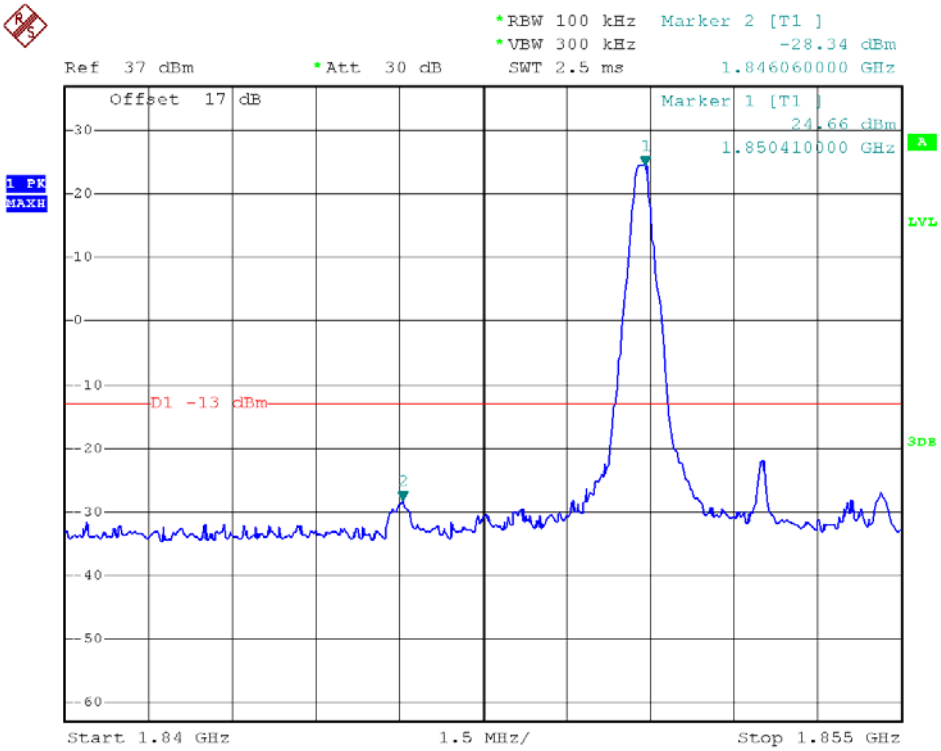
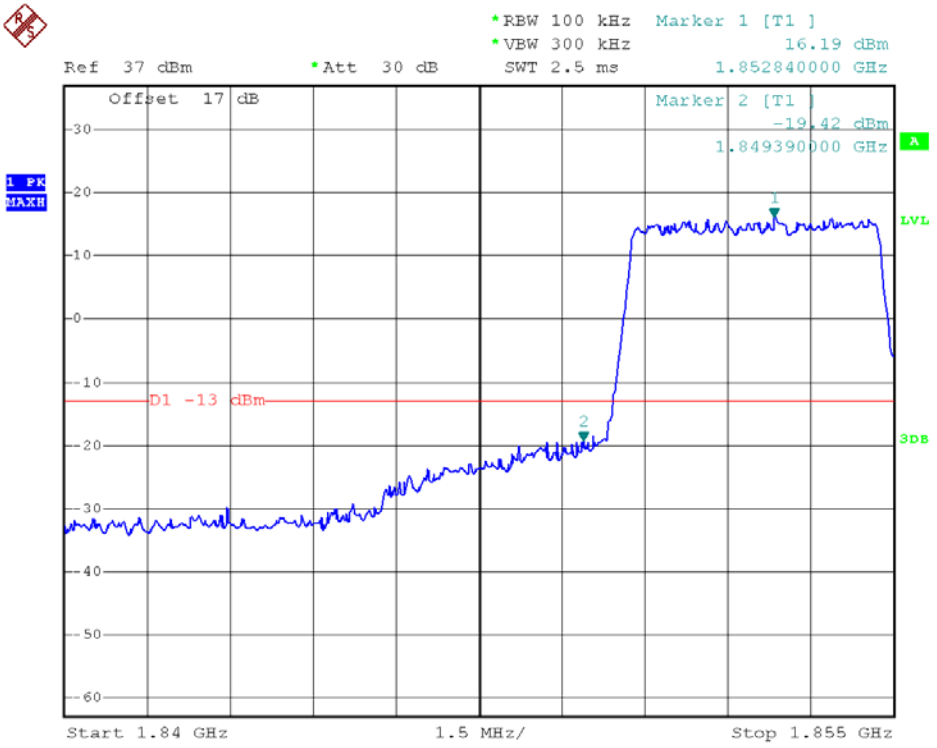
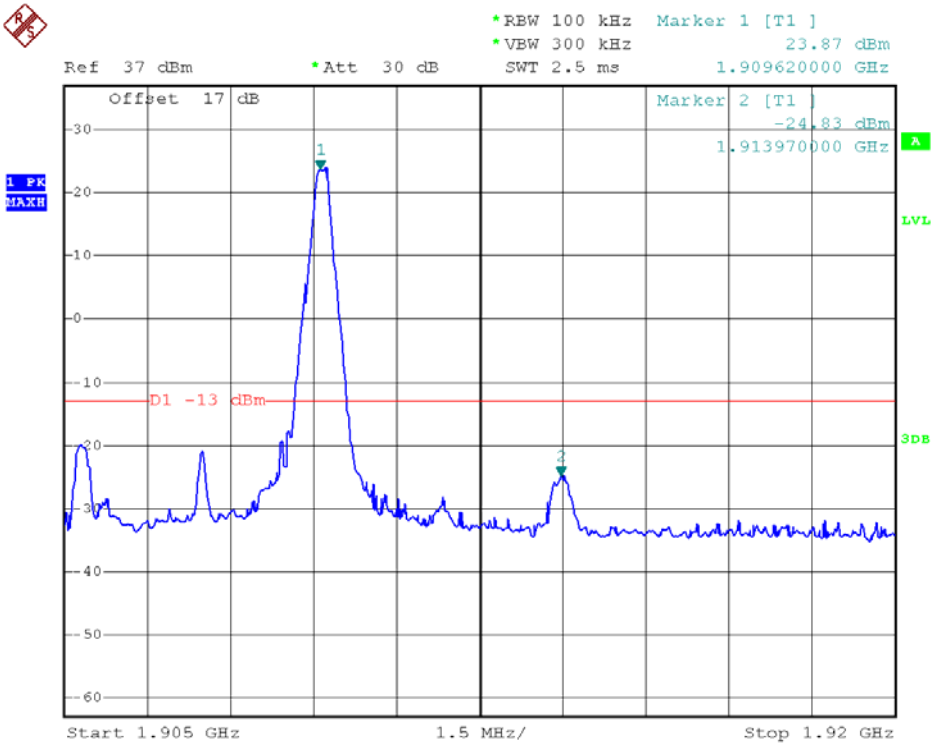
Band	LTE Band 2	Modulation	QPSK
Bandwidth	5MHz		



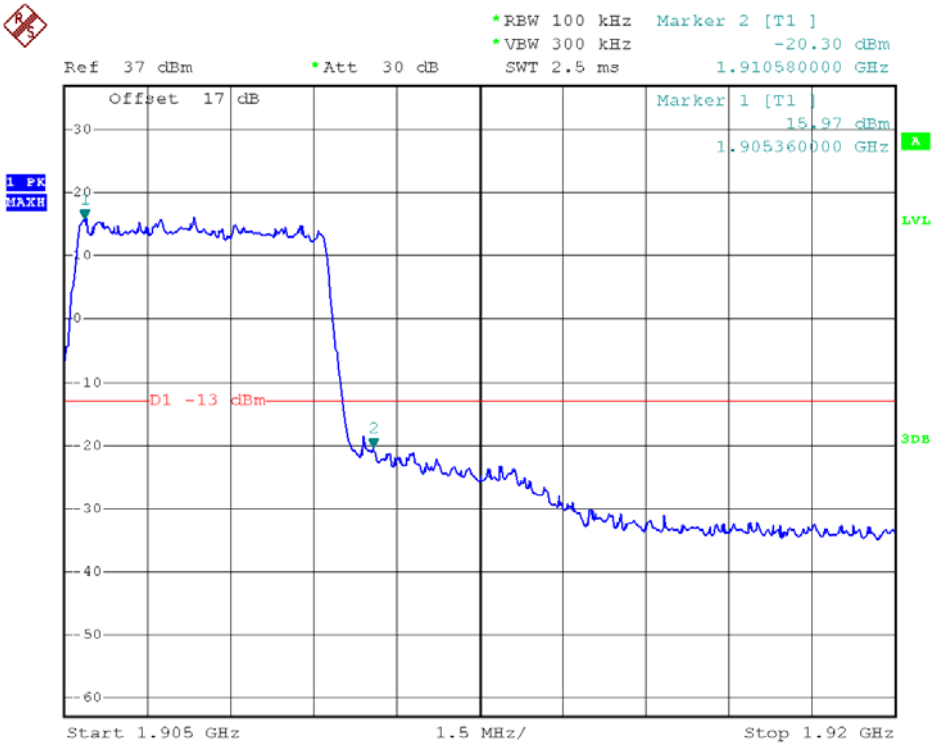
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0

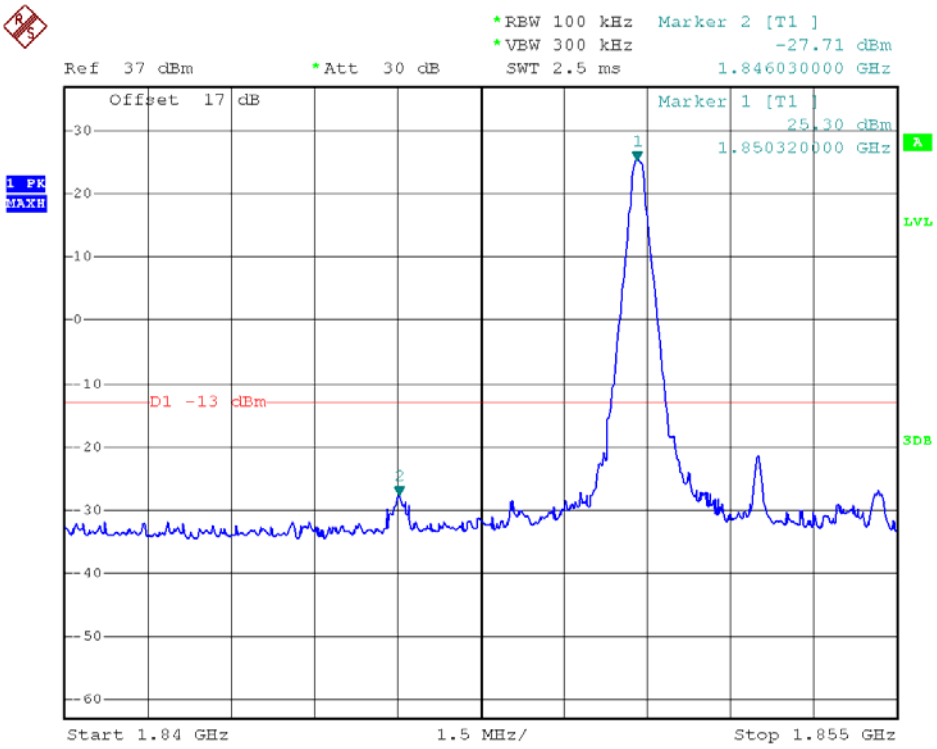


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24

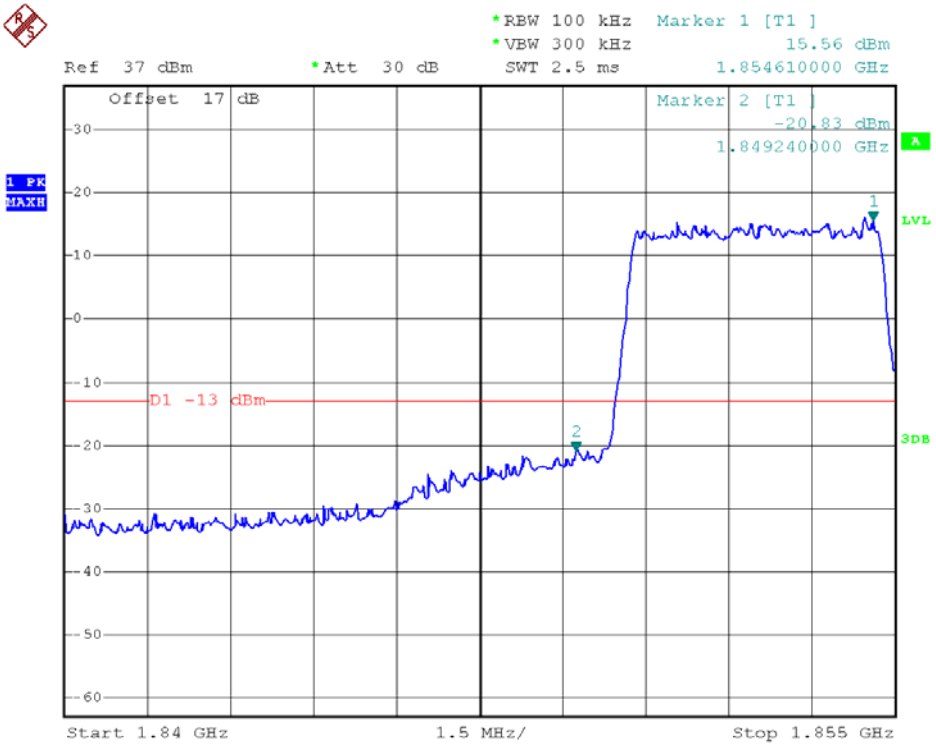


Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0

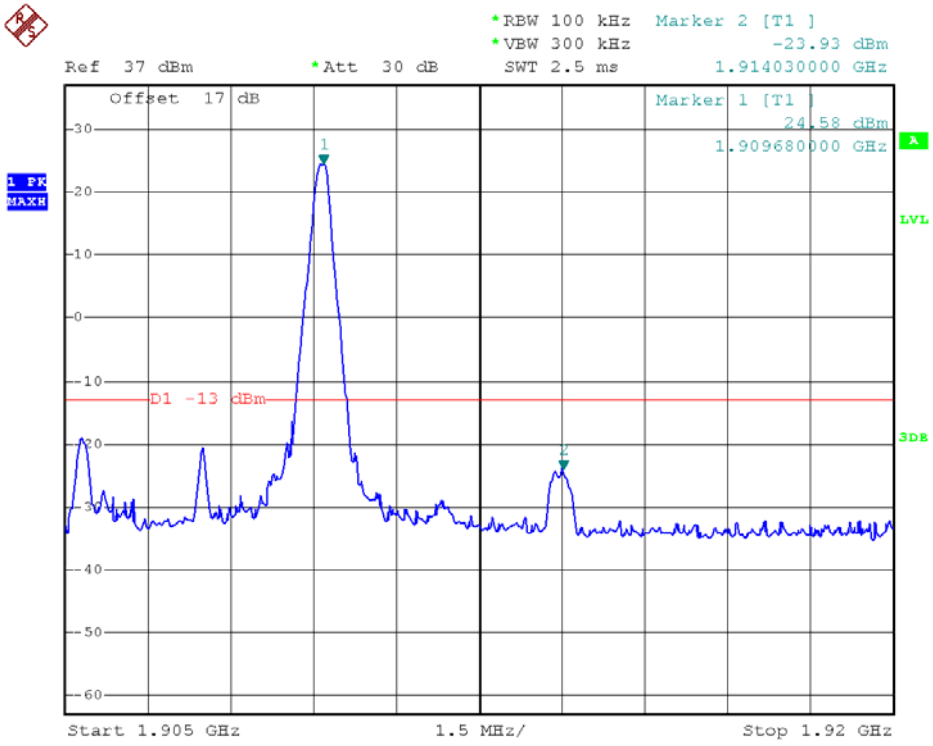
Band	LTE Band 2	Modulation	16QAM
Bandwidth	5MHz		



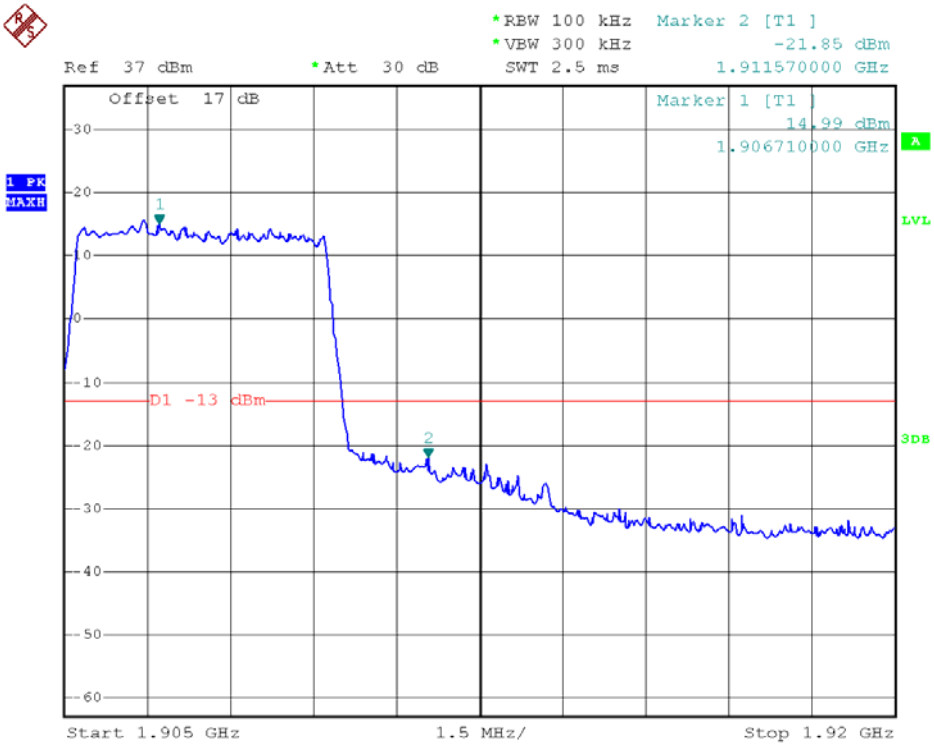
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM-RB Size 25, RB Offset 0

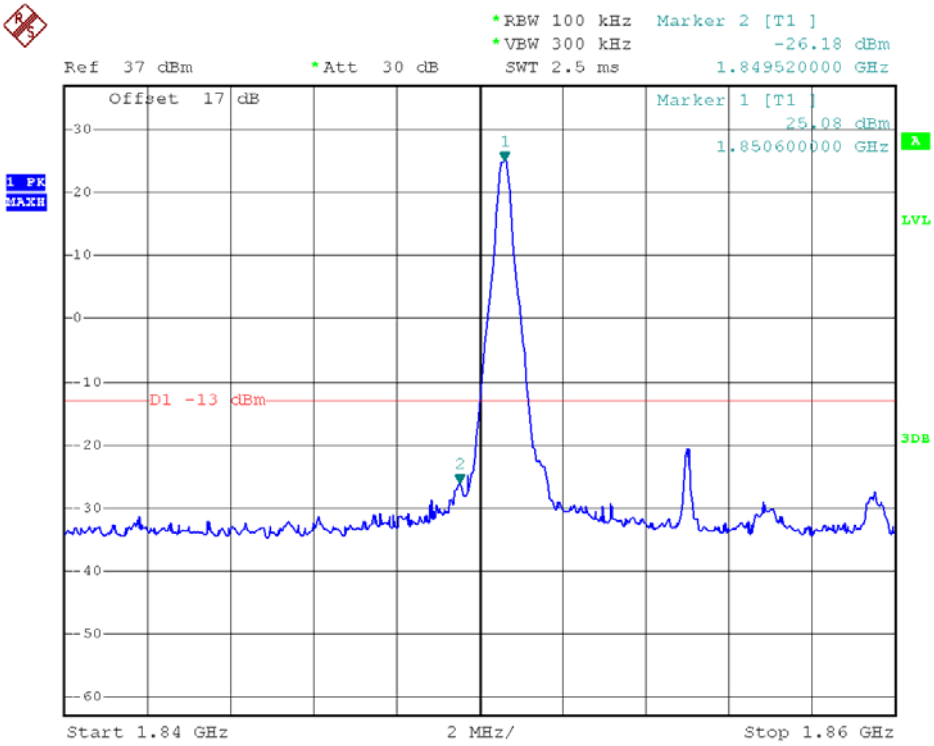


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 24

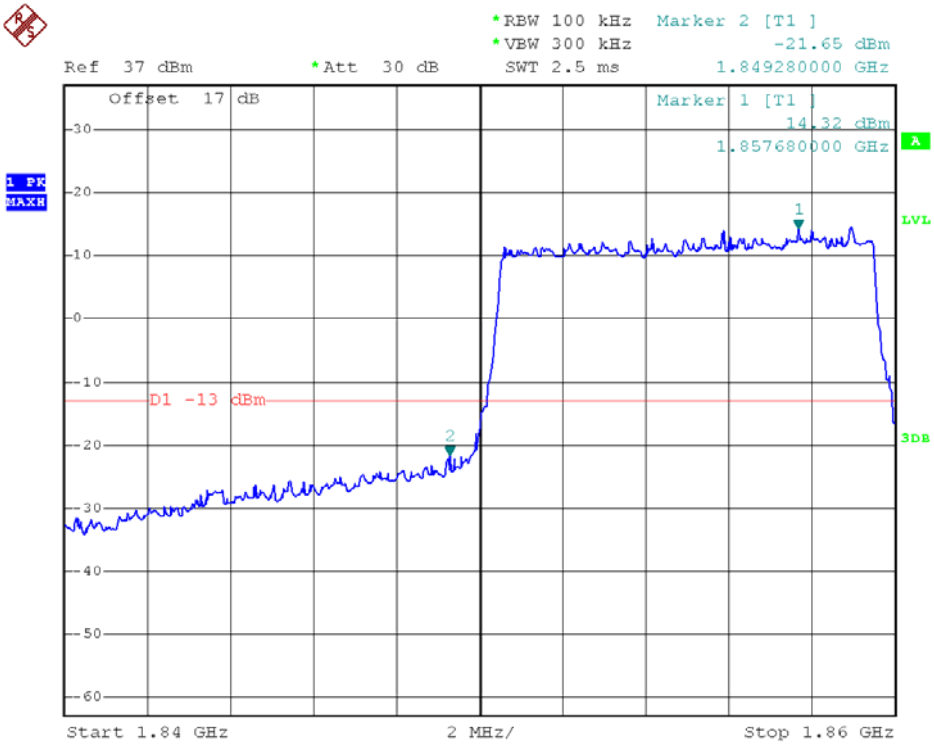


Higher Band Edge Plot for 16QAM-RB Size 25, RB Offset 0

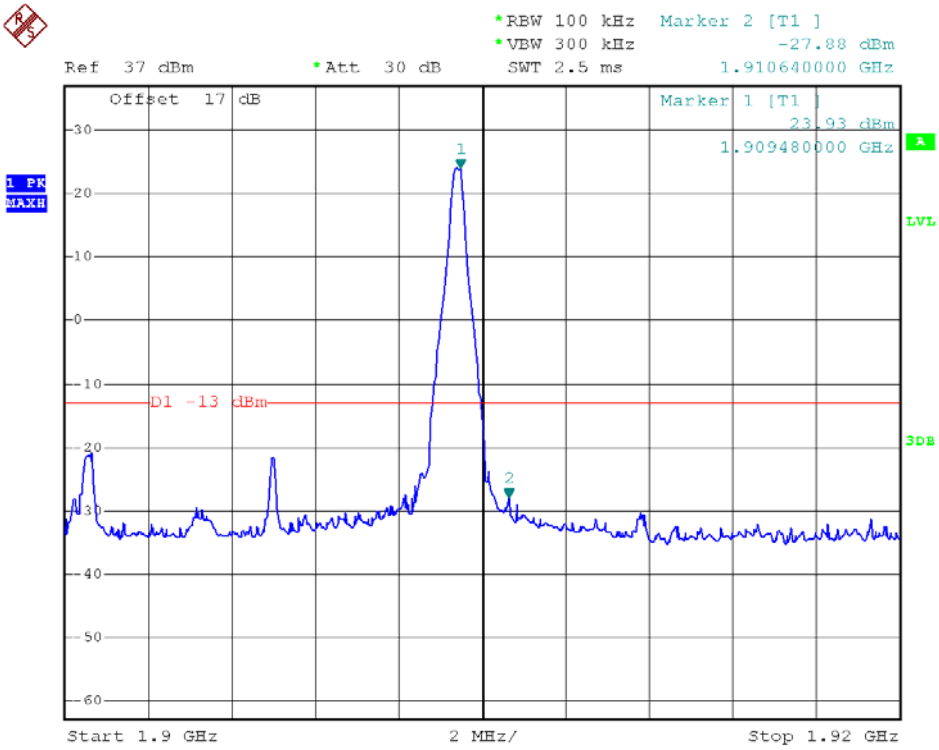
Band	LTE Band 2	Modulation	QPSK
Bandwidth	10MHz		



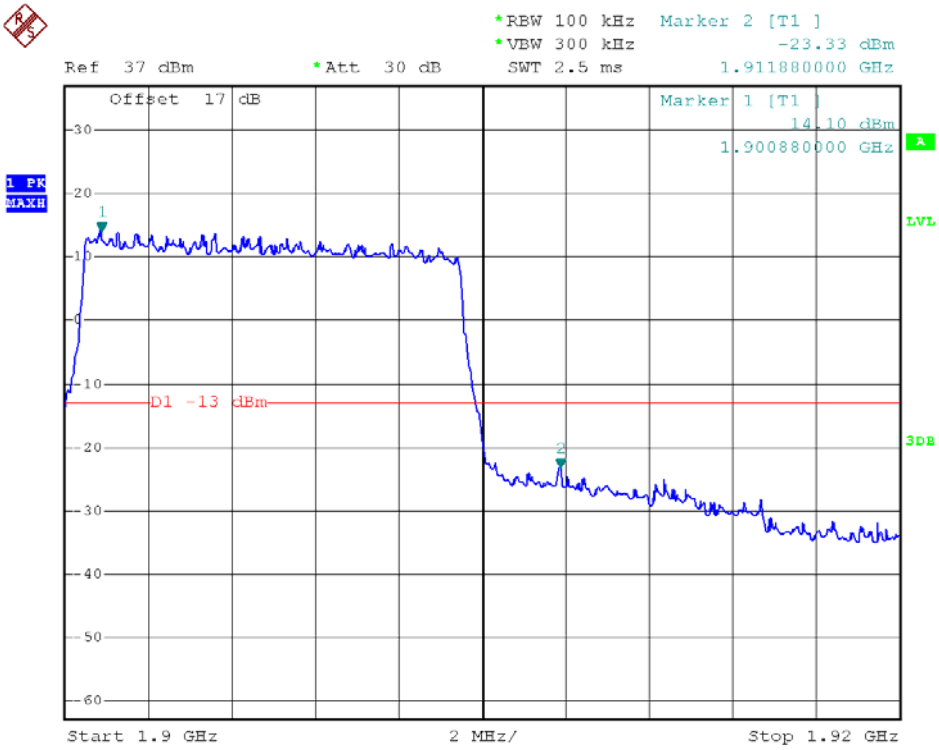
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0

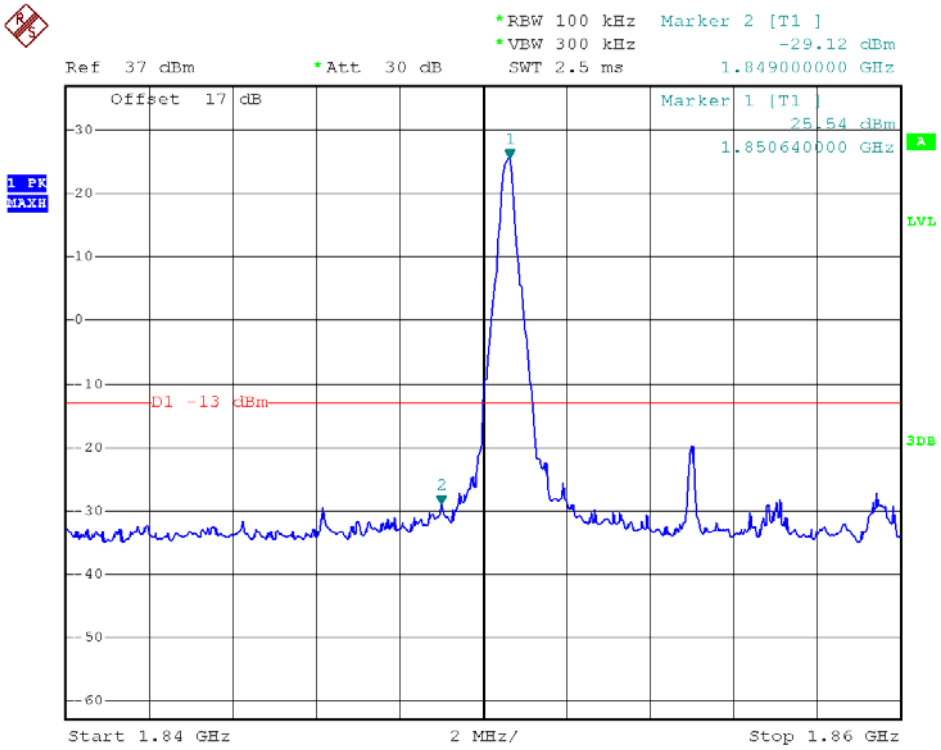


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49

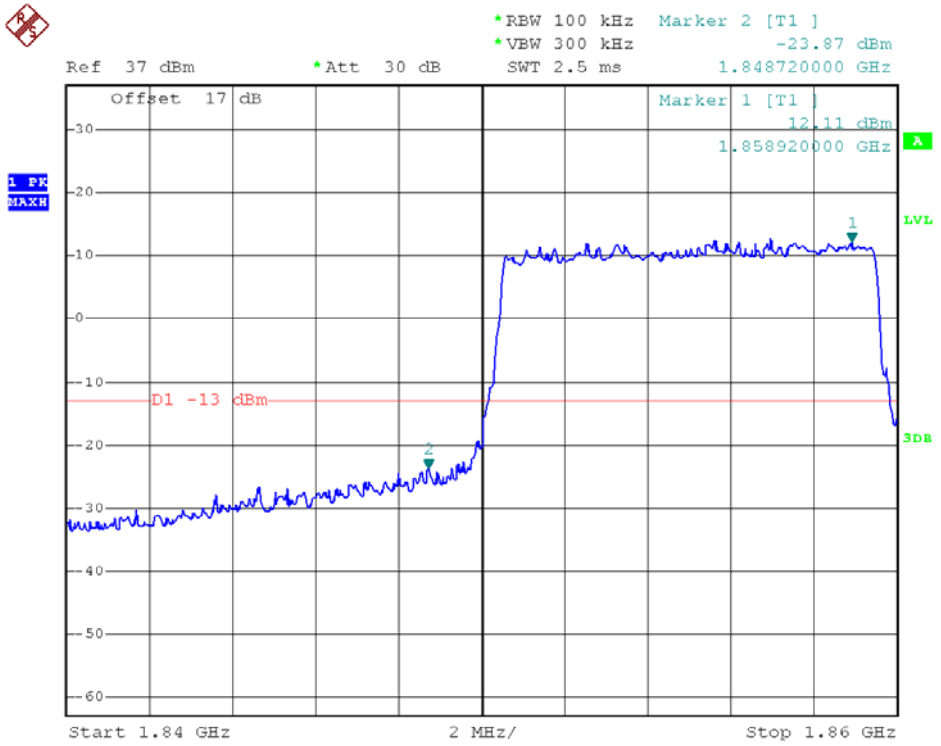


Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

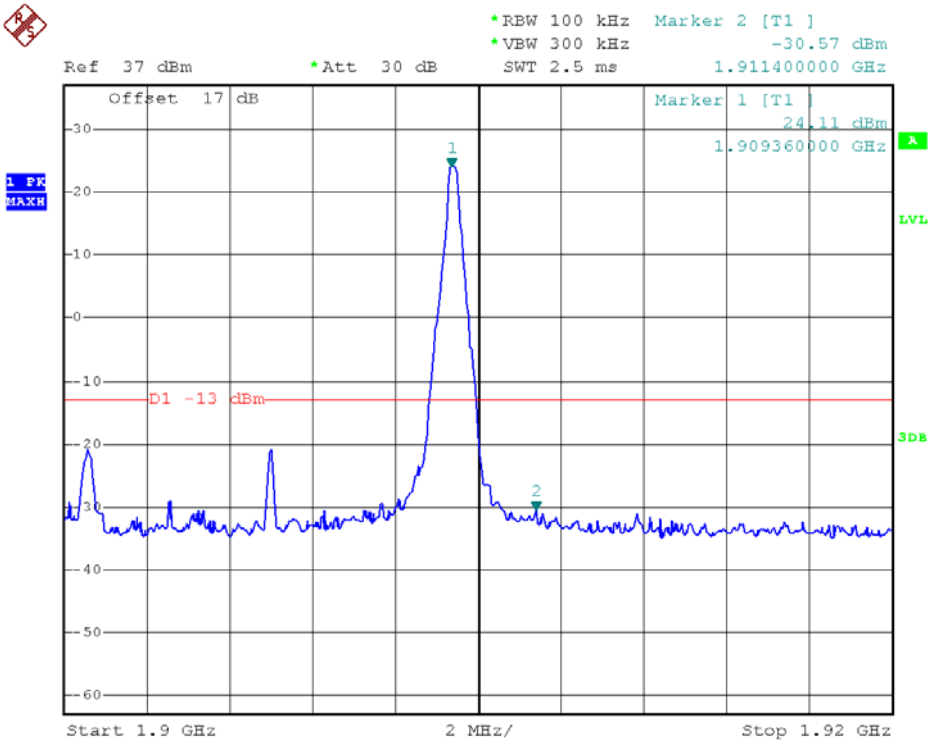
Band	LTE Band 2	Modulation	16QAM
Bandwidth	10MHz		



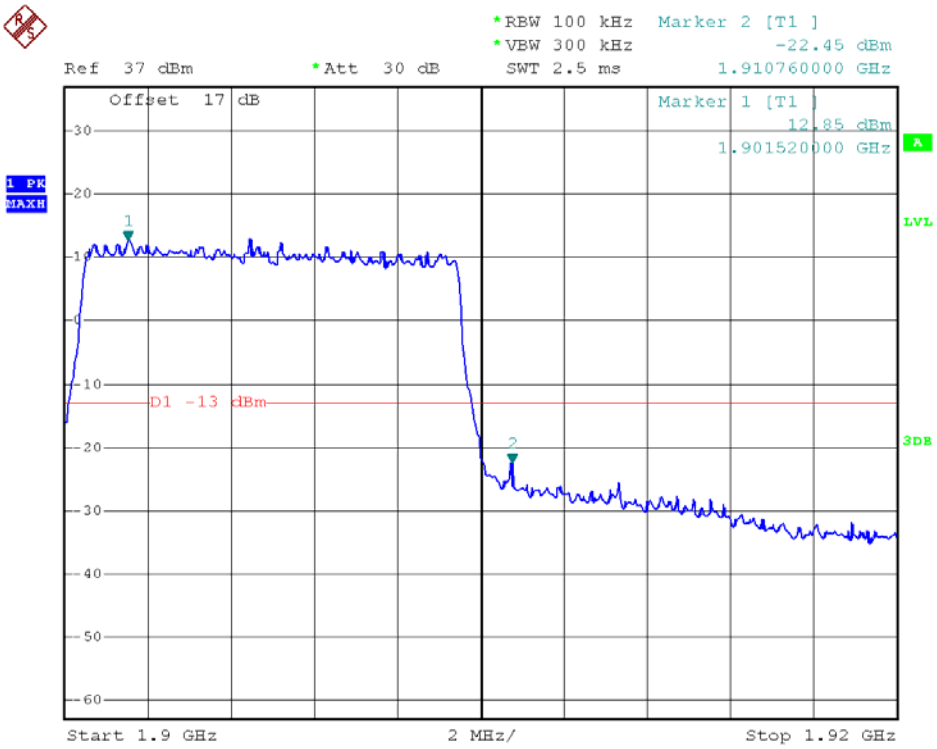
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM-RB Size 50, RB Offset 0

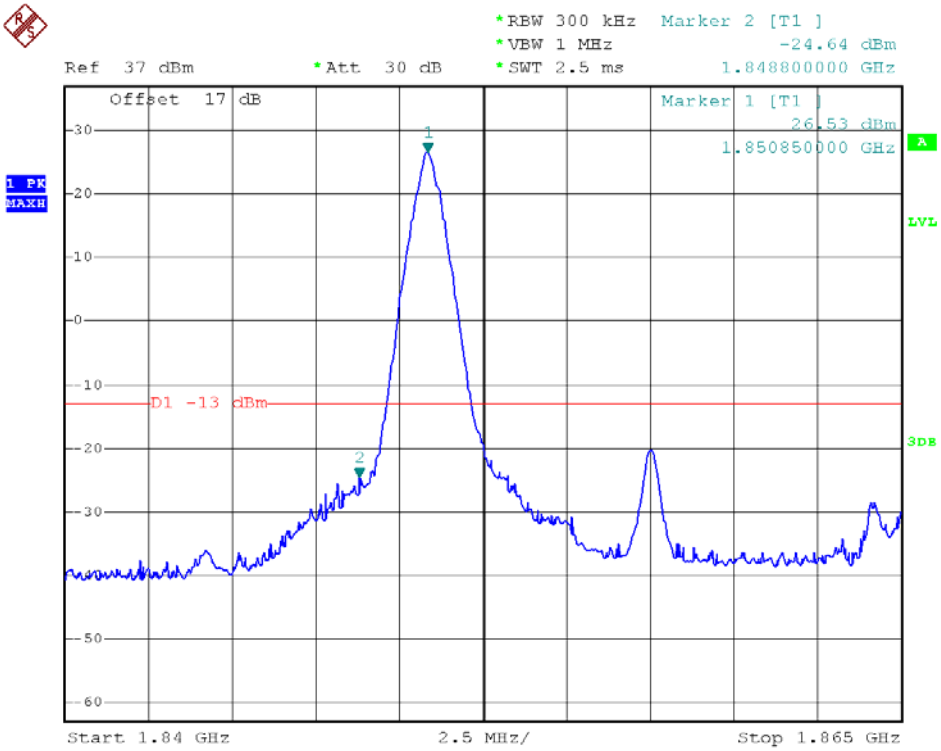


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 49

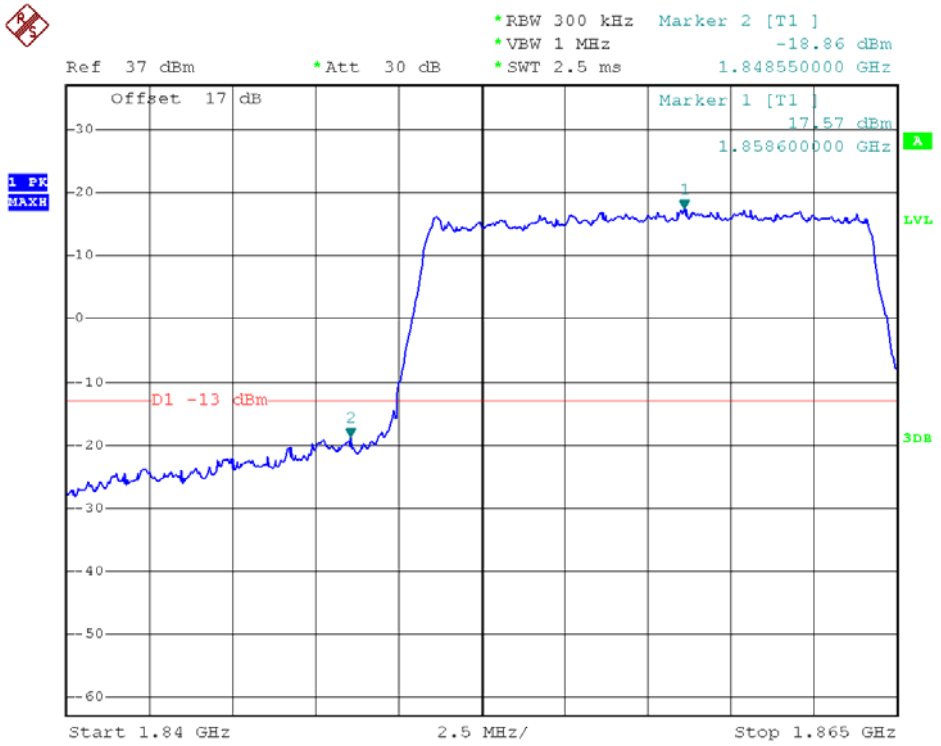


Higher Band Edge Plot for 16QAM-RB Size 50, RB Offset 0

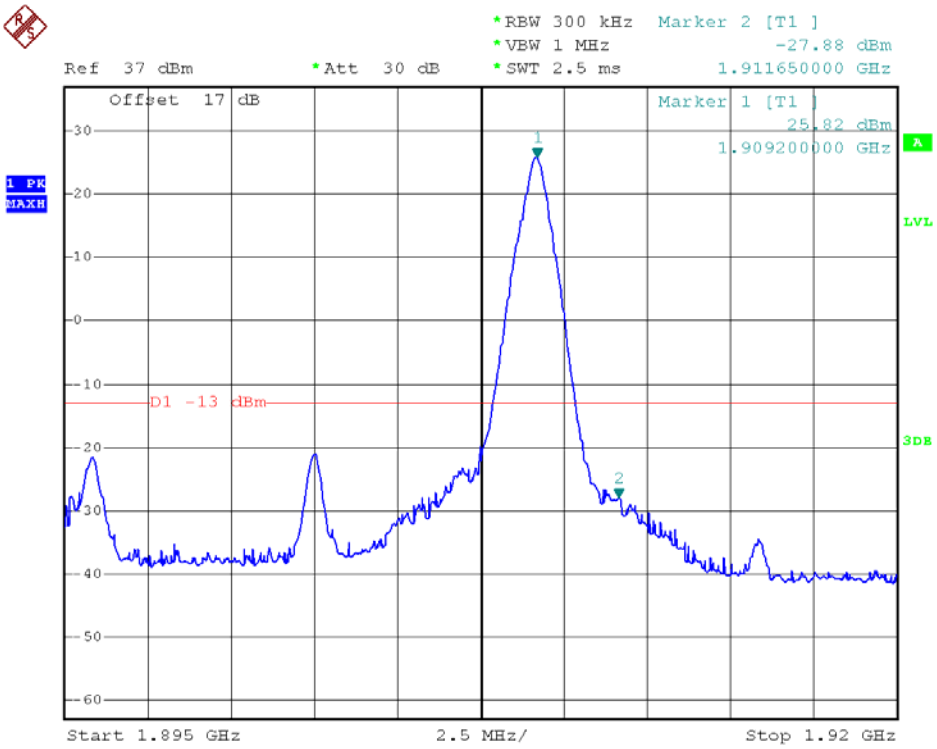
Band	LTE Band 2	Modulation	QPSK
Bandwidth	15MHz		



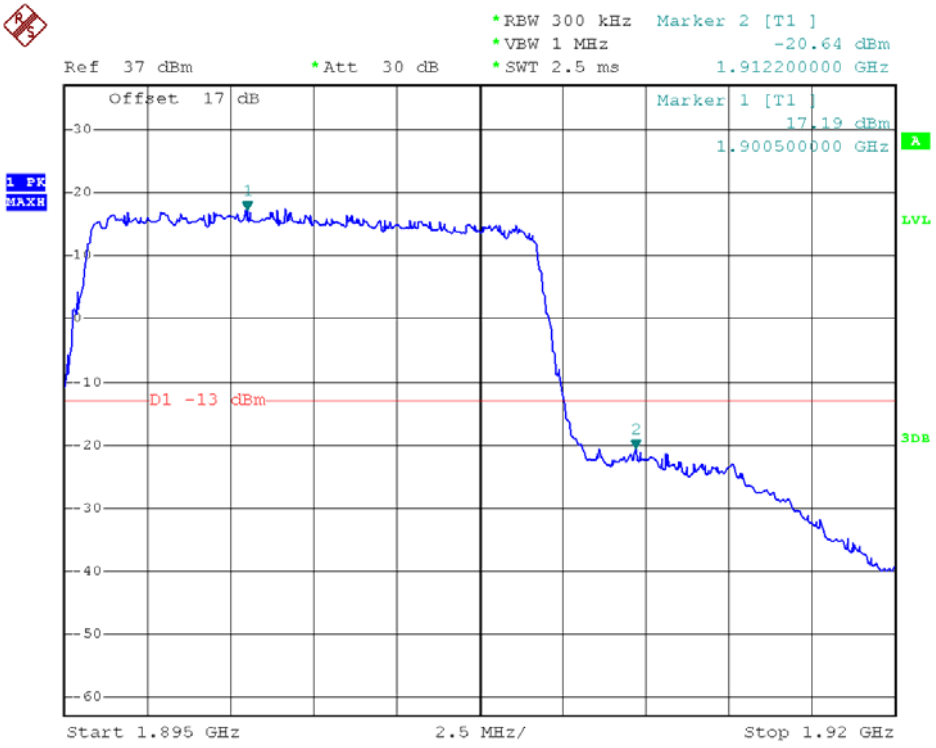
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 75, RB Offset 0

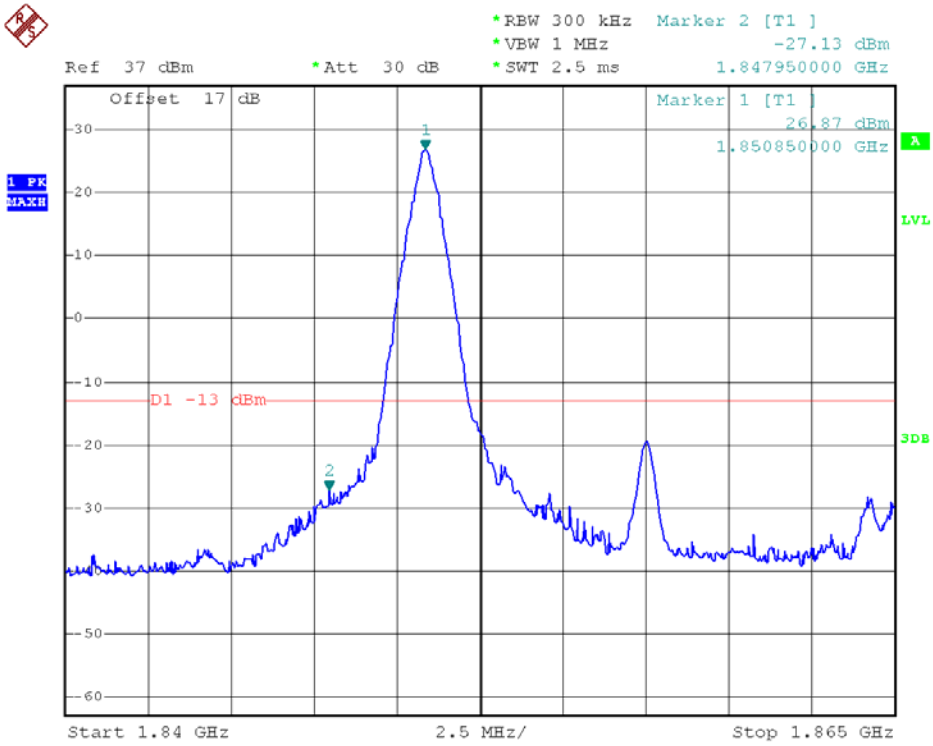


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 74

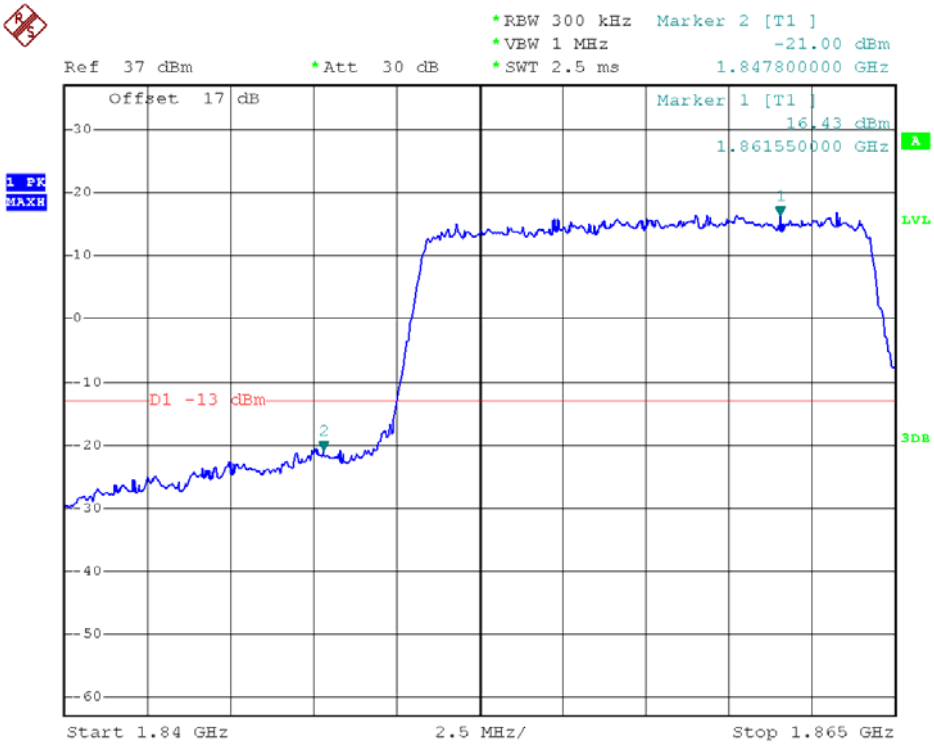


Higher Band Edge Plot for QPSK-RB Size 75, RB Offset 0

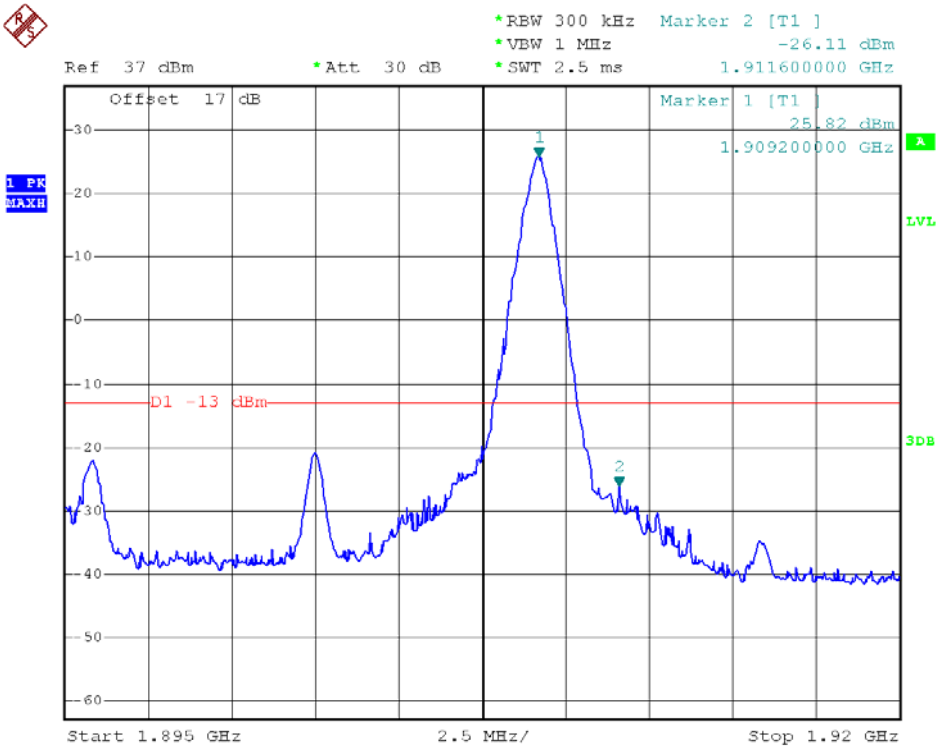
Band	LTE Band 2	Modulation	16QAM
Bandwidth	15MHz		



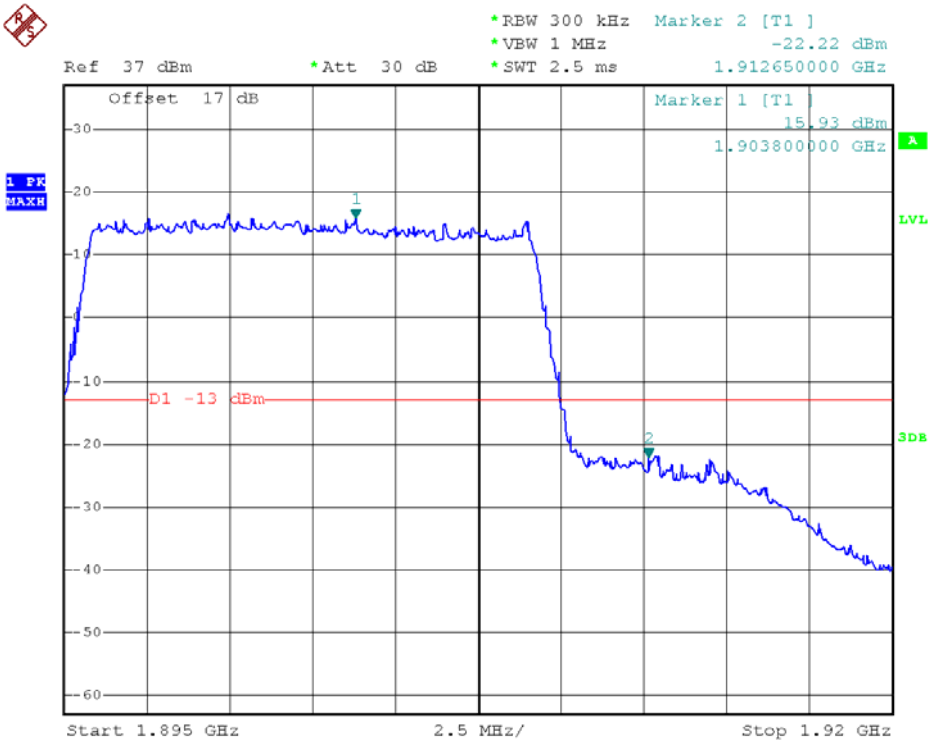
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM-RB Size 75, RB Offset 0

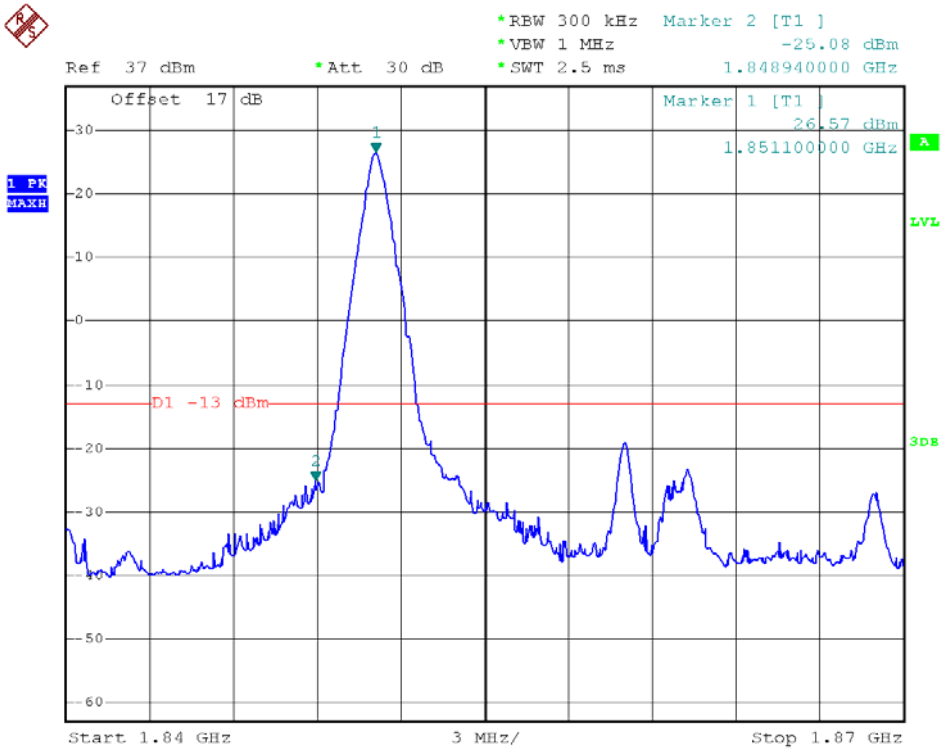


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 74

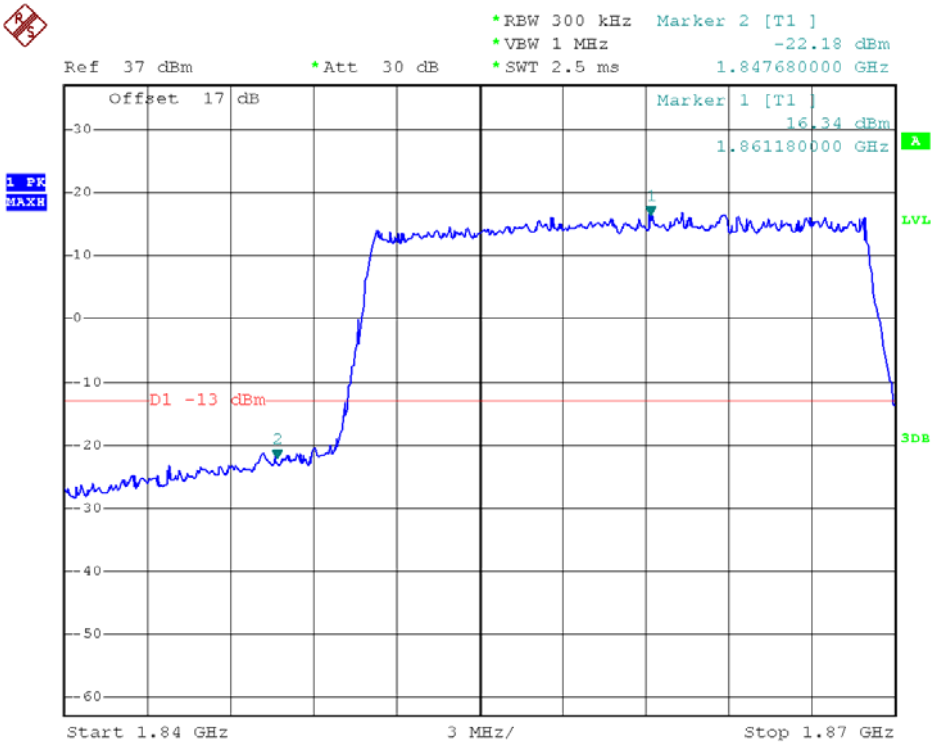


Higher Band Edge Plot for 16QAM-RB Size 75, RB Offset 0

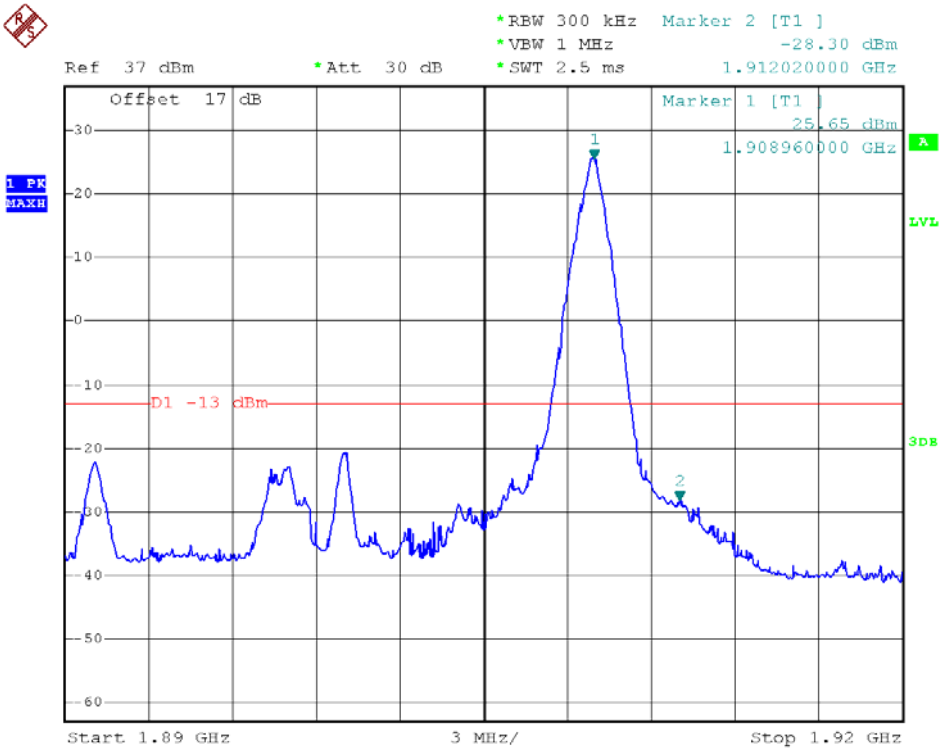
Band	LTE Band 2	Modulation	QPSK
Bandwidth	20MHz		



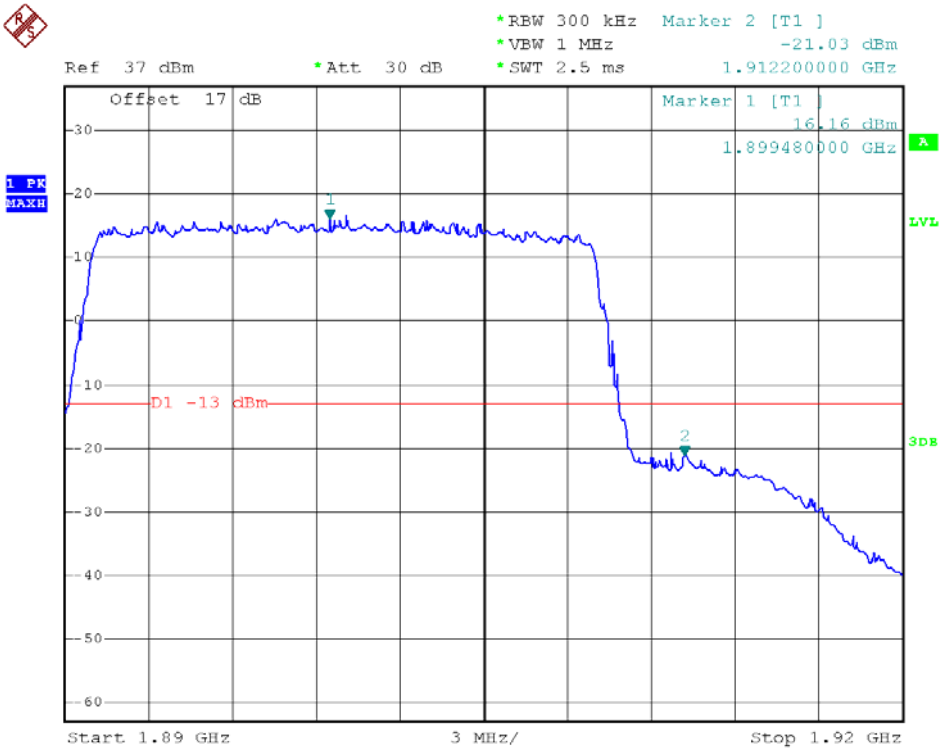
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 100, RB Offset 0

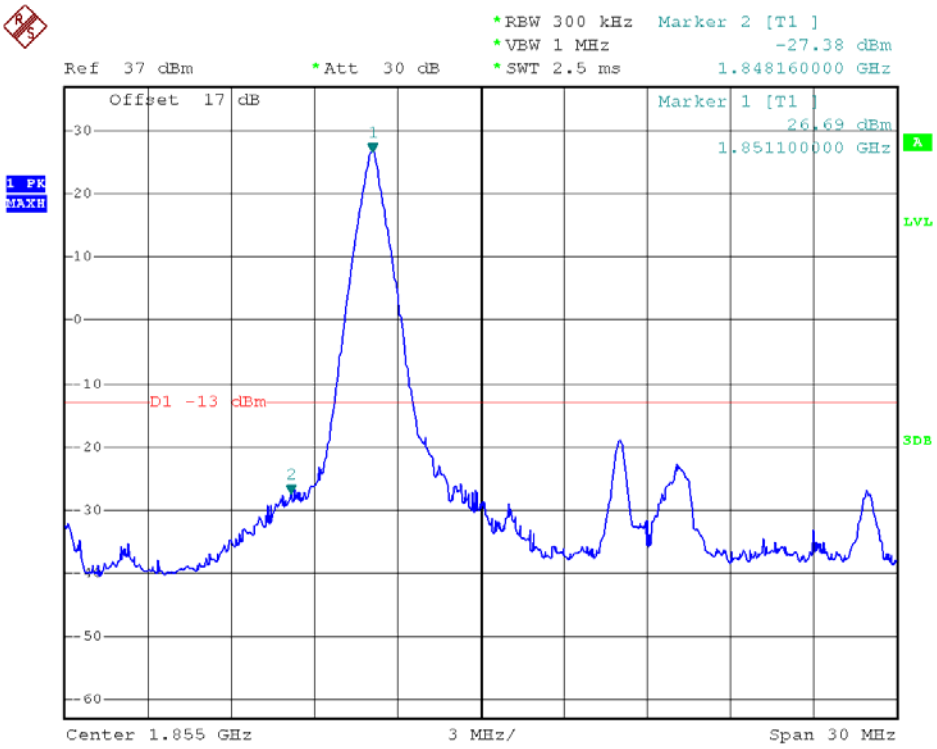


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 99

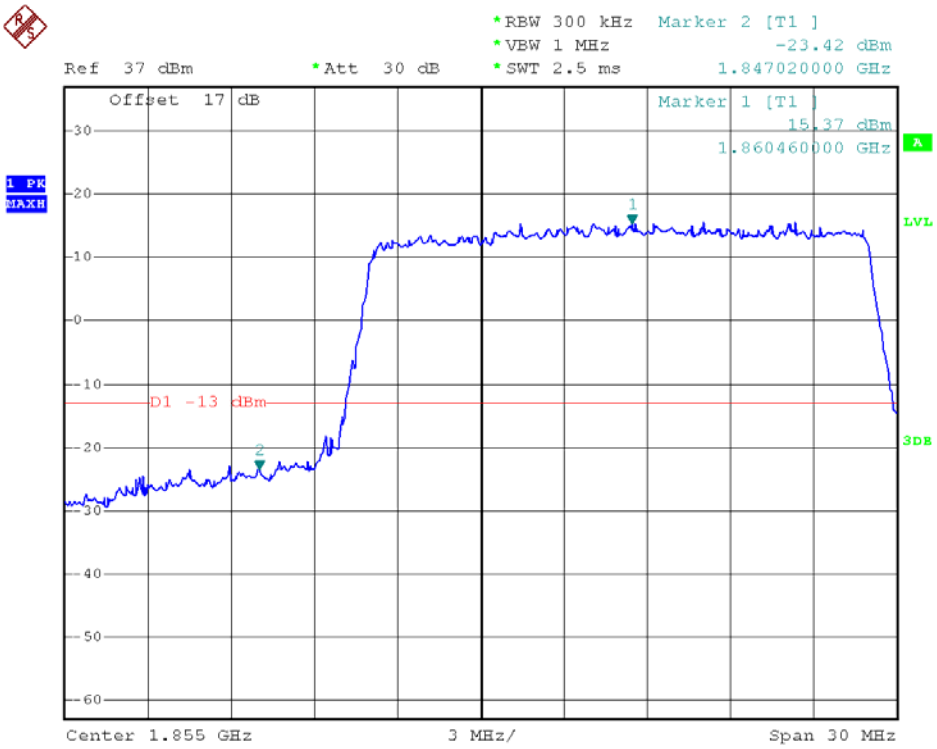


Higher Band Edge Plot for QPSK-RB Size 100, RB Offset 0

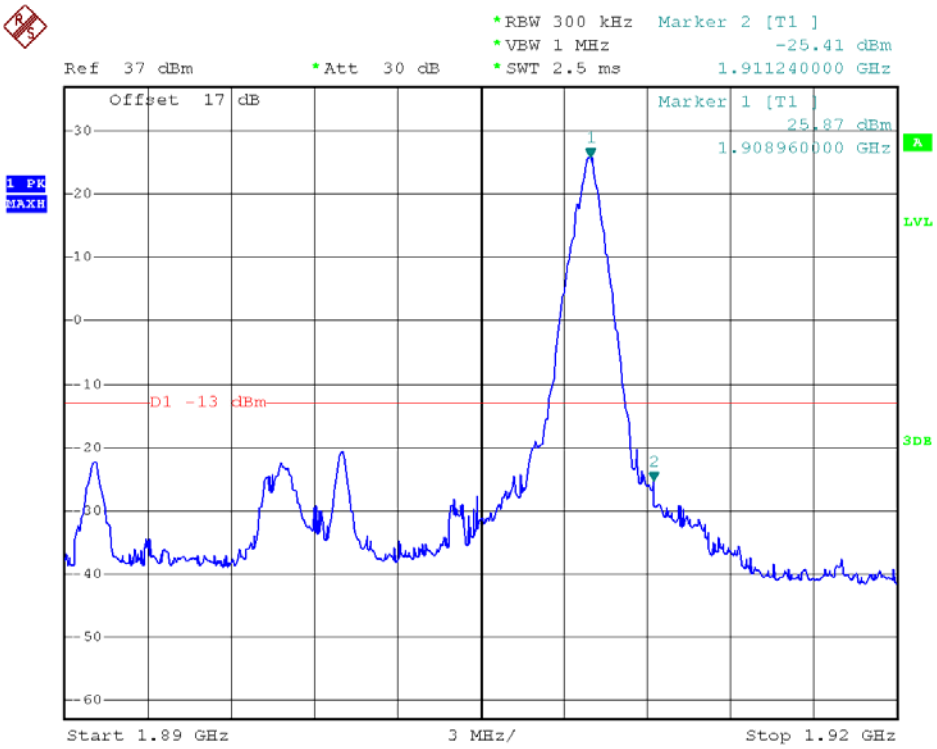
Band	LTE Band 2	Modulation	16QAM
Bandwidth	20MHz		



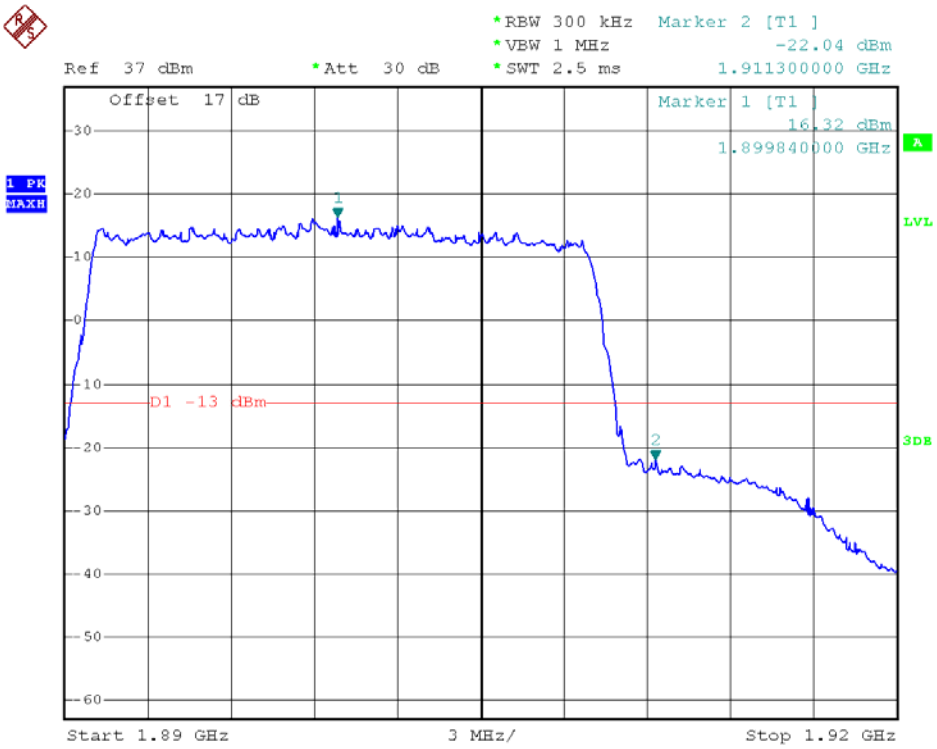
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM-RB Size 100, RB Offset 0

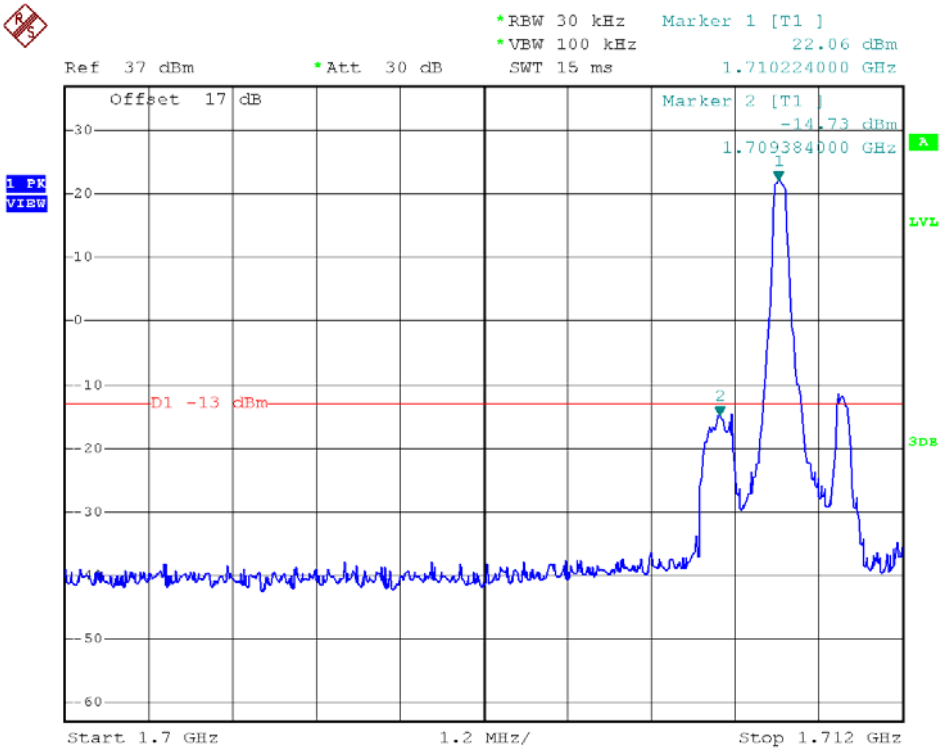


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 99

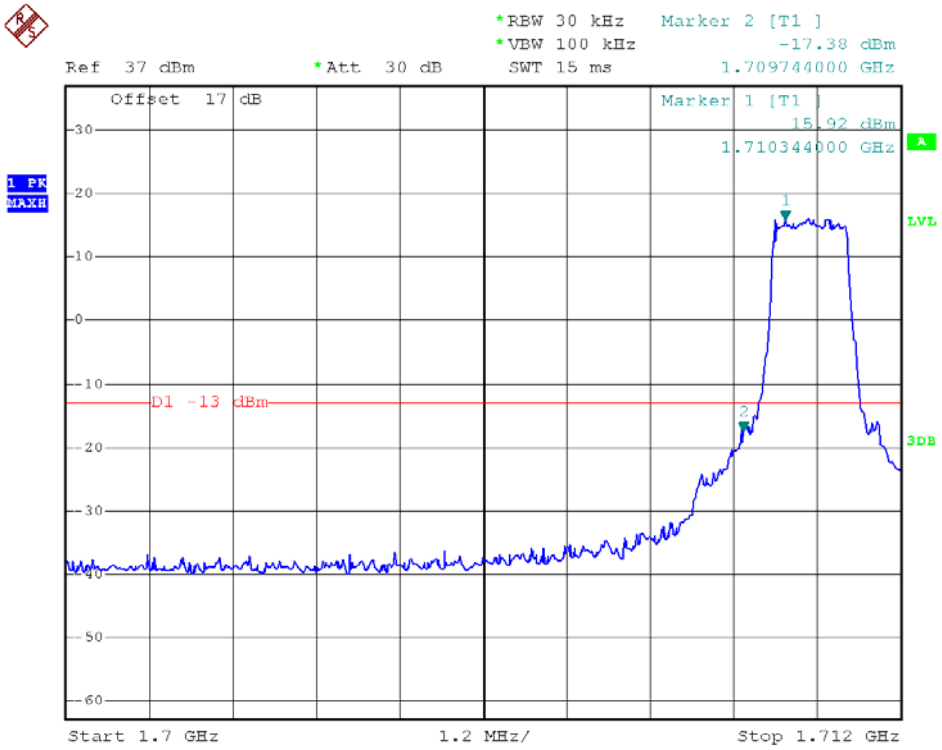


Higher Band Edge Plot for 16QAM-RB Size 100, RB Offset 0

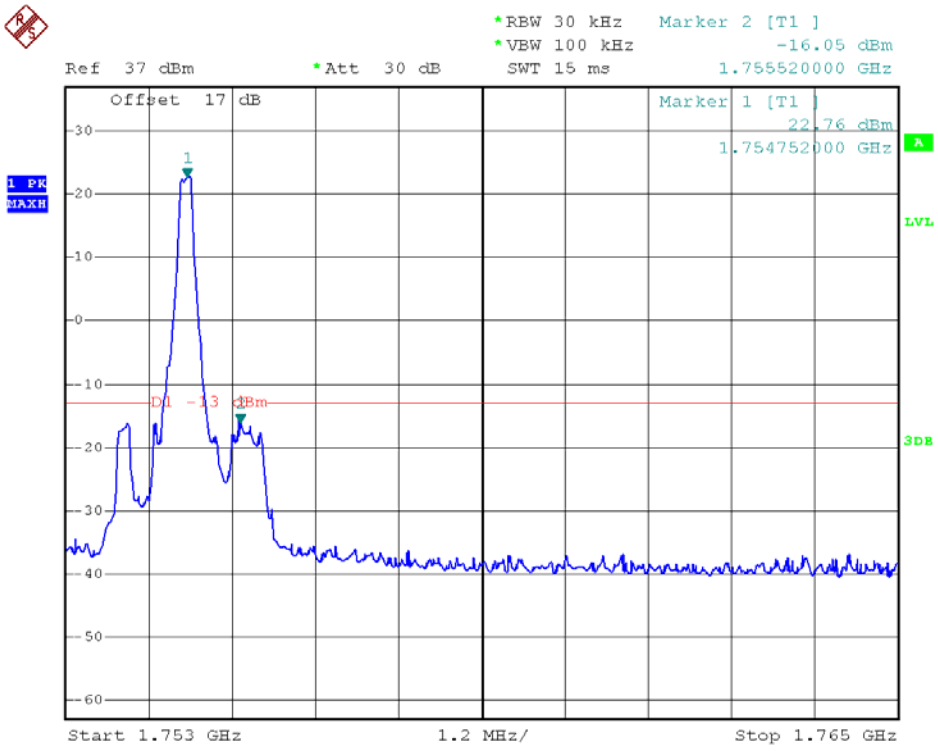
Band	LTE Band 4	Modulation	QPSK
Bandwidth	1.4MHz		



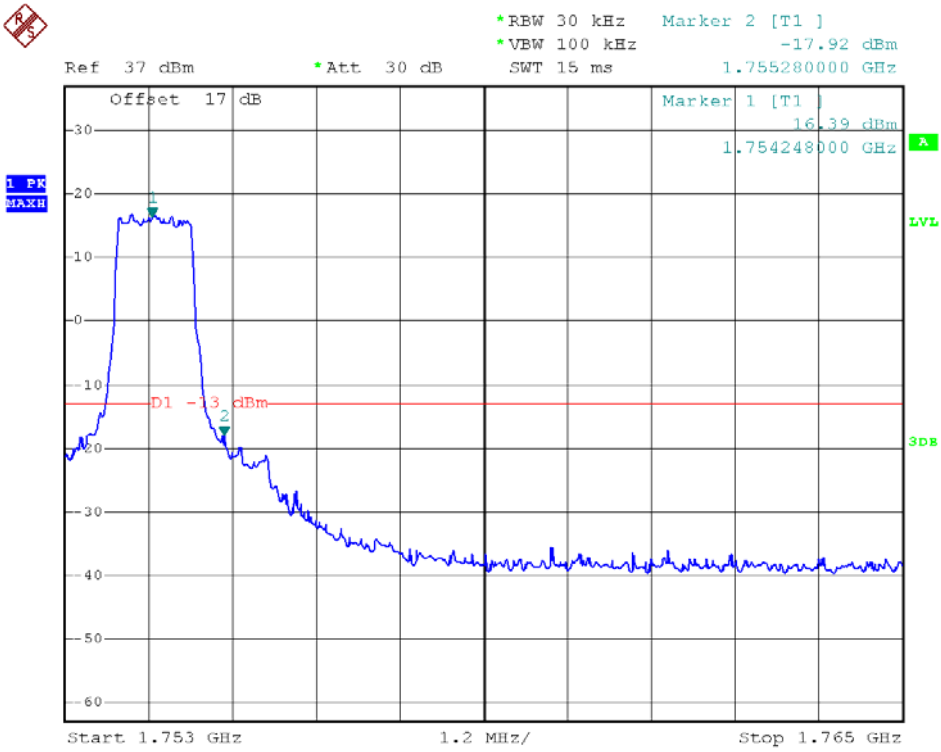
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 6, RB Offset 0

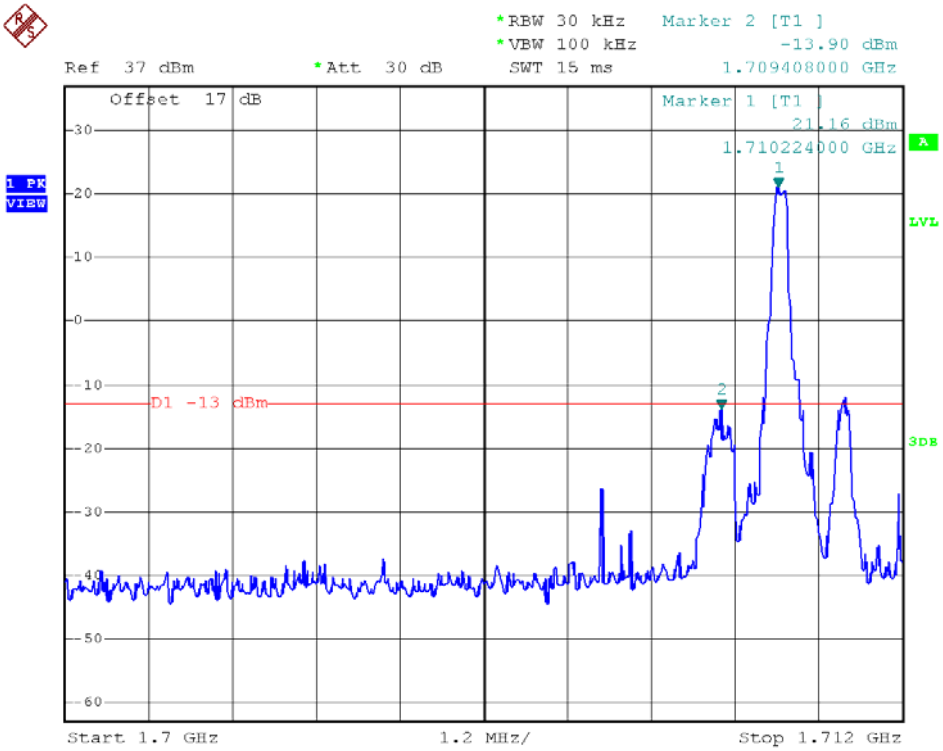


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 5

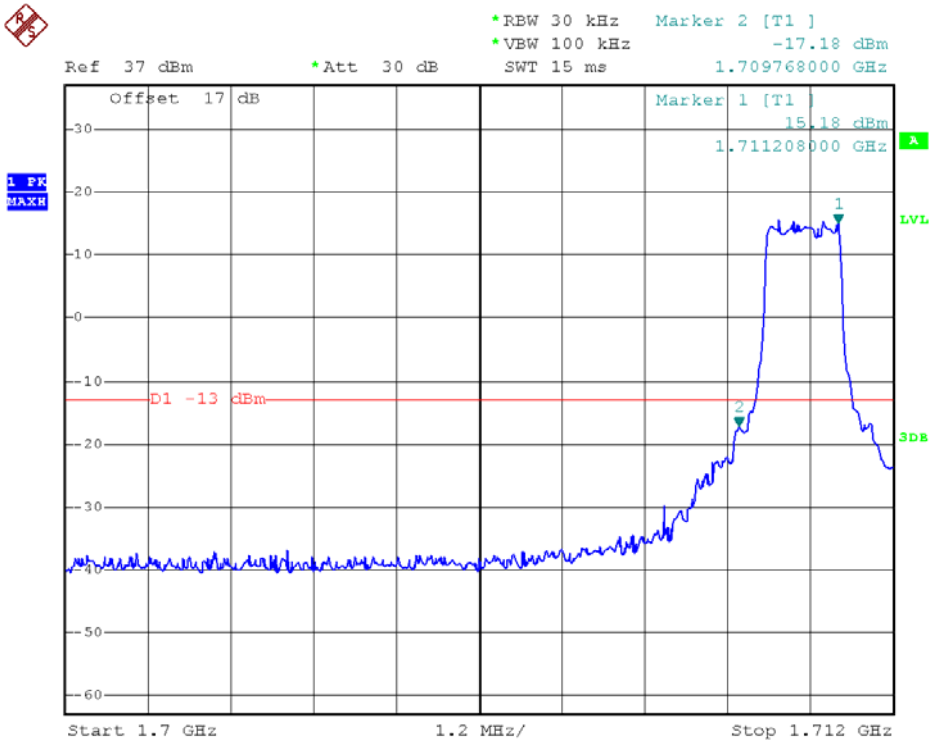


Higher Band Edge Plot for QPSK-RB Size 6, RB Offset 0

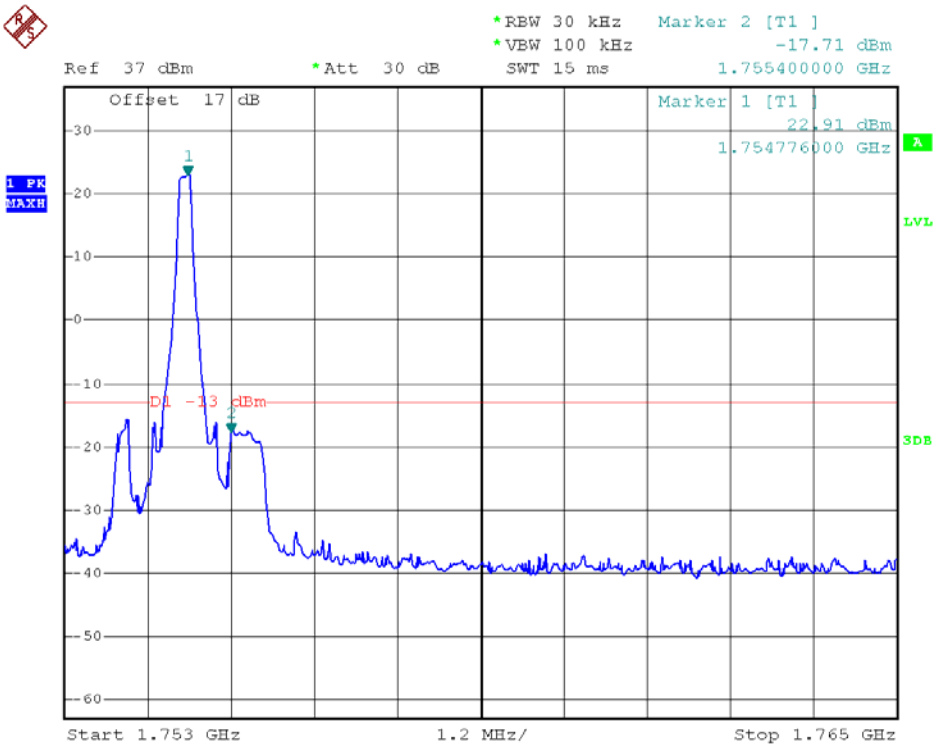
Band	LTE Band 4	Modulation	16QAM
Bandwidth	1.4MHz		



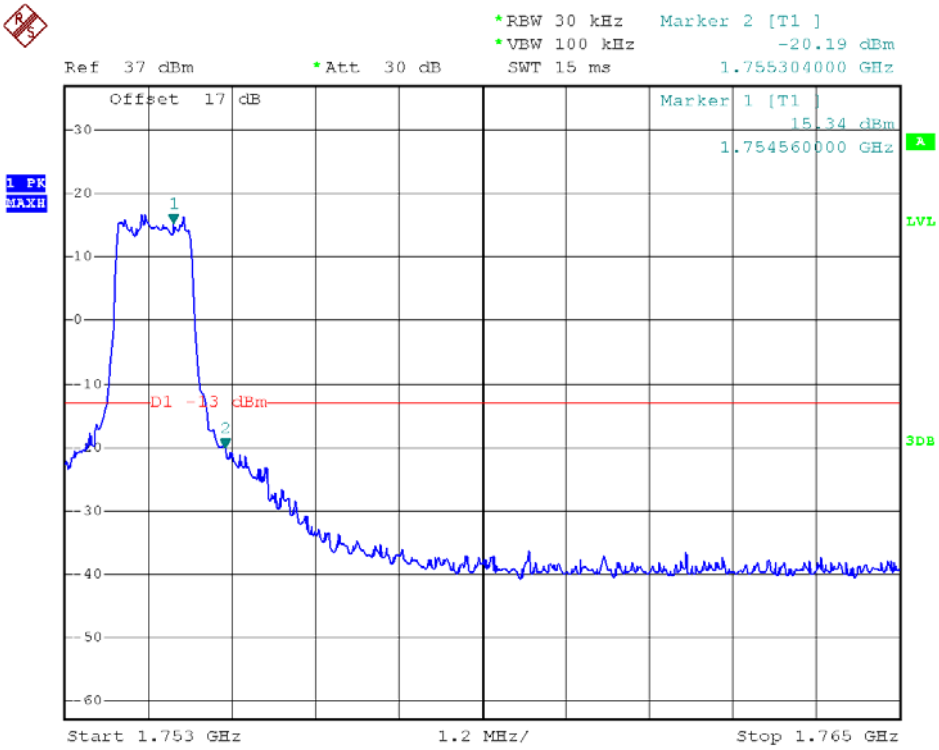
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 6, RB Offset 0

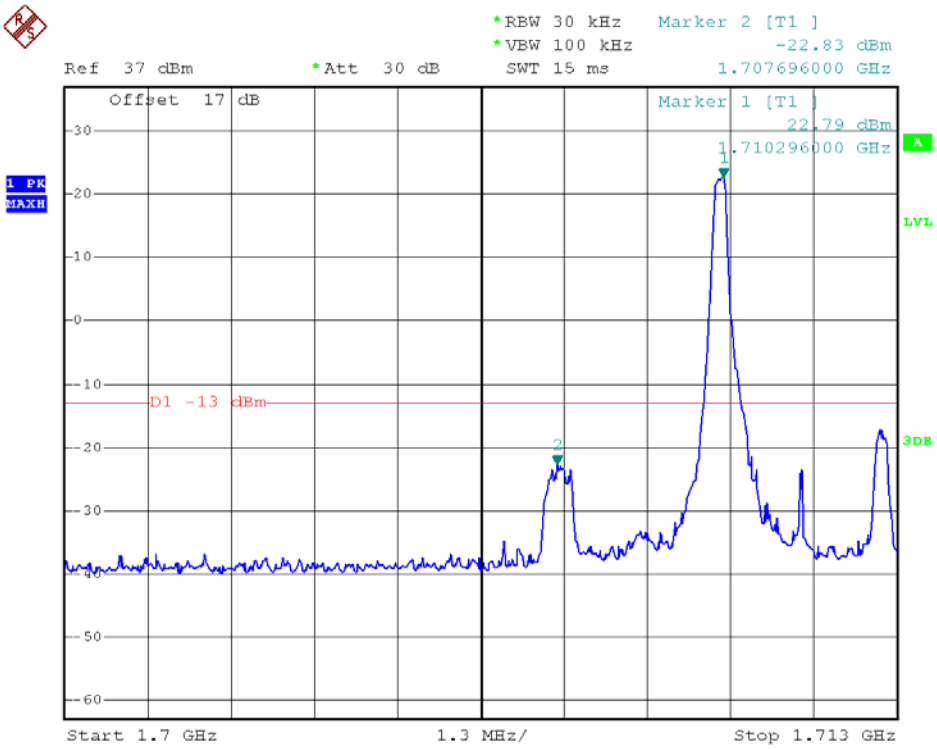


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 5

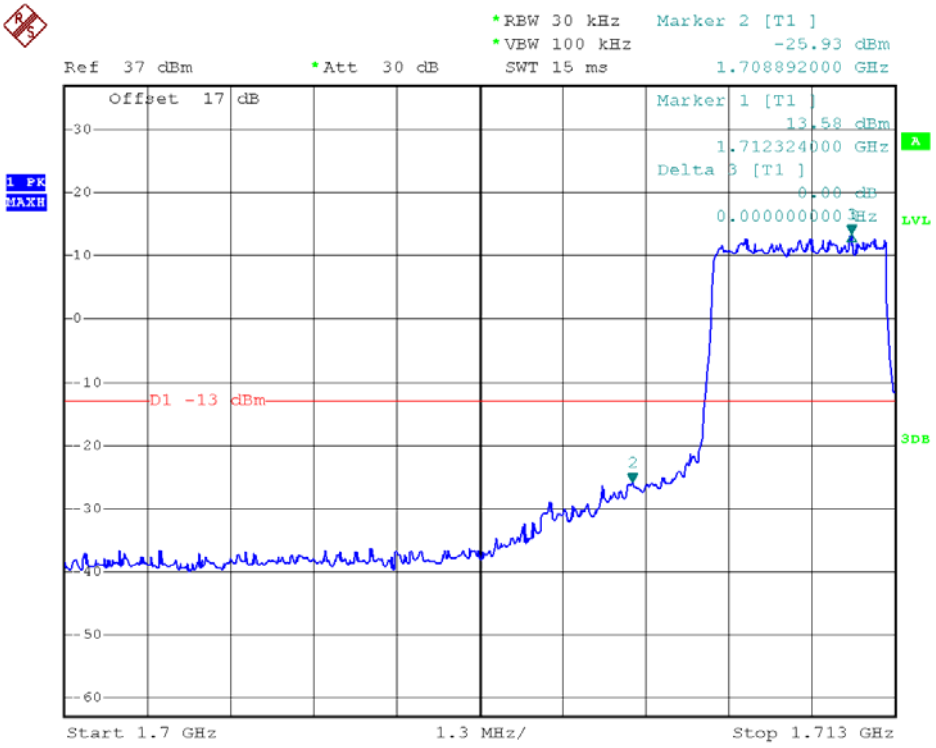


Higher Band Edge Plot for 16QAM -RB Size 6, RB Offset 0

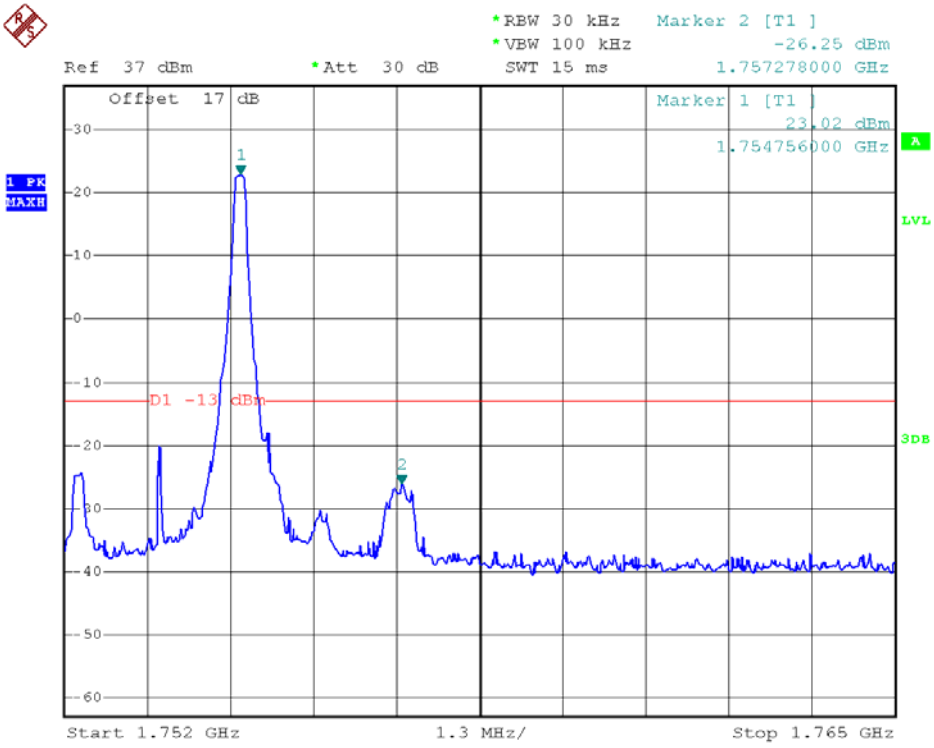
Band	LTE Band 4	Modulation	QPSK
Bandwidth	3MHz		



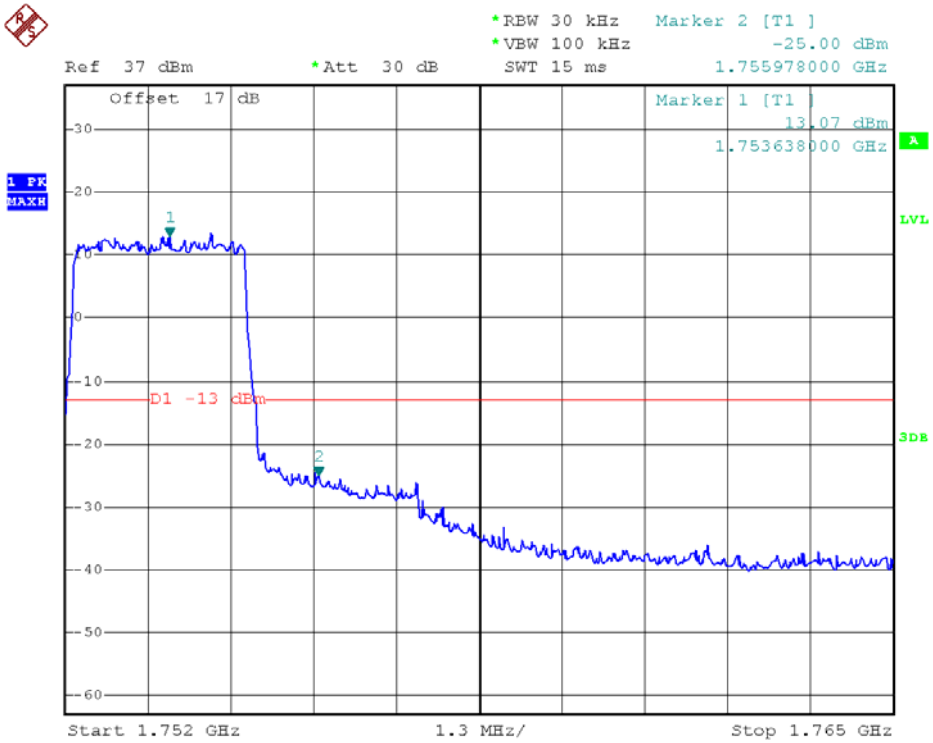
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 15, RB Offset 0

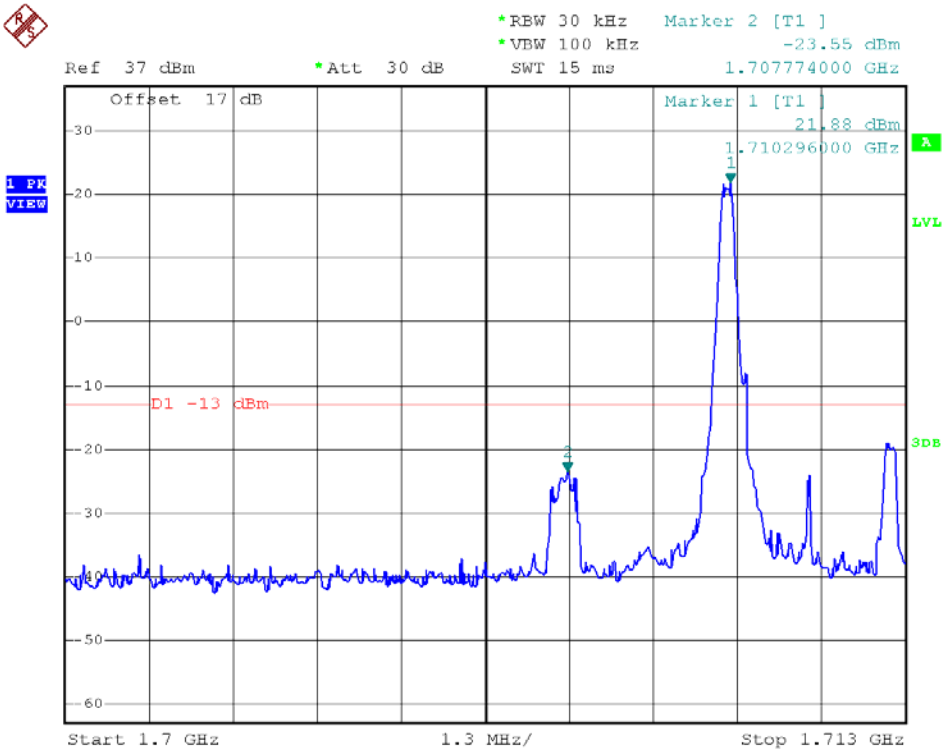


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 14

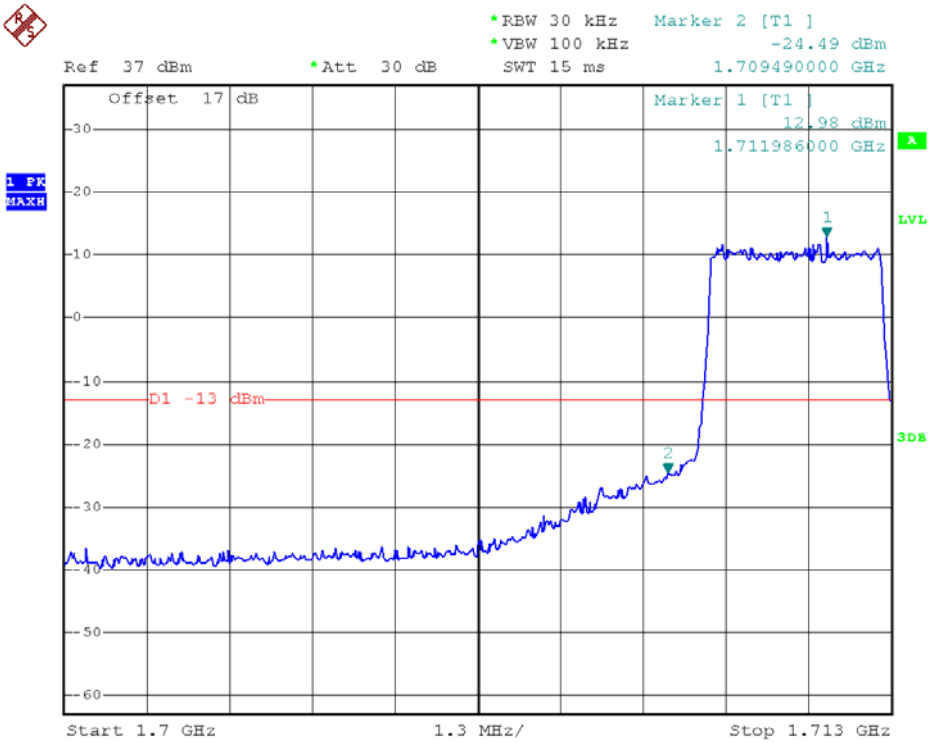


Higher Band Edge Plot for QPSK-RB Size 15, RB Offset 0

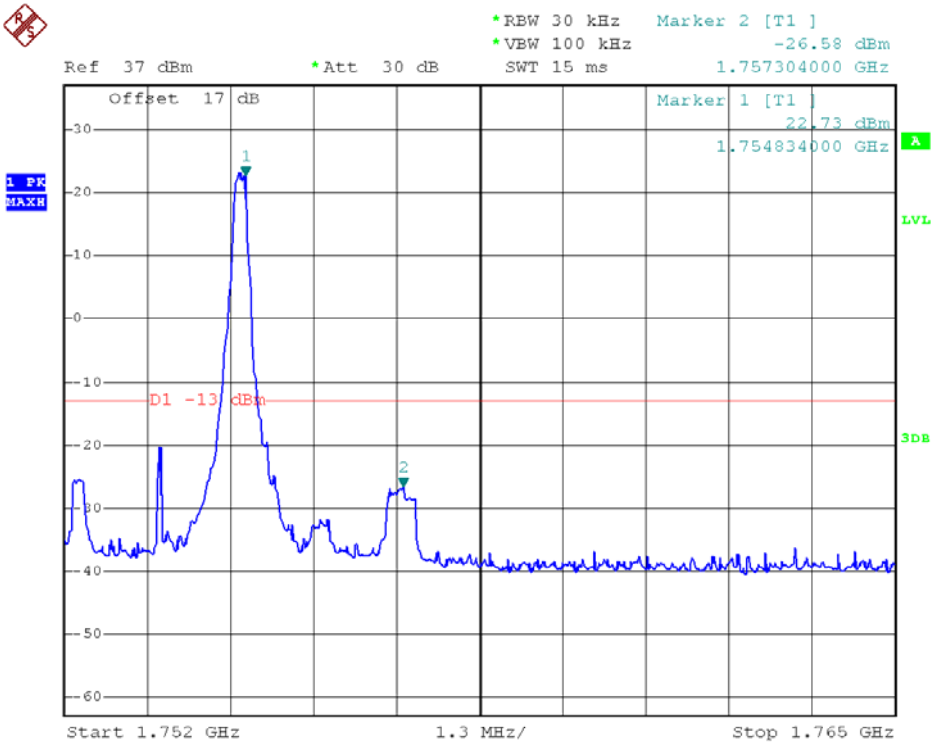
Band	LTE Band 4	Modulation	16QAM
Bandwidth	3MHz		



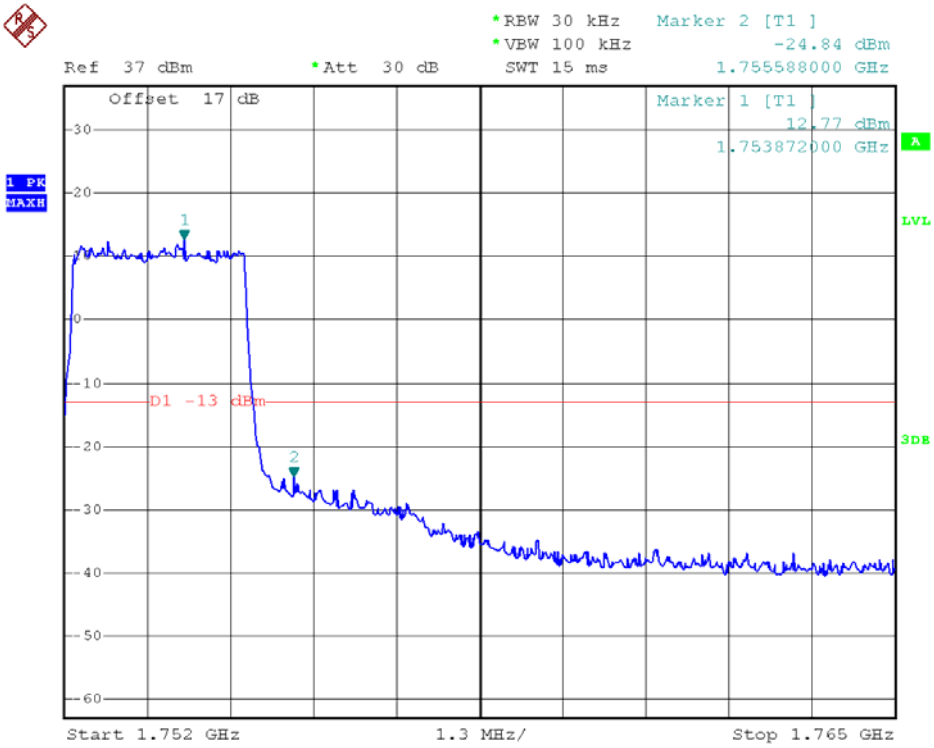
Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 15, RB Offset 0

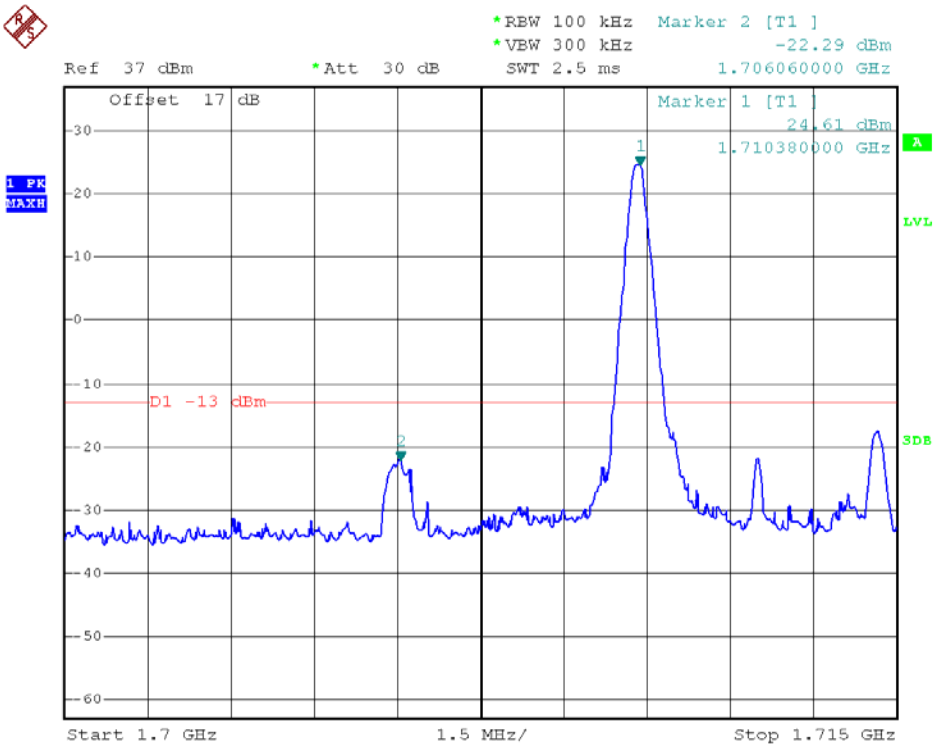


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 14

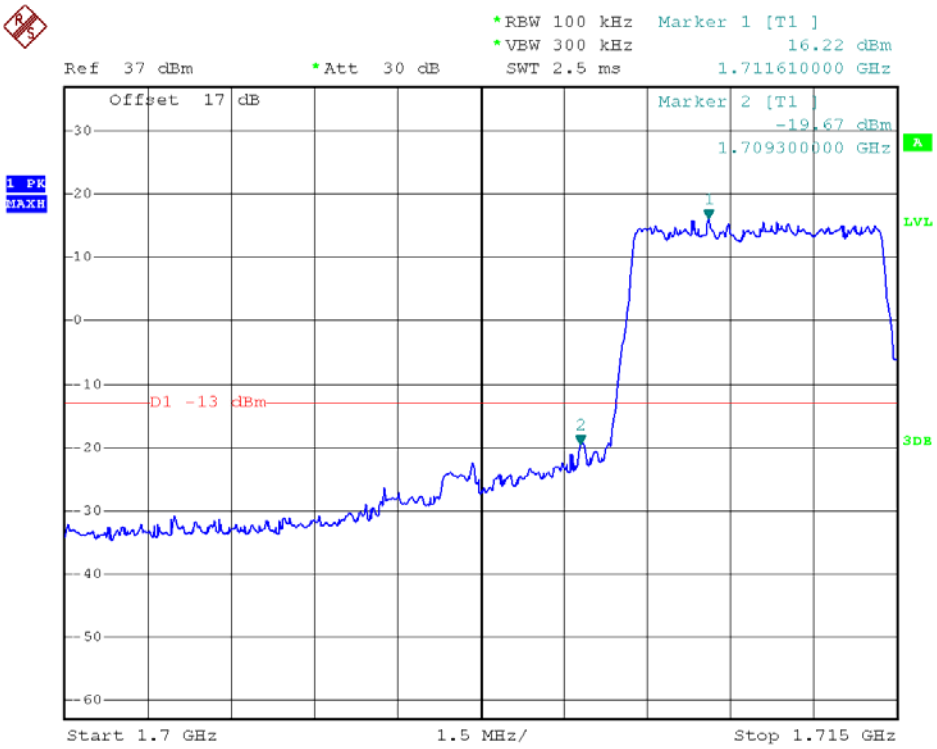


Higher Band Edge Plot for 16QAM -RB Size 15, RB Offset 0

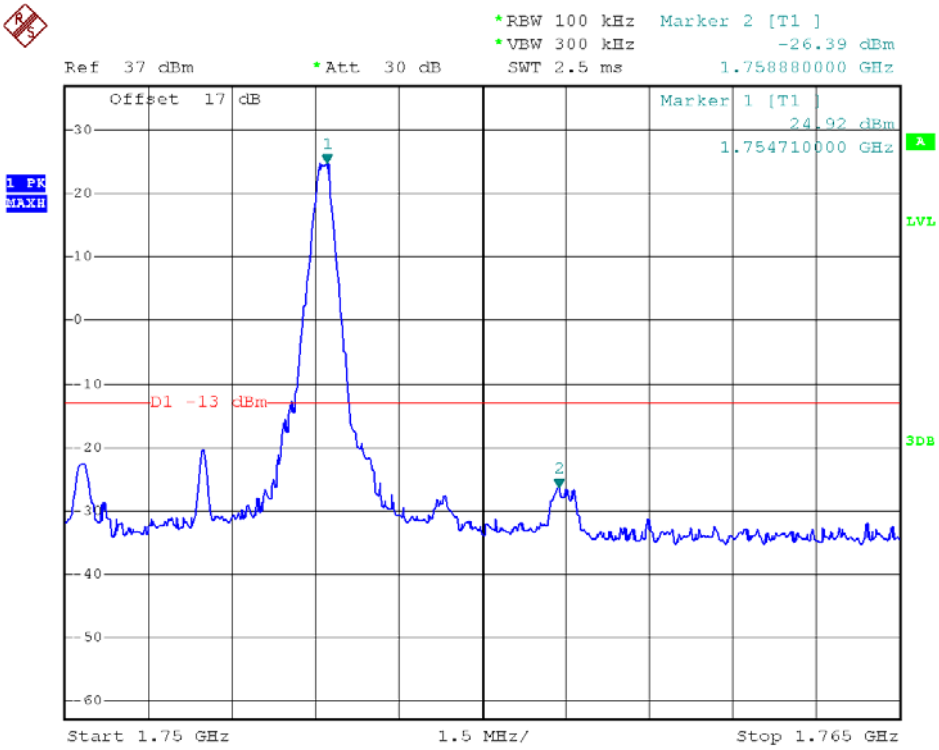
Band	LTE Band 4	Modulation	QPSK
Bandwidth	5MHz		



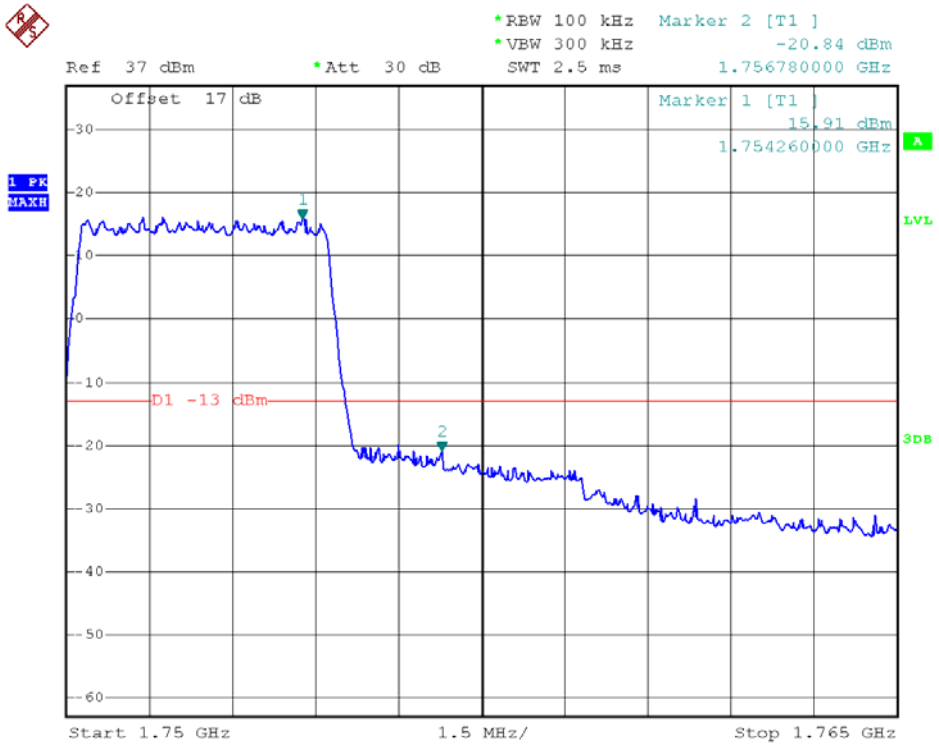
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0

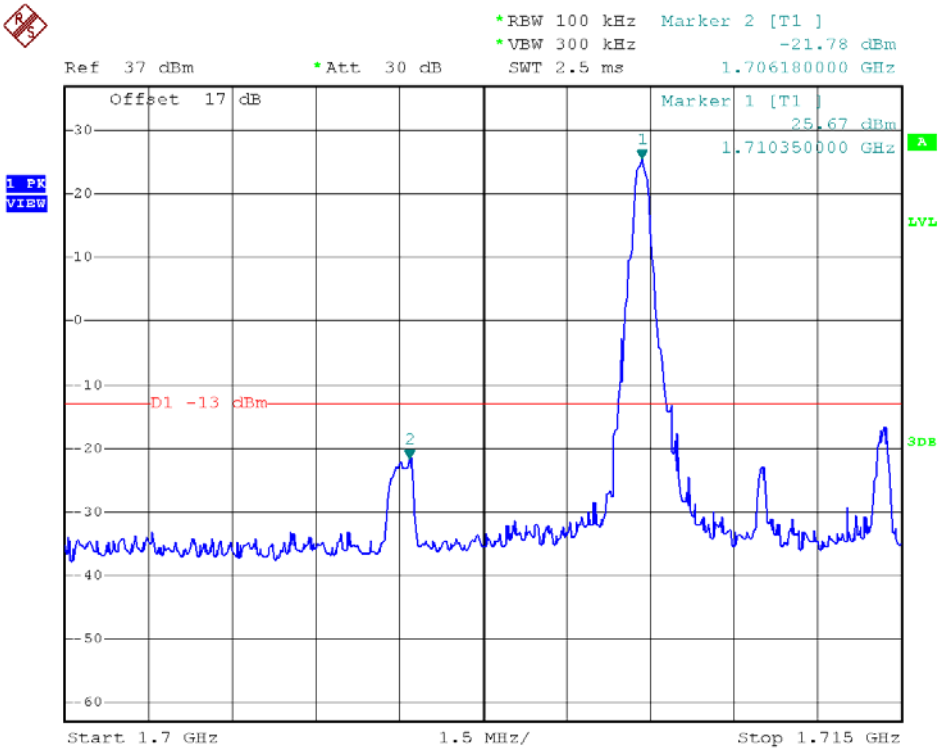


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24

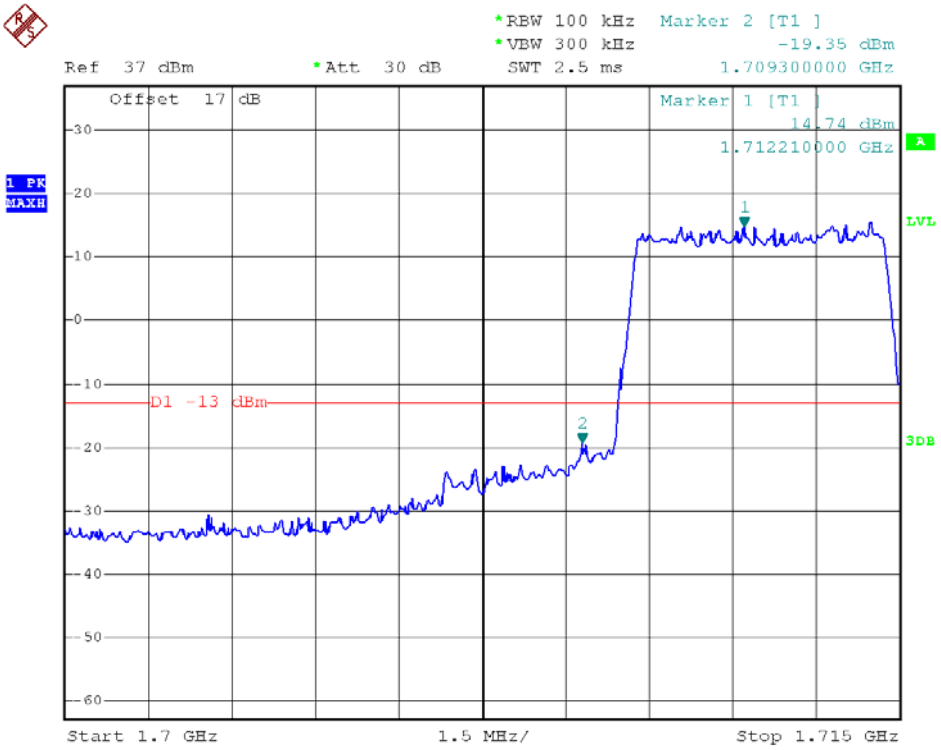


Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0

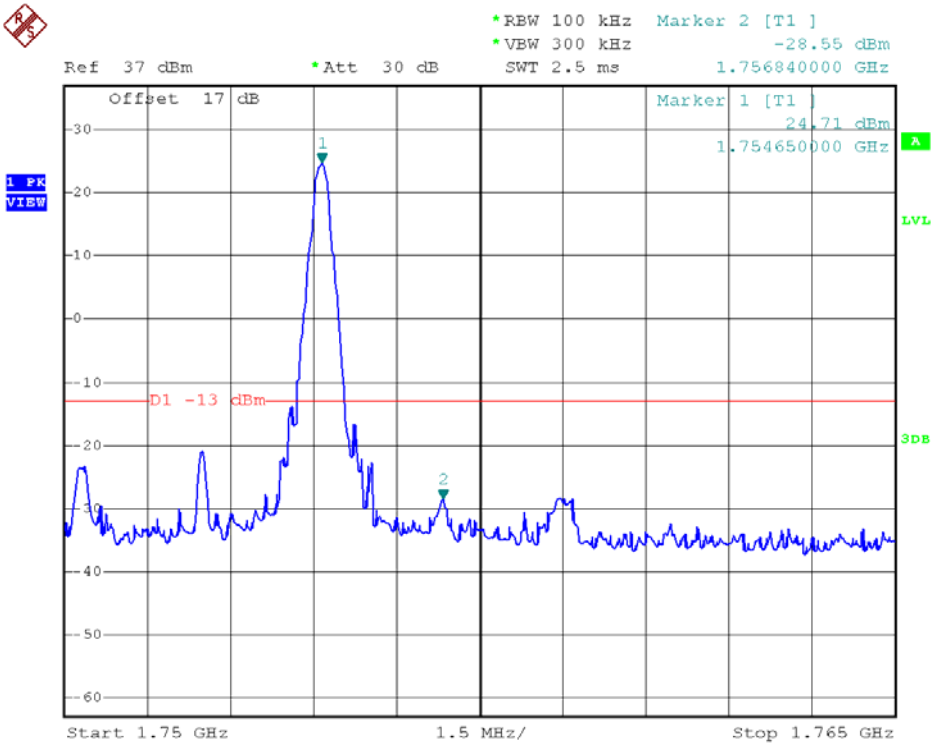
Band	LTE Band 4	Modulation	16QAM
Bandwidth	5MHz		



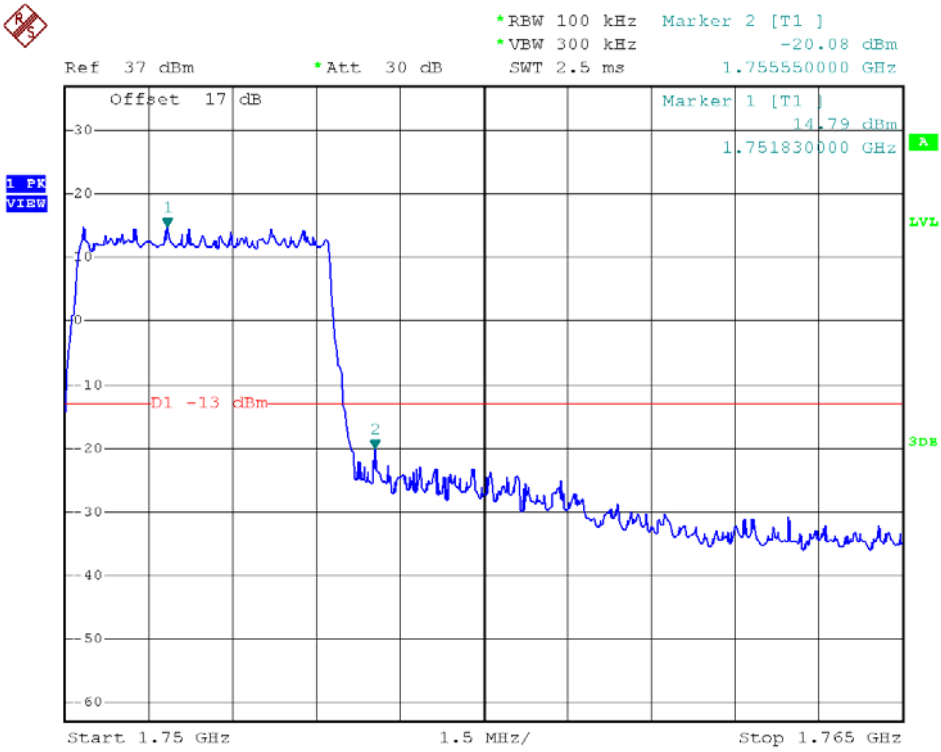
Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 25, RB Offset 0

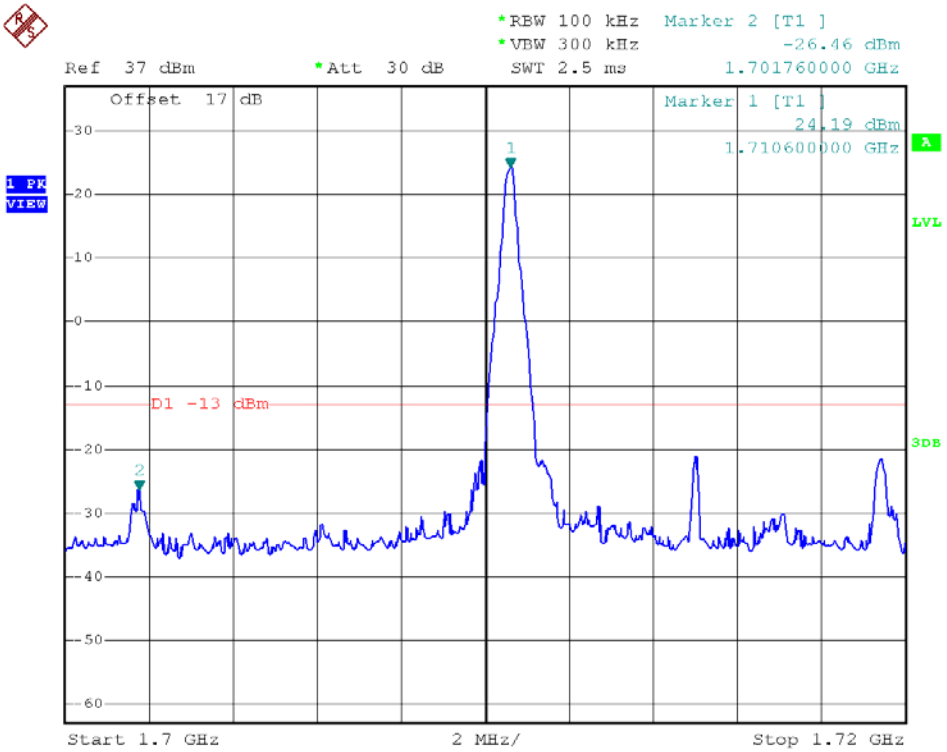


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 24

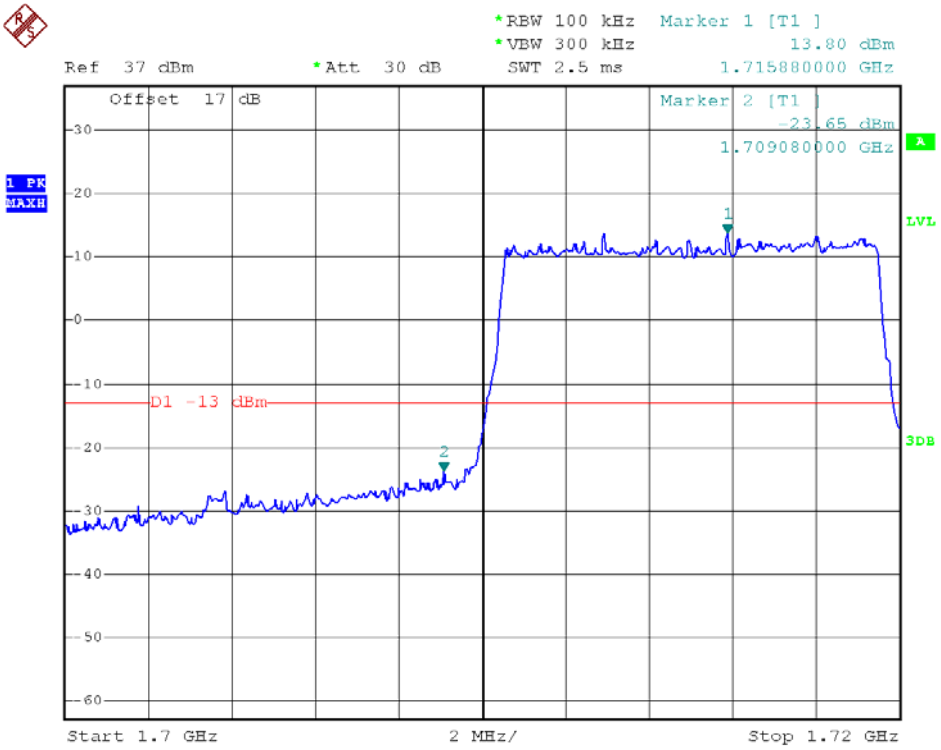


Higher Band Edge Plot for 16QAM -RB Size 25, RB Offset 0

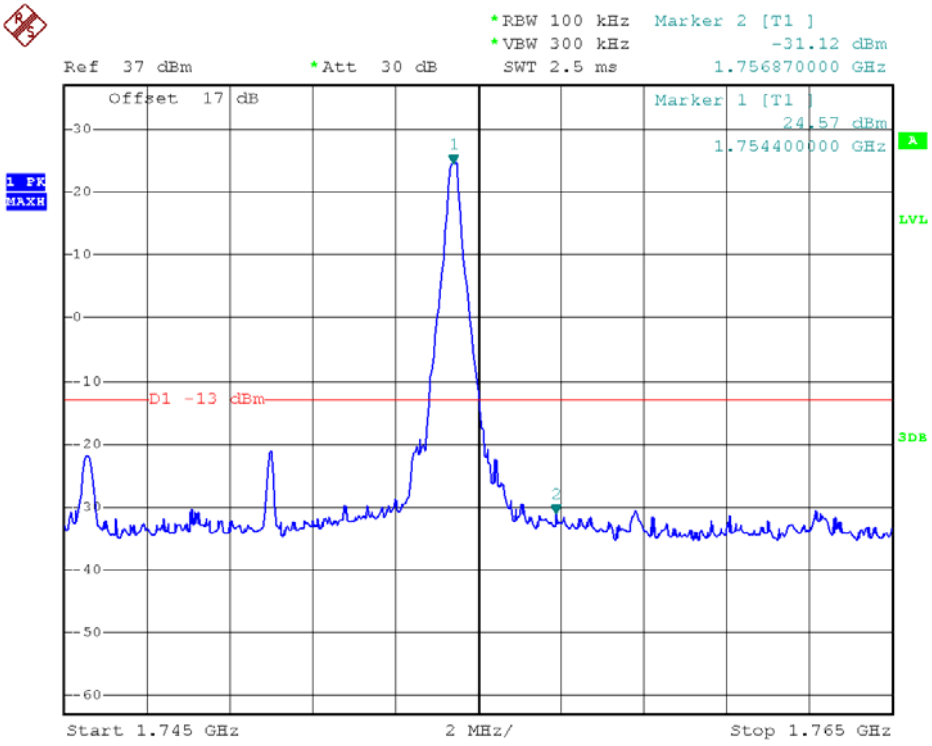
Band	LTE Band 4	Modulation	QPSK
Bandwidth	10MHz		



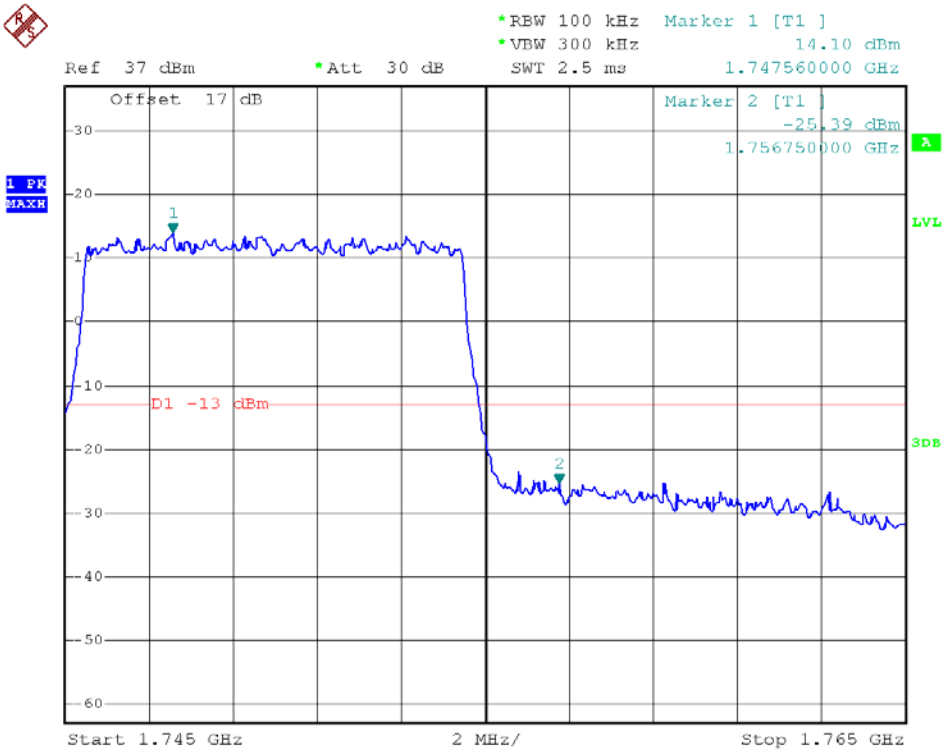
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0

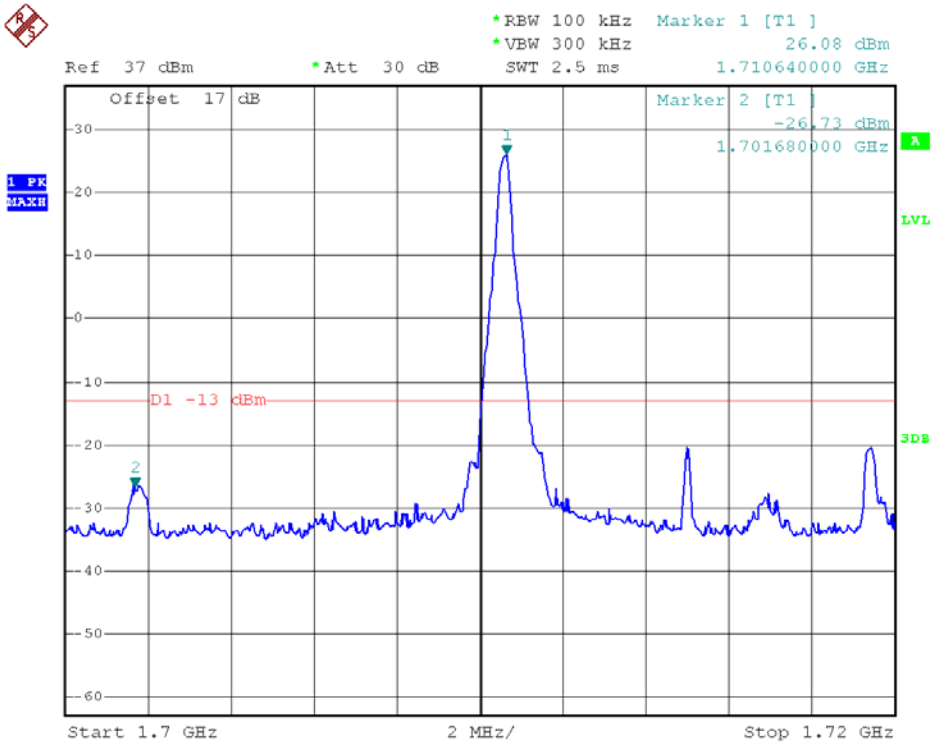


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49

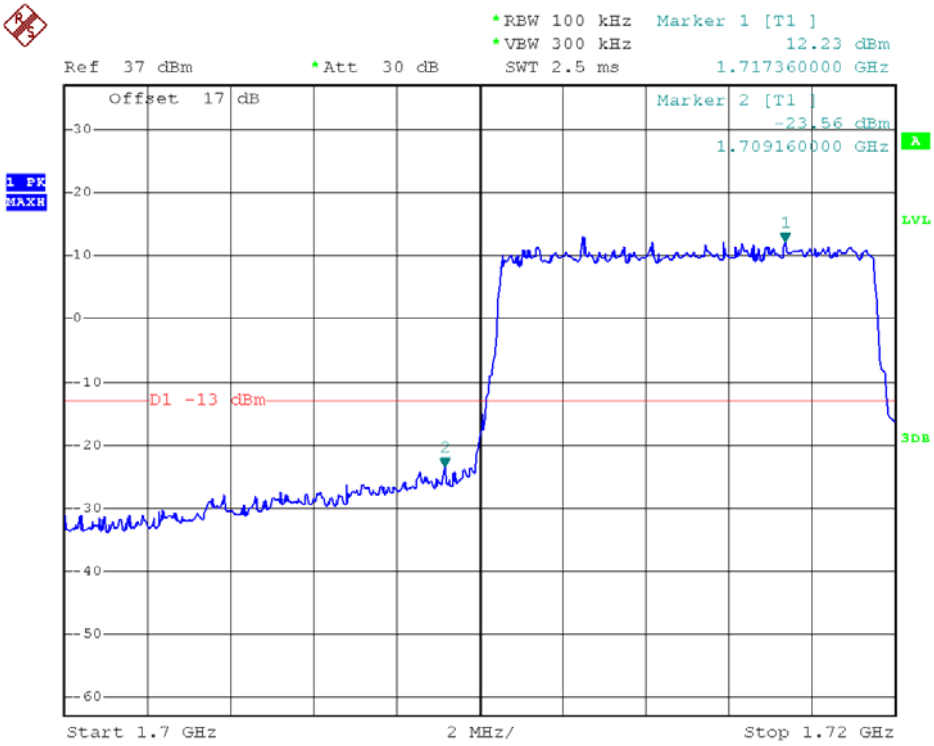


Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

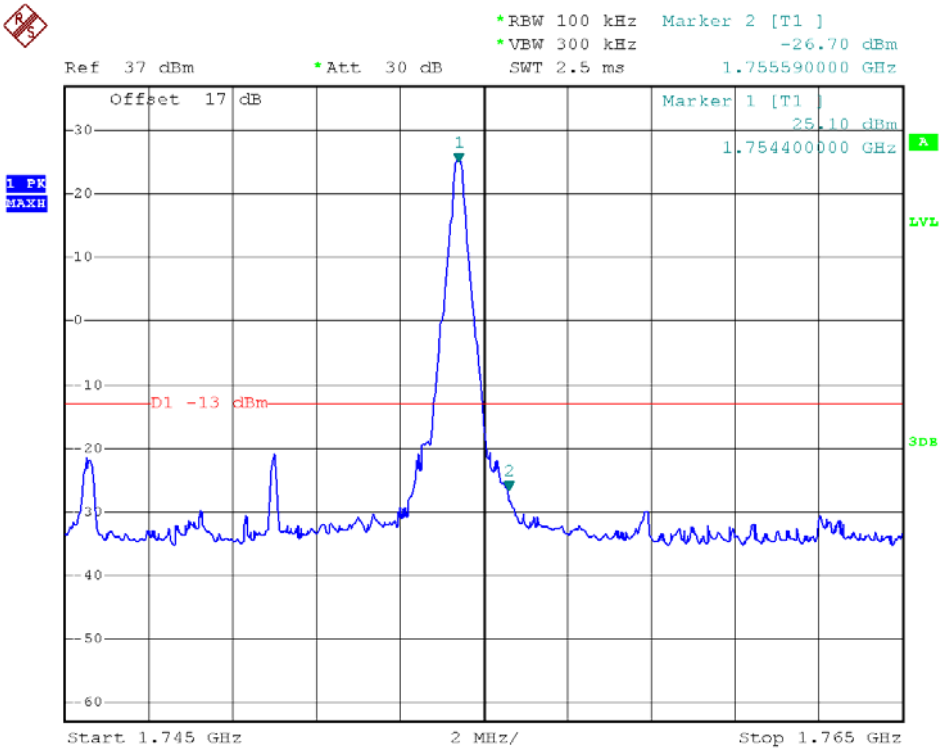
Band	LTE Band 4	Modulation	16QAM
Bandwidth	10MHz		



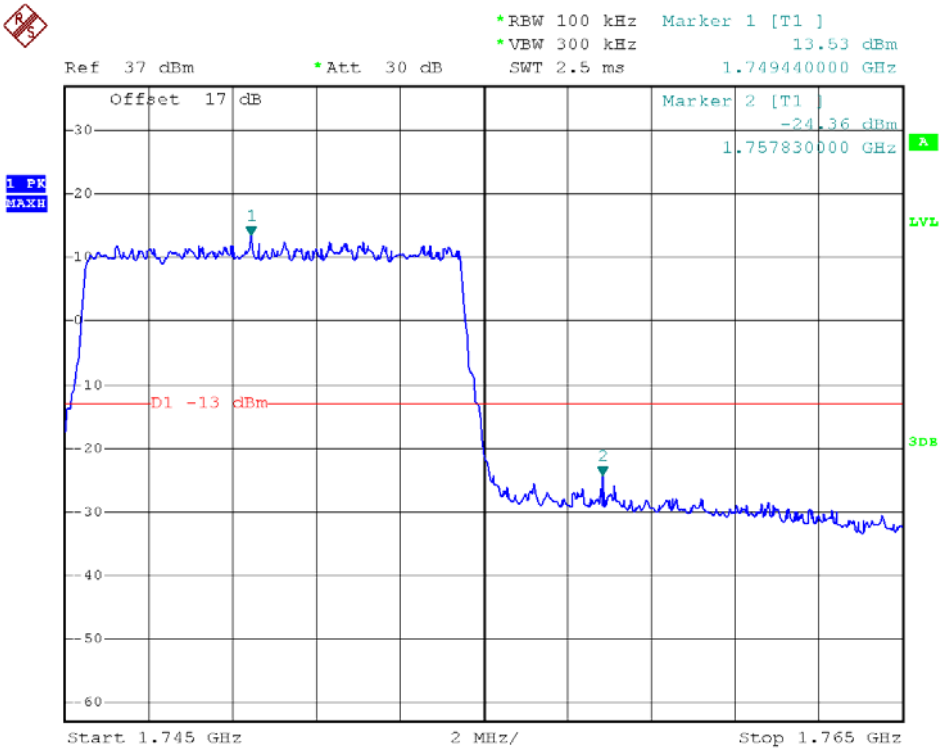
Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 50, RB Offset 0

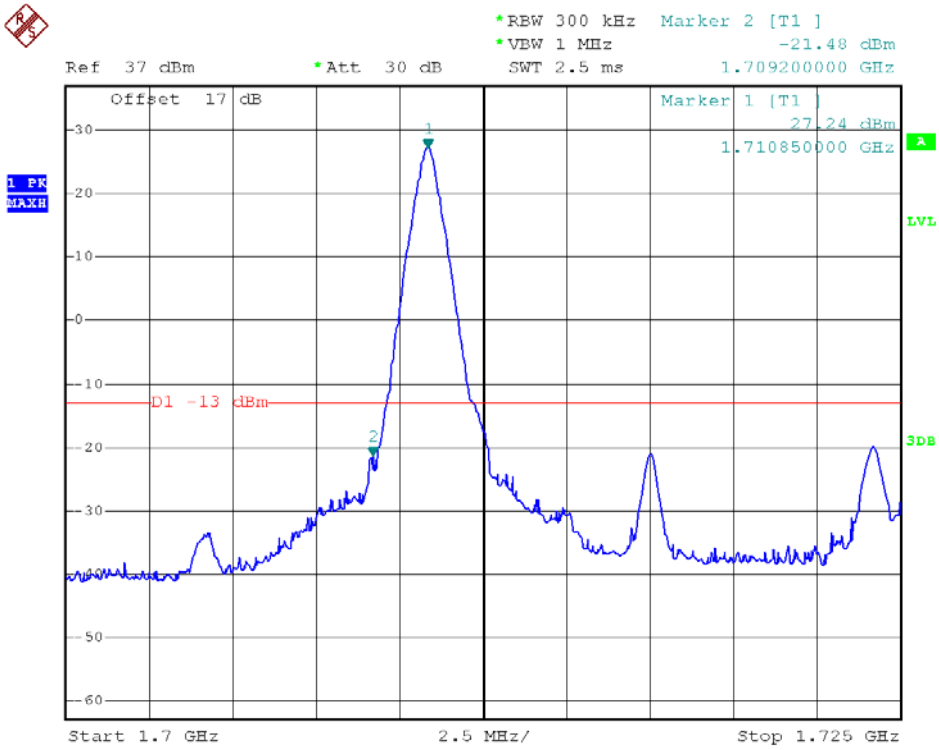


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 49

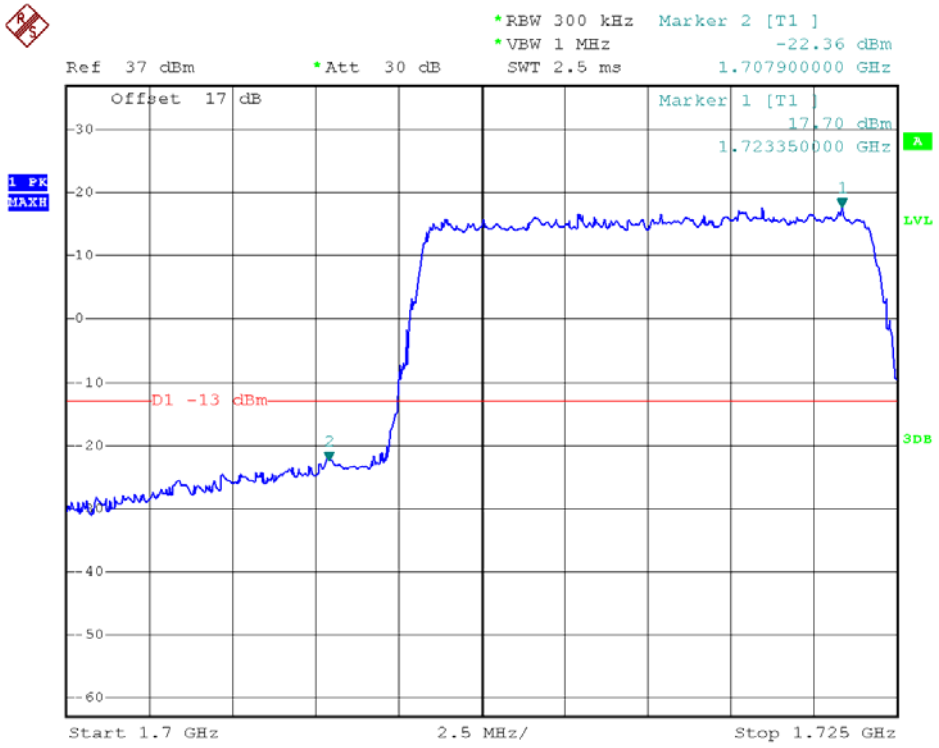


Higher Band Edge Plot for 16QAM -RB Size 50, RB Offset 0

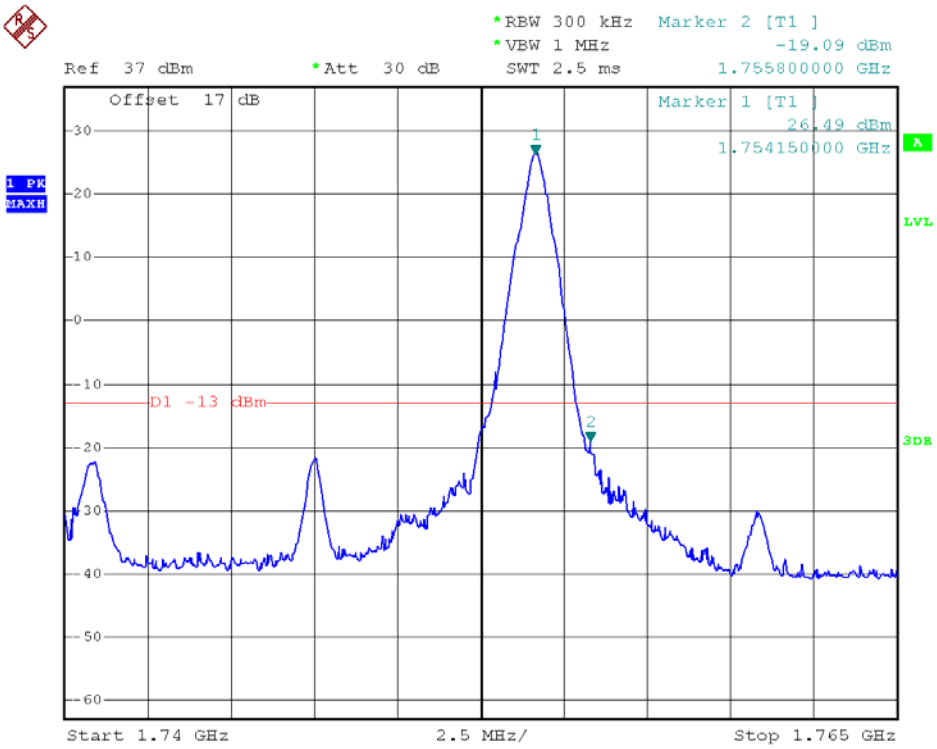
Band	LTE Band 4	Modulation	QPSK
Bandwidth	15MHz		



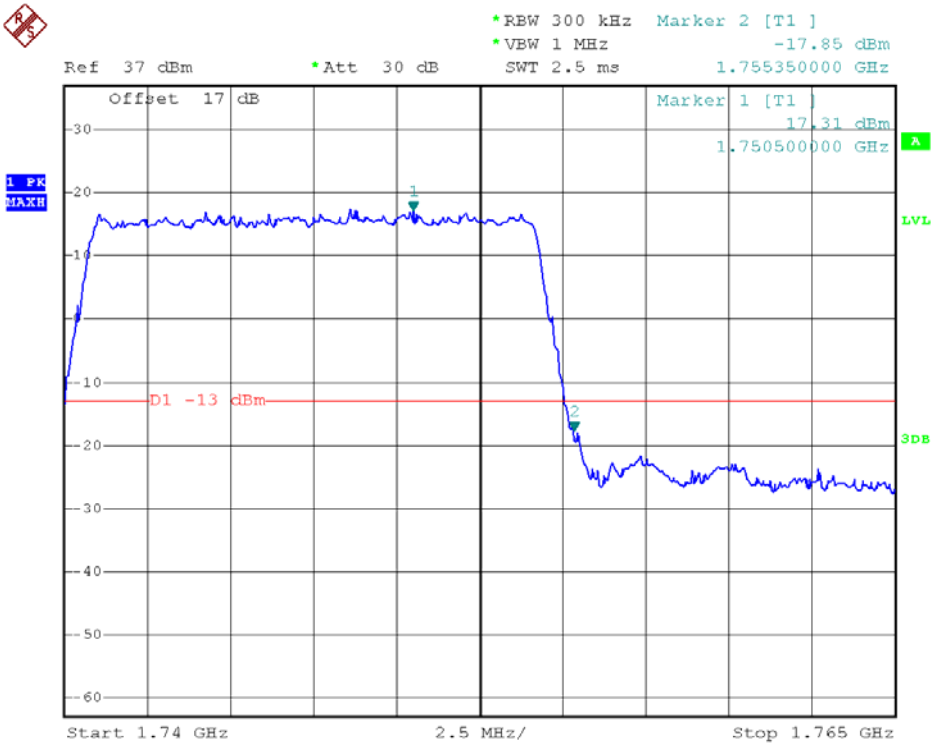
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 75, RB Offset 0

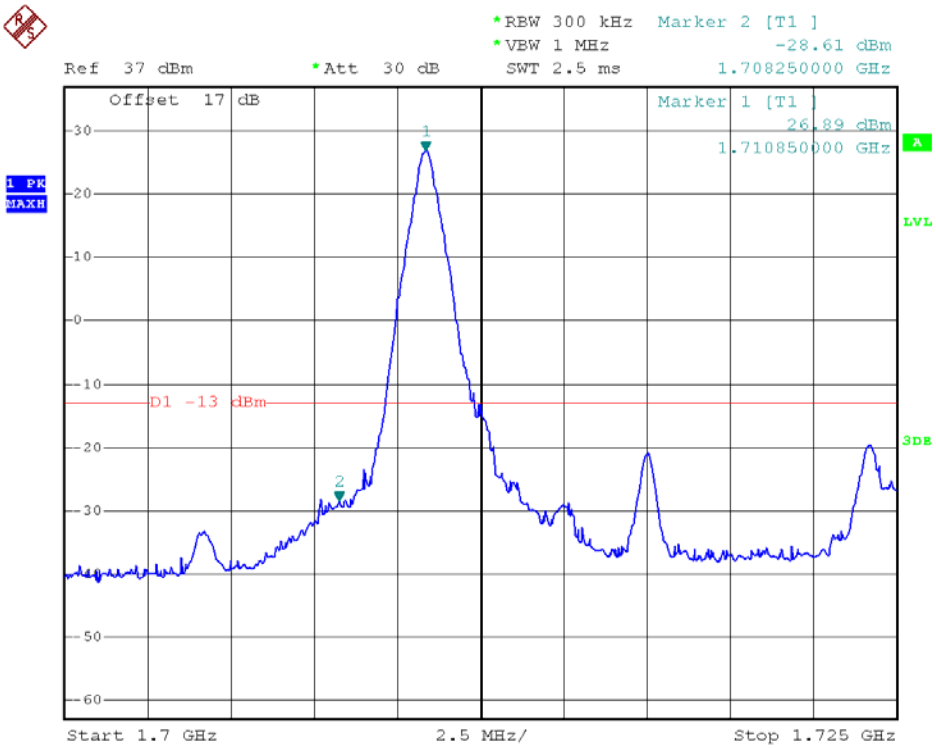


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 74

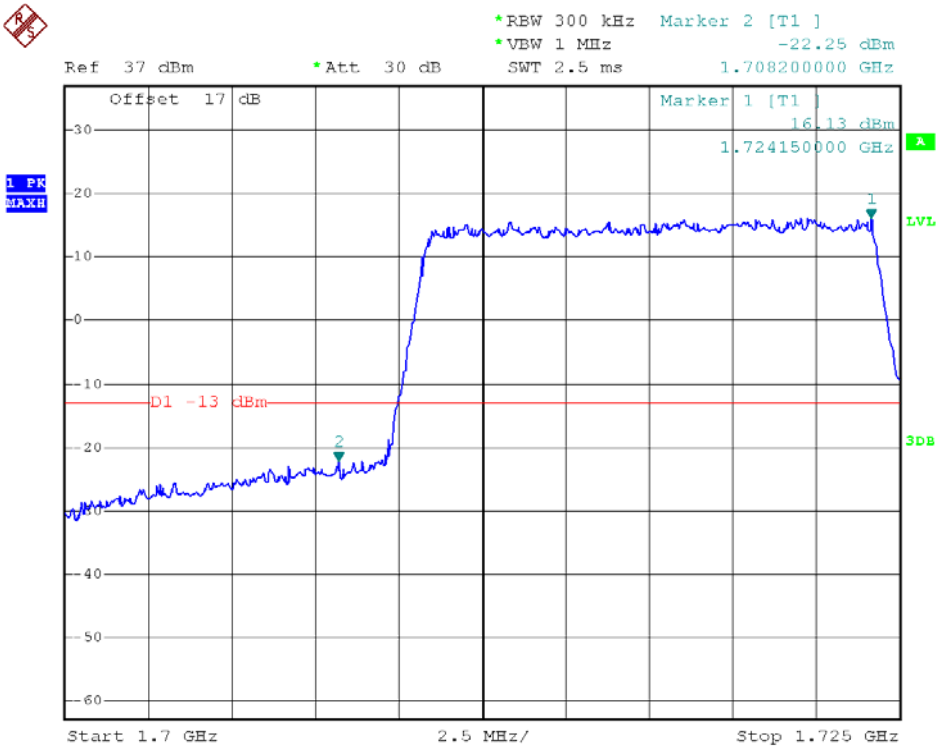


Higher Band Edge Plot for QPSK-RB Size 75, RB Offset 0

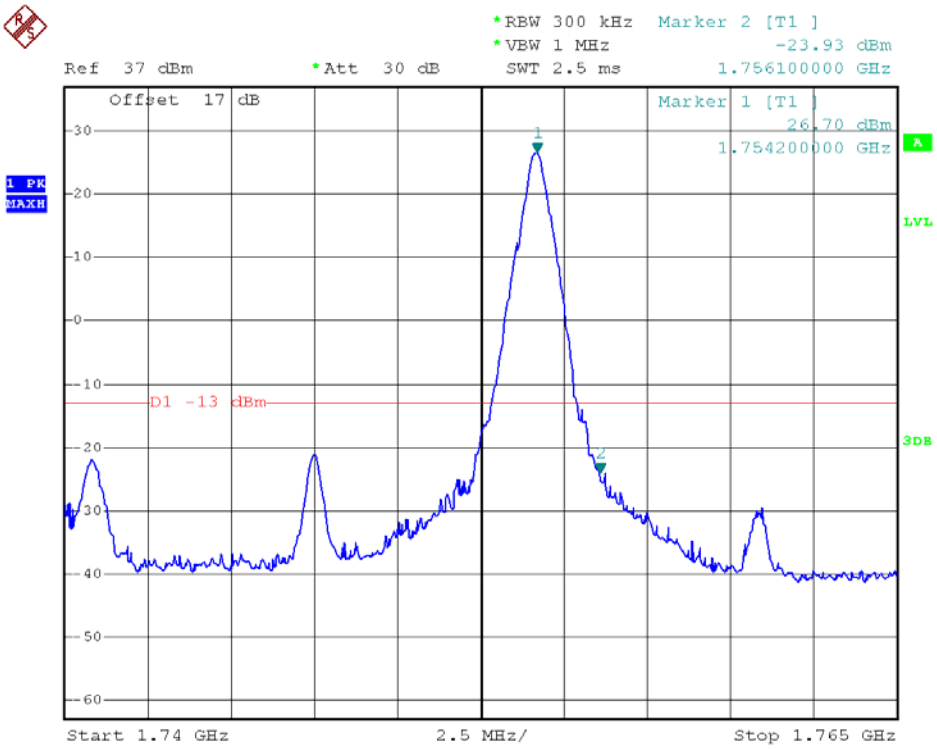
Band	LTE Band 4	Modulation	16QAM
Bandwidth	15MHz		



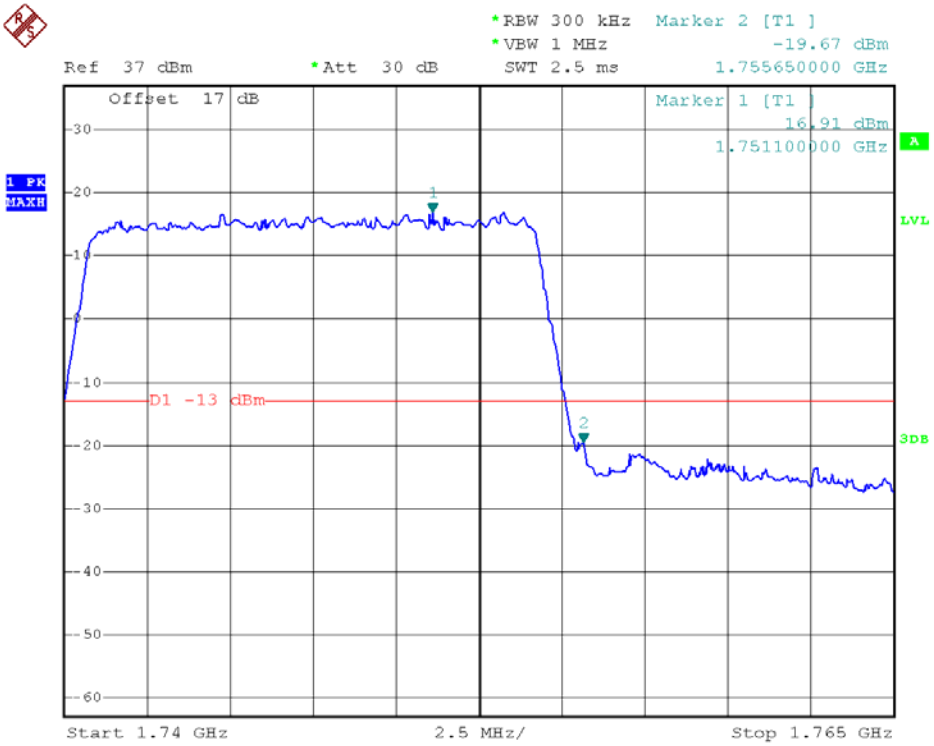
Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 75, RB Offset 0

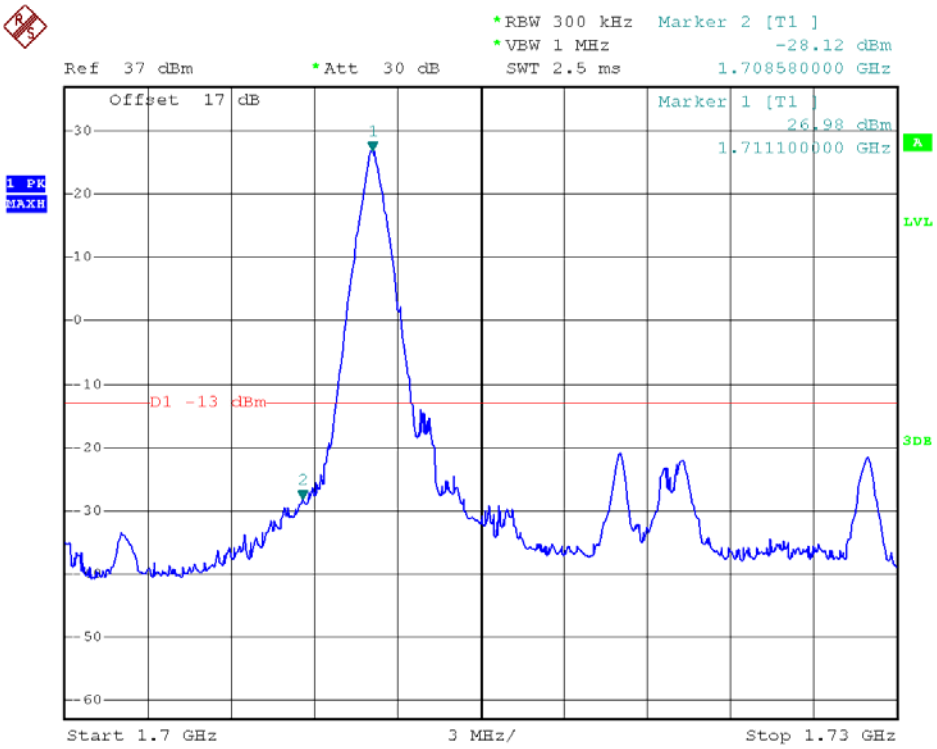


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 74

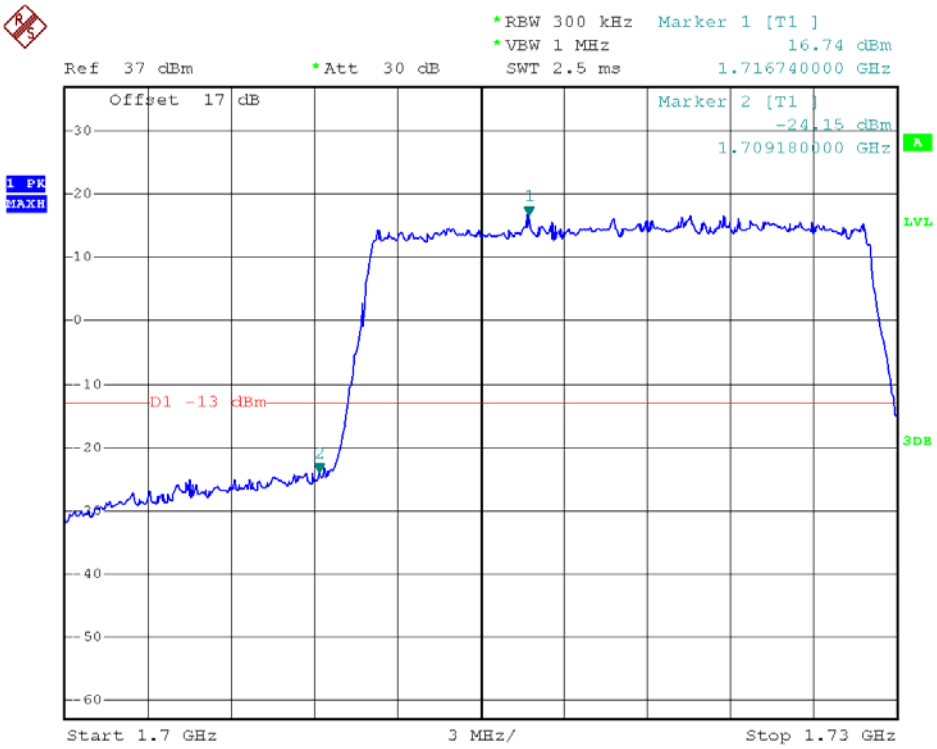


Higher Band Edge Plot for 16QAM -RB Size 75, RB Offset 0

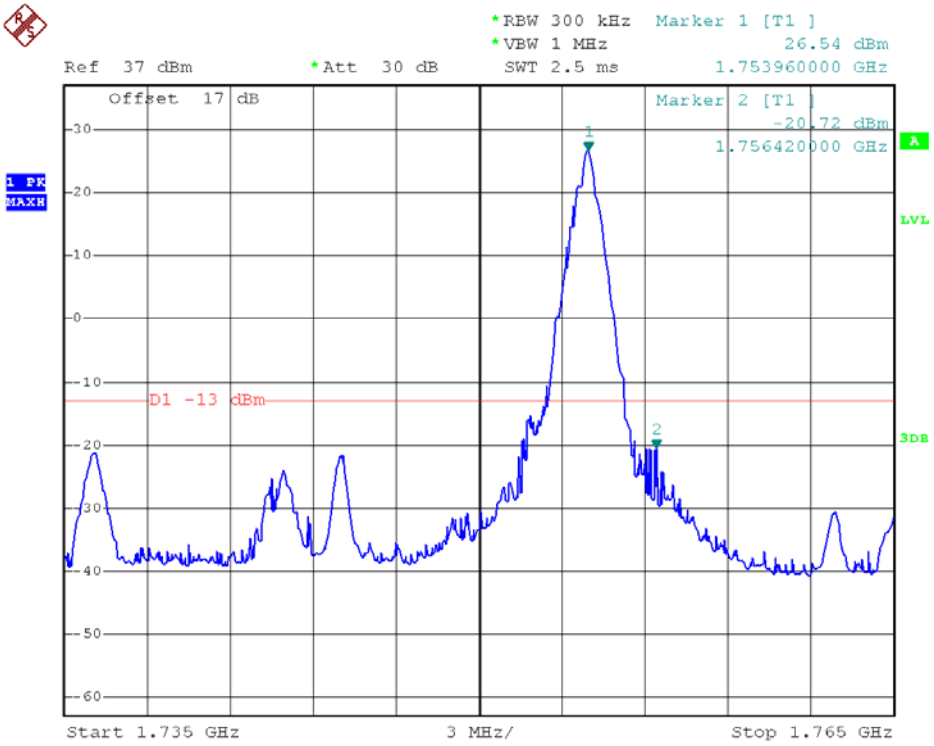
Band	LTE Band 4	Modulation	QPSK
Bandwidth	20MHz		



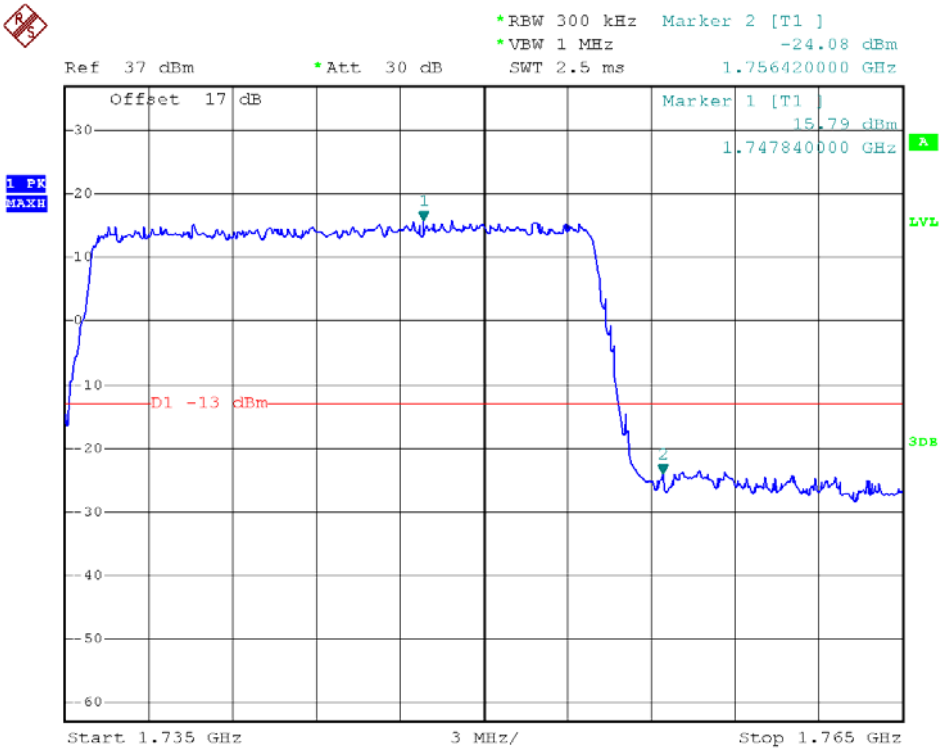
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 100, RB Offset 0

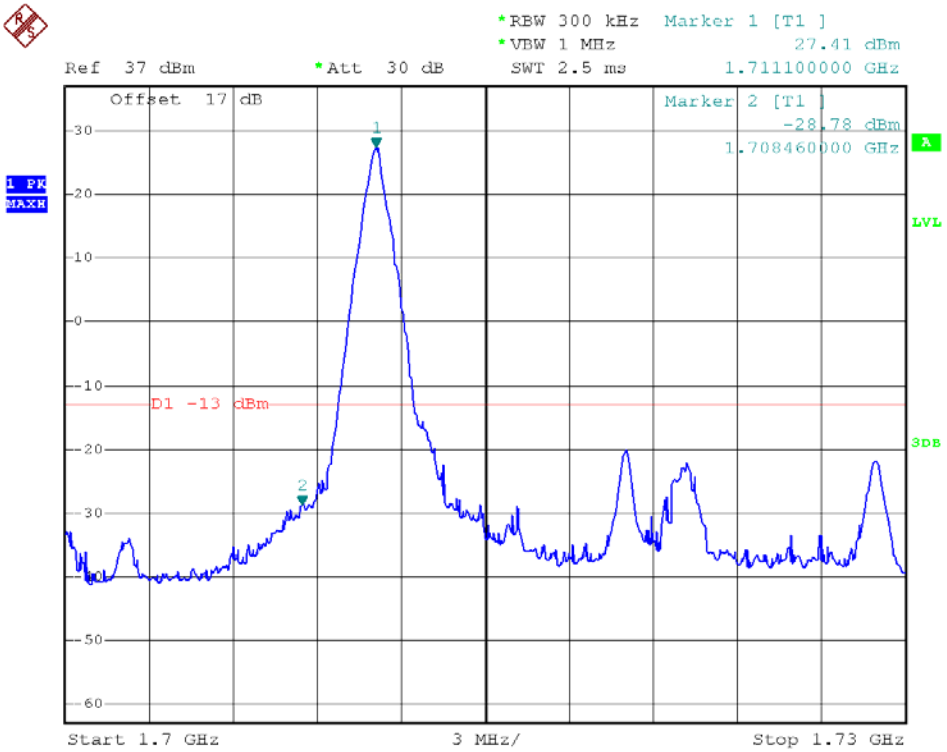


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 99

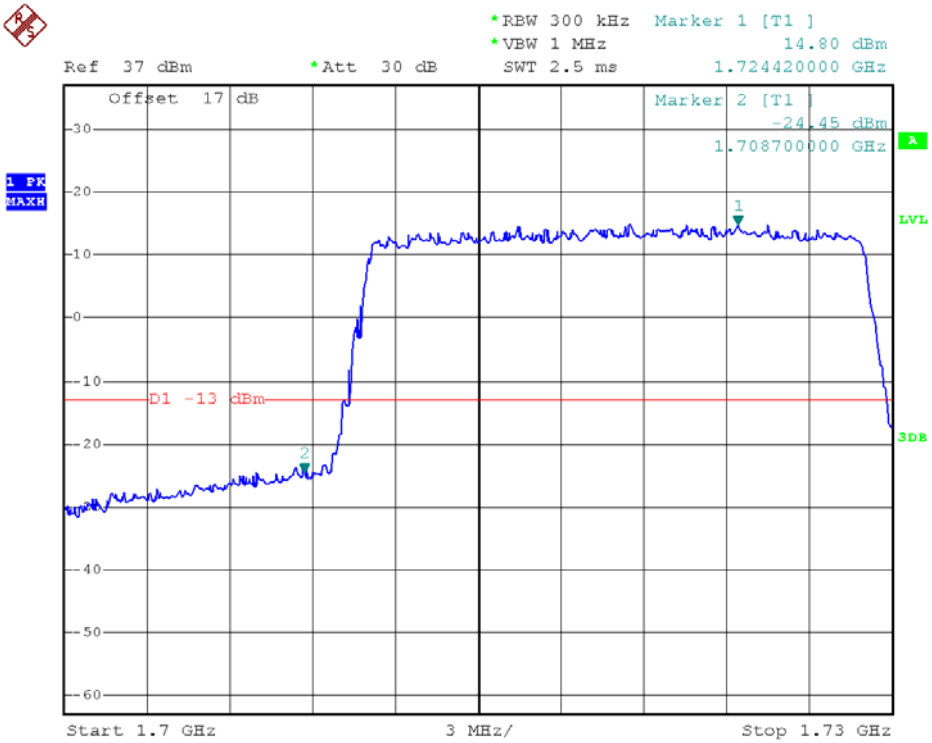


Higher Band Edge Plot for QPSK-RB Size 100, RB Offset 0

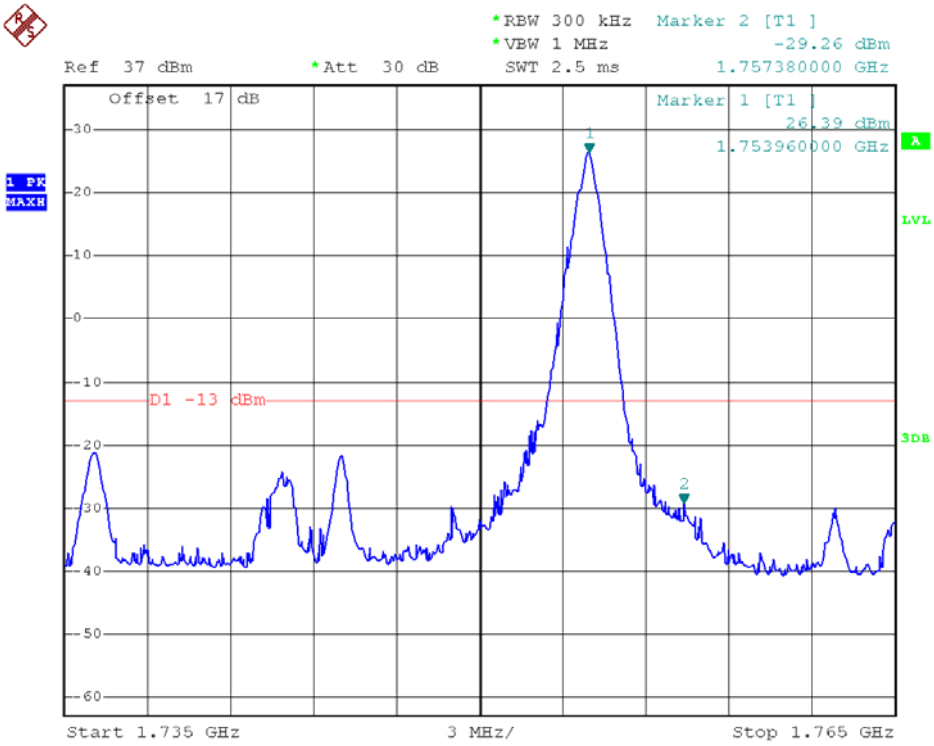
Band	LTE Band 4	Modulation	16QAM
Bandwidth	20MHz		



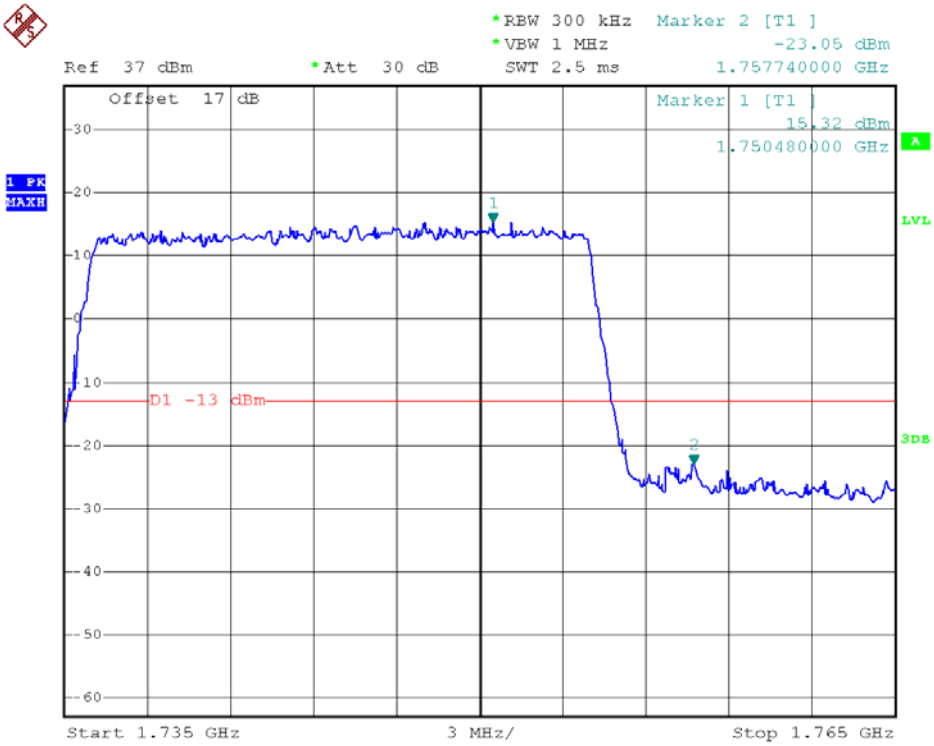
Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 100, RB Offset 0

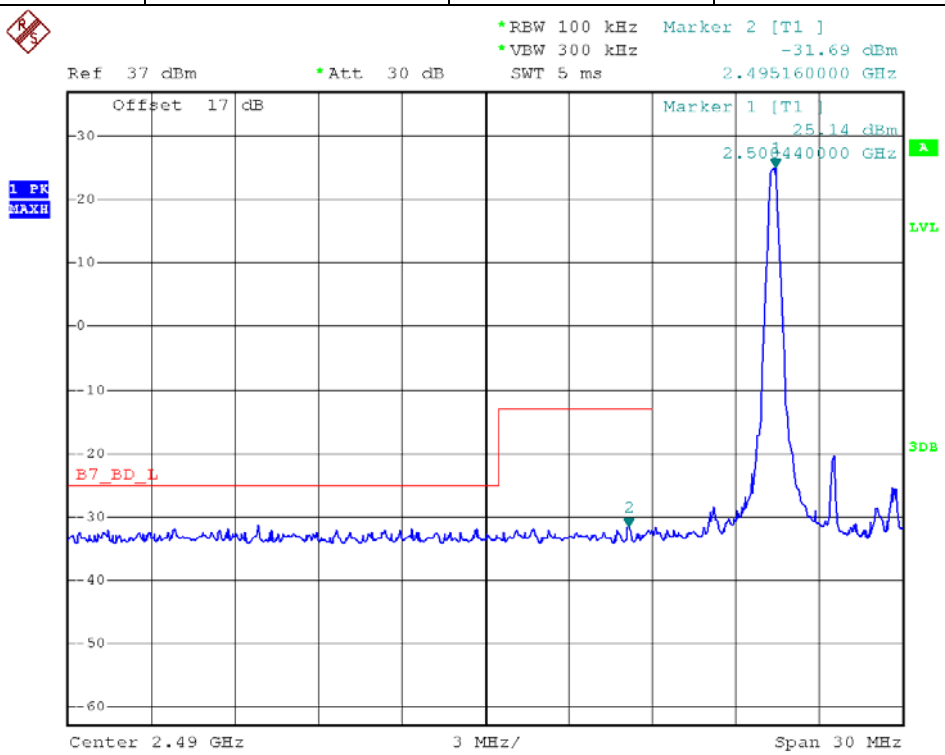


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 99

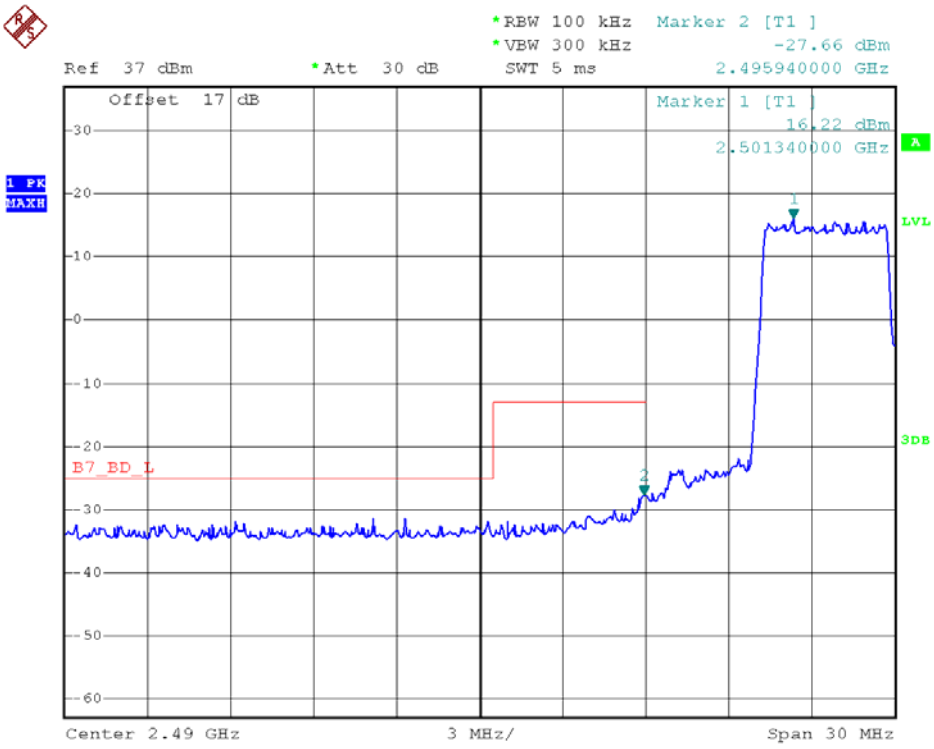


Higher Band Edge Plot for 16QAM -RB Size 100, RB Offset 0

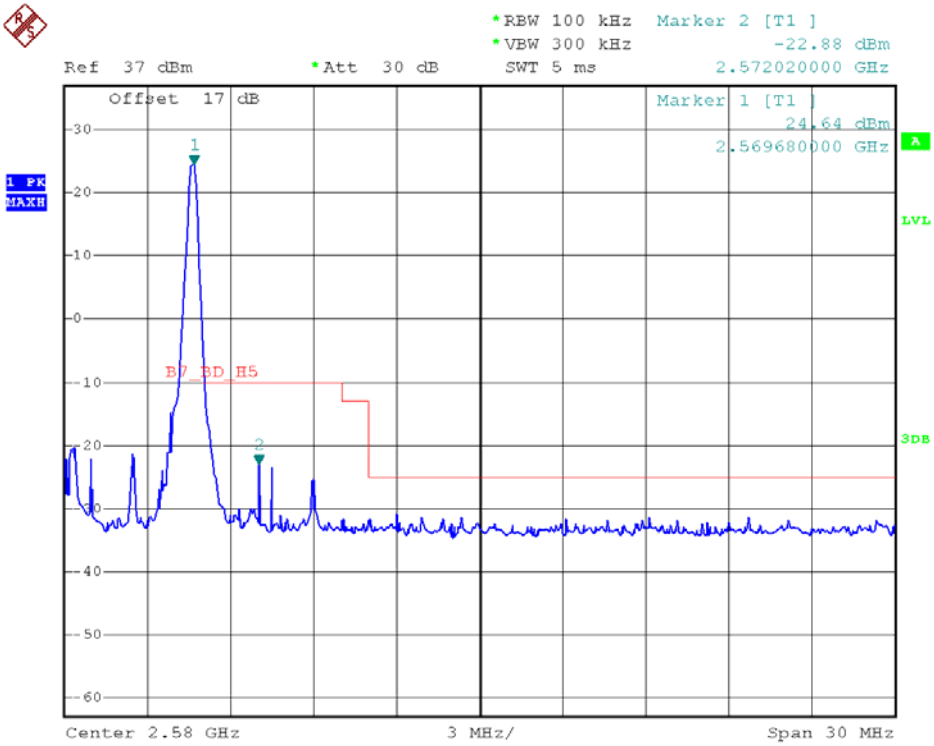
Band	LTE Band 7	Modulation	QPSK
Bandwidth	5MHz		



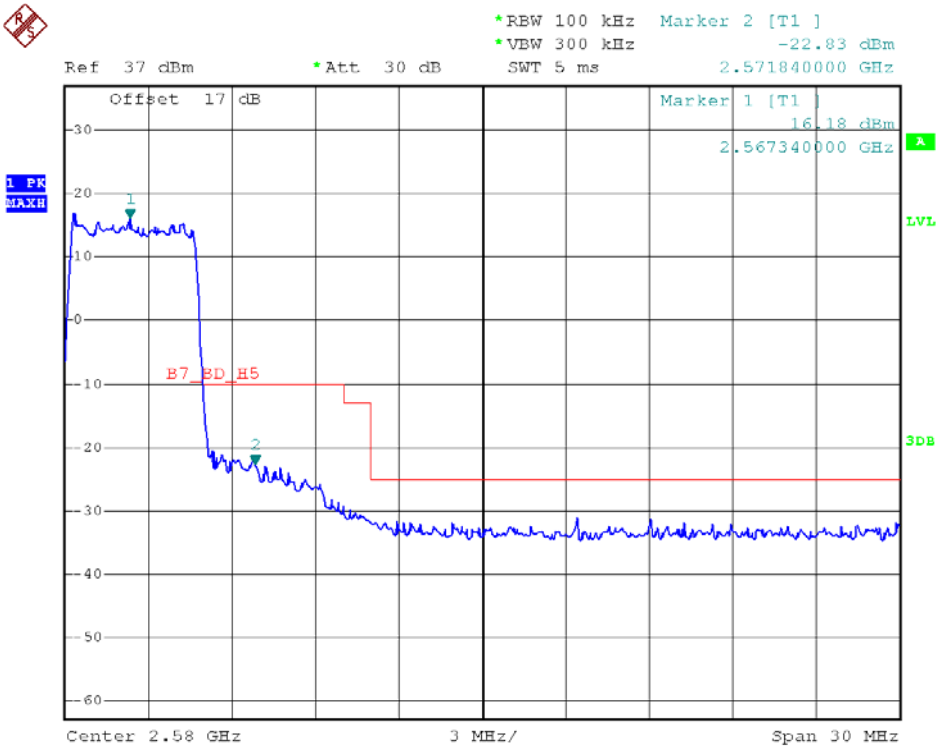
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0

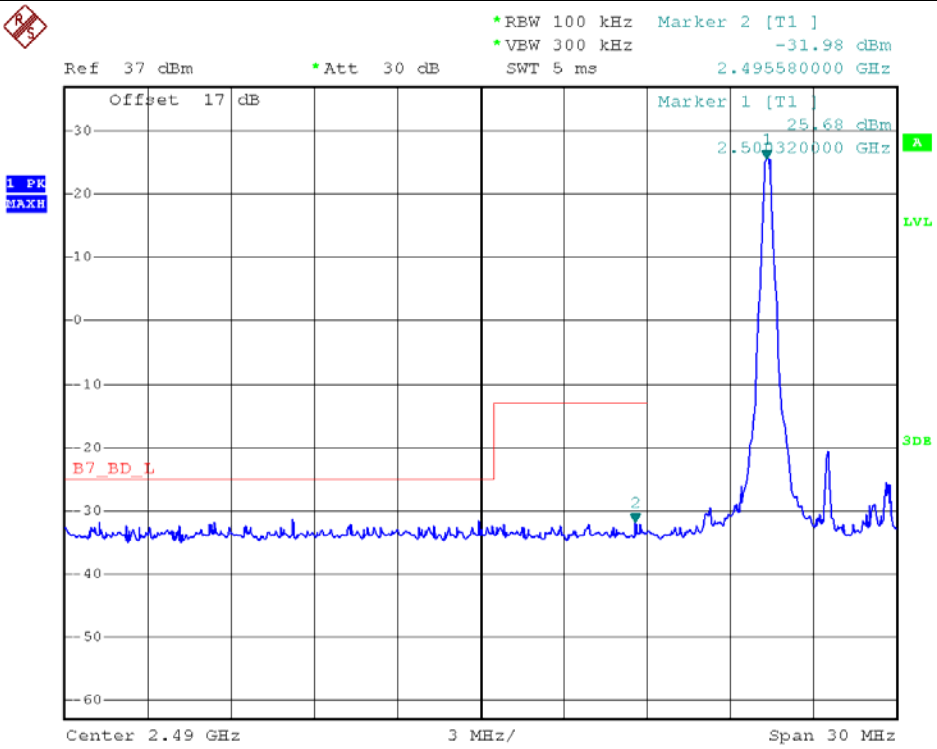


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24

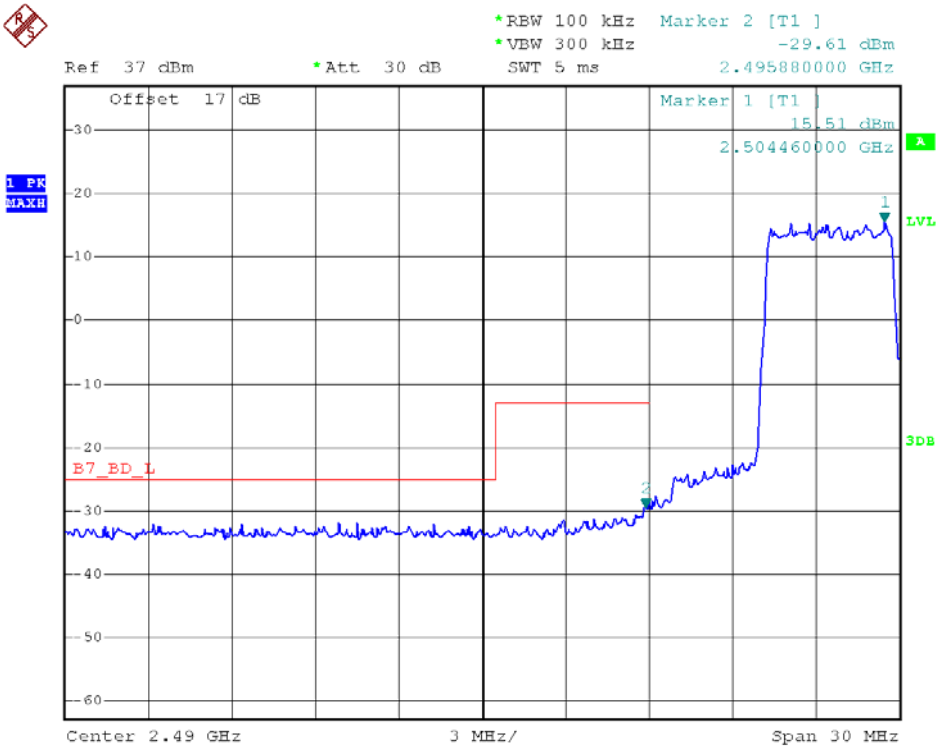


Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0

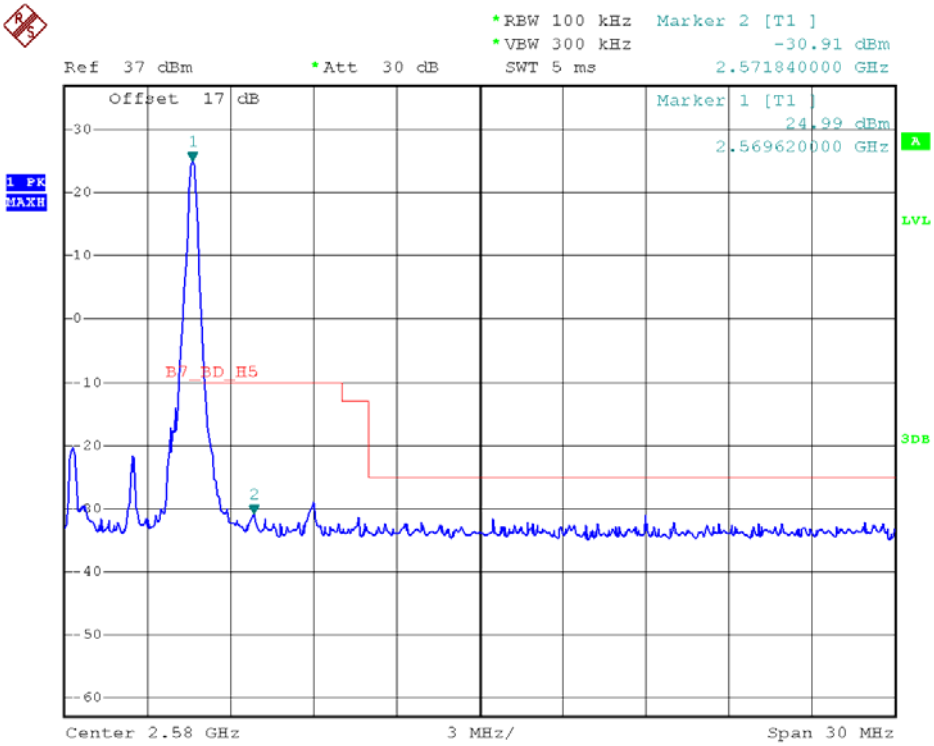
Band	LTE Band 7	Modulation	16QAM
Bandwidth	5MHz		



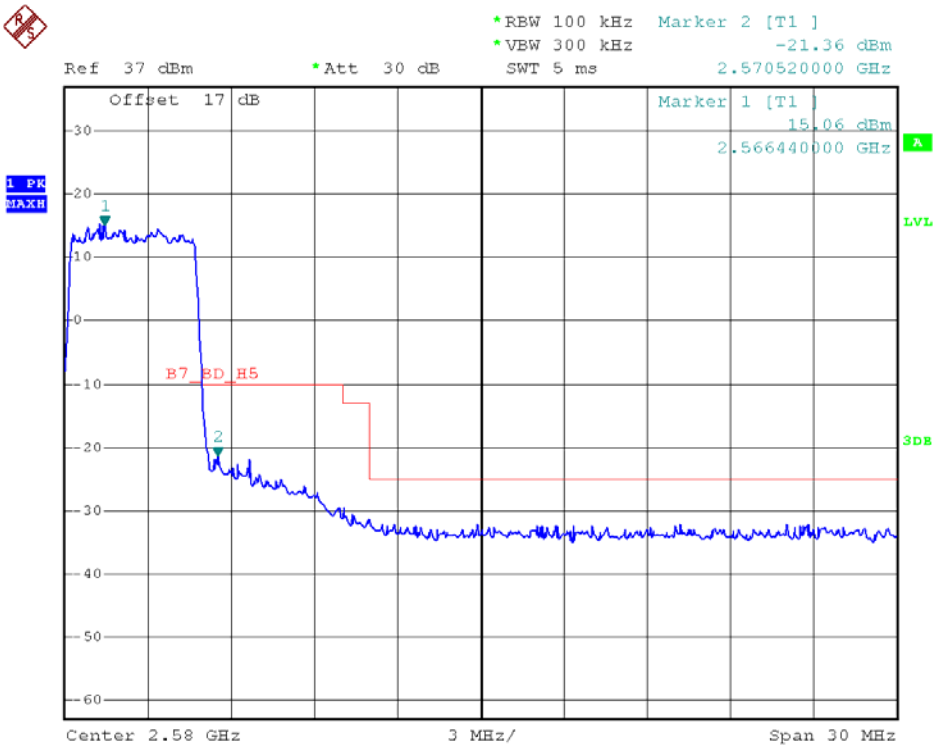
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 25, RB Offset 0

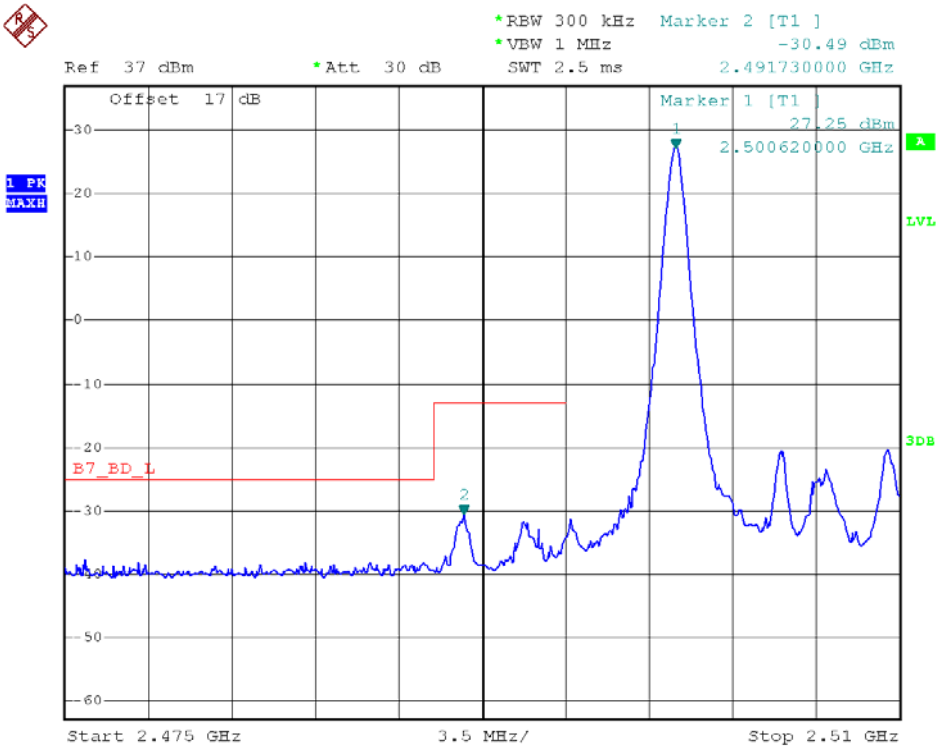


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 24

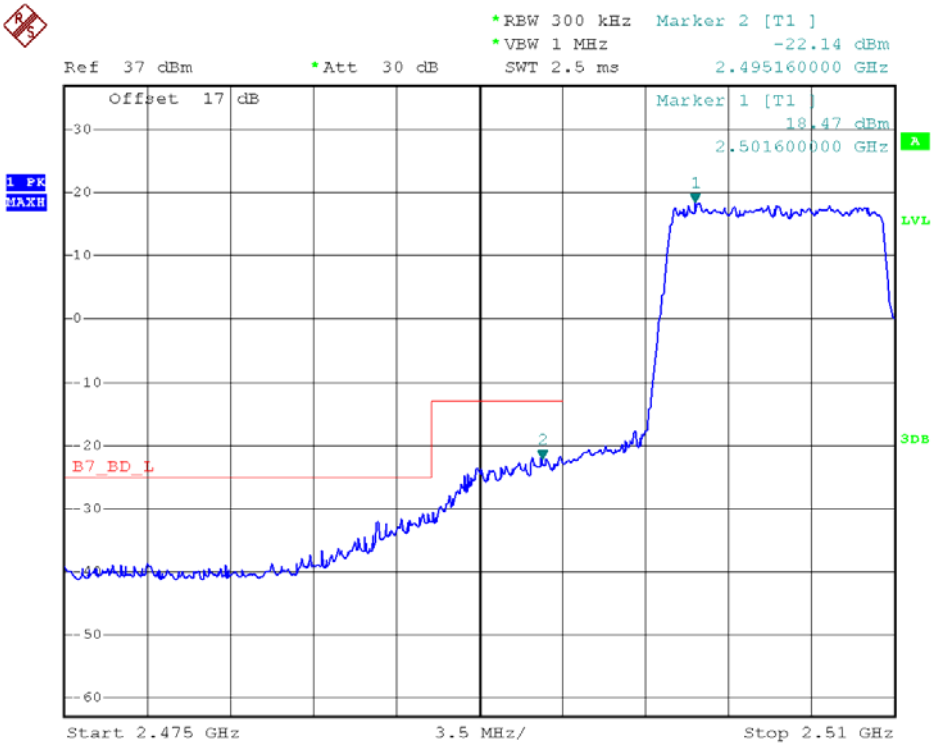


Higher Band Edge Plot for 16QAM -RB Size 25, RB Offset 0

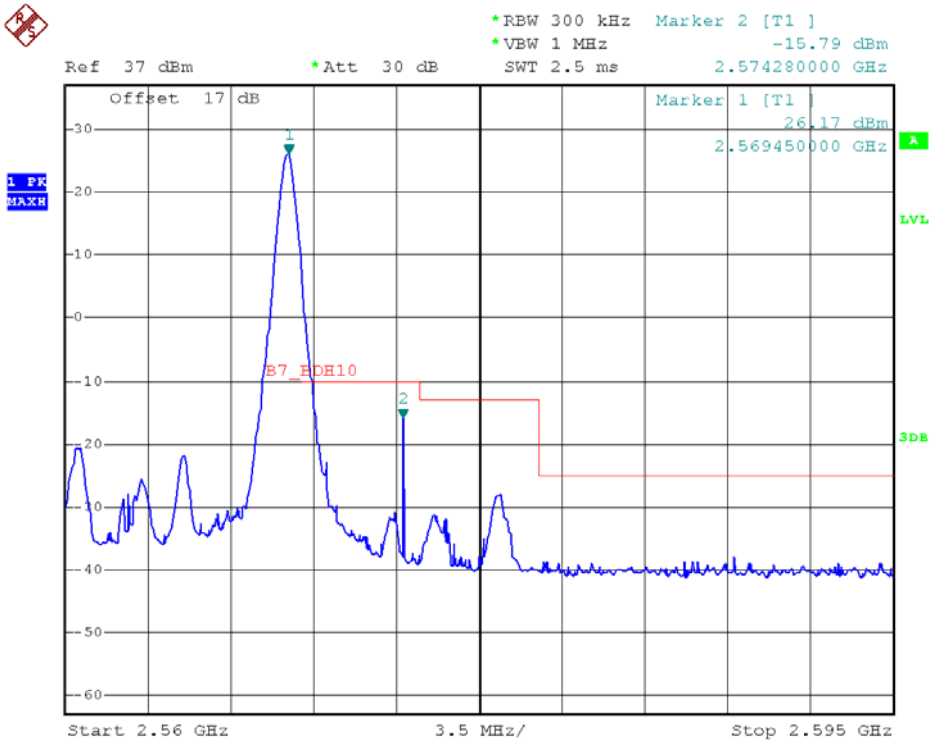
Band	LTE Band 7	Modulation	QPSK
Bandwidth	10MHz		



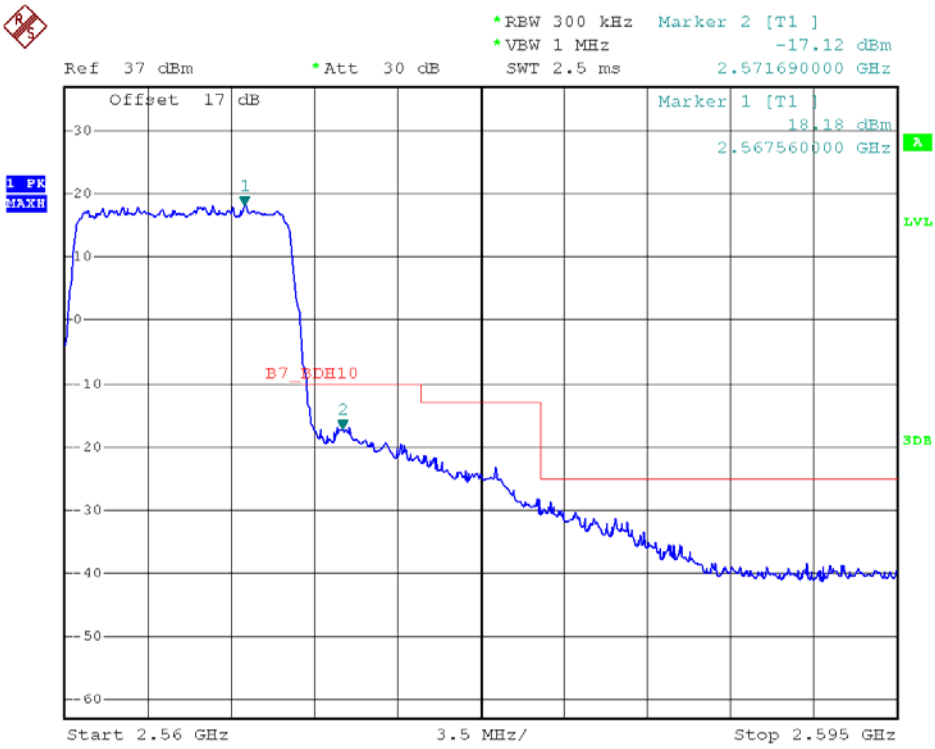
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0

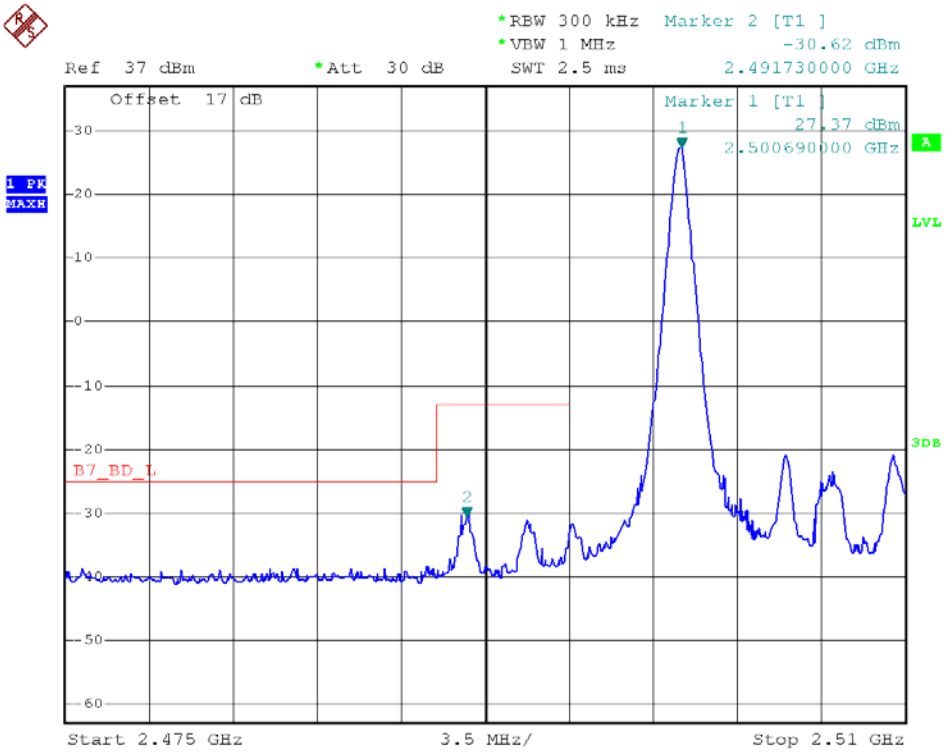


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49

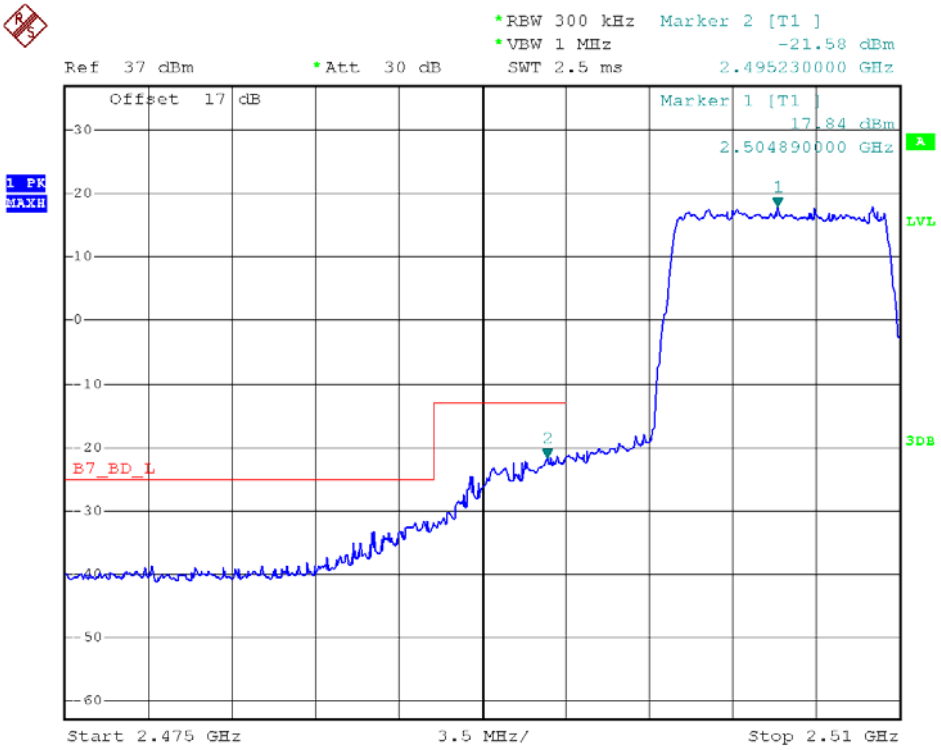


Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

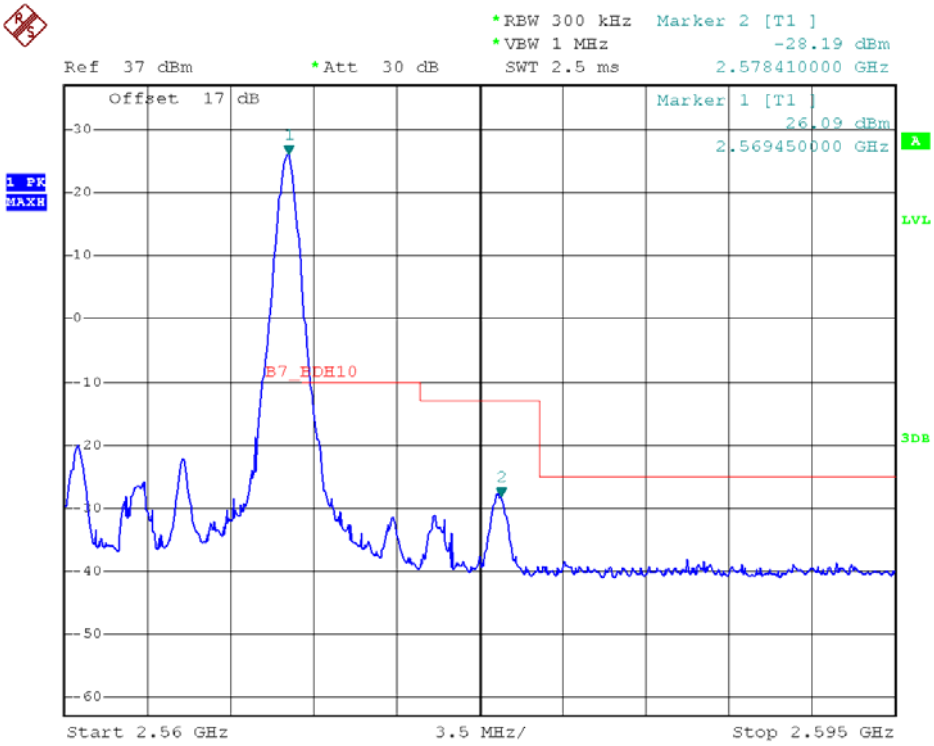
Band	LTE Band 7	Modulation	16QAM
Bandwidth	10MHz		



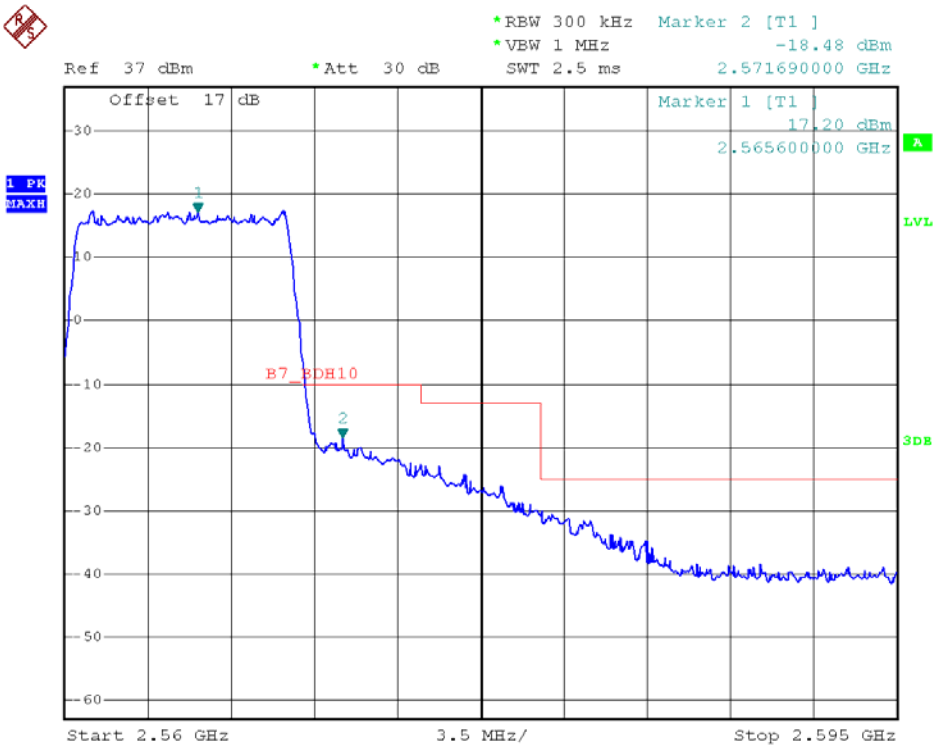
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 50, RB Offset 0

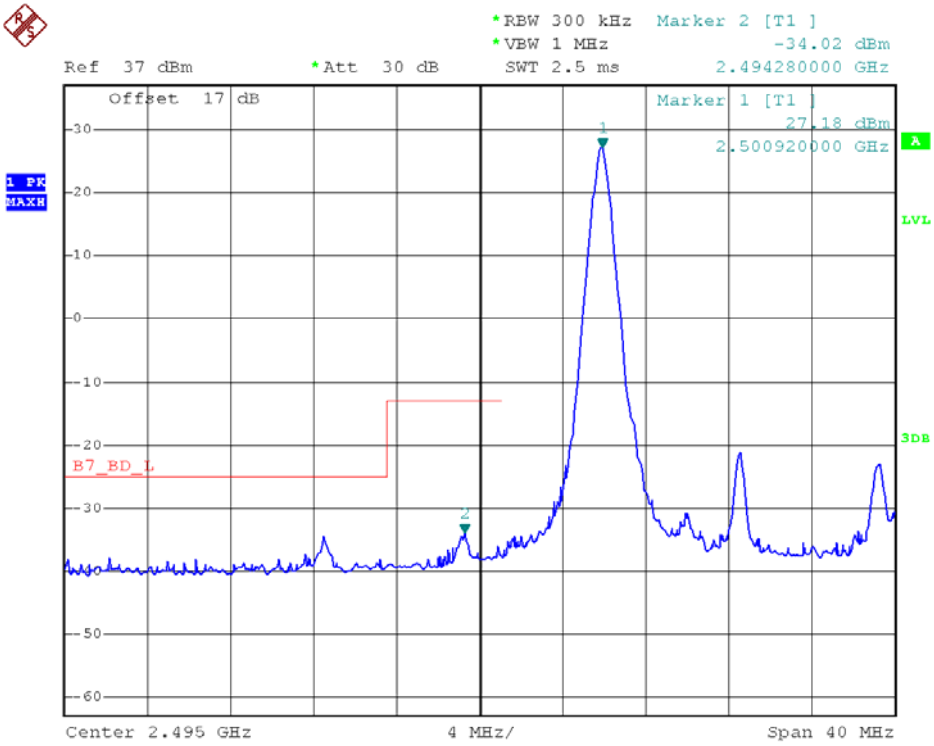


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 49

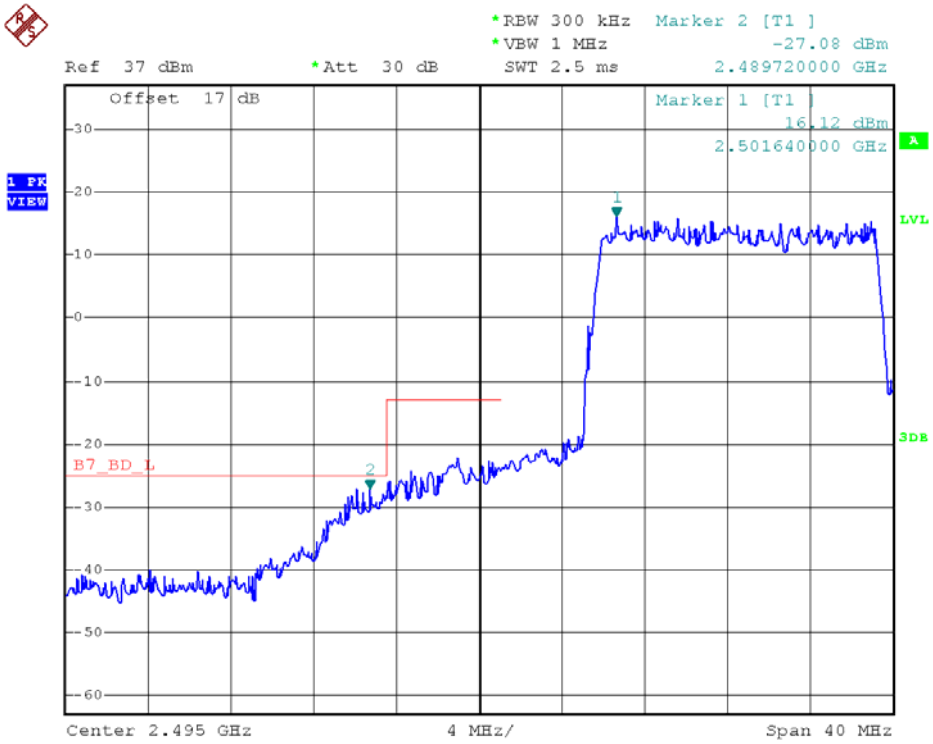


Higher Band Edge Plot for 16QAM -RB Size 50, RB Offset 0

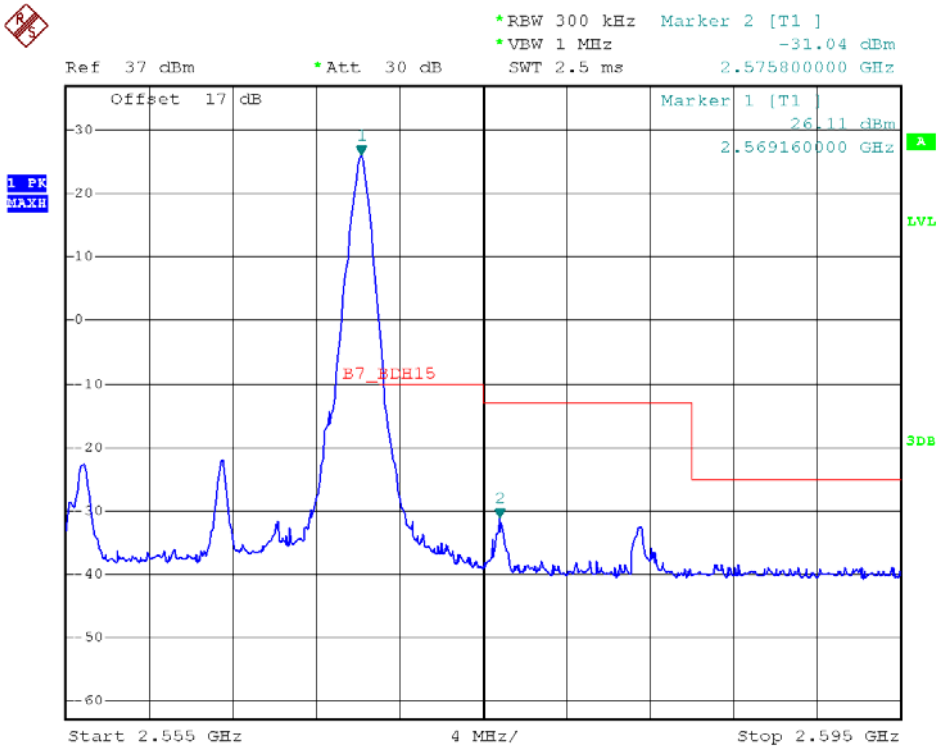
Band	LTE Band 7	Modulation	QPSK
Bandwidth	15MHz		



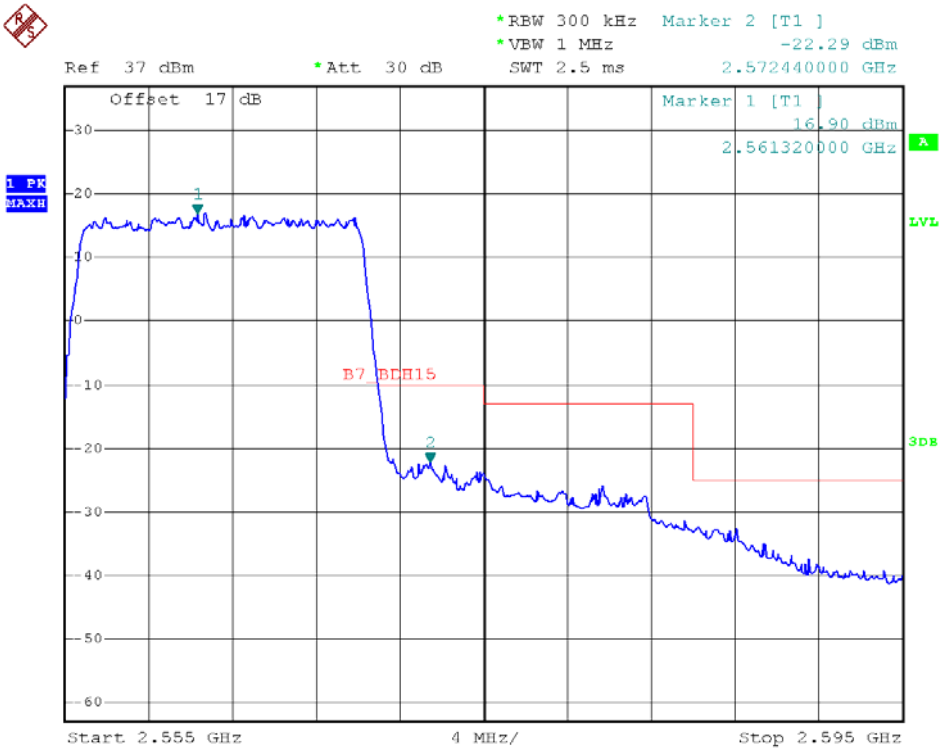
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK -RB Size 75, RB Offset 0

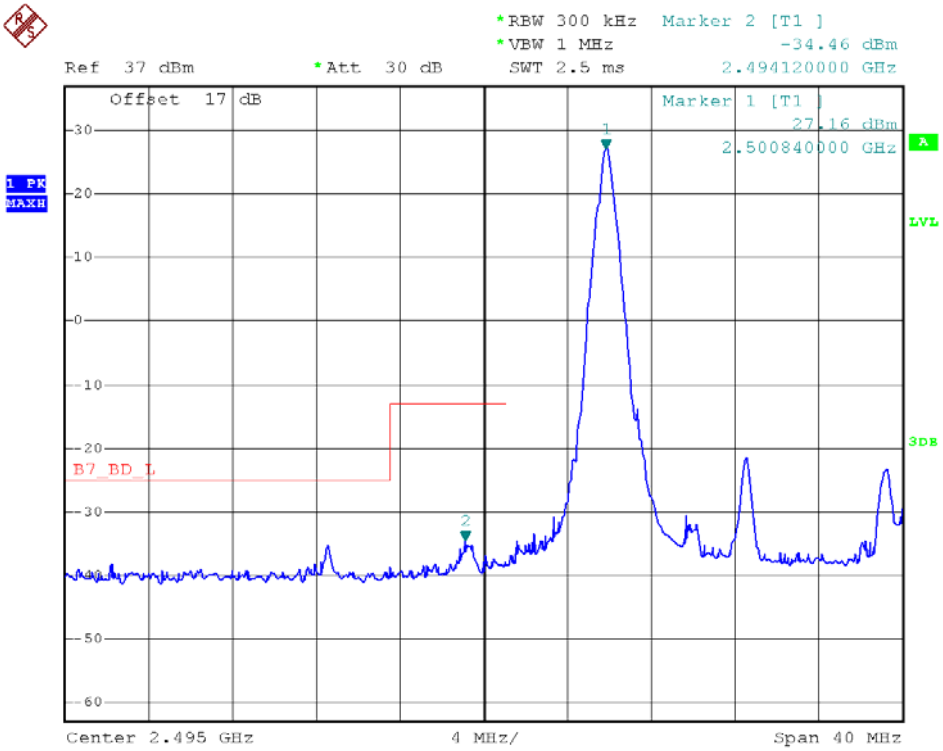


Higher Band Edge Plot for QPSK -RB Size 1, RB Offset 74

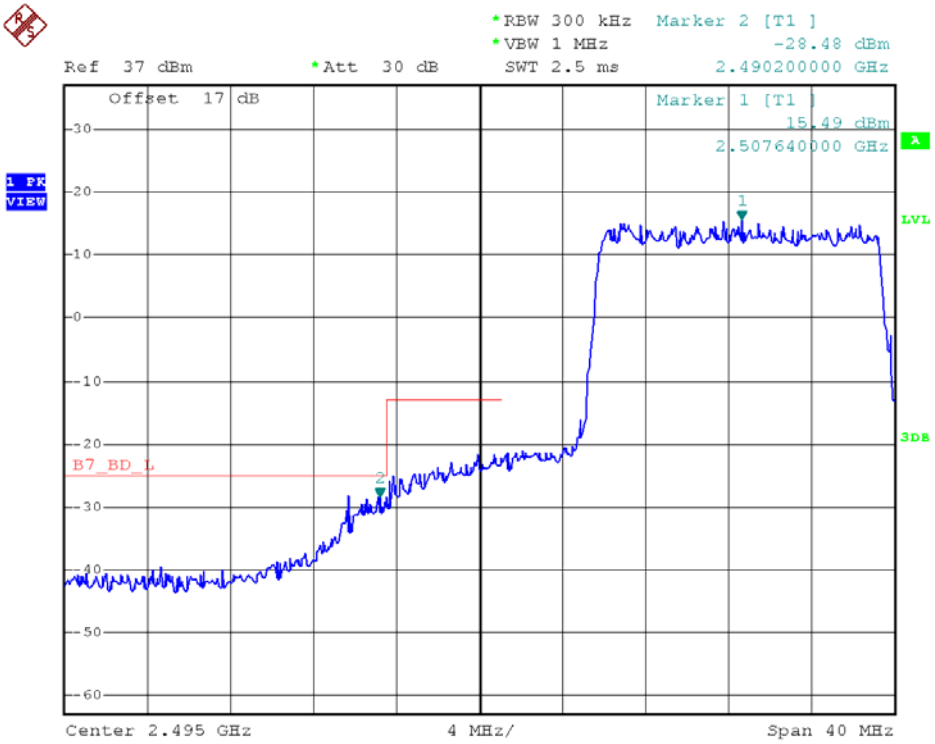


Higher Band Edge Plot for QPSK -RB Size 75, RB Offset 0

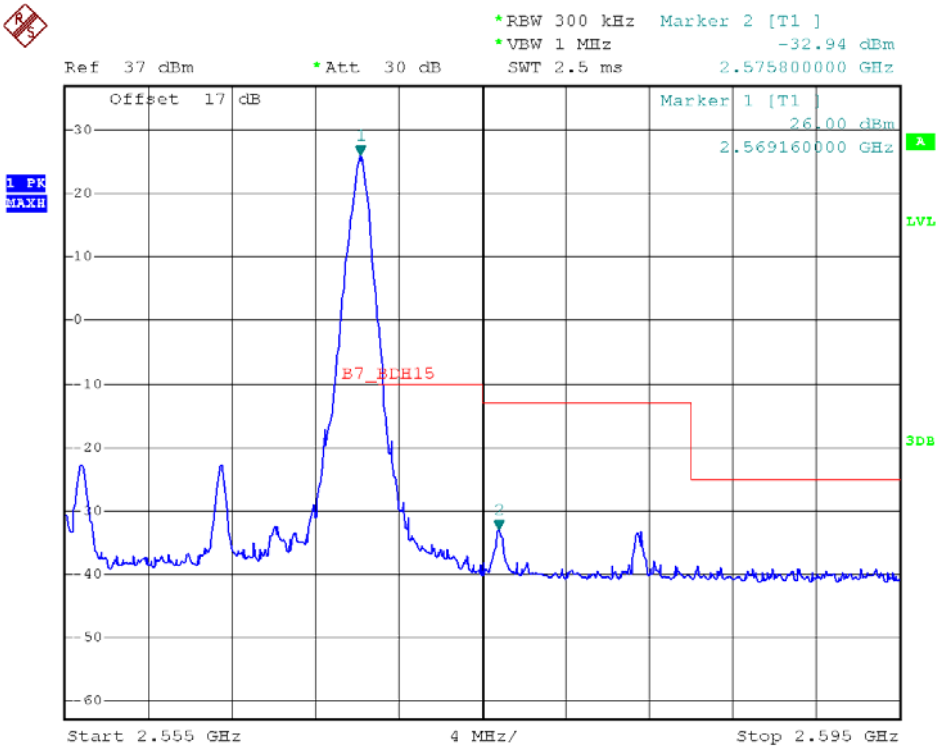
Band	LTE Band 7	Modulation	16QAM
Bandwidth	15MHz		



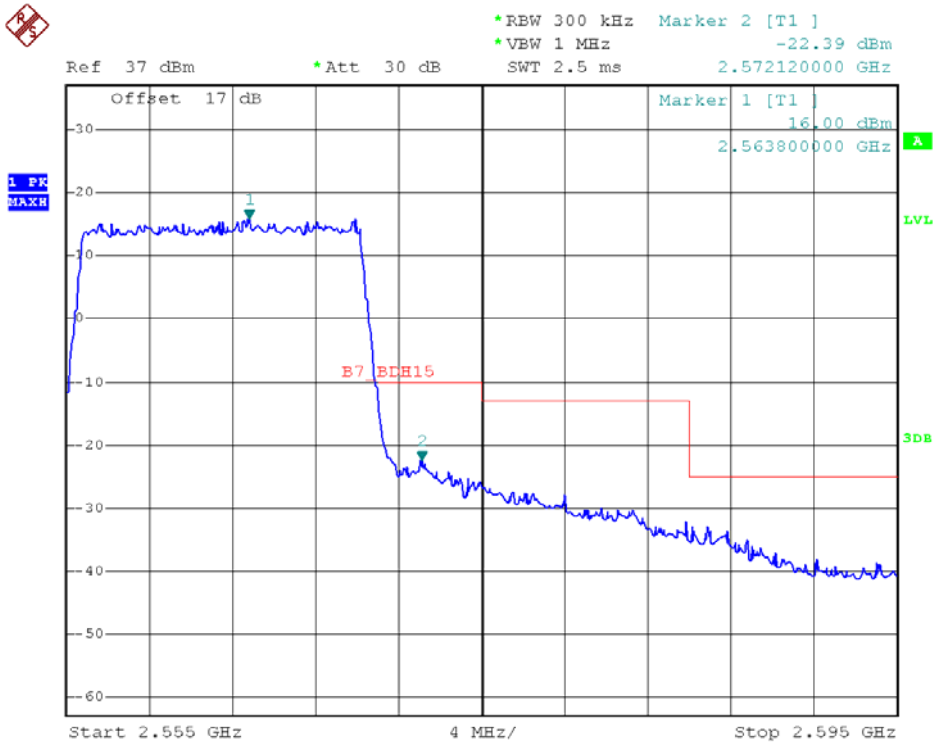
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 75, RB Offset 0

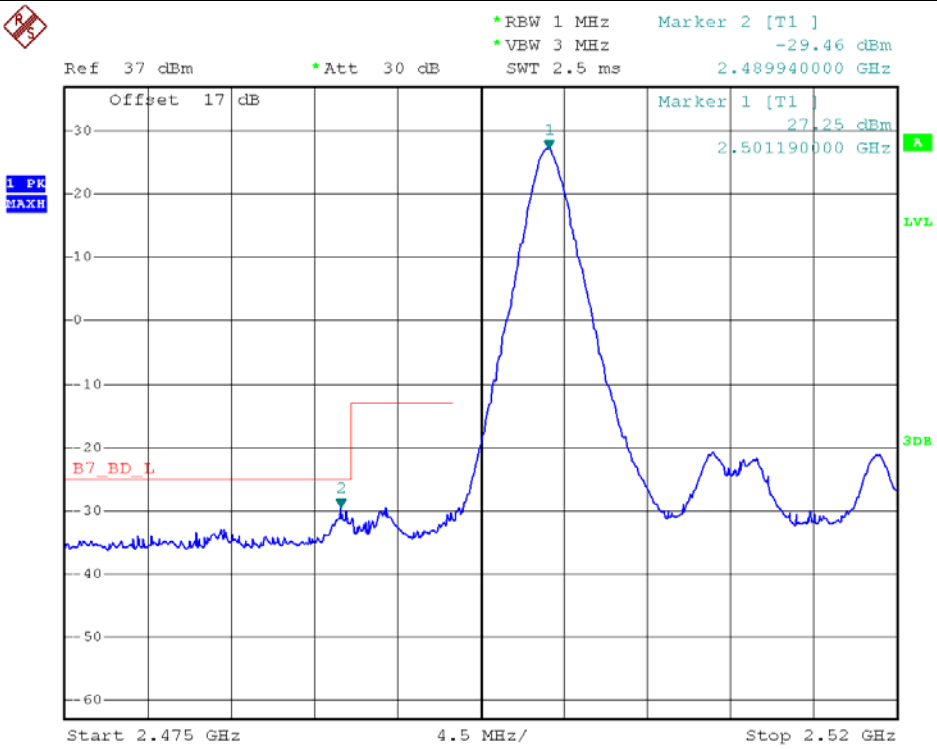


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 74

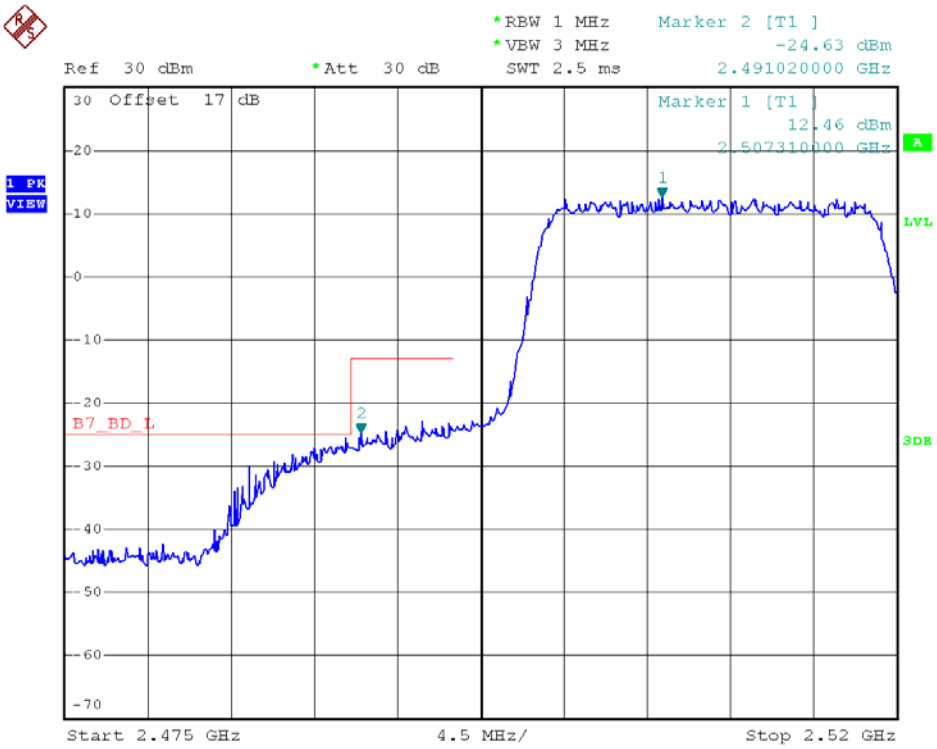


Higher Band Edge Plot for 16QAM -RB Size 75, RB Offset 0

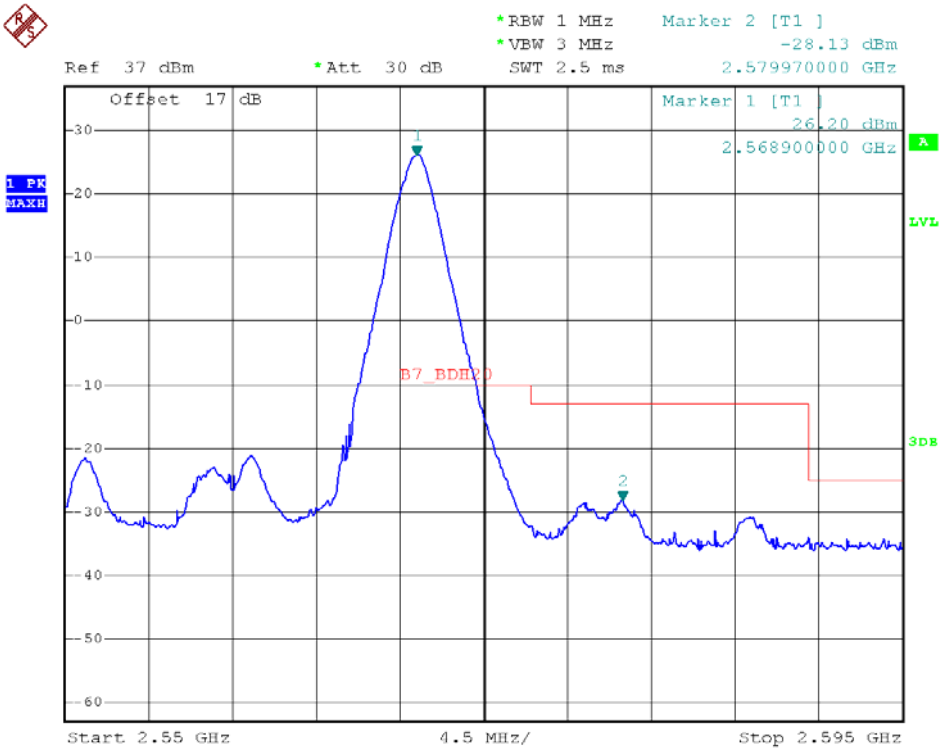
Band	LTE Band 7	Modulation	QPSK
Bandwidth	20MHz		



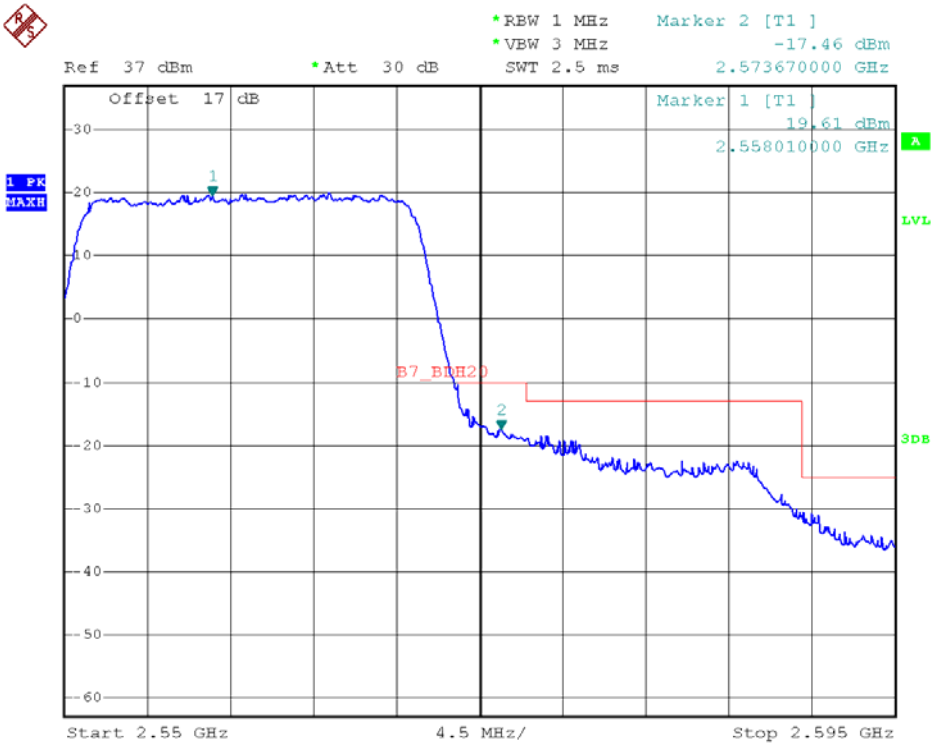
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Lower Band Edge Plot for QPSK -RB Size 100, RB Offset 0

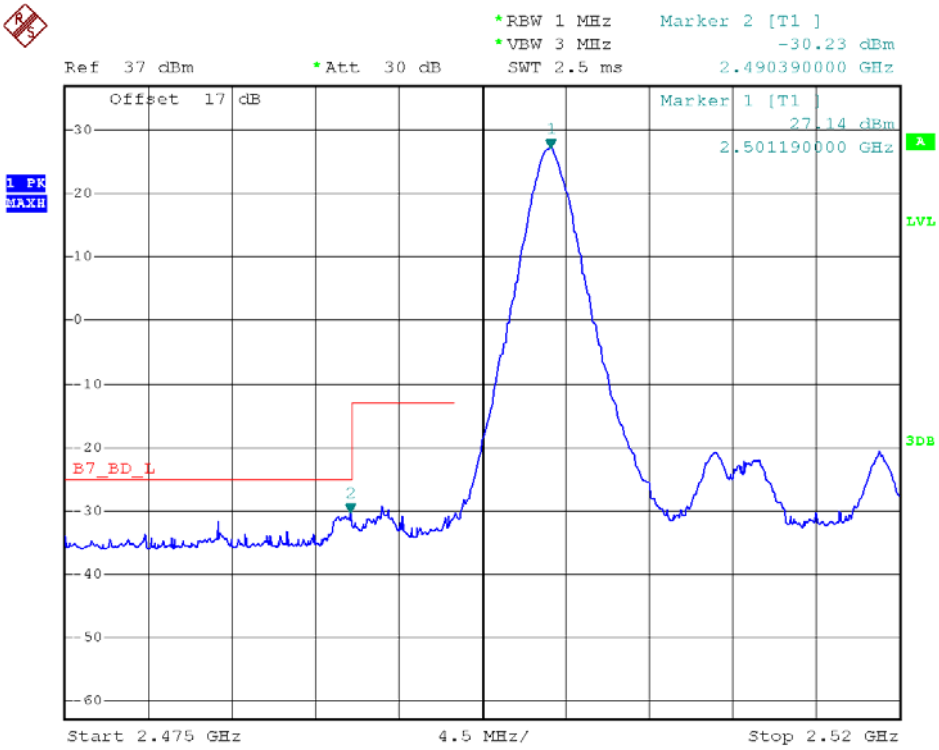


Higher Band Edge Plot for QPSK -RB Size 1, RB Offset 99

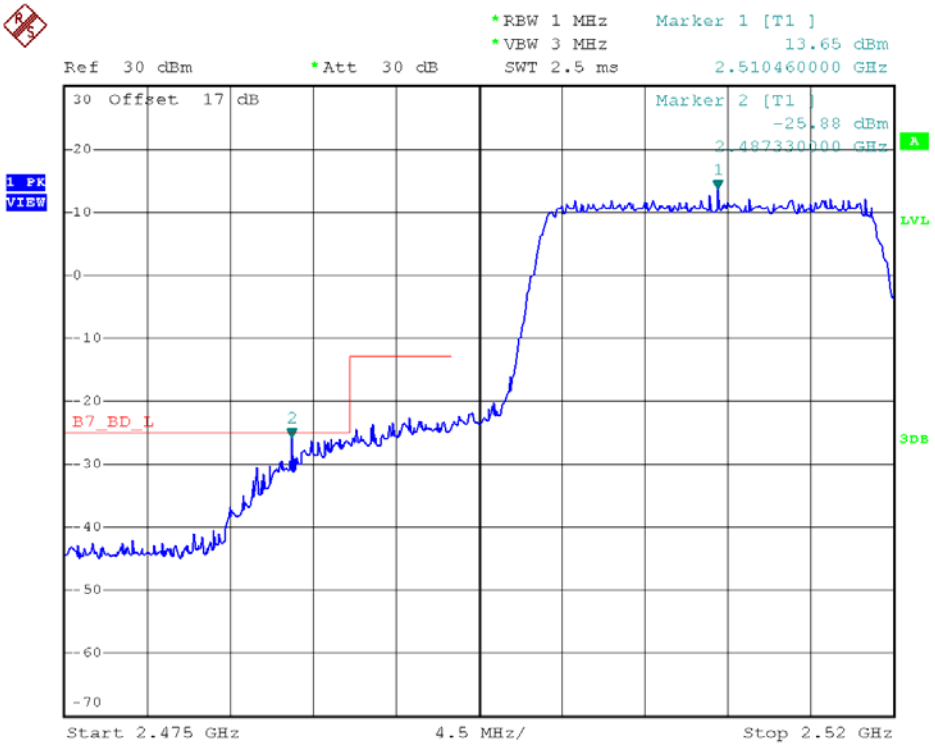


Higher Band Edge Plot for QPSK -RB Size 100, RB Offset 0

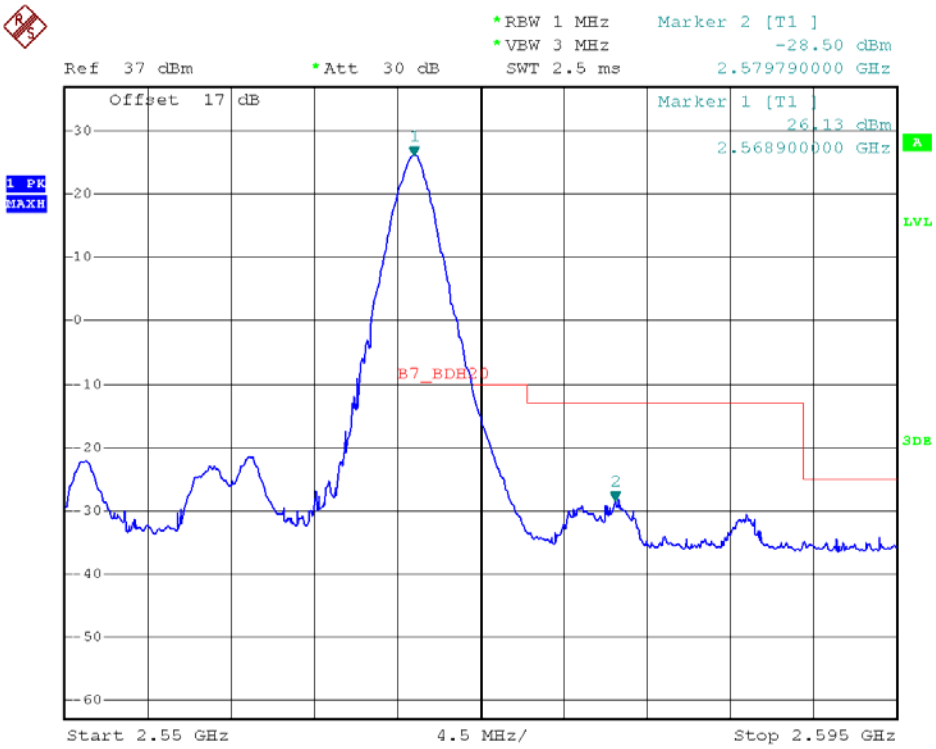
Band	LTE Band 7	Modulation	16QAM
Bandwidth	20MHz		



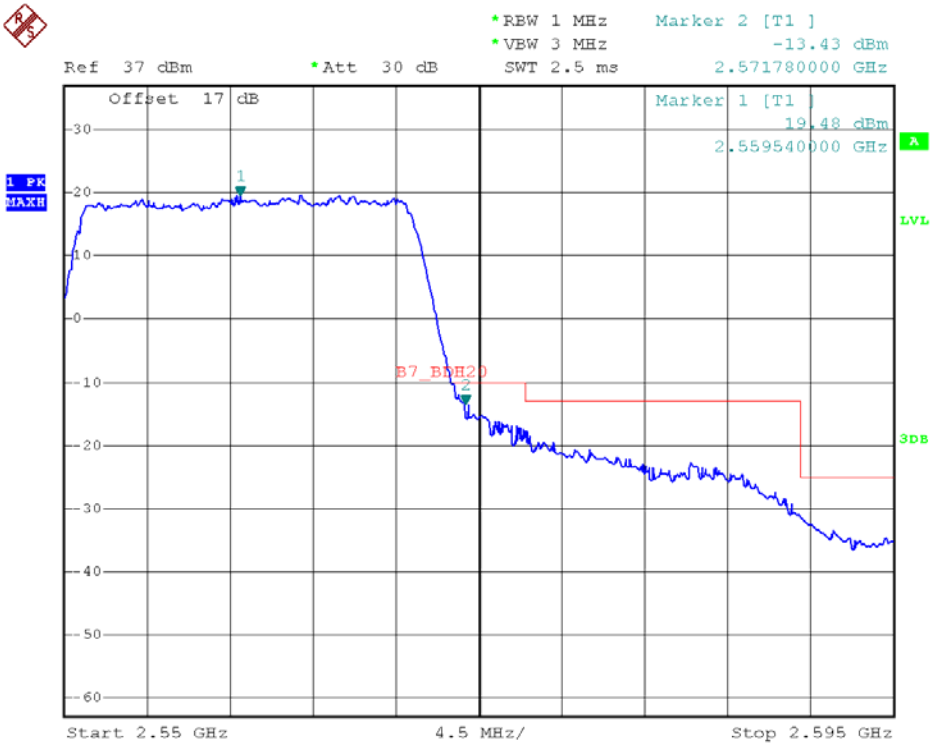
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Lower Band Edge Plot for 16QAM -RB Size 100, RB Offset 0



Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 99



Higher Band Edge Plot for 16QAM -RB Size 100, RB Offset 0

2.7 Transmitter Radiated Power (EIRP/ERP)

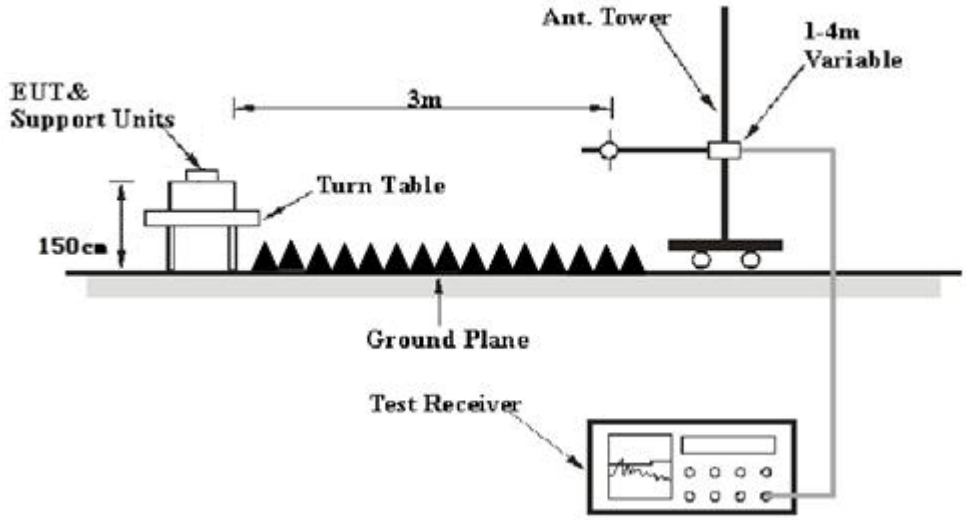
2.7.1 Requirement

Equivalent isotropic radiated power output measurements by substitution method according to ANSI /TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 2 / 7 and 1 watt with LTE band 4.

2.7.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.7.3 Test Setup



2.7.4 Test Procedures

1. The EUT was placed on a turntable with 1.5 meter height on a wooden turntable in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer which used a channel power option across EUT's signal bandwidth per section 4.0 of KDB 971168 D01v02r02.

4. The table was rotated 360 degrees and Both Horizontal &Vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.
5. The height of the receiving antenna is adjusted to look for the maximum value.
6. Taking the record of maximum value on spectrum analyzer.
7. 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.
8. A Broadband antenna (for below 1GHz) and horn antenna (for above 1GHz) was substituted in place of the EUT and was driven by a signal generator.
9. The conducted power at the terminal of the antenna is measured.
10. Repeat step 3 to step 9 to get the maximum ERP/EIRP of the substitution antenna.
11. ERP/EIRP = Ps + Et – Es + Gs = Ps + Rt – Rs + Gs

Ps (dBm)：Input power to substitution antenna.

Gs (dBi or dBd)：Substitution antenna Gain.

Et = Rt + AF Es = Rs + AF

AF (dB/m)：Receive antenna factor

Rt：The highest received signal in spectrum analyzer for EUT.

Rs：The highest received signal in spectrum analyzer for substitution antenna.

2.7.5 Test Result of ERP/EIRP

1. LTE Band 2 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ANT Gain (dB)	Cable Loss (dB)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset						
2	1.4	QPSK	1	2	1850.7	9.1	1.5	**20.23**	H	PASS
2	1.4	QPSK	1	5	1880	9.1	1.5	20.21	H	PASS
2	1.4	QPSK	3	2	1909.3	9.1	1.5	20.22	H	PASS
2	1.4	QPSK	1	2	1850.7	9.1	1.5	19.68	V	PASS
2	1.4	QPSK	1	5	1880	9.1	1.5	19.65	V	PASS
2	1.4	QPSK	3	2	1909.3	9.1	1.5	19.67	V	PASS
2	1.4	16QAM	1	0	1850.7	9.1	1.5	19.18	H	PASS
2	1.4	16QAM	1	2	1880	9.1	1.5	19.15	H	PASS
2	1.4	16QAM	3	2	1909.3	9.1	1.5	**19.23**	H	PASS
2	1.4	16QAM	1	0	1850.7	9.1	1.5	18.62	V	PASS
2	1.4	16QAM	1	2	1880	9.1	1.5	18.57	V	PASS
2	1.4	16QAM	3	2	1909.3	9.1	1.5	18.58	V	PASS
2	3	QPSK	1	7	1851.5	9.1	1.5	20.19	H	PASS
2	3	QPSK	1	14	1880	9.1	1.5	**20.22**	H	PASS
2	3	QPSK	1	0	1908.5	9.1	1.5	20.18	H	PASS
2	3	QPSK	1	7	1851.5	9.1	1.5	19.62	V	PASS
2	3	QPSK	1	14	1880	9.1	1.5	19.64	V	PASS
2	3	QPSK	1	0	1908.5	9.1	1.5	19.65	V	PASS
2	3	16QAM	1	14	1851.5	9.1	1.5	**19.21**	H	PASS
2	3	16QAM	1	0	1880	9.1	1.5	19.18	H	PASS
2	3	16QAM	1	0	1908.5	9.1	1.5	19.17	H	PASS
2	3	16QAM	1	14	1851.5	9.1	1.5	18.61	V	PASS
2	3	16QAM	1	0	1880	9.1	1.5	18.65	V	PASS
2	3	16QAM	1	0	1908.5	9.1	1.5	18.63	V	PASS
2	5	QPSK	1	0	1852.5	9.1	1.5	20.20	H	PASS
2	5	QPSK	1	0	1880	9.1	1.5	20.21	H	PASS
2	5	QPSK	1	24	1907.5	9.1	1.5	**20.25**	H	PASS
2	5	QPSK	1	0	1852.5	9.1	1.5	19.62	V	PASS
2	5	QPSK	1	0	1880	9.1	1.5	19.69	V	PASS
2	5	QPSK	1	24	1907.5	9.1	1.5	19.65	V	PASS
2	5	16QAM	1	12	1852.5	9.1	1.5	19.16	H	PASS
2	5	16QAM	1	0	1880	9.1	1.5	**19.20**	H	PASS
2	5	16QAM	1	12	1907.5	9.1	1.5	19.15	H	PASS
2	5	16QAM	1	12	1852.5	9.1	1.5	18.65	V	PASS
2	5	16QAM	1	0	1880	9.1	1.5	18.64	V	PASS

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ANT Gain (dB)	Cable Loss (dB)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset						
2	5	16QAM	1	12	1907.5	9.1	1.5	18.59	V	PASS
2	10	QPSK	1	0	1855	9.1	1.5	**20.20**	H	PASS
2	10	QPSK	1	0	1880	9.1	1.5	20.17	H	PASS
2	10	QPSK	1	49	1905	9.1	1.5	20.18	H	PASS
2	10	QPSK	1	0	1855	9.1	1.5	19.65	V	PASS
2	10	QPSK	1	0	1880	9.1	1.5	19.64	V	PASS
2	10	QPSK	1	49	1905	9.1	1.5	19.58	V	PASS
2	10	16QAM	1	0	1855	9.1	1.5	19.14	H	PASS
2	10	16QAM	1	0	1880	9.1	1.5	19.12	H	PASS
2	10	16QAM	1	24	1905	9.1	1.5	**19.22**	H	PASS
2	10	16QAM	1	0	1855	9.1	1.5	18.64	V	PASS
2	10	16QAM	1	0	1880	9.1	1.5	18.60	V	PASS
2	10	16QAM	1	24	1905	9.1	1.5	18.65	V	PASS
2	15	QPSK	1	0	1857.5	9.1	1.5	20.18	H	PASS
2	15	QPSK	1	0	1880	9.1	1.5	**20.24**	H	PASS
2	15	QPSK	1	74	1902.5	9.1	1.5	20.19	H	PASS
2	15	QPSK	1	0	1857.5	9.1	1.5	19.62	V	PASS
2	15	QPSK	1	0	1880	9.1	1.5	19.61	V	PASS
2	15	QPSK	1	74	1902.5	9.1	1.5	19.57	V	PASS
2	15	16QAM	1	0	1857.5	9.1	1.5	19.19	H	PASS
2	15	16QAM	1	0	1880	9.1	1.5	19.17	H	PASS
2	15	16QAM	1	74	1902.5	9.1	1.5	**19.23**	H	PASS
2	15	16QAM	1	0	1857.5	9.1	1.5	18.59	V	PASS
2	15	16QAM	1	0	1880	9.1	1.5	18.62	V	PASS
2	15	16QAM	1	74	1902.5	9.1	1.5	18.58	V	PASS
2	20	QPSK	1	0	1860	9.1	1.5	**20.29**	H	PASS
2	20	QPSK	1	0	1880	9.1	1.5	20.25	H	PASS
2	20	QPSK	1	0	1900	9.1	1.5	20.26	H	PASS
2	20	QPSK	1	0	1860	9.1	1.5	19.65	V	PASS
2	20	QPSK	1	0	1880	9.1	1.5	19.69	V	PASS
2	20	QPSK	1	0	1900	9.1	1.5	19.72	V	PASS
2	20	16QAM	1	0	1860	9.1	1.5	19.23	H	PASS
2	20	16QAM	1	0	1880	9.1	1.5	19.16	H	PASS
2	20	16QAM	1	49	1900	9.1	1.5	**19.28**	H	PASS
2	20	16QAM	1	0	1860	9.1	1.5	18.71	V	PASS
2	20	16QAM	1	0	1880	9.1	1.5	18.66	V	PASS
2	20	16QAM	1	49	1900	9.1	1.5	18.74	V	PASS

2. LTE Band 4 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ANT Gain (dB)	Cable Loss (dB)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset						
4	1.4	QPSK	3	0	1710.7	9.1	1.3	20.68	H	PASS
4	1.4	QPSK	3	2	1732.5	9.1	1.3	20.74	H	PASS
4	1.4	QPSK	1	2	1754.3	9.1	1.4	**20.75**	H	PASS
4	1.4	QPSK	3	0	1710.7	9.1	1.3	20.26	V	PASS
4	1.4	QPSK	3	2	1732.5	9.1	1.3	20.14	V	PASS
4	1.4	QPSK	1	2	1754.3	9.1	1.4	20.17	V	PASS
4	1.4	16QAM	3	2	1710.7	9.1	1.3	19.69	H	PASS
4	1.4	16QAM	3	2	1732.5	9.1	1.3	**19.70**	H	PASS
4	1.4	16QAM	3	2	1754.3	9.1	1.4	19.67	H	PASS
4	1.4	16QAM	3	2	1710.7	9.1	1.3	18.87	V	PASS
4	1.4	16QAM	3	2	1732.5	9.1	1.3	18.81	V	PASS
4	1.4	16QAM	3	2	1754.3	9.1	1.4	18.82	V	PASS
4	3	QPSK	1	0	1711.5	9.1	1.3	20.71	H	PASS
4	3	QPSK	1	0	1732.5	9.1	1.3	**20.77**	H	PASS
4	3	QPSK	1	7	1753.5	9.1	1.4	20.75	H	PASS
4	3	QPSK	1	0	1711.5	9.1	1.3	20.20	V	PASS
4	3	QPSK	1	0	1732.5	9.1	1.3	20.14	V	PASS
4	3	QPSK	1	7	1753.5	9.1	1.4	20.21	V	PASS
4	3	16QAM	1	14	1711.5	9.1	1.3	19.72	H	PASS
4	3	16QAM	1	14	1732.5	9.1	1.3	19.64	H	PASS
4	3	16QAM	1	14	1753.5	9.1	1.4	**19.75**	H	PASS
4	3	16QAM	1	14	1711.5	9.1	1.3	18.87	V	PASS
4	3	16QAM	1	14	1732.5	9.1	1.3	18.82	V	PASS
4	3	16QAM	1	14	1753.5	9.1	1.4	18.90	V	PASS
4	5	QPSK	1	12	1712.5	9.1	1.3	20.70	H	PASS
4	5	QPSK	1	24	1732.5	9.1	1.3	**20.72**	H	PASS
4	5	QPSK	1	24	1752.5	9.1	1.4	20.69	H	PASS
4	5	QPSK	1	12	1712.5	9.1	1.3	20.16	V	PASS
4	5	QPSK	1	24	1732.5	9.1	1.3	20.20	V	PASS
4	5	QPSK	1	24	1752.5	9.1	1.4	20.18	V	PASS
4	5	16QAM	1	24	1712.5	9.1	1.3	19.65	H	PASS
4	5	16QAM	1	0	1732.5	9.1	1.3	19.61	H	PASS
4	5	16QAM	1	0	1752.5	9.1	1.4	**19.69**	H	PASS
4	5	16QAM	1	24	1712.5	9.1	1.3	18.72	V	PASS
4	5	16QAM	1	0	1732.5	9.1	1.3	18.85	V	PASS
4	5	16QAM	1	0	1752.5	9.1	1.4	18.78	V	PASS

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ANT Gain (dB)	Cable Loss (dB)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset						
4	10	QPSK	1	24	1715	9.1	1.3	20.67	H	PASS
4	10	QPSK	1	0	1732.5	9.1	1.3	**20.75**	H	PASS
4	10	QPSK	1	24	1750	9.1	1.4	20.74	H	PASS
4	10	QPSK	1	24	1715	9.1	1.3	20.17	V	PASS
4	10	QPSK	1	0	1732.5	9.1	1.3	20.22	V	PASS
4	10	QPSK	1	24	1750	9.1	1.4	20.23	V	PASS
4	10	16QAM	1	24	1715	9.1	1.3	19.71	H	PASS
4	10	16QAM	1	0	1732.5	9.1	1.3	**19.78**	H	PASS
4	10	16QAM	1	24	1750	9.1	1.4	19.73	H	PASS
4	10	16QAM	1	24	1715	9.1	1.3	18.82	V	PASS
4	10	16QAM	1	0	1732.5	9.1	1.3	18.75	V	PASS
4	10	16QAM	1	24	1750	9.1	1.4	18.83	V	PASS
4	15	QPSK	1	74	1717.5	9.1	1.3	20.74	H	PASS
4	15	QPSK	1	74	1732.5	9.1	1.3	**20.78**	H	PASS
4	15	QPSK	1	0	1747.5	9.1	1.4	20.73	H	PASS
4	15	QPSK	1	74	1717.5	9.1	1.3	20.23	V	PASS
4	15	QPSK	1	74	1732.5	9.1	1.3	20.15	V	PASS
4	15	QPSK	1	0	1747.5	9.1	1.4	20.19	V	PASS
4	15	16QAM	1	74	1717.5	9.1	1.3	19.74	H	PASS
4	15	16QAM	1	0	1732.5	9.1	1.3	19.70	H	PASS
4	15	16QAM	1	0	1747.5	9.1	1.4	**19.75**	H	PASS
4	15	16QAM	1	74	1717.5	9.1	1.3	18.86	V	PASS
4	15	16QAM	1	0	1732.5	9.1	1.3	18.81	V	PASS
4	15	16QAM	1	0	1747.5	9.1	1.4	18.89	V	PASS
4	20	QPSK	1	0	1720	9.1	1.3	20.78	H	PASS
4	20	QPSK	1	0	1732.5	9.1	1.3	**20.82**	H	PASS
4	20	QPSK	1	0	1745	9.1	1.4	20.79	H	PASS
4	20	QPSK	1	0	1720	9.1	1.3	20.19	V	PASS
4	20	QPSK	1	0	1732.5	9.1	1.3	20.24	V	PASS
4	20	QPSK	1	0	1745	9.1	1.4	20.26	V	PASS
4	20	16QAM	1	0	1720	9.1	1.3	19.73	H	PASS
4	20	16QAM	1	0	1732.5	9.1	1.3	19.76	H	PASS
4	20	16QAM	1	0	1745	9.1	1.4	**19.80**	H	PASS
4	20	16QAM	1	0	1720	9.1	1.3	18.83	V	PASS
4	20	16QAM	1	0	1732.5	9.1	1.3	18.86	V	PASS
4	20	16QAM	1	0	1745	9.1	1.4	18.84	V	PASS

3. LTE Band 7 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ANT Gain (dB)	Cable Loss (dB)	ERP (dBm)	H/V	Verdict
			RB Size	RB Offset						
7	5	QPSK	1	12	2502.5	8.9	1.8	**19.76**	H	PASS
7	5	QPSK	1	0	2535	8.9	1.8	19.70	H	PASS
7	5	QPSK	1	24	2567.5	8.9	1.8	19.78	H	PASS
7	5	QPSK	1	12	2502.5	8.9	1.8	19.16	V	PASS
7	5	QPSK	1	0	2535	8.9	1.8	19.20	V	PASS
7	5	QPSK	1	24	2567.5	8.9	1.8	19.18	V	PASS
7	5	16QAM	1	24	2502.5	8.9	1.8	18.45	H	PASS
7	5	16QAM	1	24	2535	8.9	1.8	18.48	H	PASS
7	5	16QAM	1	0	2567.5	8.9	1.8	**18.49**	H	PASS
7	5	16QAM	1	24	2502.5	8.9	1.8	17.72	V	PASS
7	5	16QAM	1	24	2535	8.9	1.8	17.65	V	PASS
7	5	16QAM	1	0	2567.5	8.9	1.8	17.75	V	PASS
7	10	QPSK	1	24	2505	8.9	1.8	**19.78**	H	PASS
7	10	QPSK	1	49	2535	8.9	1.8	19.69	H	PASS
7	10	QPSK	1	24	2565	8.9	1.8	19.71	H	PASS
7	10	QPSK	1	24	2505	8.9	1.8	19.23	V	PASS
7	10	QPSK	1	49	2535	8.9	1.8	19.18	V	PASS
7	10	QPSK	1	24	2565	8.9	1.8	19.15	V	PASS
7	10	16QAM	1	24	2505	8.9	1.8	18.50	H	PASS
7	10	16QAM	1	49	2535	8.9	1.8	18.45	H	PASS
7	10	16QAM	1	24	2565	8.9	1.8	**18.53**	H	PASS
7	10	16QAM	1	24	2505	8.9	1.8	17.82	V	PASS
7	10	16QAM	1	49	2535	8.9	1.8	17.75	V	PASS
7	10	16QAM	1	24	2565	8.9	1.8	17.83	V	PASS
7	15	QPSK	1	37	2507.5	8.9	1.8	**19.74**	H	PASS
7	15	QPSK	1	74	2535	8.9	1.8	19.73	H	PASS
7	15	QPSK	1	0	2562.5	8.9	1.8	19.70	H	PASS
7	15	QPSK	1	37	2507.5	8.9	1.8	19.25	V	PASS
7	15	QPSK	1	74	2535	8.9	1.8	19.20	V	PASS
7	15	QPSK	1	0	2562.5	8.9	1.8	19.19	V	PASS
7	15	16QAM	1	37	2507.5	8.9	1.8	18.44	H	PASS
7	15	16QAM	1	18	2535	8.9	1.8	18.50	H	PASS
7	15	16QAM	1	0	2562.5	8.9	1.8	**18.51**	H	PASS
7	15	16QAM	1	37	2507.5	8.9	1.8	17.86	V	PASS
7	15	16QAM	1	18	2535	8.9	1.8	17.81	V	PASS
7	15	16QAM	1	0	2562.5	8.9	1.8	17.79	V	PASS

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ANT Gain (dB)	Cable Loss (dB)	ERP (dBm)	H/V	Verdict
7	20	QPSK	1	0	2510	8.9	1.8	19.78	H	PASS
7	20	QPSK	1	0	2535	8.9	1.8	19.75	H	PASS
7	20	QPSK	1	0	2560	8.9	1.8	**19.81**	H	PASS
7	20	QPSK	1	49	2510	8.9	1.8	19.29	V	PASS
7	20	QPSK	1	49	2535	8.9	1.8	19.24	V	PASS
7	20	QPSK	1	49	2560	8.9	1.8	19.25	V	PASS
7	20	16QAM	1	0	2510	8.9	1.8	18.53	H	PASS
7	20	16QAM	1	0	2535	8.9	1.8	**18.56**	H	PASS
7	20	16QAM	1	0	2560	8.9	1.8	18.49	H	PASS
7	20	16QAM	1	49	2510	8.9	1.8	17.83	V	PASS
7	20	16QAM	1	49	2535	8.9	1.8	17.86	V	PASS
7	20	16QAM	1	49	2560	8.9	1.8	17.91	V	PASS

2.8 Radiated Out of Band Emissions

2.8.1 Requirement

The radiated spurious emission was measured by substitution method according to ANSI / TIA /EIA-603-C-2004. 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.

For Band 7

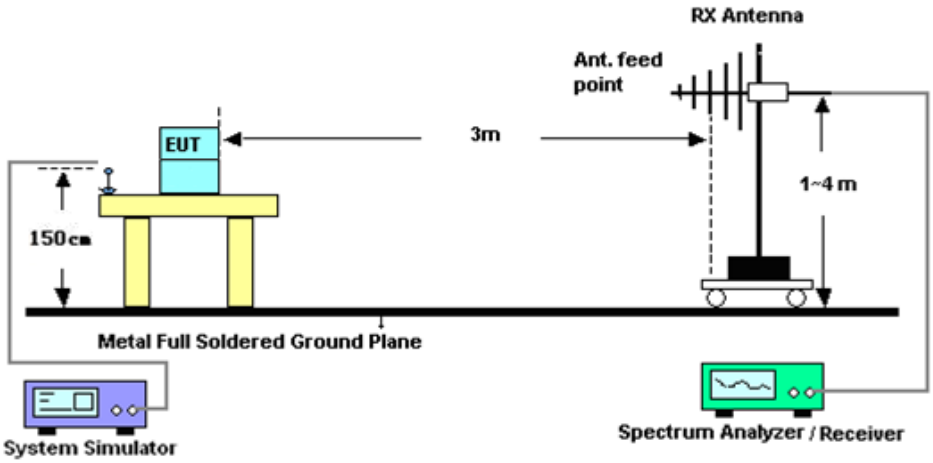
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

2.8.2 Measuring Instruments

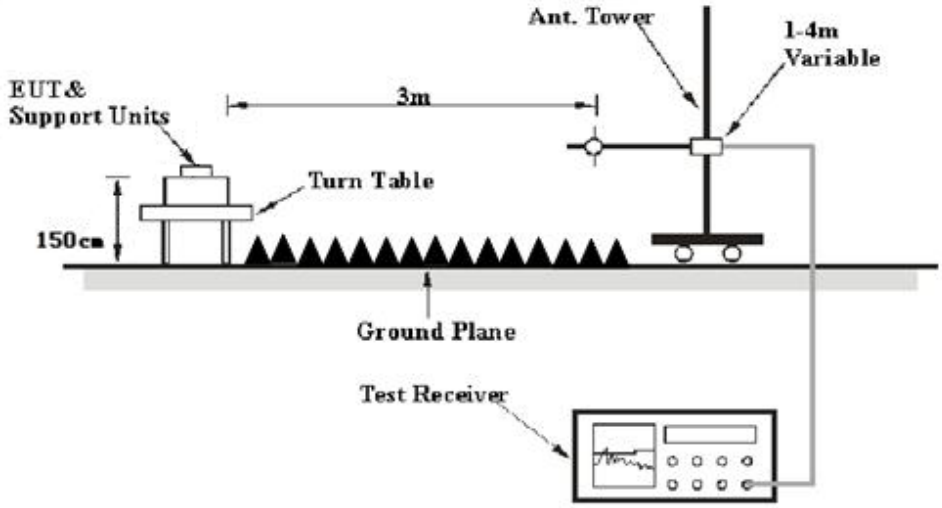
The measuring equipment is listed in the section 3 of this test report.

2.8.3 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



2.8.4 Test Procedures

1. The EUT was placed on a rotatable wooden table with 1.5 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees and 3-orthogonal axis to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record the maximum spurious emission.
6. 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.
7. A Broadband antenna (for below 1GHz) and horn antenna (for above 1GHz) was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.

10. Repeat step 3 to step 9 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

    = P(W)- [43 + 10log(P)] (dB)

    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

    = -13dBm.

    <For Band 7>

    The limit line is derived from 55+ 10log(P)dB below the transmitter power P(Watts)

    = P(W)- [55 + 10log(P)] (dB)

    = [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)

    = -25dBm.

12. The spectrum is measured from 9 KHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. The worst case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
13. For 9KHz to 30MHz: the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
14. All Spurious Emission tests were performed in X, Y, Z axis direction and low, middle, high channel. And only the worst axis test condition was recorded in this test report.
15. The maximum RB configurations of the Radiated Spurious Emissions as RB Size 1, RB Offset 0

2.8.5 Test Result (Plots) of Radiated Spurious Emission

Note: For 9 KHz to 30MHz the amplitude of spurious emissions is attenuated by more than 20dB below the permissible value, so we not provide the test result here

All test modes of the Radiated Spurious Emission (RSE) were tested; only the test worse data in bold of these modes were reported.

LTE Band 2 QPSK 20MHz BW (Low Channel, 1860MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
3720	-42.88	H	10.4	3.0	-35.48	-13	Pass
3720	-44.10	V	10.4	3.0	-36.7	-13	Pass
343.73	-53.51	H	7.3	0.5	-46.71	-13	Pass
391.52	-54.33	V	7.3	0.5	-47.53	-13	Pass
902.46	-37.23	H	8.0	0.8	-30.03	-13	Pass
902.46	-36.81	V	8.0	0.8	-29.61	-13	Pass
1612.12	-45.43	H	8.4	1.10	-38.13	-13	Pass
1610.32	-45.51	V	8.4	1.10	-38.21	-13	Pass
2862.11	-50.7	H	8.9	1.9	-43.7	-13	Pass
3711.98	-51.82	V	8.9	2.60	-45.52	-13	Pass
4566.20	-49.44	H	11.4	3.40	-41.44	-13	Pass
6102.24	-51.20	V	11.2	4.7	-44.7	-13	Pass

LTE Band 2 QPSK 20MHz BW (Middle Channel, 1880MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
3760	-42.24	H	10.4	3.0	-34.84	-13	Pass
3760	-43.17	V	10.4	3.0	-35.77	-13	Pass
343.02	-52.86	H	7.3	0.5	-46.06	-13	Pass
391.11	-53.71	V	7.3	0.5	-46.91	-13	Pass
902.4	-37.58	H	8.0	0.8	-30.38	-13	Pass
902.4	-36.64	V	8.0	0.8	-29.44	-13	Pass
1612.68	-44.89	H	8.4	1.10	-37.59	-13	Pass
1612.19	-45.73	V	8.4	1.10	-38.43	-13	Pass
2864.90	-51.27	H	8.9	1.9	-44.27	-13	Pass
3721.90	-51.65	V	8.9	2.60	-45.35	-13	Pass
4526.21	-46.40	H	11.4	3.40	-38.4	-13	Pass
6002.12	-50.11	V	11.2	4.7	-43.61	-13	Pass

LTE Band 2 QPSK 20MHz BW (High Channel, 1900MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
3800	-41.33	H	10.4	3.0	-33.93	-13	Pass
3800	-40.85	V	10.4	3.0	-33.45	-13	Pass
320.19	-51.52	H	7.3	0.5	-44.72	-13	Pass
377.08	-52.32	V	7.3	0.5	-45.52	-13	Pass
900.2	-38.50	H	8.0	0.8	-31.3	-13	Pass
900.2	-37.77	V	8.0	0.8	-30.57	-13	Pass
1577.11	-46.23	H	8.4	1.1	-38.93	-13	Pass
1602.10	-45.73	V	8.4	1.1	-38.43	-13	Pass
2777.71	-51.55	H	8.9	2.0	-44.65	-13	Pass
3730.48	-50.32	V	8.9	2.8	-44.22	-13	Pass
4592.20	-46.80	H	11.4	3.4	-38.8	-13	Pass
5990.85	-50.76	V	11.2	4.7	-44.26	-13	Pass

LTE Band 4 QPSK 20MHz BW (Low Channel, 1720MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
3440	-40.87	H	8.9	2.6	-34.57	-13	Pass
3440	-40.14	V	8.9	2.6	-33.84	-13	Pass
332.31	-50.89	H	7.3	0.5	-44.09	-13	Pass
545.01	-51.72	V	7.3	0.5	-44.92	-13	Pass
1307.51	-42.51	H	8.4	1.0	-35.11	-13	Pass
1307.50	-43.70	V	8.4	1.0	-36.3	-13	Pass
2492.54	-48.52	H	8.9	1.8	-41.42	-13	Pass
2499.44	-50.25	V	8.9	1.8	-43.15	-13	Pass
3783.57	-49.34	H	8.9	2.7	-43.14	-13	Pass
3783.92	-50.32	V	8.9	2.7	-44.12	-13	Pass
5697.86	-50.42	H	11.0	4.3	-43.72	-13	Pass
6301.25	-51.75	V	10.5	4.8	-46.05	-13	Pass

LTE Band 4 QPSK 20MHz BW (Middle Channel, 1732.5MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
3465	-40.12	H	8.9	2.6	-33.82	-13	Pass
3465	-41.04	V	8.9	2.6	-34.74	-13	Pass
398.61	-51.15	H	7.3	0.5	-44.35	-13	Pass
524.41	-50.43	V	7.3	0.5	-43.63	-13	Pass
1022.34	-43.50	H	8.0	0.6	-36.1	-13	Pass
1031.06	-44.11	V	8.0	0.6	-36.71	-13	Pass
2621.17	-49.42	H	8.9	1.8	-42.32	-13	Pass
2621.17	-51.20	V	8.9	1.8	-44.1	-13	Pass
3699.4	-48.35	H	8.9	2.8	-42.25	-13	Pass
4050.11	-50.77	V	10.4	3.1	-43.47	-13	Pass
5896.34	-51.60	H	11.2	4.5	-44.9	-13	Pass
6124.54	-51.85	V	11.2	4.7	-45.35	-13	Pass

LTE Band 4 QPSK 20MHz BW (High Channel, 1745MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
3490	-41.35	H	8.9	2.6	-35.05	-13	Pass
3490	-41.97	V	8.9	2.6	-35.67	-13	Pass
410.36	-52.03	H	7.3	0.5	-45.23	-13	Pass
633.25	-51.18	V	7.3	0.5	-44.38	-13	Pass
1251.53	-46.42	H	8.0	1.0	-39.42	-13	Pass
1209.29	-45.58	V	8.0	1.0	-38.58	-13	Pass
2522.92	-47.31	H	8.9	1.8	-40.21	-13	Pass
2490.35	-49.28	V	8.9	1.8	-42.18	-13	Pass
3452.42	-48.87	H	8.9	2.6	-42.57	-13	Pass
3640.22	-49.55	V	8.9	2.7	-43.35	-13	Pass
5841.49	-50.99	H	11.2	4.5	-44.29	-13	Pass
6571.12	-51.43	V	10.5	4.9	-45.83	-13	Pass

LTE Band 7 QPSK 20MHz BW (Low Channel, 2510MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
5020	-47.62	H	12	3.9	-39.52	-13	Pass
5020	-48.42	V	12	3.9	-40.32	-13	Pass
105.55	-52.42	H	7.3	0.5	-45.62	-13	Pass
399.22	-51.33	V	7.3	0.5	-44.53	-13	Pass
1024.11	-47.36	H	8.0	0.8	-40.16	-13	Pass
1024.25	-49.22	V	8.0	0.8	-42.02	-13	Pass
2202.40	-48.87	H	9.1	1.8	-41.57	-13	Pass
2129.15	-49.10	V	9.1	1.8	-41.8	-13	Pass
3352.60	-47.34	H	8.9	2.3	-40.74	-13	Pass
3801.12	-45.67	V	10.4	2.8	-38.07	-13	Pass
5120.02	-50.23	H	12.0	4.0	-42.23	-13	Pass
5920.75	-52.11	V	11.2	4.7	-45.61	-13	Pass

LTE Band 7 QPSK 20MHz BW (Middle Channel, 2535MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
5070	-46.88	H	12	3.9	-38.78	-13	Pass
5070	-47.32	V	12	3.9	-39.22	-13	Pass
105.59	-50.78	H	7.3	0.5	-43.98	-13	Pass
399.08	-51.69	V	7.3	0.5	-44.89	-13	Pass
1024.45	-48.73	H	8.0	0.8	-41.53	-13	Pass
1024.37	-49.09	V	8.0	0.8	-41.89	-13	Pass
2212.30	-46.22	H	9.1	1.8	-38.92	-13	Pass
2219.28	-47.80	V	9.1	1.8	-40.5	-13	Pass
3340.14	-51.11	H	8.9	2.3	-44.51	-13	Pass
3801.07	-49.08	V	10.4	2.8	-41.48	-13	Pass
5121.26	-48.77	H	12.0	4.0	-40.77	-13	Pass
5923.74	-52.09	V	11.2	4.7	-45.59	-13	Pass

LTE Band 7 QPSK 20MHz BW (High Channel, 2560MHz)							
Frequency (MHz)	Substituted level(dBm)	Polarity (H/V)	Antenna Gain(dBi)	Cable Loss (dB)	Corrected Reading (dBm)	Limit (dBm)	Result
5120	-46.32	H	12	4.0	-38.32	-13	Pass
5120	-46.86	V	12	4.0	-38.86	-13	Pass
106.51	-51.44	H	7.3	0.5	-44.64	-13	Pass
394.64	-51.90	V	7.3	0.5	-45.1	-13	Pass
1009.42	-48.30	H	8.0	0.8	-41.1	-13	Pass
1015.27	-49.32	V	8.0	0.8	-42.12	-13	Pass
2203.49	-46.74	H	9.1	1.8	-39.44	-13	Pass
2205.21	-47.45	V	9.1	1.8	-40.15	-13	Pass
3320.19	-51.21	H	8.9	2.3	-44.61	-13	Pass
3825.47	-49.24	V	10.4	2.8	-41.64	-13	Pass
5200.18	-47.24	H	12.0	4.0	-39.24	-13	Pass
5945.35	-51.55	V	11.2	4.7	-45.05	-13	Pass

3. LIST OF MEASURING EQUIPMENT

Description	Manufacturer	Model	Serial No.	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESIB26	A0304218	2016.06.02	2017.06.01	Radiation
Full-Anechoic Chamber	Albatross	12.8m*6.8m*6.4 m	A0412372	2016.06.02	2017.06.01	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2016.06.02	2017.06.01	Radiation
Bilog Antenna	Schwarzbeck	VULB 9163	9163-274	2016.06.02	2017.06.01	Radiation
Broadband antenna (30MHz~1GHz)	R&S	HL562	101341	2016.06.02	2017.06.01	Radiation
Broadband antenna (30MHz~1GHz)	R&S	HL562	101339	2016.06.02	2017.06.01	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100150	2016.06.02	2017.06.01	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100148	2016.06.02	2017.06.01	Radiation
Horn antenna (18GHz~26.5GHz)	R&S	HM118	101286	2016.06.02	2017.06.01	Radiation
Horn antenna (18GHz~26.5GHz)	R&S	HM118	101284	2016.05.05	2017.05.04	Radiation
Amplifier 20M~3GHz	R&S	PAP-0203H	22018	2016.06.02	2017.06.01	Radiation
Ampilier 1G~18GHz	R&S	MITEQ AFS42-00101800	25-S-42	2016.06.02	2017.06.01	Radiation
Ampilier 18G~40GHz	R&S	JS42-18002600-28-5A	12111.0980.00	2016.06.02	2017.06.01	Radiation
Spectrum Analyzer	R&S	FSP40	1164.4391.40	2016.06.02	2017.06.01	Conducted
Power Meter	R&S	NRP2	1020.1809.02	2016.06.02	2017.06.01	Conducted
Power Sensor	R&S	NRP-Z81	823.3618.03	2016.06.02	2017.06.01	Conducted
LISN	ROHDE&SCHWARZ	ESH2-Z5	A0304221	2016.06.02	2017.06.01	Conducted
Test Receiver	R&S	ESCS30	A0304260	2016.06.02	2017.06.01	Conducted
Cable	SUNHNER	SUCOFLEX 100	/	2016.06.02	2017.06.01	Radiation
Cable	SUNHNER	SUCOFLEX 104	/	2016.06.02	2017.06.01	Radiation

** END OF REPORT **