



FCC SAR TEST REPORT

FCC ID : IHDT56YG1
Equipment : Mobile Cellular Phone
Brand Name : Motorola
Applicant : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA
Manufacturer : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA
Standard : FCC 47 CFR Part 2 (2.1093)
ANSI/IEEE C95.1-1992
IEEE 1528-2013

The product was received on Aug. 02, 2019 and testing was started from Aug. 06, 2019 and completed on Aug. 17, 2019. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

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



Approved by: Cona Huang / Deputy Manager

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History of this test report

Report No.	Version	Description	Issued Date
FA962518-01	01	Initial issue of report	Aug. 29, 2019



1. Statement of Compliance

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

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 5mm)	Hotspot (Separation 5mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	GSM850	0.15	1.45	1.45		1.59
	GSM1900	0.13	1.34	1.35	2.05	
	WCDMA II	0.42	1.31	1.32	3.50	
	WCDMA IV	0.35	1.24	1.30	3.40	
	WCDMA V	0.35	1.19	1.19	2.33	
	LTE Band 2	0.18	1.33	1.34	3.21	
	LTE Band 4	0.14	1.32	1.35	3.18	
	LTE Band 7	0.35	1.43	1.43	3.46	
	LTE Band 5 / 26	0.32	1.29	1.29	2.04	
	LTE Band 38 / 41	0.34	1.33	1.33	1.92	
DTS	2.4GHz WLAN	1.17	0.82	0.82		1.58
NII	5GHz WLAN	0.28	1.45	1.16	1.74	1.45
DSS	Bluetooth	0.17	0.16	0.16		1.59
Date of Testing:		2019/8/6 ~ 2019/8/17				

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

Reviewed by: Jason Wang

Report Producer: Wan Liu

2. Guidance Applied

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01
- FCC KDB 941225 D07 UMPC Mini Tablet v01r02

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
FCC ID	IHDT56YG1
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 26: 814.7 MHz ~ 848.3 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2537.5 MHz ~ 2652.5 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 ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56MHz
Mode	GSM/GPRS/EGPRS AMR/RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM WLAN: 802.11a/b/g/n/ac HT20 / HT40 / VHT20 / VHT40 / VHT80 Bluetooth BR/EDR/LE NFC: ASK
HW Version	DVT2
SW Version	PPI29.35
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. This device implements antenna tuning techniques for WCDMA B2/B4/B5 and LTE B2/B4/B5/B26. Specifically, this technique is employed in the WCDMA and LTE modes. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner are included in the operational description and supplemental data for additional information on section16. 3. When operating in a body-worn condition, with proximity of the user's body at the front or back of the device, the device operates in the Body-Worn power table. If neither the Body-Worn condition is detected, but the device is operating in WiFi Hotspot mode, the device utilizes the Hotspot power table. When operating in any other radiated condition, the device uses the Default power table. 4. The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device. The control logic is such that, when this front or back body-worn condition is detected and the device is operating in a mode where on-body operation may be expected, the conducted power is applied in the Body-Worn power table. In this condition (user's body detected at front or back face of the device), the Body-Worn power table is applied regardless whether or not the Wi-Fi hotspot mode is active. 5. Note that the Body-Worn Reduced power tables and detection schemes described above are sufficient to assure that body-worn SAR limits are met, regardless whether the Wi-Fi hotspot feature is active or not. However, because FCC has an additional specific test definition and limit for Wi-Fi hotspot mode operation, the additional Hotspot power table	

is applied if hand-held operation is indicated (i.e., not At-Head or Body-Worn) when the Wi-Fi hotspot feature is active. This ensures the 4 edges of the device comply with the letter of the Wi-Fi Hotspot requirement.

6. The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna (if that antenna may require reduced power relative the Default power table in order to meet extremity SAR limits). The control logic is such that, if the Body-Worn or WiFi Hotspot conditions are not detected, but tissue (as a finger or hand, for example) is detected near the transmitting antenna, the Handheld power table will be applied

Reduced power for different RF exposure conditions:

Body worn: The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device, when operating in near-body condition by end user, the device will reduced maximum output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B38 / B41 and 5GHz WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.

Hotspot: When the mobile hotspot session is turn on by end user, the device will reduced output powers on the GSM1900, WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B38 / B41 and 5GHz WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.

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

Accessories Information

Earphone 1	Brand Name	Motorola(Lianyun)	Model Name	SH38C37773
Earphone 2	Brand Name	Motorola(Cosonic)	Model Name	SH38C44959
Earphone 3	Brand Name	Motorola(NEW LEADER)	Model Name	NLD-EM303H-10SF

3.2 Maximum Tune-up Limit

<Maximum power for each bands and exposure conditions>

TX. freq.	Default	Head		Body Worn		Hotspot		Product Specific	
	max. tune up limit (dBm)	max. tune up limit(dBm)	power reduction (dB)	max. tune up limit(dBm)	power reduction (dB)	max. tune up limit(dBm)	power reduction (dB)	max. tune up limit(dBm)	power reduction (dB)
GSM850 GSM 1 Tx slot	33.50	33.50	0	33.50	0.0	33.50	0.0	33.50	0.0
GSM850 GPRS 1 Tx slot	33.50	33.50	0	33.50	0.0	33.50	0.0	33.50	0.0
GSM850 GPRS 2 Tx slots	31.50	31.50	0	31.50	0.0	31.50	0.0	31.50	0.0
GSM850 GPRS 3 Tx slots	29.00	29.00	0	29.00	0.0	29.00	0.0	29.00	0.0
GSM850 GPRS 4 Tx slots	27.50	27.50	0	27.50	0.0	27.50	0.0	27.50	0.0
GSM850 EDGE 1 Tx slot	27.50	27.50	0	27.50	0.0	27.50	0.0	27.50	0.0
GSM850 EDGE 2 Tx slots	25.50	25.50	0	25.50	0.0	25.50	0.0	25.50	0.0
GSM850 EDGE 3 Tx slots	23.50	23.50	0	23.50	0.0	23.50	0.0	23.50	0.0
GSM850 EDGE 4 Tx slots	22.00	22.00	0	22.00	0.0	22.00	0.0	22.00	0.0
GSM1900 GSM 1 Tx slot	30.50	30.50	0	30.50	0.0	28.50	2.0	30.50	0.0
GSM1900 GPRS 1 Tx slot	30.50	30.50	0	30.50	0.0	28.50	2.0	30.50	0.0
GSM1900 GPRS 2 Tx slots	28.50	28.50	0	28.50	0.0	26.00	2.5	28.50	0.0
GSM1900 GPRS 3 Tx slots	26.50	26.50	0	26.50	0.0	24.00	2.5	26.50	0.0
GSM1900 GPRS 4 Tx slots	24.50	24.50	0	24.50	0.0	22.50	2.0	24.50	0.0
GSM1900 EDGE 1 Tx slot	27.00	27.00	0	27.00	0.0	27.00	0.0	27.00	0.0
GSM1900 EDGE 2 Tx slots	25.00	25.00	0	25.00	0.0	25.00	0.0	25.00	0.0
GSM1900 EDGE 3 Tx slots	23.00	23.00	0	23.00	0.0	23.00	0.0	23.00	0.0
GSM1900 EDGE 4 Tx slots	21.00	21.00	0	21.00	0.0	21.00	0.0	21.00	0.0
WCDMA II	24.00	24.00	0	19.50	4.5	16.50	7.5	21.00	3.0
WCDMA VI	24.00	24.00	0	19.00	5.0	16.50	7.5	21.50	2.5
WCDMA V	24.00	24.00	0	22.50	1.5	22.50	1.5	24.00	0.0
LTE B2	24.00	24.00	0	20.50	3.5	18.00	6.0	21.50	2.5
LTE B4	24.00	24.00	0	21.00	3.0	18.00	6.0	21.50	2.5
LTE B5	24.00	24.00	0	23.50	0.5	23.50	0.5	24.00	0.0
LTE B7	24.00	24.00	0	20.50	3.5	20.50	3.5	22.50	1.5
LTE B26	24.00	24.00	0	24.00	0.0	24.00	0.0	24.00	0.0
LTE B38/B41	24.00	24.00	0	22.50	1.5	22.50	1.5	24.00	0.0

TX. freq.	Default	Head		Body Worn		Hotspot		Product Specific	
	max. tune up limit (dBm)	max. tune up limit(dBm)	power reduction (dB)	max. tune up limit(dBm)	power reduction (dB)	max. tune up limit(dBm)	power reduction (dB)	max. tune up limit(dBm)	power reduction (dB)
WLAN2.4G	19.00	19.00	0	19.00	0	19.00	0	19.00	0
WLAN5.2G	17.00	17.00	0	15.00	2	15.00	2	17.00	0
WLAN5.3G	17.00	17.00	0	17.00	0			17.00	0
WLAN5.5G	16.50	16.50	0	14.00	2.5			16.50	0
WLAN5.8G	16.00	16.00	0	13.00	3	13.00	3	16.00	0
BT	13.00	13.00	0	13.00	0	13.00	0	13.00	0

3.3 General LTE SAR Test and Reporting Considerations

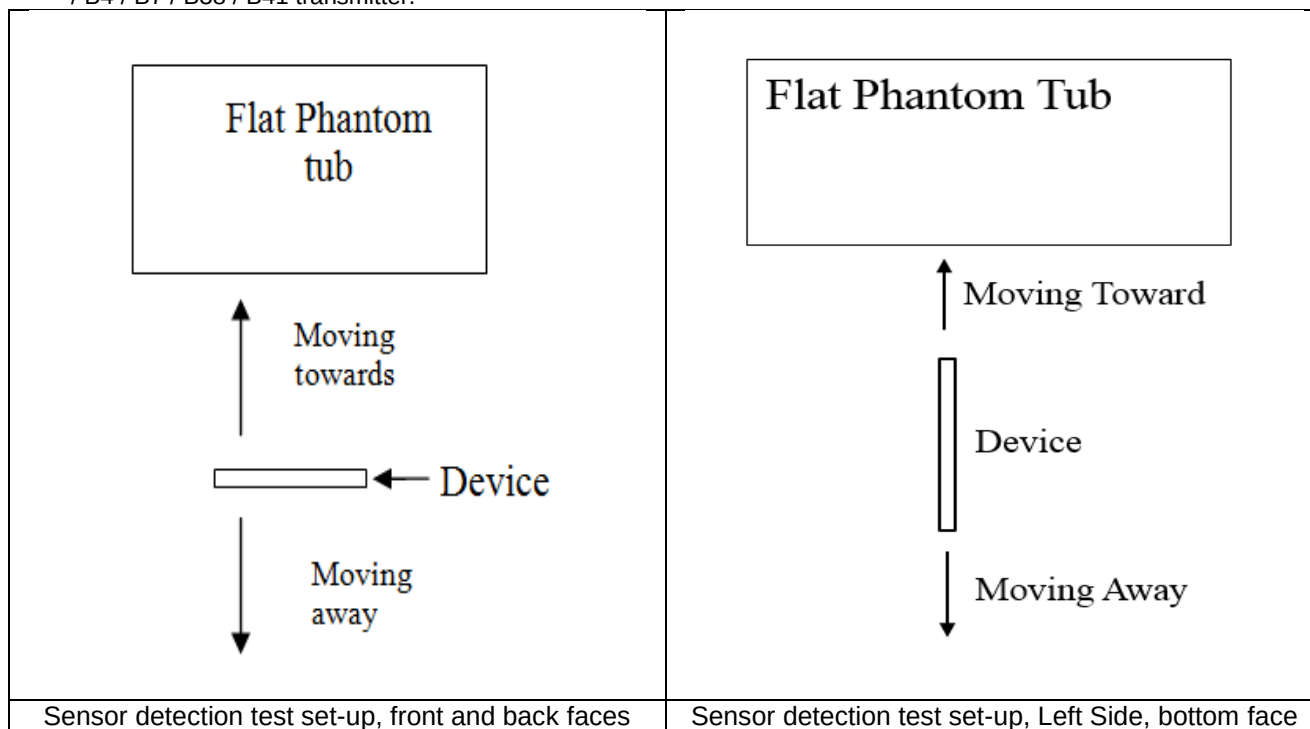
Summarized necessary items addressed in KDB 941225 D05 v02r05													
FCC ID			IHDT56YG1										
Equipment Name			Mobile Cellular Phone										
Operating Frequency Range of each LTE transmission band			LTE Band 2: 1850.7 MHz ~ 1909.3 MHz										
			LTE Band 4: 1710.7 MHz ~ 1754.3 MHz										
			LTE Band 5: 824.7 MHz ~ 848.3 MHz										
			LTE Band 7: 2502.5 MHz ~ 2567.5 MHz										
			LTE Band 26: 814.7 MHz ~ 848.3 MHz										
			LTE Band 38: 2572.5 MHz ~ 2617.5 MHz										
Channel Bandwidth			LTE Band 41: 2537.5 MHz ~ 2652.5 MHz										
			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 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz										
uplink modulations used			QPSK / 16QAM / 64QAM										
			LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz										
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										MPR (dB)
			Channel bandwidth / Transmission bandwidth (N _{RB})										
			1.4 MHz3.0 MHz5 MHz10 MHz15 MHz20 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
LTE A-MPR			In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)										
Spectrum plots for RB configuration			A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.										
Power reduction applied to satisfy SAR compliance			Yes, when operating in hotspot / Body-wron and extremity mode that LTE B2 / B4 / B7 / B38 / B41 power reduction applied to satisfy SAR compliance.										
LTE Carrier Aggregation Combinations			Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 12.										
LTE Carrier Aggregation Additional Information			2This device supports maximum of 2 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)	
L	20407	824.7	20415	825.5	20425	826.5	20450	829	
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	
H	20643	848.3	20635	847.5	20625	846.5	20600	844	
LTE Band 7									
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510	
M	21100	2535	21100	2535	21100	2535	21100	2535	
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560	
LTE Band 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 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	40065	2537.5	40090	2540	40115	2542.5	40140	2545	
L	40385	2569.5	40390	2570	40395	2570.5	40400	2571	
M	40705	2601.5	40690	2600	40685	2599.5	40670	2598	
H	41215	2652.5	41190	2650	41165	2647.5	41140	2645	

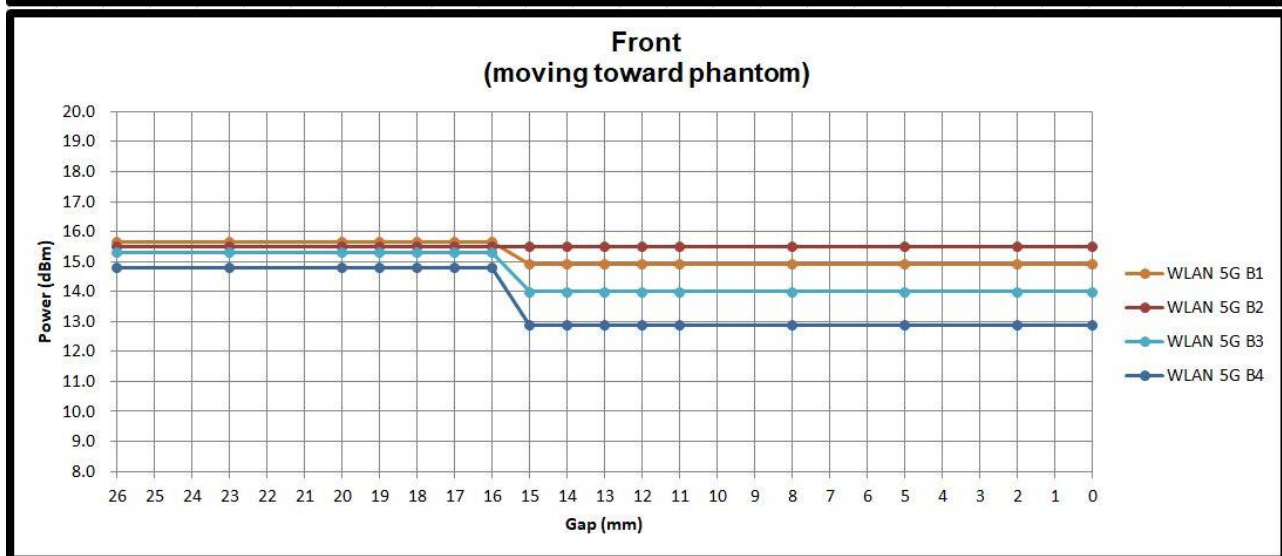
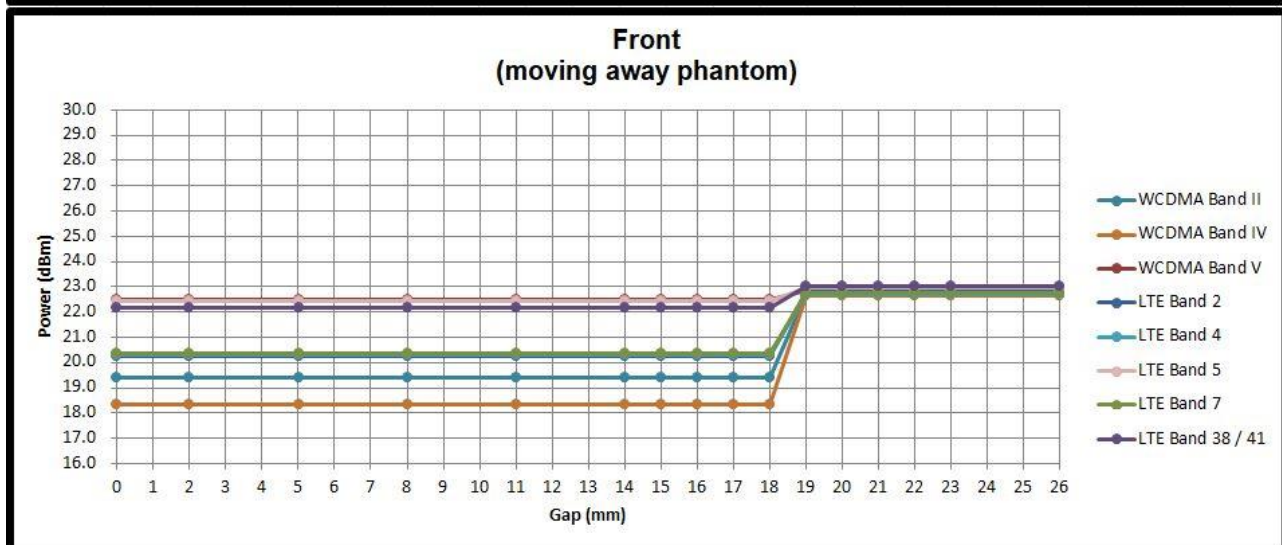
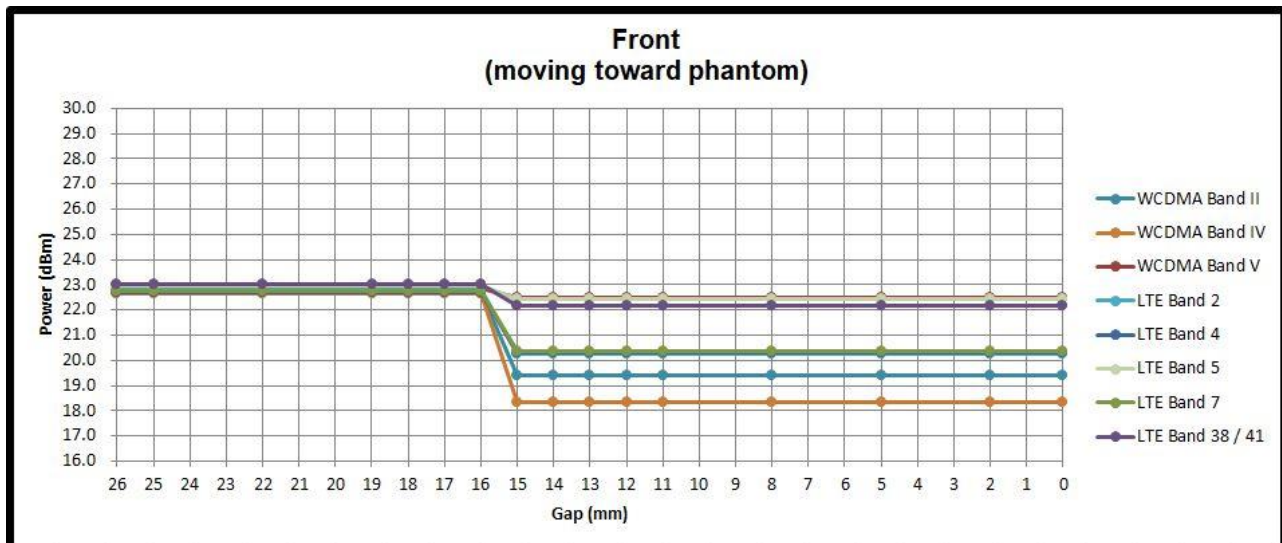
4. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

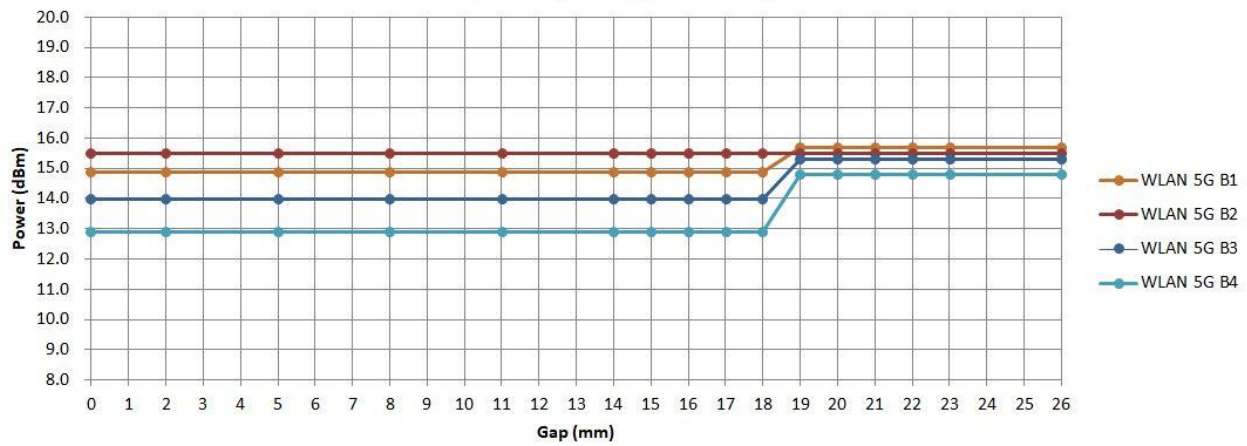
1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (2600MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body (Body-Worn condition) at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
5. The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna (if that antenna may require reduced power relative the Default power table in order to meet extremity SAR limits). The control logic is such that, if the Body-Worn, At-Head or WiFi Hotspot conditions are not detected, but tissue (as a finger or hand, for example) is detected near the transmitting antenna, the Handheld Reduced power table will be applied
6. When the sensor is active, the device will reduced maximum output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B38 / B41 transmitter.



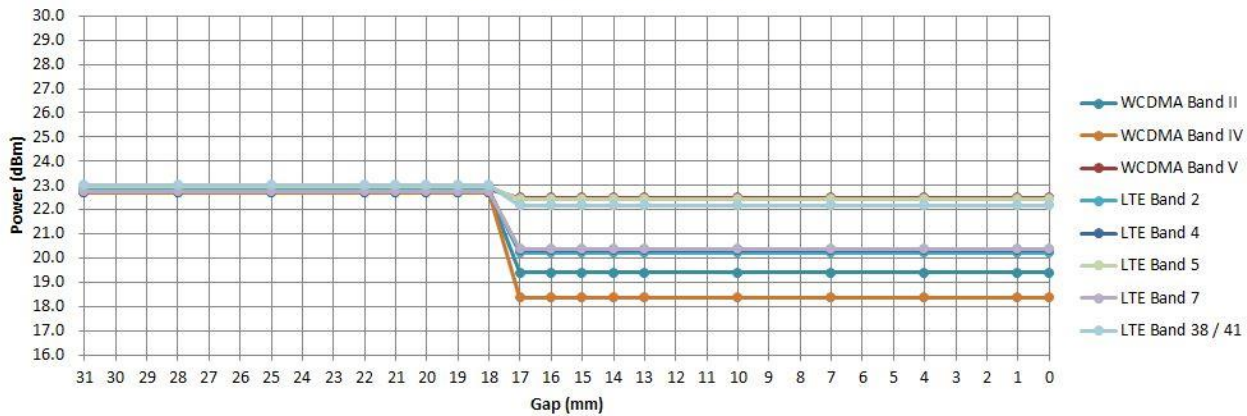
Proximity Sensor Trigger Distance (mm)								
Position	Front		Back		Bottom Side		Left Side	
Position	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	15	18	17	22	12	15	12	15



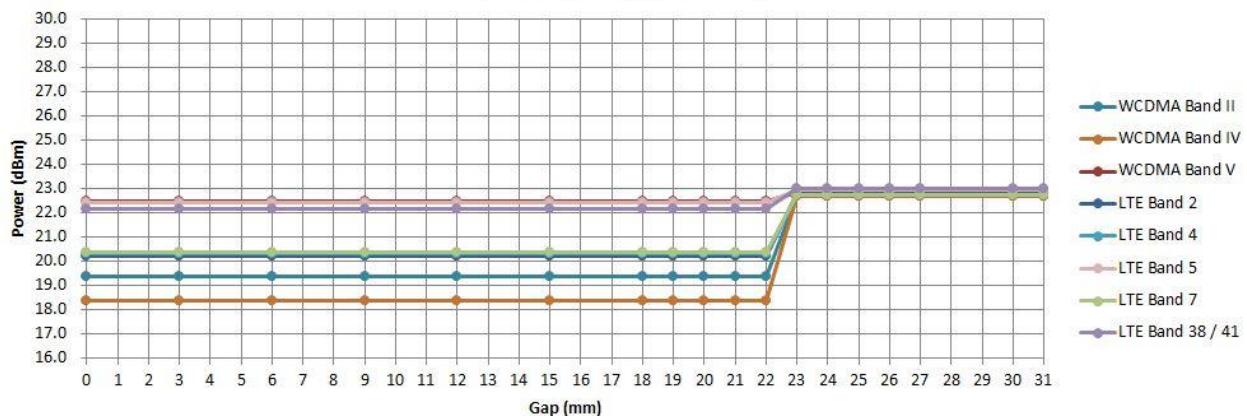
Front (moving away phantom)



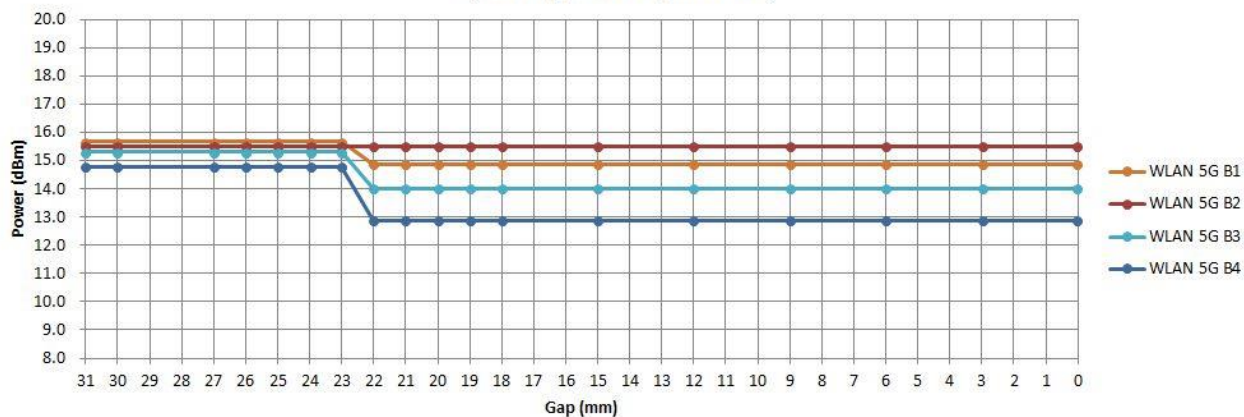
Back (moving toward phantom)



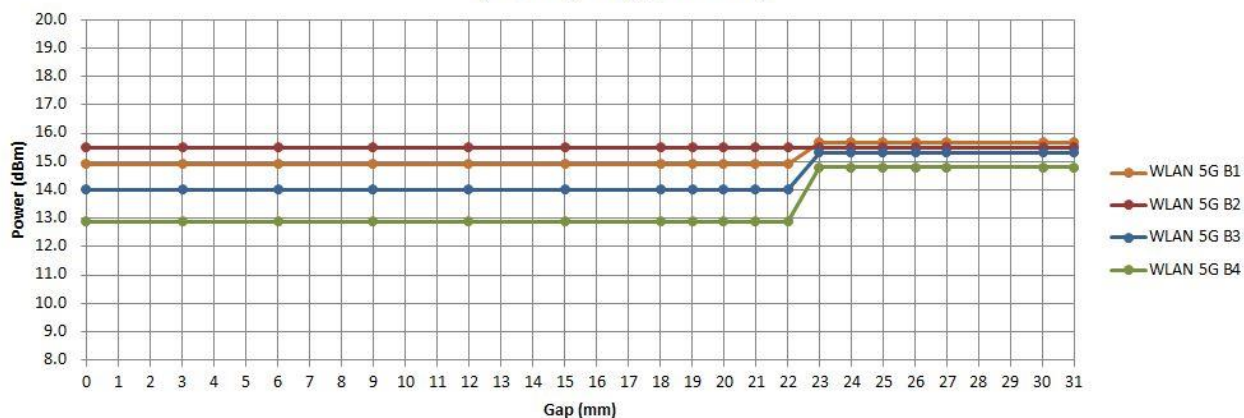
Back (moving away phantom)



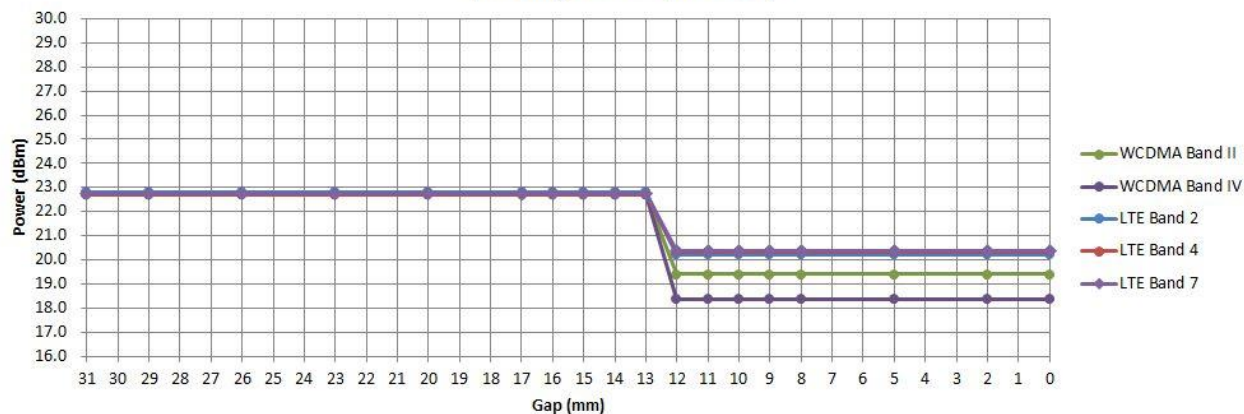
Back (moving toward phantom)



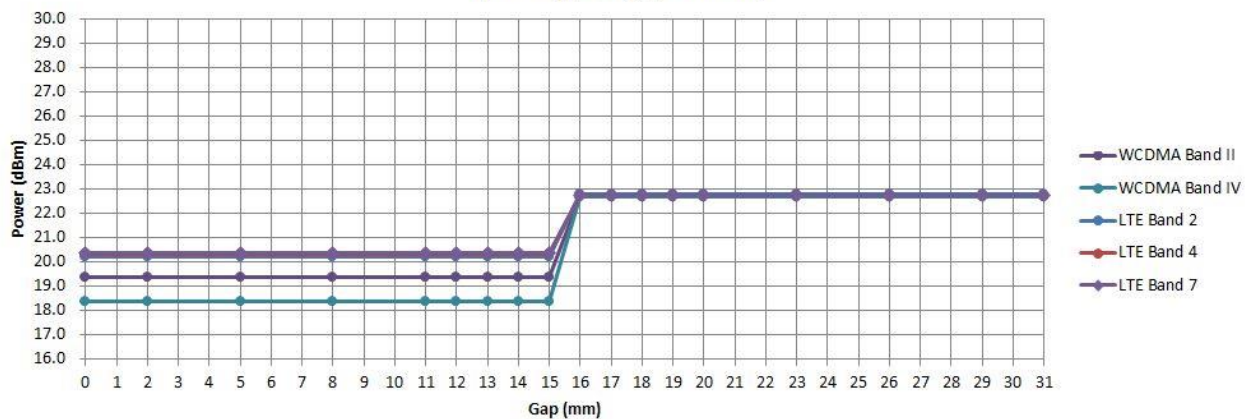
Back (moving away phantom)



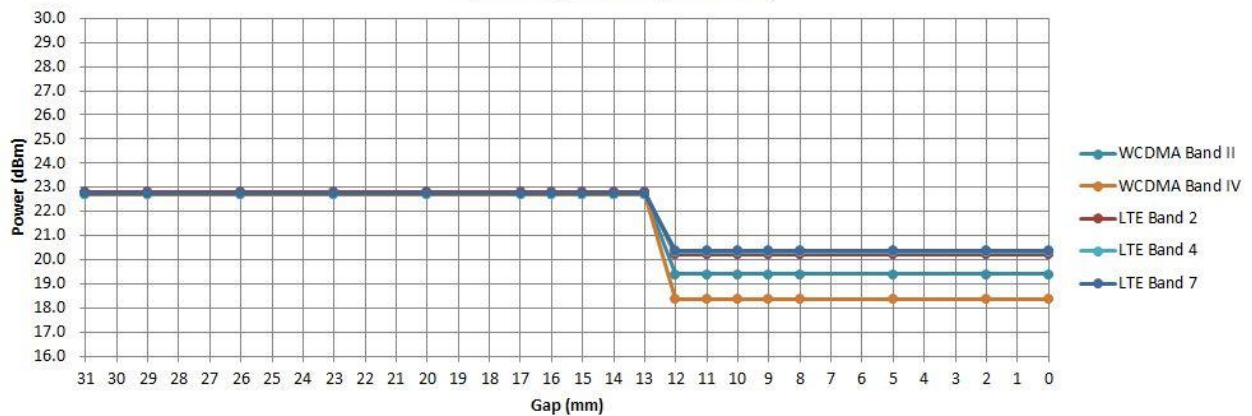
Left Side (moving toward phantom)



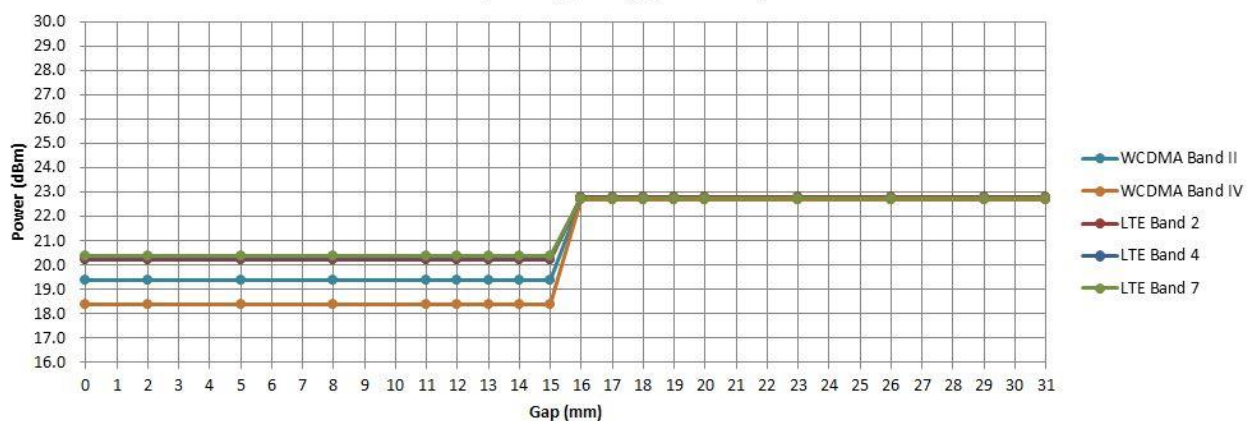
**Left Side
(moving away phantom)**



**Bottom Side
(moving toward phantom)**



**Bottom Side
(moving away phantom)**



5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

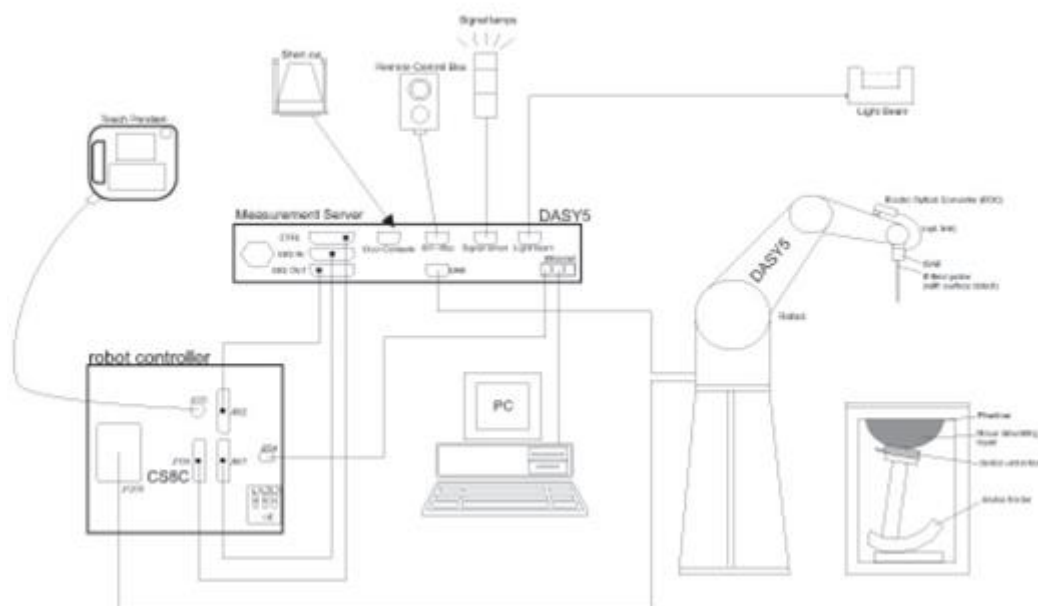
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ± 0.2 dB (30 MHz – 4 GHz)	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 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	

7.2 Data Acquisition Electronics (DAE)

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

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



Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

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

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values 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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ 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.	

8.4 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.				

8.5 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 remains in the same test position for all measurements and all volume scans use the same spatial resolution and grid spacing. When all volume scans were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.6 Power Drift Monitoring

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



9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	4d167	Mar. 08, 2019	Mar. 07, 2020
SPEAG	1750MHz System Validation Kit	D1750V2	1112	Mar. 07, 2019	Mar. 06, 2020
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 11, 2018	Sep. 10, 2019
SPEAG	2450MHz System Validation Kit	D2450V2	736	Aug. 31, 2018	Aug. 30, 2019
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 31, 2018	Aug. 30, 2019
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 27, 2018	Sep. 26, 2019
SPEAG	Data Acquisition Electronics	DAE3	495	May. 21, 2019	May. 20, 2020
SPEAG	Data Acquisition Electronics	DAE3	360	Oct. 29, 2018	Oct. 28, 2019
SPEAG	Data Acquisition Electronics	DAE4	1326	Sep. 18, 2018	Sep. 17, 2019
SPEAG	Dosimetric E-Field Probe	ES3DV3	3169	May. 24, 2019	May. 23, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	Apr. 29, 2019	Apr. 28, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 22, 2019	Jul. 21, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	7346	Apr. 25, 2019	Apr. 24, 2020
TESTO	Hygro meter	608-H1	34913631	Aug. 27, 2018	Aug. 26, 2019
TESTO	Hygro meter	608-H1	34852481	Sep. 27, 2018	Sep. 26, 2019
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 12, 2018	Nov. 11, 2019
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 21, 2019	Apr. 20, 2020
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 27, 2019	May. 26, 2020
R&S	BT Base Station	CBT32	100522	Mar. 18, 2019	Mar. 17, 2020
SPEAG	Device Holder	N/A	N/A	N/A	N/A
R&S	Signal Generator	SMA100A	101091	Jul. 03, 2019	Jul. 02, 2020
Agilent	ENA Network Analyzer	E5071C	MY46104758	Sep. 19, 2018	Sep. 18, 2019
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 19, 2018	Sep. 18, 2019
LINE SEIKI	Digital Thermometer	DTM3000-spezial	2942	Dec. 07, 2018	Dec. 06, 2019
Anritsu	Power Meter	ML2495A	1218006	Oct. 08, 2018	Oct. 07, 2019
Anritsu	Power Sensor	MA2411B	1207363	Oct. 08, 2018	Oct. 07, 2019
Anritsu	Power Meter	ML2495A	1419002	May. 29, 2019	May. 28, 2020
Anritsu	Power Sensor	MA2411B	1339124	May. 29, 2019	May. 28, 2020
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 28, 2018	Aug. 27, 2019
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 27, 2019	Jun. 26, 2020
Mini-Circuits	Power Amplifier	ZVE-8G+	070501814	Oct. 08, 2018	Oct. 07, 2019
Mini-Circuits	Power Amplifier	ZHL-42W+	715701915	May. 10, 2019	May. 09, 2020
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

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

10. System Verification

10.1 Tissue Simulating Liquids

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

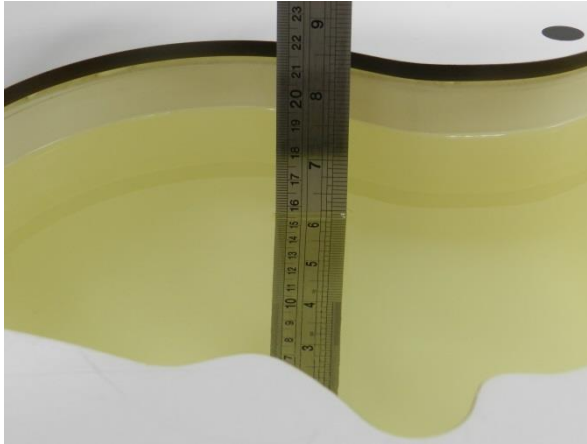


Fig 10.1Photo of Liquid Height for Head SAR

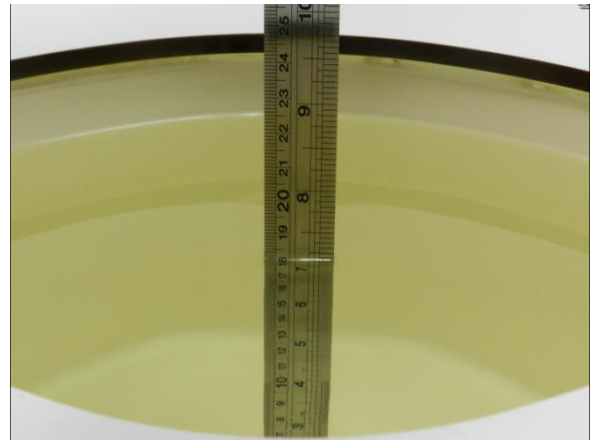


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
835	22.3	0.886	42.639	0.90	41.50	-1.56	2.74	±5	2019/8/6
835	22.5	0.884	42.539	0.90	41.50	-1.78	2.50	±5	2019/8/8
835	22.3	0.888	42.159	0.90	41.50	-1.33	1.59	±5	2019/8/16
1750	22.5	1.389	40.810	1.37	40.10	1.39	1.77	±5	2019/8/12
1750	22.2	1.373	40.775	1.37	40.10	0.22	1.68	±5	2019/8/14
1750	22.6	1.404	40.700	1.37	40.10	2.48	1.50	±5	2019/8/15
1900	22.5	1.415	38.515	1.40	40.00	1.07	-3.71	±5	2019/8/12
1900	22.2	1.448	38.266	1.40	40.00	3.43	-4.34	±5	2019/8/13
1900	22.2	1.424	38.958	1.40	40.00	1.71	-2.61	±5	2019/8/14
1900	22.6	1.384	40.370	1.40	40.00	-1.14	0.92	±5	2019/8/15
2450	22.8	1.835	38.775	1.80	39.20	1.94	-1.08	±5	2019/8/15
2600	22.4	1.967	38.171	1.96	39.00	0.36	-2.13	±5	2019/8/9
2600	22.5	1.967	38.722	1.96	39.00	0.36	-0.71	±5	2019/8/9
2600	22.8	1.920	38.401	1.96	39.00	-2.04	-1.54	±5	2019/8/14
5250	22.3	4.675	37.147	4.71	35.95	-0.74	3.33	±5	2019/8/16
5250	22.7	4.694	36.305	4.71	35.95	-0.34	0.99	±5	2019/8/17
5600	22.3	5.067	36.805	5.07	35.50	-0.06	3.68	±5	2019/8/16
5600	22.7	5.032	35.852	5.07	35.50	-0.75	0.99	±5	2019/8/17
5750	22.3	5.222	36.347	5.22	35.35	0.04	2.82	±5	2019/8/16

10.3 System Performance Check Results

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

Date	Frequency (MHz)	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2019/8/6	835	250	D835V2-4d167	EX3DV4 - SN3642	DAE3 Sn360	2.37	9.50	9.48	-0.21
2019/8/8	835	250	D835V2-4d167	ES3DV3 - SN3169	DAE4 Sn1326	2.26	9.50	9.04	-4.84
2019/8/16	835	250	D835V2-4d167	EX3DV4 - SN7346	DAE4 Sn1326	2.42	9.50	9.68	1.89
2019/8/12	1750	250	D1750V2-1112	EX3DV4 - SN3642	DAE3 Sn360	8.45	36.70	33.8	-7.90
2019/8/14	1750	250	D1750V2-1112	EX3DV4 - SN3642	DAE3 Sn360	8.77	36.70	35.08	-4.41
2019/8/15	1750	250	D1750V2-1112	EX3DV4 - SN3642	DAE3 Sn360	8.54	36.70	34.16	-6.92
2019/8/12	1900	250	D1900V2-5d041	EX3DV4 - SN3642	DAE3 Sn360	9.60	40.20	38.4	-4.48
2019/8/13	1900	250	D1900V2-5d041	EX3DV4 - SN3642	DAE3 Sn360	9.82	40.20	39.28	-2.29
2019/8/14	1900	250	D1900V2-5d041	EX3DV4 - SN3642	DAE3 Sn360	9.66	40.20	38.64	-3.88
2019/8/15	1900	250	D1900V2-5d041	EX3DV4 - SN3642	DAE3 Sn360	9.39	40.20	37.56	-6.57
2019/8/15	2450	250	D2450V2-736	EX3DV4 - SN7346	DAE4 Sn1326	12.80	52.70	51.2	-2.85
2019/8/9	2600	250	D2600V2-1008	EX3DV4 - SN7306	DAE3 Sn495	14.60	56.40	58.4	3.55
2019/8/9	2600	250	D2600V2-1008	ES3DV3 - SN3169	DAE4 Sn1326	13.70	56.40	54.8	-2.84
2019/8/14	2600	250	D2600V2-1008	EX3DV4 - SN7346	DAE4 Sn1326	14.20	56.40	56.8	0.71
2019/8/16	5250	100	D5GHzV2-1006-5250	EX3DV4 - SN3642	DAE3 Sn360	8.52	80.70	85.2	5.58
2019/8/17	5250	100	D5GHzV2-1006-5250	EX3DV4 - SN3642	DAE3 Sn360	8.55	80.70	85.5	5.95
2019/8/16	5600	100	D5GHzV2-1006-5600	EX3DV4 - SN3642	DAE3 Sn360	8.65	83.30	86.5	3.84
2019/8/17	5600	100	D5GHzV2-1006-5600	EX3DV4 - SN3642	DAE3 Sn360	8.59	83.30	85.9	3.12
2019/8/16	5750	100	D5GHzV2-1006-5750	EX3DV4 - SN3642	DAE3 Sn360	7.98	80.40	79.8	-0.75

Date	Frequency (MHz)	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2019/8/8	835	250	D835V2-4d167	ES3DV3 - SN3169	DAE4 Sn1326	1.49	6.25	5.96	-4.64
2019/8/14	1750	250	D1750V2-1112	EX3DV4 - SN3642	DAE3 Sn360	4.53	19.40	18.12	-6.60
2019/8/14	1900	250	D1900V2-5d041	EX3DV4 - SN3642	DAE3 Sn360	4.95	21.20	19.8	-6.60
2019/8/14	2600	250	D2600V2-1008	EX3DV4 - SN7346	DAE4 Sn1326	6.34	25.30	25.36	0.24
2019/8/17	5250	100	D5GHzV2-1006-5250	EX3DV4 - SN3642	DAE3 Sn360	2.35	23.20	23.5	1.29
2019/8/17	5600	100	D5GHzV2-1006-5600	EX3DV4 - SN3642	DAE3 Sn360	2.34	23.80	23.4	-1.68

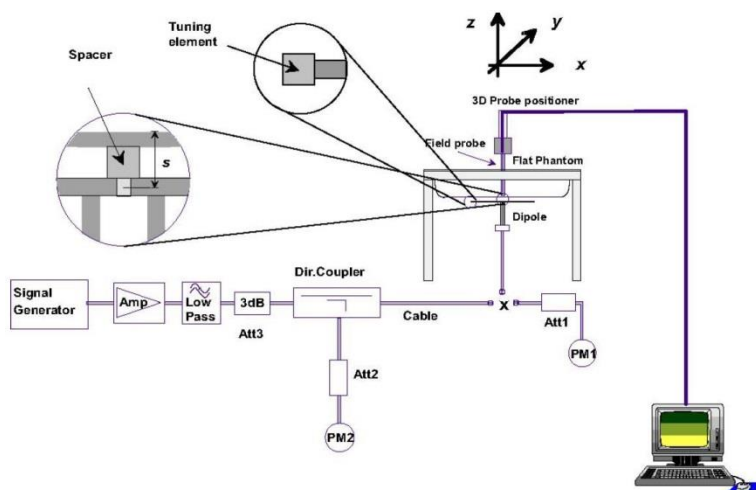

Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

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

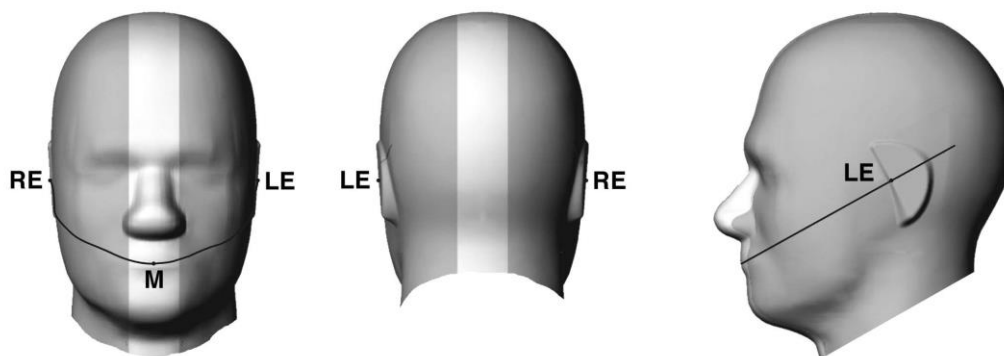


Fig 9.1.1 Front, back, and side views of SAM twin phantom

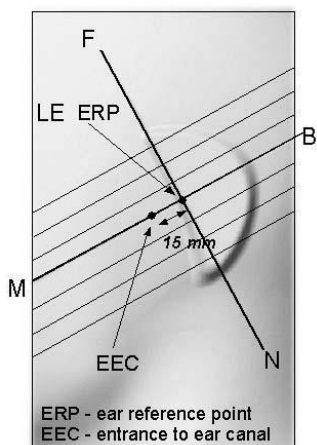


Fig 9.1.2 Close-up side view of phantom showing the ear region.

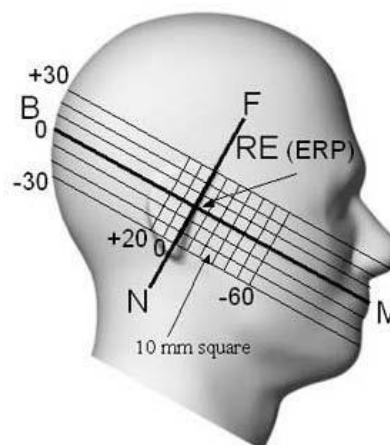


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

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

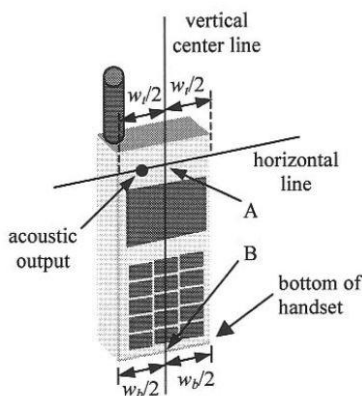


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case"

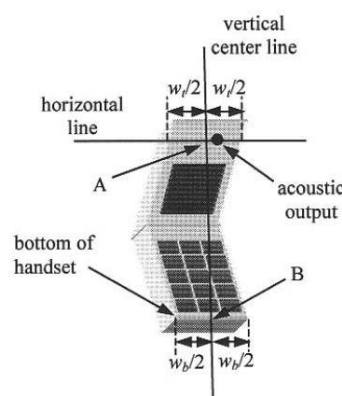


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

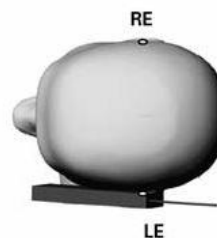
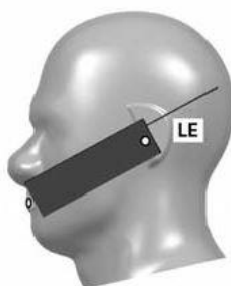
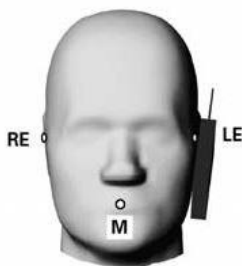


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

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

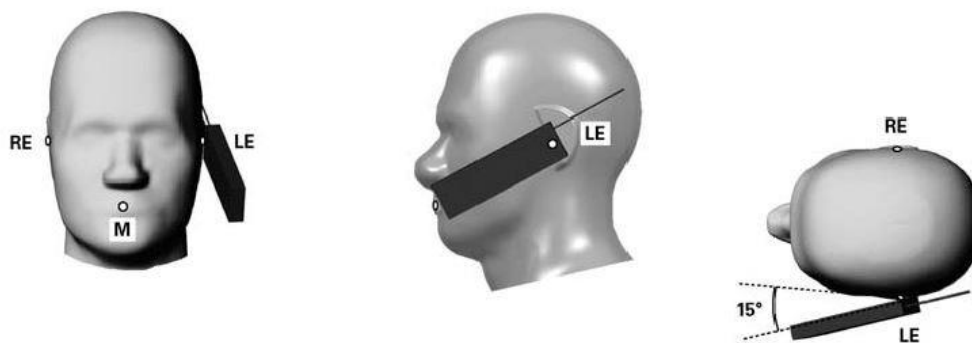


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

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

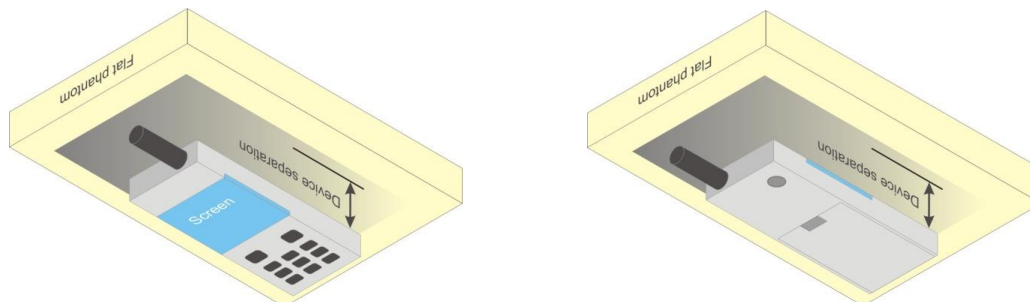


Fig 9.4 Body Worn Position

11.5 Product Specific 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.

11.6 Wireless Router

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

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

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (2Tx slots) for GSM850/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

<Default / Near-Body / Product Specific 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	32.95	32.68	32.67	33.50	23.95	23.68	23.67	24.50
GPRS 1 Tx slot	32.93	32.67	32.66	33.50	23.93	23.67	23.66	24.50
GPRS 2 Tx slots	30.71	30.44	30.46	31.50	24.71	24.44	24.46	25.50
GPRS 3 Tx slots	28.19	28.24	28.30	29.00	23.93	23.98	24.04	24.74
GPRS 4 Tx slots	26.14	25.85	25.86	27.50	23.14	22.85	22.86	24.50
EDGE 1 Tx slot	26.80	26.56	26.52	27.50	17.80	17.56	17.52	18.50
EDGE 2 Tx slots	24.56	24.51	24.37	25.50	18.56	18.51	18.37	19.50
EDGE 3 Tx slots	22.38	22.29	22.11	23.50	18.12	18.03	17.85	19.24
EDGE 4 Tx slots	21.05	20.92	20.85	22.00	18.05	17.92	17.85	19.00

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	29.65	29.66	29.39	30.50	20.65	20.66	20.39	21.50
GPRS 1 Tx slot	29.64	29.56	29.37	30.50	20.64	20.56	20.37	21.50
GPRS 2 Tx slots	27.54	27.50	27.36	28.50	21.54	21.50	21.36	22.50
GPRS 3 Tx slots	25.31	25.21	25.18	26.50	21.05	20.95	20.92	22.24
GPRS 4 Tx slots	23.14	23.03	22.98	24.50	20.14	20.03	19.98	21.50
EDGE 1 Tx slot	25.99	26.07	26.06	27.00	16.99	17.07	17.06	18.00
EDGE 2 Tx slots	24.02	24.02	24.14	25.00	18.02	18.02	18.14	19.00
EDGE 3 Tx slots	21.75	21.71	21.74	23.00	17.49	17.45	17.48	18.74
EDGE 4 Tx slots	19.01	19.05	19.09	21.00	16.01	16.05	16.09	18.00

<Hotspot Power Mode>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.95	32.68	32.67	33.50	23.95	23.68	23.67	24.50
GPRS 1 Tx slot	32.93	32.67	32.66	33.50	23.93	23.67	23.66	24.50
GPRS 2 Tx slots	30.71	30.44	30.46	31.50	24.71	24.44	24.46	25.50
GPRS 3 Tx slots	28.19	28.24	28.30	29.00	23.93	23.98	24.04	24.74
GPRS 4 Tx slots	26.14	25.85	25.86	27.50	23.14	22.85	22.86	24.50
EDGE 1 Tx slot	26.80	26.56	26.52	27.50	17.80	17.56	17.52	18.50
EDGE 2 Tx slots	24.56	24.51	24.37	25.50	18.56	18.51	18.37	19.50
EDGE 3 Tx slots	22.38	22.29	22.11	23.50	18.12	18.03	17.85	19.24
EDGE 4 Tx slots	21.05	20.92	20.85	22.00	18.05	17.92	17.85	19.00

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	28.36	28.43	28.46	28.50	19.36	19.43	19.46	19.50
GPRS 1 Tx slot	28.37	28.44	28.45	28.50	19.37	19.44	19.45	19.50
GPRS 2 Tx slots	25.35	25.30	25.28	26.00	19.35	19.30	19.28	20.00
GPRS 3 Tx slots	23.71	23.74	23.73	24.00	19.45	19.48	19.47	19.74
GPRS 4 Tx slots	22.34	22.28	22.26	22.50	19.34	19.28	19.26	19.50
EDGE 1 Tx slot	26.35	26.60	26.53	27.00	17.35	17.60	17.53	18.00
EDGE 2 Tx slots	24.35	24.01	24.02	25.00	18.35	18.01	18.02	19.00
EDGE 3 Tx slots	22.27	21.93	21.83	23.00	18.01	17.67	17.57	18.74
EDGE 4 Tx slots	20.56	20.46	20.54	21.00	17.56	17.46	17.54	18.00

<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 DPCCH, DPCH 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

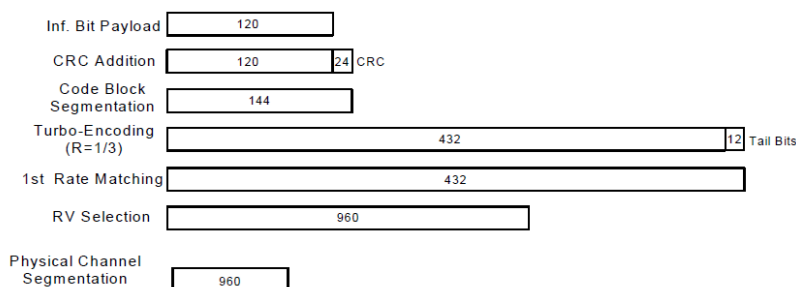
DC-HSDPA 3GPP release 8 Setup Configuration:

- 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	22.61	22.59	22.37	24.00	22.62	22.65	22.52	24.00	22.83	22.82	22.74	24.00
3GPP Rel 99	RMC 12.2Kbps	22.64	22.70	22.44	24.00	22.66	22.67	22.53	24.00	22.85	22.86	22.75	24.00
3GPP Rel 6	HSDPA Subtest-1	22.38	22.42	21.97	23.00	21.97	21.93	22.21	23.00	21.68	21.67	21.69	23.00
3GPP Rel 6	HSDPA Subtest-2	22.43	22.44	22.06	23.00	21.89	22.00	22.12	23.00	21.71	21.69	21.72	23.00
3GPP Rel 6	HSDPA Subtest-3	21.92	21.93	21.56	22.50	21.22	21.46	21.65	22.50	21.21	21.21	21.23	22.50
3GPP Rel 6	HSDPA Subtest-4	21.94	21.95	21.52	22.50	21.16	21.44	21.31	22.50	21.21	21.20	21.21	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	22.37	22.38	21.91	23.00	21.70	21.91	22.19	23.00	21.70	21.68	21.70	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	22.42	22.40	22.00	23.00	21.68	21.98	22.08	23.00	21.71	21.68	21.73	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.91	21.89	21.50	22.50	21.17	21.44	21.64	22.50	21.20	21.21	21.24	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.93	21.91	21.46	22.50	21.11	21.42	21.30	22.50	21.21	21.19	21.20	22.50
3GPP Rel 6	HSUPA Subtest-1	22.43	22.46	22.03	23.00	21.72	21.96	22.22	23.00	21.89	21.89	21.71	23.00
3GPP Rel 6	HSUPA Subtest-2	20.43	20.47	20.00	21.00	19.74	19.94	19.98	21.00	19.99	20.00	19.94	21.00
3GPP Rel 6	HSUPA Subtest-3	21.42	21.42	20.99	22.00	20.74	20.95	21.18	22.00	21.01	20.96	20.87	22.00
3GPP Rel 6	HSUPA Subtest-4	20.49	20.49	20.00	21.00	19.73	19.97	20.01	21.00	19.99	19.96	19.79	21.00
3GPP Rel 6	HSUPA Subtest-5	22.46	22.40	22.05	23.00	21.75	22.00	22.19	23.00	21.96	21.95	21.92	23.00

<Near-Body Power Mode>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	19.13	19.26	19.33	19.50	18.08	18.25	18.31	19.00	22.39	22.21	22.29	22.50
3GPP Rel 99	RMC 12.2Kbps	19.23	19.34	19.39	19.50	18.33	18.33	18.36	19.00	22.41	22.49	22.35	22.50
3GPP Rel 6	HSDPA Subtest-1	19.21	19.33	19.36	19.50	18.31	18.33	18.34	19.00	22.26	22.41	22.31	22.50
3GPP Rel 6	HSDPA Subtest-2	19.22	19.33	19.34	19.50	18.19	18.29	18.30	19.00	22.26	22.38	22.28	22.50
3GPP Rel 6	HSDPA Subtest-3	18.78	18.81	18.88	19.00	17.85	17.82	17.84	18.50	21.74	21.81	21.83	22.00
3GPP Rel 6	HSDPA Subtest-4	18.72	18.80	18.86	19.00	17.65	17.84	17.79	18.50	21.72	21.80	21.82	22.00
3GPP Rel 8	DC-HSDPA Subtest-1	19.22	19.32	19.33	19.50	18.32	18.22	18.34	19.00	22.39	22.46	22.31	22.50
3GPP Rel 8	DC-HSDPA Subtest-2	19.21	19.32	19.36	19.50	18.16	18.27	18.32	19.00	22.36	22.42	22.25	22.50
3GPP Rel 8	DC-HSDPA Subtest-3	18.75	18.26	18.33	19.00	17.67	17.31	17.24	18.50	21.81	21.82	21.77	22.00
3GPP Rel 8	DC-HSDPA Subtest-4	18.78	18.31	18.38	19.00	17.88	17.39	17.48	18.50	21.76	21.83	21.72	22.00
3GPP Rel 6	HSUPA Subtest-1	19.23	19.29	19.33	19.50	18.28	18.31	18.28	19.00	22.34	22.42	22.32	22.50
3GPP Rel 6	HSUPA Subtest-2	17.21	17.23	17.34	17.50	16.27	16.33	16.32	17.00	20.31	20.46	20.38	20.50
3GPP Rel 6	HSUPA Subtest-3	18.22	18.26	18.38	18.50	17.22	17.31	17.31	18.00	21.32	21.44	21.36	21.50
3GPP Rel 6	HSUPA Subtest-4	17.20	17.26	17.36	17.50	16.23	16.32	16.42	17.00	20.33	20.42	20.40	20.50
3GPP Rel 6	HSUPA Subtest-5	19.23	19.24	19.36	19.50	18.31	18.33	18.27	19.00	22.36	22.43	22.32	22.50

<Hotspot Power Mode>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	16.11	16.05	16.16	16.50	15.65	15.68	15.61	16.50	22.39	22.21	22.29	22.50
3GPP Rel 99	RMC 12.2Kbps	16.13	16.09	16.17	16.50	15.66	15.73	15.77	16.50	22.41	22.49	22.35	22.50
3GPP Rel 6	HSDPA Subtest-1	16.07	16.01	15.92	16.50	15.64	15.65	15.49	16.50	22.26	22.41	22.31	22.50
3GPP Rel 6	HSDPA Subtest-2	16.05	16.00	15.91	16.50	15.64	15.52	15.50	16.50	22.26	22.38	22.28	22.50
3GPP Rel 6	HSDPA Subtest-3	15.55	15.58	15.48	16.00	15.09	15.19	15.17	16.00	21.74	21.81	21.83	22.00
3GPP Rel 6	HSDPA Subtest-4	15.56	15.54	15.47	16.00	15.12	15.18	15.14	16.00	21.72	21.80	21.82	22.00
3GPP Rel 8	DC-HSDPA Subtest-1	16.10	16.08	16.01	16.50	15.70	15.65	15.62	16.50	22.39	22.46	22.31	22.50
3GPP Rel 8	DC-HSDPA Subtest-2	16.09	16.05	16.03	16.50	15.68	15.68	15.66	16.50	22.36	22.42	22.25	22.50
3GPP Rel 8	DC-HSDPA Subtest-3	15.61	15.53	15.56	16.00	15.17	15.10	15.25	16.00	21.81	21.82	21.77	22.00
3GPP Rel 8	DC-HSDPA Subtest-4	15.62	15.65	15.66	16.00	15.29	15.34	15.36	16.00	21.76	21.83	21.72	22.00
3GPP Rel 6	HSUPA Subtest-1	16.03	16.02	15.87	16.50	15.73	15.70	15.48	16.50	22.34	22.42	22.32	22.50
3GPP Rel 6	HSUPA Subtest-2	14.27	14.06	13.87	14.50	13.71	13.76	13.48	14.50	20.31	20.46	20.38	20.50
3GPP Rel 6	HSUPA Subtest-3	15.01	15.01	14.83	15.50	14.70	14.60	14.41	15.50	21.32	21.44	21.36	21.50
3GPP Rel 6	HSUPA Subtest-4	14.16	14.05	13.89	14.50	13.68	13.60	13.43	14.50	20.33	20.42	20.40	20.50
3GPP Rel 6	HSUPA Subtest-5	16.04	16.01	15.83	16.50	15.72	15.71	15.33	16.50	22.36	22.43	22.32	22.50

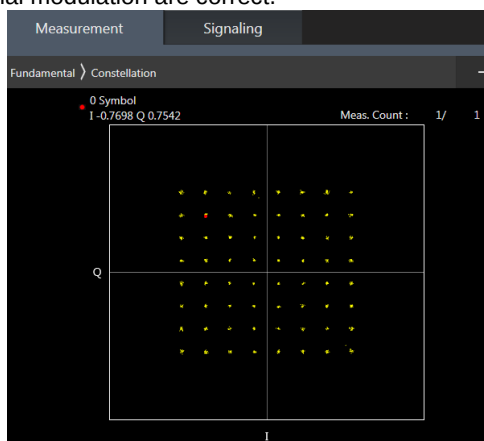
<Product Specific Power Mode>

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	19.83	19.81	19.73	21.00	20.12	20.22	20.13	21.50	22.83	22.82	22.74	24.00
3GPP Rel 99	RMC 12.2Kbps	19.84	19.87	19.81	21.00	20.23	20.34	20.31	21.50	22.85	22.86	22.75	24.00
3GPP Rel 6	HSDPA Subtest-1	19.81	19.83	19.79	21.00	20.18	20.28	20.30	21.50	21.68	21.67	21.69	23.00
3GPP Rel 6	HSDPA Subtest-2	19.80	19.77	19.74	21.00	20.14	20.26	20.28	21.50	21.71	21.69	21.72	23.00
3GPP Rel 6	HSDPA Subtest-3	19.28	19.29	19.24	20.50	19.65	19.77	19.78	21.00	21.21	21.21	21.23	22.50
3GPP Rel 6	HSDPA Subtest-4	19.25	19.28	19.23	20.50	19.66	19.78	19.78	21.00	21.21	21.20	21.21	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	19.82	19.83	19.77	21.00	20.12	20.15	20.30	21.50	21.70	21.68	21.70	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	19.81	19.83	19.74	21.00	20.14	20.16	20.28	21.50	21.71	21.68	21.73	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	19.32	19.37	19.34	20.50	19.54	19.68	19.72	21.00	21.20	21.21	21.24	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	19.31	19.35	19.33	20.50	19.56	19.66	19.70	21.00	21.21	21.19	21.20	22.50
3GPP Rel 6	HSUPA Subtest-1	19.80	19.75	19.77	21.00	20.20	20.31	20.24	21.50	21.89	21.89	21.71	23.00
3GPP Rel 6	HSUPA Subtest-2	17.75	17.79	17.77	19.00	18.23	18.33	18.34	19.50	19.99	20.00	19.94	21.00
3GPP Rel 6	HSUPA Subtest-3	18.73	18.77	18.79	20.00	19.23	19.34	19.32	20.50	21.01	20.96	20.87	22.00
3GPP Rel 6	HSUPA Subtest-4	17.74	17.75	17.74	19.00	18.26	18.35	18.33	19.50	19.99	19.96	19.79	21.00
3GPP Rel 6	HSUPA Subtest-5	19.77	19.79	19.80	21.00	20.21	20.28	20.26	21.50	21.96	21.95	21.92	23.00

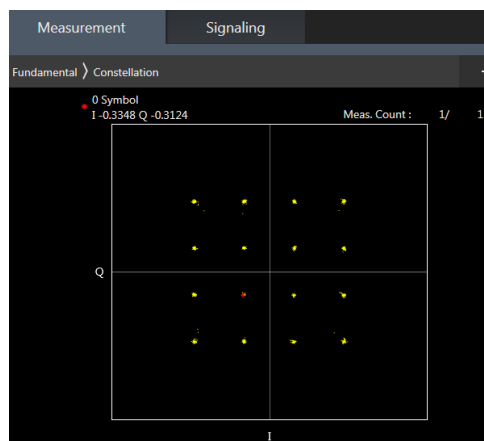
<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / 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 5 / 38 SAR test was covered by Band 26 / 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	22.54	22.63	22.74	24	0
20	QPSK	1	49	22.51	22.59	22.81		
20	QPSK	1	99	22.41	22.44	22.70		
20	QPSK	50	0	21.54	21.65	21.74	23	1
20	QPSK	50	24	21.50	21.62	21.84		
20	QPSK	50	50	21.47	21.54	21.76		
20	QPSK	100	0	21.57	21.58	21.67	23	1
20	16QAM	1	0	21.98	22.06	22.16		
20	16QAM	1	49	21.94	22.00	22.27		
20	16QAM	1	99	21.79	21.94	22.16	22	2
20	16QAM	50	0	20.66	20.80	20.84		
20	16QAM	50	24	20.63	20.75	20.91		
20	16QAM	50	50	20.62	20.66	20.90	22	2
20	16QAM	100	0	20.67	20.72	20.83		
20	64QAM	1	0	21.03	21.08	20.95		
20	64QAM	1	49	20.98	21.03	20.80	22	2
20	64QAM	1	99	20.84	20.92	20.97		
20	64QAM	50	0	19.78	19.92	19.98		
20	64QAM	50	24	19.74	19.88	20.04	21	3
20	64QAM	50	50	19.73	19.79	20.02		
20	64QAM	100	0	19.82	19.88	19.96		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.59	22.65	22.81	24	0
15	QPSK	1	37	22.45	22.57	22.81		
15	QPSK	1	74	22.37	22.49	22.70		
15	QPSK	36	0	21.54	21.64	21.82	23	1
15	QPSK	36	20	21.48	21.66	21.84		
15	QPSK	36	39	21.39	21.57	21.74		
15	QPSK	75	0	21.49	21.60	21.79	23	1
15	16QAM	1	0	22.04	22.07	22.25		
15	16QAM	1	37	21.90	22.03	22.20		
15	16QAM	1	74	21.80	21.97	22.16	22	2
15	16QAM	36	0	20.68	20.77	20.92		
15	16QAM	36	20	20.65	20.74	20.92		
15	16QAM	36	39	20.54	20.66	20.90	22	2
15	16QAM	75	0	20.58	20.73	20.90		
15	64QAM	1	0	21.06	21.11	21.27		
15	64QAM	1	37	20.92	21.03	21.25	22	2
15	64QAM	1	74	20.81	20.96	21.16		
15	64QAM	36	0	19.85	19.93	20.06		
15	64QAM	36	20	19.80	19.88	20.07	21	3
15	64QAM	36	39	19.69	19.81	20.05		
15	64QAM	75	0	19.73	19.86	20.07		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.51	22.60	22.78	24	0
10	QPSK	1	25	22.47	22.53	22.68		
10	QPSK	1	49	22.37	22.52	22.61		



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10	QPSK	25	0	21.47	21.61	21.84	23	1
10	QPSK	25	12	21.49	21.61	21.90		
10	QPSK	25	25	21.43	21.55	21.86		
10	QPSK	50	0	21.47	21.60	21.91		
10	16QAM	1	0	21.95	22.02	22.33	23	1
10	16QAM	1	25	21.94	22.00	22.29		
10	16QAM	1	49	21.83	21.92	22.24		
10	16QAM	25	0	20.65	20.71	21.02	22	2
10	16QAM	25	12	20.61	20.74	21.04		
10	16QAM	25	25	20.57	20.68	20.98		
10	16QAM	50	0	20.58	20.70	21.02		
10	64QAM	1	0	21.00	21.05	21.32	22	2
10	64QAM	1	25	20.96	21.04	21.36		
10	64QAM	1	49	20.88	20.99	21.26		
10	64QAM	25	0	19.80	19.85	20.17	21	3
10	64QAM	25	12	19.76	19.88	20.17		
10	64QAM	25	25	19.72	19.84	20.15		
10	64QAM	50	0	19.71	19.85	20.14		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.30	22.48	22.74	24	0
5	QPSK	1	12	22.26	22.49	22.73		
5	QPSK	1	24	22.29	22.45	22.67		
5	QPSK	12	0	21.33	21.47	21.76	23	1
5	QPSK	12	7	21.30	21.52	21.61		
5	QPSK	12	13	21.29	21.46	21.75		
5	QPSK	25	0	21.26	21.46	21.67		
5	16QAM	1	0	21.77	21.87	22.13	23	1
5	16QAM	1	12	21.72	21.90	22.14		
5	16QAM	1	24	21.76	21.86	22.11		
5	16QAM	12	0	20.45	20.64	20.89	22	2
5	16QAM	12	7	20.47	20.63	20.90		
5	16QAM	12	13	20.44	20.63	20.85		
5	16QAM	25	0	20.43	20.57	20.86		
5	64QAM	1	0	20.78	20.94	21.18	22	2
5	64QAM	1	12	20.76	20.94	21.18		
5	64QAM	1	24	20.81	20.88	21.08		
5	64QAM	12	0	19.59	19.76	20.01		
5	64QAM	12	7	19.60	19.77	20.04	21	3
5	64QAM	12	13	19.59	19.77	19.98		
5	64QAM	25	0	19.56	19.74	20.01		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.42	22.38	22.74	24	0
3	QPSK	1	8	22.39	22.31	22.78		
3	QPSK	1	14	22.31	22.50	22.71		
3	QPSK	8	0	21.53	21.56	21.78	23	1
3	QPSK	8	4	21.30	21.43	21.72		
3	QPSK	8	7	21.42	21.41	21.79		
3	QPSK	15	0	21.41	21.41	21.76		
3	16QAM	1	0	21.71	21.79	22.04	23	1
3	16QAM	1	8	21.70	21.88	22.02		
3	16QAM	1	14	21.65	21.79	21.99		
3	16QAM	8	0	20.43	20.57	20.79	22	2
3	16QAM	8	4	20.46	20.62	20.82		
3	16QAM	8	7	20.41	20.60	20.78		



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3	16QAM	15	0	20.37	20.53	20.72		
3	64QAM	1	0	20.71	20.72	20.98	22	2
3	64QAM	1	8	20.74	20.90	21.05		
3	64QAM	1	14	20.65	20.83	21.02		
3	64QAM	8	0	19.56	19.67	19.88	21	3
3	64QAM	8	4	19.59	19.75	19.92		
3	64QAM	8	7	19.52	19.69	19.89		
3	64QAM	15	0	19.49	19.63	19.86		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.18	22.31	22.52	24	0
1.4	QPSK	1	3	22.30	22.43	22.61		
1.4	QPSK	1	5	22.17	22.30	22.52		
1.4	QPSK	3	0	22.21	22.35	22.56		
1.4	QPSK	3	1	22.28	22.39	22.60		
1.4	QPSK	3	3	22.22	22.35	22.58		
1.4	QPSK	6	0	21.19	21.34	21.55	23	1
1.4	16QAM	1	0	21.69	21.78	21.91	23	1
1.4	16QAM	1	3	21.71	21.82	22.04		
1.4	16QAM	1	5	21.63	21.73	21.95		
1.4	16QAM	3	0	21.36	21.50	21.73		
1.4	16QAM	3	1	21.45	21.55	21.79		
1.4	16QAM	3	3	21.39	21.49	21.68		
1.4	16QAM	6	0	20.39	20.55	20.76	22	2
1.4	64QAM	1	0	20.66	20.74	20.92	22	2
1.4	64QAM	1	3	20.76	20.78	21.06		
1.4	64QAM	1	5	20.65	20.75	21.00		
1.4	64QAM	3	0	20.58	20.71	20.93		
1.4	64QAM	3	1	20.60	20.75	20.93		
1.4	64QAM	3	3	20.57	20.67	20.91		
1.4	64QAM	6	0	19.47	19.61	19.83	21	3



<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.54	22.72	22.63		
20	QPSK	1	49	22.65	22.65	22.59	24	0
20	QPSK	1	99	22.42	22.50	22.44		
20	QPSK	50	0	21.51	21.66	21.63		
20	QPSK	50	24	21.57	21.65	21.60	23	1
20	QPSK	50	50	21.49	21.59	21.57		
20	QPSK	100	0	21.56	21.63	21.60		
20	16QAM	1	0	21.97	22.13	22.04	23	1
20	16QAM	1	49	21.91	22.08	22.04		
20	16QAM	1	99	21.86	21.96	21.96		
20	16QAM	50	0	20.63	20.81	20.78	22	2
20	16QAM	50	24	20.71	20.78	20.73		
20	16QAM	50	50	20.63	20.72	20.69		
20	16QAM	100	0	20.66	20.75	20.73	22	2
20	64QAM	1	0	21.00	21.19	21.13		
20	64QAM	1	49	20.96	21.06	21.09		
20	64QAM	1	99	20.89	20.96	20.97	21	3
20	64QAM	50	0	19.78	19.94	19.92		
20	64QAM	50	24	19.84	19.92	19.92		
20	64QAM	50	50	19.79	19.87	19.85	21	3
20	64QAM	100	0	19.81	19.90	19.90		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.54	22.69	22.67		
15	QPSK	1	37	22.43	22.64	22.60	24	0
15	QPSK	1	74	22.46	22.55	22.49		
15	QPSK	36	0	21.51	21.69	21.66	23	1
15	QPSK	36	20	21.60	21.71	21.66		
15	QPSK	36	39	21.53	21.60	21.60		
15	QPSK	75	0	21.58	21.69	21.64	23	1
15	16QAM	1	0	21.96	22.12	22.09		
15	16QAM	1	37	21.89	22.03	22.04		
15	16QAM	1	74	21.92	21.99	21.98	22	2
15	16QAM	36	0	20.65	20.84	20.83		
15	16QAM	36	20	20.75	20.83	20.82		
15	16QAM	36	39	20.67	20.78	20.73	22	2
15	16QAM	75	0	20.69	20.83	20.76		
15	64QAM	1	0	21.02	21.16	21.13		
15	64QAM	1	37	20.91	21.07	21.03	22	2
15	64QAM	1	74	20.90	20.98	20.99		
15	64QAM	36	0	19.81	19.97	19.92	21	3
15	64QAM	36	20	19.89	19.95	19.96		
15	64QAM	36	39	19.81	19.92	19.88		
15	64QAM	75	0	19.86	19.97	19.90	Tune-up limit (dBm)	MPR (dB)
Channel				20000	20175	20350		
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.62	22.63	22.62	24	0
10	QPSK	1	25	22.69	22.65	22.59		
10	QPSK	1	49	22.65	22.55	22.50		
10	QPSK	25	0	21.70	21.68	21.61	23	1
10	QPSK	25	12	21.69	21.65	21.61		



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10	QPSK	25	25	21.70	21.61	21.58		
10	QPSK	50	0	21.70	21.63	21.62		
10	16QAM	1	0	22.11	22.15	22.04		
10	16QAM	1	25	22.12	22.08	22.09	23	1
10	16QAM	1	49	22.09	22.00	22.00		
10	16QAM	25	0	20.81	20.81	20.78		
10	16QAM	25	12	20.82	20.78	20.79	22	2
10	16QAM	25	25	20.85	20.75	20.75		
10	16QAM	50	0	20.80	20.76	20.74		
10	64QAM	1	0	21.13	21.07	21.11	22	2
10	64QAM	1	25	21.17	21.11	21.07		
10	64QAM	1	49	20.89	21.01	20.98		
10	64QAM	25	0	19.98	19.72	19.90	21	3
10	64QAM	25	12	19.99	19.70	19.92		
10	64QAM	25	25	19.96	19.49	19.87		
10	64QAM	50	0	19.95	19.52	19.88		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.33	22.61	22.53	24	0
5	QPSK	1	12	22.43	22.62	22.58		
5	QPSK	1	24	22.34	22.35	22.50		
5	QPSK	12	0	21.45	21.79	21.50	23	1
5	QPSK	12	7	21.54	21.80	21.35		
5	QPSK	12	13	21.64	21.32	21.34		
5	QPSK	25	0	21.38	21.38	21.54		
5	16QAM	1	0	21.78	21.99	21.95	23	1
5	16QAM	1	12	21.84	22.05	22.03		
5	16QAM	1	24	21.70	21.89	21.97		
5	16QAM	12	0	20.54	20.89	20.72	22	2
5	16QAM	12	7	20.94	20.87	20.75		
5	16QAM	12	13	20.75	20.84	20.76		
5	16QAM	25	0	20.61	20.67	20.76		
5	64QAM	1	0	20.79	20.45	20.76	22	2
5	64QAM	1	12	20.89	20.80	20.86		
5	64QAM	1	24	20.79	20.47	20.89		
5	64QAM	12	0	19.69	20.04	19.87	21	3
5	64QAM	12	7	20.09	20.02	19.90		
5	64QAM	12	13	19.90	19.99	19.91		
5	64QAM	25	0	19.76	19.82	19.91		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.39	22.62	22.60	24	0
3	QPSK	1	8	22.43	22.68	22.60		
3	QPSK	1	14	22.36	22.62	22.54		
3	QPSK	8	0	21.49	21.71	21.63	23	1
3	QPSK	8	4	21.49	21.74	21.69		
3	QPSK	8	7	21.48	21.67	21.63		
3	QPSK	15	0	21.44	21.69	21.62		
3	16QAM	1	0	21.88	22.07	22.04	23	1
3	16QAM	1	8	21.93	22.13	22.02		
3	16QAM	1	14	21.86	22.03	22.00		
3	16QAM	8	0	20.70	20.89	20.89	22	2
3	16QAM	8	4	20.73	20.93	20.90		
3	16QAM	8	7	20.69	20.90	20.84		
3	16QAM	15	0	20.61	20.88	20.77		
3	64QAM	1	0	20.90	21.08	21.07	22	2



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3	64QAM	1	8	20.96	21.13	21.03	21	3
3	64QAM	1	14	20.87	21.07	21.01		
3	64QAM	8	0	19.80	19.99	19.98		
3	64QAM	8	4	19.80	20.05	19.98		
3	64QAM	8	7	19.79	19.99	19.94		
3	64QAM	15	0	19.74	19.98	19.87		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.32	22.69	22.61	24	0
1.4	QPSK	1	3	22.32	22.62	22.58		
1.4	QPSK	1	5	22.30	22.61	22.53		
1.4	QPSK	3	0	22.25	22.62	22.57		
1.4	QPSK	3	1	22.24	22.59	22.50		
1.4	QPSK	3	3	22.26	22.56	22.50		
1.4	QPSK	6	0	21.43	21.68	21.63	23	1
1.4	16QAM	1	0	21.84	22.10	22.06	23	1
1.4	16QAM	1	3	21.92	22.10	22.08		
1.4	16QAM	1	5	21.79	22.04	22.04		
1.4	16QAM	3	0	21.43	21.64	21.59		
1.4	16QAM	3	1	21.75	22.01	22.01		
1.4	16QAM	3	3	21.82	22.07	22.06		
1.4	16QAM	6	0	20.61	20.84	20.77	22	2
1.4	64QAM	1	0	20.93	21.13	21.13	22	2
1.4	64QAM	1	3	20.94	21.14	21.04		
1.4	64QAM	1	5	20.87	21.05	21.11		
1.4	64QAM	3	0	20.93	21.12	21.07		
1.4	64QAM	3	1	20.89	21.09	21.01		
1.4	64QAM	3	3	20.77	21.02	21.03		
1.4	64QAM	6	0	19.73	19.98	19.91	21	3



<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.75	22.79	22.88	24	0
10	QPSK	1	25	22.70	22.71	22.94		
10	QPSK	1	49	22.71	22.63	22.85		
10	QPSK	25	0	21.77	21.75	21.86	23	1
10	QPSK	25	12	21.82	21.75	22.02		
10	QPSK	25	25	21.80	21.68	21.94		
10	QPSK	50	0	21.84	21.78	21.89		
10	16QAM	1	0	22.11	22.14	22.26	23	1
10	16QAM	1	25	22.09	22.07	22.34		
10	16QAM	1	49	22.10	22.04	22.19		
10	16QAM	25	0	20.87	20.84	20.99	22	2
10	16QAM	25	12	20.93	20.91	21.14		
10	16QAM	25	25	20.90	20.79	21.01		
10	16QAM	50	0	20.94	20.89	20.99		
10	64QAM	1	0	21.19	21.19	21.30	22	2
10	64QAM	1	25	21.08	21.14	21.33		
10	64QAM	1	49	21.15	21.05	21.24		
10	64QAM	25	0	20.01	19.99	20.12	21	3
10	64QAM	25	12	20.08	20.03	20.28		
10	64QAM	25	25	20.05	19.94	20.17		
10	64QAM	50	0	20.08	20.02	20.12		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.74	22.71	22.88	24	0
5	QPSK	1	12	22.71	22.68	22.89		
5	QPSK	1	24	22.68	22.65	22.65		
5	QPSK	12	0	21.74	21.73	22.05	23	1
5	QPSK	12	7	21.76	21.76	22.02		
5	QPSK	12	13	21.70	21.71	22.02		
5	QPSK	25	0	21.72	21.74	22.03		
5	16QAM	1	0	22.10	22.10	22.36	23	1
5	16QAM	1	12	22.06	22.06	22.35		
5	16QAM	1	24	22.02	22.01	22.30		
5	16QAM	12	0	20.87	20.86	21.17	22	2
5	16QAM	12	7	20.87	20.89	21.13		
5	16QAM	12	13	20.85	20.82	21.13		
5	16QAM	25	0	20.83	20.84	21.13		
5	64QAM	1	0	21.13	21.14	21.44	22	2
5	64QAM	1	12	21.11	21.07	21.39		
5	64QAM	1	24	21.09	21.05	21.35		
5	64QAM	12	0	19.99	19.99	20.29	21	3
5	64QAM	12	7	20.01	20.01	20.27		
5	64QAM	12	13	19.95	19.96	20.26		
5	64QAM	25	0	19.96	19.99	20.27		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.76	22.73	22.81	24	0
3	QPSK	1	8	22.71	22.69	22.86		
3	QPSK	1	14	22.70	22.67	22.65		
3	QPSK	8	0	21.73	21.76	22.01	23	1
3	QPSK	8	4	21.79	21.77	22.01		



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3	QPSK	8	7	21.73	21.69	21.99		
3	QPSK	15	0	21.72	21.69	22.01		
3	16QAM	1	0	22.11	22.08	22.35		
3	16QAM	1	8	22.11	22.08	22.33	23	1
3	16QAM	1	14	22.08	22.02	22.25		
3	16QAM	8	0	20.89	20.90	21.15		
3	16QAM	8	4	20.95	20.92	21.18	22	2
3	16QAM	8	7	20.87	20.85	21.13		
3	16QAM	15	0	20.83	20.84	21.13		
3	64QAM	1	0	21.15	21.11	21.37	22	2
3	64QAM	1	8	21.14	21.11	21.37		
3	64QAM	1	14	21.04	21.04	21.36		
3	64QAM	8	0	20.01	20.00	20.29	21	3
3	64QAM	8	4	20.03	20.03	20.28		
3	64QAM	8	7	19.97	19.96	20.24		
3	64QAM	15	0	19.96	19.94	20.25		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.65	22.61	22.91	24	0
1.4	QPSK	1	3	22.73	22.70	22.75		
1.4	QPSK	1	5	22.63	22.58	22.87		
1.4	QPSK	3	0	22.67	22.68	22.82		
1.4	QPSK	3	1	22.71	22.70	22.76		
1.4	QPSK	3	3	22.71	22.64	22.92		
1.4	QPSK	6	0	21.67	21.63	21.94	23	1
1.4	16QAM	1	0	21.78	21.71	21.98	23	1
1.4	16QAM	1	3	21.91	21.81	21.90		
1.4	16QAM	1	5	21.77	21.75	21.97		
1.4	16QAM	3	0	21.56	21.57	21.81		
1.4	16QAM	3	1	21.59	21.58	21.80		
1.4	16QAM	3	3	21.54	21.47	21.78		
1.4	16QAM	6	0	20.85	20.84	21.10	22	2
1.4	64QAM	1	0	21.08	21.20	21.29	22	2
1.4	64QAM	1	3	21.08	21.03	21.36		
1.4	64QAM	1	5	21.04	21.06	21.23		
1.4	64QAM	3	0	21.19	21.15	21.20		
1.4	64QAM	3	1	21.19	21.15	21.24		
1.4	64QAM	3	3	21.26	21.21	21.17		
1.4	64QAM	6	0	20.31	20.20	20.16	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	22.61	22.63	22.58	24	0
20	QPSK	1	49	22.61	22.74	22.44		
20	QPSK	1	99	22.66	22.59	22.50		
20	QPSK	50	0	21.60	21.67	21.67	23	1
20	QPSK	50	24	21.63	21.70	21.75		
20	QPSK	50	50	21.71	21.68	21.57		
20	QPSK	100	0	21.74	21.71	21.73	23	1
20	16QAM	1	0	21.79	21.89	21.80		
20	16QAM	1	49	21.84	21.71	22.13		
20	16QAM	1	99	21.92	22.13	22.05	22	2
20	16QAM	50	0	20.61	20.78	20.81		
20	16QAM	50	24	20.77	20.78	20.82		
20	16QAM	50	50	20.87	20.82	20.75	22	2
20	16QAM	100	0	20.83	20.84	20.77		
20	64QAM	1	0	20.98	20.94	20.98	22	2
20	64QAM	1	49	20.84	21.10	20.84		
20	64QAM	1	99	21.08	20.67	20.90		
20	64QAM	50	0	19.85	19.87	19.94	21	3
20	64QAM	50	24	19.89	19.97	19.85		
20	64QAM	50	50	19.98	19.98	19.73		
20	64QAM	100	0	19.86	19.93	19.88		
Channel				20825	21100	21375		
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.66	22.65	22.59	24	0
15	QPSK	1	37	22.58	22.61	22.49		
15	QPSK	1	74	22.64	22.70	22.59		
15	QPSK	36	0	21.54	21.68	21.61	23	1
15	QPSK	36	20	21.65	21.68	21.56		
15	QPSK	36	39	21.62	21.66	21.50		
15	QPSK	75	0	21.55	21.65	21.69	23	1
15	16QAM	1	0	21.73	21.92	21.62		
15	16QAM	1	37	21.73	21.69	21.77		
15	16QAM	1	74	21.72	22.04	21.91	22	2
15	16QAM	36	0	20.65	20.76	20.73		
15	16QAM	36	20	20.64	20.86	20.70		
15	16QAM	36	39	20.73	20.79	20.64	22	2
15	16QAM	75	0	20.70	20.77	20.71		
15	64QAM	1	0	20.92	21.00	21.32		
15	64QAM	1	37	20.87	20.98	21.23	22	2
15	64QAM	1	74	21.21	21.18	20.90		
15	64QAM	36	0	19.81	19.92	19.90		
15	64QAM	36	20	19.90	19.94	19.82	21	3
15	64QAM	36	39	19.86	19.96	19.74		
15	64QAM	75	0	19.80	19.96	19.88		
Channel				20800	21100	21400		
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.51	22.59	22.44	24	0
10	QPSK	1	25	22.58	22.65	22.56		
10	QPSK	1	49	22.60	22.63	22.48		
10	QPSK	25	0	21.54	21.67	21.45	23	1
10	QPSK	25	12	21.59	21.62	21.55		



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10	QPSK	25	25	21.55	21.65	21.46		
10	QPSK	50	0	21.63	21.64	21.57		
10	16QAM	1	0	21.80	22.26	21.92		
10	16QAM	1	25	22.05	22.16	21.80	23	1
10	16QAM	1	49	21.85	22.21	22.12		
10	16QAM	25	0	20.65	20.68	20.57		
10	16QAM	25	12	20.76	20.74	20.71	22	2
10	16QAM	25	25	20.67	20.73	20.59		
10	16QAM	50	0	20.66	20.71	20.62		
10	64QAM	1	0	20.76	21.04	20.68	22	2
10	64QAM	1	25	20.97	21.00	20.60		
10	64QAM	1	49	21.01	20.97	20.94		
10	64QAM	25	0	19.81	19.87	19.80	21	3
10	64QAM	25	12	19.79	19.89	19.74		
10	64QAM	25	25	19.75	19.91	19.73		
10	64QAM	50	0	19.75	19.81	19.71		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.56	22.62	22.41	24	0
5	QPSK	1	12	22.57	22.52	22.55		
5	QPSK	1	24	22.51	22.71	22.58		
5	QPSK	12	0	21.61	21.61	21.50	23	1
5	QPSK	12	7	21.56	21.67	21.50		
5	QPSK	12	13	21.53	21.65	21.57		
5	QPSK	25	0	21.60	21.60	21.50	23	1
5	16QAM	1	0	21.86	21.83	21.82		
5	16QAM	1	12	21.87	21.85	21.73		
5	16QAM	1	24	22.21	22.16	21.97	22	2
5	16QAM	12	0	20.61	20.75	20.66		
5	16QAM	12	7	20.74	20.76	20.62		
5	16QAM	12	13	20.67	20.72	20.67	22	2
5	16QAM	25	0	20.58	20.74	20.63		
5	64QAM	1	0	20.96	20.71	20.87		
5	64QAM	1	12	21.00	21.13	20.83	22	2
5	64QAM	1	24	20.92	20.92	20.89		
5	64QAM	12	0	19.74	19.87	19.76		
5	64QAM	12	7	19.84	19.81	19.80	21	3
5	64QAM	12	13	19.83	19.90	19.64		
5	64QAM	25	0	19.81	19.91	19.76		



<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	22.76	22.85	23.04		
15	QPSK	1	37	22.79	22.86	22.95	23	1
15	QPSK	1	74	22.78	22.77	22.85		
15	QPSK	36	0	21.86	21.93	22.00		
15	QPSK	36	20	21.81	21.91	22.02	23	1
15	QPSK	36	39	21.87	21.80	21.90		
15	QPSK	75	0	21.78	21.85	22.00		
15	16QAM	1	0	22.12	22.23	22.40	23	1
15	16QAM	1	37	22.17	22.22	22.33		
15	16QAM	1	74	22.20	22.12	22.15		
15	16QAM	36	0	20.94	21.03	21.12	22	2
15	16QAM	36	20	20.91	21.00	21.13		
15	16QAM	36	39	20.98	20.91	21.01		
15	16QAM	75	0	20.87	20.96	21.09	22	2
15	64QAM	1	0	21.18	21.28	21.42		
15	64QAM	1	37	21.20	21.30	21.33		
15	64QAM	1	74	21.16	21.16	21.22	21	3
15	64QAM	36	0	20.10	20.16	20.28		
15	64QAM	36	20	20.06	20.15	20.26		
15	64QAM	36	39	20.12	20.05	20.14	21	3
15	64QAM	75	0	20.03	20.10	20.24		
Channel				26740	26865	26990	24	0
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.64	22.81	23.01		
10	QPSK	1	25	22.60	22.83	23.03	23	1
10	QPSK	1	49	22.64	22.75	22.92		
10	QPSK	25	0	21.69	21.92	22.08		
10	QPSK	25	12	21.76	21.90	22.05	23	1
10	QPSK	25	25	21.71	21.82	22.00		
10	QPSK	50	0	21.75	21.88	22.06		
10	16QAM	1	0	21.99	22.20	22.41	23	1
10	16QAM	1	25	21.96	22.25	22.35		
10	16QAM	1	49	22.03	22.09	22.26		
10	16QAM	25	0	20.76	21.04	21.17	22	2
10	16QAM	25	12	20.86	21.00	21.15		
10	16QAM	25	25	20.81	20.92	21.11		
10	16QAM	50	0	20.82	20.99	21.17	22	2
10	64QAM	1	0	21.02	21.19	21.45		
10	64QAM	1	25	21.01	21.29	21.42		
10	64QAM	1	49	21.04	21.17	21.31	21	3
10	64QAM	25	0	19.88	20.15	20.32		
10	64QAM	25	12	20.00	20.15	19.95		
10	64QAM	25	25	19.94	20.07	19.85	21	3
10	64QAM	50	0	19.94	20.13	20.03		
Channel				26715	26865	27015	24	0
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.66	22.82	22.98		
5	QPSK	1	12	22.63	22.81	22.97	24	0
5	QPSK	1	24	22.59	22.80	22.91		
5	QPSK	12	0	21.69	21.85	22.04	23	1
5	QPSK	12	7	21.70	21.87	22.06		



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5	QPSK	12	13	21.66	21.86	21.98		
5	QPSK	25	0	21.63	21.88	21.99		
5	16QAM	1	0	21.97	22.24	22.36		
5	16QAM	1	12	22.00	22.18	22.31	23	1
5	16QAM	1	24	21.92	22.15	22.26		
5	16QAM	12	0	20.79	21.01	21.13		
5	16QAM	12	7	20.80	20.98	21.17	22	2
5	16QAM	12	13	20.76	20.98	21.09		
5	16QAM	25	0	20.71	20.98	21.10		
5	64QAM	1	0	21.06	21.28	21.38	22	2
5	64QAM	1	12	21.02	21.21	21.36		
5	64QAM	1	24	20.99	21.21	21.30		
5	64QAM	12	0	19.92	20.14	20.25	21	3
5	64QAM	12	7	19.92	20.13	20.29		
5	64QAM	12	13	19.89	20.11	20.22		
5	64QAM	25	0	19.85	20.13	20.25		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.63	22.81	22.95	24	0
3	QPSK	1	8	22.62	22.81	22.92		
3	QPSK	1	14	22.61	22.79	22.92		
3	QPSK	8	0	21.67	21.86	22.00	23	1
3	QPSK	8	4	21.71	21.90	22.03		
3	QPSK	8	7	21.66	21.88	21.99		
3	QPSK	15	0	21.65	21.86	21.98	23	1
3	16QAM	1	0	21.99	22.17	22.29		
3	16QAM	1	8	22.00	22.17	22.32		
3	16QAM	1	14	21.99	22.14	22.23	22	2
3	16QAM	8	0	20.81	21.02	21.14		
3	16QAM	8	4	20.84	21.03	21.16		
3	16QAM	8	7	20.79	21.04	21.14	22	2
3	16QAM	15	0	20.74	20.99	21.09		
3	64QAM	1	0	21.01	21.18	21.34		
3	64QAM	1	8	21.01	21.26	21.37	21	3
3	64QAM	1	14	20.97	21.20	21.31		
3	64QAM	8	0	19.93	20.14	20.24		
3	64QAM	8	4	19.90	20.15	20.28	21	3
3	64QAM	8	7	19.93	20.12	20.25		
3	64QAM	15	0	19.86	20.12	20.22		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.54	22.76	22.83	24	0
1.4	QPSK	1	3	22.64	22.82	22.89		
1.4	QPSK	1	5	22.55	22.75	22.82		
1.4	QPSK	3	0	22.63	22.79	22.87	23	1
1.4	QPSK	3	1	22.67	22.82	22.88		
1.4	QPSK	3	3	22.63	22.77	22.84		
1.4	QPSK	6	0	21.59	21.77	21.86	23	1
1.4	16QAM	1	0	21.91	22.13	22.15	23	1
1.4	16QAM	1	3	22.00	22.20	22.25		
1.4	16QAM	1	5	21.92	22.09	22.15		
1.4	16QAM	3	0	21.71	21.89	21.97	22	2
1.4	16QAM	3	1	21.74	21.92	22.00		
1.4	16QAM	3	3	21.70	21.87	21.97		
1.4	16QAM	6	0	20.77	20.94	21.02	22	2
1.4	64QAM	1	0	20.97	21.19	21.20	22	2



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1.4	64QAM	1	3	21.05	21.19	21.29		
1.4	64QAM	1	5	20.95	21.25	21.22		
1.4	64QAM	3	0	20.91	21.17	21.16		
1.4	64QAM	3	1	20.93	21.18	21.14		
1.4	64QAM	3	3	20.85	21.25	21.14		
1.4	64QAM	6	0	19.85	20.14	20.10	21	3

<Near-Body Power Mode>
<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	20.17	20.12	20.23	20.5	0
20	QPSK	1	49	19.97	19.97	20.05		
20	QPSK	1	99	19.93	20.01	20.15		
20	QPSK	50	0	20.08	19.96	20.11	20.5	0
20	QPSK	50	24	19.90	19.96	20.16		
20	QPSK	50	50	19.84	19.88	20.07		
20	QPSK	100	0	20.05	19.92	20.08	20.5	0
20	16QAM	1	0	19.85	19.83	19.98		
20	16QAM	1	49	19.99	20.02	20.21		
20	16QAM	1	99	20.00	20.02	20.18	20.5	0
20	16QAM	50	0	19.86	19.91	20.16		
20	16QAM	50	24	19.85	19.88	20.08		
20	16QAM	50	50	19.92	19.89	20.02	20.5	0
20	16QAM	100	0	19.78	19.92	19.98		
20	64QAM	1	0	19.74	19.88	20.04		
20	64QAM	1	49	19.73	19.79	20.02	20.5	0
20	64QAM	1	99	19.94	19.99	19.82		
20	64QAM	50	0	19.93	19.90	19.94		
20	64QAM	50	24	19.95	19.88	19.90	20.5	0
20	64QAM	50	50	19.99	19.95	19.96		
20	64QAM	100	0	19.99	19.98	19.90		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	20.13	20.04	20.21	20.5	0
15	QPSK	1	37	19.95	19.93	20.01		
15	QPSK	1	74	19.92	20.00	20.12		
15	QPSK	36	0	19.98	19.91	20.07	20.5	0
15	QPSK	36	20	19.89	19.92	20.14		
15	QPSK	36	39	19.75	19.88	19.97		
15	QPSK	75	0	20.02	19.89	19.99	20.5	0
15	16QAM	1	0	19.77	19.77	19.97		
15	16QAM	1	37	19.96	19.92	20.16		
15	16QAM	1	74	19.90	19.98	20.16	20.5	0
15	16QAM	36	0	19.76	19.82	20.11		
15	16QAM	36	20	19.82	19.78	20.00		
15	16QAM	36	39	19.83	19.79	20.00	20.5	0
15	16QAM	75	0	19.78	19.90	19.91		
15	64QAM	1	0	19.73	19.88	20.02		
15	64QAM	1	37	19.66	19.76	19.96	20.5	0
15	64QAM	1	74	19.84	19.90	19.80		
15	64QAM	36	0	19.89	19.87	19.93		
15	64QAM	36	20	19.92	19.80	19.85	20.5	0
15	64QAM	36	39	19.89	19.93	19.89		
15	64QAM	75	0	19.98	19.89	19.83		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	20.14	20.05	20.13	20.5	0
10	QPSK	1	25	19.92	19.95	19.95		
10	QPSK	1	49	19.85	19.98	20.15		



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10	QPSK	25	0	20.03	19.92	20.02	20.5	0
10	QPSK	25	12	19.80	19.94	20.07		
10	QPSK	25	25	19.82	19.82	20.00		
10	QPSK	50	0	20.04	19.89	20.07		
10	16QAM	1	0	19.82	19.79	19.88	20.5	0
10	16QAM	1	25	19.95	19.93	20.20		
10	16QAM	1	49	19.90	19.98	20.12		
10	16QAM	25	0	19.82	19.87	20.15	20.5	0
10	16QAM	25	12	19.78	19.86	19.99		
10	16QAM	25	25	19.91	19.87	19.97		
10	16QAM	50	0	19.78	19.85	19.98		
10	64QAM	1	0	19.69	19.85	20.02	20.5	0
10	64QAM	1	25	19.68	19.71	19.93		
10	64QAM	1	49	19.87	19.95	19.74		
10	64QAM	25	0	19.91	19.86	19.85	20.5	0
10	64QAM	25	12	19.88	19.87	19.80		
10	64QAM	25	25	19.97	19.86	19.90		
10	64QAM	50	0	19.95	19.93	19.83		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	20.12	20.05	20.17	20.5	0
5	QPSK	1	12	19.94	19.90	19.97		
5	QPSK	1	24	19.86	19.91	20.15		
5	QPSK	12	0	20.08	19.95	20.02	20.5	0
5	QPSK	12	7	19.87	19.94	20.16		
5	QPSK	12	13	19.83	19.78	20.04		
5	QPSK	25	0	19.97	19.87	20.07		
5	16QAM	1	0	19.82	19.80	19.95	20.5	0
5	16QAM	1	12	19.95	20.00	20.20		
5	16QAM	1	24	20.00	19.93	20.17		
5	16QAM	12	0	19.79	19.89	20.08	20.5	0
5	16QAM	12	7	19.75	19.86	20.04		
5	16QAM	12	13	19.87	19.86	19.93		
5	16QAM	25	0	19.69	19.83	19.96		
5	64QAM	1	0	19.67	19.86	20.03	20.5	0
5	64QAM	1	12	19.70	19.76	19.96		
5	64QAM	1	24	19.87	19.96	19.80		
5	64QAM	12	0	19.93	19.88	19.84	20.5	0
5	64QAM	12	7	19.94	19.85	19.89		
5	64QAM	12	13	19.89	19.88	19.92		
5	64QAM	25	0	19.96	19.98	19.87		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	20.08	20.10	20.14	20.5	0
3	QPSK	1	8	19.88	19.88	19.97		
3	QPSK	1	14	19.85	19.98	20.13		
3	QPSK	8	0	20.01	19.87	20.09	20.5	0
3	QPSK	8	4	19.84	19.89	20.08		
3	QPSK	8	7	19.82	19.85	19.98		
3	QPSK	15	0	20.05	19.90	20.08		
3	16QAM	1	0	19.85	19.75	19.90	20.5	0
3	16QAM	1	8	19.92	19.93	20.13		
3	16QAM	1	14	19.99	19.93	20.11		
3	16QAM	8	0	19.76	19.91	20.16	20.5	0
3	16QAM	8	4	19.81	19.88	20.06		
3	16QAM	8	7	19.91	19.87	19.98		



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3	16QAM	15	0	19.73	19.85	19.96		
3	64QAM	1	0	19.72	19.78	19.96	20.5	0
3	64QAM	1	8	19.69	19.69	19.99		
3	64QAM	1	14	19.85	19.89	19.80		
3	64QAM	8	0	19.86	19.90	19.86	20.5	0
3	64QAM	8	4	19.88	19.79	19.90		
3	64QAM	8	7	19.95	19.90	19.88		
3	64QAM	15	0	19.90	19.97	19.87		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.11	20.06	20.21	20.5	0
1.4	QPSK	1	3	19.97	19.91	20.02		
1.4	QPSK	1	5	19.84	19.92	20.06		
1.4	QPSK	3	0	20.07	19.91	20.02		
1.4	QPSK	3	1	19.81	19.92	20.15		
1.4	QPSK	3	3	19.79	19.79	20.06		
1.4	QPSK	6	0	20.05	19.92	20.03	20.5	0
1.4	16QAM	1	0	19.83	19.82	19.88	20.5	0
1.4	16QAM	1	3	19.94	19.96	20.16		
1.4	16QAM	1	5	19.95	19.92	20.16		
1.4	16QAM	3	0	20.12	20.02	20.21		
1.4	16QAM	3	1	19.93	19.94	19.99		
1.4	16QAM	3	3	19.93	19.97	20.12		
1.4	16QAM	6	0	19.69	19.87	19.98	20.5	0
1.4	64QAM	1	0	19.67	19.83	20.02	20.5	0
1.4	64QAM	1	3	19.68	19.78	20.01		
1.4	64QAM	1	5	19.86	19.98	19.74		
1.4	64QAM	3	0	20.06	19.90	20.04		
1.4	64QAM	3	1	19.84	19.91	20.16		
1.4	64QAM	3	3	19.78	19.86	20.06		
1.4	64QAM	6	0	19.98	19.90	19.85	20.5	0



<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	20.20	20.32	20.30	21	0
20	QPSK	1	49	20.16	20.28	20.25		
20	QPSK	1	99	19.92	20.05	20.06		
20	QPSK	50	0	20.19	20.29	20.27	21	0
20	QPSK	50	24	19.97	20.08	19.99		
20	QPSK	50	50	19.98	20.03	20.04		
20	QPSK	100	0	20.18	20.27	20.24		
20	16QAM	1	0	20.09	20.00	20.08	21	0
20	16QAM	1	49	20.00	20.06	20.08		
20	16QAM	1	99	20.00	20.07	20.09		
20	16QAM	50	0	19.95	20.10	19.97	21	0
20	16QAM	50	24	20.07	20.01	20.10		
20	16QAM	50	50	20.03	20.09	20.04		
20	16QAM	100	0	20.08	20.09	20.09		
20	64QAM	1	0	20.08	20.22	20.12	21	0
20	64QAM	1	49	19.99	20.24	20.30		
20	64QAM	1	99	20.01	20.31	20.30		
20	64QAM	50	0	20.21	20.06	19.71	21	0
20	64QAM	50	24	19.75	19.76	19.74		
20	64QAM	50	50	19.74	19.70	19.66		
20	64QAM	100	0	19.71	19.72	19.77		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	20.10	20.28	20.20	21	0
15	QPSK	1	37	20.13	20.23	20.21		
15	QPSK	1	74	19.83	19.95	20.04		
15	QPSK	36	0	20.18	20.19	20.18	21	0
15	QPSK	36	20	19.97	20.06	19.92		
15	QPSK	36	39	19.96	19.94	19.96		
15	QPSK	75	0	20.18	20.17	20.20		
15	16QAM	1	0	20.08	19.91	19.99	21	0
15	16QAM	1	37	19.98	20.02	20.03		
15	16QAM	1	74	19.98	20.03	20.07		
15	16QAM	36	0	19.94	20.04	19.87	21	0
15	16QAM	36	20	20.05	19.94	20.08		
15	16QAM	36	39	19.93	19.99	19.96		
15	16QAM	75	0	20.08	20.07	20.09		
15	64QAM	1	0	19.98	20.14	20.09	21	0
15	64QAM	1	37	19.94	20.17	20.30		
15	64QAM	1	74	19.94	20.23	20.21		
15	64QAM	36	0	20.19	20.00	19.63	21	0
15	64QAM	36	20	19.73	19.75	19.65		
15	64QAM	36	39	19.73	19.66	19.59		
15	64QAM	75	0	19.66	19.67	19.77		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	20.17	20.25	20.25	21	0
10	QPSK	1	25	20.13	20.22	20.24		
10	QPSK	1	49	19.85	20.02	20.03		
10	QPSK	25	0	20.16	20.29	20.22	21	0
10	QPSK	25	12	19.93	20.04	19.93		



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10	QPSK	25	25	19.88	19.95	20.00		
10	QPSK	50	0	20.15	20.25	20.19		
10	16QAM	1	0	20.03	19.96	20.01		
10	16QAM	1	25	19.98	20.00	20.04	21	0
10	16QAM	1	49	19.90	20.02	20.04		
10	16QAM	25	0	19.92	20.08	19.90		
10	16QAM	25	12	19.97	19.95	20.06	21	0
10	16QAM	25	25	19.98	20.08	20.04		
10	16QAM	50	0	19.99	20.08	20.07		
10	64QAM	1	0	20.07	20.21	20.09	21	0
10	64QAM	1	25	19.89	20.18	20.23		
10	64QAM	1	49	19.97	20.26	20.25		
10	64QAM	25	0	20.12	19.96	19.69	21	0
10	64QAM	25	12	19.69	19.73	19.72		
10	64QAM	25	25	19.71	19.70	19.56		
10	64QAM	50	0	19.63	19.69	19.76		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	20.20	20.31	20.29	21	0
5	QPSK	1	12	20.07	20.28	20.24		
5	QPSK	1	24	19.85	19.98	20.02		
5	QPSK	12	0	20.17	20.28	20.20	21	0
5	QPSK	12	7	19.96	20.00	19.92		
5	QPSK	12	13	19.95	19.99	20.03		
5	QPSK	25	0	20.13	20.21	20.23		
5	16QAM	1	0	20.01	19.98	20.06	21	0
5	16QAM	1	12	19.96	20.01	20.07		
5	16QAM	1	24	20.00	20.05	20.01		
5	16QAM	12	0	19.93	20.04	19.92	21	0
5	16QAM	12	7	20.04	19.99	20.03		
5	16QAM	12	13	19.94	20.04	20.02		
5	16QAM	25	0	20.07	20.03	20.04		
5	64QAM	1	0	19.98	20.18	20.12	21	0
5	64QAM	1	12	19.96	20.14	20.29		
5	64QAM	1	24	20.00	20.22	20.23		
5	64QAM	12	0	20.16	19.97	19.69	21	0
5	64QAM	12	7	19.74	19.76	19.67		
5	64QAM	12	13	19.73	19.67	19.60		
5	64QAM	25	0	19.69	19.65	19.77		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	20.13	20.31	20.22	21	0
3	QPSK	1	8	20.13	20.25	20.15		
3	QPSK	1	14	19.90	20.02	20.06		
3	QPSK	8	0	20.09	20.29	20.20	21	0
3	QPSK	8	4	19.95	20.08	19.96		
3	QPSK	8	7	19.92	20.01	19.98		
3	QPSK	15	0	20.12	20.24	20.15		
3	16QAM	1	0	19.99	19.93	20.04	21	0
3	16QAM	1	8	19.91	20.01	19.98		
3	16QAM	1	14	19.99	20.03	20.00		
3	16QAM	8	0	19.85	20.07	19.97	21	0
3	16QAM	8	4	19.98	19.92	20.08		
3	16QAM	8	7	19.95	20.06	19.98		
3	16QAM	15	0	20.08	20.02	20.04		
3	64QAM	1	0	20.01	20.14	20.11	21	0



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3	64QAM	1	8	19.89	20.24	20.26	21	0
3	64QAM	1	14	19.93	20.29	20.20		
3	64QAM	8	0	20.18	20.02	19.71		
3	64QAM	8	4	19.69	19.68	19.72		
3	64QAM	8	7	19.71	19.62	19.64		
3	64QAM	15	0	19.61	19.68	19.76		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	20.17	20.25	20.24	21	0
1.4	QPSK	1	3	20.10	20.26	20.25		
1.4	QPSK	1	5	19.84	19.98	20.01		
1.4	QPSK	3	0	20.18	20.28	20.21		
1.4	QPSK	3	1	19.88	20.02	19.92		
1.4	QPSK	3	3	19.91	19.94	20.02		
1.4	QPSK	6	0	20.09	20.21	20.15	21	0
1.4	16QAM	1	0	20.02	19.90	19.98	21	0
1.4	16QAM	1	3	19.91	19.99	20.02		
1.4	16QAM	1	5	20.00	20.02	20.08		
1.4	16QAM	3	0	19.87	20.01	19.96		
1.4	16QAM	3	1	20.07	20.01	20.01		
1.4	16QAM	3	3	19.94	20.03	20.03		
1.4	16QAM	6	0	19.99	20.04	20.02	21	0
1.4	64QAM	1	0	20.01	20.21	20.08	21	0
1.4	64QAM	1	3	19.97	20.14	20.28		
1.4	64QAM	1	5	19.94	20.29	20.24		
1.4	64QAM	3	0	20.02	20.06	20.04		
1.4	64QAM	3	1	20.03	20.03	20.04		
1.4	64QAM	3	3	20.08	20.18	20.11		
1.4	64QAM	6	0	19.71	19.67	19.71	21	0



<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.23	22.28	22.41	23.5	0
10	QPSK	1	25	22.21	22.25	22.39		
10	QPSK	1	49	22.16	22.15	22.39		
10	QPSK	25	0	21.74	21.72	21.93	23	0.5
10	QPSK	25	12	21.71	21.67	21.87		
10	QPSK	25	25	21.72	21.62	21.89		
10	QPSK	50	0	21.73	21.71	21.91	23	0.5
10	16QAM	1	0	22.02	22.06	22.23		
10	16QAM	1	25	22.07	22.07	22.27		
10	16QAM	1	49	22.09	21.95	22.18	22	1.5
10	16QAM	25	0	20.87	20.74	20.99		
10	16QAM	25	12	20.88	20.82	21.11		
10	16QAM	25	25	20.84	20.76	20.92	22	1.5
10	16QAM	50	0	20.85	20.87	20.92		
10	64QAM	1	0	21.12	21.19	21.25		
10	64QAM	1	25	21.07	21.13	21.31	22	1.5
10	64QAM	1	49	21.13	21.02	21.21		
10	64QAM	25	0	19.93	19.96	20.02		
10	64QAM	25	12	20.06	19.98	20.18	21	2.5
10	64QAM	25	25	20.00	19.94	20.16		
10	64QAM	50	0	19.99	19.93	20.09		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.23	22.28	22.39	23.5	0
5	QPSK	1	12	22.19	22.16	22.39		
5	QPSK	1	24	22.07	22.06	22.31		
5	QPSK	12	0	21.72	21.71	21.92	23	0.5
5	QPSK	12	7	21.64	21.61	21.86		
5	QPSK	12	13	21.64	21.53	21.80		
5	QPSK	25	0	21.67	21.63	21.82	23	0.5
5	16QAM	1	0	22.02	21.96	22.21		
5	16QAM	1	12	21.97	22.04	22.18		
5	16QAM	1	24	22.02	21.88	22.14	22	1.5
5	16QAM	12	0	20.79	20.64	20.97		
5	16QAM	12	7	20.84	20.73	21.01		
5	16QAM	12	13	20.79	20.70	20.86	22	1.5
5	16QAM	25	0	20.77	20.82	20.87		
5	64QAM	1	0	21.09	21.17	21.25		
5	64QAM	1	12	20.97	21.05	21.25	22	1.5
5	64QAM	1	24	21.07	20.97	21.17		
5	64QAM	12	0	19.92	19.91	19.98		
5	64QAM	12	7	20.03	19.95	20.10	21	2.5
5	64QAM	12	13	19.91	19.84	20.14		
5	64QAM	25	0	19.95	19.87	20.00		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.21	22.25	22.35	23.5	0
3	QPSK	1	8	22.14	22.16	22.35		
3	QPSK	1	14	22.14	22.10	22.39		
3	QPSK	8	0	21.64	21.69	21.87	23	0.5
3	QPSK	8	4	21.65	21.62	21.79		



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3	QPSK	8	7	21.72	21.60	21.89		
3	QPSK	15	0	21.67	21.70	21.82		
3	16QAM	1	0	21.93	21.98	22.17		
3	16QAM	1	8	22.07	22.02	22.17	23	0.5
3	16QAM	1	14	22.04	21.89	22.14		
3	16QAM	8	0	20.85	20.68	20.93		
3	16QAM	8	4	20.83	20.82	21.03	22	1.5
3	16QAM	8	7	20.76	20.74	20.88		
3	16QAM	15	0	20.80	20.80	20.86		
3	64QAM	1	0	21.04	21.16	21.22	22	1.5
3	64QAM	1	8	21.02	21.09	21.21		
3	64QAM	1	14	21.06	20.92	21.20		
3	64QAM	8	0	19.88	19.92	20.02	21	2.5
3	64QAM	8	4	20.06	19.95	20.11		
3	64QAM	8	7	19.94	19.91	20.15		
3	64QAM	15	0	19.97	19.84	20.03		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.19	22.28	22.36	23.5	0
1.4	QPSK	1	3	22.11	22.16	22.36		
1.4	QPSK	1	5	22.15	22.07	22.37		
1.4	QPSK	3	0	21.68	21.68	21.86		
1.4	QPSK	3	1	21.68	21.67	21.86		
1.4	QPSK	3	3	21.72	21.55	21.89		
1.4	QPSK	6	0	21.67	21.64	21.89	23	0.5
1.4	16QAM	1	0	21.96	22.05	22.13	23	0.5
1.4	16QAM	1	3	22.04	22.01	22.22		
1.4	16QAM	1	5	22.09	21.85	22.11		
1.4	16QAM	3	0	21.72	21.68	21.86		
1.4	16QAM	3	1	21.95	21.97	22.16		
1.4	16QAM	3	3	21.98	22.01	22.24		
1.4	16QAM	6	0	20.79	20.77	20.84	22	1.5
1.4	64QAM	1	0	21.04	21.15	21.19	22	1.5
1.4	64QAM	1	3	21.04	21.11	21.23		
1.4	64QAM	1	5	21.10	20.95	21.19		
1.4	64QAM	3	0	21.06	21.13	21.23		
1.4	64QAM	3	1	21.05	21.08	21.29		
1.4	64QAM	3	3	21.09	21.02	21.19		
1.4	64QAM	6	0	19.94	19.89	20.03	21	2.5



<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	20.29	20.37	20.22	20.5	0
20	QPSK	1	49	20.24	20.31	20.07		
20	QPSK	1	99	20.21	20.07	19.91		
20	QPSK	50	0	20.11	20.15	20.02	20.5	0
20	QPSK	50	24	20.02	20.09	19.94		
20	QPSK	50	50	20.04	20.04	19.79		
20	QPSK	100	0	20.06	20.09	19.99	20.5	0
20	16QAM	1	0	20.19	20.26	20.02		
20	16QAM	1	49	20.16	20.02	19.86		
20	16QAM	1	99	19.93	20.00	19.87	20.5	0
20	16QAM	50	0	20.16	20.31	20.16		
20	16QAM	50	24	20.18	20.19	19.97		
20	16QAM	50	50	20.24	20.02	19.93	20.5	0
20	16QAM	100	0	20.20	20.27	20.17		
20	64QAM	1	0	20.33	20.35	20.27		
20	64QAM	1	49	20.29	20.31	20.09	20.5	0
20	64QAM	1	99	20.31	20.36	20.28		
20	64QAM	50	0	19.85	19.87	19.94		
20	64QAM	50	24	19.89	19.97	19.85	20.5	0
20	64QAM	50	50	19.98	19.98	19.73		
20	64QAM	100	0	19.86	19.93	19.88		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.26	20.28	20.22	20.5	0
15	QPSK	1	37	20.16	20.30	20.03		
15	QPSK	1	74	20.14	19.99	19.89		
15	QPSK	36	0	20.01	20.06	19.93	20.5	0
15	QPSK	36	20	19.92	20.02	19.87		
15	QPSK	36	39	20.02	19.98	19.76		
15	QPSK	75	0	19.98	20.01	19.94	20.5	0
15	16QAM	1	0	20.11	20.18	19.98		
15	16QAM	1	37	20.13	19.97	19.86		
15	16QAM	1	74	19.85	19.95	19.86	20.5	0
15	16QAM	36	0	20.13	20.31	20.12		
15	16QAM	36	20	20.13	20.18	19.92		
15	16QAM	36	39	20.22	19.93	19.90	20.5	0
15	16QAM	75	0	20.17	20.24	20.11		
15	64QAM	1	0	20.28	20.28	20.24		
15	64QAM	1	37	20.27	20.29	20.04	20.5	0
15	64QAM	1	74	20.28	20.31	20.20		
15	64QAM	36	0	19.85	19.80	19.94		
15	64QAM	36	20	19.89	19.94	19.85	20.5	0
15	64QAM	36	39	19.96	19.94	19.70		
15	64QAM	75	0	19.81	19.92	19.84		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.24	20.30	20.19	20.5	0
10	QPSK	1	25	20.20	20.22	20.07		
10	QPSK	1	49	20.11	20.04	19.81		
10	QPSK	25	0	20.05	20.08	20.02	20.5	0
10	QPSK	25	12	20.01	20.07	19.85		



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10	QPSK	25	25	19.99	19.95	19.70		
10	QPSK	50	0	20.04	20.09	19.98		
10	16QAM	1	0	20.10	20.16	20.01		
10	16QAM	1	25	20.09	19.95	19.83	20.5	0
10	16QAM	1	49	19.90	19.94	19.83		
10	16QAM	25	0	20.15	20.30	20.16		
10	16QAM	25	12	20.17	20.15	19.89	20.5	0
10	16QAM	25	25	20.24	19.94	19.87		
10	16QAM	50	0	20.12	20.19	20.10		
10	64QAM	1	0	20.24	20.27	20.20	20.5	0
10	64QAM	1	25	20.20	20.23	20.01		
10	64QAM	1	49	20.30	20.31	20.20		
10	64QAM	25	0	19.78	19.79	19.92	20.5	0
10	64QAM	25	12	19.82	19.97	19.75		
10	64QAM	25	25	19.98	19.91	19.70		
10	64QAM	50	0	19.86	19.93	19.81		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.29	20.33	20.20	20.5	0
5	QPSK	1	12	20.16	20.21	20.01		
5	QPSK	1	24	20.19	20.03	19.84		
5	QPSK	12	0	20.05	20.08	19.93	20.5	0
5	QPSK	12	7	19.95	19.99	19.94		
5	QPSK	12	13	20.00	20.00	19.73		
5	QPSK	25	0	19.98	19.99	19.89	20.5	0
5	16QAM	1	0	20.15	20.22	20.01		
5	16QAM	1	12	20.06	19.95	19.77		
5	16QAM	1	24	19.84	19.94	19.87	20.5	0
5	16QAM	12	0	20.09	20.22	20.08		
5	16QAM	12	7	20.18	20.16	19.91		
5	16QAM	12	13	20.14	19.92	19.88	20.5	0
5	16QAM	25	0	20.15	20.17	20.15		
5	64QAM	1	0	20.29	20.29	20.20		
5	64QAM	1	12	20.19	20.23	20.04	20.5	0
5	64QAM	1	24	20.23	20.27	20.18		
5	64QAM	12	0	19.82	19.84	19.92		
5	64QAM	12	7	19.80	19.97	19.77	20.5	0
5	64QAM	12	13	19.95	19.92	19.69		
5	64QAM	25	0	19.84	19.90	19.81		



<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	22.76	22.85	23.04		
15	QPSK	1	37	22.79	22.86	22.95	23	1
15	QPSK	1	74	22.78	22.77	22.85		
15	QPSK	36	0	21.86	21.93	22.00		
15	QPSK	36	20	21.81	21.91	22.02	23	1
15	QPSK	36	39	21.87	21.80	21.90		
15	QPSK	75	0	21.78	21.85	22.00		
15	16QAM	1	0	22.12	22.23	22.40	23	1
15	16QAM	1	37	22.17	22.22	22.33		
15	16QAM	1	74	22.20	22.12	22.15		
15	16QAM	36	0	20.94	21.03	21.12	22	2
15	16QAM	36	20	20.91	21.00	21.13		
15	16QAM	36	39	20.98	20.91	21.01		
15	16QAM	75	0	20.87	20.96	21.09	22	2
15	64QAM	1	0	21.18	21.28	21.42		
15	64QAM	1	37	21.20	21.30	21.33		
15	64QAM	1	74	21.16	21.16	21.22	21	3
15	64QAM	36	0	20.10	20.16	20.28		
15	64QAM	36	20	20.06	20.15	20.26		
15	64QAM	36	39	20.12	20.05	20.14	21	3
15	64QAM	75	0	20.03	20.10	20.24		
Channel				26740	26865	26990	24	0
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.64	22.81	23.01		
10	QPSK	1	25	22.60	22.83	23.03	23	1
10	QPSK	1	49	22.64	22.75	22.92		
10	QPSK	25	0	21.69	21.92	22.08		
10	QPSK	25	12	21.76	21.90	22.05	23	1
10	QPSK	25	25	21.71	21.82	22.00		
10	QPSK	50	0	21.75	21.88	22.06		
10	16QAM	1	0	21.99	22.20	22.41	23	1
10	16QAM	1	25	21.96	22.25	22.35		
10	16QAM	1	49	22.03	22.09	22.26		
10	16QAM	25	0	20.76	21.04	21.17	22	2
10	16QAM	25	12	20.86	21.00	21.15		
10	16QAM	25	25	20.81	20.92	21.11		
10	16QAM	50	0	20.82	20.99	21.17	22	2
10	64QAM	1	0	21.02	21.19	21.45		
10	64QAM	1	25	21.01	21.29	21.42		
10	64QAM	1	49	21.04	21.17	21.31	21	3
10	64QAM	25	0	19.88	20.15	20.32		
10	64QAM	25	12	20.00	20.15	19.95		
10	64QAM	25	25	19.94	20.07	19.85	21	3
10	64QAM	50	0	19.94	20.13	20.03		
Channel				26715	26865	27015	24	0
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.66	22.82	22.98		
5	QPSK	1	12	22.63	22.81	22.97	24	0
5	QPSK	1	24	22.59	22.80	22.91		
5	QPSK	12	0	21.69	21.85	22.04	23	1
5	QPSK	12	7	21.70	21.87	22.06		



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5	QPSK	12	13	21.66	21.86	21.98		
5	QPSK	25	0	21.63	21.88	21.99		
5	16QAM	1	0	21.97	22.24	22.36		
5	16QAM	1	12	22.00	22.18	22.31	23	1
5	16QAM	1	24	21.92	22.15	22.26		
5	16QAM	12	0	20.79	21.01	21.13		
5	16QAM	12	7	20.80	20.98	21.17	22	2
5	16QAM	12	13	20.76	20.98	21.09		
5	16QAM	25	0	20.71	20.98	21.10		
5	64QAM	1	0	21.06	21.28	21.38	22	2
5	64QAM	1	12	21.02	21.21	21.36		
5	64QAM	1	24	20.99	21.21	21.30		
5	64QAM	12	0	19.92	20.14	20.25	21	3
5	64QAM	12	7	19.92	20.13	20.29		
5	64QAM	12	13	19.89	20.11	20.22		
5	64QAM	25	0	19.85	20.13	20.25		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.63	22.81	22.95	24	0
3	QPSK	1	8	22.62	22.81	22.92		
3	QPSK	1	14	22.61	22.79	22.92		
3	QPSK	8	0	21.67	21.86	22.00	23	1
3	QPSK	8	4	21.71	21.90	22.03		
3	QPSK	8	7	21.66	21.88	21.99		
3	QPSK	15	0	21.65	21.86	21.98	23	1
3	16QAM	1	0	21.99	22.17	22.29		
3	16QAM	1	8	22.00	22.17	22.32		
3	16QAM	1	14	21.99	22.14	22.23	22	2
3	16QAM	8	0	20.81	21.02	21.14		
3	16QAM	8	4	20.84	21.03	21.16		
3	16QAM	8	7	20.79	21.04	21.14	22	2
3	16QAM	15	0	20.74	20.99	21.09		
3	64QAM	1	0	21.01	21.18	21.34		
3	64QAM	1	8	21.01	21.26	21.37	21	3
3	64QAM	1	14	20.97	21.20	21.31		
3	64QAM	8	0	19.93	20.14	20.24		
3	64QAM	8	4	19.90	20.15	20.28	21	3
3	64QAM	8	7	19.93	20.12	20.25		
3	64QAM	15	0	19.86	20.12	20.22		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.54	22.76	22.83	24	0
1.4	QPSK	1	3	22.64	22.82	22.89		
1.4	QPSK	1	5	22.55	22.75	22.82		
1.4	QPSK	3	0	22.63	22.79	22.87	23	1
1.4	QPSK	3	1	22.67	22.82	22.88		
1.4	QPSK	3	3	22.63	22.77	22.84		
1.4	QPSK	6	0	21.59	21.77	21.86	23	1
1.4	16QAM	1	0	21.91	22.13	22.15	23	1
1.4	16QAM	1	3	22.00	22.20	22.25		
1.4	16QAM	1	5	21.92	22.09	22.15		
1.4	16QAM	3	0	21.71	21.89	21.97	22	2
1.4	16QAM	3	1	21.74	21.92	22.00		
1.4	16QAM	3	3	21.70	21.87	21.97		
1.4	16QAM	6	0	20.77	20.94	21.02	22	2
1.4	64QAM	1	0	20.97	21.19	21.20	22	2



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1.4	64QAM	1	3	21.05	21.19	21.29		
1.4	64QAM	1	5	20.95	21.25	21.22		
1.4	64QAM	3	0	20.91	21.17	21.16		
1.4	64QAM	3	1	20.93	21.18	21.14		
1.4	64QAM	3	3	20.85	21.25	21.14		
1.4	64QAM	6	0	19.85	20.14	20.10	21	3

<Hotspot Power Mode>
<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	17.56	17.57	17.61	18	0
20	QPSK	1	49	17.51	17.52	17.56		
20	QPSK	1	99	17.50	17.55	17.58		
20	QPSK	50	0	17.50	17.52	17.58	18	0
20	QPSK	50	24	17.36	17.49	17.51		
20	QPSK	50	50	17.44	17.48	17.56		
20	QPSK	100	0	17.46	17.48	17.53	18	0
20	16QAM	1	0	17.40	17.34	17.64		
20	16QAM	1	49	17.43	17.52	17.55		
20	16QAM	1	99	17.40	17.52	17.57	18	0
20	16QAM	50	0	17.43	17.48	17.54		
20	16QAM	50	24	17.48	17.50	17.59		
20	16QAM	50	50	17.25	17.41	17.60	18	0
20	16QAM	100	0	17.34	17.36	17.58		
20	64QAM	1	0	17.32	17.41	17.47		
20	64QAM	1	49	17.40	17.56	17.55	18	0
20	64QAM	1	99	17.41	17.43	17.59		
20	64QAM	50	0	17.23	17.33	17.43		
20	64QAM	50	24	17.24	17.33	17.53	18	0
20	64QAM	50	50	17.09	17.15	17.37		
20	64QAM	100	0	17.14	17.28	17.38		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	17.48	17.47	17.60	18	0
15	QPSK	1	37	17.41	17.43	17.46		
15	QPSK	1	74	17.43	17.52	17.56		
15	QPSK	36	0	17.46	17.42	17.54	18	0
15	QPSK	36	20	17.31	17.40	17.48		
15	QPSK	36	39	17.36	17.41	17.46		
15	QPSK	75	0	17.38	17.43	17.49	18	0
15	16QAM	1	0	17.37	17.32	17.43		
15	16QAM	1	37	17.36	17.48	17.50		
15	16QAM	1	74	17.35	17.42	17.47	18	0
15	16QAM	36	0	17.33	17.47	17.45		
15	16QAM	36	20	17.44	17.41	17.51		
15	16QAM	36	39	17.25	17.35	17.60	18	0
15	16QAM	75	0	17.29	17.27	17.50		
15	64QAM	1	0	17.24	17.36	17.44		
15	64QAM	1	37	17.32	17.47	17.51	18	0
15	64QAM	1	74	17.33	17.34	17.58		
15	64QAM	36	0	17.13	17.29	17.37		
15	64QAM	36	20	17.18	17.24	17.51	18	0
15	64QAM	36	39	16.99	17.07	17.28		
15	64QAM	75	0	17.08	17.26	17.31		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	17.46	17.50	17.58	18	0
10	QPSK	1	25	17.48	17.52	17.49		
10	QPSK	1	49	17.40	17.49	17.56		



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10	QPSK	25	0	17.43	17.52	17.52	18	0
10	QPSK	25	12	17.35	17.41	17.48		
10	QPSK	25	25	17.40	17.45	17.56		
10	QPSK	50	0	17.42	17.38	17.50		
10	16QAM	1	0	17.40	17.32	17.56	18	0
10	16QAM	1	25	17.36	17.52	17.45		
10	16QAM	1	49	17.39	17.51	17.56		
10	16QAM	25	0	17.38	17.43	17.50	18	0
10	16QAM	25	12	17.39	17.50	17.54		
10	16QAM	25	25	17.18	17.36	17.59		
10	16QAM	50	0	17.30	17.32	17.56		
10	64QAM	1	0	17.25	17.35	17.43	18	0
10	64QAM	1	25	17.32	17.46	17.49		
10	64QAM	1	49	17.36	17.36	17.50		
10	64QAM	25	0	17.23	17.28	17.37	18	0
10	64QAM	25	12	17.24	17.29	17.52		
10	64QAM	25	25	16.99	17.05	17.36		
10	64QAM	50	0	17.04	17.23	17.35		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	17.47	17.51	17.59	18	0
5	QPSK	1	12	17.45	17.46	17.55		
5	QPSK	1	24	17.48	17.46	17.57		
5	QPSK	12	0	17.43	17.51	17.48	18	0
5	QPSK	12	7	17.35	17.41	17.41		
5	QPSK	12	13	17.38	17.45	17.46		
5	QPSK	25	0	17.38	17.46	17.50		
5	16QAM	1	0	17.37	17.32	17.58	18	0
5	16QAM	1	12	17.41	17.46	17.45		
5	16QAM	1	24	17.36	17.45	17.56		
5	16QAM	12	0	17.39	17.47	17.48	18	0
5	16QAM	12	7	17.39	17.49	17.50		
5	16QAM	12	13	17.16	17.38	17.51		
5	16QAM	25	0	17.32	17.36	17.54		
5	64QAM	1	0	17.22	17.33	17.39	18	0
5	64QAM	1	12	17.34	17.52	17.51		
5	64QAM	1	24	17.36	17.43	17.53		
5	64QAM	12	0	17.23	17.32	17.39	18	0
5	64QAM	12	7	17.17	17.23	17.43		
5	64QAM	12	13	17.00	17.15	17.37		
5	64QAM	25	0	17.07	17.22	17.38		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	17.46	17.51	17.57	18	0
3	QPSK	1	8	17.49	17.51	17.53		
3	QPSK	1	14	17.43	17.55	17.48		
3	QPSK	8	0	17.42	17.52	17.49	18	0
3	QPSK	8	4	17.32	17.45	17.44		
3	QPSK	8	7	17.40	17.47	17.55		
3	QPSK	15	0	17.38	17.47	17.47		
3	16QAM	1	0	17.31	17.33	17.59	18	0
3	16QAM	1	8	17.42	17.44	17.47		
3	16QAM	1	14	17.34	17.44	17.51		
3	16QAM	8	0	17.37	17.44	17.45	18	0
3	16QAM	8	4	17.43	17.49	17.59		
3	16QAM	8	7	17.23	17.40	17.52		



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3	16QAM	15	0	17.28	17.27	17.56		
3	64QAM	1	0	17.32	17.40	17.42	18	0
3	64QAM	1	8	17.35	17.50	17.48		
3	64QAM	1	14	17.36	17.43	17.59		
3	64QAM	8	0	17.17	17.26	17.33	18	0
3	64QAM	8	4	17.22	17.30	17.45		
3	64QAM	8	7	17.08	17.15	17.29		
3	64QAM	15	0	17.05	17.21	17.35		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	17.49	17.49	17.54	18	0
1.4	QPSK	1	3	17.48	17.51	17.49		
1.4	QPSK	1	5	17.44	17.46	17.54		
1.4	QPSK	3	0	17.48	17.51	17.53		
1.4	QPSK	3	1	17.31	17.48	17.51		
1.4	QPSK	3	3	17.39	17.43	17.47		
1.4	QPSK	6	0	17.39	17.41	17.51	18	0
1.4	16QAM	1	0	17.33	17.34	17.60	18	0
1.4	16QAM	1	3	17.35	17.46	17.55		
1.4	16QAM	1	5	17.35	17.45	17.53		
1.4	16QAM	3	0	17.43	17.40	17.51		
1.4	16QAM	3	1	17.38	17.41	17.57		
1.4	16QAM	3	3	17.22	17.34	17.52		
1.4	16QAM	6	0	17.32	17.34	17.48	18	0
1.4	64QAM	1	0	17.25	17.33	17.40	18	0
1.4	64QAM	1	3	17.33	17.56	17.53		
1.4	64QAM	1	5	17.35	17.34	17.52		
1.4	64QAM	3	0	17.22	17.32	17.40		
1.4	64QAM	3	1	17.14	17.29	17.43		
1.4	64QAM	3	3	17.04	17.06	17.34		
1.4	64QAM	6	0	17.08	17.24	17.36	18	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	18	0
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	16.98	17.26	17.08		
20	QPSK	1	49	16.92	17.21	17.00	18	0
20	QPSK	1	99	16.95	17.16	17.04		
20	QPSK	50	0	16.97	17.22	17.07		
20	QPSK	50	24	16.86	17.21	16.95	18	0
20	QPSK	50	50	16.88	17.06	17.01		
20	QPSK	100	0	16.94	17.20	17.02		
20	16QAM	1	0	16.89	17.19	16.98	18	0
20	16QAM	1	49	16.87	17.08	16.96		
20	16QAM	1	99	16.94	17.16	17.05		
20	16QAM	50	0	16.88	17.12	16.97	18	0
20	16QAM	50	24	16.90	17.15	17.04		
20	16QAM	50	50	16.93	17.19	16.99		
20	16QAM	100	0	16.92	17.19	16.93	18	0
20	64QAM	1	0	16.93	17.13	17.01		
20	64QAM	1	49	16.89	17.17	16.91		
20	64QAM	1	99	16.94	17.13	16.99	18	0
20	64QAM	50	0	16.95	17.21	17.05		
20	64QAM	50	24	16.89	17.25	17.00		
20	64QAM	50	50	16.89	17.21	16.92	18	0
20	64QAM	100	0	16.91	17.06	16.94		
Channel				20025	20175	20325	18	0
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	16.92	17.18	16.99		
15	QPSK	1	37	16.92	17.13	16.93	18	0
15	QPSK	1	74	16.95	17.15	16.97		
15	QPSK	36	0	16.90	17.19	17.01	18	0
15	QPSK	36	20	16.77	17.14	16.90		
15	QPSK	36	39	16.88	16.99	16.96		
15	QPSK	75	0	16.90	17.12	17.00	18	0
15	16QAM	1	0	16.80	17.10	16.96		
15	16QAM	1	37	16.77	17.04	16.94		
15	16QAM	1	74	16.91	17.08	17.02	18	0
15	16QAM	36	0	16.88	17.07	16.95		
15	16QAM	36	20	16.87	17.15	16.98		
15	16QAM	36	39	16.92	17.18	16.94	18	0
15	16QAM	75	0	16.83	17.13	16.91		
15	64QAM	1	0	16.83	17.13	16.99		
15	64QAM	1	37	16.86	17.08	16.88	18	0
15	64QAM	1	74	16.89	17.06	16.91		
15	64QAM	36	0	16.90	17.11	17.05		
15	64QAM	36	20	16.81	17.20	16.92	18	0
15	64QAM	36	39	16.88	17.21	16.92		
15	64QAM	75	0	16.85	16.96	16.93		
Channel				20000	20175	20350	18	0
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	16.94	17.21	17.01		
10	QPSK	1	25	16.84	17.12	16.96	18	0
10	QPSK	1	49	16.94	17.11	17.04		
10	QPSK	25	0	16.90	17.12	17.05		
10	QPSK	25	12	16.85	17.21	16.92	18	0



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10	QPSK	25	25	16.87	16.99	16.91		
10	QPSK	50	0	16.92	17.14	16.99		
10	16QAM	1	0	16.89	17.10	16.88		
10	16QAM	1	25	16.78	17.03	16.91	18	0
10	16QAM	1	49	16.92	17.11	17.01		
10	16QAM	25	0	16.86	17.11	16.93		
10	16QAM	25	12	16.90	17.07	16.96	18	0
10	16QAM	25	25	16.92	17.17	16.98		
10	16QAM	50	0	16.92	17.16	16.86		
10	64QAM	1	0	16.88	17.11	16.93	18	0
10	64QAM	1	25	16.86	17.12	16.81		
10	64QAM	1	49	16.91	17.08	16.95		
10	64QAM	25	0	16.95	17.13	17.00	18	0
10	64QAM	25	12	16.88	17.15	16.99		
10	64QAM	25	25	16.83	17.17	16.88		
10	64QAM	50	0	16.89	17.01	16.89		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	16.96	17.25	17.05	18	0
5	QPSK	1	12	16.90	17.11	16.96		
5	QPSK	1	24	16.88	17.12	16.99		
5	QPSK	12	0	16.94	17.20	16.99	18	0
5	QPSK	12	7	16.84	17.15	16.92		
5	QPSK	12	13	16.83	16.99	16.95		
5	QPSK	25	0	16.94	17.18	16.99	18	0
5	16QAM	1	0	16.80	17.10	16.94		
5	16QAM	1	12	16.80	17.02	16.91		
5	16QAM	1	24	16.90	17.12	17.03	18	0
5	16QAM	12	0	16.85	17.02	16.90		
5	16QAM	12	7	16.82	17.05	17.02		
5	16QAM	12	13	16.85	17.18	16.89	18	0
5	16QAM	25	0	16.84	17.18	16.90		
5	64QAM	1	0	16.91	17.04	16.96		
5	64QAM	1	12	16.88	17.11	16.86	18	0
5	64QAM	1	24	16.94	17.10	16.96		
5	64QAM	12	0	16.86	17.13	16.98		
5	64QAM	12	7	16.84	17.16	16.90	18	0
5	64QAM	12	13	16.80	17.16	16.86		
5	64QAM	25	0	16.87	16.99	16.86		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	16.91	17.22	16.99	18	0
3	QPSK	1	8	16.87	17.20	16.99		
3	QPSK	1	14	16.92	17.13	16.96		
3	QPSK	8	0	16.94	17.21	16.97	18	0
3	QPSK	8	4	16.85	17.11	16.88		
3	QPSK	8	7	16.83	17.05	16.95		
3	QPSK	15	0	16.87	17.15	16.93	18	0
3	16QAM	1	0	16.80	17.17	16.89		
3	16QAM	1	8	16.82	17.02	16.96		
3	16QAM	1	14	16.89	17.11	16.95	18	0
3	16QAM	8	0	16.80	17.12	16.97		
3	16QAM	8	4	16.85	17.12	16.96		
3	16QAM	8	7	16.93	17.18	16.93	18	0
3	16QAM	15	0	16.87	17.16	16.91		
3	64QAM	1	0	16.90	17.11	17.01	18	0



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3	64QAM	1	8	16.83	17.17	16.90	18	0
3	64QAM	1	14	16.84	17.05	16.95		
3	64QAM	8	0	16.87	17.15	17.03		
3	64QAM	8	4	16.85	17.25	16.90		
3	64QAM	8	7	16.83	17.12	16.84		
3	64QAM	15	0	16.83	17.02	16.93		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	16.91	17.20	16.98	18	0
1.4	QPSK	1	3	16.86	17.16	16.97		
1.4	QPSK	1	5	16.90	17.15	16.99		
1.4	QPSK	3	0	16.87	17.16	17.04		
1.4	QPSK	3	1	16.82	17.14	16.91		
1.4	QPSK	3	3	16.87	17.03	16.93		
1.4	QPSK	6	0	16.87	17.16	16.93	18	0
1.4	16QAM	1	0	16.87	17.11	16.93	18	0
1.4	16QAM	1	3	16.78	16.98	16.96		
1.4	16QAM	1	5	16.87	17.11	17.04		
1.4	16QAM	3	0	16.81	17.10	16.91		
1.4	16QAM	3	1	16.87	17.11	17.03		
1.4	16QAM	3	3	16.88	17.14	16.94		
1.4	16QAM	6	0	16.82	17.15	16.83	18	0
1.4	64QAM	1	0	16.92	17.13	16.92	18	0
1.4	64QAM	1	3	16.86	17.12	16.91		
1.4	64QAM	1	5	16.84	17.13	16.90		
1.4	64QAM	3	0	16.95	17.11	16.95		
1.4	64QAM	3	1	16.86	17.20	16.98		
1.4	64QAM	3	3	16.82	17.17	16.90		
1.4	64QAM	6	0	16.86	16.96	16.93	18	0



<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.23	22.28	22.41	23.5	0
10	QPSK	1	25	22.21	22.25	22.39		
10	QPSK	1	49	22.16	22.15	22.39		
10	QPSK	25	0	21.74	21.72	21.93	23	0.5
10	QPSK	25	12	21.71	21.67	21.87		
10	QPSK	25	25	21.72	21.62	21.89		
10	QPSK	50	0	21.73	21.71	21.91	23	0.5
10	16QAM	1	0	22.02	22.06	22.23		
10	16QAM	1	25	22.07	22.07	22.27		
10	16QAM	1	49	22.09	21.95	22.18	22	1.5
10	16QAM	25	0	20.87	20.74	20.99		
10	16QAM	25	12	20.88	20.82	21.11		
10	16QAM	25	25	20.84	20.76	20.92	22	1.5
10	16QAM	50	0	20.85	20.87	20.92		
10	64QAM	1	0	21.12	21.19	21.25		
10	64QAM	1	25	21.07	21.13	21.31	22	1.5
10	64QAM	1	49	21.13	21.02	21.21		
10	64QAM	25	0	19.93	19.96	20.02		
10	64QAM	25	12	20.06	19.98	20.18	21	2.5
10	64QAM	25	25	20.00	19.94	20.16		
10	64QAM	50	0	19.99	19.93	20.09		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.17	22.23	22.38	23.5	0
5	QPSK	1	12	22.15	22.20	22.34		
5	QPSK	1	24	22.12	22.09	22.37		
5	QPSK	12	0	21.67	21.69	21.83	23	0.5
5	QPSK	12	7	21.66	21.59	21.77		
5	QPSK	12	13	21.68	21.55	21.80		
5	QPSK	25	0	21.73	21.71	21.83	23	0.5
5	16QAM	1	0	22.02	22.02	22.13		
5	16QAM	1	12	22.01	22.07	22.24		
5	16QAM	1	24	21.99	21.95	22.16	22	1.5
5	16QAM	12	0	20.77	20.67	20.98		
5	16QAM	12	7	20.83	20.80	21.08		
5	16QAM	12	13	20.76	20.67	20.90	22	1.5
5	16QAM	25	0	20.80	20.79	20.88		
5	64QAM	1	0	21.02	21.19	21.15		
5	64QAM	1	12	20.97	21.13	21.24	22	1.5
5	64QAM	1	24	21.07	20.97	21.20		
5	64QAM	12	0	19.85	19.92	19.94		
5	64QAM	12	7	20.00	19.90	20.14	21	2.5
5	64QAM	12	13	19.93	19.93	20.14		
5	64QAM	25	0	19.98	19.84	20.08		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.21	22.23	22.32	23.5	0
3	QPSK	1	8	22.16	22.23	22.35		
3	QPSK	1	14	22.07	22.06	22.38		
3	QPSK	8	0	21.64	21.66	21.91	23	0.5
3	QPSK	8	4	21.64	21.61	21.84		



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3	QPSK	8	7	21.66	21.52	21.88		
3	QPSK	15	0	21.71	21.67	21.86		
3	16QAM	1	0	21.94	21.96	22.13		
3	16QAM	1	8	21.98	22.06	22.27	23	0.5
3	16QAM	1	14	22.04	21.89	22.18		
3	16QAM	8	0	20.86	20.66	20.94		
3	16QAM	8	4	20.88	20.78	21.05	22	1.5
3	16QAM	8	7	20.75	20.70	20.90		
3	16QAM	15	0	20.76	20.78	20.92		
3	64QAM	1	0	21.04	21.16	21.22	22	1.5
3	64QAM	1	8	21.04	21.04	21.24		
3	64QAM	1	14	21.13	21.02	21.16		
3	64QAM	8	0	19.90	19.88	20.02	21	2.5
3	64QAM	8	4	19.98	19.95	20.09		
3	64QAM	8	7	19.98	19.93	20.11		
3	64QAM	15	0	19.89	19.93	20.03		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.16	22.23	22.31	23.5	0
1.4	QPSK	1	3	22.19	22.17	22.34		
1.4	QPSK	1	5	22.16	22.14	22.34		
1.4	QPSK	3	0	21.65	21.66	21.83		
1.4	QPSK	3	1	21.61	21.67	21.83		
1.4	QPSK	3	3	21.63	21.60	21.79		
1.4	QPSK	6	0	21.73	21.69	21.90	23	0.5
1.4	16QAM	1	0	22.01	22.06	22.18	23	0.5
1.4	16QAM	1	3	22.07	22.05	22.26		
1.4	16QAM	1	5	22.05	21.94	22.15		
1.4	16QAM	3	0	21.92	22.05	22.16		
1.4	16QAM	3	1	22.06	22.03	22.20		
1.4	16QAM	3	3	22.04	21.89	22.18		
1.4	16QAM	6	0	20.75	20.83	20.86	22	1.5
1.4	64QAM	1	0	21.10	21.10	21.15	22	1.5
1.4	64QAM	1	3	21.01	21.11	21.30		
1.4	64QAM	1	5	21.10	20.94	21.19		
1.4	64QAM	3	0	21.04	21.09	21.17		
1.4	64QAM	3	1	21.04	21.04	21.30		
1.4	64QAM	3	3	21.07	20.97	21.15		
1.4	64QAM	6	0	19.92	19.91	20.04	21	2.5



<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	20.29	20.37	20.22	20.5	0
20	QPSK	1	49	20.24	20.31	20.07		
20	QPSK	1	99	20.21	20.07	19.91		
20	QPSK	50	0	20.11	20.15	20.02	20.5	0
20	QPSK	50	24	20.02	20.09	19.94		
20	QPSK	50	50	20.04	20.04	19.79		
20	QPSK	100	0	20.06	20.09	19.99	20.5	0
20	16QAM	1	0	20.19	20.26	20.02		
20	16QAM	1	49	20.16	20.02	19.86		
20	16QAM	1	99	19.93	20.00	19.87	20.5	0
20	16QAM	50	0	20.16	20.31	20.16		
20	16QAM	50	24	20.18	20.19	19.97		
20	16QAM	50	50	20.24	20.02	19.93	20.5	0
20	16QAM	100	0	20.20	20.27	20.17		
20	64QAM	1	0	20.33	20.35	20.27		
20	64QAM	1	49	20.29	20.31	20.09	20.5	0
20	64QAM	1	99	20.31	20.36	20.28		
20	64QAM	50	0	19.85	19.87	19.94		
20	64QAM	50	24	19.89	19.97	19.85	20.5	0
20	64QAM	50	50	19.98	19.98	19.73		
20	64QAM	100	0	19.86	19.93	19.88		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.21	20.28	20.19	20.5	0
15	QPSK	1	37	20.14	20.24	19.97		
15	QPSK	1	74	20.14	20.05	19.85		
15	QPSK	36	0	20.09	20.07	19.95	20.5	0
15	QPSK	36	20	19.97	20.09	19.93		
15	QPSK	36	39	19.99	19.99	19.77		
15	QPSK	75	0	20.06	20.01	19.95	20.5	0
15	16QAM	1	0	20.13	20.26	19.99		
15	16QAM	1	37	20.09	20.02	19.83		
15	16QAM	1	74	19.91	19.97	19.77	20.5	0
15	16QAM	36	0	20.12	20.22	20.13		
15	16QAM	36	20	20.11	20.14	19.90		
15	16QAM	36	39	20.21	20.01	19.84	20.5	0
15	16QAM	75	0	20.14	20.26	20.10		
15	64QAM	1	0	20.29	20.27	20.27		
15	64QAM	1	37	20.25	20.25	20.06	20.5	0
15	64QAM	1	74	20.30	20.27	20.27		
15	64QAM	36	0	19.75	19.83	19.87		
15	64QAM	36	20	19.85	19.89	19.77	20.5	0
15	64QAM	36	39	19.90	19.94	19.65		
15	64QAM	75	0	19.79	19.88	19.87		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.28	20.34	20.21	20.5	0
10	QPSK	1	25	20.15	20.23	19.99		
10	QPSK	1	49	20.11	20.05	19.91		
10	QPSK	25	0	20.11	20.06	19.99	20.5	0
10	QPSK	25	12	20.02	20.09	19.94		



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10	QPSK	25	25	19.98	19.97	19.76		
10	QPSK	50	0	19.97	20.00	19.90		
10	16QAM	1	0	20.10	20.20	19.96		
10	16QAM	1	25	20.15	19.93	19.86	20.5	0
10	16QAM	1	49	19.86	19.95	19.80		
10	16QAM	25	0	20.13	20.25	20.12		
10	16QAM	25	12	20.16	20.14	19.91	20.5	0
10	16QAM	25	25	20.22	19.99	19.92		
10	16QAM	50	0	20.12	20.27	20.09		
10	64QAM	1	0	20.27	20.27	20.22	20.5	0
10	64QAM	1	25	20.25	20.26	20.07		
10	64QAM	1	49	20.29	20.29	20.27		
10	64QAM	25	0	19.84	19.82	19.84	20.5	0
10	64QAM	25	12	19.80	19.88	19.77		
10	64QAM	25	25	19.91	19.93	19.68		
10	64QAM	50	0	19.86	19.87	19.86		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.29	20.35	20.18	20.5	0
5	QPSK	1	12	20.17	20.29	19.99		
5	QPSK	1	24	20.15	20.07	19.82		
5	QPSK	12	0	20.01	20.07	20.01	20.5	0
5	QPSK	12	7	19.96	19.99	19.94		
5	QPSK	12	13	19.98	19.99	19.72		
5	QPSK	25	0	20.04	20.01	19.93	20.5	0
5	16QAM	1	0	20.09	20.18	20.02		
5	16QAM	1	12	20.06	20.01	19.82		
5	16QAM	1	24	19.91	19.98	19.84	20.5	0
5	16QAM	12	0	20.07	20.23	20.08		
5	16QAM	12	7	20.11	20.15	19.93		
5	16QAM	12	13	20.22	19.97	19.86	20.5	0
5	16QAM	25	0	20.11	20.25	20.07		
5	64QAM	1	0	20.31	20.32	20.17		
5	64QAM	1	12	20.26	20.22	20.02	20.5	0
5	64QAM	1	24	20.27	20.30	20.25		
5	64QAM	12	0	19.84	19.81	19.86		
5	64QAM	12	7	19.80	19.90	19.75	20.5	0
5	64QAM	12	13	19.91	19.88	19.66		
5	64QAM	25	0	19.76	19.84	19.81		



<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	22.76	22.85	23.04		
15	QPSK	1	37	22.79	22.86	22.95	23	1
15	QPSK	1	74	22.78	22.77	22.85		
15	QPSK	36	0	21.86	21.93	22.00		
15	QPSK	36	20	21.81	21.91	22.02	23	1
15	QPSK	36	39	21.87	21.80	21.90		
15	QPSK	75	0	21.78	21.85	22.00		
15	16QAM	1	0	22.12	22.23	22.40	23	1
15	16QAM	1	37	22.17	22.22	22.33		
15	16QAM	1	74	22.20	22.12	22.15		
15	16QAM	36	0	20.94	21.03	21.12	22	2
15	16QAM	36	20	20.91	21.00	21.13		
15	16QAM	36	39	20.98	20.91	21.01		
15	16QAM	75	0	20.87	20.96	21.09	22	2
15	64QAM	1	0	21.18	21.28	21.42		
15	64QAM	1	37	21.20	21.30	21.33		
15	64QAM	1	74	21.16	21.16	21.22	21	3
15	64QAM	36	0	20.10	20.16	20.28		
15	64QAM	36	20	20.06	20.15	20.26		
15	64QAM	36	39	20.12	20.05	20.14	21	3
15	64QAM	75	0	20.03	20.10	20.24		
Channel				26740	26865	26990	24	0
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.64	22.81	23.01		
10	QPSK	1	25	22.60	22.83	23.03	23	1
10	QPSK	1	49	22.64	22.75	22.92		
10	QPSK	25	0	21.69	21.92	22.08		
10	QPSK	25	12	21.76	21.90	22.05	23	1
10	QPSK	25	25	21.71	21.82	22.00		
10	QPSK	50	0	21.75	21.88	22.06		
10	16QAM	1	0	21.99	22.20	22.41	23	1
10	16QAM	1	25	21.96	22.25	22.35		
10	16QAM	1	49	22.03	22.09	22.26		
10	16QAM	25	0	20.76	21.04	21.17	22	2
10	16QAM	25	12	20.86	21.00	21.15		
10	16QAM	25	25	20.81	20.92	21.11		
10	16QAM	50	0	20.82	20.99	21.17	22	2
10	64QAM	1	0	21.02	21.19	21.45		
10	64QAM	1	25	21.01	21.29	21.42		
10	64QAM	1	49	21.04	21.17	21.31	21	3
10	64QAM	25	0	19.88	20.15	20.32		
10	64QAM	25	12	20.00	20.15	19.95		
10	64QAM	25	25	19.94	20.07	19.85	21	3
10	64QAM	50	0	19.94	20.13	20.03		
Channel				26715	26865	27015	24	0
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.66	22.82	22.98		
5	QPSK	1	12	22.63	22.81	22.97	24	0
5	QPSK	1	24	22.59	22.80	22.91		
5	QPSK	12	0	21.69	21.85	22.04	23	1
5	QPSK	12	7	21.70	21.87	22.06		



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5	QPSK	12	13	21.66	21.86	21.98		
5	QPSK	25	0	21.63	21.88	21.99		
5	16QAM	1	0	21.97	22.24	22.36		
5	16QAM	1	12	22.00	22.18	22.31	23	1
5	16QAM	1	24	21.92	22.15	22.26		
5	16QAM	12	0	20.79	21.01	21.13		
5	16QAM	12	7	20.80	20.98	21.17	22	2
5	16QAM	12	13	20.76	20.98	21.09		
5	16QAM	25	0	20.71	20.98	21.10		
5	64QAM	1	0	21.06	21.28	21.38	22	2
5	64QAM	1	12	21.02	21.21	21.36		
5	64QAM	1	24	20.99	21.21	21.30		
5	64QAM	12	0	19.92	20.14	20.25	21	3
5	64QAM	12	7	19.92	20.13	20.29		
5	64QAM	12	13	19.89	20.11	20.22		
5	64QAM	25	0	19.85	20.13	20.25		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.63	22.81	22.95	24	0
3	QPSK	1	8	22.62	22.81	22.92		
3	QPSK	1	14	22.61	22.79	22.92		
3	QPSK	8	0	21.67	21.86	22.00	23	1
3	QPSK	8	4	21.71	21.90	22.03		
3	QPSK	8	7	21.66	21.88	21.99		
3	QPSK	15	0	21.65	21.86	21.98	23	1
3	16QAM	1	0	21.99	22.17	22.29		
3	16QAM	1	8	22.00	22.17	22.32		
3	16QAM	1	14	21.99	22.14	22.23	22	2
3	16QAM	8	0	20.81	21.02	21.14		
3	16QAM	8	4	20.84	21.03	21.16		
3	16QAM	8	7	20.79	21.04	21.14	22	2
3	16QAM	15	0	20.74	20.99	21.09		
3	64QAM	1	0	21.01	21.18	21.34		
3	64QAM	1	8	21.01	21.26	21.37	21	3
3	64QAM	1	14	20.97	21.20	21.31		
3	64QAM	8	0	19.93	20.14	20.24		
3	64QAM	8	4	19.90	20.15	20.28	21	3
3	64QAM	8	7	19.93	20.12	20.25		
3	64QAM	15	0	19.86	20.12	20.22		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.54	22.76	22.83	24	0
1.4	QPSK	1	3	22.64	22.82	22.89		
1.4	QPSK	1	5	22.55	22.75	22.82		
1.4	QPSK	3	0	22.63	22.79	22.87	23	1
1.4	QPSK	3	1	22.67	22.82	22.88		
1.4	QPSK	3	3	22.63	22.77	22.84		
1.4	QPSK	6	0	21.59	21.77	21.86	23	1
1.4	16QAM	1	0	21.91	22.13	22.15	23	1
1.4	16QAM	1	3	22.00	22.20	22.25		
1.4	16QAM	1	5	21.92	22.09	22.15		
1.4	16QAM	3	0	21.71	21.89	21.97	22	2
1.4	16QAM	3	1	21.74	21.92	22.00		
1.4	16QAM	3	3	21.70	21.87	21.97		
1.4	16QAM	6	0	20.77	20.94	21.02	22	2
1.4	64QAM	1	0	20.97	21.19	21.20	22	2



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1.4	64QAM	1	3	21.05	21.19	21.29		
1.4	64QAM	1	5	20.95	21.25	21.22		
1.4	64QAM	3	0	20.91	21.17	21.16		
1.4	64QAM	3	1	20.93	21.18	21.14		
1.4	64QAM	3	3	20.85	21.25	21.14		
1.4	64QAM	6	0	19.85	20.14	20.10	21	3

<Product Specific Power Mode>
<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	20.77	20.80	20.98	21.5	0
20	QPSK	1	49	20.66	20.78	20.93		
20	QPSK	1	99	20.60	20.67	20.89		
20	QPSK	50	0	20.46	20.55	20.69	21.5	0
20	QPSK	50	24	20.41	20.53	20.66		
20	QPSK	50	50	20.41	20.47	20.63		
20	QPSK	100	0	20.48	20.50	20.60	21.5	0
20	16QAM	1	0	20.32	20.39	20.47		
20	16QAM	1	49	20.26	20.36	20.53		
20	16QAM	1	99	20.18	20.23	20.43	21.5	0
20	16QAM	50	0	20.34	20.41	20.51		
20	16QAM	50	24	20.26	20.41	20.57		
20	16QAM	50	50	20.28	20.38	20.55	21.5	0
20	16QAM	100	0	20.35	20.41	20.49		
20	64QAM	1	0	20.69	20.73	20.83		
20	64QAM	1	49	20.67	20.71	20.73	21.5	0
20	64QAM	1	99	20.55	20.63	20.81		
20	64QAM	50	0	19.44	19.55	19.63		
20	64QAM	50	24	19.41	19.54	19.71	21	0.5
20	64QAM	50	50	19.44	19.49	19.69		
20	64QAM	100	0	19.46	19.54	19.58		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	20.68	20.76	20.95	21.5	0
15	QPSK	1	37	20.64	20.75	20.89		
15	QPSK	1	74	20.59	20.61	20.79		
15	QPSK	36	0	20.36	20.54	20.67	21.5	0
15	QPSK	36	20	20.36	20.50	20.65		
15	QPSK	36	39	20.37	20.38	20.60		
15	QPSK	75	0	20.46	20.50	20.56	21.5	0
15	16QAM	1	0	20.26	20.36	20.43		
15	16QAM	1	37	20.18	20.31	20.43		
15	16QAM	1	74	20.16	20.23	20.39	21.5	0
15	16QAM	36	0	20.31	20.31	20.47		
15	16QAM	36	20	20.25	20.33	20.57		
15	16QAM	36	39	20.25	20.38	20.50	21.5	0
15	16QAM	75	0	20.32	20.31	20.47		
15	64QAM	1	0	20.67	20.73	20.83		
15	64QAM	1	37	20.66	20.67	20.64	21.5	0
15	64QAM	1	74	20.45	20.58	20.71		
15	64QAM	36	0	19.40	19.46	19.57		
15	64QAM	36	20	19.33	19.54	19.63	21	0.5
15	64QAM	36	39	19.34	19.48	19.59		
15	64QAM	75	0	19.46	19.47	19.54		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	20.67	20.76	20.89	21.5	0
10	QPSK	1	25	20.65	20.70	20.84		
10	QPSK	1	49	20.57	20.67	20.79		



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10	QPSK	25	0	20.45	20.49	20.69	21.5	0
10	QPSK	25	12	20.32	20.48	20.57		
10	QPSK	25	25	20.36	20.46	20.57		
10	QPSK	50	0	20.47	20.40	20.54		
10	16QAM	1	0	20.26	20.33	20.42	21.5	0
10	16QAM	1	25	20.23	20.30	20.49		
10	16QAM	1	49	20.16	20.14	20.33		
10	16QAM	25	0	20.30	20.33	20.49	21.5	0
10	16QAM	25	12	20.20	20.38	20.52		
10	16QAM	25	25	20.22	20.31	20.54		
10	16QAM	50	0	20.34	20.31	20.48		
10	64QAM	1	0	20.61	20.63	20.81	21.5	0
10	64QAM	1	25	20.65	20.67	20.63		
10	64QAM	1	49	20.54	20.56	20.75		
10	64QAM	25	0	19.39	19.54	19.58	21	0.5
10	64QAM	25	12	19.38	19.49	19.69		
10	64QAM	25	25	19.43	19.46	19.66		
10	64QAM	50	0	19.44	19.52	19.53		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	20.69	20.73	20.89	21.5	0
5	QPSK	1	12	20.59	20.77	20.90		
5	QPSK	1	24	20.58	20.65	20.84		
5	QPSK	12	0	20.45	20.49	20.67	21.5	0
5	QPSK	12	7	20.39	20.53	20.60		
5	QPSK	12	13	20.34	20.44	20.56		
5	QPSK	25	0	20.42	20.46	20.51		
5	16QAM	1	0	20.30	20.30	20.37	21.5	0
5	16QAM	1	12	20.21	20.26	20.52		
5	16QAM	1	24	20.11	20.17	20.38		
5	16QAM	12	0	20.24	20.40	20.41	21.5	0
5	16QAM	12	7	20.19	20.41	20.55		
5	16QAM	12	13	20.22	20.30	20.49		
5	16QAM	25	0	20.31	20.38	20.39		
5	64QAM	1	0	20.63	20.73	20.83	21.5	0
5	64QAM	1	12	20.61	20.63	20.64		
5	64QAM	1	24	20.51	20.60	20.79		
5	64QAM	12	0	19.36	19.48	19.54	21	0.5
5	64QAM	12	7	19.41	19.52	19.71		
5	64QAM	12	13	19.44	19.45	19.64		
5	64QAM	25	0	19.36	19.47	19.54		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	20.68	20.70	20.96	21.5	0
3	QPSK	1	8	20.58	20.75	20.92		
3	QPSK	1	14	20.51	20.66	20.89		
3	QPSK	8	0	20.41	20.47	20.67	21.5	0
3	QPSK	8	4	20.32	20.44	20.64		
3	QPSK	8	7	20.37	20.42	20.58		
3	QPSK	15	0	20.48	20.41	20.51		
3	16QAM	1	0	20.29	20.31	20.37	21.5	0
3	16QAM	1	8	20.24	20.34	20.51		
3	16QAM	1	14	20.17	20.19	20.41		
3	16QAM	8	0	20.30	20.35	20.41	21.5	0
3	16QAM	8	4	20.17	20.40	20.47		
3	16QAM	8	7	20.27	20.36	20.46		



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3	16QAM	15	0	20.33	20.37	20.42		
3	64QAM	1	0	20.69	20.63	20.74	21.5	0
3	64QAM	1	8	20.58	20.67	20.65		
3	64QAM	1	14	20.53	20.54	20.79		
3	64QAM	8	0	19.36	19.50	19.62	21	0.5
3	64QAM	8	4	19.31	19.49	19.69		
3	64QAM	8	7	19.39	19.46	19.60		
3	64QAM	15	0	19.38	19.48	19.54		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.77	20.75	20.91	21.5	0
1.4	QPSK	1	3	20.62	20.74	20.86		
1.4	QPSK	1	5	20.52	20.65	20.81		
1.4	QPSK	3	0	20.67	20.75	20.96		
1.4	QPSK	3	1	20.61	20.77	20.88		
1.4	QPSK	3	3	20.60	20.64	20.89		
1.4	QPSK	6	0	20.44	20.41	20.60	21.5	0
1.4	16QAM	1	0	20.22	20.34	20.42	21.5	0
1.4	16QAM	1	3	20.18	20.29	20.52		
1.4	16QAM	1	5	20.17	20.19	20.42		
1.4	16QAM	3	0	20.32	20.34	20.45		
1.4	16QAM	3	1	20.25	20.34	20.53		
1.4	16QAM	3	3	20.20	20.30	20.48		
1.4	16QAM	6	0	20.26	20.35	20.47	21.5	0
1.4	64QAM	1	0	20.65	20.73	20.75	21.5	0
1.4	64QAM	1	3	20.64	20.67	20.65		
1.4	64QAM	1	5	20.52	20.57	20.74		
1.4	64QAM	3	0	20.68	20.64	20.75		
1.4	64QAM	3	1	20.64	20.63	20.70		
1.4	64QAM	3	3	20.47	20.60	20.73		
1.4	64QAM	6	0	19.40	19.54	19.58	21	0.5



<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	20.92	21.08	20.99		
20	QPSK	1	49	20.90	21.02	21.00	21.5	0
20	QPSK	1	99	20.89	20.91	20.86		
20	QPSK	50	0	20.62	20.68	20.65		
20	QPSK	50	24	20.61	20.67	20.64	21.5	0
20	QPSK	50	50	20.53	20.62	20.57		
20	QPSK	100	0	20.55	20.65	20.60		
20	16QAM	1	0	20.90	21.07	21.00	21.5	0
20	16QAM	1	49	20.83	20.99	20.97		
20	16QAM	1	99	20.82	20.88	20.86		
20	16QAM	50	0	20.90	21.07	20.98	21.5	0
20	16QAM	50	24	20.97	21.03	21.01		
20	16QAM	50	50	20.89	20.95	20.95		
20	16QAM	100	0	20.99	21.01	20.97	21.5	0
20	64QAM	1	0	20.80	20.91	20.89		
20	64QAM	1	49	20.75	20.81	20.79		
20	64QAM	1	99	20.69	20.74	20.72	21	0.5
20	64QAM	50	0	19.53	19.71	19.67		
20	64QAM	50	24	19.62	19.71	19.65		
20	64QAM	50	50	19.56	19.62	19.58	21	0.5
20	64QAM	100	0	19.57	19.69	19.61		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	20.85	21.03	20.98		
15	QPSK	1	37	20.87	20.97	20.98	21.5	0
15	QPSK	1	74	20.89	20.88	20.76		
15	QPSK	36	0	20.59	20.60	20.65	21.5	0
15	QPSK	36	20	20.59	20.59	20.54		
15	QPSK	36	39	20.44	20.61	20.47		
15	QPSK	75	0	20.52	20.63	20.55	21.5	0
15	16QAM	1	0	20.80	20.97	20.98		
15	16QAM	1	37	20.79	20.89	20.87		
15	16QAM	1	74	20.80	20.83	20.81	21.5	0
15	16QAM	36	0	20.83	21.07	20.88		
15	16QAM	36	20	20.89	20.97	20.99		
15	16QAM	36	39	20.80	20.91	20.87	21.5	0
15	16QAM	75	0	20.93	20.99	20.95		
15	64QAM	1	0	20.76	20.84	20.80		
15	64QAM	1	37	20.69	20.79	20.77	21.5	0
15	64QAM	1	74	20.61	20.72	20.65		
15	64QAM	36	0	19.47	19.69	19.62		
15	64QAM	36	20	19.57	19.67	19.63	21	0.5
15	64QAM	36	39	19.46	19.55	19.57		
15	64QAM	75	0	19.48	19.69	19.61		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	20.89	21.02	20.93		
10	QPSK	1	25	20.81	20.98	20.98	21.5	0
10	QPSK	1	49	20.86	20.91	20.85		
10	QPSK	25	0	20.54	20.68	20.63	21.5	0
10	QPSK	25	12	20.56	20.67	20.55		



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10	QPSK	25	25	20.50	20.61	20.53		
10	QPSK	50	0	20.54	20.58	20.51		
10	16QAM	1	0	20.81	21.02	20.97		
10	16QAM	1	25	20.73	20.90	20.87	21.5	0
10	16QAM	1	49	20.79	20.85	20.83		
10	16QAM	25	0	20.81	21.07	20.94		
10	16QAM	25	12	20.97	20.94	20.94	21.5	0
10	16QAM	25	25	20.79	20.90	20.91		
10	16QAM	50	0	20.94	20.94	20.95		
10	64QAM	1	0	20.71	20.90	20.88	21.5	0
10	64QAM	1	25	20.73	20.80	20.69		
10	64QAM	1	49	20.69	20.68	20.63		
10	64QAM	25	0	19.50	19.62	19.66	21	0.5
10	64QAM	25	12	19.56	19.61	19.58		
10	64QAM	25	25	19.52	19.53	19.52		
10	64QAM	50	0	19.51	19.65	19.60		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	20.87	21.07	20.89	21.5	0
5	QPSK	1	12	20.85	20.93	20.90		
5	QPSK	1	24	20.87	20.91	20.84		
5	QPSK	12	0	20.58	20.61	20.57	21.5	0
5	QPSK	12	7	20.52	20.61	20.60		
5	QPSK	12	13	20.43	20.62	20.54		
5	QPSK	25	0	20.53	20.57	20.56		
5	16QAM	1	0	20.89	20.99	20.97	21.5	0
5	16QAM	1	12	20.77	20.94	20.94		
5	16QAM	1	24	20.82	20.82	20.80		
5	16QAM	12	0	20.81	21.05	20.97	21.5	0
5	16QAM	12	7	20.89	21.03	20.95		
5	16QAM	12	13	20.80	20.92	20.88		
5	16QAM	25	0	20.89	20.91	20.91		
5	64QAM	1	0	20.76	20.86	20.88	21.5	0
5	64QAM	1	12	20.74	20.80	20.75		
5	64QAM	1	24	20.68	20.67	20.64		
5	64QAM	12	0	19.50	19.61	19.57	21	0.5
5	64QAM	12	7	19.60	19.70	19.63		
5	64QAM	12	13	19.56	19.62	19.53		
5	64QAM	25	0	19.52	19.62	19.60		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	20.92	21.07	20.98	21.5	0
3	QPSK	1	8	20.80	20.98	20.91		
3	QPSK	1	14	20.80	20.85	20.82		
3	QPSK	8	0	20.59	20.68	20.59	21.5	0
3	QPSK	8	4	20.58	20.57	20.58		
3	QPSK	8	7	20.46	20.54	20.55		
3	QPSK	15	0	20.52	20.58	20.59		
3	16QAM	1	0	20.86	21.01	20.98	21.5	0
3	16QAM	1	8	20.83	20.89	20.88		
3	16QAM	1	14	20.76	20.85	20.80		
3	16QAM	8	0	20.83	21.03	20.98	21.5	0
3	16QAM	8	4	20.97	21.03	21.01		
3	16QAM	8	7	20.88	20.89	20.85		
3	16QAM	15	0	20.91	21.01	20.96		
3	64QAM	1	0	20.70	20.90	20.88	21.5	0



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3	64QAM	1	8	20.72	20.80	20.77	21	0.5
3	64QAM	1	14	20.60	20.68	20.67		
3	64QAM	8	0	19.51	19.70	19.59		
3	64QAM	8	4	19.53	19.71	19.65		
3	64QAM	8	7	19.51	19.52	19.48		
3	64QAM	15	0	19.55	19.64	19.57		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	20.85	21.01	20.89	21.5	0
1.4	QPSK	1	3	20.85	21.00	20.93		
1.4	QPSK	1	5	20.86	20.82	20.83		
1.4	QPSK	3	0	20.57	20.66	20.58		
1.4	QPSK	3	1	20.54	20.65	20.61		
1.4	QPSK	3	3	20.49	20.53	20.54		
1.4	QPSK	6	0	20.45	20.61	20.52	21.5	0
1.4	16QAM	1	0	20.86	20.99	20.96	21.5	0
1.4	16QAM	1	3	20.83	20.90	20.90		
1.4	16QAM	1	5	20.74	20.79	20.78		
1.4	16QAM	3	0	20.83	21.07	20.88		
1.4	16QAM	3	1	20.89	20.96	20.98		
1.4	16QAM	3	3	20.81	20.87	20.93		
1.4	16QAM	6	0	20.99	20.99	20.92	21.5	0
1.4	64QAM	1	0	20.76	20.81	20.88	21.5	0
1.4	64QAM	1	3	20.74	20.73	20.71		
1.4	64QAM	1	5	20.67	20.70	20.67		
1.4	64QAM	3	0	20.80	20.90	20.82		
1.4	64QAM	3	1	20.65	20.76	20.79		
1.4	64QAM	3	3	20.59	20.65	20.65		
1.4	64QAM	6	0	19.55	19.64	19.57	21	0.5



<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.75	22.79	22.88	24	0
10	QPSK	1	25	22.70	22.71	22.94		
10	QPSK	1	49	22.71	22.63	22.85		
10	QPSK	25	0	21.77	21.75	21.86	23	1
10	QPSK	25	12	21.82	21.75	22.02		
10	QPSK	25	25	21.80	21.68	21.94		
10	QPSK	50	0	21.84	21.78	21.89		
10	16QAM	1	0	22.11	22.14	22.26	23	1
10	16QAM	1	25	22.09	22.07	22.34		
10	16QAM	1	49	22.10	22.04	22.19		
10	16QAM	25	0	20.87	20.84	20.99	22	2
10	16QAM	25	12	20.93	20.91	21.14		
10	16QAM	25	25	20.90	20.79	21.01		
10	16QAM	50	0	20.94	20.89	20.99		
10	64QAM	1	0	21.19	21.19	21.30	22	2
10	64QAM	1	25	21.08	21.14	21.33		
10	64QAM	1	49	21.15	21.05	21.24		
10	64QAM	25	0	20.01	19.99	20.12	21	3
10	64QAM	25	12	20.08	20.03	20.28		
10	64QAM	25	25	20.05	19.94	20.17		
10	64QAM	50	0	20.08	20.02	20.12		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.74	22.71	22.88	24	0
5	QPSK	1	12	22.71	22.68	22.89		
5	QPSK	1	24	22.68	22.65	22.65		
5	QPSK	12	0	21.74	21.73	22.05	23	1
5	QPSK	12	7	21.76	21.76	22.02		
5	QPSK	12	13	21.70	21.71	22.02		
5	QPSK	25	0	21.72	21.74	22.03		
5	16QAM	1	0	22.10	22.10	22.36	23	1
5	16QAM	1	12	22.06	22.06	22.35		
5	16QAM	1	24	22.02	22.01	22.30		
5	16QAM	12	0	20.87	20.86	21.17	22	2
5	16QAM	12	7	20.87	20.89	21.13		
5	16QAM	12	13	20.85	20.82	21.13		
5	16QAM	25	0	20.83	20.84	21.13		
5	64QAM	1	0	21.13	21.14	21.44	22	2
5	64QAM	1	12	21.11	21.07	21.39		
5	64QAM	1	24	21.09	21.05	21.35		
5	64QAM	12	0	19.99	19.99	20.29	21	3
5	64QAM	12	7	20.01	20.01	20.27		
5	64QAM	12	13	19.95	19.96	20.26		
5	64QAM	25	0	19.96	19.99	20.27		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.76	22.73	22.81	24	0
3	QPSK	1	8	22.71	22.69	22.86		
3	QPSK	1	14	22.70	22.67	22.65		
3	QPSK	8	0	21.73	21.76	22.01	23	1
3	QPSK	8	4	21.79	21.77	22.01		



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3	QPSK	8	7	21.73	21.69	21.99		
3	QPSK	15	0	21.72	21.69	22.01		
3	16QAM	1	0	22.11	22.08	22.35		
3	16QAM	1	8	22.11	22.08	22.33	23	1
3	16QAM	1	14	22.08	22.02	22.25		
3	16QAM	8	0	20.89	20.90	21.15		
3	16QAM	8	4	20.95	20.92	21.18	22	2
3	16QAM	8	7	20.87	20.85	21.13		
3	16QAM	15	0	20.83	20.84	21.13		
3	64QAM	1	0	21.15	21.11	21.37	22	2
3	64QAM	1	8	21.14	21.11	21.37		
3	64QAM	1	14	21.04	21.04	21.36		
3	64QAM	8	0	20.01	20.00	20.29	21	3
3	64QAM	8	4	20.03	20.03	20.28		
3	64QAM	8	7	19.97	19.96	20.24		
3	64QAM	15	0	19.96	19.94	20.25		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.65	22.61	22.91	24	0
1.4	QPSK	1	3	22.73	22.70	22.75		
1.4	QPSK	1	5	22.63	22.58	22.87		
1.4	QPSK	3	0	22.67	22.68	22.82		
1.4	QPSK	3	1	22.71	22.70	22.76		
1.4	QPSK	3	3	22.71	22.64	22.92		
1.4	QPSK	6	0	21.67	21.63	21.94	23	1
1.4	16QAM	1	0	21.78	21.71	21.98	23	1
1.4	16QAM	1	3	21.91	21.81	21.90		
1.4	16QAM	1	5	21.77	21.75	21.97		
1.4	16QAM	3	0	21.56	21.57	21.81		
1.4	16QAM	3	1	21.59	21.58	21.80		
1.4	16QAM	3	3	21.54	21.47	21.78		
1.4	16QAM	6	0	20.85	20.84	21.10	22	2
1.4	64QAM	1	0	21.08	21.20	21.29	22	2
1.4	64QAM	1	3	21.08	21.03	21.36		
1.4	64QAM	1	5	21.04	21.06	21.23		
1.4	64QAM	3	0	21.19	21.15	21.20		
1.4	64QAM	3	1	21.19	21.15	21.24		
1.4	64QAM	3	3	21.26	21.21	21.17		
1.4	64QAM	6	0	20.31	20.20	20.16	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	22.01	21.90	21.91	22.5	0
20	QPSK	1	49	21.85	21.88	21.90		
20	QPSK	1	99	21.83	21.87	21.82		
20	QPSK	50	0	21.91	21.90	21.85	22.5	0
20	QPSK	50	24	21.80	21.85	21.87		
20	QPSK	50	50	21.71	21.81	21.77		
20	QPSK	100	0	21.86	21.85	21.85		
20	16QAM	1	0	21.68	21.71	21.71	22.5	0
20	16QAM	1	49	21.67	21.76	21.70		
20	16QAM	1	99	21.86	21.73	21.73		
20	16QAM	50	0	20.83	20.84	20.77	21.5	1
20	16QAM	50	24	20.98	20.94	20.98		
20	16QAM	50	50	20.84	21.10	20.84		
20	16QAM	100	0	21.08	20.67	20.90		
20	64QAM	1	0	21.00	21.00	21.00	21.5	1
20	64QAM	1	49	21.00	21.05	20.99		
20	64QAM	1	99	21.16	21.06	21.09		
20	64QAM	50	0	19.87	19.91	19.97	21	1.5
20	64QAM	50	24	19.87	19.95	19.98		
20	64QAM	50	50	20.00	19.97	19.90		
20	64QAM	100	0	20.00	19.96	19.98		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.95	21.88	21.87	22.5	0
15	QPSK	1	37	21.81	21.83	21.86		
15	QPSK	1	74	21.77	21.77	21.81		
15	QPSK	36	0	21.85	21.83	21.85	22.5	0
15	QPSK	36	20	21.73	21.82	21.83		
15	QPSK	36	39	21.69	21.81	21.73		
15	QPSK	75	0	21.78	21.76	21.77		
15	16QAM	1	0	21.61	21.71	21.65	22.5	0
15	16QAM	1	37	21.64	21.73	21.63		
15	16QAM	1	74	21.86	21.69	21.65		
15	16QAM	36	0	20.75	20.78	20.68	21.5	1
15	16QAM	36	20	20.94	20.90	20.96		
15	16QAM	36	39	20.81	21.00	20.83		
15	16QAM	75	0	21.00	20.58	20.87		
15	64QAM	1	0	20.96	20.95	20.94	21.5	1
15	64QAM	1	37	20.99	20.95	20.98		
15	64QAM	1	74	21.12	20.99	21.02		
15	64QAM	36	0	19.85	19.83	19.93	21	1.5
15	64QAM	36	20	19.80	19.87	19.98		
15	64QAM	36	39	19.94	19.91	19.90		
15	64QAM	75	0	19.93	19.93	19.93		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.99	21.87	21.85	22.5	0
10	QPSK	1	25	21.82	21.80	21.81		
10	QPSK	1	49	21.76	21.87	21.81		
10	QPSK	25	0	21.84	21.82	21.81	22.5	0
10	QPSK	25	12	21.76	21.85	21.86		



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10	QPSK	25	25	21.62	21.76	21.76		
10	QPSK	50	0	21.86	21.82	21.82		
10	16QAM	1	0	21.65	21.64	21.71		
10	16QAM	1	25	21.57	21.66	21.60	22.5	0
10	16QAM	1	49	21.85	21.70	21.64		
10	16QAM	25	0	20.74	20.82	20.67		
10	16QAM	25	12	20.93	20.90	20.92	21.5	1
10	16QAM	25	25	20.82	21.02	20.74		
10	16QAM	50	0	21.04	20.63	20.84		
10	64QAM	1	0	20.93	20.95	20.99	21.5	1
10	64QAM	1	25	20.96	21.05	20.99		
10	64QAM	1	49	21.16	21.02	21.04		
10	64QAM	25	0	19.78	19.86	19.87	21	1.5
10	64QAM	25	12	19.77	19.92	19.94		
10	64QAM	25	25	19.94	19.96	19.84		
10	64QAM	50	0	19.93	19.96	19.89		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.00	21.86	21.82	22.5	0
5	QPSK	1	12	21.84	21.83	21.86		
5	QPSK	1	24	21.79	21.85	21.81		
5	QPSK	12	0	21.81	21.80	21.76	22.5	0
5	QPSK	12	7	21.74	21.83	21.81		
5	QPSK	12	13	21.63	21.72	21.73		
5	QPSK	25	0	21.79	21.83	21.78		
5	16QAM	1	0	21.60	21.64	21.71	22.5	0
5	16QAM	1	12	21.57	21.73	21.60		
5	16QAM	1	24	21.81	21.69	21.63		
5	16QAM	12	0	20.76	20.75	20.71	21.5	1
5	16QAM	12	7	20.91	20.91	20.91		
5	16QAM	12	13	20.83	21.08	20.75		
5	16QAM	25	0	20.99	20.66	20.85		
5	64QAM	1	0	20.90	20.99	20.99	21.5	1
5	64QAM	1	12	20.99	20.95	20.92		
5	64QAM	1	24	21.12	20.99	21.03		
5	64QAM	12	0	19.77	19.85	19.91	21	1.5
5	64QAM	12	7	19.81	19.89	19.92		
5	64QAM	12	13	19.99	19.91	19.88		
5	64QAM	25	0	19.92	19.89	19.94		

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	22.76	22.85	23.04	24	0
15	QPSK	1	37	22.79	22.86	22.95		
15	QPSK	1	74	22.78	22.77	22.85		
15	QPSK	36	0	21.86	21.93	22.00	23	1
15	QPSK	36	20	21.81	21.91	22.02		
15	QPSK	36	39	21.87	21.80	21.90		
15	QPSK	75	0	21.78	21.85	22.00	23	1
15	16QAM	1	0	22.12	22.23	22.40		
15	16QAM	1	37	22.17	22.22	22.33		
15	16QAM	1	74	22.20	22.12	22.15	22	2
15	16QAM	36	0	20.94	21.03	21.12		
15	16QAM	36	20	20.91	21.00	21.13		
15	16QAM	36	39	20.98	20.91	21.01	22	2
15	16QAM	75	0	20.87	20.96	21.09		
15	64QAM	1	0	21.18	21.28	21.42	22	2
15	64QAM	1	37	21.20	21.30	21.33		
15	64QAM	1	74	21.16	21.16	21.22		
15	64QAM	36	0	20.10	20.16	20.28	21	3
15	64QAM	36	20	20.06	20.15	20.26		
15	64QAM	36	39	20.12	20.05	20.14		
15	64QAM	75	0	20.03	20.10	20.24		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.64	22.81	23.01	24	0
10	QPSK	1	25	22.60	22.83	23.03		
10	QPSK	1	49	22.64	22.75	22.92		
10	QPSK	25	0	21.69	21.92	22.08	23	1
10	QPSK	25	12	21.76	21.90	22.05		
10	QPSK	25	25	21.71	21.82	22.00		
10	QPSK	50	0	21.75	21.88	22.06	23	1
10	16QAM	1	0	21.99	22.20	22.41		
10	16QAM	1	25	21.96	22.25	22.35		
10	16QAM	1	49	22.03	22.09	22.26	22	2
10	16QAM	25	0	20.76	21.04	21.17		
10	16QAM	25	12	20.86	21.00	21.15		
10	16QAM	25	25	20.81	20.92	21.11	22	2
10	16QAM	50	0	20.82	20.99	21.17		
10	64QAM	1	0	21.02	21.19	21.45		
10	64QAM	1	25	21.01	21.29	21.42	22	2
10	64QAM	1	49	21.04	21.17	21.31		
10	64QAM	25	0	19.88	20.15	20.32		
10	64QAM	25	12	20.00	20.15	19.95	21	3
10	64QAM	25	25	19.94	20.07	19.85		
10	64QAM	50	0	19.94	20.13	20.03		
Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.66	22.82	22.98	24	0
5	QPSK	1	12	22.63	22.81	22.97		
5	QPSK	1	24	22.59	22.80	22.91		
5	QPSK	12	0	21.69	21.85	22.04	23	1



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5	QPSK	12	7	21.70	21.87	22.06		
5	QPSK	12	13	21.66	21.86	21.98		
5	QPSK	25	0	21.63	21.88	21.99		
5	16QAM	1	0	21.97	22.24	22.36	23	1
5	16QAM	1	12	22.00	22.18	22.31		
5	16QAM	1	24	21.92	22.15	22.26		
5	16QAM	12	0	20.79	21.01	21.13	22	2
5	16QAM	12	7	20.80	20.98	21.17		
5	16QAM	12	13	20.76	20.98	21.09		
5	16QAM	25	0	20.71	20.98	21.10		
5	64QAM	1	0	21.06	21.28	21.38	22	2
5	64QAM	1	12	21.02	21.21	21.36		
5	64QAM	1	24	20.99	21.21	21.30		
5	64QAM	12	0	19.92	20.14	20.25	21	3
5	64QAM	12	7	19.92	20.13	20.29		
5	64QAM	12	13	19.89	20.11	20.22		
5	64QAM	25	0	19.85	20.13	20.25		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.63	22.81	22.95	24	0
3	QPSK	1	8	22.62	22.81	22.92		
3	QPSK	1	14	22.61	22.79	22.92		
3	QPSK	8	0	21.67	21.86	22.00	23	1
3	QPSK	8	4	21.71	21.90	22.03		
3	QPSK	8	7	21.66	21.88	21.99		
3	QPSK	15	0	21.65	21.86	21.98		
3	16QAM	1	0	21.99	22.17	22.29	23	1
3	16QAM	1	8	22.00	22.17	22.32		
3	16QAM	1	14	21.99	22.14	22.23		
3	16QAM	8	0	20.81	21.02	21.14	22	2
3	16QAM	8	4	20.84	21.03	21.16		
3	16QAM	8	7	20.79	21.04	21.14		
3	16QAM	15	0	20.74	20.99	21.09		
3	64QAM	1	0	21.01	21.18	21.34	22	2
3	64QAM	1	8	21.01	21.26	21.37		
3	64QAM	1	14	20.97	21.20	21.31		
3	64QAM	8	0	19.93	20.14	20.24	21	3
3	64QAM	8	4	19.90	20.15	20.28		
3	64QAM	8	7	19.93	20.12	20.25		
3	64QAM	15	0	19.86	20.12	20.22		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.54	22.76	22.83	24	0
1.4	QPSK	1	3	22.64	22.82	22.89		
1.4	QPSK	1	5	22.55	22.75	22.82		
1.4	QPSK	3	0	22.63	22.79	22.87		
1.4	QPSK	3	1	22.67	22.82	22.88		
1.4	QPSK	3	3	22.63	22.77	22.84		
1.4	QPSK	6	0	21.59	21.77	21.86	23	1
1.4	16QAM	1	0	21.91	22.13	22.15	23	1
1.4	16QAM	1	3	22.00	22.20	22.25		
1.4	16QAM	1	5	21.92	22.09	22.15		
1.4	16QAM	3	0	21.71	21.89	21.97		
1.4	16QAM	3	1	21.74	21.92	22.00		
1.4	16QAM	3	3	21.70	21.87	21.97		
1.4	16QAM	6	0	20.77	20.94	21.02	22	2



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1.4	64QAM	1	0	20.97	21.19	21.20	22	2
1.4	64QAM	1	3	21.05	21.19	21.29		
1.4	64QAM	1	5	20.95	21.25	21.22		
1.4	64QAM	3	0	20.91	21.17	21.16		
1.4	64QAM	3	1	20.93	21.18	21.14		
1.4	64QAM	3	3	20.85	21.25	21.14		
1.4	64QAM	6	0	19.85	20.14	20.10	21	3

<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.

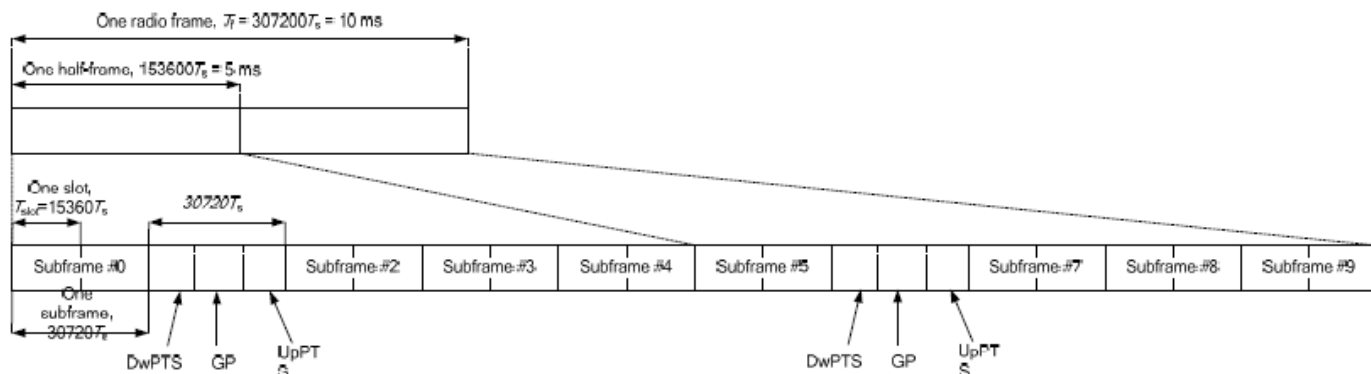


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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 / Product Specific 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	22.86	23.00	22.89	24	0
20	QPSK	1	49	22.88	22.86	22.94		
20	QPSK	1	99	22.81	22.85	22.78		
20	QPSK	50	0	21.95	21.86	21.86	23	1
20	QPSK	50	24	21.95	21.99	22.00		
20	QPSK	50	50	21.85	21.80	21.87		
20	QPSK	100	0	21.84	21.88	21.91	23	1
20	16QAM	1	0	21.99	22.11	21.99		
20	16QAM	1	49	21.90	21.99	22.14		
20	16QAM	1	99	22.03	21.98	21.92	22	2
20	16QAM	50	0	20.97	20.96	21.04		
20	16QAM	50	24	21.08	21.07	21.06		
20	16QAM	50	50	21.00	20.90	20.96	22	2
20	16QAM	100	0	20.94	20.92	21.05		
20	64QAM	1	0	20.81	20.97	20.89		
20	64QAM	1	49	20.69	20.77	20.91	22	2
20	64QAM	1	99	20.89	20.81	20.90		
20	64QAM	50	0	20.06	20.05	20.07		
20	64QAM	50	24	20.01	20.13	20.17	21	3
20	64QAM	50	50	20.12	20.05	19.99		
20	64QAM	100	0	20.11	20.11	20.14		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.78	22.97	22.87	24	0
15	QPSK	1	37	22.84	22.81	22.86		
15	QPSK	1	74	22.77	22.78	22.74		
15	QPSK	36	0	21.93	21.76	21.79	23	1
15	QPSK	36	20	21.95	21.91	21.98		
15	QPSK	36	39	21.80	21.78	21.82		
15	QPSK	75	0	21.74	21.85	21.91	23	1
15	16QAM	1	0	21.92	22.02	21.90		
15	16QAM	1	37	21.86	21.89	22.11		
15	16QAM	1	74	21.98	21.91	21.89	22	2
15	16QAM	36	0	20.89	20.95	20.99		
15	16QAM	36	20	21.04	21.01	20.98		
15	16QAM	36	39	20.93	20.85	20.92	22	2
15	16QAM	75	0	20.94	20.89	20.97		
15	64QAM	1	0	20.80	20.95	20.84		
15	64QAM	1	37	20.68	20.73	20.89	22	2
15	64QAM	1	74	20.79	20.75	20.80		
15	64QAM	36	0	19.96	19.99	20.01		
15	64QAM	36	20	19.97	20.06	20.17	21	3
15	64QAM	36	39	20.09	20.01	19.90		
15	64QAM	75	0	20.05	20.08	20.11		
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.81	22.92	22.80	24	0
10	QPSK	1	25	22.87	22.84	22.91		
10	QPSK	1	49	22.79	22.77	22.69		



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10	QPSK	25	0	21.90	21.80	21.76	23	1
10	QPSK	25	12	21.94	21.91	21.93		
10	QPSK	25	25	21.75	21.71	21.87		
10	QPSK	50	0	21.83	21.79	21.85		
10	16QAM	1	0	21.99	22.07	21.91	23	1
10	16QAM	1	25	21.86	21.93	22.10		
10	16QAM	1	49	22.00	21.90	21.87		
10	16QAM	25	0	20.94	20.90	20.94	22	2
10	16QAM	25	12	21.02	20.97	21.05		
10	16QAM	25	25	20.93	20.89	20.92		
10	16QAM	50	0	20.93	20.85	20.96		
10	64QAM	1	0	20.72	20.88	20.86	22	2
10	64QAM	1	25	20.65	20.77	20.82		
10	64QAM	1	49	20.89	20.79	20.84		
10	64QAM	25	0	19.97	19.96	20.01	21	3
10	64QAM	25	12	19.94	20.05	20.10		
10	64QAM	25	25	20.07	19.99	19.94		
10	64QAM	50	0	20.07	20.01	20.09		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	22.79	22.99	22.89	24	0
5	QPSK	1	12	22.83	22.86	22.85		
5	QPSK	1	24	22.71	22.82	22.69		
5	QPSK	12	0	21.85	21.82	21.78	23	1
5	QPSK	12	7	21.88	21.97	21.98		
5	QPSK	12	13	21.82	21.74	21.79		
5	QPSK	25	0	21.75	21.78	21.84		
5	16QAM	1	0	21.98	22.07	21.97	23	1
5	16QAM	1	12	21.89	21.97	22.11		
5	16QAM	1	24	22.02	21.98	21.89		
5	16QAM	12	0	20.96	20.93	21.01	22	2
5	16QAM	12	7	21.00	21.02	21.05		
5	16QAM	12	13	20.92	20.86	20.89		
5	16QAM	25	0	20.90	20.85	20.98		
5	64QAM	1	0	20.71	20.87	20.88	22	2
5	64QAM	1	12	20.67	20.73	20.82		
5	64QAM	1	24	20.80	20.79	20.87		
5	64QAM	12	0	20.03	20.05	20.03	21	3
5	64QAM	12	7	19.92	20.06	20.15		
5	64QAM	12	13	20.03	20.03	19.99		
5	64QAM	25	0	20.07	20.03	20.08		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Low Ch. / Freq.	Power Middle High Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				40140	40400	40670	41140		
Frequency (MHz)				2545	2571	2598	2645		
20	QPSK	1	0	22.92	22.96	22.90	22.73	24	0
20	QPSK	1	49	22.92	22.91	23.01	22.74		
20	QPSK	1	99	22.89	22.91	22.85	22.99		
20	QPSK	50	0	22.01	21.95	21.93	21.83	23	1
20	QPSK	50	24	21.98	22.00	22.10	21.85		
20	QPSK	50	50	21.90	21.89	21.88	21.93		
20	QPSK	100	0	21.91	21.91	21.98	21.88	23	1
20	16QAM	1	0	22.02	22.11	22.05	21.89		
20	16QAM	1	49	22.00	22.06	22.19	21.87		
20	16QAM	1	99	22.04	22.07	21.92	22.19	22	2
20	16QAM	50	0	21.04	21.04	21.06	20.84		
20	16QAM	50	24	21.10	21.09	21.14	20.87		
20	16QAM	50	50	21.02	20.99	21.04	21.03	22	2
20	16QAM	100	0	21.04	21.01	21.11	20.91		
20	64QAM	1	0	20.91	20.99	20.94	20.89		
20	64QAM	1	49	20.79	20.84	20.96	20.83	22	2
20	64QAM	1	99	20.91	20.85	20.90	21.06		
20	64QAM	50	0	20.11	20.11	20.12	19.90		
20	64QAM	50	24	20.07	20.15	20.20	20.02	21	3
20	64QAM	50	50	20.19	20.15	20.09	20.18		
20	64QAM	100	0	20.20	20.17	20.18	20.06		
Channel				40115	40395	40685	41165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2542.5	2570.5	2599.5	2647.5		
15	QPSK	1	0	22.87	22.84	22.96	22.61	24	0
15	QPSK	1	37	22.73	22.92	22.96	22.78		
15	QPSK	1	74	22.84	22.99	22.93	22.74		
15	QPSK	36	0	21.83	21.89	22.05	21.73	23	1
15	QPSK	36	20	21.89	21.91	22.05	21.82		
15	QPSK	36	39	21.80	21.93	21.97	21.94		
15	QPSK	75	0	21.84	21.88	21.99	21.85	23	1
15	16QAM	1	0	22.03	22.06	22.10	21.74		
15	16QAM	1	37	21.89	21.95	22.04	22.10		
15	16QAM	1	74	22.00	22.03	22.12	22.10	22	2
15	16QAM	36	0	20.90	20.92	21.03	20.78		
15	16QAM	36	20	20.86	20.96	21.04	20.88		
15	16QAM	36	39	20.88	20.99	20.98	20.98	22	2
15	16QAM	75	0	20.96	20.98	21.03	20.96		
15	64QAM	1	0	20.71	20.95	20.99	20.62		
15	64QAM	1	37	20.85	20.82	20.90	20.95	22	2
15	64QAM	1	74	20.85	20.89	20.97	21.06		
15	64QAM	36	0	20.05	20.08	20.18	19.93		
15	64QAM	36	20	20.01	20.11	20.18	20.02	21	3
15	64QAM	36	39	20.02	20.14	20.11	20.12		
15	64QAM	75	0	19.97	20.10	20.13	20.07		
Channel				40090	40390	40690	41190	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2540	2570	2600	2650		
10	QPSK	1	0	22.75	22.86	22.92	22.80	24	0
10	QPSK	1	25	22.78	22.88	22.98	22.93		
10	QPSK	1	49	22.71	22.90	22.83	23.00		
10	QPSK	25	0	21.80	21.93	21.99	21.77	23	1



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10	QPSK	25	12	21.86	21.98	21.99	21.96		
10	QPSK	25	25	21.77	21.89	21.90	21.89		
10	QPSK	50	0	21.81	21.88	21.92	21.90		
10	16QAM	1	0	21.92	21.99	22.08	21.93	23	1
10	16QAM	1	25	21.96	22.02	22.06	22.05		
10	16QAM	1	49	21.94	22.01	22.08	22.10		
10	16QAM	25	0	20.93	21.03	21.13	20.89	22	2
10	16QAM	25	12	20.90	21.07	21.13	21.07		
10	16QAM	25	25	20.90	20.99	21.03	21.11		
10	16QAM	50	0	20.94	20.97	20.96	21.01		
10	64QAM	1	0	20.70	20.87	20.96	20.80	22	2
10	64QAM	1	25	20.73	20.89	20.92	20.92		
10	64QAM	1	49	20.81	20.89	20.96	20.99		
10	64QAM	25	0	19.90	20.10	20.19	19.85	21	3
10	64QAM	25	12	19.96	20.05	20.20	20.03		
10	64QAM	25	25	19.96	20.06	20.11	20.06		
10	64QAM	50	0	19.98	20.03	20.10	20.06		
Channel				40065	40385	40705	41215	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2537.5	2569.5	2601.5	2652.5		
5	QPSK	1	0	22.76	22.85	22.75	22.91	24	0
5	QPSK	1	12	22.82	22.87	22.75	22.97		
5	QPSK	1	24	22.70	22.84	22.76	22.85		
5	QPSK	12	0	21.79	21.88	21.99	21.92	23	1
5	QPSK	12	7	21.86	21.93	22.00	21.96		
5	QPSK	12	13	21.83	21.94	21.91	22.04		
5	QPSK	25	0	21.80	21.95	21.85	21.87		
5	16QAM	1	0	21.80	21.96	22.04	21.92	23	1
5	16QAM	1	12	21.80	22.00	22.13	22.09		
5	16QAM	1	24	21.91	22.01	22.08	22.12		
5	16QAM	12	0	20.87	20.94	21.08	20.96	22	2
5	16QAM	12	7	20.85	20.98	21.10	21.10		
5	16QAM	12	13	20.82	20.99	21.01	21.09		
5	16QAM	25	0	20.95	21.06	21.00	20.99		
5	64QAM	1	0	20.81	20.87	20.95	20.82	22	2
5	64QAM	1	12	20.78	20.87	20.99	20.98		
5	64QAM	1	24	20.78	20.89	20.96	21.01		
5	64QAM	12	0	19.98	20.05	20.18	20.07	21	3
5	64QAM	12	7	19.96	20.10	20.21	20.20		
5	64QAM	12	13	19.93	20.10	20.11	20.19		
5	64QAM	25	0	20.00	20.12	20.05	20.03		

<Near-Body 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	22.06	22.12	22.33	22.5	0
20	QPSK	1	49	21.86	22.01	22.16		
20	QPSK	1	99	22.01	22.01	21.94		
20	QPSK	50	0	21.71	21.74	22.12	22.5	0
20	QPSK	50	24	21.45	21.64	21.77		
20	QPSK	50	50	21.64	21.63	21.52		
20	QPSK	100	0	21.68	21.72	22.04	22.5	0
20	16QAM	1	0	21.76	21.95	21.95		
20	16QAM	1	49	21.70	21.87	21.80		
20	16QAM	1	99	21.76	21.90	21.95	21.5	1
20	16QAM	50	0	20.90	20.94	21.17		
20	16QAM	50	24	20.87	21.07	21.05		
20	16QAM	50	50	20.84	20.98	20.90	21.5	1
20	16QAM	100	0	20.84	21.02	21.06		
20	64QAM	1	0	20.71	20.82	21.13		
20	64QAM	1	49	20.66	20.83	20.94	21.5	1
20	64QAM	1	99	20.80	20.80	20.73		
20	64QAM	50	0	19.90	19.94	20.17	21	1.5
20	64QAM	50	24	19.89	20.03	20.04		
20	64QAM	50	50	19.83	19.99	19.91		
20	64QAM	100	0	19.86	20.04	20.01		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.04	22.02	22.28	22.5	0
15	QPSK	1	37	21.76	21.92	22.15		
15	QPSK	1	74	21.96	21.99	21.91		
15	QPSK	36	0	21.62	21.66	22.11	22.5	0
15	QPSK	36	20	21.44	21.63	21.70		
15	QPSK	36	39	21.62	21.53	21.51		
15	QPSK	75	0	21.58	21.69	22.00	22.5	0
15	16QAM	1	0	21.68	21.92	21.85		
15	16QAM	1	37	21.66	21.86	21.76		
15	16QAM	1	74	21.76	21.87	21.85	21.5	1
15	16QAM	36	0	20.84	20.92	21.07		
15	16QAM	36	20	20.84	21.01	20.96		
15	16QAM	36	39	20.77	20.88	20.86	21.5	1
15	16QAM	75	0	20.81	20.99	20.99		
15	64QAM	1	0	20.70	20.73	21.12		
15	64QAM	1	37	20.60	20.81	20.94	21.5	1
15	64QAM	1	74	20.80	20.80	20.67		
15	64QAM	36	0	19.81	19.89	20.09		
15	64QAM	36	20	19.82	19.98	19.98	21	1.5
15	64QAM	36	39	19.75	19.92	19.85		
15	64QAM	75	0	19.84	19.94	19.91		
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.05	22.02	22.30	22.5	0
10	QPSK	1	25	21.81	21.94	22.10		
10	QPSK	1	49	21.99	21.98	21.93		



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10	QPSK	25	0	21.64	21.67	22.05	22.5	0
10	QPSK	25	12	21.45	21.59	21.76		
10	QPSK	25	25	21.58	21.62	21.52		
10	QPSK	50	0	21.68	21.66	21.95		
10	16QAM	1	0	21.69	21.95	21.91	22.5	0
10	16QAM	1	25	21.70	21.82	21.75		
10	16QAM	1	49	21.76	21.82	21.90		
10	16QAM	25	0	20.82	20.85	21.09	21.5	1
10	16QAM	25	12	20.78	20.99	20.98		
10	16QAM	25	25	20.84	20.92	20.86		
10	16QAM	50	0	20.80	20.97	21.05		
10	64QAM	1	0	20.61	20.82	21.13	21.5	1
10	64QAM	1	25	20.61	20.80	20.90		
10	64QAM	1	49	20.70	20.77	20.63		
10	64QAM	25	0	19.88	19.84	20.13	21	1.5
10	64QAM	25	12	19.79	20.03	19.96		
10	64QAM	25	25	19.79	19.98	19.89		
10	64QAM	50	0	19.80	20.02	20.01		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	21.97	22.09	22.32	22.5	0
5	QPSK	1	12	21.77	21.99	22.12		
5	QPSK	1	24	21.99	21.99	21.89		
5	QPSK	12	0	21.68	21.73	22.06	22.5	0
5	QPSK	12	7	21.35	21.63	21.67		
5	QPSK	12	13	21.62	21.62	21.46		
5	QPSK	25	0	21.67	21.63	22.03		
5	16QAM	1	0	21.68	21.87	21.85	22.5	0
5	16QAM	1	12	21.66	21.77	21.74		
5	16QAM	1	24	21.69	21.90	21.92		
5	16QAM	12	0	20.90	20.89	21.09	21.5	1
5	16QAM	12	7	20.77	21.01	21.01		
5	16QAM	12	13	20.74	20.98	20.81		
5	16QAM	25	0	20.84	21.02	21.01		
5	64QAM	1	0	20.68	20.73	21.07	21.5	1
5	64QAM	1	12	20.65	20.79	20.91		
5	64QAM	1	24	20.80	20.74	20.65		
5	64QAM	12	0	19.80	19.91	20.16	21	1.5
5	64QAM	12	7	19.87	20.00	19.97		
5	64QAM	12	13	19.79	19.91	19.81		
5	64QAM	25	0	19.85	20.01	19.92		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Low Ch. / Freq.	Power Middle High Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				40140	40400	40670	41140		
Frequency (MHz)				2545	2571	2598	2645		
20	QPSK	1	0	22.15	22.08	22.09	22.05	22.5	0
20	QPSK	1	49	22.11	22.05	21.76	21.89		
20	QPSK	1	99	21.95	22.02	21.82	22.00		
20	QPSK	50	0	22.13	22.03	21.87	21.90	22.5	0
20	QPSK	50	24	21.99	21.96	21.85	21.89		
20	QPSK	50	50	21.94	21.94	21.80	21.85		
20	QPSK	100	0	22.04	21.99	21.85	21.88	22.5	0
20	16QAM	1	0	21.96	21.89	21.88	21.74		
20	16QAM	1	49	21.88	21.91	21.58	21.74		
20	16QAM	1	99	21.80	21.97	21.68	21.91	21.5	1
20	16QAM	50	0	21.10	21.03	21.02	20.97		
20	16QAM	50	24	21.04	21.07	20.98	21.04		
20	16QAM	50	50	20.97	21.07	20.94	21.07	21.5	1
20	16QAM	100	0	21.01	21.10	20.96	21.03		
20	64QAM	1	0	21.13	21.06	21.10	20.94		
20	64QAM	1	49	21.10	21.09	20.75	20.91	21.5	1
20	64QAM	1	99	20.94	21.13	20.84	21.10		
20	64QAM	50	0	20.18	20.13	20.02	19.96		
20	64QAM	50	24	20.11	20.17	19.97	20.03	21	1.5
20	64QAM	50	50	20.10	20.14	19.92	20.06		
20	64QAM	100	0	20.09	20.20	19.97	20.01		
Channel				40115	40395	40685	41165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2542.5	2570.5	2599.5	2647.5		
15	QPSK	1	0	22.11	22.01	22.03	22.04	22.5	0
15	QPSK	1	37	22.05	22.02	21.73	21.87		
15	QPSK	1	74	21.95	21.93	21.78	21.97		
15	QPSK	36	0	22.12	21.99	21.78	21.89	22.5	0
15	QPSK	36	20	21.94	21.89	21.76	21.80		
15	QPSK	36	39	21.92	21.89	21.80	21.76		
15	QPSK	75	0	22.02	21.89	21.76	21.78	22.5	0
15	16QAM	1	0	21.92	21.83	21.78	21.72		
15	16QAM	1	37	21.85	21.81	21.56	21.69		
15	16QAM	1	74	21.75	21.91	21.58	21.84	21.5	1
15	16QAM	36	0	21.10	20.95	20.92	20.95		
15	16QAM	36	20	21.03	21.03	20.89	21.01		
15	16QAM	36	39	20.91	20.99	20.90	21.07	21.5	1
15	16QAM	75	0	20.97	21.05	20.89	21.02		
15	64QAM	1	0	21.09	21.02	21.01	20.91		
15	64QAM	1	37	21.00	21.09	20.70	20.82	21.5	1
15	64QAM	1	74	20.93	21.07	20.78	21.06		
15	64QAM	36	0	20.13	20.06	20.02	19.94		
15	64QAM	36	20	20.07	20.13	19.88	19.94	21	1.5
15	64QAM	36	39	20.05	20.07	19.85	19.96		
15	64QAM	75	0	20.08	20.15	19.89	19.99		
Channel				40090	40390	40690	41190	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2540	2570	2600	2650		
10	QPSK	1	0	22.09	22.03	22.09	21.97	22.5	0
10	QPSK	1	25	22.06	22.02	21.73	21.89		
10	QPSK	1	49	21.95	21.93	21.76	21.90		
10	QPSK	25	0	22.03	22.01	21.87	21.90	22.5	0



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10	QPSK	25	12	21.90	21.96	21.83	21.89		
10	QPSK	25	25	21.84	21.88	21.77	21.77		
10	QPSK	50	0	21.94	21.90	21.82	21.85		
10	16QAM	1	0	21.93	21.85	21.84	21.70	22.5	0
10	16QAM	1	25	21.83	21.83	21.58	21.66		
10	16QAM	1	49	21.80	21.94	21.67	21.82		
10	16QAM	25	0	21.01	20.98	21.02	20.91	21.5	1
10	16QAM	25	12	20.98	21.04	20.96	21.02		
10	16QAM	25	25	20.97	21.06	20.91	21.02		
10	16QAM	50	0	21.01	21.07	20.88	21.03	21.5	1
10	64QAM	1	0	21.08	21.02	21.02	20.84		
10	64QAM	1	25	21.03	21.05	20.72	20.89		
10	64QAM	1	49	20.87	21.04	20.82	21.10	21	1.5
10	64QAM	25	0	20.13	20.08	20.00	19.93		
10	64QAM	25	12	20.01	20.17	19.94	19.96		
10	64QAM	25	25	20.10	20.04	19.84	20.06	Tune-up limit (dBm)	MPR (dB)
10	64QAM	50	0	20.04	20.12	19.96	19.95		
Channel				40065	40385	40705	41215		
Frequency (MHz)				2537.5	2569.5	2601.5	2652.5		
5	QPSK	1	0	22.12	22.08	22.05	21.97	22.5	0
5	QPSK	1	12	22.05	22.03	21.72	21.86		
5	QPSK	1	24	21.90	21.96	21.81	22.00		
5	QPSK	12	0	22.10	22.02	21.80	21.81	22.5	0
5	QPSK	12	7	21.96	21.92	21.76	21.83		
5	QPSK	12	13	21.89	21.93	21.72	21.81		
5	QPSK	25	0	22.03	21.96	21.75	21.81	22.5	0
5	16QAM	1	0	21.87	21.80	21.78	21.67		
5	16QAM	1	12	21.82	21.82	21.54	21.65		
5	16QAM	1	24	21.78	21.87	21.68	21.88	21.5	1
5	16QAM	12	0	21.09	20.98	21.00	20.87		
5	16QAM	12	7	20.94	20.97	20.89	21.00		
5	16QAM	12	13	20.90	21.01	20.91	21.00	21.5	1
5	16QAM	25	0	20.97	21.09	20.90	20.98		
5	64QAM	1	0	21.07	20.96	21.10	20.90		
5	64QAM	1	12	21.09	21.09	20.69	20.87	21	1.5
5	64QAM	1	24	20.93	21.04	20.76	21.03		
5	64QAM	12	0	20.11	20.12	19.93	19.90		
5	64QAM	12	7	20.04	20.15	19.92	19.97		
5	64QAM	12	13	20.06	20.07	19.86	20.04		
5	64QAM	25	0	20.02	20.14	19.96	19.97		

<Hotspot 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	22.06	22.12	22.33	22.5	0
20	QPSK	1	49	21.86	22.01	22.16		
20	QPSK	1	99	22.01	22.01	21.94		
20	QPSK	50	0	21.71	21.74	22.12	22.5	0
20	QPSK	50	24	21.45	21.64	21.77		
20	QPSK	50	50	21.64	21.63	21.52		
20	QPSK	100	0	21.68	21.72	22.04	22.5	0
20	16QAM	1	0	21.76	21.95	21.95		
20	16QAM	1	49	21.70	21.87	21.80		
20	16QAM	1	99	21.76	21.90	21.95	21.5	1
20	16QAM	50	0	20.90	20.94	21.17		
20	16QAM	50	24	20.87	21.07	21.05		
20	16QAM	50	50	20.84	20.98	20.90	21.5	1
20	16QAM	100	0	20.84	21.02	21.06		
20	64QAM	1	0	20.71	20.82	21.13		
20	64QAM	1	49	20.66	20.83	20.94	21.5	1
20	64QAM	1	99	20.80	20.80	20.73		
20	64QAM	50	0	19.90	19.94	20.17	21	1.5
20	64QAM	50	24	19.89	20.03	20.04		
20	64QAM	50	50	19.83	19.99	19.91		
20	64QAM	100	0	19.86	20.04	20.01		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.04	22.02	22.28	22.5	0
15	QPSK	1	37	21.76	21.92	22.15		
15	QPSK	1	74	21.96	21.99	21.91		
15	QPSK	36	0	21.62	21.66	22.11	22.5	0
15	QPSK	36	20	21.44	21.63	21.70		
15	QPSK	36	39	21.62	21.53	21.51		
15	QPSK	75	0	21.58	21.69	22.00	22.5	0
15	16QAM	1	0	21.68	21.92	21.85		
15	16QAM	1	37	21.66	21.86	21.76		
15	16QAM	1	74	21.76	21.87	21.85	21.5	1
15	16QAM	36	0	20.84	20.92	21.07		
15	16QAM	36	20	20.84	21.01	20.96		
15	16QAM	36	39	20.77	20.88	20.86	21.5	1
15	16QAM	75	0	20.81	20.99	20.99		
15	64QAM	1	0	20.70	20.73	21.12		
15	64QAM	1	37	20.60	20.81	20.94	21.5	1
15	64QAM	1	74	20.80	20.80	20.67		
15	64QAM	36	0	19.81	19.89	20.09		
15	64QAM	36	20	19.82	19.98	19.98	21	1.5
15	64QAM	36	39	19.75	19.92	19.85		
15	64QAM	75	0	19.84	19.94	19.91		
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.05	22.02	22.30	22.5	0
10	QPSK	1	25	21.81	21.94	22.10		
10	QPSK	1	49	21.99	21.98	21.93		



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10	QPSK	25	0	21.64	21.67	22.05	22.5	0
10	QPSK	25	12	21.45	21.59	21.76		
10	QPSK	25	25	21.58	21.62	21.52		
10	QPSK	50	0	21.68	21.66	21.95		
10	16QAM	1	0	21.69	21.95	21.91	22.5	0
10	16QAM	1	25	21.70	21.82	21.75		
10	16QAM	1	49	21.76	21.82	21.90		
10	16QAM	25	0	20.82	20.85	21.09	21.5	1
10	16QAM	25	12	20.78	20.99	20.98		
10	16QAM	25	25	20.84	20.92	20.86		
10	16QAM	50	0	20.80	20.97	21.05		
10	64QAM	1	0	20.61	20.82	21.13	21.5	1
10	64QAM	1	25	20.61	20.80	20.90		
10	64QAM	1	49	20.70	20.77	20.63		
10	64QAM	25	0	19.88	19.84	20.13	21	1.5
10	64QAM	25	12	19.79	20.03	19.96		
10	64QAM	25	25	19.79	19.98	19.89		
10	64QAM	50	0	19.80	20.02	20.01		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	21.97	22.09	22.32	22.5	0
5	QPSK	1	12	21.77	21.99	22.12		
5	QPSK	1	24	21.99	21.99	21.89		
5	QPSK	12	0	21.68	21.73	22.06	22.5	0
5	QPSK	12	7	21.35	21.63	21.67		
5	QPSK	12	13	21.62	21.62	21.46		
5	QPSK	25	0	21.67	21.63	22.03		
5	16QAM	1	0	21.68	21.87	21.85	22.5	0
5	16QAM	1	12	21.66	21.77	21.74		
5	16QAM	1	24	21.69	21.90	21.92		
5	16QAM	12	0	20.90	20.89	21.09	21.5	1
5	16QAM	12	7	20.77	21.01	21.01		
5	16QAM	12	13	20.74	20.98	20.81		
5	16QAM	25	0	20.84	21.02	21.01		
5	64QAM	1	0	20.68	20.73	21.07	21.5	1
5	64QAM	1	12	20.65	20.79	20.91		
5	64QAM	1	24	20.80	20.74	20.65		
5	64QAM	12	0	19.80	19.91	20.16	21	1.5
5	64QAM	12	7	19.87	20.00	19.97		
5	64QAM	12	13	19.79	19.91	19.81		
5	64QAM	25	0	19.85	20.01	19.92		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Low Ch. / Freq.	Power Middle High Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				40140	40400	40670	41140		
Frequency (MHz)				2545	2571	2598	2645		
20	QPSK	1	0	22.15	22.08	22.09	22.05	22.5	0
20	QPSK	1	49	22.11	22.05	21.76	21.89		
20	QPSK	1	99	21.95	22.02	21.82	22.00		
20	QPSK	50	0	22.13	22.03	21.87	21.90	22.5	0
20	QPSK	50	24	21.99	21.96	21.85	21.89		
20	QPSK	50	50	21.94	21.94	21.80	21.85		
20	QPSK	100	0	22.04	21.99	21.85	21.88	22.5	0
20	16QAM	1	0	21.96	21.89	21.88	21.74		
20	16QAM	1	49	21.88	21.91	21.58	21.74		
20	16QAM	1	99	21.80	21.97	21.68	21.91	21.5	1
20	16QAM	50	0	21.10	21.03	21.02	20.97		
20	16QAM	50	24	21.04	21.07	20.98	21.04		
20	16QAM	50	50	20.97	21.07	20.94	21.07	21.5	1
20	16QAM	100	0	21.01	21.10	20.96	21.03		
20	64QAM	1	0	21.13	21.06	21.10	20.94		
20	64QAM	1	49	21.10	21.09	20.75	20.91	21.5	1
20	64QAM	1	99	20.94	21.13	20.84	21.10		
20	64QAM	50	0	20.18	20.13	20.02	19.96		
20	64QAM	50	24	20.11	20.17	19.97	20.03	21	1.5
20	64QAM	50	50	20.10	20.14	19.92	20.06		
20	64QAM	100	0	20.09	20.20	19.97	20.01		
Channel				40115	40395	40685	41165		
Frequency (MHz)				2542.5	2570.5	2599.5	2647.5		
15	QPSK	1	0	22.10	22.06	21.99	22.03	22.5	0
15	QPSK	1	37	22.05	21.97	21.74	21.81		
15	QPSK	1	74	21.92	22.02	21.72	21.97		
15	QPSK	36	0	22.05	21.95	21.77	21.87	22.5	0
15	QPSK	36	20	21.93	21.88	21.76	21.81		
15	QPSK	36	39	21.91	21.88	21.74	21.75		
15	QPSK	75	0	22.03	21.91	21.76	21.85	22.5	0
15	16QAM	1	0	21.90	21.86	21.80	21.74		
15	16QAM	1	37	21.82	21.86	21.51	21.70		
15	16QAM	1	74	21.72	21.87	21.67	21.89	21.5	1
15	16QAM	36	0	21.07	20.99	21.01	20.87		
15	16QAM	36	20	21.02	20.98	20.96	20.95		
15	16QAM	36	39	20.91	21.00	20.87	21.06	21.5	1
15	16QAM	75	0	21.01	21.07	20.88	21.03		
15	64QAM	1	0	21.06	20.98	21.01	20.84		
15	64QAM	1	37	21.00	21.09	20.65	20.86	21.5	1
15	64QAM	1	74	20.87	21.04	20.79	21.03		
15	64QAM	36	0	20.09	20.13	19.96	19.93		
15	64QAM	36	20	20.10	20.17	19.89	19.99	21	1.5
15	64QAM	36	39	20.02	20.04	19.86	19.96		
15	64QAM	75	0	20.01	20.19	19.96	19.95		
Channel				40090	40390	40690	41190		
Frequency (MHz)				2540	2570	2600	2650		
10	QPSK	1	0	22.10	21.98	22.00	21.96	22.5	0
10	QPSK	1	25	22.09	22.04	21.68	21.85		
10	QPSK	1	49	21.95	21.99	21.82	21.96		
10	QPSK	25	0	22.11	22.03	21.79	21.81	22.5	0



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10	QPSK	25	12	21.96	21.93	21.84	21.88		
10	QPSK	25	25	21.87	21.84	21.74	21.76		
10	QPSK	50	0	21.95	21.97	21.80	21.88		
10	16QAM	1	0	21.86	21.79	21.88	21.71	22.5	0
10	16QAM	1	25	21.83	21.86	21.51	21.65		
10	16QAM	1	49	21.70	21.95	21.58	21.82		
10	16QAM	25	0	21.03	21.01	20.99	20.92	21.5	1
10	16QAM	25	12	20.95	20.98	20.89	20.94		
10	16QAM	25	25	20.96	21.01	20.86	21.03		
10	16QAM	50	0	20.98	21.07	20.95	21.00		
10	64QAM	1	0	21.12	21.02	21.03	20.86	21.5	1
10	64QAM	1	25	21.06	21.01	20.71	20.85		
10	64QAM	1	49	20.89	21.10	20.79	21.09		
10	64QAM	25	0	20.14	20.04	19.98	19.88	21	1.5
10	64QAM	25	12	20.10	20.09	19.97	20.00		
10	64QAM	25	25	20.02	20.11	19.85	19.98		
10	64QAM	50	0	19.99	20.11	19.97	19.99		
Channel				40065	40385	40705	41215	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2537.5	2569.5	2601.5	2652.5		
5	QPSK	1	0	22.14	22.00	22.03	22.03	22.5	0
5	QPSK	1	12	22.02	21.99	21.74	21.88		
5	QPSK	1	24	21.88	21.93	21.73	21.92		
5	QPSK	12	0	22.10	21.99	21.81	21.81	22.5	0
5	QPSK	12	7	21.95	21.90	21.85	21.80		
5	QPSK	12	13	21.92	21.92	21.75	21.77		
5	QPSK	25	0	22.04	21.90	21.77	21.78		
5	16QAM	1	0	21.87	21.81	21.84	21.66	22.5	0
5	16QAM	1	12	21.78	21.89	21.52	21.67		
5	16QAM	1	24	21.73	21.90	21.65	21.83		
5	16QAM	12	0	21.05	21.01	20.93	20.88	21.5	1
5	16QAM	12	7	21.00	20.98	20.92	20.96		
5	16QAM	12	13	20.97	21.01	20.93	21.04		
5	16QAM	25	0	20.96	21.07	20.93	20.99		
5	64QAM	1	0	21.03	21.00	21.01	20.90	21.5	1
5	64QAM	1	12	21.05	21.00	20.71	20.82		
5	64QAM	1	24	20.93	21.04	20.75	21.05		
5	64QAM	12	0	20.08	20.10	19.98	19.86	21	1.5
5	64QAM	12	7	20.06	20.12	19.96	19.95		
5	64QAM	12	13	20.01	20.08	19.92	19.98		
5	64QAM	25	0	20.00	20.18	19.97	19.99		

<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.

2CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset
1	7A-7A	
2	7B	
3	7C	
4	41A-41A	
5	41C	

<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		CA Configuration (BCS)	PCC							SCC				Power	
			LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Intra-Band	Non-Contiguous	7A-7A	7	20	2535	21100	QPSK	1	49	7	5	2622.5	2775	22.83	22.74
		41A-41A	41	20	2598	40670	QPSK	1	49	41	5	2537.5	40065	22.94	23.01
	Contiguous	7B	7	15	2507.5	20825	QPSK	1	0	7	5	2636.8	20918	22.97	22.74
		7C	7	20	2535	21100	QPSK	1	49	7	20	2674.8	21298	22.88	22.74
		41C	41	20	2598	40670	QPSK	1	49	41	20	2617.8	40868	23.14	23.01

<WLAN Conducted Power>
General Note:

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

<Default / Product Specific power mode>
<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.55	19.00	100.00
		6	2437	17.10	19.00	
		11	2462	17.41	19.00	
	802.11g 6Mbps	1	2412	15.12	16.50	98.28
		6	2437	14.56	16.50	
		11	2462	14.84	16.50	
	802.11n-HT20 MCS0	1	2412	14.23	15.50	98.16
		6	2437	13.97	15.50	
		11	2462	14.22	15.50	

<5GHz WLAN >

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	15.43	17.00	98.28
		40	5200	15.47	17.00	
		44	5220	15.60	17.00	
		48	5240	15.67	17.00	
	802.11n-HT20 MCS0	36	5180	14.87	16.50	98.16
		40	5200	14.83	16.50	
		44	5220	14.89	16.50	
		48	5240	14.96	16.50	
	802.11n-HT40 MCS0	38	5190	12.93	14.50	96.32
		46	5230	13.06	14.50	
	802.11ac-VHT20 MCS0	36	5180	14.39	16.00	97.79
		40	5200	14.38	16.00	
		44	5220	14.47	16.00	
		48	5240	14.69	16.00	
	802.11ac-VHT40 MCS0	38	5190	12.88	14.50	96.32
		46	5230	13.50	14.50	
	802.11ac-VHT80 MCS0	42	5210	10.18	12.00	93.02

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	15.12	17.00	98.28
		56	5280	15.17	17.00	
		60	5300	15.23	17.00	
		64	5320	15.50	17.00	
	802.11n-HT20 MCS0	52	5260	14.97	16.50	98.16
		56	5280	14.99	16.50	
		60	5300	15.20	16.50	
		64	5320	15.38	16.50	
	802.11n-HT40 MCS0	54	5270	13.03	15.00	96.32
		62	5310	13.27	15.00	
	802.11ac-VHT20 MCS0	52	5260	14.59	16.50	97.79
		56	5280	14.56	16.50	
		60	5300	14.77	16.50	
		64	5320	15.05	16.50	
	802.11ac-VHT40 MCS0	54	5270	13.49	15.00	96.32
		62	5310	13.75	15.00	
	802.11ac-VHT80 MCS0	58	5290	10.16	12.00	93.02

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	15.31	16.50	98.28
		116	5580	15.27	16.50	
		124	5620	14.98	16.50	
		132	5660	15.07	16.50	
		144	5720	15.16	16.50	
	802.11n-HT20 MCS0	100	5500	15.07	16.00	98.16
		116	5580	15.10	16.00	
		124	5620	14.85	16.00	
		132	5660	14.93	16.00	
		144	5720	14.96	16.00	
	802.11n-HT40 MCS0	102	5510	12.62	14.00	96.32
		110	5550	12.90	14.00	
		126	5630	12.65	14.00	
		134	5670	12.32	14.00	
		142	5710	12.48	14.00	
	802.11ac-VHT20 MCS0	100	5500	14.27	15.50	97.79
		116	5580	14.26	15.50	
		124	5620	13.95	15.50	
		132	5660	14.03	15.50	
		144	5720	14.40	15.50	
	802.11ac-VHT40 MCS0	102	5510	12.98	14.50	96.32
		110	5550	13.35	14.50	
		126	5630	13.15	14.50	
		134	5670	12.80	14.50	
		142	5710	12.96	14.50	
	802.11ac-VHT80 MCS0	106	5530	10.34	12.00	93.02
		122	5610	10.00	12.00	
		138	5690	10.19	12.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	14.62	16.00	98.28
		157	5785	14.34	16.00	
		165	5825	14.80	16.00	
	802.11n-HT20 MCS0	149	5745	14.46	16.00	98.16
		157	5785	14.20	16.00	
		165	5825	14.61	16.00	
	802.11n-HT40 MCS0	151	5755	12.88	14.50	96.32
		159	5795	12.69	14.50	
	802.11ac-VHT20 MCS0	149	5745	13.79	15.50	97.79
		157	5785	13.51	15.50	
		165	5825	13.67	15.50	
	802.11ac-VHT40 MCS0	151	5755	13.87	15.50	96.32
		159	5795	13.84	15.50	
	802.11ac-VHT80 MCS0	155	5775	10.19	12.00	93.02

<Near-Body / Hotspot power mode>
<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.55	19.00	100.00
		6	2437	17.10	19.00	
		11	2462	17.41	19.00	
	802.11g 6Mbps	1	2412	15.12	16.50	98.28
		6	2437	14.56	16.50	
		11	2462	14.84	16.50	
	802.11n-HT20 MCS0	1	2412	14.23	15.50	98.16
		6	2437	13.97	15.50	
		11	2462	14.22	15.50	

<5GHz WLAN >

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	14.80	15.00	98.28
		40	5200	13.30	15.00	
		44	5220	14.89	15.00	
		48	5240	14.86	15.00	
	802.11n-HT20 MCS0	36	5180	14.87	15.00	98.16
		40	5200	14.83	15.00	
		44	5220	14.89	15.00	
		48	5240	14.96	15.00	
	802.11n-HT40 MCS0	38	5190	12.93	14.50	96.32
		46	5230	13.06	14.50	
	802.11ac-VHT20 MCS0	36	5180	14.39	15.00	97.79
		40	5200	14.38	15.00	
		44	5220	14.47	15.00	
		48	5240	14.69	15.00	
	802.11ac-VHT40 MCS0	38	5190	12.88	14.50	96.32
		46	5230	13.50	14.50	
	802.11ac-VHT80 MCS0	42	5210	10.18	12.00	93.02

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	15.12	17.00	98.28
		56	5280	15.17	17.00	
		60	5300	15.23	17.00	
		64	5320	15.50	17.00	
	802.11n-HT20 MCS0	52	5260	14.97	16.50	98.16
		56	5280	14.99	16.50	
		60	5300	15.20	16.50	
		64	5320	15.38	16.50	
	802.11n-HT40 MCS0	54	5270	13.03	15.00	96.32
		62	5310	13.27	15.00	
	802.11ac-VHT20 MCS0	52	5260	14.59	16.50	97.79
		56	5280	14.56	16.50	
		60	5300	14.77	16.50	
		64	5320	15.05	16.50	
	802.11ac-VHT40 MCS0	54	5270	13.49	15.00	96.32
		62	5310	13.75	15.00	
	802.11ac-VHT80 MCS0	58	5290	10.16	12.00	93.02

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	13.98	14.00	98.28
		116	5580	13.99	14.00	
		124	5620	13.93	14.00	
		132	5660	13.99	14.00	
		144	5720	12.10	14.00	
	802.11n-HT20 MCS0	100	5500	13.83	14.00	98.16
		116	5580	14.00	14.00	
		124	5620	13.72	14.00	
		132	5660	13.79	14.00	
		144	5720	13.69	14.00	
	802.11n-HT40 MCS0	102	5510	12.01	13.50	96.32
		110	5550	12.38	13.50	
		126	5630	12.08	13.50	
		134	5670	11.80	13.50	
		142	5710	11.94	13.50	
	802.11ac-VHT20 MCS0	100	5500	12.55	14.00	97.79
		116	5580	12.54	14.00	
		124	5620	12.26	14.00	
		132	5660	12.35	14.00	
		144	5720	12.46	14.00	
	802.11ac-VHT40 MCS0	102	5510	11.86	13.50	96.32
		110	5550	12.23	13.50	
		126	5630	12.05	13.50	
		134	5670	11.70	13.50	
		142	5710	11.96	13.50	
	802.11ac-VHT80 MCS0	106	5530	10.34	12.00	93.02
		122	5610	10.00	12.00	
		138	5690	10.19	12.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	11.32	13.00	98.28
		157	5785	11.07	13.00	
		165	5825	11.09	13.00	
	802.11n-HT20 MCS0	149	5745	11.16	13.00	98.16
		157	5785	11.00	13.00	
		165	5825	11.01	13.00	
	802.11n-HT40 MCS0	151	5755	12.88	13.00	96.32
		159	5795	11.40	13.00	
	802.11ac-VHT20 MCS0	149	5745	12.13	13.00	97.79
		157	5785	11.78	13.00	
		165	5825	11.94	13.00	
	802.11ac-VHT40 MCS0	151	5755	12.82	13.00	96.32
		159	5795	12.74	13.00	
	802.11ac-VHT80 MCS0	155	5775	10.19	12.00	93.02



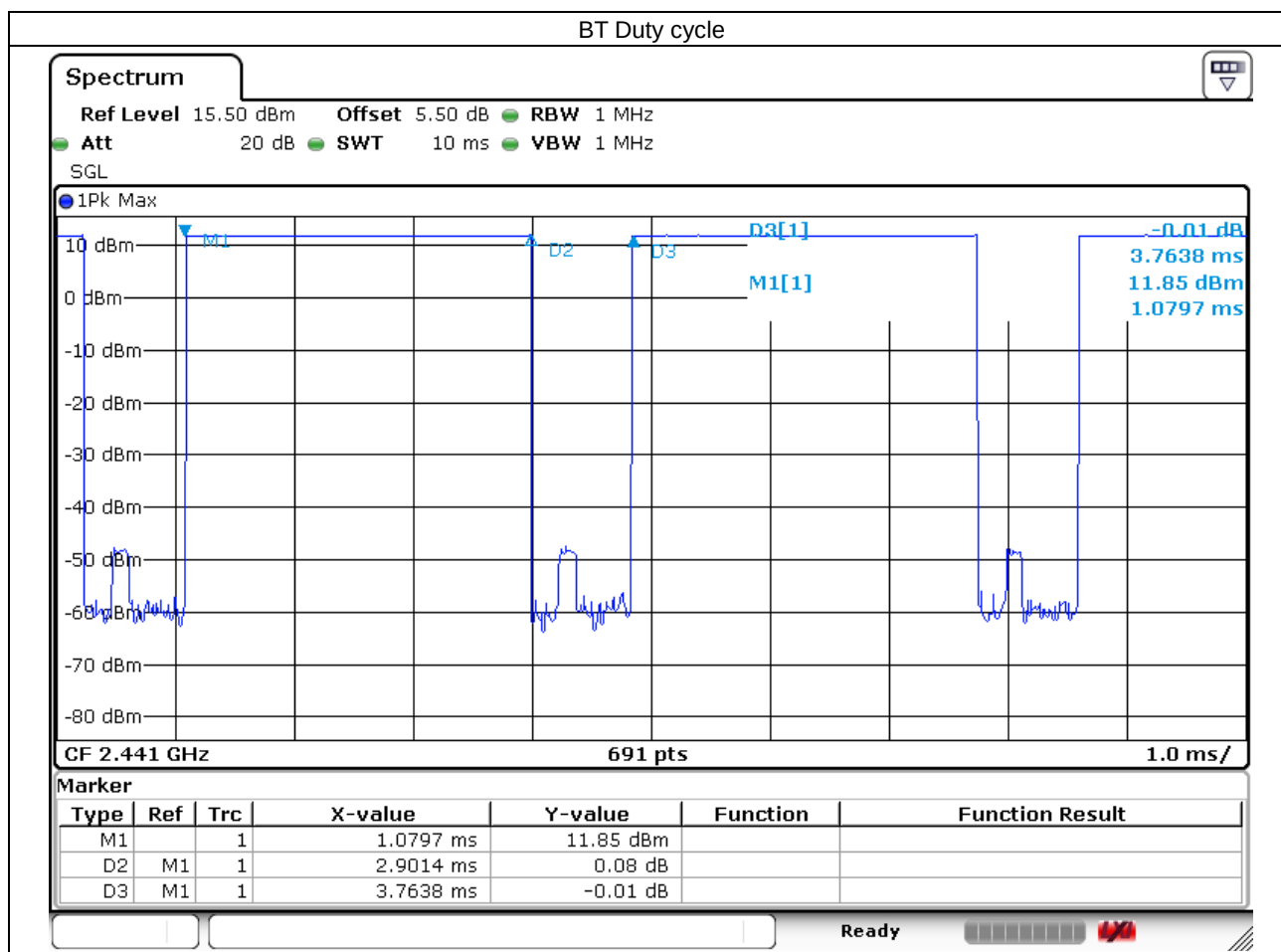
<2.4GHz Bluetooth>

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	11.07	8.94	8.91
	CH 39	2441	12.01	10.29	10.21
	CH 78	2480	11.30	9.59	9.63
Tune-up Limit			13.00	10.50	10.50

Mode	Channel	Frequency (MHz)	Average power (dBm)
			1Mbps
LE	CH 00	2402	1.53
	CH 19	2440	2.16
	CH 39	2480	1.44
Tune-up Limit			2.50

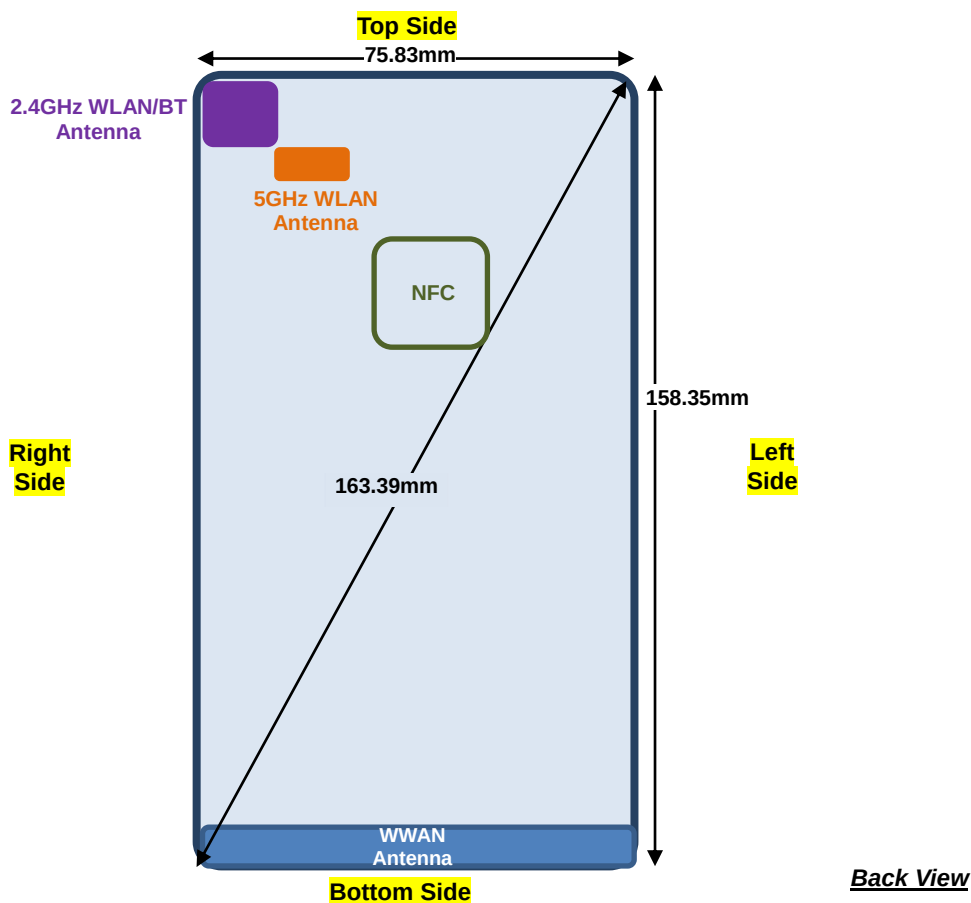
General Note:

- For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 77.6% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.



13. Antenna Location

<Mobile Phone>



Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
2.4GHz WLAN & BT	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm
5GHz WLAN	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN	Yes	Yes	No	Yes	Yes	Yes
2.4GHz WLAN & BT	Yes	Yes	Yes	No	Yes	No
5GHz WLAN	Yes	Yes	Yes	No	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

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
4. Per KDB648474 D04v01r03, when the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.
5. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold, for this device, SAR for WWAN transmitter scaled to maximum output power is higher than 1.2W/kg of GSM1900, WCDMA B2/B4/B5, LTE B2/B4/B7/B26/B41, therefore product specific SAR is necessary.
6. For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is > 16 cm.
7. For front and back position at hotspot exposure condition was choose higher power level between hotspot power table and body-worn power table for SAR compliance.
8. Reduced power for different RF exposure conditions:
 - a. Body worn: The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device, when operating in near-body condition by end user, the device will reduced maximum output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B38 / B41 and 5GHz WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
 - b. Hotspot: When the mobile hotspot session is turn on by end user, the device will reduced output powers on the GSM1900, WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B38 / B41 and 5GHz WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
 - c. Handheld: The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna, the device will reduced output powers on the WCDMA B2 / B4, LTE B2 / B4 / B7 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (2Tx slots) for GSM850/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 $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / 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 5 / 38 SAR test was covered by Band 26 / 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. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	GSM850	GPRS (2 Tx slots)	Right Cheek	0mm	128	824.2	30.71	31.50	1.199	0.16	0.123	0.148
	GSM850	GPRS (2 Tx slots)	Right Tilted	0mm	128	824.2	30.71	31.50	1.199	0.15	0.062	0.074
	GSM850	GPRS (2 Tx slots)	Left Cheek	0mm	128	824.2	30.71	31.50	1.199	-0.09	0.098	0.118
	GSM850	GPRS (2 Tx slots)	Left Tilted	0mm	128	824.2	30.71	31.50	1.199	0.06	0.054	0.065
	GSM1900	GPRS (2 Tx slots)	Right Cheek	0mm	512	1850.2	27.54	28.50	1.247	-0.16	0.055	0.069
	GSM1900	GPRS (2 Tx slots)	Right Tilted	0mm	512	1850.2	27.54	28.50	1.247	0.01	0.037	0.046
02	GSM1900	GPRS (2 Tx slots)	Left Cheek	0mm	512	1850.2	27.54	28.50	1.247	0.03	0.103	0.128
	GSM1900	GPRS (2 Tx slots)	Left Tilted	0mm	512	1850.2	27.54	28.50	1.247	-0.07	0.081	0.101

<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	RMC 12.2Kbps	Right Cheek	0mm	9400	1880	22.70	24.00	1.349	0.05	0.148	0.200
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	9400	1880	22.70	24.00	1.349	0.18	0.124	0.167
03	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	9400	1880	22.70	24.00	1.349	-0.02	0.308	0.415
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	9400	1880	22.70	24.00	1.349	0.11	0.088	0.119
	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	1413	1732.6	22.67	24.00	1.358	0.08	0.130	0.177
	WCDMA IV	RMC 12.2Kbps	Right Tilted	0mm	1413	1732.6	22.67	24.00	1.358	0.1	0.089	0.121
04	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	1413	1732.6	22.67	24.00	1.358	0	0.257	0.349
	WCDMA IV	RMC 12.2Kbps	Left Tilted	0mm	1413	1732.6	22.67	24.00	1.358	0.04	0.094	0.128
05	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	4182	836.4	22.86	24.00	1.300	0.01	0.268	0.348
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	4182	836.4	22.86	24.00	1.300	-0.02	0.103	0.134
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	4182	836.4	22.86	24.00	1.300	-0.05	0.180	0.234
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	4182	836.4	22.86	24.00	1.300	-0.04	0.105	0.137

<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	20M	QPSK	1	49	Right Cheek	0mm	19100	1900	22.81	24.00	1.315	0.15	0.134	0.176
	LTE Band 2	20M	QPSK	50	24	Right Cheek	0mm	19100	1900	21.84	23.00	1.306	0.06	0.081	0.106
	LTE Band 2	20M	QPSK	1	49	Right Tilted	0mm	19100	1900	22.81	24.00	1.315	0.01	0.112	0.147
	LTE Band 2	20M	QPSK	50	24	Right Tilted	0mm	19100	1900	21.84	23.00	1.306	0.05	0.060	0.078
	LTE Band 2	20M	QPSK	1	49	Left Cheek	0mm	19100	1900	22.81	24.00	1.315	0.01	0.089	0.117
	LTE Band 2	20M	QPSK	50	24	Left Cheek	0mm	19100	1900	21.84	23.00	1.306	0.12	0.072	0.094
	LTE Band 2	20M	QPSK	1	49	Left Tilted	0mm	19100	1900	22.81	24.00	1.315	0.15	0.058	0.076
	LTE Band 2	20M	QPSK	50	24	Left Tilted	0mm	19100	1900	21.84	23.00	1.306	0.19	0.033	0.043
	LTE Band 4	20M	QPSK	1	0	Right Cheek	0mm	20175	1732.5	22.72	24.00	1.343	0.03	0.098	0.132
	LTE Band 4	20M	QPSK	50	0	Right Cheek	0mm	20175	1732.5	21.66	23.00	1.361	-0.01	0.052	0.071
	LTE Band 4	20M	QPSK	1	0	Right Tilted	0mm	20175	1732.5	22.72	24.00	1.343	0.05	0.055	0.074
	LTE Band 4	20M	QPSK	50	0	Right Tilted	0mm	20175	1732.5	21.66	23.00	1.361	-0.11	0.028	0.038
07	LTE Band 4	20M	QPSK	1	0	Left Cheek	0mm	20175	1732.5	22.72	24.00	1.343	0.14	0.105	0.141
	LTE Band 4	20M	QPSK	50	0	Left Cheek	0mm	20175	1732.5	21.66	23.00	1.361	0.15	0.052	0.071
	LTE Band 4	20M	QPSK	1	0	Left Tilted	0mm	20175	1732.5	22.72	24.00	1.343	0.1	0.048	0.064
	LTE Band 4	20M	QPSK	50	0	Left Tilted	0mm	20175	1732.5	21.66	23.00	1.361	0.01	0.023	0.031
	LTE Band 7	20M	QPSK	1	49	Right Cheek	0mm	21100	2535	22.74	24.00	1.337	-0.09	0.180	0.241
	LTE Band 7	20M	QPSK	50	24	Right Cheek	0mm	21350	2560	21.75	23.00	1.334	-0.06	0.182	0.243
08	LTE Band 7	20M	QPSK	1	49	Right Tilted	0mm	21100	2535	22.74	24.00	1.337	0.03	0.258	0.345
	LTE Band 7	20M	QPSK	50	24	Right Tilted	0mm	21350	2560	21.75	23.00	1.334	-0.01	0.178	0.237
	LTE Band 7	20M	QPSK	1	49	Left Cheek	0mm	21100	2535	22.74	24.00	1.337	-0.17	0.252	0.337
	LTE Band 7	20M	QPSK	50	24	Left Cheek	0mm	21350	2560	21.75	23.00	1.334	-0.17	0.251	0.335
	LTE Band 7	20M	QPSK	1	49	Left Tilted	0mm	21100	2535	22.74	24.00	1.337	-0.09	0.130	0.174
	LTE Band 7	20M	QPSK	50	24	Left Tilted	0mm	21350	2560	21.75	23.00	1.334	-0.13	0.127	0.169
09	LTE Band 26	15M	QPSK	1	37	Right Cheek	0mm	26865	831.5	22.86	24.00	1.300	0	0.246	0.320
	LTE Band 26	15M	QPSK	37	0	Right Cheek	0mm	26865	831.5	21.93	23.00	1.279	0.05	0.187	0.239
	LTE Band 26	15M	QPSK	1	37	Right Tilted	0mm	26865	831.5	22.86	24.00	1.300	0.03	0.096	0.124
	LTE Band 26	15M	QPSK	37	0	Right Tilted	0mm	26865	831.5	21.93	23.00	1.279	0.01	0.049	0.063
	LTE Band 26	15M	QPSK	1	37	Left Cheek	0mm	26865	831.5	22.86	24.00	1.300	0	0.172	0.224
	LTE Band 26	15M	QPSK	37	0	Left Cheek	0mm	26865	831.5	21.93	23.00	1.279	-0.03	0.118	0.151
	LTE Band 26	15M	QPSK	1	37	Left Tilted	0mm	26865	831.5	22.86	24.00	1.300	0.14	0.103	0.134
	LTE Band 26	15M	QPSK	37	0	Left Tilted	0mm	26865	831.5	21.93	23.00	1.279	-0.02	0.064	0.082

<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	20M	QPSK	1	49	Right Cheek	0mm	40670	2598	23.01	24.00	1.256	62.9	1.006	-0.17	0.189	0.239
	LTE Band 41	20M	QPSK	50	24	Right Cheek	0mm	40670	2598	22.10	23.00	1.230	62.9	1.006	-0.17	0.142	0.176
10	LTE Band 41	20M	QPSK	1	49	Right Tilted	0mm	40670	2598	23.01	24.00	1.256	62.9	1.006	0.03	0.267	0.337
	LTE Band 41	20M	QPSK	50	24	Right Tilted	0mm	40670	2598	22.10	23.00	1.230	62.9	1.006	0.19	0.232	0.287
	LTE Band 41	20M	QPSK	1	49	Left Cheek	0mm	40670	2598	23.01	24.00	1.256	62.9	1.006	-0.12	0.255	0.322
	LTE Band 41	20M	QPSK	50	24	Left Cheek	0mm	40670	2598	22.10	23.00	1.230	62.9	1.006	-0.18	0.219	0.271
	LTE Band 41	20M	QPSK	1	49	Left Tilted	0mm	40670	2598	23.01	24.00	1.256	62.9	1.006	0.1	0.091	0.115
	LTE Band 41	20M	QPSK	50	24	Left Tilted	0mm	40670	2598	22.10	23.00	1.230	62.9	1.006	0.16	0.085	0.105

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	1	2412	17.55	19.00	1.396	100	1.000	0.06	0.332	0.464
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	1	2412	17.55	19.00	1.396	100	1.000	0.08	0.447	0.624
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	1	2412	17.55	19.00	1.396	100	1.000	0.03	0.790	1.103
11	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	6	2437	17.10	19.00	1.549	100	1.000	0.06	0.754	1.168
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	11	2462	17.41	19.00	1.442	100	1.000	-0.11	0.715	1.031
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	1	2412	17.55	19.00	1.396	100	1.000	-0.05	0.555	0.775
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	64	5320	15.50	17.00	1.413	98.28	1.018	-0.17	0.099	0.142
12	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	64	5320	15.50	17.00	1.413	98.28	1.018	-0.11	0.136	0.196
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	64	5320	15.50	17.00	1.413	98.28	1.018	0.03	0.081	0.116
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	64	5320	15.50	17.00	1.413	98.28	1.018	-0.12	0.103	0.148
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	100	5500	15.31	16.50	1.317	98.28	1.018	-0.12	0.111	0.149
13	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	100	5500	15.31	16.50	1.317	98.28	1.018	-0.02	0.123	0.165
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	100	5500	15.31	16.50	1.317	98.28	1.018	-0.06	0.084	0.113
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	100	5500	15.31	16.50	1.317	98.28	1.018	-0.17	0.108	0.145
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	165	5825	14.80	16.00	1.320	98.28	1.018	-0.07	0.130	0.175
14	WLAN5GHz	802.11a 6Mbps	Right Tilted	0mm	165	5825	14.80	16.00	1.320	98.28	1.018	0.06	0.209	0.281
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	165	5825	14.80	16.00	1.320	98.28	1.018	-0.15	0.112	0.150
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	165	5825	14.80	16.00	1.320	98.28	1.018	-0.18	0.139	0.187

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Right Cheek	0mm	39	2441	12.01	13.00	1.256	77.6	1.073	0.11	0.066	0.089
	Bluetooth	1Mbps	Right Tilted	0mm	39	2441	12.01	13.00	1.256	77.6	1.073	-0.05	0.078	0.105
15	Bluetooth	1Mbps	Left Cheek	0mm	39	2441	12.01	13.00	1.256	77.6	1.073	0.05	0.124	0.167
	Bluetooth	1Mbps	Left Tilted	0mm	39	2441	12.01	13.00	1.256	77.6	1.073	0.05	0.092	0.124

14.2 Hotspot 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	GPRS (2 Tx slots)	Front	5mm	128	824.2	30.71	31.50	1.199	0.02	0.613	0.735
	GSM850	GPRS (2 Tx slots)	Front	5mm	189	836.4	30.44	31.50	1.276	0.03	0.793	1.012
	GSM850	GPRS (2 Tx slots)	Front	5mm	251	848.8	30.46	31.50	1.271	0.08	0.827	1.051
	GSM850	GPRS (2 Tx slots)	Back	5mm	128	824.2	30.71	31.50	1.199	-0.12	0.781	0.937
	GSM850	GPRS (2 Tx slots)	Back	5mm	189	836.4	30.44	31.50	1.276	0.19	0.846	1.080
16	GSM850	GPRS (2 Tx slots)	Back	5mm	251	848.8	30.46	31.50	1.271	0.1	1.140	1.448
	GSM850	GPRS (2 Tx slots)	Left Side	5mm	128	824.2	30.71	31.50	1.199	-0.03	0.109	0.131
	GSM850	GPRS (2 Tx slots)	Right Side	5mm	128	824.2	30.71	31.50	1.199	0.09	0.328	0.393
	GSM850	GPRS (2 Tx slots)	Bottom Side	5mm	128	824.2	30.71	31.50	1.199	-0.14	0.694	0.832
	GSM850	GPRS (2 Tx slots)	Bottom Side	5mm	189	836.4	30.44	31.50	1.276	0.12	0.802	1.024
	GSM850	GPRS (2 Tx slots)	Bottom Side	5mm	251	848.8	30.46	31.50	1.271	0.13	0.812	1.032
	GSM1900	GPRS (2 Tx slots)	Front	5mm	512	1850.2	27.54	28.50	1.247	-0.05	0.743	0.927
	GSM1900	GPRS (2 Tx slots)	Front	5mm	661	1880	27.50	28.50	1.259	0.08	0.799	1.006
	GSM1900	GPRS (2 Tx slots)	Front	5mm	810	1909.8	27.36	28.50	1.300	-0.01	0.791	1.028
	GSM1900	GPRS (2 Tx slots)	Back	5mm	512	1850.2	27.54	28.50	1.247	0.04	1.070	1.335
	GSM1900	GPRS (2 Tx slots)	Back	5mm	661	1880	27.50	28.50	1.259	0	1.040	1.309
	GSM1900	GPRS (2 Tx slots)	Back	5mm	810	1909.8	27.36	28.50	1.300	0.08	1.020	1.326
	GSM1900	GPRS (2 Tx slots)	Left Side	5mm	512	1850.2	25.35	26.00	1.161	0.16	0.059	0.069
	GSM1900	GPRS (2 Tx slots)	Right Side	5mm	512	1850.2	25.35	26.00	1.161	-0.07	0.540	0.627
17	GSM1900	GPRS (2 Tx slots)	Bottom Side	5mm	512	1850.2	25.35	26.00	1.161	0.06	1.160	1.347
	GSM1900	GPRS (2 Tx slots)	Bottom Side	5mm	661	1880	25.30	26.00	1.175	0.05	0.947	1.113
	GSM1900	GPRS (2 Tx slots)	Bottom Side	5mm	810	1909.8	25.28	26.00	1.180	-0.05	0.901	1.063

<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	RMC 12.2Kbps	Front	5mm	9538	1907.6	19.39	19.50	1.026	0.05	0.840	0.862
	WCDMA II	RMC 12.2Kbps	Front	5mm	9262	1852.4	19.23	19.50	1.064	0.02	0.882	0.939
	WCDMA II	RMC 12.2Kbps	Front	5mm	9400	1880	19.34	19.50	1.038	0.09	0.872	0.905
	WCDMA II	RMC 12.2Kbps	Back	5mm	9538	1907.6	19.39	19.50	1.026	0.03	1.200	1.231
	WCDMA II	RMC 12.2Kbps	Back	5mm	9262	1852.4	19.23	19.50	1.064	0.03	1.230	1.309
	WCDMA II	RMC 12.2Kbps	Back	5mm	9400	1880	19.34	19.50	1.038	0.01	1.210	1.255
	WCDMA II	RMC 12.2Kbps	Left Side	5mm	9538	1907.6	16.17	16.50	1.079	-0.02	0.028	0.030
	WCDMA II	RMC 12.2Kbps	Right Side	5mm	9538	1907.6	16.17	16.50	1.079	0.06	0.441	0.476
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	9538	1907.6	16.17	16.50	1.079	0.02	0.937	1.011
18	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	9262	1852.4	16.13	16.50	1.089	0.03	1.210	1.318
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	9400	1880	16.09	16.50	1.099	-0.05	1.090	1.198
	WCDMA IV	RMC 12.2Kbps	Front	5mm	1513	1752.6	18.36	19.00	1.159	0.01	0.960	1.112
	WCDMA IV	RMC 12.2Kbps	Front	5mm	1312	1712.4	18.33	19.00	1.167	0.19	0.896	1.045
	WCDMA IV	RMC 12.2Kbps	Front	5mm	1413	1732.6	18.33	19.00	1.167	0.05	0.950	1.108
	WCDMA IV	RMC 12.2Kbps	Back	5mm	1513	1752.6	18.36	19.00	1.159	-0.03	1.060	1.228
	WCDMA IV	RMC 12.2Kbps	Back	5mm	1312	1712.4	18.33	19.00	1.167	-0.03	0.894	1.043
	WCDMA IV	RMC 12.2Kbps	Back	5mm	1413	1732.6	18.33	19.00	1.167	-0.02	1.050	1.225
	WCDMA IV	RMC 12.2Kbps	Left Side	5mm	1513	1752.6	15.77	16.50	1.183	0.03	0.032	0.038
	WCDMA IV	RMC 12.2Kbps	Right Side	5mm	1513	1752.6	15.77	16.50	1.183	-0.04	0.277	0.328
19	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	1513	1752.6	15.77	16.50	1.183	-0.04	1.100	1.301
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	1312	1712.4	15.66	16.50	1.213	-0.02	0.923	1.120
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	1413	1732.6	15.73	16.50	1.194	-0.04	1.070	1.278
	WCDMA V	RMC 12.2Kbps	Front	5mm	4182	836.4	22.49	22.50	1.002	0.04	0.910	0.912
	WCDMA V	RMC 12.2Kbps	Back	5mm	4182	836.4	22.49	22.50	1.002	-0.16	1.070	1.072
	WCDMA V	RMC 12.2Kbps	Back	5mm	4132	826.4	22.41	22.50	1.021	-0.15	0.981	1.002
20	WCDMA V	RMC 12.2Kbps	Back	5mm	4233	846.6	22.35	22.50	1.035	-0.15	1.150	1.190
	WCDMA V	RMC 12.2Kbps	Left Side	5mm	4182	836.4	22.49	22.50	1.002	-0.03	0.154	0.154
	WCDMA V	RMC 12.2Kbps	Right Side	5mm	4182	836.4	22.49	22.50	1.002	-0.07	0.485	0.486
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	4182	836.4	22.49	22.50	1.002	-0.1	0.755	0.757

<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	20M	QPSK	1	0	Front	5mm	19100	1900	20.23	20.50	1.064	0.05	0.874	0.930
	LTE Band 2	20M	QPSK	1	0	Front	5mm	18700	1860	20.17	20.50	1.079	0.06	0.864	0.932
	LTE Band 2	20M	QPSK	1	0	Front	5mm	18900	1880	20.12	20.50	1.091	0.04	0.868	0.947
	LTE Band 2	20M	QPSK	50	0	Front	5mm	19100	1900	20.11	20.50	1.094	0.05	0.877	0.959
	LTE Band 2	20M	QPSK	50	0	Front	5mm	18700	1860	20.08	20.50	1.102	0	0.862	0.950
	LTE Band 2	20M	QPSK	50	0	Front	5mm	18900	1880	19.96	20.50	1.132	0.02	0.876	0.992
	LTE Band 2	20M	QPSK	100	0	Front	5mm	19100	1900	20.08	20.50	1.102	0.03	0.839	0.924
	LTE Band 2	20M	QPSK	1	0	Back	5mm	19100	1900	20.23	20.50	1.064	-0.01	1.240	1.320
	LTE Band 2	20M	QPSK	1	0	Back	5mm	18700	1860	20.17	20.50	1.079	0.11	1.230	1.327
	LTE Band 2	20M	QPSK	1	0	Back	5mm	18900	1880	20.12	20.50	1.091	0	1.210	1.321
	LTE Band 2	20M	QPSK	50	0	Back	5mm	19100	1900	20.11	20.50	1.094	0.02	1.200	1.313
	LTE Band 2	20M	QPSK	50	0	Back	5mm	18700	1860	20.08	20.50	1.102	-0.05	1.180	1.300
	LTE Band 2	20M	QPSK	50	0	Back	5mm	18900	1880	19.96	20.50	1.132	-0.01	1.170	1.325
	LTE Band 2	20M	QPSK	100	0	Back	5mm	19100	1900	20.08	20.50	1.102	0.04	1.190	1.311
	LTE Band 2	20M	QPSK	1	0	Left Side	5mm	19100	1900	17.61	18.00	1.094	-0.02	0.028	0.031
	LTE Band 2	20M	QPSK	50	0	Left Side	5mm	19100	1900	17.58	18.00	1.102	0.06	0.025	0.028
	LTE Band 2	20M	QPSK	1	0	Right Side	5mm	19100	1900	17.61	18.00	1.094	-0.06	0.439	0.480
	LTE Band 2	20M	QPSK	50	0	Right Side	5mm	19100	1900	17.58	18.00	1.102	-0.06	0.426	0.469
	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	19100	1900	17.61	18.00	1.094	0.02	1.140	1.247
21	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	18700	1860	17.56	18.00	1.107	0.12	1.210	1.339
	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	18900	1880	17.57	18.00	1.104	-0.05	1.140	1.259
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	19100	1900	17.58	18.00	1.102	0.03	1.110	1.223
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	18700	1860	17.50	18.00	1.122	-0.02	1.180	1.324
	LTE Band 2	20M	QPSK	50	0	Bottom Side	5mm	18900	1880	17.52	18.00	1.117	-0.04	1.130	1.262
	LTE Band 2	20M	QPSK	100	0	Bottom Side	5mm	19100	1900	17.53	18.00	1.114	-0.01	1.100	1.226
	LTE Band 4	20M	QPSK	1	0	Front	5mm	20175	1732.5	20.32	21.00	1.169	0.01	0.948	1.109
	LTE Band 4	20M	QPSK	50	0	Front	5mm	20175	1732.5	20.29	21.00	1.178	0.02	0.992	1.168
	LTE Band 4	20M	QPSK	100	0	Front	5mm	20175	1732.5	20.27	21.00	1.183	0.02	0.984	1.164
	LTE Band 4	20M	QPSK	1	0	Back	5mm	20175	1732.5	20.32	21.00	1.169	-0.03	1.130	1.322
	LTE Band 4	20M	QPSK	50	0	Back	5mm	20175	1732.5	20.29	21.00	1.178	0.11	1.110	1.307
	LTE Band 4	20M	QPSK	100	0	Back	5mm	20175	1732.5	20.27	21.00	1.183	-0.05	1.080	1.278
	LTE Band 4	20M	QPSK	1	0	Left Side	5mm	20175	1732.5	17.26	18.00	1.186	-0.05	0.041	0.049
	LTE Band 4	20M	QPSK	50	0	Left Side	5mm	20175	1732.5	17.22	18.00	1.197	-0.09	0.042	0.050
	LTE Band 4	20M	QPSK	1	0	Right Side	5mm	20175	1732.5	17.26	18.00	1.186	-0.09	0.237	0.281
	LTE Band 4	20M	QPSK	50	0	Right Side	5mm	20175	1732.5	17.22	18.00	1.197	-0.06	0.246	0.294
22	LTE Band 4	20M	QPSK	1	0	Bottom Side	5mm	20175	1732.5	17.26	18.00	1.186	-0.03	1.140	1.352
	LTE Band 4	20M	QPSK	50	0	Bottom Side	5mm	20175	1732.5	17.22	18.00	1.197	-0.01	1.120	1.340
	LTE Band 4	20M	QPSK	100	0	Bottom Side	5mm	20175	1732.5	17.20	18.00	1.202	-0.04	1.100	1.322

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 7	20M	QPSK	1	0	Front	5mm	21100	2535	20.37	20.50	1.030	0.05	0.960	0.989
	LTE Band 7	20M	QPSK	1	0	Front	5mm	20850	2510	20.29	20.50	1.050	0	0.894	0.938
	LTE Band 7	20M	QPSK	1	0	Front	5mm	21350	2560	20.22	20.50	1.067	0	1.040	1.109
	LTE Band 7	20M	QPSK	50	0	Front	5mm	21100	2535	20.15	20.50	1.084	-0.01	0.905	0.981
	LTE Band 7	20M	QPSK	50	0	Front	5mm	20850	2510	20.11	20.50	1.094	0.07	0.882	0.965
	LTE Band 7	20M	QPSK	50	0	Front	5mm	21350	2560	20.02	20.50	1.117	0.05	0.980	1.095
	LTE Band 7	20M	QPSK	100	0	Front	5mm	21100	2535	20.09	20.50	1.099	-0.03	0.779	0.856
	LTE Band 7	20M	QPSK	1	0	Back	5mm	21100	2535	20.37	20.50	1.030	0.02	1.033	1.064
	LTE Band 7	20M	QPSK	1	0	Back	5mm	20850	2510	20.29	20.50	1.050	-0.04	0.960	1.008
23	LTE Band 7	20M	QPSK	1	0	Back	5mm	21350	2560	20.22	20.50	1.067	-0.04	1.340	1.429
	LTE Band 7	20M	QPSK	50	0	Back	5mm	21100	2535	20.15	20.50	1.084	-0.02	0.925	1.003
	LTE Band 7	20M	QPSK	50	0	Back	5mm	20850	2510	20.11	20.50	1.094	0.03	0.832	0.910
	LTE Band 7	20M	QPSK	50	0	Back	5mm	21350	2560	20.02	20.50	1.117	-0.05	1.110	1.240
	LTE Band 7	20M	QPSK	100	0	Back	5mm	21100	2535	20.09	20.50	1.099	0.01	0.942	1.035
	LTE Band 7	20M	QPSK	1	0	Left Side	5mm	21100	2535	20.37	20.50	1.030	-0.08	0.744	0.767
	LTE Band 7	20M	QPSK	50	0	Left Side	5mm	20850	2510	20.15	20.50	1.084	-0.05	0.718	0.778
	LTE Band 7	20M	QPSK	1	0	Right Side	5mm	21100	2535	20.37	20.50	1.030	-0.13	0.092	0.095
	LTE Band 7	20M	QPSK	50	0	Right Side	5mm	21100	2535	20.15	20.50	1.084	-0.14	0.071	0.077
	LTE Band 7	20M	QPSK	1	0	Bottom Side	5mm	21100	2535	20.37	20.50	1.030	-0.07	0.664	0.684
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	21100	2535	20.15	20.50	1.084	-0.19	0.553	0.599
	LTE Band 26	15M	QPSK	1	37	Front	5mm	26865	831.5	22.86	24.00	1.300	0.04	0.868	1.129
	LTE Band 26	15M	QPSK	36	0	Front	5mm	26865	831.5	21.93	23.00	1.279	0.04	0.479	0.613
	LTE Band 26	15M	QPSK	75	0	Front	5mm	26865	831.5	21.85	23.00	1.303	0.06	0.484	0.631
24	LTE Band 26	15M	QPSK	1	37	Back	5mm	26865	831.5	22.86	24.00	1.300	-0.09	0.994	1.292
	LTE Band 26	15M	QPSK	37	0	Back	5mm	26865	831.5	21.93	23.00	1.279	-0.13	0.548	0.701
	LTE Band 26	15M	QPSK	75	0	Back	5mm	26865	831.5	21.85	23.00	1.303	-0.08	0.553	0.721
	LTE Band 26	15M	QPSK	1	37	Left Side	5mm	26865	831.5	22.86	24.00	1.300	-0.03	0.146	0.190
	LTE Band 26	10M	QPSK	36	0	Left Side	5mm	26865	831.5	21.93	23.00	1.279	-0.04	0.079	0.101
	LTE Band 26	15M	QPSK	1	37	Right Side	5mm	26865	831.5	22.86	24.00	1.300	-0.02	0.436	0.567
	LTE Band 26	15M	QPSK	36	0	Right Side	5mm	26865	831.5	21.93	23.00	1.279	-0.04	0.238	0.304
	LTE Band 26	15M	QPSK	1	37	Bottom Side	5mm	26865	831.5	22.86	24.00	1.300	-0.04	0.801	1.041
	LTE Band 26	15M	QPSK	36	0	Bottom Side	5mm	26865	831.5	21.93	23.00	1.279	-0.02	0.443	0.567
	LTE Band 26	15M	QPSK	75	0	Bottom Side	5mm	26865	831.5	21.85	23.00	1.303	-0.03	0.447	0.583



<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	20M	QPSK	1	0	Front	5mm	40140	2545	22.15	22.50	1.084	62.9	1.006	-0.06	0.674	0.735
	LTE Band 41	20M	QPSK	1	0	Front	5mm	40400	2571	22.08	22.50	1.102	62.9	1.006	0.02	0.699	0.775
	LTE Band 41	20M	QPSK	1	0	Front	5mm	40670	2598	22.09	22.50	1.099	62.9	1.006	0.02	0.805	0.890
	LTE Band 41	20M	QPSK	1	0	Front	5mm	41140	2645	22.05	22.50	1.109	62.9	1.006	-0.01	0.873	0.974
	LTE Band 41	20M	QPSK	50	0	Front	5mm	40140	2545	22.13	22.50	1.089	62.9	1.006	-0.03	0.580	0.635
	LTE Band 41	20M	QPSK	50	0	Front	5mm	40400	2571	22.03	22.50	1.114	62.9	1.006	0.05	0.613	0.687
	LTE Band 41	20M	QPSK	50	0	Front	5mm	40670	2598	21.87	22.50	1.156	62.9	1.006	0.05	0.676	0.786
	LTE Band 41	20M	QPSK	50	0	Front	5mm	41140	2645	21.90	22.50	1.148	62.9	1.006	0.02	0.698	0.806
	LTE Band 41	20M	QPSK	100	0	Front	5mm	40140	2545	22.04	22.50	1.112	62.9	1.006	-0.02	0.615	0.688
	LTE Band 41	20M	QPSK	1	0	Back	5mm	40140	2545	22.15	22.50	1.084	62.9	1.006	0	0.911	0.993
	LTE Band 41	20M	QPSK	1	0	Back	5mm	40400	2571	22.08	22.50	1.102	62.9	1.006	-0.05	1.020	1.130
25	LTE Band 41	20M	QPSK	1	0	Back	5mm	40670	2598	22.09	22.50	1.099	62.9	1.006	-0.01	1.200	1.327
	LTE Band 41	20M	QPSK	1	0	Back	5mm	41140	2645	22.05	22.50	1.109	62.9	1.006	-0.01	1.100	1.227
	LTE Band 41	20M	QPSK	50	0	Back	5mm	40140	2545	22.13	22.50	1.089	62.9	1.006	-0.05	0.687	0.753
	LTE Band 41	20M	QPSK	50	0	Back	5mm	40400	2571	22.03	22.50	1.114	62.9	1.006	-0.1	0.759	0.851
	LTE Band 41	20M	QPSK	50	0	Back	5mm	40670	2598	21.87	22.50	1.156	62.9	1.006	-0.19	0.821	0.955
	LTE Band 41	20M	QPSK	50	0	Back	5mm	41140	2645	21.90	22.50	1.148	62.9	1.006	-0.12	0.844	0.975
	LTE Band 41	20M	QPSK	100	0	Back	5mm	40140	2545	22.04	22.50	1.112	62.9	1.006	-0.1	0.772	0.863
	LTE Band 41	20M	QPSK	1	0	Left Side	5mm	40140	2545	22.15	22.50	1.084	62.9	1.006	-0.14	0.698	0.761
	LTE Band 41	20M	QPSK	1	0	Left Side	5mm	40400	2571	22.08	22.50	1.102	62.9	1.006	-0.17	0.667	0.739
	LTE Band 41	20M	QPSK	1	0	Left Side	5mm	40670	2598	22.09	22.50	1.099	62.9	1.006	-0.15	0.794	0.878
	LTE Band 41	20M	QPSK	1	0	Left Side	5mm	41140	2645	22.05	22.50	1.109	62.9	1.006	-0.15	0.714	0.797
	LTE Band 41	20M	QPSK	50	0	Left Side	5mm	40140	2545	22.13	22.50	1.089	62.9	1.006	-0.18	0.521	0.571
	LTE Band 41	20M	QPSK	50	0	Left Side	5mm	40400	2571	22.03	22.50	1.114	62.9	1.006	-0.18	0.475	0.532
	LTE Band 41	20M	QPSK	50	0	Left Side	5mm	40670	2598	21.87	22.50	1.156	62.9	1.006	-0.18	0.547	0.636
	LTE Band 41	20M	QPSK	50	0	Left Side	5mm	41140	2645	21.90	22.50	1.148	62.9	1.006	-0.08	0.508	0.586
	LTE Band 41	20M	QPSK	100	0	Left Side	5mm	40140	2545	22.04	22.50	1.112	62.9	1.006	0	0.561	0.628
	LTE Band 41	20M	QPSK	1	0	Right Side	5mm	40140	2545	22.15	22.50	1.084	62.9	1.006	0.05	0.067	0.073
	LTE Band 41	20M	QPSK	50	0	Right Side	5mm	40140	2545	22.13	22.50	1.089	62.9	1.006	-0.13	0.045	0.049
	LTE Band 41	20M	QPSK	1	0	Bottom Side	5mm	40140	2545	22.15	22.50	1.084	62.9	1.006	-0.06	0.648	0.706
	LTE Band 41	20M	QPSK	1	0	Bottom Side	5mm	40400	2571	22.08	22.50	1.102	62.9	1.006	-0.15	0.791	0.876
	LTE Band 41	20M	QPSK	1	0	Bottom Side	5mm	40670	2598	22.09	22.50	1.099	62.9	1.006	-0.18	0.810	0.896
	LTE Band 41	20M	QPSK	1	0	Bottom Side	5mm	41140	2645	22.05	22.50	1.109	62.9	1.006	-0.15	0.796	0.888
	LTE Band 41	20M	QPSK	50	0	Bottom Side	5mm	40140	2545	22.13	22.50	1.089	62.9	1.006	-0.03	0.650	0.712
	LTE Band 41	20M	QPSK	50	0	Bottom Side	5mm	40400	2571	22.03	22.50	1.114	62.9	1.006	0.05	0.644	0.722
	LTE Band 41	20M	QPSK	50	0	Bottom Side	5mm	40670	2598	21.87	22.50	1.156	62.9	1.006	-0.11	0.633	0.736
	LTE Band 41	20M	QPSK	50	0	Bottom Side	5mm	41140	2645	21.90	22.50	1.148	62.9	1.006	-0.06	0.662	0.765
	LTE Band 41	20M	QPSK	100	0	Bottom Side	5mm	40140	2545	22.04	22.50	1.112	62.9	1.006	-0.01	0.667	0.746

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	1	2412	17.55	19.00	1.396	100	1.000	-0.06	0.412	0.575
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	1	2412	17.55	19.00	1.396	100	1.000	-0.05	0.551	0.769
26	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	6	2437	17.10	19.00	1.549	100	1.000	0.02	0.532	0.824
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	11	2462	17.41	19.00	1.442	100	1.000	-0.13	0.487	0.702
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	1	2412	17.55	19.00	1.396	100	1.000	-0.02	0.336	0.469
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	1	2412	17.55	19.00	1.396	100	1.000	-0.04	0.487	0.680
	WLAN5GHz	802.11a 6Mbps	Front	5mm	44	5220	14.89	15.00	1.027	98.28	1.018	-0.11	0.030	0.031
	WLAN5GHz	802.11a 6Mbps	Back	5mm	44	5220	14.89	15.00	1.027	98.28	1.018	-0.05	1.020	1.066
	WLAN5GHz	802.11a 6Mbps	Back	5mm	36	5180	14.80	15.00	1.048	98.28	1.018	-0.07	1.030	1.099
27	WLAN5GHz	802.11a 6Mbps	Back	5mm	40	5200	13.30	15.00	1.479	98.28	1.018	-0.02	0.771	1.161
	WLAN5GHz	802.11a 6Mbps	Back	5mm	48	5240	14.86	15.00	1.034	98.28	1.018	-0.03	1.010	1.063
	WLAN5GHz	802.11a 6Mbps	Right Side	5mm	44	5220	14.89	15.00	1.027	98.28	1.018	0.14	0.074	0.077
	WLAN5GHz	802.11a 6Mbps	Top Side	5mm	44	5220	14.89	15.00	1.027	98.28	1.018	-0.12	0.199	0.208
	WLAN5GHz	802.11n-HT40 MCS0	Front	5mm	151	5755	12.88	13.00	1.027	96.32	1.038	0.05	0.037	0.039
	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	151	5755	12.88	13.00	1.027	96.32	1.038	-0.1	0.926	0.987
28	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	159	5795	11.40	13.00	1.445	96.32	1.038	-0.11	0.689	1.034
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	5mm	151	5755	12.88	13.00	1.027	96.32	1.038	0.08	0.086	0.092
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	5mm	151	5755	12.88	13.00	1.027	96.32	1.038	-0.06	0.182	0.194

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	5mm	39	2441	12.01	13.00	1.256	77.6	1.073	0.14	0.066	0.089
29	Bluetooth	1Mbps	Back	5mm	39	2441	12.01	13.00	1.256	77.6	1.073	-0.02	0.122	0.164
	Bluetooth	1Mbps	Right Side	5mm	39	2441	12.01	13.00	1.256	77.6	1.073	-0.05	0.058	0.078
	Bluetooth	1Mbps	Top Side	5mm	39	2441	12.01	13.00	1.256	77.6	1.073	0.13	0.071	0.096

**14.3 Body Worn Accessory SAR****<GSM SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (2 Tx slots)	Front	5mm	-	128	824.2	30.71	31.50	1.199	0.02	0.613	0.735
	GSM850	GPRS (2 Tx slots)	Front	5mm	-	189	836.4	30.44	31.50	1.276	0.03	0.793	1.012
	GSM850	GPRS (2 Tx slots)	Front	5mm	-	251	848.8	30.46	31.50	1.271	0.08	0.827	1.051
	GSM850	GPRS (2 Tx slots)	Back	5mm	-	128	824.2	30.71	31.50	1.199	-0.12	0.781	0.937
	GSM850	GPRS (2 Tx slots)	Back	5mm	-	189	836.4	30.44	31.50	1.276	0.19	0.846	1.080
30	GSM850	GPRS (2 Tx slots)	Back	5mm	-	251	848.8	30.46	31.50	1.271	0.1	1.140	1.448
	GSM850	GPRS (2 Tx slots)	Back	5mm	Headset 1	251	848.8	30.46	31.50	1.271	0.02	0.911	1.157
	GSM850	GPRS (2 Tx slots)	Back	5mm	Headset 2	251	848.8	30.46	31.50	1.271	-0.05	0.898	1.141
	GSM850	GPRS (2 Tx slots)	Back	5mm	Headset 3	251	848.8	30.46	31.50	1.271	-0.11	0.872	1.108
	GSM1900	GPRS (2 Tx slots)	Font	5mm	-	512	1850.2	27.54	28.50	1.247	-0.05	0.743	0.927
	GSM1900	GPRS (2 Tx slots)	Font	5mm	-	661	1880	27.50	28.50	1.259	0.08	0.799	1.006
	GSM1900	GPRS (2 Tx slots)	Font	5mm	-	810	1909.8	27.36	28.50	1.300	-0.01	0.791	1.028
31	GSM1900	GPRS (2 Tx slots)	Back	5mm	-	512	1850.2	27.54	28.50	1.247	0.04	1.070	1.335
	GSM1900	GPRS (2 Tx slots)	Back	5mm	-	661	1880	27.50	28.50	1.259	0	1.040	1.309
	GSM1900	GPRS (2 Tx slots)	Back	5mm	-	810	1909.8	27.36	28.50	1.300	0.08	1.020	1.326
	GSM1900	GPRS (2 Tx slots)	Back	5mm	Headset 1	512	1850.2	27.54	28.50	1.247	0.08	1.010	1.260
	GSM1900	GPRS (2 Tx slots)	Back	5mm	Headset 2	512	1850.2	27.54	28.50	1.247	-0.16	1.000	1.247
	GSM1900	GPRS (2 Tx slots)	Back	5mm	Headset 3	512	1850.2	27.54	28.50	1.247	0.04	0.985	1.229

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Front	5mm	-	9538	1907.6	19.39	19.50	1.026	0.05	0.840	0.862
	WCDMA II	RMC 12.2Kbps	Front	5mm	-	9262	1852.4	19.23	19.50	1.064	0.02	0.882	0.939
	WCDMA II	RMC 12.2Kbps	Front	5mm	-	9400	1880	19.34	19.50	1.038	0.09	0.872	0.905
	WCDMA II	RMC 12.2Kbps	Back	5mm	-	9538	1907.6	19.39	19.50	1.026	0.03	1.200	1.231
32	WCDMA II	RMC 12.2Kbps	Back	5mm	-	9262	1852.4	19.23	19.50	1.064	0.03	1.230	1.309
	WCDMA II	RMC 12.2Kbps	Back	5mm	-	9400	1880	19.34	19.50	1.038	0.01	1.210	1.255
	WCDMA II	RMC 12.2Kbps	Back	5mm	Headset 1	9262	1852.4	19.23	19.50	1.064	-0.05	1.180	1.256
	WCDMA II	RMC 12.2Kbps	Back	5mm	Headset 2	9262	1852.4	19.23	19.50	1.064	0	1.160	1.234
	WCDMA II	RMC 12.2Kbps	Back	5mm	Headset 3	9262	1852.4	19.23	19.50	1.064	-0.03	1.150	1.224
	WCDMA IV	RMC 12.2Kbps	Front	5mm	-	1513	1752.6	18.36	19.00	1.159	0.01	0.960	1.112
	WCDMA IV	RMC 12.2Kbps	Front	5mm	-	1312	1712.4	18.33	19.00	1.167	0.19	0.896	1.045
	WCDMA IV	RMC 12.2Kbps	Front	5mm	-	1413	1732.6	18.33	19.00	1.167	0.05	0.950	1.108
	WCDMA IV	RMC 12.2Kbps	Back	5mm	-	1413	1732.6	18.36	19.00	1.159	-0.02	1.050	1.217
	WCDMA IV	RMC 12.2Kbps	Back	5mm	-	1312	1712.4	18.33	19.00	1.167	-0.03	0.894	1.043
33	WCDMA IV	RMC 12.2Kbps	Back	5mm	-	1513	1752.6	18.33	19.00	1.167	-0.03	1.060	1.237
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Headset 1	1513	1752.6	18.33	19.00	1.167	-0.02	1.040	1.213
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Headset 2	1513	1752.6	18.33	19.00	1.167	-0.18	1.030	1.202
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Headset 3	1513	1752.6	18.33	19.00	1.167	0.08	1.010	1.178
	WCDMA V	RMC 12.2Kbps	Front	5mm	-	4182	836.4	22.49	22.50	1.002	0.04	0.910	0.912
	WCDMA V	RMC 12.2Kbps	Back	5mm	-	4182	836.4	22.49	22.50	1.002	-0.16	1.070	1.072
	WCDMA V	RMC 12.2Kbps	Back	5mm	-	4132	826.4	22.41	22.50	1.021	-0.15	0.981	1.002
34	WCDMA V	RMC 12.2Kbps	Back	5mm	-	4233	846.6	22.35	22.50	1.035	-0.15	1.150	1.190
	WCDMA V	RMC 12.2Kbps	Back	5mm	Headset 1	4233	846.6	22.35	22.50	1.035	-0.15	1.050	1.087
	WCDMA V	RMC 12.2Kbps	Back	5mm	Headset 2	4233	846.6	22.35	22.50	1.035	0.11	1.070	1.108
	WCDMA V	RMC 12.2Kbps	Back	5mm	Headset 3	4233	846.6	22.35	22.50	1.035	0.01	1.100	1.139

**<FDD LTE SAR>**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Front	5mm	-	19100	1900	20.23	20.50	1.064	0.05	0.874	0.930
	LTE Band 2	20M	QPSK	1	0	Front	5mm	-	18700	1860	20.17	20.50	1.079	0.06	0.864	0.932
	LTE Band 2	20M	QPSK	1	0	Front	5mm	-	18900	1880	20.12	20.50	1.091	0.04	0.868	0.947
	LTE Band 2	20M	QPSK	50	0	Front	5mm	-	19100	1900	20.11	20.50	1.094	0.05	0.877	0.959
	LTE Band 2	20M	QPSK	50	0	Front	5mm	-	18700	1860	20.08	20.50	1.102	0	0.862	0.950
	LTE Band 2	20M	QPSK	50	0	Front	5mm	-	18900	1880	19.96	20.50	1.132	0.02	0.876	0.992
	LTE Band 2	20M	QPSK	100	0	Front	5mm	-	19100	1900	20.08	20.50	1.102	0.03	0.839	0.924
	LTE Band 2	20M	QPSK	1	0	Back	5mm	-	19100	1900	20.23	20.50	1.064	-0.01	1.240	1.320
35	LTE Band 2	20M	QPSK	1	0	Back	5mm	-	18700	1860	20.17	20.50	1.079	0.11	1.230	1.327
	LTE Band 2	20M	QPSK	1	0	Back	5mm	-	18900	1880	20.12	20.50	1.091	0	1.210	1.321
	LTE Band 2	20M	QPSK	50	0	Back	5mm	-	19100	1900	20.11	20.50	1.094	0.02	1.200	1.313
	LTE Band 2	20M	QPSK	50	0	Back	5mm	-	18700	1860	20.08	20.50	1.102	-0.05	1.180	1.300
	LTE Band 2	20M	QPSK	50	0	Back	5mm	-	18900	1880	19.96	20.50	1.132	-0.01	1.170	1.325
	LTE Band 2	20M	QPSK	100	0	Back	5mm	-	19100	1900	20.08	20.50	1.102	0.04	1.190	1.311
	LTE Band 2	20M	QPSK	1	0	Back	5mm	Headset 1	18700	1860	20.17	20.50	1.079	0	1.180	1.273
	LTE Band 2	20M	QPSK	1	0	Back	5mm	Headset 2	18700	1860	20.17	20.50	1.079	0.05	1.160	1.252
	LTE Band 2	20M	QPSK	1	0	Back	5mm	Headset 3	18700	1860	20.17	20.50	1.079	0.17	0.112	0.121
	LTE Band 4	20M	QPSK	1	0	Front	5mm	-	20175	1732.5	20.32	21.00	1.169	0.01	0.948	1.109
	LTE Band 4	20M	QPSK	50	0	Front	5mm	-	20175	1732.5	20.29	21.00	1.178	0.02	0.992	1.168
	LTE Band 4	20M	QPSK	100	0	Front	5mm	-	20175	1732.5	20.27	21.00	1.183	0.02	0.984	1.164
36	LTE Band 4	20M	QPSK	1	0	Back	5mm	-	20175	1732.5	20.32	21.00	1.169	-0.03	1.130	1.322
	LTE Band 4	20M	QPSK	50	0	Back	5mm	-	20175	1732.5	20.29	21.00	1.178	0.11	1.110	1.307
	LTE Band 4	20M	QPSK	100	0	Back	5mm	-	20175	1732.5	20.27	21.00	1.183	-0.05	1.080	1.278
	LTE Band 4	20M	QPSK	1	0	Back	5mm	Headset 1	20175	1732.5	20.32	21.00	1.169	-0.05	1.040	1.216
	LTE Band 4	20M	QPSK	1	0	Back	5mm	Headset 2	20175	1732.5	20.32	21.00	1.169	-0.04	1.032	1.207
	LTE Band 4	20M	QPSK	1	0	Back	5mm	Headset 3	20175	1732.5	20.32	21.00	1.169	0.09	1.015	1.187
	LTE Band 7	20M	QPSK	1	0	Front	5mm	-	21100	2535	20.37	20.50	1.030	0.05	0.960	0.989
	LTE Band 7	20M	QPSK	1	0	Front	5mm	-	20850	2510	20.29	20.50	1.050	0	0.894	0.938
	LTE Band 7	20M	QPSK	1	0	Front	5mm	-	21350	2560	20.22	20.50	1.067	0	1.040	1.109
	LTE Band 7	20M	QPSK	50	0	Front	5mm	-	21100	2535	20.15	20.50	1.084	-0.01	0.905	0.981
	LTE Band 7	20M	QPSK	50	0	Front	5mm	-	20850	2510	20.11	20.50	1.094	0.07	0.882	0.965
	LTE Band 7	20M	QPSK	50	0	Front	5mm	-	21350	2560	20.02	20.50	1.117	0.05	0.980	1.095
	LTE Band 7	20M	QPSK	100	0	Front	5mm	-	21100	2535	20.09	20.50	1.099	-0.03	0.779	0.856
	LTE Band 7	20M	QPSK	1	0	Back	5mm	-	21100	2535	20.37	20.50	1.030	0.02	1.033	1.064
	LTE Band 7	20M	QPSK	1	0	Back	5mm	-	20850	2510	20.29	20.50	1.050	-0.04	0.960	1.008
37	LTE Band 7	20M	QPSK	1	0	Back	5mm	-	21350	2560	20.22	20.50	1.067	-0.04	1.340	1.429
	LTE Band 7	20M	QPSK	50	0	Back	5mm	-	21100	2535	20.15	20.50	1.084	-0.02	0.925	1.003
	LTE Band 7	20M	QPSK	50	0	Back	5mm	-	20850	2510	20.11	20.50	1.094	0.03	0.832	0.910
	LTE Band 7	20M	QPSK	50	0	Back	5mm	-	21350	2560	20.02	20.50	1.117	-0.05	1.110	1.240
	LTE Band 7	20M	QPSK	100	0	Back	5mm	-	21100	2535	20.09	20.50	1.099	0.01	0.942	1.035
	LTE Band 7	20M	QPSK	1	0	Back	5mm	Headset 1	21350	2560	20.22	20.50	1.067	-0.04	1.137	1.213
	LTE Band 7	20M	QPSK	1	0	Back	5mm	Headset 2	21350	2560	20.22	20.50	1.067	-0.04	1.128	1.203
	LTE Band 7	20M	QPSK	1	0	Back	5mm	Headset 3	21350	2560	20.22	20.50	1.067	0	0.857	0.914
	LTE Band 26	15M	QPSK	1	37	Front	5mm	-	26865	831.5	22.86	24.00	1.300	0.04	0.868	1.129
	LTE Band 26	15M	QPSK	36	0	Front	5mm	-	26865	831.5	21.93	23.00	1.279	0.04	0.479	0.613
	LTE Band 26	15M	QPSK	75	0	Front	5mm	-	26865	831.5	21.85	23.00	1.303	0.06	0.484	0.631
38	LTE Band 26	15M	QPSK	1	37	Back	5mm	-	26865	831.5	22.86	24.00	1.300	-0.09	0.994	1.292
	LTE Band 26	15M	QPSK	37	0	Back	5mm	-	26865	831.5	21.93	23.00	1.279	-0.13	0.548	0.701
	LTE Band 26	15M	QPSK	75	0	Back	5mm	-	26865	831.5	21.85	23.00	1.303	-0.08	0.553	0.721
	LTE Band 26	15M	QPSK	1	37	Back	5mm	Headset 1	26865	831.5	22.86	24.00	1.300	-0.05	0.949	1.234
	LTE Band 26	10M	QPSK	1	0	Back	5mm	Headset 2	26865	831.5	22.86	24.00	1.300	0.02	0.945	1.229
	LTE Band 26	10M	QPSK	1	0	Back	5mm	Headset 3	26865	831.5	22.86	24.00	1.300	0.03	0.933	1.213

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	0	Front	5mm		40140	2545	22.15	22.50	1.084	62.9	1.006	-0.06	0.674	0.735
	LTE Band 41	20M	QPSK	1	0	Front	5mm		40400	2571	22.08	22.50	1.102	62.9	1.006	0.02	0.699	0.775
	LTE Band 41	20M	QPSK	1	0	Front	5mm		40670	2598	22.09	22.50	1.099	62.9	1.006	0.02	0.805	0.890
	LTE Band 41	20M	QPSK	1	0	Front	5mm		41140	2645	22.05	22.50	1.109	62.9	1.006	-0.01	0.873	0.974
	LTE Band 41	20M	QPSK	50	0	Front	5mm		40140	2545	22.13	22.50	1.089	62.9	1.006	-0.03	0.580	0.635
	LTE Band 41	20M	QPSK	50	0	Front	5mm		40400	2571	22.03	22.50	1.114	62.9	1.006	0.05	0.613	0.687
	LTE Band 41	20M	QPSK	50	0	Front	5mm		40670	2598	21.87	22.50	1.156	62.9	1.006	0.05	0.676	0.786
	LTE Band 41	20M	QPSK	50	0	Front	5mm		41140	2645	21.90	22.50	1.148	62.9	1.006	0.02	0.698	0.806
	LTE Band 41	20M	QPSK	100	0	Front	5mm		40140	2545	22.04	22.50	1.112	62.9	1.006	-0.02	0.615	0.688
	LTE Band 41	20M	QPSK	1	0	Back	5mm		40140	2545	22.15	22.50	1.084	62.9	1.006	0	0.911	0.993
	LTE Band 41	20M	QPSK	1	0	Back	5mm		40400	2571	22.08	22.50	1.102	62.9	1.006	-0.05	1.020	1.130
39	LTE Band 41	20M	QPSK	1	0	Back	5mm		40670	2598	22.09	22.50	1.099	62.9	1.006	-0.01	1.200	1.327
	LTE Band 41	20M	QPSK	1	0	Back	5mm		41140	2645	22.05	22.50	1.109	62.9	1.006	-0.01	1.100	1.227
	LTE Band 41	20M	QPSK	50	0	Back	5mm		40140	2545	22.13	22.50	1.089	62.9	1.006	-0.05	0.687	0.753
	LTE Band 41	20M	QPSK	50	0	Back	5mm		40400	2571	22.03	22.50	1.114	62.9	1.006	-0.1	0.759	0.851
	LTE Band 41	20M	QPSK	50	0	Back	5mm		40670	2598	21.87	22.50	1.156	62.9	1.006	-0.19	0.821	0.955
	LTE Band 41	20M	QPSK	50	0	Back	5mm		41140	2645	21.90	22.50	1.148	62.9	1.006	-0.12	0.844	0.975
	LTE Band 41	20M	QPSK	100	0	Back	5mm		40140	2545	22.04	22.50	1.112	62.9	1.006	-0.1	0.772	0.863
	LTE Band 41	20M	QPSK	1	0	Back	5mm	Headset1	40670	2598	22.09	22.50	1.099	62.9	1.006	0.03	1.110	1.227
	LTE Band 41	20M	QPSK	1	0	Back	5mm	Headset2	40670	2598	22.09	22.50	1.099	62.9	1.006	-0.14	1.090	1.205
	LTE Band 41	20M	QPSK	1	0	Back	5mm	Headset3	40670	2598	22.09	22.50	1.099	62.9	1.006	0.05	1.050	1.161

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	-	1	2412	17.55	19.00	1.396	100	1.000	-0.06	0.412	0.575
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	1	2412	17.55	19.00	1.396	100	1.000	-0.05	0.551	0.769
40	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	6	2437	17.10	19.00	1.549	100	1.000	0.02	0.532	0.824
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	11	2462	17.41	19.00	1.442	100	1.000	-0.13	0.487	0.702
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Headset1	6	2437	17.10	19.00	1.549	100	1.000	0.01	0.465	0.720
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Headset2	6	2437	17.10	19.00	1.549	100	1.000	-0.01	0.488	0.756
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Headset3	6	2437	17.10	19.00	1.549	100	1.000	0.02	0.435	0.674
	WLAN5GHz	802.11a 6Mbps	Front	5mm	-	44	5220	14.89	15.00	1.027	98.28	1.018	-0.11	0.030	0.031
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	44	5220	14.89	15.00	1.027	98.28	1.018	-0.05	1.020	1.066
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	36	5180	14.80	15.00	1.048	98.28	1.018	-0.07	1.030	1.099
41	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	40	5200	13.30	15.00	1.479	98.28	1.018	-0.02	0.771	1.161
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	48	5240	14.86	15.00	1.034	98.28	1.018	-0.03	1.010	1.063
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset1	40	5200	13.30	15.00	1.479	98.28	1.018	-0.1	0.584	0.879
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset2	40	5200	13.30	15.00	1.479	98.28	1.018	-0.08	0.621	0.935
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset3	40	5200	13.30	15.00	1.479	98.28	1.018	-0.06	0.694	1.045
	WLAN5GHz	802.11a 6Mbps	Front	5mm	-	64	5320	15.50	17.00	1.413	98.28	1.018	0.05	0.031	0.045
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	64	5320	15.50	17.00	1.413	98.28	1.018	-0.04	0.954	1.372
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	52	5260	15.12	17.00	1.543	98.28	1.018	-0.11	0.914	1.436
42	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	56	5280	15.17	17.00	1.526	98.28	1.018	-0.02	0.931	1.446
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	60	5300	15.23	17.00	1.505	98.28	1.018	-0.04	0.925	1.417
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset1	56	5280	15.17	17.00	1.526	98.28	1.018	0.03	0.726	1.128
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset2	56	5280	15.17	17.00	1.526	98.28	1.018	0.02	0.518	0.805
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset3	56	5280	15.17	17.00	1.526	98.28	1.018	0.17	0.499	0.775
	WLAN5GHz	802.11a 6Mbps	Front	5mm	-	116	5580	13.99	14.00	1.002	98.28	1.018	0.11	0.022	0.022
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	116	5580	13.99	14.00	1.002	98.28	1.018	0.1	0.789	0.805
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	100	5500	13.98	14.00	1.005	98.28	1.018	-0.04	0.632	0.646
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	124	5620	13.93	14.00	1.017	98.28	1.018	-0.05	0.863	0.894
	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	132	5660	13.99	14.00	1.003	98.28	1.018	-0.03	0.912	0.932
43	WLAN5GHz	802.11a 6Mbps	Back	5mm	-	144	5720	12.10	14.00	1.549	98.28	1.018	0.16	0.665	1.049
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset1	144	5720	12.10	14.00	1.549	98.28	1.018	0.03	0.573	0.903
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset2	144	5720	12.10	14.00	1.549	98.28	1.018	0.05	0.509	0.803
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Headset3	144	5720	12.10	14.00	1.549	98.28	1.018	-0.16	0.489	0.771
	WLAN5GHz	802.11n-HT40 MCS0	Front	5mm	-	151	5755	12.88	13.00	1.027	96.32	1.038	0.05	0.037	0.039
	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	-	151	5755	12.88	13.00	1.027	96.32	1.038	-0.1	0.926	0.987
44	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	-	159	5795	11.40	13.00	1.445	96.32	1.038	-0.11	0.689	1.034
	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	Headset1	159	5795	11.40	13.00	1.445	96.32	1.038	0.06	0.468	0.702
	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	Headset2	159	5795	11.40	13.00	1.445	96.32	1.038	0	0.429	0.644
	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	Headset3	159	5795	11.40	13.00	1.445	96.32	1.038	0.02	0.443	0.665

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	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	5mm	-	39	2441	12.01	13.00	1.256	77.6	1.073	0.14	0.066	0.089
45	Bluetooth	1Mbps	Back	5mm	-	39	2441	12.01	13.00	1.256	77.6	1.073	-0.02	0.122	0.164
	Bluetooth	1Mbps	Back	5mm	Headset1	39	2441	12.01	13.00	1.256	77.6	1.073	-0.05	0.075	0.101
	Bluetooth	1Mbps	Back	5mm	Headset2	39	2441	12.01	13.00	1.256	77.6	1.073	0.01	0.071	0.096
	Bluetooth	1Mbps	Back	5mm	Headset3	39	2441	12.01	13.00	1.256	77.6	1.073	-0.05	0.075	0.101

14.4 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	GPRS (2 Tx slots)	Back	0mm	512	1850.2	27.54	28.50	1.247	0.07	1.620	2.021
	GSM1900	GPRS (2 Tx slots)	Back	0mm	661	1880	27.50	28.50	1.259	0.05	1.600	2.014
	GSM1900	GPRS (2 Tx slots)	Back	0mm	810	1909.8	27.36	28.50	1.300	-0.15	1.480	1.924
46	GSM1900	GPRS (2 Tx slots)	Bottom Side	0mm	512	1850.2	27.54	28.50	1.247	-0.01	1.640	2.046
	GSM1900	GPRS (2 Tx slots)	Bottom Side	0mm	661	1880	27.50	28.50	1.259	-0.13	1.490	1.876
	GSM1900	GPRS (2 Tx slots)	Bottom Side	0mm	810	1909.8	27.36	28.50	1.300	-0.09	1.430	1.859

<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)
	WCDMA II	RMC 12.2Kbps	Front	0mm	9400	1880	19.87	21.00	1.297	0.03	1.590	2.063
	WCDMA II	RMC 12.2Kbps	Front	0mm	9262	1852.4	19.84	21.00	1.306	-0.03	1.500	1.959
	WCDMA II	RMC 12.2Kbps	Front	0mm	9538	1907.6	19.81	21.00	1.315	0.01	1.360	1.789
	WCDMA II	RMC 12.2Kbps	Back	0mm	9400	1880	19.87	21.00	1.297	0.04	2.560	3.321
	WCDMA II	RMC 12.2Kbps	Back	0mm	9262	1852.4	19.84	21.00	1.306	-0.03	2.490	3.252
47	WCDMA II	RMC 12.2Kbps	Back	0mm	9538	1907.6	19.81	21.00	1.315	0.03	2.660	3.498
	WCDMA II	RMC 12.2Kbps	Right Side	0mm	9400	1880	22.70	24.00	1.349	0.02	2.050	2.765
	WCDMA II	RMC 12.2Kbps	Right Side	0mm	9262	1852.4	22.64	24.00	1.368	0.17	1.980	2.708
	WCDMA II	RMC 12.2Kbps	Right Side	0mm	9538	1907.6	22.44	24.00	1.432	0.19	2.100	3.008
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9400	1880	19.87	21.00	1.297	-0.05	2.000	2.594
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9262	1852.4	19.84	21.00	1.306	0.01	2.160	2.821
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9538	1907.6	19.81	21.00	1.315	-0.01	1.950	2.565
	WCDMA IV	RMC 12.2Kbps	Front	0mm	1413	1732.6	20.34	21.50	1.306	-0.04	1.760	2.299
	WCDMA IV	RMC 12.2Kbps	Front	0mm	1312	1712.4	20.23	21.50	1.340	-0.04	1.730	2.318
	WCDMA IV	RMC 12.2Kbps	Front	0mm	1513	1752.6	20.31	21.50	1.315	0.09	1.760	2.315
	WCDMA IV	RMC 12.2Kbps	Back	0mm	1413	1732.6	20.34	21.50	1.306	-0.01	2.480	3.239
	WCDMA IV	RMC 12.2Kbps	Back	0mm	1312	1712.4	20.23	21.50	1.340	-0.06	2.400	3.215
	WCDMA IV	RMC 12.2Kbps	Back	0mm	1513	1752.6	20.31	21.50	1.315	-0.01	2.550	3.354
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	1413	1732.6	20.34	21.50	1.306	-0.05	2.590	3.383
48	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	1312	1712.4	20.23	21.50	1.340	0.09	2.540	3.403
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	1513	1752.6	20.31	21.50	1.315	-0.06	2.560	3.367
	WCDMA V	RMC 12.2Kbps	Front	0mm	4182	836.4	22.86	24.00	1.300	0.03	1.550	2.015
	WCDMA V	RMC 12.2Kbps	Front	0mm	4132	826.4	22.85	24.00	1.303	0.06	1.500	1.955
	WCDMA V	RMC 12.2Kbps	Front	0mm	4233	846.6	22.75	24.00	1.334	0.05	1.580	2.107
	WCDMA V	RMC 12.2Kbps	Back	0mm	4182	836.4	22.86	24.00	1.300	0.1	1.780	2.314
49	WCDMA V	RMC 12.2Kbps	Back	0mm	4132	826.4	22.85	24.00	1.303	-0.02	1.790	2.333
	WCDMA V	RMC 12.2Kbps	Back	0mm	4233	846.6	22.75	24.00	1.334	-0.11	1.730	2.307

<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	20M	QPSK	1	0	Front	0mm	19100	1900	20.98	21.50	1.127	0.04	1.810	2.040
	LTE Band 2	20M	QPSK	1	0	Front	0mm	18700	1860	20.77	21.50	1.183	0.02	1.750	2.070
	LTE Band 2	20M	QPSK	1	0	Front	0mm	18900	1880	20.80	21.50	1.175	-0.02	1.730	2.033
	LTE Band 2	20M	QPSK	1	0	Back	0mm	19100	1900	20.98	21.50	1.127	0.01	2.820	3.179
	LTE Band 2	20M	QPSK	1	0	Back	0mm	18700	1860	20.77	21.50	1.183	-0.03	2.660	3.147
50	LTE Band 2	20M	QPSK	1	0	Back	0mm	18900	1880	20.80	21.50	1.175	-0.05	2.730	3.207
	LTE Band 2	20M	QPSK	1	0	Right Side	0mm	19100	1900	20.98	21.50	1.127	0.12	1.680	1.894
	LTE Band 2	20M	QPSK	1	0	Right Side	0mm	18700	1860	20.77	21.50	1.183	0.01	1.600	1.893
	LTE Band 2	20M	QPSK	1	0	Right Side	0mm	18900	1880	20.80	21.50	1.175	0.16	1.670	1.962
	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	19100	1900	20.98	21.50	1.127	-0.1	2.300	2.593
	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	18700	1860	20.77	21.50	1.183	0.06	2.460	2.910
	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	18900	1880	20.80	21.50	1.175	0.09	2.380	2.796
	LTE Band 4	20M	QPSK	1	0	Front	0mm	20175	1732.5	21.08	21.50	1.102	0	1.940	2.137
	LTE Band 4	20M	QPSK	1	0	Back	0mm	20175	1732.5	21.08	21.50	1.102	0.01	2.770	3.051
51	LTE Band 4	20M	QPSK	1	0	Bottom Side	0mm	20175	1732.5	21.08	21.50	1.102	-0.08	2.890	3.183
	LTE Band 7	20M	QPSK	1	0	Front	0mm	21350	2560	21.91	22.50	1.146	0.05	2.110	2.417
	LTE Band 7	20M	QPSK	1	0	Front	0mm	20850	2510	22.01	22.50	1.119	0.03	1.690	1.892
	LTE Band 7	20M	QPSK	1	0	Front	0mm	21100	2535	21.90	22.50	1.148	0.05	1.820	2.090
52	LTE Band 7	20M	QPSK	1	0	Back	0mm	21350	2560	21.91	22.50	1.146	-0.19	3.020	3.459
	LTE Band 7	20M	QPSK	1	0	Back	0mm	20850	2510	22.01	22.50	1.119	-0.16	2.720	3.045
	LTE Band 7	20M	QPSK	1	0	Back	0mm	21100	2535	21.90	22.50	1.148	-0.13	2.870	3.295
	LTE Band 7	20M	QPSK	1	0	Left Side	0mm	21350	2560	21.91	22.50	1.146	-0.18	2.270	2.600
	LTE Band 7	20M	QPSK	1	0	Left Side	0mm	20850	2510	22.01	22.50	1.119	-0.14	2.430	2.720
	LTE Band 7	20M	QPSK	1	0	Left Side	0mm	21100	2535	21.90	22.50	1.148	0.17	2.410	2.767
	LTE Band 7	20M	QPSK	1	0	Bottom Side	0mm	21350	2560	21.91	22.50	1.146	-0.14	1.900	2.176
53	LTE Band 26	15M	QPSK	1	37	Back	0mm	26865	831.5	22.86	24.00	1.300	0.12	1.570	2.041

<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 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	99	Front	0mm	41140	2645	22.99	24.00	1.262	62.9	1.006	0.12	1.340	1.701
54	LTE Band 41	20M	QPSK	1	49	Back	0mm	40670	2598	23.01	24.00	1.256	62.9	1.006	-0.16	1.520	1.921
	LTE Band 41	20M	QPSK	1	49	Left Side	0mm	40670	2598	23.01	24.00	1.256	62.9	1.006	0.1	1.400	1.769
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	40670	2598	23.01	24.00	1.256	62.9	1.006	-0.18	1.270	1.605

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Front	0mm	64	5320	15.50	17.00	1.413	98.28	1.018	-0.09	0.042	0.060
55	WLAN5GHz	802.11a 6Mbps	Back	0mm	64	5320	15.50	17.00	1.413	98.28	1.018	-0.11	1.180	1.697
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	64	5320	15.50	17.00	1.413	98.28	1.018	0.06	0.049	0.070
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	64	5320	15.50	17.00	1.413	98.28	1.018	-0.12	0.105	0.151
	WLAN5GHz	802.11a 6Mbps	Front	0mm	100	5500	15.31	16.50	1.317	98.28	1.018	-0.17	0.047	0.063
56	WLAN5GHz	802.11a 6Mbps	Back	0mm	100	5500	15.31	16.50	1.317	98.28	1.018	-0.03	1.300	1.742
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	100	5500	15.31	16.50	1.317	98.28	1.018	0.13	0.055	0.074
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	100	5500	15.31	16.50	1.317	98.28	1.018	-0.04	0.118	0.158

14.5 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA V	RMC 12.2Kbps	Back	5mm	4233	846.6	22.35	22.50	1.035	-	1.000	-0.15	1.150	-	1.190
2nd	WCDMA V	RMC 12.2Kbps	Back	5mm	4233	846.6	22.35	22.50	1.035	-	1.000	-0.15	1.140	1.01	1.180
1st	LTE Band 2	20M_QPSK_1_0	Back	5mm	19100	1900	20.23	20.50	1.064	-	1.000	-0.01	1.240	-	1.320
2nd	LTE Band 2	20M_QPSK_1_0	Back	5mm	19100	1900	20.23	20.50	1.064	-	1.000	0.11	1.190	1.04	1.266
1st	LTE Band 4	20M_QPSK_1_0	Bottom Side	5mm	20175	1732.5	17.26	18.00	1.186	-	1.000	-0.03	1.140	-	1.352
2nd	LTE Band 4	20M_QPSK_1_0	Bottom Side	5mm	20175	1732.5	17.26	18.00	1.186	-	1.000	-0.04	1.060	1.08	1.257
1st	LTE Band 7	20M_QPSK_1_0	Back	5mm	21350	2560	20.22	20.50	1.067	-	1.000	-0.04	1.340	-	1.429
2nd	LTE Band 7	20M_QPSK_1_0	Back	5mm	21350	2560	20.22	20.50	1.067	-	1.000	-0.04	1.220	1.10	1.301
1st	WLAN5GHz	802.11a 6Mbps	Back	5mm	36	5180	14.80	15.00	1.048	98.28	1.018	-0.07	1.030	-	1.099
2nd	WLAN5GHz	802.11a 6Mbps	Back	5mm	36	5180	14.80	15.00	1.048	98.28	1.018	-0.11	1.010	1.02	1.078
1st	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	151	5755	12.88	13.00	1.027	96.32	1.038	-0.1	0.926	-	0.987
2nd	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	151	5755	12.88	13.00	1.027	96.32	1.038	-0.03	0.857	1.08	0.914
1st	WLAN5GHz	802.11a 6Mbps	Back	5mm	64	5320	15.50	17.00	1.413	98.28	1.018	-0.04	0.954	-	1.372
2nd	WLAN5GHz	802.11a 6Mbps	Back	5mm	64	5320	15.17	17.00	1.526	98.28	1.018	-0.14	0.854	1.03	1.326
1st	WLAN5GHz	802.11a 6Mbps	Back	5mm	132	5660	13.99	14.00	1.003	98.28	1.018	-0.03	0.912	-	0.932
2nd	WLAN5GHz	802.11a 6Mbps	Back	5mm	132	5660	13.99	14.00	1.003	98.28	1.018	0.13	0.882	1.03	0.901

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 2	20M	QPSK	1	0	Back	0mm	19100	1900	20.98	21.50	1.127	0.01	2.820	-	3.179
2nd	LTE Band 2	20M	QPSK	1	0	Back	0mm	19100	1900	20.98	21.50	1.127	0.01	2.630	1.07	2.965
1st	LTE Band 4	20M	QPSK	1	0	Bottom Side	0mm	20175	1732.5	21.08	21.50	1.102	-0.08	2.890	-	3.183
2nd	LTE Band 4	20M	QPSK	1	0	Bottom Side	0mm	20175	1732.5	21.08	21.50	1.102	0.09	2.630	1.10	2.897
1st	LTE Band 7	20M	QPSK	1	0	Back	0mm	21350	2560	21.91	22.50	1.146	-0.19	3.020	-	3.459
2nd	LTE Band 7	20M	QPSK	1	0	Back	0mm	21350	2560	21.91	22.50	1.146	0.05	2.990	1.01	3.425

General Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
- Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR < 1.45 W/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.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	WWAN + WLAN2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
3.	WWAN + WLAN5GHz	Yes	Yes	Yes	Yes

General Note:

1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
4. The Scaled SAR summation is calculated based on the same configuration, test position and test separation distance to show compliance.
5. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - i) Scalar SAR summation $< 1.6\text{W/kg}$.
 - ii) $\text{SPLSR} = (\text{SAR1} + \text{SAR2})^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where $(x1, y1, z1)$ and $(x2, y2, z2)$ are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - iii) If $\text{SPLSR} \leq 0.04$ for 1g, $\text{SPLSR} \leq 0.1$ for 10g, simultaneously transmission SAR measurement is not necessary.
 - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR $< 1.6\text{W/kg}$ for 1g, and < 4.0 for 10g.
 - v) The SPLSR calculated results please refer to section 15.5.

15.1 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850	Right Cheek	0.148	0.464	0.175	0.089	0.612	0.323	0.237
		Right Tilted	0.074	0.624	0.281	0.105	0.698	0.355	0.179
		Left Cheek	0.118	1.168	0.150	0.167	1.286	0.268	0.285
		Left Tilted	0.065	0.775	0.187	0.124	0.840	0.252	0.189
	GSM1900	Right Cheek	0.069	0.464	0.175	0.089	0.533	0.244	0.158
		Right Tilted	0.046	0.624	0.281	0.105	0.670	0.327	0.151
		Left Cheek	0.128	1.168	0.150	0.167	1.296	0.278	0.295
		Left Tilted	0.101	0.775	0.187	0.124	0.876	0.288	0.225
WCDMA	WCDMA II	Right Cheek	0.200	0.464	0.175	0.089	0.664	0.375	0.289
		Right Tilted	0.167	0.624	0.281	0.105	0.791	0.448	0.272
		Left Cheek	0.415	1.168	0.150	0.167	1.583	0.565	0.582
		Left Tilted	0.119	0.775	0.187	0.124	0.894	0.306	0.243
	WCDMA IV	Right Cheek	0.177	0.464	0.175	0.089	0.641	0.352	0.266
		Right Tilted	0.121	0.624	0.281	0.105	0.745	0.402	0.226
		Left Cheek	0.349	1.168	0.150	0.167	1.517	0.499	0.516
		Left Tilted	0.128	0.775	0.187	0.124	0.903	0.315	0.252
	WCDMA V	Right Cheek	0.348	0.464	0.175	0.089	0.812	0.523	0.437
		Right Tilted	0.134	0.624	0.281	0.105	0.758	0.415	0.239
		Left Cheek	0.234	1.168	0.150	0.167	1.402	0.384	0.401
		Left Tilted	0.137	0.775	0.187	0.124	0.912	0.324	0.261
LTE	LTE Band 2	Right Cheek	0.176	0.464	0.175	0.089	0.640	0.351	0.265
		Right Tilted	0.147	0.624	0.281	0.105	0.771	0.428	0.252
		Left Cheek	0.117	1.168	0.150	0.167	1.285	0.267	0.284
		Left Tilted	0.076	0.775	0.187	0.124	0.851	0.263	0.200
	LTE Band 4	Right Cheek	0.132	0.464	0.175	0.089	0.596	0.307	0.221
		Right Tilted	0.074	0.624	0.281	0.105	0.698	0.355	0.179
		Left Cheek	0.141	1.168	0.150	0.167	1.309	0.291	0.308
		Left Tilted	0.064	0.775	0.187	0.124	0.839	0.251	0.188
	LTE Band 7	Right Cheek	0.243	0.464	0.175	0.089	0.707	0.418	0.332
		Right Tilted	0.345	0.624	0.281	0.105	0.969	0.626	0.450
		Left Cheek	0.337	1.168	0.150	0.167	1.505	0.487	0.504
		Left Tilted	0.174	0.775	0.187	0.124	0.949	0.361	0.298
	LTE Band 26	Right Cheek	0.320	0.464	0.175	0.089	0.784	0.495	0.409
		Right Tilted	0.124	0.624	0.281	0.105	0.748	0.405	0.229
		Left Cheek	0.224	1.168	0.150	0.167	1.392	0.374	0.391
		Left Tilted	0.134	0.775	0.187	0.124	0.909	0.321	0.258
	LTE Band 41	Right Cheek	0.239	0.464	0.175	0.089	0.703	0.414	0.328
		Right Tilted	0.337	0.624	0.281	0.105	0.961	0.618	0.442
		Left Cheek	0.322	1.168	0.150	0.167	1.490	0.472	0.489
		Left Tilted	0.115	0.775	0.187	0.124	0.890	0.302	0.239

15.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4	SPLSR	Case No
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)					
GSM	GSM850	Front	1.051	0.575	0.039	0.089	1.626	1.090	1.140	0.01	Case 1
		Back	1.448	0.824	1.161	0.164	2.272	2.609	1.612	0.03	Case 1
		Left side	0.131				0.131	0.131	0.131		
		Right side	0.393	0.469	0.092	0.078	0.862	0.485	0.471		
		Top side		0.680	0.208	0.096	0.680	0.208	0.096		
	Bottom side	1.032				1.032	1.032	1.032			
	GSM1900	Front	1.028	0.575	0.039	0.089	1.603	1.067	1.117	0.01	Case 2
		Back	1.335	0.824	1.161	0.164	2.159	2.496	1.499	0.04	Case 2
		Left side	0.069				0.069	0.069	0.069		
		Right side	0.627	0.469	0.092	0.078	1.096	0.719	0.705		
Top side			0.680	0.208	0.096	0.680	0.208	0.096			
WCDMA	WCDMA II	Front	0.939	0.575	0.039	0.089	1.514	0.978	1.028		
		Back	1.309	0.824	1.161	0.164	2.133	2.470	1.473	0.03	Case 3
		Left side	0.030				0.030	0.030	0.030		
		Right side	0.476	0.469	0.092	0.078	0.945	0.568	0.554		
		Top side		0.680	0.208	0.096	0.680	0.208	0.096		
		Bottom side	1.318				1.318	1.318	1.318		
	WCDMA IV	Front	1.112	0.575	0.039	0.089	1.687	1.151	1.201	0.01	Case 4
		Back	1.237	0.824	1.161	0.164	2.061	2.398	1.401	0.03	Case 4
		Left side	0.038				0.038	0.038	0.038		
		Right side	0.328	0.469	0.092	0.078	0.797	0.420	0.406		
		Top side		0.680	0.208	0.096	0.680	0.208	0.096		
		Bottom side	1.301				1.301	1.301	1.301		
	WCDMA V	Front	0.912	0.575	0.039	0.089	1.487	0.951	1.001		
		Back	1.190	0.824	1.161	0.164	2.014	2.351	1.354	0.03	Case 5
		Left side	0.154				0.154	0.154	0.154		
		Right side	0.486	0.469	0.092	0.078	0.955	0.578	0.564		
		Top side		0.680	0.208	0.096	0.680	0.208	0.096		
		Bottom side	0.757				0.757	0.757	0.757		
LTE	LTE Band 2	Front	0.992	0.575	0.039	0.089	1.567	1.031	1.081		
		Back	1.327	0.824	1.161	0.164	2.151	2.488	1.491	0.03	Case 6
		Left side	0.031				0.031	0.031	0.031		
		Right side	0.480	0.469	0.092	0.078	0.949	0.572	0.558		
		Top side		0.680	0.208	0.096	0.680	0.208	0.096		
		Bottom side	1.339				1.339	1.339	1.339		
	LTE Band 4	Front	1.168	0.575	0.039	0.089	1.743	1.207	1.257	0.02	Case 7
		Back	1.322	0.824	1.161	0.164	2.146	2.483	1.486	0.03	Case 7
		Left side	0.050				0.050	0.050	0.050		
		Right side	0.294	0.469	0.092	0.078	0.763	0.386	0.372		
		Top side		0.680	0.208	0.096	0.680	0.208	0.096		
		Bottom side	1.352				1.352	1.352	1.352		
	LTE Band 7	Front	1.109	0.575	0.039	0.089	1.684	1.148	1.198	0.01	Case 8
		Back	1.429	0.824	1.161	0.164	2.253	2.590	1.593	0.03	Case 8
		Left side	0.778				0.778	0.778	0.778		
		Right side	0.095	0.469	0.092	0.078	0.564	0.187	0.173		
		Top side		0.680	0.208	0.096	0.680	0.208	0.096		
		Bottom side	0.684				0.684	0.684	0.684		
	LTE Band 26	Front	1.129	0.575	0.039	0.089	1.704	1.168	1.218	0.01	Case 9
		Back	1.292	0.824	1.161	0.164	2.116	2.453	1.456	0.03	Case 9
		Left side	0.190				0.190	0.190	0.190		
		Right side	0.567	0.469	0.092	0.078	1.036	0.659	0.645		
		Top side		0.680	0.208	0.096	0.680	0.208	0.096		
		Bottom side	1.041				1.041	1.041	1.041		
LTE Band 41	Front	0.974	0.575	0.039	0.089	1.549	1.013	1.063			
	Back	1.327	0.824	1.161	0.164	2.151	2.488	1.491	0.03	Case 10	
	Left side	0.878				0.878	0.878	0.878			
	Right side	0.073	0.469	0.092	0.078	0.542	0.165	0.151			
	Top side		0.680	0.208	0.096	0.680	0.208	0.096			
	Bottom side	0.896				0.896	0.896	0.896			

15.3 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	SPLSR	Case No
			WWAN 1g SAR (W/kg)	2.4GHz WLAN 1g SAR (W/kg)	5GHz WLAN 1g SAR (W/kg)	Bluetooth 1g SAR (W/kg)					
GSM	GSM850	Front	1.051	0.575	0.045	0.089	1.626	1.096	1.140	0.01	Case 1
		Back	1.448	0.824	1.446	0.164	2.272	2.894	1.612	0.03	Case 1
		Back with Headset	1.157	0.756	1.128	0.101	1.913	2.285	1.258	0.02	Case 1
	GSM1900	Front	1.028	0.575	0.045	0.089	1.603	1.073	1.117	0.01	Case 2
		Back	1.335	0.824	1.446	0.164	2.159	2.781	1.499	0.04	Case 2
		Back with Headset	1.260	0.756	1.128	0.101	2.016	2.388	1.361	0.03	Case 2
WCDMA	WCDMA II	Front	0.939	0.575	0.045	0.089	1.514	0.984	1.028		
		Back	1.309	0.824	1.446	0.164	2.133	2.755	1.473	0.03	Case 3
		Back with Headset	1.256	0.756	1.128	0.101	2.012	2.384	1.357	0.03	Case 3
	WCDMA IV	Front	1.112	0.575	0.045	0.089	1.687	1.157	1.201	0.01	Case 4
		Back	1.237	0.824	1.446	0.164	2.061	2.683	1.401	0.03	Case 4
		Back with Headset	1.213	0.756	1.128	0.101	1.969	2.341	1.314	0.03	Case 4
	WCDMA V	Front	0.912	0.575	0.045	0.089	1.487	0.957	1.001		
		Back	1.190	0.824	1.446	0.164	2.014	2.636	1.354	0.03	Case 5
		Back with Headset	1.139	0.756	1.128	0.101	1.895	2.267	1.240	0.03	Case 5
LTE	LTE Band 2	Front	0.992	0.575	0.045	0.089	1.567	1.037	1.081		
		Back	1.327	0.824	1.446	0.164	2.151	2.773	1.491	0.03	Case 6
		Back with Headset	1.273	0.756	1.128	0.101	2.029	2.401	1.374	0.03	Case 6
	LTE Band 4	Front	1.168	0.575	0.045	0.089	1.743	1.213	1.257	0.02	Case 7
		Back	1.322	0.824	1.446	0.164	2.146	2.768	1.486	0.03	Case 7
		Back with Headset	1.216	0.756	1.128	0.101	1.972	2.344	1.317	0.03	Case 7
	LTE Band 7	Front	1.109	0.575	0.045	0.089	1.684	1.154	1.198	0.01	Case 8
		Back	1.429	0.824	1.446	0.164	2.253	2.875	1.593	0.03	Case 8
		Back with Headset	1.213	0.756	1.128	0.101	1.969	2.341	1.314	0.03	Case 8
	LTE Band 26	Front	1.129	0.575	0.045	0.089	1.704	1.174	1.218	0.01	Case 9
		Back	1.292	0.824	1.446	0.164	2.116	2.738	1.456	0.03	Case 9
		Back with Headset	1.234	0.756	1.128	0.101	1.990	2.362	1.335	0.03	Case 9
	LTE Band 41	Front	0.974	0.575	0.045	0.089	1.549	1.019	1.063		
		Back	1.327	0.824	1.446	0.164	2.151	2.773	1.491	0.03	Case 10
		Back with Headset	1.227	0.756	1.128	0.101	1.983	2.355	1.328	0.03	Case 10

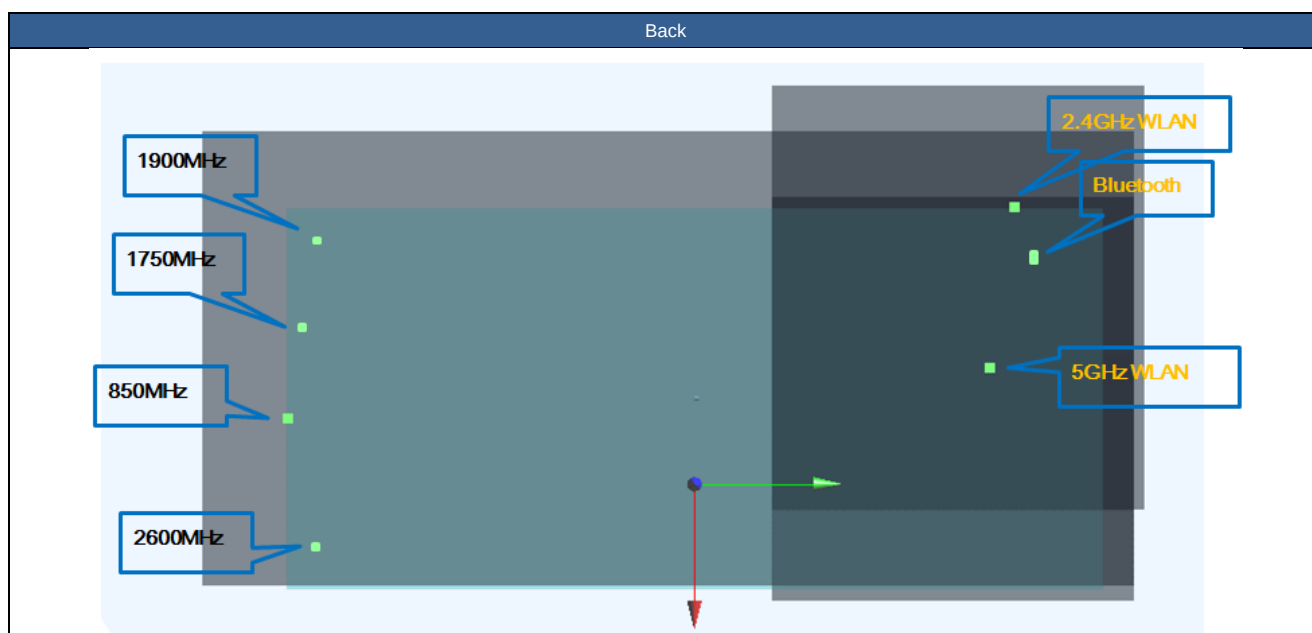
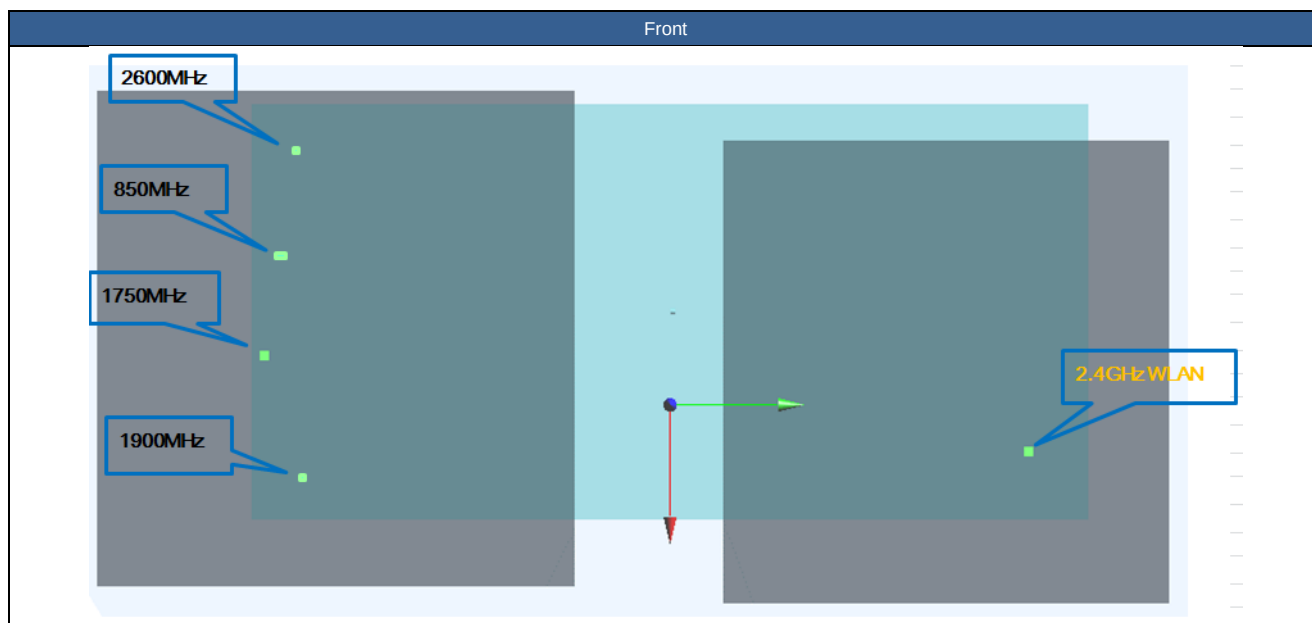
15.4 Product Specific Exposure Conditions

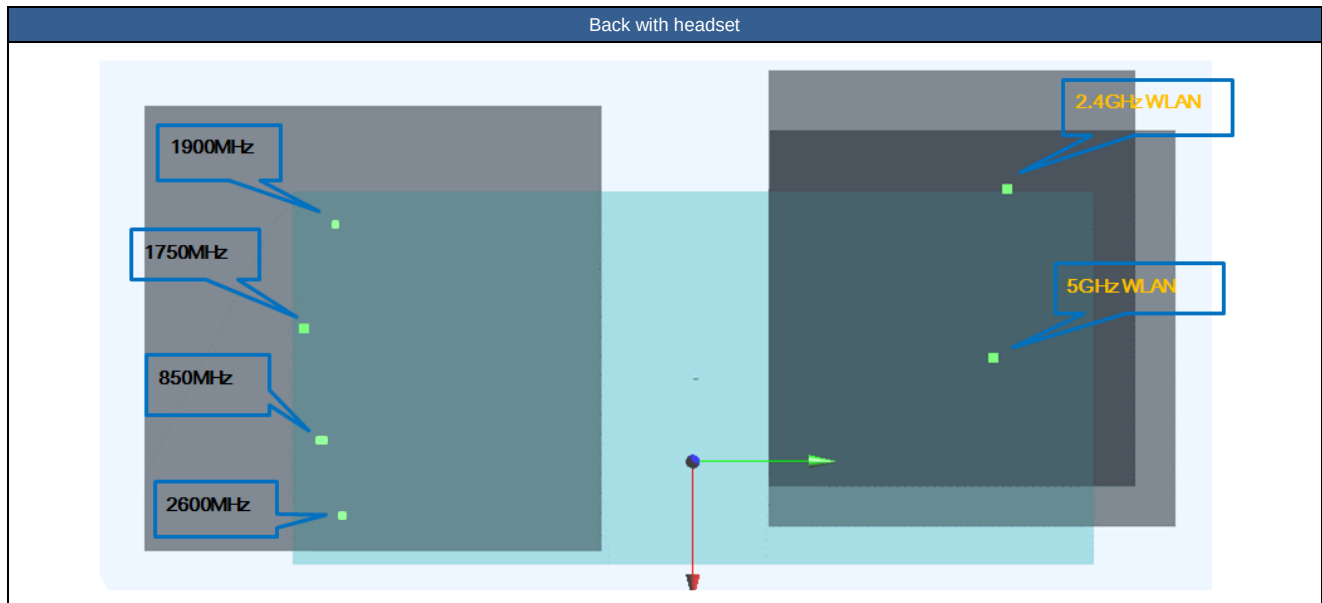
WWAN Band		Exposure Position	1	2	1+2 Summed 10g SAR (W/kg)	SPLSR	Case No
			WWAN 10g SAR (W/kg)	5GHz WLAN 10g SAR (W/kg)			
GSM	GSM1900	Front		0.063	0.063		
		Back	2.021	1.742	3.763		
		Left Side			0.000		
		Right Side		0.074	0.074		
		Top Side		0.158	0.158		
		Bottom Side	2.046		2.046		
WCDMA	WCDMA II	Front	2.063	0.063	2.126	0.09	Case 11
		Back	3.498	1.742	5.240		
		Left Side			0.000		
		Right Side	3.008	0.074	3.082		
		Top Side		0.158	0.158		
		Bottom Side	2.821		2.821		
	WCDMA IV	Front	2.318	0.063	2.381	0.08	Case 12
		Back	3.354	1.742	5.096		
		Left Side			0.000		
		Right Side		0.074	0.074		
		Top Side		0.158	0.158		
		Bottom Side	3.403		3.403		
	WCDMA V	Front	2.107	0.063	2.170	0.06	Case 13
		Back	2.333	1.742	4.075		
		Left Side			0.000		
		Right Side		0.074	0.074		
		Top Side		0.158	0.158		
		Bottom Side			0.000		
LTE	LTE Band 2	Front	2.07	0.063	2.133	0.08	Case 14
		Back	3.207	1.742	4.949		
		Left Side		0.009	0.009		
		Right Side	1.962	0.074	2.036		
		Top Side		0.158	0.158		
		Bottom Side	2.91		2.910		
	LTE Band 4	Front	2.137	0.063	2.200	0.08	Case 15
		Back	3.051	1.742	4.793		
		Left Side			0.000		
		Right Side		0.074	0.074		
		Top Side		0.158	0.158		
		Bottom Side	3.183		3.183		
	LTE Band 7	Front	2.417	0.063	2.480	0.08	Case 16
		Back	3.459	1.742	5.201		
		Left Side	2.767		2.767		
		Right Side		0.074	0.074		
		Top Side		0.158	0.158		
		Bottom Side	2.176		2.176		
	LTE Band 26	Front		0.063	0.063		
		Back	2.041	1.742	3.783		
		Left Side			0.000		
		Right Side		0.074	0.074		
		Top Side		0.158	0.158		
		Bottom Side			0.000		
	LTE Band 41	Front	1.701	0.063	1.764		
		Back	1.921	1.742	3.663		
		Left Side	1.769		1.769		
		Right Side		0.074	0.074		
		Top Side		0.158	0.158		
		Bottom Side	1.605		1.605		

15.5 SPLSR Evaluation and Analysis

General Note:

1. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$. If $SPLSR \leq 0.04$ for 1g, $SPLSR \leq 0.1$ for 10g, simultaneously transmission SAR measurement is not necessary
2. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.





	Band	Position	1g SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 1	GSM850	Front	1.051	5	-1.5	-86.5	-0.99	160.6	1.63	0.01	Not required
	2.4GHz WLAN		0.575	5	26.6	71.6	-1.8				
	GSM850	Back	1.448	5	5.6	-84.9	-0.93	146.9	2.27	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	GSM850	Back	1.182	5	5.6	-84.9	-0.93	142.4	2.63	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	GSM850	Back	1.448	5	5.6	-84.9	-0.93	142.0	1.61	0.01	Not required
	Bluetooth		0.164	5	-13.4	55.8	-1.06				
	GSM850	Back Headset	1.157	5	5.6	-84.9	-0.91	146.6	1.91	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	GSM850	Back Headset	1.157	5	5.6	-84.9	-0.91	144.9	2.29	0.02	Not required
	5GHz WLAN		1.128	5	-1.6	59.8	-1.6				
Case 2	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Front	1.028	5	14.4	-78	-0.85	150.1	1.60	0.01	Not required
	2.4GHz WLAN		0.575	5	26.6	71.6	-1.8				
	GSM1900	Back	1.335	5	-8.7	-72	-0.94	131.7	2.16	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	GSM1900	Back	1.335	5	-8.7	-72	-0.94	129.0	2.78	0.04	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	GSM1900	Back Headset	1.26	5	-38.5	-61.5	-1.05	119.8	2.02	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
		GSM1900	Back Headset	1.26	5	-38.5	-61.5	-1.05	126.8	2.39	0.03
	5GHz WLAN	1.128		5	-1.6	59.8	-1.6				

	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 3	WCDMA II	Back	1.309	5	-29	-72	-1.1	130.4	2.13	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	WCDMA II	Back	1.309	5	-29	-72	-1.1	130.9	2.76	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	WCDMA II	Back Headest	1.256	5	-31.5	-70.4	-1.02	128.2	2.01	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	WCDMA II	Back Headest	1.256	5	-31.5	-70.4	-1.02	133.6	2.38	0.03	Not required
	5GHz WLAN		1.128	5	-1.6	59.8	-1.6				
	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (cm)			3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 4	WCDMA IV	Front	1.112	5	11.6	-82	-0.98	154.3	1.69	0.01	Not required
	2.4GHz WLAN		0.575	5	26.6	71.6	-1.8				
	WCDMA IV	Back	1.237	5	-14.8	-78.9	-1.08	137.8	2.06	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	WCDMA IV	Back	1.237	5	-14.8	-78.9	-1.08	136.1	2.68	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	WCDMA IV	Back Headest	1.213	5	-13.1	-78.9	-1.05	137.5	1.97	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	WCDMA IV	Back Headest	1.213	5	-13.1	-78.9	-1.05	139.2	2.34	0.03	Not required
	5GHz WLAN		1.128	5	-1.6	59.8	-1.6				
	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 5	WCDMA V	Back	1.294	5	5.7	-83.4	-1.04	145.5	2.12	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	WCDMA V	Back	1.294	5	5.7	-83.4	-1.04	141.0	2.74	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	WCDMA V	Back Headest	1.139	5	5.7	-83.4	-1.04	145.2	1.90	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	WCDMA V	Back Headest	1.139	5	5.7	-83.4	-1.04	141.0	2.59	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 6	LTE Band 2	Back	1.327	5	-27.5	-75	-1.11	133.4	2.15	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	LTE Band 2	Back	1.327	5	-27.5	-75	-1.11	133.6	2.77	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	LTE Band 2	Back Headest	1.273	5	-35.5	-63	-1.2	121.0	2.03	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	LTE Band 2	Back Headest	1.273	5	-35.5	-63	-1.2	127.4	2.40	0.03	Not required
	5GHz WLAN		1.128	5	-1.6	59.8	-1.6				
	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 7	LTE Band 4	Front	1.168	5	11.2	-79.7	0.99	152.1	1.74	0.02	Not required
	2.4GHz WLAN		0.575	5	26.6	71.6	-1.8				
	LTE Band 4	Back	1.322	5	-13.2	-78.1	-1.07	137.2	2.15	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	LTE Band 4	Back	1.322	5	-13.2	-78.1	-1.07	135.3	2.77	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	LTE Band 4	Back Headest	1.216	5	-10	-76.5	-1.05	135.5	1.97	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	LTE Band 4	Back Headest	1.216	5	-10	-76.5	-1.05	136.6	2.34	0.03	Not required
	5GHz WLAN		1.128	5	-1.6	59.8	-1.6				

	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 8	LTE Band 7	Front	1.109	5	-28.38	-73.2	-4.38	154.9	1.68	0.01	Not required
	2.4GHz WLAN		0.575	5	26.6	71.6	-1.8				
	LTE Band 7	Back	1.323	5	30.2	-72.2	-0.42	142.5	2.15	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	LTE Band 7	Back	1.323	5	30.2	-72.2	-0.42	134.4	2.77	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	LTE Band 7	Back Headest	1.213	5	26.41	-72.82	-4.27	141.5	1.97	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	LTE Band 7	Back Headest	1.213	5	26.41	-72.82	-4.27	135.6	2.34	0.03	Not required
	5GHz WLAN		1.128	5	-1.6	59.8	-1.6				
	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 9	LTE Band 26	Front	1.129	5	-4.1	-86.5	-1.15	161.1	1.70	0.01	Not required
	2.4GHz WLAN		0.575	5	26.6	71.6	-1.8				
	LTE Band 26	Back	1.292	5	7.2	-83.4	-1.02	145.8	2.12	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	LTE Band 26	Back	1.292	5	7.2	-83.4	-1.02	141.1	2.74	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	LTE Band 26	Back Headest	1.234	5	8.8	-84.9	-1	147.4	1.99	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	LTE Band 26	Back Headest	1.234	5	8.8	-84.9	-1	145.1	2.36	0.03	Not required
	5GHz WLAN		1.128	5	-1.6	59.8	-1.6				
	Band	Position	1g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 1g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 10	LTE Band 41	Back	1.327	5	26	-72.4	-0.65	141.1	2.15	0.02	Not required
	2.4GHz WLAN		0.824	5	-26.8	58.4	-1.28				
	LTE Band 41	Back	1.327	5	26	-72.4	-0.65	133.5	2.77	0.03	Not required
	5GHz WLAN		1.446	5	-6.8	57	-1.63				
	LTE Band 41	Back Headest	1.227	5	22.6	-71.6	-0.69	138.9	1.98	0.02	Not required
	2.4GHz WLAN		0.756	5	-28	57.8	-1.25				
	LTE Band 41	Back Headest	1.227	5	22.6	-71.6	-0.69	133.6	2.36	0.03	Not required
	5GHz WLAN		1.128	5	-1.6	59.8	-1.6				
	Band	Position	10g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 10g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 11	WCDMA II	Back	3.498	0	-24.4	-70.4	0.24	134.5	5.24	0.09	Not required
	5GHz WLAN		1.742	0	-7.2	63	-1.27				
	Band	Position	10g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 10g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 12	WCDMA IV	Back	3.354	0	-22.5	-73.5	0.21	137.4	5.10	0.08	Not required
	5GHz WLAN		1.742	0	-7.2	63	-1.27				
	Band	Position	10g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 10g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 13	WCDMA V	Back	2.333	0	-21.5	-78.5	-1.15	142.2	4.08	0.06	Not required
	5GHz WLAN		1.742	0	-7.2	63	-1.27				
	Band	Position	10g SAR (W/kg)	Gap (mm)	SAR peak location (cm)			3D distance (mm)	Summed 10g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 14	LTE Band 2	Back	3.207	0	-25.9	-72	-0.62	136.3	4.95	0.08	Not required
	5GHz WLAN		1.742	0	-7.2	63	-1.27				

Case 15	Band	Position	10g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 10g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 15	LTE Band 4	Back	3.051	0	-21	-73.5	0.84	137.2	4.79	0.08	Not required
	5GHz WLAN		1.742	0	-7.2	63	-1.27				
Case 16	Band	Position	10g SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed 10g SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 16	LTE Band 7	Back	3.459	0	30.2	-72.2	0.42	140.3	5.20	0.08	Not required
	5GHz WLAN		1.742	0	-7.2	63	-1.27				



16. Supplemental tuner tests results

General Note:

1. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
2. To evaluate all of the tuner states, the 144 tuner states are divided evenly among band, mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination.
3. The device supports LTE B5/B26. Since the supported frequency span for LTE B5 falls completely within the supported frequency span for LTE B26, and both bands have the same target power and both LTE bands share the same transmission path, therefore standalone SAR was only assessed for LTE B26. The single point SAR time-sweep measurements were treated independently for each supported ACL frequency band. For the LTE B5 single point SAR measurement selected the highest measured SAR configuration and exposure condition of LTE B26. And the number of required single point measurements at least 11 applies to the band.
4. The tuner state was established remotely through Wi-Fi so that the device is not moved for the entire series of single point SAR for the tuner states in each combination (band, mode, exposure conditions). The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

**16.1 Supplemental Head SAR results**

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									Auto-Tune	0	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140
WCDMA B2	RMC12.2Kbps	1880	9400	N/A	N/A	Left Cheek	0 mm	0.308	0.405	0.316	0.246	0.331	0.068	0.214	0.194	0.213	0.076	0.323	0.186	0.246	0.231	0.187	0.26	0.174	0.092	0.106	0.084	0.375	0.306	0.214
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									Auto-Tune	1	8	15	22	29	36	43	50	57	64	71	78	85	92	99	106	113	120	127	134	141
WCDMA B4	RMC12.2Kbps	1732.6	1413	N/A	N/A	Left Cheek	0 mm	0.257	0.323	0.216	0.305	0.172	0.261	0.226	0.172	0.054	0.191	0.21	0.074	0.234	0.18	0.169	0.254	0.174	0.231	0.062	0.18	0.281	0.141	0.058
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									Auto-Tune	2	9	16	23	30	37	44	51	58	65	72	79	86	93	100	107	114	121	128	135	142
WCDMA B5	RMC12.2Kbps	836.4	4182	N/A	N/A	Left Cheek	0 mm	0.268	0.291	0.154	0.138	0.179	0.202	0.087	0.162	0.23	0.271	0.152	0.139	0.058	0.096	0.165	0.114	0.209	0.062	0.141	0.132	0.202	0.189	0.26
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									Auto-Tune	3	10	17	24	31	38	45	52	59	66	73	80	87	94	101	108	115	122	129	136	143
LTE B2	QPSK	1900	19100	1	49	Right Cheek	0 mm	0.134	0.178	0.074	0.1303	0.11	0.137	0.1375	0.1352	0.069	0.14	0.1315	0.104	0.047	0.131	0.139	0.134	0.132	0.07	0.129	0.043	0.137	0.118	0.113
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									Auto-Tune	4	11	18	25	32	39	46	53	60	67	74	81	88	95	102	109	116	123	130	137	
LTE B4	QPSK	1732.5	20175	1	0	Left Cheek	0 mm	0.105	0.119	0.0617	0.0369	0.0366	0.0595	0.043	0.042	0.0372	0.018	0.075	0.084	0.064	0.009	0.0495	0.083	0.0246	0.079	0.068	0.017	0.049	0.079	
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																					
									Auto-Tune	5	12	19	26	33	40	47	54	61	68	75	82	89	96	103	110	117	124	131	138	
LTE B5/B26	QPSK	831.5	26865	1	37	Right Cheek	0 mm	0.246	0.286	0.074	0.067	0.167	0.01	0.118	0.094	0.115	0.072	0.173	0.129	0.0292	0.0354	0.036	0.122	0.099	0.072	0.049	0.033	0.0009	0.00136	

16.2 Supplemental Body SAR results

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																								
									Auto-Tune	0	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	6	48	90
WCDMA B2	RMC12.2Kbps	1852.4	9262	N/A	N/A	Bottom Side	5 mm	1.21	2.005	0.369	1.346	1.03	1.45	1.813	1.579	1.865	1.672	1.377	1.944	2	1.94	1.662	1.19	1.971	1.957	1.869	1.968	1.964	1.854	1.732	1.41	0.873	1.13
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																								
									Auto-Tune	1	8	15	22	29	36	43	50	57	64	71	78	85	92	99	106	113	120	127	134	141	13	55	97
WCDMA B4	RMC12.2Kbps	1752.6	1513	N/A	N/A	Bottom Side	5 mm	1.1	1.77	0.497	0.949	0.969	1.11	1.49	1.62	0.501	1.422	1.192	1.736	1.077	0.936	1.303	1.17	1.73	0.87	0.73	1.3	1.114	0.623	0.529	0.671	1.05	0.883
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																								
									Auto-Tune	2	9	16	23	30	37	44	51	58	65	72	79	86	93	100	107	114	121	128	135	142	20	62	104
WCDMA B5	RMC12.2Kbps	846.6	4233	N/A	N/A	Back	5 mm	1.15	1.428	0.25	0.772	0.673	1.05	0.99	0.504	0.17	1.211	0.799	0.184	0.57	0.669	0.916	0.789	0.314	0.039	0.038	0.878	0.557	0.491	0.447	0.622	0.711	0.914
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																								
									Auto-Tune	3	10	17	24	31	38	45	52	59	66	73	80	87	94	101	108	115	122	129	136	143	27	69	111
LTE B2	QPSK	1860	18700	1	0	Bottom Side	5 mm	1.21	1.944	0.7762	1.285	1.093	1.41	1.586	1.612	0.757	1.6	1.433	1.466	0.932	1.63	1.563	1.474	1.637	1.222	1.432	0.597	1.707	1.515	1.41	1.27	1.15	0.316
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																								
									Auto-Tune	4	11	18	25	32	39	46	53	60	67	74	81	88	95	102	109	116	123	130	137	132	34	76	118
LTE B4	QPSK	1732.5	20175	1	0	Bottom Side	5 mm	1.14	1.63	0.783	1.079	1.058	1.209	1.114	1.063	1.188	0.826	1.315	0.976	1.261	0.551	1.343	1.152	0.75	1.065	0.896	0.584	0.877	1.354	0.562	0.997	1.1	0.748
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																								
									Auto-Tune	5	12	19	26	33	40	47	54	61	68	75	82	89	96	103	110	117	124	131	138	139	41	83	125
LTE B5/B26	QPSK	831.5	26865	1	37	Back	5 mm	0.994	1.237	0.42	0.302	0.872	0.086	0.694	0.561	0.667	0.3407	0.971	0.734	0.188	0.216	0.166	0.722	0.591	0.449	0.322	0.187	0.015	0.019	0.992	0.805	0.374	0.241

**<Additional Dynamic antenna tuning test>**

According to 201904 TCBC workshop, if any single point SAR measurement result is > 1.2 W/kg for a band/exposure condition combination set, all supported tuner states are evaluated with single point SAR measurements for the combination

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																						
									Auto-Tune	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
WCDMA B2	RMC12.2Kbps	1852.4	9262	N/A	N/A	Bottom Side	5mm	1.21	2.005	0.369	1.180	0.623	1.050	0.314	0.577	1.410	1.346	0.962	1.080	1.110	0.541	0.237	0.869	1.030	1.560	1.190	0.741	0.628	1.330	1.241	
									21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
									1.45	1.34	0.572	0.947	0.992	1.01	0.234	1.813	0.787	1.36	1.82	0.356	0.234	1.82	1.579	1.77	0.321	1.48	1.05	0.996	0.327	1.865	
									43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
									0.914	1.17	0.993	1.18	1.29	0.873	1.672	0.631	0.627	1.341	0.571	0.922	1.231	1.377	0.608	0.572	1.328	1.873	0.329	0.471	1.944	0.918	
									65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	
									1.24	0.993	0.584	1.64	1.23	2	1.56	0.832	0.741	1.19	0.858	0.943	1.94	1.39	1.22	1.06	0.741	0.883	0.67	1.662	1.41	1.03	
									87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	
									1.87	0.671	0.939	1.13	1.19	1.05	1.27	0.691	0.584	1.34	1.16	1.971	0.707	1.04	0.61	0.825	1.07	1.16	1.957	1.53	0.37	1.06	
									109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	
									1.33	0.617	1.39	1.869	0.705	1.434	1.57	0.892	1.63	1.72	1.968	0.79	1.05	1.03	1.27	0.846	1.18	1.964	1.62	1.38	0.618	0.874	
									131	132	133	134	135	136	137	138	139	140	141	142	143										
									0.74	1.06	1.854	1.82	0.94	0.381	1.03	0.29	0.341	0.885	1.06	1.27	1.3										
WCDMA B4	RMC12.2Kbps	1752.6	1513	N/A	N/A	Bottom Side	5mm	1.1	1.77	1.51	0.497	0.374	1.58	1.16	0.716	0.372	1.492	0.949	0.611	0.584	1.03	0.627	0.971	1.11	0.969	1.38	0.571	0.719	1.06	1.17	
									21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
									1.05	1.11	1.27	1.53	1.06	0.888	0.618	0.692	1.49	1.37	1.16	1.05	0.692	0.723	1.137	1.62	1.09	1.432	0.577	0.683	0.841	1.23	
									43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
									0.501	0.42	0.942	0.938	1.27	1.06	0.534	1.422	1.09	0.638	0.312	1.17	1.05	1.49	1.192	1.52	0.317	0.229	1.03	0.279	1.37	1.736	
									65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	
									0.57	0.382	1.02	1.587	0.237	0.567	1.077	0.385	1.449	1.38	1.26	1.09	0.284	0.936	0.769	0.592	1.17	1.38	0.691	0.873	1.303	1.06	
									87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	
									0.975	0.16	1.43	1.578	0.236	1.17	0.749	0.385	1.72	1.06	0.883	1.52	1.73	0.28	0.345	0.258	0.795	0.922	1.06	0.87	1.07	1.19	
									109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	
									1.05	0.688	1.25	1.38	0.73	1.09	0.756	0.691	0.574	1.23	0.984	1.3	1.184	1.26	0.932	0.537	1.16	1.28	1.114	0.429	0.375	1.26	
									131	132	133	134	135	136	137	138	139	140	141	142	143										
									0.976	0.358	1.68	0.623	1.25	1.37	0.456	0.876	1.06	1.732	1.037	1.25	1.56										
WCDMA B5	RMC12.2Kbps	846.6	4233	N/A	N/A	Back	5mm	1.15	1.428	1.33	0.97	0.25	0.852	1.23	1.274	0.991	0.587	0.705	0.772	1.062	1.32	1.06	0.746	0.998	0.347	0.673	1.032	1.275	0.62	0.622	
									21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
									1.18	0.26	1.05	0.935	0.335	1.22	1	0.46	0.953	0.99	1.03	0.38	1.28	1.26	0.846	0.472	0.504	0.546	0.953	1.07	1.06	1.32	
									43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
									1.03	0.17	0.214	0.359	0.989	0.932	0.547	0.6	1.211	1.23	1.3	0.475	0.622	0.726	0.803	0.799	1.14	0.32	0.75	0.711	1.06	1.08	
									65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	
									0.184	0.923	0.765	0.22	0.354	1.29	1.08	0.57	1.06	0.628	0.847	1.18	1.03	1.05	0.669	0.62	0.762	0.842	1.08	1.21	0.994	0.916	
									87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	
									0.23	1.25	1.37	0.472	0.469	0.602	0.789	0.772	0.925	1.26	1.17	0.846	0.231	0.314	1.17	0.621	0.745	0.914	0.19	0.276	0.039	0.915	
									109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	
									1.28	1.16	0.813	0.697	1.12	0.038	0.405	0.384	0.746	0.842	1.06	0.28	0.878	0.942	1.15	1.26	0.374	0.47	0.927	0.557	1.13	1.07	
									131	132	133	134	135	136	137	138	139	140	141	142	143										
									0.841	0.862	1.18	0.491	0.25	0.678	1.02	0.997	0.831	0.71	0.529	0.284	1.02										



Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																						
									Auto-Tune	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
LTE B2	QPSK	1860	18700	1	0	Bottom Side	5mm	1.21	1.944	1.37	0.512	0.348	0.7762	1.11	0.405	0.602	1.06	1.17	0.584	1.285	1.67	1.56	0.271	0.193	0.771	0.941	1.093	1.58	1.04	1.22	
									21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
									1.26	1.15	0.374	1.41	0.656	0.257	1.27	0.983	0.46	1.82	1.586	1.03	0.572	0.285	0.184	1.32	1.57	1.612	0.777	0.624	0.18	1.39	
									43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
									1.32	0.473	0.757	0.605	0.841	1.47	1.32	1.52	0.301	0.987	1.24	1.26	1.07	1.57	0.318	0.274	1.433	1.49	1.27	0.652	1.574	1.34	
									65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	
									0.824	1.466	0.794	1.16	1.15	1.38	0.616	0.852	0.932	1.28	1.33	0.621	0.784	1.36	1.19	1.63	0.547	0.234	0.926	0.857	0.471	0.628	
									87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	
									1.563	0.616	0.873	1.27	1.06	0.674	0.284	1.474	1.03	1.74	0.84	0.546	1.34	1.01	1.637	0.974	1.72	0.465	0.823	1.05	1.85	1.222	
									109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	
									0.623	1.02	0.316	1.43	0.526	0.671	1.432	0.234	1.419	1.36	0.948	0.621	0.846	0.597	1.58	1.14	0.672	1.34	0.764	0.246	1.707	1.89	
									131	132	133	134	135	136	137	138	139	140	141	142	143										
									0.841	1.73	1.541	0.954	0.491	0.234	0.117	1.54	1.32	0.76	0.192	0.447	0.584										
LTE B4	QPSK	1732.5	20175	1	0	Bottom Side	5mm	1.14	1.63	1.33	0.542	0.841	0.262	0.783	0.876	1.28	1.04	0.231	0.334	1.12	1.079	1.08	0.68	0.527	0.416	0.215	0.147	0.872	1.34	0.721	
									21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
									0.991	0.864	1.02	1.092	1.209	0.723	0.73	1.09	0.756	1	0.519	1.114	0.892	0.997	0.883	0.02	1.24	1.23	1.063	0.504	0.991	0.734	
									43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
									0.418	0.729	0.831	1.188	1.18	0.26	1.05	0.935	0.335	0.872	0.826	1.17	0.335	1.22	1	0.46	1.3	1.315	0.746	0.625	0.584	0.802	
									65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	
									1.33	1.25	0.976	1.09	0.854	0.622	0.726	0.803	0.799	1.261	0.841	1.1	0.316	0.252	1.47	0.284	0.551	1.33	1.27	1.06	0.692	0.824	
									87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	
									0.884	1.343	0.289	1.05	0.314	0.577	1.41	1.08	1.152	0.337	1.01	0.924	0.247	1.12	0.591	0.75	0.628	1.17	0.741	0.883	0.67	1.04	
									109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	
									1.065	1.377	0.608	0.572	1.328	1.271	0.329	0.896	0.883	0.748	0.687	1.32	1.05	0.942	0.584	1.17	1.56	0.832	0.741	1.22	1.06	0.877	
									131	132	133	134	135	136	137	138	139	140	141	142	143										
									1.052	1.13	0.687	1.27	0.591	1.515	1.24	0.993	0.584	1.64	1.23	1.06	1.41										
LTE B5/B26	QPSK	831.5	26865	1	37	Back	5mm	0.994	1.237	0.841	1.03	0.625	0.983	0.527	0.42	1.03	0.28	0.345	0.258	0.795	0.922	0.302	1.05	0.823	1.11	0.615	0.625	0.472	0.872	1.03	
									21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
									0.135	1.02	0.279	0.882	1.06	0.086	0.325	0.941	0.531	0.587	1.16	1.21	0.92	0.694	1.085	0.312	1.16	0.521	0.843	0.561	0.805	1.02	
									43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	
									0.146	0.528	0.934	1.12	0.667	0.37	0.628	1.08	0.876	0.992	1.15	0.3407	0.741	0.583	0.619	0.552	1.07	1.12	0.971	0.987	0.5233	0.857	
									65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	
									1.08	1.03	0.92	0.734	0.27	0.861	0.74	1.06	1.154	1.11	0.188	1.06	0.888	0.618	0.692	0.886	0.624	0.216	0.374	0.612	1.04	1.003	
									87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	
									0.992	0.721	0.166	0.621	0.854	1.01	0.882	0.905	0.627	0.722	1.12	0.974	0.326	0.582	0.905	1.07	0.591	1.13	0.237	0.246	0.481	0.969	
									109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	
									0.75	0.449	0.25	1.06	0.349	0.416	0.492	1.026	0.322	1.06	0.231	0.873	0.549	1.084	1.13	0.187	0.241	0.576	0.543	0.92	1.07	1.03	
									131	132	133	134	135	136	137	138	139	140	141	142	143										
									0.015	0.461	1.06	0.857	0.416	0.274	1.354	1.07	0.32	0.975	1.05	0.514	0.636										

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17. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be $\leq 30\%$, 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.

18. References

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- [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
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- [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.
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- [13] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [14] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.