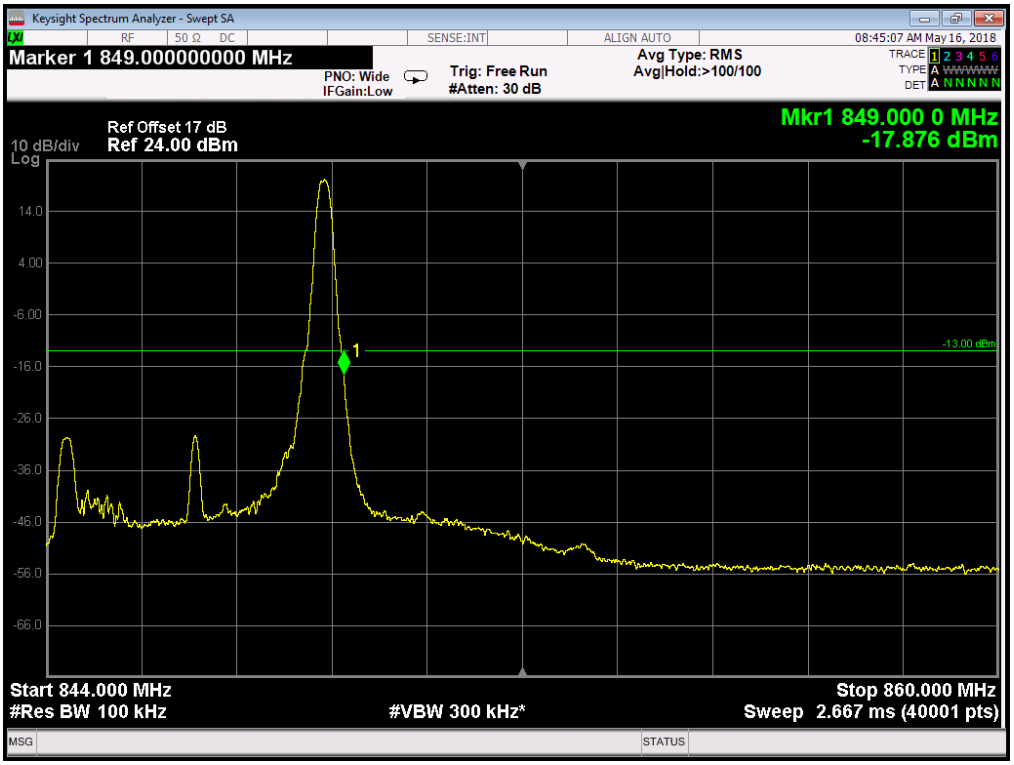
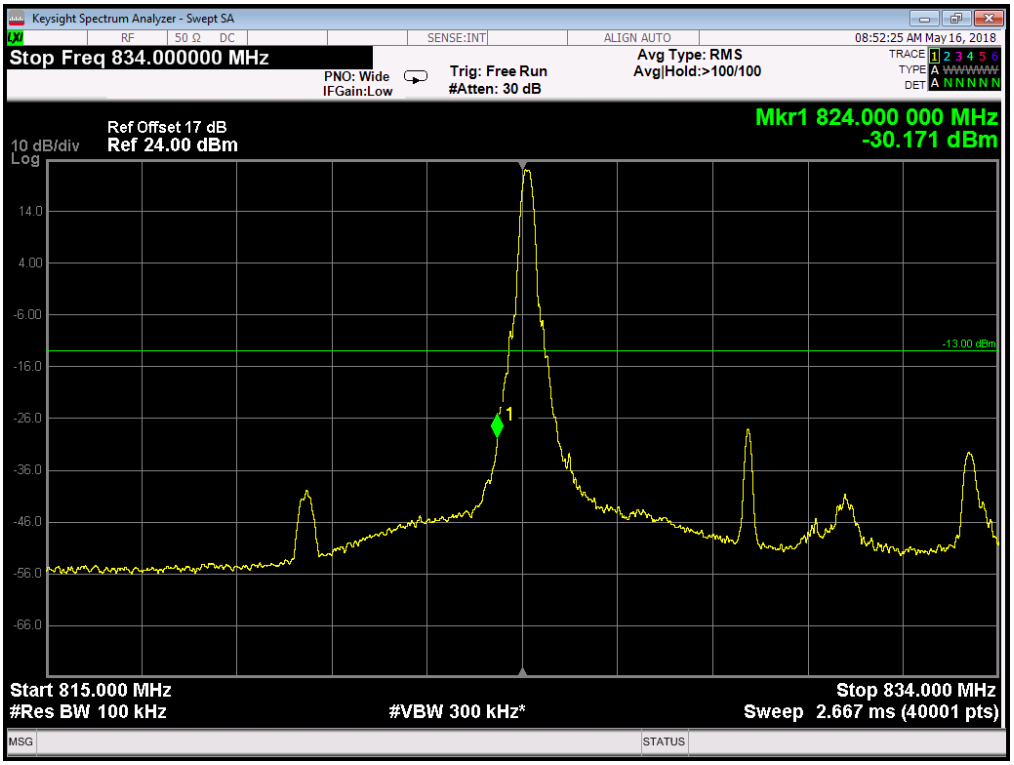


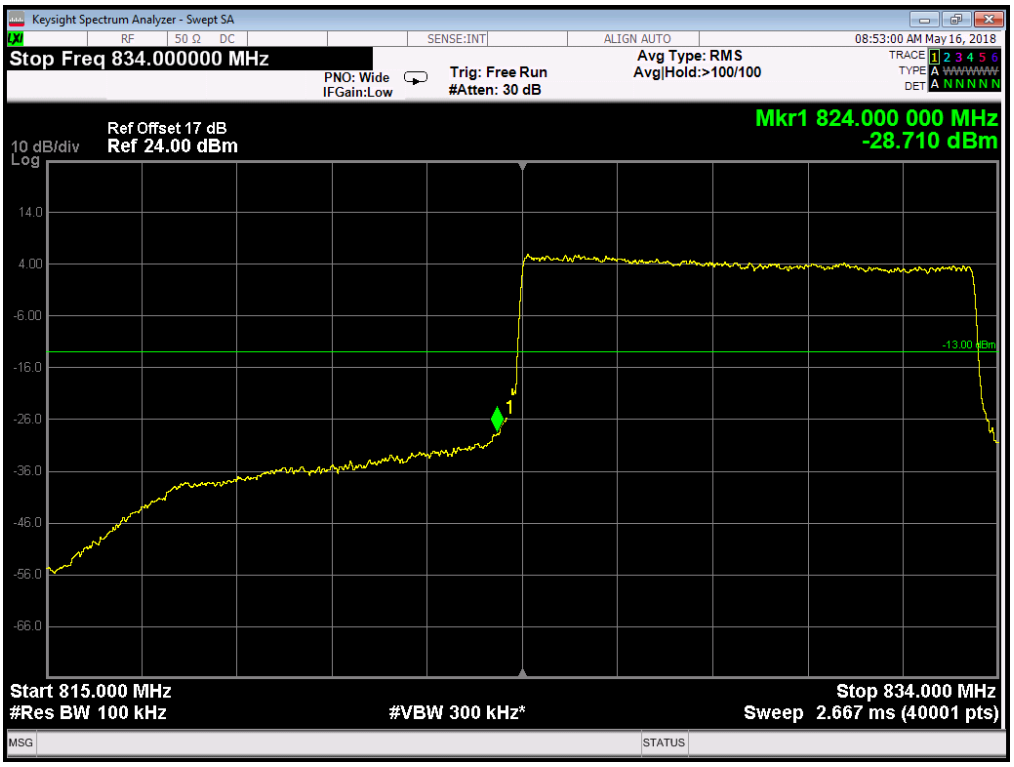
Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24

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

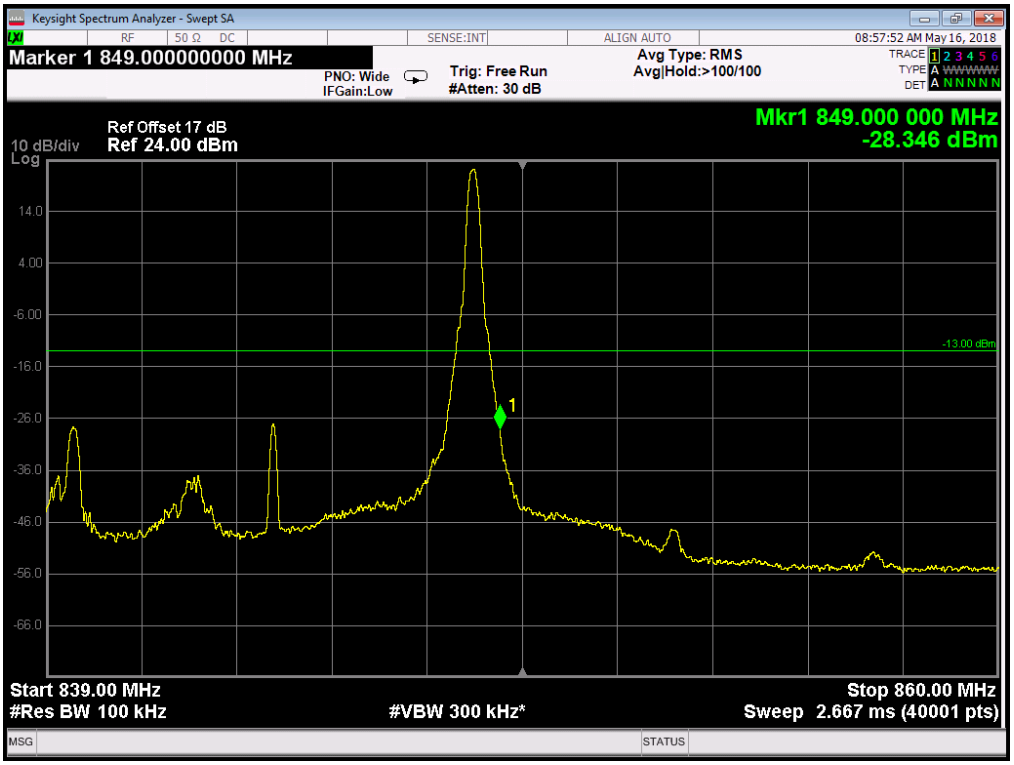
Band	LTE Band 5	Modulation	QPSK
Bandwidth	10MHz		



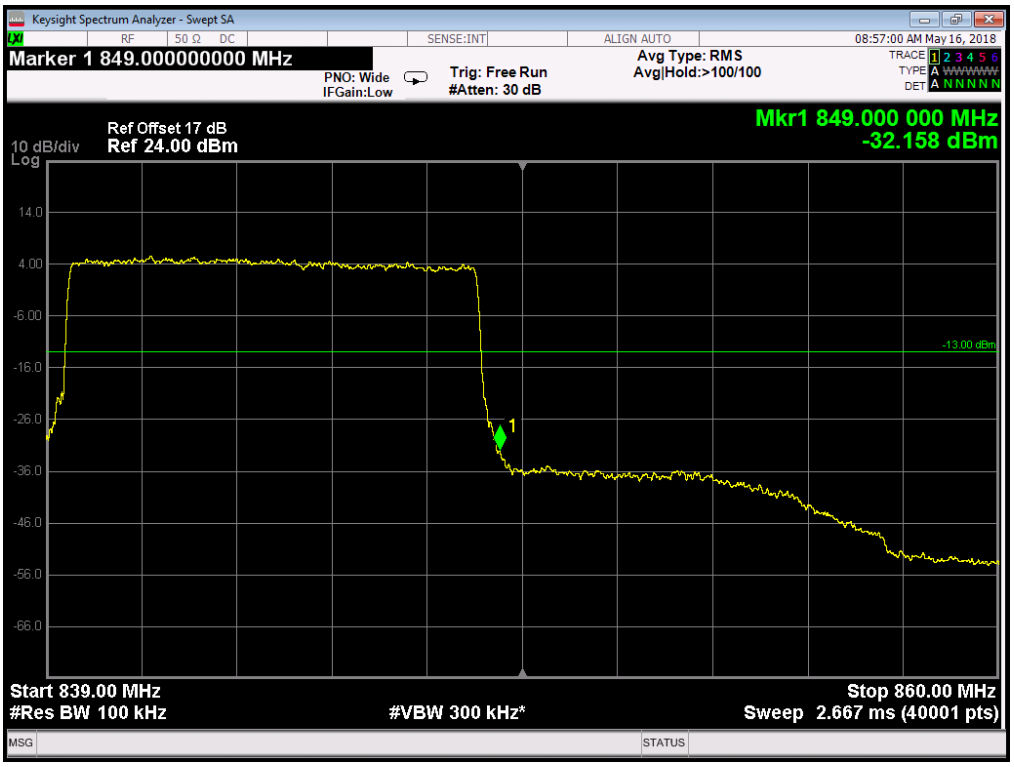
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



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

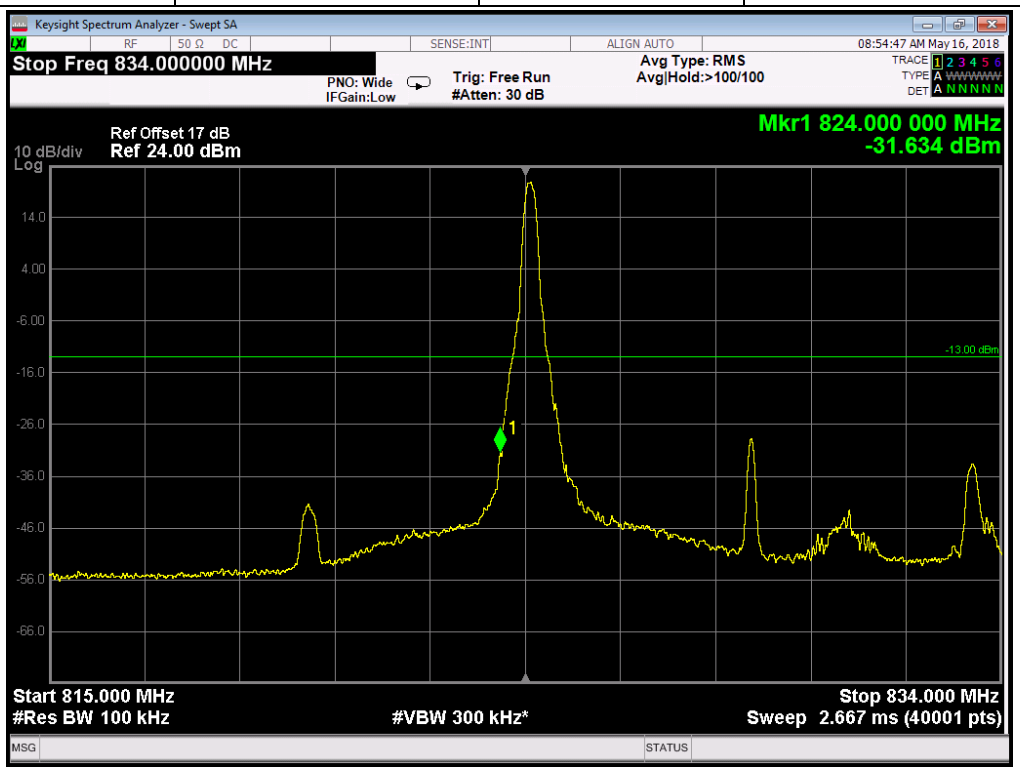


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49

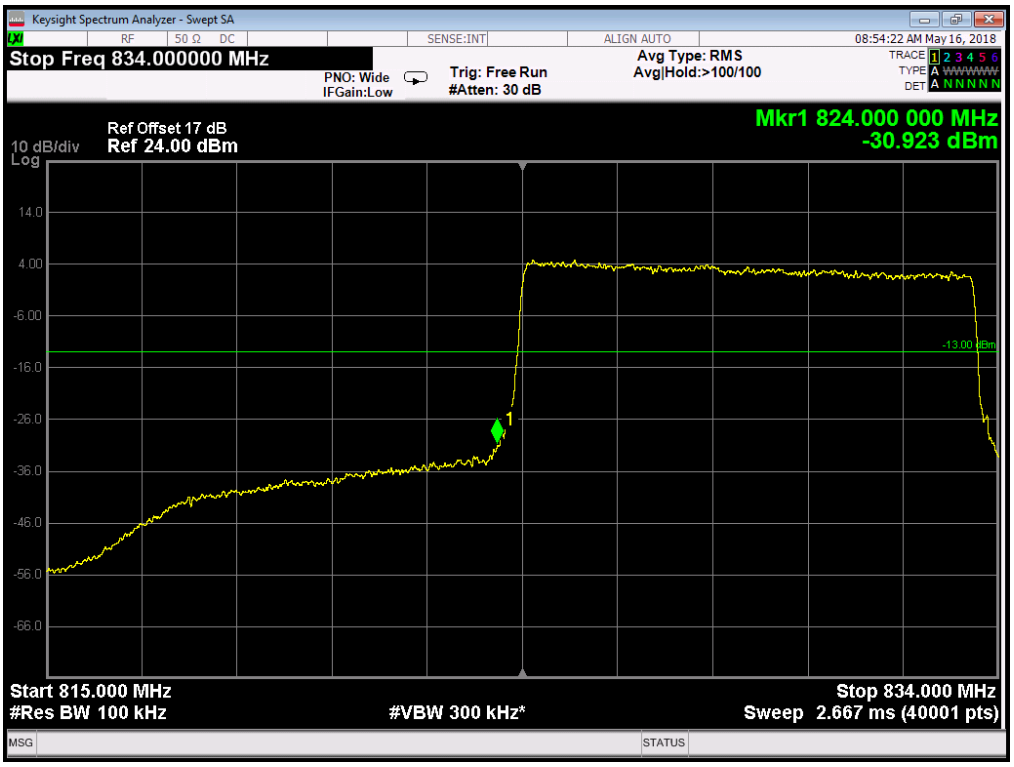


Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

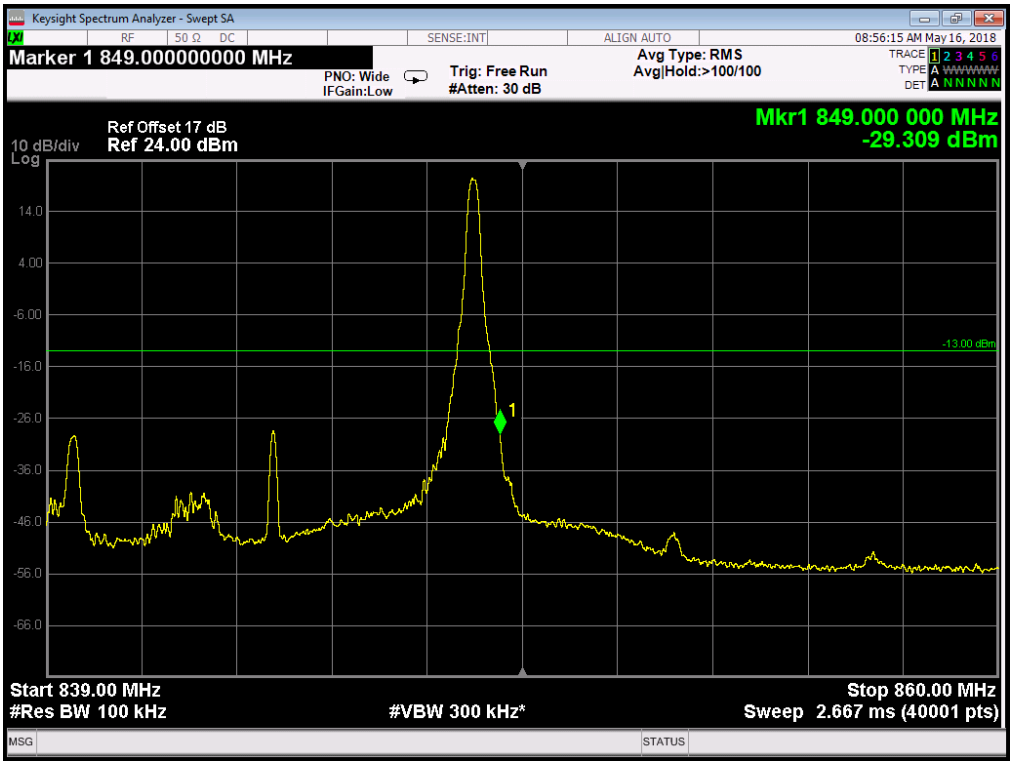
Band	LTE Band 5	Modulation	16QAM
Bandwidth	10MHz		



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



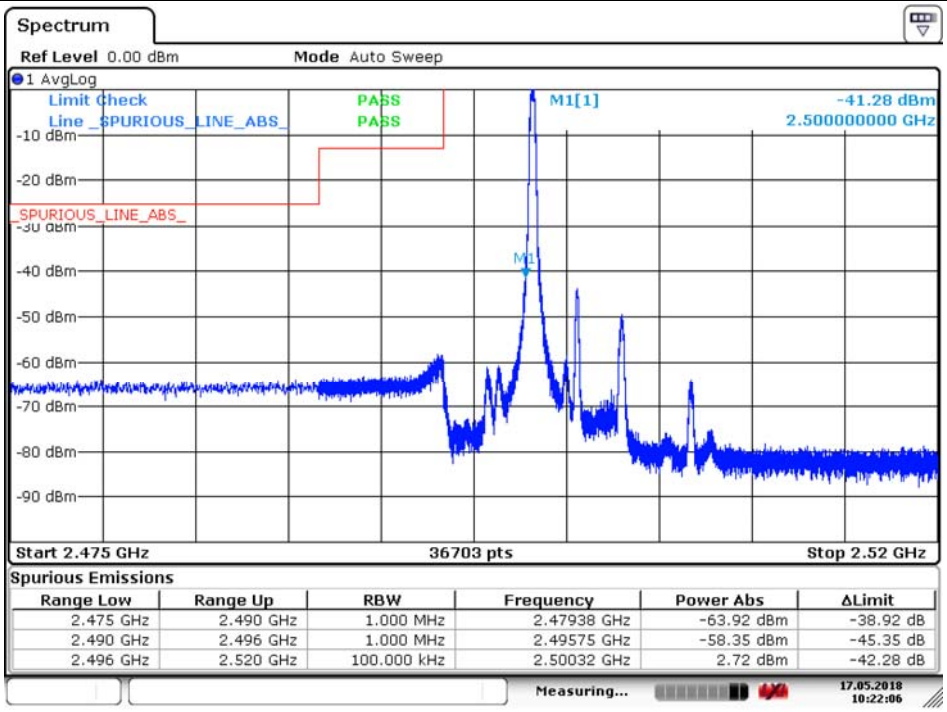
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



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

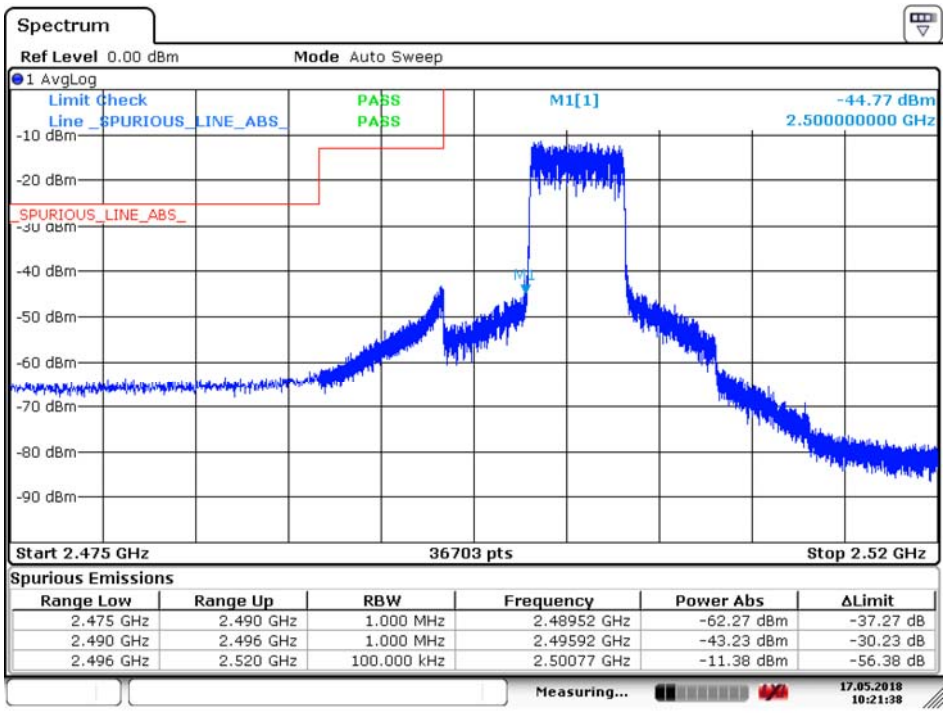
Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

Band	LTE Band 7	Modulation	QPSK
Bandwidth	5MHz		



Date: 17.MAY.2018 10:22:06

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



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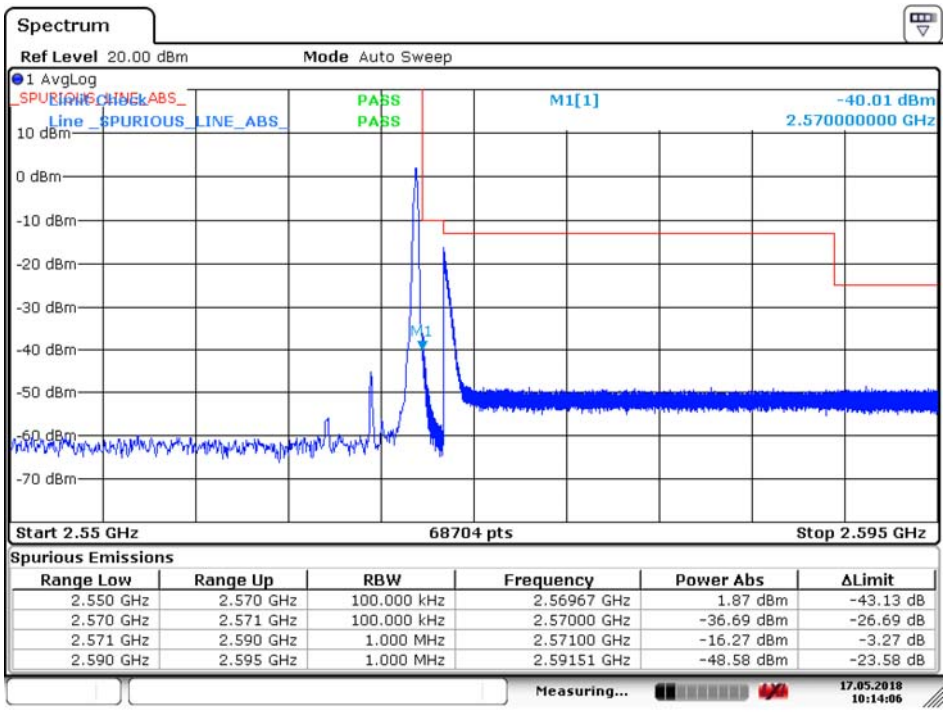
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0

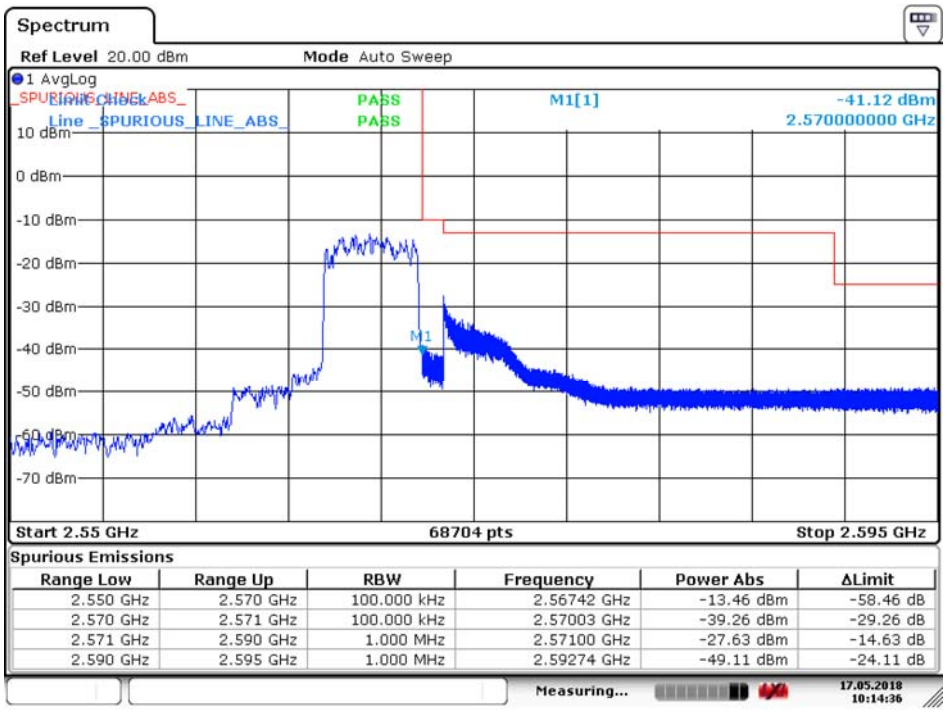


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56967 GHz	1.87 dBm	-43.13 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57000 GHz	-36.69 dBm	-26.69 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57100 GHz	-16.27 dBm	-3.27 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59151 GHz	-48.58 dBm	-23.58 dB

Date: 17.MAY.2018 10:14:06

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



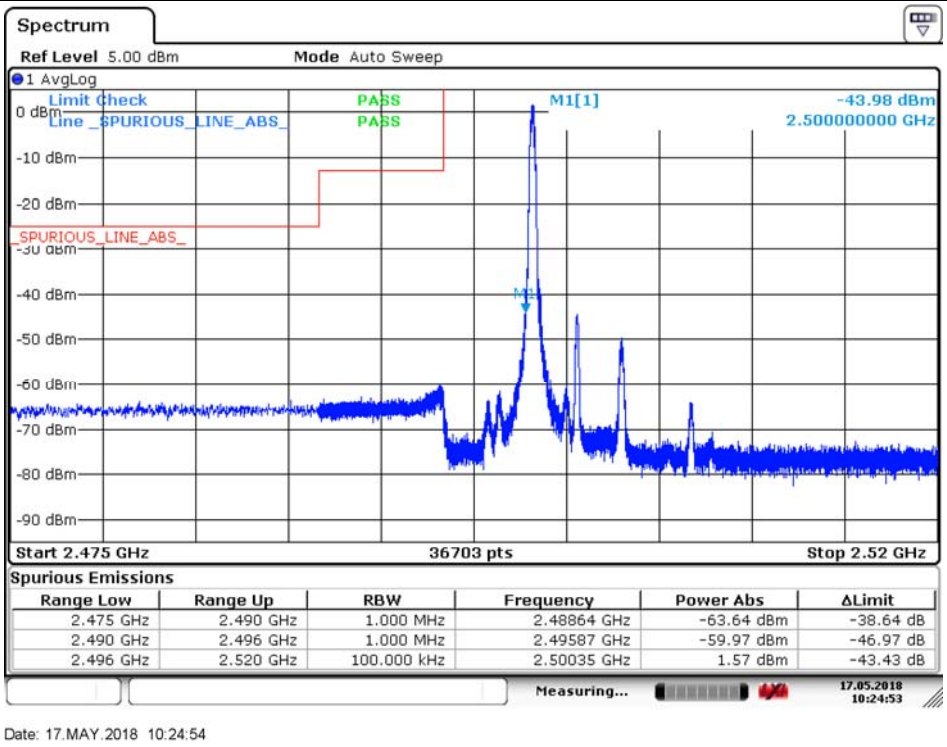
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56742 GHz	-13.46 dBm	-58.46 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57003 GHz	-39.26 dBm	-29.26 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57100 GHz	-27.63 dBm	-14.63 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59274 GHz	-49.11 dBm	-24.11 dB

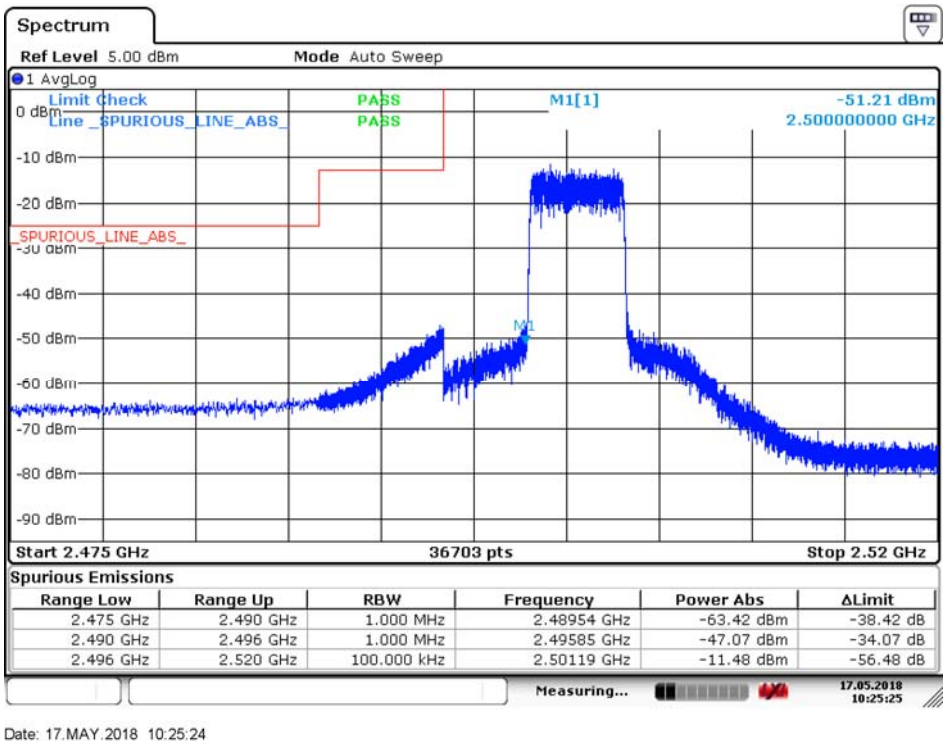
Date: 17.MAY.2018 10:14:36

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

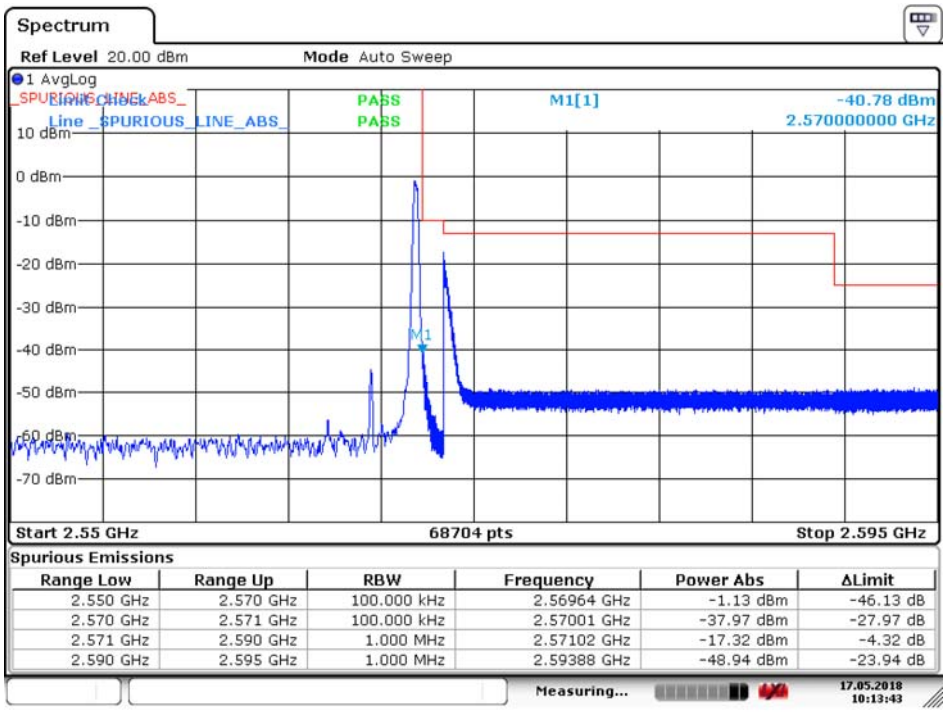
Band	LTE Band 7	Modulation	16QAM
Bandwidth	5MHz		



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



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



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56964 GHz	-1.13 dBm	-46.13 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57001 GHz	-37.97 dBm	-27.97 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57102 GHz	-17.32 dBm	-4.32 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59388 GHz	-48.94 dBm	-23.94 dB

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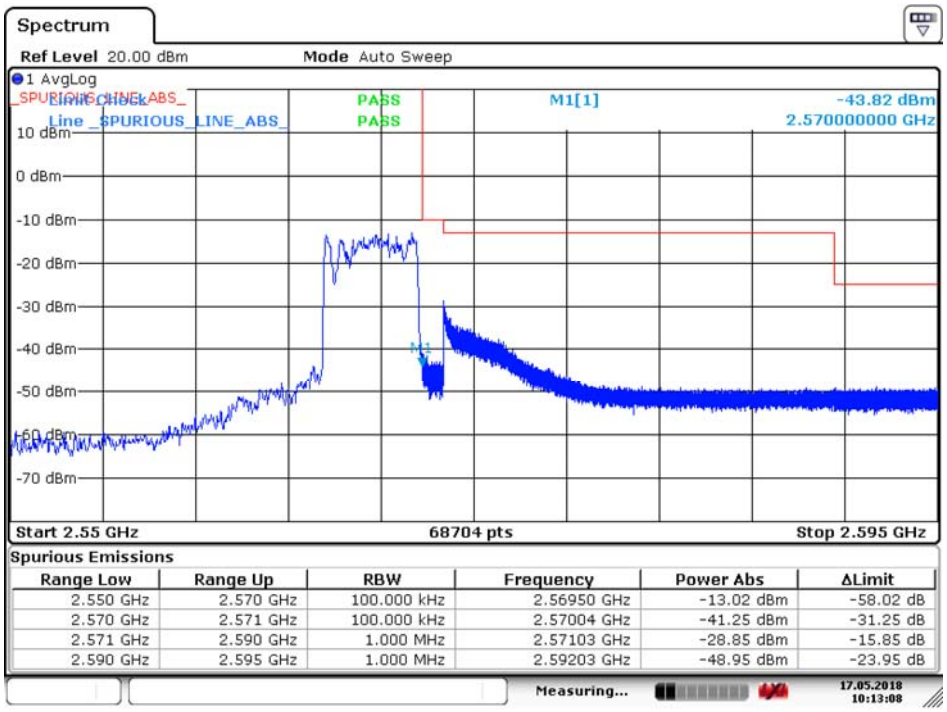
Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 24



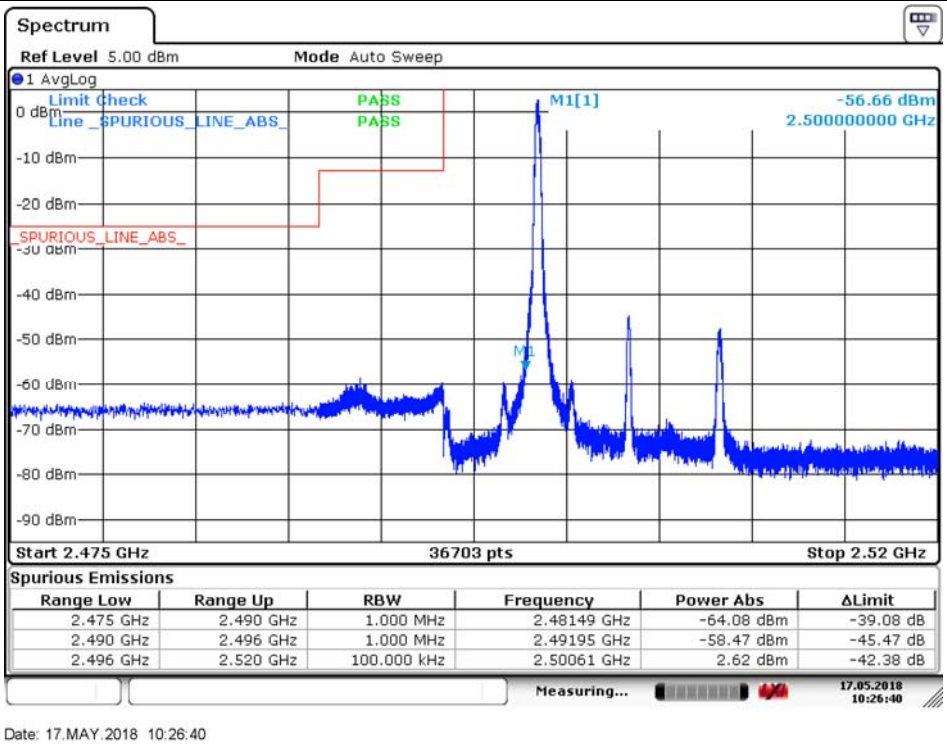
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56950 GHz	-13.02 dBm	-58.02 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57004 GHz	-41.25 dBm	-31.25 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57103 GHz	-28.85 dBm	-15.85 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59203 GHz	-48.95 dBm	-23.95 dB

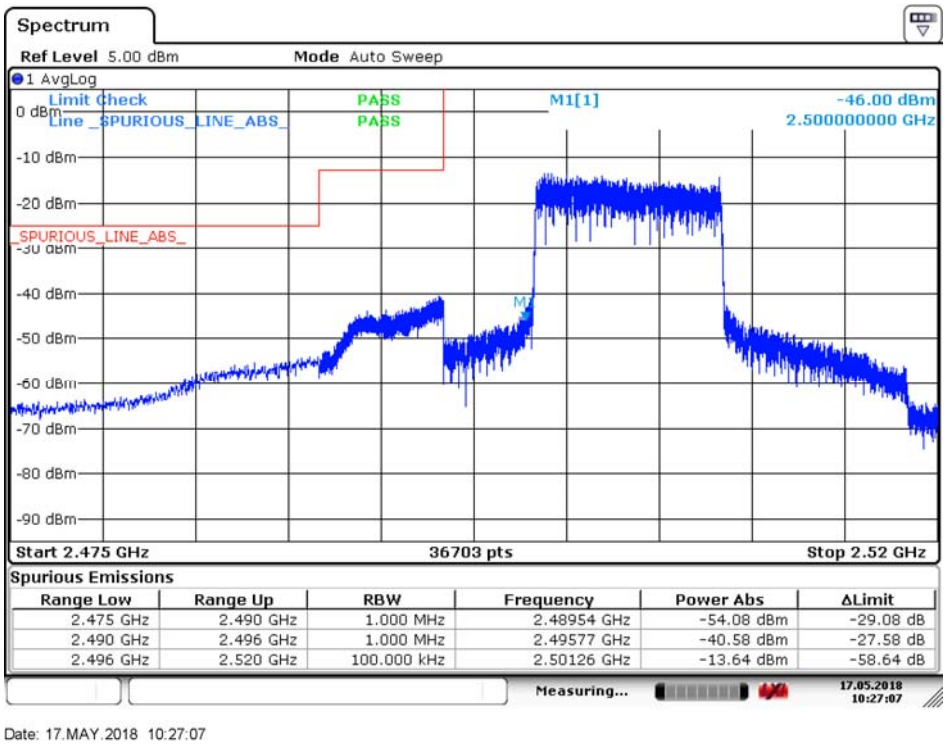
Date: 17.MAY.2018 10:13:07

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

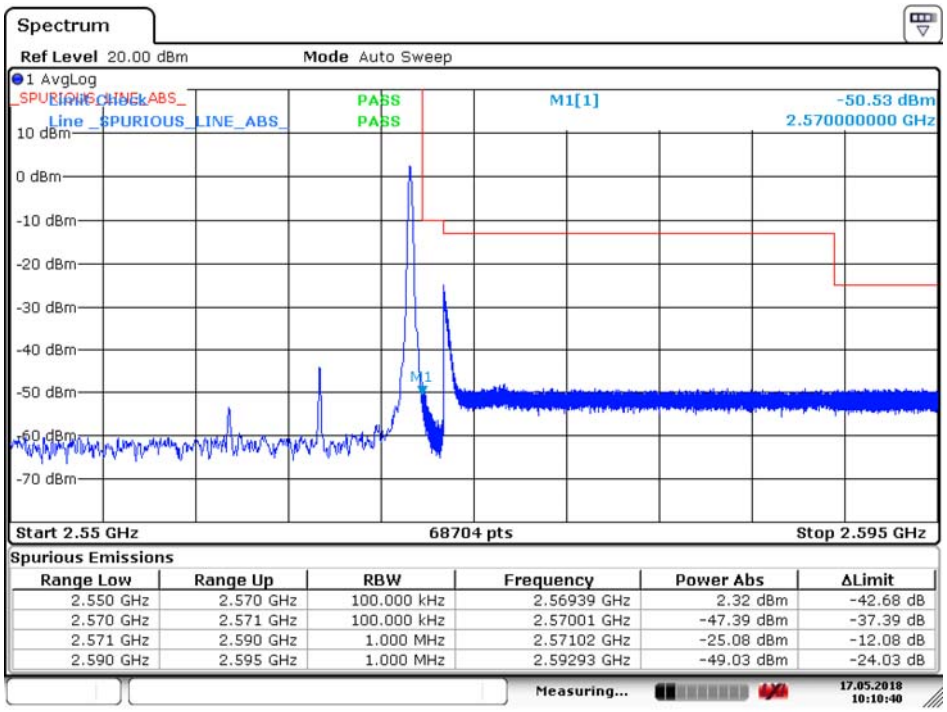
Band	LTE Band 7	Modulation	QPSK
Bandwidth	10MHz		



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



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



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56939 GHz	2.32 dBm	-42.68 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57001 GHz	-47.39 dBm	-37.39 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57102 GHz	-25.08 dBm	-12.08 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59293 GHz	-49.03 dBm	-24.03 dB

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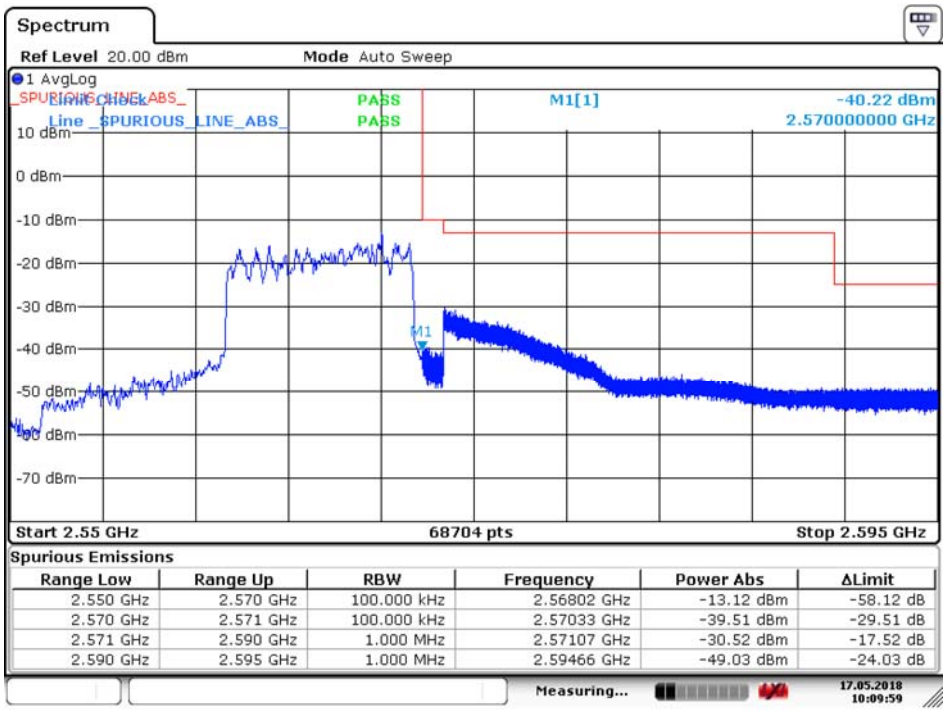
Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56802 GHz	-13.12 dBm	-58.12 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57033 GHz	-39.51 dBm	-29.51 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57107 GHz	-30.52 dBm	-17.52 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59466 GHz	-49.03 dBm	-24.03 dB

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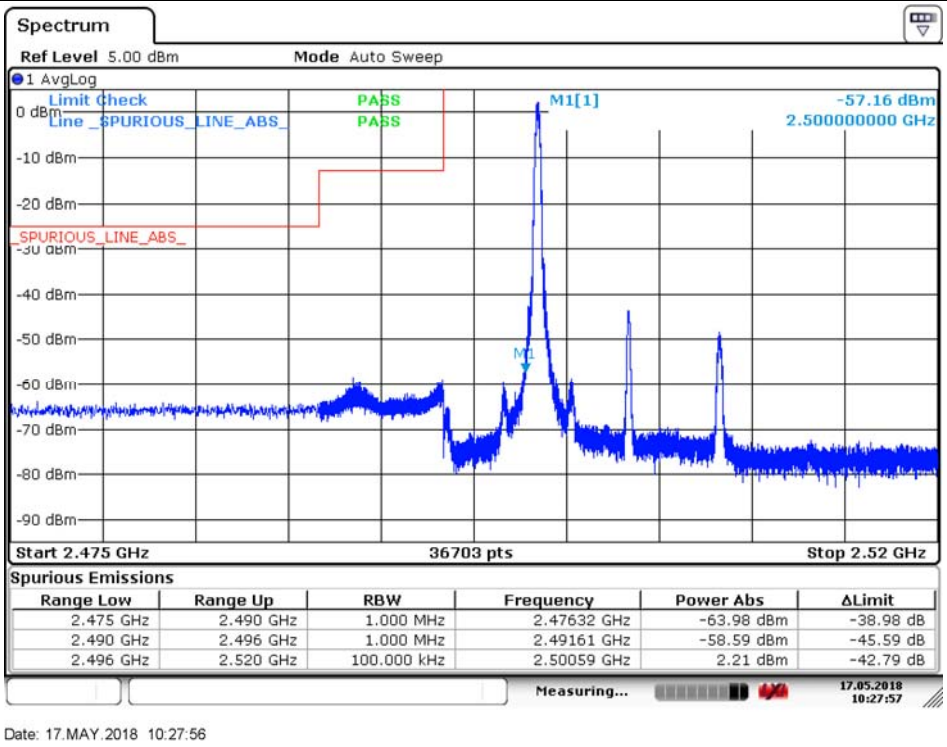
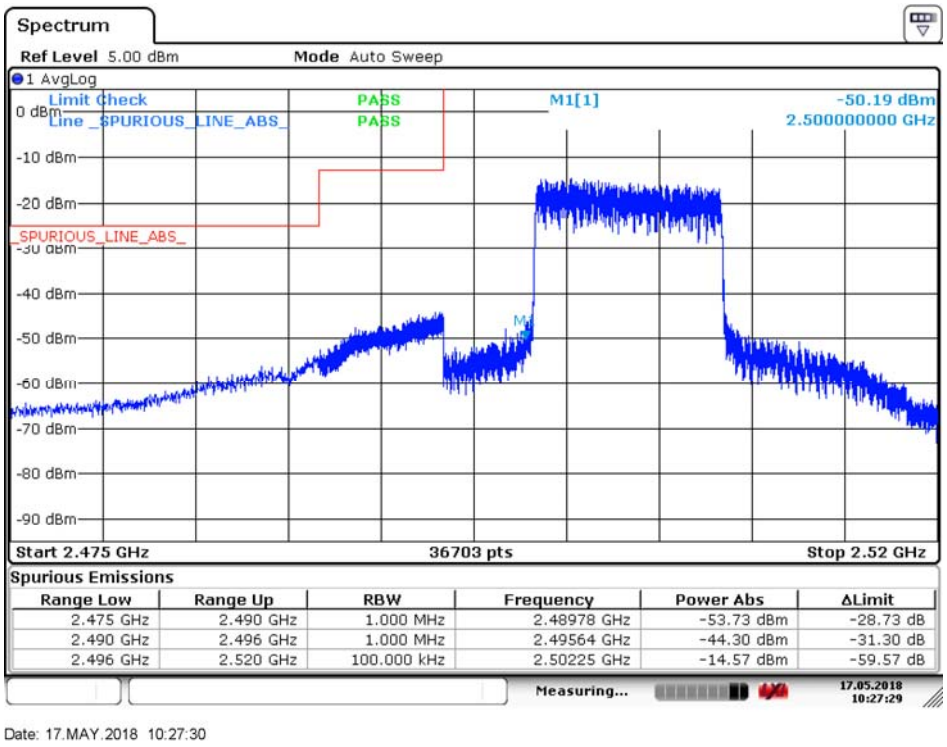
Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

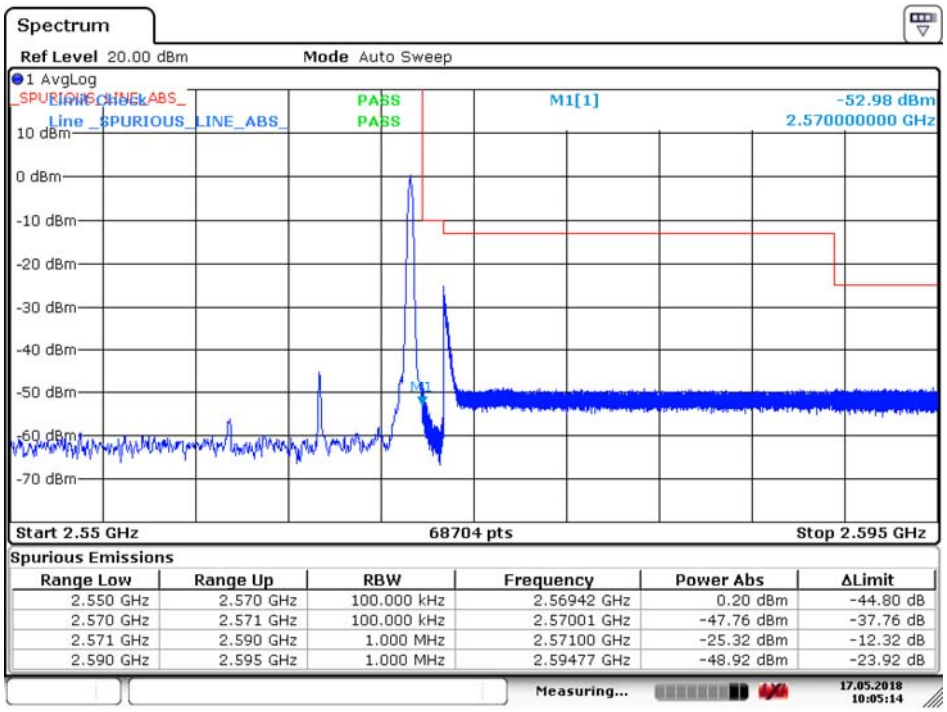
Band	LTE Band 7	Modulation	16QAM
Bandwidth	10MHz		



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



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

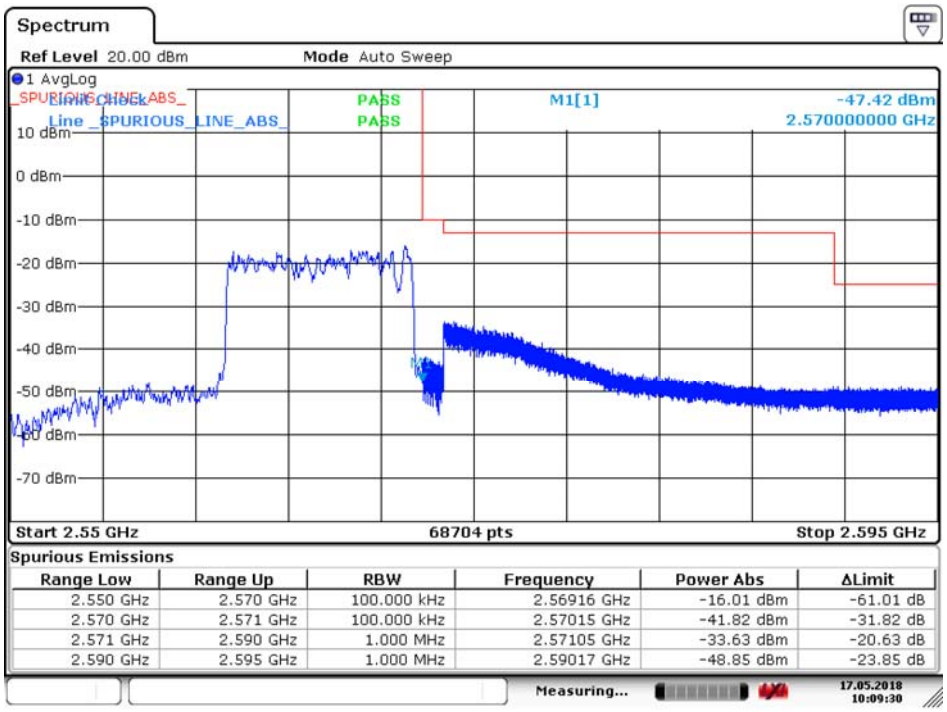


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56942 GHz	0.20 dBm	-44.80 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57001 GHz	-47.76 dBm	-37.76 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57100 GHz	-25.32 dBm	-12.32 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59477 GHz	-48.92 dBm	-23.92 dB

Date: 17.MAY.2018 10:05:14

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



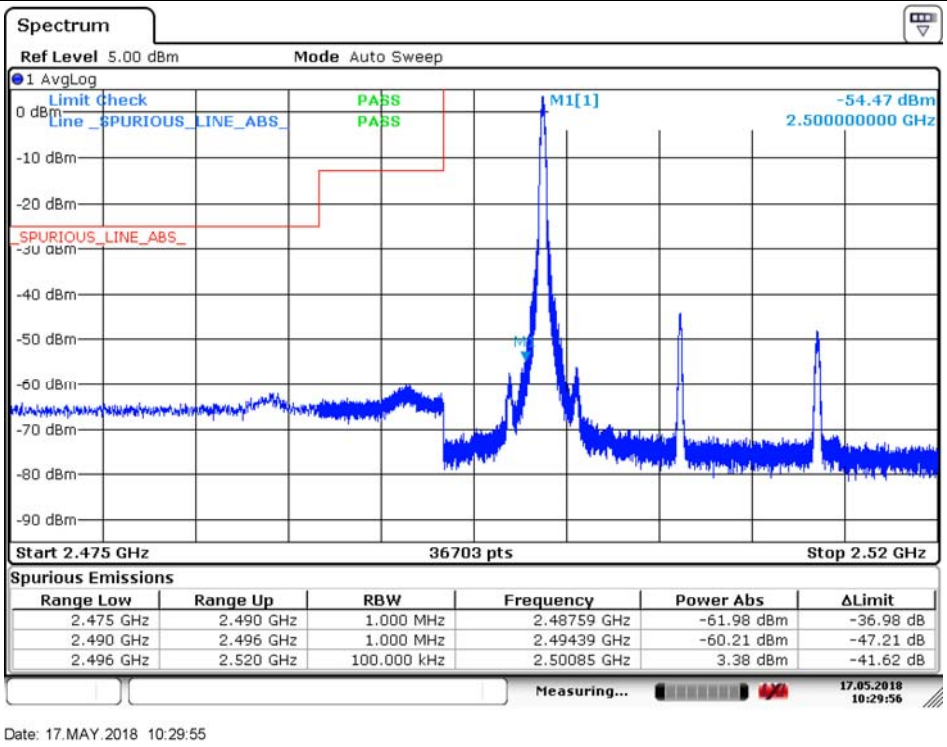
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56916 GHz	-16.01 dBm	-61.01 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57015 GHz	-41.82 dBm	-31.82 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57105 GHz	-33.63 dBm	-20.63 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59017 GHz	-48.85 dBm	-23.85 dB

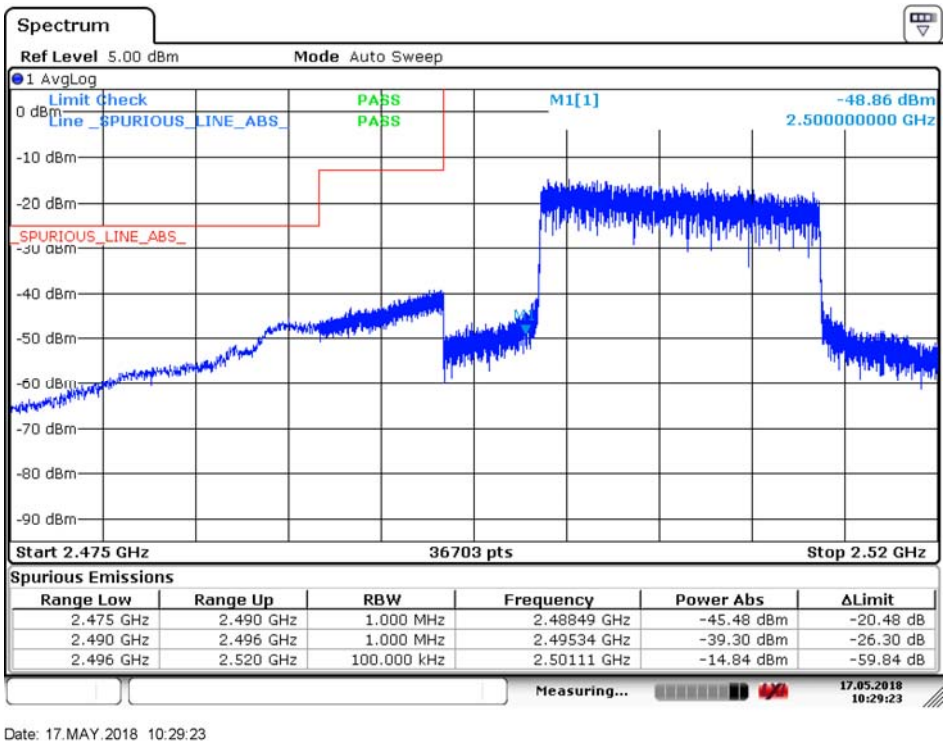
Date: 17.MAY.2018 10:09:29

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

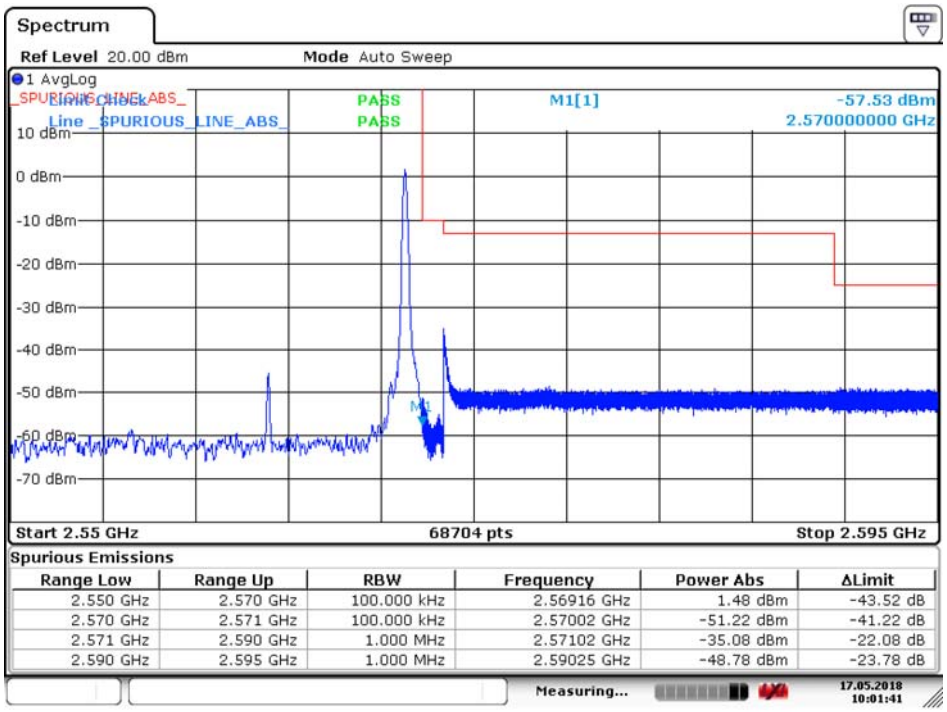
Band	LTE Band 7	Modulation	QPSK
Bandwidth	15MHz		



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



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

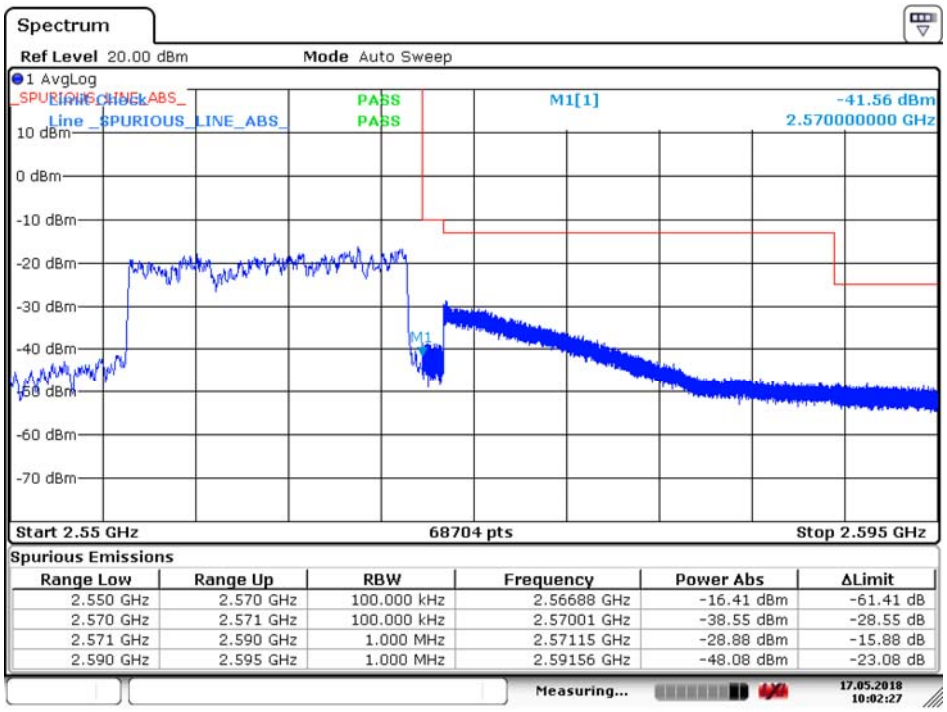


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56916 GHz	1.48 dBm	-43.52 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57002 GHz	-51.22 dBm	-41.22 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57102 GHz	-35.08 dBm	-22.08 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59025 GHz	-48.78 dBm	-23.78 dB

Date: 17.MAY.2018 10:01:41

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



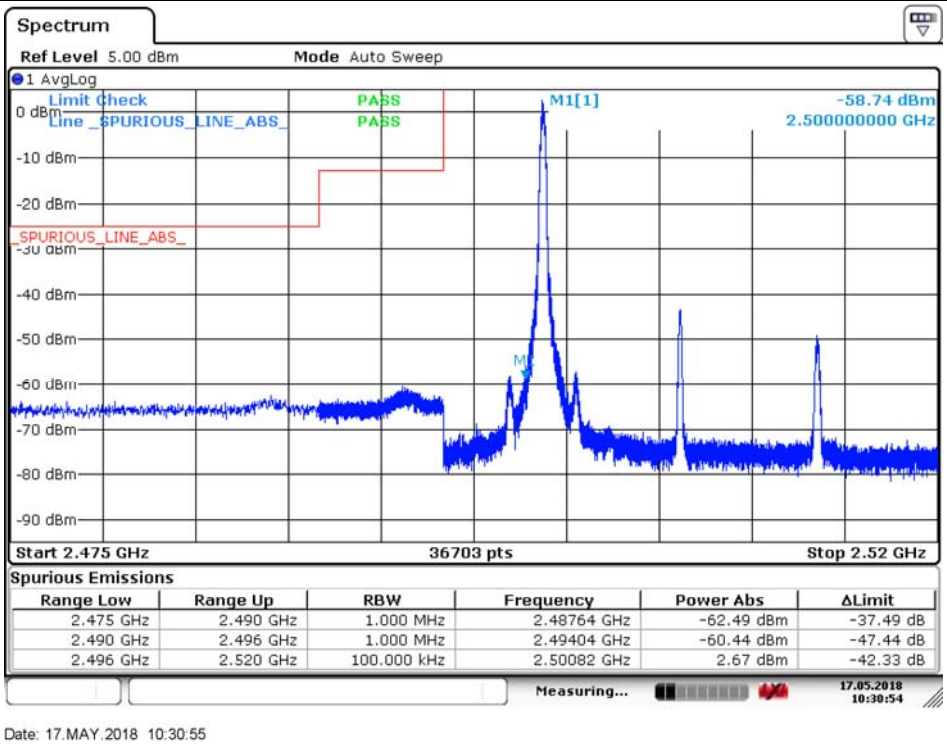
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56688 GHz	-16.41 dBm	-61.41 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57001 GHz	-38.55 dBm	-28.55 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57115 GHz	-28.88 dBm	-15.88 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59156 GHz	-48.08 dBm	-23.08 dB

Date: 17.MAY.2018 10:02:26

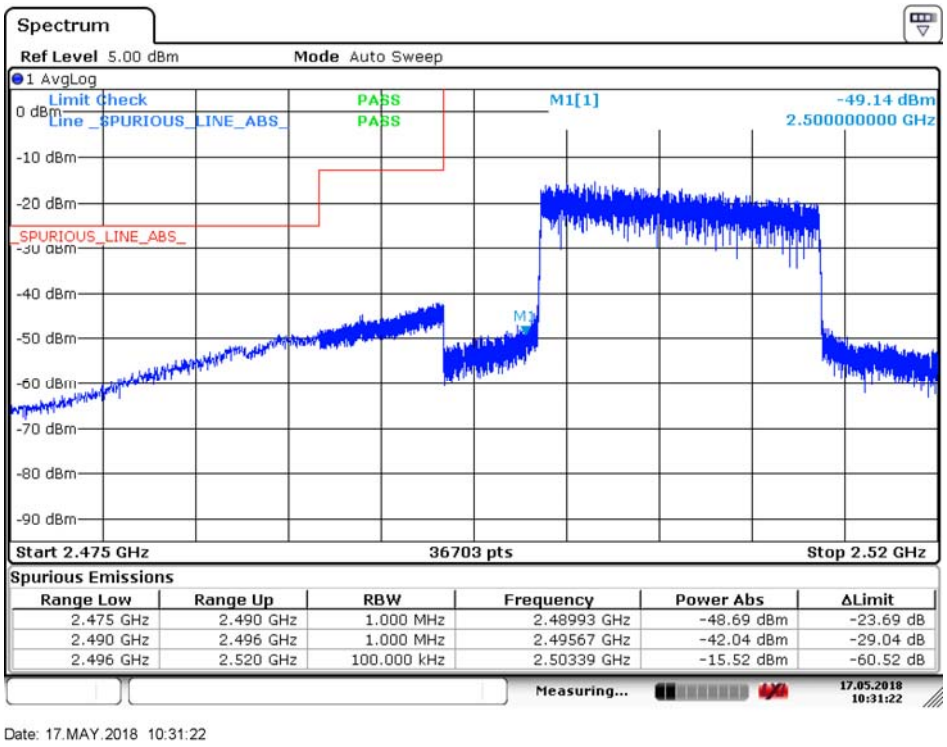
Higher Band Edge Plot for QPSK -RB Size 75, RB Offset 0

Band	LTE Band 7	Modulation	16QAM
Bandwidth	15MHz		



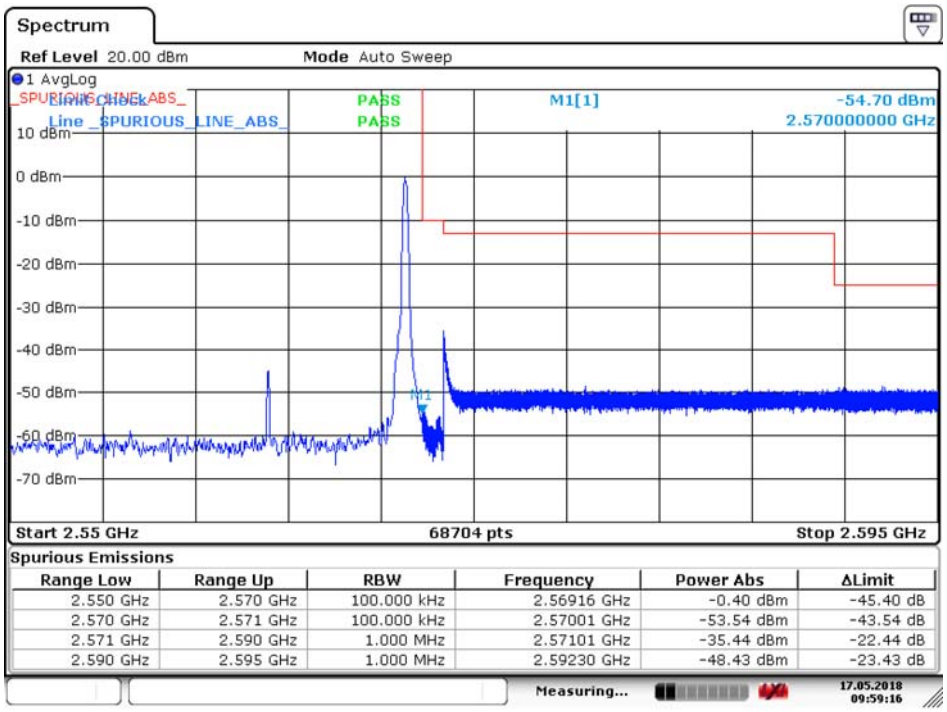
Date: 17.MAY.2018 10:30:55

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



Date: 17.MAY.2018 10:31:22

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

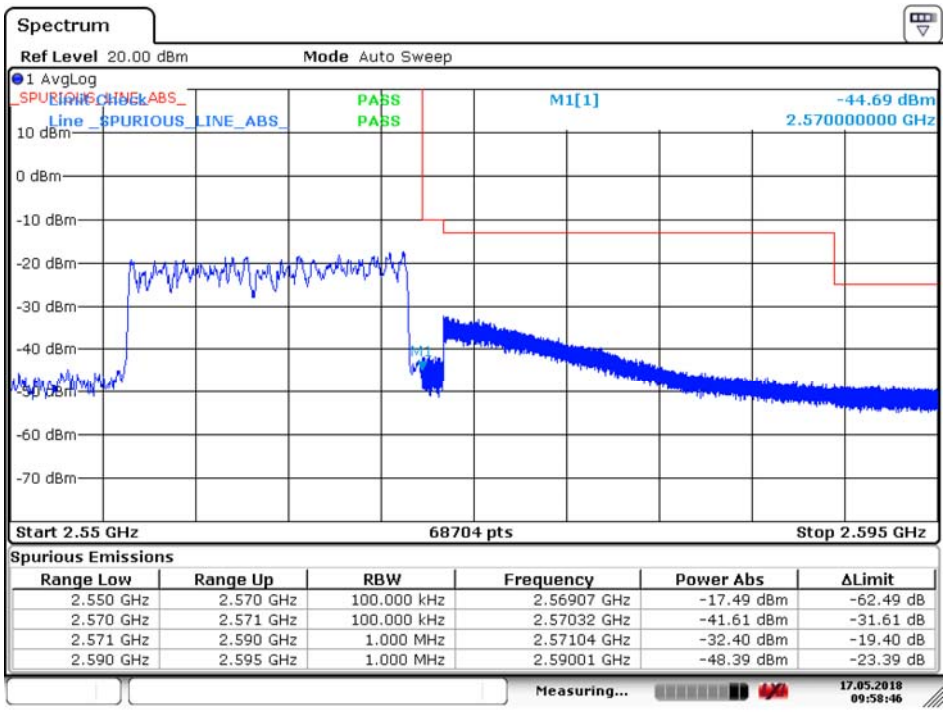


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56916 GHz	-0.40 dBm	-45.40 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57001 GHz	-53.54 dBm	-43.54 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57101 GHz	-35.44 dBm	-22.44 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59230 GHz	-48.43 dBm	-23.43 dB

Date: 17.MAY.2018 09:59:16

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



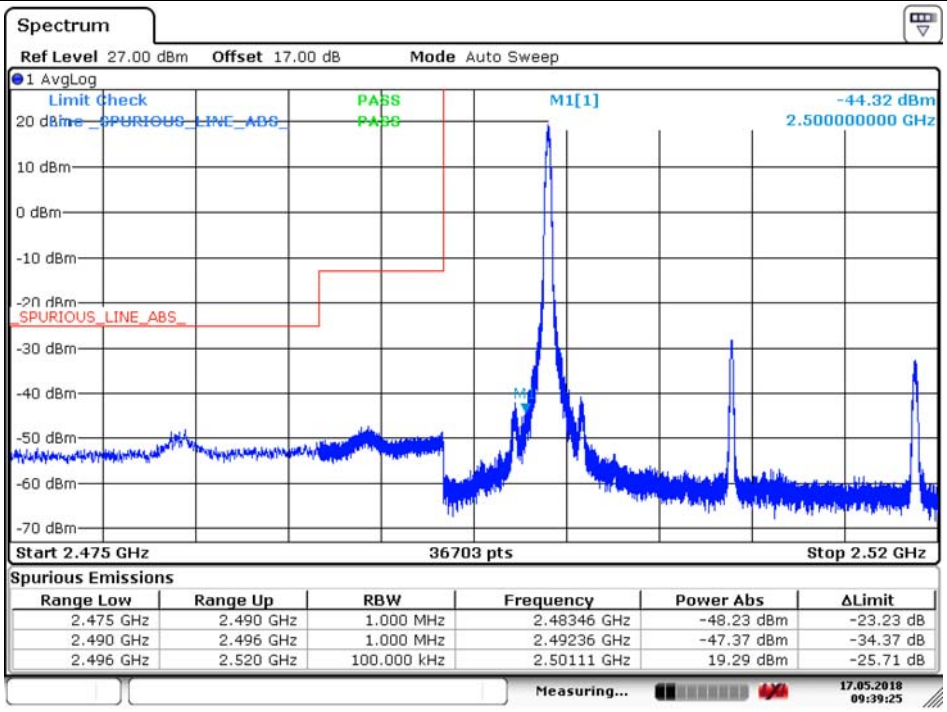
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56907 GHz	-17.49 dBm	-62.49 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57032 GHz	-41.61 dBm	-31.61 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57104 GHz	-32.40 dBm	-19.40 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59001 GHz	-48.39 dBm	-23.39 dB

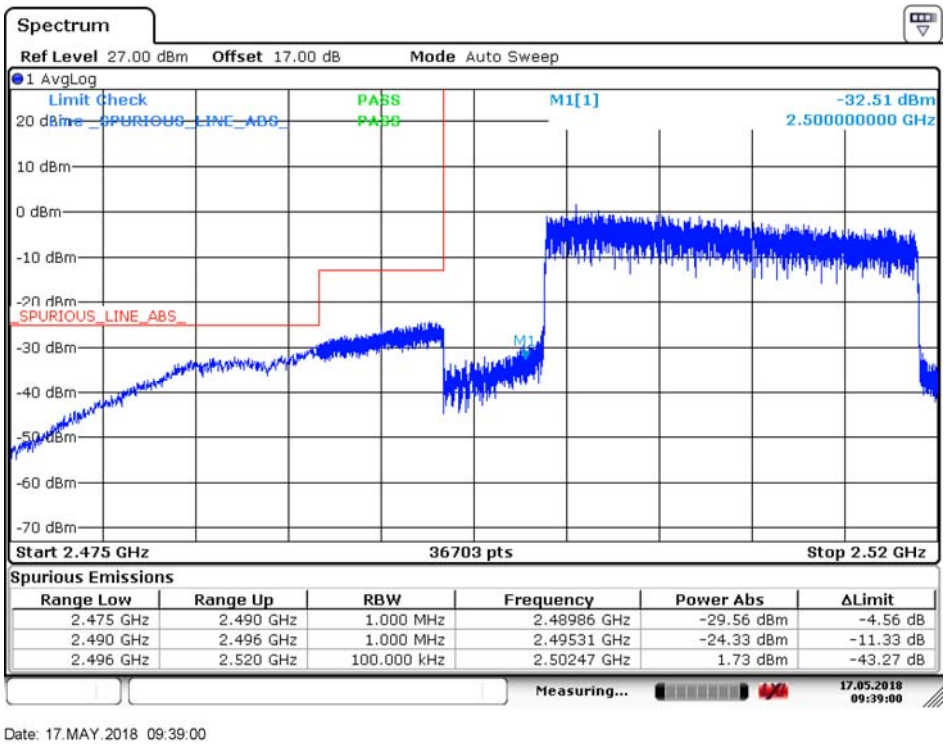
Date: 17.MAY.2018 09:58:46

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

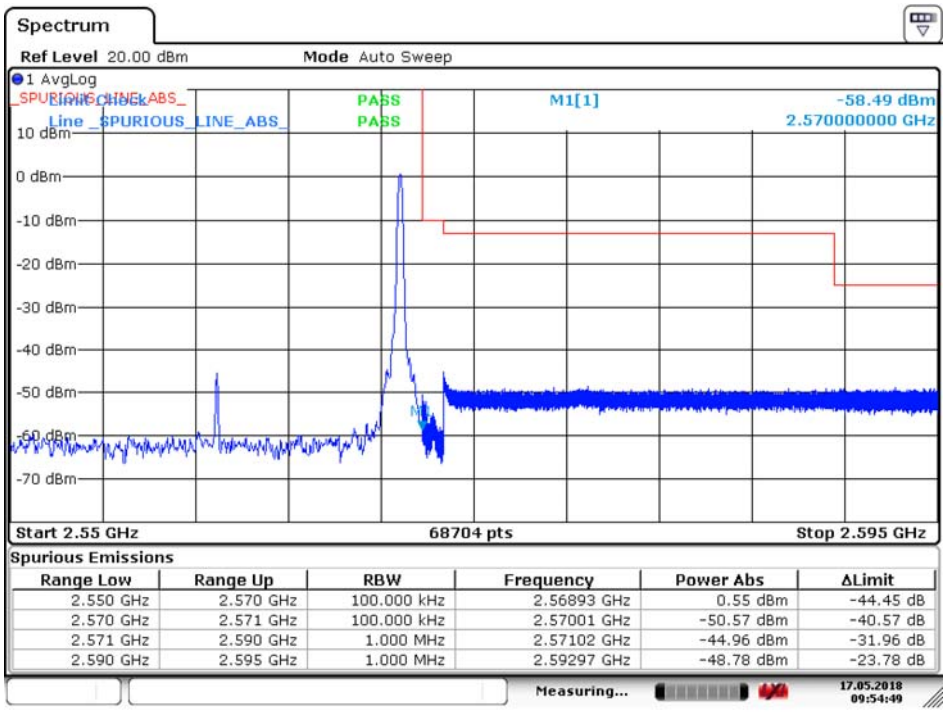
Band	LTE Band 7	Modulation	QPSK
Bandwidth	20MHz		



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



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

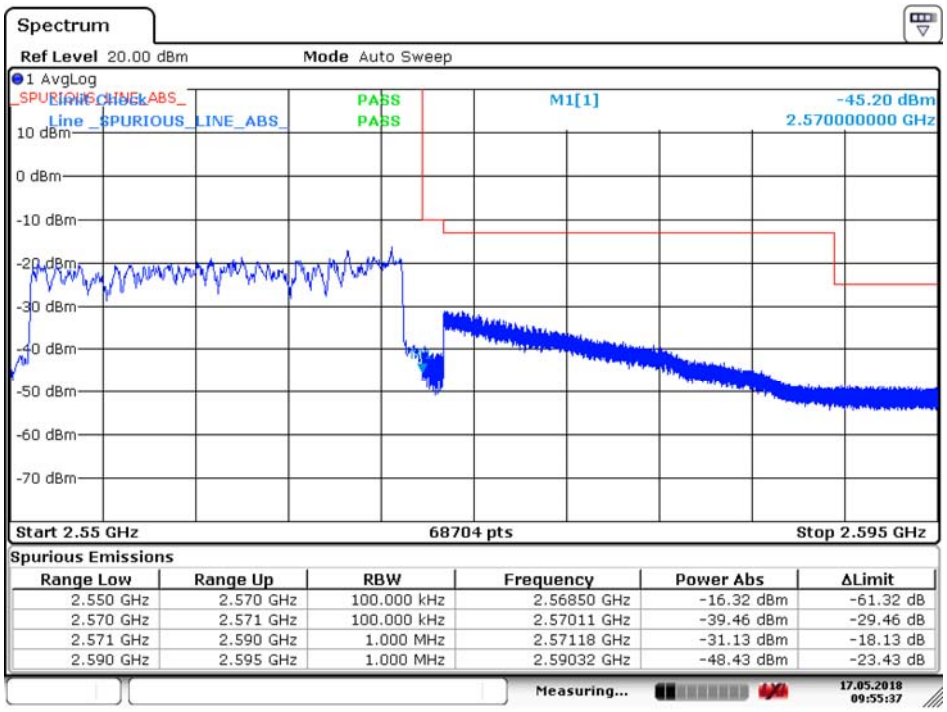


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56893 GHz	0.55 dBm	-44.45 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57001 GHz	-50.57 dBm	-40.57 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57102 GHz	-44.96 dBm	-31.96 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59297 GHz	-48.78 dBm	-23.78 dB

Date: 17.MAY.2018 09:54:49

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



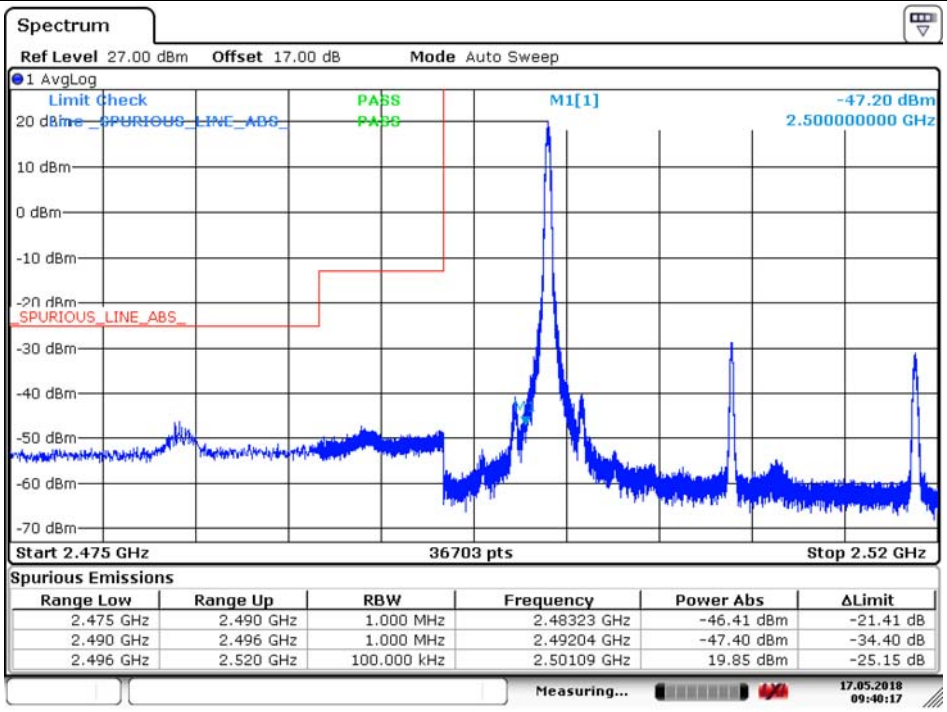
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56850 GHz	-16.32 dBm	-61.32 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57011 GHz	-39.46 dBm	-29.46 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57118 GHz	-31.13 dBm	-18.13 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59032 GHz	-48.43 dBm	-23.43 dB

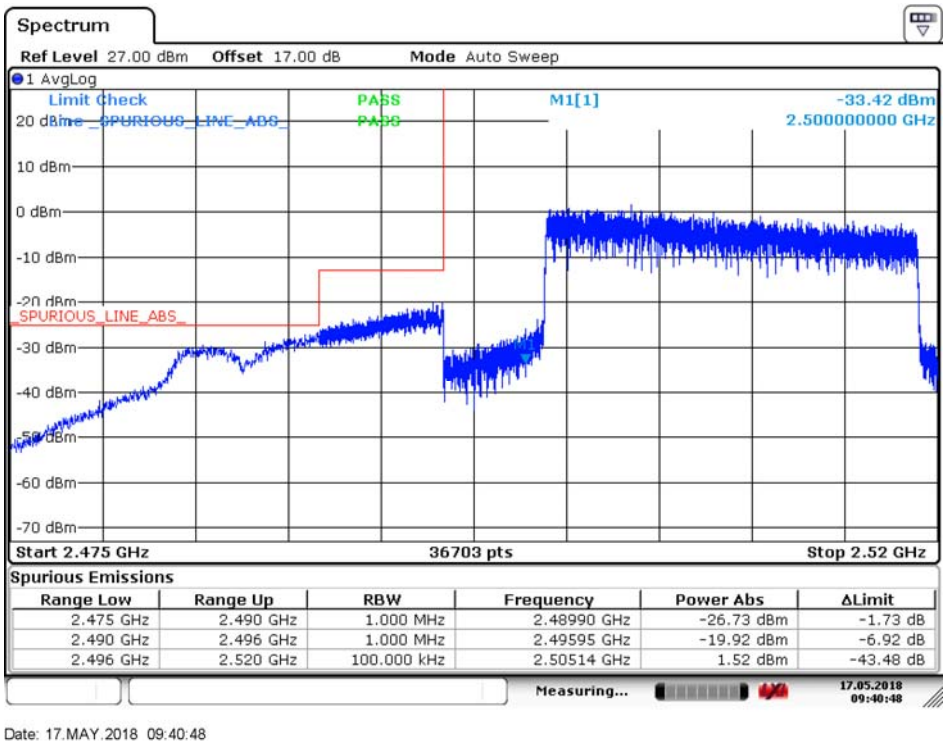
Date: 17.MAY.2018 09:55:37

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

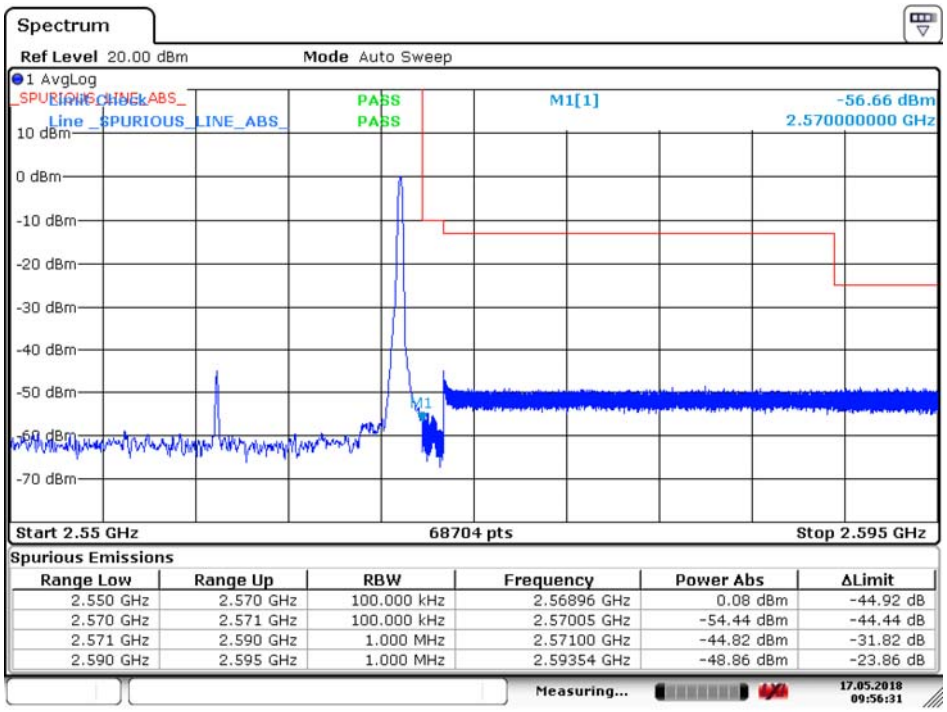
Band	LTE Band 7	Modulation	16QAM
Bandwidth	20MHz		



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



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

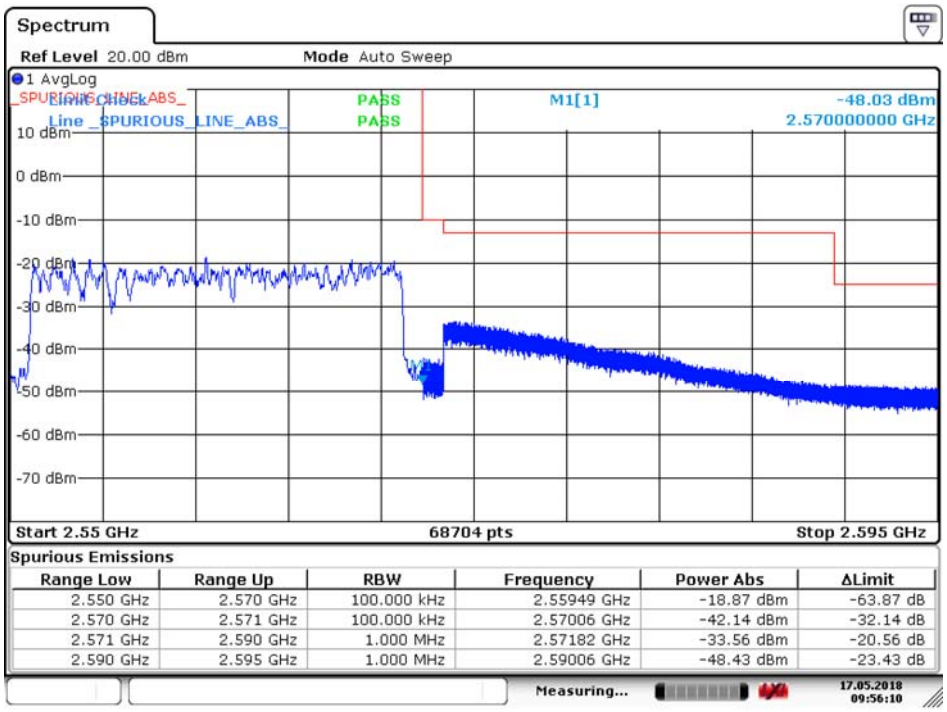


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.56896 GHz	0.08 dBm	-44.92 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57005 GHz	-54.44 dBm	-44.44 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57100 GHz	-44.82 dBm	-31.82 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59354 GHz	-48.86 dBm	-23.86 dB

Date: 17.MAY.2018 09:56:30

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



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.550 GHz	2.570 GHz	100.000 kHz	2.55949 GHz	-18.87 dBm	-63.87 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57006 GHz	-42.14 dBm	-32.14 dB
2.571 GHz	2.590 GHz	1.000 MHz	2.57182 GHz	-33.56 dBm	-20.56 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59006 GHz	-48.43 dBm	-23.43 dB

Date: 17.MAY.2018 09:56:09

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

2.7 Transmitter Radiated Power (EIRP/ERP)

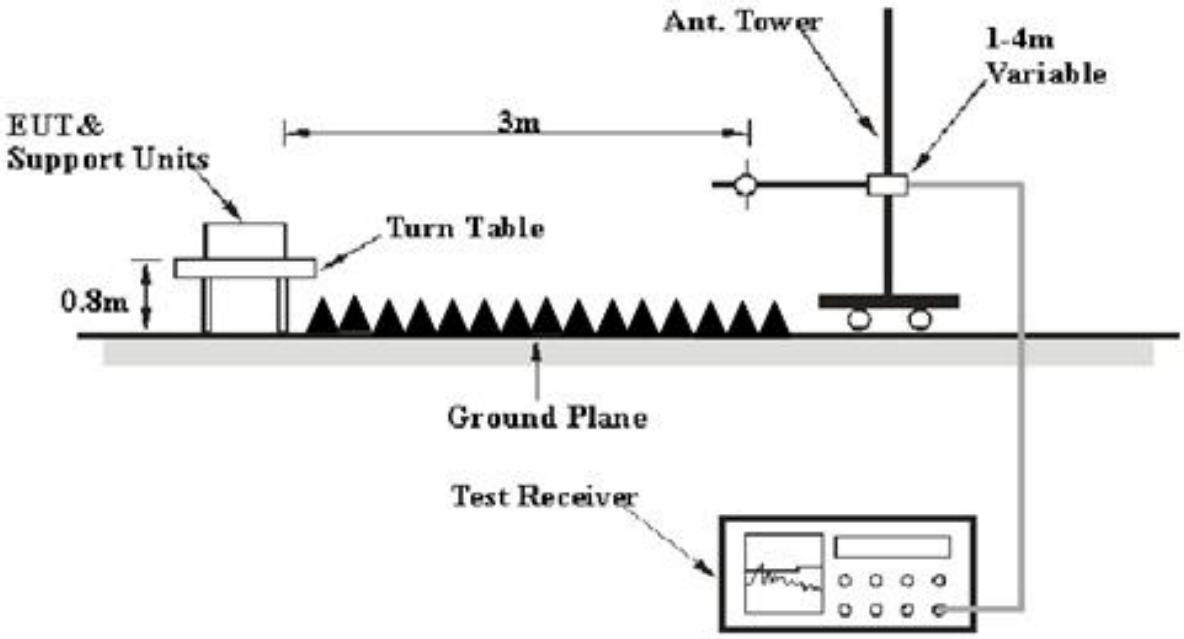
2.7.1 Requirement

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 v03r01. 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 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 D01 v03r01.

4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10. 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)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset				
2	1.4	QPSK	1	2	1850.7	**23.20**	H	PASS
2	1.4	QPSK	1	5	1880	23.13	H	PASS
2	1.4	QPSK	3	2	1909.3	23.16	H	PASS
2	1.4	QPSK	1	2	1850.7	22.57	V	PASS
2	1.4	QPSK	1	5	1880	22.47	V	PASS
2	1.4	QPSK	3	2	1909.3	22.49	V	PASS
2	1.4	16QAM	1	0	1850.7	21.56	H	PASS
2	1.4	16QAM	1	2	1880	21.57	H	PASS
2	1.4	16QAM	3	2	1909.3	21.65	H	PASS
2	1.4	16QAM	1	0	1850.7	20.94	V	PASS
2	1.4	16QAM	1	2	1880	20.89	V	PASS
2	1.4	16QAM	3	2	1909.3	20.97	V	PASS
2	3	QPSK	1	7	1851.5	23.11	H	PASS
2	3	QPSK	1	14	1880	23.09	H	PASS
2	3	QPSK	1	0	1908.5	**23.12**	H	PASS
2	3	QPSK	1	7	1851.5	22.64	V	PASS
2	3	QPSK	1	14	1880	22.56	V	PASS
2	3	QPSK	1	0	1908.5	22.59	V	PASS
2	3	16QAM	1	14	1851.5	21.71	H	PASS
2	3	16QAM	1	0	1880	21.75	H	PASS
2	3	16QAM	1	0	1908.5	21.78	H	PASS
2	3	16QAM	1	14	1851.5	20.84	V	PASS
2	3	16QAM	1	0	1880	20.95	V	PASS
2	3	16QAM	1	0	1908.5	20.92	V	PASS
2	5	QPSK	1	0	1852.5	23.10	H	PASS
2	5	QPSK	1	0	1880	23.04	H	PASS
2	5	QPSK	1	24	1907.5	**23.11**	H	PASS
2	5	QPSK	1	0	1852.5	22.55	V	PASS
2	5	QPSK	1	0	1880	22.52	V	PASS
2	5	QPSK	1	24	1907.5	22.58	V	PASS
2	5	16QAM	1	12	1852.5	21.69	H	PASS
2	5	16QAM	1	0	1880	21.62	H	PASS
2	5	16QAM	1	12	1907.5	21.7	H	PASS
2	5	16QAM	1	12	1852.5	20.98	V	PASS
2	5	16QAM	1	0	1880	20.97	V	PASS
2	5	16QAM	1	12	1907.5	20.92	V	PASS

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset				
2	10	QPSK	1	0	1855	**23.14**	H	PASS
2	10	QPSK	1	0	1880	23.03	H	PASS
2	10	QPSK	1	49	1905	23.12	H	PASS
2	10	QPSK	1	0	1855	22.54	V	PASS
2	10	QPSK	1	0	1880	22.63	V	PASS
2	10	QPSK	1	49	1905	22.57	V	PASS
2	10	16QAM	1	0	1855	21.63	H	PASS
2	10	16QAM	1	0	1880	21.61	H	PASS
2	10	16QAM	1	24	1905	21.64	H	PASS
2	10	16QAM	1	0	1855	20.80	V	PASS
2	10	16QAM	1	0	1880	20.81	V	PASS
2	10	16QAM	1	24	1905	20.74	V	PASS
2	15	QPSK	1	0	1857.5	23.00	H	PASS
2	15	QPSK	1	0	1880	**23.10**	H	PASS
2	15	QPSK	1	74	1902.5	23.04	H	PASS
2	15	QPSK	1	0	1857.5	22.61	V	PASS
2	15	QPSK	1	0	1880	22.70	V	PASS
2	15	QPSK	1	74	1902.5	22.69	V	PASS
2	15	16QAM	1	0	1857.5	21.74	H	PASS
2	15	16QAM	1	0	1880	21.76	H	PASS
2	15	16QAM	1	74	1902.5	21.78	H	PASS
2	15	16QAM	1	0	1857.5	20.88	V	PASS
2	15	16QAM	1	0	1880	20.91	V	PASS
2	15	16QAM	1	74	1902.5	20.99	V	PASS
2	20	QPSK	1	0	1860	23.15	H	PASS
2	20	QPSK	1	0	1880	23.26	H	PASS
2	20	QPSK	1	0	1900	**23.30**	H	PASS
2	20	QPSK	1	0	1860	22.79	V	PASS
2	20	QPSK	1	0	1880	22.73	V	PASS
2	20	QPSK	1	0	1900	22.72	V	PASS
2	20	16QAM	1	0	1860	21.97	H	PASS
2	20	16QAM	1	0	1880	21.92	H	PASS
2	20	16QAM	1	49	1900	21.99	H	PASS
2	20	16QAM	1	0	1860	20.45	V	PASS
2	20	16QAM	1	0	1880	20.40	V	PASS
2	20	16QAM	1	49	1900	20.48	V	PASS

2. LTE Band 4 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset				
4	1.4	QPSK	1	0	1710.7	**23.20**	H	PASS
4	1.4	QPSK	1	0	1732.5	23.08	H	PASS
4	1.4	QPSK	1	0	1754.3	23.01	H	PASS
4	1.4	QPSK	1	0	1710.7	22.61	V	PASS
4	1.4	QPSK	1	0	1732.5	22.69	V	PASS
4	1.4	QPSK	1	0	1754.3	22.62	V	PASS
4	1.4	16QAM	1	0	1710.7	21.64	H	PASS
4	1.4	16QAM	1	0	1732.5	21.65	H	PASS
4	1.4	16QAM	1	0	1754.3	21.62	H	PASS
4	1.4	16QAM	1	0	1710.7	20.82	V	PASS
4	1.4	16QAM	1	0	1732.5	20.73	V	PASS
4	1.4	16QAM	1	0	1754.3	20.87	V	PASS
4	3	QPSK	1	0	1711.5	23.04	H	PASS
4	3	QPSK	1	0	1732.5	**23.06**	H	PASS
4	3	QPSK	1	0	1753.5	23.00	H	PASS
4	3	QPSK	1	0	1711.5	22.60	V	PASS
4	3	QPSK	1	0	1732.5	22.49	V	PASS
4	3	QPSK	1	0	1753.5	22.61	V	PASS
4	3	16QAM	1	14	1711.5	21.57	H	PASS
4	3	16QAM	1	14	1732.5	21.59	H	PASS
4	3	16QAM	1	14	1753.5	21.56	H	PASS
4	3	16QAM	1	14	1711.5	20.82	V	PASS
4	3	16QAM	1	14	1732.5	20.87	V	PASS
4	3	16QAM	1	14	1753.5	20.80	V	PASS
4	5	QPSK	1	24	1712.5	**23.10**	H	PASS
4	5	QPSK	1	24	1732.5	23.07	H	PASS
4	5	QPSK	1	24	1752.5	23.02	H	PASS
4	5	QPSK	1	24	1712.5	22.66	V	PASS
4	5	QPSK	1	24	1732.5	22.55	V	PASS
4	5	QPSK	1	24	1752.5	22.61	V	PASS
4	5	16QAM	1	24	1712.5	21.60	H	PASS
4	5	16QAM	1	0	1732.5	21.53	H	PASS
4	5	16QAM	1	0	1752.5	21.61	H	PASS
4	5	16QAM	1	0	1712.5	20.77	V	PASS
4	5	16QAM	1	0	1732.5	20.90	V	PASS
4	5	16QAM	1	0	1752.5	20.83	V	PASS

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset				
4	10	QPSK	1	0	1715	22.99	H	PASS
4	10	QPSK	1	0	1732.5	22.97	H	PASS
4	10	QPSK	1	0	1750	**23.02**	H	PASS
4	10	QPSK	1	0	1715	22.61	V	PASS
4	10	QPSK	1	0	1732.5	22.56	V	PASS
4	10	QPSK	1	0	1750	22.57	V	PASS
4	10	16QAM	1	24	1715	21.51	H	PASS
4	10	16QAM	1	0	1732.5	21.53	H	PASS
4	10	16QAM	1	24	1750	21.47	H	PASS
4	10	16QAM	1	24	1715	20.66	V	PASS
4	10	16QAM	1	0	1732.5	20.59	V	PASS
4	10	16QAM	1	24	1750	20.67	V	PASS
4	15	QPSK	1	74	1717.5	**23.08**	H	PASS
4	15	QPSK	1	74	1732.5	23.05	H	PASS
4	15	QPSK	1	0	1747.5	23.01	H	PASS
4	15	QPSK	1	74	1717.5	22.57	V	PASS
4	15	QPSK	1	74	1732.5	22.49	V	PASS
4	15	QPSK	1	0	1747.5	22.63	V	PASS
4	15	16QAM	1	74	1717.5	21.58	H	PASS
4	15	16QAM	1	0	1732.5	21.56	H	PASS
4	15	16QAM	1	0	1747.5	21.59	H	PASS
4	15	16QAM	1	74	1717.5	20.70	V	PASS
4	15	16QAM	1	0	1732.5	20.75	V	PASS
4	15	16QAM	1	0	1747.5	20.63	V	PASS
4	20	QPSK	1	0	1720	22.97	H	PASS
4	20	QPSK	1	0	1732.5	23.04	H	PASS
4	20	QPSK	1	0	1745	**23.06**	H	PASS
4	20	QPSK	1	0	1720	22.53	V	PASS
4	20	QPSK	1	0	1732.5	22.58	V	PASS
4	20	QPSK	1	0	1745	22.52	V	PASS
4	20	16QAM	1	0	1720	21.47	H	PASS
4	20	16QAM	1	0	1732.5	21.44	H	PASS
4	20	16QAM	1	0	1745	21.49	H	PASS
4	20	16QAM	1	0	1720	20.67	V	PASS
4	20	16QAM	1	0	1732.5	20.60	V	PASS
4	20	16QAM	1	0	1745	20.68	V	PASS

3. LTE Band 5 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	H/V	Verdict
			RB Size	RB Offset				
5	1.4	QPSK	1	5	824.7	**22.22**	H	PASS
5	1.4	QPSK	1	2	836.5	22.12	H	PASS
5	1.4	QPSK	1	5	848.3	22.19	H	PASS
5	1.4	QPSK	1	5	824.7	21.46	V	PASS
5	1.4	QPSK	1	2	836.5	21.50	V	PASS
5	1.4	QPSK	1	5	848.3	21.49	V	PASS
5	1.4	16QAM	1	5	824.7	20.65	H	PASS
5	1.4	16QAM	1	2	836.5	20.58	H	PASS
5	1.4	16QAM	1	0	848.3	20.67	H	PASS
5	1.4	16QAM	1	5	824.7	19.72	V	PASS
5	1.4	16QAM	1	2	836.5	19.65	V	PASS
5	1.4	16QAM	1	0	848.3	19.79	V	PASS
5	3	QPSK	1	5	825.5	22.17	H	PASS
5	3	QPSK	1	5	836.5	**22.25**	H	PASS
5	3	QPSK	1	5	848.3	22.21	H	PASS
5	3	QPSK	1	5	825.5	21.37	V	PASS
5	3	QPSK	1	5	836.5	21.28	V	PASS
5	3	QPSK	1	5	848.3	21.33	V	PASS
5	3	16QAM	1	5	825.5	20.49	H	PASS
5	3	16QAM	1	14	836.5	20.38	H	PASS
5	3	16QAM	1	5	848.3	20.43	H	PASS
5	3	16QAM	1	5	825.5	19.72	V	PASS
5	3	16QAM	1	14	836.5	19.65	V	PASS
5	3	16QAM	1	5	848.3	19.73	V	PASS
5	5	QPSK	1	14	826.5	22.17	H	PASS
5	5	QPSK	1	14	836.5	22.12	H	PASS
5	5	QPSK	1	14	846.5	**22.19**	H	PASS
5	5	QPSK	1	14	826.5	21.46	V	PASS
5	5	QPSK	1	14	836.5	21.5	V	PASS
5	5	QPSK	1	14	846.5	21.45	V	PASS
5	5	16QAM	1	12	826.5	20.62	H	PASS
5	5	16QAM	1	24	836.5	20.58	H	PASS
5	5	16QAM	1	0	846.5	20.61	H	PASS
5	5	16QAM	1	12	826.5	19.52	V	PASS
5	5	16QAM	1	24	836.5	19.65	V	PASS
5	5	16QAM	1	0	846.5	19.59	V	PASS

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	H/V	Verdict
			RB Size	RB Offset				
5	10	QPSK	1	24	829	22.27	H	PASS
5	10	QPSK	1	24	836.5	22.29	H	PASS
5	10	QPSK	1	24	844	**22.31**	H	PASS
5	10	QPSK	1	24	829	21.47	V	PASS
5	10	QPSK	1	24	836.5	21.42	V	PASS
5	10	QPSK	1	24	844	21.33	V	PASS
5	10	16QAM	1	24	829	20.39	H	PASS
5	10	16QAM	1	49	836.5	20.35	H	PASS
5	10	16QAM	1	24	844	20.43	H	PASS
5	10	16QAM	1	24	829	19.62	V	PASS
5	10	16QAM	1	49	836.5	19.75	V	PASS
5	10	16QAM	1	24	844	19.73	V	PASS

4. LTE Band 7 Test Verdict:

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	H/V	Verdict
			RB Size	RB Offset				
7	5	QPSK	1	12	2502.5	22.50	H	PASS
7	5	QPSK	1	0	2535	22.44	H	PASS
7	5	QPSK	1	24	2567.5	**22.53**	H	PASS
7	5	QPSK	1	12	2502.5	21.60	V	PASS
7	5	QPSK	1	0	2535	21.64	V	PASS
7	5	QPSK	1	24	2567.5	21.70	V	PASS
7	5	16QAM	1	24	2502.5	20.59	H	PASS
7	5	16QAM	1	24	2535	20.52	H	PASS
7	5	16QAM	1	0	2567.5	20.61	H	PASS
7	5	16QAM	1	24	2502.5	19.76	V	PASS
7	5	16QAM	1	24	2535	19.69	V	PASS
7	5	16QAM	1	0	2567.5	19.74	V	PASS
7	10	QPSK	1	24	2505	22.41	H	PASS
7	10	QPSK	1	49	2535	**22.49**	H	PASS
7	10	QPSK	1	24	2565	22.45	H	PASS
7	10	QPSK	1	24	2505	21.67	V	PASS
7	10	QPSK	1	49	2535	21.62	V	PASS
7	10	QPSK	1	24	2565	21.57	V	PASS
7	10	16QAM	1	24	2505	20.63	H	PASS
7	10	16QAM	1	49	2535	20.69	H	PASS
7	10	16QAM	1	24	2565	20.67	H	PASS
7	10	16QAM	1	24	2505	19.76	V	PASS
7	10	16QAM	1	49	2535	19.69	V	PASS
7	10	16QAM	1	24	2565	19.67	V	PASS
7	15	QPSK	1	37	2507.5	**22.45**	H	PASS
7	15	QPSK	1	74	2535	22.40	H	PASS
7	15	QPSK	1	0	2562.5	22.43	H	PASS
7	15	QPSK	1	37	2507.5	21.57	V	PASS
7	15	QPSK	1	74	2535	21.59	V	PASS
7	15	QPSK	1	0	2562.5	21.53	V	PASS
7	15	16QAM	1	37	2507.5	20.58	H	PASS
7	15	16QAM	1	18	2535	20.56	H	PASS
7	15	16QAM	1	0	2562.5	20.65	H	PASS
7	15	16QAM	1	37	2507.5	19.70	V	PASS
7	15	16QAM	1	18	2535	19.75	V	PASS
7	15	16QAM	1	0	2562.5	19.73	V	PASS

LTE Band	BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	H/V	Verdict
7	20	QPSK	1	0	2510	22.41	H	PASS
7	20	QPSK	1	0	2535	22.38	H	PASS
7	20	QPSK	1	0	2560	**22.46**	H	PASS
7	20	QPSK	1	0	2510	21.72	V	PASS
7	20	QPSK	1	0	2535	21.77	V	PASS
7	20	QPSK	1	0	2560	21.78	V	PASS
7	20	16QAM	1	0	2510	20.66	H	PASS
7	20	16QAM	1	0	2535	20.72	H	PASS
7	20	16QAM	1	0	2560	20.68	H	PASS
7	20	16QAM	1	0	2510	19.76	V	PASS
7	20	16QAM	1	0	2535	19.89	V	PASS
7	20	16QAM	1	0	2560	19.77	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

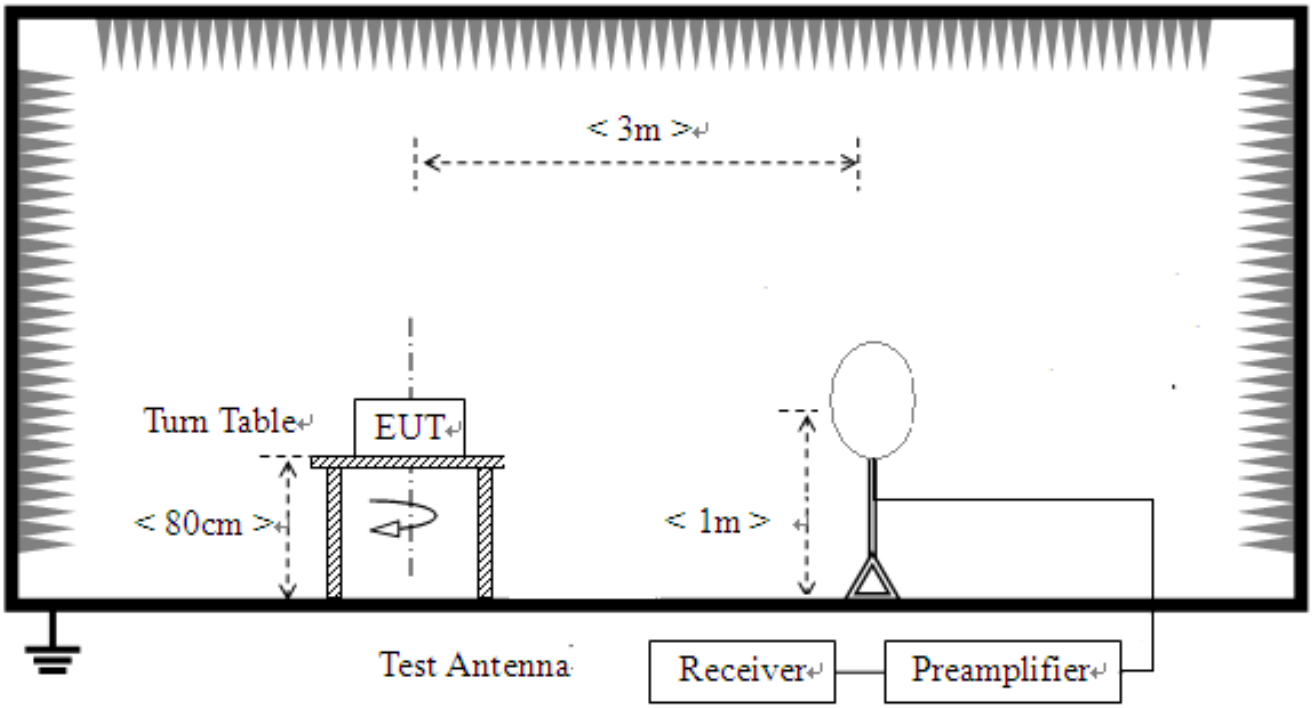
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

2.8.2 Measuring Instruments

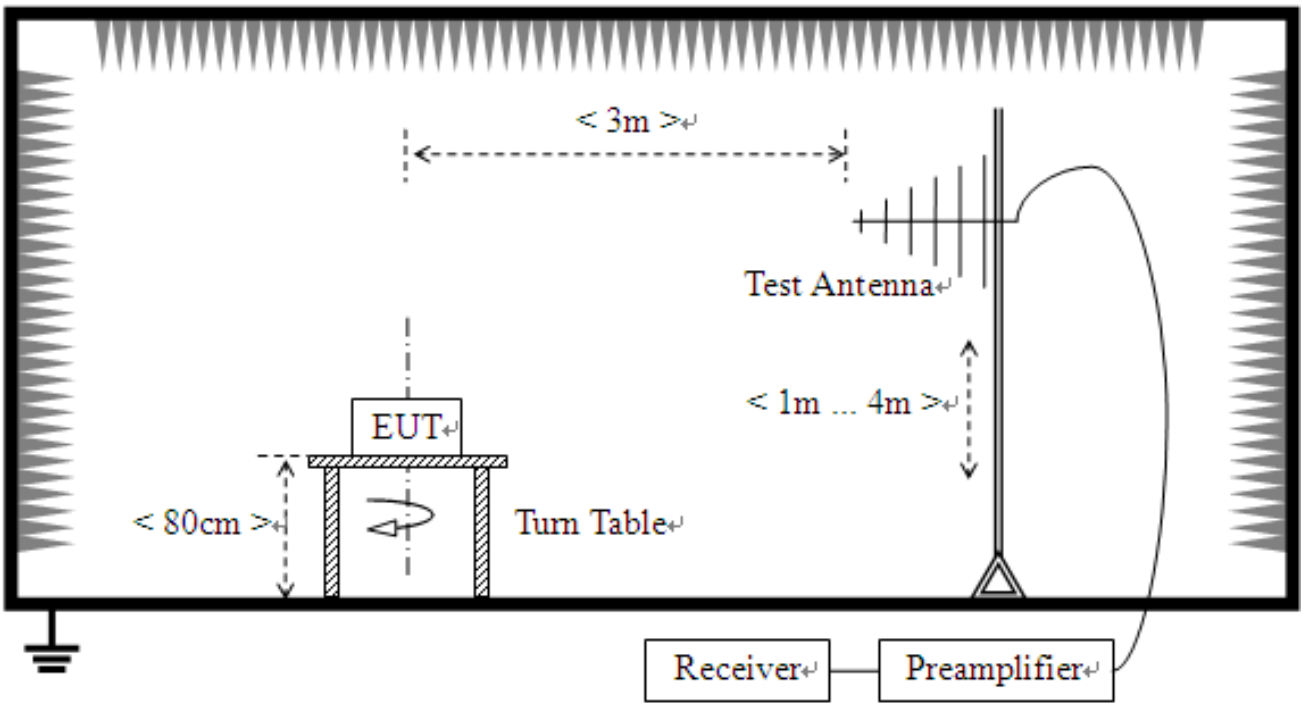
The measuring equipment is listed in the section 3 of this test report.

2.8.3 Test Setup

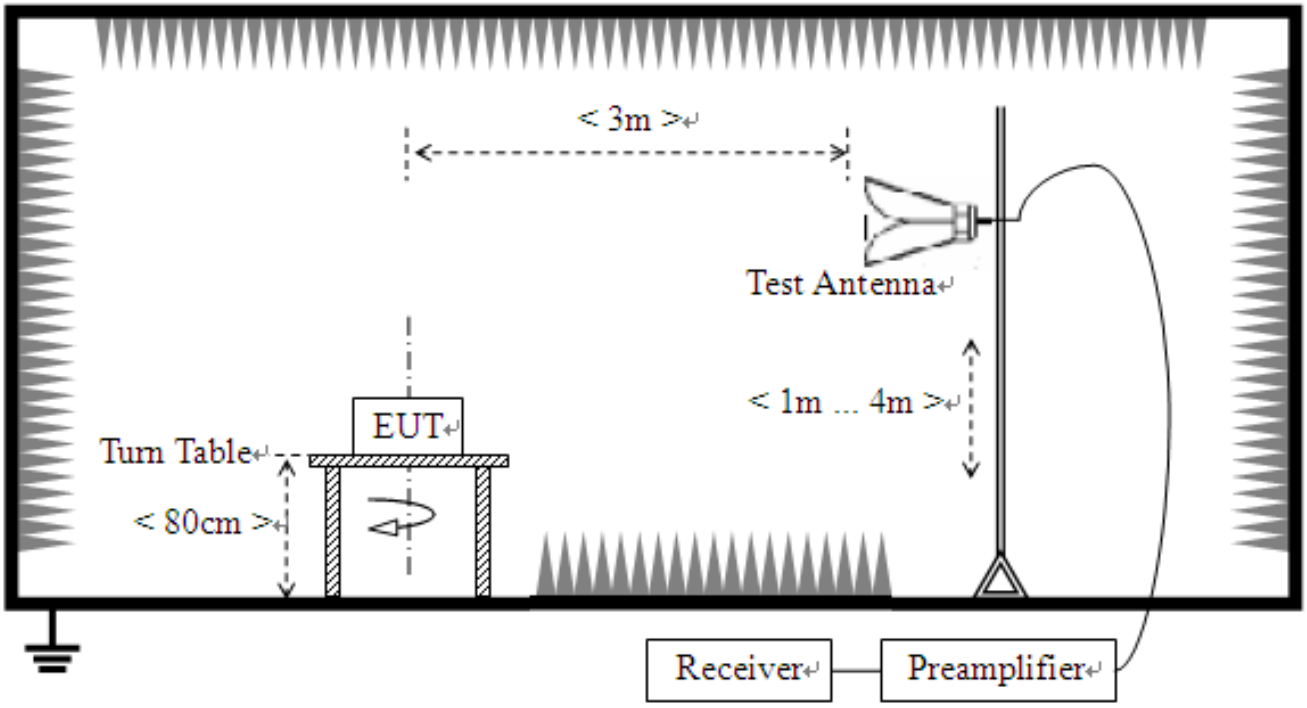
For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



For radiated emissions above 1GHz



2.8.4 Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 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 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 of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. 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.
11. 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.
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. The maximum RB configurations of the Radiated Spurious Emissions as RB Size 1, RB Offset 0 middle channel

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.

Worst-Case test data provide as below:

30MHz~26.5GHz:

LTE Band 2 Low Channel QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	3001.41	-54.50	-13.00	Pass	Horizontal
2	3093.01	-53.77	-13.00	Pass	Vertical
3	1651.02	-54.41	-13.00	Pass	Horizontal
4	1793.01	-55.10	-13.00	Pass	Vertical

LTE Band 2 Mid Channel QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	3111.02	-56.53	-13.00	Pass	Horizontal
2	3093.01	-54.68	-13.00	Pass	Vertical
3	801.02	-57.48	-13.00	Pass	Horizontal
4	793.01	-56.15	-13.00	Pass	Vertical

LTE Band 2 High Channel QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	2918.42	-54.66	-13.00	Pass	Horizontal
2	3213.10	-53.44	-13.00	Pass	Vertical
3	1120.33	-54.40	-13.00	Pass	Horizontal
4	1102.04	-55.21	-13.00	Pass	Vertical

LTE Band 4 Low QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	3091.54	-55.81	-13.00	Pass	Horizontal
2	3052.43	-55.89	-13.00	Pass	Vertical
3	2079.38	-46.34	-13.00	Pass	Horizontal
4	2180.41	-55.08	-13.00	Pass	Vertical

LTE Band 4 Mid QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	3091.66	-56.47	-13.00	Pass	Horizontal
2	3052.66	-55.86	-13.00	Pass	Vertical
3	2189.41	-45.32	-13.00	Pass	Horizontal
4	2189.45	-55.12	-13.00	Pass	Vertical

LTE Band 4 High QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	3077.86	-57.02	-13.00	Pass	Horizontal
2	3059.47	-56.15	-13.00	Pass	Vertical
3	1189.91	-46.35	-13.00	Pass	Horizontal
4	1189.76	-56.18	-13.00	Pass	Vertical

LTE Band 5 Low Channel QPSK 10MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	3053.55	-57.10	-13.00	Pass	Horizontal
2	3104.97	-56.01	-13.00	Pass	Vertical
3	880.2	-50.38	-13.00	Pass	Horizontal
4	880.2	-54.51	-13.00	Pass	Vertical

LTE Band 5 Mid Channel QPSK 10MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	3054.61	-56.58	-13.00	Pass	Horizontal
2	3103.37	-55.69	-13.00	Pass	Vertical
3	888.24	-48.33	-13.00	Pass	Horizontal
4	890.2	-50.58	-13.00	Pass	Vertical

LTE Band 5 High Channel QPSK 10MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	3052.61	-57.01	-13.00	Pass	Horizontal
2	3111.34	-55.64	-13.00	Pass	Vertical
3	112.21	-58.30	-13.00	Pass	Horizontal
4	90.11	-57.58	-13.00	Pass	Vertical

LTE Band 7 low Channel QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	5020.66	-35.25	-13.00	Pass	Horizontal
2	7531.33	-32.45	-13.00	Pass	Horizontal
3	5020.66	-38.11	-13.00	Pass	Vertical
4	7531.33	-32.09	-13.00	Pass	Vertical

LTE Band 7 Mid Channel QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	5070.7736	-34.69	-13.00	Pass	Horizontal
2	7613.5378	-32.57	-13.00	Pass	Horizontal
3	5082.5275	-37.92	-13.00	Pass	Vertical
4	7605.7019	-31.04	-13.00	Pass	Vertical

LTE Band 7 High Channel QPSK 20MHz BW Test Antenna Horizontal

NO.	Freq. [MHz]	Level [dBm]	Limit [dBm]	Test Results	Polarity
1	5120.18	-34.11	-13.00	Pass	Horizontal
2	7680.13	-31.02	-13.00	Pass	Horizontal
3	5120.17	-36.44	-13.00	Pass	Vertical
4	7680.14	-32.10	-13.00	Pass	Vertical

Note: 1. Absolute Level=Substituted Level-Cable loss + Antenna Gain

3. LIST OF MEASURING EQUIPMENT

Description	Manufacturer	Model	Serial No.	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESIB26	A0304218	2017.06.02	2018.06.01	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2017.06.02	2018.06.01	Radiation
Bilog Antenna	Schwarzbeck	VULB 9163	9163-274	2017.06.02	2018.06.01	Radiation
Broadband antenna (30MHz~1GHz)	R&S	HL562	101341	2017.06.02	2018.06.01	Radiation
Broadband antenna (30MHz~1GHz)	R&S	HL562	101339	2017.06.02	2018.06.01	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100150	2017.06.02	2018.06.01	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100148	2017.06.02	2018.06.01	Radiation
Horn antenna (18GHz~26.5GHz)	R&S	HM118	101286	2017.06.02	2018.06.01	Radiation
Horn antenna (18GHz~26.5GHz)	R&S	HM118	101284	2017.06.02	2018.06.01	Radiation
Amplifier 20M~3GHz	R&S	PAP-0203H	22018	2017.06.02	2018.06.01	Radiation
Ampilier 1G~18GHz	R&S	MITEQ AFS42-00101800	25-S-42	2017.06.02	2018.06.01	Radiation
Ampilier 18G~40GHz	R&S	JS42-18002600-28-5A	12111.0980.00	2017.06.02	2018.06.01	Radiation
Spectrum Analyzer	R&S	FSV-40	101008	2018.05.02	2019.05.01	Conducted
Spectrum Analyzer	R&S	FSP40	1164.4391.40	2017.11.12	2018.11.11	Conducted
Spectrum Analyzer	Keysight	N9030A	ATO-67098	2017.09.10	2018.09.09	Conducted
Test Receiver	R&S	ESCS30	A0304260	2017.06.02	2018.06.01	Conducted
Cable	SUNHNER	SUCOFLEX 100	/	2017.06.02	2018.06.01	Radiation
Cable	SUNHNER	SUCOFLEX 104	/	2017.06.02	2018.06.01	Radiation
Temperature chamber	espec	SU-642	93008519	2017.08.25	2018.08.24	Conducted
Wideband Radio Communication tester	R&S	CMW500	149332	2018.05.04	2019.05.03	Conducted
Power Supply	R&S	NGMO1	101037	2018.05.04	2019.05.03	Conducted

** END OF REPORT **