RF TEST REPORT

Report No.: 15071004-FCC-R5

Supersede Report No.: N/A

Applicant	Verykool USA Inc
Product Name	Mobile phone
Model No.	SL5011
Serial No.	N/A
Test Standard	FCC Part 22(H), FCC Part 24(E), FCC Part 27: 2014; ANSI/TIA C603 D: 2010
Test Date	October 27 to November 15, 2015
Issue Date	November 16, 2015
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Winnie Zhang	David Huang	
Winnie Zhang 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

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

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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1. Report Revision History

Report No.	Report Version	Description	Issue Date
15071004-FCC-R5	NONE	Original	November 16, 2015

2. Customer information

Applicant Name	Verykool USA Inc
Applicant Add	3636 Nobel Drive, Suite 325, San Diego, CA 92122 USA
Manufacturer	HUIZHOU QIAOXING ELECTRONICS TECHNOLOGY CO.,LTD
Manufacturer Add	Room 1906 of VIA Building, No.9966 Shennan Avenue, Yuehai Street in Nanshan District, Shenzhen

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:	Mobile phone
Main Model:	SL5011
Serial Model:	N/A
Date EUT received:	October 26, 2015
Test Date(s):	October 27 to November 15, 2015
Equipment Category：	PCE
Antenna Gain:	GSM850: 1.8 dBi PCS1900: 3.5 dBi UMTS-FDD Band V: 1.5 dBi UMTS-FDD Band IV: 3.0 dBi UMTS-FDD Band II: 3.1 dBi Bluetooth/BLE: 2.6 dBi WIFI: 2.4 dBi LTE Band 2: 3.1 dBi LTE Band 4: 3.6 dBi LTE Band 5: 1.7 dBi LTE Band 7: 2.8 dBi LTE Band 17: 1.7 dBi GPS:1.6 dBi
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK,8PSK UMTS-FDD: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK LTE Band: QPSK, 16QAM 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 IV TX:1712.4 ~ 1752.6 MHz; RX : 2112.4 ~ 2152.6 MHz UMTS-FDD Band II TX:1852.4 ~ 1907.6 MHz; RX: 1932.4 ~ 1987.6 MHz WIFI:802.11b/g/n(20M): 2412-2462 MHz WIFI:802.11n(40M): 2422-2472 MHz Bluetooth& BLE: 2402-2480 MHz 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 5 TX: 826.5 ~ 846.5 MHz; RX : 871.5 ~ 891.5 MHz LTE Band 7 TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz LTE Band 17 TX: 706.5 ~ 713.5 MHz; RX : 736.5 ~ 743.5 MHz GPS RX:1575.42 MHz
Maximum Conducted AV Power to Antenna:	LTE Band 2: 23.52 dBm LTE Band 4: 23.32 dBm LTE Band 5: 23.57dBm LTE Band 7: 22.02 dBm LTE Band 17: 23.97 dBm
ERP/EIRP:	LTE Band 2: 26.68 dBm / EIRP LTE Band 4: 26.40 dBm / EIRP LTE Band 5: 24.69 dBm / EIRP LTE Band 7: 24.56 dBm / EIRP LTE Band 17: 25.62 dBm / ERP
Port:	Power Port, Earphone Port, USB Port
Input Power:	Adapter: Model:STC-A515A-Z Input: AC 100-240V; 50/60Hz; 300mA Output: DC 5.0V,1500mA Battery: Spec:3.8V,2100mAh,8.0Wh
Trade Name :	verykool

GPRS/EGPRS Multi-slot class 8/10/12

FCC ID: WA6SL5011

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
§ 2.1047	Modulation Characteristics	N/A
§ 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

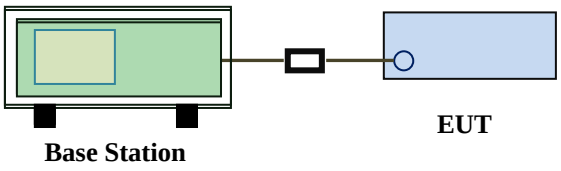
The EUT is a portable device, thus requires SAR evaluation;

Please refer to RF Exposure Evaluation Report: 15071004-FCC-H.

6.2 RF Output Power

Temperature	22℃
Relative Humidity	57%
Atmospheric Pressure	1005mbar
Test date :	November 05, 2015
Tested By :	Winnie Zhang

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 2:

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
20MHz	18700	1860.0	QPSK	1	0	0	23.42	23±1
				1	49	0	23.23	23±1
				1	99	0	22.64	23±1
				50	0	1	22.46	23±1
				50	24	1	22.41	23±1
				50	49	1	22.33	23±1
				100	0	1	22.19	23±1
			16QAM	1	0	1	22.66	22±1
				1	49	1	22.47	22±1
				1	99	1	22.17	22±1
				50	0	2	21.86	22±1
				50	24	2	21.84	22±1
				50	49	2	21.83	22±1
				100	0	2	21.15	22±1
	18900	1880.0	QPSK	1	0	0	22.72	22.3±1
				1	49	0	22.81	22.3±1
				1	99	0	23.16	22.3±1
				50	0	1	21.95	22.3±1
				50	24	1	22.03	22.3±1
				50	49	1	22.14	22.3±1
				100	0	1	22.12	22.3±1
			16QAM	1	0	1	21.83	22±1
				1	49	1	21.81	22±1
				1	99	1	22.07	22±1
				50	0	2	21.67	22±1
				50	24	2	21.64	22±1
				50	49	2	21.82	22±1
				100	0	2	21.11	22±1
	19100	1900.0	QPSK	1	0	0	22.87	22±1
				1	49	0	21.62	22±1
				1	99	0	21.67	22±1
				50	0	1	21.87	22±1
				50	24	1	21.54	22±1
				50	49	1	21.24	22±1
				100	0	1	21.65	22±1
			16QAM	1	0	1	22.29	21.3±1
				1	49	1	21.09	21.3±1
				1	99	1	21.26	21.3±1
				50	0	2	21.15	21.3±1
				50	24	2	21.11	21.3±1
				50	49	2	21.03	21.3±1
				100	0	2	20.82	21.3±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
15MHz	18675	1857.5	QPSK	1	0	0	23.17	23±1
				1	37	0	23.07	23±1
				1	74	0	22.68	23±1
				36	0	1	22.47	23±1
				36	16	1	22.41	23±1
				36	35	1	22.36	23±1
				75	0	1	22.41	23±1
			16QAM	1	0	1	22.18	22±1
				1	37	1	22.08	22±1
				1	74	1	21.79	22±1
				36	0	2	21.57	22±1
				36	16	2	21.51	22±1
				36	35	2	21.53	22±1
				75	0	2	21.32	22±1
	18900	1880.0	QPSK	1	0	0	22.38	22±1
				1	37	0	22.52	22±1
				1	74	0	22.95	22±1
				36	0	1	21.73	22±1
				36	16	1	21.89	22±1
				36	35	1	22.07	22±1
				75	0	1	21.88	22±1
			16QAM	1	0	1	21.69	21.3±1
				1	37	1	21.83	21.3±1
				1	74	1	22.23	21.3±1
				36	0	2	21.54	21.3±1
				36	16	2	21.42	21.3±1
				36	35	2	21.38	21.3±1
				75	0	2	20.96	21.3±1
	19125	1902.5	QPSK	1	0	0	22.24	22±1
				1	37	0	21.55	22±1
				1	74	0	21.74	22±1
				36	0	1	21.33	22±1
				36	16	1	21.24	22±1
				36	35	1	21.17	22±1
				75	0	1	21.27	22±1
			16QAM	1	0	1	21.87	21.3±1
				1	37	1	21.17	21.3±1
				1	74	1	21.33	21.3±1
				36	0	2	21.12	21.3±1
				36	16	2	21.08	21.3±1
				36	35	2	20.97	21.3±1
				75	0	2	20.53	21.3±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
10MHz	18650	1855	QPSK	1	0	0	22.97	23±1
				1	24	0	23.10	23±1
				1	49	0	22.84	23±1
				25	0	1	22.33	23±1
				25	12	1	22.28	23±1
				25	24	1	22.24	23±1
				50	0	1	22.29	23±1
			16QAM	1	0	1	21.98	22±1
				1	24	1	22.13	22±1
				1	49	1	21.94	22±1
				25	0	2	21.75	22±1
				25	12	2	21.68	22±1
				25	24	2	21.73	22±1
				50	0	2	21.27	22±1
	18900	1880.0	QPSK	1	0	0	22.34	22±1
				1	24	0	22.59	22±1
				1	49	0	22.71	22±1
				25	0	1	21.81	22±1
				25	12	1	21.93	22±1
				25	24	1	22.01	22±1
				50	0	1	21.94	22±1
			16QAM	1	0	1	21.54	22±1
				1	24	1	21.72	22±1
				1	49	1	21.85	22±1
				25	0	2	21.49	22±1
				25	12	2	21.53	22±1
				25	24	2	21.42	22±1
				50	0	2	21.03	22±1
	19150	1905	QPSK	1	0	0	21.65	22±1
				1	24	0	21.74	22±1
				1	49	0	21.61	22±1
				25	0	1	21.12	22±1
				25	12	1	21.23	22±1
				25	24	1	21.28	22±1
				50	0	1	21.22	22±1
			16QAM	1	0	1	21.21	21.3±1
				1	24	1	21.32	21.3±1
				1	49	1	21.28	21.3±1
				25	0	2	21.26	21.3±1
				25	12	2	21.15	21.3±1
				25	24	2	21.11	21.3±1
				50	0	2	20.45	21.3±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
5MHz	18625	1852.5	QPSK	1	0	0	23.10	23±1
				1	12	0	22.88	23±1
				1	24	0	23.11	23±1
				12	0	1	22.42	23±1
				12	6	1	22.38	23±1
				12	11	1	22.35	23±1
				25	0	1	22.34	23±1
			16QAM	1	0	1	22.60	22±1
				1	12	1	22.41	22±1
				1	24	1	22.59	22±1
				12	0	2	21.67	22±1
				12	6	2	21.65	22±1
				12	11	2	21.58	22±1
				25	0	2	21.30	22±1
	18900	1880.0	QPSK	1	0	0	22.43	22±1
				1	12	0	22.28	22±1
				1	24	0	22.77	22±1
				12	0	1	21.80	22±1
				12	6	1	21.91	22±1
				12	11	1	21.98	22±1
				25	0	1	21.87	22±1
			16QAM	1	0	1	21.79	21.3±1
				1	12	1	21.58	21.3±1
				1	24	1	22.12	21.3±1
				12	0	2	21.34	21.3±1
				12	6	2	21.26	21.3±1
				12	11	2	21.37	21.3±1
				25	0	2	20.98	21.3±1
	19175	1907.5	QPSK	1	0	0	21.76	22±1
				1	12	0	21.68	22±1
				1	24	0	21.57	22±1
				12	0	1	21.26	22±1
				12	6	1	21.29	22±1
				12	11	1	21.37	22±1
				25	0	1	21.22	22±1
			16QAM	1	0	1	20.91	21.3±1
				1	12	1	20.82	21.3±1
				1	24	1	20.97	21.3±1
				12	0	2	20.76	21.3±1
				12	6	2	20.74	21.3±1
				12	11	2	20.71	21.3±1
				25	0	2	20.43	21.3±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
3MHz	18625	1852.5	QPSK	1	0	0	23.12	23±1
				1	7	0	23.07	23±1
				1	14	0	23.07	23±1
				8	0	1	22.42	23±1
				8	4	1	22.40	23±1
				8	7	1	22.41	23±1
				15	0	1	22.39	23±1
			16QAM	1	0	1	22.08	22±1
				1	7	1	22.16	22±1
				1	14	1	22.20	22±1
				8	0	2	21.87	22±1
				8	4	2	21.84	22±1
				8	7	2	21.79	22±1
				15	0	2	21.25	22±1
	18900	1880.0	QPSK	1	0	0	22.59	22±1
				1	7	0	22.63	22±1
				1	14	0	22.74	22±1
				8	0	1	22.11	22±1
				8	4	1	22.13	22±1
				8	7	1	22.15	22±1
				15	0	1	22.18	22±1
			16QAM	1	0	1	21.91	22±1
				1	7	1	21.88	22±1
				1	14	1	22.00	22±1
				8	0	2	21.52	22±1
				8	4	2	21.48	22±1
				8	7	2	21.46	22±1
				15	0	2	21.14	22±1
	19175	1907.5	QPSK	1	0	0	22.03	22±1
				1	7	0	21.83	22±1
				1	14	0	21.57	22±1
				8	0	1	21.57	22±1
				8	4	1	21.54	22±1
				8	7	1	21.51	22±1
				15	0	1	21.54	22±1
			16QAM	1	0	1	21.52	21.3±1
				1	7	1	21.43	21.3±1
				1	14	1	21.26	21.3±1
				8	0	2	21.18	21.3±1
				8	4	2	21.15	21.3±1
				8	7	2	21.07	21.3±1
				15	0	2	20.79	21.3±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
1.4MHz	18607	1850.7	QPSK	1	0	0	23.45	23±1
				1	2	0	**23.52**	23±1
				1	5	0	23.44	23±1
				3	0	0	23.44	23±1
				3	1	0	23.43	23±1
				3	2	0	23.41	23±1
				6	0	1	22.39	23±1
			16QAM	1	0	1	22.21	22±1
				1	2	1	22.25	22±1
				1	5	1	22.19	22±1
				3	0	1	21.87	22±1
				3	1	1	21.85	22±1
				3	2	1	21.86	22±1
				6	0	2	21.32	22±1
	18900	1880.0	QPSK	1	0	0	23.23	23±1
				1	2	0	23.26	23±1
				1	5	0	23.25	23±1
				3	0	0	23.13	23±1
				3	1	0	23.16	23±1
				3	2	0	23.19	23±1
				6	0	1	22.23	23±1
			16QAM	1	0	1	22.11	22±1
				1	2	1	22.19	22±1
				1	5	1	22.15	22±1
				3	0	1	21.74	22±1
				3	1	1	21.73	22±1
				3	2	1	21.71	22±1
				6	0	2	21.02	22±1
	19193	1909.3	QPSK	1	0	0	22.47	22±1
				1	2	0	22.22	22±1
				1	5	0	22.12	22±1
				3	0	0	22.33	22±1
				3	1	0	22.25	22±1
				3	2	0	22.18	22±1
				6	0	1	21.62	22±1
			16QAM	1	0	1	21.33	21.3±1
				1	2	1	21.19	21.3±1
				1	5	1	21.20	21.3±1
				3	0	1	21.09	21.3±1
				3	1	1	21.04	21.3±1
				3	2	1	21.03	21.3±1
				6	0	2	20.78	21.3±1

LTE Band 4:

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	22.81	23±1
				1	49	0	22.69	23±1
				1	99	0	22.70	23±1
				50	0	1	22.81	23±1
				50	24	1	22.76	23±1
				50	49	1	22.71	23±1
				100	0	1	22.74	23±1
			16QAM	1	0	1	23.20	23±1
				1	49	1	23.04	23±1
				1	99	1	22.85	23±1
				50	0	2	22.79	23±1
				50	24	2	22.76	23±1
				50	49	2	22.75	23±1
				100	0	2	22.68	23±1
	20175	1732.5	QPSK	1	0	0	22.88	23±1
				1	49	0	22.46	23±1
				1	99	0	22.84	23±1
				50	0	1	22.70	23±1
				50	24	1	22.69	23±1
				50	49	1	22.61	23±1
				100	0	1	22.66	23±1
			16QAM	1	0	1	22.71	23±1
				1	49	1	22.31	23±1
				1	99	1	22.68	23±1
				50	0	2	22.65	23±1
				50	24	2	22.64	23±1
				50	49	2	22.61	23±1
				100	0	2	22.55	23±1
	20300	1745.0	QPSK	1	0	0	22.65	23±1
				1	49	0	22.53	23±1
				1	99	0	22.73	23±1
				50	0	1	22.69	23±1
				50	24	1	22.71	23±1
				50	49	1	22.75	23±1
				100	0	1	22.72	23±1
			16QAM	1	0	1	22.72	23±1
				1	49	1	22.68	23±1
				1	99	1	22.91	23±1
				50	0	2	22.78	23±1
				50	24	2	22.76	23±1
				50	49	2	22.75	23±1
				100	0	2	22.64	23±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	22.92	23±1
				1	37	0	22.83	23±1
				1	74	0	22.81	23±1
				36	0	1	22.92	23±1
				36	16	1	22.86	23±1
				36	35	1	22.83	23±1
				75	0	1	22.88	23±1
			16QAM	1	0	1	22.72	23±1
				1	37	1	22.63	23±1
				1	74	1	22.57	23±1
				36	0	2	22.48	23±1
				36	16	2	22.41	23±1
				36	35	2	22.38	23±1
				75	0	2	22.85	23±1
	20175	1732.5	QPSK	1	0	0	22.74	23±1
				1	37	0	22.40	23±1
				1	74	0	22.56	23±1
				36	0	1	22.75	23±1
				36	16	1	22.64	23±1
				36	35	1	22.53	23±1
				75	0	1	22.64	23±1
			16QAM	1	0	1	22.80	23±1
				1	37	1	22.47	23±1
				1	74	1	22.66	23±1
				36	0	2	22.54	23±1
				36	16	2	22.53	23±1
				36	35	2	22.57	23±1
				75	0	2	22.49	23±1
	20325	1747.5	QPSK	1	0	0	22.70	23±1
				1	37	0	22.69	23±1
				1	74	0	22.75	23±1
				36	0	1	22.82	23±1
				36	16	1	22.79	23±1
				36	35	1	22.75	23±1
				75	0	1	22.75	23±1
			16QAM	1	0	1	23.09	23±1
				1	37	1	23.15	23±1
				1	74	1	23.24	23±1
				36	0	2	22.95	23±1
				36	16	2	22.94	23±1
				36	35	2	22.91	23±1
				75	0	2	22.72	23±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	22.74	23±1
				1	24	0	22.70	23±1
				1	49	0	22.57	23±1
				25	0	1	22.84	23±1
				25	12	1	22.81	23±1
				25	24	1	22.76	23±1
				50	0	1	22.82	23±1
			16QAM	1	0	1	**23.32**	23±1
				1	24	1	23.28	23±1
				1	49	1	22.96	23±1
				25	0	2	22.97	23±1
				25	12	2	22.95	23±1
				25	24	2	22.98	23±1
				50	0	2	22.81	23±1
	20175	1732.5	QPSK	1	0	0	22.75	23±1
				1	24	0	22.53	23±1
				1	49	0	22.31	23±1
				25	0	1	22.69	23±1
				25	12	1	22.64	23±1
				25	24	1	22.58	23±1
				50	0	1	22.66	23±1
			16QAM	1	0	1	22.57	23±1
				1	24	1	22.27	23±1
				1	49	1	22.07	23±1
				25	0	2	22.18	23±1
				25	12	2	22.16	23±1
				25	24	2	22.11	23±1
				50	0	2	22.53	23±1
	20350	1750.0	QPSK	1	0	0	22.85	23±1
				1	24	0	22.72	23±1
				1	49	0	22.71	23±1
				25	0	1	22.76	23±1
				25	12	1	22.75	23±1
				25	24	1	22.77	23±1
				50	0	1	22.77	23±1
			16QAM	1	0	1	22.65	23±1
				1	24	1	22.53	23±1
				1	49	1	22.58	23±1
				25	0	2	22.46	23±1
				25	12	2	22.48	23±1
				25	24	2	22.45	23±1
				50	0	2	22.75	23±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	22.86	23±1
				1	12	0	22.84	23±1
				1	24	0	22.78	23±1
				12	0	1	22.89	23±1
				12	6	1	22.86	23±1
				12	11	1	22.84	23±1
				25	0	1	22.85	23±1
			16QAM	1	0	1	23.20	23±1
				1	12	1	23.17	23±1
				1	24	1	23.14	23±1
				12	0	2	22.85	23±1
				12	6	2	22.83	23±1
				12	11	2	22.82	23±1
				25	0	2	22.79	23±1
	20175	1732.5	QPSK	1	0	0	22.70	23±1
				1	12	0	22.38	23±1
				1	24	0	22.62	23±1
				12	0	1	22.74	23±1
				12	6	1	22.68	23±1
				12	11	1	22.65	23±1
				25	0	1	22.64	23±1
			16QAM	1	0	1	22.68	23±1
				1	12	1	22.39	23±1
				1	24	1	22.58	23±1
				12	0	2	22.48	23±1
				12	6	2	22.49	23±1
				12	11	2	22.46	23±1
				25	0	2	22.56	23±1
	20350	1750.0	QPSK	1	0	0	22.81	23±1
				1	12	0	22.72	23±1
				1	24	0	22.79	23±1
				12	0	1	22.83	23±1
				12	6	1	22.81	23±1
				12	11	1	22.82	23±1
				25	0	1	22.78	23±1
			16QAM	1	0	1	22.69	23±1
				1	12	1	22.59	23±1
				1	24	1	22.72	23±1
				12	0	2	22.68	23±1
				12	6	2	22.64	23±1
				12	11	2	22.67	23±1
				25	0	2	22.78	23±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	22.85	23±1
				1	7	0	22.88	23±1
				1	14	0	22.85	23±1
				8	0	1	22.86	23±1
				8	4	1	22.84	23±1
				8	7	1	22.83	23±1
				15	0	1	22.84	23±1
			16QAM	1	0	1	22.65	23±1
				1	7	1	22.67	23±1
				1	14	1	22.66	23±1
				8	0	2	22.71	23±1
				8	4	2	22.73	23±1
				8	7	2	22.74	23±1
				15	0	2	22.74	23±1
	20175	1732.5	QPSK	1	0	0	22.73	23±1
				1	7	0	22.73	23±1
				1	14	0	22.72	23±1
				8	0	1	22.65	23±1
				8	4	1	22.63	23±1
				8	7	1	22.64	23±1
				15	0	1	22.67	23±1
			16QAM	1	0	1	22.60	23±1
				1	7	1	22.59	23±1
				1	14	1	22.56	23±1
				8	0	2	22.48	23±1
				8	4	2	22.46	23±1
				8	7	2	22.47	23±1
				15	0	2	22.57	23±1
	20385	1753.5	QPSK	1	0	0	22.64	23±1
				1	7	0	22.69	23±1
				1	14	0	22.65	23±1
				8	0	1	22.79	23±1
				8	4	1	22.80	23±1
				8	7	1	22.81	23±1
				15	0	1	22.81	23±1
			16QAM	1	0	1	23.19	23±1
				1	7	1	23.18	23±1
				1	14	1	23.13	23±1
				8	0	2	22.94	23±1
				8	4	2	22.95	23±1
				8	7	2	22.97	23±1
				15	0	2	22.83	23±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	22.85	22±1
				1	2	0	22.85	22±1
				1	5	0	22.88	22±1
				3	0	0	22.96	22±1
				3	1	0	22.94	22±1
				3	2	0	22.91	22±1
				6	0	1	22.84	22±1
			16QAM	1	0	1	22.66	22±1
				1	2	1	22.65	22±1
				1	5	1	22.69	22±1
				3	0	1	22.74	22±1
				3	1	1	22.73	22±1
				3	2	1	22.71	22±1
				6	0	2	22.80	22±1
	20175	1732.5	QPSK	1	0	0	22.75	22±1
				1	2	0	22.73	22±1
				1	5	0	22.75	22±1
				3	0	0	22.65	22±1
				3	1	0	22.64	22±1
				3	2	0	22.66	22±1
				6	0	1	22.76	22±1
			16QAM	1	0	1	22.59	22±1
				1	2	1	22.61	22±1
				1	5	1	22.64	22±1
				3	0	1	22.57	22±1
				3	1	1	22.54	22±1
				3	2	1	22.53	22±1
				6	0	2	22.49	22±1
	20393	1754.3	QPSK	1	0	0	22.74	22±1
				1	2	0	22.73	22±1
				1	5	0	22.76	22±1
				3	0	0	22.89	22±1
				3	1	0	22.87	22±1
				3	2	0	22.85	22±1
				6	0	1	22.83	22±1
			16QAM	1	0	1	22.41	22±1
				1	2	1	22.42	22±1
				1	5	1	22.43	22±1
				3	0	1	22.56	22±1
				3	1	1	22.51	22±1
				3	2	1	22.53	22±1
				6	0	2	22.67	22±1

LTE Band 5:

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	23.10	23±1
				1	24	0	23.03	23±1
				1	49	0	23.02	23±1
				25	0	1	22.16	23±1
				25	12	1	22.17	23±1
				25	24	1	22.20	23±1
				50	0	1	22.24	23±1
			16QAM	1	0	1	22.67	22±1
				1	24	1	22.59	22±1
				1	49	1	22.82	22±1
				25	0	2	21.89	22±1
				25	12	2	21.87	22±1
				25	24	2	21.86	22±1
				50	0	2	21.36	22±1
	20525	836.5	QPSK	1	0	0	23.24	23±1
				1	24	0	23.31	23±1
				1	49	0	23.49	23±1
				25	0	1	22.34	23±1
				25	12	1	22.38	23±1
				25	24	1	22.45	23±1
				50	0	1	22.45	23±1
			16QAM	1	0	1	22.13	22±1
				1	24	1	22.24	22±1
				1	49	1	22.31	22±1
				25	0	2	21.84	22±1
				25	12	2	21.79	22±1
				25	24	2	21.76	22±1
				50	0	2	21.58	22±1
	20600	844	QPSK	1	0	0	23.47	23±1
				1	24	0	23.02	23±1
				1	49	0	23.28	23±1
				25	0	1	22.47	23±1
				25	12	1	22.45	23±1
				25	24	1	22.41	23±1
				50	0	1	22.50	23±1
			16QAM	1	0	1	22.45	22±1
				1	24	1	21.98	22±1
				1	49	1	22.32	22±1
				25	0	2	21.76	22±1
				25	12	2	21.78	22±1
				25	24	2	21.79	22±1
				50	0	2	21.61	22±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	23.16	23±1
				1	12	0	23.07	23±1
				1	24	0	23.11	23±1
				12	0	1	22.19	23±1
				12	6	1	22.18	23±1
				12	11	1	22.16	23±1
				25	0	1	22.15	23±1
			16QAM	1	0	1	22.55	22±1
				1	12	1	22.50	22±1
				1	24	1	22.47	22±1
				12	0	2	21.76	22±1
				12	6	2	21.74	22±1
				12	11	2	21.73	22±1
				25	0	2	21.21	22±1
	20525	836.5	QPSK	1	0	0	23.15	23±1
				1	12	0	23.25	23±1
				1	24	0	23.27	23±1
				12	0	1	22.37	23±1
				12	6	1	22.39	23±1
				12	11	1	22.42	23±1
				25	0	1	22.37	23±1
			16QAM	1	0	1	22.33	22±1
				1	12	1	22.39	22±1
				1	24	1	22.41	22±1
				12	0	2	22.10	22±1
				12	6	2	22.08	22±1
				12	11	2	22.06	22±1
				25	0	2	21.53	22±1
	20625	846.5	QPSK	1	0	0	23.45	23±1
				1	12	0	23.31	23±1
				1	24	0	23.22	23±1
				12	0	1	22.36	23±1
				12	6	1	22.43	23±1
				12	11	1	22.46	23±1
				25	0	1	22.43	23±1
			16QAM	1	0	1	22.40	22±1
				1	12	1	22.43	22±1
				1	24	1	22.29	22±1
				12	0	2	22.25	22±1
				12	6	2	22.23	22±1
				12	11	2	22.29	22±1
				25	0	2	21.62	22±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	23.18	23±1
				1	7	0	23.20	23±1
				1	14	0	23.16	23±1
				8	0	1	22.07	23±1
				8	4	1	22.05	23±1
				8	7	1	22.15	23±1
				15	0	1	22.16	23±1
			16QAM	1	0	1	22.03	22±1
				1	7	1	21.99	22±1
				1	14	1	21.94	22±1
				8	0	2	21.75	22±1
				8	4	2	21.72	22±1
				8	7	2	21.73	22±1
				15	0	2	21.16	22±1
	20525	836.5	QPSK	1	0	0	23.19	23±1
				1	7	0	23.29	23±1
				1	14	0	23.27	23±1
				8	0	1	22.36	23±1
				8	4	1	22.35	23±1
				8	7	1	22.37	23±1
				15	0	1	22.35	23±1
			16QAM	1	0	1	22.31	22±1
				1	7	1	22.34	22±1
				1	14	1	22.35	22±1
				8	0	2	21.88	22±1
				8	4	2	21.85	22±1
				8	7	2	21.84	22±1
				15	0	2	21.49	22±1
	20635	847.5	QPSK	1	0	0	23.24	23±1
				1	7	0	23.19	23±1
				1	14	0	23.08	23±1
				8	0	1	22.43	23±1
				8	4	1	22.41	23±1
				8	7	1	22.39	23±1
				15	0	1	22.43	23±1
			16QAM	1	0	1	22.90	22±1
				1	7	1	22.92	22±1
				1	14	1	22.78	22±1
				8	0	2	21.85	22±1
				8	4	2	21.83	22±1
				8	7	2	21.86	22±1
				15	0	2	21.68	22±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	23.18	23±1
				1	2	0	23.17	23±1
				1	5	0	23.19	23±1
				3	0	0	23.33	23±1
				3	1	0	23.29	23±1
				3	2	0	23.25	23±1
				6	0	1	22.11	23±1
			16QAM	1	0	1	22.03	22±1
				1	2	1	21.98	22±1
				1	5	1	21.99	22±1
				3	0	1	21.64	22±1
				3	1	1	21.63	22±1
				3	2	1	21.67	22±1
				6	0	2	21.14	22±1
	20525	836.5	QPSK	1	0	0	23.23	23±1
				1	2	0	23.22	23±1
				1	5	0	23.29	23±1
				3	0	0	23.44	23±1
				3	1	0	23.45	23±1
				3	2	0	23.48	23±1
				6	0	1	22.17	23±1
			16QAM	1	0	1	22.30	22±1
				1	2	1	22.32	22±1
				1	5	1	22.38	22±1
				3	0	1	21.45	22±1
				3	1	1	21.48	22±1
				3	2	1	21.47	22±1
				6	0	2	21.19	22±1
	20643	848.3	QPSK	1	0	0	23.21	23±1
				1	2	0	23.16	23±1
				1	5	0	23.17	23±1
				3	0	0	**23.57**	23±1
				3	1	0	23.51	23±1
				3	2	0	23.46	23±1
				6	0	1	22.23	23±1
			16QAM	1	0	1	21.99	22±1
				1	2	1	21.95	22±1
				1	5	1	21.93	22±1
				3	0	1	21.53	22±1
				3	1	1	21.52	22±1
				3	2	1	21.56	22±1
				6	0	2	21.32	22±1

LTE Band 7:

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	21.92	21.3±1
				1	49	0	21.76	21.3±1
				1	99	0	21.67	21.3±1
				50	0	1	20.84	21.3±1
				50	24	1	20.79	21.3±1
				50	49	1	20.77	21.3±1
				100	0	1	20.80	21.3±1
			16QAM	1	0	1	21.14	21.3±1
				1	49	1	21.03	21.3±1
				1	99	1	21.02	21.3±1
				50	0	2	20.46	21.3±1
				50	24	2	20.48	21.3±1
				50	49	2	20.43	21.3±1
				100	0	2	20.32	21.3±1
	21100	2535	QPSK	1	0	0	21.83	21.3±1
				1	49	0	21.75	21.3±1
				1	99	0	21.80	21.3±1
				50	0	1	20.67	21.3±1
				50	24	1	20.59	21.3±1
				50	49	1	20.52	21.3±1
				100	0	1	20.56	21.3±1
			16QAM	1	0	1	20.67	21.3±1
				1	49	1	20.50	21.3±1
				1	99	1	20.47	21.3±1
				50	0	2	20.41	21.3±1
				50	24	2	20.39	21.3±1
				50	49	2	20.37	21.3±1
				100	0	2	20.34	21.3±1
	21350	2560	QPSK	1	0	0	21.53	21.3±1
				1	49	0	21.01	21.3±1
				1	99	0	21.13	21.3±1
				50	0	1	20.42	21.3±1
				50	24	1	20.39	21.3±1
				50	49	1	20.37	21.3±1
				100	0	1	20.36	21.3±1
			16QAM	1	0	1	20.57	21.3±1
				1	49	1	20.35	21.3±1
				1	99	1	20.34	21.3±1
				50	0	2	20.36	21.3±1
				50	24	2	20.35	21.3±1
				50	49	2	20.32	21.3±1
				100	0	2	20.31	21.3±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	21.98	21.3±1
				1	37	0	21.73	21.3±1
				1	74	0	21.71	21.3±1
				36	0	1	21.04	21.3±1
				36	16	1	21.01	21.3±1
				36	35	1	20.95	21.3±1
				75	0	1	20.98	21.3±1
			16QAM	1	0	1	20.71	21.3±1
				1	37	1	20.66	21.3±1
				1	74	1	20.58	21.3±1
				36	0	2	20.49	21.3±1
				36	16	2	20.45	21.3±1
				36	35	2	20.37	21.3±1
				75	0	2	20.32	21.3±1
	21100	1732.5	QPSK	1	0	0	21.73	21.3±1
				1	37	0	21.77	21.3±1
				1	74	0	21.82	21.3±1
				36	0	1	20.79	21.3±1
				36	16	1	20.77	21.3±1
				36	35	1	20.78	21.3±1
				75	0	1	20.78	21.3±1
			16QAM	1	0	1	20.77	21.3±1
				1	37	1	20.65	21.3±1
				1	74	1	20.60	21.3±1
				36	0	2	20.57	21.3±1
				36	16	2	20.46	21.3±1
				36	35	2	20.38	21.3±1
				75	0	2	20.34	21.3±1
	21375	1747.5	QPSK	1	0	0	21.48	21.3±1
				1	37	0	21.33	21.3±1
				1	74	0	21.20	21.3±1
				36	0	1	20.55	21.3±1
				36	16	1	20.46	21.3±1
				36	35	1	20.39	21.3±1
				75	0	1	20.48	21.3±1
			16QAM	1	0	1	20.73	21.3±1
				1	37	1	20.60	21.3±1
				1	74	1	20.57	21.3±1
				36	0	2	20.46	21.3±1
				36	16	2	20.43	21.3±1
				36	35	2	20.38	21.3±1
				75	0	2	20.35	21.3±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	**22.02**	21.3±1
				1	24	0	21.88	21.3±1
				1	49	0	21.65	21.3±1
				25	0	1	20.86	21.3±1
				25	12	1	20.84	21.3±1
				25	24	1	20.83	21.3±1
				50	0	1	20.82	21.3±1
			16QAM	1	0	1	20.67	21.3±1
				1	24	1	20.62	21.3±1
				1	49	1	20.61	21.3±1
				25	0	2	20.52	21.3±1
				25	12	2	20.53	21.3±1
				25	24	2	20.48	21.3±1
				50	0	2	20.36	21.3±1
	21100	2535	QPSK	1	0	0	21.79	21.3±1
				1	24	0	21.72	21.3±1
				1	49	0	21.79	21.3±1
				25	0	1	20.60	21.3±1
				25	12	1	20.58	21.3±1
				25	24	1	20.55	21.3±1
				50	0	1	20.56	21.3±1
			16QAM	1	0	1	20.62	21.3±1
				1	24	1	20.46	21.3±1
				1	49	1	20.51	21.3±1
				25	0	2	20.47	21.3±1
				25	12	2	20.43	21.3±1
				25	24	2	20.36	21.3±1
				50	0	2	20.31	21.3±1
	21400	2565	QPSK	1	0	0	20.88	21.3±1
				1	24	0	21.22	21.3±1
				1	49	0	21.18	21.3±1
				25	0	1	20.33	21.3±1
				25	12	1	20.35	21.3±1
				25	24	1	20.34	21.3±1
				50	0	1	20.31	21.3±1
			16QAM	1	0	1	20.67	21.3±1
				1	24	1	20.56	21.3±1
				1	49	1	20.51	21.3±1
				25	0	2	20.47	21.3±1
				25	12	2	20.43	21.3±1
				25	24	2	20.38	21.3±1
				50	0	2	20.32	21.3±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	21.90	21.3±1
				1	12	0	21.87	21.3±1
				1	24	0	21.78	21.3±1
				12	0	1	20.87	21.3±1
				12	6	1	20.85	21.3±1
				12	11	1	20.84	21.3±1
				25	0	1	20.82	21.3±1
			16QAM	1	0	1	21.10	21.3±1
				1	12	1	21.08	21.3±1
				1	24	1	21.00	21.3±1
				12	0	2	20.89	21.3±1
				12	6	2	20.76	21.3±1
				12	11	2	20.59	21.3±1
				25	0	2	20.33	21.3±1
	20175	1732.5	QPSK	1	0	0	21.64	21.3±1
				1	12	0	21.67	21.3±1
				1	24	0	21.63	21.3±1
				12	0	1	20.63	21.3±1
				12	6	1	20.61	21.3±1
				12	11	1	20.60	21.3±1
				25	0	1	20.55	21.3±1
			16QAM	1	0	1	20.56	21.3±1
				1	12	1	20.52	21.3±1
				1	24	1	20.47	21.3±1
				12	0	2	20.42	21.3±1
				12	6	2	20.39	21.3±1
				12	11	2	20.35	21.3±1
				25	0	2	20.34	21.3±1
	20375	1752.5	QPSK	1	0	0	21.27	21.3±1
				1	12	0	21.23	21.3±1
				1	24	0	21.12	21.3±1
				12	0	1	20.31	21.3±1
				12	6	1	20.34	21.3±1
				12	11	1	20.36	21.3±1
				25	0	1	20.33	21.3±1
			16QAM	1	0	1	20.36	21.3±1
				1	12	1	20.35	21.3±1
				1	24	1	20.34	21.3±1
				12	0	2	20.35	21.3±1
				12	6	2	20.33	21.3±1
				12	11	2	20.32	21.3±1
				25	0	2	20.31	21.3±1

LTE Band 17:

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	**23.97**	23±1
				1	24	0	23.86	23±1
				1	49	0	23.75	23±1
				25	0	1	22.88	23±1
				25	12	1	22.86	23±1
				25	24	1	22.85	23±1
				50	0	1	22.90	23±1
			16QAM	1	0	1	22.80	22±1
				1	24	1	22.69	22±1
				1	49	1	22.72	22±1
				25	0	2	22.48	22±1
				25	12	2	22.46	22±1
				25	24	2	22.42	22±1
				50	0	2	21.96	22±1
	23790	701.0	QPSK	1	0	0	23.87	23±1
				1	24	0	23.80	23±1
				1	49	0	23.48	23±1
				25	0	1	22.85	23±1
				25	12	1	22.86	23±1
				25	24	1	22.87	23±1
				50	0	1	22.90	23±1
			16QAM	1	0	1	22.86	22±1
				1	24	1	22.74	22±1
				1	49	1	22.64	22±1
				25	0	2	22.47	22±1
				25	12	2	22.45	22±1
				25	24	2	22.42	22±1
				50	0	2	21.96	22±1
	23800	711.0	QPSK	1	0	0	23.76	23±1
				1	24	0	23.71	23±1
				1	49	0	23.40	23±1
				25	0	1	22.87	23±1
				25	12	1	22.88	23±1
				25	24	1	22.89	23±1
				50	0	1	22.91	23±1
			16QAM	1	0	1	23.34	22.5±1
				1	24	1	23.35	22.5±1
				1	49	1	23.13	22.5±1
				25	0	2	22.86	22.5±1
				25	12	2	22.85	22.5±1
				25	24	2	22.87	22.5±1
				50	0	2	21.98	22.5±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	23.91	23±1
				1	12	0	23.80	23±1
				1	24	0	23.75	23±1
				12	0	1	22.94	23±1
				12	6	1	22.86	23±1
				12	11	1	22.84	23±1
				25	0	1	22.87	23±1
			16QAM	1	0	1	23.35	22.5±1
				1	12	1	23.21	22.5±1
				1	24	1	23.16	22.5±1
				12	0	2	22.86	22.5±1
				12	6	2	22.84	22.5±1
				12	11	2	22.87	22.5±1
				25	0	2	21.89	22.5±1
	23790	710.0	QPSK	1	0	0	23.73	23±1
				1	12	0	23.76	23±1
				1	24	0	23.72	23±1
				12	0	1	22.86	23±1
				12	6	1	22.87	23±1
				12	11	1	22.88	23±1
				25	0	1	22.85	23±1
			16QAM	1	0	1	22.79	22±1
				1	12	1	22.87	22±1
				1	24	1	22.83	22±1
				12	0	2	22.64	22±1
				12	6	2	22.62	22±1
				12	11	2	22.59	22±1
				25	0	2	21.95	22±1
	23825	713.5	QPSK	1	0	0	23.84	23±1
				1	12	0	23.79	23±1
				1	24	0	23.67	23±1
				12	0	1	22.91	23±1
				12	6	1	22.84	23±1
				12	11	1	22.73	23±1
				25	0	1	22.85	23±1
			16QAM	1	0	1	22.86	22±1
				1	12	1	22.85	22±1
				1	24	1	22.79	22±1
				12	0	2	22.46	22±1
				12	6	2	22.43	22±1
				12	11	2	22.41	22±1
				25	0	2	21.97	22±1

ERP & EIRP

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	19.56	V	7.88	0.85	26.59	33.01
1880	1.4	QPSK	1/0	19.62	V	7.88	0.85	26.65	33.01
1909.3	1.4	QPSK	1/0	19.65	V	7.88	0.85	**26.68**	33.01
1850.7	1.4	QPSK	1/0	18.73	H	7.88	0.85	25.76	33.01
1880	1.4	QPSK	1/0	18.77	H	7.88	0.85	25.80	33.01
1909.3	1.4	QPSK	1/0	18.81	H	7.88	0.85	25.84	33.01
1850.7	1.4	16-QAM	1/0	18.51	V	7.88	0.85	25.54	33.01
1880	1.4	16-QAM	1/0	18.56	V	7.88	0.85	25.59	33.01
1909.3	1.4	16-QAM	1/0	18.57	V	7.88	0.85	25.60	33.01
1850.7	1.4	16-QAM	1/0	17.64	H	7.88	0.85	24.67	33.01
1880	1.4	16-QAM	1/0	17.67	H	7.88	0.85	24.70	33.01
1909.3	1.4	16-QAM	1/0	17.72	H	7.88	0.85	24.75	33.01
1851.5	3	QPSK	1/0	19.43	V	7.88	0.85	26.46	33.01
1880	3	QPSK	1/0	19.38	V	7.88	0.85	26.41	33.01
1908.5	3	QPSK	1/0	19.41	V	7.88	0.85	26.44	33.01
1851.5	3	QPSK	1/0	18.62	H	7.88	0.85	25.65	33.01
1880	3	QPSK	1/0	18.59	H	7.88	0.85	25.62	33.01
1908.5	3	QPSK	1/0	18.67	H	7.88	0.85	25.70	33.01
1851.5	3	16-QAM	1/0	18.37	V	7.88	0.85	25.40	33.01
1880	3	16-QAM	1/0	18.33	V	7.88	0.85	25.36	33.01
1908.5	3	16-QAM	1/0	18.42	V	7.88	0.85	25.45	33.01
1851.5	3	16-QAM	1/0	17.59	H	7.88	0.85	24.62	33.01
1880	3	16-QAM	1/0	17.62	H	7.88	0.85	24.65	33.01
1908.5	3	16-QAM	1/0	17.63	H	7.88	0.85	24.66	33.01
1852.5	5	QPSK	1/24	19.12	V	7.88	0.85	26.15	33.01
1880	5	QPSK	1/0	19.15	V	7.88	0.85	26.18	33.01
1907.5	5	QPSK	1/24	19.08	V	7.88	0.85	26.11	33.01
1852.5	5	QPSK	1/24	18.43	H	7.88	0.85	25.46	33.01
1880	5	QPSK	1/0	18.41	H	7.88	0.85	25.44	33.01
1907.5	5	QPSK	1/24	18.37	H	7.88	0.85	25.40	33.01
1852.5	5	16-QAM	1/24	18.26	V	7.88	0.85	25.29	33.01
1880	5	16-QAM	1/0	18.22	V	7.88	0.85	25.25	33.01

1907.5	5	16-QAM	1/24	18.17	V	7.88	0.85	25.20	33.01
1852.5	5	16-QAM	1/24	17.43	H	7.88	0.85	24.46	33.01
1880	5	16-QAM	1/0	17.39	H	7.88	0.85	24.42	33.01
1907.5	5	16-QAM	1/24	17.42	H	7.88	0.85	24.45	33.01
1855	10	QPSK	1/0	18.93	V	7.88	0.85	25.96	33.01
1880	10	QPSK	1/0	18.88	V	7.88	0.85	25.91	33.01
1905	10	QPSK	1/49	18.91	V	7.88	0.85	25.94	33.01
1855	10	QPSK	1/0	18.05	H	7.88	0.85	25.08	33.01
1880	10	QPSK	1/0	18.11	H	7.88	0.85	25.14	33.01
1905	10	QPSK	1/49	18.14	H	7.88	0.85	25.17	33.01
1855	10	16-QAM	1/0	17.83	V	7.88	0.85	24.86	33.01
1880	10	16-QAM	1/0	17.79	V	7.88	0.85	24.82	33.01
1905	10	16-QAM	1/49	17.82	V	7.88	0.85	24.85	33.01
1855	10	16-QAM	1/0	16.94	H	7.88	0.85	23.97	33.01
1880	10	16-QAM	1/0	16.89	H	7.88	0.85	23.92	33.01
1905	10	16-QAM	1/49	16.93	H	7.88	0.85	23.96	33.01
1857.5	15	QPSK	1/0	19.52	V	7.88	0.85	26.55	33.01
1880	15	QPSK	1/0	19.47	V	7.88	0.85	26.50	33.01
1902.5	15	QPSK	1/0	19.55	V	7.88	0.85	26.58	33.01
1857.5	15	QPSK	1/0	18.79	H	7.88	0.85	25.82	33.01
1880	15	QPSK	1/0	18.82	H	7.88	0.85	25.85	33.01
1902.5	15	QPSK	1/0	17.85	H	7.88	0.85	24.88	33.01
1857.5	15	16-QAM	1/0	18.46	V	7.88	0.85	25.49	33.01
1880	15	16-QAM	1/0	18.41	V	7.88	0.85	25.44	33.01
1902.5	15	16-QAM	1/0	18.39	V	7.88	0.85	25.42	33.01
1857.5	15	16-QAM	1/0	17.68	H	7.88	0.85	24.71	33.01
1880	15	16-QAM	1/0	17.62	H	7.88	0.85	24.65	33.01
1902.5	15	16-QAM	1/0	17.69	H	7.88	0.85	24.72	33.01
1860	20	QPSK	1/0	19.21	V	7.88	0.85	26.24	33.01
1880	20	QPSK	1/0	19.16	V	7.88	0.85	26.19	33.01
1900	20	QPSK	1/0	19.17	V	7.88	0.85	26.20	33.01
1860	20	QPSK	1/0	18.43	H	7.88	0.85	25.46	33.01
1880	20	QPSK	1/0	18.39	H	7.88	0.85	25.42	33.01
1900	20	QPSK	1/0	18.42	H	7.88	0.85	25.45	33.01
1860	20	16-QAM	1/0	18.19	V	7.88	0.85	25.22	33.01
1880	20	16-QAM	1/0	18.24	V	7.88	0.85	25.27	33.01
1900	20	16-QAM	1/0	18.22	V	7.88	0.85	25.25	33.01
1860	20	16-QAM	1/0	17.43	H	7.88	0.85	24.46	33.01

1880	20	16-QAM	1/0	17.48	H	7.88	0.85	24.51	33.01
1900	20	16-QAM	1/0	17.51	H	7.88	0.85	24.54	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	18.93	V	7.95	0.79	26.09	30
1732.5	1.4	QPSK	1/0	18.87	V	7.95	0.79	26.03	30
1754.3	1.4	QPSK	1/0	18.91	V	7.95	0.79	26.07	30
1710.7	1.4	QPSK	1/0	17.76	H	7.95	0.79	24.92	30
1732.5	1.4	QPSK	1/0	17.82	H	7.95	0.79	24.98	30
1754.3	1.4	QPSK	1/0	17.79	H	7.95	0.79	24.95	30
1710.7	1.4	16-QAM	1/5	18.03	V	7.95	0.79	25.19	30
1732.5	1.4	16-QAM	1/0	18.07	V	7.95	0.79	25.23	30
1754.3	1.4	16-QAM	1/0	18.01	V	7.95	0.79	25.17	30
1710.7	1.4	16-QAM	1/5	17.16	H	7.95	0.79	24.32	30
1732.5	1.4	16-QAM	1/0	17.12	H	7.95	0.79	24.28	30
1754.3	1.4	16-QAM	1/0	17.09	H	7.95	0.79	24.25	30
1711.5	3	QPSK	1/0	19.12	V	7.95	0.79	26.28	30
1732.5	3	QPSK	1/0	19.08	V	7.95	0.79	26.24	30
1753.5	3	QPSK	1/0	19.05	V	7.95	0.79	26.21	30
1711.5	3	QPSK	1/0	18.29	H	7.95	0.79	25.45	30
1732.5	3	QPSK	1/0	18.22	H	7.95	0.79	25.38	30
1753.5	3	QPSK	1/0	18.23	H	7.95	0.79	25.39	30
1711.5	3	16-QAM	1/0	18.06	V	7.95	0.79	25.22	30
1732.5	3	16-QAM	1/0	18.11	V	7.95	0.79	25.27	30
1753.5	3	16-QAM	1/0	18.08	V	7.95	0.79	25.24	30
1711.5	3	16-QAM	1/0	17.24	H	7.95	0.79	24.40	30
1732.5	3	16-QAM	1/0	17.19	H	7.95	0.79	24.35	30
1753.5	3	16-QAM	1/0	17.21	H	7.95	0.79	24.37	30
1712.5	5	QPSK	1/0	19.15	V	7.95	0.79	26.31	30
1732.5	5	QPSK	1/0	19.12	V	7.95	0.79	26.28	30
1752.5	5	QPSK	1/24	19.08	V	7.95	0.79	26.24	30
1712.5	5	QPSK	1/0	18.26	H	7.95	0.79	25.42	30
1732.5	5	QPSK	1/0	18.21	H	7.95	0.79	25.37	30
1752.5	5	QPSK	1/24	18.17	H	7.95	0.79	25.33	30
1712.5	5	16-QAM	1/0	18.09	V	7.95	0.79	25.25	30
1732.5	5	16-QAM	1/0	18.05	V	7.95	0.79	25.21	30
1752.5	5	16-QAM	1/24	18.04	V	7.95	0.79	25.20	30

1712.5	5	16-QAM	1/0	17.15	H	7.95	0.79	24.31	30
1732.5	5	16-QAM	1/0	17.18	H	7.95	0.79	24.34	30
1752.5	5	16-QAM	1/24	17.14	H	7.95	0.79	24.30	30
1715	10	QPSK	1/0	19.06	V	7.95	0.79	26.22	30
1732.5	10	QPSK	1/49	19.02	V	7.95	0.79	26.18	30
1750	10	QPSK	1/0	18.97	V	7.95	0.79	26.13	30
1715	10	QPSK	1/0	18.23	H	7.95	0.79	25.39	30
1732.5	10	QPSK	1/49	18.18	H	7.95	0.79	25.34	30
1750	10	QPSK	1/0	18.21	H	7.95	0.79	25.37	30
1715	10	16-QAM	1/0	18.14	V	7.95	0.79	25.30	30
1732.5	10	16-QAM	1/49	18.11	V	7.95	0.79	25.27	30
1750	10	16-QAM	1/0	18.09	V	7.95	0.79	25.25	30
1715	10	16-QAM	1/0	17.28	H	7.95	0.79	24.44	30
1732.5	10	16-QAM	1/49	17.23	H	7.95	0.79	24.39	30
1750	10	16-QAM	1/0	17.21	H	7.95	0.79	24.37	30
1717.5	15	QPSK	1/0	19.15	V	7.95	0.79	26.31	30
1732.5	15	QPSK	1/74	19.11	V	7.95	0.79	26.27	30
1747.5	15	QPSK	1/0	19.17	V	7.95	0.79	26.33	30
1717.5	15	QPSK	1/0	18.24	H	7.95	0.79	25.40	30
1732.5	15	QPSK	1/74	18.29	H	7.95	0.79	25.45	30
1747.5	15	QPSK	1/0	18.27	H	7.95	0.79	25.43	30
1717.5	15	16-QAM	1/0	18.21	V	7.95	0.79	25.37	30
1732.5	15	16-QAM	1/74	18.17	V	7.95	0.79	25.33	30
1747.5	15	16-QAM	1/0	18.22	V	7.95	0.79	25.38	30
1717.5	15	16-QAM	1/0	17.38	H	7.95	0.79	24.54	30
1732.5	15	16-QAM	1/74	17.42	H	7.95	0.79	24.58	30
1747.5	15	16-QAM	1/0	17.35	H	7.95	0.79	24.51	30
1720	20	QPSK	1/99	19.24	V	7.95	0.79	**26.40**	30
1732.5	20	QPSK	1/99	19.18	V	7.95	0.79	26.34	30
1745	20	QPSK	1/0	19.21	V	7.95	0.79	26.37	30
1720	20	QPSK	1/99	18.43	H	7.95	0.79	25.59	30
1732.5	20	QPSK	1/99	18.37	H	7.95	0.79	25.53	30
1745	20	QPSK	1/0	18.41	H	7.95	0.79	25.57	30
1720	20	16-QAM	1/99	18.16	V	7.95	0.79	25.32	30
1732.5	20	16-QAM	1/99	18.11	V	7.95	0.79	25.27	30
1745	20	16-QAM	1/0	18.15	V	7.95	0.79	25.31	30
1720	20	16-QAM	1/99	17.39	H	7.95	0.79	24.55	30
1732.5	20	16-QAM	1/99	17.36	H	7.95	0.79	24.52	30

1745	20	16-QAM	1/0	17.41	H	7.95	0.79	24.57	30

EIRP for LTE Band 5 (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	18.15	V	6.8	0.44	24.51	34.77
836.5	1.4	QPSK	1/5	18.11	V	6.8	0.44	24.47	34.77
848.3	1.4	QPSK	1/5	18.07	V	6.9	0.44	24.53	34.77
824.7	1.4	QPSK	1/5	17.24	H	6.8	0.44	23.60	34.77
836.5	1.4	QPSK	1/5	17.19	H	6.8	0.44	23.55	34.77
848.3	1.4	QPSK	1/5	17.21	H	6.9	0.44	23.67	34.77
824.7	1.4	16-QAM	1/5	17.05	V	6.8	0.44	23.41	34.77
836.5	1.4	16-QAM	1/5	17.12	V	6.8	0.44	23.48	34.77
848.3	1.4	16-QAM	1/5	17.09	V	6.9	0.44	23.55	34.77
824.7	1.4	16-QAM	1/5	16.34	H	6.8	0.44	22.70	34.77
836.5	1.4	16-QAM	1/5	16.28	H	6.8	0.44	22.64	34.77
848.3	1.4	16-QAM	1/5	16.31	H	6.9	0.44	22.77	34.77
825.5	3	QPSK	1/14	18.22	V	6.8	0.44	24.58	34.77
836.5	3	QPSK	1/0	18.25	V	6.8	0.44	24.61	34.77
847.5	3	QPSK	1/14	18.23	V	6.9	0.44	**24.69**	34.77
825.5	3	QPSK	1/14	17.43	H	6.8	0.44	23.79	34.77
836.5	3	QPSK	1/0	17.38	H	6.8	0.44	23.74	34.77
847.5	3	QPSK	1/14	17.35	H	6.9	0.44	23.81	34.77
825.5	3	16-QAM	1/14	17.14	V	6.8	0.44	23.50	34.77
836.5	3	16-QAM	1/0	17.19	V	6.8	0.44	23.55	34.77
847.5	3	16-QAM	1/14	17.11	V	6.9	0.44	23.57	34.77
825.5	3	16-QAM	1/14	16.35	H	6.8	0.44	22.71	34.77
836.5	3	16-QAM	1/0	16.29	H	6.8	0.44	22.65	34.77
847.5	3	16-QAM	1/14	16.31	H	6.9	0.44	22.77	34.77
826.5	5	QPSK	1/24	18.13	V	6.8	0.44	24.49	34.77
836.5	5	QPSK	1/24	18.17	V	6.8	0.44	24.53	34.77
846.5	5	QPSK	1/24	18.12	V	6.8	0.44	24.48	34.77
826.5	5	QPSK	1/24	17.35	H	6.8	0.44	23.71	34.77
836.5	5	QPSK	1/24	17.28	H	6.8	0.44	23.64	34.77
846.5	5	QPSK	1/24	17.32	H	6.8	0.44	23.68	34.77
826.5	5	16-QAM	1/24	17.05	V	6.8	0.44	23.41	34.77
836.5	5	16-QAM	1/24	17.09	V	6.8	0.44	23.45	34.77
846.5	5	16-QAM	1/24	17.11	V	6.8	0.44	23.47	34.77

826.5	5	16-QAM	1/24	16.28	H	6.8	0.44	22.64	34.77
836.5	5	16-QAM	1/24	16.33	H	6.8	0.44	22.69	34.77
846.5	5	16-QAM	1/24	16.29	H	6.8	0.44	22.65	34.77
829	10	QPSK	1/49	18.16	V	6.8	0.44	24.52	34.77
836.5	10	QPSK	1/49	18.12	V	6.8	0.44	24.48	34.77
844	10	QPSK	1/49	18.15	V	6.8	0.44	24.51	34.77
829	10	QPSK	1/49	17.43	H	6.8	0.44	23.79	34.77
836.5	10	QPSK	1/49	17.38	H	6.8	0.44	23.74	34.77
844	10	QPSK	1/49	17.41	H	6.8	0.44	23.77	34.77
829	10	16-QAM	1/49	17.09	V	6.8	0.44	23.45	34.77
836.5	10	16-QAM	1/49	17.12	V	6.8	0.44	23.48	34.77
844	10	16-QAM	1/49	17.15	V	6.8	0.44	23.51	34.77
829	10	16-QAM	1/49	16.28	H	6.8	0.44	22.64	34.77
836.5	10	16-QAM	1/49	16.34	H	6.8	0.44	22.70	34.77
844	10	16-QAM	1/49	16.27	H	6.8	0.44	22.63	34.77

ERP for LTE Band 7 (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	16.34	V	8.93	0.83	24.44	30
2535	5	QPSK	1/0	16.38	V	8.93	0.83	24.48	30
2567.5	5	QPSK	1/24	16.41	V	8.93	0.83	24.51	30
2502.5	5	QPSK	1/0	15.37	H	8.93	0.83	23.47	30
2535	5	QPSK	1/0	15.32	H	8.93	0.83	23.42	30
2567.5	5	QPSK	1/24	15.31	H	8.93	0.83	23.41	30
2502.5	5	16-QAM	1/0	15.24	V	8.93	0.83	23.34	30
2535	5	16-QAM	1/0	15.19	V	8.93	0.83	23.29	30
2567.5	5	16-QAM	1/24	15.23	V	8.93	0.83	23.33	30
2502.5	5	16-QAM	1/0	14.46	H	8.93	0.83	22.56	30
2535	5	16-QAM	1/0	14.37	H	8.93	0.83	22.47	30
2567.5	5	16-QAM	1/24	14.42	H	8.93	0.83	22.52	30
2505	10	QPSK	1/0	16.42	V	8.93	0.83	24.52	30
2535	10	QPSK	1/49	16.38	V	8.93	0.83	24.48	30
2565	10	QPSK	1/0	16.46	V	8.93	0.83	**24.56**	30
2505	10	QPSK	1/0	15.71	H	8.93	0.83	23.81	30
2535	10	QPSK	1/49	15.76	H	8.93	0.83	23.86	30
2565	10	QPSK	1/0	15.75	H	8.93	0.83	23.85	30
2505	10	16-QAM	1/0	15.39	V	8.93	0.83	23.49	30
2535	10	16-QAM	1/49	15.34	V	8.93	0.83	23.44	30
2565	10	16-QAM	1/0	15.33	V	8.93	0.83	23.43	30
2505	10	16-QAM	1/0	14.67	H	8.93	0.83	22.77	30
2535	10	16-QAM	1/49	14.72	H	8.93	0.83	22.82	30
2565	10	16-QAM	1/0	14.69	H	8.93	0.83	22.79	30
2507.5	15	QPSK	1/0	16.34	V	8.93	0.83	24.44	30
2535	15	QPSK	1/74	16.39	V	8.93	0.83	24.49	30
2562.5	15	QPSK	1/0	16.35	V	8.93	0.83	24.45	30
2507.5	15	QPSK	1/0	15.72	H	8.93	0.83	23.82	30
2535	15	QPSK	1/74	15.78	H	8.93	0.83	23.88	30
2562.5	15	QPSK	1/0	15.83	H	8.93	0.83	23.93	30
2507.5	15	16-QAM	1/0	15.24	V	8.93	0.83	23.34	30
2535	15	16-QAM	1/74	15.29	V	8.93	0.83	23.39	30
2562.5	15	16-QAM	1/0	15.31	V	8.93	0.83	23.41	30

2507.5	15	16-QAM	1/0	14.37	H	8.93	0.83	22.47	30
2535	15	16-QAM	1/74	14.45	H	8.93	0.83	22.55	30
2562.5	15	16-QAM	1/0	15.43	H	8.93	0.83	23.53	30
2510	20	QPSK	1/99	16.14	V	8.93	0.83	24.24	30
2535	20	QPSK	1/99	16.19	V	8.93	0.83	24.29	30
2560	20	QPSK	1/0	16.21	V	8.93	0.83	24.31	30
2510	20	QPSK	1/99	15.27	H	8.93	0.83	23.37	30
2535	20	QPSK	1/99	15.33	H	8.93	0.83	23.43	30
2560	20	QPSK	1/0	15.29	H	8.93	0.83	23.39	30
2510	20	16-QAM	1/99	15.06	V	8.93	0.83	23.16	30
2535	20	16-QAM	1/99	15.12	V	8.93	0.83	23.22	30
2560	20	16-QAM	1/0	15.07	V	8.93	0.83	23.17	30
2510	20	16-QAM	1/99	14.29	H	8.93	0.83	22.39	30
2535	20	16-QAM	1/99	14.33	H	8.93	0.83	22.43	30
2560	20	16-QAM	1/0	14.32	H	8.93	0.83	22.42	30

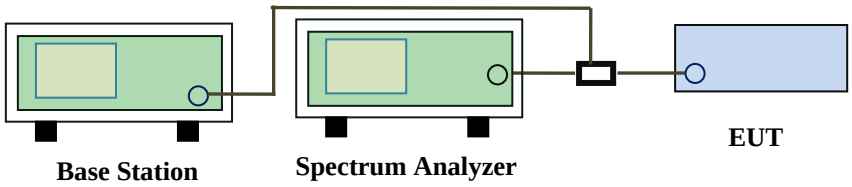
ERP for LTE Band 17 (Part 27)

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	19.17	V	6.8	0.42	25.55	34.77
710	5	QPSK	1/0	19.13	V	6.8	0.42	25.51	34.77
713.5	5	QPSK	1/0	19.08	V	6.8	0.42	25.46	34.77
706.5	5	QPSK	1/0	18.22	H	6.8	0.42	24.60	34.77
710	5	QPSK	1/0	18.19	H	6.8	0.42	24.57	34.77
713.5	5	QPSK	1/0	18.14	H	6.8	0.42	24.52	34.77
706.5	5	16-QAM	1/0	18.03	V	6.8	0.42	24.41	34.77
710	5	16-QAM	1/0	18.12	V	6.8	0.42	24.50	34.77
713.5	5	16-QAM	1/0	18.09	V	6.8	0.42	24.47	34.77
706.5	5	16-QAM	1/0	17.35	H	6.8	0.42	23.73	34.77
710	5	16-QAM	1/0	17.29	H	6.8	0.42	23.67	34.77
713.5	5	16-QAM	1/0	17.32	H	6.8	0.42	23.70	34.77
709	10	QPSK	1/0	19.24	V	6.8	0.42	**25.62**	34.77
710	10	QPSK	1/0	19.18	V	6.8	0.42	25.56	34.77
711	10	QPSK	1/0	19.21	V	6.8	0.42	25.59	34.77
709	10	QPSK	1/0	18.43	H	6.8	0.42	24.81	34.77
710	10	QPSK	1/0	18.37	H	6.8	0.42	24.75	34.77
711	10	QPSK	1/0	18.42	H	6.8	0.42	24.80	34.77
709	10	16-QAM	1/0	18.12	V	6.8	0.42	24.50	34.77
710	10	16-QAM	1/0	18.09	V	6.8	0.42	24.47	34.77
711	10	16-QAM	1/0	18.13	V	6.8	0.42	24.51	34.77
709	10	16-QAM	1/0	17.34	H	6.8	0.42	23.72	34.77
710	10	16-QAM	1/0	17.27	H	6.8	0.42	23.65	34.77
711	10	16-QAM	1/0	17.33	H	6.8	0.42	23.71	34.77

6.3 Peak-Average Ratio

Temperature	22℃
Relative Humidity	57%
Atmospheric Pressure	1005mbar
Test date :	November 05, 2015
Tested By :	Winnie Zhang

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** 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		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

LTE Band 2 (part 24E)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
1.4	1880	RB 1/0	QPSK	25.45	23.23	2.22
			16QAM	24.21	22.11	2.1
3	1880	RB 1/0	QPSK	25.17	22.59	2.58
			16QAM	24.37	21.91	2.46
5	1880	RB 1/0	QPSK	25.39	22.43	2.96
			16QAM	24.22	21.79	2.43
10	1880	RB 1/0	QPSK	24.36	22.34	2.02
			16QAM	24.28	21.54	2.74
15	1880	RB 1/0	QPSK	25.23	22.38	2.85
			16QAM	24.47	21.69	2.78
20	1880	RB 1/0	QPSK	25.21	22.72	2.49
			16QAM	24.38	21.83	2.55

LTE Band 4 (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	25.48	22.75	2.73
			16QAM	25.59	22.35	3.24
3	1732.5	RB 1/0	QPSK	25.21	22.73	2.48
			16QAM	25.14	22.60	2.54
5	1732.5	RB 1/0	QPSK	25.26	22.70	2.56
			16QAM	25.32	22.68	2.64
10	1732.5	RB 1/0	QPSK	25.36	22.75	2.61
			16QAM	25.24	22.57	2.67
15	1732.5	RB 1/0	QPSK	25.62	22.74	2.88
			16QAM	25.71	22.80	2.91
20	1732.5	RB 1/0	QPSK	25.64	22.88	2.76
			16QAM	25.58	22.71	2.87

LTE Band 5 (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	25.46	23.23	2.23
			16QAM	24.51	22.30	2.21
3	836.5	RB 1/0	QPSK	25.47	23.19	2.28
			16QAM	24.36	22.31	2.05
5	836.5	RB 1/0	QPSK	25.48	23.15	2.33
			16QAM	24.62	22.33	2.29
10	836.5	RB 1/0	QPSK	25.15	23.24	1.91
			16QAM	24.38	22.13	2.25

LTE Band 7 (part 27)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
5	2535	RB 1/0	QPSK	24.27	21.64	2.63
			16QAM	23.32	20.56	2.76
10	2535	RB 1/0	QPSK	24.39	21.79	2.6
			16QAM	23.25	20.62	2.63
15	2535	RB 1/0	QPSK	24.52	21.73	2.79
			16QAM	23.27	20.65	2.62
20	2535	RB 1/0	QPSK	24.26	21.83	2.43
			16QAM	24.11	20.67	3.44

LTE Band 17 (part 27)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
5	710	RB 1/0	QPSK	25.49	23.73	1.76
			16QAM	25.12	22.79	2.33
10	710	RB 1/0	QPSK	25.67	23.87	1.8
			16QAM	25.21	22.86	2.35

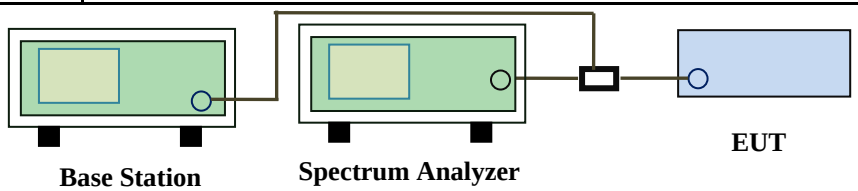
6.4 Modulation Characteristic

According to FCC § 2.1047(d), Part 22H&24E& Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

6.5 Occupied Bandwidth

Temperature	23℃
Relative Humidity	58%
Atmospheric Pressure	1005mbar
Test date :	November 06, 2015
Tested By :	Winnie Zhang

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 2 (Part 24E)

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	18607	1850.7	16QAM	1.0988	1.268
			QPSK	1.1067	1.722
1.4	18900	1880	16QAM	1.0917	1.266
			QPSK	1.1047	1.268
1.4	19193	1909.3	16QAM	1.1160	1.587
			QPSK	1.1278	2.037
3	18615	1851.5	16QAM	2.7504	3.161
			QPSK	2.7513	3.122
3	18900	1880	16QAM	2.7404	3.074
			QPSK	2.7493	3.089
3	19185	1908.5	16QAM	2.7441	3.111
			QPSK	2.7552	3.144
5	18625	1852.5	16QAM	4.5240	5.084
			QPSK	4.5335	5.086
5	18900	1880	16QAM	4.5231	5.026
			QPSK	4.5180	5.075
5	19175	1907.5	16QAM	4.5395	5.063
			QPSK	4.5215	5.128
10	18650	1855	16QAM	9.1051	10.035
			QPSK	9.1008	10.692
10	18900	1880	16QAM	9.0494	10.123
			QPSK	9.0477	10.146
10	19150	1905	16QAM	9.1085	10.226
			QPSK	9.1235	11.555
15	18675	1857.5	16QAM	13.5189	15.542
			QPSK	13.5341	18.649
15	18900	1880	16QAM	13.4876	14.831
			QPSK	13.4720	14.801
15	19125	1902.5	16QAM	13.5964	21.054
			QPSK	13.5938	19.865

20	18700	1860	16QAM	17.9654	19.435
			QPSK	17.9238	25.920
20	18900	1880	16QAM	17.9063	19.226
			QPSK	17.9033	19.423
20	19100	1900	16QAM	18.0402	24.350
			QPSK	17.9807	27.037

LTE Band 4 (Part 27)

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	19957	1710.7	16QAM	1.1040	1.290
			QPSK	1.0948	1.281
1.4	20175	1732.5	16QAM	1.1550	2.200
			QPSK	1.1365	2.061
1.4	20393	1754.3	16QAM	1.0947	1.272
			QPSK	1.1017	1.271
3	19965	1711.5	16QAM	2.7455	3.090
			QPSK	2.7515	3.093
3	20175	1732.5	16QAM	2.8115	5.821
			QPSK	2.7687	3.948
3	20385	1753.5	16QAM	2.7440	3.085
			QPSK	2.7377	3.069
5	19975	1712.5	16QAM	4.5269	5.078
			QPSK	4.5346	5.064
5	20175	1732.5	16QAM	4.5926	8.216
			QPSK	4.5439	6.417
5	20375	1752.5	16QAM	4.5183	5.085
			QPSK	4.5240	5.036
10	20000	1715	16QAM	9.0868	10.231
			QPSK	9.0726	10.228
10	20175	1732.5	16QAM	9.1849	15.054
			QPSK	9.1319	13.030
10	20350	1750	16QAM	9.0516	10.167
			QPSK	9.0663	10.075

15	20025	1717.5	16QAM	13.5390	14.927
			QPSK	13.4690	14.825
15	20175	1732.5	16QAM	13.6567	25.768
			QPSK	13.5644	18.489
15	20325	1747.5	16QAM	13.5017	14.949
			QPSK	13.4624	14.827
20	20050	1720	16QAM	17.8732	19.339
			QPSK	17.9286	19.387
20	20175	1732.5	16QAM	17.9679	25.946
			QPSK	17.9158	20.245
20	20300	1745	16QAM	17.9865	22.043
			QPSK	17.9337	19.642

LTE Band 5 (Part 22H)

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	20407	824.7	16QAM	1.1037	1.290
			QPSK	1.0951	1.280
1.4	20525	936.5	16QAM	1.0977	1.272
			QPSK	1.1071	1.297
1.4	20643	949.3	16QAM	1.1023	1.287
			QPSK	1.1130	1.280
3	20415	825.5	16QAM	2.7513	3.081
			QPSK	2.7367	3.071
3	20525	936.5	16QAM	2.7465	3.093
			QPSK	2.7660	3.115
3	20635	847.5	16QAM	2.7590	3.070
			QPSK	2.7523	3.109
5	20425	826.5	16QAM	4.5168	5.046
			QPSK	4.5396	5.061
5	20525	936.5	16QAM	4.5364	5.091
			QPSK	4.5228	5.082
5	20625	846.5	16QAM	4.5464	5.175
			QPSK	4.5344	5.033

10	20450	829	16QAM	9.1217	10.078
			QPSK	9.1118	10.079
10	20525	936.5	16QAM	9.1017	10.207
			QPSK	9.0732	10.104
10	20800	844	16QAM	9.1070	10.057
			QPSK	9.0936	9.996

LTE Band 7 (Part 27) result

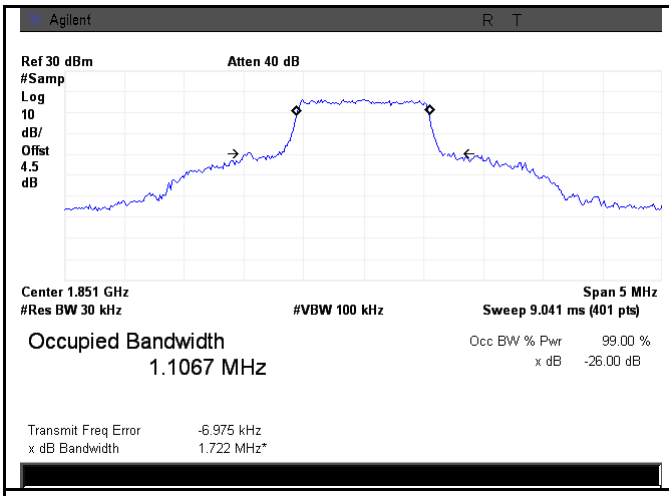
BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
5	20775	2502.5	16QAM	4.5415	5.637
			QPSK	4.5618	5.707
5	21100	2535	16QAM	4.5346	5.076
			QPSK	4.5265	5.444
5	21425	2567.5	16QAM	4.5130	5.063
			QPSK	4.5131	5.056
10	20800	2505	16QAM	9.1011	10.523
			QPSK	9.1493	12.759
10	21100	2535	16QAM	9.0777	10.139
			QPSK	9.0788	10.127
10	21400	2562.5	16QAM	9.0919	10.154
			QPSK	9.0822	10.096
15	20825	2507.5	16QAM	13.5246	15.294
			QPSK	13.5983	18.019
15	21100	2535	16QAM	13.5040	14.753
			QPSK	13.4739	16.394
15	21400	2562.5	16QAM	13.5128	14.800
			QPSK	13.4936	14.911
20	20850	2510	16QAM	17.9842	21.505
			QPSK	17.9482	19.933
20	21100	2535	16QAM	17.8419	19.410
			QPSK	17.8591	19.439
20	21350	2560	16QAM	17.9958	19.599
			QPSK	17.9861	19.458

LTE Band 17 (Part 27)

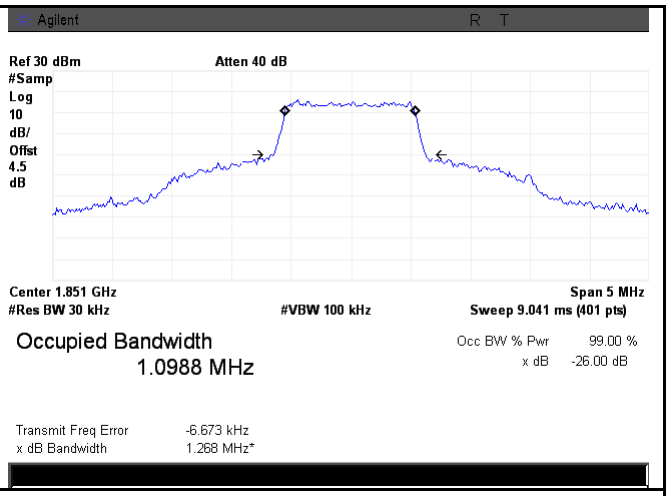
BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
5	23755	706.5	16QAM	4.5179	5.045
			QPSK	4.5321	5.092
5	23790	710	16QAM	4.5265	5.073
			QPSK	4.5233	5.069
5	23825	713.5	16QAM	4.5070	5.017
			QPSK	4.5197	5.073
10	23780	709	16QAM	9.0848	10.140
			QPSK	9.1029	10.175
10	23790	710	16QAM	9.1162	10.361
			QPSK	9.0996	10.345
10	23800	711	16QAM	9.0884	10.148
			QPSK	9.0838	10.270

Test Plots

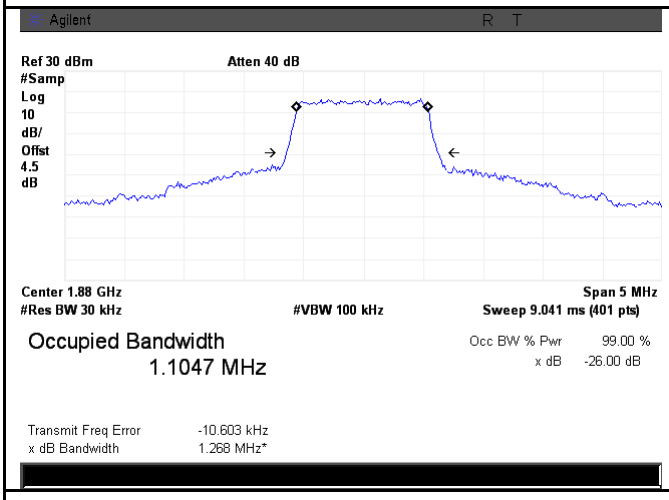
LTE Band 2 (Part 24E)



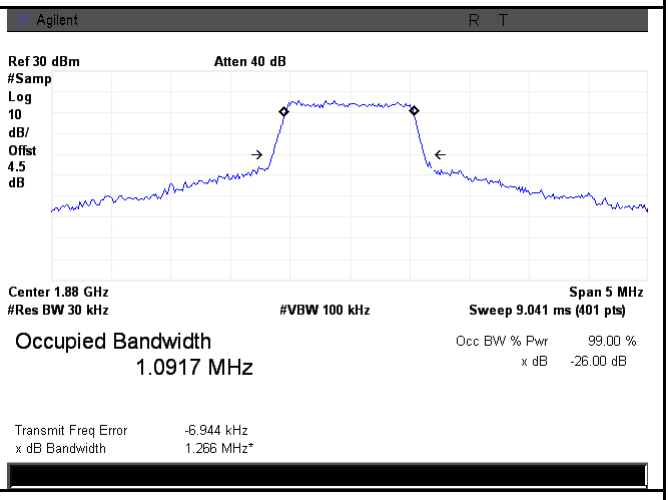
LTE band 2 - Low CH QPSK-1.4



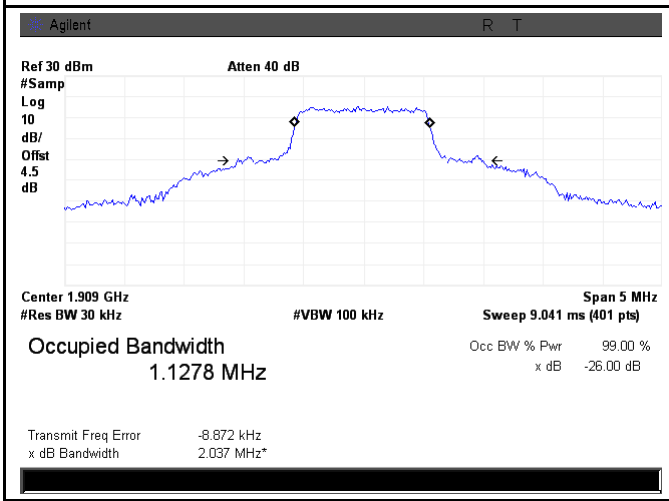
LTE band 2 - Low CH 16QAM-1.4



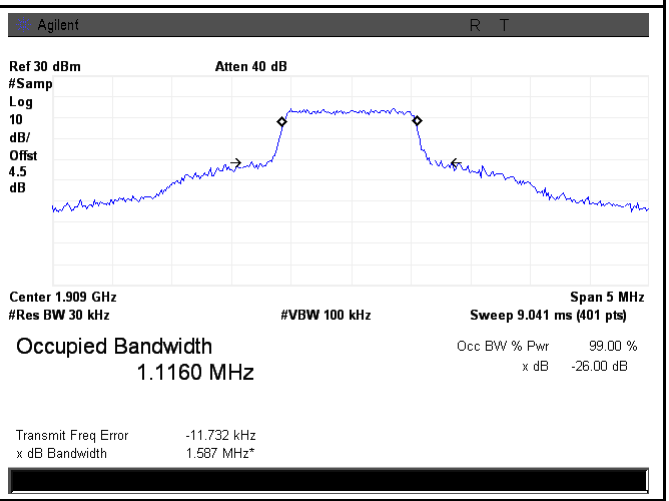
LTE band 2 - Middle CH QPSK-1.4



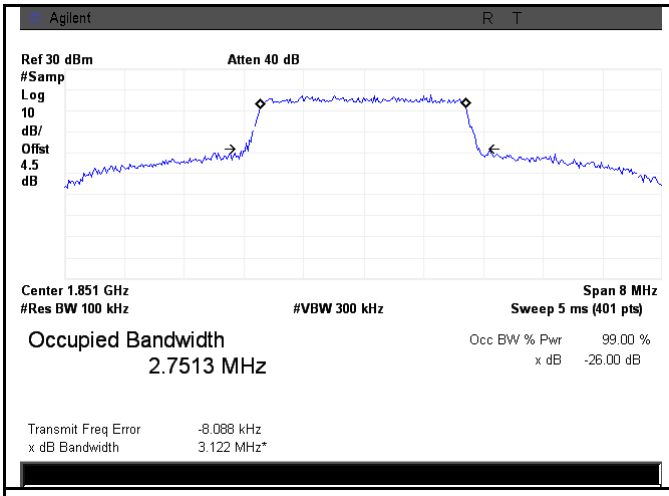
LTE band 2 - Middle CH 16QAM-1.4



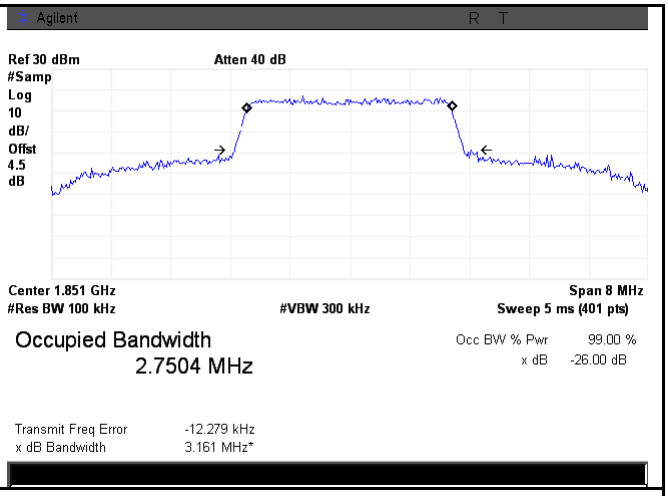
LTE band 2 - High CH QPSK-1.4



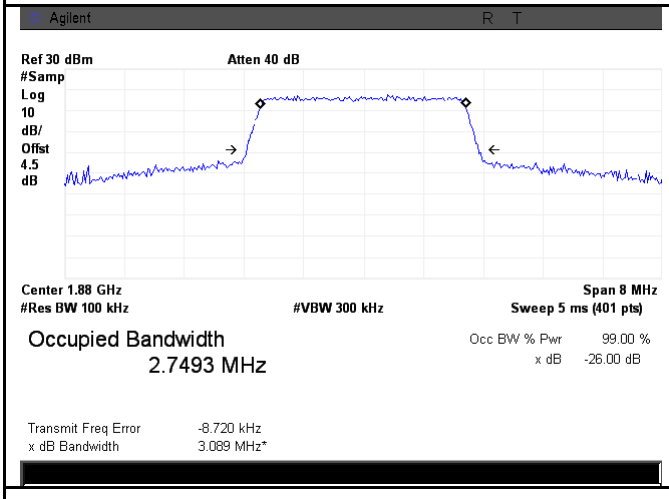
LTE band 2 - High CH 16QAM-1.4



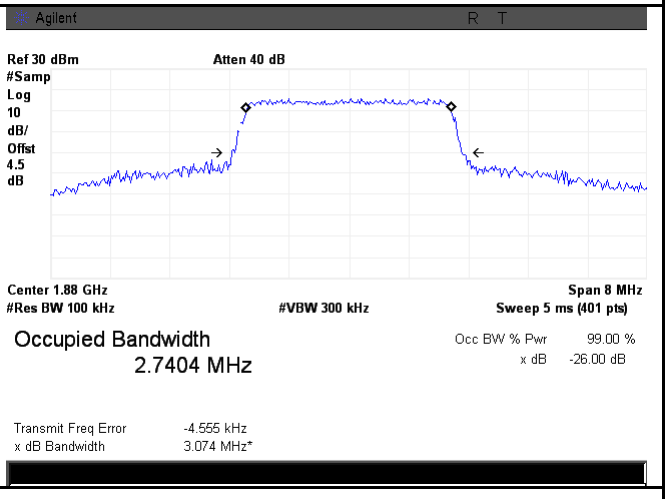
LTE band 2 - Low CH QPSK-3



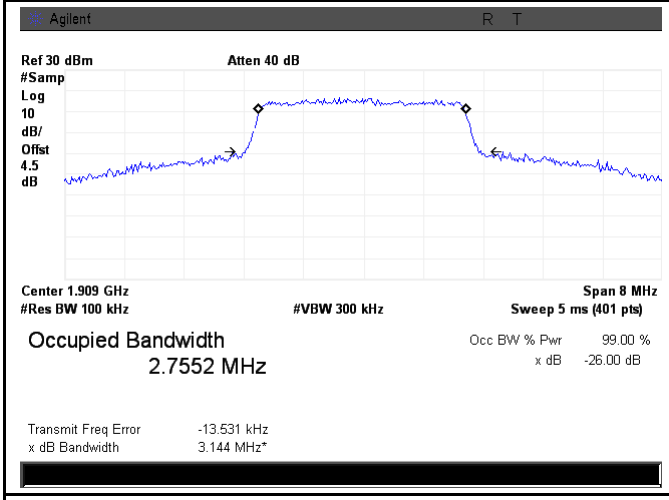
LTE band 2 - Low CH 16QAM-3



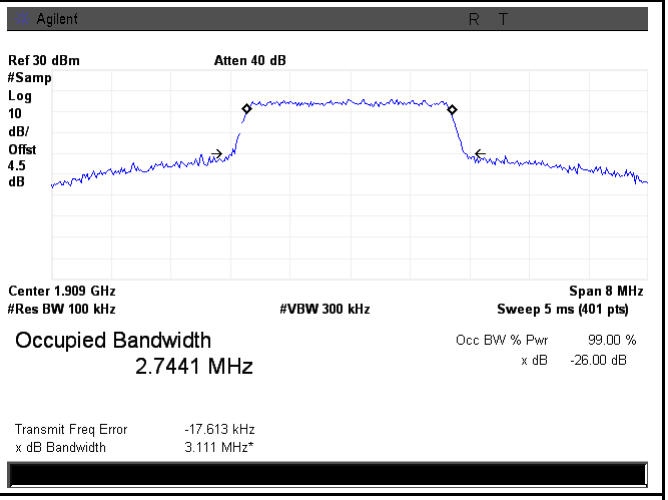
LTE band 2 - Middle CH QPSK-3



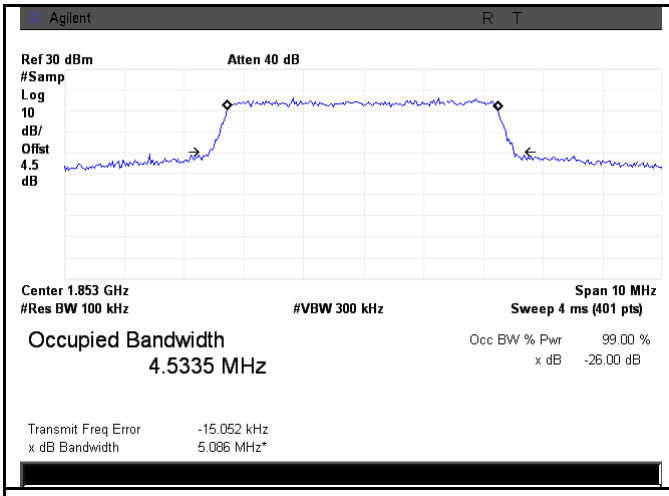
LTE band 2 - Middle CH 16QAM-3



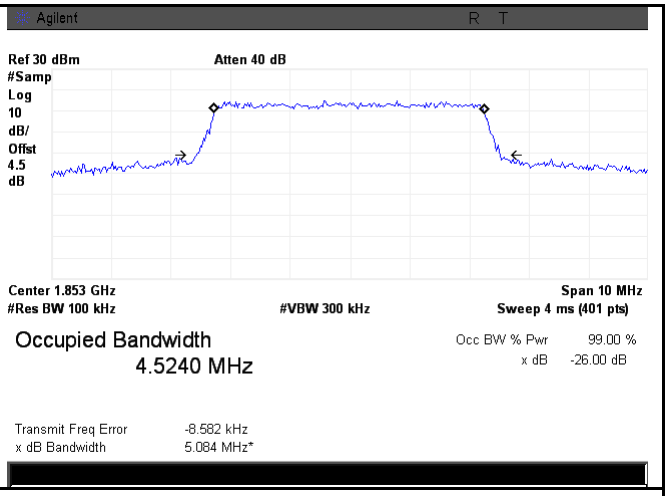
LTE band 2 - High CH QPSK-3



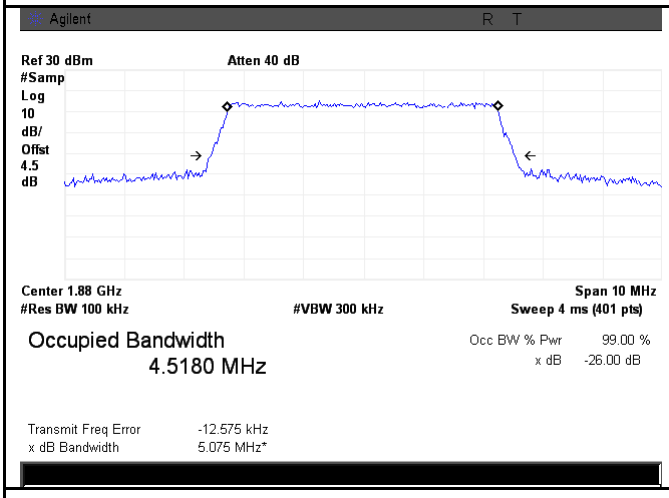
LTE band 2 - High CH 16QAM-3



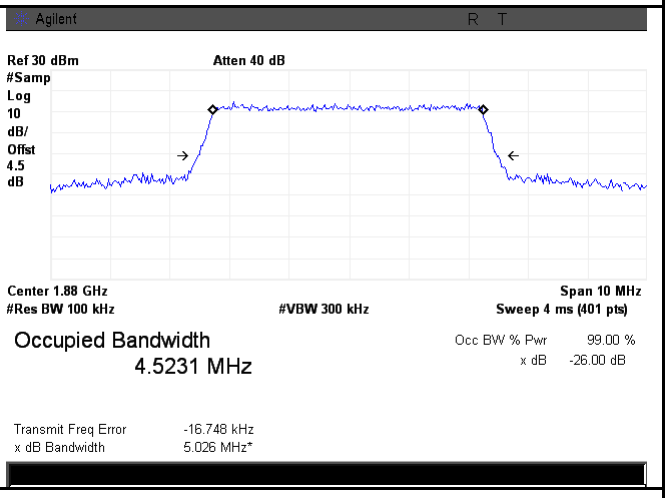
LTE band 2 - Low CH QPSK-5



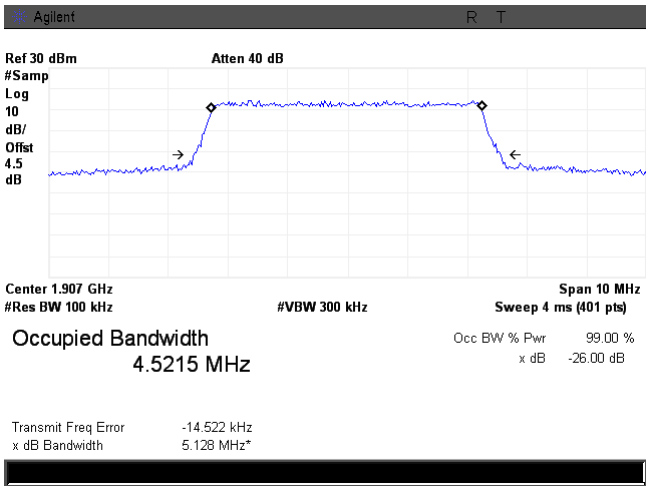
LTE band 2 - Low CH 16QAM-5



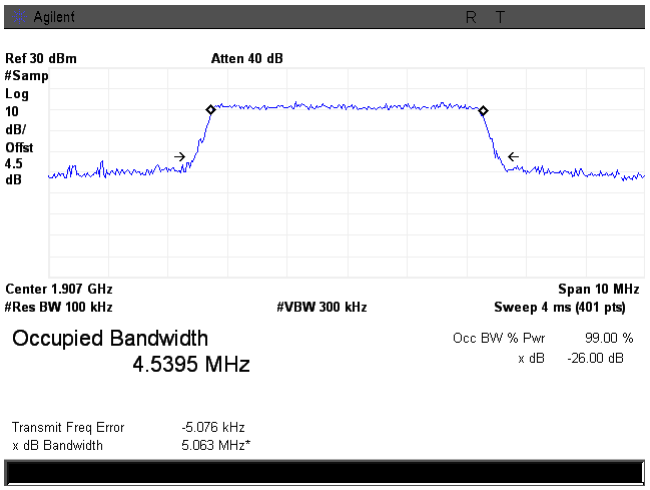
LTE band 2 - Middle CH QPSK-5



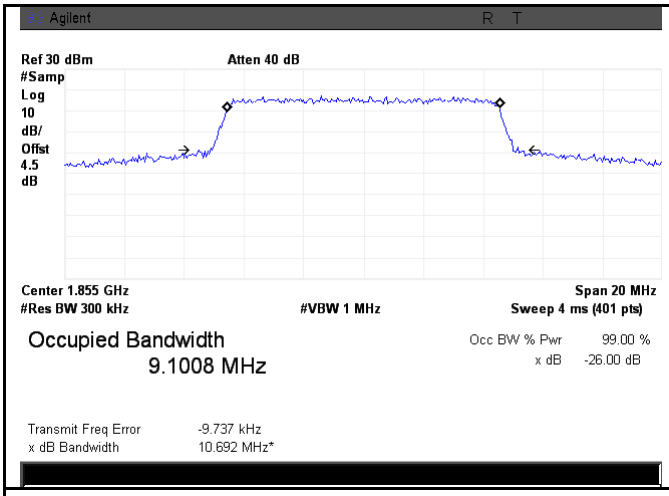
LTE band 2 - Middle CH 16QAM-5



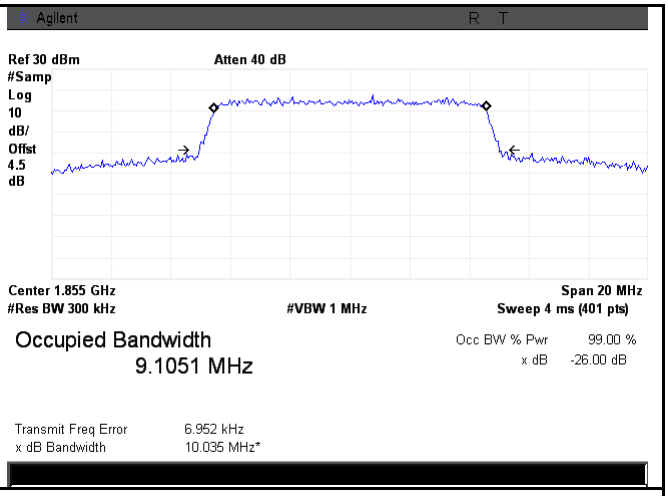
LTE band 2 - High CH QPSK-5



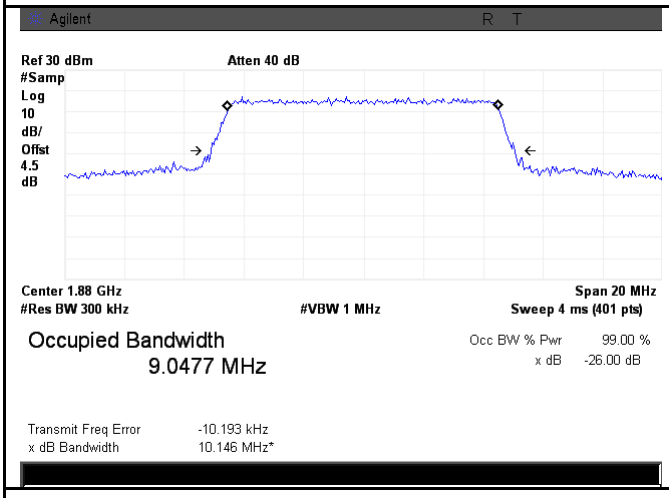
LTE band 2 - High CH 16QAM-5



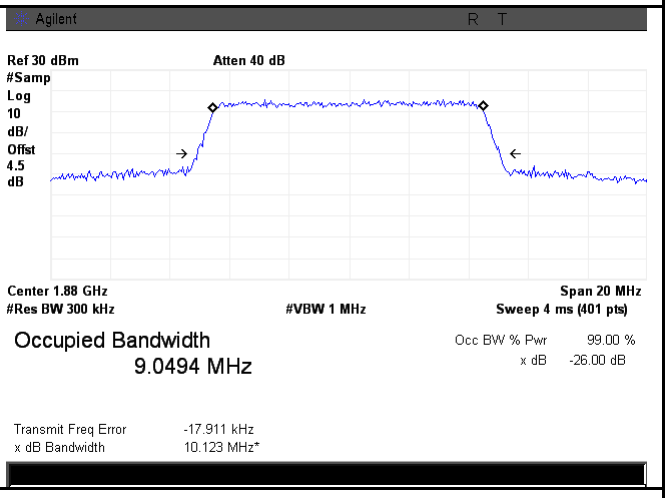
LTE band 2 - Low CH QPSK-10



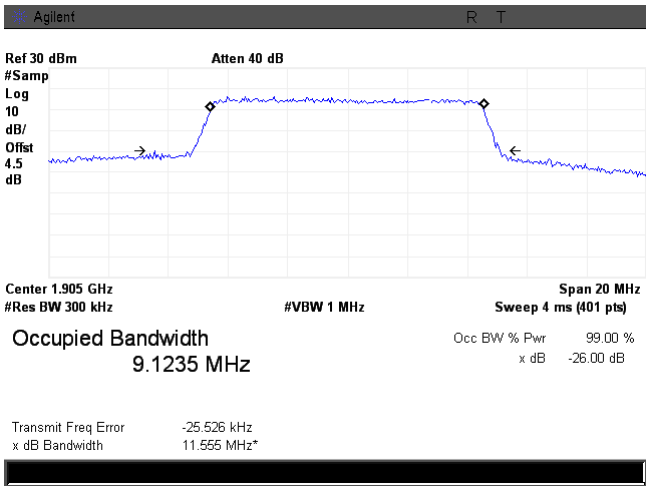
LTE band 2 - Low CH 16QAM-10



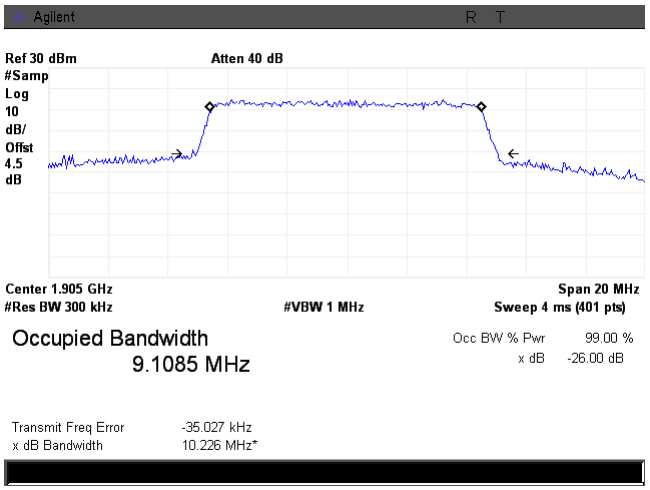
LTE band 2 - Middle CH QPSK-10



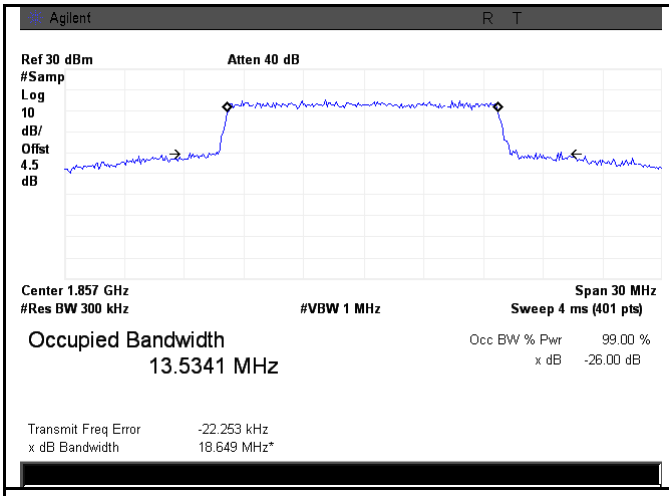
LTE band 2 - Middle CH 16QAM-10



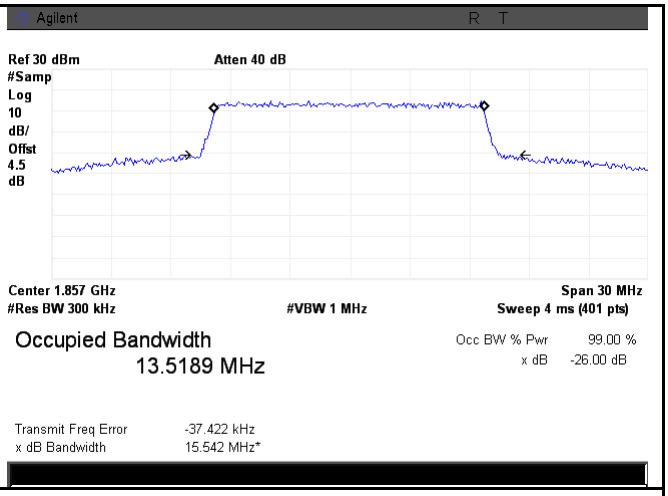
LTE band 2 - High CH QPSK-10



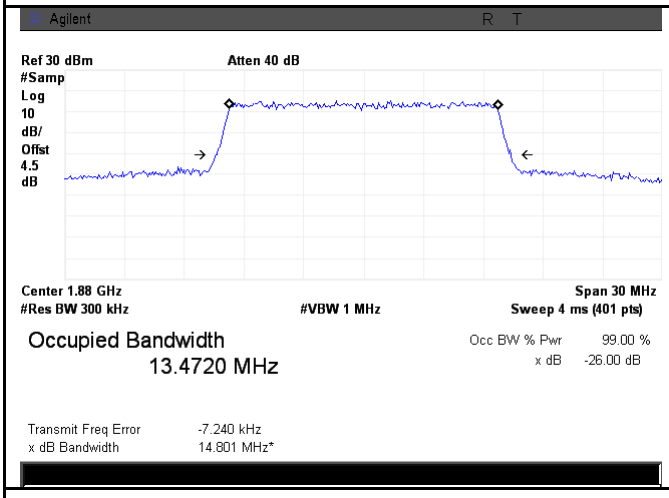
LTE band 2 - High CH 16QAM-10



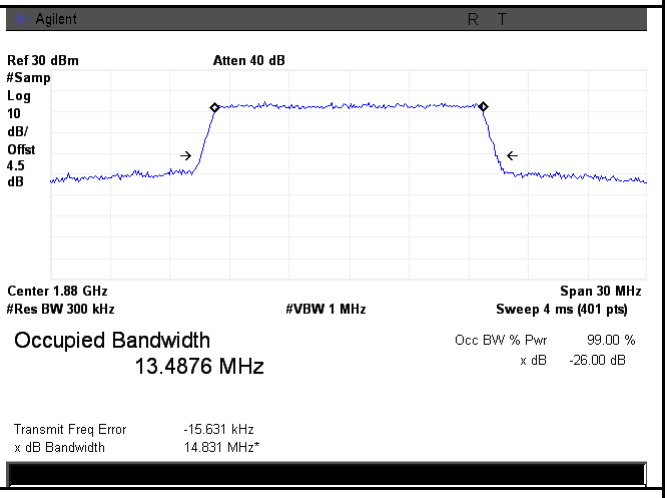
LTE band 2 - Low CH QPSK-15



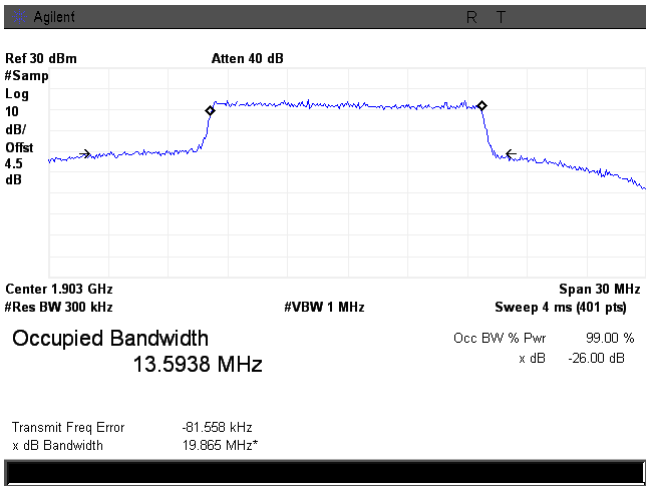
LTE band 2 - Low CH 16QAM-15



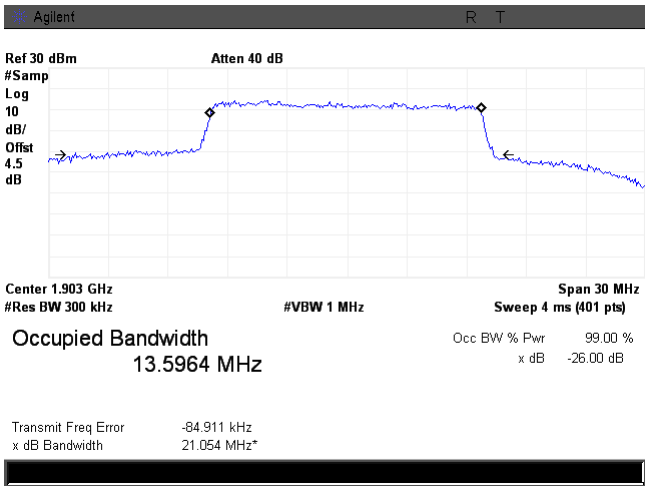
LTE band 2 - Middle CH QPSK-15



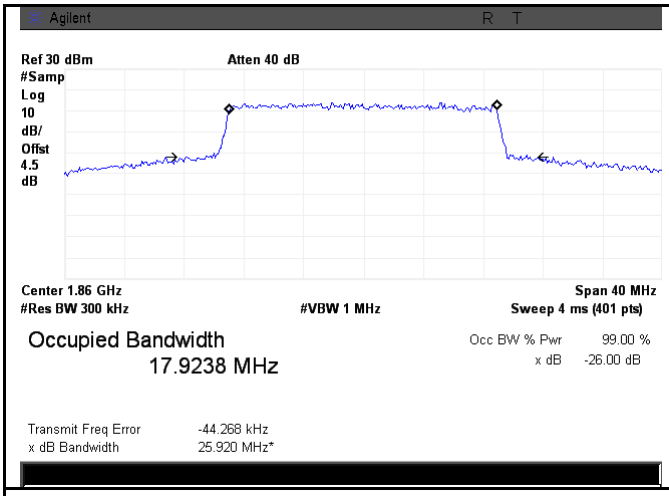
LTE band 2 - Middle CH 16QAM-15



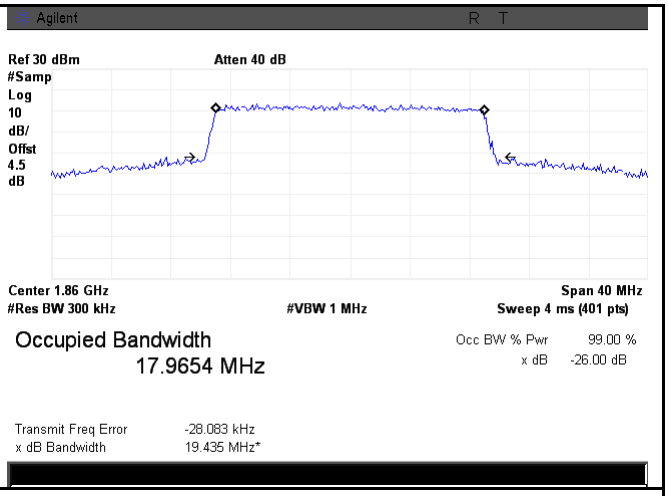
LTE band 2 - High CH QPSK-15



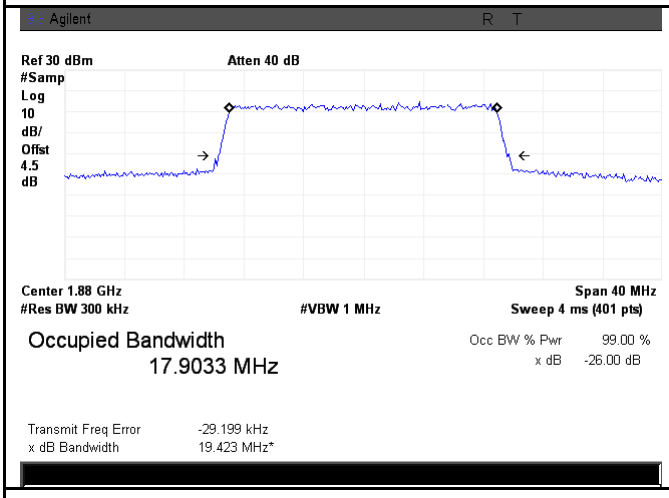
LTE band 2 - High CH 16QAM-15



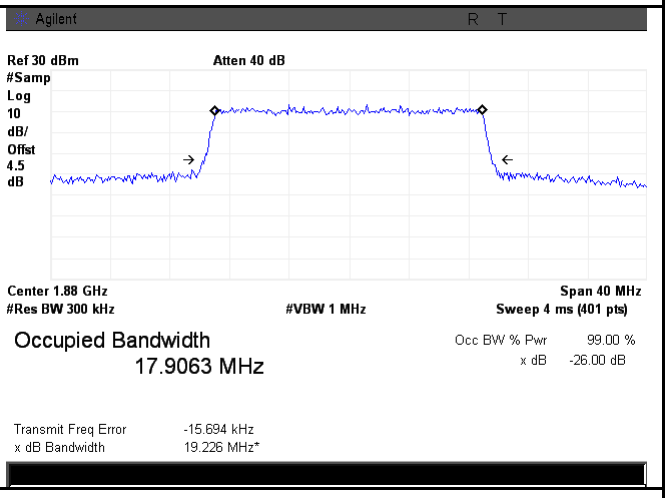
LTE band 2 - Low CH QPSK-20



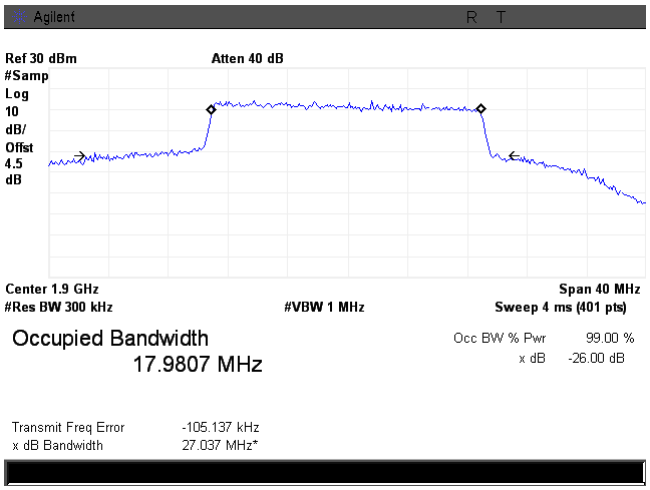
LTE band 2 - Low CH 16QAM-20



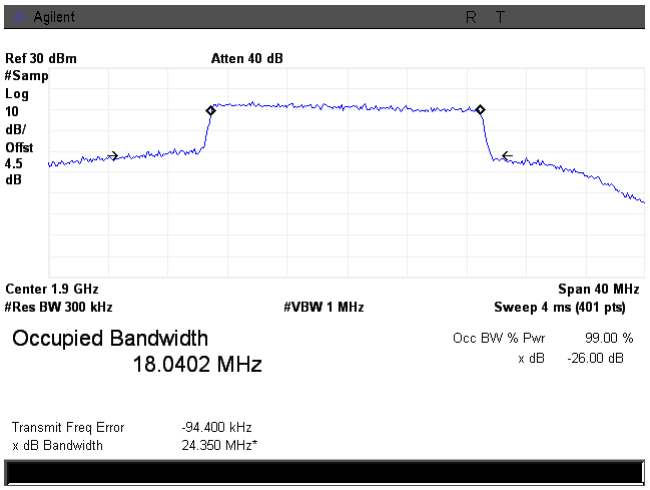
LTE band 2 - Middle CH QPSK-20



LTE band 2 - Middle CH 16QAM-20

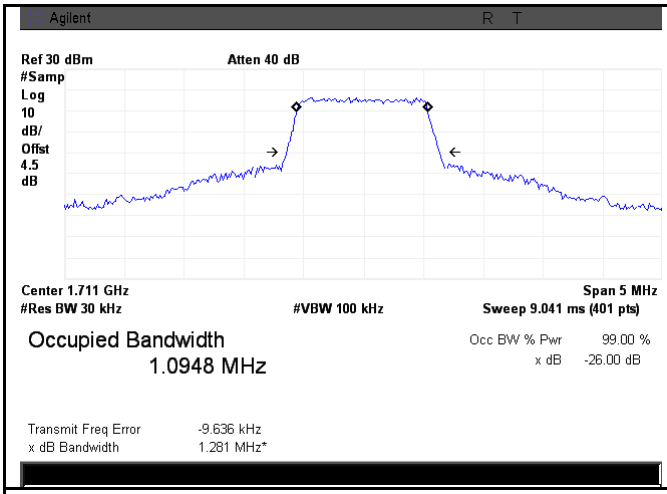


LTE band 2 - High CH QPSK-20

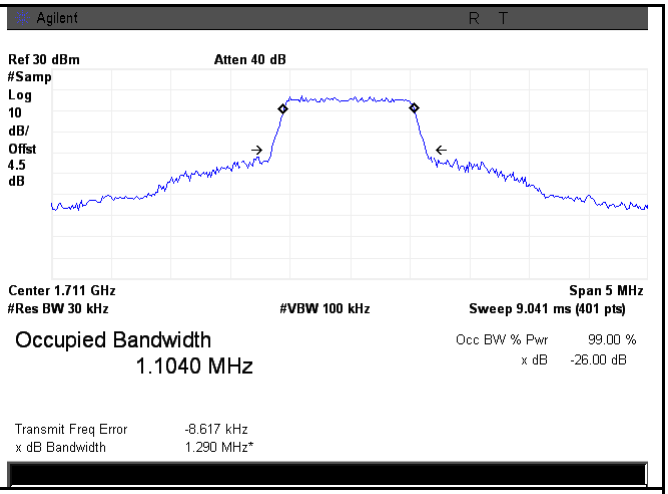


LTE band 2 - High CH 16QAM-20

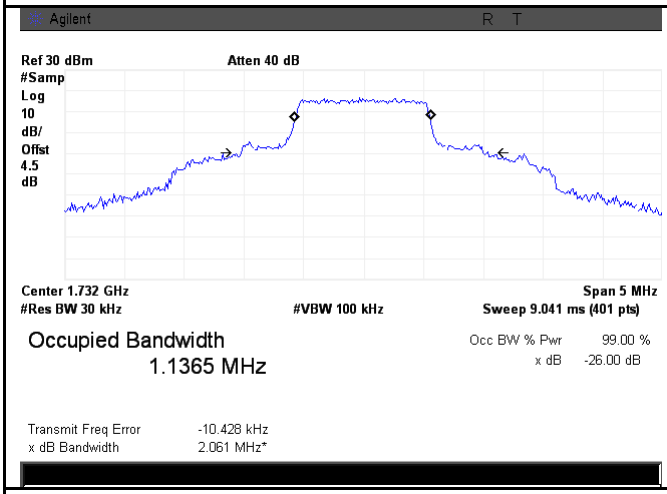
LTE Band 4 (Part 27)



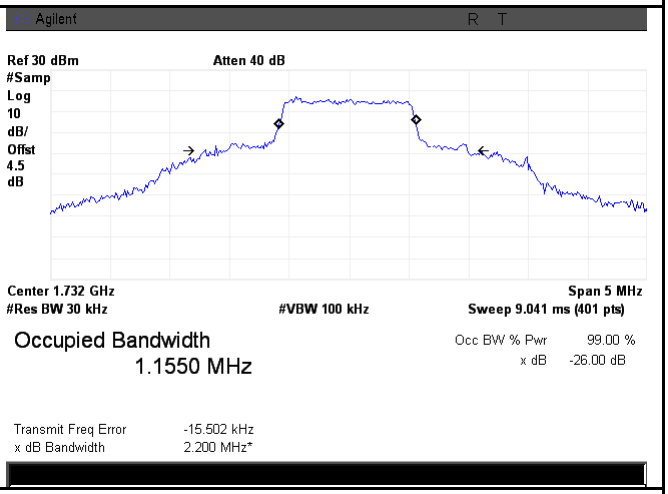
LTE band 4 - Low CH QPSK-1.4



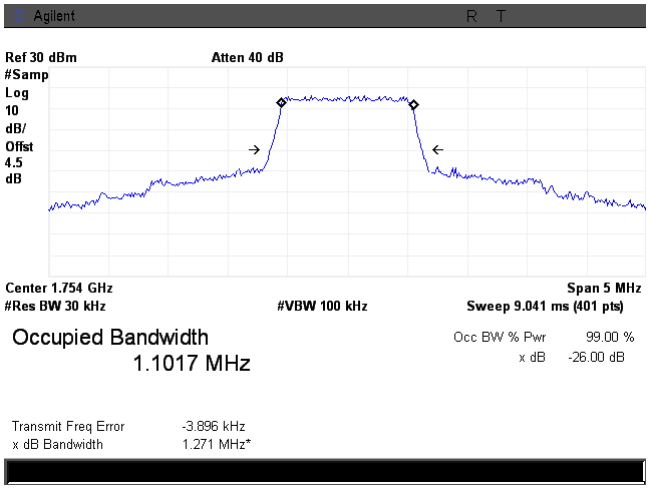
LTE band 4 - Low CH 16QAM-1.4



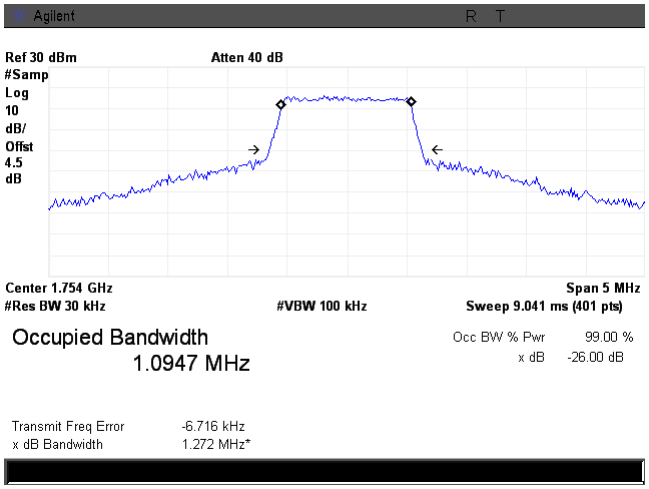
LTE band 4 - Middle CH QPSK-1.4



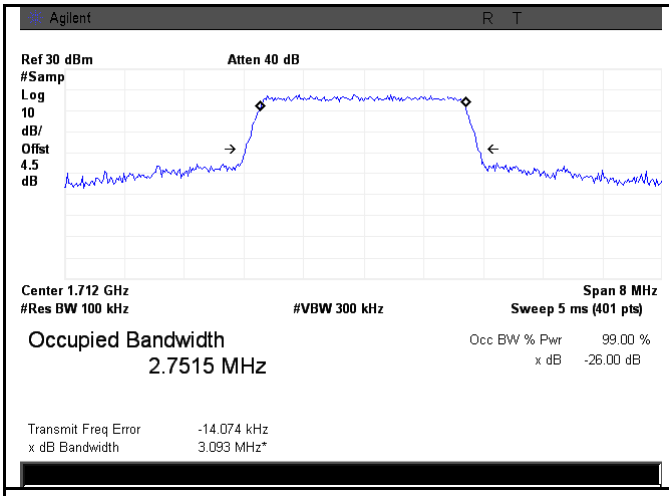
LTE band 4 - Middle CH 16QAM-1.4



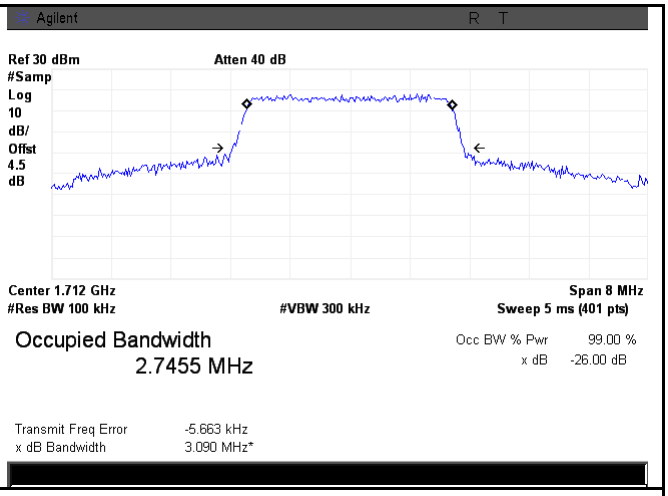
LTE band 4 - High CH QPSK-1.4



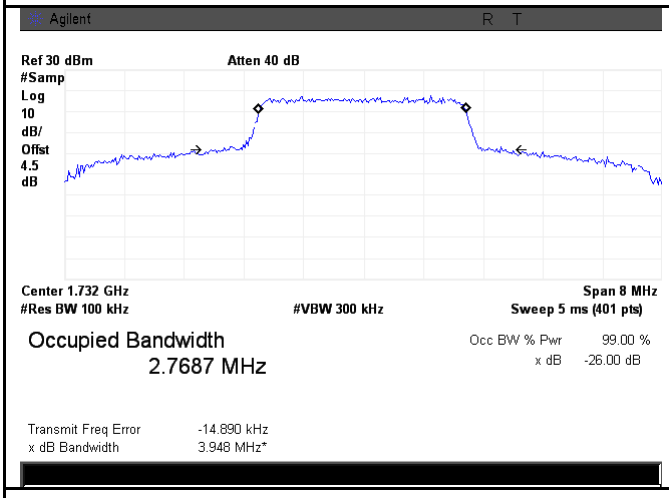
LTE band 4 - High CH 16QAM-1.4



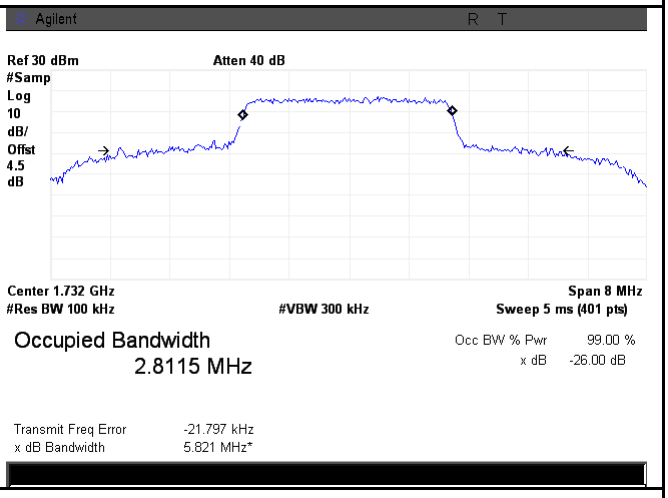
LTE band 4 - Low CH QPSK-3



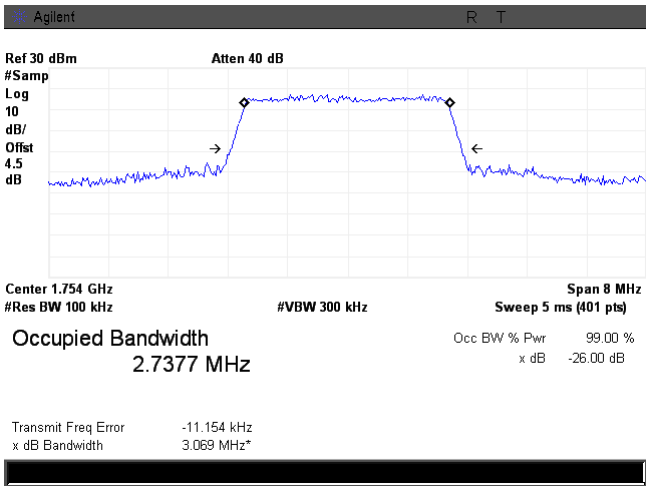
LTE band 4 - Low CH 16QAM-3



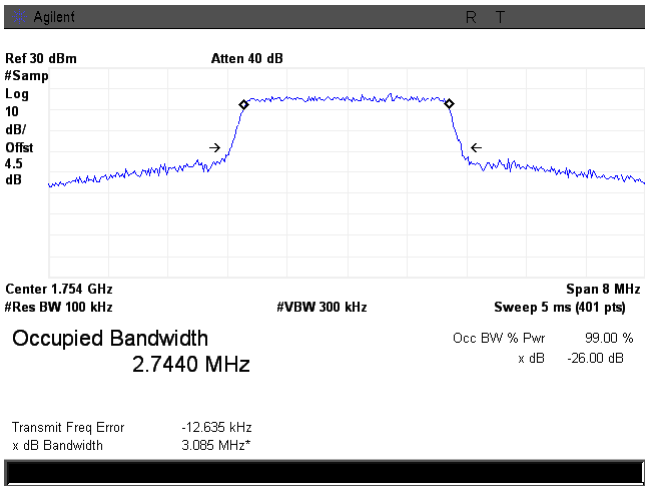
LTE band 4 - Middle CH QPSK-3



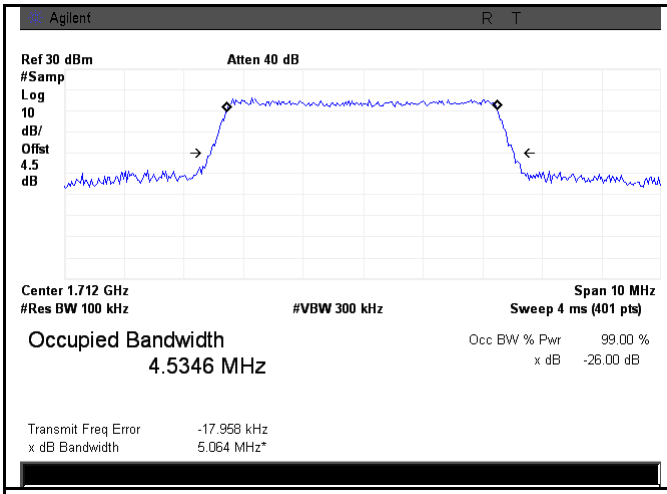
LTE band 4 - Middle CH 16QAM-3



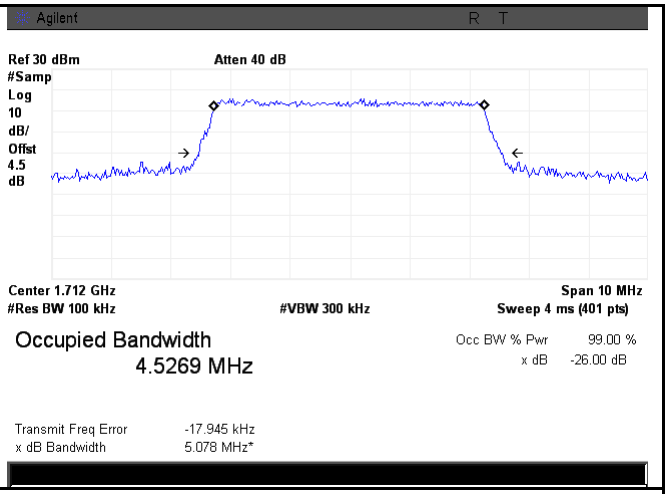
LTE band 4 - High CH QPSK-3



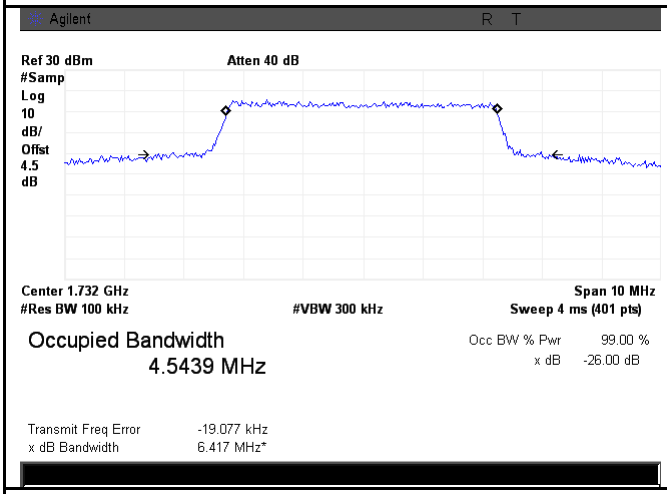
LTE band 4 - High CH 16QAM-3



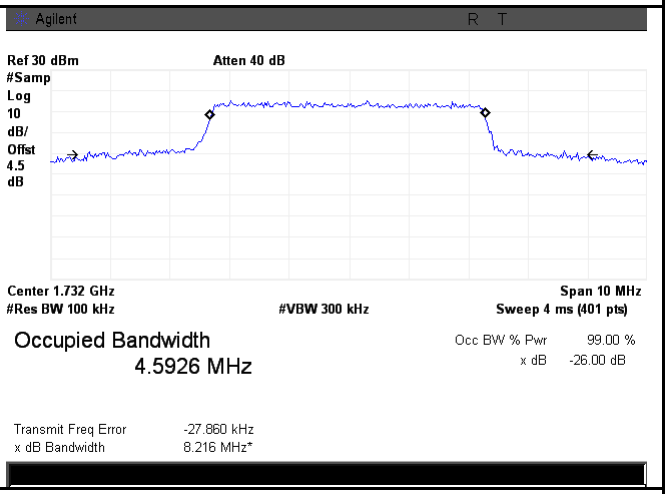
LTE band 4 - Low CH QPSK-5



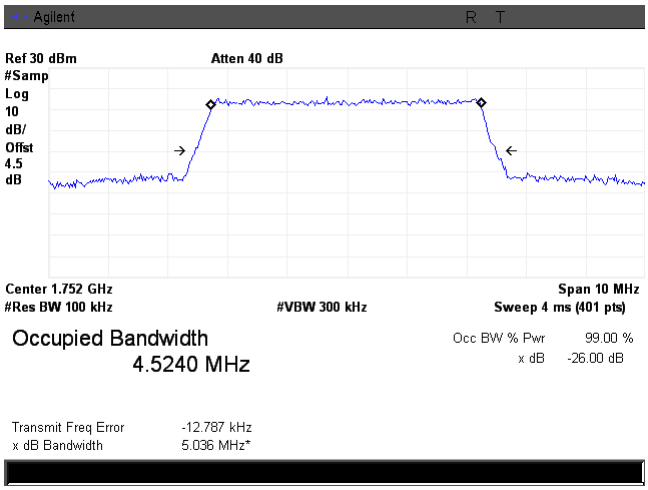
LTE band 4 - Low CH 16QAM-5



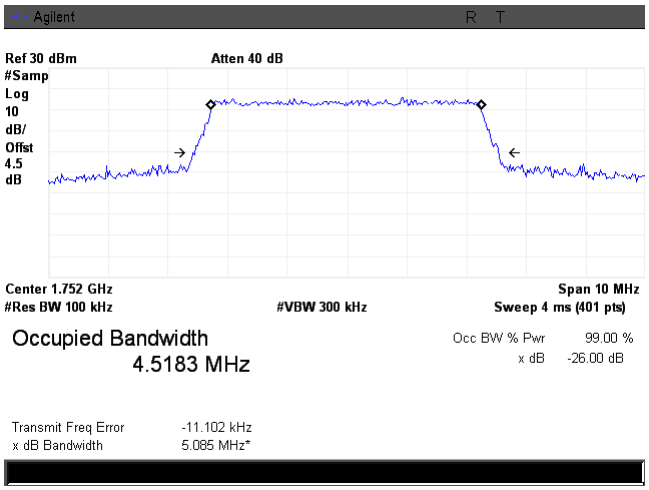
LTE band 4 - Middle CH QPSK-5



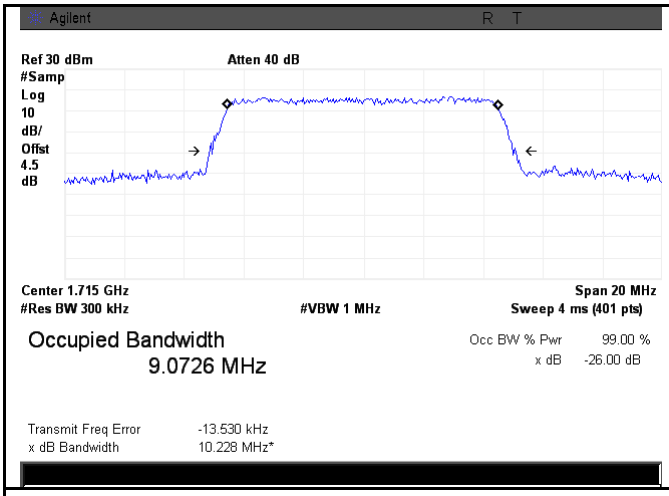
LTE band 4 - Middle CH 16QAM-5



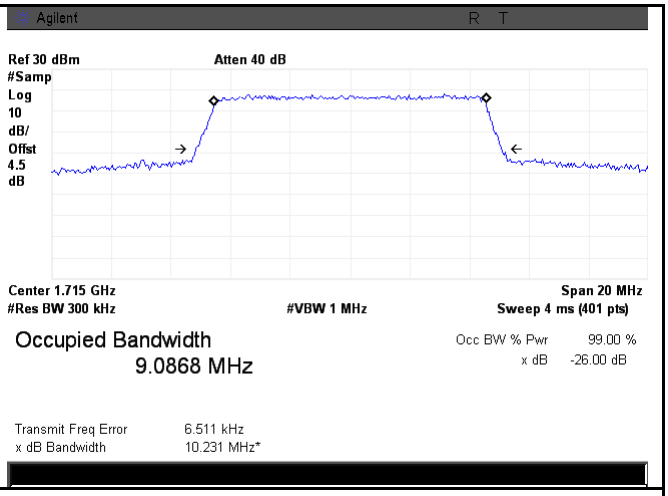
LTE band 4 - High CH QPSK-5



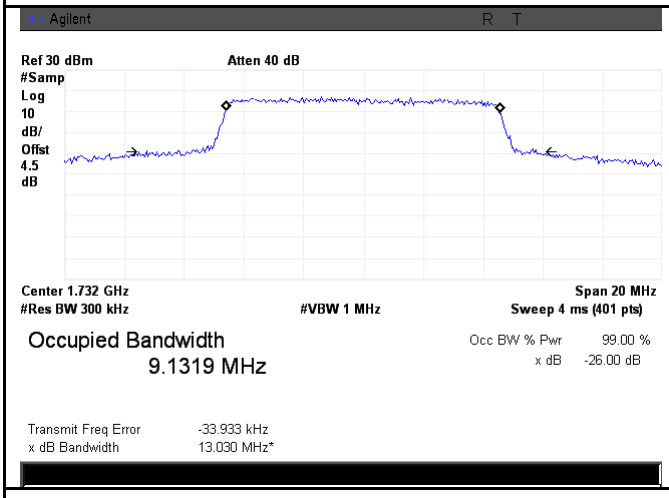
LTE band 4 - High CH 16QAM-5



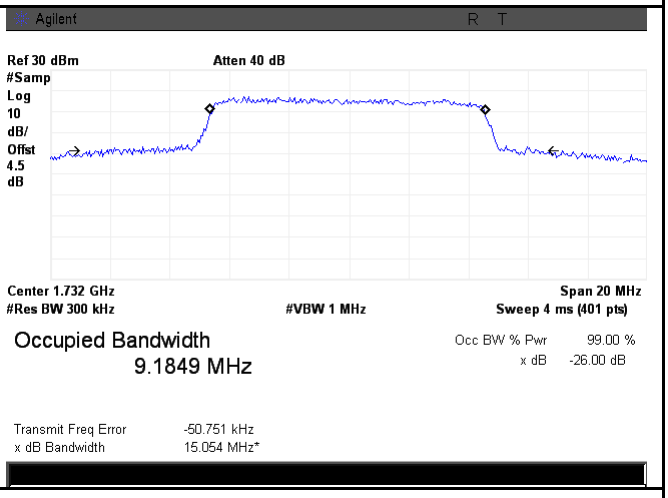
LTE band 4 - Low CH QPSK-10



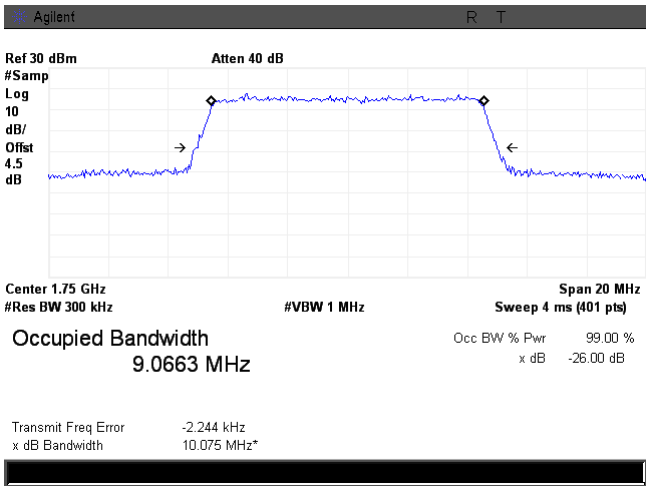
LTE band 4 - Low CH 16QAM-10



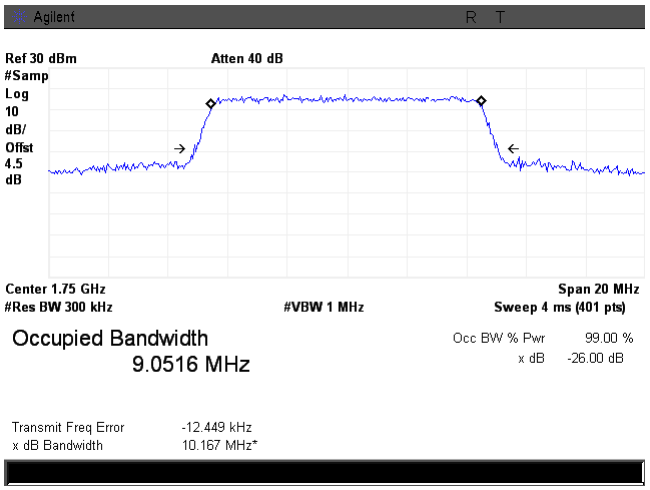
LTE band 4 - Middle CH QPSK-10



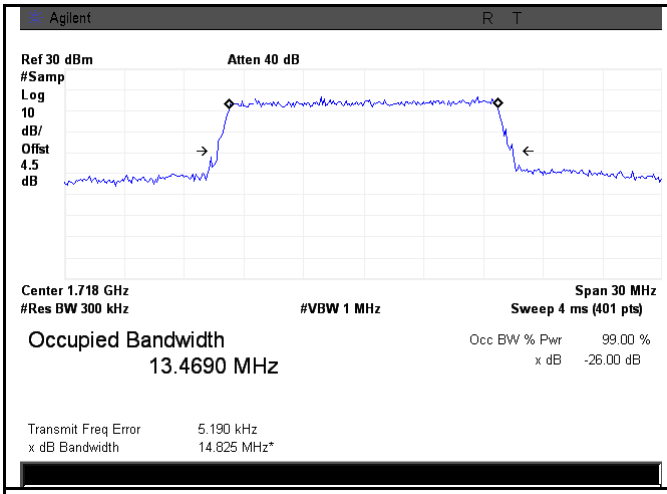
LTE band 4 - Middle CH 16QAM-10



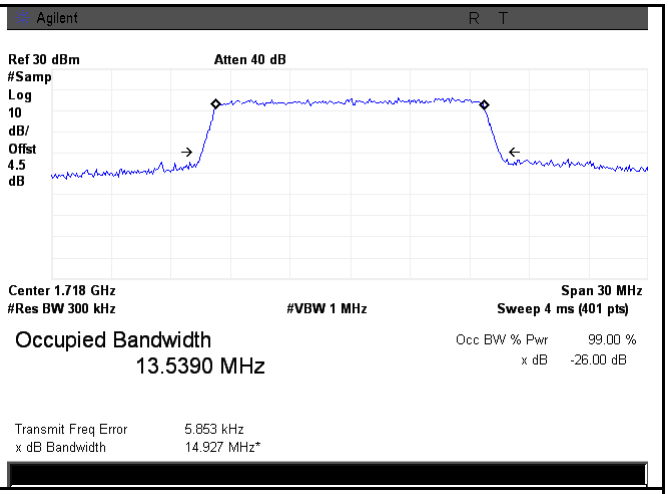
LTE band 4 - High CH QPSK-10



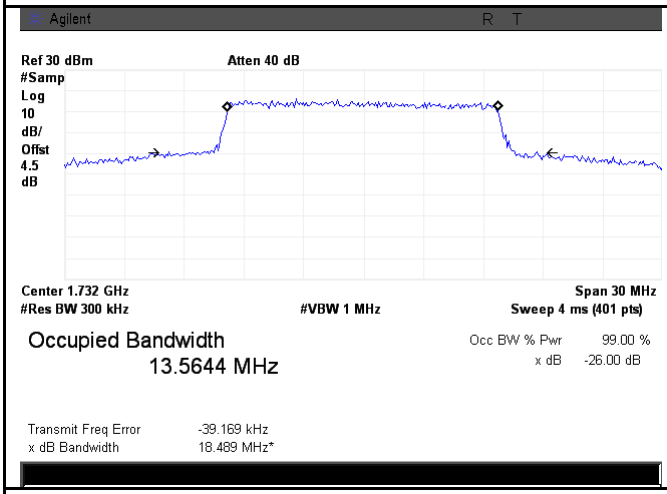
LTE band 4 - High CH 16QAM-10



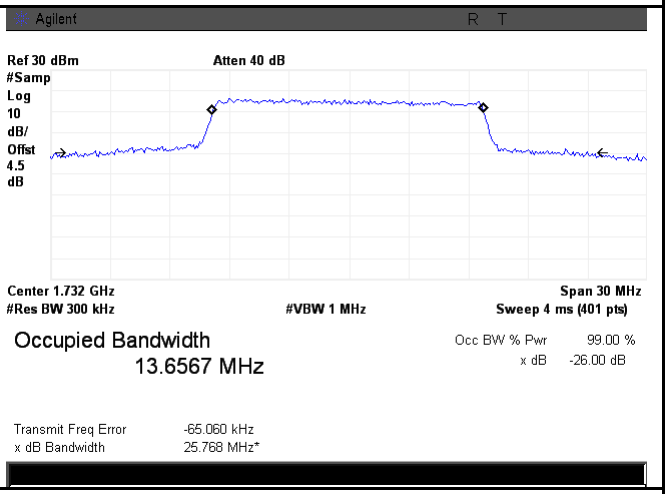
LTE band 4 - Low CH QPSK-15



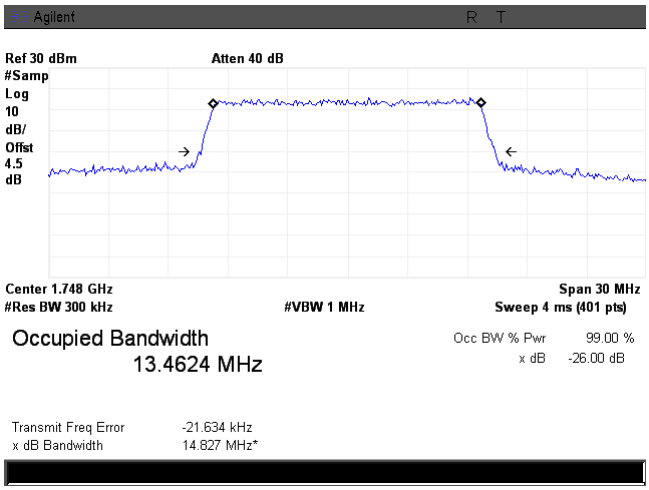
LTE band 4 - Low CH 16QAM-15



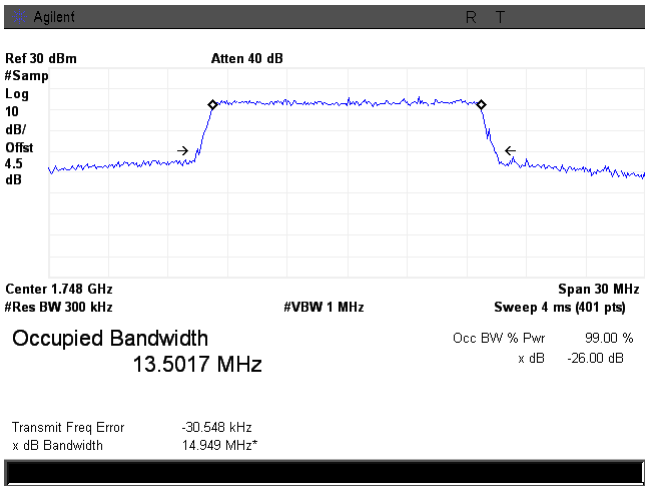
LTE band 4 - Middle CH QPSK-15



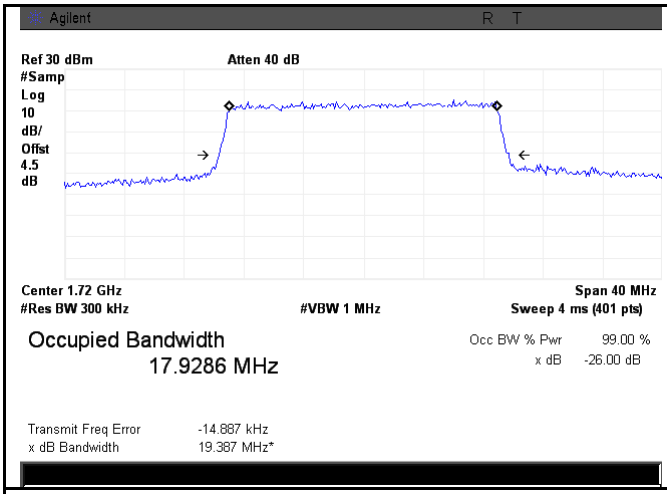
LTE band 4 - Middle CH 16QAM-15



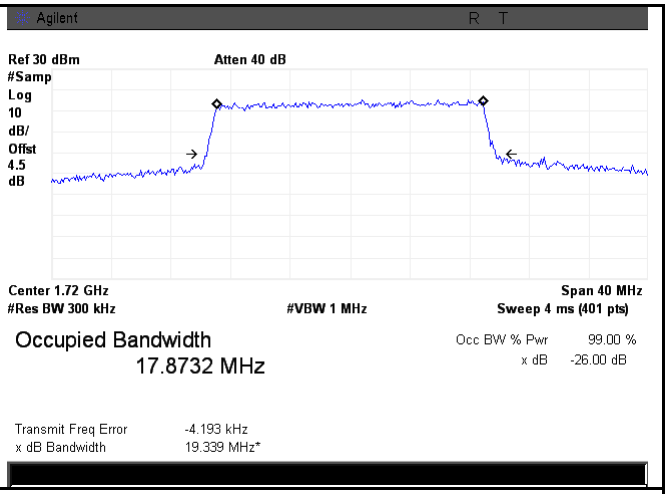
LTE band 4 - High CH QPSK-15



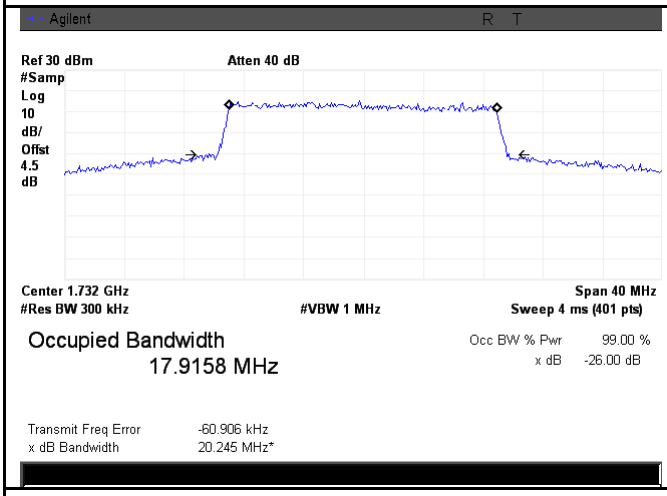
LTE band 4 - High CH 16QAM-15



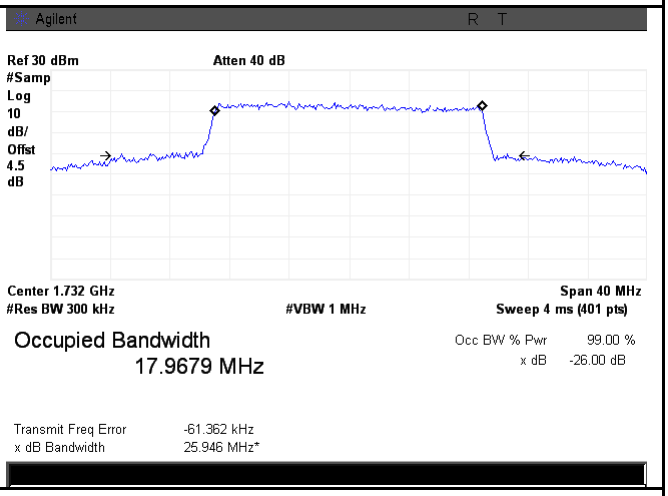
LTE band 4 - Low CH QPSK-20



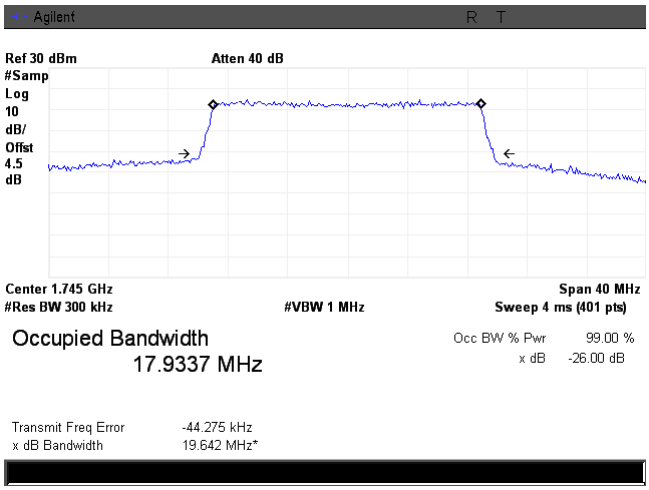
LTE band 4 - Low CH 16QAM-20



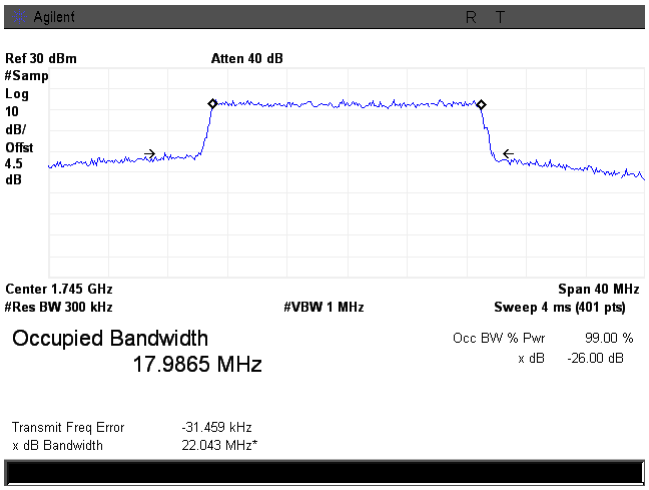
LTE band 4 - Middle CH QPSK-20



LTE band 4 - Middle CH 16QAM-20

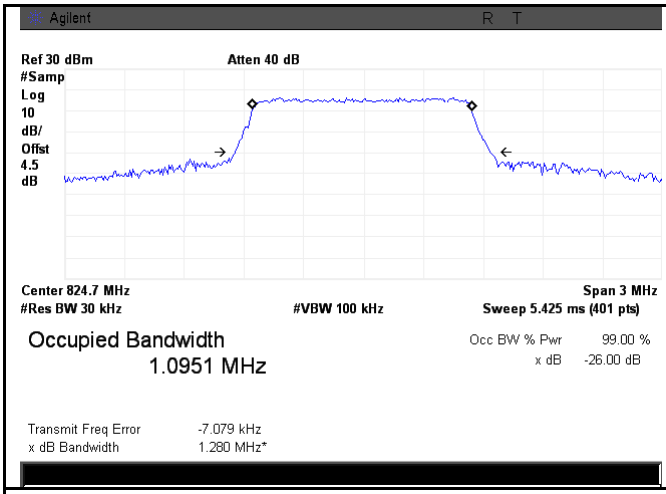


LTE band 4 - High CH QPSK-20

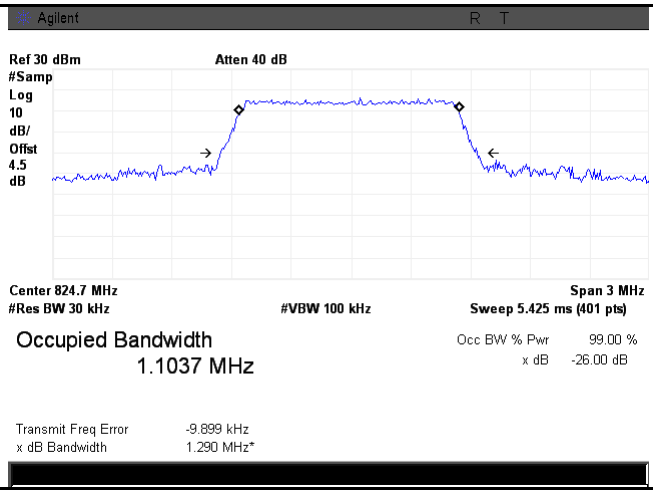


LTE band 4 - High CH 16QAM-20

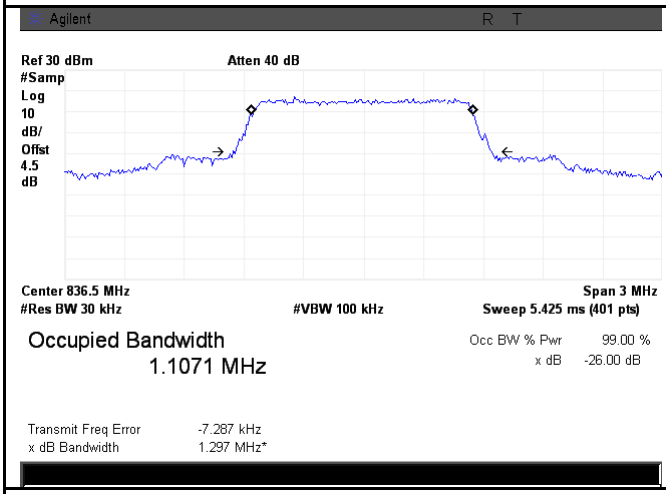
LTE Band 5 (Part 22H)



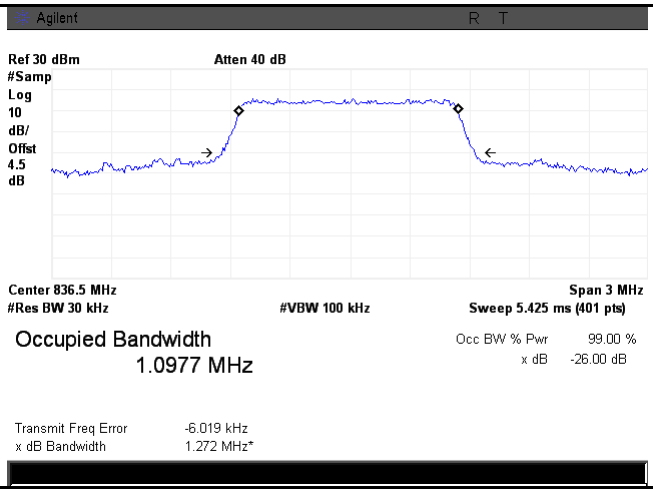
LTE band 5 - Low CH QPSK-1.4



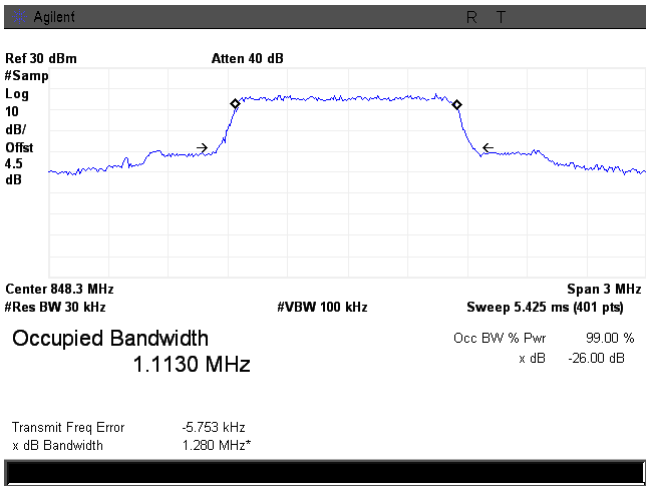
LTE band 5 - Low CH 16QAM-1.4



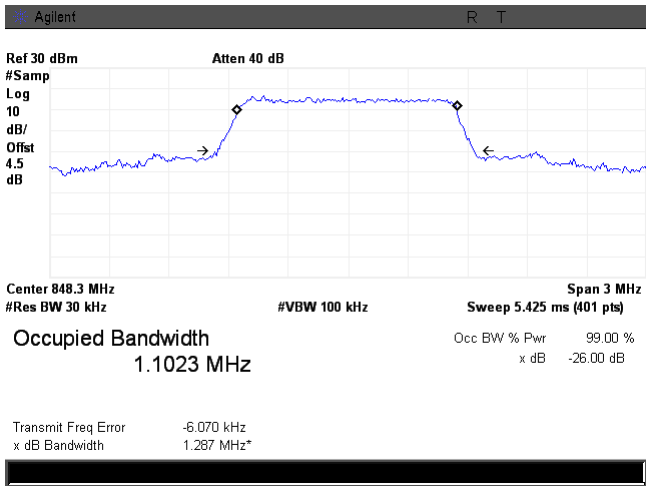
LTE band 5 - Middle CH QPSK-1.4



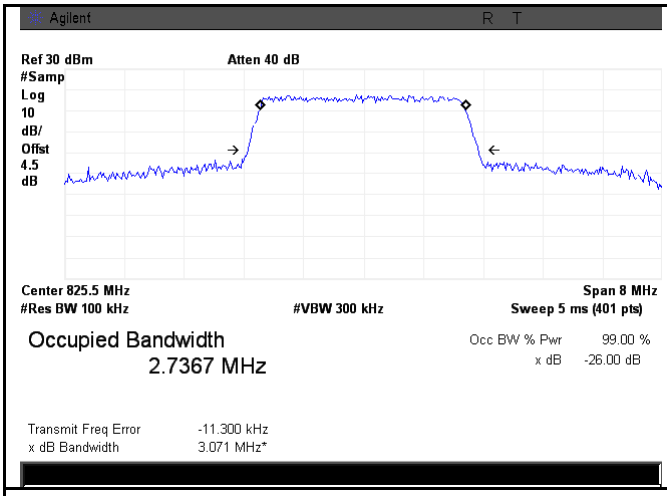
LTE band 5 - Middle CH 16QAM-1.4



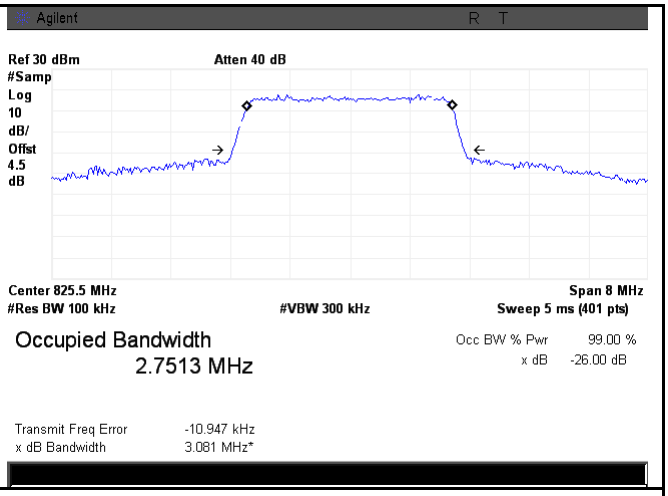
LTE band 5 - High CH QPSK-1.4



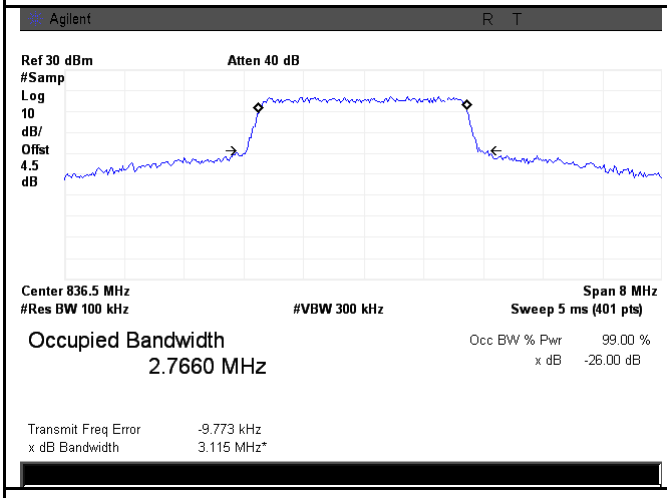
LTE band 5 - High CH 16QAM-1.4



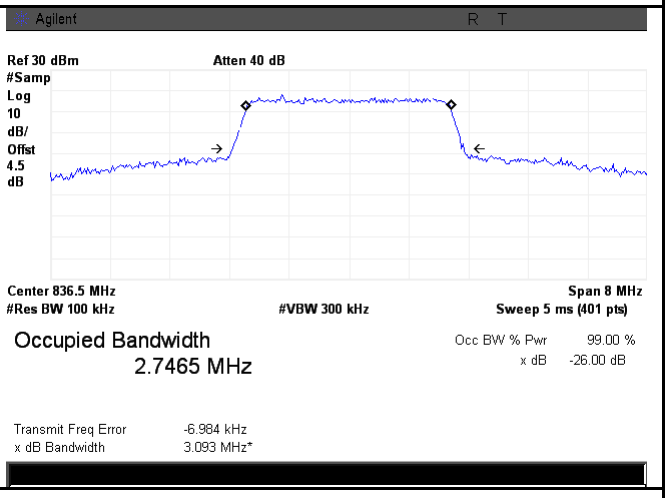
LTE band 5 - Low CH QPSK-3



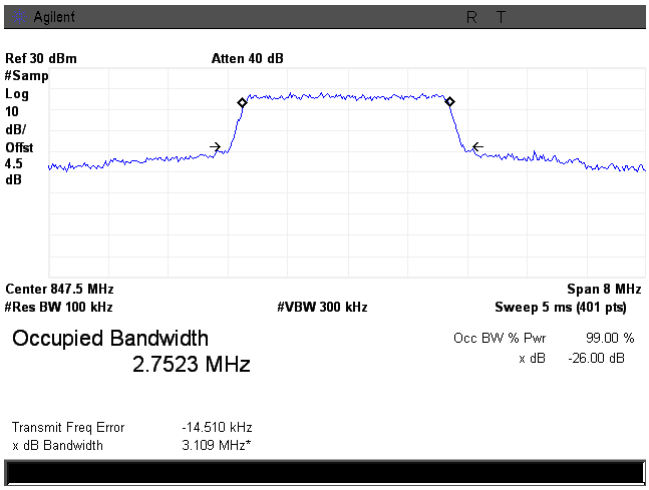
LTE band 5 - Low CH 16QAM-3



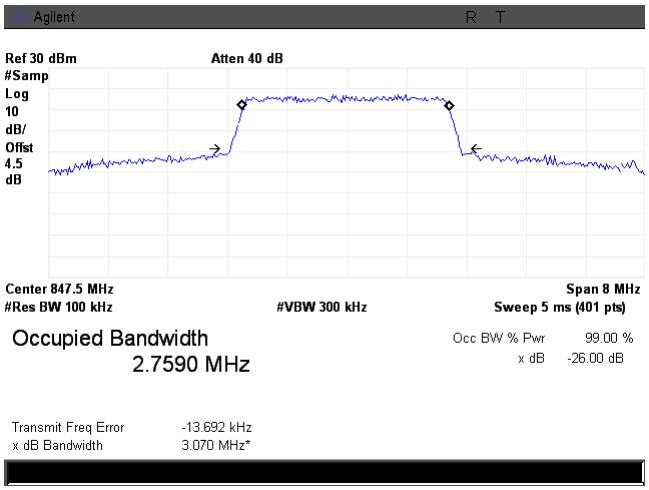
LTE band 5 - Middle CH QPSK-3



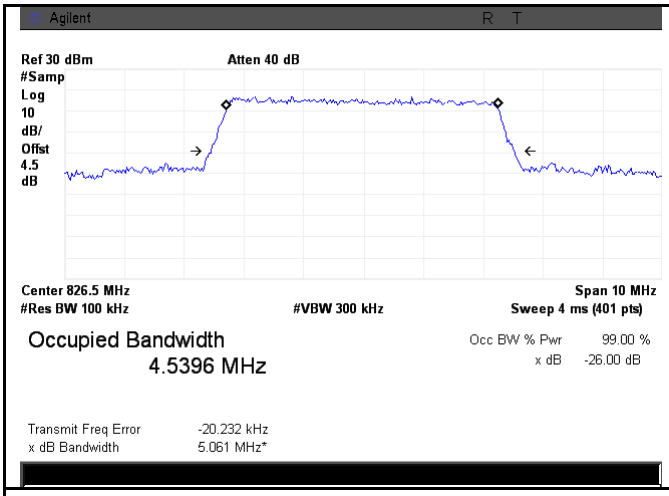
LTE band 5 - Middle CH 16QAM-3



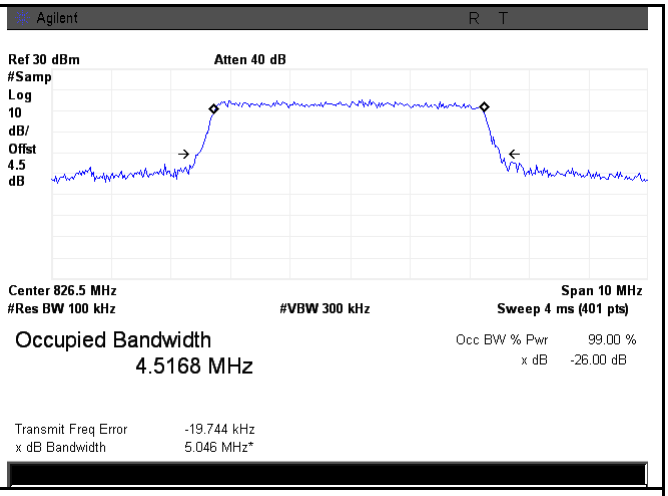
LTE band 5 - High CH QPSK-3



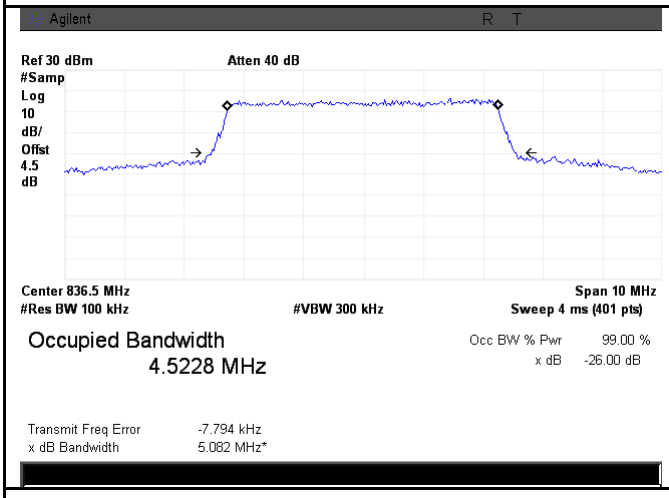
LTE band 5 - High CH 16QAM-3



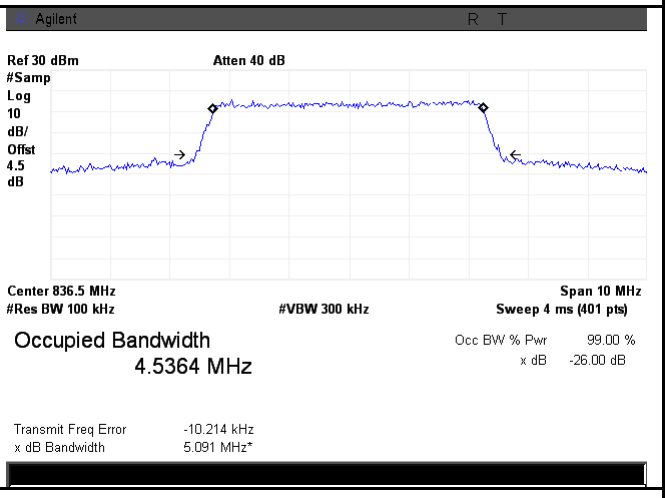
LTE band 5 - Low CH QPSK-5



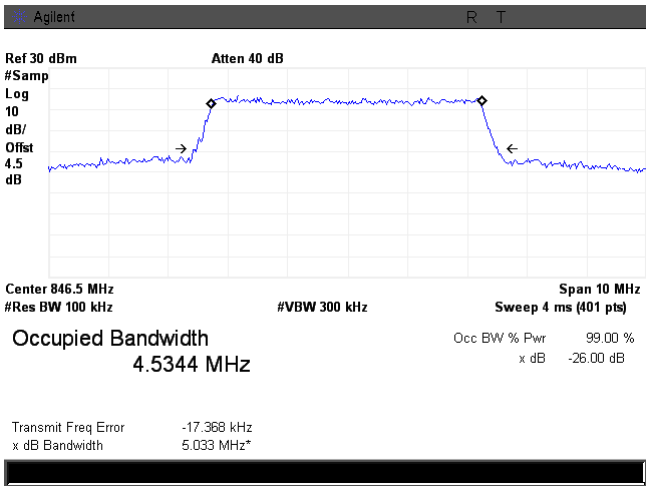
LTE band 5 - Low CH 16QAM-5



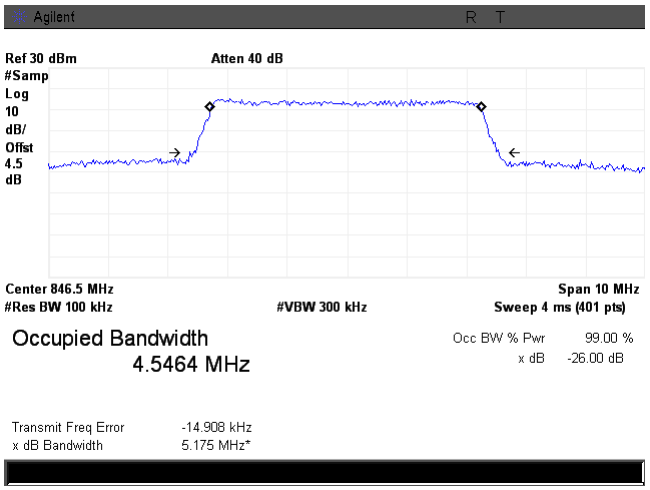
LTE band 5 - Middle CH QPSK-5



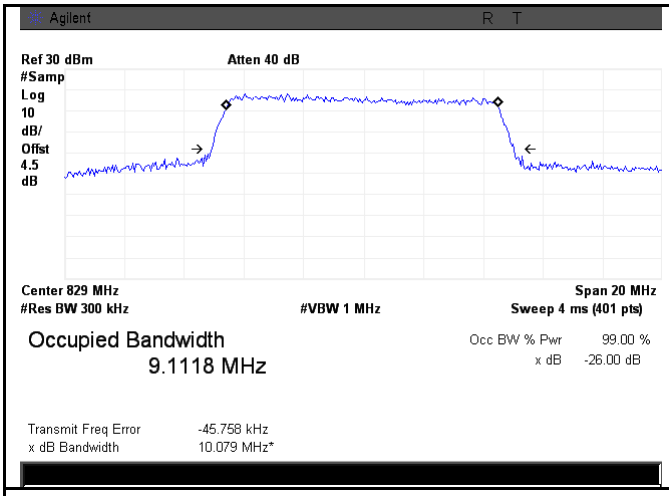
LTE band 5 - Middle CH 16QAM-5



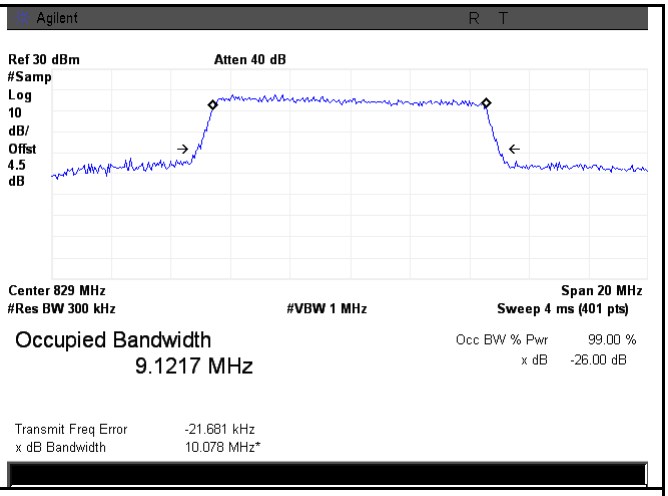
LTE band 5 - High CH QPSK-5



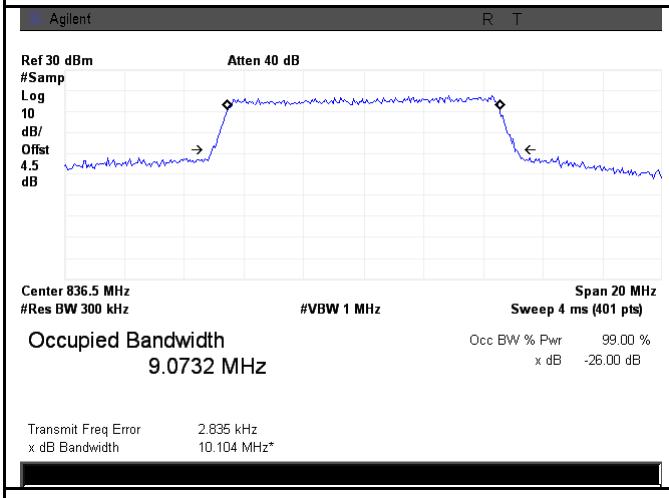
LTE band 5 - High CH 16QAM-5



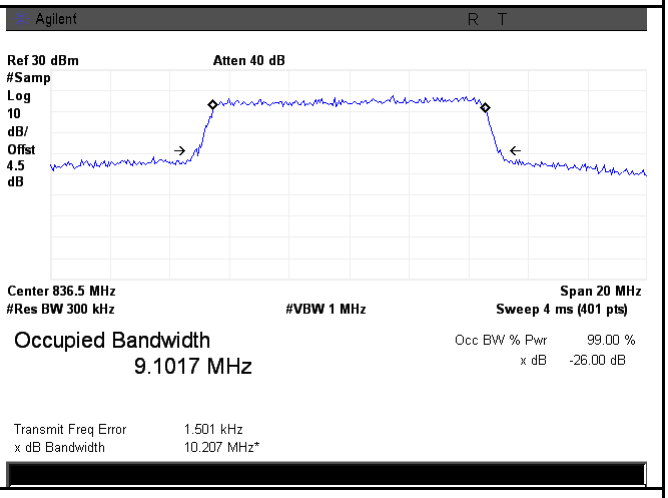
LTE band 5 - Low CH QPSK-10



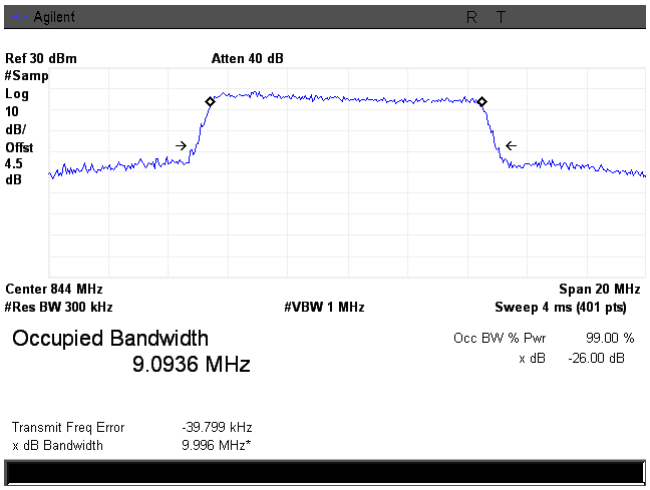
LTE band 5 - Low CH 16QAM-10



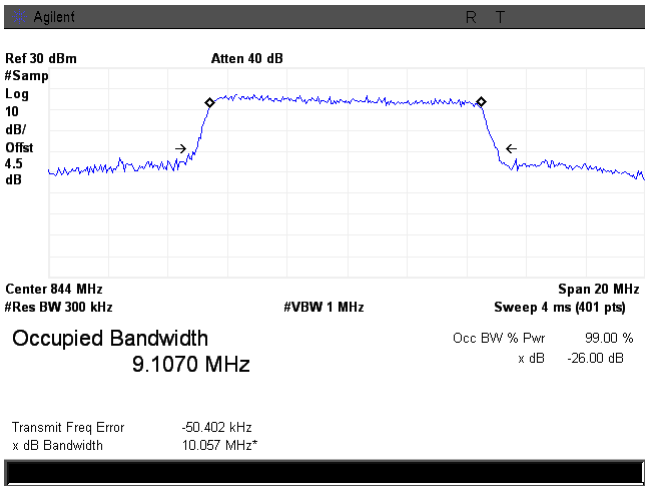
LTE band 5 - Middle CH QPSK-10



LTE band 5 - Middle CH 16QAM-10

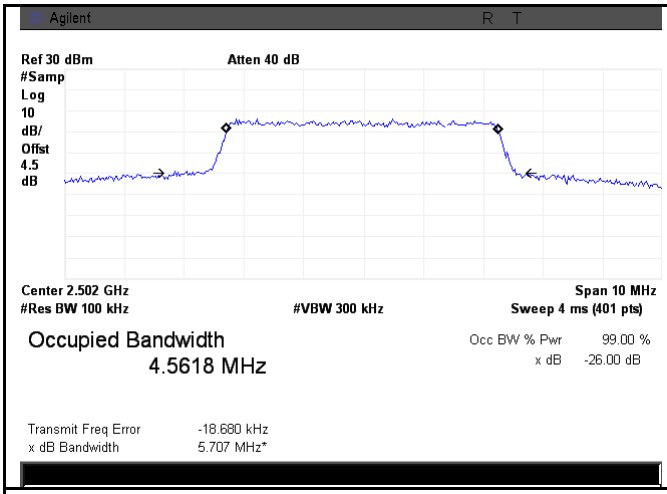


LTE band 5 - High CH QPSK-10

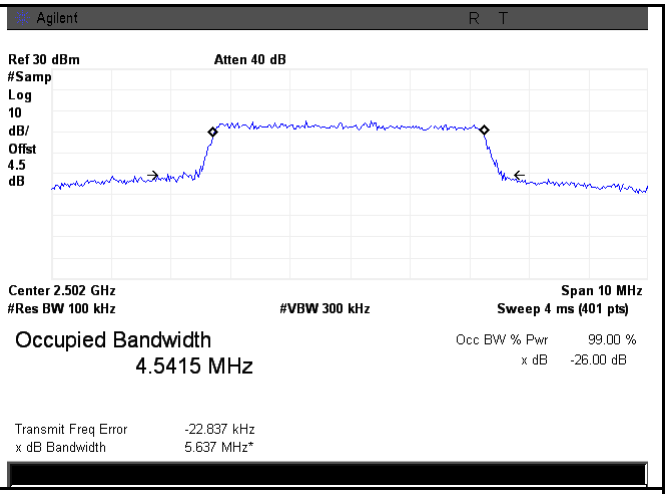


LTE band 5 - High CH 16QAM-10

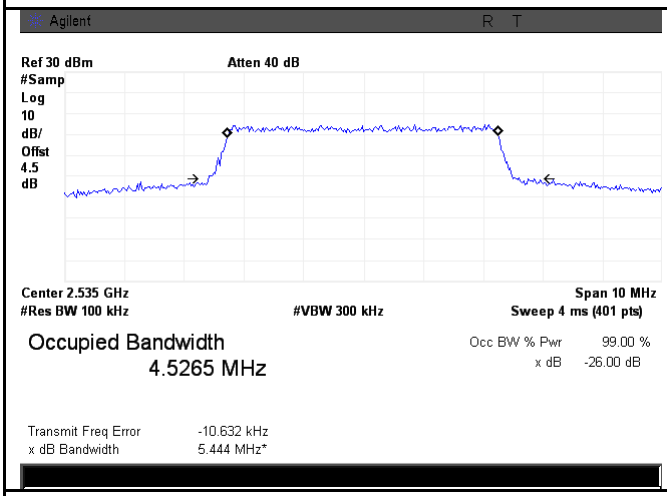
LTE Band 7 (Part 27)



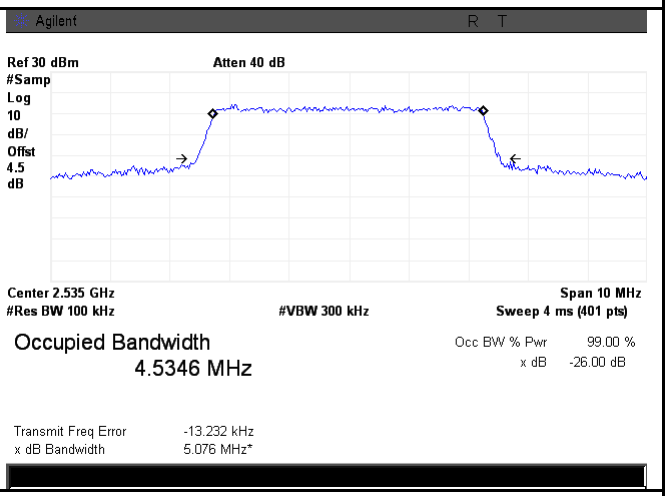
LTE band 7 - Low CH QPSK-5



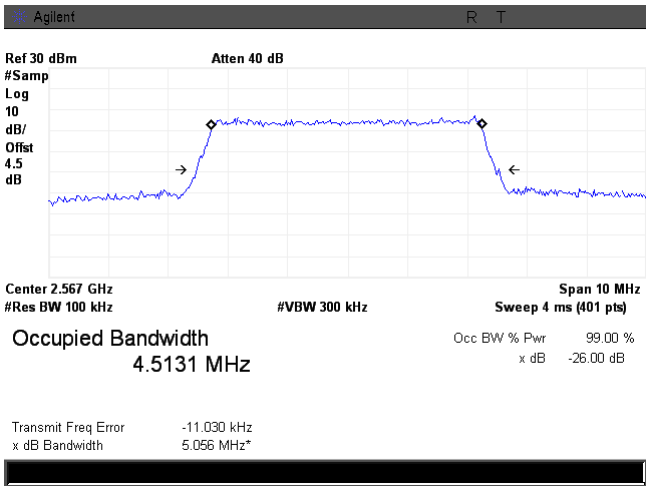
LTE band 7 - Low CH 16QAM-5



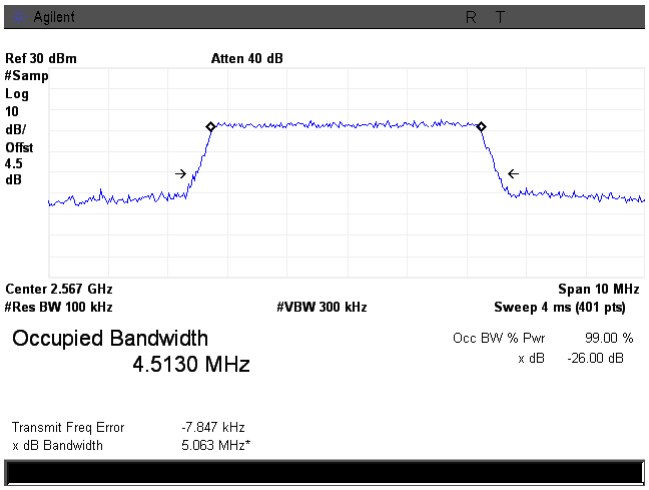
LTE band 7 - Middle CH QPSK-5



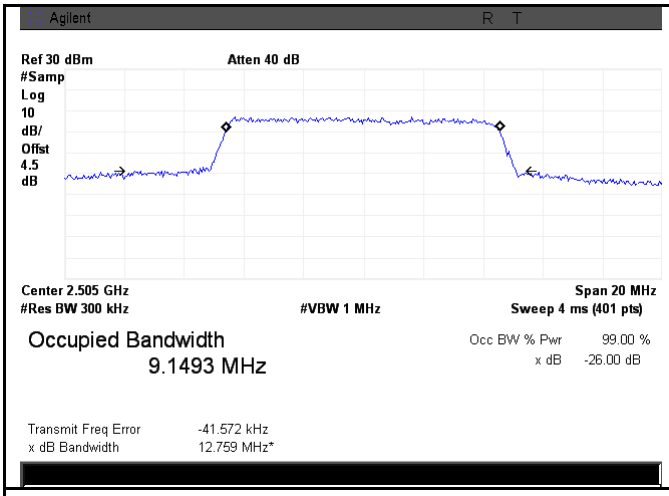
LTE band 7 - Middle CH 16QAM-5



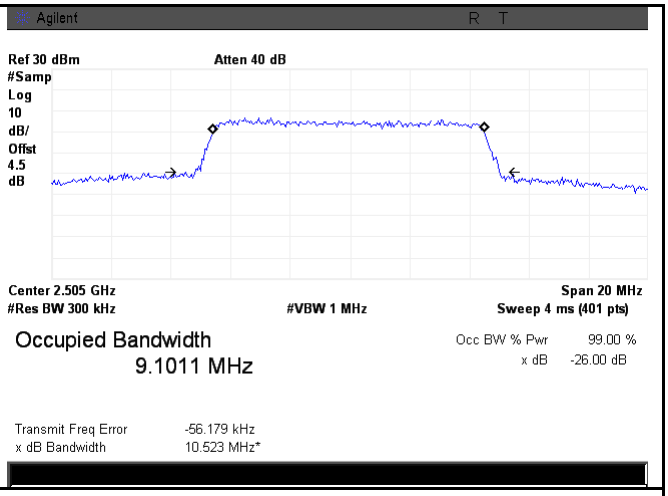
LTE band 7 - High CH QPSK-5



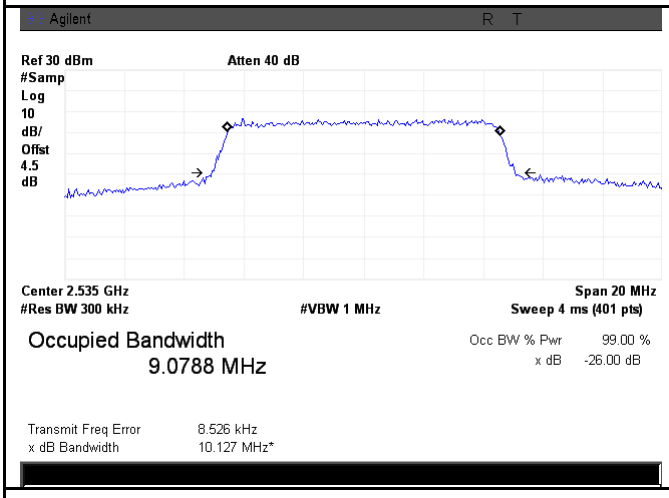
LTE band 7 - High CH 16QAM-5



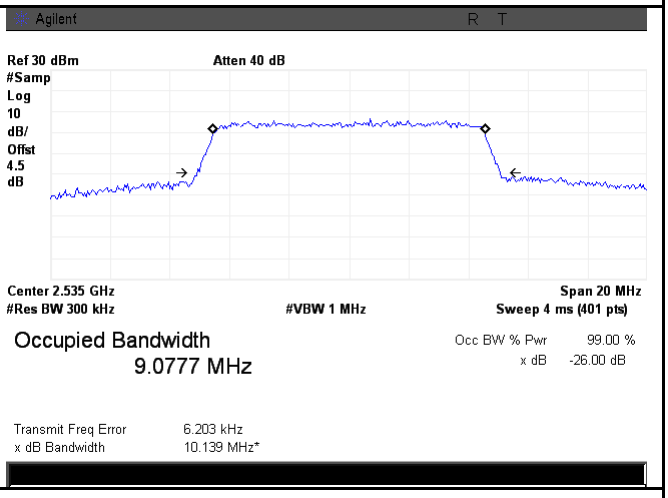
LTE band 7 - Low CH QPSK-10



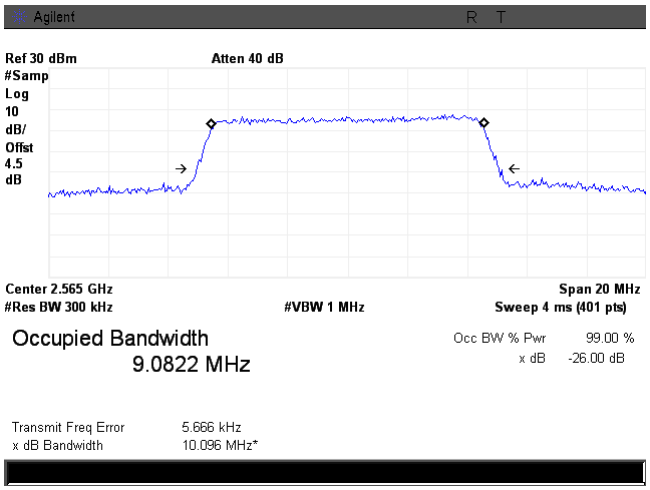
LTE band 7 - Low CH 16QAM-10



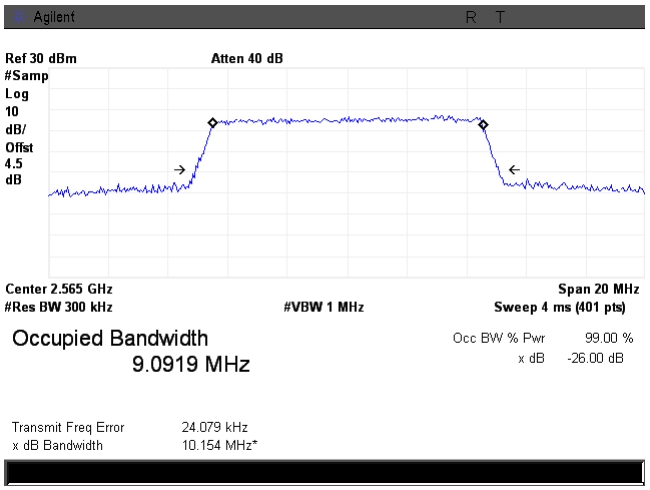
LTE band 7 - Middle CH QPSK-10



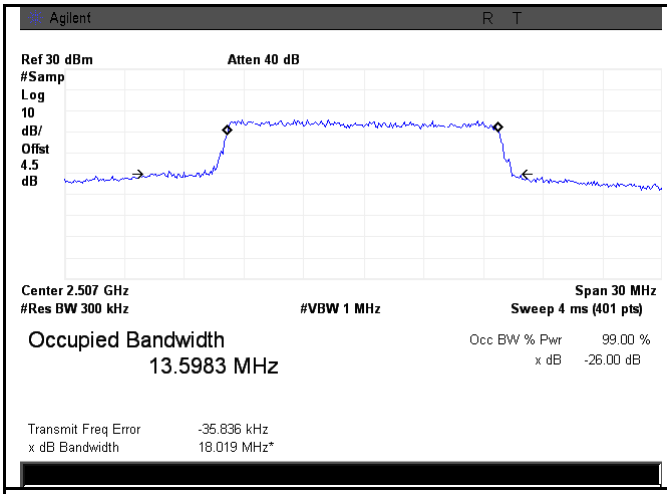
LTE band 7 - Middle CH 16QAM-10



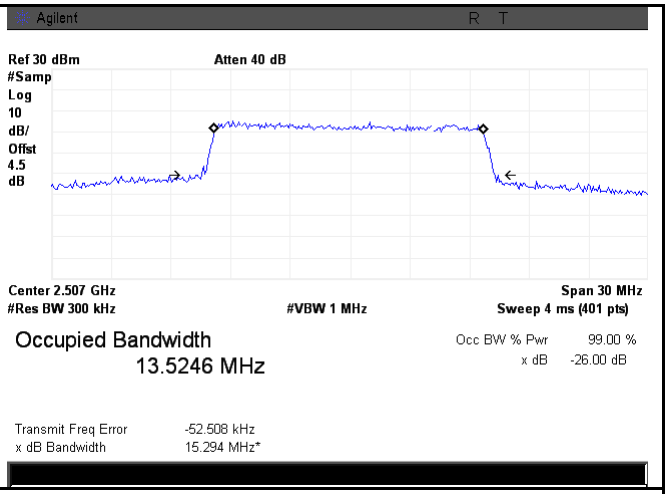
LTE band 7 - High CH QPSK-10



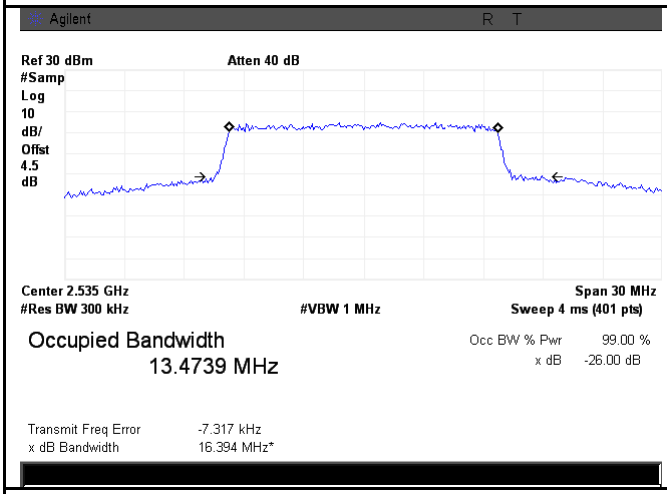
LTE band 7 - High CH 16QAM-10



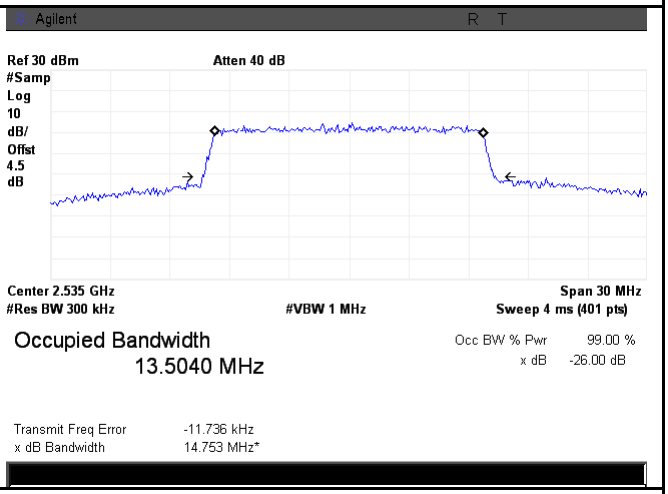
LTE band 7 - Low CH QPSK-15



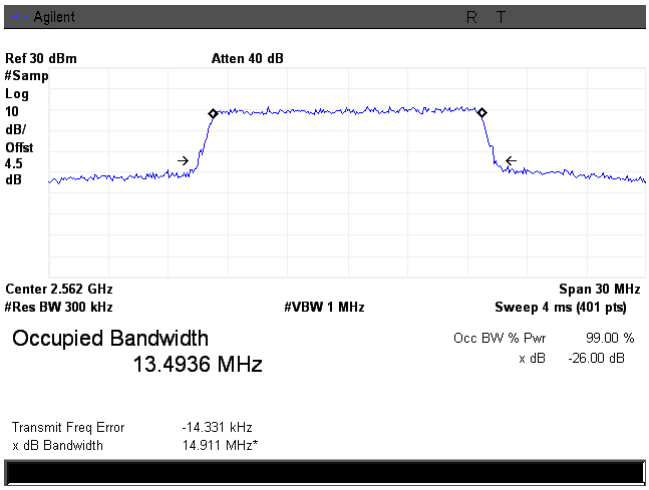
LTE band 7 - Low CH 16QAM-15



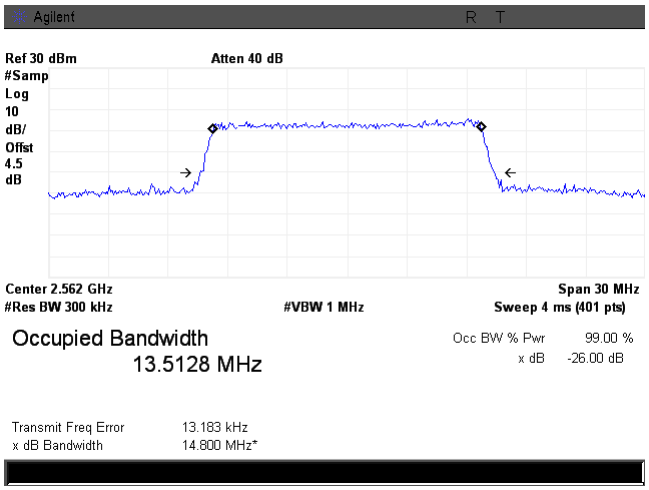
LTE band 7 - Middle CH QPSK-15



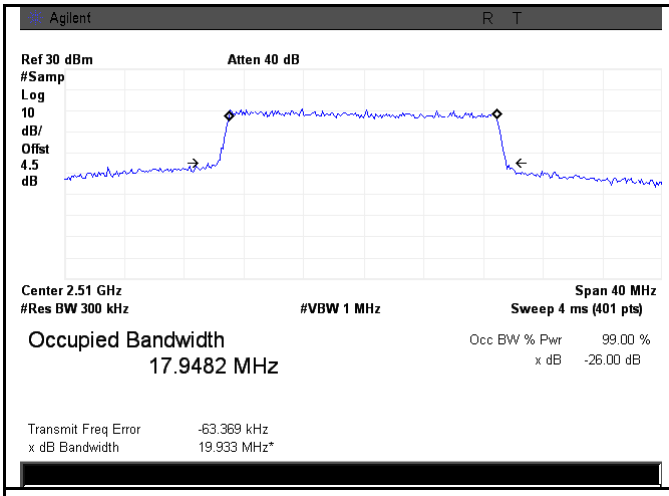
LTE band 7 - Middle CH 16QAM-15



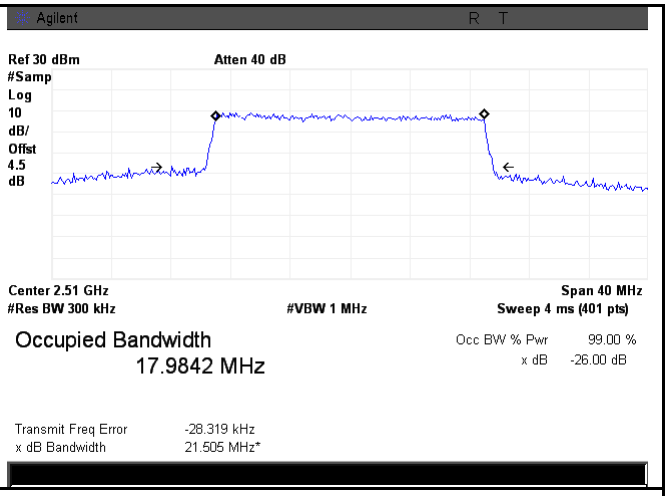
LTE band 7 - High CH QPSK-15



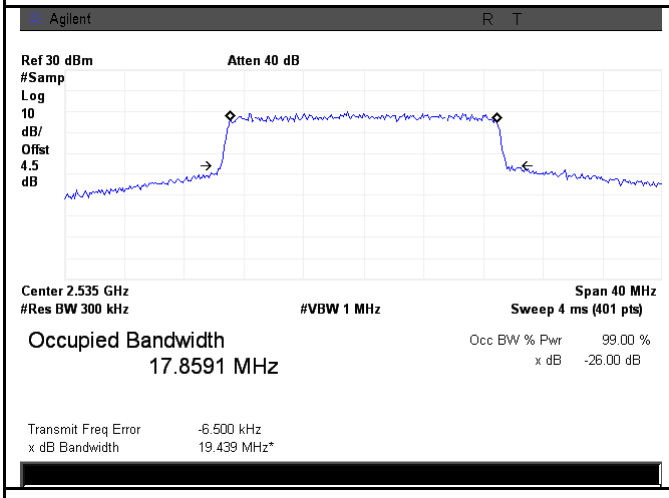
LTE band 7 - High CH 16QAM-15



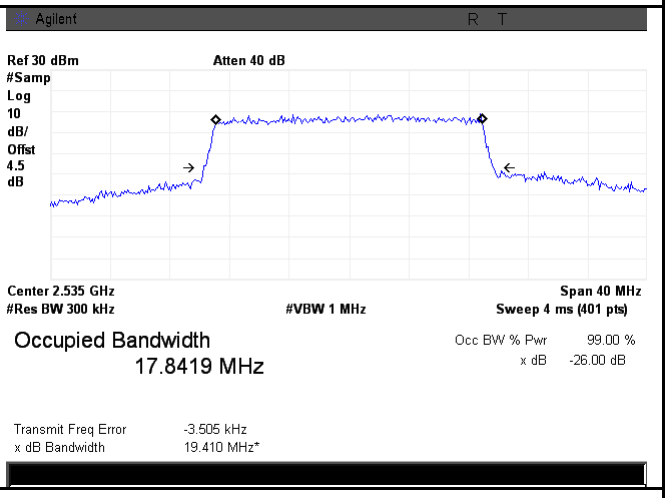
LTE band 7 - Low CH QPSK-20



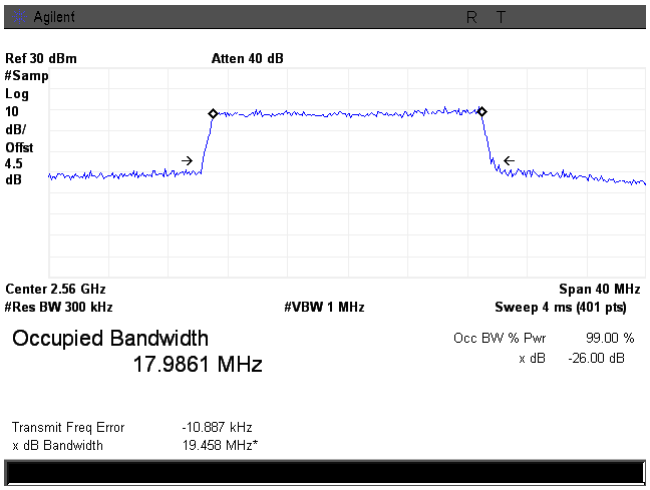
LTE band 7 - Low CH 16QAM-20



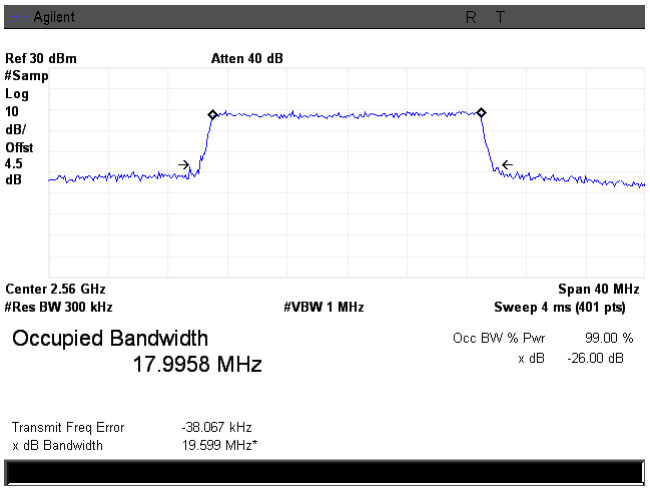
LTE band 7 - Middle CH QPSK-20



LTE band 7 - Middle CH 16QAM-20

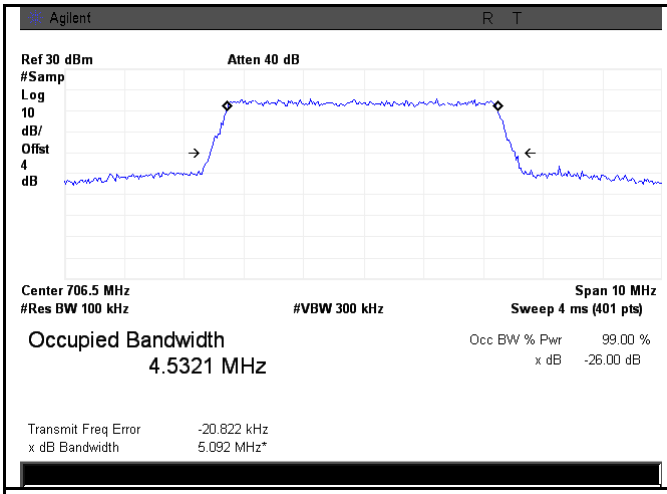


LTE band 7 - High CH QPSK-20

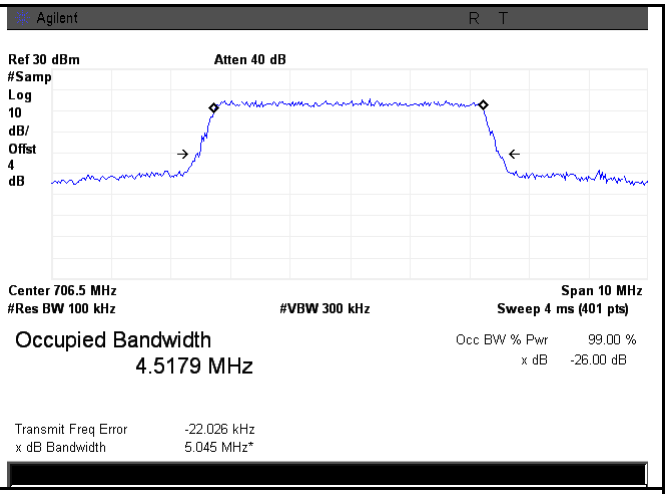


LTE band 7 - High CH 16QAM-20

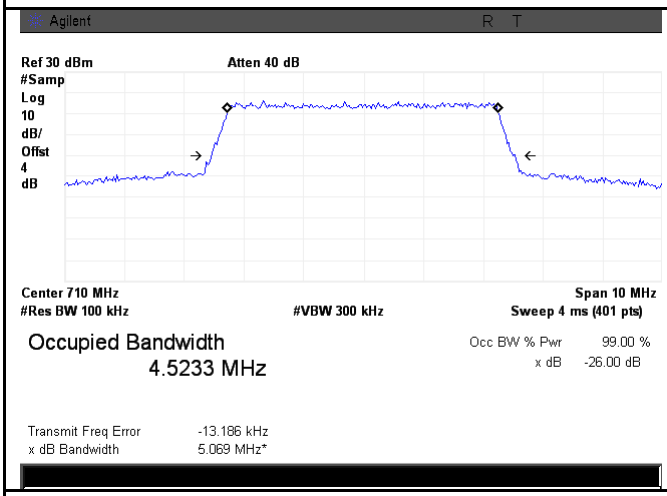
LTE Band 17 (Part 27)



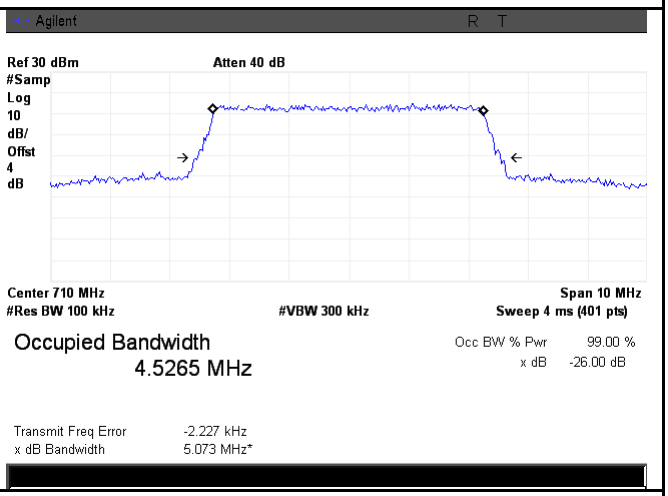
LTE band 17 - Low CH QPSK-5



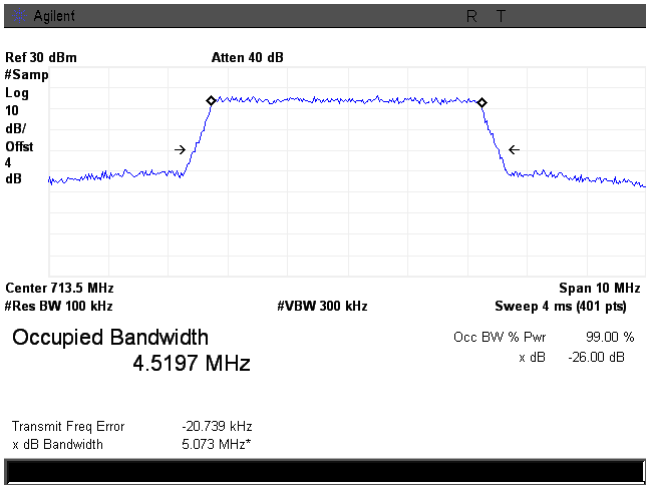
LTE band 17 - Low CH 16QAM-5



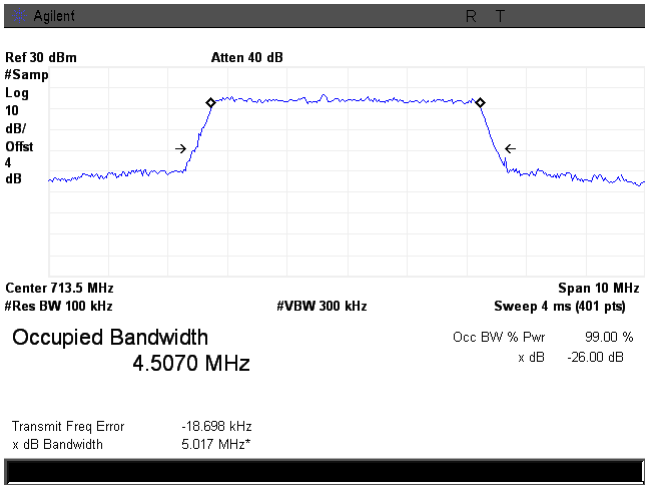
LTE band 17 - Middle CH QPSK-5



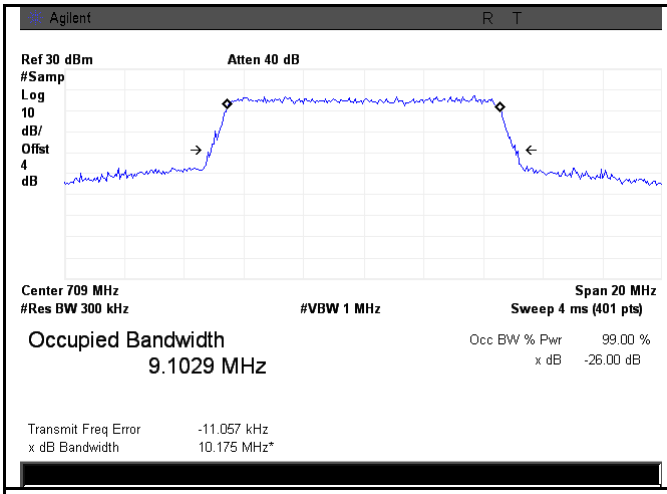
LTE band 17 - Middle CH 16QAM-5



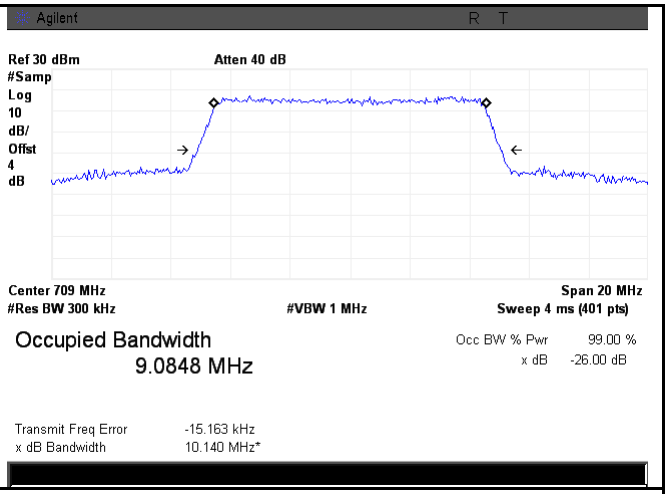
LTE band 17 - High CH QPSK-5



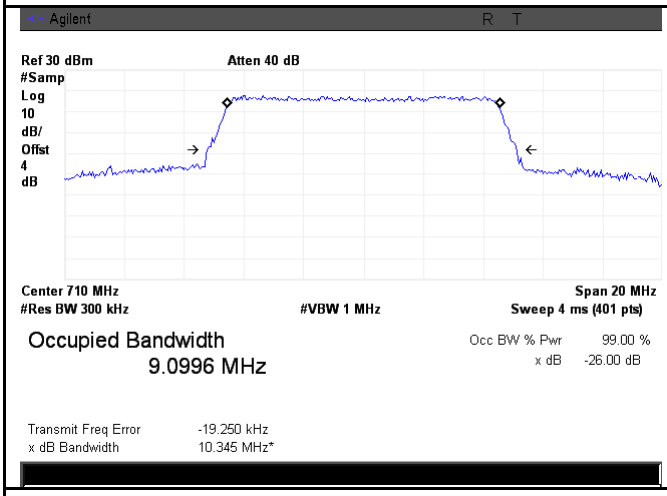
LTE band 17 - High CH 16QAM-5



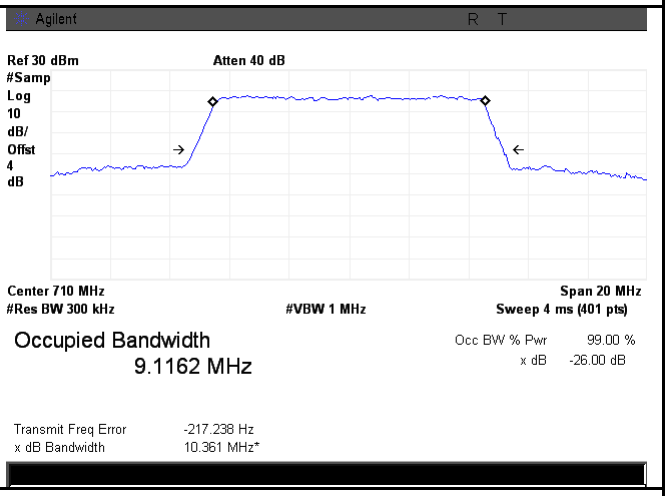
LTE band 17 - Low CH QPSK-10



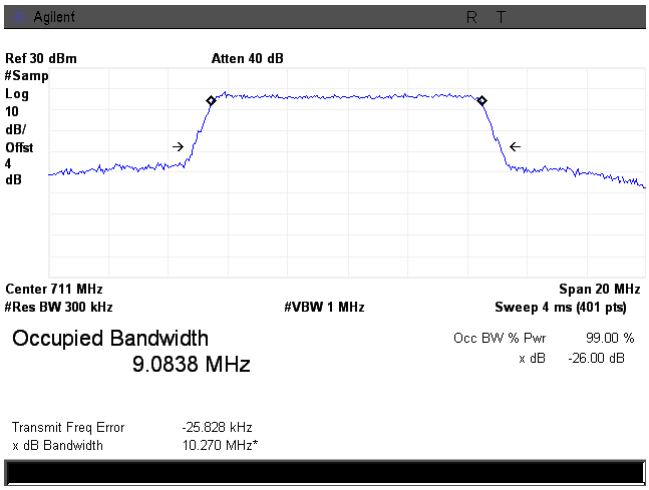
LTE band 17 - Low CH 16QAM-10



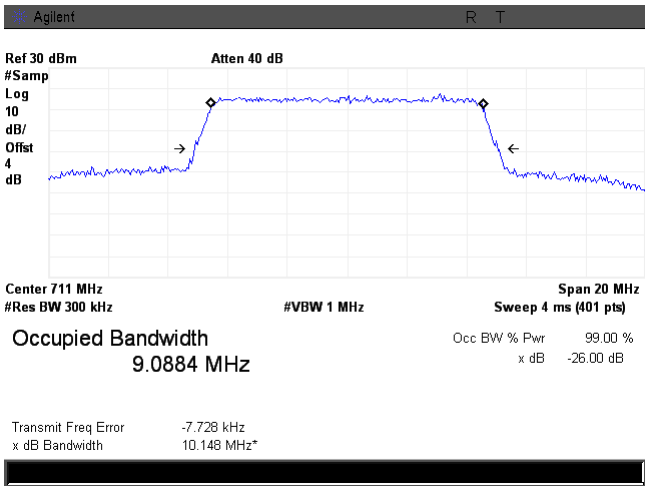
LTE band 17 - Middle CH QPSK-10



LTE band 17 - Middle CH 16QAM-10



LTE band 17 - High CH QPSK-10

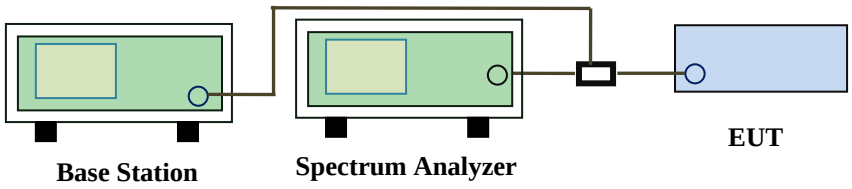


LTE band 17 - High CH 16QAM-10

6.6 Spurious Emissions at Antenna Terminals

Temperature	23℃
Relative Humidity	58%
Atmospheric Pressure	1005mbar
Test date :	November 06, 2015
Tested By :	Winnie Zhang

Requirement(s):

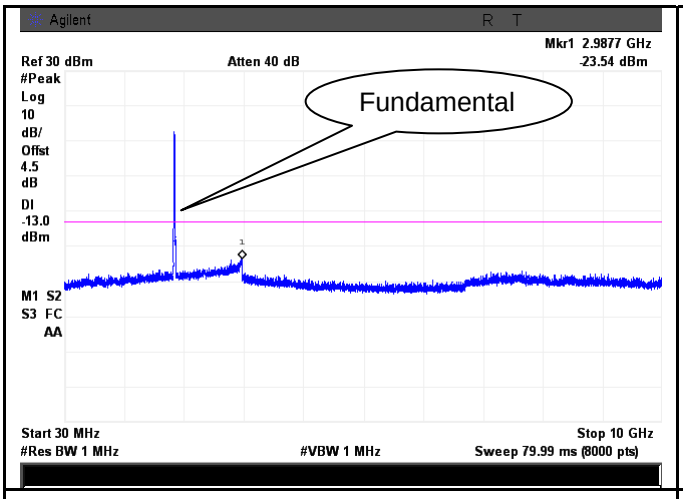
Spec	Item	Requirement	Applicable
§2.1051, §22.917(a)& §24.238(a) § 27.53(h)	a)	The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB	☑
Test Setup			
Test Procedure	- The EUT was connected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

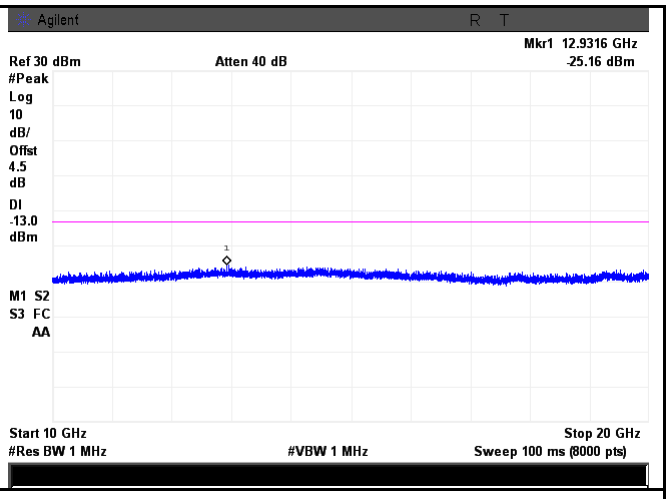
Test Plot ☑ Yes (See below) ☐ N/A

Test Plots 30MHz-5GHz

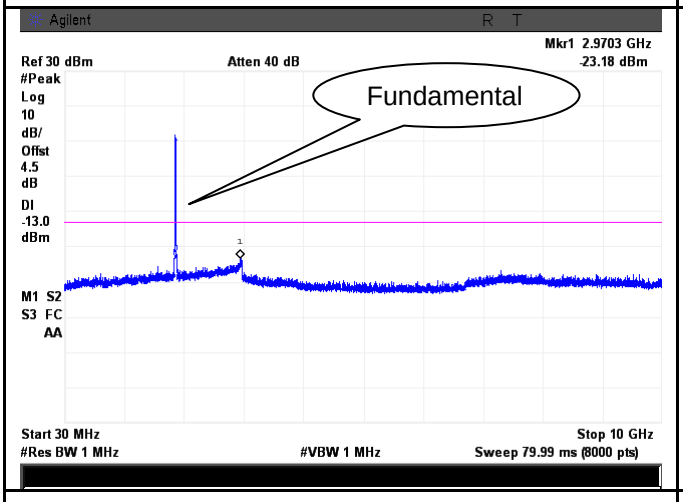
LTE Band 2 (Part 24E)



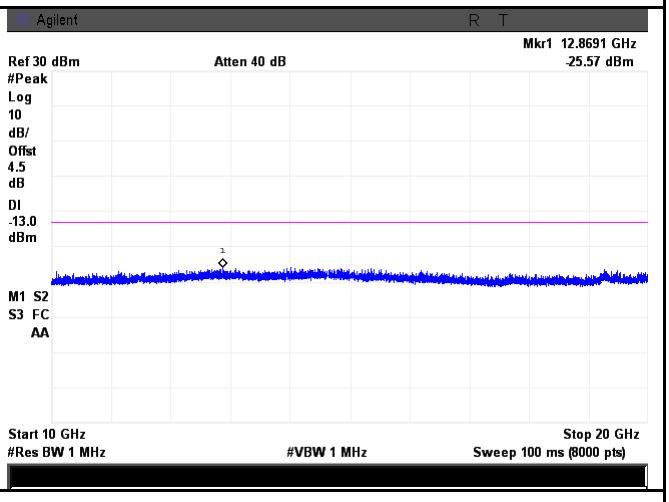
LTE Band 2 - Low Channel-1



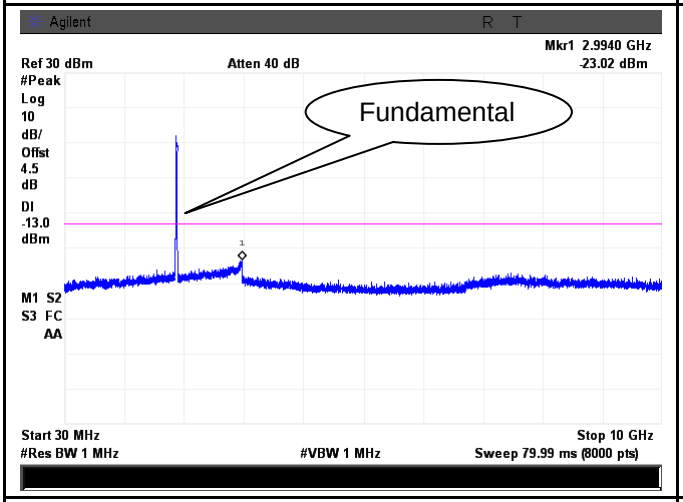
LTE Band 2 - Low Channel-2



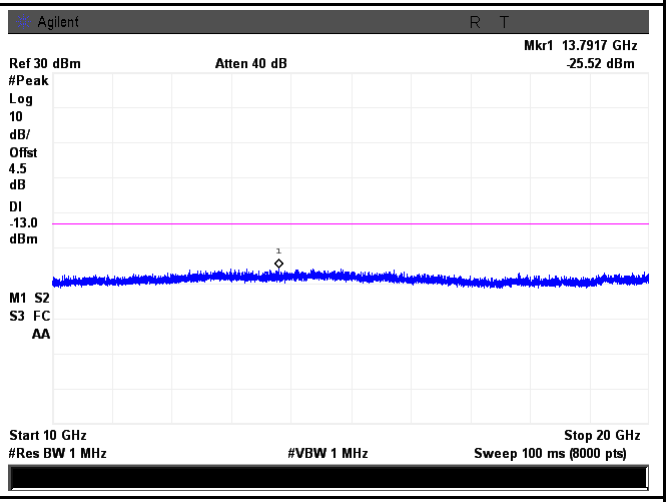
LTE Band 2 Middle Channel-1



LTE Band 2 Middle Channel-2

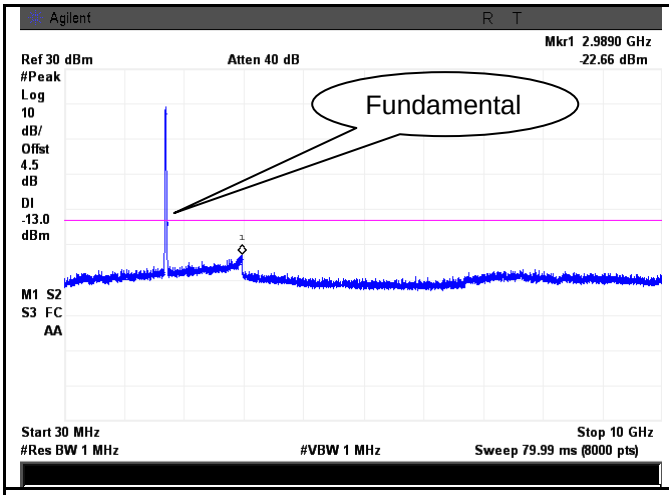


LTE Band 2 - High Channel-1

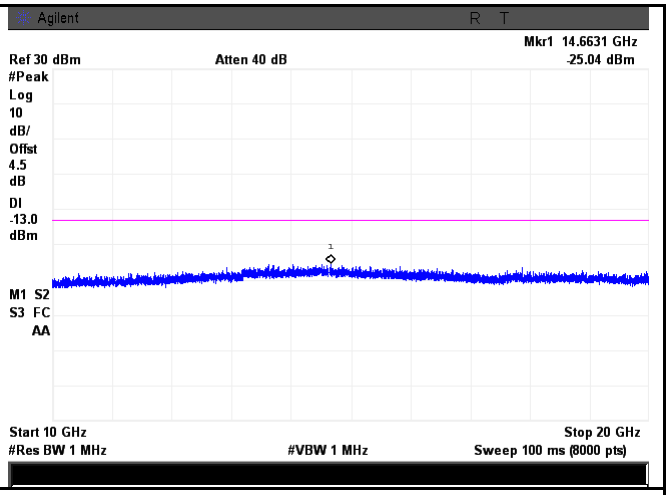


LTE Band 2 - High Channel-2

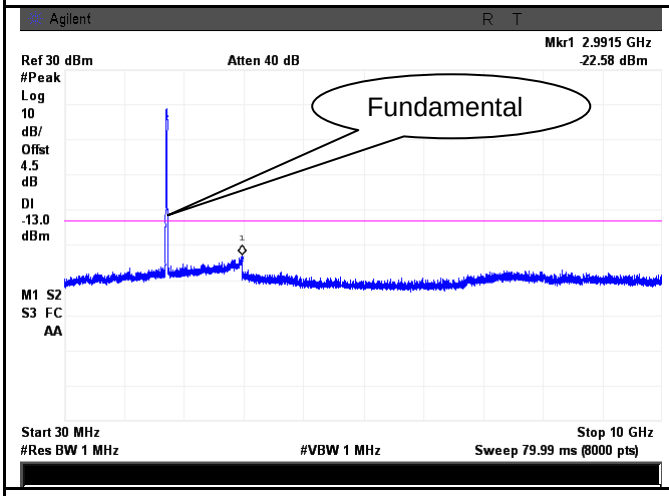
LTE Band 4 (Part27) result



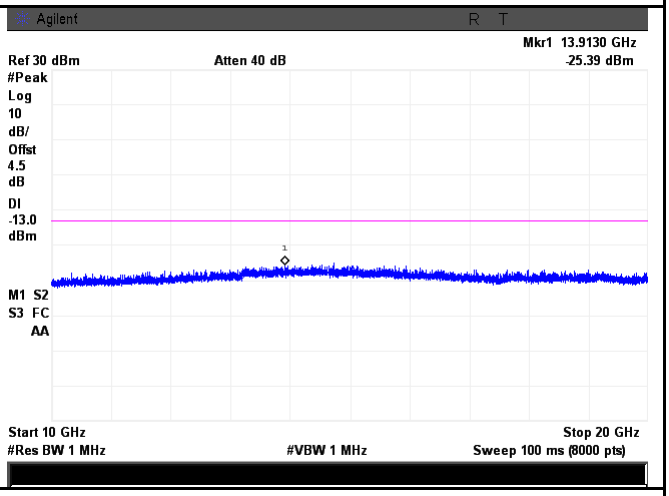
LTE Band 4 - Low Channel-1



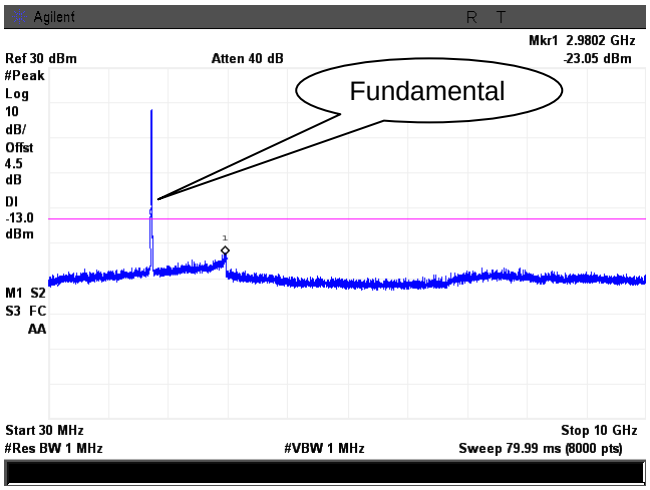
LTE Band 4 - Low Channel-2



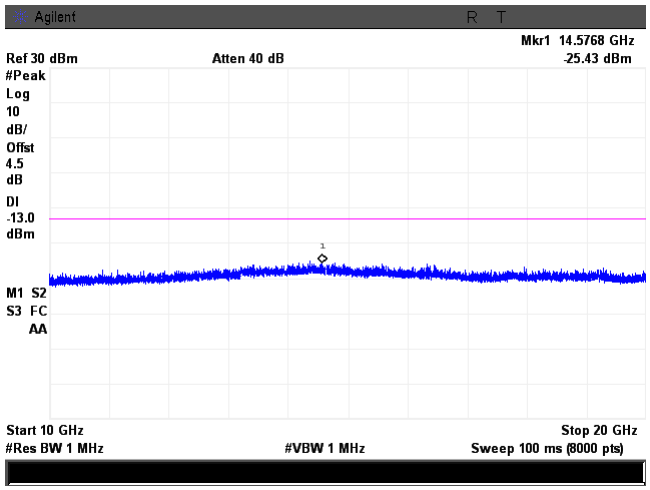
LTE Band 4 - Middle Channel-1



LTE Band 4 - Middle Channel-2

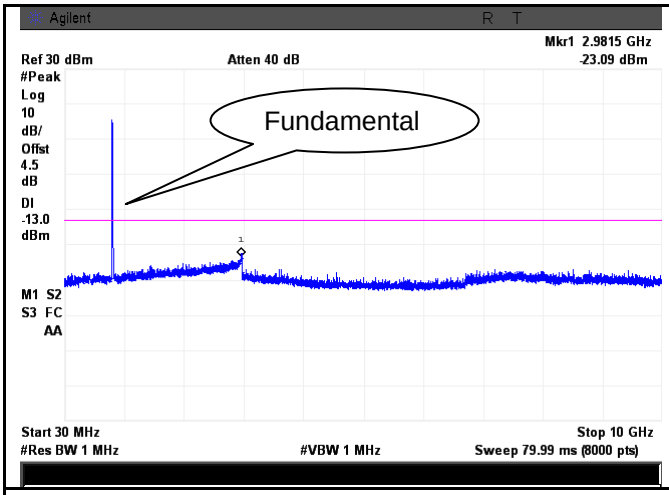


LTE Band 4 - High Channel-1

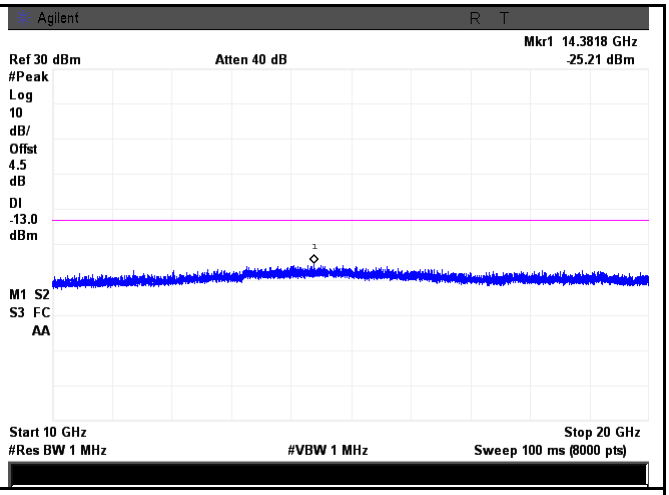


LTE Band 4 - High Channel-2

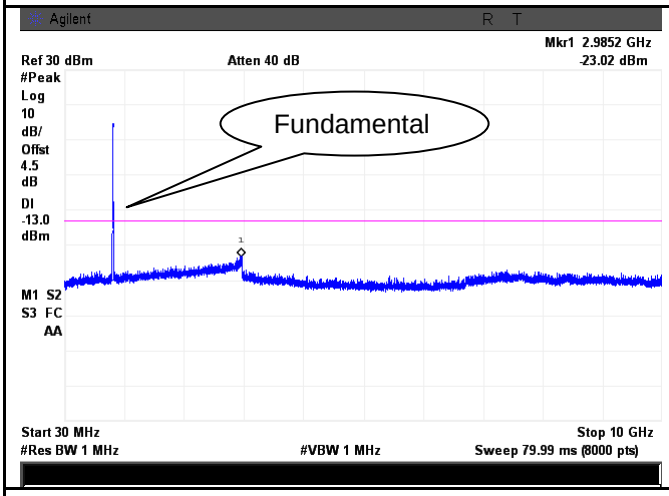
LTE Band 5 (Part 22H)



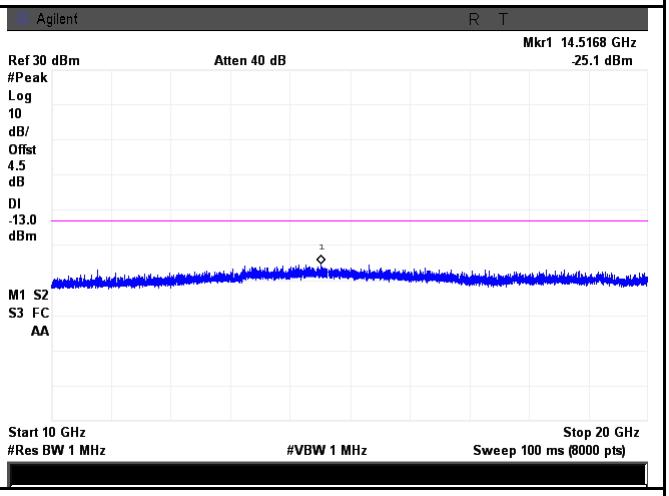
LTE Band 5 - Low Channel-1



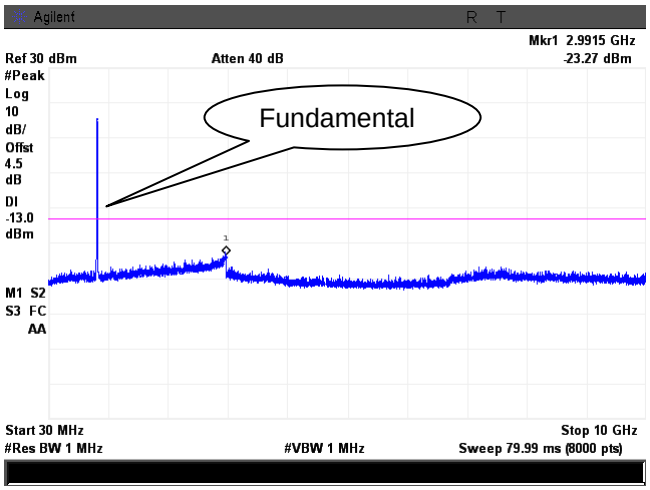
LTE Band 5 - Low Channel-2



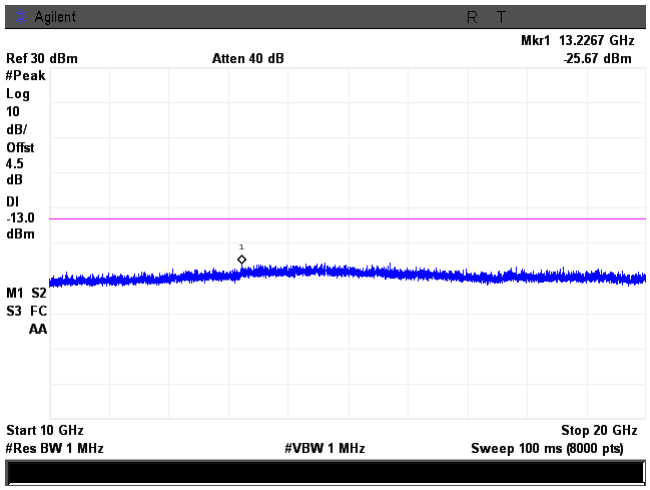
LTE Band 5- Middle Channel-1



LTE Band 5 - Middle Channel-2

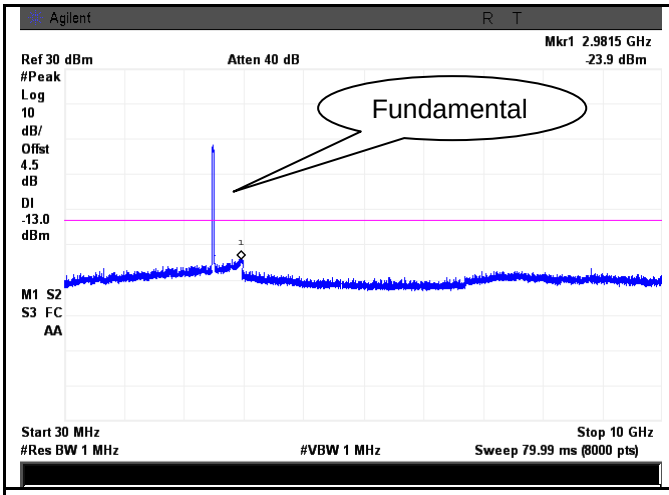


LTE Band 5 - High Channel-1

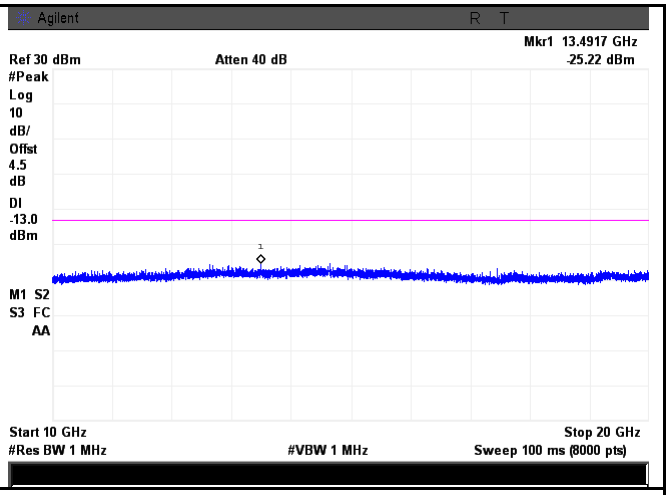


LTE Band 5 - High Channel-2

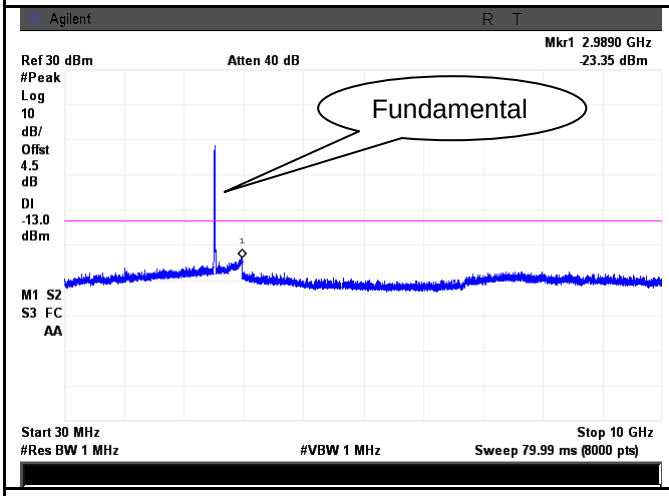
LTE Band 7 (Part 27)



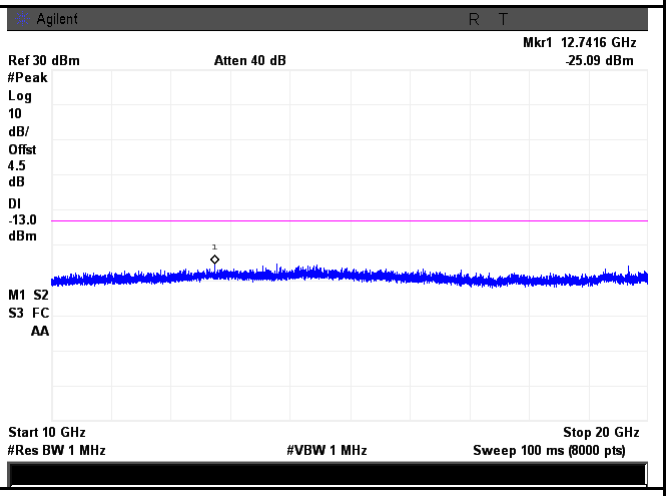
LTE Band 7 - Low Channel-1



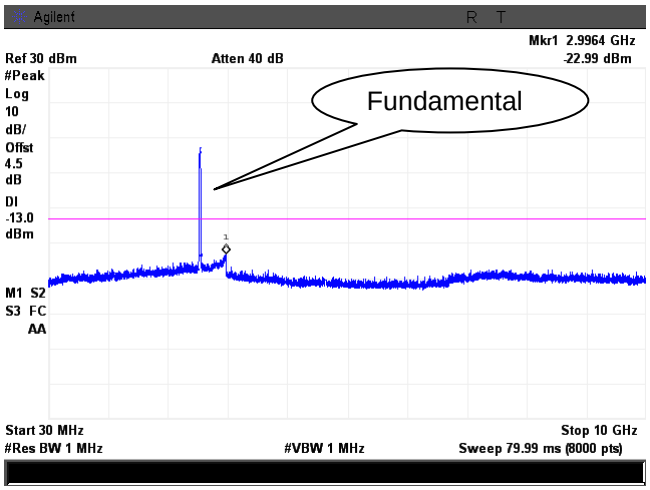
LTE Band 7 - Low Channel-2



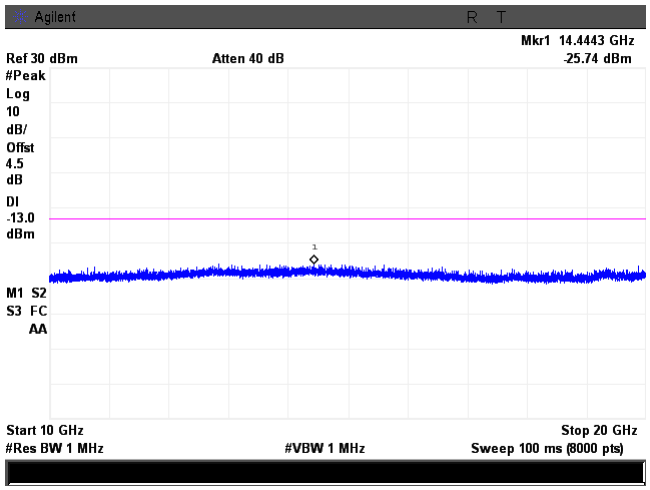
LTE Band 7- Middle Channel-1



LTE Band 7 - Middle Channel-2

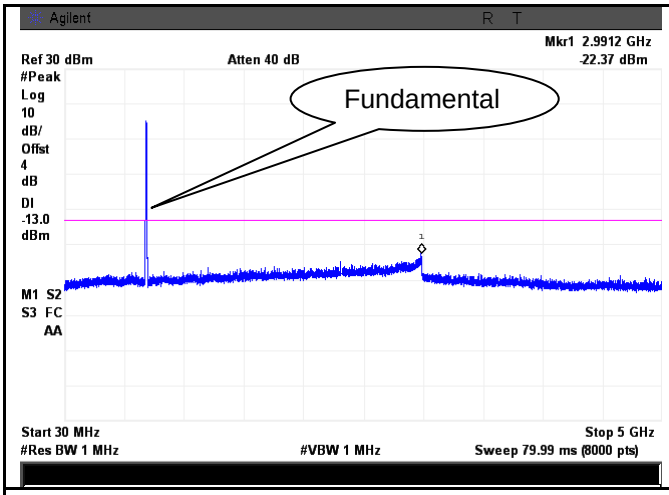


LTE Band 7 - High Channel-1

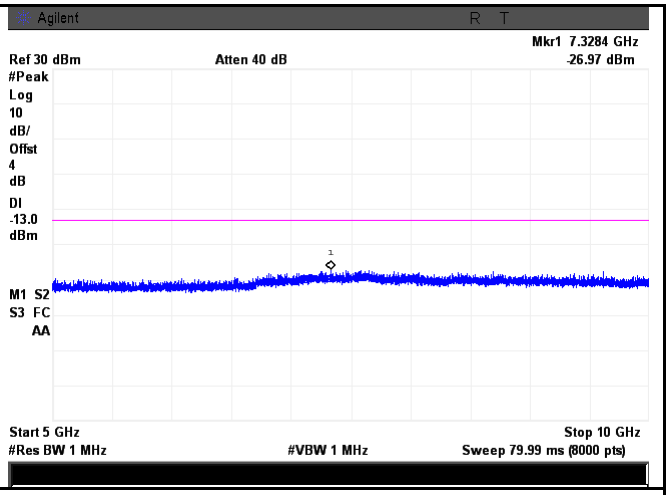


LTE Band 7 - High Channel-2

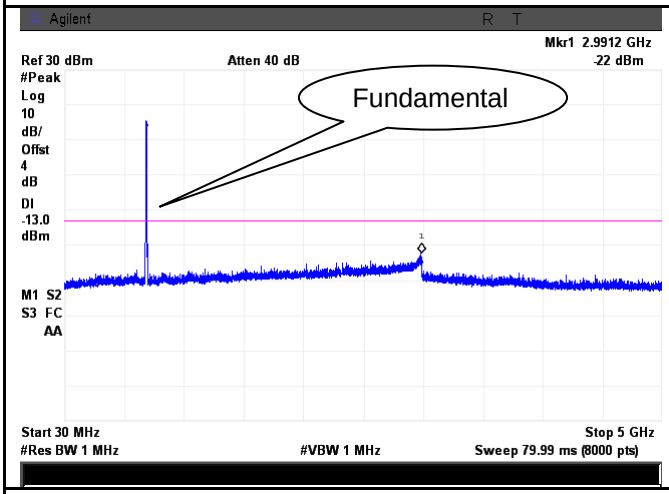
LTE Band 17 (Part 27)



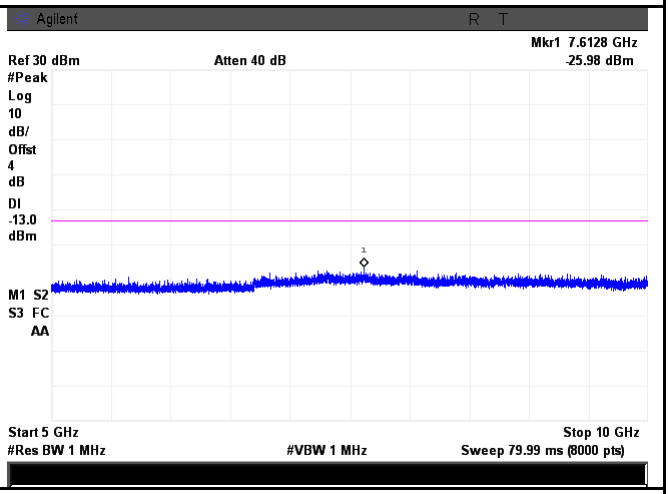
LTE Band 17 - Low Channel-1



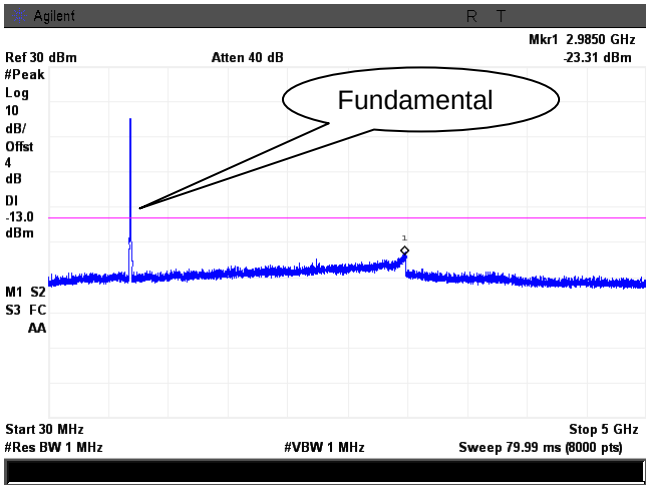
LTE Band 17 - Low Channel-2



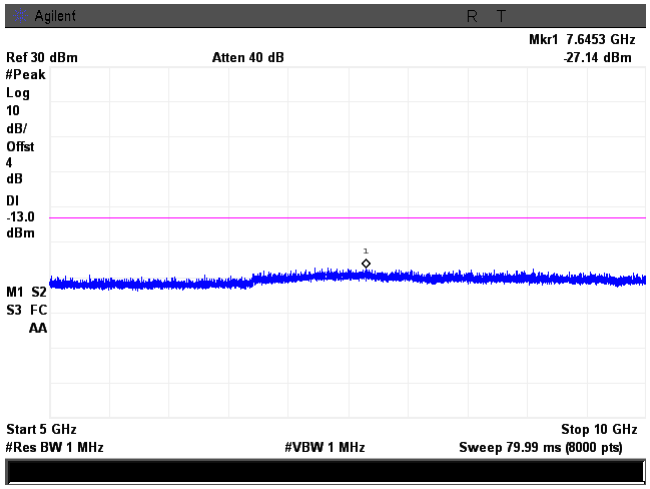
LTE Band 17- Middle Channel-1



LTE Band 17 - Middle Channel-2



LTE Band 17 - High Channel-1

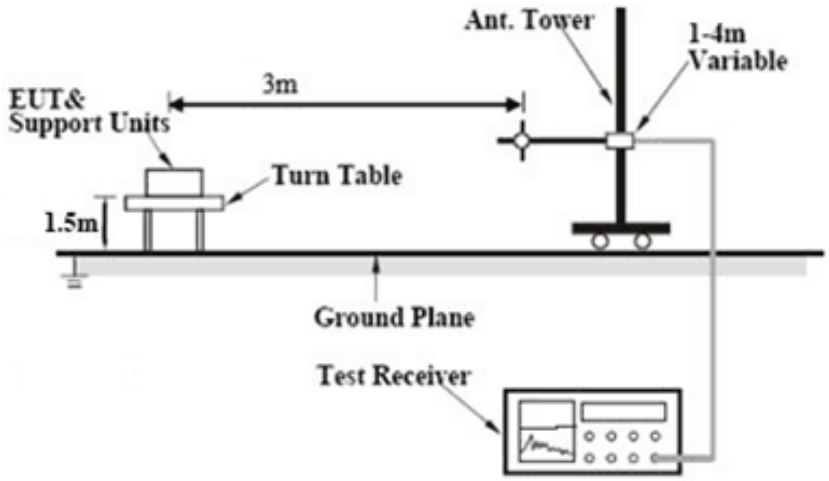


LTE Band 17 - High Channel-2

6.7 Spurious Radiated Emissions

Temperature	21℃
Relative Humidity	55%
Atmospheric Pressure	1005mbar
Test date :	November 09, 2015
Tested By :	Winnie Zhang

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 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	-46.22	V	10.25	2.73	-38.7	-13	-25.70
3720	-46.85	H	10.25	2.73	-39.33	-13	-26.33
46.5	-41.35	V	-4.2	0.11	-45.66	-13	-32.66
192.2	-49.49	H	4.6	0.18	-45.07	-13	-32.07

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	-46.19	V	10.25	2.73	-38.67	-13	-25.67
3760	-47.02	H	10.25	2.73	-39.50	-13	-26.50
46.2	-41.29	V	-4.2	0.11	-45.60	-13	-32.60
192.6	-49.53	H	4.6	0.18	-45.11	-13	-32.11

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	-45.88	V	10.36	2.73	-38.25	-13	-25.25
3800	-46.74	H	10.36	2.73	-39.11	-13	-26.11

46.3	-41.25	V	-4.2	0.11	-45.56	-13	-32.56
192.4	-50.03	H	4.6	0.18	-45.61	-13	-32.61

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	-45.96	V	10.06	2.52	-38.42	-13	-25.42
3440	-47.17	H	10.06	2.52	-39.63	-13	-26.63
47.1	-40.33	V	-4.2	0.11	-44.64	-13	-31.64
193.5	-48.39	H	4.6	0.18	-43.97	-13	-30.97

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	-46.08	V	10.09	2.52	-38.51	-13	-25.51
3465	-46.86	H	10.09	2.52	-39.29	-13	-26.29
47.5	-40.41	V	-4.2	0.11	-44.72	-13	-31.72
193.2	-49.12	H	4.6	0.18	-44.70	-13	-31.70

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	-45.73	V	10.09	2.52	-38.16	-13	-25.16
3490	-47.04	H	10.09	2.52	-39.47	-13	-26.47
47.6	-40.38	V	-4.2	0.11	-44.69	-13	-31.69
193.7	-48.78	H	4.6	0.18	-44.36	-13	-31.36

LTE Band 5(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	-44.47	V	7.95	0.78	-37.30	-13	-24.30
1658	-45.18	H	7.95	0.78	-38.01	-13	-25.01
46.9	-41.72	V	-4.2	0.11	-46.03	-13	-33.03
192.5	-50.29	H	4.6	0.18	-45.87	-13	-32.87

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	-44.56	V	7.95	0.78	-37.39	-13	-24.39
1673	-45.02	H	7.95	0.78	-37.85	-13	-24.85
46.7	-41.68	V	-4.2	0.11	-45.99	-13	-32.99
192.4	-50.34	H	4.6	0.18	-45.92	-13	-32.92

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	-44.66	V	7.95	0.78	-37.49	-13	-24.49
1688	-45.07	H	7.95	0.78	-37.90	-13	-24.90
46.8	-41.72	V	-4.2	0.11	-46.03	-13	-33.03
192.3	-50.63	H	4.6	0.18	-46.21	-13	-33.21

LTE Band 7(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	-49.61	V	10.29	0.98	-40.3	-13	-27.3
5020	-50.13	H	10.29	0.98	-40.82	-13	-27.82
45.8	-42.58	V	-4.2	0.11	-46.89	-13	-33.89
192.7	-50.91	H	4.6	0.18	-46.49	-13	-33.49

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	-49.57	V	10.3	0.99	-40.26	-13	-27.26
5070	-50.06	H	10.3	0.99	-40.75	-13	-27.75
45.5	-42.35	V	-4.2	0.11	-46.66	-13	-33.66
192.4	-50.81	H	4.6	0.18	-46.39	-13	-33.39

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	-49.63	V	10.32	1	-40.31	-13	-27.31
5120	-49.87	H	10.32	1	-40.55	-13	-27.55
45.1	-42.22	V	-4.2	0.11	-46.53	-13	-33.53
192.8	-50.68	H	4.6	0.18	-46.26	-13	-33.26

LTE Band 17(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	-44.51	V	7.65	0.75	-37.61	-13	-24.61
1418	-45.26	H	7.65	0.75	-38.36	-13	-25.36
47.5	-40.08	V	-4.2	0.11	-44.39	-13	-31.39
193.5	-48.73	H	4.6	0.18	-44.31	-13	-31.31

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	-44.46	V	7.65	0.75	-37.56	-13	-24.56
1420	-45.32	H	7.65	0.75	-38.42	-13	-25.42
47.2	-40.12	V	-4.2	0.11	-44.43	-13	-31.43
193.4	-48.69	H	4.6	0.18	-44.27	-13	-31.27

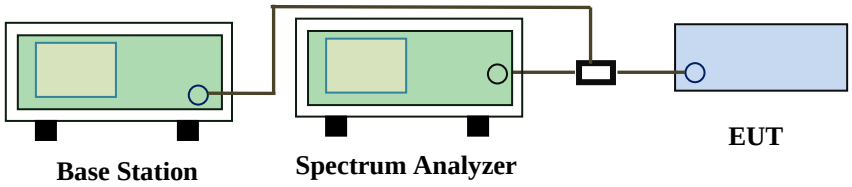
High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1422	-44.37	V	7.65	0.75	-37.47	-13	-24.47
1422	-45.24	H	7.65	0.75	-38.34	-13	-25.34
47.8	-40.15	V	-4.2	0.11	-44.46	-13	-31.46
193.2	-48.77	H	4.6	0.18	-44.35	-13	-31.35

6.8 Band Edge

Temperature	21℃
Relative Humidity	55%
Atmospheric Pressure	1005mbar
Test date :	November 09, 2015
Tested By :	Winnie Zhang

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 2 (Part 24E) result

BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
1.4	18607	1850.7	QPSK	-14.53	-13
			16QAM	-15.25	-13
1.4	18900	1909.3	QPSK	-14.40	-13
			16QAM	-15.04	-13
3	18615	1851.5	QPSK	-13.93	-13
			16QAM	-16.10	-13
3	19185	1908.5	QPSK	-13.97	-13
			16QAM	-16.63	-13
5	18625	1852.5	QPSK	-13.86	-13
			16QAM	-14.21	-13
5	19175	1907.5	QPSK	-19.21	-13
			16QAM	-19.47	-13
10	18650	1855	QPSK	-14.05	-13
			16QAM	-16.09	-13
10	19150	1905	QPSK	-15.76	-13
			16QAM	-17.26	-13
15	18675	1857.5	QPSK	-16.60	-13
			16QAM	-20.46	-13
15	19125	1902.5	QPSK	-19.16	-13
			16QAM	-20.03	-13
20	18700	1860	QPSK	-17.13	-13
			16QAM	-20.49	-13
20	19100	1900	QPSK	-18.38	-13
			16QAM	-19.33	-13

LTE Band 4 (Part 27) result

BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
1.4	19957	1710.7	QPSK	-20.37	-13
			16QAM	-17.39	-13
1.4	20393	1754.3	QPSK	-22.35	-13
			16QAM	-19.86	-13
3	19965	1711.5	QPSK	-15.89	-13
			16QAM	-16.43	-13
3	20385	1753.5	QPSK	-17.68	-13
			16QAM	-16.86	-13
5	19975	1712.5	QPSK	-15.48	-13
			16QAM	-14.99	-13
5	20375	1752.5	QPSK	-15.26	-13
			16QAM	-16.09	-13
10	20000	1715	QPSK	-15.82	-13
			16QAM	-17.32	-13
10	20350	1750	QPSK	-16.67	-13
			16QAM	-17.28	-13
15	20025	1717.5	QPSK	-19.90	-13
			16QAM	-17.65	-13
15	20325	1747.5	QPSK	-16.80	-13
			16QAM	-16.61	-13
20	20050	1720	QPSK	-19.22	-13
			16QAM	-17.05	-13
20	20300	1745	QPSK	-16.11	-13
			16QAM	-15.20	-13

LTE Band 5 (Part 22H) result

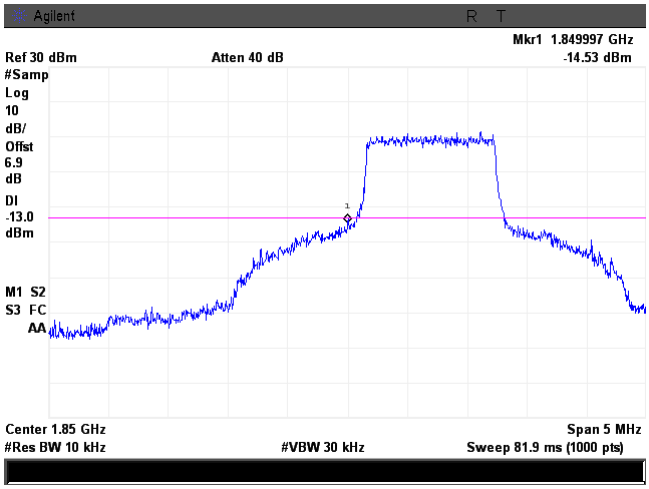
BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
1.4	20407	824.7	QPSK	-21.13	-13
			16QAM	-20.26	-13
1.4	20643	848.3	QPSK	-15.38	-13
			16QAM	-15.65	-13
3	20415	825.5	QPSK	-16.31	-13
			16QAM	-18.03	-13
3	20635	847.5	QPSK	-18.81	-13
			16QAM	-20.57	-13
5	20425	826.5	QPSK	-19.62	-13
			16QAM	-21.05	-13
5	20625	846.5	QPSK	-20.18	-13
			16QAM	-20.40	-13
10	20450	829	QPSK	-20.94	-13
			16QAM	-20.83	-13
10	20800	844	QPSK	-24.38	-13
			16QAM	-23.03	-13

LTE Band 17 (Part 27) result

BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
5	23755	706.5	QPSK	-19.30	-13
			16QAM	-21.38	-13
5	23825	713.5	QPSK	-21.92	-13
			16QAM	-20.68	-13
10	23780	709	QPSK	-22.07	-13
			16QAM	-22.52	-13
10	23800	711	QPSK	-23.09	-13
			16QAM	-24.48	-13

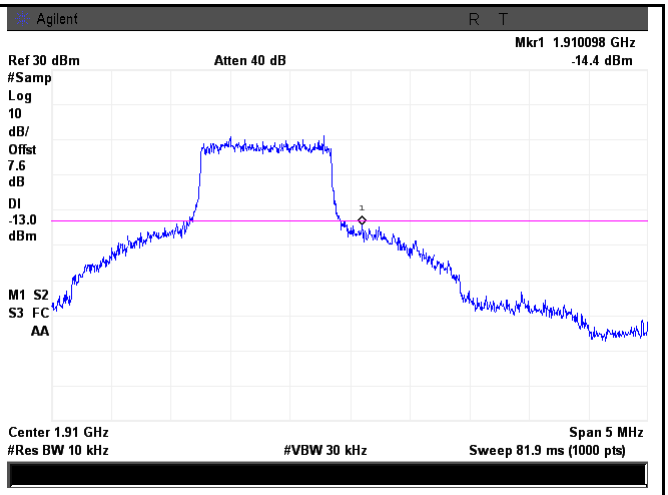
Test Plots

LTE Band 2 (Part 24E)



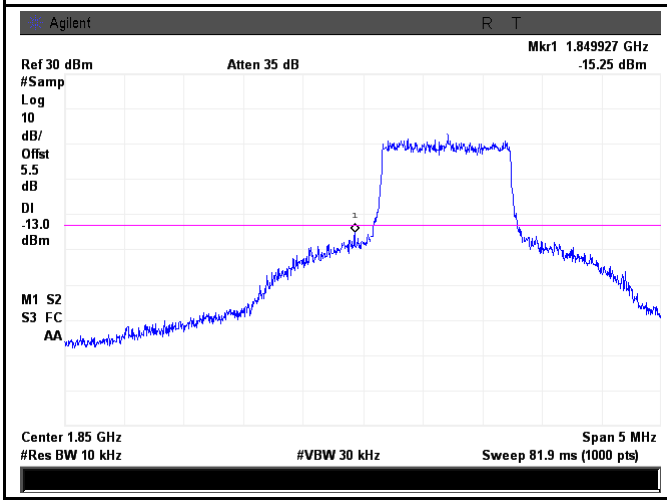
LTE Band 2 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (17.22/10)=4.5+2.4=6.9 dB



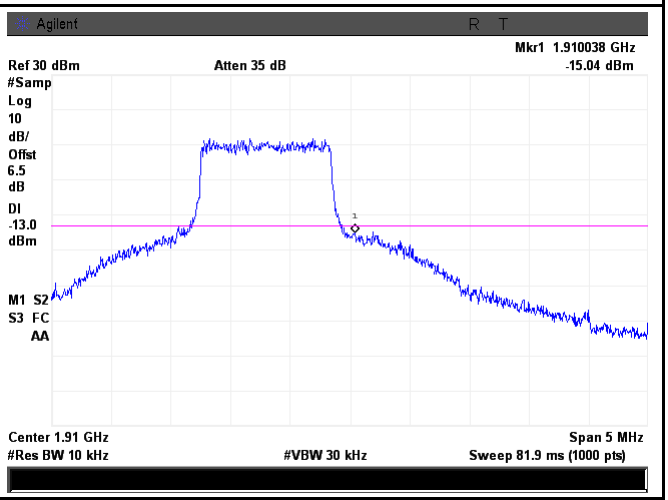
LTE Band 2 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (20.37/10)=4.5+3.1=7.6 dB



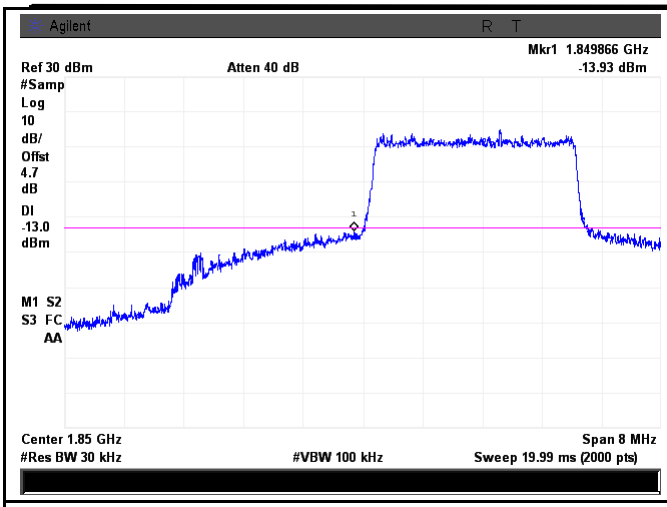
LTE Band 2 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.68/10)=4.5+1.0=5.5 dB



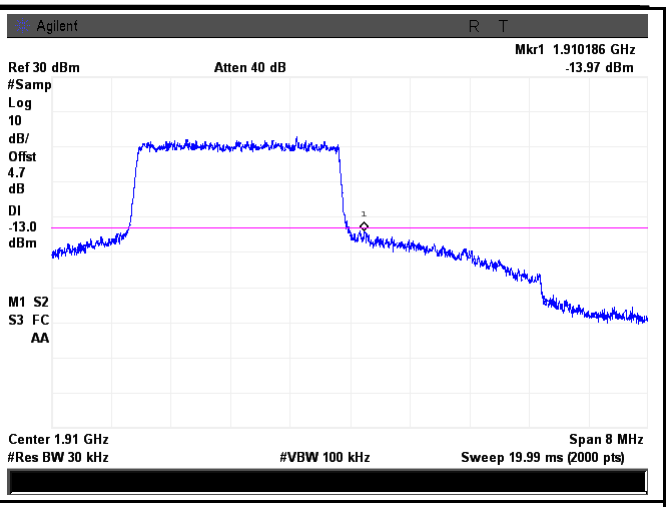
LTE Band 2 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (15.87/10)=4.5+2.0=6.5 dB



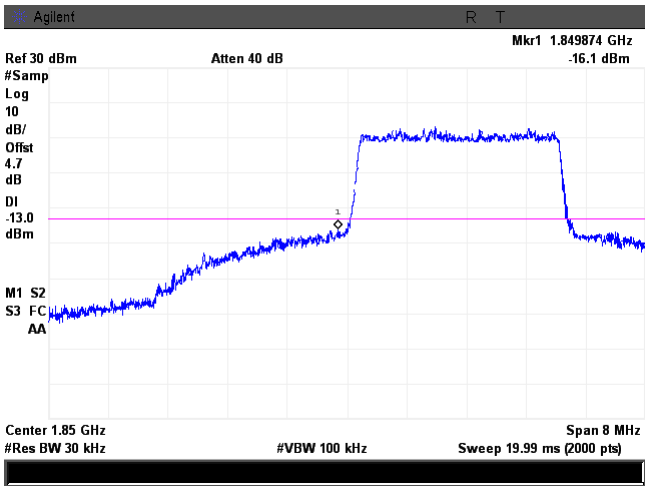
LTE Band 2 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.22/30)=4.5+0.2=4.7 dB



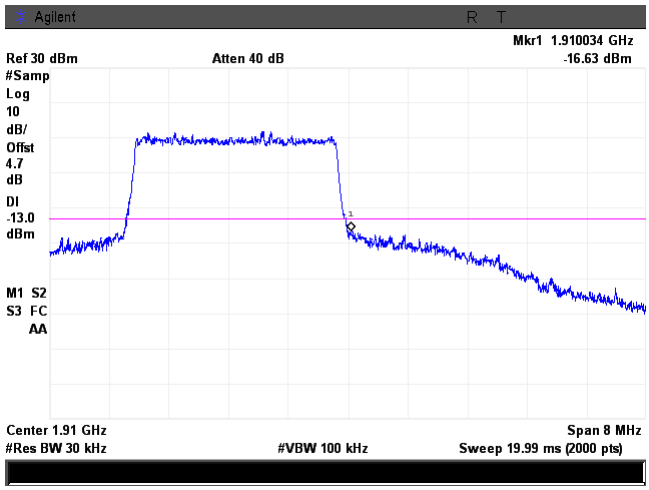
LTE Band 2 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.44/30)=4.5+0.2=4.7 dB



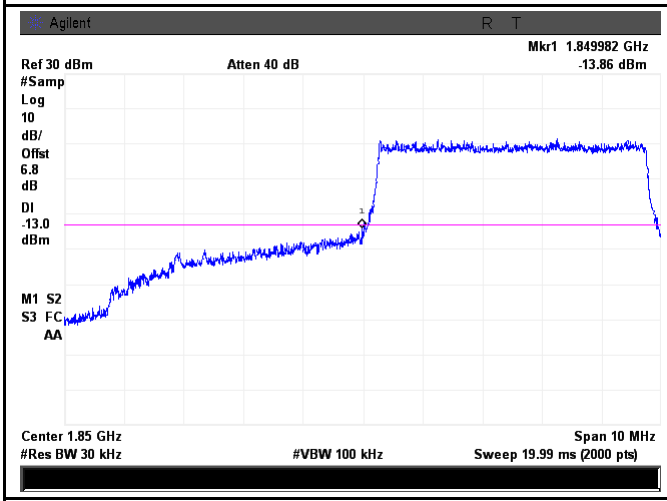
LTE Band 2 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.61/30)=4.5+0.2=4.7 dB

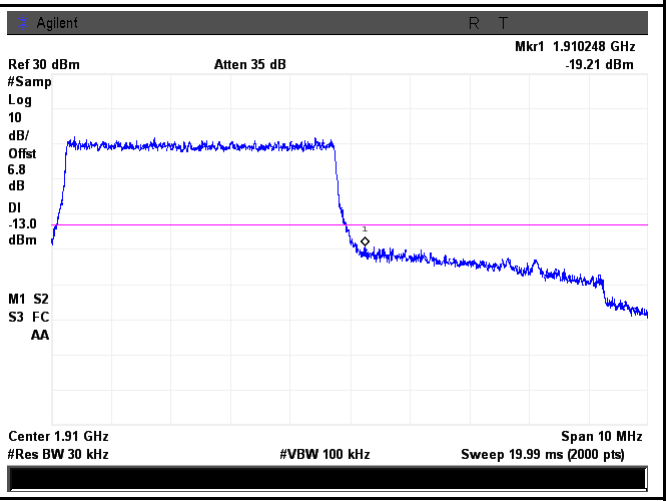


LTE Band 2 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.11/30)=4.5+0.2=4.7 dB

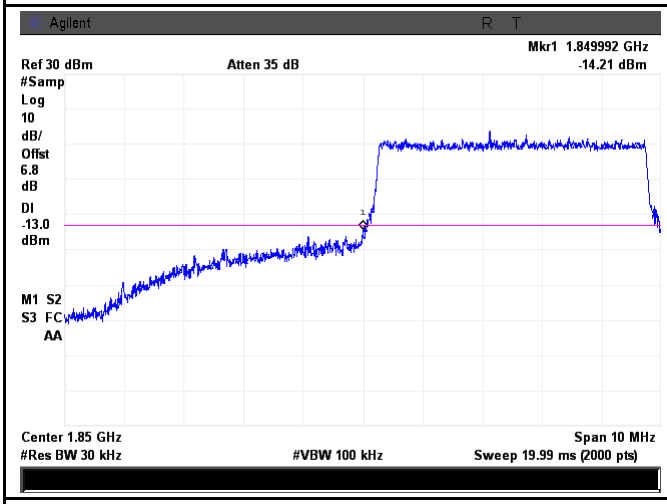


LTE Band 2 - Low Channel QPSK-5



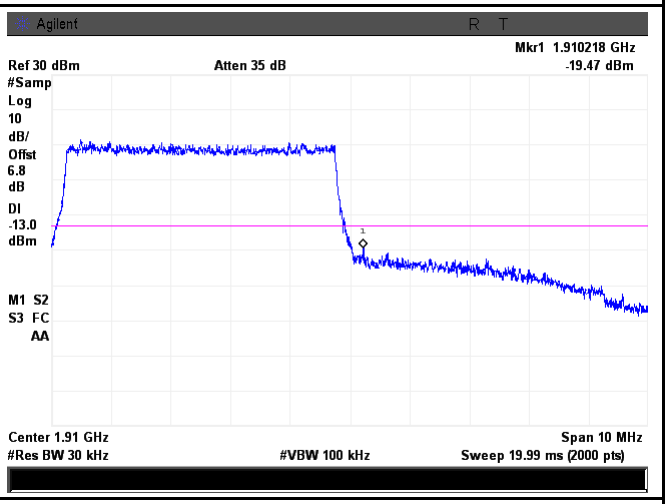
LTE Band 2 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.86/30)=4.5+2.3=6.8 dB



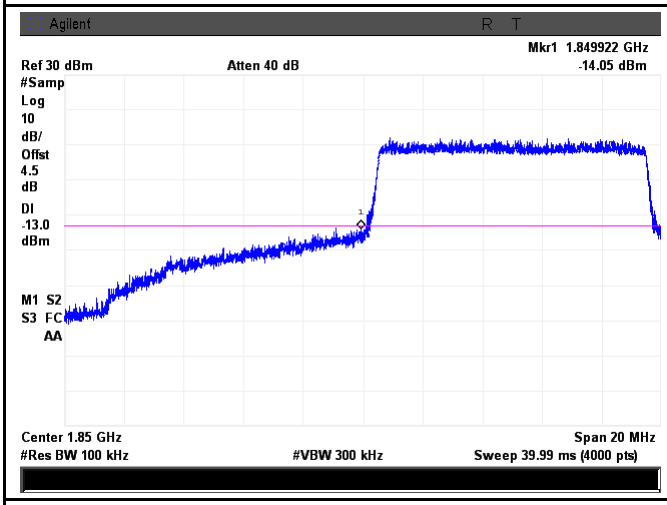
LTE Band 2 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (51.28/30)=4.5+2.3=6.8 dB



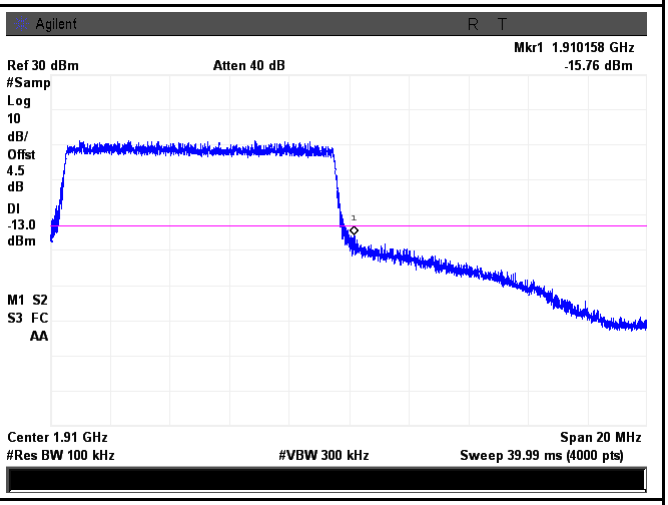
LTE Band 2 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.84/30)=4.5+2.3=6.8 dB

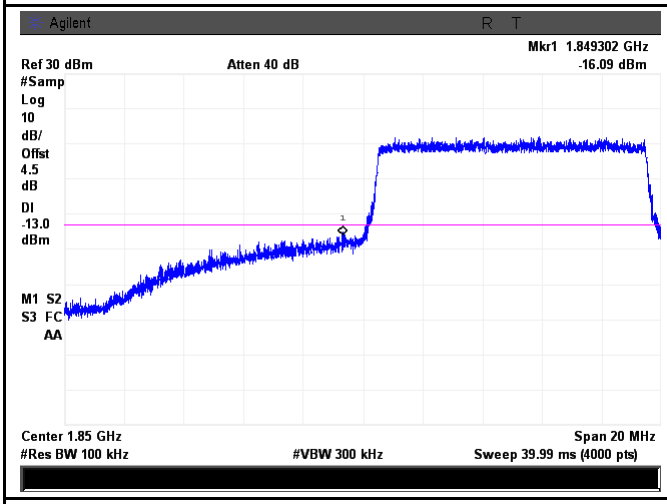


LTE Band 2 - Low Channel QPSK-10

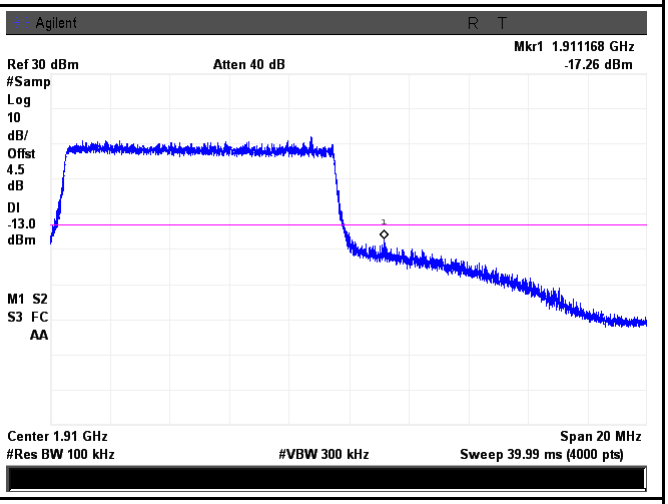
Note: Offset=Cable loss (4.5) + 10log (50.63/30)=4.5+2.3=6.8 dB



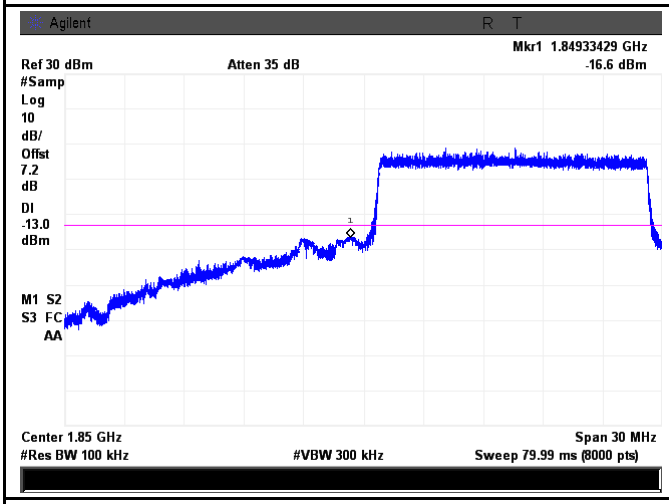
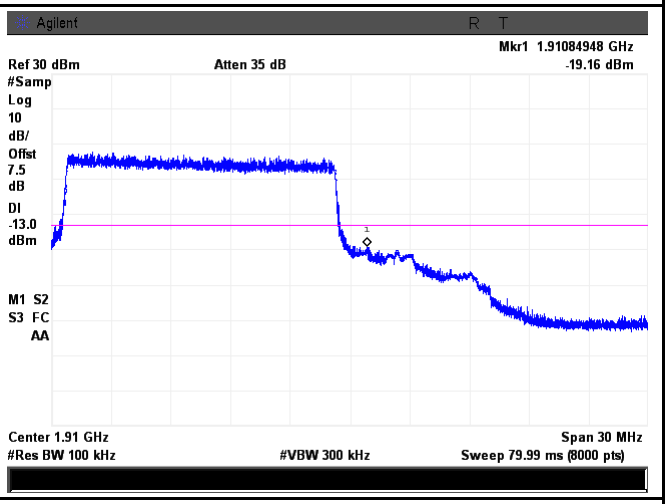
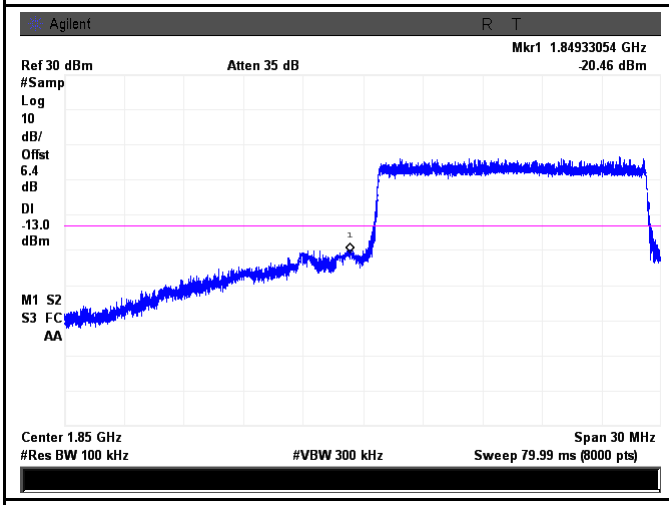
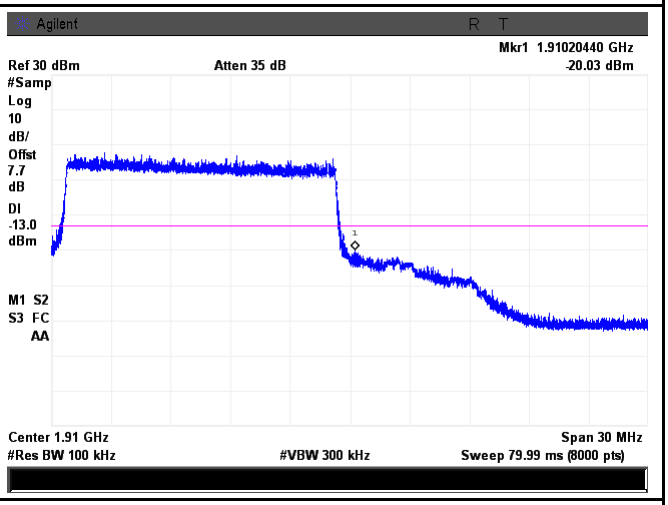
LTE Band 2 - High Channel QPSK-10

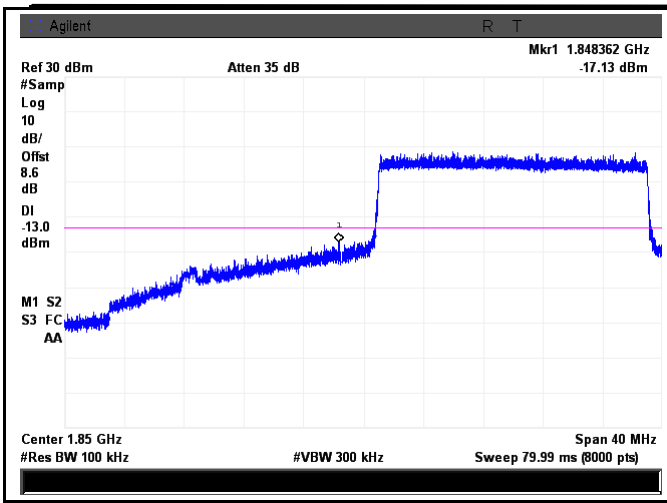


LTE Band 2 - Low Channel 16QAM-10



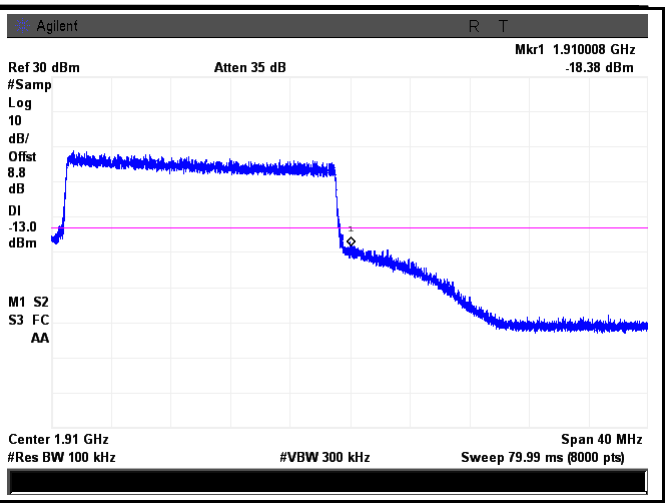
LTE Band 2 - High Channel 16QAM-10

Note: Offset=Cable loss (4.5) + 10log (100.4/100)=4.5+0.0=4.5 dB	Note: Offset=Cable loss (4.5) + 10log (102.3/100)=4.5+0.0=4.5 dB
	
LTE Band 2 - Low Channel QPSK-15	LTE Band 2 - High Channel QPSK-15
Note: Offset=Cable loss (4.5) + 10log (186.5/100)=4.5+2.7=7.2 dB	Note: Offset=Cable loss (4.5) + 10log (198.7/100)=4.5+3.0=7.5 dB
	
LTE Band 2 - Low Channel 16QAM-15	LTE Band 2 - High Channel 16QAM-15
Note: Offset=Cable loss (4.5) + 10log (155.4/100)=4.5+1.9=6.4 dB	Note: Offset=Cable loss (4.5) + 10log (210.5/100)=4.5+3.2=7.7 dB



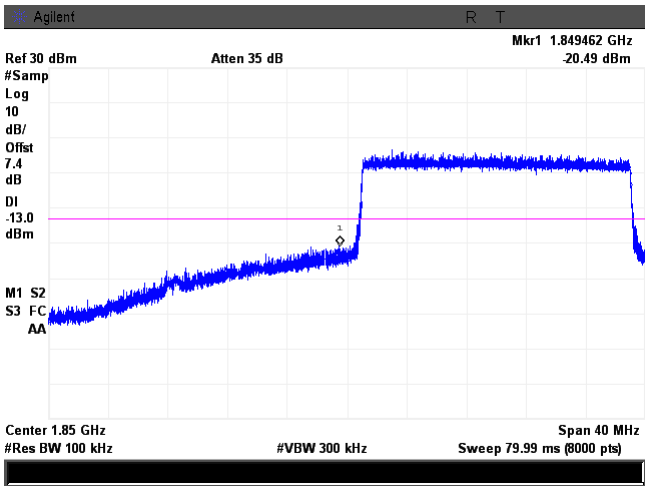
LTE Band 2 - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (259.2/100)=4.5+4.1=8.6 dB



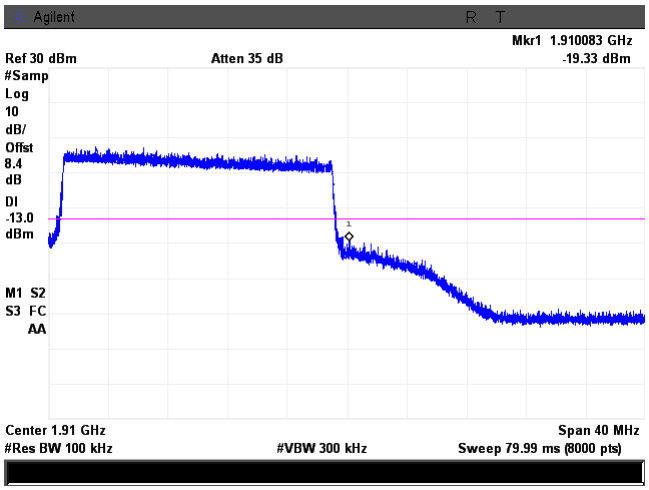
LTE Band 2 - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (270.4/100)=4.5+4.3=8.8 dB



LTE Band 2 - Low Channel 16QAM-20

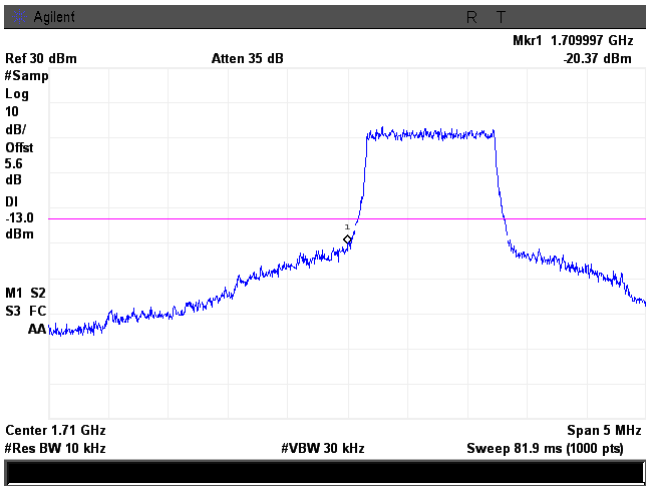
Note: Offset=Cable loss (4.5) + 10log (194.4/100)=4.5+2.9=7.4 dB



LTE Band 2 - High Channel 16QAM-20

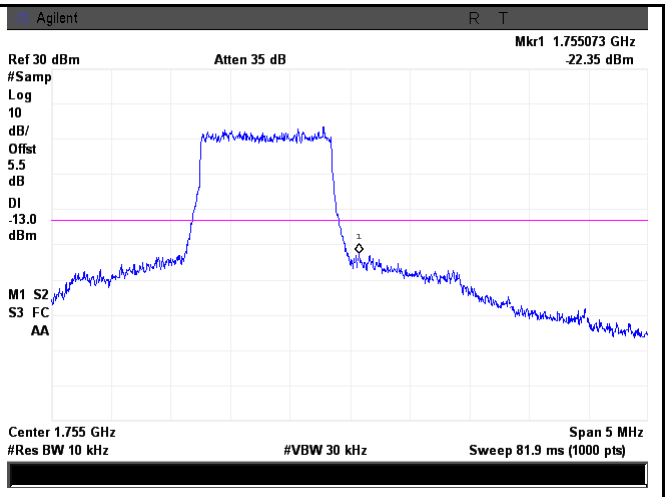
Note: Offset=Cable loss (4.5) + 10log (243.5/100)=4.5+3.9=8.4 dB

LTE Band 4 (Part 27)



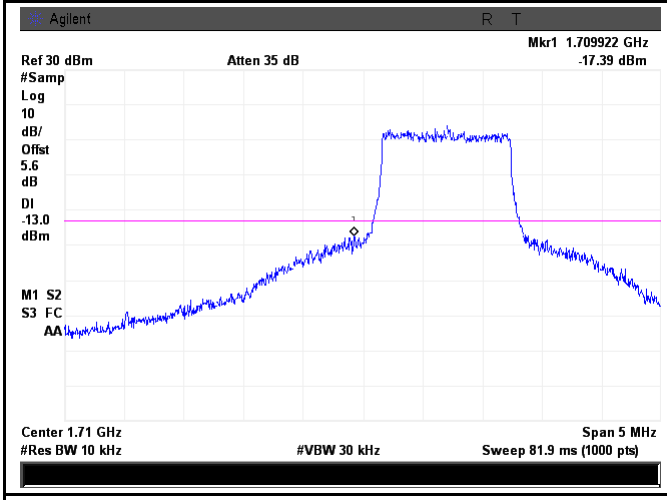
LTE Band 4 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.81/10)=4.5+1.1=5.6 dB



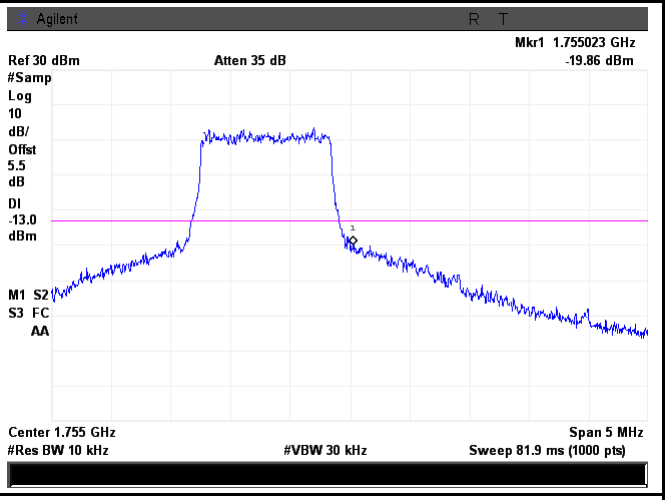
LTE Band 4 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.71/10)=4.5+1.0=5.5 dB



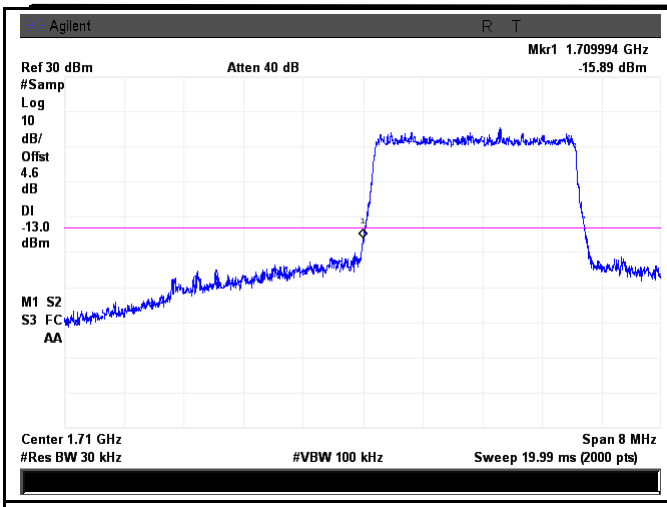
LTE Band 4 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.90/10)=4.5+1.1=5.6 dB



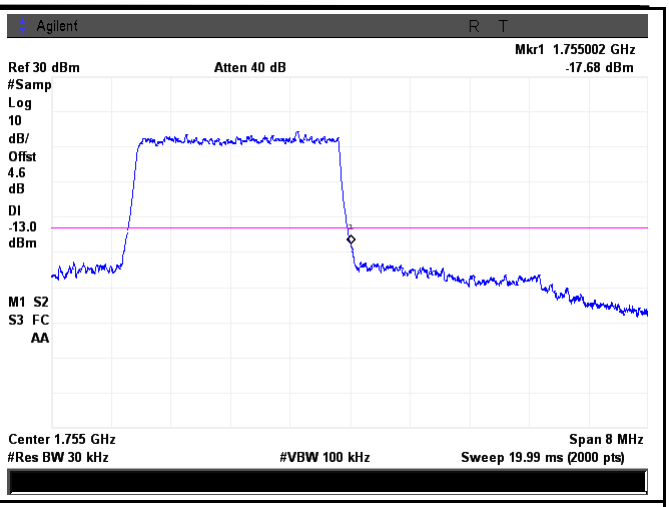
LTE Band 4 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.72/10)=4.5+1.0=5.5 dB



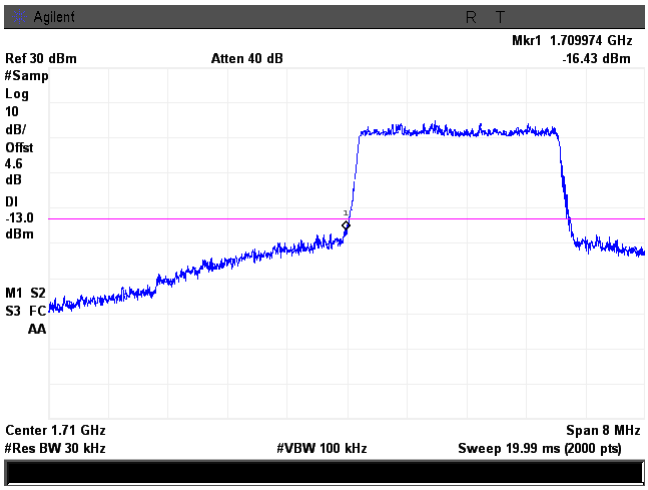
LTE Band 4 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.93/30)=4.5+0.1=4.6 dB



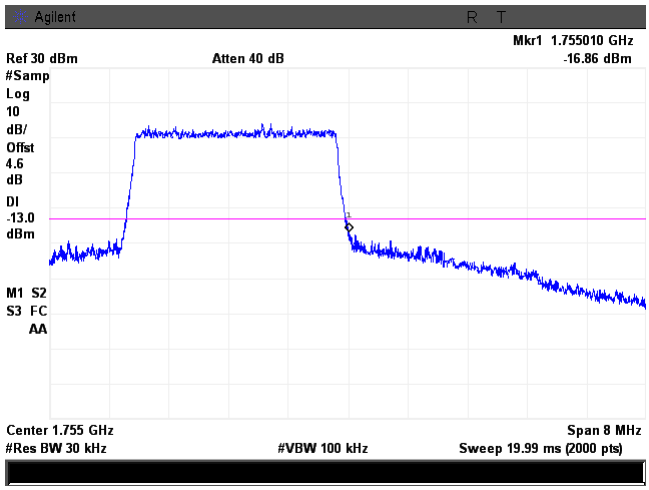
LTE Band 4 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.69/30)=4.5+0.1=4.6 dB



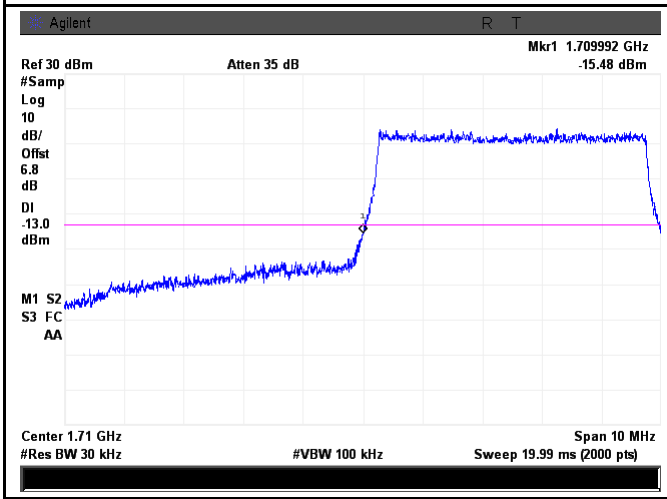
LTE Band 4 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.90/30)=4.5+0.1=4.6 dB

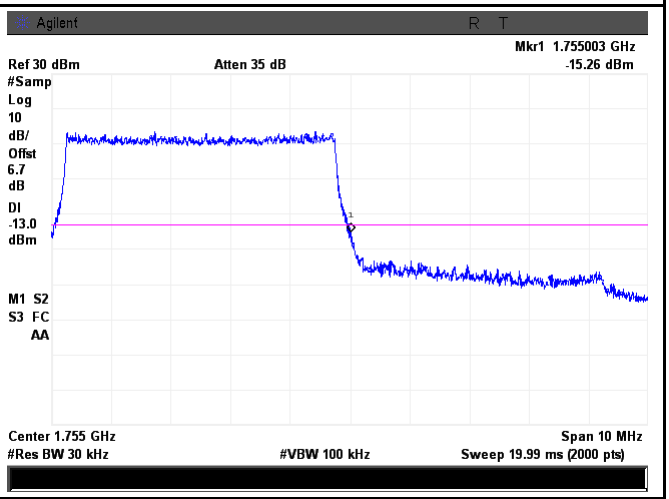


LTE Band 4 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.85/30)=4.5+0.1=4.6 dB

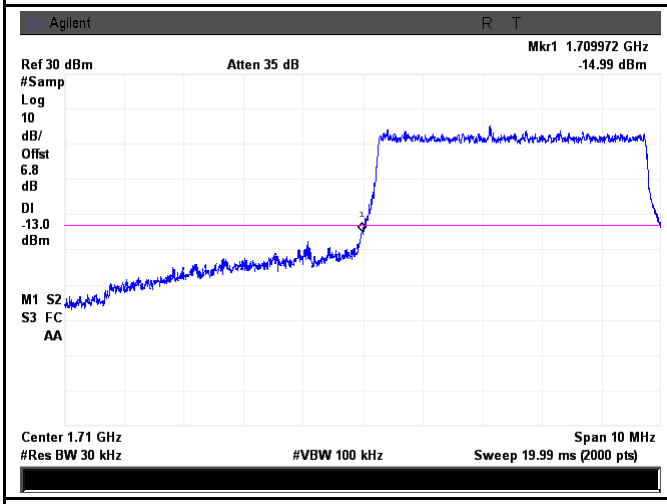


LTE Band 4 - Low Channel QPSK-5



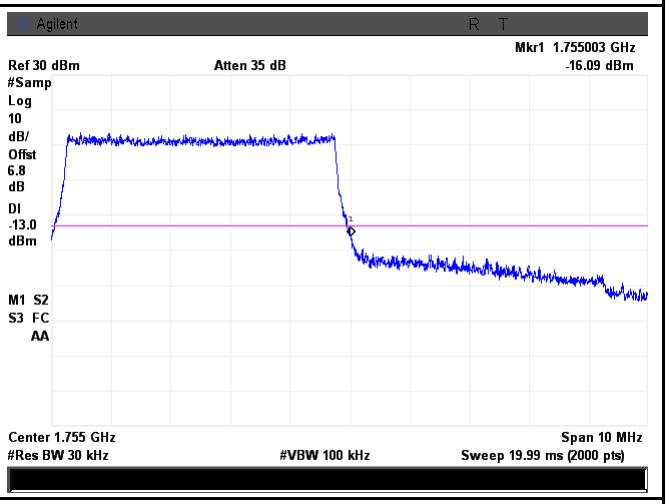
LTE Band 4 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.64/30)=4.5+2.3=6.8 dB



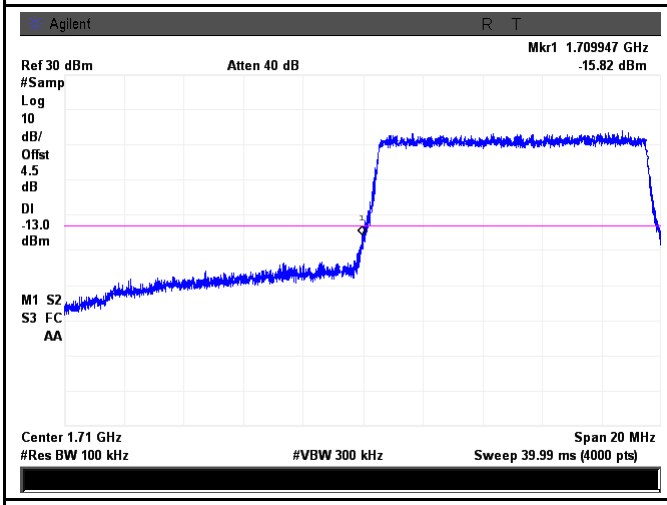
LTE Band 4 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.36/30)=4.5+2.2=6.7 dB



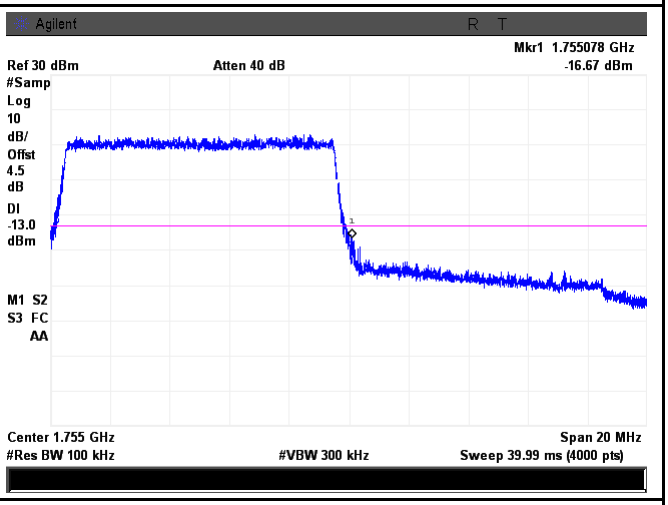
LTE Band 4 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.78/30)=4.5+2.3=6.8 dB

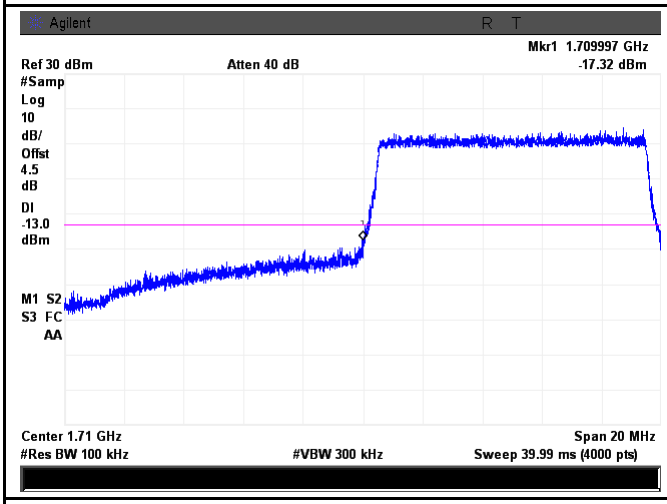


LTE Band 4 - Low Channel QPSK-10

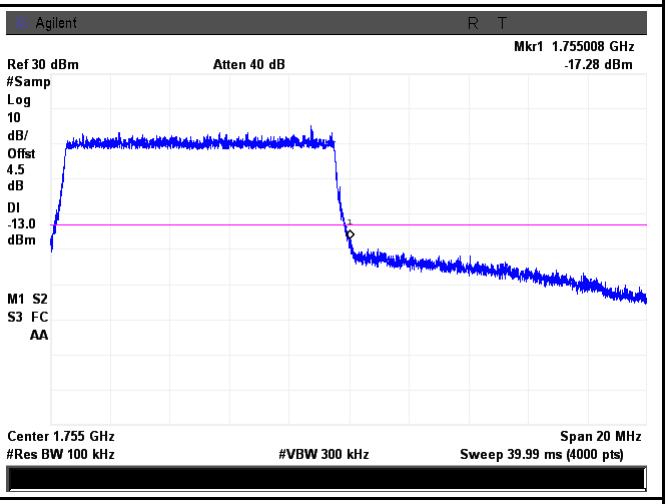
Note: Offset=Cable loss (4.5) + 10log (50.85/30)=4.5+2.3=6.8 dB



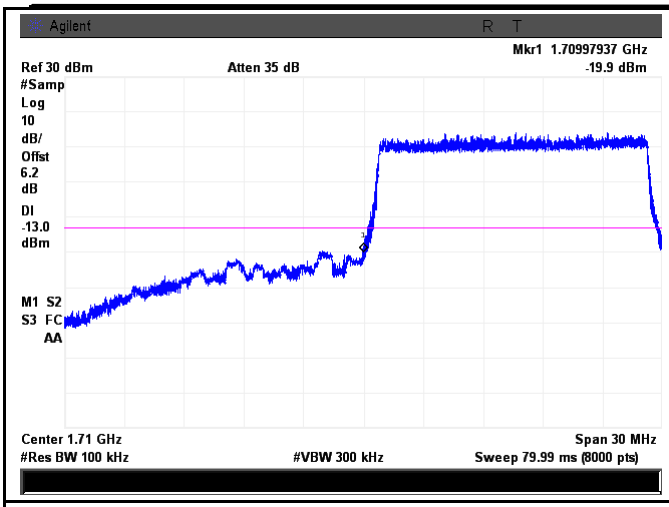
LTE Band 4 - High Channel QPSK-10



LTE Band 4 - Low Channel 16QAM-10

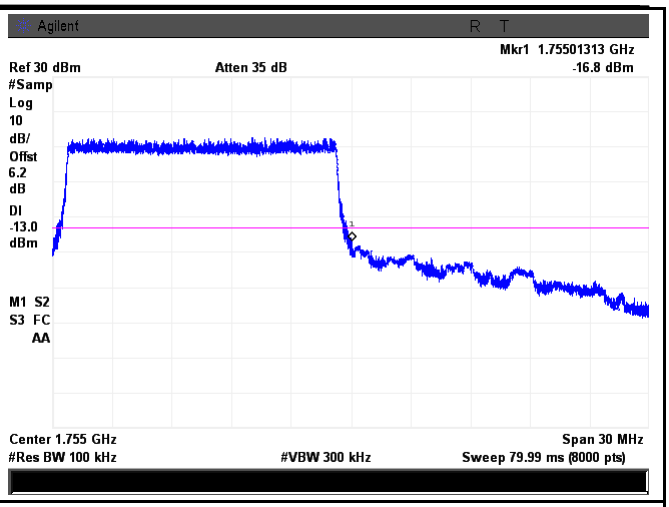


LTE Band 4 - High Channel 16QAM-10



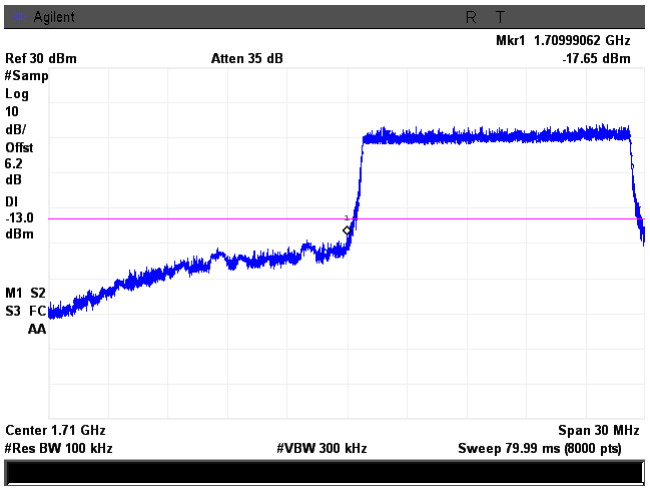
LTE Band 4 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (148.3/100)=4.5+1.7=6.2 dB



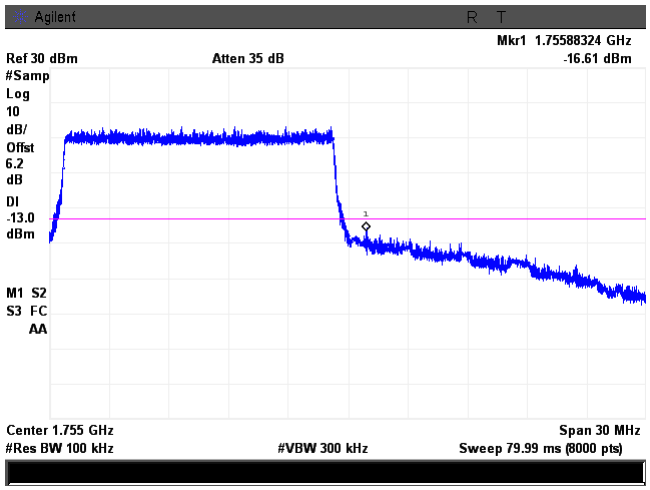
LTE Band 4 - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (148.3/100)=4.5+1.7=6.2 dB



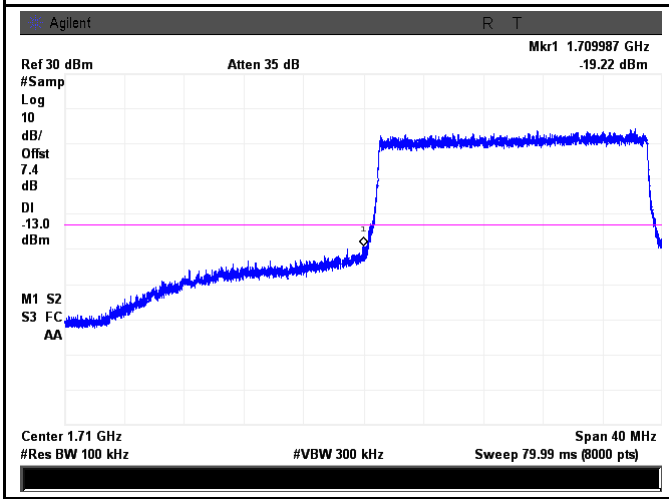
LTE Band 4 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (149.3/100)=4.5+1.7=6.2 dB

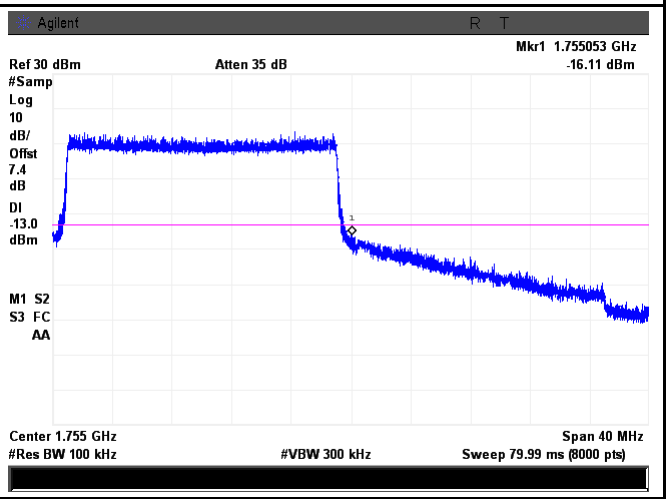


LTE Band 4 - High Channel 16QAM-15

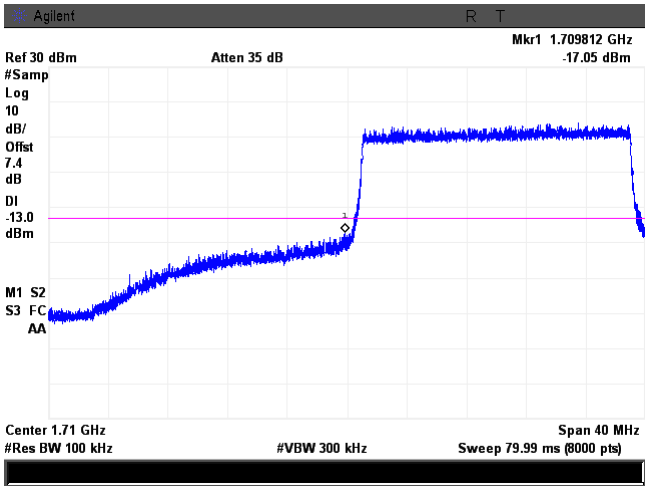
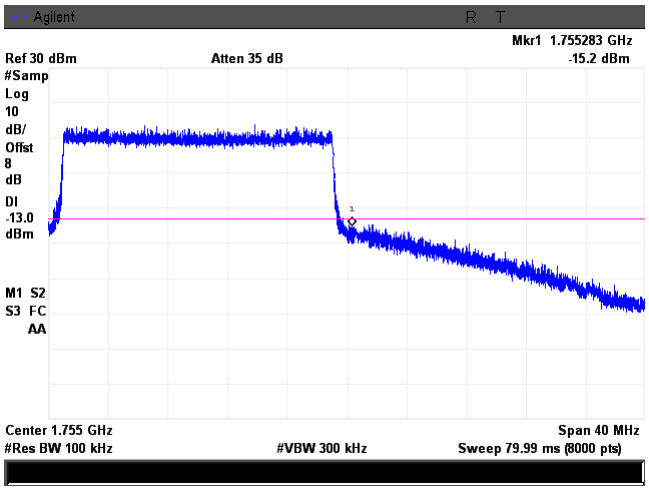
Note: Offset=Cable loss (4.5) + 10log (149.5/100)=4.5+1.7=6.2 dB



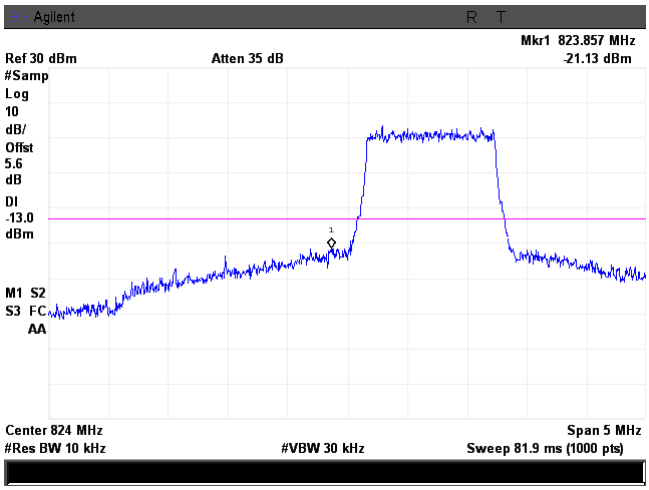
LTE Band 4 - Low Channel QPSK-20



LTE Band 4 - High Channel QPSK-20

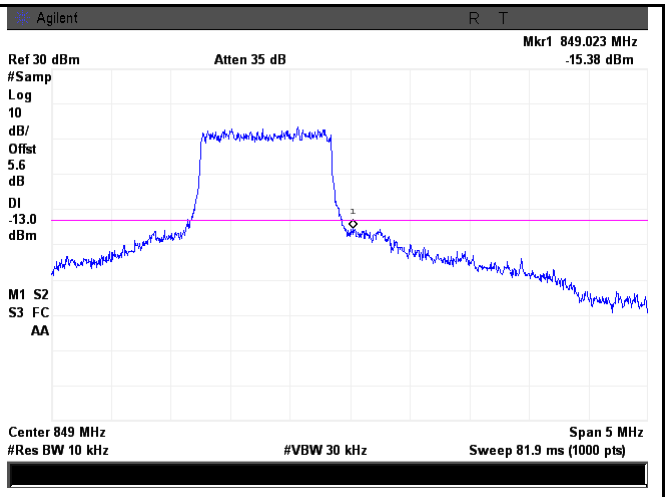
Note: Offset=Cable loss (4.5) + 10log (193.9/100)=4.5+2.9=7.4 dB	Note: Offset=Cable loss (4.5) + 10log (196.4/100)=4.5+2.9=7.4 dB
	
LTE Band 4 - Low Channel 16QAM-20	LTE Band 4 - High Channel 16QAM-20
Note: Offset=Cable loss (4.5) + 10log (193.4/100)=4.5+2.9=7.4 dB	Note: Offset=Cable loss (4.5) + 10log (220.4/100)=4.5+3.4=8.0 dB

LTE Band 5 (Part 22H)



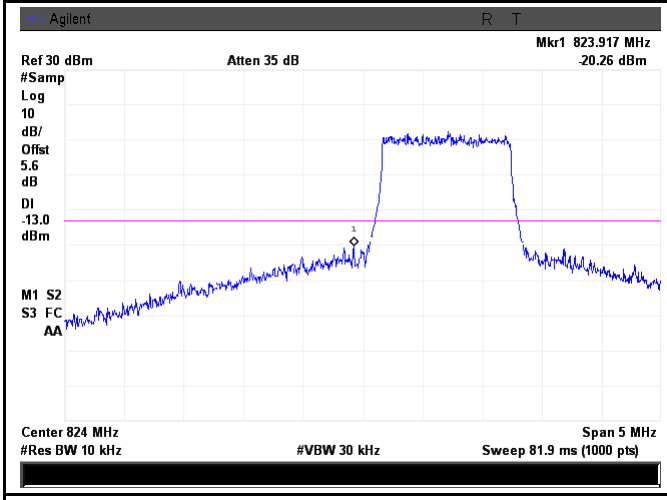
LTE Band 5 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.80/10)=4.5+1.1=5.6 dB



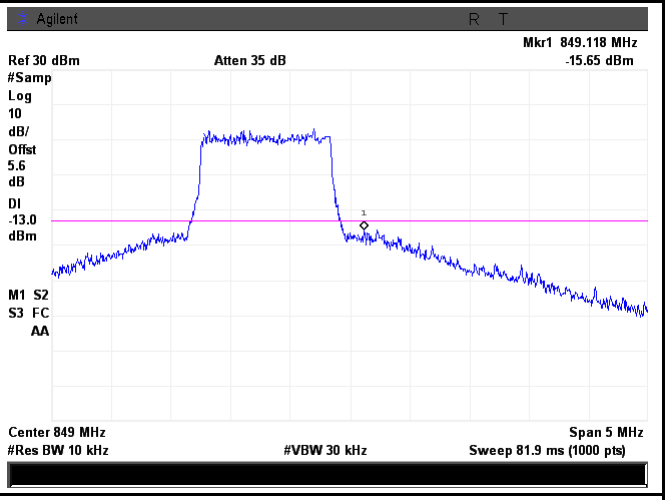
LTE Band 5 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.80/10)=4.5+1.1=5.6 dB



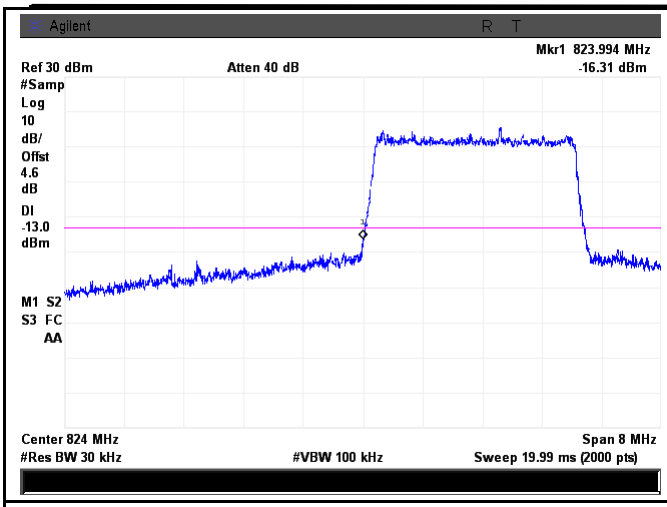
LTE Band 5 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.90/10)=4.5+1.1=5.6 dB



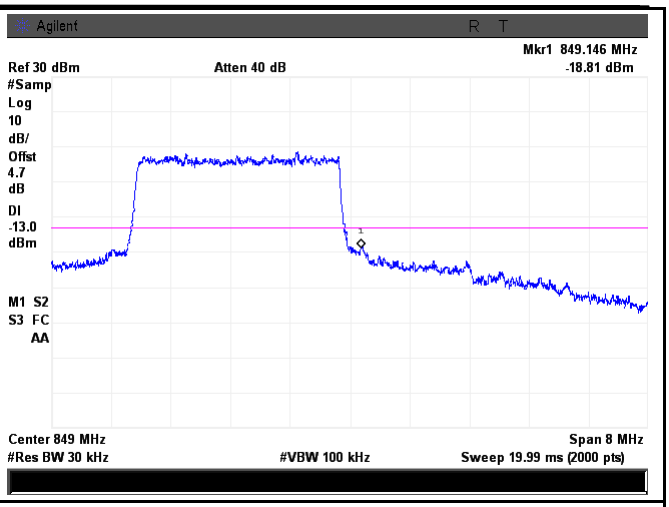
LTE Band 5 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.87/10)=4.5+1.1=5.6 dB



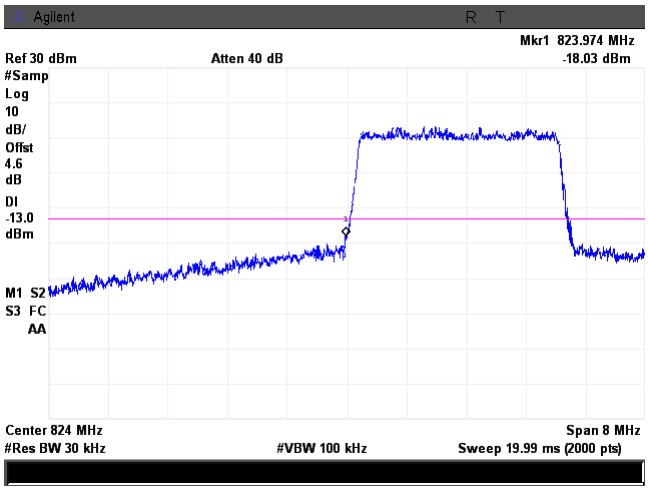
LTE Band 5 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.71/30)=4.5+0.1=4.6dB



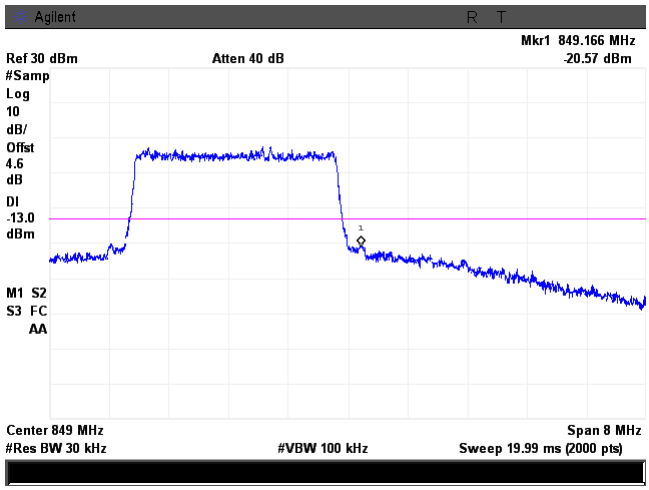
LTE Band 5 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.09/30)=4.5+0.2=4.7 dB



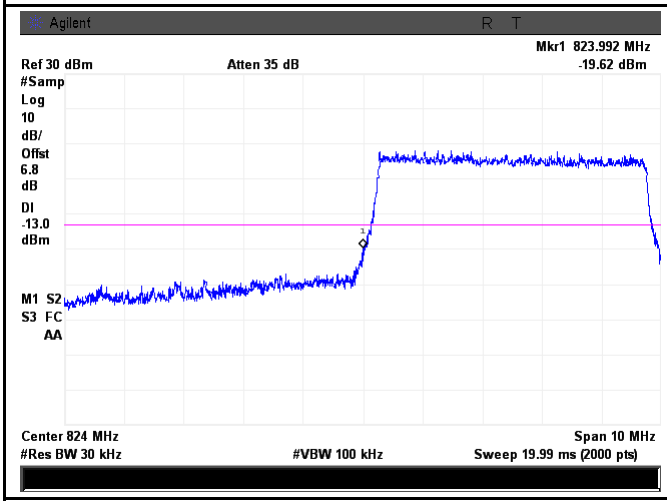
LTE Band 5 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.81/30)=4.5+0.1=4.6 dB

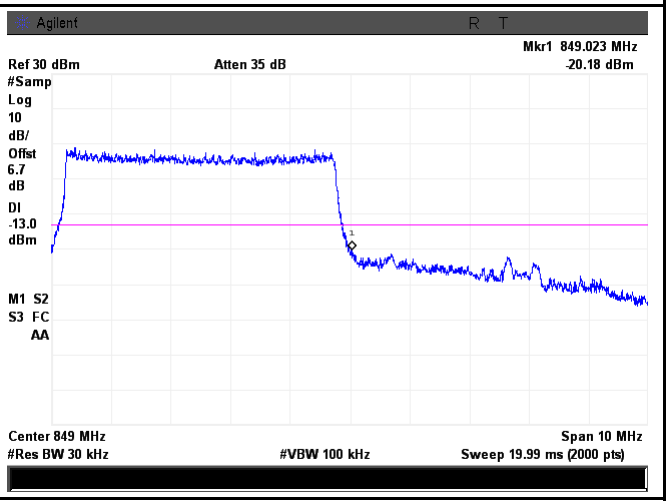


LTE Band 5 - High Channel 16QAM-3

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

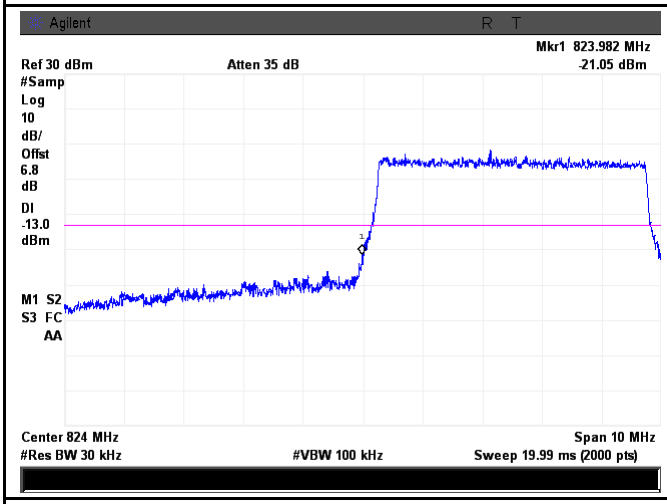


LTE Band 5 - Low Channel QPSK-5



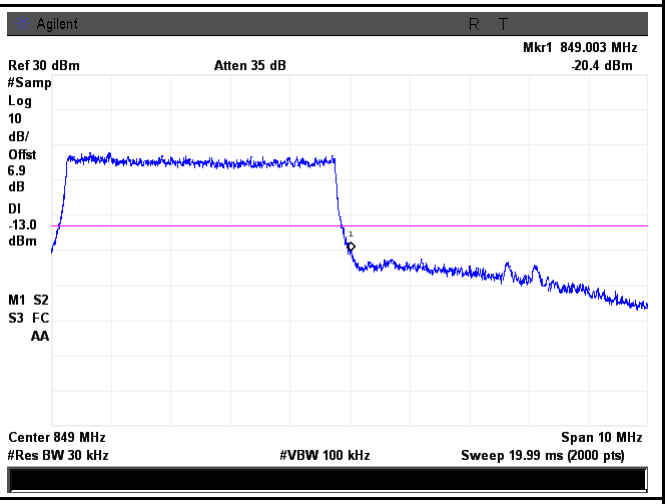
LTE Band 5 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.61/30)=4.5+2.3=6.8 dB



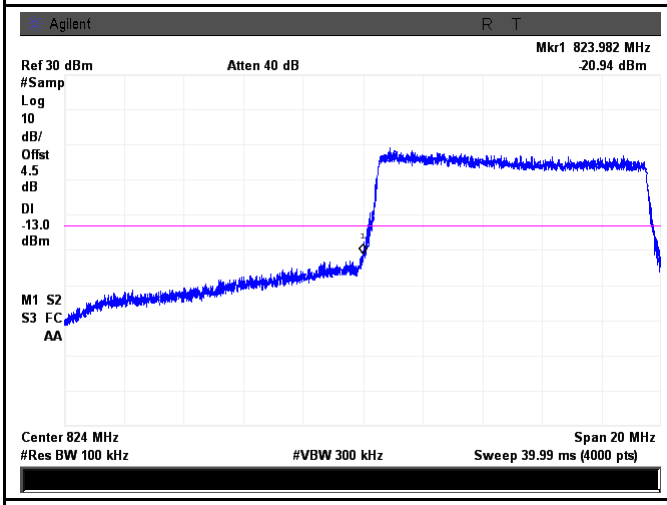
LTE Band 5 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.33/30)=4.5+2.2=6.7 dB



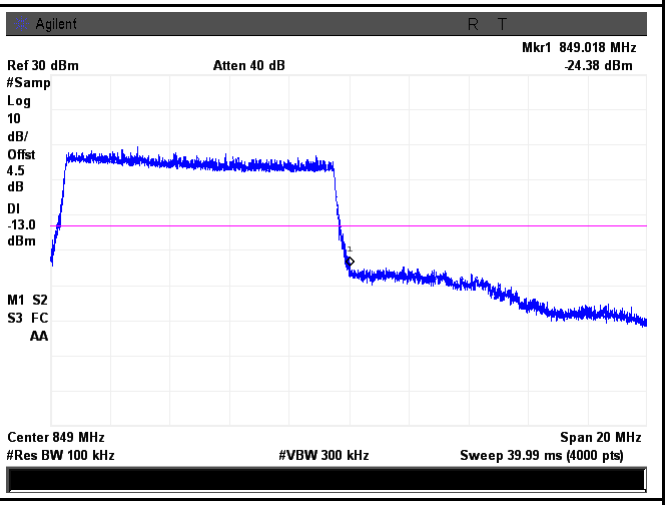
LTE Band 5 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.46/30)=4.5+2.3=6.8 dB

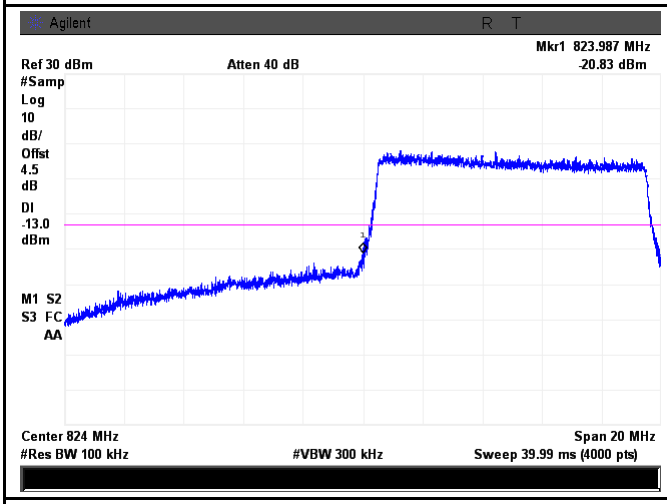


LTE Band 5 - Low Channel QPSK-10

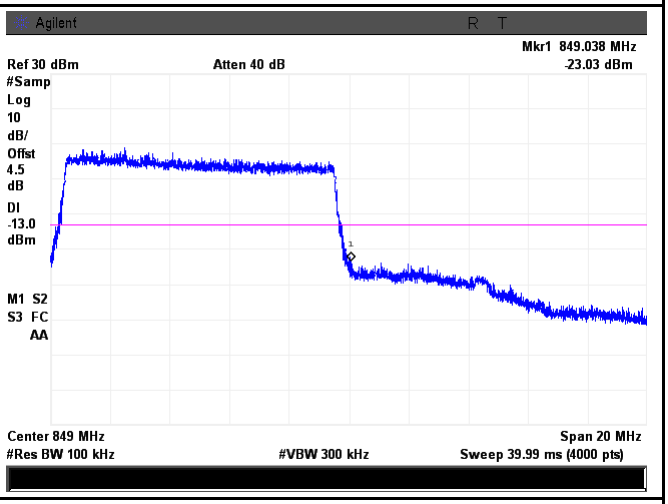
Note: Offset=Cable loss (4.5) + 10log (51.75/30)=4.5+2.4=6.9 dB



LTE Band 5 - High Channel QPSK-10

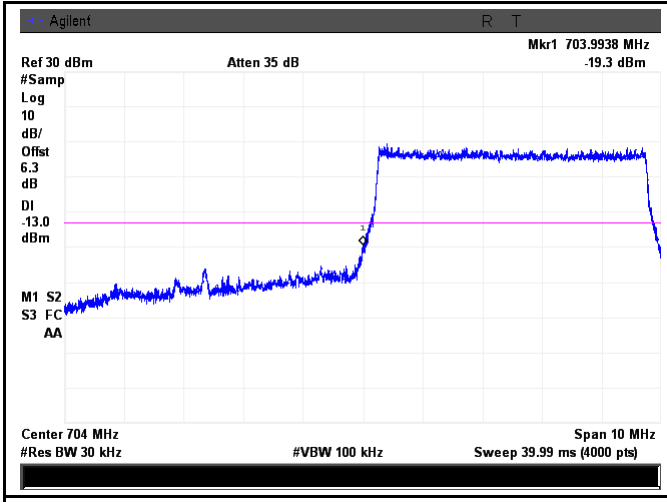


LTE Band 5 - Low Channel 16QAM-10



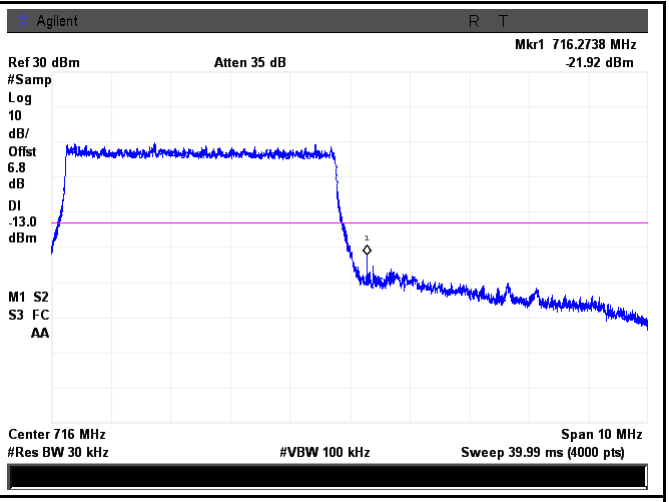
LTE Band 5 - High Channel 16QAM-10

LTE Band 17 (Part 27)



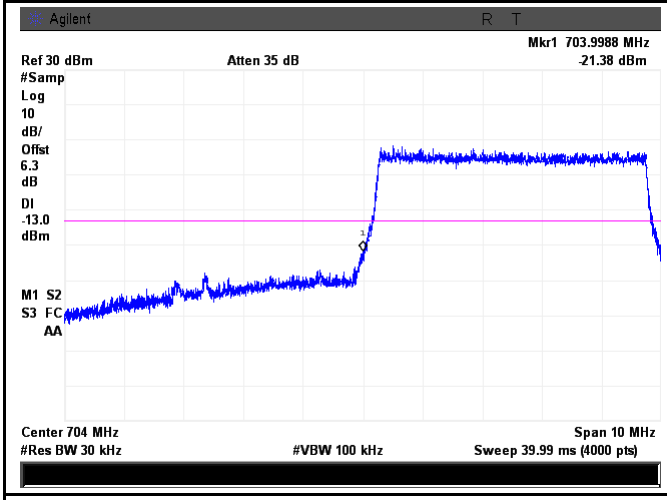
LTE Band 17 - Low Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (50.92/30)=4.0+2.3=6.3 dB



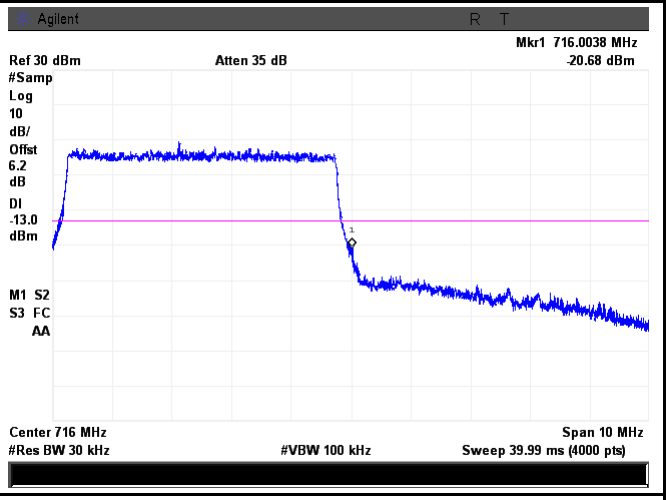
LTE Band 17 - High Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (50.73/30)=4.5+2.3=6.8 dB



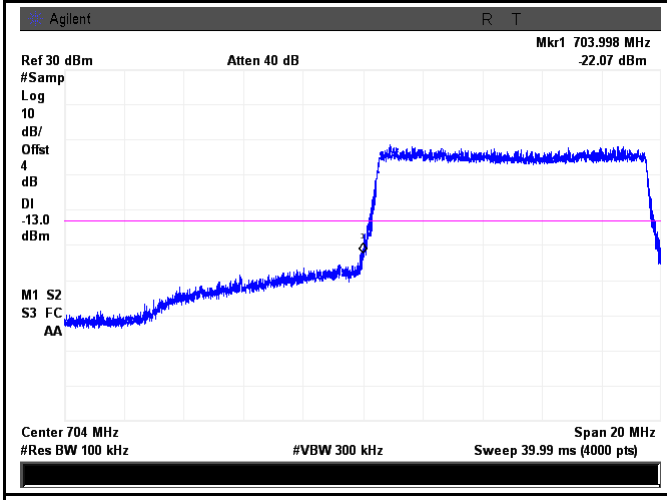
LTE Band 17 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.0) + 10log (50.45/30)=4.0+2.3=6.3 dB

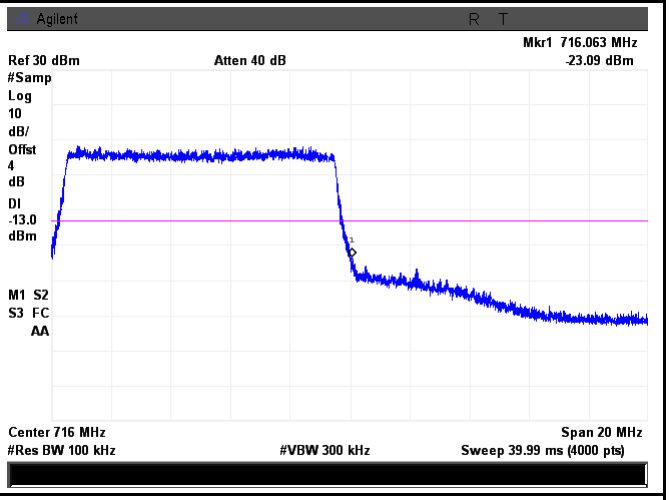


LTE Band 17 - High Channel 16QAM-5

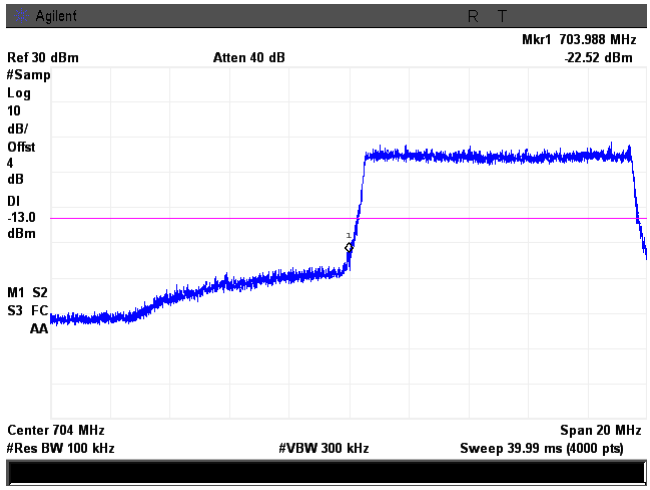
Note: Offset=Cable loss (4.0) + 10log (50.17/30)=4.0+2.2=6.2 dB



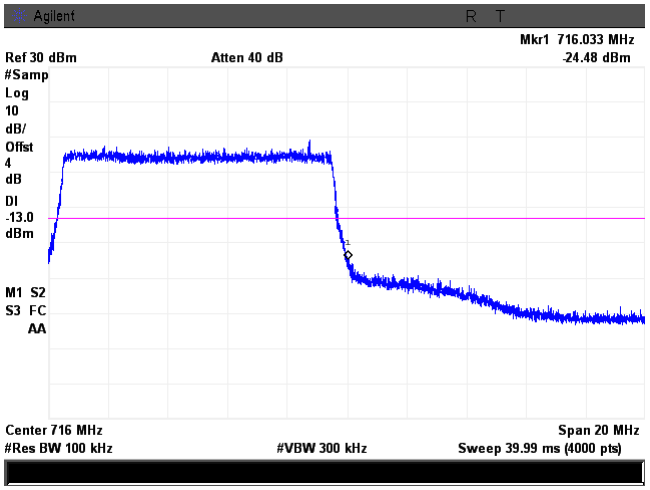
LTE Band 17 - Low Channel QPSK-10



LTE Band 17 - High Channel QPSK-10



LTE Band 17 - Low Channel 16QAM-10

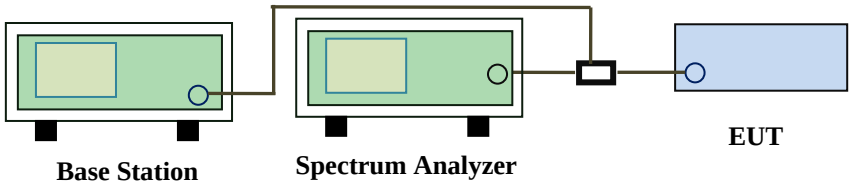


LTE Band 17 - High Channel 16QAM-10

6.9 Band Edge 27.53(m)

Temperature	22℃
Relative Humidity	57%
Atmospheric Pressure	1005mbar
Test date :	November 05, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Requirement	Applicable
§27.53(m)	According to FCC 27.53(m)(4) specified that power of any emmission ouutside of the channel edge must be attenuated below the transmitting power(P) by a factor shall be not less than 43+10log (P)dB at the channel edge, the limit of emission equal to -13dBm. And 55+10log (P)dB at 5.5MHz from the channel edges, the limit of emission equal to -25dBm. In the 1MHz bands immediately outside and adjacent to the frenqency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.	☑
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	

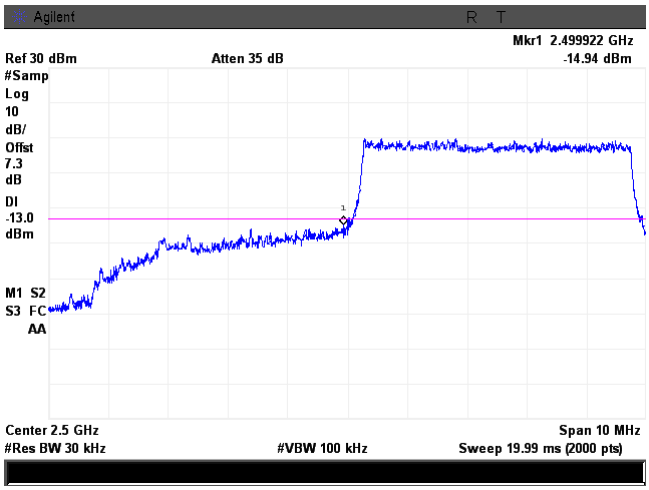
Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

LTE Band 7 (Part 27) result

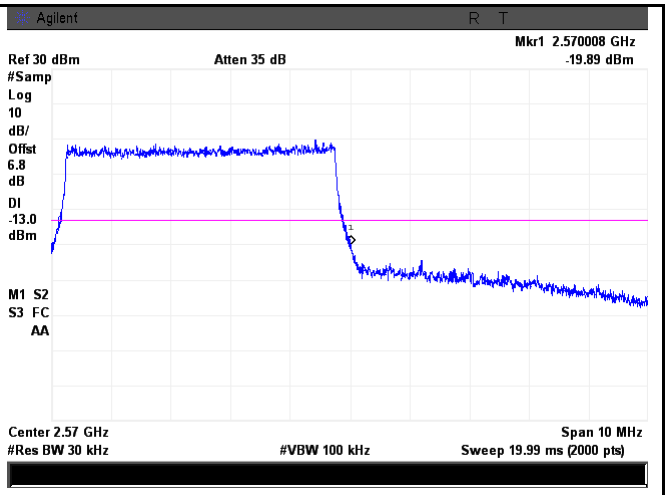
BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
5	20775	2502.5	QPSK	-14.94	-13
			16QAM	-17.55	-13
5	21425	2567.5	QPSK	-19.89	-13
			16QAM	-21.14	-13
10	20800	2505	QPSK	-14.70	-13
			16QAM	-18.32	-13
10	21400	2562.5	QPSK	-18.64	-13
			16QAM	-22.08	-13
15	20825	2507.5	QPSK	-20.14	-13
			16QAM	-24.17	-13
15	21400	2562.5	QPSK	-21.58	-13
			16QAM	-28.66	-13
20	20850	2510	QPSK	-23.35	-13
			16QAM	-25.28	-13
20	21350	2560	QPSK	-25.81	-13
			16QAM	-26.63	-13

LTE Band 7 (Part 27)



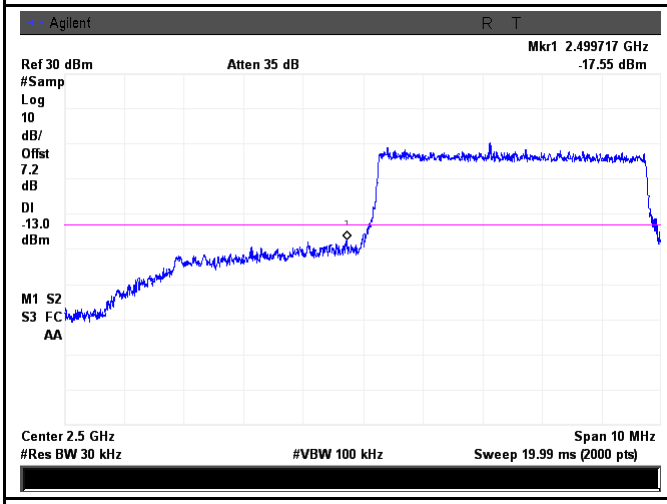
LTE Band 7 - Low Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (57.07/30)=4.5+2.8=7.3 dB



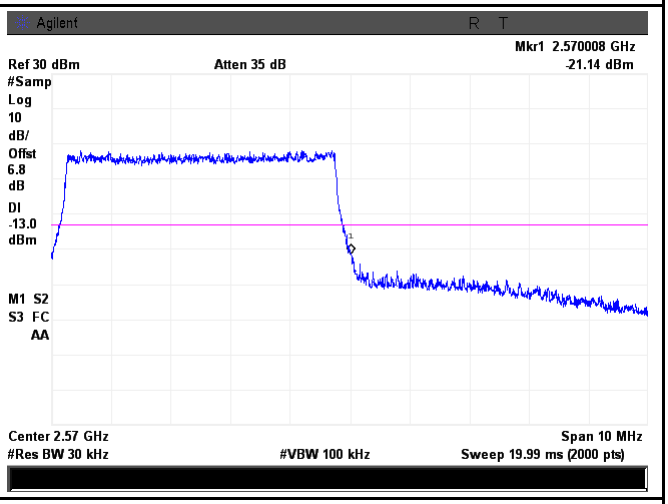
LTE Band 7 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.56/30)=4.5+2.3=6.8 dB



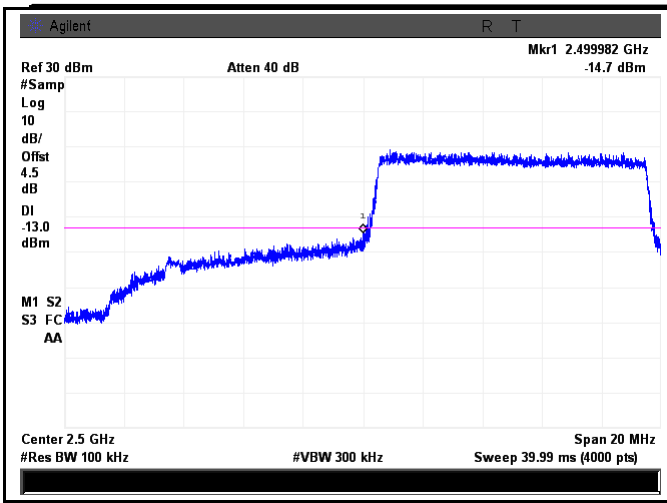
LTE Band 7 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (56.37/30)=4.5+2.7=7.2 dB

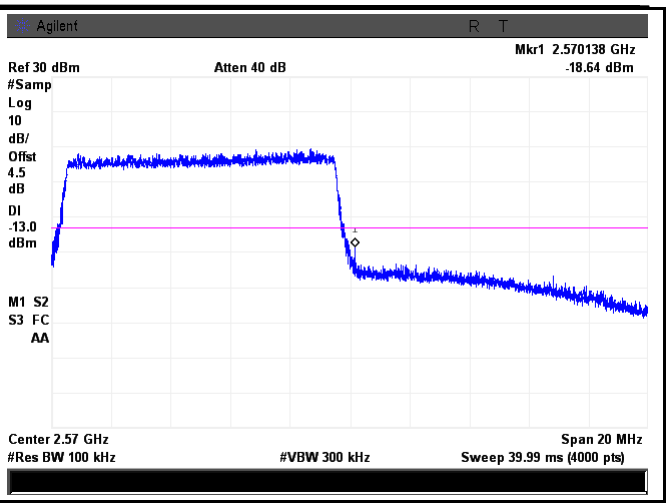


LTE Band 7 - High Channel 16QAM-5

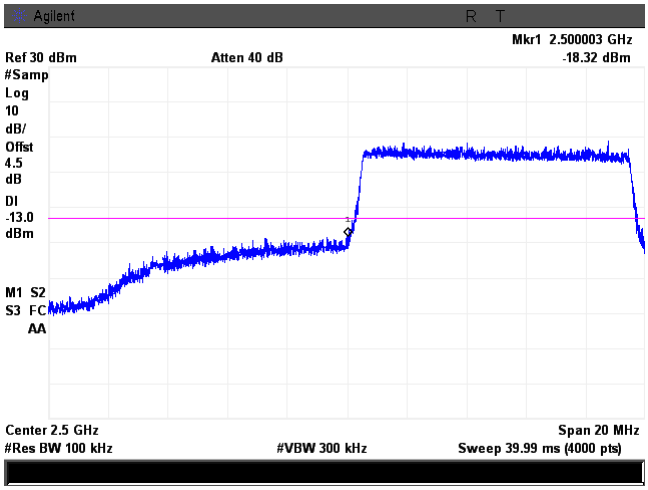
Note: Offset=Cable loss (4.5) + 10log (50.63/30)=4.5+2.3=6.8 dB



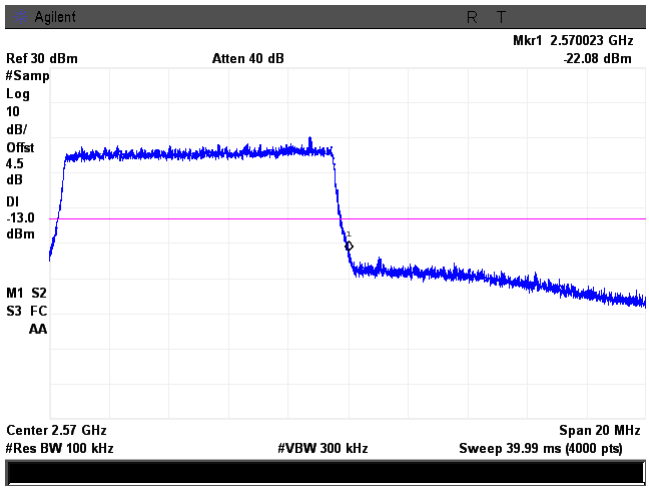
LTE Band 7 - Low Channel QPSK-10



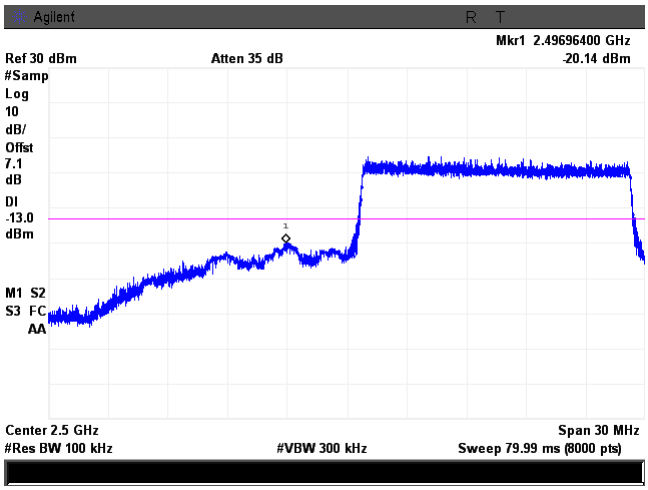
LTE Band 7 - High Channel QPSK-10



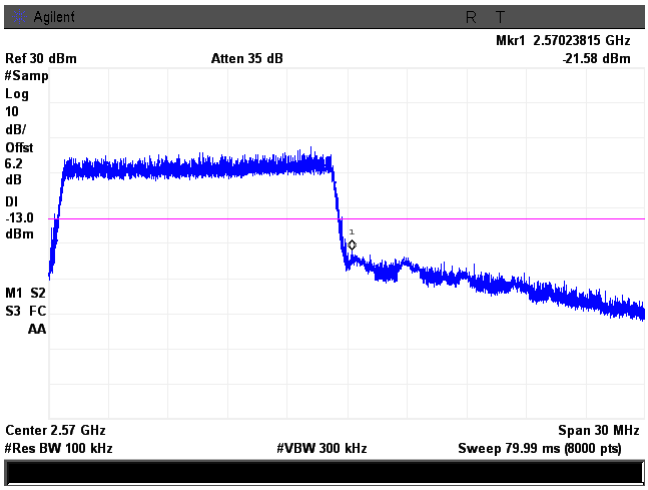
LTE Band 7 - Low Channel 16QAM-10



LTE Band 7 - High Channel 16QAM-10



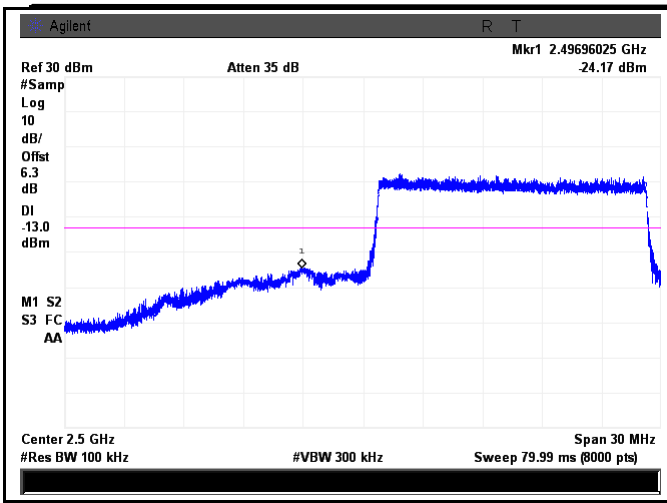
LTE Band 7 - Low Channel QPSK-15



LTE Band 7 - High Channel QPSK-15

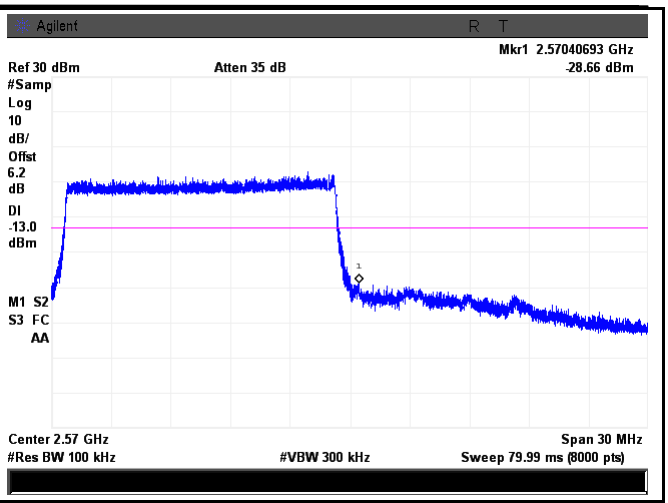
Note: Offset=Cable loss (4.5) + 10log (180.2/100)=4.5+2.6=7.1 dB

Note: Offset=Cable loss (4.5) + 10log (149.1/100)=4.5+1.7=6.2 dB



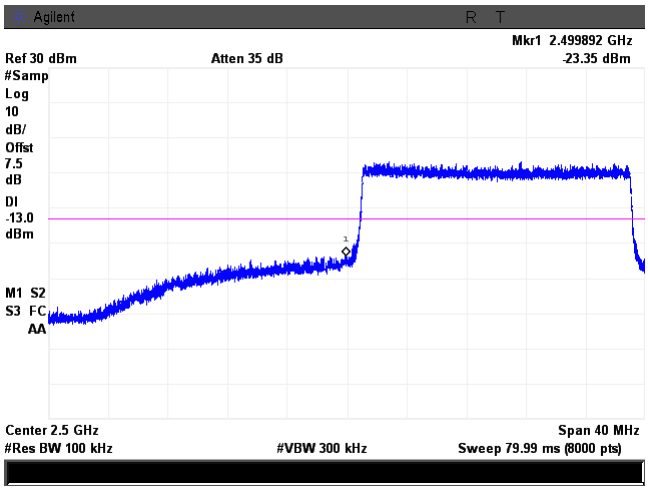
LTE Band 7 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (152.9/100)=4.5+1.8=6.3 dB



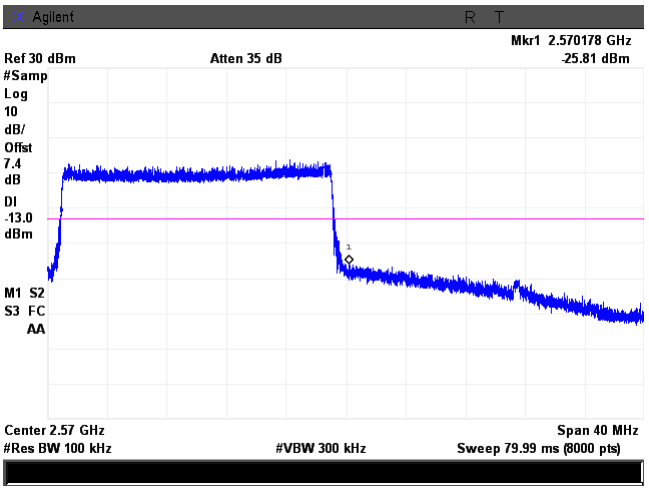
LTE Band 7 - High Channel 16QAM-15

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



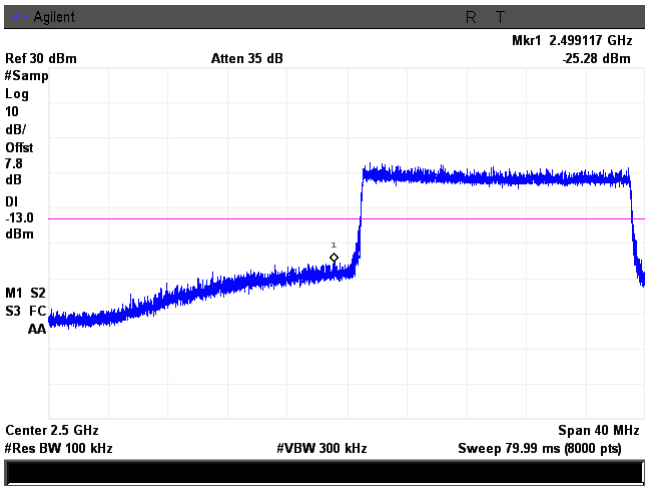
LTE Band 7 - Low Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (199.3/100)=4.5+3.0=7.5 dB



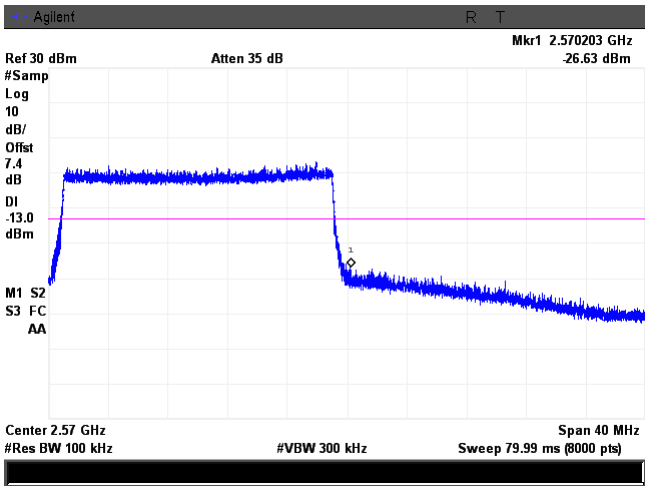
LTE Band 7 - High Channel QPSK-20

Note: Offset=Cable loss (4.5) + 10log (194.6/100)=4.5+2.9=7.4 dB



LTE Band 7 - Low Channel 16QAM-20

Note: Offset=Cable loss (4.5) + 10log (215.1/100)=4.5+3.3=7.8 dB



LTE Band 7 - High Channel 16QAM-20

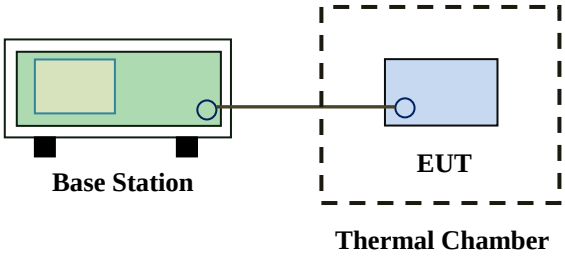
Note: Offset=Cable loss (4.5) + 10log (196/100)=4.5+2.9=7.4 dB

6.10 Frequency Stability

Temperature	22℃
Relative Humidity	57%
Atmospheric Pressure	1005mbar
Test date :	November 05, 2015
Tested By :	Winnie Zhang

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>§2.1055, §22.355 & §24.235 § 27.5(h); § 27.54</td><td>a)</td><td>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
<table>
<tr><th>Frequency Range (MHz)</th><th>Base, fixed (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th><th>Mobile ≤ 3 watts (ppm)</th></tr>
<tr><td>25 to 50</td><td>20.0</td><td>20.0</td><td>50.0</td></tr>
<tr><td>to 450</td><td>5.0</td><td>5.0</td><td>50.0</td></tr>
<tr><td>450 to 512</td><td>2.5</td><td>5.0</td><td>5 0</td></tr>
<tr><td>821 to 896</td><td>1.5</td><td>2.5</td><td>2.5</td></tr>
<tr><td>928 to 929.</td><td>5.0</td><td>N/A</td><td>N/A</td></tr>
<tr><td>929 to 960.</td><td>1.5</td><td>N/A</td><td>N/A</td></tr>
<tr><td>2110 to 2220</td><td>10.0</td><td>N/A</td><td>N/A</td></tr>
</table>
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.
According to §27.54, The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.</td><td>☑</td></tr>
</table>

Test setup	
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 ±0.00025% (±2.5ppm) of the center frequency.
Remark	Frequency Stability versus Temperature: The Frequency tolerance of the carrier signal shall be maintained within 2.5ppm of the operating frequency over a temperature variation of -10ºC to +55ºC at normal supply voltage.
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

LTE Band 2 (Part 24E) result

Middle Channel, f_o = 1880 MHz				
Temperature (℃)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	-5	0.0027	2.5
0		-7	0.0037	2.5
10		-6	0.0032	2.5
20		-8	0.0043	2.5
30		-10	0.0053	2.5
40		-9	0.0048	2.5
50		-11	0.0059	2.5
55		-5	0.0027	2.5
25	4.2	-10	0.0053	2.5
	3.5	-12	0.0064	2.5

LTE Band 4 (Part 27) result

Middle Channel, f_o = 1732.5 MHz				
Temperature (℃)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	-10	0.0058	2.5
0		-13	0.0075	2.5
10		-14	0.0081	2.5
20		-11	0.0063	2.5
30		-15	0.0087	2.5
40		-12	0.0069	2.5
50		-14	0.0081	2.5
55		-13	0.0075	2.5
25	4.2	-13	0.0075	2.5
	3.5	-15	0.0087	2.5

LTE Band 5 (Part 22H) result

Middle Channel, f_o = 1732.5 MHz				
Temperature (℃)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	5	0.0060	2.5
0		6	0.0072	2.5
10		7	0.0084	2.5
20		4	0.0048	2.5
30		10	0.0120	2.5
40		8	0.0096	2.5
50		11	0.0132	2.5
55		12	0.0143	2.5
25	4.2	9	0.0108	2.5
	3.5	10	0.0120	2.5

LTE Band 7 (Part 27) result

Middle Channel, f_o = 2535 MHz				
Temperature (℃)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	-10	0.0039	2.5
0		-8	0.0032	2.5
10		-11	0.0043	2.5
20		-12	0.0047	2.5
30		-14	0.0055	2.5
40		-9	0.0036	2.5
50		-10	0.0039	2.5
55		-11	0.0043	2.5
25	4.2	-11	0.0043	2.5
	3.5	-12	0.0047	2.5

LTE Band 17 (Part 27) result

Middle Channel, f_o = 710 MHz				
Temperature (℃)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	7	0.0099	2.5
0		5	0.0113	2.5
10		9	0.0141	2.5
20		8	0.0056	2.5
30		6	0.0028	2.5
40		8	0.0155	2.5
50		11	0.0197	2.5
55		10	0.0028	2.5
25	4.2	9	0.0127	2.5
	3.5	11	0.0183	2.5

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
RF Conducted Test					
Agilent ESA-E SERIES SPECTRUM ANALYZER	E4407B	MY45108319	09/16/2015	09/15/2016	☑
Power Splitter	1#	1#	09/01/2015	08/31/2016	☑
Universal Radio Communication Tester	CMU200	121393	09/25/2015	09/24/2016	☑
Wideband Radio Communication Tester	CMW500	120906	03/28/2015	03/27/2016	☑
Temperature/Humidity Chamber	UHL-270	001	10/09/2015	10/08/2016	☑
DC Power Supply	E3640A	MY40004013	09/17/2015	09/16/2016	☑
Radiated Emissions					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	☑
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/01/2015	08/31/2016	☑
Microwave Preamplifier (0.5 ~ 18GHz)	PAM-118	443008	09/01/2015	08/31/2016	☑
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/21/2015	09/20/2016	☑
Bilog Antenna (30MHz~2GHz)	JB1	A112017	09/21/2015	09/20/2016	☑
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71259	09/24/2015	09/23/2016	☑
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/24/2015	09/23/2016	☑
SYNTHESIZED SIGNAL GENERATOR	8665B	3744A01293	09/17/2015	09/16/2016	☑
Tunable Notch Filter	3NF-800/1000-S	AA4	09/01/2015	08/31/2016	☑
Tunable Notch Filter	3NF-1000/2000-S	AM 4	09/01/2015	08/31/2016	☑

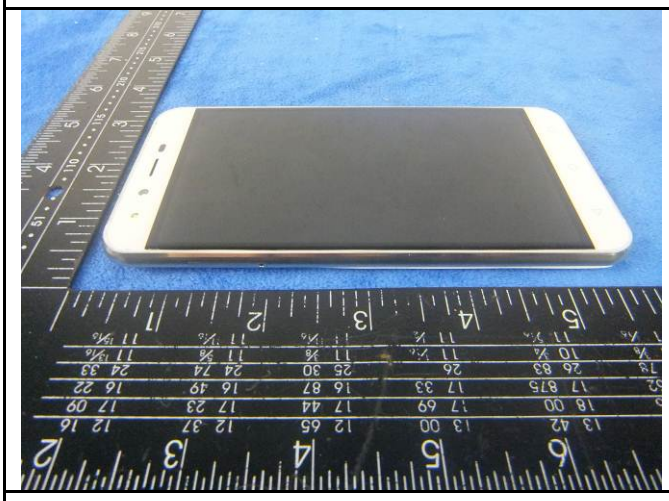
Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

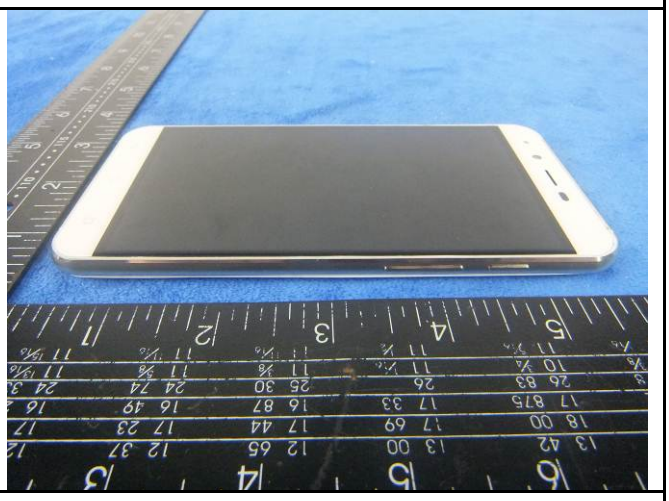
<table>
<tr><td>  </td><td> 
</td></tr>
<tr><td>Whole Package - Top View</td><td>Adapter - Front View</td></tr>
<tr><td>  </td><td> 
</td></tr>
<tr><td>EUT - Front View</td><td>EUT - Rear View</td></tr>
</table>

EUT - Top View

EUT - Bottom View

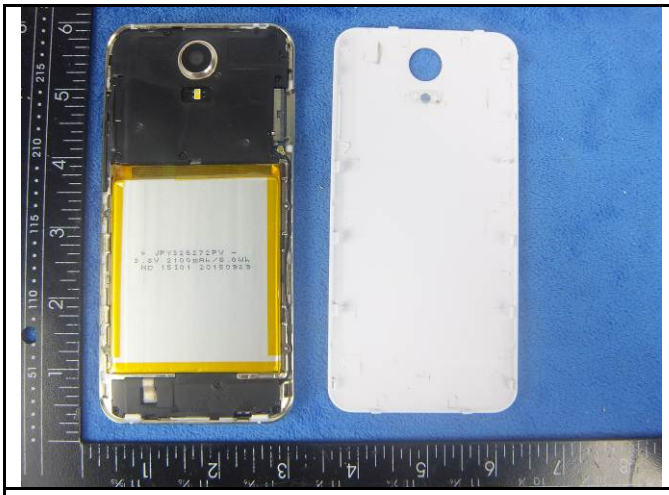


EUT - Left View

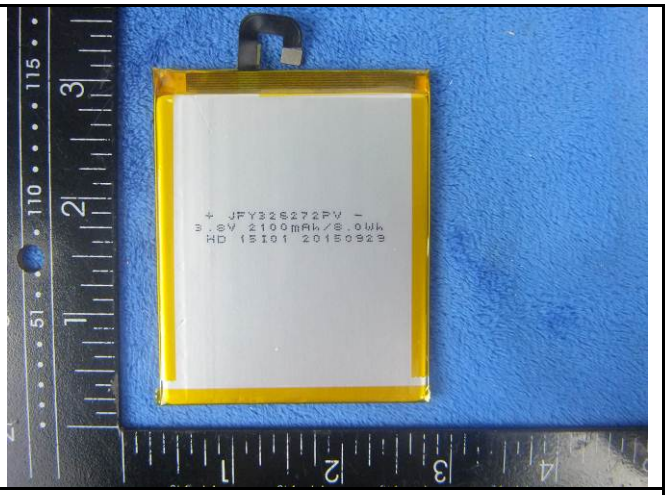


EUT - Right View

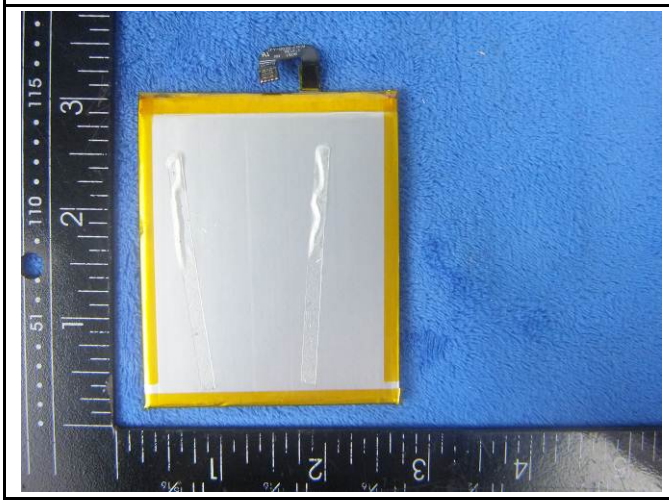
Annex B.ii. Photograph: EUT Internal Photo



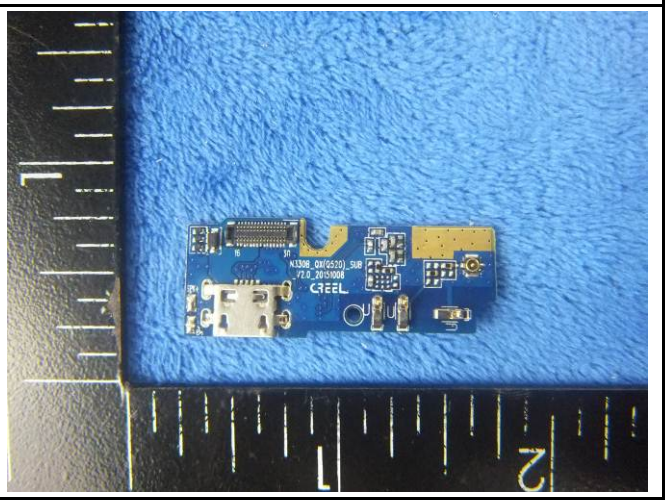
Cover Off - Top View



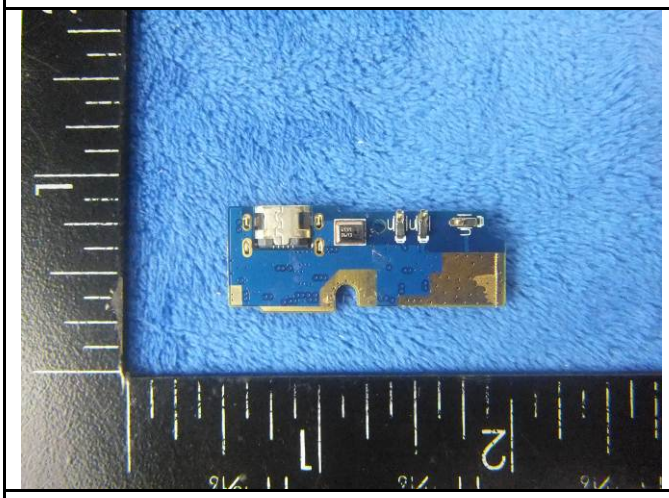
Battery - Front View



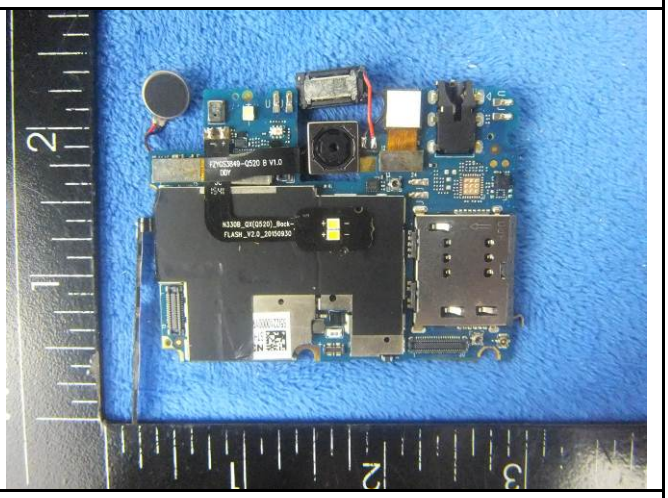
Battery - Rear View



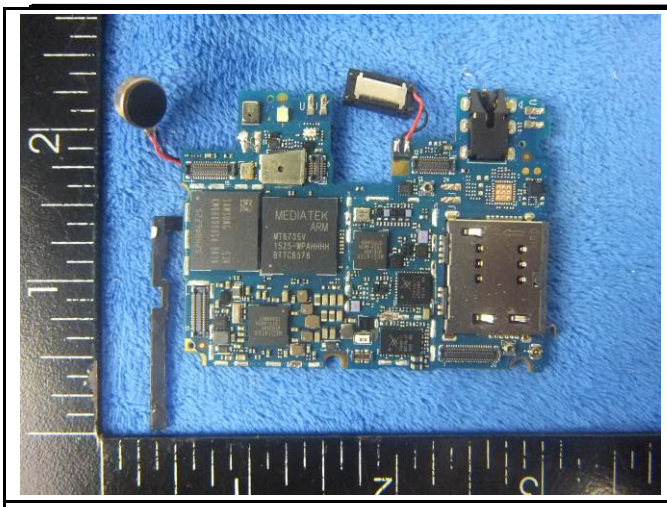
Mini Mainbard - Front View



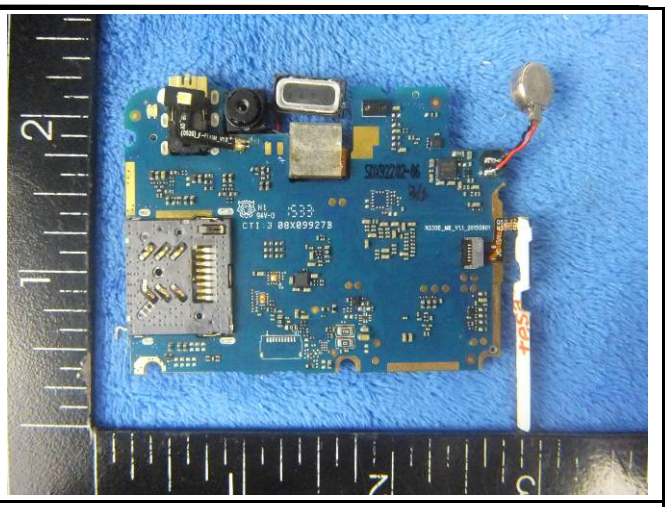
Mini Mainbard - Rear View



Mainbard with Shielding - Front View

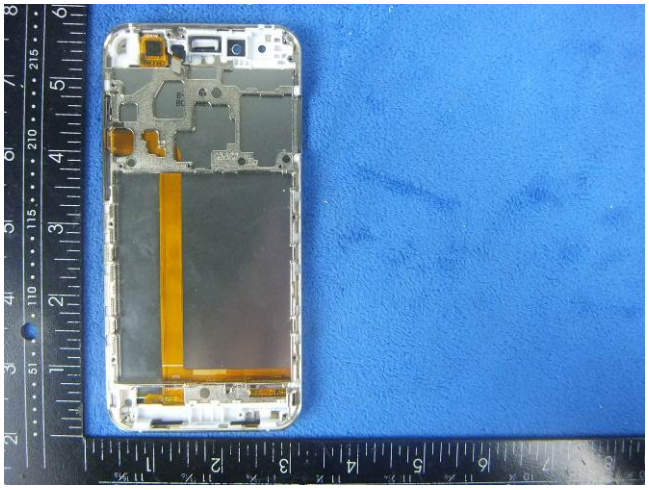


Mainbard without Shielding - Front View



Mainbard – Rear View

LCD – Front View



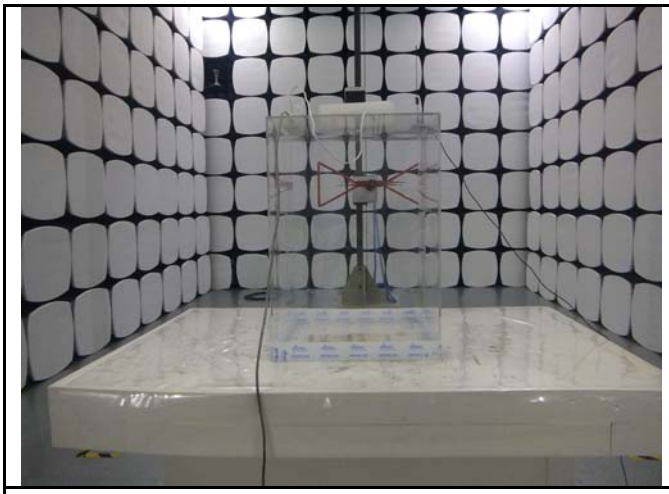
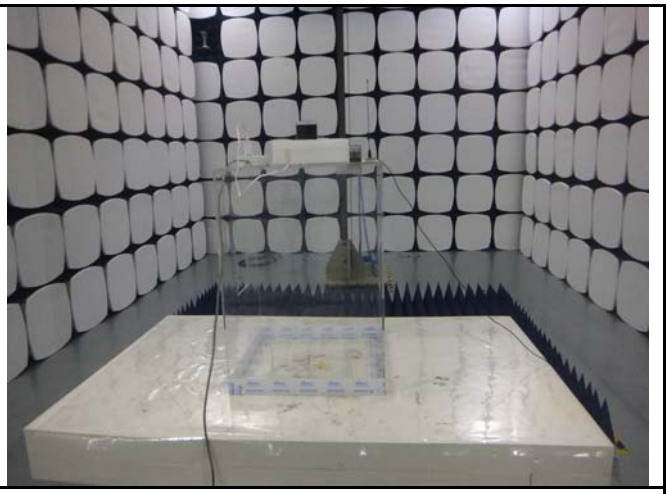
LCD – Rear View

GSM/PCS/UMTS-FDD/LTE Antenna View

WIFI/BT/BLE - Antenna View

GPS - Antenna View

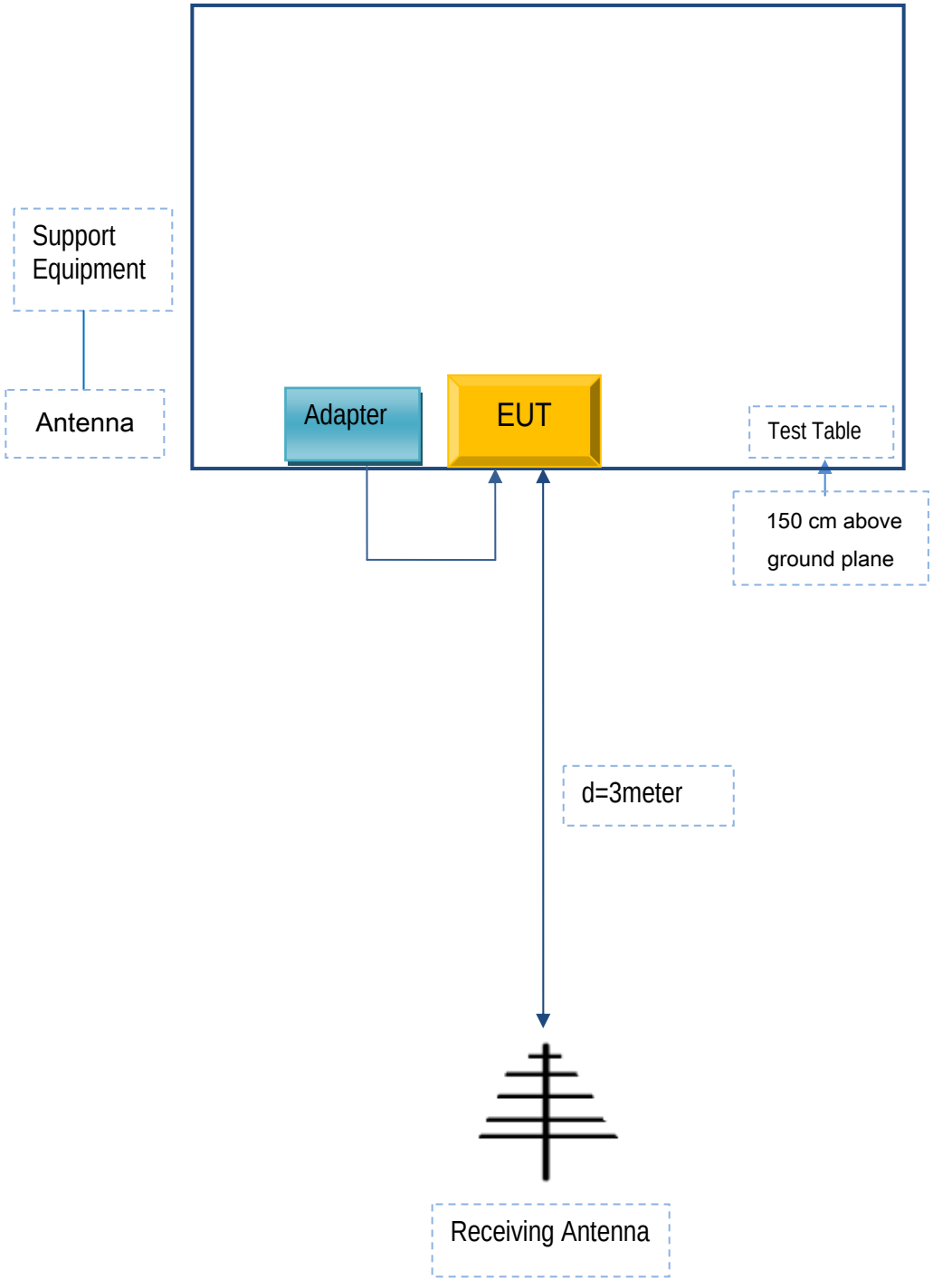
Annex B.iii. Photograph: Test Setup Photo

	
Radiated Spurious Emissions Test Setup Below 1GHz	Radiated Spurious Emissions Test Setup Above 1GHz

Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Radiated Emissions



Annex C. il. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Manufacturer	Equipment Description	Model	Calibration Date	Calibration Due Date
N/A	N/A	N/A	N/A	N/A

Annex C.ii. EUT OPERATING CONKITIONS

N/A

Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see attachment

Annex E. DECLARATION OF SIMILARITY

N/A