.90		
1.4	QPSK	3	1	22.91	22.86	22.92		
1.4	QPSK	3	3	22.84	22.85	22.85		
1.4	QPSK	6	0	21.96	21.95	21.96	23	1
1.4	16QAM	1	0	22.20	22.10	22.25	23	1
1.4	16QAM	1	3	22.24	22.21	22.23		
1.4	16QAM	1	5	22.18	22.15	22.15		
1.4	16QAM	3	0	21.96	21.91	21.97		
1.4	16QAM	3	1	22.02	21.96	22.02		
1.4	16QAM	3	3	21.94	21.95	21.94		
1.4	16QAM	6	0	21.01	21.02	21.06		
1.4	64QAM	1	0	21.09	21.06	21.13	22	2
1.4	64QAM	1	3	21.15	21.16	21.13		
1.4	64QAM	1	5	21.07	21.10	21.11		
1.4	64QAM	3	0	21.09	21.01	21.10		
1.4	64QAM	3	1	21.13	21.07	21.15		
1.4	64QAM	3	3	21.03	21.06	21.07		
1.4	64QAM	6	0	19.94	19.96	19.98		
1.4	64QAM	6	0	19.94	19.96	19.98	21	3



<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		22.94		24	0
10	QPSK	1	25		22.84			
10	QPSK	1	49		22.75			
10	QPSK	25	0		21.98		23	1
10	QPSK	25	12		21.97			
10	QPSK	25	25		21.90			
10	QPSK	50	0		21.98		23	1
10	16QAM	1	0		22.28			
10	16QAM	1	25		22.20			
10	16QAM	1	49		22.14		22	2
10	16QAM	25	0		20.97			
10	16QAM	25	12		21.03			
10	16QAM	25	25		20.92		22	2
10	16QAM	50	0		20.95			
10	64QAM	1	0		21.02			
10	64QAM	1	25		21.02		22	2
10	64QAM	1	49		21.03			
10	64QAM	25	0		20.05			
10	64QAM	25	12		19.95		21	3
10	64QAM	25	25		19.95			
10	64QAM	50	0		19.95			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.85	22.81	22.90	24	0
5	QPSK	1	12	22.88	22.85	22.84		
5	QPSK	1	24	22.88	22.80	22.71		
5	QPSK	12	0	21.96	21.97	22.02	23	1
5	QPSK	12	7	22.02	21.99	21.96		
5	QPSK	12	13	22.03	21.93	21.92		
5	QPSK	25	0	22.05	21.95	21.96	23	1
5	16QAM	1	0	22.13	22.12	22.19		
5	16QAM	1	12	22.14	22.12	22.09		
5	16QAM	1	24	22.19	22.09	22.03	22	2
5	16QAM	12	0	21.07	21.04	21.05		
5	16QAM	12	7	21.08	21.00	20.99		
5	16QAM	12	13	21.04	20.97	20.97	22	2
5	16QAM	25	0	21.11	20.99	20.99		
5	64QAM	1	0	21.06	21.08	21.12		
5	64QAM	1	12	21.09	21.09	21.08	22	2
5	64QAM	1	24	21.13	21.03	20.99		
5	64QAM	12	0	20.11	20.08	20.09		
5	64QAM	12	7	20.13	20.02	20.01	21	3
5	64QAM	12	13	20.10	20.00	20.00		
5	64QAM	25	0	20.09	20.00	19.99		



<LTE Band 17>

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				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	22.87	23.03	22.98	24	0
10	QPSK	1	25	22.75	22.82	22.90		
10	QPSK	1	49	22.86	22.91	22.97		
10	QPSK	25	0	22.02	22.04	22.03	23	1
10	QPSK	25	12	21.93	21.98	21.96		
10	QPSK	25	25	21.93	21.98	21.93		
10	QPSK	50	0	21.96	22.02	22.01	23	1
10	16QAM	1	0	22.16	22.18	22.15		
10	16QAM	1	25	22.14	22.20	22.26		
10	16QAM	1	49	22.27	22.24	22.33	22	2
10	16QAM	25	0	20.88	20.89	20.93		
10	16QAM	25	12	21.03	20.94	21.02		
10	16QAM	25	25	21.00	21.08	21.01	22	2
10	16QAM	50	0	21.00	20.96	21.01		
10	64QAM	1	0	21.10	21.00	21.03		
10	64QAM	1	25	21.11	21.13	21.19	22	2
10	64QAM	1	49	21.23	21.18	21.20		
10	64QAM	25	0	20.01	20.01	20.01		
10	64QAM	25	12	20.02	20.01	20.07	21	3
10	64QAM	25	25	19.99	20.10	20.05		
10	64QAM	50	0	19.99	19.95	20.08		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.83	22.83	22.86	24	0
5	QPSK	1	12	22.89	22.97	22.99		
5	QPSK	1	24	22.95	22.97	23.02		
5	QPSK	12	0	21.93	22.00	22.00	23	1
5	QPSK	12	7	22.03	22.00	22.02		
5	QPSK	12	13	22.02	22.07	22.08		
5	QPSK	25	0	22.02	22.01	22.01	23	1
5	16QAM	1	0	22.16	22.18	22.20		
5	16QAM	1	12	22.20	22.24	22.29		
5	16QAM	1	24	22.32	22.33	22.36	22	2
5	16QAM	12	0	20.98	20.98	21.01		
5	16QAM	12	7	21.08	21.02	21.04		
5	16QAM	12	13	21.08	21.09	21.09	22	2
5	16QAM	25	0	21.04	21.01	21.04		
5	64QAM	1	0	21.11	21.10	21.13		
5	64QAM	1	12	21.13	21.16	21.21	22	2
5	64QAM	1	24	21.24	21.24	21.27		
5	64QAM	12	0	20.01	20.04	20.10		
5	64QAM	12	7	20.11	20.05	20.11	21	3
5	64QAM	12	13	20.09	20.12	20.15		
5	64QAM	25	0	20.05	20.05	20.08		



<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	23.07	23.16	23.10	24	0
20	QPSK	1	49	22.98	23.06	22.95		
20	QPSK	1	99	22.99	23.02	22.88		
20	QPSK	50	0	22.14	22.15	22.09	23	1
20	QPSK	50	24	22.09	22.10	22.05		
20	QPSK	50	50	22.09	22.12	22.06		
20	QPSK	100	0	22.08	22.14	22.04	23	1
20	16QAM	1	0	22.44	22.48	22.43		
20	16QAM	1	49	22.37	22.39	22.32		
20	16QAM	1	99	22.32	22.40	22.23	22	2
20	16QAM	50	0	21.11	21.14	21.11		
20	16QAM	50	24	21.18	21.14	21.08		
20	16QAM	50	50	21.15	21.17	21.07	22	2
20	16QAM	100	0	21.13	21.10	21.07		
20	64QAM	1	0	21.29	21.31	21.30		
20	64QAM	1	49	21.21	21.24	21.12	22	2
20	64QAM	1	99	21.21	21.26	21.11		
20	64QAM	50	0	20.12	20.19	20.13		
20	64QAM	50	24	20.20	20.15	20.10	21	3
20	64QAM	50	50	20.14	20.18	20.10		
20	64QAM	100	0	20.16	20.13	20.07		
Channel				132047	132322	132597		
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	23.03	23.08	23.07	24	0
15	QPSK	1	37	22.97	23.03	22.94		
15	QPSK	1	74	23.01	23.05	22.91		
15	QPSK	36	0	22.08	22.09	22.06	23	1
15	QPSK	36	20	22.16	22.13	22.04		
15	QPSK	36	39	22.10	22.15	22.04		
15	QPSK	75	0	22.11	22.10	22.04	23	1
15	16QAM	1	0	22.32	22.40	22.42		
15	16QAM	1	37	22.35	22.36	22.28		
15	16QAM	1	74	22.34	22.36	22.24	22	2
15	16QAM	36	0	21.07	21.13	21.05		
15	16QAM	36	20	21.16	21.13	21.03		
15	16QAM	36	39	21.14	21.16	21.08	22	2
15	16QAM	75	0	21.15	21.10	21.03		
15	64QAM	1	0	21.21	21.28	21.27		
15	64QAM	1	37	21.30	21.28	21.20	22	2
15	64QAM	1	74	21.23	21.24	21.18		
15	64QAM	36	0	20.10	20.17	20.12		
15	64QAM	36	20	20.20	20.14	20.09	21	3
15	64QAM	36	39	20.16	20.18	20.09		
15	64QAM	75	0	20.16	20.11	20.07		
Channel				132022	132322	132622		
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	23.05	23.15	23.00	24	0
10	QPSK	1	25	22.96	23.01	22.95		
10	QPSK	1	49	22.92	23.00	22.88		
10	QPSK	25	0	22.00	22.09	22.09	23	1
10	QPSK	25	12	22.12	22.07	21.97		





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10	QPSK	25	25	22.05	22.08	22.03		
10	QPSK	50	0	22.10	22.05	21.99		
10	16QAM	1	0	22.36	22.44	22.39		
10	16QAM	1	25	22.33	22.35	22.30	23	1
10	16QAM	1	49	22.26	22.37	22.14		
10	16QAM	25	0	21.01	21.13	21.01		
10	16QAM	25	12	21.15	21.11	21.08	22	2
10	16QAM	25	25	21.13	21.16	20.97		
10	16QAM	50	0	21.06	21.02	21.07		
10	64QAM	1	0	21.29	21.25	21.22		
10	64QAM	1	25	21.20	21.17	21.02	22	2
10	64QAM	1	49	21.20	21.25	21.08		
10	64QAM	25	0	20.03	20.16	20.13		
10	64QAM	25	12	20.17	20.13	20.07	21	3
10	64QAM	25	25	20.12	20.15	20.03		
10	64QAM	50	0	20.08	20.13	20.06		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.79	22.73	22.75	24	0
5	QPSK	1	12	22.80	22.86	22.76		
5	QPSK	1	24	22.73	22.78	22.66		
5	QPSK	12	0	21.86	21.90	21.83		
5	QPSK	12	7	21.87	21.96	21.87	23	1
5	QPSK	12	13	21.81	21.94	21.78		
5	QPSK	25	0	21.84	21.87	21.83		
5	16QAM	1	0	22.10	22.10	22.07		
5	16QAM	1	12	22.09	22.14	22.06	23	1
5	16QAM	1	24	22.09	22.14	22.03		
5	16QAM	12	0	20.92	20.95	20.88		
5	16QAM	12	7	20.93	20.94	20.89	22	2
5	16QAM	12	13	20.88	20.95	20.87		
5	16QAM	25	0	20.88	20.92	20.87		
5	64QAM	1	0	21.02	21.03	21.01		
5	64QAM	1	12	21.04	21.09	20.95	22	2
5	64QAM	1	24	20.99	21.03	20.91		
5	64QAM	12	0	19.96	20.00	19.96		
5	64QAM	12	7	19.96	20.04	19.96	21	3
5	64QAM	12	13	19.91	20.01	19.89		
5	64QAM	25	0	19.87	19.92	19.86		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	23.00	23.06	23.02	24	0
3	QPSK	1	8	22.95	22.99	22.87		
3	QPSK	1	14	22.98	22.96	22.87		
3	QPSK	8	0	22.02	22.10	22.05		
3	QPSK	8	4	22.10	22.07	22.00	23	1
3	QPSK	8	7	22.08	22.08	21.97		
3	QPSK	15	0	22.14	21.98	22.02		
3	16QAM	1	0	22.36	22.40	22.38		
3	16QAM	1	8	22.27	22.34	22.30	23	1
3	16QAM	1	14	22.30	22.31	22.13		
3	16QAM	8	0	21.02	21.11	21.01		
3	16QAM	8	4	21.11	21.09	21.05	22	2
3	16QAM	8	7	21.08	21.08	21.07		
3	16QAM	15	0	21.04	21.02	21.04		
3	64QAM	1	0	21.27	21.29	21.21	22	2



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3	64QAM	1	8	21.18	21.17	21.02	21	3
3	64QAM	1	14	21.20	21.17	21.06		
3	64QAM	8	0	20.10	20.09	20.08		
3	64QAM	8	4	20.14	20.12	20.09		
3	64QAM	8	7	20.10	20.14	20.05		
3	64QAM	15	0	20.11	20.03	20.07		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.77	22.77	22.63	24	0
1.4	QPSK	1	3	22.79	22.81	22.73		
1.4	QPSK	1	5	22.72	22.76	22.66		
1.4	QPSK	3	0	22.79	22.82	22.68		
1.4	QPSK	3	1	22.78	22.86	22.72		
1.4	QPSK	3	3	22.78	22.77	22.68		
1.4	QPSK	6	0	21.85	21.90	21.81	23	1
1.4	16QAM	1	0	22.03	22.13	22.00	23	1
1.4	16QAM	1	3	22.12	22.16	22.07		
1.4	16QAM	1	5	22.05	22.09	21.96		
1.4	16QAM	3	0	21.84	21.89	21.80		
1.4	16QAM	3	1	21.92	21.92	21.82		
1.4	16QAM	3	3	21.80	21.90	21.75		
1.4	16QAM	6	0	20.90	21.00	20.87	22	2
1.4	64QAM	1	0	20.98	21.08	20.97	22	2
1.4	64QAM	1	3	21.10	21.14	20.98		
1.4	64QAM	1	5	20.98	21.01	20.91		
1.4	64QAM	3	0	20.99	21.05	20.87		
1.4	64QAM	3	1	21.01	21.05	20.93		
1.4	64QAM	3	3	20.96	21.00	20.89		
1.4	64QAM	6	0	19.84	19.94	19.81	21	3



<Reduced Power on Hotspot / Body-worn 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	17.8	0
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	17.42	17.48	17.46	17.8	0
20	QPSK	1	49	17.03	16.97	17.12		
20	QPSK	1	99	17.09	17.03	17.20		
20	QPSK	50	0	17.24	17.31	17.30	17.8	0
20	QPSK	50	24	17.23	17.15	17.29		
20	QPSK	50	50	17.23	17.14	17.28		
20	QPSK	100	0	17.20	17.23	17.21		
20	16QAM	1	0	17.41	17.39	17.26	17.8	0
20	16QAM	1	49	17.38	17.31	17.16		
20	16QAM	1	99	17.42	17.28	17.16		
20	16QAM	50	0	17.23	17.11	17.16	17.8	0
20	16QAM	50	24	17.24	17.15	17.29		
20	16QAM	50	50	17.21	17.16	17.32		
20	16QAM	100	0	17.23	17.13	17.20		
20	64QAM	1	0	17.35	17.27	17.30	17.8	0
20	64QAM	1	49	17.28	17.17	17.35		
20	64QAM	1	99	17.33	17.22	17.35		
20	64QAM	50	0	17.28	17.14	17.23	17.8	0
20	64QAM	50	24	17.23	17.16	17.34		
20	64QAM	50	50	17.26	17.22	17.36		
20	64QAM	100	0	17.25	17.14	17.23		
Channel				18675	18900	19125	17.8	0
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	17.13	17.02	17.16	17.8	0
15	QPSK	1	37	17.03	16.97	17.12		
15	QPSK	1	74	17.09	17.03	17.20		
15	QPSK	36	0	17.22	17.09	17.17	17.8	0
15	QPSK	36	20	17.23	17.15	17.29		
15	QPSK	36	39	17.23	17.14	17.30		
15	QPSK	75	0	17.20	17.13	17.21		
15	16QAM	1	0	17.41	17.39	17.46	17.8	0
15	16QAM	1	37	17.38	17.31	17.46		
15	16QAM	1	74	17.42	17.28	17.26		
15	16QAM	36	0	17.23	17.11	17.16	17.8	0
15	16QAM	36	20	17.24	17.15	17.29		
15	16QAM	36	39	17.21	17.16	17.32		
15	16QAM	75	0	17.23	17.13	17.20		
15	64QAM	1	0	17.35	17.27	17.30	17.8	0
15	64QAM	1	37	17.28	17.17	17.35		
15	64QAM	1	74	17.33	17.22	17.35		
15	64QAM	36	0	17.28	17.14	17.23	17.8	0
15	64QAM	36	20	17.23	17.16	17.34		
15	64QAM	36	39	17.26	17.22	17.36		
15	64QAM	75	0	17.25	17.14	17.23		
Channel				18650	18900	19150	17.8	0
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	17.42	17.35	17.36	17.8	0
10	QPSK	1	25	17.37	17.42	17.40		
10	QPSK	1	49	17.38	17.34	17.42		
10	QPSK	25	0	17.40	17.34	17.34	17.8	0



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10	QPSK	25	12	17.40	17.39	17.37		
10	QPSK	25	25	17.34	17.39	17.41		
10	QPSK	50	0	17.38	17.34	17.34		
10	16QAM	1	0	17.32	17.42	17.36	17.8	0
10	16QAM	1	25	17.38	17.37	17.38		
10	16QAM	1	49	17.40	17.37	17.34		
10	16QAM	25	0	17.42	17.37	17.42	17.8	0
10	16QAM	25	12	17.33	17.33	17.33		
10	16QAM	25	25	17.39	17.42	17.39		
10	16QAM	50	0	17.34	17.39	17.35		
10	64QAM	1	0	17.35	17.40	17.41	17.8	0
10	64QAM	1	25	17.32	17.38	17.38		
10	64QAM	1	49	17.34	17.38	17.37		
10	64QAM	25	0	17.37	17.40	17.33	17.8	0
10	64QAM	25	12	17.32	17.40	17.39		
10	64QAM	25	25	17.41	17.35	17.42		
10	64QAM	50	0	17.32	17.36	17.41		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	17.35	17.41	17.34	17.8	0
5	QPSK	1	12	17.39	17.38	17.39		
5	QPSK	1	24	17.34	17.32	17.42		
5	QPSK	12	0	17.39	17.39	17.41	17.8	0
5	QPSK	12	7	17.33	17.35	17.38		
5	QPSK	12	13	17.34	17.33	17.39		
5	QPSK	25	0	17.36	17.36	17.39		
5	16QAM	1	0	17.42	17.34	17.40	17.8	0
5	16QAM	1	12	17.39	17.32	17.34		
5	16QAM	1	24	17.34	17.36	17.32		
5	16QAM	12	0	17.41	17.33	17.36	17.8	0
5	16QAM	12	7	17.36	17.39	17.42		
5	16QAM	12	13	17.33	17.41	17.36		
5	16QAM	25	0	17.33	17.38	17.32		
5	64QAM	1	0	17.42	17.38	17.41	17.8	0
5	64QAM	1	12	17.35	17.39	17.41		
5	64QAM	1	24	17.36	17.41	17.32		
5	64QAM	12	0	17.36	17.33	17.32	17.8	0
5	64QAM	12	7	17.33	17.36	17.41		
5	64QAM	12	13	17.32	17.35	17.38		
5	64QAM	25	0	17.35	17.37	17.32		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	17.39	17.32	17.35	17.8	0
3	QPSK	1	8	17.39	17.39	17.38		
3	QPSK	1	14	17.35	17.41	17.38		
3	QPSK	8	0	17.40	17.42	17.42	17.8	0
3	QPSK	8	4	17.36	17.41	17.42		
3	QPSK	8	7	17.40	17.42	17.32		
3	QPSK	15	0	17.41	17.35	17.42		
3	16QAM	1	0	17.37	17.36	17.35	17.8	0
3	16QAM	1	8	17.36	17.34	17.39		
3	16QAM	1	14	17.39	17.32	17.32		
3	16QAM	8	0	17.33	17.32	17.37	17.8	0
3	16QAM	8	4	17.35	17.32	17.38		
3	16QAM	8	7	17.40	17.34	17.37		
3	16QAM	15	0	17.41	17.37	17.37		



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3	64QAM	1	0	17.41	17.40	17.39	17.8	0
3	64QAM	1	8	17.39	17.33	17.35		
3	64QAM	1	14	17.42	17.42	17.41		
3	64QAM	8	0	17.40	17.37	17.41	17.8	0
3	64QAM	8	4	17.39	17.39	17.37		
3	64QAM	8	7	17.34	17.37	17.37		
3	64QAM	15	0	17.40	17.39	17.37		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	17.40	17.33	17.40	17.8	0
1.4	QPSK	1	3	17.36	17.32	17.33		
1.4	QPSK	1	5	17.42	17.37	17.42		
1.4	QPSK	3	0	17.41	17.36	17.35		
1.4	QPSK	3	1	17.36	17.37	17.32		
1.4	QPSK	3	3	17.40	17.37	17.36		
1.4	QPSK	6	0	17.37	17.42	17.32	17.8	0
1.4	16QAM	1	0	17.41	17.34	17.33	17.8	0
1.4	16QAM	1	3	17.41	17.42	17.34		
1.4	16QAM	1	5	17.39	17.38	17.36		
1.4	16QAM	3	0	17.40	17.36	17.40		
1.4	16QAM	3	1	17.40	17.35	17.42		
1.4	16QAM	3	3	17.39	17.41	17.42		
1.4	16QAM	6	0	17.34	17.42	17.41	17.8	0
1.4	64QAM	1	0	17.36	17.39	17.35	17.8	0
1.4	64QAM	1	3	17.40	17.33	17.32		
1.4	64QAM	1	5	17.37	17.42	17.42		
1.4	64QAM	3	0	17.35	17.35	17.38		
1.4	64QAM	3	1	17.32	17.33	17.37		
1.4	64QAM	3	3	17.40	17.32	17.39		
1.4	64QAM	6	0	17.42	17.36	17.40	17.8	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)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	17.54	17.57	17.53	18.4
20	QPSK	1	49	17.41	17.51	17.37	
20	QPSK	1	99	17.27	17.47	17.36	
20	QPSK	50	0	17.26	17.35	17.29	18.4
20	QPSK	50	24	17.30	17.30	17.21	
20	QPSK	50	50	17.24	17.22	17.14	
20	QPSK	100	0	17.27	17.31	17.18	18.4
20	16QAM	1	0	17.54	17.47	17.53	
20	16QAM	1	49	17.41	17.51	17.37	
20	16QAM	1	99	17.52	17.33	17.31	18.4
20	16QAM	50	0	17.27	17.32	17.30	
20	16QAM	50	24	17.29	17.21	17.20	
20	16QAM	50	50	17.25	17.12	17.11	18.4
20	16QAM	100	0	17.27	17.21	17.20	
20	64QAM	1	0	17.39	17.40	17.48	
20	64QAM	1	49	17.25	17.30	17.23	18.4
20	64QAM	1	99	17.38	17.24	17.23	
20	64QAM	50	0	17.30	17.31	17.39	
20	64QAM	50	24	17.33	17.24	17.33	18.4
20	64QAM	50	50	17.28	17.16	17.22	
20	64QAM	100	0	17.32	17.19	17.33	
Channel				20025	20175	20325	
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	17.43	17.46	17.47	18.4
15	QPSK	1	37	17.24	17.34	17.13	
15	QPSK	1	74	17.30	17.33	17.15	
15	QPSK	36	0	17.40	17.52	17.43	18.4
15	QPSK	36	20	17.44	17.47	17.26	
15	QPSK	36	39	17.41	17.47	17.34	
15	QPSK	75	0	17.46	17.47	17.36	18.4
15	16QAM	1	0	17.42	17.45	17.45	
15	16QAM	1	37	17.38	17.47	17.49	
15	16QAM	1	74	17.39	17.46	17.47	18.4
15	16QAM	36	0	17.43	17.51	17.36	
15	16QAM	36	20	17.44	17.43	17.29	
15	16QAM	36	39	17.42	17.33	17.28	18.4
15	16QAM	75	0	17.44	17.36	17.36	
15	64QAM	1	0	17.38	17.55	17.44	
15	64QAM	1	37	17.51	17.52	17.42	18.4
15	64QAM	1	74	17.36	17.43	17.42	
15	64QAM	36	0	17.46	17.49	17.46	
15	64QAM	36	20	17.38	17.33	17.45	18.4
15	64QAM	36	39	17.40	17.46	17.43	
15	64QAM	75	0	17.31	17.37	17.48	
Channel				20000	20175	20350	
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	17.14	17.17	17.14	18.4
10	QPSK	1	25	17.10	17.20	17.07	
10	QPSK	1	49	17.14	17.21	17.15	
10	QPSK	25	0	17.22	17.27	17.22	18.4
10	QPSK	25	12	17.27	17.29	17.26	



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10	QPSK	25	25	17.27	17.38	17.27	
10	QPSK	50	0	17.26	17.27	17.27	
10	16QAM	1	0	17.52	17.46	17.48	
10	16QAM	1	25	17.46	17.53	17.44	18.4
10	16QAM	1	49	17.48	17.54	17.45	
10	16QAM	25	0	17.19	17.13	17.23	
10	16QAM	25	12	17.25	17.17	17.27	18.4
10	16QAM	25	25	17.24	17.24	17.22	
10	16QAM	50	0	17.25	17.17	17.25	
10	64QAM	1	0	17.37	17.40	17.47	18.4
10	64QAM	1	25	17.42	17.43	17.43	
10	64QAM	1	49	17.43	17.39	17.38	
10	64QAM	25	0	17.28	17.18	17.26	18.4
10	64QAM	25	12	17.30	17.25	17.30	
10	64QAM	25	25	17.27	17.26	17.28	
10	64QAM	50	0	17.27	17.21	17.30	
Channel				19975	20175	20375	
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	17.44	17.52	17.46	18.4
5	QPSK	1	12	17.39	17.37	17.38	
5	QPSK	1	24	17.18	17.18	17.22	
5	QPSK	12	0	17.24	17.23	17.20	18.4
5	QPSK	12	7	17.27	17.21	17.25	
5	QPSK	12	13	17.20	17.16	17.19	
5	QPSK	25	0	17.22	17.21	17.20	
5	16QAM	1	0	17.49	17.48	17.53	
5	16QAM	1	12	17.31	17.37	17.39	18.4
5	16QAM	1	24	17.47	17.52	17.52	
5	16QAM	12	0	17.19	17.18	17.27	
5	16QAM	12	7	17.21	17.19	17.24	18.4
5	16QAM	12	13	17.25	17.25	17.25	
5	16QAM	25	0	17.19	17.21	17.26	
5	64QAM	1	0	17.33	17.30	17.29	
5	64QAM	1	12	17.24	17.19	17.16	
5	64QAM	1	24	17.33	17.34	17.30	18.4
5	64QAM	12	0	17.22	17.24	17.30	
5	64QAM	12	7	17.26	17.27	17.24	
5	64QAM	12	13	17.18	17.20	17.28	
5	64QAM	25	0	17.32	17.24	17.31	
Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	17.45	17.55	17.47	18.4
3	QPSK	1	8	17.31	17.38	17.37	
3	QPSK	1	14	17.27	17.26	17.20	
3	QPSK	8	0	17.16	17.26	17.24	18.4
3	QPSK	8	4	17.27	17.27	17.24	
3	QPSK	8	7	17.18	17.23	17.21	
3	QPSK	15	0	17.18	17.20	17.17	
3	16QAM	1	0	17.47	17.46	17.54	
3	16QAM	1	8	17.36	17.39	17.36	18.4
3	16QAM	1	14	17.45	17.49	17.52	
3	16QAM	8	0	17.25	17.27	17.26	
3	16QAM	8	4	17.25	17.26	17.23	18.4
3	16QAM	8	7	17.19	17.23	17.20	
3	16QAM	15	0	17.22	17.23	17.21	
3	64QAM	1	0	17.39	17.31	17.34	



3	64QAM	1	8	17.25	17.17	17.20	18.4
3	64QAM	1	14	17.37	17.29	17.33	
3	64QAM	8	0	17.21	17.28	17.26	
3	64QAM	8	4	17.32	17.31	17.23	
3	64QAM	8	7	17.19	17.22	17.25	
3	64QAM	15	0	17.28	17.26	17.24	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	17.51	17.49	17.45	18.4
1.4	QPSK	1	3	17.34	17.38	17.37	
1.4	QPSK	1	5	17.18	17.24	17.24	
1.4	QPSK	3	0	17.24	17.24	17.16	
1.4	QPSK	3	1	17.28	17.30	17.24	
1.4	QPSK	3	3	17.23	17.20	17.14	
1.4	QPSK	6	0	17.24	17.27	17.25	18.4
1.4	16QAM	1	0	17.49	17.48	17.46	18.4
1.4	16QAM	1	3	17.38	17.36	17.41	
1.4	16QAM	1	5	17.45	17.49	17.50	
1.4	16QAM	3	0	17.19	17.19	17.19	
1.4	16QAM	3	1	17.21	17.20	17.21	
1.4	16QAM	3	3	17.25	17.24	17.19	
1.4	16QAM	6	0	17.18	17.27	17.26	18.4
1.4	64QAM	1	0	17.32	17.30	17.29	18.4
1.4	64QAM	1	3	17.17	17.23	17.24	
1.4	64QAM	1	5	17.37	17.29	17.37	
1.4	64QAM	3	0	17.29	17.23	17.27	
1.4	64QAM	3	1	17.23	17.28	17.33	
1.4	64QAM	3	3	17.25	17.18	17.20	
1.4	64QAM	6	0	17.22	17.24	17.30	18.4





<LTE Band 7>

Channel	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	21.9	0
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.40	21.52	21.15		
20	QPSK	1	49	20.85	20.83	20.96	21.9	0
20	QPSK	1	99	20.95	20.95	21.08		
20	QPSK	50	0	21.35	21.45	21.37		
20	QPSK	50	24	21.01	21.01	21.14	21.9	0
20	QPSK	50	50	21.04	21.05	21.17		
20	QPSK	100	0	21.14	21.25	21.19		
20	16QAM	1	0	21.10	21.16	21.14	21.9	0
20	16QAM	1	49	21.18	21.15	21.27		
20	16QAM	1	99	21.25	21.31	21.49		
20	16QAM	50	0	20.96	20.86	20.83	21.9	0
20	16QAM	50	24	20.88	21.00	21.07		
20	16QAM	50	50	20.84	21.03	21.11		
20	16QAM	100	0	20.81	20.88	20.94	21.9	0
20	64QAM	1	0	20.55	20.57	20.08		
20	64QAM	1	49	20.44	20.83	20.50		
20	64QAM	1	99	20.09	20.56	20.51	20.9	1
20	64QAM	50	0	20.42	19.80	20.40		
20	64QAM	50	24	20.36	19.98	20.39		
20	64QAM	50	50	20.20	19.96	20.30	20.9	1
20	64QAM	100	0	20.30	20.30	20.38		
Channel				20825	21100	21375		
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.21	21.21	21.36		
15	QPSK	1	37	21.24	21.24	21.34	21.9	0
15	QPSK	1	74	21.34	21.35	21.17		
15	QPSK	36	0	21.17	21.27	21.10		
15	QPSK	36	20	21.11	21.18	21.14	21.9	0
15	QPSK	36	39	21.16	21.16	21.13		
15	QPSK	75	0	21.18	21.22	21.12		
15	16QAM	1	0	21.13	21.10	21.26	21.9	0
15	16QAM	1	37	21.13	21.10	21.18		
15	16QAM	1	74	21.14	21.12	21.13		
15	16QAM	36	0	20.98	21.24	21.34	21.9	0
15	16QAM	36	20	20.95	21.27	21.16		
15	16QAM	36	39	20.91	21.34	21.32		
15	16QAM	75	0	20.89	21.19	21.13	20.9	1
15	64QAM	1	0	20.54	20.82	20.81		
15	64QAM	1	37	20.61	20.85	20.86		
15	64QAM	1	74	20.41	20.72	20.71	20.9	1
15	64QAM	36	0	19.84	20.27	20.28		
15	64QAM	36	20	20.46	20.41	20.43		
15	64QAM	36	39	20.64	20.39	20.38	20.9	0
15	64QAM	75	0	20.67	20.23	20.22		
Channel				20800	21100	21400		
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.31	21.50	21.06		
10	QPSK	1	25	20.76	20.78	20.95	21.9	0
10	QPSK	1	49	20.89	20.89	21.03		
10	QPSK	25	0	20.92	21.18	20.89		
10	QPSK	25	12	20.98	21.01	21.13	21.9	0



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10	QPSK	25	25	21.02	20.99	21.15		
10	QPSK	50	0	20.99	20.94	20.84		
10	16QAM	1	0	21.07	21.16	21.12	21.9	0
10	16QAM	1	25	21.17	21.07	21.25		
10	16QAM	1	49	21.19	21.28	21.39		
10	16QAM	25	0	20.88	20.81	20.75	21.9	0
10	16QAM	25	12	20.81	21.00	21.04		
10	16QAM	25	25	20.77	20.99	21.10		
10	16QAM	50	0	20.73	20.86	20.89		
10	64QAM	1	0	20.53	20.47	20.02	20.9	1
10	64QAM	1	25	20.37	20.81	20.45		
10	64QAM	1	49	20.05	20.51	20.50		
10	64QAM	25	0	20.32	19.80	20.37	20.9	1
10	64QAM	25	12	20.32	19.94	20.36		
10	64QAM	25	25	20.20	19.87	20.22		
10	64QAM	50	0	20.29	20.20	20.30		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.31	21.48	21.05	21.9	0
5	QPSK	1	12	20.82	20.75	20.87		
5	QPSK	1	24	20.87	20.87	21.06		
5	QPSK	12	0	20.93	21.09	20.95	21.9	0
5	QPSK	12	7	20.93	20.94	21.06		
5	QPSK	12	13	21.00	21.04	21.08		
5	QPSK	25	0	21.00	20.98	20.87		
5	16QAM	1	0	21.03	21.14	21.14	21.9	0
5	16QAM	1	12	21.11	21.12	21.27		
5	16QAM	1	24	21.17	21.28	21.47		
5	16QAM	12	0	20.92	20.78	20.75	21.9	0
5	16QAM	12	7	20.81	20.91	21.04		
5	16QAM	12	13	20.80	21.02	21.11		
5	16QAM	25	0	20.73	20.88	20.88		
5	64QAM	1	0	20.53	20.55	20.08	20.9	1
5	64QAM	1	12	20.38	20.75	20.45		
5	64QAM	1	24	20.00	20.53	20.50		
5	64QAM	12	0	20.42	20.65	20.32	20.9	1
5	64QAM	12	7	20.30	19.97	20.30		
5	64QAM	12	13	20.20	19.93	20.30		
5	64QAM	25	0	20.30	20.25	20.34		



<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	18.4	0
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	17.56	17.57	17.49	18.4	0
20	QPSK	1	49	17.34	17.48	17.30		
20	QPSK	1	99	17.18	17.39	17.28		
20	QPSK	50	0	17.38	17.42	17.39	18.4	0
20	QPSK	50	24	17.24	17.20	17.27		
20	QPSK	50	50	17.22	17.17	17.35		
20	QPSK	100	0	17.27	17.38	17.25	18.4	0
20	16QAM	1	0	17.46	17.38	17.51		
20	16QAM	1	49	17.34	17.42	17.30		
20	16QAM	1	99	17.43	17.33	17.29	18.4	0
20	16QAM	50	0	17.25	17.32	17.30		
20	16QAM	50	24	17.20	17.16	17.14		
20	16QAM	50	50	17.21	17.05	17.07	18.4	0
20	16QAM	100	0	17.27	17.11	17.15		
20	64QAM	1	0	17.31	17.38	17.38		
20	64QAM	1	49	17.16	17.23	17.15	18.4	0
20	64QAM	1	99	17.32	17.15	17.15		
20	64QAM	50	0	17.26	17.29	17.31		
20	64QAM	50	24	17.29	17.23	17.24	18.4	0
20	64QAM	50	50	17.20	17.08	17.16		
20	64QAM	100	0	17.24	17.19	17.32		
Channel				132047	132322	132597	18.4	0
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	17.33	17.45	17.38	18.4	0
15	QPSK	1	37	17.16	17.27	17.07		
15	QPSK	1	74	17.24	17.25	17.05		
15	QPSK	36	0	17.35	17.49	17.37	18.4	0
15	QPSK	36	20	17.41	17.42	17.19		
15	QPSK	36	39	17.39	17.46	17.30		
15	QPSK	75	0	17.36	17.37	17.31	18.4	0
15	16QAM	1	0	17.38	17.39	17.45		
15	16QAM	1	37	17.32	17.41	17.47		
15	16QAM	1	74	17.38	17.46	17.43	18.4	0
15	16QAM	36	0	17.34	17.43	17.29		
15	16QAM	36	20	17.37	17.37	17.24		
15	16QAM	36	39	17.34	17.23	17.23	18.4	0
15	16QAM	75	0	17.42	17.33	17.27		
15	64QAM	1	0	17.28	17.51	17.34		
15	64QAM	1	37	17.47	17.45	17.34	18.4	0
15	64QAM	1	74	17.30	17.38	17.35		
15	64QAM	36	0	17.44	17.41	17.36		
15	64QAM	36	20	17.28	17.24	17.37	18.4	0
15	64QAM	36	39	17.36	17.46	17.34		
15	64QAM	75	0	17.23	17.28	17.43		
Channel				132022	132322	132622	18.4	0
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	17.04	17.10	17.10	18.4	0
10	QPSK	1	25	17.01	17.11	16.98		
10	QPSK	1	49	17.13	17.20	17.13		
10	QPSK	25	0	17.14	17.24	17.18	18.4	0
10	QPSK	25	12	17.21	17.23	17.23		



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10	QPSK	25	25	17.23	17.29	17.23		
10	QPSK	50	0	17.21	17.23	17.27		
10	16QAM	1	0	17.51	17.41	17.46	18.4	0
10	16QAM	1	25	17.46	17.49	17.38		
10	16QAM	1	49	17.46	17.53	17.45		
10	16QAM	25	0	17.13	17.07	17.21	18.4	0
10	16QAM	25	12	17.25	17.17	17.27		
10	16QAM	25	25	17.22	17.17	17.19		
10	16QAM	50	0	17.16	17.14	17.20	18.4	0
10	64QAM	1	0	17.37	17.36	17.39		
10	64QAM	1	25	17.42	17.33	17.41		
10	64QAM	1	49	17.37	17.35	17.32	18.4	0
10	64QAM	25	0	17.24	17.14	17.19		
10	64QAM	25	12	17.20	17.16	17.20		
10	64QAM	25	25	17.18	17.26	17.20	18.4	0
10	64QAM	50	0	17.17	17.15	17.22		
Channel				131997	132322	132647		
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	17.37	17.52	17.44	18.4	0
5	QPSK	1	12	17.30	17.28	17.28		
5	QPSK	1	24	17.18	17.09	17.16		
5	QPSK	12	0	17.24	17.23	17.19	18.4	0
5	QPSK	12	7	17.23	17.11	17.25		
5	QPSK	12	13	17.15	17.09	17.09		
5	QPSK	25	0	17.16	17.20	17.12	18.4	0
5	16QAM	1	0	17.45	17.40	17.43		
5	16QAM	1	12	17.25	17.30	17.33		
5	16QAM	1	24	17.41	17.52	17.42	18.4	0
5	16QAM	12	0	17.10	17.14	17.26		
5	16QAM	12	7	17.11	17.16	17.18		
5	16QAM	12	13	17.16	17.21	17.22	18.4	0
5	16QAM	25	0	17.18	17.19	17.19		
5	64QAM	1	0	17.26	17.28	17.24		
5	64QAM	1	12	17.14	17.09	17.06	18.4	0
5	64QAM	1	24	17.32	17.28	17.24		
5	64QAM	12	0	17.19	17.22	17.20		
5	64QAM	12	7	17.25	17.21	17.21	18.4	0
5	64QAM	12	13	17.14	17.15	17.25		
5	64QAM	25	0	17.32	17.15	17.22		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	17.35	17.45	17.41	18.4	0
3	QPSK	1	8	17.31	17.32	17.37		
3	QPSK	1	14	17.21	17.17	17.20		
3	QPSK	8	0	17.06	17.25	17.19	18.4	0
3	QPSK	8	4	17.20	17.24	17.21		
3	QPSK	8	7	17.10	17.20	17.16		
3	QPSK	15	0	17.10	17.16	17.08	18.4	0
3	16QAM	1	0	17.46	17.41	17.51		
3	16QAM	1	8	17.34	17.36	17.32		
3	16QAM	1	14	17.44	17.40	17.44	18.4	0
3	16QAM	8	0	17.17	17.26	17.16		
3	16QAM	8	4	17.21	17.18	17.17		
3	16QAM	8	7	17.14	17.14	17.17	18.4	0
3	16QAM	15	0	17.14	17.20	17.16		
3	64QAM	1	0	17.34	17.30	17.25	18.4	0



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3	64QAM	1	8	17.21	17.15	17.11	18.4	0
3	64QAM	1	14	17.36	17.22	17.29		
3	64QAM	8	0	17.21	17.22	17.18		
3	64QAM	8	4	17.28	17.26	17.15		
3	64QAM	8	7	17.14	17.13	17.20		
3	64QAM	15	0	17.20	17.20	17.21		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	17.48	17.47	17.38	18.4	0
1.4	QPSK	1	3	17.32	17.35	17.37		
1.4	QPSK	1	5	17.09	17.17	17.23		
1.4	QPSK	3	0	17.17	17.22	17.09		
1.4	QPSK	3	1	17.20	17.30	17.16		
1.4	QPSK	3	3	17.18	17.17	17.11		
1.4	QPSK	6	0	17.21	17.17	17.25	18.4	0
1.4	16QAM	1	0	17.41	17.46	17.37	18.4	0
1.4	16QAM	1	3	17.33	17.33	17.32		
1.4	16QAM	1	5	17.35	17.42	17.48		
1.4	16QAM	3	0	17.16	17.11	17.17		
1.4	16QAM	3	1	17.15	17.12	17.14		
1.4	16QAM	3	3	17.15	17.22	17.11		
1.4	16QAM	6	0	17.11	17.17	17.22	18.4	0
1.4	64QAM	1	0	17.23	17.26	17.26	18.4	0
1.4	64QAM	1	3	17.11	17.21	17.21		
1.4	64QAM	1	5	17.27	17.24	17.33		
1.4	64QAM	3	0	17.25	17.15	17.26		
1.4	64QAM	3	1	17.15	17.27	17.24		
1.4	64QAM	3	3	17.23	17.18	17.11		
1.4	64QAM	6	0	17.20	17.17	17.25	18.4	0



<Reduced Power on Product Specific 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	20.92	20.90	20.91	21	0
20	QPSK	1	49	20.89	20.76	20.89		
20	QPSK	1	99	20.78	20.81	20.82		
20	QPSK	50	0	20.71	20.70	20.87	21	0
20	QPSK	50	24	20.76	20.75	20.76		
20	QPSK	50	50	20.90	20.80	20.79		
20	QPSK	100	0	20.84	20.86	20.79	21	0
20	16QAM	1	0	20.84	20.90	20.73		
20	16QAM	1	49	20.86	20.90	20.77		
20	16QAM	1	99	20.88	20.74	20.84	21	0
20	16QAM	50	0	20.81	20.82	20.76		
20	16QAM	50	24	20.80	20.85	20.84		
20	16QAM	50	50	20.88	20.81	20.83	21	0
20	16QAM	100	0	20.80	20.71	20.76		
20	64QAM	1	0	20.80	20.83	20.81		
20	64QAM	1	49	20.89	20.77	20.85	21	0
20	64QAM	1	99	20.71	20.83	20.75		
20	64QAM	50	0	20.71	20.71	20.76		
20	64QAM	50	24	20.85	20.89	20.85	21	0
20	64QAM	50	50	20.85	20.86	20.72		
20	64QAM	100	0	20.85	20.71	20.83		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	20.88	20.72	20.85	21	0
15	QPSK	1	37	20.81	20.85	20.73		
15	QPSK	1	74	20.81	20.86	20.78		
15	QPSK	36	0	20.75	20.71	20.89	21	0
15	QPSK	36	20	20.81	20.81	20.85		
15	QPSK	36	39	20.83	20.79	20.75		
15	QPSK	75	0	20.90	20.89	20.84	21	0
15	16QAM	1	0	20.86	20.72	20.84		
15	16QAM	1	37	20.86	20.74	20.88		
15	16QAM	1	74	20.85	20.90	20.75	21	0
15	16QAM	36	0	20.76	20.87	20.79		
15	16QAM	36	20	20.78	20.87	20.77		
15	16QAM	36	39	20.76	20.71	20.85	21	0
15	16QAM	75	0	20.87	20.80	20.72		
15	64QAM	1	0	20.73	20.74	20.84		
15	64QAM	1	37	20.83	20.86	20.86	21	0
15	64QAM	1	74	20.83	20.87	20.82		
15	64QAM	36	0	20.76	20.73	20.77		
15	64QAM	36	20	20.86	20.75	20.84	21	0
15	64QAM	36	39	20.79	20.71	20.90		
15	64QAM	75	0	20.72	20.76	20.81		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	20.77	20.86	20.83	21	0
10	QPSK	1	25	20.73	20.74	20.72		
10	QPSK	1	49	20.76	20.78	20.75		
10	QPSK	25	0	20.83	20.75	20.75	21	0



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10	QPSK	25	12	20.75	20.79	20.80		
10	QPSK	25	25	20.83	20.78	20.89		
10	QPSK	50	0	20.73	20.74	20.89		
10	16QAM	1	0	20.70	20.77	20.75	21	0
10	16QAM	1	25	20.84	20.71	20.75		
10	16QAM	1	49	20.79	20.72	20.83		
10	16QAM	25	0	20.77	20.90	20.81	21	0
10	16QAM	25	12	20.82	20.83	20.70		
10	16QAM	25	25	20.85	20.70	20.74		
10	16QAM	50	0	20.78	20.71	20.72		
10	64QAM	1	0	20.83	20.71	20.88	21	0
10	64QAM	1	25	20.77	20.77	20.83		
10	64QAM	1	49	20.78	20.72	20.86		
10	64QAM	25	0	20.89	20.81	20.83	21	0
10	64QAM	25	12	20.81	20.77	20.83		
10	64QAM	25	25	20.86	20.89	20.80		
10	64QAM	50	0	20.77	20.74	20.87		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	20.81	20.72	20.90	21	0
5	QPSK	1	12	20.89	20.73	20.80		
5	QPSK	1	24	20.88	20.76	20.82		
5	QPSK	12	0	20.76	20.78	20.90	21	0
5	QPSK	12	7	20.73	20.85	20.80		
5	QPSK	12	13	20.79	20.90	20.80		
5	QPSK	25	0	20.79	20.90	20.81		
5	16QAM	1	0	20.88	20.84	20.80	21	0
5	16QAM	1	12	20.74	20.71	20.78		
5	16QAM	1	24	20.79	20.72	20.71		
5	16QAM	12	0	20.86	20.79	20.89	21	0
5	16QAM	12	7	20.85	20.81	20.81		
5	16QAM	12	13	20.82	20.74	20.80		
5	16QAM	25	0	20.71	20.86	20.84		
5	64QAM	1	0	20.74	20.90	20.72	21	0
5	64QAM	1	12	20.74	20.89	20.71		
5	64QAM	1	24	20.70	20.76	20.78		
5	64QAM	12	0	20.82	20.77	20.78	21	0
5	64QAM	12	7	20.72	20.84	20.76		
5	64QAM	12	13	20.83	20.78	20.73		
5	64QAM	25	0	20.88	20.83	20.85		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	20.77	20.80	20.72	21	0
3	QPSK	1	8	20.71	20.90	20.84		
3	QPSK	1	14	20.73	20.81	20.78		
3	QPSK	8	0	20.75	20.78	20.78	21	0
3	QPSK	8	4	20.89	20.89	20.88		
3	QPSK	8	7	20.89	20.79	20.81		
3	QPSK	15	0	20.70	20.80	20.86		
3	16QAM	1	0	20.84	20.82	20.84	21	0
3	16QAM	1	8	20.76	20.72	20.85		
3	16QAM	1	14	20.82	20.84	20.71		
3	16QAM	8	0	20.77	20.79	20.70	21	0
3	16QAM	8	4	20.80	20.70	20.90		
3	16QAM	8	7	20.75	20.86	20.82		
3	16QAM	15	0	20.79	20.90	20.78		



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3	64QAM	1	0	20.83	20.76	20.75	21	0
3	64QAM	1	8	20.89	20.73	20.83		
3	64QAM	1	14	20.89	20.77	20.76		
3	64QAM	8	0	20.81	20.89	20.71	21	0
3	64QAM	8	4	20.83	20.71	20.90		
3	64QAM	8	7	20.76	20.88	20.89		
3	64QAM	15	0	20.88	20.83	20.82		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.74	20.74	20.75	21	0
1.4	QPSK	1	3	20.87	20.72	20.80		
1.4	QPSK	1	5	20.70	20.79	20.85		
1.4	QPSK	3	0	20.90	20.90	20.70		
1.4	QPSK	3	1	20.84	20.87	20.72		
1.4	QPSK	3	3	20.72	20.84	20.88		
1.4	QPSK	6	0	20.81	20.83	20.84	21	0
1.4	16QAM	1	0	20.84	20.88	20.85	21	0
1.4	16QAM	1	3	20.82	20.78	20.70		
1.4	16QAM	1	5	20.80	20.85	20.84		
1.4	16QAM	3	0	20.76	20.83	20.82		
1.4	16QAM	3	1	20.78	20.71	20.87		
1.4	16QAM	3	3	20.81	20.71	20.71		
1.4	16QAM	6	0	20.80	20.70	20.87	21	0
1.4	64QAM	1	0	20.83	20.76	20.90	21	0
1.4	64QAM	1	3	20.90	20.83	20.82		
1.4	64QAM	1	5	20.84	20.70	20.87		
1.4	64QAM	3	0	20.82	20.80	20.81		
1.4	64QAM	3	1	20.80	20.89	20.71		
1.4	64QAM	3	3	20.85	20.77	20.74		
1.4	64QAM	6	0	20.73	20.90	20.86	21	0





<LTE Band 4>

Channel	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
20	20.91	20.92	20.84	21	0
20	20.78	20.87	20.84		
20	20.89	20.87	20.87		
20	20.70	20.80	20.90	21	0
20	20.79	20.76	20.86		
20	20.72	20.90	20.88		
20	20.86	20.85	20.85	21	0
20	20.76	20.74	20.76		
20	20.71	20.77	20.81		
20	20.78	20.86	20.85	21	0
20	20.77	20.72	20.74		
20	20.90	20.89	20.85		
20	20.83	20.75	20.80	21	0
20	20.78	20.82	20.75		
20	20.84	20.84	20.81		
20	20.71	20.79	20.80	21	0
20	20.88	20.82	20.75		
20	20.89	20.89	20.70		
20	20.89	20.89	20.70	21	0
20	20.78	20.87	20.90		
20	20.70	20.74	20.84		
20	20.87	20.73	20.72	21	0
15	20.79	20.78	20.84		
15	20.75	20.74	20.85		
15	20.86	20.77	20.86	21	0
15	20.73	20.80	20.72		
15	20.71	20.87	20.71		
15	20.80	20.80	20.84	21	0
15	20.83	20.73	20.88		
15	20.72	20.75	20.73		
15	20.86	20.75	20.73	21	0
15	20.76	20.89	20.83		
15	20.82	20.77	20.79		
15	20.77	20.88	20.73	21	0
15	20.76	20.81	20.82		
15	20.78	20.70	20.89		
15	20.75	20.82	20.77	21	0
15	20.86	20.77	20.88		
15	20.81	20.75	20.73		
15	20.72	20.73	20.82	21	0
15	20.75	20.79	20.87		
15	20.75	20.87	20.85		
15	20.76	20.86	20.85	21	0
10	20.79	20.72	20.74		
10	20.90	20.82	20.88		
10	20.78	20.72	20.74	21	0
10	20.83	20.88	20.80		
10	20.76	20.83	20.75		



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10	QPSK	25	25	20.77	20.77	20.88		
10	QPSK	50	0	20.77	20.78	20.82		
10	16QAM	1	0	20.81	20.80	20.80		
10	16QAM	1	25	20.79	20.90	20.90	21	0
10	16QAM	1	49	20.84	20.86	20.84		
10	16QAM	25	0	20.85	20.86	20.82		
10	16QAM	25	12	20.70	20.75	20.74	21	0
10	16QAM	25	25	20.86	20.76	20.71		
10	16QAM	50	0	20.84	20.86	20.90		
10	64QAM	1	0	20.85	20.79	20.89		
10	64QAM	1	25	20.73	20.72	20.75	21	0
10	64QAM	1	49	20.75	20.89	20.88		
10	64QAM	25	0	20.71	20.89	20.73		
10	64QAM	25	12	20.88	20.73	20.86	21	0
10	64QAM	25	25	20.88	20.80	20.85		
10	64QAM	50	0	20.89	20.80	20.82		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	20.71	20.80	20.87		
5	QPSK	1	12	20.76	20.82	20.71	21	0
5	QPSK	1	24	20.80	20.73	20.72		
5	QPSK	12	0	20.80	20.83	20.76		
5	QPSK	12	7	20.83	20.75	20.74	21	0
5	QPSK	12	13	20.81	20.90	20.72		
5	QPSK	25	0	20.84	20.89	20.71		
5	16QAM	1	0	20.90	20.73	20.84		
5	16QAM	1	12	20.73	20.70	20.85	21	0
5	16QAM	1	24	20.77	20.86	20.73		
5	16QAM	12	0	20.73	20.80	20.72		
5	16QAM	12	7	20.73	20.84	20.89	21	0
5	16QAM	12	13	20.80	20.72	20.76		
5	16QAM	25	0	20.76	20.82	20.74		
5	64QAM	1	0	20.70	20.76	20.86		
5	64QAM	1	12	20.70	20.79	20.88	21	0
5	64QAM	1	24	20.76	20.75	20.74		
5	64QAM	12	0	20.90	20.80	20.82		
5	64QAM	12	7	20.80	20.77	20.82	21	0
5	64QAM	12	13	20.84	20.85	20.70		
5	64QAM	25	0	20.80	20.79	20.79		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	20.88	20.86	20.78		
3	QPSK	1	8	20.75	20.76	20.85	21	0
3	QPSK	1	14	20.75	20.85	20.79		
3	QPSK	8	0	20.80	20.71	20.72		
3	QPSK	8	4	20.80	20.78	20.86	21	0
3	QPSK	8	7	20.75	20.74	20.78		
3	QPSK	15	0	20.90	20.85	20.75		
3	16QAM	1	0	20.84	20.84	20.73		
3	16QAM	1	8	20.88	20.79	20.80	21	0
3	16QAM	1	14	20.81	20.75	20.88		
3	16QAM	8	0	20.81	20.72	20.78		
3	16QAM	8	4	20.86	20.80	20.80	21	0
3	16QAM	8	7	20.86	20.84	20.82		
3	16QAM	15	0	20.73	20.88	20.84		
3	64QAM	1	0	20.75	20.70	20.75	21	0



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3	64QAM	1	8	20.85	20.72	20.75	21	0
3	64QAM	1	14	20.82	20.84	20.79		
3	64QAM	8	0	20.82	20.84	20.75		
3	64QAM	8	4	20.86	20.76	20.73		
3	64QAM	8	7	20.87	20.75	20.82		
3	64QAM	15	0	20.86	20.73	20.89		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	20.82	20.73	20.81	21	0
1.4	QPSK	1	3	20.88	20.81	20.72		
1.4	QPSK	1	5	20.74	20.81	20.76		
1.4	QPSK	3	0	20.89	20.90	20.83		
1.4	QPSK	3	1	20.88	20.74	20.71		
1.4	QPSK	3	3	20.77	20.83	20.74		
1.4	QPSK	6	0	20.86	20.90	20.79	21	0
1.4	16QAM	1	0	20.81	20.89	20.78	21	0
1.4	16QAM	1	3	20.77	20.79	20.73		
1.4	16QAM	1	5	20.71	20.89	20.74		
1.4	16QAM	3	0	20.70	20.77	20.88		
1.4	16QAM	3	1	20.83	20.72	20.86		
1.4	16QAM	3	3	20.84	20.70	20.76		
1.4	16QAM	6	0	20.89	20.90	20.89	21	0
1.4	64QAM	1	0	20.77	20.78	20.77	21	0
1.4	64QAM	1	3	20.79	20.75	20.73		
1.4	64QAM	1	5	20.90	20.86	20.79		
1.4	64QAM	3	0	20.85	20.80	20.76		
1.4	64QAM	3	1	20.84	20.73	20.70		
1.4	64QAM	3	3	20.76	20.83	20.83		
1.4	64QAM	6	0	20.89	20.77	20.84	21	0



<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	20.89	20.96	20.91	21	0
20	QPSK	1	49	20.90	20.79	20.73		
20	QPSK	1	99	20.88	20.84	20.86		
20	QPSK	50	0	20.82	20.71	20.73	21	0
20	QPSK	50	24	20.83	20.82	20.72		
20	QPSK	50	50	20.82	20.89	20.76		
20	QPSK	100	0	20.80	20.79	20.78	21	0
20	16QAM	1	0	20.72	20.84	20.72		
20	16QAM	1	49	20.79	20.79	20.76		
20	16QAM	1	99	20.76	20.80	20.84	21	0
20	16QAM	50	0	20.86	20.74	20.72		
20	16QAM	50	24	20.83	20.78	20.75		
20	16QAM	50	50	20.72	20.87	20.72	21	0
20	16QAM	100	0	20.75	20.90	20.78		
20	64QAM	1	0	20.89	20.79	20.89		
20	64QAM	1	49	20.80	20.75	20.89	21	0
20	64QAM	1	99	20.71	20.74	20.78		
20	64QAM	50	0	20.85	20.71	20.76		
20	64QAM	50	24	20.87	20.89	20.86	21	0
20	64QAM	50	50	20.80	20.83	20.84		
20	64QAM	100	0	20.75	20.83	20.84		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	20.83	20.85	20.71	21	0
15	QPSK	1	37	20.89	20.84	20.77		
15	QPSK	1	74	20.79	20.82	20.77		
15	QPSK	36	0	20.86	20.88	20.87	21	0
15	QPSK	36	20	20.89	20.85	20.89		
15	QPSK	36	39	20.83	20.79	20.71		
15	QPSK	75	0	20.89	20.74	20.87	21	0
15	16QAM	1	0	20.77	20.74	20.70		
15	16QAM	1	37	20.83	20.83	20.76		
15	16QAM	1	74	20.76	20.73	20.78	21	0
15	16QAM	36	0	20.79	20.77	20.90		
15	16QAM	36	20	20.86	20.84	20.78		
15	16QAM	36	39	20.86	20.83	20.83	21	0
15	16QAM	75	0	20.71	20.87	20.79		
15	64QAM	1	0	20.83	20.75	20.70		
15	64QAM	1	37	20.89	20.71	20.89	21	0
15	64QAM	1	74	20.76	20.75	20.84		
15	64QAM	36	0	20.80	20.82	20.88		
15	64QAM	36	20	20.71	20.79	20.78	21	0
15	64QAM	36	39	20.82	20.78	20.87		
15	64QAM	75	0	20.82	20.77	20.77		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	20.78	20.85	20.76	21	0
10	QPSK	1	25	20.84	20.70	20.72		
10	QPSK	1	49	20.86	20.77	20.76		
10	QPSK	25	0	20.70	20.84	20.82	21	0
10	QPSK	25	12	20.75	20.88	20.83		



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10	QPSK	25	25	20.77	20.71	20.83		
10	QPSK	50	0	20.85	20.83	20.89		
10	16QAM	1	0	20.89	20.82	20.86	21	0
10	16QAM	1	25	20.71	20.83	20.87		
10	16QAM	1	49	20.72	20.76	20.88		
10	16QAM	25	0	20.76	20.81	20.74	21	0
10	16QAM	25	12	20.79	20.88	20.81		
10	16QAM	25	25	20.71	20.80	20.73		
10	16QAM	50	0	20.74	20.89	20.78	21	0
10	64QAM	1	0	20.83	20.88	20.78		
10	64QAM	1	25	20.73	20.83	20.71		
10	64QAM	1	49	20.73	20.85	20.87	21	0
10	64QAM	25	0	20.79	20.70	20.77		
10	64QAM	25	12	20.87	20.71	20.85		
10	64QAM	25	25	20.83	20.71	20.79	21	0
10	64QAM	50	0	20.76	20.89	20.83		
Channel				131997	132322	132647		
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	20.74	20.77	20.84	21	0
5	QPSK	1	12	20.76	20.87	20.88		
5	QPSK	1	24	20.80	20.78	20.75		
5	QPSK	12	0	20.90	20.72	20.81	21	0
5	QPSK	12	7	20.83	20.86	20.86		
5	QPSK	12	13	20.89	20.82	20.90		
5	QPSK	25	0	20.86	20.86	20.88	21	0
5	16QAM	1	0	20.71	20.71	20.78		
5	16QAM	1	12	20.81	20.87	20.90		
5	16QAM	1	24	20.79	20.72	20.84	21	0
5	16QAM	12	0	20.83	20.82	20.78		
5	16QAM	12	7	20.90	20.75	20.81		
5	16QAM	12	13	20.84	20.70	20.72	21	0
5	16QAM	25	0	20.80	20.71	20.76		
5	64QAM	1	0	20.84	20.76	20.85		
5	64QAM	1	12	20.80	20.71	20.87	21	0
5	64QAM	1	24	20.79	20.88	20.83		
5	64QAM	12	0	20.89	20.84	20.71		
5	64QAM	12	7	20.89	20.84	20.84	21	0
5	64QAM	12	13	20.76	20.80	20.80		
5	64QAM	25	0	20.81	20.85	20.82		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	20.87	20.81	20.90	21	0
3	QPSK	1	8	20.70	20.89	20.70		
3	QPSK	1	14	20.76	20.76	20.71		
3	QPSK	8	0	20.73	20.75	20.71	21	0
3	QPSK	8	4	20.83	20.76	20.79		
3	QPSK	8	7	20.83	20.81	20.87		
3	QPSK	15	0	20.86	20.84	20.77	21	0
3	16QAM	1	0	20.85	20.84	20.85		
3	16QAM	1	8	20.72	20.78	20.81		
3	16QAM	1	14	20.84	20.85	20.71	21	0
3	16QAM	8	0	20.83	20.74	20.83		
3	16QAM	8	4	20.74	20.75	20.77		
3	16QAM	8	7	20.77	20.81	20.72	21	0
3	16QAM	15	0	20.82	20.85	20.89		
3	64QAM	1	0	20.76	20.72	20.82		



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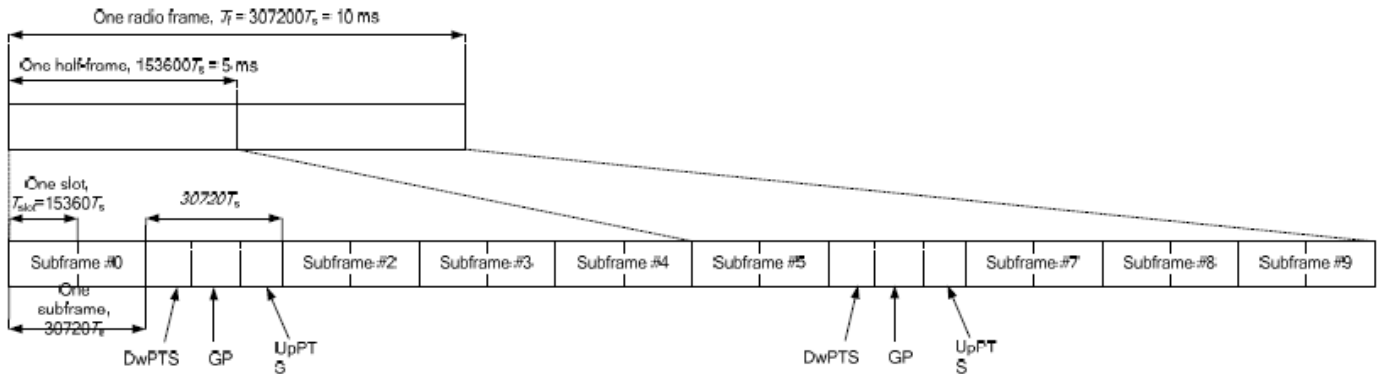
3	64QAM	1	8	20.87	20.74	20.80	21	0
3	64QAM	1	14	20.72	20.71	20.85		
3	64QAM	8	0	20.83	20.75	20.83		
3	64QAM	8	4	20.82	20.71	20.72		
3	64QAM	8	7	20.88	20.83	20.85		
3	64QAM	15	0	20.78	20.70	20.79		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	20.82	20.84	20.84	21	0
1.4	QPSK	1	3	20.81	20.89	20.90		
1.4	QPSK	1	5	20.71	20.86	20.87		
1.4	QPSK	3	0	20.90	20.76	20.84		
1.4	QPSK	3	1	20.84	20.82	20.76		
1.4	QPSK	3	3	20.77	20.77	20.76		
1.4	QPSK	6	0	20.84	20.84	20.82	21	0
1.4	16QAM	1	0	20.86	20.80	20.76	21	0
1.4	16QAM	1	3	20.87	20.71	20.77		
1.4	16QAM	1	5	20.74	20.74	20.90		
1.4	16QAM	3	0	20.86	20.72	20.71		
1.4	16QAM	3	1	20.88	20.84	20.71		
1.4	16QAM	3	3	20.75	20.77	20.89		
1.4	16QAM	6	0	20.88	20.81	20.82	21	0
1.4	64QAM	1	0	20.85	20.71	20.77	21	0
1.4	64QAM	1	3	20.76	20.87	20.76		
1.4	64QAM	1	5	20.80	20.72	20.70		
1.4	64QAM	3	0	20.84	20.90	20.83		
1.4	64QAM	3	1	20.89	20.83	20.88		
1.4	64QAM	3	3	20.86	20.80	20.80		
1.4	64QAM	6	0	20.77	20.71	20.88	21	0

**<TDD LTE SAR Measurement>**

TDD LTE configuration setup for SAR measurement

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

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



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

**Table 4.2-2: Uplink-downlink configurations.**

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

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

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

<b>Special subframe (30720·T<sub>s</sub>): Normal cyclic prefix in downlink (UpPTS)</b>			
	<b>Special subframe configuration</b>	<b>Normal cyclic prefix in uplink</b>	<b>Extended cyclic prefix in uplink</b>
<b>Uplink duty factor in one special subframe</b>	<b>0~4</b>	7.13%	8.33%
	<b>5~9</b>	14.3%	16.7%

<b>Special subframe(30720·T<sub>s</sub>): Extended cyclic prefix in downlink (UpPTS)</b>			
	<b>Special subframe configuration</b>	<b>Normal cyclic prefix in uplink</b>	<b>Extended cyclic prefix in uplink</b>
<b>Uplink duty factor in one special subframe</b>	<b>0~3</b>	7.13%	8.33%
	<b>4~7</b>	14.3%	16.7%

The highest duty factor is resulted from:

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





<Default Power Mode>

<LTE Band 48>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				55340	55830	56150	56640		
Frequency (MHz)				3560	3609	3641	3690		
20	QPSK	1	0	23.82	23.83	23.70	23.56	24	0
20	QPSK	1	49	23.68	23.70	23.55	23.41		
20	QPSK	1	99	23.61	23.55	23.44	23.29		
20	QPSK	50	0	22.92	22.93	22.82	22.67	23	1
20	QPSK	50	24	22.88	22.89	22.76	22.62		
20	QPSK	50	50	22.76	22.72	22.56	22.54		
20	QPSK	100	0	22.81	22.85	22.74	22.57	23	1
20	16QAM	1	0	22.95	22.92	22.85	22.67		
20	16QAM	1	49	22.82	22.79	22.63	22.46		
20	16QAM	1	99	22.72	22.67	22.52	22.39	22	2
20	16QAM	50	0	21.97	21.96	21.86	21.69		
20	16QAM	50	24	21.90	21.90	21.79	21.62		
20	16QAM	50	50	21.78	21.72	21.60	21.52	22	2
20	16QAM	100	0	21.81	21.87	21.77	21.59		
20	64QAM	1	0	21.21	21.16	21.09	20.93		
20	64QAM	1	49	21.08	20.99	20.88	20.72	22	2
20	64QAM	1	99	20.92	20.86	20.68	20.56		
20	64QAM	50	0	20.46	20.45	20.34	20.19		
20	64QAM	50	24	20.42	20.41	20.30	20.11	21	3
20	64QAM	50	50	20.28	20.26	20.12	20.04		
20	64QAM	100	0	20.32	20.41	20.26	20.10		
Channel				55315	55820	56160	56665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3557.5	3608	3642	3692.5		
15	QPSK	1	0	23.80	23.73	23.63	23.49	24	0
15	QPSK	1	37	23.67	23.62	23.48	23.34		
15	QPSK	1	74	23.59	23.46	23.38	23.27		
15	QPSK	36	0	22.92	22.91	22.80	22.65	23	1
15	QPSK	36	20	22.83	22.83	22.76	22.52		
15	QPSK	36	39	22.67	22.71	22.52	22.44		
15	QPSK	75	0	22.78	22.84	22.71	22.51	23	1
15	16QAM	1	0	22.88	22.85	22.79	22.61		
15	16QAM	1	37	22.80	22.76	22.54	22.42		
15	16QAM	1	74	22.67	22.65	22.50	22.37	22	2
15	16QAM	36	0	21.87	21.92	21.80	21.63		
15	16QAM	36	20	21.89	21.80	21.78	21.54		
15	16QAM	36	39	21.73	21.71	21.50	21.48	22	2
15	16QAM	75	0	21.81	21.83	21.69	21.52		
15	64QAM	1	0	21.15	21.15	21.02	20.84		
15	64QAM	1	37	20.98	20.94	20.88	20.64	22	2
15	64QAM	1	74	20.90	20.76	20.67	20.51		
15	64QAM	36	0	20.44	20.44	20.26	20.15		
15	64QAM	36	20	20.42	20.39	20.24	20.08	21	3
15	64QAM	36	39	20.24	20.19	20.06	20.00		
15	64QAM	75	0	20.31	20.32	20.20	20.07		
Channel				55290	55815	56165	56690	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3555	3607.5	3642.5	3695		
10	QPSK	1	0	23.77	23.80	23.69	23.50	24	0
10	QPSK	1	25	23.64	23.64	23.48	23.38		
10	QPSK	1	49	23.59	23.52	23.40	23.26		
10	QPSK	25	0	22.89	22.89	22.72	22.59	23	1



10	QPSK	25	12	22.83	22.87	22.66	22.61		
10	QPSK	25	25	22.72	22.64	22.50	22.45		
10	QPSK	50	0	22.76	22.80	22.68	22.56		
10	16QAM	1	0	22.92	22.84	22.80	22.66	23	1
10	16QAM	1	25	22.78	22.76	22.61	22.39		
10	16QAM	1	49	22.62	22.57	22.42	22.37		
10	16QAM	25	0	21.95	21.96	21.81	21.62	22	2
10	16QAM	25	12	21.88	21.89	21.72	21.57		
10	16QAM	25	25	21.68	21.71	21.56	21.42		
10	16QAM	50	0	21.77	21.80	21.69	21.55		
10	64QAM	1	0	21.17	21.10	21.00	20.92	22	2
10	64QAM	1	25	21.05	20.96	20.85	20.62		
10	64QAM	1	49	20.83	20.84	20.60	20.51		
10	64QAM	25	0	20.40	20.39	20.32	20.16	21	3
10	64QAM	25	12	20.35	20.33	20.23	20.06		
10	64QAM	25	25	20.21	20.23	20.02	19.97		
10	64QAM	50	0	20.32	20.31	20.18	20.00		
Channel				55265	55810	56170	56715	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3552.5	3607	3643	3697.5		
5	QPSK	1	0	23.75	23.76	23.63	23.51	24	0
5	QPSK	1	12	23.65	23.60	23.49	23.37		
5	QPSK	1	24	23.54	23.48	23.39	23.24		
5	QPSK	12	0	22.92	22.91	22.72	22.63	23	1
5	QPSK	12	7	22.84	22.84	22.73	22.55		
5	QPSK	12	13	22.73	22.70	22.51	22.48		
5	QPSK	25	0	22.75	22.76	22.69	22.52		
5	16QAM	1	0	22.86	22.90	22.82	22.62	23	1
5	16QAM	1	12	22.75	22.76	22.60	22.36		
5	16QAM	1	24	22.63	22.62	22.42	22.29		
5	16QAM	12	0	21.89	21.89	21.79	21.59	22	2
5	16QAM	12	7	21.90	21.83	21.72	21.57		
5	16QAM	12	13	21.71	21.72	21.52	21.52		
5	16QAM	25	0	21.81	21.80	21.73	21.53		
5	64QAM	1	0	21.16	21.09	21.09	20.88	22	2
5	64QAM	1	12	21.02	20.99	20.86	20.67		
5	64QAM	1	24	20.85	20.83	20.58	20.52		
5	64QAM	12	0	20.40	20.38	20.26	20.19	21	3
5	64QAM	12	7	20.40	20.41	20.23	20.02		
5	64QAM	12	13	20.25	20.19	20.09	20.02		
5	64QAM	25	0	20.30	20.34	20.17	20.09		



<Reduced Power on Hotspot / Body-worn Mode>

<LTE Band 48>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				55340	55830	56150	56640		
Frequency (MHz)				3560	3609	3641	3690		
20	QPSK	1	0	17.86	17.87	17.63	17.70	19	0
20	QPSK	1	49	17.77	17.71	17.43	17.46		
20	QPSK	1	99	17.72	17.56	17.33	17.39		
20	QPSK	50	0	17.74	17.76	17.70	17.64	19	0
20	QPSK	50	24	17.72	17.59	17.68	17.63		
20	QPSK	50	50	17.69	17.46	17.71	17.54		
20	QPSK	100	0	17.70	17.72	17.56	17.54	19	0
20	16QAM	1	0	17.77	17.69	17.61	17.65		
20	16QAM	1	49	17.64	17.52	17.53	17.52		
20	16QAM	1	99	17.58	17.43	17.40	17.44	19	0
20	16QAM	50	0	17.66	17.78	17.63	17.67		
20	16QAM	50	24	17.65	17.74	17.58	17.68		
20	16QAM	50	50	17.75	17.59	17.60	17.62	19	0
20	16QAM	100	0	17.78	17.74	17.54	17.59		
20	64QAM	1	0	17.65	17.55	17.35	17.39		
20	64QAM	1	49	17.53	17.36	17.29	17.30	19	0
20	64QAM	1	99	17.38	17.23	17.18	17.22		
20	64QAM	50	0	17.76	17.80	17.64	17.66		
20	64QAM	50	24	17.83	17.75	17.58	17.69	19	0
20	64QAM	50	50	17.76	17.60	17.60	17.62		
20	64QAM	100	0	17.83	17.75	17.55	17.59		
Channel				55315	55820	56160	56665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3557.5	3608	3642	3692.5		
15	QPSK	1	0	17.70	17.66	17.49	17.40	19	0
15	QPSK	1	37	17.67	17.51	17.37	17.37		
15	QPSK	1	74	17.63	17.44	17.27	17.29		
15	QPSK	36	0	17.74	17.68	17.58	17.55	19	0
15	QPSK	36	20	17.57	17.39	17.56	17.56		
15	QPSK	36	39	17.67	17.30	17.56	17.42		
15	QPSK	75	0	17.52	17.53	17.53	17.37	19	0
15	16QAM	1	0	17.59	17.60	17.46	17.50		
15	16QAM	1	37	17.57	17.32	17.34	17.51		
15	16QAM	1	74	17.56	17.24	17.20	17.25	19	0
15	16QAM	36	0	17.47	17.69	17.56	17.47		
15	16QAM	36	20	17.53	17.60	17.38	17.54		
15	16QAM	36	39	17.58	17.55	17.60	17.62	19	0
15	16QAM	75	0	17.68	17.71	17.36	17.40		
15	64QAM	1	0	17.52	17.40	17.23	17.36		
15	64QAM	1	37	17.36	17.34	17.28	17.28	19	0
15	64QAM	1	74	17.28	17.05	17.13	17.05		
15	64QAM	36	0	17.57	17.75	17.61	17.55		
15	64QAM	36	20	17.76	17.68	17.56	17.65	19	0
15	64QAM	36	39	17.67	17.58	17.55	17.60		
15	64QAM	75	0	17.73	17.63	17.37	17.39		
Channel				55290	55815	56165	56690	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3555	3607.5	3642.5	3695		
10	QPSK	1	0	17.59	17.72	17.50	17.44	19	0
10	QPSK	1	25	17.66	17.67	17.38	17.34		
10	QPSK	1	49	17.70	17.52	17.25	17.32		
10	QPSK	25	0	17.60	17.72	17.59	17.50	19	0



10	QPSK	25	12	17.64	17.44	17.60	17.62		
10	QPSK	25	25	17.68	17.32	17.58	17.35		
10	QPSK	50	0	17.69	17.71	17.49	17.49		
10	16QAM	1	0	17.69	17.65	17.47	17.60	19	0
10	16QAM	1	25	17.57	17.46	17.38	17.33		
10	16QAM	1	49	17.41	17.28	17.21	17.25		
10	16QAM	25	0	17.50	17.70	17.48	17.64	19	0
10	16QAM	25	12	17.62	17.72	17.50	17.56		
10	16QAM	25	25	17.71	17.41	17.51	17.49		
10	16QAM	50	0	17.65	17.67	17.35	17.49		
10	64QAM	1	0	17.52	17.49	17.31	17.33	19	0
10	64QAM	1	25	17.46	17.36	17.20	17.11		
10	64QAM	1	49	17.30	17.16	17.15	17.14		
10	64QAM	25	0	17.56	17.65	17.48	17.55	19	0
10	64QAM	25	12	17.82	17.62	17.54	17.58		
10	64QAM	25	25	17.71	17.60	17.52	17.60		
10	64QAM	50	0	17.82	17.65	17.54	17.51		
Channel				55265	55810	56170	56715	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3552.5	3607	3643	3697.5		
5	QPSK	1	0	17.72	17.65	17.31	17.42	19	0
5	QPSK	1	12	17.57	17.68	17.33	17.41		
5	QPSK	1	24	17.69	17.44	17.28	17.32		
5	QPSK	12	0	17.67	17.71	17.66	17.62	19	0
5	QPSK	12	7	17.52	17.58	17.65	17.59		
5	QPSK	12	13	17.68	17.44	17.70	17.35		
5	QPSK	25	0	17.67	17.72	17.45	17.47		
5	16QAM	1	0	17.64	17.58	17.54	17.57	19	0
5	16QAM	1	12	17.54	17.45	17.48	17.50		
5	16QAM	1	24	17.58	17.24	17.26	17.32		
5	16QAM	12	0	17.58	17.61	17.44	17.59	19	0
5	16QAM	12	7	17.63	17.66	17.47	17.54		
5	16QAM	12	13	17.56	17.48	17.48	17.57		
5	16QAM	25	0	17.68	17.67	17.49	17.55		
5	64QAM	1	0	17.53	17.54	17.27	17.37	19	0
5	64QAM	1	12	17.48	17.20	17.25	17.10		
5	64QAM	1	24	17.29	17.17	17.17	17.02		
5	64QAM	12	0	17.65	17.63	17.63	17.53	19	0
5	64QAM	12	7	17.78	17.64	17.46	17.51		
5	64QAM	12	13	17.65	17.54	17.54	17.50		
5	64QAM	25	0	17.78	17.72	17.55	17.59		



**<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 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.
3. All permutations exist. No restrictions on Pcell & Scell combinations. Only LTE Band 29A is limited to Scell.

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation			4CC Downlink Carrier Aggregation		
Number	Combination	Covered by	Number	Combination	Covered by	Number	Combination	Covered by
		Measurement Superset			Measurement Superset			Measurement Superset
1	2A-2A	28	28	2A-2A-4A	96	96	2A-2A-4A-4A	169
2	2A-4A	28	29	2A-2A-5A	97	97	2A-2A-4A-5A	169
3	2A-5A	29	30	2A-2A-13A	100	98	2A-2A-5B	171
4	2A-13A	30	31	2A-2A-46A	101	99	2A-2A-5A-66A	172
5	2A-46A	31	32	2A-2A-66A	102	100	2A-2A-13A-66A	175
6	2A-48A	38	33	2A-4A-4A	104	101	2A-2A-46C	176
7	2A-66A	32	34	2A-4A-5A	104	102	2A-2A-66B	172
8	4A-4A	33	35	2A-4A-13A		103	2A-2A-66A-66A	174
9	4A-5A	34	36	2A-5B	98	104	2A-4A-4A-5A	169
10	4A-13A	35	37	2A-5A-46A	107	105	2A-4A-5B	171
11	4A-46A	55	38	2A-5A-48A	108	106	2A-5B-66A	178
12	4A-48A	57	39	2A-5A-66A	111	107	2A-5A-46C	181
13	5B	58	40	2A-13A-46A	114	108	2A-5A-48C	182
14	5A-5A	60	41	2A-13A-48A	115	109	2A-5A-48A-48A	183
15	5A-46A	61	42	2A-13A-66A	117	110	2A-5A-48A-66A	184
16	5A-48A	68	43	2A-46C	120	111	2A-5A-66B	178
17	5A-66A	70	44	2A-46A-46A	121	112	2A-5A-66C	179
18	13A-46A	40	45	2A-46A-66A	122	113	2A-5A-66A-66A	180
19	13A-48A	41	46	2A-48C	123	114	2A-13A-46C	186
20	13A-66A	42	47	2A-48A-48A	124	115	2A-13A-48A-48A	188
21	46A-66A	45	48	2A-48A-66A	125	116	2A-13A-48A-66A	189
22	48C	46	49	2A-66B	172	117	2A-13A-66B	118
23	48A-48A	47	50	2A-66C	173	118	2A-13A-66C	
24	48A-66A	48	51	2A-66A-66A	174	119	2A-13A-66A-66A	
25	66B	49	52	4A-4A-5A	169	120	2A-46D	192
26	66C	50	53	4A-4A-13A	170	121	2A-46A-46C	191
27	66A-66A	51	54	4A-5B	171	122	2A-46A-66A	194
			55	4A-46C	129	123	2A-48D	196
			56	4A-46A-46A	130	124	2A-48A-48C	198
			57	4A-48C	131	125	2A-48C-66A	198
			58	5B-46A	132	126	2A-48A-48A-66A	198
			59	5B-66A	133	127	2A-66A-66A-66A	
			60	5A-5A-66A	137	128	4A-4A-5B	177
			61	5A-46C	139	129	4A-46D	200
			62	5A-46A-66A	140	130	4A-46A-46C	200
			63	5A-48C	141	131	4A-48D	201
			64	5A-48A-48A	144	132	5B-46C	202



2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation			4CC Downlink Carrier Aggregation		
Number	Combination	Covered by	Number	Combination	Covered by	Number	Combination	Covered by
		Measurement Superset			Measurement Superset			Measurement Superset
			65	5A-48A-66A	144	133	5B-66B	134
			66	5A-66B	136	134	5B-66C	
			67	5A-66C	137	135	5B-66A-66A	
			68	5A-48C	141	136	5A-5A-66B	137
			69	5A-48A-48A	142	137	5A-5A-66C	
			70	5A-48A-66A	143	138	5A-5A-66A-66A	
			71	5A-66B	133	139	5A-46D	203
			72	5A-66C	134	140	5A-46C-66A	204
			73	5A-66A-66A	135	141	5A-48D	207
			74	13A-46C	145	142	5A-48A-48C	208
			75	13A-46A-66A	146	143	5A-48C-66A	209
			76	13A-48C	147	144	5A-48A-48A-66A	210
			77	13A-48A-48A	148	145	13A-46D	211
			78	13A-48A-66A	149	146	13A-46C-66A	212
			79	13A-66B	151	147	13A-48D	214
			80	13A-66C	152	148	13A-48A-48C	213
			81	13A-66A-66A	153	149	13A-48C-66A	216
			82	46C-66A	154	150	13A-48A-48A-66A	217
			83	46A-46A-66A	155	151	13A-48A-66B	218
			84	46A-66A-66A	156	152	13A-48A-66C	219
			85	48D	159	153	13A-66A-66A-66A	
			86	48A-48C	158	154	46D-66A	221
			87	48C-66A	161	155	46A-46C-66A	222
			88	48A-48A-66A	162	156	46C-66A-66A	223
			89	48A-66B	163	157	46A-66A-66A-66A	224
			90	48A-66C	164	158	48C-48C	225
			91	48A-66A-66A	165	159	48E	221
			92	66D		160	48A-48D	225
			93	66A-66B	94	161	48D-66A	227
			94	66A-66C		162	48A-48C-66A	226
			95	66A-66A-66A	127	163	48C-66B	164
						164	48C-66C	230
						165	48C-66A-66A	231
						166	48A-48A-66B	229
						167	48A-48A-66A-66A	
						168	48A-66A-66A-66A	231



5CC Downlink Carrier Aggregation			6CC Downlink Carrier Aggregation		
Number	Combination	Covered by	Number	Combination	Covered by
		Measurement Superset			Measurement Superset
169	2A-2A-4A-4A-5A		232	2A-46E-48A	249
170	2A-2A-4A-4A-13A		233	2A-46E-66A	250
171	2A-2A-4A-5B		234	2A-46D-48C	251
172	2A-2A-5A-66B	173	235	2A-46D-48A-66A	252
173	2A-2A-5A-66C		236	2A-46D-66A-66A	250
174	2A-2A-5A-66A-66A		237	2A-46C-48D	253
175	2A-2A-13A-66A-66A		238	2A-46C-48C-66A	251
176	2A-2A-46D		239	2A-46C-48A-48A-66A	252
177	2A-4A-4A-5B		240	2A-46A-48E	253
178	2A-5B-66B	179	241	2A-46A-48D-66A	252
179	2A-5B-66C		242	2A-48E-66A	
180	2A-5B-66A-66A		243	46E-48C	248
181	2A-5A-46D		244	46E-48A-66A	255
182	2A-5A-48D		245	46E-66A-66A	250
183	2A-5A-48A-48C		246	46D-48C-66A	255
184	2A-5A-48C-66A		247	46A-48E-66A	256
185	2A-5A-48A-48A-66A				
186	2A-13A-46D				
187	2A-13A-48D		7CC Downlink Carrier Aggregation		
188	2A-13A-48A-48C		Number	Combination	Covered by
189	2A-13A-48C-66A				Measurement Superset
190	2A-13A-48A-48A-66A		248	2A-46E-48C	
191	2A-46C-46C		249	2A-46E-48A-66A	
192	2A-46E	232	250	2A-46E-66A-66A	
193	2A-46A-46D		251	2A-46D-48C-66A	
194	2A-46D-66A	236	252	2A-46D-48A-48A-66A	
195	2A-48C-48C		253	2A-46C-48E	
196	2A-48E	240	254	2A-46C-48D-66A	
197	2A-48D-66A	241	255	46E-48C-66A	B46 RX Only
198	2A-48A-48C-66A		256	46C-48E-66A	B46 RX Only



5CC Downlink Carrier Aggregation			6CC Downlink Carrier Aggregation		
Number	Combination	Covered by	Number	Combination	Covered by
		Measurement Superset			Measurement Superset
199	4A-46E				
200	4A-46A-46D				
201	4A-48E				
202	5B-46D				
203	5A-46E				
204	5A-46D-66A				
205	5A-48C-48C				
206	NA				
207	5A-48E				
208	5A-48A-48D				
209	5A-48D-66A				
210	5A-48A-48C-66A				
211	13A-46E				
212	13A-46D-66A				
213	13A-48C-48C				
214	13A-48E				
215	13A-48A-48D				
216	13A-48D-66A				
217	13A-48A-48C-66A				
218	13A-48C-66B	219			
219	13A-48C-66C				
220	46C-46C-66A	B46 RX Only			
221	46E-66A	233			
222	46A-46D-66A	B46 RX Only			
223	46D-66A-66A	245			
224	46C-66A-66A-66A	B46 RX Only			
225	48C-48D				
226	48C-48C-66A				
227	48E-66A	242			
228	48A-48D-66A				
229	48A-48C-66B	230			
230	48A-48C-66C				
231	48C-66A-66A-66A				



**<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 two carrier aggregation. 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 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.

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

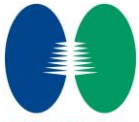
**<Three Carrier power verification>**

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	2A-4A-13A	2	20	1880	18900	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	23.33	23.19	
Intra-Band	Non-Contiguous	66A-66C	66	20	1745	132322	QPSK	1	0	66	20	2190	67236	66	20	2155	66886	23.15	23.16
	Contiguous	66D	66	20	1745	132322	QPSK	1	0	66	20	2164.8	66984	66	20	2184.6	67182	23.28	23.16

**<Four Carrier power verification>**

Configure	CA Configuration (BCS)	PCC							SCC1				SCC2				SCC3				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	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2A-13A-66C	2	20	1880	18900	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	20	2164.8	66984	23.14	23.19
	2A-13A-66A-66A	2	20	1880	18900	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	20	2190	67236	23.17	23.19
	2A-66A-66A-66A	2	20	1880	18900	QPSK	1	0	66	20	2155	66886	66	20	2190	67236	66	20	2120	66536	23.25	23.19
	5B-66C	5	10	836.5	20525	QPSK	1	0	5	10	891.4	2624	66	20	2155	66886	66	20	2164.8	66984	23.15	23.03
	5B-66A-66A	5	10	836.5	20525	QPSK	1	0	5	10	891.4	2624	66	20	2155	66886	66	20	2190	67236	23.22	23.03
	5A-5A-66A-66A	5	10	836.5	20525	QPSK	1	0	5	10	881.5	2525	66	20	2155	66886	60	20	2190	67236	23.01	23.03
	13A-66A-66A-66A	13	10	782	23230	QPSK	1	0	66	20	2155	66886	66	20	2190	67236	66	20	2120	66536	23.06	22.94
	48A-48A-66A-66A	48	20	3609	55830	QPSK	1	0	48	20	3690	56640	66	20	2155	66886	60	20	2190	67236	23.71	23.83





<Six Carrier power verification>

Configure	CA Configuration (BCS)	PCC							SCC1				SCC2				SCC3				SCC4				SCC5		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	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel
Inter-Band	2A-48E-66A	2	20	1880	18900	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	48	20	3684.4	56584	66	20	2155	66886	23.27	23.19		

<Seven Carrier power verification>

Configure	CA Configuration (BCS)	PCC							SCC1				SCC2				SCC3				SCC4				SCC5				SCC6				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	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel
Inter-Band	2A-46E-48C	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	46	20	5596.9	51259	48	20	3625	55990	48	20	3644.8	56188	23.24	23.19		
	2A-46E-48A-66A	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	46	20	5596.9	51259	48	20	3625	55990	66	20	2155	66886	23.12	23.19		
	2A-46E-66A-66A	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	46	20	5596.9	51259	66	20	2155	66886	66	20	2190	67236	23.28	23.19		
	2A-46D-48C-66A	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	48	20	3625	55990	48	20	3644.8	56188	66	20	2155	66886	23.30	23.19		
	2A-46D-48A-48A-66A	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	48	20	3625	55990	48	20	3700	56739	66	20	2155	66886	23.23	23.19		
	2A-46C-48E	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	48	20	3684.4	56584	23.18	23.19		
	2A-46C-48D-66A	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	66	20	2155	66886	23.20	23.19		



## 14. WiFi/Bluetooth Output Power (Unit: dBm)

### 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  $\leq 0.4$  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  $\leq 0.8$  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  $\leq 1.2$  W/kg or all required channels are tested.
5. Per 201904 TCBC workshops, General principles of FCC KDB Publication 248227 D01 can be applied to determine the SAR Initial Test Configurations and test reduction for 802.11ax SAR testing. For the table below the 802.11ax maximum power is SU (non-OFDMA)
6. In applying the test guidance, the IEEE 802.11 mode with the maximum output power (out of all modes) should be considered for testing
7. For modes with the same maximum output power, the guidance from section 5.3.2 a) of FCC KDB Publication 248227 D01 should be applied, with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency bands
8. When SAR testing for 802.11ax is required
  - a. If the maximum output power is highest for OFDMA scenarios, choose the tone size with the maximum number of tones and the highest maximum output power
  - b. Otherwise, consider the fully allocated channel for SAR testing
  - c. When SAR testing is required on RU sizes less than the fully allocated channel, use the RU number closest to the middle of the channel, choosing the higher RU number when two RUs are equidistant to the middle of the channel
  - d. In this report, the 802.11ax maximum output power is low than the low 802.11 mode, therefore, 802.11ax SAR was not necessary according to KLDB 447498 D01 section 5.3.2.
9. For each antenna, transmit power in SISO operation is equal the power in MIMO operation, for RF exposure compliance of SISO mode can be deduced from the compliance transmission of single antenna operating in MIMO mode.
10. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) 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 in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
11. The Tx Beamforming maximum power is equal to the 802.11 mode, therefore, the output power measurement was not necessary



<Default Max Power Mode>

<2.4GHz WLAN>

Transmit Antenna				Ant 6		Ant 4		Ant 4+6						
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %	
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.10	17.80	17.10	17.80	17.60	17.80	16.60	17.80	20.14	98.57	
		6	2437	17.30	17.80	17.40	17.80	17.80	17.80	17.00	17.80	20.43		
		11	2462	16.80	17.80	17.00	17.80	17.70	17.80	16.20	17.80	20.02		
	802.11g 6Mbps	1	2412	Not Required	17.80	Not Required	17.80	Not Required	17.80	Not Required	17.80	Not Required	20.80	99.25
		6	2437		17.80		17.80		17.80		20.80			
		11	2462		17.80		17.80		17.80		20.80			
	802.11n-HT20 MCS0	1	2412	Not Required	17.80	Not Required	17.80	Not Required	17.80	Not Required	17.80	Not Required	20.80	100.00
		6	2437		17.80		17.80		17.80		20.80			
		11	2462		17.80		17.80		17.80		20.80			
	802.11ax-HE20 MCS0	1	2412	Not Required	17.80	Not Required	17.80	Not Required	17.80	Not Required	17.80	Not Required	20.80	100.00
		6	2437		17.80		17.80		17.80		20.80			
		11	2462		17.80		17.80		17.80		20.80			
802.11ax-HE40 MCS0	3	2422	Not Required	17.80	Not Required	17.80	Not Required	17.80	Not Required	17.80	Not Required	20.80	100.00	
	6	2437		17.80		17.80		17.80		20.80				
	9	2452		17.80		17.80		17.80		20.80				

<5GHz WLAN>

Transmit Antenna				Ant 6		Ant 3		Ant 3+6						
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %	
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.30	16.80	16.50	16.80	16.70	16.80	16.30	16.80	19.51	99.25	
		40	5200	16.60	16.80	16.60	16.80	16.80	16.80	16.40	16.80	19.61		
		44	5220	16.40	16.80	16.40	16.80	16.80	16.80	16.10	16.80	19.47		
		48	5240	16.50	16.80	16.50	16.80	16.80	16.80	16.20	16.80	19.52		
	802.11n-HT20 MCS0	36	5180	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	19.00	100.00
		40	5200		16.80		16.80		16.80		19.80			
		44	5220		16.80		16.80		16.80		19.80			
		48	5240		16.80		16.80		16.80		19.80			
	802.11n-HT40 MCS0	38	5190	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	19.00	100.00
		46	5230		16.20		16.80		15.90		16.80		16.50	
	802.11ac-VHT20 MCS0	36	5180	Not Required	16.80	Not Required	16.80	Not Required	16.80	Not Required	16.80	Not Required	19.80	100.00
		40	5200		16.80		16.80		16.80		19.80			
		44	5220		16.80		16.80		16.80		19.80			
		48	5240		16.80		16.80		16.80		19.80			
	802.11ac-VHT40 MCS0	38	5190	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	19.00	100.00
		46	5230		16.10		16.80		15.70		16.80		16.40	
	802.11ac-VHT80 MCS0	42	5210	Not Required	15.00	Not Required	15.00	Not Required	15.00	Not Required	15.00	Not Required	18.00	100.00
		36	5180		16.50		16.50		16.50		19.50			
802.11ax-HE20 MCS0	40	5200	Not Required	16.50	Not Required	16.50	Not Required	16.50	Not Required	16.50	Not Required	19.50	100.00	
	44	5220		16.80		16.80		16.80		19.80				
	48	5240		16.80		16.80		16.80		19.80				
802.11ax-HE40 MCS0	38	5190	Not Required	15.50	Not Required	15.50	Not Required	15.50	Not Required	15.50	Not Required	18.50	100.00	
	46	5230		16.30		16.80		15.80		16.80		16.60		16.80
802.11ax-HE80 MCS0	42	5210	Not Required	15.00	Not Required	15.00	Not Required	15.00	Not Required	15.00	Not Required	18.00	100.00	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %									
5.3GHz WLAN	802.11a 6Mbps	52	5260	Not Required	16.80	Not Required	Not Required	16.80	Not Required	16.80	Not Required	19.80	99.25									
		56	5280		16.80							16.80		19.80								
		60	5300		16.80							16.80		19.80								
		64	5320		16.80							16.80		19.80								
	802.11n-HT20 MCS0	52	5260	Not Required	16.80	Not Required	Not Required	16.80	Not Required	16.80	Not Required	19.80	100.00									
		56	5280		16.80							16.80		19.80								
		60	5300		16.80							16.80		19.80								
		64	5320		16.80							16.80		19.80								
	802.11n-HT40 MCS0	54	5270	16.00	16.80	16.00	16.80	16.70	16.80	15.20	16.80	19.02	19.80	100.00								
		62	5310	15.70	16.80	15.90	16.80	16.60	16.80	15.20	16.80	18.97	19.80									
	802.11ac-VHT20 MCS0	52	5260	Not Required	16.80	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	19.80	100.00								
		56	5280		16.80								16.80		19.80							
		60	5300		16.80								16.80		19.80							
		64	5320		16.80								16.80		19.80							
	802.11ac-VHT40 MCS0	54	5270	16.10	16.80	16.10	16.80	16.80	16.80	15.30	16.80	19.12	19.80	100.00								
		62	5310	15.80	16.80	16.00	16.80	16.70	16.80	15.30	16.80	19.07	19.80									
802.11ac-VHT80 MCS0	58	5290	Not Required	15.50	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	18.50	100.00									
802.11ax-HE20 MCS0	52	5260		16.80								16.80		19.80								
	56	5280		16.80								16.80		19.80								
	60	5300		16.80								16.80		19.80								
	64	5320		16.80								16.80		19.80								
802.11ax-HE40 MCS0	54	5270		16.80								16.80		16.80	16.80	16.80	16.80	16.80	16.80	19.80	19.80	100.00
	62	5310		15.50								15.50		18.50								
802.11ax-HE80 MCS0	58	5290		15.00								15.00		15.00	15.00	15.00	15.00	15.00	15.00	18.00	100.00	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6									
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %				
5.5GHz WLAN	802.11a 6Mbps	100	5500	16.80	16.80	16.80	16.80	16.80	16.80	16.80	19.80	19.80	99.25				
		116	5580		16.80									16.80	16.80	16.80	
		124	5620		16.80									16.80	16.80	16.80	
		132	5660		16.80									16.80	16.80	16.80	
		140	5700		16.00									16.00	16.00	16.00	
	802.11n-HT20 MCS0	100	5500	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	19.80	19.80	100.00			
		116	5580		16.80										16.80	16.80	16.80
		124	5620		16.80										16.80	16.80	16.80
		132	5660		16.80										16.80	16.80	16.80
		140	5700		16.80										16.80	16.80	16.80
	802.11n-HT40 MCS0	102	5510	Not Required	16.80	Not Required	16.80	Not Required	16.80	Not Required	16.80	Not Required	19.80	100.00			
		126	5630		16.80		16.80		16.80								
		134	5670		16.80		16.80		16.80								
	802.11ac-VHT20 MCS0	100	5500	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	19.80	19.80	100.00			
		116	5580		16.80										16.80	16.80	16.80
		124	5620		16.80										16.80	16.80	16.80
		132	5660		16.80										16.80	16.80	16.80
	802.11ac-VHT40 MCS0	102	5510	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	19.80	19.80	100.00			
		110	5550		16.80										16.80	16.80	16.80
		126	5630		16.80										16.80	16.80	16.80
802.11ac-VHT80 MCS0	106	5530	16.10	16.80	16.10	16.80	16.80	16.80	15.30	16.80	19.12	19.80	100.00				
	122	5610	15.80	16.80	15.70	16.80	16.50	16.80	15.10	16.80	18.87	19.80					
802.11ax-HE20 MCS0	100	5500	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	19.80	19.80	94.00				
	116	5580		16.80										16.80	16.80	16.80	
	124	5620		16.80										16.80	16.80	16.80	
	132	5660		16.80										16.80	16.80	16.80	
	140	5700		16.50										16.50	16.50	16.50	
802.11ax-HE40 MCS0	102	5510	Not Required	16.50	Not Required	16.50	Not Required	16.50	Not Required	16.50	Not Required	19.50	86.00				
	110	5550		16.80		16.80		16.80		16.80							
	126	5630		16.80		16.80		16.80		16.80							
802.11ax-HE80 MCS0	106	5530	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	19.80	19.80	90.00				
	122	5610		16.80										16.80	16.80	16.80	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6													
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %								
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	16.80	Not Required	Not Required	16.80	Not Required	16.80	Not Required	19.80	99.25								
		157	5785		16.80							16.80		19.80							
		165	5825		16.80							16.80		19.80							
	802.11n-HT20 MCS0	149	5745		16.80							16.80	16.80	16.80	19.80						
		157	5785		16.80							16.80	16.80	16.80	19.80						
		165	5825		16.80							16.80	16.80	16.80	19.80						
	802.11n-HT40 MCS0	151	5755		16.80							16.80	16.80	16.80	19.80						
		159	5795		16.80							16.80	16.80	16.80	19.80						
	802.11ac-VHT20 MCS0	149	5745		16.80							16.80	16.80	16.80	19.80						
		157	5785		16.80							16.80	16.80	16.80	19.80						
		165	5825		16.80							16.80	16.80	16.80	19.80						
	802.11ac-VHT40 MCS0	151	5755		16.80							16.80	16.80	16.80	19.80						
		159	5795		16.80							16.80	16.80	16.80	19.80						
	802.11ac-VHT80 MCS0	155	5775		16.10							16.80	15.80	16.80	16.60	16.80	15.60	16.80	19.14	19.80	100.00
	802.11ax-HE20 MCS0	149	5745		Not Required							16.80	Not Required	Not Required	16.80	Not Required	16.80	Not Required	Not Required	19.80	94.00
157		5785	16.80	16.80		19.80															
165		5825	16.80	16.80		19.80															
802.11ax-HE40 MCS0	151	5755	16.80	16.80		16.80	16.80	19.80													
	159	5795	16.80	16.80		16.80	16.80	19.80													
802.11ax-HE80 MCS0	155	5775	16.80	16.80		16.80	16.80	19.80													

<Power Table 1>

<2.4GHz WLAN>

Transmit Antenna				Ant 6		Ant 4		Ant 4+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %									
2.4GHz WLAN	802.11b 1Mbps	1	2412	13.30	14.30	13.30	14.30	14.00	14.30	12.80	14.30	16.45	17.30	98.57								
		6	2437	13.20	14.30	13.20	14.30	14.00	14.30	13.10	14.30	16.58	17.30									
		11	2462	13.40	14.30	13.60	14.30	14.30	14.30	13.00	14.30	16.71	17.30									
	802.11g 6Mbps	1	2412	Not Required	14.30	Not Required	Not Required	14.30	Not Required	14.30	Not Required	Not Required	17.30	99.25								
		6	2437		14.30								14.30		17.30							
		11	2462		14.30								14.30		17.30							
	802.11n-HT20 MCS0	1	2412		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30	100.00
		6	2437		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30		
		11	2462		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30		
	802.11ax-HE20 MCS0	1	2412		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30	100.00
		6	2437		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30		
		11	2462		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30		
	802.11ax-HE40 MCS0	3	2422		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30	100.00
		6	2437		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30		
		9	2452		14.30								14.30	14.30	14.30	14.30	14.30	14.30	14.30	17.30		





<5GHz WLAN>

Transmit Antenna				Ant 6		Ant 3		Ant 3+6											
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %						
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	13.30	Not Required	Not Required	13.30	Not Required	13.30	Not Required	16.30	99.25						
		40	5200		13.30			13.30		16.30									
		44	5220		13.30			13.30		16.30									
		48	5240		13.30			13.30		16.30									
	802.11n-HT20 MCS0	36	5180		13.30			13.30		16.30									
		40	5200		13.30			13.30		16.30									
		44	5220		13.30			13.30		16.30									
		48	5240		13.30			13.30		16.30									
	802.11n-HT40 MCS0	38	5190		13.30			13.30		16.30									
		46	5230		13.30			13.30		16.30									
	802.11ac-VHT20 MCS0	36	5180		13.30			13.30		16.30									
		40	5200		13.30			13.30		16.30									
		44	5220		13.30			13.30		16.30									
		48	5240		13.30			13.30		16.30									
	802.11ac-VHT40 MCS0	38	5190		13.30			13.30		16.30									
		46	5230		13.30			13.30		16.30									
	802.11ac-VHT80 MCS0	42	5210		12.50			13.30		12.40		13.30	13.00	13.30	12.30	13.30	15.67	16.30	100.00
	802.11ax-HE20 MCS0	36	5180		13.30			13.30		16.30									
		40	5200		13.30			13.30		16.30									
		44	5220		13.30			13.30		16.30									
48		5240	13.30	13.30	16.30														
802.11ax-HE40 MCS0	38	5190	13.30	13.30	16.30														
	46	5230	13.30	13.30	16.30														
802.11ax-HE80 MCS0	42	5210	13.30	13.30	16.30														



Transmit Antenna				Ant 6		Ant 3		Ant 3+6											
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %						
5.3GHz WLAN	802.11a 6Mbps	52	5260	Not Required	13.30	Not Required	Not Required	13.30	13.30	13.30	16.30	99.25							
		56	5280		13.30								13.30	16.30					
		60	5300		13.30								13.30	16.30					
		64	5320		13.30								13.30	16.30					
	802.11n-HT20 MCS0	52	5260		13.30							13.30	16.30	100.00					
		56	5280		13.30							13.30	16.30						
		60	5300		13.30							13.30	16.30						
	802.11n-HT40 MCS0	54	5270		13.30							13.30	16.30	100.00					
		62	5310		13.30							13.30	16.30						
	802.11ac-VHT20 MCS0	52	5260		13.30							13.30	16.30	100.00					
		56	5280		13.30							13.30	16.30						
		60	5300		13.30							13.30	16.30						
	802.11ac-VHT40 MCS0	54	5270		13.30							13.30	16.30	100.00					
		62	5310		13.30							13.30	16.30						
	802.11ac-VHT80 MCS0	58	5290		12.90							13.30	13.00	13.00	13.00	13.00	16.01	16.30	100.00
	802.11ax-HE20 MCS0	52	5260		Not Required							13.30	Not Required	Not Required	13.30	13.30	13.30	16.30	100.00
56		5280	13.30	13.30		16.30													
60		5300	13.30	13.30		16.30													
64		5320	13.30	13.30		16.30													
802.11ax-HE40 MCS0	54	5270	13.30	13.30		16.30	100.00												
	62	5310	13.30	13.30		16.30													
802.11ax-HE80 MCS0	58	5290	13.30	13.30		16.30	100.00												



Transmit Antenna				Ant 6		Ant 3		Ant 3+6											
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %						
5.5GHz WLAN	802.11a 6Mbps	100	5500	13.30	13.30	13.30	13.30	13.30	13.30	13.30	16.30	16.30	99.25						
		116	5580											13.30	13.30	13.30	16.30	16.30	
		124	5620											13.30	13.30	13.30	16.30	16.30	
		132	5660											13.30	13.30	13.30	16.30	16.30	
		140	5700											13.30	13.30	13.30	16.30	16.30	
	802.11n-HT20 MCS0	100	5500	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	16.30	16.30	100.00					
		116	5580												13.30	13.30	13.30	16.30	16.30
		124	5620												13.30	13.30	13.30	16.30	16.30
		132	5660												13.30	13.30	13.30	16.30	16.30
		140	5700												13.30	13.30	13.30	16.30	16.30
	802.11n-HT40 MCS0	102	5510	Not Required	13.30	Not Required	13.30	Not Required	13.30	Not Required	13.30	Not Required	16.30	100.00					
		126	5630												13.30	13.30	13.30	16.30	16.30
		134	5670												13.30	13.30	13.30	16.30	16.30
	802.11ac-VHT20 MCS0	100	5500	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	16.30	16.30	100.00					
		116	5580												13.30	13.30	13.30	16.30	16.30
		124	5620												13.30	13.30	13.30	16.30	16.30
		132	5660												13.30	13.30	13.30	16.30	16.30
		140	5700												13.30	13.30	13.30	16.30	16.30
	802.11ac-VHT40 MCS0	102	5510	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	16.30	16.30	100.00					
		110	5550												13.30	13.30	13.30	16.30	16.30
126		5630	13.30												13.30	13.30	16.30	16.30	
802.11ac-VHT80 MCS0	106	5530	12.60	13.30	12.60	13.30	13.10	13.30	12.10	13.30	15.64	16.30	100.00						
	122	5610	12.40	13.30	12.40	13.30	13.00	13.30	11.70	13.30	15.41	16.30							
	100	5500	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	16.30	16.30		94.00					
116	5580	13.30											13.30		13.30	16.30	16.30		
124	5620	13.30											13.30		13.30	16.30	16.30		
132	5660	13.30											13.30		13.30	16.30	16.30		
140	5700	13.30											13.30		13.30	16.30	16.30		
802.11ax-HE40 MCS0	102	5510	Not Required	13.30	Not Required	13.30	Not Required	13.30	Not Required	13.30	Not Required	16.30	86.00						
	110	5550												13.30	13.30	13.30	16.30	16.30	
	126	5630												13.30	13.30	13.30	16.30	16.30	
802.11ax-HE80 MCS0	106	5530	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	16.30	16.30	90.00						
	122	5610												13.30	13.30	13.30	16.30	16.30	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6																										
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %																					
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	13.30	Not Required	13.30	13.30	13.30	13.30	13.30	16.30	99.25																					
		157	5785		13.30									13.30	13.30	16.30																		
		165	5825		13.30									13.30	13.30	16.30																		
	802.11n-HT20 MCS0	149	5745		13.30								13.30	13.30	13.30	13.30	13.30	13.30	16.30	100.00														
		157	5785		13.30								13.30	13.30	13.30	13.30	13.30	16.30																
		165	5825		13.30								13.30	13.30	13.30	13.30	16.30																	
	802.11n-HT40 MCS0	151	5755		13.30								13.30	13.30	13.30	13.30	13.30	13.30	16.30	100.00														
		159	5795		13.30								13.30	13.30	13.30	13.30	13.30	16.30																
	802.11ac-VHT20 MCS0	149	5745		12.60								13.30	12.80	13.30	13.20	13.30	12.40	13.30	15.83	16.30	100.00												
		157	5785										13.30										13.30	13.30	13.30									
		165	5825										13.30										13.30	13.30	13.30									
	802.11ac-VHT40 MCS0	151	5755										13.30									13.30	13.30	13.30	13.30	13.30	13.30	16.30	100.00					
		159	5795										13.30									13.30	13.30	13.30	13.30	13.30	16.30							
	802.11ac-VHT80 MCS0	155	5775										13.30									13.30	13.30	13.30	13.30	13.30	13.30	16.30	100.00					
	802.11ax-HE20 MCS0	149	5745										Not Required									13.30	Not Required	13.30	Not Required	13.30	Not Required	13.30	Not Required	16.30	94.00			
		157	5785																			13.30										13.30	13.30	13.30
		165	5825																			13.30										13.30	13.30	13.30
	802.11ax-HE40 MCS0	151	5755																			13.30									13.30	13.30	13.30	13.30
159		5795	13.30	13.30		13.30	13.30	13.30	13.30	16.30																								
802.11ax-HE80 MCS0	155	5775	13.30	13.30		13.30	13.30	13.30	13.30	13.30	16.30	90.00																						

<Power Table 2>

<2.4GHz WLAN>

Transmit Antenna				Ant 6		Ant 4		Ant 4+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %									
2.4GHz WLAN	802.11b 1Mbps	1	2412	10.80	11.40	10.80	11.40	11.40	11.40	10.30	11.40	13.90	14.40	98.57								
		6	2437	10.80	11.40	10.80	11.40	11.30	11.40	10.40	11.40	13.88										
		11	2462	10.20	11.40	10.10	11.40	11.20	11.40	9.70	11.40	13.52										
	802.11g 6Mbps	1	2412	Not Required	11.40	Not Required	11.40	Not Required	11.40	Not Required	11.40	Not Required	14.40	99.25								
		6	2437		11.40										11.40	11.40	11.40					
		11	2462		11.40										11.40	11.40	11.40					
	802.11n-HT20 MCS0	1	2412		11.40									11.40	11.40	11.40	11.40	11.40	11.40	11.40	14.40	100.00
		6	2437		11.40									11.40	11.40	11.40	11.40	11.40	11.40	14.40		
		11	2462		11.40									11.40	11.40	11.40	11.40	11.40	14.40			
802.11ax-HE20 MCS0	1	2412	11.40		11.40									11.40	11.40	11.40	11.40	11.40	11.40	14.40	100.00	
	6	2437	11.40		11.40									11.40	11.40	11.40	11.40	11.40	14.40			
	11	2462	11.40		11.40									11.40	11.40	11.40	11.40	14.40				
802.11ax-HE40 MCS0	3	2422	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	14.40	100.00										
	6	2437	11.40	11.40	11.40	11.40	11.40	11.40	11.40	14.40												
	9	2452	11.40	11.40	11.40	11.40	11.40	11.40	14.40													



<5GHz WLAN>

Transmit Antenna				Ant 6		Ant 3		Ant 3+6													
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %								
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	8.70	Not Required	Not Required	8.70	Not Required	8.70	Not Required	11.70	99.25								
		40	5200		8.70									8.70	8.70	11.70					
		44	5220		8.70									8.70	8.70	11.70					
		48	5240		8.70									8.70	8.70	11.70					
	802.11n-HT20 MCS0	36	5180		8.70								8.70	8.70	11.70						
		40	5200		8.70								8.70	8.70	11.70						
		44	5220		8.70								8.70	8.70	11.70						
		48	5240		8.70								8.70	8.70	11.70						
	802.11n-HT40 MCS0	38	5190		8.70								8.70	8.70	11.70						
		46	5230		8.70								8.70	8.70	11.70						
	802.11ac-VHT20 MCS0	36	5180		8.70								8.70	8.70	11.70						
		40	5200		8.70								8.70	8.70	11.70						
		44	5220		8.70								8.70	8.70	11.70						
		48	5240		8.70								8.70	8.70	11.70						
	802.11ac-VHT40 MCS0	38	5190		8.70								8.70	8.70	11.70						
		46	5230		8.70								8.70	8.70	11.70						
	802.11ac-VHT80 MCS0	42	5210		8.10								8.70	8.00	8.70	8.70	8.00	8.70	11.33	11.70	100.00
	802.11ax-HE20 MCS0	36	5180		8.70								8.70	8.70	11.70						
		40	5200		8.70								8.70	8.70	11.70						
		44	5220		8.70								8.70	8.70	11.70						
		48	5240		8.70								8.70	8.70	11.70						
	802.11ax-HE40 MCS0	38	5190		8.70								8.70	8.70	11.70						
		46	5230		8.70								8.70	8.70	11.70						
	802.11ax-HE80 MCS0	42	5210		8.70								8.70	8.70	11.70						



Transmit Antenna				Ant 6		Ant 3		Ant 3+6																		
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %													
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	8.70	8.70	8.70	8.70	8.70	8.70	8.70	11.70	99.25													
		157	5785		8.70									8.70	8.70	11.70										
		165	5825		8.70									8.70	8.70	11.70										
	802.11n-HT20 MCS0	149	5745		8.70								8.70	8.70	8.70	8.70	8.70	8.70	11.70	100.00						
		157	5785		8.70								8.70	8.70	8.70	8.70	8.70	11.70								
		165	5825		8.70								8.70	8.70	8.70	8.70	8.70	11.70								
	802.11n-HT40 MCS0	151	5755		8.70								8.70	8.70	8.70	8.70	8.70	8.70	11.70	100.00						
		159	5795		8.70								8.70	8.70	8.70	8.70	8.70	8.70	11.70							
	802.11ac-VHT20 MCS0	149	5745		8.70								8.70	8.70	8.70	8.70	8.70	8.70	8.70	11.70	100.00					
		157	5785		8.70								8.70	8.70	8.70	8.70	8.70	8.70	11.70							
		165	5825		8.70								8.70	8.70	8.70	8.70	8.70	8.70	11.70							
	802.11ac-VHT40 MCS0	151	5755		8.70								8.70	8.70	8.70	8.70	8.70	8.70	8.70	11.70	100.00					
		159	5795		8.70								8.70	8.70	8.70	8.70	8.70	8.70	8.70	11.70						
	802.11ac-VHT80 MCS0	155	5775		8.20								8.70	8.20	8.70	8.70	8.70	7.70	8.70	11.24	11.70	100.00				
	802.11ax-HE20 MCS0	149	5745		Not Required								8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	11.70	94.00				
		157	5785										8.70										8.70	8.70	8.70	11.70
		165	5825										8.70										8.70	8.70	8.70	11.70
	802.11ax-HE40 MCS0	151	5755										8.70									8.70	8.70	8.70	8.70	8.70
159		5795	8.70	8.70		8.70	8.70	8.70	8.70	8.70	11.70															
802.11ax-HE80 MCS0	155	5775	8.70	8.70		8.70	8.70	8.70	8.70	8.70	8.70	11.70	90.00													

<Power Table 4>

<2.4GHz WLAN>

Transmit Antenna				Ant 6		Ant 4		Ant 4+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %									
2.4GHz WLAN	802.11b 1Mbps	1	2412	20.80	20.80	20.70	20.80	20.80	20.80	20.30	20.80	23.67	23.80	98.57								
		6	2437	20.70	20.80	20.60	20.80	20.80	20.80	20.40	20.80	23.72	23.80									
		11	2462	20.80	20.80	20.60	20.80	20.70	20.80	20.40	20.80	23.67	23.80									
	802.11g 6Mbps	1	2412	Not Required	20.50	Not Required	20.50	20.50	20.50	20.50	20.50	20.50	23.5	99.25								
		6	2437		20.50										20.50	20.50	23.5					
		11	2462		20.50										20.50	20.50	23.5					
	802.11n-HT20 MCS0	1	2412		20.50									20.50	20.50	20.50	20.50	20.50	20.50	20.50	23.5	100.00
		6	2437		20.50									20.50	20.50	20.50	20.50	20.50	20.50	23.5		
		11	2462		20.50									20.50	20.50	20.50	20.50	20.50	20.50	23.5		
802.11ax-HE20 MCS0	1	2412	20.80		20.80									20.80	20.80	20.80	20.80	20.80	20.80	23.80	100.00	
	6	2437	20.80		20.80									20.80	20.80	20.80	20.80	20.80	23.80			
	11	2462	20.80		20.80									20.80	20.80	20.80	20.80	20.80	23.80			
802.11ax-HE40 MCS0	3	2422	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	23.5	100.00										
	6	2437	20.50	20.50	20.50	20.50	20.50	20.50	20.50	23.5												
	9	2452	20.50	20.50	20.50	20.50	20.50	20.50	20.50	23.5												



<5GHz WLAN>

Transmit Antenna				Ant 6		Ant 3		Ant 3+6					
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %
802.11a 6Mbps	36	5180	16.30	17.30	16.50	17.30	16.70	17.30	16.30	17.30	19.51	20.30	99.25
	40	5200	16.40	17.30	16.40	17.30	16.80	17.30	16.30	17.30	19.51	20.30	
	44	5220	16.40	17.30	16.40	17.30	16.80	17.30	16.10	17.30	19.47	20.30	
	48	5240	16.50	17.30	16.50	17.30	16.80	17.30	16.20	17.30	19.52	20.30	
802.11n-HT20 MCS0	36	5180	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	19.00	100.00
	40	5200		17.30		17.30		17.30		20.30			
	44	5220		17.30		17.30		17.30		20.30			
	48	5240		17.30		17.30		17.30		20.30			
802.11n-HT40 MCS0	38	5190	17.20	16.00	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	19.00	100.00
	46	5230		17.30		17.30		17.30		20.30			
802.11ac-VHT20 MCS0	36	5180	Not Required	17.30	Not Required	17.30	Not Required	17.30	Not Required	17.30	Not Required	20.30	100.00
	40	5200		17.30		17.30		17.30		20.30			
	44	5220		17.30		17.30		17.30		20.30			
	48	5240		17.30		17.30		17.30		20.30			
802.11ac-VHT40 MCS0	38	5190	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	16.00	Not Required	19.00	100.00
	46	5230		17.00		17.00		17.00		20.00			
802.11ac-VHT80 MCS0	42	5210	Not Required	15.00	Not Required	15.00	Not Required	15.00	Not Required	15.00	Not Required	18.00	100.00
802.11ax-HE20 MCS0	36	5180		16.50		16.50		16.50		19.50			
	40	5200		16.50		16.50		16.50		19.50			
	44	5220		17.00		17.00		17.00		20.00			
	48	5240	17.00	17.00	17.00	20.00							
802.11ax-HE40 MCS0	38	5190	Not Required	15.50	Not Required	15.50	Not Required	15.50	Not Required	15.50	Not Required	18.50	100.00
	46	5230		17.20		17.20		17.20		20.20			
802.11ax-HE80 MCS0	42	5210	Not Required	15.00	Not Required	15.00	Not Required	15.00	Not Required	15.00	Not Required	18.00	100.00



Transmit Antenna				Ant 6		Ant 3		Ant 3+6											
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %						
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.20	17.30	17.20	17.30	17.30	17.30	16.90	17.30	20.27	20.30	99.25					
		56	5280	17.20	17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30	20.30						
		60	5300	17.10	17.30	17.20	17.30	17.10	17.30	17.20	17.30	20.26	20.30						
		64	5320	17.10	17.30	17.20	17.30	17.20	17.30	17.10	17.30	20.26	20.30						
	802.11n-HT20 MCS0	52	5260	Not Required	17.30	Not Required	17.30	Not Required	17.30	Not Required	17.30	Not Required	17.30	20.30	100.00				
		56	5280		17.30		17.30		17.30		20.30								
		60	5300		17.30		17.30		17.30		20.30								
		64	5320		17.30		17.30		17.30		20.30								
	802.11n-HT40 MCS0	54	5270	Not Required	17.00	Not Required	17.00	Not Required	17.00	Not Required	17.00	Not Required	17.00	20.00	100.00				
		62	5310		17.00		17.00		17.00		20.00								
	802.11ac-VHT20 MCS0	52	5260	Not Required	17.30	Not Required	17.30	Not Required	17.30	Not Required	17.30	Not Required	17.30	20.30	100.00				
		56	5280		17.30		17.30		17.30		20.30								
		60	5300		17.30		17.30		17.30		20.30								
		64	5320		17.30		17.30		17.30		20.30								
	802.11ac-VHT40 MCS0	54	5270	Not Required	17.00	Not Required	17.00	Not Required	17.00	Not Required	17.00	Not Required	17.00	20.00	100.00				
		62	5310		17.00		17.00		17.00		20.00								
	802.11ac-VHT80 MCS0	58	5290	Not Required	15.50	Not Required	15.50	Not Required	15.50	Not Required	15.50	Not Required	15.50	18.50	100.00				
	802.11ax-HE20 MCS0	52	5260		17.00		17.00		17.00		17.00		17.00	17.00	17.00	17.00	17.00	20.00	100.00
		56	5280		17.00		17.00		17.00		17.00		17.00	17.00	17.00	17.00	17.00	20.00	
		60	5300		17.00		17.00		17.00		17.00		17.00	17.00	17.00	17.00	17.00	20.00	
64		5320	17.00		17.00		17.00		17.00		17.00		17.00	17.00	17.00	17.00	20.00		
802.11ax-HE40 MCS0	54	5270	17.00		17.00		17.00		17.00		17.00		17.00	17.00	17.00	17.00	17.00	20.00	100.00
	62	5310	15.50		15.50		15.50		15.50		15.50		15.50	15.50	15.50	15.50	18.50		
802.11ax-HE80 MCS0	58	5290	15.00		15.00		15.00		15.00		15.00		15.00	15.00	15.00	15.00	15.00	18.00	100.00





Transmit Antenna				Ant 6		Ant 3		Ant 3+6									
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %				
5.5GHz WLAN	802.11a 6Mbps	100	5500		17.30								99.25				
		116	5580		17.30									17.30	17.30	20.30	
		124	5620		17.30									17.30	17.30	20.30	
		132	5660		17.30									17.30	17.30	20.30	
		140	5700		16.00									16.00	16.00	19.00	
	802.11n-HT20 MCS0	100	5500		17.30									100.00			
		116	5580		17.30										17.30	17.30	20.30
		124	5620		17.30										17.30	17.30	20.30
		132	5660		17.30										17.30	17.30	20.30
		140	5700		17.30										17.30	17.30	20.30
	802.11n-HT40 MCS0	102	5510	Not Required	17.00	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	20.00	100.00			
		110	5550		17.30										17.30	17.30	20.30
		126	5630		17.30										17.30	17.30	20.30
	802.11ac-VHT20 MCS0	100	5500		17.30									100.00			
		116	5580		17.30										17.30	17.30	20.30
		124	5620		17.30										17.30	17.30	20.30
		132	5660		17.30										17.30	17.30	20.30
		140	5700		17.30										17.30	17.30	20.30
	802.11ac-VHT40 MCS0	102	5510		17.00								20.00	100.00			
		110	5550		17.30										17.30	17.30	20.30
126		5630	17.30		17.30										17.30	20.30	
802.11ac-VHT80 MCS0	106	5530	16.20	16.50	16.10	17.30	16.90	17.30	15.50	17.30	19.27	20.30	100.00				
	122	5610	16.40	17.30	16.20	17.30	17.10	17.30	15.60	17.30	19.42	20.30					
	134	5670		17.00		17.00		17.00		17.00		20.00					
802.11ax-HE20 MCS0	100	5500		17.30									94.00				
	116	5580		17.30										17.30	17.30	20.30	
	124	5620		17.30										17.30	17.30	20.30	
	132	5660		17.30										17.30	17.30	20.30	
	140	5700		16.50										16.50	16.50	19.50	
802.11ax-HE40 MCS0	102	5510	Not Required	16.50	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	19.50	86.00				
	110	5550		17.30										17.30	17.30	20.30	
	126	5630		17.30										17.30	17.30	20.30	
802.11ax-HE80 MCS0	106	5530		16.50								20.30	90.00				
	122	5610		17.00										17.30	17.30	20.30	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6																															
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %																										
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	17.30	Not Required	17.30	17.30	17.30	17.30	17.30	20.30	99.25																										
		157	5785		17.30									17.30	17.30	20.30																							
		165	5825		17.30									17.30	17.30	20.30																							
	802.11n-HT20 MCS0	149	5745		17.30								17.30	17.30	17.30	17.30	17.30	17.30	20.30	100.00																			
		157	5785		17.30								17.30	17.30	17.30	17.30	17.30	20.30																					
		165	5825		17.30								17.30	17.30	17.30	17.30	17.30	20.30																					
	802.11n-HT40 MCS0	151	5755		17.30								17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30	100.00																		
		159	5795		17.30								17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30																			
	802.11ac-VHT20 MCS0	149	5745		16.80								17.30	16.60	17.30	17.30	17.30	16.30	17.30	19.84	20.30	100.00																	
		157	5785										17.30										17.30	17.30	17.30	17.30	17.30	17.30											
		165	5825										17.30										17.30	17.30	17.30	17.30	17.30	17.30	17.30										
	802.11ac-VHT40 MCS0	151	5755										17.30									17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30	100.00									
		159	5795										17.30									17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30										
	802.11ac-VHT80 MCS0	155	5775										17.30									17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30	100.00									
	802.11ax-HE20 MCS0	149	5745										Not Required									17.30	Not Required	17.30	Not Required	17.30	Not Required	17.30	Not Required	20.30	94.00								
		157	5785																			17.30										17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30
		165	5825																			17.30										17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30
	802.11ax-HE40 MCS0	151	5755																			17.30									17.30	17.30	17.30	17.30	17.30	17.30	17.30	20.30	86.00
159		5795	17.30	17.30		17.30	17.30	17.30	17.30	17.30	17.30	20.30																											
802.11ax-HE80 MCS0	155	5775	17.30	17.30		17.30	17.30	17.30	17.30	17.30	17.30	20.30										90.00																	

<Power Table 5>

<2.4GHz WLAN>

Transmit Antenna				Ant 6		Ant 4		Ant 4+6										
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %					
2.4GHz WLAN	802.11b 1Mbps	1	2412	20.80	20.80	20.70	20.80	20.80	20.80	20.30	20.80	23.67	23.80	98.57				
		6	2437	20.70	20.80	20.60	20.80	20.80	20.80	20.40	20.80	23.72	23.80					
		11	2462	20.80	20.80	20.60	20.80	20.70	20.80	20.40	20.80	23.67	23.80					
	802.11g 6Mbps	1	2412	Not Required	20.50	Not Required	20.50	Not Required	20.50	Not Required	20.50	Not Required	23.50	99.25				
		6	2437		20.50		20.50		20.50		20.50		23.50					
		11	2462		20.50		20.50		20.50		20.50		23.50					
	802.11n-HT20 MCS0	1	2412		20.50		20.50		20.50		20.50		20.50	20.50	20.50	20.50	23.50	100.00
		6	2437		20.50		20.50		20.50		20.50		20.50	20.50	20.50	23.50		
		11	2462		20.50		20.50		20.50		20.50		20.50	20.50	20.50	23.50		
	802.11ax-HE20 MCS0	1	2412		20.80		20.80		20.80		20.80		20.80	20.80	20.80	20.80	23.80	100.00
		6	2437		20.80		20.80		20.80		20.80		20.80	20.80	20.80	23.80		
		11	2462		20.80		20.80		20.80		20.80		20.80	20.80	20.80	23.80		
802.11ax-HE40 MCS0	3	2422	20.50		20.50		20.50		20.50		20.50		20.50	20.50	20.50	23.50	100.00	
	6	2437	20.50		20.50		20.50		20.50		20.50		20.50	20.50	23.50			
	9	2452	20.50		20.50		20.50		20.50		20.50		20.50	20.50	23.50			



<5GHz WLAN>

Transmit Antenna				Ant 6		Ant 3		Ant 3+6													
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %								
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	Not Required	14.80	Not Required	14.80	Not Required	Not Required	Not Required	17.80	99.25								
		40	5200			14.80						17.80									
		44	5220			14.80						17.80									
		48	5240			14.80						17.80									
	802.11n-HT20 MCS0	36	5180			14.80						17.80									
		40	5200			14.80						17.80									
		44	5220			14.80						17.80									
		48	5240			14.80						17.80									
	802.11n-HT40 MCS0	38	5190			14.80						17.80									
		46	5230			14.80						17.80									
	802.11ac-VHT20 MCS0	36	5180			14.80						17.80									
		40	5200			14.80						17.80									
		44	5220			14.80						17.80									
		48	5240			14.80						17.80									
	802.11ac-VHT40 MCS0	38	5190			14.80						17.80									
		46	5230			14.80						17.80									
	802.11ac-VHT80 MCS0	42	5210			13.70						14.80	13.50	14.80	14.50	14.80	12.80	14.80	16.74	17.80	100.00
	802.11ax-HE20 MCS0	36	5180			14.80						17.80									
		40	5200			14.80						17.80									
		44	5220			14.80						17.80									
48		5240	14.80	17.80																	
802.11ax-HE40 MCS0	38	5190	14.80	17.80																	
	46	5230	14.80	17.80																	
802.11ax-HE80 MCS0	42	5210	14.80	17.80																	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6												
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %							
5.3GHz WLAN	802.11a 6Mbps	52	5260	Not Required	14.80	Not Required	14.80	Not Required	14.80	Not Required	14.80	Not Required	17.80							
		56	5280		14.80		14.80		14.80		17.80									
		60	5300		14.80		14.80		14.80		17.80									
		64	5320		14.80		14.80		14.80		17.80									
	802.11n-HT20 MCS0	52	5260		14.80		14.80		14.80		14.80		14.80	14.80	14.80	14.80	17.80	100.00		
		56	5280		14.80		14.80		14.80		14.80		14.80	14.80	14.80	17.80				
		60	5300		14.80		14.80		14.80		14.80		14.80	14.80	17.80					
	802.11n-HT40 MCS0	54	5270		14.80		14.80		14.80		14.80		14.80	14.80	14.80	14.80	17.80	100.00		
		62	5310		14.80		14.80		14.80		14.80		14.80	14.80	14.80	17.80				
	802.11ac-VHT20 MCS0	52	5260		14.80		14.80		14.80		14.80		14.80	14.80	14.80	14.80	14.80	17.80	100.00	
		56	5280		14.80		14.80		14.80		14.80		14.80	14.80	14.80	14.80	17.80			
		60	5300		14.80		14.80		14.80		14.80		14.80	14.80	14.80	14.80	17.80			
	802.11ac-VHT40 MCS0	54	5270		14.80		14.80		14.80		14.80		14.80	14.80	14.80	14.80	14.80	17.80	100.00	
		62	5310		14.80		14.80		14.80		14.80		14.80	14.80	14.80	14.80	14.80	17.80		
	802.11ac-VHT80 MCS0	58	5290		14.20		14.80		14.20		14.80		14.50	14.80	14.00	14.80	17.27	17.80	100.00	
	802.11ax-HE20 MCS0	52	5260		Not Required		14.80		Not Required		14.80		Not Required	14.80	Not Required	14.80	Not Required	14.80	Not Required	17.80
		56	5280				14.80				14.80			14.80		14.80		17.80		
		60	5300				14.80				14.80			14.80		14.80		17.80		
		64	5320				14.80				14.80			14.80		14.80		17.80		
	802.11ax-HE40 MCS0	54	5270				14.80				14.80			14.80		14.80		14.80		14.80
62		5310	14.80	14.80		14.80	14.80	14.80		14.80	14.80	14.80		17.80						
802.11ax-HE80 MCS0	58	5290	14.80	14.80		14.80	14.80	14.80		14.80	14.80	14.80		14.80		17.80		100.00		



Transmit Antenna				Ant 6		Ant 3		Ant 3+6					
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	Not Required	14.80	Not Required	14.80	14.80	Not Required	14.80	Not Required	17.80	99.25
		116	5580		14.80		14.80	14.80		17.80			
		124	5620		14.80		14.80	14.80		17.80			
		132	5660		14.80		14.80	14.80		17.80			
		140	5700		14.80		14.80	14.80		17.80			
	802.11n-HT20 MCS0	100	5500		14.80		14.80	14.80		14.80		17.80	100.00
		116	5580		14.80		14.80	14.80		14.80		17.80	
		124	5620		14.80		14.80	14.80		14.80		17.80	
		132	5660		14.80		14.80	14.80		14.80		17.80	
		140	5700		14.80		14.80	14.80		14.80		17.80	
	802.11n-HT40 MCS0	102	5510		14.80		14.80	14.80		14.80		17.80	100.00
		110	5550		14.80		14.80	14.80		14.80		17.80	
		126	5630		14.80		14.80	14.80		14.80		17.80	
	802.11ac-VHT20 MCS0	100	5500		14.80		14.80	14.80		14.80		17.80	100.00
		116	5580		14.80		14.80	14.80		14.80		17.80	
		124	5620		14.80		14.80	14.80		14.80		17.80	
		132	5660		14.80		14.80	14.80		14.80		17.80	
	802.11ac-VHT40 MCS0	102	5510		14.80		14.80	14.80		14.80		17.80	100.00
		110	5550		14.80		14.80	14.80		14.80		17.80	
		126	5630		14.80		14.80	14.80		14.80		17.80	
802.11ac-VHT80 MCS0	106	5530	13.80	14.80	13.80	14.80	14.50	14.80	13.00	14.80	16.82	17.80	100.00
	122	5610	13.60	14.80	13.90	14.80	14.60	14.80	13.20	14.80	16.97	17.80	
802.11ax-HE20 MCS0	100	5500	Not Required	14.80	Not Required	14.80	Not Required	14.80	Not Required	14.80	Not Required	17.80	94.00
	116	5580		14.80		14.80		14.80		17.80			
	124	5620		14.80		14.80		14.80		17.80			
	132	5660		14.80		14.80		14.80		17.80			
	140	5700		14.80		14.80		14.80		17.80			
802.11ax-HE40 MCS0	102	5510		14.80		14.80		14.80		14.80		17.80	86.00
	110	5550		14.80		14.80		14.80		14.80		17.80	
	126	5630		14.80		14.80		14.80		14.80		17.80	
802.11ax-HE80 MCS0	106	5530		14.80		14.80		14.80		14.80		17.80	90.00
	122	5610		14.80		14.80		14.80		14.80		17.80	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6																	
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %												
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	14.80	Not Required	14.80	14.80	Not Required	14.80	Not Required	17.80	99.25												
		157	5785		14.80									14.80	14.80	17.80									
		165	5825		14.80									14.80	14.80	17.80									
	802.11n-HT20 MCS0	149	5745		14.80								14.80	14.80	17.80	100.00									
		157	5785		14.80								14.80	14.80	17.80										
		165	5825		14.80								14.80	14.80	17.80										
	802.11n-HT40 MCS0	151	5755		14.80								14.80	14.80	17.80	100.00									
		159	5795		14.80								14.80	14.80	17.80										
	802.11ac-VHT20 MCS0	149	5745		14.80								14.80	14.80	17.80	100.00									
		157	5785		14.80								14.80	14.80	17.80										
		165	5825		14.80								14.80	14.80	17.80										
	802.11ac-VHT40 MCS0	151	5755		14.80								14.80	14.80	17.80	100.00									
		159	5795		14.80								14.80	14.80	17.80										
	802.11ac-VHT80 MCS0	155	5775		14.00								14.80	14.00	14.80	14.80	13.80	14.80	17.34	17.80	100.00				
	802.11ax-HE20 MCS0	149	5745		Not Required								14.80	Not Required	14.80	Not Required	14.80	Not Required	14.80	Not Required	17.80	94.00			
		157	5785										14.80										14.80	14.80	17.80
		165	5825										14.80										14.80	14.80	17.80
	802.11ax-HE40 MCS0	151	5755										14.80									14.80	14.80	17.80	86.00
159		5795	14.80	14.80		14.80	17.80																		
802.11ax-HE80 MCS0	155	5775	14.80	14.80		14.80	17.80	100.00																	

<Power Table 6>

<2.4GHz WLAN>

Transmit Antenna				Ant 6		Ant 4		Ant 4+6									
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %				
2.4GHz WLAN	802.11b 1Mbps	1	2412	13.40	14.00	13.40	14.00	13.90	14.00	13.00	14.00	16.48	17.00	98.57			
		6	2437	13.30	14.00	13.30	14.00	13.70	14.00	12.90	14.00	16.33					
		11	2462	13.40	14.00	13.20	14.00	14.00	14.00	12.70	14.00	16.41					
	802.11g 6Mbps	1	2412	Not Required	14.00	Not Required	14.00	Not Required	14.00	Not Required	14.00	Not Required	17.00	99.25			
		6	2437		14.00										14.00	14.00	17.00
		11	2462		14.00										14.00	14.00	17.00
	802.11n-HT20 MCS0	1	2412		14.00									14.00	14.00	17.00	100.00
		6	2437		14.00									14.00	14.00	17.00	
		11	2462		14.00									14.00	14.00	17.00	
	802.11ax-HE20 MCS0	1	2412		14.00									14.00	14.00	17.00	100.00
		6	2437		14.00									14.00	14.00	17.00	
		11	2462		14.00									14.00	14.00	17.00	
	802.11ax-HE40 MCS0	3	2422		14.00									14.00	14.00	17.00	100.00
		6	2437		14.00									14.00	14.00	17.00	
		9	2452		14.00									14.00	14.00	17.00	



<5GHz WLAN>

Transmit Antenna				Ant 6		Ant 3		Ant 3+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %									
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	Not Required	10.90	Not Required	10.90	Not Required	Not Required	Not Required	Not Required	13.90									
		40	5200			10.90							13.90									
		44	5220			10.90							13.90									
		48	5240			10.90							13.90									
	802.11n-HT20 MCS0	36	5180			10.90							13.90									
		40	5200			10.90							13.90									
		44	5220			10.90							13.90									
		48	5240			10.90							13.90									
	802.11n-HT40 MCS0	38	5190			10.90							13.90									
		46	5230			10.90							13.90									
	802.11ac-VHT20 MCS0	36	5180			10.90							13.90									
		40	5200			10.90							13.90									
		44	5220			10.90							13.90									
		48	5240			10.90							13.90									
	802.11ac-VHT40 MCS0	38	5190			10.90							13.90									
		46	5230			10.90							13.90									
	802.11ac-VHT80 MCS0	42	5210			10.10							10.90	10.80	10.90	10.80	10.90	9.80	10.90	13.34	13.90	100.00
	802.11ax-HE20 MCS0	36	5180			10.90							13.90									
		40	5200			10.90							13.90									
		44	5220			10.90							13.90									
		48	5240			10.90							13.90									
	802.11ax-HE40 MCS0	38	5190			10.90							13.90									
		46	5230			10.90							13.90									
	802.11ax-HE80 MCS0	42	5210			10.90							13.90									



Transmit Antenna				Ant 6		Ant 3		Ant 3+6												
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %							
5.3GHz WLAN	802.11a 6Mbps	52	5260	Not Required	10.90	Not Required	Not Required	10.90	Not Required	Not Required	Not Required	13.90	99.25							
		56	5280		10.90			10.90				13.90								
		60	5300		10.90			10.90				13.90								
		64	5320		10.90			10.90				13.90								
	802.11n-HT20 MCS0	52	5260		10.90			10.90				13.90	100.00							
		56	5280		10.90			10.90				13.90								
		60	5300		10.90			10.90				13.90								
	802.11n-HT40 MCS0	54	5270		10.90			10.90				13.90	100.00							
		62	5310		10.90			10.90				13.90								
	802.11ac-VHT20 MCS0	52	5260		10.90			10.90				13.90	100.00							
		56	5280		10.90			10.90				13.90								
		60	5300		10.90			10.90				13.90								
	802.11ac-VHT40 MCS0	54	5270		10.90			10.90				13.90	100.00							
		62	5310		10.90			10.90				13.90								
	802.11ac-VHT80 MCS0	58	5290		10.40			10.90				10.90	10.60	10.90	10.50	10.90	13.56	13.90	100.00	
	802.11ax-HE20 MCS0	52	5260		Not Required			10.90				Not Required	Not Required	10.90	Not Required	Not Required	Not Required	Not Required	13.90	100.00
		56	5280					10.90						10.90					13.90	
		60	5300					10.90						10.90					13.90	
		64	5320					10.90						10.90					13.90	
	802.11ax-HE40 MCS0	54	5270					10.90						10.90					13.90	100.00
62		5310	10.90	10.90		13.90														
802.11ax-HE80 MCS0	58	5290	10.90	10.90		13.90	100.00													





Transmit Antenna				Ant 6		Ant 3		Ant 3+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %									
5.5GHz WLAN	802.11a 6Mbps	100	5500	Not Required	10.90	Not Required	10.90	10.90	Not Required	10.90	Not Required	13.90	99.25									
		116	5580		10.90									10.90	10.90	10.90						
		124	5620		10.90									10.90	10.90	10.90						
		132	5660		10.90									10.90	10.90	10.90						
		140	5700		10.90									10.90	10.90	10.90						
	802.11n-HT20 MCS0	100	5500		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	100.00	
		116	5580		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90		
		124	5620		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90		
		132	5660		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90		
		140	5700		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90		
	802.11n-HT40 MCS0	102	5510		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	100.00	
		110	5550		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90		
		126	5630		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90		
	802.11ac-VHT20 MCS0	100	5500		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	100.00
		116	5580		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	
		124	5620		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	
		132	5660		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	
	802.11ac-VHT40 MCS0	102	5510		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	100.00
		110	5550		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	
		126	5630		10.90								10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	
802.11ac-VHT80 MCS0	106	5530	9.80	10.90	10.60	10.90	10.60	10.90	9.90	10.90	12.84	13.90	100.00									
	122	5610	10.00	10.90	10.30	10.90	10.90	10.90	9.10	10.90	13.10	13.90										
802.11ax-HE20 MCS0	100	5500	Not Required	10.90	Not Required	10.90	Not Required	10.90	Not Required	10.90	Not Required	13.90	94.00									
	116	5580		10.90										10.90	10.90	10.90						
	124	5620		10.90										10.90	10.90	10.90						
	132	5660		10.90										10.90	10.90	10.90						
	140	5700		10.90										10.90	10.90	10.90						
802.11ax-HE40 MCS0	102	5510		10.90									10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	86.00	
	110	5550		10.90									10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90		
	126	5630		10.90									10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90		
802.11ax-HE80 MCS0	106	5530		10.90									10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	90.00
	122	5610		10.90									10.90	10.90	10.90	10.90	10.90	10.90	10.90	10.90	13.90	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant(1)	Tune-Up Limit	Average power (dBm)Ant(2)	Tune-Up Limit	Average power (dBm)Ant(1+2)	Tune-Up Limit	Duty Cycle %									
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	10.90	Not Required	Not Required	10.90	Not Required	10.90	Not Required	13.90	99.25									
		157	5785		10.90							10.90		13.90								
		165	5825		10.90							10.90		13.90								
	802.11n-HT20 MCS0	149	5745		10.90							10.90	10.90	10.90	13.90	100.00						
		157	5785		10.90							10.90	10.90	10.90	13.90							
		165	5825		10.90							10.90	10.90	10.90	13.90							
	802.11n-HT40 MCS0	151	5755		10.90							10.90	10.90	10.90	13.90	100.00						
		159	5795		10.90							10.90	10.90	10.90	13.90							
	802.11ac-VHT20 MCS0	149	5745		10.90							10.90	10.90	10.90	13.90	100.00						
		157	5785		10.90							10.90	10.90	10.90	13.90							
		165	5825		10.90							10.90	10.90	10.90	13.90							
	802.11ac-VHT40 MCS0	151	5755		10.90							10.90	10.90	10.90	13.90	100.00						
		159	5795		10.90							10.90	10.90	10.90	13.90							
	802.11ac-VHT80 MCS0	155	5775		10.20							10.90	10.20	10.70	10.90	9.80	10.90	13.28	13.90	100.00		
	802.11ax-HE20 MCS0	149	5745		Not Required							10.90	Not Required	Not Required	10.90	Not Required	10.90	Not Required	Not Required	13.90	94.00	
		157	5785									10.90								10.90		13.90
		165	5825									10.90								10.90		13.90
	802.11ax-HE40 MCS0	151	5755									10.90								10.90	10.90	10.90
159		5795	10.90	10.90		10.90	10.90	13.90														
802.11ax-HE80 MCS0	155	5775	10.90	10.90		10.90	10.90	13.90	10.90	13.90	13.90	90.00										

<Power Table 7>

<2.4GHz WLAN>

Transmit Antenna				Ant 6		Ant 4		Ant 4+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %									
2.4GHz WLAN	802.11b 1Mbps	1	2412	10.80	11.40	10.80	Not Required	11.40	Not Required	11.40	Not Required	13.90	98.57									
		6	2437	10.80	11.40	10.80						11.40		13.88								
		11	2462	10.20	11.40	10.10						11.40		13.52								
	802.11g 6Mbps	1	2412	Not Required	11.40	Not Required						11.40	11.40	11.40	11.40	11.40	Not Required	14.40	99.25			
		6	2437		11.40													11.40		14.40		
		11	2462		11.40													11.40		14.40		
	802.11n-HT20 MCS0	1	2412		11.40													11.40	11.40	11.40	14.40	100.00
		6	2437		11.40													11.40	11.40	11.40	14.40	
		11	2462		11.40													11.40	11.40	11.40	14.40	
	802.11ax-HE20 MCS0	1	2412		11.40													11.40	11.40	11.40	14.40	100.00
		6	2437		11.40													11.40	11.40	11.40	14.40	
		11	2462		11.40													11.40	11.40	11.40	14.40	
	802.11ax-HE40 MCS0	3	2422		11.40													11.40	11.40	11.40	14.40	100.00
		6	2437		11.40													11.40	11.40	11.40	14.40	
		9	2452		11.40													11.40	11.40	11.40	14.40	



<5GHz WLAN>

Transmit Antenna				Ant 6		Ant 3		Ant 3+6											
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %						
5.2GHz WLAN	802.11a 6Mbps	36	5180	Not Required	8.30	8.30	Not Required	8.30	Not Required	8.30	Not Required	11.30	99.25						
		40	5200		8.30			8.30		11.30									
		44	5220		8.30			8.30		11.30									
		48	5240		8.30			8.30		11.30									
	802.11n-HT20 MCS0	36	5180		8.30			8.30		11.30									
		40	5200		8.30			8.30		11.30									
		44	5220		8.30			8.30		11.30									
		48	5240		8.30			8.30		11.30									
	802.11n-HT40 MCS0	38	5190		8.30			8.30		11.30									
		46	5230		8.30			8.30		11.30									
	802.11ac-VHT20 MCS0	36	5180		8.30			8.30		11.30									
		40	5200		8.30			8.30		11.30									
		44	5220		8.30			8.30		11.30									
		48	5240		8.30			8.30		11.30									
	802.11ac-VHT40 MCS0	38	5190		8.30			8.30		11.30									
		46	5230		8.30			8.30		11.30									
	802.11ac-VHT80 MCS0	42	5210		7.60			8.30		7.70		8.30	8.20	8.30	7.60	8.30	10.92	11.30	100.00
	802.11ax-HE20 MCS0	36	5180		8.30			8.30		11.30									
		40	5200		8.30			8.30		11.30									
		44	5220		8.30			8.30		11.30									
		48	5240		8.30			8.30		11.30									
	802.11ax-HE40 MCS0	38	5190		8.30			8.30		11.30									
		46	5230		8.30			8.30		11.30									
	802.11ax-HE80 MCS0	42	5210		8.30			8.30		11.30									



Transmit Antenna				Ant 6		Ant 3		Ant 3+6											
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %						
5.3GHz WLAN	802.11a 6Mbps	52	5260	Not Required	8.30	Not Required	Not Required	8.30	Not Required	8.30	Not Required	11.30	99.25						
		56	5280		8.30			8.30		8.30		11.30							
		60	5300		8.30			8.30		8.30		11.30							
		64	5320		8.30			8.30		8.30		11.30							
	802.11n-HT20 MCS0	52	5260		8.30			8.30		8.30		8.30	11.30	100.00					
		56	5280		8.30			8.30		8.30		8.30	11.30						
		60	5300		8.30			8.30		8.30		8.30	11.30						
		64	5320		8.30			8.30		8.30		8.30	11.30						
	802.11n-HT40 MCS0	54	5270		8.30			8.30		8.30		8.30	11.30	100.00					
		62	5310		8.30			8.30		8.30		8.30	11.30						
	802.11ac-VHT20 MCS0	52	5260		8.30			8.30		8.30		8.30	11.30	100.00					
		56	5280		8.30			8.30		8.30		8.30	11.30						
		60	5300		8.30			8.30		8.30		8.30	11.30						
		64	5320		8.30			8.30		8.30		8.30	11.30						
	802.11ac-VHT40 MCS0	54	5270		8.30			8.30		8.30		8.30	11.30	100.00					
		62	5310		8.30			8.30		8.30		8.30	11.30						
	802.11ac-VHT80 MCS0	58	5290		8.10			8.30		8.00		8.30	8.20	8.30	8.00	8.30	11.11	11.30	100.00
	802.11ax-HE20 MCS0	52	5260		Not Required			8.30		Not Required		Not Required	Not Required	8.30	Not Required	8.30	Not Required	11.30	100.00
		56	5280					8.30						8.30		8.30		11.30	
		60	5300					8.30						8.30		8.30		11.30	
64		5320	8.30	8.30		8.30	11.30												
802.11ax-HE40 MCS0	54	5270	8.30	8.30		8.30	8.30	11.30	100.00										
	62	5310	8.30	8.30		8.30	8.30	11.30											
802.11ax-HE80 MCS0	58	5290	8.30	8.30		8.30	8.30	11.30	100.00										



Transmit Antenna				Ant 6		Ant 3		Ant 3+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %									
5.5GHz WLAN	802.11a 6Mbps	100	5500	Not Required	8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30	99.25									
		116	5580		8.30									8.30	8.30	8.30	11.30					
		124	5620		8.30									8.30	8.30	8.30	11.30					
		132	5660		8.30									8.30	8.30	8.30	11.30					
		140	5700		8.30									8.30	8.30	8.30	11.30					
	802.11n-HT20 MCS0	100	5500		8.30								8.30	8.30	8.30	8.30	8.30	8.30	11.30	100.00		
		116	5580		8.30								8.30	8.30	8.30	8.30	8.30	8.30	11.30			
		124	5620		8.30								8.30	8.30	8.30	8.30	8.30	8.30	11.30			
		132	5660		8.30								8.30	8.30	8.30	8.30	8.30	8.30	11.30			
		140	5700		8.30								8.30	8.30	8.30	8.30	8.30	8.30	11.30			
	802.11n-HT40 MCS0	102	5510		8.30								8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30	100.00	
		110	5550		8.30								8.30	8.30	8.30	8.30	8.30	8.30	11.30			
		126	5630		8.30								8.30	8.30	8.30	8.30	8.30	8.30	11.30			
	802.11ac-VHT20 MCS0	100	5500		8.30								8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30	100.00	
		116	5580		8.30								8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30		
		124	5620		8.30								8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30		
		132	5660		8.30								8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30		
	802.11ac-VHT40 MCS0	102	5510		8.30								8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30	100.00	
		110	5550		8.30								8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30		
		126	5630		8.30								8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30		
802.11ac-VHT80 MCS0	106	5530	7.70	8.30	7.70	8.30	8.30	8.30	7.20	8.30	10.80	11.30	100.00									
	122	5610	7.30	8.30	7.20	8.30	8.20	8.30	6.40	8.30	10.40	11.30										
802.11ax-HE20 MCS0	100	5500	Not Required	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30	94.00									
	116	5580		8.30										8.30	8.30	8.30	8.30	8.30	11.30			
	124	5620		8.30										8.30	8.30	8.30	8.30	8.30	11.30			
	132	5660		8.30										8.30	8.30	8.30	8.30	8.30	11.30			
	140	5700		8.30										8.30	8.30	8.30	8.30	8.30	11.30			
802.11ax-HE40 MCS0	102	5510		8.30									8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30	86.00	
	110	5550		8.30									8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30		
	126	5630		8.30									8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30		
802.11ax-HE80 MCS0	106	5530		8.30									8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30	90.00
	122	5610		8.30									8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.30	



Transmit Antenna				Ant 6		Ant 3		Ant 3+6														
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)Ant (1)	Tune-Up Limit	Average power (dBm)Ant (2)	Tune-Up Limit	Average power (dBm)Ant (1+2)	Tune-Up Limit	Duty Cycle %									
5.8GHz WLAN	802.11a 6Mbps	149	5745	Not Required	8.30	Not Required	Not Required	8.30	Not Required	8.30	Not Required	11.30	99.25									
		157	5785		8.30							8.30		11.30								
		165	5825		8.30							8.30		11.30								
	802.11n-HT20 MCS0	149	5745		8.30							8.30	11.30	100.00								
		157	5785		8.30							8.30	11.30									
		165	5825		8.30							8.30	11.30									
	802.11n-HT40 MCS0	151	5755		8.30							8.30	11.30	100.00								
		159	5795		8.30							8.30	11.30									
	802.11ac-VHT20 MCS0	149	5745		8.30							8.30	11.30	100.00								
		157	5785		8.30							8.30	11.30									
		165	5825		8.30							8.30	11.30									
	802.11ac-VHT40 MCS0	151	5755		8.30							8.30	11.30	100.00								
		159	5795		8.30							8.30	11.30									
	802.11ac-VHT80 MCS0	155	5775		7.60							8.30	7.70	8.30	8.10	8.30	7.30	8.30	10.73	11.30	100.00	
	802.11ax-HE20 MCS0	149	5745		Not Required							8.30	Not Required	Not Required	8.30	Not Required	8.30	Not Required	Not Required	11.30	94.00	
		157	5785									8.30								8.30		11.30
		165	5825									8.30								8.30		11.30
	802.11ax-HE40 MCS0	151	5755									8.30								8.30	11.30	86.00
159		5795	8.30	8.30		11.30																
802.11ax-HE80 MCS0	155	5775	8.30	8.30		11.30	90.00															



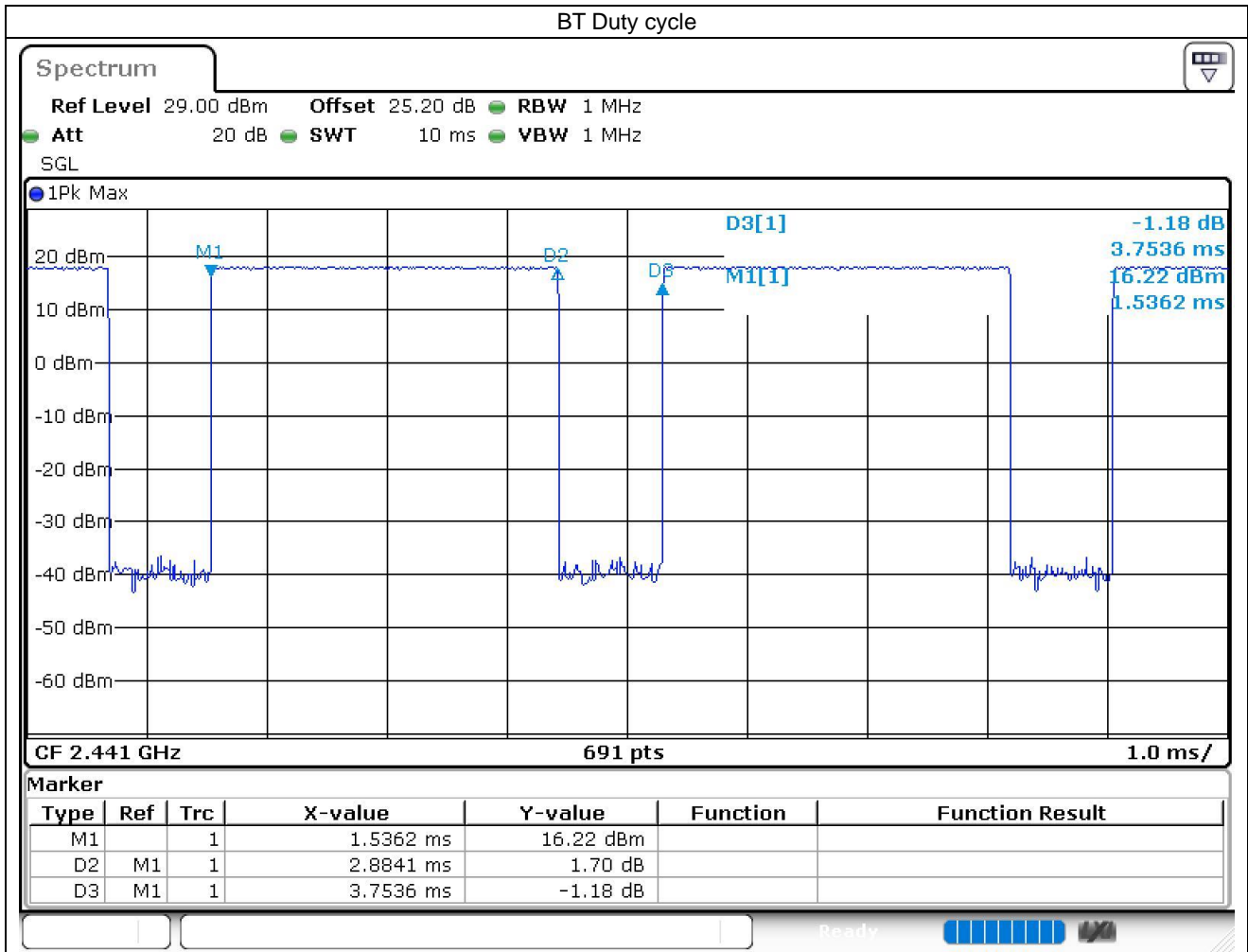
<2.4GHz Bluetooth>

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	16.05	13.38	13.33
	CH 39	2441	17.03	14.53	14.29
	CH 78	2480	16.10	13.60	13.54
Tune-up Limit			17.5	15	15

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	13.40	13.50
	CH 19	2440	14.70	14.70
	CH 39	2480	13.70	13.70
Tune-up Limit			15	15

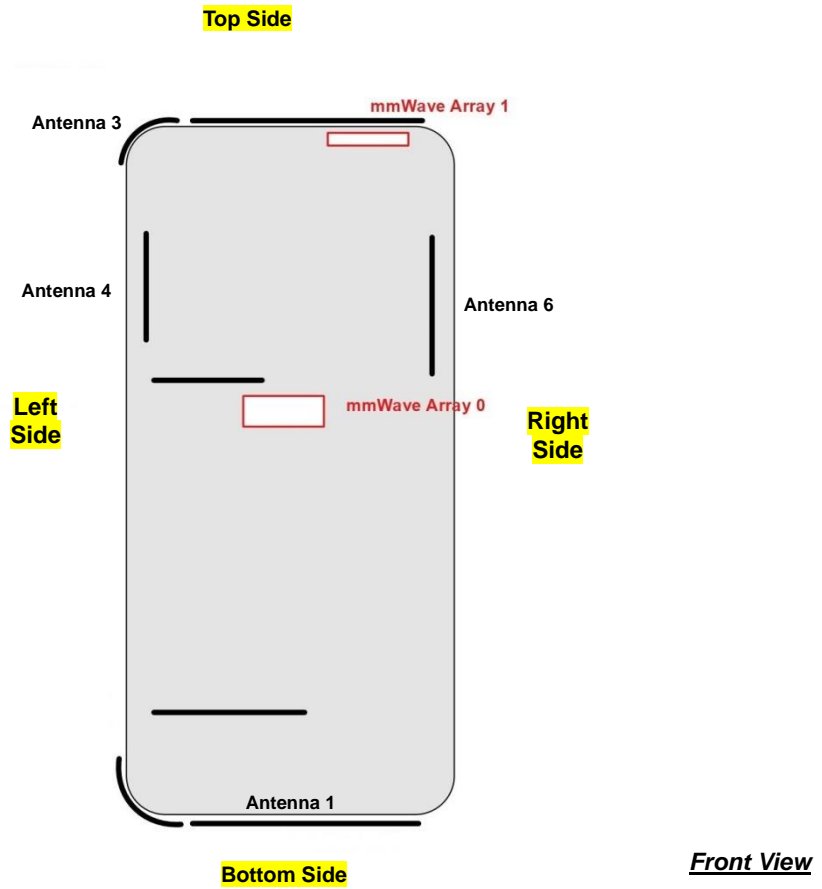
General Note:

- For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.84% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.



### 15. Antenna Location

<Mobile Phone>



Antenna	Support Bands
1	GSM850/1900, WCDMA B2/5, CDMA BC0/1, LTE B2/4/5/7/12/13/17/66
3	LTE B48, 5GHz WLAN
4	2.4GHz WLAN
6	2.4GHz WLAN, Bluetooth, 5GHz WLAN



Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
1	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
3	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm
4	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm
6	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm
4+6	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm
3+6	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
1	Yes	Yes	No	Yes	Yes	Yes
3	Yes	Yes	Yes	No	Yes	Yes
4	Yes	Yes	Yes	No	Yes	Yes
6	Yes	Yes	Yes	No	Yes	No
4+6	Yes	Yes	Yes	No	Yes	Yes
3+6	Yes	Yes	Yes	No	Yes	Yes

**General Note:**

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



## 16. SAR Test Results

### General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
  - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
  - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
  - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)\*Tune-up Scaling Factor
  - d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
  - e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result.  
The Reported TDD LTE SAR = measured SAR (W/kg) \* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
  - $\leq 0.6$  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
  - $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.
4. Pre KDB648474 D04v01r03, when the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.
5. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension  $> 15.0$  cm or an overall diagonal dimension  $> 16.0$  cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR  $> 1.2$  W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold, for this device WWAN transmitter scaled to maximum output power is higher than 1.2W/kg of GSM1900, WCDMA B2, CDMA BC1, LTE B2/B7/B48/B66 and 2.4GHz/5.2GHz/5.8GHz WLAN, therefore product specific SAR is necessary.
6. For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is  $> 16$ cm.
7. 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 power table will be applied
8. When the sensor is active, the device will reduced maximum output powers on the GSM1900, WCDMA B2, CDMA BC1 and LTE B2 / B4 / B7 / B66 / B48 transmitter.
9. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
  - a. For Body-worn:
    - Front: [14 mm](#)
    - Back: [18 mm](#)
  - b. For Extremity::
    - Front: [5 mm](#)
    - Back: [8 mm](#)
    - Bottom: [7 mm](#)

**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.
2. The GPRS (3Tx slots) for GSM850 and GPRS (2Tx slots) for GSM1900 for GSM850/GSM1900 head and body-worn SAR is considered as the primary mode.
3. The GPRS (3Tx slots) for GSM850 and GPRS (4Tx slots) for GSM1900 for GSM850/GSM1900 hotspot and product specific SAR is considered as the primary mode.
4. 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  $\leq \frac{1}{4}$  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  $\leq \frac{1}{4}$  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  $\leq 1.2$  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  $\frac{1}{4}$  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  $\leq 0.8$  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  $> \text{not } \frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  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  $> \text{not } \frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B12 / B5 / B4 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 4/17 SAR test was covered by Band 66/12; 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  $\leq$  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  $\leq 1.2$  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  $\leq 1.2$  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  $\leq 0.8$  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  $\leq 1.2$  W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.



**16.1 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)
01	GSM850	GPRS (3 Tx slots)	Right Cheek	0mm	OFF	128	824.2	30.44	30.50	1.014	0.14	0.173	0.175
	GSM850	GPRS (3 Tx slots)	Right Tilted	0mm	OFF	128	824.2	30.44	30.50	1.014	0.13	0.090	0.091
	GSM850	GPRS (3 Tx slots)	Left Cheek	0mm	OFF	128	824.2	30.44	30.50	1.014	0.09	0.145	0.147
	GSM850	GPRS (3 Tx slots)	Left Tilted	0mm	OFF	128	824.2	30.44	30.50	1.014	0.09	0.088	0.089
	GSM1900	GPRS (2 Tx slots)	Right Cheek	0mm	OFF	661	1880	29.08	30.50	1.387	0.06	0.061	0.085
	GSM1900	GPRS (2 Tx slots)	Right Tilted	0mm	OFF	661	1880	29.08	30.50	1.387	0.09	0.043	0.060
02	GSM1900	GPRS (2 Tx slots)	Left Cheek	0mm	OFF	661	1880	29.08	30.50	1.387	0.01	0.090	0.125
	GSM1900	GPRS (2 Tx slots)	Left Tilted	0mm	OFF	661	1880	29.08	30.50	1.387	0.09	0.054	0.075

**<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	Right Cheek	0mm	OFF	9400	1880	23.36	24.00	1.159	0.06	0.067	0.078
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	OFF	9400	1880	23.36	24.00	1.159	0.02	0.039	0.045
03	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	OFF	9400	1880	23.36	24.00	1.159	0.08	0.100	0.116
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	OFF	9400	1880	23.36	24.00	1.159	0.06	0.059	0.068
04	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	OFF	4182	836.4	23.31	24.00	1.172	0.09	0.102	0.120
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	OFF	4182	836.4	23.31	24.00	1.172	0.08	0.042	0.049
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	OFF	4182	836.4	23.31	24.00	1.172	0.03	0.080	0.094
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	OFF	4182	836.4	23.31	24.00	1.172	0.15	0.046	0.054

**<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)
05	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	OFF	384	836.52	23.38	25.00	1.452	-0.15	0.251	0.364
	CDMA BC0	1xRTT RC3 SO55	Right Tilted	0mm	OFF	384	836.52	23.38	25.00	1.452	0.02	0.057	0.083
	CDMA BC0	1xRTT RC3 SO55	Left Cheek	0mm	OFF	384	836.52	23.38	25.00	1.452	0.03	0.190	0.276
	CDMA BC0	1xRTT RC3 SO55	Left Tilted	0mm	OFF	384	836.52	23.38	25.00	1.452	0.17	0.082	0.119
	CDMA BC1	1xRTT RC3 SO55	Right Cheek	0mm	OFF	600	1880	23.20	25.00	1.514	0.03	0.098	0.148
	CDMA BC1	1xRTT RC3 SO55	Right Tilted	0mm	OFF	600	1880	23.20	25.00	1.514	0.15	0.066	0.100
06	CDMA BC1	1xRTT RC3 SO55	Left Cheek	0mm	OFF	600	1880	23.20	25.00	1.514	-0.11	0.147	0.222
	CDMA BC1	1xRTT RC3 SO55	Left Tilted	0mm	OFF	600	1880	23.20	25.00	1.514	0.12	0.071	0.107



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	OFF	18900	1880	23.19	24.00	1.205	0.09	0.076	0.092
	LTE Band 2	20M	QPSK	50	0	Right Cheek	0mm	OFF	18900	1880	22.24	23.00	1.191	0.13	0.063	0.075
	LTE Band 2	20M	QPSK	1	0	Right Tilted	0mm	OFF	18900	1880	23.19	24.00	1.205	-0.09	0.036	0.043
	LTE Band 2	20M	QPSK	50	0	Right Tilted	0mm	OFF	18900	1880	22.24	23.00	1.191	0.05	0.029	0.035
07	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	OFF	18900	1880	23.19	24.00	1.205	-0.05	0.116	0.140
	LTE Band 2	20M	QPSK	50	0	Left Cheek	0mm	OFF	18900	1880	22.24	23.00	1.191	0.1	0.094	0.112
	LTE Band 2	20M	QPSK	1	0	Left Tilted	0mm	OFF	18900	1880	23.19	24.00	1.205	0.1	0.049	0.059
	LTE Band 2	20M	QPSK	50	0	Left Tilted	0mm	OFF	18900	1880	22.24	23.00	1.191	0.07	0.041	0.049
08	LTE Band 5	10M	QPSK	1	0	Right Cheek	0mm	OFF	20525	836.5	23.03	24.00	1.250	0.04	0.191	0.239
	LTE Band 5	10M	QPSK	25	0	Right Cheek	0mm	OFF	20525	836.5	22.08	23.00	1.236	-0.06	0.151	0.187
	LTE Band 5	10M	QPSK	1	0	Right Tilted	0mm	OFF	20525	836.5	23.03	24.00	1.250	0.18	0.050	0.063
	LTE Band 5	10M	QPSK	25	0	Right Tilted	0mm	OFF	20525	836.5	22.08	23.00	1.236	-0.14	0.039	0.048
	LTE Band 5	10M	QPSK	1	0	Left Cheek	0mm	OFF	20525	836.5	23.03	24.00	1.250	0.02	0.143	0.179
	LTE Band 5	10M	QPSK	25	0	Left Cheek	0mm	OFF	20525	836.5	22.08	23.00	1.236	-0.1	0.115	0.142
	LTE Band 5	10M	QPSK	1	0	Left Tilted	0mm	OFF	20525	836.5	23.03	24.00	1.250	0.15	0.069	0.086
	LTE Band 5	10M	QPSK	25	0	Left Tilted	0mm	OFF	20525	836.5	22.08	23.00	1.236	0.05	0.055	0.068
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	OFF	21100	2535	23.45	24.00	1.135	0.13	0.026	0.030
	LTE Band 7	20M	QPSK	50	0	Right Cheek	0mm	OFF	21100	2535	22.55	23.00	1.109	0.16	0.021	0.023
	LTE Band 7	20M	QPSK	1	0	Right Tilted	0mm	OFF	21100	2535	23.45	24.00	1.135	0.07	0.023	0.026
	LTE Band 7	20M	QPSK	50	0	Right Tilted	0mm	OFF	21100	2535	22.55	23.00	1.109	0	0.019	0.021
	LTE Band 7	20M	QPSK	1	0	Left Cheek	0mm	OFF	21100	2535	23.45	24.00	1.135	0	0.024	0.027
	LTE Band 7	20M	QPSK	50	0	Left Cheek	0mm	OFF	21100	2535	22.55	23.00	1.109	0.01	0.019	0.021
09	LTE Band 7	20M	QPSK	1	0	Left Tilted	0mm	OFF	21100	2535	23.45	24.00	1.135	0.11	0.039	0.044
	LTE Band 7	20M	QPSK	50	0	Left Tilted	0mm	OFF	21100	2535	22.55	23.00	1.109	0.13	0.031	0.034
10	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	OFF	23095	707.5	23.01	24.00	1.256	-0.17	0.122	0.153
	LTE Band 12	10M	QPSK	25	0	Right Cheek	0mm	OFF	23095	707.5	22.03	23.00	1.250	-0.01	0.098	0.123
	LTE Band 12	10M	QPSK	1	0	Right Tilted	0mm	OFF	23095	707.5	23.01	24.00	1.256	-0.05	0.037	0.046
	LTE Band 12	10M	QPSK	25	0	Right Tilted	0mm	OFF	23095	707.5	22.03	23.00	1.250	0.07	0.028	0.035
	LTE Band 12	10M	QPSK	1	0	Left Cheek	0mm	OFF	23095	707.5	23.01	24.00	1.256	-0.03	0.102	0.128
	LTE Band 12	10M	QPSK	25	0	Left Cheek	0mm	OFF	23095	707.5	22.03	23.00	1.250	0.1	0.082	0.103
	LTE Band 12	10M	QPSK	1	0	Left Tilted	0mm	OFF	23095	707.5	23.01	24.00	1.256	0.01	0.048	0.060
	LTE Band 12	10M	QPSK	25	0	Left Tilted	0mm	OFF	23095	707.5	22.03	23.00	1.250	0.07	0.039	0.049
11	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	OFF	23230	782	22.94	24.00	1.276	0.02	0.179	0.228
	LTE Band 13	10M	QPSK	25	0	Right Cheek	0mm	OFF	23230	782	21.98	23.00	1.265	0.05	0.144	0.182
	LTE Band 13	10M	QPSK	1	0	Right Tilted	0mm	OFF	23230	782	22.94	24.00	1.276	-0.02	0.080	0.102
	LTE Band 13	10M	QPSK	25	0	Right Tilted	0mm	OFF	23230	782	21.98	23.00	1.265	-0.02	0.065	0.082
	LTE Band 13	10M	QPSK	1	0	Left Cheek	0mm	OFF	23230	782	22.94	24.00	1.276	-0.04	0.163	0.208
	LTE Band 13	10M	QPSK	25	0	Left Cheek	0mm	OFF	23230	782	21.98	23.00	1.265	0	0.131	0.166
	LTE Band 13	10M	QPSK	1	0	Left Tilted	0mm	OFF	23230	782	22.94	24.00	1.276	-0.1	0.089	0.114
	LTE Band 13	10M	QPSK	25	0	Left Tilted	0mm	OFF	23230	782	21.98	23.00	1.265	-0.04	0.073	0.092
	LTE Band 66	20M	QPSK	1	0	Right Cheek	0mm	OFF	132322	1745	23.16	24.00	1.213	-0.14	0.071	0.086
	LTE Band 66	20M	QPSK	50	0	Right Cheek	0mm	OFF	132322	1745	22.15	23.00	1.216	-0.18	0.065	0.079
	LTE Band 66	20M	QPSK	1	0	Right Tilted	0mm	OFF	132322	1745	23.16	24.00	1.213	0.17	0.041	0.050
	LTE Band 66	20M	QPSK	50	0	Right Tilted	0mm	OFF	132322	1745	22.15	23.00	1.216	0.14	0.035	0.043
12	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	OFF	132322	1745	23.16	24.00	1.213	-0.04	0.104	0.126
	LTE Band 66	20M	QPSK	50	0	Left Cheek	0mm	OFF	132322	1745	22.15	23.00	1.216	0.11	0.087	0.106
	LTE Band 66	20M	QPSK	1	0	Left Tilted	0mm	OFF	132322	1745	23.16	24.00	1.213	0	0.047	0.057
	LTE Band 66	20M	QPSK	50	0	Left Tilted	0mm	OFF	132322	1745	22.15	23.00	1.216	0.13	0.045	0.055



<TDD LTE SAR>

Table with 18 columns: 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, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Contains 13 rows of test data.

<WLAN SAR>

Table with 18 columns: Plot No., Band, Mode, Test Position, Gap (mm), Antenna, Output Power Status, 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). Contains multiple rows of test data for WLAN.



**<Bluetooth SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
18	Bluetooth	1M	Right Cheek	0mm	Ant 6	39	2441	17.03	17.50	1.114	76.84	1.084	-0.01	0.001	0.001
	Bluetooth	1M	Right Tilted	0mm	Ant 6	39	2441	17.03	17.50	1.114	76.84	1.084	0	0.001	0.001
	Bluetooth	1M	Left Cheek	0mm	Ant 6	39	2441	17.03	17.50	1.114	76.84	1.084	-0.15	0.001	0.001
	Bluetooth	1M	Left Tilted	0mm	Ant 6	39	2441	17.03	17.50	1.114	76.84	1.084	-0.11	0.001	0.001

**16.2 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 (3 Tx slots)	Front	5mm	OFF	128	824.2	30.44	30.50	1.014	-0.07	0.478	0.485
	GSM850	GPRS (3 Tx slots)	Back	5mm	OFF	128	824.2	30.44	30.50	1.014	-0.06	0.558	0.566
	GSM850	GPRS (3 Tx slots)	Left Side	5mm	OFF	128	824.2	30.44	30.50	1.014	0.03	0.155	0.157
	GSM850	GPRS (3 Tx slots)	Right Side	5mm	OFF	128	824.2	30.44	30.50	1.014	-0.05	0.276	0.280
19	GSM850	GPRS (3 Tx slots)	Bottom Side	5mm	OFF	128	824.2	30.44	30.50	1.014	-0.07	0.623	0.632
	GSM1900	GPRS (4 Tx slots)	Front	5mm	ON	810	1909.8	17.82	18.50	1.169	0.12	0.409	0.478
	GSM1900	GPRS (4 Tx slots)	Back	5mm	ON	810	1909.8	17.82	18.50	1.169	0.14	0.457	0.534
	GSM1900	GPRS (4 Tx slots)	Left Side	5mm	ON	810	1909.8	17.82	18.50	1.169	-0.06	0.015	0.018
	GSM1900	GPRS (4 Tx slots)	Right Side	5mm	ON	810	1909.8	17.82	18.50	1.169	0.08	0.045	0.053
20	GSM1900	GPRS (4 Tx slots)	Bottom Side	5mm	ON	810	1909.8	17.82	18.50	1.169	0	0.691	0.808
	GSM1900	GPRS (4 Tx slots)	Bottom Side	5mm	ON	512	1850.2	17.26	18.50	1.330	0	0.500	0.665
	GSM1900	GPRS (4 Tx slots)	Bottom Side	5mm	ON	661	1880	17.61	18.50	1.227	0.04	0.538	0.660

**<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	9400	1880	17.10	17.10	1.000	0.11	0.645	0.645
	WCDMA II	RMC 12.2Kbps	Back	5mm	ON	9400	1880	17.10	17.10	1.000	0.05	0.765	0.765
	WCDMA II	RMC 12.2Kbps	Left Side	5mm	ON	9400	1880	17.10	17.10	1.000	-0.13	0.054	0.054
	WCDMA II	RMC 12.2Kbps	Right Side	5mm	ON	9400	1880	17.10	17.10	1.000	-0.01	0.063	0.063
21	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	ON	9400	1880	17.10	17.10	1.000	-0.11	1.220	1.220
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	ON	9262	1852.4	17.03	17.10	1.016	-0.12	1.140	1.159
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	ON	9538	1907.6	17.08	17.10	1.005	-0.1	1.070	1.075
	WCDMA V	RMC 12.2Kbps	Front	5mm	OFF	4182	836.4	23.31	24.00	1.172	0.04	0.298	0.349
22	WCDMA V	RMC 12.2Kbps	Back	5mm	OFF	4182	836.4	23.31	24.00	1.172	-0.06	0.341	0.400
	WCDMA V	RMC 12.2Kbps	Left Side	5mm	OFF	4182	836.4	23.31	24.00	1.172	-0.12	0.116	0.136
	WCDMA V	RMC 12.2Kbps	Right Side	5mm	OFF	4182	836.4	23.31	24.00	1.172	-0.18	0.138	0.162
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	OFF	4182	836.4	23.31	24.00	1.172	-0.1	0.269	0.315



### <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	OFF	384	836.52	23.53	25.00	1.403	0.08	0.426	0.598
	CDMA BC0	RTAP 153.6Kbps	Back	5mm	OFF	384	836.52	23.53	25.00	1.403	0.03	0.612	0.859
	CDMA BC0	RTAP 153.6Kbps	Back	5mm	OFF	1013	824.7	23.52	25.00	1.406	-0.17	0.275	0.387
23	CDMA BC0	RTAP 153.6Kbps	Back	5mm	OFF	777	848.31	23.51	25.00	1.409	0.05	0.614	0.865
	CDMA BC0	RTAP 153.6Kbps	Left Side	5mm	OFF	384	836.52	23.53	25.00	1.403	-0.12	0.106	0.149
	CDMA BC0	RTAP 153.6Kbps	Right Side	5mm	OFF	384	836.52	23.53	25.00	1.403	-0.02	0.139	0.195
	CDMA BC0	RTAP 153.6Kbps	Bottom Side	5mm	OFF	384	836.52	23.53	25.00	1.403	0.1	0.012	0.017
	CDMA BC1	RTAP 153.6Kbps	Front	5mm	ON	1175	1908.75	16.18	16.70	1.127	0.05	0.624	0.703
	CDMA BC1	RTAP 153.6Kbps	Back	5mm	ON	1175	1908.75	16.18	16.70	1.127	-0.01	0.650	0.733
	CDMA BC1	RTAP 153.6Kbps	Left Side	5mm	ON	1175	1908.75	16.18	16.70	1.127	0.05	0.044	0.050
	CDMA BC1	RTAP 153.6Kbps	Right Side	5mm	ON	1175	1908.75	16.18	16.70	1.127	0.1	0.055	0.062
24	CDMA BC1	RTAP 153.6Kbps	Bottom Side	5mm	ON	1175	1908.75	16.18	16.70	1.127	0.05	1.080	1.217
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	5mm	ON	600	1880	15.84	16.70	1.219	0.05	0.908	1.107
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	5mm	ON	25	1851.25	16.02	16.70	1.169	0.09	0.987	1.154

### <FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Front	5mm	ON	18900	1880	17.48	17.80	1.076	0.04	0.562	0.605
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ON	18900	1880	17.31	17.80	1.119	0.03	0.576	0.645
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	18900	1880	17.48	17.80	1.076	0	0.687	0.740
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	18700	1860	17.42	17.80	1.274	0.01	0.799	1.018
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	19100	1900	17.46	17.80	1.429	0.03	0.807	1.153
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	18900	1880	17.31	17.80	1.119	0.03	0.757	0.847
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	18700	1860	17.24	17.80	1.274	0.01	0.842	1.072
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	19100	1900	17.30	17.80	1.429	0.03	0.818	1.169
	LTE Band 2	20M	QPSK	100	0	Back	5mm	ON	18900	1880	17.23	17.80	1.140	0.04	0.867	0.989
	LTE Band 2	20M	QPSK	1	0	Left Side	5mm	ON	18900	1880	17.48	17.80	1.076	0.12	0.053	0.057
	LTE Band 2	20M	QPSK	50	0	Left Side	5mm	ON	18900	1880	17.31	17.80	1.119	0.04	0.055	0.062
	LTE Band 2	20M	QPSK	1	0	Right Side	5mm	ON	18900	1880	17.48	17.80	1.076	0.01	0.049	0.053
	LTE Band 2	20M	QPSK	50	0	Right Side	5mm	ON	18900	1880	17.31	17.80	1.119	-0.03	0.050	0.056
	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	ON	18900	1880	17.48	17.80	1.076	0.09	0.949	1.022
25	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	ON	18700	1860	17.42	17.80	1.091	-0.09	1.080	1.179
	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	ON	19100	1900	17.46	17.80	1.081	0.05	0.993	1.074
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	ON	18900	1880	17.31	17.80	1.119	0.12	0.981	1.098
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	ON	18700	1860	17.24	17.80	1.138	0.09	1.030	1.172
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	ON	19100	1900	17.30	17.80	1.122	0.05	1.050	1.178
	LTE Band 2	20M	QPSK	100	0	Bottom Side	5mm	ON	18900	1880	17.23	17.80	1.140	0.11	0.953	1.087
	LTE Band 5	10M	QPSK	1	0	Front	5mm	OFF	20525	836.5	23.03	24.00	1.250	-0.15	0.340	0.425
	LTE Band 5	10M	QPSK	25	0	Front	5mm	OFF	20525	836.5	22.08	23.00	1.236	-0.05	0.315	0.389
26	LTE Band 5	10M	QPSK	1	0	Back	5mm	OFF	20525	836.5	23.03	24.00	1.250	0.03	0.361	0.451
	LTE Band 5	10M	QPSK	25	0	Back	5mm	OFF	20525	836.5	22.08	23.00	1.236	0.05	0.324	0.400
	LTE Band 5	10M	QPSK	1	0	Left Side	5mm	OFF	20525	836.5	23.03	24.00	1.250	0.03	0.101	0.126
	LTE Band 5	10M	QPSK	25	0	Left Side	5mm	OFF	20525	836.5	22.08	23.00	1.236	-0.05	0.096	0.119
	LTE Band 5	10M	QPSK	1	0	Right Side	5mm	OFF	20525	836.5	23.03	24.00	1.250	0.05	0.152	0.190
	LTE Band 5	10M	QPSK	25	0	Right Side	5mm	OFF	20525	836.5	22.08	23.00	1.236	0.04	0.117	0.145
	LTE Band 5	10M	QPSK	1	0	Bottom Side	5mm	OFF	20525	836.5	23.03	24.00	1.250	-0.16	0.296	0.370
	LTE Band 5	10M	QPSK	25	0	Bottom Side	5mm	OFF	20525	836.5	22.08	23.00	1.236	-0.15	0.288	0.356



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	20M	QPSK	1	0	Front	5mm	ON	21100	2535	21.52	21.90	1.091	-0.01	0.659	0.719
	LTE Band 7	20M	QPSK	50	0	Front	5mm	ON	21100	2535	21.45	21.90	1.109	-0.02	0.650	0.721
	LTE Band 7	20M	QPSK	1	0	Back	5mm	ON	21100	2535	21.52	21.90	1.091	-0.03	0.784	0.856
	LTE Band 7	20M	QPSK	1	0	Back	5mm	ON	20850	2510	21.4	21.90	1.122	0.04	0.780	0.875
	LTE Band 7	20M	QPSK	1	0	Back	5mm	ON	21350	2560	21.15	21.90	1.189	0.06	0.771	0.916
	LTE Band 7	20M	QPSK	50	0	Back	5mm	ON	21100	2535	21.45	21.90	1.109	0.06	0.801	0.888
	LTE Band 7	20M	QPSK	50	0	Back	5mm	ON	20850	2510	21.35	21.90	1.135	-0.03	0.794	0.901
	LTE Band 7	20M	QPSK	50	0	Back	5mm	ON	21350	2560	21.37	21.90	1.130	-0.11	0.788	0.890
	LTE Band 7	20M	QPSK	100	0	Back	5mm	ON	21100	2535	21.25	21.90	1.161	0	0.772	0.897
	LTE Band 7	20M	QPSK	1	0	Left Side	5mm	ON	21100	2535	21.52	21.90	1.091	-0.06	0.167	0.182
	LTE Band 7	20M	QPSK	50	0	Left Side	5mm	ON	21100	2535	21.45	21.90	1.109	0.01	0.174	0.193
	LTE Band 7	20M	QPSK	1	0	Right Side	5mm	ON	21100	2535	21.52	21.90	1.091	-0.16	0.137	0.150
	LTE Band 7	20M	QPSK	50	0	Right Side	5mm	ON	21100	2535	21.45	21.90	1.109	-0.07	0.136	0.151
	LTE Band 7	20M	QPSK	1	0	Bottom Side	5mm	ON	21100	2535	21.52	21.90	1.091	-0.11	1.150	1.255
	LTE Band 7	20M	QPSK	1	0	Bottom Side	5mm	ON	20850	2510	21.4	21.90	1.122	0.14	1.160	1.302
	LTE Band 7	20M	QPSK	1	0	Bottom Side	5mm	ON	21350	2560	21.15	21.90	1.189	0.13	1.090	1.295
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	ON	21100	2535	21.45	21.90	1.109	0.01	1.110	1.231
27	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	ON	20850	2510	21.35	21.90	1.135	0.19	1.200	1.362
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	ON	21350	2560	21.37	21.90	1.130	-0.06	1.060	1.198
	LTE Band 7	20M	QPSK	100	0	Bottom Side	5mm	ON	21100	2535	21.25	21.90	1.161	-0.06	1.060	1.231
	LTE Band 12	10M	QPSK	1	0	Front	5mm	OFF	23095	707.5	23.01	24.00	1.256	-0.03	0.292	0.367
	LTE Band 12	10M	QPSK	25	0	Front	5mm	OFF	23095	707.5	22.03	23.00	1.250	-0.02	0.235	0.294
28	LTE Band 12	10M	QPSK	1	0	Back	5mm	OFF	23095	707.5	23.01	24.00	1.256	-0.01	0.318	0.399
	LTE Band 12	10M	QPSK	25	0	Back	5mm	OFF	23095	707.5	22.03	23.00	1.250	-0.03	0.294	0.368
	LTE Band 12	10M	QPSK	1	0	Left Side	5mm	OFF	23095	707.5	23.01	24.00	1.256	-0.03	0.101	0.127
	LTE Band 12	10M	QPSK	25	0	Left Side	5mm	OFF	23095	707.5	22.03	23.00	1.250	0.01	0.091	0.114
	LTE Band 12	10M	QPSK	1	0	Right Side	5mm	OFF	23095	707.5	23.01	24.00	1.256	0.03	0.120	0.151
	LTE Band 12	10M	QPSK	25	0	Right Side	5mm	OFF	23095	707.5	22.03	23.00	1.250	0.05	0.095	0.119
	LTE Band 12	10M	QPSK	1	0	Bottom Side	5mm	OFF	23095	707.5	23.01	24.00	1.256	-0.19	0.301	0.378
	LTE Band 12	10M	QPSK	25	0	Bottom Side	5mm	OFF	23095	707.5	22.03	23.00	1.250	-0.19	0.301	0.376
	LTE Band 13	10M	QPSK	1	0	Front	5mm	OFF	23230	782	22.94	24.00	1.276	0.01	0.281	0.359
	LTE Band 13	10M	QPSK	25	0	Front	5mm	OFF	23230	782	21.98	23.00	1.265	-0.06	0.281	0.355
29	LTE Band 13	10M	QPSK	1	0	Back	5mm	OFF	23230	782	22.94	24.00	1.276	0.02	0.376	0.480
	LTE Band 13	10M	QPSK	25	0	Back	5mm	OFF	23230	782	21.98	23.00	1.265	-0.02	0.350	0.443
	LTE Band 13	10M	QPSK	1	0	Left Side	5mm	OFF	23230	782	22.94	24.00	1.276	0.03	0.136	0.174
	LTE Band 13	10M	QPSK	25	0	Left Side	5mm	OFF	23230	782	21.98	23.00	1.265	-0.02	0.128	0.162
	LTE Band 13	10M	QPSK	1	0	Right Side	5mm	OFF	23230	782	22.94	24.00	1.276	0.04	0.203	0.259
	LTE Band 13	10M	QPSK	25	0	Right Side	5mm	OFF	23230	782	21.98	23.00	1.265	0.14	0.169	0.214
	LTE Band 13	10M	QPSK	1	0	Bottom Side	5mm	OFF	23230	782	22.94	24.00	1.276	-0.13	0.324	0.414
	LTE Band 13	10M	QPSK	25	0	Bottom Side	5mm	OFF	23230	782	21.98	23.00	1.265	-0.11	0.325	0.411



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	17.57	18.40	1.211	0.03	0.553	0.669
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132072	1745	17.56	18.40	1.213	0.03	0.569	0.690
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132572	1770	17.49	18.40	1.233	0.16	0.575	0.709
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132322	1745	17.42	18.40	1.253	-0.15	0.570	0.714
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132072	1720	17.38	18.40	1.265	-0.03	0.545	0.689
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132572	1770	17.39	18.40	1.262	0.16	0.580	0.732
	LTE Band 66	20M	QPSK	100	0	Front	5mm	ON	132322	1745	17.38	18.40	1.265	-0.14	0.606	0.766
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132322	1745	17.57	18.40	1.211	0.18	0.708	0.857
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132072	1720	17.56	18.40	1.213	0.02	0.681	0.826
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132572	1770	17.49	18.40	1.233	0.12	0.760	0.937
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132322	1745	17.42	18.40	1.253	0.04	0.692	0.867
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132072	1720	17.38	18.40	1.265	0.02	0.638	0.807
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132572	1770	17.39	18.40	1.262	0.03	0.738	0.931
	LTE Band 66	20M	QPSK	100	0	Back	5mm	ON	132322	1745	17.38	18.40	1.265	-0.03	0.732	0.926
	LTE Band 66	20M	QPSK	1	0	Left Side	5mm	ON	132322	1745	17.57	18.40	1.211	0.13	0.073	0.088
	LTE Band 66	20M	QPSK	50	0	Left Side	5mm	ON	132322	1745	17.42	18.40	1.253	0.16	0.079	0.099
	LTE Band 66	20M	QPSK	1	0	Right Side	5mm	ON	132322	1745	17.57	18.40	1.211	0.1	0.055	0.067
	LTE Band 66	20M	QPSK	50	0	Right Side	5mm	ON	132322	1745	17.42	18.40	1.253	0.19	0.057	0.071
	LTE Band 66	20M	QPSK	1	0	Bottom Side	5mm	ON	132322	1745	17.57	18.40	1.211	0.01	0.932	1.128
	LTE Band 66	20M	QPSK	1	0	Bottom Side	5mm	ON	132072	1720	17.56	18.40	1.213	0.02	0.856	1.039
30	LTE Band 66	20M	QPSK	1	0	Bottom Side	5mm	ON	132572	1770	17.49	18.40	1.233	0.1	1.030	1.270
	LTE Band 66	20M	QPSK	50	0	Bottom Side	5mm	ON	132322	1745	17.42	18.40	1.253	0.12	0.975	1.222
	LTE Band 66	20M	QPSK	50	0	Bottom Side	5mm	ON	132072	1720	17.38	18.40	1.265	-0.15	0.913	1.155
	LTE Band 66	20M	QPSK	50	0	Bottom Side	5mm	ON	132572	1770	17.39	18.40	1.262	0.07	0.980	1.237
	LTE Band 66	20M	QPSK	100	0	Bottom Side	5mm	ON	132322	1745	17.38	18.40	1.265	0.07	0.994	1.257

**<TDD 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	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 48	20M	QPSK	1	0	Front	5mm	ON	55830	3609	20.28	21.20	1.236	62.9	1.006	0.19	0.394	0.490
	LTE Band 48	20M	QPSK	50	0	Front	5mm	ON	55830	3609	20.21	21.20	1.256	62.9	1.006	0.19	0.415	0.524
	LTE Band 48	20M	QPSK	1	0	Back	5mm	ON	55830	3609	20.28	21.20	1.236	62.9	1.006	-0.16	0.609	0.757
	LTE Band 48	20M	QPSK	50	0	Back	5mm	ON	55830	3609	20.21	21.20	1.256	62.9	1.006	-0.1	0.632	0.799
	LTE Band 48	20M	QPSK	1	0	Right Side	5mm	ON	55830	3609	20.28	21.20	1.236	62.9	1.006	0.02	0.062	0.077
	LTE Band 48	20M	QPSK	50	0	Right Side	5mm	ON	55830	3609	20.21	21.20	1.256	62.9	1.006	-0.07	0.057	0.072
	LTE Band 48	20M	QPSK	1	0	Left Side	5mm	ON	55830	3609	20.28	21.20	1.236	62.9	1.006	-0.15	0.273	0.339
	LTE Band 48	20M	QPSK	50	0	Left Side	5mm	ON	55830	3609	20.21	21.20	1.256	62.9	1.006	-0.17	0.280	0.354
	LTE Band 48	20M	QPSK	1	0	Top Side	5mm	ON	55830	3609	20.28	21.20	1.236	62.9	1.006	-0.05	0.793	0.986
	LTE Band 48	20M	QPSK	1	0	Top Side	5mm	ON	55340	3560	20.21	21.20	1.256	62.9	1.006	-0.08	0.732	0.925
	LTE Band 48	20M	QPSK	1	0	Top Side	5mm	ON	56150	3641	19.95	21.20	1.334	62.9	1.006	-0.02	0.732	0.982
	LTE Band 48	20M	QPSK	1	0	Top Side	5mm	ON	56640	3690	19.91	21.20	1.346	62.9	1.006	-0.02	0.724	0.980
	LTE Band 48	20M	QPSK	50	0	Top Side	5mm	ON	55830	3609	20.21	21.20	1.256	62.9	1.006	-0.05	0.779	0.984
	LTE Band 48	20M	QPSK	50	0	Top Side	5mm	ON	55340	3560	20.12	21.20	1.282	62.9	1.006	-0.02	0.776	1.001
31	LTE Band 48	20M	QPSK	50	0	Top Side	5mm	ON	56150	3641	19.99	21.20	1.321	62.9	1.006	-0.02	0.774	1.029
	LTE Band 48	20M	QPSK	50	0	Top Side	5mm	ON	56640	3690	20.06	21.20	1.300	62.9	1.006	-0.16	0.745	0.974
	LTE Band 48	20M	QPSK	100	0	Top Side	5mm	ON	55830	3609	20.23	21.20	1.250	62.9	1.006	-0.11	0.783	0.985

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power Status	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	Ant 4+6	2	1	2412	13.90	14.40	1.122	98.57	1.015	0	0.001	0.001
32	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4+6	2	1	2412	13.90	14.40	1.122	98.57	1.015	-0.02	0.317	0.361
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 4+6	2	1	2412	13.90	14.40	1.122	98.57	1.015	0.04	0.013	0.015
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 4+6	2	1	2412	13.90	14.40	1.122	98.57	1.015	-0.08	0.027	0.031
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 4+6	2	1	2412	13.90	14.40	1.122	98.57	1.015	-0.01	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 4	2	1	2412	10.80	11.40	1.148	98.57	1.015	0	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4	2	1	2412	10.80	11.40	1.148	98.57	1.015	0.18	0.054	0.063
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 4	2	1	2412	10.80	11.40	1.148	98.57	1.015	0.08	0.006	0.007
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 4	2	1	2412	10.80	11.40	1.148	98.57	1.015	0.03	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 4	2	1	2412	10.80	11.40	1.148	98.57	1.015	0	0.001	0.001
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3+6	2	42	5210	11.33	11.70	1.089	100	1.000	-0.13	0.014	0.015
33	WLAN5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3+6	2	42	5210	11.33	11.70	1.089	100	1.000	-0.16	0.280	0.305
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 3+6	2	42	5210	11.33	11.70	1.089	100	1.000	0.08	0.022	0.024
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 3+6	2	42	5210	11.33	11.70	1.089	100	1.000	-0.15	0.003	0.004
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 3+6	2	42	5210	11.33	11.70	1.089	100	1.000	-0.08	0.030	0.033
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3+6	2	155	5775	11.24	11.70	1.112	100	1.000	0.1	0.017	0.019
34	WLAN5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3+6	2	155	5775	11.24	11.70	1.112	100	1.000	-0.08	0.248	0.276
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 3+6	2	155	5775	11.24	11.70	1.112	100	1.000	0	0.001	0.001
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 3+6	2	155	5775	11.24	11.70	1.112	100	1.000	-0.1	0.026	0.029
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 3+6	2	155	5775	11.24	11.70	1.112	100	1.000	-0.14	0.071	0.079

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1M	Front	5mm	Ant 6	39	2441	17.03	17.50	1.114	76.84	1.084	-0.17	0.002	0.002
35	Bluetooth	1M	Back	5mm	Ant 6	39	2441	17.03	17.50	1.114	76.84	1.084	0	0.171	0.207
	Bluetooth	1M	Right Side	5mm	Ant 6	39	2441	17.03	17.50	1.114	76.84	1.084	-0.05	0.031	0.037
	Bluetooth	1M	Top Side	5mm	Ant 6	39	2441	17.03	17.50	1.114	76.84	1.084	0	0.001	0.001

16.3 **Body Worn Accessory SAR**

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	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 (3 Tx slots)	Front	5mm	-	OFF	128	824.2	30.44	30.50	1.014	-0.07	0.478	0.485
36	GSM850	GPRS (3 Tx slots)	Back	5mm	-	OFF	128	824.2	30.44	30.50	1.014	-0.06	0.558	0.566
	GSM1900	GPRS (4 Tx slots)	Front	5mm	-	ON	810	1909.8	17.82	18.50	1.169	0.12	0.409	0.478
	GSM1900	GPRS (4 Tx slots)	Back	5mm	-	ON	810	1909.8	17.82	18.50	1.169	0.14	0.457	0.534
	GSM1900	GPRS (2 Tx slots)	Front	14mm	-	OFF	661	1880	29.08	30.50	1.387	-0.19	0.598	0.829
	GSM1900	GPRS (2 Tx slots)	Front	14mm	-	OFF	512	1850.2	29.02	30.50	1.406	-0.02	0.579	0.814
37	GSM1900	GPRS (2 Tx slots)	Front	14mm	-	OFF	810	1909.8	28.94	30.50	1.432	-0.08	0.617	0.884
	GSM1900	GPRS (2 Tx slots)	Back	18mm	-	OFF	661	1880	29.08	30.50	1.387	-0.09	0.485	0.673



<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	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	9400	1880	17.10	17.10	1.000	0.11	0.645	0.645
	WCDMA II	RMC 12.2Kbps	Back	5mm	-	ON	9400	1880	17.10	17.10	1.000	0.05	0.765	0.765
	WCDMA II	RMC 12.2Kbps	Front	14mm	-	OFF	9400	1880	23.36	24.00	1.159	-0.1	1.050	1.217
	WCDMA II	RMC 12.2Kbps	Front	14mm	-	OFF	9262	1852.4	23.22	24.00	1.197	-0.13	0.987	1.181
38	WCDMA II	RMC 12.2Kbps	Front	14mm	-	OFF	9538	1907.6	23.16	24.00	1.213	-0.13	1.120	1.359
	WCDMA II	RMC 12.2Kbps	Front	14mm	Headset	OFF	9538	1907.6	23.16	24.00	1.213	0.01	1.100	1.335
	WCDMA II	RMC 12.2Kbps	Back	18mm	-	OFF	9400	1880	23.36	24.00	1.159	-0.05	0.812	0.941
	WCDMA II	RMC 12.2Kbps	Back	18mm	-	OFF	9262	1852.4	23.22	24.00	1.197	0.03	0.775	0.927
	WCDMA II	RMC 12.2Kbps	Back	18mm	-	OFF	9538	1907.6	23.16	24.00	1.213	-0.14	0.940	1.141
	WCDMA V	RMC 12.2Kbps	Front	5mm	-	OFF	4182	836.4	23.31	24.00	1.172	0.04	0.298	0.349
39	WCDMA V	RMC 12.2Kbps	Back	5mm	-	OFF	4182	836.4	23.31	24.00	1.172	-0.06	0.341	0.400

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	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)
40	CDMA BC0	1xRTT RC3 SO32	Front	5mm	-	OFF	384	836.52	23.59	25.00	1.384	0.11	0.727	1.006
	CDMA BC0	1xRTT RC3 SO32	Front	5mm	-	OFF	1013	836.52	23.53	25.00	1.403	0.01	0.634	0.889
	CDMA BC0	1xRTT RC3 SO32	Front	5mm	-	OFF	777	836.52	23.58	25.00	1.387	-0.08	0.711	0.986
	CDMA BC0	1xRTT RC3 SO32	Back	5mm	-	OFF	384	836.52	23.59	25.00	1.384	0.04	0.677	0.937
	CDMA BC0	1xRTT RC3 SO32	Back	5mm	-	OFF	1013	836.52	23.53	25.00	1.403	-0.02	0.634	0.889
	CDMA BC0	1xRTT RC3 SO32	Back	5mm	-	OFF	777	836.52	23.58	25.00	1.387	0.09	0.711	0.986
	CDMA BC1	1xRTT RC3 SO32	Front	5mm	-	ON	25	1851.25	16.18	16.7	1.127	0.04	0.464	0.523
	CDMA BC1	1xRTT RC3 SO32	Back	5mm	-	ON	25	1851.25	16.18	16.7	1.127	0	0.547	0.617
	CDMA BC1	1xRTT RC3 SO32	Front	14mm	-	OFF	25	1851.25	23.23	25.00	1.503	-0.15	0.781	1.174
	CDMA BC1	1xRTT RC3 SO32	Front	14mm	-	OFF	600	1880	23.17	25.00	1.524	-0.16	0.900	1.372
41	CDMA BC1	1xRTT RC3 SO32	Front	14mm	-	OFF	1175	1908.75	23.02	25.00	1.578	-0.18	0.904	1.426
	CDMA BC1	1xRTT RC3 SO32	Front	14mm	Headset	OFF	1175	1908.75	23.02	25.00	1.578	-0.07	0.878	1.385
	CDMA BC1	1xRTT RC3 SO32	Back	18mm	-	OFF	25	1851.25	23.23	25.00	1.503	-0.19	0.679	1.021
	CDMA BC1	1xRTT RC3 SO32	Back	18mm	-	OFF	600	1880	23.17	25.00	1.524	-0.14	0.749	1.142
	CDMA BC1	1xRTT RC3 SO32	Back	18mm	-	OFF	1175	1908.75	23.02	25.00	1.578	-0.12	0.782	1.234



## &lt;FDD LTE SAR&gt;

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	18900	1880	17.48	17.80	1.076	0.04	0.562	0.605
	LTE Band 2	20M	QPSK	1	0	Front	5mm	ON	18700	1860	17.42	17.80	1.091	0.01	0.678	0.740
	LTE Band 2	20M	QPSK	1	0	Front	5mm	ON	19100	1900	17.46	17.80	1.081	-0.01	0.707	0.765
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ON	18900	1880	17.31	17.80	1.119	0.03	0.576	0.645
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ON	18700	1860	17.24	17.80	1.138	-0.04	0.705	0.802
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ON	19100	1900	17.30	17.80	1.122	0.03	0.724	0.812
	LTE Band 2	20M	QPSK	100	0	Front	5mm	ON	18900	1880	17.23	17.80	1.140	0.03	0.640	0.730
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	18900	1880	17.48	17.80	1.076	0	0.687	0.740
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	18700	1860	17.42	17.80	1.091	0.01	0.799	0.872
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ON	19100	1900	17.46	17.80	1.081	0.03	0.807	0.873
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	18900	1880	17.31	17.80	1.119	0.03	0.757	0.847
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	18700	1860	17.24	17.80	1.138	0.01	0.842	0.958
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ON	19100	1900	17.30	17.80	1.122	0.03	0.838	0.940
	LTE Band 2	20M	QPSK	100	0	Back	5mm	ON	18900	1880	17.23	17.80	1.140	0.04	0.867	0.989
	LTE Band 2	20M	QPSK	1	0	Front	14mm	OFF	18900	1880	23.19	24.00	1.205	-0.11	0.755	0.910
	LTE Band 2	20M	QPSK	1	0	Front	14mm	OFF	18700	1860	22.99	24.00	1.262	-0.15	0.771	0.973
42	LTE Band 2	20M	QPSK	1	0	Front	14mm	OFF	19100	1900	23.1	24.00	1.230	-0.18	0.876	1.078
	LTE Band 2	20M	QPSK	1	0	Back	18mm	OFF	18900	1880	23.19	24.00	1.205	0.11	0.612	0.737
	LTE Band 5	10M	QPSK	1	0	Front	5mm	OFF	20525	836.5	23.03	24.00	1.250	-0.15	0.340	0.425
	LTE Band 5	10M	QPSK	25	0	Front	5mm	OFF	20525	836.5	22.08	23.00	1.236	-0.05	0.315	0.389
43	LTE Band 5	10M	QPSK	1	0	Back	5mm	OFF	20525	836.5	23.03	24.00	1.250	0.03	0.361	0.451
	LTE Band 5	10M	QPSK	25	0	Back	5mm	OFF	20525	836.5	22.08	23.00	1.236	0.05	0.324	0.400
	LTE Band 7	20M	QPSK	1	0	Front	5mm	ON	21100	2535	21.52	21.90	1.091	-0.01	0.659	0.719
	LTE Band 7	20M	QPSK	50	0	Front	5mm	ON	21100	2535	21.45	21.90	1.109	-0.02	0.650	0.721
	LTE Band 7	20M	QPSK	1	0	Back	5mm	ON	21100	2535	21.52	21.90	1.091	-0.03	0.784	0.856
	LTE Band 7	20M	QPSK	1	0	Back	5mm	ON	20850	2510	21.4	21.90	1.122	0.04	0.780	0.875
44	LTE Band 7	20M	QPSK	1	0	Back	5mm	ON	21350	2560	21.15	21.90	1.189	0.06	0.771	0.916
	LTE Band 7	20M	QPSK	50	0	Back	5mm	ON	21100	2535	21.45	21.90	1.109	0.06	0.801	0.888
	LTE Band 7	20M	QPSK	50	0	Back	5mm	ON	20850	2510	21.35	21.90	1.135	-0.03	0.794	0.901
	LTE Band 7	20M	QPSK	50	0	Back	5mm	ON	21350	2560	21.37	21.90	1.130	-0.11	0.788	0.890
	LTE Band 7	20M	QPSK	100	0	Back	5mm	ON	21100	2535	21.25	21.90	1.161	0	0.772	0.897
	LTE Band 7	20M	QPSK	1	0	Front	14mm	OFF	21100	2535	23.45	24.00	1.135	-0.03	0.198	0.225
	LTE Band 7	20M	QPSK	1	0	Back	18mm	OFF	21100	2535	23.45	24.00	1.135	-0.07	0.136	0.154
	LTE Band 12	10M	QPSK	1	0	Front	5mm	OFF	23095	707.5	23.01	24.00	1.256	-0.03	0.292	0.367
	LTE Band 12	10M	QPSK	25	0	Front	5mm	OFF	23095	707.5	22.03	23.00	1.250	-0.02	0.235	0.294
45	LTE Band 12	10M	QPSK	1	0	Back	5mm	OFF	23095	707.5	23.01	24.00	1.256	-0.01	0.318	0.399
	LTE Band 12	10M	QPSK	25	0	Back	5mm	OFF	23095	707.5	22.03	23.00	1.250	-0.03	0.294	0.368
	LTE Band 13	10M	QPSK	1	0	Front	5mm	OFF	23230	782	22.94	24.00	1.276	0.01	0.281	0.359
	LTE Band 13	10M	QPSK	25	0	Front	5mm	OFF	23230	782	21.98	23.00	1.265	-0.06	0.281	0.355
46	LTE Band 13	10M	QPSK	1	0	Back	5mm	OFF	23230	782	22.94	24.00	1.276	0.02	0.376	0.480
	LTE Band 13	10M	QPSK	25	0	Back	5mm	OFF	23230	782	21.98	23.00	1.265	-0.02	0.350	0.443



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	17.57	18.40	1.211	0.03	0.553	0.669
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132072	1720	17.56	18.40	1.213	0.03	0.569	0.690
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ON	132572	1770	17.49	18.40	1.233	0.16	0.575	0.709
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132322	1745	17.42	18.40	1.253	-0.15	0.570	0.714
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132072	1720	17.38	18.40	1.265	-0.03	0.545	0.689
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ON	132572	1770	17.39	18.40	1.262	0.16	0.580	0.732
	LTE Band 66	20M	QPSK	100	0	Front	5mm	ON	132322	1745	17.38	18.40	1.265	-0.14	0.606	0.766
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132322	1745	17.57	18.40	1.211	0.18	0.708	0.857
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132072	1720	17.56	18.40	1.213	0.02	0.681	0.826
47	LTE Band 66	20M	QPSK	1	0	Back	5mm	ON	132572	1770	17.49	18.40	1.233	0.12	0.760	0.937
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132322	1745	17.42	18.40	1.253	0.04	0.692	0.867
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132072	1720	17.38	18.40	1.265	0.02	0.638	0.807
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ON	132572	1770	17.39	18.40	1.262	0.03	0.738	0.931
	LTE Band 66	20M	QPSK	100	0	Back	5mm	ON	132322	1745	17.38	18.40	1.265	-0.03	0.732	0.926
	LTE Band 66	20M	QPSK	1	0	Front	14mm	OFF	132322	1745	23.66	24.00	1.081	-0.1	0.598	0.647
	LTE Band 66	20M	QPSK	1	0	Back	18mm	OFF	132322	1745	23.66	24.00	1.081	0.02	0.491	0.531

<TDD 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	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 48	20M	QPSK	1	0	Front	5mm	ON	55830	3609	20.28	21.20	1.236	62.9	1.006	0.19	0.394	0.490
	LTE Band 48	20M	QPSK	50	0	Front	5mm	ON	55830	3609	20.21	21.20	1.256	62.9	1.006	0.19	0.415	0.524
48	LTE Band 48	20M	QPSK	1	0	Back	5mm	ON	55830	3609	20.28	21.20	1.236	62.9	1.006	-0.16	0.609	0.757
	LTE Band 48	20M	QPSK	50	0	Back	5mm	ON	55830	3609	20.21	21.20	1.256	62.9	1.006	-0.1	0.637	0.805
	LTE Band 48	20M	QPSK	1	0	Front	14mm	OFF	55830	3609	23.83	24.00	1.040	62.9	1.006	0.07	0.121	0.127
	LTE Band 48	20M	QPSK	1	0	Back	18mm	OFF	55830	3609	23.83	24.00	1.040	62.9	1.006	-0.03	0.144	0.151



### FCC SAR TEST REPORT

Report No. : FA9D0635A

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power Status	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)
49	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 4+6	6	1	2412	16.48	17.00	1.127	98.57	1.015	-0.07	0.002	0.002
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4+6	6	1	2412	16.48	17.00	1.127	98.57	1.015	-0.03	0.577	0.660
	WLAN2.4GHz	802.11b 1Mbps	Front	14mm	Ant 4+6	Default Max	6	2437	20.43	20.80	1.089	98.57	1.015	0.09	0.016	0.018
	WLAN2.4GHz	802.11b 1Mbps	Back	18mm	Ant 4+6	Default Max	6	2437	20.43	20.80	1.089	98.57	1.015	-0.15	0.210	0.232
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 4+6	7	1	2412	13.90	14.40	1.122	98.57	1.015	0	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4+6	7	1	2412	13.90	14.40	1.122	98.57	1.015	-0.02	0.317	0.361
	WLAN2.4GHz	802.11b 1Mbps	Front	14mm	Ant 4+6	1	11	2437	16.71	17.30	1.146	98.57	1.015	0.09	0.016	0.019
	WLAN2.4GHz	802.11b 1Mbps	Back	18mm	Ant 4+6	1	11	2437	16.71	17.30	1.146	98.57	1.015	-0.15	0.210	0.244
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 4	6	1	2412	13.40	14.00	1.148	98.57	1.015	0	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4	6	1	2412	13.40	14.00	1.148	98.57	1.015	0.18	0.097	0.113
	WLAN2.4GHz	802.11b 1Mbps	Front	14mm	Ant 4	Default Max	6	2412	17.40	17.80	1.096	98.57	1.015	-0.06	0.002	0.003
	WLAN2.4GHz	802.11b 1Mbps	Back	18mm	Ant 4	Default Max	6	2412	17.40	17.80	1.096	98.57	1.015	0.15	0.028	0.031
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 4	7	1	2412	10.80	11.40	1.148	98.57	1.015	0	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4	7	1	2412	10.80	11.40	1.148	98.57	1.015	0.18	0.054	0.063
	WLAN2.4GHz	802.11b 1Mbps	Front	14mm	Ant 4	1	11	2412	13.60	14.30	1.175	98.57	1.015	-0.06	0.002	0.003
	WLAN2.4GHz	802.11b 1Mbps	Back	18mm	Ant 4	1	11	2412	13.60	14.30	1.175	98.57	1.015	0.15	0.028	0.033
50	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	5mm	Ant 3+6	6	58	5290	13.56	13.90	1.081	100	1.000	-0.01	0.027	0.029
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	5mm	Ant 3+6	6	58	5290	13.56	13.90	1.081	100	1.000	-0.05	0.466	0.504
	WLAN5GHZ	802.11n-HT40 MCS0	Front	14mm	Ant 3+6	Default Max	54	5270	19.02	19.8	1.197	100	1.000	-0.01	0.032	0.038
	WLAN5GHZ	802.11n-HT40 MCS0	Back	18mm	Ant 3+6	Default Max	54	5270	19.02	19.8	1.197	100	1.000	-0.04	0.123	0.147
	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	5mm	Ant 3+6	7	58	5290	11.11	11.30	1.045	100	1.000	-0.07	0.010	0.010
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	5mm	Ant 3+6	7	58	5290	11.11	11.30	1.045	100	1.000	-0.02	0.186	0.194
	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	14mm	Ant 3+6	1	58	5290	16.01	16.3	1.069	100	1.000	-0.11	0.048	0.051
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	18mm	Ant 3+6	1	58	5290	16.01	16.3	1.069	100	1.000	-0.09	0.246	0.263
51	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	5mm	Ant 3+6	6	122	5610	13.10	13.90	1.202	100	1.000	-0.05	0.031	0.037
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	5mm	Ant 3+6	6	122	5610	13.10	13.90	1.202	100	1.000	-0.01	0.517	0.622
	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	14mm	Ant 3+6	Default Max	106	5530	19.12	19.80	1.169	100	1.000	0.16	0.039	0.046
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	18mm	Ant 3+6	Default Max	106	5530	19.12	19.80	1.169	100	1.000	-0.01	0.312	0.365
	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	5mm	Ant 3+6	7	106	5530	10.80	11.30	1.122	100	1.000	0	0.014	0.016
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	5mm	Ant 3+6	7	106	5530	10.80	11.30	1.122	100	1.000	-0.05	0.286	0.321
	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	14mm	Ant 3+6	1	106	5530	15.64	16.30	1.164	99.25	1.008	-0.14	0.081	0.095
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	18mm	Ant 3+6	1	106	5530	15.64	16.30	1.164	99.25	1.008	-0.12	0.124	0.146
52	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	5mm	Ant 3+6	6	155	5775	13.28	13.90	1.153	100	1.000	0	0.032	0.037
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	5mm	Ant 3+6	6	155	5775	13.28	13.90	1.153	100	1.000	-0.07	0.352	0.406
	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	14mm	Ant 3+6	Default Max	155	5775	19.14	19.80	1.164	99.25	1.008	-0.07	0.083	0.097
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	18mm	Ant 3+6	Default Max	155	5775	19.14	19.80	1.164	99.25	1.008	-0.18	0.194	0.228
	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	5mm	Ant 3+6	7	155	5775	10.73	11.30	1.140	100	1.000	0	0.016	0.018
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	5mm	Ant 3+6	7	155	5775	10.73	11.30	1.140	100	1.000	-0.06	0.183	0.209
	WLAN5GHZ	802.11ac-VHT80 MCS0	Front	14mm	Ant 3+6	1	155	5775	15.83	16.30	1.114	99.25	1.008	-0.07	0.083	0.093
	WLAN5GHZ	802.11ac-VHT80 MCS0	Back	18mm	Ant 3+6	1	155	5775	15.83	16.30	1.114	99.25	1.008	-0.12	0.100	0.112

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
53	Bluetooth	1M	Front	5mm	Ant 6	39	2441	17.03	17.5	1.114	76.84	1.084	-0.17	0.002	0.002
	Bluetooth	1M	Back	5mm	Ant 6	39	2441	17.03	17.5	1.114	76.84	1.084	0	0.171	0.207
	Bluetooth	1M	Front	14mm	Ant 6	39	2441	17.03	17.5	1.114	76.84	1.084	0	0.001	0.001
	Bluetooth	1M	Back	18mm	Ant 6	39	2441	17.03	17.5	1.114	76.84	1.084	-0.19	0.034	0.041





**16.4 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 (2Tx slots)	Front	0mm	ON	661	1880	27.41	28.00	1.146	0.02	2.260	2.589
	GSM1900	GPRS (2Tx slots)	Front	0mm	ON	512	1850.2	27.38	28.00	1.153	-0.04	2.320	2.676
	GSM1900	GPRS (2Tx slots)	Front	0mm	ON	810	1909.8	27.35	28.00	1.161	-0.02	2.250	2.613
	GSM1900	GPRS (2Tx slots)	Back	0mm	ON	661	1880	27.41	28.00	1.146	-0.06	2.310	2.646
54	GSM1900	GPRS (2Tx slots)	Back	0mm	ON	512	1850.2	27.38	28.00	1.153	-0.05	2.400	2.768
	GSM1900	GPRS (2Tx slots)	Back	0mm	ON	810	1909.8	27.35	28.00	1.161	-0.04	2.270	2.636
	GSM1900	GPRS (2Tx slots)	Bottom Side	0mm	ON	661	1880	27.41	28.00	1.146	0.01	1.090	1.249
	GSM1900	GPRS (2Tx slots)	Front	5mm	OFF	512	1850.2	29.02	30.50	1.406	0.03	1.110	1.561
	GSM1900	GPRS (2Tx slots)	Back	8mm	OFF	512	1850.2	29.02	30.50	1.406	0.02	0.917	1.289
	GSM1900	GPRS (2Tx slots)	Bottom Side	7mm	OFF	512	1850.2	29.02	30.50	1.406	0.06	0.966	1.358

**<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	Front	0mm	ON	9538	1907.6	20.3	20.80	1.122	0.02	2.300	2.581
	WCDMA II	RMC 12.2Kbps	Front	0mm	ON	9262	1852.4	20.25	20.80	1.135	-0.05	2.210	2.508
	WCDMA II	RMC 12.2Kbps	Front	0mm	ON	9400	1880	20.15	20.80	1.161	-0.02	2.220	2.578
55	WCDMA II	RMC 12.2Kbps	Back	0mm	ON	9538	1907.6	20.3	20.80	1.122	-0.01	2.440	2.738
	WCDMA II	RMC 12.2Kbps	Back	0mm	ON	9262	1852.4	20.25	20.80	1.135	0.01	2.400	2.724
	WCDMA II	RMC 12.2Kbps	Back	0mm	ON	9400	1880	20.15	20.80	1.161	-0.04	2.350	2.729
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	ON	9538	1907.6	20.3	20.80	1.122	0.18	1.290	1.447
	WCDMA II	RMC 12.2Kbps	Front	5mm	OFF	9538	1907.6	23.16	24.00	1.213	-0.03	1.240	1.505
	WCDMA II	RMC 12.2Kbps	Back	8mm	OFF	9538	1907.6	23.16	24.00	1.213	-0.08	0.990	1.201
	WCDMA II	RMC 12.2Kbps	Bottom Side	7mm	OFF	9538	1907.6	23.16	24.00	1.213	0.02	1.150	1.395

**<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)
56	CDMA BC1	RTAP 153.6Kbps	Back	0mm	ON	25	1851.25	20.76	21.80	1.271	0.13	2.320	2.948
	CDMA BC1	RTAP 153.6Kbps	Back	0mm	ON	600	1880	20.65	21.80	1.303	0.14	1.920	2.502
	CDMA BC1	RTAP 153.6Kbps	Back	0mm	ON	1175	1908.75	20.75	21.80	1.274	0.13	2.000	2.547
	CDMA BC1	RTAP 153.6Kbps	Front	0mm	ON	25	1908.75	20.76	21.80	1.271	-0.07	2.220	2.821
	CDMA BC1	RTAP 153.6Kbps	Front	0mm	ON	600	1880	20.65	21.80	1.303	-0.02	1.880	2.450
	CDMA BC1	RTAP 153.6Kbps	Front	0mm	ON	1175	1908.75	20.75	21.80	1.274	-0.02	1.970	2.509
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	0mm	ON	25	1851.25	20.76	21.80	1.271	-0.03	1.460	1.855
	CDMA BC1	RTAP 153.6Kbps	Front	5mm	OFF	25	1851.25	23.23	25.00	1.503	0.01	1.740	2.615
	CDMA BC1	RTAP 153.6Kbps	Front	5mm	OFF	600	1880	23.17	25.00	1.524	0	1.540	2.347
	CDMA BC1	RTAP 153.6Kbps	Front	5mm	OFF	1175	1908.75	23.02	25.00	1.578	0.01	1.590	2.508
	CDMA BC1	RTAP 153.6Kbps	Back	8mm	OFF	25	1851.25	23.23	25.00	1.503	0.02	1.020	1.533
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	7mm	OFF	25	1908.75	23.23	25.00	1.503	0.11	1.760	2.646
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	7mm	OFF	600	1880	23.17	25.00	1.524	0.17	1.540	2.347
	CDMA BC1	RTAP 153.6Kbps	Bottom Side	7mm	OFF	1175	1908.75	23.02	25.00	1.578	0.13	1.660	2.619



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Front	0mm	ON	18700	1860	20.92	21.00	1.019	-0.13	2.560	2.608
	LTE Band 2	20M	QPSK	1	0	Front	0mm	ON	18900	1880	20.90	21.00	1.023	-0.12	2.280	2.333
	LTE Band 2	20M	QPSK	1	0	Front	0mm	ON	19100	1900	20.91	21.00	1.021	-0.14	2.330	2.379
57	LTE Band 2	20M	QPSK	1	0	Back	0mm	ON	18700	1860	20.92	21.00	1.019	0.02	2.750	2.801
	LTE Band 2	20M	QPSK	1	0	Back	0mm	ON	18900	1880	20.90	21.00	1.023	0.15	2.300	2.354
	LTE Band 2	20M	QPSK	1	0	Back	0mm	ON	19100	1900	20.91	21.00	1.021	0.11	2.370	2.420
	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	ON	18700	1860	20.92	21.00	1.019	0.18	1.010	1.029
	LTE Band 2	20M	QPSK	1	0	Front	5mm	OFF	18700	1860	22.99	24.00	1.262	-0.11	1.310	1.653
	LTE Band 2	20M	QPSK	1	0	Back	8mm	OFF	18700	1860	22.99	24.00	1.262	-0.04	0.712	0.898
	LTE Band 2	20M	QPSK	1	0	Bottom Side	7mm	OFF	18700	1860	22.99	24.00	1.262	0.18	1.620	2.044
	LTE Band 2	20M	QPSK	1	0	Bottom Side	7mm	OFF	18900	1880	23.19	24.00	1.205	0.16	1.250	1.506
	LTE Band 2	20M	QPSK	1	0	Bottom Side	7mm	OFF	19100	1900	23.1	24.00	1.230	0	1.540	1.895
	LTE Band 7	20M	QPSK	1	0	Front	0mm	OFF	21100	2535	23.45	24.00	1.135	-0.08	2.010	2.281
	LTE Band 7	20M	QPSK	1	0	Front	0mm	OFF	20850	2510	23.26	24.00	1.186	-0.16	1.820	2.158
	LTE Band 7	20M	QPSK	1	0	Front	0mm	OFF	21350	2560	23.35	24.00	1.161	-0.19	1.850	2.149
	LTE Band 7	20M	QPSK	1	0	Back	0mm	OFF	21100	2535	23.45	24.00	1.135	0.11	2.190	2.486
	LTE Band 7	20M	QPSK	1	0	Back	0mm	OFF	20850	2510	23.26	24.00	1.186	0.1	2.090	2.478
	LTE Band 7	20M	QPSK	1	0	Back	0mm	OFF	21350	2560	23.35	24.00	1.161	-0.17	2.110	2.451
58	LTE Band 7	20M	QPSK	1	0	Bottom Side	0mm	OFF	21100	2535	23.45	24.00	1.135	-0.17	2.690	3.053
	LTE Band 7	20M	QPSK	1	0	Bottom Side	0mm	OFF	20850	2510	23.26	24.00	1.186	0	2.420	2.870
	LTE Band 7	20M	QPSK	1	0	Bottom Side	0mm	OFF	21350	2560	23.35	24.00	1.161	-0.15	2.510	2.915
	LTE Band 66	20M	QPSK	1	0	Front	0mm	ON	132322	1745	20.96	21.00	1.009	-0.11	1.740	1.756
	LTE Band 66	20M	QPSK	1	0	Front	0mm	ON	132072	1720	20.89	21.00	1.026	-0.12	1.820	1.867
	LTE Band 66	20M	QPSK	1	0	Front	0mm	ON	132572	1770	20.91	21.00	1.021	-0.12	1.830	1.868
	LTE Band 66	20M	QPSK	1	0	Back	0mm	ON	132322	1745	20.96	21.00	1.009	-0.1	1.930	1.948
	LTE Band 66	20M	QPSK	1	0	Back	0mm	ON	132072	1720	20.89	21.00	1.026	-0.12	2.014	2.066
	LTE Band 66	20M	QPSK	1	0	Back	0mm	ON	132572	1770	20.91	21.00	1.021	-0.06	2.030	2.073
	LTE Band 66	20M	QPSK	1	0	Bottom Side	0mm	ON	132322	1745	20.96	21.00	1.009	-0.12	1.170	1.181
	LTE Band 66	20M	QPSK	1	0	Front	5mm	OFF	132572	1770	23.1	24.00	1.230	-0.07	1.690	2.079
	LTE Band 66	20M	QPSK	1	0	Front	5mm	OFF	132072	1720	23.07	24.00	1.239	-0.02	1.260	1.561
	LTE Band 66	20M	QPSK	1	0	Front	5mm	OFF	132322	1745	23.16	24.00	1.213	-0.02	1.450	1.759
	LTE Band 66	20M	QPSK	1	0	Back	8mm	OFF	132572	1770	23.1	24.00	1.230	-0.05	0.850	1.046
59	LTE Band 66	20M	QPSK	1	0	Bottom Side	7mm	OFF	132572	1770	23.1	24.00	1.230	-0.09	2.070	2.547
	LTE Band 66	20M	QPSK	1	0	Bottom Side	7mm	OFF	132072	1720	23.07	24.00	1.239	-0.04	1.430	1.771
	LTE Band 66	20M	QPSK	1	0	Bottom Side	7mm	OFF	132322	1745	23.16	24.00	1.213	-0.15	1.400	1.699

<TDD 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	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 48	20M	QPSK	1	0	Top Side	0mm	OFF	55830	3609	23.83	24.00	1.040	62.9	1.006	-0.12	1.480	1.548
	LTE Band 48	20M	QPSK	1	0	Back	0mm	OFF	55340	3560	23.82	24.00	1.042	62.9	1.006	-0.06	2.280	2.391
	LTE Band 48	20M	QPSK	1	0	Back	0mm	OFF	55830	3609	23.83	24.00	1.040	62.9	1.006	0.04	2.190	2.291
	LTE Band 48	20M	QPSK	1	0	Back	0mm	OFF	56150	3641	23.7	24.00	1.072	62.9	1.006	0	2.150	2.318
60	LTE Band 48	20M	QPSK	1	0	Back	0mm	OFF	56640	3690	23.56	24.00	1.107	62.9	1.006	0.01	2.200	2.449



<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power Status	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)
61	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 3+6	Default Max	6	2437	20.43	20.80	1.089	98.57	1.015	-0.15	1.860	2.056
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 3+6	Default Max	46	5230	19.31	19.80	1.119	100	1.000	-0.19	0.839	0.939
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 3+6	Default Max	54	5270	19.02	19.80	1.197	100	1.000	0.03	0.248	0.297
62	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 3+6	Default Max	54	5270	19.02	19.80	1.197	100	1.000	-0.15	0.874	1.046
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 3+6	Default Max	54	5270	19.02	19.80	1.197	100	1.000	-0.1	0.296	0.354
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 3+6	Default Max	54	5270	19.02	19.80	1.197	100	1.000	-0.1	0.094	0.112
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 3+6	Default Max	54	5270	19.02	19.80	1.197	100	1.000	-0.1	0.235	0.281
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3+6	1	58	5290	16.01	16.30	1.069	100	1.000	-0.14	0.070	0.075
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3+6	1	58	5290	16.01	16.30	1.069	100	1.000	-0.13	0.383	0.409
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3+6	1	58	5290	16.01	16.30	1.069	100	1.000	-0.16	0.103	0.110
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3+6	1	58	5290	16.01	16.30	1.069	100	1.000	-0.18	0.044	0.047
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3+6	1	58	5690	16.01	16.30	1.069	100	1.000	-0.13	0.132	0.141
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3+6	Default Max	106	5530	19.12	19.80	1.169	100	1.000	0.17	0.258	0.302
63	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3+6	Default Max	106	5530	19.12	19.80	1.169	00	1.000	-0.06	0.966	1.130
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3+6	Default Max	106	5530	19.12	19.80	1.169	100	1.000	-0.1	0.215	0.251
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3+6	Default Max	106	5530	19.12	19.80	1.169	100	1.000	-0.01	0.254	0.297
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3+6	Default Max	106	5530	19.12	19.80	1.169	100	1.000	-0.14	0.355	0.415
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3+6	1	106	5530	15.64	16.30	1.164	100	1.000	-0.04	0.079	0.092
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3+6	1	106	5530	15.64	16.30	1.164	100	1.000	-0.17	0.370	0.431
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3+6	1	106	5530	15.64	16.30	1.164	100	1.000	-0.15	0.078	0.091
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3+6	1	106	5530	15.64	16.30	1.164	100	1.000	-0.11	0.110	0.128
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3+6	1	106	5530	15.64	16.30	1.164	100	1.000	-0.17	0.151	0.176
64	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3+6	Default Max	155	5775	19.14	19.80	1.164	100	1.000	-0.19	0.848	0.987



**16.5 Repeated SAR Measurement**

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)	Ratio	Reported 1g SAR (W/kg)
1st	CDMA BC1	RTAP 153.6Kbps	Bottom Side	5mm	1175	1908.75	16.18	16.70	1.127	0.05	1.080	-	1.217
2nd	CDMA BC1	RTAP 153.6Kbps	Bottom Side	5mm	1175	1908.75	16.18	16.70	1.127	-0.08	1.040	1.04	1.172
1st	LTE Band 2	20M_QPSK_1_0	Bottom Side	5mm	18700	1860	17.42	17.80	1.091	-0.09	1.080	-	1.179
2nd	LTE Band 2	20M_QPSK_1_0	Bottom Side	5mm	18700	1860	17.24	17.80	1.138	0.01	1.010	1.03	1.149
1st	LTE Band 7	20M_QPSK_50_0	Bottom Side	5mm	20850	2510	21.35	21.90	1.135	0.19	1.200	-	1.362
2nd	LTE Band 7	20M_QPSK_50_0	Bottom Side	5mm	20850	2510	21.35	21.90	1.135	0.09	1.160	1.03	1.317
1st	LTE Band 66	20M_QPSK_1_0	Bottom Side	5mm	132572	1770	17.49	18.40	1.233	0.1	1.030	-	1.270
2nd	LTE Band 66	20M_QPSK_1_0	Bottom Side	5mm	132572	1770	17.49	18.40	1.233	-0.11	0.959	1.07	1.183

No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	WCDMA II	RMC 12.2Kbps	Back	0mm	9538	1907.6	20.3	20.80	1.122	-	1.000	-0.01	2.440	-	2.738
2nd	WCDMA II	RMC 12.2Kbps	Back	0mm	9538	1907.6	20.3	20.80	1.122	-	1.000	-0.02	2.430	1.00	2.727
1st	LTE Band 48	20M_QPSK_1_0	Back	0mm	55340	3560	23.82	24.00	1.042	62.9	1.006	-0.06	2.280	-	2.391
2nd	LTE Band 48	20M_QPSK_1_0	Back	0mm	55340	3560	23.82	24.00	1.042	62.9	1.006	-0.06	2.210	1.03	2.317

**General Note:**

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



17. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Exposure Positions			
		Head	Hotspot	Body-worn	Extremity
1.	WWAN + 2.4GHz WLAN Ant 4+6	Yes	Yes	Yes	Yes
2.	WWAN + 2.4GHz WLAN Ant 4 + BT Ant 6	Yes	Yes	Yes	Yes
3.	WWAN + 5GHz WLAN Ant 3+6 + BT Ant 6	Yes	Yes	Yes	Yes
4.	WWAN Voice + 2.4GHz WLAN Ant 4+6 + 5GHz WLAN Ant 3+6	Yes	Yes	Yes	Yes
5.	5GHz WLAN Ant 3+6 + BT Ant 6	Yes	No	Yes	Yes

**General Note:**

1. This device WLAN 2.4GHz/5.2GHz/5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
2. The Scaled SAR summation is calculated based on the same configuration and test position.
3. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - i) Scalar SAR summation < 1.6W/kg.
  - ii)  $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - iii) If  $SPLSR \leq 0.04$ , simultaneously transmission SAR measurement is not necessary.
  - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.



**17.1 Head Exposure Conditions**

**<Standalone>**

Exposure Position	2	3	4	6	2+4 Summed 1g SAR (W/kg)	3+4+6 Summed 1g SAR (W/kg)
	2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	2.4GHz WLAN Ant 4 1g SAR (W/kg)	5GHz WLAN Ant 3+6 1g SAR (W/kg)	Bluetooth Ant 6 1g SAR (W/kg)		
Right Cheek	0.070	0.035	0.397	0.001	0.467	0.433
Right Tilted	0.031	0.022	0.438	0.001	0.469	0.461
Left Cheek	0.051	0.030	0.239	0.001	0.290	0.270
Left Tilted	0.035	0.017	0.281	0.001	0.316	0.299

**<Sim-Tx>**

WWAN Band	Exposure Position	1	2	3	4	6	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+2+4 Summed 1g SAR (W/kg)	1+3+4+6 Summed 1g SAR (W/kg)
		WWAN 1g SAR (W/kg)	2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	2.4GHz WLAN Ant 4 1g SAR (W/kg)	5GHz WLAN Ant 3+6 1g SAR (W/kg)	Bluetooth Ant 6 1g SAR (W/kg)						
GSM850	Right Cheek	0.175	0.070	0.035	0.321	0.001	0.245	0.496	0.211	0.497	0.566	0.532
	Right Tilted	0.091	0.031	0.022	0.399	0.001	0.122	0.490	0.114	0.491	0.521	0.513
	Left Cheek	0.147	0.051	0.030	0.228	0.001	0.198	0.375	0.178	0.376	0.426	0.406
	Left Tilted	0.089	0.035	0.017	0.236	0.001	0.124	0.325	0.107	0.326	0.360	0.343
GSM1900	Right Cheek	0.085	0.070	0.035	0.321	0.001	0.155	0.406	0.121	0.407	0.476	0.442
	Right Tilted	0.060	0.031	0.022	0.399	0.001	0.091	0.459	0.083	0.460	0.490	0.482
	Left Cheek	0.125	0.051	0.030	0.228	0.001	0.176	0.353	0.156	0.354	0.404	0.384
	Left Tilted	0.075	0.035	0.017	0.236	0.001	0.110	0.311	0.093	0.312	0.346	0.329
WCDMA II	Right Cheek	0.078	0.070	0.035	0.321	0.001	0.148	0.399	0.114	0.400	0.469	0.435
	Right Tilted	0.045	0.031	0.022	0.399	0.001	0.076	0.444	0.068	0.445	0.475	0.467
	Left Cheek	0.116	0.051	0.030	0.228	0.001	0.167	0.344	0.147	0.345	0.395	0.375
	Left Tilted	0.068	0.035	0.017	0.236	0.001	0.103	0.304	0.086	0.305	0.339	0.322
WCDMA V	Right Cheek	0.120	0.070	0.035	0.321	0.001	0.190	0.441	0.156	0.442	0.511	0.477
	Right Tilted	0.049	0.031	0.022	0.399	0.001	0.080	0.448	0.072	0.449	0.479	0.471
	Left Cheek	0.094	0.051	0.030	0.228	0.001	0.145	0.322	0.125	0.323	0.373	0.353
	Left Tilted	0.054	0.035	0.017	0.236	0.001	0.089	0.290	0.072	0.291	0.325	0.308
CDMA BC0	Right Cheek	0.364	0.070	0.035	0.321	0.001	0.434	0.685	0.400	0.686	0.755	0.721
	Right Tilted	0.083	0.031	0.022	0.399	0.001	0.114	0.482	0.106	0.483	0.513	0.505
	Left Cheek	0.276	0.051	0.030	0.228	0.001	0.327	0.504	0.307	0.505	0.555	0.535
	Left Tilted	0.119	0.035	0.017	0.236	0.001	0.154	0.355	0.137	0.356	0.390	0.373
CDMA BC1	Right Cheek	0.148	0.070	0.035	0.321	0.001	0.218	0.469	0.184	0.470	0.539	0.505
	Right Tilted	0.100	0.031	0.022	0.399	0.001	0.131	0.499	0.123	0.500	0.530	0.522
	Left Cheek	0.222	0.051	0.030	0.228	0.001	0.273	0.450	0.253	0.451	0.501	0.481
	Left Tilted	0.107	0.035	0.017	0.236	0.001	0.142	0.343	0.125	0.344	0.378	0.361
LTE Band 2	Right Cheek	0.092	0.070	0.035	0.321	0.001	0.162	0.413	0.128	0.414	0.483	0.449
	Right Tilted	0.043	0.031	0.022	0.399	0.001	0.074	0.442	0.066	0.443	0.473	0.465
	Left Cheek	0.140	0.051	0.030	0.228	0.001	0.191	0.368	0.171	0.369	0.419	0.399
	Left Tilted	0.059	0.035	0.017	0.236	0.001	0.094	0.295	0.077	0.296	0.330	0.313
LTE Band 5	Right Cheek	0.239	0.070	0.035	0.321	0.001	0.309	0.560	0.275	0.561	0.630	0.596
	Right Tilted	0.063	0.031	0.022	0.399	0.001	0.094	0.462	0.086	0.463	0.493	0.485
	Left Cheek	0.179	0.051	0.030	0.228	0.001	0.230	0.407	0.210	0.408	0.458	0.438
	Left Tilted	0.086	0.035	0.017	0.236	0.001	0.121	0.322	0.104	0.323	0.357	0.340



WWAN Band	Exposure Position	1	2	3	4	6	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+2+4 Summed 1g SAR (W/kg)	1+3+4+6 Summed 1g SAR (W/kg)
		WWAN 1g SAR (W/kg)	2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	2.4GHz WLAN Ant 4 1g SAR (W/kg)	5GHz WLAN Ant 3+6 1g SAR (W/kg)	Bluetooth Ant 6 1g SAR (W/kg)						
LTE Band 7	Right Cheek	0.030	0.070	0.035	0.321	0.001	0.100	0.351	0.066	0.352	0.421	0.387
	Right Tilted	0.026	0.031	0.022	0.399	0.001	0.057	0.425	0.049	0.426	0.456	0.448
	Left Cheek	0.027	0.051	0.030	0.228	0.001	0.078	0.255	0.058	0.256	0.306	0.286
	Left Tilted	0.044	0.035	0.017	0.236	0.001	0.079	0.280	0.062	0.281	0.315	0.298
LTE Band 12	Right Cheek	0.153	0.070	0.035	0.321	0.001	0.223	0.474	0.189	0.475	0.544	0.510
	Right Tilted	0.046	0.031	0.022	0.399	0.001	0.077	0.445	0.069	0.446	0.476	0.468
	Left Cheek	0.128	0.051	0.030	0.228	0.001	0.179	0.356	0.159	0.357	0.407	0.387
	Left Tilted	0.060	0.035	0.017	0.236	0.001	0.095	0.296	0.078	0.297	0.331	0.314
LTE Band 13	Right Cheek	0.228	0.070	0.035	0.321	0.001	0.298	0.549	0.264	0.550	0.619	0.585
	Right Tilted	0.102	0.031	0.022	0.399	0.001	0.133	0.501	0.125	0.502	0.532	0.524
	Left Cheek	0.208	0.051	0.030	0.228	0.001	0.259	0.436	0.239	0.437	0.487	0.467
	Left Tilted	0.114	0.035	0.017	0.236	0.001	0.149	0.350	0.132	0.351	0.385	0.368
LTE Band 48	Right Cheek	0.867	0.070	0.035	0.321	0.001	0.937	1.188	0.903	1.189	1.258	1.224
	Right Tilted	0.877	0.031	0.022	0.399	0.001	0.908	1.276	0.900	1.277	1.307	1.299
	Left Cheek	0.545	0.051	0.030	0.228	0.001	0.596	0.773	0.576	0.774	0.824	0.804
	Left Tilted	0.546	0.035	0.017	0.236	0.001	0.581	0.782	0.564	0.783	0.817	0.800
LTE Band 66	Right Cheek	0.086	0.070	0.035	0.321	0.001	0.156	0.407	0.122	0.408	0.477	0.443
	Right Tilted	0.050	0.031	0.022	0.399	0.001	0.081	0.449	0.073	0.450	0.480	0.472
	Left Cheek	0.126	0.051	0.030	0.228	0.001	0.177	0.354	0.157	0.355	0.405	0.385
	Left Tilted	0.057	0.035	0.017	0.236	0.001	0.092	0.293	0.075	0.294	0.328	0.311



**17.2 Hotspot Exposure Conditions**

<Sim-Tx>

WWAN Band	Exposure Position	1	2	3	4	6	1+2	1+4	1+3+6	1+4+6	1+2+4	1+3+4+6
		WWAN	2.4GHz WLAN Ant 4+6	2.4GHz WLAN Ant 4	5GHz WLAN Ant 3+6	Bluetooth Ant 6	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)						
GSM850	Front	0.485	0.001	0.001	0.019	0.002	0.486	0.504	0.488	0.506	0.505	0.507
	Back	0.566	0.361	0.063	0.305	0.207	0.927	0.871	0.836	1.078	1.232	1.141
	Left side	0.157	0.015	0.007	0.033		0.172	0.190	0.164	0.190	0.205	0.197
	Right side	0.280	0.031	0.001	0.029	0.037	0.311	0.309	0.318	0.346	0.340	0.347
	Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080	0.080	0.081
	Bottom side	0.632					0.632	0.632	0.632	0.632	0.632	0.632
GSM1900	Front	0.478	0.001	0.001	0.019	0.002	0.479	0.497	0.481	0.499	0.498	0.500
	Back	0.534	0.361	0.063	0.305	0.207	0.895	0.839	0.804	1.046	1.200	1.109
	Left side	0.018	0.015	0.007	0.033		0.033	0.051	0.025	0.051	0.066	0.058
	Right side	0.053	0.031	0.001	0.029	0.037	0.084	0.082	0.091	0.119	0.113	0.120
	Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080	0.080	0.081
	Bottom side	0.808					0.808	0.808	0.808	0.808	0.808	0.808
WCDMA II	Front	0.645	0.001	0.001	0.019	0.002	0.646	0.664	0.648	0.666	0.665	0.667
	Back	0.765	0.361	0.063	0.305	0.207	1.126	1.070	1.035	1.277	1.431	1.340
	Left side	0.054	0.015	0.007	0.033		0.069	0.087	0.061	0.087	0.102	0.094
	Right side	0.063	0.031	0.001	0.029	0.037	0.094	0.092	0.101	0.129	0.123	0.130
	Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080	0.080	0.081
	Bottom side	1.220					1.220	1.220	1.220	1.220	1.220	1.220
WCDMA V	Front	0.349	0.001	0.001	0.019	0.002	0.350	0.368	0.352	0.370	0.369	0.371
	Back	0.400	0.361	0.063	0.305	0.207	0.761	0.705	0.670	0.912	1.066	0.975
	Left side	0.136	0.015	0.007	0.033		0.151	0.169	0.143	0.169	0.184	0.176
	Right side	0.162	0.031	0.001	0.029	0.037	0.193	0.191	0.200	0.228	0.222	0.229
	Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080	0.080	0.081
	Bottom side	0.315					0.315	0.315	0.315	0.315	0.315	0.315
CDMA BC0_H	Front	0.598	0.001	0.001	0.019	0.002	0.599	0.617	0.601	0.619	0.618	0.620
	Back	0.865	0.361	0.063	0.305	0.207	1.226	1.170	1.135	1.377	1.531	1.440
	Left side	0.149	0.015	0.007	0.033		0.164	0.182	0.156	0.182	0.197	0.189
	Right side	0.195	0.031	0.001	0.029	0.037	0.226	0.224	0.233	0.261	0.255	0.262
	Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080	0.080	0.081
	Bottom side	0.017					0.017	0.017	0.017	0.017	0.017	0.017
CDMA BC1_H	Front	0.703	0.001	0.001	0.019	0.002	0.704	0.722	0.706	0.724	0.723	0.725
	Back	0.733	0.361	0.063	0.305	0.207	1.094	1.038	1.003	1.245	1.399	1.308
	Left side	0.050	0.015	0.007	0.033		0.065	0.083	0.057	0.083	0.098	0.090
	Right side	0.062	0.031	0.001	0.029	0.037	0.093	0.091	0.100	0.128	0.122	0.129
	Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080	0.080	0.081
	Bottom side	1.217					1.217	1.217	1.217	1.217	1.217	1.217
LTE Band 2	Front	0.645	0.001	0.001	0.019	0.002	0.646	0.664	0.648	0.666	0.665	0.667
	Back	0.847	0.361	0.063	0.305	0.207	1.208	1.152	1.117	1.359	1.513	1.422
	Left side	0.062	0.015	0.007	0.033		0.077	0.095	0.069	0.095	0.110	0.102
	Right side	0.056	0.031	0.001	0.029	0.037	0.087	0.085	0.094	0.122	0.116	0.123
	Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080	0.080	0.081
	Bottom side	1.179					1.179	1.179	1.179	1.179	1.179	1.179
LTE Band 5	Front	0.425	0.001	0.001	0.019	0.002	0.426	0.444	0.428	0.446	0.445	0.447
	Back	0.451	0.361	0.063	0.305	0.207	0.812	0.756	0.721	0.963	1.117	1.026
	Left side	0.126	0.015	0.007	0.033		0.141	0.159	0.133	0.159	0.174	0.166
	Right side	0.190	0.031	0.001	0.029	0.037	0.221	0.219	0.228	0.256	0.250	0.257
	Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080	0.080	0.081
	Bottom side	0.370					0.370	0.370	0.370	0.370	0.370	0.370





WWAN Band	Exposure Position	1	2	3	4	6	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+2+4 Summed 1g SAR (W/kg)	1+3+4+6 Summed 1g SAR (W/kg)
		WWAN 1g SAR (W/kg)	2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	2.4GHz WLAN Ant 4 1g SAR (W/kg)	5GHz WLAN Ant 3+6 1g SAR (W/kg)	Bluetooth Ant 6 1g SAR (W/kg)						
LTE Band 7	Front	0.721	0.001	0.001	0.019	0.002	<b>0.722</b>	<b>0.740</b>	<b>0.724</b>	<b>0.742</b>	<b>0.741</b>	<b>0.743</b>
	Back	0.916	0.361	0.063	0.305	0.207	<b>1.277</b>	<b>1.221</b>	<b>1.186</b>	<b>1.428</b>	<b>1.582</b>	<b>1.491</b>
	Left side	0.193	0.015	0.007	0.033		<b>0.208</b>	<b>0.226</b>	<b>0.200</b>	<b>0.226</b>	<b>0.241</b>	<b>0.233</b>
	Right side	0.151	0.031	0.001	0.029	0.037	<b>0.182</b>	<b>0.180</b>	<b>0.189</b>	<b>0.217</b>	<b>0.211</b>	<b>0.218</b>
	Top side		0.001	0.001	0.079	0.001	<b>0.001</b>	<b>0.079</b>	<b>0.002</b>	<b>0.080</b>	<b>0.080</b>	<b>0.081</b>
	Bottom side	1.362					<b>1.362</b>	<b>1.362</b>	<b>1.362</b>	<b>1.362</b>	<b>1.362</b>	<b>1.362</b>
LTE Band 12	Front	0.367	0.001	0.001	0.019	0.002	<b>0.368</b>	<b>0.386</b>	<b>0.370</b>	<b>0.388</b>	<b>0.387</b>	<b>0.389</b>
	Back	0.399	0.361	0.063	0.305	0.207	<b>0.760</b>	<b>0.704</b>	<b>0.669</b>	<b>0.911</b>	<b>1.065</b>	<b>0.974</b>
	Left side	0.127	0.015	0.007	0.033		<b>0.142</b>	<b>0.160</b>	<b>0.134</b>	<b>0.160</b>	<b>0.175</b>	<b>0.167</b>
	Right side	0.151	0.031	0.001	0.029	0.037	<b>0.182</b>	<b>0.180</b>	<b>0.189</b>	<b>0.217</b>	<b>0.211</b>	<b>0.218</b>
	Top side		0.001	0.001	0.079	0.001	<b>0.001</b>	<b>0.079</b>	<b>0.002</b>	<b>0.080</b>	<b>0.080</b>	<b>0.081</b>
	Bottom side	0.378					<b>0.378</b>	<b>0.378</b>	<b>0.378</b>	<b>0.378</b>	<b>0.378</b>	<b>0.378</b>
LTE Band 13	Front	0.359	0.001	0.001	0.019	0.002	<b>0.360</b>	<b>0.378</b>	<b>0.362</b>	<b>0.380</b>	<b>0.379</b>	<b>0.381</b>
	Back	0.480	0.361	0.063	0.305	0.207	<b>0.841</b>	<b>0.785</b>	<b>0.750</b>	<b>0.992</b>	<b>1.146</b>	<b>1.055</b>
	Left side	0.174	0.015	0.007	0.033		<b>0.189</b>	<b>0.207</b>	<b>0.181</b>	<b>0.207</b>	<b>0.222</b>	<b>0.214</b>
	Right side	0.259	0.031	0.001	0.029	0.037	<b>0.290</b>	<b>0.288</b>	<b>0.297</b>	<b>0.325</b>	<b>0.319</b>	<b>0.326</b>
	Top side		0.001	0.001	0.079	0.001	<b>0.001</b>	<b>0.079</b>	<b>0.002</b>	<b>0.080</b>	<b>0.080</b>	<b>0.081</b>
	Bottom side	0.414					<b>0.414</b>	<b>0.414</b>	<b>0.414</b>	<b>0.414</b>	<b>0.414</b>	<b>0.414</b>
LTE Band 48	Front	0.524	0.001	0.001	0.019	0.002	<b>0.525</b>	<b>0.543</b>	<b>0.527</b>	<b>0.545</b>	<b>0.544</b>	<b>0.546</b>
	Back	0.799	0.361	0.063	0.305	0.207	<b>1.160</b>	<b>1.104</b>	<b>1.069</b>	<b>1.311</b>	<b>1.465</b>	<b>1.374</b>
	Left side	0.354	0.015	0.007	0.033		<b>0.369</b>	<b>0.387</b>	<b>0.361</b>	<b>0.387</b>	<b>0.402</b>	<b>0.394</b>
	Right side	0.077	0.031	0.001	0.029	0.037	<b>0.108</b>	<b>0.106</b>	<b>0.115</b>	<b>0.143</b>	<b>0.137</b>	<b>0.144</b>
	Top side	1.029	0.001	0.001	0.079	0.001	<b>1.030</b>	<b>1.108</b>	<b>1.031</b>	<b>1.109</b>	<b>1.109</b>	<b>1.110</b>
	Bottom side						<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
LTE Band 66	Front	0.714	0.001	0.001	0.019	0.002	<b>0.715</b>	<b>0.733</b>	<b>0.717</b>	<b>0.735</b>	<b>0.734</b>	<b>0.736</b>
	Back	0.867	0.361	0.063	0.305	0.207	<b>1.228</b>	<b>1.172</b>	<b>1.137</b>	<b>1.379</b>	<b>1.533</b>	<b>1.442</b>
	Left side	0.099	0.015	0.007	0.033		<b>0.114</b>	<b>0.132</b>	<b>0.106</b>	<b>0.132</b>	<b>0.147</b>	<b>0.139</b>
	Right side	0.071	0.031	0.001	0.029	0.037	<b>0.102</b>	<b>0.100</b>	<b>0.109</b>	<b>0.137</b>	<b>0.131</b>	<b>0.138</b>
	Top side		0.001	0.001	0.079	0.001	<b>0.001</b>	<b>0.079</b>	<b>0.002</b>	<b>0.080</b>	<b>0.080</b>	<b>0.081</b>
	Bottom side	1.222					<b>1.222</b>	<b>1.222</b>	<b>1.222</b>	<b>1.222</b>	<b>1.222</b>	<b>1.222</b>

**17.3 Body-Worn Accessory Exposure Conditions**

**<Standalone>**  
**<Sensor on>**

Exposure Position	2	3	4	6	2+4 Summed 1g SAR (W/kg)	3+4+6 Summed 1g SAR (W/kg)
	2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	2.4GHz WLAN Ant 4 1g SAR (W/kg)	5GHz WLAN Ant 3+6 1g SAR (W/kg)	Bluetooth Ant 6 1g SAR (W/kg)		
Front	0.002	0.001	0.037	0.002	<b>0.039</b>	<b>0.040</b>
Back	0.660	0.113	0.622	0.207	<b>1.282</b>	<b>0.942</b>

**<Sensor off>**

Exposure Position	2	3	4	6	2+4 Summed 1g SAR (W/kg)	3+4+6 Summed 1g SAR (W/kg)
	2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	2.4GHz WLAN Ant 4 1g SAR (W/kg)	5GHz WLAN Ant 3+6 1g SAR (W/kg)	Bluetooth Ant 6 1g SAR (W/kg)		
Front	0.018	0.003	0.097	0.001	<b>0.115</b>	<b>0.101</b>
Back	0.232	0.031	0.365	0.041	<b>0.597</b>	<b>0.437</b>

**<Sim-Tx>**

**<Sensor on>**

WWAN Band	Exposure Position	1	2	3	4	6	1+2 Summed	1+4 Summed	1+3+6 Summed	1+4+6 Summed	1+2+4 Summed	1+3+4+6 Summed	SPLSR	Case No
		WWAN 1g SAR (W/kg)	2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	2.4GHz WLAN Ant 4 1g SAR (W/kg)	5GHz WLAN Ant 3+6 1g SAR (W/kg)	Bluetooth Ant 6 1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM850	Front	0.485	0.001	0.001	0.018	0.002	0.486	0.503	0.488	0.505	0.504	0.506		
	Back	0.566	0.361	0.063	0.321	0.207	0.927	0.887	0.836	1.094	1.248	1.157		
GSM1900	Front	0.478	0.001	0.001	0.018	0.002	0.479	0.496	0.481	0.498	0.497	0.499		
	Back	0.534	0.361	0.063	0.321	0.207	0.895	0.855	0.804	1.062	1.216	1.125		
WCDMA II	Front	0.645	0.001	0.001	0.018	0.002	0.646	0.663	0.648	0.665	0.664	0.666		
	Back	0.765	0.361	0.063	0.321	0.207	1.126	1.086	1.035	1.293	1.447	1.356		
WCDMA V	Front	0.349	0.001	0.001	0.018	0.002	0.350	0.367	0.352	0.369	0.368	0.370		
	Back	0.400	0.361	0.063	0.321	0.207	0.761	0.721	0.670	0.928	1.082	0.991		
CDMA BC0	Front	1.006	0.001	0.001	0.018	0.002	1.007	1.024	1.009	1.026	1.025	1.027		
	Back	0.986	0.361	0.063	0.321	0.207	1.347	1.307	1.256	1.514	1.668	1.577	Case 1	0.04
CDMA BC1	Front	0.523	0.001	0.001	0.018	0.002	0.524	0.541	0.526	0.543	0.542	0.544		
	Back	0.617	0.361	0.063	0.321	0.207	0.978	0.938	0.887	1.145	1.299	1.208		
LTE Band 2	Front	0.812	0.001	0.001	0.018	0.002	0.813	0.830	0.815	0.832	0.831	0.833		
	Back	0.989	0.361	0.063	0.321	0.207	1.350	1.310	1.259	1.517	1.671	1.580	Case 2	0.04
LTE Band 5	Front	0.425	0.001	0.001	0.018	0.002	0.426	0.443	0.428	0.445	0.444	0.446		
	Back	0.451	0.361	0.063	0.321	0.207	0.812	0.772	0.721	0.979	1.133	1.042		
LTE Band 7	Front	0.721	0.001	0.001	0.018	0.002	0.722	0.739	0.724	0.741	0.740	0.742		
	Back	0.916	0.361	0.063	0.321	0.207	1.277	1.237	1.186	1.444	1.598	1.507	Case 3	0.04
LTE Band 12	Front	0.367	0.001	0.001	0.018	0.002	0.368	0.385	0.370	0.387	0.386	0.388		
	Back	0.399	0.361	0.063	0.321	0.207	0.760	0.720	0.669	0.927	1.081	0.990		
LTE Band 13	Front	0.359	0.001	0.001	0.018	0.002	0.360	0.377	0.362	0.379	0.378	0.380		
	Back	0.480	0.361	0.063	0.321	0.207	0.841	0.801	0.750	1.008	1.162	1.071		
LTE Band 48	Front	0.524	0.001	0.001	0.018	0.002	0.525	0.542	0.527	0.544	0.543	0.545		
	Back	0.805	0.361	0.063	0.321	0.207	1.166	1.126	1.075	1.333	1.487	1.396		
LTE Band 66	Front	0.766	0.001	0.001	0.018	0.002	0.767	0.784	0.769	0.786	0.785	0.787		
	Back	0.937	0.361	0.063	0.321	0.207	1.298	1.258	1.207	1.465	1.619	1.528	Case 4	0.04



**<Sensor off>**

WWAN Band	Exposure Position	1	2	3	4	6	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+2+4 Summed 1g SAR (W/kg)	1+3+4+6 Summed 1g SAR (W/kg)	SPLSR	Case No
		WWAN	2.4GHz WLAN Ant 4+6	2.4GHz WLAN Ant 4	5GHz WLAN Ant 3+6	Bluetooth Ant 6								
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)								
GSM850	Front	0.485	0.019	0.003	0.095	0.001	0.504	0.580	0.489	0.581	0.599	0.584		
	Back	0.566	0.244	0.033	0.263	0.041	0.810	0.829	0.640	0.870	1.073	0.903		
GSM1900	Front	0.884	0.019	0.003	0.095	0.001	0.903	0.979	0.888	0.980	0.998	0.983		
	Back	0.673	0.244	0.033	0.263	0.041	0.917	0.936	0.747	0.977	1.180	1.010		
WCDMA II	Front	1.359	0.019	0.003	0.095	0.001	1.378	1.454	1.363	1.455	1.473	1.458		
	Back	1.141	0.244	0.033	0.263	0.041	1.385	1.404	1.215	1.445	1.648	1.478	Case 5	0.04
WCDMA V	Front	0.349	0.019	0.003	0.095	0.001	0.368	0.444	0.353	0.445	0.463	0.448		
	Back	0.400	0.244	0.033	0.263	0.041	0.644	0.663	0.474	0.704	0.907	0.737		
CDMA BC0	Front	1.006	0.019	0.003	0.095	0.001	1.025	1.101	1.010	1.102	1.120	1.105		
	Back	0.986	0.244	0.033	0.263	0.041	1.230	1.249	1.060	1.290	1.493	1.323		
CDMA BC1	Front	1.426	0.019	0.003	0.095	0.001	1.445	1.521	1.430	1.522	1.540	1.525		
	Back	1.234	0.244	0.033	0.263	0.041	1.478	1.497	1.308	1.538	1.741	1.571	Case 6	0.02
LTE Band 2	Front	1.078	0.019	0.003	0.095	0.001	1.097	1.173	1.082	1.174	1.192	1.177		
	Back	0.737	0.244	0.033	0.263	0.041	0.981	1.000	0.811	1.041	1.244	1.074		
LTE Band 5	Front	0.425	0.019	0.003	0.095	0.001	0.444	0.520	0.429	0.521	0.539	0.524		
	Back	0.451	0.244	0.033	0.263	0.041	0.695	0.714	0.525	0.755	0.958	0.788		
LTE Band 7	Front	0.721	0.019	0.003	0.095	0.001	0.740	0.816	0.725	0.817	0.835	0.820		
	Back	0.916	0.244	0.033	0.263	0.041	1.160	1.179	0.990	1.220	1.423	1.253		
LTE Band 12	Front	0.367	0.019	0.003	0.095	0.001	0.386	0.462	0.371	0.463	0.481	0.466		
	Back	0.399	0.244	0.033	0.263	0.041	0.643	0.662	0.473	0.703	0.906	0.736		
LTE Band 13	Front	0.359	0.019	0.003	0.095	0.001	0.378	0.454	0.363	0.455	0.473	0.458		
	Back	0.480	0.244	0.033	0.263	0.041	0.724	0.743	0.554	0.784	0.987	0.817		
LTE Band 48	Front	0.127	0.019	0.003	0.095	0.001	0.146	0.222	0.131	0.223	0.241	0.226		
	Back	0.151	0.244	0.033	0.263	0.041	0.395	0.414	0.225	0.455	0.658	0.488		
LTE Band 66	Front	0.647	0.019	0.003	0.095	0.001	0.666	0.742	0.651	0.743	0.761	0.746		
	Back	0.531	0.244	0.033	0.263	0.041	0.775	0.794	0.605	0.835	1.038	0.868		



**17.4 Product Specific Exposure Conditions**

**<Standalone>**

Exposure Position	2	3	4	6	2+4 Summed 10g SAR (W/kg)	3+4+6 Summed 10g SAR (W/kg)
	2.4GHz WLAN Ant 4+6 10g SAR (W/kg)	2.4GHz WLAN Ant 4 10g SAR (W/kg)	5GHz WLAN Ant 3+6 10g SAR (W/kg)	Bluetooth Ant 6 1g SAR (W/kg)		
Front			0.302		0.302	0.302
Back	2.056		1.130		3.186	1.130
Left side			0.354		0.354	0.354
Right side			0.297		0.297	0.297
Top side			0.415		0.415	0.415
Bottom side					0.000	0.000

**<Sim-Tx>**

**<Sensor on>**

WWAN Band	Exposure Position	1	2	3	4	6	1+2 Summed 10g SAR (W/kg)	1+4 Summed 10g SAR (W/kg)	1+3+6 Summed 10g SAR (W/kg)	1+4+6 Summed 10g SAR (W/kg)	1+2+4 Summed 10g SAR (W/kg)	1+3+4+6 Summed 10g SAR (W/kg)
		WWAN 10g SAR (W/kg)	2.4GHz WLAN Ant 4+6 10g SAR (W/kg)	2.4GHz WLAN Ant 4 10g SAR (W/kg)	5GHz WLAN Ant 3+6 10g SAR (W/kg)	Bluetooth Ant 6 10g SAR (W/kg)						
GSM1900	Front	2.676			0.092		2.676	2.768	2.676	2.768	2.768	2.768
	Back	2.768			0.431		2.768	3.199	2.768	3.199	3.199	3.199
	Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
	Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
	Top side				0.176		0.000	0.176	0.000	0.176	0.176	0.176
	Bottom side	1.249					1.249	1.249	1.249	1.249	1.249	1.249
WCDMA II	Front	2.581			0.092		2.581	2.673	2.581	2.673	2.673	2.673
	Back	2.738			0.431		2.738	3.169	2.738	3.169	3.169	3.169
	Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
	Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
	Top side				0.176		0.000	0.176	0.000	0.176	0.176	0.176
	Bottom side	1.447					1.447	1.447	1.447	1.447	1.447	1.447
CDMA BC1	Front	2.694			0.092		2.694	2.786	2.694	2.786	2.786	2.786
	Back	2.815			0.431		2.815	3.246	2.815	3.246	3.246	3.246
	Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
	Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
	Top side				0.176		0.000	0.176	0.000	0.176	0.176	0.176
	Bottom side	1.772					1.772	1.772	1.772	1.772	1.772	1.772
LTE Band 2	Front	2.608			0.092		2.608	2.700	2.608	2.700	2.700	2.700
	Back	2.801			0.431		2.801	3.232	2.801	3.232	3.232	3.232
	Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
	Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
	Top side				0.176		0.000	0.176	0.000	0.176	0.176	0.176
	Bottom side	1.029					1.029	1.029	1.029	1.029	1.029	1.029



WWAN Band	Exposure Position	1	2	3	4	6	1+2 Summed 10g SAR (W/kg)	1+4 Summed 10g SAR (W/kg)	1+3+6 Summed 10g SAR (W/kg)	1+4+6 Summed 10g SAR (W/kg)	1+2+4 Summed 10g SAR (W/kg)	1+3+4+6 Summed 10g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+6	2.4GHz WLAN Ant 4	5GHz WLAN Ant 3+6	Bluetooth Ant 6						
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)						
LTE Band 7	Front	2.281			0.092		2.281	2.373	2.281	2.373	2.373	2.373
	Back	2.486			0.431		2.486	2.917	2.486	2.917	2.917	2.917
	Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
	Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
	Top side				0.176		0.000	0.176	0.000	0.176	0.176	0.176
	Bottom side	3.053					3.053	3.053	3.053	3.053	3.053	3.053
LTE Band 48	Front				0.092		0.000	0.092	0.000	0.092	0.092	0.092
	Back	2.449			0.431		2.449	2.880	2.449	2.880	2.880	2.880
	Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
	Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
	Top side	1.548			0.176		1.548	1.724	1.548	1.724	1.724	1.724
	Bottom side						0.000	0.000	0.000	0.000	0.000	0.000
LTE Band 66	Front	1.868			0.092		1.868	1.960	1.868	1.960	1.960	1.960
	Back	2.073			0.431		2.073	2.504	2.073	2.504	2.504	2.504
	Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
	Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
	Top side				0.176		0.000	0.176	0.000	0.176	0.176	0.176
	Bottom side	1.181					1.181	1.181	1.181	1.181	1.181	1.181

<Sensor off>

WWAN Band	Exposure Position	1	2	3	4	6	1+2 Summed 10g SAR (W/kg)	1+4 Summed 10g SAR (W/kg)	1+3+6 Summed 10g SAR (W/kg)	1+4+6 Summed 10g SAR (W/kg)	1+2+4 Summed 10g SAR (W/kg)	1+3+4+6 Summed 10g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+6	2.4GHz WLAN Ant 4	5GHz WLAN Ant 3+6	Bluetooth Ant 6						
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)						
GSM1900	Front	1.561			0.092		1.561	1.653	1.561	1.653	1.653	1.653
	Back	1.289			0.431		1.289	1.720	1.289	1.720	1.720	1.720
	Bottom Side	1.358					1.358	1.358	1.358	1.358	1.358	1.358
WCDMA II	Front	1.505			0.092		1.505	1.597	1.505	1.597	1.597	1.597
	Back	1.201			0.431		1.201	1.632	1.201	1.632	1.632	1.632
	Bottom Side	1.395					1.395	1.395	1.395	1.395	1.395	1.395
CDMA BC1	Front	2.615			0.092		2.615	2.707	2.615	2.707	2.707	2.707
	Back	1.533			0.431		1.533	1.964	1.533	1.964	1.964	1.964
	Bottom Side	2.646					2.646	2.646	2.646	2.646	2.646	2.646
LTE Band 2	Front	1.653			0.092		1.653	1.745	1.653	1.745	1.745	1.745
	Back	1.338			0.431		1.338	1.769	1.338	1.769	1.769	1.769
	Bottom Side	2.044					2.044	2.044	2.044	2.044	2.044	2.044
LTE Band 66	Front	2.079			0.092		2.079	2.171	2.079	2.171	2.171	2.171
	Back	1.046			0.431		1.046	1.477	1.046	1.477	1.477	1.477
	Bottom Side	2.547					2.547	2.547	2.547	2.547	2.547	2.547

**17.5 SPLSR Evaluation and Analysis**

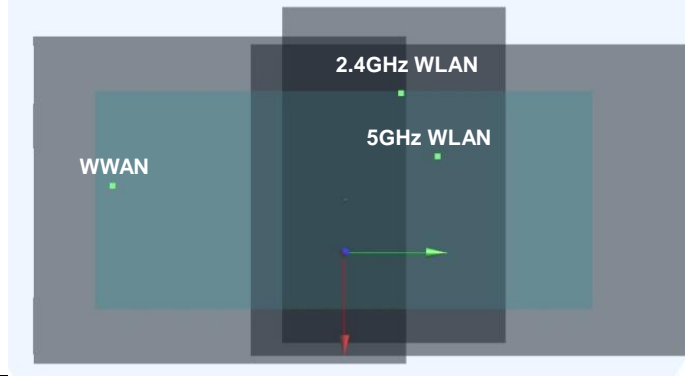
**General Note:**

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

	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 1	CDMA BC0	Back	0.986	5	-0.6	-90	-0.83	114.1	1.35	0.01	Not required
	WLAN2.4GHz		0.361	5	-25.4	21.4	-1.3				
	CDMA BC0	Back	0.986	5	-0.6	-90	-0.83	118.2	1.31	0.01	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				
	WLAN2.4GHz	Back	0.361	5	-25.4	21.4	-1.3	14.4	0.68	0.04	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				



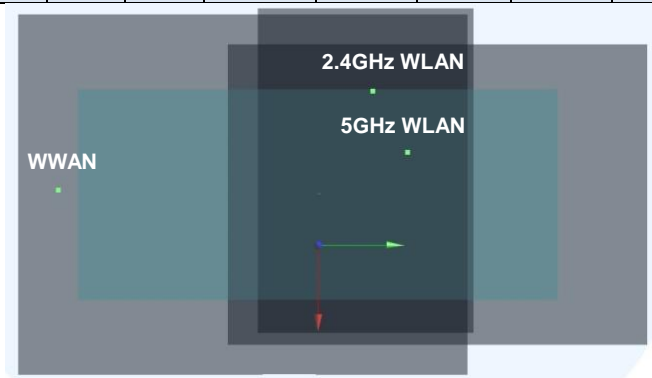
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 2	LTE Band 2	Back	0.989	5	-4.43	-74.51	-1.23	98.2	1.35	0.02	Not required
	WLAN2.4GHz		0.361	5	-25.4	21.4	-1.3				
	LTE Band 2	Back	0.989	5	-4.43	-74.51	-1.23	102.4	1.31	0.01	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				
	WLAN2.4GHz	Back	0.361	5	-25.4	21.4	-1.3	14.4	0.68	0.04	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				



Case 3	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B7	Back	0.916	5	-4.4	-85.1	-0.77	108.6	1.28	0.01	Not required
	WLAN2.4GHz		0.361	5	-25.4	21.4	-1.3				
	LTE B7	Back	0.916	5	1.4	-81	-1.01	109.5	1.24	0.01	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				
	WLAN2.4GHz	Back	0.361	5	-25.4	21.4	-1.3	14.4	0.68	0.04	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				



Case 4	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 66	Back	0.937	5	-3.06	-83.29	-1.25	107.0	1.30	0.01	Not required
	WLAN2.4GHz		0.361	5	-25.4	21.4	-1.3				
	LTE Band 66	Back	0.937	5	-3.06	-83.29	-1.25	111.3	1.26	0.01	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				
	WLAN2.4GHz	Back	0.361	5	-25.4	21.4	-1.3	14.4	0.68	0.04	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				



Case 5	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 5	WCDMA B2	Back	1.141	5	-4.46	-74.59	-1.28	98.2	1.50	0.02	Not required
	WLAN2.4GHz		0.361	5	-25.4	21.4	-1.3				
Case 5	WCDMA B2	Back	1.141	5	-4.46	-74.59	-1.28	102.5	1.46	0.02	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				
Case 5	WLAN2.4GHz	Back	0.361	5	-25.4	21.4	-1.3	14.4	0.68	0.04	Not required
	WLAN5GHz		0.321	5	-12.4	27.6	-1.13				



Case 6	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 6	CDMA BC1	Back	1.234	18	1.4	-81	-1.01	103.7	1.48	0.02	Not required
	WLAN2.4GHz		0.244	18	-28.2	18.4	-1.29				
Case 6	CDMA BC1	Back	1.234	18	1.4	-81	-1.01	107.3	1.50	0.02	Not required
	WLAN5GHz		0.263	18	-13.6	25.2	-1.22				
Case 6	WLAN2.4GHz	Back	0.244	18	-28.2	18.4	-1.29	16.1	0.51	0.02	Not required
	WLAN5GHz		0.263	18	-13.6	25.2	-1.22				



**Test Engineer :** Iran Wang Kurt Liu Tommy Chen Steven Chang Mood Huang and Tom Jiang





## **18. 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  $\leq 30\%$ , 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.

## **19. 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 941225 D07 v01r02, " SAR Evaluation Procedures for UMPC Mini-Tablet Devices", Oct 2015.
- [13] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [14] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.



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**Appendix A. Plots of System Performance Check**

The plots are shown as follows.



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***Appendix B. Plots of SAR Measurement***

The plots are shown as follows.



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**Appendix C. DASYS Calibration Certificate**

The DASYS calibration certificates are shown as follows.