

FCC SAR TEST REPORT

FCC ID : B94HNI61PAR
Equipment : CAT-M Module
Brand Name : ThingsX Inc.
Model Name : TX520-GL
Applicant : HP Inc.
1501 Page Mill Road, Palo Alto CA 94304 USA
Standard : FCC 47 CFR Part 2 (2.1093)

The product was installed into Notebook Computer (Brand Name: HP, Model Name: HSN-I61C) during test.

The product was received on Sep. 18, 2024 and testing was started from Sep. 23, 2024 and completed on Sep. 24, 2024. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. 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
FA490505	01	Initial issue of report	Nov. 21, 2024

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) for HP Inc., CAT-M Module, TX520-GL, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary	Highest Simultaneous Transmission 1g SAR (W/kg)
			Body (Separation 0mm)	
			1g SAR (W/kg)	
Licensed	GSM	GSM850	1.19	1.19
		GSM1900	1.04	
	LTE	LTE Band 4	0.40	
		LTE Band 13	0.22	
		LTE Band 14	0.23	
		LTE Band 2/25	0.30	
		LTE Band 5/26	0.22	
		LTE Band 66	0.37	
		LTE Band 12/85	0.39	
Date of Testing:			2024/09/23 ~ 2024/09/24	

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation and the FCC designation No. TW3786 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) 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: Carlie Tsai

2. Guidance Applied

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	CAT-M Module
Brand Name	ThingsX Inc.
Model Name	TX520-GL
FCC ID	B94HNI61PAR
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 85: 698 MHz ~ 716 MHz
Mode	GSM/GPRS/EGPRS LTE: QPSK, 16QAM
GSM / (E)GPRS Transfer mode	Class C – EUT can only support either Packet Switched service or Circuit Switched service.
Remark:	
1. There are two kinds of antenna vendor, RF exposure evaluation is selected Vendor 2 as the main test, Vendor 1 will spot check worst case found in Vendor 2.	
2. This device is convertible type notebook PC, and there have Laptop and Tablet two usage way. When end user is used different mode, which the device will according current mode to limit different maximum power.	

Host Information	
Equipment Name	Notebook Computer
Brand Name	HP
Model Name	HSN-I61C
Integrated WLAN Module	Brand Name: Intel Model Name: BE201NGW
Integrated NFC Module	Brand Name: WNC Model Name: XRAV-1
Wireless Technology and Frequency Range	WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz WLAN 5.9 GHz Band: 5850 MHz ~ 5895 MHz WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC: 13.56 MHz
Mode	WLAN: 802.11a/b/g/n/ac/ax/be HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160/EHT20/EHT40/EHT80/EHT160/EHT320 Bluetooth BR/EDR/LE NFC: ASK
EUT Stage	Production Unit
Remark:	
1. The Intel BE201NGW WLAN/Bluetooth module is also integrated into this host, WLAN/Bluetooth power and WLAN SAR testing data, which can be referred to Intel SAR Report, Report No.: 240813-01.TR03 / 231109-06.TR01 / 231109-06.TR07 (FCC ID: PD9BE201NG) and these results are used simultaneous transmission analysis.	

<WWAN Antenna Information_NB>

Communication System	Band	Frequency (MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D Tx Antenna Gain(dBi) Ant5
LTE Cat.M1	2	1850	1910	Ant5: 6036B0361401 (00-350270155N)	Vendor 1	PIFA	-0.5
LTE Cat.M1	4	1710	1755				-0.28
GSM850 / LTE Cat.M1	5	824	849				0.71
LTE Cat.M1	12	699	716				0.47
LTE Cat.M1	13	777	787				1.45
LTE Cat.M1	14	788	798				1.43
GSM1900 / LTE Cat.M1	25	1850	1915				-0.5
LTE Cat.M1	26	814	849				0.47
LTE Cat.M1	66	1710	1780				0.08
LTE Cat.M1	85	698	716				0.46

Communication System	Band	Frequency (MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D Tx Antenna Gain(dBi) Ant5
LTE Cat.M1	2	1850	1910	Main: 81ELBF15.G04	Vendor 2	PIFA	0.43
LTE Cat.M1	4	1710	1755				-1.13
GSM850 / LTE Cat.M1	5	824	849				-2.74
LTE Cat.M1	12	699	716				-0.62
LTE Cat.M1	13	777	787				-1.43
LTE Cat.M1	14	788	798				-2.55
GSM1900 / LTE Cat.M1	25	1850	1915				0.43
LTE Cat.M1	26	814	849				-2.71
LTE Cat.M1	66	1710	1780				-1.13
LTE Cat.M1	85	698	716				-0.62

<WWAN Antenna Information_TB>

Communication System	Band	Frequency (MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D Tx Antenna Gain(dBi) Ant5
LTE Cat.M1	2	1850	1910	Ant5: 6036B0361401 (00-350270155N)	Vendor 1	PIFA	-1.68
LTE Cat.M1	4	1710	1755				-1.88
GSM850 / LTE Cat.M1	5	824	849				-3.33
LTE Cat.M1	12	699	716				-4.67
LTE Cat.M1	13	777	787				-4.66
LTE Cat.M1	14	788	798				-4.66
GSM1900 / LTE Cat.M1	25	1850	1915				-1.68
LTE Cat.M1	26	814	849				-3.87
LTE Cat.M1	66	1710	1780				-1.87
LTE Cat.M1	85	698	716				-4.67

Communication System	Band	Frequency (MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D Tx Antenna Gain(dBi) Ant5
LTE Cat.M1	2	1850	1910	Main: 81ELBF15.G04	Vendor 2	PIFA	-1.32
LTE Cat.M1	4	1710	1755				-2.68
GSM850 / LTE Cat.M1	5	824	849				-4.14
LTE Cat.M1	12	699	716				-5.88
LTE Cat.M1	13	777	787				-4.25
LTE Cat.M1	14	788	798				-5.14
GSM1900 / LTE Cat.M1	25	1850	1915				-1.32
LTE Cat.M1	26	814	849				-4.14
LTE Cat.M1	66	1710	1780				-2.68
LTE Cat.M1	85	698	716				-5.88



WLAN Antenna Information									
NB mode Main/TX2 Antenna Vendor 1 6036B0361501 (00-350270165N)	Ant. Type	PIFA	connector		NB mode Aux/TX1 Antenna Vendor 1 6036B0361501 (00-350270165N)	Ant. Type	PIFA	connector	
	Peak Gain (dBi)					Peak Gain (dBi)			
	2400~2483.5MHz	0.69	5725~5850MHz	-0.84		2400~2483.5MHz	1.53	5725~5850MHz	2.03
	5150~5250MHz	-1.47	5850~5895MHz	-0.84		5150~5250MHz	1.3	5850~5895MHz	2.03
	5250~5350MHz	-1.47	5925~6425MHz	-0.84		5250~5350MHz	1.16	5925~6425MHz	2.3
	5470~5725MHz	-0.56	6425~7125MHz	0.36		5470~5725MHz	1.83	6425~7125MHz	2.19
NB mode Main/TX2 Antenna Vendor 2 81ELBF15.G03 (6036B0361101)	Ant. Type	PIFA	connector		NB mode Aux/TX1 Antenna Vendor 2 81ELBF15.G03 (6036B0361101)	Ant. Type	PIFA	connector	
	Peak Gain (dBi)					Peak Gain (dBi)			
	2400~2483.5MHz	0.92	5725~5850MHz	-1.06		2400~2483.5MHz	1.83	5725~5850MHz	0.14
	5150~5250MHz	-0.7	5850~5895MHz	-1.06		5150~5250MHz	-1.07	5850~5895MHz	0.14
	5250~5350MHz	-0.3	5925~6425MHz	-1.79		5250~5350MHz	-0.07	5925~6425MHz	0.05
	5470~5725MHz	-0.62	6425~7125MHz	-0.75		5470~5725MHz	-0.83	6425~7125MHz	1.33
TB mode Main/TX2 Antenna Vendor 1 6036B0361501 (00-350270165N)	Ant. Type	PIFA	connector		TB mode Aux/TX1 Antenna Vendor 1 6036B0361501 (00-350270165N)	Ant. Type	PIFA	connector	
	Peak Gain (dBi)					Peak Gain (dBi)			
	2400~2483.5MHz	-0.99	5725~5850MHz	-0.93		2400~2483.5MHz	-1.16	5725~5850MHz	-0.71
	5150~5250MHz	-0.1	5850~5895MHz	-1.15		5150~5250MHz	-0.18	5850~5895MHz	-0.71
	5250~5350MHz	-0.51	5925~6425MHz	0.02		5250~5350MHz	-1.22	5925~6425MHz	1.33
	5470~5725MHz	-1.26	6425~7125MHz	0.97		5470~5725MHz	0.23	6425~7125MHz	-1.25
TB mode Main/TX2 Antenna Vendor 2 81ELBF15.G03 (6036B0361101)	Ant. Type	PIFA	connector		TB mode Aux/TX1 Antenna Vendor 2 81ELBF15.G03 (6036B0361101)	Ant. Type	PIFA	connector	
	Peak Gain (dBi)					Peak Gain (dBi)			
	2400~2483.5MHz	0.48	5725~5850MHz	-1.57		2400~2483.5MHz	0.12	5725~5850MHz	-0.42
	5150~5250MHz	1.07	5850~5895MHz	-1.98		5150~5250MHz	0.16	5850~5895MHz	-0.42
	5250~5350MHz	-0.64	5925~6425MHz	-1.8		5250~5350MHz	0.78	5925~6425MHz	-0.15
	5470~5725MHz	-0.85	6425~7125MHz	-0.48		5470~5725MHz	-0.31	6425~7125MHz	-0.37

3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05												
FCC ID			B94HNI61PAR									
Equipment Name			CAT-M Module									
Operating Frequency Range of each LTE transmission band			LTE Band 2: 1850 MHz ~ 1910 MHz									
			LTE Band 4: 1710 MHz ~ 1755 MHz									
			LTE Band 5: 824 MHz ~ 849 MHz									
			LTE Band 12: 699 MHz ~ 716 MHz									
			LTE Band 13: 777 MHz ~ 787 MHz									
			LTE Band 14: 788 MHz ~ 798 MHz									
			LTE Band 25: 1850 MHz ~ 1915 MHz									
			LTE Band 26: 814 MHz ~ 849 MHz									
			LTE Band 66: 1710 MHz ~ 1780 MHz									
Channel Bandwidth			LTE Band 85: 698 MHz ~ 716 MHz									
			LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz									
			LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz									
			LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz									
			LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz									
			LTE Band 13: 5MHz, 10MHz									
			LTE Band 14: 5MHz, 10MHz									
			LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz									
			LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz									
uplink modulations used			QPSK / 16QAM									
LTE Voice / Data requirements			Data only									
LTE MPR permanently built-in by design			Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3									
			Modulation		Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	
					1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz		
			QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1		
			16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1		
			16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2		
			64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2		
			64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3		
			256 QAM	≥ 1						≤ 5		
LTE A-MPR			In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)									
Spectrum plots for RB configuration			A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.									
Power reduction applied to satisfy SAR compliance			Yes, G-Sensor.									
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 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 14												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Channel #		Channel #		Freq.(MHz)					
L	23305		790.5		23330		793					
M	23330		793									
H	23355		795.5									
LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905
LTE Band 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5		
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 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770
LTE Band 85												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)	
L	134027		700.5		134052		703					
M	134092		707		134092		707					
H	134157		713.5		134132		711					

**3.3 Sensor Triggering angle and power verification****General Note:**

- The following guidance should be applied to laptops/tablets that use Hall Effect or gravity sensors to detect lid angle for the purpose of power reduction:

Step 1: With the lid is in closed mode (0 degrees), open the screen in 10 degree steps until laptop mode is obtained
 Step 2: Lower the screen 5 degrees. Closed mode should be reobtained. If not keep lowering in 5 degree steps
 Step 3: Open the screen in 1 degree steps until laptop mode is reobtained
 Step 4: Continue opening the screen in 1 degree steps until at least 5 degrees past where laptop mode was obtained
 Step 5: Then continue opening the screen in 10 degree steps until tablet mode is obtained
 Step 6: Power measurements should be taken at each step
 Step 7: Reverse this procedure going from tablet mode back down to closed mode

when the screen angle is from 0 degree to 360 degree													
Band	Lid Close	WWAN Ant 5											
		GSM 850	GSM 1900	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 12	LTE Band 13	LTE Band 14	LTE Band 25	LTE Band 26	LTE Band 66	LTE Band 85
Screen angle (degree) v.s. power	0	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	1	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	2	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	3	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	4	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	5	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	10	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	20	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	30	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	40	27.86	23.97	20.19	20.81	20.28	20.58	20.17	20.20	20.18	20.15	20.51	20.21
	50	27.81	23.93	20.14	20.71	20.25	20.48	20.07	20.14	20.14	20.05	20.44	20.18
	60	27.77	23.92	20.11	20.71	20.20	20.54	20.07	20.12	20.14	20.09	20.45	20.14
	70	27.82	23.88	20.10	20.73	20.23	20.53	20.13	20.15	20.13	20.05	20.47	20.18
	80	27.76	23.92	20.09	20.74	20.20	20.49	20.10	20.11	20.14	20.11	20.44	20.17
	90	27.78	23.92	20.11	20.78	20.20	20.51	20.12	20.12	20.13	20.10	20.46	20.17
	100	27.76	23.93	20.09	20.75	20.25	20.49	20.10	20.16	20.13	20.12	20.47	20.18
	110	27.79	23.93	20.09	20.76	20.19	20.51	20.13	20.12	20.13	20.05	20.44	20.12
	120	27.83	23.92	20.09	20.74	20.20	20.54	20.11	20.12	20.12	20.09	20.42	20.16
	125	27.78	23.87	20.14	20.73	20.21	20.48	20.14	20.11	20.14	20.06	20.45	20.12
	126	27.81	23.88	20.12	20.71	20.19	20.50	20.09	20.17	20.11	20.09	20.43	20.14
	127	27.82	23.91	20.11	20.78	20.22	20.49	20.09	20.11	20.11	20.08	20.46	20.15
	128	27.76	23.89	20.10	20.72	20.19	20.50	20.13	20.12	20.11	20.12	20.45	20.17
	129	27.79	23.90	20.16	20.72	20.24	20.55	20.07	20.16	20.12	20.08	20.41	20.14
	130	27.77	23.91	20.10	20.74	20.19	20.52	20.12	20.15	20.11	20.11	20.42	20.18
Tablet Mode	131	27.83	19.55	15.67	16.40	18.19	18.68	18.91	19.15	15.62	18.90	15.89	19.17
	132	27.81	19.46	15.63	16.37	18.13	18.59	18.86	19.10	15.54	18.86	15.81	19.10
	133	27.80	19.45	15.59	16.30	18.11	18.65	18.88	19.07	15.57	18.88	15.87	19.10
	134	27.81	19.51	15.64	16.32	18.15	18.63	18.81	19.05	15.54	18.81	15.84	19.08
	135	27.76	19.49	15.60	16.32	18.11	18.64	18.85	19.11	15.52	18.84	15.80	19.08
	140	27.77	19.50	15.58	16.32	18.15	18.64	18.85	19.07	15.59	18.84	15.85	19.14
	145	27.76	19.47	15.58	16.30	18.13	18.61	18.85	19.08	15.54	18.83	15.80	19.15
	150	27.75	19.45	15.58	16.32	18.16	18.63	18.85	19.11	15.54	18.81	15.85	19.13
	160	27.74	19.53	15.65	16.37	18.11	18.60	18.81	19.12	15.59	18.88	15.85	19.13
	170	27.77	19.46	15.64	16.33	18.13	18.65	18.86	19.09	15.53	18.82	15.80	19.08
	180	27.76	19.50	15.59	16.34	18.14	18.64	18.83	19.10	15.56	18.88	15.87	19.15
	190	27.80	19.52	15.63	16.31	18.12	18.62	18.82	19.07	15.58	18.87	15.82	19.07
	200	27.75	19.50	15.59	16.38	18.10	18.66	18.87	19.11	15.52	18.83	15.79	19.10
	210	27.75	19.53	15.64	16.32	18.11	18.61	18.89	19.09	15.53	18.88	15.79	19.08
	220	27.80	19.45	15.65	16.32	18.09	18.58	18.89	19.05	15.59	18.81	15.81	19.14
	230	27.77	19.49	15.59	16.38	18.12	18.60	18.83	19.10	15.59	18.88	15.81	19.10
	240	27.78	19.45	15.57	16.33	18.10	18.64	18.82	19.10	15.60	18.84	15.81	19.11



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		250	27.80	19.52	15.62	16.30	18.12	18.61	18.82	19.05	15.59	18.86	15.79	19.14
		260	27.81	19.47	15.57	16.38	18.11	18.61	18.85	19.11	15.60	18.87	15.85	19.15
		270	27.73	19.46	15.60	16.33	18.17	18.58	18.89	19.13	15.54	18.84	15.80	19.10
		280	27.77	19.47	15.64	16.35	18.09	18.58	18.86	19.10	15.52	18.82	15.82	19.10
		290	27.81	19.51	15.60	16.35	18.15	18.66	18.88	19.09	15.55	18.88	15.87	19.13
		300	27.75	19.49	15.59	16.33	18.14	18.59	18.87	19.09	15.56	18.86	15.87	19.07
		310	27.80	19.46	15.64	16.34	18.13	18.65	18.86	19.08	15.52	18.84	15.81	19.15
		320	27.76	19.46	15.58	16.32	18.17	18.64	18.82	19.08	15.55	18.88	15.83	19.13
		330	27.73	19.48	15.61	16.30	18.11	18.59	18.89	19.06	15.60	18.81	15.81	19.08
		340	27.80	19.47	15.58	16.35	18.16	18.62	18.86	19.07	15.56	18.80	15.83	19.09
		350	27.75	19.50	15.65	16.36	18.16	18.65	18.81	19.12	15.60	18.85	15.87	19.08
		360	27.76	19.53	15.60	16.37	18.10	18.59	18.89	19.10	15.54	18.84	15.85	19.08
	Notebook	201	27.85	23.91	20.11	20.80	20.23	20.52	20.11	20.14	20.08	20.08	20.48	20.13
		202	27.83	23.92	20.13	20.78	20.18	20.56	20.15	20.16	20.13	20.14	20.45	20.12
		203	27.76	23.90	20.10	20.77	20.22	20.51	20.14	20.19	20.11	20.06	20.43	20.11
		204	27.78	23.94	20.13	20.76	20.26	20.50	20.08	20.16	20.17	20.11	20.41	20.16
		205	27.81	23.95	20.10	20.80	20.23	20.52	20.11	20.17	20.15	20.14	20.48	20.15
		210	27.80	23.96	20.15	20.79	20.23	20.53	20.14	20.13	20.12	20.09	20.41	20.14
		220	27.85	23.92	20.13	20.80	20.27	20.50	20.13	20.13	20.08	20.13	20.47	20.16
		230	27.77	23.93	20.09	20.74	20.18	20.54	20.13	20.12	20.09	20.14	20.46	20.19
		240	27.77	23.88	20.11	20.72	20.26	20.51	20.08	20.17	20.09	20.12	20.46	20.15
		250	27.77	23.89	20.11	20.75	20.27	20.57	20.12	20.18	20.13	20.13	20.41	20.15
		260	27.85	23.89	20.18	20.77	20.21	20.57	20.09	20.18	20.10	20.07	20.41	20.11
		270	27.85	23.93	20.10	20.75	20.25	20.53	20.13	20.13	20.13	20.10	20.49	20.14
		280	27.85	23.95	20.12	20.77	20.26	20.51	20.16	20.15	20.16	20.13	20.43	20.20
		290	27.84	23.90	20.16	20.76	20.24	20.49	20.07	20.13	20.10	20.06	20.41	20.12
		300	27.80	23.87	20.17	20.77	20.23	20.54	20.13	20.12	20.10	20.08	20.43	20.11
		310	27.84	23.92	20.11	20.76	20.25	20.53	20.14	20.17	20.17	20.11	20.48	20.17
		320	27.81	23.93	20.12	20.79	20.23	20.51	20.07	20.15	20.15	20.10	20.47	20.11
		330	27.76	23.95	20.12	20.77	20.24	20.55	20.07	20.13	20.16	20.12	20.43	20.13
		335	27.81	23.92	20.09	20.76	20.26	20.57	20.09	20.18	20.09	20.11	20.50	20.13
		336	27.83	23.89	20.16	20.78	20.23	20.55	20.16	20.19	20.17	20.12	20.50	20.15
		337	27.79	23.94	20.11	20.72	20.27	20.50	20.16	20.12	20.13	20.09	20.46	20.18
		338	27.81	23.89	20.18	20.73	20.18	20.53	20.14	20.12	20.13	20.07	20.41	20.18
		339	27.81	23.93	20.09	20.78	20.20	20.57	20.15	20.14	20.14	20.13	20.50	20.17
		340	27.76	23.88	20.16	20.74	20.25	20.48	20.15	20.13	20.08	20.12	20.43	20.11
	Tablet	341	27.79	19.51	15.65	16.36	18.15	18.64	18.83	19.10	15.59	18.86	15.83	19.13
		342	27.80	19.48	15.62	16.36	18.15	18.59	18.83	19.10	15.57	18.88	15.82	19.10
		343	27.77	19.51	15.59	16.31	18.11	18.64	18.87	19.07	15.60	18.85	15.82	19.15
		344	27.79	19.51	15.57	16.32	18.13	18.63	18.82	19.08	15.53	18.81	15.83	19.13
		345	27.79	19.49	15.58	16.33	18.13	18.64	18.84	19.13	15.57	18.85	15.87	19.09
		350	27.79	19.45	15.57	16.33	18.12	18.60	18.82	19.07	15.58	18.87	15.80	19.14
		360	27.73	19.51	15.65	16.36	18.15	18.60	18.84	19.09	15.52	18.84	15.82	19.13

when the screen angle is from 0 degree to 360 degree														
Screen angle (degree) v.s. power	Wireless		WWAN Ant 5											
	Band		GSM 850	GSM 1900	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 12	LTE Band 13	LTE Band 14	LTE Band 25	LTE Band 26	LTE Band 66	LTE Band 85
	Tablet Mode	360	27.82	19.53	15.57	16.32	18.15	18.61	18.87	19.10	15.52	18.81	15.82	19.09
		350	27.77	19.52	15.59	16.33	18.09	18.62	18.84	19.07	15.55	18.85	15.79	19.07
		340	27.78	19.42	15.56	16.34	18.09	18.53	18.83	19.07	15.47	18.79	15.72	19.05
		330	27.74	19.35	15.56	16.24	18.08	18.59	18.81	18.98	15.53	18.85	15.84	19.03
		320	27.78	19.42	15.57	16.24	18.08	18.58	18.75	18.97	15.47	18.76	15.75	19.00
		310	27.67	19.42	15.54	16.23	18.03	18.54	18.79	19.06	15.45	18.80	15.76	19.02
		300	27.73	19.47	15.52	16.24	18.08	18.59	18.79	19.02	15.51	18.74	15.75	19.07
		290	27.70	19.40	15.50	16.23	18.07	18.58	18.75	19.03	15.47	18.73	15.72	19.08



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		280	27.72	19.38	15.50	16.25	18.11	18.55	18.82	19.01	15.46	18.78	15.81	19.07
		270	27.71	19.49	15.59	16.34	18.08	18.53	18.73	19.03	15.53	18.80	15.79	19.04
		260	27.68	19.43	15.61	16.29	18.09	18.58	18.82	19.01	15.48	18.73	15.76	19.00
		250	27.66	19.43	15.49	16.25	18.11	18.60	18.79	19.05	15.49	18.85	15.82	19.12
		240	27.76	19.42	15.59	16.23	18.07	18.53	18.78	18.98	15.54	18.77	15.76	19.02
		230	27.68	19.42	15.52	16.30	18.06	18.61	18.83	19.04	15.45	18.79	15.69	19.01
		220	27.66	19.46	15.61	16.24	18.06	18.58	18.82	19.04	15.49	18.84	15.70	19.02
		210	27.70	19.36	15.55	16.23	18.06	18.48	18.84	18.95	15.55	18.77	15.76	19.05
		200	27.74	19.40	15.49	16.34	18.05	18.51	18.75	19.02	15.53	18.79	15.74	19.01
		190	27.68	19.41	15.51	16.29	18.00	18.54	18.74	19.05	15.57	18.74	15.74	19.07
		180	27.74	19.46	15.56	16.21	18.09	18.58	18.75	19.00	15.54	18.82	15.69	19.10
		170	27.75	19.39	15.50	16.29	18.08	18.54	18.82	19.01	15.56	18.79	15.76	19.07
		160	27.67	19.36	15.56	16.25	18.14	18.55	18.82	19.09	15.50	18.74	15.71	19.04
		150	27.73	19.37	15.54	16.27	18.05	18.54	18.77	19.01	15.46	18.76	15.79	19.00
		140	27.76	19.48	15.55	16.32	18.09	18.58	18.82	19.04	15.48	18.83	15.77	19.03
		135	27.70	19.39	15.49	16.27	18.05	18.53	18.84	19.05	15.46	18.82	15.84	19.00
		134	27.72	19.36	15.55	16.31	18.09	18.56	18.76	19.00	15.47	18.79	15.75	19.06
		133	27.71	19.38	15.54	16.24	18.08	18.59	18.74	18.99	15.46	18.79	15.79	19.10
		132	27.69	19.39	15.54	16.20	18.08	18.55	18.85	18.97	15.57	18.75	15.78	19.02
		131	27.74	19.42	15.52	16.27	18.11	18.52	18.78	19.04	15.47	18.71	15.76	18.99
	Notebook	130	27.80	23.90	20.11	20.78	20.18	20.55	20.14	20.17	20.12	20.13	20.44	20.11
		129	27.79	23.95	20.11	20.77	20.26	20.53	20.10	20.16	20.10	20.12	20.41	20.15
		128	27.74	23.85	20.05	20.65	20.19	20.46	20.01	20.13	20.07	20.01	20.34	20.16
		127	27.75	23.87	20.08	20.66	20.12	20.51	20.01	20.06	20.09	19.99	20.38	20.11
		126	27.77	23.81	20.09	20.66	20.21	20.49	20.10	20.14	20.06	19.96	20.41	20.11
		125	27.72	23.87	20.06	20.73	20.19	20.46	20.09	20.07	20.04	20.03	20.39	20.14
		120	27.73	23.82	20.03	20.68	20.18	20.48	20.08	20.04	20.04	20.00	20.39	20.07
		120	27.68	23.86	20.02	20.73	20.15	20.47	20.03	20.11	20.06	20.06	20.43	20.17
		110	27.70	23.87	20.00	20.70	20.17	20.41	20.08	20.03	20.11	20.04	20.35	20.10
		100	27.74	23.86	20.04	20.69	20.12	20.51	20.06	20.05	20.09	20.06	20.36	20.09
		90	27.68	23.78	20.09	20.63	20.18	20.43	20.13	20.01	20.11	19.96	20.37	20.08
		80	27.80	23.84	20.10	20.62	20.14	20.49	20.08	20.11	20.03	20.02	20.34	20.12
		70	27.80	23.90	20.04	20.68	20.12	20.45	20.04	20.04	20.03	20.05	20.39	20.09
		60	27.71	23.79	20.03	20.64	20.17	20.44	20.10	20.08	20.06	20.09	20.40	20.13
		50	27.78	23.82	20.08	20.62	20.19	20.50	20.06	20.06	20.04	19.99	20.31	20.04
		40	27.68	23.89	20.07	20.73	20.14	20.51	20.02	20.11	20.04	20.03	20.37	20.11
		30	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
		20	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
		10	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
		5	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
		4	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
		3	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
		2	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
		1	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	Lid Close	0	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby	standby
	Tablet	360	27.74	19.44	15.57	16.34	18.12	18.57	18.77	19.04	15.51	18.83	15.82	19.10
		350	27.72	19.38	15.57	16.32	18.11	18.55	18.82	19.00	15.47	18.79	15.80	19.01
		345	27.76	19.47	15.51	16.29	18.02	18.63	18.77	19.06	15.54	18.80	15.77	19.08
		344	27.71	19.44	15.48	16.25	18.05	18.57	18.74	18.98	15.44	18.77	15.76	19.10
		343	27.72	19.47	15.56	16.25	18.10	18.60	18.82	19.05	15.50	18.79	15.83	19.00
		342	27.74	19.42	15.49	16.27	18.10	18.57	18.78	18.98	15.54	18.85	15.75	19.08
		341	27.72	19.48	15.59	16.27	18.13	18.54	18.83	19.00	15.51	18.77	15.74	19.11
	Notebook	340	27.83	23.87	20.01	20.71	20.15	20.48	20.07	20.06	20.07	19.99	20.46	20.12
		339	27.78	23.84	20.04	20.75	20.10	20.46	20.10	20.15	20.04	20.06	20.35	20.03
		338	27.70	23.81	20.04	20.75	20.19	20.43	20.12	20.09	20.08	19.96	20.41	20.05
		337	27.72	23.90	20.05	20.69	20.20	20.48	20.06	20.14	20.14	20.03	20.33	20.14



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336	27.72	23.94	20.00	20.78	20.13	20.50	20.04	20.10	20.08	20.05	20.43	20.08
335	27.78	23.95	20.09	20.74	20.15	20.43	20.09	20.10	20.11	20.07	20.35	20.11
330	27.78	23.86	20.07	20.76	20.18	20.45	20.07	20.07	19.99	20.04	20.42	20.11
320	27.74	23.88	20.04	20.67	20.15	20.45	20.06	20.07	20.02	20.06	20.43	20.09
310	27.68	23.81	20.04	20.65	20.24	20.46	20.01	20.16	20.07	20.07	20.38	20.10
300	27.70	23.81	20.08	20.69	20.21	20.53	20.05	20.17	20.03	20.04	20.40	20.10
290	27.79	23.81	20.11	20.70	20.20	20.52	20.05	20.09	20.09	19.99	20.39	20.09
280	27.81	23.88	20.02	20.71	20.22	20.43	20.11	20.11	20.09	20.09	20.39	20.06
270	27.76	23.88	20.09	20.74	20.17	20.50	20.15	20.06	20.11	20.06	20.36	20.14
260	27.75	23.88	20.10	20.67	20.20	20.44	20.06	20.10	20.04	19.97	20.37	20.03
250	27.71	23.83	20.16	20.69	20.14	20.51	20.05	20.04	20.06	20.06	20.42	20.06
240	27.78	23.89	20.02	20.73	20.19	20.52	20.07	20.08	20.10	20.03	20.47	20.12
230	27.72	23.86	20.04	20.73	20.14	20.42	20.04	20.12	20.09	20.06	20.40	20.05
220	27.67	23.94	20.10	20.72	20.22	20.50	20.02	20.11	20.15	20.05	20.37	20.12
210	27.80	23.86	20.02	20.75	20.18	20.51	20.03	20.09	20.04	20.06	20.40	20.10
205	27.78	23.85	20.08	20.72	20.13	20.51	20.09	20.16	20.12	20.06	20.45	20.09
204	27.75	23.85	20.07	20.66	20.25	20.47	20.11	20.11	20.07	20.08	20.40	20.17
203	27.73	23.82	20.17	20.65	20.08	20.45	20.09	20.08	20.07	20.06	20.34	20.13
202	27.77	23.90	20.00	20.74	20.15	20.54	20.10	20.05	20.13	20.08	20.45	20.13
201	27.73	23.79	20.08	20.69	20.22	20.39	20.14	20.10	20.03	20.07	20.40	20.08

4. RF Exposure Limits

4.1 Uncontrolled Environment

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

4.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

5. Specific Absorption Rate (SAR)

5.1 Introduction

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

5.2 SAR Definition

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

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

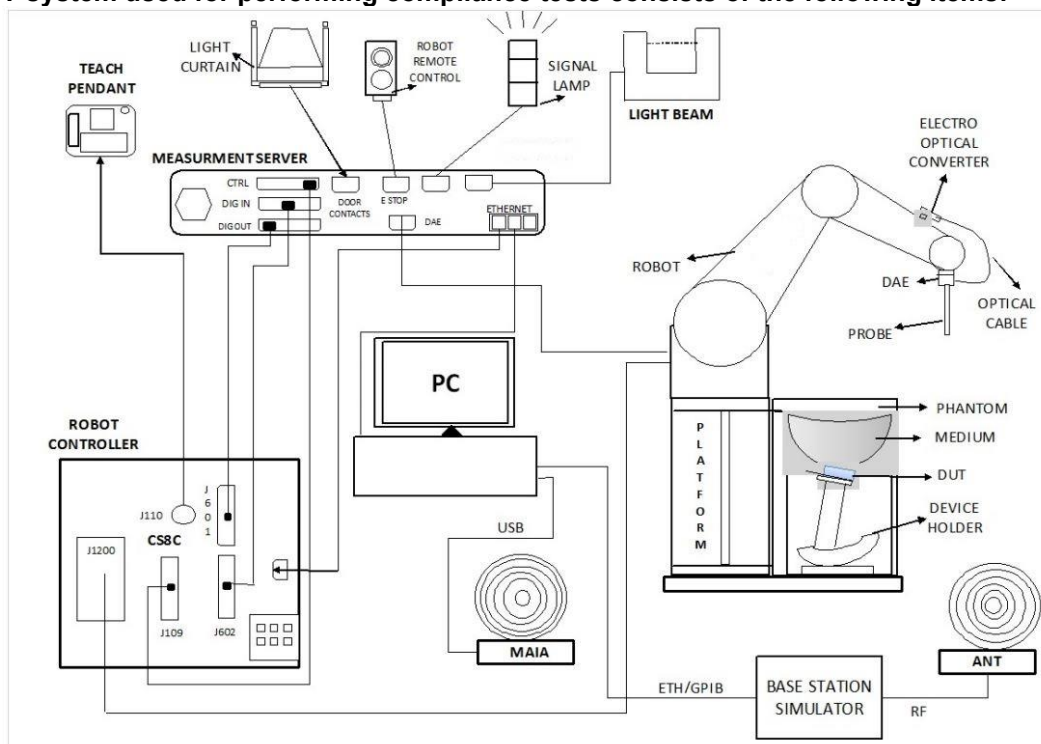
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

6. System Description and Setup

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



- The DASY system in SAR Configuration is shown above
- 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 windows software and the DASY software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

6.1 Test Site Location

The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 3786) and the FCC designation No. TW1190 and TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Laboratory	EMC & Wireless Communications Laboratory		Wensan Laboratory				
Test Site Location	TW1190 No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan		TW3786 No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan				
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY	SAR15-HY	SAR18-HY	SAR21-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY	SAR16-HY	SAR19-HY	SAR22-HY
	SAR06-HY	SAR10-HY	SAR13-HY	SAR14-HY	SAR17-HY	SAR20-HY	

6.2 E-Field Probe

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

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	4 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	4 MHz – >6 GHz Linearity: ± 0.2 dB (30 MHz – 6 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

6.3 Data Acquisition Electronics (DAE)

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

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



Fig 5.1 Photo of DAE

6.4 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

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

6.5 Device Holder

<Mounting Device for Hand-Held Transmitter>

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

7. Measurement Procedures

The measurement procedures are as follows:

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

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

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

7.1 Spatial Peak SAR Evaluation

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

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

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

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

7.2 Power Reference Measurement

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

7.3 Area Scan

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

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

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

7.4 Zoom Scan

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

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

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

7.5 Volume Scan Procedures

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

7.6 Power Drift Monitoring

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

8. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit ⁽²⁾	D750V3	1107	Jun. 22, 2022	Jun. 19, 2025
SPEAG	835MHz System Validation Kit ⁽²⁾	D835V2	4d167	Nov. 24, 2022	Nov. 22, 2024
SPEAG	1750MHz System Validation Kit ⁽²⁾	D1750V2	1112	Jun. 22, 2022	Jun. 19, 2025
SPEAG	1900MHz System Validation Kit ⁽²⁾	D1900V2	5d185	Jun. 17, 2022	Jun. 14, 2025
SPEAG	Data Acquisition Electronics	DAE4ip	1800	Jun. 18, 2024	Jun. 17, 2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7793	Mar. 01, 2024	Feb. 28, 2025
Testo	Hygro meter	608-H1	45196600	Nov. 02, 2023	Nov. 01, 2024
Anritsu	Radio Communication Test Station	MT8000A	6262208374	Feb. 29, 2024	Feb. 28, 2025
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Nov. 13, 2023	Nov. 12, 2024
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Sep. 27, 2023	Sep. 26, 2024
Keysight	ENA Network Analyzer	E5071C	MY46104758	Oct. 30, 2023	Oct. 29, 2024
SPEAG	Dielectric Probe Kit	DAK-3.5	1146	Jul. 15, 2024	Jul. 14, 2025
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3690	Aug. 07, 2024	Aug. 06, 2025
Anritsu	Power Meter	ML2495A	1419002	Aug. 13, 2024	Aug. 12, 2025
Anritsu	Power Sensor	MA2411B	1911176	Aug. 13, 2024	Aug. 12, 2025
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jul. 09, 2024	Jul. 08, 2025
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 16, 2023	Oct. 15, 2024
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Warison	Directional Coupler	WCOU-10-50S-10	WR889BMC4B1	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

10. RF Exposure Positions

10.1 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

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

<GSM Conducted Power>

- Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
- Per KDB 941225 D01v03r01, for SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance, for modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested, therefore, the GPRS 4Tx slots modes was selected when EUT operating without power back-off, the GPRS 4Tx slots modes was selected when EUT operating with power back-off, according to the highest source-based time-averaged output power.

<GSM NB>

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	32.59	33.02	32.66	34.50	23.59	24.02	23.66	25.50
GPRS 1 Tx slot	32.54	32.98	32.61	34.50	23.54	23.98	23.61	25.50
GPRS 2 Tx slots	29.51	29.57	29.53	31.50	23.51	23.57	23.53	25.50
GPRS 3 Tx slots	28.05	28.51	28.01	29.50	23.79	24.25	23.75	25.24
GPRS 4 Tx slots	27.85	27.88	27.41	28.50	24.85	24.88	24.41	25.50
EDGE 1 Tx slot	26.32	26.58	26.38	28.00	17.32	17.58	17.38	19.00
EDGE 2 Tx slots	24.53	25.01	24.76	26.50	18.53	19.01	18.76	20.50
EDGE 3 Tx slots	22.97	23.40	23.15	24.50	18.71	19.14	18.89	20.24
EDGE 4 Tx slots	22.05	22.34	22.15	24.00	19.05	19.34	19.15	21.00

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	28.93	29.02	28.87	30.00	19.93	20.02	19.87	21.00
GPRS 1 Tx slot	28.72	28.92	28.77	30.00	19.72	19.92	19.77	21.00
GPRS 2 Tx slots	26.91	26.98	26.94	27.00	20.91	20.98	20.94	21.00
GPRS 3 Tx slots	24.93	24.98	24.92	25.00	20.67	20.72	20.66	20.74
GPRS 4 Tx slots	23.97	23.99	23.95	24.00	20.97	20.99	20.95	21.00
EDGE 1 Tx slot	25.19	25.21	25.16	27.00	16.19	16.21	16.16	18.00
EDGE 2 Tx slots	24.59	24.74	24.41	26.00	18.59	18.74	18.41	20.00
EDGE 3 Tx slots	22.94	22.92	22.64	24.50	18.68	18.66	18.38	20.24
EDGE 4 Tx slots	21.93	21.77	21.56	23.50	18.93	18.77	18.56	20.50

<GSM_TB>

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	32.59	33.02	32.66	34.00	23.59	24.02	23.66	25.00
GPRS 1 Tx slot	32.54	32.98	32.61	34.00	23.54	23.98	23.61	25.00
GPRS 2 Tx slots	29.14	29.57	29.44	31.00	23.14	23.57	23.44	25.00
GPRS 3 Tx slots	28.05	28.51	28.01	29.00	23.79	24.25	23.75	24.74
GPRS 4 Tx slots	27.85	27.88	27.41	28.00	24.85	24.88	24.41	25.00
EDGE 1 Tx slot	26.32	26.58	26.38	28.00	17.32	17.58	17.38	19.00
EDGE 2 Tx slots	24.53	25.01	24.76	26.50	18.53	19.01	18.76	20.50
EDGE 3 Tx slots	22.97	23.40	23.15	24.50	18.71	19.14	18.89	20.24
EDGE 4 Tx slots	22.05	22.34	22.15	24.00	19.05	19.34	19.15	21.00

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	24.48	24.50	24.15	26.00	15.48	15.50	15.15	17.00
GPRS 1 Tx slot	24.57	24.54	24.18	26.00	15.57	15.54	15.18	17.00
GPRS 2 Tx slots	22.50	22.55	22.11	23.00	16.50	16.55	16.11	17.00
GPRS 3 Tx slots	20.57	20.54	20.12	21.00	16.31	16.28	15.86	16.74
GPRS 4 Tx slots	19.59	19.60	19.15	20.00	16.59	16.60	16.15	17.00
EDGE 1 Tx slot	21.57	21.58	21.10	23.00	12.57	12.58	12.10	14.00
EDGE 2 Tx slots	20.59	20.60	20.12	22.00	14.59	14.60	14.12	16.00
EDGE 3 Tx slots	18.54	18.54	18.51	20.50	14.28	14.28	14.25	16.24
EDGE 4 Tx slots	17.51	17.59	17.53	19.50	14.51	14.59	14.53	16.50

<LTE Conducted Power>**General Note:**

1. A Base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4/B5/B12/B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 2/5/12 SAR test was covered by Band 25/26/85; 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

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BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	18700	18900	19100	
Frequency (MHz)							1860	1880	1900	
20	QPSK	1	0	0	0	15	20.06	20.23	20.15	22.00
20	QPSK	1	5	0	0	15	20.04	20.08	20.03	
20	QPSK	3	0	0	0	15	20.13	20.17	20.16	
20	QPSK	3	3	0	0	15	20.13	20.14	20.04	
20	QPSK	6	0	0	0	15	20.20	20.22	20.10	
20	16QAM	1	0	0	0	15	20.08	20.09	20.16	
20	16QAM	1	5	0	0	15	20.05	20.06	20.15	
20	16QAM	3	0	0	0	15	20.02	20.08	20.11	
20	16QAM	3	3	0	0	15	20.08	20.05	20.06	
20	16QAM	5	0	0	0	15	20.14	20.13	20.12	
Channel				L	M	H	18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)							1857.5	1880	1902.5	
15	QPSK	1	0	0	0	11	20.04	20.12	20.08	22.00
15	QPSK	1	5	0	0	11	20.04	20.04	20.02	
15	QPSK	3	0	0	0	11	20.08	20.07	20.07	
15	QPSK	3	3	0	0	11	20.09	20.06	20.03	
15	QPSK	6	0	0	0	11	20.12	20.11	20.06	
15	16QAM	1	0	0	0	11	20.03	20.06	20.10	
15	16QAM	1	5	0	0	11	20.03	20.02	20.14	
15	16QAM	3	0	0	0	11	20.01	20.05	20.01	
15	16QAM	3	3	0	0	11	20.03	20.03	20.03	
15	16QAM	5	0	0	0	11	20.11	20.07	20.10	
Channel				L	M	H	18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)							1855	1880	1905	
10	QPSK	1	0	0	0	7	20.03	20.16	20.07	22.00
10	QPSK	1	5	0	0	7	20.05	20.02	20.01	
10	QPSK	3	0	0	0	7	20.06	20.08	20.12	
10	QPSK	3	3	0	0	7	20.06	20.04	20.01	
10	QPSK	6	0	0	0	7	19.39	19.30	19.22	21.00
10	16QAM	1	0	0	0	7	20.07	20.06	20.09	22.00
10	16QAM	1	5	0	0	7	20.02	20.04	20.12	
10	16QAM	3	0	0	0	7	20.04	20.02	20.11	
10	16QAM	3	3	0	0	7	20.02	20.05	20.01	
10	16QAM	5	0	0	0	7	19.98	19.99	19.92	21.00
Channel				L	M	H	18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)							1852.5	1880	1907.5	
5	QPSK	1	0	0	0	3	20.05	20.15	20.06	22.00
5	QPSK	1	5	0	0	3	20.01	20.07	20.02	
5	QPSK	3	0	0	0	3	19.25	19.37	19.29	21.00
5	QPSK	3	3	0	0	3	19.33	19.23	19.21	
5	QPSK	6	0	0	0	3	19.40	19.28	19.25	22.00
5	16QAM	1	0	0	0	3	20.03	20.01	20.13	
5	16QAM	1	5	0	0	3	20.03	20.01	20.09	
5	16QAM	3	0	0	0	3	19.17	19.28	19.21	21.00
5	16QAM	3	3	0	0	3	19.21	19.16	19.19	
5	16QAM	5	0	0	0	3	18.55	18.57	18.55	20.00
Channel				L	M	H	18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)							1851.5	1880	1908.5	
3	QPSK	1	0	0	0	1	20.00	20.10	20.10	22.00
3	QPSK	1	5	0	0	1	20.04	20.06	20.04	

3	QPSK	3	0	0	0	1	19.24	19.31	19.30	21.00
3	QPSK	3	3	0	0	1	19.24	19.22	19.24	
3	QPSK	6	0	0	0	1	18.64	18.64	18.59	20.00
3	16QAM	1	0	0	0	1	19.25	19.19	19.30	21.00
3	16QAM	1	5	0	0	1	19.21	19.25	19.35	
3	16QAM	3	0	0	0	1	18.44	18.51	18.51	20.00
3	16QAM	3	3	0	0	1	18.53	18.54	18.50	
3	16QAM	5	0	0	0	1	18.57	18.62	18.58	
Channel				L	M	H	18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)							1850.7	1880	1909.3	
1.4	QPSK	1	0	0	0	0	20.05	20.13	20.11	22.00
1.4	QPSK	1	5	0	0	0	20.04	20.05	20.00	
1.4	QPSK	3	0	0	0	0	19.27	19.31	19.32	21.00
1.4	QPSK	3	3	0	0	0	19.32	19.30	19.18	
1.4	QPSK	6	0	0	0	0	18.64	18.62	18.50	20.00
1.4	16QAM	1	0	0	0	0	19.28	19.22	19.35	21.00
1.4	16QAM	1	5	0	0	0	19.15	19.16	19.28	
1.4	16QAM	3	0	0	0	0	18.46	18.56	18.60	20.00
1.4	16QAM	3	3	0	0	0	18.57	18.54	18.56	
1.4	16QAM	5	0	0	0	0	18.55	18.53	18.59	

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BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	18700	18900	19100	
Frequency (MHz)							1860	1880	1900	
20	QPSK	1	0	0	0	15	15.54	15.69	15.61	16.50
20	QPSK	1	5	0	0	15	15.27	15.35	15.32	
20	QPSK	3	0	0	0	15	15.58	15.68	15.58	
20	QPSK	3	3	0	0	15	15.42	15.53	15.51	
20	QPSK	6	0	0	0	15	15.55	15.61	15.51	
20	16QAM	1	0	0	0	15	15.63	15.63	15.52	
20	16QAM	1	5	0	0	15	15.34	15.34	15.32	
20	16QAM	3	0	0	0	15	15.67	15.58	15.66	
20	16QAM	3	3	0	0	15	15.46	15.49	15.48	
20	16QAM	5	0	0	0	15	15.58	15.49	15.53	
Channel				L	M	H	18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)							1857.5	1880	1902.5	
15	QPSK	1	0	0	0	11	15.38	15.54	15.43	16.50
15	QPSK	1	5	0	0	11	15.17	15.18	15.17	
15	QPSK	3	0	0	0	11	15.48	15.53	15.38	
15	QPSK	3	3	0	0	11	15.24	15.33	15.36	
15	QPSK	6	0	0	0	11	15.40	15.41	15.39	
15	16QAM	1	0	0	0	11	15.47	15.47	15.42	
15	16QAM	1	5	0	0	11	15.18	15.14	15.14	
15	16QAM	3	0	0	0	11	15.53	15.42	15.47	
15	16QAM	3	3	0	0	11	15.29	15.33	15.29	
15	16QAM	5	0	0	0	11	15.38	15.33	15.42	
Channel				L	M	H	18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)							1855	1880	1905	
10	QPSK	1	0	0	0	7	15.34	15.48	15.47	16.50
10	QPSK	1	5	0	0	7	15.16	15.17	15.13	
10	QPSK	3	0	0	0	7	15.45	15.55	15.48	
10	QPSK	3	3	0	0	7	15.24	15.42	15.37	



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10	QPSK	6	0	0	0	7	15.45	15.51	15.31	16.50
10	16QAM	1	0	0	0	7	15.53	15.51	15.32	16.50
10	16QAM	1	5	0	0	7	15.15	15.22	15.16	
10	16QAM	3	0	0	0	7	15.47	15.46	15.55	
10	16QAM	3	3	0	0	7	15.36	15.31	15.33	
10	16QAM	5	0	0	0	7	15.38	15.39	15.36	16.50
Channel				L	M	H	18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)							1852.5	1880	1907.5	
5	QPSK	1	0	0	0	3	15.42	15.49	15.45	16.50
5	QPSK	1	5	0	0	3	15.16	15.18	15.12	
5	QPSK	3	0	0	0	3	15.39	15.56	15.39	16.50
5	QPSK	3	3	0	0	3	15.25	15.33	15.39	
5	QPSK	6	0	0	0	3	15.44	15.47	15.33	
5	16QAM	1	0	0	0	3	15.46	15.43	15.42	16.50
5	16QAM	1	5	0	0	3	15.17	15.17	15.16	
5	16QAM	3	0	0	0	3	15.51	15.45	15.48	16.50
5	16QAM	3	3	0	0	3	15.33	15.39	15.32	
5	16QAM	5	0	0	0	3	15.39	15.38	15.40	16.50
Channel				L	M	H	18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)							1851.5	1880	1908.5	
3	QPSK	1	0	0	0	1	15.34	15.47	15.41	16.50
3	QPSK	1	5	0	0	1	15.17	15.22	15.15	
3	QPSK	3	0	0	0	1	15.40	15.55	15.42	16.50
3	QPSK	3	3	0	0	1	15.27	15.39	15.36	
3	QPSK	6	0	0	0	1	15.41	15.49	15.37	16.50
3	16QAM	1	0	0	0	1	15.45	15.51	15.32	16.50
3	16QAM	1	5	0	0	1	15.14	15.21	15.13	
3	16QAM	3	0	0	0	1	15.52	15.44	15.51	16.50
3	16QAM	3	3	0	0	1	15.36	15.39	15.38	
3	16QAM	5	0	0	0	1	15.48	15.33	15.41	
Channel				L	M	H	18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)							1850.7	1880	1909.3	
1.4	QPSK	1	0	0	0	0	15.42	15.48	15.44	16.50
1.4	QPSK	1	5	0	0	0	15.16	15.18	15.17	
1.4	QPSK	3	0	0	0	0	15.47	15.48	15.44	16.50
1.4	QPSK	3	3	0	0	0	15.25	15.38	15.41	
1.4	QPSK	6	0	0	0	0	15.39	15.48	15.40	16.50
1.4	16QAM	1	0	0	0	0	15.44	15.47	15.34	16.50
1.4	16QAM	1	5	0	0	0	15.22	15.17	15.14	
1.4	16QAM	3	0	0	0	0	15.52	15.45	15.46	16.50
1.4	16QAM	3	3	0	0	0	15.31	15.39	15.37	
1.4	16QAM	5	0	0	0	0	15.43	15.29	15.42	16.50

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BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	20050	20175	20300	
Frequency (MHz)							1720	1732.5	1745	
20	QPSK	1	0	0	0	15	20.15	20.82	20.59	22.00
20	QPSK	1	5	0	0	15	20.03	20.41	20.38	
20	QPSK	3	0	0	0	15	20.20	20.68	20.61	
20	QPSK	3	3	0	0	15	20.10	20.52	20.48	
20	QPSK	6	0	0	0	15	20.05	20.54	20.52	
20	16QAM	1	0	0	0	15	20.63	20.81	20.47	



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20	16QAM	1	5	0	0	15	20.57	20.68	20.29	
20	16QAM	3	0	0	0	15	20.60	20.74	20.34	
20	16QAM	3	3	0	0	15	20.47	20.60	20.20	
20	16QAM	5	0	0	0	15	20.45	20.58	20.24	
Channel				L	M	H	20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)							1717.5	1732.5	1747.5	
15	QPSK	1	0	0	0	11	20.14	20.58	20.53	22.00
15	QPSK	1	5	0	0	11	20.04	20.42	20.32	
15	QPSK	3	0	0	0	11	20.19	20.67	20.58	
15	QPSK	3	3	0	0	11	20.07	20.50	20.46	
15	QPSK	6	0	0	0	11	20.01	20.44	20.49	
15	16QAM	1	0	0	0	11	20.60	20.74	20.39	
15	16QAM	1	5	0	0	11	20.48	20.66	20.23	
15	16QAM	3	0	0	0	11	20.59	20.74	20.25	
15	16QAM	3	3	0	0	11	20.37	20.54	20.17	
15	16QAM	5	0	0	0	11	20.40	20.52	20.24	
Channel				L	M	H	20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)							1715	1732.5	1750	
10	QPSK	1	0	0	0	7	20.07	20.60	20.49	22.00
10	QPSK	1	5	0	0	7	20.00	20.45	20.38	
10	QPSK	3	0	0	0	7	20.13	20.61	20.51	
10	QPSK	3	3	0	0	7	20.04	20.42	20.45	
10	QPSK	6	0	0	0	7	19.17	19.69	19.67	21.00
10	16QAM	1	0	0	0	7	20.61	20.78	20.47	22.00
10	16QAM	1	5	0	0	7	20.57	20.67	20.21	
10	16QAM	3	0	0	0	7	20.55	20.64	20.29	
10	16QAM	3	3	0	0	7	20.42	20.58	20.17	
10	16QAM	5	0	0	0	7	19.60	20.23	20.16	21.00
Channel				L	M	H	19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)							1712.5	1732.5	1752.5	
5	QPSK	1	0	0	0	3	20.15	20.55	20.59	22.00
5	QPSK	1	5	0	0	3	20.00	20.44	20.33	
5	QPSK	3	0	0	0	3	19.40	19.78	19.76	21.00
5	QPSK	3	3	0	0	3	19.27	19.62	19.68	
5	QPSK	6	0	0	0	3	19.25	19.70	19.63	
5	16QAM	1	0	0	0	3	20.57	20.76	20.46	22.00
5	16QAM	1	5	0	0	3	20.48	20.62	20.23	
5	16QAM	3	0	0	0	3	19.80	20.39	20.27	21.00
5	16QAM	3	3	0	0	3	19.62	20.23	20.16	
5	16QAM	5	0	0	0	3	18.81	19.41	19.43	20.00
Channel				L	M	H	19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)							1711.5	1732.5	1753.5	
3	QPSK	1	0	0	0	1	20.10	20.53	20.58	22.00
3	QPSK	1	5	0	0	1	20.03	20.40	20.28	
3	QPSK	3	0	0	0	1	19.30	19.82	19.75	21.00
3	QPSK	3	3	0	0	1	19.25	19.67	19.65	
3	QPSK	6	0	0	0	1	18.38	18.91	18.88	20.00
3	16QAM	1	0	0	0	1	19.74	20.47	20.43	21.00
3	16QAM	1	5	0	0	1	19.75	20.28	20.28	
3	16QAM	3	0	0	0	1	18.95	19.56	19.51	20.00
3	16QAM	3	3	0	0	1	18.83	19.42	19.34	
3	16QAM	5	0	0	0	1	18.85	19.47	19.35	
Channel				L	M	H	19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)							1710.7	1732.5	1754.3	
1.4	QPSK	1	0	0	0	0	20.05	20.54	20.56	22.00
1.4	QPSK	1	5	0	0	0	20.01	20.39	20.29	

1.4	QPSK	3	0	0	0	0	19.39	19.81	19.73	21.00
1.4	QPSK	3	3	0	0	0	19.20	19.66	19.60	
1.4	QPSK	6	0	0	0	0	18.41	18.90	18.85	20.00
1.4	16QAM	1	0	0	0	0	19.74	20.43	20.38	21.00
1.4	16QAM	1	5	0	0	0	19.72	20.29	20.27	
1.4	16QAM	3	0	0	0	0	18.99	19.59	19.51	20.00
1.4	16QAM	3	3	0	0	0	18.83	19.43	19.36	
1.4	16QAM	5	0	0	0	0	18.77	19.42	19.36	

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BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	20050	20175	20300	
Frequency (MHz)							1720	1732.5	1745	
20	QPSK	1	0	0	0	15	16.24	16.42	16.30	17.00
20	QPSK	1	5	0	0	15	16.02	16.09	16.08	
20	QPSK	3	0	0	0	15	16.37	16.41	16.32	
20	QPSK	3	3	0	0	15	16.17	16.28	16.19	
20	QPSK	6	0	0	0	15	16.24	16.31	16.26	
20	16QAM	1	0	0	0	15	16.31	16.29	16.24	
20	16QAM	1	5	0	0	15	15.98	16.04	16.06	
20	16QAM	3	0	0	0	15	16.33	16.30	16.32	
20	16QAM	3	3	0	0	15	16.19	16.24	16.17	
20	16QAM	5	0	0	0	15	16.27	16.19	16.26	
Channel				L	M	H	20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)							1717.5	1732.5	1747.5	
15	QPSK	1	0	0	0	11	16.05	16.16	16.11	17.00
15	QPSK	1	5	0	0	11	15.87	15.96	15.89	
15	QPSK	3	0	0	0	11	16.24	16.30	16.14	
15	QPSK	3	3	0	0	11	15.98	16.18	16.07	
15	QPSK	6	0	0	0	11	16.13	16.17	16.09	
15	16QAM	1	0	0	0	11	16.20	16.12	16.09	
15	16QAM	1	5	0	0	11	15.87	15.90	15.92	
15	16QAM	3	0	0	0	11	16.23	16.15	16.18	
15	16QAM	3	3	0	0	11	16.09	16.04	16.06	
15	16QAM	5	0	0	0	11	16.10	16.02	16.14	
Channel				L	M	H	20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)							1715	1732.5	1750	
10	QPSK	1	0	0	0	7	16.08	16.26	16.13	17.00
10	QPSK	1	5	0	0	7	15.88	15.89	15.89	
10	QPSK	3	0	0	0	7	16.25	16.31	16.13	
10	QPSK	3	3	0	0	7	16.01	16.12	16.03	
10	QPSK	6	0	0	0	7	16.08	16.13	16.06	17.00
10	16QAM	1	0	0	0	7	16.13	16.16	16.10	17.00
10	16QAM	1	5	0	0	7	15.87	15.84	15.95	
10	16QAM	3	0	0	0	7	16.15	16.15	16.15	
10	16QAM	3	3	0	0	7	16.09	16.06	16.05	
10	16QAM	5	0	0	0	7	16.15	16.04	16.13	17.00
Channel				L	M	H	19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)							1712.5	1732.5	1752.5	
5	QPSK	1	0	0	0	3	16.11	16.17	16.13	17.00
5	QPSK	1	5	0	0	3	15.90	15.89	15.91	
5	QPSK	3	0	0	0	3	16.24	16.23	16.17	17.00
5	QPSK	3	3	0	0	3	16.02	16.17	16.07	

5	QPSK	6	0	0	0	3	16.10	16.20	16.15	
5	16QAM	1	0	0	0	3	16.16	16.13	16.07	17.00
5	16QAM	1	5	0	0	3	15.88	15.91	15.95	
5	16QAM	3	0	0	0	3	16.21	16.15	16.14	17.00
5	16QAM	3	3	0	0	3	16.07	16.07	16.06	
5	16QAM	5	0	0	0	3	16.12	16.07	16.07	17.00
Channel				L	M	H	19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)							1711.5	1732.5	1753.5	
3	QPSK	1	0	0	0	1	16.05	16.25	16.16	17.00
3	QPSK	1	5	0	0	1	15.91	15.98	15.93	
3	QPSK	3	0	0	0	1	16.23	16.21	16.18	17.00
3	QPSK	3	3	0	0	1	15.97	16.18	16.08	
3	QPSK	6	0	0	0	1	16.09	16.13	16.09	17.00
3	16QAM	1	0	0	0	1	16.14	16.19	16.13	17.00
3	16QAM	1	5	0	0	1	15.79	15.91	15.90	
3	16QAM	3	0	0	0	1	16.16	16.13	16.13	17.00
3	16QAM	3	3	0	0	1	16.04	16.08	16.06	
3	16QAM	5	0	0	0	1	16.16	16.06	16.06	17.00
Channel				L	M	H	19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)							1710.7	1732.5	1754.3	
1.4	QPSK	1	0	0	0	0	16.10	16.16	16.13	17.00
1.4	QPSK	1	5	0	0	0	15.91	15.91	15.94	
1.4	QPSK	3	0	0	0	0	16.24	16.30	16.14	17.00
1.4	QPSK	3	3	0	0	0	16.04	16.10	16.06	
1.4	QPSK	6	0	0	0	0	16.04	16.19	16.13	17.00
1.4	16QAM	1	0	0	0	0	16.21	16.16	16.05	17.00
1.4	16QAM	1	5	0	0	0	15.79	15.94	15.87	
1.4	16QAM	3	0	0	0	0	16.13	16.10	16.15	17.00
1.4	16QAM	3	3	0	0	0	16.01	16.04	15.98	
1.4	16QAM	5	0	0	0	0	16.10	16.09	16.11	17.00

<LTE Band 5_Ant 5_NB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	20450	20525	20600	
Frequency (MHz)							829	836.5	844	
10	QPSK	1	0	0	0	7	20.08	20.31	20.14	22.00
10	QPSK	1	5	0	0	7	20.11	20.18	20.17	
10	QPSK	3	0	0	0	7	20.25	20.27	20.15	
10	QPSK	3	3	0	0	7	20.08	20.26	20.25	21.00
10	QPSK	6	0	0	0	7	19.02	19.13	19.12	
10	16QAM	1	0	0	0	7	20.27	20.30	20.16	22.00
10	16QAM	1	5	0	0	7	20.08	20.01	20.20	
10	16QAM	3	0	0	0	7	20.21	20.12	20.12	
10	16QAM	3	3	0	0	7	20.01	20.02	20.14	21.00
10	16QAM	5	0	0	0	7	20.02	19.98	20.18	
Channel				L	M	H	20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)							826.5	836.5	846.5	
5	QPSK	1	0	0	0	3	20.05	20.21	20.10	22.00
5	QPSK	1	5	0	0	3	20.08	20.03	20.12	
5	QPSK	3	0	0	0	3	19.43	19.45	19.26	21.00
5	QPSK	3	3	0	0	3	19.25	19.25	19.42	
5	QPSK	6	0	0	0	3	19.07	19.05	19.07	
5	16QAM	1	0	0	0	3	20.22	20.29	20.15	22.00

5	16QAM	1	5	0	0	3	20.04	20.02	20.18	21.00
5	16QAM	3	0	0	0	3	19.37	19.26	19.30	
5	16QAM	3	3	0	0	3	19.18	19.22	19.29	
5	16QAM	5	0	0	0	3	18.36	18.38	18.53	20.00
Channel				L	M	H	20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)							825.5	836.5	847.5	
3	QPSK	1	0	0	0	1	20.03	20.15	20.04	22.00
3	QPSK	1	5	0	0	1	20.08	20.08	20.12	
3	QPSK	3	0	0	0	1	19.43	19.47	19.28	21.00
3	QPSK	3	3	0	0	1	19.21	19.26	19.44	
3	QPSK	6	0	0	0	1	18.13	18.16	18.25	20.00
3	16QAM	1	0	0	0	1	19.37	19.42	19.26	21.00
3	16QAM	1	5	0	0	1	19.26	19.18	19.37	
3	16QAM	3	0	0	0	1	18.56	18.44	18.51	20.00
3	16QAM	3	3	0	0	1	18.38	18.40	18.50	
3	16QAM	5	0	0	0	1	18.40	18.38	18.55	
Channel				L	M	H	20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)							824.7	836.5	848.3	
1.4	QPSK	1	0	0	0	0	20.05	20.15	20.09	22.00
1.4	QPSK	1	5	0	0	0	20.01	20.03	20.07	
1.4	QPSK	3	0	0	0	0	19.36	19.42	19.33	21.00
1.4	QPSK	3	3	0	0	0	19.26	19.32	19.36	
1.4	QPSK	6	0	0	0	0	18.18	18.17	18.28	20.00
1.4	16QAM	1	0	0	0	0	19.44	19.46	19.30	21.00
1.4	16QAM	1	5	0	0	0	19.24	19.17	19.35	
1.4	16QAM	3	0	0	0	0	18.37	18.23	18.25	20.00
1.4	16QAM	3	3	0	0	0	18.18	18.14	18.29	
1.4	16QAM	5	0	0	0	0	18.15	18.10	18.35	

<LTE Band 5_Ant 5_TB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	20450	20525	20600	
Frequency (MHz)							829	836.5	844	
10	QPSK	1	0	0	0	7	18.18	18.21	18.19	19.00
10	QPSK	1	5	0	0	7	17.91	17.93	17.84	
10	QPSK	3	0	0	0	7	18.15	18.18	18.06	
10	QPSK	3	3	0	0	7	17.92	18.01	17.95	
10	QPSK	6	0	0	0	7	17.96	18.08	17.97	19.00
10	16QAM	1	0	0	0	7	18.13	18.18	18.16	19.00
10	16QAM	1	5	0	0	7	17.85	17.87	17.91	
10	16QAM	3	0	0	0	7	18.06	18.11	18.06	
10	16QAM	3	3	0	0	7	17.99	17.90	17.92	
10	16QAM	5	0	0	0	7	18.05	17.98	18.07	19.00
Channel				L	M	H	20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)							826.5	836.5	846.5	
5	QPSK	1	0	0	0	3	18.05	18.04	18.03	19.00
5	QPSK	1	5	0	0	3	17.79	17.75	17.74	
5	QPSK	3	0	0	0	3	18.01	17.98	17.96	19.00
5	QPSK	3	3	0	0	3	17.72	17.88	17.85	
5	QPSK	6	0	0	0	3	17.83	17.93	17.81	
5	16QAM	1	0	0	0	3	18.02	18.06	18.00	19.00
5	16QAM	1	5	0	0	3	17.73	17.76	17.77	
5	16QAM	3	0	0	0	3	17.86	17.99	17.94	19.00



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5	16QAM	3	3	0	0	3	17.89	17.77	17.75	
5	16QAM	5	0	0	0	3	17.90	17.81	17.93	19.00
Channel				L	M	H	20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)							825.5	836.5	847.5	
3	QPSK	1	0	0	0	1	18.01	18.09	17.99	19.00
3	QPSK	1	5	0	0	1	17.73	17.79	17.71	
3	QPSK	3	0	0	0	1	18.04	18.07	17.96	19.00
3	QPSK	3	3	0	0	1	17.72	17.88	17.81	
3	QPSK	6	0	0	0	1	17.79	17.95	17.86	19.00
3	16QAM	1	0	0	0	1	17.94	18.03	18.06	19.00
3	16QAM	1	5	0	0	1	17.69	17.74	17.75	
3	16QAM	3	0	0	0	1	17.86	17.97	17.94	19.00
3	16QAM	3	3	0	0	1	17.86	17.72	17.82	
3	16QAM	5	0	0	0	1	17.89	17.88	17.87	
Channel				L	M	H	20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)							824.7	836.5	848.3	
1.4	QPSK	1	0	0	0	0	18.08	18.04	17.99	19.00
1.4	QPSK	1	5	0	0	0	17.76	17.78	17.65	
1.4	QPSK	3	0	0	0	0	18.02	17.99	17.95	19.00
1.4	QPSK	3	3	0	0	0	17.77	17.81	17.77	
1.4	QPSK	6	0	0	0	0	17.84	17.91	17.84	19.00
1.4	16QAM	1	0	0	0	0	18.00	18.04	18.00	19.00
1.4	16QAM	1	5	0	0	0	17.69	17.70	17.75	
1.4	16QAM	3	0	0	0	0	17.94	17.99	17.92	19.00
1.4	16QAM	3	3	0	0	0	17.80	17.79	17.73	
1.4	16QAM	5	0	0	0	0	17.86	17.85	17.88	

<LTE Band 12_Ant 5_NB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	23060	23095	23130	
Frequency (MHz)							704	707.5	711	
10	QPSK	1	0	0	0	7	20.27	20.60	20.15	22.00
10	QPSK	1	5	0	0	7	20.02	20.14	20.13	
10	QPSK	3	0	0	0	7	20.13	20.17	20.00	
10	QPSK	3	3	0	0	7	20.10	20.11	20.01	
10	QPSK	6	0	0	0	7	19.14	19.15	19.06	21.00
10	16QAM	1	0	0	0	7	20.30	20.59	20.35	22.00
10	16QAM	1	5	0	0	7	20.22	20.24	20.15	
10	16QAM	3	0	0	0	7	20.27	20.25	20.09	
10	16QAM	3	3	0	0	7	20.18	20.20	20.11	
10	16QAM	5	0	0	0	7	20.09	20.09	19.98	21.00
Channel				L	M	H	23035	23095	23155	Tune-up limit (dBm)
Frequency (MHz)							701.5	707.5	713.5	
5	QPSK	1	0	0	0	3	20.22	20.25	20.14	22.00
5	QPSK	1	5	0	0	3	20.01	20.06	20.11	
5	QPSK	3	0	0	0	3	19.29	19.29	19.16	21.00
5	QPSK	3	3	0	0	3	19.27	19.24	19.12	
5	QPSK	6	0	0	0	3	19.13	19.01	19.06	
5	16QAM	1	0	0	0	3	20.20	20.21	20.23	22.00
5	16QAM	1	5	0	0	3	20.26	20.20	20.13	
5	16QAM	3	0	0	0	3	19.63	19.48	19.21	21.00
5	16QAM	3	3	0	0	3	19.53	19.40	19.22	
5	16QAM	5	0	0	0	3	18.79	18.61	18.40	20.00

Channel				L	M	H	23025	23095	23165	Tune-up limit (dBm)
Frequency (MHz)							700.5	707.5	714.5	
3	QPSK	1	0	0	0	1	20.25	20.26	20.12	22.00
3	QPSK	1	5	0	0	1	20.02	20.06	20.11	
3	QPSK	3	0	0	0	1	19.26	19.36	19.11	21.00
3	QPSK	3	3	0	0	1	19.27	19.27	19.16	
3	QPSK	6	0	0	0	1	18.27	18.12	18.23	20.00
3	16QAM	1	0	0	0	1	19.86	19.78	19.46	21.00
3	16QAM	1	5	0	0	1	19.61	19.35	19.34	
3	16QAM	3	0	0	0	1	18.87	18.66	18.39	20.00
3	16QAM	3	3	0	0	1	18.71	18.53	18.41	
3	16QAM	5	0	0	0	1	18.69	18.65	18.48	
Channel				L	M	H	23017	23095	23173	Tune-up limit (dBm)
Frequency (MHz)							699.7	707.5	715.3	
1.4	QPSK	1	0	0	0	0	20.21	20.28	20.11	22.00
1.4	QPSK	1	5	0	0	0	20.02	20.03	20.09	
1.4	QPSK	3	0	0	0	0	19.31	19.33	19.20	21.00
1.4	QPSK	3	3	0	0	0	19.22	19.23	19.13	
1.4	QPSK	6	0	0	0	0	18.31	18.10	18.20	20.00
1.4	16QAM	1	0	0	0	0	19.86	19.77	19.53	21.00
1.4	16QAM	1	5	0	0	0	19.54	19.39	19.35	
1.4	16QAM	3	0	0	0	0	18.58	18.46	18.29	20.00
1.4	16QAM	3	3	0	0	0	18.55	18.31	18.25	
1.4	16QAM	5	0	0	0	0	18.53	18.47	18.22	

<LTE Band 12_Ant 5_TB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	23060	23095	23130	
Frequency (MHz)							704	707.5	711	
10	QPSK	1	0	0	0	7	18.70	18.71	18.65	19.50
10	QPSK	1	5	0	0	7	18.38	18.46	18.37	
10	QPSK	3	0	0	0	7	18.63	18.69	18.57	
10	QPSK	3	3	0	0	7	18.46	18.55	18.50	
10	QPSK	6	0	0	0	7	18.53	18.61	18.58	19.50
10	16QAM	1	0	0	0	7	18.69	18.59	18.64	19.50
10	16QAM	1	5	0	0	7	18.41	18.34	18.40	
10	16QAM	3	0	0	0	7	18.57	18.66	18.66	
10	16QAM	3	3	0	0	7	18.43	18.53	18.46	
10	16QAM	5	0	0	0	7	18.58	18.52	18.51	19.50
Channel				L	M	H	23035	23095	23155	Tune-up limit (dBm)
Frequency (MHz)							701.5	707.5	713.5	
5	QPSK	1	0	0	0	3	18.54	18.60	18.50	19.50
5	QPSK	1	5	0	0	3	18.20	18.30	18.17	
5	QPSK	3	0	0	0	3	18.47	18.59	18.42	19.50
5	QPSK	3	3	0	0	3	18.28	18.42	18.33	
5	QPSK	6	0	0	0	3	18.35	18.42	18.41	
5	16QAM	1	0	0	0	3	18.57	18.43	18.47	19.50
5	16QAM	1	5	0	0	3	18.31	18.23	18.29	
5	16QAM	3	0	0	0	3	18.42	18.49	18.50	19.50
5	16QAM	3	3	0	0	3	18.29	18.33	18.28	
5	16QAM	5	0	0	0	3	18.44	18.36	18.36	19.50
Channel				L	M	H	23025	23095	23165	Tune-up limit (dBm)
Frequency (MHz)							700.5	707.5	714.5	
3	QPSK	1	0	0	0	1	18.50	18.58	18.53	19.50
3	QPSK	1	5	0	0	1	18.18	18.26	18.18	
3	QPSK	3	0	0	0	1	18.47	18.52	18.39	19.50

3	QPSK	3	3	0	0	1	18.27	18.38	18.38	
3	QPSK	6	0	0	0	1	18.35	18.42	18.48	19.50
3	16QAM	1	0	0	0	1	18.57	18.43	18.46	19.50
3	16QAM	1	5	0	0	1	18.27	18.23	18.21	
3	16QAM	3	0	0	0	1	18.40	18.51	18.48	19.50
3	16QAM	3	3	0	0	1	18.33	18.41	18.34	
3	16QAM	5	0	0	0	1	18.45	18.35	18.32	
Channel				L	M	H	23017	23095	23173	Tune-up limit (dBm)
Frequency (MHz)							699.7	707.5	715.3	
1.4	QPSK	1	0	0	0	0	18.56	18.53	18.49	19.50
1.4	QPSK	1	5	0	0	0	18.28	18.26	18.23	
1.4	QPSK	3	0	0	0	0	18.45	18.52	18.41	19.50
1.4	QPSK	3	3	0	0	0	18.28	18.45	18.31	
1.4	QPSK	6	0	0	0	0	18.37	18.42	18.43	19.50
1.4	16QAM	1	0	0	0	0	18.50	18.39	18.45	19.50
1.4	16QAM	1	5	0	0	0	18.21	18.16	18.20	
1.4	16QAM	3	0	0	0	0	18.43	18.47	18.49	19.50
1.4	16QAM	3	3	0	0	0	18.29	18.35	18.34	
1.4	16QAM	5	0	0	0	0	18.39	18.35	18.34	

<LTE Band 13_Ant 5_NB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H		23230		
Frequency (MHz)								782		
10	QPSK	1	0	0	0	7		20.18		22.00
10	QPSK	1	5	0	0	7		20.05		
10	QPSK	3	0	0	0	7		20.08		
10	QPSK	3	3	0	0	7		20.03		
10	QPSK	6	0	0	0	7		19.02		21.00
10	16QAM	1	0	0	0	7		20.15		
10	16QAM	1	5	0	0	7		20.04		22.00
10	16QAM	3	0	0	0	7		20.06		
10	16QAM	3	3	0	0	7		20.02		
10	16QAM	5	0	0	0	7		20.06		21.00
Channel				L	M	H	23205	23230	23255	Tune-up limit (dBm)
Frequency (MHz)							779.5	782	784.5	
5	QPSK	1	0	0	0	3	20.07	20.17	20.15	22.00
5	QPSK	1	5	0	0	3	20.06	20.10	20.08	
5	QPSK	3	0	0	0	3	19.28	19.33	19.25	21.00
5	QPSK	3	3	0	0	3	19.23	19.30	19.28	
5	QPSK	6	0	0	0	3	19.21	19.27	19.25	
5	16QAM	1	0	0	0	3	20.11	20.15	20.14	22.00
5	16QAM	1	5	0	0	3	20.02	20.07	20.04	
5	16QAM	3	0	0	0	3	19.45	19.47	19.40	21.00
5	16QAM	3	3	0	0	3	19.22	19.29	19.23	
5	16QAM	5	0	0	0	3	18.22	18.28	18.25	20.00

<LTE Band 13_Ant 5_TB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H		23230		
Frequency (MHz)								782		
10	QPSK	1	0	0	0	7		18.93		20.00

10	QPSK	1	5	0	0	7		18.68		
10	QPSK	3	0	0	0	7		18.92		
10	QPSK	3	3	0	0	7		18.78		
10	QPSK	6	0	0	0	7		18.84		20.00
10	16QAM	1	0	0	0	7		18.88		
10	16QAM	1	5	0	0	7		18.64		
10	16QAM	3	0	0	0	7		18.85		20.00
10	16QAM	3	3	0	0	7		18.75		
10	16QAM	5	0	0	0	7		18.79		20.00
Channel				L	M	H	23205	23230	23255	Tune-up limit (dBm)
Frequency (MHz)							779.5	782	784.5	
5	QPSK	1	0	0	0	3	18.81	18.84	18.79	20.00
5	QPSK	1	5	0	0	3	18.61	18.59	18.66	
5	QPSK	3	0	0	0	3	18.83	18.89	18.85	20.00
5	QPSK	3	3	0	0	3	18.69	18.69	18.72	
5	QPSK	6	0	0	0	3	18.81	18.77	18.78	20.00
5	16QAM	1	0	0	0	3	18.78	18.81	18.89	
5	16QAM	1	5	0	0	3	18.64	18.52	18.62	20.00
5	16QAM	3	0	0	0	3	18.91	18.74	18.82	
5	16QAM	3	3	0	0	3	18.76	18.67	18.67	20.00
5	16QAM	5	0	0	0	3	18.73	18.69	18.78	

<LTE Band 14_Ant 5_NB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H		23330		Tune-up limit (dBm)
Frequency (MHz)								793		
10	QPSK	1	0	0	0	7		20.22		22.00
10	QPSK	1	5	0	0	7		20.01		
10	QPSK	3	0	0	0	7		20.19		21.00
10	QPSK	3	3	0	0	7		20.04		
10	QPSK	6	0	0	0	7		19.00		22.00
10	16QAM	1	0	0	0	7		20.17		
10	16QAM	1	5	0	0	7		20.06		21.00
10	16QAM	3	0	0	0	7		20.10		
10	16QAM	3	3	0	0	7		20.01		21.00
10	16QAM	5	0	0	0	7		20.01		
Channel				L	M	H	23305	23330	23355	Tune-up limit (dBm)
Frequency (MHz)							790.5	793	795.5	
5	QPSK	1	0	0	0	3	20.07	20.07	20.03	22.00
5	QPSK	1	5	0	0	3	20.05	20.02	20.02	
5	QPSK	3	0	0	0	3	19.29	19.24	19.28	21.00
5	QPSK	3	3	0	0	3	19.09	19.14	19.13	
5	QPSK	6	0	0	0	3	19.04	19.02	19.03	22.00
5	16QAM	1	0	0	0	3	20.12	20.15	20.10	
5	16QAM	1	5	0	0	3	20.10	20.09	20.08	21.00
5	16QAM	3	0	0	0	3	19.99	19.91	19.96	
5	16QAM	3	3	0	0	3	19.86	19.83	19.81	20.00
5	16QAM	5	0	0	0	3	18.29	18.21	18.25	

<LTE Band 14_Ant 5_TB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H		23780		
Frequency (MHz)								793		
10	QPSK	1	0	0	0	7		19.18		20.00
10	QPSK	1	5	0	0	7		18.91		
10	QPSK	3	0	0	0	7		19.17		
10	QPSK	3	3	0	0	7		19.02		
10	QPSK	6	0	0	0	7		19.09		20.00
10	16QAM	1	0	0	0	7		19.10		20.00
10	16QAM	1	5	0	0	7		18.83		
10	16QAM	3	0	0	0	7		19.07		
10	16QAM	3	3	0	0	7		18.99		
10	16QAM	5	0	0	0	7		19.07		20.00
Channel				L	M	H	23755	23780	23805	Tune-up limit (dBm)
Frequency (MHz)							790.5	793	795.5	
5	QPSK	1	0	0	0	3	19.17	19.14	19.14	20.00
5	QPSK	1	5	0	0	3	18.82	18.81	18.80	
5	QPSK	3	0	0	0	3	19.11	19.05	19.13	20.00
5	QPSK	3	3	0	0	3	19.00	18.97	19.00	
5	QPSK	6	0	0	0	3	19.03	18.99	19.02	
5	16QAM	1	0	0	0	3	19.12	19.09	19.11	20.00
5	16QAM	1	5	0	0	3	18.89	18.75	18.81	
5	16QAM	3	0	0	0	3	19.16	19.06	19.15	20.00
5	16QAM	3	3	0	0	3	19.00	18.95	18.94	
5	16QAM	5	0	0	0	3	19.03	19.04	19.03	20.00

<LTE Band 25_Ant 5_NB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	26140	26365	26590	
Frequency (MHz)							1860	1882.5	1905	
20	QPSK	1	0	0	0	15	20.16	20.21	20.16	22.00
20	QPSK	1	5	0	0	15	20.07	20.08	20.01	
20	QPSK	3	0	0	0	15	20.18	20.19	20.16	
20	QPSK	3	3	0	0	15	20.06	20.07	20.03	
20	QPSK	6	0	0	0	15	20.06	20.10	20.08	
20	16QAM	1	0	0	0	15	20.10	20.19	20.17	
20	16QAM	1	5	0	0	15	20.04	20.09	20.17	
20	16QAM	3	0	0	0	15	20.04	20.10	20.13	
20	16QAM	3	3	0	0	15	20.03	20.16	20.18	
20	16QAM	5	0	0	0	15	20.00	20.04	20.14	
Channel				L	M	H	26115	26365	26615	Tune-up limit (dBm)
Frequency (MHz)							1857.5	1882.5	1907.5	
15	QPSK	1	0	0	0	11	20.07	20.11	20.09	22.00
15	QPSK	1	5	0	0	11	20.09	20.01	20.01	
15	QPSK	3	0	0	0	11	20.18	20.19	20.08	
15	QPSK	3	3	0	0	11	20.02	20.06	20.08	
15	QPSK	6	0	0	0	11	20.05	20.03	20.01	
15	16QAM	1	0	0	0	11	20.00	20.16	20.11	
15	16QAM	1	5	0	0	11	20.00	20.07	20.09	



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15	16QAM	3	0	0	0	11	20.09	20.04	20.03	
15	16QAM	3	3	0	0	11	20.09	20.08	20.08	
15	16QAM	5	0	0	0	11	20.02	20.03	20.13	
Channel				L	M	H	26090	26365	26640	Tune-up limit (dBm)
Frequency (MHz)							1855	1882.5	1910	
10	QPSK	1	0	0	0	7	20.14	20.18	20.07	22.00
10	QPSK	1	5	0	0	7	20.07	20.03	20.04	
10	QPSK	3	0	0	0	7	20.09	20.15	20.14	
10	QPSK	3	3	0	0	7	20.02	20.03	20.03	
10	QPSK	6	0	0	0	7	19.20	19.21	19.24	21.00
10	16QAM	1	0	0	0	7	20.05	20.12	20.12	22.00
10	16QAM	1	5	0	0	7	20.04	20.09	20.11	
10	16QAM	3	0	0	0	7	20.04	20.01	20.11	
10	16QAM	3	3	0	0	7	20.06	20.10	20.09	
10	16QAM	5	0	0	0	7	19.97	20.04	20.00	21.00
Channel				L	M	H	26065	26365	26665	Tune-up limit (dBm)
Frequency (MHz)							1852.5	1882.5	1912.5	
5	QPSK	1	0	0	0	3	20.14	20.20	20.12	22.00
5	QPSK	1	5	0	0	3	20.09	20.04	20.01	
5	QPSK	3	0	0	0	3	19.38	19.34	19.30	21.00
5	QPSK	3	3	0	0	3	19.17	19.14	19.16	
5	QPSK	6	0	0	0	3	19.20	19.13	19.21	
5	16QAM	1	0	0	0	3	20.07	20.18	20.09	22.00
5	16QAM	1	5	0	0	3	20.02	20.09	20.07	
5	16QAM	3	0	0	0	3	19.22	19.26	19.30	21.00
5	16QAM	3	3	0	0	3	19.16	19.29	19.33	
5	16QAM	5	0	0	0	3	18.35	18.34	18.52	20.00
Channel				L	M	H	26055	26365	26675	Tune-up limit (dBm)
Frequency (MHz)							1851.5	1882.5	1913.5	
3	QPSK	1	0	0	0	1	20.06	20.14	20.12	22.00
3	QPSK	1	5	0	0	1	20.06	20.00	20.01	
3	QPSK	3	0	0	0	1	19.28	19.38	19.32	21.00
3	QPSK	3	3	0	0	1	19.22	19.13	19.20	
3	QPSK	6	0	0	0	1	18.46	18.35	18.46	20.00
3	16QAM	1	0	0	0	1	19.25	19.37	19.31	21.00
3	16QAM	1	5	0	0	1	19.14	19.21	19.32	
3	16QAM	3	0	0	0	1	18.34	18.41	18.45	20.00
3	16QAM	3	3	0	0	1	18.35	18.50	18.57	
3	16QAM	5	0	0	0	1	18.34	18.41	18.52	
Channel				L	M	H	26047	26365	26683	Tune-up limit (dBm)
Frequency (MHz)							1850.7	1882.5	1914.3	
1.4	QPSK	1	0	0	0	0	20.10	20.10	20.14	22.00
1.4	QPSK	1	5	0	0	0	20.05	20.05	20.07	
1.4	QPSK	3	0	0	0	0	19.33	19.37	19.27	21.00
1.4	QPSK	3	3	0	0	0	19.18	19.13	19.13	
1.4	QPSK	6	0	0	0	0	18.36	18.43	18.42	20.00
1.4	16QAM	1	0	0	0	0	19.21	19.37	19.34	21.00
1.4	16QAM	1	5	0	0	0	19.22	19.28	19.31	
1.4	16QAM	3	0	0	0	0	18.38	18.40	18.49	20.00
1.4	16QAM	3	3	0	0	0	18.34	18.46	18.52	
1.4	16QAM	5	0	0	0	0	18.31	18.41	18.47	

<LTE Band 25_Ant 5_TB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	26140	26365	26590	
Frequency (MHz)							1860	1882.5	1905	
20	QPSK	1	0	0	0	15	15.50	15.66	15.50	16.50
20	QPSK	1	5	0	0	15	15.26	15.31	15.22	
20	QPSK	3	0	0	0	15	15.62	15.65	15.60	
20	QPSK	3	3	0	0	15	15.42	15.49	15.46	
20	QPSK	6	0	0	0	15	15.42	15.54	15.44	
20	16QAM	1	0	0	0	15	15.61	15.58	15.50	
20	16QAM	1	5	0	0	15	15.20	15.25	15.25	
20	16QAM	3	0	0	0	15	15.53	15.63	15.55	
20	16QAM	3	3	0	0	15	15.38	15.43	15.37	
20	16QAM	5	0	0	0	15	15.47	15.52	15.53	
Channel				L	M	H	26115	26365	26615	Tune-up limit (dBm)
Frequency (MHz)							1857.5	1882.5	1907.5	
15	QPSK	1	0	0	0	11	15.40	15.45	15.30	16.50
15	QPSK	1	5	0	0	11	15.12	15.19	15.06	
15	QPSK	3	0	0	0	11	15.45	15.45	15.50	
15	QPSK	3	3	0	0	11	15.26	15.38	15.35	
15	QPSK	6	0	0	0	11	15.23	15.37	15.25	
15	16QAM	1	0	0	0	11	15.43	15.45	15.33	
15	16QAM	1	5	0	0	11	15.00	15.07	15.15	
15	16QAM	3	0	0	0	11	15.33	15.46	15.42	
15	16QAM	3	3	0	0	11	15.18	15.31	15.25	
15	16QAM	5	0	0	0	11	15.34	15.42	15.36	
Channel				L	M	H	26090	26365	26640	Tune-up limit (dBm)
Frequency (MHz)							1855	1882.5	1910	
10	QPSK	1	0	0	0	7	15.33	15.45	15.31	16.50
10	QPSK	1	5	0	0	7	15.14	15.17	15.04	
10	QPSK	3	0	0	0	7	15.43	15.52	15.49	
10	QPSK	3	3	0	0	7	15.25	15.32	15.26	
10	QPSK	6	0	0	0	7	15.26	15.43	15.25	16.50
10	16QAM	1	0	0	0	7	15.45	15.48	15.34	16.50
10	16QAM	1	5	0	0	7	15.01	15.06	15.11	
10	16QAM	3	0	0	0	7	15.36	15.50	15.42	
10	16QAM	3	3	0	0	7	15.28	15.31	15.17	
10	16QAM	5	0	0	0	7	15.34	15.32	15.34	16.50
Channel				L	M	H	26065	26365	26665	Tune-up limit (dBm)
Frequency (MHz)							1852.5	1882.5	1912.5	
5	QPSK	1	0	0	0	3	15.38	15.48	15.40	16.50
5	QPSK	1	5	0	0	3	15.07	15.21	15.12	
5	QPSK	3	0	0	0	3	15.47	15.46	15.47	16.50
5	QPSK	3	3	0	0	3	15.31	15.32	15.36	
5	QPSK	6	0	0	0	3	15.30	15.43	15.32	16.50
5	16QAM	1	0	0	0	3	15.43	15.41	15.30	
5	16QAM	1	5	0	0	3	15.00	15.15	15.09	16.50
5	16QAM	3	0	0	0	3	15.35	15.49	15.40	
5	16QAM	3	3	0	0	3	15.23	15.30	15.19	16.50
5	16QAM	5	0	0	0	3	15.31	15.37	15.34	
Channel				L	M	H	26055	26365	26675	Tune-up limit (dBm)
Frequency (MHz)							1851.5	1882.5	1913.5	
3	QPSK	1	0	0	0	1	15.37	15.47	15.35	16.50

3	QPSK	1	5	0	0	1	15.06	15.15	15.12	
3	QPSK	3	0	0	0	1	15.51	15.52	15.47	16.50
3	QPSK	3	3	0	0	1	15.23	15.30	15.29	
3	QPSK	6	0	0	0	1	15.30	15.44	15.27	16.50
3	16QAM	1	0	0	0	1	15.41	15.41	15.35	16.50
3	16QAM	1	5	0	0	1	15.00	15.06	15.09	
3	16QAM	3	0	0	0	1	15.34	15.48	15.38	16.50
3	16QAM	3	3	0	0	1	15.24	15.33	15.25	
3	16QAM	5	0	0	0	1	15.36	15.41	15.35	
Channel							26047	26365	26683	Tune-up limit (dBm)
Frequency (MHz)				L	M	H	1850.7	1882.5	1914.3	
1.4	QPSK	1	0	0	0	0	15.32	15.50	15.31	16.50
1.4	QPSK	1	5	0	0	0	15.14	15.21	15.06	
1.4	QPSK	3	0	0	0	0	15.46	15.47	15.47	16.50
1.4	QPSK	3	3	0	0	0	15.30	15.36	15.36	
1.4	QPSK	6	0	0	0	0	15.30	15.34	15.24	16.50
1.4	16QAM	1	0	0	0	0	15.48	15.44	15.38	16.50
1.4	16QAM	1	5	0	0	0	15.09	15.08	15.11	
1.4	16QAM	3	0	0	0	0	15.36	15.48	15.43	16.50
1.4	16QAM	3	3	0	0	0	15.20	15.32	15.17	
1.4	16QAM	5	0	0	0	0	15.34	15.39	15.33	

<LTE Band 26_Ant 5_NB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel							26765	26865	26965	Tune-up limit (dBm)
Frequency (MHz)				L	M	H	821.5	831.5	841.5	
15	QPSK	1	0	0	0	7	20.09	20.18	20.13	22.00
15	QPSK	1	5	0	0	7	19.99	20.03	20.02	
15	QPSK	3	0	0	0	7	19.24	20.14	19.26	
15	QPSK	3	3	0	0	7	19.11	20.00	19.13	
15	QPSK	6	0	0	0	7	19.00	19.05	19.02	21.00
15	16QAM	1	0	0	0	7	20.08	20.17	20.08	22.00
15	16QAM	1	5	0	0	7	20.06	20.00	20.00	
15	16QAM	3	0	0	0	7	19.25	20.13	19.32	
15	16QAM	3	3	0	0	7	19.13	20.03	19.18	
15	16QAM	5	0	0	0	7	18.40	20.06	18.46	21.00
Channel							26740	26865	26990	Tune-up limit (dBm)
Frequency (MHz)				L	M	H	819	831.5	844	
10	QPSK	1	0	0	0	3	20.08	20.10	20.05	22.00
10	QPSK	1	5	0	0	3	19.89	19.96	20.01	
10	QPSK	3	0	0	0	3	19.22	20.11	19.20	21.00
10	QPSK	3	3	0	0	3	19.04	19.92	19.03	
10	QPSK	6	0	0	0	3	18.92	18.99	18.98	22.00
10	16QAM	1	0	0	0	3	20.06	20.14	19.98	
10	16QAM	1	5	0	0	3	19.97	19.95	19.91	21.00
10	16QAM	3	0	0	0	3	19.24	20.09	19.30	
10	16QAM	3	3	0	0	3	19.04	19.93	19.11	20.00
10	16QAM	5	0	0	0	3	18.35	20.01	18.44	
Channel							26715	26865	27015	Tune-up limit (dBm)
Frequency (MHz)				L	M	H	816.5	831.5	846.5	
5	QPSK	1	0	0	0	1	20.09	20.05	20.13	22.00
5	QPSK	1	5	0	0	1	19.99	19.97	20.02	
5	QPSK	3	0	0	0	1	19.24	19.26	19.26	21.00
5	QPSK	3	3	0	0	1	19.11	19.16	19.13	
5	QPSK	6	0	0	0	1	19.00	19.00	19.02	20.00
5	16QAM	1	0	0	0	1	20.08	20.07	20.08	21.00

5	16QAM	1	5	0	0	1	20.06	20.05	20.00	20.00
5	16QAM	3	0	0	0	1	19.25	19.30	19.32	
5	16QAM	3	3	0	0	1	19.13	19.16	19.18	
5	16QAM	5	0	0	0	1	18.40	18.41	18.46	
Channel				L	M	H	26705	26865	27025	Tune-up limit (dBm)
Frequency (MHz)							815.5	831.5	847.5	
3	QPSK	1	0	0	0	0	20.10	20.03	20.11	22.00
3	QPSK	1	5	0	0	0	20.03	20.01	20.00	
3	QPSK	3	0	0	0	0	19.27	19.32	19.30	
3	QPSK	3	3	0	0	0	19.17	19.17	19.10	21.00
3	QPSK	6	0	0	0	0	18.15	18.18	18.24	20.00
3	16QAM	1	0	0	0	0	19.28	19.35	19.27	21.00
3	16QAM	1	5	0	0	0	19.16	19.20	19.15	
3	16QAM	3	0	0	0	0	18.44	18.45	18.49	20.00
3	16QAM	3	3	0	0	0	18.36	18.38	18.38	
3	16QAM	5	0	0	0	0	18.37	18.45	18.45	
Channel				L	M	H	26697	26865	27033	Tune-up limit (dBm)
Frequency (MHz)							814.7	831.5	848.3	
1.4	QPSK	1	0	0	0	0	20.13	20.10	20.03	22.00
1.4	QPSK	1	5	0	0	0	20.00	20.02	20.01	
1.4	QPSK	3	0	0	0	0	19.24	19.33	19.31	
1.4	QPSK	3	3	0	0	0	19.12	19.17	19.18	21.00
1.4	QPSK	6	0	0	0	0	18.23	18.21	18.18	20.00
1.4	16QAM	1	0	0	0	0	19.29	19.33	19.34	21.00
1.4	16QAM	1	5	0	0	0	19.19	19.18	19.16	
1.4	16QAM	3	0	0	0	0	18.45	18.51	18.43	20.00
1.4	16QAM	3	3	0	0	0	18.42	18.37	18.33	
1.4	16QAM	5	0	0	0	0	18.46	18.46	18.46	

<LTE Band 26_Ant 5_TB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	26765	26865	26965	Tune-up limit (dBm)
Frequency (MHz)							821.5	831.5	841.5	
15	QPSK	1	0	0	0	7	18.81	18.92	18.83	19.50
15	QPSK	1	5	0	0	7	18.49	18.58	18.49	
15	QPSK	3	0	0	0	7	18.85	18.91	18.79	
15	QPSK	3	3	0	0	7	18.69	18.76	18.73	
15	QPSK	6	0	0	0	7	18.80	18.82	18.74	19.50
15	16QAM	1	0	0	0	7	18.85	18.90	18.89	19.50
15	16QAM	1	5	0	0	7	18.53	18.47	18.50	
15	16QAM	3	0	0	0	7	18.84	18.85	18.81	
15	16QAM	3	3	0	0	7	18.75	18.66	18.67	
15	16QAM	5	0	0	0	7	18.75	18.75	18.70	19.50
Channel				L	M	H	26740	26865	26990	Tune-up limit (dBm)
Frequency (MHz)							819	831.5	844	
10	QPSK	1	0	0	0	3	18.79	18.85	18.79	19.50
10	QPSK	1	5	0	0	3	18.41	18.57	18.47	
10	QPSK	3	0	0	0	3	18.79	18.81	18.72	
10	QPSK	3	3	0	0	3	18.66	18.73	18.64	19.50
10	QPSK	6	0	0	0	3	18.79	18.81	18.66	
10	16QAM	1	0	0	0	3	18.75	18.86	18.84	19.50
10	16QAM	1	5	0	0	3	18.43	18.37	18.45	
10	16QAM	3	0	0	0	3	18.80	18.77	18.73	19.50
10	16QAM	3	3	0	0	3	18.68	18.61	18.59	
10	16QAM	5	0	0	0	3	18.71	18.70	18.64	19.50
Channel				L	M	H	26715	26865	27015	Tune-up limit (dBm)
Frequency (MHz)							816.5	831.5	846.5	
5	QPSK	1	0	0	0	1	18.81	18.87	18.83	19.50

5	QPSK	1	5	0	0	1	18.49	18.48	18.49	19.50
5	QPSK	3	0	0	0	1	18.85	18.80	18.79	
5	QPSK	3	3	0	0	1	18.69	18.73	18.73	
5	QPSK	6	0	0	0	1	18.80	18.77	18.74	19.50
5	16QAM	1	0	0	0	1	18.85	18.84	18.89	19.50
5	16QAM	1	5	0	0	1	18.53	18.50	18.50	
5	16QAM	3	0	0	0	1	18.84	18.81	18.81	19.50
5	16QAM	3	3	0	0	1	18.75	18.73	18.67	
5	16QAM	5	0	0	0	1	18.75	18.71	18.70	
Channel				L	M	H	26705	26865	27025	Tune-up limit (dBm)
Frequency (MHz)							815.5	831.5	847.5	
3	QPSK	1	0	0	0	0	18.62	18.67	18.67	19.50
3	QPSK	1	5	0	0	0	18.39	18.31	18.34	
3	QPSK	3	0	0	0	0	18.66	18.68	18.59	19.50
3	QPSK	3	3	0	0	0	18.52	18.60	18.54	
3	QPSK	6	0	0	0	0	18.63	18.59	18.58	19.50
3	16QAM	1	0	0	0	0	18.65	18.66	18.77	19.50
3	16QAM	1	5	0	0	0	18.38	18.35	18.30	
3	16QAM	3	0	0	0	0	18.68	18.62	18.65	19.50
3	16QAM	3	3	0	0	0	18.58	18.56	18.56	
3	16QAM	5	0	0	0	0	18.56	18.58	18.53	
Channel				L	M	H	26697	26865	27033	Tune-up limit (dBm)
Frequency (MHz)							814.7	831.5	848.3	
1.4	QPSK	1	0	0	0	0	18.71	18.72	18.63	19.50
1.4	QPSK	1	5	0	0	0	18.36	18.32	18.38	
1.4	QPSK	3	0	0	0	0	18.75	18.67	18.62	19.50
1.4	QPSK	3	3	0	0	0	18.56	18.55	18.58	
1.4	QPSK	6	0	0	0	0	18.67	18.64	18.63	19.50
1.4	16QAM	1	0	0	0	0	18.65	18.73	18.78	19.50
1.4	16QAM	1	5	0	0	0	18.38	18.32	18.36	
1.4	16QAM	3	0	0	0	0	18.74	18.69	18.71	19.50
1.4	16QAM	3	3	0	0	0	18.64	18.63	18.54	
1.4	16QAM	5	0	0	0	0	18.56	18.61	18.58	

<LTE Band 66_Ant 5_NB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	132072	132322	132572	Tune-up limit (dBm)
Frequency (MHz)							1720	1745	1770	
20	QPSK	1	0	0	0	15	20.18	20.53	20.11	22.00
20	QPSK	1	5	0	0	15	20.03	20.17	20.07	
20	QPSK	3	0	0	0	15	20.19	20.43	20.22	
20	QPSK	3	3	0	0	15	20.06	20.31	20.07	
20	QPSK	6	0	0	0	15	20.03	20.14	20.02	
20	16QAM	1	0	0	0	15	20.30	20.52	20.22	
20	16QAM	1	5	0	0	15	20.07	20.33	20.10	
20	16QAM	3	0	0	0	15	20.15	20.40	20.15	
20	16QAM	3	3	0	0	15	20.22	20.24	20.14	
20	16QAM	5	0	0	0	15	20.14	20.27	20.17	
Channel				L	M	H	132047	132322	132597	Tune-up limit (dBm)
Frequency (MHz)							1717.5	1745	1772.5	
15	QPSK	1	0	0	0	11	20.09	20.45	20.11	22.00
15	QPSK	1	5	0	0	11	20.03	20.08	20.00	
15	QPSK	3	0	0	0	11	20.18	20.37	20.16	
15	QPSK	3	3	0	0	11	20.02	20.23	20.04	
15	QPSK	6	0	0	0	11	20.05	20.12	20.06	
15	16QAM	1	0	0	0	11	20.24	20.45	20.12	

15	16QAM	1	5	0	0	11	20.00	20.33	20.03	
15	16QAM	3	0	0	0	11	20.07	20.40	20.12	
15	16QAM	3	3	0	0	11	20.14	20.24	20.07	
15	16QAM	5	0	0	0	11	20.08	20.22	20.08	
Channel				L	M	H	132022	132322	132622	Tune-up limit (dBm)
Frequency (MHz)							1715	1745	1775	
10	QPSK	1	0	0	0	7	20.15	20.45	20.05	22.00
10	QPSK	1	5	0	0	7	20.06	20.07	20.00	
10	QPSK	3	0	0	0	7	20.09	20.39	20.13	
10	QPSK	3	3	0	0	7	20.04	20.25	20.03	
10	QPSK	6	0	0	0	7	19.21	19.33	19.15	21.00
10	16QAM	1	0	0	0	7	20.24	20.44	20.18	22.00
10	16QAM	1	5	0	0	7	20.01	20.24	20.07	
10	16QAM	3	0	0	0	7	20.15	20.39	20.13	
10	16QAM	3	3	0	0	7	20.17	20.15	20.09	
10	16QAM	5	0	0	0	7	20.10	20.19	20.17	21.00
Channel				L	M	H	131997	132322	132647	Tune-up limit (dBm)
Frequency (MHz)							1712.5	1745	1777.5	
5	QPSK	1	0	0	0	3	20.14	20.46	20.07	22.00
5	QPSK	1	5	0	0	3	20.03	20.13	20.01	
5	QPSK	3	0	0	0	3	19.29	19.55	19.33	21.00
5	QPSK	3	3	0	0	3	19.24	19.46	19.20	
5	QPSK	6	0	0	0	3	19.19	19.28	19.17	22.00
5	16QAM	1	0	0	0	3	20.21	20.45	20.14	
5	16QAM	1	5	0	0	3	20.07	20.31	20.06	21.00
5	16QAM	3	0	0	0	3	19.35	19.53	19.27	
5	16QAM	3	3	0	0	3	19.33	19.39	19.29	20.00
5	16QAM	5	0	0	0	3	18.50	18.58	18.53	
Channel				L	M	H	131987	132322	132657	Tune-up limit (dBm)
Frequency (MHz)							1711.5	1745	1778.5	
3	QPSK	1	0	0	0	1	20.16	20.46	20.04	22.00
3	QPSK	1	5	0	0	1	20.08	20.10	20.02	
3	QPSK	3	0	0	0	1	19.34	19.53	19.35	21.00
3	QPSK	3	3	0	0	1	19.24	19.48	19.17	
3	QPSK	6	0	0	0	1	18.43	18.54	18.41	20.00
3	16QAM	1	0	0	0	1	19.40	19.67	19.36	21.00
3	16QAM	1	5	0	0	1	19.20	19.51	19.25	
3	16QAM	3	0	0	0	1	18.46	18.70	18.55	20.00
3	16QAM	3	3	0	0	1	18.55	18.59	18.48	
3	16QAM	5	0	0	0	1	18.45	18.59	18.47	
Channel				L	M	H	131979	132322	132665	Tune-up limit (dBm)
Frequency (MHz)							1710.7	1745	1779.3	
1.4	QPSK	1	0	0	0	0	20.11	20.46	20.01	22.00
1.4	QPSK	1	5	0	0	0	20.02	20.16	20.06	
1.4	QPSK	3	0	0	0	0	19.34	19.61	19.33	21.00
1.4	QPSK	3	3	0	0	0	19.25	19.41	19.22	
1.4	QPSK	6	0	0	0	0	18.33	18.50	18.35	20.00
1.4	16QAM	1	0	0	0	0	19.44	19.70	19.40	21.00
1.4	16QAM	1	5	0	0	0	19.23	19.50	19.23	
1.4	16QAM	3	0	0	0	0	18.45	18.74	18.49	20.00
1.4	16QAM	3	3	0	0	0	18.62	18.54	18.44	
1.4	16QAM	5	0	0	0	0	18.44	18.62	18.55	

<LTE Band 66_Ant 5_TB>



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BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	132072	132322	132572	
Frequency (MHz)							1720	1745	1770	
20	QPSK	1	0	0	0	15	15.85	15.93	15.82	16.50
20	QPSK	1	5	0	0	15	15.55	15.62	15.51	
20	QPSK	3	0	0	0	15	15.81	15.92	15.80	
20	QPSK	3	3	0	0	15	15.74	15.80	15.69	
20	QPSK	6	0	0	0	15	15.76	15.86	15.75	
20	16QAM	1	0	0	0	15	15.83	15.89	15.82	
20	16QAM	1	5	0	0	15	15.56	15.56	15.60	
20	16QAM	3	0	0	0	15	15.91	15.81	15.80	
20	16QAM	3	3	0	0	15	15.77	15.68	15.78	
20	16QAM	5	0	0	0	15	15.85	15.76	15.80	
Channel				L	M	H	132047	132322	132597	Tune-up limit (dBm)
Frequency (MHz)							1717.5	1745	1772.5	
15	QPSK	1	0	0	0	11	15.66	15.72	15.64	16.50
15	QPSK	1	5	0	0	11	15.42	15.51	15.36	
15	QPSK	3	0	0	0	11	15.66	15.72	15.70	
15	QPSK	3	3	0	0	11	15.64	15.63	15.58	
15	QPSK	6	0	0	0	11	15.56	15.67	15.57	
15	16QAM	1	0	0	0	11	15.71	15.76	15.70	
15	16QAM	1	5	0	0	11	15.40	15.40	15.44	
15	16QAM	3	0	0	0	11	15.78	15.68	15.62	
15	16QAM	3	3	0	0	11	15.62	15.51	15.64	
15	16QAM	5	0	0	0	11	15.72	15.64	15.64	
Channel				L	M	H	132022	132322	132622	Tune-up limit (dBm)
Frequency (MHz)							1715	1745	1775	
10	QPSK	1	0	0	0	7	15.73	15.80	15.64	16.50
10	QPSK	1	5	0	0	7	15.43	15.52	15.32	
10	QPSK	3	0	0	0	7	15.64	15.72	15.69	
10	QPSK	3	3	0	0	7	15.58	15.63	15.56	
10	QPSK	6	0	0	0	7	15.65	15.67	15.64	16.50
10	16QAM	1	0	0	0	7	15.71	15.73	15.72	16.50
10	16QAM	1	5	0	0	7	15.45	15.41	15.50	
10	16QAM	3	0	0	0	7	15.79	15.62	15.69	
10	16QAM	3	3	0	0	7	15.60	15.48	15.66	
10	16QAM	5	0	0	0	7	15.68	15.58	15.62	16.50
Channel				L	M	H	131997	132322	132647	Tune-up limit (dBm)
Frequency (MHz)							1712.5	1745	1777.5	
5	QPSK	1	0	0	0	3	15.74	15.74	15.70	16.50
5	QPSK	1	5	0	0	3	15.40	15.47	15.36	
5	QPSK	3	0	0	0	3	15.62	15.80	15.68	16.50
5	QPSK	3	3	0	0	3	15.57	15.60	15.55	
5	QPSK	6	0	0	0	3	15.58	15.76	15.55	
5	16QAM	1	0	0	0	3	15.65	15.72	15.72	16.50
5	16QAM	1	5	0	0	3	15.39	15.45	15.41	
5	16QAM	3	0	0	0	3	15.74	15.64	15.63	16.50
5	16QAM	3	3	0	0	3	15.61	15.48	15.66	
5	16QAM	5	0	0	0	3	15.67	15.58	15.66	16.50
Channel				L	M	H	131987	132322	132657	Tune-up limit (dBm)
Frequency (MHz)							1711.5	1745	1778.5	
3	QPSK	1	0	0	0	1	15.69	15.76	15.72	16.50
3	QPSK	1	5	0	0	1	15.44	15.52	15.36	
3	QPSK	3	0	0	0	1	15.70	15.72	15.60	16.50
3	QPSK	3	3	0	0	1	15.58	15.61	15.49	



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3	QPSK	6	0	0	0	1	15.66	15.70	15.60	16.50
3	16QAM	1	0	0	0	1	15.69	15.77	15.63	16.50
3	16QAM	1	5	0	0	1	15.44	15.41	15.47	
3	16QAM	3	0	0	0	1	15.76	15.65	15.67	16.50
3	16QAM	3	3	0	0	1	15.57	15.56	15.61	
3	16QAM	5	0	0	0	1	15.66	15.60	15.70	
Channel				L	M	H	131979	132322	132665	Tune-up limit (dBm)
Frequency (MHz)							1710.7	1745	1779.3	
1.4	QPSK	1	0	0	0	0	15.67	15.72	15.67	16.50
1.4	QPSK	1	5	0	0	0	15.38	15.49	15.38	
1.4	QPSK	3	0	0	0	0	15.63	15.81	15.69	16.50
1.4	QPSK	3	3	0	0	0	15.60	15.60	15.59	
1.4	QPSK	6	0	0	0	0	15.62	15.76	15.56	16.50
1.4	16QAM	1	0	0	0	0	15.70	15.74	15.72	16.50
1.4	16QAM	1	5	0	0	0	15.40	15.43	15.49	
1.4	16QAM	3	0	0	0	0	15.73	15.69	15.64	16.50
1.4	16QAM	3	3	0	0	0	15.58	15.53	15.65	
1.4	16QAM	5	0	0	0	0	15.65	15.58	15.61	

<LTE Band 85_Ant 5_ NB>

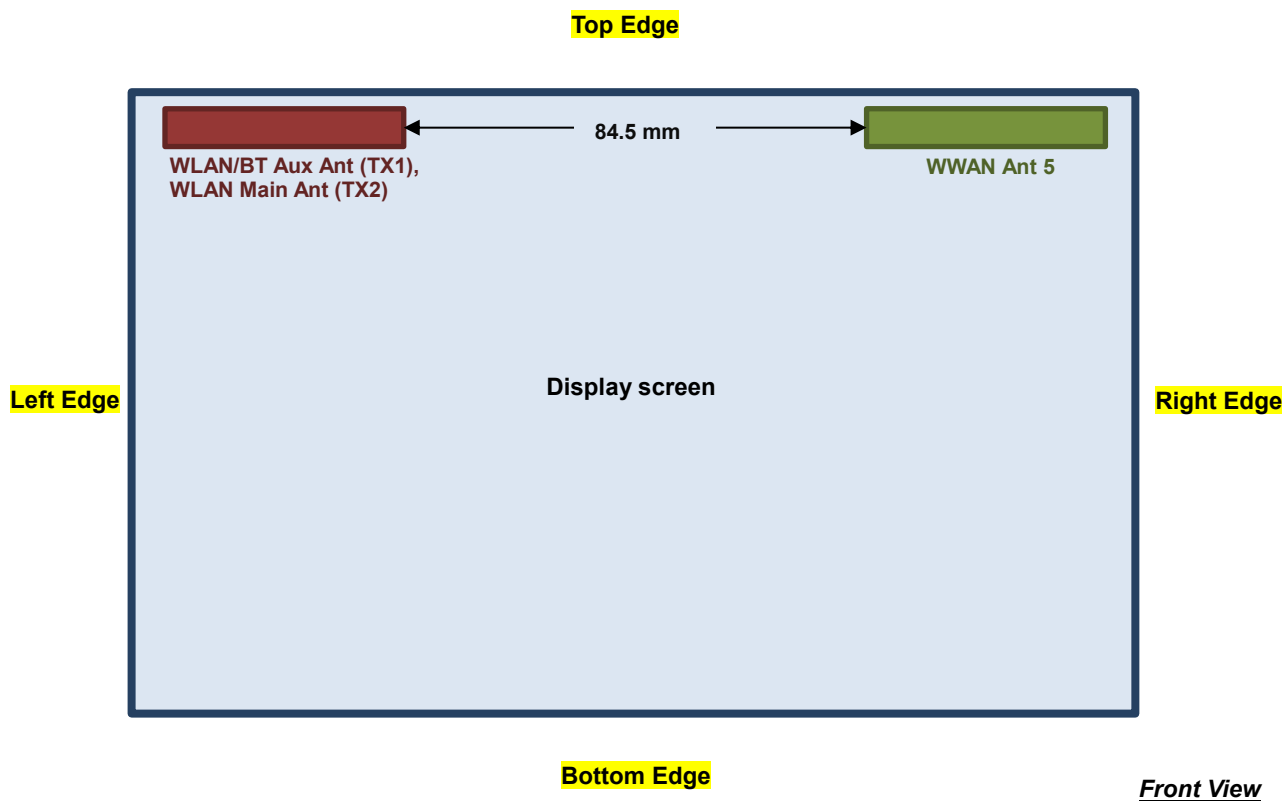
BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	134052	134092	134132	
Frequency (MHz)							703	707	711	
10	QPSK	1	0	0	0	7	20.13	20.23	20.21	22.00
10	QPSK	1	5	0	0	7	20.04	20.10	20.09	
10	QPSK	3	0	0	0	7	20.13	20.20	20.15	
10	QPSK	3	3	0	0	7	20.05	20.12	20.10	
10	QPSK	6	0	0	0	7	19.06	19.12	19.02	21.00
10	16QAM	1	0	0	0	7	20.19	20.22	20.15	22.00
10	16QAM	1	5	0	0	7	20.09	20.13	20.07	
10	16QAM	3	0	0	0	7	20.15	20.15	20.09	
10	16QAM	3	3	0	0	7	20.04	20.09	20.02	
10	16QAM	5	0	0	0	7	20.00	20.10	20.02	21.00
Channel				L	M	H	134027	134092	134157	Tune-up limit (dBm)
Frequency (MHz)							700.5	707	713.5	
5	QPSK	1	0	0	0	3	20.21	20.13	20.16	
5	QPSK	1	5	0	0	3	19.99	20.03	20.02	
5	QPSK	3	0	0	0	3	19.40	19.31	19.34	21.00
5	QPSK	3	3	0	0	3	19.23	19.27	19.30	
5	QPSK	6	0	0	0	3	19.04	19.12	19.03	
5	16QAM	1	0	0	0	3	20.15	20.18	20.15	22.00
5	16QAM	1	5	0	0	3	20.08	20.05	20.12	
5	16QAM	3	0	0	0	3	19.34	19.30	19.32	21.00
5	16QAM	3	3	0	0	3	19.28	19.22	19.29	
5	16QAM	5	0	0	0	3	18.48	18.49	18.45	

<LTE Band 85_Ant 5_TB>

BW [MHz]	Modulation	RB Size	RB Offset	Index			Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				L	M	H	134052	134092	134132	
Frequency (MHz)							703	707	711	
10	QPSK	1	0	0	0	7	19.10	19.20	19.08	20.00
10	QPSK	1	5	0	0	7	18.67	18.75	18.68	
10	QPSK	3	0	0	0	7	19.13	19.19	19.07	
10	QPSK	3	3	0	0	7	18.77	18.84	18.73	
10	QPSK	6	0	0	0	7	19.04	19.11	19.09	20.00
10	16QAM	1	0	0	0	7	19.14	19.18	19.06	20.00
10	16QAM	1	5	0	0	7	18.83	18.86	18.82	
10	16QAM	3	0	0	0	7	18.91	18.97	18.87	
10	16QAM	3	3	0	0	7	18.75	18.77	18.66	
10	16QAM	5	0	0	0	7	18.89	18.90	18.88	20.00
Channel				L	M	H	134027	134092	134157	Tune-up limit (dBm)
Frequency (MHz)							700.5	707	713.5	
5	QPSK	1	0	0	0	3	18.96	19.05	18.94	20.00
5	QPSK	1	5	0	0	3	18.51	18.65	18.51	
5	QPSK	3	0	0	0	3	18.95	19.08	18.95	
5	QPSK	3	3	0	0	3	18.63	18.74	18.63	20.00
5	QPSK	6	0	0	0	3	18.88	19.01	18.89	
5	16QAM	1	0	0	0	3	18.99	19.07	18.93	
5	16QAM	1	5	0	0	3	18.67	18.69	18.69	20.00
5	16QAM	3	0	0	0	3	18.78	18.77	18.69	
5	16QAM	3	3	0	0	3	18.57	18.61	18.49	
5	16QAM	5	0	0	0	3	18.70	18.73	18.71	20.00

12. Antenna Location

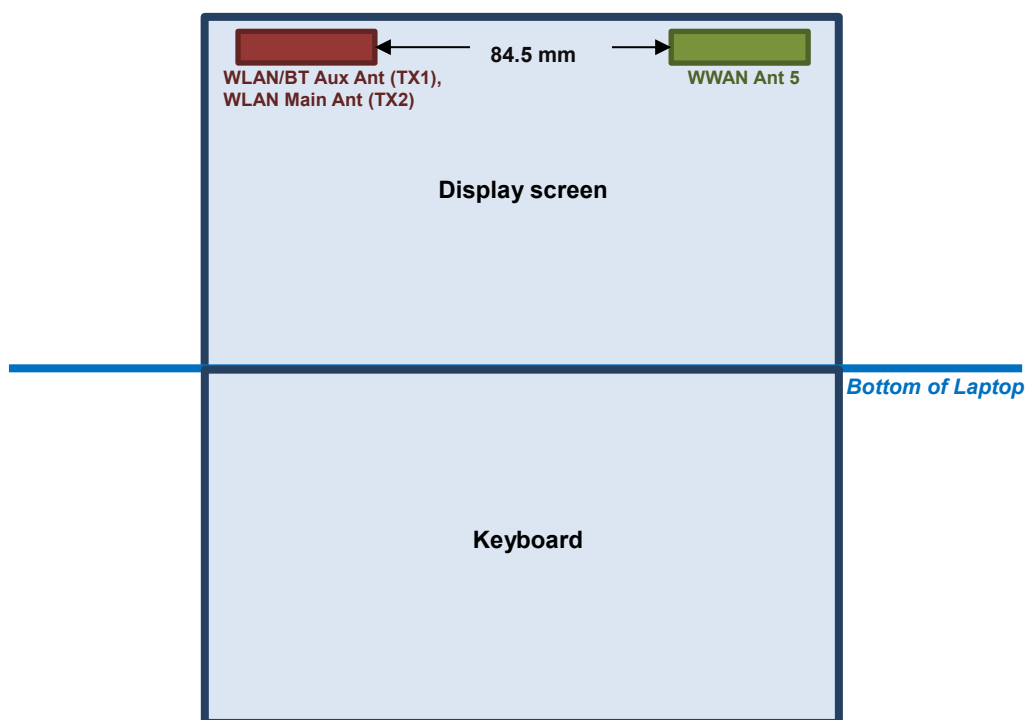
<For Tablet>



The separation distance for antenna to edge :

Antenna	To Top Edge (mm)	To Right Edge (mm)	To Bottom Edge (mm)	To Left Edge (mm)
WWAN Antenna 5	< 5	13.1	210.3	198.9
WLAN Main Antenna (TX2)	< 5	199.6	210.3	12.4
WLAN/BT Aux Antenna (TX1)	< 5	199.6	210.3	12.4

<For Laptop>



The separation distance for antenna to edge :

Antenna	To Bottom of Laptop (mm)
WWAN Antenna 5	210.3
WLAN Main Antenna (TX2)	210.3
WLAN/BT Aux Antenna (TX1)	210.3

<SAR test exclusion table>
General Note:

- The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
- Maximum power is the source-based time-average power and represents the maximum RF output power among production units
- Per KDB 447498 D01v06, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
- Per KDB 447498 D01v06, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
- Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR}$$
 - f(GHz) is the RF channel transmit frequency in GHz
 - Power and distance are rounded to the nearest mW and mm before calculation
 - The result is rounded to one decimal place for comparison
- Per KDB 447498 D01v06, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
 - [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · (f(MHz)/150)] mW, at 100 MHz to 1500 MHz
 - [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz

Exposure Position	Wireless Interface	GPRS 850 Class 10	GPRS 1900 Class 10	LTE Band 12	LTE Band 13	LTE Band 14	LTE Band 85	LTE Band 5	LTE Band 26	LTE Band 4	LTE Band 66	LTE Band 2	LTE Band 25
	Calculated Frequency (MHz)	848	1909	715	784	795	700.5	848	848	1754	1779	1909	1914
	Maximum power (dBm)	34.5	30.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
	Maximum rated power(mW)	2818.38	1000.00	158.49	158.49	158.49	158.49	158.49	158.49	158.49	158.49	158.49	158.49
Back	Separation distance(mm)	5.0											
	exclusion threshold	519.1	276.3	26.8	28.1	28.3	26.5	29.2	29.2	42.0	42.3	43.8	43.9
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Left Edge	Separation distance(mm)	198.9											
	exclusion threshold	1005.0	1598.0	887.0	948.0	957.0	875.0	1005.0	1005.0	1602.0	1601.0	1598.0	1597.0
	Testing required?	Yes	No	No	No	No	No	No	No	No	No	No	No
Right Edge	Separation distance(mm)	13.1											
	exclusion threshold	197.6	105.2	10.2	10.7	10.8	10.1	11.1	11.1	16.0	16.1	16.7	16.7
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Top Edge	Separation distance(mm)	5.0											
	exclusion threshold	519.1	276.3	26.8	28.1	28.3	26.5	29.2	29.2	42.0	42.3	43.8	43.9
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bottom Edge / Bottom of Laptop	Separation distance(mm)	210.3											
	exclusion threshold	1069.0	1712.0	941.0	1007.0	1018.0	928.0	1069.0	1069.0	1716.0	1715.0	1712.0	1711.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No

13. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - c. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance, for modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested, therefore, the GPRS 4Tx slots modes was selected when EUT operating without power back-off, the GPRS 4Tx slots modes was selected when EUT operating with power back-off, according to the highest source-based time-averaged output power.

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 $> \text{not } \frac{1}{2}$ 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 $> \text{not } \frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4/B5/B12/B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 2/5/12 SAR test was covered by Band 25/26/85; 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.

13.1 Body SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	User Scenario	Antenna Vendor	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 (4 Tx slots)	Back	0mm	Ant 5	Tablet	Vendor 2	189	836.4	27.88	28.00	1.028	0.01	0.076	0.078
	GSM850	GPRS (4 Tx slots)	Left Edge	0mm	Ant 5	Tablet	Vendor 2	189	836.4	27.88	28.00	1.028	0.1	0.001	0.001
	GSM850	GPRS (4 Tx slots)	Right Edge	0mm	Ant 5	Tablet	Vendor 2	189	836.4	27.88	28.00	1.028	-0.08	0.058	0.060
	GSM850	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	189	836.4	27.88	28.00	1.028	0.03	1.050	1.079
01	GSM850	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	128	824.2	27.85	28.00	1.035	0.06	1.150	1.190
	GSM850	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	251	848.8	27.41	28.00	1.146	-0.08	0.990	1.134
	GSM850	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 1	128	824.2	27.85	28.00	1.035	-0.18	0.764	0.791
	GSM1900	GPRS (4 Tx slots)	Back	0mm	Ant 5	Tablet	Vendor 2	661	1880	19.60	20.00	1.096	0.01	0.147	0.161
	GSM1900	GPRS (4 Tx slots)	Left Edge	0mm	Ant 5	Tablet	Vendor 2	661	1880	19.60	20.00	1.096	0.03	0.001	0.001
	GSM1900	GPRS (4 Tx slots)	Right Edge	0mm	Ant 5	Tablet	Vendor 2	661	1880	19.60	20.00	1.096	-0.08	0.212	0.232
	GSM1900	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	661	1880	19.60	20.00	1.096	-0.08	0.753	0.826
02	GSM1900	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	512	1850.2	19.59	20.00	1.099	-0.12	0.948	1.042
	GSM1900	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	810	1909.8	19.15	20.00	1.216	-0.18	0.555	0.675
	GSM1900	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 1	512	1850.2	19.59	20.00	1.099	0.1	0.721	0.792

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	User Scenario	Antenna Vendor	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 4	20M	QPSK	1	0	Back	0mm	Ant 5	Tablet	Vendor 2	20175	1732.5	16.42	17.00	1.143	-0.05	0.001	0.001
	LTE Band 4	20M	QPSK	3	0	Back	0mm	Ant 5	Tablet	Vendor 2	20175	1732.5	16.41	17.00	1.146	0.01	0.001	0.001
	LTE Band 4	20M	QPSK	1	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	20175	1732.5	16.42	17.00	1.143	0.04	0.001	0.001
	LTE Band 4	20M	QPSK	3	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	20175	1732.5	16.41	17.00	1.146	-0.01	0.001	0.001
03	LTE Band 4	20M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	20175	1732.5	16.42	17.00	1.143	-0.09	0.349	0.399
	LTE Band 4	20M	QPSK	3	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	20175	1732.5	16.41	17.00	1.146	-0.17	0.331	0.379
	LTE Band 4	20M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 1	20175	1732.5	16.42	17.00	1.143	0.1	0.294	0.336
	LTE Band 13	10M	QPSK	1	0	Back	0mm	Ant 5	Tablet	Vendor 2	23230	782	18.93	20.00	1.279	-0.08	0.001	0.001
	LTE Band 13	10M	QPSK	3	0	Back	0mm	Ant 5	Tablet	Vendor 2	23230	782	18.92	20.00	1.282	0.13	0.001	0.001
	LTE Band 13	10M	QPSK	1	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	23230	782	18.93	20.00	1.279	0.18	0.001	0.001
	LTE Band 13	10M	QPSK	3	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	23230	782	18.92	20.00	1.282	0.16	0.001	0.001
04	LTE Band 13	10M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	23230	782	18.93	20.00	1.279	0.15	0.175	0.224
	LTE Band 13	10M	QPSK	3	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	23230	782	18.92	20.00	1.282	0.03	0.166	0.213
	LTE Band 13	10M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 1	23230	782	18.93	20.00	1.279	-0.1	0.154	0.197
	LTE Band 14	10M	QPSK	1	0	Back	0mm	Ant 5	Tablet	Vendor 2	23330	793	19.18	20.00	1.208	0.01	0.001	0.001
	LTE Band 14	10M	QPSK	3	0	Back	0mm	Ant 5	Tablet	Vendor 2	23330	793	19.17	20.00	1.211	-0.15	0.001	0.001
	LTE Band 14	10M	QPSK	1	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	23330	793	19.18	20.00	1.208	-0.18	0.001	0.001
	LTE Band 14	10M	QPSK	3	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	23330	793	19.17	20.00	1.211	0.03	0.001	0.001
05	LTE Band 14	10M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	23330	793	19.18	20.00	1.208	0.15	0.191	0.231
	LTE Band 14	10M	QPSK	3	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	23330	793	19.17	20.00	1.211	0.07	0.183	0.222
	LTE Band 14	10M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 1	23330	793	19.18	20.00	1.208	-0.15	0.173	0.209



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	User Scenario	Antenna Vendor	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 25	20M	QPSK	1	0	Back	0mm	Ant 5	Tablet	Vendor 2	26365	1882.5	15.66	16.50	1.213	-0.17	0.001	0.001
	LTE Band 25	20M	QPSK	3	0	Back	0mm	Ant 5	Tablet	Vendor 2	26365	1882.5	15.65	16.50	1.216	-0.08	0.001	0.001
	LTE Band 25	20M	QPSK	1	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	26365	1882.5	15.66	16.50	1.213	0.17	0.001	0.001
	LTE Band 25	20M	QPSK	3	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	26365	1882.5	15.65	16.50	1.216	0.18	0.001	0.001
06	LTE Band 25	20M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	26365	1882.5	15.66	16.50	1.213	0.13	0.248	0.301
	LTE Band 25	20M	QPSK	3	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	26365	1882.5	15.65	16.50	1.216	-0.08	0.234	0.285
	LTE Band 25	20M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 1	26365	1882.5	15.66	16.50	1.213	-0.13	0.244	0.296
	LTE Band 26	15M	QPSK	1	0	Back	0mm	Ant 5	Tablet	Vendor 2	26865	831.5	18.92	19.50	1.143	0.06	0.001	0.001
	LTE Band 26	15M	QPSK	3	0	Back	0mm	Ant 5	Tablet	Vendor 2	26865	831.5	18.91	19.50	1.146	-0.03	0.001	0.001
	LTE Band 26	15M	QPSK	1	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	26865	831.5	18.92	19.50	1.143	-0.07	0.001	0.001
	LTE Band 26	15M	QPSK	3	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	26865	831.5	18.91	19.50	1.146	0.05	0.001	0.001
07	LTE Band 26	15M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	26865	831.5	18.92	19.50	1.143	-0.17	0.196	0.224
	LTE Band 26	15M	QPSK	3	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	26865	831.5	18.91	19.50	1.146	0.08	0.186	0.213
	LTE Band 26	15M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 1	26865	831.5	18.92	19.50	1.143	-0.11	0.187	0.214
	LTE Band 66	20M	QPSK	1	0	Back	0mm	Ant 5	Tablet	Vendor 2	132322	1745	15.93	16.50	1.140	-0.15	0.001	0.001
	LTE Band 66	20M	QPSK	3	0	Back	0mm	Ant 5	Tablet	Vendor 2	132322	1745	15.92	16.50	1.143	0.02	0.001	0.001
	LTE Band 66	20M	QPSK	1	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	132322	1745	15.93	16.50	1.140	0.13	0.001	0.001
	LTE Band 66	20M	QPSK	3	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	132322	1745	15.92	16.50	1.143	-0.18	0.001	0.001
08	LTE Band 66	20M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	132322	1745	15.93	16.50	1.140	0.14	0.324	0.369
	LTE Band 66	20M	QPSK	3	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	132322	1745	15.92	16.50	1.143	0.16	0.308	0.352
	LTE Band 66	20M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 1	132322	1745	15.93	16.50	1.140	-0.14	0.271	0.309
	LTE Band 85	10M	QPSK	1	0	Back	0mm	Ant 5	Tablet	Vendor 2	134092	707	19.20	20.00	1.202	0	0.001	0.001
	LTE Band 85	10M	QPSK	1	0	Back	0mm	Ant 5	Tablet	Vendor 2	134092	707	19.19	20.00	1.205	0.01	0.001	0.001
	LTE Band 85	10M	QPSK	1	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	134092	707	19.20	20.00	1.202	-0.04	0.001	0.001
	LTE Band 85	10M	QPSK	1	0	Right Edge	0mm	Ant 5	Tablet	Vendor 2	134092	707	19.19	20.00	1.205	-0.09	0.001	0.001
09	LTE Band 85	10M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	134092	707	19.20	20.00	1.202	-0.08	0.321	0.386
	LTE Band 85	10M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 2	134092	707	19.19	20.00	1.205	-0.06	0.304	0.366
	LTE Band 85	10M	QPSK	1	0	Top Edge	0mm	Ant 5	Tablet	Vendor 1	134092	707	19.20	20.00	1.202	-0.17	0.298	0.358

13.2 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	User Scenario	Antenna Vendor	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	GSM850	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	128	824.2	27.85	28.00	1.035	0.06	1.150	-	1.190
2nd	GSM850	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	128	824.2	27.85	28.00	1.035	0.15	1.020	1.13	1.056
1st	GSM1900	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	512	1850.2	19.59	20.00	1.099	-0.12	0.948	-	1.042
2nd	GSM1900	GPRS (4 Tx slots)	Top Edge	0mm	Ant 5	Tablet	Vendor 2	512	1850.2	19.59	20.00	1.099	-0.05	0.926	1.02	1.018

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
2. 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.
3. The ratio is the difference in percentage between original and repeated *measured* SAR.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

14. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WWAN + WLAN Main	Yes
2.	WWAN + WLAN/BT Aux	Yes

General Note:

1. The Intel BE201NGW WLAN/Bluetooth module is also integrated into this host, WLAN/Bluetooth power and WLAN SAR testing data, which can be referred to Intel SAR Report, Report No.: 240813-01.TR03 / 231109-06.TR01 / 231109-06.TR07 (FCC ID: PD9BE201NG) and these results are used simultaneous transmission analysis.
2. In this report only consider WWAN and WLAN Sim-Tx analysis, for WLAN and Bluetooth Sim-Tx analysis was include in Intel SAR report.
3. The Scaled SAR summation is calculated based on the same configuration and test position.
4. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - i) Scalar SAR summation < 1.6 W/kg.
 - ii) $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - iii) If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6 W/kg.
 - v) The SPLSR calculated results please refer to section 14.2.

14.1 Body Exposure Conditions

Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	SPLSR	Case No
	Maximum WWAN	Max WLAN Main	Max WLAN/BT Aux				
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
Back at 0mm Tablet	0.161	0.800	0.800	0.961	0.961		
Left Edge at 0mm Tablet	0.001	0.800	0.800	0.801	0.801		
Right Edge at 0mm Tablet	0.232	0.800	0.800	1.032	1.032		
Top Edge at 0mm Tablet	1.190	1.190	1.130	2.380	2.320	0.04	1

14.2 SPLSR Evaluation and Analysis

General Note:

1. According to antenna location the minimum distance between each transmit antenna is using for SPLSR analysis
2. Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneously transmitting antenna. When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. Therefore, the adjacent transmit antennas will be summed first, and then the SPLSR calculation will be evaluated with the farther transmitted antennas.
3. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary

Case 1	Band	Position	SAR (W/kg)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850 Ant 5	Top Edge	1.19	84.5	2.38	0.04	Not required
	WLAN Main		1.19				
	GSM850 Ant 5		1.19		2.32	0.04	Not required
	WLAN Aux		1.13				

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15. Uncertainty Assessment

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

Declaration of Conformity:

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

Comments and Explanations:

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

16. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [6] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [7] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [8] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [9] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [10] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.