



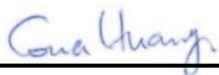
FCC SAR TEST REPORT

FCC ID : RWO-RZ350259
Equipment : Smartphone
Brand Name : RAZER
Model Name : RZ35-0259
Applicant : Razer Inc.
201 3rd Street, Suite 900, San Francisco,
CA 94103, USA
Manufacturer : Razer Inc.
201 3rd Street, Suite 900, San Francisco,
CA 94103, USA
Standard : FCC 47 CFR Part 2 (2.1093)
ANSI/IEEE C95.1-1992
IEEE 1528-2013

The product was received on Aug. 09, 2018 and testing was started from Aug. 15 2018 and completed on Sep. 14, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

The test results in this variant 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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Table of Contents

1. Statement of Compliance	4
2. Guidance Applied.....	4
3. Equipment Under Test (EUT) Information.....	5
3.1 General Information	5
3.2 General LTE SAR Test and Reporting Considerations	6
4. RF Exposure Limits.....	9
4.1 Uncontrolled Environment.....	9
4.2 Controlled Environment.....	9
5. Specific Absorption Rate (SAR).....	10
5.1 Introduction	10
5.2 SAR Definition.....	10
6. System Description and Setup	11
6.1 E-Field Probe	12
6.2 Data Acquisition Electronics (DAE)	12
6.3 Phantom.....	13
6.4 Device Holder.....	14
7. Measurement Procedures	15
7.1 Spatial Peak SAR Evaluation.....	15
7.2 Power Reference Measurement.....	16
7.3 Area Scan	16
7.4 Zoom Scan.....	17
7.5 Volume Scan Procedures.....	17
7.6 Power Drift Monitoring.....	17
8. Test Equipment List.....	18
9. System Verification	19
9.1 Tissue Simulating Liquids.....	19
9.2 Tissue Verification	20
9.3 System Performance Check Results.....	22
10. RF Exposure Positions	24
10.1 Ear and handset reference point.....	24
10.2 Definition of the cheek position	25
10.3 Definition of the tilt position	26
10.4 Body Worn Accessory	27
10.5 Extremity Exposure	28
10.6 Wireless Router.....	28
11. Conducted RF Output Power (Unit: dBm).....	29
12. Antenna Location	89
13. SAR Test Results	90
13.1 Head SAR	92
13.2 Hotspot SAR	97
13.3 Product Specific SAR.....	103
13.4 Body Worn Accessory SAR.....	104
13.5 Repeated SAR Measurement	108
14. Simultaneous Transmission Analysis.....	108
14.1 Head Exposure Conditions	109
14.2 Hotspot Exposure Conditions.....	111
14.3 Product Specific Exposure Conditions	114
14.4 Body-Worn Accessory Exposure Conditions	115
15. Uncertainty Assessment	116
16. References	116
Appendix A. Plots of System Performance Check	
Appendix B. Plots of High SAR Measurement	
Appendix C. DASY Calibration Certificate	
Appendix D. Test Setup Photos	

History of this test report

Report No.	Version	Description	Issued Date
FA871722	01	Initial issue of report	Sep. 26, 2018

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Razer Inc., Smartphone, RZ35-0259, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 15mm)	Hotspot (Separation 10mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	GSM850	0.41	0.37	0.95		1.58
	GSM1900	0.09	0.54	1.07	1.91	
	WCDMA II	0.11	0.58	1.12	2.01	
	WCDMA IV	0.12	0.58	1.10	2.51	
	WCDMA V	0.58	0.31	0.54		
	LTE Band 2	0.16	0.47	1.02	2.20	
	LTE Band 7	0.09	0.19	0.97		
	LTE Band 12 / 17	0.30	0.19	0.37		
	LTE Band 13	0.38	0.27	0.53		
	LTE Band 14	0.32	0.34	0.60		
	LTE Band 5 / 26	0.58	0.27	0.57		
	LTE Band 30	0.10	0.44	1.02	2.43	
	LTE Band 38 / 41	0.05	0.14	0.67		
	LTE Band 4 / 66	0.14	0.50	1.06	2.60	
	LTE Band 71	0.32	0.20	0.17		
DTS	2.4GHz WLAN	0.26	0.02	0.05		1.15
NII	5GHz WLAN	0.94	0.15	0.25	1.42	1.58
DSS	Bluetooth	0.09	0.01	0.02		1.58
Date of Testing:		2018/8/15 ~ 2018/9/14				

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

Reviewed by: Jason Wang

Report Producer: Wan Liu

2. Guidance Applied

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Smartphone
Brand Name	RAZER
Model Name	RZ35-0259
FCC ID	RWO-RZ350259
IMEI Code	357482090018663
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 14: 790.5 MHz ~ 795.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz LTE Band 71: 665.5 MHz ~ 695.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM WLAN 2.4GHz : 802.11b/g/n HT20/HT40 WLAN 5GHz : 802.11a/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT
SW Version	O-MRO-RC005-RZR
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark: 1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications. 2. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of GSM1900, WCDMA B2 / B4 and LTE B2 / B4 / B30 / B66. 3. This device has two antennas. The Primary Cellular Antenna (LAT) is location on the bottom edge of the device and the Secondary Cellular Antenna (UAT) is location on the top edge of the device.	



3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05									
FCC ID		RWO-RZ350259							
Equipment Name		Smartphone							
Operating Frequency Range of each LTE transmission band		LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 14: 790.5 MHz ~ 795.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz LTE Band 71: 665.5 MHz ~ 695.5 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 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz							
uplink modulations used		QPSK / 16QAM / 64QAM							
LTE Voice / Data requirements		Voice and Data							
LTE MPR permanently built-in by design		Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3							
		Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})					MPR (dB)	
			1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz		20 MHz
		QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
		16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
		16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
		64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
		64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
		256 QAM	≥ 1					≤ 5	
LTE A-MPR		In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)							
Spectrum plots for RB configuration		A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.							
Power reduction applied to satisfy SAR compliance		1. Yes, when operating in hotspot mode that LTE B2 / B4 / B30 / B66 power reduction applied to satisfy SAR compliance.							
LTE Carrier Aggregation Combinations		Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 11.							
LTE Carrier Aggregation Additional Information		This device supports maximum of 5 carriers in the downlink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.							

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 #		Freq.(MHz)		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 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5		
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5		
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5		
LTE Band 30												
	Bandwidth 5 MHz					Bandwidth 10 MHz						
	Channel #		Freq.(MHz)			Channel #		Freq.(MHz)				
L	27685		2307.5			27710		2310				
M	27710		2310									
H	27735		2312.5									
LTE Band 38												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580				
M	38000	2595	38000	2595	38000	2595	38000	2595				
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610				
LTE Band 41												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506				
L M	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5				
M	40620	2593	40620	2593	40620	2593	40620	2593				
H M	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5				
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680				
LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770
LTE Band 71												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	133147	665.5	133172	668	133197	670.5	133222	673				
M	133247	675.5	133272	678	133297	680.5	133322	683				
H	133447	695.5	133422	693	133397	690.5	133372	688				

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:

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

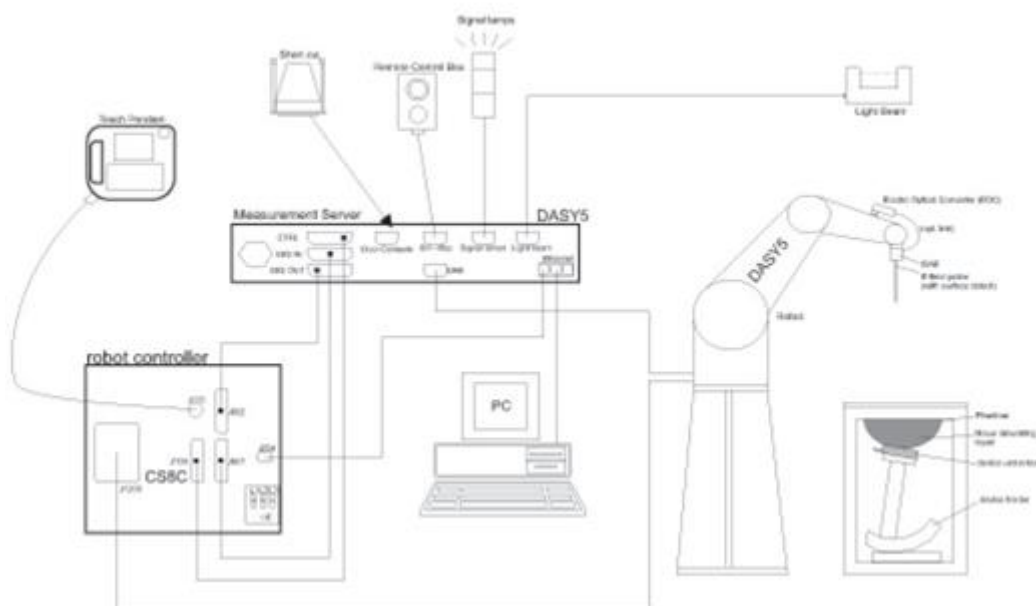
SAR is expressed in units of Watts per kilogram (W/kg)

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

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 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	

6.2 Data Acquisition Electronics (DAE)

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

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



Fig 5.1 Photo of DAE

6.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

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

6.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

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 dB0) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ 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	D750V3	1107	Feb. 27, 2018	Feb. 26, 2019
SPEAG	835MHz System Validation Kit	D835V2	4d167	Feb. 27, 2018	Feb. 26, 2019
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 15, 2017	Nov. 14, 2018
SPEAG	1750MHz System Validation Kit	D1750V2	1112	Feb. 28, 2018	Feb. 27, 2019
SPEAG	1900MHz System Validation Kit	D1900V2	5d185	Feb. 28, 2018	Feb. 27, 2019
SPEAG	2300MHz System Validation Kit	D2300V2	1006	Jan. 17, 2018	Jan. 16, 2019
SPEAG	2450MHz System Validation Kit	D2450V2	735	Dec. 15, 2017	Dec. 14, 2018
SPEAG	2600MHz System Validation Kit	D2600V2	1078	Mar. 01, 2018	Feb. 28, 2019
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 26, 2017	Sep. 25, 2018
SPEAG	Data Acquisition Electronics	DAE4	1424	Jan. 18, 2018	Jan. 17, 2019
SPEAG	Data Acquisition Electronics	DAE3	495	May. 24, 2018	May. 23, 2019
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 25, 2017	Sep. 24, 2018
SPEAG	Data Acquisition Electronics	DAE4	854	Jun. 14, 2018	Jun. 13, 2019
SPEAG	Data Acquisition Electronics	DAE4	853	Jul. 24, 2018	Jul. 23, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	Jan. 23, 2018	Jan. 22, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 31, 2018	May. 30, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 29, 2017	Sep. 28, 2018
SPEAG	Dosimetric E-Field Probe	ES3DV3	3169	May. 28, 2018	May. 27, 2019
SPEAG	Dosimetric E-Field Probe	ES3DV3	3170	Oct. 26, 2017	Oct. 25, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 26, 2018	Jul. 25, 2019
RCPTWN	Thermometer	HTC-1	TM685-1	Mar. 16, 2018	Mar. 15, 2019
RCPTWN	Thermometer	HTC-1	TM281-1	Mar. 16, 2018	Mar. 15, 2019
RCPTWN	Thermometer	HTC-1	TM560-1	Mar. 16, 2018	Mar. 15, 2019
Gencom	Thermometer	TE1	TM225-1	Mar. 16, 2018	Mar. 15, 2019
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 17, 2018	Apr. 16, 2019
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 21, 2018	May. 20, 2019
R&S	BT Base Station	CBT	100815	Feb. 05, 2018	Feb. 04, 2019
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Dec. 07, 2017	Dec. 06, 2018
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 17, 2018	Jan. 16, 2019
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 26, 2017	Sep. 25, 2018
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3169	Sep. 06, 2017	Sep. 05, 2018
Anritsu	Power Meter	ML2495A	1419002	May. 18, 2018	May. 17, 2019
Anritsu	Power Sensor	MA2411B	1339124	May. 18, 2018	May. 17, 2019
Anritsu	Power Meter	ML2495A	1218006	Oct. 06, 2017	Oct. 05, 2018
Anritsu	Power Sensor	MA2411B	1207363	Oct. 06, 2017	Oct. 05, 2018
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 23, 2018	Jun. 22, 2019
R&S	Spectrum Analyzer	FSL	100863	Jul. 05, 2018	Jul. 04, 2019
Mini-Circuits	Power Amplifier	ZVE-8G+	D120604	Mar. 12, 2018	Mar. 11, 2019
Mini-Circuits	Power Amplifier	ZHL-42W+	QA1344002	Mar. 12, 2018	Mar. 11, 2019
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.

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.

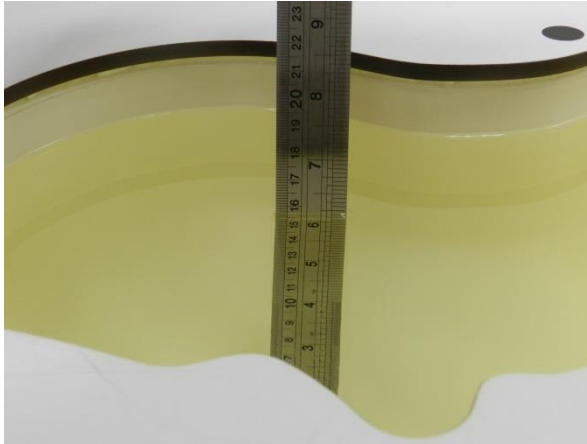


Fig 10.1 Photo of Liquid Height for Head SAR

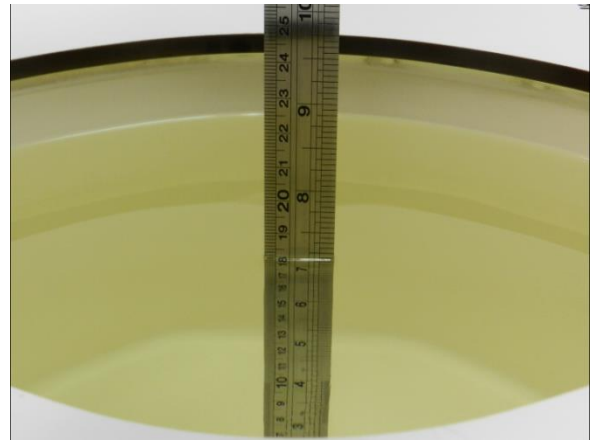


Fig 10.2 Photo of Liquid Height for Body SAR

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)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	HSL	22.4	0.926	43.313	0.89	41.90	4.04	3.37	±5	2018/8/21
750	HSL	22.4	0.891	42.746	0.89	41.90	0.11	2.02	±5	2018/8/21
750	MSL	22.4	0.969	53.578	0.96	55.50	0.94	-3.46	±5	2018/8/17
750	MSL	22.5	0.960	54.078	0.96	55.50	0.00	-2.56	±5	2018/8/19
750	MSL	22.5	1.005	55.784	0.96	55.50	4.69	0.51	±5	2018/8/19
835	HSL	22.5	0.867	41.438	0.90	41.50	-3.67	-0.15	±5	2018/8/20
835	MSL	22.2	0.958	55.079	0.97	55.20	-1.24	-0.22	±5	2018/8/15
835	MSL	22.2	0.958	55.079	0.97	55.20	-1.24	-0.22	±5	2018/8/15
835	MSL	22.4	0.954	55.009	0.97	55.20	-1.65	-0.35	±5	2018/8/16
1750	HSL	22.4	1.372	40.969	1.37	40.10	0.15	2.17	±5	2018/8/22
1750	HSL	22.4	1.372	40.969	1.37	40.10	0.15	2.17	±5	2018/8/22
1750	MSL	22.2	1.477	55.238	1.49	53.40	-0.87	3.44	±5	2018/8/24
1750	MSL	22.4	1.466	55.250	1.49	53.40	-1.61	3.46	±5	2018/8/24
1750	MSL	22.2	1.475	55.168	1.49	53.40	-1.01	3.31	±5	2018/9/4
1900	HSL	22.2	1.449	39.742	1.40	40.00	3.50	-0.65	±5	2018/8/15
1900	HSL	22.4	1.442	39.263	1.40	40.00	3.00	-1.84	±5	2018/8/22
1900	MSL	22.4	1.561	53.418	1.52	53.30	2.70	0.22	±5	2018/8/23
1900	MSL	22.5	1.554	51.750	1.52	53.30	2.24	-2.91	±5	2018/8/25
1900	MSL	22.2	1.555	52.619	1.52	53.30	2.30	-1.28	±5	2018/9/4
2300	HSL	22.4	1.669	40.020	1.67	39.50	-0.06	1.32	±5	2018/8/23
2300	MSL	22.6	1.803	52.910	1.81	52.90	-0.39	0.02	±5	2018/8/26
2450	HSL	22.4	1.860	38.800	1.80	39.20	3.33	-1.02	±5	2018/8/24
2450	HSL	22.6	1.831	38.378	1.80	39.20	1.72	-2.10	±5	2018/8/27
2450	MSL	22.6	1.981	52.171	1.95	52.70	1.59	-1.00	±5	2018/8/27
2600	HSL	22.4	2.001	38.808	1.96	39.00	2.09	-0.49	±5	2018/8/23
2600	MSL	22.6	2.203	51.861	2.16	52.50	1.99	-1.22	±5	2018/8/26
5250	HSL	22.5	4.578	37.437	4.71	35.95	-2.80	4.14	±5	2018/8/27
5250	MSL	22.6	5.104	50.159	5.36	48.95	-4.78	2.47	±5	2018/8/29
5250	MSL	22.6	5.339	47.592	5.36	48.95	-0.39	-2.77	±5	2018/8/30
5250	MSL	22.7	5.523	47.066	5.36	48.95	3.04	-3.85	±5	2018/9/3
5600	HSL	22.5	4.922	36.930	5.07	35.50	-2.92	4.03	±5	2018/8/27
5600	MSL	22.6	5.583	49.605	5.77	48.50	-3.24	2.28	±5	2018/8/29
5600	MSL	22.6	5.583	49.605	5.77	48.50	-3.24	2.28	±5	2018/8/29
5600	MSL	22.7	5.966	46.391	5.77	48.50	3.40	-4.35	±5	2018/9/3
5750	HSL	22.1	5.101	35.550	5.22	35.35	-2.28	0.57	±5	2018/8/28
5750	MSL	22.6	5.780	49.636	5.94	48.28	-2.69	2.81	±5	2018/8/29
5750	MSL	22.6	5.983	46.734	5.94	48.28	0.72	-3.20	±5	2018/8/30

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)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2018/8/21	750	HSL	250	D750V3-1107	EX3DV4 - SN3976	DAE4 Sn1424	2.19	8.18	8.76	7.09
2018/8/21	750	HSL	250	D750V3-1107	EX3DV4 - SN3976	DAE4 Sn1424	2.11	8.18	8.44	3.18
2018/8/17	750	MSL	250	D750V3-1107	EX3DV4 - SN3976	DAE4 Sn1424	2.25	8.52	9	5.63
2018/8/19	750	MSL	250	D750V3-1107	EX3DV4 - SN3976	DAE4 Sn1424	2.31	8.52	9.24	8.45
2018/8/19	750	MSL	250	D750V3-1107	EX3DV4 - SN3976	DAE4 Sn1424	2.26	8.52	9.04	6.10
2018/8/20	835	HSL	250	D835V2-4d167	EX3DV4 - SN3976	DAE4 Sn1424	2.40	9.26	9.6	3.67
2018/8/15	835	MSL	250	D835V2-4d167	EX3DV4 - SN3925	DAE3 Sn495	2.53	9.62	10.12	5.20
2018/8/15	835	MSL	250	D835V2-4d167	EX3DV4 - SN7306	DAE4 Sn853	2.51	9.62	10.04	4.37
2018/8/16	835	MSL	250	D835V2-4d167	EX3DV4 - SN3976	DAE4 Sn1424	2.46	9.62	9.84	2.29
2018/8/22	1750	HSL	250	D1750V2-1068	EX3DV4 - SN3976	DAE4 Sn1424	8.65	36.70	34.6	-5.72
2018/8/22	1750	HSL	250	D1750V2-1068	ES3DV3 - SN3170	DAE3 Sn577	8.74	36.70	34.96	-4.74
2018/8/24	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	9.73	37.20	38.92	4.62
2018/8/24	1750	MSL	250	D1750V2-1112	ES3DV3 - SN3169	DAE4 Sn854	8.93	38.10	35.72	-6.25
2018/9/4	1750	MSL	250	D1750V2-1112	EX3DV4 - SN3925	DAE4 Sn854	9.05	38.10	36.2	-4.99
2018/8/15	1900	HSL	250	D1900V4-5d185	EX3DV4 - SN7306	DAE4 Sn853	10.60	39.30	42.4	7.89
2018/8/22	1900	HSL	250	D1900V4-5d185	EX3DV4 - SN3976	DAE4 Sn1424	9.41	39.30	37.64	-4.22
2018/8/23	1900	MSL	250	D1900V4-5d185	EX3DV4 - SN3925	DAE3 Sn495	10.40	39.90	41.6	4.26
2018/8/25	1900	MSL	250	D1900V4-5d185	ES3DV3 - SN3169	DAE4 Sn854	9.80	39.90	39.2	-1.75
2018/9/4	1900	MSL	250	D1900V4-5d185	EX3DV4 - SN3925	DAE4 Sn854	10.00	39.90	40	0.25
2018/8/23	2300	HSL	250	D2300V2-1006	ES3DV3 - SN3169	DAE4 Sn854	11.60	48.70	46.4	-4.72
2018/8/26	2300	MSL	250	D2300V2-1006	ES3DV3 - SN3169	DAE4 Sn854	12.00	47.30	48	1.48
2018/8/24	2450	HSL	250	D2450V2-735	ES3DV3 - SN3170	DAE3 Sn577	13.00	51.40	52	1.17
2018/8/27	2450	HSL	250	D2450V2-735	EX3DV4 - SN7306	DAE3 Sn577	12.90	51.40	51.6	0.39
2018/8/27	2450	MSL	250	D2450V2-735	EX3DV4 - SN7306	DAE3 Sn577	12.20	50.60	48.8	-3.56
2018/8/23	2600	HSL	250	D2600V2-1078	ES3DV3 - SN3169	DAE4 Sn854	13.60	56.50	54.4	-3.72
2018/8/26	2600	MSL	250	D2600V2-1078	ES3DV3 - SN3169	DAE4 Sn854	14.20	54.10	56.8	4.99
2018/8/27	5250	HSL	100	D5GHZV2-1006	EX3DV4 - SN3925	DAE3 Sn495	7.62	78.30	76.2	-2.68
2018/8/29	5250	MSL	100	D5GHZV2-1006	EX3DV4 - SN7306	DAE4 Sn853	7.13	77.00	71.3	-7.40
2018/8/30	5250	MSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE3 Sn495	7.44	77.00	74.4	-3.38
2018/9/3	5250	MSL	100	D5GHZV2-1006	EX3DV4 - SN3925	DAE4 Sn854	8.23	77.00	82.3	6.88
2018/8/27	5600	HSL	100	D5GHZV2-1006	EX3DV4 - SN3925	DAE3 Sn495	8.26	85.00	82.6	-2.82
2018/8/29	5600	MSL	100	D5GHZV2-1006	EX3DV4 - SN7306	DAE4 Sn853	7.29	80.10	72.9	-8.99
2018/8/29	5600	MSL	100	D5GHZV2-1006	EX3DV4 - SN3976	DAE4 Sn1424	7.52	80.10	75.2	-6.12
2018/9/3	5600	MSL	100	D5GHZV2-1006	EX3DV4 - SN3925	DAE4 Sn854	8.71	80.10	87.1	8.74
2018/8/28	5750	HSL	100	D5GHZV2-1006	EX3DV4 - SN3925	DAE3 Sn495	7.59	78.50	75.9	-3.31
2018/8/29	5750	MSL	100	D5GHZV2-1006	EX3DV4 - SN3976	DAE4 Sn1424	7.26	75.10	72.6	-3.33
2018/8/30	5750	MSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE3 Sn495	7.06	75.10	70.6	-5.99

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2018/9/4	1750	MSL	250	D1750V2-1112	EX3DV4 - SN3925	DAE4 Sn854	4.87	20.20	19.48	-3.56
2018/9/4	1900	MSL	250	D1900V4-5d185	EX3DV4 - SN3925	DAE4 Sn854	5.19	20.80	20.76	-0.19
2018/8/26	2300	MSL	250	D2300V2-1006	ES3DV3 - SN3169	DAE4 Sn854	5.84	22.80	23.36	2.46
2018/9/3	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3925	DAE4 Sn854	2.23	21.30	22.3	4.69
2018/9/3	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3925	DAE4 Sn854	2.31	22.40	23.1	3.13

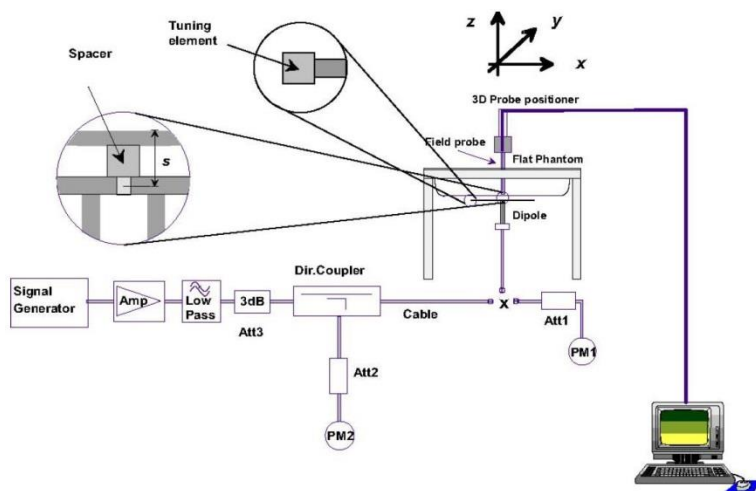

Fig 8.3.1 System Performance Check Setup

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.

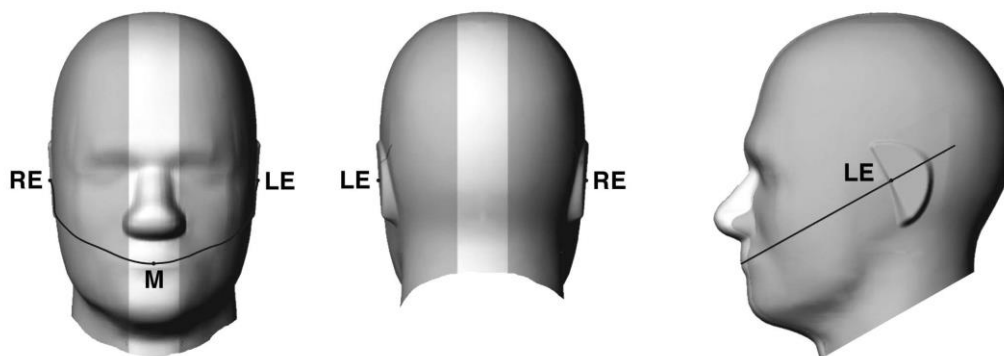


Fig 9.1.1 Front, back, and side views of SAM twin phantom

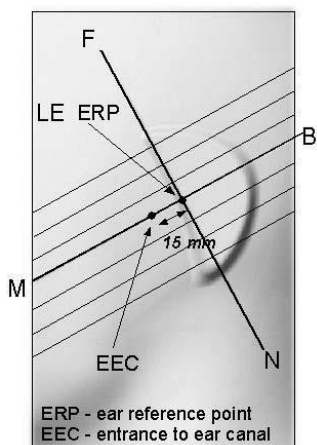


Fig 9.1.2 Close-up side view of phantom showing the ear region.

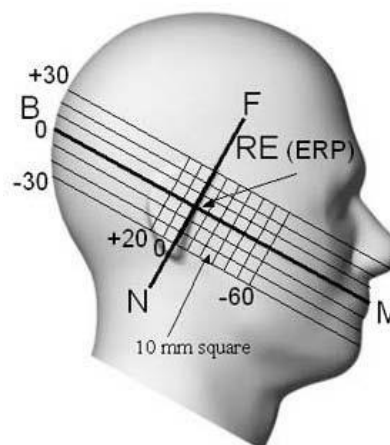


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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.

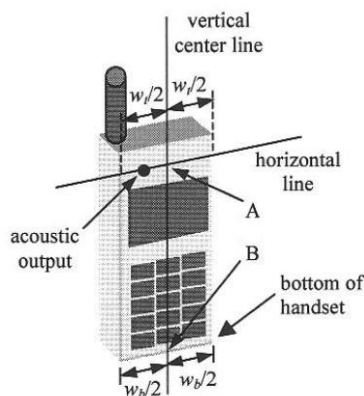


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case"

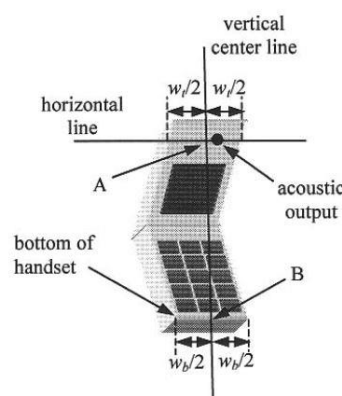


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

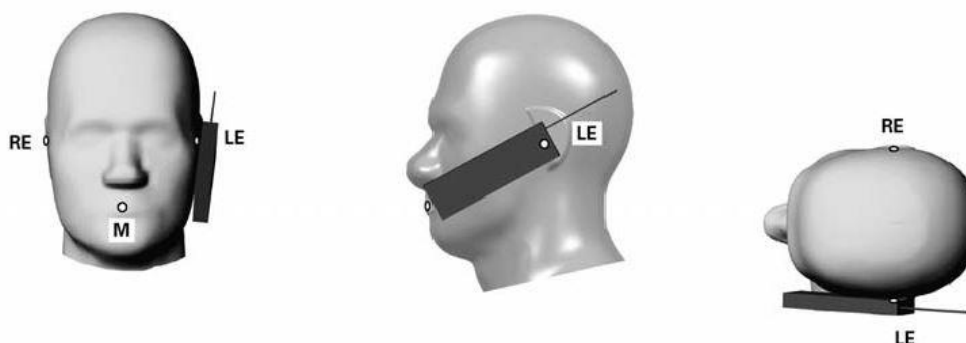


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

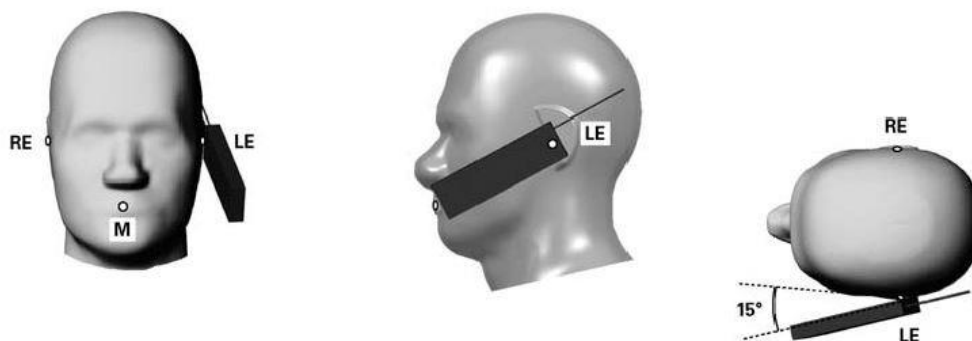


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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 handset attached to the handset.

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

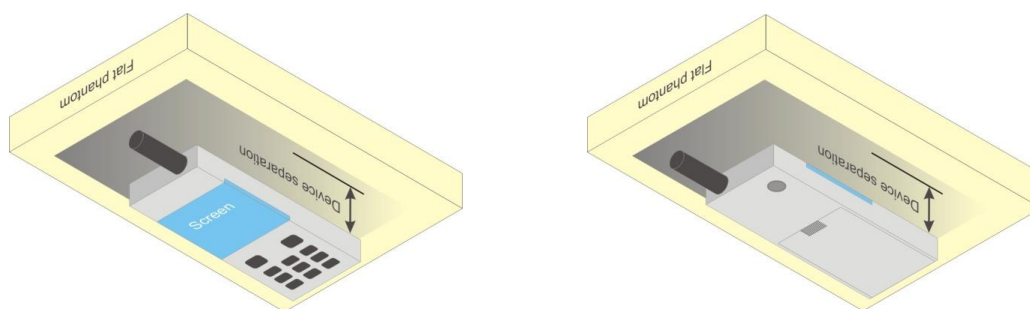


Fig 9.4 Body Worn Position



10.5 Extremity Exposure

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

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 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 ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) 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. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850 and GPRS (3Tx slots) for GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode
4. Power reduction which is triggered by hotspot mode is implemented in GSM1900 band, for hotspot mode SAR testing EUT was set in reduced power mode and GPRS 3Tx slot due to its highest frame-average power.

<Default Power Mode>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.58	32.45	32.62	33.00	23.58	23.45	23.62	24.00
GPRS 1 Tx slot	32.61	32.48	32.65	33.00	23.61	23.48	23.65	24.00
GPRS 2 Tx slots	29.45	29.31	29.29	29.50	23.45	23.31	23.29	23.50
GPRS 3 Tx slots	28.09	27.94	27.95	28.50	23.83	23.68	23.69	24.24
GPRS 4 Tx slots	27.58	27.29	27.18	28.00	24.58	24.29	24.18	25.00
EDGE 1 Tx slot	26.67	26.37	26.32	27.00	17.67	17.37	17.32	18.00
EDGE 2 Tx slots	24.86	25.11	24.87	25.50	18.86	19.11	18.87	19.50
EDGE 3 Tx slots	24.10	23.92	23.75	24.50	19.84	19.66	19.49	20.24
EDGE 4 Tx slots	22.75	22.46	22.57	23.00	19.75	19.46	19.57	20.00

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	30.28	30.25	30.12	30.50	21.28	21.25	21.12	21.50
GPRS 1 Tx slot	30.30	30.26	30.15	30.50	21.30	21.26	21.15	21.50
GPRS 2 Tx slots	27.26	27.40	27.35	27.50	21.26	21.40	21.35	21.50
GPRS 3 Tx slots	25.30	25.29	25.26	26.00	21.04	21.03	21.00	21.74
GPRS 4 Tx slots	23.84	23.92	23.86	24.50	20.84	20.92	20.86	21.50
EDGE 1 Tx slot	24.72	24.71	24.57	25.00	15.72	15.71	15.57	16.00
EDGE 2 Tx slots	22.84	22.53	22.19	23.00	16.84	16.53	16.19	17.00
EDGE 3 Tx slots	21.54	21.26	20.99	22.00	17.28	17.00	16.73	17.74
EDGE 4 Tx slots	21.29	20.99	20.68	21.50	18.29	17.99	17.68	18.50

<Reduced Power Mode>

GSM1900 TX Channel	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
	1850.2	1880	1909.8		1850.2	1880	1909.8	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	26.10	26.22	26.32	26.50	17.10	17.22	17.32	17.50
GPRS 1 Tx slot	26.10	26.23	26.35	26.50	17.10	17.23	17.35	17.50
GPRS 2 Tx slots	23.83	23.91	23.97	24.00	17.83	17.91	17.97	18.00
GPRS 3 Tx slots	22.74	22.76	22.75	23.00	18.48	18.50	18.49	18.74
GPRS 4 Tx slots	21.37	21.40	21.40	21.50	18.37	18.40	18.40	18.50
EDGE 1 Tx slot	21.17	21.15	21.11	21.50	12.17	12.15	12.11	12.50
EDGE 2 Tx slots	19.24	19.14	19.07	19.50	13.24	13.14	13.07	13.50
EDGE 3 Tx slots	18.14	18.02	17.83	18.50	13.88	13.76	13.57	14.24
EDGE 4 Tx slots	17.77	17.74	17.65	18.00	14.77	14.74	14.65	15.00

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set Gain Factors (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 DPDCCH, 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	β_{ed1} : 47/15 β_{ed2} : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	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

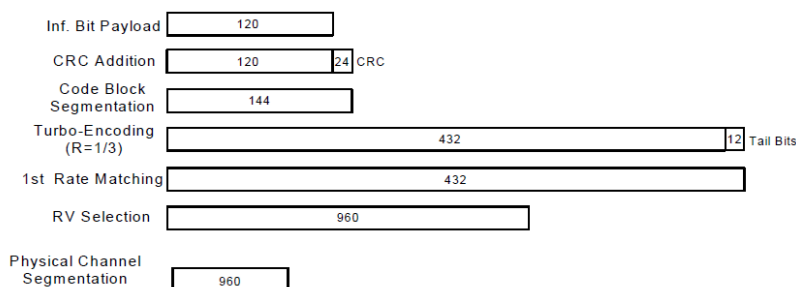
DC-HSDPA 3GPP release 8 Setup Configuration:

- 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.

<Default Power Mode>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	22.40	22.39	22.48	22.50	21.86	21.76	21.70	22.00	23.31	23.21	23.19	23.50
3GPP Rel 99	RMC 12.2Kbps	22.40	22.42	22.50	22.50	21.87	21.79	21.72	22.00	23.33	23.22	23.20	23.50
3GPP Rel 6	HSDPA Subtest-1	21.39	21.36	21.40	21.50	20.89	20.88	20.75	21.00	22.40	22.35	22.37	22.50
3GPP Rel 6	HSDPA Subtest-2	21.35	21.34	21.39	21.50	20.91	20.82	20.80	21.00	22.42	22.36	22.36	22.50
3GPP Rel 6	HSDPA Subtest-3	20.91	20.89	20.88	21.00	20.47	20.36	20.35	20.50	21.95	21.98	21.90	22.00
3GPP Rel 6	HSDPA Subtest-4	20.87	20.90	20.90	21.00	20.41	20.29	20.29	20.50	21.93	21.96	21.91	22.00
3GPP Rel 8	DC-HSDPA Subtest-1	21.37	21.38	21.41	21.50	20.93	20.85	20.75	21.00	22.42	22.35	22.37	22.50
3GPP Rel 8	DC-HSDPA Subtest-2	21.36	21.35	21.37	21.50	20.87	20.91	20.83	21.00	22.41	22.37	22.36	22.50
3GPP Rel 8	DC-HSDPA Subtest-3	20.89	20.91	20.90	21.00	20.45	20.42	20.33	20.50	21.92	21.96	21.92	22.00
3GPP Rel 8	DC-HSDPA Subtest-4	20.88	20.90	20.92	21.00	20.42	20.36	20.30	20.50	21.93	21.94	21.90	22.00
3GPP Rel 6	HSUPA Subtest-1	21.37	21.36	21.38	21.50	20.92	20.85	20.74	21.00	22.29	22.15	22.23	22.50
3GPP Rel 6	HSUPA Subtest-2	19.32	19.31	19.33	19.50	18.88	18.83	18.77	19.00	20.31	20.12	20.17	20.50
3GPP Rel 6	HSUPA Subtest-3	20.36	20.35	20.40	20.50	19.91	19.80	19.72	20.00	21.31	21.13	21.23	21.50
3GPP Rel 6	HSUPA Subtest-4	19.36	19.35	19.38	19.50	18.85	18.80	18.72	19.00	20.28	20.17	20.19	20.50
3GPP Rel 6	HSUPA Subtest-5	21.40	21.30	21.40	21.50	20.90	20.90	20.84	21.00	22.20	22.10	22.20	22.50

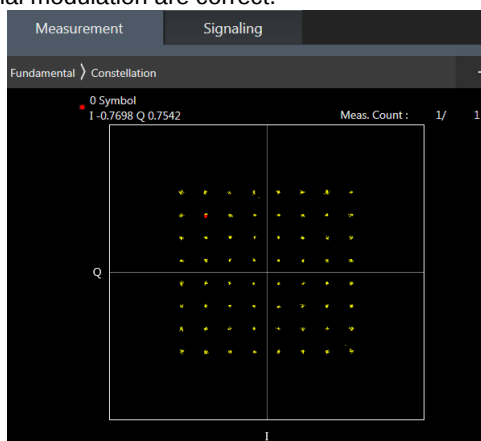
<Reduced Power Mode>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	19.15	19.11	19.25	19.50	19.30	19.15	19.05	19.50
3GPP Rel 99	RMC 12.2Kbps	19.18	19.18	19.28	19.50	19.34	19.18	19.08	19.50
3GPP Rel 6	HSDPA Subtest-1	18.18	18.20	17.76	18.50	18.32	18.28	17.87	18.50
3GPP Rel 6	HSDPA Subtest-2	17.86	18.20	18.16	18.50	17.87	18.20	18.27	18.50
3GPP Rel 6	HSDPA Subtest-3	17.76	17.65	18.22	18.50	18.22	18.15	17.67	18.50
3GPP Rel 6	HSDPA Subtest-4	18.26	17.69	17.68	18.50	17.61	18.05	18.03	18.50
3GPP Rel 8	DC-HSDPA Subtest-1	18.05	18.06	17.65	18.50	18.24	18.24	17.78	18.50
3GPP Rel 8	DC-HSDPA Subtest-2	17.76	18.07	17.96	18.50	17.69	18.10	18.13	18.50
3GPP Rel 8	DC-HSDPA Subtest-3	17.61	17.48	18.21	18.50	18.18	18.09	17.60	18.50
3GPP Rel 8	DC-HSDPA Subtest-4	18.22	17.59	17.58	18.50	17.45	17.95	17.84	18.50
3GPP Rel 6	HSUPA Subtest-1	18.14	18.19	18.24	18.50	18.28	18.11	18.14	18.50
3GPP Rel 6	HSUPA Subtest-2	16.10	16.13	16.13	16.50	16.27	16.17	16.24	16.50
3GPP Rel 6	HSUPA Subtest-3	17.15	17.19	17.25	17.50	17.24	17.21	17.18	17.50
3GPP Rel 6	HSUPA Subtest-4	16.30	16.03	16.22	16.50	16.27	16.08	16.14	16.50
3GPP Rel 6	HSUPA Subtest-5	18.15	18.15	17.82	18.50	18.22	18.13	17.85	18.50

<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 B12 / 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 4 / 5 / 17 / 38 SAR test was covered by Band 66 / 26 / 12 / 41; 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	21.50	21.52	21.67	22	0
20	QPSK	1	49	21.33	21.30	21.53		
20	QPSK	1	99	21.36	21.21	21.46		
20	QPSK	50	0	20.48	20.46	20.58	21	1
20	QPSK	50	24	20.39	20.38	20.55		
20	QPSK	50	50	20.44	20.31	20.54		
20	QPSK	100	0	20.52	20.37	20.56	21	1
20	16QAM	1	0	20.78	20.84	20.94		
20	16QAM	1	49	20.53	20.65	20.77		
20	16QAM	1	99	20.68	20.64	20.78	20	2
20	16QAM	50	0	19.54	19.52	19.64		
20	16QAM	50	24	19.48	19.51	19.67		
20	16QAM	50	50	19.55	19.45	19.64	20	2
20	16QAM	100	0	19.52	19.46	19.59		
20	64QAM	1	0	19.70	19.72	19.93		
20	64QAM	1	49	19.52	19.54	19.56	20	2
20	64QAM	1	99	19.55	19.42	19.73		
20	64QAM	50	0	18.53	18.52	18.57		
20	64QAM	50	24	18.47	18.47	18.66	19	3
20	64QAM	50	50	18.51	18.44	18.60		
20	64QAM	100	0	18.58	18.51	18.58		
Channel				18675	18900	19125		
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.50	21.46	21.69	22	0
15	QPSK	1	37	21.31	21.27	21.41		
15	QPSK	1	74	21.31	21.28	21.48		
15	QPSK	36	0	20.45	20.39	20.59	21	1
15	QPSK	36	20	20.38	20.38	20.57		
15	QPSK	36	39	20.36	20.37	20.51		
15	QPSK	75	0	20.33	20.38	20.56	21	1
15	16QAM	1	0	20.79	20.82	20.84		
15	16QAM	1	37	20.56	20.55	20.73		
15	16QAM	1	74	20.69	20.67	20.76	20	2
15	16QAM	36	0	19.54	19.48	19.64		
15	16QAM	36	20	19.45	19.50	19.64		
15	16QAM	36	39	19.42	19.46	19.60	20	2
15	16QAM	75	0	19.46	19.44	19.64		
15	64QAM	1	0	19.76	19.74	19.91		
15	64QAM	1	37	19.57	19.59	19.66	20	2
15	64QAM	1	74	19.55	19.60	19.89		
15	64QAM	36	0	18.55	18.50	18.67		
15	64QAM	36	20	18.51	18.45	18.69	19	3
15	64QAM	36	39	18.46	18.47	18.67		
15	64QAM	75	0	18.44	18.46	18.63		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.37	21.32	21.54	22	0
10	QPSK	1	25	21.33	21.30	21.49		
10	QPSK	1	49	21.24	21.26	21.49		
10	QPSK	25	0	20.38	20.37	20.59	21	1
10	QPSK	25	12	20.36	20.37	20.53		
10	QPSK	25	25	20.38	20.30	20.50		
10	QPSK	50	0	20.41	20.39	20.50		
10	16QAM	1	0	20.73	20.67	20.88	21	1
10	16QAM	1	25	20.67	20.67	20.74		
10	16QAM	1	49	20.58	20.60	20.87		
10	16QAM	25	0	19.49	19.45	19.63	20	2
10	16QAM	25	12	19.48	19.45	19.62		
10	16QAM	25	25	19.43	19.41	19.59		
10	16QAM	50	0	19.49	19.44	19.64		
10	64QAM	1	0	19.61	19.54	19.80	20	2
10	64QAM	1	25	19.47	19.56	19.69		
10	64QAM	1	49	19.55	19.49	19.71		
10	64QAM	25	0	18.47	18.47	18.62	19	3
10	64QAM	25	12	18.48	18.48	18.61		
10	64QAM	25	25	18.43	18.42	18.60		
10	64QAM	50	0	18.46	18.47	18.62		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.40	21.29	21.49	22	0
5	QPSK	1	12	21.33	21.31	21.40		
5	QPSK	1	24	21.26	21.29	21.40		
5	QPSK	12	0	20.40	20.33	20.54	21	1
5	QPSK	12	7	20.36	20.35	20.53		
5	QPSK	12	13	20.44	20.32	20.48		
5	QPSK	25	0	20.36	20.33	20.47		
5	16QAM	1	0	20.62	20.59	20.82	21	1
5	16QAM	1	12	20.71	20.64	20.76		
5	16QAM	1	24	20.53	20.55	20.84		
5	16QAM	12	0	19.48	19.43	19.60	20	2
5	16QAM	12	7	19.46	19.42	19.62		
5	16QAM	12	13	19.45	19.43	19.53		
5	16QAM	25	0	19.46	19.41	19.57		
5	64QAM	1	0	19.54	19.66	19.81	20	2
5	64QAM	1	12	19.61	19.58	19.67		
5	64QAM	1	24	19.57	19.55	19.71		
5	64QAM	12	0	18.48	18.45	18.64	19	3
5	64QAM	12	7	18.49	18.44	18.65		
5	64QAM	12	13	18.45	18.43	18.57		
5	64QAM	25	0	18.43	18.42	18.57		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.37	21.35	21.49	22	0
3	QPSK	1	8	21.25	21.28	21.41		
3	QPSK	1	14	21.19	21.19	21.30		
3	QPSK	8	0	20.33	20.33	20.47	21	1
3	QPSK	8	4	20.30	20.36	20.41		
3	QPSK	8	7	20.23	20.30	20.43		
3	QPSK	15	0	20.28	20.24	20.48		
3	16QAM	1	0	20.55	20.44	20.81	21	1
3	16QAM	1	8	20.53	20.51	20.75		
3	16QAM	1	14	20.54	20.40	20.69		
3	16QAM	8	0	19.46	19.47	19.48	20	2
3	16QAM	8	4	19.40	19.43	19.49		
3	16QAM	8	7	19.34	19.35	19.45		
3	16QAM	15	0	19.40	19.33	19.54		
3	64QAM	1	0	19.59	19.48	19.64	20	2
3	64QAM	1	8	19.45	19.52	19.58		
3	64QAM	1	14	19.40	19.39	19.63		
3	64QAM	8	0	18.42	18.33	18.47	19	3
3	64QAM	8	4	18.33	18.35	18.58		
3	64QAM	8	7	18.31	18.33	18.50		
3	64QAM	15	0	18.29	18.35	18.57		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.07	21.03	21.29	22	0
1.4	QPSK	1	3	21.13	21.07	21.36		
1.4	QPSK	1	5	21.07	20.99	21.29		
1.4	QPSK	3	0	21.11	21.05	21.32		
1.4	QPSK	3	1	21.14	21.12	21.35		
1.4	QPSK	3	3	21.12	21.09	21.33		
1.4	QPSK	6	0	20.12	20.03	20.30	21	1
1.4	16QAM	1	0	20.41	20.39	20.63	21	1
1.4	16QAM	1	3	20.49	20.43	20.74		
1.4	16QAM	1	5	20.41	20.34	20.52		
1.4	16QAM	3	0	20.17	20.13	20.42		
1.4	16QAM	3	1	20.27	20.14	20.37		
1.4	16QAM	3	3	20.14	20.14	20.37		
1.4	16QAM	6	0	19.25	19.22	19.42	20	2
1.4	64QAM	1	0	19.33	19.31	19.57	20	2
1.4	64QAM	1	3	19.37	19.36	19.55		
1.4	64QAM	1	5	19.34	19.24	19.50		
1.4	64QAM	3	0	19.32	19.26	19.48		
1.4	64QAM	3	1	19.33	19.27	19.51		
1.4	64QAM	3	3	19.25	19.25	19.49		
1.4	64QAM	6	0	18.21	18.07	18.39	19	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	21.76	21.72	21.68		
20	QPSK	1	49	21.60	21.49	21.54	22	0
20	QPSK	1	99	21.54	21.48	21.55		
20	QPSK	50	0	20.72	20.66	20.60		
20	QPSK	50	24	20.68	20.65	20.57	21	1
20	QPSK	50	50	20.62	20.57	20.58		
20	QPSK	100	0	20.69	20.62	20.58		
20	16QAM	1	0	20.89	20.96	20.86	21	1
20	16QAM	1	49	20.82	20.80	20.90		
20	16QAM	1	99	20.86	20.78	20.94		
20	16QAM	50	0	19.85	19.81	19.69	20	2
20	16QAM	50	24	19.74	19.73	19.63		
20	16QAM	50	50	19.67	19.67	19.70		
20	16QAM	100	0	19.76	19.73	19.63	20	2
20	64QAM	1	0	19.90	19.83	19.95		
20	64QAM	1	49	19.71	19.69	19.81		
20	64QAM	1	99	19.77	19.68	19.81	19	3
20	64QAM	50	0	18.84	18.78	18.72		
20	64QAM	50	24	18.79	18.75	18.64		
20	64QAM	50	50	18.72	18.64	18.69	19	3
20	64QAM	100	0	18.73	18.71	18.68		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.75	21.66	21.64		
15	QPSK	1	37	21.56	21.48	21.51	22	0
15	QPSK	1	74	21.61	21.54	21.56		
15	QPSK	36	0	20.68	20.66	20.56	21	1
15	QPSK	36	20	20.64	20.54	20.62		
15	QPSK	36	39	20.65	20.58	20.58		
15	QPSK	75	0	20.64	20.58	20.55	21	1
15	16QAM	1	0	20.85	20.83	20.90		
15	16QAM	1	37	20.87	20.82	20.78		
15	16QAM	1	74	20.89	20.91	20.96	20	2
15	16QAM	36	0	19.78	19.75	19.64		
15	16QAM	36	20	19.78	19.62	19.73		
15	16QAM	36	39	19.75	19.65	19.65	20	2
15	16QAM	75	0	19.77	19.70	19.63		
15	64QAM	1	0	19.96	19.93	19.88		
15	64QAM	1	37	19.83	19.77	19.79	20	2
15	64QAM	1	74	19.81	19.76	19.79		
15	64QAM	36	0	18.84	18.78	18.71		
15	64QAM	36	20	18.78	18.74	18.71	19	3
15	64QAM	36	39	18.71	18.62	18.69		
15	64QAM	75	0	18.81	18.70	18.64		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.68	21.61	21.62	22	0
10	QPSK	1	25	21.54	21.47	21.51		
10	QPSK	1	49	21.53	21.45	21.50		
10	QPSK	25	0	20.66	20.56	20.62	21	1
10	QPSK	25	12	20.68	20.56	20.59		
10	QPSK	25	25	20.60	20.55	20.51		
10	QPSK	50	0	20.67	20.59	20.55	21	1
10	16QAM	1	0	20.92	20.92	20.87		
10	16QAM	1	25	20.88	20.83	20.89		
10	16QAM	1	49	20.85	20.79	20.75	20	2
10	16QAM	25	0	19.79	19.71	19.71		
10	16QAM	25	12	19.71	19.64	19.73		
10	16QAM	25	25	19.68	19.62	19.65	20	2
10	16QAM	50	0	19.78	19.67	19.69		
10	64QAM	1	0	19.86	19.77	19.88		
10	64QAM	1	25	19.77	19.72	19.86	20	2
10	64QAM	1	49	19.81	19.76	19.82		
10	64QAM	25	0	18.75	18.74	18.72		
10	64QAM	25	12	18.75	18.66	18.71	19	3
10	64QAM	25	25	18.72	18.65	18.68		
10	64QAM	50	0	18.78	18.69	18.68		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.62	21.51	21.56	22	0
5	QPSK	1	12	21.57	21.53	21.47		
5	QPSK	1	24	21.53	21.44	21.48		
5	QPSK	12	0	20.62	20.53	20.59	21	1
5	QPSK	12	7	20.68	20.60	20.55		
5	QPSK	12	13	20.64	20.56	20.52		
5	QPSK	25	0	20.61	20.51	20.57	21	1
5	16QAM	1	0	20.88	20.94	20.91		
5	16QAM	1	12	20.95	20.82	20.84		
5	16QAM	1	24	20.95	20.78	20.78	20	2
5	16QAM	12	0	19.73	19.64	19.62		
5	16QAM	12	7	19.74	19.66	19.70		
5	16QAM	12	13	19.70	19.57	19.64	20	2
5	16QAM	25	0	19.76	19.63	19.66		
5	64QAM	1	0	19.85	19.78	19.83		
5	64QAM	1	12	19.83	19.70	19.81	20	2
5	64QAM	1	24	19.80	19.76	19.79		
5	64QAM	12	0	18.78	18.67	18.66		
5	64QAM	12	7	18.78	18.71	18.70	19	3
5	64QAM	12	13	18.78	18.69	18.66		
5	64QAM	25	0	18.74	18.62	18.65		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.61	21.53	21.55	22	0
3	QPSK	1	8	21.43	21.43	21.40		
3	QPSK	1	14	21.52	21.37	21.41		
3	QPSK	8	0	20.62	20.50	20.48	21	1
3	QPSK	8	4	20.69	20.49	20.47		
3	QPSK	8	7	20.58	20.49	20.43		
3	QPSK	15	0	20.60	20.49	20.49		
3	16QAM	1	0	20.98	20.81	20.87	21	1
3	16QAM	1	8	20.81	20.79	20.66		
3	16QAM	1	14	20.84	20.73	20.69		
3	16QAM	8	0	19.73	19.56	19.65	20	2
3	16QAM	8	4	19.66	19.67	19.64		
3	16QAM	8	7	19.63	19.59	19.54		
3	16QAM	15	0	19.70	19.57	19.59		
3	64QAM	1	0	19.97	19.81	19.83	20	2
3	64QAM	1	8	19.75	19.57	19.69		
3	64QAM	1	14	19.60	19.57	19.62		
3	64QAM	8	0	18.73	18.65	18.63	19	3
3	64QAM	8	4	18.64	18.54	18.60		
3	64QAM	8	7	18.62	18.61	18.57		
3	64QAM	15	0	18.70	18.56	18.63		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.55	21.39	21.33	22	0
1.4	QPSK	1	3	21.63	21.49	21.42		
1.4	QPSK	1	5	21.53	21.44	21.31		
1.4	QPSK	3	0	21.59	21.48	21.37		
1.4	QPSK	3	1	21.62	21.50	21.39		
1.4	QPSK	3	3	21.57	21.49	21.32		
1.4	QPSK	6	0	20.55	20.44	20.35	21	1
1.4	16QAM	1	0	20.95	20.72	20.61	21	1
1.4	16QAM	1	3	20.97	20.86	20.62		
1.4	16QAM	1	5	20.84	20.65	20.62		
1.4	16QAM	3	0	20.61	20.51	20.41		
1.4	16QAM	3	1	20.66	20.60	20.42		
1.4	16QAM	3	3	20.65	20.53	20.41		
1.4	16QAM	6	0	19.71	19.63	19.50	20	2
1.4	64QAM	1	0	19.81	19.68	19.55	20	2
1.4	64QAM	1	3	19.87	19.76	19.66		
1.4	64QAM	1	5	19.80	19.60	19.57		
1.4	64QAM	3	0	19.76	19.63	19.53		
1.4	64QAM	3	1	19.77	19.71	19.55		
1.4	64QAM	3	3	19.73	19.66	19.53		
1.4	64QAM	6	0	18.66	18.55	18.43	19	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	23.87	23.85	23.81	24	0
10	QPSK	1	25	23.84	23.84	23.80		
10	QPSK	1	49	23.85	23.77	23.74		
10	QPSK	25	0	22.96	22.93	22.85	23	1
10	QPSK	25	12	22.93	22.92	22.80		
10	QPSK	25	25	22.95	22.83	22.81		
10	QPSK	50	0	22.90	22.86	22.76		
10	16QAM	1	0	22.82	22.82	22.83	23	1
10	16QAM	1	25	22.87	22.87	22.83		
10	16QAM	1	49	22.92	22.80	22.87		
10	16QAM	25	0	21.81	21.81	21.90	22	2
10	16QAM	25	12	21.99	21.81	21.96		
10	16QAM	25	25	21.87	21.93	21.91		
10	16QAM	50	0	22.00	21.94	21.85		
10	64QAM	1	0	21.85	21.86	21.91	22	2
10	64QAM	1	25	21.87	21.88	21.80		
10	64QAM	1	49	21.82	21.83	22.00		
10	64QAM	25	0	20.83	20.85	20.87	21	3
10	64QAM	25	12	20.82	20.98	20.96		
10	64QAM	25	25	20.83	20.96	20.89		
10	64QAM	50	0	20.83	21.00	20.87		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	23.80	23.86	23.81	24	0
5	QPSK	1	12	23.76	23.84	23.77		
5	QPSK	1	24	23.82	23.84	23.77		
5	QPSK	12	0	22.82	22.89	22.84	23	1
5	QPSK	12	7	22.95	22.87	22.83		
5	QPSK	12	13	22.91	22.82	22.79		
5	QPSK	25	0	22.91	22.85	22.81		
5	16QAM	1	0	22.82	22.91	22.81	23	1
5	16QAM	1	12	22.83	22.88	22.87		
5	16QAM	1	24	22.89	22.85	22.85		
5	16QAM	12	0	21.92	21.95	21.90	22	2
5	16QAM	12	7	21.82	21.98	21.90		
5	16QAM	12	13	21.96	21.97	21.84		
5	16QAM	25	0	22.00	21.98	21.88		
5	64QAM	1	0	21.89	21.85	21.86	22	2
5	64QAM	1	12	21.82	21.86	21.99		
5	64QAM	1	24	21.89	21.87	21.99		
5	64QAM	12	0	20.97	20.84	20.94	21	3
5	64QAM	12	7	20.85	20.85	20.96		
5	64QAM	12	13	20.84	20.97	20.91		
5	64QAM	25	0	20.83	20.96	20.90		



FCC SAR TEST REPORT

Report No. : FA871722

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	23.80	23.86	23.78	24	0
3	QPSK	1	8	23.75	23.83	23.75		
3	QPSK	1	14	23.77	23.81	23.72		
3	QPSK	8	0	22.85	22.87	22.76	23	1
3	QPSK	8	4	22.81	22.87	22.81		
3	QPSK	8	7	22.80	22.86	22.79		
3	QPSK	15	0	22.80	22.84	22.78		
3	16QAM	1	0	22.89	22.89	22.85	23	1
3	16QAM	1	8	22.81	22.87	22.85		
3	16QAM	1	14	22.82	22.82	22.84		
3	16QAM	8	0	21.97	21.82	21.89	22	2
3	16QAM	8	4	21.96	21.81	21.91		
3	16QAM	8	7	21.92	21.99	21.91		
3	16QAM	15	0	21.91	21.94	21.88		
3	64QAM	1	0	21.83	21.89	22.00	22	2
3	64QAM	1	8	21.82	21.88	21.98		
3	64QAM	1	14	21.99	21.87	21.97		
3	64QAM	8	0	20.94	20.99	20.90	21	3
3	64QAM	8	4	20.95	20.81	20.92		
3	64QAM	8	7	20.93	20.97	20.91		
3	64QAM	15	0	20.94	20.97	20.88		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.70	23.76	23.67	24	0
1.4	QPSK	1	3	23.77	23.84	23.73		
1.4	QPSK	1	5	23.68	23.74	23.64		
1.4	QPSK	3	0	23.75	23.81	23.68		
1.4	QPSK	3	1	23.78	23.84	23.72		
1.4	QPSK	3	3	23.74	23.80	23.71		
1.4	QPSK	6	0	22.73	22.77	22.68	23	1
1.4	16QAM	1	0	23.00	22.87	22.93	23	1
1.4	16QAM	1	3	22.81	22.82	22.81		
1.4	16QAM	1	5	22.81	22.86	22.96		
1.4	16QAM	3	0	22.83	22.88	22.77		
1.4	16QAM	3	1	22.87	22.90	22.81		
1.4	16QAM	3	3	22.82	22.87	22.76		
1.4	16QAM	6	0	21.91	21.93	21.83	22	2
1.4	64QAM	1	0	21.97	21.81	21.92	22	2
1.4	64QAM	1	3	21.85	21.88	21.96		
1.4	64QAM	1	5	21.95	21.81	21.89		
1.4	64QAM	3	0	21.94	22.00	21.90		
1.4	64QAM	3	1	21.99	21.83	21.93		
1.4	64QAM	3	3	21.94	22.00	21.91		
1.4	64QAM	6	0	20.83	20.87	20.78	21	3

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	24.50	24.49	24.35	24.5	0
20	QPSK	1	49	24.44	24.30	24.18		
20	QPSK	1	99	24.44	24.32	24.22		
20	QPSK	50	0	23.50	23.23	23.31	23.5	1
20	QPSK	50	24	23.33	23.17	23.25		
20	QPSK	50	50	23.30	23.10	23.24		
20	QPSK	100	0	23.33	22.80	23.00	23.5	1
20	16QAM	1	0	23.41	23.43	23.35		
20	16QAM	1	49	23.43	23.38	23.50		
20	16QAM	1	99	23.43	23.32	23.34	22.5	2
20	16QAM	50	0	21.37	22.50	22.43		
20	16QAM	50	24	21.33	22.39	22.36		
20	16QAM	50	50	21.30	22.40	22.33	22.5	2
20	16QAM	100	0	21.32	22.09	22.35		
20	64QAM	1	0	21.46	22.40	21.32		
20	64QAM	1	49	22.40	22.32	22.47	22.5	2
20	64QAM	1	99	22.46	22.38	22.48		
20	64QAM	50	0	21.38	21.34	21.44		
20	64QAM	50	24	21.32	21.47	21.38	21.5	3
20	64QAM	50	50	21.30	21.47	21.34		
20	64QAM	100	0	21.34	21.35	21.37		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	24.49	24.42	24.30	24.5	0
15	QPSK	1	37	24.44	24.32	24.18		
15	QPSK	1	74	24.48	24.34	24.19		
15	QPSK	36	0	23.35	23.31	23.27	23.5	1
15	QPSK	36	20	23.35	23.18	23.23		
15	QPSK	36	39	23.49	23.14	23.20		
15	QPSK	75	0	23.34	22.93	23.22	23.5	1
15	16QAM	1	0	23.40	23.41	23.33		
15	16QAM	1	37	23.47	23.38	23.49		
15	16QAM	1	74	23.44	23.39	23.48	22.5	2
15	16QAM	36	0	22.36	22.48	22.39		
15	16QAM	36	20	22.33	22.46	22.36		
15	16QAM	36	39	22.39	22.46	22.31	22.5	2
15	16QAM	75	0	22.31	22.27	22.33		
15	64QAM	1	0	22.45	21.36	21.54		
15	64QAM	1	37	21.44	22.49	22.40	22.5	2
15	64QAM	1	74	21.40	21.34	22.43		
15	64QAM	36	0	21.41	21.33	21.41		
15	64QAM	36	20	21.40	21.31	21.40	21.5	3
15	64QAM	36	39	21.32	21.49	21.34		
15	64QAM	75	0	21.34	21.38	21.36		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	24.49	24.26	24.21	24.5	0
10	QPSK	1	25	24.45	24.25	24.14		
10	QPSK	1	49	24.41	24.25	24.12		
10	QPSK	25	0	23.49	23.26	23.21	23.5	1
10	QPSK	25	12	23.49	23.24	23.18		
10	QPSK	25	25	23.43	23.15	23.18		
10	QPSK	50	0	23.47	22.78	23.02	23.5	1
10	16QAM	1	0	23.48	23.36	23.32		
10	16QAM	1	25	23.48	23.34	23.45		
10	16QAM	1	49	23.46	23.32	23.41	22.5	2
10	16QAM	25	0	22.30	22.38	22.30		
10	16QAM	25	12	22.30	22.45	22.30		
10	16QAM	25	25	22.31	22.38	22.29	22.5	2
10	16QAM	50	0	22.38	22.13	22.27		
10	64QAM	1	0	22.48	22.37	22.49		
10	64QAM	1	25	22.43	22.35	22.43	22.5	2
10	64QAM	1	49	22.42	22.32	22.41		
10	64QAM	25	0	21.31	21.41	21.29		
10	64QAM	25	12	21.32	21.40	21.29	21.5	3
10	64QAM	25	25	21.35	21.39	21.26		
10	64QAM	50	0	21.39	21.35	21.30		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	24.46	24.15	24.14	24.5	0
5	QPSK	1	12	24.43	24.26	24.13		
5	QPSK	1	24	24.42	24.25	24.09		
5	QPSK	12	0	23.31	23.33	23.21	23.5	1
5	QPSK	12	7	23.31	23.36	23.17		
5	QPSK	12	13	23.49	23.27	23.13		
5	QPSK	25	0	23.48	23.11	23.14	23.5	1
5	16QAM	1	0	23.46	23.32	23.43		
5	16QAM	1	12	23.48	23.35	23.44		
5	16QAM	1	24	23.46	23.32	23.38	22.5	2
5	16QAM	12	0	22.38	22.41	22.25		
5	16QAM	12	7	22.33	22.40	22.27		
5	16QAM	12	13	22.38	22.40	22.26	22.5	2
5	16QAM	25	0	22.38	22.35	22.27		
5	64QAM	1	0	22.40	22.33	22.40		
5	64QAM	1	12	22.41	22.49	22.38	22.5	2
5	64QAM	1	24	22.37	22.47	22.34		
5	64QAM	12	0	21.34	21.42	21.31		
5	64QAM	12	7	21.37	21.49	21.33	21.5	3
5	64QAM	12	13	21.39	21.40	21.32		
5	64QAM	25	0	21.37	21.41	21.25		

<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	23.92	23.86	23.84	24	0
10	QPSK	1	25	23.91	23.80	23.80		
10	QPSK	1	49	23.88	23.79	23.85		
10	QPSK	25	0	22.99	22.94	22.87	23	1
10	QPSK	25	12	22.94	22.87	22.84		
10	QPSK	25	25	22.92	22.87	22.80		
10	QPSK	50	0	22.97	22.86	22.83		
10	16QAM	1	0	22.84	22.89	22.80	23	1
10	16QAM	1	25	22.92	22.85	22.81		
10	16QAM	1	49	22.88	22.81	22.89		
10	16QAM	25	0	21.85	21.97	21.93	22	2
10	16QAM	25	12	21.86	21.81	21.96		
10	16QAM	25	25	21.81	21.93	21.90		
10	16QAM	50	0	21.81	21.97	21.92		
10	64QAM	1	0	21.81	21.87	21.82	22	2
10	64QAM	1	25	21.89	21.82	21.89		
10	64QAM	1	49	21.85	21.89	21.89		
10	64QAM	25	0	20.85	21.00	20.95	21	3
10	64QAM	25	12	20.84	20.97	20.93		
10	64QAM	25	25	20.84	20.96	20.91		
10	64QAM	50	0	20.82	21.00	20.94		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.87	23.86	23.78	24	0
5	QPSK	1	12	23.81	23.84	23.83		
5	QPSK	1	24	23.91	23.83	23.82		
5	QPSK	12	0	22.86	22.88	22.79	23	1
5	QPSK	12	7	22.88	22.91	22.90		
5	QPSK	12	13	22.94	22.85	22.86		
5	QPSK	25	0	22.98	22.85	22.78		
5	16QAM	1	0	22.91	22.91	22.84	23	1
5	16QAM	1	12	22.83	22.84	22.85		
5	16QAM	1	24	22.94	22.87	22.84		
5	16QAM	12	0	21.95	21.99	21.88	22	2
5	16QAM	12	7	21.96	21.98	21.99		
5	16QAM	12	13	21.85	21.97	21.97		
5	16QAM	25	0	21.83	21.95	21.84		
5	64QAM	1	0	21.80	21.81	21.83	22	2
5	64QAM	1	12	21.89	21.88	21.86		
5	64QAM	1	24	21.86	21.85	21.94		
5	64QAM	12	0	20.99	20.83	20.93	21	3
5	64QAM	12	7	20.82	20.82	20.84		
5	64QAM	12	13	20.81	20.81	20.99		
5	64QAM	25	0	20.85	20.97	20.88		



FCC SAR TEST REPORT

Report No. : FA871722

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.83	23.86	23.84	24	0
3	QPSK	1	8	23.81	23.81	23.81		
3	QPSK	1	14	23.83	23.83	23.80		
3	QPSK	8	0	22.87	22.85	22.84	23	1
3	QPSK	8	4	22.88	22.87	22.88		
3	QPSK	8	7	22.83	22.86	22.85		
3	QPSK	15	0	22.86	22.85	22.86		
3	16QAM	1	0	22.89	22.82	22.83	23	1
3	16QAM	1	8	22.89	22.84	22.87		
3	16QAM	1	14	22.84	22.83	22.84		
3	16QAM	8	0	22.00	21.98	21.99	22	2
3	16QAM	8	4	21.81	21.81	21.99		
3	16QAM	8	7	21.98	21.99	21.95		
3	16QAM	15	0	21.96	21.94	21.95		
3	64QAM	1	0	21.90	21.88	21.87	22	2
3	64QAM	1	8	21.87	21.87	21.83		
3	64QAM	1	14	21.88	21.88	21.84		
3	64QAM	8	0	20.99	20.99	20.96	21	3
3	64QAM	8	4	20.82	20.83	21.00		
3	64QAM	8	7	20.81	20.81	20.98		
3	64QAM	15	0	20.95	20.98	20.96		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.73	23.77	23.71	24	0
1.4	QPSK	1	3	23.82	23.83	23.81		
1.4	QPSK	1	5	23.74	23.75	23.70		
1.4	QPSK	3	0	23.81	23.78	23.77		
1.4	QPSK	3	1	23.84	23.82	23.81		
1.4	QPSK	3	3	23.79	23.78	23.77		
1.4	QPSK	6	0	22.79	22.77	22.75	23	1
1.4	16QAM	1	0	23.08	23.03	22.96	23	1
1.4	16QAM	1	3	23.15	23.12	23.05		
1.4	16QAM	1	5	23.07	23.08	23.01		
1.4	16QAM	3	0	22.88	22.86	22.79		
1.4	16QAM	3	1	22.91	22.91	22.86		
1.4	16QAM	3	3	22.87	22.88	22.85		
1.4	16QAM	6	0	21.95	21.93	21.91	22	2
1.4	64QAM	1	0	22.01	22.02	21.95	22	2
1.4	64QAM	1	3	22.08	22.10	22.06		
1.4	64QAM	1	5	22.01	21.99	21.97		
1.4	64QAM	3	0	21.99	21.98	21.96		
1.4	64QAM	3	1	22.07	22.02	21.99		
1.4	64QAM	3	3	21.99	22.02	21.98		
1.4	64QAM	6	0	20.89	20.87	20.86	21	3

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23230				
Frequency (MHz)				782				
10	QPSK	1	0	23.45			24	0
10	QPSK	1	25	23.41				
10	QPSK	1	49	23.39				
10	QPSK	25	0	22.50			23	1
10	QPSK	25	12	22.49				
10	QPSK	25	25	22.35				
10	QPSK	50	0	22.44			23	1
10	16QAM	1	0	22.64				
10	16QAM	1	25	22.82				
10	16QAM	1	49	22.63			22	2
10	16QAM	25	0	21.58				
10	16QAM	25	12	21.56				
10	16QAM	25	25	21.42			22	2
10	16QAM	50	0	21.52				
10	64QAM	1	0	21.48				
10	64QAM	1	25	21.66			22	2
10	64QAM	1	49	21.57				
10	64QAM	25	0	20.60				
10	64QAM	25	12	20.54			21	3
10	64QAM	25	25	20.45				
10	64QAM	50	0	20.49				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	23.18	23.42	23.44	24	0
5	QPSK	1	12	23.32	23.41	23.44		
5	QPSK	1	24	23.39	23.36	23.44		
5	QPSK	12	0	22.40	22.47	22.42	23	1
5	QPSK	12	7	22.43	22.45	22.45		
5	QPSK	12	13	22.44	22.45	22.49		
5	QPSK	25	0	22.45	22.42	22.40	23	1
5	16QAM	1	0	22.36	22.86	22.80		
5	16QAM	1	12	22.70	22.78	22.83		
5	16QAM	1	24	22.76	22.65	22.66	22	2
5	16QAM	12	0	21.47	21.59	21.49		
5	16QAM	12	7	21.56	21.57	21.51		
5	16QAM	12	13	21.52	21.51	21.55	22	2
5	16QAM	25	0	21.53	21.53	21.49		
5	64QAM	1	0	21.25	21.69	21.67		
5	64QAM	1	12	21.69	21.69	21.77	22	2
5	64QAM	1	24	21.65	21.61	21.66		
5	64QAM	12	0	20.53	20.62	20.56		
5	64QAM	12	7	20.60	20.59	20.56	21	3
5	64QAM	12	13	20.61	20.55	20.62		
5	64QAM	25	0	20.54	20.55	20.51		

<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	23.34			24	0
10	QPSK	1	25	23.33				
10	QPSK	1	49	23.30				
10	QPSK	25	0	22.44			23	1
10	QPSK	25	12	22.39				
10	QPSK	25	25	22.28				
10	QPSK	50	0	22.39			23	1
10	16QAM	1	0	22.55				
10	16QAM	1	25	22.71				
10	16QAM	1	49	22.58			22	2
10	16QAM	25	0	21.52				
10	16QAM	25	12	21.48				
10	16QAM	25	25	21.41			22	2
10	16QAM	50	0	21.46				
10	64QAM	1	0	21.51				
10	64QAM	1	25	21.58			22	2
10	64QAM	1	49	21.51				
10	64QAM	25	0	20.51				
10	64QAM	25	12	20.49			21	3
10	64QAM	25	25	20.38				
10	64QAM	50	0	20.44				
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	23.26	23.31	23.33	24	0
5	QPSK	1	12	23.28	23.31	23.31		
5	QPSK	1	24	23.31	23.26	23.29		
5	QPSK	12	0	22.36	22.43	22.34	23	1
5	QPSK	12	7	22.34	22.40	22.32		
5	QPSK	12	13	22.38	22.34	22.36		
5	QPSK	25	0	22.32	22.34	22.31	23	1
5	16QAM	1	0	22.57	22.68	22.77		
5	16QAM	1	12	22.60	22.61	22.60		
5	16QAM	1	24	22.67	22.57	22.57	22	2
5	16QAM	12	0	21.43	21.51	21.45		
5	16QAM	12	7	21.43	21.51	21.43		
5	16QAM	12	13	21.49	21.42	21.47	22	2
5	16QAM	25	0	21.40	21.46	21.43		
5	64QAM	1	0	21.55	21.53	21.60		
5	64QAM	1	12	21.55	21.63	21.56	22	2
5	64QAM	1	24	21.60	21.54	21.48		
5	64QAM	12	0	20.47	20.52	20.49		
5	64QAM	12	7	20.45	20.50	20.48	21	3
5	64QAM	12	13	20.54	20.44	20.49		
5	64QAM	25	0	20.39	20.43	20.41		



<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	24	0
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.51	23.49	23.46		
10	QPSK	1	25	23.43	23.40	23.35	23	1
10	QPSK	1	49	23.29	23.26	23.21		
10	QPSK	25	0	22.52	22.48	22.50		
10	QPSK	25	12	22.45	22.44	22.39	23	1
10	QPSK	25	25	22.37	22.37	22.30		
10	QPSK	50	0	22.44	22.40	22.36		
10	16QAM	1	0	22.85	22.92	22.78	23	1
10	16QAM	1	25	22.66	22.65	22.63		
10	16QAM	1	49	22.63	22.59	22.57		
10	16QAM	25	0	21.57	21.59	21.54	22	2
10	16QAM	25	12	21.54	21.51	21.52		
10	16QAM	25	25	21.48	21.42	21.42		
10	16QAM	50	0	21.52	21.52	21.45	22	2
10	64QAM	1	0	21.76	21.74	21.69		
10	64QAM	1	25	21.61	21.57	21.61		
10	64QAM	1	49	21.55	21.52	21.49	21	3
10	64QAM	25	0	20.62	20.58	20.56		
10	64QAM	25	12	20.54	20.54	20.51		
10	64QAM	25	25	20.55	20.45	20.43	21	3
10	64QAM	50	0	20.52	20.55	20.49		
Channel				23755	23790	23825	24	0
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.49	23.43	23.34		
5	QPSK	1	12	23.42	23.40	23.31	23	1
5	QPSK	1	24	23.35	23.31	23.24		
5	QPSK	12	0	22.45	22.46	22.36		
5	QPSK	12	7	22.47	22.44	22.36	23	1
5	QPSK	12	13	22.43	22.38	22.34		
5	QPSK	25	0	22.49	22.39	22.34		
5	16QAM	1	0	22.79	22.71	22.60	23	1
5	16QAM	1	12	22.80	22.67	22.57		
5	16QAM	1	24	22.61	22.58	22.57		
5	16QAM	12	0	21.57	21.53	21.48	22	2
5	16QAM	12	7	21.55	21.49	21.41		
5	16QAM	12	13	21.51	21.44	21.38		
5	16QAM	25	0	21.54	21.49	21.41	22	2
5	64QAM	1	0	21.74	21.67	21.58		
5	64QAM	1	12	21.61	21.57	21.48		
5	64QAM	1	24	21.62	21.55	21.48	21	3
5	64QAM	12	0	20.61	20.55	20.50		
5	64QAM	12	7	20.62	20.58	20.49		
5	64QAM	12	13	20.54	20.53	20.44	21	3
5	64QAM	25	0	20.54	20.53	20.45		



<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	24	0
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	23.92	23.89	23.82		
15	QPSK	1	37	23.91	23.88	23.81	23	1
15	QPSK	1	74	23.91	23.89	23.84		
15	QPSK	36	0	22.97	22.98	22.81		
15	QPSK	36	20	22.95	22.93	22.80	23	1
15	QPSK	36	39	22.96	22.87	22.80		
15	QPSK	75	0	22.92	22.90	22.87		
15	16QAM	1	0	22.96	22.95	22.87	23	1
15	16QAM	1	37	22.97	22.92	22.87		
15	16QAM	1	74	22.90	22.91	22.83		
15	16QAM	36	0	21.88	21.86	21.89	22	2
15	16QAM	36	20	21.84	21.85	21.97		
15	16QAM	36	39	21.87	21.96	21.85		
15	16QAM	75	0	21.82	21.81	21.93	22	2
15	64QAM	1	0	21.88	21.84	21.89		
15	64QAM	1	37	21.89	21.80	21.88		
15	64QAM	1	74	21.85	21.83	21.88	21	3
15	64QAM	36	0	20.81	20.89	20.94		
15	64QAM	36	20	20.87	20.85	20.82		
15	64QAM	36	39	20.82	21.00	20.91	21	3
15	64QAM	75	0	20.83	21.00	20.95		
Channel				26740	26865	26990	24	0
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	23.85	23.80	23.82		
10	QPSK	1	25	23.87	23.83	23.85	23	1
10	QPSK	1	49	23.83	23.85	23.77		
10	QPSK	25	0	22.95	22.94	22.80		
10	QPSK	25	12	22.94	22.92	22.79	23	1
10	QPSK	25	25	22.86	22.84	22.82		
10	QPSK	50	0	22.94	22.86	22.80		
10	16QAM	1	0	22.89	22.81	22.86	23	1
10	16QAM	1	25	22.92	22.87	22.85		
10	16QAM	1	49	22.88	22.95	22.81		
10	16QAM	25	0	21.82	21.85	21.87	22	2
10	16QAM	25	12	22.00	21.98	21.87		
10	16QAM	25	25	21.81	21.94	21.92		
10	16QAM	50	0	21.82	21.96	21.88	22	2
10	64QAM	1	0	21.86	21.87	21.80		
10	64QAM	1	25	21.86	21.89	21.82		
10	64QAM	1	49	21.82	21.84	21.87	21	3
10	64QAM	25	0	20.83	20.83	20.92		
10	64QAM	25	12	21.00	20.98	20.91		
10	64QAM	25	25	20.82	20.97	20.94	21	3
10	64QAM	50	0	20.82	20.97	20.88		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	23.86	23.88	23.86	24	0
5	QPSK	1	12	23.82	23.81	23.79		
5	QPSK	1	24	23.90	23.80	23.76		
5	QPSK	12	0	22.84	22.92	22.86	23	1
5	QPSK	12	7	22.85	22.86	22.83		
5	QPSK	12	13	22.95	22.83	22.82		
5	QPSK	25	0	22.96	22.88	22.83	23	1
5	16QAM	1	0	22.91	22.91	22.90		
5	16QAM	1	12	22.89	22.89	22.84		
5	16QAM	1	24	22.84	22.82	22.82	22	2
5	16QAM	12	0	21.94	22.00	21.93		
5	16QAM	12	7	21.93	21.97	21.90		
5	16QAM	12	13	21.85	21.95	21.89	22	2
5	16QAM	25	0	21.81	21.94	21.90		
5	64QAM	1	0	21.84	21.83	21.88		
5	64QAM	1	12	21.87	21.85	21.81	22	2
5	64QAM	1	24	21.83	21.85	21.81		
5	64QAM	12	0	20.98	20.85	20.97		
5	64QAM	12	7	20.98	20.83	20.95	21	3
5	64QAM	12	13	20.87	20.99	20.93		
5	64QAM	25	0	20.83	20.97	20.92		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	23.83	23.85	23.78	24	0
3	QPSK	1	8	23.82	23.82	23.76		
3	QPSK	1	14	23.80	23.79	23.78		
3	QPSK	8	0	22.84	22.86	22.81	23	1
3	QPSK	8	4	22.84	22.87	22.79		
3	QPSK	8	7	22.81	22.84	22.80		
3	QPSK	15	0	22.84	22.84	22.78	23	1
3	16QAM	1	0	22.86	22.86	22.84		
3	16QAM	1	8	22.84	22.81	22.82		
3	16QAM	1	14	22.83	22.82	22.80	22	2
3	16QAM	8	0	21.81	22.00	21.94		
3	16QAM	8	4	21.98	21.82	21.94		
3	16QAM	8	7	21.95	21.95	21.94	22	2
3	16QAM	15	0	21.96	21.93	21.90		
3	64QAM	1	0	21.89	21.86	21.81		
3	64QAM	1	8	21.89	21.87	21.82	22	2
3	64QAM	1	14	21.86	21.86	21.83		
3	64QAM	8	0	20.99	20.98	20.91		
3	64QAM	8	4	20.99	21.00	20.94	21	3
3	64QAM	8	7	20.95	20.96	20.94		
3	64QAM	15	0	20.93	20.92	20.87		



FCC SAR TEST REPORT

Report No. : FA871722

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	23.75	23.75	23.68	24	0
1.4	QPSK	1	3	23.83	23.78	23.75		
1.4	QPSK	1	5	23.72	23.72	23.69		
1.4	QPSK	3	0	23.76	23.78	23.72		
1.4	QPSK	3	1	23.83	23.81	23.76		
1.4	QPSK	3	3	23.79	23.75	23.72		
1.4	QPSK	6	0	22.78	22.78	22.70	23	1
1.4	16QAM	1	0	22.80	22.82	22.86	23	1
1.4	16QAM	1	3	22.87	22.83	22.81		
1.4	16QAM	1	5	22.88	22.88	22.85		
1.4	16QAM	3	0	22.92	22.84	22.82		
1.4	16QAM	3	1	22.94	22.90	22.85		
1.4	16QAM	3	3	22.89	22.79	22.79		
1.4	16QAM	6	0	21.94	21.91	21.86	22	2
1.4	64QAM	1	0	21.85	21.96	21.98	22	2
1.4	64QAM	1	3	21.81	21.85	21.81		
1.4	64QAM	1	5	21.83	21.97	21.94		
1.4	64QAM	3	0	21.83	22.00	21.93		
1.4	64QAM	3	1	21.86	21.83	22.00		
1.4	64QAM	3	3	21.81	21.96	21.91		
1.4	64QAM	6	0	20.88	20.87	20.78	21	3

<LTE Band 30>

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				27710				
Frequency (MHz)				2310				
10	QPSK	1	0	23.41			23.5	0
10	QPSK	1	25	23.29				
10	QPSK	1	49	23.26				
10	QPSK	25	0	22.36			22.5	1
10	QPSK	25	12	22.31				
10	QPSK	25	25	22.29				
10	QPSK	50	0	22.32				
10	16QAM	1	0	22.44			22.5	1
10	16QAM	1	25	22.35				
10	16QAM	1	49	22.38				
10	16QAM	25	0	21.44			21.5	2
10	16QAM	25	12	21.43				
10	16QAM	25	25	21.37				
10	16QAM	50	0	21.41				
10	64QAM	1	0	21.34			21.5	2
10	64QAM	1	25	21.32				
10	64QAM	1	49	21.49				
10	64QAM	25	0	20.48			20.5	3
10	64QAM	25	12	20.44				
10	64QAM	25	25	20.37				
10	64QAM	50	0	20.44				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	23.36	23.34	23.33	23.5	0
5	QPSK	1	12	23.26	23.27	23.25		
5	QPSK	1	24	23.27	23.27	23.24		
5	QPSK	12	0	22.32	22.31	22.30	22.5	1
5	QPSK	12	7	22.29	22.31	22.28		
5	QPSK	12	13	22.26	22.29	22.26		
5	QPSK	25	0	22.29	22.26	22.27	22.5	1
5	16QAM	1	0	22.40	22.39	22.36		
5	16QAM	1	12	22.36	22.32	22.31		
5	16QAM	1	24	22.31	22.32	22.39	21.5	2
5	16QAM	12	0	21.42	21.40	21.39		
5	16QAM	12	7	21.42	21.43	21.41		
5	16QAM	12	13	21.37	21.40	21.35	21.5	2
5	16QAM	25	0	21.37	21.37	21.35		
5	64QAM	1	0	21.39	21.32	21.37		
5	64QAM	1	12	21.32	21.33	21.50	21.5	2
5	64QAM	1	24	21.50	21.31	21.49		
5	64QAM	12	0	20.45	20.48	20.45		
5	64QAM	12	7	20.46	20.46	20.45	20.5	3
5	64QAM	12	13	20.41	20.42	20.42		
5	64QAM	25	0	20.42	20.40	20.39		



<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	21.82	21.83	21.66	22	0
20	QPSK	1	49	21.52	21.57	21.49		
20	QPSK	1	99	21.64	21.57	21.44		
20	QPSK	50	0	20.69	20.72	20.56	21	1
20	QPSK	50	24	20.64	20.64	20.52		
20	QPSK	50	50	20.72	20.54	20.49		
20	QPSK	100	0	20.74	20.66	20.49		
20	16QAM	1	0	20.88	20.85	20.85	21	1
20	16QAM	1	49	20.92	20.92	20.81		
20	16QAM	1	99	20.96	20.94	20.77		
20	16QAM	50	0	19.85	19.78	19.61	20	2
20	16QAM	50	24	19.78	19.75	19.64		
20	16QAM	50	50	19.83	19.65	19.57		
20	16QAM	100	0	19.85	19.73	19.58		
20	64QAM	1	0	19.92	19.93	19.86	20	2
20	64QAM	1	49	19.83	19.75	19.64		
20	64QAM	1	99	19.90	19.75	19.61		
20	64QAM	50	0	18.80	18.77	18.65	19	3
20	64QAM	50	24	18.71	18.77	18.62		
20	64QAM	50	50	18.86	18.69	18.62		
20	64QAM	100	0	18.87	18.74	18.59		
Channel				132047	132322	132597		
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	21.73	21.70	21.71	22	0
15	QPSK	1	37	21.53	21.54	21.39		
15	QPSK	1	74	21.57	21.54	21.43		
15	QPSK	36	0	20.68	20.68	20.57	21	1
15	QPSK	36	20	20.66	20.62	20.50		
15	QPSK	36	39	20.60	20.57	20.43		
15	QPSK	75	0	20.62	20.63	20.51		
15	16QAM	1	0	20.91	20.83	20.93	21	1
15	16QAM	1	37	20.82	20.91	20.71		
15	16QAM	1	74	20.82	20.86	20.88		
15	16QAM	36	0	19.82	19.76	19.62	20	2
15	16QAM	36	20	19.69	19.70	19.60		
15	16QAM	36	39	19.70	19.62	19.55		
15	16QAM	75	0	19.71	19.70	19.60		
15	64QAM	1	0	19.92	19.92	19.89	20	2
15	64QAM	1	37	19.75	19.73	19.63		
15	64QAM	1	74	19.84	19.78	19.69		
15	64QAM	36	0	18.78	18.81	18.69	19	3
15	64QAM	36	20	18.74	18.75	18.67		
15	64QAM	36	39	18.69	18.69	18.56		
15	64QAM	75	0	18.72	18.68	18.59		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	21.68	21.62	21.58	22	0
10	QPSK	1	25	21.54	21.54	21.47		
10	QPSK	1	49	21.54	21.52	21.42		
10	QPSK	25	0	20.64	20.60	20.52	21	1
10	QPSK	25	12	20.66	20.56	20.49		
10	QPSK	25	25	20.58	20.56	20.47		
10	QPSK	50	0	20.62	20.61	20.50	21	1
10	16QAM	1	0	20.97	20.88	20.86		
10	16QAM	1	25	20.96	20.96	20.68		
10	16QAM	1	49	20.84	20.75	20.63	20	2
10	16QAM	25	0	19.74	19.67	19.58		
10	16QAM	25	12	19.68	19.65	19.61		
10	16QAM	25	25	19.65	19.67	19.52	20	2
10	16QAM	50	0	19.74	19.72	19.63		
10	64QAM	1	0	20.00	19.92	19.70		
10	64QAM	1	25	19.86	19.75	19.64	20	2
10	64QAM	1	49	19.85	19.74	19.60		
10	64QAM	25	0	18.73	18.67	18.59		
10	64QAM	25	12	18.76	18.65	18.59	19	3
10	64QAM	25	25	18.70	18.63	18.53		
10	64QAM	50	0	18.70	18.68	18.59		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	21.64	21.55	21.49	22	0
5	QPSK	1	12	21.59	21.56	21.43		
5	QPSK	1	24	21.56	21.57	21.42		
5	QPSK	12	0	20.62	20.56	20.41	21	1
5	QPSK	12	7	20.67	20.61	20.45		
5	QPSK	12	13	20.61	20.53	20.44		
5	QPSK	25	0	20.60	20.55	20.42	21	1
5	16QAM	1	0	20.95	20.84	20.88		
5	16QAM	1	12	20.97	20.92	20.77		
5	16QAM	1	24	20.88	20.84	20.69	20	2
5	16QAM	12	0	19.77	19.63	19.58		
5	16QAM	12	7	19.72	19.66	19.53		
5	16QAM	12	13	19.71	19.67	19.51	20	2
5	16QAM	25	0	19.74	19.67	19.56		
5	64QAM	1	0	19.96	19.88	19.66		
5	64QAM	1	12	19.82	19.73	19.66	20	2
5	64QAM	1	24	19.86	19.79	19.64		
5	64QAM	12	0	18.72	18.71	18.61		
5	64QAM	12	7	18.77	18.72	18.61	19	3
5	64QAM	12	13	18.70	18.70	18.55		
5	64QAM	25	0	18.71	18.63	18.52		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	21.55	21.64	21.53	22	0
3	QPSK	1	8	21.51	21.47	21.33		
3	QPSK	1	14	21.47	21.44	21.33		
3	QPSK	8	0	20.54	20.50	20.42	21	1
3	QPSK	8	4	20.54	20.47	20.45		
3	QPSK	8	7	20.51	20.43	20.32		
3	QPSK	15	0	20.53	20.49	20.42		
3	16QAM	1	0	20.92	20.83	20.84	21	1
3	16QAM	1	8	20.75	20.73	20.73		
3	16QAM	1	14	20.91	20.73	20.61		
3	16QAM	8	0	19.61	19.65	19.57	20	2
3	16QAM	8	4	19.68	19.63	19.55		
3	16QAM	8	7	19.56	19.55	19.44		
3	16QAM	15	0	19.64	19.60	19.48		
3	64QAM	1	0	19.74	19.82	19.69	20	2
3	64QAM	1	8	19.69	19.69	19.53		
3	64QAM	1	14	19.72	19.66	19.53		
3	64QAM	8	0	18.68	18.57	18.57	19	3
3	64QAM	8	4	18.69	18.60	18.47		
3	64QAM	8	7	18.62	18.50	18.52		
3	64QAM	15	0	18.65	18.57	18.47		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	21.53	21.47	21.37	22	0
1.4	QPSK	1	3	21.60	21.56	21.43		
1.4	QPSK	1	5	21.52	21.46	21.29		
1.4	QPSK	3	0	21.58	21.50	21.42		
1.4	QPSK	3	1	21.60	21.55	21.43		
1.4	QPSK	3	3	21.54	21.54	21.40		
1.4	QPSK	6	0	20.59	20.52	20.40	21	1
1.4	16QAM	1	0	20.84	20.84	20.69	21	1
1.4	16QAM	1	3	20.92	20.90	20.74		
1.4	16QAM	1	5	20.90	20.83	20.69		
1.4	16QAM	3	0	20.66	20.63	20.50		
1.4	16QAM	3	1	20.72	20.64	20.55		
1.4	16QAM	3	3	20.62	20.54	20.42		
1.4	16QAM	6	0	19.77	19.67	19.54	20	2
1.4	64QAM	1	0	19.80	19.77	19.60	20	2
1.4	64QAM	1	3	19.88	19.86	19.65		
1.4	64QAM	1	5	19.80	19.72	19.57		
1.4	64QAM	3	0	19.74	19.72	19.57		
1.4	64QAM	3	1	19.77	19.78	19.63		
1.4	64QAM	3	3	19.73	19.69	19.60		
1.4	64QAM	6	0	18.67	18.60	18.51	19	3

<LTE Band 71>

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				133222	133322	133372		
Frequency (MHz)				673	683	688		
20	QPSK	1	0	23.46	23.58	23.57	24	0
20	QPSK	1	49	23.44	23.46	23.48		
20	QPSK	1	99	23.21	23.35	23.42		
20	QPSK	50	0	22.40	22.55	22.47	23	1
20	QPSK	50	24	22.41	22.47	22.46		
20	QPSK	50	50	22.31	22.45	22.42		
20	QPSK	100	0	22.35	22.48	22.41	23	1
20	16QAM	1	0	22.75	22.78	22.88		
20	16QAM	1	49	22.73	22.76	22.81		
20	16QAM	1	99	22.60	22.60	22.80	22	2
20	16QAM	50	0	21.62	21.65	21.58		
20	16QAM	50	24	21.53	21.55	21.64		
20	16QAM	50	50	21.55	21.59	21.49	22	2
20	16QAM	100	0	21.50	21.53	21.59		
20	64QAM	1	0	21.73	21.84	21.84	22	2
20	64QAM	1	49	21.70	21.75	21.70		
20	64QAM	1	99	21.51	21.56	21.76		
20	64QAM	50	0	20.61	20.65	20.58	21	3
20	64QAM	50	24	20.52	20.56	20.66		
20	64QAM	50	50	20.52	20.56	20.54		
20	64QAM	100	0	20.48	20.50	20.59		
Channel				133197	133297	133397	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				670.5	680.5	690.5		
15	QPSK	1	0	23.25	23.39	23.52	24	0
15	QPSK	1	37	23.36	23.39	23.47		
15	QPSK	1	74	23.26	23.38	23.45		
15	QPSK	36	0	22.33	22.52	22.44	23	1
15	QPSK	36	20	22.37	22.47	22.47		
15	QPSK	36	39	22.39	22.45	22.38		
15	QPSK	75	0	22.32	22.43	22.41	23	1
15	16QAM	1	0	22.63	22.81	22.83		
15	16QAM	1	37	22.70	22.74	22.86		
15	16QAM	1	74	22.59	22.81	22.79	22	2
15	16QAM	36	0	21.44	21.63	21.54		
15	16QAM	36	20	21.51	21.56	21.54		
15	16QAM	36	39	21.46	21.55	21.47	22	2
15	16QAM	75	0	21.45	21.52	21.50		
15	64QAM	1	0	21.49	21.75	21.75		
15	64QAM	1	37	21.59	21.69	21.83	22	2
15	64QAM	1	74	21.51	21.66	21.74		
15	64QAM	36	0	20.41	20.67	20.61		
15	64QAM	36	20	20.48	20.58	20.60	21	3
15	64QAM	36	39	20.54	20.57	20.54		
15	64QAM	75	0	20.44	20.56	20.51		



FCC SAR TEST REPORT

Report No. : FA871722

Channel				133172	133272	133422	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				668	678	693		
10	QPSK	1	0	23.21	23.44	23.48	24	0
10	QPSK	1	25	23.19	23.40	23.48		
10	QPSK	1	49	23.23	23.37	23.48		
10	QPSK	25	0	22.28	22.51	22.41	23	1
10	QPSK	25	12	22.37	22.44	22.43		
10	QPSK	25	25	22.30	22.36	22.48		
10	QPSK	50	0	22.35	22.42	22.43		
10	16QAM	1	0	22.53	22.73	22.86	23	1
10	16QAM	1	25	22.59	22.71	22.87		
10	16QAM	1	49	22.60	22.64	22.74		
10	16QAM	25	0	21.41	21.59	21.53	22	2
10	16QAM	25	12	21.50	21.57	21.57		
10	16QAM	25	25	21.39	21.44	21.56		
10	16QAM	50	0	21.47	21.56	21.52		
10	64QAM	1	0	21.45	21.71	21.77	22	2
10	64QAM	1	25	21.44	21.62	21.76		
10	64QAM	1	49	21.48	21.58	21.75		
10	64QAM	25	0	20.38	20.59	20.55	21	3
10	64QAM	25	12	20.50	20.50	20.57		
10	64QAM	25	25	20.39	20.49	20.54		
10	64QAM	50	0	20.44	20.54	20.56		
Channel				133147	133247	133447	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				665.5	675.5	695.5		
5	QPSK	1	0	23.22	23.46	23.53	24	0
5	QPSK	1	12	23.22	23.46	23.39		
5	QPSK	1	24	23.18	23.45	23.51		
5	QPSK	12	0	22.31	22.45	22.50	23	1
5	QPSK	12	7	22.29	22.45	22.50		
5	QPSK	12	13	22.23	22.40	22.42		
5	QPSK	25	0	22.24	22.43	22.50		
5	16QAM	1	0	22.58	22.82	22.85	23	1
5	16QAM	1	12	22.56	22.83	22.72		
5	16QAM	1	24	22.52	22.77	22.86		
5	16QAM	12	0	21.41	21.58	21.61	22	2
5	16QAM	12	7	21.40	21.56	21.61		
5	16QAM	12	13	21.34	21.47	21.54		
5	16QAM	25	0	21.39	21.54	21.60		
5	64QAM	1	0	21.51	21.73	21.75	22	2
5	64QAM	1	12	21.51	21.67	21.71		
5	64QAM	1	24	21.45	21.70	21.79		
5	64QAM	12	0	20.47	20.63	20.68	21	3
5	64QAM	12	7	20.43	20.64	20.64		
5	64QAM	12	13	20.39	20.56	20.60		
5	64QAM	25	0	20.37	20.53	20.60		

<Reduced 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	18.85	18.85	19.00	19	0
20	QPSK	1	49	18.62	18.66	18.87		
20	QPSK	1	99	18.74	18.61	18.88		
20	QPSK	50	0	18.80	18.84	18.99	19	0
20	QPSK	50	24	18.73	18.78	18.97		
20	QPSK	50	50	18.79	18.67	18.89		
20	QPSK	100	0	18.90	18.74	18.90		
20	16QAM	1	0	18.89	18.89	18.88	19	0
20	16QAM	1	49	18.85	18.89	18.77		
20	16QAM	1	99	18.92	18.80	18.92		
20	16QAM	50	0	18.91	18.88	18.69	19	0
20	16QAM	50	24	18.82	18.81	18.77		
20	16QAM	50	50	18.87	18.78	18.72		
20	16QAM	100	0	18.92	18.80	18.68		
20	64QAM	1	0	18.89	18.85	18.89	19	0
20	64QAM	1	49	18.81	18.94	18.78		
20	64QAM	1	99	18.82	18.78	18.80		
20	64QAM	50	0	18.92	18.90	18.71	19	0
20	64QAM	50	24	18.83	18.78	18.99		
20	64QAM	50	50	18.85	18.79	18.98		
20	64QAM	100	0	18.93	18.82	18.94		
Channel				18675	18900	19125		
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	18.85	18.80	18.98	19	0
15	QPSK	1	37	18.61	18.70	18.81		
15	QPSK	1	74	18.63	18.66	18.86		
15	QPSK	36	0	18.80	18.78	18.69	19	0
15	QPSK	36	20	18.72	18.77	18.71		
15	QPSK	36	39	18.64	18.73	18.65		
15	QPSK	75	0	18.68	18.74	18.71		
15	16QAM	1	0	18.89	18.89	18.94	19	0
15	16QAM	1	37	18.94	18.99	18.78		
15	16QAM	1	74	18.96	18.99	18.84		
15	16QAM	36	0	18.87	18.86	18.77	19	0
15	16QAM	36	20	18.84	18.86	18.70		
15	16QAM	36	39	18.77	18.79	18.67		
15	16QAM	75	0	18.83	18.81	18.70		
15	64QAM	1	0	18.99	18.89	18.89	19	0
15	64QAM	1	37	18.86	18.92	18.89		
15	64QAM	1	74	18.82	18.95	18.99		
15	64QAM	36	0	18.92	18.83	18.99	19	0
15	64QAM	36	20	18.79	18.78	18.99		
15	64QAM	36	39	18.81	18.76	18.97		
15	64QAM	75	0	18.81	18.79	18.89		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	18.75	18.75	18.91	19	0
10	QPSK	1	25	18.51	18.64	18.72		
10	QPSK	1	49	18.63	18.56	18.86		
10	QPSK	25	0	18.77	18.74	18.69	19	0
10	QPSK	25	12	18.66	18.72	18.65		
10	QPSK	25	25	18.61	18.69	18.55		
10	QPSK	50	0	18.60	18.69	18.64		
10	16QAM	1	0	18.87	18.85	18.89	19	0
10	16QAM	1	25	18.88	18.92	18.75		
10	16QAM	1	49	18.91	18.98	18.80		
10	16QAM	25	0	18.86	18.83	18.77	19	0
10	16QAM	25	12	18.74	18.78	18.70		
10	16QAM	25	25	18.75	18.77	18.62		
10	16QAM	50	0	18.80	18.74	18.70		
10	64QAM	1	0	18.97	18.86	18.85	19	0
10	64QAM	1	25	18.82	18.84	18.85		
10	64QAM	1	49	18.74	18.89	18.95		
10	64QAM	25	0	18.91	18.83	18.94	19	0
10	64QAM	25	12	18.72	18.70	18.99		
10	64QAM	25	25	18.75	18.67	18.93		
10	64QAM	50	0	18.73	18.76	18.89		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	18.80	18.79	18.93	19	0
5	QPSK	1	12	18.59	18.60	18.72		
5	QPSK	1	24	18.61	18.59	18.82		
5	QPSK	12	0	18.73	18.71	18.65	19	0
5	QPSK	12	7	18.70	18.69	18.62		
5	QPSK	12	13	18.59	18.70	18.64		
5	QPSK	25	0	18.60	18.72	18.65		
5	16QAM	1	0	18.85	18.83	18.87	19	0
5	16QAM	1	12	18.91	18.91	18.76		
5	16QAM	1	24	18.89	18.94	18.75		
5	16QAM	12	0	18.80	18.78	18.75	19	0
5	16QAM	12	7	18.79	18.82	18.64		
5	16QAM	12	13	18.71	18.73	18.66		
5	16QAM	25	0	18.81	18.72	18.69		
5	64QAM	1	0	18.89	18.80	18.81	19	0
5	64QAM	1	12	18.77	18.84	18.88		
5	64QAM	1	24	18.76	18.85	18.90		
5	64QAM	12	0	18.82	18.79	18.96	19	0
5	64QAM	12	7	18.72	18.76	18.96		
5	64QAM	12	13	18.72	18.71	18.87		
5	64QAM	25	0	18.71	18.79	18.89		



FCC SAR TEST REPORT

Report No. : FA871722

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	18.81	18.70	18.94	19	0
3	QPSK	1	8	18.52	18.60	18.79		
3	QPSK	1	14	18.55	18.66	18.76		
3	QPSK	8	0	18.80	18.72	18.66	19	0
3	QPSK	8	4	18.68	18.74	18.63		
3	QPSK	8	7	18.60	18.69	18.58		
3	QPSK	15	0	18.63	18.64	18.71		
3	16QAM	1	0	18.82	18.79	18.89	19	0
3	16QAM	1	8	18.86	18.96	18.72		
3	16QAM	1	14	18.94	18.91	18.81		
3	16QAM	8	0	18.78	18.79	18.69	19	0
3	16QAM	8	4	18.83	18.79	18.68		
3	16QAM	8	7	18.67	18.76	18.66		
3	16QAM	15	0	18.79	18.72	18.63		
3	64QAM	1	0	18.96	18.81	18.86	19	0
3	64QAM	1	8	18.76	18.88	18.89		
3	64QAM	1	14	18.75	18.88	18.93		
3	64QAM	8	0	18.85	18.74	18.93	19	0
3	64QAM	8	4	18.75	18.74	18.92		
3	64QAM	8	7	18.77	18.70	18.89		
3	64QAM	15	0	18.75	18.72	18.87		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	18.84	18.76	18.93	19	0
1.4	QPSK	1	3	18.56	18.70	18.79		
1.4	QPSK	1	5	18.57	18.58	18.78		
1.4	QPSK	3	0	18.80	18.69	18.64		
1.4	QPSK	3	1	18.72	18.73	18.62		
1.4	QPSK	3	3	18.56	18.65	18.64		
1.4	QPSK	6	0	18.66	18.73	18.66	19	0
1.4	16QAM	1	0	18.81	18.80	18.86	19	0
1.4	16QAM	1	3	18.89	18.95	18.68		
1.4	16QAM	1	5	18.88	18.93	18.79		
1.4	16QAM	3	0	18.77	18.77	18.75		
1.4	16QAM	3	1	18.82	18.78	18.65		
1.4	16QAM	3	3	18.68	18.75	18.67		
1.4	16QAM	6	0	18.83	18.74	18.63	19	0
1.4	64QAM	1	0	18.90	18.89	18.86	19	0
1.4	64QAM	1	3	18.76	18.89	18.89		
1.4	64QAM	1	5	18.76	18.90	18.99		
1.4	64QAM	3	0	18.89	18.75	18.89		
1.4	64QAM	3	1	18.77	18.76	18.94		
1.4	64QAM	3	3	18.79	18.75	18.97		
1.4	64QAM	6	0	18.77	18.78	18.87	19	0

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	19.20	19.07	19.07	19.5	0
20	QPSK	1	49	18.89	18.86	18.89		
20	QPSK	1	99	18.90	18.80	18.89		
20	QPSK	50	0	19.08	19.01	18.97	19.5	0
20	QPSK	50	24	18.99	18.92	18.88		
20	QPSK	50	50	18.95	18.88	18.91		
20	QPSK	100	0	19.00	18.96	18.88		
20	16QAM	1	0	19.49	19.50	19.47	19.5	0
20	16QAM	1	49	19.30	19.21	19.13		
20	16QAM	1	99	19.17	19.07	19.15		
20	16QAM	50	0	19.17	19.13	19.05	19.5	0
20	16QAM	50	24	19.13	19.02	19.00		
20	16QAM	50	50	19.08	18.99	19.03		
20	16QAM	100	0	19.10	19.07	18.96		
20	64QAM	1	0	19.44	19.29	19.29	19.5	0
20	64QAM	1	49	19.09	19.05	19.18		
20	64QAM	1	99	19.07	19.10	19.14		
20	64QAM	50	0	19.20	19.15	19.04	19.5	0
20	64QAM	50	24	19.12	19.06	19.00		
20	64QAM	50	50	19.07	19.02	18.99		
20	64QAM	100	0	19.09	19.05	18.99		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	19.15	19.03	19.02	19.5	0
15	QPSK	1	37	18.95	18.83	18.91		
15	QPSK	1	74	18.91	18.89	18.89		
15	QPSK	36	0	19.12	18.94	18.86	19.5	0
15	QPSK	36	20	19.00	18.91	19.00		
15	QPSK	36	39	18.95	18.85	18.93		
15	QPSK	75	0	19.05	18.89	18.82		
15	16QAM	1	0	19.37	19.42	19.26	19.5	0
15	16QAM	1	37	19.33	19.23	19.24		
15	16QAM	1	74	19.31	19.20	19.27		
15	16QAM	36	0	19.18	19.06	19.00	19.5	0
15	16QAM	36	20	19.13	18.99	19.09		
15	16QAM	36	39	19.06	18.97	19.00		
15	16QAM	75	0	19.16	19.03	18.95		
15	64QAM	1	0	19.39	19.29	19.28	19.5	0
15	64QAM	1	37	19.25	19.00	19.11		
15	64QAM	1	74	19.17	19.06	19.21		
15	64QAM	36	0	19.19	19.08	18.98	19.5	0
15	64QAM	36	20	19.17	19.00	19.07		
15	64QAM	36	39	19.12	18.97	19.05		
15	64QAM	75	0	19.13	19.02	18.97		



FCC SAR TEST REPORT

Report No. : FA871722

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	18.97	18.90	18.79	19.5	0
10	QPSK	1	25	18.79	18.73	18.73		
10	QPSK	1	49	18.80	18.79	18.74		
10	QPSK	25	0	18.93	18.86	18.80	19.5	0
10	QPSK	25	12	18.92	18.88	18.78		
10	QPSK	25	25	18.87	18.85	18.68		
10	QPSK	50	0	18.87	18.87	18.74		
10	16QAM	1	0	19.24	19.25	19.20	19.5	0
10	16QAM	1	25	19.12	18.96	19.06		
10	16QAM	1	49	19.10	19.07	19.10		
10	16QAM	25	0	18.98	18.95	18.84	19.5	0
10	16QAM	25	12	19.01	18.92	18.81		
10	16QAM	25	25	18.99	18.89	18.88		
10	16QAM	50	0	19.02	18.93	18.89		
10	64QAM	1	0	19.24	19.00	18.99	19.5	0
10	64QAM	1	25	19.09	18.90	18.87		
10	64QAM	1	49	18.96	18.92	18.93		
10	64QAM	25	0	19.02	18.96	19.00	19.5	0
10	64QAM	25	12	18.99	18.89	18.85		
10	64QAM	25	25	18.96	18.85	18.81		
10	64QAM	50	0	19.03	18.96	18.82		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	18.91	18.91	18.79	19.5	0
5	QPSK	1	12	18.81	18.77	18.73		
5	QPSK	1	24	18.88	18.71	18.64		
5	QPSK	12	0	18.95	18.87	18.77	19.5	0
5	QPSK	12	7	18.85	18.89	18.76		
5	QPSK	12	13	18.79	18.80	18.70		
5	QPSK	25	0	18.91	18.87	18.78		
5	16QAM	1	0	19.26	19.23	19.25	19.5	0
5	16QAM	1	12	19.11	19.02	19.09		
5	16QAM	1	24	19.20	19.00	19.10		
5	16QAM	12	0	19.01	18.91	18.88	19.5	0
5	16QAM	12	7	18.92	18.91	18.82		
5	16QAM	12	13	18.96	18.94	18.79		
5	16QAM	25	0	18.98	18.96	18.83		
5	64QAM	1	0	19.19	19.00	19.00	19.5	0
5	64QAM	1	12	19.08	18.98	18.94		
5	64QAM	1	24	19.00	18.97	18.92		
5	64QAM	12	0	19.04	18.96	18.91	19.5	0
5	64QAM	12	7	18.97	18.91	18.87		
5	64QAM	12	13	18.96	18.86	18.81		
5	64QAM	25	0	18.98	18.95	18.84		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	18.87	18.92	18.83	19.5	0
3	QPSK	1	8	18.84	18.74	18.71		
3	QPSK	1	14	18.85	18.77	18.73		
3	QPSK	8	0	18.92	18.90	18.81	19.5	0
3	QPSK	8	4	18.90	18.83	18.79		
3	QPSK	8	7	18.84	18.79	18.78		
3	QPSK	15	0	18.91	18.88	18.76		
3	16QAM	1	0	19.24	19.17	19.21	19.5	0
3	16QAM	1	8	19.11	18.94	19.07		
3	16QAM	1	14	19.20	19.06	19.07		
3	16QAM	8	0	19.01	18.93	18.90	19.5	0
3	16QAM	8	4	18.94	18.93	18.86		
3	16QAM	8	7	18.98	18.93	18.82		
3	16QAM	15	0	18.96	18.97	18.91		
3	64QAM	1	0	19.16	19.02	19.06	19.5	0
3	64QAM	1	8	19.07	18.98	18.91		
3	64QAM	1	14	19.01	18.93	18.87		
3	64QAM	8	0	19.00	18.98	18.98	19.5	0
3	64QAM	8	4	19.03	18.90	18.85		
3	64QAM	8	7	18.93	18.92	18.86		
3	64QAM	15	0	19.01	18.99	18.88		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	18.91	18.92	18.74	19.5	0
1.4	QPSK	1	3	18.85	18.82	18.74		
1.4	QPSK	1	5	18.87	18.70	18.67		
1.4	QPSK	3	0	18.93	18.88	18.84		
1.4	QPSK	3	1	18.89	18.91	18.74		
1.4	QPSK	3	3	18.84	18.82	18.71		
1.4	QPSK	6	0	18.89	18.91	18.80	19.5	0
1.4	16QAM	1	0	19.32	19.25	19.22	19.5	0
1.4	16QAM	1	3	19.13	18.96	19.06		
1.4	16QAM	1	5	19.11	19.02	19.01		
1.4	16QAM	3	0	18.99	18.98	18.91		
1.4	16QAM	3	1	19.01	18.94	18.87		
1.4	16QAM	3	3	18.92	18.88	18.85		
1.4	16QAM	6	0	19.01	18.91	18.89	19.5	0
1.4	64QAM	1	0	19.20	19.05	19.08	19.5	0
1.4	64QAM	1	3	19.05	18.98	18.94		
1.4	64QAM	1	5	19.03	18.98	18.95		
1.4	64QAM	3	0	18.99	18.94	19.00		
1.4	64QAM	3	1	19.06	18.94	18.82		
1.4	64QAM	3	3	18.95	18.89	18.83		
1.4	64QAM	6	0	19.00	18.94	18.91	19.5	0



<LTE Band 30>

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				27710				
Frequency (MHz)				2310				
10	QPSK	1	0	19.79			20	0
10	QPSK	1	25	19.66				
10	QPSK	1	49	19.63				
10	QPSK	25	0	19.79			20	0
10	QPSK	25	12	19.78				
10	QPSK	25	25	19.69				
10	QPSK	50	0	19.74			20	0
10	16QAM	1	0	19.89				
10	16QAM	1	25	19.92				
10	16QAM	1	49	19.96			20	0
10	16QAM	25	0	19.86				
10	16QAM	25	12	19.83				
10	16QAM	25	25	19.76			20	0
10	16QAM	50	0	19.82				
10	64QAM	1	0	19.88				
10	64QAM	1	25	19.89			20	0
10	64QAM	1	49	19.85				
10	64QAM	25	0	19.92				
10	64QAM	25	12	19.87			20	0
10	64QAM	25	25	19.77				
10	64QAM	50	0	19.83				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	19.78	19.76	19.76	20	0
5	QPSK	1	12	19.67	19.67	19.71		
5	QPSK	1	24	19.63	19.68	19.63		
5	QPSK	12	0	19.73	19.76	19.72	20	0
5	QPSK	12	7	19.75	19.76	19.71		
5	QPSK	12	13	19.65	19.70	19.65		
5	QPSK	25	0	19.71	19.73	19.72	20	0
5	16QAM	1	0	19.80	19.89	19.88		
5	16QAM	1	12	19.89	19.81	19.88		
5	16QAM	1	24	19.94	19.89	19.91	20	0
5	16QAM	12	0	19.85	19.85	19.82		
5	16QAM	12	7	19.84	19.80	19.84		
5	16QAM	12	13	19.78	19.73	19.78	20	0
5	16QAM	25	0	19.80	19.81	19.82		
5	64QAM	1	0	19.86	19.89	19.85		
5	64QAM	1	12	19.88	19.91	19.89	20	0
5	64QAM	1	24	19.91	19.89	19.87		
5	64QAM	12	0	19.84	19.89	19.85		
5	64QAM	12	7	19.90	19.89	19.87	20	0
5	64QAM	12	13	19.89	19.81	19.84		
5	64QAM	25	0	19.81	19.85	19.83		



<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	19.13	19.14	19.00	19.5	0
20	QPSK	1	49	18.89	18.84	18.85		
20	QPSK	1	99	18.93	18.87	18.83		
20	QPSK	50	0	19.10	19.11	18.91	19.5	0
20	QPSK	50	24	19.01	18.94	18.91		
20	QPSK	50	50	19.01	18.94	18.91		
20	QPSK	100	0	19.11	19.12	18.81		
20	16QAM	1	0	19.35	19.50	19.38	19.5	0
20	16QAM	1	49	19.24	19.12	19.17		
20	16QAM	1	99	19.29	19.15	19.05		
20	16QAM	50	0	19.19	19.18	19.03	19.5	0
20	16QAM	50	24	19.06	19.09	19.03		
20	16QAM	50	50	19.16	19.03	18.97		
20	16QAM	100	0	19.24	19.09	18.94		
20	64QAM	1	0	19.44	19.36	19.16	19.5	0
20	64QAM	1	49	19.14	19.05	19.01		
20	64QAM	1	99	19.28	18.99	18.99		
20	64QAM	50	0	19.15	19.14	19.09	19.5	0
20	64QAM	50	24	19.09	19.07	19.06		
20	64QAM	50	50	19.16	19.04	18.96		
20	64QAM	100	0	19.24	19.05	18.92		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	19.12	19.06	19.01	19.5	0
15	QPSK	1	37	18.88	18.88	18.79		
15	QPSK	1	74	18.92	18.87	18.82		
15	QPSK	36	0	19.06	19.00	18.96	19.5	0
15	QPSK	36	20	18.99	18.95	18.94		
15	QPSK	36	39	18.98	18.93	18.84		
15	QPSK	75	0	18.99	18.93	18.93		
15	16QAM	1	0	19.48	19.38	19.33	19.5	0
15	16QAM	1	37	19.30	19.18	19.13		
15	16QAM	1	74	19.25	19.13	19.07		
15	16QAM	36	0	19.13	19.11	19.05	19.5	0
15	16QAM	36	20	19.08	19.02	18.99		
15	16QAM	36	39	19.03	18.96	18.90		
15	16QAM	75	0	19.13	19.05	18.97		
15	64QAM	1	0	19.38	19.49	19.32	19.5	0
15	64QAM	1	37	19.16	19.04	19.06		
15	64QAM	1	74	19.21	19.10	19.09		
15	64QAM	36	0	19.16	19.15	19.05	19.5	0
15	64QAM	36	20	19.14	19.09	19.05		
15	64QAM	36	39	19.08	19.00	18.94		
15	64QAM	75	0	19.08	19.04	19.02		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	18.97	18.95	18.83	19.5	0
10	QPSK	1	25	18.87	18.82	18.80		
10	QPSK	1	49	18.88	18.79	18.74		
10	QPSK	25	0	18.97	18.94	18.87	19.5	0
10	QPSK	25	12	18.93	18.91	18.82		
10	QPSK	25	25	18.88	18.85	18.78		
10	QPSK	50	0	18.92	18.93	18.83		
10	16QAM	1	0	19.34	19.27	19.25	19.5	0
10	16QAM	1	25	19.15	19.04	19.10		
10	16QAM	1	49	19.20	19.07	19.10		
10	16QAM	25	0	19.07	19.00	18.91	19.5	0
10	16QAM	25	12	19.02	18.97	18.90		
10	16QAM	25	25	19.01	18.97	18.89		
10	16QAM	50	0	19.02	19.01	18.92		
10	64QAM	1	0	19.25	19.06	19.09	19.5	0
10	64QAM	1	25	19.12	18.99	18.97		
10	64QAM	1	49	19.03	19.01	18.97		
10	64QAM	25	0	19.09	18.99	19.00	19.5	0
10	64QAM	25	12	19.06	18.99	18.90		
10	64QAM	25	25	19.03	18.95	18.89		
10	64QAM	50	0	19.03	19.01	18.91		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	18.97	18.86	18.73	19.5	0
5	QPSK	1	12	18.79	18.75	18.72		
5	QPSK	1	24	18.82	18.69	18.65		
5	QPSK	12	0	18.97	18.91	18.80	19.5	0
5	QPSK	12	7	18.85	18.84	18.76		
5	QPSK	12	13	18.88	18.75	18.68		
5	QPSK	25	0	18.82	18.84	18.83		
5	16QAM	1	0	19.27	19.18	19.24	19.5	0
5	16QAM	1	12	19.08	18.95	19.06		
5	16QAM	1	24	19.12	19.03	19.02		
5	16QAM	12	0	19.04	18.94	18.89	19.5	0
5	16QAM	12	7	19.02	18.97	18.84		
5	16QAM	12	13	18.93	18.88	18.81		
5	16QAM	25	0	19.01	18.97	18.92		
5	64QAM	1	0	19.15	18.99	19.06	19.5	0
5	64QAM	1	12	19.03	18.92	18.96		
5	64QAM	1	24	18.99	18.92	18.94		
5	64QAM	12	0	19.09	18.97	18.97	19.5	0
5	64QAM	12	7	18.97	18.94	18.89		
5	64QAM	12	13	19.01	18.95	18.79		
5	64QAM	25	0	18.93	18.95	18.83		



FCC SAR TEST REPORT

Report No. : FA871722

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	18.91	18.95	18.81	19.5	0
3	QPSK	1	8	18.85	18.72	18.80		
3	QPSK	1	14	18.86	18.73	18.69		
3	QPSK	8	0	18.94	18.89	18.80	19.5	0
3	QPSK	8	4	18.93	18.82	18.79		
3	QPSK	8	7	18.85	18.84	18.68		
3	QPSK	15	0	18.82	18.91	18.76		
3	16QAM	1	0	19.34	19.17	19.17	19.5	0
3	16QAM	1	8	19.13	18.94	19.04		
3	16QAM	1	14	19.16	18.98	19.04		
3	16QAM	8	0	19.06	18.90	18.88	19.5	0
3	16QAM	8	4	19.00	18.88	18.85		
3	16QAM	8	7	18.95	18.96	18.87		
3	16QAM	15	0	18.99	18.98	18.82		
3	64QAM	1	0	19.17	18.98	19.04	19.5	0
3	64QAM	1	8	19.12	18.95	18.97		
3	64QAM	1	14	19.00	18.91	18.97		
3	64QAM	8	0	19.02	18.98	18.97	19.5	0
3	64QAM	8	4	19.02	18.97	18.90		
3	64QAM	8	7	19.03	18.85	18.85		
3	64QAM	15	0	19.02	18.96	18.88		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	18.88	18.93	18.82	19.5	0
1.4	QPSK	1	3	18.87	18.75	18.75		
1.4	QPSK	1	5	18.80	18.69	18.64		
1.4	QPSK	3	0	18.87	18.91	18.78		
1.4	QPSK	3	1	18.88	18.91	18.72		
1.4	QPSK	3	3	18.79	18.78	18.68		
1.4	QPSK	6	0	18.86	18.87	18.75	19.5	0
1.4	16QAM	1	0	19.31	19.23	19.22	19.5	0
1.4	16QAM	1	3	19.05	18.94	19.06		
1.4	16QAM	1	5	19.18	19.03	19.01		
1.4	16QAM	3	0	19.00	18.98	18.88		
1.4	16QAM	3	1	18.94	18.87	18.81		
1.4	16QAM	3	3	18.94	18.92	18.89		
1.4	16QAM	6	0	18.96	18.91	18.88	19.5	0
1.4	64QAM	1	0	19.22	18.98	18.99	19.5	0
1.4	64QAM	1	3	19.12	18.90	18.97		
1.4	64QAM	1	5	19.03	19.00	18.97		
1.4	64QAM	3	0	19.02	18.95	18.93		
1.4	64QAM	3	1	19.05	18.96	18.81		
1.4	64QAM	3	3	18.96	18.92	18.88		
1.4	64QAM	6	0	18.93	18.98	18.87	19.5	0

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

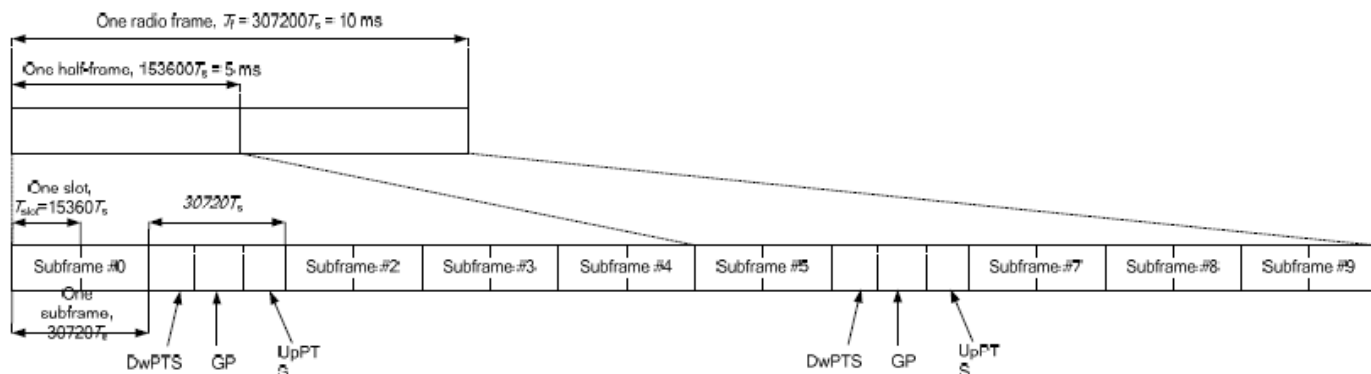


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

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

<Default Power Mode>
<LTE Band 38>

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				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	23.87	24.29	23.96	24.5	0
20	QPSK	1	49	24.17	24.20	24.23		
20	QPSK	1	99	24.24	24.16	24.11		
20	QPSK	50	0	22.69	22.72	22.63	23.5	1
20	QPSK	50	24	22.68	22.67	22.70		
20	QPSK	50	50	22.67	22.63	22.57		
20	QPSK	100	0	22.17	22.11	22.00	23.5	1
20	16QAM	1	0	23.10	23.24	23.14		
20	16QAM	1	49	23.30	23.32	23.35		
20	16QAM	1	99	23.31	23.22	23.24	22.5	2
20	16QAM	50	0	21.96	21.97	22.03		
20	16QAM	50	24	22.02	21.91	21.83		
20	16QAM	50	50	21.92	21.73	21.84	22.5	2
20	16QAM	100	0	21.51	21.46	21.43		
20	64QAM	1	0	22.15	22.26	22.17		
20	64QAM	1	49	22.04	22.08	22.08	22.5	2
20	64QAM	1	99	22.07	22.00	21.99		
20	64QAM	50	0	21.30	21.35	21.22		
20	64QAM	50	24	21.35	21.20	21.19	21.5	3
20	64QAM	50	50	21.37	21.12	21.09		
20	64QAM	100	0	20.76	20.80	20.65		
Channel				37825	38000	38175		
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	24.25	24.21	24.16	24.5	0
15	QPSK	1	37	24.22	24.25	24.24		
15	QPSK	1	74	24.28	24.19	24.11		
15	QPSK	36	0	22.76	22.75	22.66	23.5	1
15	QPSK	36	20	22.84	22.65	22.68		
15	QPSK	36	39	22.72	22.75	22.65		
15	QPSK	75	0	22.38	22.40	22.26	23.5	1
15	16QAM	1	0	23.17	23.21	23.18		
15	16QAM	1	37	23.31	23.33	23.33		
15	16QAM	1	74	23.35	23.29	23.16	22.5	2
15	16QAM	36	0	22.03	22.04	21.99		
15	16QAM	36	20	21.98	22.06	22.09		
15	16QAM	36	39	22.16	22.03	21.87	22.5	2
15	16QAM	75	0	21.77	21.71	21.57		
15	64QAM	1	0	22.23	22.26	22.15		
15	64QAM	1	37	22.11	22.07	22.09	21.5	3
15	64QAM	1	74	22.13	22.07	22.03		
15	64QAM	36	0	21.30	21.36	21.33		
15	64QAM	36	20	21.31	21.15	21.25	21.5	3
15	64QAM	36	39	21.33	21.17	21.11		
15	64QAM	75	0	20.87	20.80	20.68		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	23.93	24.02	23.96	24.5	0
10	QPSK	1	25	24.23	24.25	24.24		
10	QPSK	1	49	24.17	24.09	23.85		
10	QPSK	25	0	22.78	22.97	22.94	23.5	1
10	QPSK	25	12	22.86	22.75	22.90		
10	QPSK	25	25	22.78	23.00	22.79		
10	QPSK	50	0	22.39	22.50	22.29	23.5	1
10	16QAM	1	0	23.16	23.19	23.20		
10	16QAM	1	25	23.33	23.33	23.28		
10	16QAM	1	49	23.26	23.24	23.13	22.5	2
10	16QAM	25	0	22.25	22.26	22.24		
10	16QAM	25	12	22.21	22.14	22.15		
10	16QAM	25	25	22.24	22.11	21.97	22.5	2
10	16QAM	50	0	21.76	21.79	21.66		
10	64QAM	1	0	22.08	22.08	22.13		
10	64QAM	1	25	22.12	22.14	22.11	22.5	2
10	64QAM	1	49	22.04	22.05	22.01		
10	64QAM	25	0	21.44	21.48	21.44		
10	64QAM	25	12	21.40	21.32	21.34	21.5	3
10	64QAM	25	25	21.38	21.30	21.16		
10	64QAM	50	0	21.00	21.11	21.03		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	24.03	24.07	23.88	24.5	0
5	QPSK	1	12	24.19	24.05	24.11		
5	QPSK	1	24	24.06	23.95	24.08		
5	QPSK	12	0	23.15	23.14	23.11	23.5	1
5	QPSK	12	7	23.19	23.13	23.13		
5	QPSK	12	13	23.16	23.12	23.07		
5	QPSK	25	0	22.78	22.74	22.59	23.5	1
5	16QAM	1	0	23.14	23.16	23.06		
5	16QAM	1	12	23.24	23.30	23.17		
5	16QAM	1	24	23.23	23.23	23.25	22.5	2
5	16QAM	12	0	22.27	22.27	22.19		
5	16QAM	12	7	22.26	22.19	22.21		
5	16QAM	12	13	22.23	22.25	22.14	22.5	2
5	16QAM	25	0	22.00	22.20	22.08		
5	64QAM	1	0	22.11	22.12	22.06		
5	64QAM	1	12	22.12	22.06	22.09	22.5	2
5	64QAM	1	24	22.05	22.11	22.06		
5	64QAM	12	0	21.38	21.40	21.35		
5	64QAM	12	7	21.39	21.41	21.34	21.5	3
5	64QAM	12	13	21.34	21.38	21.31		
5	64QAM	25	0	21.41	21.39	21.28		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	24.50	24.36	24.43	24.32	24.39	25	0
20	QPSK	1	49	24.45	24.32	24.27	24.28	24.36		
20	QPSK	1	99	24.40	24.32	24.20	24.29	24.33		
20	QPSK	50	0	23.49	23.45	23.33	23.37	23.45	24	1
20	QPSK	50	24	23.35	23.40	23.26	23.29	23.40		
20	QPSK	50	50	23.48	23.39	23.30	23.30	23.38		
20	QPSK	100	0	23.35	22.86	22.98	22.56	23.33	24	1
20	16QAM	1	0	23.46	23.33	23.35	23.47	23.34		
20	16QAM	1	49	23.35	23.48	23.40	23.41	23.49		
20	16QAM	1	99	23.48	23.44	23.32	23.40	23.42	23	2
20	16QAM	50	0	22.44	22.33	22.42	22.38	22.36		
20	16QAM	50	24	22.37	22.34	22.35	22.48	22.36		
20	16QAM	50	50	22.38	22.47	22.39	22.49	22.46	23	2
20	16QAM	100	0	22.37	22.36	22.31	22.08	22.33		
20	64QAM	1	0	22.31	22.39	22.29	22.34	22.46	23	2
20	64QAM	1	49	22.31	22.23	22.13	22.14	22.23		
20	64QAM	1	99	22.25	22.16	22.06	22.15	22.18		
20	64QAM	50	0	21.44	21.31	21.41	21.35	21.36	22	3
20	64QAM	50	24	21.36	21.36	21.36	21.46	21.37		
20	64QAM	50	50	21.38	21.49	21.38	21.47	21.44		
20	64QAM	100	0	21.34	21.50	21.37	21.22	21.34		
Channel				39725	40173	40620	41068	41515		
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5	Tune-up limit (dBm)	MPR (dB)
15	QPSK	1	0	24.39	24.40	24.39	24.46	24.38	25	0
15	QPSK	1	37	24.49	24.39	24.30	24.38	24.46		
15	QPSK	1	74	24.43	24.35	24.25	24.32	24.35		
15	QPSK	36	0	23.31	23.50	23.30	23.39	23.32	24	1
15	QPSK	36	20	23.35	23.46	23.26	23.36	23.45		
15	QPSK	36	39	23.49	23.38	23.30	23.38	23.43		
15	QPSK	75	0	23.33	23.22	23.25	22.97	23.44	24	1
15	16QAM	1	0	23.42	23.37	23.50	23.34	23.41		
15	16QAM	1	37	23.30	23.50	23.41	23.50	23.33		
15	16QAM	1	74	23.34	23.48	23.38	23.43	23.45	23	2
15	16QAM	36	0	22.35	22.35	22.35	22.46	22.36		
15	16QAM	36	20	22.33	22.31	22.29	22.40	22.47		
15	16QAM	36	39	22.34	22.41	22.31	22.41	22.50	23	2
15	16QAM	75	0	22.34	22.36	22.32	22.36	22.33		
15	64QAM	1	0	22.37	22.34	22.24	22.35	22.47		
15	64QAM	1	37	22.36	22.26	22.16	22.25	22.31	23	2
15	64QAM	1	74	22.30	22.20	22.10	22.19	22.20		
15	64QAM	36	0	21.38	21.39	21.36	21.48	21.31		
15	64QAM	36	20	21.37	21.34	21.32	21.43	21.31	22	3
15	64QAM	36	39	21.37	21.47	21.34	21.45	21.32		
15	64QAM	75	0	21.34	21.33	21.34	21.40	21.33		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	24.40	24.39	24.29	24.40	24.40	25	0
10	QPSK	1	25	24.32	24.41	24.32	24.41	24.44		
10	QPSK	1	49	24.46	24.37	24.27	24.35	24.42		
10	QPSK	25	0	23.48	23.46	23.26	23.39	23.36	24	1
10	QPSK	25	12	23.37	23.47	23.23	23.46	23.32		
10	QPSK	25	25	23.47	23.38	23.29	23.39	23.47		
10	QPSK	50	0	23.35	23.26	23.25	23.06	23.33	24	1
10	16QAM	1	0	23.42	23.50	23.43	23.32	23.44		
10	16QAM	1	25	23.32	23.33	23.44	23.31	23.38		
10	16QAM	1	49	23.34	23.45	23.37	23.42	23.49	23	2
10	16QAM	25	0	22.40	22.37	22.37	22.48	22.36		
10	16QAM	25	12	22.36	22.38	22.35	22.37	22.32		
10	16QAM	25	25	22.39	22.48	22.41	22.49	22.33	23	2
10	16QAM	50	0	22.35	22.32	22.34	22.37	22.33		
10	64QAM	1	0	22.48	22.26	22.17	22.29	22.48		
10	64QAM	1	25	22.39	22.29	22.19	22.27	22.30	23	2
10	64QAM	1	49	22.27	22.19	22.12	22.19	22.25		
10	64QAM	25	0	21.41	21.31	21.40	21.31	21.39		
10	64QAM	25	12	21.41	21.31	21.41	21.39	21.36	22	3
10	64QAM	25	25	21.32	21.34	21.43	21.34	21.39		
10	64QAM	50	0	21.33	21.35	21.35	21.42	21.32		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	24.43	24.33	24.24	24.43	24.46	25	0
5	QPSK	1	12	24.42	24.40	24.31	24.40	24.44		
5	QPSK	1	24	24.44	24.32	24.23	24.29	24.35		
5	QPSK	12	0	23.59	23.47	23.23	23.48	23.51	24	1
5	QPSK	12	7	23.56	23.44	23.24	23.47	23.49		
5	QPSK	12	13	23.51	23.43	23.33	23.39	23.44		
5	QPSK	25	0	23.53	23.39	23.24	23.45	23.48	24	1
5	16QAM	1	0	23.64	23.45	23.36	23.51	23.59		
5	16QAM	1	12	23.66	23.52	23.43	23.50	23.56		
5	16QAM	1	24	23.53	23.49	23.38	23.44	23.49	23	2
5	16QAM	12	0	22.62	22.49	22.30	22.52	22.56		
5	16QAM	12	7	22.62	22.51	22.29	22.50	22.54		
5	16QAM	12	13	22.56	22.46	22.36	22.44	22.51	23	2
5	16QAM	25	0	22.65	22.53	22.33	22.53	22.60		
5	64QAM	1	0	22.40	22.22	22.11	22.27	22.34		
5	64QAM	1	12	22.40	22.28	22.18	22.26	22.30	23	2
5	64QAM	1	24	22.36	22.26	22.15	22.22	22.26		
5	64QAM	12	0	21.68	21.55	21.34	21.54	21.59		
5	64QAM	12	7	21.69	21.55	21.38	21.54	21.60	22	3
5	64QAM	12	13	21.61	21.51	21.42	21.49	21.53		
5	64QAM	25	0	21.69	21.57	21.34	21.58	21.60		

<LTE Carrier Aggregation combinations>
General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.
3. The LTE B29 and B46 is limited to Scell.

2CC Downlink Carrier Aggregation					3CC Downlink Carrier Aggregation				
Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset
1	2A-5A	2A		3CC-39	36	2A-2A-13A	2A		
2	2A-12A	2A		3CC-38	37	2A-4A-13A	2A		
3	2A-13A	2A		3CC-37	38	2A-12A-30A	2A		4CC-69
4	2A-29A			3CC-40	39	2A-5A-30A	2A		4CC-71
5	2A-30A			3CC-40	40	2A-29A-30A		B29 SCC only	
6	2A-14A			3CC-42	41	2A-30A-66A	2A		4CC-70
7	2A-71A	2A		3CC-46	42	2A-14A-30A			
8	2A-4A	2A-4A		3CC-37	43	2A-4A-30A	2A		
9	2A-66A	2A-66A		3CC-41	44	2A-2A-4A	2A		
10	2A-46A	2A	B46 SCC only	3CC-57	45	2A-4A-4A	2A		
11	4A-13A	4A		3CC-59	46	2A-2A-71A			
12	4A-29A		B29 SCC only	3CC-62	47	2A-4A-71A			
13	4A-30A			3CC-60	48	2A-66A-71A	2A		
14	4A-12A	4A		3CC-60	49	2A-66C	2A 66A		
15	4A-5A			3CC-55	50	2A-4A-12A	2A		
16	4A-71A	4A		3CC-63	51	2A-2A-12A	2A		4CC-69
17	4A-46A		B46 SCC only	4CC-75	52	2A-12A-66A	2A		4CC-70
18	5A-30A			3CC-39	53	2A-2A-66A	2A		
19	7A-46A		B46 SCC only		54	2A-66A-66A	2A		
20	12A-66A	66A		3CC-52	55	2A-4A-5A	2A		
21	12A-30A			3CC-38	56	2A-46C	2A	B46 SCC only	4CC-73
22	14A-66A			3CC-67	57	2A-46A-46A	2A	B46 SCC only	4CC-74
23	14A-30A			3CC-42	58	2A-46A-66A	2A	B46 SCC only	4CC-74
24	30A-29A		B29 SCC only	3CC-40	59	4A-4A-13A	4A		
25	66A-71A			3CC-68	60	4A-12A-30A			
26	66A-46A		B46 SCC only	3CC-58	61	4A-5A-30A			
27	2C	2A			62	4A-29A-30A		B29 SCC only	
28	2A-2A	2A-2A			63	4A-4A-71A	4A		
29	5B				64	4A-4A-12A	4A		
30	7C	7A			65	12A-66A-66A	66A		
31	7A-7A	7A-7A			66	12A-66C	66A		
32	4A-4A	4A-4A			67	14A-66A-66A			
33	66B	66A			68	66A-66A-71A	66A		
34	66C	66A			69	4A-46C	4A	B46 SCC only	4CC-79
35	66A-66A	66A-66A			70	66A-46C	66A	B46 SCC only	4CC-82
					71	4A-46A-46A	4A	B46 SCC only	
					72	66A-46A-46A	66A	B46 SCC only	4CC-82

4CC Downlink Carrier Aggregation					5CC Downlink Carrier Aggregation				
Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset
73	2A-2A-12A-30A				83	2A-2A-46D		B46 SCC only	
74	2A-12A-30A-66A				84	2A-5B-30A-66A			
75	2A-5A-30A-66A				85	2A-46A-46C-66A		B46 SCC only	
76	2A-46D	2A	B46 SCC only	5CC-86	86	2A-46D-66A		B46 SCC only	
77	2A-46A-46C	2A	B46 SCC only	5CC-85	87	66A-66A-46D		B46 SCC only	
78	2A-46A-46A-66A		B46 SCC only						
79	4A-46A-46C		B46 SCC only						
80	4A-46D	4A	B46 SCC only						
81	66A-46D	66A	B46 SCC only	5CC-87					
82	66A-46A-46C	66A	B46 SCC only	5CC-85					

<Power verification when LTE Carrier Aggregation Active>
General Note:

- i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
- ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.
- iii. The device supports downlink two carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
- v. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vi. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

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

<Two Carrier power verification>

Configure		PCC							SCC				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		7	20	2510	20850	QPSK	1	0	46	20	5537.5	50665	24.44	24.50
Intra-Band	Non-Contiguous	2(4X4MIMO)	20	1900	19100	QPSK	1	0	2	5	1932.5	625	21.59	21.67
		7(4X4MIMO)	20	2510	20850	QPSK	1	0	7(4X4MIMO)	5	2687.5	3425	24.50	24.50
		4(4X4MIMO)	20	1720	20050	QPSK	1	0	4(4X4MIMO)	5	2152.5	2375	21.69	21.76
		66(4X4MIMO)	20	1745	132322	QPSK	1	0	66(4X4MIMO)	5	2197.5	67311	21.74	21.83
	Contiguous	2(4X4MIMO)	20	1900	19100	QPSK	1	0	2	20	1940	700	21.61	21.67
		5	10	829	20450	QPSK	1	0	5	10	883.9	2549	23.78	23.87
		7(4X4MIMO)	20	2510	20850	QPSK	1	0	7	20	2680	3350	24.49	24.50
		66(4X4MIMO)	15	1717.5	132047	QPSK	1	0	66	5	2126.8	66604	21.68	21.73
		66(4X4MIMO)	20	1745	132322	QPSK	1	0	66	20	2164.80	66984	21.83	21.83

<Three Carrier power verification>

Configure	PCC							SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2(4X4MIMO)	20	1900	19100	QPSK	1	0	2	5	1932.5	625	13	10	751	5230	21.59	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	21.62	21.67
	2	20	1900	19100	QPSK	1	0	29	10	722.5	9715	30	10	2355	9820	21.64	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	14	10	763	5330	30	10	2355	9820	21.61	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	30	10	2355	9820	21.60	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	2	5	1932.5	625	4	20	2132.5	2175	21.65	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	4	5	2152.5	2375	21.59	21.67
	2	20	1900	19100	QPSK	1	0	2	5	1932.5	625	71	20	68786	637	21.62	21.67
	2	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	71	20	68786	637	21.61	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	66	20	2155	66886	71	20	68786	637	21.63	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	66(4X4MIMO)	20	2155	66886	66	20	2174.8	67084	21.67	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	12	10	737.5	5095	21.63	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	2	5	1932.5	625	66	20	2155	66886	21.63	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	66	20	2155	66886	66	5	2197.5	67311	21.67	21.67
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	21.58	21.67
	4(4X4MIMO)	20	1720	20050	QPSK	1	0	4	5	2152.5	2375	13	10	751	5230	21.70	21.76
	4	20	1720	20050	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	21.73	21.76
	4	20	1720	20050	QPSK	1	0	5	10	881.5	2525	30	10	2355	9820	21.73	21.76
	4	20	1720	20050	QPSK	1	0	29	10	722.5	9715	30	10	2355	9820	21.67	21.76
	4(4X4MIMO)	20	1720	20050	QPSK	1	0	4	5	2152.5	2375	71	20	68786	637	21.68	21.76
	4(4X4MIMO)	20	1720	20050	QPSK	1	0	4	5	2152.5	2375	12	10	737.5	5095	21.69	21.76
	12	10	704	23060	QPSK	1	0	66(4X4MIMO)	20	2155	66886	66	5	2197.5	67311	23.83	23.92
	12	10	704	23060	QPSK	1	0	66(4X4MIMO)	20	2155	66886	66	20	2174.8	67084	23.87	23.92
	14	10	793	23330	QPSK	1	0	66	20	2155	66886	66	5	2197.5	67311	23.33	23.34
	66(4X4MIMO)	20	1745	132322	QPSK	1	0	66	5	2197.5	67311	71	20	68786	637	21.77	21.83
	4(4X4MIMO)	20	1720	20050	QPSK	1	0	46	20	5537.5	50665	46	20	5915	54440	21.72	21.76

<Four Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1900	19100	QPSK	1	0	2	5	1932.5	625	12	10	737.5	5095	30	10	2355	9820	21.66	21.67
	2	20	1900	19100	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	66	20	2155	66886	21.65	21.67
	2	20	1900	19100	QPSK	1	0	5	10	881.5	2525	30	10	2355	9820	66	20	2155	66886	21.64	21.67
	2	20	1900	19100	QPSK	1	0	46	20	5537.5	50665	46	20	5915	54440	66	20	2155	66886	21.66	21.67
	4	20	1720	20050	QPSK	1	0	46	20	5537.5	50665	46	20	5915	54440	46	20	5895.2	54242	21.73	21.76
	4(4X4MIMO)	20	1720	20050	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	21.76	21.76

<Five Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				SCC4				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1900	19100	QPSK	1	0	2	5	1932.5	625	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	21.60	21.67
	2	20	1900	19100	QPSK	1	0	5	10	876.6	2476	5	10	886.5	2575	30	10	2355	9820	66	20	2155	66886	21.59	21.67
	2	20	1900	19100	QPSK	1	0	46	20	5537.5	50665	46	20	5915	54440	46	20	5895.2	54242	66	20	2155	66886	21.65	21.67
	2	20	1900	19100	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	66	20	2155	66886	21.60	21.67
	66	20	1745	132322	QPSK	1	0	66	5	2197.5	67311	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	21.81	21.83

**<WLAN Conducted Power>****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.

<2.4GHz WLAN ANT 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	11.92	12.50	99.04
		6	2437	12.25	12.50	
		11	2462	12.34	12.50	
	802.11g 6Mbps	1	2412	12.79	13.00	98.10
		6	2437	12.99	13.00	
		11	2462	13.00	13.00	
	802.11n-HT20 MCS0	1	2412	12.70	13.00	97.97
		6	2437	12.77	13.00	
		11	2462	12.79	13.00	
	802.11n-HT40 MCS0	3	2422	12.59	13.00	94.61
		6	2437	12.85	13.00	
		9	2452	12.83	13.00	

<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	12.49	13.00	99.04
		6	2437	12.54	13.00	
		11	2462	13.00	13.50	
	802.11g 6Mbps	1	2412	13.28	14.00	98.10
		6	2437	13.50	14.00	
		11	2462	13.73	14.00	
	802.11n-HT20 MCS0	1	2412	13.06	14.00	97.97
		6	2437	13.26	14.00	
		11	2462	13.44	14.00	
	802.11n-HT40 MCS0	3	2422	13.11	14.00	94.61
		6	2437	13.40	14.00	
		9	2452	13.36	14.00	

<2.4GHz WLAN ANT 0+1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	15.54	16.00	99.04
		6	2437	15.60	16.00	
		11	2462	16.00	16.00	
	802.11g 6Mbps	1	2412	16.45	17.00	98.10
		6	2437	16.59	17.00	
		11	2462	16.90	17.00	
	802.11n-HT20 MCS0	1	2412	16.30	17.00	97.97
		6	2437	16.42	17.00	
		11	2462	16.61	17.00	
	802.11n-HT40 MCS0	3	2422	16.38	17.00	94.61
		6	2437	16.54	17.00	
		9	2452	16.47	17.00	

<5GHz WLAN ANT 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	15.25	15.50	98.10
		40	5200	15.17	15.50	
		44	5220	15.32	15.50	
		48	5240	15.13	15.50	
	802.11n-HT20 MCS0	36	5180	14.81	15.00	97.97
		40	5200	14.65	15.00	
		44	5220	14.99	15.00	
		48	5240	14.88	15.00	
	802.11n-HT40 MCS0	38	5190	15.97	16.00	96.04
		46	5230	15.95	16.00	
	802.11ac-VHT20 MCS0	36	5180	13.92	14.00	97.98
		40	5200	13.66	14.00	
		44	5220	13.76	14.00	
		48	5240	13.84	14.00	
	802.11ac-VHT40 MCS0	38	5190	14.72	15.00	96.36
		46	5230	14.79	15.00	
	802.11ac-VHT80 MCS0	42	5210	13.80	14.00	94.85

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	15.03	15.50	98.10
		56	5280	15.11	15.50	
		60	5300	15.14	15.50	
		64	5320	15.01	15.50	
	802.11n-HT20 MCS0	52	5260	14.84	15.00	97.97
		56	5280	14.87	15.00	
		60	5300	14.93	15.00	
		64	5320	14.76	15.00	
	802.11n-HT40 MCS0	54	5270	15.50	16.00	96.04
		62	5310	14.22	14.50	
	802.11ac-VHT20 MCS0	52	5260	13.79	14.00	97.98
		56	5280	13.60	14.00	
		60	5300	13.63	14.00	
		64	5320	13.66	14.00	
	802.11ac-VHT40 MCS0	54	5270	14.62	15.00	96.36
		62	5310	14.02	14.50	
	802.11ac-VHT80 MCS0	58	5290	13.49	14.00	94.85

5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5500	15.26	15.50	98.10
		116	5580	14.84	15.50	
		124	5620	14.76	15.50	
		132	5660	14.81	15.50	
		140	5700	14.97	15.50	
	802.11n-HT20 MCS0	100	5500	14.96	15.00	97.97
		116	5580	14.85	15.00	
		124	5620	14.63	15.00	
		132	5660	14.79	15.00	
		140	5700	14.88	15.00	
	802.11n-HT40 MCS0	102	5510	15.57	16.00	96.04
		110	5550	15.70	16.00	
		126	5630	15.68	16.00	
		134	5670	15.69	16.00	
	802.11ac-VHT20 MCS0	100	5500	13.77	14.00	97.98
		116	5580	13.55	14.00	
		124	5620	13.51	14.00	
		132	5660	13.66	14.00	
		140	5700	13.72	14.00	
	802.11ac-VHT40 MCS0	102	5510	14.83	15.00	96.36
		110	5550	14.70	15.00	
		126	5630	14.59	15.00	
		134	5670	14.78	15.00	
	802.11ac-VHT80 MCS0	106	5530	13.68	14.00	94.85
		122	5610	13.63	14.00	

5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a MCS0	149	5745	15.33	16.00	98.10
		157	5785	15.90	16.00	
		165	5825	15.85	16.00	
	802.11n-HT20 MCS0	149	5745	14.46	15.00	97.97
		157	5785	14.65	15.00	
		165	5825	14.53	15.00	
	802.11n-HT40 MCS0	151	5755	15.60	16.00	96.04
		159	5795	15.96	16.00	
	802.11ac-VHT20 MCS0	149	5745	13.77	14.00	97.98
		157	5785	13.84	14.00	
		165	5825	13.96	14.00	
	802.11ac-VHT40 MCS0	151	5755	14.55	15.00	96.36
		159	5795	14.93	15.00	
	802.11ac-VHT80 MCS0	155	5775	14.66	15.00	94.85

<5GHz WLAN ANT 1>

5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	15.80	16.00	98.10
		40	5200	15.95	16.00	
		44	5220	15.89	16.00	
		48	5240	15.99	16.00	
	802.11n-HT20 MCS0	36	5180	14.86	15.00	97.97
		40	5200	14.98	15.00	
		44	5220	14.95	15.00	
		48	5240	14.86	15.00	
	802.11n-HT40 MCS0	38	5190	15.86	16.00	96.34
		46	5230	15.93	16.00	
	802.11ac-VHT20 MCS0	36	5180	14.06	14.50	97.98
		40	5200	14.10	14.50	
		44	5220	14.22	14.50	
		48	5240	13.98	14.50	
	802.11ac-VHT40 MCS0	38	5190	14.93	15.50	96.36
		46	5230	15.12	15.50	
	802.11ac-VHT80 MCS0	42	5210	13.85	14.00	95.35

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	15.78	16.00	98.10
		56	5280	15.69	16.00	
		60	5300	15.76	16.00	
		64	5320	15.80	16.00	
	802.11n-HT20 MCS0	52	5260	14.85	15.00	97.97
		56	5280	14.75	15.00	
		60	5300	14.80	15.00	
		64	5320	14.72	15.00	
	802.11n-HT40 MCS0	54	5270	15.82	16.00	96.34
		62	5310	15.20	15.50	
	802.11ac-VHT20 MCS0	52	5260	14.00	14.00	97.98
		56	5280	13.88	14.00	
		60	5300	13.97	14.00	
		64	5320	13.99	14.00	
	802.11ac-VHT40 MCS0	54	5270	14.98	15.00	96.36
		62	5310	14.86	15.00	
	802.11ac-VHT80 MCS0	58	5290	13.74	14.00	95.35

5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5500	15.79	16.00	98.10
		116	5580	15.76	16.00	
		124	5620	15.69	16.00	
		132	5660	15.70	16.00	
		140	5700	15.81	16.00	
	802.11n-HT20 MCS0	100	5500	14.89	15.00	97.97
		116	5580	14.56	15.00	
		124	5620	15.38	15.50	
		132	5660	15.42	15.50	
		140	5700	14.74	15.00	
	802.11n-HT40 MCS0	102	5510	15.70	16.00	96.34
		110	5550	15.85	16.00	
		126	5630	15.46	16.00	
		134	5670	15.69	16.00	
	802.11ac-VHT20 MCS0	100	5500	14.00	14.00	97.98
		116	5580	13.99	14.00	
		124	5620	13.79	14.00	
		132	5660	13.84	14.00	
		140	5700	13.87	14.00	
	802.11ac-VHT40 MCS0	102	5510	15.00	15.00	96.36
		110	5550	14.84	15.00	
		126	5630	14.72	15.00	
		134	5670	14.97	15.00	
	802.11ac-VHT80 MCS0	106	5530	13.82	14.00	95.35
		122	5610	13.65	14.00	

5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a MCS0	149	5745	16.33	16.50	98.10
		157	5785	16.45	16.50	
		165	5825	16.49	16.50	
	802.11n-HT20 MCS0	149	5745	15.13	16.00	97.97
		157	5785	15.40	16.00	
		165	5825	15.34	16.00	
	802.11n-HT40 MCS0	151	5755	16.45	16.50	96.34
		159	5795	16.48	16.50	
	802.11ac-VHT20 MCS0	149	5745	14.38	15.00	97.98
		157	5785	14.42	15.00	
		165	5825	14.31	15.00	
	802.11ac-VHT40 MCS0	151	5755	15.31	16.00	96.36
		159	5795	15.44	16.00	
	802.11ac-VHT80 MCS0	155	5775	15.41	16.00	95.35

<5GHz WLAN ANT 0+1>

5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	19.49	20.00	98.10
		40	5200	19.36	20.00	
		44	5220	19.44	20.00	
		48	5240	19.05	20.00	
	802.11n-HT20 MCS0	36	5180	18.57	19.00	97.97
		40	5200	18.42	19.00	
		44	5220	18.57	19.00	
		48	5240	18.39	19.00	
	802.11n-HT40 MCS0	38	5190	19.42	20.00	96.04
		46	5230	19.57	20.00	
	802.11ac-VHT20 MCS0	36	5180	17.74	18.00	97.98
		40	5200	17.63	18.00	
		44	5220	17.78	18.00	
		48	5240	17.73	18.00	
	802.11ac-VHT40 MCS0	38	5190	18.69	19.00	96.06
		46	5230	18.68	19.00	
	802.11ac-VHT80 MCS0	42	5210	17.44	17.50	94.82

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	19.20	19.50	98.10
		56	5280	19.04	19.50	
		60	5300	19.23	19.50	
		64	5320	19.14	19.50	
	802.11n-HT20 MCS0	52	5260	18.38	18.50	97.97
		56	5280	18.17	18.50	
		60	5300	18.33	18.50	
		64	5320	18.23	18.50	
	802.11n-HT40 MCS0	54	5270	19.20	19.50	96.04
		62	5310	18.24	18.50	
	802.11ac-VHT20 MCS0	52	5260	17.61	18.00	97.98
		56	5280	17.58	18.00	
		60	5300	17.77	18.00	
		64	5320	17.62	18.00	
	802.11ac-VHT40 MCS0	54	5270	18.50	18.50	96.06
		62	5310	18.06	18.50	
	802.11ac-VHT80 MCS0	58	5290	16.97	17.00	94.82

5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5500	19.28	19.50	98.10
		116	5580	19.49	19.50	
		124	5620	19.25	19.50	
		132	5660	19.07	19.50	
		140	5700	19.23	19.50	
	802.11n-HT20 MCS0	100	5500	18.44	18.50	97.97
		116	5580	18.41	18.50	
		124	5620	18.23	18.50	
		132	5660	17.96	18.50	
		140	5700	18.05	18.50	
	802.11n-HT40 MCS0	102	5510	19.11	19.50	96.04
		110	5550	19.17	19.50	
		126	5630	18.94	19.50	
		134	5670	19.07	19.50	
	802.11ac-VHT20 MCS0	100	5500	17.86	18.00	97.98
		116	5580	17.58	18.00	
		124	5620	17.60	18.00	
		132	5660	17.54	18.00	
		140	5700	17.70	18.00	
	802.11ac-VHT40 MCS0	102	5510	18.70	19.00	96.06
		110	5550	18.47	19.00	
		126	5630	18.38	19.00	
		134	5670	18.59	19.00	
	802.11ac-VHT80 MCS0	106	5530	17.86	18.00	94.82
		122	5610	17.84	18.00	

5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a MCS0	149	5745	19.34	19.50	98.10
		157	5785	19.49	19.50	
		165	5825	19.50	19.50	
	802.11n-HT20 MCS0	149	5745	18.25	18.50	97.97
		157	5785	18.41	18.50	
		165	5825	18.39	18.50	
	802.11n-HT40 MCS0	151	5755	19.47	19.50	96.04
		159	5795	19.49	19.50	
	802.11ac-VHT20 MCS0	149	5745	17.44	17.50	97.98
		157	5785	17.46	17.50	
		165	5825	17.38	17.50	
	802.11ac-VHT40 MCS0	151	5755	18.36	18.50	96.06
		159	5795	18.48	18.50	
	802.11ac-VHT80 MCS0	155	5775	18.45	18.50	94.82

<2.4GHz Bluetooth>

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	9.47	6.77	6.74
	CH 39	2441	8.37	5.34	5.31
	CH 78	2480	8.63	5.88	5.86
Tune-up Limit			10.00	7.00	7.00

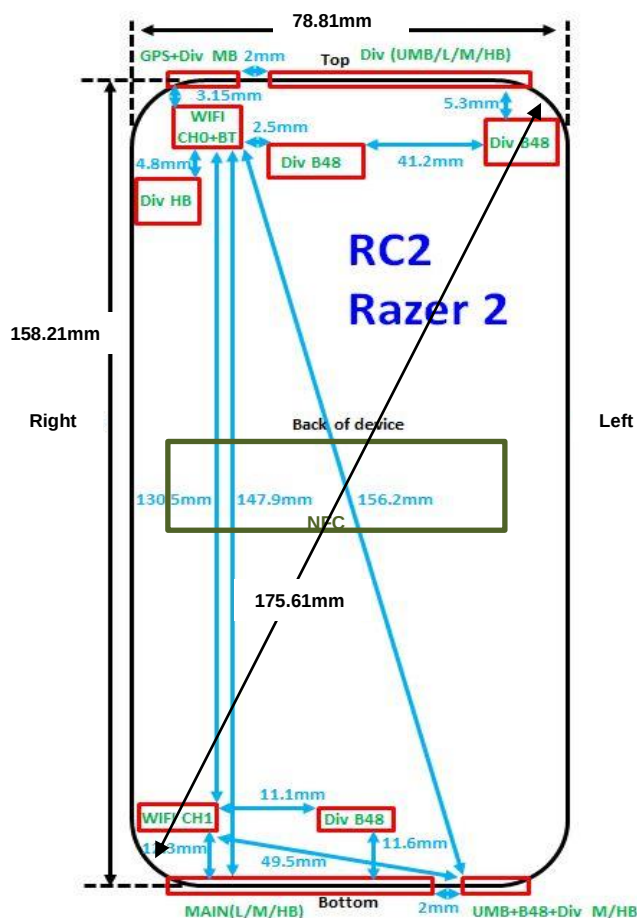
Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	2.98	2.89
	CH 19	2440	1.71	1.63
	CH 39	2480	2.55	2.48
Tune-up Limit			3.00	3.00

General Note:

- For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.8% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.

12. Antenna Location

<Mobile Phone>



WWAN Antenna support bands	
WWAN UAT	WCDMA V, LTE B5/B12/B13/B17/B26/B71
WWAN LAT	GSM 850/1900, WCDMA II/IV/V, LTE B2/B4/B5/B7/B12/B13/B14/B17/B26/B30/B66/B71/B38/B41

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN UAT	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
WWAN LAT	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm
BT&WLAN ANT1	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm
WLAN ANT2	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	>25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN UAT	Yes	Yes	No	Yes	Yes	Yes
WWAN LAT	Yes	Yes	Yes	No	Yes	Yes
BT&WLAN ANT1	Yes	Yes	Yes	No	Yes	No
WLAN ANT2	Yes	Yes	No	Yes	Yes	No

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

13. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result.
The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
4. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of GSM1900, WCDMA B2 / B4 and LTE B2 / B4 / B30 / B66.
5. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
6. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold, for this device only bottom side SAR of WWAN transmitter scaled to maximum output power is higher than 1.2W/kg when GSM1900, WCDMA B2/B4 and LTE B2/B30/B66 transmit, therefore product specific SAR is necessary.
7. For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is > 16 cm.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850 and GPRS (3Tx slots) for GSM1900 is considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.
3. Power reduction which is triggered by hotspot mode is implemented in GSM1900 band, for hotspot mode SAR testing EUT was set in reduced power mode and GPRS 3Tx slot due to its highest frame-average power.

**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 B12 / 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 4 / 5 / 17 / 38 SAR test was covered by Band 66 / 26 / 12 / 41; 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.



13.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_LAT	GPRS (4 Tx slots)	Right Cheek	0mm	128	824.2	27.58	28.00	1.102	0.01	0.288	0.317
	GSM850_LAT	GPRS (4 Tx slots)	Right Cheek	0mm	189	836.4	27.29	28.00	1.178	-0.02	0.232	0.273
01	GSM850_LAT	GPRS (4 Tx slots)	Right Cheek	0mm	251	848.8	27.18	28.00	1.208	-0.13	0.342	0.413
	GSM850_LAT	GPRS (4 Tx slots)	Right Tilted	0mm	128	824.2	27.58	28.00	1.102	-0.11	0.114	0.126
	GSM850_LAT	GPRS (4 Tx slots)	Left Cheek	0mm	128	824.2	27.58	28.00	1.102	0.18	0.187	0.206
	GSM850_LAT	GPRS (4 Tx slots)	Left Tilted	0mm	128	824.2	27.58	28.00	1.102	-0.02	0.108	0.119
	GSM1900_LAT	GPRS (3 Tx slots)	Right Cheek	0mm	512	1850.2	25.30	26.00	1.175	0.13	0.042	0.049
	GSM1900_LAT	GPRS (3 Tx slots)	Right Cheek	0mm	661	1880	25.29	26.00	1.178	0.09	0.055	0.065
02	GSM1900_LAT	GPRS (3 Tx slots)	Right Cheek	0mm	810	1909.8	25.26	26.00	1.186	-0.1	0.076	0.090
	GSM1900_LAT	GPRS (3 Tx slots)	Right Tilted	0mm	512	1850.2	25.30	26.00	1.175	-0.17	0.007	0.008
	GSM1900_LAT	GPRS (3 Tx slots)	Left Cheek	0mm	512	1850.2	25.30	26.00	1.175	0.16	0.022	0.026
	GSM1900_LAT	GPRS (3 Tx slots)	Left Tilted	0mm	512	1850.2	25.30	26.00	1.175	0.12	0.019	0.022

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
03	WCDMA II_LAT	RMC 12.2Kbps	Right Cheek	0mm	9538	1907.6	22.50	22.50	1.000	-0.05	0.110	0.110
	WCDMA II_LAT	RMC 12.2Kbps	Right Cheek	0mm	9262	1852.4	22.40	22.50	1.023	-0.03	0.064	0.065
	WCDMA II_LAT	RMC 12.2Kbps	Right Cheek	0mm	9400	1880	22.42	22.50	1.019	-0.1	0.076	0.077
	WCDMA II_LAT	RMC 12.2Kbps	Right Tilted	0mm	9538	1907.6	22.50	22.50	1.000	0.07	0.025	0.025
	WCDMA II_LAT	RMC 12.2Kbps	Left Cheek	0mm	9538	1907.6	22.50	22.50	1.000	-0.05	0.043	0.043
	WCDMA II_LAT	RMC 12.2Kbps	Left Tilted	0mm	9538	1907.6	22.50	22.50	1.000	0.13	0.011	0.011
	WCDMA IV_LAT	RMC 12.2Kbps	Right Cheek	0mm	1312	1712.4	21.87	22.00	1.030	-0.11	0.093	0.096
	WCDMA IV_LAT	RMC 12.2Kbps	Right Tilted	0mm	1312	1712.4	21.87	22.00	1.030	-0.01	0.069	0.071
	WCDMA IV_LAT	RMC 12.2Kbps	Left Cheek	0mm	1312	1712.4	21.87	22.00	1.030	-0.14	0.098	0.101
	WCDMA IV_LAT	RMC 12.2Kbps	Left Cheek	0mm	1413	1732.6	21.79	22.00	1.050	-0.13	0.110	0.115
04	WCDMA IV_LAT	RMC 12.2Kbps	Left Cheek	0mm	1513	1752.6	21.72	22.00	1.067	-0.05	0.110	0.117
	WCDMA IV_LAT	RMC 12.2Kbps	Left Tilted	0mm	1312	1712.4	21.87	22.00	1.030	-0.04	0.063	0.065
	WCDMA V_UAT	RMC 12.2Kbps	Right Cheek	0mm	4132	826.4	23.33	23.50	1.040	-0.08	0.500	0.520
	WCDMA V_UAT	RMC 12.2Kbps	Right Cheek	0mm	4182	836.4	23.22	23.50	1.067	-0.14	0.508	0.542
05	WCDMA V_UAT	RMC 12.2Kbps	Right Cheek	0mm	4233	846.6	23.20	23.50	1.072	-0.09	0.543	0.582
	WCDMA V_UAT	RMC 12.2Kbps	Right Tilted	0mm	4132	826.4	23.33	23.50	1.040	-0.03	0.308	0.320
	WCDMA V_UAT	RMC 12.2Kbps	Left Cheek	0mm	4132	826.4	23.33	23.50	1.040	0.01	0.428	0.445
	WCDMA V_UAT	RMC 12.2Kbps	Left Tilted	0mm	4132	826.4	23.33	23.50	1.040	-0.01	0.251	0.261
	WCDMA V_LAT	RMC 12.2Kbps	Right Cheek	0mm	4132	826.4	23.33	23.50	1.040	-0.14	0.254	0.264
	WCDMA V_LAT	RMC 12.2Kbps	Right Cheek	0mm	4182	836.4	23.22	23.50	1.067	-0.04	0.286	0.305
	WCDMA V_LAT	RMC 12.2Kbps	Right Cheek	0mm	4233	846.6	23.20	23.50	1.072	0.02	0.302	0.324
	WCDMA V_LAT	RMC 12.2Kbps	Right Tilted	0mm	4132	826.4	23.33	23.50	1.040	0.02	0.141	0.147
	WCDMA V_LAT	RMC 12.2Kbps	Left Cheek	0mm	4132	826.4	23.33	23.50	1.040	-0.02	0.183	0.190
	WCDMA V_LAT	RMC 12.2Kbps	Left Tilted	0mm	4132	826.4	23.33	23.50	1.040	0.01	0.134	0.139



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
06	LTE Band 2_LAT	20M	QPSK	1	0	Right Cheek	0mm	19100	1900	21.67	22.00	1.079	-0.1	0.145	0.156
	LTE Band 2_LAT	20M	QPSK	1	0	Right Cheek	0mm	18700	1860	21.50	22.00	1.122	-0.17	0.124	0.139
	LTE Band 2_LAT	20M	QPSK	1	0	Right Cheek	0mm	18900	1880	21.52	22.00	1.117	-0.19	0.128	0.143
	LTE Band 2_LAT	20M	QPSK	50	0	Right Cheek	0mm	19100	1900	20.58	21.00	1.102	-0.16	0.117	0.129
	LTE Band 2_LAT	20M	QPSK	1	0	Right Tilted	0mm	19100	1900	21.67	22.00	1.079	0.11	0.031	0.033
	LTE Band 2_LAT	20M	QPSK	50	0	Right Tilted	0mm	19100	1900	20.58	21.00	1.102	0.02	0.025	0.028
	LTE Band 2_LAT	20M	QPSK	1	0	Left Cheek	0mm	19100	1900	21.67	22.00	1.079	-0.15	0.063	0.068
	LTE Band 2_LAT	20M	QPSK	50	0	Left Cheek	0mm	19100	1900	20.58	21.00	1.102	-0.17	0.049	0.054
	LTE Band 2_LAT	20M	QPSK	1	0	Left Tilted	0mm	19100	1900	21.67	22.00	1.079	-0.15	0.054	0.058
	LTE Band 2_LAT	20M	QPSK	50	0	Left Tilted	0mm	19100	1900	20.58	21.00	1.102	0.11	0.040	0.044
	LTE Band 7_LAT	20M	QPSK	1	0	Right Cheek	0mm	20850	2510	24.50	24.50	1.000	-0.06	0.061	0.061
	LTE Band 7_LAT	20M	QPSK	50	0	Right Cheek	0mm	20850	2510	23.50	23.50	1.000	-0.02	0.057	0.057
	LTE Band 7_LAT	20M	QPSK	1	0	Right Tilted	0mm	20850	2510	24.50	24.50	1.000	0.06	0.048	0.048
	LTE Band 7_LAT	20M	QPSK	50	0	Right Tilted	0mm	20850	2510	23.50	23.50	1.000	0.06	0.047	0.047
	LTE Band 7_LAT	20M	QPSK	1	0	Left Cheek	0mm	20850	2510	24.50	24.50	1.000	-0.08	0.063	0.063
	LTE Band 7_LAT	20M	QPSK	1	0	Left Cheek	0mm	21100	2535	24.49	24.50	1.002	0.02	0.063	0.063
07	LTE Band 7_LAT	20M	QPSK	1	0	Left Cheek	0mm	21350	2560	24.35	24.50	1.035	0.09	0.083	0.086
	LTE Band 7_LAT	20M	QPSK	50	0	Left Cheek	0mm	20850	2510	23.50	23.50	1.000	-0.11	0.061	0.061
	LTE Band 7_LAT	20M	QPSK	1	0	Left Tilted	0mm	20850	2510	24.50	24.50	1.000	0.12	0.021	0.021
	LTE Band 7_LAT	20M	QPSK	50	0	Left Tilted	0mm	20850	2510	23.50	23.50	1.000	0.17	0.020	0.020
08	LTE Band 12_UAT	10M	QPSK	1	0	Right Cheek	0mm	23095	707.5	23.86	24.00	1.033	-0.07	0.293	0.303
	LTE Band 12_UAT	10M	QPSK	25	0	Right Cheek	0mm	23095	707.5	22.94	23.00	1.014	0.05	0.239	0.242
	LTE Band 12_UAT	10M	QPSK	1	0	Right Tilted	0mm	23095	707.5	23.86	24.00	1.033	-0.04	0.187	0.193
	LTE Band 12_UAT	10M	QPSK	25	0	Right Tilted	0mm	23095	707.5	22.94	23.00	1.014	0	0.155	0.157
	LTE Band 12_UAT	10M	QPSK	1	0	Left Cheek	0mm	23095	707.5	23.86	24.00	1.033	-0.08	0.266	0.275
	LTE Band 12_UAT	10M	QPSK	25	0	Left Cheek	0mm	23095	707.5	22.94	23.00	1.014	-0.02	0.215	0.218
	LTE Band 12_UAT	10M	QPSK	1	0	Left Tilted	0mm	23095	707.5	23.86	24.00	1.033	0.01	0.144	0.149
	LTE Band 12_UAT	10M	QPSK	25	0	Left Tilted	0mm	23095	707.5	22.94	23.00	1.014	0.01	0.119	0.121
	LTE Band 12_LAT	10M	QPSK	1	0	Right Cheek	0mm	23095	707.5	23.86	24.00	1.033	-0.12	0.172	0.178
	LTE Band 12_LAT	10M	QPSK	25	0	Right Cheek	0mm	23095	707.5	22.94	23.00	1.014	-0.05	0.147	0.149
	LTE Band 12_LAT	10M	QPSK	1	0	Right Tilted	0mm	23095	707.5	23.86	24.00	1.033	-0.09	0.054	0.056
	LTE Band 12_LAT	10M	QPSK	25	0	Right Tilted	0mm	23095	707.5	22.94	23.00	1.014	0.05	0.043	0.044
	LTE Band 12_LAT	10M	QPSK	1	0	Left Cheek	0mm	23095	707.5	23.86	24.00	1.033	0.02	0.159	0.164
	LTE Band 12_LAT	10M	QPSK	25	0	Left Cheek	0mm	23095	707.5	22.94	23.00	1.014	-0.03	0.133	0.135
	LTE Band 12_LAT	10M	QPSK	1	0	Left Tilted	0mm	23095	707.5	23.86	24.00	1.033	-0.01	0.073	0.075
	LTE Band 12_LAT	10M	QPSK	25	0	Left Tilted	0mm	23095	707.5	22.94	23.00	1.014	-0.12	0.061	0.062



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
09	LTE Band 13_UAT	10M	QPSK	1	0	Right Cheek	0mm	23230	782	23.45	24.00	1.135	0.03	0.337	0.382
	LTE Band 13_UAT	10M	QPSK	25	0	Right Cheek	0mm	23230	782	22.50	23.00	1.122	-0.02	0.273	0.306
	LTE Band 13_UAT	10M	QPSK	1	0	Right Tilted	0mm	23230	782	23.45	24.00	1.135	0.03	0.221	0.251
	LTE Band 13_UAT	10M	QPSK	25	0	Right Tilted	0mm	23230	782	22.50	23.00	1.122	-0.01	0.182	0.204
	LTE Band 13_UAT	10M	QPSK	1	0	Left Cheek	0mm	23230	782	23.45	24.00	1.135	0.01	0.257	0.292
	LTE Band 13_UAT	10M	QPSK	25	0	Left Cheek	0mm	23230	782	22.50	23.00	1.122	0.02	0.209	0.235
	LTE Band 13_UAT	10M	QPSK	1	0	Left Tilted	0mm	23230	782	23.45	24.00	1.135	0.03	0.144	0.163
	LTE Band 13_UAT	10M	QPSK	25	0	Left Tilted	0mm	23230	782	22.50	23.00	1.122	0.02	0.118	0.132
	LTE Band 13_LAT	10M	QPSK	1	0	Right Cheek	0mm	23230	782	23.45	24.00	1.135	-0.08	0.235	0.267
	LTE Band 13_LAT	10M	QPSK	25	0	Right Cheek	0mm	23230	782	22.50	23.00	1.122	0.03	0.212	0.238
	LTE Band 13_LAT	10M	QPSK	1	0	Right Tilted	0mm	23230	782	23.45	24.00	1.135	0.1	0.098	0.111
	LTE Band 13_LAT	10M	QPSK	25	0	Right Tilted	0mm	23230	782	22.50	23.00	1.122	0.02	0.090	0.101
	LTE Band 13_LAT	10M	QPSK	1	0	Left Cheek	0mm	23230	782	22.50	23.00	1.122	0.07	0.178	0.200
	LTE Band 13_LAT	10M	QPSK	25	0	Left Cheek	0mm	23230	782	22.50	23.00	1.122	0.04	0.162	0.182
	LTE Band 13_LAT	10M	QPSK	1	0	Left Tilted	0mm	23230	782	23.45	24.00	1.135	-0.04	0.118	0.134
	LTE Band 13_LAT	10M	QPSK	25	0	Left Tilted	0mm	23230	782	22.50	23.00	1.122	-0.05	0.107	0.120
10	LTE Band 14_LAT	10M	QPSK	1	0	Right Cheek	0mm	23330	793	23.34	24.00	1.164	-0.14	0.275	0.320
	LTE Band 14_LAT	10M	QPSK	25	0	Right Cheek	0mm	23330	793	22.44	23.00	1.138	-0.01	0.226	0.257
	LTE Band 14_LAT	10M	QPSK	1	0	Right Tilted	0mm	23330	793	23.34	24.00	1.164	0	0.123	0.143
	LTE Band 14_LAT	10M	QPSK	25	0	Right Tilted	0mm	23330	793	22.44	23.00	1.138	-0.02	0.101	0.115
	LTE Band 14_LAT	10M	QPSK	1	0	Left Cheek	0mm	23330	793	23.34	24.00	1.164	0.01	0.209	0.243
	LTE Band 14_LAT	10M	QPSK	25	0	Left Cheek	0mm	23330	793	22.44	23.00	1.138	0	0.173	0.197
	LTE Band 14_LAT	10M	QPSK	1	0	Left Tilted	0mm	23330	793	23.34	24.00	1.164	-0.03	0.136	0.158
	LTE Band 14_LAT	10M	QPSK	25	0	Left Tilted	0mm	23330	793	22.44	23.00	1.138	-0.05	0.113	0.129
11	LTE Band 26_UAT	15M	QPSK	1	0	Right Cheek	0mm	26865	831.5	23.89	24.00	1.026	-0.01	0.567	0.582
	LTE Band 26_UAT	15M	QPSK	36	0	Right Cheek	0mm	26865	831.5	22.98	23.00	1.005	0.05	0.485	0.487
	LTE Band 26_UAT	15M	QPSK	1	0	Right Tilted	0mm	26865	831.5	23.89	24.00	1.026	-0.06	0.378	0.388
	LTE Band 26_UAT	15M	QPSK	36	0	Right Tilted	0mm	26865	831.5	22.98	23.00	1.005	-0.06	0.317	0.318
	LTE Band 26_UAT	15M	QPSK	1	0	Left Cheek	0mm	26865	831.5	23.89	24.00	1.026	-0.04	0.450	0.462
	LTE Band 26_UAT	15M	QPSK	36	0	Left Cheek	0mm	26865	831.5	22.98	23.00	1.005	0.06	0.377	0.379
	LTE Band 26_UAT	15M	QPSK	1	0	Left Tilted	0mm	26865	831.5	23.89	24.00	1.026	-0.02	0.328	0.336
	LTE Band 26_UAT	15M	QPSK	36	0	Left Tilted	0mm	26865	831.5	22.98	23.00	1.005	0.04	0.257	0.258
	LTE Band 26_LAT	15M	QPSK	1	0	Right Cheek	0mm	26865	831.5	23.89	24.00	1.026	-0.17	0.287	0.294
	LTE Band 26_LAT	15M	QPSK	36	0	Right Cheek	0mm	26865	831.5	22.98	23.00	1.005	-0.04	0.231	0.232
	LTE Band 26_LAT	15M	QPSK	1	0	Right Tilted	0mm	26865	831.5	23.89	24.00	1.026	0.01	0.119	0.122
	LTE Band 26_LAT	15M	QPSK	36	0	Right Tilted	0mm	26865	831.5	22.98	23.00	1.005	-0.1	0.099	0.099
	LTE Band 26_LAT	15M	QPSK	1	0	Left Cheek	0mm	26865	831.5	23.89	24.00	1.026	-0.08	0.193	0.198
	LTE Band 26_LAT	15M	QPSK	36	0	Left Cheek	0mm	26865	831.5	22.98	23.00	1.005	0.06	0.156	0.157
	LTE Band 26_LAT	15M	QPSK	1	0	Left Tilted	0mm	26865	831.5	23.89	24.00	1.026	0.01	0.115	0.118
	LTE Band 26_LAT	15M	QPSK	36	0	Left Tilted	0mm	26865	831.5	22.98	23.00	1.005	0.04	0.097	0.097

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
12	LTE Band 30_LAT	10M	QPSK	1	0	Right Cheek	0mm	27710	2310	23.41	23.50	1.021	-0.19	0.100	0.102
	LTE Band 30_LAT	10M	QPSK	25	0	Right Cheek	0mm	27710	2310	22.36	22.50	1.033	-0.13	0.081	0.084
	LTE Band 30_LAT	10M	QPSK	1	0	Right Tilted	0mm	27710	2310	23.41	23.50	1.021	0.15	0.038	0.039
	LTE Band 30_LAT	10M	QPSK	25	0	Right Tilted	0mm	27710	2310	22.36	22.50	1.033	0.13	0.029	0.030
	LTE Band 30_LAT	10M	QPSK	1	0	Left Cheek	0mm	27710	2310	23.41	23.50	1.021	-0.16	0.050	0.051
	LTE Band 30_LAT	10M	QPSK	25	0	Left Cheek	0mm	27710	2310	22.36	22.50	1.033	-0.15	0.038	0.039
	LTE Band 30_LAT	10M	QPSK	1	0	Left Tilted	0mm	27710	2310	23.41	23.50	1.021	0.05	0.025	0.026
	LTE Band 30_LAT	10M	QPSK	25	0	Left Tilted	0mm	27710	2310	22.36	22.50	1.033	0.08	0.019	0.020
	LTE Band 66_LAT	20M	QPSK	1	0	Right Cheek	0mm	132322	1745	21.83	22.00	1.040	0.05	0.089	0.093
	LTE Band 66_LAT	20M	QPSK	50	0	Right Cheek	0mm	132322	1745	20.72	21.00	1.067	-0.02	0.072	0.077
	LTE Band 66_LAT	20M	QPSK	1	0	Right Tilted	0mm	132322	1745	21.83	22.00	1.040	0.16	0.069	0.072
	LTE Band 66_LAT	20M	QPSK	50	0	Right Tilted	0mm	132322	1745	20.72	21.00	1.067	0.03	0.056	0.060
13	LTE Band 66_LAT	20M	QPSK	1	0	Left Cheek	0mm	132322	1745	21.83	22.00	1.040	-0.04	0.133	0.138
	LTE Band 66_LAT	20M	QPSK	1	0	Left Cheek	0mm	132072	1720	21.82	22.00	1.042	-0.01	0.118	0.123
	LTE Band 66_LAT	20M	QPSK	1	0	Left Cheek	0mm	132572	1770	21.66	22.00	1.081	-0.04	0.125	0.135
	LTE Band 66_LAT	20M	QPSK	50	0	Left Cheek	0mm	132322	1745	20.72	21.00	1.067	-0.12	0.108	0.115
	LTE Band 66_LAT	20M	QPSK	1	0	Left Tilted	0mm	132322	1745	21.83	22.00	1.040	-0.04	0.083	0.086
	LTE Band 66_LAT	20M	QPSK	50	0	Left Tilted	0mm	132322	1745	20.72	21.00	1.067	0.01	0.065	0.069
14	LTE Band 71_UAT	20M	QPSK	1	0	Right Cheek	0mm	133322	683	23.58	24.00	1.102	-0.18	0.292	0.322
	LTE Band 71_UAT	20M	QPSK	50	0	Right Cheek	0mm	133322	683	22.55	23.00	1.109	0	0.228	0.253
	LTE Band 71_UAT	20M	QPSK	1	0	Right Tilted	0mm	133322	683	23.58	24.00	1.102	-0.07	0.179	0.197
	LTE Band 71_UAT	20M	QPSK	50	0	Right Tilted	0mm	133322	683	22.55	23.00	1.109	0.02	0.142	0.158
	LTE Band 71_UAT	20M	QPSK	1	0	Left Cheek	0mm	133322	683	23.58	24.00	1.102	-0.02	0.210	0.231
	LTE Band 71_UAT	20M	QPSK	50	0	Left Cheek	0mm	133322	683	22.55	23.00	1.109	0.03	0.163	0.181
	LTE Band 71_UAT	20M	QPSK	1	0	Left Tilted	0mm	133322	683	23.58	24.00	1.102	0	0.151	0.166
	LTE Band 71_UAT	20M	QPSK	50	0	Left Tilted	0mm	133322	683	22.55	23.00	1.109	0.09	0.110	0.122
	LTE Band 71_LAT	20M	QPSK	1	0	Right Cheek	0mm	133322	683	23.58	24.00	1.102	-0.02	0.134	0.148
	LTE Band 71_LAT	20M	QPSK	50	0	Right Cheek	0mm	133322	683	22.55	23.00	1.109	-0.03	0.111	0.123
	LTE Band 71_LAT	20M	QPSK	1	0	Right Tilted	0mm	133322	683	23.58	24.00	1.102	0.12	0.055	0.061
	LTE Band 71_LAT	20M	QPSK	50	0	Right Tilted	0mm	133322	683	22.55	23.00	1.109	0.15	0.047	0.052
	LTE Band 71_LAT	20M	QPSK	1	0	Left Cheek	0mm	133322	683	23.58	24.00	1.102	-0.01	0.121	0.133
	LTE Band 71_LAT	20M	QPSK	50	0	Left Cheek	0mm	133322	683	22.55	23.00	1.109	0.08	0.100	0.111
	LTE Band 71_LAT	20M	QPSK	1	0	Left Tilted	0mm	133322	683	23.58	24.00	1.102	-0.05	0.044	0.048
	LTE Band 71_LAT	20M	QPSK	50	0	Left Tilted	0mm	133322	683	22.55	23.00	1.109	-0.03	0.036	0.040

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
15	LTE Band 41_LAT	20M	QPSK	1	0	Right Cheek	0mm	39750	2506	24.50	25.00	1.122	62.90	1.006	-0.17	0.046	0.052
	LTE Band 41_LAT	20M	QPSK	1	0	Right Cheek	0mm	40185	2549.5	24.36	25.00	1.159	62.90	1.006	-0.11	0.029	0.034
	LTE Band 41_LAT	20M	QPSK	1	0	Right Cheek	0mm	40620	2593	24.43	25.00	1.140	62.90	1.006	0.16	0.031	0.036
	LTE Band 41_LAT	20M	QPSK	1	0	Right Cheek	0mm	41055	2636.5	24.32	25.00	1.169	62.90	1.006	-0.07	0.027	0.032
	LTE Band 41_LAT	20M	QPSK	1	0	Right Cheek	0mm	41490	2680	24.39	25.00	1.151	62.90	1.006	-0.13	0.029	0.034
	LTE Band 41_LAT	20M	QPSK	50	0	Right Cheek	0mm	39750	2506	23.49	24.00	1.125	62.90	1.006	-0.12	0.036	0.041
	LTE Band 41_LAT	20M	QPSK	1	0	Right Tilted	0mm	39750	2506	24.50	25.00	1.122	62.90	1.006	0.14	0.012	0.014
	LTE Band 41_LAT	20M	QPSK	50	0	Right Tilted	0mm	39750	2506	23.49	24.00	1.125	62.90	1.006	0.1	0.008	0.009
	LTE Band 41_LAT	20M	QPSK	1	0	Left Cheek	0mm	39750	2506	24.50	25.00	1.122	62.90	1.006	0.1	0.019	0.021
	LTE Band 41_LAT	20M	QPSK	50	0	Left Cheek	0mm	39750	2506	23.49	24.00	1.125	62.90	1.006	0.11	0.015	0.017
	LTE Band 41_LAT	20M	QPSK	1	0	Left Tilted	0mm	39750	2506	24.50	25.00	1.122	62.90	1.006	0.18	0.011	0.012
	LTE Band 41_LAT	20M	QPSK	50	0	Left Tilted	0mm	39750	2506	23.49	24.00	1.125	62.90	1.006	-0.09	0.009	0.010

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	ANT 0	11	2462	12.34	12.50	1.038	99.04	1.010	0.072	0.138	0.145
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	ANT 0	11	2462	12.34	12.50	1.038	99.04	1.010	-0.078	0.080	0.084
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	ANT 0	11	2462	12.34	12.50	1.038	99.04	1.010	-0.123	0.247	0.259
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	ANT 0	1	2412	11.92	12.50	1.143	99.04	1.010	-0.114	0.212	0.245
16	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	ANT 0	6	2437	12.25	12.50	1.059	99.04	1.010	0.078	0.244	0.261
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	ANT 0	11	2462	12.34	12.50	1.038	99.04	1.010	-0.085	0.163	0.171
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	ANT 1	11	2462	13.00	13.50	1.122	99.04	1.010	0.181	0.006	0.007
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	ANT 1	11	2462	13.00	13.50	1.122	99.04	1.010	0.184	0.002	0.002
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	ANT 1	11	2462	13.00	13.50	1.122	99.04	1.010	0.186	0.004	0.004
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	ANT 1	11	2462	13.00	13.50	1.122	99.04	1.010	0.176	0.002	0.002
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	0.16	0.259	0.303
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	0.07	0.214	0.250
17	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	0.19	0.320	0.374
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	ANT 0	62	5310	14.22	14.50	1.068	96.04	1.041	0.16	0.181	0.201
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	0.13	0.213	0.249
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	0	0.014	0.015
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	0.02	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	0.03	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	0.04	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	-0.12	0.684	0.764
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 0	102	5510	15.57	16.00	1.105	96.04	1.041	-0.12	0.666	0.766
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 0	126	5630	15.68	16.00	1.076	96.04	1.041	0.06	0.798	0.894
18	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 0	134	5670	15.69	16.00	1.074	96.04	1.041	0.04	0.841	0.940
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	0.15	0.554	0.619
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	0.13	0.578	0.645
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	0.03	0.441	0.492
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	0.01	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	0.02	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	0.08	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	0.09	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 0	159	5795	15.96	16.00	1.010	96.04	1.041	0.17	0.619	0.651
19	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 0	151	5755	15.60	16.00	1.098	96.04	1.041	-0.16	0.591	0.675
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	ANT 0	159	5795	15.96	16.00	1.010	96.04	1.041	0.02	0.438	0.461
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	ANT 0	159	5795	15.96	16.00	1.010	96.04	1.041	-0.15	0.573	0.603
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	ANT 0	159	5795	15.96	16.00	1.010	96.04	1.041	0.13	0.454	0.477
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 1	159	5795	16.48	16.50	1.004	96.34	1.038	0	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	ANT 1	159	5795	16.48	16.50	1.004	96.34	1.038	0.01	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	ANT 1	159	5795	16.48	16.50	1.004	96.34	1.038	0.03	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	ANT 1	159	5795	16.48	16.50	1.004	96.34	1.038	0	0.001	0.001

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Right Cheek	0mm	ANT 0	0	2402	9.47	10.00	1.130	76.80	1.085	0.02	0.026	0.032
	Bluetooth	1Mbps	Right Tilted	0mm	ANT 0	0	2402	9.47	10.00	1.130	76.80	1.085	0.17	0.021	0.026
	Bluetooth	1Mbps	Left Cheek	0mm	ANT 0	0	2402	9.47	10.00	1.130	76.80	1.085	-0.01	0.056	0.069
	Bluetooth	1Mbps	Left Cheek	0mm	ANT 0	39	2441	8.37	10.00	1.456	76.80	1.085	0.16	0.043	0.068
20	Bluetooth	1Mbps	Left Cheek	0mm	ANT 0	78	2480	8.63	10.00	1.371	76.80	1.085	0.16	0.057	0.085
	Bluetooth	1Mbps	Left Tilted	0mm	ANT 0	0	2402	9.47	10.00	1.130	76.80	1.085	0.04	0.035	0.043

13.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_LAT	GPRS (4 Tx slots)	Front	10mm	OFF	128	824.2	27.58	28.00	1.102	-0.13	0.444	0.489
	GSM850_LAT	GPRS (4 Tx slots)	Back	10mm	OFF	128	824.2	27.58	28.00	1.102	-0.07	0.518	0.571
	GSM850_LAT	GPRS (4 Tx slots)	Left Side	10mm	OFF	128	824.2	27.58	28.00	1.102	0.16	0.157	0.173
	GSM850_LAT	GPRS (4 Tx slots)	Right Side	10mm	OFF	128	824.2	27.58	28.00	1.102	-0.09	0.282	0.311
	GSM850_LAT	GPRS (4 Tx slots)	Bottom Side	10mm	OFF	128	824.2	27.58	28.00	1.102	0.18	0.681	0.750
	GSM850_LAT	GPRS (4 Tx slots)	Bottom Side	10mm	OFF	189	836.4	27.29	28.00	1.178	-0.09	0.740	0.871
21	GSM850_LAT	GPRS (4 Tx slots)	Bottom Side	10mm	OFF	251	848.8	27.18	28.00	1.208	-0.07	0.784	0.947
	GSM1900_LAT	GPRS (3 Tx slots)	Front	10mm	ON	661	1880	22.76	23.00	1.057	-0.13	0.507	0.536
	GSM1900_LAT	GPRS (3 Tx slots)	Back	10mm	ON	661	1880	22.76	23.00	1.057	-0.01	0.565	0.597
	GSM1900_LAT	GPRS (3 Tx slots)	Left Side	10mm	ON	661	1880	22.76	23.00	1.057	-0.09	0.018	0.019
	GSM1900_LAT	GPRS (3 Tx slots)	Right Side	10mm	ON	661	1880	22.76	23.00	1.057	0.07	0.063	0.067
22	GSM1900_LAT	GPRS (3 Tx slots)	Bottom Side	10mm	ON	661	1880	22.76	23.00	1.057	0.14	1.010	1.067
	GSM1900_LAT	GPRS (3 Tx slots)	Bottom Side	10mm	ON	512	1850.2	22.74	23.00	1.062	-0.01	0.865	0.918
	GSM1900_LAT	GPRS (3 Tx slots)	Bottom Side	10mm	ON	810	1909.8	22.75	23.00	1.059	-0.13	0.942	0.998

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II_LAT	RMC 12.2Kbps	Front	10mm	ON	9538	1907.6	19.28	19.50	1.052	-0.01	0.504	0.530
	WCDMA II_LAT	RMC 12.2Kbps	Back	10mm	ON	9538	1907.6	19.28	19.50	1.052	0.01	0.556	0.585
	WCDMA II_LAT	RMC 12.2Kbps	Left Side	10mm	ON	9538	1907.6	19.28	19.50	1.052	-0.04	0.018	0.019
	WCDMA II_LAT	RMC 12.2Kbps	Right Side	10mm	ON	9538	1907.6	19.28	19.50	1.052	0	0.065	0.068
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	ON	9538	1907.6	19.28	19.50	1.052	0.03	1.020	1.073
23	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	ON	9262	1852.4	19.18	19.50	1.076	-0.13	1.040	1.120
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	ON	9400	1880	19.18	19.50	1.076	0.02	1.020	1.098
	WCDMA IV_LAT	RMC 12.2Kbps	Front	10mm	ON	1312	1712.4	19.34	19.50	1.038	-0.02	0.591	0.613
	WCDMA IV_LAT	RMC 12.2Kbps	Back	10mm	ON	1312	1712.4	19.34	19.50	1.038	0	0.617	0.640
	WCDMA IV_LAT	RMC 12.2Kbps	Left Side	10mm	ON	1312	1712.4	19.34	19.50	1.038	-0.08	0.048	0.050
	WCDMA IV_LAT	RMC 12.2Kbps	Right Side	10mm	ON	1312	1712.4	19.34	19.50	1.038	0.11	0.056	0.058
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	ON	1312	1712.4	19.34	19.50	1.038	0.16	0.928	0.963
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	ON	1413	1732.6	19.18	19.50	1.076	0.06	0.962	1.036
24	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	ON	1513	1752.6	19.08	19.50	1.102	-0.17	0.998	1.099
	WCDMA V_UAT	RMC 12.2Kbps	Front	10mm	OFF	4132	826.4	23.33	23.50	1.040	-0.1	0.102	0.106
	WCDMA V_UAT	RMC 12.2Kbps	Back	10mm	OFF	4132	826.4	23.33	23.50	1.040	0.12	0.113	0.118
	WCDMA V_UAT	RMC 12.2Kbps	Back	10mm	OFF	4182	836.4	23.22	23.50	1.067	0.03	0.124	0.132
	WCDMA V_UAT	RMC 12.2Kbps	Back	10mm	OFF	4233	846.6	23.20	23.50	1.072	0.03	0.137	0.147
	WCDMA V_UAT	RMC 12.2Kbps	Left Side	10mm	OFF	4132	826.4	23.33	23.50	1.040	-0.01	0.040	0.042
	WCDMA V_UAT	RMC 12.2Kbps	Right Side	10mm	OFF	4132	826.4	23.33	23.50	1.040	0.01	0.076	0.079
	WCDMA V_UAT	RMC 12.2Kbps	Top Side	10mm	OFF	4132	826.4	23.33	23.50	1.040	-0.03	0.040	0.042
	WCDMA V_LAT	RMC 12.2Kbps	Front	10mm	OFF	4132	826.4	23.33	23.50	1.040	0	0.369	0.384
	WCDMA V_LAT	RMC 12.2Kbps	Back	10mm	OFF	4132	826.4	23.33	23.50	1.040	-0.05	0.428	0.445
	WCDMA V_LAT	RMC 12.2Kbps	Back	10mm	OFF	4182	836.4	23.22	23.50	1.067	-0.07	0.456	0.486
25	WCDMA V_LAT	RMC 12.2Kbps	Back	10mm	OFF	4233	846.6	23.20	23.50	1.072	-0.03	0.505	0.541
	WCDMA V_LAT	RMC 12.2Kbps	Left Side	10mm	OFF	4132	826.4	23.33	23.50	1.040	-0.03	0.154	0.160
	WCDMA V_LAT	RMC 12.2Kbps	Right Side	10mm	OFF	4132	826.4	23.33	23.50	1.040	0.02	0.361	0.375
	WCDMA V_LAT	RMC 12.2Kbps	Bottom Side	10mm	OFF	4132	826.4	23.33	23.50	1.040	0.05	0.300	0.312



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2_LAT	20M	QPSK	1	0	Front	10mm	ON	19100	1900	19.00	19.00	1.000	-0.02	0.446	0.446
	LTE Band 2_LAT	20M	QPSK	50	0	Front	10mm	ON	19100	1900	18.99	19.00	1.002	0.01	0.433	0.434
	LTE Band 2_LAT	20M	QPSK	1	0	Back	10mm	ON	19100	1900	19.00	19.00	1.000	-0.04	0.558	0.558
	LTE Band 2_LAT	20M	QPSK	50	0	Back	10mm	ON	19100	1900	18.99	19.00	1.002	-0.02	0.547	0.548
	LTE Band 2_LAT	20M	QPSK	1	0	Left Side	10mm	ON	19100	1900	19.00	19.00	1.000	0.06	0.028	0.028
	LTE Band 2_LAT	20M	QPSK	50	0	Left Side	10mm	ON	19100	1900	18.99	19.00	1.002	0.1	0.028	0.028
	LTE Band 2_LAT	20M	QPSK	1	0	Right Side	10mm	ON	19100	1900	19.00	19.00	1.000	0.04	0.074	0.074
	LTE Band 2_LAT	20M	QPSK	50	0	Right Side	10mm	ON	19100	1900	18.99	19.00	1.002	0.03	0.073	0.073
26	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	ON	19100	1900	19.00	19.00	1.000	0.01	1.020	1.020
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	ON	18700	1860	18.85	19.00	1.035	0.02	0.934	0.967
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	ON	18900	1880	18.85	19.00	1.035	0.09	0.933	0.966
	LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	ON	19100	1900	18.99	19.00	1.002	0.05	0.995	0.997
	LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	ON	18700	1860	18.80	19.00	1.047	0.05	0.951	0.996
	LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	ON	18900	1880	18.84	19.00	1.038	0.03	0.948	0.984
	LTE Band 2_LAT	20M	QPSK	100	0	Bottom Side	10mm	ON	19100	1900	18.90	19.00	1.023	0.01	0.981	1.004
	LTE Band 7_LAT	20M	QPSK	1	0	Front	10mm	OFF	20850	2510	24.50	24.50	1.000	-0.01	0.367	0.367
	LTE Band 7_LAT	20M	QPSK	50	0	Front	10mm	OFF	20850	2510	23.50	23.50	1.000	-0.1	0.295	0.295
	LTE Band 7_LAT	20M	QPSK	1	0	Back	10mm	OFF	20850	2510	24.50	24.50	1.000	-0.13	0.357	0.357
	LTE Band 7_LAT	20M	QPSK	50	0	Back	10mm	OFF	20850	2510	23.50	23.50	1.000	0.13	0.282	0.282
	LTE Band 7_LAT	20M	QPSK	1	0	Left Side	10mm	OFF	20850	2510	24.50	24.50	1.000	-0.08	0.118	0.118
	LTE Band 7_LAT	20M	QPSK	50	0	Left Side	10mm	OFF	20850	2510	23.50	23.50	1.000	0	0.093	0.093
	LTE Band 7_LAT	20M	QPSK	1	0	Right Side	10mm	OFF	20850	2510	24.50	24.50	1.000	0.06	0.088	0.088
	LTE Band 7_LAT	20M	QPSK	50	0	Right Side	10mm	OFF	20850	2510	23.50	23.50	1.000	0.01	0.070	0.070
	LTE Band 7_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	20850	2510	24.50	24.50	1.000	-0.07	0.850	0.850
	LTE Band 7_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	21100	2535	24.49	24.50	1.002	-0.01	0.807	0.809
27	LTE Band 7_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	21350	2560	24.35	24.50	1.035	-0.01	0.934	0.967
	LTE Band 7_LAT	20M	QPSK	50	0	Bottom Side	10mm	OFF	20850	2510	23.50	23.50	1.000	-0.06	0.671	0.671
	LTE Band 7_LAT	20M	QPSK	100	0	Bottom Side	10mm	OFF	20850	2510	23.33	23.50	1.040	0.02	0.679	0.706
	LTE Band 12_UAT	10M	QPSK	1	0	Front	10mm	OFF	23095	707.5	23.86	24.00	1.033	0	0.082	0.085
	LTE Band 12_UAT	10M	QPSK	25	0	Front	10mm	OFF	23095	707.5	22.94	23.00	1.014	-0.11	0.068	0.069
	LTE Band 12_UAT	10M	QPSK	1	0	Back	10mm	OFF	23095	707.5	23.86	24.00	1.033	-0.03	0.083	0.086
	LTE Band 12_UAT	10M	QPSK	25	0	Back	10mm	OFF	23095	707.5	22.94	23.00	1.014	-0.04	0.069	0.070
	LTE Band 12_UAT	10M	QPSK	1	0	Left Side	10mm	OFF	23095	707.5	23.86	24.00	1.033	-0.01	0.037	0.038
	LTE Band 12_UAT	10M	QPSK	25	0	Left Side	10mm	OFF	23095	707.5	22.94	23.00	1.014	0.04	0.031	0.031
	LTE Band 12_UAT	10M	QPSK	1	0	Right Side	10mm	OFF	23095	707.5	23.86	24.00	1.033	0.03	0.040	0.041
	LTE Band 12_UAT	10M	QPSK	25	0	Right Side	10mm	OFF	23095	707.5	22.94	23.00	1.014	-0.02	0.033	0.033
	LTE Band 12_UAT	10M	QPSK	1	0	Top Side	10mm	OFF	23095	707.5	23.86	24.00	1.033	-0.18	0.025	0.026
	LTE Band 12_UAT	10M	QPSK	25	0	Top Side	10mm	OFF	23095	707.5	22.94	23.00	1.014	-0.13	0.021	0.021
	LTE Band 12_LAT	10M	QPSK	1	0	Front	10mm	OFF	23095	707.5	23.86	24.00	1.033	0.01	0.308	0.318
	LTE Band 12_LAT	10M	QPSK	25	0	Front	10mm	OFF	23095	707.5	22.94	23.00	1.014	0.04	0.255	0.259
28	LTE Band 12_LAT	10M	QPSK	1	0	Back	10mm	OFF	23095	707.5	23.86	24.00	1.033	-0.06	0.357	0.369
	LTE Band 12_LAT	10M	QPSK	25	0	Back	10mm	OFF	23095	707.5	22.94	23.00	1.014	-0.07	0.297	0.301
	LTE Band 12_LAT	10M	QPSK	1	0	Left Side	10mm	OFF	23095	707.5	23.86	24.00	1.033	-0.08	0.189	0.195
	LTE Band 12_LAT	10M	QPSK	25	0	Left Side	10mm	OFF	23095	707.5	22.94	23.00	1.014	-0.03	0.154	0.156
	LTE Band 12_LAT	10M	QPSK	1	0	Right Side	10mm	OFF	23095	707.5	23.86	24.00	1.033	0.04	0.265	0.274
	LTE Band 12_LAT	10M	QPSK	25	0	Right Side	10mm	OFF	23095	707.5	22.94	23.00	1.014	0.02	0.220	0.223
	LTE Band 12_LAT	10M	QPSK	1	0	Bottom Side	10mm	OFF	23095	707.5	23.86	24.00	1.033	-0.06	0.195	0.201
	LTE Band 12_LAT	10M	QPSK	25	0	Bottom Side	10mm	OFF	23095	707.5	22.94	23.00	1.014	-0.03	0.166	0.168



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 13_UAT	10M	QPSK	1	0	Front	10mm	OFF	23230	782	23.45	24.00	1.135	0.02	0.139	0.158
	LTE Band 13_UAT	10M	QPSK	25	0	Front	10mm	OFF	23230	782	22.50	23.00	1.122	0.04	0.112	0.126
	LTE Band 13_UAT	10M	QPSK	1	0	Back	10mm	OFF	23230	782	23.45	24.00	1.135	-0.05	0.147	0.167
	LTE Band 13_UAT	10M	QPSK	25	0	Back	10mm	OFF	23230	782	22.50	23.00	1.122	0	0.120	0.135
	LTE Band 13_UAT	10M	QPSK	1	0	Left Side	10mm	OFF	23230	782	23.45	24.00	1.135	-0.02	0.052	0.059
	LTE Band 13_UAT	10M	QPSK	25	0	Left Side	10mm	OFF	23230	782	22.50	23.00	1.122	-0.01	0.041	0.046
	LTE Band 13_UAT	10M	QPSK	1	0	Right Side	10mm	OFF	23230	782	23.45	24.00	1.135	0.02	0.084	0.095
	LTE Band 13_UAT	10M	QPSK	25	0	Right Side	10mm	OFF	23230	782	22.50	23.00	1.122	0.01	0.067	0.075
	LTE Band 13_UAT	10M	QPSK	1	0	Top Side	10mm	OFF	23230	782	23.45	24.00	1.135	-0.15	0.051	0.058
	LTE Band 13_UAT	10M	QPSK	25	0	Top Side	10mm	OFF	23230	782	22.50	23.00	1.122	-0.15	0.042	0.047
	LTE Band 13_LAT	10M	QPSK	1	0	Front	10mm	OFF	23230	782	23.45	24.00	1.135	-0.03	0.392	0.445
	LTE Band 13_LAT	10M	QPSK	25	0	Front	10mm	OFF	23230	782	22.50	23.00	1.122	-0.04	0.350	0.393
29	LTE Band 13_LAT	10M	QPSK	1	0	Back	10mm	OFF	23230	782	23.45	24.00	1.135	0.03	0.465	0.528
	LTE Band 13_LAT	10M	QPSK	25	0	Back	10mm	OFF	23230	782	22.50	23.00	1.122	0.02	0.418	0.469
	LTE Band 13_LAT	10M	QPSK	1	0	Left Side	10mm	OFF	23230	782	23.45	24.00	1.135	-0.13	0.198	0.225
	LTE Band 13_LAT	10M	QPSK	25	0	Left Side	10mm	OFF	23230	782	22.50	23.00	1.122	-0.05	0.180	0.202
	LTE Band 13_LAT	10M	QPSK	1	0	Right Side	10mm	OFF	23230	782	23.45	24.00	1.135	0.02	0.398	0.452
	LTE Band 13_LAT	10M	QPSK	25	0	Right Side	10mm	OFF	23230	782	22.50	23.00	1.122	0	0.366	0.411
	LTE Band 13_LAT	10M	QPSK	1	0	Bottom Side	10mm	OFF	23230	782	23.45	24.00	1.135	-0.06	0.242	0.275
	LTE Band 13_LAT	10M	QPSK	25	0	Bottom Side	10mm	OFF	23230	782	22.50	23.00	1.122	-0.06	0.220	0.247
	LTE Band 14_LAT	10M	QPSK	1	0	Front	10mm	OFF	23330	793	23.34	24.00	1.164	0.03	0.440	0.512
	LTE Band 14_LAT	10M	QPSK	25	0	Front	10mm	OFF	23330	793	22.44	23.00	1.138	0	0.359	0.408
30	LTE Band 14_LAT	10M	QPSK	1	0	Back	10mm	OFF	23330	793	23.34	24.00	1.164	-0.01	0.515	0.600
	LTE Band 14_LAT	10M	QPSK	25	0	Back	10mm	OFF	23330	793	22.44	23.00	1.138	0.04	0.424	0.482
	LTE Band 14_LAT	10M	QPSK	1	0	Left Side	10mm	OFF	23330	793	23.34	24.00	1.164	-0.09	0.237	0.276
	LTE Band 14_LAT	10M	QPSK	25	0	Left Side	10mm	OFF	23330	793	22.44	23.00	1.138	-0.09	0.195	0.222
	LTE Band 14_LAT	10M	QPSK	1	0	Right Side	10mm	OFF	23330	793	23.34	24.00	1.164	-0.02	0.495	0.576
	LTE Band 14_LAT	10M	QPSK	25	0	Right Side	10mm	OFF	23330	793	22.44	23.00	1.138	-0.05	0.410	0.466
	LTE Band 14_LAT	10M	QPSK	1	0	Bottom Side	10mm	OFF	23330	793	23.34	24.00	1.164	-0.03	0.292	0.340
	LTE Band 14_LAT	10M	QPSK	25	0	Bottom Side	10mm	OFF	23330	793	22.44	23.00	1.138	-0.03	0.242	0.275



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 26_UAT	15M	QPSK	1	0	Front	10mm	OFF	26865	831.5	23.89	24.00	1.026	-0.03	0.122	0.125
	LTE Band 26_UAT	15M	QPSK	36	0	Front	10mm	OFF	26865	831.5	22.98	23.00	1.005	0	0.107	0.107
	LTE Band 26_UAT	15M	QPSK	1	0	Back	10mm	OFF	26865	831.5	23.89	24.00	1.026	-0.05	0.125	0.128
	LTE Band 26_UAT	15M	QPSK	36	0	Back	10mm	OFF	26865	831.5	22.98	23.00	1.005	0.01	0.109	0.110
	LTE Band 26_UAT	15M	QPSK	1	0	Left Side	10mm	OFF	26865	831.5	23.89	24.00	1.026	-0.01	0.046	0.047
	LTE Band 26_UAT	15M	QPSK	36	0	Left Side	10mm	OFF	26865	831.5	22.98	23.00	1.005	0.04	0.039	0.039
	LTE Band 26_UAT	15M	QPSK	1	0	Right Side	10mm	OFF	26865	831.5	23.89	24.00	1.026	-0.03	0.058	0.059
	LTE Band 26_UAT	15M	QPSK	36	0	Right Side	10mm	OFF	26865	831.5	22.98	23.00	1.005	-0.06	0.047	0.047
	LTE Band 26_UAT	15M	QPSK	1	0	Top Side	10mm	OFF	26865	831.5	23.89	24.00	1.026	-0.06	0.055	0.056
	LTE Band 26_UAT	15M	QPSK	36	0	Top Side	10mm	OFF	26865	831.5	22.98	23.00	1.005	0.03	0.047	0.047
	LTE Band 26_LAT	15M	QPSK	1	0	Front	10mm	OFF	26865	831.5	23.89	24.00	1.026	-0.05	0.479	0.491
	LTE Band 26_LAT	15M	QPSK	36	0	Front	10mm	OFF	26865	831.5	22.98	23.00	1.005	0.02	0.397	0.399
31	LTE Band 26_LAT	15M	QPSK	1	0	Back	10mm	OFF	26865	831.5	23.89	24.00	1.026	0.02	0.556	0.570
	LTE Band 26_LAT	15M	QPSK	36	0	Back	10mm	OFF	26865	831.5	22.98	23.00	1.005	-0.01	0.463	0.465
	LTE Band 26_LAT	15M	QPSK	1	0	Left Side	10mm	OFF	26865	831.5	23.89	24.00	1.026	-0.03	0.180	0.185
	LTE Band 26_LAT	15M	QPSK	36	0	Left Side	10mm	OFF	26865	831.5	22.98	23.00	1.005	0.03	0.151	0.152
	LTE Band 26_LAT	15M	QPSK	1	0	Right Side	10mm	OFF	26865	831.5	23.89	24.00	1.026	0.03	0.434	0.445
	LTE Band 26_LAT	15M	QPSK	36	0	Right Side	10mm	OFF	26865	831.5	22.98	23.00	1.005	-0.01	0.360	0.362
	LTE Band 26_LAT	15M	QPSK	1	0	Bottom Side	10mm	OFF	26865	831.5	23.89	24.00	1.026	-0.04	0.353	0.362
	LTE Band 26_LAT	15M	QPSK	36	0	Bottom Side	10mm	OFF	26865	831.5	22.98	23.00	1.005	0.01	0.294	0.295
	LTE Band 30_LAT	10M	QPSK	1	0	Front	10mm	ON	27710	2310	19.79	20.00	1.050	0.12	0.378	0.397
	LTE Band 30_LAT	10M	QPSK	25	0	Front	10mm	ON	27710	2310	19.79	20.00	1.050	0.15	0.401	0.421
	LTE Band 30_LAT	10M	QPSK	1	0	Back	10mm	ON	27710	2310	19.79	20.00	1.050	0.04	0.379	0.398
	LTE Band 30_LAT	10M	QPSK	25	0	Back	10mm	ON	27710	2310	19.79	20.00	1.050	0.05	0.382	0.401
	LTE Band 30_LAT	10M	QPSK	1	0	Left Side	10mm	ON	27710	2310	19.79	20.00	1.050	0.05	0.051	0.054
	LTE Band 30_LAT	10M	QPSK	25	0	Left Side	10mm	ON	27710	2310	19.79	20.00	1.050	0.01	0.052	0.055
	LTE Band 30_LAT	10M	QPSK	1	0	Right Side	10mm	ON	27710	2310	19.79	20.00	1.050	0.1	0.038	0.040
	LTE Band 30_LAT	10M	QPSK	25	0	Right Side	10mm	ON	27710	2310	19.79	20.00	1.050	0	0.040	0.042
	LTE Band 30_LAT	10M	QPSK	1	0	Bottom Side	10mm	ON	27710	2310	19.79	20.00	1.050	-0.04	0.944	0.991
	LTE Band 30_LAT	10M	QPSK	25	0	Bottom Side	10mm	ON	27710	2310	19.79	20.00	1.050	-0.04	0.960	1.008
32	LTE Band 30_LAT	10M	QPSK	50	0	Bottom Side	10mm	ON	27710	2310	19.74	20.00	1.062	0.01	0.962	1.021



FCC SAR TEST REPORT

Report No. : FA871722

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 66_LAT	20M	QPSK	1	0	Front	10mm	ON	132322	1745	19.14	19.50	1.086	0.02	0.546	0.593
	LTE Band 66_LAT	20M	QPSK	50	0	Front	10mm	ON	132322	1745	19.11	19.50	1.094	0.04	0.546	0.597
	LTE Band 66_LAT	20M	QPSK	1	0	Back	10mm	ON	132322	1745	19.14	19.50	1.086	0.04	0.587	0.638
	LTE Band 66_LAT	20M	QPSK	50	0	Back	10mm	ON	132322	1745	19.11	19.50	1.094	0.11	0.549	0.601
	LTE Band 66_LAT	20M	QPSK	1	0	Left Side	10mm	ON	132322	1745	19.14	19.50	1.086	-0.01	0.069	0.075
	LTE Band 66_LAT	20M	QPSK	50	0	Left Side	10mm	ON	132322	1745	19.11	19.50	1.094	0.17	0.069	0.075
	LTE Band 66_LAT	20M	QPSK	1	0	Right Side	10mm	ON	132322	1745	19.14	19.50	1.086	0.01	0.061	0.066
	LTE Band 66_LAT	20M	QPSK	50	0	Right Side	10mm	ON	132322	1745	19.11	19.50	1.094	0.05	0.060	0.066
	LTE Band 66_LAT	20M	QPSK	1	0	Bottom Side	10mm	ON	132322	1745	19.14	19.50	1.086	-0.06	0.884	0.960
	LTE Band 66_LAT	20M	QPSK	1	0	Bottom Side	10mm	ON	132072	1720	19.13	19.50	1.089	-0.07	0.842	0.917
	LTE Band 66_LAT	20M	QPSK	1	0	Bottom Side	10mm	ON	132572	1770	19.00	19.50	1.122	0	0.916	1.028
	LTE Band 66_LAT	20M	QPSK	50	0	Bottom Side	10mm	ON	132322	1745	19.11	19.50	1.094	-0.07	0.887	0.970
	LTE Band 66_LAT	20M	QPSK	50	0	Bottom Side	10mm	ON	132072	1720	19.10	19.50	1.096	0.02	0.835	0.916
33	LTE Band 66_LAT	20M	QPSK	50	0	Bottom Side	10mm	ON	132572	1770	18.91	19.50	1.146	-0.01	0.921	1.055
	LTE Band 66_LAT	20M	QPSK	100	0	Bottom Side	10mm	ON	132322	1745	19.12	19.50	1.091	-0.04	0.881	0.962
	LTE Band 71_UAT	20M	QPSK	1	0	Front	10mm	OFF	133322	683	23.58	24.00	1.102	0.01	0.141	0.155
	LTE Band 71_UAT	20M	QPSK	50	0	Front	10mm	OFF	133322	683	22.55	23.00	1.109	-0.06	0.106	0.118
	LTE Band 71_UAT	20M	QPSK	1	0	Back	10mm	OFF	133322	683	23.58	24.00	1.102	-0.01	0.156	0.172
	LTE Band 71_UAT	20M	QPSK	50	0	Back	10mm	OFF	133322	683	22.55	23.00	1.109	0.02	0.117	0.130
	LTE Band 71_UAT	20M	QPSK	1	0	Left Side	10mm	OFF	133322	683	23.58	24.00	1.102	-0.15	0.045	0.050
	LTE Band 71_UAT	20M	QPSK	50	0	Left Side	10mm	OFF	133322	683	22.55	23.00	1.109	-0.04	0.033	0.037
	LTE Band 71_UAT	20M	QPSK	1	0	Right Side	10mm	OFF	133322	683	23.58	24.00	1.102	-0.02	0.044	0.048
	LTE Band 71_UAT	20M	QPSK	50	0	Right Side	10mm	OFF	133322	683	22.55	23.00	1.109	0.02	0.034	0.038
	LTE Band 71_UAT	20M	QPSK	1	0	Top Side	10mm	OFF	133322	683	23.58	24.00	1.102	-0.11	0.051	0.056
	LTE Band 71_UAT	20M	QPSK	50	0	Top Side	10mm	OFF	133322	683	22.55	23.00	1.109	-0.1	0.039	0.043
	LTE Band 71_LAT	20M	QPSK	1	0	Front	10mm	OFF	133322	683	23.58	24.00	1.102	-0.05	0.223	0.246
	LTE Band 71_LAT	20M	QPSK	50	0	Front	10mm	OFF	133322	683	22.55	23.00	1.109	-0.01	0.180	0.200
34	LTE Band 71_LAT	20M	QPSK	1	0	Back	10mm	OFF	133322	683	23.58	24.00	1.102	-0.02	0.247	0.272
	LTE Band 71_LAT	20M	QPSK	50	0	Back	10mm	OFF	133322	683	22.55	23.00	1.109	0.04	0.201	0.223
	LTE Band 71_LAT	20M	QPSK	1	0	Left Side	10mm	OFF	133322	683	23.58	24.00	1.102	0.03	0.154	0.170
	LTE Band 71_LAT	20M	QPSK	50	0	Left Side	10mm	OFF	133322	683	22.55	23.00	1.109	-0.04	0.123	0.136
	LTE Band 71_LAT	20M	QPSK	1	0	Right Side	10mm	OFF	133322	683	23.58	24.00	1.102	0.01	0.226	0.249
	LTE Band 71_LAT	20M	QPSK	50	0	Right Side	10mm	OFF	133322	683	22.55	23.00	1.109	-0.08	0.178	0.197
	LTE Band 71_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	133322	683	23.58	24.00	1.102	-0.06	0.138	0.152
	LTE Band 71_LAT	20M	QPSK	50	0	Bottom Side	10mm	OFF	133322	683	22.55	23.00	1.109	-0.18	0.116	0.129

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41_LAT	20M	QPSK	1	0	Front	10mm	OFF	39750	2506	24.50	25.00	1.122	62.90	1.006	0.1	0.208	0.235
	LTE Band 41_LAT	20M	QPSK	50	0	Front	10mm	OFF	39750	2506	23.49	24.00	1.125	62.90	1.006	-0.04	0.161	0.182
	LTE Band 41_LAT	20M	QPSK	1	0	Back	10mm	OFF	39750	2506	24.50	25.00	1.122	62.90	1.006	0.12	0.197	0.222
	LTE Band 41_LAT	20M	QPSK	50	0	Back	10mm	OFF	39750	2506	23.49	24.00	1.125	62.90	1.006	0.05	0.153	0.173
	LTE Band 41_LAT	20M	QPSK	1	0	Left Side	10mm	OFF	39750	2506	24.50	25.00	1.122	62.90	1.006	0.02	0.031	0.035
	LTE Band 41_LAT	20M	QPSK	50	0	Left Side	10mm	OFF	39750	2506	23.49	24.00	1.125	62.90	1.006	0.14	0.022	0.025
	LTE Band 41_LAT	20M	QPSK	1	0	Right Side	10mm	OFF	39750	2506	24.50	25.00	1.122	62.90	1.006	-0.04	0.052	0.059
	LTE Band 41_LAT	20M	QPSK	50	0	Right Side	10mm	OFF	39750	2506	23.49	24.00	1.125	62.90	1.006	-0.03	0.040	0.045
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	39750	2506	24.50	25.00	1.122	62.90	1.006	0.09	0.432	0.488
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	40185	2549.5	24.36	25.00	1.159	62.90	1.006	-0.04	0.476	0.555
35	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	40620	2593	24.43	25.00	1.140	62.90	1.006	0.02	0.583	0.669
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	41055	2636.5	24.32	25.00	1.169	62.90	1.006	-0.02	0.550	0.647
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	OFF	41490	2680	24.39	25.00	1.151	62.90	1.006	-0.03	0.502	0.581
	LTE Band 41_LAT	20M	QPSK	50	0	Bottom Side	10mm	OFF	39750	2506	23.49	24.00	1.125	62.90	1.006	0	0.340	0.385

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
36	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	ANT 0	OFF	11	2462	12.34	12.50	1.038	99.04	1.010	0.16	0.039	0.041
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	ANT 0	OFF	11	2462	12.34	12.50	1.038	99.04	1.010	-0.06	0.048	0.050
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	ANT 0	OFF	1	2412	11.92	12.50	1.143	99.04	1.010	-0.07	0.046	0.053
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	ANT 0	OFF	6	2437	12.25	12.50	1.059	99.04	1.010	0.06	0.049	0.052
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	ANT 0	OFF	11	2462	12.34	12.50	1.038	99.04	1.010	0.09	0.005	0.005
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	ANT 0	OFF	11	2462	12.34	12.50	1.038	99.04	1.010	-0.1	0.019	0.020
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	ANT 1	OFF	11	2462	13.00	13.50	1.122	99.04	1.010	0.1	0.012	0.014
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	ANT 1	OFF	11	2462	13.00	13.50	1.122	99.04	1.010	0.11	0.032	0.036
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	ANT 1	OFF	11	2462	13.00	13.50	1.122	99.04	1.010	0.02	0.019	0.021
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	10mm	ANT 1	OFF	11	2462	13.00	13.50	1.122	99.04	1.010	0.09	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	ANT 0	OFF	38	5190	15.97	16.00	1.008	96.04	1.041	-0.11	0.029	0.030
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	ANT 0	OFF	38	5190	15.97	16.00	1.008	96.04	1.041	0.15	0.028	0.029
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	10mm	ANT 0	OFF	38	5190	15.97	16.00	1.008	96.04	1.041	-0.01	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	10mm	ANT 0	OFF	38	5190	15.97	16.00	1.008	96.04	1.041	0.11	0.009	0.009
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	ANT 1	OFF	46	5230	15.93	16.00	1.016	96.34	1.038	0.1	0.019	0.020
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	ANT 1	OFF	46	5230	15.93	16.00	1.016	96.34	1.038	0.02	0.240	0.253
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	ANT 1	OFF	38	5190	15.86	16.00	1.032	96.34	1.038	-0.04	0.203	0.218
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	10mm	ANT 1	OFF	46	5230	15.93	16.00	1.016	96.34	1.038	0.02	0.071	0.075
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	10mm	ANT 1	OFF	46	5230	15.93	16.00	1.016	96.34	1.038	0.05	0.026	0.027
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	ANT 0	OFF	159	5795	15.96	16.00	1.010	96.04	1.041	-0.15	0.082	0.086
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	ANT 0	OFF	159	5795	15.96	16.00	1.010	96.04	1.041	0.15	0.137	0.144
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	10mm	ANT 0	OFF	159	5795	15.96	16.00	1.010	96.04	1.041	-0.01	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	10mm	ANT 0	OFF	159	5795	15.96	16.00	1.010	96.04	1.041	0.03	0.033	0.035
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	ANT 1	OFF	159	5795	16.48	16.50	1.004	96.34	1.038	0	0.002	0.002
38	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	ANT 1	OFF	159	5795	16.48	16.50	1.004	96.34	1.038	0.14	0.147	0.153
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	ANT 1	OFF	151	5755	16.45	16.50	1.011	96.34	1.038	-0.05	0.132	0.139
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	10mm	ANT 1	OFF	159	5795	16.48	16.50	1.004	96.34	1.038	0.1	0.029	0.030
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	10mm	ANT 1	OFF	159	5795	16.48	16.50	1.004	96.34	1.038	-0.11	0.019	0.020

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
39	Bluetooth	1Mbps	Front	10mm	ANT 0	OFF	0	2402	9.47	10.00	1.130	76.80	1.085	0.17	0.009	0.010
	Bluetooth	1Mbps	Back	10mm	ANT 0	OFF	0	2402	9.47	10.00	1.130	76.80	1.085	0.05	0.015	0.018
	Bluetooth	1Mbps	Back	10mm	ANT 0	OFF	39	2441	8.37	10.00	1.456	76.80	1.085	-0.14	0.010	0.016
	Bluetooth	1Mbps	Back	10mm	ANT 0	OFF	78	2480	8.63	10.00	1.371	76.80	1.085	0.14	0.011	0.016
	Bluetooth	1Mbps	Right Side	10mm	ANT 0	OFF	0	2402	9.47	10.00	1.130	76.80	1.085	0.13	0.001	0.001
	Bluetooth	1Mbps	Top Side	10mm	ANT 0	OFF	0	2402	9.47	10.00	1.130	76.80	1.085	0.17	0.004	0.005

13.3 Product Specific SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	GSM1900_LAT	GPRS (3 Tx slots)	Bottom Side	0mm	661	1880	25.29	26.00	1.178	0.14	1.510	1.778
	GSM1900_LAT	GPRS (3 Tx slots)	Bottom Side	0mm	512	1850.2	25.30	26.00	1.175	0.01	1.530	1.798
40	GSM1900_LAT	GPRS (3 Tx slots)	Bottom Side	0mm	810	1909.8	25.26	26.00	1.186	-0.07	1.610	1.909

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
41	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	0mm	9262	1852.4	22.40	22.50	1.023	-0.03	1.960	2.006
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	0mm	9538	1907.6	22.50	22.50	1.000	-0.11	1.890	1.890
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	0mm	9400	1880	22.42	22.50	1.019	0.01	1.880	1.915
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	0mm	1312	1712.4	21.87	22.00	1.030	0.06	2.400	2.473
42	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	0mm	1413	1732.6	21.79	22.00	1.050	0.18	2.390	2.508
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	0mm	1513	1752.6	21.72	22.00	1.067	-0.09	2.100	2.240

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	0mm	19100	1900	21.67	22.00	1.079	0.04	1.950	2.104
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	0mm	18700	1860	21.50	22.00	1.122	0.02	1.960	2.199
43	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	0mm	18900	1880	21.52	22.00	1.117	0.01	1.970	2.200
44	LTE Band 30_LAT	10M	QPSK	1	0	Bottom Side	0mm	27710	2310	23.41	23.50	1.021	0.04	2.380	2.430
	LTE Band 66_LAT	20M	QPSK	1	0	Bottom Side	0mm	132322	1745	21.83	22.00	1.040	-0.01	2.440	2.537
45	LTE Band 66_LAT	20M	QPSK	1	0	Bottom Side	0mm	132072	1720	21.82	22.00	1.042	0.01	2.490	2.595
	LTE Band 66_LAT	20M	QPSK	1	0	Bottom Side	0mm	132572	1770	21.66	22.00	1.081	-0.02	2.350	2.541

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	-0.06	0.288	0.337
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	0.08	0.349	0.408
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	0mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	-0.01	0.254	0.297
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	-0.15	0.448	0.524
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	-0.07	0.273	0.295
46	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	0.17	1.310	1.417
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	ANT 1	62	5310	15.20	15.50	1.071	96.34	1.038	-0.05	0.916	1.018
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	0mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	0.09	0.348	0.376
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	0mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	-0.07	0.109	0.118
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	0.02	0.350	0.391
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	0.01	0.326	0.364
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	0mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	0.01	0.054	0.060
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	0.06	0.096	0.107
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	-0.04	0.101	0.108
47	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	0.11	0.823	0.884
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	ANT 1	102	5510	15.70	16.00	1.071	96.34	1.038	0.09	0.788	0.876
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	ANT 1	126	5630	15.46	16.00	1.132	96.34	1.038	0.07	0.602	0.708
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	ANT 1	134	5670	15.69	16.00	1.074	96.34	1.038	0.03	0.508	0.566
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	0mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	-0.01	0.203	0.218
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	0mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	0.04	0.108	0.116

13.4 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_LAT	GPRS (4 Tx slots)	Front	15mm	128	824.2	27.58	28.00	1.102	0	0.203	0.224
	GSM850_LAT	GPRS (4 Tx slots)	Back	15mm	128	824.2	27.58	28.00	1.102	0	0.238	0.262
	GSM850_LAT	GPRS (4 Tx slots)	Back	15mm	189	836.4	27.29	28.00	1.178	0.02	0.302	0.356
48	GSM850_LAT	GPRS (4 Tx slots)	Back	15mm	251	848.8	27.18	28.00	1.208	-0.01	0.308	0.372
	GSM1900_LAT	GPRS (3 Tx slots)	Front	15mm	512	1850.2	25.30	26.00	1.175	-0.07	0.408	0.479
	GSM1900_LAT	GPRS (3 Tx slots)	Back	15mm	512	1850.2	25.30	26.00	1.175	-0.01	0.429	0.504
49	GSM1900_LAT	GPRS (3 Tx slots)	Back	15mm	661	1880	25.29	26.00	1.178	0.01	0.459	0.541
	GSM1900_LAT	GPRS (3 Tx slots)	Back	15mm	810	1909.8	25.26	26.00	1.186	0.01	0.408	0.484

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II_LAT	RMC 12.2Kbps	Front	15mm	9538	1907.6	22.50	22.50	1.000	0	0.472	0.472
	WCDMA II_LAT	RMC 12.2Kbps	Back	15mm	9538	1907.6	22.50	22.50	1.000	0.01	0.495	0.495
50	WCDMA II_LAT	RMC 12.2Kbps	Back	15mm	9262	1852.4	22.40	22.50	1.023	0.01	0.563	0.576
	WCDMA II_LAT	RMC 12.2Kbps	Back	15mm	9400	1880	22.42	22.50	1.019	-0.01	0.536	0.546
	WCDMA IV_LAT	RMC 12.2Kbps	Front	15mm	1312	1712.4	21.87	22.00	1.030	0.03	0.464	0.478
	WCDMA IV_LAT	RMC 12.2Kbps	Back	15mm	1312	1712.4	21.87	22.00	1.030	-0.01	0.510	0.525
	WCDMA IV_LAT	RMC 12.2Kbps	Back	15mm	1413	1732.6	21.79	22.00	1.050	0.02	0.513	0.538
51	WCDMA IV_LAT	RMC 12.2Kbps	Back	15mm	1513	1752.6	21.72	22.00	1.067	-0.02	0.542	0.578
	WCDMA V_UAT	RMC 12.2Kbps	Front	15mm	4132	826.4	23.33	23.50	1.040	0.02	0.075	0.078
	WCDMA V_UAT	RMC 12.2Kbps	Front	15mm	4182	836.4	23.22	23.50	1.067	-0.03	0.083	0.089
	WCDMA V_UAT	RMC 12.2Kbps	Front	15mm	4233	846.6	23.20	23.50	1.072	-0.18	0.097	0.104
	WCDMA V_UAT	RMC 12.2Kbps	Back	15mm	4132	826.4	23.33	23.50	1.040	-0.04	0.071	0.074
	WCDMA V_LAT	RMC 12.2Kbps	Front	15mm	4132	826.4	23.33	23.50	1.040	-0.03	0.263	0.273
	WCDMA V_LAT	RMC 12.2Kbps	Front	15mm	4182	836.4	23.22	23.50	1.067	-0.05	0.282	0.301
52	WCDMA V_LAT	RMC 12.2Kbps	Front	15mm	4233	846.6	23.20	23.50	1.072	0.02	0.293	0.314
	WCDMA V_LAT	RMC 12.2Kbps	Back	15mm	4132	826.4	23.33	23.50	1.040	-0.06	0.249	0.259

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2_LAT	20M	QPSK	1	0	Front	15mm	19100	1900	21.67	22.00	1.079	-0.02	0.409	0.441
	LTE Band 2_LAT	20M	QPSK	50	0	Front	15mm	19100	1900	20.58	21.00	1.102	0.02	0.321	0.354
53	LTE Band 2_LAT	20M	QPSK	1	0	Back	15mm	19100	1900	21.67	22.00	1.079	-0.04	0.434	0.468
	LTE Band 2_LAT	20M	QPSK	1	0	Back	15mm	18700	1860	21.50	22.00	1.122	-0.01	0.389	0.436
	LTE Band 2_LAT	20M	QPSK	1	0	Back	15mm	18900	1880	21.52	22.00	1.117	0.01	0.396	0.442
	LTE Band 2_LAT	20M	QPSK	50	0	Back	15mm	19100	1900	20.58	21.00	1.102	-0.03	0.338	0.372
54	LTE Band 7_LAT	20M	QPSK	1	0	Front	15mm	20850	2510	24.50	24.50	1.000	-0.17	0.193	0.193
	LTE Band 7_LAT	20M	QPSK	1	0	Front	15mm	21100	2535	24.49	24.50	1.002	0.13	0.159	0.159
	LTE Band 7_LAT	20M	QPSK	1	0	Front	15mm	21350	2560	24.35	24.50	1.035	0.05	0.181	0.187
	LTE Band 7_LAT	20M	QPSK	50	0	Front	15mm	20850	2510	23.50	23.50	1.000	-0.05	0.148	0.148
	LTE Band 7_LAT	20M	QPSK	1	0	Back	15mm	20850	2510	24.50	24.50	1.000	0.15	0.190	0.190
	LTE Band 7_LAT	20M	QPSK	50	0	Back	15mm	20850	2510	23.50	23.50	1.000	0.07	0.156	0.156

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12_UAT	10M	QPSK	1	0	Front	15mm	23095	707.5	23.86	24.00	1.033	-0.07	0.059	0.061
	LTE Band 12_UAT	10M	QPSK	25	0	Front	15mm	23095	707.5	22.94	23.00	1.014	-0.01	0.049	0.050
	LTE Band 12_UAT	10M	QPSK	1	0	Back	15mm	23095	707.5	23.86	24.00	1.033	0	0.063	0.065
	LTE Band 12_UAT	10M	QPSK	25	0	Back	15mm	23095	707.5	22.94	23.00	1.014	0.04	0.053	0.054
55	LTE Band 12_LAT	10M	QPSK	1	0	Front	15mm	23095	707.5	23.86	24.00	1.033	-0.03	0.179	0.185
	LTE Band 12_LAT	10M	QPSK	25	0	Front	15mm	23095	707.5	22.94	23.00	1.014	0	0.148	0.150
	LTE Band 12_LAT	10M	QPSK	1	0	Back	15mm	23095	707.5	23.86	24.00	1.033	-0.04	0.173	0.179
	LTE Band 12_LAT	10M	QPSK	25	0	Back	15mm	23095	707.5	22.94	23.00	1.014	0.01	0.143	0.145
	LTE Band 13_UAT	10M	QPSK	1	0	Front	15mm	23230	782	23.45	24.00	1.135	-0.07	0.096	0.109
	LTE Band 13_UAT	10M	QPSK	25	0	Front	15mm	23230	782	22.50	23.00	1.122	-0.04	0.078	0.088
	LTE Band 13_UAT	10M	QPSK	1	0	Back	15mm	23230	782	23.45	24.00	1.135	-0.02	0.103	0.117
	LTE Band 13_UAT	10M	QPSK	25	0	Back	15mm	23230	782	22.50	23.00	1.122	0.04	0.084	0.094
56	LTE Band 13_LAT	10M	QPSK	1	0	Front	15mm	23230	782	23.45	24.00	1.135	-0.02	0.237	0.269
	LTE Band 13_LAT	10M	QPSK	25	0	Front	15mm	23230	782	22.50	23.00	1.122	0	0.210	0.236
	LTE Band 13_LAT	10M	QPSK	1	0	Back	15mm	23230	782	23.45	24.00	1.135	-0.06	0.219	0.249
	LTE Band 13_LAT	10M	QPSK	25	0	Back	15mm	23230	782	22.50	23.00	1.122	0.01	0.194	0.218
57	LTE Band 14_LAT	10M	QPSK	1	0	Front	15mm	23330	793	23.34	24.00	1.164	-0.01	0.294	0.342
	LTE Band 14_LAT	10M	QPSK	25	0	Front	15mm	23330	793	22.44	23.00	1.138	0	0.230	0.262
	LTE Band 14_LAT	10M	QPSK	1	0	Back	15mm	23330	793	23.34	24.00	1.164	-0.02	0.272	0.317
	LTE Band 14_LAT	10M	QPSK	25	0	Back	15mm	23330	793	22.44	23.00	1.138	0.03	0.213	0.242
	LTE Band 26_UAT	15M	QPSK	1	0	Front	15mm	26865	831.5	23.89	24.00	1.026	0.02	0.073	0.075
	LTE Band 26_UAT	15M	QPSK	36	0	Front	15mm	26865	831.5	22.98	23.00	1.005	-0.02	0.064	0.064
	LTE Band 26_UAT	15M	QPSK	1	0	Back	15mm	26865	831.5	23.89	24.00	1.026	-0.01	0.076	0.078
	LTE Band 26_UAT	15M	QPSK	36	0	Back	15mm	26865	831.5	22.98	23.00	1.005	0.01	0.066	0.066
58	LTE Band 26_LAT	15M	QPSK	1	0	Front	15mm	26865	831.5	23.89	24.00	1.026	-0.01	0.267	0.274
	LTE Band 26_LAT	15M	QPSK	36	0	Front	15mm	26865	831.5	22.98	23.00	1.005	0	0.219	0.220
	LTE Band 26_LAT	15M	QPSK	1	0	Back	15mm	26865	831.5	23.89	24.00	1.026	-0.02	0.238	0.244
	LTE Band 26_LAT	15M	QPSK	36	0	Back	15mm	26865	831.5	22.98	23.00	1.005	-0.01	0.198	0.199
	LTE Band 30_LAT	10M	QPSK	1	0	Front	15mm	27710	2310	23.41	23.50	1.021	0.12	0.409	0.418
	LTE Band 30_LAT	10M	QPSK	50	0	Front	15mm	27710	2310	22.36	22.50	1.033	0.11	0.342	0.353
59	LTE Band 30_LAT	10M	QPSK	1	0	Back	15mm	27710	2310	23.41	23.50	1.021	0.04	0.434	0.443
	LTE Band 30_LAT	10M	QPSK	50	0	Back	15mm	27710	2310	22.36	22.50	1.033	0.03	0.346	0.357

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 66_LAT	20M	QPSK	1	0	Front	15mm	132322	1745	21.83	22.00	1.040	-0.05	0.422	0.439
	LTE Band 66_LAT	20M	QPSK	50	0	Front	15mm	132322	1745	20.72	21.00	1.067	0.02	0.339	0.362
	LTE Band 66_LAT	20M	QPSK	1	0	Back	15mm	132322	1745	21.83	22.00	1.040	-0.02	0.457	0.475
	LTE Band 66_LAT	20M	QPSK	1	0	Back	15mm	132072	1720	21.82	22.00	1.042	-0.01	0.444	0.463
60	LTE Band 66_LAT	20M	QPSK	1	0	Back	15mm	132572	1770	21.66	22.00	1.081	0.02	0.463	0.501
	LTE Band 66_LAT	20M	QPSK	50	0	Back	15mm	132322	1745	20.72	21.00	1.067	0	0.363	0.387
	LTE Band 71_UAT	20M	QPSK	1	0	Front	15mm	133322	683	23.58	24.00	1.102	-0.04	0.099	0.109
	LTE Band 71_UAT	20M	QPSK	50	0	Front	15mm	133322	683	22.55	23.00	1.109	0.05	0.074	0.082
	LTE Band 71_UAT	20M	QPSK	1	0	Back	15mm	133322	683	23.58	24.00	1.102	-0.01	0.106	0.117
	LTE Band 71_UAT	20M	QPSK	50	0	Back	15mm	133322	683	22.55	23.00	1.109	0.01	0.080	0.089
61	LTE Band 71_LAT	20M	QPSK	1	0	Front	15mm	133322	683	23.58	24.00	1.102	0.06	0.177	0.195
	LTE Band 71_LAT	20M	QPSK	50	0	Front	15mm	133322	683	22.55	23.00	1.109	0.04	0.147	0.163
	LTE Band 71_LAT	20M	QPSK	50	0	Back	15mm	133322	683	23.58	24.00	1.102	0.03	0.141	0.155
	LTE Band 71_LAT	20M	QPSK	1	0	Back	15mm	133322	683	22.55	23.00	1.109	-0.01	0.170	0.189

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41_LAT	20M	QPSK	1	0	Front	15mm	39750	2506	24.50	25.00	1.122	62.90	1.006	-0.16	0.103	0.116
	LTE Band 41_LAT	20M	QPSK	50	0	Front	15mm	39750	2506	23.49	24.00	1.125	62.90	1.006	-0.01	0.080	0.091
	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	39750	2506	24.50	25.00	1.122	62.90	1.006	0.06	0.112	0.126
	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	40185	2549.5	24.36	25.00	1.159	62.90	1.006	0.1	0.103	0.120
	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	40620	2593	24.43	25.00	1.140	62.90	1.006	0.09	0.113	0.130
62	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	41055	2636.5	24.32	25.00	1.169	62.90	1.006	0.14	0.119	0.140
	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	41490	2680	24.39	25.00	1.151	62.90	1.006	0.07	0.110	0.127
	LTE Band 41_LAT	20M	QPSK	50	0	Back	15mm	39750	2506	23.49	24.00	1.125	62.90	1.006	0.1	0.086	0.097

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	ANT 0	11	2462	12.34	12.50	1.038	99.04	1.010	-0.04	0.019	0.020
63	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	ANT 0	1	2412	11.92	12.50	1.143	99.04	1.010	0.01	0.018	0.021
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	ANT 0	6	2437	12.25	12.50	1.059	99.04	1.010	-0.07	0.019	0.020
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	ANT 0	11	2462	12.34	12.50	1.038	99.04	1.010	0.01	0.016	0.017
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	ANT 1	11	2462	13.00	13.50	1.122	99.04	1.010	0.13	0.004	0.005
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	ANT 1	11	2462	13.00	13.50	1.122	99.04	1.010	0.1	0.012	0.014
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	0.11	0.027	0.032
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 0	54	5270	15.50	16.00	1.123	96.04	1.041	-0.05	0.015	0.018
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	-0.16	0.013	0.014
64	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 1	54	5270	15.82	16.00	1.042	96.34	1.038	-0.08	0.122	0.132
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 1	62	5310	15.20	15.50	1.071	96.34	1.038	-0.02	0.102	0.113
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	-0.15	0.057	0.064
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 0	110	5550	15.70	16.00	1.073	96.04	1.041	-0.12	0.060	0.067
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	0.11	0.005	0.005
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 1	110	5550	15.85	16.00	1.035	96.34	1.038	-0.06	0.122	0.131
65	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 1	102	5510	15.70	16.00	1.071	96.34	1.038	-0.05	0.138	0.153
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 1	126	5630	15.46	16.00	1.132	96.34	1.038	0.13	0.120	0.141
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 1	134	5670	15.69	16.00	1.074	96.34	1.038	-0.11	0.111	0.124
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	ANT 0	159	5795	15.96	16.00	1.010	96.04	1.041	-0.16	0.058	0.061
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 0	159	5795	15.96	16.00	1.010	96.04	1.041	0.09	0.086	0.090
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	ANT 1	159	5795	16.48	16.50	1.004	96.34	1.038	-0.09	0.001	0.001
66	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 1	159	5795	16.48	16.50	1.004	96.34	1.038	0.04	0.103	0.107
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	ANT 1	151	5755	16.45	16.50	1.011	96.34	1.038	0.02	0.099	0.104

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	15mm	ANT 0	0	2402	9.47	10.00	1.130	76.80	1.085	0.12	0.004	0.005
67	Bluetooth	1Mbps	Back	15mm	ANT 0	0	2402	9.47	10.00	1.130	76.80	1.085	0.11	0.005	0.006
	Bluetooth	1Mbps	Back	15mm	ANT 0	39	2441	8.37	10.00	1.456	76.80	1.085	-0.15	0.002	0.003
	Bluetooth	1Mbps	Back	15mm	ANT 0	78	2480	8.63	10.00	1.371	76.80	1.085	0.11	0.002	0.002

13.5 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	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	Right Cheek	0mm	ANT 0	-	134	5670	15.69	16.00	1.074	96.04	1.041	0.04	0.841	-	0.940
2nd	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	ANT 0	-	134	5670	15.69	16.00	1.074	96.04	1.041	-0.15	0.825	1.02	0.922
1st	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	-	ON	9262	1852.4	19.18	19.50	1.076	-	1.000	-0.13	1.040	-	1.120
2nd	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	-	ON	9262	1852.4	19.18	19.50	1.076	-	1.000	0.02	0.988	1.05	1.064
1st	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	-	ON	1513	1752.6	19.08	19.50	1.102	-	1.000	-0.17	0.998	-	1.099
2nd	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	-	ON	1513	1752.6	19.08	19.50	1.102	-	1.000	0.12	0.968	1.03	1.066
1st	LTE Band 7_LAT	20M_QPSK_1_0	Bottom Side	10mm	-	OFF	21350	2560	24.35	24.50	1.035	-	1.000	-0.01	0.934	-	0.967
2nd	LTE Band 7_LAT	20M_QPSK_1_0	Bottom Side	10mm	-	OFF	21350	2560	24.35	24.50	1.035	-	1.000	-0.07	0.893	1.05	0.924
1st	LTE Band 30_LAT	10M_QPSK_50_0	Bottom Side	10mm	-	ON	27710	2310	19.74	20.00	1.062	-	1.000	0.01	0.962	-	1.021
2nd	LTE Band 30_LAT	10M_QPSK_50_0	Bottom Side	10mm	-	ON	27710	2310	19.74	20.00	1.062	-	1.000	0	0.928	1.04	0.985

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	LTE Band 30_LAT	10M	QPSK	1	0	Bottom Side	0mm	27710	2310	23.41	23.50	1.021	0.04	2.380	-	2.430
2nd	LTE Band 30_LAT	10M	QPSK	1	0	Bottom Side	0mm	27710	2310	23.41	23.50	1.021	0.14	2.270	1.05	2.318
1st	LTE Band 66_LAT	20M	QPSK	1	0	Bottom Side	0mm	132072	1720	21.82	22.00	1.042	0.01	2.490	-	2.595
2nd	LTE Band 66_LAT	20M	QPSK	1	0	Bottom Side	0mm	132072	1720	21.82	22.00	1.042	0.09	2.350	1.06	2.449

General Note:

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

14. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	WWAN + 2.4GHz WLAN ANT0 + 2.4GHz WLAN ANT1	Yes	Yes	Yes	Yes
2.	WWAN + 5GHz WLAN ANT0 + 5GHz WLAN ANT1	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth ANT0 + 5GHz WLAN ANT0 + 5GHz WLAN ANT1	Yes	Yes	Yes	Yes
4.	WWAN + 2.4GHz WLAN ANT0 + 5GHz WLAN ANT1	Yes	Yes	Yes	Yes

General Note:

- This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
- All licensed modes share the same antenna part and cannot transmit simultaneously.
- The Scaled SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - Scalar SAR summation $< 1.6W/kg$.
 - $SPLSR = (SAR1 + SAR2)^{1.5} / (\min. \text{ separation distance, mm})$, 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.
 - If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band SAR $< 1.6W/kg$.

14.1 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN ANT 0	2.4GHz WLAN ANT 1	5GHz WLAN ANT 0	5GHz WLAN ANT 1	Bluetooth ANT 0			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850_LAT	Right Cheek	0.413	0.145	0.007	0.940	0.015	0.032	0.565	0.573	1.400
		Right Tilted	0.126	0.084	0.002	0.619	0.001	0.026	0.212	0.211	0.772
		Left Cheek	0.206	0.261	0.004	0.645	0.001	0.085	0.471	0.468	0.937
		Left Tilted	0.119	0.171	0.002	0.492	0.001	0.043	0.292	0.291	0.655
	GSM1900_LAT	Right Cheek	0.090	0.145	0.007	0.940	0.015	0.032	0.242	0.250	1.077
		Right Tilted	0.008	0.084	0.002	0.619	0.001	0.026	0.094	0.093	0.654
		Left Cheek	0.026	0.261	0.004	0.645	0.001	0.085	0.291	0.288	0.757
		Left Tilted	0.022	0.171	0.002	0.492	0.001	0.043	0.195	0.194	0.558
WCDMA	WCDMA II_LAT	Right Cheek	0.110	0.145	0.007	0.940	0.015	0.032	0.262	0.270	1.097
		Right Tilted	0.025	0.084	0.002	0.619	0.001	0.026	0.111	0.110	0.671
		Left Cheek	0.043	0.261	0.004	0.645	0.001	0.085	0.308	0.305	0.774
		Left Tilted	0.011	0.171	0.002	0.492	0.001	0.043	0.184	0.183	0.547
	WCDMA IV_LAT	Right Cheek	0.096	0.145	0.007	0.940	0.015	0.032	0.248	0.256	1.083
		Right Tilted	0.071	0.084	0.002	0.619	0.001	0.026	0.157	0.156	0.717
		Left Cheek	0.117	0.261	0.004	0.645	0.001	0.085	0.382	0.379	0.848
		Left Tilted	0.065	0.171	0.002	0.492	0.001	0.043	0.238	0.237	0.601
	WCDMA V_UAT	Right Cheek	0.582	0.145	0.007	0.940	0.015	0.032	0.734	0.742	1.569
		Right Tilted	0.320	0.084	0.002	0.619	0.001	0.026	0.406	0.405	0.966
		Left Cheek	0.445	0.261	0.004	0.645	0.001	0.085	0.710	0.707	1.176
		Left Tilted	0.261	0.171	0.002	0.492	0.001	0.043	0.434	0.433	0.797
	WCDMA V_LAT	Right Cheek	0.324	0.145	0.007	0.940	0.015	0.032	0.476	0.484	1.311
		Right Tilted	0.147	0.084	0.002	0.619	0.001	0.026	0.233	0.232	0.793
		Left Cheek	0.190	0.261	0.004	0.645	0.001	0.085	0.455	0.452	0.921
		Left Tilted	0.139	0.171	0.002	0.492	0.001	0.043	0.312	0.311	0.675
LTE	LTE Band 2_LAT	Right Cheek	0.156	0.145	0.007	0.940	0.015	0.032	0.308	0.316	1.143
		Right Tilted	0.033	0.084	0.002	0.619	0.001	0.026	0.119	0.118	0.679
		Left Cheek	0.068	0.261	0.004	0.645	0.001	0.085	0.333	0.330	0.799
		Left Tilted	0.058	0.171	0.002	0.492	0.001	0.043	0.231	0.230	0.594
	LTE Band 7_LAT	Right Cheek	0.061	0.145	0.007	0.940	0.015	0.032	0.213	0.221	1.048
		Right Tilted	0.048	0.084	0.002	0.619	0.001	0.026	0.134	0.133	0.694
		Left Cheek	0.086	0.261	0.004	0.645	0.001	0.085	0.351	0.348	0.817
		Left Tilted	0.021	0.171	0.002	0.492	0.001	0.043	0.194	0.193	0.557
	LTE Band 12_UAT	Right Cheek	0.303	0.145	0.007	0.940	0.015	0.032	0.455	0.463	1.290
		Right Tilted	0.193	0.084	0.002	0.619	0.001	0.026	0.279	0.278	0.839
		Left Cheek	0.275	0.261	0.004	0.645	0.001	0.085	0.540	0.537	1.006
		Left Tilted	0.149	0.171	0.002	0.492	0.001	0.043	0.322	0.321	0.685
	LTE Band 12_LAT	Right Cheek	0.178	0.145	0.007	0.940	0.015	0.032	0.330	0.338	1.165
		Right Tilted	0.056	0.084	0.002	0.619	0.001	0.026	0.142	0.141	0.702
		Left Cheek	0.164	0.261	0.004	0.645	0.001	0.085	0.429	0.426	0.895
		Left Tilted	0.075	0.171	0.002	0.492	0.001	0.043	0.248	0.247	0.611

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)
			WWAN 1g SAR (W/kg)	2.4GHz WLAN ANT 0 1g SAR (W/kg)	2.4GHz WLAN ANT 1 1g SAR (W/kg)	5GHz WLAN ANT 0 1g SAR (W/kg)	5GHz WLAN ANT 1 1g SAR (W/kg)	Bluetooth ANT 0 1g SAR (W/kg)			
LTE	LTE Band 13_UAT	Right Cheek	0.382	0.145	0.007	0.940	0.015	0.032	0.534	0.542	1.369
		Right Tilted	0.251	0.084	0.002	0.619	0.001	0.026	0.337	0.336	0.897
		Left Cheek	0.292	0.261	0.004	0.645	0.001	0.085	0.557	0.554	1.023
		Left Tilted	0.163	0.171	0.002	0.492	0.001	0.043	0.336	0.335	0.699
	LTE Band 13_LAT	Right Cheek	0.267	0.145	0.007	0.940	0.015	0.032	0.419	0.427	1.254
		Right Tilted	0.111	0.084	0.002	0.619	0.001	0.026	0.197	0.196	0.757
		Left Cheek	0.200	0.261	0.004	0.645	0.001	0.085	0.465	0.462	0.931
		Left Tilted	0.134	0.171	0.002	0.492	0.001	0.043	0.307	0.306	0.670
	LTE Band 14_LAT	Right Cheek	0.320	0.145	0.007	0.940	0.015	0.032	0.472	0.480	1.307
		Right Tilted	0.143	0.084	0.002	0.619	0.001	0.026	0.229	0.228	0.789
		Left Cheek	0.243	0.261	0.004	0.645	0.001	0.085	0.508	0.505	0.974
		Left Tilted	0.158	0.171	0.002	0.492	0.001	0.043	0.331	0.330	0.694
	LTE Band 26_UAT	Right Cheek	0.582	0.145	0.007	0.940	0.015	0.032	0.734	0.742	1.569
		Right Tilted	0.388	0.084	0.002	0.619	0.001	0.026	0.474	0.473	1.034
		Left Cheek	0.462	0.261	0.004	0.645	0.001	0.085	0.727	0.724	1.193
		Left Tilted	0.336	0.171	0.002	0.492	0.001	0.043	0.509	0.508	0.872
	LTE Band 26_LAT	Right Cheek	0.294	0.145	0.007	0.940	0.015	0.032	0.446	0.454	1.281
		Right Tilted	0.122	0.084	0.002	0.619	0.001	0.026	0.208	0.207	0.768
		Left Cheek	0.198	0.261	0.004	0.645	0.001	0.085	0.463	0.460	0.929
		Left Tilted	0.118	0.171	0.002	0.492	0.001	0.043	0.291	0.290	0.654
	LTE Band 30_LAT	Right Cheek	0.102	0.145	0.007	0.940	0.015	0.032	0.254	0.262	1.089
		Right Tilted	0.039	0.084	0.002	0.619	0.001	0.026	0.125	0.124	0.685
		Left Cheek	0.051	0.261	0.004	0.645	0.001	0.085	0.316	0.313	0.782
		Left Tilted	0.026	0.171	0.002	0.492	0.001	0.043	0.199	0.198	0.562
	LTE Band 41_LAT	Right Cheek	0.052	0.145	0.007	0.940	0.015	0.032	0.204	0.212	1.039
		Right Tilted	0.014	0.084	0.002	0.619	0.001	0.026	0.100	0.099	0.660
		Left Cheek	0.021	0.261	0.004	0.645	0.001	0.085	0.286	0.283	0.752
		Left Tilted	0.012	0.171	0.002	0.492	0.001	0.043	0.185	0.184	0.548
	LTE Band 66_LAT	Right Cheek	0.093	0.145	0.007	0.940	0.015	0.032	0.245	0.253	1.080
		Right Tilted	0.072	0.084	0.002	0.619	0.001	0.026	0.158	0.157	0.718
		Left Cheek	0.138	0.261	0.004	0.645	0.001	0.085	0.403	0.400	0.869
		Left Tilted	0.086	0.171	0.002	0.492	0.001	0.043	0.259	0.258	0.622
	LTE Band 71_UAT	Right Cheek	0.322	0.145	0.007	0.940	0.015	0.032	0.474	0.482	1.309
		Right Tilted	0.197	0.084	0.002	0.619	0.001	0.026	0.283	0.282	0.843
		Left Cheek	0.231	0.261	0.004	0.645	0.001	0.085	0.496	0.493	0.962
		Left Tilted	0.166	0.171	0.002	0.492	0.001	0.043	0.339	0.338	0.702
	LTE Band 71_LAT	Right Cheek	0.148	0.145	0.007	0.940	0.015	0.032	0.300	0.308	1.135
		Right Tilted	0.061	0.084	0.002	0.619	0.001	0.026	0.147	0.146	0.707
		Left Cheek	0.133	0.261	0.004	0.645	0.001	0.085	0.398	0.395	0.864
		Left Tilted	0.048	0.171	0.002	0.492	0.001	0.043	0.221	0.220	0.584

14.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)
			WWAN 1g SAR (W/kg)	2.4GHz WLAN ANT 0 1g SAR (W/kg)	2.4GHz WLAN ANT 1 1g SAR (W/kg)	5GHz WLAN ANT 0 1g SAR (W/kg)	5GHz WLAN ANT 1 1g SAR (W/kg)	Bluetooth ANT 0 1g SAR (W/kg)			
GSM	GSM850_LAT	Front	0.489	0.041	0.014	0.086	0.020	0.010	0.544	0.550	0.605
		Back	0.571	0.053	0.036	0.144	0.253	0.018	0.660	0.877	0.986
		Left side	0.173						0.173	0.173	0.173
		Right side	0.311	0.005	0.021	0.001	0.075	0.001	0.337	0.391	0.388
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.947		0.001		0.027		0.948	0.974	0.974
	GSM1900_LAT	Front	0.536	0.041	0.014	0.086	0.020	0.010	0.591	0.597	0.652
		Back	0.597	0.053	0.036	0.144	0.253	0.018	0.686	0.903	1.012
		Left side	0.019						0.019	0.019	0.019
		Right side	0.067	0.005	0.021	0.001	0.075	0.001	0.093	0.147	0.144
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	1.067		0.001		0.027		1.068	1.094	1.094
WCDMA	WCDMA II_LAT	Front	0.530	0.041	0.014	0.086	0.020	0.010	0.585	0.591	0.646
		Back	0.585	0.053	0.036	0.144	0.253	0.018	0.674	0.891	1.000
		Left side	0.019						0.019	0.019	0.019
		Right side	0.068	0.005	0.021	0.001	0.075	0.001	0.094	0.148	0.145
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	1.120		0.001		0.027		1.121	1.147	1.147
	WCDMA IV_LAT	Front	0.613	0.041	0.014	0.086	0.020	0.010	0.668	0.674	0.729
		Back	0.640	0.053	0.036	0.144	0.253	0.018	0.729	0.946	1.055
		Left side	0.050						0.050	0.050	0.050
		Right side	0.058	0.005	0.021	0.001	0.075	0.001	0.084	0.138	0.135
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	1.099		0.001		0.027		1.100	1.126	1.126
	WCDMA V_UAT	Front	0.106	0.041	0.014	0.086	0.020	0.010	0.161	0.167	0.222
		Back	0.147	0.053	0.036	0.144	0.253	0.018	0.236	0.453	0.562
		Left side	0.042						0.042	0.042	0.042
		Right side	0.079	0.005	0.021	0.001	0.075	0.001	0.105	0.159	0.156
		Top side	0.042	0.020		0.035		0.005	0.062	0.062	0.082
		Bottom side			0.001		0.027		0.001	0.027	0.027
	WCDMA V_LAT	Front	0.384	0.041	0.014	0.086	0.020	0.010	0.439	0.445	0.500
		Back	0.541	0.053	0.036	0.144	0.253	0.018	0.630	0.847	0.956
		Left side	0.160						0.160	0.160	0.160
		Right side	0.375	0.005	0.021	0.001	0.075	0.001	0.401	0.455	0.452
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.312		0.001		0.027		0.313	0.339	0.339
LTE	LTE Band 2_LAT	Front	0.446	0.041	0.014	0.086	0.020	0.010	0.501	0.507	0.562
		Back	0.558	0.053	0.036	0.144	0.253	0.018	0.647	0.864	0.973
		Left side	0.028						0.028	0.028	0.028
		Right side	0.074	0.005	0.021	0.001	0.075	0.001	0.100	0.154	0.151
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	1.020		0.001		0.027		1.021	1.047	1.047
	LTE Band 7_LAT	Front	0.367	0.041	0.014	0.086	0.020	0.010	0.422	0.428	0.483
		Back	0.357	0.053	0.036	0.144	0.253	0.018	0.446	0.663	0.772
		Left side	0.118						0.118	0.118	0.118
		Right side	0.088	0.005	0.021	0.001	0.075	0.001	0.114	0.168	0.165
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.967		0.001		0.027		0.968	0.994	0.994



WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)
			WWAN 1g SAR (W/kg)	2.4GHz WLAN ANT 0 1g SAR (W/kg)	2.4GHz WLAN ANT 1 1g SAR (W/kg)	5GHz WLAN ANT 0 1g SAR (W/kg)	5GHz WLAN ANT 1 1g SAR (W/kg)	Bluetooth ANT 0 1g SAR (W/kg)			
LTE	LTE Band 12_UAT	Front	0.085	0.041	0.014	0.086	0.020	0.010	0.140	0.146	0.201
		Back	0.086	0.053	0.036	0.144	0.253	0.018	0.175	0.392	0.501
		Left side	0.038						0.038	0.038	0.038
		Right side	0.041	0.005	0.021	0.001	0.075	0.001	0.067	0.121	0.118
		Top side	0.026	0.020		0.035		0.005	0.046	0.046	0.066
		Bottom side			0.001		0.027		0.001	0.027	0.027
	LTE Band 12_LAT	Front	0.318	0.041	0.014	0.086	0.020	0.010	0.373	0.379	0.434
		Back	0.369	0.053	0.036	0.144	0.253	0.018	0.458	0.675	0.784
		Left side	0.195						0.195	0.195	0.195
		Right side	0.274	0.005	0.021	0.001	0.075	0.001	0.300	0.354	0.351
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.201		0.001		0.027		0.202	0.228	0.228
	LTE Band 13_UAT	Front	0.158	0.041	0.014	0.086	0.020	0.010	0.213	0.219	0.274
		Back	0.167	0.053	0.036	0.144	0.253	0.018	0.256	0.473	0.582
		Left side	0.059						0.059	0.059	0.059
		Right side	0.095	0.005	0.021	0.001	0.075	0.001	0.121	0.175	0.172
		Top side	0.058	0.020		0.035		0.005	0.078	0.078	0.098
		Bottom side			0.001		0.027		0.001	0.027	0.027
	LTE Band 13_LAT	Front	0.445	0.041	0.014	0.086	0.020	0.010	0.500	0.506	0.561
		Back	0.528	0.053	0.036	0.144	0.253	0.018	0.617	0.834	0.943
		Left side	0.225						0.225	0.225	0.225
		Right side	0.452	0.005	0.021	0.001	0.075	0.001	0.478	0.532	0.529
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.275		0.001		0.027		0.276	0.302	0.302
	LTE Band 14_LAT	Front	0.512	0.041	0.014	0.086	0.020	0.010	0.567	0.573	0.628
		Back	0.600	0.053	0.036	0.144	0.253	0.018	0.689	0.906	1.015
		Left side	0.276						0.276	0.276	0.276
		Right side	0.576	0.005	0.021	0.001	0.075	0.001	0.602	0.656	0.653
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.340		0.001		0.027		0.341	0.367	0.367
	LTE Band 26_UAT	Front	0.125	0.041	0.014	0.086	0.020	0.010	0.180	0.186	0.241
		Back	0.128	0.053	0.036	0.144	0.253	0.018	0.217	0.434	0.543
		Left side	0.047						0.047	0.047	0.047
		Right side	0.059	0.005	0.021	0.001	0.075	0.001	0.085	0.139	0.136
		Top side	0.056	0.020		0.035		0.005	0.076	0.076	0.096
		Bottom side			0.001		0.027		0.001	0.027	0.027
	LTE Band 26_LAT	Front	0.491	0.041	0.014	0.086	0.020	0.010	0.546	0.552	0.607
		Back	0.570	0.053	0.036	0.144	0.253	0.018	0.659	0.876	0.985
		Left side	0.185						0.185	0.185	0.185
		Right side	0.445	0.005	0.021	0.001	0.075	0.001	0.471	0.525	0.522
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.362		0.001		0.027		0.363	0.389	0.389



WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)
			WWAN 1g SAR (W/kg)	2.4GHz WLAN ANT 0 1g SAR (W/kg)	2.4GHz WLAN ANT 1 1g SAR (W/kg)	5GHz WLAN ANT 0 1g SAR (W/kg)	5GHz WLAN ANT 1 1g SAR (W/kg)	Bluetooth ANT 0 1g SAR (W/kg)			
	LTE Band 30_LAT	Front	0.421	0.041	0.014	0.086	0.020	0.010	0.476	0.482	0.537
		Back	0.401	0.053	0.036	0.144	0.253	0.018	0.490	0.707	0.816
		Left side	0.055						0.055	0.055	0.055
		Right side	0.042	0.005	0.021	0.001	0.075	0.001	0.068	0.122	0.119
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	1.021		0.001		0.027		1.022	1.048	1.048
	LTE Band 41_LAT	Front	0.235	0.041	0.014	0.086	0.020	0.010	0.290	0.296	0.351
		Back	0.222	0.053	0.036	0.144	0.253	0.018	0.311	0.528	0.637
		Left side	0.035						0.035	0.035	0.035
		Right side	0.059	0.005	0.021	0.001	0.075	0.001	0.085	0.139	0.136
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.669		0.001		0.027		0.670	0.696	0.696
	LTE Band 66_LAT	Front	0.597	0.041	0.014	0.086	0.020	0.010	0.652	0.658	0.713
		Back	0.638	0.053	0.036	0.144	0.253	0.018	0.727	0.944	1.053
		Left side	0.075						0.075	0.075	0.075
		Right side	0.066	0.005	0.021	0.001	0.075	0.001	0.092	0.146	0.143
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	1.055		0.001		0.027		1.056	1.082	1.082
	LTE Band 71_UAT	Front	0.155	0.041	0.014	0.086	0.020	0.010	0.210	0.216	0.271
		Back	0.172	0.053	0.036	0.144	0.253	0.018	0.261	0.478	0.587
		Left side	0.050						0.050	0.050	0.050
		Right side	0.048	0.005	0.021	0.001	0.075	0.001	0.074	0.128	0.125
		Top side	0.056	0.020		0.035		0.005	0.076	0.076	0.096
		Bottom side			0.001		0.027		0.001	0.027	0.027
	LTE Band 71_LAT	Front	0.246	0.041	0.014	0.086	0.020	0.010	0.301	0.307	0.362
		Back	0.272	0.053	0.036	0.144	0.253	0.018	0.361	0.578	0.687
		Left side	0.170						0.170	0.170	0.170
		Right side	0.249	0.005	0.021	0.001	0.075	0.001	0.275	0.329	0.326
		Top side		0.020		0.035		0.005	0.020	0.020	0.040
		Bottom side	0.152		0.001		0.027		0.153	0.179	0.179

14.3 Product Specific Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 10g SAR (W/kg)	1+2+5 Summed 10g SAR (W/kg)	1+4+5+6 Summed 10g SAR (W/kg)
			WWAN	2.4GHz WLAN ANT 0	2.4GHz WLAN ANT 1	5GHz WLAN ANT 0	5GHz WLAN ANT 1	Bluetooth ANT 0			
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)			
GSM	GSM1900_LAT	Front	-	-	-	0.391	0.295	-	0.000	0.295	0.686
		Back	-	-	-	0.408	1.417	-	0.000	1.417	1.825
		Left side	-	-	-	-	-	-	0.000	0.000	0.000
		Right side	-	-	-	0.297	0.376	-	0.000	0.376	0.673
		Top side	-	-	-	0.524	-	-	0.000	0.000	0.524
		Bottom side	1.909	-	-	-	0.118	-	1.909	2.027	2.027
WCDMA	WCDMA II_LAT	Front	-	-	-	0.391	0.295	-	0.000	0.295	0.686
		Back	-	-	-	0.408	1.417	-	0.000	1.417	1.825
		Left side	-	-	-	-	-	-	0.000	0.000	0.000
		Right side	-	-	-	0.297	0.376	-	0.000	0.376	0.673
		Top side	-	-	-	0.524	-	-	0.000	0.000	0.524
		Bottom side	2.006	-	-	-	0.118	-	2.006	2.124	2.124
	WCDMA IV_LAT	Front	-	-	-	0.391	0.295	-	0.000	0.295	0.686
		Back	-	-	-	0.408	1.417	-	0.000	1.417	1.825
		Left side	-	-	-	-	-	-	0.000	0.000	0.000
		Right side	-	-	-	0.297	0.376	-	0.000	0.376	0.673
		Top side	-	-	-	0.524	-	-	0.000	0.000	0.524
		Bottom side	2.508	-	-	-	0.118	-	2.508	2.626	2.626
LTE	LTE Band 2_LAT	Front	-	-	-	0.391	0.295	-	0.000	0.295	0.686
		Back	-	-	-	0.408	1.417	-	0.000	1.417	1.825
		Left side	-	-	-	-	-	-	0.000	0.000	0.000
		Right side	-	-	-	0.297	0.376	-	0.000	0.376	0.673
		Top side	-	-	-	0.524	-	-	0.000	0.000	0.524
		Bottom side	2.200	-	-	-	0.118	-	2.200	2.318	2.318
	LTE Band 30_LAT	Front	-	-	-	0.391	0.295	-	0.000	0.295	0.686
		Back	-	-	-	0.408	1.417	-	0.000	1.417	1.825
		Left side	-	-	-	-	-	-	0.000	0.000	0.000
		Right side	-	-	-	0.297	0.376	-	0.000	0.376	0.673
		Top side	-	-	-	0.524	-	-	0.000	0.000	0.524
		Bottom side	2.430	-	-	-	0.118	-	2.430	2.548	2.548
	LTE Band 66_LAT	Front	-	-	-	0.391	0.295	-	0.000	0.295	0.686
		Back	-	-	-	0.408	1.417	-	0.000	1.417	1.825
		Left side	-	-	-	-	-	-	0.000	0.000	0.000
		Right side	-	-	-	0.297	0.376	-	0.000	0.376	0.673
		Top side	-	-	-	0.524	-	-	0.000	0.000	0.524
		Bottom side	2.595	-	-	-	0.118	-	2.595	2.713	2.713

Note:

- According to KDB 941225 D06 v02r01 and KDB 648474 D04v01r03, for WWAN / 2.4GHz WLAN / Bluetooth and 5GHz WLAN SAR ("") was excluded, due to transmitting antenna located larger 25mm from that surface or edge and Hotspot SAR was < 1.2W/Kg.

14.4 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN ANT 0	2.4GHz WLAN ANT 1	5GHz WLAN ANT 0	5GHz WLAN ANT 1	Bluetooth ANT 0			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850_LAT	Front	0.224	0.021	0.005	0.064	0.014	0.005	0.250	0.259	0.307
		Back	0.372	0.017	0.014	0.090	0.153	0.006	0.403	0.542	0.621
	GSM1900_LAT	Front	0.479	0.021	0.005	0.064	0.014	0.005	0.505	0.514	0.562
		Back	0.541	0.017	0.014	0.090	0.153	0.006	0.572	0.711	0.790
WCDMA	WCDMA II_LAT	Front	0.472	0.021	0.005	0.064	0.014	0.005	0.498	0.507	0.555
		Back	0.576	0.017	0.014	0.090	0.153	0.006	0.607	0.746	0.825
	WCDMA IV_LAT	Front	0.478	0.021	0.005	0.064	0.014	0.005	0.504	0.513	0.561
		Back	0.578	0.017	0.014	0.090	0.153	0.006	0.609	0.748	0.827
	WCDMA V_UAT	Front	0.104	0.021	0.005	0.064	0.014	0.005	0.130	0.139	0.187
		Back	0.074	0.017	0.014	0.090	0.153	0.006	0.105	0.244	0.323
	WCDMA V_LAT	Front	0.314	0.021	0.005	0.064	0.014	0.005	0.340	0.349	0.397
		Back	0.259	0.017	0.014	0.090	0.153	0.006	0.290	0.429	0.508
LTE	LTE Band 2_LAT	Front	0.441	0.021	0.005	0.064	0.014	0.005	0.467	0.476	0.524
		Back	0.468	0.017	0.014	0.090	0.153	0.006	0.499	0.638	0.717
	LTE Band 7_LAT	Front	0.193	0.021	0.005	0.064	0.014	0.005	0.219	0.228	0.276
		Back	0.190	0.017	0.014	0.090	0.153	0.006	0.221	0.360	0.439
	LTE Band 12_UAT	Front	0.061	0.021	0.005	0.064	0.014	0.005	0.087	0.096	0.144
		Back	0.065	0.017	0.014	0.090	0.153	0.006	0.096	0.235	0.314
	LTE Band 12_LAT	Front	0.185	0.021	0.005	0.064	0.014	0.005	0.211	0.220	0.268
		Back	0.179	0.017	0.014	0.090	0.153	0.006	0.210	0.349	0.428
	LTE Band 13_UAT	Front	0.109	0.021	0.005	0.064	0.014	0.005	0.135	0.144	0.192
		Back	0.117	0.017	0.014	0.090	0.153	0.006	0.148	0.287	0.366
	LTE Band 13_LAT	Front	0.269	0.021	0.005	0.064	0.014	0.005	0.295	0.304	0.352
		Back	0.249	0.017	0.014	0.090	0.153	0.006	0.280	0.419	0.498
	LTE Band 14_LAT	Front	0.342	0.021	0.005	0.064	0.014	0.005	0.368	0.377	0.425
		Back	0.317	0.017	0.014	0.090	0.153	0.006	0.348	0.487	0.566
	LTE Band 26_UAT	Front	0.075	0.021	0.005	0.064	0.014	0.005	0.101	0.110	0.158
		Back	0.078	0.017	0.014	0.090	0.153	0.006	0.109	0.248	0.327
	LTE Band 26_LAT	Front	0.274	0.021	0.005	0.064	0.014	0.005	0.300	0.309	0.357
		Back	0.244	0.017	0.014	0.090	0.153	0.006	0.275	0.414	0.493
	LTE Band 30_LAT	Front	0.418	0.021	0.005	0.064	0.014	0.005	0.444	0.453	0.501
		Back	0.443	0.017	0.014	0.090	0.153	0.006	0.474	0.613	0.692
	LTE Band 41_LAT	Front	0.116	0.021	0.005	0.064	0.014	0.005	0.142	0.151	0.199
		Back	0.140	0.017	0.014	0.090	0.153	0.006	0.171	0.310	0.389
	LTE Band 66_LAT	Front	0.439	0.021	0.005	0.064	0.014	0.005	0.465	0.474	0.522
		Back	0.501	0.017	0.014	0.090	0.153	0.006	0.532	0.671	0.750
	LTE Band 71_UAT	Front	0.109	0.021	0.005	0.064	0.014	0.005	0.135	0.144	0.192
		Back	0.117	0.017	0.014	0.090	0.153	0.006	0.148	0.287	0.366
	LTE Band 71_LAT	Front	0.195	0.021	0.005	0.064	0.014	0.005	0.221	0.230	0.278
		Back	0.189	0.017	0.014	0.090	0.153	0.006	0.220	0.359	0.438

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15. Uncertainty Assessment

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

16. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [6] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [7] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [8] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [9] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [10] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [11] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [12] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [13] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.