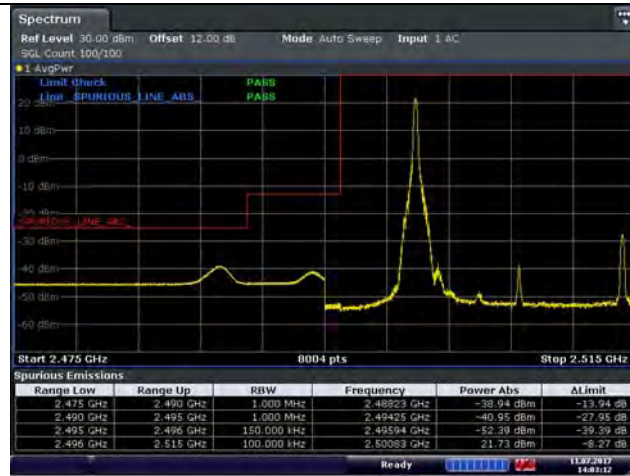


LTE_Band 7_Channel Bandwidth: 15 MHz_1RB#0

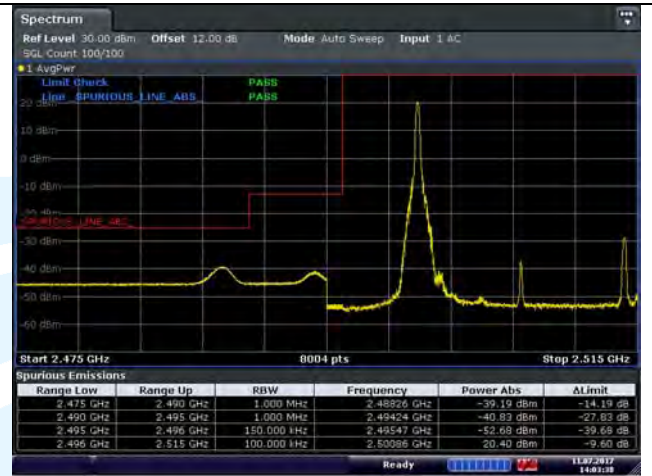
QPSK

16QAM

LCH



Date: 11/JUL/2017 14:03:11



Date: 11/JUL/2017 14:03:30

HCH



Date: 11/JUL/2017 13:56:28



Date: 11/JUL/2017 13:55:47

LTE_Band 7_Channel Bandwidth: 20 MHz_1RB#0

QPSK

16QAM

LCH



Date: 11/JUL/2017 14:10:30



Date: 11/JUL/2017 14:09:41

HCH



Date: 11/JUL/2017 14:12:04



Date: 11/JUL/2017 14:16:23

LTE_Band 7_Channel Bandwidth: 5 MHz_25RB#0

QPSK

16QAM

LCH



Date: 11/JUL/2017 11:15:31



Date: 11/JUL/2017 11:16:27

HCH



Date: 11/JUL/2017 11:16:02



Date: 11/JUL/2017 11:16:13

LTE Band 7 Channel Bandwidth: 10 MHz 50RB#0

QPSK

16QAM

LCH



Date: 11/JUL/2017 11:48:12



Date: 11/JUL/2017 11:48:40

HCH



Date: 11/JUL/2017 11:53:47



Date: 11/JUL/2017 11:54:02

LTE Band 7 Channel Bandwidth: 15 MHz 75RB#0

QPSK

16QAM

LCH



Date: 11/JUL/2017 14:06:47



Date: 11/JUL/2017 14:05:04

HCH



Date: 11/JUL/2017 13:52:02



Date: 11/JUL/2017 13:53:25

LTE_Band 7_Channel Bandwidth: 20 MHz_100RB#0

QPSK

16QAM

LCH



Date: 11/JUL/2017 14:07:49



Date: 11/JUL/2017 14:08:55

HCH



Date: 11/JUL/2017 14:19:13



Date: 11/JUL/2017 14:17:02

LTE Band 38

LTE_Band 38_Channel Bandwidth: 5 MHz_1RB#0

QPSK

16QAM

LCH



Date: 11,JUL,2017 17:59:40



Date: 11,JUL,2017 17:56:66

HCH



Date: 11,JUL,2017 19:23:01



Date: 11,JUL,2017 19:23:10

LTE Band 38 Channel Bandwidth: 10 MHz 1RB#0

QPSK

16QAM

LCH



Date: 12,JUL,2017 17:26:33



Date: 12,JUL,2017 17:27:55

HCH



Date: 11,JUL,2017 19:23:10



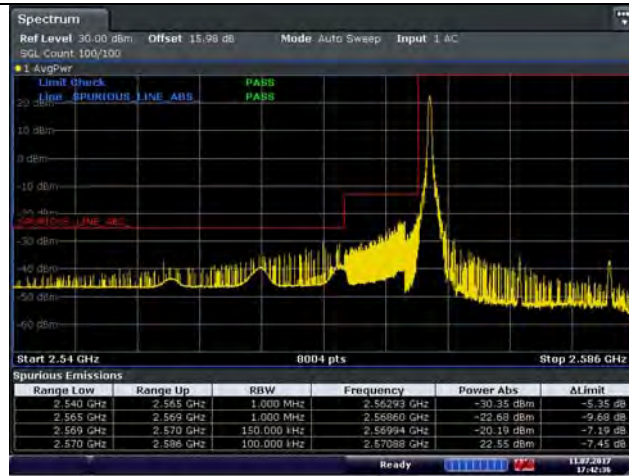
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LTE Band 38 Channel Bandwidth: 15 MHz 1RB#0

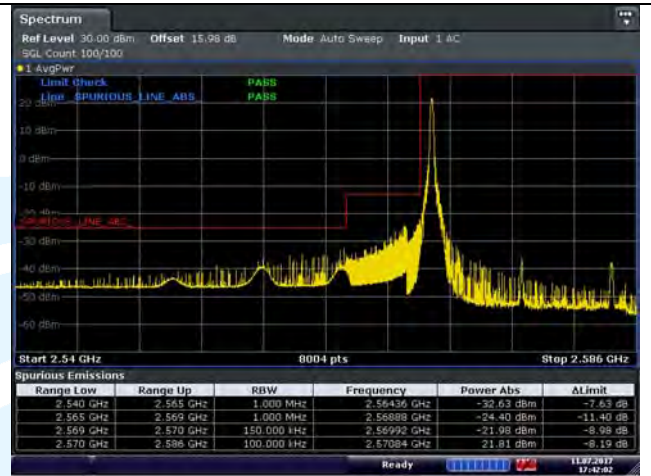
QPSK

16QAM

LCH



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Date: 11/JUL/2017 17:42:02

HCH



Date: 11/JUL/2017 19:39:39



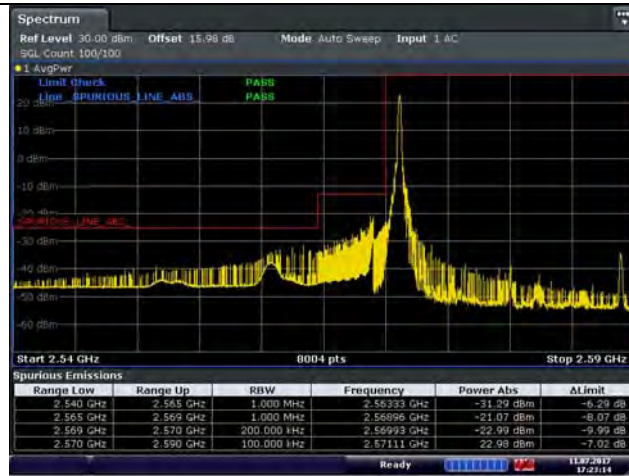
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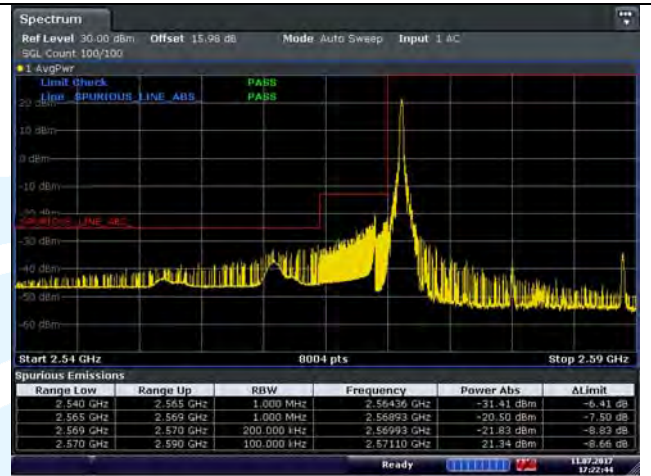
QPSK

16QAM

LCH



Date: 11/JUL/2017 17:23:14



Date: 11/JUL/2017 17:22:43

HCH



Date: 11/JUL/2017 19:34:24



Date: 11/JUL/2017 19:33:55

LTE Band 38 Channel Bandwidth: 5 MHz 25RB#0

QPSK

16QAM

LCH



Date: 11/JUL/2017 19:24:28



Date: 11/JUL/2017 19:25:03

HCH



Date: 11/JUL/2017 17:58:07



Date: 11/JUL/2017 17:58:13

LTE_Band 38_Channel Bandwidth: 10 MHz_50RB#0

QPSK

16QAM

LCH



Date: 11/JUL/2017 17:49:40



Date: 11/JUL/2017 17:50:07

HCH



Date: 11/JUL/2017 19:20:44



Date: 11/JUL/2017 19:19:59

LTE_Band 38_Channel Bandwidth: 15 MHz_75RB#0

QPSK

16QAM

LCH



Date: 11/JUL/2017 17:09:58



Date: 11/JUL/2017 17:11:00

HCH



Date: 11/JUL/2017 19:11:18



Date: 11/JUL/2017 19:11:17

LTE Band 38 Channel Bandwidth: 20 MHz 100RB#0

QPSK

16QAM

LCH



HCH



5.6 Spurious emissions at antenna terminals

Test Requirement:

FCC 47 CFR Part 2.1053

LTE Band 4: FCC 47 CFR Part 27.53(h)(1)

LTE Band 7 & Band 41: FCC 47 CFR Part 27.53(m)(4)

Test Method:

ANSI/TIA/EIA-603-D 2010 & KDB 971168 D01v02r02

Limit:

FCC 47 CFR Part 27.53(a)(4): For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;

(iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

FCC 47 CFR Part 27.53(h)(1): Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(h)(3): Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(ii) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(iii) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

FCC 47 CFR Part 27.53(m)(4): For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference

complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

FCC 47 CFR Part 27.53(m)(6): Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

Test Procedure:

The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range. b. Measuring frequency range is from 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

Test Setup:

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Instruments Used:

Refer to section 4.1.1(2) for details.

Test Mode:

Link mode

Test Results:

Pass

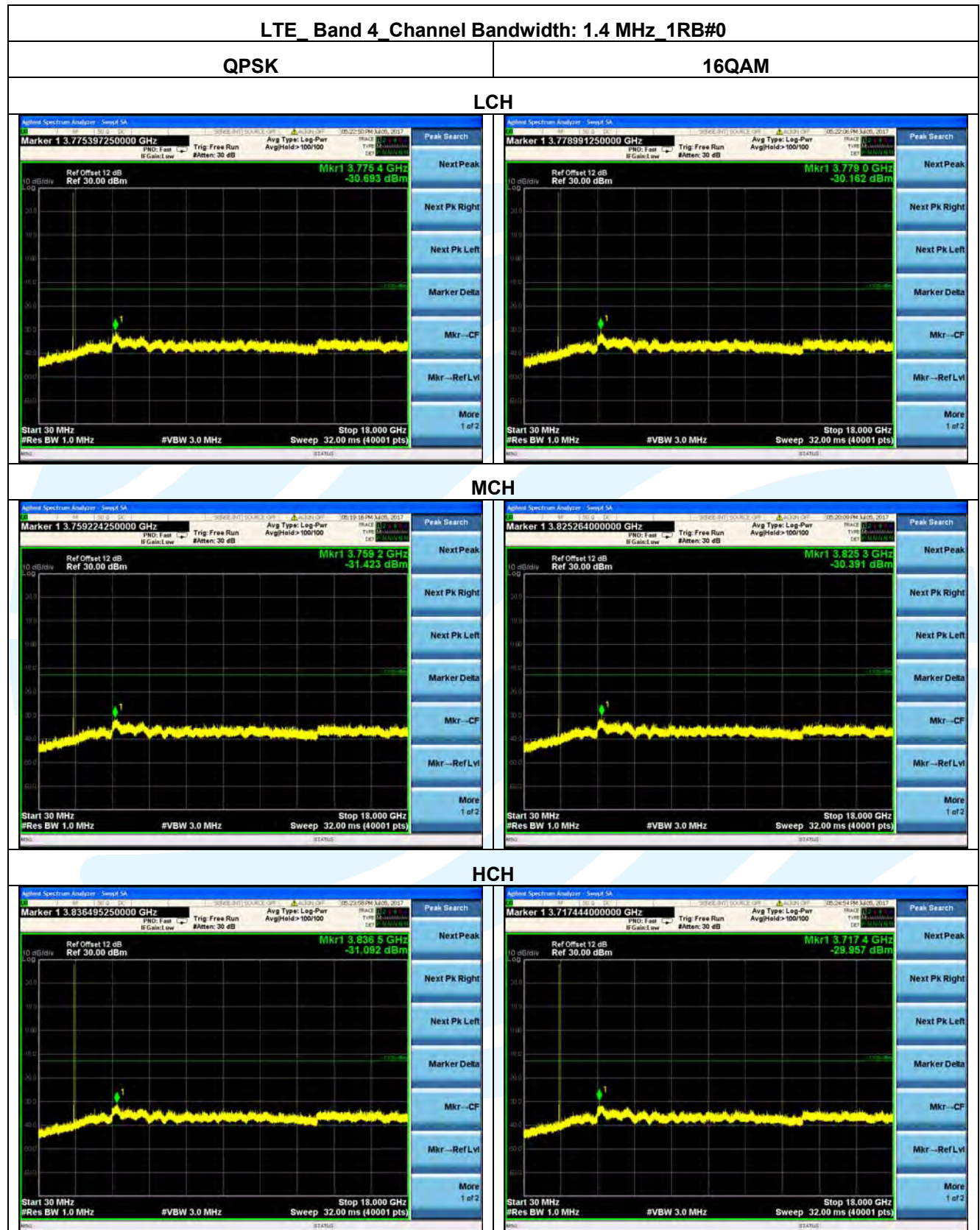
The test plot as follows:

Spurious Emission Test Data (9 KHz ~ 30 MHz):

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

Spurious Emission Test Data (Above 30MHz):

LTE Band 4

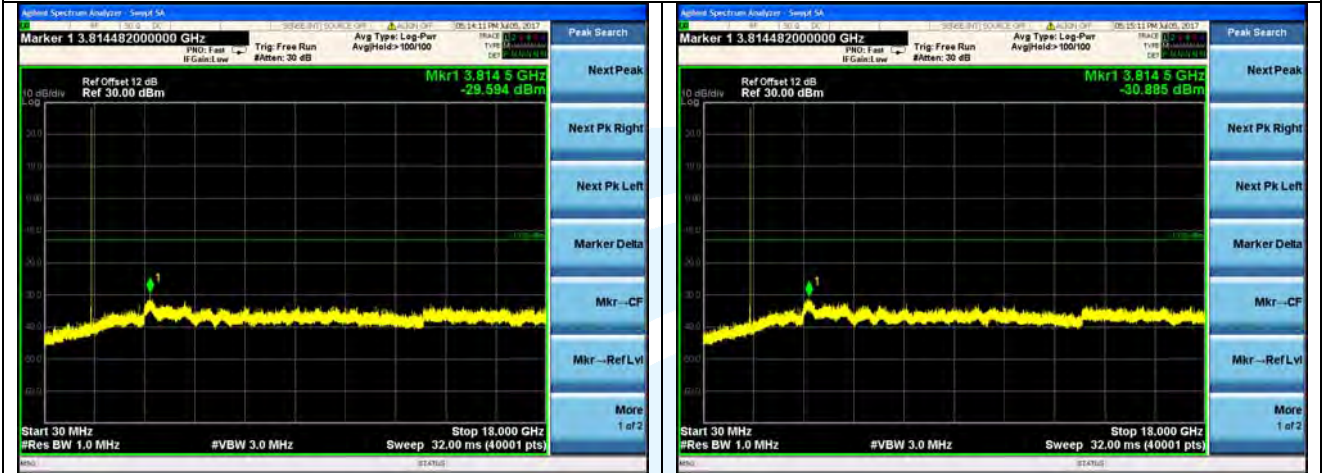


LTE Band 4 Channel Bandwidth: 3 MHz 1RB#0

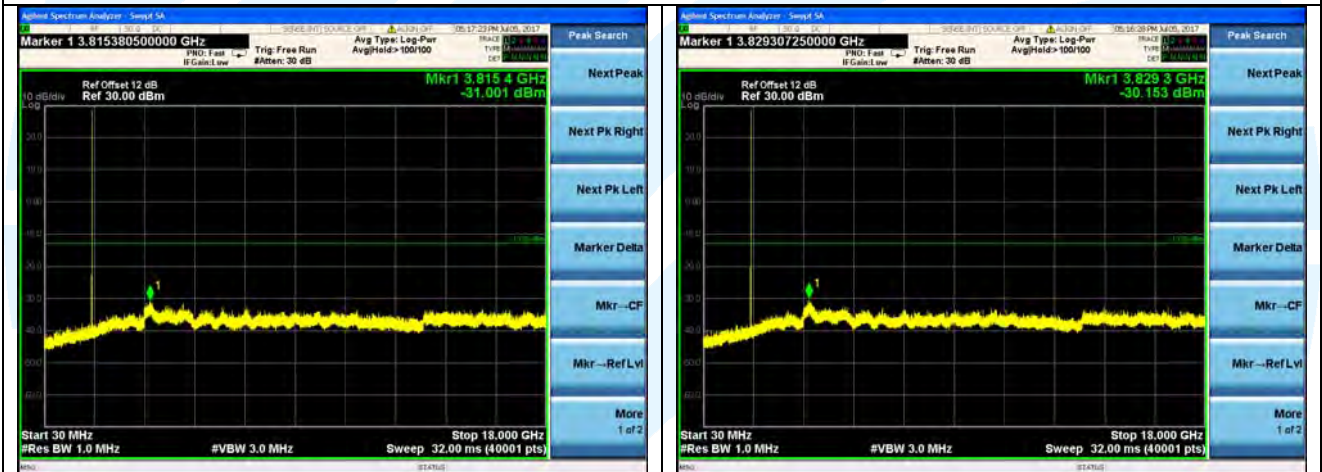
QPSK

16QAM

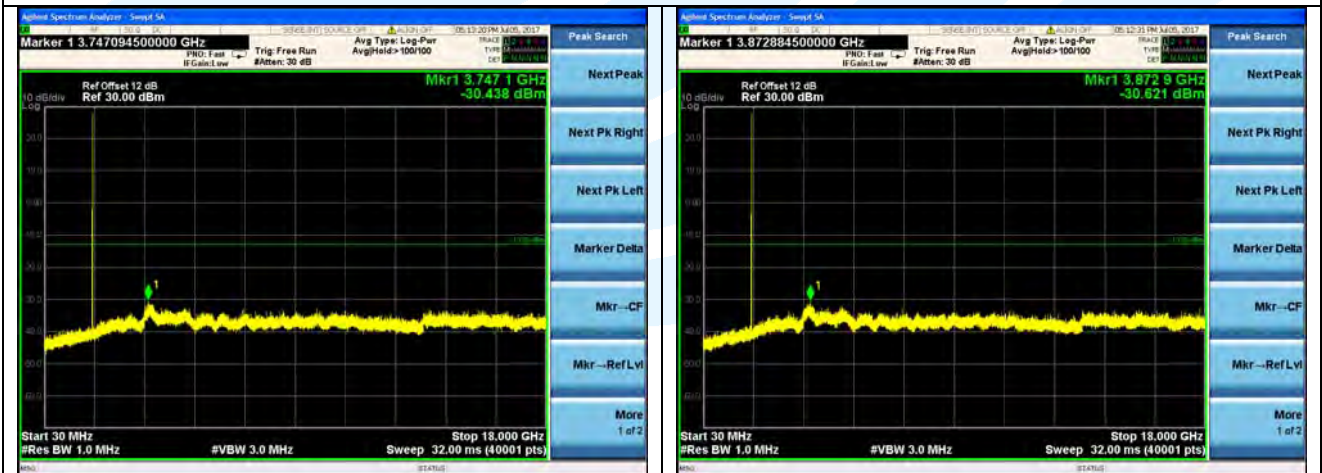
LCH



MCH



HCH

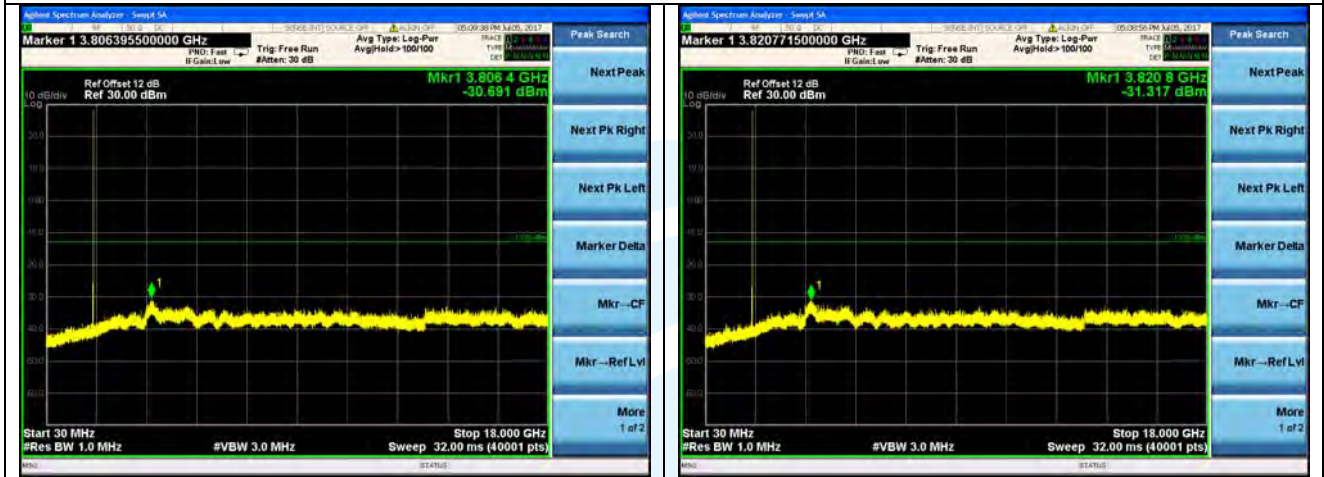


LTE_Band 4_Channel Bandwidth: 5 MHz_1RB#0

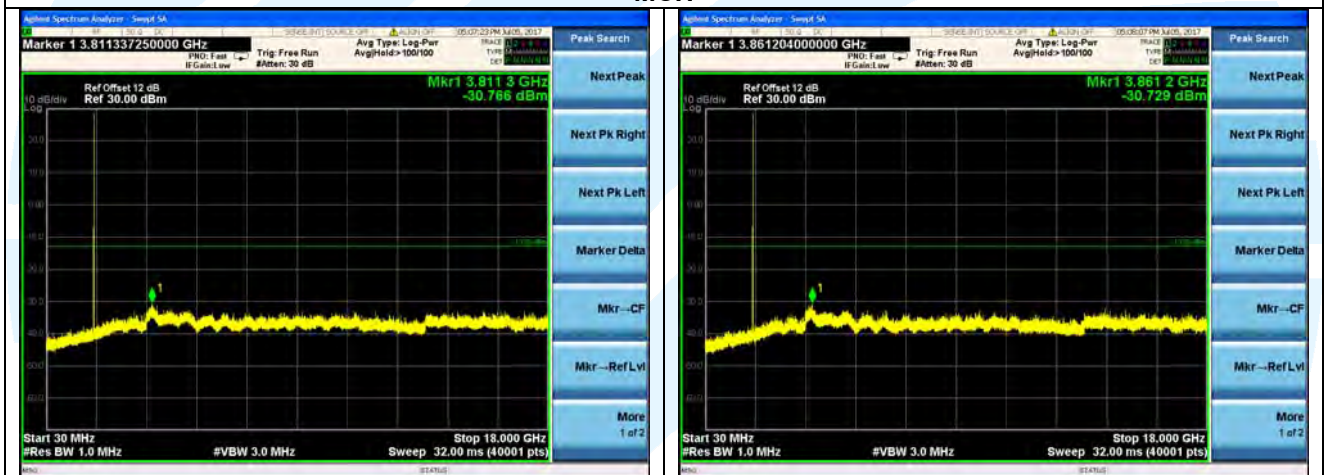
QPSK

16QAM

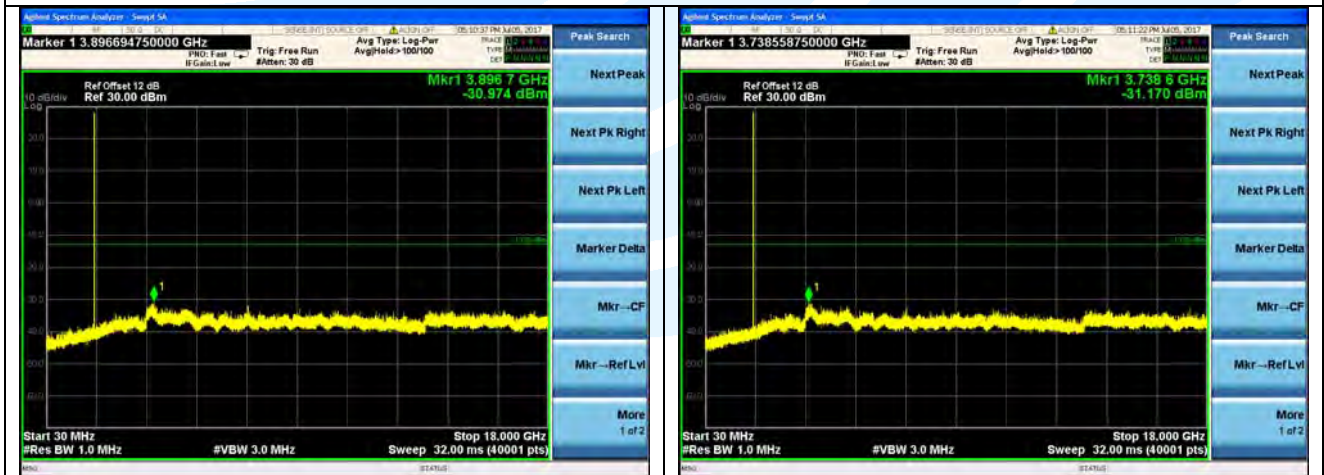
LCH

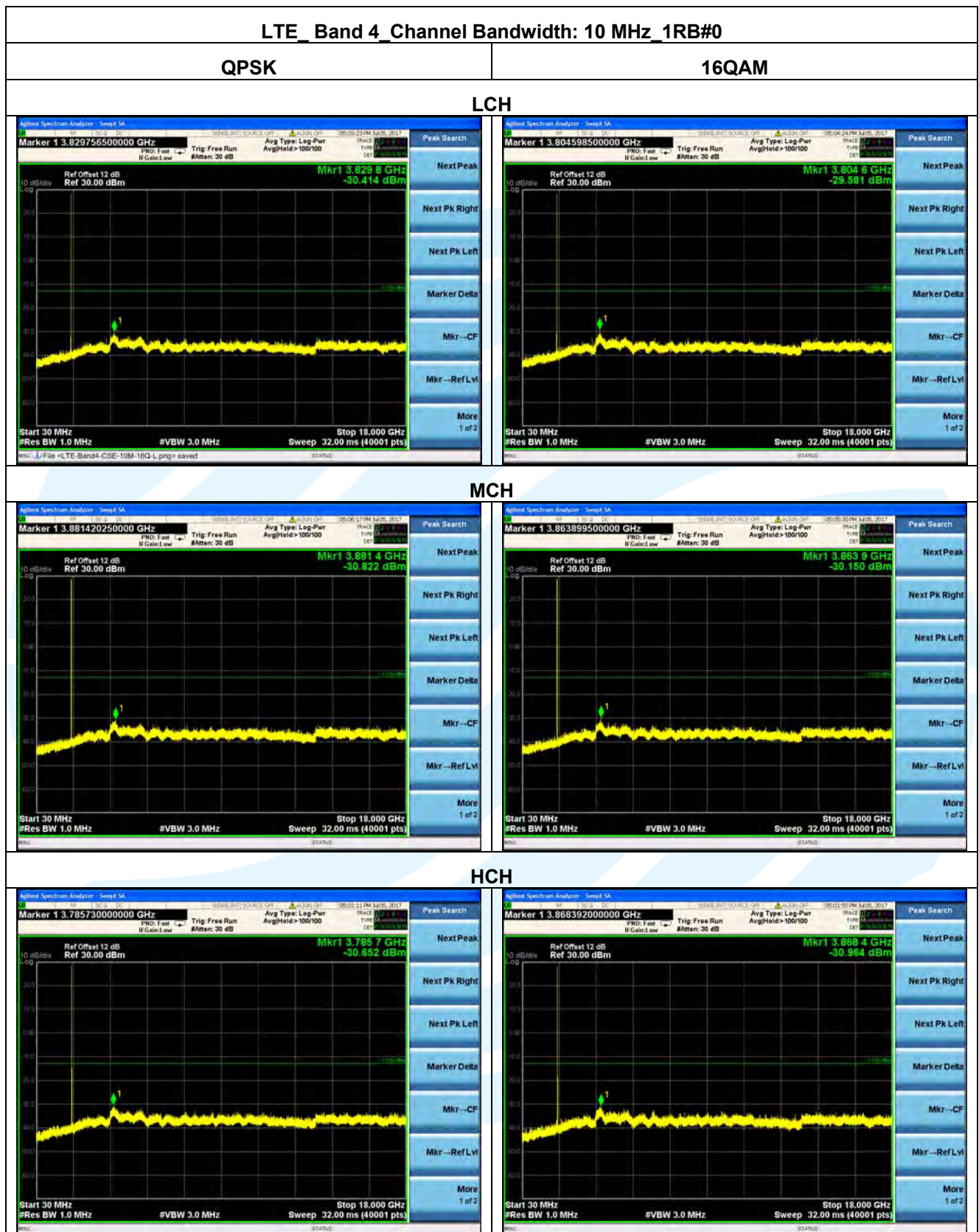


MCH



HCH



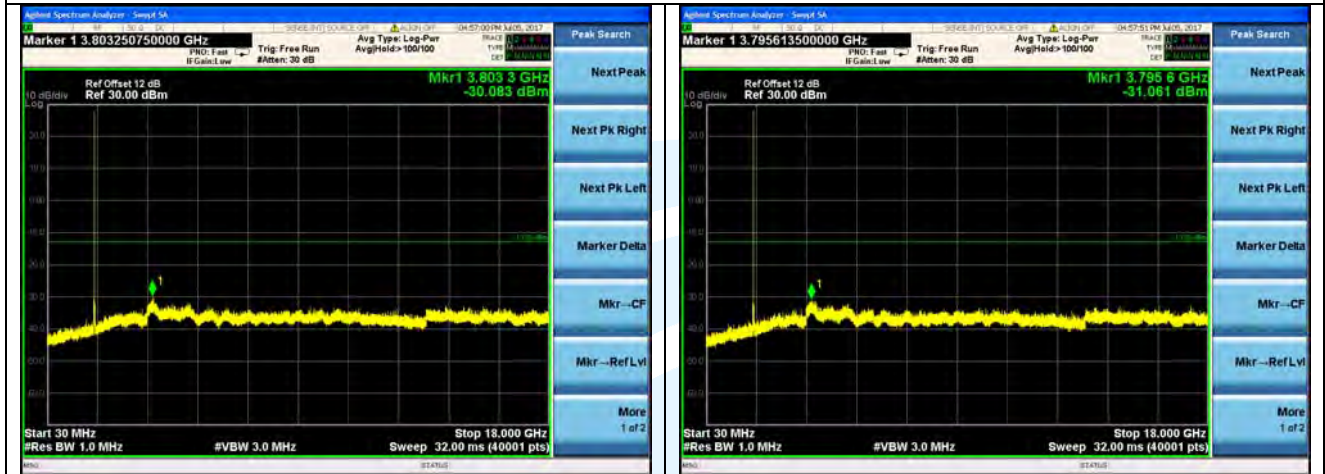


LTE_Band 4_Channel Bandwidth: 15 MHz_1RB#0

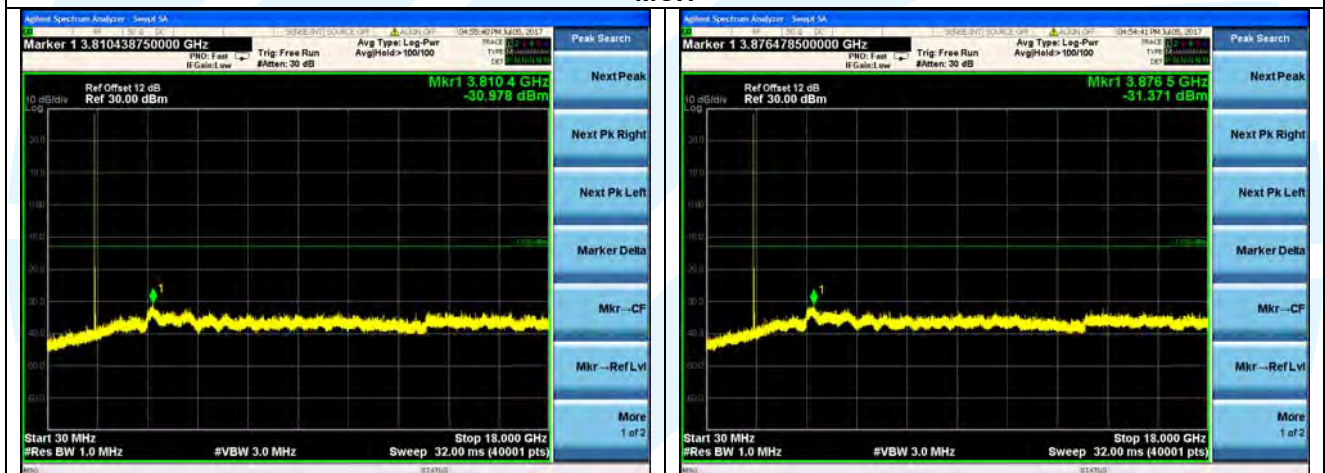
QPSK

16QAM

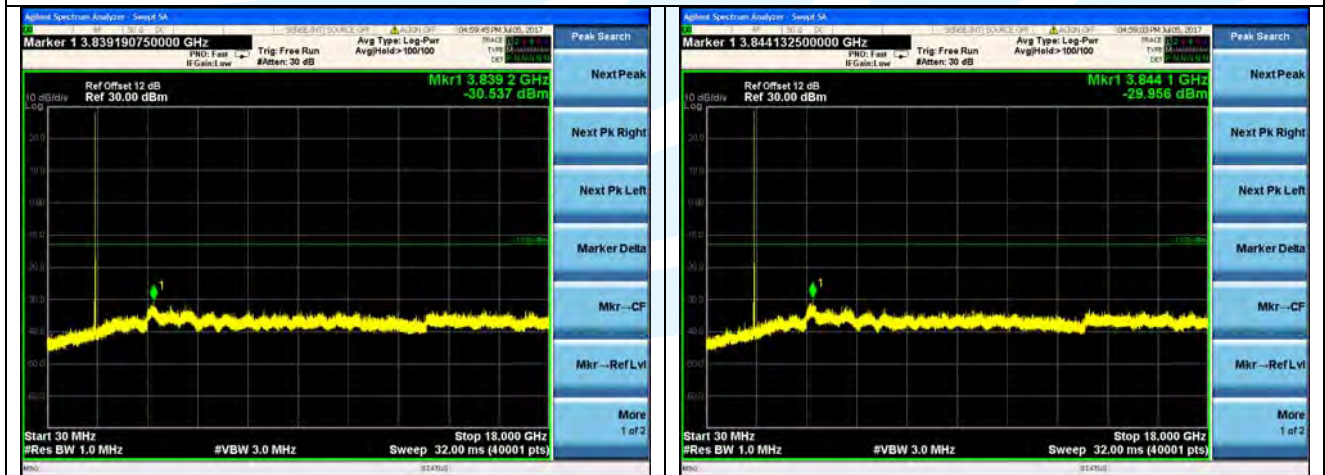
LCH



MCH



HCH

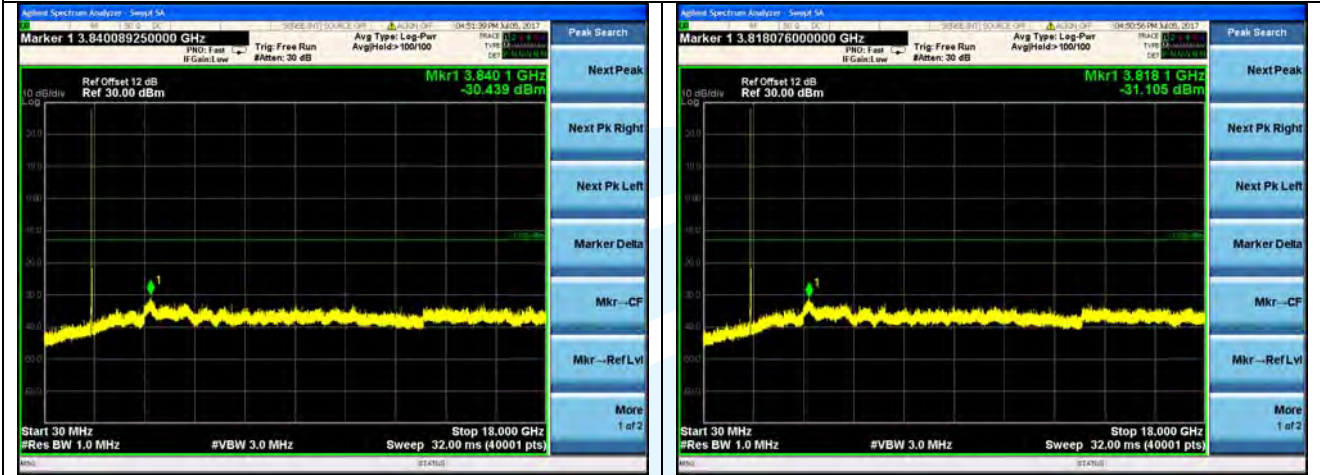


LTE_Band 4_Channel Bandwidth: 20 MHz_1RB#0

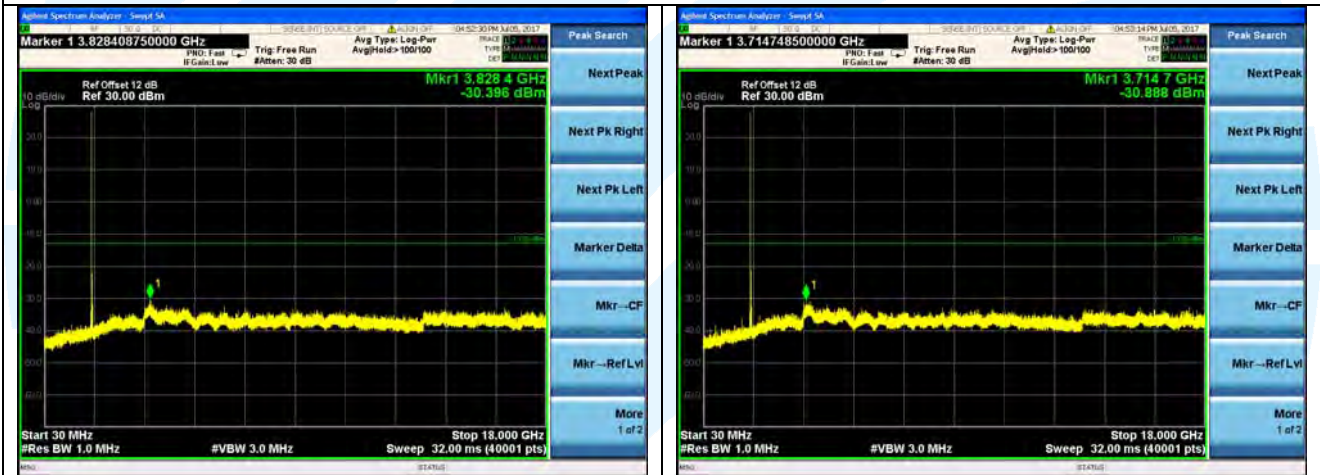
QPSK

16QAM

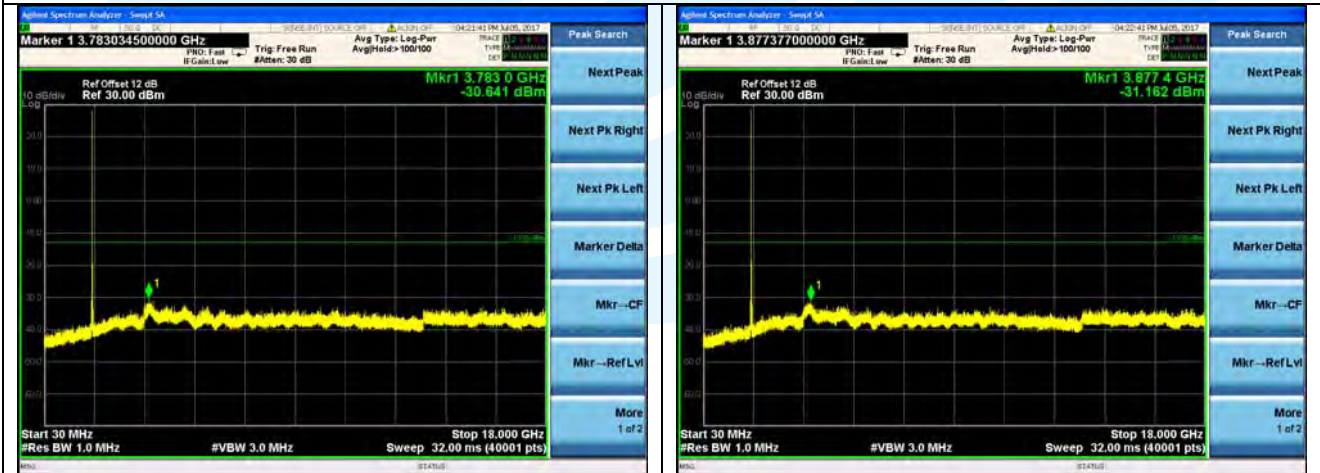
LCH



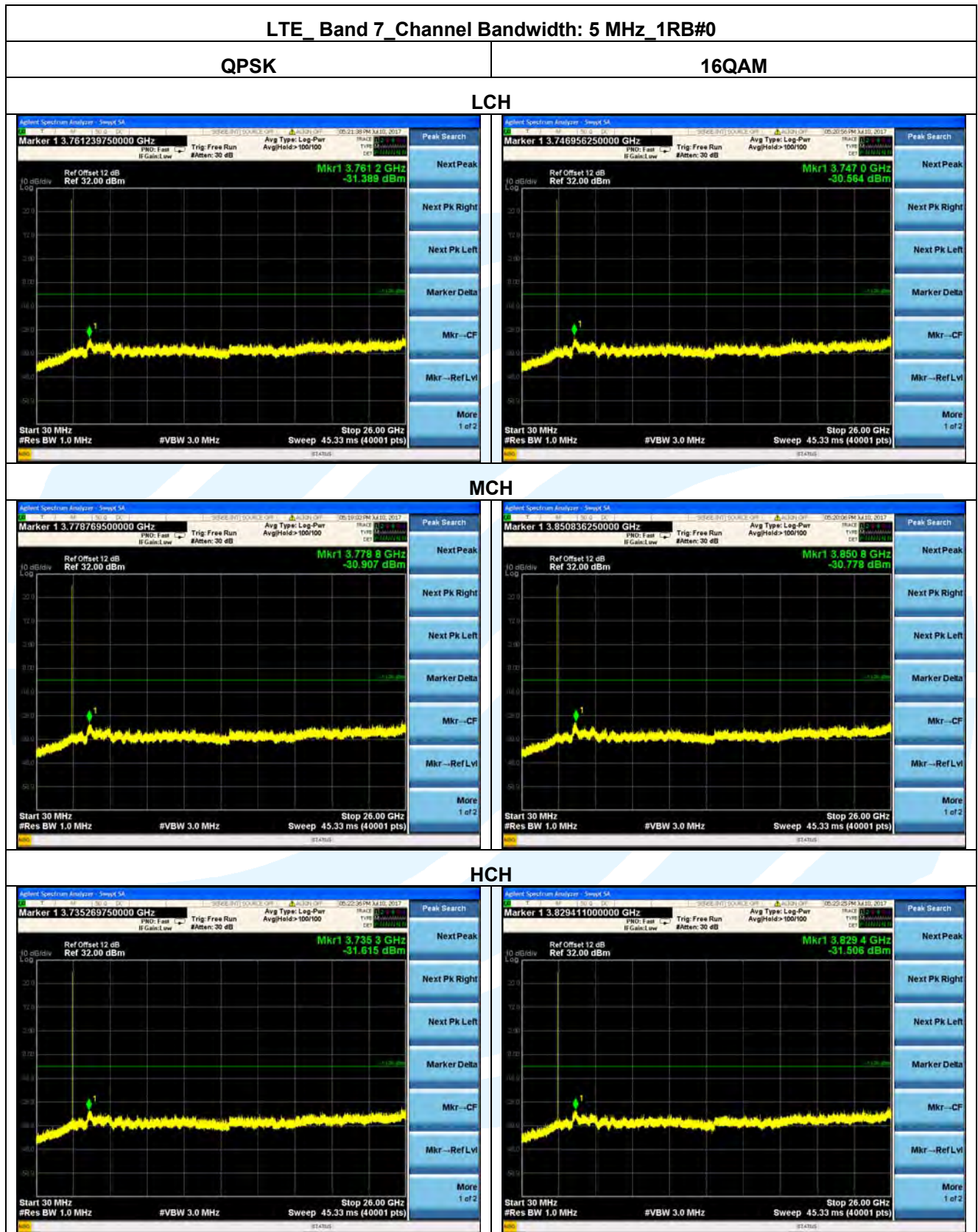
MCH

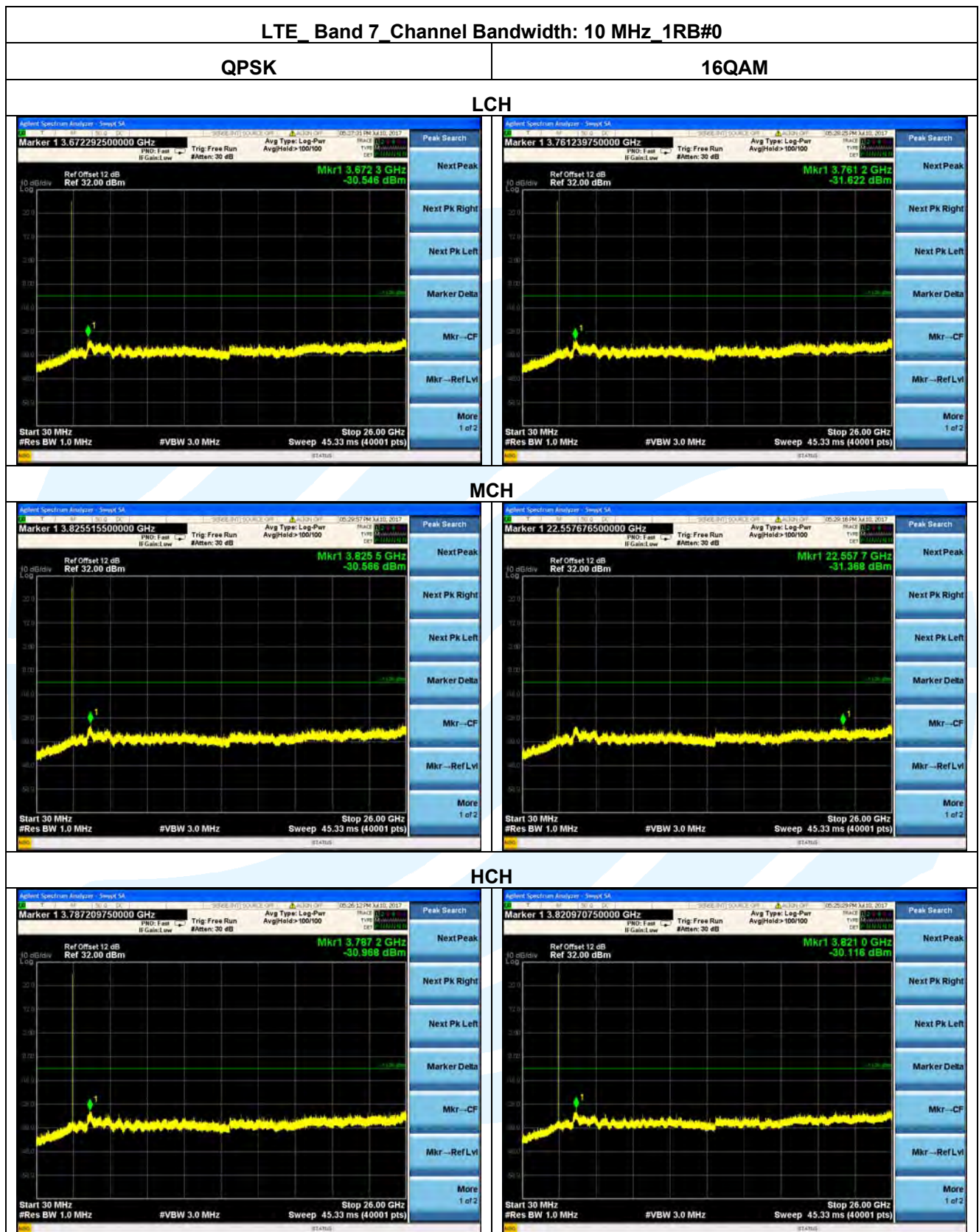


HCH



LTE Band 7



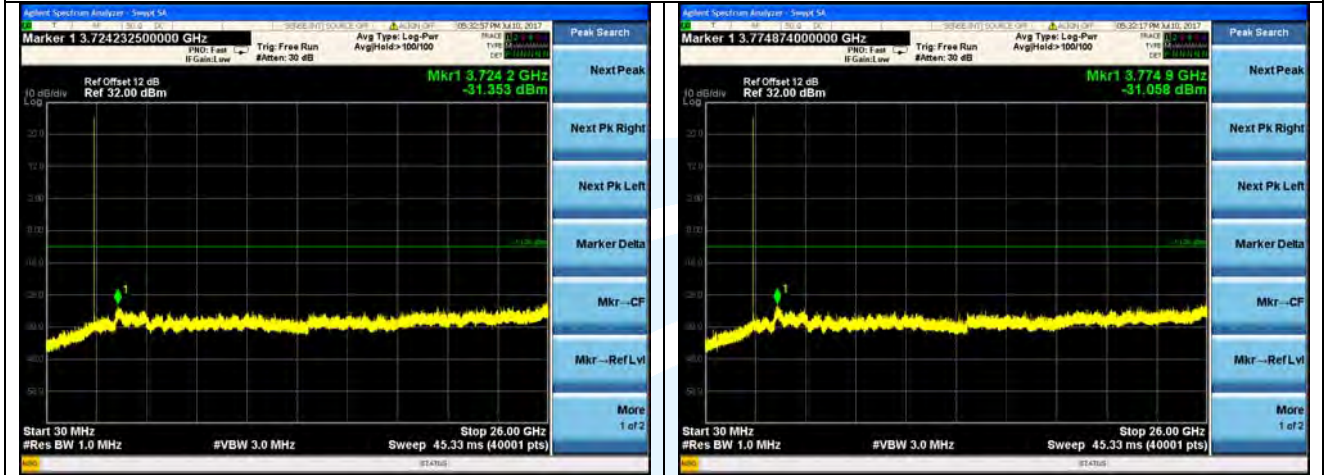


LTE_Band 7_Channel Bandwidth: 15 MHz_1RB#0

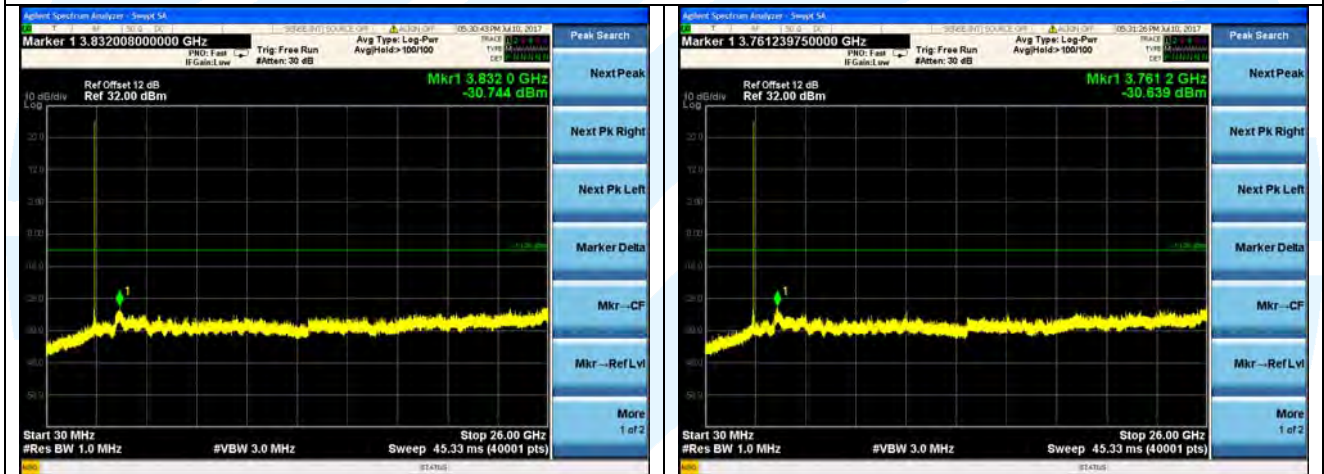
QPSK

16QAM

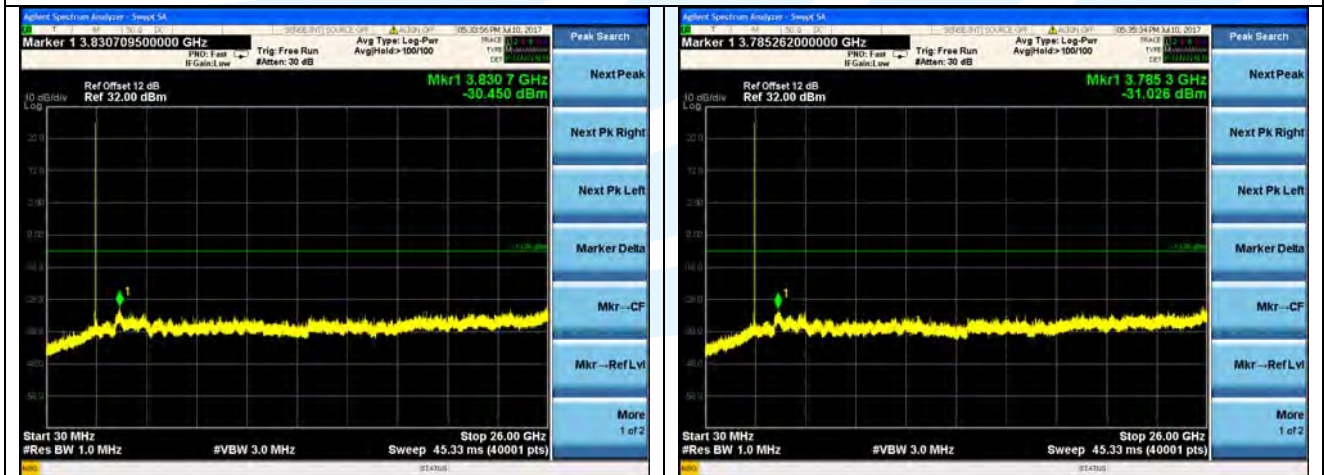
LCH



MCH



HCH

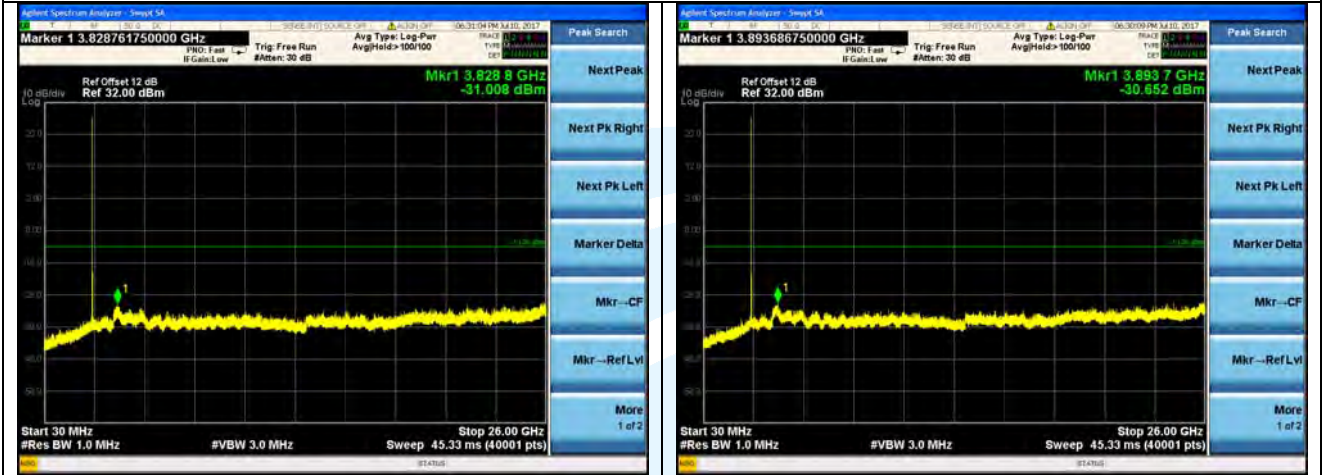


LTE_Band 7_Channel Bandwidth: 20 MHz_1RB#0

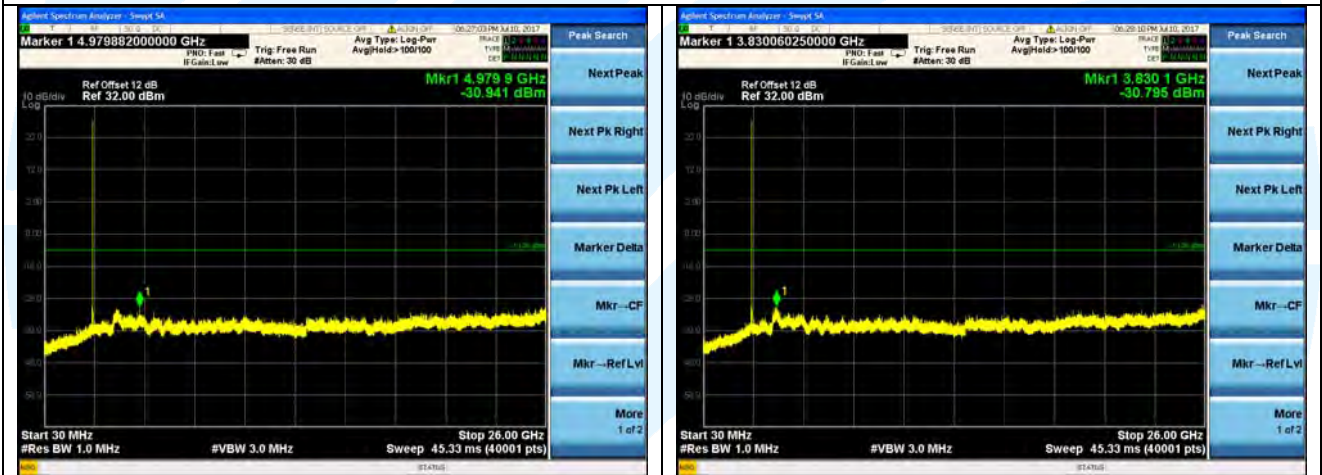
QPSK

16QAM

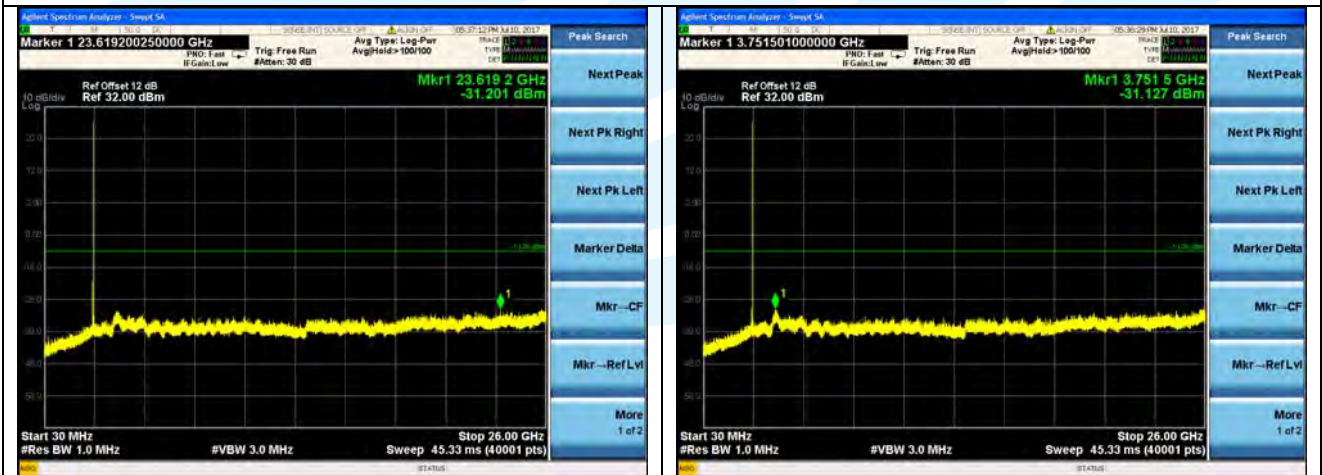
LCH



MCH



HCH



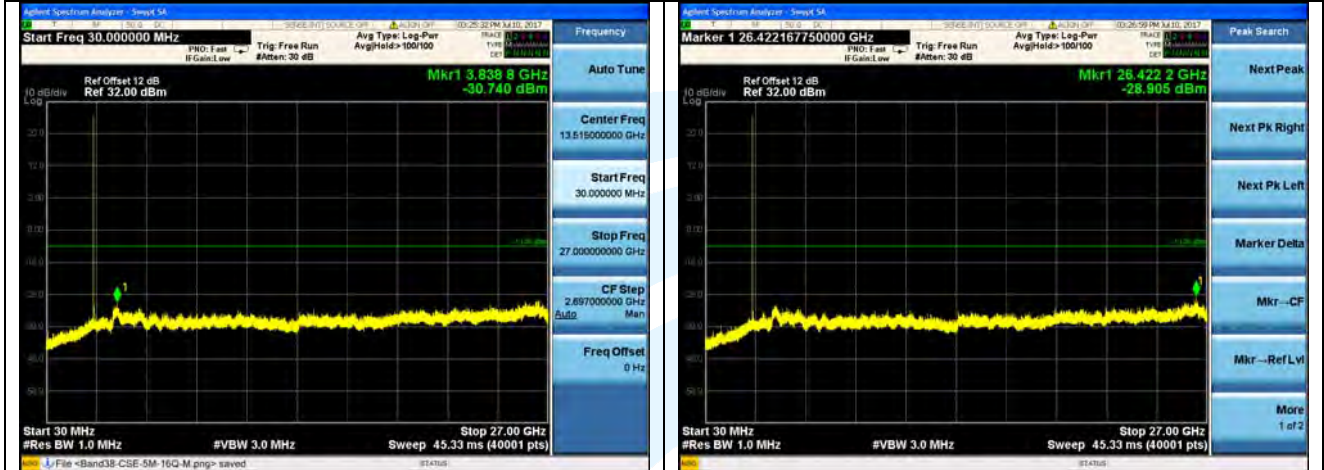
LTE Band 38

LTE_Band 38_Channel Bandwidth: 5 MHz_1RB#0

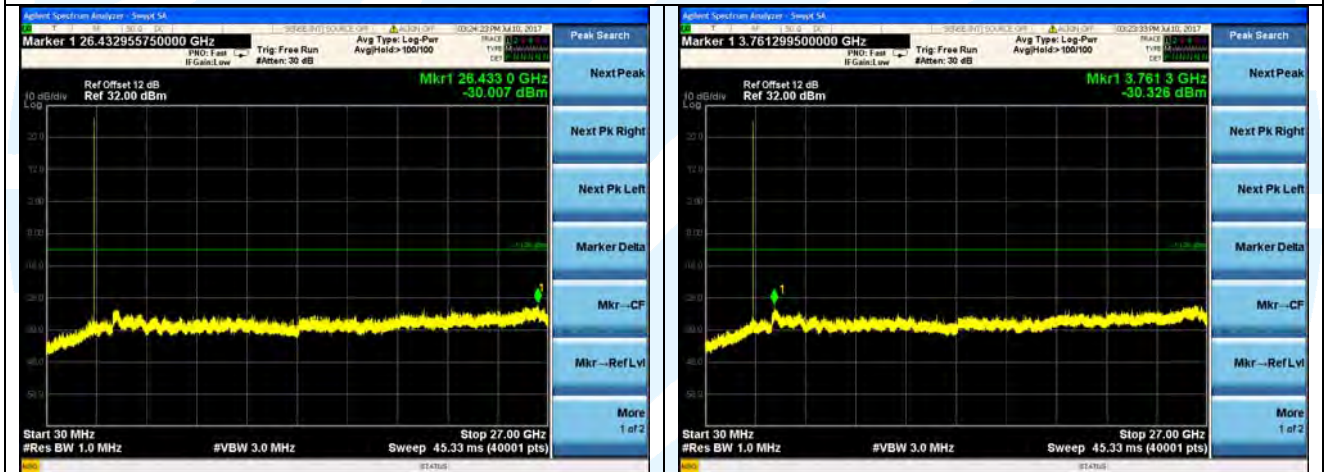
QPSK

16QAM

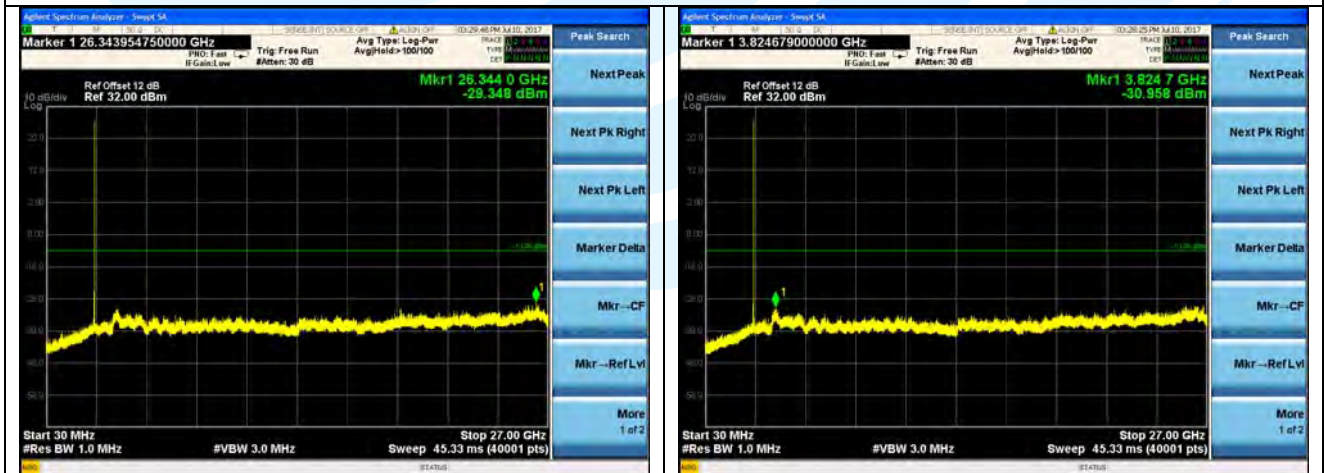
LCH

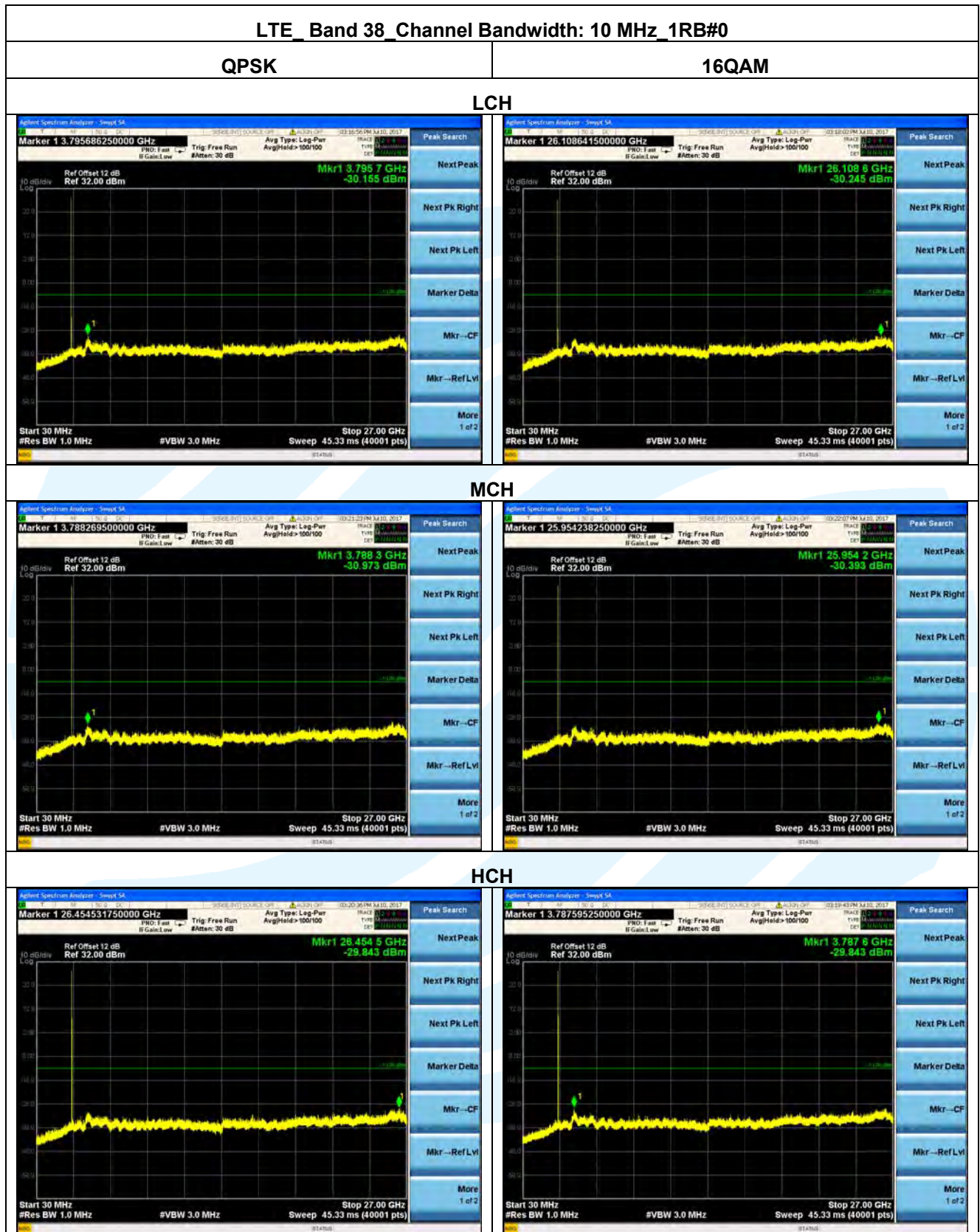


MCH



HCH



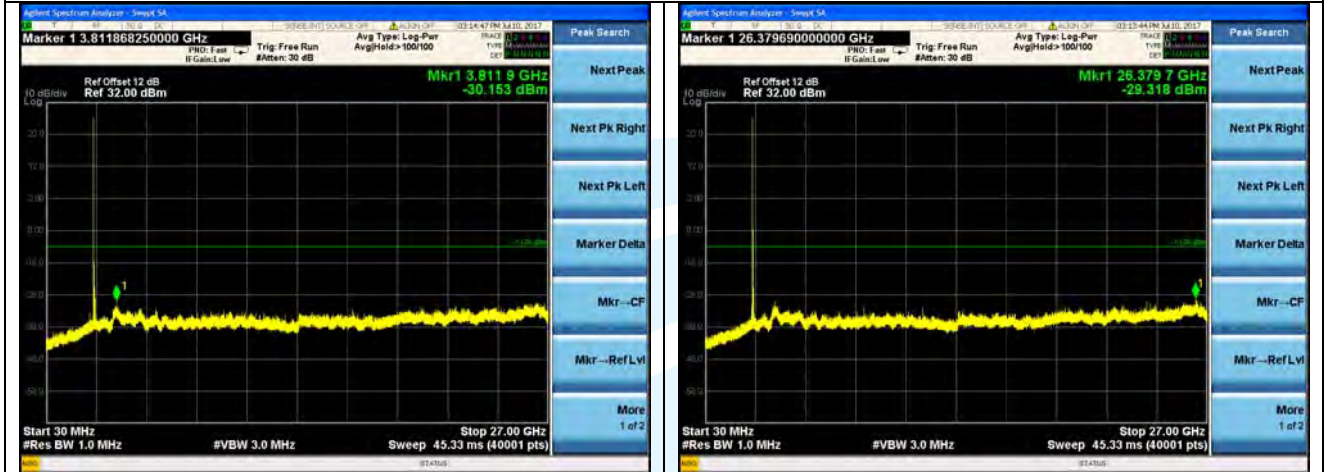


LTE_Band 38_Channel Bandwidth: 15 MHz_1RB#0

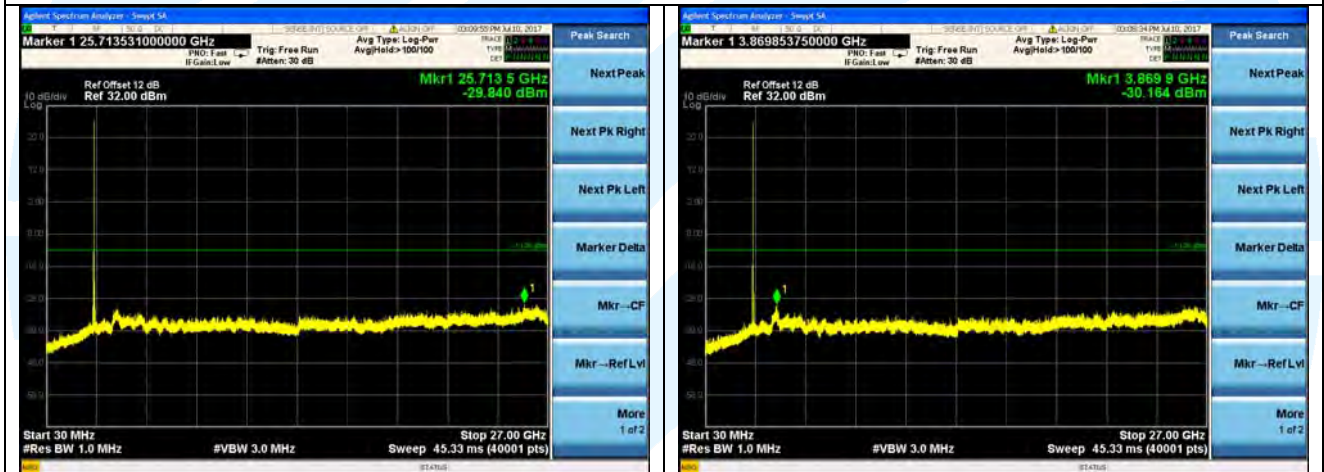
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16QAM

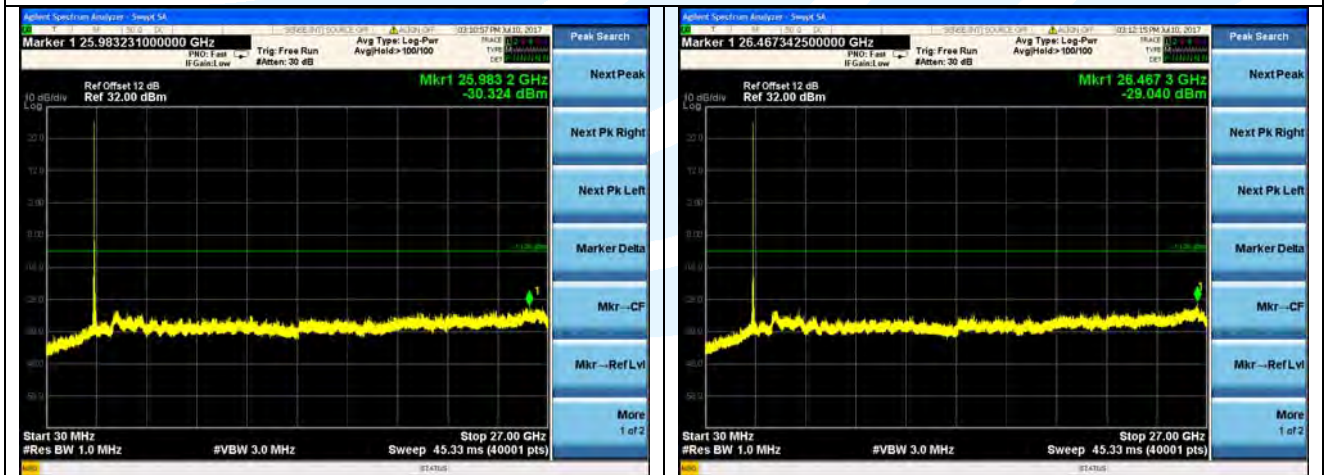
LCH

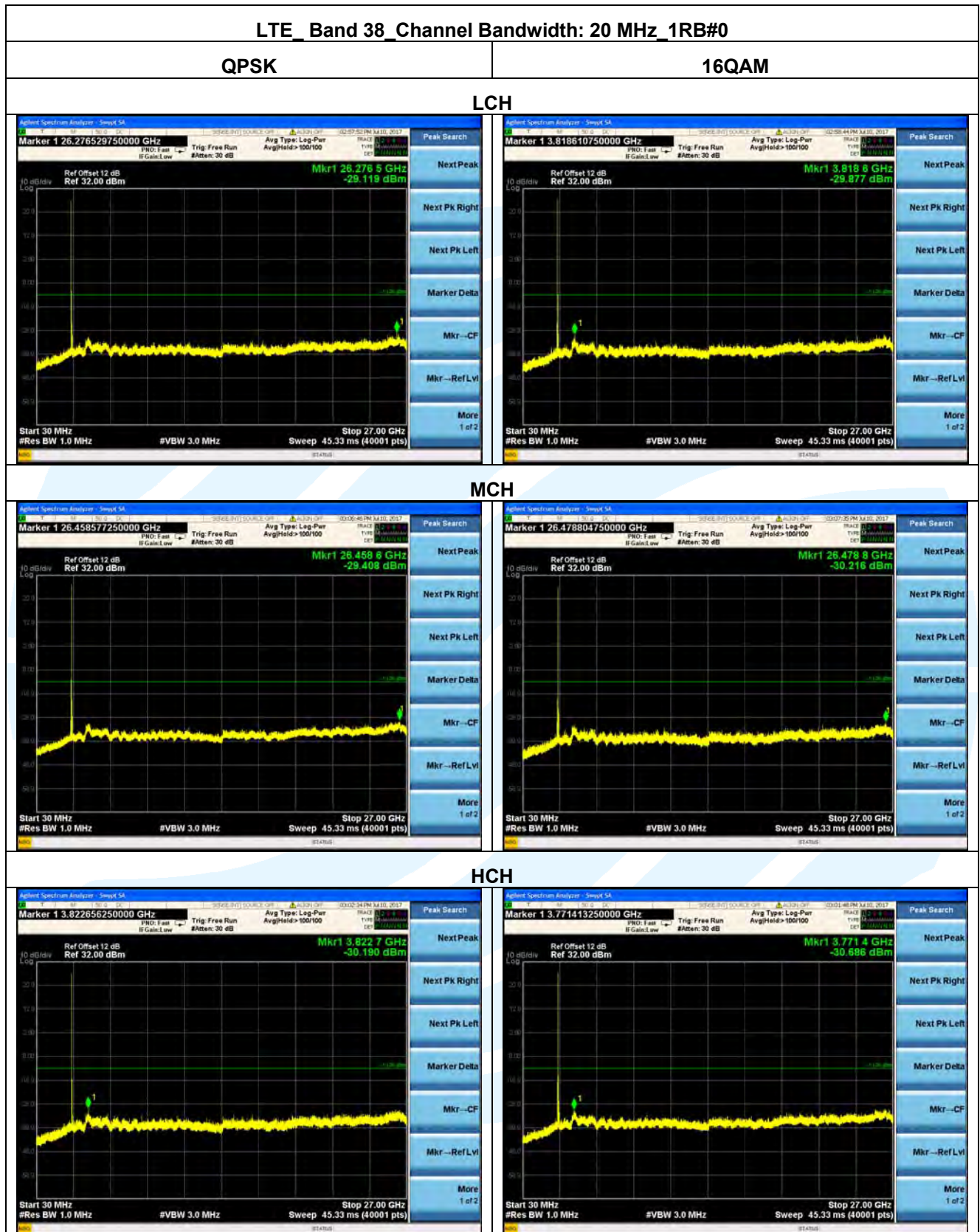


MCH



HCH





5.7 Field strength of spurious radiation

Test Requirement: FCC 47 CFR Part 2.1053
LTE Band 4: FCC 47 CFR Part 27.53(h)(1)
LTE Band 7 & Band 38: FCC 47 CFR Part 27.53(m)(4)

Test Method: ANSI/TIA/EIA-603-D 2010 & KDB 971168 D01v02r02

Limit: **FCC 47 CFR Part 27.53(a)(4):** For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

- (i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;
- (ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;
- (iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

FCC 47 CFR Part 27.53(a)(5): Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC 47 CFR Part 27.53(h)(1): Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(m)(4): For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

FCC 47 CFR Part 27.53(m)(6): Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one

percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

Test Procedure:

1. Scan up to 10th harmonic, find the maximum radiation frequency to measure.
2. The technique used to find the Spurious Emissions of the transmitter was the antenna substitution method. Substitution method was performed to determine the actual ERP/EIRP emission levels of the EUT.

Test procedure as below:

- 1) The EUT was powered ON and placed on a 1.5m high table at a 3 meter fully Anechoic Chamber. The antenna of the transmitter was extended to its maximum length. Modulation mode and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- 2) The EUT was set 3 meters (above 18GHz the distance is 1 meter) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 3) The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
- 4) Steps 1) to 3) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
- 5) The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.
- 6) A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 3) is obtained for this set of conditions.
- 7) The output power into the substitution antenna was then measured.
- 8) Steps 6) and 7) were repeated with both antennas polarized.
- 9) Calculate power in dBm by the following formula:

$$\text{ERP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$

$$\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$$

$$\text{EIRP} = \text{ERP} + 2.15\text{dB}$$

where:
Pg is the generator output power into the substitution antenna.
- 10) Test the EUT in the lowest channel, the middle channel the Highest channel
- 11) The radiation measurements are performed in X, Y, Z axis positioning for EUT operation mode, and found the X axis positioning which it is worse case.
- 12) Repeat above procedures until all frequencies measured was complete.

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-30MHz	Peak	10kHz	30kHz	Peak
30MHz-1GHz	Peak	100kHz	300kHz	Peak
Above 1GHz	Peak	1MHz	3MHz	Peak

Test Setup:

Refer to section 4.1.2 for details.

Instruments Used:

Refer to section 3 for details

Test Mode:

Link mode

Test Results:

Pass

Test Data:**Spurious Emission Test Data (9 KHz ~ 30 MHz)**

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

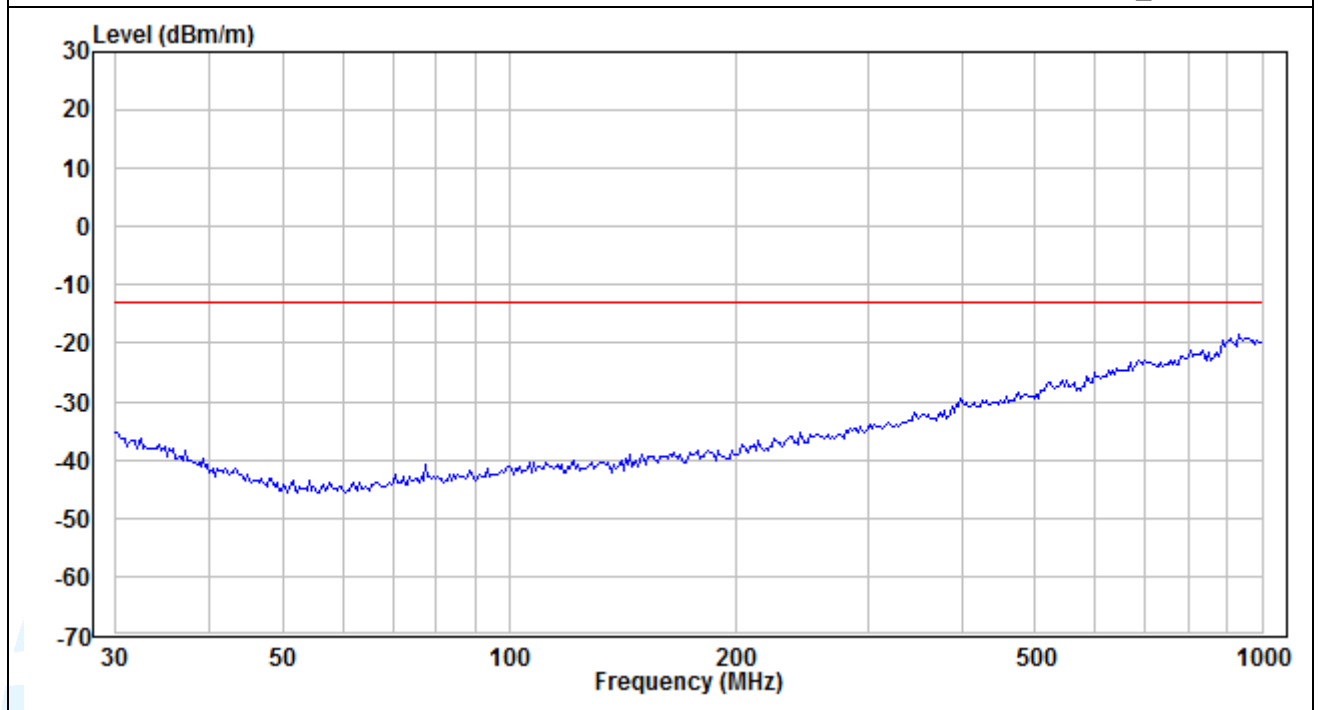
Spurious Emission Test Data (Above 18 GHz)

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

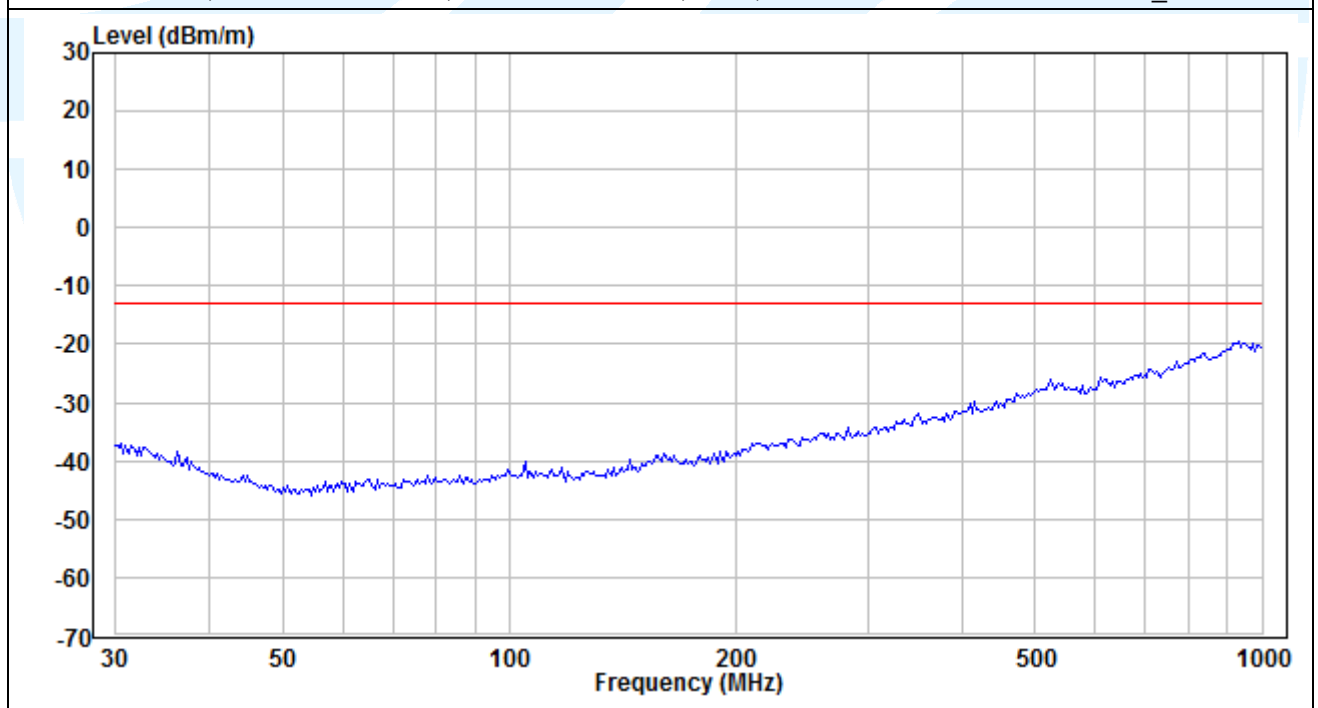
Spurious Emission Test Data (30 MHz ~ 1 GHz)

LTE Band 4

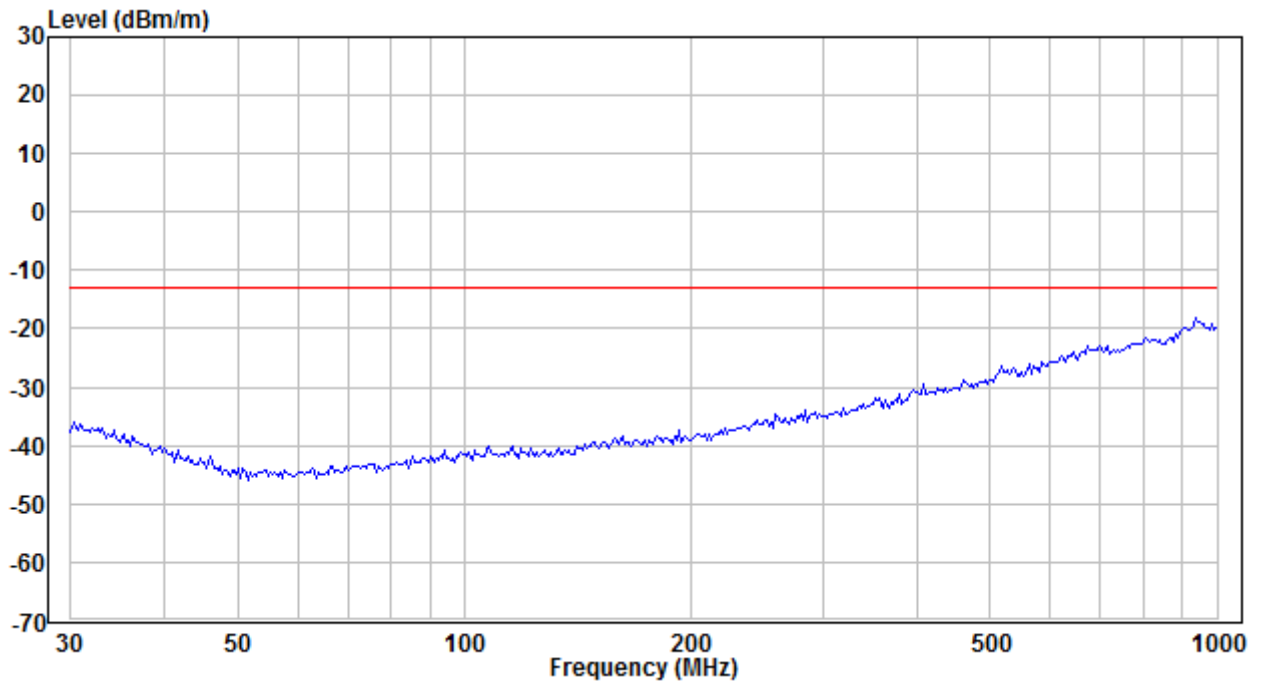
LTE Band 4; Bandwidth 1.4MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



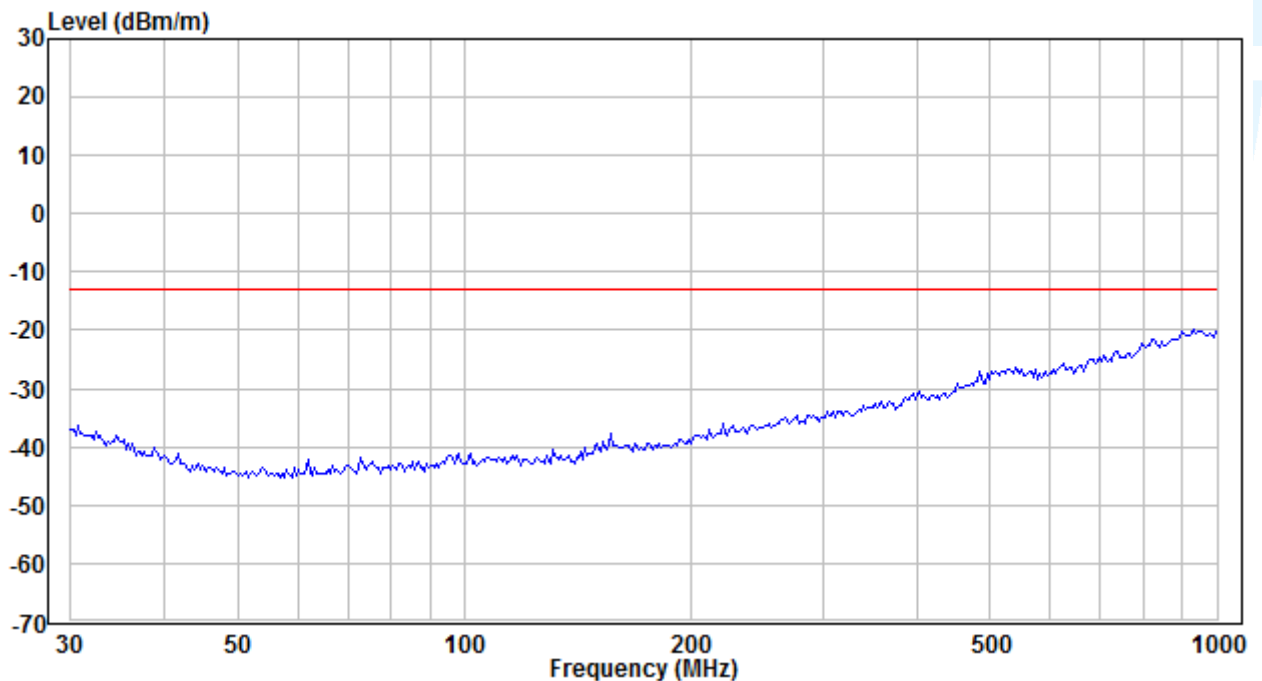
LTE Band 4; Bandwidth 1.4MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



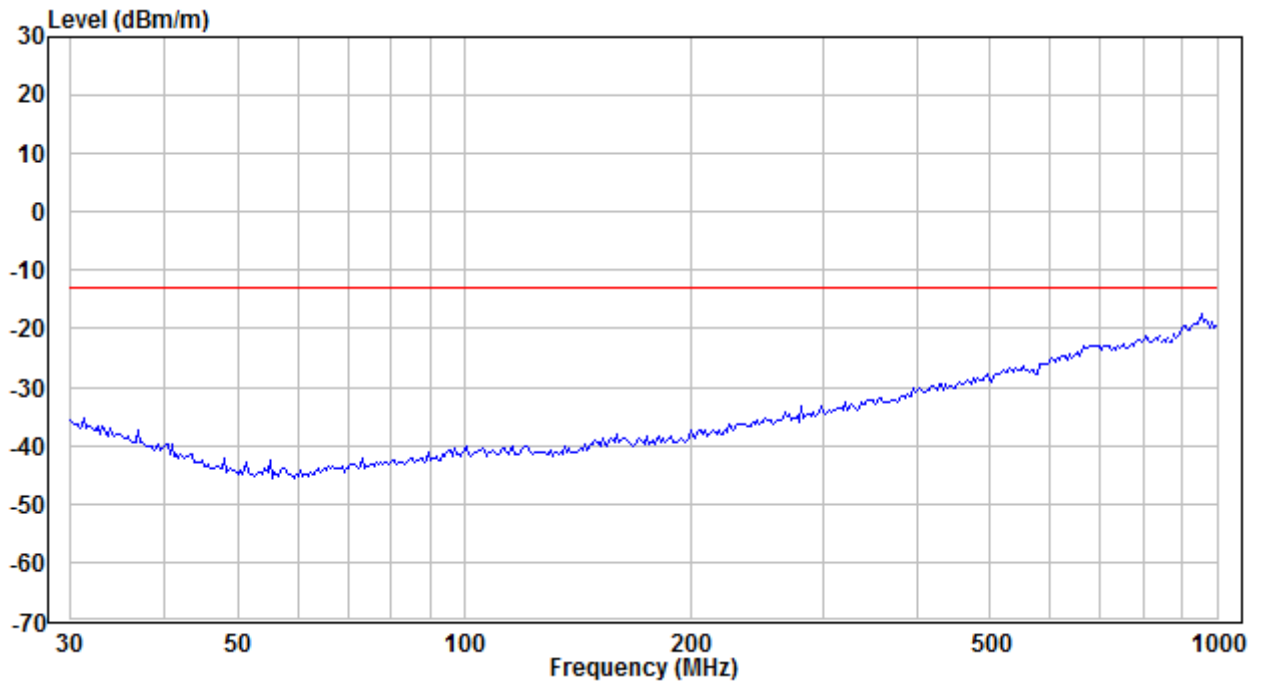
LTE Band 4; Bandwidth 3MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



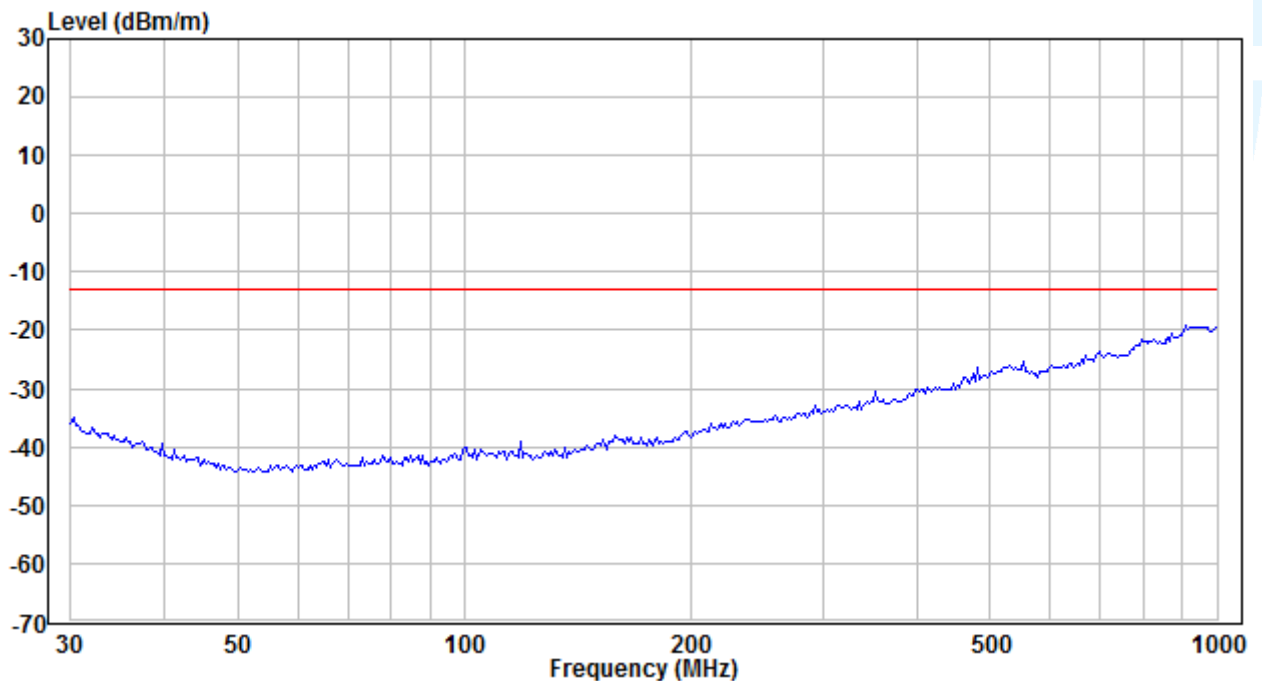
LTE Band 4; Bandwidth 3MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



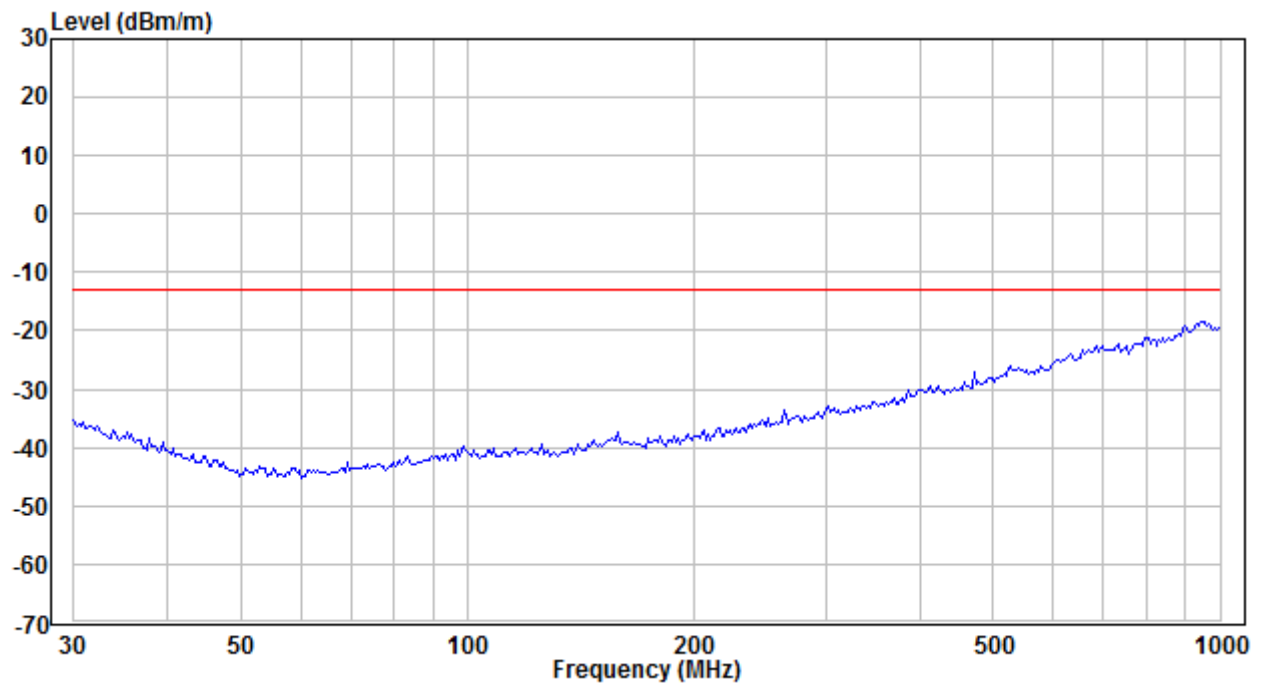
LTE Band 4; Bandwidth 5MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



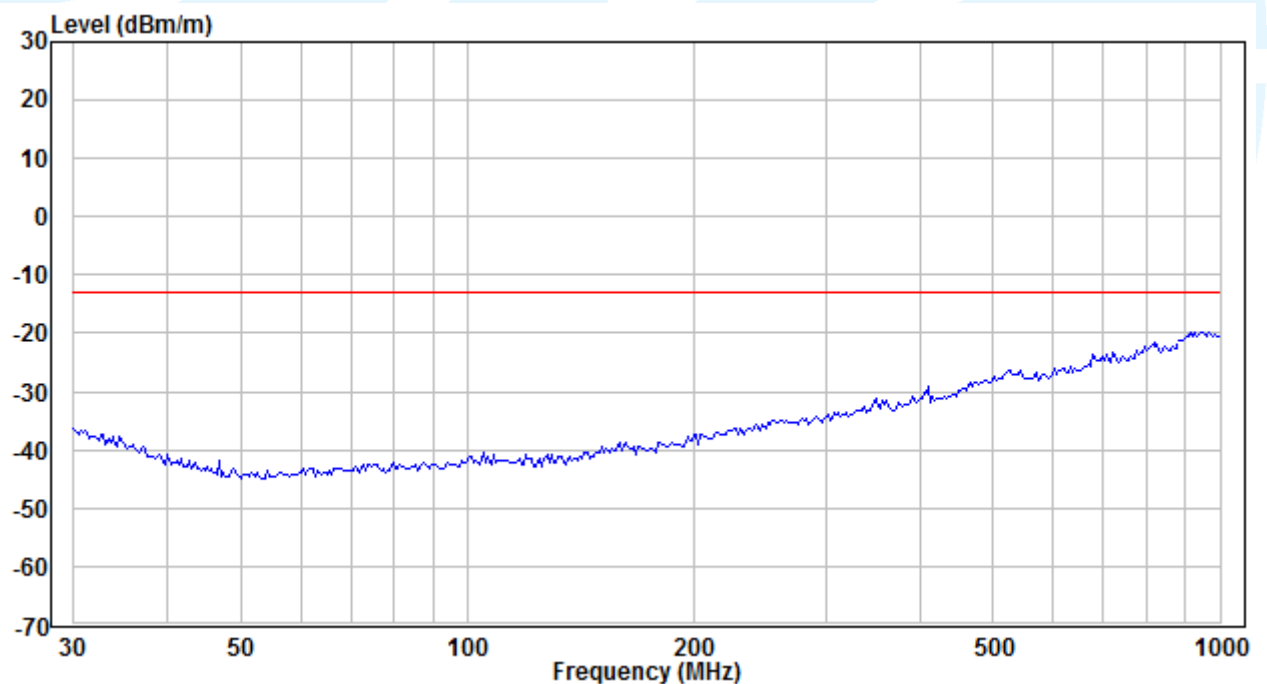
LTE Band 4; Bandwidth 5MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



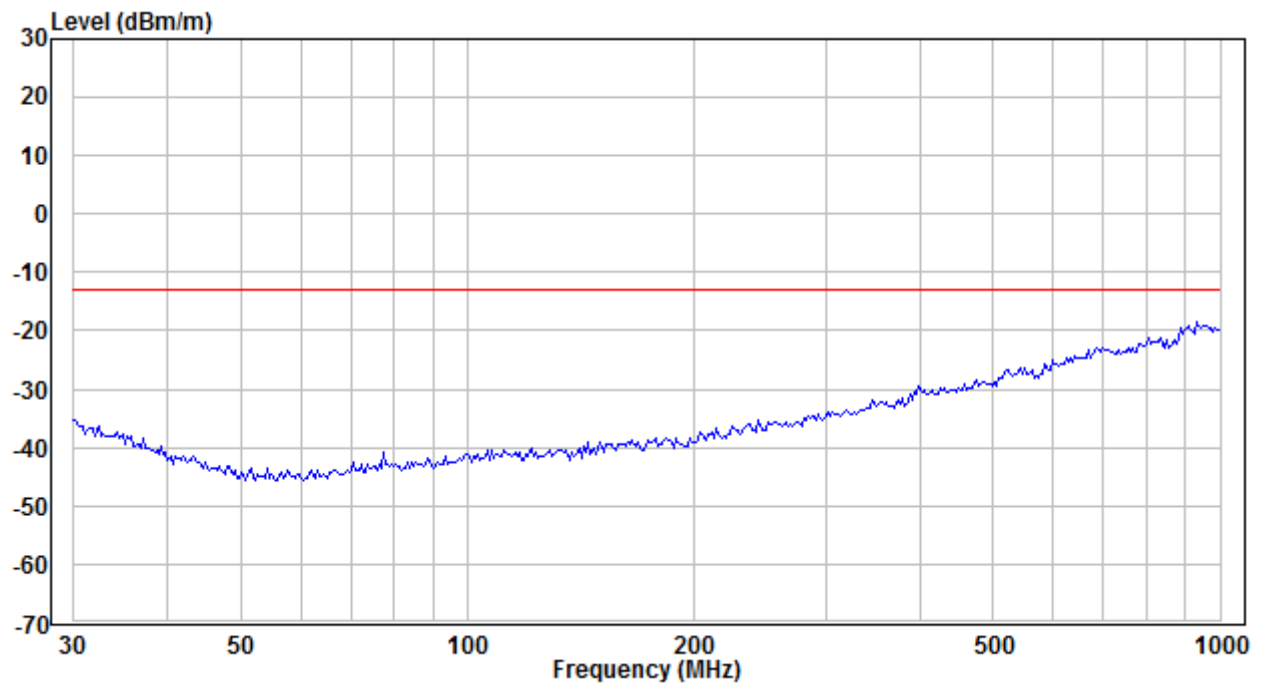
LTE Band 4; Bandwidth 10MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



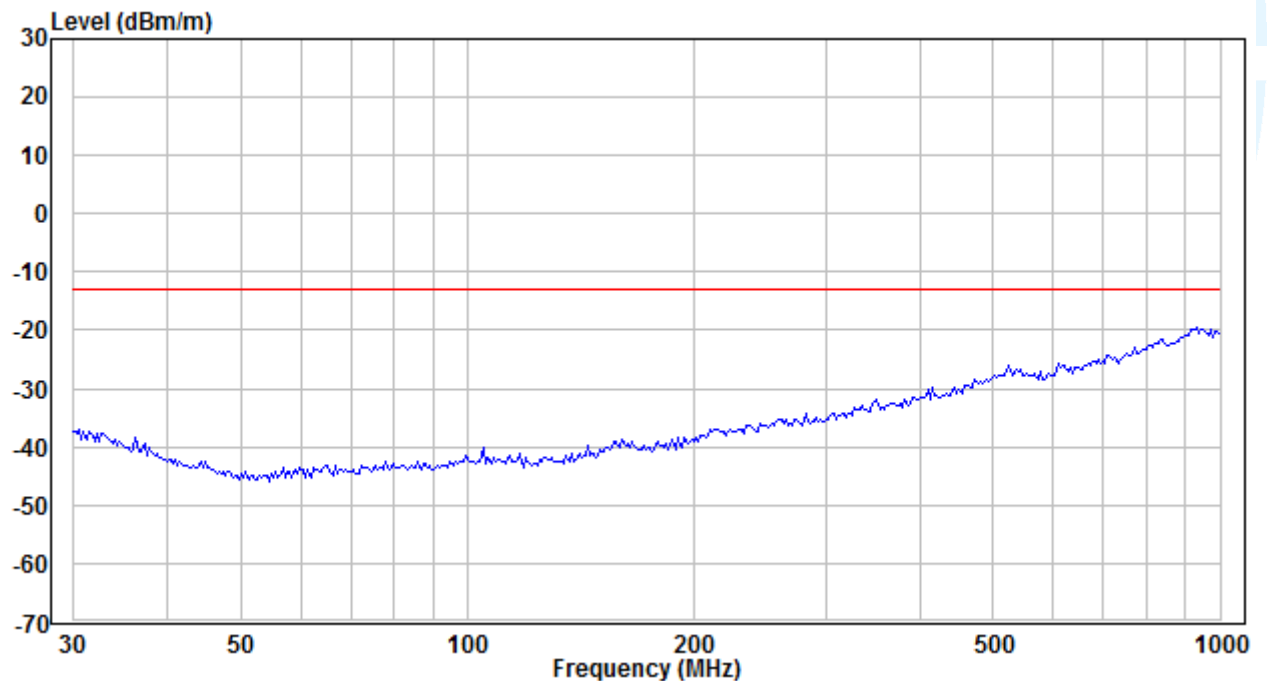
LTE Band 4; Bandwidth 10MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



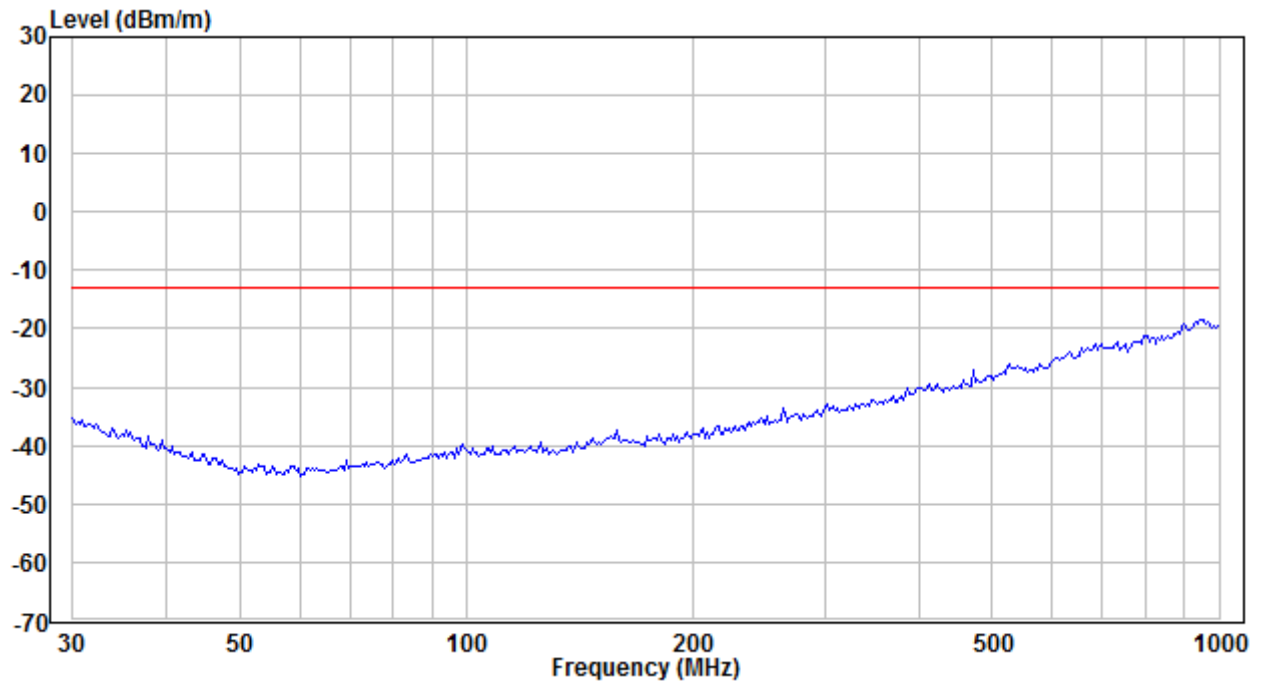
LTE Band 4; Bandwidth 15MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



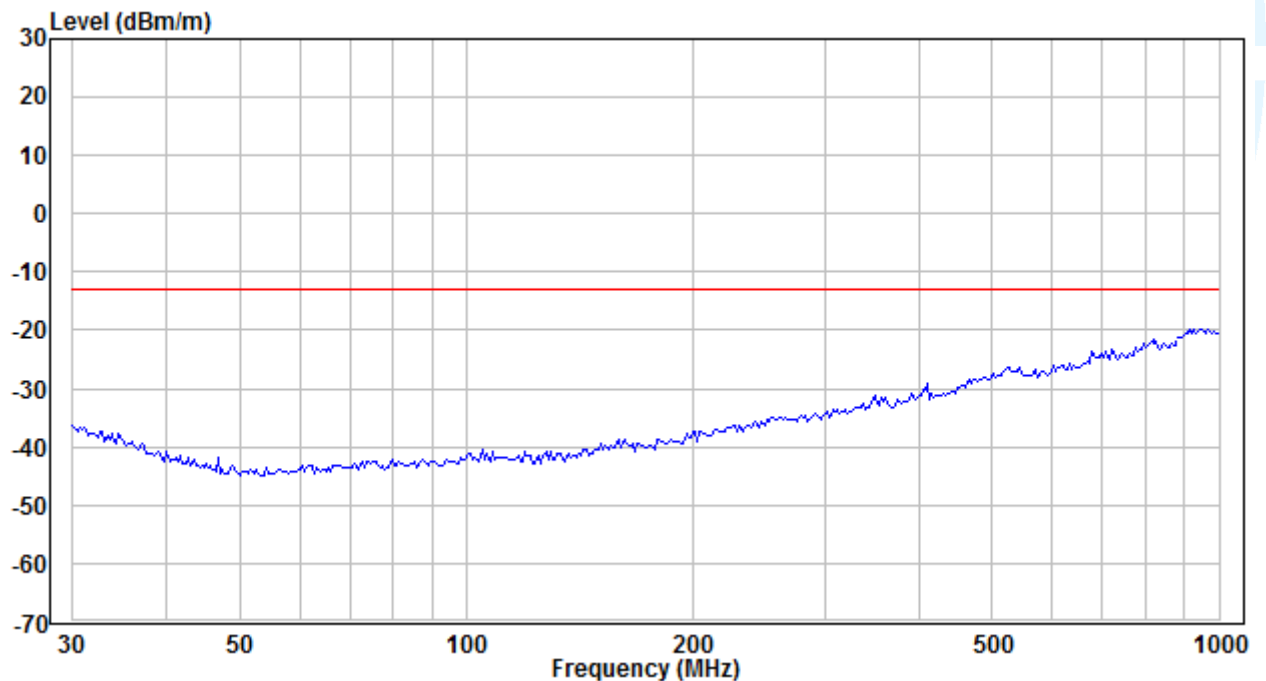
LTE Band 4; Bandwidth 15MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



LTE Band 4; Bandwidth 20MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal

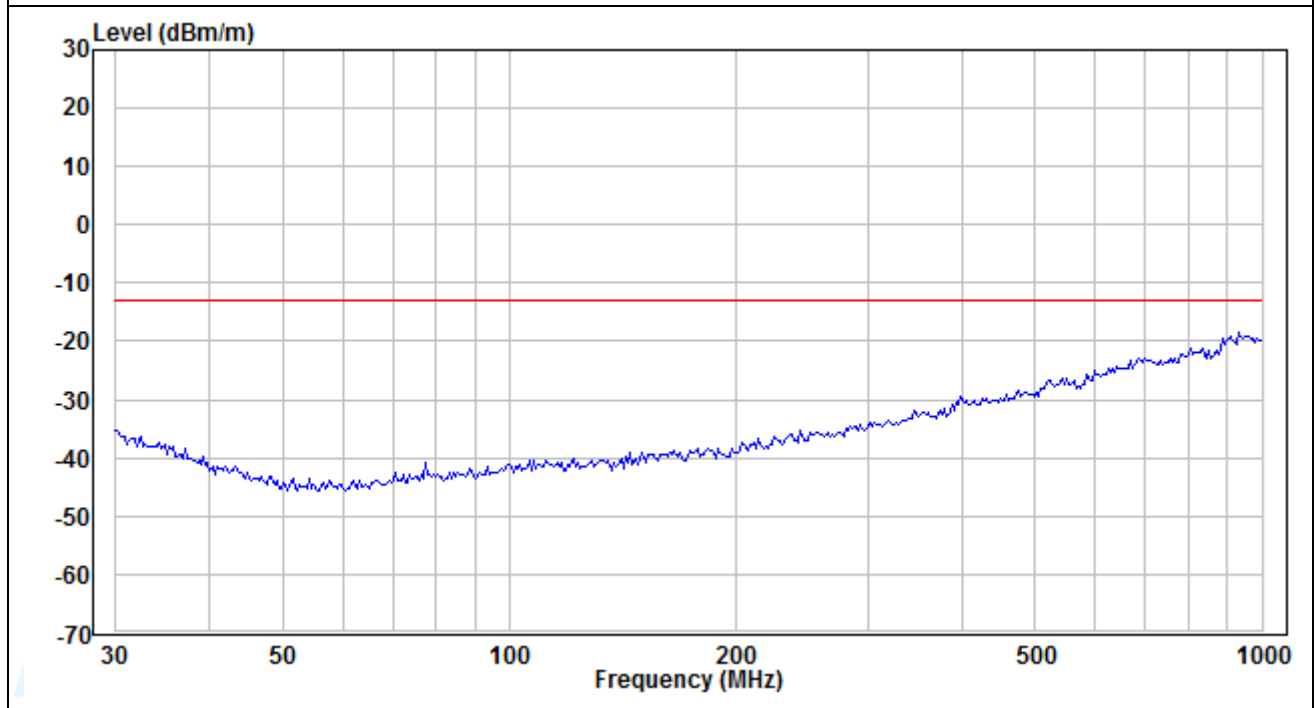


LTE Band 4; Bandwidth 20MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical

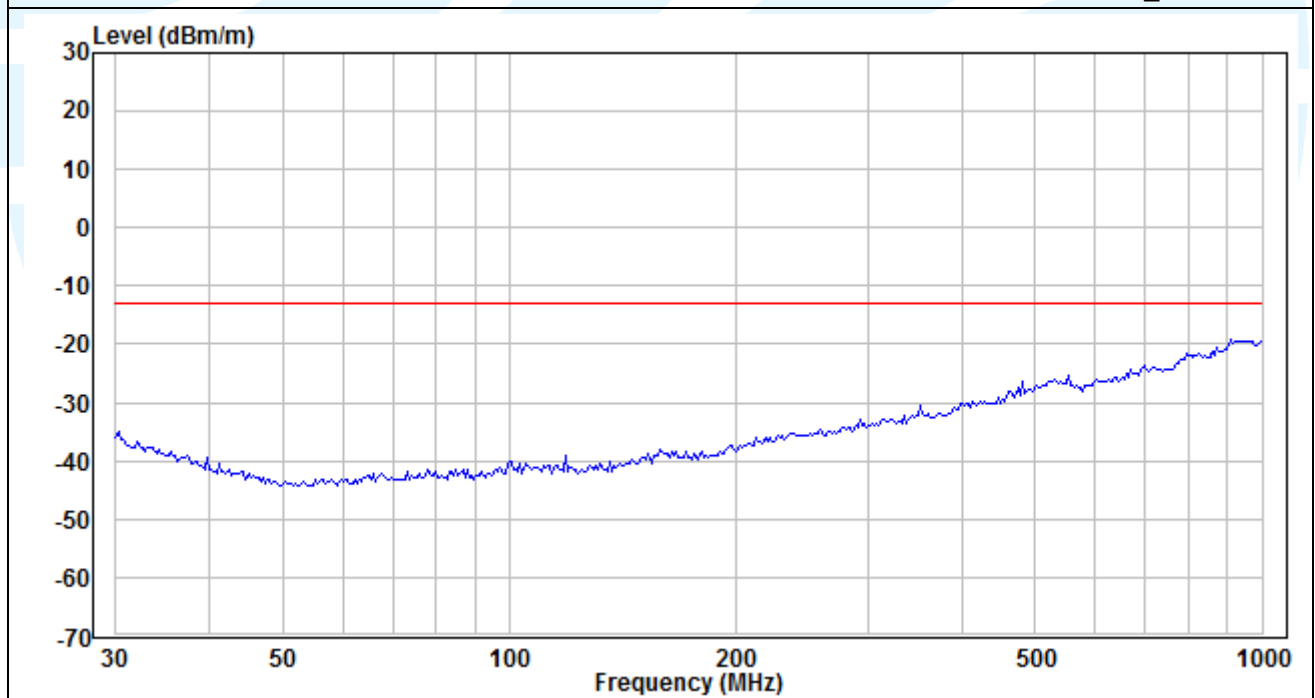


LTE Band 7

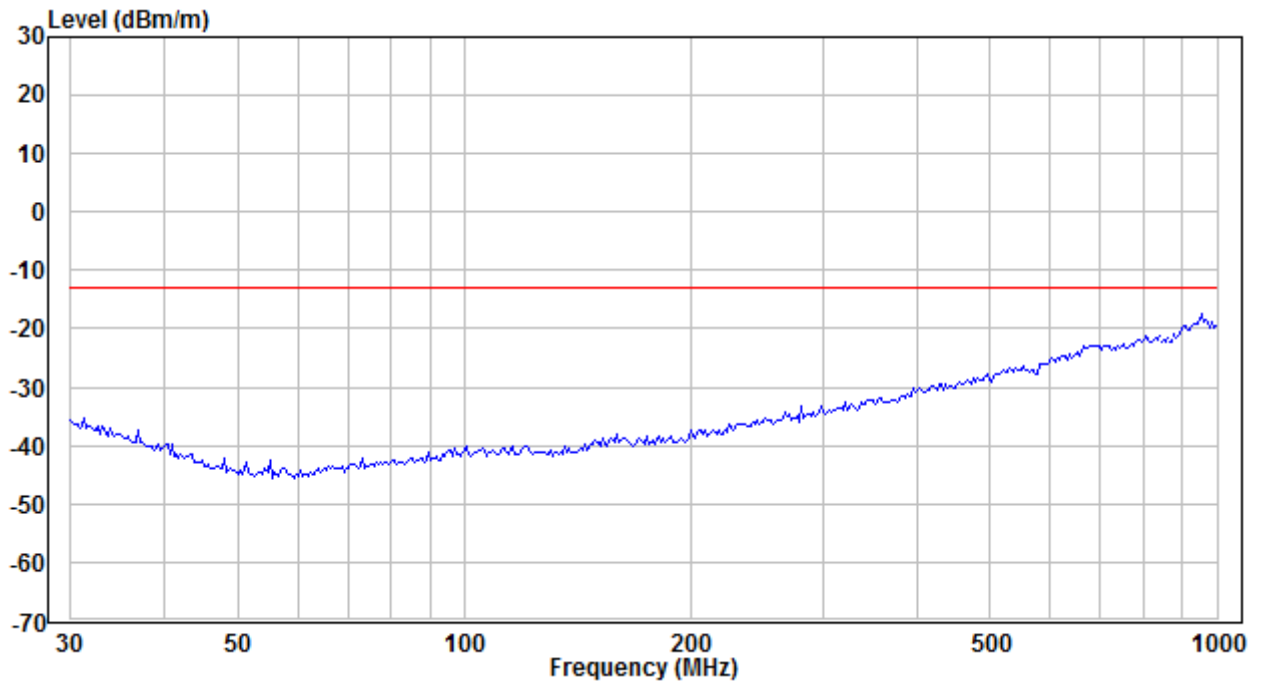
LTE Band 7; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



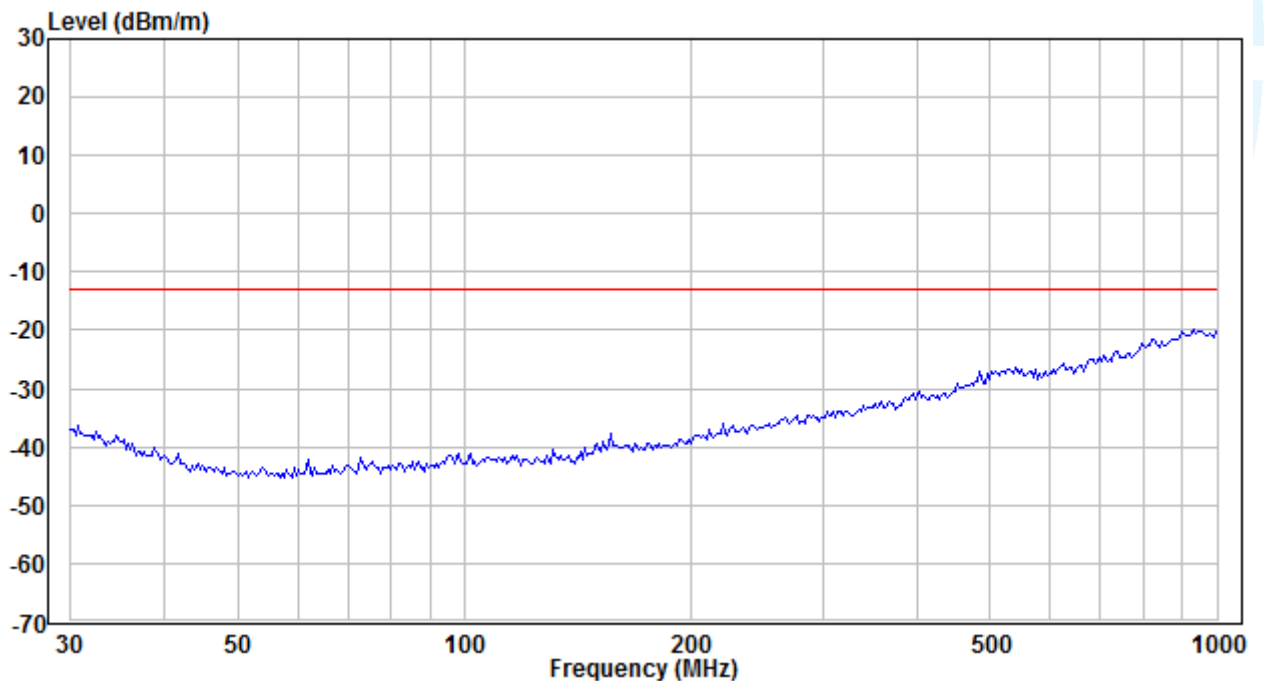
LTE Band 7; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



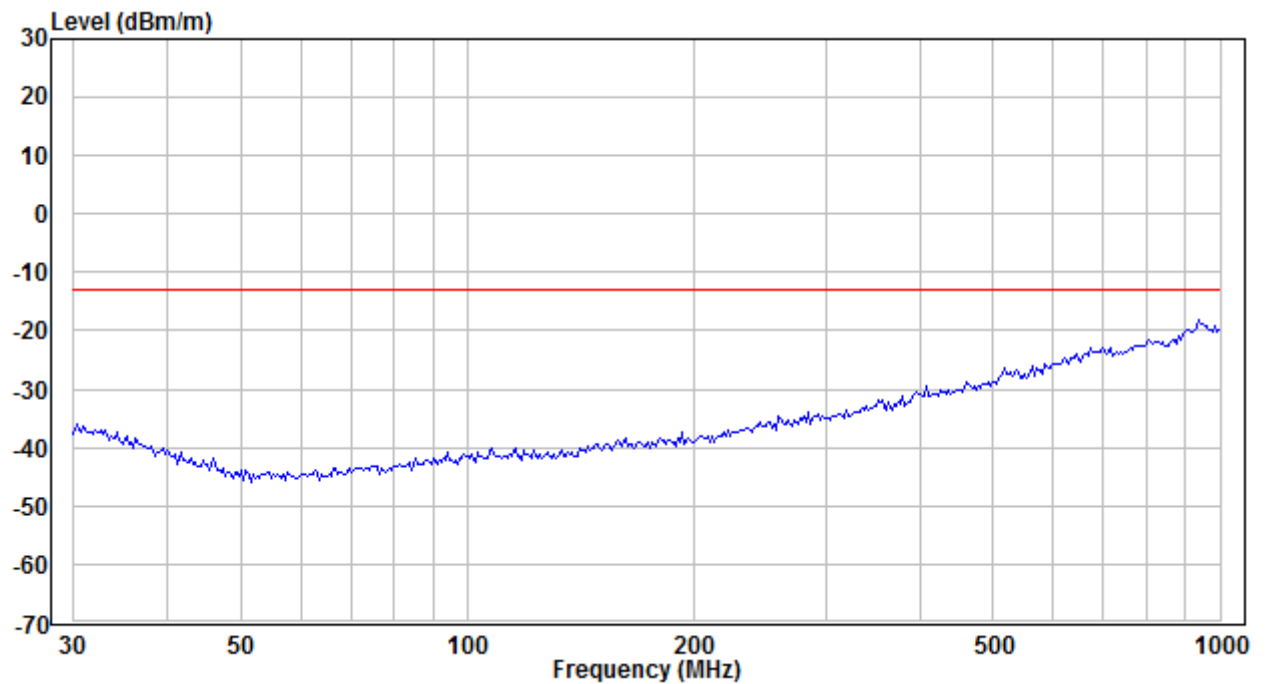
LTE Band 7; Bandwidth 10 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



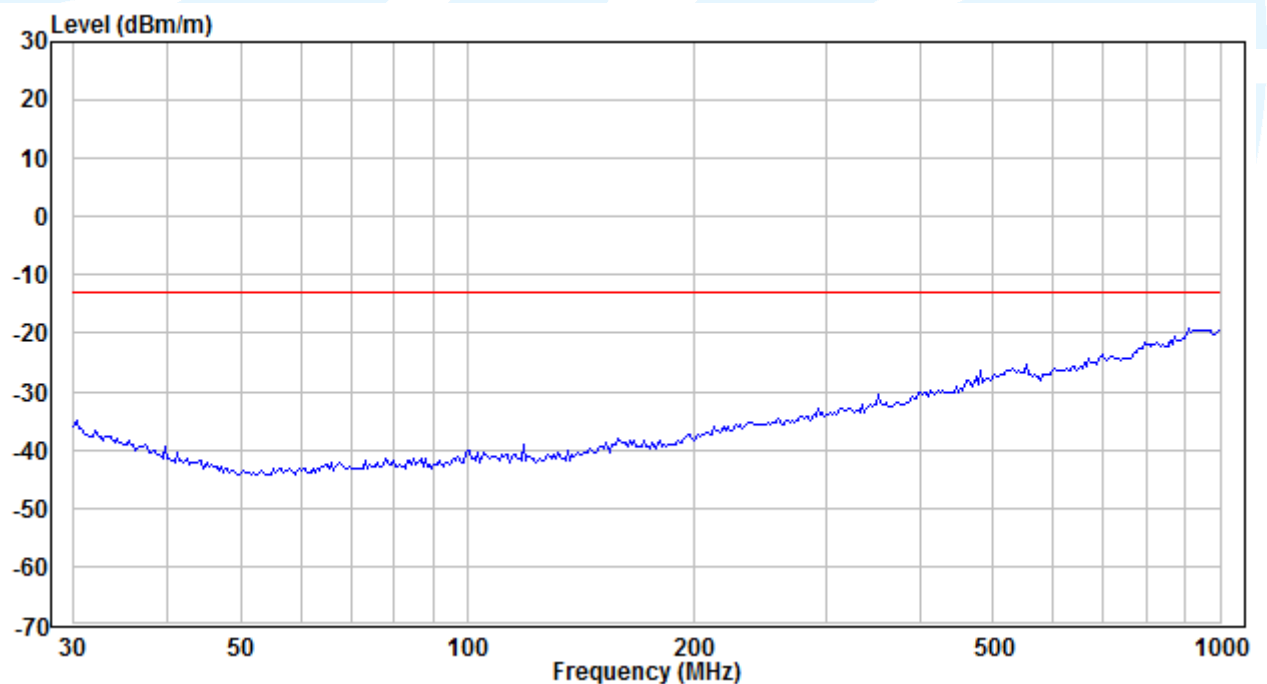
LTE Band 7; Bandwidth 10 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



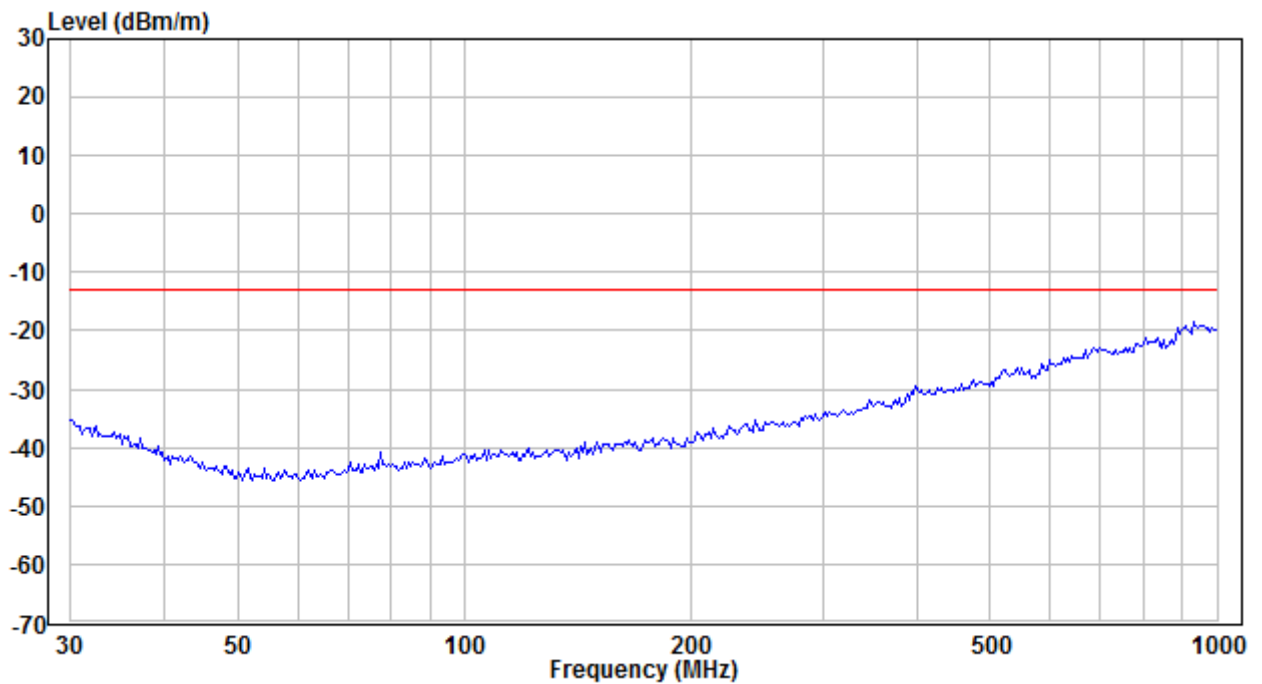
LTE Band 7; Bandwidth 15 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



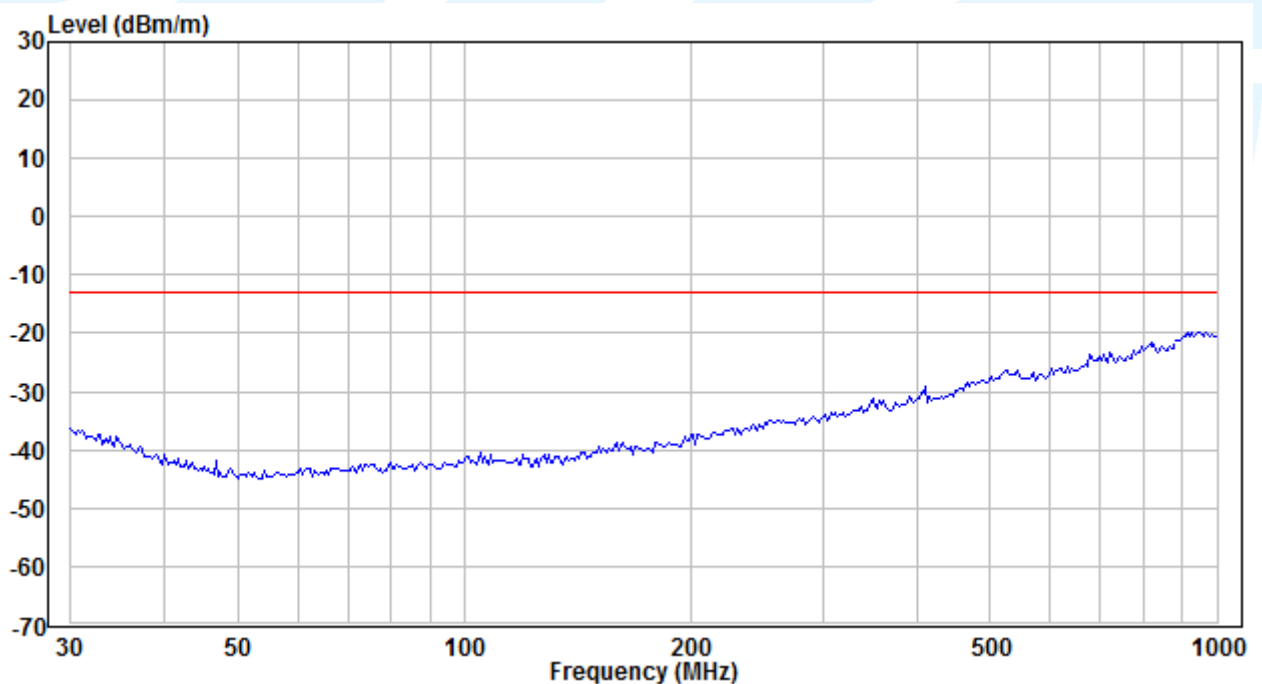
LTE Band 7; Bandwidth 15 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



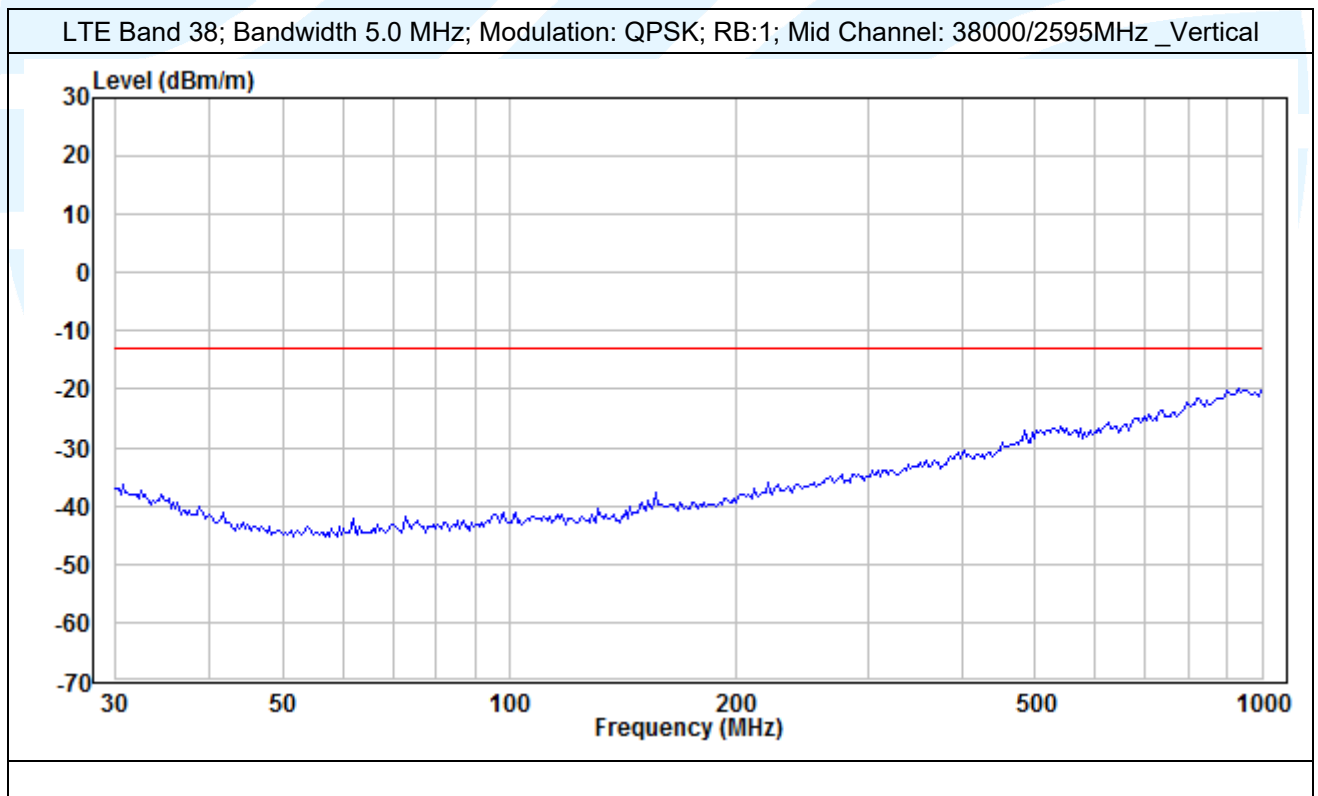
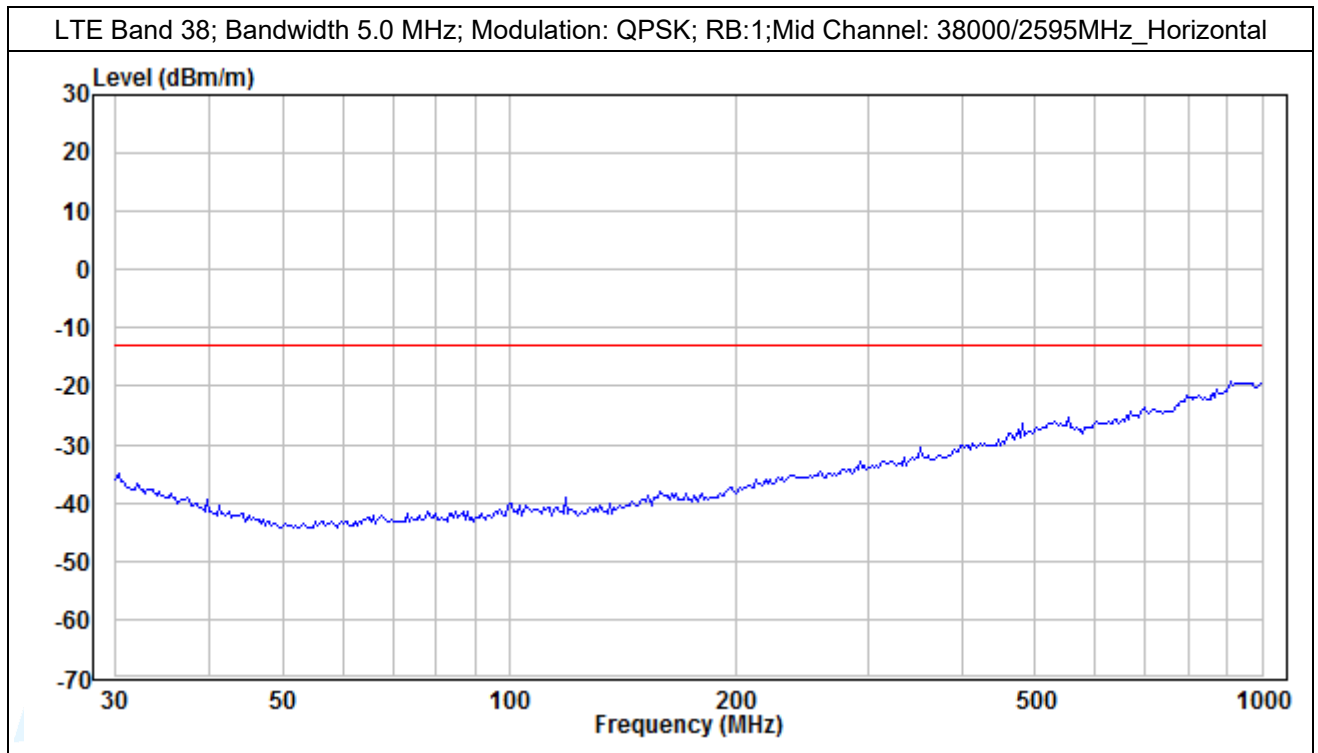
LTE Band 7; Bandwidth 20 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



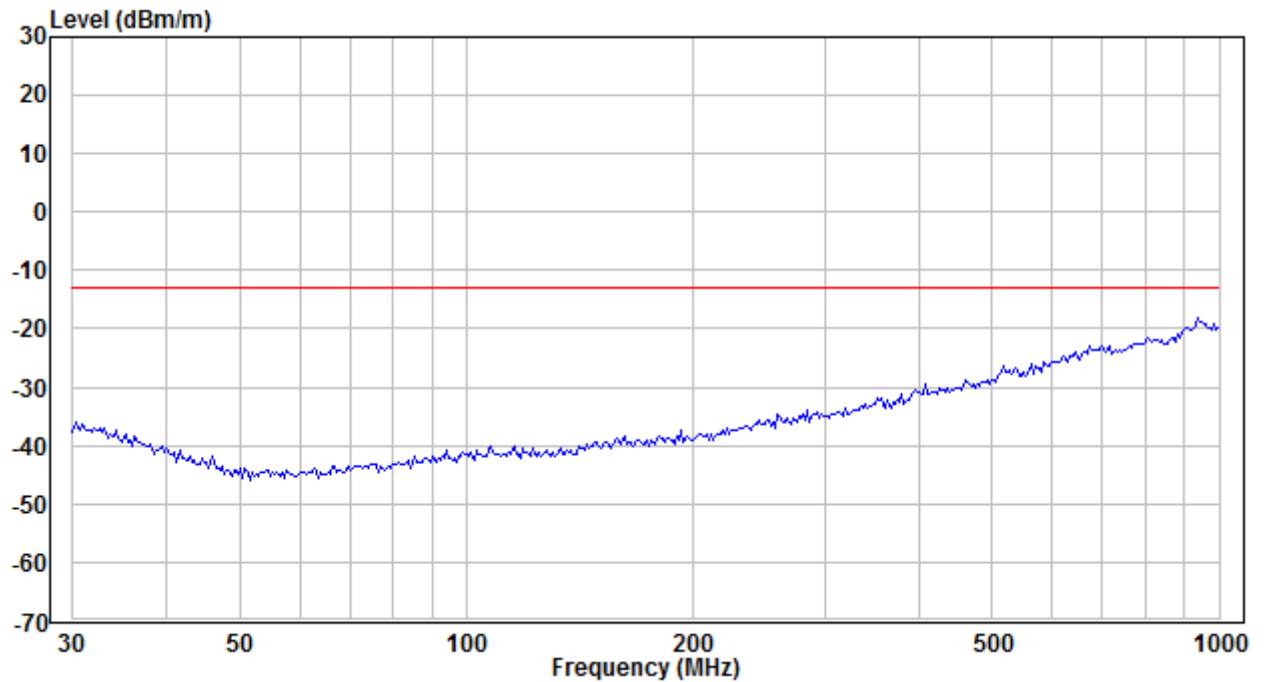
LTE Band 7; Bandwidth 20 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



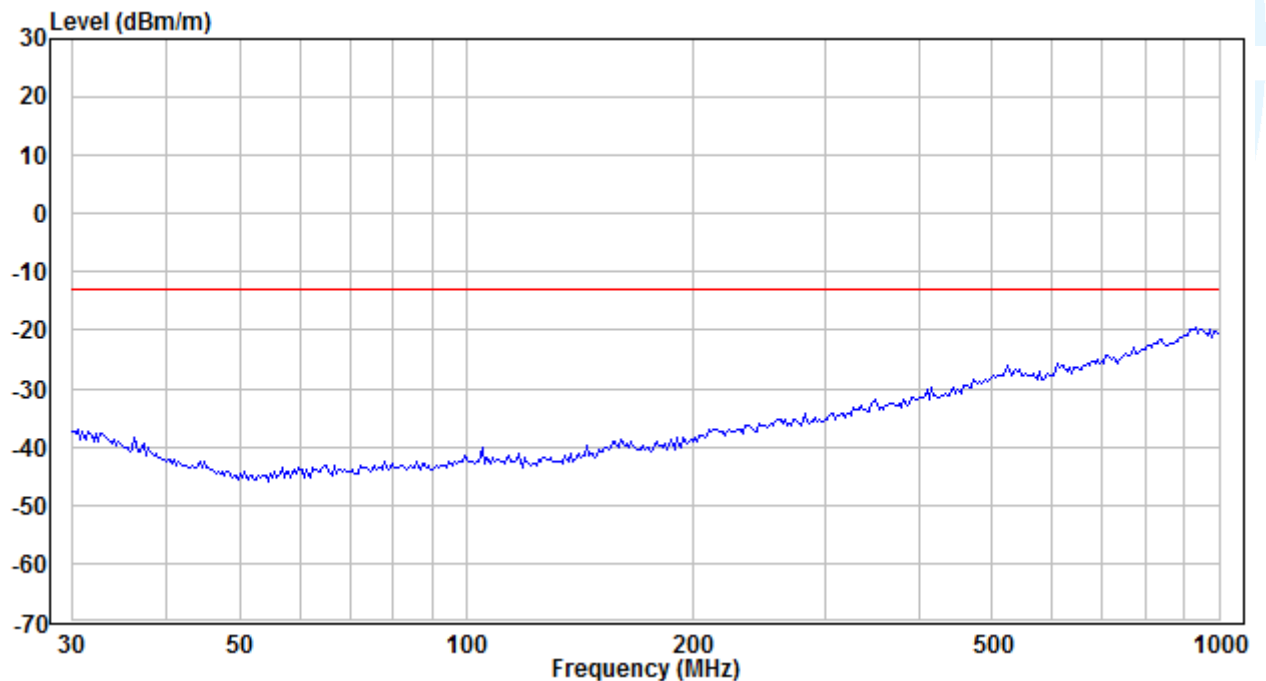
LTE Band 38



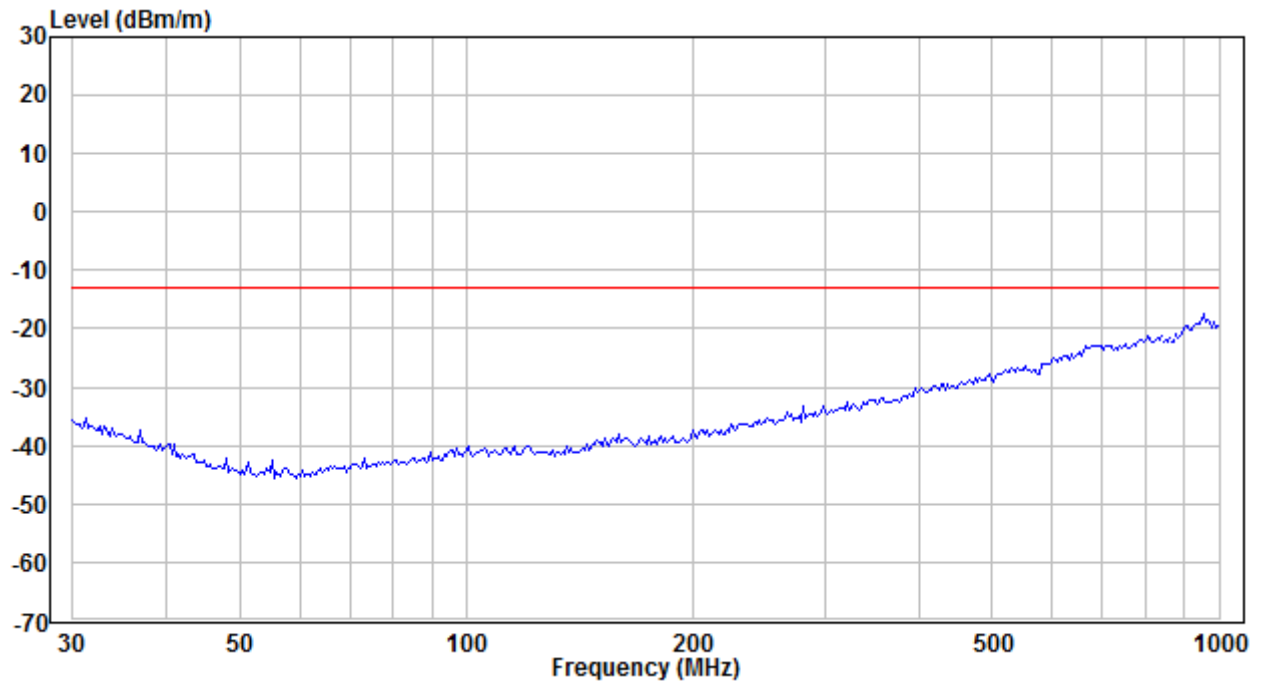
LTE Band 38; Bandwidth 10 MHz; Modulation: QPSK; RB:1; Mid Channel: 38000/2595MHz _Horizontal



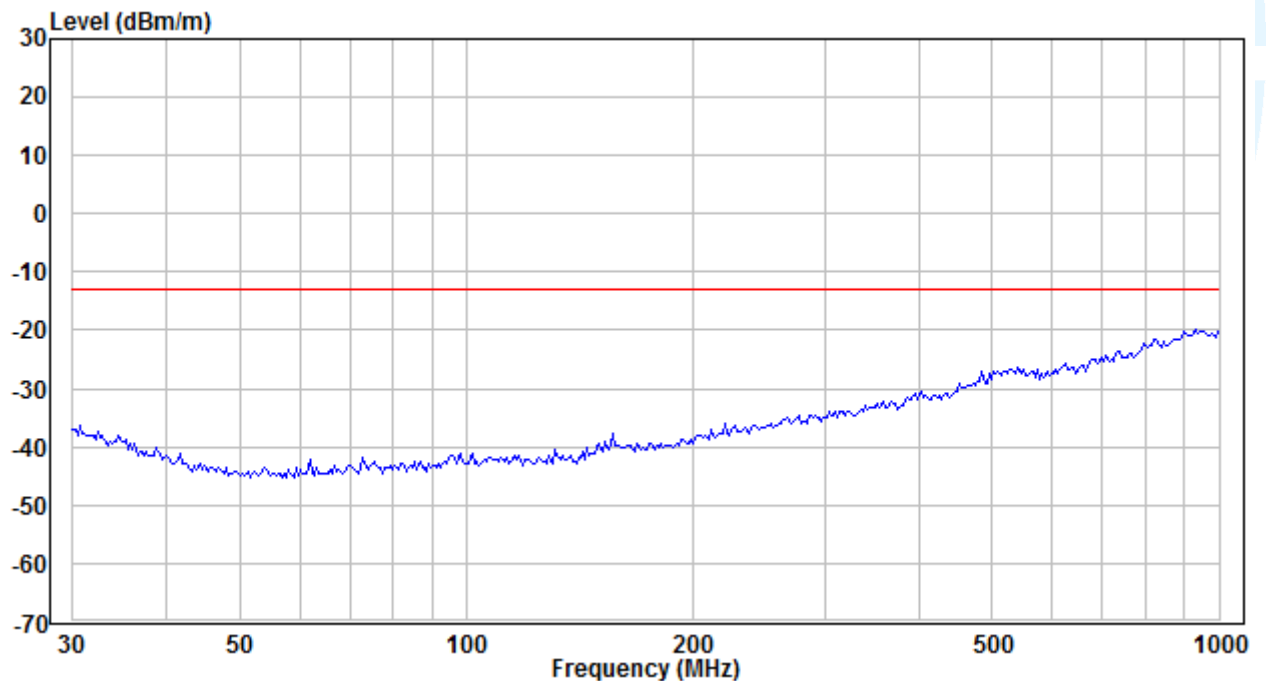
LTE Band 38; Bandwidth 10 MHz; Modulation: QPSK; RB:1; Mid Channel: 38000/2595MHz _Vertical



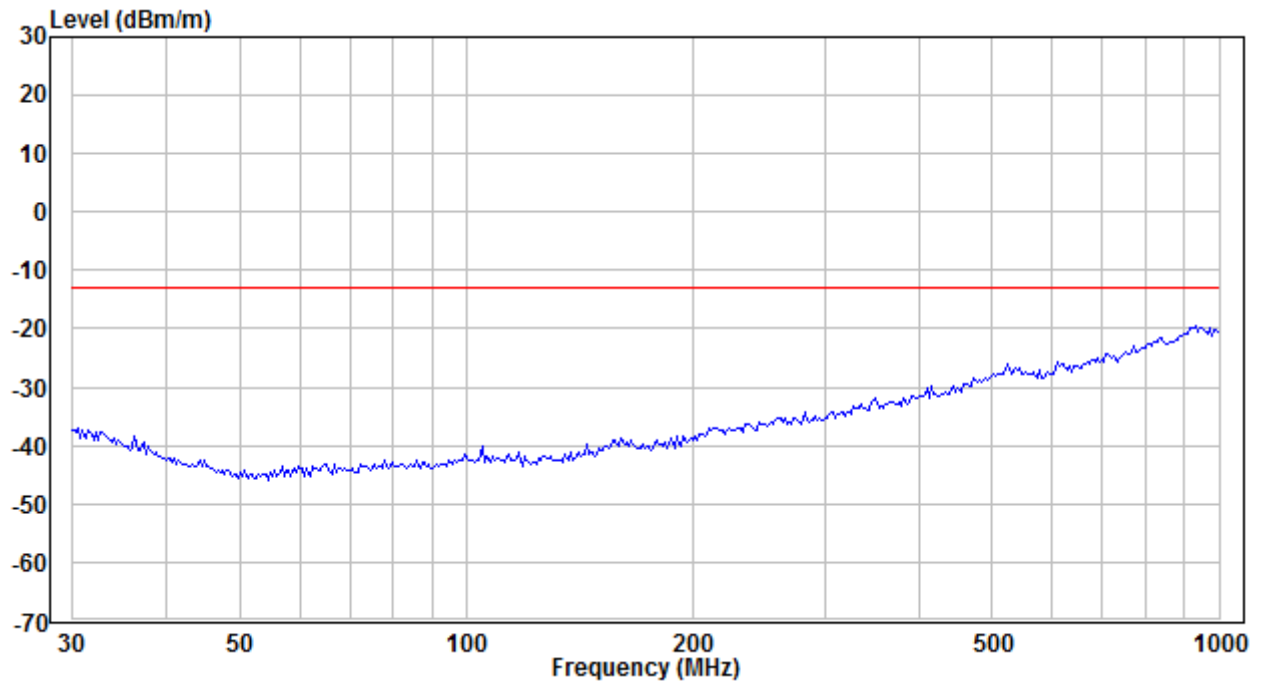
LTE Band 38; Bandwidth 15 MHz; Modulation: QPSK; RB:1;Mid Channel: 38000/2595MHz _Horizontal



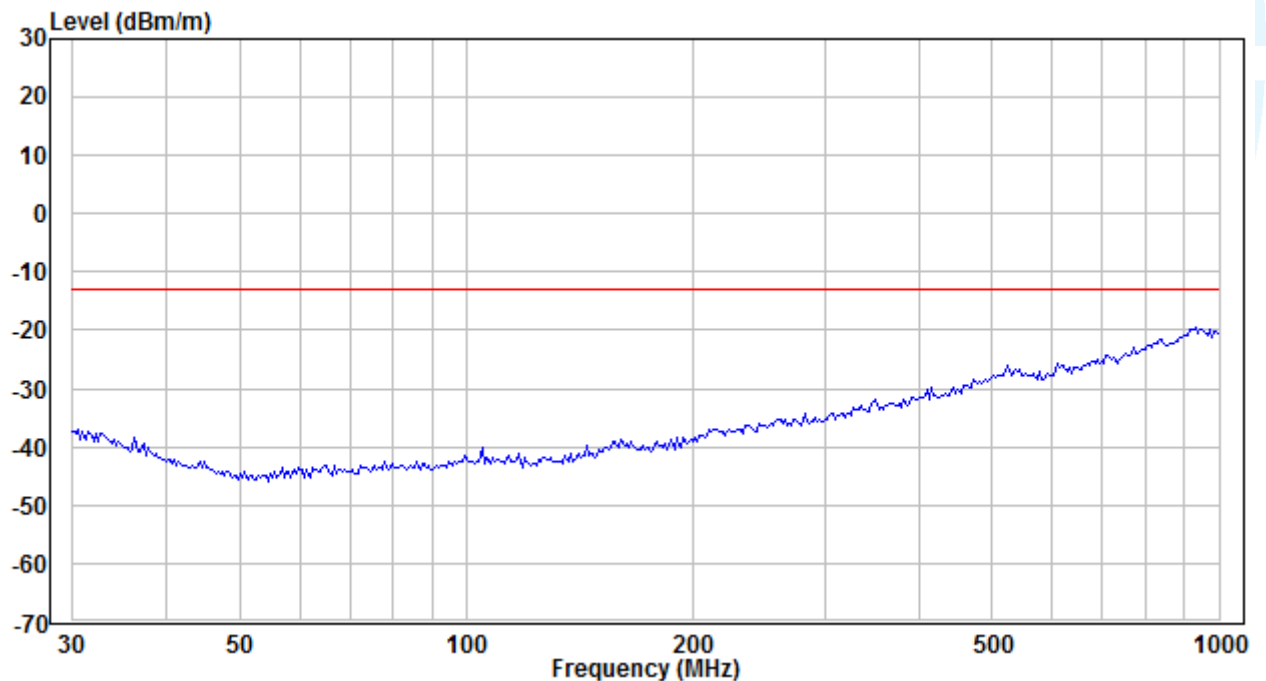
LTE Band 38; Bandwidth 15 MHz; Modulation: QPSK; RB:1; Mid Channel: 38000/2595MHz _Vertical



LTE Band 38; Bandwidth 20 MHz; Modulation: QPSK; RB:1;Mid Channel: 38000/2595MHz _Horizontal



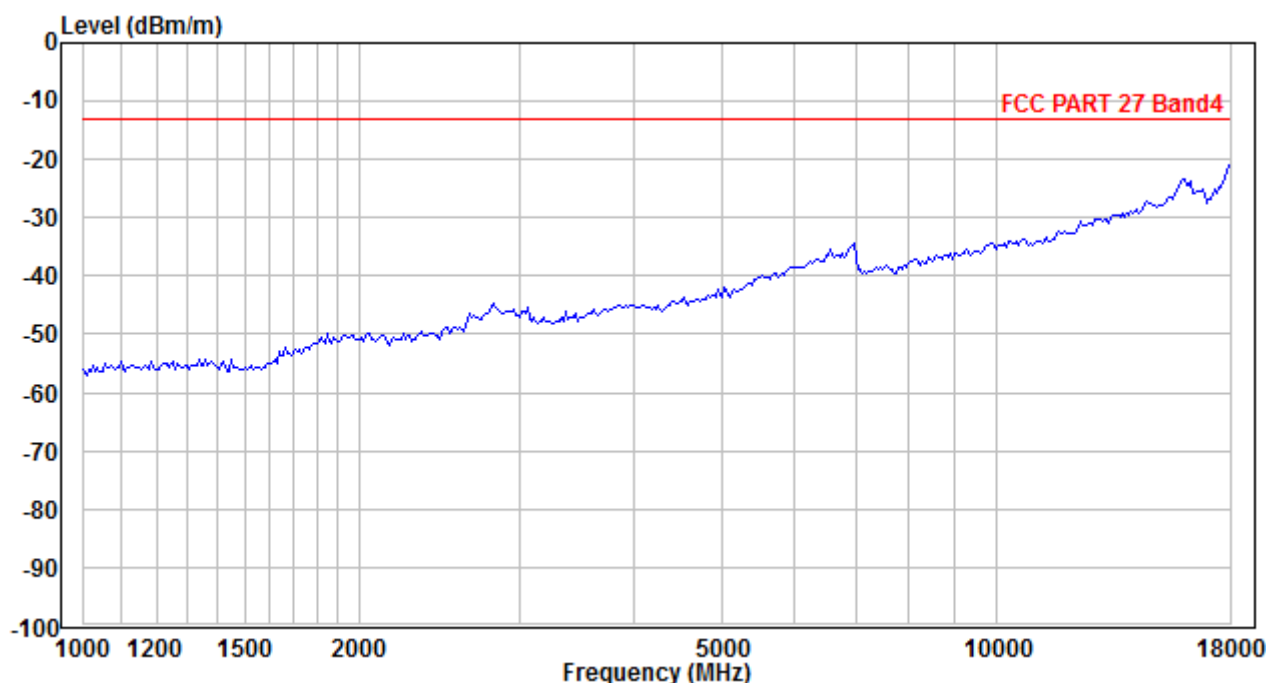
LTE Band 38; Bandwidth 20 MHz; Modulation: QPSK; RB:1; Mid Channel: 38000/2595MHz _Vertical



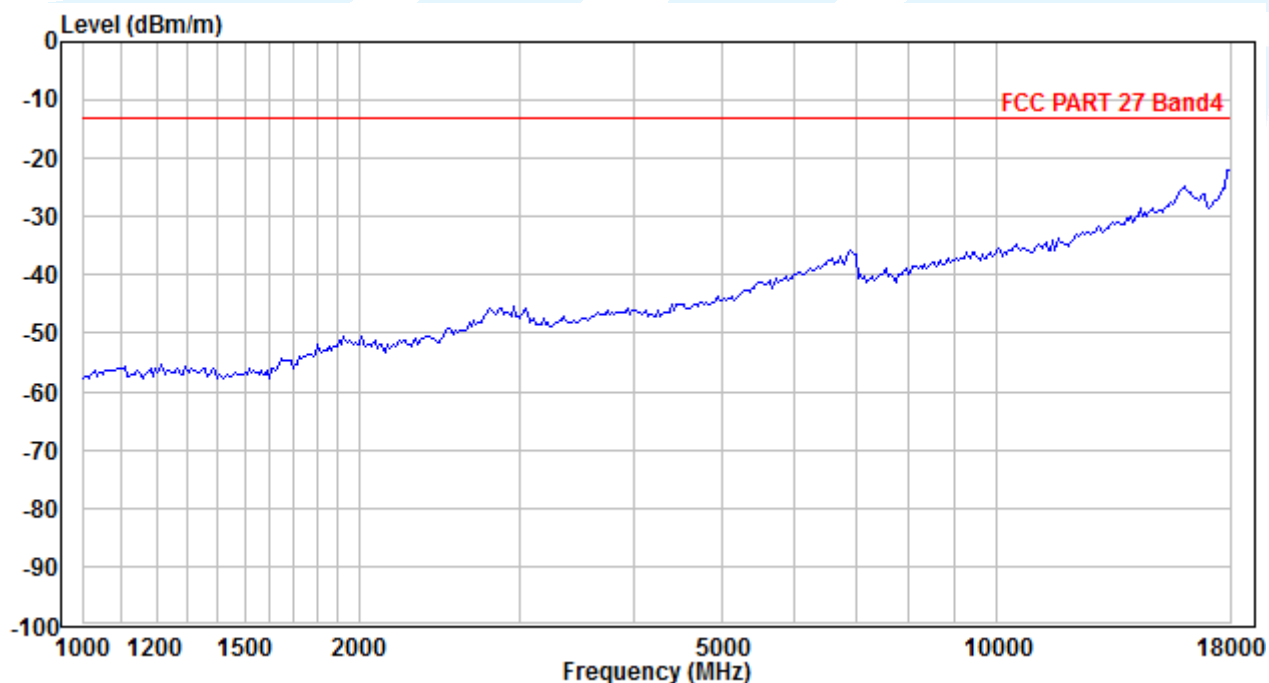
Spurious Emission Test Data (1 GHz ~ 18 GHz)

LTE Band 4

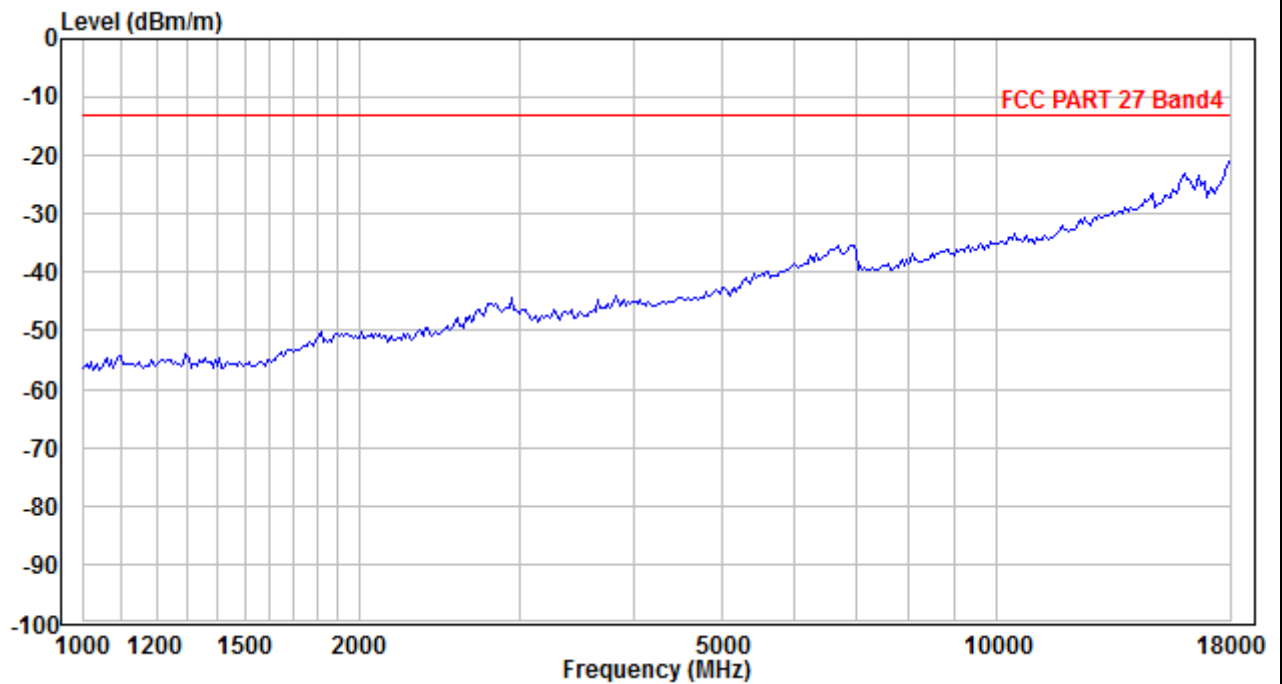
LTE Band 4; Bandwidth 1.4MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



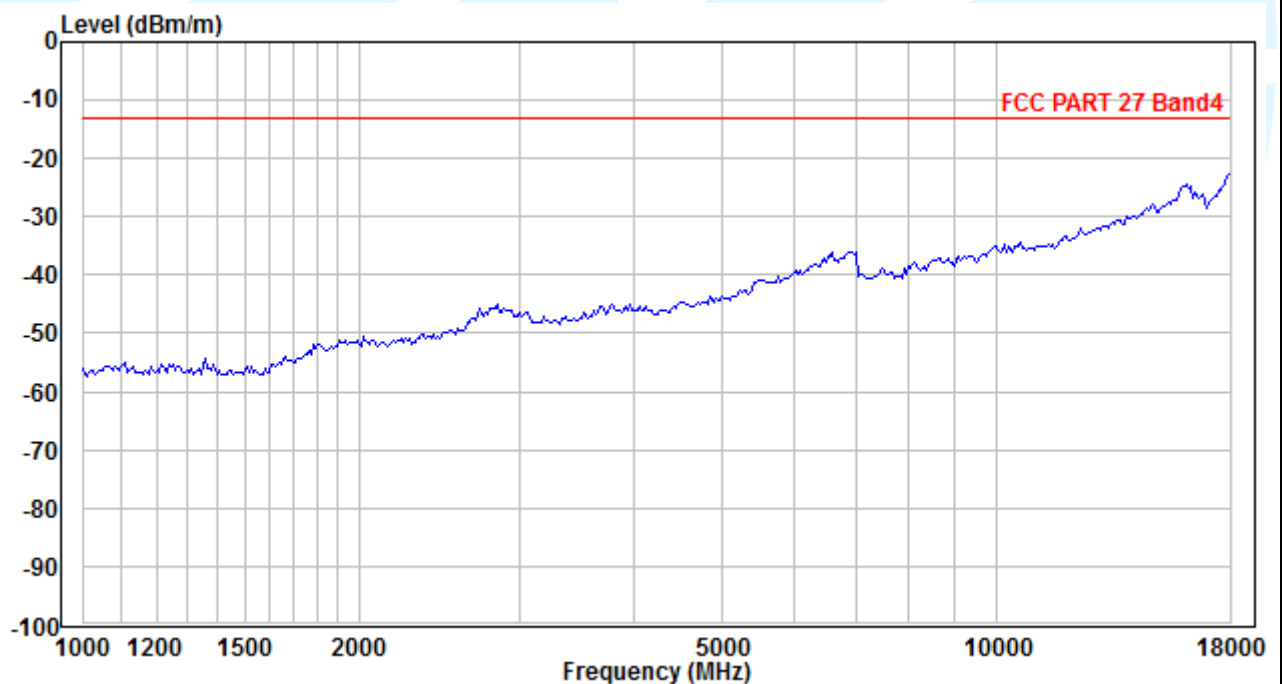
LTE Band 4; Bandwidth 1.4MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



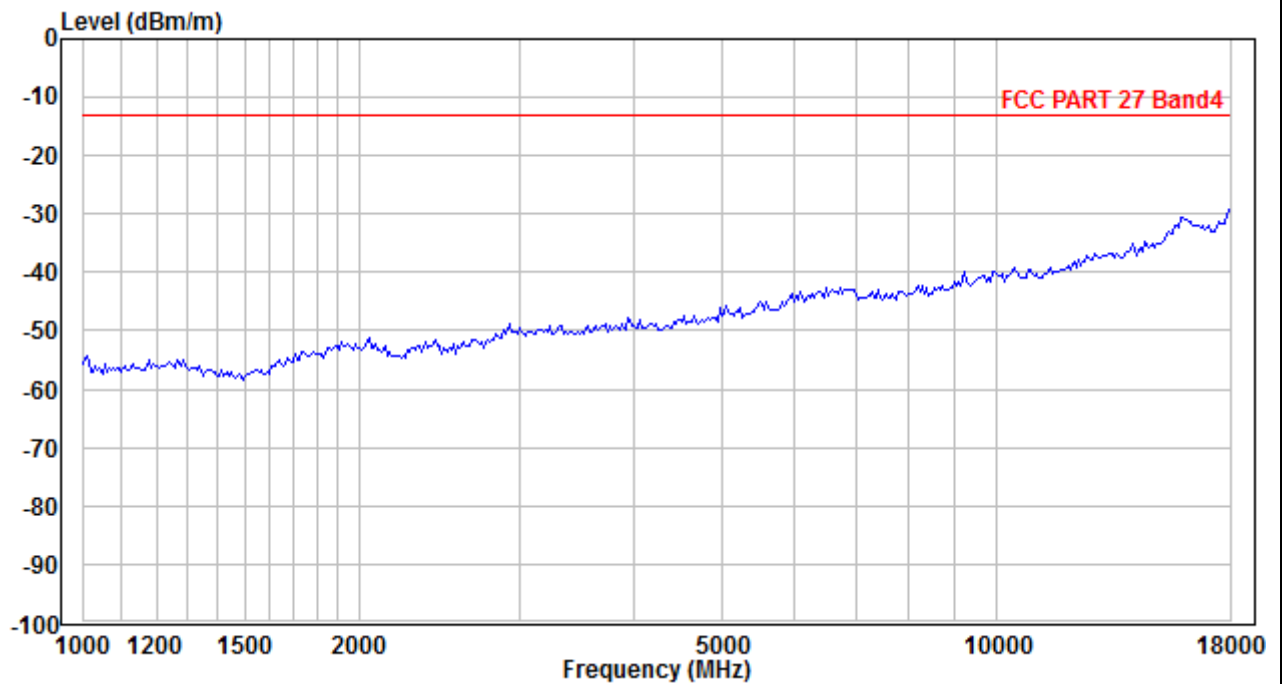
LTE Band 4; Bandwidth 3MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



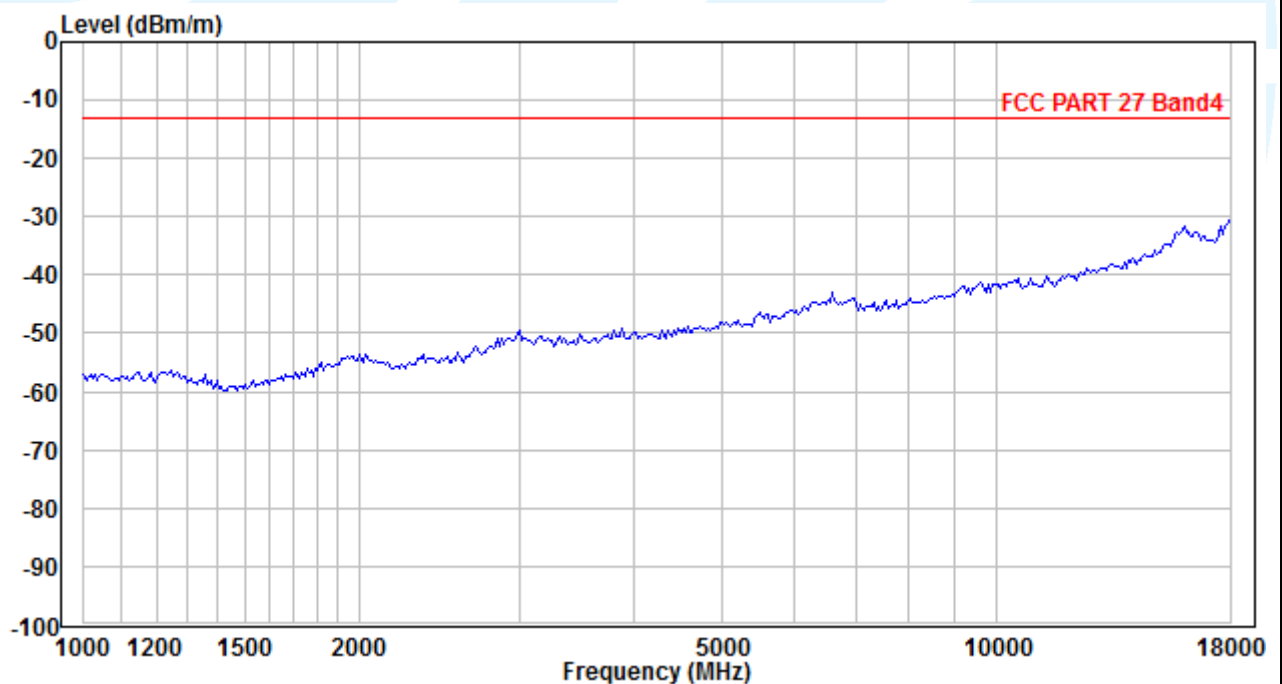
LTE Band 4; Bandwidth 3MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



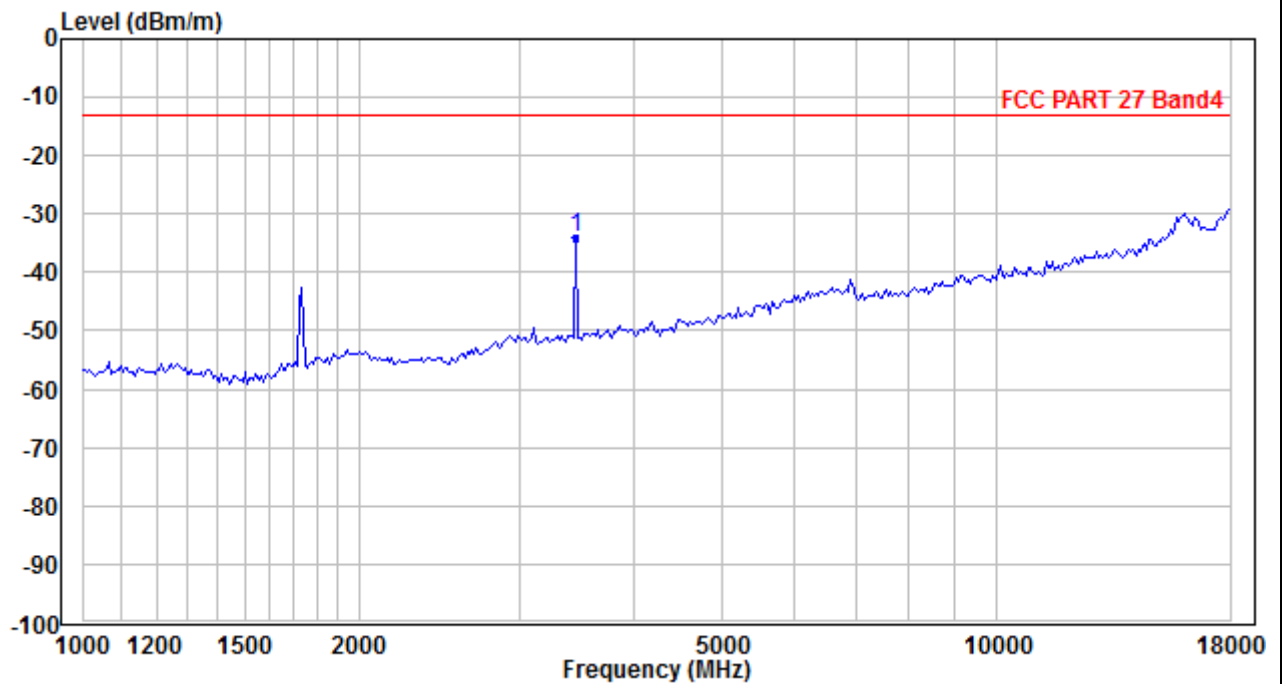
LTE Band 4; Bandwidth 5MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



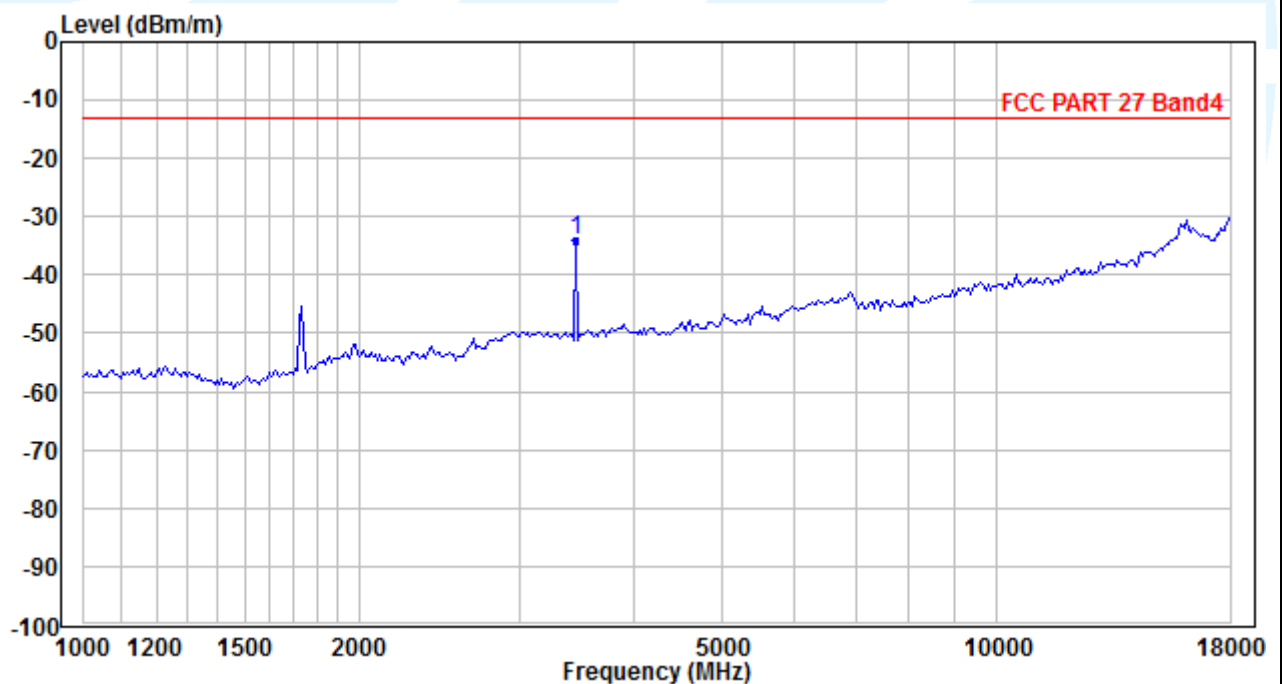
LTE Band 4; Bandwidth 5MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



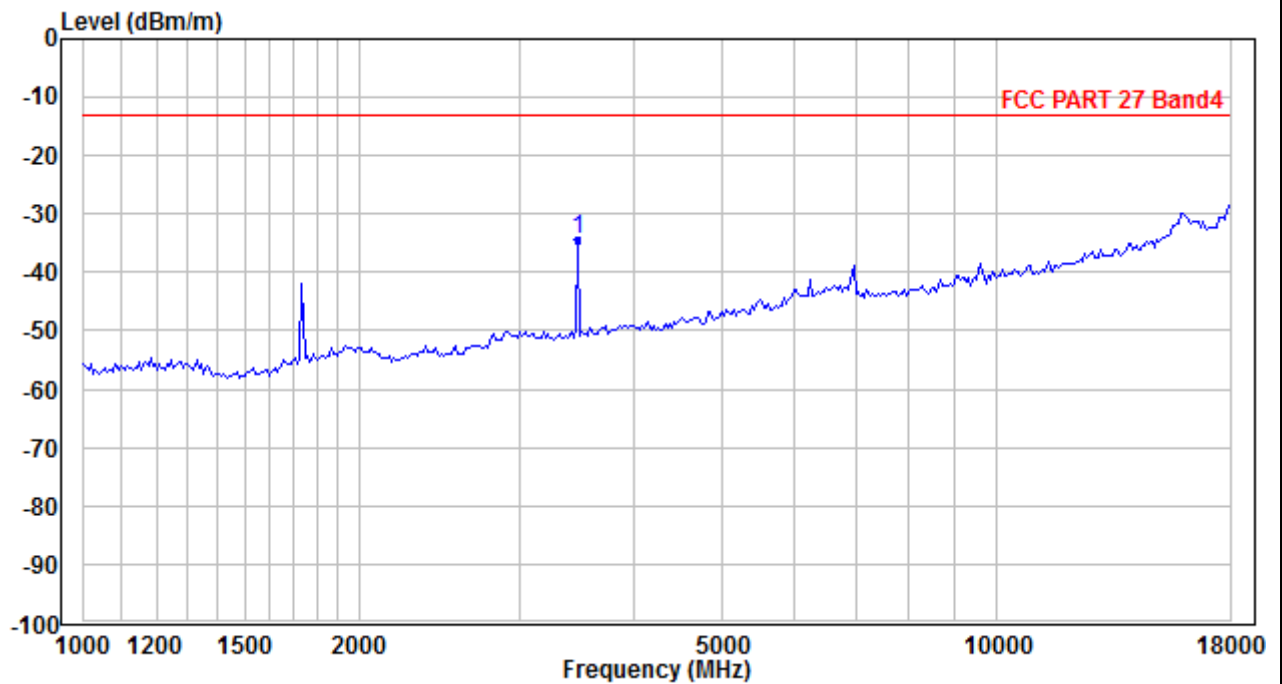
LTE Band 4; Bandwidth 10MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



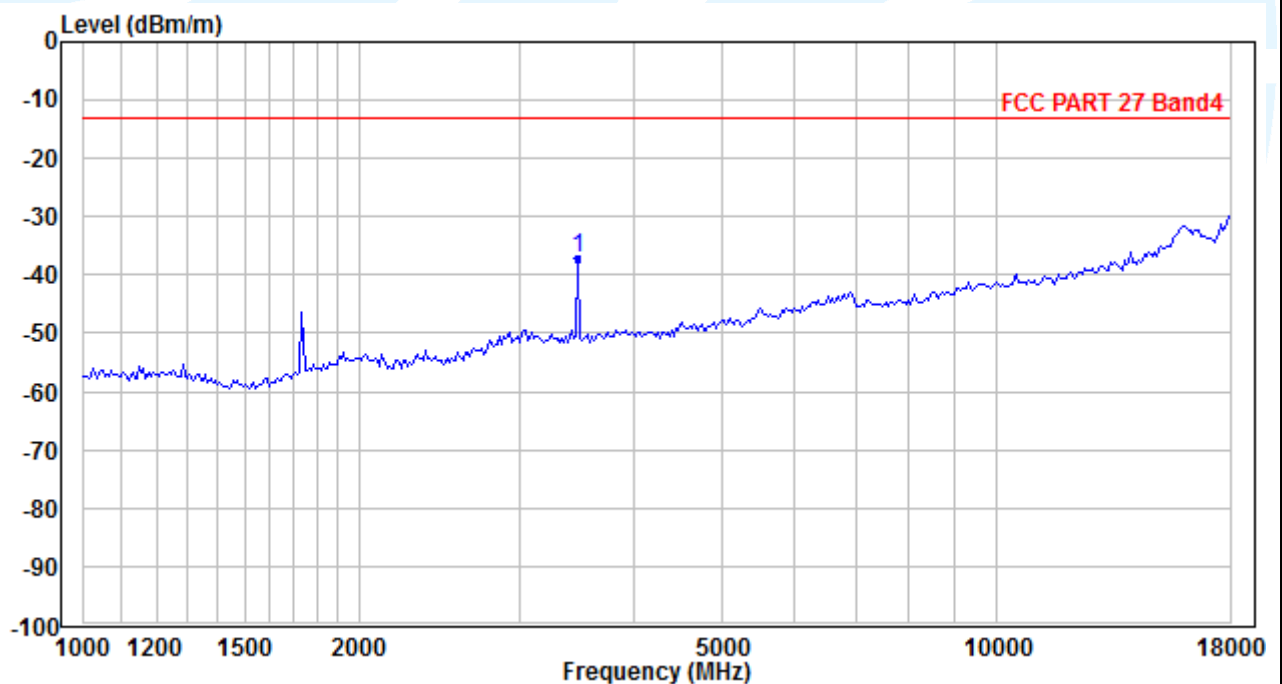
LTE Band 4; Bandwidth 10MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



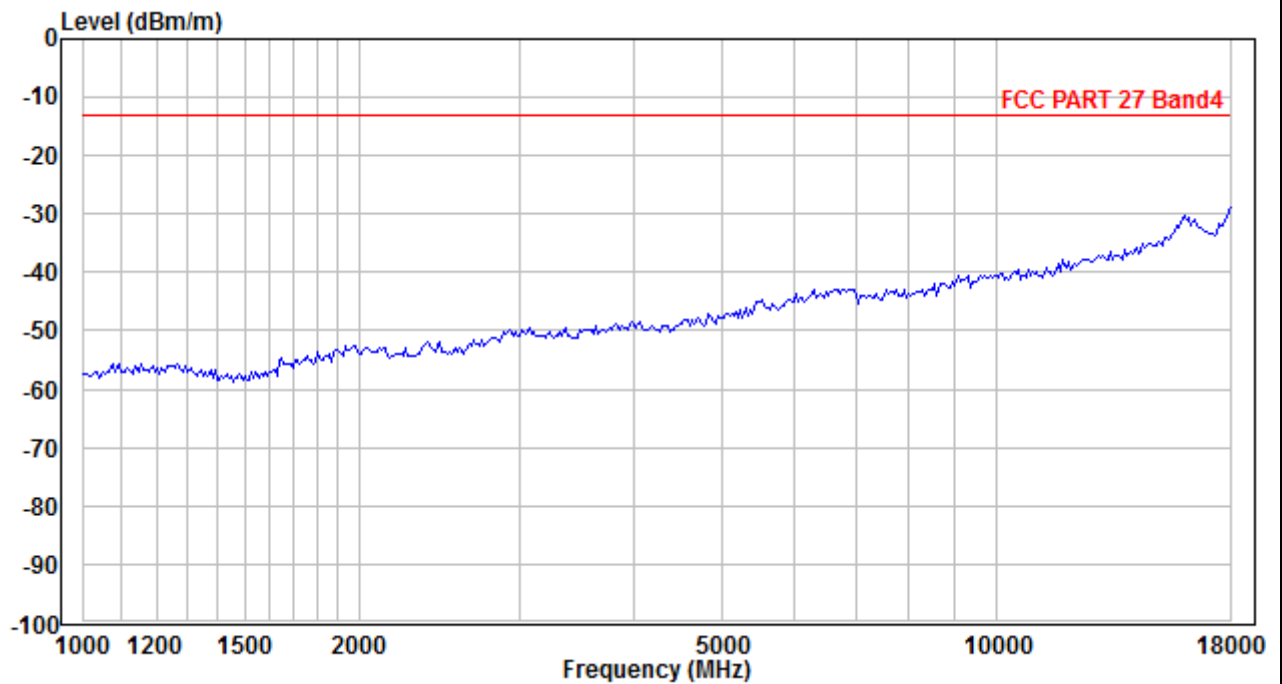
LTE Band 4; Bandwidth 15MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal



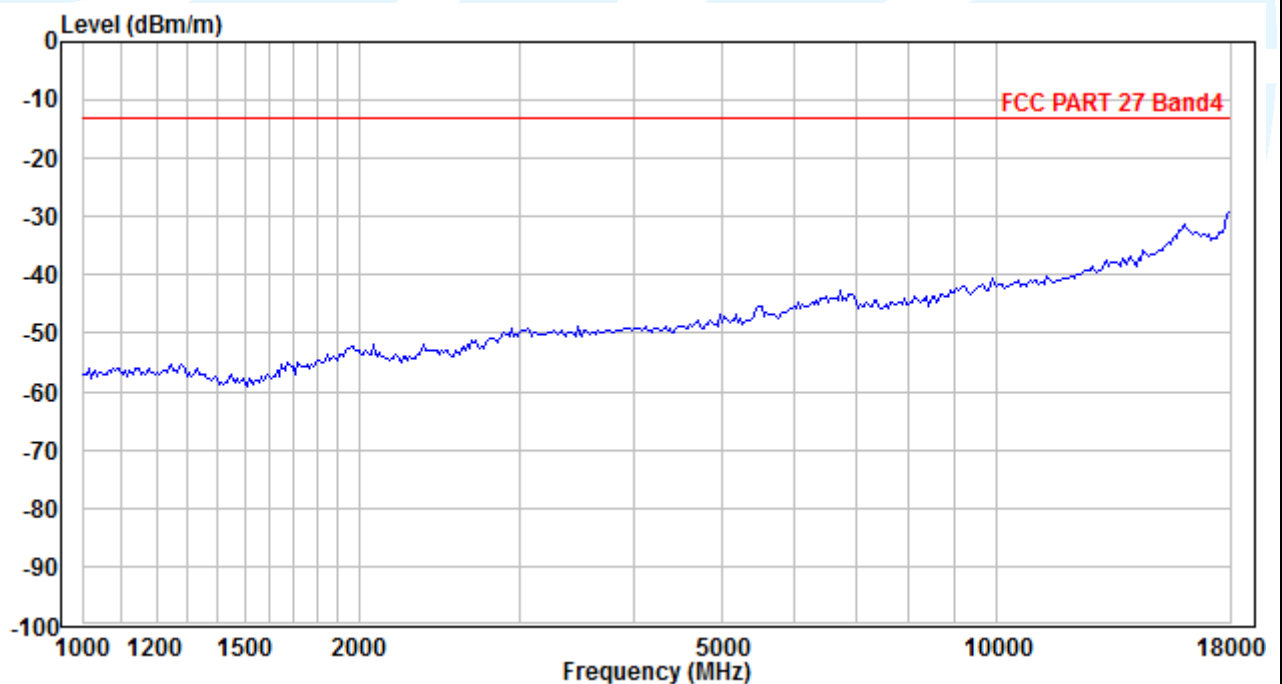
LTE Band 4; Bandwidth 15MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical



LTE Band 4; Bandwidth 20MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Horizontal

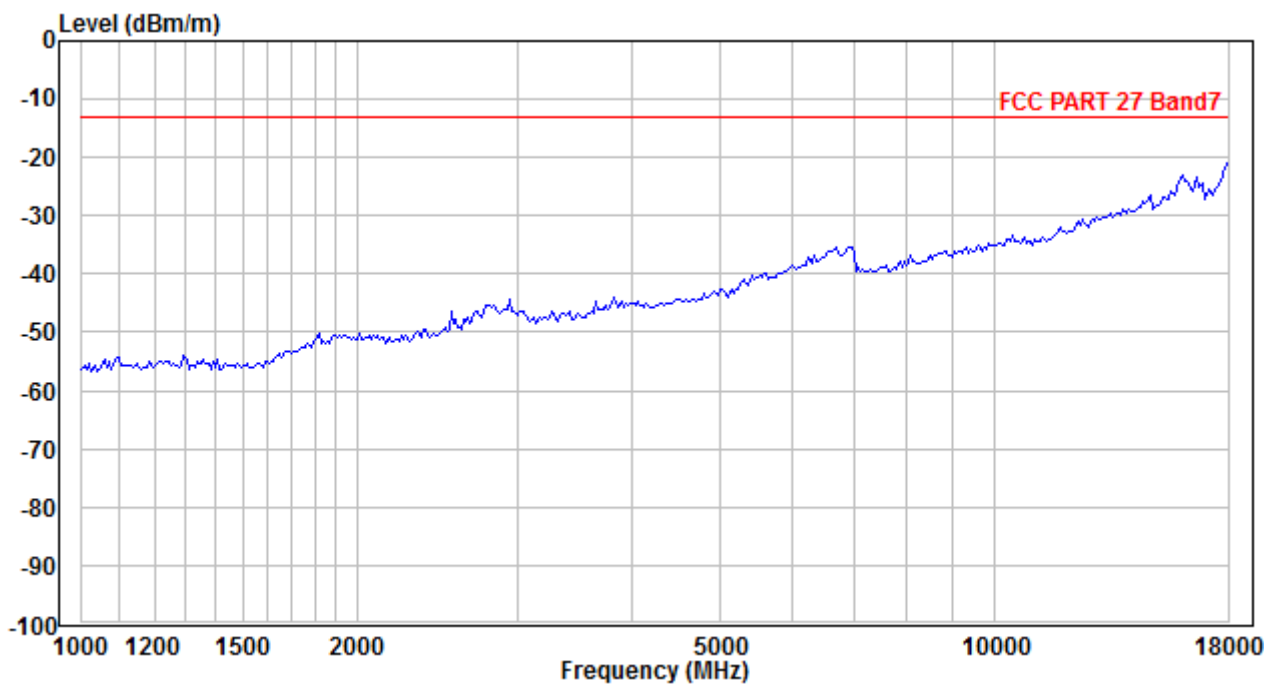


LTE Band 4; Bandwidth 20MHz; Modulation: QPSK; RB:1; Mid Channel: 20175/1732.5MHz_Vertical

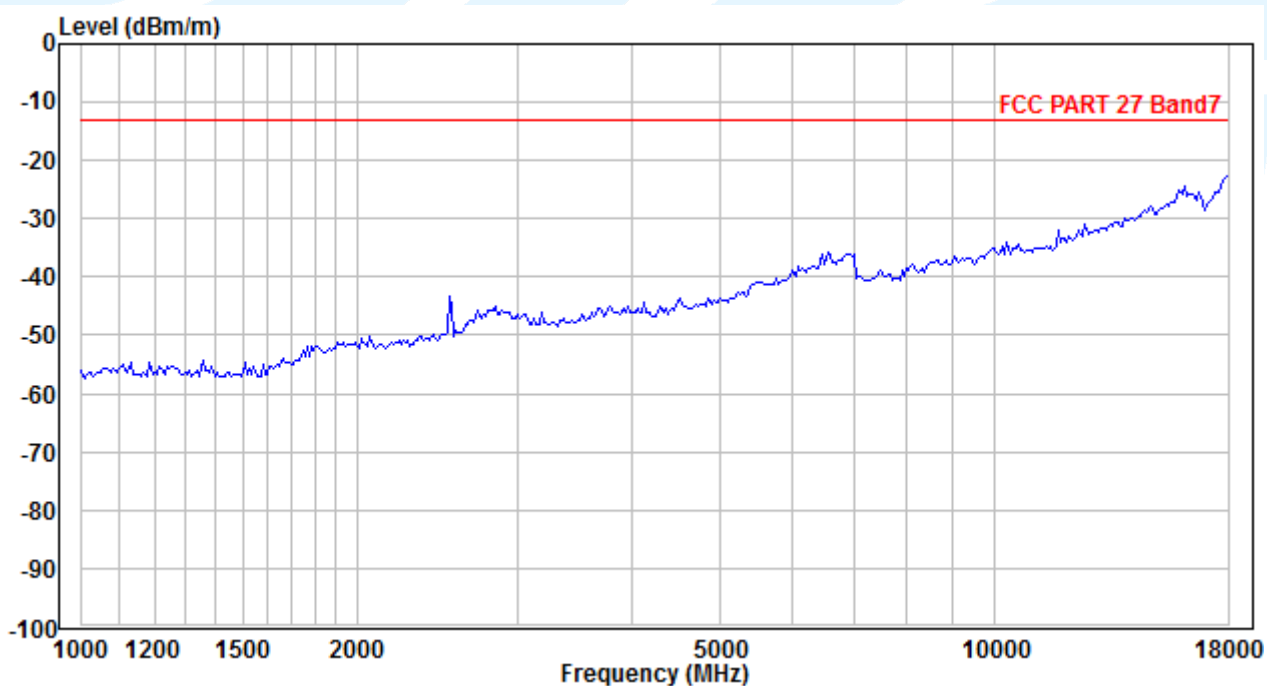


LTE Band 7

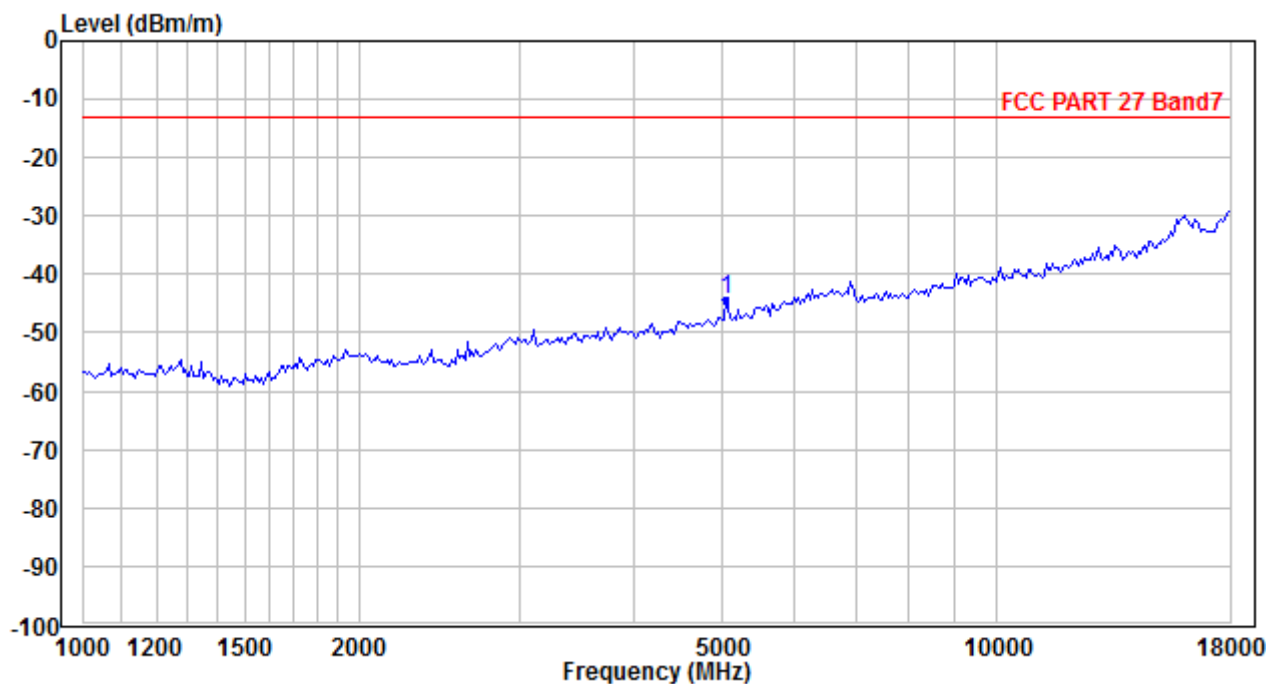
LTE Band 7; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



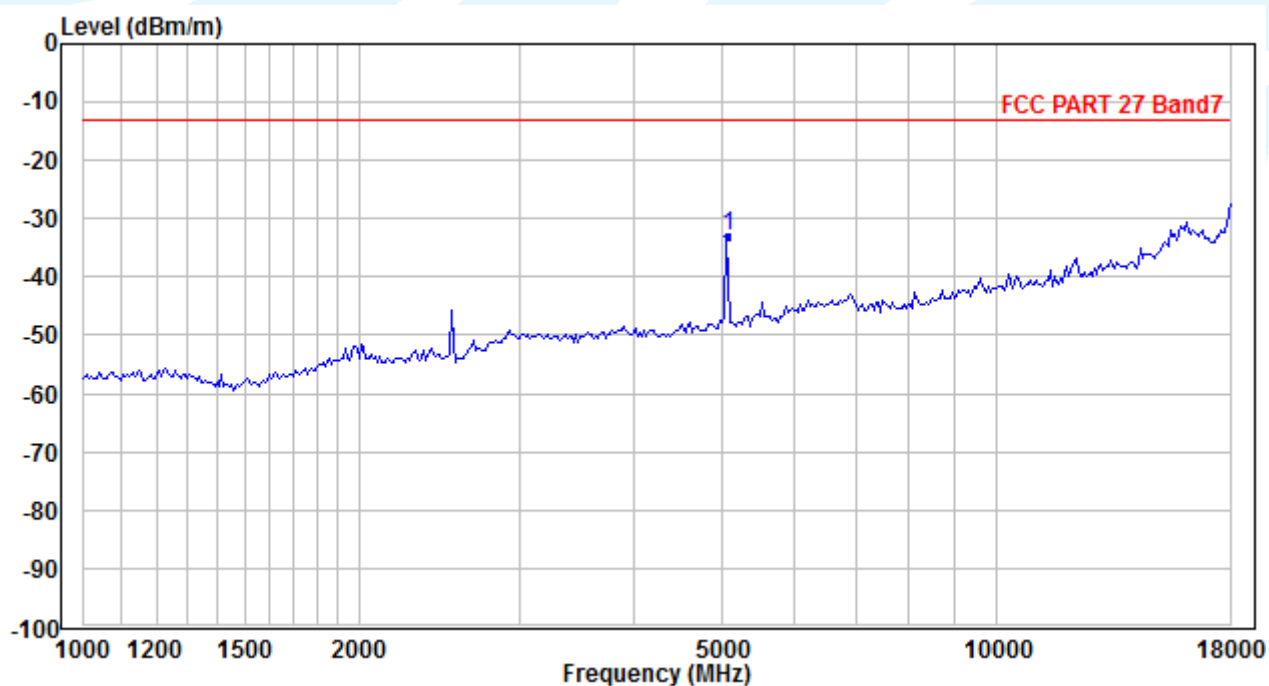
LTE Band 7; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



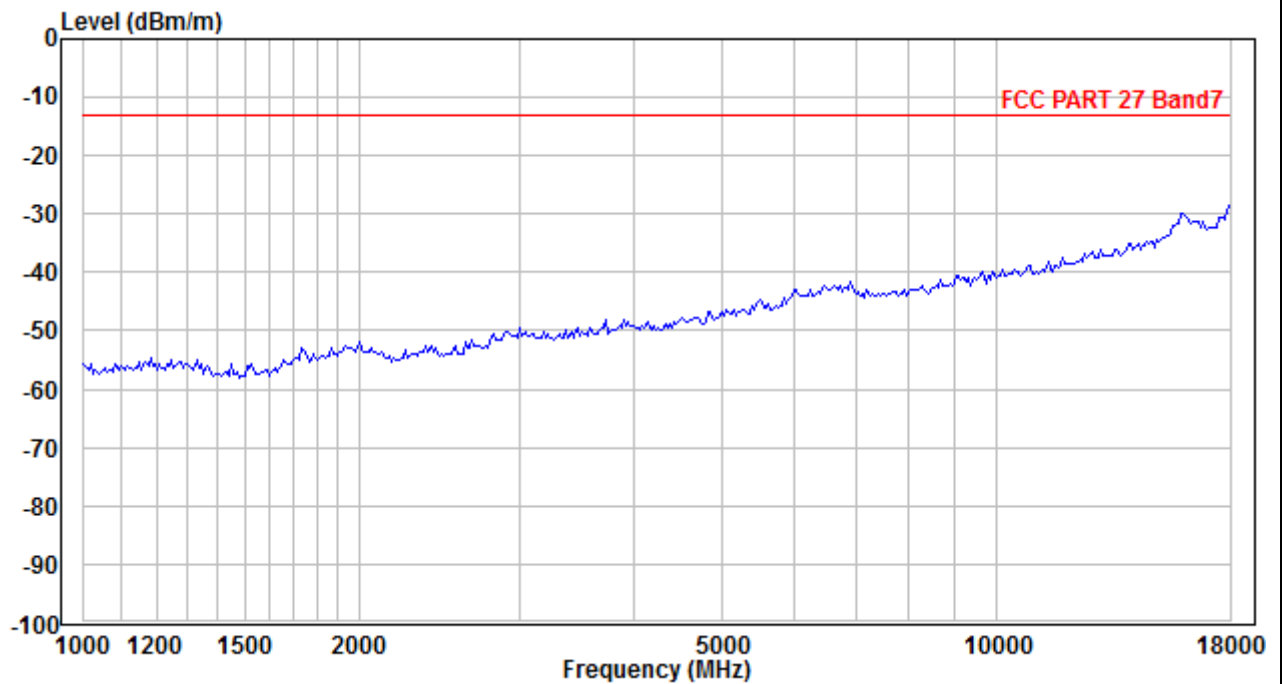
LTE Band 7; Bandwidth 10 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Horizontal



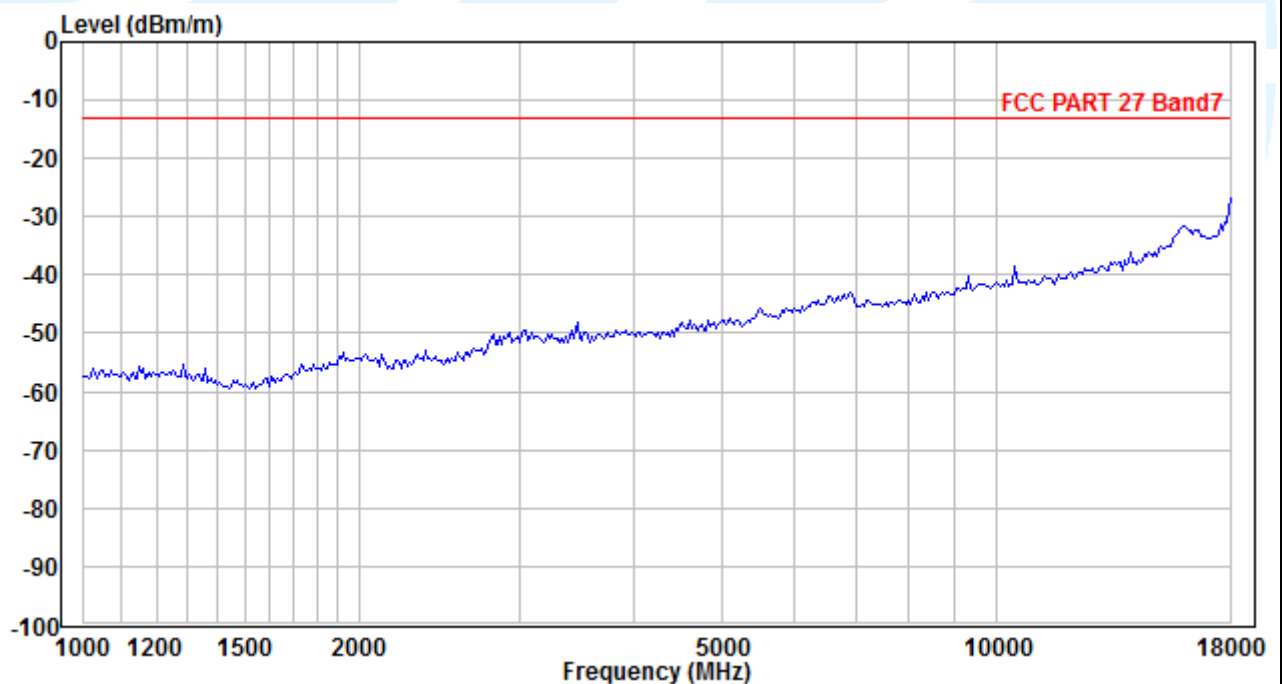
LTE Band 7; Bandwidth 10 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



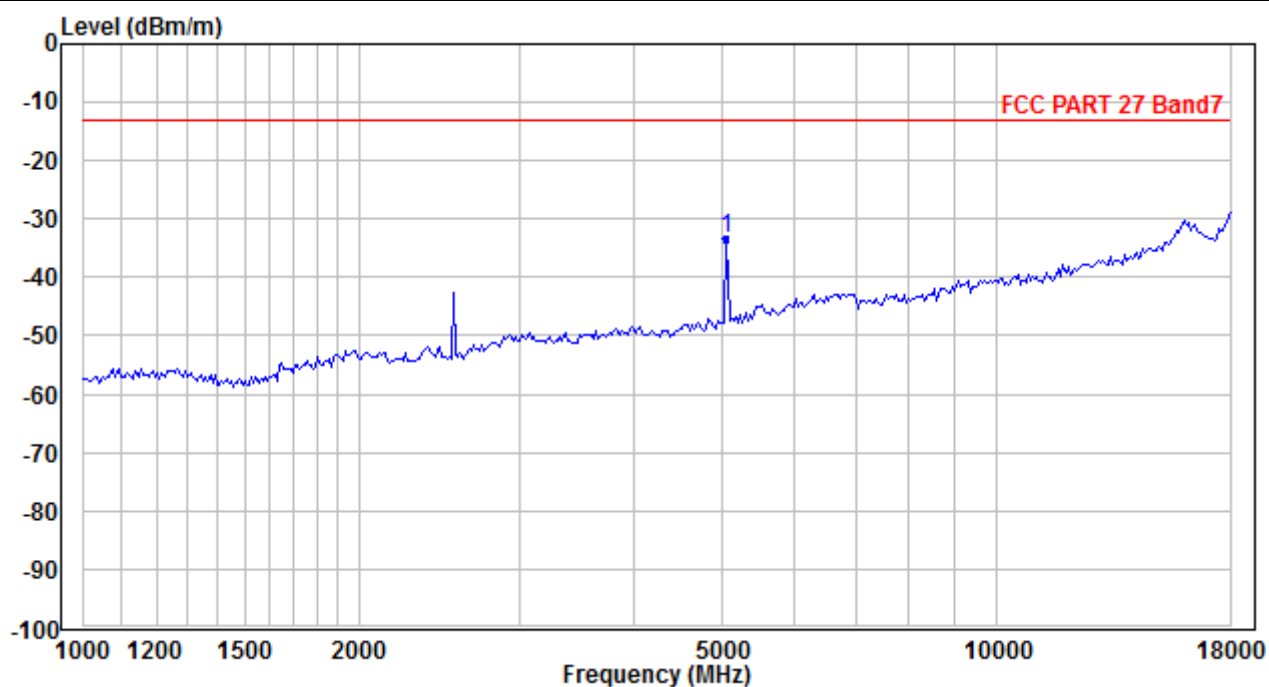
LTE Band 7; Bandwidth 15 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



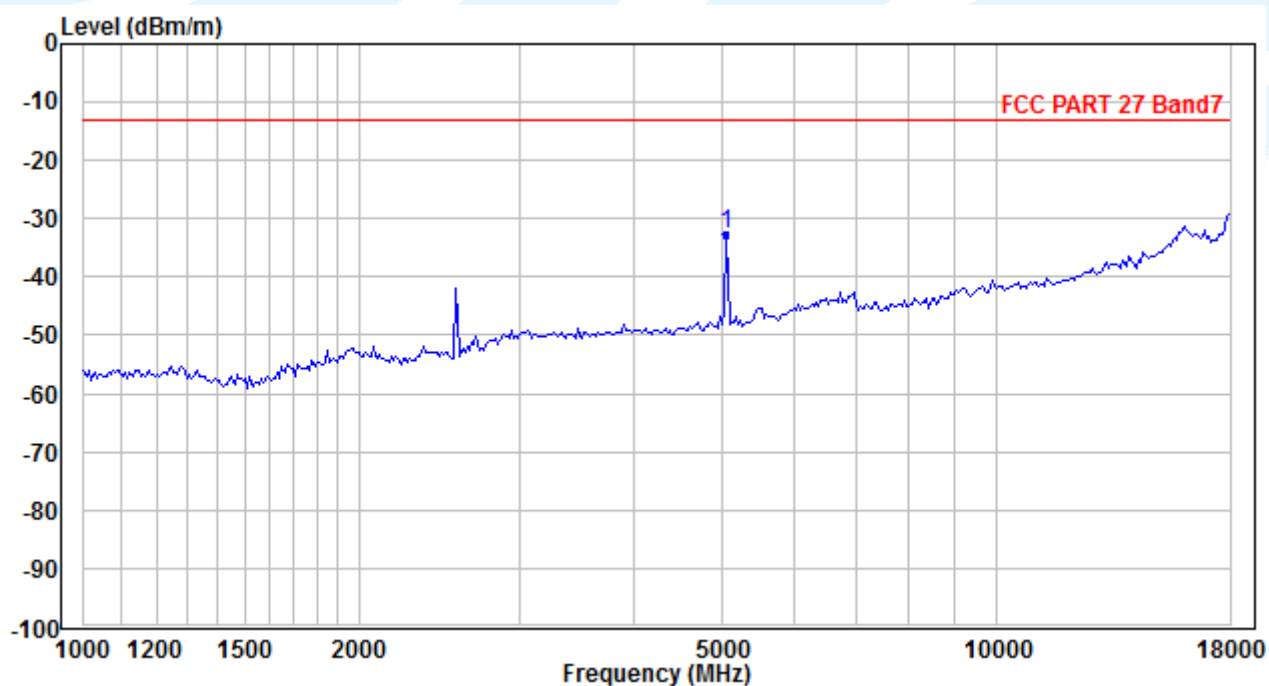
LTE Band 7; Bandwidth 15 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



LTE Band 7; Bandwidth 20 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal

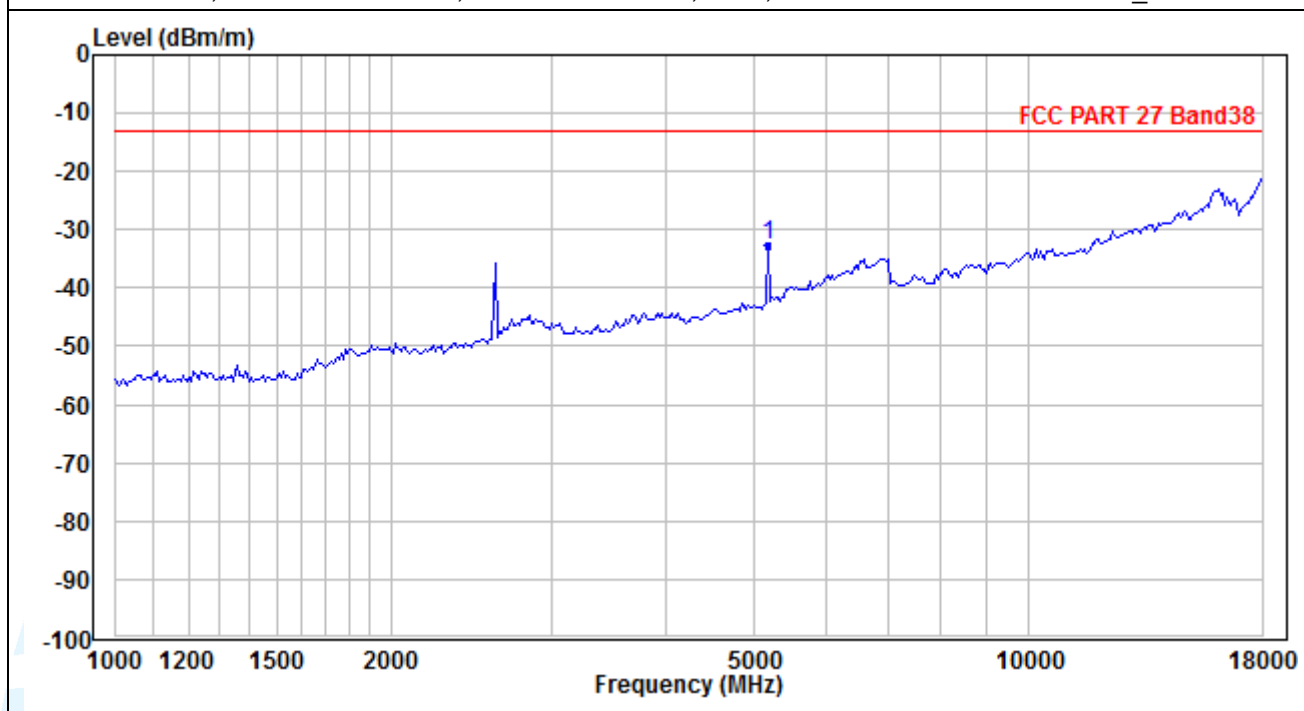


LTE Band 7; Bandwidth 20 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical

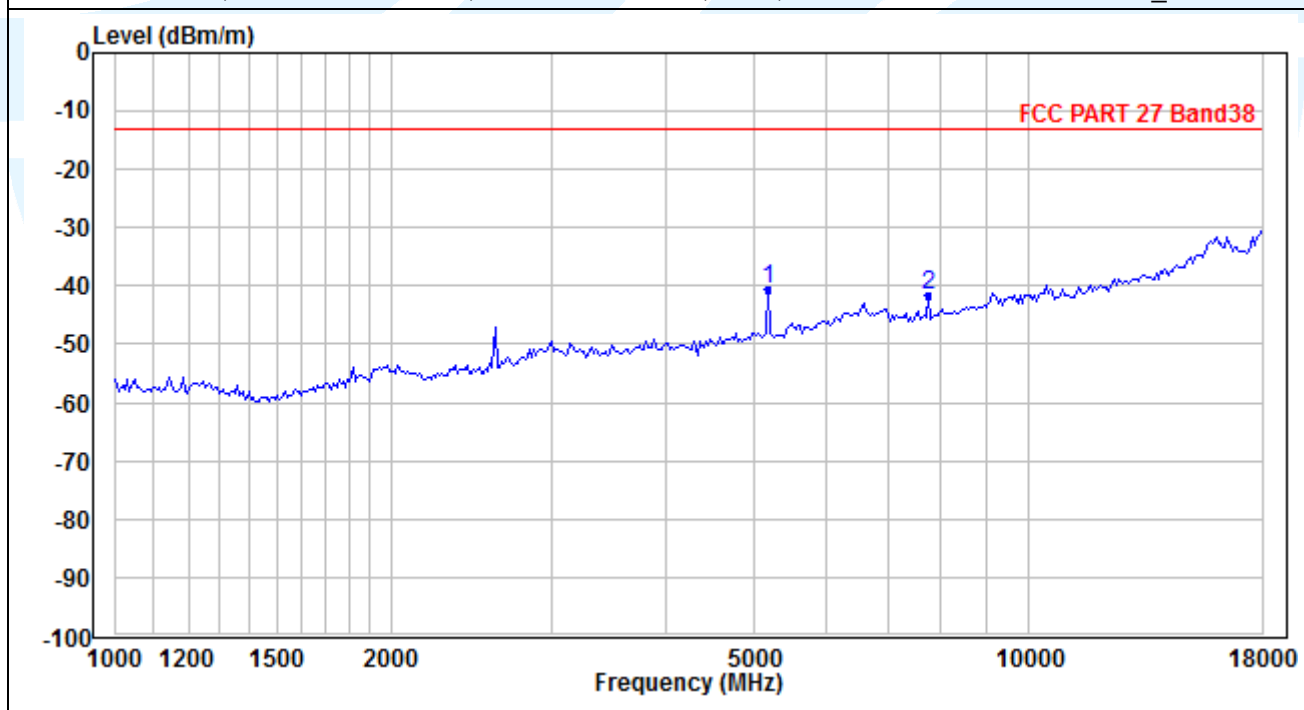


LTE Band 38

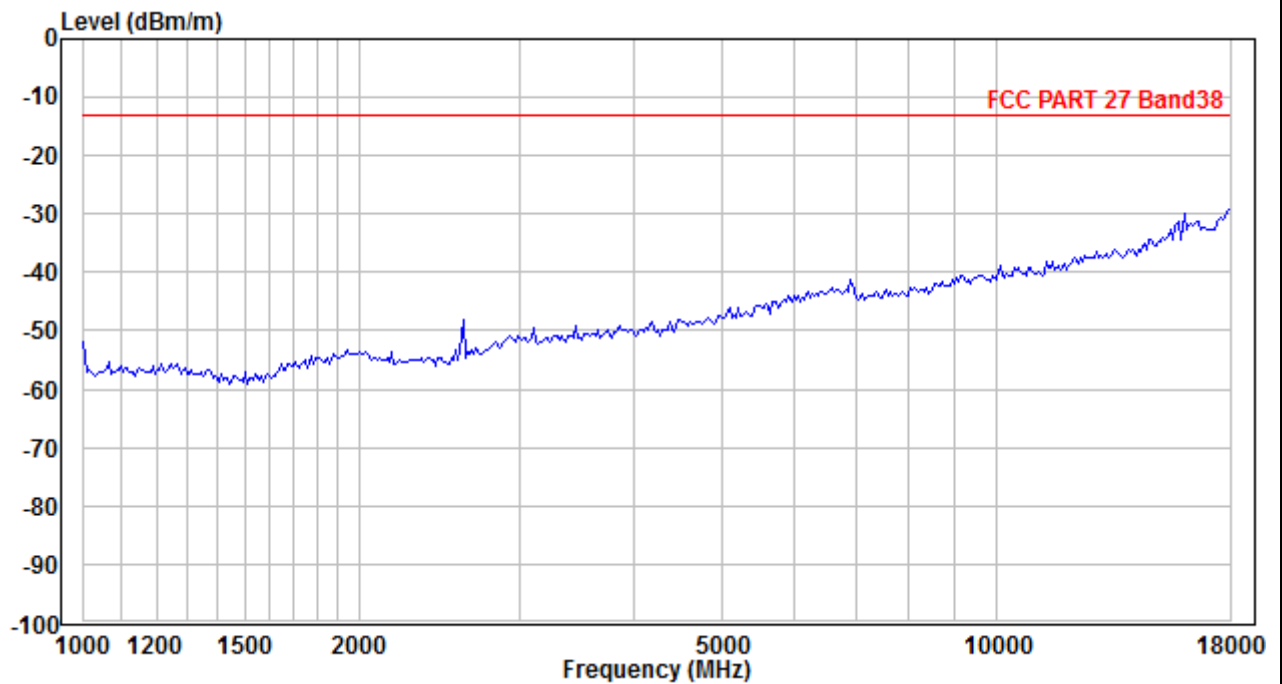
LTE Band 38; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1; Mid Channel: 40620/2593MHz_Horizontal



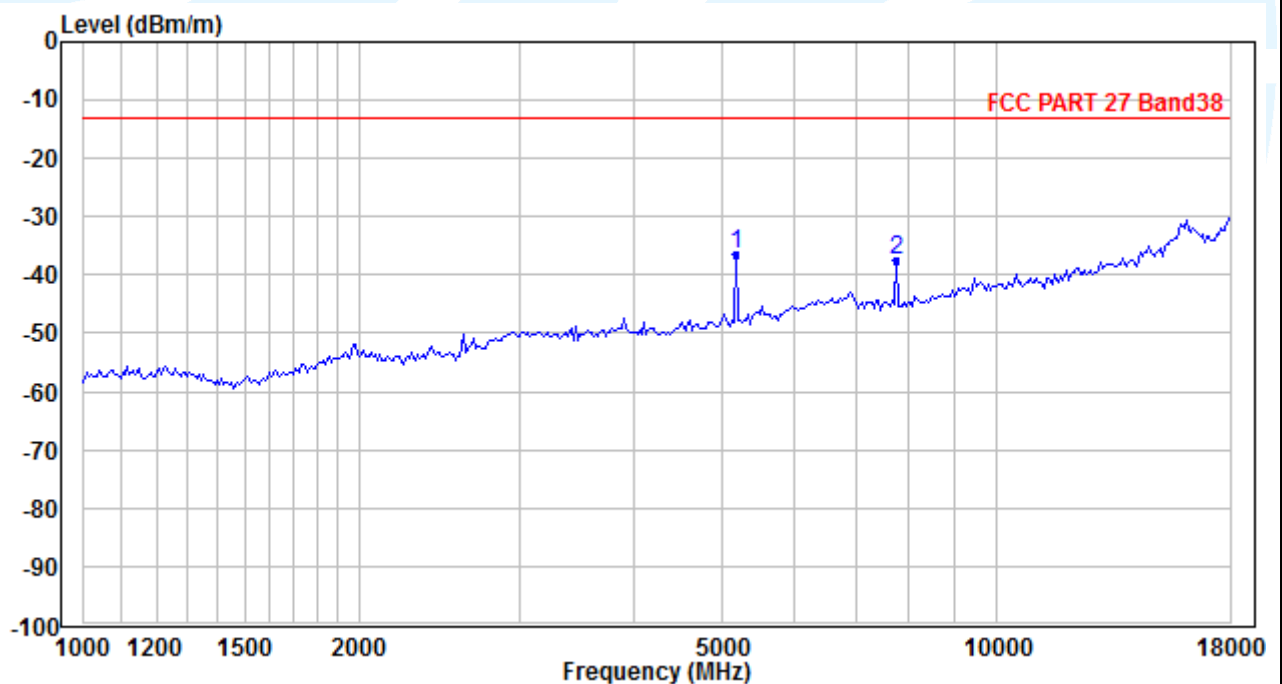
LTE Band 38; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1; Mid Channel: 40620/2593MHz_Vertical



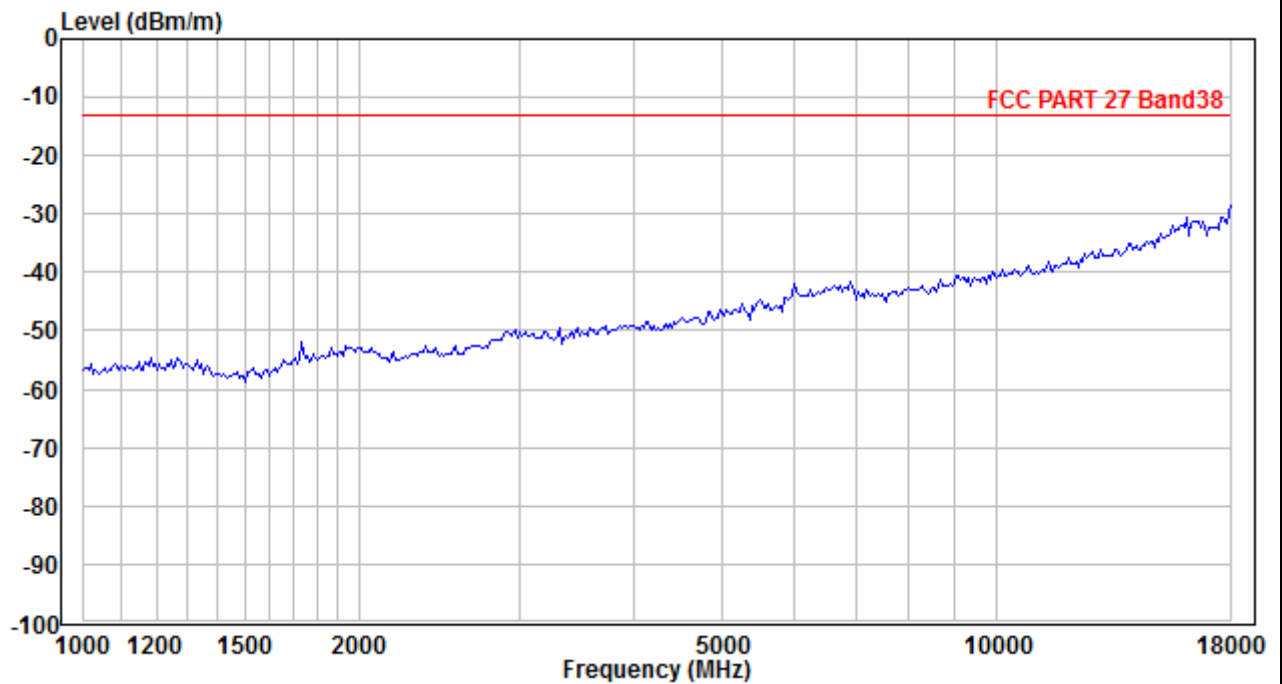
LTE Band 38; Bandwidth 10 MHz; Modulation: QPSK; RB:1;Mid Channel: 40620/2593MHz_Horizontal



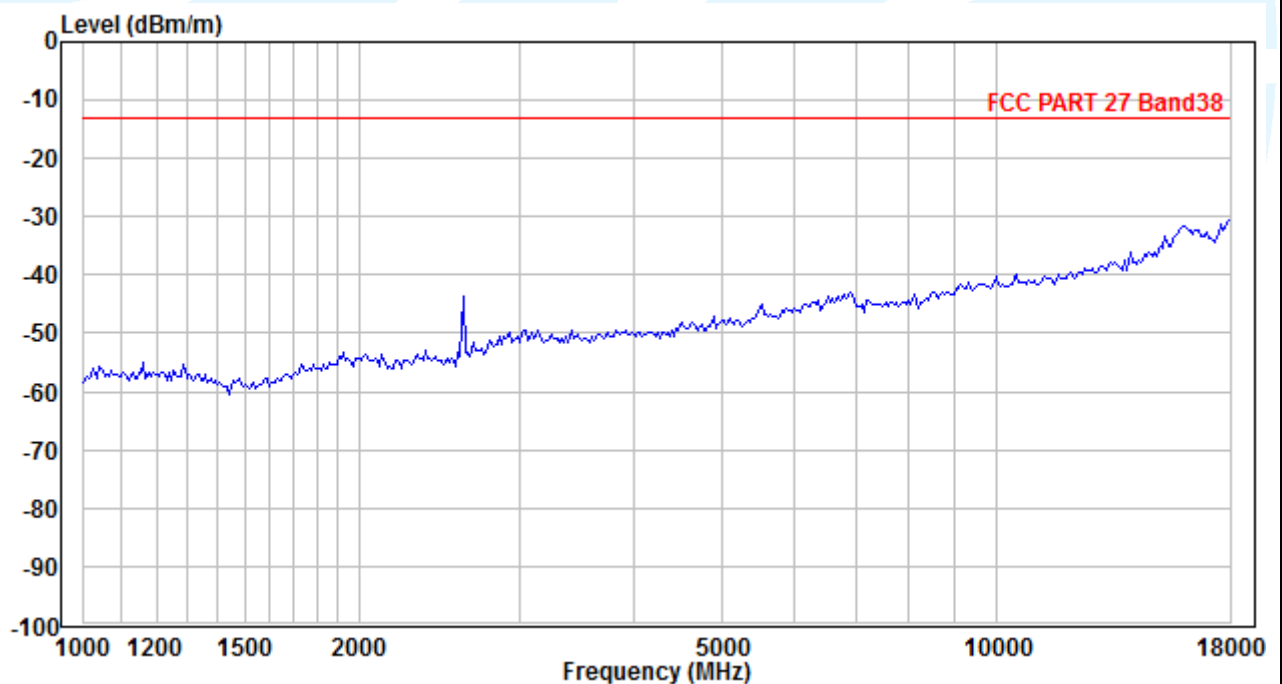
LTE Band 38; Bandwidth 10 MHz; Modulation: QPSK; RB:1; Mid Channel: 40620/2593MHz_Vertical



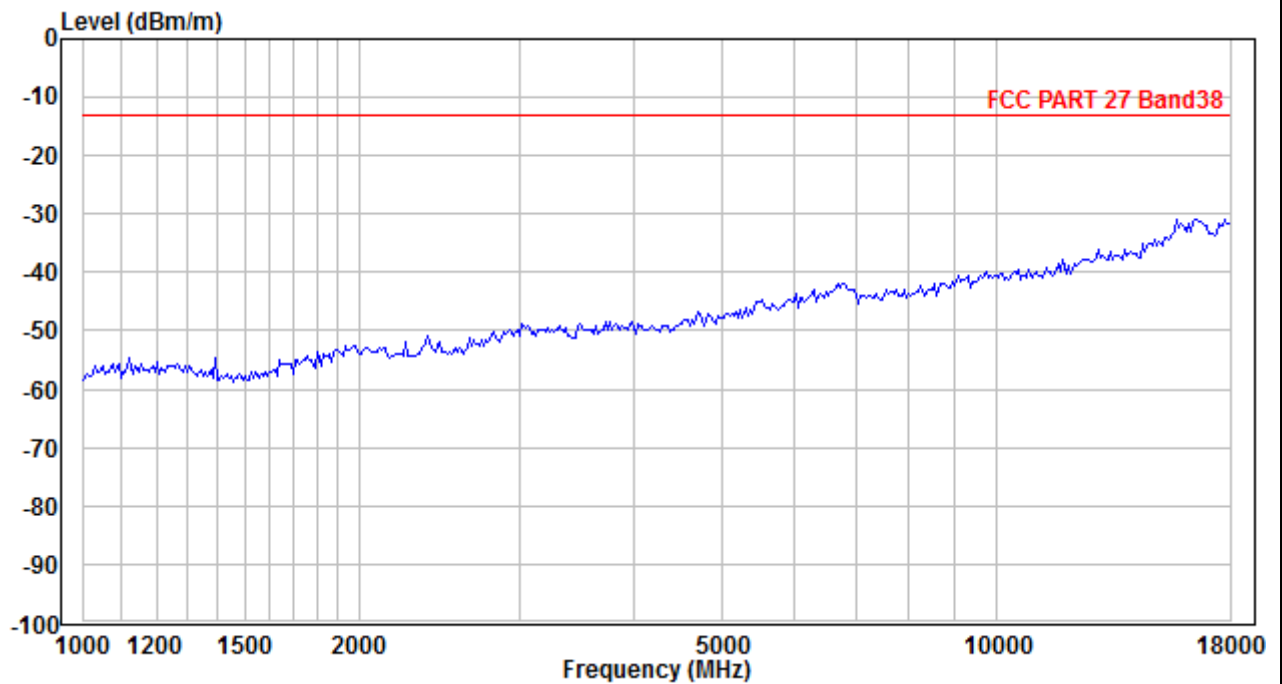
LTE Band 38; Bandwidth 15 MHz; Modulation: QPSK; RB:1;Mid Channel: 40620/2593MHz_Horizontal



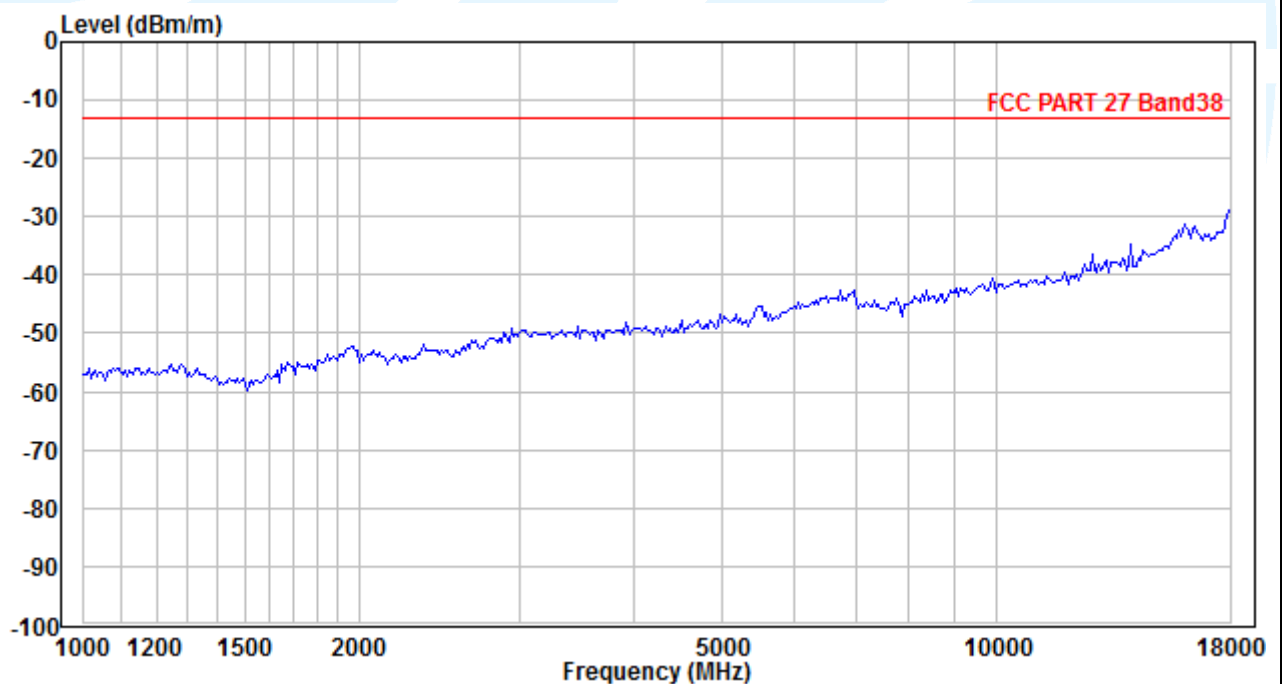
LTE Band 38; Bandwidth 15 MHz; Modulation: QPSK; RB:1; Mid Channel: 40620/2593MHz_Vertical



LTE Band 38; Bandwidth 20 MHz; Modulation: QPSK; RB:1;Mid Channel: 40620/2593MHz_Horizontal



LTE Band 38; Bandwidth 20 MHz; Modulation: QPSK; RB:1; Mid Channel: 40620/2593MHz_Vertical



5.8 Frequency stability

Test Requirement:	FCC 47 CFR Part 2.1055 & Part 24.235
Test Method:	ANSI/TIA/EIA-603-D 2010 & KDB 971168 D01v02r02
Limit:	The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.
Test Procedure:	- Use CMW 500 or CMU 200 with Frequency Error measurement capability. - Temp. = -20° to +50°C - Voltage = low voltage, 3.4Vdc, Normal, 3.85Vdc and High voltage, 4.4Vdc. - Frequency Stability vs Temperature: The EUT is place inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50°C is reached. - Frequency Stability vs Voltage: The peak frequency error is recorded (worst-case).
Test Setup:	Refer to section 4.1.1(3) for details.
Instruments Used:	Refer to section 3 for details
Test Mode:	Link mode
Test Results:	Pass
Test Data:	

LTE Band 4

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Pass/ Fail
LTE Band 4; Channel Bandwidth: 20 MHz							
QPSK	20175/ 1732.5	3.4	Normal	36	0.021	± 2.5	PASS
		3.85		32	0.018	± 2.5	PASS
		4.4		35	0.020	± 2.5	PASS
		3.85	50	38	0.022	± 2.5	PASS
			40	36	0.021	± 2.5	PASS
			30	32	0.018	± 2.5	PASS
			20	32	0.018	± 2.5	PASS
			10	35	0.020	± 2.5	PASS
			0	36	0.021	± 2.5	PASS
			-10	38	0.022	± 2.5	PASS
			-20	41	0.024	± 2.5	PASS

LTE Band 7

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Pass/ Fail
LTE Band 7; Channel Bandwidth: 20 MHz							
QPSK	21100/ 2535	3.4	Normal	-25	-0.010	± 2.5	PASS
		3.85		-23	-0.009	± 2.5	PASS
		4.4		-26	-0.010	± 2.5	PASS
		3.85	50	-29	-0.011	± 2.5	PASS
			40	-27	-0.011	± 2.5	PASS
			30	-24	-0.009	± 2.5	PASS
			20	-24	-0.009	± 2.5	PASS
			10	-23	-0.009	± 2.5	PASS
			0	-23	-0.009	± 2.5	PASS
			-10	7	0.003	± 2.5	PASS
			-20	12	0.005	± 2.5	PASS

LTE Band 38

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Pass/ Fail
LTE Band 7; Channel Bandwidth: 20 MHz							
QPSK	38000/ 2595	3.4	Normal	-16	-0.006	± 2.5	PASS
		3.85		-14	-0.005	± 2.5	PASS
		4.4		-17	-0.007	± 2.5	PASS
		3.85	50	-20	-0.008	± 2.5	PASS
			40	-17	-0.007	± 2.5	PASS
			30	-15	-0.006	± 2.5	PASS
			20	-13	-0.005	± 2.5	PASS
			10	-11	-0.004	± 2.5	PASS
			0	4	0.002	± 2.5	PASS
			-10	9	0.003	± 2.5	PASS
			-20	12	0.005	± 2.5	PASS

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

APPENDIX 2 PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photographs.

*** End of Report ***

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.