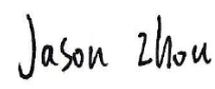




FCC PART 22/24/27 TEST REPORT
FCC Part 22 /Part 24/Part 27

Report Reference No.:	HK1901140098E
FCC ID:	2AR6HIMP-R01W
Compiled by (position+printed name+signature) :	File administrators Gary Qian 
Supervised by (position+printed name+signature) :	Technique principal Eden Hu 
Approved by (position+printed name+signature) :	Manager Jason Zhou 
Date of issue :	Jan. 14, 2019
Testing Laboratory Name :	Shenzhen HUAK Testing Technology Co., Ltd.
Address :	1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name :	Inspire Mobile
Address :	Rm1412, Daeryung Techno-Town 15th, 401, Simin-daero, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Standard :	FCC Part 22: PUBLIC MOBILE SERVICES FCC Part 24: PERSONAL COMMUNICATIONS SERVICES FCC Part 27: MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
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Test item description :	Rugged IP PTT
Brand Name :	IM-550
Model :	IM-550
Ratings :	DC 3.85V From Battery
Modulation :	QPSK, 16QAM
Hardware version:	K2_US_Main_Rev1.0
Software version :	D08
Result :	PASS

**TEST REPORT**

Test Report No. :	HK1901140098E	Jan. 14, 2019 Date of issue
--------------------------	----------------------	--------------------------------

Equipment under Test : Rugged IP PTT
Model /Type : IM-550
Applicant : Inspire Mobile
Address : Rm1412, Daeryung Techno-Town 15th, 401, Simin-daero, Dongan-gu,
Anyang-si, Gyeonggi-do, 14057, Korea
Manufacturer : Inspire Mobile
Address : Rm1412, Daeryung Techno-Town 15th, 401, Simin-daero, Dongan-gu,
Anyang-si, Gyeonggi-do, 14057, Korea
Factory : Shenzhen Bee Technology co., Ltd
Address : 4 Floor, A Building, Chuangjin No.1, No.125 Chuangye 2nd
road, Baoan District, Shenzhen

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



Revision	Issue Date	Revisions	Revised By
V1.0	Jan. 14, 2019	Initial Issue	Jason Zhou



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1. TEST STANDARDS

The tests were performed according to following standards:

[FCC Part 22 \(10-12-18 Edition\)](#): PUBLIC MOBILE SERVICES

[FCC Part 24\(10-12-18 Edition\)](#): PRIVATE LAND MOBILE RADIO SERVICES

[FCC Part 27\(10-12-18 Edition\)](#): MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

[TIA-603 E Mar. 2016](#): Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

[FCC Part 2](#): FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

[KDB971168 D01:v03r01](#) MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

[ANSI C63.26:2015](#): Compliance Testing of Transmitters Used in Licensed Radio Services



2. SUMMARY

2.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Radio System Type:	LTE	
Frequency Bands:	<input checked="" type="checkbox"/> FDD Band 2 <input checked="" type="checkbox"/> FDD Band 4 <input checked="" type="checkbox"/> FDD Band 5 <input checked="" type="checkbox"/> FDD Band 12 <input checked="" type="checkbox"/> FDD Band 13 <input checked="" type="checkbox"/> FDD Band 17 <input checked="" type="checkbox"/> FDD Band 30 <input type="checkbox"/> TDD Band 41 (U.S. Bands) <input type="checkbox"/> FDD Band 1 <input type="checkbox"/> FDD Band 3 <input type="checkbox"/> FDD Band 7 <input type="checkbox"/> FDD Band 8 <input type="checkbox"/> FDD Band 20 <input type="checkbox"/> TDD Band 33 <input type="checkbox"/> TDD Band 34 <input type="checkbox"/> TDD Band 38 <input type="checkbox"/> FDD Band 40 <input type="checkbox"/> FDD Band 42 <input type="checkbox"/> FDD Band 43 (Non-U.S. Bands)	
Frequency Range	LTE Band 2	Transmission (TX): 1850 to 1909.9 MHz
		Receiving (RX): 1930 to 1989.9 MHz
	LTE Band 4	Transmission (TX): 1710 to 1754.9 MHz
		Receiving (RX): 2110 to 2154.9 MHz
	LTE Band 5	Transmission (TX): 824 to 848.9 MHz
		Receiving (RX): 869 to 893.9 MHz
	LTE Band 12	Transmission (TX): 699 to 715.9MHz
		Receiving (RX): 729 to 745.9MHz
	LTE Band 13	Transmission (TX): 777 to 786.9MHz
		Receiving (RX): 746 to 755.9MHz
	LTE Band 17	Transmission (TX): 704 to 715.9MHz
		Receiving (RX): 734 to 745.9MHz
	LTE Band 30	Transmission (TX): 2305MHz to 2315MHz
		Receiving (RX): 2350MHz to 2360 MHz
Supported Channel Bandwidth	LTE Band 2	<input checked="" type="checkbox"/> 1.4 MHz <input checked="" type="checkbox"/> 3 MHz <input checked="" type="checkbox"/> 5 MHz
		<input checked="" type="checkbox"/> 10 MHz <input checked="" type="checkbox"/> 15 MHz <input checked="" type="checkbox"/> 20 MHz
	LTE Band 4	<input checked="" type="checkbox"/> 1.4 MHz <input checked="" type="checkbox"/> 3 MHz <input checked="" type="checkbox"/> 5 MHz
		<input checked="" type="checkbox"/> 10 MHz <input checked="" type="checkbox"/> 15 MHz <input checked="" type="checkbox"/> 20 MHz
	LTE Band 5	<input checked="" type="checkbox"/> 1.4 MHz <input checked="" type="checkbox"/> 3 MHz <input checked="" type="checkbox"/> 5 MHz <input checked="" type="checkbox"/> 10 MHz
	LTE Band 12	<input checked="" type="checkbox"/> 1.4 MHz <input checked="" type="checkbox"/> 3 MHz <input checked="" type="checkbox"/> 5 MHz <input checked="" type="checkbox"/> 10 MHz
	LTE Band 13	<input checked="" type="checkbox"/> 5 MHz <input checked="" type="checkbox"/> 10 MHz
LTE Band 17	<input checked="" type="checkbox"/> 5 MHz <input checked="" type="checkbox"/> 10 MHz	
LTE Band 30	<input checked="" type="checkbox"/> 5 MHz <input checked="" type="checkbox"/> 10 MHz	
Antenna:	FPC Antenna	
Type of Modulation	QPSK/16QAM	
Antenna gain:	1.8dBi	
Diversity Antenna gain:	1.7dBi	



Power Supply:	DC 3.85V by battery
Single Card:	GSM/WCDMA/LTE Card Slot
Power Class	3
Extreme Vol. Limits:	DC3.2V to 4.35 V (Normal: 3.8V)
Temperature range	-10°C to +50°C
Note1: The High Voltage DC4.35V and Low Voltage DC3.2V were declared by manufacturer, The EUT couldn't be operating normally with higher or lower voltage..	



2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AR6HIMP-R01W**, filing to comply with the FCC Part 22, Part 24 and Part 27 requirements

2.4 TEST METHODOLOGY

The radiated emission testing was performed according to the procedures of ANSI/TIA-603-E-2016, and FCC KDB 971168 D01 Power Means License Digital Systems V03R01.

**2.5 TEST FACILITY**

Site	Shenzhen HUAKE Testing Technology Co., Ltd.
Location	1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China
Designation Number	CN1229
Test Firm Registration Number : 616276	

ALL TEST EQUIPMENT LIST

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	ENV216	R&S	HKE-059	2018/12/27	2019/12/26
LISN	R&S	ENV216	HKE-002	2018/12/27	2019/12/26
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	2018/12/27	2019/12/26
Receiver	R&S	ESCI 7	HKE-010	2018/12/27	2019/12/26
Spectrum analyzer	Agilent	N9020A	HKE-048	2018/12/27	2019/12/26
RF automatic control unit	Tonscend	JS0806-2	HKE-060	2018/12/27	2019/12/26
Horn antenna	Schwarzbeck	9120D	HKE-013	2018/12/27	2019/12/26
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	2018/12/27	2019/12/26
Preamplifier	EMCI	EMC051845SE	HKE-015	2018/12/27	2019/12/26
Preamplifier	Agilent	83051A	HKE-016	2018/12/27	2019/12/26
Temperature and humidity meter	Boyang	HTC-1	HKE-075	2018/12/27	2019/12/26
High pass filter unit	Tonscend	JS0806-F	HKE-055	2018/12/27	2019/12/26
RF cable	Times	1-40G	HKE-034	2018/12/27	2019/12/26
Power meter	Agilent	E4419B	HKE-085	2018/12/27	2019/12/26
Power Sensor	Agilent	E9300A	HKE-086	2018/12/27	2019/12/26
Horn Ant (18G-40GHz)	Schwarzbeck	BBHA 9170	HKE-094	2016/03/01	2020/02/28
Horn Ant (18G-40GHz)	ETS	QWH_SL_18_40_K_SG	HKE-092	2016/03/01	2020/02/28
Power Splitter	Agilent	11636A	/	2018/09/20	2019/09/19
CMU200	R&S	120237	/	2018/03/01	2019/02/28
Artificial Mains Network ENV4200	R&S	101116	/	2018/07/13	2019/07/12
Artificial Mains Network ENV216	R&S	101242	/	2018/07/13	2019/07/12
Filter Bank Notch 1(880-915MHz)	MICRO-TRONICS	010	/	2018/03/01	2019/02/28



Filter Bank Notch 2(1710-1785MHz)	MICRO-TRONICS	009	/	2018/03/01	2019/02/28
Filter Bank Notch 3(1920-1980MHz)	MICRO-TRONICS	008	/	2018/03/01	2019/02/28
Wireless communication test CMW500	R&S	120909	/	2018/07/12	2019/07/11



2.5 SPECIAL ACCESSORIES

The battery was supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

2.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.



3. SYSTEM TEST CONFIGURATION

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

3.3 GENERAL TECHNICAL REQUIREMENTS

Item Number	Item Description		FCC Rules
1	Output Power	Conducted output power	2.1046/22.913(a)(2)/24.232(c)/ 27.50(d)(4)/ 27.50(h)(2)
		Radiated output power	
2	Peak-to-Average Ratio	Peak-to-Average Ratio	24.232(d)
3	Spurious Emission	Conducted spurious emission	2.1051/22.917(a)/24.238(a) 27.53(h)/ 27.53(g)
		Radiated spurious emission	
4	Frequency Stability		2.1055/22.355/24.235/27.54
5	Occupied Bandwidth		2.1049 (h)(i)
6	Band Edge		2.1051/22.917(a)/24.238(a) 27.53(h)/ 27.53(g)

Note: Testing was performed by configuring EUT to maximum output power status, the declared output power class for different.



3.4 CONFIGURATION OF EUT SYSTEM

Fig. 2-1 Configuration of EUT System

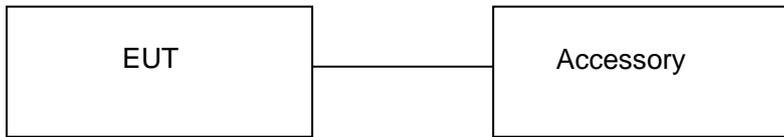


Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Remark
1	Rugged IP PTT	IM-550	2AR6HIMP-R01W	EUT
2	Adapter	M050200E111U1	DC 5.0V 2A	Accessory
3	Battery	K2	DC3.8V/ 3600mAh	Accessory
4	USB	N/A	N/A	Accessory

***Note: All the accessories have been used during the test. The following “EUT” in setup diagram means EUT system.

**4. SUMMARY OF TEST RESULTS**

Item Number	Item Description		FCC Rules	Result
1	Output Power	Conducted Output Power	2.1046/22.913(a)(2)/24.232(c)/ 27.50(d)(4)/ 27.50(h)(2)	Pass
		Radiated Output Power		
2	Peak-to-Average Ratio	Peak-to-Average Ratio	24.232(d)	Pass
3	Spurious Emission	Conducted Spurious Emission	2.1051/22.917(a)/24.238(a) 27.53(h)/ 27.53(g)	Pass
		Radiated Spurious Emission		
4	Frequency Stability		2.1055/22.355/24.235/27.54	Pass
5	Occupied Bandwidth		2.1049 (h)(i)	Pass
6	Band Edge		2.1051/22.917(a)/24.238(a) 27.53(h)/ 27.53(g)	Pass



5. DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMW 500) to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on both LTE frequency band.

The worst condition was recorded in the test report if no other modes test data.

Test Mode	Test Modes Description
LTE	LTE system, QPSK modulation
LTE	LTE system, 16QAM modulation

Test Mode	TX / RX	RF Channel		
		Low (B)	Middle (M)	High (T)
LTE Band 2	TX (1.4M)	Channel 18607	Channel 18900	Channel 19193
		1850.7 MHz	1880 MHz	1909.3 MHz
	TX (3M)	Channel 18615	Channel 18900	Channel 19185
		1851.5 MHz	1880 MHz	1908.5 MHz
	TX (5M)	Channel 18625	Channel 18900	Channel 19175
		1852.5 MHz	1880 MHz	1907.5 MHz
	TX (10M)	Channel 18650	Channel 18900	Channel 19150
		1855.0 MHz	1880 MHz	1905.0 MHz
	TX (20M)	Channel 18700	Channel 18900	Channel 19100
		1860.0 MHz	1880 MHz	1900.0 MHz
	RX (1.4M)	Channel 607	Channel 900	Channel 1193
		1930.7 MHz	1960 MHz	1989.3 MHz
	RX (3M)	Channel 615	Channel 900	Channel 1185
		1931.5 MHz	1960 MHz	1988.5 MHz
	RX (5M)	Channel 625	Channel 900	Channel 1175
		1932.5 MHz	1960 MHz	1987.5 MHz
	RX (10M)	Channel 650	Channel 900	Channel 1150
		1935 MHz	1960 MHz	1985 MHz
	RX (20M)	Channel 700	Channel 900	Channel 1100
		1940.0 MHz	1960 MHz	1980 MHz



Test Mode	TX / RX	RF Channel		
		Low (B)	Middle (M)	High (T)
LTE Band 4	TX (1.4M)	Channel 19957	Channel 20175	Channel 20393
		1710.7 MHz	1732.5 MHz	1754.3 MHz
	TX (3M)	Channel 19965	Channel 20175	Channel 20385
		1711.5 MHz	1732.5 MHz	1753.5 MHz
	TX (5M)	Channel 19975	Channel 20175	Channel 20375
		1712.5 MHz	1732.5 MHz	1752.5 MHz
	TX (10M)	Channel 20000	Channel 20175	Channel 20350
		1715 MHz	1732.5 MHz	1750 MHz
	TX (15M)	Channel 20025	Channel 20175	Channel 20325
		1717.5 MHz	1732.5 MHz	1747.5 MHz
	TX (20M)	Channel 20050	Channel 20175	Channel 20300
		1720 MHz	1732.5 MHz	1745 MHz
	RX (1.4M)	Channel 1957	Channel 2175	Channel 2393
		2110.7 MHz	2132.5 MHz	2154.3 MHz
	RX (3M)	Channel 1965	Channel 2175	Channel 2385
		2111.5 MHz	2132.5 MHz	2153.5 MHz
	RX (5M)	Channel 1975	Channel 2175	Channel 2375
		2112.5 MHz	2132.5 MHz	2152.5 MHz
	RX (10M)	Channel 2000	Channel 2175	Channel 2350
		2115 MHz	2132.5 MHz	2150 MHz
	RX (15M)	Channel 2025	Channel 2175	Channel 2325
		2117.5 MHz	2132.5 MHz	2147.5 MHz
	RX (20M)	Channel 2050	Channel 2175	Channel 2300
		2120 MHz	2132.5 MHz	2145 MHz



Test Mode	TX / RX	RF Channel		
		Low (B)	Middle (M)	High (T)
LTE Band 5	TX (1.4M)	Channel 20407	Channel 20525	Channel 20643
		824.7 MHz	836.5 MHz	848.3 MHz
	TX (3M)	Channel 20415	Channel 20525	Channel 20635
		825.5 MHz	836.5 MHz	847.5 MHz
	TX (5M)	Channel 20425	Channel 20525	Channel 20625
		826.5 MHz	836.5 MHz	846.5 MHz
	TX (10M)	Channel 20450	Channel 20525	Channel 20600
		829 MHz	836.5 MHz	844 MHz
	RX (1.4M)	Channel 2404	Channel 2525	Channel 2463
		869.4 MHz	881.5 MHz	893.3 MHz
	RX (3M)	Channel 2415	Channel 2525	Channel 2635
		870.5 MHz	881.5 MHz	892.5 MHz
	RX (5M)	Channel 2425	Channel 2525	Channel 2625
		871.5 MHz	881.5 MHz	891.5 MHz
	RX (10M)	Channel 2450	Channel 2525	Channel 2600
		874 MHz	881.5 MHz	889 MHz

Test Mode	TX / RX	RF Channel		
		Low (B)	Middle (M)	High (T)
LTE Band 12	TX (1.4M)	Channel 23017	Channel 23095	Channel 23173
		699.7 MHz	707.5 MHz	715.3 MHz
	TX (3M)	Channel 23025	Channel 23095	Channel 23165
		700.5 MHz	707.5 MHz	714.5 MHz
	TX (5M)	Channel 23035	Channel 23095	Channel 23155
		701.5 MHz	707.5 MHz	713.5 MHz
	TX (10M)	Channel 23060	Channel 23095	Channel 23130
		704.0 MHz	707.5 MHz	711.0 MHz
	RX (1.4M)	Channel 5017	Channel 5095	Channel 5173
		729.7 MHz	737.5 MHz	745.3 MHz
	RX (3M)	Channel 5025	Channel 5095	Channel 5165
		730.5 MHz	737.5 MHz	744.5 MHz
	RX (5M)	Channel 5035	Channel 5095	Channel 5155
		731.5 MHz	737.5 MHz	743.5 MHz
	RX (10M)	Channel 5060	Channel 5095	Channel 5130
		734.0 MHz	737.5 MHz	741.0 MHz



LTE Band 13	TX / RX	RF Channel		
		Low (B)	Middle (M)	High (T)
TX (5M)		Channel 23205	Channel 23095	Channel 23255
		779.5 MHz	782.0 MHz	784.5 MHz
TX (10M)		Channel 23230	Channel 23230	Channel 23230
		782.0 MHz	782.0MHz	782.0MHz
RX (5M)		Channel 5205	Channel 5230	Channel 5255
		748.5 MHz	751.0 MHz	753.5 MHz
RX (10M)			Channel 5230	
			751.0 MHz	

LTE Band 17	TX / RX	RF Channel		
		Low (B)	Middle (M)	High (T)
TX (5M)		Channel 23755	Channel 23790	Channel 23825
		706.5 MHz	710 MHz	713.5 MHz
TX (10M)		Channel 23780	Channel 23790	Channel 23800
		709.0 MHz	710 MHz	711.0 MHz
RX (5M)		Channel 5755	Channel 5790	Channel 5825
		736.5 MHz	740 MHz	743.5 MHz
RX (10M)		Channel 5780	Channel 5790	Channel 5800
		739.0 MHz	740 MHz	741.0 MHz

LTE Band 30	TX / RX	RF Channel		
		Low (B)	Middle (M)	High (T)
TX (5M)		Channel 9795	Channel 9820	Channel 9845
		2307.5 MHz	2310.0 MHz	2312.5 MHz
TX (10M)			Channel 9820	
			2310.0 MHz	
RX (5M)		Channel 27685	Channel 9820	Channel 27735
		2352.5MHz	2355.0MHz	2357.5MHz
RX (10M)			Channel 9820	
			2355.0MHz	



6. OUTPUT POWER

6.1 CONDUCTED OUTPUT POWER

6.1.1 MEASUREMENT METHOD

The EUT is coupled to the SS with attenuator through power splitter; the RF load attached to EUT antenna terminal is 50ohm, the path loss as the factor is calibrated to correct the reading. A system simulator was used to establish communication with the EUT , Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported. The measurements were performed on all modes at 3 typical channels (the Top Channel, the Middle Channel and the Bottom Channel) for each band.

6.1.2 MEASUREMENT RESULT

Conducted Output Power Limits		
Mode	Average Power	Tolerance(dB)
LTE	23 dBm (0.2W)	± 2.7



LTE Band 2

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
20MHz	18700	1860.0	QPSK	1	0	0	20.43
				1	49	0	20.46
				1	99	0	21.72
				50	0	1	20.41
				50	25	1	20.45
				50	49	1	20.32
				100	0	1	20.45
			16QAM	1	0	1	20.61
				1	49	1	20.62
				1	99	1	20.64
				50	0	2	19.34
				50	25	2	19.25
				50	49	2	19.36
				100	0	2	19.41
	18900	1880.0	QPSK	1	0	0	21.49
				1	49	0	21.38
				1	99	0	21.00
				50	0	1	20.85
				50	25	1	20.99
				50	49	1	21.13
				100	0	1	20.12
			16QAM	1	0	1	20.84
				1	49	1	20.74
				1	99	1	20.38
				50	0	2	19.16
				50	25	2	19.08
				50	49	2	19.19
				100	0	2	19.17
	19100	1900.0	QPSK	1	0	0	21.05
				1	49	0	21.15
1				99	0	21.34	
50				0	1	20.29	
50				25	1	20.15	
50				49	1	20.32	
100				0	1	20.36	
16QAM			1	0	1	19.91	
			1	49	1	20.34	
			1	99	1	20.45	
			50	0	2	19.29	
			50	25	2	19.35	
			50	49	2	19.38	
			100	0	2	19.22	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
15MHz	18675	1857.5	QPSK	1	0	0	21.48
				1	38	0	21.34
				1	74	0	21.29
				38	0	1	20.32
				38	18	1	20.28
				38	37	1	20.36
				75	0	1	20.43
			16QAM	1	0	1	20.91
				1	38	1	21.14
				1	74	1	21.21
				38	0	2	19.34
				38	18	2	19.38
				38	37	2	19.40
				75	0	2	19.48
	18900	1880.0	QPSK	1	0	0	21.30
				1	38	0	21.18
				1	74	0	20.92
				38	0	1	20.18
				38	18	1	20.09
				38	37	1	20.05
				75	0	1	20.12
			16QAM	1	0	1	20.86
				1	38	1	20.63
				1	74	1	20.49
				38	0	2	19.05
				38	18	2	19.06
				38	37	2	19.03
				75	0	2	19.17
	19125	1902.5	QPSK	1	0	0	21.28
				1	38	0	21.26
				1	74	0	21.22
				38	0	1	20.27
				38	18	1	20.33
				38	37	1	20.35
				75	0	1	20.27
			16QAM	1	0	1	20.45
1				38	1	20.44	
1				74	1	20.48	
38				0	2	19.11	
38				18	2	19.17	
38				37	2	19.19	
75				0	2	19.33	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
10MHz	18650	1855.0	QPSK	1	0	0	21.49
				1	24	0	21.41
				1	49	0	21.36
				25	0	1	20.37
				25	12	1	20.29
				25	25	1	20.42
				50	0	1	20.47
			16QAM	1	0	1	20.87
				1	24	1	20.79
				1	49	1	20.76
				25	0	2	19.38
				25	12	2	19.42
				25	25	2	19.46
				50	0	2	19.55
	18900	1880.0	QPSK	1	0	0	21.14
				1	24	0	21.03
				1	49	0	20.93
				25	0	1	20.27
				25	12	1	20.16
				25	25	1	20.11
				50	0	1	20.08
			16QAM	1	0	1	20.76
				1	24	1	20.66
				1	49	1	20.52
				25	0	2	19.21
				25	12	2	19.18
				25	25	2	19.07
				50	0	2	19.12
	19150	1905.0	QPSK	1	0	0	21.38
				1	24	0	21.22
1				49	0	20.97	
25				0	1	20.38	
25				12	1	20.34	
25				25	1	20.23	
50				0	1	20.30	
16QAM			1	0	1	21.19	
			1	24	1	20.91	
			1	49	1	20.77	
			25	0	2	19.37	
			25	12	2	19.26	
			25	25	2	19.17	
			50	0	2	19.16	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	18625	1852.5	QPSK	1	0	0	21.46
				1	12	0	21.43
				1	24	0	21.44
				12	0	1	20.24
				12	6	1	20.19
				12	13	1	20.39
				25	0	1	20.40
			16QAM	1	0	1	20.40
				1	12	1	20.30
				1	24	1	19.93
				12	0	2	19.38
				12	6	2	19.34
				12	13	2	19.40
				25	0	2	19.56
	18900	1880.0	QPSK	1	0	0	21.08
				1	12	0	20.89
				1	24	0	20.87
				12	0	1	20.10
				12	6	1	20.03
				12	13	1	19.99
				25	0	1	20.07
			16QAM	1	0	1	20.41
				1	12	1	20.24
				1	24	1	20.08
				12	0	2	19.16
				12	6	2	19.08
				12	13	2	19.13
				25	0	2	19.14
	19175	1907.5	QPSK	1	0	0	21.20
				1	12	0	21.08
				1	24	0	20.78
				12	0	1	20.23
				12	6	1	20.15
				12	13	1	20.12
				25	0	1	20.19
			16QAM	1	0	1	20.71
1				12	1	20.19	
1				24	1	19.51	
12				0	2	19.11	
12				6	2	19.06	
12				13	2	19.16	
25				0	2	19.17	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
3MHz	18615	1851.5	QPSK	1	0	0	20.51
				1	8	0	20.71
				1	14	0	21.41
				8	0	1	20.34
				8	4	1	20.36
				8	8	1	20.42
			16QAM	15	0	1	20.43
				1	0	1	20.93
				1	8	1	21.11
				1	14	1	21.20
				8	0	2	19.48
				8	4	2	19.37
	18900	1880.0	QPSK	8	8	2	19.50
				15	0	2	19.39
				1	0	0	21.18
				1	8	0	20.93
				1	14	0	20.87
				8	0	1	20.15
			16QAM	8	4	1	20.06
				8	7	1	20.03
				15	0	1	20.09
				1	0	1	20.69
				1	8	1	20.60
				1	14	1	20.40
	19185	1908.5	QPSK	8	0	2	19.15
				8	4	2	19.05
				8	8	2	19.07
				15	0	2	19.12
				1	0	0	21.25
				1	8	0	20.94
			16QAM	1	14	0	20.75
				8	0	1	20.21
				8	4	1	20.07
				8	8	1	20.08
				15	0	1	20.29
				1	0	1	20.78
16QAM	1	8	1	20.42			
	1	14	1	19.97			
	8	0	2	19.24			
	8	4	2	19.10			
	8	8	2	19.07			
	15	0	2	19.33			



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	M PR	Average power (dBm)
1.4MHz	18607	1850.7	QPSK	1	0	0	21.49
				1	2	0	21.43
				1	5	0	21.45
				3	0	0	21.37
				3	1	0	21.42
				3	2	0	21.49
				6	0	1	20.48
			16QAM	1	0	1	20.93
				1	2	1	20.84
				1	5	1	20.69
				3	0	1	20.53
				3	1	1	20.45
				3	2	1	20.61
				6	0	2	19.54
	18900	1880.0	QPSK	1	0	0	21.16
				1	2	0	21.08
				1	5	0	21.05
				3	0	0	21.19
				3	1	0	21.15
				3	2	0	21.14
				6	0	1	20.03
			16QAM	1	0	1	20.73
				1	2	1	20.92
				1	5	1	21.01
				3	0	1	20.18
				3	1	1	20.34
				3	2	1	20.20
				6	0	2	18.99
	19193	1909.3	QPSK	1	0	0	21.23
				1	2	0	21.19
				1	5	0	21.01
				3	0	0	21.24
				3	1	0	21.16
				3	2	0	21.22
				6	0	1	20.21
			16QAM	1	0	1	20.74
1				2	1	20.66	
1				5	1	20.32	
3				0	1	20.26	
3				1	1	20.31	
3				2	1	20.21	
6				0	2	19.45	



LTE Band 4

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
20MHz	20050	1720.0	QPSK	1	0	0	22.02
				1	49	0	21.67
				1	99	0	21.44
				50	0	1	20.34
				50	25	1	20.46
				50	50	1	20.58
				100	0	1	20.75
			16QAM	1	0	1	21.24
				1	49	1	20.85
				1	99	1	19.99
				50	0	2	19.42
				50	25	2	19.44
				50	50	2	19.48
				100	0	2	19.82
	20175	1732.5	QPSK	1	0	0	21.59
				1	49	0	21.67
				1	99	0	22.08
				50	0	1	20.46
				50	25	1	20.34
				50	50	1	20.60
				100	0	1	20.60
			16QAM	1	0	1	20.58
				1	49	1	20.96
				1	99	1	21.29
				50	0	2	19.34
				50	25	2	19.53
				50	50	2	19.67
				100	0	2	19.54
	20300	1745.0	QPSK	1	0	0	21.62
				1	49	0	21.59
1				99	0	21.54	
50				0	1	20.51	
50				25	1	20.47	
50				50	1	20.58	
100				0	1	20.56	
16QAM			1	0	1	20.77	
			1	49	1	20.74	
			1	99	1	20.60	
			50	0	2	19.51	
			50	25	2	19.42	
			50	50	2	19.65	
			100	0	2	19.62	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
15MHz	20025	1717.5	QPSK	1	0	0	19.79
				1	37	0	21.53
				1	74	0	21.65
				36	0	1	20.69
				36	16	1	20.74
				36	35	1	20.82
				75	0	1	20.83
			16QAM	1	0	1	21.49
				1	37	1	20.31
				1	74	1	20.68
				36	0	2	19.62
				36	16	2	19.53
				36	35	2	19.72
				75	0	2	19.81
	20175	1732.5	QPSK	1	0	0	21.61
				1	37	0	21.75
				1	74	0	21.98
				36	0	1	20.37
				36	16	1	20.42
				36	35	1	20.50
				75	0	1	20.54
			16QAM	1	0	1	21.15
				1	37	1	20.48
				1	74	1	21.73
				36	0	2	19.34
				36	16	2	19.64
				36	35	2	
				75	0	2	19.60
	20325	1747.5	QPSK	1	0	0	21.74
				1	37	0	21.62
				1	74	0	21.38
				36	0	1	20.64
				36	16	1	20.62
				36	35	1	20.66
				75	0	1	20.62
			16QAM	1	0	1	21.45
1				37	1	21.25	
1				74	1	21.27	
36				0	2	19.45	
36				16	2	19.62	
36				35	2	19.64	
75				0	2	19.67	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
10MHz	20000	1715.0	QPSK	1	0	0	19.84
				1	24	0	21.64
				1	49	0	21.87
				25	0	1	20.82
				25	12	1	20.69
				25	25	1	20.90
				50	0	1	20.95
			16QAM	1	0	1	21.63
				1	24	1	21.55
				1	49	1	21.10
				25	0	2	19.72
				25	12	2	19.83
				25	25	2	19.89
				50	0	2	19.89
	20175	1732.5	QPSK	1	0	0	21.60
				1	24	0	21.53
				1	49	0	21.71
				25	0	1	20.65
				25	12	1	20.48
				25	25	1	20.63
				50	0	1	20.62
			16QAM	1	0	1	20.85
				1	24	1	21.34
				1	49	1	21.42
				25	0	2	19.42
				25	12	2	19.64
				25	25	2	19.58
				50	0	2	19.70
	20350	1750.0	QPSK	1	0	0	21.82
				1	24	0	21.68
				1	49	0	21.22
				25	0	1	20.64
				25	12	1	20.49
				25	25	1	20.78
				50	0	1	20.64
			16QAM	1	0	1	21.15
1				24	1	20.67	
1				49	1	20.58	
25				0	2	19.57	
25				12	2	19.48	
25				25	2	19.61	
50				0	2	19.72	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	19975	1712.5	QPSK	1	0	0	20.00
				1	12	0	21.64
				1	24	0	21.76
				12	0	1	20.55
				12	6	1	20.78
				12	11	1	20.83
				25	0	1	20.84
			16QAM	1	0	1	20.73
				1	12	1	20.86
				1	24	1	20.98
				12	0	2	19.69
				12	6	2	19.87
				12	11	2	19.96
				25	0	2	19.92
	20175	1732.5	QPSK	1	0	0	21.60
				1	12	0	21.82
				1	24	0	21.93
				12	0	1	20.61
				12	6	1	20.69
				12	11	1	20.71
				25	0	1	20.73
			16QAM	1	0	1	20.54
				1	12	1	20.93
				1	24	1	21.37
				12	0	2	19.61
				12	6	2	19.74
				12	11	2	19.86
				25	0	2	19.59
	20375	1752.5	QPSK	1	0	0	21.71
				1	12	0	21.52
1				24	0	21.37	
12				0	1	20.56	
12				6	1	20.66	
12				11	1	20.71	
25				0	1	20.70	
16QAM			1	0	1	21.07	
			1	12	1	20.88	
			1	24	1	20.15	
			12	0	2	19.64	
			12	6	2	19.53	
			12	11	2	19.61	
			25	0	2	19.78	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
3MHz	19965	1711.5	QPSK	1	0	0	19.91
				1	7	0	19.95
				1	14	0	22.00
				8	0	1	20.68
				8	4	1	20.88
				8	7	1	20.97
				15	0	1	20.97
			16QAM	1	0	1	21.19
				1	7	1	21.32
				1	14	1	21.51
				8	0	2	19.82
				8	4	2	19.85
				8	7	2	19.91
				15	0	2	19.98
	20175	1732.5	QPSK	1	0	0	21.77
				1	7	0	21.65
				1	14	0	21.75
				8	0	1	20.57
				8	4	1	20.43
				8	7	1	20.62
				15	0	1	20.61
			16QAM	1	0	1	21.27
				1	7	1	20.30
				1	14	1	21.31
				8	0	2	19.43
				8	4	2	19.53
				8	7	2	19.64
				15	0	2	19.72
	20385	1753.5	QPSK	1	0	0	21.73
				1	7	0	21.63
				1	14	0	21.48
				8	0	1	20.91
				8	4	1	20.67
				8	7	1	20.83
				15	0	1	20.81
			16QAM	1	0	1	21.46
				1	7	1	20.74
				1	14	1	20.99
				8	0	2	19.62
				8	4	2	19.57
				8	7	2	19.70
				15	0	2	19.89



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
1.4MHz	19957	1710.7	QPSK	1	0	0	21.79
				1	2	0	21.85
				1	5	0	21.93
				3	0	0	21.53
				3	1	0	21.62
				3	2	0	21.77
			16QAM	6	0	1	20.86
				1	0	1	21.13
				1	2	1	21.23
				1	5	1	21.33
				3	0	1	20.69
				3	1	1	20.57
	20175	1732.5	QPSK	3	2	1	20.82
				6	0	2	19.85
				1	0	0	21.66
				1	2	0	21.53
				1	5	0	21.08
				3	0	0	21.48
			16QAM	3	1	0	21.56
				3	2	0	21.64
				6	0	1	20.57
				1	0	1	20.84
				1	2	1	20.91
				1	5	1	21.54
	20393	1754.3	QPSK	3	0	1	20.34
				3	1	1	20.63
				3	2	1	20.64
				6	0	2	19.92
				1	0	0	21.78
				1	2	0	21.68
16QAM			1	5	0	21.42	
			3	0	0	21.69	
			3	1	0	21.62	
			3	2	0	21.78	
			6	0	1	20.79	
			1	0	1	21.42	
16QAM	1	2	1	21.47			
	1	5	1	21.53			
	3	0	1	20.87			
	3	1	1	20.72			
	3	2	1	20.91			
	6	0	2	19.74			



LTE Band 5

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
10MHz	20450	829	QPSK	1	0	0	23.35
				1	24	0	23.45
				1	49	0	23.48
				25	0	1	23.51
				25	12	1	23.12
				25	25	1	22.86
				50	0	1	23.74
			16QAM	1	0	1	23.67
				1	24	1	23.14
				1	49	1	23.41
				25	0	2	23.25
				25	12	2	23.14
				25	25	2	23.21
				50	0	2	23.44
	20525	836.5	QPSK	1	0	0	23.47
				1	24	0	23.18
				1	49	0	23.45
				25	0	1	23.48
				25	12	1	23.44
				25	25	1	23.24
				50	0	1	23.48
			16QAM	1	0	1	23.47
				1	24	1	23.24
				1	49	1	23.17
				25	0	2	23.48
				25	12	2	23.05
				25	25	2	23.18
				50	0	2	23.58
	20600	844	QPSK	1	0	0	24.52
				1	24	0	23.14
1				49	0	23.42	
25				0	1	23.67	
25				12	1	23.14	
25				25	1	23.49	
50				0	1	23.61	
16QAM			1	0	1	24.38	
			1	24	1	23.16	
			1	49	1	23.18	
			25	0	2	23.55	
			25	12	2	23.07	
			25	25	2	23.29	
			50	0	2	23.62	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	20425	826.5	QPSK	1	0	0	24.67
				1	12	0	24.41
				1	24	0	24.53
				12	0	1	24.53
				12	6	1	24.16
				12	11	1	24.35
				25	0	1	24.51
			16QAM	1	0	1	23.88
				1	12	1	23.64
				1	24	1	23.47
				12	0	2	23.85
				12	6	2	23.41
				12	11	2	23.42
				25	0	2	23.74
	20525	836.5	QPSK	1	0	0	24.88
				1	12	0	24.15
				1	24	0	24.18
				12	0	1	24.32
				12	6	1	24.15
				12	11	1	24.17
				25	0	1	24.35
			16QAM	1	0	1	24.00
				1	12	1	24.25
				1	24	1	23.48
				12	0	2	23.41
				12	6	2	23.25
				12	11	2	23.15
				25	0	2	23.64
	20625	846.5	QPSK	1	0	0	25.55
				1	12	0	24.64
1				24	0	24.63	
12				0	1	24.25	
12				6	1	24.18	
12				11	1	24.13	
25				0	1	24.48	
16QAM			1	0	1	24.75	
			1	12	1	24.31	
			1	24	1	23.88	
			12	0	2	23.92	
			12	6	2	23.14	
			12	11	2	23.62	
			25	0	2	23.52	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
3MHz	20415	825.5	QPSK	1	0	0	24.80
				1	7	0	24.32
				1	14	0	24.00
				8	0	1	24.52
				8	4	1	24.53
				8	7	1	24.15
				15	0	1	24.53
			16QAM	1	0	1	24.58
				1	7	1	24.31
				1	14	1	24.16
				8	0	2	23.85
				8	4	2	23.41
				8	7	2	23.57
				15	0	2	24.32
	20525	836.5	QPSK	1	0	0	25.03
				1	7	0	24.52
				1	14	0	24.11
				8	0	1	24.62
				8	4	1	24.31
				8	7	1	24.24
				15	0	1	24.56
			16QAM	1	0	1	24.49
				1	7	1	24.15
				1	14	1	24.38
				8	0	2	24.34
				8	4	2	23.85
				8	7	2	23.41
				15	0	2	24.21
	20635	847.5	QPSK	1	0	0	25.62
				1	7	0	24.15
1				14	0	24.33	
8				0	1	24.41	
8				4	1	24.31	
8				7	1	24.22	
15				0	1	24.31	
16QAM			1	0	1	25.36	
			1	7	1	24.02	
			1	14	1	24.33	
			8	0	2	24.16	
			8	4	2	23.92	
			8	7	2	23.69	
			15	0	2	24.18	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
1.4MHz	20407	824.7	QPSK	1	0	0	24.84
				1	2	0	24.61
				1	5	0	24.32
				3	0	0	24.62
				3	1	0	24.00
				3	2	0	24.35
			16QAM	6	0	1	24.37
				1	0	1	24.31
				1	2	1	24.31
				1	5	1	24.26
				3	0	1	24.62
				3	1	1	24.12
	20525	836.5	QPSK	3	2	1	24.31
				6	0	2	24.35
				1	0	0	25.04
				1	2	0	24.85
				1	5	0	24.61
				3	0	0	24.15
			16QAM	3	1	0	24.25
				3	2	0	24.51
				6	0	1	24.51
				1	0	1	24.53
				1	2	1	24.18
				1	5	1	24.16
	20643	848.3	QPSK	3	0	1	24.58
				3	1	1	24.11
				3	2	1	24.51
				6	0	2	24.22
				1	0	0	25.82
				1	2	0	24.58
			16QAM	1	5	0	24.52
				3	0	0	24.31
				3	1	0	24.55
				3	2	0	24.35
				6	0	1	24.69
				1	0	1	25.33
16QAM	1	2	1	24.24			
	1	5	1	24.15			
	3	0	1	24.38			
	3	1	1	24.21			
	3	2	1	24.32			
	6	0	2	23.86			



LTE Band 12

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
10MHz	23060	704.0	QPSK	1	0	0	24.43
				1	24	0	24.15
				1	49	0	24.31
				25	0	1	23.44
				25	12	1	23.54
				25	25	1	23.07
				50	0	1	24.10
			16QAM	1	0	1	23.81
				1	24	1	23.15
				1	49	1	23.33
				25	0	2	23.85
				25	12	2	23.32
				25	25	2	23.08
				50	0	2	23.49
	23095	707.5	QPSK	1	0	0	24.35
				1	24	0	24.15
				1	49	0	23.48
				25	0	1	23.14
				25	12	1	23.42
				25	25	1	23.05
				50	0	1	24.06
			16QAM	1	0	1	23.47
				1	24	1	23.61
				1	49	1	23.24
				25	0	2	23.64
				25	12	2	23.31
				25	25	2	23.14
				50	0	2	23.18
	23130	711.0	QPSK	1	0	0	24.51
				1	24	0	23.89
1				49	0	23.51	
25				0	1	23.87	
25				12	1	23.21	
25				25	1	23.48	
50				0	1	23.83	
16QAM			1	0	1	24.15	
			1	24	1	23.42	
			1	49	1	23.55	
			25	0	2	23.38	
			25	12	2	23.41	
			25	25	2	23.05	
			50	0	2	23.55	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	23035	701.5	QPSK	1	0	0	24.40
				1	12	0	23.68
				1	24	0	23.61
				12	0	1	24.34
				12	6	1	23.51
				12	13	1	23.48
				25	0	1	24.05
			16QAM	1	0	1	23.59
				1	12	1	23.84
				1	24	1	23.48
				12	0	2	23.89
				12	6	2	23.15
				12	13	2	23.27
				25	0	2	23.66
	23095	707.5	QPSK	1	0	0	24.42
				1	12	0	23.47
				1	24	0	23.61
				12	0	1	24.22
				12	6	1	23.54
				12	13	1	23.55
				25	0	1	24.18
			16QAM	1	0	1	23.85
				1	12	1	23.14
				1	24	1	23.24
				12	0	2	23.64
				12	6	2	23.41
				12	13	2	23.29
				25	0	2	23.84
	23155	713.5	QPSK	1	0	0	24.62
				1	12	0	23.85
1				24	0	23.28	
12				0	1	24.55	
12				6	1	23.62	
12				13	1	23.81	
25				0	1	24.31	
16QAM			1	0	1	24.21	
			1	12	1	23.62	
			1	24	1	23.34	
			12	0	2	23.68	
			12	6	2	23.54	
			12	13	2	23.44	
			25	0	2	23.59	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
3MHz	23025	700.5	QPSK	1	0	0	24.49
				1	7	0	24.15
				1	14	0	24.28
				8	0	1	24.18
				8	4	1	23.41
				8	7	1	23.52
				15	0	1	24.53
			16QAM	1	0	1	23.65
				1	7	1	23.41
				1	14	1	23.52
				8	0	2	23.67
				8	4	2	23.48
				8	7	2	23.41
				15	0	2	23.64
				23095	707.5	QPSK	1
	1	7	0				24.28
	1	14	0				24.15
	8	0	1				24.52
	8	4	1				23.80
	8	7	1				23.18
	15	0	1				24.38
	16QAM	1	0			1	23.95
		1	7			1	23.26
		1	14			1	23.64
		8	0			2	23.48
		8	4			2	23.51
		8	7			2	23.62
		15	0			2	23.73
		23165	714.5			QPSK	1
	1			7	0		24.35
1	14			0	24.31		
8	0			1	24.49		
8	4			1	23.91		
8	7			1	23.33		
15	0			1	24.15		
16QAM	1			0	1	24.43	
	1			7	1	23.85	
	1			14	1	23.86	
	8			0	2	23.84	
	8			4	2	23.14	
	8			7	2	23.12	
	15			0	2	23.18	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
1.4MHz	23017	699.7	QPSK	1	0	0	24.29
				1	2	0	23.86
				1	5	0	23.18
				3	0	0	24.05
				3	1	0	23.61
				3	2	0	23.41
			16QAM	6	0	1	24.15
				1	0	1	24.01
				1	2	1	23.54
				1	5	1	23.18
				3	0	1	23.74
				3	1	1	23.50
	23095	707.5	QPSK	3	2	1	23.45
				6	0	2	23.47
				1	0	0	24.54
				1	2	0	23.47
				1	5	0	23.41
				3	0	0	24.14
			16QAM	3	1	0	23.51
				3	2	0	23.64
				6	0	1	23.85
				1	0	1	23.90
				1	2	1	23.48
				1	5	1	23.19
	23173	715.3	QPSK	3	0	1	23.88
				3	1	1	23.13
				3	2	1	23.34
				6	0	2	23.93
				1	0	0	24.15
				1	2	0	23.44
16QAM			1	5	0	23.65	
			3	0	0	24.10	
			3	1	0	23.82	
			3	2	0	23.84	
			6	0	1	23.95	
			1	0	1	23.86	
16QAM	1	2	1	23.41			
	1	5	1	23.24			
	3	0	1	23.94			
	3	1	1	23.81			
	3	2	1	23.41			
	6	0	2	23.81			



LTE Band 13

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
10MHz	23230	782.0	QPSK	1	0	0	23.68
				1	24	0	23.41
				1	49	0	23.22
				25	0	1	23.46
				25	12	1	23.22
				25	25	1	22.95
				50	0	1	23.61
			16QAM	1	0	1	23.62
				1	24	1	23.41
				1	49	1	23.14
				25	0	2	23.62
				25	12	2	22.86
				25	25	2	22.97
				50	0	2	23.41



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	23205	779.5	QPSK	1	0	0	23.87
				1	12	0	23.51
				1	24	0	23.65
				12	0	1	23.47
				12	6	1	23.42
				12	13	1	23.36
				25	0	1	23.42
			16QAM	1	0	1	23.33
				1	12	1	23.20
				1	24	1	23.41
				12	0	2	23.42
				12	6	2	23.15
				12	13	2	23.08
				25	0	2	23.19
	23230	782.0	QPSK	1	0	0	23.99
				1	12	0	23.47
				1	24	0	23.41
				12	0	1	23.95
				12	6	1	23.62
				12	13	1	23.34
				25	0	1	23.41
			16QAM	1	0	1	23.91
				1	12	1	23.05
				1	24	1	23.15
				12	0	2	23.18
				12	6	2	23.24
				12	13	2	23.09
				25	0	2	23.64
	23255	784.5	QPSK	1	0	0	24.22
				1	12	0	23.95
1				24	0	23.26	
12				0	1	23.87	
12				6	1	23.21	
12				13	1	23.14	
25				0	1	23.85	
16QAM			1	0	1	23.69	
			1	12	1	23.10	
			1	24	1	23.14	
			12	0	2	23.64	
			12	6	2	23.23	
			12	13	2	23.18	
			25	0	2	23.48	



LTE Band 17

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
10MHz	23730	704.0	QPSK	1	0	0	24.35
				1	24	0	24.12
				1	49	0	23.81
				25	0	1	23.69
				25	12	1	23.62
				25	25	1	23.34
				50	0	1	23.97
			16QAM	1	0	1	23.62
				1	24	1	23.14
				1	49	1	23.57
				25	0	2	23.69
				25	12	2	23.31
				25	25	2	23.34
				50	0	2	23.66
	23790	710	QPSK	1	0	0	24.58
				1	24	0	24.16
				1	49	0	23.85
				25	0	1	24.05
				25	12	1	23.81
				25	25	1	23.64
				50	0	1	23.95
			16QAM	1	0	1	23.41
				1	24	1	23.52
				1	49	1	23.41
				25	0	2	23.57
				25	12	2	23.27
				25	25	2	23.28
				50	0	2	23.75
	23800	711.0	QPSK	1	0	0	24.66
				1	24	0	24.31
				1	49	0	24.08
				25	0	1	23.84
				25	12	1	23.72
				25	25	1	23.90
				50	0	1	23.88
			16QAM	1	0	1	23.86
1				24	1	23.40	
1				49	1	23.34	
25				0	2	23.78	
25				12	2	23.42	
25				25	2	23.24	
50				0	2	23.85	



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	23035	706.5	QPSK	1	0	0	24.56
				1	12	0	24.35
				1	24	0	24.23
				12	0	1	24.24
				12	6	1	23.85
				12	13	1	23.61
				25	0	1	23.56
			16QAM	1	0	1	23.63
				1	12	1	23.18
				1	24	1	23.26
				12	0	2	23.84
				12	6	2	23.11
				12	13	2	23.34
				25	0	2	23.89
	23095	710.0	QPSK	1	0	0	24.77
				1	12	0	24.34
				1	24	0	24.15
				12	0	1	24.33
				12	6	1	23.85
				12	13	1	23.48
				25	0	1	23.48
			16QAM	1	0	1	23.61
				1	12	1	23.26
				1	24	1	23.45
				12	0	2	23.41
				12	6	2	23.29
				12	13	2	23.40
				25	0	2	24.78
	23155	713.5	QPSK	1	0	0	24.52
				1	12	0	24.31
1				24	0	24.15	
12				0	1	23.74	
12				6	1	23.41	
12				13	1	23.85	
25				0	1	24.03	
16QAM			1	0	1	23.41	
			1	12	1	23.81	
			1	24	1	23.37	
			12	0	2	23.18	
			12	6	2	23.39	
			12	13	2	24.05	
			25	0	2	23.59	



LTE Band 30

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
10MHz	9820	2310.0	QPSK	1	0	0	23.23
				1	24	0	23.18
				1	49	0	23.12
				25	0	1	22.15
				25	12	1	22.09
				25	25	1	22.11
				50	0	1	22.13
			16QAM	1	0	1	22.66
				1	24	1	22.74
				1	49	1	22.83
				25	0	2	21.27
				25	12	2	21.16
				25	25	2	21.22
				50	0	2	21.18



BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	9795	2307.5	QPSK	1	0	0	22.98
				1	12	0	22.85
				1	24	0	22.80
				12	0	1	22.11
				12	6	1	22.06
				12	13	1	22.04
				25	0	1	22.14
			16QAM	1	0	1	21.64
				1	12	1	21.79
				1	24	1	21.88
				12	0	2	21.04
				12	6	2	21.09
				12	13	2	21.05
				25	0	2	21.20
	9820	2310.0	QPSK	1	0	0	23.07
				1	12	0	22.94
				1	24	0	22.82
				12	0	1	22.08
				12	6	1	22.03
				12	13	1	22.08
				25	0	1	22.04
			16QAM	1	0	1	22.12
				1	12	1	22.21
				1	24	1	22.37
				12	0	2	21.18
				12	6	2	21.20
				12	13	2	21.23
				25	0	2	21.09
	9845	2312.5	QPSK	1	0	0	23.28
				1	12	0	22.92
1				24	0	22.95	
12				0	1	22.17	
12				6	1	22.14	
12				13	1	22.15	
25				0	1	22.02	
16QAM			1	0	1	21.91	
			1	12	1	21.88	
			1	24	1	21.84	
			12	0	2	21.12	
			12	6	2	21.14	
			12	13	2	21.19	
			25	0	2	21.19	



According to 3GPP 36.521 sub-clause 6.2.3.3, the maximum output power is allowed to be reduced by following the table.

Table 6.2.3.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth configuration [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

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (For PRACH, PUCCH and SRS transmission, the allowed MPR is according to that specified for PUSCH QPSK modulation for the corresponding transmission bandwidth.).

When PRACH, PUCCH are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

For each subframe, the MPR is evaluated per slot and given by the maximum value taken over the transmission(s) within the slot, the maximum MPR over the two slots is then applied for the entire subframe.

For the UE maximum output power modified by MPR, the power limits specified in subclause 6.2.5.3 apply. The normative reference for this requirement is TS 36.101 clause 6.2.3.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.



6.2 RADIATED OUTPUT POWER

6.2.1 MEASUREMENT METHOD

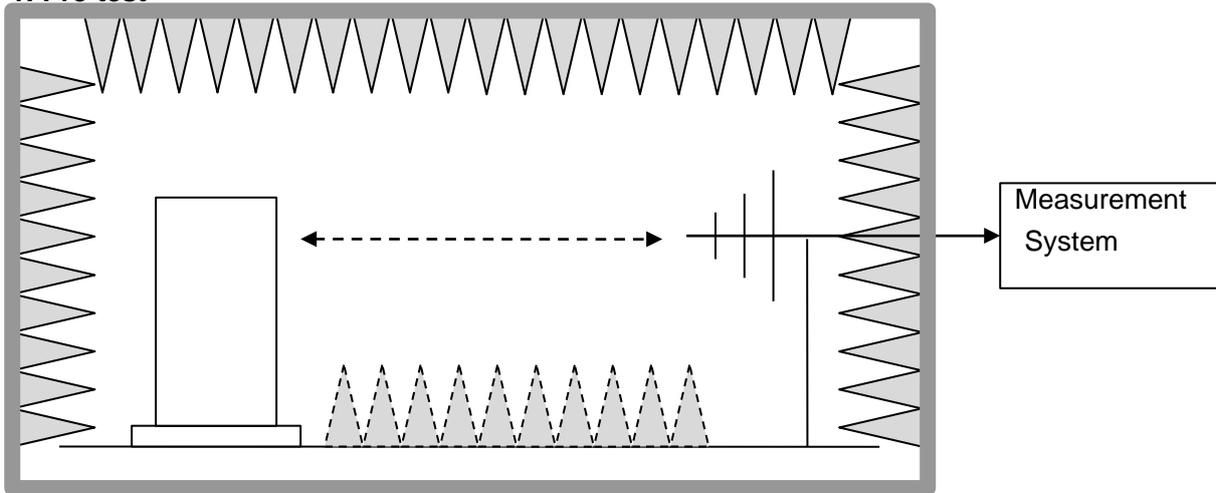
The measurements procedures specified in ANSI/TIA-603-E-2016 were applied.

- 1 In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (P_{in}) is applied to the input of the dipole, and the power received (P_r) at the chamber's probe antenna is recorded.
- 2 The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established as $AR_{pl} = P_{in} + 2.15 - P_r$. The AR_{pl} is the attenuation of "reference path loss", and including the gain of receive antenna, the cable loss and the air loss. The measurement results are obtained as described below: $Power = P_{Mea} + AR_{pl}$
- 3 The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.
- 4 From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.
- 5 The EUT is then put into continuously transmitting mode at its maximum power level.
- 6 Power mode measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 27.50(d)(4). The "reference path loss" from Step 1 is added to this result.
- 7 This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (P_{in}).
- 8 ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15 \text{dBi}$.

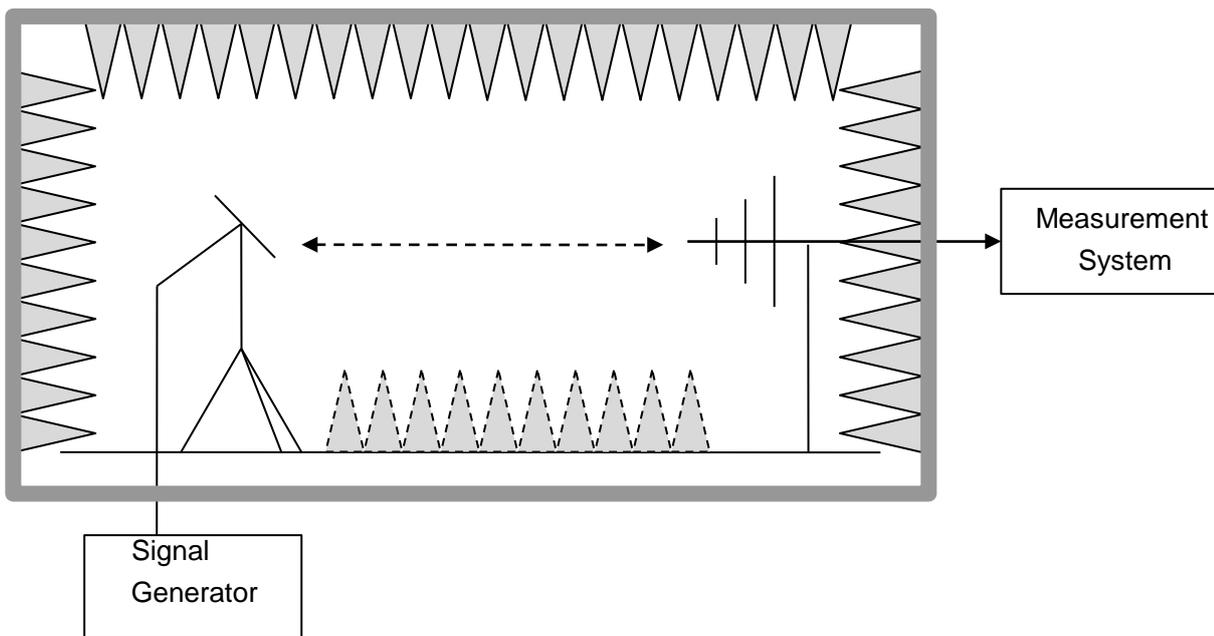
Test Setup

NOTE: Effective radiated power (ERP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

Step 1: Pre-test



Step 2: Substitution method to verify the maximum ERP





6.2.2 PROVISIONS APPLICABLE

This is the test for the maximum radiated power from the EUT. Rule Part 24.232(c) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p.

Mode	FCC Part Section(s)	Nominal Peak Power
LTE Band 2	24.229(b)	$\leq 33\text{dBm}$ (2W)
LTE Band 4	27.5(h)	$\leq 30\text{dBm}$ (1W)
LTE Band 5	22.905(a)	$\leq 38.45\text{dBm}$ (7W)
LTE Band 12	27.5(c)	$\leq 34.77\text{dBm}$ (3W)
LTE Band 13	27.5(b)	$\leq 34.77\text{dBm}$ (3W)
LTE Band 17	27.5(c)	$\leq 34.77\text{dBm}$ (3W)
LTE Band 30	27.5(a)	$\leq 23.98\text{dBm}$ (0.25W)

**6.2.3 MEASUREMENT RESULT****EIRP for LTE Band 2**

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
1850.7	1.4	QPSK	1/0	11.01	V	7.95	0.79	18.17	33
1880.0	1.4	QPSK	1/0	8.88	V	7.95	0.79	16.04	33
1909.3	1.4	QPSK	1/0	9.23	V	7.95	0.79	16.39	33
1850.7	1.4	QPSK	1/0	9.70	H	7.95	0.79	16.86	33
1880.0	1.4	QPSK	1/0	10.39	H	7.95	0.79	17.55	33
1909.3	1.4	QPSK	1/0	10.17	H	7.95	0.79	17.33	33
1850.7	1.4	16-QAM	1/5	9.35	V	7.95	0.79	16.51	33
1880.0	1.4	16-QAM	1/0	11.36	V	7.95	0.79	18.52	33
1909.3	1.4	16-QAM	1/0	8.09	V	7.95	0.79	15.25	33
1850.7	1.4	16-QAM	1/5	10.27	H	7.95	0.79	17.43	33
1880.0	1.4	16-QAM	1/0	8.59	H	7.95	0.79	15.75	33
1909.3	1.4	16-QAM	1/0	10.34	H	7.95	0.79	17.5	33
1851.5	3	QPSK	1/0	8.90	V	7.95	0.79	16.06	33
1880.0	3	QPSK	1/0	11.09	V	7.95	0.79	18.25	33
1908.5	3	QPSK	1/0	11.41	V	7.95	0.79	18.57	33
1851.5	3	QPSK	1/0	9.02	H	7.95	0.79	16.18	33
1880.0	3	QPSK	1/0	11.47	H	7.95	0.79	18.63	33
1908.5	3	QPSK	1/0	9.17	H	7.95	0.79	16.33	33
1851.5	3	16-QAM	1/0	10.72	V	7.95	0.79	17.88	33
1880.0	3	16-QAM	1/0	9.94	V	7.95	0.79	17.1	33
1908.5	3	16-QAM	1/0	8.67	V	7.95	0.79	15.83	33
1851.5	3	16-QAM	1/0	9.05	H	7.95	0.79	16.21	33
1880.0	3	16-QAM	1/0	10.62	H	7.95	0.79	17.78	33
1908.5	3	16-QAM	1/0	11.85	H	7.95	0.79	19.01	33
1852.5	5	QPSK	1/0	12.96	V	7.95	0.79	20.12	33
1880.0	5	QPSK	1/0	12.16	V	7.95	0.79	19.32	33
1907.5	5	QPSK	1/24	12.26	V	7.95	0.79	19.42	33
1852.5	5	QPSK	1/0	11.30	H	7.95	0.79	18.46	33
1880.0	5	QPSK	1/0	10.24	H	7.95	0.79	17.4	33
1907.5	5	QPSK	1/24	9.79	H	7.95	0.79	16.95	33
1852.5	5	16-QAM	1/0	10.96	V	7.95	0.79	18.12	33
1880.0	5	16-QAM	1/0	9.82	V	7.95	0.79	16.98	33
1907.5	5	16-QAM	1/24	8.57	V	7.95	0.79	15.73	33



1852.5	5	16-QAM	1/0	12.70	H	7.95	0.79	19.86	33
1880.0	5	16-QAM	1/0	11.08	H	7.95	0.79	18.24	33
1907.5	5	16-QAM	1/24	9.39	H	7.95	0.79	16.55	33
1855	10	QPSK	1/0	8.81	V	7.95	0.79	15.97	33
1880	10	QPSK	1/49	10.52	V	7.95	0.79	17.68	33
1905	10	QPSK	1/0	9.73	V	7.95	0.79	16.89	33
1855	10	QPSK	1/0	9.72	H	7.95	0.79	16.88	33
1880	10	QPSK	1/49	10.19	H	7.95	0.79	17.35	33
1905	10	QPSK	1/0	9.88	H	7.95	0.79	17.04	33
1855	10	16-QAM	1/0	10.90	V	7.95	0.79	18.06	33
1880	10	16-QAM	1/49	9.63	V	7.95	0.79	16.79	33
1905	10	16-QAM	1/0	10.08	V	7.95	0.79	17.24	33
1855	10	16-QAM	1/0	10.37	H	7.95	0.79	17.53	33
1880	10	16-QAM	1/49	8.75	H	7.95	0.79	15.91	33
1905	10	16-QAM	1/0	9.17	H	7.95	0.79	16.33	33
1857.5	15	QPSK	1/0	12.72	V	7.95	0.79	19.88	33
1880	15	QPSK	1/74	13.17	V	7.95	0.79	20.33	33
1902.5	15	QPSK	1/0	12.94	V	7.95	0.79	20.1	33
1857.5	15	QPSK	1/0	11.22	H	7.95	0.79	18.38	33
1880	15	QPSK	1/74	11.31	H	7.95	0.79	18.47	33
1902.5	15	QPSK	1/0	10.33	H	7.95	0.79	17.49	33
1857.5	15	16-QAM	1/0	10.85	V	7.95	0.79	18.01	33
1880	15	16-QAM	1/74	12.90	V	7.95	0.79	20.06	33
1902.5	15	16-QAM	1/0	10.37	V	7.95	0.79	17.53	33
1857.5	15	16-QAM	1/0	9.57	H	7.95	0.79	16.73	33
1880	15	16-QAM	1/74	12.51	H	7.95	0.79	19.67	33
1902.5	15	16-QAM	1/0	10.01	H	7.95	0.79	17.17	33
1860	20	QPSK	1/99	11.04	V	7.95	0.79	18.2	33
1880	20	QPSK	1/99	10.82	V	7.95	0.79	17.98	33
1900	20	QPSK	1/0	11.28	V	7.95	0.79	18.44	33
1860	20	QPSK	1/99	10.16	H	7.95	0.79	17.32	33
1880	20	QPSK	1/99	11.98	H	7.95	0.79	19.14	33
1900	20	QPSK	1/0	11.23	H	7.95	0.79	18.39	33
1860	20	16-QAM	1/99	10.38	V	7.95	0.79	17.54	33
1880	20	16-QAM	1/99	12.92	V	7.95	0.79	20.08	33
1900	20	16-QAM	1/0	11.85	V	7.95	0.79	19.01	33
1860	20	16-QAM	1/99	11.20	H	7.95	0.79	18.36	33



1880	20	16-QAM	1/99	10.68	H	7.95	0.79	17.84	33
1900	20	16-QAM	1/0	10.51	H	7.95	0.79	17.67	33

**EIRP for LTE Band 4**

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
1710.7	1.4	QPSK	1/0	9.88	V	7.95	0.79	17.04	30
1732.5	1.4	QPSK	1/0	10.23	V	7.95	0.79	17.39	30
1754.3	1.4	QPSK	1/0	11.53	V	7.95	0.79	18.69	30
1710.7	1.4	QPSK	1/0	9.95	H	7.95	0.79	17.11	30
1732.5	1.4	QPSK	1/0	8.98	H	7.95	0.79	16.14	30
1754.3	1.4	QPSK	1/0	8.72	H	7.95	0.79	15.88	30
1710.7	1.4	16-QAM	1/5	10.87	V	7.95	0.79	18.03	30
1732.5	1.4	16-QAM	1/0	11.81	V	7.95	0.79	18.97	30
1754.3	1.4	16-QAM	1/0	9.84	V	7.95	0.79	17	30
1710.7	1.4	16-QAM	1/5	9.01	H	7.95	0.79	16.17	30
1732.5	1.4	16-QAM	1/0	9.13	H	7.95	0.79	16.29	30
1754.3	1.4	16-QAM	1/0	11.39	H	7.95	0.79	18.55	30
1711.5	3	QPSK	1/0	10.67	V	7.95	0.79	17.83	30
1732.5	3	QPSK	1/0	11.33	V	7.95	0.79	18.49	30
1753.5	3	QPSK	1/0	14.28	V	7.95	0.79	21.44	30
1711.5	3	QPSK	1/0	12.10	H	7.95	0.79	19.26	30
1732.5	3	QPSK	1/0	11.22	H	7.95	0.79	18.38	30
1753.5	3	QPSK	1/0	9.53	H	7.95	0.79	16.69	30
1711.5	3	16-QAM	1/0	10.29	V	7.95	0.79	17.45	30
1732.5	3	16-QAM	1/0	10.08	V	7.95	0.79	17.24	30
1753.5	3	16-QAM	1/0	10.78	V	7.95	0.79	17.94	30
1711.5	3	16-QAM	1/0	10.36	H	7.95	0.79	17.52	30
1732.5	3	16-QAM	1/0	12.89	H	7.95	0.79	20.05	30
1753.5	3	16-QAM	1/0	11.04	H	7.95	0.79	19.2	30
1712.5	5	QPSK	1/0	13.10	V	7.95	0.79	20.26	30
1732.5	5	QPSK	1/0	12.91	V	7.95	0.79	20.07	30
1752.5	5	QPSK	1/24	13.86	V	7.95	0.79	21.02	30
1712.5	5	QPSK	1/0	12.83	H	7.95	0.79	19.99	30
1732.5	5	QPSK	1/0	9.58	H	7.95	0.79	16.74	30
1752.5	5	QPSK	1/24	10.63	H	7.95	0.79	17.79	30
1712.5	5	16-QAM	1/0	10.65	V	7.95	0.79	17.81	30
1732.5	5	16-QAM	1/0	9.85	V	7.95	0.79	17.01	30
1752.5	5	16-QAM	1/24	9.60	V	7.95	0.79	16.76	30
1712.5	5	16-QAM	1/0	9.46	H	7.95	0.79	16.62	30
1732.5	5	16-QAM	1/0	11.19	H	7.95	0.79	18.35	30
1752.5	5	16-QAM	1/24	10.71	H	7.95	0.79	17.87	30



1715	10	QPSK	1/0	12.89	V	7.95	0.79	20.05	30
1732.5	10	QPSK	1/49	8.68	V	7.95	0.79	15.84	30
1750	10	QPSK	1/0	10.55	V	7.95	0.79	17.71	30
1715	10	QPSK	1/0	10.46	H	7.95	0.79	17.62	30
1732.5	10	QPSK	1/49	12.34	H	7.95	0.79	19.5	30
1750	10	QPSK	1/0	10.72	H	7.95	0.79	17.88	30
1715	10	16-QAM	1/0	11.71	V	7.95	0.79	18.87	30
1732.5	10	16-QAM	1/49	9.89	V	7.95	0.79	17.05	30
1750	10	16-QAM	1/0	9.36	V	7.95	0.79	16.52	30
1715	10	16-QAM	1/0	10.65	H	7.95	0.79	17.81	30
1732.5	10	16-QAM	1/49	10.21	H	7.95	0.79	17.37	30
1750	10	16-QAM	1/0	10.78	H	7.95	0.79	17.94	30
1717.5	15	QPSK	1/0	10.25	V	7.95	0.79	17.41	30
1732.5	15	QPSK	1/74	10.49	V	7.95	0.79	17.65	30
1747.5	15	QPSK	1/0	9.28	V	7.95	0.79	16.44	30
1717.5	15	QPSK	1/0	9.19	H	7.95	0.79	16.35	30
1732.5	15	QPSK	1/74	10.97	H	7.95	0.79	18.13	30
1747.5	15	QPSK	1/0	8.97	H	7.95	0.79	16.13	30
1717.5	15	16-QAM	1/0	9.79	V	7.95	0.79	16.95	30
1732.5	15	16-QAM	1/74	10.04	V	7.95	0.79	17.2	30
1747.5	15	16-QAM	1/0	9.64	V	7.95	0.79	16.8	30
1717.5	15	16-QAM	1/0	8.11	H	7.95	0.79	15.27	30
1732.5	15	16-QAM	1/74	10.65	H	7.95	0.79	17.81	30
1747.5	15	16-QAM	1/0	9.51	H	7.95	0.79	16.67	30
1720	20	QPSK	1/99	9.47	V	7.95	0.79	16.63	30
1732.5	20	QPSK	1/99	11.17	V	7.95	0.79	18.33	30
1745	20	QPSK	1/0	11.39	V	7.95	0.79	18.55	30
1720	20	QPSK	1/99	9.82	H	7.95	0.79	16.98	30
1732.5	20	QPSK	1/99	10.06	H	7.95	0.79	17.22	30
1745	20	QPSK	1/0	11.17	H	7.95	0.79	18.33	30
1720	20	16-QAM	1/99	9.33	V	7.95	0.79	16.49	30
1732.5	20	16-QAM	1/99	11.09	V	7.95	0.79	18.25	30
1745	20	16-QAM	1/0	9.48	V	7.95	0.79	16.64	30
1720	20	16-QAM	1/99	10.61	H	7.95	0.79	17.77	30
1732.5	20	16-QAM	1/99	9.17	H	7.95	0.79	16.33	30
1745	20	16-QAM	1/0	10.58	H	7.95	0.79	17.74	30

**EIRP for LTE Band 5**

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
824.7	1.4	QPSK	1/0	12.24	V	6.7	0.49	18.45	38.45
836.5	1.4	QPSK	1/0	11.40	V	6.7	0.49	17.61	38.45
848.3	1.4	QPSK	1/0	10.90	V	6.7	0.49	17.11	38.45
824.7	1.4	QPSK	1/0	10.50	H	6.7	0.49	16.71	38.45
836.5	1.4	QPSK	1/0	11.13	H	6.7	0.49	17.34	38.45
848.3	1.4	QPSK	1/0	9.31	H	6.7	0.49	15.52	38.45
824.7	1.4	16-QAM	1/0	10.31	V	6.7	0.49	16.52	38.45
836.5	1.4	16-QAM	1/0	12.29	V	6.7	0.49	18.5	38.45
848.3	1.4	16-QAM	1/0	9.71	V	6.7	0.49	15.92	38.45
824.7	1.4	16-QAM	1/0	11.01	H	6.7	0.49	17.22	38.45
836.5	1.4	16-QAM	1/0	10.46	H	6.7	0.49	16.67	38.45
848.3	1.4	16-QAM	1/0	11.64	H	6.7	0.49	17.85	38.45
825.5	3	QPSK	1/0	9.95	V	6.7	0.49	16.16	38.45
836.5	3	QPSK	1/0	11.37	V	6.7	0.49	17.58	38.45
847.5	3	QPSK	1/0	12.11	V	6.7	0.49	18.32	38.45
825.5	3	QPSK	1/0	9.71	H	6.7	0.49	15.92	38.45
836.5	3	QPSK	1/0	12.36	H	6.7	0.49	18.57	38.45
847.5	3	QPSK	1/0	9.40	H	6.7	0.49	15.61	38.45
825.5	3	16-QAM	1/0	10.65	V	6.7	0.49	16.86	38.45
836.5	3	16-QAM	1/0	12.48	V	6.7	0.49	18.69	38.45
847.5	3	16-QAM	1/0	11.87	V	6.7	0.49	18.08	38.45
825.5	3	16-QAM	1/0	10.36	H	6.7	0.49	16.57	38.45
836.5	3	16-QAM	1/0	13.81	H	6.7	0.49	20.02	38.45
847.5	3	16-QAM	1/0	14.60	H	6.7	0.49	20.81	38.45
826.5	5	QPSK	1/0	14.96	V	6.7	0.49	21.17	38.45
836.5	5	QPSK	1/0	13.50	V	6.7	0.49	19.71	38.45
846.5	5	QPSK	1/0	13.63	V	6.7	0.49	19.84	38.45
826.5	5	QPSK	1/0	13.29	H	6.7	0.49	19.5	38.45
836.5	5	QPSK	1/0	12.30	H	6.7	0.49	18.51	38.45
846.5	5	QPSK	1/0	11.49	H	6.7	0.49	17.70	38.45
826.5	5	16-QAM	1/0	11.69	V	6.7	0.49	17.90	38.45
836.5	5	16-QAM	1/0	11.48	V	6.7	0.49	17.69	38.45
846.5	5	16-QAM	1/0	10.80	V	6.7	0.49	17.01	38.45
826.5	5	16-QAM	1/0	9.16	H	6.7	0.49	15.37	38.45
836.5	5	16-QAM	1/0	13.51	H	6.7	0.49	19.72	38.45
846.5	5	16-QAM	1/0	10.89	H	6.7	0.49	17.10	38.45



829	10	QPSK	1/0	10.49	V	6.7	0.49	16.70	38.45
836.5	10	QPSK	1/0	9.85	V	6.7	0.49	16.06	38.45
844	10	QPSK	1/0	11.47	V	6.7	0.49	17.68	38.45
829	10	QPSK	1/0	8.72	H	6.7	0.49	14.93	38.45
836.5	10	QPSK	1/0	10.69	H	6.7	0.49	16.90	38.45
844	10	QPSK	1/0	10.85	H	6.7	0.49	17.06	38.45
829	10	16-QAM	1/0	10.29	V	6.7	0.49	16.50	38.45
836.5	10	16-QAM	1/0	11.34	V	6.7	0.49	17.55	38.45
844	10	16-QAM	1/0	9.78	V	6.7	0.49	15.99	38.45
829	10	16-QAM	1/0	9.90	H	6.7	0.49	16.11	38.45
836.5	10	16-QAM	1/0	9.64	H	6.7	0.49	15.85	38.45
844	10	16-QAM	1/0	9.53	H	6.7	0.49	15.74	38.45



EIRP for LTE Band 12

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
699.7	1.4	QPSK	1/0	11.22	V	6.6	0.47	16.75	34.77
707.5	1.4	QPSK	1/0	13.86	V	6.6	0.47	19.37	34.77
715.3	1.4	QPSK	1/24	10.56	V	6.6	0.47	16.34	34.77
699.7	1.4	QPSK	1/0	12.78	H	6.6	0.47	18.81	34.77
707.5	1.4	QPSK	1/0	13.72	H	6.6	0.47	19.12	34.77
715.3	1.4	QPSK	1/24	11.37	H	6.6	0.47	16.96	34.77
699.7	1.4	16-QAM	1/0	12.76	V	6.6	0.47	18.79	34.77
707.5	1.4	16-QAM	1/0	11.39	V	6.6	0.47	17.16	34.77
715.3	1.4	16-QAM	1/24	13.27	V	6.6	0.47	19.00	34.77
699.7	1.4	16-QAM	1/0	12.66	H	6.6	0.47	18.67	34.77
707.5	1.4	16-QAM	1/0	12.21	H	6.6	0.47	18.02	34.77
715.3	1.4	16-QAM	1/24	13.24	H	6.6	0.47	18.59	34.77
700.5	3	QPSK	1/0	13.01	V	6.6	0.47	18.43	34.77
707.5	3	QPSK	1/49	12.81	V	6.6	0.47	18.89	34.77
714.5	3	QPSK	1/0	13.05	V	6.6	0.47	18.79	34.77
700.5	3	QPSK	1/0	12.24	H	6.6	0.47	18.24	34.77
707.5	3	QPSK	1/49	10.46	H	6.6	0.47	16.55	34.77
714.5	3	QPSK	1/0	12.62	H	6.6	0.47	18.01	34.77
700.5	3	16-QAM	1/0	10.76	V	6.6	0.47	16.25	34.77
707.5	3	16-QAM	1/49	9.43	V	6.6	0.47	15.08	34.77
714.5	3	16-QAM	1/0	10.31	V	6.6	0.47	16.21	34.77
700.5	3	16-QAM	1/0	12.49	H	6.6	0.47	17.88	34.77
707.5	3	16-QAM	1/49	11.46	H	6.6	0.47	17.56	34.77
714.5	3	16-QAM	1/0	10.04	H	6.6	0.47	16.08	34.77
701.5	5	QPSK	1/0	10.08	V	6.6	0.47	16.44	34.77
707.5	5	QPSK	1/74	12.13	V	6.6	0.47	18.85	34.77
713.5	5	QPSK	1/0	11.34	V	6.6	0.47	17.82	34.77
701.5	5	QPSK	1/0	10.36	H	6.6	0.47	16.45	34.77
707.5	5	QPSK	1/74	10.46	H	6.6	0.47	17.06	34.77
713.5	5	QPSK	1/0	12.66	H	6.6	0.47	19.00	34.77
701.5	5	16-QAM	1/0	11.90	V	6.6	0.47	18.52	34.77
707.5	5	16-QAM	1/74	13.04	V	6.6	0.47	19.54	34.77
713.5	5	16-QAM	1/0	11.88	V	6.6	0.47	18.80	34.77
701.5	5	16-QAM	1/0	10.03	H	6.6	0.47	16.60	34.77
707.5	5	16-QAM	1/74	11.50	H	6.6	0.47	17.69	34.77
713.5	5	16-QAM	1/0	12.47	H	6.6	0.47	18.71	34.77
704.0	10	QPSK	1/99	10.18	V	6.6	0.47	16.97	34.77



707.5	10	QPSK	1/99	12.23	V	6.6	0.47	18.47	34.77
711.0	10	QPSK	1/0	13.71	V	6.6	0.47	20.46	34.77
704.0	10	QPSK	1/99	13.78	H	6.6	0.47	19.96	34.77
707.5	10	QPSK	1/99	12.96	H	6.6	0.47	19.78	34.77
711.0	10	QPSK	1/0	12.25	H	6.6	0.47	18.58	34.77
704.0	10	16-QAM	1/99	13.25	V	6.6	0.47	19.92	34.77
707.5	10	16-QAM	1/99	12.95	V	6.6	0.47	19.53	34.77
711.0	10	16-QAM	1/0	12.01	V	6.6	0.47	18.84	34.77
704.0	10	16-QAM	1/99	13.39	H	6.6	0.47	19.92	34.77
707.5	10	16-QAM	1/99	12.82	H	6.6	0.47	19.34	34.77
711.0	10	16-QAM	1/0	13.15	H	6.6	0.47	19.89	34.77

EIRP for LTE Band 13

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
779.5	5	QPSK	1/0	14.05	V	6.6	0.47	20.18	34.77
782.0	5	QPSK	1/0	12.71	V	6.6	0.47	18.84	34.77
784.5	5	QPSK	1/0	12.94	V	6.6	0.47	19.07	34.77
779.5	5	QPSK	1/0	12.95	H	6.6	0.47	19.08	34.77
782.0	5	QPSK	1/0	13.91	H	6.6	0.47	20.04	34.77
784.5	5	QPSK	1/0	13.47	H	6.6	0.47	19.60	34.77
779.5	5	16-QAM	1/0	12.77	V	6.6	0.47	18.90	34.77
782.0	5	16-QAM	1/0	13.55	V	6.6	0.47	19.68	34.77
784.5	5	16-QAM	1/0	12.78	V	6.6	0.47	18.91	34.77
779.5	5	16-QAM	1/0	12.16	H	6.6	0.47	18.29	34.77
782.0	5	16-QAM	1/0	13.43	H	6.6	0.47	19.56	34.77
784.5	5	16-QAM	1/0	12.49	H	6.6	0.47	18.62	34.77
782.0	10	QPSK	1/99	12.68	V	6.6	0.47	18.81	34.77
782.0	10	QPSK	1/99	13.68	H	6.6	0.47	19.81	34.77
782.0	10	16-QAM	1/99	12.78	V	6.6	0.47	18.91	34.77
782.0	10	16-QAM	1/99	13.68	H	6.6	0.47	19.81	34.77

**EIRP for LTE Band 17**

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
706.5	5	QPSK	1/0	9.82	V	6.6	0.47	15.95	34.77
710.0	5	QPSK	1/74	10.84	V	6.6	0.47	16.97	34.77
713.5	5	QPSK	1/0	11.33	V	6.6	0.47	17.46	34.77
706.5	5	QPSK	1/0	9.62	H	6.6	0.47	15.75	34.77
710.0	5	QPSK	1/74	9.86	H	6.6	0.47	15.99	34.77
713.5	5	QPSK	1/0	11.72	H	6.6	0.47	17.85	34.77
706.5	5	16-QAM	1/0	10.76	V	6.6	0.47	16.89	34.77
710.0	5	16-QAM	1/74	12.94	V	6.6	0.47	19.07	34.77
713.5	5	16-QAM	1/0	11.58	V	6.6	0.47	17.71	34.77
706.5	5	16-QAM	1/0	9.99	H	6.6	0.47	16.12	34.77
710.0	5	16-QAM	1/74	11.31	H	6.6	0.47	17.44	34.77
713.5	5	16-QAM	1/0	11.21	H	6.6	0.47	17.34	34.77
709.0	10	QPSK	1/99	9.06	V	6.6	0.47	15.19	34.77
710.0	10	QPSK	1/99	10.80	V	6.6	0.47	16.93	34.77
711.0	10	QPSK	1/0	12.43	V	6.6	0.47	18.56	34.77
709.0	10	QPSK	1/99	12.40	H	6.6	0.47	18.53	34.77
710.0	10	QPSK	1/99	12.02	H	6.6	0.47	18.15	34.77
711.0	10	QPSK	1/0	11.55	H	6.6	0.47	17.68	34.77
709.0	10	16-QAM	1/99	13.20	V	6.6	0.47	19.33	34.77
710.0	10	16-QAM	1/99	12.99	V	6.6	0.47	19.12	34.77
711.0	10	16-QAM	1/0	11.18	V	6.6	0.47	17.31	34.77
709.0	10	16-QAM	1/99	12.53	H	6.6	0.47	18.66	34.77
710.0	10	16-QAM	1/99	13.84	H	6.6	0.47	19.97	34.77
711.0	10	16-QAM	1/0	14.11	H	6.6	0.47	20.24	34.77

**EIRP for LTE Band 30**

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
2307.5	5	QPSK	1/0	9.73	V	8.4	0.52	17.61	23.98
2310.0	5	QPSK	1/0	8.95	V	8.4	0.52	16.83	23.98
2312.5	5	QPSK	1/0	9.49	V	8.4	0.52	17.37	23.98
2307.5	5	QPSK	1/0	8.48	H	8.4	0.52	16.36	23.98
2310.0	5	QPSK	1/0	8.00	H	8.4	0.52	15.88	23.98
2312.5	5	QPSK	1/0	7.65	H	8.4	0.52	15.53	23.98
2307.5	5	16-QAM	1/0	8.73	V	8.4	0.52	16.61	23.98
2310.0	5	16-QAM	1/0	8.54	V	8.4	0.52	16.42	23.98
2312.5	5	16-QAM	1/0	8.94	V	8.4	0.52	16.82	23.98
2307.5	5	16-QAM	1/0	8.59	H	8.4	0.52	16.47	23.98
2310.0	5	16-QAM	1/0	7.95	H	8.4	0.52	15.83	23.98
2312.5	5	16-QAM	1/0	7.95	H	8.4	0.52	15.83	23.98
2310.0	10	QPSK	1/99	8.62	V	8.4	0.52	16.50	23.98
2310.0	10	QPSK	1/99	9.51	H	8.4	0.52	17.39	23.98
2310.0	10	16-QAM	1/99	8.23	V	8.4	0.52	16.11	23.98
2310.0	10	16-QAM	1/99	8.66	H	8.4	0.52	16.54	23.98

Note: Above is the worst mode data.



6.3. PEAK-TO-AVERAGE RATIO

6.3.1 MEASUREMENT METHOD

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

According to KDB 971168 D01v03 - Section 5.7:

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics /CCDF function;
- b) Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval to 1 ms
- e) Record the maximum PAPR level associated with a probability of 0.1%

6.3.2 PROVISIONS APPLICABLE

This is the test for the Peak-to-Average Ratio from the EUT.

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.



6.3.3 MEASUREMENT RESULT

LTE Band 2
Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.17	<13	PASS
		1	3	2.56	<13	PASS
		1	5	3.14	<13	PASS
		3	0	3.66	<13	PASS
		3	2	4.13	<13	PASS
		3	3	2.94	<13	PASS
		6	0	3.26	<13	PASS
	MCH	1	0	2.95	<13	PASS
		1	3	2.55	<13	PASS
		1	5	2.91	<13	PASS
		3	0	2.15	<13	PASS
		3	2	2.31	<13	PASS
		3	3	3.15	<13	PASS
		6	0	4.12	<13	PASS
	HCH	1	0	2.57	<13	PASS
		1	3	2.16	<13	PASS
		1	5	2.53	<13	PASS
		3	0	2.11	<13	PASS
		3	2	2.58	<13	PASS
		3	3	2.86	<13	PASS
		6	0	3.62	<13	PASS
16QAM	LCH	1	0	3.64	<13	PASS
		1	3	3.11	<13	PASS
		1	5	3.55	<13	PASS
		3	0	4.56	<13	PASS
		3	2	4.19	<13	PASS
		3	3	3.73	<13	PASS
		6	0	4.21	<13	PASS
	MCH	1	0	3.68	<13	PASS
		1	3	2.36	<13	PASS
		1	5	3.73	<13	PASS
		3	0	5.22	<13	PASS
		3	2	5.11	<13	PASS



		3	3	3.92	<13	PASS
		6	0	4.91	<13	PASS
	HCH	1	0	3.56	<13	PASS
		1	3	5.89	<13	PASS
		1	5	3.06	<13	PASS
		3	0	5.55	<13	PASS
		3	2	5.15	<13	PASS
		3	3	3.53	<13	PASS
		6	0	4.66	<13	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.03	<13	PASS
		1	7	2.13	<13	PASS
		1	14	3.13	<13	PASS
		8	0	3.11	<13	PASS
		8	4	2.85	<13	PASS
		8	7	3.83	<13	PASS
		15	0	3.55	<13	PASS
	MCH	1	0	2.95	<13	PASS
		1	7	4.00	<13	PASS
		1	14	2.91	<13	PASS
		8	0	2.36	<13	PASS
		8	4	4.13	<13	PASS
		8	7	4.05	<13	PASS
		15	0	4.28	<13	PASS
	HCH	1	0	3.34	<13	PASS
		1	7	3.11	<13	PASS
		1	14	2.76	<13	PASS
		8	0	2.58	<13	PASS
		8	4	1.66	<13	PASS
		8	7	3.74	<13	PASS
		15	0	3.85	<13	PASS
16QAM	LCH	1	0	3.41	<13	PASS
		1	7	3.16	<13	PASS



		1	14	3.35	<13	PASS
		8	0	2.03	<13	PASS
		8	4	1.33	<13	PASS
		8	7	4.65	<13	PASS
		15	0	4.44	<13	PASS
	MCH	1	0	3.63	<13	PASS
		1	7	3.44	<13	PASS
		1	14	3.64	<13	PASS
		8	0	2.66	<13	PASS
		8	4	4.28	<13	PASS
		8	7	4.85	<13	PASS
		15	0	5.09	<13	PASS
	HCH	1	0	3.67	<13	PASS
		1	7	6.22	<13	PASS
		1	14	3.22	<13	PASS
		8	0	3.11	<13	PASS
		8	4	4.25	<13	PASS
		8	7	4.5	<13	PASS
		15	0	4.56	<13	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.08	<13	PASS
		1	12	2.45	<13	PASS
		1	24	3.22	<13	PASS
		12	0	5.36	<13	PASS
		12	6	3.16	<13	PASS
		12	13	3.6	<13	PASS
		25	0	3.98	<13	PASS
	MCH	1	0	3.03	<13	PASS
		1	12	4.11	<13	PASS
		1	24	3.01	<13	PASS
		12	0	3.19	<13	PASS
		12	6	2.18	<13	PASS



		12	13	4.05	<13	PASS
		25	0	4.45	<13	PASS
	HCH	1	0	3.22	<13	PASS
		1	12	3.28	<13	PASS
		1	24	2.72	<13	PASS
		12	0	1.58	<13	PASS
		12	6	3.27	<13	PASS
		12	13	3.7	<13	PASS
		25	0	4.01	<13	PASS
16QAM	LCH	1	0	3.94	<13	PASS
		1	12	5.08	<13	PASS
		1	24	4.12	<13	PASS
		12	0	5.14	<13	PASS
		12	6	2.47	<13	PASS
		12	13	4.45	<13	PASS
		25	0	4.62	<13	PASS
	MCH	1	0	3.74	<13	PASS
		1	12	3.19	<13	PASS
		1	24	3.81	<13	PASS
		12	0	2.18	<13	PASS
		12	6	3.18	<13	PASS
		12	13	4.88	<13	PASS
		25	0	5.17	<13	PASS
	HCH	1	0	3.94	<13	PASS
		1	12	5.08	<13	PASS
		1	24	3.65	<13	PASS
		12	0	6.15	<13	PASS
		12	6	4.19	<13	PASS
		12	13	4.63	<13	PASS
		25	0	4.89	<13	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.61	<13	PASS



		1	24	2.14	<13	PASS	
		1	49	2.95	<13	PASS	
		25	0	3.16	<13	PASS	
		25	12	5.22	<13	PASS	
		25	25	3.85	<13	PASS	
		50	0	3.89	<13	PASS	
	MCH	1	0	2.87	<13	PASS	
		1	24	4.23	<13	PASS	
		1	49	2.94	<13	PASS	
		25	0	3.26	<13	PASS	
		25	12	5.22	<13	PASS	
		25	25	3.95	<13	PASS	
	HCH	50	0	4.16	<13	PASS	
		1	0	3.01	<13	PASS	
		1	24	2.48	<13	PASS	
		1	49	2.65	<13	PASS	
		25	0	2.66	<13	PASS	
		25	12	4.15	<13	PASS	
	16QAM	LCH	25	25	3.73	<13	PASS
			50	0	4.02	<13	PASS
			1	0	3.31	<13	PASS
1			24	2.91	<13	PASS	
1			49	3.79	<13	PASS	
25			0	2.44	<13	PASS	
MCH		25	12	2.33	<13	PASS	
		25	25	4.72	<13	PASS	
		50	0	4.75	<13	PASS	
		1	0	3.44	<13	PASS	
		1	24	3.16	<13	PASS	
		1	49	3.55	<13	PASS	
HCH		25	0	3.15	<13	PASS	
		25	12	4.05	<13	PASS	
		25	25	4.89	<13	PASS	
		50	0	5.01	<13	PASS	
		1	0	3.67	<13	PASS	
		1	24	3.11	<13	PASS	
		1	49	2.89	<13	PASS	



		25	0	5.28	<13	PASS
		25	12	4.11	<13	PASS
		25	25	4.57	<13	PASS
		50	0	4.9	<13	PASS

Channel Bandwidth: 15 MHz

Channel Bandwidth: 15 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.61	<13	PASS
		1	37	1.33	<13	PASS
		1	74	3.36	<13	PASS
		37	0	2.66	<13	PASS
		37	18	6.15	<13	PASS
		37	38	4.12	<13	PASS
		75	0	4.34	<13	PASS
	MCH	1	0	2.95	<13	PASS
		1	37	2.52	<13	PASS
		1	74	3.16	<13	PASS
		37	0	6.15	<13	PASS
		37	18	4.52	<13	PASS
		37	38	3.98	<13	PASS
		75	0	4.51	<13	PASS
	HCH	1	0	3.22	<13	PASS
		1	37	3.55	<13	PASS
		1	74	2.68	<13	PASS
		37	0	4.15	<13	PASS
		37	18	5.18	<13	PASS
		37	38	3.79	<13	PASS
		75	0	4.26	<13	PASS
16QAM	LCH	1	0	3.33	<13	PASS
		1	37	4.15	<13	PASS
		1	74	3.76	<13	PASS
		37	0	3.11	<13	PASS
		37	18	4.12	<13	PASS
		37	38	4.99	<13	PASS
		75	0	5.14	<13	PASS
	MCH	1	0	3.56	<13	PASS
		1	37	5.33	<13	PASS



		1	74	3.44	<13	PASS
		37	0	3.66	<13	PASS
		37	18	3.15	<13	PASS
		37	38	4.97	<13	PASS
		75	0	5.38	<13	PASS
	HCH	1	0	3.75	<13	PASS
		1	37	3.19	<13	PASS
		1	74	3.25	<13	PASS
		37	0	2.99	<13	PASS
		37	18	2.88	<13	PASS
		37	38	4.72	<13	PASS
		75	0	5.09	<13	PASS

Channel Bandwidth: 20 MHz

Channel Bandwidth: 20 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.53	<13	PASS
		1	49	2.36	<13	PASS
		1	99	3.13	<13	PASS
		50	0	5.00	<13	PASS
		50	25	4.36	<13	PASS
		50	50	4.3	<13	PASS
		100	0	4.42	<13	PASS
	MCH	1	0	3.04	<13	PASS
		1	49	3.51	<13	PASS
		1	99	3.15	<13	PASS
		50	0	4.22	<13	PASS
		50	25	3.16	<13	PASS
		50	50	4.16	<13	PASS
		100	0	4.63	<13	PASS
	HCH	1	0	3.15	<13	PASS
		1	49	2.66	<13	PASS
		1	99	2.76	<13	PASS
		50	0	3.15	<13	PASS
		50	25	5.00	<13	PASS
		50	50	3.9	<13	PASS
		100	0	4.12	<13	PASS
16QAM	LCH	1	0	3.46	<13	PASS



		1	49	3.26	<13	PASS
		1	99	4.11	<13	PASS
		50	0	4.26	<13	PASS
		50	25	5.25	<13	PASS
		50	50	5.11	<13	PASS
		100	0	5.26	<13	PASS
	MCH	1	0	3.86	<13	PASS
		1	49	5.22	<13	PASS
		1	99	3.91	<13	PASS
		50	0	2.66	<13	PASS
		50	25	3.16	<13	PASS
		50	50	5.02	<13	PASS
		100	0	5.41	<13	PASS
	HCH	1	0	3.79	<13	PASS
		1	49	4.26	<13	PASS
		1	99	3.21	<13	PASS
		50	0	4.11	<13	PASS
		50	25	4.06	<13	PASS
		50	50	4.71	<13	PASS
		100	0	5.1	<13	PASS



LTE Band 4
Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.51	<13	PASS
		1	3	2.47	<13	PASS
		1	5	3.51	<13	PASS
		3	0	3.15	<13	PASS
		3	2	3.25	<13	PASS
		3	3	3.33	<13	PASS
		6	0	3.83	<13	PASS
	MCH	1	0	3.88	<13	PASS
		1	3	4.16	<13	PASS
		1	5	3.99	<13	PASS
		3	0	3.55	<13	PASS
		3	2	4.28	<13	PASS
		3	3	3.82	<13	PASS
		6	0	4.27	<13	PASS
	HCH	1	0	3.02	<13	PASS
		1	3	5.69	<13	PASS
		1	5	3.08	<13	PASS
		3	0	6.11	<13	PASS
		3	2	1.66	<13	PASS
		3	3	3.04	<13	PASS
		6	0	3.29	<13	PASS
16QAM	LCH	1	0	4.48	<13	PASS
		1	3	3.66	<13	PASS
		1	5	4.39	<13	PASS
		3	0	3.28	<13	PASS
		3	2	4.16	<13	PASS
		3	3	4.11	<13	PASS
		6	0	4.76	<13	PASS
	MCH	1	0	4.73	<13	PASS
		1	3	2.58	<13	PASS
		1	5	4.63	<13	PASS
		3	0	3.55	<13	PASS
		3	2	6.11	<13	PASS
		3	3	4.41	<13	PASS



		6	0	5.15	<13	PASS
	HCH	1	0	3.37	<13	PASS
		1	3	3.44	<13	PASS
		1	5	3.55	<13	PASS
		3	0	2.58	<13	PASS
		3	2	3.15	<13	PASS
		3	3	3.98	<13	PASS
		6	0	4.33	<13	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.25	<13	PASS
		1	7	4.25	<13	PASS
		1	14	4.33	<13	PASS
		8	0	3.19	<13	PASS
		8	4	3.15	<13	PASS
		8	7	4.00	<13	PASS
		15	0	2.17	<13	PASS
	MCH	1	0	1.99	<13	PASS
		1	7	3.15	<13	PASS
		1	14	3.37	<13	PASS
		8	0	4.22	<13	PASS
		8	4	3.28	<13	PASS
		8	7	4.15	<13	PASS
		15	0	2.55	<13	PASS
	HCH	1	0	3.15	<13	PASS
		1	7	3.15	<13	PASS
		1	14	4.11	<13	PASS
		8	0	4.25	<13	PASS
		8	4	4.33	<13	PASS
		8	7	4.16	<13	PASS
		15	0	3.25	<13	PASS
16QAM	LCH	1	0	3.66	<13	PASS
		1	7	3.85	<13	PASS
		1	14	4.15	<13	PASS
		8	0	4.25	<13	PASS
		8	4	4.39	<13	PASS



		8	7	3.44	<13	PASS
		15	0	3.18	<13	PASS
	MCH	1	0	3.59	<13	PASS
		1	7	3.46	<13	PASS
		1	14	6.59	<13	PASS
		8	0	5.58	<13	PASS
		8	4	4.11	<13	PASS
		8	7	6.19	<13	PASS
		15	0	5.48	<13	PASS
		HCH	1	0	5.36	<13
	1		7	4.44	<13	PASS
	1		14	6.19	<13	PASS
	8		0	6.11	<13	PASS
	8		4	6.99	<13	PASS
	8		7	3.58	<13	PASS
15	0		3.41	<13	PASS	

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.11	<13	PASS
		1	12	3.16	<13	PASS
		1	24	3.15	<13	PASS
		12	0	4.16	<13	PASS
		12	6	6.22	<13	PASS
		12	13	3.49	<13	PASS
		25	0	3.19	<13	PASS
	MCH	1	0	4.28	<13	PASS
		1	12	2.15	<13	PASS
		1	24	3.22	<13	PASS
		12	0	2.18	<13	PASS
		12	6	3.17	<13	PASS
		12	13	3.55	<13	PASS
		25	0	5.25	<13	PASS
	HCH	1	0	1.49	<13	PASS
		1	12	3.46	<13	PASS
		1	24	3.55	<13	PASS
		12	0	4.11	<13	PASS



16QAM		12	6	2.58	<13	PASS
		12	13	4.36	<13	PASS
		25	0	3.11	<13	PASS
	LCH	1	0	3.15	<13	PASS
		1	12	5.19	<13	PASS
		1	24	3.14	<13	PASS
		12	0	5.52	<13	PASS
		12	6	5.36	<13	PASS
		12	13	4.33	<13	PASS
		25	0	3.18	<13	PASS
		MCH	1	0	3.46	<13
	1		12	3.15	<13	PASS
	1		24	3.49	<13	PASS
	12		0	3.24	<13	PASS
	12		6	2.46	<13	PASS
	12		13	3.59	<13	PASS
	25		0	3.43	<13	PASS
	HCH	1	0	3.43	<13	PASS
		1	12	2.58	<13	PASS
		1	24	2.42	<13	PASS
		12	0	2.59	<13	PASS
		12	6	3.56	<13	PASS
		12	13	4.53	<13	PASS
		25	0	3.55	<13	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 20 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.00	<13	PASS
		1	49	4.16	<13	PASS
		1	99	3.15	<13	PASS
		50	0	2.58	<13	PASS
		50	25	3.11	<13	PASS
		50	50	3.66	<13	PASS
		100	0	3.88	<13	PASS
	MCH	1	0	3.45	<13	PASS
		1	49	3.15	<13	PASS
		1	99	3.33	<13	PASS



		50	0	2.36	<13	PASS	
		50	25	3.45	<13	PASS	
		50	50	4.16	<13	PASS	
		100	0	4.17	<13	PASS	
	HCH	1	0	2.64	<13	PASS	
		1	49	3.15	<13	PASS	
		1	99	2.54	<13	PASS	
		50	0	2.59	<13	PASS	
		50	25	3.15	<13	PASS	
		50	50	3.05	<13	PASS	
		100	0	3.23	<13	PASS	
	16QAM	LCH	1	0	3.11	<13	PASS
			1	49	3.15	<13	PASS
1			99	3.67	<13	PASS	
50			0	5.25	<13	PASS	
50			25	5.11	<13	PASS	
50			50	4.57	<13	PASS	
100			0	4.72	<13	PASS	
MCH		1	0	4.35	<13	PASS	
		1	49	3.25	<13	PASS	
		1	99	4.04	<13	PASS	
		50	0	3.18	<13	PASS	
		50	25	2.02	<13	PASS	
		50	50	4.94	<13	PASS	
		100	0	5.02	<13	PASS	
HCH		1	0	3.42	<13	PASS	
		1	49	5.25	<13	PASS	
		1	99	3.44	<13	PASS	
		50	0	3.22	<13	PASS	
		50	25	4.15	<13	PASS	
		50	50	4.11	<13	PASS	
		100	0	4.16	<13	PASS	

Channel Bandwidth: 15 MHz

Channel Bandwidth: 15 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.91	<13	PASS
		1	37	2.55	<13	PASS



		1	74	3.35	<13	PASS
		37	0	3.15	<13	PASS
		37	18	4.15	<13	PASS
		37	38	3.93	<13	PASS
		75	0	4.33	<13	PASS
	MCH	1	0	3.51	<13	PASS
		1	37	3.11	<13	PASS
		1	74	3.31	<13	PASS
		37	0	5.28	<13	PASS
		37	18	4.19	<13	PASS
		37	38	4.12	<13	PASS
		75	0	4.46	<13	PASS
	HCH	1	0	2.98	<13	PASS
		1	37	3.22	<13	PASS
		1	74	2.47	<13	PASS
		37	0	5.22	<13	PASS
		37	18	5.25	<13	PASS
37		38	3.13	<13	PASS	
75		0	3.62	<13	PASS	
16QAM	LCH	1	0	3.25	<13	PASS
		1	37	3.55	<13	PASS
		1	74	4.09	<13	PASS
		37	0	4.18	<13	PASS
		37	18	1.39	<13	PASS
		37	38	4.82	<13	PASS
		75	0	5.16	<13	PASS
	MCH	1	0	4.14	<13	PASS
		1	37	4.62	<13	PASS
		1	74	3.68	<13	PASS
		37	0	3.25	<13	PASS
		37	18	4.15	<13	PASS
		37	38	5.04	<13	PASS
		75	0	5.25	<13	PASS
	HCH	1	0	3.83	<13	PASS
		1	37	1.25	<13	PASS
		1	74	3.26	<13	PASS
		37	0	2.66	<13	PASS
		37	18	3.66	<13	PASS
		37	38	4.01	<13	PASS
		75	0	4.37	<13	PASS



Channel Bandwidth: 20 MHz

Channel Bandwidth: 20 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.78	<13	PASS
		1	49	3.56	<13	PASS
		1	99	3.29	<13	PASS
		50	0	5.22	<13	PASS
		50	25	1.22	<13	PASS
		50	50	4.16	<13	PASS
		100	0	4.49	<13	PASS
	MCH	1	0	3.36	<13	PASS
		1	49	5.52	<13	PASS
		1	99	3.21	<13	PASS
		50	0	3.25	<13	PASS
		50	25	4.22	<13	PASS
		50	50	4.18	<13	PASS
		100	0	4.42	<13	PASS
	HCH	1	0	2.83	<13	PASS
		1	49	5.28	<13	PASS
		1	99	2.31	<13	PASS
		50	0	5.59	<13	PASS
		50	25	4.33	<13	PASS
		50	50	3.18	<13	PASS
		100	0	3.71	<13	PASS
16QAM	LCH	1	0	3.83	<13	PASS
		1	49	3.25	<13	PASS
		1	99	4.34	<13	PASS
		50	0	3.15	<13	PASS
		50	25	3.29	<13	PASS
		50	50	5.55	<13	PASS
		100	0	5.27	<13	PASS
	MCH	1	0	4.18	<13	PASS
		1	49	4.16	<13	PASS
		1	99	3.92	<13	PASS
		50	0	5.88	<13	PASS
		50	25	4.22	<13	PASS
		50	50	5.09	<13	PASS
		100	0	5.22	<13	PASS



	HCH	1	0	3.56	<13	PASS
		1	49	4.18	<13	PASS
		1	99	3.02	<13	PASS
		50	0	4.25	<13	PASS
		50	25	6.22	<13	PASS
		50	50	4.01	<13	PASS
		100	0	4.54	<13	PASS



LTE BAND 5
Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.1	<13	PASS
		1	3	2.58	<13	PASS
		1	5	3.06	<13	PASS
		3	0	2.14	<13	PASS
		3	2	2.15	<13	PASS
		3	3	2.63	<13	PASS
		6	0	2.97	<13	PASS
	MCH	1	0	3.88	<13	PASS
		1	3	3.21	<13	PASS
		1	5	3.93	<13	PASS
		3	0	2.48	<13	PASS
		3	2	3.14	<13	PASS
		3	3	3.72	<13	PASS
		6	0	4.19	<13	PASS
	HCH	1	0	3.13	<13	PASS
		1	3	2.69	<13	PASS
		1	5	2.89	<13	PASS
		3	0	2.11	<13	PASS
		3	2	2.19	<13	PASS
		3	3	2.92	<13	PASS
		6	0	3.59	<13	PASS
16QAM	LCH	1	0	3.58	<13	PASS
		1	3	3.25	<13	PASS
		1	5	3.49	<13	PASS
		3	0	2.27	<13	PASS
		3	2	3.19	<13	PASS
		3	3	3.51	<13	PASS
		6	0	3.86	<13	PASS
	MCH	1	0	4.61	<13	PASS
		1	3	3.46	<13	PASS
		1	5	4.54	<13	PASS
		3	0	3.19	<13	PASS
		3	2	3.25	<13	PASS
		3	3	4.59	<13	PASS



		6	0	5.11	<13	PASS
	HCH	1	0	3.63	<13	PASS
		1	3	3.24	<13	PASS
		1	5	3.35	<13	PASS
		3	0	4.15	<13	PASS
		3	2	3.88	<13	PASS
		3	3	3.45	<13	PASS
		6	0	4.06	<13	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.15	<13	PASS
		1	7	2.54	<13	PASS
		1	14	2.76	<13	PASS
		8	0	2.45	<13	PASS
		8	4	3.25	<13	PASS
		8	7	3.49	<13	PASS
		15	0	2.97	<13	PASS
	MCH	1	0	3.94	<13	PASS
		1	7	4.52	<13	PASS
		1	14	3.83	<13	PASS
		8	0	5.21	<13	PASS
		8	4	3.25	<13	PASS
		8	7	4.29	<13	PASS
		15	0	4.44	<13	PASS
	HCH	1	0	3.46	<13	PASS
		1	7	2.41	<13	PASS
		1	14	2.98	<13	PASS
		8	0	3.28	<13	PASS
		8	4	4.15	<13	PASS
		8	7	3.56	<13	PASS
		15	0	3.37	<13	PASS
16QAM	LCH	1	0	3.57	<13	PASS
		1	7	3.25	<13	PASS
		1	14	3.49	<13	PASS
		8	0	2.17	<13	PASS
		8	4	3.22	<13	PASS



		8	7	4.31	<13	PASS
		15	0	3.89	<13	PASS
	MCH	1	0	4.65	<13	PASS
		1	7	3.28	<13	PASS
		1	14	4.55	<13	PASS
		8	0	4.33	<13	PASS
		8	4	3.25	<13	PASS
		8	7	5.16	<13	PASS
		15	0	5.21	<13	PASS
		HCH	1	0	3.98	<13
	1		7	3.33	<13	PASS
	1		14	3.35	<13	PASS
	8		0	1.99	<13	PASS
	8		4	2.01	<13	PASS
	8		7	4.66	<13	PASS
	15		0	4.22	<13	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.86	<13	PASS
		1	12	2.58	<13	PASS
		1	24	2.7	<13	PASS
		12	0	3.15	<13	PASS
		12	6	4.15	<13	PASS
		12	13	3.15	<13	PASS
		25	0	3.55	<13	PASS
	MCH	1	0	3.67	<13	PASS
		1	12	3.52	<13	PASS
		1	24	3.86	<13	PASS
		12	0	4.00	<13	PASS
		12	6	3.19	<13	PASS
		12	13	4.25	<13	PASS
		25	0	4.62	<13	PASS
	HCH	1	0	3.36	<13	PASS
		1	12	2.18	<13	PASS
		1	24	2.86	<13	PASS
		12	0	3.28	<13	PASS



16QAM		12	6	3.58	<13	PASS
		12	13	3.46	<13	PASS
		25	0	3.92	<13	PASS
	LCH	1	0	3.71	<13	PASS
		1	12	4.25	<13	PASS
		1	24	3.73	<13	PASS
		12	0	4.25	<13	PASS
		12	6	5.00	<13	PASS
		12	13	4.13	<13	PASS
		25	0	4.29	<13	PASS
		MCH	1	0	4.62	<13
	1		12	4.20	<13	PASS
	1		24	4.84	<13	PASS
	12		0	3.33	<13	PASS
	12		6	3.15	<13	PASS
	12		13	5.17	<13	PASS
	25		0	5.45	<13	PASS
	HCH	1	0	4.06	<13	PASS
		1	12	4.16	<13	PASS
		1	24	3.86	<13	PASS
		12	0	3.25	<13	PASS
		12	6	3.18	<13	PASS
		12	13	4.22	<13	PASS
		25	0	4.70	<13	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.16	<13	PASS
		1	24	3.22	<13	PASS
		1	49	4.25	<13	PASS
		25	0	3.52	<13	PASS
		25	12	3.21	<13	PASS
		25	25	2.58	<13	PASS
		50	0	3.47	<13	PASS
	MCH	1	0	2.58	<13	PASS
		1	24	5.25	<13	PASS
		1	49	4.11	<13	PASS



		25	0	3.55	<13	PASS
		25	12	2.42	<13	PASS
		25	25	3.13	<13	PASS
		50	0	4.10	<13	PASS
	HCH	1	0	3.25	<13	PASS
		1	24	3.63	<13	PASS
		1	49	5.26	<13	PASS
		25	0	5.00	<13	PASS
		25	12	4.11	<13	PASS
		25	25	3.99	<13	PASS
	50	0	3.25	<13	PASS	
16QAM	LCH	1	0	3.25	<13	PASS
		1	24	3.11	<13	PASS
		1	49	3.08	<13	PASS
		25	0	3.45	<13	PASS
		25	12	4.16	<13	PASS
		25	25	4.00	<13	PASS
		50	0	5.01	<13	PASS
	MCH	1	0	6.11	<13	PASS
		1	24	5.59	<13	PASS
		1	49	2.23	<13	PASS
		25	0	3.66	<13	PASS
		25	12	3.45	<13	PASS
		25	25	3.78	<13	PASS
		50	0	4.19	<13	PASS
	HCH	1	0	4.18	<13	PASS
		1	24	4.00	<13	PASS
		1	49	4.13	<13	PASS
		25	0	4.13	<13	PASS
		25	12	3.28	<13	PASS
		25	25	3.33	<13	PASS
		50	0	3.47	<13	PASS



LTE BAND 12
Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.48	<13	PASS
		1	3	3.16	<13	PASS
		1	5	3.18	<13	PASS
		3	0	3.25	<13	PASS
		3	2	4.11	<13	PASS
		3	3	2.91	<13	PASS
		6	0	3.53	<13	PASS
	MCH	1	0	3.21	<13	PASS
		1	3	3.14	<13	PASS
		1	5	2.99	<13	PASS
		3	0	3.18	<13	PASS
		3	2	3.22	<13	PASS
		3	3	2.66	<13	PASS
		6	0	3.03	<13	PASS
	HCH	1	0	3.06	<13	PASS
		1	3	3.48	<13	PASS
		1	5	2.99	<13	PASS
		3	0	4.15	<13	PASS
		3	2	4.00	<13	PASS
		3	3	2.71	<13	PASS
		6	0	3.11	<13	PASS
16QAM	LCH	1	0	4.26	<13	PASS
		1	3	2.15	<13	PASS
		1	5	4.11	<13	PASS
		3	0	3.19	<13	PASS
		3	2	4.19	<13	PASS
		3	3	4.03	<13	PASS
		6	0	4.33	<13	PASS
	MCH	1	0	3.97	<13	PASS
		1	3	3.15	<13	PASS
		1	5	3.76	<13	PASS
		3	0	4.15	<13	PASS
		3	2	3.26	<13	PASS
		3	3	3.43	<13	PASS



		6	0	3.83	<13	PASS
	HCH	1	0	3.4	<13	PASS
		1	3	3.15	<13	PASS
		1	5	3.44	<13	PASS
		3	0	4.15	<13	PASS
		3	2	4.00	<13	PASS
		3	3	3.05	<13	PASS
		6	0	3.87	<13	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.25	<13	PASS
		1	7	3.14	<13	PASS
		1	14	2.96	<13	PASS
		8	0	4.11	<13	PASS
		8	4	3.22	<13	PASS
		8	7	3.84	<13	PASS
		15	0	3.47	<13	PASS
	MCH	1	0	2.85	<13	PASS
		1	7	3.24	<13	PASS
		1	14	2.87	<13	PASS
		8	0	2.66	<13	PASS
		8	4	4.11	<13	PASS
		8	7	3.44	<13	PASS
		15	0	2.97	<13	PASS
	HCH	1	0	2.84	<13	PASS
		1	7	3.14	<13	PASS
		1	14	3.01	<13	PASS
		8	0	4.11	<13	PASS
		8	4	3.00	<13	PASS
		8	7	3.57	<13	PASS
		15	0	3.12	<13	PASS
16QAM	LCH	1	0	3.99	<13	PASS
		1	7	2.85	<13	PASS
		1	14	3.67	<13	PASS
		8	0	3.22	<13	PASS
		8	4	4.15	<13	PASS



		8	7	4.69	<13	PASS
		15	0	4.44	<13	PASS
	MCH	1	0	3.56	<13	PASS
		1	7	3.33	<13	PASS
		1	14	3.55	<13	PASS
		8	0	4.00	<13	PASS
		8	4	4.12	<13	PASS
		8	7	4.23	<13	PASS
		15	0	3.91	<13	PASS
		HCH	1	0	3.24	<13
	1		7	3.22	<13	PASS
	1		14	3.84	<13	PASS
	8		0	3.58	<13	PASS
	8		4	4.16	<13	PASS
	8		7	4.33	<13	PASS
	15		0	3.99	<13	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.05	<13	PASS
		1	12	2.14	<13	PASS
		1	24	2.77	<13	PASS
		12	0	2.15	<13	PASS
		12	6	2.15	<13	PASS
		12	13	3.38	<13	PASS
		25	0	3.76	<13	PASS
	MCH	1	0	2.78	<13	PASS
		1	12	3.15	<13	PASS
		1	24	2.61	<13	PASS
		12	0	3.15	<13	PASS
		12	6	5.15	<13	PASS
		12	13	3.06	<13	PASS
		25	0	3.56	<13	PASS
	HCH	1	0	2.57	<13	PASS
		1	12	2.33	<13	PASS
		1	24	5.15	<13	PASS
		12	0	4.11	<13	PASS



16QAM		12	6	5.12	<13	PASS
		12	13	3.33	<13	PASS
		25	0	3.36	<13	PASS
	LCH	1	0	3.96	<13	PASS
		1	12	4.00	<13	PASS
		1	24	3.71	<13	PASS
		12	0	4.12	<13	PASS
		12	6	3.52	<13	PASS
		12	13	4.33	<13	PASS
		25	0	4.48	<13	PASS
		MCH	1	0	3.39	<13
	1		12	3.25	<13	PASS
	1		24	3.19	<13	PASS
	12		0	4.15	<13	PASS
	12		6	3.25	<13	PASS
	12		13	3.9	<13	PASS
	25		0	4.28	<13	PASS
	HCH	1	0	3.43	<13	PASS
		1	12	4.15	<13	PASS
		1	24	3.52	<13	PASS
		12	0	3.15	<13	PASS
		12	6	4.25	<13	PASS
		12	13	4.13	<13	PASS
		25	0	4.15	<13	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.15	<13	PASS
		1	24	4.11	<13	PASS
		1	49	3.33	<13	PASS
		25	0	4.15	<13	PASS
		25	12	5.11	<13	PASS
		25	25	5.28	<13	PASS
		50	0	5.00	<13	PASS
	MCH	1	0	4.19	<13	PASS
		1	24	4.05	<13	PASS
		1	49	3.15	<13	PASS



		25	0	5.12	<13	PASS
		25	12	3.23	<13	PASS
		25	25	4.11	<13	PASS
		50	0	2.33	<13	PASS
	HCH	1	0	2.10	<13	PASS
		1	24	2.11	<13	PASS
		1	49	4.00	<13	PASS
		25	0	4.13	<13	PASS
		25	12	2.00	<13	PASS
		25	25	2.19	<13	PASS
	50	0	1.98	<13	PASS	
16QAM	LCH	1	0	2.00	<13	PASS
		1	24	2.03	<13	PASS
		1	49	2.11	<13	PASS
		25	0	3.14	<13	PASS
		25	12	3.15	<13	PASS
		25	25	3.55	<13	PASS
		50	0	2.28	<13	PASS
	MCH	1	0	2.17	<13	PASS
		1	24	2.00	<13	PASS
		1	49	1.59	<13	PASS
		25	0	1.59	<13	PASS
		25	12	1.69	<13	PASS
		25	25	3.33	<13	PASS
		50	0	3.50	<13	PASS
	HCH	1	0	3.25	<13	PASS
		1	24	4.25	<13	PASS
		1	49	4.19	<13	PASS
		25	0	4.11	<13	PASS
		25	12	4.33	<13	PASS
		25	25	4.19	<13	PASS
		50	0	5.00	<13	PASS



LTE BAND 13

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	3.13	<13	PASS
		1	12	2.33	<13	PASS
		1	24	3.44	<13	PASS
		12	0	4.11	<13	PASS
		12	6	3.25	<13	PASS
		12	13	3.90	<13	PASS
		25	0	4.21	<13	PASS
	MCH	1	0	3.37	<13	PASS
		1	12	4.12	<13	PASS
		1	24	3.15	<13	PASS
		12	0	3.00	<13	PASS
		12	6	3.12	<13	PASS
		12	13	3.83	<13	PASS
		25	0	4.18	<13	PASS
	HCH	1	0	3.35	<13	PASS
		1	12	3.14	<13	PASS
		1	24	3.16	<13	PASS
		12	0	3.52	<13	PASS
		12	6	6.11	<13	PASS
		12	13	3.67	<13	PASS
		25	0	4.12	<13	PASS
16QAM	LCH	1	0	4.14	<13	PASS
		1	12	4.00	<13	PASS
		1	24	4.14	<13	PASS
		12	0	3.25	<13	PASS
		12	6	3.1	<13	PASS
		12	13	4.94	<13	PASS
		25	0	5.05	<13	PASS
	MCH	1	0	4.43	<13	PASS
		1	12	3.14	<13	PASS
		1	24	4.25	<13	PASS
		12	0	4.00	<13	PASS
		12	6	3.15	<13	PASS
		12	13	4.62	<13	PASS



		25	0	4.87	<13	PASS
	HCH	1	0	4.21	<13	PASS
		1	12	4.15	<13	PASS
		1	24	4.27	<13	PASS
		12	0	4.12	<13	PASS
		12	6	3.22	<13	PASS
		12	13	4.53	<13	PASS
		25	0	4.92	<13	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	MCH	1	0	2.00	<13	PASS
		1	24	2.15	<13	PASS
		1	49	3.11	<13	PASS
		25	0	5.55	<13	PASS
		25	12	4.18	<13	PASS
		25	25	5.14	<13	PASS
		50	0	3.45	<13	PASS
16QAM	MCH	1	0	4.11	<13	PASS
		1	24	4.09	<13	PASS
		1	49	3.22	<13	PASS
		25	0	4.15	<13	PASS
		25	12	4.00	<13	PASS
		25	25	3.28	<13	PASS
		50	0	3.18	<13	PASS
		25	25	3.15	<13	PASS
		50	0	3.99	<13	PASS



LTE BAND 17
Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.82	<13	PASS
		1	12	3.56	<13	PASS
		1	24	2.69	<13	PASS
		12	0	4.01	<13	PASS
		12	6	2.55	<13	PASS
		12	13	2.89	<13	PASS
		25	0	3.39	<13	PASS
	MCH	1	0	2.68	<13	PASS
		1	12	3.41	<13	PASS
		1	24	2.67	<13	PASS
		12	0	4.28	<13	PASS
		12	6	5.16	<13	PASS
		12	13	2.74	<13	PASS
		25	0	3.23	<13	PASS
	HCH	1	0	2.64	<13	PASS
		1	12	2.88	<13	PASS
		1	24	2.85	<13	PASS
		12	0	3.12	<13	PASS
		12	6	3.44	<13	PASS
		12	13	3.02	<13	PASS
		25	0	3.22	<13	PASS
16QAM	LCH	1	0	3.59	<13	PASS
		1	12	3.45	<13	PASS
		1	24	3.57	<13	PASS
		12	0	3.48	<13	PASS
		12	6	4.00	<13	PASS
		12	13	3.80	<13	PASS
		25	0	4.21	<13	PASS
	MCH	1	0	3.42	<13	PASS
		1	12	3.48	<13	PASS
		1	24	3.43	<13	PASS
		12	0	5.00	<13	PASS
		12	6	4.49	<13	PASS
		12	13	3.73	<13	PASS



		25	0	4.01	<13	PASS
	HCH	1	0	3.52	<13	PASS
		1	12	4.56	<13	PASS
		1	24	3.54	<13	PASS
		12	0	4.55	<13	PASS
		12	6	4.11	<13	PASS
		12	13	3.89	<13	PASS
		25	0	3.95	<13	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	2.52	<13	PASS
		1	24	3.14	<13	PASS
		1	49	2.44	<13	PASS
		25	0	3.02	<13	PASS
		25	12	3.15	<13	PASS
		25	25	3.00	<13	PASS
		50	0	2.89	<13	PASS
	MCH	1	0	2.56	<13	PASS
		1	24	2.87	<13	PASS
		1	49	3.16	<13	PASS
		25	0	3.15	<13	PASS
		25	12	3.00	<13	PASS
		25	25	4.16	<13	PASS
		50	0	4.22	<13	PASS
	HCH	1	0	4.33	<13	PASS
		1	24	4.19	<13	PASS
		1	49	4.21	<13	PASS
		25	0	4.26	<13	PASS
		25	12	1.98	<13	PASS
		25	25	2.00	<13	PASS
		50	0	3.13	<13	PASS
16QAM	LCH	1	0	2.56	<13	PASS
		1	24	2.48	<13	PASS
		1	49	2.59	<13	PASS
		25	0	3.11	<13	PASS
		25	12	3.00	<13	PASS



		25	25	3.44	<13	PASS
		50	0	3.91	<13	PASS
	MCH	1	0	4.06	<13	PASS
		1	24	2.55	<13	PASS
		1	49	2.90	<13	PASS
		25	0	2.78	<13	PASS
		25	12	2.55	<13	PASS
		25	25	2.63	<13	PASS
		50	0	3.33	<13	PASS
		HCH	1	0	3.45	<13
	1		24	3.94	<13	PASS
	1		49	3.42	<13	PASS
	25		0	2.58	<13	PASS
	25		12	2.41	<13	PASS
	25		25	2.00	<13	PASS
	50		0	2.98	<13	PASS



LTE BAND 30

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	5.22	<13	PASS
		1	12	4.14	<13	PASS
		1	24	6.00	<13	PASS
		12	0	2.22	<13	PASS
		12	6	2.16	<13	PASS
		12	13	2.17	<13	PASS
		25	0	1.33	<13	PASS
	MCH	1	0	3.22	<13	PASS
		1	12	1.58	<13	PASS
		1	24	3.55	<13	PASS
		12	0	3.14	<13	PASS
		12	6	3.45	<13	PASS
		12	13	3.25	<13	PASS
		25	0	3.44	<13	PASS
	HCH	1	0	4.00	<13	PASS
		1	12	3.11	<13	PASS
		1	24	3.15	<13	PASS
		12	0	3.25	<13	PASS
		12	6	3.18	<13	PASS
		12	13	3.00	<13	PASS
		25	0	2.15	<13	PASS
16QAM	LCH	1	0	2.18	<13	PASS
		1	12	2.19	<13	PASS
		1	24	4.15	<13	PASS
		12	0	4.33	<13	PASS
		12	6	4.28	<13	PASS
		12	13	3.22	<13	PASS
		25	0	3.22	<13	PASS
	MCH	1	0	3.10	<13	PASS
		1	12	3.00	<13	PASS
		1	24	3.08	<13	PASS
		12	0	3.15	<13	PASS
		12	6	3.15	<13	PASS
		12	13	3.22	<13	PASS
		12	13	3.22	<13	PASS



		25	0	5.28	<13	PASS
	HCH	1	0	5.00	<13	PASS
		1	12	4.15	<13	PASS
		1	24	3.22	<13	PASS
		12	0	3.15	<13	PASS
		12	6	3.14	<13	PASS
		12	13	4.00	<13	PASS
		25	0	5.00	<13	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	MCH	1	0	2.55	<13	PASS
		1	24	1.17	<13	PASS
		1	49	1.88	<13	PASS
		25	0	2.02	<13	PASS
		25	12	2.11	<13	PASS
		25	25	3.12	<13	PASS
		50	0	3.14	<13	PASS
16QAM	MCH	1	0	2.55	<13	PASS
		1	24	5.28	<13	PASS
		1	49	5.00	<13	PASS
		25	0	4.02	<13	PASS
		25	12	4.11	<13	PASS
		25	25	3.25	<13	PASS
		50	0	3.00	<13	PASS
		25	25	3.15	<13	PASS
		50	0	3.44	<13	PASS



7. SPURIOUS EMISSION

7.1 CONDUCTED SPURIOUS EMISSION

7.1.1 MEASUREMENT METHOD

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

For Band 7:

- (i) $40 + 10 \log_{10} p$ from the channel edges to 5 MHz away
- (ii) $43 + 10 \log_{10} p$ between 5 MHz and X MHz from the channel edges, and
- (iii) $55 + 10 \log_{10} p$ at X MHz and beyond from the channel edges

Test Procedure Used

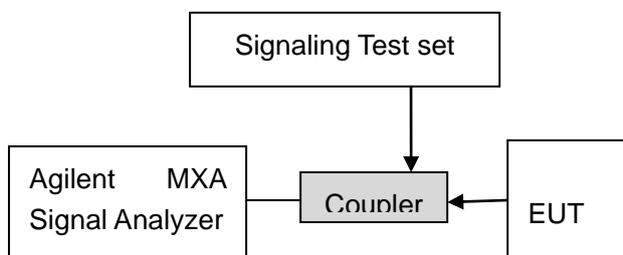
KDB 971168 D01v03 – Section 6.0

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to at least $10 \times$ the fundamental frequency (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = max hold
- 4. Sweep time = auto couple
- 5. The trace was allowed to stabilize
- 6. Please see test notes below for RBW and VBW settings

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Test Instrument & Measurement Setup

shall be attenuated below the transmitter power (P, in Watts) by at least $43 + 10 \log_{10}(P)$ dB. For all power



levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.



Test Note

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

7.1.2 MEASUREMENT RESULT

PLEASE REFER TO: APPENDIX A TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION

Note: 1. No emission found in standby or receive mode, no recording in this report.



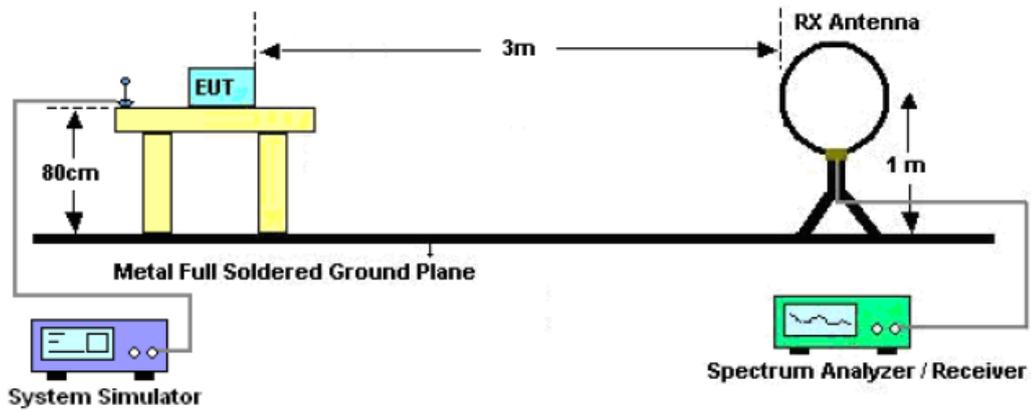
7.2 RADIATED SPURIOUS EMISSION

7.2.1. MEASUREMENT PROCEDURE

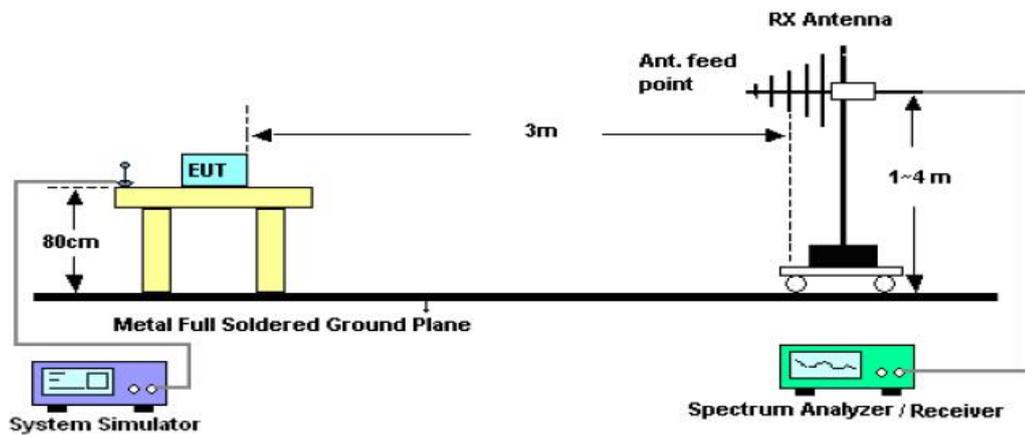
1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

7.2.2. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz

