



FCC SAR TEST REPORT

FCC ID : UZ7EC55AK
Equipment : Enterprise Computer
Brand Name : Zebra
Model Name : EC55AK
Applicant : Zebra Technologies Corporation
1 Zebra Plaza, Holtsville, NY 11742
Manufacturer : Zebra Technologies Corporation
1 Zebra Plaza, Holtsville, NY 11742
Standard : FCC 47 CFR Part 2 (2.1093)

The product was received on Aug. 05, 2020 and testing was started from Aug. 26, 2020 and completed on Oct. 15, 2020. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

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



Approved by: Cona Huang / Deputy Manager

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History of this test report

Report No.	Version	Description	Issued Date
FA070401	01	Initial issue of report	Oct. 27, 2020
FA070401	02	Update section 16	Nov. 30, 2020

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Zebra Technologies Corporation, Enterprise Computer, EC55AK, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission	
		Head (Separation 0mm)	Body-worn (Separation 0mm)	Hotspot (Separation 10mm)	Hand (Separation 0mm)	1g SAR (W/kg)	10g SAR (W/kg)
		1g SAR (W/kg)			10g SAR (W/kg)		
Licensed	WCDMA II	0.66	0.47	0.76	0.48	1.59	1.98
	WCDMA IV	0.38	0.34	0.72	0.34		
	WCDMA V	0.53	0.80	0.50	0.31		
	LTE Band 7	0.41	1.06	1.31	0.48		
	LTE Band 12 / 17	0.41	0.37	0.41	0.33		
	LTE Band 13	0.52	0.41	0.74	0.48		
	LTE Band 14	0.34	0.36	0.60	0.34		
	LTE Band 2 / 25	0.62	1.23	0.92	0.42		
	LTE Band 5 / 26	0.40	0.47	0.38	0.20		
	LTE Band 4 / 66	0.58	0.85	1.11	0.30		
DTS	2.4GHz WLAN	0.88	0.05	0.31	0.69	1.59	1.98
NII	5GHz WLAN	1.25	0.32	0.65	0.81	1.59	1.98
DSS	Bluetooth	< 0.01	< 0.01	< 0.01	< 0.01	1.57	1.30
Date of Testing:		2020/8/26 ~ 2020/10/15					

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.(FCC). 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: Daisy Peng



2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB standard may not including in the TAF code without accreditation.

- 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 D06 Hotspot Mode SAR v02r01

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Enterprise Computer
Brand Name	Zebra
Model Name	EC55AK
FCC ID	UZ7EC55AK
IMEI Code	355584110023193
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 66: 1710 MHz ~ 1780 MHz WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz
Mode	RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM WLAN: 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	EV2
SW Version	Android version 10
FW Version	10-13-12.00-QG-U00-PRD-HEL-04
MFD	22JUN20 17JUN20
EUT Stage	Engineering sample

Specification of Accessories				
AC Adapter 1	Brand Name	Zebra	Part Number	PWR-WUA5V15W0EU
AC Adapter 2	Brand Name	Zebra	Part Number	PWR-WUA5V15W0US
USB TYPE-C to TYPE-C cable	Brand Name	Zebra	Part Number	CBL-EC5X-USBC3A-01
Battery 1	Brand Name	Zebra	Part Number	BT-000424-00
Battery 2	Brand Name	Zebra	Part Number	BT-000424-08
Earphone 1	Brand Name	Zebra	Part Number	HDST-35MM-PTVP-01
Earphone 2	Brand Name	Zebra	Part Number	HS2100-OTH
USB TYPE C to 3.5mm audio connector	Brand Name	Symbol	Part Number	ADP-USBC-35MM1-01
3.5mm Jack 43"(1.1m) Standard Cable	Brand Name	Zebra	Part Number	CBL-HS2100-3MS1-01
Trigger Handle	Brand Name	Zebra	Part Number	TRG-EC5X-SNP1-01
Soft Holster	Brand Name	Zebra	Part Number	SG-EC5X-HLSTR1-01
Protective Boot	Brand Name	Zebra	Part Number	SG-EC5X-BOOT1-01



3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																																							
FCC ID	UZ7EC55AK																																																																						
Equipment Name	Enterprise Computer																																																																						
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 66: 1710 MHz ~ 1780 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 14: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz																																																																						
uplink modulations used	QPSK / 16QAM / 64QAM																																																																						
LTE Voice / Data requirements	Data only / Voice and Data																																																																						
LTE MPR permanently built-in by design	<table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th></tr><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</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><tr><td>QPSK</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>≤ 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>> 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>≤ 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>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr><tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr></table>	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3								Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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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 mode that LTE B7 power reduction applied to satisfy SAR compliance.																																																																						

Transmission (H, M, L) channel numbers and frequencies in each LTE band														
LTE Band 2														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860		
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880		
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900		
LTE Band 4														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720		
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5		
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745		
LTE Band 5														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	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)	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)	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 14														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Channel #		Channel #		Freq.(MHz)							
L	23305		790.5		23330		793							
M	23330		793											
H	23355		795.5											
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 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905
LTE Band 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5	26790	824.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5	26940	838.5
LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

4. RF Exposure Limits

4.1 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.

4.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

5. Specific Absorption Rate (SAR)

5.1 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.

5.2 SAR Definition

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

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

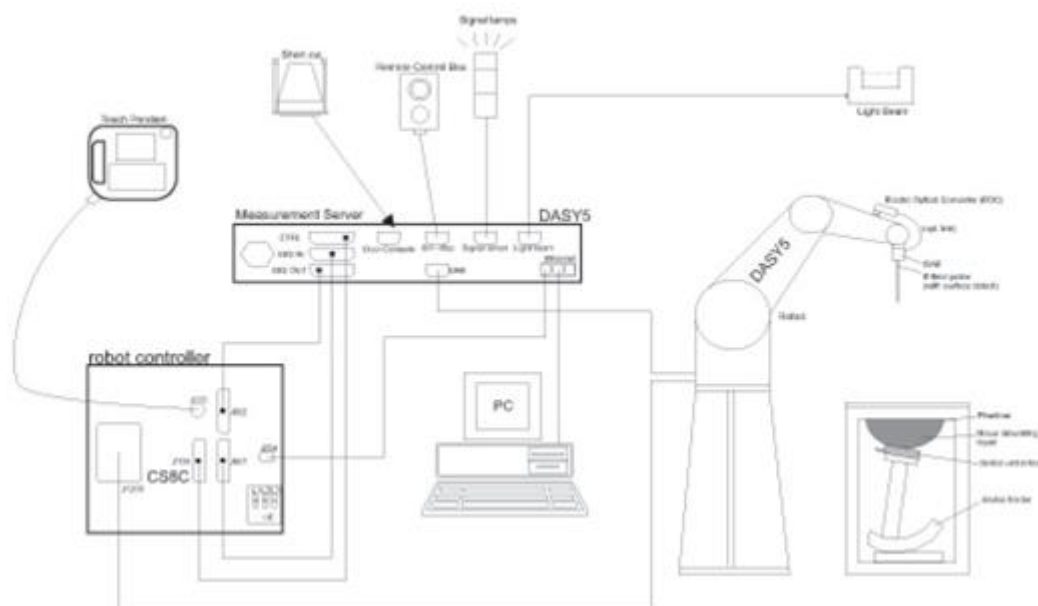
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

6. 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.

6.1 Test Site Location

Sporton Lab and below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 0007) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory			
Test Site Location	TW1190 No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, CHINESE TAIPEI		TW0007 No. 58, Aly. 75, Ln. 564, Wehnuia 3rd, Rd., Guishan Dist., Taoyuan City, CHINESE TAIPEI	
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY
	SAR06-HY	SAR10-HY		

6.2 E-Field Probe

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

<ES3DV3 Probe>

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

<EX3DV4 Probe>

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

6.3 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

6.4 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

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

6.5 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

7. 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

7.1 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

7.2 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.

7.3 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	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

7.4 Zoom Scan

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

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

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

7.5 Volume Scan Procedures

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

7.6 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.

8. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit ⁽²⁾	D750V3	1107	Mar. 08, 2019	Mar. 06, 2021
SPEAG	835MHz System Validation Kit	D835V2	4d167	Nov. 25, 2019	Nov. 24, 2020
SPEAG	1750MHz System Validation Kit ⁽²⁾	D1750V2	1112	Mar. 07, 2019	Mar. 05, 2021
SPEAG	1900MHz System Validation Kit ⁽²⁾	D1900V2	5d185	Mar. 07, 2019	Mar. 05, 2021
SPEAG	2450MHz System Validation Kit	D2450V2	929	Nov. 21, 2019	Nov. 20, 2020
SPEAG	2600MHz System Validation Kit ⁽²⁾	D2600V2	1078	Mar. 06, 2019	Mar. 04, 2021
SPEAG	5GHz System Validation Kit	D5GHzV2	1128	Dec. 16, 2019	Dec. 15, 2020
SPEAG	Data Acquisition Electronics	DAE4	316	Dec. 20, 2019	Dec. 19, 2020
SPEAG	Data Acquisition Electronics	DAE3	495	Jul. 21, 2020	Jul. 20, 2021
SPEAG	Data Acquisition Electronics	DAE4	778	Jun. 04, 2020	Jun. 03, 2021
SPEAG	Data Acquisition Electronics	DAE4	854	May. 26, 2020	May. 25, 2021
SPEAG	Dosimetric E-Field Probe	ES3DV3	3124	Dec. 18, 2019	Dec. 17, 2020
SPEAG	Dosimetric E-Field Probe	ES3DV3	3115	Jan. 03, 2020	Jan. 02, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3753	Jun. 25, 2020	Jun. 24, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 24, 2020	Jul. 23, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3873	Aug. 27, 2020	Aug. 26, 2021
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 12, 2019	Nov. 11, 2020
RCPTWN	Thermometer	HTC-1	TM560-2	Nov. 12, 2019	Nov. 11, 2020
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Oct. 31, 2019	Oct. 30, 2020
Keysight	Wireless Communication Test Set	E5515C	MY50267236	Mar. 18, 2020	Mar. 17, 2021
R&S	BT Base Station	CBT	100815	Feb. 15, 2020	Feb. 14, 2021
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Nov. 20, 2019	Nov. 19, 2020
Keysight	ENA Network Analyzer	E5071C	MY46101588	Jun. 10, 2020	Jun. 09, 2021
SPEAG	Dielectric Probe Kit	DAK-3.5	1146	Jul. 22, 2020	Jul. 21, 2021
LINE SEIKI	Digital Thermometer	DTM3000-spezial	2942	Nov. 18, 2019	Nov. 17, 2020
Anritsu	Power Meter	ML2495A	1419002	Aug. 19, 2020	Aug. 18, 2021
Anritsu	Power Sensor	MA2411B	1911176	Aug. 18, 2020	Aug. 17, 2021
Anritsu	Power Meter	ML2495A	1240001	Sep. 01, 2020	Aug. 31, 2021
Anritsu	Power Sensor	MA2411B	1207349	Sep. 01, 2020	Aug. 31, 2021
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 30, 2020	Jun. 29, 2021
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Mar. 12, 2020	Mar. 11, 2021
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 16, 2019	Oct. 15, 2020
Mini-Circuits	Power Amplifier	ZVE-8G+	479102029	Aug. 26, 2020	Aug. 25, 2021
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. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

9. System Verification

9.1 Tissue Simulating Liquids

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

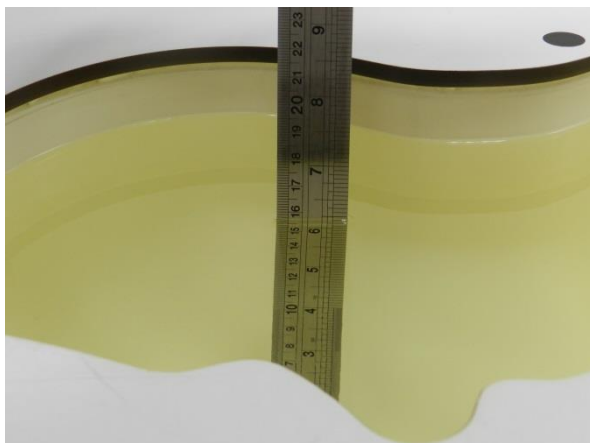


Fig 10.1Photo of Liquid Height for Head SAR



Fig 10.2 Photo of Liquid Height for Body SAR

9.2 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_r)
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_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	22.3	0.893	42.549	0.89	41.90	0.34	1.55	±5	2020/9/27
750	22.2	0.890	42.349	0.89	41.90	0.00	1.07	±5	2020/9/28
750	22.3	0.898	42.908	0.89	41.90	0.90	2.41	±5	2020/10/7
835	22.2	0.901	42.474	0.90	41.50	0.11	2.35	±5	2020/9/28
835	22.3	0.931	42.291	0.90	41.50	3.44	1.91	±5	2020/10/7
1750	22.4	1.361	40.492	1.37	40.10	-0.66	0.98	±5	2020/9/30
1750	22.5	1.369	40.623	1.37	40.10	-0.07	1.30	±5	2020/10/1
1750	22.5	1.350	40.022	1.37	40.10	-1.46	-0.19	±5	2020/10/8
1900	22.5	1.389	40.540	1.40	40.00	-0.79	1.35	±5	2020/9/29
1900	22.5	1.389	40.540	1.40	40.00	-0.79	1.35	±5	2020/9/29
1900	22.5	1.433	38.773	1.40	40.00	2.36	-3.07	±5	2020/10/8
2450	22.4	1.827	39.764	1.80	39.20	1.50	1.44	±5	2020/8/31
2450	22.4	1.800	39.388	1.80	39.20	0.00	0.48	±5	2020/10/15
2600	22.4	1.968	38.010	1.96	39.00	0.41	-2.54	±5	2020/9/30
2600	22.6	1.984	38.231	1.96	39.00	1.22	-1.97	±5	2020/10/1
2600	22.5	2.021	40.188	1.96	39.00	3.11	3.05	±5	2020/10/8
5250	22.7	4.641	35.942	4.71	35.95	-1.46	-0.02	±5	2020/8/26
5250	22.7	4.508	36.727	4.71	35.95	-4.29	2.16	±5	2020/8/30
5600	22.7	4.998	35.497	5.07	35.50	-1.42	-0.01	±5	2020/8/26
5600	22.7	4.873	36.242	5.07	35.50	-3.89	2.09	±5	2020/8/30
5750	22.7	5.184	35.281	5.22	35.35	-0.69	-0.20	±5	2020/8/26
5750	22.4	5.131	36.068	5.13	36.07	0.02	-0.01	±5	2020/8/31

9.3 System Performance Check Results

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

Date	Frequency (MHz)	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 (%)
2020/9/27	750	250	D750V3-1107	EX3DV4 - SN3753	DAE4 Sn854	1.94	8.32	7.76	-6.73
2020/9/28	750	250	D750V3-1107	ES3DV3 - SN3115	DAE4 Sn778	2.16	8.32	8.64	3.85
2020/10/7	750	250	D750V3-1107	ES3DV3 - SN3124	DAE4 Sn316	2.05	8.32	8.2	-1.44
2020/9/28	835	50	D835V2-4d167	ES3DV3 - SN3115	DAE4 Sn778	0.519	9.55	10.38	8.69
2020/10/7	835	250	D835V2-4d167	ES3DV3 - SN3124	DAE4 Sn316	2.41	9.55	9.64	0.94
2020/9/30	1750	250	D1750V2-1112	EX3DV4 - SN3873	DAE4 Sn778	9.14	36.70	36.56	-0.38
2020/10/1	1750	50	D1750V2-1112	ES3DV3 - SN3115	DAE4 Sn778	1.90	36.70	38	3.54
2020/10/8	1750	250	D1750V2-1112	ES3DV3 - SN3124	DAE4 Sn316	8.83	36.70	35.32	-3.76
2020/9/29	1900	50	D1900V2-5d185	ES3DV3 - SN3115	DAE4 Sn778	2.01	39.40	40.2	2.03
2020/9/29	1900	250	D1900V2-5d185	EX3DV4 - SN3873	DAE4 Sn778	9.73	39.40	38.92	-1.22
2020/10/8	1900	250	D1900V2-5d185	ES3DV3 - SN3124	DAE4 Sn316	9.74	39.40	38.96	-1.12
2020/8/31	2450	250	D2450V2-929	ES3DV3 - SN3124	DAE4 Sn316	12.80	53.10	51.2	-3.58
2020/10/15	2450	250	D2450V2-929	EX3DV4 - SN3753	DAE4 Sn854	12.90	53.10	51.6	-2.82
2020/9/30	2600	50	D2600V2-1078	ES3DV3 - SN3115	DAE4 Sn778	2.96	57.60	59.2	2.78
2020/10/1	2600	250	D2600V2-1078	ES3DV3 - SN3124	DAE4 Sn316	13.30	57.60	53.2	-7.64
2020/10/8	2600	250	D2600V2-1078	ES3DV3 - SN3124	DAE4 Sn316	13.60	57.60	54.4	-5.56
2020/8/26	5250	100	D5GHzV2-1128-5250	EX3DV4 - SN7306	DAE3 Sn495	7.62	80.00	76.2	-4.75
2020/8/30	5250	100	D5GHzV2-1128-5250	EX3DV4 - SN7306	DAE3 Sn495	7.48	80.00	74.8	-6.50
2020/8/26	5600	100	D5GHzV2-1128-5600	EX3DV4 - SN7306	DAE3 Sn495	8.65	82.40	86.5	4.98
2020/8/30	5600	100	D5GHzV2-1128-5600	EX3DV4 - SN7306	DAE3 Sn495	8.37	82.40	83.7	1.58
2020/8/26	5750	100	D5GHzV2-1128-5750	EX3DV4 - SN7306	DAE3 Sn495	7.85	79.10	78.5	-0.76
2020/8/31	5750	100	D5GHzV2-1128-5750	EX3DV4 - SN7306	DAE3 Sn495	7.52	80.40	75.2	-6.47

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)	Deviation (%)
2020/9/27	750	250	D750V3-1107	EX3DV4 - SN3753	DAE4 Sn854	1.30	5.61	5.2	-7.31
2020/9/28	750	250	D750V3-1107	ES3DV3 - SN3115	DAE4 Sn778	1.48	5.61	5.92	5.53
2020/10/7	750	250	D750V3-1107	ES3DV3 - SN3124	DAE4 Sn316	1.38	5.61	5.52	-1.60
2020/9/28	835	50	D835V2-4d167	ES3DV3 - SN3115	DAE4 Sn778	0.34	6.21	6.8	9.50
2020/10/7	835	250	D835V2-4d167	ES3DV3 - SN3124	DAE4 Sn316	1.59	6.21	6.36	2.42
2020/9/30	1750	250	D1750V2-1112	EX3DV4 - SN3873	DAE4 Sn778	5.14	19.40	20.56	5.98
2020/10/1	1750	50	D1750V2-1112	ES3DV3 - SN3115	DAE4 Sn778	1.05	19.40	21	8.25
2020/10/8	1750	250	D1750V2-1112	ES3DV3 - SN3124	DAE4 Sn316	4.75	19.40	19	-2.06
2020/9/29	1900	50	D1900V2-5d185	ES3DV3 - SN3115	DAE4 Sn778	1.08	20.50	21.6	5.37
2020/9/29	1900	250	D1900V2-5d185	EX3DV4 - SN3873	DAE4 Sn778	5.14	20.50	20.56	0.29
2020/10/8	1900	250	D1900V2-5d185	ES3DV3 - SN3124	DAE4 Sn316	5.04	20.50	20.16	-1.66
2020/8/31	2450	250	D2450V2-929	ES3DV3 - SN3124	DAE4 Sn316	5.87	24.70	23.48	-4.94
2020/10/15	2450	250	D2450V2-929	EX3DV4 - SN3753	DAE4 Sn854	6.04	24.70	24.16	-2.19
2020/9/30	2600	50	D2600V2-1078	ES3DV3 - SN3115	DAE4 Sn778	1.40	25.50	28	9.80
2020/10/1	2600	250	D2600V2-1078	ES3DV3 - SN3124	DAE4 Sn316	5.92	25.50	23.68	-7.14
2020/10/8	2600	250	D2600V2-1078	ES3DV3 - SN3124	DAE4 Sn316	6.03	25.50	24.12	-5.41
2020/8/26	5250	100	D5GHzV2-1128-5250	EX3DV4 - SN7306	DAE3 Sn495	2.17	22.90	21.7	-5.24
2020/8/30	5250	100	D5GHzV2-1128-5250	EX3DV4 - SN7306	DAE3 Sn495	2.17	22.90	21.7	-5.24
2020/8/26	5600	100	D5GHzV2-1128-5600	EX3DV4 - SN7306	DAE3 Sn495	2.38	23.60	23.8	0.85
2020/8/30	5600	100	D5GHzV2-1128-5600	EX3DV4 - SN7306	DAE3 Sn495	2.34	23.60	23.4	-0.85
2020/8/26	5750	100	D5GHzV2-1128-5750	EX3DV4 - SN7306	DAE3 Sn495	2.24	22.60	22.4	-0.88
2020/8/31	5750	100	D5GHzV2-1128-5750	EX3DV4 - SN7306	DAE3 Sn495	2.11	22.90	21.1	-7.86

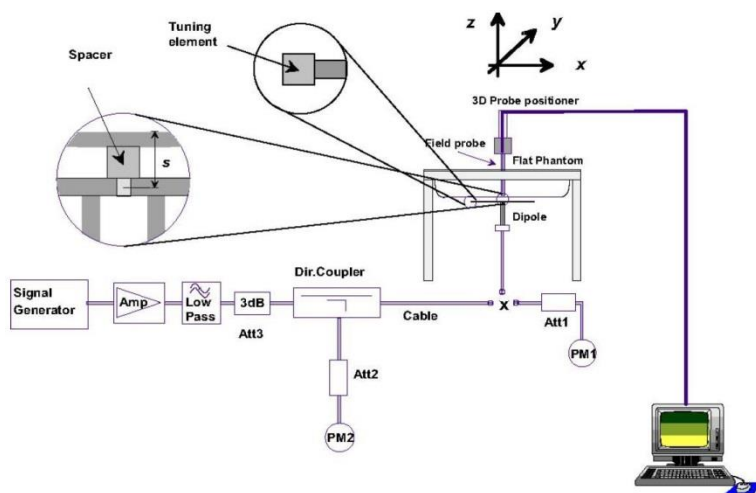

Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

10. RF Exposure Positions

10.1 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.

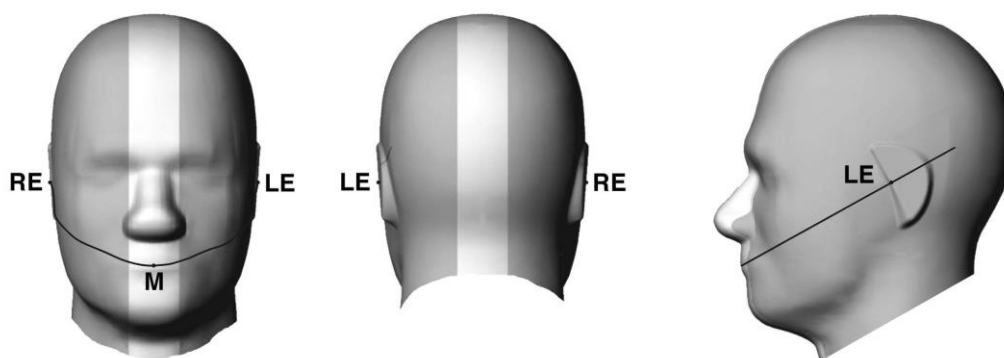


Fig 9.1.1 Front, back, and side views of SAM twin phantom

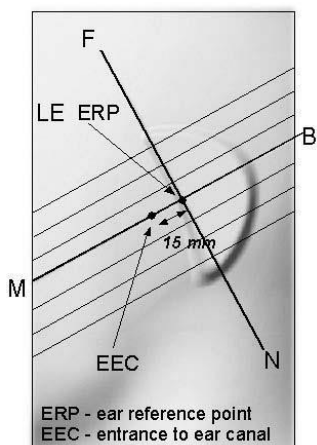


Fig 9.1.2 Close-up side view of phantom showing the ear region.

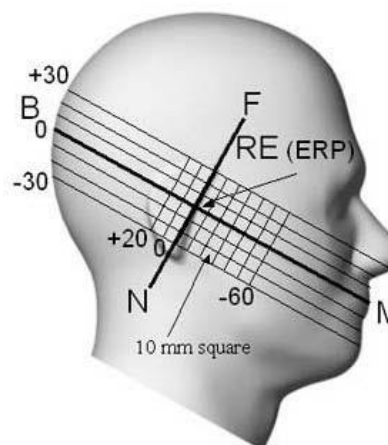


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

10.2 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.

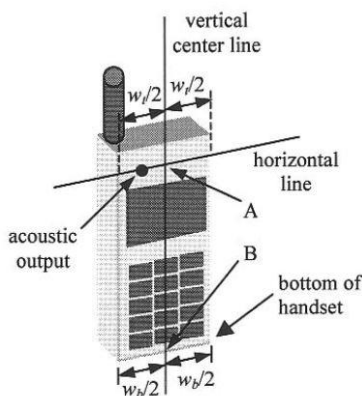


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case"

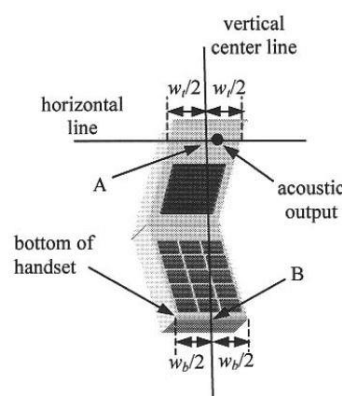


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

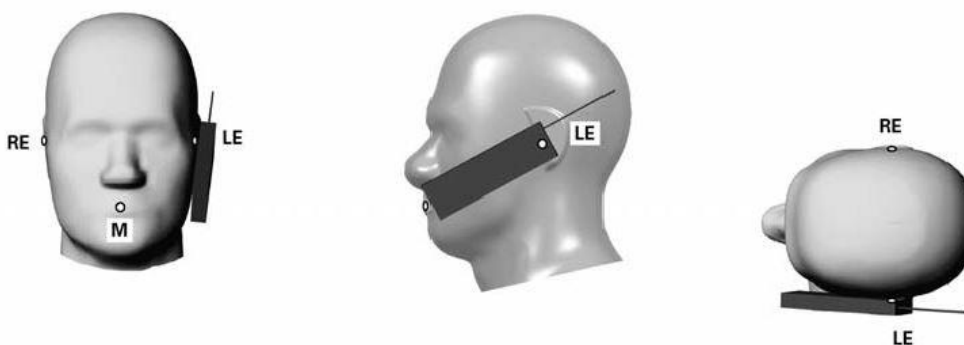


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

10.3 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

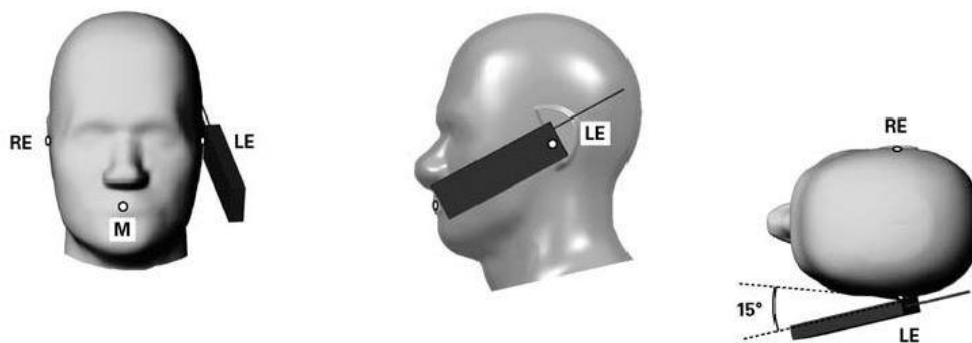


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

10.4 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 $> 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are 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.

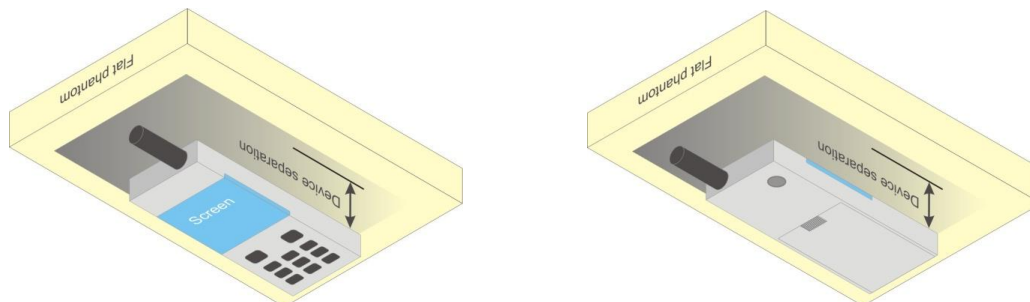


Fig 9.4 Body Worn Position

10.5 Hand 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 ≤ 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.

10.6 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.

11. UMTS /LTE Output Power (Unit: dBm)

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (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: Δ_{ACK} , Δ_{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, Δ_{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 DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ 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 (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
 - iii. Set Cell Power = -86 dBm
 - iv. Set Channel Type = 12.2k + HSPA
 - v. Set UE Target Power
 - vi. Power Ctrl Mode= Alternating bits
 - vii. Set and observe the E-TFCI
 - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	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	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

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

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the 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: β_{ed} can not be set directly; it is set by Absolute Grant Value.

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

Setup Configuration

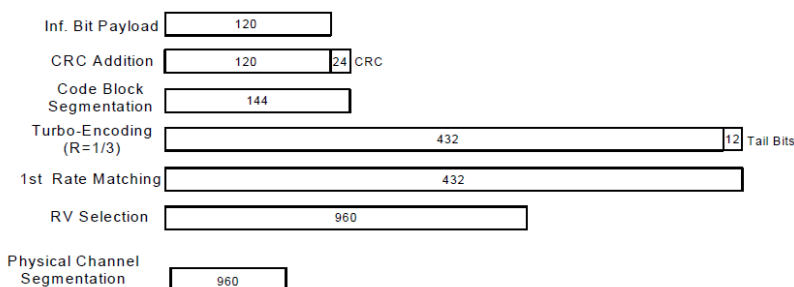
DC-HSDPA 3GPP release 8 Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set RMC 12.2Kbps + HSDPA mode.
 - ii. Set Cell Power = -25 dBm
 - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
 - iv. Select HSDPA Uplink Parameters
 - v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - a). Subtest 1: $\beta_c/\beta_d=2/15$
 - 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 Cycle 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:

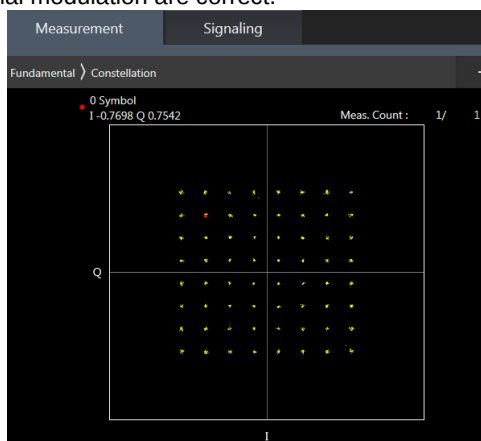
1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is $\leq \frac{1}{4}$ 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 ≤ 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.

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938	Tune-up Limit (dBm)	1537	1638	1738		4357	4407	4458	Tune-up Limit (dBm)
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	23.43	23.71	23.62	25.00	23.66	23.71	23.69	24.00	24.39	24.44	24.39	25.50
3GPP Rel 99	RMC 12.2Kbps	23.45	23.72	23.56	25.00	23.64	23.75	23.66	24.00	24.36	24.45	24.44	25.50
3GPP Rel 6	HSDPA Subtest-1	22.45	22.72	22.56	24.00	22.63	22.74	22.65	23.00	23.37	23.47	23.45	24.50
3GPP Rel 6	HSDPA Subtest-2	22.47	22.74	22.58	24.00	22.64	22.75	22.66	23.00	23.38	23.48	23.46	24.50
3GPP Rel 6	HSDPA Subtest-3	21.99	22.26	22.10	23.50	22.14	22.25	22.16	22.50	22.90	23.00	22.98	24.00
3GPP Rel 6	HSDPA Subtest-4	22.00	22.27	22.11	23.50	22.16	22.27	22.18	22.50	22.89	22.99	22.97	24.00
3GPP Rel 8	DC-HSDPA Subtest-1	22.41	22.72	22.51	24.00	22.61	22.67	22.56	23.00	23.34	23.45	23.37	24.50
3GPP Rel 8	DC-HSDPA Subtest-2	22.38	22.72	22.53	24.00	22.54	22.66	22.63	23.00	23.30	23.43	23.41	24.50
3GPP Rel 8	DC-HSDPA Subtest-3	21.89	22.23	22.05	23.50	22.06	22.23	22.07	22.50	22.84	22.96	22.96	24.00
3GPP Rel 8	DC-HSDPA Subtest-4	22.00	22.17	22.10	23.50	22.07	22.25	22.15	22.50	22.83	22.92	22.95	24.00
3GPP Rel 6	HSUPA Subtest-1	22.44	22.71	22.55	24.00	22.61	22.72	22.63	23.00	23.35	23.45	23.43	24.50
3GPP Rel 6	HSUPA Subtest-2	20.45	20.72	20.56	22.00	20.62	20.73	20.64	21.00	21.38	21.48	21.46	22.50
3GPP Rel 6	HSUPA Subtest-3	21.46	21.73	21.57	23.00	21.64	21.75	21.66	22.00	22.37	22.47	22.45	23.50
3GPP Rel 6	HSUPA Subtest-4	20.46	20.73	20.57	22.00	20.63	20.74	20.65	21.00	21.35	21.45	21.43	22.50
3GPP Rel 6	HSUPA Subtest-5	22.45	22.72	22.56	24.00	22.64	22.75	22.66	23.00	23.36	23.46	23.44	24.50

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4/B5/B12/B17/B26 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 2/4/5/17 SAR test was covered by Band 25/66/26/12; 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	24.10	24.45	23.88	25.5	0
20	QPSK	1	49	24.07	24.36	23.81		
20	QPSK	1	99	24.00	24.23	23.74		
20	QPSK	50	0	23.09	23.41	22.78	24.5	1
20	QPSK	50	24	23.05	23.34	22.65		
20	QPSK	50	50	23.00	23.21	22.57		
20	QPSK	100	0	22.90	23.14	22.51	24.5	1
20	16QAM	1	0	23.01	23.23	22.62		
20	16QAM	1	49	22.96	23.10	22.60		
20	16QAM	1	99	22.82	23.05	22.55	23.5	2
20	16QAM	50	0	22.05	22.33	21.81		
20	16QAM	50	24	21.94	22.31	21.78		
20	16QAM	50	50	21.91	22.14	21.61	23.5	2
20	16QAM	100	0	21.65	21.88	21.55		
20	64QAM	1	0	22.01	22.20	21.70	23.5	2
20	64QAM	1	49	21.84	22.21	21.75		
20	64QAM	1	99	21.79	22.01	21.54		
20	64QAM	50	0	20.97	21.32	20.76	22.5	3
20	64QAM	50	24	20.99	21.31	20.77		
20	64QAM	50	50	20.87	21.14	20.65		
20	64QAM	100	0	20.80	21.09	20.58		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	24.06	24.39	23.81	25.5	0
15	QPSK	1	37	24.04	24.31	23.84		
15	QPSK	1	74	23.98	24.21	23.77		
15	QPSK	36	0	23.02	23.44	22.77	24.5	1
15	QPSK	36	20	23.07	23.31	22.64		
15	QPSK	36	39	22.97	23.16	22.52		
15	QPSK	75	0	22.89	23.17	22.50	24.5	1
15	16QAM	1	0	23.01	23.16	22.57		
15	16QAM	1	37	22.98	23.03	22.57		
15	16QAM	1	74	22.79	23.01	22.51	23.5	2
15	16QAM	36	0	22.03	22.30	21.81		
15	16QAM	36	20	21.87	22.28	21.81		
15	16QAM	36	39	21.92	22.13	21.58	23.5	2
15	16QAM	75	0	21.59	21.87	21.53		
15	64QAM	1	0	22.04	22.21	21.69		
15	64QAM	1	37	21.79	22.19	21.72	23.5	2
15	64QAM	1	74	21.74	21.98	21.50		
15	64QAM	36	0	20.99	21.27	20.71		
15	64QAM	36	20	20.95	21.32	20.78	22.5	3
15	64QAM	36	39	20.83	21.09	20.64		
15	64QAM	75	0	20.80	21.10	20.58		



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Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	24.09	24.38	23.84	25.5	0
10	QPSK	1	25	24.07	24.28	23.85		
10	QPSK	1	49	23.96	24.23	23.80		
10	QPSK	25	0	22.96	23.46	22.80	24.5	1
10	QPSK	25	12	23.01	23.30	22.57		
10	QPSK	25	25	22.91	23.12	22.52		
10	QPSK	50	0	22.82	23.14	22.53		
10	16QAM	1	0	22.94	23.16	22.58	24.5	1
10	16QAM	1	25	22.95	23.06	22.56		
10	16QAM	1	49	22.78	23.03	22.50		
10	16QAM	25	0	21.97	22.28	21.84	23.5	2
10	16QAM	25	12	21.81	22.29	21.76		
10	16QAM	25	25	21.92	22.07	21.53		
10	16QAM	50	0	21.53	21.90	21.59		
10	64QAM	1	0	22.06	22.17	21.69	23.5	2
10	64QAM	1	25	21.76	22.12	21.73		
10	64QAM	1	49	21.74	22.00	21.60		
10	64QAM	25	0	20.93	21.20	20.71	22.5	3
10	64QAM	25	12	20.90	21.35	20.74		
10	64QAM	25	25	20.86	21.02	20.63		
10	64QAM	50	0	20.79	21.11	20.60		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	24.03	24.31	23.77	25.5	0
5	QPSK	1	12	24.10	24.28	23.81		
5	QPSK	1	24	23.91	24.20	23.75		
5	QPSK	12	0	22.97	23.41	22.74	24.5	1
5	QPSK	12	7	22.97	23.26	22.60		
5	QPSK	12	13	22.85	23.15	22.54		
5	QPSK	25	0	22.76	23.08	22.51		
5	16QAM	1	0	22.90	23.18	22.51	24.5	1
5	16QAM	1	12	22.94	23.09	22.57		
5	16QAM	1	24	22.76	23.04	22.50		
5	16QAM	12	0	21.96	22.30	21.79	23.5	2
5	16QAM	12	7	21.84	22.28	21.75		
5	16QAM	12	13	21.88	22.09	21.69		
5	16QAM	25	0	21.55	21.88	21.57		
5	64QAM	1	0	21.99	22.11	21.64	23.5	2
5	64QAM	1	12	21.78	22.09	21.66		
5	64QAM	1	24	21.69	21.99	21.62		
5	64QAM	12	0	20.94	21.15	20.68	22.5	3
5	64QAM	12	7	20.91	21.30	20.71		
5	64QAM	12	13	20.88	21.02	20.60		
5	64QAM	25	0	20.81	21.12	20.56		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	24.04	24.30	23.78	25.5	0
3	QPSK	1	8	24.09	24.25	23.74		



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3	QPSK	1	14	23.94	24.18	23.77		
3	QPSK	8	0	22.91	23.41	22.67	24.5	1
3	QPSK	8	4	22.94	23.28	22.54		
3	QPSK	8	7	22.88	23.14	22.52		
3	QPSK	15	0	22.71	23.03	22.53		
3	16QAM	1	0	22.85	23.19	22.50	24.5	1
3	16QAM	1	8	22.89	23.08	22.57		
3	16QAM	1	14	22.77	23.05	22.50		
3	16QAM	8	0	21.90	22.29	21.75	23.5	2
3	16QAM	8	4	21.80	22.23	21.72		
3	16QAM	8	7	21.82	22.12	21.72		
3	16QAM	15	0	21.66	21.89	21.55		
3	64QAM	1	0	21.94	22.04	21.67	23.5	2
3	64QAM	1	8	21.75	22.10	21.68		
3	64QAM	1	14	21.65	21.95	21.58		
3	64QAM	8	0	20.93	21.15	20.62	22.5	3
3	64QAM	8	4	20.92	21.31	20.66		
3	64QAM	8	7	20.82	21.00	20.58		
3	64QAM	15	0	20.84	21.08	20.56		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.85	23.95	23.71	25.5	0
1.4	QPSK	1	3	23.81	23.96	23.73		
1.4	QPSK	1	5	23.90	23.86	23.71		
1.4	QPSK	3	0	23.78	23.87	23.79		
1.4	QPSK	3	1	23.74	23.80	23.85		
1.4	QPSK	3	3	23.77	23.93	23.81		
1.4	QPSK	6	0	23.07	22.94	22.95	24.5	1
1.4	16QAM	1	0	23.27	23.18	23.17	24.5	1
1.4	16QAM	1	3	23.38	23.13	23.10		
1.4	16QAM	1	5	23.21	23.23	23.05		
1.4	16QAM	3	0	23.19	23.23	23.16		
1.4	16QAM	3	1	23.31	23.21	23.11		
1.4	16QAM	3	3	23.27	23.41	22.94		
1.4	16QAM	6	0	22.04	22.01	22.05	23.5	2
1.4	64QAM	1	0	22.18	22.04	21.89	23.5	2
1.4	64QAM	1	3	22.24	22.24	22.01		
1.4	64QAM	1	5	22.23	22.21	22.06		
1.4	64QAM	3	0	22.25	22.10	22.07		
1.4	64QAM	3	1	22.23	22.30	22.01		
1.4	64QAM	3	3	22.19	22.26	22.08		
1.4	64QAM	6	0	21.02	21.13	21.08	22.5	3



<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	24.36	24.39	24.35	25.5	0
20	QPSK	1	49	24.31	24.30	24.32		
20	QPSK	1	99	24.27	24.17	24.28		
20	QPSK	50	0	23.31	23.35	23.25	24.5	1
20	QPSK	50	24	23.26	23.32	23.16		
20	QPSK	50	50	23.16	23.23	23.05		
20	QPSK	100	0	23.07	23.18	22.92		
20	16QAM	1	0	23.20	23.29	23.07	24.5	1
20	16QAM	1	49	23.03	23.10	23.01		
20	16QAM	1	99	22.94	23.06	22.89		
20	16QAM	50	0	22.26	22.26	22.26	23.5	2
20	16QAM	50	24	22.22	22.23	22.28		
20	16QAM	50	50	22.22	22.07	22.20		
20	16QAM	100	0	21.78	21.90	21.72		
20	64QAM	1	0	22.17	22.14	22.22	23.5	2
20	64QAM	1	49	22.19	22.19	22.23		
20	64QAM	1	99	22.13	21.98	22.11		
20	64QAM	50	0	21.28	21.33	21.23	22.5	3
20	64QAM	50	24	21.21	21.27	21.21		
20	64QAM	50	50	21.23	21.08	21.15		
20	64QAM	100	0	21.10	21.02	21.06		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	24.34	24.38	24.33	25.5	0
15	QPSK	1	37	24.32	24.27	24.25		
15	QPSK	1	74	24.24	24.10	24.29		
15	QPSK	36	0	23.29	23.30	23.20	24.5	1
15	QPSK	36	20	23.28	23.28	23.12		
15	QPSK	36	39	23.19	23.26	23.00		
15	QPSK	75	0	23.08	23.12	22.87		
15	16QAM	1	0	23.16	23.26	23.01	24.5	1
15	16QAM	1	37	22.98	23.13	22.99		
15	16QAM	1	74	22.91	23.00	22.91		
15	16QAM	36	0	22.21	22.27	22.20	23.5	2
15	16QAM	36	20	22.15	22.26	22.24		
15	16QAM	36	39	22.23	22.09	22.17		
15	16QAM	75	0	21.81	21.86	21.70		
15	64QAM	1	0	22.11	22.17	22.15	23.5	2
15	64QAM	1	37	22.13	22.22	22.17		
15	64QAM	1	74	22.06	21.95	22.05		
15	64QAM	36	0	21.23	21.30	21.26	22.5	3
15	64QAM	36	20	21.20	21.25	21.19		
15	64QAM	36	39	21.24	21.04	21.09		
15	64QAM	75	0	21.09	21.01	21.06		



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Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	24.27	24.36	24.31	25.5	0
10	QPSK	1	25	24.29	24.23	24.19		
10	QPSK	1	49	24.19	24.08	24.24		
10	QPSK	25	0	23.23	23.27	23.20	24.5	1
10	QPSK	25	12	23.22	23.25	23.13		
10	QPSK	25	25	23.22	23.24	22.96		
10	QPSK	50	0	23.05	23.13	22.82		
10	16QAM	1	0	23.11	23.27	22.98	24.5	1
10	16QAM	1	25	22.98	23.09	23.02		
10	16QAM	1	49	22.94	22.93	22.85		
10	16QAM	25	0	22.17	22.24	22.16	23.5	2
10	16QAM	25	12	22.18	22.21	22.18		
10	16QAM	25	25	22.23	22.05	22.10		
10	16QAM	50	0	21.78	21.84	21.67	22.5	3
10	64QAM	1	0	22.06	22.13	22.15		
10	64QAM	1	25	22.09	22.19	22.17		
10	64QAM	1	49	22.05	21.95	22.00		
10	64QAM	25	0	21.24	21.23	21.22	22.5	3
10	64QAM	25	12	21.16	21.25	21.21		
10	64QAM	25	25	21.21	21.01	21.02		
10	64QAM	50	0	21.05	20.99	21.09		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	24.22	24.28	24.31	25.5	0
5	QPSK	1	12	24.25	24.25	24.18		
5	QPSK	1	24	24.12	24.03	24.25		
5	QPSK	12	0	23.24	23.24	23.14	24.5	1
5	QPSK	12	7	23.23	23.20	23.08		
5	QPSK	12	13	23.19	23.20	22.93		
5	QPSK	25	0	23.01	23.06	22.80	24.5	1
5	16QAM	1	0	23.12	23.25	22.94		
5	16QAM	1	12	23.01	23.02	23.00		
5	16QAM	1	24	22.91	22.90	22.82	23.5	2
5	16QAM	12	0	22.13	22.25	22.16		
5	16QAM	12	7	22.21	22.16	22.13		
5	16QAM	12	13	22.25	22.06	22.07	23.5	2
5	16QAM	25	0	21.73	21.84	21.60		
5	64QAM	1	0	21.99	22.13	22.15		
5	64QAM	1	12	22.10	22.12	22.15	23.5	2
5	64QAM	1	24	22.03	21.89	22.01		
5	64QAM	12	0	21.18	21.23	21.25		
5	64QAM	12	7	21.11	21.24	21.24	22.5	3
5	64QAM	12	13	21.22	20.98	21.05		
5	64QAM	25	0	20.98	21.01	21.03		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	24.22	24.25	24.30	25.5	0
3	QPSK	1	8	24.20	24.23	24.21		



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3	QPSK	1	14	24.08	24.02	24.19		
3	QPSK	8	0	23.25	23.26	23.14	24.5	1
3	QPSK	8	4	23.24	23.20	23.09		
3	QPSK	8	7	23.17	23.13	22.88		
3	QPSK	15	0	22.96	23.01	22.78		
3	16QAM	1	0	23.05	23.28	22.97	24.5	1
3	16QAM	1	8	22.94	22.99	23.02		
3	16QAM	1	14	22.92	22.83	22.77		
3	16QAM	8	0	22.09	22.25	22.13	23.5	2
3	16QAM	8	4	22.24	22.19	22.15		
3	16QAM	8	7	22.22	22.05	22.04		
3	16QAM	15	0	21.76	21.85	21.54		
3	64QAM	1	0	21.92	22.09	22.10	23.5	2
3	64QAM	1	8	22.13	22.09	22.08		
3	64QAM	1	14	21.99	21.89	21.99		
3	64QAM	8	0	21.20	21.16	21.25	22.5	3
3	64QAM	8	4	21.14	21.22	21.26		
3	64QAM	8	7	21.16	20.99	21.08		
3	64QAM	15	0	20.93	20.98	20.98		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	23.86	23.91	23.64	25.5	0
1.4	QPSK	1	3	23.76	23.92	23.74		
1.4	QPSK	1	5	23.84	23.80	23.71		
1.4	QPSK	3	0	23.77	23.87	23.81		
1.4	QPSK	3	1	23.72	23.78	23.80		
1.4	QPSK	3	3	23.73	23.86	23.84		
1.4	QPSK	6	0	23.07	22.89	22.89	24.5	1
1.4	16QAM	1	0	23.23	23.15	23.12	24.5	1
1.4	16QAM	1	3	23.40	23.06	23.09		
1.4	16QAM	1	5	23.22	23.18	22.99		
1.4	16QAM	3	0	23.12	23.17	23.12		
1.4	16QAM	3	1	23.29	23.23	23.07		
1.4	16QAM	3	3	23.28	23.43	22.93		
1.4	16QAM	6	0	22.06	21.98	22.01	23.5	2
1.4	64QAM	1	0	22.14	22.05	21.88	23.5	2
1.4	64QAM	1	3	22.20	22.18	21.98		
1.4	64QAM	1	5	22.21	22.23	22.01		
1.4	64QAM	3	0	22.19	22.05	22.03		
1.4	64QAM	3	1	22.21	22.23	22.03		
1.4	64QAM	3	3	22.13	22.19	22.02		
1.4	64QAM	6	0	21.04	21.12	21.04	22.5	3

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	25.31	25.34	25.15	25.7	0
10	QPSK	1	25	25.27	25.21	25.07		
10	QPSK	1	49	25.17	25.11	24.97		
10	QPSK	25	0	24.26	24.33	24.05	24.7	1
10	QPSK	25	12	24.17	24.27	23.98		
10	QPSK	25	25	24.09	24.20	23.92		
10	QPSK	50	0	24.00	24.15	23.79	24.7	1
10	16QAM	1	0	24.06	24.21	23.86		
10	16QAM	1	25	24.02	24.15	23.86		
10	16QAM	1	49	23.92	24.07	23.73	23.7	2
10	16QAM	25	0	23.25	23.25	23.07		
10	16QAM	25	12	23.14	23.14	23.03		
10	16QAM	25	25	23.09	23.05	22.88	23.7	2
10	16QAM	50	0	22.79	22.80	22.52		
10	64QAM	1	0	23.22	23.14	22.98		
10	64QAM	1	25	23.07	23.09	22.96	23.7	2
10	64QAM	1	49	22.96	22.96	22.75		
10	64QAM	25	0	22.27	22.29	22.07		
10	64QAM	25	12	22.23	22.10	21.96	22.7	3
10	64QAM	25	25	22.14	22.02	21.85		
10	64QAM	50	0	22.07	21.91	21.76		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	25.26	25.32	25.15	25.7	0
5	QPSK	1	12	25.22	25.17	25.05		
5	QPSK	1	24	25.13	25.09	24.91		
5	QPSK	12	0	24.20	24.26	24.08	24.7	1
5	QPSK	12	7	24.16	24.30	23.94		
5	QPSK	12	13	24.09	24.19	23.89		
5	QPSK	25	0	24.01	24.13	23.75	24.7	1
5	16QAM	1	0	24.07	24.15	23.88		
5	16QAM	1	12	23.99	24.08	23.89		
5	16QAM	1	24	23.94	24.08	23.72	23.7	2
5	16QAM	12	0	23.22	23.24	23.08		
5	16QAM	12	7	23.13	23.16	22.99		
5	16QAM	12	13	23.11	23.04	22.91	23.7	2
5	16QAM	25	0	22.80	22.80	22.51		
5	64QAM	1	0	23.24	23.09	22.91		
5	64QAM	1	12	23.05	23.11	22.94	23.7	2
5	64QAM	1	24	22.90	22.96	22.75		
5	64QAM	12	0	22.23	22.31	22.01		
5	64QAM	12	7	22.17	22.03	21.92	22.7	3
5	64QAM	12	13	22.13	21.99	21.78		
5	64QAM	25	0	22.00	21.86	21.79		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	25.22	25.27	25.10	25.7	0
3	QPSK	1	8	25.22	25.20	25.01		
3	QPSK	1	14	25.09	25.09	24.84		
3	QPSK	8	0	24.23	24.25	24.04	24.7	1
3	QPSK	8	4	24.10	24.33	23.91		
3	QPSK	8	7	24.06	24.14	23.92		
3	QPSK	15	0	24.00	24.13	23.68		
3	16QAM	1	0	24.06	24.13	23.90	24.7	1
3	16QAM	1	8	23.93	24.08	23.91		
3	16QAM	1	14	23.95	24.05	23.73		
3	16QAM	8	0	23.20	23.25	23.06	23.7	2
3	16QAM	8	4	23.15	23.17	22.96		
3	16QAM	8	7	23.09	23.06	22.91		
3	16QAM	15	0	22.75	22.83	22.45		
3	64QAM	1	0	23.22	23.09	22.88	23.7	2
3	64QAM	1	8	23.08	23.06	22.92		
3	64QAM	1	14	22.84	22.93	22.74		
3	64QAM	8	0	22.22	22.31	22.03	22.7	3
3	64QAM	8	4	22.17	22.05	21.91		
3	64QAM	8	7	22.13	21.98	21.76		
3	64QAM	15	0	22.01	21.88	21.75		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.78	23.93	23.72	25.7	0
1.4	QPSK	1	3	23.80	23.92	23.73		
1.4	QPSK	1	5	23.88	23.78	23.73		
1.4	QPSK	3	0	23.82	23.79	23.74		
1.4	QPSK	3	1	23.77	23.77	23.89		
1.4	QPSK	3	3	23.75	23.90	23.87		
1.4	QPSK	6	0	23.05	22.83	22.96	24.7	1
1.4	16QAM	1	0	23.25	23.07	23.13	24.7	1
1.4	16QAM	1	3	23.36	23.11	23.07		
1.4	16QAM	1	5	23.10	23.15	22.98		
1.4	16QAM	3	0	23.12	23.23	23.10		
1.4	16QAM	3	1	23.30	23.19	23.05		
1.4	16QAM	3	3	23.26	23.30	22.97		
1.4	16QAM	6	0	22.06	22.03	21.99	23.7	2
1.4	64QAM	1	0	22.08	22.04	21.83	23.7	2
1.4	64QAM	1	3	22.14	22.14	21.93		
1.4	64QAM	1	5	22.22	22.15	22.02		
1.4	64QAM	3	0	22.21	22.11	22.07		
1.4	64QAM	3	1	22.29	22.35	21.94		
1.4	64QAM	3	3	22.13	22.16	21.98		
1.4	64QAM	6	0	20.99	21.05	20.97	22.7	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	24.33	24.20	24.05	25	0
20	QPSK	1	49	24.28	24.07	23.96		
20	QPSK	1	99	24.25	23.98	23.91		
20	QPSK	50	0	23.25	23.10	23.03	24	1
20	QPSK	50	24	23.13	23.06	22.99		
20	QPSK	50	50	23.06	22.97	22.87		
20	QPSK	100	0	22.95	22.90	22.84		
20	16QAM	1	0	23.07	22.97	22.90	24	1
20	16QAM	1	49	22.97	22.88	22.84		
20	16QAM	1	99	22.89	22.85	22.80		
20	16QAM	50	0	22.28	22.07	21.92	23	2
20	16QAM	50	24	22.18	21.99	21.91		
20	16QAM	50	50	22.15	21.92	21.88		
20	16QAM	100	0	21.82	21.62	21.50		
20	64QAM	1	0	22.17	22.02	21.83	23	2
20	64QAM	1	49	22.09	21.89	21.82		
20	64QAM	1	99	22.03	21.86	21.76		
20	64QAM	50	0	21.28	21.08	20.99	22	3
20	64QAM	50	24	21.22	20.98	20.88		
20	64QAM	50	50	21.21	20.88	20.78		
20	64QAM	100	0	21.17	20.78	20.69		
Channel				20825	21100	21375		
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	24.27	24.15	24.02	25	0
15	QPSK	1	37	24.27	24.06	23.92		
15	QPSK	1	74	24.26	23.92	23.92		
15	QPSK	36	0	23.27	23.08	23.02	24	1
15	QPSK	36	20	23.12	23.05	22.97		
15	QPSK	36	39	23.01	22.94	22.85		
15	QPSK	75	0	22.89	22.93	22.78		
15	16QAM	1	0	23.08	22.91	22.90	24	1
15	16QAM	1	37	22.90	22.88	22.78		
15	16QAM	1	74	22.86	22.83	22.80		
15	16QAM	36	0	22.25	22.06	21.87	23	2
15	16QAM	36	20	22.18	21.99	21.87		
15	16QAM	36	39	22.10	21.95	21.83		
15	16QAM	75	0	21.83	21.60	21.44		
15	64QAM	1	0	22.18	22.04	21.84	23	2
15	64QAM	1	37	22.12	21.92	21.81		
15	64QAM	1	74	22.01	21.82	21.75		
15	64QAM	36	0	21.31	21.08	21.00	22	3
15	64QAM	36	20	21.17	20.95	20.86		
15	64QAM	36	39	21.18	20.88	20.78		
15	64QAM	75	0	21.10	20.78	20.65		



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Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	24.28	24.14	23.95	25	0
10	QPSK	1	25	24.26	24.08	23.93		
10	QPSK	1	49	24.19	23.87	23.93		
10	QPSK	25	0	23.22	23.02	22.96	24	1
10	QPSK	25	12	23.12	23.07	22.92		
10	QPSK	25	25	22.97	22.93	22.87		
10	QPSK	50	0	22.82	22.87	22.79		
10	16QAM	1	0	23.11	22.89	22.87	24	1
10	16QAM	1	25	22.83	22.82	22.77		
10	16QAM	1	49	22.83	22.80	22.76		
10	16QAM	25	0	22.23	22.00	21.81	23	2
10	16QAM	25	12	22.17	21.97	21.82		
10	16QAM	25	25	22.07	21.94	21.77		
10	16QAM	50	0	21.82	21.61	21.43	22	3
10	64QAM	1	0	22.18	22.01	21.83		
10	64QAM	1	25	22.06	21.90	21.79		
10	64QAM	1	49	21.94	21.75	21.78		
10	64QAM	25	0	21.26	21.04	21.02	22	3
10	64QAM	25	12	21.18	20.93	20.84		
10	64QAM	25	25	21.21	20.91	20.81		
10	64QAM	50	0	21.12	20.78	20.67		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	24.28	24.15	23.97	25	0
5	QPSK	1	12	24.25	24.10	23.95		
5	QPSK	1	24	24.17	23.82	23.88		
5	QPSK	12	0	23.22	23.05	22.90	24	1
5	QPSK	12	7	23.13	23.10	22.95		
5	QPSK	12	13	22.99	22.92	22.90		
5	QPSK	25	0	22.85	22.86	22.73		
5	16QAM	1	0	23.06	22.88	22.83	24	1
5	16QAM	1	12	22.81	22.82	22.77		
5	16QAM	1	24	22.79	22.75	22.75		
5	16QAM	12	0	22.24	21.99	21.81	23	2
5	16QAM	12	7	22.20	21.94	21.76		
5	16QAM	12	13	22.04	21.96	21.72		
5	16QAM	25	0	21.80	21.61	21.45		
5	64QAM	1	0	22.17	21.97	21.81	23	2
5	64QAM	1	12	22.07	21.84	21.80		
5	64QAM	1	24	21.92	21.77	21.72		
5	64QAM	12	0	21.29	21.06	20.97	22	3
5	64QAM	12	7	21.19	20.86	20.82		
5	64QAM	12	13	21.19	20.85	20.74		
5	64QAM	25	0	21.14	20.72	20.62		

<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	25.18	25.14	25.19	25.7	0
10	QPSK	1	25	25.15	25.07	25.07		
10	QPSK	1	49	25.12	25.04	25.01		
10	QPSK	25	0	24.12	24.04	24.16	24.7	1
10	QPSK	25	12	24.06	23.92	24.00		
10	QPSK	25	25	24.00	23.87	23.92		
10	QPSK	50	0	23.89	23.78	23.81	24.7	1
10	16QAM	1	0	24.03	23.87	23.87		
10	16QAM	1	25	23.89	23.79	23.80		
10	16QAM	1	49	23.77	23.67	23.71	23.7	2
10	16QAM	25	0	23.12	23.04	23.16		
10	16QAM	25	12	23.06	22.98	22.95		
10	16QAM	25	25	23.04	22.96	22.98	23.7	2
10	16QAM	50	0	22.72	22.51	22.67		
10	64QAM	1	0	23.06	22.97	23.09		
10	64QAM	1	25	23.00	22.92	22.88	23.7	2
10	64QAM	1	49	22.95	22.90	22.93		
10	64QAM	25	0	22.14	22.06	22.08		
10	64QAM	25	12	22.08	21.97	22.01	22.7	3
10	64QAM	25	25	22.03	21.98	21.96		
10	64QAM	50	0	21.93	21.92	21.87		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	25.09	25.13	25.18	25.7	0
5	QPSK	1	12	25.09	25.08	25.10		
5	QPSK	1	24	25.15	24.97	25.02		
5	QPSK	12	0	24.13	24.05	24.11	24.7	1
5	QPSK	12	7	24.03	23.85	23.97		
5	QPSK	12	13	24.02	23.88	23.92		
5	QPSK	25	0	23.87	23.75	23.81	24.7	1
5	16QAM	1	0	24.01	23.90	23.81		
5	16QAM	1	12	23.83	23.78	23.81		
5	16QAM	1	24	23.75	23.63	23.72	23.7	2
5	16QAM	12	0	23.07	23.07	23.13		
5	16QAM	12	7	23.04	22.96	22.92		
5	16QAM	12	13	22.98	22.92	22.96	23.7	2
5	16QAM	25	0	22.68	22.50	22.68		
5	64QAM	1	0	23.05	22.95	23.07		
5	64QAM	1	12	22.96	22.92	22.81	23.7	2
5	64QAM	1	24	22.97	22.90	22.94		
5	64QAM	12	0	22.14	22.02	22.11		
5	64QAM	12	7	22.01	21.94	22.02	22.7	3
5	64QAM	12	13	22.00	21.96	21.90		
5	64QAM	25	0	21.86	21.95	21.86		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	25.09	25.15	25.13	25.7	0
3	QPSK	1	8	25.02	25.01	25.08		
3	QPSK	1	14	25.18	24.90	25.03		
3	QPSK	8	0	24.15	24.07	24.13	24.7	1
3	QPSK	8	4	24.00	23.86	23.98		
3	QPSK	8	7	24.05	23.84	23.87		
3	QPSK	15	0	23.90	23.71	23.80		
3	16QAM	1	0	24.02	23.83	23.83	24.7	1
3	16QAM	1	8	23.78	23.72	23.76		
3	16QAM	1	14	23.71	23.62	23.66		
3	16QAM	8	0	23.10	23.08	23.15	23.7	2
3	16QAM	8	4	23.03	22.90	22.86		
3	16QAM	8	7	22.91	22.94	22.94		
3	16QAM	15	0	22.61	22.53	22.65		
3	64QAM	1	0	23.02	22.95	23.00	23.7	2
3	64QAM	1	8	22.99	22.89	22.84		
3	64QAM	1	14	22.93	22.91	22.89		
3	64QAM	8	0	22.09	21.99	22.13	22.7	3
3	64QAM	8	4	21.98	21.91	21.99		
3	64QAM	8	7	21.94	21.91	21.84		
3	64QAM	15	0	21.82	21.92	21.84		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.82	23.92	23.77	25.7	0
1.4	QPSK	1	3	23.72	23.89	23.74		
1.4	QPSK	1	5	23.86	23.73	23.70		
1.4	QPSK	3	0	23.74	23.77	23.80		
1.4	QPSK	3	1	23.71	23.78	23.80		
1.4	QPSK	3	3	23.73	23.87	23.82		
1.4	QPSK	6	0	23.03	22.83	23.00	24.7	1
1.4	16QAM	1	0	23.17	23.10	23.13	24.7	1
1.4	16QAM	1	3	23.30	23.07	23.07		
1.4	16QAM	1	5	23.10	23.11	22.90		
1.4	16QAM	3	0	23.16	23.22	23.07		
1.4	16QAM	3	1	23.29	23.18	22.99		
1.4	16QAM	3	3	23.22	23.32	22.95		
1.4	16QAM	6	0	22.00	21.88	21.92	23.7	2
1.4	64QAM	1	0	22.15	22.01	21.81	23.7	2
1.4	64QAM	1	3	22.20	22.12	21.90		
1.4	64QAM	1	5	22.26	22.14	22.08		
1.4	64QAM	3	0	22.23	22.04	22.09		
1.4	64QAM	3	1	22.25	22.24	21.98		
1.4	64QAM	3	3	22.10	22.16	22.05		
1.4	64QAM	6	0	21.00	20.98	20.91	22.7	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		24.64		25.7	0
10	QPSK	1	25		24.61			
10	QPSK	1	49		24.58			
10	QPSK	25	0		23.59		24.7	1
10	QPSK	25	12		23.56			
10	QPSK	25	25		23.49			
10	QPSK	50	0		23.41		24.7	1
10	16QAM	1	0		23.45			
10	16QAM	1	25		23.36			
10	16QAM	1	49		23.29		23.7	2
10	16QAM	25	0		22.55			
10	16QAM	25	12		22.50			
10	16QAM	25	25		22.48		23.7	2
10	16QAM	50	0		22.11			
10	64QAM	1	0		22.47			
10	64QAM	1	25		22.45		23.7	2
10	64QAM	1	49		22.38			
10	64QAM	25	0		21.55			
10	64QAM	25	12		21.48		22.7	3
10	64QAM	25	25		21.47			
10	64QAM	50	0		21.43			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	24.63	24.60	24.60	25.7	0
5	QPSK	1	12	24.49	24.51	24.60		
5	QPSK	1	24	24.40	24.50	24.46		
5	QPSK	12	0	23.60	23.66	23.64	24.7	1
5	QPSK	12	7	23.42	23.45	23.46		
5	QPSK	12	13	23.31	23.33	23.31		
5	QPSK	25	0	23.18	23.33	23.33	24.7	1
5	16QAM	1	0	23.37	23.42	23.44		
5	16QAM	1	12	23.20	23.28	23.23		
5	16QAM	1	24	23.09	23.20	23.21	23.7	2
5	16QAM	12	0	22.46	22.56	22.52		
5	16QAM	12	7	22.39	22.40	22.39		
5	16QAM	12	13	22.40	22.49	22.40	23.7	2
5	16QAM	25	0	22.06	22.11	22.07		
5	64QAM	1	0	22.46	22.49	22.43		
5	64QAM	1	12	22.37	22.37	22.29	23.7	2
5	64QAM	1	24	22.36	22.35	22.34		
5	64QAM	12	0	21.52	21.58	21.50		
5	64QAM	12	7	21.35	21.49	21.50	22.7	3
5	64QAM	12	13	21.35	21.35	21.27		
5	64QAM	25	0	21.19	21.25	21.26		

<LTE Band 14>

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				23330				
Frequency (MHz)				793				
10	QPSK	1	0		25.16		25.7	0
10	QPSK	1	25		25.06			
10	QPSK	1	49		25.03			
10	QPSK	25	0		24.11		24.7	1
10	QPSK	25	12		24.00			
10	QPSK	25	25		23.95			
10	QPSK	50	0		23.91		24.7	1
10	16QAM	1	0		23.88			
10	16QAM	1	25		23.87			
10	16QAM	1	49		23.83		23.7	2
10	16QAM	25	0		23.06			
10	16QAM	25	12		23.03			
10	16QAM	25	25		23.00		23.7	2
10	16QAM	50	0		22.65			
10	64QAM	1	0		22.93			
10	64QAM	1	25		22.94		23.7	2
10	64QAM	1	49		22.94			
10	64QAM	25	0		22.06			
10	64QAM	25	12		21.99		22.7	3
10	64QAM	25	25		21.95			
10	64QAM	50	0		21.91			
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	25.13	25.12	25.14	25.7	0
5	QPSK	1	12	25.05	25.01	25.01		
5	QPSK	1	24	25.03	24.97	24.97		
5	QPSK	12	0	24.11	24.17	24.08	24.7	1
5	QPSK	12	7	23.95	24.06	24.03		
5	QPSK	12	13	23.88	23.90	23.90		
5	QPSK	25	0	23.72	23.83	23.80	24.7	1
5	16QAM	1	0	23.88	23.93	23.97		
5	16QAM	1	12	23.72	23.84	23.90		
5	16QAM	1	24	23.66	23.76	23.79	23.7	2
5	16QAM	12	0	23.04	23.05	23.07		
5	16QAM	12	7	22.97	23.02	22.96		
5	16QAM	12	13	22.88	22.91	22.80	23.7	2
5	16QAM	25	0	22.59	22.70	22.66		
5	64QAM	1	0	22.93	23.00	22.95		
5	64QAM	1	12	22.93	22.87	22.96	23.7	2
5	64QAM	1	24	22.92	22.78	22.73		
5	64QAM	12	0	22.12	22.12	22.06		
5	64QAM	12	7	22.00	21.96	21.99	22.7	3
5	64QAM	12	13	21.87	21.93	21.82		
5	64QAM	25	0	21.89	21.82	21.86		

<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	25.19	25.20	25.30	25.7	0
10	QPSK	1	25	25.11	25.08	25.17		
10	QPSK	1	49	24.99	25.04	25.12		
10	QPSK	25	0	24.10	24.14	24.22	24.7	1
10	QPSK	25	12	23.99	24.09	24.15		
10	QPSK	25	25	23.88	24.02	24.04		
10	QPSK	50	0	23.82	23.94	23.96	24.7	1
10	16QAM	1	0	23.93	23.99	24.06		
10	16QAM	1	25	23.79	23.91	23.93		
10	16QAM	1	49	23.75	23.82	23.90	23.7	2
10	16QAM	25	0	23.11	23.16	23.18		
10	16QAM	25	12	22.98	22.98	23.04		
10	16QAM	25	25	22.93	23.01	23.04	23.7	2
10	16QAM	50	0	22.60	22.69	22.71		
10	64QAM	1	0	23.03	23.09	23.14		
10	64QAM	1	25	22.88	22.85	22.93	23.7	2
10	64QAM	1	49	22.90	22.93	22.93		
10	64QAM	25	0	22.12	22.16	22.23		
10	64QAM	25	12	22.06	22.03	22.07	22.7	3
10	64QAM	25	25	21.93	21.97	22.00		
10	64QAM	50	0	21.80	21.88	21.95		
Channel				23755	23790	23825		
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	25.22	25.18	25.28	25.7	0
5	QPSK	1	12	25.11	25.11	25.14		
5	QPSK	1	24	24.95	25.02	25.10		
5	QPSK	12	0	24.04	24.07	24.15	24.7	1
5	QPSK	12	7	23.92	24.08	24.08		
5	QPSK	12	13	23.90	23.96	23.98		
5	QPSK	25	0	23.80	23.92	23.89	24.7	1
5	16QAM	1	0	23.87	23.93	24.07		
5	16QAM	1	12	23.77	23.91	23.88		
5	16QAM	1	24	23.78	23.81	23.86	23.7	2
5	16QAM	12	0	23.11	23.17	23.12		
5	16QAM	12	7	22.91	23.01	23.02		
5	16QAM	12	13	22.86	23.04	22.97	23.7	2
5	16QAM	25	0	22.57	22.63	22.69		
5	64QAM	1	0	22.97	23.09	23.07		
5	64QAM	1	12	22.84	22.87	22.95	23.7	2
5	64QAM	1	24	22.86	22.86	22.89		
5	64QAM	12	0	22.06	22.14	22.22		
5	64QAM	12	7	21.99	22.02	22.10	22.7	3
5	64QAM	12	13	21.91	21.98	22.01		
5	64QAM	25	0	21.73	21.88	21.95		



<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	23.52	23.03	22.84	24	0
20	QPSK	1	49	23.42	22.99	22.72		
20	QPSK	1	99	23.38	22.95	22.59		
20	QPSK	50	0	22.51	21.95	21.80	23	1
20	QPSK	50	24	22.41	21.82	21.71		
20	QPSK	50	50	22.28	21.71	21.68		
20	QPSK	100	0	22.16	21.62	21.64	23	1
20	16QAM	1	0	22.33	21.75	21.66		
20	16QAM	1	49	22.16	21.66	21.64		
20	16QAM	1	99	22.10	21.53	21.61	22	2
20	16QAM	50	0	21.47	20.90	20.73		
20	16QAM	50	24	21.30	20.88	20.68		
20	16QAM	50	50	21.34	20.90	20.47	22	2
20	16QAM	100	0	21.04	20.42	20.31		
20	64QAM	1	0	21.35	20.84	20.61		
20	64QAM	1	49	21.20	20.85	20.60	22	2
20	64QAM	1	99	21.25	20.77	20.43		
20	64QAM	50	0	20.46	19.97	19.75		
20	64QAM	50	24	20.31	19.90	19.69	21	3
20	64QAM	50	50	20.34	19.91	19.46		
20	64QAM	100	0	20.26	19.83	19.41		
Channel				26115	26340	26615		
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	23.49	22.96	22.80	24	0
15	QPSK	1	37	23.40	23.01	22.68		
15	QPSK	1	74	23.40	22.97	22.57		
15	QPSK	36	0	22.48	21.95	21.82	23	1
15	QPSK	36	20	22.37	21.80	21.70		
15	QPSK	36	39	22.28	21.69	21.66		
15	QPSK	75	0	22.11	21.63	21.66	23	1
15	16QAM	1	0	22.34	21.74	21.67		
15	16QAM	1	37	22.18	21.64	21.67		
15	16QAM	1	74	22.03	21.56	21.63	22	2
15	16QAM	36	0	21.45	20.86	20.75		
15	16QAM	36	20	21.33	20.82	20.64		
15	16QAM	36	39	21.33	20.85	20.43	22	2
15	16QAM	75	0	21.00	20.37	20.25		
15	64QAM	1	0	21.34	20.83	20.58		
15	64QAM	1	37	21.17	20.82	20.61	22	2
15	64QAM	1	74	21.18	20.80	20.45		
15	64QAM	36	0	20.40	19.97	19.78		
15	64QAM	36	20	20.30	19.85	19.64	21	3
15	64QAM	36	39	20.29	19.87	19.42		
15	64QAM	75	0	20.21	19.86	19.41		

Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	23.40	22.89	22.75	24	0
10	QPSK	1	25	23.36	22.99	22.68		
10	QPSK	1	49	23.36	22.94	22.50		
10	QPSK	25	0	22.42	21.94	21.84	23	1
10	QPSK	25	12	22.39	21.77	21.64		
10	QPSK	25	25	22.28	21.65	21.69		
10	QPSK	50	0	22.13	21.61	21.60		
10	16QAM	1	0	22.28	21.70	21.68	23	1
10	16QAM	1	25	22.18	21.64	21.69		
10	16QAM	1	49	22.01	21.56	21.56		
10	16QAM	25	0	21.41	20.83	20.74	22	2
10	16QAM	25	12	21.36	20.80	20.58		
10	16QAM	25	25	21.33	20.80	20.43		
10	16QAM	50	0	21.00	20.40	20.23	21	3
10	64QAM	1	0	21.27	20.85	20.58		
10	64QAM	1	25	21.11	20.77	20.64		
10	64QAM	1	49	21.16	20.77	20.40		
10	64QAM	25	0	20.42	19.95	19.76		
10	64QAM	25	12	20.26	19.87	19.58		
10	64QAM	25	25	20.31	19.85	19.35		
10	64QAM	50	0	20.24	19.82	19.36		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	23.42	22.82	22.68	24	0
5	QPSK	1	12	23.30	22.93	22.65		
5	QPSK	1	24	23.35	22.94	22.46		
5	QPSK	12	0	22.40	21.88	21.84	23	1
5	QPSK	12	7	22.37	21.74	21.63		
5	QPSK	12	13	22.31	21.64	21.65		
5	QPSK	25	0	22.07	21.56	21.63		
5	16QAM	1	0	22.28	21.65	21.62	23	1
5	16QAM	1	12	22.20	21.65	21.68		
5	16QAM	1	24	22.01	21.52	21.52		
5	16QAM	12	0	21.43	20.76	20.71	22	2
5	16QAM	12	7	21.37	20.77	20.59		
5	16QAM	12	13	21.35	20.80	20.40		
5	16QAM	25	0	21.01	20.43	20.24		
5	64QAM	1	0	21.21	20.79	20.53	22	2
5	64QAM	1	12	21.09	20.77	20.64		
5	64QAM	1	24	21.18	20.73	20.33		
5	64QAM	12	0	20.37	19.88	19.73	21	3
5	64QAM	12	7	20.27	19.80	19.51		
5	64QAM	12	13	20.34	19.80	19.38		
5	64QAM	25	0	20.19	19.75	19.36		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	23.39	22.83	22.70	24	0
3	QPSK	1	8	23.27	22.88	22.59		



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3	QPSK	1	14	23.30	22.92	22.49	23	1
3	QPSK	8	0	22.42	21.91	21.77		
3	QPSK	8	4	22.32	21.75	21.59		
3	QPSK	8	7	22.32	21.57	21.61		
3	QPSK	15	0	22.07	21.50	21.60	23	1
3	16QAM	1	0	22.28	21.66	21.58		
3	16QAM	1	8	22.18	21.61	21.66		
3	16QAM	1	14	21.96	21.48	21.47		
3	16QAM	8	0	21.39	20.72	20.68	22	2
3	16QAM	8	4	21.34	20.74	20.55		
3	16QAM	8	7	21.34	20.81	20.41		
3	16QAM	15	0	21.03	20.38	20.25		
3	64QAM	1	0	21.23	20.75	20.46	22	2
3	64QAM	1	8	21.05	20.79	20.64		
3	64QAM	1	14	21.21	20.68	20.33		
3	64QAM	8	0	20.37	19.83	19.69		
3	64QAM	8	4	20.29	19.78	19.49	21	3
3	64QAM	8	7	20.35	19.83	19.36		
3	64QAM	15	0	20.12	19.70	19.33		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	23.35	23.46	23.16	24	0
1.4	QPSK	1	3	23.42	23.41	23.21		
1.4	QPSK	1	5	23.45	23.27	23.25		
1.4	QPSK	3	0	23.29	23.36	23.34		
1.4	QPSK	3	1	23.22	23.36	23.43		
1.4	QPSK	3	3	23.29	23.42	23.43		
1.4	QPSK	6	0	22.61	22.41	22.53	23	1
1.4	16QAM	1	0	22.80	22.62	22.65	23	1
1.4	16QAM	1	3	22.96	22.74	22.59		
1.4	16QAM	1	5	22.75	22.69	22.45		
1.4	16QAM	3	0	22.73	22.89	22.66		
1.4	16QAM	3	1	22.95	22.87	22.66		
1.4	16QAM	3	3	22.72	22.90	22.59		
1.4	16QAM	6	0	21.57	21.58	21.53	22	2
1.4	64QAM	1	0	21.67	21.52	21.34	22	2
1.4	64QAM	1	3	21.78	21.74	21.43		
1.4	64QAM	1	5	21.72	21.59	21.56		
1.4	64QAM	3	0	21.82	21.68	21.75		
1.4	64QAM	3	1	21.80	21.83	21.61		
1.4	64QAM	3	3	21.72	21.78	21.64		
1.4	64QAM	6	0	20.61	20.48	20.60	21	3

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	25.15	25.27	25.25	25.7	0
15	QPSK	1	37	25.08	25.17	25.22		
15	QPSK	1	74	25.01	25.12	25.19		
15	QPSK	36	0	24.10	24.22	24.21	24.7	1
15	QPSK	36	20	23.98	24.14	24.15		
15	QPSK	36	39	23.91	24.11	24.03		
15	QPSK	75	0	23.84	24.04	23.93	24.7	1
15	16QAM	1	0	23.86	24.11	24.04		
15	16QAM	1	37	23.88	24.01	24.00		
15	16QAM	1	74	23.78	23.94	23.85	23.7	2
15	16QAM	36	0	23.09	23.16	23.17		
15	16QAM	36	20	23.00	23.05	23.16		
15	16QAM	36	39	22.95	23.03	23.16	23.7	2
15	16QAM	75	0	22.63	22.73	22.75		
15	64QAM	1	0	23.02	23.05	23.13		
15	64QAM	1	37	22.89	22.92	23.08	23.7	2
15	64QAM	1	74	22.84	22.98	23.10		
15	64QAM	36	0	22.07	22.19	22.21		
15	64QAM	36	20	21.99	22.14	22.16	22.7	3
15	64QAM	36	39	21.96	22.08	22.11		
15	64QAM	75	0	21.93	22.00	21.98		
Channel				26740	26865	26990		
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	25.14	25.26	25.23	25.7	0
10	QPSK	1	25	25.03	25.10	25.15		
10	QPSK	1	49	24.96	25.07	25.22		
10	QPSK	25	0	24.10	24.15	24.17	24.7	1
10	QPSK	25	12	23.95	24.13	24.09		
10	QPSK	25	25	23.87	24.04	24.06		
10	QPSK	50	0	23.80	23.99	23.86	24.7	1
10	16QAM	1	0	23.84	24.10	24.02		
10	16QAM	1	25	23.84	24.02	24.01		
10	16QAM	1	49	23.73	23.87	23.85	23.7	2
10	16QAM	25	0	23.02	23.19	23.13		
10	16QAM	25	12	22.93	23.05	23.19		
10	16QAM	25	25	22.91	23.05	23.15	23.7	2
10	16QAM	50	0	22.66	22.76	22.71		
10	64QAM	1	0	22.99	23.03	23.13		
10	64QAM	1	25	22.82	22.93	23.10	23.7	2
10	64QAM	1	49	22.86	22.95	23.04		
10	64QAM	25	0	22.10	22.13	22.16		
10	64QAM	25	12	22.01	22.09	22.19	22.7	3
10	64QAM	25	25	21.99	22.10	22.13		
10	64QAM	50	0	21.89	21.96	21.96		



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Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	25.11	25.20	25.21	25.7	0
5	QPSK	1	12	25.06	25.11	25.15		
5	QPSK	1	24	24.97	25.04	25.20		
5	QPSK	12	0	24.08	24.18	24.15	24.7	1
5	QPSK	12	7	23.94	24.15	24.07		
5	QPSK	12	13	23.90	24.06	24.01		
5	QPSK	25	0	23.74	23.98	23.83		
5	16QAM	1	0	23.79	24.09	24.03	24.7	1
5	16QAM	1	12	23.87	23.95	23.97		
5	16QAM	1	24	23.73	23.84	23.80		
5	16QAM	12	0	23.00	23.13	23.15	23.7	2
5	16QAM	12	7	22.92	23.07	23.13		
5	16QAM	12	13	22.94	23.06	23.10		
5	16QAM	25	0	22.60	22.73	22.70	23.7	2
5	64QAM	1	0	22.93	23.00	23.16		
5	64QAM	1	12	22.82	22.87	23.10		
5	64QAM	1	24	22.87	22.97	23.01		
5	64QAM	12	0	22.06	22.16	22.14	22.7	3
5	64QAM	12	7	21.94	22.05	22.14		
5	64QAM	12	13	21.96	22.08	22.15		
5	64QAM	25	0	21.87	21.99	21.90		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	25.07	25.22	25.18	25.7	0
3	QPSK	1	8	25.03	25.06	25.14		
3	QPSK	1	14	24.91	25.07	25.18		
3	QPSK	8	0	24.11	24.18	24.14	24.7	1
3	QPSK	8	4	23.94	24.16	24.10		
3	QPSK	8	7	23.88	24.09	23.94		
3	QPSK	15	0	23.74	23.92	23.80		
3	16QAM	1	0	23.82	24.06	23.96	24.7	1
3	16QAM	1	8	23.85	23.92	23.94		
3	16QAM	1	14	23.75	23.82	23.83		
3	16QAM	8	0	22.97	23.08	23.13	23.7	2
3	16QAM	8	4	22.87	23.07	23.06		
3	16QAM	8	7	22.95	22.99	23.05		
3	16QAM	15	0	22.60	22.74	22.73		
3	64QAM	1	0	22.95	22.94	23.11	23.7	2
3	64QAM	1	8	22.85	22.82	23.08		
3	64QAM	1	14	22.87	22.94	22.97		
3	64QAM	8	0	22.03	22.13	22.09	22.7	3
3	64QAM	8	4	21.94	22.07	22.15		
3	64QAM	8	7	21.89	22.06	22.16		
3	64QAM	15	0	21.86	21.95	21.86		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	23.87	23.92	23.80	25.7	0
1.4	QPSK	1	3	23.81	23.99	23.71		

1.4	QPSK	1	5	23.87	23.82	23.70		
1.4	QPSK	3	0	23.76	23.84	23.79		
1.4	QPSK	3	1	23.71	23.79	23.84		
1.4	QPSK	3	3	23.70	23.86	23.75		
1.4	QPSK	6	0	23.08	22.91	22.95	24.7	1
1.4	16QAM	1	0	23.29	23.16	23.12	24.7	1
1.4	16QAM	1	3	23.31	23.13	23.09		
1.4	16QAM	1	5	23.22	23.18	23.01		
1.4	16QAM	3	0	23.12	23.16	23.13		
1.4	16QAM	3	1	23.28	23.18	23.09		
1.4	16QAM	3	3	23.23	23.41	22.93	23.7	2
1.4	16QAM	6	0	22.06	21.99	22.01		
1.4	64QAM	1	0	22.15	22.04	21.90		
1.4	64QAM	1	3	22.18	22.23	21.98		
1.4	64QAM	1	5	22.24	22.15	22.07		
1.4	64QAM	3	0	22.19	22.11	22.06		
1.4	64QAM	3	1	22.23	22.25	22.01	23.7	2
1.4	64QAM	3	3	22.18	22.21	22.05		
1.4	64QAM	6	0	20.96	21.10	21.11	22.7	3

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	24.35	24.45	24.40	25.5	0
20	QPSK	1	49	24.27	24.34	24.32		
20	QPSK	1	99	24.19	24.21	24.24		
20	QPSK	50	0	23.28	23.45	23.40	24.5	1
20	QPSK	50	24	23.17	23.34	23.36		
20	QPSK	50	50	23.11	23.31	23.24		
20	QPSK	100	0	22.99	23.19	23.17	24.5	1
20	16QAM	1	0	23.14	23.26	23.32		
20	16QAM	1	49	23.06	23.21	23.18		
20	16QAM	1	99	22.91	23.11	23.13	23.5	2
20	16QAM	50	0	22.27	22.38	22.37		
20	16QAM	50	24	22.17	22.30	22.21		
20	16QAM	50	50	22.07	22.08	22.16	23.5	2
20	16QAM	100	0	21.75	21.94	21.93		
20	64QAM	1	0	22.18	22.28	22.28		
20	64QAM	1	49	22.14	22.18	22.18	23.5	2
20	64QAM	1	99	21.96	22.01	22.03		
20	64QAM	50	0	21.31	21.32	21.27	22.5	3
20	64QAM	50	24	21.18	21.25	21.25		
20	64QAM	50	50	21.08	21.18	21.18		
20	64QAM	100	0	21.00	21.12	21.10		
Channel				132047	132322	132597		
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	24.33	24.41	24.38	25.5	0
15	QPSK	1	37	24.24	24.37	24.29		
15	QPSK	1	74	24.17	24.21	24.27		
15	QPSK	36	0	23.28	23.47	23.35	24.5	1
15	QPSK	36	20	23.10	23.28	23.30		
15	QPSK	36	39	23.11	23.26	23.17		
15	QPSK	75	0	22.93	23.20	23.11	24.5	1
15	16QAM	1	0	23.15	23.27	23.35		
15	16QAM	1	37	23.02	23.22	23.12		
15	16QAM	1	74	22.89	23.04	23.15	23.5	2
15	16QAM	36	0	22.29	22.34	22.30		
15	16QAM	36	20	22.12	22.31	22.15		
15	16QAM	36	39	22.08	22.01	22.16	23.5	2
15	16QAM	75	0	21.74	21.95	21.89		
15	64QAM	1	0	22.16	22.24	22.26		
15	64QAM	1	37	22.10	22.20	22.19	22.5	3
15	64QAM	1	74	21.91	21.97	22.06		
15	64QAM	36	0	21.31	21.31	21.21		
15	64QAM	36	20	21.14	21.21	21.27		
15	64QAM	36	39	21.09	21.14	21.19		
15	64QAM	75	0	20.96	21.15	21.13		



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Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	24.36	24.37	24.34	25.5	0
10	QPSK	1	25	24.25	24.37	24.27		
10	QPSK	1	49	24.13	24.20	24.26		
10	QPSK	25	0	23.30	23.43	23.38	24.5	1
10	QPSK	25	12	23.12	23.24	23.28		
10	QPSK	25	25	23.13	23.19	23.12		
10	QPSK	50	0	22.87	23.13	23.04		
10	16QAM	1	0	23.08	23.30	23.31	24.5	1
10	16QAM	1	25	22.97	23.25	23.15		
10	16QAM	1	49	22.87	23.04	23.17		
10	16QAM	25	0	22.30	22.30	22.33	23.5	2
10	16QAM	25	12	22.07	22.32	22.17		
10	16QAM	25	25	22.10	22.03	22.16		
10	16QAM	50	0	21.69	21.90	21.85	23.5	2
10	64QAM	1	0	22.09	22.19	22.19		
10	64QAM	1	25	22.05	22.13	22.22		
10	64QAM	1	49	21.92	21.97	22.00		
10	64QAM	25	0	21.33	21.27	21.22	22.5	3
10	64QAM	25	12	21.09	21.17	21.26		
10	64QAM	25	25	21.12	21.08	21.18		
10	64QAM	50	0	20.89	21.12	21.16		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	24.35	24.31	24.31	25.5	0
5	QPSK	1	12	24.24	24.40	24.28		
5	QPSK	1	24	24.09	24.20	24.22		
5	QPSK	12	0	23.30	23.42	23.40	24.5	1
5	QPSK	12	7	23.14	23.22	23.21		
5	QPSK	12	13	23.09	23.17	23.07		
5	QPSK	25	0	22.86	23.07	23.02		
5	16QAM	1	0	23.09	23.24	23.33	24.5	1
5	16QAM	1	12	22.95	23.19	23.14		
5	16QAM	1	24	22.83	23.07	23.14		
5	16QAM	12	0	22.25	22.30	22.27	23.5	2
5	16QAM	12	7	22.05	22.26	22.15		
5	16QAM	12	13	22.10	22.06	22.11		
5	16QAM	25	0	21.68	21.92	21.81		
5	64QAM	1	0	22.09	22.17	22.14	23.5	2
5	64QAM	1	12	22.06	22.08	22.19		
5	64QAM	1	24	21.88	21.95	21.95		
5	64QAM	12	0	21.27	21.27	21.22	22.5	3
5	64QAM	12	7	21.06	21.15	21.28		
5	64QAM	12	13	21.15	21.04	21.12		
5	64QAM	25	0	20.85	21.05	21.11		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	24.37	24.30	24.28	25.5	0
3	QPSK	1	8	24.24	24.40	24.26		



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3	QPSK	1	14	24.07	24.22	24.19		
3	QPSK	8	0	23.32	23.40	23.36	24.5	1
3	QPSK	8	4	23.11	23.20	23.20		
3	QPSK	8	7	23.05	23.13	23.08		
3	QPSK	15	0	22.82	23.07	22.98		
3	16QAM	1	0	23.02	23.18	23.28	24.5	1
3	16QAM	1	8	22.89	23.22	23.09		
3	16QAM	1	14	22.84	23.09	23.15		
3	16QAM	8	0	22.25	22.23	22.29	23.5	2
3	16QAM	8	4	22.08	22.27	22.14		
3	16QAM	8	7	22.05	21.99	22.08		
3	16QAM	15	0	21.71	21.94	21.77		
3	64QAM	1	0	22.06	22.12	22.13	23.5	2
3	64QAM	1	8	22.04	22.04	22.13		
3	64QAM	1	14	21.84	21.89	21.90		
3	64QAM	8	0	21.23	21.22	21.19	22.5	3
3	64QAM	8	4	21.04	21.14	21.21		
3	64QAM	8	7	21.08	21.06	21.15		
3	64QAM	15	0	20.85	21.08	21.07		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	23.82	23.90	23.77	25.5	0
1.4	QPSK	1	3	23.83	23.93	23.73		
1.4	QPSK	1	5	23.91	23.76	23.66		
1.4	QPSK	3	0	23.69	23.86	23.80		
1.4	QPSK	3	1	23.66	23.76	23.86		
1.4	QPSK	3	3	23.68	23.79	23.77		
1.4	QPSK	6	0	23.02	22.88	22.87	24.5	1
1.4	16QAM	1	0	23.27	23.20	23.09	24.5	1
1.4	16QAM	1	3	23.42	23.12	23.06		
1.4	16QAM	1	5	23.14	23.24	22.98		
1.4	16QAM	3	0	23.10	23.24	23.08		
1.4	16QAM	3	1	23.23	23.19	23.10		
1.4	16QAM	3	3	23.22	23.43	22.87		
1.4	16QAM	6	0	22.03	21.98	21.95	23.5	2
1.4	64QAM	1	0	22.13	21.99	21.83	23.5	2
1.4	64QAM	1	3	22.13	22.17	21.95		
1.4	64QAM	1	5	22.21	22.11	22.04		
1.4	64QAM	3	0	22.25	22.11	22.03		
1.4	64QAM	3	1	22.18	22.18	21.97		
1.4	64QAM	3	3	22.11	22.24	22.05		
1.4	64QAM	6	0	20.98	21.12	21.06	22.5	3

Reduced Power Mode
<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	22.84	22.89	22.71	24	0
20	QPSK	1	49	22.73	22.80	22.64		
20	QPSK	1	99	22.70	22.74	22.68		
20	QPSK	50	0	22.64	22.86	22.61	24	0
20	QPSK	50	24	22.57	22.78	22.68		
20	QPSK	50	50	22.57	22.85	22.60		
20	QPSK	100	0	22.48	22.69	22.52	24	0
20	16QAM	1	0	22.42	22.65	22.56		
20	16QAM	1	49	22.49	22.53	22.52		
20	16QAM	1	99	22.52	22.46	22.46	24	0
20	16QAM	50	0	22.61	22.59	22.40		
20	16QAM	50	24	22.56	22.45	22.53		
20	16QAM	50	50	22.51	22.60	22.53	24	0
20	16QAM	100	0	22.48	22.42	22.42		
20	64QAM	1	0	22.53	22.45	22.44		
20	64QAM	1	49	22.47	22.40	22.54	24	0
20	64QAM	1	99	22.52	22.49	22.47		
20	64QAM	50	0	22.61	22.52	22.44		
20	64QAM	50	24	22.68	22.50	22.46	24	0
20	64QAM	50	50	22.75	22.58	22.42		
20	64QAM	100	0	22.84	22.45	22.48		
Channel				20825	21100	21375		
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.59	22.70	22.67	24	0
15	QPSK	1	37	22.59	22.70	22.73		
15	QPSK	1	74	22.59	22.71	22.60		
15	QPSK	36	0	22.56	22.75	22.58	24	0
15	QPSK	36	20	22.53	22.62	22.66		
15	QPSK	36	39	22.56	22.60	22.55		
15	QPSK	75	0	22.43	22.71	22.55	24	0
15	16QAM	1	0	22.42	22.81	22.42		
15	16QAM	1	37	22.43	22.71	22.44		
15	16QAM	1	74	22.49	22.69	22.50	24	0
15	16QAM	36	0	22.47	22.68	22.53		
15	16QAM	36	20	22.55	22.69	22.63		
15	16QAM	36	39	22.50	22.68	22.64	24	0
15	16QAM	75	0	22.47	22.67	22.67		
15	64QAM	1	0	22.37	22.67	22.58		
15	64QAM	1	37	22.41	22.66	22.51	24	0
15	64QAM	1	74	22.38	22.73	22.64		
15	64QAM	36	0	22.41	22.80	22.61		
15	64QAM	36	20	22.31	22.74	22.71	24	0
15	64QAM	36	39	22.20	22.83	22.69		
15	64QAM	75	0	22.27	22.82	22.62		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.60	22.74	22.68	24	0
10	QPSK	1	25	22.64	22.78	22.75		
10	QPSK	1	49	22.58	22.80	22.51		
10	QPSK	25	0	22.57	22.72	22.61	24	0
10	QPSK	25	12	22.50	22.58	22.59		
10	QPSK	25	25	22.55	22.71	22.56		
10	QPSK	50	0	22.42	22.71	22.39		
10	16QAM	1	0	22.41	22.75	22.38	24	0
10	16QAM	1	25	22.25	22.77	22.39		
10	16QAM	1	49	22.40	22.65	22.56		
10	16QAM	25	0	22.48	22.67	22.43	24	0
10	16QAM	25	12	22.49	22.78	22.70		
10	16QAM	25	25	22.46	22.82	22.65		
10	16QAM	50	0	22.42	22.74	22.58		
10	64QAM	1	0	22.44	22.65	22.64	24	0
10	64QAM	1	25	22.58	22.70	22.51		
10	64QAM	1	49	22.36	22.58	22.65		
10	64QAM	25	0	22.44	22.73	22.70	24	0
10	64QAM	25	12	22.25	22.74	22.68		
10	64QAM	25	25	22.10	22.69	22.63		
10	64QAM	50	0	22.26	22.66	22.62		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.64	22.64	22.57	24	0
5	QPSK	1	12	22.67	22.75	22.66		
5	QPSK	1	24	22.51	22.82	22.55		
5	QPSK	12	0	22.63	22.73	22.68	24	0
5	QPSK	12	7	22.47	22.67	22.81		
5	QPSK	12	13	22.56	22.57	22.62		
5	QPSK	25	0	22.43	22.74	22.36		
5	16QAM	1	0	22.46	22.75	22.48	24	0
5	16QAM	1	12	22.44	22.60	22.37		
5	16QAM	1	24	22.48	22.67	22.52		
5	16QAM	12	0	22.58	22.77	22.48	24	0
5	16QAM	12	7	22.40	22.80	22.71		
5	16QAM	12	13	22.48	22.85	22.47		
5	16QAM	25	0	22.38	22.63	22.50		
5	64QAM	1	0	22.52	22.65	22.48	24	0
5	64QAM	1	12	22.42	22.61	22.48		
5	64QAM	1	24	22.60	22.65	22.70		
5	64QAM	12	0	22.24	22.87	22.58	24	0
5	64QAM	12	7	22.24	22.67	22.84		
5	64QAM	12	13	22.16	22.76	22.78		
5	64QAM	25	0	22.24	22.67	22.66		

12. WiFi/Bluetooth Output Power (Unit: dBm)

General Note:

1. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is $< 1.6\text{W/kg}$ and SAR peak to location ratio ≤ 0.04 , no additional SAR measurements for MIMO.
3. 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.
4. 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).
5. 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.
6. 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 $\leq 0.4\text{ W/kg}$, 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 $> 0.4\text{ W/kg}$, 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 $\leq 0.8\text{ W/kg}$ or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is $> 0.8\text{ W/kg}$, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is $\leq 1.2\text{ W/kg}$ or all required channels are tested.

Non Beamforming Mode
<2.4GHz WLAN ANT 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.88	18.00	99.12
		6	2437	17.93	18.00	
		11	2462	17.86	18.00	
	802.11g 6Mbps	1	2412	16.19	16.50	98.33
		6	2437	17.73	18.00	
		11	2462	17.06	18.00	
	802.11n-HT20 MCS0	1	2412	14.20	15.00	98.21
		6	2437	17.97	18.00	
		11	2462	15.53	16.00	
	802.11n-HT40 MCS0	3	2422	11.35	12.00	94.50
		6	2437	16.92	17.00	
		9	2452	14.42	15.00	

<2.4GHz WLAN ANT 2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.89	18.00	99.44
		6	2437	17.92	18.00	
		11	2462	17.85	18.00	
	802.11g 6Mbps	1	2412	17.92	18.00	98.33
		6	2437	17.95	18.00	
		11	2462	17.71	18.00	
	802.11n-HT20 MCS0	1	2412	16.78	17.00	98.21
		6	2437	17.80	18.00	
		11	2462	17.53	18.00	
	802.11n-HT40 MCS0	3	2422	15.37	15.50	95.00
		6	2437	17.32	17.50	
		9	2452	16.41	17.00	

<2.4GHz WLAN ANT 1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	20.84	21.00	99.28
		6	2437	20.98	21.00	
		11	2462	20.94	21.00	
	802.11g 6Mbps	1	2412	19.77	20.00	98.33
		6	2437	20.86	21.00	
		11	2462	18.70	19.00	
	802.11n-HT20 MCS0	1	2412	16.63	17.50	98.21
		6	2437	20.78	21.00	
		11	2462	17.57	18.00	
	802.11n-HT40 MCS0	3	2422	14.80	15.00	94.97
		6	2437	19.30	20.00	
		9	2452	16.76	17.00	

<5GHz WLAN ANT1>

5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	17.20	17.50	97.65
		40	5200	17.30	17.50	
		44	5220	17.40	17.50	
		48	5240	17.40	17.50	
	802.11n-HT20 MCS0	36	5180	17.30	17.50	97.47
		40	5200	17.30	17.50	
		44	5220	17.20	17.50	
		48	5240	17.20	17.50	
	802.11n-HT40 MCS0	38	5190	17.00	17.50	96.46
		46	5230	17.20	17.50	
	802.11ac-VHT20 MCS0	36	5180	17.40	17.50	97.98
		40	5200	17.40	17.50	
		44	5220	17.30	17.50	
		48	5240	17.30	17.50	
	802.11ac-VHT40 MCS0	38	5190	17.10	17.50	95.98
		46	5230	17.30	17.50	
	802.11ac-VHT80 MCS0	42	5210	16.70	17.00	92.00

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	17.30	17.50	97.65
		56	5280	17.30	17.50	
		60	5300	17.40	17.50	
		64	5320	17.20	17.50	
	802.11n-HT20 MCS0	52	5260	17.30	17.50	97.47
		56	5280	17.30	17.50	
		60	5300	17.10	17.50	
		64	5320	17.30	17.50	
	802.11n-HT40 MCS0	54	5270	17.10	17.50	96.46
		62	5310	16.20	16.50	
	802.11ac-VHT20 MCS0	52	5260	17.40	17.50	97.98
		56	5280	17.40	17.50	
		60	5300	17.20	17.50	
		64	5320	17.40	17.50	
	802.11ac-VHT40 MCS0	54	5270	17.20	17.50	95.98
		62	5310	16.30	16.50	
	802.11ac-VHT80 MCS0	58	5290	15.30	15.50	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.20	17.50	97.65
		116	5580	17.40	17.50	
		124	5620	17.30	17.50	
		132	5660	17.40	17.50	
		144	5720	17.30	17.50	
	802.11n-HT20 MCS0	100	5500	17.30	17.50	97.47
		116	5580	17.10	17.50	
		124	5620	17.10	17.50	
		132	5660	17.10	17.50	
		144	5720	17.10	17.50	
	802.11n-HT40 MCS0	102	5510	17.30	17.50	96.46
		110	5550	17.10	17.50	
		126	5630	17.20	17.50	
		134	5670	17.20	17.50	
		142	5710	17.10	17.50	
	802.11ac-VHT20 MCS0	100	5500	17.40	17.50	97.98
		116	5580	17.20	17.50	
		124	5620	17.20	17.50	
		132	5660	17.20	17.50	
		144	5720	17.20	17.50	
	802.11ac-VHT40 MCS0	102	5510	17.40	17.50	95.98
		110	5550	17.20	17.50	
		126	5630	17.30	17.50	
		134	5670	17.30	17.50	
		142	5710	17.20	17.50	
	802.11ac-VHT80 MCS0	106	5530	17.40	17.50	92.00
		122	5610	17.30	17.50	
		138	5690	17.40	17.50	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	17.30	17.50	97.65
		157	5785	17.20	17.50	
		165	5825	17.40	17.50	
	802.11n-HT20 MCS0	149	5745	17.30	17.50	97.47
		157	5785	17.30	17.50	
		165	5825	17.20	17.50	
	802.11n-HT40 MCS0	151	5755	17.20	17.50	96.46
		159	5795	17.30	17.50	
	802.11ac-VHT20 MCS0	149	5745	17.40	17.50	97.98
		157	5785	17.40	17.50	
		165	5825	17.30	17.50	
	802.11ac-VHT40 MCS0	151	5755	17.30	17.50	95.98
		159	5795	17.40	17.50	
	802.11ac-VHT80 MCS0	155	5775	17.40	17.50	92.00

<5GHz WLAN ANT2>

5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	17.40	17.50	97.65
		40	5200	17.40	17.50	
		44	5220	17.40	17.50	
		48	5240	17.30	17.50	
	802.11n-HT20 MCS0	36	5180	17.20	17.50	97.97
		40	5200	17.20	17.50	
		44	5220	17.10	17.50	
		48	5240	17.10	17.50	
	802.11n-HT40 MCS0	38	5190	17.20	17.50	95.96
		46	5230	17.10	17.50	
	802.11ac-VHT20 MCS0	36	5180	17.30	17.50	97.49
		40	5200	17.30	17.50	
		44	5220	17.20	17.50	
		48	5240	17.20	17.50	
	802.11ac-VHT40 MCS0	38	5190	17.30	17.50	95.48
		46	5230	17.20	17.50	
	802.11ac-VHT80 MCS0	42	5210	16.60	17.00	92.00

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	17.20	17.50	97.65
		56	5280	17.30	17.50	
		60	5300	17.40	17.50	
		64	5320	17.40	17.50	
	802.11n-HT20 MCS0	52	5260	17.30	17.50	97.97
		56	5280	17.30	17.50	
		60	5300	17.10	17.50	
		64	5320	17.20	17.50	
	802.11n-HT40 MCS0	54	5270	17.10	17.50	95.96
		62	5310	15.60	16.50	
	802.11ac-VHT20 MCS0	52	5260	17.40	17.50	97.49
		56	5280	17.40	17.50	
		60	5300	17.20	17.50	
		64	5320	17.30	17.50	
	802.11ac-VHT40 MCS0	54	5270	17.20	17.50	95.48
		62	5310	15.70	16.50	
	802.11ac-VHT80 MCS0	58	5290	15.30	15.50	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.20	17.50	97.65
		116	5580	17.40	17.50	
		124	5620	17.30	17.50	
		132	5660	17.30	17.50	
		144	5720	17.40	17.50	
	802.11n-HT20 MCS0	100	5500	17.30	17.50	97.97
		116	5580	17.10	17.50	
		124	5620	17.10	17.50	
		132	5660	17.10	17.50	
		144	5720	17.20	17.50	
	802.11n-HT40 MCS0	102	5510	16.20	16.50	95.96
		110	5550	17.20	17.50	
		126	5630	17.10	17.50	
		134	5670	17.10	17.50	
		142	5710	17.20	17.50	
	802.11ac-VHT20 MCS0	100	5500	17.40	17.50	97.49
		116	5580	17.20	17.50	
		124	5620	17.20	17.50	
		132	5660	17.20	17.50	
		144	5720	17.30	17.50	
	802.11ac-VHT40 MCS0	102	5510	16.30	16.50	95.48
		110	5550	17.30	17.50	
		126	5630	17.20	17.50	
		134	5670	17.20	17.50	
		142	5710	17.30	17.50	
	802.11ac-VHT80 MCS0	106	5530	15.40	16.50	92.00
		122	5610	17.20	17.50	
		138	5690	17.40	17.50	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	17.20	17.50	97.65
		157	5785	17.20	17.50	
		165	5825	17.40	17.50	
	802.11n-HT20 MCS0	149	5745	17.30	17.50	97.97
		157	5785	17.30	17.50	
		165	5825	17.10	17.50	
	802.11n-HT40 MCS0	151	5755	17.30	17.50	95.96
		159	5795	17.30	17.50	
	802.11ac-VHT20 MCS0	149	5745	17.40	17.50	97.49
		157	5785	17.40	17.50	
		165	5825	17.20	17.50	
	802.11ac-VHT40 MCS0	151	5755	17.40	17.50	95.48
		159	5795	17.40	17.50	
	802.11ac-VHT80 MCS0	155	5775	17.20	17.50	92.00

<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	19.41	19.50	97.64
		40	5200	19.36	19.50	
		44	5220	19.36	19.50	
		48	5240	19.36	19.50	
	802.11n-HT20 MCS0	36	5180	19.21	19.50	97.48
		40	5200	19.21	19.50	
		44	5220	19.16	19.50	
		48	5240	19.16	19.50	
	802.11n-HT40 MCS0	38	5190	19.21	19.50	95.15
		46	5230	19.16	19.50	
	802.11ac-VHT20 MCS0	36	5180	19.31	19.50	97.73
		40	5200	19.31	19.50	
		44	5220	19.26	19.50	
		48	5240	19.26	19.50	
	802.11ac-VHT40 MCS0	38	5190	19.31	19.50	95.48
		46	5230	19.26	19.50	
	802.11ac-VHT80 MCS0	42	5210	19.07	19.50	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	19.16	19.50	97.64
		56	5280	19.16	19.50	
		60	5300	19.26	19.50	
		64	5320	19.26	19.50	
	802.11n-HT20 MCS0	52	5260	19.06	19.50	97.48
		56	5280	19.06	19.50	
		60	5300	19.11	19.50	
		64	5320	19.16	19.50	
	802.11n-HT40 MCS0	54	5270	18.97	19.50	95.15
		62	5310	17.47	18.50	
	802.11ac-VHT20 MCS0	52	5260	19.16	19.50	97.73
		56	5280	19.16	19.50	
		60	5300	19.21	19.50	
		64	5320	19.26	19.50	
	802.11ac-VHT40 MCS0	54	5270	19.07	19.50	95.48
		62	5310	17.57	18.50	
	802.11ac-VHT80 MCS0	58	5290	15.62	16.50	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	19.86	20.00	97.64
		116	5580	19.91	20.00	
		124	5620	19.91	20.00	
		132	5660	19.91	20.00	
		144	5720	19.61	20.00	
	802.11n-HT20 MCS0	100	5500	19.66	20.00	97.48
		116	5580	19.71	20.00	
		124	5620	19.71	20.00	
		132	5660	19.81	20.00	
		144	5720	19.76	20.00	
	802.11n-HT40 MCS0	102	5510	19.46	20.00	95.15
		110	5550	19.76	20.00	
		126	5630	19.76	20.00	
		134	5670	19.76	20.00	
		142	5710	19.71	20.00	
	802.11ac-VHT20 MCS0	100	5500	19.76	20.00	97.73
		116	5580	19.81	20.00	
		124	5620	19.81	20.00	
		132	5660	19.91	20.00	
		144	5720	19.86	20.00	
	802.11ac-VHT40 MCS0	102	5510	19.56	20.00	95.48
		110	5550	19.86	20.00	
		126	5630	19.86	20.00	
		134	5670	19.86	20.00	
		142	5710	19.81	20.00	
	802.11ac-VHT80 MCS0	106	5530	18.16	18.50	92.00
		122	5610	19.86	20.00	
		138	5690	19.91	20.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	19.86	20.00	97.64
		157	5785	19.76	20.00	
		165	5825	19.91	20.00	
	802.11n-HT20 MCS0	149	5745	19.61	20.00	97.48
		157	5785	19.56	20.00	
		165	5825	19.76	20.00	
	802.11n-HT40 MCS0	151	5755	19.66	20.00	95.15
		159	5795	19.71	20.00	
	802.11ac-VHT20 MCS0	149	5745	19.71	20.00	97.73
		157	5785	19.66	20.00	
		165	5825	19.86	20.00	
	802.11ac-VHT40 MCS0	151	5755	19.76	20.00	95.48
		159	5795	19.81	20.00	
	802.11ac-VHT80 MCS0	155	5775	19.86	20.00	92.00

Beamforming Mode
<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	ANT 1+2 Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11ac-VHT20 MCS0	36	5180	18.92	19.50	100
		40	5200	18.92	19.50	
		44	5220	19.02	19.50	
		48	5240	18.91	19.50	
	802.11ac-VHT40 MCS0	38	5190	19.17	19.50	100
		46	5230	19.21	19.50	
	802.11ac-VHT80 MCS0	42	5210	18.68	19.00	100

	Mode	Channel	Frequency (MHz)	ANT 1+2 Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11ac-VHT20 MCS0	52	5260	18.97	19.50	100
		56	5280	18.97	19.50	
		60	5300	19.17	19.50	
		64	5320	19.21	19.50	
	802.11ac-VHT40 MCS0	54	5270	19.02	19.50	100
		62	5310	17.57	18.00	
	802.11ac-VHT80 MCS0	58	5290	16.27	16.50	100

	Mode	Channel	Frequency (MHz)	ANT 1+2 Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11ac-VHT20 MCS0	100	5500	19.46	20.00	100
		116	5580	19.51	20.00	
		124	5620	19.47	20.00	
		132	5660	19.46	20.00	
		144	5720	19.51	20.00	
	802.11ac-VHT40 MCS0	102	5510	19.07	19.50	100
		110	5550	19.37	19.50	
		126	5630	19.37	19.50	
		134	5670	19.43	19.50	
		142	5710	19.34	19.50	
	802.11ac-VHT80 MCS0	106	5530	16.92	17.00	100
		122	5610	19.40	19.50	
		138	5690	19.43	19.50	

	Mode	Channel	Frequency (MHz)	ANT 1+2 Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11ac-VHT20 MCS0	149	5745	19.51	20.00	100
		157	5785	19.47	20.00	
		165	5825	19.56	20.00	
	802.11ac-VHT40 MCS0	151	5755	19.47	20.00	100
		159	5795	19.61	20.00	
	802.11ac-VHT80 MCS0	155	5775	19.52	20.00	100

<2.4GHz Bluetooth Module 1>

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	3.98	0.70	0.85
	CH 39	2441	3.99	1.10	1.20
	CH 78	2480	3.96	0.68	0.81
Tune-up Limit			4.00	1.50	1.50

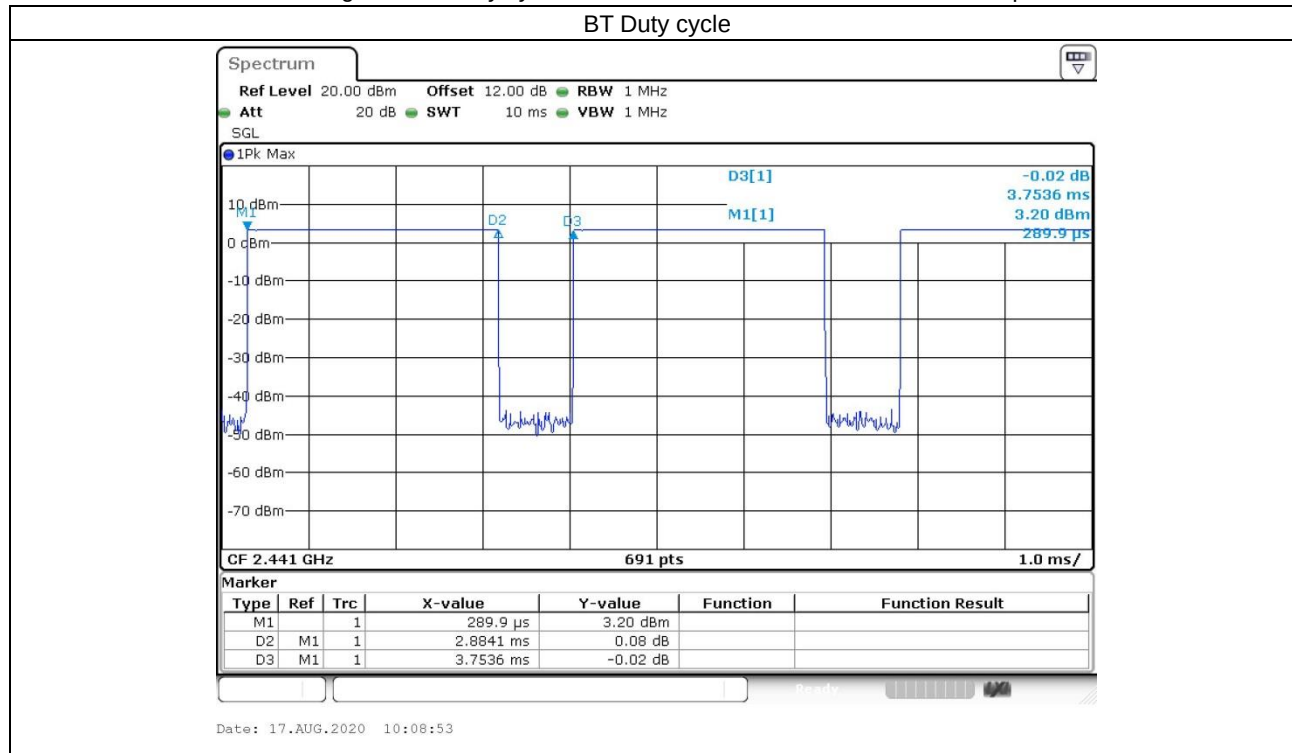
Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	5.10	5.00
	CH 19	2440	5.80	5.80
	CH 39	2480	5.50	5.50
Tune-up Limit			6.00	6.00

<2.4GHz Bluetooth Module 2>

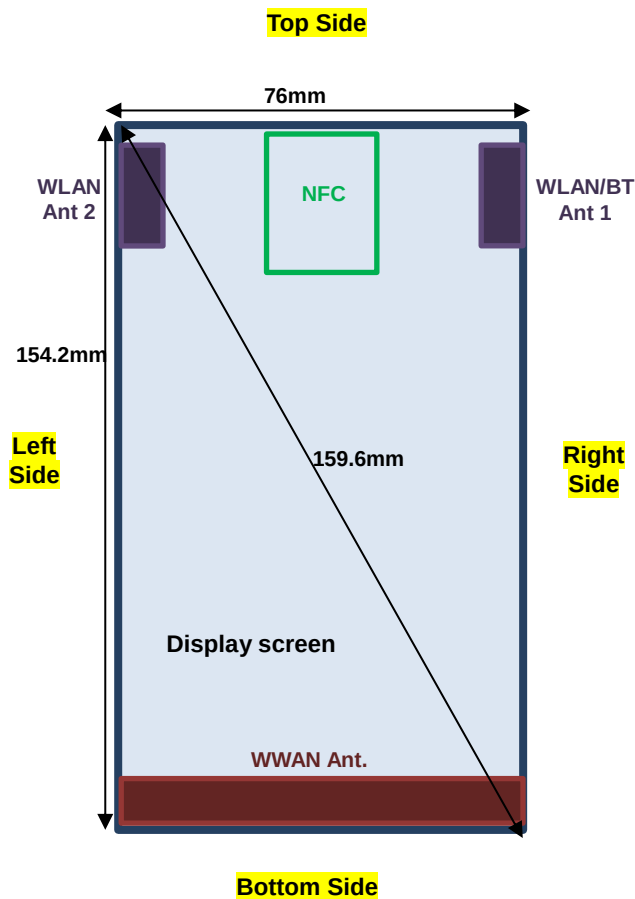
Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	2.60	2.40
	CH 19	2440	2.40	2.40
	CH 39	2480	2.50	2.50
Tune-up Limit			3.00	3.00

General Note:

- For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 62.3% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.



13. Antenna Location


Front View

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
BT&WLAN Ant 1	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm
WLAN Ant 2	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	>25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	Yes	Yes	No	Yes	Yes	Yes
BT&WLAN Ant 1	Yes	Yes	Yes	No	Yes	No
WLAN Ant 2	Yes	Yes	Yes	No	No	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

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WWAN: 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
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
4. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of LTE B7.
5. The device support trigger handle accessories which the user can use the product while holding the handle, due to the test limitation, therefore, for hand SAR testing is remove the handle to attach the device to be tested.

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 ≤ 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.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4/B5/B12/B17/B26 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 2/4/5/17 SAR test was covered by Band 25/66/26/12; 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 ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6 W/kg and SAR peak to location ratio ≤ 0.04 , no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

**14.1 Head SAR****<WCDMA SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Battery	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Battery 1	9400	1880	23.72	25.00	1.343	0.03	0.405	0.544
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	Battery 1	9400	1880	23.72	25.00	1.343	-0.07	0.266	0.357
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	Battery 1	9400	1880	23.72	25.00	1.343	-0.04	0.490	0.658
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	Battery 1	9262	1852.4	23.45	25.00	1.429	0.02	0.412	0.589
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	Battery 1	9538	1907.6	23.56	25.00	1.393	-0.05	0.455	0.634
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	Battery 1	9400	1880	23.72	25.00	1.343	0.09	0.251	0.337
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	Battery 2	9400	1880	23.72	25.00	1.343	0.08	0.426	0.572
	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	Battery 1	1413	1732.6	23.75	24.00	1.059	-0.07	0.287	0.304
02	WCDMA IV	RMC 12.2Kbps	Right Tilted	0mm	Battery 1	1413	1732.6	23.75	24.00	1.059	-0.07	0.126	0.133
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	Battery 1	1413	1732.6	23.75	24.00	1.059	-0.08	0.356	0.377
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	Battery 1	1312	1712.4	23.64	24.00	1.086	-0.14	0.326	0.354
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	Battery 1	1513	1752.6	23.66	24.00	1.081	0.09	0.340	0.368
	WCDMA IV	RMC 12.2Kbps	Left Tilted	0mm	Battery 1	1413	1732.6	23.75	24.00	1.059	-0.03	0.150	0.159
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	Battery 2	1413	1732.6	23.75	24.00	1.059	0.05	0.318	0.337
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Battery 1	4182	836.4	24.45	25.50	1.274	-0.04	0.413	0.526
03	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Battery 1	4132	826.4	24.36	25.70	1.361	0.06	0.376	0.512
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Battery 1	4233	846.6	24.44	25.70	1.337	-0.01	0.388	0.519
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	Battery 1	4182	836.4	24.45	25.50	1.274	0.07	0.268	0.341
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	Battery 1	4182	836.4	24.45	25.50	1.274	-0.01	0.298	0.379
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	Battery 1	4182	836.4	24.45	25.50	1.274	-0.05	0.217	0.276
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Battery 2	4182	836.4	24.45	25.50	1.274	0.01	0.365	0.465
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Battery 2	4182	836.4	24.45	25.50	1.274	0.01	0.365	0.465



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
04	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Battery 1	20850	2510	24.33	25.00	1.167	-0.04	0.328	0.383
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Battery 1	21100	2535	24.20	25.00	1.202	-0.06	0.313	0.376
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Battery 1	21350	2560	24.05	25.00	1.245	-0.1	0.330	0.411
	LTE Band 7	20M	QPSK	50	0	Right Cheek	0mm	Battery 1	20850	2510	23.25	24.00	1.189	-0.07	0.309	0.367
	LTE Band 7	20M	QPSK	1	0	Right Tilted	0mm	Battery 1	20850	2510	24.33	25.00	1.167	0.03	0.137	0.160
	LTE Band 7	20M	QPSK	50	0	Right Tilted	0mm	Battery 1	20850	2510	23.25	24.00	1.189	0.07	0.120	0.143
	LTE Band 7	20M	QPSK	1	0	Left Cheek	0mm	Battery 1	20850	2510	24.33	25.00	1.167	-0.08	0.264	0.308
	LTE Band 7	20M	QPSK	50	0	Left Cheek	0mm	Battery 1	20850	2510	23.25	24.00	1.189	0.09	0.226	0.269
	LTE Band 7	20M	QPSK	1	0	Left Tilted	0mm	Battery 1	20850	2510	24.33	25.00	1.167	0.05	0.217	0.253
	LTE Band 7	20M	QPSK	50	0	Left Tilted	0mm	Battery 1	20850	2510	23.25	24.00	1.189	0.07	0.153	0.182
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Battery 2	21350	2560	24.05	25.00	1.245	-0.12	0.305	0.380
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	Battery 2	21350	2560	24.05	25.00	1.245	-0.12	0.305	0.380
05	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	Battery 1	23095	707.5	25.14	25.70	1.138	0.1	0.362	0.412
	LTE Band 12	10M	QPSK	25	0	Right Cheek	0mm	Battery 1	23095	707.5	24.04	24.70	1.164	0.02	0.339	0.395
	LTE Band 12	10M	QPSK	1	0	Right Tilted	0mm	Battery 1	23095	707.5	25.14	25.70	1.138	-0.05	0.189	0.215
	LTE Band 12	10M	QPSK	25	0	Right Tilted	0mm	Battery 1	23095	707.5	24.04	24.70	1.164	-0.09	0.165	0.192
	LTE Band 12	10M	QPSK	1	0	Left Cheek	0mm	Battery 1	23095	707.5	25.14	25.70	1.138	-0.14	0.278	0.316
	LTE Band 12	10M	QPSK	1	0	Left Cheek	0mm	Battery 1	23095	707.5	24.04	24.70	1.164	0.05	0.234	0.272
	LTE Band 12	10M	QPSK	1	0	Left Tilted	0mm	Battery 1	23095	707.5	25.14	25.70	1.138	0.05	0.169	0.192
	LTE Band 12	10M	QPSK	25	0	Left Tilted	0mm	Battery 1	23095	707.5	24.04	24.70	1.164	-0.03	0.142	0.165
	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23095	707.5	25.14	25.70	1.138	0.08	0.331	0.377
	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23095	707.5	25.14	25.70	1.138	0.08	0.331	0.377
	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23095	707.5	25.14	25.70	1.138	0.08	0.331	0.377
	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23095	707.5	25.14	25.70	1.138	0.08	0.331	0.377
06	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	Battery 1	23230	782	24.64	25.70	1.276	-0.11	0.409	0.522
	LTE Band 13	10M	QPSK	25	0	Right Cheek	0mm	Battery 1	23230	782	23.59	24.70	1.291	0.04	0.365	0.471
	LTE Band 13	10M	QPSK	1	0	Right Tilted	0mm	Battery 1	23230	782	24.64	25.70	1.276	0.05	0.271	0.346
	LTE Band 13	10M	QPSK	25	0	Right Tilted	0mm	Battery 1	23230	782	23.59	24.70	1.291	-0.06	0.252	0.325
	LTE Band 13	10M	QPSK	1	0	Left Cheek	0mm	Battery 1	23230	782	24.64	25.70	1.276	-0.09	0.381	0.486
	LTE Band 13	10M	QPSK	25	0	Left Cheek	0mm	Battery 1	23230	782	23.59	24.70	1.291	0.09	0.368	0.475
	LTE Band 13	10M	QPSK	1	0	Left Tilted	0mm	Battery 1	23230	782	24.64	25.70	1.276	0.04	0.236	0.301
	LTE Band 13	10M	QPSK	25	0	Left Tilted	0mm	Battery 1	23230	782	23.59	24.70	1.291	-0.03	0.221	0.285
	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23230	782	24.64	25.70	1.276	0.04	0.371	0.474
	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23230	782	24.64	25.70	1.276	0.04	0.371	0.474
	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23230	782	24.64	25.70	1.276	0.04	0.371	0.474
	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23230	782	24.64	25.70	1.276	0.04	0.371	0.474
07	LTE Band 14	10M	QPSK	1	0	Right Cheek	0mm	Battery 1	23330	793	25.16	25.70	1.132	0.08	0.299	0.339
	LTE Band 14	10M	QPSK	25	0	Right Cheek	0mm	Battery 1	23330	793	24.11	24.70	1.146	0.05	0.246	0.282
	LTE Band 14	10M	QPSK	1	0	Right Tilted	0mm	Battery 1	23330	793	25.16	25.70	1.132	0.06	0.155	0.176
	LTE Band 14	10M	QPSK	25	0	Right Tilted	0mm	Battery 1	23330	793	24.11	24.70	1.146	-0.03	0.132	0.151
	LTE Band 14	10M	QPSK	1	0	Left Cheek	0mm	Battery 1	23330	793	25.16	25.70	1.132	-0.05	0.189	0.214
	LTE Band 14	10M	QPSK	25	0	Left Cheek	0mm	Battery 1	23330	793	24.11	24.70	1.146	-0.11	0.166	0.190
	LTE Band 14	10M	QPSK	1	0	Left Tilted	0mm	Battery 1	23330	793	25.16	25.70	1.132	0.06	0.112	0.127
	LTE Band 14	10M	QPSK	25	0	Left Tilted	0mm	Battery 1	23330	793	24.11	24.70	1.146	0.05	0.105	0.120
	LTE Band 14	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23330	793	25.16	25.70	1.132	-0.11	0.272	0.308
	LTE Band 14	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23330	793	25.16	25.70	1.132	-0.11	0.272	0.308
	LTE Band 14	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23330	793	25.16	25.70	1.132	-0.11	0.272	0.308
	LTE Band 14	10M	QPSK	1	0	Right Cheek	0mm	Battery 2	23330	793	25.16	25.70	1.132	-0.11	0.272	0.308



FCC SAR TEST REPORT

Report No. : FA070401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 25	20M	QPSK	1	0	Right Cheek	0mm	Battery 1	26140	1860	23.52	24.00	1.117	-0.16	0.304	0.340
	LTE Band 25	20M	QPSK	50	0	Right Cheek	0mm	Battery 1	26140	1860	22.51	23.00	1.119	0.05	0.289	0.324
	LTE Band 25	20M	QPSK	1	0	Right Tilted	0mm	Battery 1	26140	1860	23.52	24.00	1.117	0.06	0.223	0.249
	LTE Band 25	20M	QPSK	50	0	Right Tilted	0mm	Battery 1	26140	1860	22.51	23.00	1.119	-0.11	0.188	0.210
	LTE Band 25	20M	QPSK	1	0	Left Cheek	0mm	Battery 1	26140	1860	23.52	24.00	1.117	0.09	0.462	0.516
	LTE Band 25	20M	QPSK	1	0	Left Cheek	0mm	Battery 1	26340	1880	23.03	24.00	1.250	-0.12	0.445	0.556
08	LTE Band 25	20M	QPSK	1	0	Left Cheek	0mm	Battery 1	26590	1905	22.84	24.00	1.306	-0.14	0.477	0.623
	LTE Band 25	20M	QPSK	50	0	Left Cheek	0mm	Battery 1	26140	1860	22.51	23.00	1.119	0.05	0.412	0.461
	LTE Band 25	20M	QPSK	1	0	Left Tilted	0mm	Battery 1	26140	1860	23.52	24.00	1.117	0.06	0.235	0.262
	LTE Band 25	20M	QPSK	50	0	Left Tilted	0mm	Battery 1	26140	1860	22.51	23.00	1.119	0.09	0.204	0.228
	LTE Band 25	20M	QPSK	1	0	Left Cheek	0mm	Battery 2	26590	1905	22.84	24.00	1.306	0.02	0.452	0.590
09	LTE Band 26	15M	QPSK	1	0	Right Cheek	0mm	Battery 1	26865	831.5	25.27	25.70	1.104	-0.1	0.365	0.403
	LTE Band 26	15M	QPSK	36	0	Right Cheek	0mm	Battery 1	26865	831.5	24.22	24.70	1.117	0.09	0.314	0.351
	LTE Band 26	15M	QPSK	1	0	Right Tilted	0mm	Battery 1	26865	831.5	25.27	25.70	1.104	-0.11	0.274	0.303
	LTE Band 26	15M	QPSK	36	0	Right Tilted	0mm	Battery 1	26865	831.5	24.22	24.70	1.117	-0.05	0.251	0.280
	LTE Band 26	15M	QPSK	1	0	Left Cheek	0mm	Battery 1	26865	831.5	25.27	25.70	1.104	-0.1	0.308	0.340
	LTE Band 26	15M	QPSK	36	0	Left Cheek	0mm	Battery 1	26865	831.5	24.22	24.70	1.117	0.06	0.289	0.323
	LTE Band 26	15M	QPSK	1	0	Left Tilted	0mm	Battery 1	26865	831.5	25.27	25.70	1.104	0.03	0.241	0.266
	LTE Band 26	15M	QPSK	36	0	Left Tilted	0mm	Battery 1	26865	831.5	24.22	24.70	1.117	0.02	0.226	0.252
	LTE Band 26	15M	QPSK	1	0	Right Cheek	0mm	Battery 2	26865	831.5	25.27	25.70	1.104	0.05	0.322	0.356
	LTE Band 66	20M	QPSK	1	0	Right Cheek	0mm	Battery 1	132322	1745	24.45	25.50	1.274	0.07	0.350	0.446
	LTE Band 66	20M	QPSK	50	0	Right Cheek	0mm	Battery 1	132322	1745	23.45	24.50	1.274	0.05	0.332	0.423
	LTE Band 66	20M	QPSK	1	0	Right Tilted	0mm	Battery 1	132322	1745	24.45	25.50	1.274	-0.06	0.161	0.205
	LTE Band 66	20M	QPSK	50	0	Right Tilted	0mm	Battery 1	132322	1745	23.45	24.50	1.274	0.11	0.142	0.181
10	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	Battery 1	132322	1745	24.45	25.50	1.274	-0.14	0.453	0.577
	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	Battery 1	132072	1720	24.35	25.50	1.303	0.09	0.374	0.487
	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	Battery 1	132572	1770	24.40	25.50	1.288	-0.04	0.443	0.571
	LTE Band 66	20M	QPSK	50	0	Left Cheek	0mm	Battery 1	132322	1745	23.45	24.50	1.274	0.06	0.421	0.536
	LTE Band 66	20M	QPSK	1	0	Left Tilted	0mm	Battery 1	132322	1745	24.45	25.50	1.274	-0.03	0.148	0.188
	LTE Band 66	20M	QPSK	50	0	Left Tilted	0mm	Battery 1	132322	1745	23.45	24.50	1.274	0.07	0.132	0.168
	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	Battery 2	132322	1745	24.45	25.50	1.274	0.15	0.427	0.544

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	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	Right Cheek	0mm	Ant 1	Battery 1	6	2437	17.93	18.00	1.016	99.12	1.009	-0.03	0.173	0.177
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 1	Battery 1	6	2437	17.93	18.00	1.016	99.12	1.009	0.13	0.147	0.151
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Battery 1	6	2437	17.93	18.00	1.016	99.12	1.009	-0.06	0.823	0.844
11	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Battery 1	1	2412	17.88	18.00	1.028	99.12	1.009	-0.12	0.851	0.883
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Battery 1	11	2462	17.86	18.00	1.033	99.12	1.009	0.11	0.664	0.692
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 1	Battery 1	6	2437	17.93	18.00	1.016	99.12	1.009	0.04	0.437	0.448
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	Battery 2	1	2412	17.88	18.00	1.028	99.12	1.009	0.09	0.833	0.864
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 2	Battery 1	6	2437	17.92	18.00	1.019	99.44	1.006	-0.16	0.334	0.342
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 2	Battery 1	6	2437	17.92	18.00	1.019	99.44	1.006	0.09	0.151	0.155
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 2	Battery 1	6	2437	17.92	18.00	1.019	99.44	1.006	-0.04	0.127	0.130
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 2	Battery 1	6	2437	17.92	18.00	1.019	99.44	1.006	0.11	0.116	0.119
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 2	Battery 2	6	2437	17.92	18.00	1.019	99.44	1.006	0.05	0.322	0.330
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 1	Battery 1	46	5230	17.20	17.50	1.072	96.46	1.037	0.06	0.322	0.358
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 1	Battery 1	46	5230	17.20	17.50	1.072	96.46	1.037	0.01	0.329	0.366
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	46	5230	17.20	17.50	1.072	96.46	1.037	-0.09	1.040	1.156
12	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	38	5190	17.00	17.50	1.122	96.46	1.037	-0.13	1.040	1.210
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 1	Battery 1	44	5220	17.40	17.50	1.023	97.65	1.024	0.02	1.050	1.100
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 1	Battery 1	46	5230	17.20	17.50	1.072	96.46	1.037	0.05	0.718	0.798
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 2	38	5190	17.00	17.50	1.122	96.46	1.037	0.03	0.895	1.041
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 1	Battery 1	54	5270	17.10	17.50	1.096	96.46	1.037	-0.07	0.698	0.794
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 1	Battery 1	54	5270	17.10	17.50	1.096	96.46	1.037	-0.09	0.642	0.730
13	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	54	5270	17.10	17.50	1.096	96.46	1.037	-0.13	1.080	1.228
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	62	5310	16.20	16.50	1.072	96.46	1.037	0.09	0.756	0.840
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 1	Battery 1	60	5300	17.40	17.50	1.023	97.65	1.024	0.1	1.020	1.069
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 1	Battery 1	54	5270	17.10	17.50	1.096	96.46	1.037	-0.1	0.682	0.775
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 2	54	5270	17.10	17.50	1.096	96.46	1.037	0.01	0.915	1.040
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 2	Battery 1	54	5270	17.10	17.50	1.096	95.96	1.042	-0.18	0.401	0.458
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 2	Battery 1	54	5270	17.10	17.50	1.096	95.96	1.042	-0.07	0.189	0.216
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 2	Battery 1	54	5270	17.10	17.50	1.096	95.96	1.042	0.11	0.182	0.208
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 2	Battery 1	54	5270	17.10	17.50	1.096	95.96	1.042	-0.13	0.094	0.107
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 2	Battery 2	54	5270	17.10	17.50	1.096	95.96	1.042	-0.08	0.354	0.404
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	Battery 1	138	5690	17.40	17.50	1.023	92.00	1.087	0.12	0.435	0.484
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	Battery 1	138	5690	17.40	17.50	1.023	92.00	1.087	0.04	0.372	0.414
14	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 1	138	5690	17.40	17.50	1.023	92.00	1.087	-0.09	1.090	1.212
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 1	106	5530	17.40	17.50	1.023	92.00	1.087	0.08	0.982	1.092
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 1	122	5610	17.30	17.50	1.047	92.00	1.087	0.06	0.965	1.098
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	Battery 1	138	5690	17.40	17.50	1.023	92.00	1.087	-0.11	0.097	0.108
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 2	138	5690	17.40	17.50	1.023	92.00	1.087	0.09	0.966	1.075
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	Battery 1	138	5690	17.40	17.50	1.023	92.00	1.087	-0.15	0.537	0.597
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	Battery 1	138	5690	17.40	17.50	1.023	92.00	1.087	-0.06	0.319	0.355
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	Battery 1	138	5690	17.40	17.50	1.023	92.00	1.087	0.03	0.154	0.171
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	Battery 1	138	5690	17.40	17.50	1.023	92.00	1.087	0.09	0.123	0.137
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	Battery 2	138	5690	17.40	17.50	1.023	92.00	1.087	-0.07	0.534	0.594



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	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)
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	Battery 1	155	5775	17.40	17.50	1.023	92.00	1.087	0.05	0.602	0.670
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	Battery 1	155	5775	17.40	17.50	1.023	92.00	1.087	-0.09	0.693	0.771
15	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 1	155	5775	17.40	17.50	1.023	92.00	1.087	0.13	1.120	1.246
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	159	5795	17.30	17.50	1.047	96.46	1.037	0.06	1.060	1.151
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	Battery 1	155	5775	17.40	17.50	1.023	92.00	1.087	-0.04	0.957	1.064
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 1	Battery 1	159	5795	17.30	17.50	1.047	96.46	1.037	0.09	0.913	0.991
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 2	155	5775	17.40	17.50	1.023	92.00	1.087	-0.03	0.981	1.091
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	Battery 1	155	5775	17.20	17.50	1.072	92.00	1.087	-0.06	0.353	0.411
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	Battery 1	155	5775	17.20	17.50	1.072	92.00	1.087	0.05	0.131	0.153
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	Battery 1	155	5775	17.20	17.50	1.072	92.00	1.087	-0.08	0.096	0.112
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	Battery 1	155	5775	17.20	17.50	1.072	92.00	1.087	-0.03	0.067	0.078
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	Battery 2	155	5775	17.20	17.50	1.072	92.00	1.087	0.02	0.311	0.362

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	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	LE-1Mbps	Right Cheek	0mm	Ant 1	Battery 1	19	2440	5.80	6.00	1.047	62.30	1.337	0.15	0.002	0.003
	Bluetooth	LE-1Mbps	Right Tilted	0mm	Ant 1	Battery 1	19	2440	5.80	6.00	1.047	62.30	1.337	0.02	0.001	0.001
16	Bluetooth	LE-1Mbps	Left Cheek	0mm	Ant 1	Battery 1	19	2440	5.80	6.00	1.047	62.30	1.337	-0.11	0.003	0.004
	Bluetooth	LE-1Mbps	Left Cheek	0mm	Ant 1	Battery 1	00	2402	5.10	6.00	1.230	62.30	1.337	0.12	0.001	0.002
	Bluetooth	LE-1Mbps	Left Cheek	0mm	Ant 1	Battery 1	39	2480	5.50	6.00	1.122	62.30	1.337	0.04	0.002	0.003
	Bluetooth	LE-1Mbps	Left Tilted	0mm	Ant 1	Battery 1	19	2440	5.80	6.00	1.047	62.30	1.337	0.14	0.001	0.001
	Bluetooth	LE-1Mbps	Left Cheek	0mm	Ant 1	Battery 2	19	2440	5.80	6.00	1.047	62.30	1.337	-0.07	0.002	0.003

14.2 Hotspot SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Battery	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
17	WCDMA II	RMC 12.2Kbps	Front	10mm	Battery 1	OFF	9400	1880	23.72	25.00	1.343	0.05	0.538	0.722
	WCDMA II	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	9400	1880	23.72	25.00	1.343	0.08	0.562	0.755
	WCDMA II	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	9262	1852.4	23.45	25.00	1.429	-0.07	0.508	0.726
	WCDMA II	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	9538	1907.6	23.56	25.00	1.393	0.03	0.486	0.677
	WCDMA II	RMC 12.2Kbps	Left Side	10mm	Battery 1	OFF	9400	1880	23.72	25.00	1.343	0.04	0.557	0.748
	WCDMA II	RMC 12.2Kbps	Right Side	10mm	Battery 1	OFF	9400	1880	23.72	25.00	1.343	0.06	0.093	0.125
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	Battery 1	OFF	9400	1880	23.72	25.00	1.343	0.05	0.342	0.459
	WCDMA II	RMC 12.2Kbps	Back	10mm	Battery 2	OFF	9400	1880	23.72	25.00	1.343	-0.03	0.542	0.728
18	WCDMA IV	RMC 12.2Kbps	Front	10mm	Battery 1	OFF	1413	1732.6	23.75	24.00	1.059	-0.07	0.655	0.694
	WCDMA IV	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	1413	1732.6	23.75	24.00	1.059	-0.15	0.679	0.719
	WCDMA IV	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	1312	1712.4	23.64	24.00	1.086	0.01	0.642	0.697
	WCDMA IV	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	1513	1752.6	23.66	24.00	1.081	0.12	0.583	0.630
	WCDMA IV	RMC 12.2Kbps	Left Side	10mm	Battery 1	OFF	1413	1732.6	23.75	24.00	1.059	-0.07	0.453	0.480
	WCDMA IV	RMC 12.2Kbps	Right Side	10mm	Battery 1	OFF	1413	1732.6	23.75	24.00	1.059	-0.06	0.118	0.125
	WCDMA IV	RMC 12.2Kbps	Bottom Side	10mm	Battery 1	OFF	1413	1732.6	23.75	24.00	1.059	-0.03	0.320	0.339
	WCDMA IV	RMC 12.2Kbps	Back	10mm	Battery 2	OFF	1413	1732.6	23.75	24.00	1.059	0.05	0.656	0.695
19	WCDMA V	RMC 12.2Kbps	Front	10mm	Battery 1	OFF	4182	836.4	24.45	25.50	1.274	0.06	0.332	0.423
	WCDMA V	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	4182	836.4	24.45	25.50	1.274	-0.11	0.395	0.503
	WCDMA V	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	4132	826.4	24.36	25.70	1.361	0.01	0.365	0.497
	WCDMA V	RMC 12.2Kbps	Back	10mm	Battery 1	OFF	4233	846.6	24.44	25.70	1.337	0.05	0.352	0.470
	WCDMA V	RMC 12.2Kbps	Left Side	10mm	Battery 1	OFF	4182	836.4	24.45	25.50	1.274	-0.1	0.210	0.267
	WCDMA V	RMC 12.2Kbps	Right Side	10mm	Battery 1	OFF	4182	836.4	24.45	25.50	1.274	-0.07	0.346	0.441
	WCDMA V	RMC 12.2Kbps	Bottom Side	10mm	Battery 1	OFF	4182	836.4	24.45	25.50	1.274	0.01	0.175	0.223
	WCDMA V	RMC 12.2Kbps	Back	10mm	Battery 2	OFF	4182	836.4	24.45	25.50	1.274	0.15	0.374	0.476



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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)
20	LTE Band 7	20M	QPSK	1	0	Front	10mm	Battery 1	ON	21100	2535	22.89	24.00	1.291	0.1	0.831	1.073
	LTE Band 7	20M	QPSK	1	0	Front	10mm	Battery 1	ON	20850	2510	22.84	24.00	1.306	0.02	0.826	1.079
	LTE Band 7	20M	QPSK	1	0	Front	10mm	Battery 1	ON	21350	2560	22.71	24.00	1.346	-0.01	0.975	1.312
	LTE Band 7	20M	QPSK	50	0	Front	10mm	Battery 1	ON	21100	2535	22.86	24.00	1.300	0.02	0.811	1.054
	LTE Band 7	20M	QPSK	50	0	Front	10mm	Battery 1	ON	20850	2510	22.64	24.00	1.368	0.02	0.796	1.089
	LTE Band 7	20M	QPSK	50	0	Front	10mm	Battery 1	ON	21350	2560	22.61	24.00	1.377	0.02	0.788	1.085
	LTE Band 7	20M	QPSK	100	0	Front	10mm	Battery 1	ON	21100	2535	22.69	24.00	1.352	0.02	0.789	1.067
	LTE Band 7	20M	QPSK	1	0	Back	10mm	Battery 1	ON	21100	2535	22.89	24.00	1.291	0.05	0.843	1.088
	LTE Band 7	20M	QPSK	1	0	Back	10mm	Battery 1	ON	20850	2510	22.84	24.00	1.306	0.05	0.842	1.100
	LTE Band 7	20M	QPSK	1	0	Back	10mm	Battery 1	ON	21350	2560	22.71	24.00	1.346	0.05	0.812	1.093
	LTE Band 7	20M	QPSK	50	0	Back	10mm	Battery 1	ON	21100	2535	22.86	24.00	1.300	0.05	0.810	1.053
	LTE Band 7	20M	QPSK	50	0	Back	10mm	Battery 1	ON	20850	2510	22.64	24.00	1.368	0.05	0.796	1.089
	LTE Band 7	20M	QPSK	50	0	Back	10mm	Battery 1	ON	21350	2560	22.61	24.00	1.377	0.05	0.784	1.080
	LTE Band 7	20M	QPSK	100	0	Back	10mm	Battery 1	ON	20850	2510	22.69	24.00	1.352	0.05	0.762	1.030
	LTE Band 7	20M	QPSK	1	0	Left Side	10mm	Battery 1	ON	21100	2535	22.89	24.00	1.291	0.07	0.227	0.293
	LTE Band 7	20M	QPSK	50	0	Left Side	10mm	Battery 1	ON	21100	2535	22.86	24.00	1.300	0.07	0.210	0.273
21	LTE Band 7	20M	QPSK	1	0	Right Side	10mm	Battery 1	ON	21100	2535	22.89	24.00	1.291	-0.01	0.246	0.318
	LTE Band 7	20M	QPSK	50	0	Right Side	10mm	Battery 1	ON	21100	2535	22.86	24.00	1.300	-0.01	0.231	0.300
	LTE Band 7	20M	QPSK	1	0	Bottom Side	10mm	Battery 1	ON	21100	2535	22.89	24.00	1.291	-0.09	0.719	0.928
	LTE Band 7	20M	QPSK	50	0	Bottom Side	10mm	Battery 1	ON	21100	2535	22.86	24.00	1.300	-0.09	0.654	0.850
	LTE Band 7	20M	QPSK	1	0	Front	10mm	Battery 2	ON	21350	2560	22.71	24.00	1.346	0.12	0.954	1.284
	LTE Band 12	10M	QPSK	1	0	Front	10mm	Battery 1	OFF	23095	707.5	25.14	25.70	1.138	-0.02	0.360	0.410
	LTE Band 12	10M	QPSK	25	0	Front	10mm	Battery 1	OFF	23095	707.5	24.04	24.70	1.164	0.06	0.341	0.397
	LTE Band 12	10M	QPSK	1	0	Back	10mm	Battery 1	OFF	23095	707.5	25.14	25.70	1.138	0.09	0.325	0.370
	LTE Band 12	10M	QPSK	25	0	Back	10mm	Battery 1	OFF	23095	707.5	24.04	24.70	1.164	0.06	0.302	0.352
	LTE Band 12	10M	QPSK	1	0	Left Side	10mm	Battery 1	OFF	23095	707.5	25.14	25.70	1.138	0.02	0.184	0.209
	LTE Band 12	10M	QPSK	25	0	Left Side	10mm	Battery 1	OFF	23095	707.5	24.04	24.70	1.164	-0.12	0.165	0.192
	LTE Band 12	10M	QPSK	1	0	Right Side	10mm	Battery 1	OFF	23095	707.5	25.14	25.70	1.138	0.07	0.324	0.369
	LTE Band 12	10M	QPSK	25	0	Right Side	10mm	Battery 1	OFF	23095	707.5	24.04	24.70	1.164	0.09	0.304	0.354
	LTE Band 12	10M	QPSK	1	0	Bottom Side	10mm	Battery 1	OFF	23095	707.5	25.14	25.70	1.138	-0.05	0.112	0.127
	LTE Band 12	10M	QPSK	25	0	Bottom Side	10mm	Battery 1	OFF	23095	707.5	24.04	24.70	1.164	-0.11	0.096	0.112
	LTE Band 12	10M	QPSK	1	0	Front	10mm	Battery 2	OFF	23095	707.5	25.14	25.70	1.138	0.05	0.344	0.391
22	LTE Band 13	10M	QPSK	1	0	Front	10mm	Battery 1	OFF	23230	782	24.64	25.70	1.276	0.01	0.583	0.744
	LTE Band 13	10M	QPSK	25	0	Front	10mm	Battery 1	OFF	23230	782	23.59	24.70	1.291	0.08	0.561	0.724
	LTE Band 13	10M	QPSK	1	0	Back	10mm	Battery 1	OFF	23230	782	24.64	25.70	1.276	0.07	0.559	0.714
	LTE Band 13	10M	QPSK	25	0	Back	10mm	Battery 1	OFF	23230	782	23.59	24.70	1.291	0.09	0.542	0.700
	LTE Band 13	10M	QPSK	1	0	Left Side	10mm	Battery 1	OFF	23230	782	24.64	25.70	1.276	-0.11	0.251	0.320
	LTE Band 13	10M	QPSK	25	0	Left Side	10mm	Battery 1	OFF	23230	782	23.59	24.70	1.291	-0.02	0.232	0.300
	LTE Band 13	10M	QPSK	1	0	Right Side	10mm	Battery 1	OFF	23230	782	24.64	25.70	1.276	0.11	0.370	0.472
	LTE Band 13	10M	QPSK	25	0	Right Side	10mm	Battery 1	OFF	23230	782	23.59	24.70	1.291	0.12	0.352	0.455
	LTE Band 13	10M	QPSK	1	0	Bottom Side	10mm	Battery 1	OFF	23230	782	24.64	25.70	1.276	0.03	0.152	0.194
	LTE Band 13	10M	QPSK	25	0	Bottom Side	10mm	Battery 1	OFF	23230	782	23.59	24.70	1.291	0.05	0.105	0.136
	LTE Band 13	10M	QPSK	1	0	Front	10mm	Battery 2	OFF	23230	782	24.64	25.70	1.276	0.06	0.571	0.729



FCC SAR TEST REPORT

Report No. : FA070401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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)
23	LTE Band 14	10M	QPSK	1	0	Front	10mm	Battery 1	OFF	23330	793	25.16	25.70	1.132	-0.06	0.527	0.597
	LTE Band 14	10M	QPSK	25	0	Front	10mm	Battery 1	OFF	23330	793	24.11	24.70	1.146	0.05	0.498	0.570
	LTE Band 14	10M	QPSK	1	0	Back	10mm	Battery 1	OFF	23330	793	25.16	25.70	1.132	-0.11	0.265	0.300
	LTE Band 14	10M	QPSK	25	0	Back	10mm	Battery 1	OFF	23330	793	24.11	24.70	1.146	0.06	0.215	0.246
	LTE Band 14	10M	QPSK	1	0	Left Side	10mm	Battery 1	OFF	23330	793	25.16	25.70	1.132	-0.02	0.161	0.182
	LTE Band 14	10M	QPSK	25	0	Left Side	10mm	Battery 1	OFF	23330	793	24.11	24.70	1.146	0.05	0.142	0.163
	LTE Band 14	10M	QPSK	1	0	Right Side	10mm	Battery 1	OFF	23330	793	25.16	25.70	1.132	-0.11	0.265	0.300
	LTE Band 14	10M	QPSK	25	0	Right Side	10mm	Battery 1	OFF	23330	793	24.11	24.70	1.146	0.06	0.211	0.242
	LTE Band 14	10M	QPSK	1	0	Bottom Side	10mm	Battery 1	OFF	23330	793	25.16	25.70	1.132	-0.02	0.161	0.182
	LTE Band 14	10M	QPSK	25	0	Bottom Side	10mm	Battery 1	OFF	23330	793	24.11	24.70	1.146	-0.02	0.132	0.151
	LTE Band 14	10M	QPSK	1	0	Front	10mm	Battery 2	OFF	23330	793	25.16	25.70	1.132	0.09	0.501	0.567
	LTE Band 25	20M	QPSK	1	0	Front	10mm	Battery 1	OFF	26140	1860	23.52	24.00	1.117	0.05	0.711	0.794
	LTE Band 25	20M	QPSK	50	0	Front	10mm	Battery 1	OFF	26140	1860	22.51	23.00	1.119	0.09	0.685	0.767
	LTE Band 25	20M	QPSK	1	0	Back	10mm	Battery 1	OFF	26140	1860	23.52	24.00	1.117	-0.06	0.742	0.829
	LTE Band 25	20M	QPSK	1	0	Back	10mm	Battery 1	OFF	26340	1880	23.03	24.00	1.250	0.05	0.688	0.860
24	LTE Band 25	20M	QPSK	1	0	Back	10mm	Battery 1	OFF	26590	1905	22.84	24.00	1.306	-0.04	0.707	0.923
	LTE Band 25	20M	QPSK	50	0	Back	10mm	Battery 1	OFF	26140	1860	22.51	23.00	1.119	-0.11	0.662	0.741
	LTE Band 25	20M	QPSK	100	0	Back	10mm	Battery 1	OFF	26140	1860	22.16	23.00	1.213	-0.01	0.633	0.768
	LTE Band 25	20M	QPSK	1	0	Left Side	10mm	Battery 1	OFF	26140	1860	23.52	24.00	1.117	0.12	0.488	0.545
	LTE Band 25	20M	QPSK	50	0	Left Side	10mm	Battery 1	OFF	26140	1860	22.51	23.00	1.119	-0.06	0.462	0.517
	LTE Band 25	20M	QPSK	1	0	Right Side	10mm	Battery 1	OFF	26140	1860	23.52	24.00	1.117	0.08	0.188	0.210
	LTE Band 25	20M	QPSK	50	0	Right Side	10mm	Battery 1	OFF	26140	1860	22.51	23.00	1.119	0.07	0.165	0.185
	LTE Band 25	20M	QPSK	1	0	Bottom Side	10mm	Battery 1	OFF	26140	1860	23.52	24.00	1.117	-0.02	0.432	0.482
	LTE Band 25	20M	QPSK	50	0	Bottom Side	10mm	Battery 1	OFF	26140	1860	22.51	23.00	1.119	0.03	0.413	0.462
	LTE Band 25	20M	QPSK	1	0	Back	10mm	Battery 2	OFF	26590	1905	22.84	24.00	1.306	-0.09	0.671	0.876
	LTE Band 26	15M	QPSK	1	0	Front	10mm	Battery 1	OFF	26865	831.5	25.27	25.70	1.104	0.07	0.321	0.354
	LTE Band 26	15M	QPSK	36	0	Front	10mm	Battery 1	OFF	26865	831.5	24.22	24.70	1.117	0.05	0.305	0.341
25	LTE Band 26	15M	QPSK	1	0	Back	10mm	Battery 1	OFF	26865	831.5	25.27	25.70	1.104	-0.08	0.345	0.381
	LTE Band 26	15M	QPSK	36	0	Back	10mm	Battery 1	OFF	26865	831.5	24.22	24.70	1.117	-0.06	0.332	0.371
	LTE Band 26	15M	QPSK	1	0	Left Side	10mm	Battery 1	OFF	26865	831.5	25.27	25.70	1.104	0.1	0.195	0.215
	LTE Band 26	15M	QPSK	36	0	Left Side	10mm	Battery 1	OFF	26865	831.5	24.22	24.70	1.117	0.12	0.171	0.191
	LTE Band 26	15M	QPSK	1	0	Right Side	10mm	Battery 1	OFF	26865	831.5	25.27	25.70	1.104	0.06	0.336	0.371
	LTE Band 26	15M	QPSK	36	0	Right Side	10mm	Battery 1	OFF	26865	831.5	24.22	24.70	1.117	-0.01	0.312	0.348
	LTE Band 26	15M	QPSK	1	0	Bottom Side	10mm	Battery 1	OFF	26865	831.5	25.27	25.70	1.104	0.05	0.154	0.170
	LTE Band 26	15M	QPSK	36	0	Bottom Side	10mm	Battery 1	OFF	26865	831.5	24.22	24.70	1.117	0.09	0.142	0.159
	LTE Band 26	15M	QPSK	1	0	Back	10mm	Battery 2	OFF	26865	831.5	25.27	25.70	1.104	0.04	0.331	0.365



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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	10mm	Battery 1	OFF	132322	1745	24.45	25.50	1.274	0.05	0.745	0.949
	LTE Band 66	20M	QPSK	1	0	Front	10mm	Battery 1	OFF	132072	1720	24.35	25.50	1.303	0.09	0.715	0.932
	LTE Band 66	20M	QPSK	1	0	Front	10mm	Battery 1	OFF	132572	1770	24.40	25.50	1.288	0.11	0.720	0.928
	LTE Band 66	20M	QPSK	50	0	Front	10mm	Battery 1	OFF	132322	1745	23.45	24.50	1.274	0.09	0.705	0.898
	LTE Band 66	20M	QPSK	50	0	Front	10mm	Battery 1	OFF	132072	1720	23.28	24.50	1.324	-0.12	0.665	0.881
	LTE Band 66	20M	QPSK	50	0	Front	10mm	Battery 1	OFF	132572	1770	23.40	24.50	1.288	0.05	0.674	0.868
	LTE Band 66	20M	QPSK	100	0	Front	10mm	Battery 1	OFF	132322	1745	23.19	24.50	1.352	-0.14	0.635	0.859
26	LTE Band 66	20M	QPSK	1	0	Back	10mm	Battery 1	OFF	132322	1745	24.45	25.50	1.274	0.02	0.871	1.109
	LTE Band 66	20M	QPSK	1	0	Back	10mm	Battery 1	OFF	132072	1720	24.35	25.50	1.303	-0.06	0.846	1.102
	LTE Band 66	20M	QPSK	1	0	Back	10mm	Battery 1	OFF	132572	1770	24.40	25.50	1.288	0.11	0.859	1.107
	LTE Band 66	20M	QPSK	50	0	Back	10mm	Battery 1	OFF	132322	1745	23.45	24.50	1.274	0.05	0.840	1.070
	LTE Band 66	20M	QPSK	50	0	Back	10mm	Battery 1	OFF	132072	1720	23.28	24.50	1.324	0.07	0.805	1.066
	LTE Band 66	20M	QPSK	50	0	Back	10mm	Battery 1	OFF	132572	1770	23.40	24.50	1.288	0.13	0.826	1.064
	LTE Band 66	20M	QPSK	100	0	Back	10mm	Battery 1	OFF	132572	1770	23.19	24.50	1.352	0.09	0.794	1.074
	LTE Band 66	20M	QPSK	1	0	Left Side	10mm	Battery 1	OFF	132322	1745	24.45	25.50	1.274	-0.01	0.149	0.190
	LTE Band 66	20M	QPSK	50	0	Left Side	10mm	Battery 1	OFF	132322	1745	23.45	24.50	1.274	0.03	0.132	0.168
	LTE Band 66	20M	QPSK	1	0	Right Side	10mm	Battery 1	OFF	132322	1745	24.45	25.50	1.274	0.15	0.392	0.499
	LTE Band 66	20M	QPSK	50	0	Right Side	10mm	Battery 1	OFF	132322	1745	23.45	24.50	1.274	0.09	0.341	0.434
	LTE Band 66	20M	QPSK	1	0	Bottom Side	10mm	Battery 1	OFF	132322	1745	24.45	25.50	1.274	-0.13	0.189	0.241
	LTE Band 66	20M	QPSK	50	0	Bottom Side	10mm	Battery 1	OFF	132322	1745	23.45	24.50	1.274	0.07	0.165	0.210
	LTE Band 66	20M	QPSK	1	0	Back	10mm	Battery 2	OFF	132322	1745	24.45	25.50	1.274	-0.03	0.855	1.089

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	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	10mm	Ant 1	Battery 1	6	2437	17.93	18.00	1.016	99.12	1.009	0.09	0.136	0.139
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	Battery 1	6	2437	17.93	18.00	1.016	99.12	1.009	-0.11	0.215	0.220
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 1	Battery 1	6	2437	17.93	18.00	1.016	99.12	1.009	0.13	0.255	0.261
27	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 1	Battery 1	1	2412	17.88	18.00	1.028	99.12	1.009	0.17	0.294	0.305
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 1	Battery 1	11	2462	17.86	18.00	1.033	99.12	1.009	0.05	0.156	0.163
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 1	Battery 1	6	2437	17.93	18.00	1.016	99.12	1.009	-0.07	0.087	0.089
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	Battery 2	1	2412	17.88	18.00	1.028	99.12	1.009	0.05	0.211	0.219
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 2	Battery 1	6	2437	17.92	18.00	1.019	99.44	1.006	0.07	0.117	0.120
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	Battery 1	6	2437	17.92	18.00	1.019	99.44	1.006	-0.02	0.253	0.259
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 2	Battery 1	6	2437	17.92	18.00	1.019	99.44	1.006	0.12	0.210	0.215
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 2	Battery 1	6	2437	17.92	18.00	1.019	99.44	1.006	0.03	0.093	0.095
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	Battery 2	6	2437	17.92	18.00	1.019	99.44	1.006	-0.11	0.236	0.242
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	Ant 1	Battery 1	46	5230	17.20	17.50	1.072	96.46	1.037	0.05	0.161	0.179
28	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 1	Battery 1	46	5230	17.20	17.50	1.072	96.46	1.037	-0.18	0.189	0.210
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 1	Battery 1	38	5190	17.00	17.50	1.122	96.46	1.037	-0.01	0.120	0.140
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	10mm	Ant 1	Battery 1	46	5230	17.20	17.50	1.072	96.46	1.037	0.05	0.145	0.161
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 1	Battery 1	46	5230	17.20	17.50	1.072	96.46	1.037	0.08	0.136	0.151
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 1	Battery 2	46	5230	17.20	17.50	1.072	96.46	1.037	-0.05	0.168	0.187
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	Ant 2	Battery 1	38	5190	17.20	17.50	1.072	95.96	1.042	0.11	0.071	0.079
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 2	Battery 1	38	5190	17.20	17.50	1.072	95.96	1.042	0.13	0.156	0.174
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	10mm	Ant 2	Battery 1	38	5190	17.20	17.50	1.072	95.96	1.042	0.05	0.085	0.095
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 2	Battery 1	38	5190	17.20	17.50	1.072	95.96	1.042	-0.01	0.023	0.026
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 2	Battery 2	38	5190	17.20	17.50	1.072	95.96	1.042	0.06	0.122	0.136
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	Battery 1	155	5775	17.40	17.50	1.023	92.00	1.087	0.03	0.133	0.148
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	Battery 1	155	5775	17.40	17.50	1.023	92.00	1.087	-0.17	0.182	0.202
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 1	Battery 1	155	5775	17.40	17.50	1.023	92.00	1.087	0.13	0.173	0.192
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 1	Battery 1	155	5775	17.40	17.50	1.023	92.00	1.087	-0.11	0.162	0.180
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	Battery 2	155	5775	17.40	17.50	1.023	92.00	1.087	0.06	0.174	0.194
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	Battery 1	155	5775	17.20	17.50	1.072	92.00	1.087	0.1	0.084	0.098
29	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	Battery 1	155	5775	17.20	17.50	1.072	92.00	1.087	-0.17	0.555	0.646
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 2	Battery 1	155	5775	17.20	17.50	1.072	92.00	1.087	-0.12	0.242	0.282
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 2	Battery 1	155	5775	17.20	17.50	1.072	92.00	1.087	0.18	0.099	0.115
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	Battery 2	155	5775	17.20	17.50	1.072	92.00	1.087	0.06	0.538	0.627

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	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	LE-1Mbps	Front	10mm	Ant 1	Battery 1	19	2440	5.80	6.00	1.047	62.30	1.337	0	0.001	0.001
	Bluetooth	LE-1Mbps	Back	10mm	Ant 1	Battery 1	19	2440	5.80	6.00	1.047	62.30	1.337	0	0.001	0.001
30	Bluetooth	LE-1Mbps	Right Side	10mm	Ant 1	Battery 1	19	2440	5.80	6.00	1.047	62.30	1.337	-0.07	0.001	0.002
	Bluetooth	LE-1Mbps	Right Side	10mm	Ant 1	Battery 1	00	2402	5.10	6.00	1.230	62.30	1.337	0	0.001	0.002
	Bluetooth	LE-1Mbps	Right Side	10mm	Ant 1	Battery 1	39	2480	5.50	6.00	1.122	62.30	1.337	0.09	0.001	0.002
	Bluetooth	LE-1Mbps	Top Side	10mm	Ant 1	Battery 1	19	2440	5.80	6.00	1.047	62.30	1.337	0	0.001	0.001
	Bluetooth	LE-1Mbps	Right Side	10mm	Ant 1	Battery 2	19	2440	5.80	6.00	1.047	62.30	1.337	0.02	0.001	0.001



14.3 Body Worn Accessory SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Battery	Accessory	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	0mm	Battery 1	Soft Holster + Trigger Handle	9400	1880	23.72	25.00	1.343	0.07	0.265	0.356
31	WCDMA II	RMC 12.2Kbps	Front	0mm	Battery 1	Soft Holster + Rigid Holster	9400	1880	23.72	25.00	1.343	-0.11	0.350	0.470
	WCDMA II	RMC 12.2Kbps	Front	0mm	Battery 1	Soft Holster + Rigid Holster	9262	1852.4	23.45	25.00	1.429	0.18	0.312	0.446
	WCDMA II	RMC 12.2Kbps	Front	0mm	Battery 1	Soft Holster + Rigid Holster	9538	1907.6	23.56	25.00	1.393	-0.17	0.336	0.468
	WCDMA II	RMC 12.2Kbps	Back	0mm	Battery 1	Soft Holster + Rigid Holster	9400	1880	23.72	25.00	1.343	0.08	0.271	0.364
	WCDMA II	RMC 12.2Kbps	Front	0mm	Battery 2	Soft Holster + Rigid Holster	9400	1880	23.72	25.00	1.343	-0.07	0.340	0.457
	WCDMA IV	RMC 12.2Kbps	Front	0mm	Battery 1	Soft Holster + Trigger Handle	1413	1732.6	23.75	24.00	1.059	0.08	0.229	0.243
	WCDMA IV	RMC 12.2Kbps	Front	0mm	Battery 1	Soft Holster + Rigid Holster	1413	1732.6	23.75	24.00	1.059	0.02	0.279	0.296
32	WCDMA IV	RMC 12.2Kbps	Back	0mm	Battery 1	Soft Holster + Rigid Holster	1413	1732.6	23.75	24.00	1.059	-0.01	0.316	0.335
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Battery 1	Soft Holster + Rigid Holster	1312	1712.4	23.64	24.00	1.086	0.12	0.305	0.331
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Battery 1	Soft Holster + Rigid Holster	1513	1752.6	23.66	24.00	1.081	0.05	0.298	0.322
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Battery 2	Soft Holster + Rigid Holster	1413	1732.6	23.75	24.00	1.059	0.06	0.299	0.317
	WCDMA V	RMC 12.2Kbps	Front	0mm	Battery 1	Soft Holster + Trigger Handle	4182	836.4	24.45	25.50	1.274	0.06	0.244	0.311
	WCDMA V	RMC 12.2Kbps	Front	0mm	Battery 1	Soft Holster + Rigid Holster	4182	836.4	24.45	25.50	1.274	0.08	0.426	0.543
33	WCDMA V	RMC 12.2Kbps	Back	0mm	Battery 1	Soft Holster + Rigid Holster	4182	836.4	24.45	25.50	1.274	0.13	0.626	0.797
	WCDMA V	RMC 12.2Kbps	Back	0mm	Battery 1	Soft Holster + Rigid Holster	4132	826.4	24.36	25.50	1.300	0.04	0.542	0.705
	WCDMA V	RMC 12.2Kbps	Back	0mm	Battery 1	Soft Holster + Rigid Holster	4233	846.6	24.44	25.50	1.276	-0.09	0.562	0.717
	WCDMA V	RMC 12.2Kbps	Back	0mm	Battery 2	Soft Holster + Rigid Holster	4182	836.4	24.45	25.50	1.274	0.03	0.606	0.772



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	Headset	Accessory	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	0mm	Battery 1	-	Soft Holster + Trigger Handle	20850	2510	24.33	25.00	1.167	0.12	0.295	0.344
	LTE Band 7	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	20850	2510	23.25	24.00	1.189	0.03	0.232	0.276
34	LTE Band 7	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	20850	2510	24.33	25.00	1.167	0.06	0.911	1.063
	LTE Band 7	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	21100	2535	24.20	25.00	1.202	-0.17	0.865	1.040
	LTE Band 7	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	21350	2560	24.05	25.00	1.245	0.05	0.831	1.034
	LTE Band 7	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	20850	2510	23.25	24.00	1.189	0.06	0.812	0.965
	LTE Band 7	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	21100	2535	23.10	24.00	1.230	-0.08	0.769	0.946
	LTE Band 7	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	21350	2560	23.03	24.00	1.250	-0.07	0.779	0.974
	LTE Band 7	20M	QPSK	100	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	20850	2510	22.95	24.00	1.274	0.01	0.752	0.958
	LTE Band 7	20M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	20850	2510	24.33	25.00	1.167	0.03	0.598	0.698
	LTE Band 7	20M	QPSK	50	0	Back	0mm	Battery 1	-	Soft Holster + Trigger Handle	20850	2510	23.25	24.00	1.189	0.09	0.503	0.598
	LTE Band 7	20M	QPSK	1	0	Front	0mm	Battery 2	-	Soft Holster + Rigid Holster	20850	2510	24.33	25.00	1.167	0.09	0.889	1.037
	LTE Band 12	10M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	23095	707.5	25.14	25.70	1.138	-0.1	0.210	0.239
	LTE Band 12	10M	QPSK	25	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	23095	707.5	24.04	24.70	1.164	0.06	0.188	0.219
35	LTE Band 12	10M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	23095	707.5	25.14	25.70	1.138	-0.08	0.327	0.372
	LTE Band 12	10M	QPSK	25	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	23095	707.5	24.04	24.70	1.164	0.02	0.315	0.367
	LTE Band 12	10M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	23095	707.5	25.14	25.70	1.138	-0.05	0.320	0.364
	LTE Band 12	10M	QPSK	25	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	23095	707.5	24.04	24.70	1.164	0.02	0.296	0.345
	LTE Band 12	10M	QPSK	1	0	Front	0mm	Battery 2	-	Soft Holster + Rigid Holster	23095	707.5	25.14	25.70	1.138	0	0.310	0.353
	LTE Band 13	10M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	23230	782	24.64	25.70	1.276	0.09	0.198	0.253
	LTE Band 13	10M	QPSK	25	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	23230	782	23.59	24.70	1.291	-0.07	0.166	0.214
36	LTE Band 13	10M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	23230	782	24.64	25.70	1.276	-0.13	0.320	0.408
	LTE Band 13	10M	QPSK	25	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	23230	782	23.59	24.70	1.291	-0.06	0.287	0.371
	LTE Band 13	10M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	23230	782	24.64	25.70	1.276	0.09	0.302	0.385
	LTE Band 13	10M	QPSK	25	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	23230	782	23.59	24.70	1.291	0.11	0.265	0.342
	LTE Band 13	10M	QPSK	1	0	Front	0mm	Battery 2	-	Soft Holster + Rigid Holster	23230	782	24.64	25.70	1.276	0.01	0.315	0.402
	LTE Band 14	10M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	23330	793	25.16	25.70	1.132	0.06	0.208	0.236
	LTE Band 14	10M	QPSK	25	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	23330	793	24.11	24.70	1.146	-0.01	0.165	0.189
37	LTE Band 14	10M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	23330	793	25.16	25.70	1.132	0.12	0.321	0.364
	LTE Band 14	10M	QPSK	25	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	23330	793	24.11	24.70	1.146	0.07	0.316	0.362
	LTE Band 14	10M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	23330	793	25.16	25.70	1.132	-0.11	0.316	0.358
	LTE Band 14	10M	QPSK	25	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	23330	793	24.11	24.70	1.146	0.09	0.316	0.362
	LTE Band 14	10M	QPSK	1	0	Front	0mm	Battery 2	-	Soft Holster + Rigid Holster	23330	793	25.16	25.70	1.132	-0.04	0.305	0.345
	LTE Band 25	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	26140	1860	23.52	24.00	1.117	0.09	0.316	0.353
	LTE Band 25	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	26140	1860	22.51	23.00	1.119	-0.02	0.288	0.322
	LTE Band 25	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26140	1860	23.52	24.00	1.117	0.11	0.929	1.038
	LTE Band 25	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26340	1880	23.03	24.00	1.250	0.06	0.804	1.005
38	LTE Band 25	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26590	1905	22.84	24.00	1.306	-0.03	0.938	1.225
	LTE Band 25	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26140	1860	22.51	23.00	1.119	-0.06	0.912	1.021
	LTE Band 25	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26340	1880	21.95	23.00	1.274	0.07	0.781	0.995
	LTE Band 25	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26590	1905	21.80	23.00	1.318	-0.09	0.852	1.123
	LTE Band 25	20M	QPSK	100	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26140	1860	22.16	23.00	1.213	0.09	0.884	1.073
	LTE Band 25	20M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	26140	1860	23.52	24.00	1.117	0.05	0.663	0.740
	LTE Band 25	20M	QPSK	50	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	26140	1860	22.51	23.00	1.119	-0.16	0.633	0.709
	LTE Band 25	20M	QPSK	1	0	Front	0mm	Battery 1	Headset 1	Soft Holster + Rigid Holster	26590	1905	22.84	24.00	1.306	-0.11	0.902	1.178
	LTE Band 25	20M	QPSK	1	0	Front	0mm	Battery 1	Headset 2	Soft Holster + Rigid Holster	26590	1905	22.84	24.00	1.306	-0.15	0.911	1.190
	LTE Band 25	20M	QPSK	1	0	Front	0mm	Battery 2	-	Soft Holster + Rigid Holster	26590	1905	22.84	24.00	1.306	0.03	0.907	1.185



FCC SAR TEST REPORT

Report No. : FA070401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	Headset	Accessory	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 26	15M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	26865	831.5	25.27	25.70	1.104	0.05	0.233	0.257
	LTE Band 26	15M	QPSK	36	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	26865	831.5	24.22	24.70	1.117	0.06	0.196	0.219
	LTE Band 26	15M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26865	831.5	25.27	25.70	1.104	-0.07	0.411	0.454
	LTE Band 26	15M	QPSK	36	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	26865	831.5	24.22	24.70	1.117	0.11	0.362	0.404
39	LTE Band 26	15M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	26865	831.5	25.27	25.70	1.104	-0.01	0.425	0.469
	LTE Band 26	15M	QPSK	36	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	26865	831.5	24.22	24.70	1.117	0.14	0.385	0.430
	LTE Band 26	15M	QPSK	1	0	Back	0mm	Battery 2	-	Soft Holster + Rigid Holster	26865	831.5	25.27	25.70	1.104	0.01	0.401	0.443
	LTE Band 66	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	132322	1745	24.45	25.50	1.274	0.09	0.438	0.558
	LTE Band 66	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Trigger Handle	132322	1745	23.45	24.50	1.274	-0.12	0.412	0.525
	LTE Band 66	20M	QPSK	1	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	132322	1745	24.45	25.50	1.274	0.06	0.557	0.709
	LTE Band 66	20M	QPSK	50	0	Front	0mm	Battery 1	-	Soft Holster + Rigid Holster	132322	1745	23.45	24.50	1.274	0.07	0.526	0.670
	LTE Band 66	20M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	132322	1745	24.45	25.50	1.274	-0.06	0.649	0.827
	LTE Band 66	20M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	132072	1720	24.35	25.50	1.303	-0.11	0.609	0.794
40	LTE Band 66	20M	QPSK	1	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	132572	1770	24.40	25.50	1.288	-0.01	0.663	0.854
	LTE Band 66	20M	QPSK	50	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	132322	1745	24.45	25.50	1.274	0.04	0.559	0.712
	LTE Band 66	20M	QPSK	100	0	Back	0mm	Battery 1	-	Soft Holster + Rigid Holster	132322	1745	23.19	24.50	1.352	0.06	0.501	0.677
	LTE Band 66	20M	QPSK	1	0	Back	0mm	Battery 2	-	Soft Holster + Rigid Holster	132572	1770	24.40	25.50	1.288	-0.04	0.598	0.770

**<WLAN SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	Accessory	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)
41	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	6	2437	17.93	18.00	1.016	99.12	1.009	-0.09	0.049	0.050
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	1	2412	17.88	18.00	1.028	99.12	1.009	0.05	0.045	0.047
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	11	2462	17.86	18.00	1.033	99.12	1.009	0.12	0.046	0.048
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	6	2437	17.93	18.00	1.016	99.12	1.009	-0.03	0.031	0.032
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	6	2437	17.93	18.00	1.016	99.12	1.009	0.06	0.035	0.036
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 1	Battery 2	Soft Holster + Trigger Handle	6	2437	17.93	18.00	1.016	99.12	1.009	-0.11	0.032	0.033
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 2	Battery 1	Soft Holster + Trigger Handle	6	2437	17.92	18.00	1.019	99.44	1.006	0.05	0.025	0.026
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	6	2437	17.92	18.00	1.019	99.44	1.006	-0.01	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	6	2437	17.92	18.00	1.019	99.44	1.006	0.17	0.041	0.042
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 2	Battery 2	Soft Holster + Rigid Holster	6	2437	17.92	18.00	1.019	99.44	1.006	0.03	0.034	0.035
42	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	54	5270	17.10	17.50	1.096	96.46	1.037	-0.07	0.232	0.264
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	62	5310	16.20	16.50	1.072	96.46	1.037	-0.08	0.193	0.214
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	54	5270	17.10	17.50	1.096	96.46	1.037	-0.14	0.199	0.226
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	54	5270	17.10	17.50	1.096	96.46	1.037	0.05	0.089	0.101
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	Battery 2	Soft Holster + Rigid Holster	54	5270	17.10	17.50	1.096	96.46	1.037	0.06	0.218	0.248
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 2	Battery 1	Soft Holster + Trigger Handle	54	5270	17.10	17.50	1.096	95.96	1.042	-0.15	0.064	0.073
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	54	5270	17.10	17.50	1.096	95.96	1.042	-0.18	0.061	0.070
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	54	5270	17.10	17.50	1.096	95.96	1.042	-0.11	0.121	0.138
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 2	Battery 2	Soft Holster + Rigid Holster	54	5270	17.10	17.50	1.096	95.96	1.042	0.05	0.111	0.127
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	138	5690	17.40	17.50	1.023	92.00	1.087	-0.14	0.183	0.204
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	138	5690	17.40	17.50	1.023	92.00	1.087	-0.13	0.163	0.181
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	138	5690	17.40	17.50	1.023	92.00	1.087	-0.09	0.088	0.098
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	Battery 2	Soft Holster + Trigger Handle	138	5690	17.40	17.50	1.023	92.00	1.087	0.05	0.179	0.199
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	Battery 1	Soft Holster + Trigger Handle	138	5690	17.40	17.50	1.023	92.00	1.087	0.05	0.082	0.091
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	138	5690	17.40	17.50	1.023	92.00	1.087	0.03	0.092	0.102
43	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	138	5690	17.40	17.50	1.023	92.00	1.087	-0.09	0.278	0.309
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	106	5530	15.40	16.50	1.288	92.00	1.087	-0.11	0.187	0.262
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	122	5610	17.20	17.50	1.072	92.00	1.087	0.02	0.208	0.242
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 2	Soft Holster + Rigid Holster	138	5690	17.40	17.50	1.023	92.00	1.087	-0.08	0.261	0.290
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	155	5775	17.40	17.50	1.023	92.00	1.087	-0.08	0.152	0.169
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	155	5775	17.40	17.50	1.023	92.00	1.087	-0.05	0.126	0.140
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	155	5775	17.40	17.50	1.023	92.00	1.087	0.01	0.072	0.080
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	Battery 2	Soft Holster + Trigger Handle	155	5775	17.40	17.50	1.023	92.00	1.087	0.09	0.138	0.154
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	Battery 1	Soft Holster + Trigger Handle	155	5775	17.20	17.50	1.072	92.00	1.087	0.05	0.086	0.100
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	155	5775	17.20	17.50	1.072	92.00	1.087	0.09	0.087	0.101
44	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 1	Soft Holster + Rigid Holster	155	5775	17.20	17.50	1.072	92.00	1.087	-0.02	0.276	0.321
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 2	Soft Holster + Rigid Holster	155	5775	17.20	17.50	1.072	92.00	1.087	-0.11	0.258	0.301

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	Accessory	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)
45	Bluetooth	LE-1Mbps	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	19	2440	5.80	6.00	1.047	62.30	1.337	0	< 0.001	< 0.001
	Bluetooth	LE-1Mbps	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	00	2402	5.10	6.00	1.230	62.30	1.337	0	< 0.001	< 0.001
	Bluetooth	LE-1Mbps	Front	0mm	Ant 1	Battery 1	Soft Holster + Trigger Handle	39	2480	5.50	6.00	1.122	62.30	1.337	0	< 0.001	< 0.001
	Bluetooth	LE-1Mbps	Front	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	19	2440	5.80	6.00	1.047	62.30	1.337	0	< 0.001	< 0.001
	Bluetooth	LE-1Mbps	Back	0mm	Ant 1	Battery 1	Soft Holster + Rigid Holster	19	2440	5.80	6.00	1.047	62.30	1.337	0	< 0.001	< 0.001
	Bluetooth	LE-1Mbps	Front	0mm	Ant 1	Battery 2	Soft Holster + Trigger Handle	19	2440	5.80	6.00	1.047	62.30	1.337	0	< 0.001	< 0.001

14.4 Hand SAR
<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Battery	Accessory	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)
46	WCDMA II	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	9400	1880	23.72	25.00	1.343	-0.06	0.358	0.481
	WCDMA II	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	9262	1852.4	23.45	25.00	1.429	0.18	0.248	0.354
	WCDMA II	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	9538	1907.6	23.56	25.00	1.393	0.05	0.256	0.357
	WCDMA II	RMC 12.2Kbps	Back	0mm	Battery 2	Trigger Handle	9400	1880	23.72	25.00	1.343	0.04	0.244	0.328
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	1413	1732.6	23.75	24.00	1.059	0.07	0.298	0.316
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	1312	1712.4	23.64	24.00	1.086	-0.04	0.302	0.328
47	WCDMA IV	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	1513	1752.6	23.66	24.00	1.081	-0.09	0.310	0.335
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Battery 2	Trigger Handle	1513	1752.6	23.66	24.00	1.081	0.03	0.301	0.326
48	WCDMA V	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	4182	836.4	24.45	25.50	1.274	-0.06	0.243	0.309
	WCDMA V	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	4132	826.4	24.36	25.70	1.361	-0.07	0.213	0.290
	WCDMA V	RMC 12.2Kbps	Back	0mm	Battery 1	Trigger Handle	4233	846.6	24.44	25.70	1.337	0.12	0.214	0.286
	WCDMA V	RMC 12.2Kbps	Back	0mm	Battery 2	Trigger Handle	4233	846.6	24.44	25.70	1.337	-0.02	0.229	0.306

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	Accessory	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 7	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	20850	2510	24.33	25.00	1.167	-0.04	0.360	0.420
	LTE Band 7	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	21100	2535	24.20	25.00	1.202	-0.09	0.373	0.448
49	LTE Band 7	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	21350	2560	24.05	25.00	1.245	-0.09	0.382	0.475
	LTE Band 7	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	20850	2510	23.25	24.00	1.189	-0.08	0.341	0.405
	LTE Band 7	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	21100	2535	23.10	24.00	1.230	0.06	0.329	0.405
	LTE Band 7	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	21350	2560	23.03	24.00	1.250	0.05	0.352	0.440
	LTE Band 7	20M	QPSK	100	0	Back	0mm	Battery 1	Trigger Handle	20850	2510	22.95	24.00	1.274	0.11	0.327	0.416
	LTE Band 7	20M	QPSK	1	0	Back	0mm	Battery 2	Trigger Handle	21100	2535	24.05	25.00	1.245	0.04	0.369	0.459
50	LTE Band 12	10M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	23095	707.5	25.14	25.70	1.138	-0.12	0.290	0.330
	LTE Band 12	10M	QPSK	25	0	Back	0mm	Battery 1	Trigger Handle	23095	707.5	24.04	24.70	1.164	0.09	0.277	0.322
	LTE Band 12	10M	QPSK	1	0	Back	0mm	Battery 2	Trigger Handle	23095	707.5	25.14	25.70	1.138	0.01	0.280	0.319
51	LTE Band 13	10M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	23230	782	24.64	25.70	1.276	-0.17	0.379	0.484
	LTE Band 13	10M	QPSK	25	0	Back	0mm	Battery 1	Trigger Handle	23230	782	23.59	24.70	1.291	0.11	0.321	0.414
	LTE Band 13	10M	QPSK	1	0	Back	0mm	Battery 2	Trigger Handle	23230	782	24.64	25.70	1.276	0.04	0.368	0.470
52	LTE Band 14	10M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	23330	793	25.16	25.70	1.132	0.11	0.303	0.343
	LTE Band 14	10M	QPSK	25	0	Back	0mm	Battery 1	Trigger Handle	23230	782	24.11	24.70	1.146	0.04	0.261	0.299
	LTE Band 14	10M	QPSK	1	0	Back	0mm	Battery 2	Trigger Handle	23330	793	25.16	25.70	1.132	0.05	0.286	0.324
	LTE Band 25	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	26140	1860	23.52	24.00	1.117	0.06	0.297	0.332
	LTE Band 25	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	26340	1880	23.03	24.00	1.250	0.05	0.304	0.380
53	LTE Band 25	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	26590	1905	22.84	24.00	1.306	-0.05	0.320	0.418
	LTE Band 25	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	26140	1860	22.51	23.00	1.119	0.06	0.272	0.304
	LTE Band 25	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	26340	1880	21.95	23.00	1.274	0.04	0.263	0.335
	LTE Band 25	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	26590	1905	21.80	23.00	1.318	0.09	0.266	0.351
	LTE Band 25	20M	QPSK	100	0	Back	0mm	Battery 1	Trigger Handle	26140	1860	22.16	23.00	1.213	0.04	0.261	0.317
	LTE Band 25	20M	QPSK	1	0	Back	0mm	Battery 2	Trigger Handle	26590	1905	22.84	24.00	1.306	-0.03	0.309	0.404
54	LTE Band 26	15M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	26865	831.5	25.27	25.70	1.104	-0.16	0.178	0.197
	LTE Band 26	15M	QPSK	36	0	Back	0mm	Battery 1	Trigger Handle	26865	831.5	24.22	24.70	1.117	0.15	0.135	0.151
	LTE Band 26	15M	QPSK	1	0	Back	0mm	Battery 2	Trigger Handle	26865	831.5	25.27	25.70	1.104	-0.04	0.158	0.174
	LTE Band 66	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	132322	1745	24.45	25.50	1.274	0.05	0.218	0.278
	LTE Band 66	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	132072	1720	24.35	25.50	1.303	0.06	0.214	0.279
55	LTE Band 66	20M	QPSK	1	0	Back	0mm	Battery 1	Trigger Handle	132572	1770	24.40	25.50	1.288	-0.14	0.232	0.299
	LTE Band 66	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	132322	1745	23.45	24.50	1.274	0.05	0.207	0.264
	LTE Band 66	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	132072	1720	23.28	24.50	1.324	0.09	0.197	0.261
	LTE Band 66	20M	QPSK	50	0	Back	0mm	Battery 1	Trigger Handle	132572	1770	23.40	24.50	1.288	-0.11	0.198	0.255
	LTE Band 66	20M	QPSK	100	0	Back	0mm	Battery 1	Trigger Handle	132322	1745	23.19	24.50	1.352	-0.05	0.186	0.251
	LTE Band 66	20M	QPSK	1	0	Back	0mm	Battery 2	Trigger Handle	132572	1770	24.40	25.50	1.288	0.03	0.211	0.272

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	Accessory	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)
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 1	Battery 1	Trigger Handle	11	2462	17.93	18.00	1.016	99.12	1.009	-0.03	0.450	0.461
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 1	Battery 1	Trigger Handle	1	2412	17.88	18.00	1.028	99.12	1.009	0.11	0.640	0.664
56	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 1	Battery 1	Trigger Handle	6	2437	17.86	18.00	1.033	99.12	1.009	0.19	0.660	0.688
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 1	Battery 2	Trigger Handle	6	2437	17.86	18.00	1.033	99.12	1.009	-0.09	0.522	0.544
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 2	Battery 1	Trigger Handle	11	2462	17.85	18.00	1.035	99.44	1.006	0.12	0.382	0.398
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 2	Battery 2	Trigger Handle	11	2462	17.92	18.00	1.019	99.44	1.006	0.07	0.375	0.384
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	Battery 1	Trigger Handle	54	5270	17.10	17.50	1.096	96.46	1.037	0.04	0.284	0.323
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	Battery 2	Trigger Handle	54	5270	17.10	17.50	1.096	96.46	1.037	0.06	0.271	0.308
57	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 2	Battery 1	Trigger Handle	54	5270	17.10	17.50	1.096	95.96	1.042	0.02	0.588	0.672
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 2	Battery 1	Trigger Handle	62	5310	15.60	16.50	1.230	95.96	1.042	0.03	0.386	0.495
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 2	Battery 2	Trigger Handle	54	5270	17.10	17.50	1.096	95.96	1.042	-0.09	0.532	0.608
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	Battery 1	Trigger Handle	138	5690	17.40	17.50	1.023	92.00	1.087	0.05	0.155	0.172
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	Battery 2	Trigger Handle	138	5690	17.40	17.50	1.023	92.00	1.087	0.08	0.148	0.165
58	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 1	Trigger Handle	138	5690	17.40	17.50	1.023	92.00	1.087	-0.14	0.728	0.810
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 1	Trigger Handle	106	5530	15.40	16.50	1.288	92.00	1.087	0.04	0.473	0.662
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 1	Trigger Handle	122	5610	17.20	17.50	1.072	92.00	1.087	0.06	0.695	0.809
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 2	Trigger Handle	138	5690	17.40	17.50	1.023	92.00	1.087	-0.06	0.712	0.792
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	Battery 1	Trigger Handle	155	5775	17.40	17.50	1.023	92.00	1.087	0.01	0.270	0.300
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	Battery 2	Trigger Handle	155	5775	17.40	17.50	1.023	92.00	1.087	0.06	0.254	0.283
59	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 1	Trigger Handle	155	5775	17.20	17.50	1.072	92.00	1.087	-0.07	0.696	0.811
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	Battery 2	Trigger Handle	155	5775	17.20	17.50	1.072	92.00	1.087	-0.02	0.663	0.772

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	Accessory	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)
60	Bluetooth	LE-1Mbps	Back	0mm	Ant 1	Battery 1	Trigger Handle	19	2440	5.80	6.00	1.047	62.30	1.337	-0.04	< 0.001	< 0.001
	Bluetooth	LE-1Mbps	Back	0mm	Ant 1	Battery 1	Trigger Handle	00	2402	5.10	6.00	1.230	62.30	1.337	0.07	< 0.001	< 0.001
	Bluetooth	LE-1Mbps	Back	0mm	Ant 1	Battery 1	Trigger Handle	39	2480	5.50	6.00	1.122	62.30	1.337	0.09	< 0.001	< 0.001
	Bluetooth	LE-1Mbps	Back	0mm	Ant 1	Battery 2	Trigger Handle	19	2440	5.80	6.00	1.047	62.30	1.337	-0.12	< 0.001	< 0.001



14.5 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Battery	Accessory	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	-		38	5190	17.00	17.50	1.122	96.46	1.037	-0.13	1.040		1.210
2nd	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	-		38	5190	17.00	17.50	1.122	96.46	1.037	-0.16	1.000	1.04	1.164
1st	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	-		54	5270	17.10	17.50	1.096	96.46	1.037	-0.13	1.080		1.228
2nd	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	Battery 1	-		54	5270	17.10	17.50	1.096	96.46	1.037	-0.12	1.060	1.02	1.205
1st	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 1	-		138	5690	17.40	17.50	1.023	92.00	1.087	-0.09	1.090		1.212
2nd	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 1	-		138	5690	17.40	17.50	1.023	92.00	1.087	0.11	1.030	1.06	1.146
1st	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 1	-		155	5775	17.40	17.50	1.023	92.00	1.087	0.13	1.120		1.246
2nd	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	Battery 1	-		155	5775	17.40	17.50	1.023	92.00	1.087	0.01	1.090	1.03	1.212
1st	LTE Band 7	20M_QPSK_1_0	Front	10mm		Battery 1	-	ON	21350	2560	22.71	24.00	1.346			-0.01	0.975		1.312
2nd	LTE Band 7	20M_QPSK_1_0	Front	10mm		Battery 1	-	ON	21350	2560	22.71	24.00	1.346			0.05	0.966	1.01	1.300
1st	LTE Band 66	20M_QPSK_1_0	Back	10mm		Battery 1	-	OFF	132322	1745	24.45	25.50	1.274			0.02	0.871		1.109
2nd	LTE Band 66	20M_QPSK_1_0	Back	10mm		Battery 1	-	OFF	132322	1745	24.45	25.50	1.274			0.02	0.862	1.01	1.098
1st	LTE Band 25	20M_QPSK_1_0	Front	0mm		Battery 1	Soft Holster + Rigid Holster	-	26590	1905	22.84	24.00	1.306			-0.03	0.938		1.225
2nd	LTE Band 25	20M_QPSK_1_0	Front	0mm		Battery 1	Soft Holster + Rigid Holster	-	26590	1905	22.84	24.00	1.306			-0.14	0.921	1.02	1.203

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8\text{W/kg}$.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45\text{W/kg}$, 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.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Head	Body-worn	Hotspot	Hand
1.	WWAN + WLAN2.4GHz Ant 1 + WLAN2.4GHz Ant 2	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz Ant 1 + WLAN5GHz Ant 2	Yes	Yes	Yes	Yes
3.	WWAN + WLAN2.4GHz Ant 1 + WLAN5GHz Ant 2	Yes	Yes	Yes	Yes
4.	WWAN + WLAN5GHz Ant 2 + Bluetooth Ant 1	Yes	Yes	Yes	Yes

General Note:

1. the BT module 2 will not transmit simultaneous with WWAN and module 1 WLAN/BT operation.
2. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
3. WLAN RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode. Therefore SPLSR calculation was choose worst case with SAR test results of each antenna in SISO mode perform evaluation.
4. For SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
5. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
6. The Scaled SAR summation is calculated based on the same configuration and test position.
7. 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.
 - v) The SPLSR calculated results please refer to section 15.5.



15.1 Head Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3	1+4+5	1+2+5	1+5+6	1+2+3	1+2+3	1+4+5	1+4+5	1+2+5	1+2+5
		WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	SPLSR	Case No	SPLSR	Case No	SPLSR	Case No
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)										
WCDMA II	Right Cheek	0.544	0.177	0.342	0.794	0.665	0.003	1.063	2.003	1.386	1.212			0.03	Case 1		
	Right Tilted	0.357	0.151	0.155	0.771	0.355	0.001	0.663	1.483	0.863	0.713						
	Left Cheek	0.658	0.883	0.130	1.246	0.208	0.004	1.671	2.112	1.749	0.870	0.02	Case 2	0.03	Case 3	0.02	Case 4
	Left Tilted	0.337	0.448	0.119	1.064	0.137	0.001	0.904	1.538	0.922	0.475						
WCDMA IV	Right Cheek	0.304	0.177	0.342	0.794	0.665	0.003	0.823	1.763	1.146	0.972			0.03	Case 5		
	Right Tilted	0.133	0.151	0.155	0.771	0.355	0.001	0.439	1.259	0.639	0.489						
	Left Cheek	0.377	0.883	0.130	1.246	0.208	0.004	1.390	1.831	1.468	0.589			0.03	Case 6		
	Left Tilted	0.159	0.448	0.119	1.064	0.137	0.001	0.726	1.360	0.744	0.297						
WCDMA V	Right Cheek	0.526	0.177	0.342	0.794	0.665	0.003	1.045	1.985	1.368	1.194			0.03	Case 7		
	Right Tilted	0.341	0.151	0.155	0.771	0.355	0.001	0.647	1.467	0.847	0.697						
	Left Cheek	0.379	0.883	0.130	1.246	0.208	0.004	1.392	1.833	1.470	0.591			0.03	Case 8		
	Left Tilted	0.276	0.448	0.119	1.064	0.137	0.001	0.843	1.477	0.861	0.414						
LTE Band 7	Right Cheek	0.411	0.177	0.342	0.794	0.665	0.003	0.930	1.870	1.253	1.079			0.03	Case 9		
	Right Tilted	0.160	0.151	0.155	0.771	0.355	0.001	0.466	1.286	0.666	0.516						
	Left Cheek	0.308	0.883	0.130	1.246	0.208	0.004	1.321	1.762	1.399	0.520			0.03	Case 10		
	Left Tilted	0.253	0.448	0.119	1.064	0.137	0.001	0.820	1.454	0.838	0.391						
LTE Band 12	Right Cheek	0.412	0.177	0.342	0.794	0.665	0.003	0.931	1.871	1.254	1.080			0.03	Case 11		
	Right Tilted	0.215	0.151	0.155	0.771	0.355	0.001	0.521	1.341	0.721	0.571						
	Left Cheek	0.316	0.883	0.130	1.246	0.208	0.004	1.329	1.770	1.407	0.528			0.03	Case 12		
	Left Tilted	0.192	0.448	0.119	1.064	0.137	0.001	0.759	1.393	0.777	0.330						
LTE Band 13	Right Cheek	0.522	0.177	0.342	0.794	0.665	0.003	1.041	1.981	1.364	1.190			0.03	Case 13		
	Right Tilted	0.346	0.151	0.155	0.771	0.355	0.001	0.652	1.472	0.852	0.702						
	Left Cheek	0.486	0.883	0.130	1.246	0.208	0.004	1.499	1.940	1.577	0.698			0.03	Case 14		
	Left Tilted	0.301	0.448	0.119	1.064	0.137	0.001	0.868	1.502	0.886	0.439						
LTE Band 14	Right Cheek	0.339	0.177	0.342	0.794	0.665	0.003	0.858	1.798	1.181	1.007			0.03	Case 15		
	Right Tilted	0.176	0.151	0.155	0.771	0.355	0.001	0.482	1.302	0.682	0.532						
	Left Cheek	0.214	0.883	0.130	1.246	0.208	0.004	1.227	1.668	1.305	0.426			0.03	Case 16		
	Left Tilted	0.127	0.448	0.119	1.064	0.137	0.001	0.694	1.328	0.712	0.265						
LTE Band 25	Right Cheek	0.340	0.177	0.342	0.794	0.665	0.003	0.859	1.799	1.182	1.008			0.03	Case 17		
	Right Tilted	0.249	0.151	0.155	0.771	0.355	0.001	0.555	1.375	0.755	0.605						
	Left Cheek	0.623	0.883	0.130	1.246	0.208	0.004	1.636	2.077	1.714	0.835	0.02	Case 18	0.03	Case 19	0.02	Case 20
	Left Tilted	0.262	0.448	0.119	1.064	0.137	0.001	0.829	1.463	0.847	0.400						
LTE Band 26	Right Cheek	0.403	0.177	0.342	0.794	0.665	0.003	0.922	1.862	1.245	1.071			0.03	Case 21		
	Right Tilted	0.303	0.151	0.155	0.771	0.355	0.001	0.609	1.429	0.809	0.659						
	Left Cheek	0.340	0.883	0.130	1.246	0.208	0.004	1.353	1.794	1.431	0.552			0.03	Case 22		
	Left Tilted	0.266	0.448	0.119	1.064	0.137	0.001	0.833	1.467	0.851	0.404						
LTE Band 66	Right Cheek	0.446	0.177	0.342	0.794	0.665	0.003	0.965	1.905	1.288	1.114			0.03	Case 23		
	Right Tilted	0.205	0.151	0.155	0.771	0.355	0.001	0.511	1.331	0.711	0.561						
	Left Cheek	0.577	0.883	0.130	1.246	0.208	0.004	1.590	2.031	1.668	0.789			0.02	Case 24	0.03	Case 25
	Left Tilted	0.188	0.448	0.119	1.064	0.137	0.001	0.755	1.389	0.773	0.326						



15.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)	1+2+3 SPLSR	1+2+3 Case No	1+4+5 SPLSR	1+4+5 Case No	1+2+5 SPLSR	1+2+5 Case No	1+5+6 SPLSR	1+5+6 Case No
		WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1												
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)												
WCDMA II	Front	0.722	0.139	0.120	0.179	0.098	0.001	0.981	0.999	0.959	0.821								
	Back	0.755	0.220	0.259	0.210	0.646	0.001	1.234	1.611	1.621	1.402			0.02	Case 26	0.02	Case 27		
	Left side	0.748		0.215		0.282		0.963	1.030	1.030	1.030								
	Right side	0.125	0.305		0.192		0.002	0.430	0.317	0.430	0.127								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.459						0.459	0.459	0.459	0.459								
WCDMA IV	Front	0.694	0.139	0.120	0.179	0.098	0.001	0.953	0.971	0.931	0.793								
	Back	0.719	0.220	0.259	0.210	0.646	0.001	1.198	1.575	1.585	1.366								
	Left side	0.480		0.215		0.282		0.695	0.762	0.762	0.762								
	Right side	0.125	0.305		0.192		0.002	0.430	0.317	0.430	0.127								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.339						0.339	0.339	0.339	0.339								
WCDMA V	Front	0.423	0.139	0.120	0.179	0.098	0.001	0.682	0.700	0.660	0.522								
	Back	0.503	0.220	0.259	0.210	0.646	0.001	0.982	1.359	1.369	1.150								
	Left side	0.267		0.215		0.282		0.482	0.549	0.549	0.549								
	Right side	0.441	0.305		0.192		0.002	0.746	0.633	0.746	0.443								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.223						0.223	0.223	0.223	0.223								
LTE Band 7	Front	1.312	0.139	0.120	0.179	0.098	0.001	1.571	1.589	1.549	1.411								
	Back	1.100	0.220	0.259	0.210	0.646	0.001	1.579	1.956	1.966	1.747			0.02	Case 30	0.02	Case 31	0.02	Case 32
	Left side	0.293		0.215		0.282		0.508	0.575	0.575	0.575								
	Right side	0.318	0.305		0.192		0.002	0.623	0.510	0.623	0.320								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.928						0.928	0.928	0.928	0.928								
LTE Band 12	Front	0.410	0.139	0.120	0.179	0.098	0.001	0.669	0.687	0.647	0.509								
	Back	0.370	0.220	0.259	0.210	0.646	0.001	0.849	1.226	1.236	1.017								
	Left side	0.209		0.215		0.282		0.424	0.491	0.491	0.491								
	Right side	0.369	0.305		0.192		0.002	0.674	0.561	0.674	0.371								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.127						0.127	0.127	0.127	0.127								
LTE Band 13	Front	0.744	0.139	0.120	0.179	0.098	0.001	1.003	1.021	0.981	0.843								
	Back	0.714	0.220	0.259	0.210	0.646	0.001	1.193	1.570	1.580	1.361			0.03	Case 33	0.03	Case 34		
	Left side	0.320		0.215		0.282		0.535	0.602	0.602	0.602								
	Right side	0.472	0.305		0.192		0.002	0.777	0.664	0.777	0.474								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.194						0.194	0.194	0.194	0.194								
LTE Band 14	Front	0.597	0.139	0.120	0.179	0.098	0.001	0.856	0.874	0.834	0.696								
	Back	0.300	0.220	0.259	0.210	0.646	0.001	0.779	1.156	1.166	0.947								
	Left side	0.182		0.215		0.282		0.397	0.464	0.464	0.464								
	Right side	0.300	0.305		0.192		0.002	0.605	0.492	0.605	0.302								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.182						0.182	0.182	0.182	0.182								
LTE Band 25	Front	0.794	0.139	0.120	0.179	0.098	0.001	1.053	1.071	1.031	0.893								
	Back	0.923	0.220	0.259	0.210	0.646	0.001	1.402	1.779	1.789	1.570			0.02	Case 35	0.02	Case 36		
	Left side	0.545		0.215		0.282		0.760	0.827	0.827	0.827								
	Right side	0.210	0.305		0.192		0.002	0.515	0.402	0.515	0.212								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.482						0.482	0.482	0.482	0.482								

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)	1+2+3 SPLSR	1+2+3 Case No	1+4+5 SPLSR	1+4+5 Case No	1+2+5 SPLSR	1+2+5 Case No	1+5+6 SPLSR	1+5+6 Case No
		WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1												
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)												
LTE Band 26	Front	0.354	0.139	0.120	0.179	0.098	0.001	0.613	0.631	0.591	0.453								
	Back	0.381	0.220	0.259	0.210	0.646	0.001	0.860	1.237	1.247	1.028								
	Left side	0.215		0.215		0.282		0.430	0.497	0.497	0.497								
	Right side	0.371	0.305		0.192		0.002	0.676	0.563	0.676	0.373								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.170						0.170	0.170	0.170	0.170								
LTE Band 66	Front	0.949	0.139	0.120	0.179	0.098	0.001	1.208	1.226	1.186	1.048								
	Back	1.109	0.220	0.259	0.210	0.646	0.001	1.588	1.965	1.975	1.756			0.02	Case 38	0.02	Case 39	0.02	Case 40
	Left side	0.190		0.215		0.282		0.405	0.472	0.472	0.472								
	Right side	0.499	0.305		0.192		0.002	0.804	0.691	0.804	0.501								
	Top side		0.089	0.095	0.180	0.115	0.001	0.184	0.295	0.204	0.116								
	Bottom side	0.241						0.241	0.241	0.241	0.241								

15.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
WCDMA II	Front	0.470	0.050	0.026	0.264	0.102	0.001	0.546	0.836	0.622	0.573
	Back	0.364	0.036	0.042	0.101	0.321	0.001	0.442	0.786	0.721	0.686
WCDMA IV	Front	0.296	0.050	0.026	0.264	0.102	0.001	0.372	0.662	0.448	0.399
	Back	0.335	0.036	0.042	0.101	0.321	0.001	0.413	0.757	0.692	0.657
WCDMA V	Front	0.543	0.050	0.026	0.264	0.102	0.001	0.619	0.909	0.695	0.646
	Back	0.797	0.036	0.042	0.101	0.321	0.001	0.875	1.219	1.154	1.119
LTE Band 7	Front	1.063	0.050	0.026	0.264	0.102	0.001	1.139	1.429	1.215	1.166
	Back	0.698	0.036	0.042	0.101	0.321	0.001	0.776	1.120	1.055	1.020
LTE Band 12	Front	0.372	0.050	0.026	0.264	0.102	0.001	0.448	0.738	0.524	0.475
	Back	0.364	0.036	0.042	0.101	0.321	0.001	0.442	0.786	0.721	0.686
LTE Band 13	Front	0.408	0.050	0.026	0.264	0.102	0.001	0.484	0.774	0.560	0.511
	Back	0.385	0.036	0.042	0.101	0.321	0.001	0.463	0.807	0.742	0.707
LTE Band 14	Front	0.364	0.050	0.026	0.264	0.102	0.001	0.440	0.730	0.516	0.467
	Back	0.362	0.036	0.042	0.101	0.321	0.001	0.440	0.784	0.719	0.684
LTE Band 25	Front	1.225	0.050	0.026	0.264	0.102	0.001	1.301	1.591	1.377	1.328
	Back	0.740	0.036	0.042	0.101	0.321	0.001	0.818	1.162	1.097	1.062
LTE Band 26	Front	0.454	0.050	0.026	0.264	0.102	0.001	0.530	0.820	0.606	0.557
	Back	0.469	0.036	0.042	0.101	0.321	0.001	0.547	0.891	0.826	0.791
LTE Band 66	Front	0.709	0.050	0.026	0.264	0.102	0.001	0.785	1.075	0.861	0.812
	Back	0.854	0.036	0.042	0.101	0.321	0.001	0.932	1.276	1.211	1.176

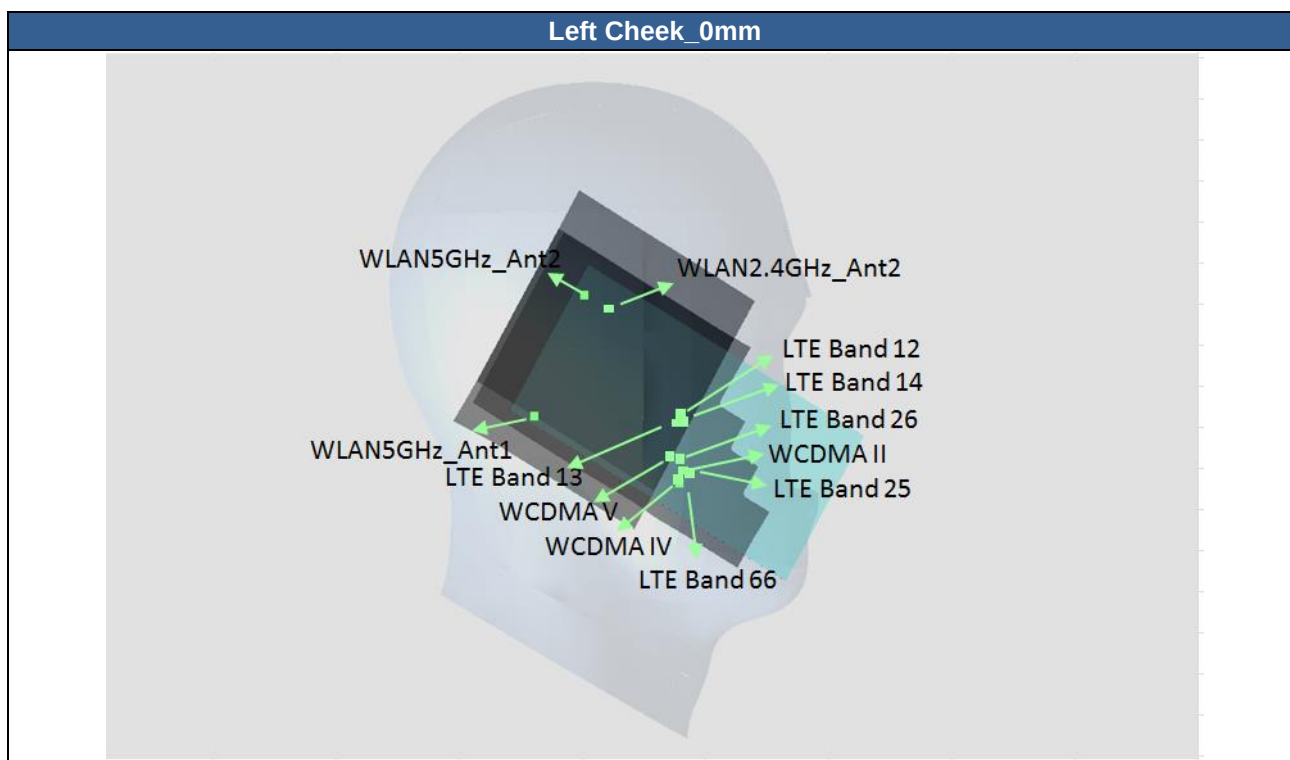
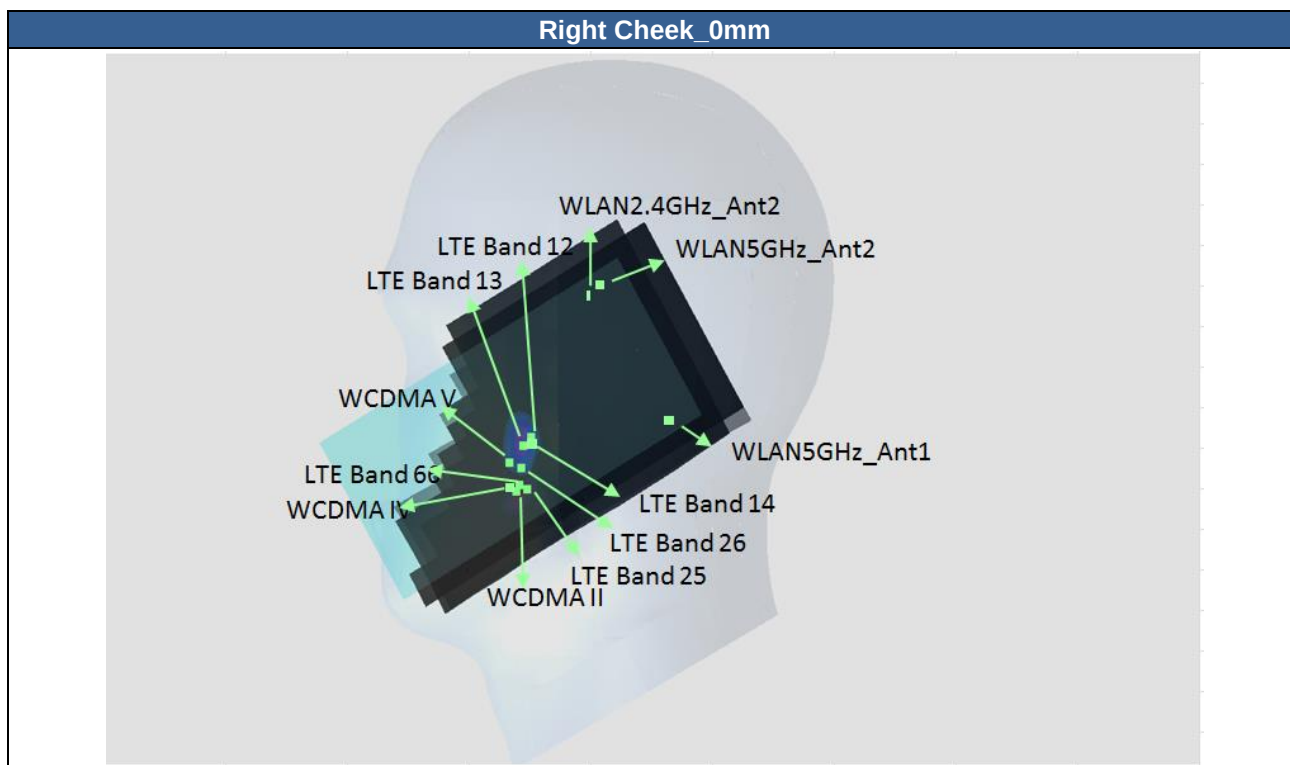
15.4 Hand Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 10g SAR (W/kg)	1+4+5 Summed 10g SAR (W/kg)	1+2+5 Summed 10g SAR (W/kg)	1+5+6 Summed 10g SAR (W/kg)
		WWAN 10g SAR (W/kg)	2.4GHz WLAN Ant 1 10g SAR (W/kg)	2.4GHz WLAN Ant 2 10g SAR (W/kg)	5GHz WLAN Ant 1 10g SAR (W/kg)	5GHz WLAN Ant 2 10g SAR (W/kg)	Bluetooth Ant 1 10g SAR (W/kg)				
WCDMA II	Back	0.481	0.688	0.398	0.323	0.811	0.001	1.567	1.615	1.980	1.293
WCDMA IV	Back	0.335	0.688	0.398	0.323	0.811	0.001	1.421	1.469	1.834	1.147
WCDMA V	Back	0.309	0.688	0.398	0.323	0.811	0.001	1.395	1.443	1.808	1.121
LTE Band 7	Back	0.475	0.688	0.398	0.323	0.811	0.001	1.561	1.609	1.974	1.287
LTE Band 12	Back	0.330	0.688	0.398	0.323	0.811	0.001	1.416	1.464	1.829	1.142
LTE Band 13	Back	0.484	0.688	0.398	0.323	0.811	0.001	1.570	1.618	1.983	1.296
LTE Band 14	Back	0.343	0.688	0.398	0.323	0.811	0.001	1.429	1.477	1.842	1.155
LTE Band 25	Back	0.418	0.688	0.398	0.323	0.811	0.001	1.504	1.552	1.917	1.230
LTE Band 26	Back	0.197	0.688	0.398	0.323	0.811	0.001	1.283	1.331	1.696	1.009
LTE Band 66	Back	0.299	0.688	0.398	0.323	0.811	0.001	1.385	1.433	1.798	1.111

15.5 SPLSR Evaluation and Analysis

General Note:

1. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary
2. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.

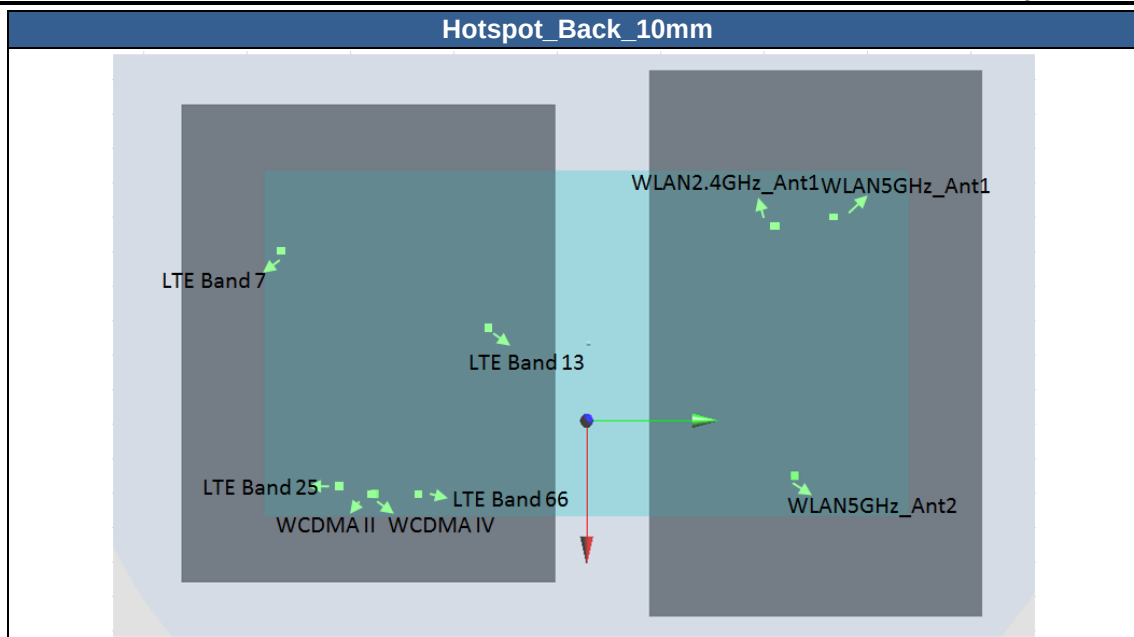


	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 1	WCDMA II	Right Cheek	0.544	0	51.05	61.19	-1.12	79.1	1.34	0.02	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	WCDMA II	Right Cheek	0.544	0	51.05	61.19	-1.12	88.4	1.21	0.02	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 2	WCDMA II	Left Cheek	0.658	0	52.44	-61.61	-0.54	96.2	1.54	0.02	Not required
	WLAN2.4G_Ant 1		0.883	0	26.11	30.96	-0.07				
	WCDMA II	Left Cheek	0.658	0	52.44	-61.61	-0.54	77.3	0.79	0.01	Not required
	WLAN2.4G_Ant 2		0.13	0	-17.25	-29.11	7.23				
	WLAN2.4G_Ant 1	Left Cheek	0.883	0	26.11	30.96	-0.07	74.4	1.01	0.01	Not required
	WLAN2.4G_Ant 2		0.13	0	-17.25	-29.11	7.23				
Case 3	WCDMA II	Left Cheek	0.658	0	52.44	-61.61	-0.54	98.1	1.90	0.03	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	WCDMA II	Left Cheek	0.658	0	52.44	-61.61	-0.54	77.3	0.87	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 4	WCDMA II	Left Cheek	0.658	0	52.44	-61.61	-0.54	96.2	1.54	0.02	Not required
	WLAN2.4G_Ant 1		0.883	0	26.11	30.96	-0.07				
	WCDMA II	Left Cheek	0.658	0	52.44	-61.61	-0.54	77.3	0.87	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN2.4G_Ant 1	Left Cheek	0.883	0	26.11	30.96	-0.07	74.4	1.09	0.02	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 5	WCDMA IV	Right Cheek	0.304	0	51.08	61.02	-1.13	79.1	1.10	0.01	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	WCDMA IV	Right Cheek	0.304	0	51.08	61.02	-1.13	88.3	0.97	0.01	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 6	WCDMA IV	Left Cheek	0.377	0	54.67	-57.8	-0.53	95.5	1.62	0.02	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	WCDMA IV	Left Cheek	0.377	0	54.67	-57.8	-0.53	77.8	0.59	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 7	WCDMA V	Right Cheek	0.526	0	47.38	43.42	-2.97	69.1	1.32	0.02	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	WCDMA V	Right Cheek	0.526	0	47.38	43.42	-2.97	70.4	1.19	0.02	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 8	WCDMA V	Left Cheek	0.379	0	54.67	-57.8	-0.53	95.5	1.63	0.02	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	WCDMA V	Left Cheek	0.379	0	54.67	-57.8	-0.53	77.8	0.59	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 9	LTE Band 7	Right Cheek	0.411	0	50.46	64.77	-0.62	80.4	1.21	0.02	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	LTE Band 7	Right Cheek	0.411	0	50.46	64.77	-0.62	91.7	1.08	0.01	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 10	LTE Band 7	Left Cheek	0.308	0	50.49	-61.97	0.15	97.6	1.55	0.02	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	LTE Band 7	Left Cheek	0.308	0	50.49	-61.97	0.15	75.6	0.52	0.00	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 11	LTE Band 12	Right Cheek	0.412	0	57.97	47.26	-1.48	80.1	1.21	0.02	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	LTE Band 12	Right Cheek	0.412	0	57.97	47.26	-1.48	78.1	1.08	0.01	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 12	LTE Band 12	Left Cheek	0.316	0	47.51	-34.45	-3.56	71.6	1.56	0.03	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	LTE Band 12	Left Cheek	0.316	0	47.51	-34.45	-3.56	65.9	0.52	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 13	LTE Band 13	Right Cheek	0.522	0	47.32	37.7	-3.18	67.7	1.32	0.02	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	LTE Band 13	Right Cheek	0.522	0	47.32	37.7	-3.18	65.1	1.19	0.02	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 14	LTE Band 13	Left Cheek	0.486	0	56.52	-41.21	-2.8	82.0	1.73	0.03	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	LTE Band 13	Left Cheek	0.486	0	56.52	-41.21	-2.8	75.4	0.69	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 15	LTE Band 14	Right Cheek	0.339	0	59.93	62.3	0.8	87.4	1.13	0.01	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	LTE Band 14	Right Cheek	0.339	0	59.93	62.3	0.8	92.6	1.00	0.01	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 16	LTE Band 14	Left Cheek	0.214	0	68.17	-46.22	1.6	92.7	1.46	0.02	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	LTE Band 14	Left Cheek	0.214	0	68.17	-46.22	1.6	87.3	0.42	0.00	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 17	LTE Band 25	Right Cheek	0.34	0	51.01	61.06	-1.14	79.0	1.13	0.02	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	LTE Band 25	Right Cheek	0.34	0	51.01	61.06	-1.14	88.3	1.01	0.01	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 18	LTE Band 25	Left Cheek	0.623	0	53.9	-59.1	-0.49	94.3	1.51	0.02	Not required
	WLAN2.4G_Ant 1		0.883	0	26.11	30.96	-0.07				
	LTE Band 25	Left Cheek	0.623	0	53.9	-59.1	-0.49	77.6	0.75	0.01	Not required
	WLAN2.4G_Ant 2		0.13	0	-17.25	-29.11	7.23				
	WLAN2.4G_Ant 1	Left Cheek	0.883	0	26.11	30.96	-0.07	74.4	1.01	0.01	Not required
	WLAN2.4G_Ant 2		0.13	0	-17.25	-29.11	7.23				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 19	LTE Band 25	Left Cheek	0.623	0	53.9	-59.1	-0.49	96.4	1.87	0.03	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	LTE Band 25	Left Cheek	0.623	0	53.9	-59.1	-0.49	77.6	0.83	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 20	LTE Band 25	Left Cheek	0.623	0	53.9	-59.1	-0.49	94.3	1.51	0.02	Not required
	WLAN2.4G_Ant 1		0.883	0	26.11	30.96	-0.07				
	LTE Band 25	Left Cheek	0.623	0	53.9	-59.1	-0.49	77.6	0.83	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN2.4G_Ant 1	Left Cheek	0.883	0	26.11	30.96	-0.07	74.4	1.09	0.02	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 21	LTE Band 26	Right Cheek	0.403	0	51.09	48.56	-2.24	74.1	1.20	0.02	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	LTE Band 26	Right Cheek	0.403	0	51.09	48.56	-2.24	76.5	1.07	0.01	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 22	LTE Band 26	Left Cheek	0.34	0	52.72	-42.89	-2.27	81.5	1.59	0.02	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	LTE Band 26	Left Cheek	0.34	0	52.72	-42.89	-2.27	71.9	0.55	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 23	LTE Band 66	Right Cheek	0.446	0	51.08	61.15	-0.95	79.1	1.24	0.02	Not required
	WLAN5G_Ant 1		0.794	0	-18.16	23.55	6.42				
	LTE Band 66	Right Cheek	0.446	0	51.08	61.15	-0.95	88.4	1.11	0.01	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
	WLAN5G_Ant 1	Right Cheek	0.794	0	-18.16	23.55	6.42	62.9	1.46	0.03	Not required
	WLAN5G_Ant 2		0.665	0	23.57	-22.85	-1.19				
Case 24	LTE Band 66	Left Cheek	0.577	0	50.13	-56.59	-0.33	92.5	1.82	0.03	Not required
	WLAN5G_Ant 1		1.246	0	12.65	28.01	-0.79				
	LTE Band 66	Left Cheek	0.577	0	50.13	-56.59	-0.33	73.2	0.79	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN5G_Ant 1	Left Cheek	1.246	0	12.65	28.01	-0.79	64.9	1.45	0.03	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
Case 25	LTE Band 66	Left Cheek	0.577	0	50.13	-56.59	-0.33	90.8	1.46	0.02	Not required
	WLAN2.4G_Ant 1		0.883	0	26.11	30.96	-0.07				
	LTE Band 66	Left Cheek	0.577	0	50.13	-56.59	-0.33	73.2	0.79	0.01	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				
	WLAN2.4G_Ant 1	Left Cheek	0.883	0	26.11	30.96	-0.07	74.4	1.09	0.02	Not required
	WLAN5G_Ant 2		0.208	0	-17.25	-29.08	7.21				



	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
	Case 26	WCDMA II	Back	0.755	10	33	-57.4	-0.97	141.7	0.97	0.01
WLAN5G_Ant 1		0.21		10	-33	68	-1.01				
WCDMA II		Back	0.755	10	33	-57.4	-0.97	107.4	1.40	0.02	Not required
WLAN5G_Ant 2			0.646	10	29.8	50	-0.75				
WLAN5G_Ant 1		Back	0.21	10	-33	68	-1.01	65.3	0.86	0.01	Not required
WLAN5G_Ant 2			0.646	10	29.8	50	-0.75				
Case 27	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Back	0.755	10	33	-57.4	-0.97				
	WLAN2.4G_Ant 1		0.22	10	-33.6	60.2	-1.4				
	WCDMA II	Back	0.755	10	33	-57.4	-0.97	107.4	1.40	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN2.4G_Ant 1	Back	0.22	10	-33.6	60.2	-1.4	64.2	0.87	0.01	Not required
WLAN5G_Ant 2	0.646		10	29.8	50	-0.75					
Case 30	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back	1.1	10	-11.73	-73.78	-0.42				
	WLAN5G_Ant 1		0.21	10	-33	68	-1.01				
	LTE Band 7	Back	1.1	10	-11.73	-73.78	-0.42	130.6	1.75	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN5G_Ant 1	Back	0.21	10	-33	68	-1.01	65.3	0.86	0.01	Not required
WLAN5G_Ant 2	0.646		10	29.8	50	-0.75					
Case 31	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back	1.1	10	-11.73	-73.78	-0.42				
	WLAN2.4G_Ant 1		0.22	10	-33.6	60.2	-1.4				
	LTE Band 7	Back	1.1	10	-11.73	-73.78	-0.42	130.6	1.75	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN2.4G_Ant 1	Back	0.22	10	-33.6	60.2	-1.4	64.2	0.87	0.01	Not required
WLAN5G_Ant 2	0.646		10	29.8	50	-0.75					
Case 32	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back	1.1	10	-11.73	-73.78	-0.42				
	Bluetooth		0.001	10	-32.8	59.8	-1.32				
	LTE Band 7	Back	1.1	10	-11.73	-73.78	-0.42	130.6	1.75	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	Bluetooth	Back	0.001	10	-32.8	59.8	-1.32	63.4	0.65	0.01	Not required
WLAN5G_Ant 2	0.646		10	29.8	50	-0.75					

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 33	LTE Band 13	Back	0.714	10	-1.5	0.4	-1.11	74.6	0.92	0.01	Not required
	WLAN5G_Ant 1		0.21	10	-33	68	-1.01				
	LTE Band 13	Back	0.714	10	-1.5	0.4	-1.11	58.7	1.36	0.03	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN5G_Ant 1	Back	0.21	10	-33	68	-1.01	65.3	0.86	0.01	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
Case 34	LTE Band 13	Back	0.714	10	-1.5	0.4	-1.11	67.9	0.93	0.01	Not required
	WLAN2.4G_Ant 1		0.22	10	-33.6	60.2	-1.4				
	LTE Band 13	Back	0.714	10	-1.5	0.4	-1.11	58.7	1.36	0.03	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN2.4G_Ant 1	Back	0.22	10	-33.6	60.2	-1.4	64.2	0.87	0.01	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
Case 35	LTE Band 25	Back	0.923	10	34.5	-55.2	-0.91	140.5	1.13	0.01	Not required
	WLAN5G_Ant 1		0.21	10	-33	68	-1.01				
	LTE Band 25	Back	0.923	10	34.5	-55.2	-0.91	105.3	1.57	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN5G_Ant 1	Back	0.21	10	-33	68	-1.01	65.3	0.86	0.01	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
Case 36	LTE Band 25	Back	0.923	10	34.5	-55.2	-0.91	134.0	1.14	0.01	Not required
	WLAN2.4G_Ant 1		0.22	10	-33.6	60.2	-1.4				
	LTE Band 25	Back	0.923	10	34.5	-55.2	-0.91	105.3	1.57	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN2.4G_Ant 1	Back	0.22	10	-33.6	60.2	-1.4	64.2	0.87	0.01	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
Case 38	LTE Band 66	Back	1.109	10	29.9	-55.8	-1.03	138.9	1.32	0.01	Not required
	WLAN5G_Ant 1		0.21	10	-33	68	-1.01				
	LTE Band 66	Back	1.109	10	29.9	-55.8	-1.03	105.8	1.76	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN5G_Ant 1	Back	0.21	10	-33	68	-1.01	65.3	0.86	0.01	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
Case 39	LTE Band 66	Back	1.109	10	29.9	-55.8	-1.03	132.2	1.33	0.01	Not required
	WLAN2.4G_Ant 1		0.22	10	-33.6	60.2	-1.4				
	LTE Band 66	Back	1.109	10	29.9	-55.8	-1.03	105.8	1.76	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	WLAN2.4G_Ant 1	Back	0.22	10	-33.6	60.2	-1.4	64.2	0.87	0.01	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
Case 40	LTE Band 66	Back	1.109	10	29.9	-55.8	-1.03	131.5	1.11	0.01	Not required
	Bluetooth		0.001	10	-32.8	59.8	-1.32				
	LTE Band 66	Back	1.109	10	29.9	-55.8	-1.03	105.8	1.76	0.02	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				
	Bluetooth	Back	0.001	10	-32.8	59.8	-1.32	63.4	0.65	0.01	Not required
	WLAN5G_Ant 2		0.646	10	29.8	50	-0.75				

16. Supplemental Antenna tuner tests results

General Note:

1. This device implements aperture tuner (6 status) * impedance tuner (96 status) techniques in the UMTS B5 and LTE B5/B12/B13/B14/B17/B26, the detail aperture tuner support configuration as following. SAR test proposal was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing and this design will provide the highest power at different user scenarios and would not influence to the antenna characteristics other than impedance matching.
2. SAR test proposal was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing and this design will provide the highest power at different user scenarios and would not influence to the antenna characteristics other than impedance matching.
3. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values.
4. To evaluate all of the tuner states, the 96 tuner states are divided evenly among band, mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination.
5. The device supports LTE B5/B12/B13/B14/B17/B26. Since the supported frequency span for LTE B5/B17 falls completely within the supported frequency span for LTE B26/B12, and both bands have the same target power and both LTE bands share the same transmission path, therefore standalone SAR was only assessed for LTE B26/B12. The single point SAR time-sweep measurements were treated independently for each supported ACL frequency band. For the LTE B5/B17 single point SAR measurement selected the highest measured SAR configuration and exposure condition of LTE B26/B12.
6. The tuner state was established remotely through Wi-Fi so that the device is not moved for the entire series of single point SAR for the tuner states in each combination (band, mode, exposure conditions).

<Aperture tuner configuration>

LTE	Aperture tuner configuration	WCDMA	Aperture tuner configuration
B5	1/2/3/4/6	B5	1/2/3/4/6
B12	0/6		
B13	6		
B14	0/4/6		
B17	0/6		
B26	1/2/3/4/6		

**<Aperture tuner 0>**

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 57)	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96		
LTE Band 12_Ant 0	QPSK	707.5	23095	N/A	N/A	Right Cheek	0 mm	0.289	0.365	0.034	0.318	0.249	0.225	0.175	0.133	0.076	0.292	0.306	0.298	0.031	0.289	0.226	0.241	0.166	0.121	0.085	0.229	0.285	0.266	0.212	0.105	0.055	0.233	0.312		
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 78)	1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	-		
LTE Band 14_Ant 0	QPSK	793	23330	1	0	Right Cheek	0 mm	0.255	0.305	0.026	0.221	0.207	0.219	0.162	0.233	0.134	0.156	0.124	0.184	0.019	0.188	0.221	0.223	0.175	0.206	0.115	0.142	0.099	0.165	0.088	0.029	0.177	0.201			
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 78)	2	6	10	14	18	22	26	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86	90	94	-		
LTE Band 12_Ant 0	QPSK	707.5	23095	N/A	N/A	Front	10 mm	0.331	0.352	0.085	0.121	0.166	0.241	0.185	0.069	0.091	0.121	0.054	0.096	0.076	0.105	0.144	0.179	0.166	0.054	0.042	0.105	0.027	0.066	0.088	0.165	0.201	0.223	-		
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 92)	3	7	11	15	19	23	27	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	-		
LTE Band 14_Ant 0	QPSK	793	23330	1	0	Front	10 mm	0.489	0.501	0.096	0.122	0.185	0.288	0.312	0.096	0.059	0.144	0.066	0.155	0.088	0.135	0.059	0.066	0.081	0.122	0.157	0.201	0.228	0.165	0.099	0.065	0.054	0.079	-		

<Aperture tuner 1>

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																									
									Auto-Tune (State 57)	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96
WCDMA_B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Right Cheek	0 mm	0.341	0.365	0.034	0.318	0.249	0.225	0.175	0.133	0.076	0.292	0.306	0.298	0.059	0.322	0.289	0.266	0.214	0.145	0.096	0.302	0.331	0.285	0.214	0.165	0.097	0.069	0.088
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																									
									Auto-Tune (State 47)	1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	-
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Right Cheek	0 mm	0.285	0.312	0.11	0.125	0.188	0.201	0.258	0.142	0.059	0.089	0.012	0.12	0.151	0.144	0.092	0.088	0.163	0.199	0.235	0.279	0.301	0.125	0.066	0.132	0.164	0.199	-
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																									
									Auto-Tune (State 19)	2	6	10	14	18	22	26	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86	90	94	-
WCDMA_B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Back_Soft Holster + Rigid Holster	0 mm	0.545	0.612	0.066	0.098	0.124	0.159	0.281	0.366	0.185	0.177	0.105	0.102	0.112	0.145	0.164	0.187	0.303	0.388	0.409	0.411	0.305	0.288	0.214	0.122	0.089	0.165	
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																									
									Auto-Tune (State 47)	3	7	11	15	19	23	27	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	-
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Back_Soft Holster + Rigid Holster	0 mm	0.411	0.419	0.121	0.145	0.211	0.223	0.268	0.155	0.072	0.112	0.023	0.177	0.121	0.145	0.211	0.223	0.268	0.155	0.072	0.112	0.023	0.177	0.125	0.083	0.155	0.196	-

<Aperture tuner 2>

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 57)	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96		
WCDMA B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Right Cheek	0 mm	0.341	0.365	0.124	0.328	0.329	0.325	0.185	0.193	0.116	0.392	0.289	0.277	0.079	0.354	0.332	0.316	0.244	0.245	0.166	0.352	0.302	0.315	0.244	0.255	0.107	0.179	0.108		
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 47)	1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	-		
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Right Cheek	0 mm	0.285	0.312	0.195	0.168	0.211	0.296	0.172	0.049	0.059	0.072	0.11	0.181	0.134	0.092	0.098	0.153	0.249	0.225	0.309	0.291	0.105	0.096	0.182	0.154	0.169	0.109	-		
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 19)	2	6	10	14	18	22	26	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86	90	94	-		
WCDMA B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Back_Soft Holster + Rigid Holster	0 mm	0.545	0.612	0.136	0.118	0.184	0.139	0.311	0.416	0.155	0.217	0.075	0.142	0.172	0.165	0.204	0.177	0.323	0.458	0.479	0.401	0.345	0.308	0.244	0.112	0.069	0.175	-		
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 47)	3	7	11	15	19	23	27	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	-		
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Back_Soft Holster + Rigid Holster	0 mm	0.411	0.419	0.121	0.195	0.201	0.293	0.238	0.155	0.102	0.152	0.072	0.157	0.171	0.205	0.181	0.293	0.318	0.145	0.102	0.112	0.003	0.157	0.145	0.083	0.125	0.256	-		

<Aperture tuner 3>

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 57)	0	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96		
WCDMA B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Right Cheek	0 mm	0.341	0.365	0.184	0.308	0.322	0.335	0.155	0.223	0.126	0.362	0.269	0.247	0.079	0.354	0.286	0.211	0.195	0.225	0.146	0.126	0.115	0.117	0.085	0.099	0.087	0.229	0.088		
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 47)	1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	-		
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Right Cheek	0 mm	0.285	0.312	0.185	0.208	0.211	0.285	0.182	0.059	0.029	0.082	0.18	0.181	0.114	0.112	0.098	0.153	0.249	0.277	0.242	0.199	0.135	0.166	0.145	0.144	0.169	0.099	-		
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 19)	2	6	10	14	18	22	26	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86	90	94	-		
WCDMA B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Back_Soft Holster + Rigid Holster	0 mm	0.545	0.612	0.116	0.098	0.234	0.119	0.291	0.486	0.205	0.237	0.095	0.212	0.202	0.175	0.244	0.227	0.313	0.528	0.539	0.441	0.315	0.338	0.314	0.112	0.089	0.205	-		
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																											
									Auto-Tune (State 47)	3	7	11	15	19	23	27	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	-		
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Back_Soft Holster + Rigid Holster	0 mm	0.411	0.419	0.161	0.165	0.241	0.353	0.258	0.125	0.142	0.122	0.102	0.167	0.141	0.275	0.231	0.273	0.378	0.145	0.112	0.102	-0.017	0.197	0.205	0.153	0.125	0.256	-		

<Aperture tuner 4>

Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 57)	0	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96
WCDMA B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Right Cheek	0 mm	0.341	0.365	0.034	0.318	0.249	0.225	0.175	0.133	0.076	0.292	0.306	0.298	0.024	0.308	0.309	0.225	0.175	0.183	0.066
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 95)	1	7	13	19	25	31	37	43	49	55	61	67	73	79	85	91	-
LTE Band 14_Ant 0	QPSK	793	23330	1	0	Right Cheek	0 mm	0.255	0.297	0.061	0.112	0.185	0.211	0.161	0.144	0.095	0.058	0.112	0.297	0.071	0.162	0.175	0.281	0.191	0.204	-
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 19)	2	8	14	20	26	32	38	44	50	56	62	68	74	80	86	92	-
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Right Cheek	0 mm	0.285	0.312	0.11	0.125	0.188	0.201	0.258	0.142	0.059	0.089	0.012	0.12	0.18	0.125	0.218	0.241	0.278	0.212	-
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 19)	3	9	15	21	27	33	39	45	51	57	63	69	75	81	87	93	-
WCDMA B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Back_Soft Holster + Rigid Holster	0 mm	0.545	0.612	0.066	0.098	0.124	0.159	0.281	0.366	0.185	0.177	0.105	0.102	0.106	0.128	0.184	0.159	0.311	0.386	-
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 92)	4	10	16	22	28	34	40	46	52	58	64	70	76	82	88	94	-
LTE Band 14_Ant 0	QPSK	793	23330	1	0	Front	10 mm	0.489	0.501	0.096	0.122	0.185	0.288	0.312	0.096	0.059	0.144	0.066	0.155	0.146	0.112	0.225	0.308	0.332	0.166	-
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 47)	5	11	17	23	29	35	41	47	53	59	65	71	77	83	89	95	-
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Back_Soft Holster + Rigid Holster	0 mm	0.411	0.419	0.121	0.145	0.211	0.223	0.268	0.155	0.072	0.112	0.023	0.177	0.399	0.05	0.181	0.145	0.251	0.263	-

<Aperture tuner 6>

Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 57)	0	10	20	30	40	50	60	70	80	92
WCDMA B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Right Cheek	0 mm	0.341	0.365	0.014	0.328	0.219	0.185	0.125	0.183	0.116	0.322	0.346	0.338
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 78)	1	11	21	31	41	51	61	71	81	93
LTE Band 12_Ant 0	QPSK	707.5	23095	N/A	N/A	Right Cheek	0 mm	0.289	0.305	0.052	0.221	0.227	0.229	0.172	0.233	0.184	0.136	0.104	0.234
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 92)	2	12	22	32	42	52	62	72	82	94
LTE Band 13_Ant 0	QPSK	782	23230	1	0	Right Cheek	0 mm	0.351	0.402	0.025	0.146	0.211	0.225	0.276	0.211	0.152	0.146	0.102	0.073
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 95)	3	13	23	33	43	53	63	73	83	95
LTE Band 14_Ant 0	QPSK	793	23330	1	0	Right Cheek	0 mm	0.255	0.297	0.031	0.102	0.205	0.161	0.211	0.164	0.105	0.078	0.122	0.277
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 47)	4	14	24	34	44	54	64	74	84	96
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Right Cheek	0 mm	0.285	0.312	0.06	0.085	0.178	0.221	0.268	0.172	0.059	0.089	0.022	0.08
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 19)	5	15	25	35	45	55	65	75	85	-
WCDMA B5_Ant 0	RMC12.2K	836.4	4182	N/A	N/A	Back_Soft Holster + Rigid Holster	0 mm	0.545	0.612	0.046	0.088	0.074	0.159	0.321	0.326	0.225	0.137	0.085	-
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 78)	6	16	26	36	46	56	66	76	86	-
LTE Band 12_Ant 0	QPSK	707.5	23095	N/A	N/A	Front	10 mm	0.331	0.352	0.035	0.171	0.206	0.241	0.185	0.089	0.141	0.081	0.084	-
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 92)	7	17	27	37	47	57	67	77	87	-
LTE Band 13_Ant 0	QPSK	782	23230	1	0	Front	10 mm	0.526	0.556	0.111	0.185	0.152	0.295	0.411	0.078	0.102	0.175	0.071	-
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 92)	8	18	28	38	48	58	68	78	88	-
LTE Band 14_Ant 0	QPSK	793	23330	1	0	Front	10 mm	0.489	0.501	0.126	0.152	0.135	0.238	0.332	0.106	0.099	0.104	0.086	-
Mode	Service/Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)										
									Auto-Tune (State 47)	9	19	29	39	49	59	69	79	89	-
LTE Band 26_Ant 0	QPSK	831.5	26865	1	0	Back_Soft Holster + Rigid Holster	0 mm	0.411	0.419	0.151	0.155	0.251	0.193	0.258	0.185	0.062	0.162	0.013	-

Test Engineer : Ken Lin, Thomas Wang and Carter Jhuang

17. Uncertainty Assessment

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

Declaration of Conformity:

The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

18. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [6] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [7] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [8] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [9] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [10] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [11] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [12] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.