RF TEST REPORT

Report No.: 15070121-FCC-R5 Rev5

Supersede Report No.: 15070121-FCC-R5 Rev4

Applicant	Worldlinks Communications, L.L.C.
Product Name	PHONE
Model No.	R50S
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	February 15 to March 27, 2015
Issue Date	March 30, 2015
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Winnie Zhang	Alex Liu	
Winnie Zhang **Test Engineer**	**Alex Liu** **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.

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Accreditations for Conformity Assessment

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

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
15070121-FCC-R5	original	NONE	March 12, 2015
15070121-FCC-R5 Rev1	Version 1	Update Battery Information	March 17, 2015
15070121-FCC-R5 Rev2	Version 2	Update Tune up Power tolerant	March 17, 2015
15070121-FCC-R5 Rev3	Version 3	Added LTE Band 7 Information	March 21, 2015
15070121-FCC-R5 Rev4	Version 4	Update LTE Band 7 Band Edge	March 27, 2015
15070121-FCC-R5 Rev5	Version 5	Update LTE Band 7 EIRP	March 30, 2015

2. Customer information

Applicant Name	Worldlinks Communications, L.L.C.
Applicant Add	270 Center Drive Suite 230, Vernon Hills, IL. 60061
Manufacturer	Shenzhen VSDREAM Technology Co., Ltd
Manufacturer Add	4F, Headquarters Building, zhonghaixin Science&Technology Park, Bulan Road, Buji Ave, Longgang Dist., Shenzhen, Guangdong, China

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:	PHONE
Main Model:	R50S
Serial Model:	N/A
Date EUT received:	February 12, 2015
Test Date(s):	February 15 to March 27, 2015
Equipment Category：	PCE
Antenna Gain:	GSM850: 0.13 dBi PCS1900: 0.77 dBi UMTS-FDD Band 5: 0.11 dBi UMTS-FDD Band 2: 0.73 dBi UMTS-FDD Band 4: 0.52 dBi LTE Band 2: 0.81 dBi LTE Band 4: 0.55 dBi LTE Band 5: 0.27 dBi LTE Band 7: 1.01 dBi LTE Band 17: -1.23 dBi Bluetooth/BLE/WIFI: 1.15 dBi
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK UMTS-FDD: QPSK LTE Band: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK
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 5 TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz UMTS-FDD Band 2 TX:1852.4 ~ 1907.6 MHz; RX: 1932.4 ~ 1987.6 MHz

	UMTS-FDD Band 4 TX :1712.4 ~ 1752.6 MHz; RX : 2112.4 ~ 2152.6 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 WIFI: 802.11b/g/n(20M): 2412-2462 MHz WIFI: 802.11n(40M): 2422-2452 MHz Bluetooth& BLE: 2402-2480 MHz
Maximum Conducted AV Power to Antenna:	LTE Band 2: 22.0 dBm LTE Band 4: 22.96 dBm LTE Band 5: 23.81 dBm LTE Band 7: 22.41 dBm LTE Band 17: 24.32 dBm
ERP/EIRP:	LTE Band 2: 17.35 dBm / EIRP LTE Band 4: 17.53 dBm / EIRP LTE Band 5: 18.78 dBm / ERP LTE Band 7: 17.66 dBm / EIRP LTE Band 17: 19.63 dBm / EIRP
Port:	Power Port, Earphone Port, USB Port
Input Power:	Battery: Model: 5MQ2 Spec: 3.7V 2000mAh Limited charger voltage: 4.2V Adapter: Model: KA25-0501000US Input: AC 100-240V; 50/60Hz 0.25A Output: DC 5.0V; 1000mA
Trade Name :	REDDOTMOBILE
GPRS/EGPRS Multi-slot class	8/10/12
FCC ID:	2ADNIR50S

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	Compliance
§ 2.1049; § 22.905; § 22.917; § 24.238; § 27.53(a.5)	99% & -26 dB Occupied Bandwidth	Compliance
§ 2.1051; § 22.917(a); § 24.238(a); § 27.53(h)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917(a); § 24.238(a); § 27.53(h)	Field Strength of Spurious Radiation	Compliance
§ 22.917(a); § 24.238(a);	Out of band emission, Band Edge	Compliance
§ 27.53(m)	Band Edge 27.53(m)	Compliance
§ 2.1055; § 22.355; § 24.235; § 27.5(h); § 27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

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

Measurement Uncertainty

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

6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

6.1 RF Exposure (SAR)

Test Result: Pass

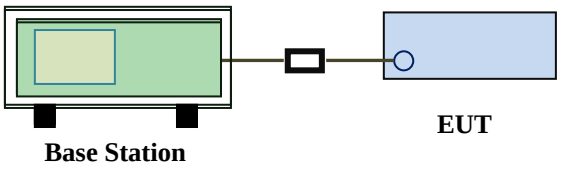
The EUT is a portable device, thus requires SAR evaluation;

Please refer to RF Exposure Evaluation Report: 15070121-FCC-H.

6.2 RF Output Power

Temperature	22°C
Relative Humidity	58%
Atmospheric Pressure	1011mbar
Test date :	February 15 to March 20, 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	21.93	21±1
				1	49	0	21.79	21±1
				1	99	0	21.71	21±1
				50	0	1	20.81	21±1
				50	24	1	21.03	21±1
				50	49	1	20.75	21±1
				100	0	1	20.79	21±1
			16QAM	1	0	1	20.85	21±1
				1	49	1	20.76	21±1
				1	99	1	20.69	21±1
				50	0	2	20.81	21±1
				50	24	2	20.93	21±1
				50	49	2	20.75	21±1
				100	0	2	20.43	21±1
	18900	1880.0	QPSK	1	0	0	21.73	21±1
				1	49	0	21.79	21±1
				1	99	0	21.84	21±1
				50	0	1	20.74	21±1
				50	24	1	20.86	21±1
				50	49	1	20.79	21±1
				100	0	1	20.72	21±1
			16QAM	1	0	1	21.23	21±1
				1	49	1	20.61	21±1
				1	99	1	20.60	21±1
				50	0	2	20.74	21±1
				50	24	2	20.83	21±1
				50	49	2	20.71	21±1
				100	0	2	20.32	21±1
	19100	1900.0	QPSK	1	0	0	21.86	21±1
				1	49	0	21.81	21±1
				1	99	0	21.88	21±1
				50	0	1	20.92	21±1
				50	24	1	21.03	21±1
				50	49	1	20.81	21±1
				100	0	1	20.80	21±1
			16QAM	1	0	1	21.34	21±1
				1	49	1	21.38	21±1
				1	99	1	21.41	21±1
				50	0	2	20.72	21±1
				50	24	2	20.86	21±1
				50	49	2	20.76	21±1
				100	0	2	20.34	21±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	21.93	21±1
				1	37	0	21.79	21±1
				1	74	0	21.74	21±1
				36	0	1	20.87	21±1
				36	16	1	20.91	21±1
				36	35	1	20.83	21±1
				75	0	1	20.82	21±1
			16QAM	1	0	1	20.76	21±1
				1	37	1	20.72	21±1
				1	74	1	20.61	21±1
				36	0	2	20.79	21±1
				36	16	2	20.71	21±1
				36	35	2	20.56	21±1
				75	0	2	20.54	21±1
	18900	1880.0	QPSK	1	0	0	21.68	21±1
				1	37	0	21.73	21±1
				1	74	0	21.74	21±1
				36	0	1	20.89	21±1
				36	16	1	20.96	21±1
				36	35	1	20.85	21±1
				75	0	1	20.79	21±1
			16QAM	1	0	1	21.30	21±1
				1	37	1	20.88	21±1
				1	74	1	20.87	21±1
				36	0	2	20.79	21±1
				36	16	2	20.82	21±1
				36	35	2	20.76	21±1
				75	0	2	20.77	21±1
	19125	1902.5	QPSK	1	0	0	21.70	21±1
				1	37	0	21.72	21±1
				1	74	0	21.74	21±1
				36	0	1	21.08	21±1
				36	16	1	21.17	21±1
				36	35	1	21.09	21±1
				75	0	1	20.56	21±1
			16QAM	1	0	1	21.29	21±1
				1	37	1	21.26	21±1
				1	74	1	21.09	21±1
				36	0	2	20.96	21±1
				36	16	2	20.98	21±1
				36	35	2	20.92	21±1
				75	0	2	20.53	21±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	21.91	21±1
				1	24	0	21.94	21±1
				1	49	0	21.81	21±1
				25	0	1	21.09	21±1
				25	12	1	21.00	21±1
				25	24	1	20.84	21±1
				50	0	1	20.56	21±1
			16QAM	1	0	1	21.35	21±1
				1	24	1	21.04	21±1
				1	49	1	21.22	21±1
				25	0	2	20.86	21±1
				25	12	2	20.82	21±1
				25	24	2	20.83	21±1
				50	0	2	20.79	21±1
	18900	1880.0	QPSK	1	0	0	21.78	21±1
				1	24	0	21.76	21±1
				1	49	0	21.79	21±1
				25	0	1	20.78	21±1
				25	12	1	20.86	21±1
				25	24	1	20.79	21±1
				50	0	1	20.56	21±1
			16QAM	1	0	1	20.86	21±1
				1	24	1	20.91	21±1
				1	49	1	20.84	21±1
				25	0	2	20.76	21±1
				25	12	2	20.83	21±1
				25	24	2	20.78	21±1
				50	0	2	20.45	21±1
	19150	1905	QPSK	1	0	0	21.87	21±1
				1	24	0	22.00	21±1
				1	49	0	21.95	21±1
				25	0	1	20.87	21±1
				25	12	1	20.96	21±1
				25	24	1	20.80	21±1
				50	0	1	20.76	21±1
			16QAM	1	0	1	21.12	21±1
				1	24	1	20.81	21±1
				1	49	1	20.89	21±1
				25	0	2	20.79	21±1
				25	12	2	20.86	21±1
				25	24	2	20.76	21±1
				50	0	2	20.46	21±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	21.81	21±1
				1	12	0	21.75	21±1
				1	24	0	21.67	21±1
				12	0	1	20.96	21±1
				12	6	1	20.99	21±1
				12	11	1	20.87	21±1
				25	0	1	20.72	21±1
			16QAM	1	0	1	21.12	21±1
				1	12	1	20.95	21±1
				1	24	1	20.89	21±1
				12	0	2	20.86	21±1
				12	6	2	20.91	21±1
				12	11	2	20.84	21±1
				25	0	2	20.56	21±1
	18900	1880.0	QPSK	1	0	0	21.66	21±1
				1	12	0	21.69	21±1
				1	24	0	21.73	21±1
				12	0	1	20.63	21±1
				12	6	1	20.80	21±1
				12	11	1	20.71	21±1
				25	0	1	20.61	21±1
			16QAM	1	0	1	20.71	21±1
				1	12	1	20.64	21±1
				1	24	1	20.60	21±1
				12	0	2	20.54	21±1
				12	6	2	20.63	21±1
				12	11	2	20.46	21±1
				25	0	2	20.39	21±1
	19175	1907.5	QPSK	1	0	0	21.92	21±1
				1	12	0	21.81	21±1
				1	24	0	21.68	21±1
				12	0	1	20.70	21±1
				12	6	1	20.75	21±1
				12	11	1	20.69	21±1
				25	0	1	20.64	21±1
			16QAM	1	0	1	20.78	21±1
				1	12	1	20.60	21±1
				1	24	1	20.59	21±1
				12	0	2	20.57	21±1
				12	6	2	20.84	21±1
				12	11	2	20.53	21±1
				25	0	2	20.49	21±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	21.79	21±1
				1	7	0	21.76	21±1
				1	14	0	21.69	21±1
				8	0	1	20.81	21±1
				8	4	1	20.93	21±1
				8	7	1	20.86	21±1
				15	0	1	20.75	21±1
			16QAM	1	0	1	20.74	21±1
				1	7	1	20.70	21±1
				1	14	1	20.67	21±1
				8	0	2	20.43	21±1
				8	4	2	20.45	21±1
				8	7	2	20.41	21±1
				15	0	2	20.31	21±1
	18900	1880.0	QPSK	1	0	0	21.55	21±1
				1	7	0	21.59	21±1
				1	14	0	21.58	21±1
				8	0	1	20.56	21±1
				8	4	1	20.64	21±1
				8	7	1	20.59	21±1
				15	0	1	20.62	21±1
			16QAM	1	0	1	20.64	21±1
				1	7	1	20.69	21±1
				1	14	1	20.63	21±1
				8	0	2	20.56	21±1
				8	4	2	20.61	21±1
				8	7	2	20.58	21±1
				15	0	2	20.54	21±1
	19175	1907.5	QPSK	1	0	0	21.73	21±1
				1	7	0	21.78	21±1
				1	14	0	21.79	21±1
				8	0	1	20.87	21±1
				8	4	1	21.11	21±1
				8	7	1	21.03	21±1
				15	0	1	20.78	21±1
			16QAM	1	0	1	20.54	21±1
				1	7	1	20.57	21±1
				1	14	1	20.56	21±1
				8	0	2	20.54	21±1
				8	4	2	20.58	21±1
				8	7	2	20.52	21±1
				15	0	2	20.43	21±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	21.85	21±1
				1	2	0	21.90	21±1
				1	5	0	21.86	21±1
				3	0	0	21.85	21±1
				3	1	0	21.93	21±1
				3	2	0	21.89	21±1
				6	0	1	20.91	21±1
			16QAM	1	0	1	20.80	21±1
				1	2	1	20.85	21±1
				1	5	1	20.81	21±1
				3	0	1	20.79	21±1
				3	1	1	20.80	21±1
				3	2	1	20.77	21±1
				6	0	2	20.34	21±1
	18900	1880.0	QPSK	1	0	0	21.63	21±1
				1	2	0	21.65	21±1
				1	5	0	21.67	21±1
				3	0	0	21.71	21±1
				3	1	0	21.74	21±1
				3	2	0	21.72	21±1
				6	0	1	20.83	21±1
			16QAM	1	0	1	20.67	21±1
				1	2	1	20.69	21±1
				1	5	1	20.57	21±1
				3	0	1	20.59	21±1
				3	1	1	20.61	21±1
				3	2	1	20.63	21±1
				6	0	2	20.36	21±1
	19193	1909.3	QPSK	1	0	0	21.57	21±1
				1	2	0	21.51	21±1
				1	5	0	21.58	21±1
				3	0	0	21.62	21±1
				3	1	0	21.58	21±1
				3	2	0	21.63	21±1
				6	0	1	21.09	21±1
			16QAM	1	0	1	20.71	21±1
				1	2	1	20.81	21±1
				1	5	1	20.74	21±1
				3	0	1	20.68	21±1
				3	1	1	20.70	21±1
				3	2	1	20.64	21±1
				6	0	2	20.53	21±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	22.67	22±1
				1	49	0	22.52	22±1
				1	99	0	22.59	22±1
				50	0	1	21.75	22±1
				50	24	1	21.81	22±1
				50	49	1	21.70	22±1
				100	0	1	21.61	22±1
			16QAM	1	0	1	21.66	21±1
				1	49	1	21.64	21±1
				1	99	1	21.47	21±1
				50	0	2	21.47	21±1
				50	24	2	21.51	21±1
				50	49	2	21.46	21±1
				100	0	2	21.06	21±1
	20175	1732.5	QPSK	1	0	0	22.67	22±1
				1	49	0	22.62	22±1
				1	99	0	22.54	22±1
				50	0	1	21.69	22±1
				50	24	1	21.74	22±1
				50	49	1	21.52	22±1
				100	0	1	21.55	22±1
			16QAM	1	0	1	21.34	21±1
				1	49	1	21.37	21±1
				1	99	1	21.40	21±1
				50	0	2	21.26	21±1
				50	24	2	21.31	21±1
				50	49	2	21.24	21±1
				100	0	2	21.13	21±1
	20300	1745.0	QPSK	1	0	0	22.34	22±1
				1	49	0	22.27	22±1
				1	99	0	22.25	22±1
				50	0	1	21.42	22±1
				50	24	1	21.47	22±1
				50	49	1	21.39	22±1
				100	0	1	21.31	22±1
			16QAM	1	0	1	21.43	21±1
				1	49	1	21.55	21±1
				1	99	1	21.43	21±1
				50	0	2	21.39	21±1
				50	24	2	21.41	21±1
				50	49	2	21.37	21±1
				100	0	2	21.01	21±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	22.46	22±1
				1	37	0	22.39	22±1
				1	74	0	22.21	22±1
				36	0	1	21.49	22±1
				36	16	1	21.43	22±1
				36	35	1	21.36	22±1
				75	0	1	21.38	22±1
			16QAM	1	0	1	21.33	21±1
				1	37	1	21.26	21±1
				1	74	1	21.25	21±1
				36	0	2	21.08	21±1
				36	16	2	21.16	21±1
				36	35	2	21.11	21±1
				75	0	2	20.91	21±1
	20175	1732.5	QPSK	1	0	0	22.43	22±1
				1	37	0	22.46	22±1
				1	74	0	22.41	22±1
				36	0	1	21.33	22±1
				36	16	1	21.32	22±1
				36	35	1	21.26	22±1
				75	0	1	21.11	22±1
			16QAM	1	0	1	21.24	21±1
				1	37	1	21.43	21±1
				1	74	1	21.10	21±1
				36	0	2	21.09	21±1
				36	16	2	21.14	21±1
				36	35	2	21.07	21±1
				75	0	2	21.06	21±1
	20325	1747.5	QPSK	1	0	0	22.37	22±1
				1	37	0	22.40	22±1
				1	74	0	22.26	22±1
				36	0	1	21.41	22±1
				36	16	1	21.54	22±1
				36	35	1	21.19	22±1
				75	0	1	21.27	22±1
			16QAM	1	0	1	21.36	21±1
				1	37	1	21.23	21±1
				1	74	1	21.34	21±1
				36	0	2	21.54	21±1
				36	16	2	21.43	21±1
				36	35	2	21.07	21±1
				75	0	2	21.05	21±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	22.47	22±1
				1	24	0	22.52	22±1
				1	49	0	22.37	22±1
				25	0	1	21.21	22±1
				25	12	1	21.34	22±1
				25	24	1	21.07	22±1
				50	0	1	21.05	22±1
			16QAM	1	0	1	21.59	21±1
				1	24	1	21.46	21±1
				1	49	1	21.54	21±1
				25	0	2	21.67	21±1
				25	12	2	21.51	21±1
				25	24	2	21.34	21±1
				50	0	2	20.41	21±1
	20175	1732.5	QPSK	1	0	0	22.46	22±1
				1	24	0	22.38	22±1
				1	49	0	22.47	22±1
				25	0	1	21.43	22±1
				25	12	1	21.53	22±1
				25	24	1	21.37	22±1
				50	0	1	21.36	22±1
			16QAM	1	0	1	21.31	21±1
				1	24	1	21.36	21±1
				1	49	1	21.29	21±1
				25	0	2	21.31	21±1
				25	12	2	**22.96**	21±1
				25	24	2	22.81	21±1
				50	0	2	20.52	21±1
	20350	1750.0	QPSK	1	0	0	22.05	22±1
				1	24	0	22.17	22±1
				1	49	0	22.09	22±1
				25	0	1	21.31	22±1
				25	12	1	21.42	22±1
				25	24	1	21.25	22±1
				50	0	1	21.23	22±1
			16QAM	1	0	1	21.77	21±1
				1	24	1	21.76	21±1
				1	49	1	21.69	21±1
				25	0	2	21.34	21±1
				25	12	2	21.31	21±1
				25	24	2	21.41	21±1
				50	0	2	20.54	21±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	22.33	22±1
				1	12	0	22.37	22±1
				1	24	0	22.30	22±1
				12	0	1	21.22	22±1
				12	6	1	21.31	22±1
				12	11	1	21.21	22±1
				25	0	1	21.19	22±1
			16QAM	1	0	1	21.38	21±1
				1	12	1	21.34	21±1
				1	24	1	21.29	21±1
				12	0	2	20.98	21±1
				12	6	2	21.03	21±1
				12	11	2	20.97	21±1
				25	0	2	20.34	21±1
	20175	1732.5	QPSK	1	0	0	22.13	22±1
				1	12	0	22.24	22±1
				1	24	0	22.31	22±1
				12	0	1	21.43	22±1
				12	6	1	21.46	22±1
				12	11	1	21.39	22±1
				25	0	1	21.14	22±1
			16QAM	1	0	1	21.64	21±1
				1	12	1	21.56	21±1
				1	24	1	21.47	21±1
				12	0	2	20.98	21±1
				12	6	2	21.31	21±1
				12	11	2	20.86	21±1
				25	0	2	20.61	21±1
	20350	1750.0	QPSK	1	0	0	22.21	22±1
				1	12	0	22.36	22±1
				1	24	0	22.29	22±1
				12	0	1	21.34	22±1
				12	6	1	21.22	22±1
				12	11	1	21.31	22±1
				25	0	1	21.13	22±1
			16QAM	1	0	1	21.26	21±1
				1	12	1	21.43	21±1
				1	24	1	21.37	21±1
				12	0	2	21.09	21±1
				12	6	2	20.98	21±1
				12	11	2	20.87	21±1
				25	0	2	20.57	21±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	22.42	22±1
				1	7	0	22.41	22±1
				1	14	0	22.38	22±1
				8	0	1	21.59	22±1
				8	4	1	21.47	22±1
				8	7	1	21.58	22±1
				15	0	1	21.46	22±1
			16QAM	1	0	1	21.57	21±1
				1	7	1	21.58	21±1
				1	14	1	21.51	21±1
				8	0	2	21.47	21±1
				8	4	2	21.36	21±1
				8	7	2	21.41	21±1
				15	0	2	20.69	21±1
	20175	1732.5	QPSK	1	0	0	22.26	22±1
				1	7	0	22.36	22±1
				1	14	0	22.31	22±1
				8	0	1	21.33	22±1
				8	4	1	21.46	22±1
				8	7	1	21.30	22±1
				15	0	1	21.29	22±1
			16QAM	1	0	1	21.23	22±1
				1	7	1	21.21	21±1
				1	14	1	21.19	21±1
				8	0	2	21.08	21±1
				8	4	2	21.11	21±1
				8	7	2	21.09	21±1
				15	0	2	20.64	21±1
	20385	1753.5	QPSK	1	0	0	22.43	22±1
				1	7	0	22.36	22±1
				1	14	0	22.41	22±1
				8	0	1	21.46	22±1
				8	4	1	21.51	22±1
				8	7	1	21.64	22±1
				15	0	1	21.34	22±1
			16QAM	1	0	1	21.47	21±1
				1	7	1	21.52	21±1
				1	14	1	21.39	21±1
				8	0	2	21.23	21±1
				8	4	2	21.26	21±1
				8	7	2	21.37	21±1
				15	0	2	20.41	21±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	22.34	22±1
				1	2	0	22.21	22±1
				1	5	0	22.35	22±1
				3	0	0	21.21	22±1
				3	1	0	21.27	22±1
				3	2	0	21.10	22±1
				6	0	1	21.31	22±1
			16QAM	1	0	1	21.26	21±1
				1	2	1	21.13	21±1
				1	5	1	21.18	21±1
				3	0	1	21.17	21±1
				3	1	1	21.12	21±1
				3	2	1	21.08	21±1
				6	0	2	20.98	21±1
	20175	1732.5	QPSK	1	0	0	22.35	22±1
				1	2	0	22.37	22±1
				1	5	0	21.38	22±1
				3	0	0	21.46	22±1
				3	1	0	21.51	22±1
				3	2	0	21.45	22±1
				6	0	1	21.35	22±1
			16QAM	1	0	1	21.22	21±1
				1	2	1	21.25	21±1
				1	5	1	21.24	21±1
				3	0	1	21.19	21±1
				3	1	1	21.16	21±1
				3	2	1	20.98	21±1
				6	0	2	20.57	21±1
	20393	1754.3	QPSK	1	0	0	22.39	22±1
				1	2	0	22.36	22±1
				1	5	0	22.38	22±1
				3	0	0	21.27	22±1
				3	1	0	21.35	22±1
				3	2	0	21.18	22±1
				6	0	1	21.09	22±1
			16QAM	1	0	1	21.34	21±1
				1	2	1	21.28	21±1
				1	5	1	21.17	21±1
				3	0	1	21.16	21±1
				3	1	1	21.23	21±1
				3	2	1	21.17	21±1
				6	0	2	20.41	21±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	23.50	23±1
				1	24	0	23.54	23±1
				1	49	0	23.49	23±1
				25	0	1	22.58	23±1
				25	12	1	22.56	23±1
				25	24	1	22.53	23±1
				50	0	1	22.52	23±1
			16QAM	1	0	1	22.47	22±1
				1	24	1	22.54	22±1
				1	49	1	22.50	22±1
				25	0	2	22.30	22±1
				25	12	2	22.36	22±1
				25	24	2	22.29	22±1
				50	0	2	21.90	22±1
	20525	836.5	QPSK	1	0	0	23.47	23±1
				1	24	0	23.62	23±1
				1	49	0	23.60	23±1
				25	0	1	22.68	23±1
				25	12	1	22.71	23±1
				25	24	1	22.52	23±1
				50	0	1	22.51	23±1
			16QAM	1	0	1	22.45	22±1
				1	24	1	22.42	22±1
				1	49	1	22.45	22±1
				25	0	2	22.26	22±1
				25	12	2	22.37	22±1
				25	24	2	22.23	22±1
				50	0	2	21.87	22±1
	20600	844	QPSK	1	0	0	23.57	23±1
				1	24	0	23.61	23±1
				1	49	0	23.78	23±1
				25	0	1	23.42	23±1
				25	12	1	22.96	23±1
				25	24	1	22.89	23±1
				50	0	1	22.47	23±1
			16QAM	1	0	1	22.56	22±1
				1	24	1	22.41	22±1
				1	49	1	22.43	22±1
				25	0	2	22.37	22±1
				25	12	2	22.10	22±1
				25	24	2	22.21	22±1
				50	0	2	21.96	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	23.43	23±1
				1	12	0	23.43	23±1
				1	24	0	23.39	23±1
				12	0	1	22.51	23±1
				12	6	1	22.60	23±1
				12	11	1	22.49	23±1
				25	0	1	22.48	23±1
			16QAM	1	0	1	22.84	22±1
				1	12	1	22.89	22±1
				1	24	1	22.79	22±1
				12	0	2	22.47	22±1
				12	6	2	22.56	22±1
				12	11	2	22.38	22±1
				25	0	2	21.52	22±1
	20525	836.5	QPSK	1	0	0	23.48	23±1
				1	12	0	23.52	23±1
				1	24	0	23.54	23±1
				12	0	1	22.77	23±1
				12	6	1	22.91	23±1
				12	11	1	22.79	23±1
				25	0	1	22.59	23±1
			16QAM	1	0	1	22.59	22±1
				1	12	1	22.64	22±1
				1	24	1	22.69	22±1
				12	0	2	21.77	22±1
				12	6	2	21.98	22±1
				12	11	2	21.84	22±1
				25	0	2	21.58	22±1
	20625	846.5	QPSK	1	0	0	23.77	23±1
				1	12	0	**23.81**	23±1
				1	24	0	23.78	23±1
				12	0	1	22.92	23±1
				12	6	1	23.01	23±1
				12	11	1	22.82	23±1
				25	0	1	22.81	23±1
			16QAM	1	0	1	22.76	22±1
				1	12	1	22.80	22±1
				1	24	1	22.78	22±1
				12	0	2	22.47	22±1
				12	6	2	22.58	22±1
				12	11	2	22.36	22±1
				25	0	2	22.08	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	23.31	23±1
				1	7	0	23.36	23±1
				1	14	0	23.33	23±1
				8	0	1	22.23	23±1
				8	4	1	22.31	23±1
				8	7	1	22.26	23±1
				15	0	1	22.31	23±1
			16QAM	1	0	1	22.27	22±1
				1	7	1	22.28	22±1
				1	14	1	22.28	22±1
				8	0	2	21.98	22±1
				8	4	2	22.16	22±1
				8	7	2	21.81	22±1
				15	0	2	21.36	22±1
	20525	836.5	QPSK	1	0	0	23.39	23±1
				1	7	0	23.41	23±1
				1	14	0	23.33	23±1
				8	0	1	22.46	23±1
				8	4	1	22.48	23±1
				8	7	1	22.36	23±1
				15	0	1	22.16	23±1
			16QAM	1	0	1	22.33	22±1
				1	7	1	22.34	22±1
				1	14	1	22.36	22±1
				8	0	2	22.18	22±1
				8	4	2	22.17	22±1
				8	7	2	22.13	22±1
				15	0	2	21.59	22±1
	20635	847.5	QPSK	1	0	0	23.65	23±1
				1	7	0	23.67	23±1
				1	14	0	23.64	23±1
				8	0	1	22.80	23±1
				8	4	1	22.89	23±1
				8	7	1	22.77	23±1
				15	0	1	22.82	23±1
			16QAM	1	0	1	22.79	22±1
				1	7	1	22.76	22±1
				1	14	1	22.75	22±1
				8	0	2	22.43	22±1
				8	4	2	22.58	22±1
				8	7	2	22.46	22±1
				15	0	2	21.97	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	23.43	23±1
				1	2	0	23.45	23±1
				1	5	0	23.48	23±1
				3	0	0	23.57	23±1
				3	1	0	23.61	23±1
				3	2	0	23.52	23±1
				6	0	1	22.45	23±1
			16QAM	1	0	1	22.30	22±1
				1	2	1	22.35	22±1
				1	5	1	22.34	22±1
				3	0	1	21.98	22±1
				3	1	1	22.16	22±1
				3	2	1	21.87	22±1
				6	0	2	21.47	22±1
	20525	836.5	QPSK	1	0	0	23.47	23±1
				1	2	0	23.55	23±1
				1	5	0	23.53	23±1
				3	0	0	23.56	23±1
				3	1	0	23.67	23±1
				3	2	0	23.60	23±1
				6	0	1	22.71	23±1
			16QAM	1	0	1	22.52	22±1
				1	2	1	22.65	22±1
				1	5	1	22.60	22±1
				3	0	1	22.47	22±1
				3	1	1	22.58	22±1
				3	2	1	22.51	22±1
				6	0	2	21.40	22±1
	20643	848.3	QPSK	1	0	0	23.69	23±1
				1	2	0	23.73	23±1
				1	5	0	23.72	23±1
				3	0	0	23.68	23±1
				3	1	0	23.71	23±1
				3	2	0	23.57	23±1
				6	0	1	22.82	23±1
			16QAM	1	0	1	22.44	22±1
				1	2	1	22.48	22±1
				1	5	1	22.47	22±1
				3	0	1	22.16	22±1
				3	1	1	22.23	22±1
				3	2	1	22.17	22±1
				6	0	2	21.71	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
5MHz	20775	2502.5	QPSK	1	0	0	21.77	21±1
				1	12	0	21.74	21±1
				1	24	0	21.69	21±1
				12	0	1	21.22	21±1
				12	6	1	21.31	21±1
				12	11	1	21.21	21±1
				25	0	1	20.72	21±1
			16QAM	1	0	1	21.38	21±1
				1	12	1	21.34	21±1
				1	24	1	21.29	21±1
				12	0	2	20.98	21±1
				12	6	2	21.03	21±1
				12	11	2	20.97	21±1
				25	0	2	20.34	21±1
	21100	2535	QPSK	1	0	0	21.23	21±1
				1	12	0	21.24	21±1
				1	24	0	21.31	21±1
				12	0	1	21.23	21±1
				12	6	1	21.26	21±1
				12	11	1	21.19	21±1
				25	0	1	21.56	21±1
			16QAM	1	0	1	21.14	21±1
				1	12	1	21.23	21±1
				1	24	1	21.32	21±1
				12	0	2	21.14	21±1
				12	6	2	21.09	21±1
				12	11	2	20.86	21±1
				25	0	2	20.61	21±1
	21425	2567.5	QPSK	1	0	0	21.12	21±1
				1	12	0	21.23	21±1
				1	24	0	21.29	21±1
				12	0	1	21.16	21±1
				12	6	1	21.22	21±1
				12	11	1	21.2	21±1
				25	0	1	21.76	21±1
			16QAM	1	0	1	21.24	21±1
				1	12	1	21.21	21±1
				1	24	1	21.3	21±1
				12	0	2	21.09	21±1
				12	6	2	20.98	21±1
				12	11	2	20.87	21±1
				25	0	2	20.49	21±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
10MHz	20800	2505	QPSK	1	0	0	21.98	21±1
				1	24	0	21.96	21±1
				1	49	0	21.97	21±1
				25	0	1	21.56	21±1
				25	12	1	21.76	21±1
				25	24	1	21.43	21±1
				50	0	1	20.89	21±1
			16QAM	1	0	1	21.78	21±1
				1	24	1	21.66	21±1
				1	49	1	21.56	21±1
				25	0	2	21.34	21±1
				25	12	2	21.21	21±1
				25	24	2	21.09	21±1
				50	0	2	20.67	21±1
	21100	2535	QPSK	1	0	0	21.46	21±1
				1	24	0	21.53	21±1
				1	49	0	21.42	21±1
				25	0	1	21.23	21±1
				25	12	1	21.18	21±1
				25	24	1	21.14	21±1
				50	0	1	20.56	21±1
			16QAM	1	0	1	21.31	21±1
				1	24	1	21.36	21±1
				1	49	1	21.29	21±1
				25	0	2	21.31	21±1
				25	12	2	21.12	21±1
				25	24	2	21.09	21±1
				50	0	2	20.52	21±1
	21400	2562.5	QPSK	1	0	0	21.24	21±1
				1	24	0	21.26	21±1
				1	49	0	21.19	21±1
				25	0	1	21.13	21±1
				25	12	1	21.21	21±1
				25	24	1	21.12	21±1
				50	0	1	20.46	21±1
			16QAM	1	0	1	21.23	21±1
				1	24	1	21.14	21±1
				1	49	1	21.13	21±1
				25	0	2	21.06	21±1
				25	12	2	21.09	21±1
				25	24	2	20.98	21±1
				50	0	2	20.34	21±1

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	Tune up Power tolerant
15MHz	20825	2507.5	QPSK	1	0	0	22.19	22±1
				1	37	0	22.14	22±1
				1	74	0	22.07	22±1
				36	0	1	21.96	22±1
				36	16	1	21.82	22±1
				36	35	1	21.77	22±1
				75	0	1	21.16	22±1
			16QAM	1	0	1	21.87	21±1
				1	37	1	21.76	21±1
				1	74	1	21.75	21±1
				36	0	2	21.68	21±1
				36	16	2	21.55	21±1
				36	35	2	21.36	21±1
				75	0	2	21.12	21±1
	21100	2535	QPSK	1	0	0	21.85	22±1
				1	37	0	21.92	22±1
				1	74	0	21.82	22±1
				36	0	1	21.33	22±1
				36	16	1	21.42	22±1
				36	35	1	21.26	22±1
				75	0	1	21.11	22±1
			16QAM	1	0	1	21.24	21±1
				1	37	1	21.43	21±1
				1	74	1	21.11	21±1
				36	0	2	21.09	21±1
				36	16	2	21.14	21±1
				36	35	2	21.07	21±1
				75	0	2	20.86	21±1
	21400	2562.5	QPSK	1	0	0	22.17	22±1
				1	37	0	22.04	22±1
				1	74	0	21.96	22±1
				36	0	1	21.41	22±1
				36	16	1	21.54	22±1
				36	35	1	21.19	22±1
				75	0	1	21.07	22±1
			16QAM	1	0	1	21.89	21±1
				1	37	1	21.69	21±1
				1	74	1	21.57	21±1
				36	0	2	21.54	21±1
				36	16	2	21.23	21±1
				36	35	2	21.17	21±1
				75	0	2	21.01	21±1

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	22.34	22±1
				1	49	0	22.22	22±1
				1	99	0	22.19	22±1
				50	0	1	21.78	22±1
				50	24	1	21.91	22±1
				50	49	1	21.56	22±1
				100	0	1	21.29	22±1
			16QAM	1	0	1	21.96	21±1
				1	49	1	21.64	21±1
				1	99	1	21.47	21±1
				50	0	2	21.41	21±1
				50	24	2	21.56	21±1
				50	49	2	21.43	21±1
				100	0	2	21.16	21±1
	21100	2535	QPSK	1	0	0	**22.41**	22±1
				1	49	0	22.36	22±1
				1	99	0	22.14	22±1
				50	0	1	21.59	22±1
				50	24	1	21.64	22±1
				50	49	1	21.42	22±1
				100	0	1	21.26	22±1
			16QAM	1	0	1	21.23	21±1
				1	49	1	21.17	21±1
				1	99	1	21.24	21±1
				50	0	2	21.26	21±1
				50	24	2	21.13	21±1
				50	49	2	21.11	21±1
				100	0	2	20.98	21±1
	21350	2560	QPSK	1	0	0	22.29	22±1
				1	49	0	22.24	22±1
				1	99	0	22.21	22±1
				50	0	1	21.43	22±1
				50	24	1	21.39	22±1
				50	49	1	21.32	22±1
				100	0	1	21.04	22±1
			16QAM	1	0	1	21.43	21±1
				1	49	1	21.56	21±1
				1	99	1	21.34	21±1
				50	0	2	21.39	21±1
				50	24	2	21.41	21±1
				50	49	2	21.37	21±1
				100	0	2	20.73	21±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	24.19	24±1
				1	24	0	24.26	24±1
				1	49	0	24.18	24±1
				25	0	1	23.21	24±1
				25	12	1	23.34	24±1
				25	24	1	23.20	24±1
				50	0	1	23.19	24±1
			16QAM	1	0	1	23.17	23±1
				1	24	1	23.20	23±1
				1	49	1	23.12	23±1
				25	0	2	23.08	23±1
				25	12	2	22.98	23±1
				25	24	2	23.01	23±1
				50	0	2	22.80	23±1
	23790	701.0	QPSK	1	0	0	24.19	24±1
				1	24	0	24.15	24±1
				1	49	0	24.01	24±1
				25	0	1	23.41	24±1
				25	12	1	23.46	24±1
				25	24	1	23.15	24±1
				50	0	1	23.13	24±1
			16QAM	1	0	1	22.96	23±1
				1	24	1	23.06	23±1
				1	49	1	22.79	23±1
				25	0	2	22.86	23±1
				25	12	2	22.91	23±1
				25	24	2	22.77	23±1
				50	0	2	22.24	23±1
	23800	711.0	QPSK	1	0	0	24.19	24±1
				1	24	0	24.24	24±1
				1	49	0	23.73	24±1
				25	0	1	23.34	24±1
				25	12	1	23.43	24±1
				25	24	1	23.23	24±1
				50	0	1	23.11	24±1
			16QAM	1	0	1	23.12	23±1
				1	24	1	23.17	23±1
				1	49	1	22.75	23±1
				25	0	2	23.09	23±1
				25	12	2	22.98	23±1
				25	24	2	23.02	23±1
				50	0	2	22.21	23±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	24.18	24±1
				1	12	0	24.20	24±1
				1	24	0	24.21	24±1
				12	0	1	23.19	24±1
				12	6	1	23.26	24±1
				12	11	1	23.23	24±1
				25	0	1	23.18	24±1
			16QAM	1	0	1	23.52	23±1
				1	12	1	23.55	23±1
				1	24	1	23.57	23±1
				12	0	2	23.55	23±1
				12	6	2	23.41	23±1
				12	11	2	22.40	23±1
				25	0	2	22.34	23±1
	23790	710.0	QPSK	1	0	0	**24.32**	24±1
				1	12	0	24.28	24±1
				1	24	0	23.24	24±1
				12	0	1	23.36	24±1
				12	6	1	23.22	24±1
				12	11	1	23.20	24±1
				25	0	1	23.19	24±1
			16QAM	1	0	1	23.34	23±1
				1	12	1	23.33	23±1
				1	24	1	23.27	23±1
				12	0	2	22.96	23±1
				12	6	2	23.17	23±1
				12	11	2	23.08	23±1
				25	0	2	22.28	23±1
	23825	713.5	QPSK	1	0	0	24.27	24±1
				1	12	0	24.09	24±1
				1	24	0	23.86	24±1
				12	0	1	23.27	24±1
				12	6	1	23.46	24±1
				12	11	1	23.17	24±1
				25	0	1	23.07	24±1
			16QAM	1	0	1	23.57	23±1
				1	12	1	23.48	23±1
				1	24	1	23.22	23±1
				12	0	2	23.45	23±1
				12	6	2	23.36	23±1
				12	11	2	23.31	23±1
				25	0	2	22.26	23±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	9.56	V	7.88	0.85	16.59	33.01
1880	1.4	QPSK	1/0	9.77	V	7.88	0.85	16.8	33.01
1909.3	1.4	QPSK	1/0	9.65	V	7.88	0.85	16.68	33.01
1850.7	1.4	QPSK	1/0	7.96	H	7.88	0.85	14.99	33.01
1880	1.4	QPSK	1/0	8.02	H	7.88	0.85	15.05	33.01
1909.3	1.4	QPSK	1/0	8.11	H	7.88	0.85	15.14	33.01
1850.7	1.4	16-QAM	1/0	9.59	V	7.88	0.85	16.62	33.01
1880	1.4	16-QAM	1/0	9.84	V	7.88	0.85	16.87	33.01
1909.3	1.4	16-QAM	1/0	9.73	V	7.88	0.85	16.76	33.01
1850.7	1.4	16-QAM	1/0	8.04	H	7.88	0.85	15.07	33.01
1880	1.4	16-QAM	1/0	7.97	H	7.88	0.85	15	33.01
1909.3	1.4	16-QAM	1/0	7.86	H	7.88	0.85	14.89	33.01
1851.5	3	QPSK	1/0	10.06	V	7.88	0.85	17.09	33.01
1880	3	QPSK	1/0	9.85	V	7.88	0.85	16.88	33.01
1908.5	3	QPSK	1/0	9.79	V	7.88	0.85	16.82	33.01
1851.5	3	QPSK	1/0	8.22	H	7.88	0.85	15.25	33.01
1880	3	QPSK	1/0	8.19	H	7.88	0.85	15.22	33.01
1908.5	3	QPSK	1/0	7.99	H	7.88	0.85	15.02	33.01
1851.5	3	16-QAM	1/0	9.98	V	7.88	0.85	17.01	33.01
1880	3	16-QAM	1/0	10.11	V	7.88	0.85	17.14	33.01
1908.5	3	16-QAM	1/0	10.17	V	7.88	0.85	17.2	33.01
1851.5	3	16-QAM	1/0	8.26	H	7.88	0.85	15.29	33.01
1880	3	16-QAM	1/0	8.14	H	7.88	0.85	15.17	33.01
1908.5	3	16-QAM	1/0	8.07	H	7.88	0.85	15.1	33.01
1852.5	5	QPSK	1/24	10.31	V	7.88	0.85	17.34	33.01
1880	5	QPSK	1/0	10.14	V	7.88	0.85	17.17	33.01
1907.5	5	QPSK	1/24	9.89	V	7.88	0.85	16.92	33.01
1852.5	5	QPSK	1/24	7.88	H	7.88	0.85	14.91	33.01
1880	5	QPSK	1/0	7.94	H	7.88	0.85	14.97	33.01
1907.5	5	QPSK	1/24	7.99	H	7.88	0.85	15.02	33.01
1852.5	5	16-QAM	1/24	9.96	V	7.88	0.85	16.99	33.01
1880	5	16-QAM	1/0	10.03	V	7.88	0.85	17.06	33.01
1907.5	5	16-QAM	1/24	10.17	V	7.88	0.85	17.2	33.01
1852.5	5	16-QAM	1/24	8.23	H	7.88	0.85	15.26	33.01
1880	5	16-QAM	1/0	8.15	H	7.88	0.85	15.18	33.01
1907.5	5	16-QAM	1/24	8.09	H	7.88	0.85	15.12	33.01
1855	10	QPSK	1/0	10.04	V	7.88	0.85	17.07	33.01
1880	10	QPSK	1/0	10.19	V	7.88	0.85	17.22	33.01
1905	10	QPSK	1/49	9.94	V	7.88	0.85	16.97	33.01
1855	10	QPSK	1/0	7.82	H	7.88	0.85	14.85	33.01
1880	10	QPSK	1/0	7.91	H	7.88	0.85	14.94	33.01

1905	10	QPSK	1/49	7.83	H	7.88	0.85	14.86	33.01
1855	10	16-QAM	1/0	9.84	V	7.88	0.85	16.87	33.01
1880	10	16-QAM	1/0	9.96	V	7.88	0.85	16.99	33.01
1905	10	16-QAM	1/49	9.75	V	7.88	0.85	16.78	33.01
1855	10	16-QAM	1/0	7.83	H	7.88	0.85	14.86	33.01
1880	10	16-QAM	1/0	8.07	H	7.88	0.85	15.1	33.01
1905	10	16-QAM	1/49	7.89	H	7.88	0.85	14.92	33.01
1857.5	15	QPSK	1/0	10.01	V	7.88	0.85	17.04	33.01
1880	15	QPSK	1/0	9.97	V	7.88	0.85	17	33.01
1902.5	15	QPSK	1/0	9.86	V	7.88	0.85	16.89	33.01
1857.5	15	QPSK	1/0	7.77	H	7.88	0.85	14.8	33.01
1880	15	QPSK	1/0	7.81	H	7.88	0.85	14.84	33.01
1902.5	15	QPSK	1/0	7.82	H	7.88	0.85	14.85	33.01
1857.5	15	16-QAM	1/0	9.92	V	7.88	0.85	16.95	33.01
1880	15	16-QAM	1/0	9.89	V	7.88	0.85	16.92	33.01
1902.5	15	16-QAM	1/0	10.08	V	7.88	0.85	17.11	33.01
1857.5	15	16-QAM	1/0	8.17	H	7.88	0.85	15.2	33.01
1880	15	16-QAM	1/0	8.12	H	7.88	0.85	15.15	33.01
1902.5	15	16-QAM	1/0	7.96	H	7.88	0.85	14.99	33.01
1860	20	QPSK	1/0	10.32	V	7.88	0.85	**17.35**	33.01
1880	20	QPSK	1/0	10.24	V	7.88	0.85	17.27	33.01
1900	20	QPSK	1/0	10.18	V	7.88	0.85	17.21	33.01
1860	20	QPSK	1/0	8.29	H	7.88	0.85	15.32	33.01
1880	20	QPSK	1/0	8.21	H	7.88	0.85	15.24	33.01
1900	20	QPSK	1/0	8.08	H	7.88	0.85	15.11	33.01
1860	20	16-QAM	1/0	10.06	V	7.88	0.85	17.09	33.01
1880	20	16-QAM	1/0	10.14	V	7.88	0.85	17.17	33.01
1900	20	16-QAM	1/0	10.07	V	7.88	0.85	17.1	33.01
1860	20	16-QAM	1/0	8.11	H	7.88	0.85	15.14	33.01
1880	20	16-QAM	1/0	8.14	H	7.88	0.85	15.17	33.01
1900	20	16-QAM	1/0	8.16	H	7.88	0.85	15.19	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	10.23	V	7.95	0.79	17.39	30
1732.5	1.4	QPSK	1/0	10.14	V	7.95	0.79	17.3	30
1754.3	1.4	QPSK	1/0	9.98	V	7.95	0.79	17.14	30
1710.7	1.4	QPSK	1/0	8.33	H	7.95	0.79	15.49	30
1732.5	1.4	QPSK	1/0	8.27	H	7.95	0.79	15.43	30
1754.3	1.4	QPSK	1/0	8.18	H	7.95	0.79	15.34	30
1710.7	1.4	16-QAM	1/5	10.17	V	7.95	0.79	17.33	30
1732.5	1.4	16-QAM	1/0	10.06	V	7.95	0.79	17.22	30
1754.3	1.4	16-QAM	1/0	10	V	7.95	0.79	17.16	30
1710.7	1.4	16-QAM	1/5	8.22	H	7.95	0.79	15.38	30
1732.5	1.4	16-QAM	1/0	8.19	H	7.95	0.79	15.35	30
1754.3	1.4	16-QAM	1/0	8.04	H	7.95	0.79	15.2	30
1711.5	3	QPSK	1/0	9.99	V	7.95	0.79	17.15	30
1732.5	3	QPSK	1/0	10.04	V	7.95	0.79	17.2	30
1753.5	3	QPSK	1/0	10.07	V	7.95	0.79	17.23	30
1711.5	3	QPSK	1/0	8.17	H	7.95	0.79	15.33	30
1732.5	3	QPSK	1/0	8.26	H	7.95	0.79	15.42	30
1753.5	3	QPSK	1/0	8.05	H	7.95	0.79	15.21	30
1711.5	3	16-QAM	1/0	10.04	V	7.95	0.79	17.2	30
1732.5	3	16-QAM	1/0	10.09	V	7.95	0.79	17.25	30
1753.5	3	16-QAM	1/0	10.01	V	7.95	0.79	17.17	30
1711.5	3	16-QAM	1/0	8.17	H	7.95	0.79	15.33	30
1732.5	3	16-QAM	1/0	8.22	H	7.95	0.79	15.38	30
1753.5	3	16-QAM	1/0	8.14	H	7.95	0.79	15.3	30
1712.5	5	QPSK	1/0	10.31	V	7.95	0.79	17.47	30
1732.5	5	QPSK	1/0	10.16	V	7.95	0.79	17.32	30
1752.5	5	QPSK	1/24	10.07	V	7.95	0.79	17.23	30
1712.5	5	QPSK	1/0	8.41	H	7.95	0.79	15.57	30
1732.5	5	QPSK	1/0	8.29	H	7.95	0.79	15.45	30
1752.5	5	QPSK	1/24	8.16	H	7.95	0.79	15.32	30
1712.5	5	16-QAM	1/0	10.19	V	7.95	0.79	17.35	30
1732.5	5	16-QAM	1/0	10.05	V	7.95	0.79	17.21	30
1752.5	5	16-QAM	1/24	9.99	V	7.95	0.79	17.15	30
1712.5	5	16-QAM	1/0	8.14	H	7.95	0.79	15.3	30
1732.5	5	16-QAM	1/0	8.16	H	7.95	0.79	15.32	30
1752.5	5	16-QAM	1/24	8.09	H	7.95	0.79	15.25	30
1715	10	QPSK	1/0	10.02	V	7.95	0.79	17.18	30
1732.5	10	QPSK	1/49	10.07	V	7.95	0.79	17.23	30
1750	10	QPSK	1/0	10.11	V	7.95	0.79	17.27	30
1715	10	QPSK	1/0	8.24	H	7.95	0.79	15.4	30
1732.5	10	QPSK	1/49	8.16	H	7.95	0.79	15.32	30
1750	10	QPSK	1/0	8.22	H	7.95	0.79	15.38	30

1715	10	16-QAM	1/0	10.16	V	7.95	0.79	17.32	30
1732.5	10	16-QAM	1/49	9.95	V	7.95	0.79	17.11	30
1750	10	16-QAM	1/0	10.07	V	7.95	0.79	17.23	30
1715	10	16-QAM	1/0	8.14	H	7.95	0.79	15.3	30
1732.5	10	16-QAM	1/49	8.27	H	7.95	0.79	15.43	30
1750	10	16-QAM	1/0	8.16	H	7.95	0.79	15.32	30
1717.5	15	QPSK	1/0	10.19	V	7.95	0.79	17.35	30
1732.5	15	QPSK	1/74	10.24	V	7.95	0.79	17.4	30
1747.5	15	QPSK	1/0	10.07	V	7.95	0.79	17.23	30
1717.5	15	QPSK	1/0	8.26	H	7.95	0.79	15.42	30
1732.5	15	QPSK	1/74	8.31	H	7.95	0.79	15.47	30
1747.5	15	QPSK	1/0	8.04	H	7.95	0.79	15.2	30
1717.5	15	16-QAM	1/0	10.16	V	7.95	0.79	17.32	30
1732.5	15	16-QAM	1/74	9.99	V	7.95	0.79	17.15	30
1747.5	15	16-QAM	1/0	9.86	V	7.95	0.79	17.02	30
1717.5	15	16-QAM	1/0	7.99	H	7.95	0.79	15.15	30
1732.5	15	16-QAM	1/74	8.05	H	7.95	0.79	15.21	30
1747.5	15	16-QAM	1/0	8.11	H	7.95	0.79	15.27	30
1720	20	QPSK	1/99	10.37	V	7.95	0.79	**17.53**	30
1732.5	20	QPSK	1/99	10.29	V	7.95	0.79	17.45	30
1745	20	QPSK	1/0	10.23	V	7.95	0.79	17.39	30
1720	20	QPSK	1/99	8.42	H	7.95	0.79	15.58	30
1732.5	20	QPSK	1/99	8.31	H	7.95	0.79	15.47	30
1745	20	QPSK	1/0	8.29	H	7.95	0.79	15.45	30
1720	20	16-QAM	1/99	10.31	V	7.95	0.79	17.47	30
1732.5	20	16-QAM	1/99	10.24	V	7.95	0.79	17.4	30
1745	20	16-QAM	1/0	10.22	V	7.95	0.79	17.38	30
1720	20	16-QAM	1/99	8.16	H	7.95	0.79	15.32	30
1732.5	20	16-QAM	1/99	8.27	H	7.95	0.79	15.43	30
1745	20	16-QAM	1/0	8.19	H	7.95	0.79	15.35	30

ERP for LTE Band 5 (Part 22H)

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	12.22	V	6.8	0.44	18.58	34.77
836.5	1.4	QPSK	1/5	12.35	V	6.8	0.44	18.71	34.77
848.3	1.4	QPSK	1/5	12.02	V	6.9	0.44	18.48	34.77
824.7	1.4	QPSK	1/5	10.02	H	6.8	0.44	16.38	34.77
836.5	1.4	QPSK	1/5	9.86	H	6.8	0.44	16.22	34.77
848.3	1.4	QPSK	1/5	9.77	H	6.9	0.44	16.23	34.77
824.7	1.4	16-QAM	1/5	12.19	V	6.8	0.44	18.55	34.77
836.5	1.4	16-QAM	1/5	12.05	V	6.8	0.44	18.41	34.77
848.3	1.4	16-QAM	1/5	11.96	V	6.9	0.44	18.42	34.77
824.7	1.4	16-QAM	1/5	9.89	H	6.8	0.44	16.25	34.77
836.5	1.4	16-QAM	1/5	9.79	H	6.8	0.44	16.15	34.77
848.3	1.4	16-QAM	1/5	9.85	H	6.9	0.44	16.31	34.77
825.5	3	QPSK	1/14	12.09	V	6.8	0.44	18.45	34.77
836.5	3	QPSK	1/0	12.42	V	6.8	0.44	**18.78**	34.77
847.5	3	QPSK	1/14	12.16	V	6.9	0.44	18.62	34.77
825.5	3	QPSK	1/14	9.99	H	6.8	0.44	16.35	34.77
836.5	3	QPSK	1/0	10.05	H	6.8	0.44	16.41	34.77
847.5	3	QPSK	1/14	10.11	H	6.9	0.44	16.57	34.77
825.5	3	16-QAM	1/14	12.14	V	6.8	0.44	18.5	34.77
836.5	3	16-QAM	1/0	12.31	V	6.8	0.44	18.67	34.77
847.5	3	16-QAM	1/14	12.06	V	6.9	0.44	18.52	34.77
825.5	3	16-QAM	1/14	9.79	H	6.8	0.44	16.15	34.77
836.5	3	16-QAM	1/0	9.68	H	6.8	0.44	16.04	34.77
847.5	3	16-QAM	1/14	9.83	H	6.9	0.44	16.29	34.77
826.5	5	QPSK	1/24	12.16	V	6.8	0.44	18.52	34.77
836.5	5	QPSK	1/24	12.28	V	6.8	0.44	18.64	34.77
846.5	5	QPSK	1/24	12.13	V	6.8	0.44	18.49	34.77
826.5	5	QPSK	1/24	10.11	H	6.8	0.44	16.47	34.77
836.5	5	QPSK	1/24	9.94	H	6.8	0.44	16.3	34.77
846.5	5	QPSK	1/24	9.82	H	6.8	0.44	16.18	34.77
826.5	5	16-QAM	1/24	12.07	V	6.8	0.44	18.43	34.77
836.5	5	16-QAM	1/24	12.26	V	6.8	0.44	18.62	34.77
846.5	5	16-QAM	1/24	12.18	V	6.8	0.44	18.54	34.77
826.5	5	16-QAM	1/24	9.79	H	6.8	0.44	16.15	34.77
836.5	5	16-QAM	1/24	9.84	H	6.8	0.44	16.2	34.77
846.5	5	16-QAM	1/24	9.69	H	6.8	0.44	16.05	34.77
829	10	QPSK	1/49	12.33	V	6.8	0.44	18.69	34.77
836.5	10	QPSK	1/49	12.26	V	6.8	0.44	18.62	34.77
844	10	QPSK	1/49	12.17	V	6.8	0.44	18.53	34.77
829	10	QPSK	1/49	9.83	H	6.8	0.44	16.19	34.77
836.5	10	QPSK	1/49	9.74	H	6.8	0.44	16.1	34.77
844	10	QPSK	1/49	9.91	H	6.8	0.44	16.27	34.77
829	10	16-QAM	1/49	12.15	V	6.8	0.44	18.51	34.77

836.5	10	16-QAM	1/49	12.36	V	6.8	0.44	18.72	34.77
844	10	16-QAM	1/49	12.18	V	6.8	0.44	18.54	34.77
829	10	16-QAM	1/49	10	H	6.8	0.44	16.36	34.77
836.5	10	16-QAM	1/49	9.76	H	6.8	0.44	16.12	34.77
844	10	16-QAM	1/49	9.82	H	6.8	0.44	16.18	34.77

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	13.23	V	6.8	0.42	19.61	34.77
710	5	QPSK	1/0	13.15	V	6.8	0.42	19.53	34.77
713.5	5	QPSK	1/0	13.22	V	6.8	0.42	19.6	34.77
706.5	5	QPSK	1/0	10.56	H	6.8	0.42	16.94	34.77
710	5	QPSK	1/0	10.48	H	6.8	0.42	16.86	34.77
713.5	5	QPSK	1/0	10.33	H	6.8	0.42	16.71	34.77
706.5	5	16-QAM	1/0	13.19	V	6.8	0.42	19.57	34.77
710	5	16-QAM	1/0	13.25	V	6.8	0.42	**19.63**	34.77
713.5	5	16-QAM	1/0	13.17	V	6.8	0.42	19.55	34.77
706.5	5	16-QAM	1/0	10.39	H	6.8	0.42	16.77	34.77
710	5	16-QAM	1/0	10.26	H	6.8	0.42	16.64	34.77
713.5	5	16-QAM	1/0	10.41	H	6.8	0.42	16.79	34.77
709	10	QPSK	1/0	13.18	V	6.8	0.42	19.56	34.77
710	10	QPSK	1/0	13.09	V	6.8	0.42	19.47	34.77
711	10	QPSK	1/0	13.22	V	6.8	0.42	19.6	34.77
709	10	QPSK	1/0	10.47	H	6.8	0.42	16.85	34.77
710	10	QPSK	1/0	10.51	H	6.8	0.42	16.89	34.77
711	10	QPSK	1/0	10.45	H	6.8	0.42	16.83	34.77
709	10	16-QAM	1/0	13.21	V	6.8	0.42	19.59	34.77
710	10	16-QAM	1/0	13.14	V	6.8	0.42	19.52	34.77
711	10	16-QAM	1/0	13.24	V	6.8	0.42	19.62	34.77
709	10	16-QAM	1/0	10.44	H	6.8	0.42	16.82	34.77
710	10	16-QAM	1/0	10.27	H	6.8	0.42	16.65	34.77
711	10	16-QAM	1/0	10.35	H	6.8	0.42	16.73	34.77

EIRP for LTE Band 7 (Part 27)

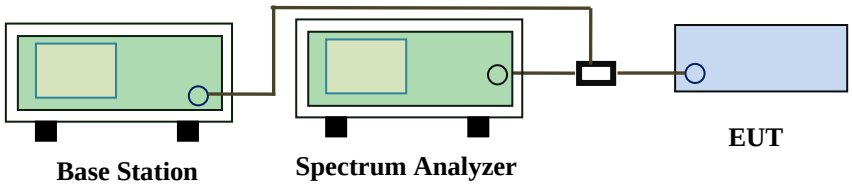
Frequency (MHz)	BW (MHz)	Modulation	RB Size/Offset	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
2502.5	5	QPSK	1/0	9.26	V	8.93	0.83	17.36	30
2535	5	QPSK	1/0	9.51	V	8.93	0.83	17.61	30
2567.5	5	QPSK	1/24	9.33	V	8.93	0.83	17.43	30
2502.5	5	QPSK	1/0	8.55	H	8.93	0.83	16.65	30
2535	5	QPSK	1/0	8.29	H	8.93	0.83	16.39	30
2567.5	5	QPSK	1/24	8.49	H	8.93	0.83	16.59	30

2502.5	5	16-QAM	1/0	9.19	V	8.93	0.83	17.29	30
2535	5	16-QAM	1/0	9.44	V	8.93	0.83	17.54	30
2567.5	5	16-QAM	1/24	9.25	V	8.93	0.83	17.35	30
2502.5	5	16-QAM	1/0	8.71	H	8.93	0.83	16.81	30
2535	5	16-QAM	1/0	8.25	H	8.93	0.83	16.35	30
2567.5	5	16-QAM	1/24	8.37	H	8.93	0.83	16.47	30
2505	10	QPSK	1/0	8.99	V	8.93	0.83	17.09	30
2535	10	QPSK	1/49	9.16	V	8.93	0.83	17.26	30
2565	10	QPSK	1/0	9.07	V	8.93	0.83	17.17	30
2505	10	QPSK	1/0	8.12	H	8.93	0.83	16.22	30
2535	10	QPSK	1/49	8.24	H	8.93	0.83	16.34	30
2565	10	QPSK	1/0	8.31	H	8.93	0.83	16.41	30
2505	10	16-QAM	1/0	9.54	V	8.93	0.83	17.64	30
2535	10	16-QAM	1/49	9.42	V	8.93	0.83	17.52	30
2565	10	16-QAM	1/0	9.39	V	8.93	0.83	17.49	30
2505	10	16-QAM	1/0	8.47	H	8.93	0.83	16.57	30
2535	10	16-QAM	1/49	8.36	H	8.93	0.83	16.46	30
2565	10	16-QAM	1/0	8.12	H	8.93	0.83	16.22	30
2507.5	15	QPSK	1/0	9.36	V	8.93	0.83	17.46	30
2535	15	QPSK	1/74	9.42	V	8.93	0.83	17.52	30
2562.5	15	QPSK	1/0	9.12	V	8.93	0.83	17.22	30
2507.5	15	QPSK	1/0	8.46	H	8.93	0.83	16.56	30
2535	15	QPSK	1/74	8.29	H	8.93	0.83	16.39	30
2562.5	15	QPSK	1/0	8.33	H	8.93	0.83	16.43	30
2507.5	15	16-QAM	1/0	9.42	V	8.93	0.83	17.52	30
2535	15	16-QAM	1/74	9.35	V	8.93	0.83	17.45	30
2562.5	15	16-QAM	1/0	9.29	V	8.93	0.83	17.39	30
2507.5	15	16-QAM	1/0	8.46	H	8.93	0.83	16.56	30
2535	15	16-QAM	1/74	8.33	H	8.93	0.83	16.43	30
2562.5	15	16-QAM	1/0	8.47	H	8.93	0.83	16.57	30
2510	20	QPSK	1/99	9.28	V	8.93	0.83	17.38	30
2535	20	QPSK	1/99	9.43	V	8.93	0.83	17.53	30
2560	20	QPSK	1/0	9.34	V	8.93	0.83	17.44	30
2510	20	QPSK	1/99	8.19	H	8.93	0.83	16.29	30
2535	20	QPSK	1/99	8.36	H	8.93	0.83	16.46	30
2560	20	QPSK	1/0	8.46	H	8.93	0.83	16.56	30
2510	20	16-QAM	1/99	9.14	V	8.93	0.83	17.24	30
2535	20	16-QAM	1/99	9.56	V	8.93	0.83	**17.66**	30
2560	20	16-QAM	1/0	9.38	V	8.93	0.83	17.48	30
2510	20	16-QAM	1/99	8.49	H	8.93	0.83	16.59	30
2535	20	16-QAM	1/99	8.29	H	8.93	0.83	16.39	30
2560	20	16-QAM	1/0	8.31	H	8.93	0.83	16.41	30

6.3 Peak-Average Ratio

Temperature	22°C
Relative Humidity	58%
Atmospheric Pressure	1011mbar
Test date :	February 15 to March 20, 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	
20	1880	RB 1/0	QPSK	25.52	21.63	3.89
			16QAM	24.49	20.67	3.82
15	1880	RB 1/0	QPSK	25.15	21.55	3.6
			16QAM	24.05	20.64	3.41
10	1880	RB 1/0	QPSK	25.27	21.66	3.61
			16QAM	24.13	20.71	3.42
5	1880	RB 1/0	QPSK	25.47	21.78	3.69
			16QAM	24.35	20.86	3.49
3	1880	RB 1/0	QPSK	24.41	21.68	2.73
			16QAM	24.28	21.3	2.98
1.4	1880	RB 1/0	QPSK	24.36	21.73	2.63
			16QAM	23.3	21.23	2.07

LTE Band 4 (part 27)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
20	1732.5	RB 1/0	QPSK	25.15	22.35	2.8
			16QAM	25.07	21.22	3.85
15	1732.5	RB 1/0	QPSK	26.12	22.26	3.86
			16QAM	25.02	21.23	3.79
10	1732.5	RB 1/0	QPSK	26.2	22.13	4.07
			16QAM	25.1	21.64	3.46
5	1732.5	RB 1/0	QPSK	25.19	22.46	2.73
			16QAM	25.12	21.31	3.81
3	1732.5	RB 1/0	QPSK	26.09	23.85	2.24
			16QAM	26.01	23.24	2.77
1.4	1732.5	RB 1/0	QPSK	25.25	22.57	2.68
			16QAM	24.14	21.34	2.8

LTE Band 17 (part 27)

BW(MHz)	Frequency (MHz)	Mode	Modulation	Conducted Power (dBm)		Peak-Average Ratio (PAR)
				Peak	Average	
10	710	RB 1/0	QPSK	26.29	24.34	1.95
			16QAM	25.61	23.34	2.27
5	710	RB 1/0	QPSK	26.91	24.19	2.72
			16QAM	25.12	22.96	2.16

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	24.18	21.23	2.95
			16QAM	24.16	21.14	3.02
10	2535	RB 1/0	QPSK	24.56	21.46	3.1
			16QAM	24.01	21.31	2.7
15	2535	RB 1/0	QPSK	23.62	21.85	1.77
			16QAM	24.58	21.24	3.34
20	2535	RB 1/0	QPSK	25.12	22.41	2.71
			16QAM	24.15	21.23	2.92

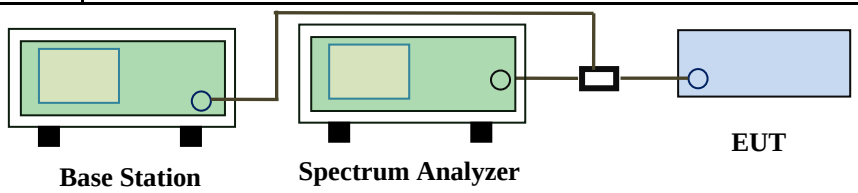
6.4 Modulation Characteristic

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	22°C
Relative Humidity	58%
Atmospheric Pressure	1011mbar
Test date :	February 15 to March 20, 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) result

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	18607	1850.7	QPSK	1.0938	1.310
			16QAM	1.0944	1.270
1.4	18900	1880	QPSK	1.1145	1.30
			16QAM	1.1047	1.302
1.4	19193	1909.3	QPSK	1.1198	1.283
			16QAM	1.0998	1.254
3	18615	1851.5	QPSK	2.7490	3.047
			16QAM	2.7354	3.051
3	18900	1880	QPSK	2.7400	3.062
			16QAM	2.7352	3.071
3	19185	1908.5	QPSK	2.7608	3.108
			16QAM	2.7546	3.127
5	18625	1852.5	QPSK	4.5039	5.010
			16QAM	4.5027	5.004
5	18900	1880	QPSK	4.5306	5.008
			16QAM	4.4850	5.009
5	19175	1907.5	QPSK	4.5194	5.076
			16QAM	4.5271	5.023
10	18650	1855	QPSK	9.0646	10.007
			16QAM	9.0864	10.159
10	18900	1880	QPSK	9.0457	10.156
			16QAM	9.0315	10.154
10	19150	1905	QPSK	9.0428	10.083
			16QAM	9.0487	10.115
15	18675	1857.5	QPSK	13.4902	14.754
			16QAM	13.4730	14.751
15	18900	1880	QPSK	13.4367	14.765
			16QAM	13.4422	14.584
15	19125	1902.5	QPSK	13.4427	14.706
			16QAM	13.4304	14.806

20	18700	1860	QPSK	17.9202	19.070
			16QAM	17.9097	19.420
20	18900	1880	QPSK	17.8676	19.093
			16QAM	17.8651	19.120
20	19100	1900	QPSK	17.8419	19.179
			16QAM	17.8791	19.271

LTE Band 4 (Part 27) result

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	19957	1710.7	QPSK	1.0943	1.274
			16QAM	1.1005	1.281
1.4	20175	1732.5	QPSK	1.0951	1.267
			16QAM	1.0978	1.279
1.4	20393	1754.3	QPSK	1.1036	1.291
			16QAM	1.0944	1.280
3	19965	1711.5	QPSK	2.7187	3.085
			16QAM	2.7307	3.053
3	20175	1732.5	QPSK	2.7356	3.054
			16QAM	2.7324	3.054
3	20385	1753.5	QPSK	2.7247	3.045
			16QAM	2.7320	3.069
5	19975	1712.5	QPSK	4.5110	5.037
			16QAM	4.5252	5.037
5	20175	1732.5	QPSK	4.4979	5.018
			16QAM	4.5023	5.055
5	20375	1752.5	QPSK	4.5221	5.040
			16QAM	4.5136	4.992
10	20000	1715	QPSK	9.0458	9.939
			16QAM	9.0490	10.018
10	20175	1732.5	QPSK	9.0612	10.144
			16QAM	9.0575	10.089
10	20350	1750	QPSK	9.0388	10.046
			16QAM	9.0491	10.005

15	20025	1717.5	QPSK	13.5032	14.414
			16QAM	13.4974	14.602
15	20175	1732.5	QPSK	13.4836	15.016
			16QAM	13.4935	14.992
15	20325	1747.5	QPSK	13.4969	14.790
			16QAM	13.4879	14.790
20	20050	1720	QPSK	17.8913	19.158
			16QAM	17.9405	19.485
20	20175	1732.5	QPSK	17.8704	19.272
			16QAM	17.8809	19.387
20	20300	1745	QPSK	17.8577	19.219
			16QAM	17.8489	19.239

LTE Band 5 (Part 22H) result

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	20407	824.7	QPSK	1.0950	1.245
			16QAM	1.0946	1.266
1.4	20525	836.5	QPSK	1.0934	1.254
			16QAM	1.0933	1.256
1.4	20643	848.3	QPSK	1.0948	1.274
			16QAM	1.0918	1.235
3	20415	825.5	QPSK	2.7454	3.037
			16QAM	2.7327	3.068
3	20525	836.5	QPSK	2.7440	3.065
			16QAM	2.7363	3.073
3	20635	847.5	QPSK	2.7304	3.057
			16QAM	2.7371	3.024
5	20425	826.5	QPSK	4.5039	4.973
			16QAM	4.5352	5.017
5	20525	836.5	QPSK	4.5056	5.026
			16QAM	4.5027	4.983
5	20625	846.5	QPSK	4.5119	5.019
			16QAM	4.5176	4.990

10	20450	829	QPSK	9.0524	10.040
			16QAM	9.0456	9.986
10	20525	836.5	QPSK	9.0814	10.114
			16QAM	9.0687	9.996
10	20600	844	QPSK	9.0331	10.009
			16QAM	9.0592	10.086

LTE Band 17 (Part 27) result

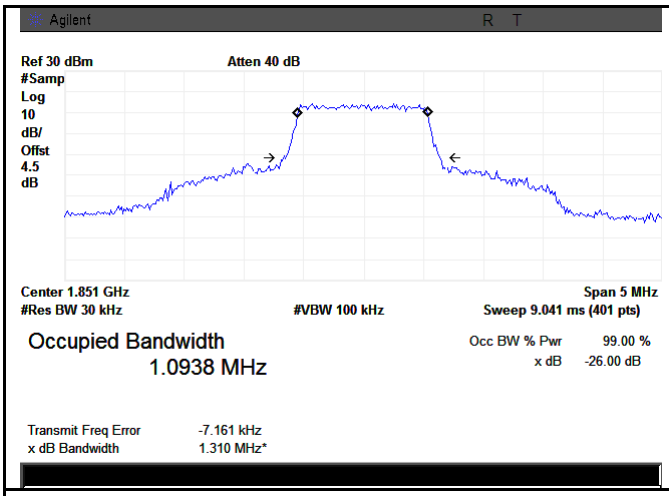
BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
5	23755	706.5	QPSK	4.5222	5.030
			16QAM	4.5200	5.006
5	23790	710	QPSK	4.5161	5.064
			16QAM	4.5079	5.018
5	23825	713.5	QPSK	4.5175	4.991
			16QAM	4.5198	5.009
10	23780	709	QPSK	9.0594	10.032
			16QAM	9.0894	10.079
10	23790	710	QPSK	9.0737	10.016
			16QAM	9.0917	9.990
10	23800	711	QPSK	9.0715	9.977
			16QAM	9.0933	10.086

LTE Band 7 (Part 27) result

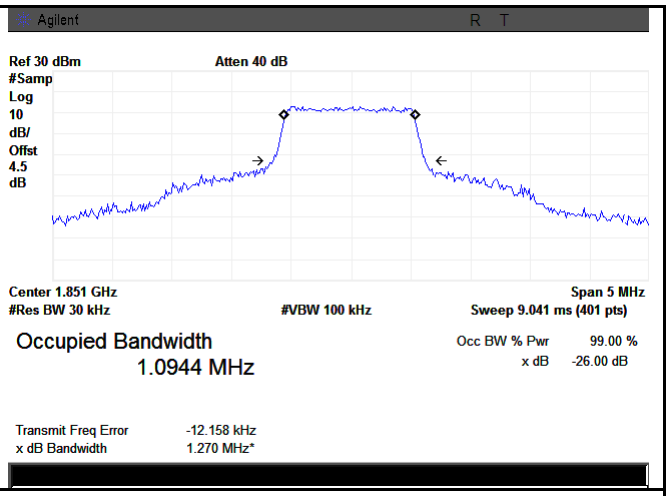
BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
5	20775	2502.5	QPSK	4.5280	5.067
			16QAM	4.5142	5.060
5	21100	2535	QPSK	4.5120	5.047
			16QAM	4.5127	5.040
5	21425	2567.5	QPSK	4.5131	5.060
			16QAM	4.5271	5.088
10	20800	2505	QPSK	9.0630	10.135
			16QAM	9.0461	10.057
10	21100	2535	QPSK	9.0649	10.134
			16QAM	9.0642	10.102
10	21400	2562.5	QPSK	9.0490	10.236
			16QAM	9.0511	10.021
15	20825	2507.5	QPSK	13.4656	14.769
			16QAM	13.4936	14.604
15	21100	2535	QPSK	13.4702	14.791
			16QAM	13.4524	14.599
15	21400	2562.5	QPSK	13.4280	14.705
			16QAM	13.4766	14.817
20	20850	2510	QPSK	17.8745	19.296
			16QAM	19.8915	19.272
20	21100	2535	QPSK	17.8613	19.284
			16QAM	17.9087	19.370
20	21350	2560	QPSK	17.8966	19.322
			16QAM	17.9087	19.383

Test Plots

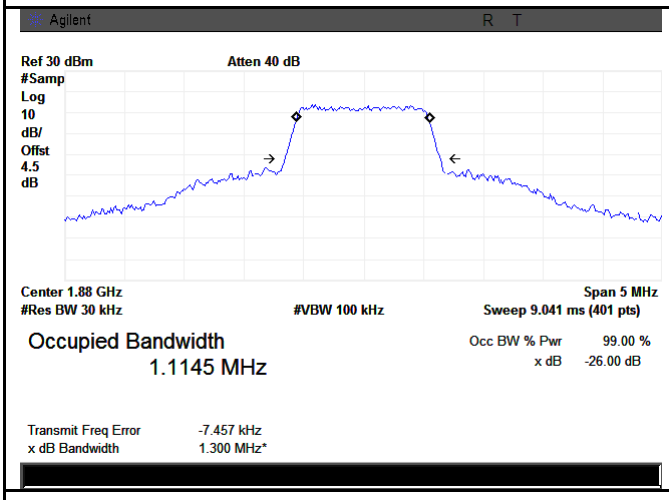
LTE Band 2 (Part 24E)



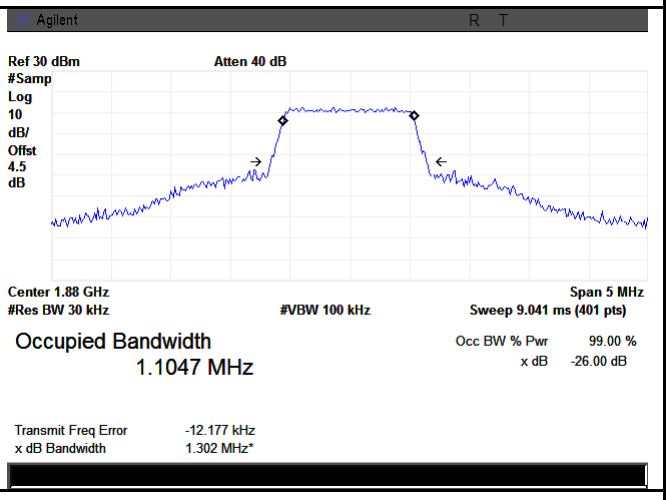
LTE band 2 - Low CH QPSK-1.4



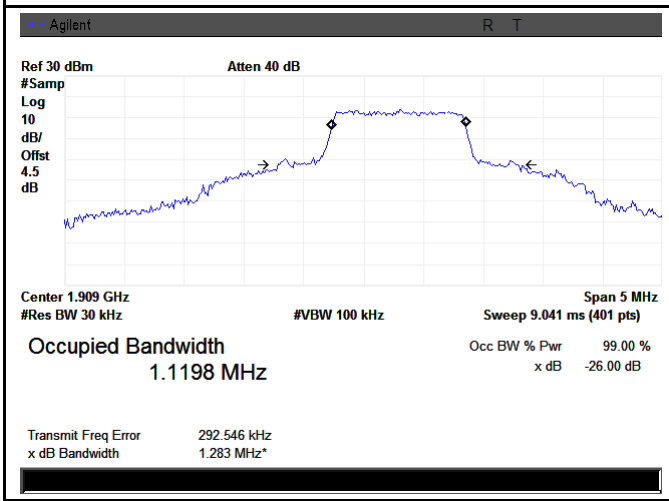
LTE band 2 - Low CH 16QAM-1.4



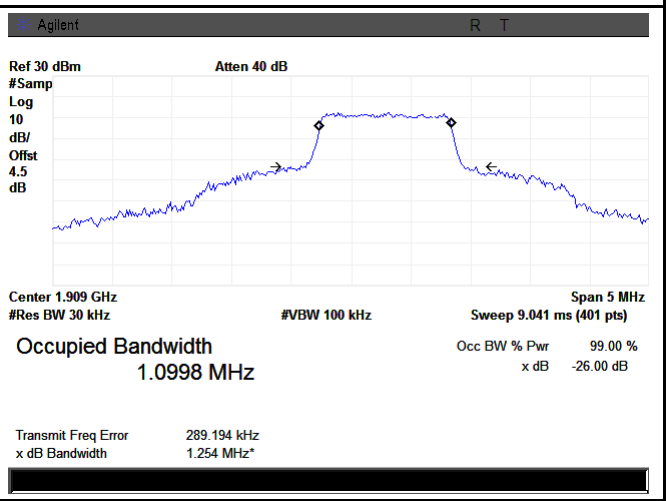
LTE band 2 - Middle CH QPSK-1.4



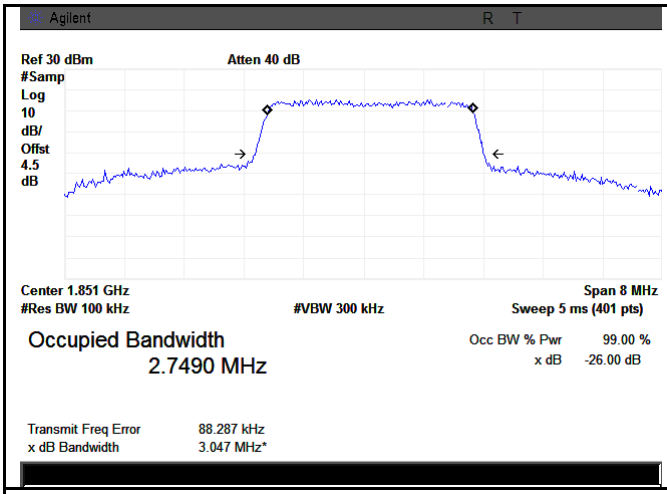
LTE band 2 - Middle CH 16QAM-1.4



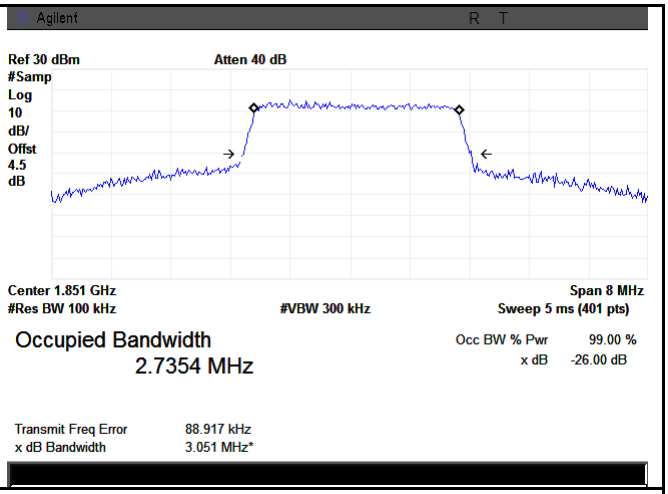
LTE band 2 - High CH QPSK-1.4



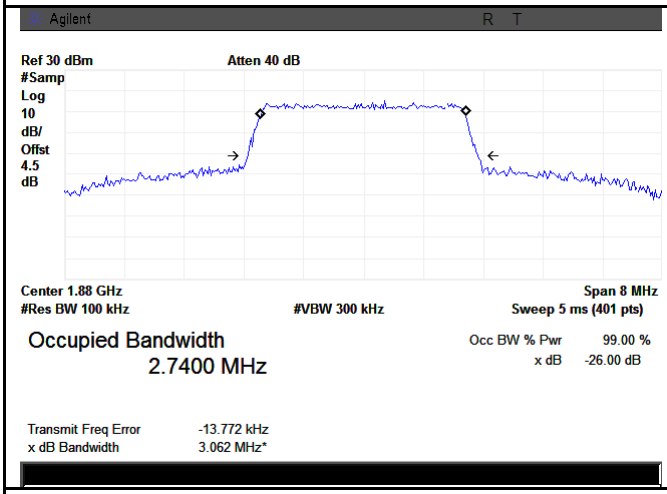
LTE band 2 - High CH 16QAM-1.4



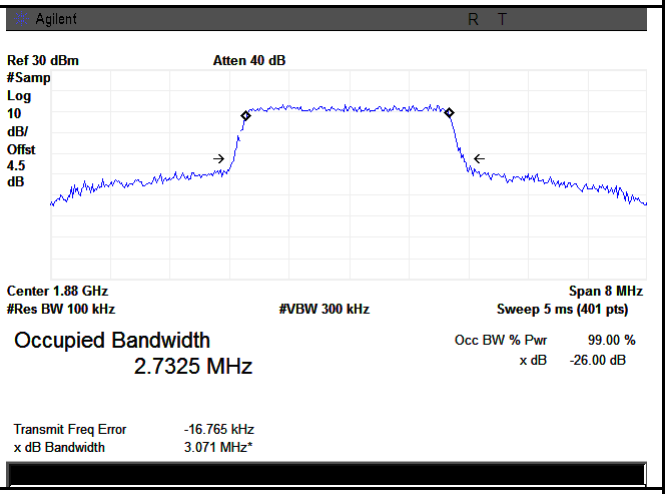
LTE band 2 - Low CH QPSK-3



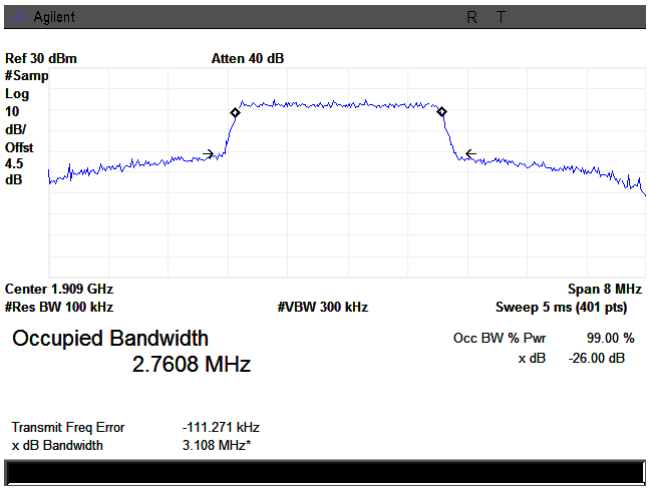
LTE band 2 - Low CH 16QAM-3



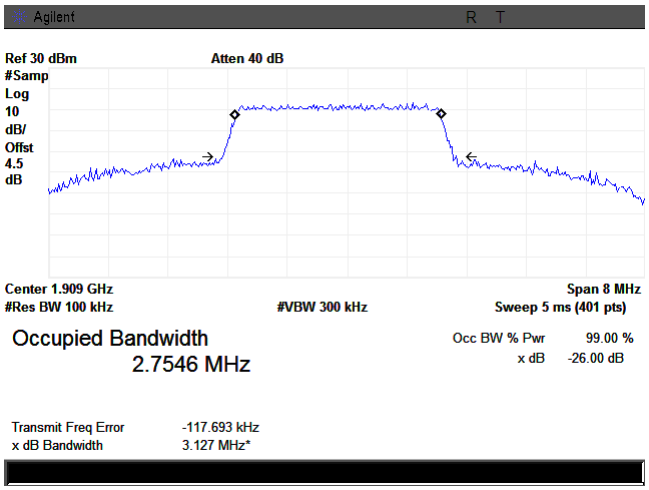
LTE band 2 - Middle CH QPSK-3



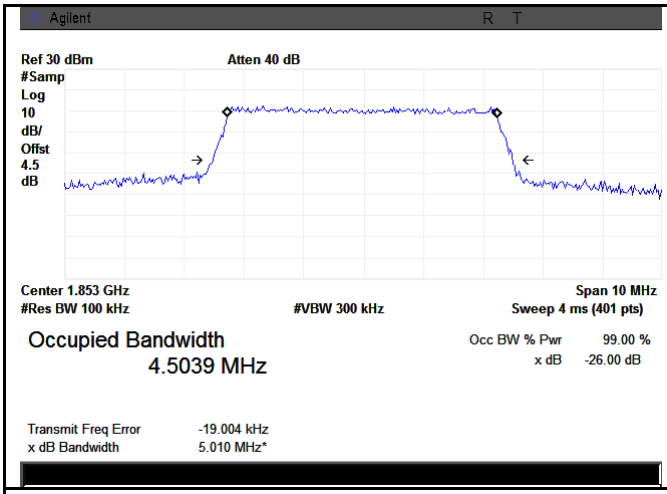
LTE band 2 - Middle CH 16QAM-3



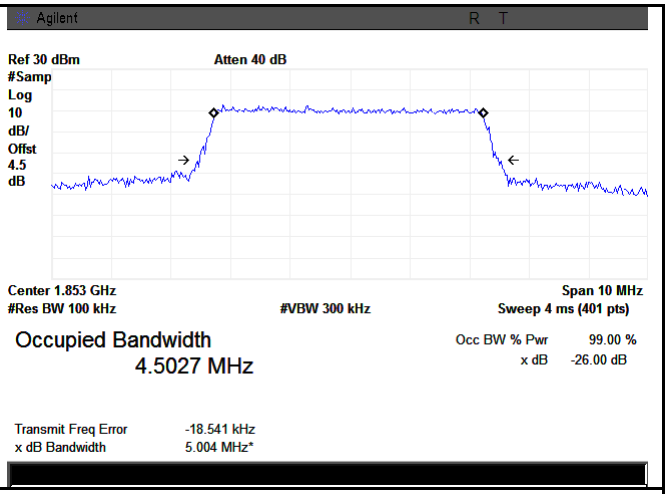
LTE band 2 - High CH QPSK-3



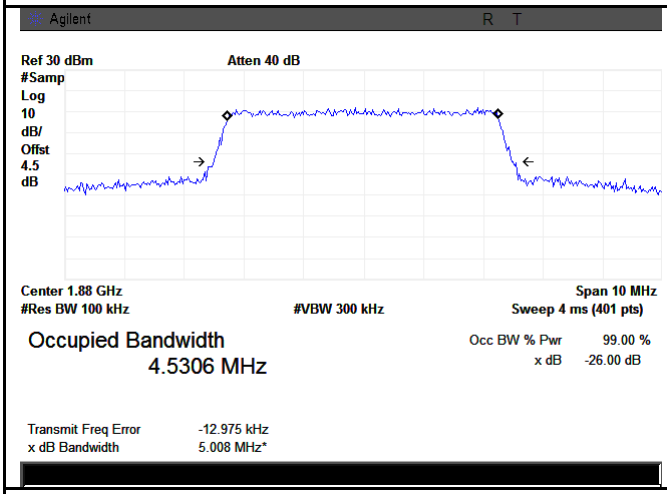
LTE band 2 - High CH 16QAM-3



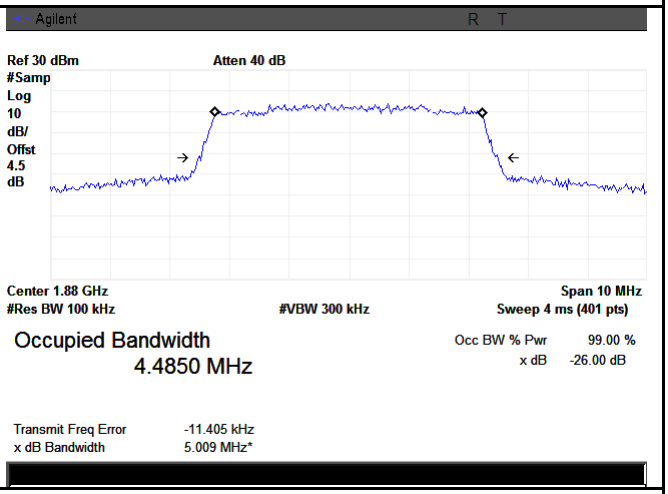
LTE band 2 - Low CH QPSK-5



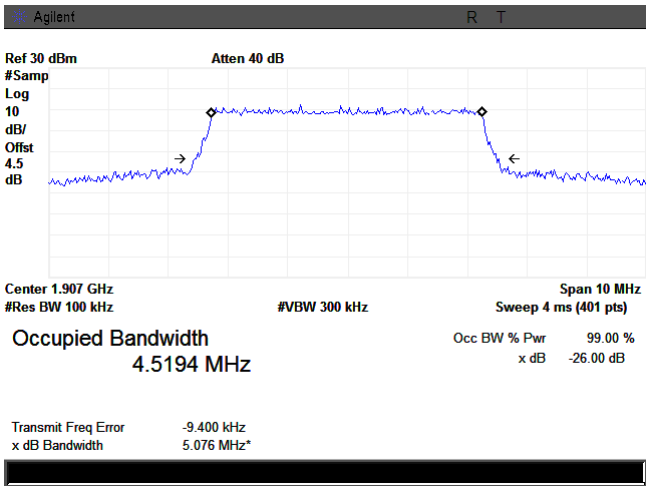
LTE band 2 - Low CH 16QAM-5



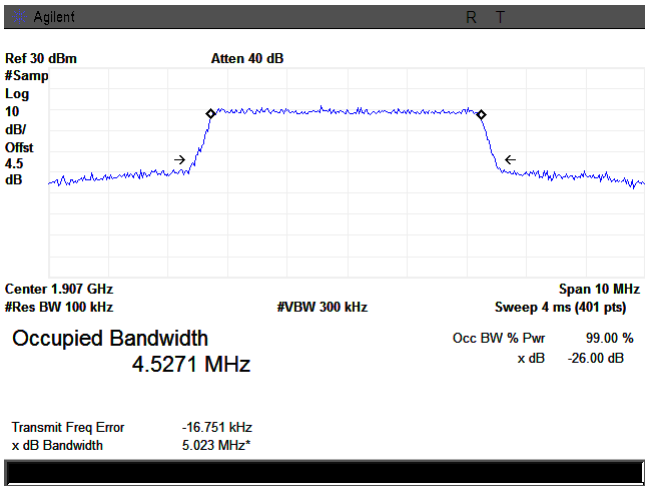
LTE band 2 - Middle CH QPSK-5



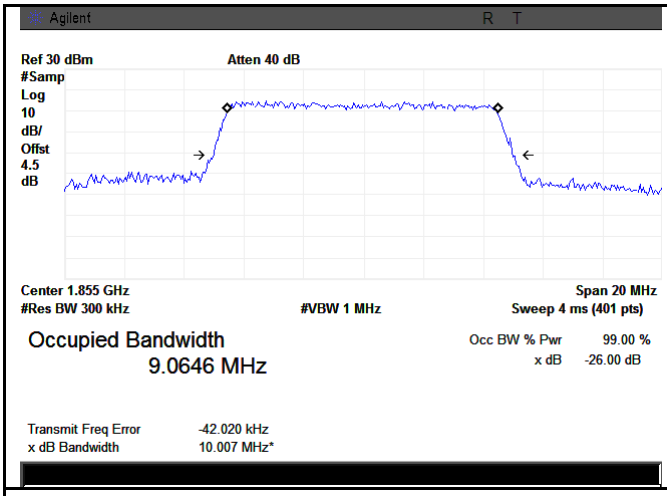
LTE band 2 - Middle CH 16QAM-5



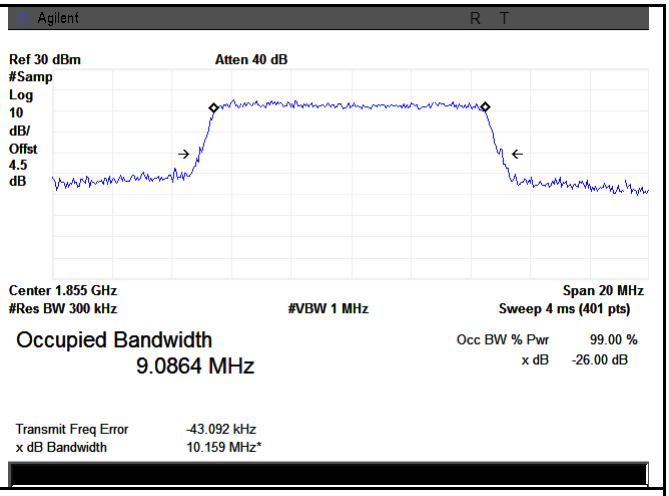
LTE band 2 - High CH QPSK-5



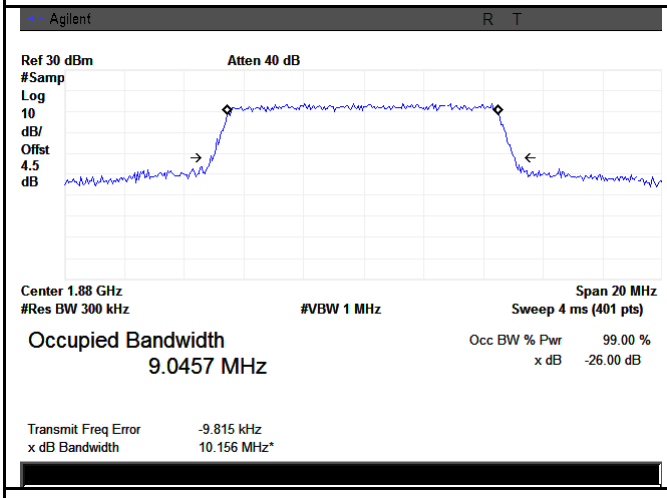
LTE band 2 - High CH 16QAM-5



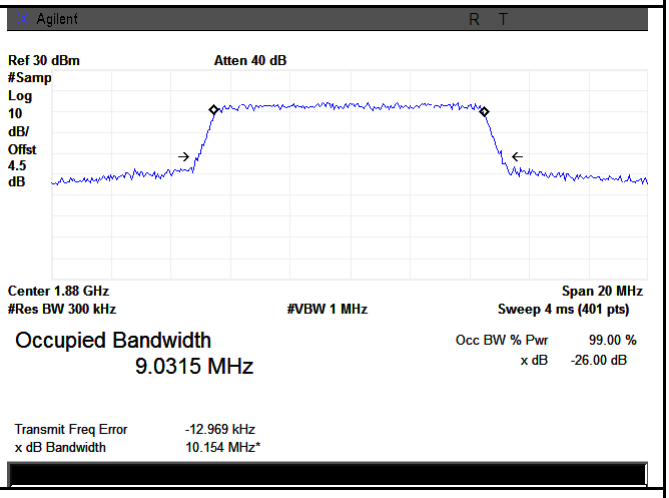
LTE band 2 - Low CH QPSK-10



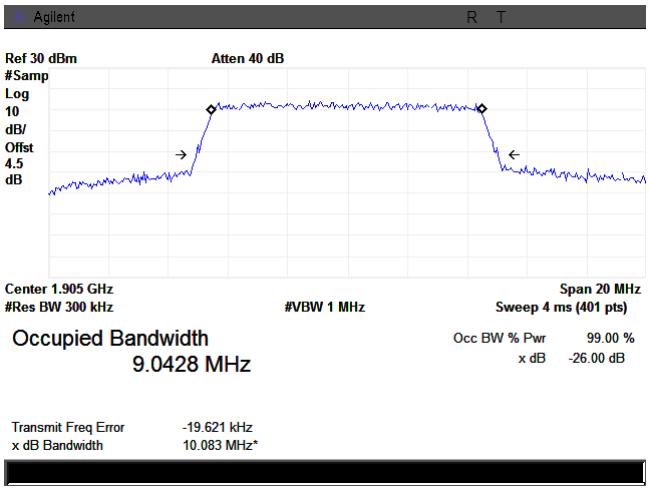
LTE band 2 - Low CH 16QAM-10



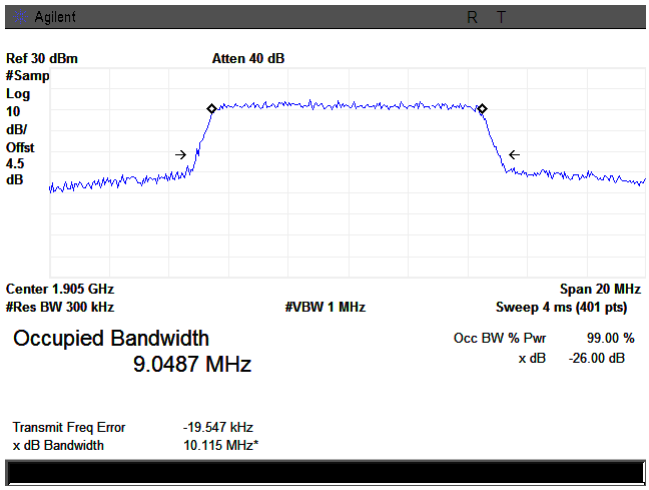
LTE band 2 - Middle CH QPSK-10



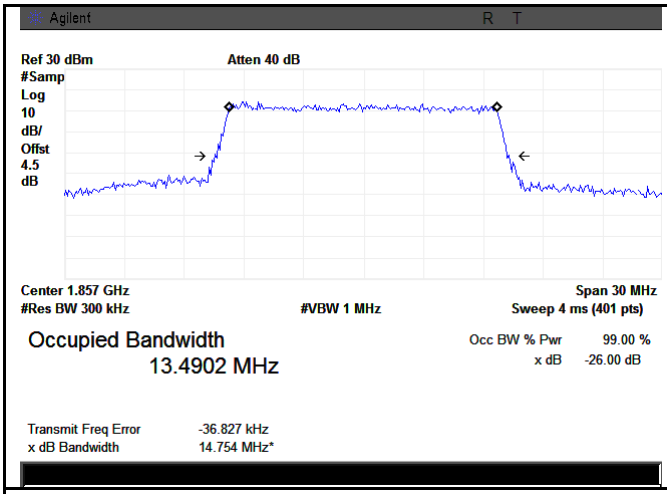
LTE band 2 - Middle CH 16QAM-10



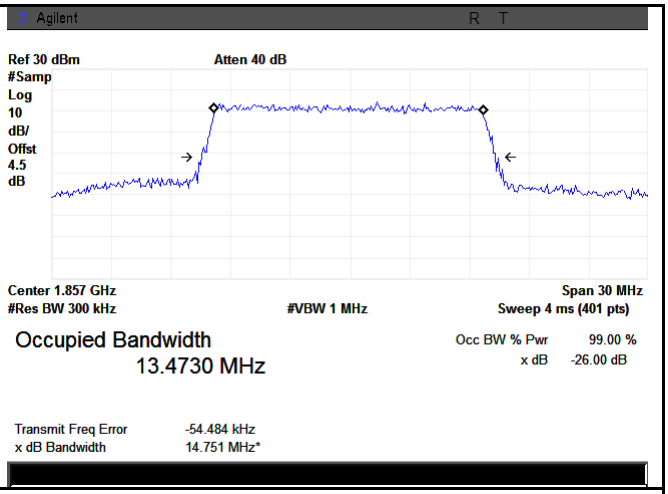
LTE band 2 - High CH QPSK-10



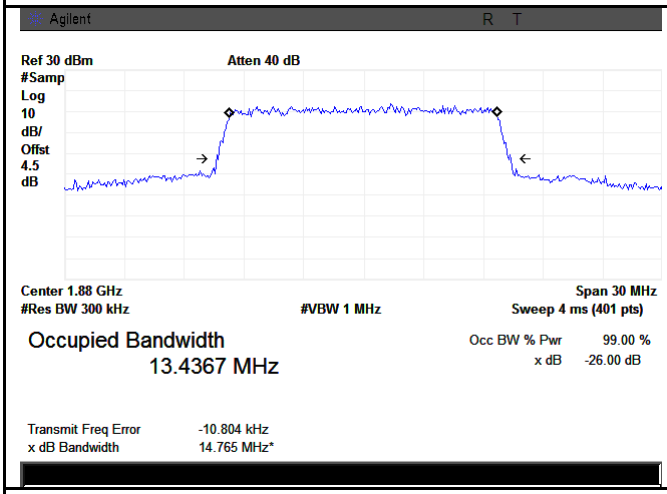
LTE band 2 - High CH 16QAM-10



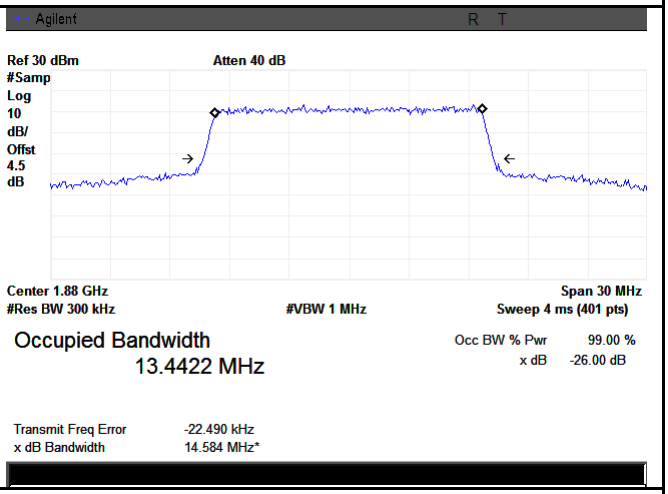
LTE band 2 - Low CH QPSK-15



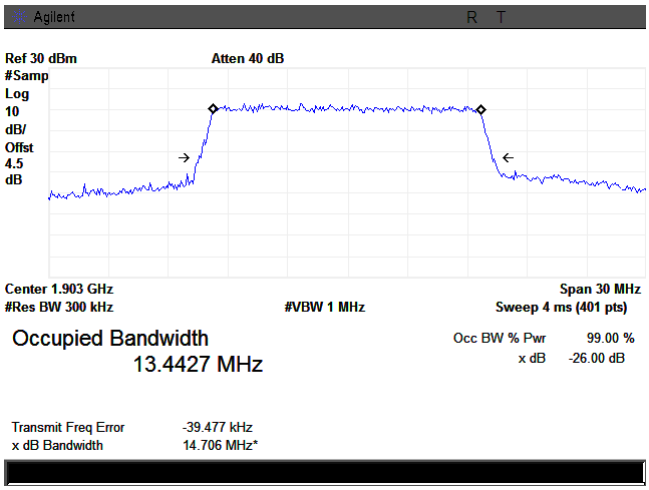
LTE band 2 - Low CH 16QAM-15



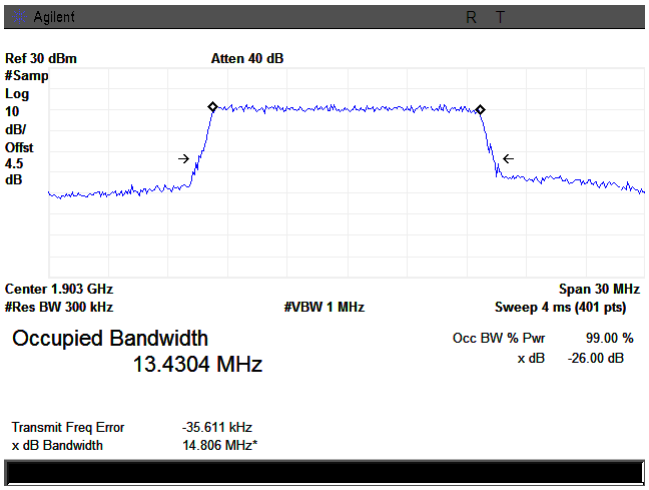
LTE band 2 - Middle CH QPSK-15



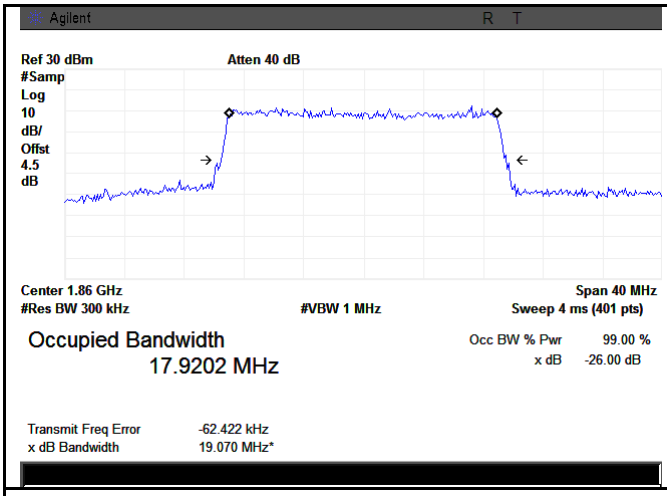
LTE band 2 - Middle CH 16QAM-15



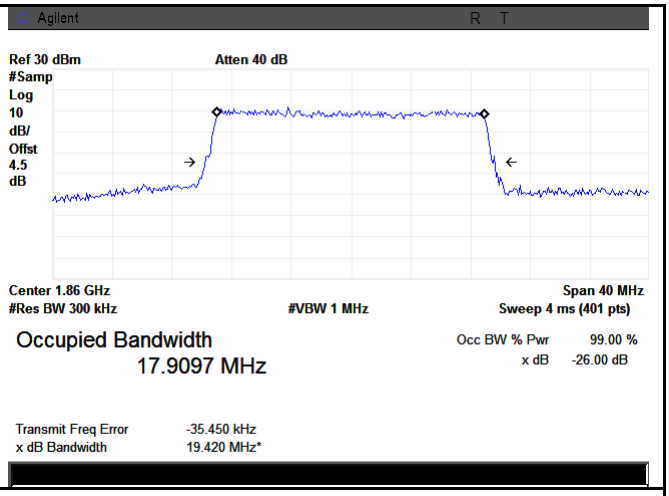
LTE band 2 - High CH QPSK-15



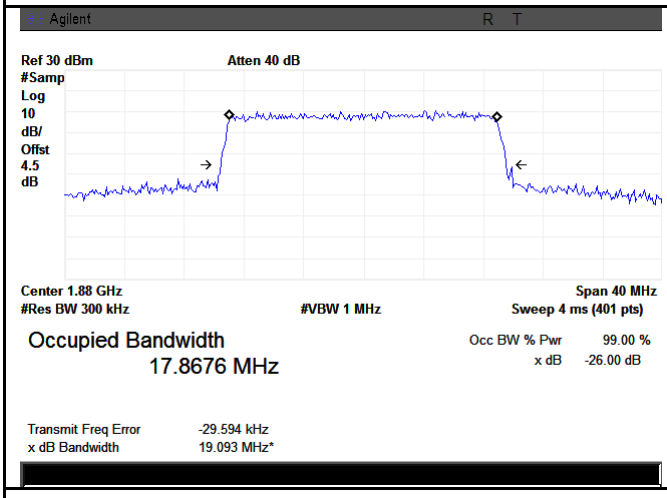
LTE band 2 - High CH 16QAM-15



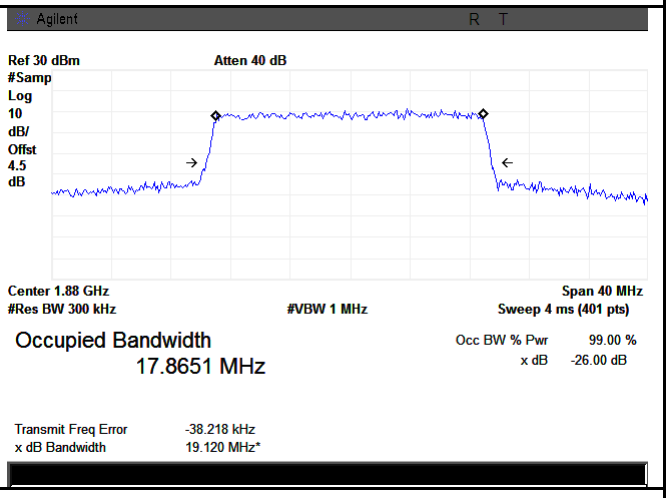
LTE band 2 - Low CH QPSK-20



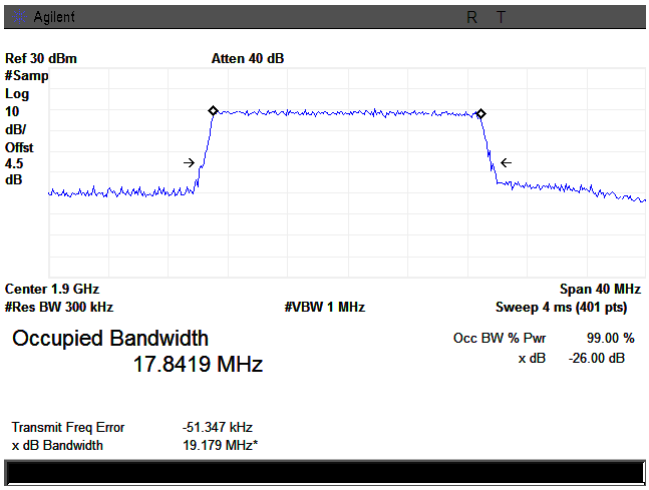
LTE band 2 - Low CH 16QAM-20



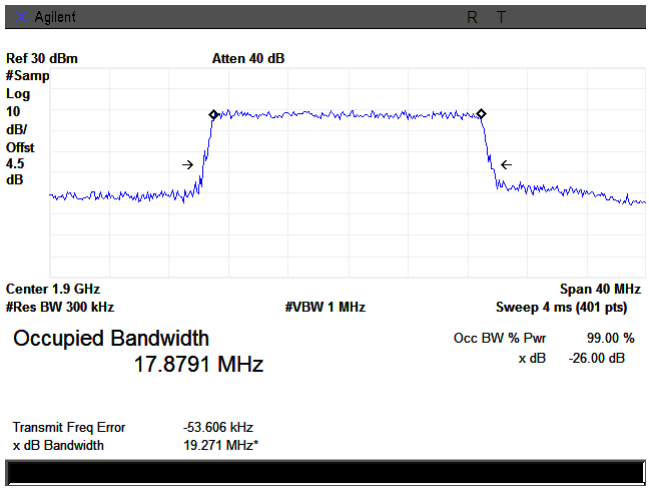
LTE band 2 - Middle CH QPSK-20



LTE band 2 - Middle CH 16QAM-20

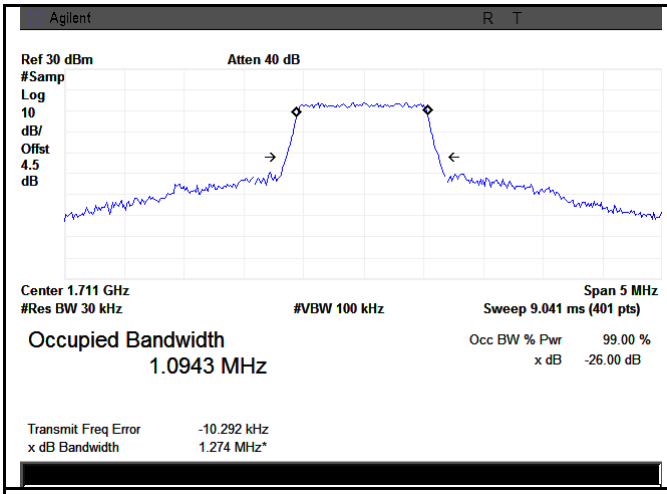


LTE band 2 - High CH QPSK-20

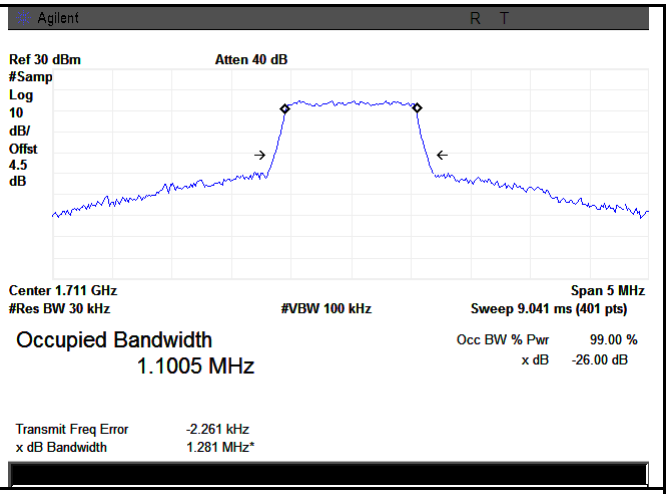


LTE band 2 - High CH 16QAM-20

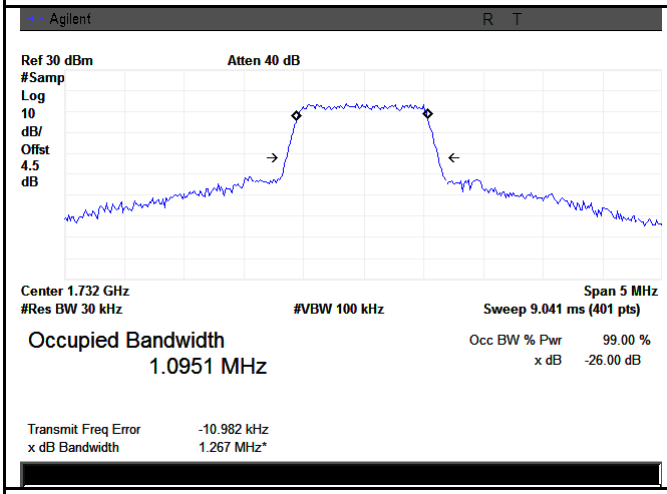
LTE Band 4 (Part 27)



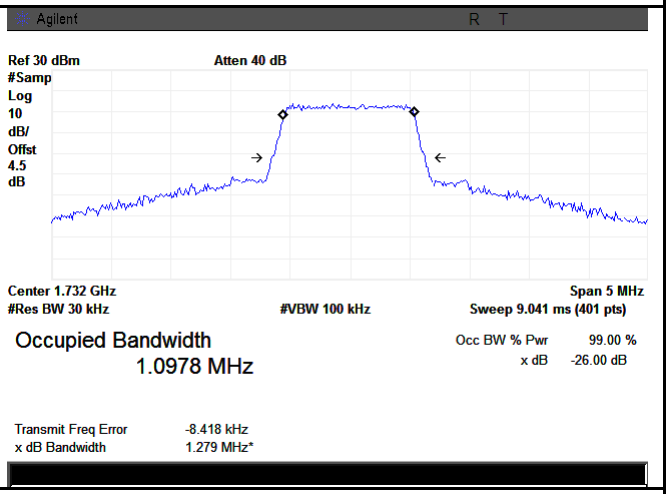
LTE band 4 - Low CH QPSK-1.4



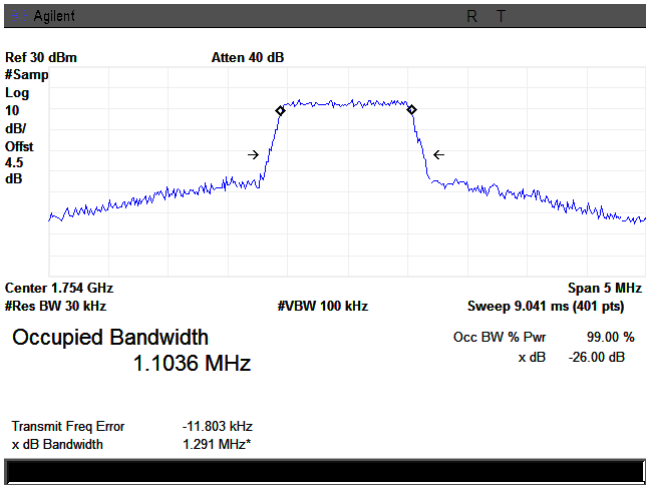
LTE band 4 - Low CH 16QAM-1.4



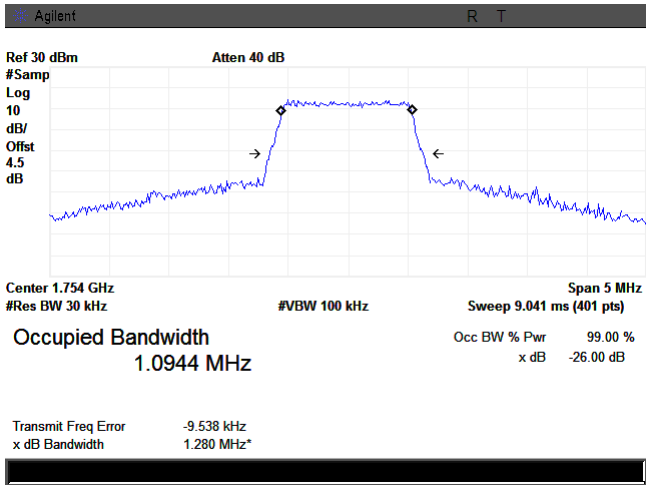
LTE band 4 - Middle CH QPSK-1.4



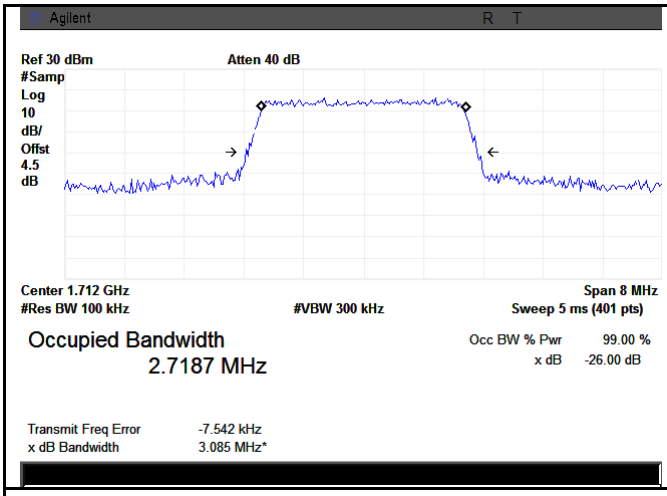
LTE band 4 - Middle CH 16QAM-1.4



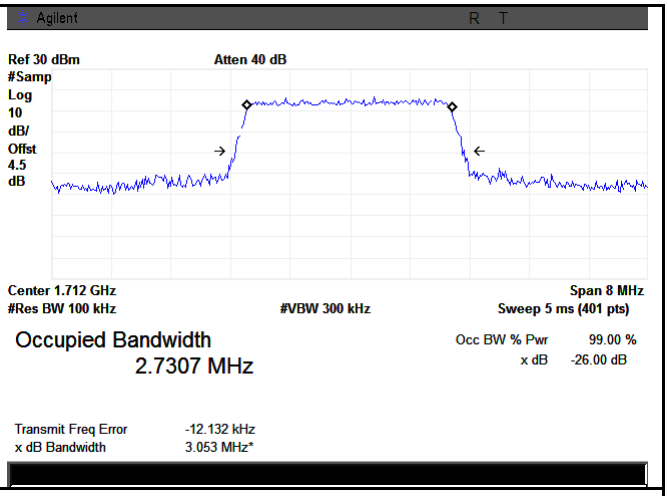
LTE band 4 - High CH QPSK-1.4



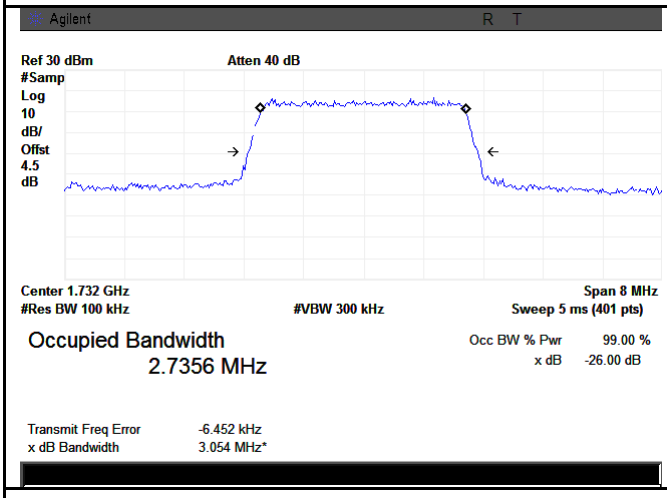
LTE band 4 - High CH 16QAM-1.4



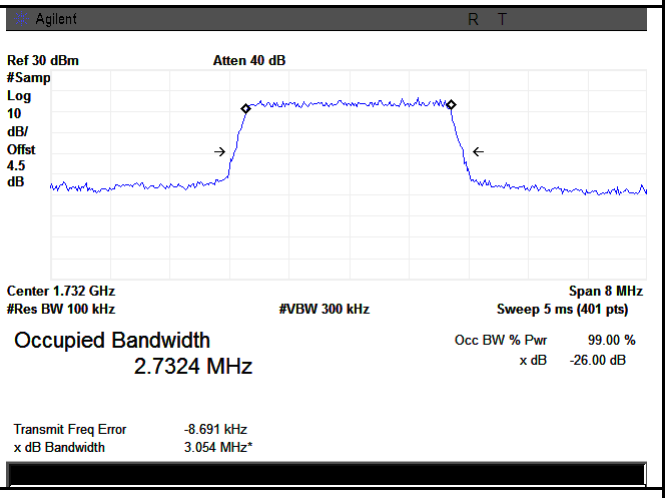
LTE band 4 - Low CH QPSK-3



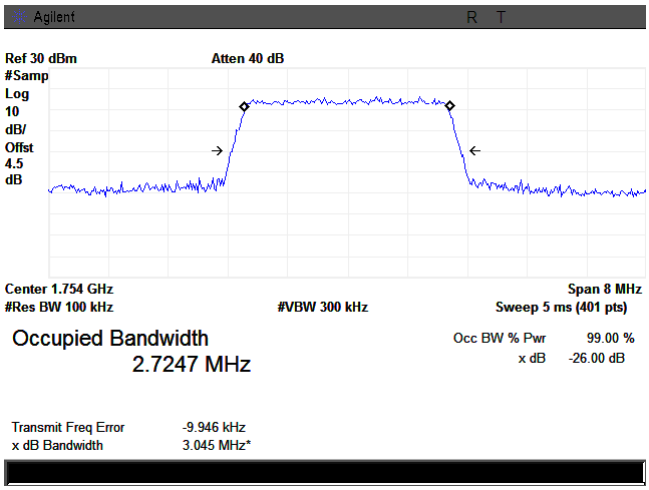
LTE band 4 - Low CH 16QAM-3



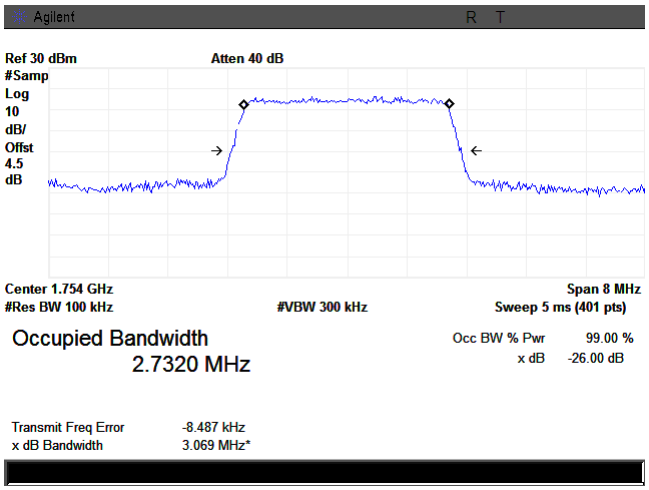
LTE band 4 - Middle CH QPSK-3



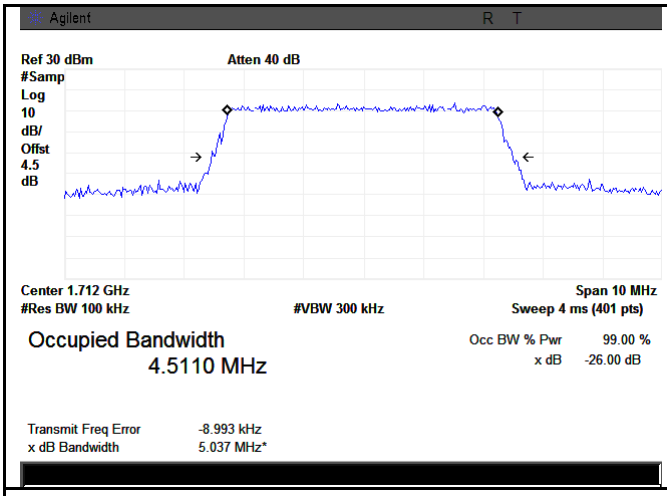
LTE band 4 - Middle CH 16QAM-3



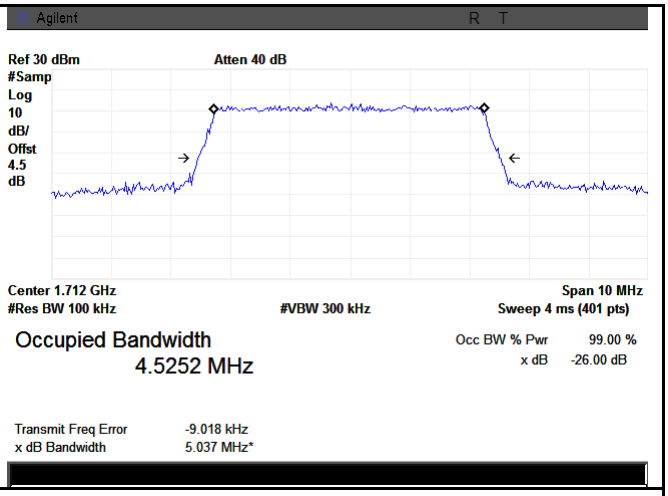
LTE band 4 - High CH QPSK-3



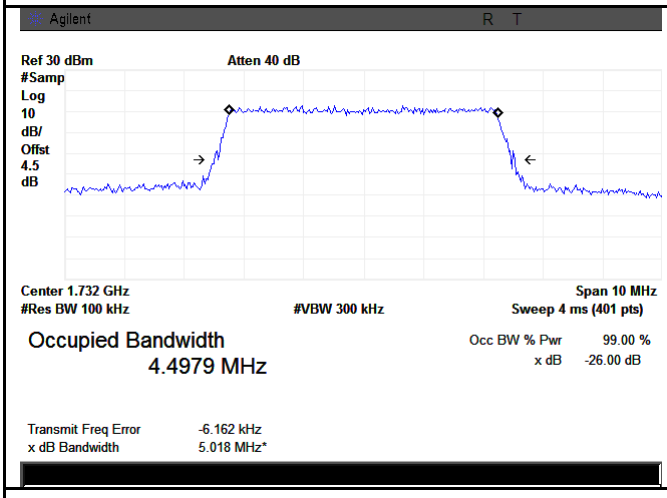
LTE band 4 - High CH 16QAM-3



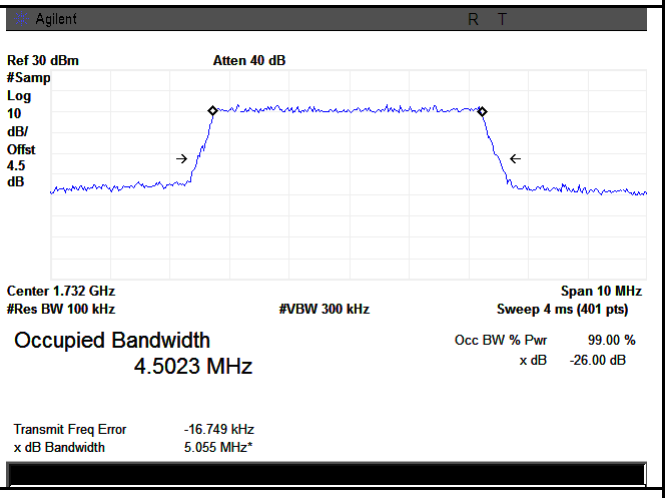
LTE band 4 - Low CH QPSK-5



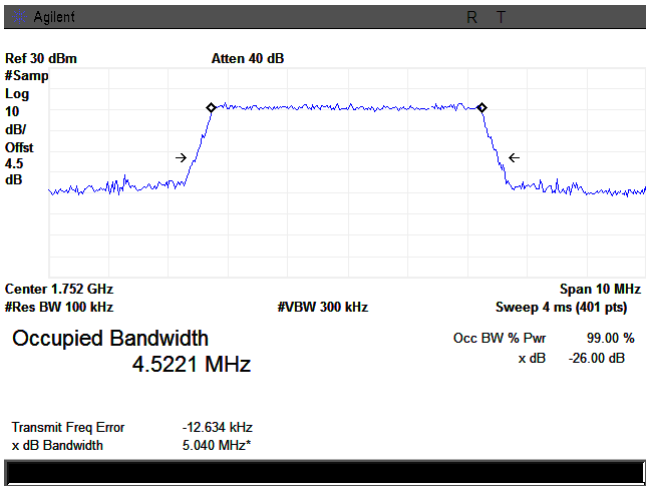
LTE band 4 - Low CH 16QAM-5



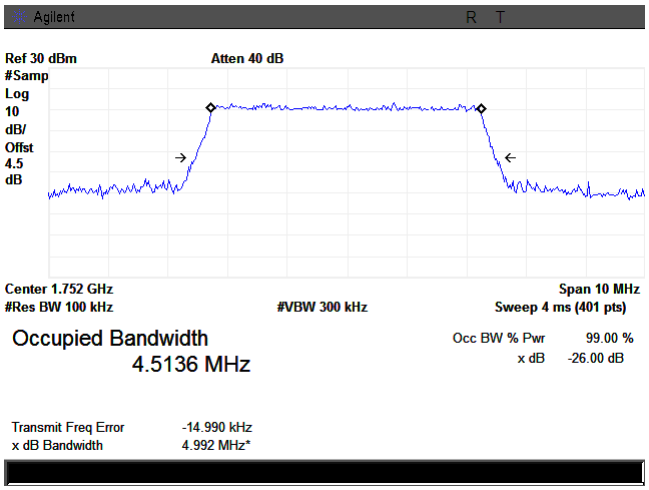
LTE band 4 - Middle CH QPSK-5



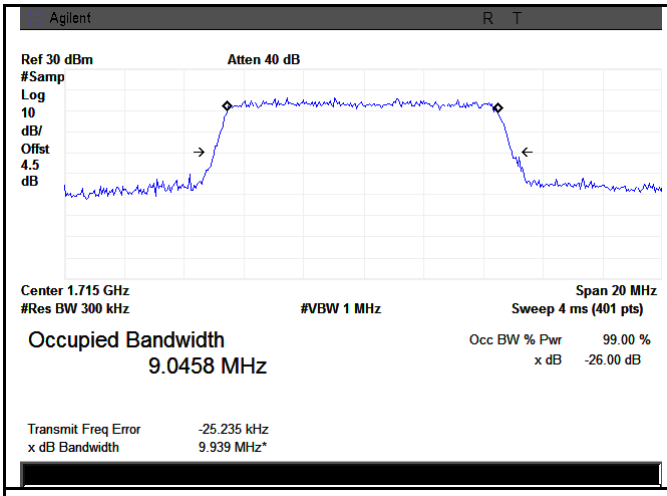
LTE band 4 - Middle CH 16QAM-5



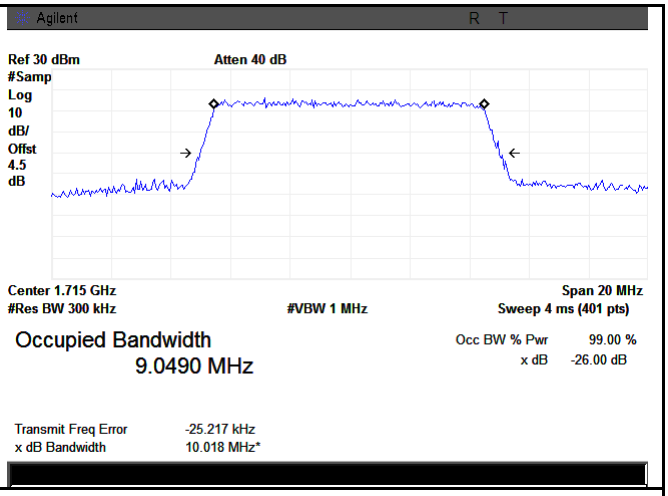
LTE band 4 - High CH QPSK-5



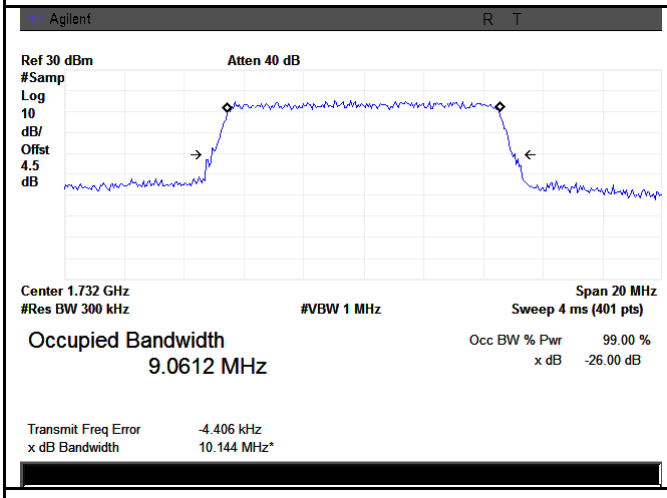
LTE band 4 - High CH 16QAM-5



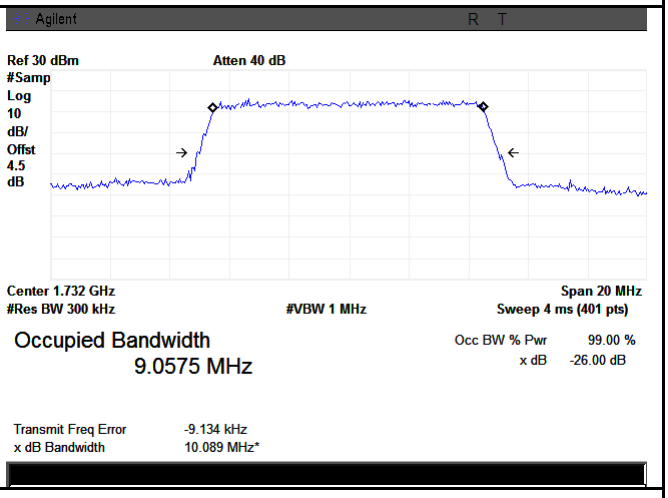
LTE band 4 - Low CH QPSK-10



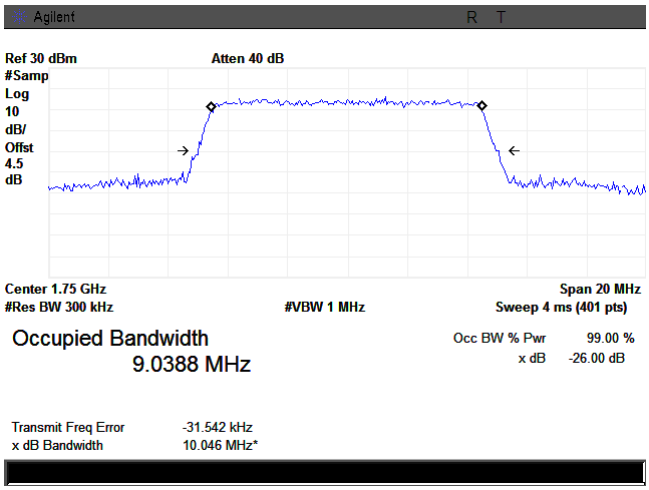
LTE band 4 - Low CH 16QAM-10



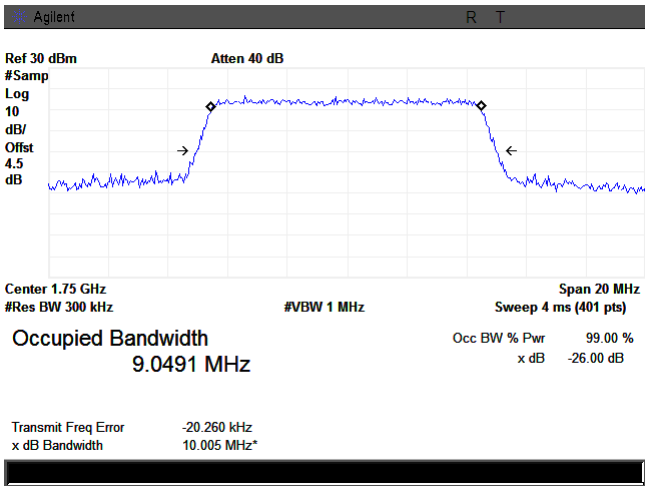
LTE band 4 - Middle CH QPSK-10



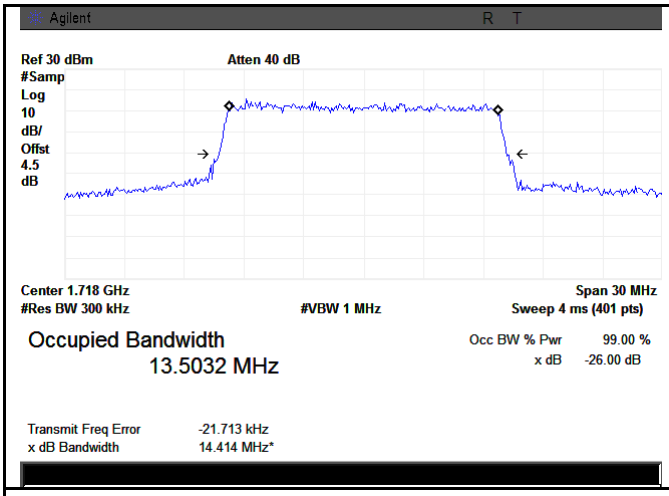
LTE band 4 - Middle CH 16QAM-10



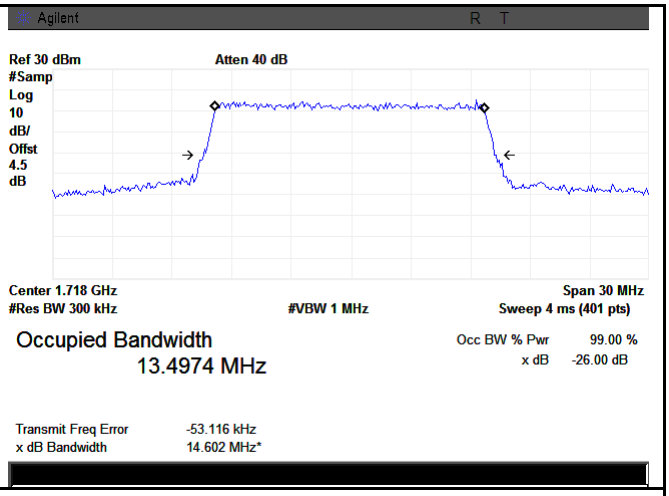
LTE band 4 - High CH QPSK-10



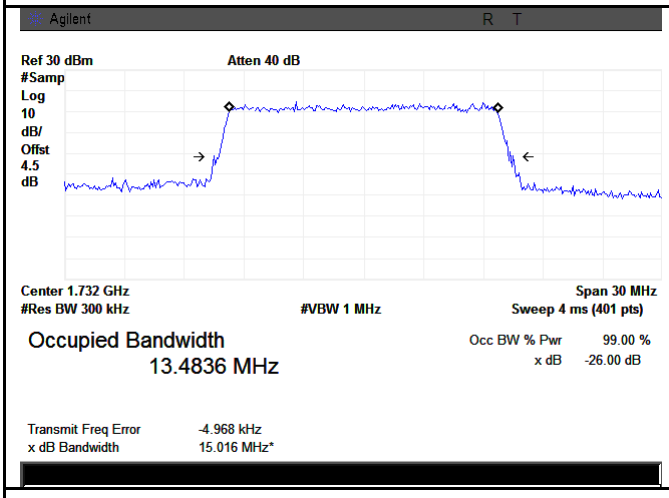
LTE band 4 - High CH 16QAM-10



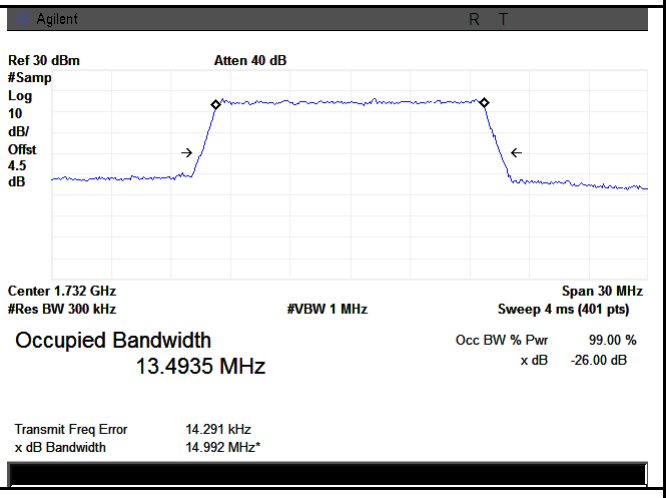
LTE band 4 - Low CH QPSK-15



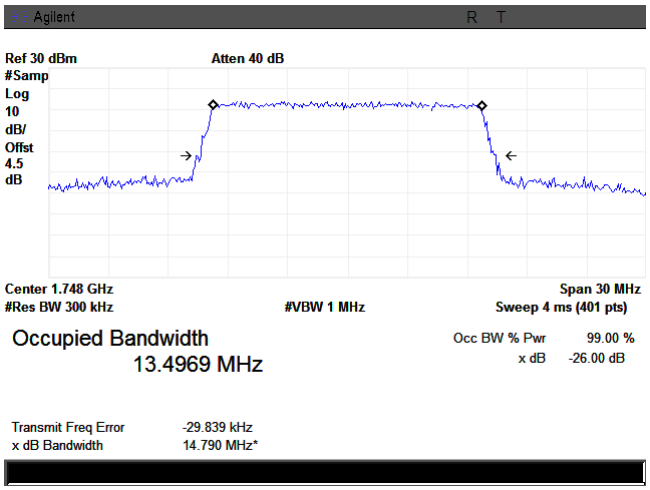
LTE band 4 - Low CH 16QAM-15



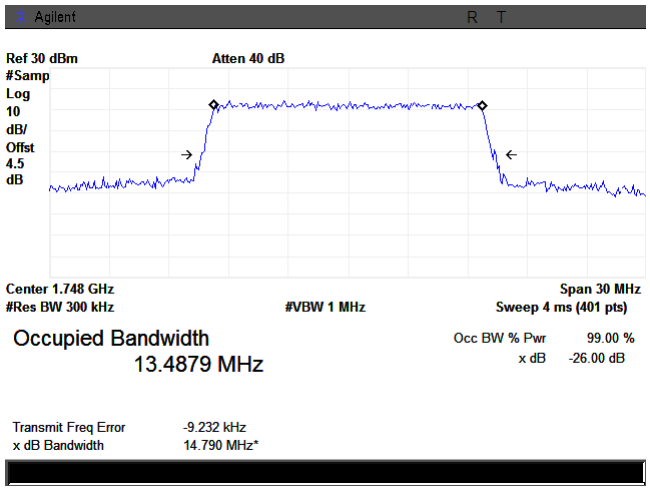
LTE band 4 - Middle CH QPSK-15



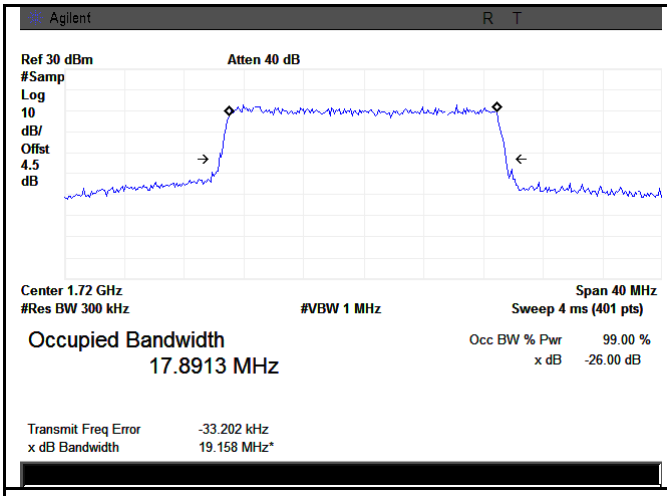
LTE band 4 - Middle CH 16QAM-15



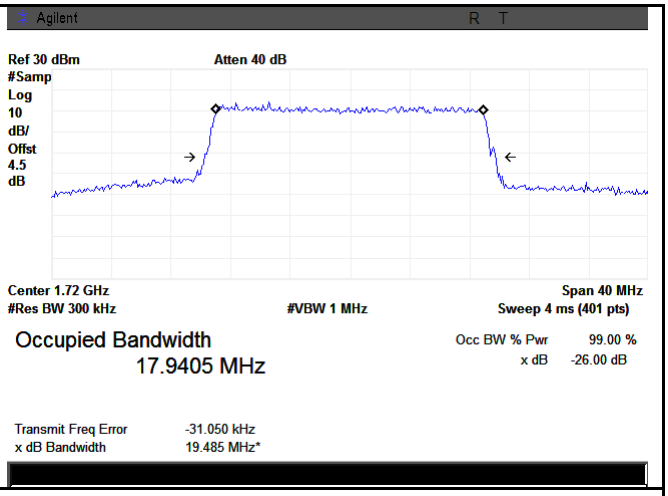
LTE band 4 - High CH QPSK-15



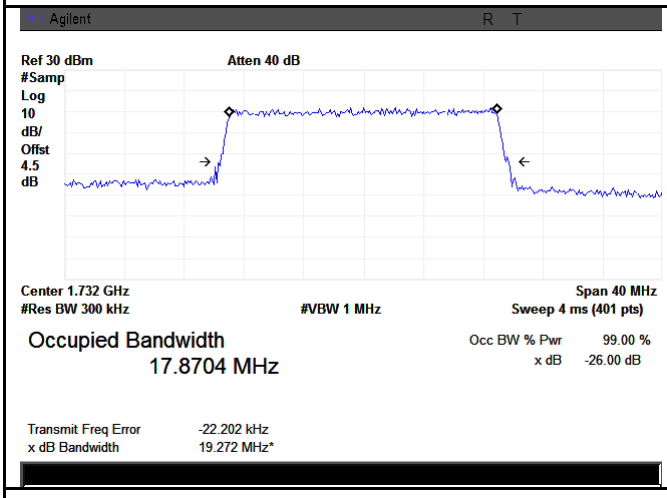
LTE band 4 - High CH 16QAM-15



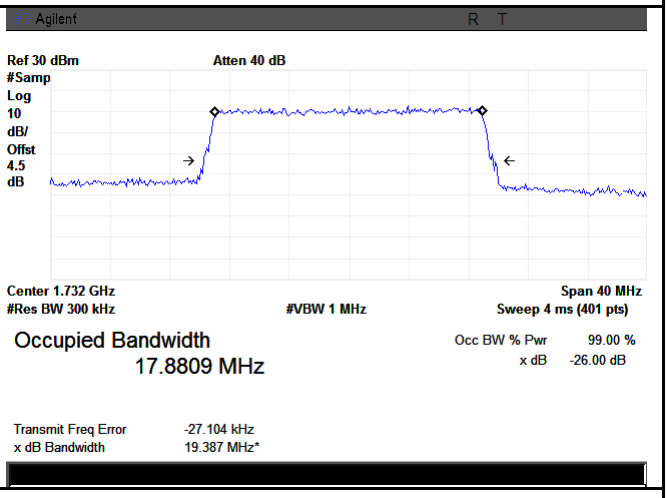
LTE band 4 - Low CH QPSK-20



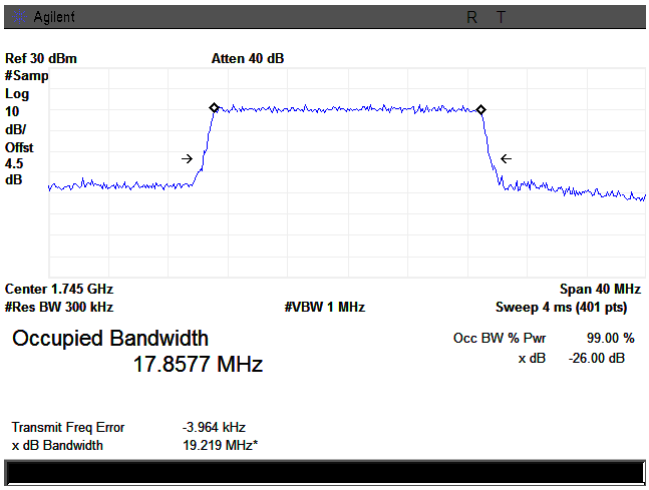
LTE band 4 - Low CH 16QAM-20



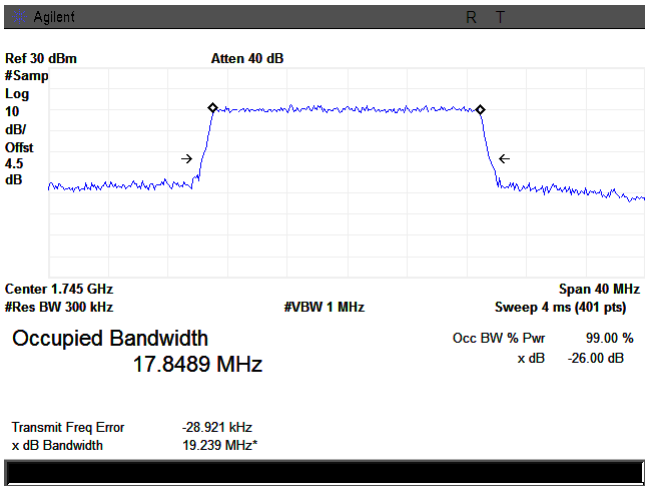
LTE band 4 - Middle CH QPSK-20



LTE band 4 - Middle CH 16QAM-20

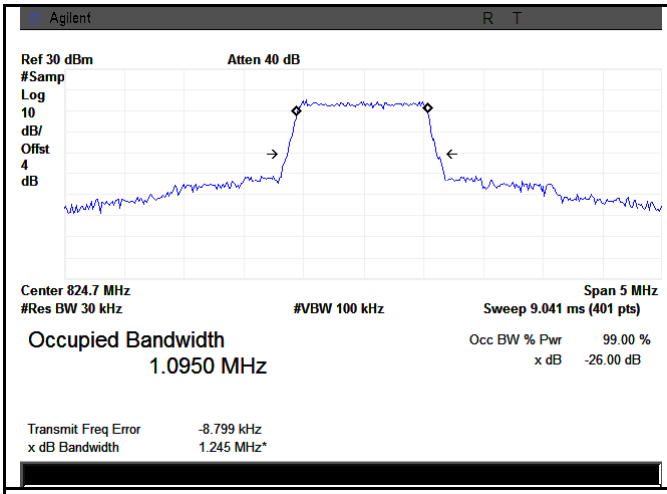


LTE band 4 - High CH QPSK-20

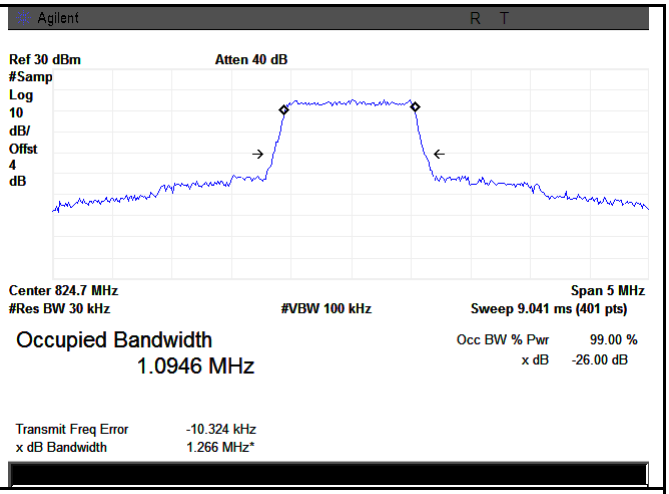


LTE band 4 - High CH 16QAM-20

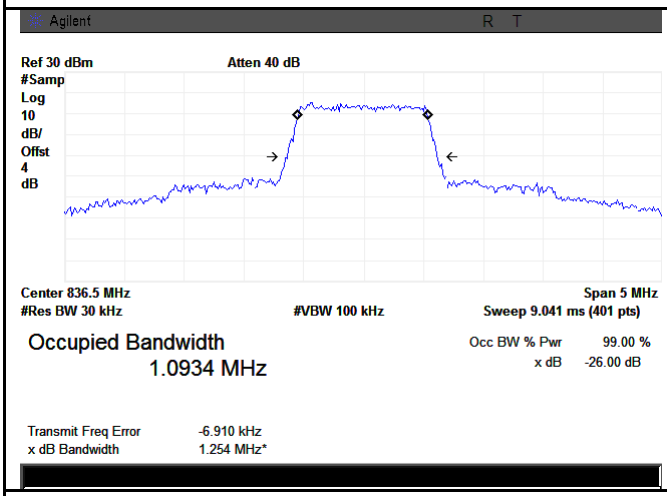
LTE Band 5 (Part 22H)



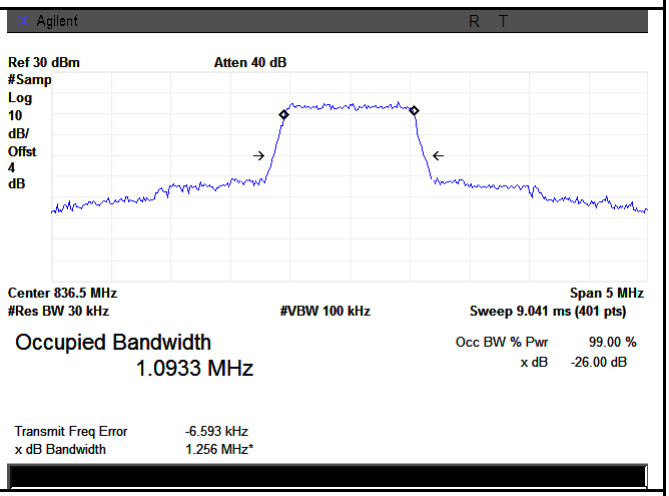
LTE band 5 - Low CH QPSK-1.4



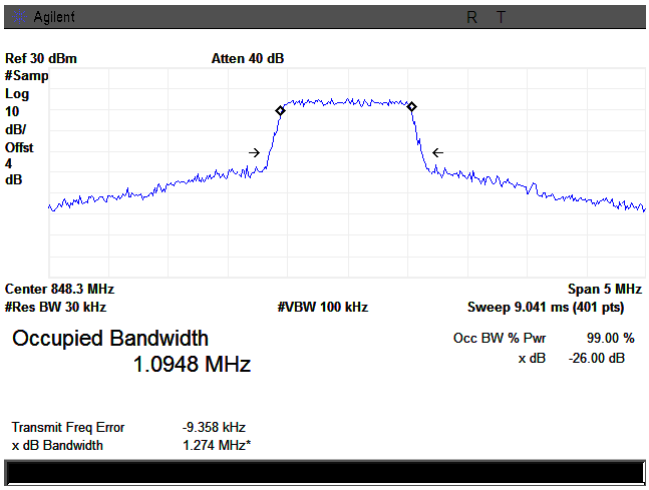
LTE band 5 - Low CH 16QAM-1.4



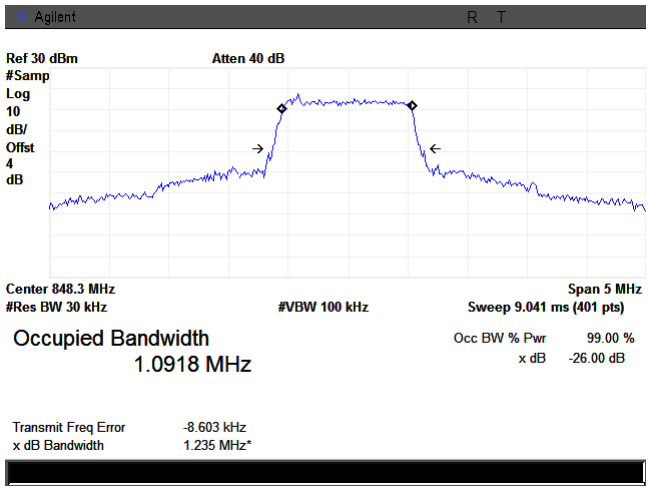
LTE band 5 - Middle CH QPSK-1.4



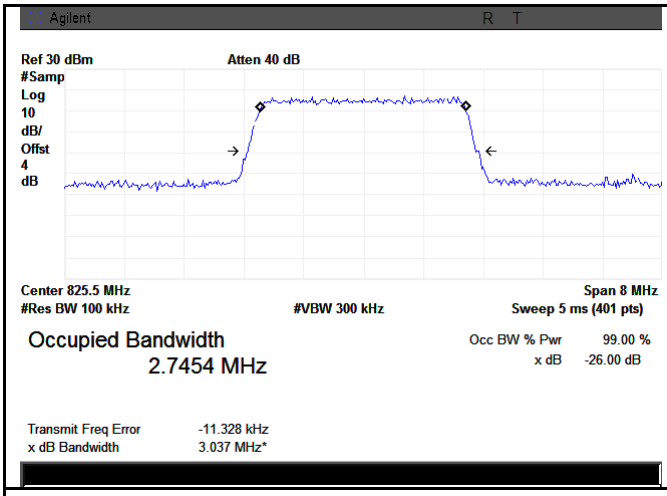
LTE band 5 - Middle CH 16QAM-1.4



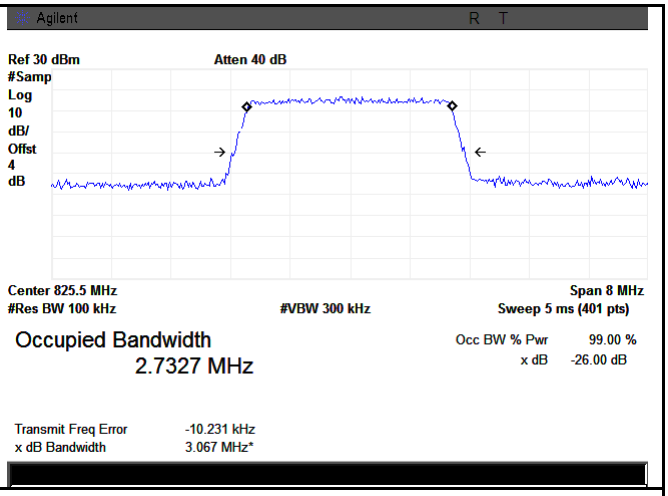
LTE band 5 - High CH QPSK-1.4



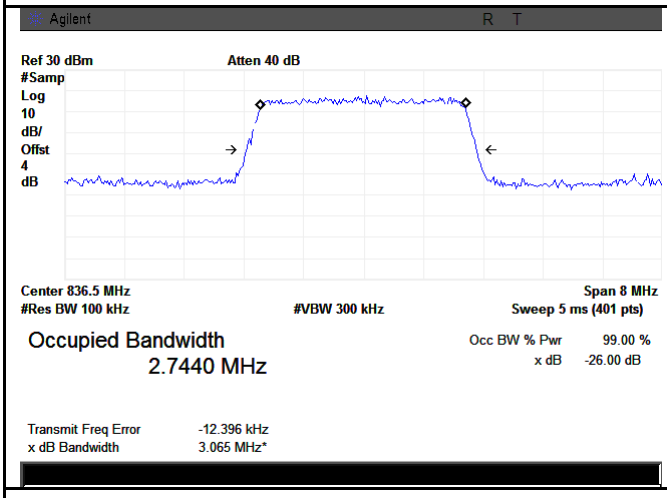
LTE band 5 - High CH 16QAM-1.4



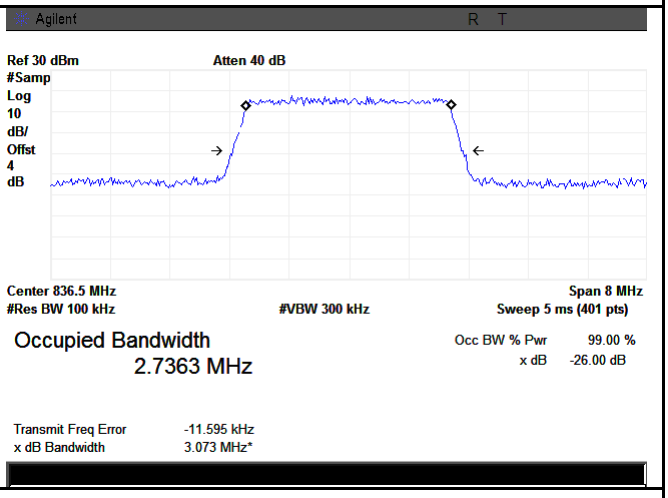
LTE band 5 - Low CH QPSK-3



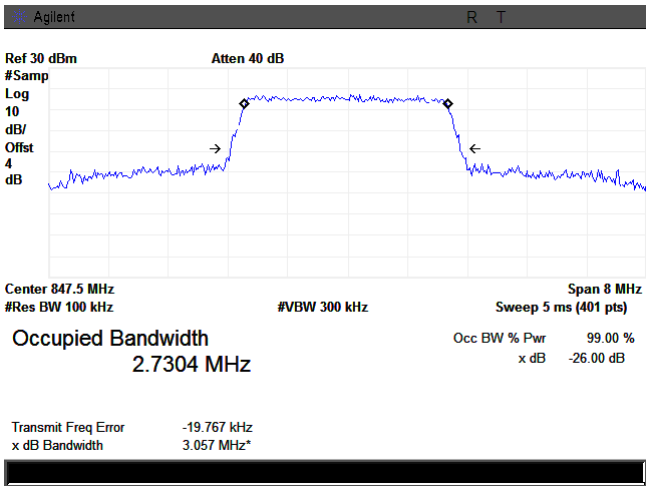
LTE band 5 - Low CH 16QAM-3



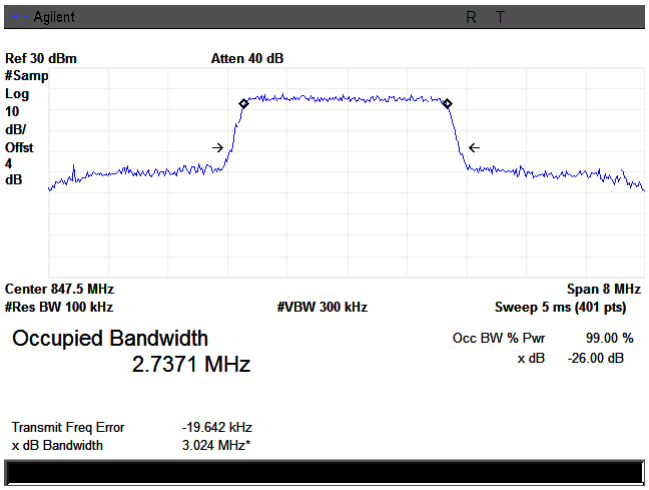
LTE band 5 - Middle CH QPSK-3



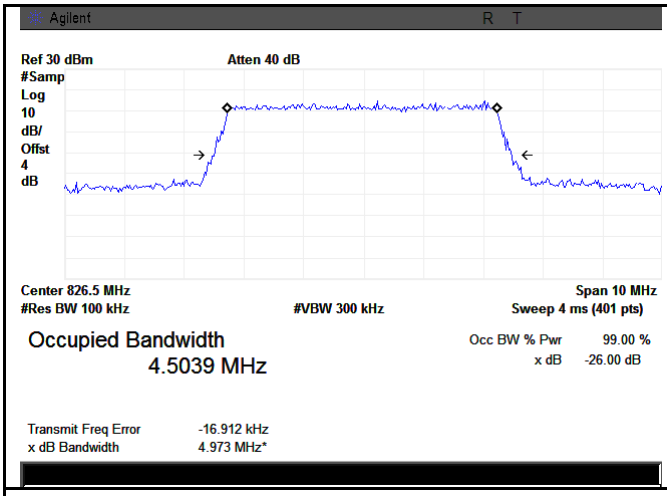
LTE band 5 - Middle CH 16QAM-3



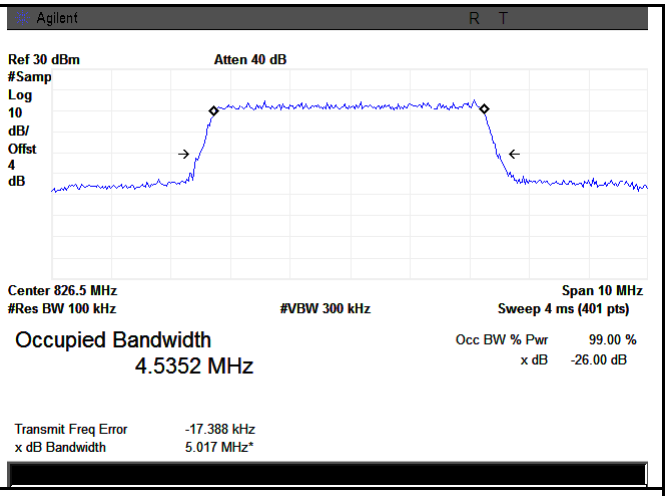
LTE band 5 - High CH QPSK-3



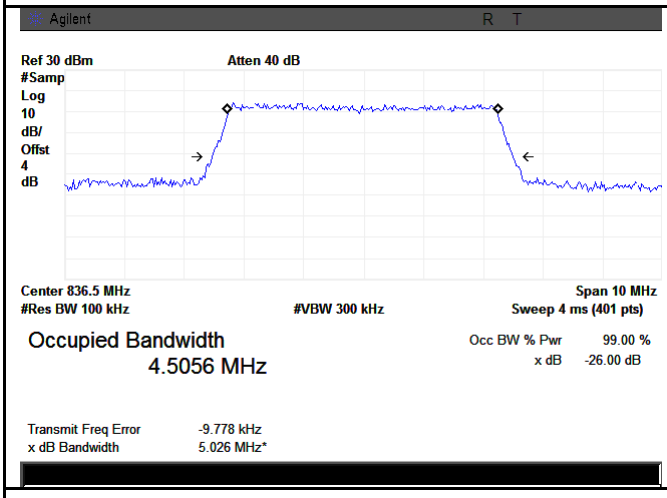
LTE band 5 - High CH 16QAM-3



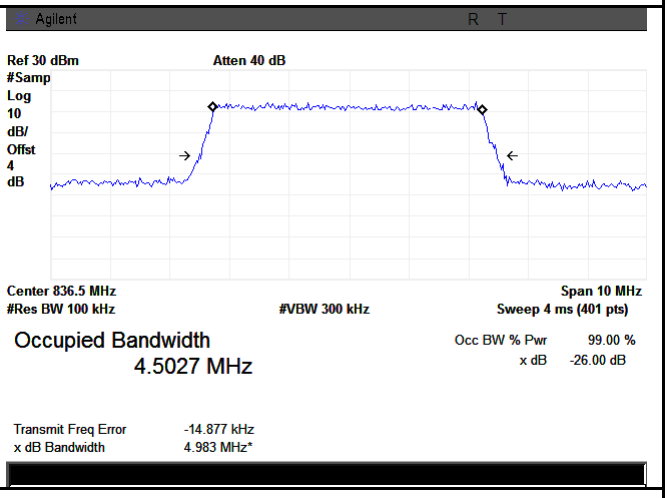
LTE band 5 - Low CH QPSK-5



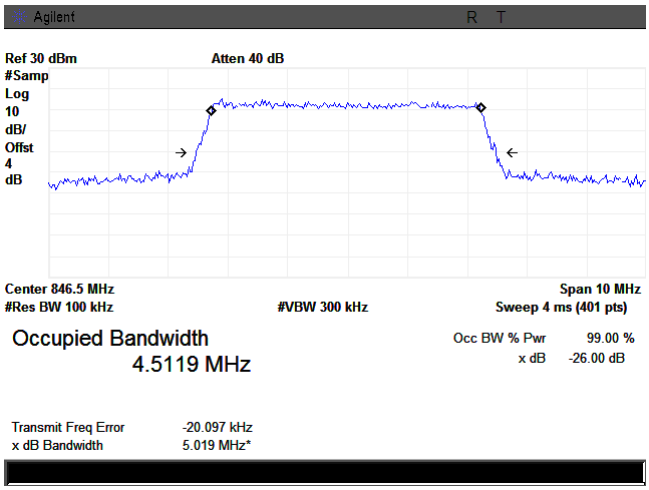
LTE band 5 - Low CH 16QAM-5



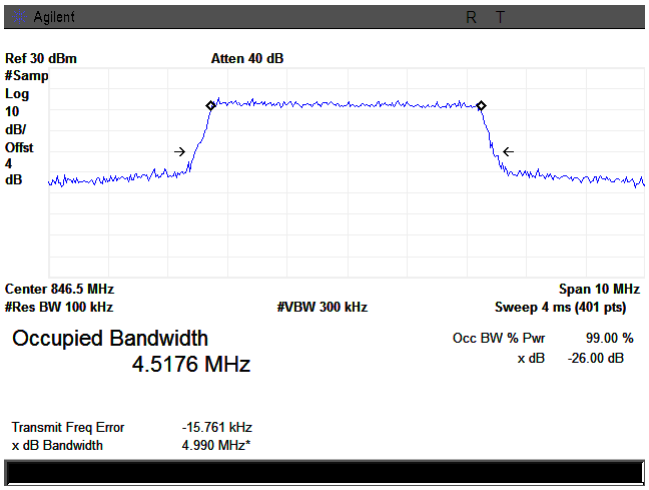
LTE band 5 - Middle CH QPSK-5



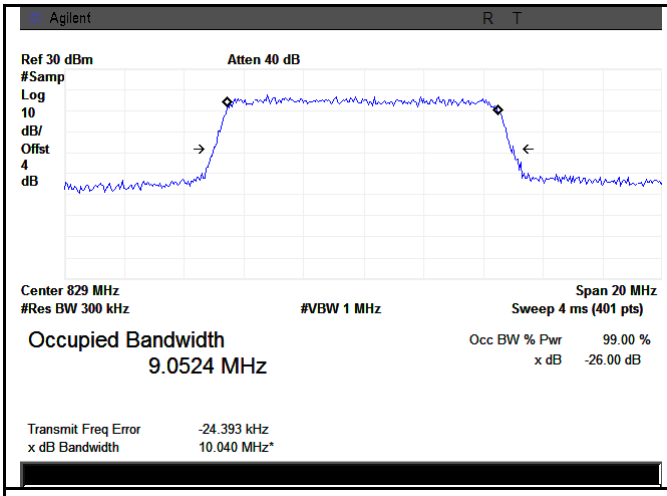
LTE band 5 - Middle CH 16QAM-5



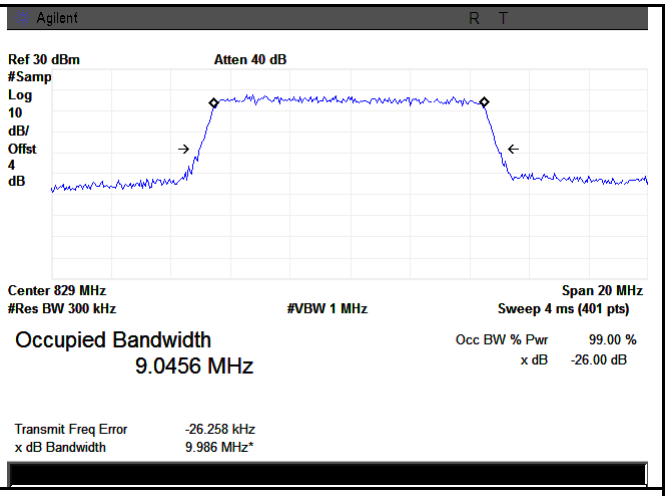
LTE band 5 - High CH QPSK-5



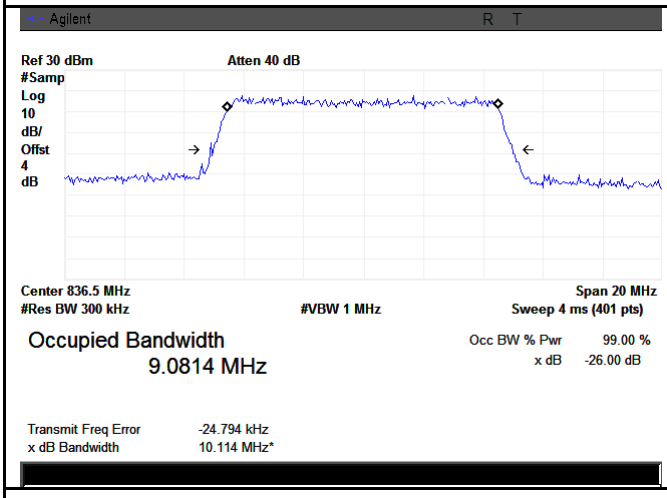
LTE band 5 - High CH 16QAM-5



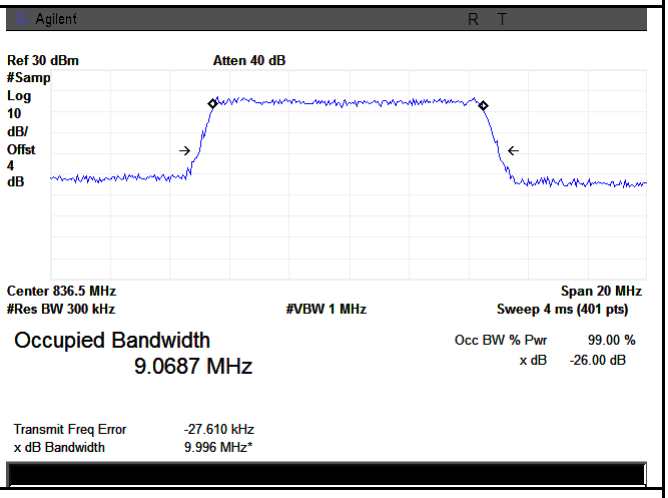
LTE band 5 - Low CH QPSK-10



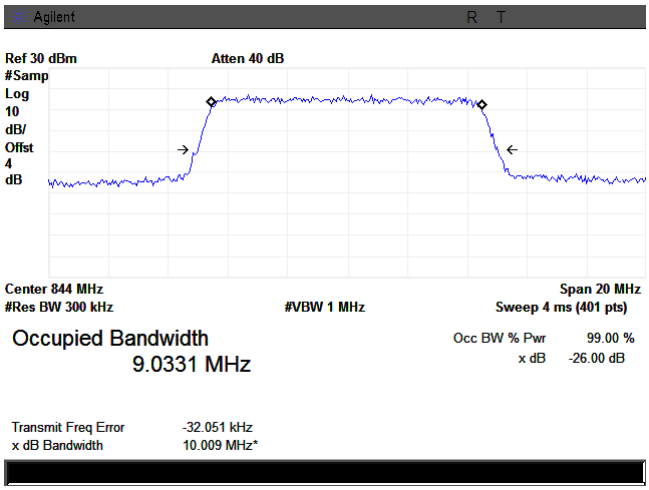
LTE band 5 - Low CH 16QAM-10



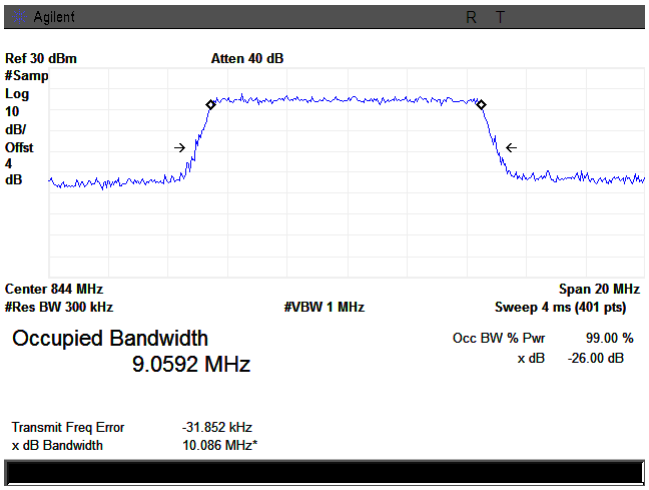
LTE band 5 - Middle CH QPSK-10



LTE band 5 - Middle CH 16QAM-10

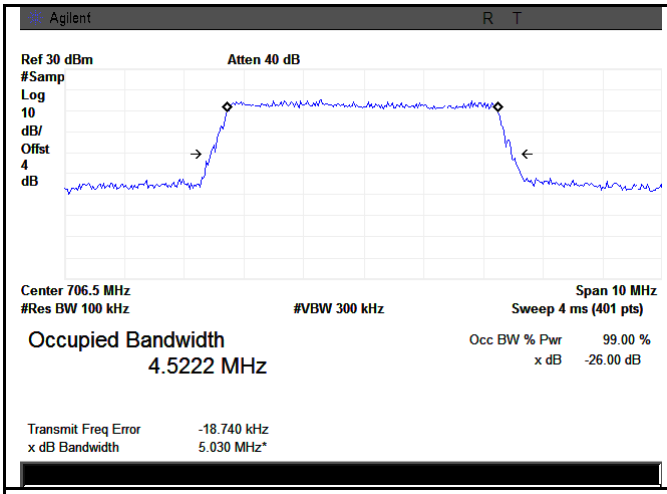


LTE band 5 - High CH QPSK-10

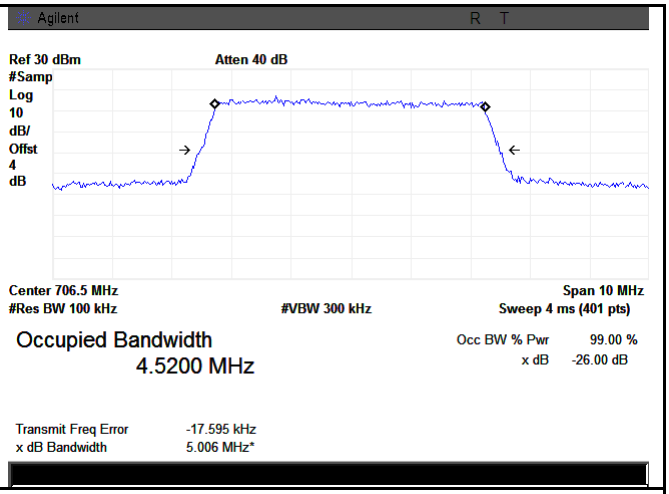


LTE band 5 - High CH 16QAM-10

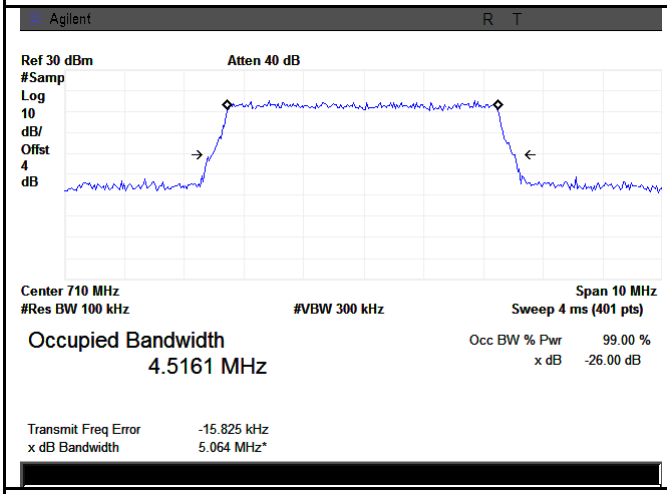
LTE Band 17 (Part 27)



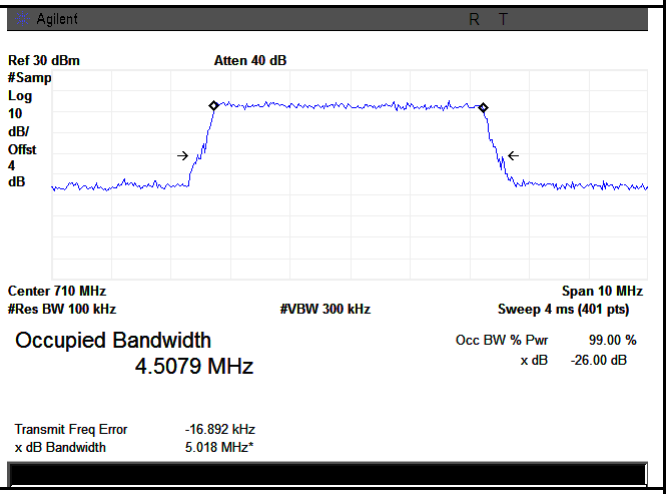
LTE band 17 - Low CH QPSK-5



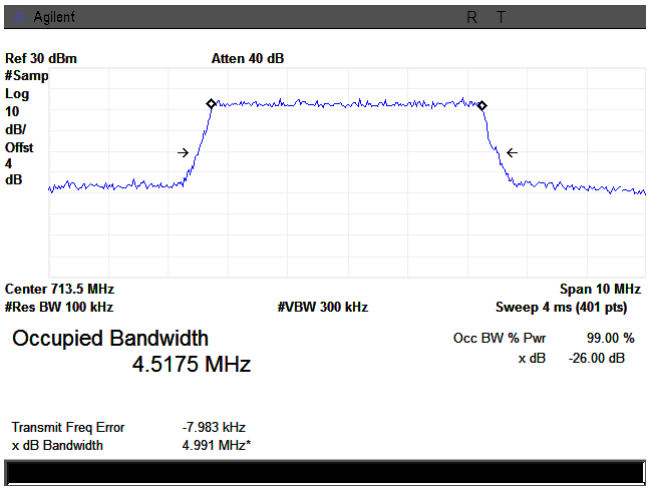
LTE band 17 - Low CH 16QAM-5



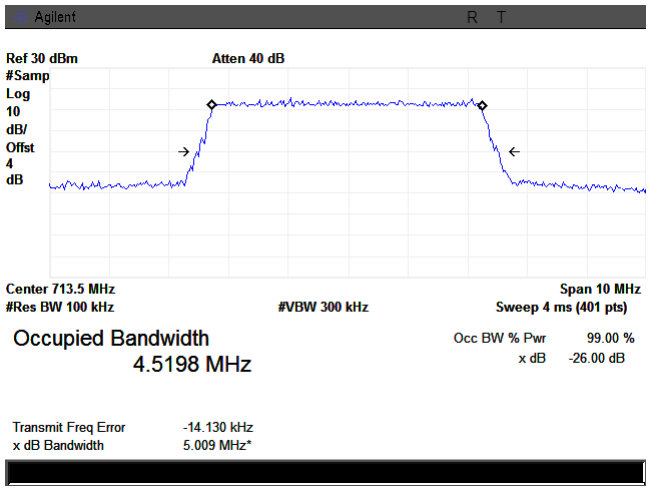
LTE band 17 - Middle CH QPSK-5



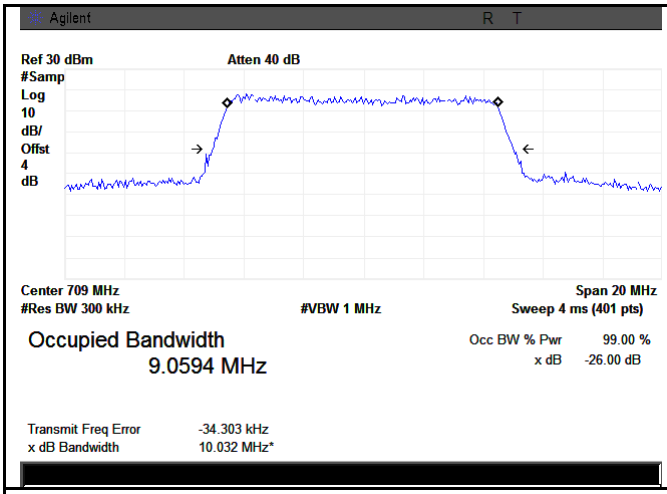
LTE band 17 - Middle CH 16QAM-5



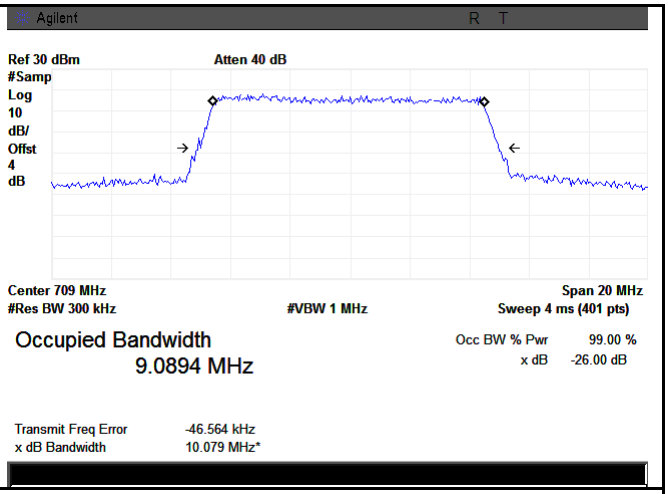
LTE band 17 - High CH QPSK-5



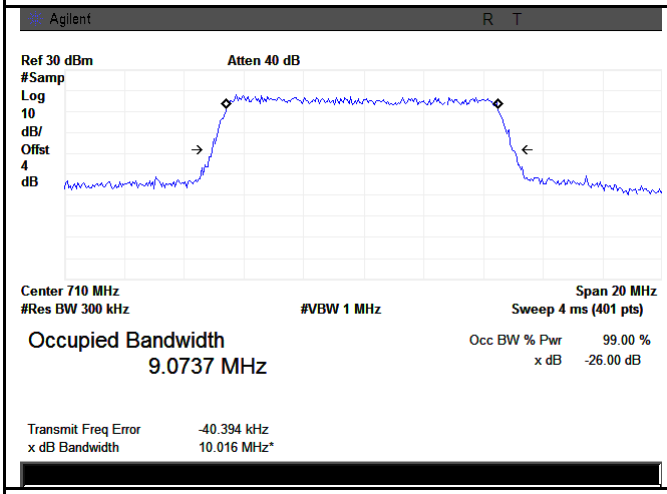
LTE band 17 - High CH 16QAM-5



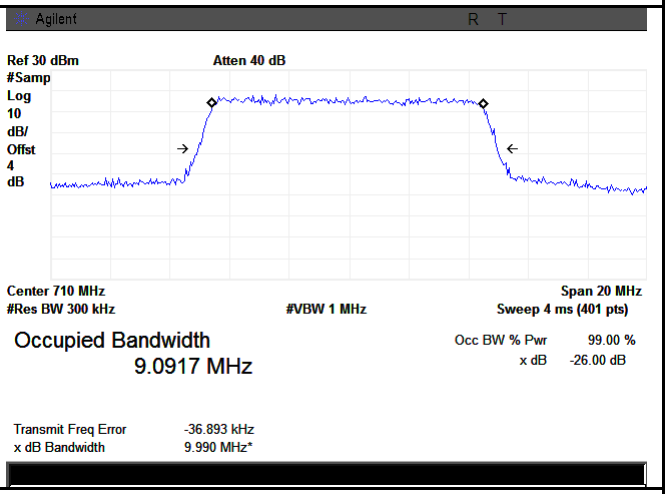
LTE band 17 - Low CH QPSK-10



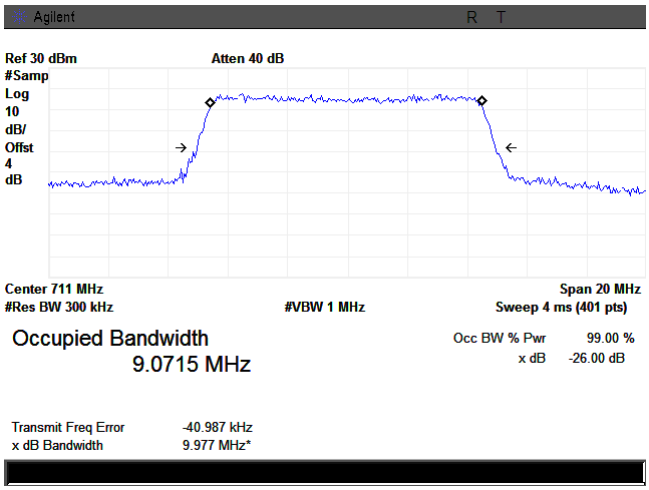
LTE band 17 - Low CH 16QAM-10



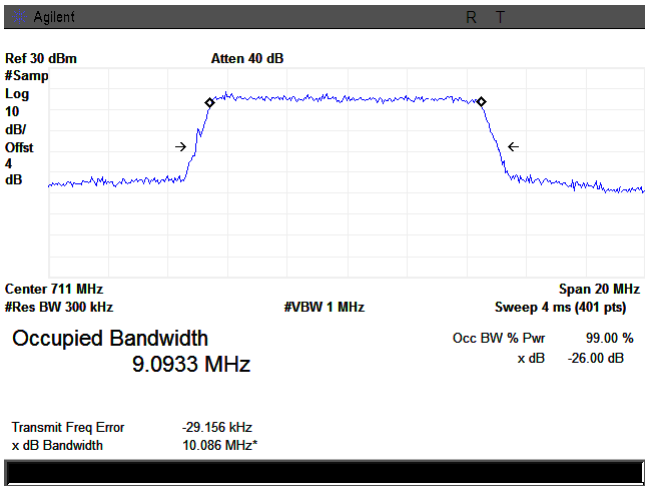
LTE band 17 - Middle CH QPSK-10



LTE band 17 - Middle CH 16QAM-10

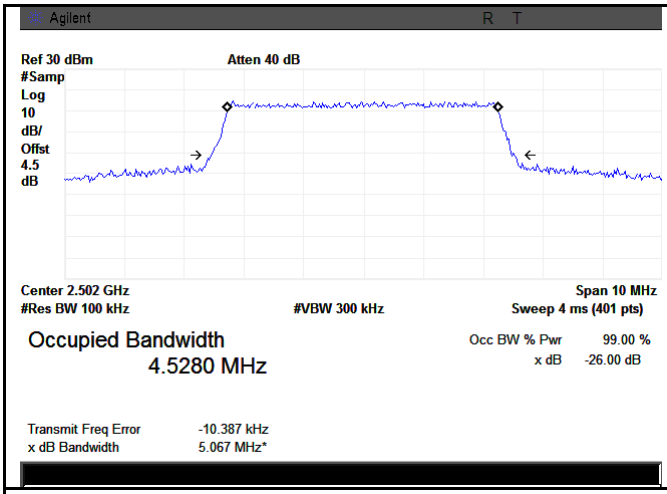


LTE band 17 - High CH QPSK-10

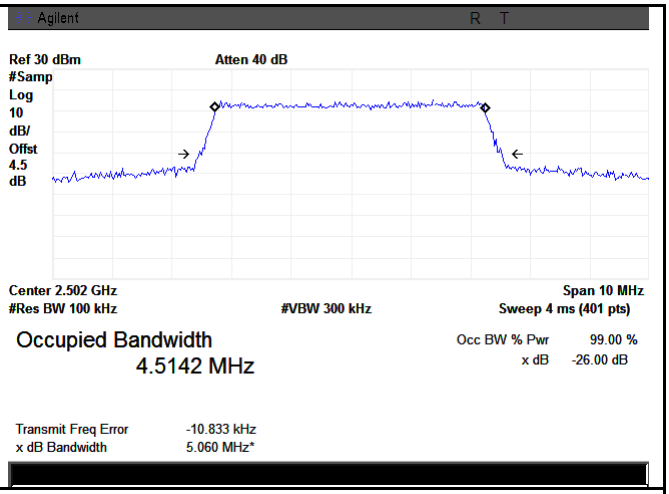


LTE band 17 - High CH 16QAM-10

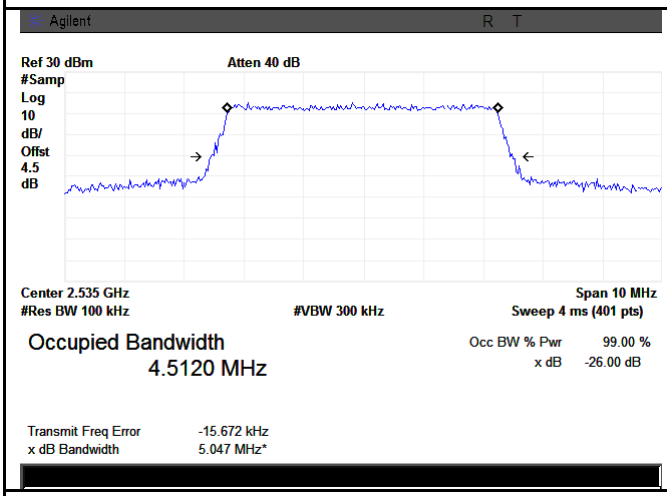
LTE Band 7 (Part 27)



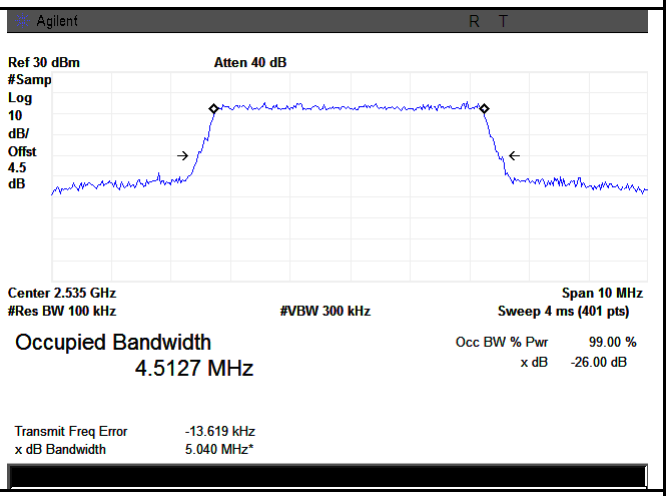
LTE band 7 - Low CH QPSK-5



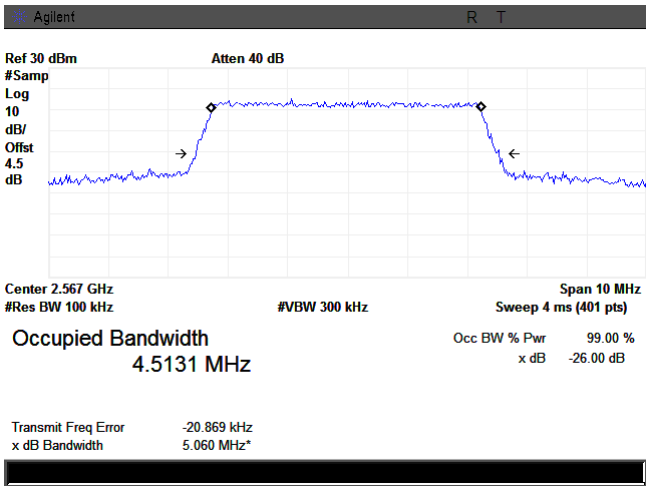
LTE band 7 - Low CH 16QAM-5



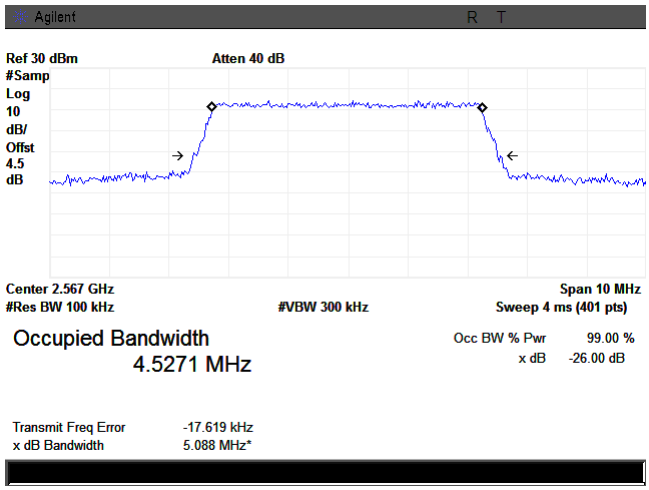
LTE band 7 - Middle CH QPSK-5



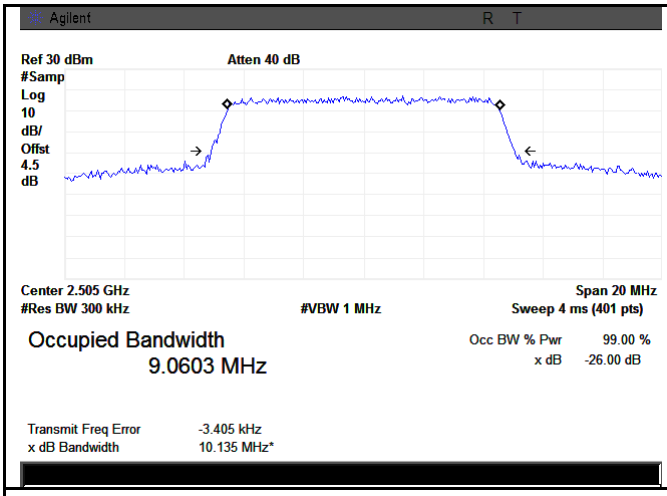
LTE band 7 - Middle CH 16QAM-5



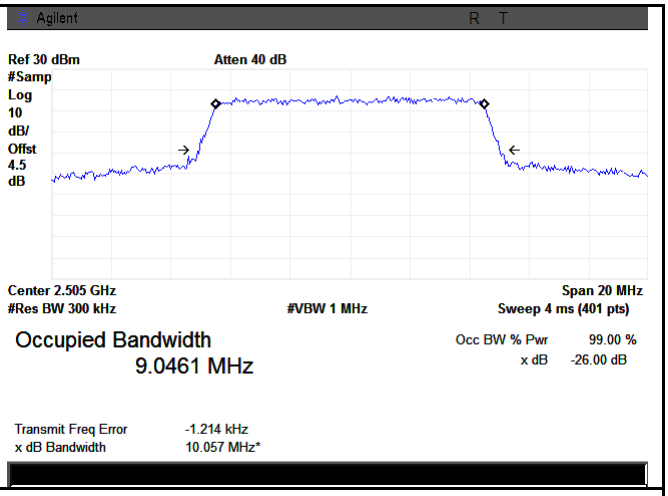
LTE band 7 - High CH QPSK-5



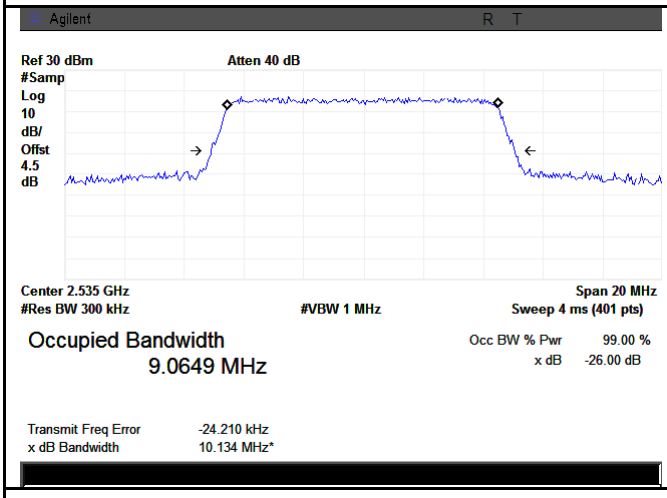
LTE band 7 - High CH 16QAM-5



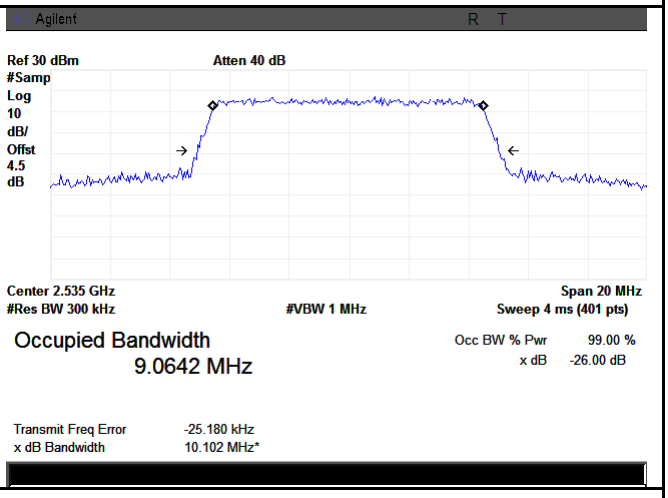
LTE band 7 - Low CH QPSK-10



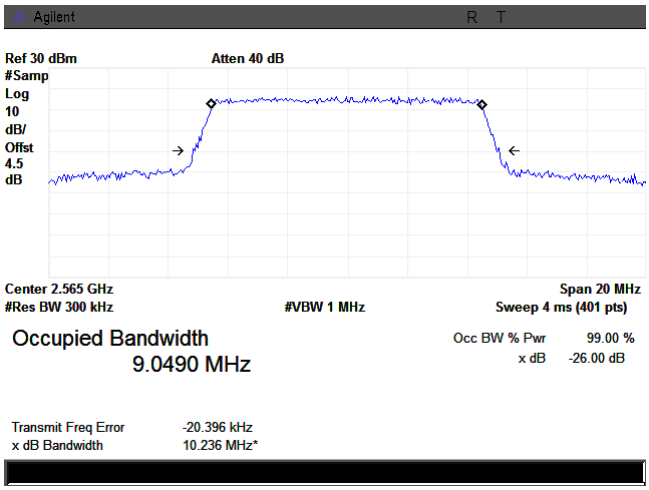
LTE band 7 - Low CH 16QAM-10



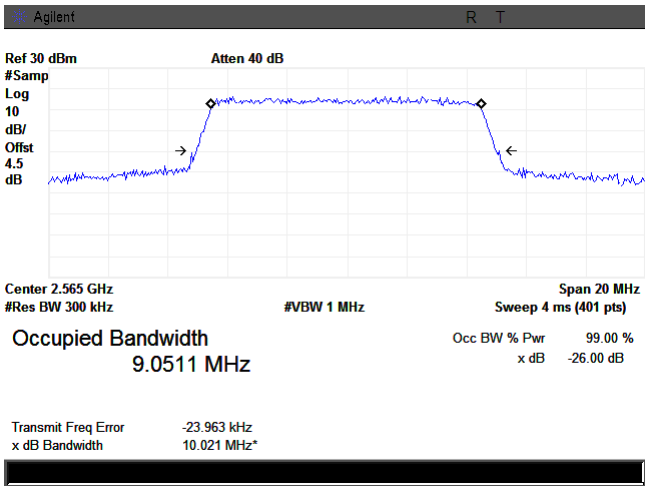
LTE band 7 - Middle CH QPSK-10



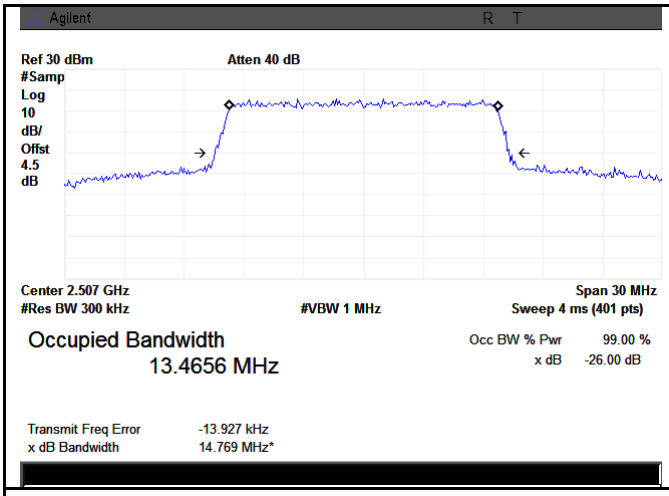
LTE band 7 - Middle CH 16QAM-10



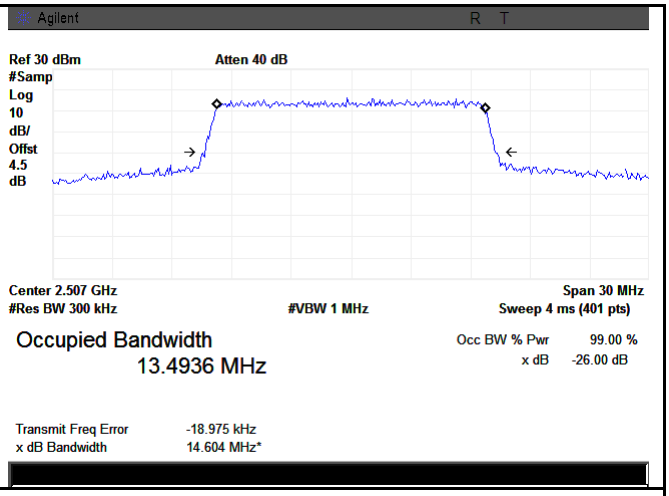
LTE band 7 - High CH QPSK-10



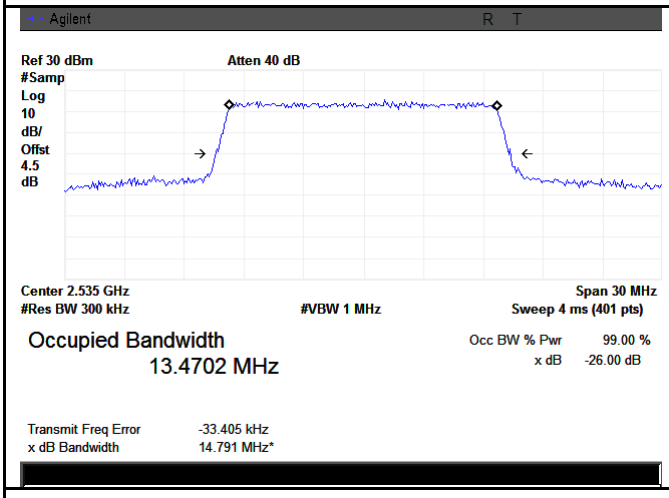
LTE band 7 - High CH 16QAM-10



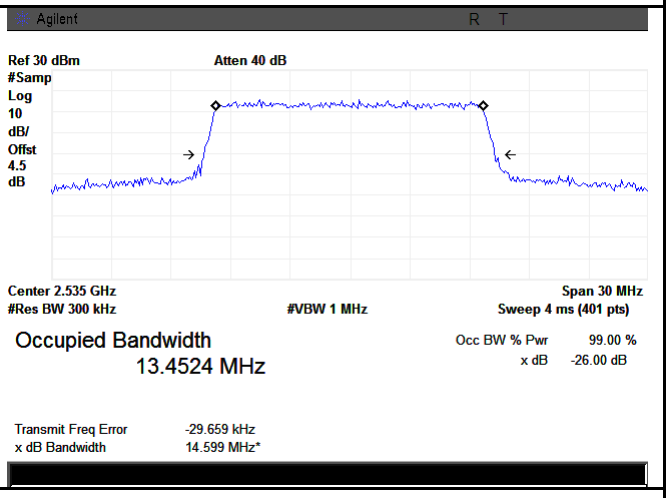
LTE band 7 - Low CH QPSK-15



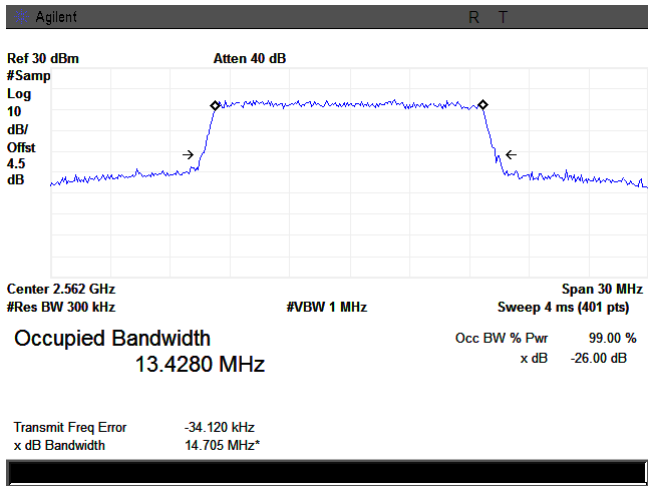
LTE band 7 - Low CH 16QAM-15



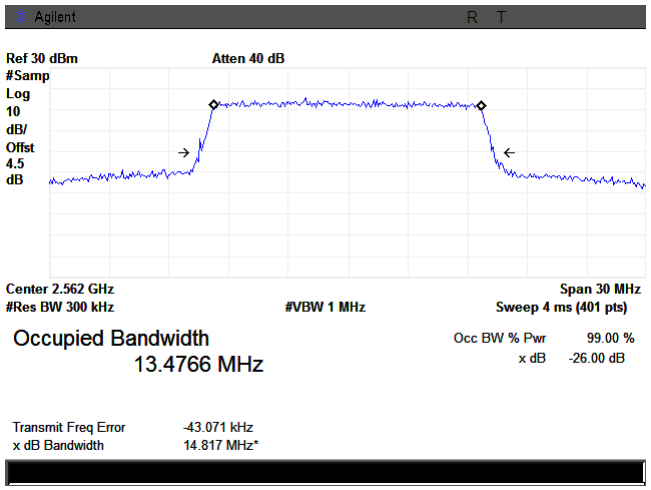
LTE band 7 - Middle CH QPSK-15



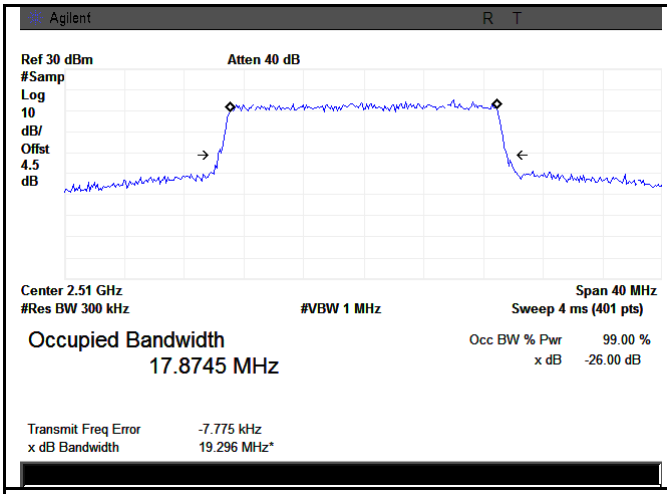
LTE band 7 - Middle CH 16QAM-15



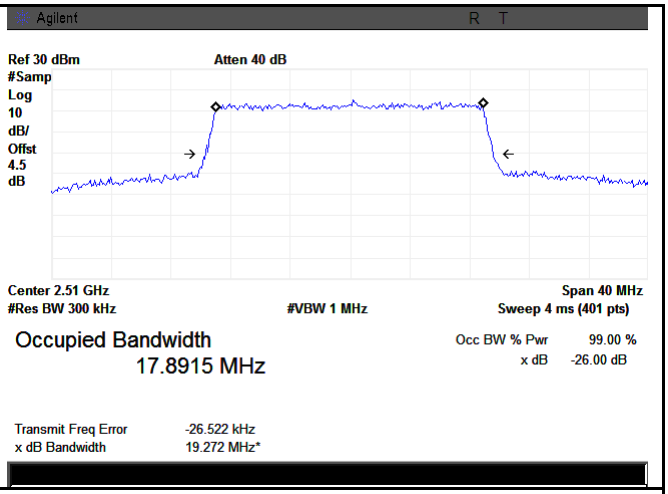
LTE band 7 - High CH QPSK-15



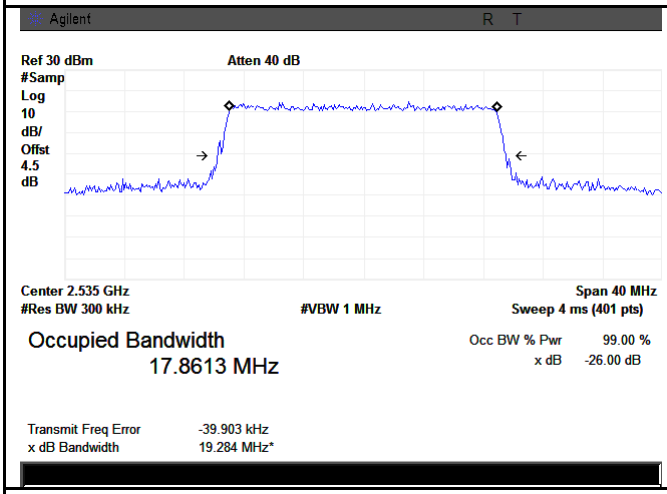
LTE band 7 - High CH 16QAM-15



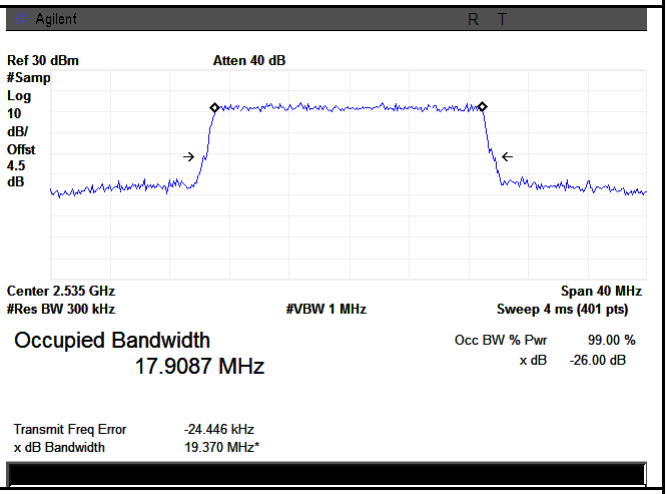
LTE band 7 - Low CH QPSK-20



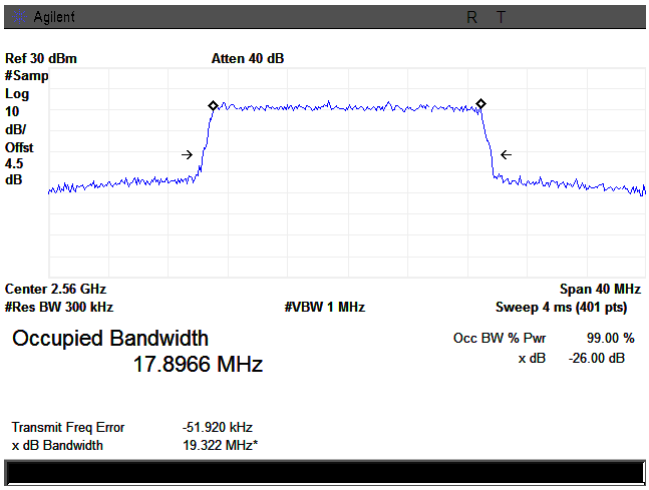
LTE band 7 - Low CH 16QAM-20



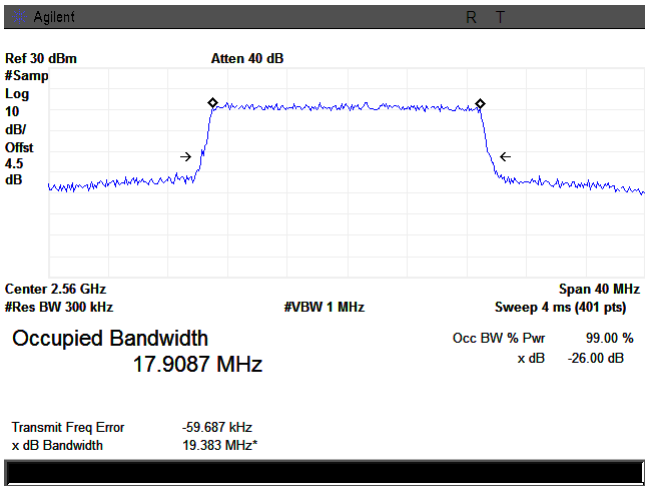
LTE band 7 - Middle CH QPSK-20



LTE band 7 - Middle CH 16QAM-20



LTE band 7 - High CH QPSK-20

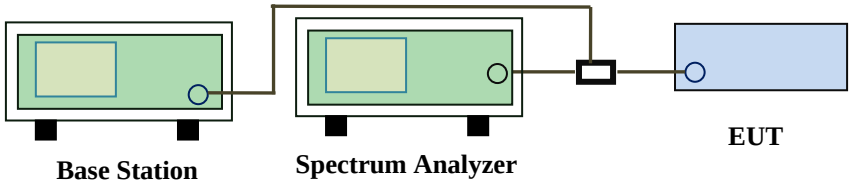


LTE band 7 - High CH 16QAM-20

6.6 Spurious Emissions at Antenna Terminals

Temperature	21°C
Relative Humidity	60%
Atmospheric Pressure	1010mbar
Test date :	February 16 to March 20, 2015
Tested By :	Winnie Zhang

Requirement(s):

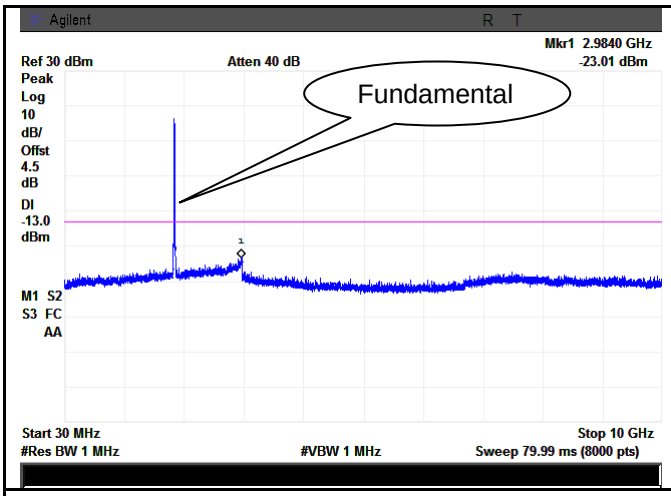
Spec	Item	Requirement	Applicable
§2.1051, §22.917(a)& §24.238(a) § 27.53(h)	a)	The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB	☑
Test Setup			
Test Procedure	- The EUT was connected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

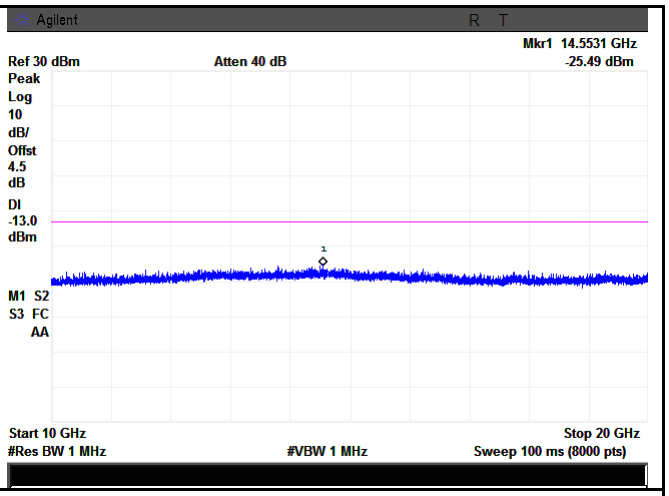
Test Plot ☑ Yes (See below) ☐ N/A

Test Plots 30MHz-5GHz

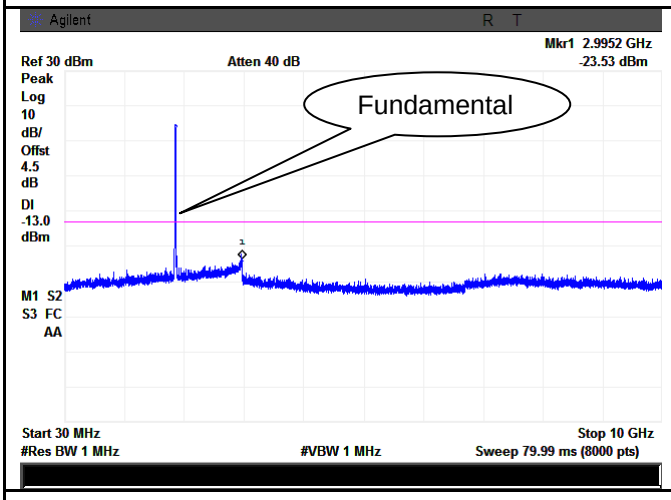
LTE Band 2 (Part 24E) result



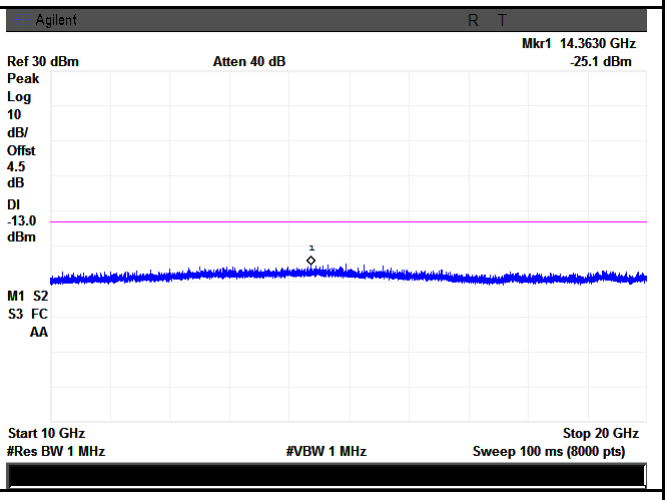
LTE Band 2 - Low Channel-1



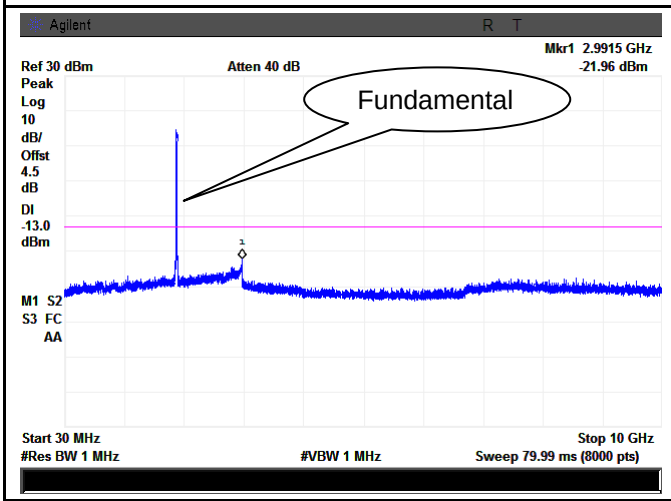
LTE Band 2 - Low Channel-2



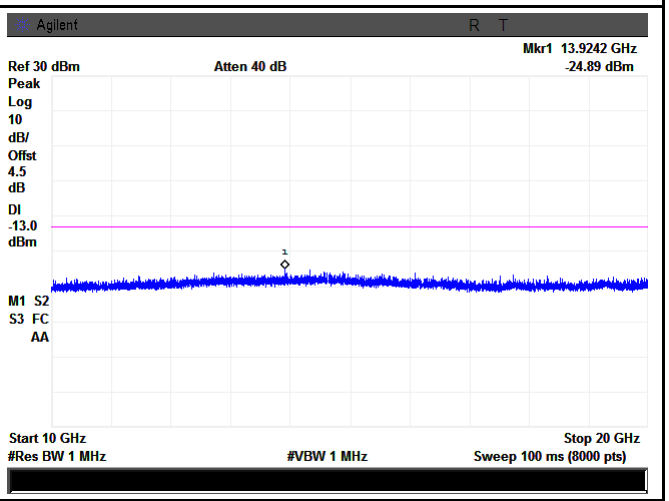
LTE Band 2 Middle Channel-1



LTE Band 2 Middle Channel-2

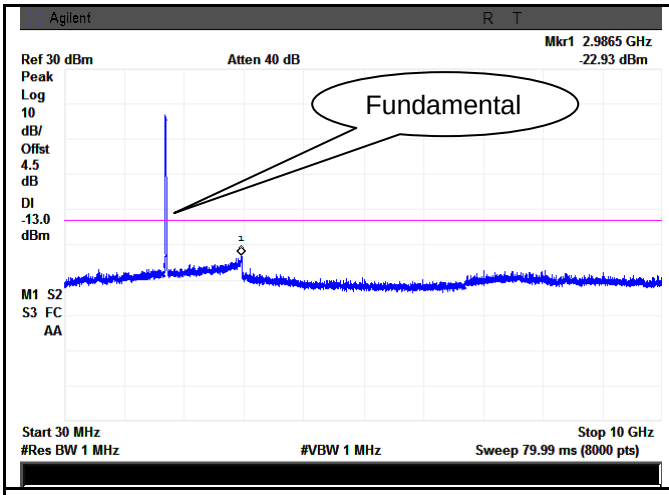


LTE Band 2 - High Channel-1

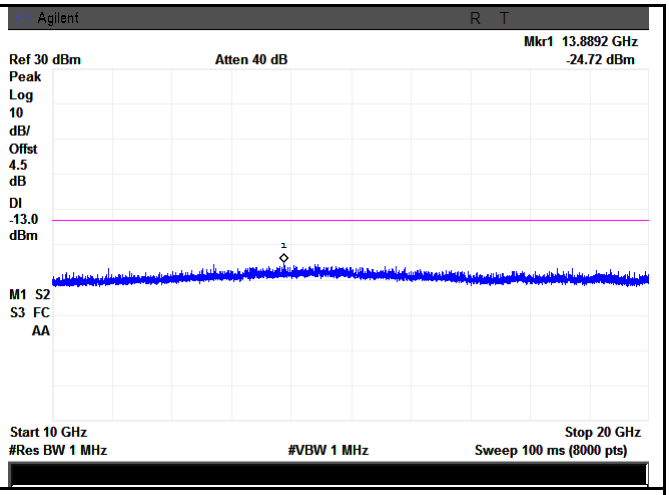


LTE Band 2 - High Channel-2

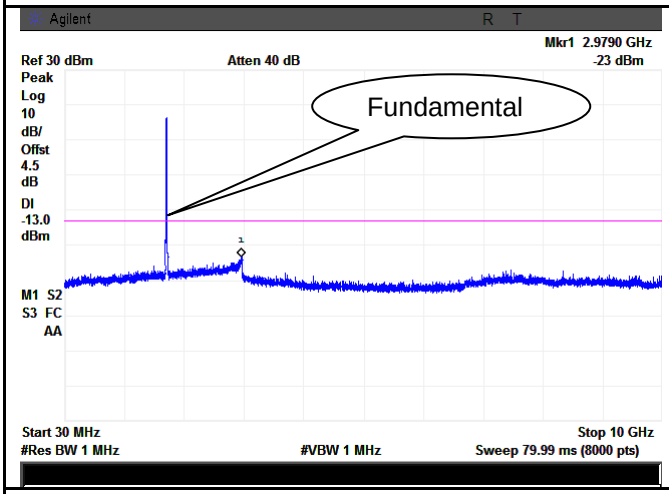
LTE Band 4 (Part27) result



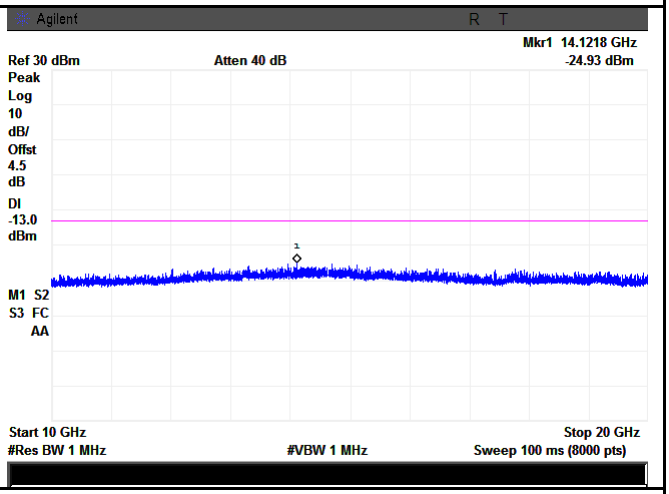
LTE Band 4 - Low Channel-1



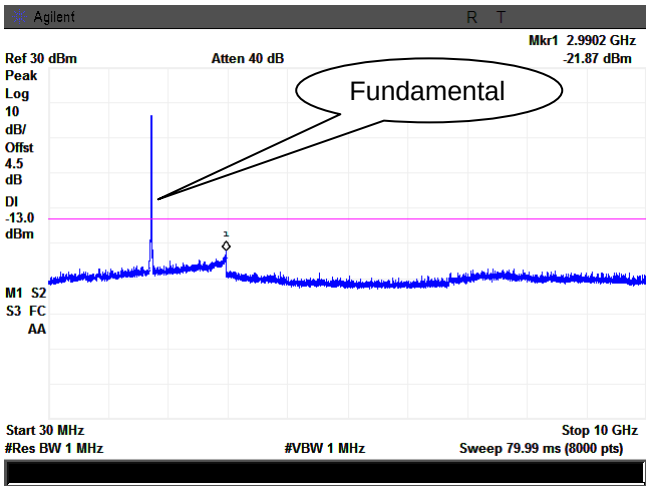
LTE Band 4 - Low Channel-2



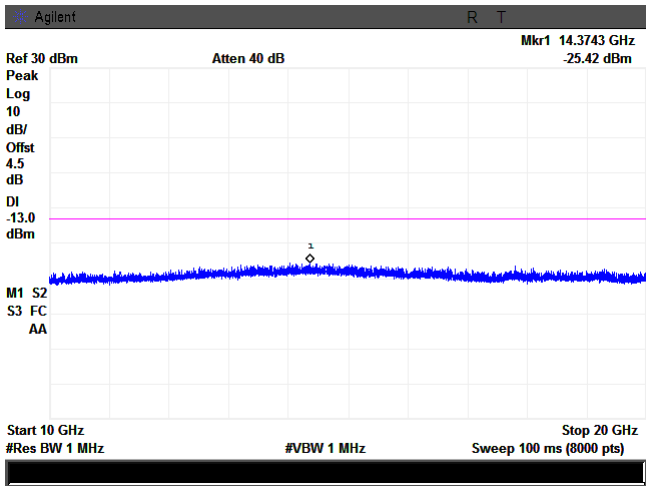
LTE Band 4 - Middle Channel-1



LTE Band 4 - Middle Channel-2

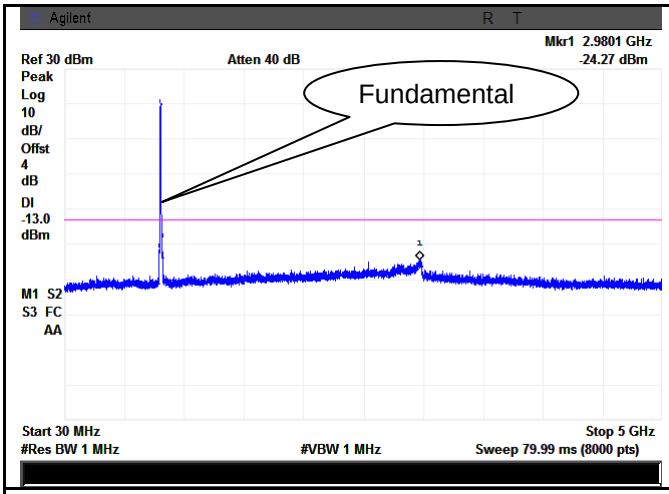


LTE Band 4 - High Channel-1

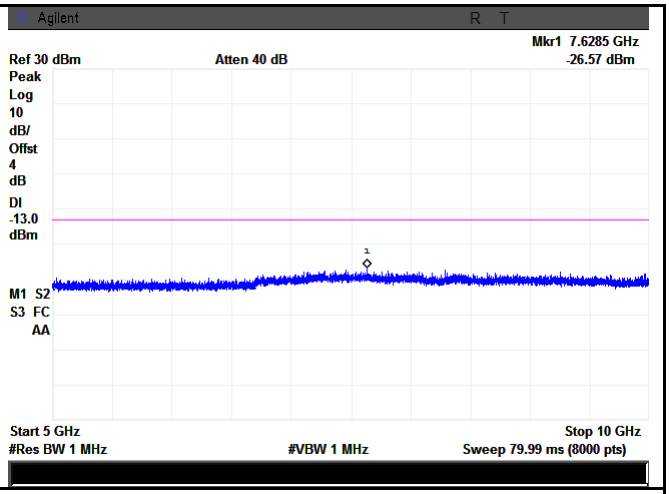


LTE Band 4 - High Channel-2

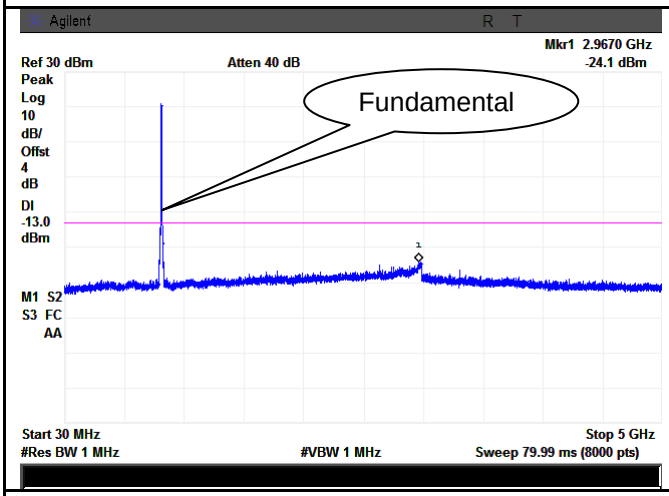
LTE Band 5 (Part 22H)



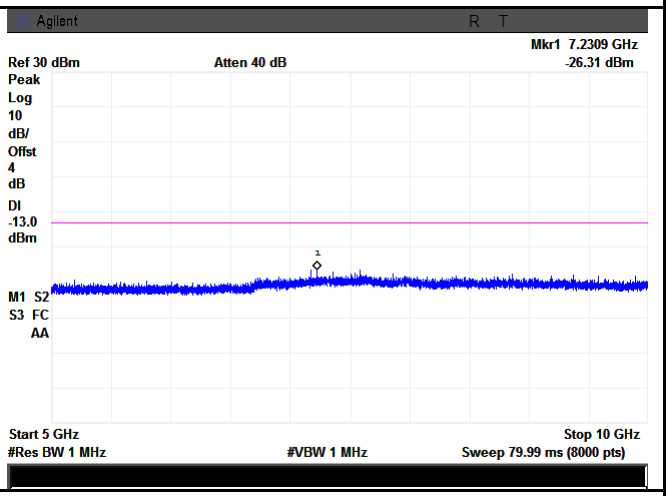
LTE Band 12 - Low Channel-1



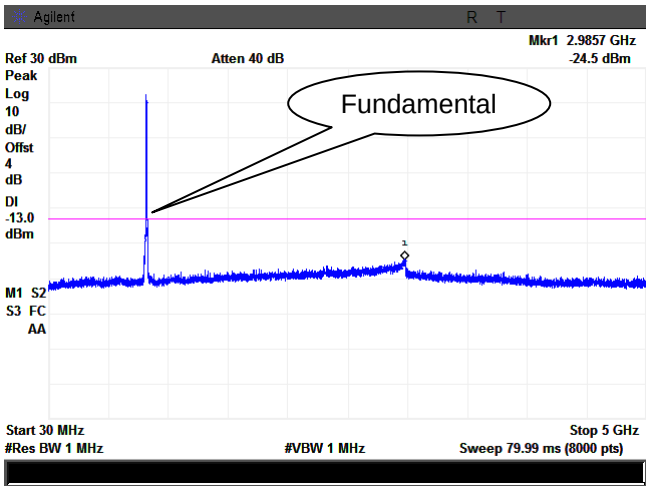
LTE Band 12 - Low Channel-2



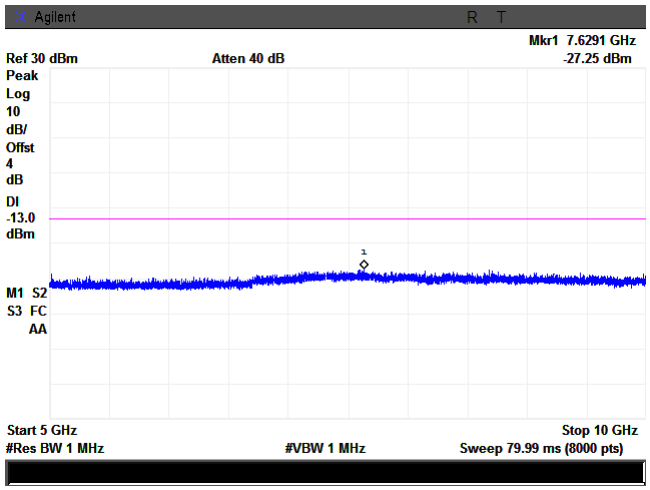
LTE Band 12 - Middle Channel-1



LTE Band 12 - Middle Channel-2

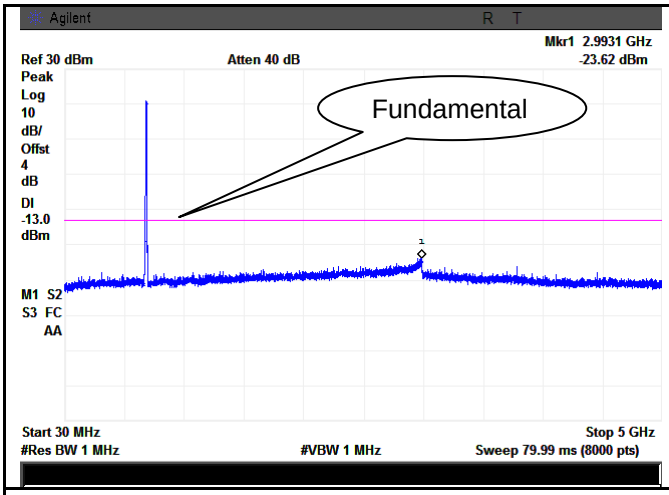


LTE Band 12 - High Channel-1

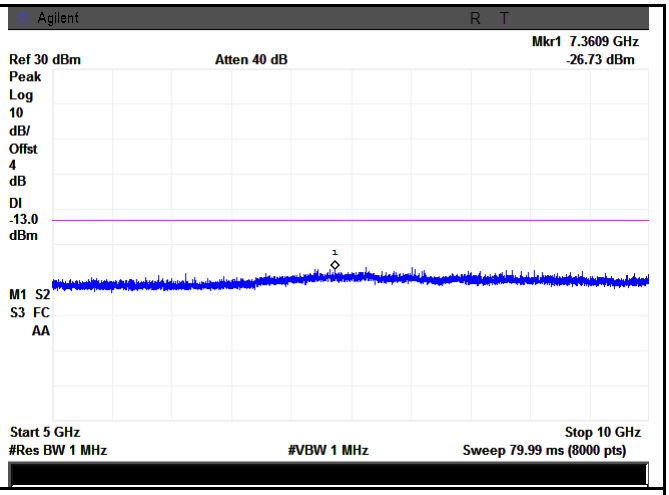


LTE Band 12 - High Channel-2

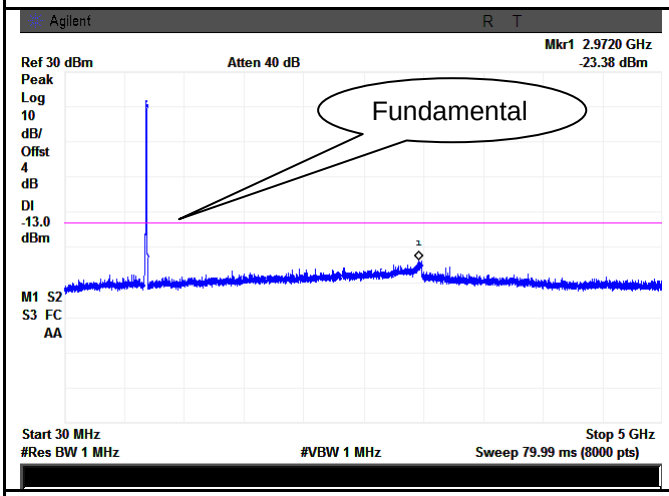
LTE Band 17 (Part 27)



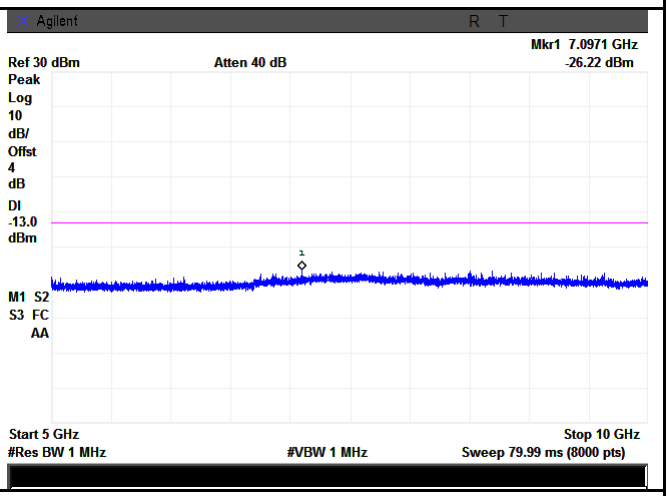
LTE Band 17 - Low Channel-1



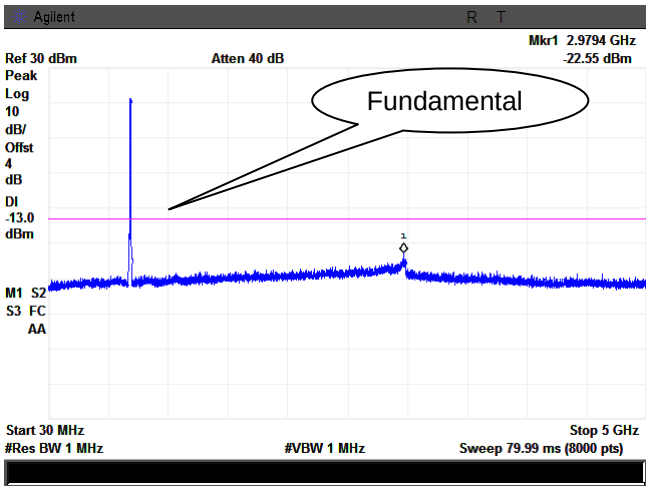
LTE Band 17 - Low Channel-2



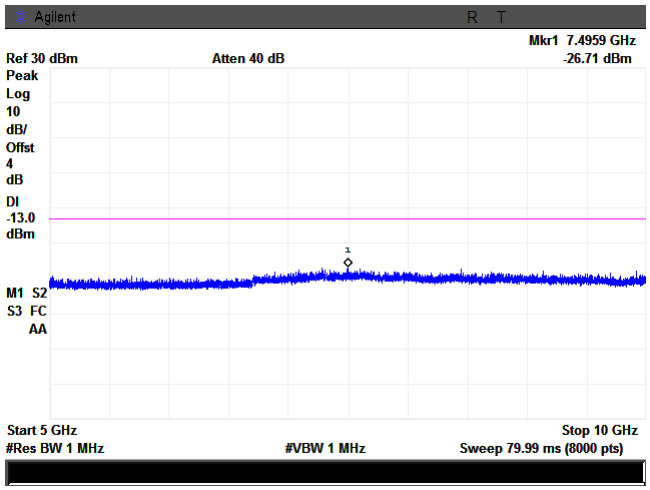
LTE Band 17- Middle Channel-1



LTE Band 17 - Middle Channel-2

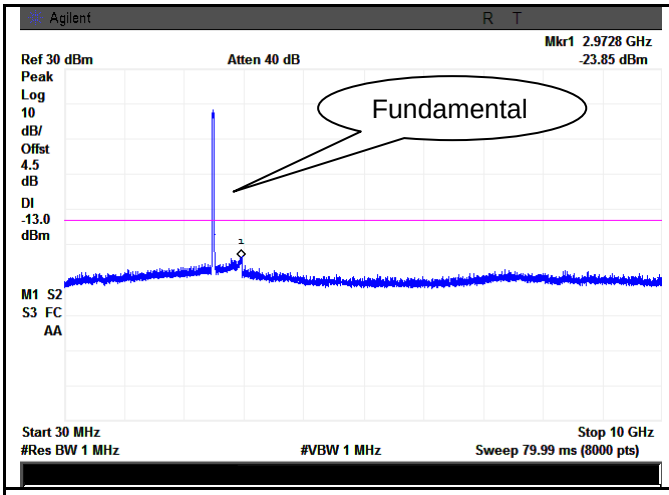


LTE Band 17 - High Channel-1

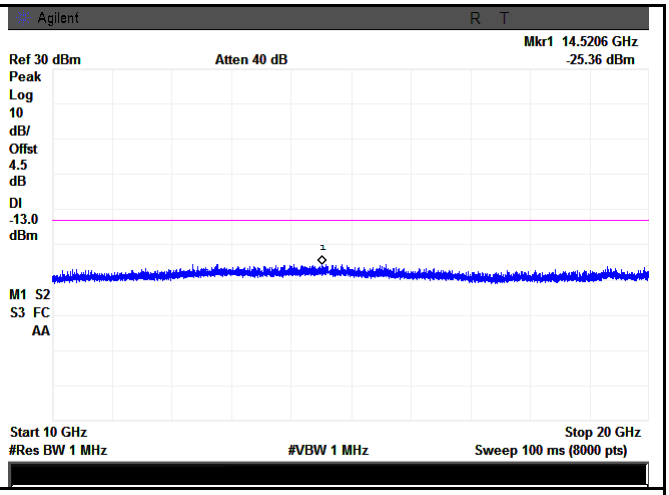


LTE Band 17 - High Channel-2

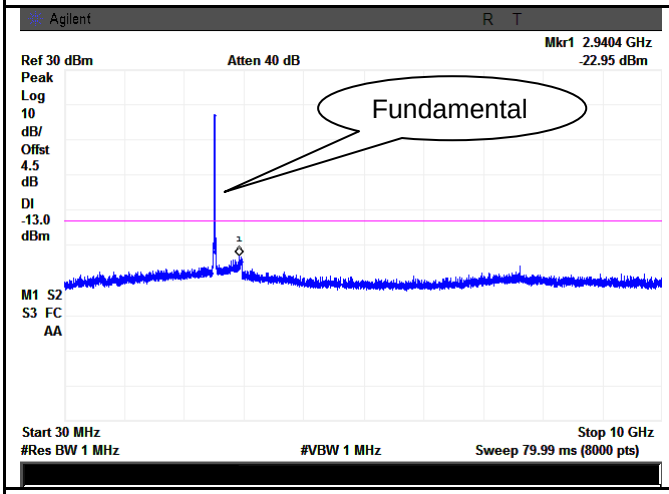
LTE Band 7 (Part 27)



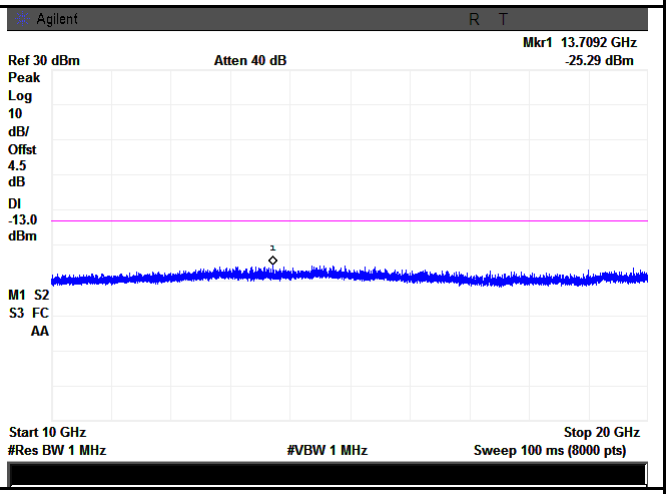
LTE Band 7 - Low Channel-1



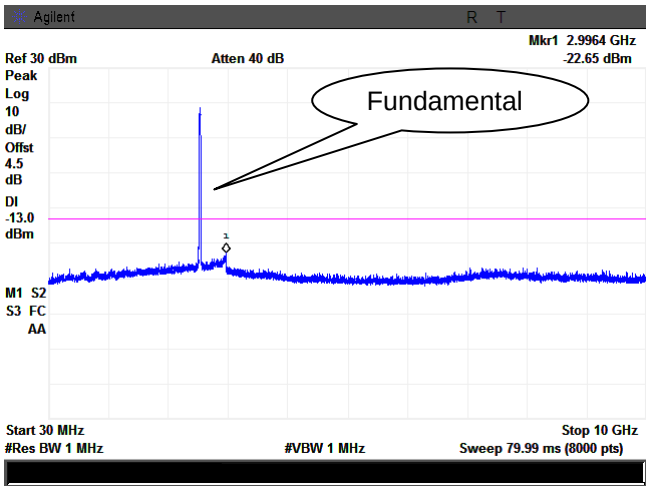
LTE Band 7 - Low Channel-2



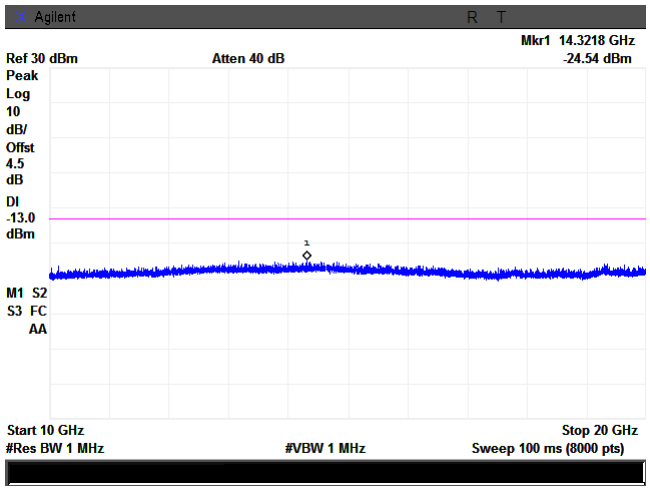
LTE Band 7- Middle Channel-1



LTE Band 7 - Middle Channel-2



LTE Band 7 - High Channel-1

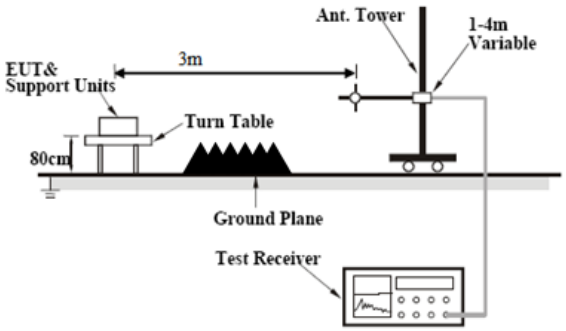


LTE Band 7 - High Channel-2

6.7 Spurious Radiated Emissions

Temperature	20°C
Relative Humidity	65%
Atmospheric Pressure	1009mbar
Test date :	March 10 to March 20, 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	-25.7
3720	-46.85	H	10.25	2.73	-39.33	-13	-26.33
50.2	-45.17	V	-4.2	0.11	-49.48	-13	-36.48
203.4	-48.51	H	4.6	0.18	-44.09	-13	-31.09

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	-39.5	-13	-26.5
50.2	-44.86	V	-4.2	0.11	-49.17	-13	-36.17
203.4	-47.96	H	4.6	0.18	-43.54	-13	-30.54

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
50.2	-44.91	V	-4.2	0.11	-49.22	-13	-36.22
203.4	-46.69	H	4.6	0.18	-42.27	-13	-29.27

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
50.2	-45.34	V	-4.2	0.11	-49.65	-13	-36.65
203.4	-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
50.2	-46.37	V	-4.2	0.11	-50.68	-13	-37.68
203.4	-49.12	H	4.6	0.18	-44.7	-13	-31.7

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
50.2	-46.29	V	-4.2	0.11	-50.6	-13	-37.6
203.4	-48.78	H	4.6	0.18	-44.36	-13	-31.36

LTE Band 5 (Part22ZH) 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	-37.3	-13	-24.3
1658	-45.18	H	7.95	0.78	-38.01	-13	-25.01
50.2	-45.26	V	-4.2	0.11	-49.57	-13	-36.57
203.4	-49.12	H	4.6	0.18	-44.7	-13	-31.7

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
50.2	-44.99	V	-4.2	0.11	-49.3	-13	-36.3
203.4	-48.85	H	4.6	0.18	-44.43	-13	-31.43

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	-37.9	-13	-24.9
50.2	-45.16	V	-4.2	0.11	-49.47	-13	-36.47
203.4	-49.22	H	4.6	0.18	-44.8	-13	-31.8

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	-43.29	V	7.65	0.75	-36.39	-13	-23.39
1418	-44.52	H	7.65	0.75	-37.62	-13	-24.62
50.2	-44.95	V	-4.2	0.11	-49.26	-13	-36.26
203.4	-48.77	H	4.6	0.18	-44.35	-13	-31.35

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1420	-43.35	V	7.65	0.75	-36.45	-13	-23.45
1420	-44.76	H	7.65	0.75	-37.86	-13	-24.86
50.2	-45.29	V	-4.2	0.11	-49.6	-13	-36.6
203.4	-48.84	H	4.6	0.18	-44.42	-13	-31.42

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	-44.09	V	7.65	0.75	-37.19	-13	-24.19
1422	-44.81	H	7.65	0.75	-37.91	-13	-24.91
50.2	-45.07	V	-4.2	0.11	-49.38	-13	-36.38
203.4	-48.77	H	4.6	0.18	-44.35	-13	-31.35

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	-48.02	V	10.29	0.98	-38.71	-13	-25.71
5020	-47.89	H	10.29	0.98	-38.58	-13	-25.58
50.2	-46.29	V	-4.2	0.11	-50.6	-13	-37.6
203.4	-48.08	H	4.6	0.18	-43.66	-13	-30.66

Middle channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
5070	-47.83	V	10.3	0.99	-38.52	-13	-25.52
5070	-47.92	H	10.3	0.99	-38.61	-13	-25.61
50.2	-45.77	V	-4.2	0.11	-50.08	-13	-37.08
203.4	-48.16	H	4.6	0.18	-43.74	-13	-30.74

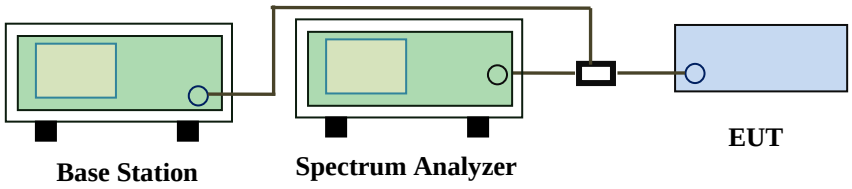
High channel

Frequency (MHz)	Substituted level (dBm)	Polarity (H/V)	Antenna Gain Correction (dB)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
5120	-48.16	V	10.32	1	-38.84	-13	-25.84
5120	-48.12	H	10.32	1	-38.8	-13	-25.8
50.2	-45.94	V	-4.2	0.11	-50.25	-13	-37.25
203.4	-47.05	H	4.6	0.18	-42.63	-13	-29.63

6.8 Band Edge

Temperature	21°C
Relative Humidity	60%
Atmospheric Pressure	1010mbar
Test date :	February 16 to March 20, 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	-18.0	-13
			16QAM	-20.62	-13
1.4	18900	1909.3	QPSK	-15.76	-13
			16QAM	-16.37	-13
3	18615	1851.5	QPSK	-18.44	-13
			16QAM	-18.38	-13
3	19185	1908.5	QPSK	-15.95	-13
			16QAM	-15.85	-13
5	18625	1852.5	QPSK	-17.05	-13
			16QAM	-18.5	-13
5	19175	1907.5	QPSK	-15.45	-13
			16QAM	-18.93	-13
10	18650	1855	QPSK	-18.22	-13
			16QAM	-19.59	-13
10	19150	1905	QPSK	-18.02	-13
			16QAM	-20.64	-13
15	18675	1857.5	QPSK	-21.17	-13
			16QAM	-21.16	-13
15	19125	1902.5	QPSK	-19.48	-13
			16QAM	-23.52	-13
20	18700	1860	QPSK	-23.99	-13
			16QAM	-25.27	-13
20	19100	1900	QPSK	-22.59	-13
			16QAM	-25.94	-13

LTE Band 4 (Part 27) result

BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
1.4	19957	1710.7	QPSK	-24.21	-13
			16QAM	-25.62	-13
1.4	20393	1754.3	QPSK	-27.89	-13
			16QAM	-27.83	-13
3	19965	1711.5	QPSK	-19.24	-13
			16QAM	-19.08	-13
3	20385	1753.5	QPSK	-21.39	-13
			16QAM	-15.14	-13
5	19975	1712.5	QPSK	-17.28	-13
			16QAM	-19.1	-13
5	20375	1752.5	QPSK	-20.52	-13
			16QAM	-19.97	-13
10	20000	1715	QPSK	-19.28	-13
			16QAM	-17.96	-13
10	20350	1750	QPSK	-21.76	-13
			16QAM	-18.27	-13
15	20025	1717.5	QPSK	-23.69	-13
			16QAM	-24.67	-13
15	20325	1747.5	QPSK	-23.09	-13
			16QAM	-24.51	-13
20	20050	1720	QPSK	-21.53	-13
			16QAM	-22.95	-13
20	20300	1745	QPSK	-23.46	-13
			16QAM	-25.01	-13

LTE Band 5 (Part 22H) result

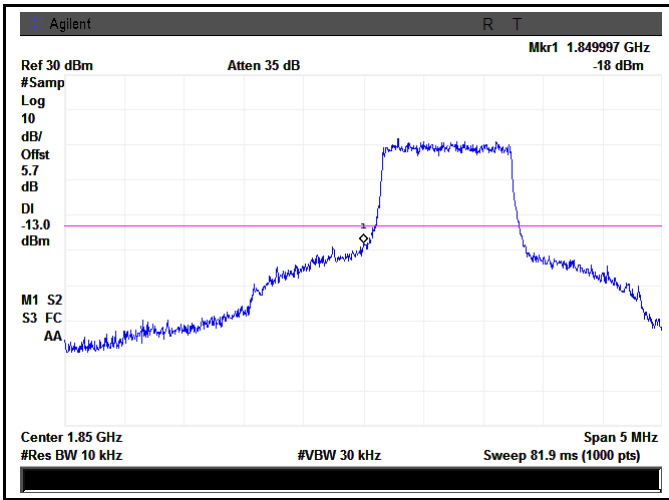
BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
1.4	20407	824.7	QPSK	-25.6	-13
			16QAM	-24.36	-13
1.4	20643	848.3	QPSK	-21.57	-13
			16QAM	-21.5	-13
3	20415	825.5	QPSK	-16.09	-13
			16QAM	-17.41	-13
3	20635	847.5	QPSK	-20.75	-13
			16QAM	-20.68	-13
5	20425	826.5	QPSK	-17.54	-13
			16QAM	-18.77	-13
5	20625	846.5	QPSK	-16.58	-13
			16QAM	-21.87	-13
10	20450	829	QPSK	-18.79	-13
			16QAM	-16.73	-13
10	20600	844	QPSK	-17.15	-13
			16QAM	-20.0	-13

LTE Band 17 (Part 27) result

BW(MHz)	Channel	Frequency (MHz)	Mode	Emission (dBm)	Limit (dBm)
5	23755	706.5	QPSK	-14.65	-13
			16QAM	-16.27	-13
5	23825	713.5	QPSK	-15.72	-13
			16QAM	-18.61	-13
10	23780	709	QPSK	-15.53	-13
			16QAM	-16.1	-13
10	23800	711	QPSK	-16.69	-13
			16QAM	-19.11	-13

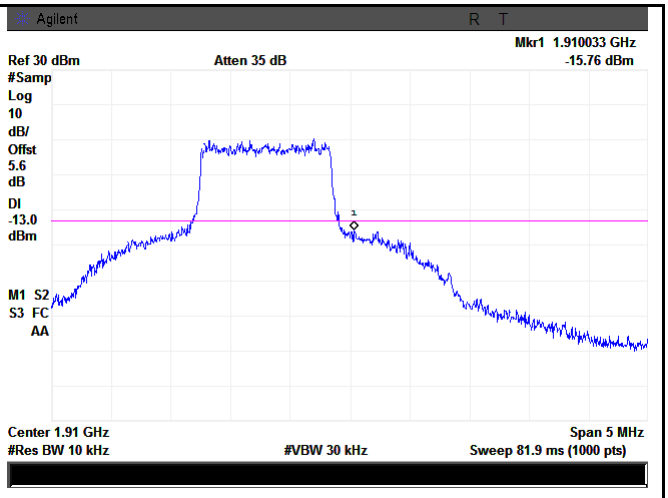
Test Plots

LTE Band 2 (Part 24E)



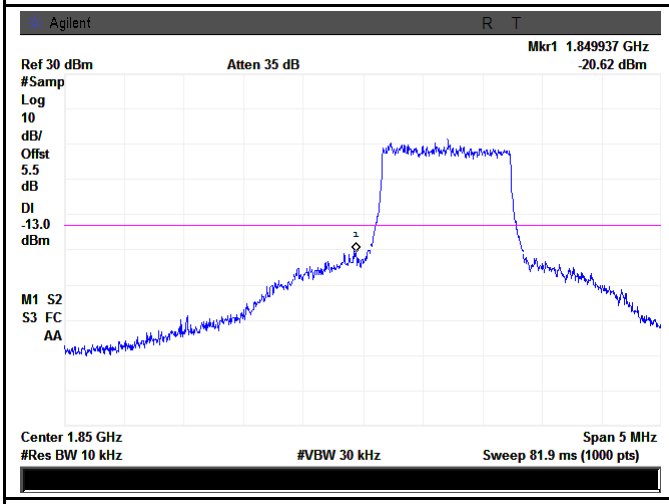
LTE Band 2 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (13.1/10)=4.5+1.2=5.7 dB



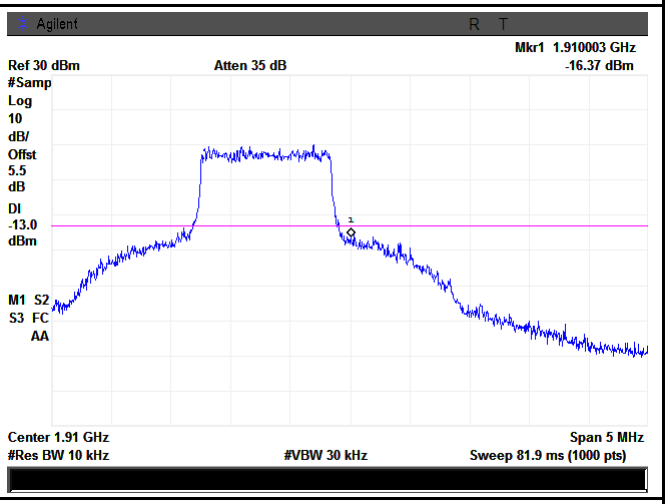
LTE Band 2 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.8/10)=4.5+1.1=5.6 dB



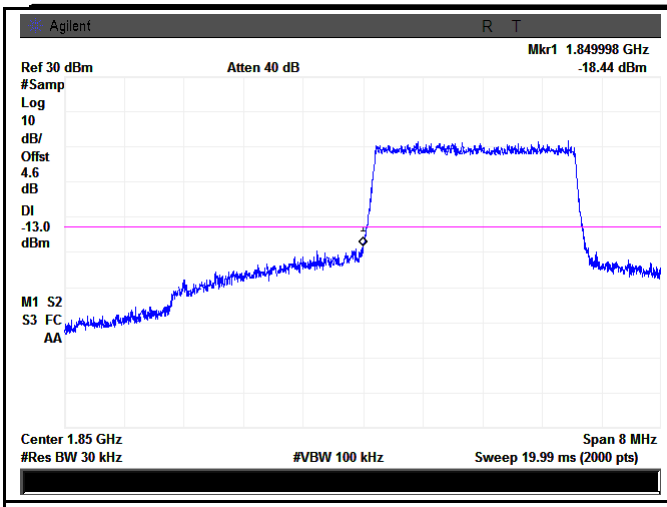
LTE Band 2 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.7/10)=4.5+1.0=5.5 dB



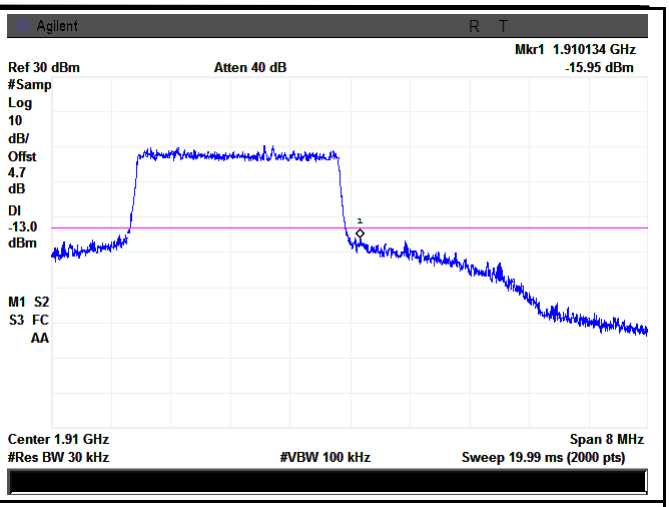
LTE Band 2 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.5/10)=4.5+1.0=5.5 dB



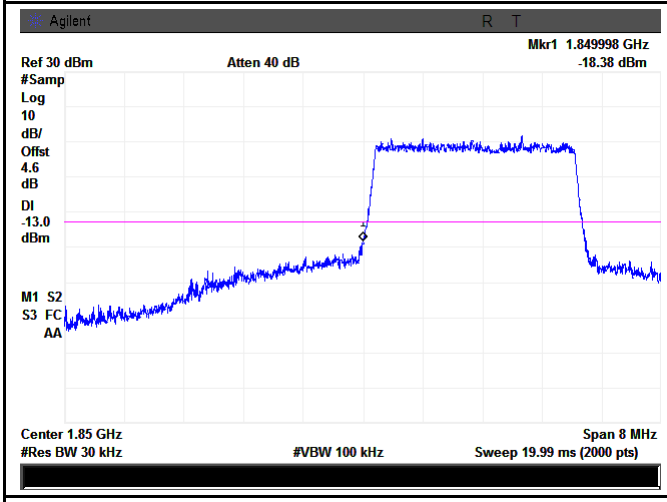
LTE Band 2 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.5/30)=4.5+0.1=4.6 dB



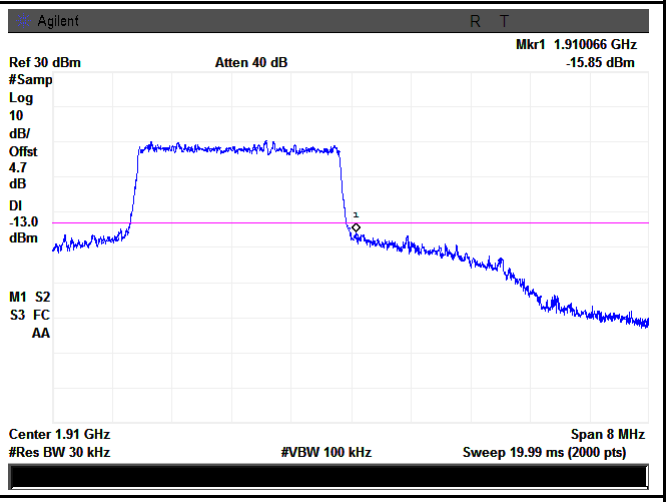
LTE Band 2 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (31.1/30)=4.5+0.2=4.7 dB



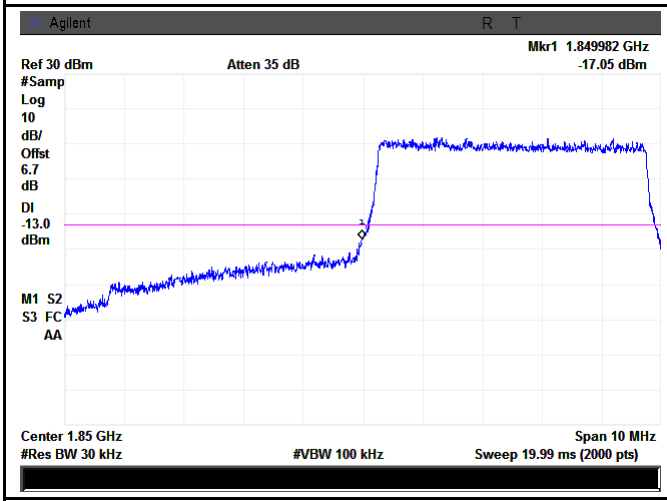
LTE Band 2 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.5/30)=4.5+0.1=4.6 dB

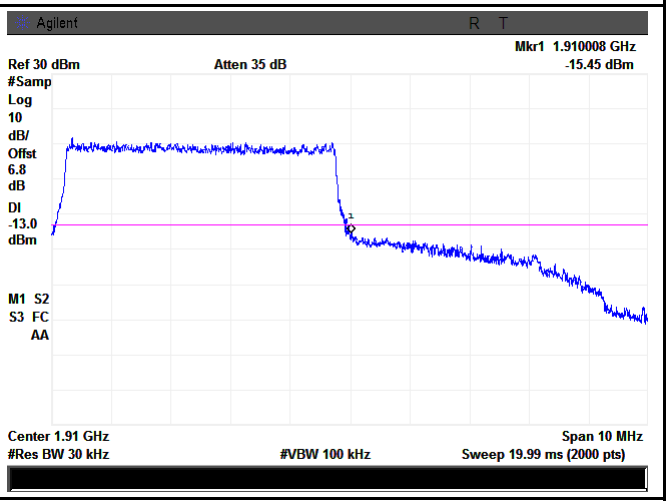


LTE Band 2 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (31.3/30)=4.5+0.2=4.7 dB

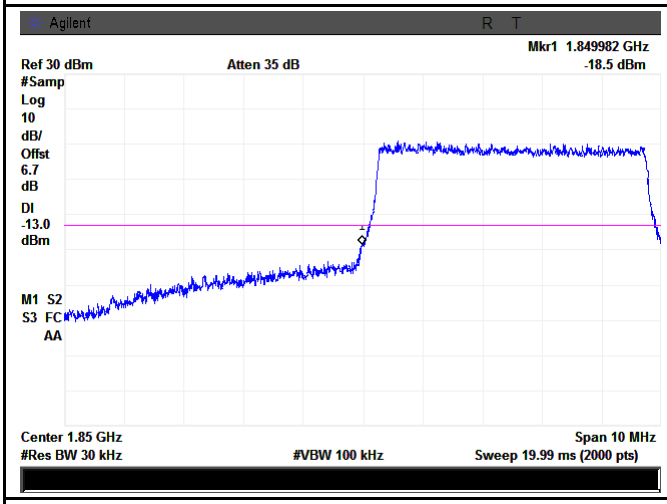


LTE Band 2 - Low Channel QPSK-5



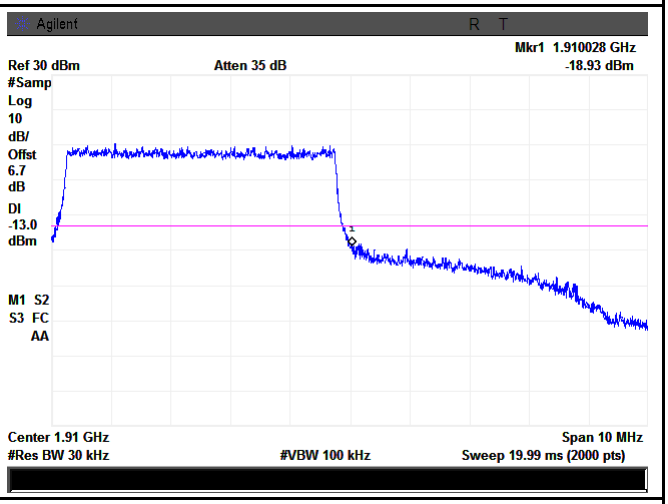
LTE Band 2 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.1/30)=4.5+2.2=6.7 dB



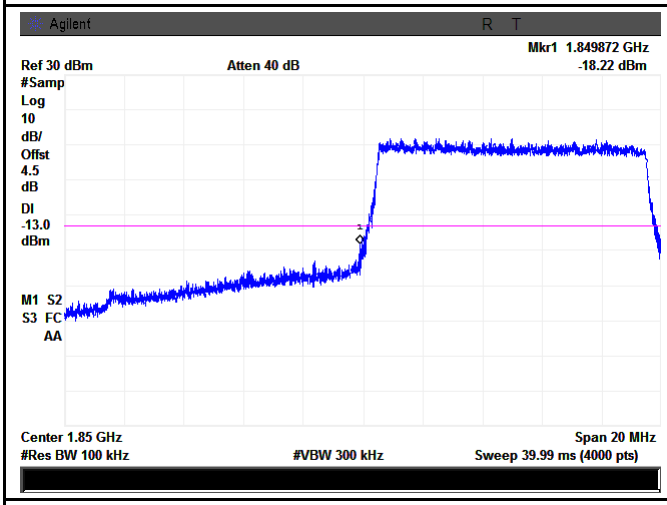
LTE Band 2 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.8/30)=4.5+2.3=6.8 dB



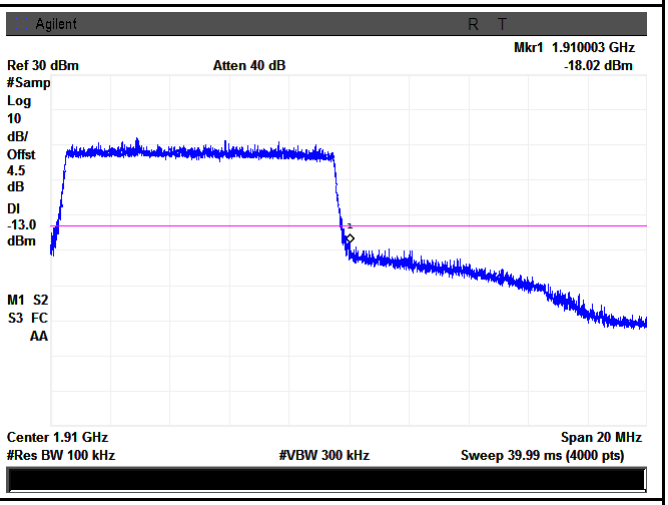
LTE Band 2 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.0/30)=4.5+2.2=6.7 dB

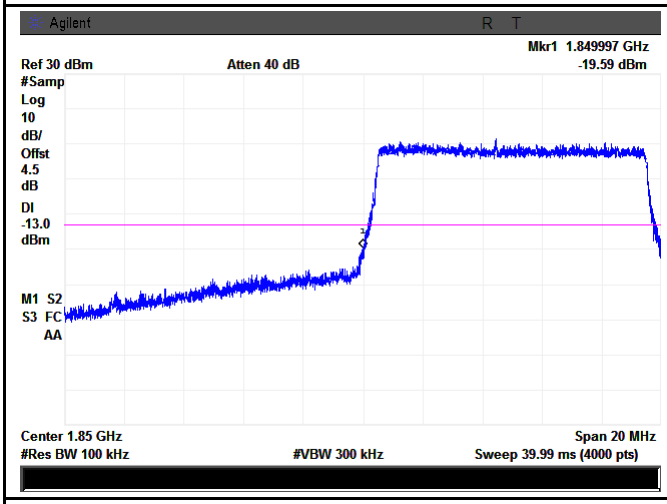


LTE Band 2 - Low Channel QPSK-10

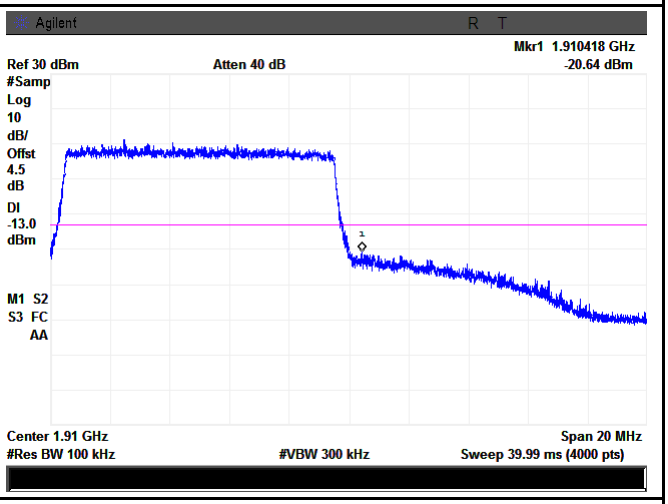
Note: Offset=Cable loss (4.5) + 10log (50.2/30)=4.5+2.2=6.7 dB



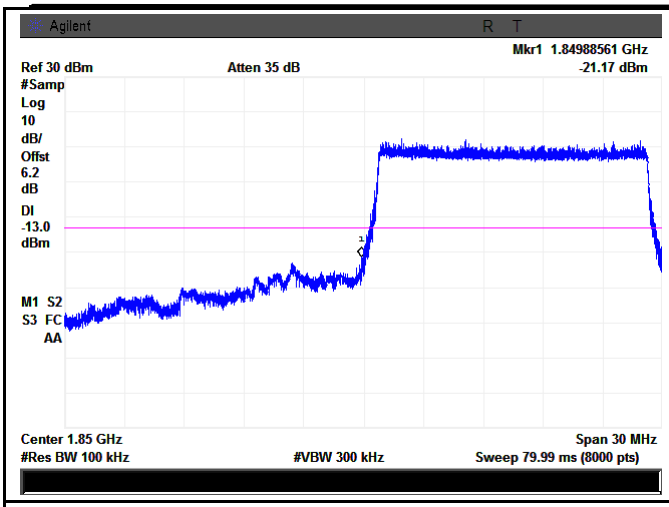
LTE Band 2 - High Channel QPSK-10



LTE Band 2 - Low Channel 16QAM-10

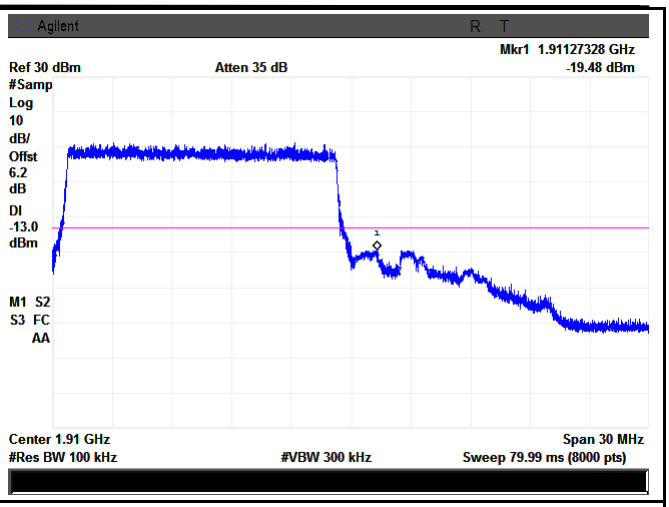


LTE Band 2 - High Channel 16QAM-10



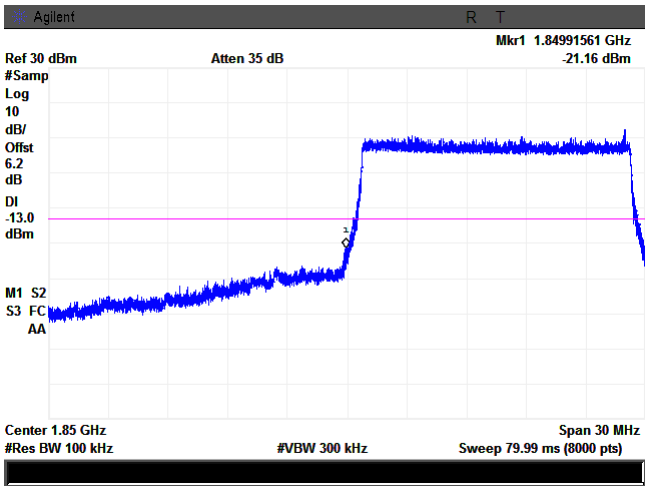
LTE Band 2 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (147.5/100)=4.5+1.7=6.2 dB



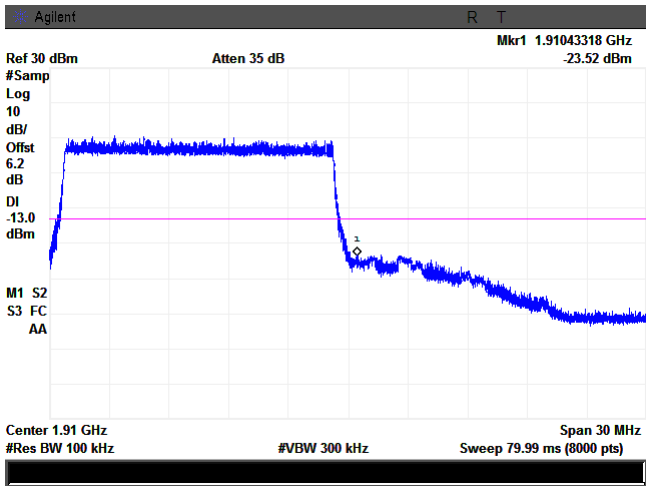
LTE Band 2 - High Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (147.1/100)=4.5+1.7=6.2 dB



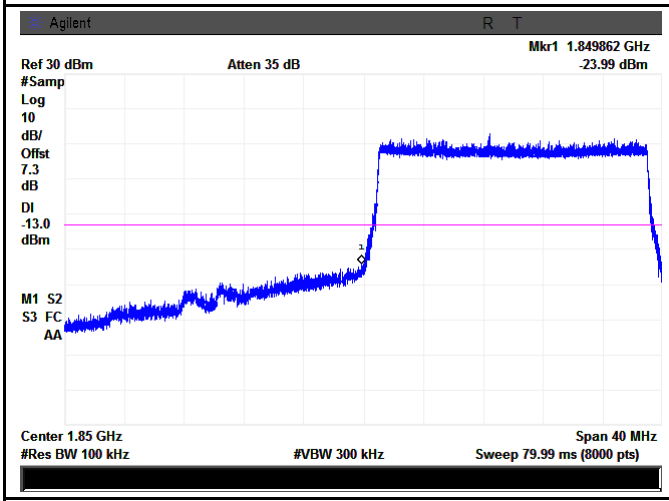
LTE Band 2 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (147.5/100)=4.5+1.7=6.2 dB

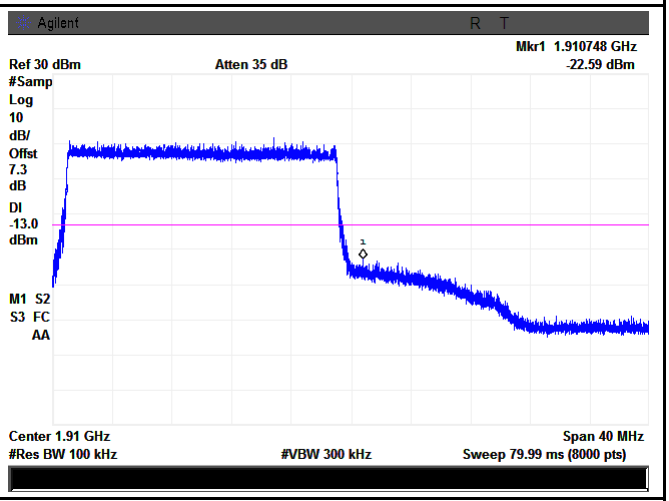


LTE Band 2 - High Channel 16QAM-15

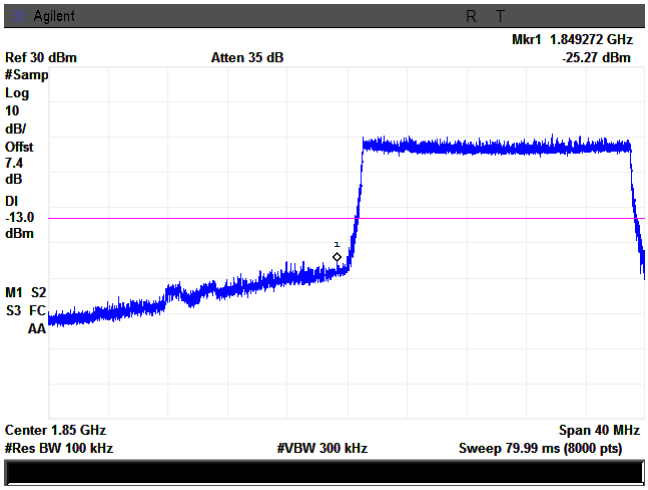
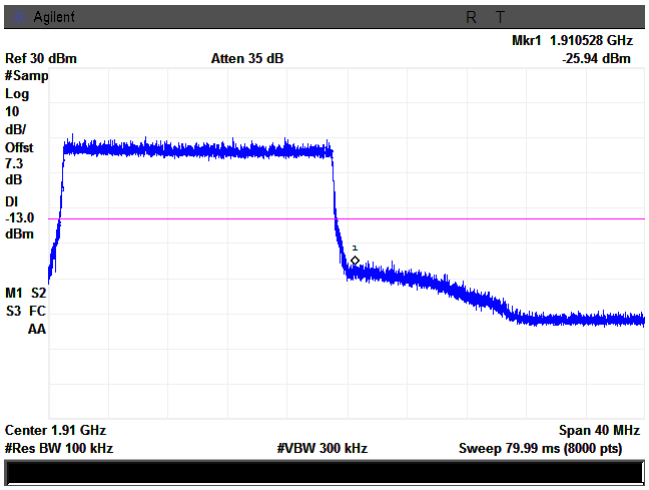
Note: Offset=Cable loss (4.5) + 10log (148.1/100)=4.5+1.7=6.2 dB



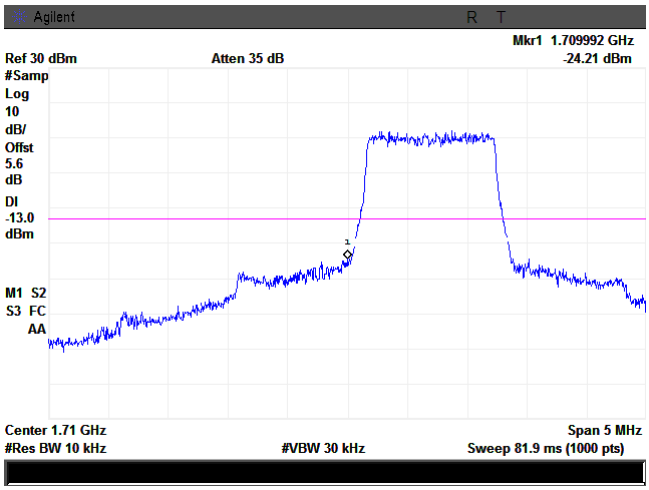
LTE Band 2 - Low Channel QPSK-20



LTE Band 2 - High Channel QPSK-20

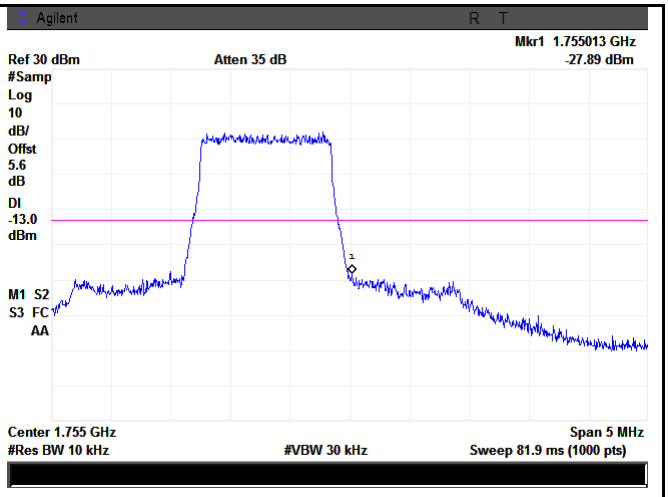
Note: Offset=Cable loss (4.5) + 10log (190.7/100)=4.5+2.8=7.3 dB	Note: Offset=Cable loss (4.5) + 10log (191.8/100)=4.5+2.8=7.3 dB
	
LTE Band 2 - Low Channel 16QAM-20	LTE Band 2 - High Channel 16QAM-20
Note: Offset=Cable loss (4.5) + 10log (194.2/100)=4.5+2.9=7.4 dB	Note: Offset=Cable loss (4.5) + 10log (192.7/100)=4.5+2.8=7.3 dB

LTE Band 4 (Part 27)



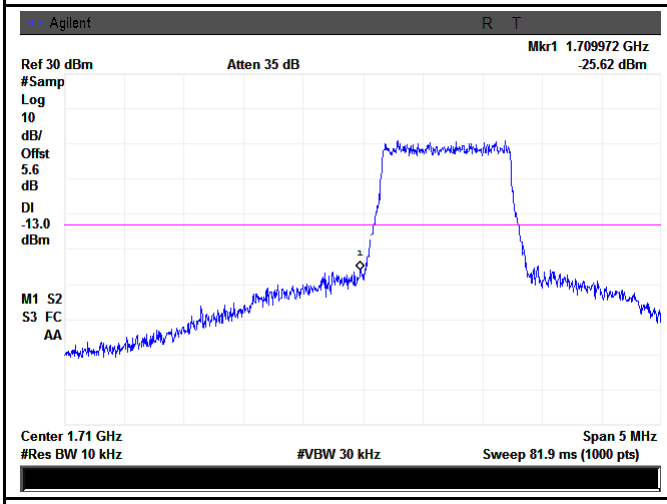
LTE Band 4 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.7/10)=4.5+1.1=5.6 dB



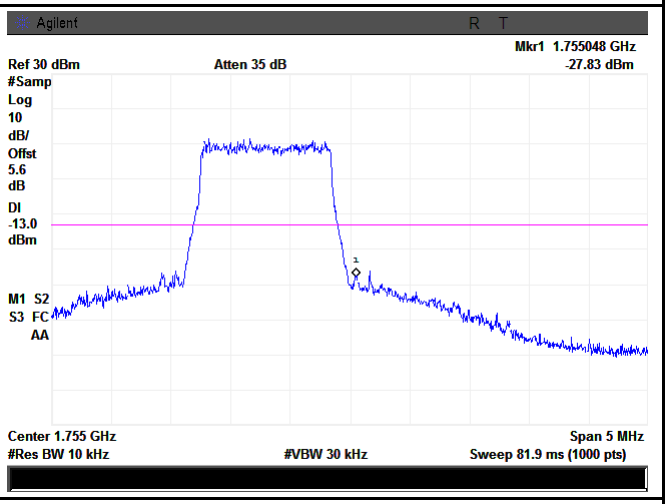
LTE Band 4 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.5) + 10log (12.9/10)=4.5+1.1=5.6 dB



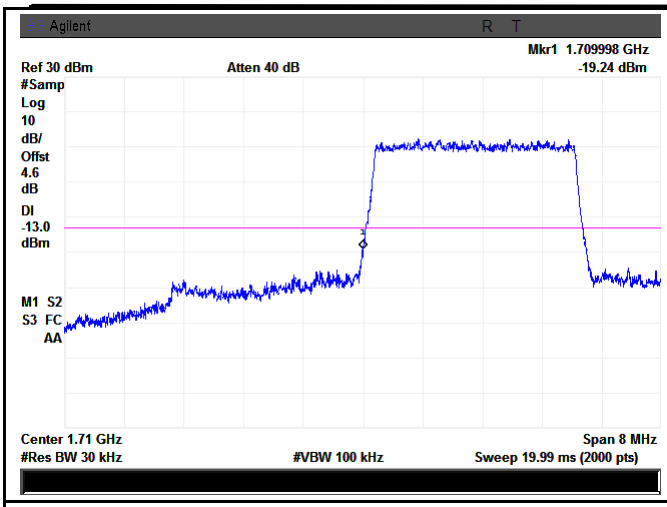
LTE Band 4 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.8/10)=4.5+1.1=5.6 dB



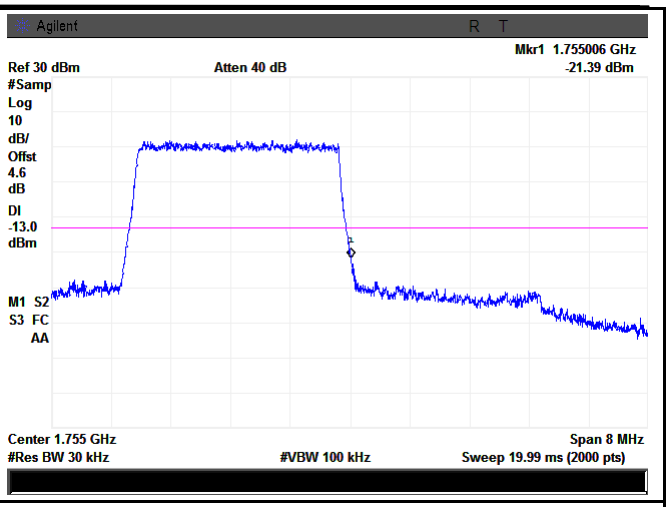
LTE Band 4 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.5) + 10log (12.8/10)=4.5+1.1=5.6 dB



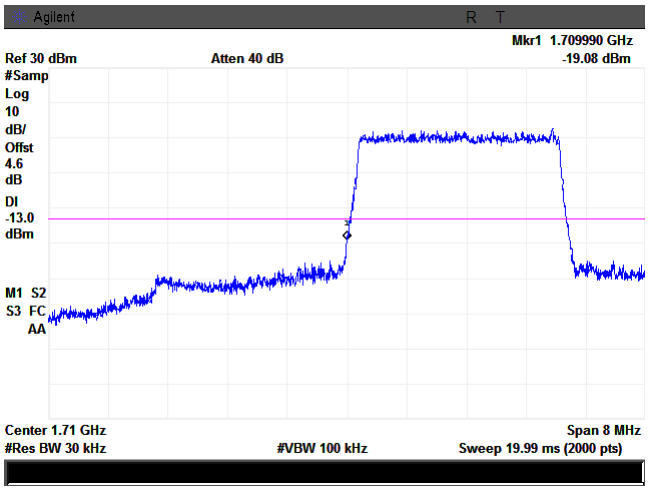
LTE Band 4 - Low Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.9/30)=4.5+0.1=4.6 dB



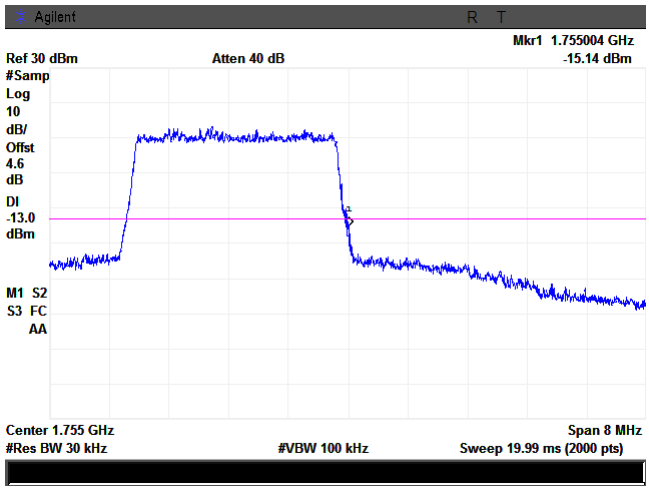
LTE Band 4 - High Channel QPSK-3

Note: Offset=Cable loss (4.5) + 10log (30.5/30)=4.5+0.1=4.6 dB



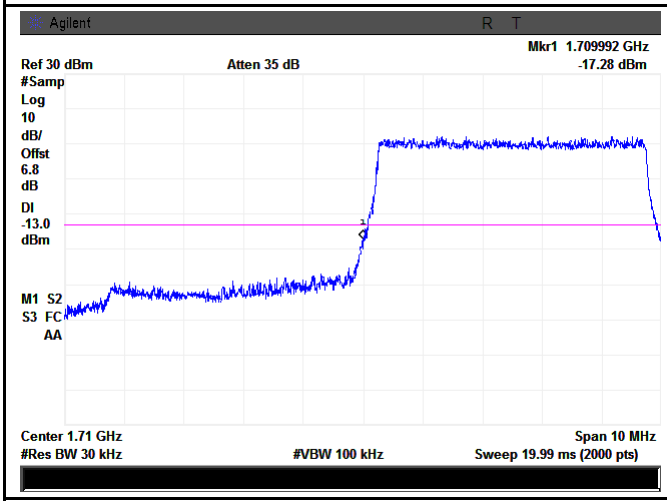
LTE Band 4 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.5/30)=4.5+0.1=4.6 dB

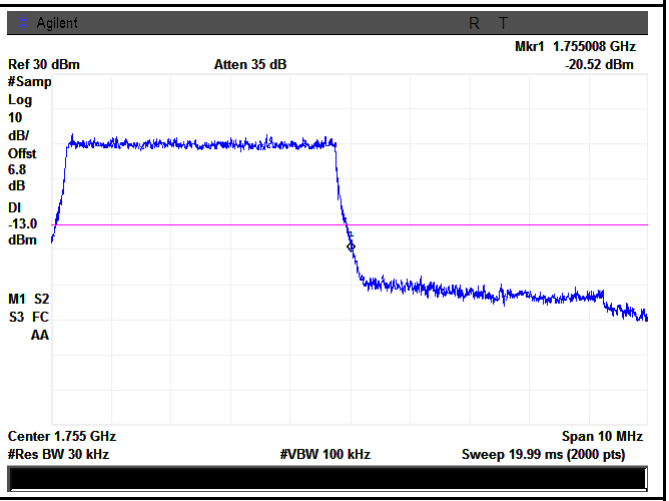


LTE Band 4 - High Channel 16QAM-3

Note: Offset=Cable loss (4.5) + 10log (30.7/30)=4.5+0.1=4.6 dB

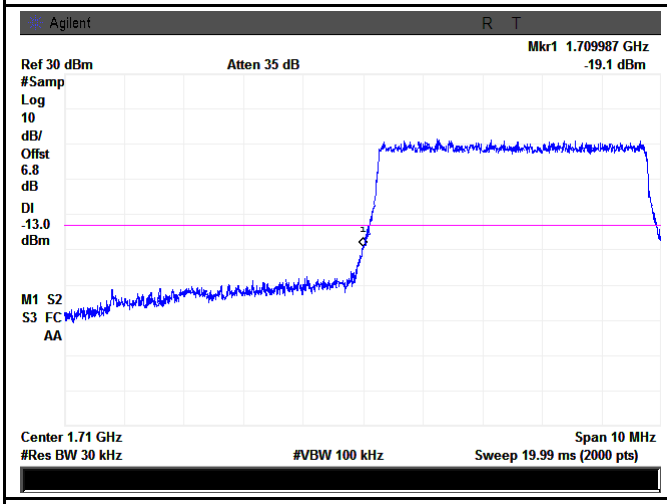


LTE Band 4 - Low Channel QPSK-5



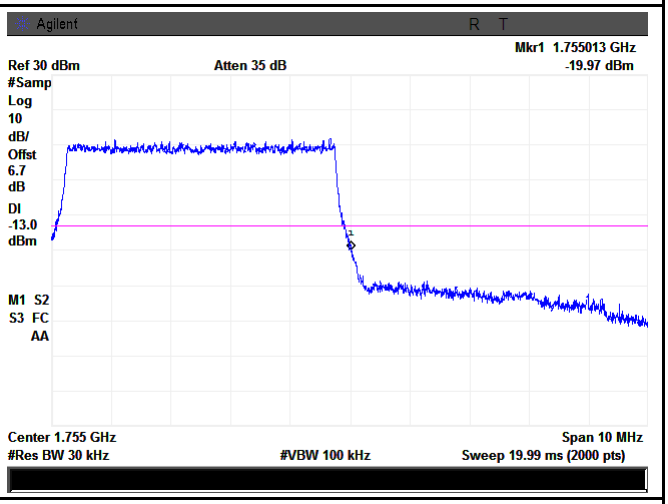
LTE Band 4 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.4/30)=4.5+2.3=6.8 dB



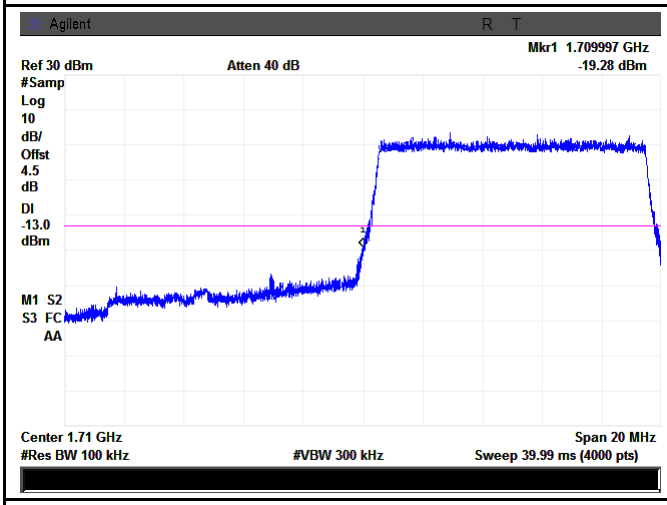
LTE Band 4 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.4/30)=4.5+2.3=6.8 dB



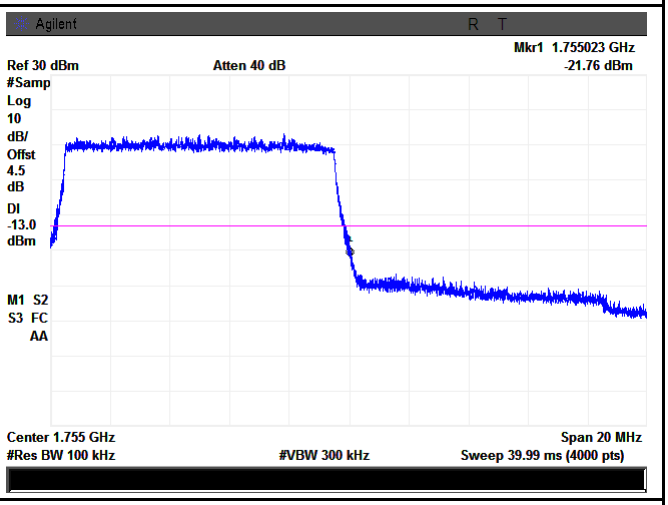
LTE Band 4 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.4/30)=4.5+2.3=6.8 dB

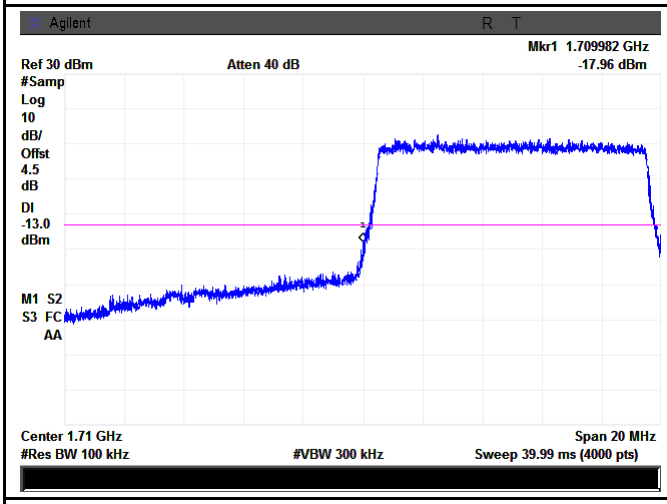


LTE Band 4 - Low Channel QPSK-10

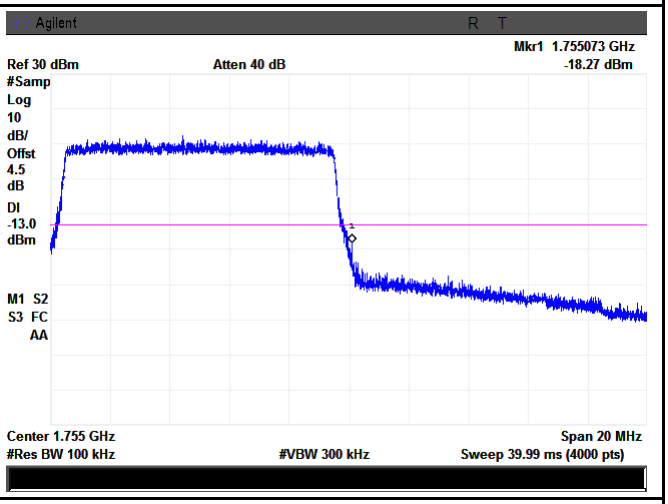
Note: Offset=Cable loss (4.5) + 10log (49.9/30)=4.5+2.2=6.7 dB



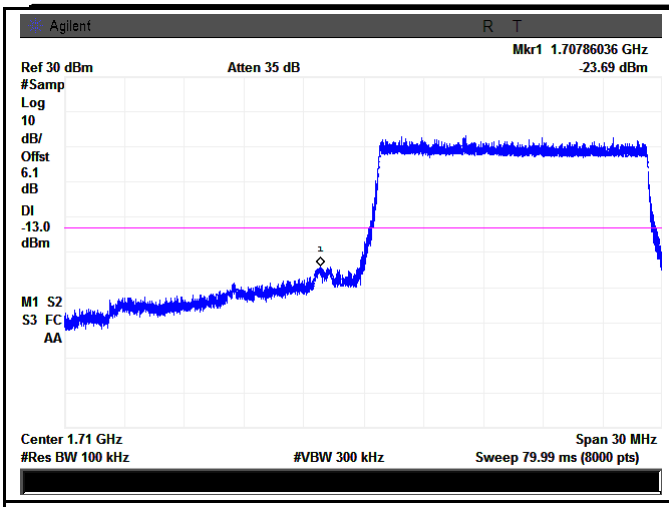
LTE Band 4 - High Channel QPSK-10



LTE Band 4 - Low Channel 16QAM-10

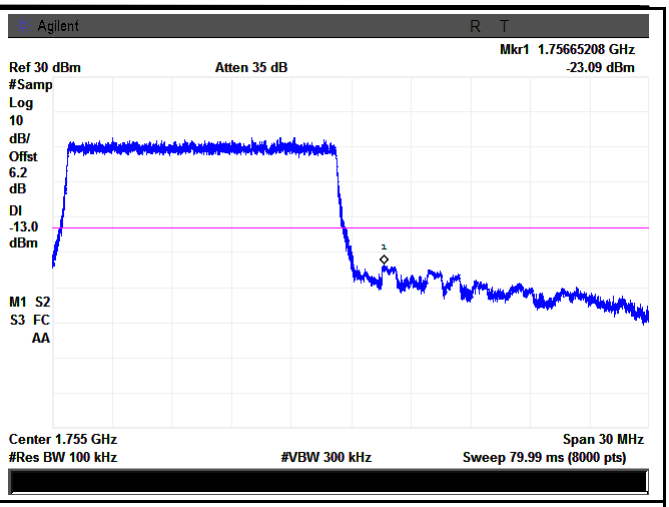


LTE Band 4 - High Channel 16QAM-10



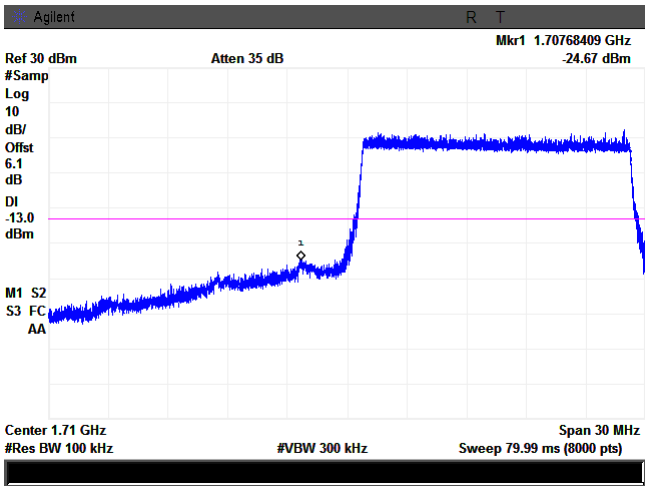
LTE Band 4 - Low Channel QPSK-15

Note: Offset=Cable loss (4.5) + 10log (144.1/100)=4.5+1.6=6.1 dB



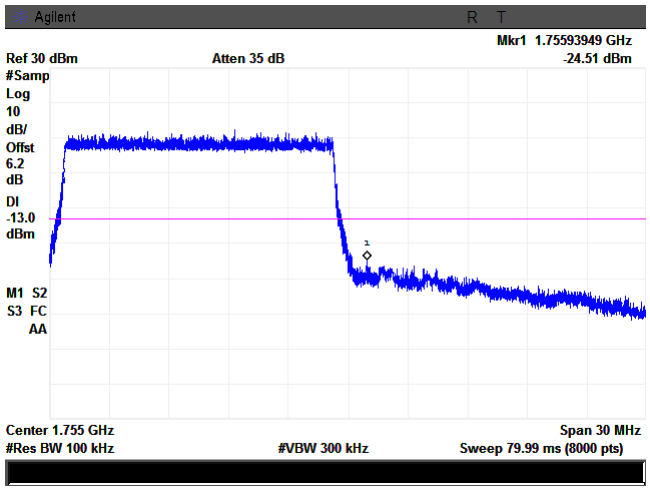
LTE Band 4 - High Channel QPSK-15

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



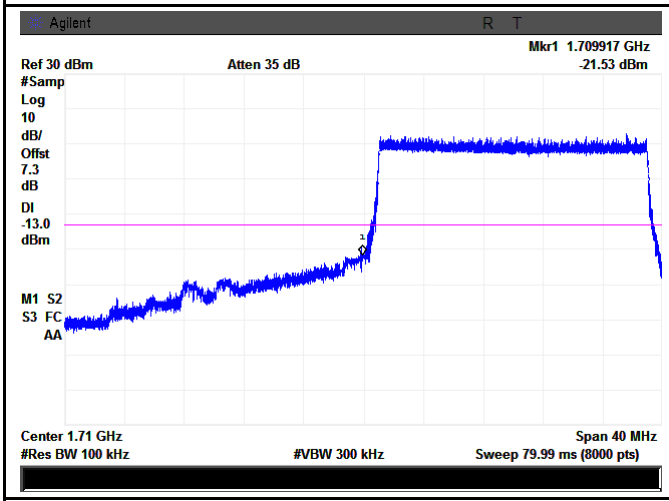
LTE Band 4 - Low Channel 16QAM-15

Note: Offset=Cable loss (4.5) + 10log (146.0/100)=4.5+1.6=6.1 dB

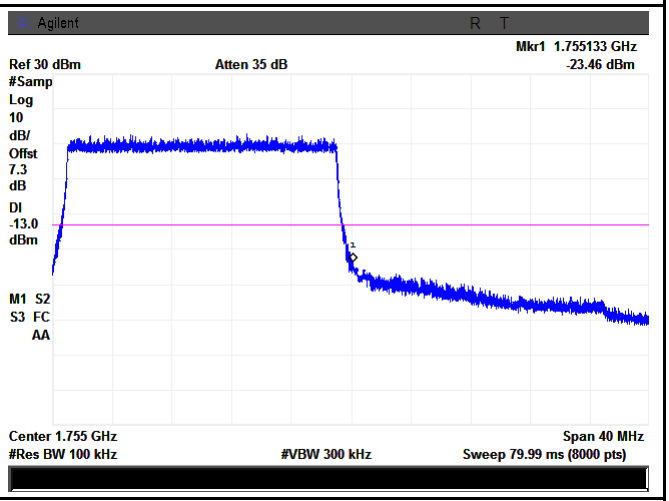


LTE Band 4 - High Channel 16QAM-15

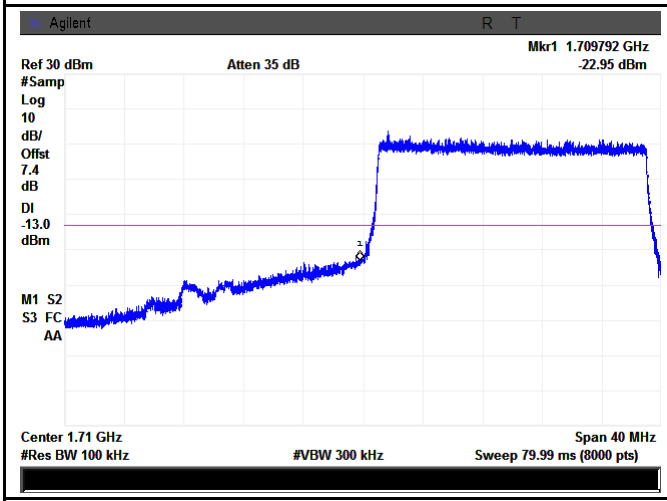
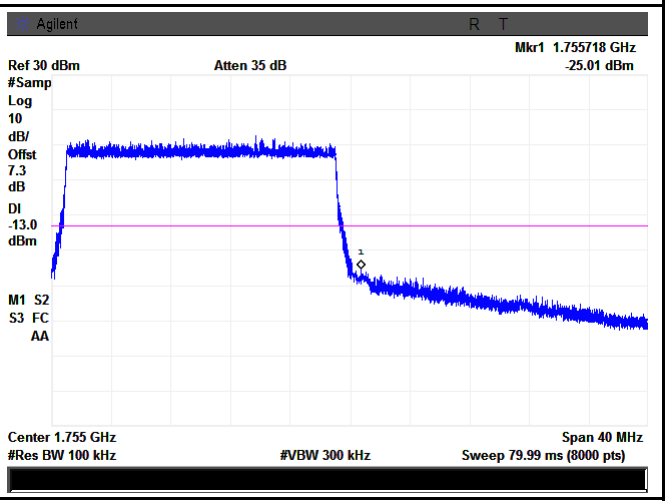
Note: Offset=Cable loss (4.5) + 10log (147.9/100)=4.5+1.7=6.2 dB



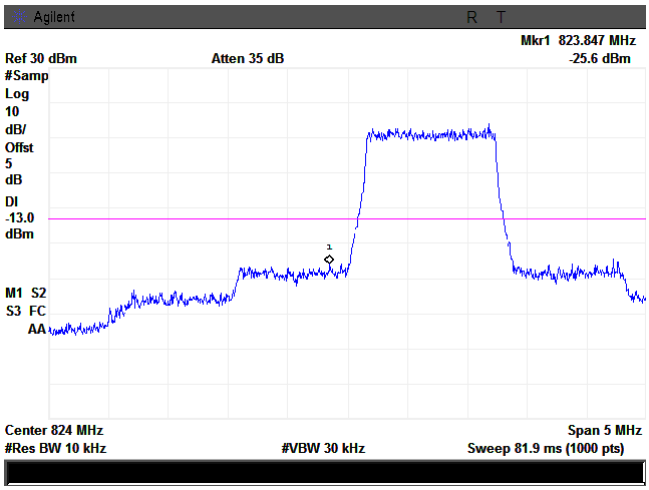
LTE Band 4 - Low Channel QPSK-20



LTE Band 4 - High Channel QPSK-20

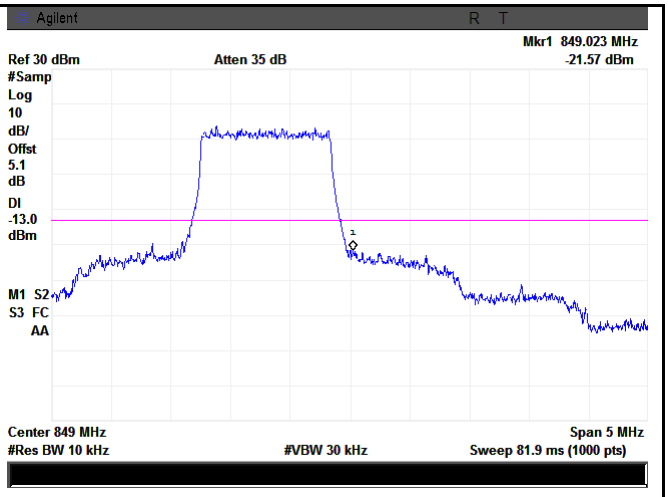
Note: Offset=Cable loss (4.5) + 10log (191.6/100)=4.5+2.8=7.3 dB	Note: Offset=Cable loss (4.5) + 10log (192.2/100)=4.5+2.8=7.3 dB
	
LTE Band 4 - Low Channel 16QAM-20	LTE Band 4 - High Channel 16QAM-20
Note: Offset=Cable loss (4.5) + 10log (194.9/100)=4.5+2.9=7.4 dB	Note: Offset=Cable loss (4.5) + 10log (192.4/100)=4.5+2.8=7.3 dB

LTE Band 5 (Part 22H)



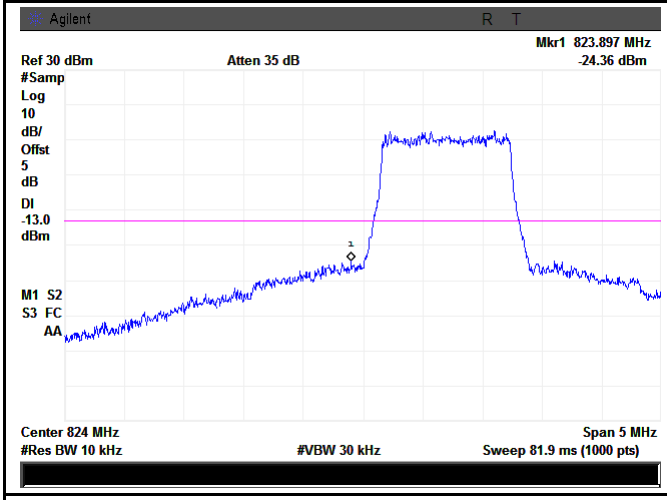
LTE Band 5 - Low Channel QPSK-1.4

Note: Offset=Cable loss (4.0) + 10log (12.5/10)=4.0+1.0=5.0 dB



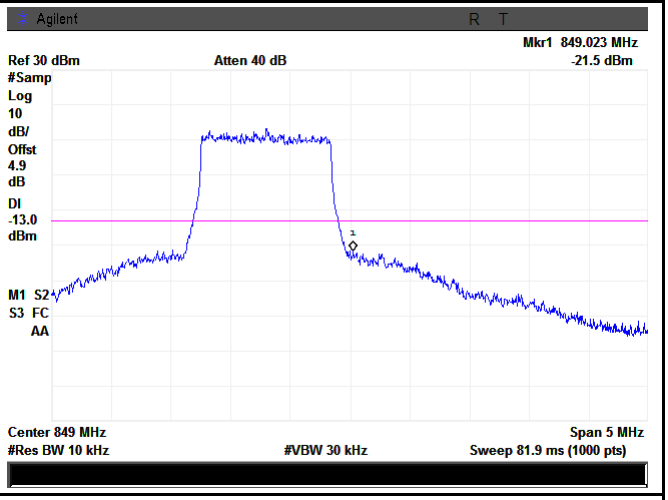
LTE Band 5 - High Channel QPSK-1.4

Note: Offset=Cable loss (4.0) + 10log (12.74/10)=4.0+1.1=5.1 dB



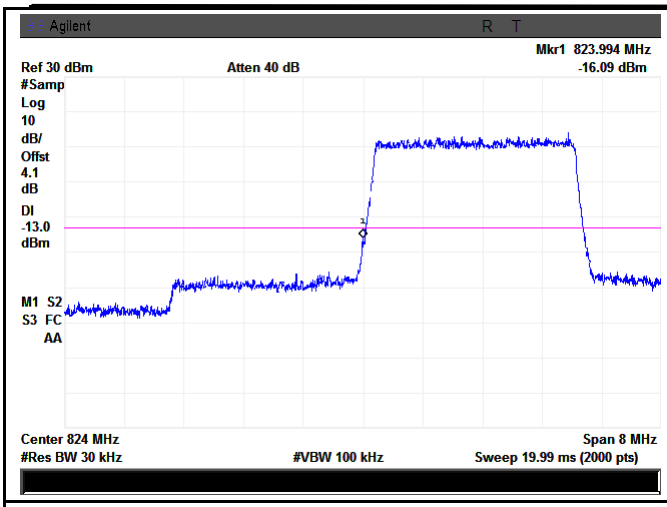
LTE Band 5 - Low Channel 16QAM-1.4

Note: Offset=Cable loss (4.0) + 10log (12.7/10)=4.0+1.0=5.0 dB



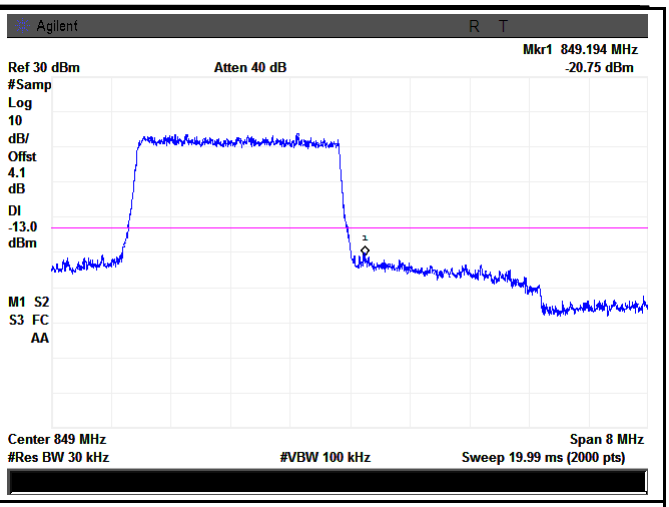
LTE Band 5 - High Channel 16QAM-1.4

Note: Offset=Cable loss (4.0) + 10log (12.4/10)=4.0+0.9=4.9 dB



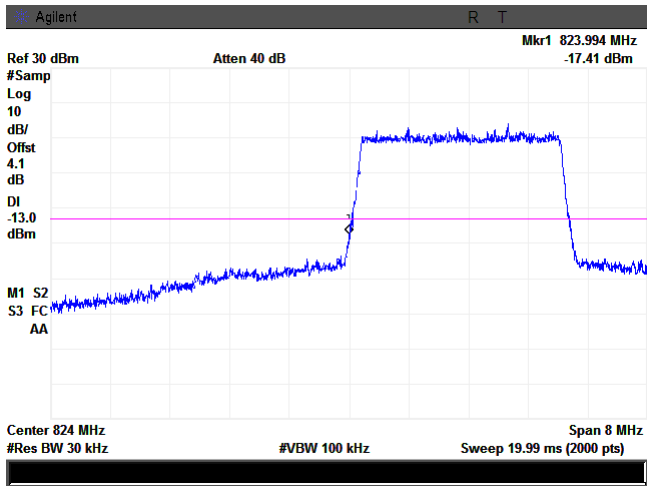
LTE Band 5 - Low Channel QPSK-3

Note: Offset=Cable loss (4.0) + 10log (30.4/30)=4.0+0.1=4.1 dB



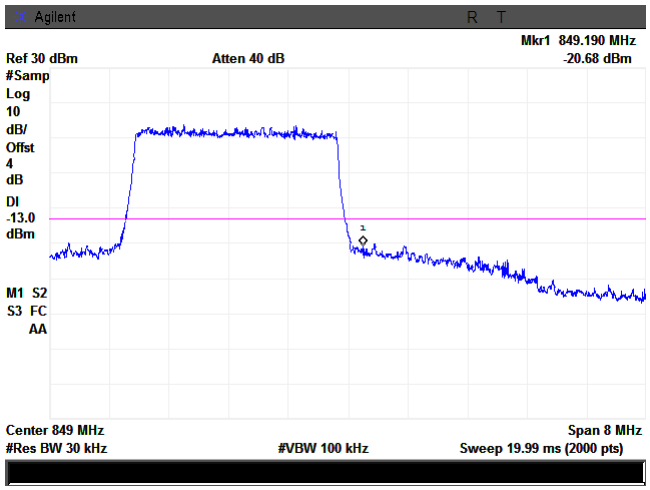
LTE Band 5 - High Channel QPSK-3

Note: Offset=Cable loss (4.0) + 10log (30.6/30)=4.0+0.1=4.1 dB



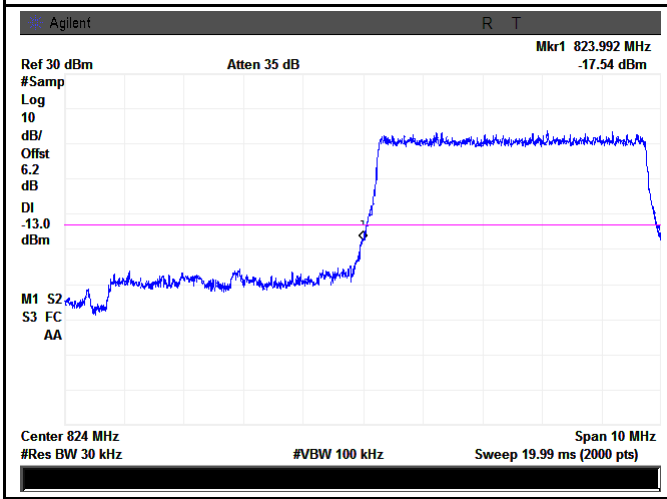
LTE Band 5 - Low Channel 16QAM-3

Note: Offset=Cable loss (4.0) + 10log (30.7/30)=4.0+0.1=4.1 dB

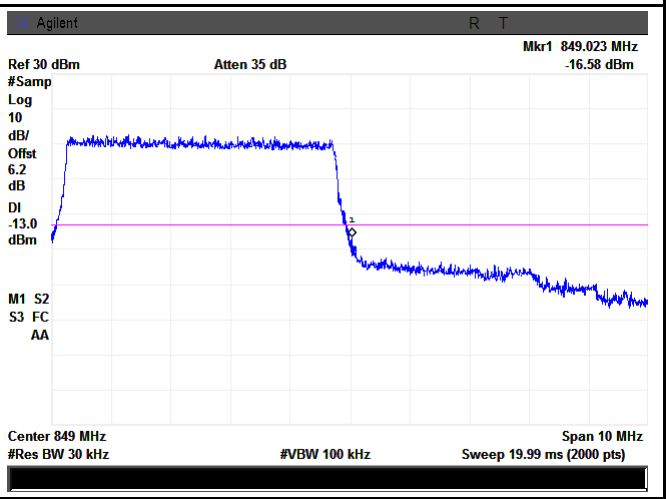


LTE Band 5 - High Channel 16QAM-3

Note: Offset=Cable loss (4.0) + 10log (30.2/30)=4.0+0=4.0 dB

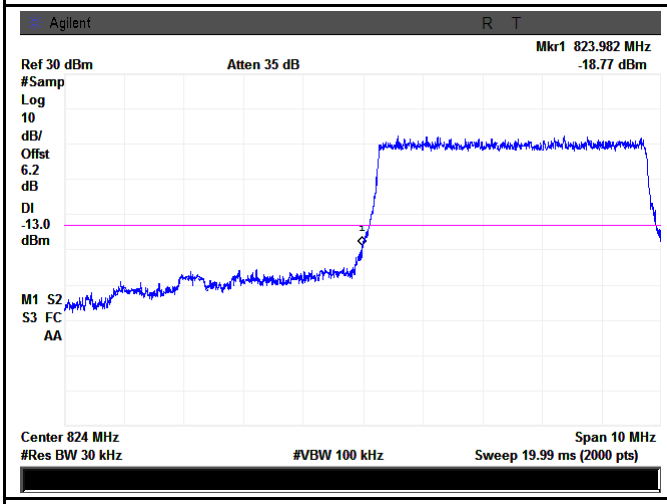


LTE Band 5 - Low Channel QPSK-5



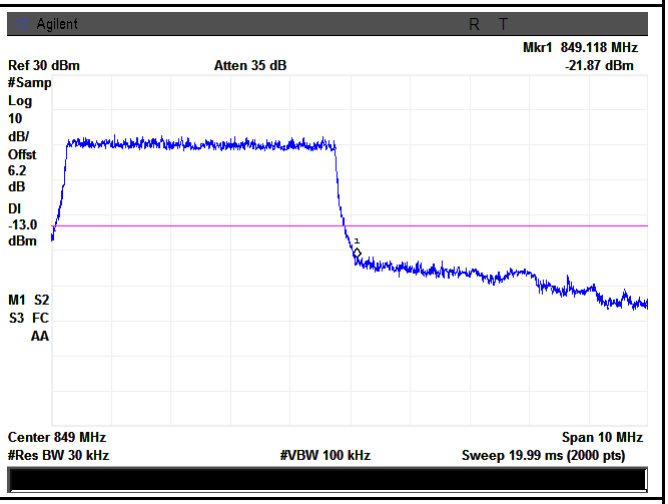
LTE Band 5 - High Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (49.7/30)=4.0+2.2=6.2 dB



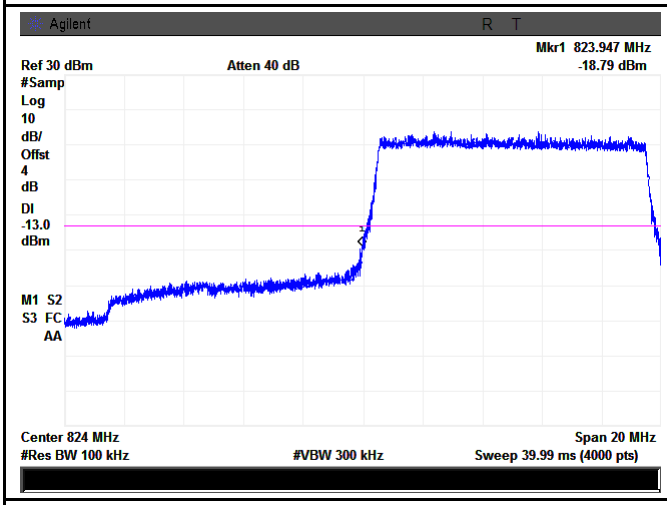
LTE Band 5 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.0) + 10log (50.2/30)=4.0+2.2=6.2 dB



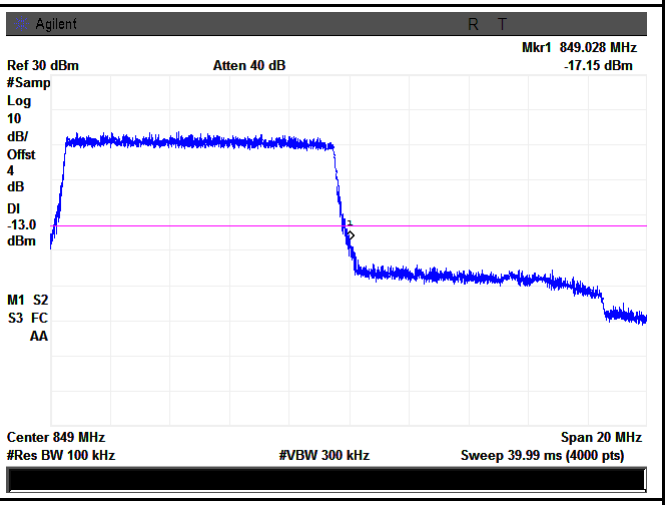
LTE Band 5 - High Channel 16QAM-5

Note: Offset=Cable loss (4.0) + 10log (50.2/30)=4.0+2.2=6.2 dB

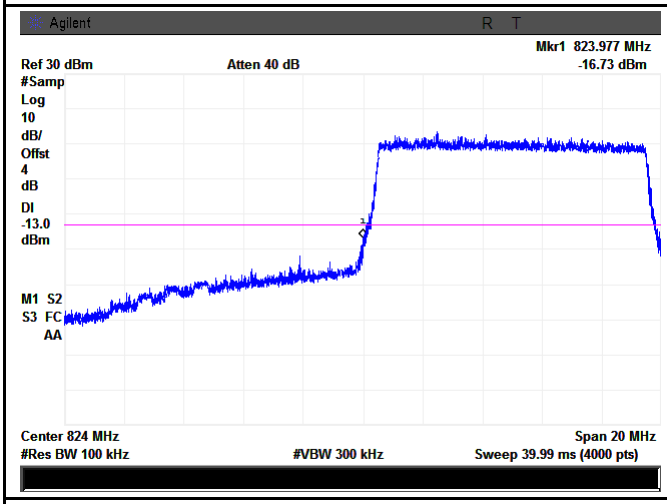


LTE Band 5 - Low Channel QPSK-10

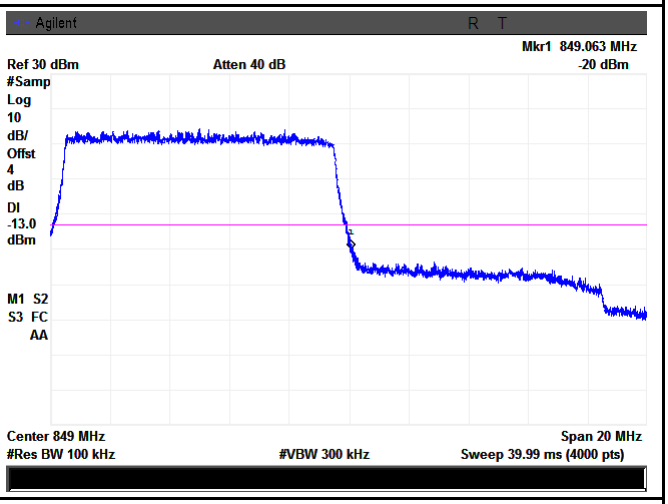
Note: Offset=Cable loss (4.0) + 10log (49.9/30)=4.0+2.2=6.2 dB



LTE Band 5 - High Channel QPSK-10

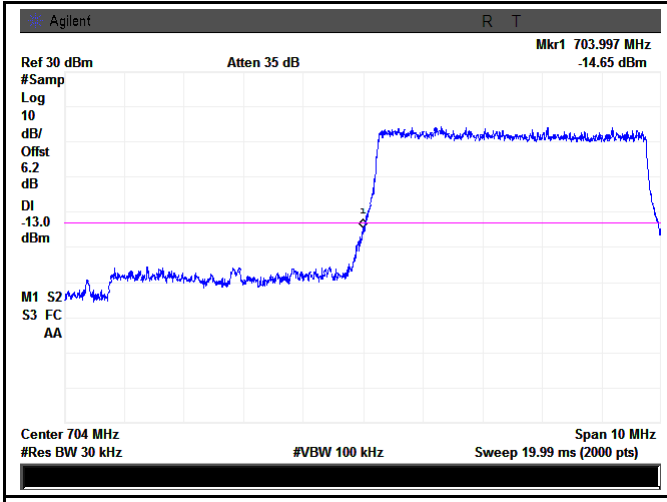


LTE Band 5 - Low Channel 16QAM-10



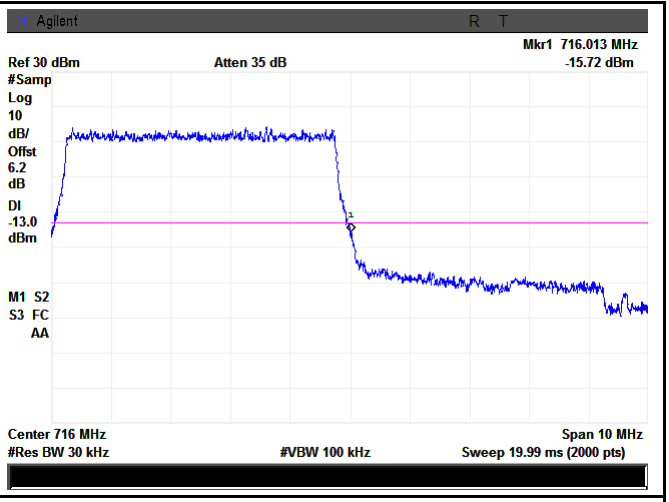
LTE Band 5 - High Channel 16QAM-10

LTE Band 17 (Part 27)



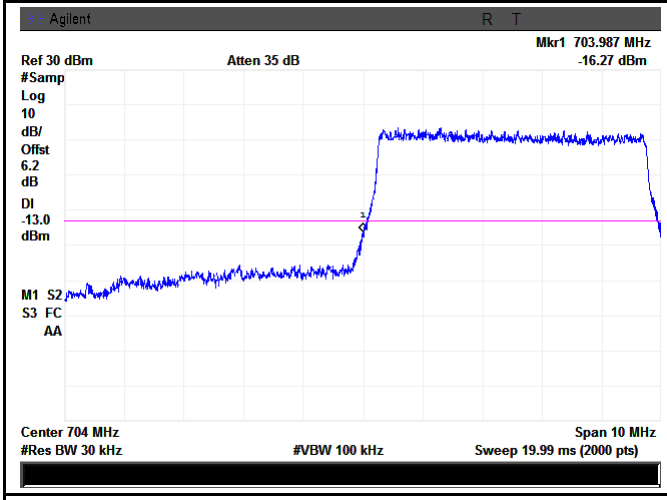
LTE Band 17 - Low Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (50.3/30)=4.0+2.2=6.2 dB



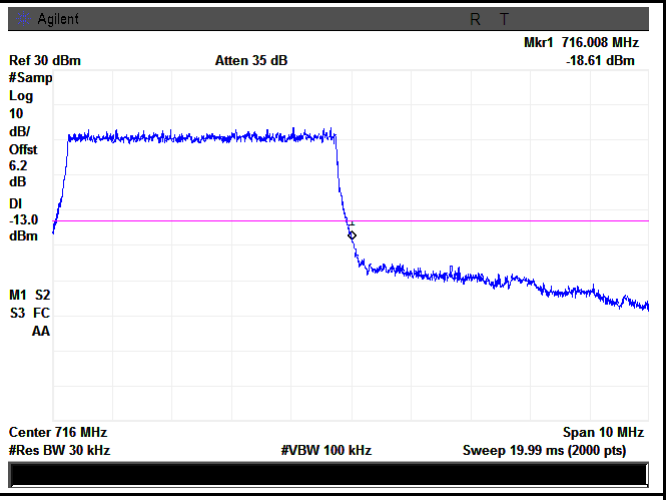
LTE Band 17 - High Channel QPSK-5

Note: Offset=Cable loss (4.0) + 10log (49.9/30)=4.0+2.2=6.2 dB



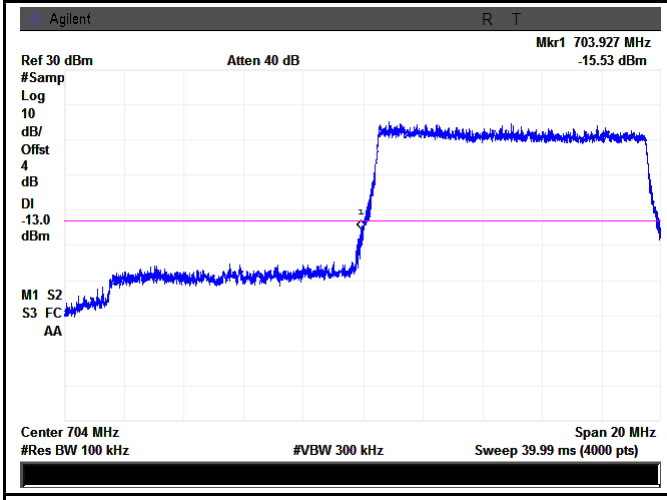
LTE Band 17 - Low Channel 16QAM-5

Note: Offset=Cable loss (4.0) + 10log (50.1/30)=4.0+2.2=6.2 dB

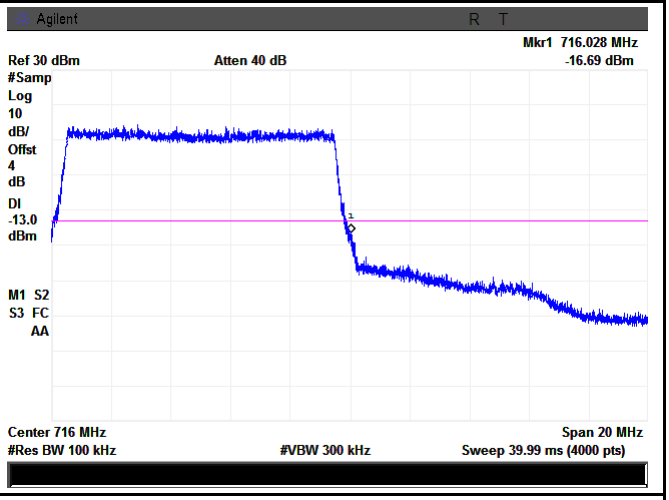


LTE Band 17 - High Channel 16QAM-5

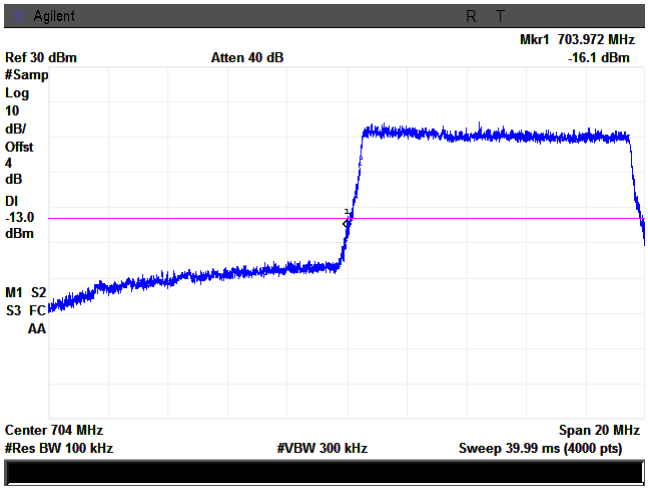
Note: Offset=Cable loss (4.0) + 10log (50.1/30)=4.0+2.2=6.2 dB



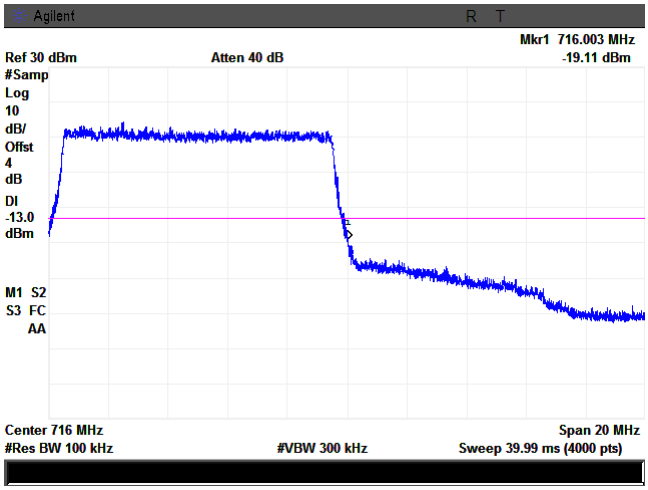
LTE Band 17 - Low Channel QPSK-10



LTE Band 17 - High Channel QPSK-10



LTE Band 17 - Low Channel 16QAM-10

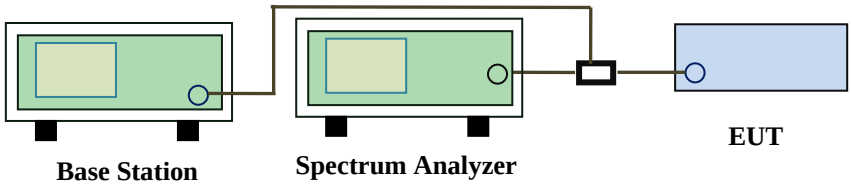


LTE Band 17 - High Channel 16QAM-10

6.9 Band Edge 27.53(m)

Temperature	22°C
Relative Humidity	58%
Atmospheric Pressure	1011mbar
Test date :	March 27, 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	-20.704	-13
			16QAM	-19.917	-13
5	21425	2567.5	QPSK	-20.518	-13
			16QAM	-18.621	-13
10	20800	2505	QPSK	-19.440	-13
			16QAM	-20.455	-13
10	21400	2562.5	QPSK	-21.582	-13
			16QAM	-20.196	-13
15	20825	2507.5	QPSK	-20.843	-13
			16QAM	-21.175	-13
15	21400	2562.5	QPSK	-20.896	-13
			16QAM	-19.388	-13
20	20850	2510	QPSK	-25.020	-13
			16QAM	-24.968	-13
20	21350	2560	QPSK	-25.297	-13
			16QAM	-26.846	-13

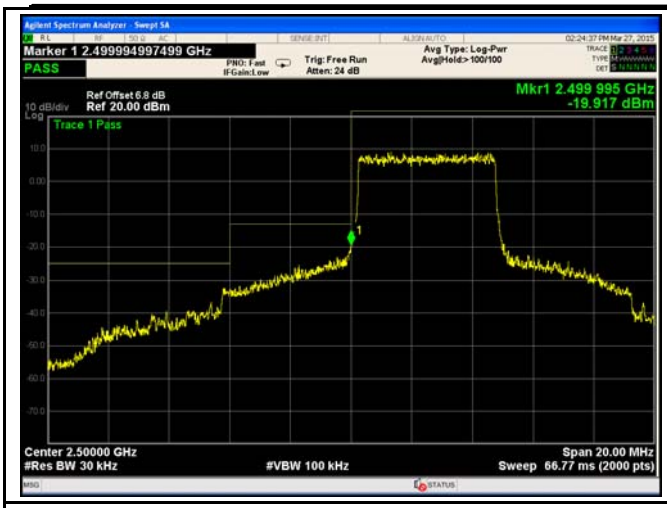
LTE Band 7 (Part 27)

LTE Band 7 - Low Channel QPSK-5

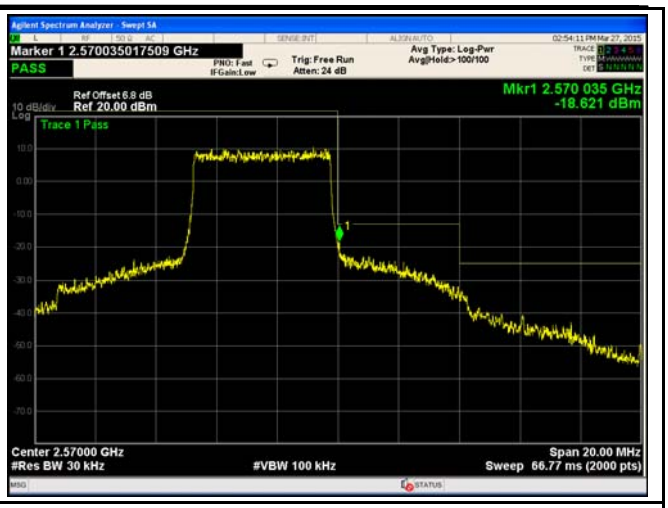
Note: Offset=Cable loss (4.5) + 10log (50.7/30)=4.5+2.3=6.8 dB

LTE Band 7 - High Channel QPSK-5

Note: Offset=Cable loss (4.5) + 10log (50.6/30)=4.5+2.3=6.8 dB



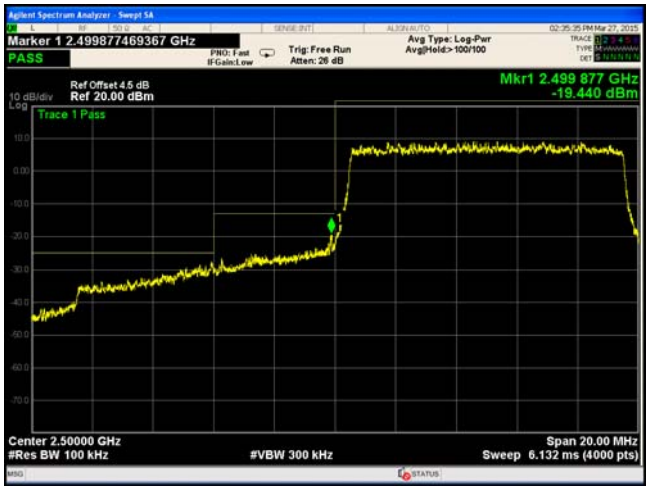
LTE Band 7 - Low Channel 16QAM-5



LTE Band 7 - High Channel 16QAM-5

Note: Offset=Cable loss (4.5) + 10log (50.6/30)=4.5+2.3=6.8 dB

Note: Offset=Cable loss (4.5) + 10log (50.9/30)=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 (147.7/100)=4.5+1.7=6.2 dB

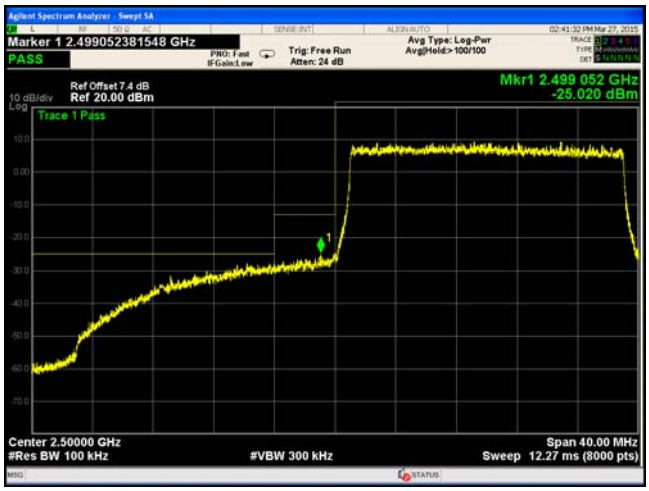
Note: Offset=Cable loss (4.5) + 10log (147.1/100)=4.5+1.7=6.2 dB

LTE Band 7 - Low Channel 16QAM-15

LTE Band 7 - High Channel 16QAM-15

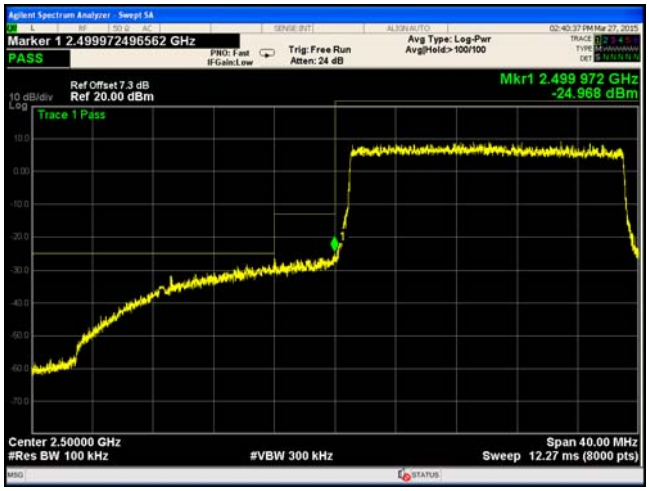
Note: Offset=Cable loss (4.5) + 10log (146.0/100)=4.5+2.6=6.1 dB

Note: Offset=Cable loss (4.5) + 10log (148.2/100)=4.5+1.7=6.2 dB



LTE Band 7 - Low Channel QPSK-20

LTE Band 7 - High Channel QPSK-20

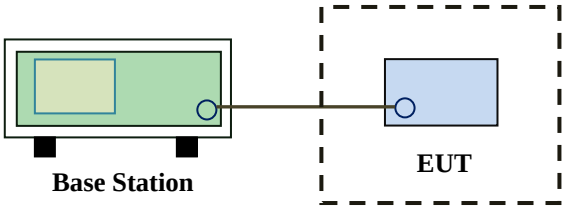
Note: Offset=Cable loss (4.5) + 10log (193.0/100)=4.5+2.9=7.4 dB	Note: Offset=Cable loss (4.5) + 10log (193.2/100)=4.5+2.9=7.4 dB
	
LTE Band 7 - Low Channel 16QAM-20	LTE Band 7 - High Channel 16QAM-20
Note: Offset=Cable loss (4.5) + 10log (192.7/100)=4.5+2.8=7.3 dB	Note: Offset=Cable loss (4.5) + 10log (193.8/100)=4.5+2.9=7.4 dB

6.10 Frequency Stability

Temperature	21°C
Relative Humidity	60%
Atmospheric Pressure	1010mbar
Test date :	February 16 to March 20, 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 50</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	-9	0.0048	2.5
0		-12	0.0064	2.5
10		-5	0.0027	2.5
20		-8	0.0043	2.5
30		-12	0.0064	2.5
40		-7	0.0037	2.5
50		-10	0.0053	2.5
55		-9	0.0048	2.5
25	4.2	-11	0.0059	2.5
	3.5	-13	0.0069	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	-19	0.0110	2.5
0		-15	0.0087	2.5
10		-14	0.0081	2.5
20		-11	0.0063	2.5
30		-14	0.0081	2.5
40		-13	0.0075	2.5
50		-17	0.0098	2.5
55		-15	0.0087	2.5
25	4.2	-18	0.0104	2.5
	3.5	-20	0.0115	2.5

LTE Band 5 (Part 22H) result

Middle Channel, f_o = 836.5 MHz				
Temperature (℃)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	6	0.0072	2.5
0		5	0.0060	2.5
10		6	0.0072	2.5
20		8	0.0096	2.5
30		9	0.0108	2.5
40		12	0.0143	2.5
50		13	0.0155	2.5
55		7	0.0084	2.5
25	4.2	5	0.0060	2.5
	3.5	7	0.0084	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	5	0.0070	2.5
0		7	0.0113	2.5
10		6	0.0141	2.5
20		3	0.0056	2.5
30		5	0.0028	2.5
40		10	0.0155	2.5
50		13	0.0197	2.5
55		2	0.0028	2.5
25	4.2	9	0.0127	2.5
	3.5	12	0.0183	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	-15	0.0059	2.5
0		-11	0.0043	2.5
10		-9	0.0036	2.5
20		-8	0.0032	2.5
30		-14	0.0055	2.5
40		-13	0.0051	2.5
50		-17	0.0067	2.5
55		-15	0.0059	2.5
25	4.2	-18	0.0071	2.5
	3.5	-20	0.0079	2.5

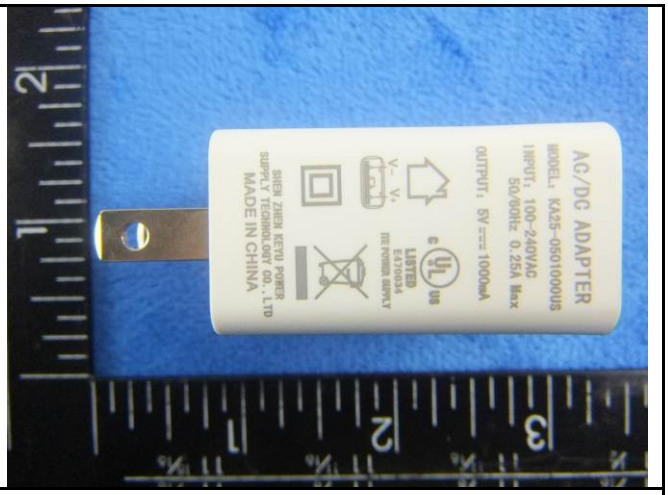
Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
RF Conducted Test					
Agilent ESA-E SERIES SPECTRUM ANALYZER	E4407B	MY45108319	09/17/2014	09/16/2015	☑
Power Splitter	1#	1#	09/02/2014	09/01/2015	☑
Universal Radio Communication Tester	CMU200	121393	09/26/2014	09/25/2015	☑
Wideband Radio Communication Tester	CMW500	120906	03/29/2014	03/28/2015	☑
Temperature/Humidity Chamber	UHL-270	001	10/10/2014	10/09/2015	☑
DC Power Supply	E3640A	MY40004013	09/18/2014	09/17/2015	☑
Radiated Emissions					
EMI test receiver	ESL6	100262	09/18/2014	09/17/2015	☑
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/02/2014	09/01/2015	☑
Microwave Preamplifier (0.5 ~ 18GHz)	PAM-118	443008	09/02/2014	09/01/2015	☑
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/22/2014	09/21/2015	☑
Bilog Antenna (30MHz~2GHz)	JB1	A112017	09/22/2014	09/21/2015	☑
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71259	09/25/2014	09/24/2015	☑
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/25/2014	09/24/2015	☑
SYNTHESIZED SIGNAL GENERATOR	8665B	3744A01293	09/18/2014	09/17/2015	☑
Tunable Notch Filter	3NF-800/1000-S	AA4	09/02/2014	09/01/2015	☑
Tunable Notch Filter	3NF-1000/2000-S	AM 4	09/02/2014	09/01/2015	☑

Annex B. EUT And Test Setup Photographs

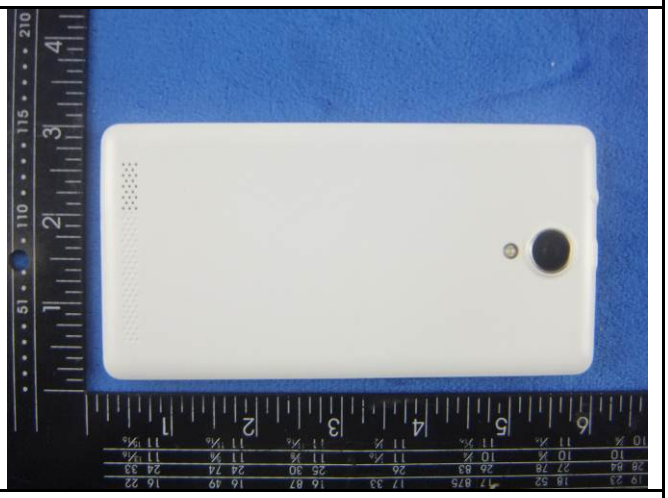
Annex B.i. Photograph: EUT External Photo

Whole Package - Top View



Adapter - Front View

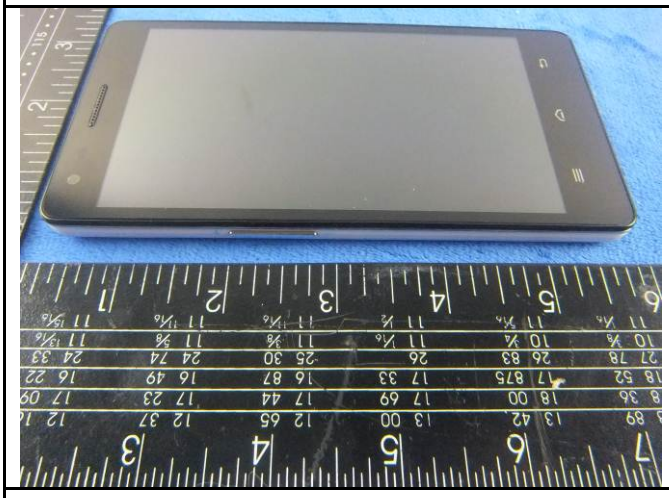
EUT - Front View



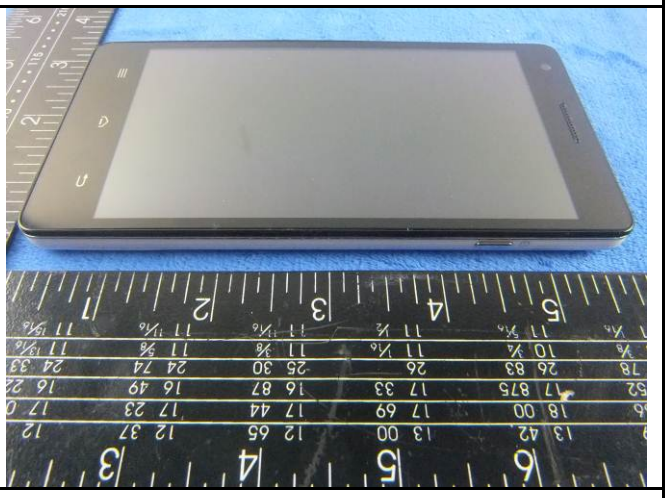
EUT - Rear View

EUT - Top View

EUT - Bottom View



EUT - Left View

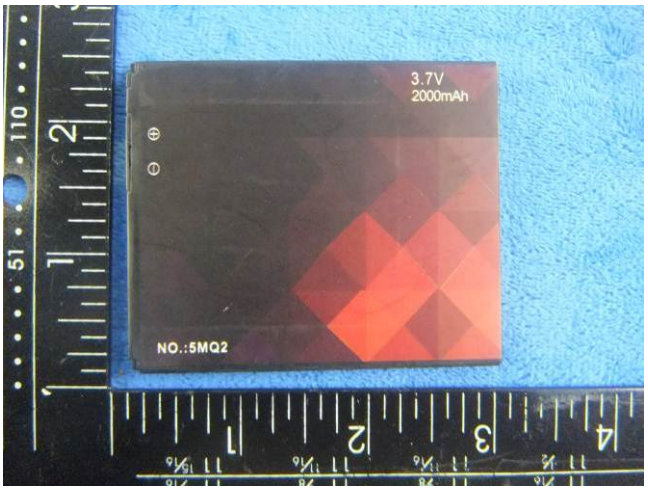


EUT - Right View

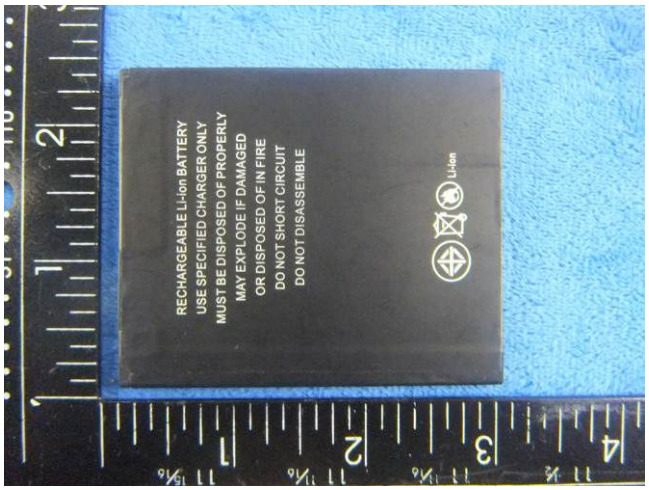
Annex B.ii. Photograph: EUT Internal Photo

Cover Off - Top View 1

Cover Off - Top View 2



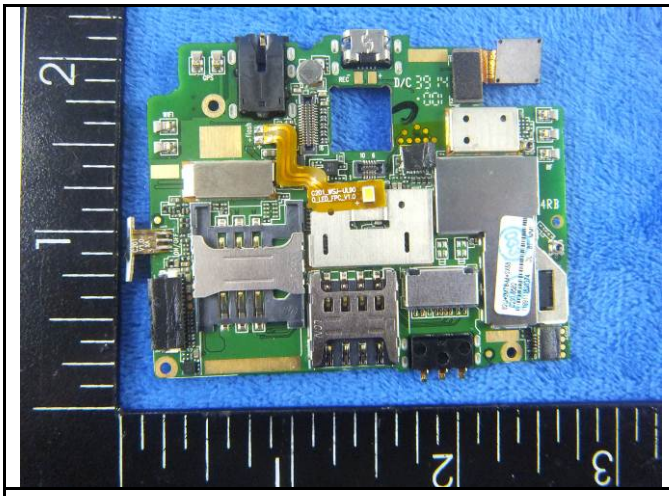
Battery - Top View



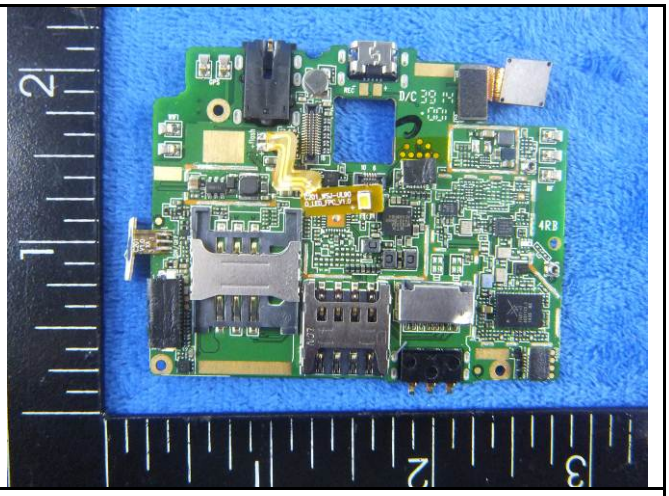
Battery - Bottom View

LCD - Front View

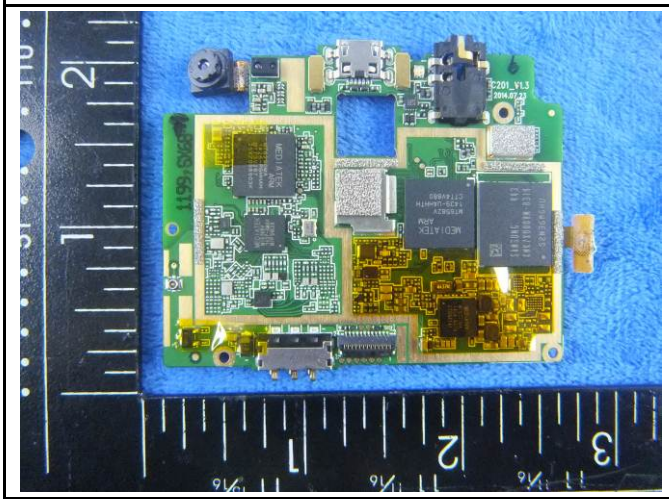
LCD - Rear View



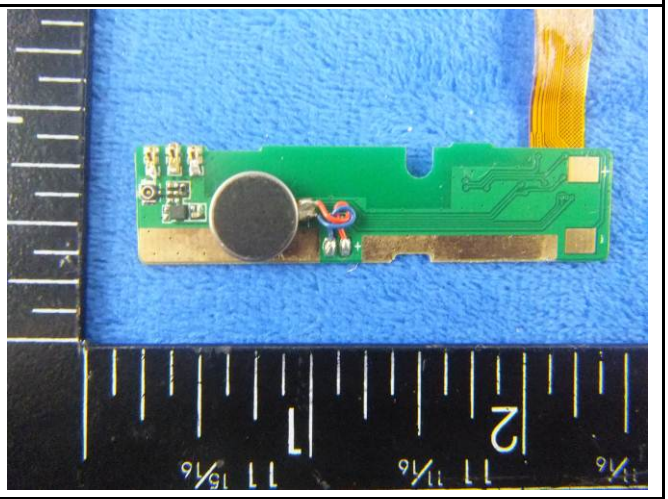
Mainborad With Shielding - Front View



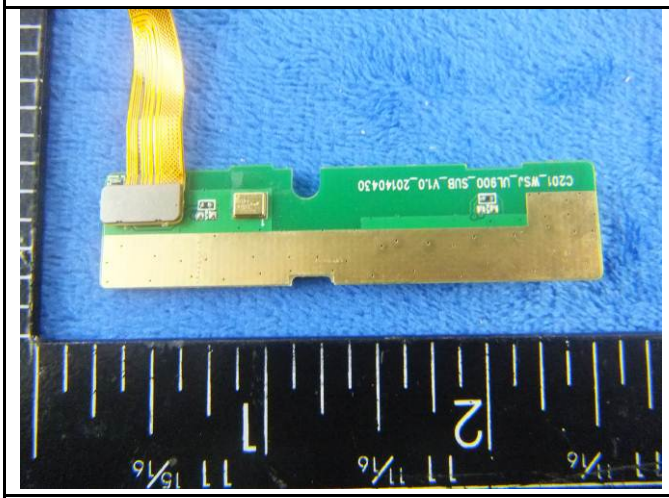
Mainborad Without Shielding - Front View



Mainborad - Rear View



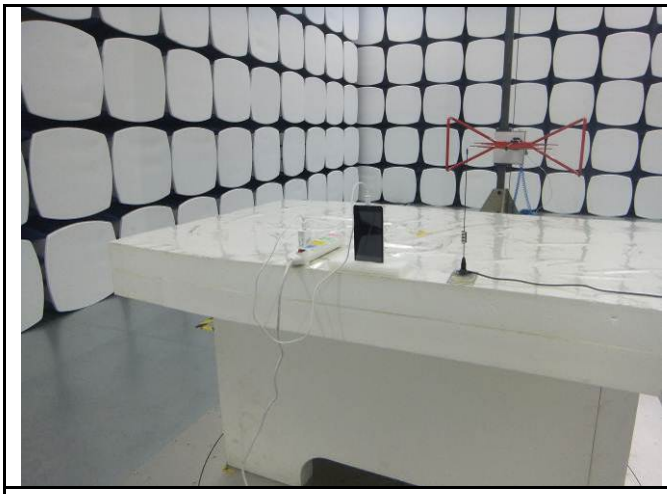
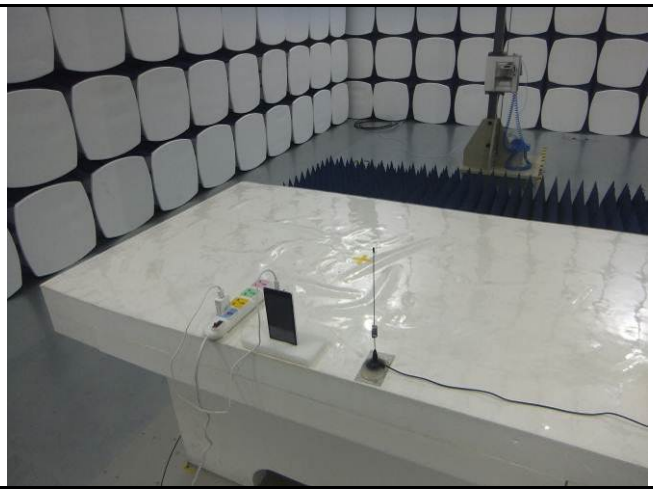
Connect borad - Front View



Connect borad - Rear View

	
GSM/PCS/UMTS-FDD/LTE Antenna View	BT/BLE/WIFI Antenna View

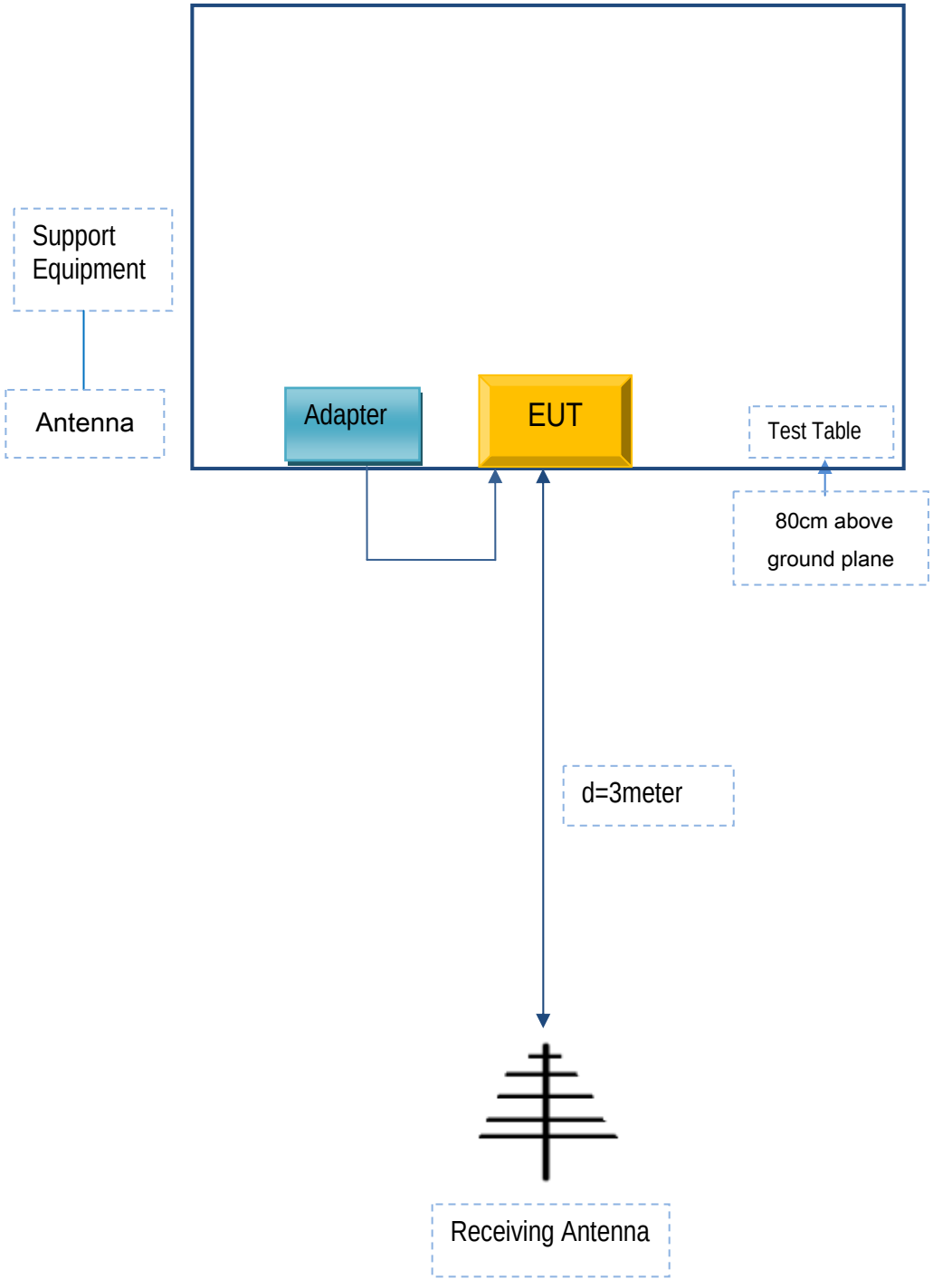
Annex B.iii. Photograph: Test Setup Photo

	
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

The following is the description of how the EUT is exercised during testing.

Test	Description Of Operation
Emissions Testing	The EUT was communicating with base station and set to work at maximum output power.
Others Testing	The EUT was communicating with base station and set to work at maximum output power.

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

Please see attachment

Annex E. DECLARATION OF SIMILARITY

N/A