RF TEST REPORT

Report No.: 16071169-FCC-R5

Supersede Report No.: N/A

Applicant	Juniper Systems Inc
Product Name	4G Tablet PC
Model No.	CT7G
Serial No.	N/A
Test Standard	FCC Part 22(H):2015, FCC Part 24(E):2015, FCC Part 27: 2015; ANSI/TIA-603-D: 2010
Test Date	September 21 to October 24, 2016
Issue Date	October 25, 2016
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Loren Luo	David Huang	
Loren Luo Test Engineer	David Huang Checked By	

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Test result presented in this test report is applicable to the tested sample only

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

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Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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CONTENTS

1. Report Revision History

Report No.	Report Version	Description	Issue Date
16071169-FCC-R5	NONE	Original	October 25, 2016

2. Customer information

Applicant Name	Juniper Systems Inc
Applicant Add	1132W 1700N, Logan, Utah 84321,United States
Manufacturer	Juniper Systems Inc
Manufacturer Add	1132W 1700N, Logan, Utah 84321,United States

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT:	4G Tablet PC
Main Model:	CT7G
Serial Model:	N/A
Date EUT received:	September 20, 2016
Test Date(s):	September 21 to October 24, 2016
Equipment Category：	PCE
Antenna Gain:	GSM850: 1.5dBi PCS1900: 1.5dBi UMTS-FDD Band V:1.5dBi UMTS-FDD Band II:1.5dBi LTE Band IV:1.5dBi LTE Band V: 1.5dBi LTE Band VII: 1.5dBi LTE Band XVII: 1.5dBi Bluetooth/BLE/WIFI:1.5dBi GPS:1.5dBi
Antenna Type:	PIFA antenna
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK,8PSK UMTS-FDD: QPSK LTE Band: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK GPS:BPSK

RF Operating Frequency (ies):	GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz UMTS-FDD Band II TX:1852.4 ~ 1907.6 MHz; RX: 1932.4 ~ 1987.6 MHz LTE Band IV TX: 1710.7 ~ 1754.3 MHz; RX : 2110.7 ~ 2154.3 MHz LTE Band V TX: 826.5 ~ 846.5 MHz; RX : 871.5 ~ 891.5 MHz LTE Band VII TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz LTE Band XVII TX: 706.5 ~ 713.5 MHz; RX : 736.5 ~ 743.5 MHz WIFI: 802.11b/g/n(20M): 2412-2462 MHz WIFI: 802.11n(40M): 2422-2452 MHz Bluetooth& BLE: 2402-2480 MHz GPS: 1575.42 MHz
Maximum Conducted AV Power to Antenna:	LTE Band IV: 21.98 dBm LTE Band V: 23.09 dBm LTE Band VII: 18.29 dBm LTE Band XVII: 22.43 dBm
ERP/EIRP:	LTE Band IV: 23.58 dBm / EIRP LTE Band V: 22.49 dBm / EIRP LTE Band VII: 19.76 dBm / EIRP LTE Band XVII: 21.73 dBm / ERP
Port:	USB Port, Earphone Port
Input Power:	Battery: Spec: 3.7V
Trade Name :	Cedar
FCC ID:	VSFCT7G

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§ 1.1307; § 2.1093	RF Exposure (SAR)	Compliance
§2.1046; § 22.913(a); § 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
§ 2.1049; § 22.905; § 22.917; § 24.238; § 27.53(a.5)	99% & -26 dB Occupied Bandwidth	Compliance
§ 2.1051; § 22.917(a); § 24.238(a); § 27.53(h)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917(a); § 24.238(a); § 27.53(h)	Field Strength of Spurious Radiation	Compliance
§ 22.917(a); § 24.238(a);	Out of band emission, Band Edge	Compliance
§ 27.53(m)	Band Edge 27.53(m)	Compliance
§ 2.1055; § 22.355; § 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

Measurement Uncertainty

Emissions		
Test Item	**Description**	**Uncertainty**
Band Edge and Radiated Spurious Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
-	-	-

6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

6.1 RF Exposure (SAR)

Test Result: Pass

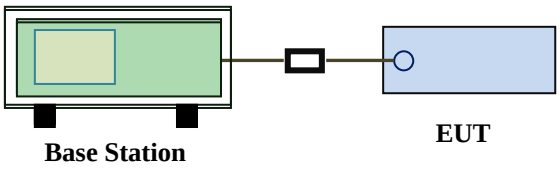
The EUT is a portable device, thus requires SAR evaluation;

Please refer to RF Exposure Evaluation Report: 16071169-FCC-H.

6.2 RF Output Power

Temperature	22℃
Relative Humidity	59%
Atmospheric Pressure	1017mbar
Test date :	October 17, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§22.913 (a)	a)	ERP:38.45dBm	☑
§24.232 (c)	b)	EIRP:33dBm	☑
§27.50 (c)	c)	EIRP: 30dBm	☑
Test Setup			
Test Procedure	For Conducted Power: - 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: - The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable. - 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. - The frequency range up to tenth harmonic of the fundamental frequency was investigated.		

	- 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. - Spurious emissions in dB = 10 log (TX power in Watts/0.001) – the absolute level - Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

Conducted Power

LTE Band IV:

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
20MHz	20050	1720.0	QPSK	1	0	0	21.61	21±1
				1	49	0	21.60	21±1
				1	99	0	21.62	21±1
				50	0	1	20.50	21±1
				50	24	1	20.53	21±1
				50	49	1	20.58	21±1
				100	0	1	20.70	21±1
			16QAM	1	0	1	20.88	20.3±1
				1	49	1	20.85	20.3±1
				1	99	1	20.86	20.3±1
				50	0	2	19.50	20.3±1
				50	24	2	19.45	20.3±1
				50	49	2	19.52	20.3±1
				100	0	2	19.94	20.3±1
	20175	1732.5	QPSK	1	0	0	19.11	19±1
				1	49	0	19.12	19±1
				1	99	0	19.18	19±1
				50	0	1	18.50	19±1
				50	24	1	18.59	19±1
				50	49	1	18.47	19±1
				100	0	1	19.55	19±1
			16QAM	1	0	1	18.77	18.5±1
				1	49	1	18.79	18.5±1
				1	99	1	18.73	18.5±1
				50	0	2	18.68	18.5±1
				50	24	2	18.62	18.5±1
				50	49	2	18.66	18.5±1
				100	0	2	18.58	18.5±1
	20300	1745.0	QPSK	1	0	0	20.27	20±1
				1	49	0	20.29	20±1
				1	99	0	20.33	20±1
				50	0	1	19.05	20±1
				50	24	1	19.12	20±1
				50	49	1	19.06	20±1
				100	0	1	18.94	20±1
			16QAM	1	0	1	19.60	19±1
				1	49	1	19.58	19±1
				1	99	1	19.66	19±1
				50	0	2	18.69	19±1
				50	24	2	18.75	19±1
				50	49	2	18.62	19±1
				100	0	2	18.85	19±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
15MHz	20025	1717.5	QPSK	1	0	0	21.67	21±1
				1	37	0	21.69	21±1
				1	74	0	21.65	21±1
				36	0	1	20.68	21±1
				36	16	1	20.69	21±1
				36	35	1	20.72	21±1
				75	0	1	20.08	21±1
			16QAM	1	0	1	21.10	21±1
				1	37	1	21.13	21±1
				1	74	1	21.16	21±1
				36	0	2	20.59	21±1
				36	16	2	20.58	21±1
				36	35	2	20.66	21±1
				75	0	2	20.38	21±1
	20175	1732.5	QPSK	1	0	0	19.24	19±1
				1	37	0	19.35	19±1
				1	74	0	19.31	19±1
				36	0	1	18.40	19±1
				36	16	1	18.46	19±1
				36	35	1	18.47	19±1
				75	0	1	19.23	19±1
			16QAM	1	0	1	18.21	28±1
				1	37	1	18.23	28±1
				1	74	1	18.22	28±1
				36	0	2	18.30	28±1
				36	16	2	18.33	28±1
				36	35	2	18.31	28±1
				75	0	2	18.42	28±1
	20325	1747.5	QPSK	1	0	0	20.06	22±1
				1	37	0	20.07	19.3±1
				1	74	0	20.11	19.3±1
				36	0	1	18.98	19.3±1
				36	16	1	18.95	19.3±1
				36	35	1	18.93	19.3±1
				75	0	1	18.88	19.3±1
			16QAM	1	0	1	19.07	18.3±1
				1	37	1	19.06	18.3±1
				1	74	1	19.03	18.3±1
				36	0	2	18.53	18.3±1
				36	16	2	18.57	18.3±1
				36	35	2	18.53	18.3±1
				75	0	2	17.75	18.3±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
10MHz	20000	1715.0	QPSK	1	0	0	21.68	21±1
				1	24	0	21.63	21±1
				1	49	0	21.65	21±1
				25	0	1	20.66	21±1
				25	12	1	20.62	21±1
				25	24	1	20.68	21±1
				50	0	1	20.54	21±1
			16QAM	1	0	1	20.60	20±1
				1	24	1	20.53	20±1
				1	49	1	20.59	20±1
				25	0	2	20.48	20±1
				25	12	2	20.45	20±1
				25	24	2	20.43	20±1
				50	0	2	19.43	20±1
	20175	1732.5	QPSK	1	0	0	18.84	18±1
				1	24	0	18.87	18±1
				1	49	0	18.81	18±1
				25	0	1	18.25	18±1
				25	12	1	18.23	18±1
				25	24	1	18.29	18±1
				50	0	1	18.92	18±1
			16QAM	1	0	1	17.86	18±1
				1	24	1	17.82	18±1
				1	49	1	17.89	18±1
				25	0	2	18.26	18±1
				25	12	2	18.29	18±1
				25	24	2	18.27	18±1
				50	0	2	18.16	18±1
	20350	1750.0	QPSK	1	0	0	19.70	19±1
				1	24	0	19.81	19±1
				1	49	0	19.75	19±1
				25	0	1	18.71	19±1
				25	12	1	18.73	19±1
				25	24	1	18.76	19±1
				50	0	1	18.68	19±1
			16QAM	1	0	1	19.21	18.5±1
				1	24	1	19.20	18.5±1
				1	49	1	19.25	18.5±1
				25	0	2	18.59	18.5±1
				25	12	2	18.57	18.5±1
				25	24	2	18.56	18.5±1
				50	0	2	17.75	18.5±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
5MHz	20000	1715.0	QPSK	1	0	0	21.79	21±1
				1	12	0	21.76	21±1
				1	24	0	21.75	21±1
				12	0	1	20.80	21±1
				12	6	1	20.79	21±1
				12	11	1	20.76	21±1
				25	0	1	20.61	21±1
			16QAM	1	0	1	20.68	20±1
				1	12	1	20.65	20±1
				1	24	1	20.64	20±1
				12	0	2	20.35	20±1
				12	6	2	20.33	20±1
				12	11	2	20.37	20±1
				25	0	2	19.62	20±1
	20175	1732.5	QPSK	1	0	0	19.76	19±1
				1	12	0	19.77	19±1
				1	24	0	19.79	19±1
				12	0	1	18.64	19±1
				12	6	1	18.62	19±1
				12	11	1	18.63	19±1
				25	0	1	18.93	19±1
			16QAM	1	0	1	19.33	19±1
				1	12	1	19.32	19±1
				1	24	1	19.36	19±1
				12	0	2	18.93	19±1
				12	6	2	18.95	19±1
				12	11	2	18.96	19±1
				25	0	2	17.86	19±1
	20350	1750.0	QPSK	1	0	0	19.64	19±1
				1	12	0	19.65	19±1
				1	24	0	19.68	19±1
				12	0	1	18.69	19±1
				12	6	1	18.62	19±1
				12	11	1	18.63	19±1
				25	0	1	18.42	19±1
			16QAM	1	0	1	18.69	18±1
				1	12	1	18.65	18±1
				1	24	1	18.63	18±1
				12	0	2	18.06	18±1
				12	6	2	18.09	18±1
				12	11	2	18.12	18±1
				25	0	2	17.63	18±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
3MHz	19965	1711.5	QPSK	1	0	0	21.84	21±1
				1	7	0	21.86	21±1
				1	14	0	21.89	21±1
				8	0	1	20.89	21±1
				8	4	1	20.87	21±1
				8	7	1	20.83	21±1
				15	0	1	20.71	21±1
			16QAM	1	0	1	21.00	20.3±1
				1	7	1	21.08	20.3±1
				1	14	1	21.03	20.3±1
				8	0	2	19.73	20.3±1
				8	4	2	19.75	20.3±1
				8	7	2	19.78	20.3±1
				15	0	2	19.66	20.3±1
	20175	1732.5	QPSK	1	0	0	19.92	19.3±1
				1	7	0	19.93	19.3±1
				1	14	0	20.05	19.3±1
				8	0	1	19.04	19.3±1
				8	4	1	19.01	19.3±1
				8	7	1	18.93	19.3±1
				15	0	1	19.11	19.3±1
			16QAM	1	0	1	18.84	18±1
				1	7	1	18.82	18±1
				1	14	1	18.88	18±1
				8	0	2	18.21	18±1
				8	4	2	18.20	18±1
				8	7	2	18.18	18±1
				15	0	2	18.34	18±1
	20385	1753.5	QPSK	1	0	0	19.62	19±1
				1	7	0	19.63	19±1
				1	14	0	19.67	19±1
				8	0	1	18.58	19±1
				8	4	1	18.53	19±1
				8	7	1	18.52	19±1
				15	0	1	18.39	19±1
			16QAM	1	0	1	18.69	18±1
				1	7	1	18.63	18±1
				1	14	1	18.64	18±1
				8	0	2	17.53	18±1
				8	4	2	17.50	18±1
				8	7	2	17.55	18±1
				15	0	2	17.74	18±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
1.4MHz	19957	1710.7	QPSK	1	0	0	21.97	21±1
				1	2	0	21.95	21±1
				1	5	0	**21.98**	21±1
				3	0	0	21.71	21±1
				3	1	0	21.75	21±1
				3	2	0	21.78	21±1
				6	0	1	20.86	21±1
			16QAM	1	0	1	20.53	20±1
				1	2	1	20.52	20±1
				1	5	1	20.55	20±1
				3	0	1	20.38	20±1
				3	1	1	20.34	20±1
				3	2	1	20.32	20±1
				6	0	2	19.68	20±1
	20175	1732.5	QPSK	1	0	0	20.00	20±1
				1	2	0	20.05	20±1
				1	5	0	20.08	20±1
				3	0	0	19.99	20±1
				3	1	0	20.00	20±1
				3	2	0	19.93	20±1
				6	0	1	19.09	20±1
			16QAM	1	0	1	18.91	19±1
				1	2	1	18.93	19±1
				1	5	1	18.95	19±1
				3	0	1	19.03	19±1
				3	1	1	19.06	19±1
				3	2	1	19.08	19±1
				6	0	2	18.47	19±1
	20393	1754.3	QPSK	1	0	0	19.39	19±1
				1	2	0	19.34	19±1
				1	5	0	19.33	19±1
				3	0	0	19.26	19±1
				3	1	0	19.28	19±1
				3	2	0	19.27	19±1
				6	0	1	18.27	19±1
			16QAM	1	0	1	18.53	18±1
				1	2	1	18.59	18±1
				1	5	1	18.57	18±1
				3	0	1	18.05	18±1
				3	1	1	18.07	18±1
				3	2	1	18.00	18±1
				6	0	2	17.39	18±1

LTE Band V:

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
10MHz	20450	829	QPSK	1	0	0	22.92	22±1
				1	24	0	22.90	22±1
				1	49	0	22.93	22±1
				25	0	1	21.99	22±1
				25	12	1	21.95	22±1
				25	24	1	21.98	22±1
				50	0	1	21.94	22±1
			16QAM	1	0	1	21.96	21.3±1
				1	24	1	21.92	21.3±1
				1	49	1	21.99	21.3±1
				25	0	2	21.58	21.3±1
				25	12	2	21.57	21.3±1
				25	24	2	21.53	21.3±1
				50	0	2	21.03	21.3±1
	20525	836.5	QPSK	1	0	0	23.00	23±1
				1	24	0	23.06	23±1
				1	49	0	23.01	23±1
				25	0	1	22.06	23±1
				25	12	1	22.08	23±1
				25	24	1	22.02	23±1
				50	0	1	22.03	23±1
			16QAM	1	0	1	22.46	22±1
				1	24	1	22.48	22±1
				1	49	1	22.47	22±1
				25	0	2	22.08	22±1
				25	12	2	22.03	22±1
				25	24	2	22.05	22±1
				50	0	2	21.03	22±1
	20600	844	QPSK	1	0	0	22.94	22.5±1
				1	24	0	22.93	22.5±1
				1	49	0	22.91	22.5±1
				25	0	1	22.03	22.5±1
				25	12	1	22.05	22.5±1
				25	24	1	22.08	22.5±1
				50	0	1	21.97	22.5±1
			16QAM	1	0	1	21.97	21.5±1
				1	24	1	21.93	21.5±1
				1	49	1	22.01	21.5±1
				25	0	2	21.35	21.5±1
				25	12	2	21.38	21.5±1
				25	24	2	21.30	21.5±1
				50	0	2	21.02	21.5±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
5MHz	20425	826.5	QPSK	1	0	0	22.78	22.5±1
				1	12	0	22.72	22.5±1
				1	24	0	22.73	22.5±1
				12	0	1	21.95	22.5±1
				12	6	1	21.98	22.5±1
				12	11	1	21.99	22.5±1
				25	0	1	21.97	22.5±1
			16QAM	1	0	1	22.53	21.8±1
				1	12	1	22.52	21.8±1
				1	24	1	22.55	21.8±1
				12	0	2	21.83	21.8±1
				12	6	2	21.84	21.8±1
				12	11	2	21.87	21.8±1
				25	0	2	21.01	21.8±1
	20525	836.5	QPSK	1	0	0	23.04	23±1
				1	12	0	23.01	23±1
				1	24	0	23.05	23±1
				12	0	1	22.02	23±1
				12	6	1	22.09	23±1
				12	11	1	22.08	23±1
				25	0	1	22.03	23±1
			16QAM	1	0	1	21.84	21.5±1
				1	12	1	21.85	21.5±1
				1	24	1	21.89	21.5±1
				12	0	2	21.46	21.5±1
				12	6	2	21.47	21.5±1
				12	11	2	21.49	21.5±1
				25	0	2	21.09	21.5±1
	20625	846.5	QPSK	1	0	0	23.00	22.3±1
				1	12	0	23.06	22.3±1
				1	24	0	23.01	22.3±1
				12	0	1	21.99	22.3±1
				12	6	1	21.85	22.3±1
				12	11	1	21.83	22.3±1
				25	0	1	22.01	22.3±1
			16QAM	1	0	1	21.98	21.5±1
				1	12	1	21.93	21.5±1
				1	24	1	21.91	21.5±1
				12	0	2	21.57	21.5±1
				12	6	2	21.53	21.5±1
				12	11	2	21.59	21.5±1
				25	0	2	21.06	21.5±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
3MHz	20415	825.5	QPSK	1	0	0	22.67	22.5±1
				1	7	0	22.63	22.5±1
				1	14	0	22.64	22.5±1
				8	0	1	21.83	22.5±1
				8	4	1	21.85	22.5±1
				8	7	1	21.82	22.5±1
				15	0	1	21.93	22.5±1
			16QAM	1	0	1	22.45	22±1
				1	7	1	22.48	22±1
				1	14	1	22.49	22±1
				8	0	2	20.75	22±1
				8	4	2	20.79	22±1
				8	7	2	20.73	22±1
				15	0	2	21.05	22±1
	20525	836.5	QPSK	1	0	0	22.97	22.5±1
				1	7	0	22.91	22.5±1
				1	14	0	22.95	22.5±1
				8	0	1	21.90	22.5±1
				8	4	1	21.88	22.5±1
				8	7	1	21.85	22.5±1
				15	0	1	21.96	22.5±1
			16QAM	1	0	1	21.82	21.5±1
				1	7	1	21.84	21.5±1
				1	14	1	21.88	21.5±1
				8	0	2	20.93	21.5±1
				8	4	2	20.99	21.5±1
				8	7	2	20.91	21.5±1
				15	0	2	20.98	21.5±1
	20635	847.5	QPSK	1	0	0	22.86	22.5±1
				1	7	0	22.85	22.5±1
				1	14	0	22.81	22.5±1
				8	0	1	21.95	22.5±1
				8	4	1	21.92	22.5±1
				8	7	1	21.91	22.5±1
				15	0	1	21.99	22.5±1
			16QAM	1	0	1	22.38	21.7±1
				1	7	1	22.36	21.7±1
				1	14	1	22.35	21.7±1
				8	0	2	20.93	21.7±1
				8	4	2	20.91	21.7±1
				8	7	2	20.97	21.7±1
				15	0	2	21.09	21.7±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
1.4MHz	20407	824.7	QPSK	1	0	0	22.72	22±1
				1	2	0	22.71	22±1
				1	5	0	22.74	22±1
				3	0	0	22.94	22±1
				3	1	0	22.92	22±1
				3	2	0	22.91	22±1
				6	0	1	21.81	22±1
			16QAM	1	0	1	21.46	21.5±1
				1	2	1	21.49	21.5±1
				1	5	1	21.42	21.5±1
				3	0	1	21.05	21.5±1
				3	1	1	21.06	21.5±1
				3	2	1	21.07	21.5±1
				6	0	2	20.83	21.5±1
	20525	836.5	QPSK	1	0	0	22.94	22.5±1
				1	2	0	22.90	22.5±1
				1	5	0	22.92	22.5±1
				3	0	0	23.06	22.5±1
				3	1	0	**23.09**	22.5±1
				3	2	0	23.04	22.5±1
				6	0	1	21.88	22.5±1
			16QAM	1	0	1	21.81	21.5±1
				1	2	1	21.83	21.5±1
				1	5	1	21.84	21.5±1
				3	0	1	21.18	21.5±1
				3	1	1	21.15	21.5±1
				3	2	1	21.16	21.5±1
				6	0	2	20.91	21.5±1
	20643	848.3	QPSK	1	0	0	22.97	23±1
				1	2	0	22.93	23±1
				1	5	0	22.99	23±1
				3	0	0	23.01	23±1
				3	1	0	23.04	23±1
				3	2	0	23.03	23±1
				6	0	1	22.41	23±1
			16QAM	1	0	1	21.91	22±1
				1	2	1	21.90	22±1
				1	5	1	21.95	22±1
				3	0	1	21.53	22±1
				3	1	1	21.57	22±1
				3	2	1	21.56	22±1
				6	0	2	21.30	22±1

LTE Band VII:

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
20MHz	20850	2510	QPSK	1	0	0	17.72	17±1
				1	49	0	17.74	17±1
				1	99	0	17.76	17±1
				50	0	1	16.47	17±1
				50	24	1	16.49	17±1
				50	49	1	16.41	17±1
				100	0	1	16.45	17±1
			16QAM	1	0	1	17.30	17±1
				1	49	1	17.36	17±1
				1	99	1	17.38	17±1
				50	0	2	16.83	17±1
				50	24	2	16.82	17±1
				50	49	2	16.89	17±1
				100	0	2	16.07	17±1
	21100	2535	QPSK	1	0	0	17.51	17±1
				1	49	0	17.53	17±1
				1	99	0	17.48	17±1
				50	0	1	16.50	17±1
				50	24	1	16.53	17±1
				50	49	1	16.58	17±1
				100	0	1	16.44	17±1
			16QAM	1	0	1	16.49	16±1
				1	49	1	16.43	16±1
				1	99	1	16.47	16±1
				50	0	2	16.28	16±1
				50	24	2	16.24	16±1
				50	49	2	16.20	16±1
				100	0	2	16.08	16±1
	21350	2560	QPSK	1	0	0	17.40	17±1
				1	49	0	17.38	17±1
				1	99	0	17.33	17±1
				50	0	1	16.54	17±1
				50	24	1	16.53	17±1
				50	49	1	16.58	17±1
				100	0	1	16.54	17±1
			16QAM	1	0	1	16.70	16±1
				1	49	1	16.59	16±1
				1	99	1	16.53	16±1
				50	0	2	16.37	16±1
				50	24	2	16.31	16±1
				50	49	2	16.36	16±1
				100	0	2	16.01	16±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
15MHz	20825	1717.5	QPSK	1	0	0	17.77	17±1
				1	37	0	17.73	17±1
				1	74	0	17.78	17±1
				36	0	1	16.51	17±1
				36	16	1	16.50	17±1
				36	35	1	16.56	17±1
				75	0	1	16.51	17±1
			16QAM	1	0	1	17.48	17±1
				1	37	1	17.43	17±1
				1	74	1	17.41	17±1
				36	0	2	16.85	17±1
				36	16	2	16.83	17±1
				36	35	2	16.87	17±1
				75	0	2	16.05	17±1
	21100	1732.5	QPSK	1	0	0	17.45	17±1
				1	37	0	17.43	17±1
				1	74	0	17.42	17±1
				36	0	1	16.73	17±1
				36	16	1	16.71	17±1
				36	35	1	16.79	17±1
				75	0	1	16.50	17±1
			16QAM	1	0	1	17.16	17±1
				1	37	1	17.11	17±1
				1	74	1	17.18	17±1
				36	0	2	16.62	17±1
				36	16	2	16.68	17±1
				36	35	2	16.65	17±1
				75	0	2	16.01	17±1
	21375	1747.5	QPSK	1	0	0	17.61	17±1
				1	37	0	17.68	17±1
				1	74	0	17.64	17±1
				36	0	1	16.52	17±1
				36	16	1	16.55	17±1
				36	35	1	16.56	17±1
				75	0	1	16.54	17±1
			16QAM	1	0	1	16.40	16±1
				1	37	1	16.38	16±1
				1	74	1	16.45	16±1
				36	0	2	16.22	16±1
				36	16	2	16.23	16±1
				36	35	2	16.20	16±1
				75	0	2	16.09	16±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
10MHz	20800	2502	QPSK	1	0	0	17.78	17±1
				1	24	0	17.73	17±1
				1	49	0	17.74	17±1
				25	0	1	16.67	17±1
				25	12	1	16.62	17±1
				25	24	1	16.69	17±1
				50	0	1	16.46	17±1
			16QAM	1	0	1	17.43	17±1
				1	24	1	17.39	17±1
				1	49	1	17.46	17±1
				25	0	2	16.85	17±1
				25	12	2	16.84	17±1
				25	24	2	16.89	17±1
				50	0	2	16.10	17±1
	21100	2535	QPSK	1	0	0	17.56	17±1
				1	24	0	17.53	17±1
				1	49	0	17.54	17±1
				25	0	1	16.63	17±1
				25	12	1	16.68	17±1
				25	24	1	16.66	17±1
				50	0	1	16.49	17±1
			16QAM	1	0	1	16.44	16±1
				1	24	1	16.48	16±1
				1	49	1	16.47	16±1
				25	0	2	16.28	16±1
				25	12	2	16.29	16±1
				25	24	2	16.24	16±1
				50	0	2	16.08	16±1
	21400	2565	QPSK	1	0	0	17.62	17±1
				1	24	0	17.68	17±1
				1	49	0	17.66	17±1
				25	0	1	16.58	17±1
				25	12	1	16.51	17±1
				25	24	1	16.57	17±1
				50	0	1	16.62	17±1
			16QAM	1	0	1	16.53	16±1
				1	24	1	16.58	16±1
				1	49	1	16.59	16±1
				25	0	2	16.37	16±1
				25	12	2	16.33	16±1
				25	24	2	16.31	16±1
				50	0	2	16.06	16±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
5MHz	19975	1712.5	QPSK	1	0	0	18.25	17.5±1
				1	12	0	18.27	17.5±1
				1	24	0	**18.29**	17.5±1
				12	0	1	16.95	17.5±1
				12	6	1	16.93	17.5±1
				12	11	1	16.99	17.5±1
				25	0	1	16.77	17.5±1
			16QAM	1	0	1	17.90	17±1
				1	12	1	17.93	17±1
				1	24	1	17.95	17±1
				12	0	2	16.35	17±1
				12	6	2	16.37	17±1
				12	11	2	16.38	17±1
				25	0	2	16.01	17±1
	20175	1732.5	QPSK	1	0	0	17.95	17±1
				1	12	0	17.93	17±1
				1	24	0	17.96	17±1
				12	0	1	16.63	17±1
				12	6	1	16.65	17±1
				12	11	1	16.68	17±1
				25	0	1	16.48	17±1
			16QAM	1	0	1	17.07	17±1
				1	12	1	17.09	17±1
				1	24	1	17.03	17±1
				12	0	2	16.58	17±1
				12	6	2	16.53	17±1
				12	11	2	16.55	17±1
				25	0	2	16.07	17±1
	20375	1752.5	QPSK	1	0	0	17.45	17±1
				1	12	0	17.43	17±1
				1	24	0	17.49	17±1
				12	0	1	16.62	17±1
				12	6	1	16.68	17±1
				12	11	1	16.63	17±1
				25	0	1	16.61	17±1
			16QAM	1	0	1	16.61	16±1
				1	12	1	16.59	16±1
				1	24	1	16.60	16±1
				12	0	2	16.38	16±1
				12	6	2	16.31	16±1
				12	11	2	16.34	16±1
				25	0	2	16.06	16±1

LTE Band XVII:

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
10MHz	23780	709.0	QPSK	1	0	0	22.39	22±1
				1	24	0	22.35	22±1
				1	49	0	22.33	22±1
				25	0	1	21.46	22±1
				25	12	1	21.43	22±1
				25	24	1	21.48	22±1
				50	0	1	21.37	22±1
			16QAM	1	0	1	21.41	21±1
				1	24	1	21.40	21±1
				1	49	1	21.47	21±1
				25	0	2	21.08	21±1
				25	12	2	21.03	21±1
				25	24	2	21.00	21±1
				50	0	2	20.37	21±1
	23790	701.0	QPSK	1	0	0	22.35	22±1
				1	24	0	22.33	22±1
				1	49	0	22.37	22±1
				25	0	1	21.39	22±1
				25	12	1	21.34	22±1
				25	24	1	21.35	22±1
				50	0	1	21.36	22±1
			16QAM	1	0	1	21.81	21.5±1
				1	24	1	21.80	21.5±1
				1	49	1	21.78	21.5±1
				25	0	2	21.41	21.5±1
				25	12	2	21.48	21.5±1
				25	24	2	21.45	21.5±1
				50	0	2	20.77	21.5±1
	23800	711.0	QPSK	1	0	0	22.31	22±1
				1	24	0	22.35	22±1
				1	49	0	22.29	22±1
				25	0	1	21.42	22±1
				25	12	1	21.46	22±1
				25	24	1	21.47	22±1
				50	0	1	21.35	22±1
			16QAM	1	0	1	21.39	21±1
				1	24	1	21.34	21±1
				1	49	1	21.36	21±1
				25	0	2	21.05	21±1
				25	12	2	21.06	21±1
				25	24	2	20.98	21±1
				50	0	2	20.84	21±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
5MHz	23755	706.5	QPSK	1	0	0	22.39	22±1
				1	12	0	22.36	22±1
				1	24	0	22.34	22±1
				12	0	1	21.37	22±1
				12	6	1	21.35	22±1
				12	11	1	21.31	22±1
				25	0	1	21.42	22±1
			16QAM	1	0	1	21.27	21±1
				1	12	1	21.25	21±1
				1	24	1	21.29	21±1
				12	0	2	21.63	21±1
				12	6	2	21.60	21±1
				12	11	2	21.65	21±1
				25	0	2	20.35	21±1
	23790	710.0	QPSK	1	0	0	22.40	22±1
				1	12	0	22.41	22±1
				1	24	0	**22.43**	22±1
				12	0	1	21.35	22±1
				12	6	1	21.32	22±1
				12	11	1	21.38	22±1
				25	0	1	21.40	22±1
			16QAM	1	0	1	21.36	21±1
				1	12	1	21.34	21±1
				1	24	1	21.33	21±1
				12	0	2	21.05	21±1
				12	6	2	21.07	21±1
				12	11	2	21.03	21±1
				25	0	2	20.35	21±1
	23825	713.5	QPSK	1	0	0	22.26	22±1
				1	12	0	22.28	22±1
				1	24	0	22.23	22±1
				12	0	1	21.37	22±1
				12	6	1	21.35	22±1
				12	11	1	21.32	22±1
				25	0	1	21.43	22±1
			16QAM	1	0	1	21.96	21±1
				1	12	1	21.95	21±1
				1	24	1	21.93	21±1
				12	0	2	21.14	21±1
				12	6	2	21.17	21±1
				12	11	2	21.13	21±1
				25	0	2	20.41	21±1

ERP & EIRP

EIRP for LTE Band IV (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	16.42	V	7.95	0.79	**23.58**	30
1732.5	1.4	QPSK	1/0	14.38	V	7.95	0.79	21.54	30
1754.3	1.4	QPSK	1/0	13.81	V	7.95	0.79	20.97	30
1710.7	1.4	QPSK	1/0	14.56	H	7.95	0.79	21.72	30
1732.5	1.4	QPSK	1/0	12.57	H	7.95	0.79	19.73	30
1754.3	1.4	QPSK	1/0	11.96	H	7.95	0.79	19.12	30
1710.7	1.4	16-QAM	1/5	14.89	V	7.95	0.79	22.05	30
1732.5	1.4	16-QAM	1/0	13.26	V	7.95	0.79	20.42	30
1754.3	1.4	16-QAM	1/0	12.89	V	7.95	0.79	20.05	30
1710.7	1.4	16-QAM	1/5	13.06	H	7.95	0.79	20.22	30
1732.5	1.4	16-QAM	1/0	11.48	H	7.95	0.79	18.64	30
1754.3	1.4	16-QAM	1/0	11.08	H	7.95	0.79	18.24	30
1711.5	3	QPSK	1/0	16.19	V	7.95	0.79	23.35	30
1732.5	3	QPSK	1/0	14.53	V	7.95	0.79	21.69	30
1753.5	3	QPSK	1/0	14.22	V	7.95	0.79	21.38	30
1711.5	3	QPSK	1/0	14.25	H	7.95	0.79	21.41	30
1732.5	3	QPSK	1/0	12.76	H	7.95	0.79	19.92	30
1753.5	3	QPSK	1/0	12.48	H	7.95	0.79	19.64	30
1711.5	3	16-QAM	1/0	15.33	V	7.95	0.79	22.49	30
1732.5	3	16-QAM	1/0	13.18	V	7.95	0.79	20.34	30
1753.5	3	16-QAM	1/0	13.01	V	7.95	0.79	20.17	30
1711.5	3	16-QAM	1/0	13.57	H	7.95	0.79	20.73	30
1732.5	3	16-QAM	1/0	11.46	H	7.95	0.79	18.62	30
1753.5	3	16-QAM	1/0	11.35	H	7.95	0.79	18.51	30
1712.5	5	QPSK	1/0	16.13	V	7.95	0.79	23.29	30
1732.5	5	QPSK	1/0	14.11	V	7.95	0.79	21.27	30
1752.5	5	QPSK	1/24	13.98	V	7.95	0.79	21.14	30
1712.5	5	QPSK	1/0	14.35	H	7.95	0.79	21.51	30
1732.5	5	QPSK	1/0	12.41	H	7.95	0.79	19.57	30
1752.5	5	QPSK	1/24	12.23	H	7.95	0.79	19.39	30
1712.5	5	16-QAM	1/0	15.18	V	7.95	0.79	22.34	30
1732.5	5	16-QAM	1/0	13.75	V	7.95	0.79	20.91	30
1752.5	5	16-QAM	1/24	12.99	V	7.95	0.79	20.15	30
1712.5	5	16-QAM	1/0	13.34	H	7.95	0.79	20.50	30
1732.5	5	16-QAM	1/0	11.89	H	7.95	0.79	19.05	30
1752.5	5	16-QAM	1/24	11.26	H	7.95	0.79	18.42	30

1715	10	QPSK	1/0	16.02	V	7.95	0.79	23.18	30
1732.5	10	QPSK	1/49	13.15	V	7.95	0.79	20.31	30
1750	10	QPSK	1/0	14.02	V	7.95	0.79	21.18	30
1715	10	QPSK	1/0	14.25	H	7.95	0.79	21.41	30
1732.5	10	QPSK	1/49	11.49	H	7.95	0.79	18.65	30
1750	10	QPSK	1/0	12.25	H	7.95	0.79	19.41	30
1715	10	16-QAM	1/0	15.11	V	7.95	0.79	22.27	30
1732.5	10	16-QAM	1/49	12.27	V	7.95	0.79	19.43	30
1750	10	16-QAM	1/0	13.61	V	7.95	0.79	20.77	30
1715	10	16-QAM	1/0	13.34	H	7.95	0.79	20.5	30
1732.5	10	16-QAM	1/49	10.59	H	7.95	0.79	17.75	30
1750	10	16-QAM	1/0	11.78	H	7.95	0.79	18.94	30
1717.5	15	QPSK	1/0	16.01	V	7.95	0.79	23.17	30
1732.5	15	QPSK	1/74	13.65	V	7.95	0.79	20.81	30
1747.5	15	QPSK	1/0	14.38	V	7.95	0.79	21.54	30
1717.5	15	QPSK	1/0	14.19	H	7.95	0.79	21.35	30
1732.5	15	QPSK	1/74	11.89	H	7.95	0.79	19.05	30
1747.5	15	QPSK	1/0	12.58	H	7.95	0.79	19.74	30
1717.5	15	16-QAM	1/0	15.43	V	7.95	0.79	22.59	30
1732.5	15	16-QAM	1/74	12.55	V	7.95	0.79	19.71	30
1747.5	15	16-QAM	1/0	13.37	V	7.95	0.79	20.53	30
1717.5	15	16-QAM	1/0	13.67	H	7.95	0.79	20.83	30
1732.5	15	16-QAM	1/74	10.78	H	7.95	0.79	17.94	30
1747.5	15	16-QAM	1/0	11.59	H	7.95	0.79	18.75	30
1720	20	QPSK	1/99	15.98	V	7.95	0.79	23.14	30
1732.5	20	QPSK	1/99	13.51	V	7.95	0.79	20.67	30
1745	20	QPSK	1/0	14.58	V	7.95	0.79	21.74	30
1720	20	QPSK	1/99	14.12	H	7.95	0.79	21.28	30
1732.5	20	QPSK	1/99	11.77	H	7.95	0.79	18.93	30
1745	20	QPSK	1/0	12.69	H	7.95	0.79	19.85	30
1720	20	16-QAM	1/99	15.24	V	7.95	0.79	22.40	30
1732.5	20	16-QAM	1/99	13.03	V	7.95	0.79	20.19	30
1745	20	16-QAM	1/0	13.91	V	7.95	0.79	21.07	30
1720	20	16-QAM	1/99	13.42	H	7.95	0.79	20.58	30
1732.5	20	16-QAM	1/99	11.25	H	7.95	0.79	18.41	30
1745	20	16-QAM	1/0	12.09	H	7.95	0.79	19.25	30

EIRP for LTE Band V (Part 22)

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)
824.7	1.4	QPSK	1/5	15.76	V	6.8	0.44	22.12	34.77
836.5	1.4	QPSK	1/5	15.96	V	6.8	0.44	22.32	34.77
848.3	1.4	QPSK	1/5	16.03	V	6.9	0.44	**22.49**	34.77
824.7	1.4	QPSK	1/5	13.78	H	6.8	0.44	20.14	34.77
836.5	1.4	QPSK	1/5	13.99	H	6.8	0.44	20.35	34.77
848.3	1.4	QPSK	1/5	14.01	H	6.9	0.44	20.47	34.77
824.7	1.4	16-QAM	1/5	14.46	V	6.8	0.44	20.82	34.77
836.5	1.4	16-QAM	1/5	14.82	V	6.8	0.44	21.18	34.77
848.3	1.4	16-QAM	1/5	14.96	V	6.9	0.44	21.42	34.77
824.7	1.4	16-QAM	1/5	12.51	H	6.8	0.44	18.87	34.77
836.5	1.4	16-QAM	1/5	12.93	H	6.8	0.44	19.29	34.77
848.3	1.4	16-QAM	1/5	13.04	H	6.9	0.44	19.50	34.77
825.5	3	QPSK	1/14	15.64	V	6.8	0.44	22.00	34.77
836.5	3	QPSK	1/0	15.94	V	6.8	0.44	22.30	34.77
847.5	3	QPSK	1/14	15.68	V	6.9	0.44	22.14	34.77
825.5	3	QPSK	1/14	13.72	H	6.8	0.44	20.08	34.77
836.5	3	QPSK	1/0	13.98	H	6.8	0.44	20.34	34.77
847.5	3	QPSK	1/14	13.77	H	6.9	0.44	20.23	34.77
825.5	3	16-QAM	1/14	15.48	V	6.8	0.44	21.84	34.77
836.5	3	16-QAM	1/0	14.86	V	6.8	0.44	21.22	34.77
847.5	3	16-QAM	1/14	15.27	V	6.9	0.44	21.73	34.77
825.5	3	16-QAM	1/14	13.54	H	6.8	0.44	19.90	34.77
836.5	3	16-QAM	1/0	12.95	H	6.8	0.44	19.31	34.77
847.5	3	16-QAM	1/14	13.46	H	6.9	0.44	19.92	34.77
826.5	5	QPSK	1/24	15.78	V	6.8	0.44	22.14	34.77
836.5	5	QPSK	1/24	16.03	V	6.8	0.44	22.39	34.77
846.5	5	QPSK	1/24	15.63	V	6.8	0.44	21.99	34.77
826.5	5	QPSK	1/24	13.81	H	6.8	0.44	20.17	34.77
836.5	5	QPSK	1/24	14.15	H	6.8	0.44	20.51	34.77
846.5	5	QPSK	1/24	15.68	H	6.8	0.44	22.04	34.77
826.5	5	16-QAM	1/24	14.95	V	6.8	0.44	21.31	34.77
836.5	5	16-QAM	1/24	15.47	V	6.8	0.44	21.83	34.77
846.5	5	16-QAM	1/24	14.98	V	6.8	0.44	21.34	34.77

826.5	5	16-QAM	1/24	13.05	H	6.8	0.44	19.41	34.77
836.5	5	16-QAM	1/24	13.55	H	6.8	0.44	19.91	34.77
846.5	5	16-QAM	1/24	13.08	H	6.8	0.44	19.44	34.77
829	10	QPSK	1/49	15.68	V	6.8	0.44	22.04	34.77
836.5	10	QPSK	1/49	16.04	V	6.8	0.44	22.40	34.77
844	10	QPSK	1/49	16.01	V	6.8	0.44	22.37	34.77
829	10	QPSK	1/49	13.77	H	6.8	0.44	20.13	34.77
836.5	10	QPSK	1/49	14.13	H	6.8	0.44	20.49	34.77
844	10	QPSK	1/49	14.11	H	6.8	0.44	20.47	34.77
829	10	16-QAM	1/49	15.54	V	6.8	0.44	21.90	34.77
836.5	10	16-QAM	1/49	14.89	V	6.8	0.44	21.25	34.77
844	10	16-QAM	1/49	14.97	V	6.8	0.44	21.33	34.77
829	10	16-QAM	1/49	13.68	H	6.8	0.44	20.04	34.77
836.5	10	16-QAM	1/49	12.98	H	6.8	0.44	19.34	34.77
844	10	16-QAM	1/49	13.05	H	6.8	0.44	19.41	34.77

ERP for LTE Band VII (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)
2502.5	5	QPSK	1/0	11.66	V	8.93	0.83	**19.76**	30
2535	5	QPSK	1/0	11.35	V	8.93	0.83	19.45	30
2567.5	5	QPSK	1/24	10.92	V	8.93	0.83	19.02	30
2502.5	5	QPSK	1/0	10.83	H	8.93	0.83	18.93	30
2535	5	QPSK	1/0	10.65	H	8.93	0.83	18.75	30
2567.5	5	QPSK	1/24	10.06	H	8.93	0.83	18.16	30
2502.5	5	16-QAM	1/0	11.31	V	8.93	0.83	19.41	30
2535	5	16-QAM	1/0	10.5	V	8.93	0.83	18.60	30
2567.5	5	16-QAM	1/24	10.03	V	8.93	0.83	18.13	30
2502.5	5	16-QAM	1/0	10.21	H	8.93	0.83	18.31	30
2535	5	16-QAM	1/0	9.43	H	8.93	0.83	17.53	30
2567.5	5	16-QAM	1/24	9.11	H	8.93	0.83	17.21	30
2505	10	QPSK	1/0	11.17	V	8.93	0.83	19.27	30
2535	10	QPSK	1/49	10.93	V	8.93	0.83	19.03	30
2565	10	QPSK	1/0	11.01	V	8.93	0.83	19.11	30
2505	10	QPSK	1/0	10.03	H	8.93	0.83	18.13	30
2535	10	QPSK	1/49	9.87	H	8.93	0.83	17.97	30
2565	10	QPSK	1/0	9.96	H	8.93	0.83	18.06	30
2505	10	16-QAM	1/0	10.82	V	8.93	0.83	18.92	30
2535	10	16-QAM	1/49	9.86	V	8.93	0.83	17.96	30
2565	10	16-QAM	1/0	9.93	V	8.93	0.83	18.03	30
2505	10	16-QAM	1/0	9.75	H	8.93	0.83	17.85	30
2535	10	16-QAM	1/49	8.72	H	8.93	0.83	16.82	30
2565	10	16-QAM	1/0	8.86	H	8.93	0.83	16.96	30
2507.5	15	QPSK	1/0	11.19	V	8.93	0.83	19.29	30
2535	15	QPSK	1/74	10.85	V	8.93	0.83	18.95	30
2562.5	15	QPSK	1/0	11.04	V	8.93	0.83	19.14	30
2507.5	15	QPSK	1/0	10.03	H	8.93	0.83	18.13	30
2535	15	QPSK	1/74	9.74	H	8.93	0.83	17.84	30
2562.5	15	QPSK	1/0	9.89	H	8.93	0.83	17.99	30
2507.5	15	16-QAM	1/0	10.88	V	8.93	0.83	18.98	30
2535	15	16-QAM	1/74	10.62	V	8.93	0.83	18.72	30
2562.5	15	16-QAM	1/0	9.82	V	8.93	0.83	17.92	30

2507.5	15	16-QAM	1/0	9.67	H	8.93	0.83	17.77	30
2535	15	16-QAM	1/74	9.48	H	8.93	0.83	17.58	30
2562.5	15	16-QAM	1/0	8.85	H	8.93	0.83	16.95	30
2510	20	QPSK	1/99	11.16	V	8.93	0.83	19.26	30
2535	20	QPSK	1/99	10.87	V	8.93	0.83	18.97	30
2560	20	QPSK	1/0	10.77	V	8.93	0.83	18.87	30
2510	20	QPSK	1/99	10.03	H	8.93	0.83	18.13	30
2535	20	QPSK	1/99	9.76	H	8.93	0.83	17.86	30
2560	20	QPSK	1/0	9.64	H	8.93	0.83	17.74	30
2510	20	16-QAM	1/99	10.78	V	8.93	0.83	18.88	30
2535	20	16-QAM	1/99	9.87	V	8.93	0.83	17.97	30
2560	20	16-QAM	1/0	10.13	V	8.93	0.83	18.23	30
2510	20	16-QAM	1/99	9.65	H	8.93	0.83	17.75	30
2535	20	16-QAM	1/99	8.74	H	8.93	0.83	16.84	30
2560	20	16-QAM	1/0	9.02	H	8.93	0.83	17.12	30

ERP for LTE Band XVII (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)
706.5	5	QPSK	1/0	15.34	V	6.8	0.42	21.72	34.77
710	5	QPSK	1/0	15.35	V	6.8	0.42	**21.73**	34.77
713.5	5	QPSK	1/0	15.17	V	6.8	0.42	21.55	34.77
706.5	5	QPSK	1/0	13.68	H	6.8	0.42	20.06	34.77
710	5	QPSK	1/0	13.59	H	6.8	0.42	19.97	34.77
713.5	5	QPSK	1/0	13.41	H	6.8	0.42	19.79	34.77
706.5	5	16-QAM	1/0	14.23	V	6.8	0.42	20.61	34.77
710	5	16-QAM	1/0	14.16	V	6.8	0.42	20.54	34.77
713.5	5	16-QAM	1/0	14.95	V	6.8	0.42	21.33	34.77
706.5	5	16-QAM	1/0	12.57	H	6.8	0.42	18.95	34.77
710	5	16-QAM	1/0	12.43	H	6.8	0.42	18.81	34.77
713.5	5	16-QAM	1/0	13.16	H	6.8	0.42	19.54	34.77
709	10	QPSK	1/0	15.33	V	6.8	0.42	21.71	34.77
710	10	QPSK	1/0	15.29	V	6.8	0.42	21.67	34.77
711	10	QPSK	1/0	15.24	V	6.8	0.42	21.62	34.77
709	10	QPSK	1/0	13.74	H	6.8	0.42	20.12	34.77
710	10	QPSK	1/0	13.65	H	6.8	0.42	20.03	34.77
711	10	QPSK	1/0	13.52	H	6.8	0.42	19.90	34.77
709	10	16-QAM	1/0	14.32	V	6.8	0.42	20.70	34.77
710	10	16-QAM	1/0	14.81	V	6.8	0.42	21.19	34.77
711	10	16-QAM	1/0	14.45	V	6.8	0.42	20.83	34.77
709	10	16-QAM	1/0	12.56	H	6.8	0.42	18.94	34.77
710	10	16-QAM	1/0	13.08	H	6.8	0.42	19.46	34.77
711	10	16-QAM	1/0	12.69	H	6.8	0.42	19.07	34.77

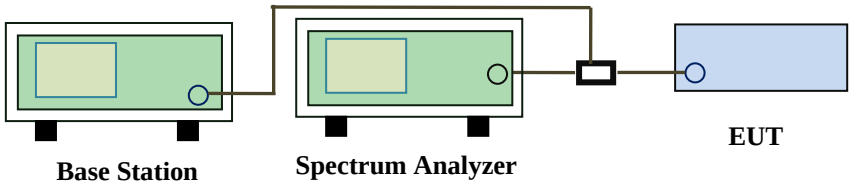
6.3 Peak-Average Ratio

Temperature	22℃
Relative Humidity	59%
Atmospheric Pressure	1017mbar
Test date :	October 17, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§24.232(d) § 27.50(d)	a)	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.	☑

Test Setup



Test Procedure

According with KDB 971168 v02r02

5.7.2 Alternate procedure for PAPR

5.1.2 Peak power measurements with a peak power meter

The total peak output power may be measured using a broadband peak RF power meter. The power meter must have a video bandwidth that is greater than or equal to the emission bandwidth and utilize a fast-responding diode detector.

5.2.3 Average power measurement with average power meter

As an alternative to the use of a spectrum/signal analyzer or EMI receiver to perform a measurement of the total in-band average output power, a wideband RF average power meter with a thermocouple detector or equivalent can be used under certain conditions

If the EUT can be configured to transmit continuously (i.e., the burst duty cycle ≥ 98%) and at all times the EUT is transmitting at is maximum output

	power level, then a conventional wide-band RF power meter can be used. If the EUT cannot be configured to transmit continuously (i.e., the burst duty cycle < 98%), then there are two options for the use of an average power meter. First, a gated average power meter can be used to perform the measurement if the gating parameters can be adjusted such that the power is measured only over active transmission bursts at maximum output power levels. A conventional average power meter can also be used if the measured burst duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent) by performing the measurement over the on/off burst cycles and then correcting (increasing) the measured level by a factor equal to 10log(1/duty cycle)
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

LTE Band IV (part 27)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
1.4	1732.5	RB 1/0	QPSK	22.35	20.00	2.35
			16QAM	20.37	18.91	1.46
3	1732.5	RB 1/0	QPSK	21.69	19.92	1.77
			16QAM	20.72	18.84	1.88
5	1732.5	RB 1/0	QPSK	21.83	19.76	2.07
			16QAM	20.49	19.33	1.16
10	1732.5	RB 1/0	QPSK	20.85	18.84	2.01
			16QAM	20.25	17.86	2.39
15	1732.5	RB 1/0	QPSK	20.75	19.24	1.51
			16QAM	20.15	18.21	1.94
20	1732.5	RB 1/0	QPSK	21.36	19.71	1.65
			16QAM	20.83	18.77	2.06

LTE Band V (part 27)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
1.4	836.5	RB 1/0	QPSK	24.38	22.94	1.44
			16QAM	23.57	21.81	1.76
3	836.5	RB 1/0	QPSK	24.67	22.97	1.70
			16QAM	23.16	21.82	1.34
5	836.5	RB 1/0	QPSK	24.85	23	1.85
			16QAM	23.76	22.46	1.30
10	836.5	RB 1/0	QPSK	24.09	23.04	1.05
			16QAM	23.12	21.84	1.28

LTE Band VII (part 27)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
5	2535	RB 1/0	QPSK	19.28	17.95	1.33
			16QAM	18.85	17.07	1.78
10	2535	RB 1/0	QPSK	19.34	17.56	1.78
			16QAM	18.67	16.44	2.23
15	2535	RB 1/0	QPSK	19.19	17.45	1.74
			16QAM	18.48	17.16	1.32
20	2535	RB 1/0	QPSK	19.61	17.51	2.10
			16QAM	18.73	16.49	2.24

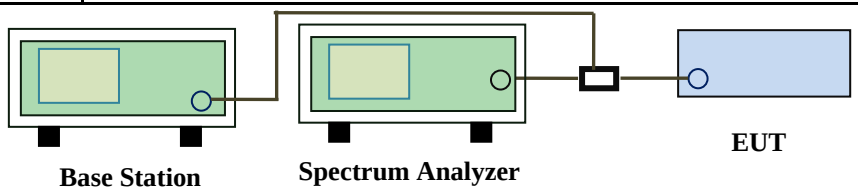
LTE Band XVII (part 27)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
5	710	RB 1/0	QPSK	24.19	22.35	1.84
			16QAM	23.52	21.81	1.71
10	710	RB 1/0	QPSK	24.31	22.4	1.91
			16QAM	23.69	21.36	2.33

6.4 Occupied Bandwidth

Temperature	22℃
Relative Humidity	59%
Atmospheric Pressure	1017mbar
Test date :	October 17, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§2.1049, §22.917, §22.905 §24.238 §27.53(a)	a)	99% Occupied Bandwidth(kHz)	☑
	b)	26 dB Bandwidth(kHz)	☑
Test Setup			
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.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

LTE Band IV (Part 27)

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	19957	1710.7	16QAM	1.0997	1.276
			QPSK	1.0979	1.283
1.4	20175	1732.5	16QAM	1.1061	1.276
			QPSK	1.1106	1.290
1.4	20393	1754.3	16QAM	1.0991	1.276
			QPSK	1.0994	1.283
3	19965	1711.5	16QAM	2.7623	3.061
			QPSK	2.7449	3.046
3	20175	1732.5	16QAM	2.7361	3.058
			QPSK	2.7409	3.063
3	20385	1753.5	16QAM	2.7494	3.070
			QPSK	2.7395	3.029
5	19975	1712.5	16QAM	4.5273	5.092
			QPSK	4.5275	5.099
5	20175	1732.5	16QAM	4.5489	5.087
			QPSK	4.5214	5.063
5	20375	1752.5	16QAM	4.5517	5.104
			QPSK	4.5363	5.099
10	20000	1715	16QAM	9.0764	10.12
			QPSK	9.0723	10.07
10	20175	1732.5	16QAM	9.0479	10.05
			QPSK	9.0395	10.02
10	20350	1750	16QAM	9.0602	10.08
			QPSK	9.0618	10.05
15	20025	1717.5	16QAM	13.543	14.87
			QPSK	13.503	14.80
15	20175	1732.5	16QAM	13.496	14.86
			QPSK	13.505	14.80
15	20325	1747.5	16QAM	13.485	14.76
			QPSK	13.508	14.79

20	20050	1720	16QAM	18.026	19.57
			QPSK	17.998	19.45
20	20175	1732.5	16QAM	17.905	19.26
			QPSK	17.926	19.52
20	20300	1745	16QAM	17.884	19.40
			QPSK	17.875	19.33

LTE Band V (Part 22H)

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	20407	824.7	16QAM	1.1028	1.290
			QPSK	1.0989	1.277
1.4	20525	836.5	16QAM	1.1050	1.294
			QPSK	1.1033	1.293
1.4	20643	848.3	16QAM	1.1033	1.277
			QPSK	1.0998	1.283
3	20415	825.5	16QAM	2.7324	3.043
			QPSK	2.7570	3.024
3	20525	836.5	16QAM	2.7438	3.046
			QPSK	2.7401	3.058
3	20635	847.5	16QAM	2.7417	3.056
			QPSK	2.7332	3.038
5	20425	826.5	16QAM	4.5446	5.047
			QPSK	4.5410	5.045
5	20525	836.5	16QAM	4.5284	5.081
			QPSK	4.5282	5.052
5	20625	846.5	16QAM	4.5217	5.044
			QPSK	4.5180	5.033
10	20450	819	16QAM	9.0391	10.08
			QPSK	9.0281	10.09
10	20525	836.5	16QAM	9.0944	10.21
			QPSK	9.1051	10.15
10	20800	844	16QAM	9.0777	10.18
			QPSK	9.0416	10.13

LTE Band VII (Part 27) result

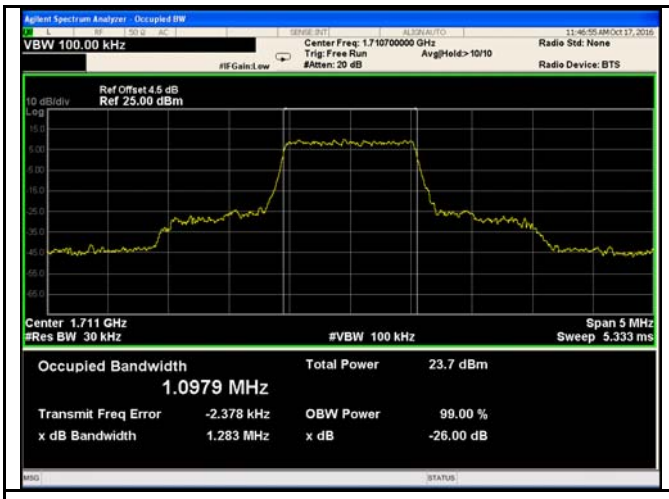
BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
5	20775	2502.5	16QAM	4.5329	5.067
			QPSK	4.5488	5.026
5	21100	2535	16QAM	4.5219	5.065
			QPSK	4.5207	5.025
5	21425	2567.5	16QAM	4.5255	5.098
			QPSK	4.5363	5.057
10	20800	2505	16QAM	9.0712	10.05
			QPSK	9.0592	10.03
10	21100	2535	16QAM	9.0094	10.03
			QPSK	9.0173	10.09
10	21400	2562.5	16QAM	9.0720	10.12
			QPSK	9.0683	10.13
15	20825	2507.5	16QAM	13.503	14.93
			QPSK	13.509	14.87
15	21100	2535	16QAM	13.477	14.87
			QPSK	13.445	14.82
15	21400	2562.5	16QAM	13.498	14.89
			QPSK	13.496	14.86
20	20850	2510	16QAM	17.938	19.32
			QPSK	17.875	19.33
20	21100	2535	16QAM	17.877	19.40
			QPSK	17.864	19.31
20	21350	2560	16QAM	18.018	19.63
			QPSK	18.005	19.80

LTE Band XVII (Part 27)

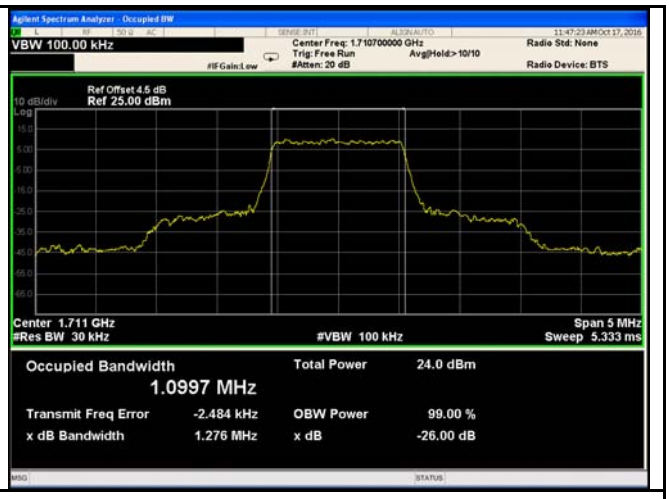
BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
5	23755	706.5	16QAM	4.5212	5.081
			QPSK	4.5312	5.071
5	23790	710	16QAM	4.5300	5.082
			QPSK	4.5154	5.056
5	23825	713.5	16QAM	4.5299	5.025
			QPSK	4.5259	5.038
10	23780	709	16QAM	9.0211	10.14
			QPSK	9.0400	10.11
10	23790	710	16QAM	8.9949	10.00
			QPSK	9.0018	10.06
10	23800	711	16QAM	9.0312	10.06
			QPSK	9.0422	10.07

Test Plots

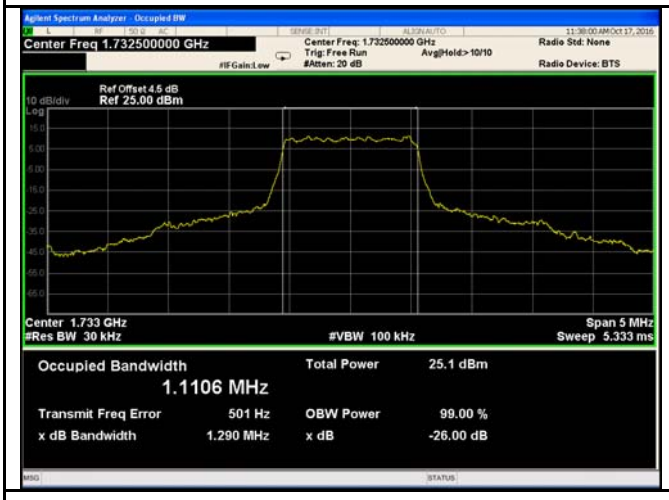
LTE Band IV (Part 27)



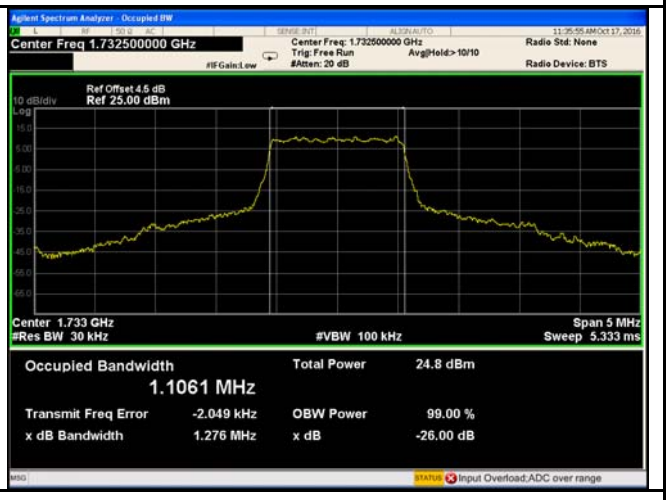
LTE Band IV - Low CH QPSK-1.4



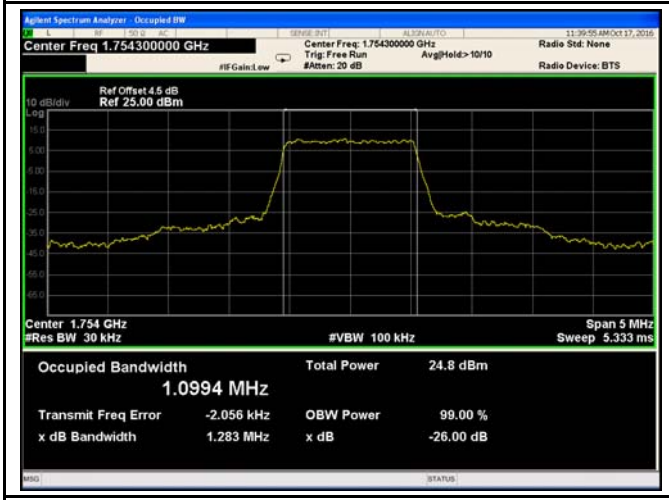
LTE Band IV - Low CH 16QAM-1.4



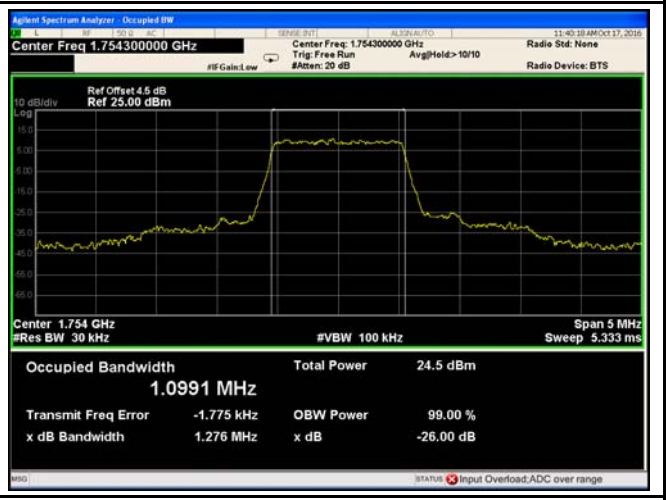
LTE Band IV - Middle CH QPSK-1.4



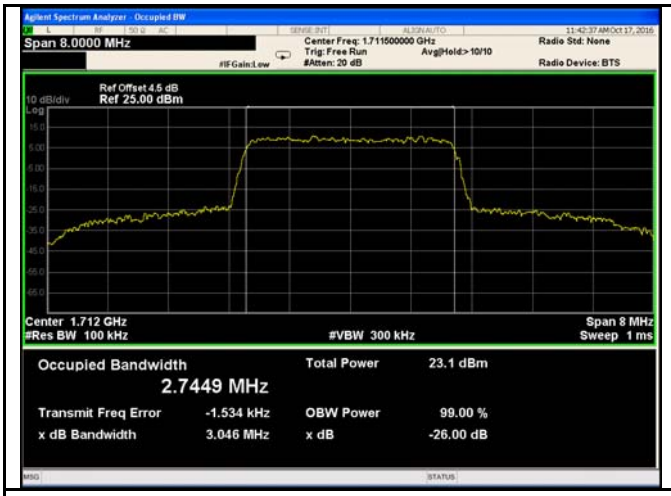
LTE Band IV - Middle CH 16QAM-1.4



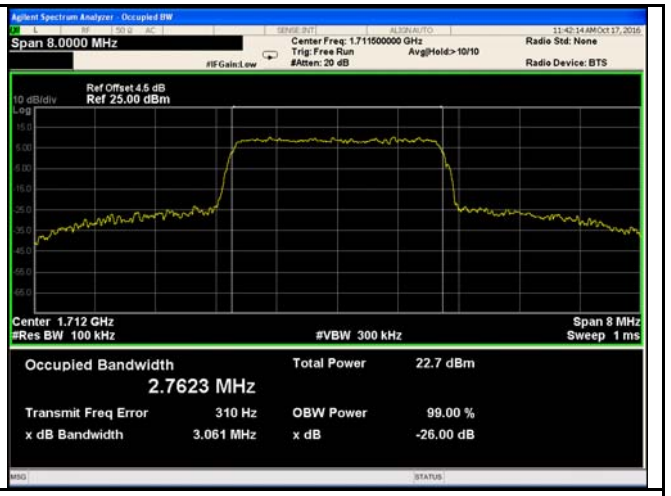
LTE Band IV - High CH QPSK-1.4



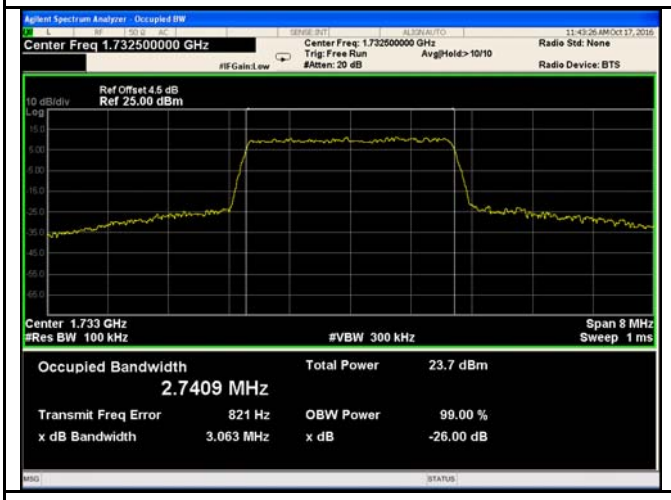
LTE Band IV - High CH 16QAM-1.4



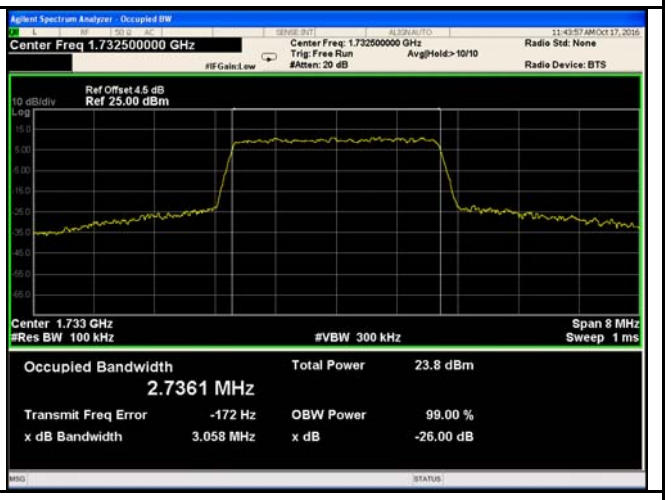
LTE Band IV - Low CH QPSK-3



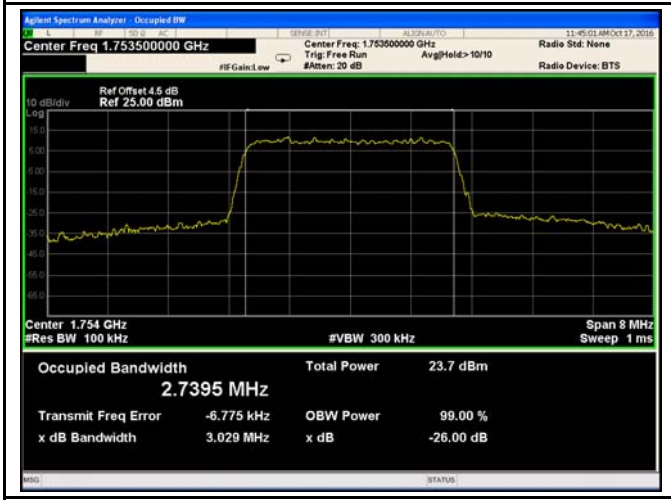
LTE Band IV - Low CH 16QAM-3



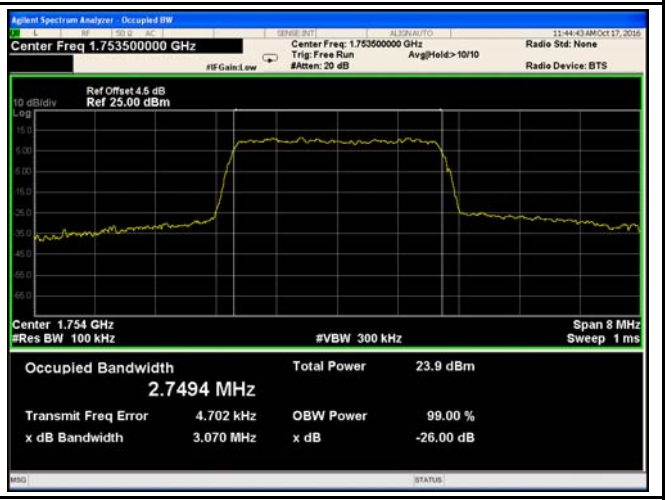
LTE Band IV - Middle CH QPSK-3



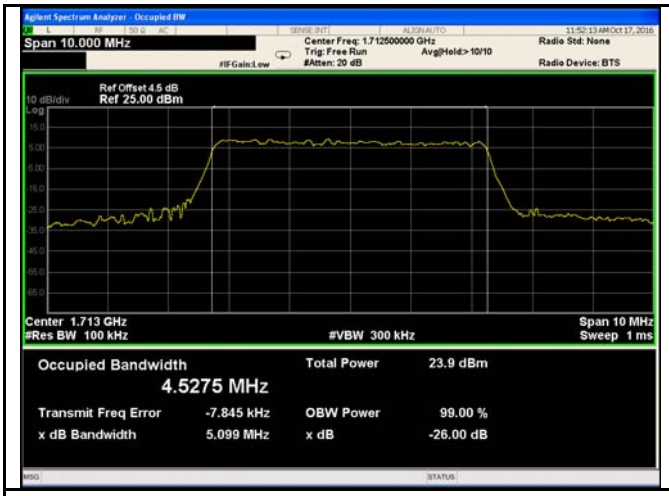
LTE Band IV - Middle CH 16QAM-3



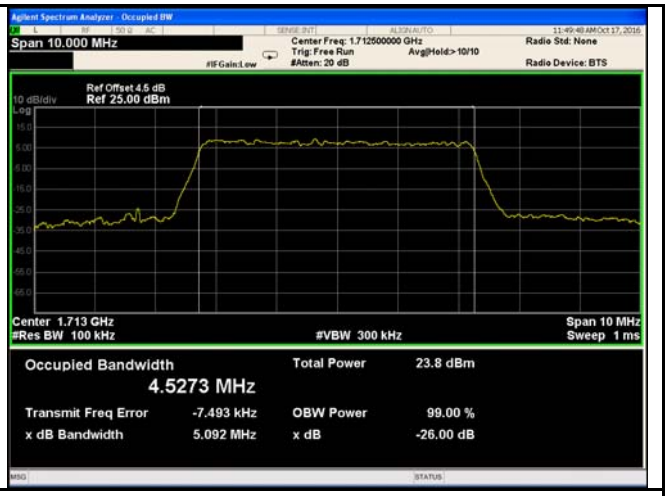
LTE Band IV - High CH QPSK-3



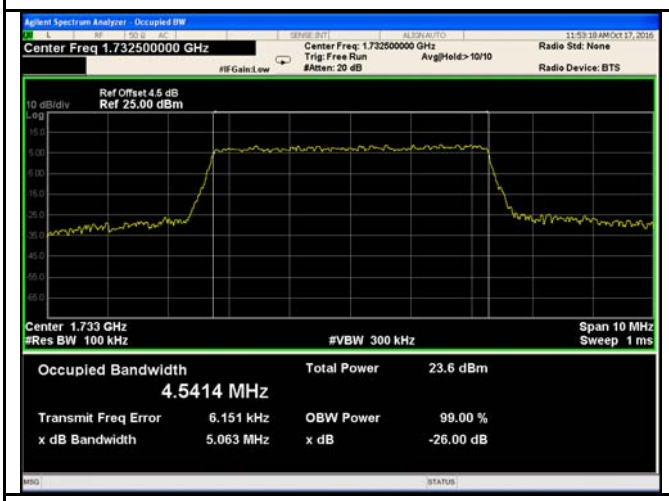
LTE Band IV - High CH 16QAM-3



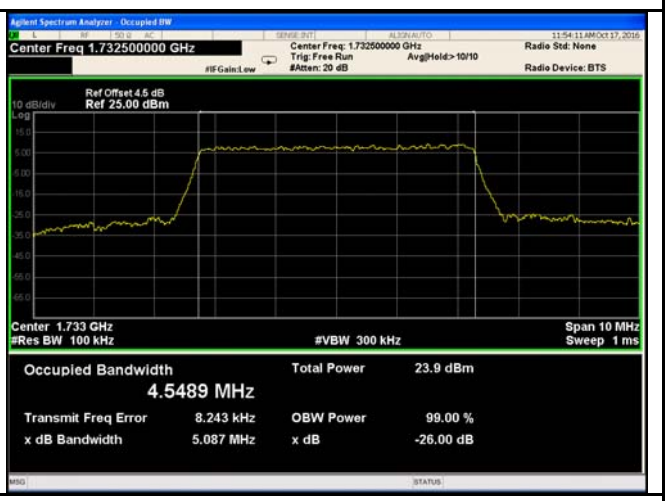
LTE Band IV - Low CH QPSK-5



LTE Band IV - Low CH 16QAM-5

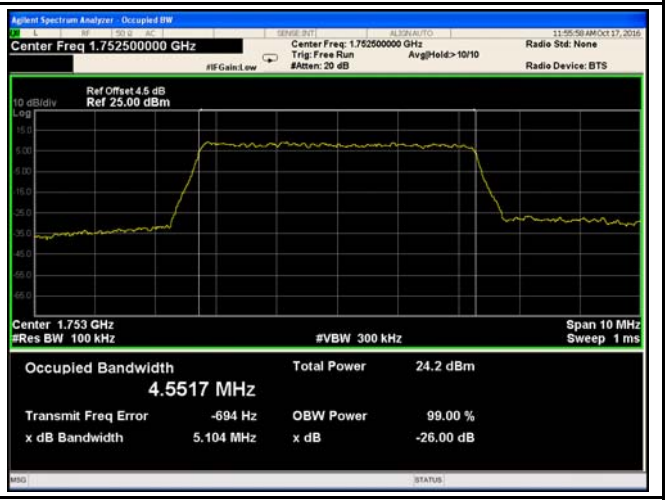


LTE Band IV - Middle CH QPSK-5

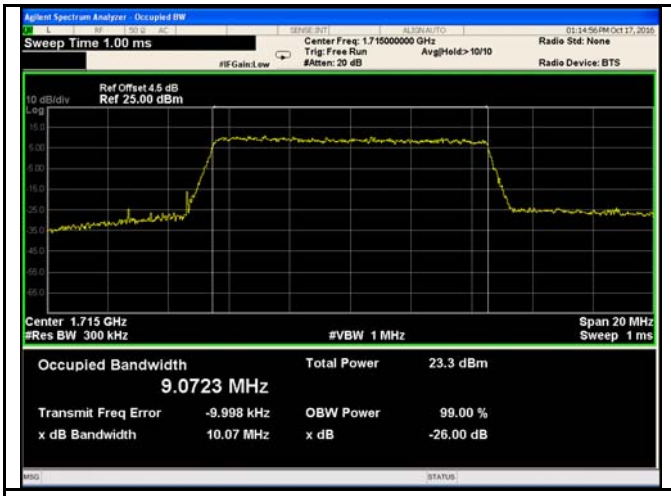


LTE Band IV - Middle CH 16QAM-5

LTE Band IV - High CH QPSK-5

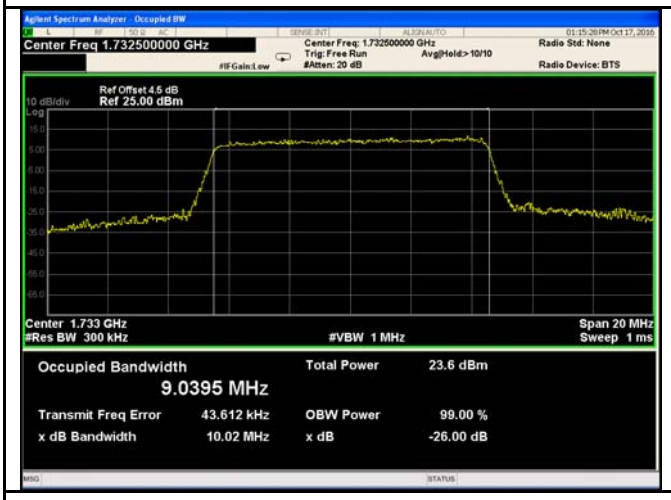


LTE Band IV - High CH 16QAM-5

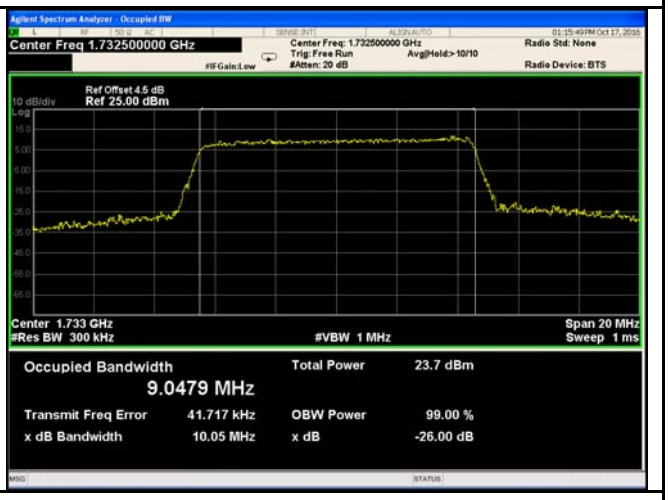


LTE Band IV - Low CH QPSK-10

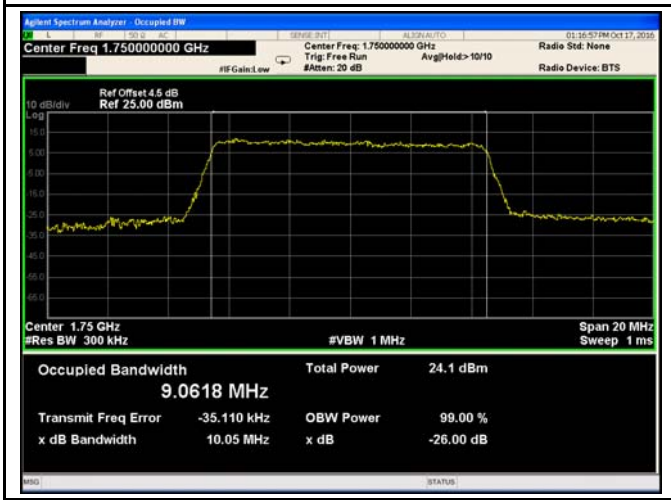
LTE Band IV - Low CH 16QAM-10



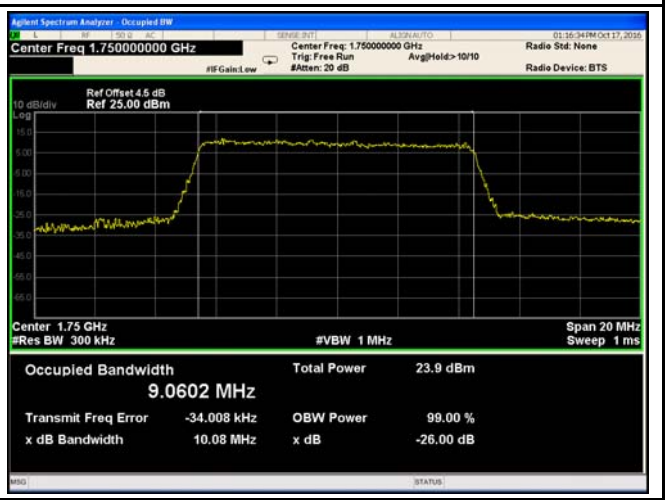
LTE Band IV - Middle CH QPSK-10



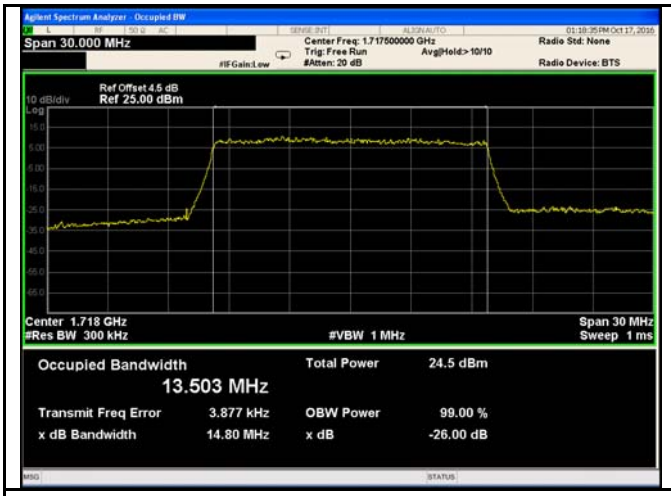
LTE Band IV - Middle CH 16QAM-10



LTE Band IV - High CH QPSK-10

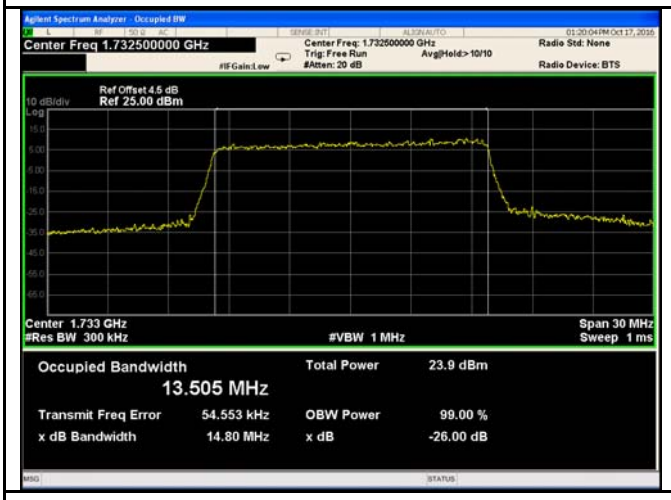


LTE Band IV - High CH 16QAM-10



LTE Band IV - Low CH QPSK-15

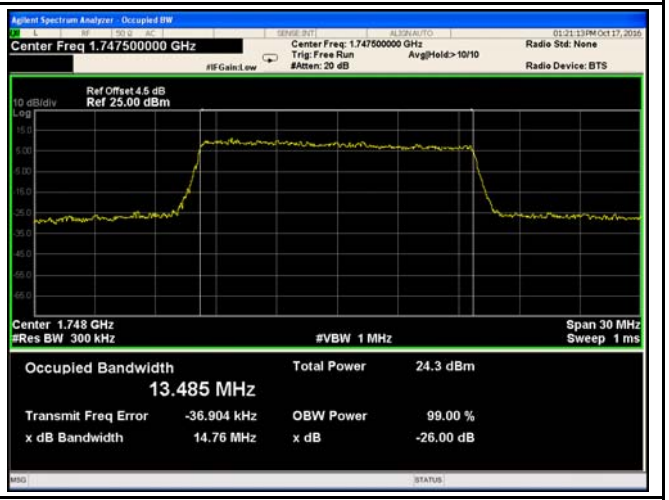
LTE Band IV - Low CH 16QAM-15



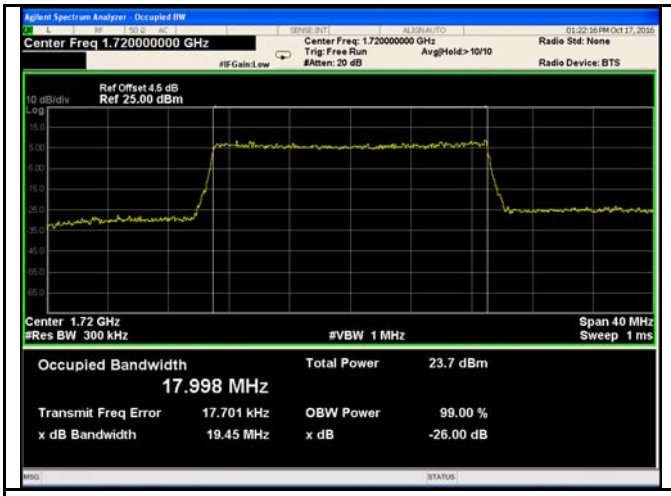
LTE Band IV - Middle CH QPSK-15

LTE Band IV - Middle CH 16QAM-15

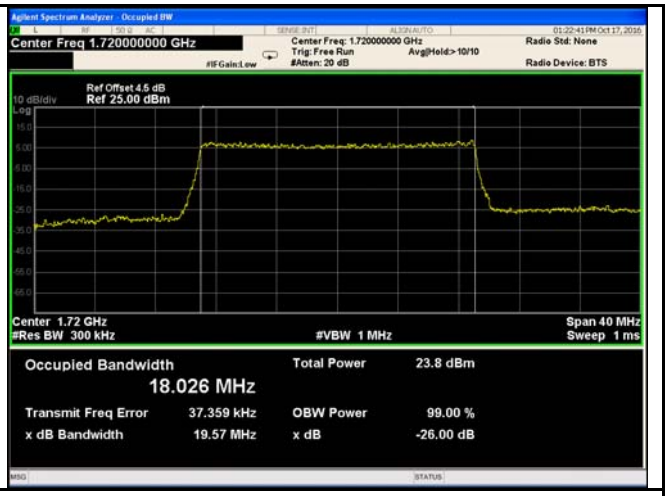
LTE Band IV - High CH QPSK-15



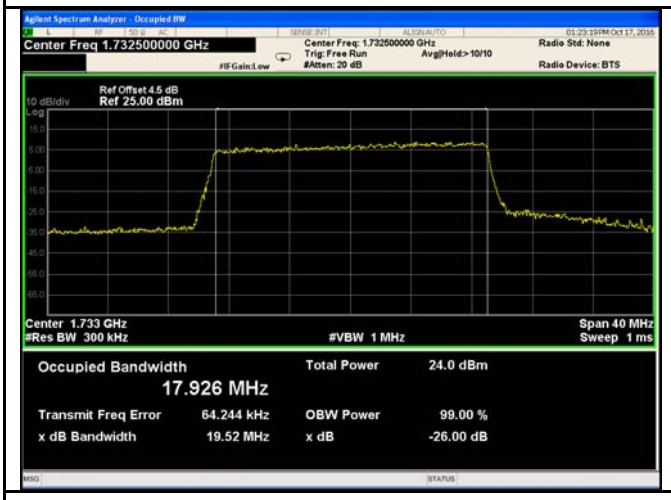
LTE Band IV - High CH 16QAM-15



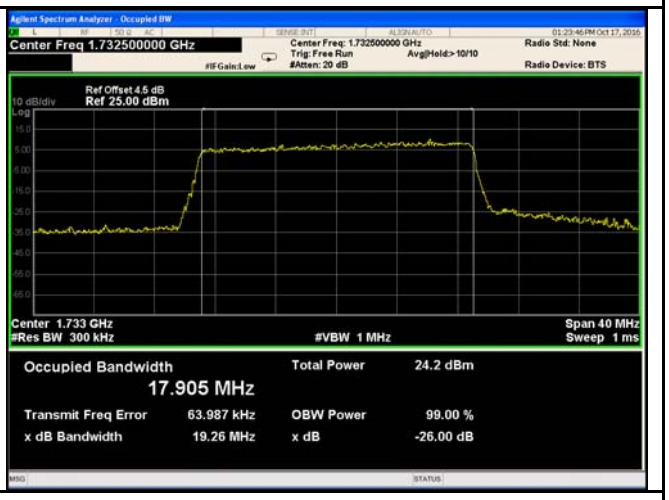
LTE Band IV - Low CH QPSK-20



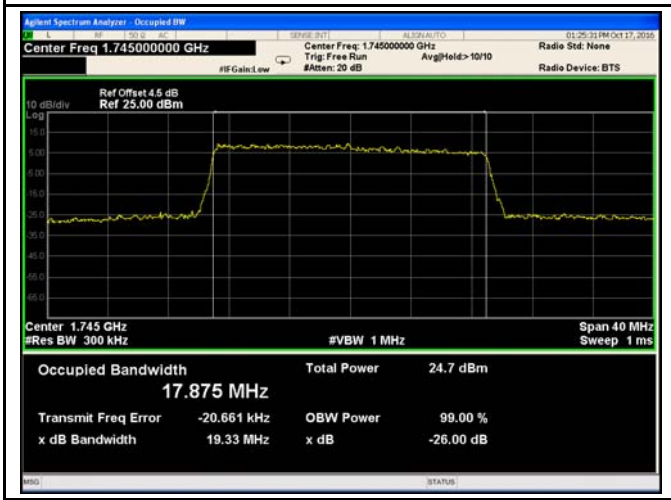
LTE Band IV - Low CH 16QAM-20



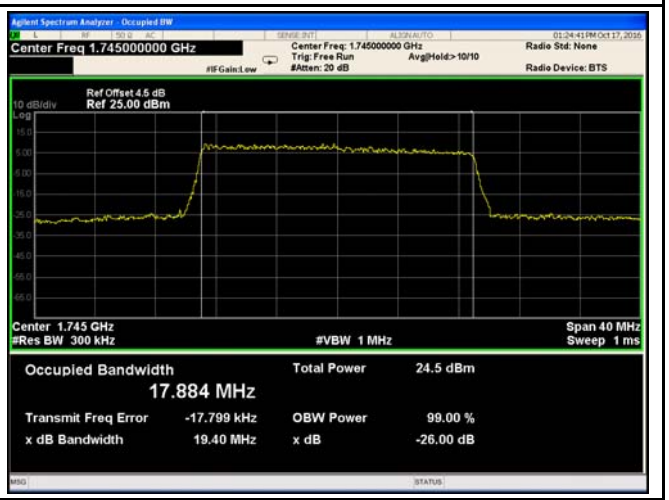
LTE Band IV - Middle CH QPSK-20



LTE Band IV - Middle CH 16QAM-20



LTE Band IV - High CH QPSK-20

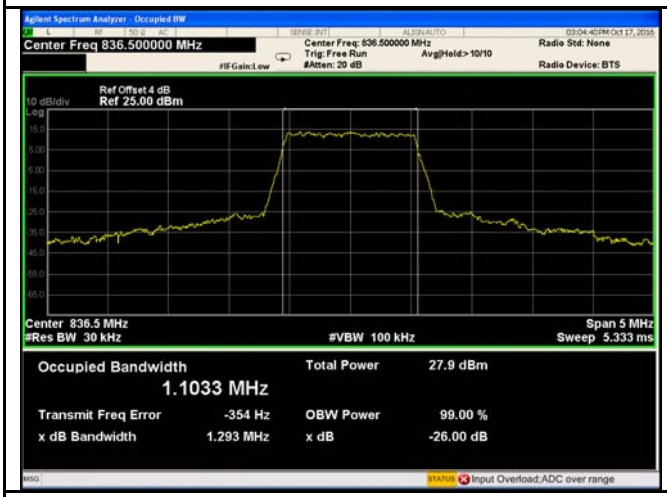


LTE Band IV - High CH 16QAM-20

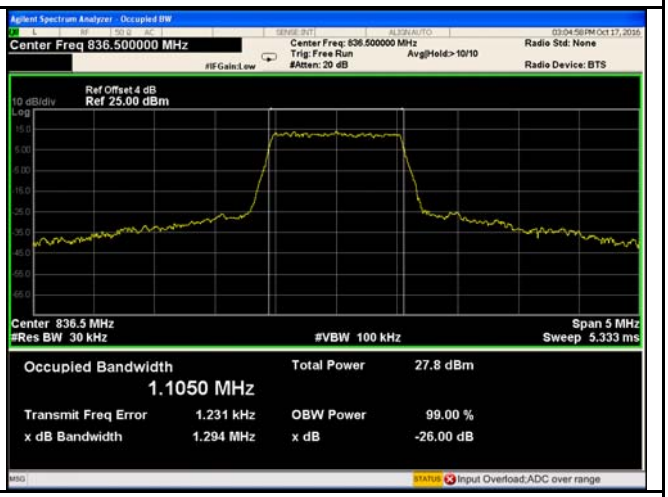
LTE Band V (Part 22H)

LTE Band V - Low CH QPSK-1.4

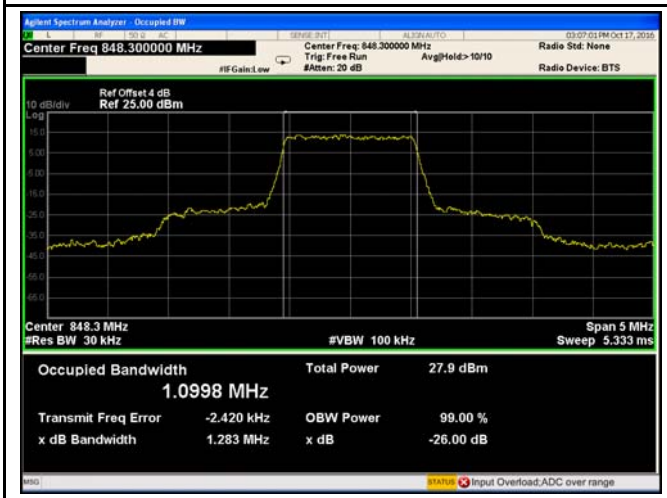
LTE Band V - Low CH 16QAM-1.4



LTE Band V - Middle CH QPSK-1.4

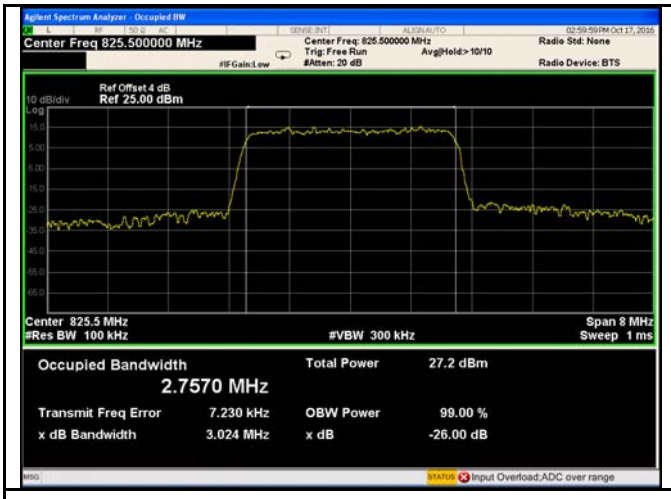


LTE Band V - Middle CH 16QAM-1.4

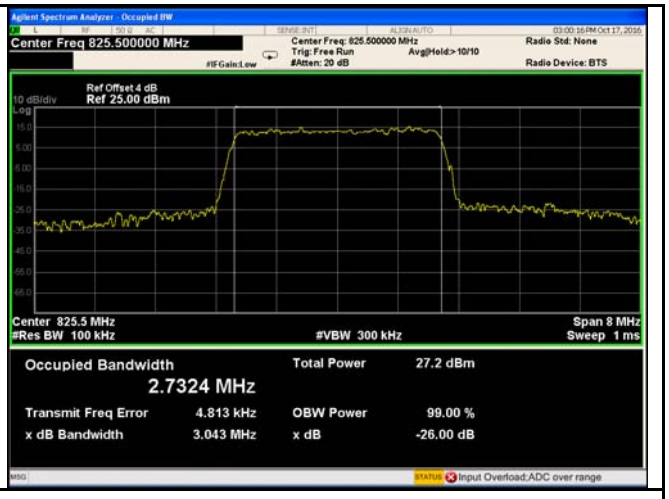


LTE Band V - High CH QPSK-1.4

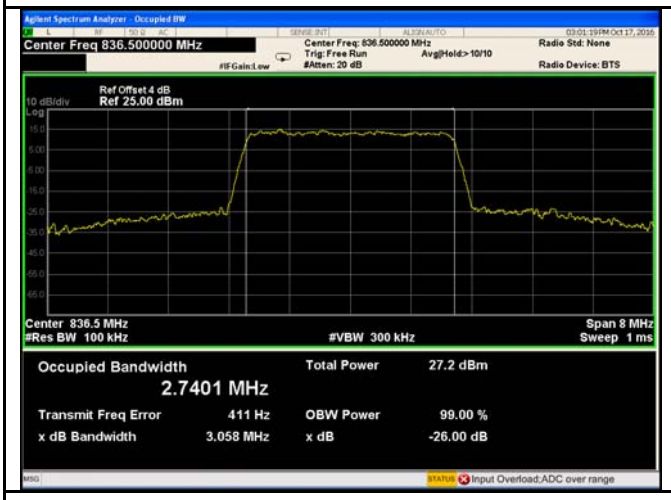
LTE Band V - High CH 16QAM-1.4



LTE Band V - Low CH QPSK-3

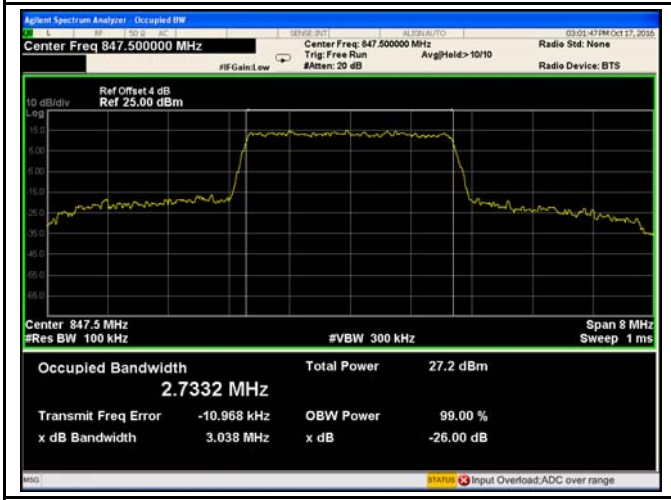


LTE Band V - Low CH 16QAM-3

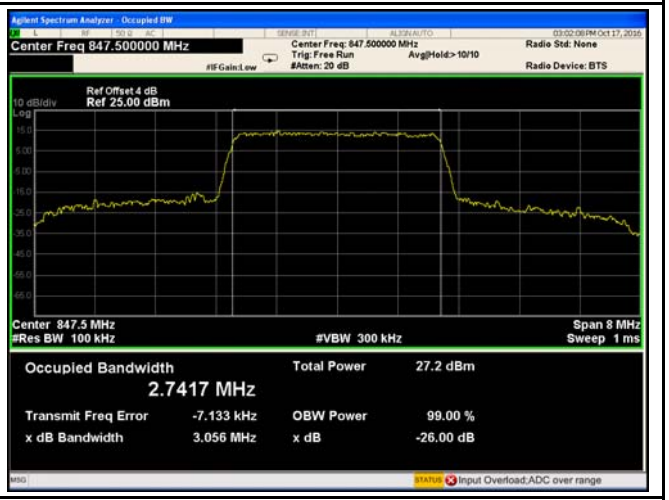


LTE Band V - Middle CH QPSK-3

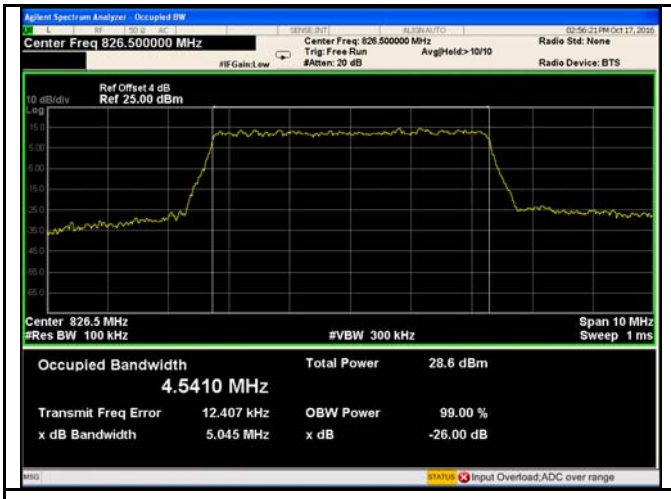
LTE Band V - Middle CH 16QAM-3



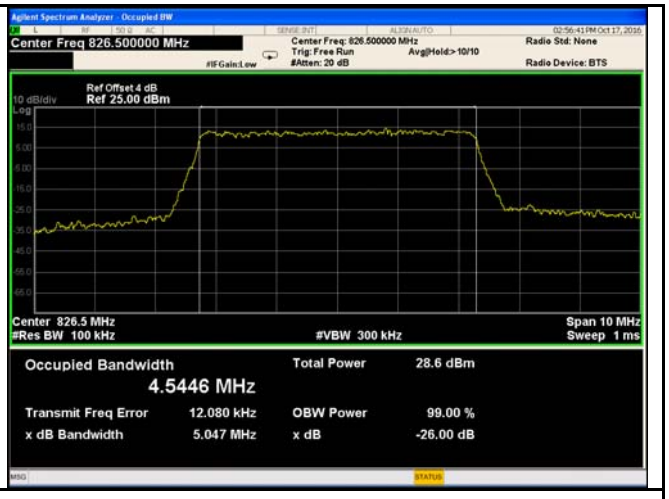
LTE Band V - High CH QPSK-3



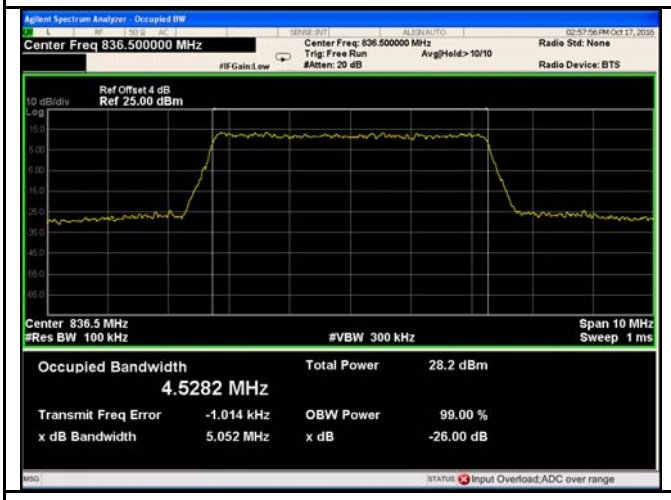
LTE Band V - High CH 16QAM-3



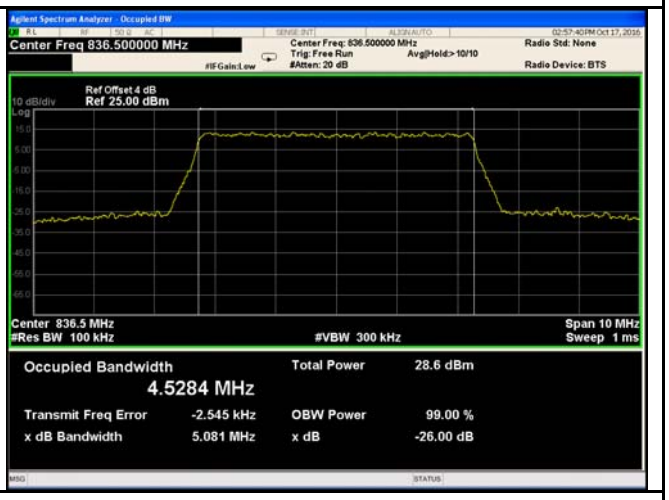
LTE Band V - Low CH QPSK-5



LTE Band V - Low CH 16QAM-5

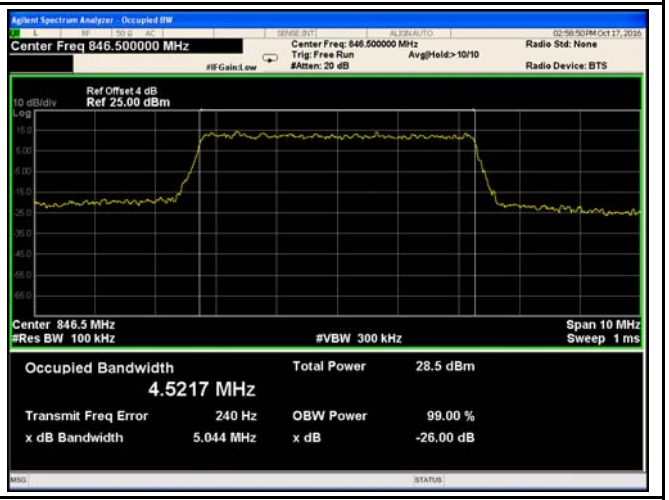


LTE Band V - Middle CH QPSK-5



LTE Band V - Middle CH 16QAM-5

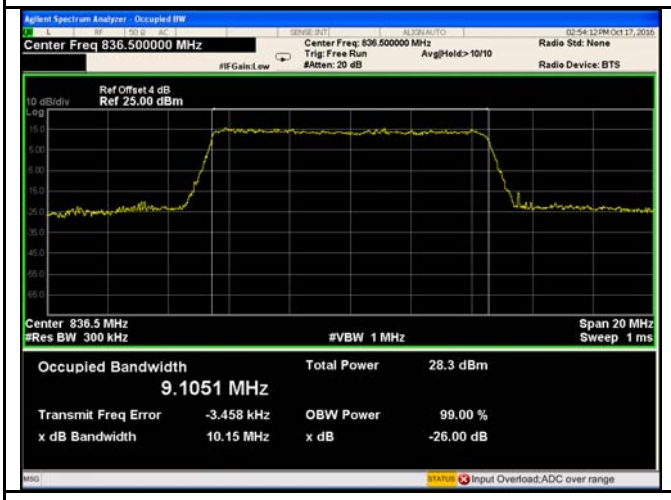
LTE Band V - High CH QPSK-5



LTE Band V - High CH 16QAM-5

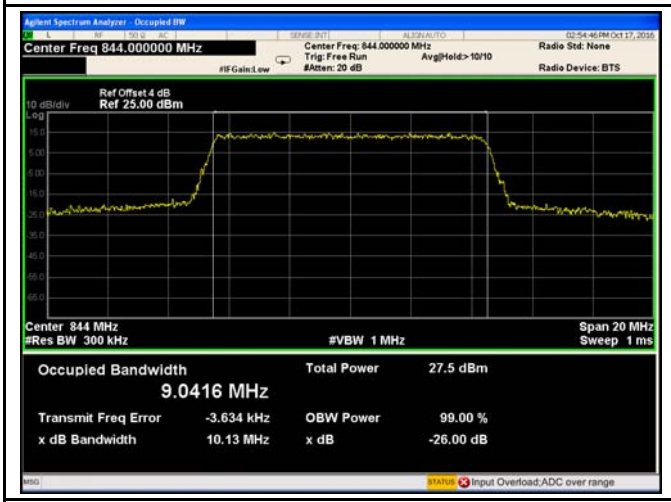
LTE Band V - Low CH QPSK-10

LTE Band V - Low CH 16QAM-10

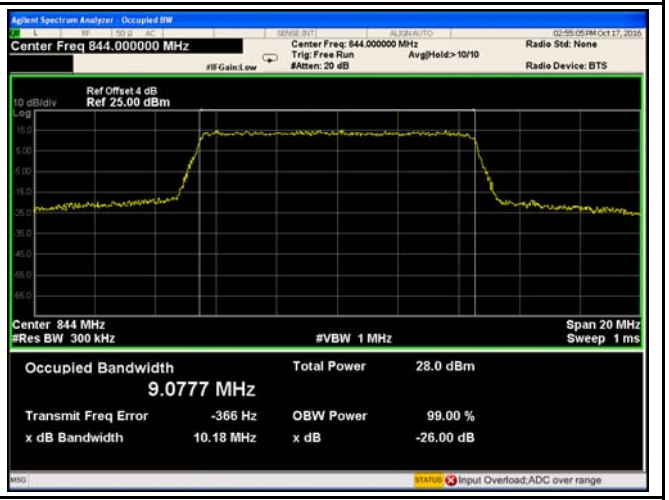


LTE Band V - Middle CH QPSK-10

LTE Band V - Middle CH 16QAM-10

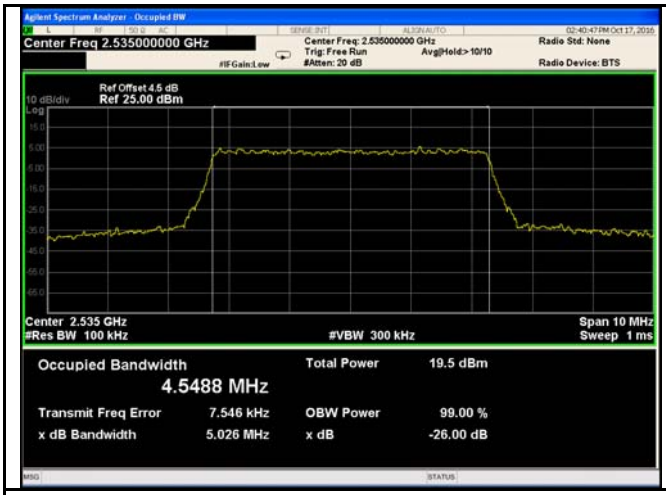


LTE Band V - High CH QPSK-10

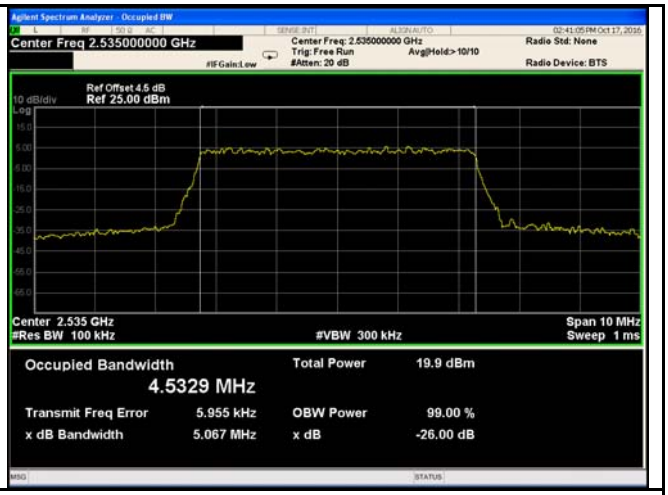


LTE Band V - High CH 16QAM-10

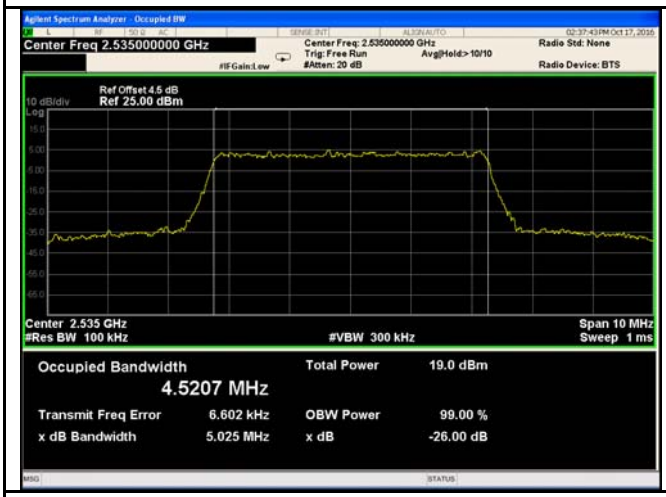
LTE Band VII (Part 27)



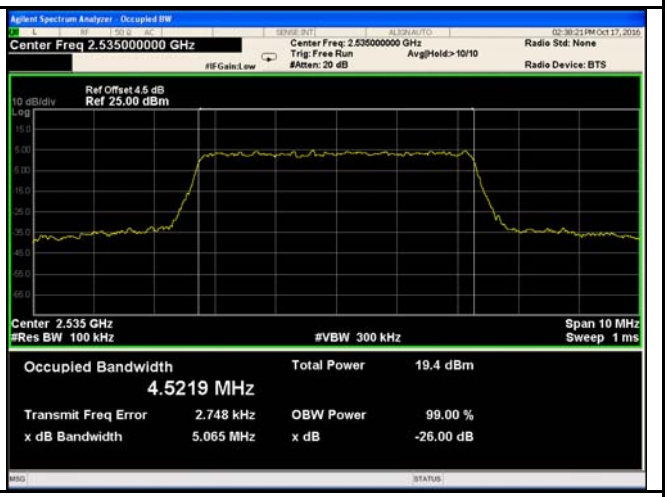
LTE Band VII - Low CH QPSK-5



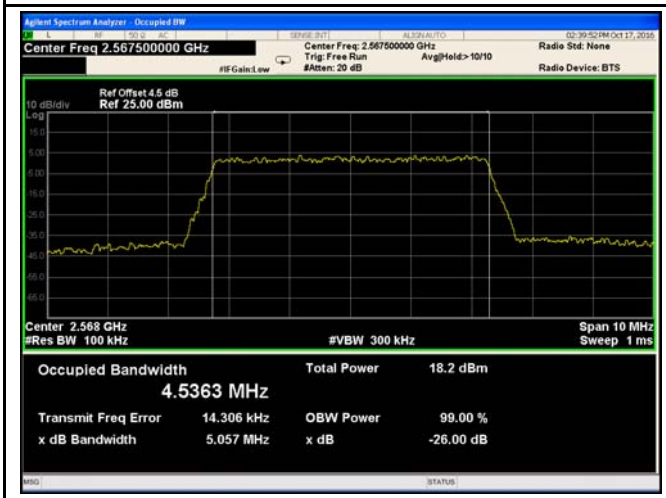
LTE Band VII - Low CH 16QAM-5



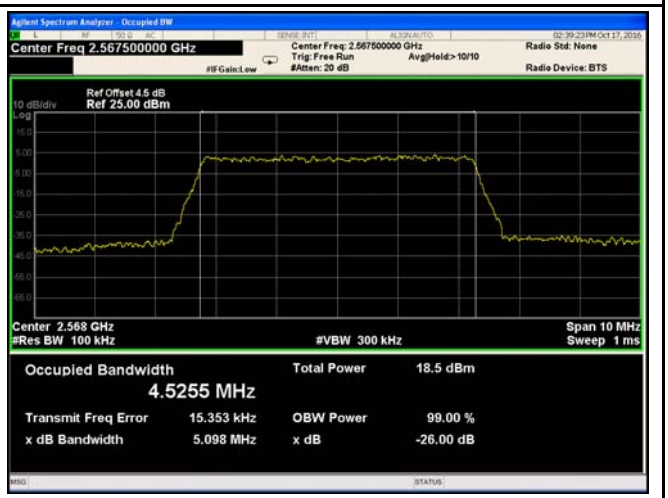
LTE Band VII - Middle CH QPSK-5



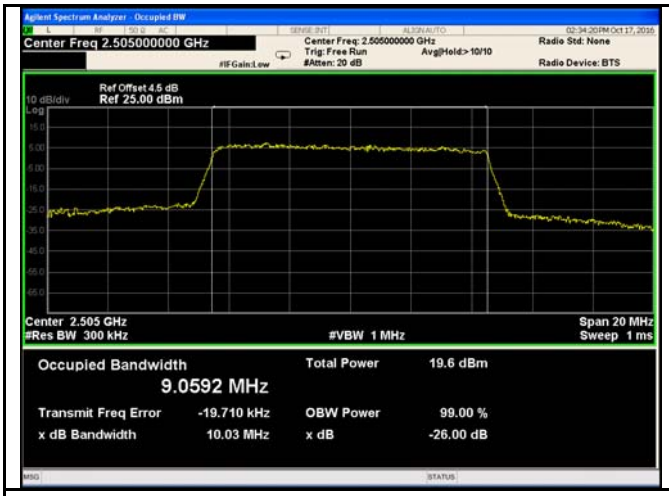
LTE Band VII - Middle CH 16QAM-5



LTE Band VII - High CH QPSK-5



LTE Band VII - High CH 16QAM-5



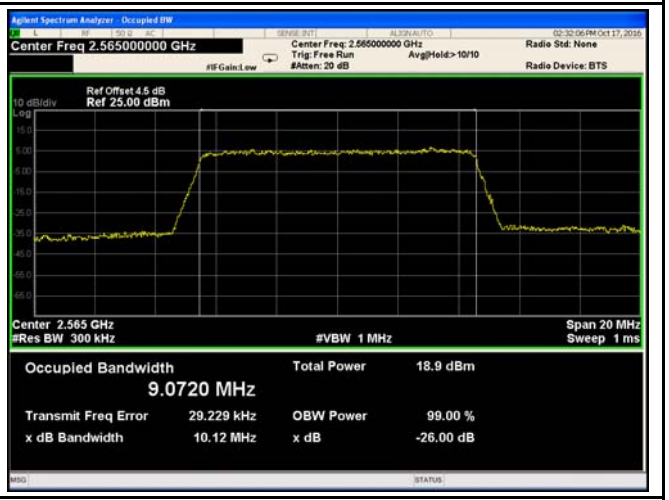
LTE Band VII - Low CH QPSK-10

LTE Band VII - Low CH 16QAM-10

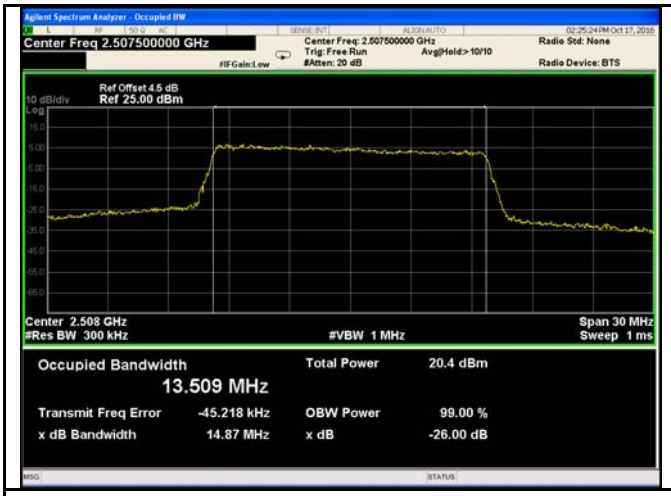
LTE Band VII - Middle CH QPSK-10

LTE Band VII - Middle CH 16QAM-10

LTE Band VII - High CH QPSK-10

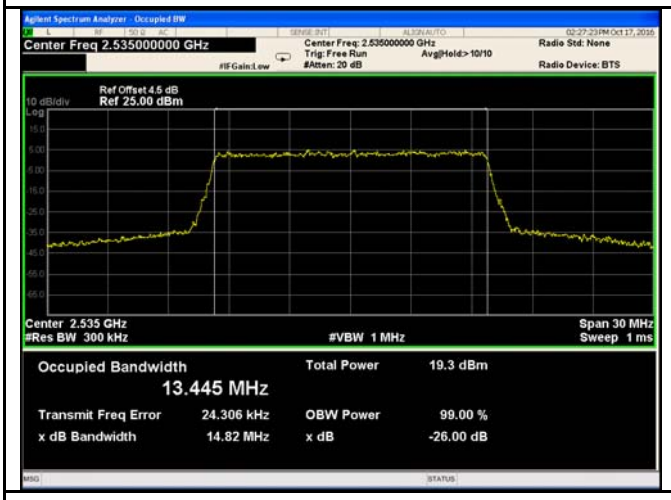


LTE Band VII - High CH 16QAM-10

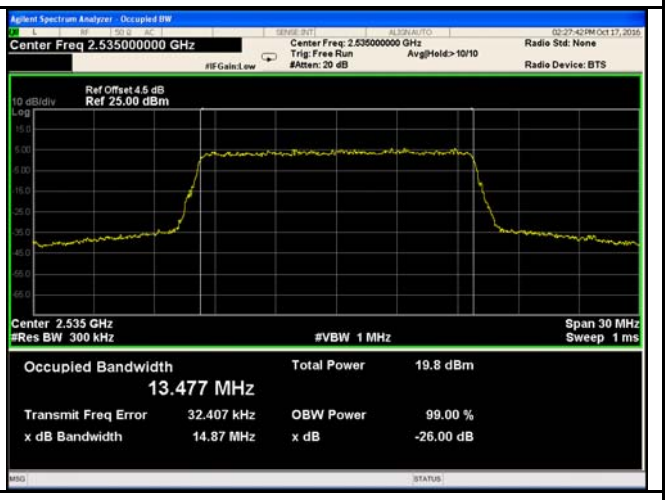


LTE Band VII - Low CH QPSK-15

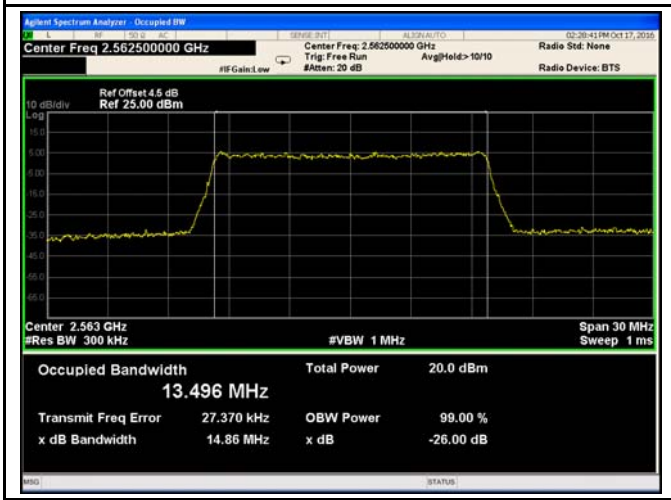
LTE Band VII - Low CH 16QAM-15



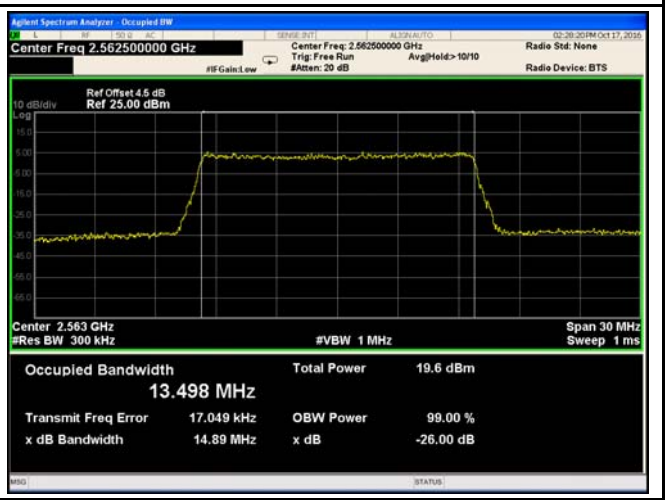
LTE Band VII - Middle CH QPSK-15



LTE Band VII - Middle CH 16QAM-15

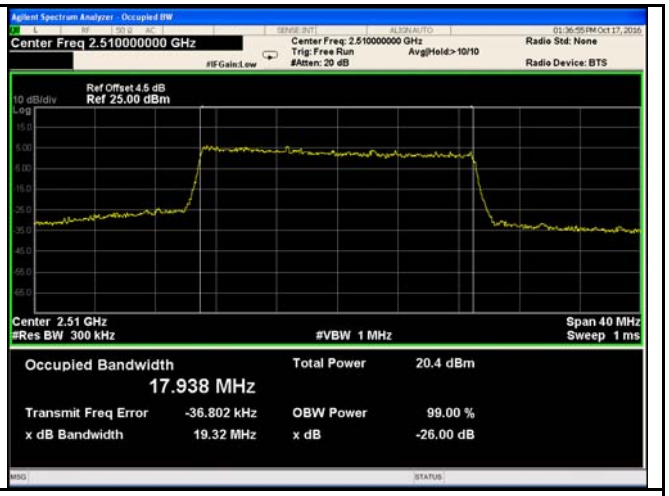


LTE Band VII - High CH QPSK-15



LTE Band VII - High CH 16QAM-15

LTE Band VII - Low CH QPSK-20

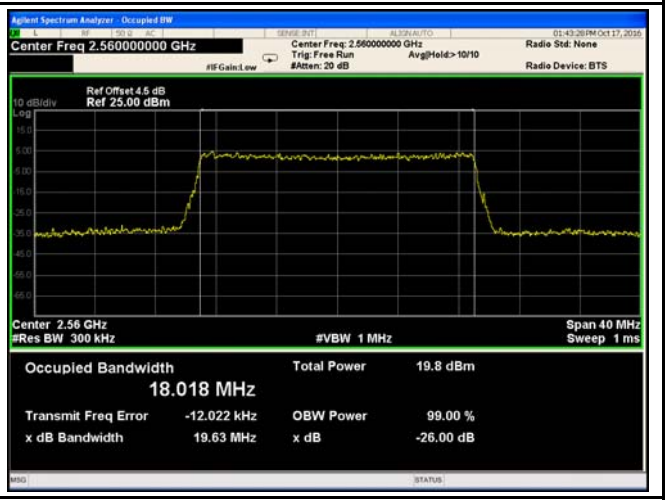


LTE Band VII - Low CH 16QAM-20

LTE Band VII - Middle CH QPSK-20

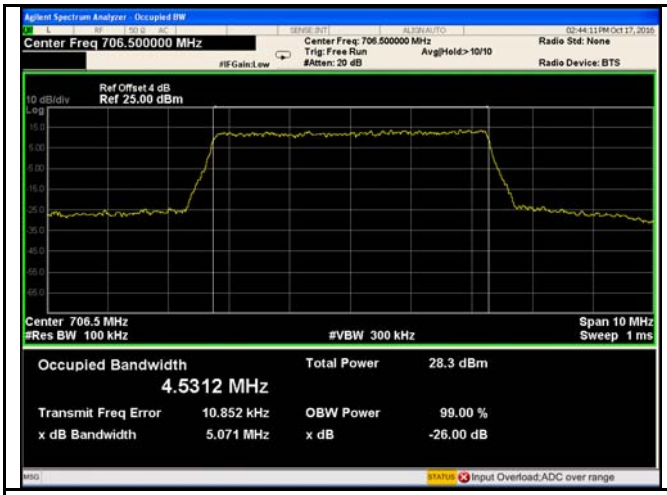
LTE Band VII - Middle CH 16QAM-20

LTE Band VII - High CH QPSK-20

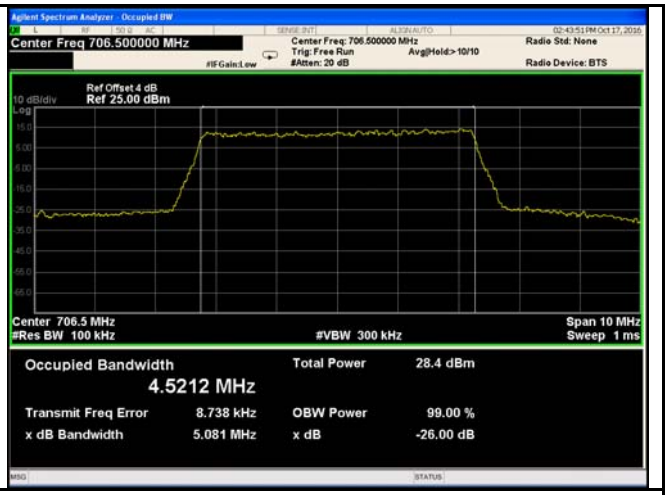


LTE Band VII - High CH 16QAM-20

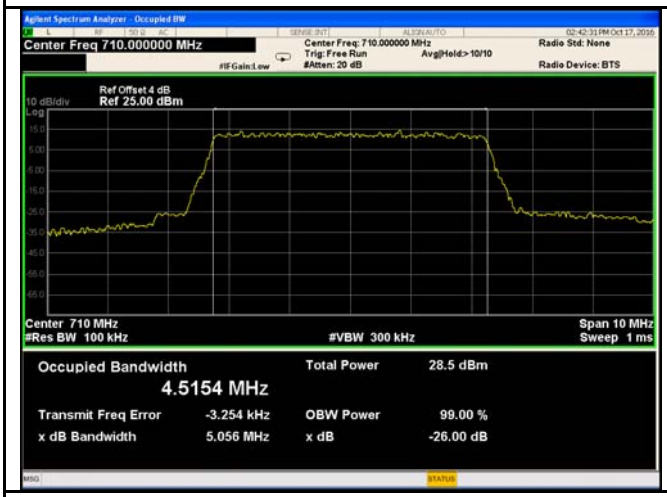
LTE Band XVII (Part 27)



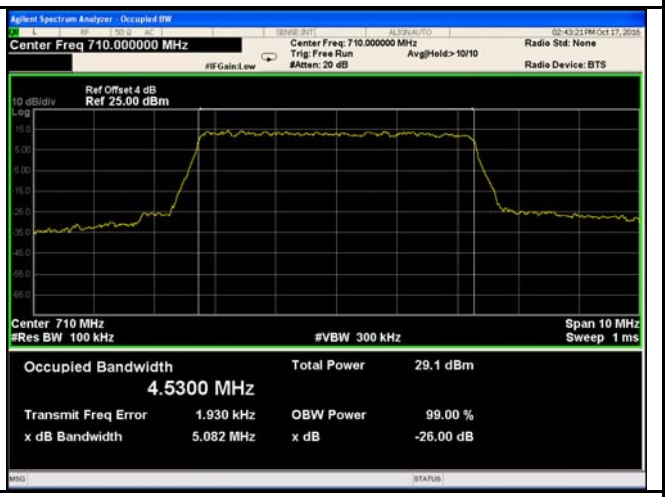
LTE Band XVII - Low CH QPSK-5



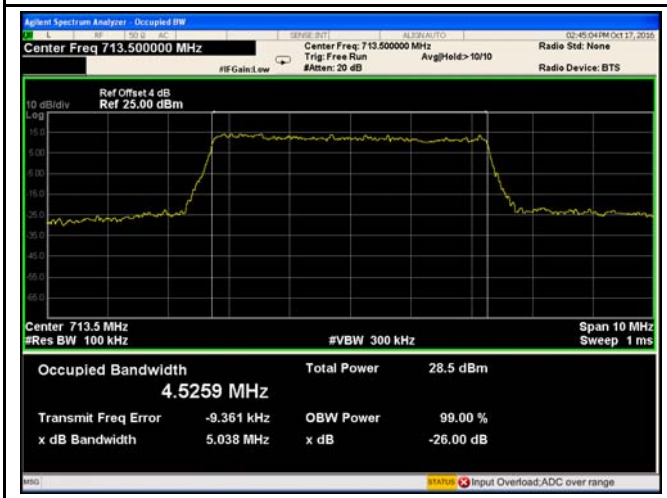
LTE Band XVII - Low CH 16QAM-5



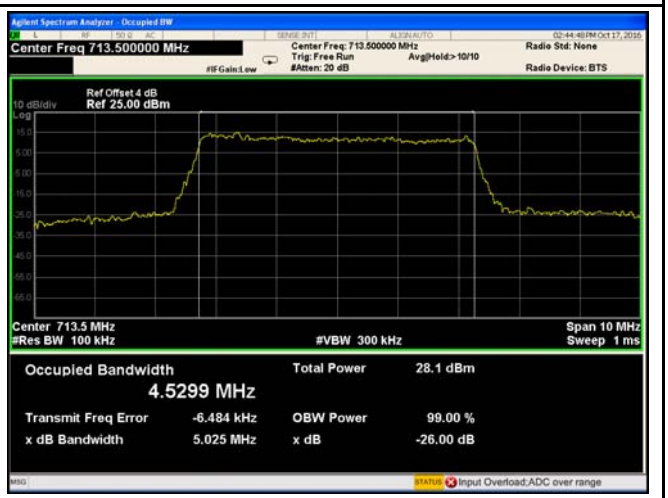
LTE Band XVII - Middle CH QPSK-5



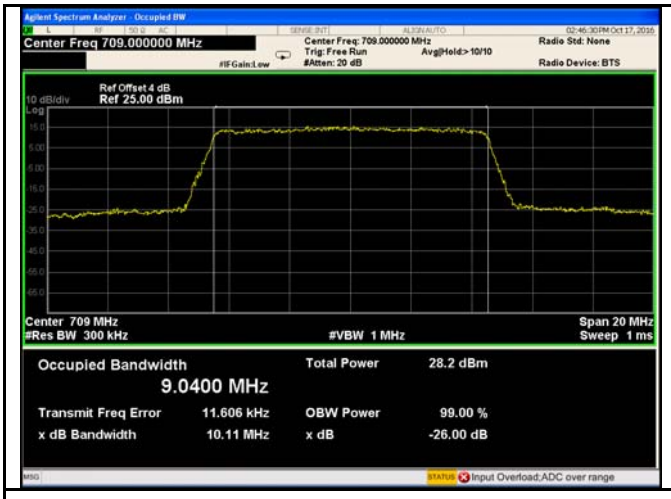
LTE Band XVII - Middle CH 16QAM-5



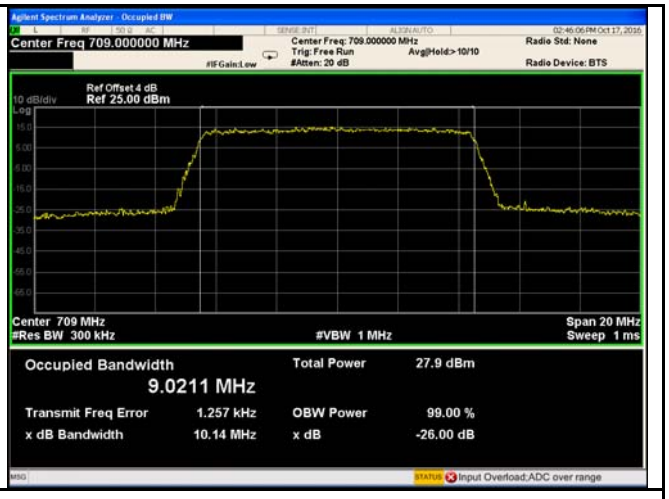
LTE Band XVII - High CH QPSK-5



LTE Band XVII - High CH 16QAM-5



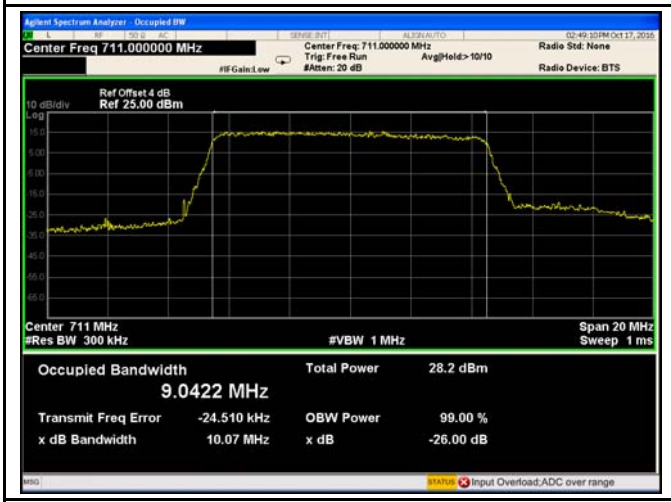
LTE Band XVII - Low CH QPSK-10



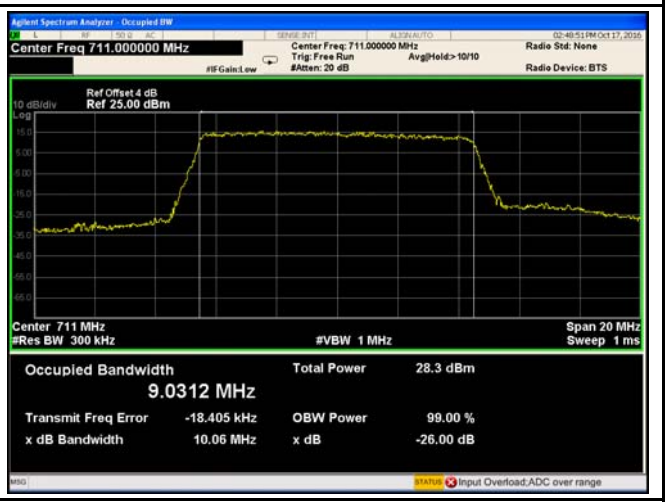
LTE Band XVII - Low CH 16QAM-10

LTE Band XVII - Middle CH QPSK-10

LTE Band XVII - Middle CH 16QAM-10



LTE Band XVII - High CH QPSK-10

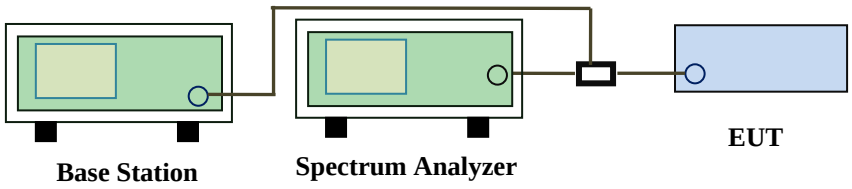


LTE Band XVII - High CH 16QAM-10

6.5 Spurious Emissions at Antenna Terminals

Temperature	22℃
Relative Humidity	59%
Atmospheric Pressure	1017mbar
Test date :	October 17, 2016
Tested By :	Loren Luo

Requirement(s):

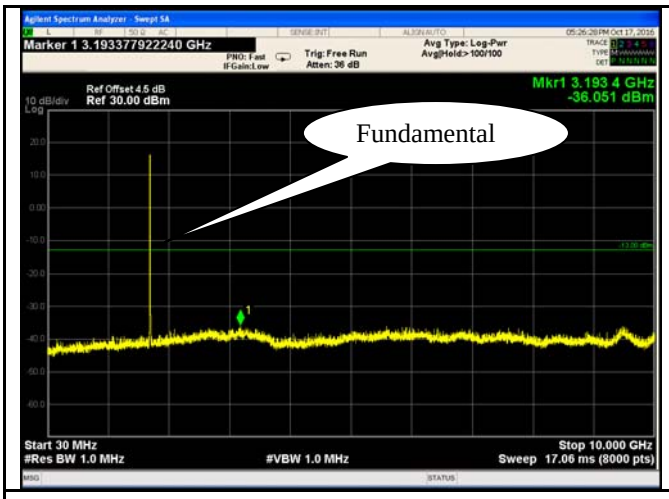
Spec	Item	Requirement	Applicable
§2.1051, §22.917(a)& §24.238(a) § 27.53(h)	a)	The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB	☑
Test Setup			
Test Procedure	- The EUT was connected 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.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

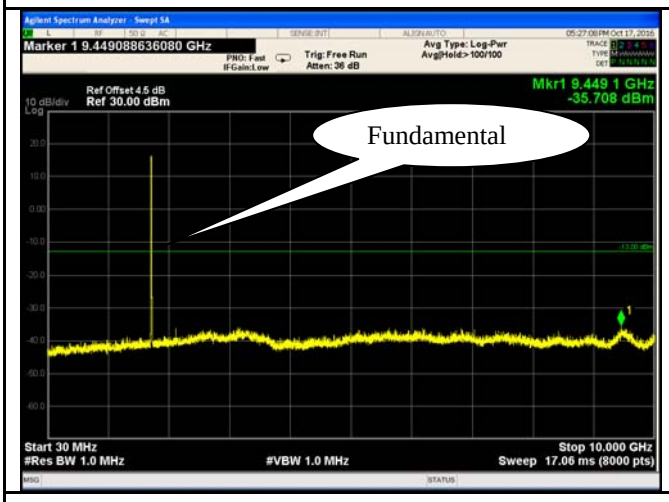
Test Plots 30MHz-5GHz

LTE Band IV (Part27) result



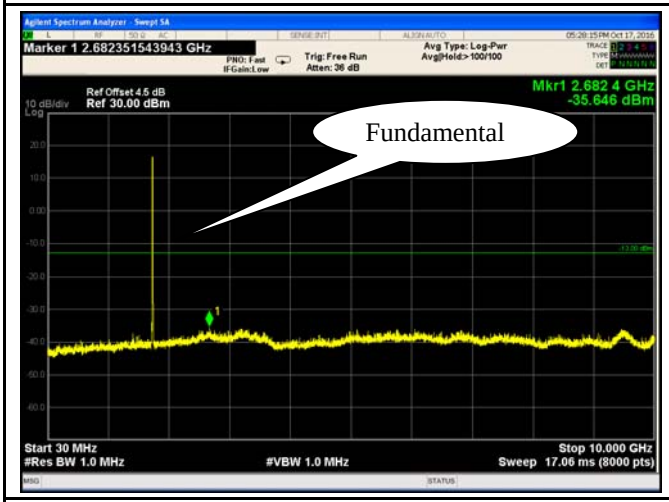
LTE Band IV - Low Channel-1

LTE Band IV - Low Channel-2



LTE Band IV - Middle Channel-1

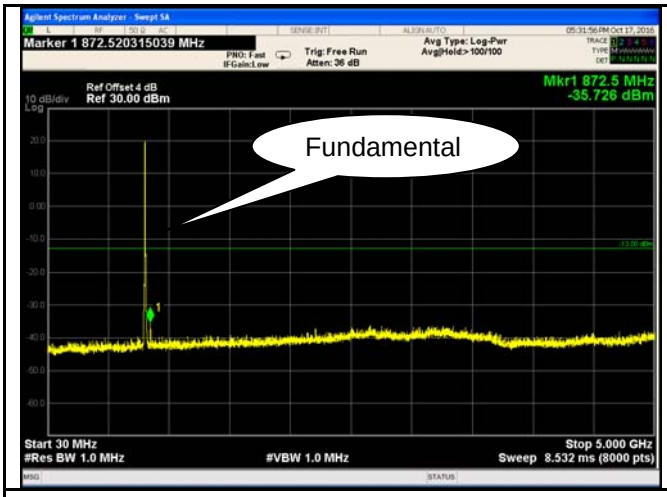
LTE Band IV - Middle Channel-2



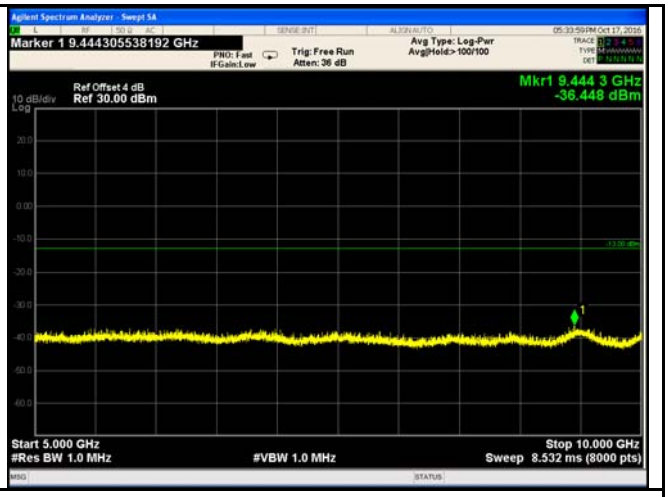
LTE Band IV - High Channel-1

LTE Band IV - High Channel-2

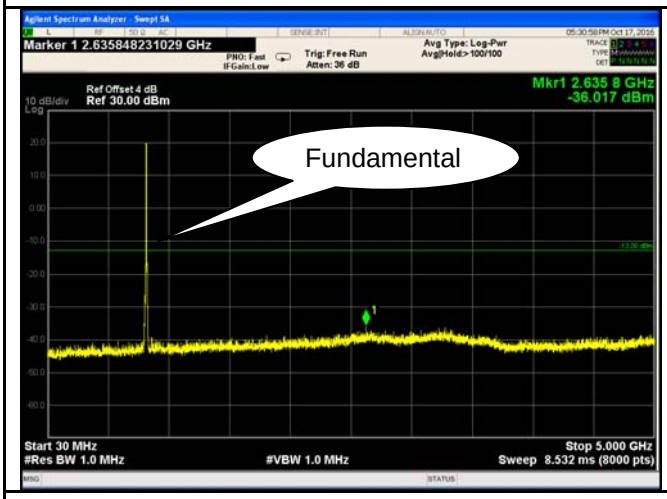
LTE Band V (Part 22H)



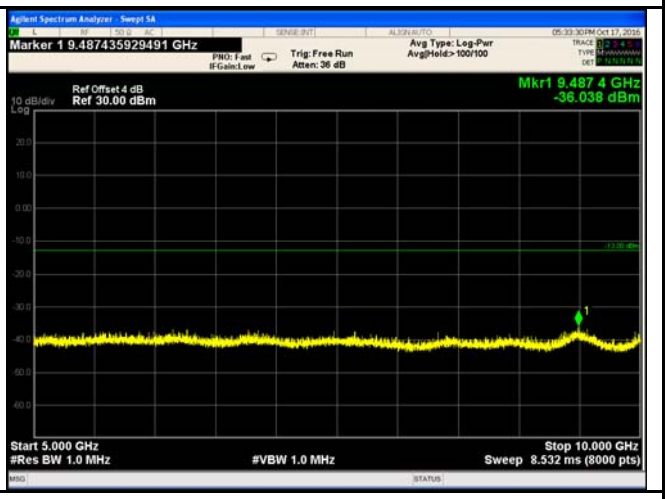
LTE Band V - Low Channel-1



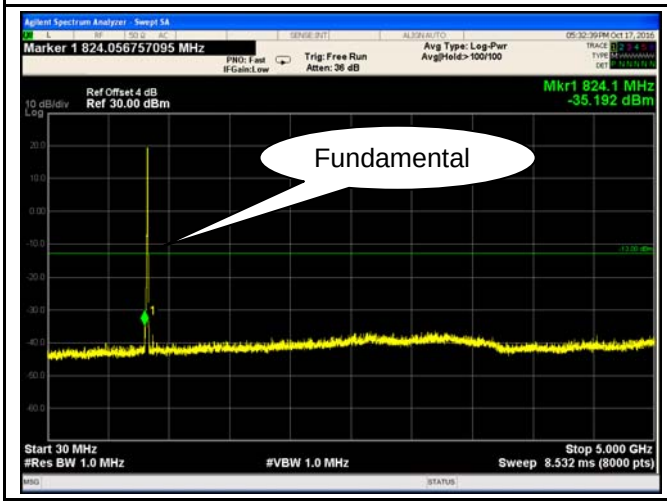
LTE Band V - Low Channel-2



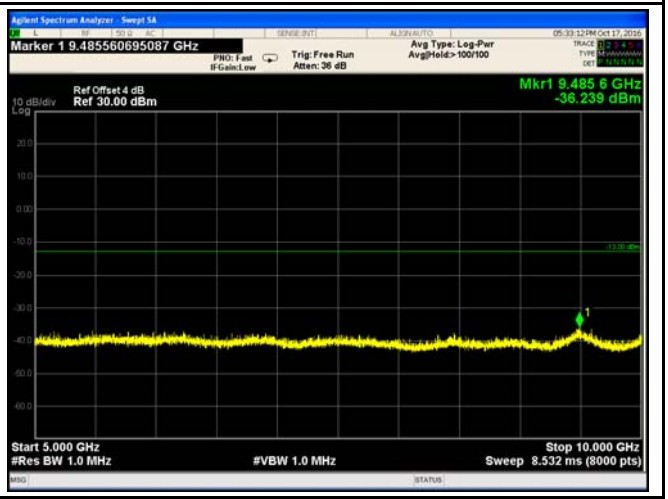
LTE Band V- Middle Channel-1



LTE Band V - Middle Channel-2

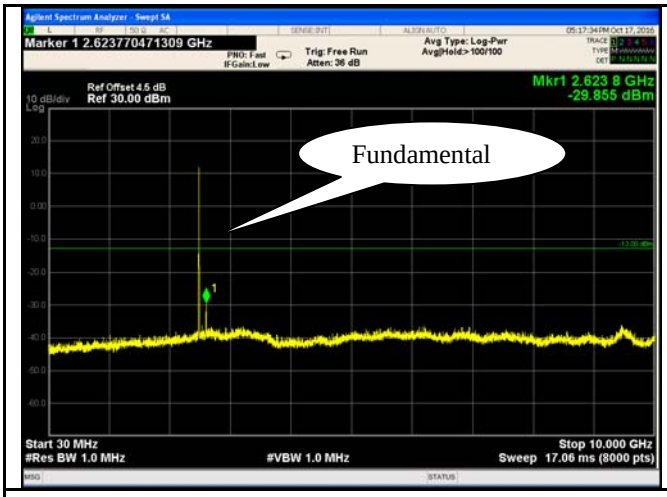


LTE Band V - High Channel-1



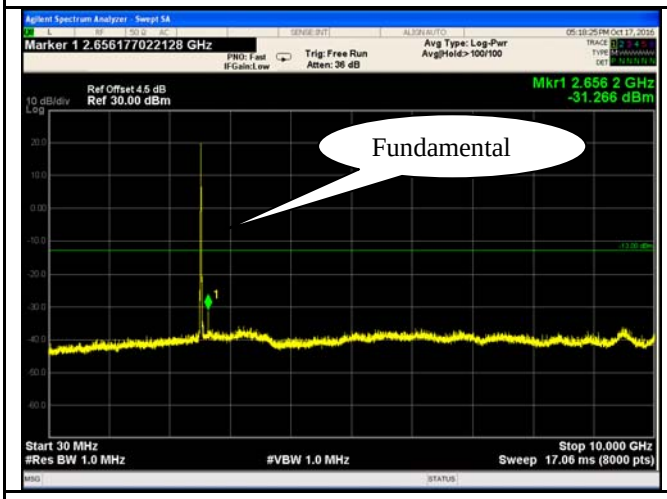
LTE Band V - High Channel-2

LTE Band VII (Part 27)



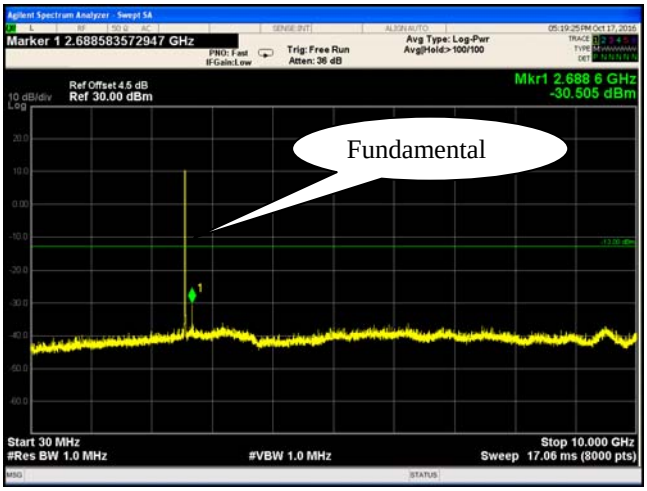
LTE Band VII - Low Channel-1

LTE Band VII - Low Channel-2



LTE Band VII- Middle Channel-1

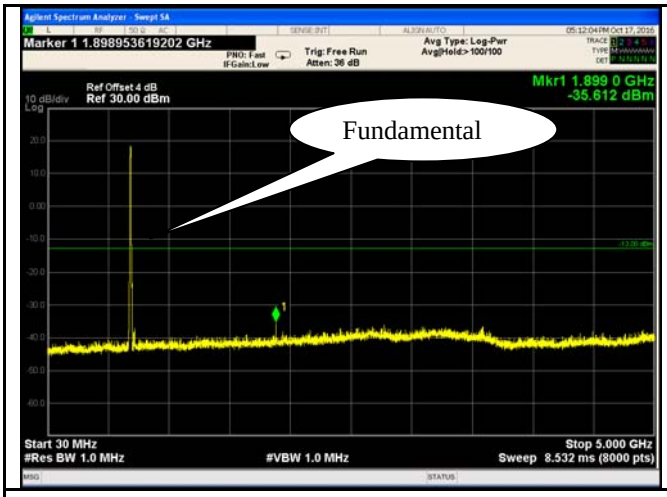
LTE Band VII - Middle Channel-2



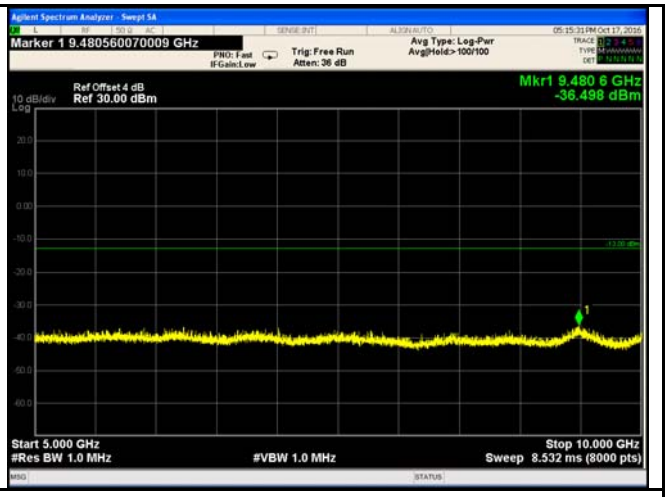
LTE Band VII - High Channel-1

LTE Band VII - High Channel-2

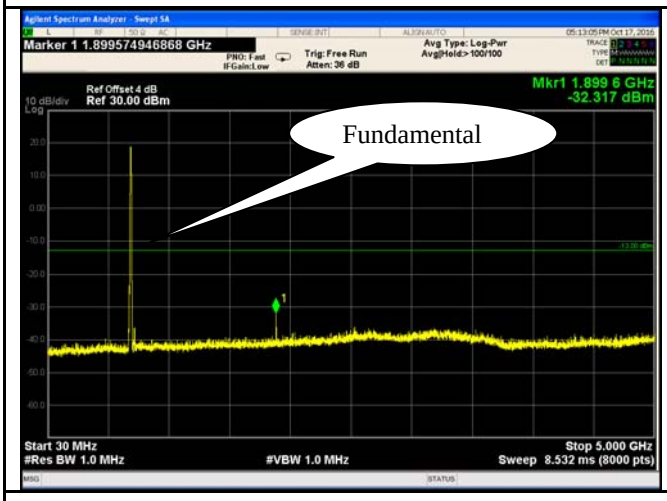
LTE Band XVII (Part 27)



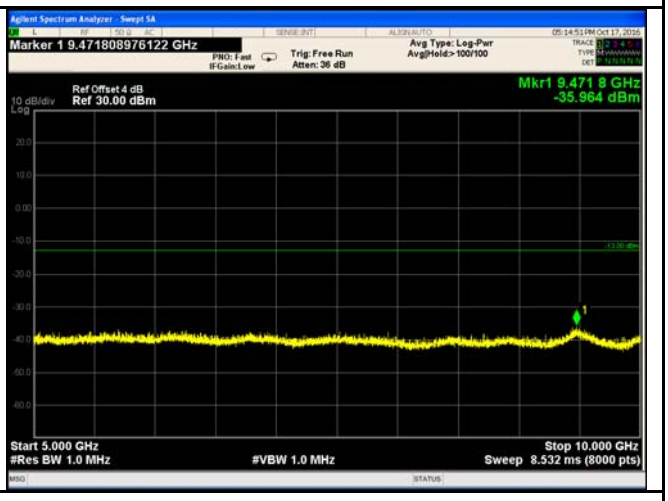
LTE Band XVII - Low Channel-1



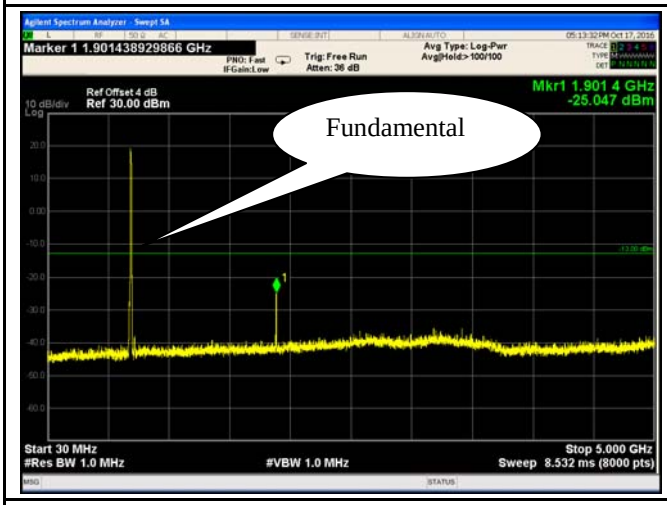
LTE Band XVII - Low Channel-2



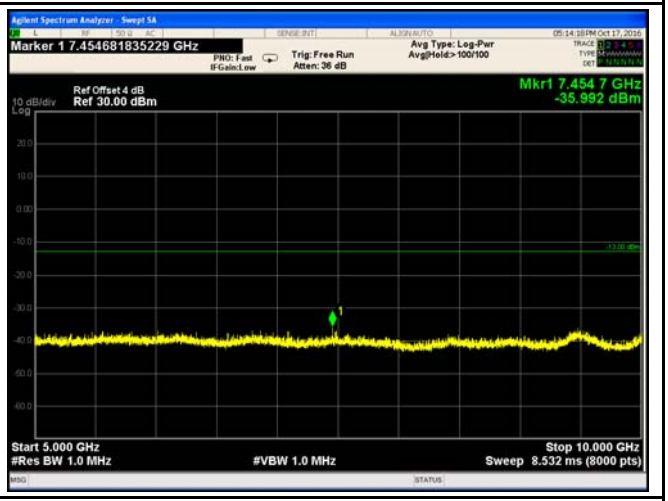
LTE Band XVII- Middle Channel-1



LTE Band XVII - Middle Channel-2



LTE Band XVII - High Channel-1

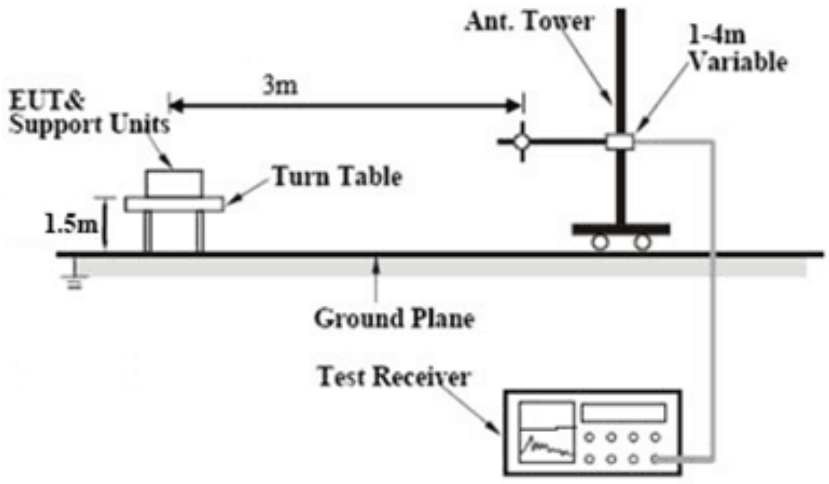


LTE Band XVII - High Channel-2

6.6 Spurious Radiated Emissions

Temperature	22℃
Relative Humidity	59%
Atmospheric Pressure	1017mbar
Test date :	October 17, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§2.1053, §22.917 & §24.238 § 27.53(h)	a)	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.	☑
Test setup			
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: EUT Field Strength = Raw Amplitude (dBμV/m) – Amplifier Gain (dB) + Antenna Factor (dB) + Cable Loss (dB) + Filter Attenuation (dB, if used)		

Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

LTE Band IV (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	-45.93	V	10.06	2.52	-38.39	-13	-25.39
3440	-46.97	H	10.06	2.52	-39.43	-13	-26.43
50.3	-45.43	V	-4.2	0.11	-49.74	-13	-36.74
203.1	-48.36	H	4.6	0.18	-43.94	-13	-30.94

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	-46.11	V	10.09	2.52	-38.54	-13	-25.54
3465	-46.73	H	10.09	2.52	-39.16	-13	-26.16
50.1	-46.13	V	-4.2	0.11	-50.44	-13	-37.44
202.3	-49.05	H	4.6	0.18	-44.63	-13	-31.63

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	-45.62	V	10.09	2.52	-38.05	-13	-25.05
3490	-46.86	H	10.09	2.52	-39.29	-13	-26.29
50.4	-46.14	V	-4.2	0.11	-50.45	-13	-37.45
204.6	-48.87	H	4.6	0.18	-44.45	-13	-31.45

Note:

*1, The testing has been conformed to 10*1752.5MHz=17,525MHz*
2, All other emissions more than 30 dB below the limit
3, X-Axis, Y-Axis and Z–Axis were investigated. The results above show only the worst case.

LTE Band V (Part22H) 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)
1658	-44.52	V	7.95	0.78	-37.35	-13	-24.35
1658	-45.23	H	7.95	0.78	-38.06	-13	-25.06
51.2	-45.38	V	-4.2	0.11	-49.69	-13	-36.69
203.8	-48.97	H	4.6	0.18	-44.55	-13	-31.55

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1673	-44.47	V	7.95	0.78	-37.3	-13	-24.30
1673	-45.03	H	7.95	0.78	-37.86	-13	-24.86
50.6	-44.83	V	-4.2	0.11	-49.14	-13	-36.14
202.8	-48.76	H	4.6	0.18	-44.34	-13	-31.34

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1688	-44.57	V	7.95	0.78	-37.4	-13	-24.40
1688	-45.06	H	7.95	0.78	-37.89	-13	-24.89
50.9	-45.13	V	-4.2	0.11	-49.44	-13	-36.44
204.7	-49.07	H	4.6	0.18	-44.65	-13	-31.65

Note:

*1, The testing has been conformed to 10*846.5MHz=8,465MHz*
2, All other emissions more than 30 dB below the limit
3, X-Axis, Y-Axis and Z–Axis were investigated. The results above show only the worst case.

LTE Band VII (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)
5020	-47.97	V	10.29	0.98	-38.66	-13	-25.66
5020	-47.72	H	10.29	0.98	-38.41	-13	-25.41
50.5	-46.34	V	-4.2	0.11	-50.65	-13	-37.65
204.6	-48.06	H	4.6	0.18	-43.64	-13	-30.64

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
5070	-47.63	V	10.3	0.99	-38.32	-13	-25.32
5070	-47.84	H	10.3	0.99	-38.53	-13	-25.53
50.3	-45.85	V	-4.2	0.11	-50.16	-13	-37.16
202.5	-48.03	H	4.6	0.18	-43.61	-13	-30.61

High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
5120	-48.19	V	10.32	1	-38.87	-13	-25.87
5120	-48.22	H	10.32	1	-38.9	-13	-25.9
50.5	-46.03	V	-4.2	0.11	-50.34	-13	-37.34
205.6	-47.86	H	4.6	0.18	-43.44	-13	-30.44

Note:

*1, The testing has been conformed to 10*2567.5MHz=25,675MHz*
2, All other emissions more than 30 dB below the limit
3, X-Axis, Y-Axis and Z –Axis were investigated. The results above show only the worst case.

LTE Band XVII (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)
1418	-43.76	V	7.65	0.75	-36.86	-13	-23.86
1418	-44.49	H	7.65	0.75	-37.59	-13	-24.59
51.2	-44.87	V	-4.2	0.11	-49.18	-13	-36.18
203.8	-48.65	H	4.6	0.18	-44.23	-13	-31.23

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1420	-43.46	V	7.65	0.75	-36.56	-13	-23.56
1420	-44.84	H	7.65	0.75	-37.94	-13	-24.94
50.4	-45.13	V	-4.2	0.11	-49.44	-13	-36.44
205.8	-48.76	H	4.6	0.18	-44.34	-13	-31.34

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	-44.02	V	7.65	0.75	-37.12	-13	-24.12
1422	-44.79	H	7.65	0.75	-37.89	-13	-24.89
50.9	-45.03	V	-4.2	0.11	-49.34	-13	-36.34
201.8	-48.85	H	4.6	0.18	-44.43	-13	-31.43

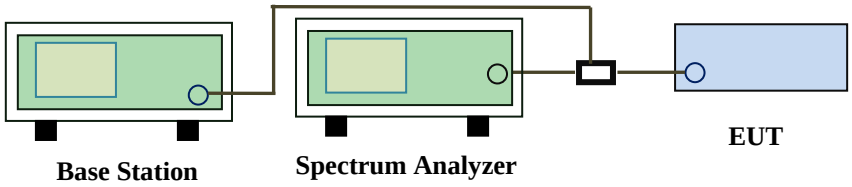
Note:

*1, The testing has been conformed to 10*713.5MHz=7,135MHz*
2, All other emissions more than 30 dB below the limit
3, X-Axis, Y-Axis and Z–Axis were investigated. The results above show only the worst case.

6.7 Band Edge

Temperature	22℃
Relative Humidity	59%
Atmospheric Pressure	1017mbar
Test date :	October 17, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§22.917(a) §24.238(a) § 27.53(h)	a)	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.	☑
Test setup			
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.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

LTE Band IV (Part 27) result

BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
1.4	19957	1709.9	QPSK	-26.236	-13
			16QAM	-26.823	-13
1.4	20393	1755	QPSK	-30.067	-13
			16QAM	-29.774	-13
3	19965	1709.9	QPSK	-25.111	-13
			16QAM	-24.265	-13
3	20385	1755	QPSK	-22.304	-13
			16QAM	-23.593	-13
5	19975	1709.9	QPSK	-21.513	-13
			16QAM	-21.622	-13
5	20375	1755	QPSK	-22.300	-13
			16QAM	-21.873	-13
10	20000	1709.9	QPSK	-22.319	-13
			16QAM	-22.714	-13
10	20350	1755	QPSK	-22.101	-13
			16QAM	-23.027	-13
15	20025	1709.9	QPSK	-24.887	-13
			16QAM	-23.724	-13
15	20325	1755	QPSK	-24.069	-13
			16QAM	-24.647	-13
20	20050	1709.9	QPSK	-27.303	-13
			16QAM	-27.246	-13
20	20300	1759	QPSK	-24.967	-13
			16QAM	-25.214	-13

LTE Band V (Part 22H) result

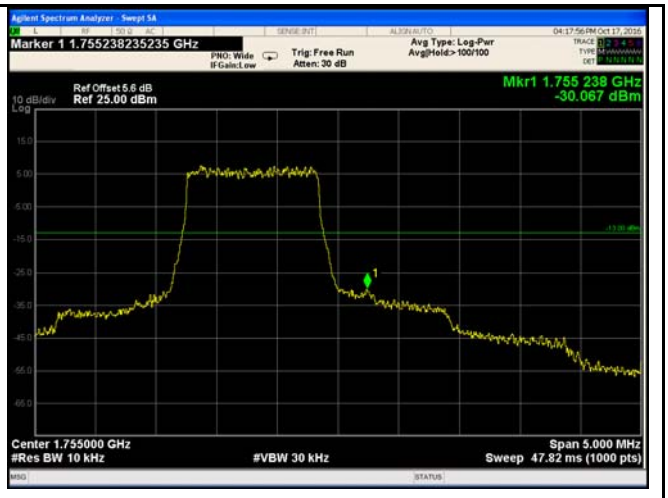
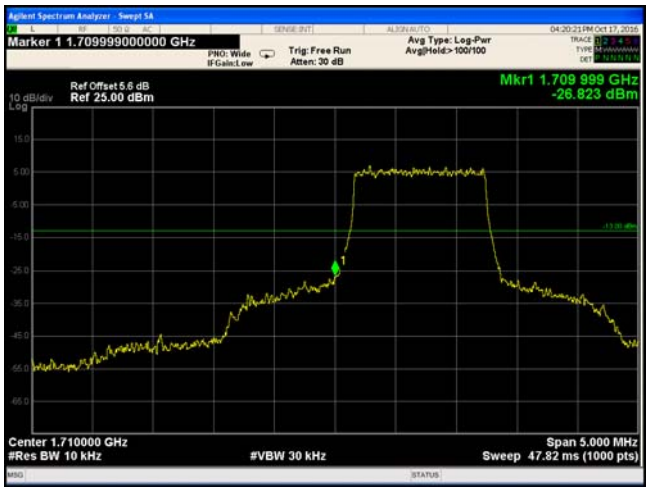
BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
1.4	20407	823.9	QPSK	-29.866	-13
			16QAM	-30.470	-13
1.4	20643	849	QPSK	-25.196	-13
			16QAM	-25.783	-13
3	20415	823.9	QPSK	-21.702	-13
			16QAM	-21.020	-13
3	20635	849	QPSK	-21.865	-13
			16QAM	-21.296	-13
5	20425	823.9	QPSK	-18.137	-13
			16QAM	-18.142	-13
5	20625	849	QPSK	-17.669	-13
			16QAM	-17.456	-13
10	20450	823.9	QPSK	-17.247	-13
			16QAM	-18.708	-13
10	20800	849	QPSK	-20.603	-13
			16QAM	-19.934	-13

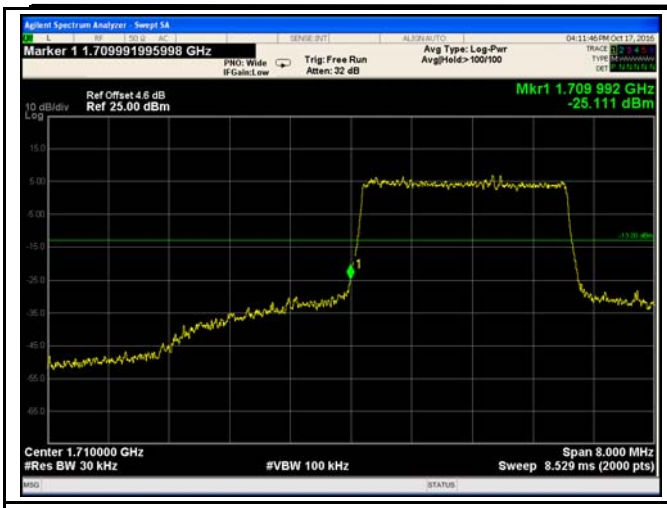
LTE Band XVII (Part 27) result

BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
5	23755	703.9	QPSK	-18.384	-13
			16QAM	-18.869	-13
5	23825	716	QPSK	-19.008	-13
			16QAM	-19.711	-13
10	23780	703	QPSK	-16.920	-13
			16QAM	-19.883	-13
10	23800	716	QPSK	-21.285	-13
			16QAM	-20.845	-13

Test Plots

LTE Band IV (Part 27)

	
LTE Band IV - Low Channel QPSK-1.4	LTE Band IV - High Channel QPSK-1.4
Note: Offset=Cable loss (4.5) + 10log (12.83/10)=4.5+1.1=5.6 dB	Note: Offset=Cable loss (4.5) + 10log (12.83/10)=4.5+1.1=5.6 dB
	
LTE Band IV - Low Channel 16QAM-1.4	LTE Band IV - High Channel 16QAM-1.4
Note: Offset=Cable loss (4.5) + 10log (12.76/10)=4.5+1.1=5.6 dB	Note: Offset=Cable loss (4.5) + 10log ((12.76/10)=4.5+1.1=5.6 dB

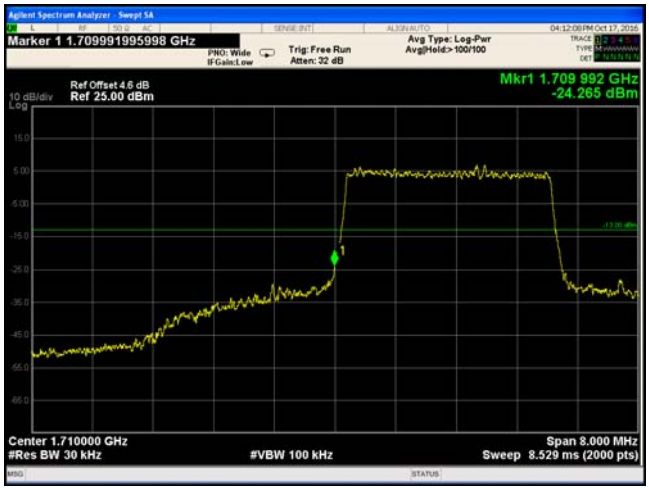


LTE Band IV - Low Channel QPSK-3

LTE Band IV - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.46/30)=4.5+0.1=4.6 dB

Note: Offset=Cable loss (4.5) + 10log (30.29/30)=4.5+0.0=4.5 dB



LTE Band IV - Low Channel 16QAM-3

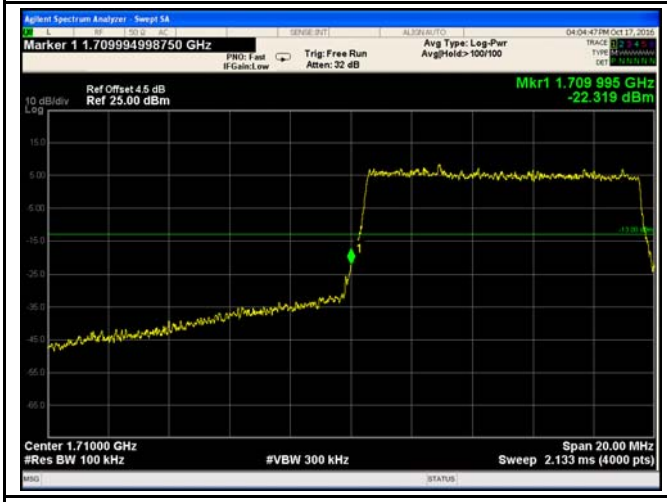
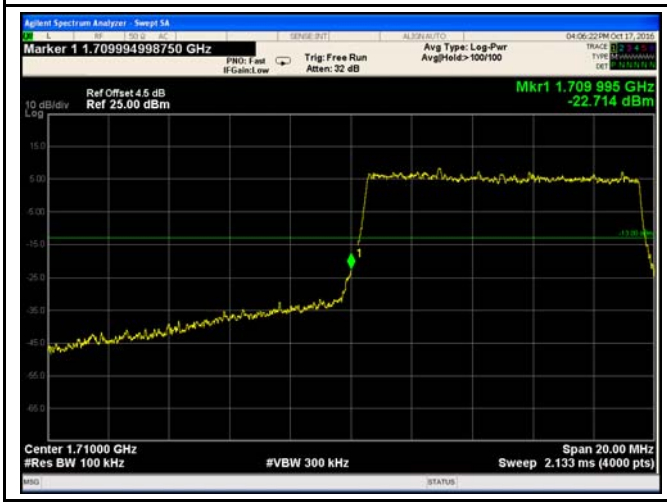
LTE Band IV - High Channel 16QAM-3

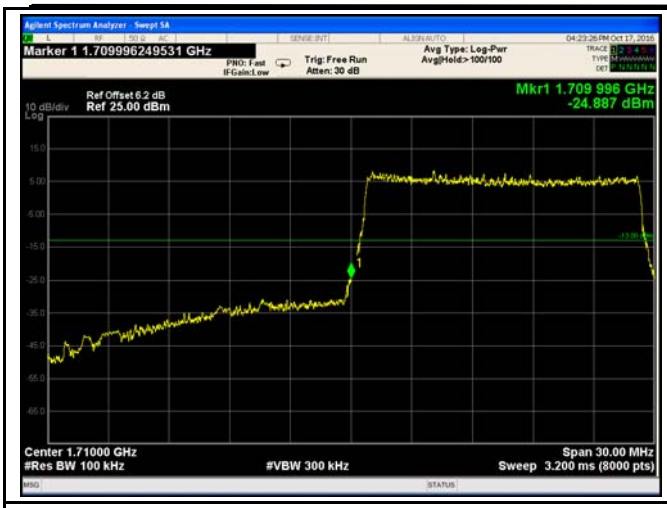
Note: Offset=Cable loss (4.5) + 10log (30.61/30)=4.5+0.1=4.6 dB

Note: Offset=Cable loss (4.5) + 10log (30.70/30)=4.5+0.1=4.6 dB

LTE Band IV - Low Channel QPSK-5

LTE Band IV - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.99/30)=4.5+2.3=6.8 dB	Note: Offset=Cable loss (4.5) + 10log (50.99/30)=4.5+2.3=6.8 dB
	
LTE Band IV - Low Channel 16QAM-5	LTE Band IV - High Channel 16QAM-5
Note: Offset=Cable loss (4.5) + 10log (50.92/30)=4.5+2.3=6.8 dB	Note: Offset=Cable loss (4.5) + 10log (51.04/30)=4.5+2.3=6.8 dB
	
LTE Band IV - Low Channel QPSK-10	LTE Band IV - High Channel QPSK-10
	
LTE Band IV - Low Channel 16QAM-10	LTE Band IV - High Channel 16QAM-10

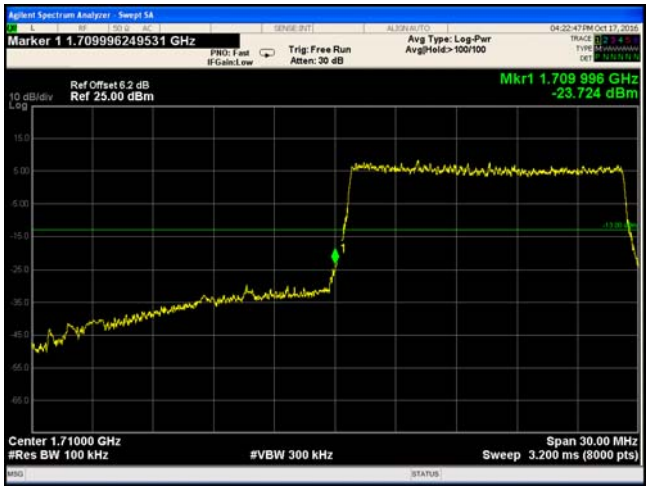


LTE Band IV - Low Channel QPSK-15

LTE Band IV - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (148/100)=4.5+1.7=6.2 dB

Note: Offset=Cable loss (4.5) + 10log (147.9/100)=4.5+1.7=6.2 dB



LTE Band IV - Low Channel 16QAM-15

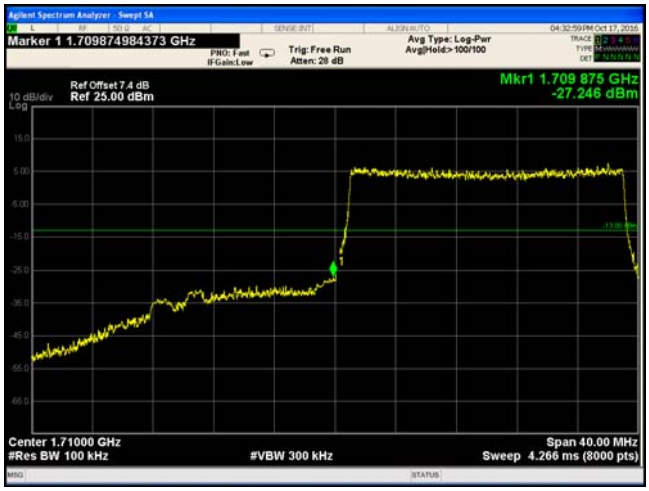
LTE Band IV - High Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (148.7/100)=4.5+1.7=6.2 dB

Note: Offset=Cable loss (4.5) + 10log (147.6/100)=4.5+1.7=6.2 dB

LTE Band IV - Low Channel QPSK-20

LTE Band IV - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (194.5/100)=4.5+2.9=7.4 dB	Note: Offset=Cable loss (4.5) + 10log (193.3/100)=4.5+2.9=7.4 dB
	
LTE Band IV - Low Channel 16QAM-20	LTE Band IV - High Channel 16QAM-20
Note: Offset=Cable loss (4.5) + 10log (195.7/100)=4.5+2.9=7.4dB	Note: Offset=Cable loss (4.5) + 10log (194/100)=4.5+2.9=7.4 dB