

FCC TEST REPORT

For

IROOTECH TECHNOLOGY CO., LTD

T-Box

Model No.: HI1503-DC-H

Prepared For : IROOTECH TECHNOLOGY CO., LTD
Address : Room 606, Floor 6, Building 5, Eastern Yard 10, Xibeiwang East Road,
Haidian District, Beijing, China

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Date of Test : Mar. 12~ 28, 2018

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TEST REPORT

Applicant : IROOTECH TECHNOLOGY CO., LTD
Manufacturer : IROOTECH TECHNOLOGY CO., LTD
Product Name : T-Box
Model No. : HI1503-DC-H
Trade Mark : N.A.
Rating(s) : Input: DC9~36V, MAX: 0.5A (Built-in battery 3V, 5.8mAh)

Test Standard(s) : FCC PART 2, FCC Part 24(E), FCC Part 27: 2018

Test Method(s) : ANSI/TIAC603 D: 2010

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 24/27 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Mar. 12~ 28, 2018

Prepared by :



Winkey Wang

(Tested Engineer / Winkey Wang)

Reviewer :

Calvin Liss

(Project Manager / Calvin Liu)

Approved & Authorized Signer :

Tom Chen

(Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	IROOTECH TECHNOLOGY CO., LTD
Address	:	Room 606, Floor 6, Building 5, Eastern Yard 10, Xibeiwang East Road, Haidian District, Beijing, China
Manufacturer	:	IROOTECH TECHNOLOGY CO., LTD
Address	:	Room 606, Floor 6, Building 5, Eastern Yard 10, Xibeiwang East Road, Haidian District, Beijing, China

1.2. Description of Device (EUT)

Product Name	:	T-Box
Model No.	:	HI1503-DC-H
Trade Mark	:	N.A.
Test Power Supply	:	DC 12V From External lead-acid battery
Product Description	Operation Frequency:	LTE Band 2: TX: 1852.5 ~ 1907.5 MHz; RX : 1932.5 ~ 1987.5 MHz LTE Band 4 :TX: 1712.5 ~ 1752.5 MHz; RX : 2112.5 ~ 2152.5 MHz LTE Band 12 :TX: 701.5 ~ 713.5 MHz; RX : 731.5 ~ 743.5 MHz
	Modulation Type:	QPSK/16QAM
	Antenna Type:	External disk antenna
	Antenna Gain(Peak):	LTE-FDD Band 2 :0.55 dBi LTE-FDD Band 4 :1.55 dBi LTE-FDD Band 12 :1.51 dBi
	Equipment Category:	PCB

Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2)This report is for LTE.

1.3. Auxiliary Equipment Used During Test

N/A	:	N/A
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1.4. Test Modes

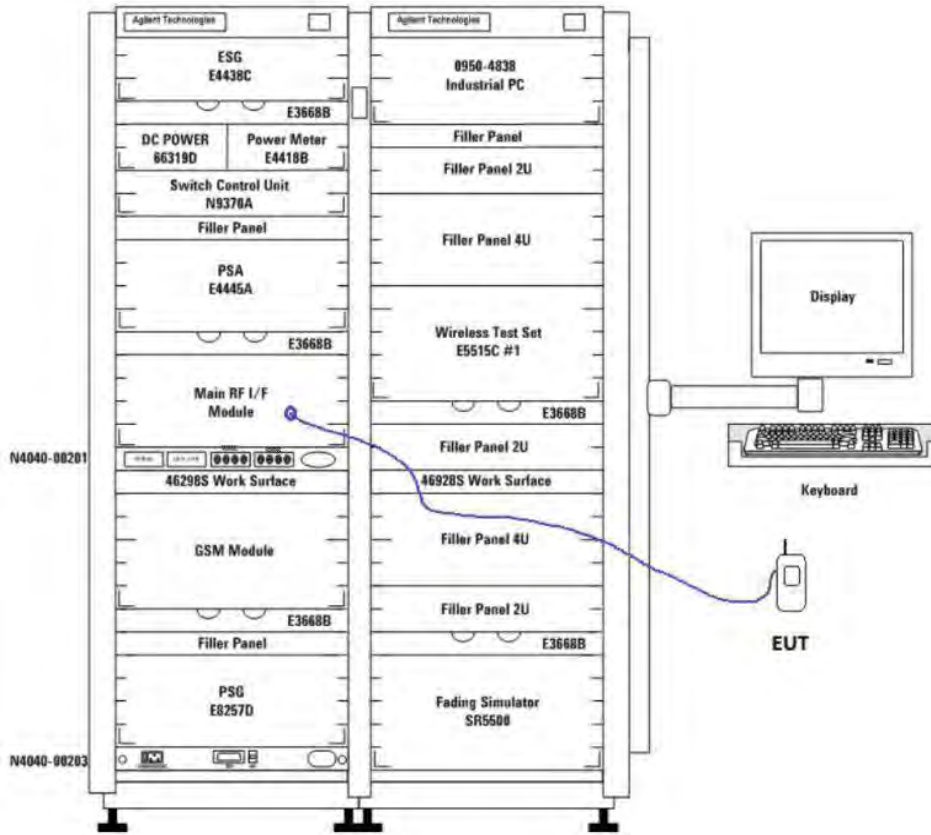
All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Support Band	Test Mode BW(MHz)	Channel Frequency	Channel Number
LTE Band 2	1.4	1850.7 MHz	18607
		1880.0 MHz	18900
		1909.3 MHz	19193
	3	1851.5 MHz	18615
		1880.0 MHz	18900
		1908.5 MHz	19185
	5	1852.5 MHz	18625
		1880.0 MHz	18900
		1907.5 MHz	19175
	10	1855.0 MHz	18650
		1880.0 MHz	18900
		1905.0 MHz	19150
	15	1857.5 MHz	18675
		1880.0 MHz	18900
		1902.5 MHz	19125
20	1860.0 MHz	18700	
	1880.0 MHz	18900	
	1900.0 MHz	19100	
LTE Band 4	1.4	1710.7 MHz	19957
		1732.5 MHz	20175
		1754.3 MHz	20393
	3	1711.5 MHz	19965
		1732.5 MHz	20175
		1753.5 MHz	20385
	5	1712.5 MHz	19975
		1732.5 MHz	20175
		1752.5 MHz	20375
	10	1715.0 MHz	20000
		1732.5 MHz	20175
		1750.0 MHz	20350
	15	1717.5 MHz	20025
		1732.5 MHz	20175
		1747.5 MHz	20325
20	1720.0 MHz	20050	
	1732.5 MHz	20175	
	1745.0 MHz	20300	
		699.7 MHz	23017

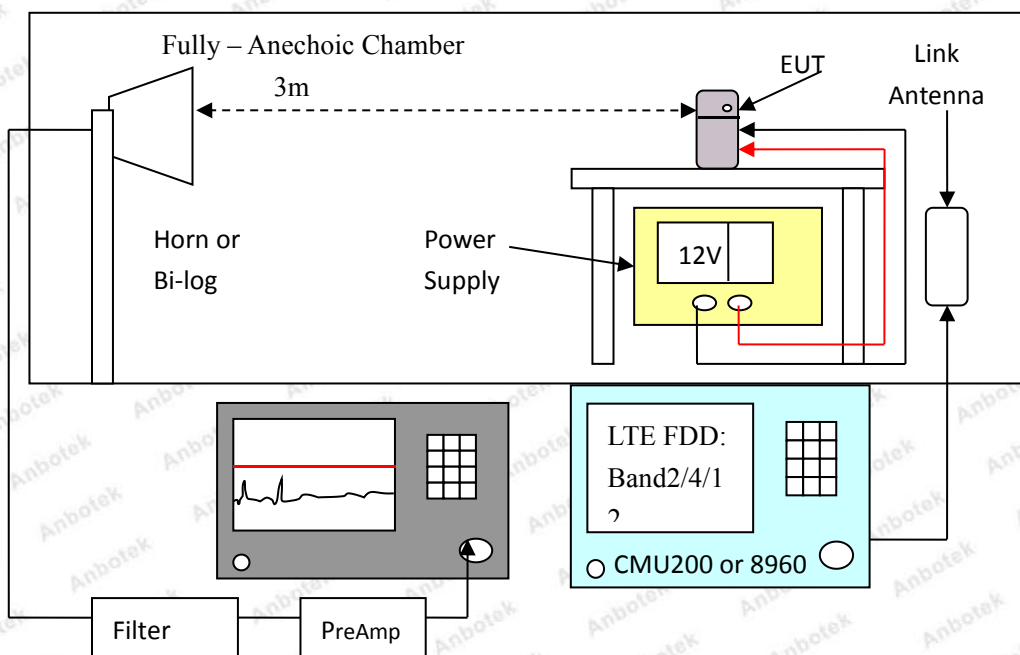
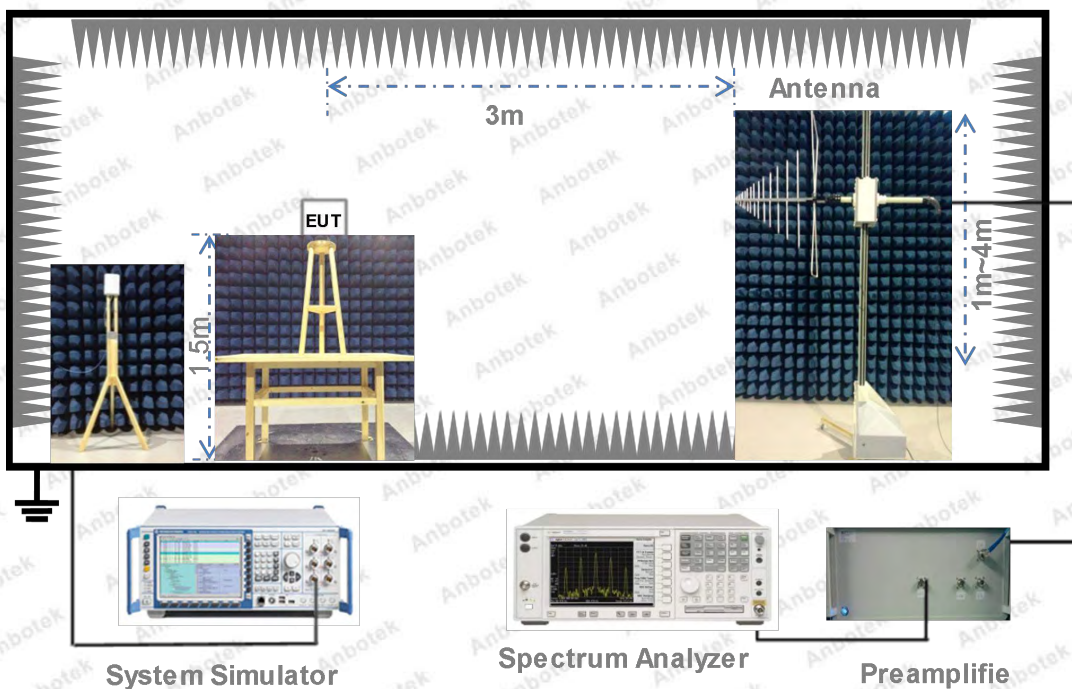
LTE Band 12	1.4	707.5 MHz	23095
		715.3 MHz	23173
	3	700.5 MHz	23025
		707.5 MHz	23095
		714.5 MHz	23165
	5	701.5 MHz	23035
		707.5 MHz	23095
		713.5 MHz	23155
	10	704.0 MHz	23060
		707.5 MHz	23095
		711 MHz	23130

1.5. Description Of Test Setup

1.5.1 Conducted Test Setup



1.5.2 Radiated Test Setup



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 17, 2017	1 Year
2.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	Nov. 17, 2017	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Nov. 17, 2017	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 20, 2017	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 20, 2017	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Nov. 17, 2017	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 18, 2017	1 Year
9.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 18, 2017	1 Year
10.	DC Power Supply	LW	TPR-6410D	349315	Nov. 01, 2017	1 Year
11.	Constant Temperature Humidity Chamber	Sertep	ZJ-HWHS8 0B	ZJ-17042804	Nov. 01, 2017	1 Year
12.	Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	117888	Nov. 17, 2017	1 Year
13.	Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	1201.0002K50-1 04209-JC	Nov. 18, 2017	1 Year
14.	High-Pass Filter	CDKMV	ZHPF-BM1 100 -4000-0730	B2015094550	Nov. 18, 2017	1 Year
15.	High-Pass Filter	CDKMV	ZHPF-M3.5 -18G-3834	1307006523	Nov. 17, 2017	1 Year
16.	4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063507	Nov. 17, 2017	1 Year
17.	4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063513	Nov. 17, 2017	1 Year

1.8. Measurement Uncertainty

Maximum measurement uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	$\pm 5 \%$
RF output power, conducted	$\pm 1,5 \text{ dB}$
Power Spectral Density, conducted	$\pm 3 \text{ dB}$
Unwanted Emissions, conducted	$\pm 3 \text{ dB}$
All emissions, radiated	$\pm 6 \text{ dB}$
Temperature	$\pm 1 \text{ }^\circ \text{C}$
Humidity	$\pm 5 \%$
DC and low frequency voltages	$\pm 3 \%$
Time	$\pm 5 \%$
Duty Cycle	$\pm 5 \%$

1.9. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111, July 31, 2017.

ISED-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

Test Location

All Emissions tests were performed at
Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102

2. Summary of Test

2.1. Summary of test result

The EUT has been tested according to the following specifications:

The tests documented in this report were performed in accordance with TIA-603-D, FCC CFR 47 Part 2, Part 24, Part 27.

FCC Rules	Description of Test	Result
§ 2.1046; § 24.232(c); § 27.50(c.10); § 27.50(d.4)	RF Output Power	Compliance
§ 24.232 (d); § 27.50(d)	Peak-Average Ratio	Compliance
§ 2.1047	Modulation Characteristics	Compliance
§ 2.1049; § 24.238; § 27.53(a.5)	99% & -26 dB Occupied Bandwidth	Compliance
§ 2.1051; § 24.238(a); § 27.53(h)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 24.238(a); § 27.53(h)	Field Strength of Spurious Radiation	Compliance
§ 24.238(a); § 27.53(h)	Out of band emission, Band Edge	Compliance
§ 2.1055; § 24.235; § 27.5(h); § 27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

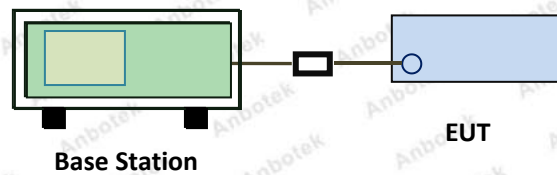
Note: Testing was performed by configuring EUT to maximum output power status, the declared output power class for different

3. RF Output Power Test

3.1. Test Standard and Limit

Spec	Item	Requirement
§24.232 (c)	b)	EIRP:33dBm
§ 27.50 (c)	c)	EIRP:30dBm

3.2. Test Setup



3.3. Test Procedure

For Conducted Power:

1.The transmitter output port was connected to base station.

Set EUT at maximum power through base station.

Select lowest, middle, and highest channels for each band and different test mode.

For ERP/EIRP:

2.The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

3.The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

4.The frequency range up to tenth harmonic of the fundamental frequency was investigated.

5.Remove the EUT and replace it with substitution antenna.

A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

6.Spurious emissions in dB = 10 log (TX power in Watts/0.001) – the absolute level

7.Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts).

3.4. Test Data

Conducted Power:

LTE BAND 2

BW(MHz)	CH	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
1.4MHz	18607	1850.7	QPSK	1	0	22.52	22.0±1	/
				1	2	22.57	22.0±1	/
				1	5	22.53	22.0±1	/
				3	0	22.54	22.0±1	/
				3	1	22.53	22.0±1	/
				3	2	22.53	22.0±1	/
			6	0	21.55	21.0±1	1.0	
			16QAM	1	0	21.60	21.0±1	1.0
				1	2	21.65	21.0±1	1.0
				1	5	21.58	21.0±1	1.0
				3	0	21.52	21.0±1	1.0
				3	1	21.51	21.0±1	1.0
	3	2		21.55	21.0±1	1.0		
	18900	1880	QPSK	1	0	22.65	22.0±1	/
				1	2	22.72	22.0±1	/
				1	5	22.70	22.0±1	/
				3	0	22.66	22.0±1	/
				3	1	22.68	22.0±1	/
				3	2	22.72	22.0±1	/
			6	0	21.65	21.0±1	1.0	
			16QAM	1	0	21.00	21.0±1	1.0
				1	2	21.06	21.0±1	1.0
				1	5	21.00	21.0±1	1.0
				3	0	21.90	21.0±1	1.0
				3	1	21.81	21.0±1	1.0
	3	2		21.87	21.0±1	1.0		
	19193	1909.3	QPSK	6	0	20.57	21.0±1	1.0
				1	0	22.72	22.0±1	/
				1	2	22.82	22.0±1	/
				1	5	22.75	22.0±1	/
3				0	22.71	22.0±1	/	
3				1	22.70	22.0±1	/	
16QAM			3	2	22.69	22.0±1	/	
			1	0	21.52	21.0±1	1.0	
			1	2	21.55	21.0±1	1.0	
			1	5	21.51	21.0±1	1.0	
			3	0	21.70	21.0±1	1.0	
			3	1	21.71	21.0±1	1.0	
3	2	21.73	21.0±1	1.0				
6	0	20.66	21.0±1	1.0				

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
3MHz	18615	1851.5	QPSK	1	0	22.45	22.0±1	/
				1	8	22.46	22.0±1	/
				1	14	22.44	22.0±1	/
				6	0	21.61	21.0±1	1.0
				6	4	21.62	21.0±1	1.0
				6	9	21.63	21.0±1	1.0
			15	0	21.58	21.0±1	1.0	
			16QAM	1	0	21.41	21.0±1	1.0
				1	8	21.42	21.0±1	1.0
				1	14	21.39	21.0±1	1.0
				6	0	20.72	21.0±1	1.0
				6	4	20.74	21.0±1	1.0
	6	9		20.73	21.0±1	1.0		
	15	0	20.62	21.0±1	1.0			
	18900	1880	QPSK	1	0	22.69	22.0±1	/
				1	8	22.73	22.0±1	/
				1	14	22.70	22.0±1	/
				6	0	21.76	21.0±1	1.0
				6	4	21.77	21.0±1	1.0
				6	9	21.77	21.0±1	1.0
			15	0	21.71	21.0±1	1.0	
			16QAM	1	0	21.02	21.0±1	1.0
				1	8	21.05	21.0±1	1.0
				1	14	21.00	21.0±1	1.0
				6	0	20.82	21.0±1	1.0
				6	4	20.84	21.0±1	1.0
	6	9		20.82	21.0±1	1.0		
	15	0	20.74	21.0±1	1.0			
	19185	1908.5	QPSK	1	0	22.74	22.0±1	/
				1	8	22.76	22.0±1	/
1				14	22.74	22.0±1	/	
6				0	21.76	21.0±1	1.0	
6				4	21.79	21.0±1	1.0	
6				9	21.75	21.0±1	1.0	
15			0	21.71	21.0±1	1.0		
16QAM			1	0	21.62	21.0±1	1.0	
			1	8	21.60	21.0±1	1.0	
			1	14	21.55	21.0±1	1.0	
			6	0	20.77	21.0±1	1.0	
			6	4	20.77	21.0±1	1.0	
	6	9	20.76	21.0±1	1.0			
15	0	20.66	21.0±1	1.0				

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
5MHz	18625	1852.5	QPSK	1	0	22.71	22.0±1	/
				1	12	22.68	22.0±1	/
				1	24	22.64	22.0±1	/
				12	0	21.70	21.0±1	1.0
				12	6	21.68	21.0±1	1.0
				12	11	21.69	21.0±1	1.0
				25	0	21.64	21.0±1	1.0
			16QAM	1	0	21.81	21.0±1	1.0
				1	12	21.79	21.0±1	1.0
				1	24	21.79	21.0±1	1.0
				12	0	20.75	21.0±1	1.0
				12	6	20.76	21.0±1	1.0
				12	11	20.76	21.0±1	1.0
				25	0	20.66	21.0±1	1.0
	18900	1880	QPSK	1	0	22.81	22.0±1	/
				1	12	22.81	22.0±1	/
				1	24	22.77	22.0±1	/
				12	0	21.79	21.0±1	1.0
				12	6	21.77	21.0±1	1.0
				12	11	21.80	21.0±1	1.0
				25	0	21.75	21.0±1	1.0
			16QAM	1	0	21.28	21.0±1	1.0
				1	12	21.26	21.0±1	1.0
				1	24	21.23	21.0±1	1.0
				12	0	20.92	21.0±1	1.0
				12	6	20.91	21.0±1	1.0
				12	11	20.93	21.0±1	1.0
25				0	20.8	21.0±1	1.0	
19175	1907.5	QPSK	1	0	22.78	22.0±1	/	
			1	12	22.75	22.0±1	/	
			1	24	22.69	22.0±1	/	
			12	0	21.76	21.0±1	1.0	
			12	6	21.74	21.0±1	1.0	
			12	11	21.71	21.0±1	1.0	
			25	0	21.69	21.0±1	1.0	
		16QAM	1	0	21.81	21.0±1	1.0	
			1	12	21.74	21.0±1	1.0	
			1	24	21.71	21.0±1	1.0	
			12	0	20.81	21.0±1	1.0	
			12	6	20.79	21.0±1	1.0	
			12	11	20.78	21.0±1	1.0	
			25	0	20.65	21.0±1	1.0	

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
10MHz	18650	1855	QPSK	1	0	22.70	22.0±1	/
				1	24	22.74	22.0±1	/
				1	49	22.58	22.0±1	/
				25	0	21.68	21.0±1	1.0
				25	12	21.66	21.0±1	1.0
				25	24	21.68	21.0±1	1.0
			16QAM	50	0	21.69	21.0±1	1.0
				1	0	21.58	21.0±1	1.0
				1	24	21.60	21.0±1	1.0
				1	49	21.55	21.0±1	1.0
				25	0	20.69	21.0±1	1.0
				25	12	20.68	21.0±1	1.0
	18900	1880	QPSK	25	24	20.69	21.0±1	1.0
				50	0	20.66	21.0±1	1.0
				1	0	22.83	22.0±1	/
				1	24	22.82	22.0±1	/
				1	49	22.74	22.0±1	/
				25	0	21.77	21.0±1	1.0
			16QAM	25	12	21.75	21.0±1	1.0
				25	24	21.79	21.0±1	1.0
				50	0	21.78	21.0±1	1.0
				1	0	21.12	21.0±1	1.0
				1	24	21.14	21.0±1	1.0
				1	49	21.07	21.0±1	1.0
19150	1905	QPSK	25	0	20.82	21.0±1	1.0	
			25	12	20.79	21.0±1	1.0	
			25	24	20.81	21.0±1	1.0	
			50	0	20.79	21.0±1	1.0	
			1	0	22.81	22.0±1	/	
			1	24	22.84	22.0±1	/	
		16QAM	1	49	22.27	22.0±1	/	
			25	0	21.73	21.0±1	1.0	
			25	12	21.72	21.0±1	1.0	
			25	24	21.73	21.0±1	1.0	
			50	0	21.72	21.0±1	1.0	
			1	0	21.73	21.0±1	1.0	
16QAM	1	24	21.71	21.0±1	1.0			
	1	49	21.27	21.0±1	1.0			
	25	0	20.83	21.0±1	1.0			
	25	12	20.80	21.0±1	1.0			
	25	24	20.81	21.0±1	1.0			
	50	0	20.76	21.0±1	1.0			

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
15MHz	18675	1857.5	QPSK	1	0	22.73	22.0±1	/
				1	37	22.69	22.0±1	/
				1	74	22.72	22.0±1	/
				36	0	21.74	21.0±1	1.0
				36	16	21.75	21.0±1	1.0
				36	35	21.76	21.0±1	1.0
				75	0	21.76	21.0±1	1.0
			16QAM	1	0	21.59	21.0±1	1.0
				1	37	21.57	21.0±1	1.0
				1	74	21.63	21.0±1	1.0
				36	0	20.73	21.0±1	1.0
				36	16	20.72	21.0±1	1.0
				36	35	20.75	21.0±1	1.0
				75	0	20.73	21.0±1	1.0
	18900	QPSK	1880	1	0	22.83	22.0±1	/
				1	37	22.80	22.0±1	/
				1	74	22.82	22.0±1	/
				36	0	21.85	21.0±1	1.0
				36	16	21.82	21.0±1	1.0
				36	35	21.85	21.0±1	1.0
				75	0	21.84	21.0±1	1.0
		16QAM		1	0	21.17	21.0±1	1.0
				1	37	21.12	21.0±1	1.0
				1	74	21.13	21.0±1	1.0
				36	0	20.86	21.0±1	1.0
				36	16	20.86	21.0±1	1.0
				36	35	20.87	21.0±1	1.0
75				0	20.85	21.0±1	1.0	
19125	QPSK	1902.5	1	0	22.79	22.0±1	/	
			1	37	22.76	22.0±1	/	
			1	74	22.33	22.0±1	/	
			36	0	21.78	21.0±1	1.0	
			36	16	21.81	21.0±1	1.0	
			36	35	21.80	21.0±1	1.0	
			75	0	21.81	21.0±1	1.0	
	16QAM		1	0	21.08	21.0±1	1.0	
			1	37	21.00	21.0±1	1.0	
			1	74	21.66	21.0±1	1.0	
			36	0	20.75	21.0±1	1.0	
			36	16	20.78	21.0±1	1.0	
			36	35	20.74	21.0±1	1.0	
			75	0	20.77	21.0±1	1.0	

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
20MHz	18700	1860	QPSK	1	0	22.79	22.0±1	/
				1	49	22.77	22.0±1	/
				1	99	22.62	22.0±1	/
				50	0	21.72	21.0±1	1.0
				50	24	21.70	21.0±1	1.0
				50	49	21.77	21.0±1	1.0
			16QAM	100	0	21.74	21.0±1	1.0
				1	0	21.24	21.0±1	1.0
				1	49	21.26	21.0±1	1.0
				1	99	21.15	21.0±1	1.0
				50	0	20.75	21.0±1	1.0
				50	24	20.77	21.0±1	1.0
	18900	1880	QPSK	50	49	20.79	21.0±1	1.0
				100	0	20.77	21.0±1	1.0
				1	0	22.93	22.0±1	/
				1	49	22.98	22.0±1	/
				1	99	22.87	22.0±1	/
				50	0	21.81	21.0±1	1.0
			16QAM	50	24	21.96	21.0±1	1.0
				50	49	21.80	21.0±1	1.0
				100	0	21.81	21.0±1	1.0
				1	0	22.26	21.0±1	1.0
				1	49	22.21	21.0±1	1.0
				1	99	22.19	21.0±1	1.0
19100	1900	QPSK	50	0	20.82	21.0±1	1.0	
			50	24	20.78	21.0±1	1.0	
			50	49	20.82	21.0±1	1.0	
			100	0	20.81	21.0±1	1.0	
			1	0	22.78	22.0±1	/	
			1	49	22.76	22.0±1	/	
		16QAM	1	99	22.23	22.0±1	/	
			50	0	21.78	21.0±1	1.0	
			50	24	21.75	21.0±1	1.0	
			50	49	21.75	21.0±1	1.0	
			100	0	21.77	21.0±1	1.0	
			1	0	21.12	21.0±1	1.0	
16QAM	1	49	21.09	21.0±1	1.0			
	1	99	21.62	21.0±1	1.0			
	50	0	20.77	21.0±1	1.0			
	50	24	20.74	21.0±1	1.0			
	50	49	20.75	21.0±1	1.0			
	100	0	20.79	21.0±1	1.0			

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BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
1.4MHz	19957	1710.7	QPSK	1	0	22.68	22.0±1	/
				1	2	22.70	22.0±1	/
				1	5	22.68	22.0±1	/
				3	0	22.74	22.0±1	/
				3	1	22.74	22.0±1	/
				3	2	22.75	22.0±1	/
			6	0	21.71	21.0±1	1.0	
			16QAM	1	0	21.79	21.0±1	1.0
				1	2	21.86	21.0±1	1.0
				1	5	21.81	21.0±1	1.0
				3	0	21.76	21.0±1	1.0
				3	1	21.76	21.0±1	1.0
	3	2		21.79	21.0±1	1.0		
	6	0	20.85	21.0±1	1.0			
	20175	1732.5	QPSK	1	0	22.72	22.0±1	/
				1	2	22.76	22.0±1	/
				1	5	22.73	22.0±1	/
				3	0	22.76	22.0±1	/
				3	1	22.78	22.0±1	/
				3	2	22.78	22.0±1	/
			6	0	21.76	21.0±1	1.0	
			16QAM	1	0	21.07	21.0±1	1.0
				1	2	21.06	21.0±1	1.0
				1	5	21.04	21.0±1	1.0
				3	0	21.93	21.0±1	1.0
				3	1	21.87	21.0±1	1.0
	3	2		21.89	21.0±1	1.0		
	6	0	20.62	21.0±1	1.0			
	20393	1754.3	QPSK	1	0	22.61	22.0±1	/
				1	2	22.70	22.0±1	/
1				5	22.61	22.0±1	/	
3				0	22.71	22.0±1	/	
3				1	22.67	22.0±1	/	
3				2	22.70	22.0±1	/	
6			0	21.63	21.0±1	1.0		
16QAM			1	0	21.62	21.0±1	1.0	
			1	2	21.66	21.0±1	1.0	
			1	5	21.64	21.0±1	1.0	
			3	0	21.83	21.0±1	1.0	
			3	1	21.82	21.0±1	1.0	
	3	2	21.82	21.0±1	1.0			
6	0	20.78	21.0±1	1.0				

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
3MHz	19965	1711.5	QPSK	1	0	22.66	22.0±1	/
				1	8	22.66	22.0±1	/
				1	14	22.66	22.0±1	/
				6	0	21.73	21.0±1	1.0
				6	4	21.78	21.0±1	1.0
				6	9	21.77	21.0±1	1.0
				15	0	21.73	21.0±1	1.0
			16QAM	1	0	21.57	21.0±1	1.0
				1	8	21.60	21.0±1	1.0
				1	14	21.58	21.0±1	1.0
				8	0	20.85	21.0±1	1.0
				8	4	20.87	21.0±1	1.0
				8	9	20.85	21.0±1	1.0
				15	0	20.76	21.0±1	1.0
	20175	1732.5	QPSK	1	0	22.70	22.0±1	/
				1	8	22.71	22.0±1	/
				1	14	22.68	22.0±1	/
				6	0	21.78	21.0±1	1.0
				6	4	21.81	21.0±1	1.0
				6	9	21.78	21.0±1	1.0
				15	0	21.73	21.0±1	1.0
			16QAM	1	0	21.04	21.0±1	1.0
				1	8	21.02	21.0±1	1.0
				1	14	21.01	21.0±1	1.0
				6	0	20.82	21.0±1	1.0
				6	4	20.83	21.0±1	1.0
				6	9	20.80	21.0±1	1.0
15				0	20.72	21.0±1	1.0	
20385	1753.5	QPSK	1	0	22.64	22.0±1	/	
			1	8	22.63	22.0±1	/	
			1	14	22.62	22.0±1	/	
			6	0	21.69	21.0±1	1.0	
			6	4	21.72	21.0±1	1.0	
			6	9	21.68	21.0±1	1.0	
			15	0	21.66	21.0±1	1.0	
		16QAM	1	0	21.65	21.0±1	1.0	
			1	8	21.62	21.0±1	1.0	
			1	14	21.58	21.0±1	1.0	
			8	0	20.71	21.0±1	1.0	
			8	4	20.72	21.0±1	1.0	
			8	9	20.69	21.0±1	1.0	
			15	0	20.60	21.0±1	1.0	

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
5MHz	19975	1712.5	QPSK	1	0	22.71	22.0±1	/
				1	49	22.75	22.0±1	/
				1	99	22.70	22.0±1	/
				12	0	21.78	21.0±1	1.0
				12	24	21.79	21.0±1	1.0
				12	49	21.80	21.0±1	1.0
				25	0	21.74	21.0±1	1.0
			16QAM	1	0	21.90	21.0±1	1.0
				1	49	21.91	21.0±1	1.0
				1	99	21.89	21.0±1	1.0
				12	0	20.85	21.0±1	1.0
				12	24	20.87	21.0±1	1.0
				12	49	20.86	21.0±1	1.0
				25	0	20.76	21.0±1	1.0
	20175	1732.5	QPSK	1	0	22.76	22.0±1	/
				1	49	22.78	22.0±1	/
				1	99	22.72	22.0±1	/
				12	0	21.78	21.0±1	1.0
				12	24	21.75	21.0±1	1.0
				12	49	21.72	21.0±1	1.0
				25	0	21.74	21.0±1	1.0
			16QAM	1	0	21.26	21.0±1	1.0
				1	49	21.23	21.0±1	1.0
				1	99	21.16	21.0±1	1.0
				12	0	20.89	21.0±1	1.0
				12	24	20.87	21.0±1	1.0
				12	49	20.84	21.0±1	1.0
25				0	20.77	21.0±1	1.0	
20375	1752.5	QPSK	1	0	22.68	22.0±1	/	
			1	49	22.67	22.0±1	/	
			1	99	22.60	22.0±1	/	
			12	0	21.70	21.0±1	1.0	
			12	24	21.69	21.0±1	1.0	
			12	49	21.69	21.0±1	1.0	
			25	0	21.66	21.0±1	1.0	
		16QAM	1	0	21.76	21.0±1	1.0	
			1	49	21.76	21.0±1	1.0	
			1	99	21.70	21.0±1	1.0	
			12	0	20.75	21.0±1	1.0	
			12	24	20.74	21.0±1	1.0	
			12	49	20.72	21.0±1	1.0	
			25	0	20.60	21.0±1	1.0	

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
10MHz	20000	1715	QPSK	1	0	22.70	22.0±1	/
				1	49	22.76	22.0±1	/
				1	99	22.75	22.0±1	/
				25	0	21.77	21.0±1	1.0
				25	24	21.77	21.0±1	1.0
				25	49	21.77	21.0±1	1.0
			50	0	21.78	21.0±1	1.0	
			16QAM	1	0	21.53	21.0±1	1.0
				1	49	21.69	21.0±1	1.0
				1	99	21.68	21.0±1	1.0
				25	0	20.77	21.0±1	1.0
				25	24	20.79	21.0±1	1.0
	25	49		20.81	21.0±1	1.0		
	20175	1732.5	QPSK	1	0	22.77	22.0±1	/
				1	49	22.75	22.0±1	/
				1	99	22.74	22.0±1	/
				25	0	21.74	21.0±1	1.0
				25	24	21.73	21.0±1	1.0
				25	49	21.73	21.0±1	1.0
			50	0	21.76	21.0±1	1.0	
			16QAM	1	0	21.10	21.0±1	1.0
				1	49	21.06	21.0±1	1.0
				1	99	21.03	21.0±1	1.0
				25	0	20.75	21.0±1	1.0
25				24	20.75	21.0±1	1.0	
25	49	20.72		21.0±1	1.0			
20350	1750	QPSK	1	0	22.58	22.0±1	/	
			1	49	22.67	22.0±1	/	
			1	99	22.68	22.0±1	/	
			25	0	21.67	21.0±1	1.0	
			25	24	21.64	21.0±1	1.0	
			25	49	21.67	21.0±1	1.0	
		50	0	21.65	21.0±1	1.0		
		16QAM	1	0	21.46	21.0±1	1.0	
			1	49	21.67	21.0±1	1.0	
			1	99	21.64	21.0±1	1.0	
			25	0	20.72	21.0±1	1.0	
			25	24	20.73	21.0±1	1.0	
25	49		20.74	21.0±1	1.0			
50	0	20.66	21.0±1	1.0				

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
15MHz	20025	1717.5	QPSK	1	0	22.74	22.0±1	/
				1	49	22.74	22.0±1	/
				1	99	22.77	22.0±1	/
				36	0	21.80	21.0±1	1.0
				36	24	21.80	21.0±1	1.0
				36	49	21.81	21.0±1	1.0
			75	0	21.81	21.0±1	1.0	
			16QAM	1	0	21.63	21.0±1	1.0
				1	49	21.67	21.0±1	1.0
				1	99	21.68	21.0±1	1.0
				36	0	20.78	21.0±1	1.0
				36	24	20.79	21.0±1	1.0
	36	49		20.81	21.0±1	1.0		
	20175	1732.5	QPSK	1	0	22.77	22.0±1	/
				1	49	22.74	22.0±1	/
				1	99	22.73	22.0±1	/
				36	0	21.80	21.0±1	1.0
				36	24	21.81	21.0±1	1.0
				36	49	21.81	21.0±1	1.0
			75	0	21.82	21.0±1	1.0	
			16QAM	1	0	21.13	21.0±1	1.0
				1	49	21.03	21.0±1	1.0
				1	99	21.02	21.0±1	1.0
				36	0	20.82	21.0±1	1.0
36				24	20.80	21.0±1	1.0	
36	49	20.80		21.0±1	1.0			
20325	1747.5	QPSK	1	0	22.75	22.0±1	/	
			1	49	22.71	22.0±1	/	
			1	99	22.70	22.0±1	/	
			36	0	21.74	21.0±1	1.0	
			36	24	21.75	21.0±1	1.0	
			36	49	21.74	21.0±1	1.0	
		75	0	21.76	21.0±1	1.0		
		16QAM	1	0	21.00	21.0±1	1.0	
			1	49	21.02	21.0±1	1.0	
			1	99	21.01	21.0±1	1.0	
			36	0	20.68	21.0±1	1.0	
			36	24	20.68	21.0±1	1.0	
36	49		20.68	21.0±1	1.0			
75	0	20.70	21.0±1	1.0				

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
20MHz	20050	1720	QPSK	1	0	22.80	22.0±1	/
				1	49	22.79	22.0±1	/
				1	99	22.81	22.0±1	/
				50	0	21.79	21.0±1	1.0
				50	24	21.75	21.0±1	1.0
				50	49	21.80	21.0±1	1.0
			100	0	21.77	21.0±1	1.0	
			16QAM	1	0	21.28	21.0±1	1.0
				1	49	21.29	21.0±1	1.0
				1	99	21.28	21.0±1	1.0
				50	0	20.83	21.0±1	1.0
				50	24	20.80	21.0±1	1.0
	50	49		20.83	21.0±1	1.0		
	100	0	20.81	21.0±1	1.0			
	20175	1732.5	QPSK	1	0	22.83	22.0±1	/
				1	49	22.92	22.0±1	/
				1	99	22.45	22.0±1	/
				50	0	21.77	21.0±1	1.0
				50	24	21.93	21.0±1	1.0
				50	49	21.76	21.0±1	1.0
			100	0	21.74	21.0±1	1.0	
			16QAM	1	0	21.20	21.0±1	1.0
				1	49	21.11	21.0±1	1.0
				1	99	21.86	21.0±1	1.0
50				0	20.77	21.0±1	1.0	
50				24	20.73	21.0±1	1.0	
50	49	20.72		21.0±1	1.0			
100	0	20.72	21.0±1	1.0				
20300	1745	QPSK	1	0	22.74	22.0±1	/	
			1	49	22.49	22.0±1	/	
			1	99	22.69	22.0±1	/	
			50	0	21.70	21.0±1	1.0	
			50	24	21.68	21.0±1	1.0	
			50	49	21.70	21.0±1	1.0	
		100	0	21.69	21.0±1	1.0		
		16QAM	1	0	21.04	21.0±1	1.0	
			1	49	21.93	21.0±1	1.0	
			1	99	21.02	21.0±1	1.0	
			50	0	20.64	21.0±1	1.0	
			50	24	20.62	21.0±1	1.0	
50	49		20.64	21.0±1	1.0			
100	0	20.68	21.0±1	1.0				

LTE BAND 12

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
1.4MHz	23017	699.7	QPSK	1	0	22.79	22.0±1	/
				1	2	22.80	22.0±1	/
				1	5	22.79	22.0±1	/
				3	0	22.82	22.0±1	/
				3	1	22.80	22.0±1	/
				3	2	22.80	22.0±1	/
			16QAM	6	0	21.82	21.0±1	1.0
				1	0	21.82	21.0±1	1.0
				1	2	21.87	21.0±1	1.0
				1	5	21.84	21.0±1	1.0
				3	0	21.83	21.0±1	1.0
				3	1	21.83	21.0±1	1.0
	23095	707.5	QPSK	3	2	21.85	21.0±1	1.0
				6	0	20.92	21.0±1	1.0
				1	0	22.83	22.0±1	/
				1	2	22.89	22.0±1	/
				1	5	22.85	22.0±1	/
				3	0	22.82	22.0±1	/
			16QAM	3	1	22.83	22.0±1	/
				3	2	22.83	22.0±1	/
				6	0	21.84	21.0±1	1.0
				1	0	21.08	21.0±1	1.0
				1	2	21.09	21.0±1	1.0
				1	5	21.07	21.0±1	1.0
	23173	715.3	QPSK	3	0	21.93	21.0±1	1.0
				3	1	21.89	21.0±1	1.0
				3	2	21.91	21.0±1	1.0
6				0	20.67	21.0±1	1.0	
1				0	22.81	22.0±1	/	
1				2	22.86	22.0±1	/	
16QAM			1	5	22.79	22.0±1	/	
			3	0	22.78	22.0±1	/	
			3	1	22.75	22.0±1	/	
			3	2	22.77	22.0±1	/	
			6	0	21.74	21.0±1	1.0	
			1	0	21.69	21.0±1	1.0	
				1	2	21.71	21.0±1	1.0
				1	5	21.72	21.0±1	1.0
				3	0	21.91	21.0±1	1.0
				3	1	21.88	21.0±1	1.0
				3	2	21.89	21.0±1	1.0
				6	0	20.90	21.0±1	1.0

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
3MHz	23025	700.5	QPSK	1	0	22.73	22.0±1	/
				1	8	22.75	22.0±1	/
				1	14	22.73	22.0±1	/
				8	0	21.85	21.0±1	1.0
				8	4	21.86	21.0±1	1.0
				8	9	21.85	21.0±1	1.0
			15	0	21.82	21.0±1	1.0	
			16QAM	1	0	21.61	21.0±1	1.0
				1	8	21.65	21.0±1	1.0
				1	14	21.58	21.0±1	1.0
				8	0	20.94	21.0±1	1.0
				8	4	20.94	21.0±1	1.0
	8	9		20.91	21.0±1	1.0		
	23095	707.5	QPSK	1	0	22.80	22.0±1	/
				1	8	22.86	22.0±1	/
				1	14	22.84	22.0±1	/
				8	0	21.91	21.0±1	1.0
				8	4	21.94	21.0±1	1.0
				8	9	21.94	21.0±1	1.0
			15	0	21.84	21.0±1	1.0	
			16QAM	1	0	21.06	21.0±1	1.0
				1	8	21.09	21.0±1	1.0
				1	14	21.08	21.0±1	1.0
				8	0	20.91	21.0±1	1.0
				8	4	20.95	21.0±1	1.0
	8	9		20.94	21.0±1	1.0		
	23165	714.5	QPSK	1	0	22.84	22.0±1	/
1				8	22.83	22.0±1	/	
1				14	22.79	22.0±1	/	
8				0	21.86	21.0±1	1.0	
8				4	21.89	21.0±1	1.0	
8				9	21.84	21.0±1	1.0	
15			0	21.83	21.0±1	1.0		
16QAM			1	0	21.74	21.0±1	1.0	
			1	8	21.72	21.0±1	1.0	
			1	14	21.69	21.0±1	1.0	
			8	0	20.88	21.0±1	1.0	
			8	4	20.90	21.0±1	1.0	
	8	9	20.84	21.0±1	1.0			
15	0	20.76	21.0±1	1.0				

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
5MHz	23035	701.5	QPSK	1	0	22.86	22.0±1	/
				1	49	22.86	22.0±1	/
				1	99	22.79	22.0±1	/
				12	0	21.89	21.0±1	1.0
				12	24	21.89	21.0±1	1.0
				12	49	21.89	21.0±1	1.0
				25	0	21.83	21.0±1	1.0
			16QAM	1	0	21.99	21.0±1	1.0
				1	49	21.01	21.0±1	1.0
				1	99	21.95	21.0±1	1.0
				12	0	20.96	21.0±1	1.0
				12	24	20.93	21.0±1	1.0
				12	49	20.95	21.0±1	1.0
				25	0	20.85	21.0±1	1.0
	23095	QPSK	707.5	1	0	22.92	22.0±1	/
				1	49	22.95	22.0±1	/
				1	99	22.90	22.0±1	/
				12	0	21.88	21.0±1	1.0
				12	24	21.89	21.0±1	1.0
				12	49	21.91	21.0±1	1.0
				25	0	21.85	21.0±1	1.0
		16QAM		1	0	21.32	21.0±1	1.0
				1	49	21.32	21.0±1	1.0
				1	99	21.30	21.0±1	1.0
				12	0	20.99	21.0±1	1.0
				12	24	20.99	21.0±1	1.0
				12	49	20.00	21.0±1	1.0
25	0	20.88	21.0±1	1.0				
23155	QPSK	713.5	1	0	22.87	22.0±1	/	
			1	49	22.86	22.0±1	/	
			1	99	22.79	22.0±1	/	
			12	0	21.90	21.0±1	1.0	
			12	24	21.86	21.0±1	1.0	
			12	49	21.86	21.0±1	1.0	
			25	0	21.84	21.0±1	1.0	
	16QAM		1	0	21.90	21.0±1	1.0	
			1	49	21.87	21.0±1	1.0	
			1	99	21.84	21.0±1	1.0	
			12	0	20.92	21.0±1	1.0	
			12	24	20.90	21.0±1	1.0	
			12	49	20.87	21.0±1	1.0	
			25	0	20.77	21.0±1	1.0	

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)	MPR (dB)
10MHz	23060	704	QPSK	1	0	22.86	22.0±1	/
				1	49	22.87	22.0±1	/
				1	99	22.95	22.0±1	/
				25	0	21.84	21.0±1	1.0
				25	24	21.84	21.0±1	1.0
				25	49	21.87	21.0±1	1.0
			16QAM	50	0	21.86	21.0±1	1.0
				1	0	21.75	21.0±1	1.0
				1	49	21.71	21.0±1	1.0
				1	99	21.77	21.0±1	1.0
				25	0	20.86	21.0±1	1.0
				25	24	20.83	21.0±1	1.0
	23095	707.5	QPSK	25	49	20.87	21.0±1	1.0
				50	0	20.84	21.0±1	1.0
				1	0	22.87	22.0±1	/
				1	49	22.97	22.0±1	/
				1	99	22.89	22.0±1	/
				25	0	21.84	21.0±1	1.0
			16QAM	25	24	21.96	21.0±1	1.0
				25	49	21.90	21.0±1	1.0
				50	0	21.85	21.0±1	1.0
				1	0	21.13	21.0±1	1.0
				1	49	21.16	21.0±1	1.0
				1	99	21.15	21.0±1	1.0
	23130	711	QPSK	25	0	20.85	21.0±1	1.0
				25	24	20.85	21.0±1	1.0
				25	49	20.89	21.0±1	1.0
50				0	20.84	21.0±1	1.0	
1				0	22.96	22.0±1	/	
1				49	22.96	22.0±1	/	
16QAM			1	99	22.90	22.0±1	/	
			25	0	21.88	21.0±1	1.0	
			25	24	21.86	21.0±1	1.0	
			25	49	21.87	21.0±1	1.0	
			50	0	21.88	21.0±1	1.0	
			1	0	21.86	21.0±1	1.0	
16QAM	1	49	21.83	21.0±1	1.0			
	1	99	21.79	21.0±1	1.0			
	25	0	20.93	21.0±1	1.0			
	25	24	20.93	21.0±1	1.0			
	25	49	20.93	21.0±1	1.0			
	50	0	20.88	21.0±1	1.0			

Radiated Output Power:

EIRP for LTE Band 2 (Part 24E)

Frequency (MHz)	BW (MHz)	Modulation	RB Size/Offset	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1850.7	1.4	QPSK	1/0	10.05	V	7.88	0.85	17.08	33.01
1880	1.4	QPSK	1/0	9.83	V	7.88	0.85	16.86	33.01
1909.3	1.4	QPSK	1/0	9.94	V	7.88	0.85	16.97	33.01
1850.7	1.4	QPSK	1/0	9.79	H	7.88	0.85	16.82	33.01
1880	1.4	QPSK	1/0	9.61	H	7.88	0.85	16.64	33.01
1909.3	1.4	QPSK	1/0	9.84	H	7.88	0.85	16.87	33.01
1850.7	1.4	16-QAM	1/0	9.96	V	7.88	0.85	16.99	33.01
1880	1.4	16-QAM	1/0	9.83	V	7.88	0.85	16.86	33.01
1909.3	1.4	16-QAM	1/0	9.43	V	7.88	0.85	16.46	33.01
1850.7	1.4	16-QAM	1/0	9.49	H	7.88	0.85	16.52	33.01
1880	1.4	16-QAM	1/0	10.01	H	7.88	0.85	17.04	33.01
1909.3	1.4	16-QAM	1/0	9.49	H	7.88	0.85	16.52	33.01
1851.5	3	QPSK	1/0	9.86	V	7.88	0.85	16.89	33.01
1880	3	QPSK	1/0	9.39	V	7.88	0.85	16.42	33.01
1908.5	3	QPSK	1/0	9.44	V	7.88	0.85	16.47	33.01
1851.5	3	QPSK	1/0	9.74	H	7.88	0.85	16.77	33.01
1880	3	QPSK	1/0	9.95	H	7.88	0.85	16.98	33.01
1908.5	3	QPSK	1/0	9.44	H	7.88	0.85	16.47	33.01
1851.5	3	16-QAM	1/0	10.13	V	7.88	0.85	17.16	33.01
1880	3	16-QAM	1/0	9.71	V	7.88	0.85	16.74	33.01
1908.5	3	16-QAM	1/0	9.61	V	7.88	0.85	16.64	33.01
1851.5	3	16-QAM	1/0	9.89	H	7.88	0.85	16.92	33.01
1880	3	16-QAM	1/0	9.65	H	7.88	0.85	16.68	33.01
1908.5	3	16-QAM	1/0	9.97	H	7.88	0.85	17.00	33.01
1852.5	5	QPSK	1/24	10.06	V	7.88	0.85	17.09	33.01
1880	5	QPSK	1/0	9.82	V	7.88	0.85	16.85	33.01
1907.5	5	QPSK	1/24	9.61	V	7.88	0.85	16.64	33.01
1852.5	5	QPSK	1/24	10.03	H	7.88	0.85	17.06	33.01
1880	5	QPSK	1/0	9.86	H	7.88	0.85	16.89	33.01
1907.5	5	QPSK	1/24	9.94	H	7.88	0.85	16.97	33.01
1852.5	5	16-QAM	1/24	9.58	V	7.88	0.85	16.61	33.01
1880	5	16-QAM	1/0	10.02	V	7.88	0.85	17.05	33.01
1907.5	5	16-QAM	1/24	9.96	V	7.88	0.85	16.99	33.01
1852.5	5	16-QAM	1/24	9.89	H	7.88	0.85	16.92	33.01
1880	5	16-QAM	1/0	9.74	H	7.88	0.85	16.77	33.01
1907.5	5	16-QAM	1/24	9.62	H	7.88	0.85	16.65	33.01
1855	10	QPSK	1/0	9.98	V	7.88	0.85	17.01	33.01

1880	10	QPSK	1/0	10.03	V	7.88	0.85	17.06	33.01
1905	10	QPSK	1/49	9.76	V	7.88	0.85	16.79	33.01
1855	10	QPSK	1/0	9.84	H	7.88	0.85	16.87	33.01
1880	10	QPSK	1/0	9.69	H	7.88	0.85	16.72	33.01
1905	10	QPSK	1/49	9.52	H	7.88	0.85	16.55	33.01
1855	10	16-QAM	1/0	9.62	V	7.88	0.85	16.65	33.01
1880	10	16-QAM	1/0	9.77	V	7.88	0.85	16.80	33.01
1905	10	16-QAM	1/49	9.43	V	7.88	0.85	16.46	33.01
1855	10	16-QAM	1/0	10.03	H	7.88	0.85	17.06	33.01
1880	10	16-QAM	1/0	9.71	H	7.88	0.85	16.74	33.01
1905	10	16-QAM	1/49	9.41	H	7.88	0.85	16.44	33.01
1857.5	15	QPSK	1/0	9.66	V	7.88	0.85	16.69	33.01
1880	15	QPSK	1/0	9.43	V	7.88	0.85	16.46	33.01
1902.5	15	QPSK	1/0	9.24	V	7.88	0.85	16.27	33.01
1857.5	15	QPSK	1/0	9.83	H	7.88	0.85	16.86	33.01
1880	15	QPSK	1/0	9.46	H	7.88	0.85	16.49	33.01
1902.5	15	QPSK	1/0	9.25	H	7.88	0.85	16.28	33.01
1857.5	15	16-QAM	1/0	9.37	V	7.88	0.85	16.40	33.01
1880	15	16-QAM	1/0	9.68	V	7.88	0.85	16.71	33.01
1902.5	15	16-QAM	1/0	9.72	V	7.88	0.85	16.75	33.01
1857.5	15	16-QAM	1/0	9.84	H	7.88	0.85	16.87	33.01
1880	15	16-QAM	1/0	9.63	H	7.88	0.85	16.66	33.01
1902.5	15	16-QAM	1/0	9.78	H	7.88	0.85	16.81	33.01
1860	20	QPSK	1/0	9.81	V	7.88	0.85	16.84	33.01
1880	20	QPSK	1/0	10.06	V	7.88	0.85	17.09	33.01
1900	20	QPSK	1/0	9.26	V	7.88	0.85	16.29	33.01
1860	20	QPSK	1/0	9.43	H	7.88	0.85	16.46	33.01
1880	20	QPSK	1/0	9.71	H	7.88	0.85	16.74	33.01
1900	20	QPSK	1/0	9.59	H	7.88	0.85	16.62	33.01
1860	20	16-QAM	1/0	9.84	V	7.88	0.85	16.87	33.01
1880	20	16-QAM	1/0	9.69	V	7.88	0.85	16.72	33.01
1900	20	16-QAM	1/0	9.76	V	7.88	0.85	16.79	33.01
1860	20	16-QAM	1/0	9.42	H	7.88	0.85	16.45	33.01
1880	20	16-QAM	1/0	9.38	H	7.88	0.85	16.41	33.01
1900	20	16-QAM	1/0	9.52	H	7.88	0.85	16.55	33.01

EIRP for LTE Band 4 (Part 27)

Frequency (MHz)	BW (MHz)	Modulation	RB Size/Offset	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1710.7	1.4	QPSK	1/0	9.92	V	7.95	0.79	17.08	30
1732.5	1.4	QPSK	1/0	9.83	V	7.95	0.79	16.99	30
1754.3	1.4	QPSK	1/0	10.01	V	7.95	0.79	17.17	30
1710.7	1.4	QPSK	1/0	9.94	H	7.95	0.79	17.1	30
1732.5	1.4	QPSK	1/0	9.85	H	7.95	0.79	17.01	30
1754.3	1.4	QPSK	1/0	9.63	H	7.95	0.79	16.79	30
1710.7	1.4	16-QAM	1/5	9.64	V	7.95	0.79	16.8	30
1732.5	1.4	16-QAM	1/0	10.07	V	7.95	0.79	17.23	30
1754.3	1.4	16-QAM	1/0	9.94	V	7.95	0.79	17.1	30
1710.7	1.4	16-QAM	1/5	9.88	H	7.95	0.79	17.04	30
1732.5	1.4	16-QAM	1/0	9.79	H	7.95	0.79	16.95	30
1754.3	1.4	16-QAM	1/0	9.84	H	7.95	0.79	17	30
1711.5	3	QPSK	1/0	9.46	V	7.95	0.79	16.62	30
1732.5	3	QPSK	1/0	9.58	V	7.95	0.79	16.74	30
1753.5	3	QPSK	1/0	9.73	V	7.95	0.79	16.89	30
1711.5	3	QPSK	1/0	9.81	H	7.95	0.79	16.97	30
1732.5	3	QPSK	1/0	9.66	H	7.95	0.79	16.82	30
1753.5	3	QPSK	1/0	9.73	H	7.95	0.79	16.89	30
1711.5	3	16-QAM	1/0	9.79	V	7.95	0.79	16.95	30
1732.5	3	16-QAM	1/0	9.84	V	7.95	0.79	17	30
1753.5	3	16-QAM	1/0	9.63	V	7.95	0.79	16.79	30
1711.5	3	16-QAM	1/0	9.55	H	7.95	0.79	16.71	30
1732.5	3	16-QAM	1/0	9.77	H	7.95	0.79	16.93	30
1753.5	3	16-QAM	1/0	9.84	H	7.95	0.79	17	30
1712.5	5	QPSK	1/0	9.39	V	7.95	0.79	16.55	30
1732.5	5	QPSK	1/0	9.42	V	7.95	0.79	16.58	30
1752.5	5	QPSK	1/24	9.81	V	7.95	0.79	16.97	30
1712.5	5	QPSK	1/0	9.67	H	7.95	0.79	16.83	30
1732.5	5	QPSK	1/0	9.56	H	7.95	0.79	16.72	30
1752.5	5	QPSK	1/24	9.44	H	7.95	0.79	16.6	30
1712.5	5	16-QAM	1/0	9.94	V	7.95	0.79	17.1	30
1732.5	5	16-QAM	1/0	10.02	V	7.95	0.79	17.18	30
1752.5	5	16-QAM	1/24	9.76	V	7.95	0.79	16.92	30
1712.5	5	16-QAM	1/0	9.65	H	7.95	0.79	16.81	30
1732.5	5	16-QAM	1/0	9.38	H	7.95	0.79	16.54	30
1752.5	5	16-QAM	1/24	9.83	H	7.95	0.79	16.99	30
1715	10	QPSK	1/0	9.77	V	7.95	0.79	16.93	30
1732.5	10	QPSK	1/49	9.81	V	7.95	0.79	16.97	30
1750	10	QPSK	1/0	9.39	V	7.95	0.79	16.55	30

1715	10	QPSK	1/0	9.52	H	7.95	0.79	16.68	30
1732.5	10	QPSK	1/49	9.94	H	7.95	0.79	17.1	30
1750	10	QPSK	1/0	9.67	H	7.95	0.79	16.83	30
1715	10	16-QAM	1/0	9.87	V	7.95	0.79	17.03	30
1732.5	10	16-QAM	1/49	9.62	V	7.95	0.79	16.78	30
1750	10	16-QAM	1/0	9.73	V	7.95	0.79	16.89	30
1715	10	16-QAM	1/0	9.89	H	7.95	0.79	17.05	30
1732.5	10	16-QAM	1/49	9.43	H	7.95	0.79	16.59	30
1750	10	16-QAM	1/0	9.66	H	7.95	0.79	16.82	30
1717.5	15	QPSK	1/0	9.77	V	7.95	0.79	16.93	30
1732.5	15	QPSK	1/74	9.53	V	7.95	0.79	16.69	30
1747.5	15	QPSK	1/0	9.44	V	7.95	0.79	16.6	30
1717.5	15	QPSK	1/0	9.73	H	7.95	0.79	16.89	30
1732.5	15	QPSK	1/74	9.66	H	7.95	0.79	16.82	30
1747.5	15	QPSK	1/0	9.24	H	7.95	0.79	16.4	30
1717.5	15	16-QAM	1/0	9.51	V	7.95	0.79	16.67	30
1732.5	15	16-QAM	1/74	9.73	V	7.95	0.79	16.89	30
1747.5	15	16-QAM	1/0	9.54	V	7.95	0.79	16.7	30
1717.5	15	16-QAM	1/0	9.61	H	7.95	0.79	16.77	30
1732.5	15	16-QAM	1/74	9.46	H	7.95	0.79	16.62	30
1747.5	15	16-QAM	1/0	9.73	H	7.95	0.79	16.89	30
1720	20	QPSK	1/99	9.71	V	7.95	0.79	16.87	30
1732.5	20	QPSK	1/99	9.56	V	7.95	0.79	16.72	30
1745	20	QPSK	1/0	9.34	V	7.95	0.79	16.5	30
1720	20	QPSK	1/99	9.86	H	7.95	0.79	17.02	30
1732.5	20	QPSK	1/99	9.44	H	7.95	0.79	16.6	30
1745	20	QPSK	1/0	9.39	H	7.95	0.79	16.55	30
1720	20	16-QAM	1/99	9.64	V	7.95	0.79	16.8	30
1732.5	20	16-QAM	1/99	9.72	V	7.95	0.79	16.88	30
1745	20	16-QAM	1/0	9.68	V	7.95	0.79	16.84	30
1720	20	16-QAM	1/99	9.92	H	7.95	0.79	17.08	30
1732.5	20	16-QAM	1/99	9.69	H	7.95	0.79	16.85	30
1745	20	16-QAM	1/0	9.47	H	7.95	0.79	16.63	30

ERP for LTE Band 12 (Part 27)

Frequency (MHz)	BW (MHz)	Modulation	RB Size/Offset	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
699.7	1.4	QPSK	1/5	10.15	V	6.9	0.42	16.63	34.77
707.5	1.4	QPSK	1/5	9.96	V	6.8	0.42	16.34	34.77
715.3	1.4	QPSK	1/5	9.87	V	6.8	0.42	16.25	34.77
699.7	1.4	QPSK	1/5	9.93	H	6.9	0.42	16.41	34.77
707.5	1.4	QPSK	1/5	10.09	H	6.8	0.42	16.47	34.77
715.3	1.4	QPSK	1/5	9.46	H	6.8	0.42	15.84	34.77
699.7	1.4	16-QAM	1/5	9.84	V	6.9	0.42	16.32	34.77
707.5	1.4	16-QAM	1/5	9.92	V	6.8	0.42	16.3	34.77
715.3	1.4	16-QAM	1/5	9.77	V	6.8	0.42	16.15	34.77
699.7	1.4	16-QAM	1/5	9.63	H	6.9	0.42	16.11	34.77
707.5	1.4	16-QAM	1/5	9.81	H	6.8	0.42	16.19	34.77
715.3	1.4	16-QAM	1/5	9.95	H	6.8	0.42	16.33	34.77
700.5	3	QPSK	1/14	10	V	6.9	0.42	16.48	34.77
707.5	3	QPSK	1/0	9.86	V	6.8	0.42	16.24	34.77
714.5	3	QPSK	1/14	9.53	V	6.8	0.42	15.91	34.77
700.5	3	QPSK	1/14	9.71	H	6.9	0.42	16.19	34.77
707.5	3	QPSK	1/0	9.49	H	6.8	0.42	15.87	34.77
714.5	3	QPSK	1/14	9.84	H	6.8	0.42	16.22	34.77
700.5	3	16-QAM	1/14	9.65	V	6.9	0.42	16.13	34.77
707.5	3	16-QAM	1/0	9.77	V	6.8	0.42	16.15	34.77
714.5	3	16-QAM	1/14	9.83	V	6.8	0.42	16.21	34.77
700.5	3	16-QAM	1/14	10.01	H	6.9	0.42	16.49	34.77
707.5	3	16-QAM	1/0	9.82	H	6.8	0.42	16.2	34.77
714.5	3	16-QAM	1/14	10.09	H	6.8	0.42	16.47	34.77
701.5	5	QPSK	1/24	9.73	V	6.9	0.42	16.21	34.77
707.5	5	QPSK	1/24	9.84	V	6.8	0.42	16.22	34.77
713.5	5	QPSK	1/24	9.66	V	6.8	0.42	16.04	34.77
701.5	5	QPSK	1/24	9.73	H	6.9	0.42	16.21	34.77
707.5	5	QPSK	1/24	9.43	H	6.8	0.42	15.81	34.77
713.5	5	QPSK	1/24	9.57	H	6.8	0.42	15.95	34.77
701.5	5	16-QAM	1/24	9.61	V	6.9	0.42	16.09	34.77
707.5	5	16-QAM	1/24	9.49	V	6.8	0.42	15.87	34.77
713.5	5	16-QAM	1/24	9.61	V	6.8	0.42	15.99	34.77
701.5	5	16-QAM	1/24	9.37	H	6.9	0.42	15.85	34.77
707.5	5	16-QAM	1/24	9.58	H	6.8	0.42	15.96	34.77
713.5	5	16-QAM	1/24	9.62	H	6.8	0.42	16	34.77
704	10	QPSK	1/49	9.73	V	6.8	0.42	16.11	34.77
707.5	10	QPSK	1/49	9.59	V	6.8	0.42	15.97	34.77
711	10	QPSK	1/49	9.64	V	6.8	0.42	16.02	34.77

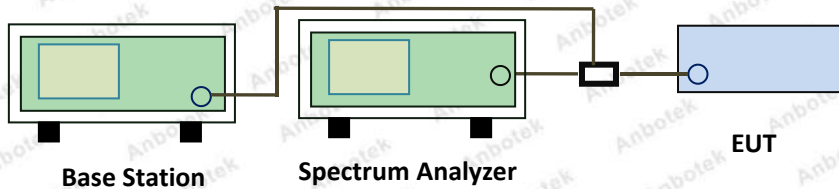
704	10	QPSK	1/49	9.35	H	6.8	0.42	15.73	34.77
707.5	10	QPSK	1/49	9.67	H	6.8	0.42	16.05	34.77
711	10	QPSK	1/49	9.59	H	6.8	0.42	15.97	34.77
704	10	16-QAM	1/49	9.34	V	6.8	0.42	15.72	34.77
707.5	10	16-QAM	1/49	9.61	V	6.8	0.42	15.99	34.77
711	10	16-QAM	1/49	9.56	V	6.8	0.42	15.94	34.77
704	10	16-QAM	1/49	9.73	H	6.8	0.42	16.11	34.77
707.5	10	16-QAM	1/49	9.84	H	6.8	0.42	16.22	34.77
711	10	16-QAM	1/49	9.59	H	6.8	0.42	15.97	34.77

4. Peak-Average Ratio

4.1. Test Standard and Limit

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.

4.2. Test Setup



4.3. Test Procedure

According with KDB 971168

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

4.4. Test Data

Pass

BAND	CHANNEL	Frequency [MHz]	BANDWIDTH	NO. RB	RB POS.	MODULATIO N	PAR [dB]
2	18900	1880.0	1.4	1	Low	QPSK	3.83
2	18900	1880.0	1.4	1	Low	16QAM	5.81
2	18900	1880.0	3.0	1	Low	QPSK	3.87
2	18900	1880.0	3.0	1	Low	16QAM	4.73
2	18900	1880.0	5.0	1	Low	QPSK	3.65
2	18900	1880.0	5.0	1	Low	16QAM	4.64
2	18900	1880.0	10.0	1	Low	QPSK	4.61
2	18900	1880.0	10.0	1	Low	16QAM	5.68
2	18900	1880.0	15.0	1	Low	QPSK	5.54
2	18900	1880.0	15.0	1	Low	16QAM	6.49
2	18900	1880.0	20.0	1	Low	QPSK	6.46
2	18900	1880.0	20.0	1	Low	16QAM	6.98
4	20175	1732.5	1.4	1	Low	QPSK	3.60
4	20175	1732.5	1.4	1	Low	16QAM	4.63
4	20175	1732.5	3.0	1	Low	QPSK	3.76
4	20175	1732.5	3.0	1	Low	16QAM	4.67
4	20175	1732.5	5.0	1	Low	QPSK	3.51
4	20175	1732.5	5.0	1	Low	16QAM	4.73
4	20175	1732.5	10.0	1	Low	QPSK	4.76
4	20175	1732.5	10.0	1	Low	16QAM	5.80
4	20175	1732.5	15.0	1	Low	QPSK	5.62
4	20175	1732.5	15.0	1	Low	16QAM	6.49
4	20175	1732.5	20.0	1	Low	QPSK	11.27
4	20175	1732.5	20.0	1	Low	16QAM	9.70
12	23095	707.5	1.4	1	Low	QPSK	5.10
12	23095	707.5	1.4	1	Low	16QAM	6.22
12	23095	707.5	3.0	1	Low	QPSK	5.44
12	23095	707.5	3.0	1	Low	16QAM	6.14
12	23095	707.5	5.0	1	Low	QPSK	5.20
12	23095	707.5	5.0	1	Low	16QAM	6.19
12	23095	707.5	10.0	1	Low	QPSK	4.85
12	23095	707.5	10.0	1	Low	16QAM	5.69

Test Plots

Band 2(Channel Bandwidth: 1.4 MHz)-QPSK



Band 4(Channel Bandwidth: 1.4 MHz)-QPSK



Band 2(Channel Bandwidth: 1.4 MHz)-16QAM



Band 4(Channel Bandwidth: 1.4 MHz)-16QAM



Band 2(Channel Bandwidth: 3 MHz)-QPSK



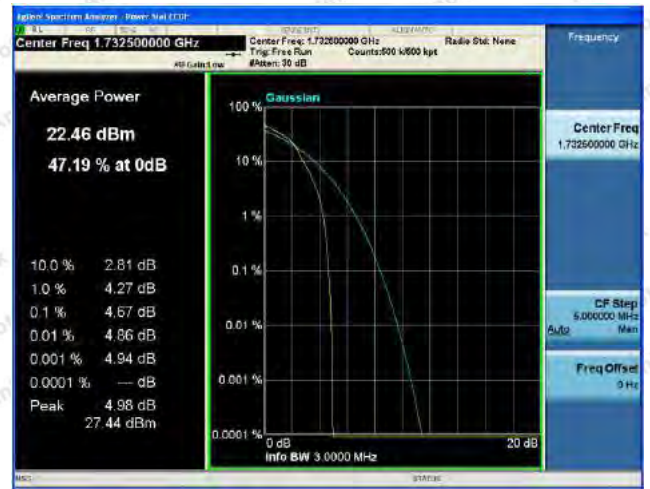
Band 4(Channel Bandwidth: 3 MHz)-QPSK



Band 2(Channel Bandwidth: 3 MHz)-16QAM



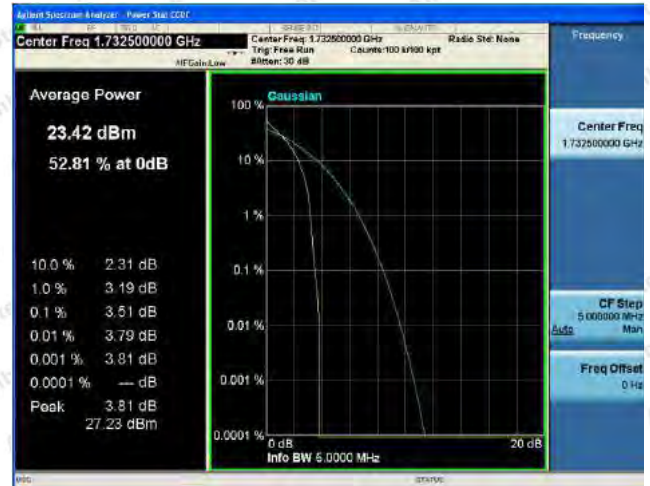
Band 4(Channel Bandwidth: 3 MHz)-16QAM



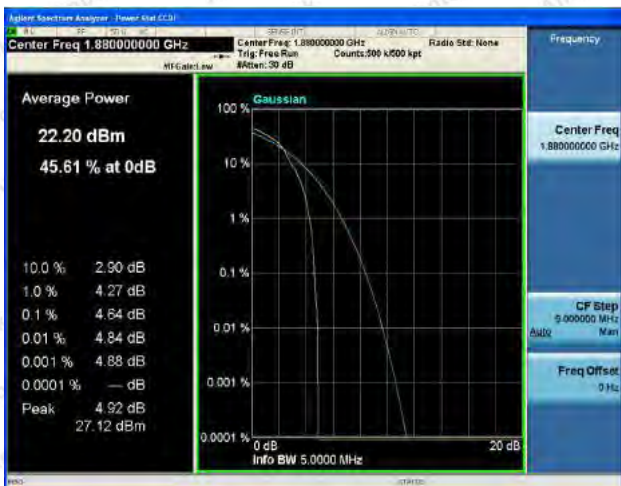
Band 2(Channel Bandwidth: 5 MHz)-QPSK



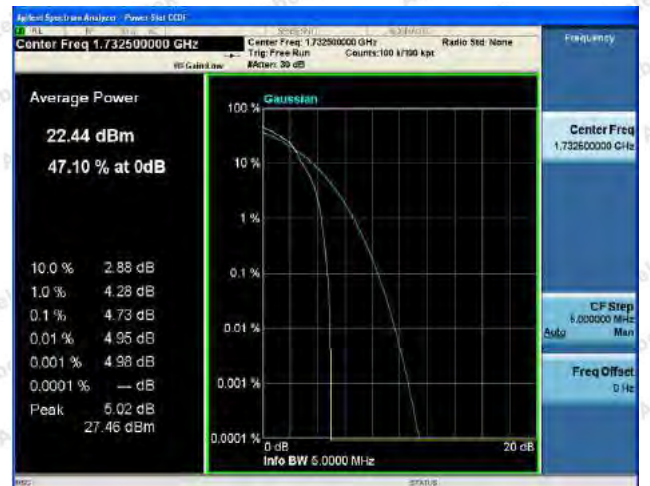
Band 4(Channel Bandwidth: 5 MHz)-QPSK



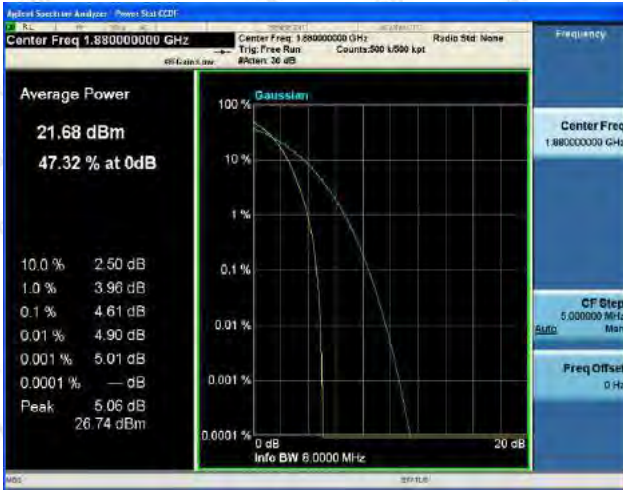
Band 2(Channel Bandwidth: 5 MHz)-16QAM



Band 4(Channel Bandwidth: 5 MHz)-16QAM



Band 2(Channel Bandwidth: 10 MHz)-QPSK



Band 4(Channel Bandwidth: 10 MHz)-QPSK



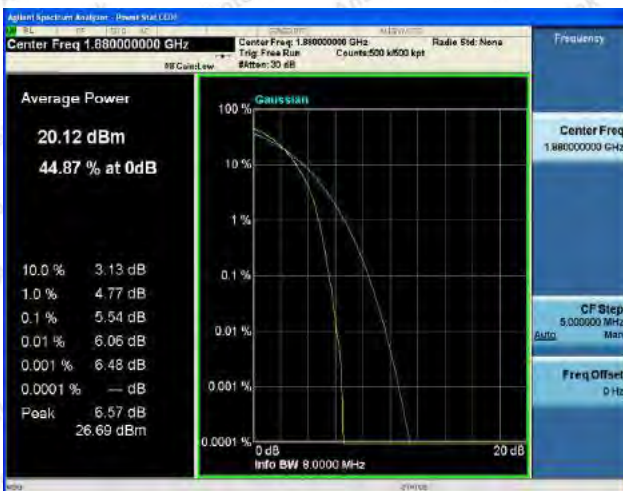
Band 2(Channel Bandwidth: 10 MHz)-16QAM



Band 4(Channel Bandwidth: 10 MHz)-16QAM



Band 2(Channel Bandwidth: 15 MHz)-QPSK



Band 4(Channel Bandwidth: 15 MHz)-QPSK



Band 2(Channel Bandwidth: 15 MHz)-16QAM



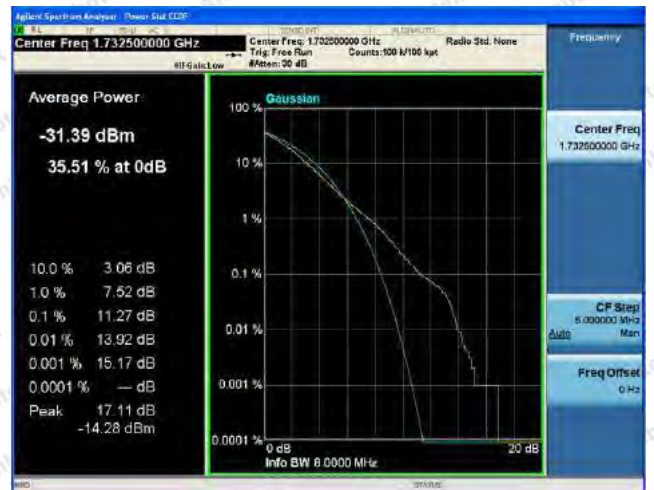
Band 4(Channel Bandwidth: 15 MHz)-16QAM



Band 2(Channel Bandwidth: 20 MHz)-QPSK



Band 4(Channel Bandwidth: 20 MHz)-QPSK



Band 2(Channel Bandwidth: 20 MHz)-16QAM



Band 4(Channel Bandwidth: 20 MHz)-16QAM



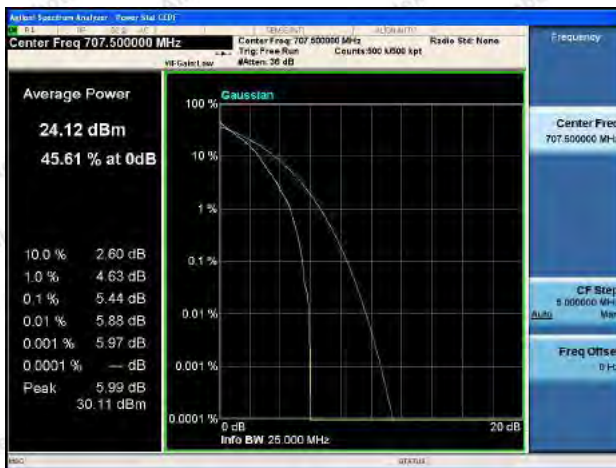
Band 12(Channel Bandwidth: 1.4 MHz)-QPSK



Band 12(Channel Bandwidth: 1.4MHz)-16QAM



Band 12(Channel Bandwidth: 3 MHz)-QPSK



Band 12(Channel Bandwidth: 3MHz)-16QAM



Band 12(Channel Bandwidth: 5 MHz)-QPSK



Band 12(Channel Bandwidth: 5 MHz)-16QAM



Band 12(Channel Bandwidth: 10 MHz)-QPSK

Band 12(Channel Bandwidth: 10 MHz)-16QAM



5. Modulation Characteristic

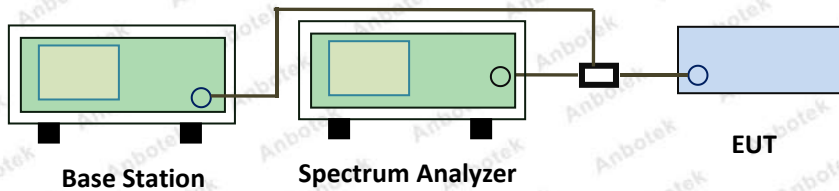
According to FCC § 2.1047(d), Part 24E& Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

6. Occupied Bandwidth

6.1. Test Standard and Limit

Spec	Item	Requirement
§2.1049, §22.917, §22.905	a)	99% Occupied Bandwidth(kHz)
§24.238 §27.53(a)	b)	26 dB Bandwidth(kHz)

6.2. Test Setup



6.3. Test Procedure

The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers.

6.4. Test Data

Pass

LTE Band 2:

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	18607	1850.7	QPSK	1.0769	1.225
			16QAM	1.0816	1.237
1.4	18900	1880	QPSK	1.0783	1.223
			16QAM	1.0809	1.230
1.4	19193	1909.3	QPSK	1.0787	1.233
			16QAM	1.0798	1.226
3	18615	1851.5	QPSK	2.6833	2.871
			16QAM	2.6830	2.885
3	18900	1880	QPSK	2.6832	2.869
			16QAM	2.6837	2.875
3	19185	1908.5	QPSK	2.6812	2.860
			16QAM	2.6807	2.880
5	18625	1852.5	QPSK	4.4850	4.811
			16QAM	4.4836	4.841
5	18900	1800	QPSK	4.4830	4.825
			16QAM	4.4815	4.863
5	19175	1907.5	QPSK	4.4852	4.836
			16QAM	4.4792	4.823
10	18650	1855	QPSK	8.9472	9.513
			16QAM	8.9372	9.459
10	18900	1880	QPSK	8.9321	9.443
			16QAM	8.9262	9.497
10	19150	1905	QPSK	8.9312	9.423
			16QAM	8.9286	9.463
15	18675	1857.5	QPSK	13.414	14.08
			16QAM	13.420	14.05
15	18900	1880	QPSK	13.394	14.06
			16QAM	13.395	13.97
15	19125	1902.5	QPSK	13.401	14.05
			16QAM	13.406	14.09
20	18700	1860	QPSK	17.866	18.62
			16QAM	17.868	18.58
20	18900	1880	QPSK	17.836	18.58
			16QAM	17.835	18.57
20	19100	1900	QPSK	17.880	18.64
			16QAM	17.877	18.64

LTE Band 4:

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	19957	1710.7	QPSK	1.0777	1.244
			16QAM	1.0812	1.216
1.4	20175	1732.5	QPSK	1.0780	1.242
			16QAM	1.0809	1.223
1.4	20393	1754.3	QPSK	1.0781	1.238
			16QAM	1.0805	1.234
3	19965	1711.5	QPSK	2.6846	2.891
			16QAM	2.6850	2.877
3	20175	1732.5	QPSK	2.6830	2.864
			16QAM	2.6837	2.861
3	20385	1753.3	QPSK	2.6830	2.863
			16QAM	2.6834	2.851
5	19975	1712.5	QPSK	4.4807	4.788
			16QAM	4.4756	4.825
5	20175	1732.5	QPSK	4.4814	4.864
			16QAM	4.4794	4.809
5	20375	1752.5	QPSK	4.4900	4.846
			16QAM	4.4773	4.828
10	20000	1715	QPSK	8.9359	9.435
			16QAM	8.9262	9.439
10	20175	1732.5	QPSK	8.9375	9.514
			16QAM	8.9329	9.531
10	20350	1750	QPSK	8.9389	9.490
			16QAM	8.9325	9.450
15	20025	1717.5	QPSK	13.403	14.12
			16QAM	13.400	13.99
15	20175	1732.5	QPSK	13.417	14.08
			16QAM	13.401	14.08
15	20325	1747.5	QPSK	13.409	13.99
			16QAM	13.402	14.09
20	20050	1720	QPSK	17.852	18.55
			16QAM	17.867	18.56
20	20175	1732.5	QPSK	17.873	18.67
			16QAM	17.879	18.61
20	20300	1745	QPSK	17.850	18.60
			16QAM	17.842	18.57

LTE Band12 :

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	23017	699.7	QPSK	1.0761	1.225
			16QAM	1.0814	1.227
1.4	23095	707.5	QPSK	1.0782	1.197
			16QAM	1.0786	1.223
1.4	23173	715.3	QPSK	1.0782	1.229
			16QAM	1.0779	1.221
3	23025	700.5	QPSK	2.6865	2.862
			16QAM	2.6784	2.852
3	23095	707.5	QPSK	2.6838	2.870
			16QAM	2.6896	2.859
3	23165	714.5	QPSK	2.6837	2.878
			16QAM	2.6923	2.874
5	23035	701.5	QPSK	4.4911	4.829
			16QAM	4.4751	4.818
5	23095	707.5	QPSK	4.4827	4.797
			16QAM	4.4869	4.838
5	23155	713.5	QPSK	4.4858	4.798
			16QAM	4.4818	4.772
10	23060	704	QPSK	8.9606	9.507
			16QAM	8.9625	9.515
10	23095	707.5	QPSK	8.9547	9.472
			16QAM	8.9440	9.457
10	23130	711	QPSK	8.9035	9.350
			16QAM	8.9238	9.335

Note: This test was only measured at maximum RB allocation for each LTE BW

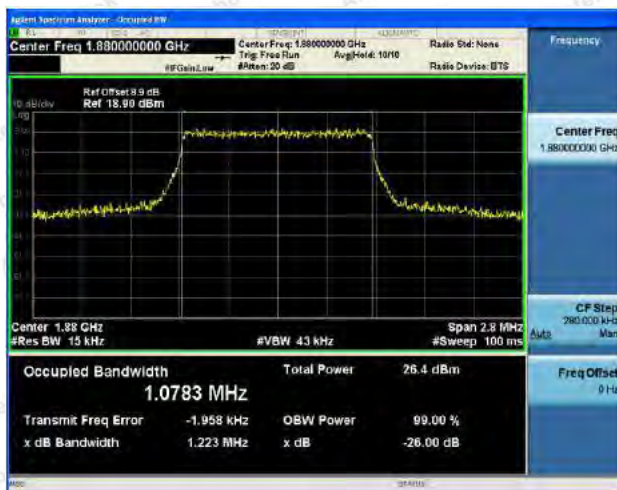
Test Plots



LTE band 2 - Low CH QPSK-1.4



LTE band 2 - Low CH 16QAM-1.4



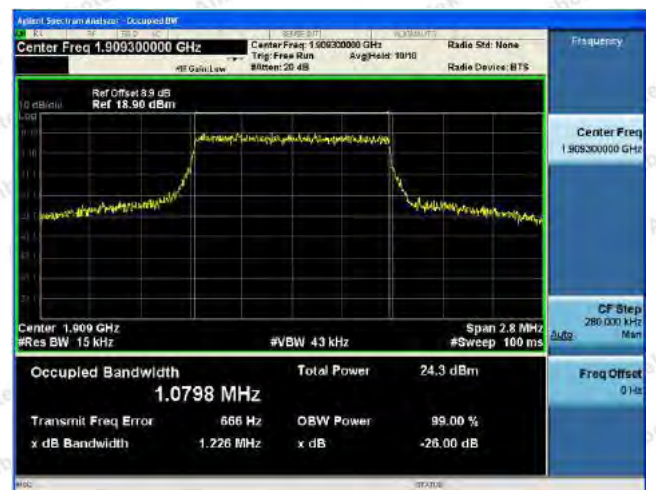
LTE band 2 - Middle CH QPSK-1.4



LTE band 2 - Middle CH 16QAM-1.4



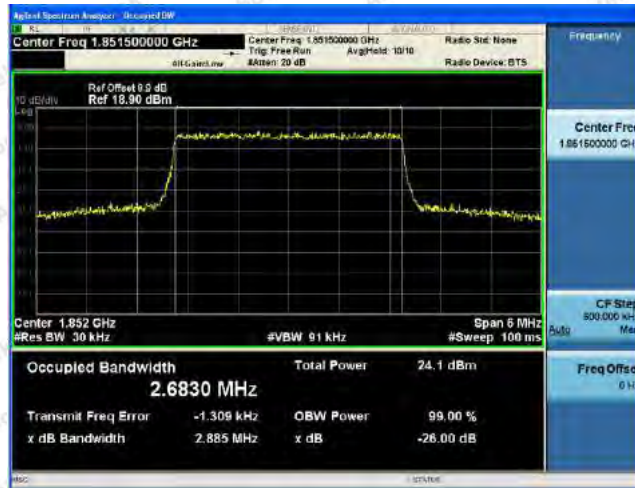
LTE band 2 - High CH QPSK-1.4



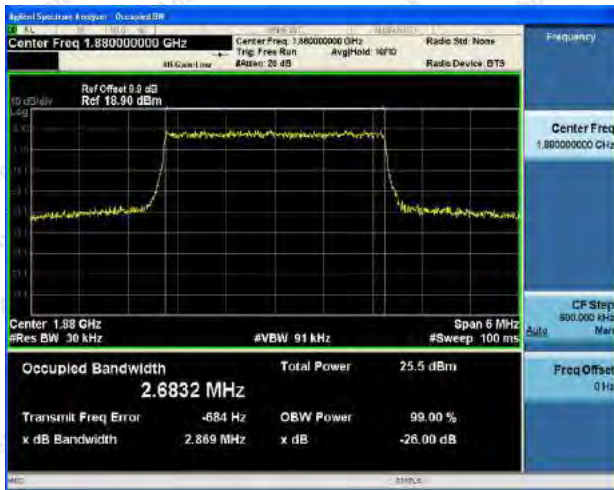
LTE band 2 -High CH 16QAM-1.4



LTE band 2 - Low CH QPSK-3



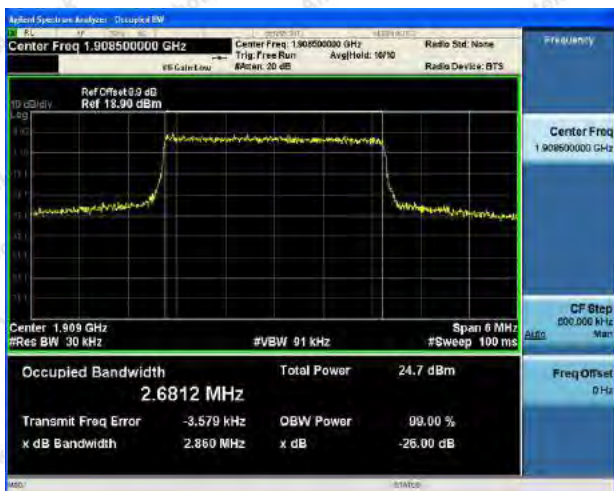
LTE band 2 - Low CH 16QAM-3



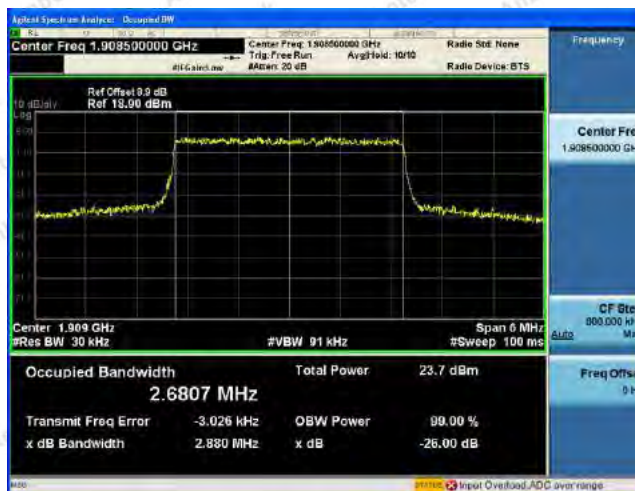
LTE band 2 - Middle CH QPSK-3



LTE band 2 - Middle CH 16QAM-3



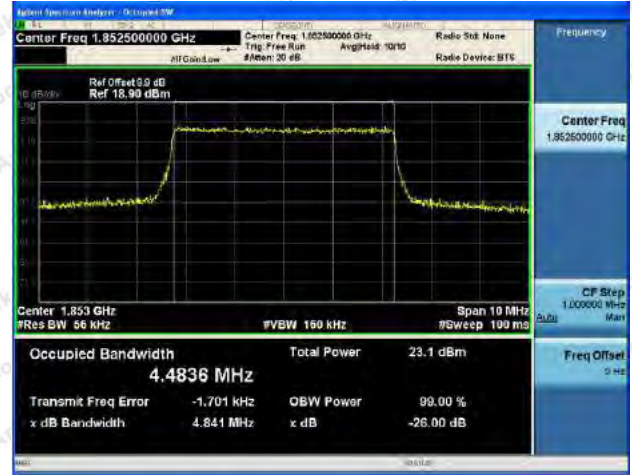
LTE band 2 - High CH QPSK-3



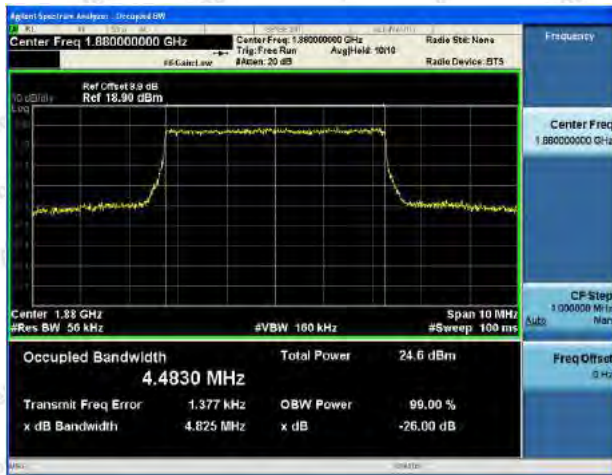
LTE band 2 - High CH 16QAM-3



LTE band 2 - Low CH QPSK-5



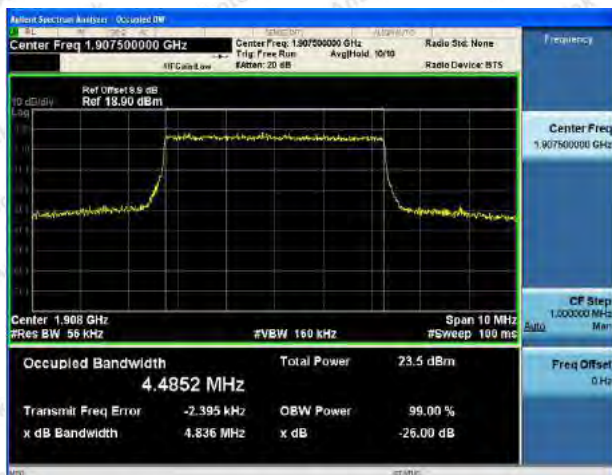
LTE band 2 - Low CH 16QAM-5



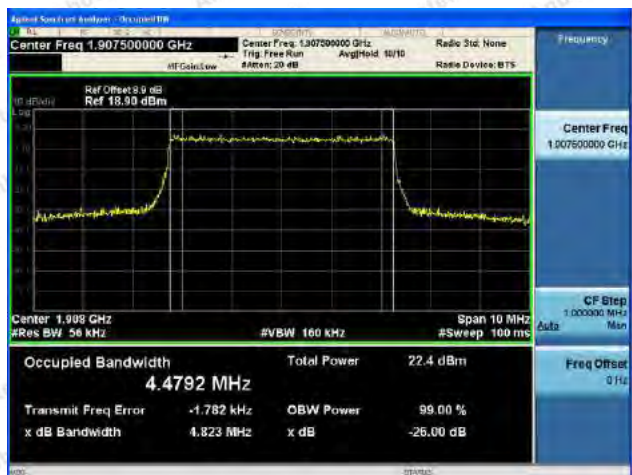
LTE band 2 - Middle CH QPSK-5



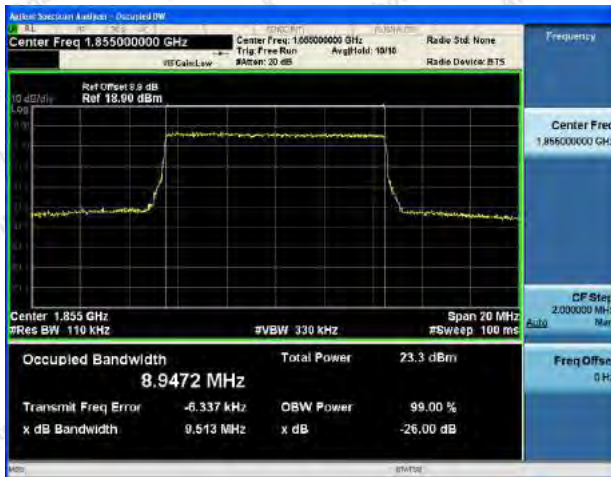
LTE band 2 - Middle CH 16QAM-5



LTE band 2 - High CH QPSK-5



LTE band 2 - High CH 16QAM-5



LTE band 2 - Low CH QPSK-10



LTE band 2 - Low CH 16QAM-10



LTE band 2 - Middle CH QPSK-10



LTE band 2 - Middle CH 16QAM-10



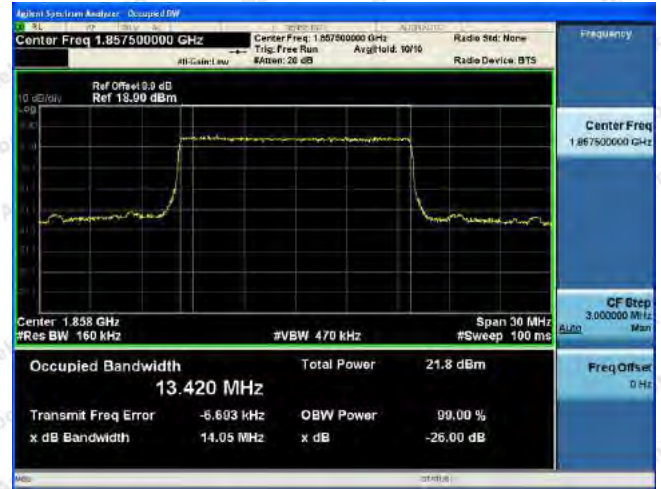
LTE band 2 - High CH QPSK-10



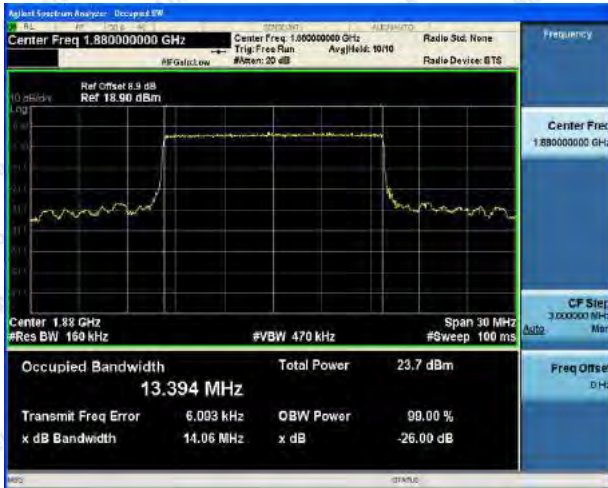
LTE band 2 - High CH 16QAM-10



LTE band 2 - Low CH QPSK-15



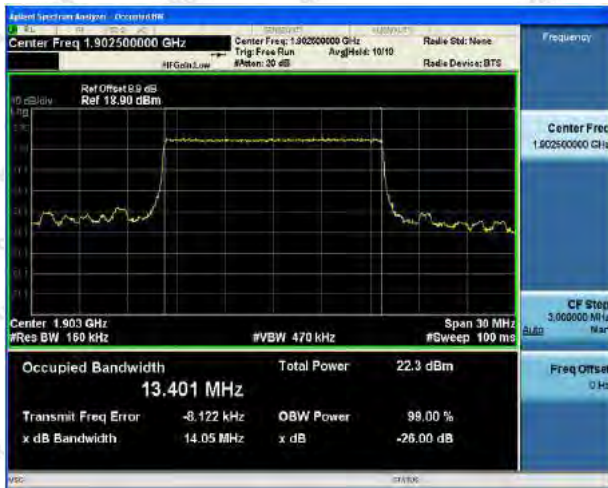
LTE band 2 - Low CH 16QAM-15



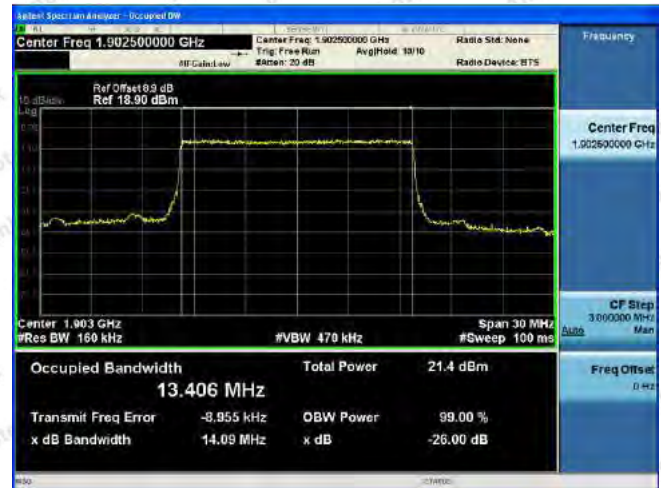
LTE band 2 - Middle CH QPSK-15



LTE band 2 - Middle CH 16QAM-15



LTE band 2 - High CH QPSK-15



LTE band 2 -High CH 16QAM-15



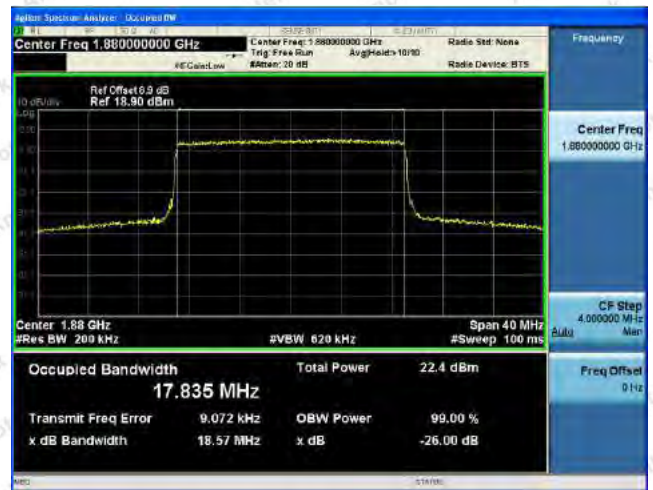
LTE band 2 - Low CH QPSK-20



LTE band 2 - Low CH 16QAM-20



LTE band 2 - Middle CH QPSK-20



LTE band 2 - Middle CH 16QAM-20



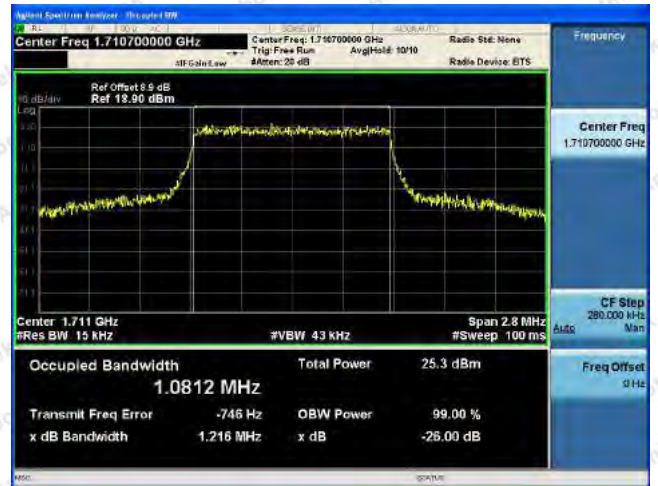
LTE band 2 - High CH QPSK-20



LTE band 2 - High CH 16QAM-20



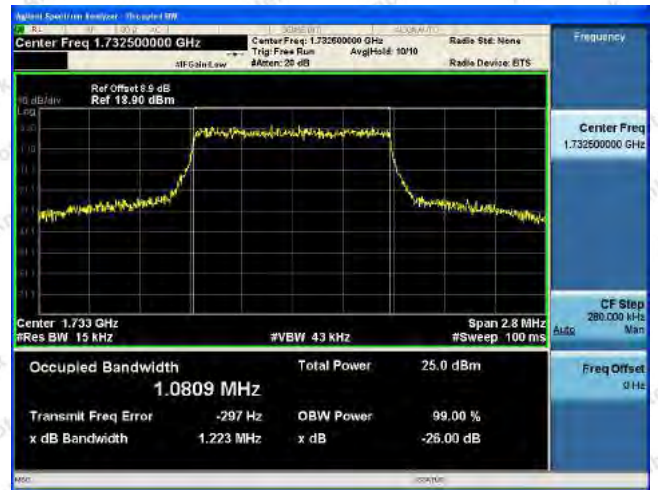
LTE band 4 - Low CH QPSK-1.4



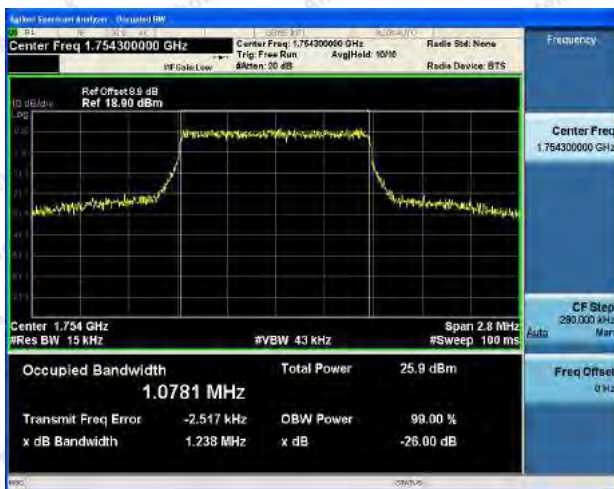
LTE band 4- Low CH 16QAM-1.4



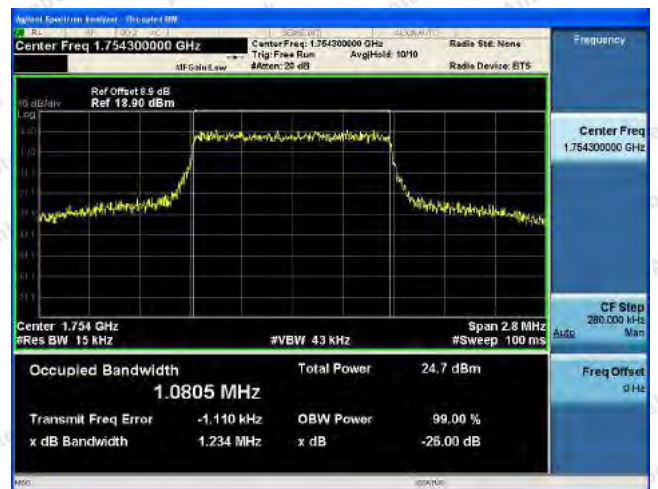
LTE band 4 - Middle CH QPSK-1.4



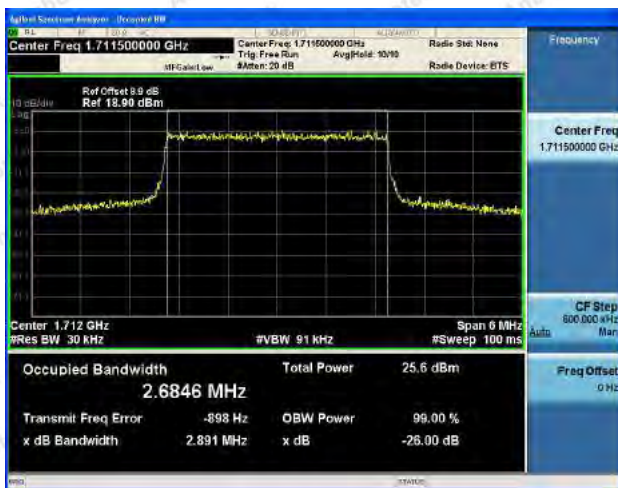
LTE band 4 - Middle CH 16QAM-1.4



LTE band 4 - High CH QPSK-1.4



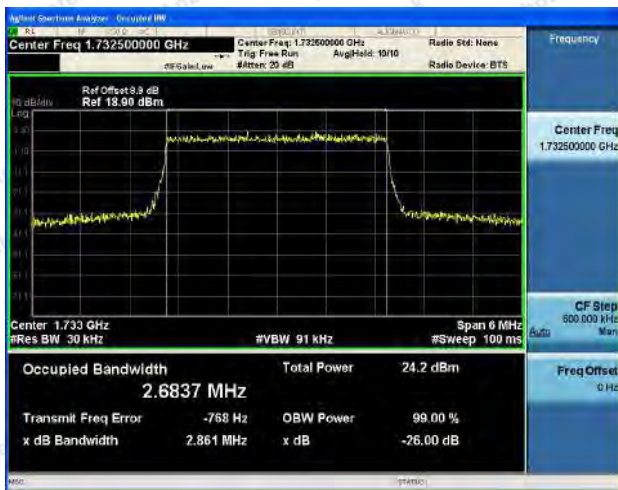
LTE band 4 -High CH 16QAM-1.4



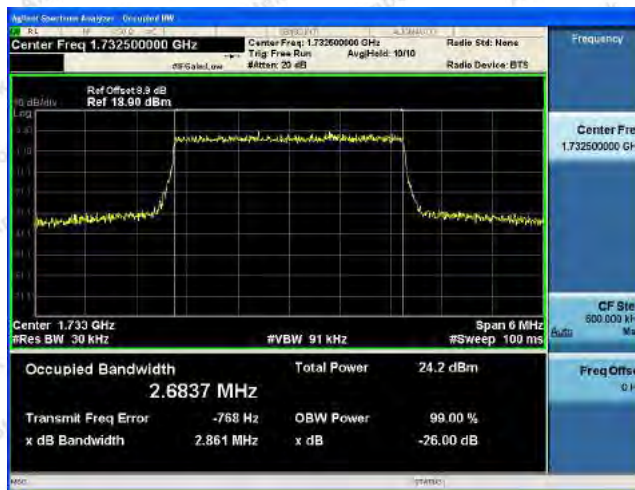
LTE band 4 - Low CH QPSK-3



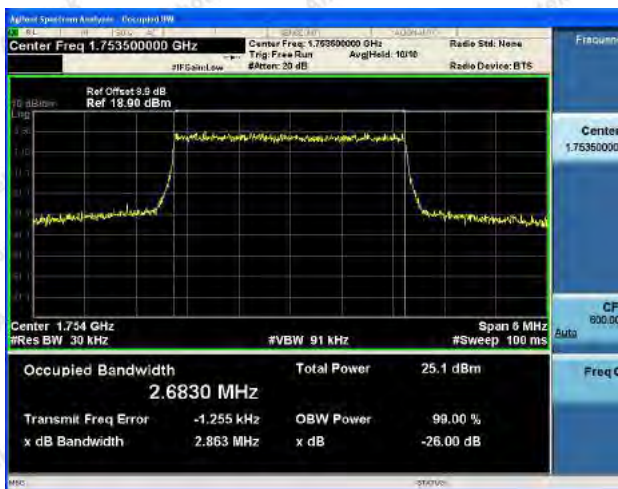
LTE band 4 - Low CH 16QAM-3



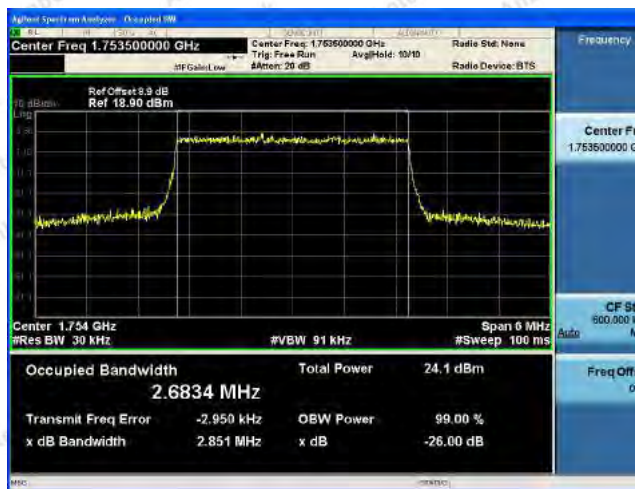
LTE band 4 - Middle CH QPSK-3



LTE band 4 - Middle CH 16QAM-3



LTE band 4 - High CH QPSK-3



LTE band 4 - High CH 16QAM-3



LTE band 4 - Low CH QPSK-5



LTE band 4 - Low CH 16QAM-5



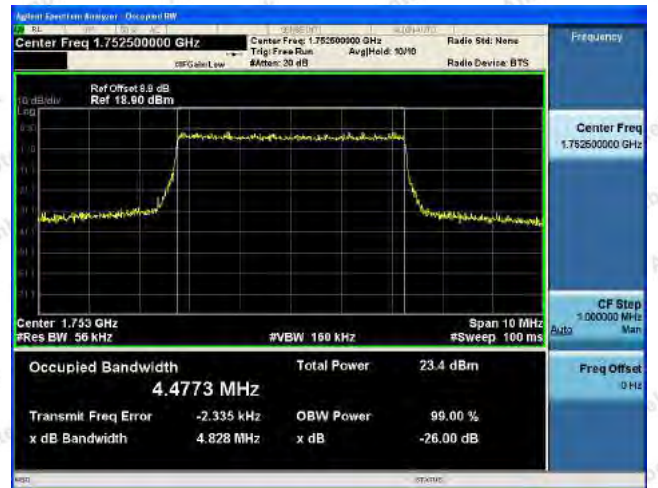
LTE band 4 - Middle CH QPSK-5



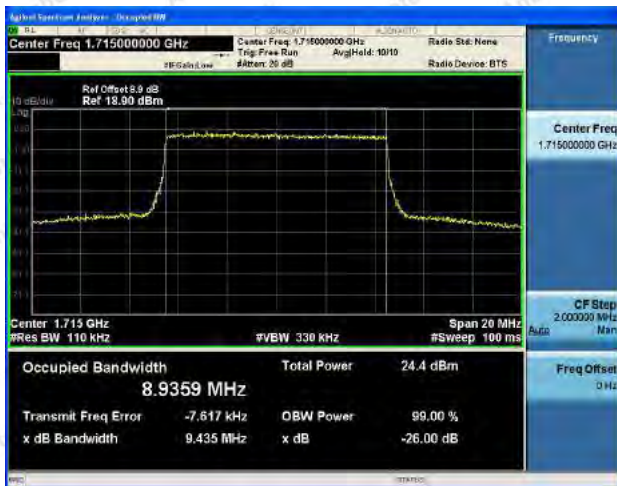
LTE band 4 - Middle CH 16QAM-5



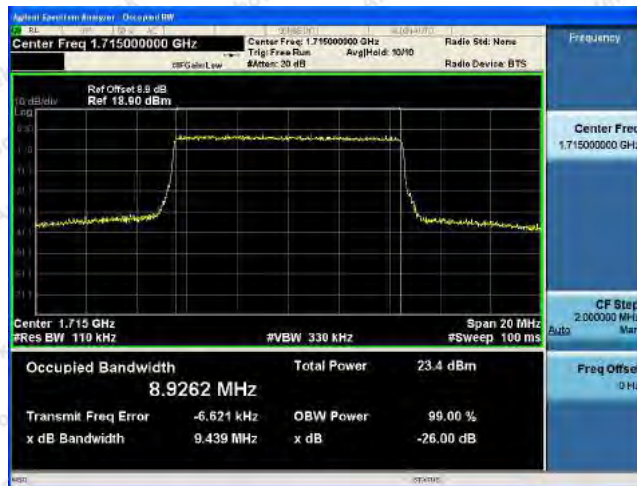
LTE band 4 - High CH QPSK-5



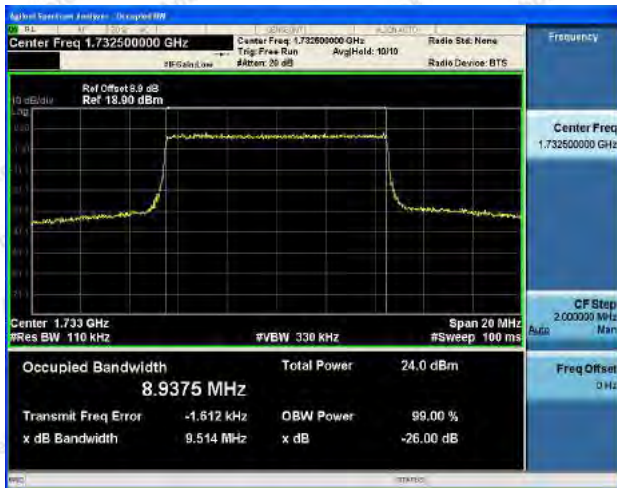
LTE band 4 - High CH 16QAM-5



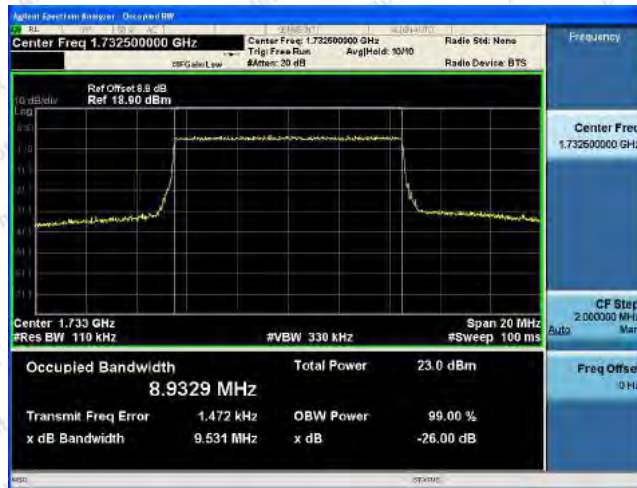
LTE band 4 - Low CH QPSK-10



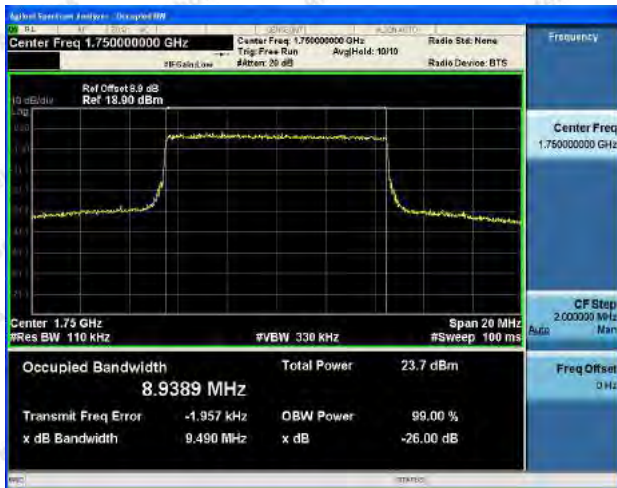
LTE band 4 - Low CH 16QAM-10



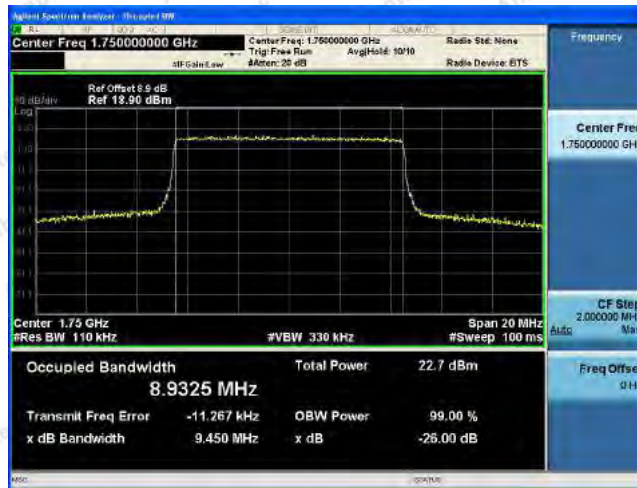
LTE band 4 - Middle CH QPSK-10



LTE band 4 - Middle CH 16QAM-10



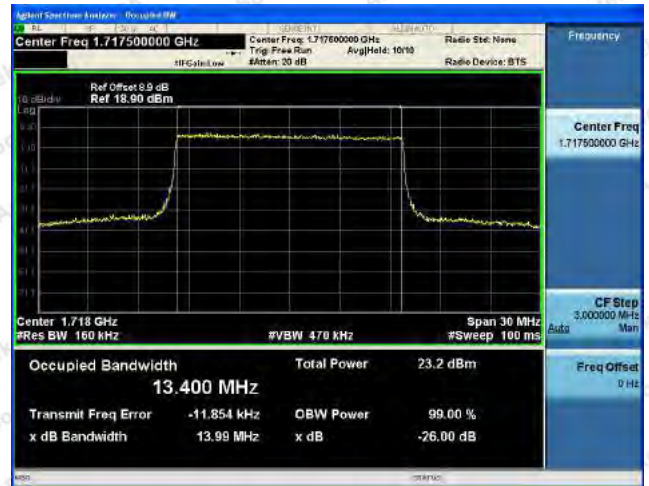
LTE band 4 - High CH QPSK-10



LTE band 4 - High CH 16QAM-10



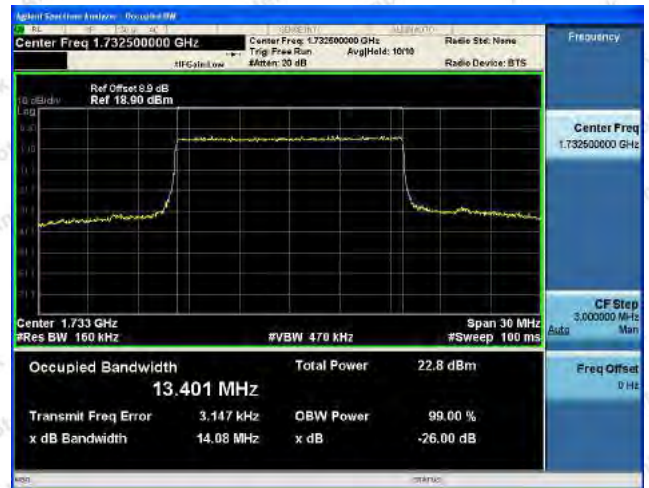
LTE band 4 - Low CH QPSK-15



LTE band 4 - Low CH 16QAM-15



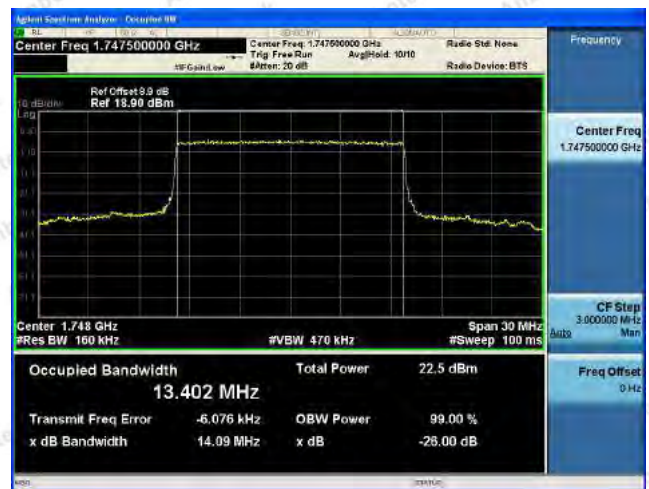
LTE band 4 - Middle CH QPSK-15



LTE band 4 - Middle CH 16QAM-15



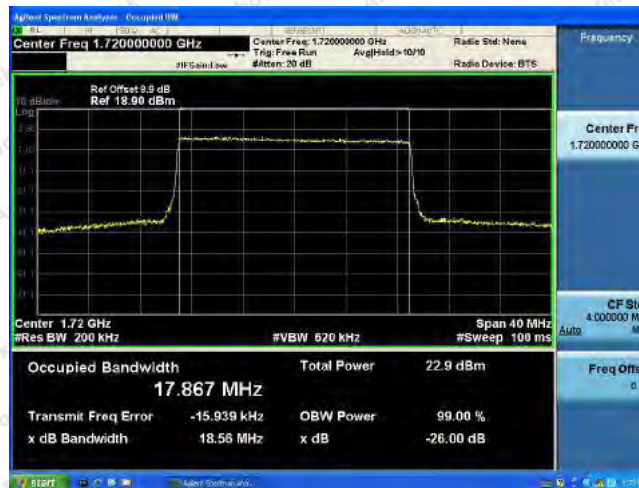
LTE band 4 - High CH QPSK-15



LTE band 4 - High CH 16QAM-15



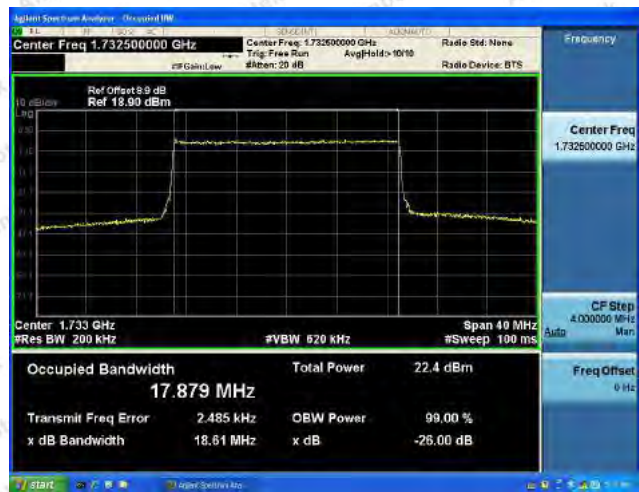
LTE band 4 - Low CH QPSK-20



LTE band 4 - Low CH 16QAM-20



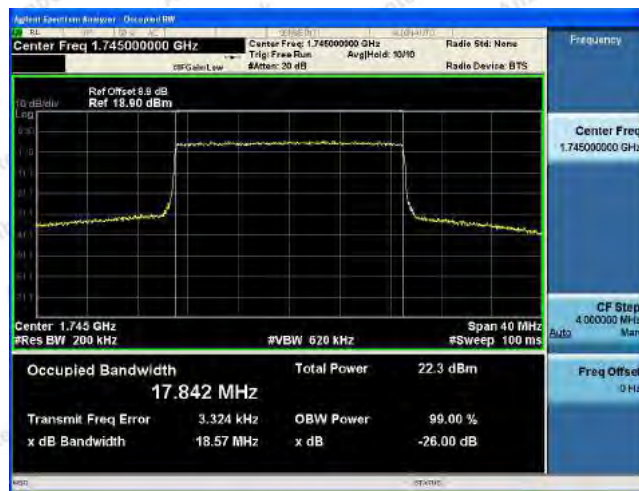
LTE band 4 - Middle CH QPSK-20



LTE band 4 - Middle CH 16QAM-20



LTE band 4 - High CH QPSK-20



LTE band 4 - High CH 16QAM-20



LTE band 12 - Low CH QPSK-1.4



LTE band 12 - Low CH 16QAM-1.4



LTE band 12 - Middle CH QPSK-1.4



LTE band 12 - Middle CH 16QAM-1.4



LTE band 12 - High CH QPSK-1.4



LTE band 12 - High CH 16QAM-1.4



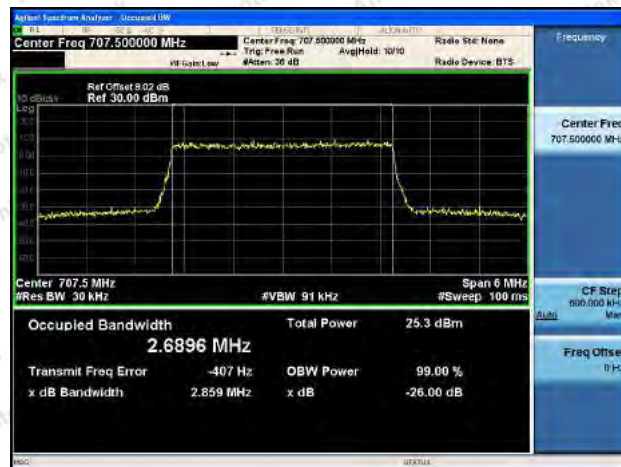
LTE band 12 - Low CH QPSK-3



LTE band 12 - Low CH 16QAM-3



LTE band 12 - Middle CH QPSK-3



LTE band 12 - Middle CH 16QAM-3



LTE band 12 - High CH QPSK-3



LTE band 12 -High CH 16QAM-3



LTE band 12 - Low CH QPSK-5



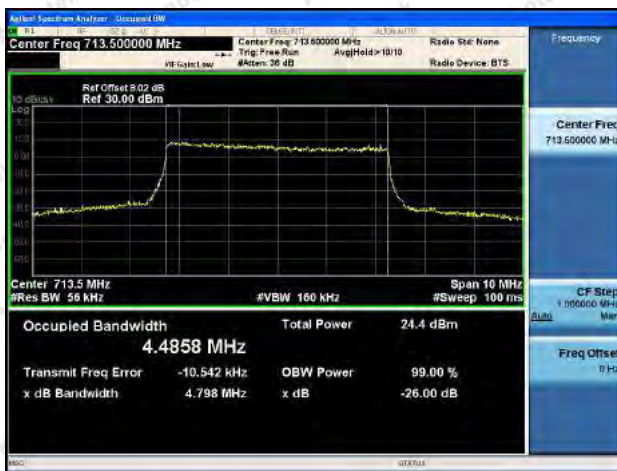
LTE band 12 - Low CH 16QAM-5



LTE band 12 - Middle CH QPSK-5



LTE band 12 - Middle CH 16QAM-5



LTE band 12 - High CH QPSK-5



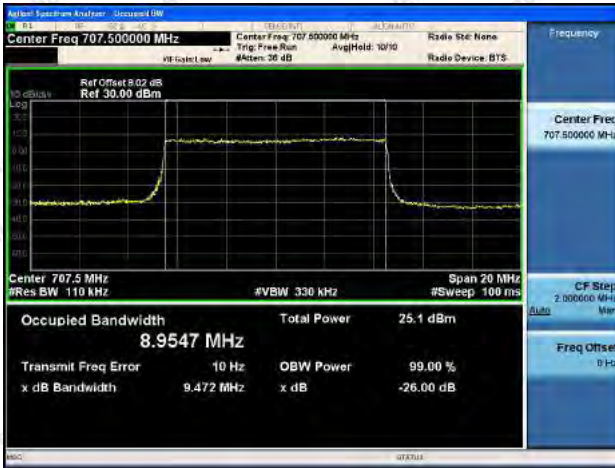
LTE band 12 - High CH 16QAM-5



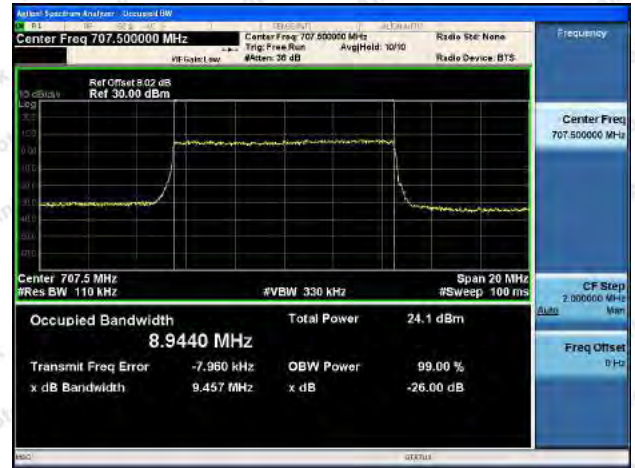
LTE band 12 - Low CH QPSK-10



LTE band 12 - Low CH 16QAM-10



LTE band 12 - Middle CH QPSK-10



LTE band 12 - Middle CH 16QAM-10



LTE band 12 - High CH QPSK-10



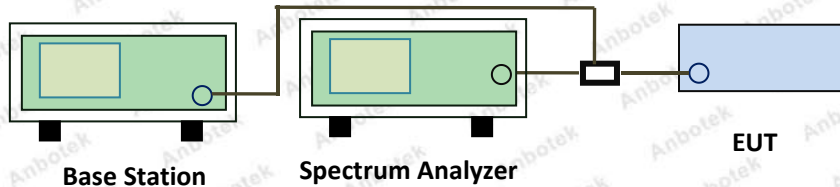
LTE band 12 - High CH 16QAM-10

7. Spurious Emissions at Antenna Terminals

7.1. Test Standard and Limit

The mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) on any frequency outside the frequency band by at least $(43 + 10 \log P)$ dB, in this case, -13dBm.

7.2. Test Setup



7.3. Test Procedure

The EUT was connected to Spectrum Analyzer and Base Station via power divider.
The Band Edges of low and high channels for the highest RF powers were measured.
Setting RBW as roughly $BW/100$.

7.4. Test Data

Test Plots

LTE BAND 2_LCH_QPSK_1RB#0



LTE BAND 2_MCH_QPSK_1RB#0



LTE BAND 2_HCH_QPSK_1RB#0



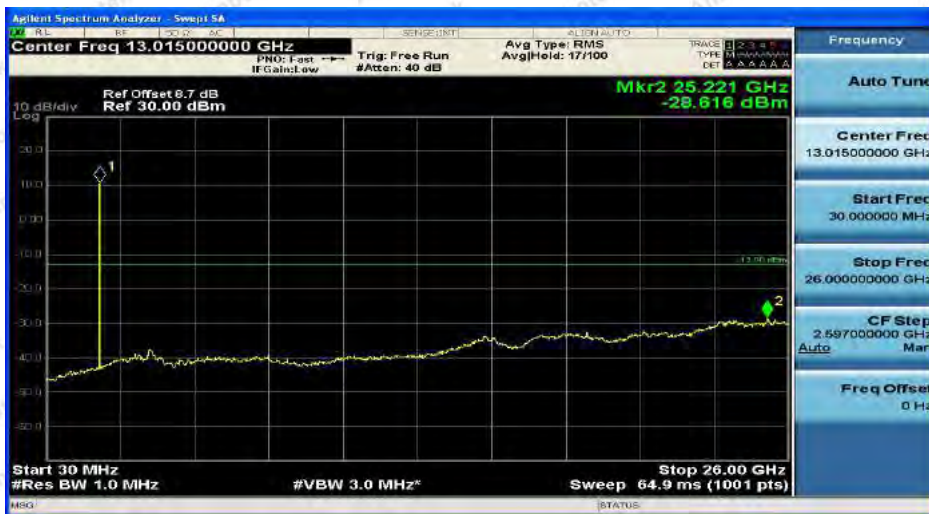
LTE BAND 2_LCH_16QAM_1RB#0



LTE BAND 2_MCH_16QAM_1RB#0



LTE BAND 2_HCH_16QAM_1RB#0



LTE BAND 4_LCH_QPSK_1RB#0



LTE BAND 4_MCH_QPSK_1RB#0



LTE BAND 4_HCH_QPSK_1RB#0



LTE BAND 4_LCH_16QAM_1RB#0



LTE BAND 4_MCH_16QAM_1RB#0



LTE BAND 4_HCH_16QAM_1RB#0



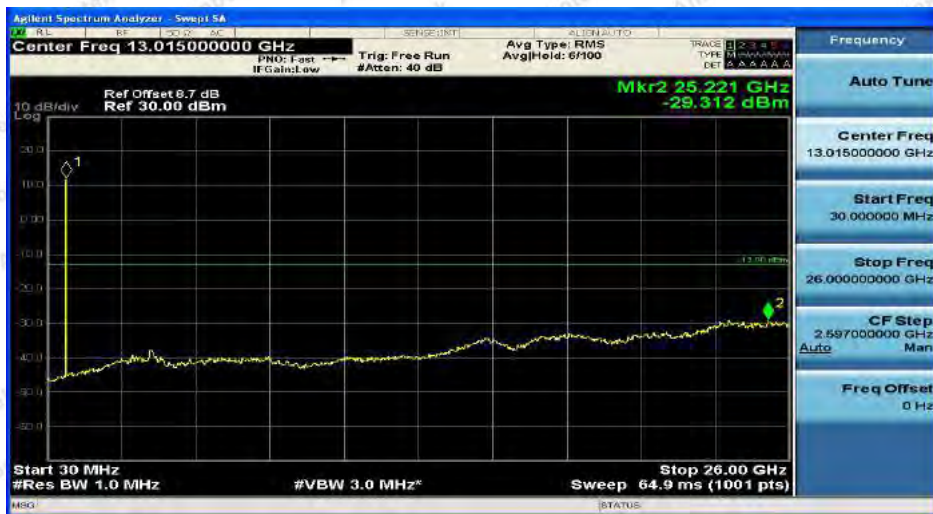
LTE BAND 12_LCH_QPSK_1RB#0



LTE BAND 12_MCH_QPSK_1RB#0



LTE BAND 12_HCH_QPSK_1RB#0



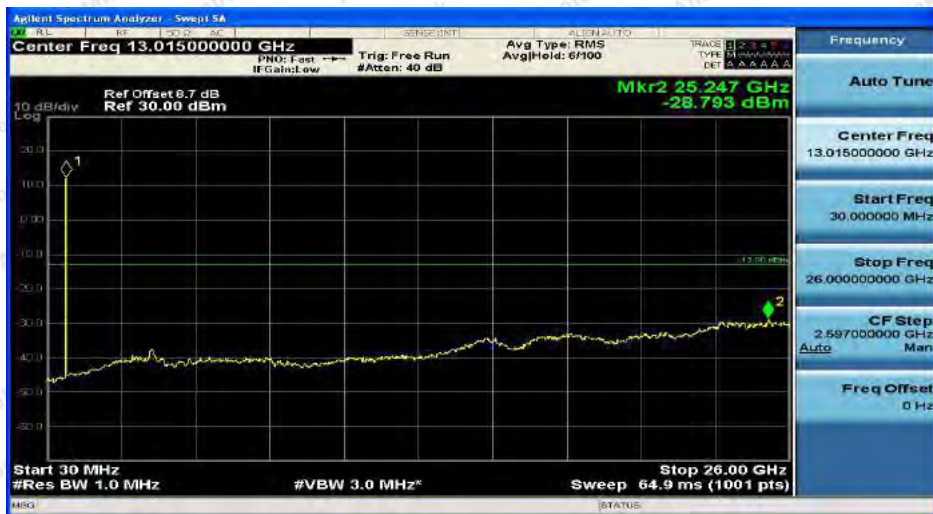
LTE BAND 12_LCH_16QAM_1RB#0



LTE BAND 12_MCH_16QAM_1RB#0



LTE BAND 12_HCH_16QAM_1RB#0



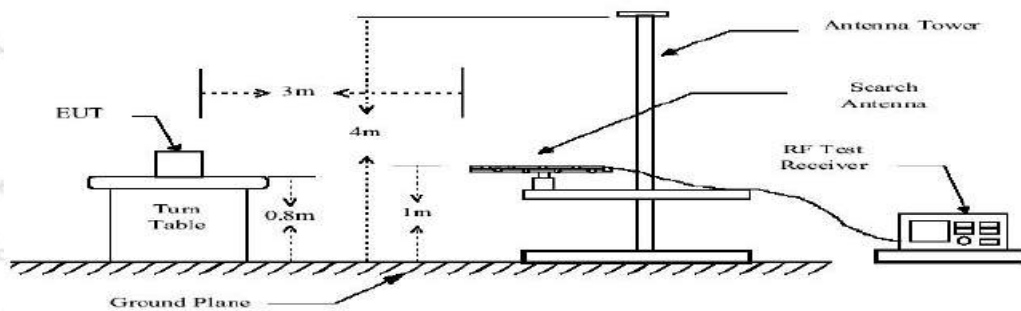
8. Spurious Radiated Emissions

8.1. Test Standard and Limit

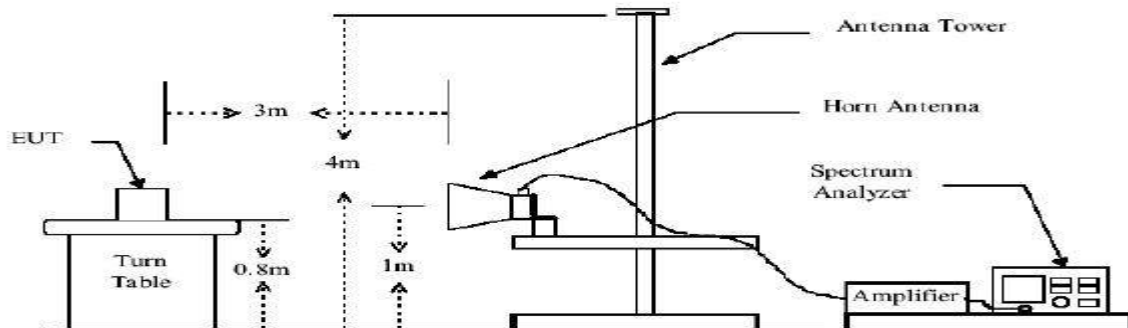
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

8.2. Test Setup

For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz



8.3. Test Procedure

1. The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Sample Calculation:

$$\text{EUT Field Strength} = \text{Raw Amplitude (dB}\mu\text{V/m)} - \text{Amplifier Gain (dB)} + \text{Antenna Factor (dB)} + \text{Cable Loss (dB)} + \text{Filter Attenuation (dB, if used)}$$

8.4. Test Data

LTE Band 2 (Part 24E) result

Low channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3720	-45.26	V	10.25	2.73	-37.74	-13	-24.74
3720	-44.89	H	10.25	2.73	-37.37	-13	-24.37
571.9	-56.27	V	6.5	0.36	-50.13	-13	-37.13
844.6	-50.61	H	6.8	0.44	-44.25	-13	-31.25

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3760	-46.59	V	10.25	2.73	-39.07	-13	-26.07
3760	-43.77	H	10.25	2.73	-36.25	-13	-23.25
572.6	-56.46	V	6.5	0.36	-50.32	-13	-37.32
843.5	-49.81	H	6.8	0.44	-43.45	-13	-30.45

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3800	-47.06	V	10.36	2.73	-39.43	-13	-26.43
3800	-45.79	H	10.36	2.73	-38.16	-13	-25.16
570.6	-55.84	V	6.5	0.36	-49.7	-13	-36.7
846.3	-50.32	H	6.8	0.44	-43.96	-13	-30.96

LTE Band 4(Part27) result

Low channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3440	-46.85	V	10.06	2.52	-39.31	-13	-26.31
3440	-47.26	H	10.06	2.52	-39.72	-13	-26.72
572.8	-56.02	V	6.5	0.36	-49.88	-13	-36.88
843.1	-49.89	H	6.8	0.44	-43.53	-13	-30.53

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3465	-47.11	V	10.09	2.52	-39.54	-13	-26.54
3465	-47.65	H	10.09	2.52	-40.08	-13	-27.08
570.6	-57.09	V	6.5	0.36	-50.95	-13	-37.95
843.5	-50.33	H	6.8	0.44	-43.97	-13	-30.97

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
3490	-46.91	V	10.09	2.52	-39.34	-13	-26.34
3490	-46.82	H	10.09	2.52	-39.25	-13	-26.25
572.2	-57.16	V	6.5	0.36	-51.02	-13	-38.02
843.7	-50.31	H	6.8	0.44	-43.95	-13	-30.95

LTE Band 12(Part27) result

Low channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1408	-48.09	V	7.65	0.75	-41.19	-13	-28.19
1408	-46.72	H	7.65	0.75	-39.82	-13	-26.82
572.8	-56.12	V	6.5	0.36	-49.98	-13	-36.98
845.2	-50.44	H	6.8	0.44	-44.08	-13	-31.08

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1415	-47.59	V	7.65	0.75	-40.69	-13	-27.69
1415	-47.12	H	7.65	0.75	-40.22	-13	-27.22
569.3	-55.94	V	6.5	0.36	-49.8	-13	-36.8
846.7	-50.26	H	6.8	0.44	-43.9	-13	-30.9

High channel

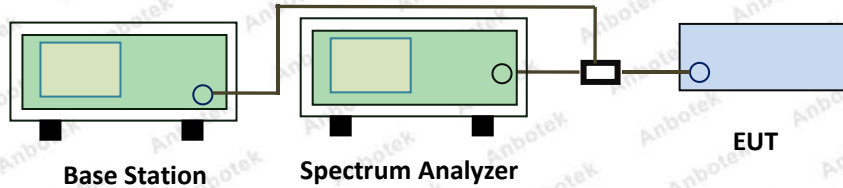
Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1422	-46.88	V	7.65	0.75	-39.98	-13	-26.98
1422	-47.81	H	7.65	0.75	-40.91	-13	-27.91
569.9	-57.14	V	6.5	0.36	-51	-13	-38
846.5	-49.92	H	6.8	0.44	-43.56	-13	-30.56

9. Band Edge Compliance

9.1. Test Standard and Limit

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

9.2. Test Setup



9.3. Test Procedure

The EUT was connected to Spectrum Analyzer and Base Station via power divider.

The Band Edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.

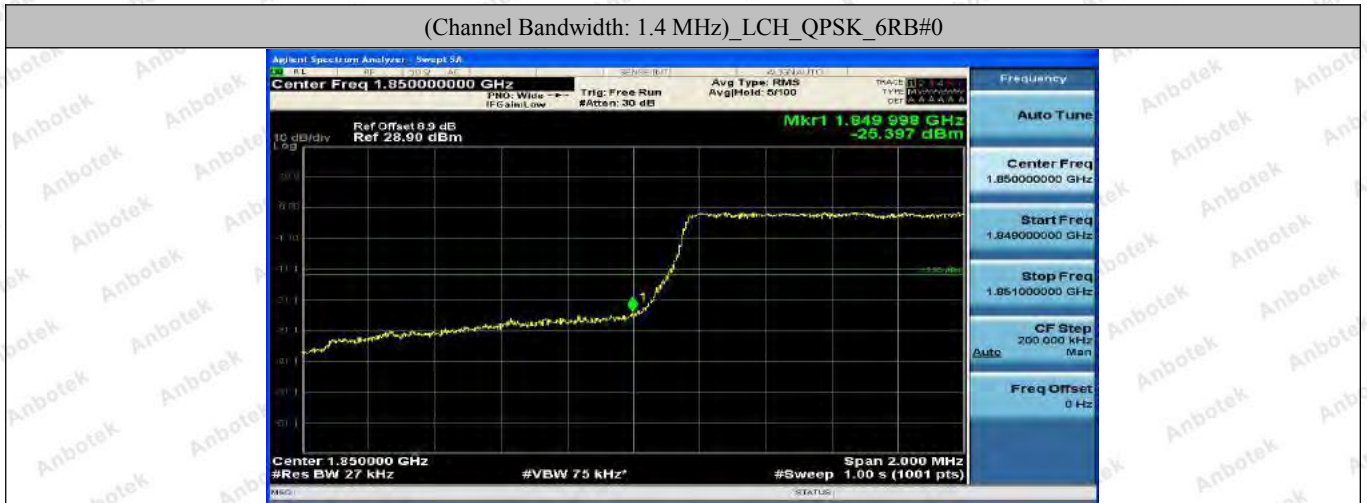
9.4. Test Data

All the modulation modes and Channels have been tested, the data of the worst mode are recorded in the following page

LTE Band 2

Channel Bandwidth: 1.4 MHz

(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_6RB#0



(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_6RB#0



(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_6RB#0



(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_6RB#0



Channel Bandwidth: 3 MHz

(Channel Bandwidth: 3 MHz)_LCH_QPSK_15RB#0



(Channel Bandwidth: 3 MHz)_HCH_QPSK_15RB#0



(Channel Bandwidth: 3 MHz)_LCH_16QAM_15RB#0



(Channel Bandwidth: 3 MHz)_HCH_16QAM_15RB#0



Channel Bandwidth: 5 MHz

(Channel Bandwidth: 5 MHz)_LCH_QPSK_25RB#0



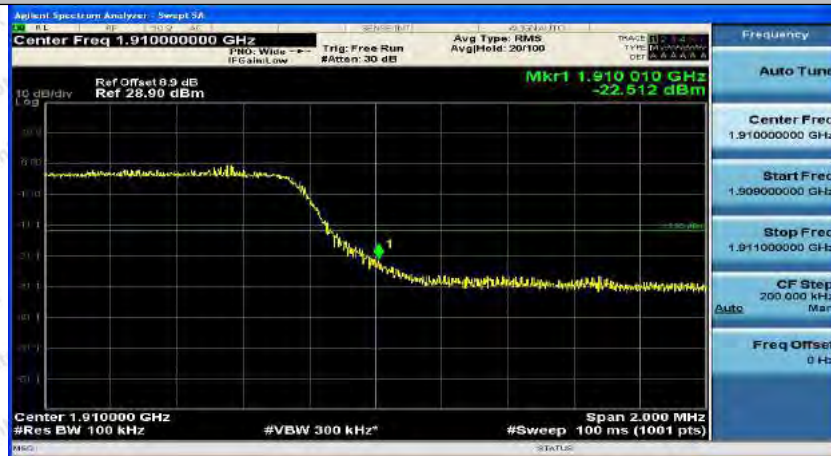
(Channel Bandwidth: 5 MHz)_HCH_QPSK_25RB#0



(Channel Bandwidth: 5 MHz)_LCH_16QAM_25RB#0



(Channel Bandwidth: 5 MHz)_HCH_16QAM_25RB#0

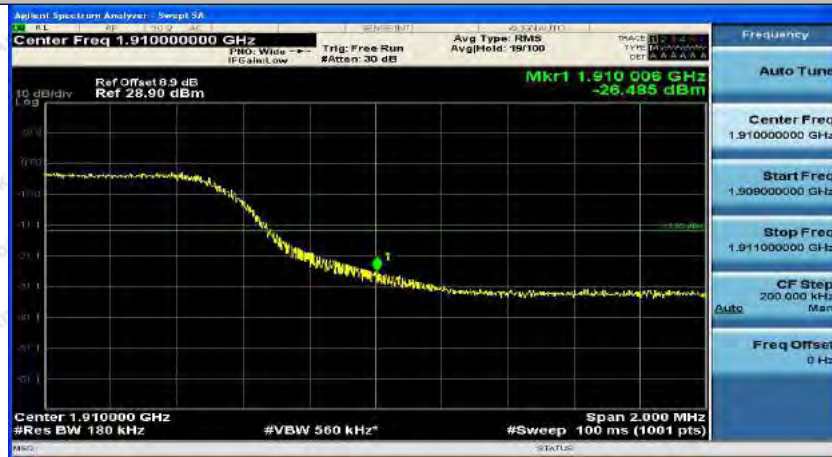


Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz_LCH_QPSK_50RB#0

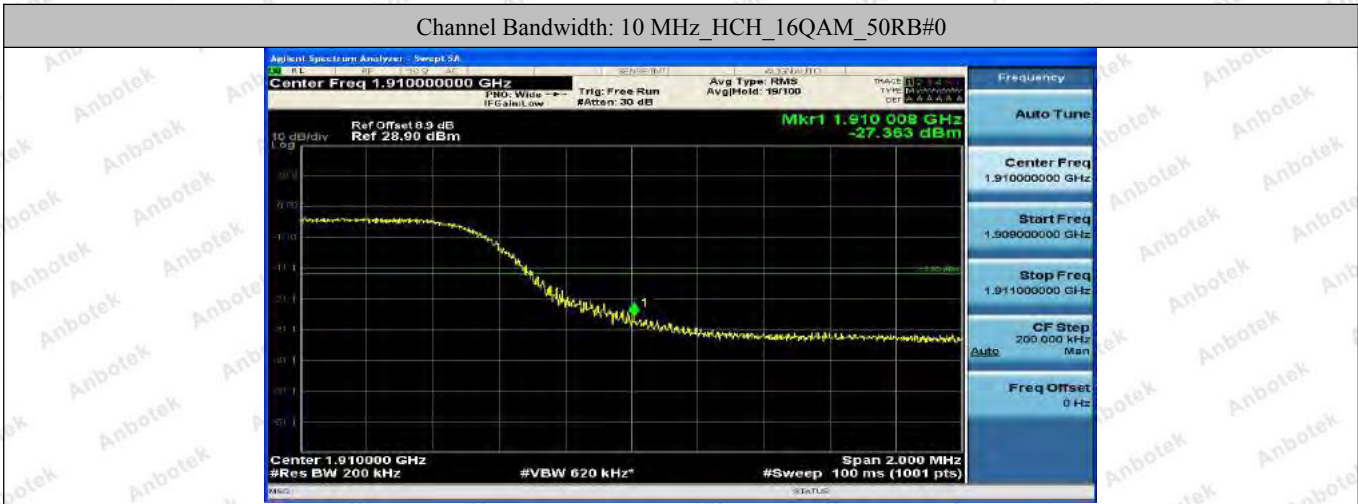


Channel Bandwidth: 10 MHz_HCH_QPSK_50RB#0



Channel Bandwidth: 10 MHz_LCH_16QAM_50RB#0

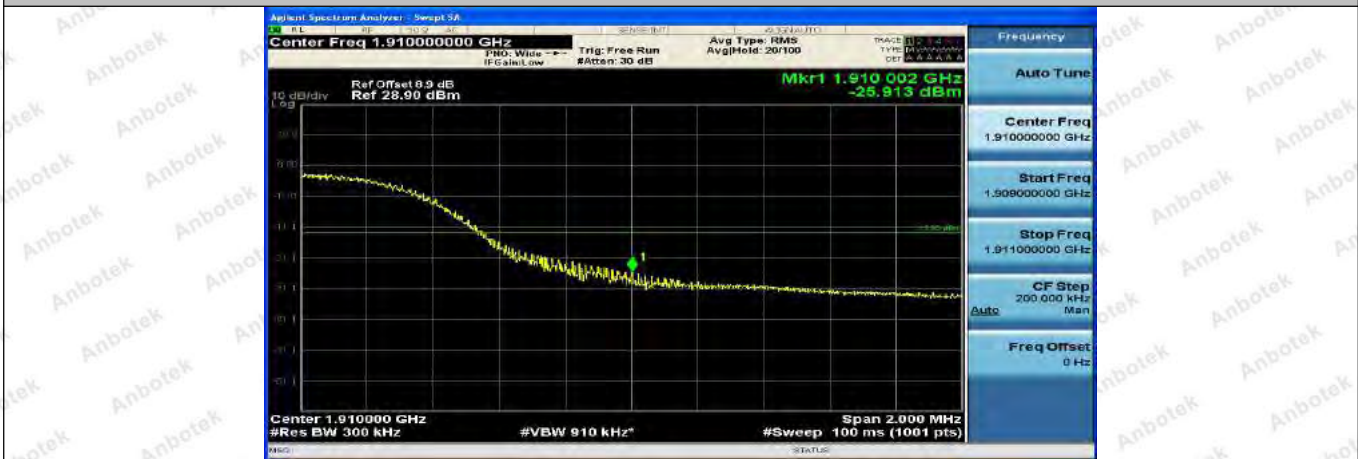




Channel Bandwidth: 15 MHz



(Channel Bandwidth:15 MHz)_HCH_QPSK_75RB#0



(Channel Bandwidth:15 MHz)_LCH_16QAM_75RB#0



(Channel Bandwidth:15 MHz)_HCH_16QAM_75RB#0



Channel Bandwidth: 20 MHz

(Channel Bandwidth:20 MHz)_LCH_QPSK_100RB#0



(Channel Bandwidth:20 MHz)_HCH_QPSK_100RB#0



(Channel Bandwidth:20 MHz)_LCH_16QAM_100RB#0

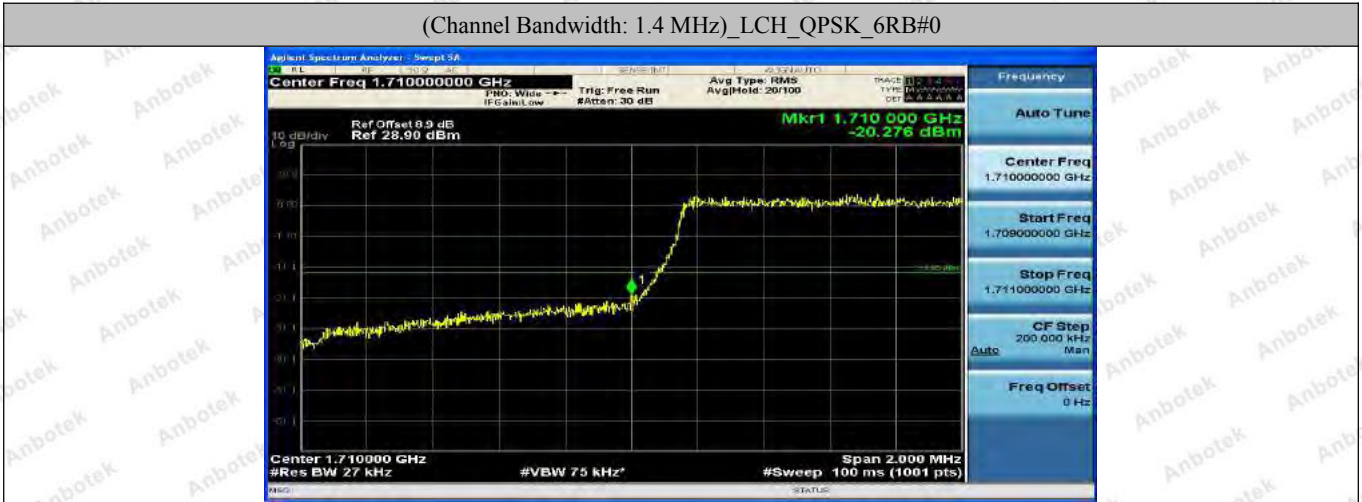


(Channel Bandwidth:20 MHz)_HCH_16QAM_100RB#0

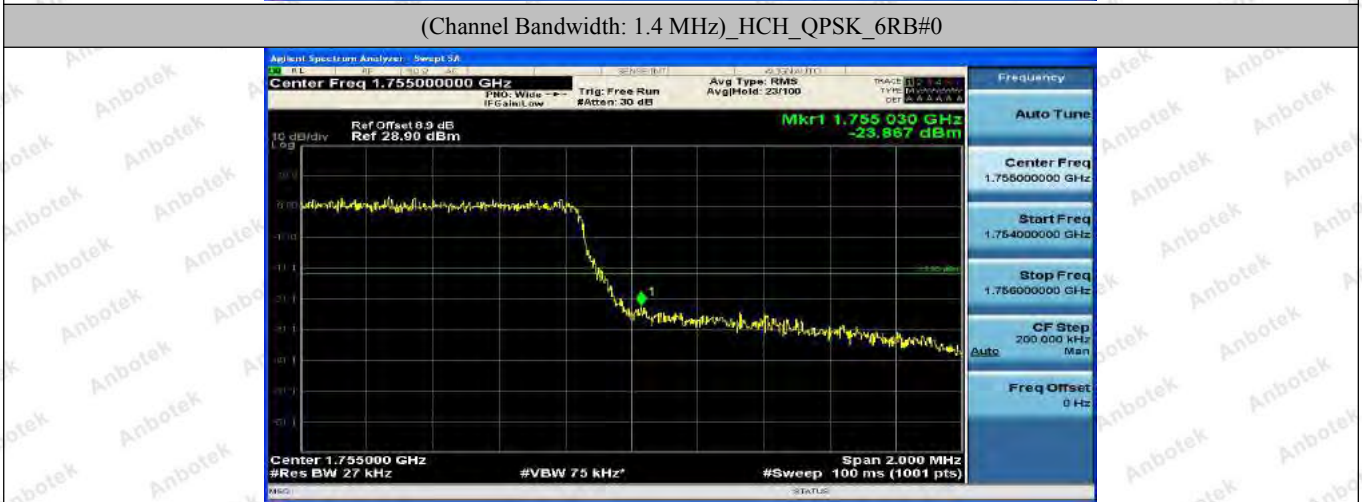


LTE Band 4
Channel Bandwidth: 1.4 MHz

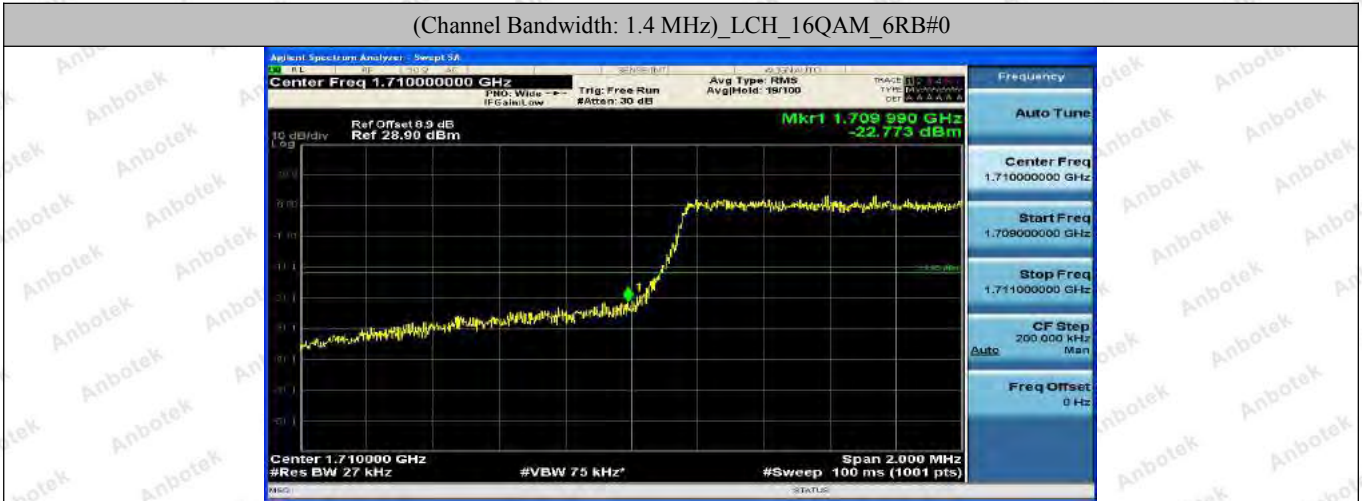
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_6RB#0



(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_6RB#0



(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_6RB#0



(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_6RB#0



Channel Bandwidth: 3 MHz

(Channel Bandwidth: 3 MHz)_LCH_QPSK_15RB#0



(Channel Bandwidth: 3 MHz)_HCH_QPSK_15RB#0



(Channel Bandwidth: 3 MHz)_LCH_16QAM_15RB#0



(Channel Bandwidth: 3 MHz)_HCH_16QAM_15RB#0



Channel Bandwidth: 5 MHz

(Channel Bandwidth: 5 MHz)_LCH_QPSK_25RB#0



(Channel Bandwidth: 5 MHz)_HCH_QPSK_25RB#0



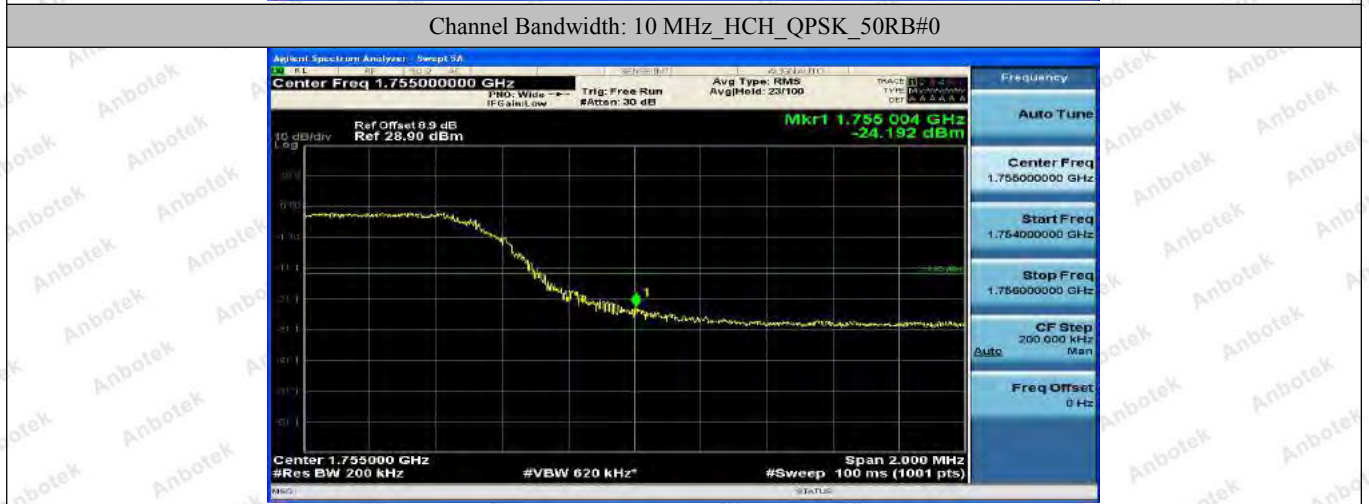
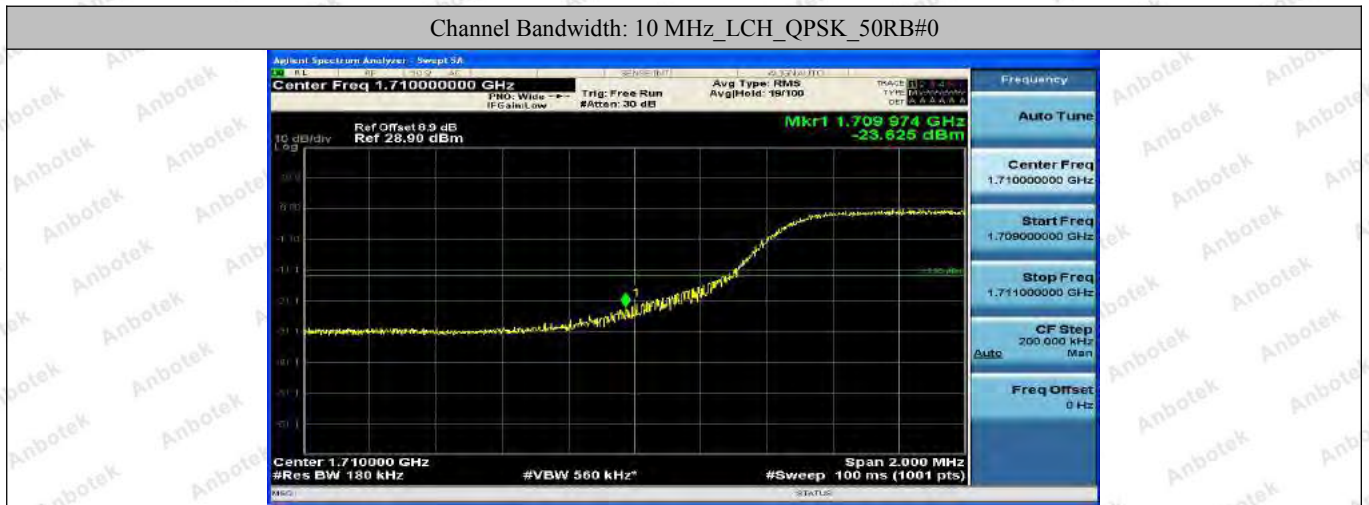
(Channel Bandwidth: 5 MHz)_LCH_16QAM_25RB#0



(Channel Bandwidth: 5 MHz)_HCH_16QAM_25RB#0

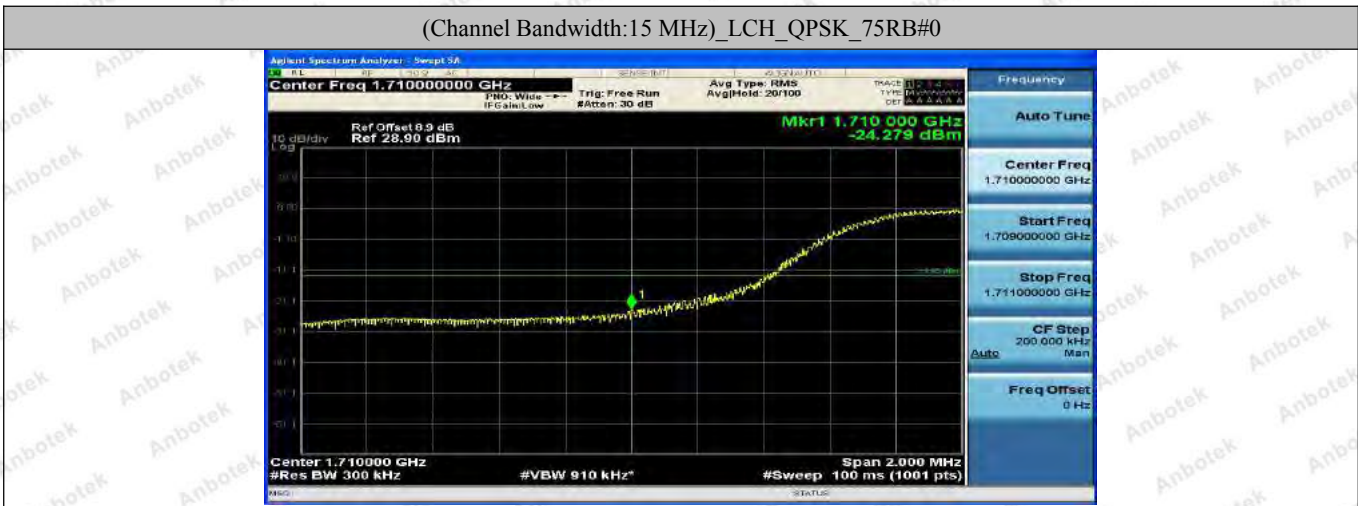


Channel Bandwidth: 10 MHz





Channel Bandwidth: 15 MHz



(Channel Bandwidth:15 MHz)_HCH_QPSK_75RB#0



(Channel Bandwidth:15 MHz)_LCH_16QAM_75RB#0



(Channel Bandwidth:15 MHz)_HCH_16QAM_75RB#0



Channel Bandwidth: 20 MHz

(Channel Bandwidth:20 MHz)_LCH_QPSK_100RB#0



(Channel Bandwidth:20 MHz)_HCH_QPSK_100RB#0



(Channel Bandwidth:20 MHz)_LCH_16QAM_100RB#0



(Channel Bandwidth:20 MHz)_HCH_16QAM_100RB#0



LTE BAND 12

Channel Bandwidth: 1.4 MHz

(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_6RB#0



(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_6RB#0



(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_6RB#0

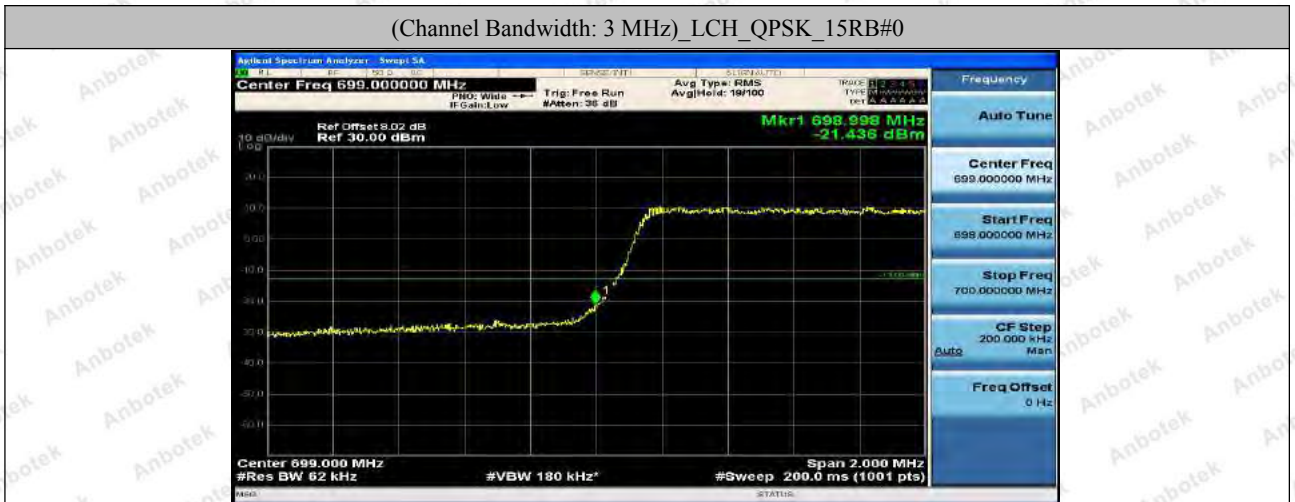


(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_6RB#0



Channel Bandwidth: 3 MHz

(Channel Bandwidth: 3 MHz)_LCH_QPSK_15RB#0



(Channel Bandwidth: 3 MHz)_HCH_QPSK_15RB#0



(Channel Bandwidth: 3 MHz)_LCH_16QAM_15RB#0



(Channel Bandwidth: 3 MHz)_HCH_16QAM_15RB#0



Channel Bandwidth: 5 MHz

(Channel Bandwidth: 5 MHz)_LCH_QPSK_25RB#0



(Channel Bandwidth: 5 MHz)_HCH_QPSK_25RB#0



(Channel Bandwidth: 5 MHz)_LCH_16QAM_25RB#0



(Channel Bandwidth: 5 MHz)_HCH_16QAM_25RB#0



Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz_LCH_QPSK_50RB#0



Channel Bandwidth: 10 MHz_HCH_QPSK_50RB#0



Channel Bandwidth: 10 MHz_LCH_16QAM_50RB#0





10. Frequency Stability

10.1. Test Standard and Limit

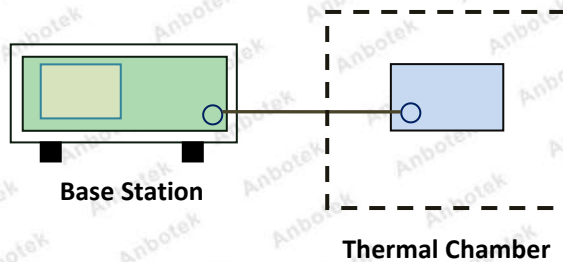
According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 29.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.

10.2. Test Setup



10.3. Test Procedure

A communication link was established between EUT and base station. The frequency error was monitored and measured by base station under variation of ambient temperature and variation of primary supply voltage.

Limit: The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

10.4. Test Data

LTE BAND 2

Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	MCH	VL	TN	-3.35	-0.001781	± 2.5	PASS
		VN	TN	3.59	0.001910	± 2.5	PASS
		VH	TN	5.06	0.002694	± 2.5	PASS
16QAM	MCH	VL	TN	5.95	0.003165	± 2.5	PASS
		VN	TN	-10.00	-0.005319	± 2.5	PASS
		VH	TN	22.92	0.012212	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	MCH	VN	-30	3.56	0.001895	± 2.5	PASS
		VN	-20	3.89	0.002070	± 2.5	PASS
		VN	-10	4.72	0.002511	± 2.5	PASS
		VN	0	23.00	0.012235	± 2.5	PASS
		VN	10	3.98	0.002115	± 2.5	PASS
		VN	20	4.82	0.002564	± 2.5	PASS
		VN	30	-16.71	-0.008887	± 2.5	PASS
		VN	40	4.82	0.002564	± 2.5	PASS
		VN	50	5.47	0.002907	± 2.5	PASS
16QAM	MCH	VN	-30	3.63	0.001933	± 2.5	PASS
		VN	-20	0.79	0.000419	± 2.5	PASS
		VN	-10	4.95	0.002633	± 2.5	PASS
		VN	0	2.66	0.001415	± 2.5	PASS
		VN	10	-13.62	-0.007244	± 2.5	PASS
		VN	20	25.75	0.013696	± 2.5	PASS
		VN	30	-9.23	-0.004908	± 2.5	PASS
		VN	40	4.84	0.002572	± 2.5	PASS
		VN	50	-1.69	-0.000898	± 2.5	PASS

LTE BAND 4

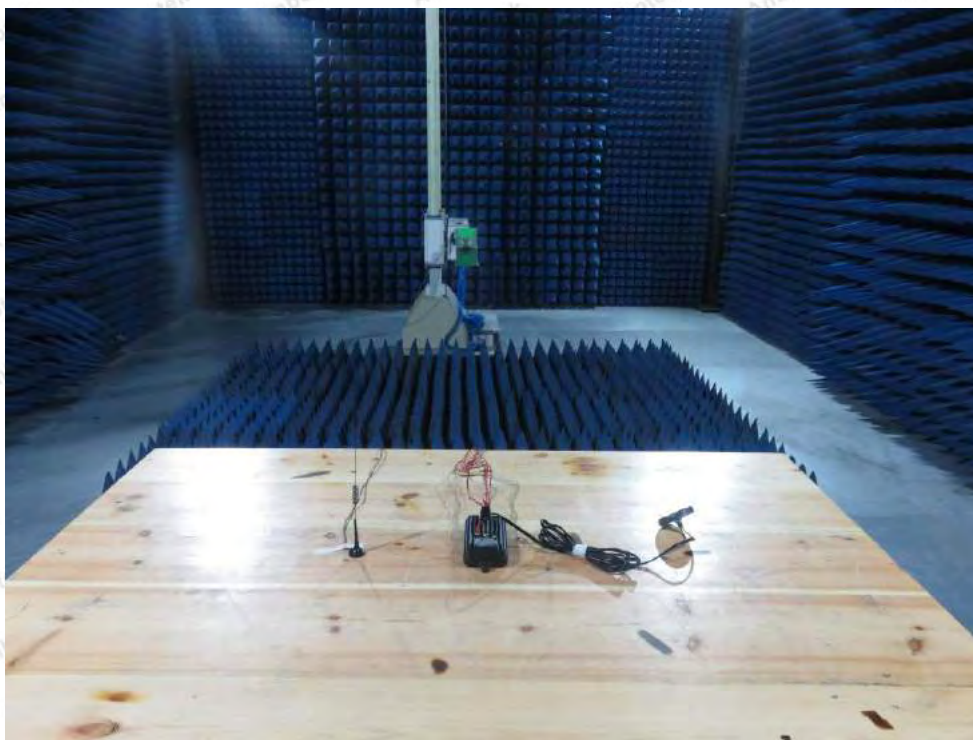
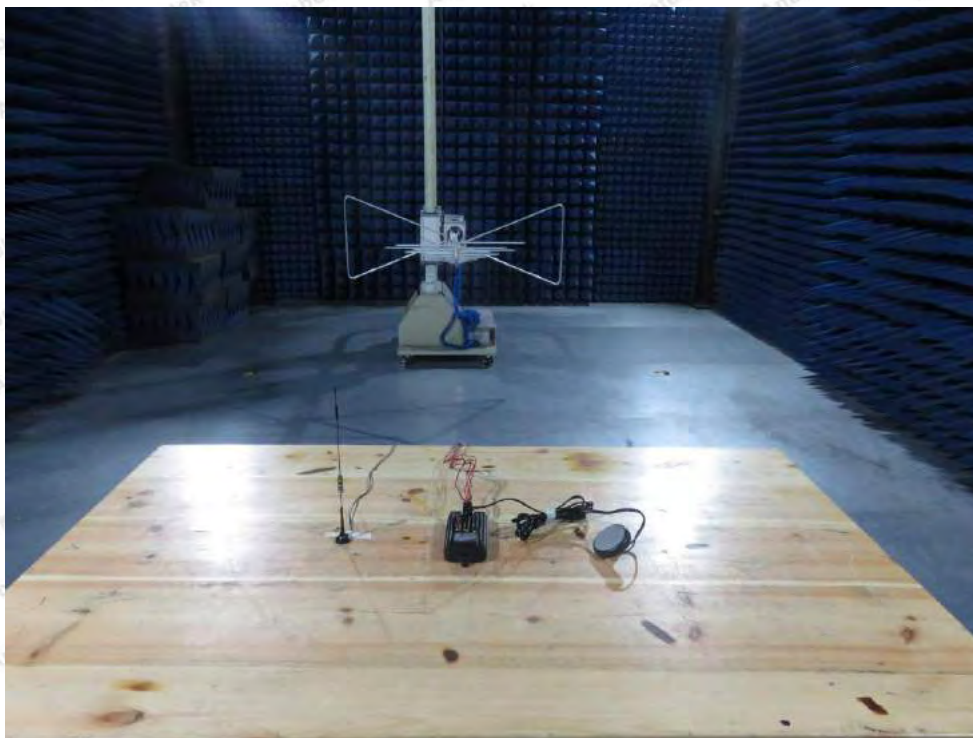
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	MCH	VL	TN	4.98	0.002873	± 2.5	PASS
		VN	TN	-4.18	-0.002411	± 2.5	PASS
		VH	TN	7.51	0.004335	± 2.5	PASS
16QAM	MCH	VL	TN	3.82	0.002205	± 2.5	PASS
		VN	TN	5.22	0.003014	± 2.5	PASS
		VH	TN	-17.95	-0.010362	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	MCH	VN	-30	2.02	0.001164	± 2.5	PASS
		VN	-20	-13.00	-0.007506	± 2.5	PASS
		VN	-10	22.70	0.013104	± 2.5	PASS
		VN	0	-1.82	-0.001049	± 2.5	PASS
		VN	10	1.90	0.001098	± 2.5	PASS
		VN	20	-21.49	-0.012118	± 2.5	PASS
		VN	30	4.75	0.002744	± 2.5	PASS
		VN	40	4.55	0.002626	± 2.5	PASS
16QAM	MCH	VN	50	-7.72	-0.00445	± 2.5	PASS
		VN	-30	8.89	0.005131	± 2.5	PASS
		VN	-20	8.71	0.005028	± 2.5	PASS
		VN	-10	-9.91	-0.00572	± 2.5	PASS
		VN	0	2.24	0.001291	± 2.5	PASS
		VN	10	-1.78	-0.00103	± 2.5	PASS
		VN	20	-3.18	-0.00184	± 2.5	PASS
		VN	30	-5.21	-0.00301	± 2.5	PASS
VN	40	3.32	0.001917	± 2.5	PASS		
VN	50	6.94	0.004009	± 2.5	PASS		

LTE BAND 12

Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	MCH	VL	TN	-0.71	-0.000994	± 2.5	PASS
		VN	TN	-5.26	-0.007413	± 2.5	PASS
		VH	TN	3.58	0.005045	± 2.5	PASS
16QAM	MCH	VL	TN	0.72	0.001011	± 2.5	PASS
		VN	TN	-5.60	-0.007882	± 2.5	PASS
		VH	TN	0.15	0.000218	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	MCH	VN	-30	9.85	0.013878	± 2.5	PASS
		VN	-20	-0.88	-0.001236	± 2.5	PASS
		VN	-10	-6.37	-0.008974	± 2.5	PASS
		VN	0	-7.22	-0.010162	± 2.5	PASS
		VN	10	3.02	0.004252	± 2.5	PASS
		VN	20	5.77	0.008125	± 2.5	PASS
		VN	30	-1.64	-0.002316	± 2.5	PASS
		VN	40	-3.29	-0.004640	± 2.5	PASS
16QAM	MCH	VN	50	1.39	0.001962	± 2.5	PASS
		VN	-30	-2.15	-0.003024	± 2.5	PASS
		VN	-20	-4.37	-0.006153	± 2.5	PASS
		VN	-10	2.76	0.003888	± 2.5	PASS
		VN	0	-7.07	-0.009955	± 2.5	PASS
		VN	10	-1.09	-0.001531	± 2.5	PASS
		VN	20	-1.12	-0.001575	± 2.5	PASS
		VN	30	4.18	0.005881	± 2.5	PASS
VN	40	-8.57	-0.012068	± 2.5	PASS		
VN	50	0.85	0.001201	± 2.5	PASS		

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Radiation Emission Test



APPENDIX II -- PHOTOGRAPH

Reference to the test report SZAWW180302005-01