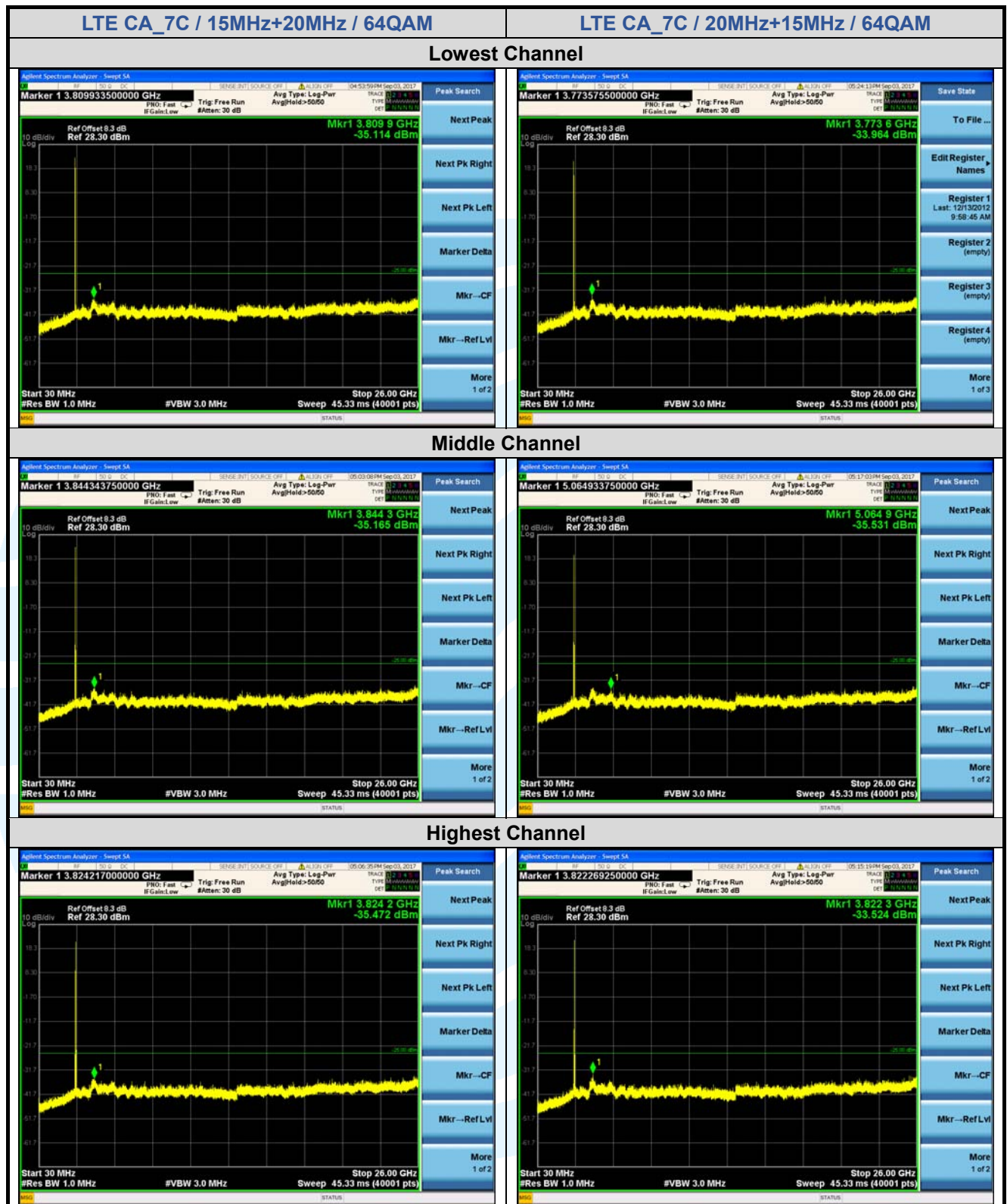
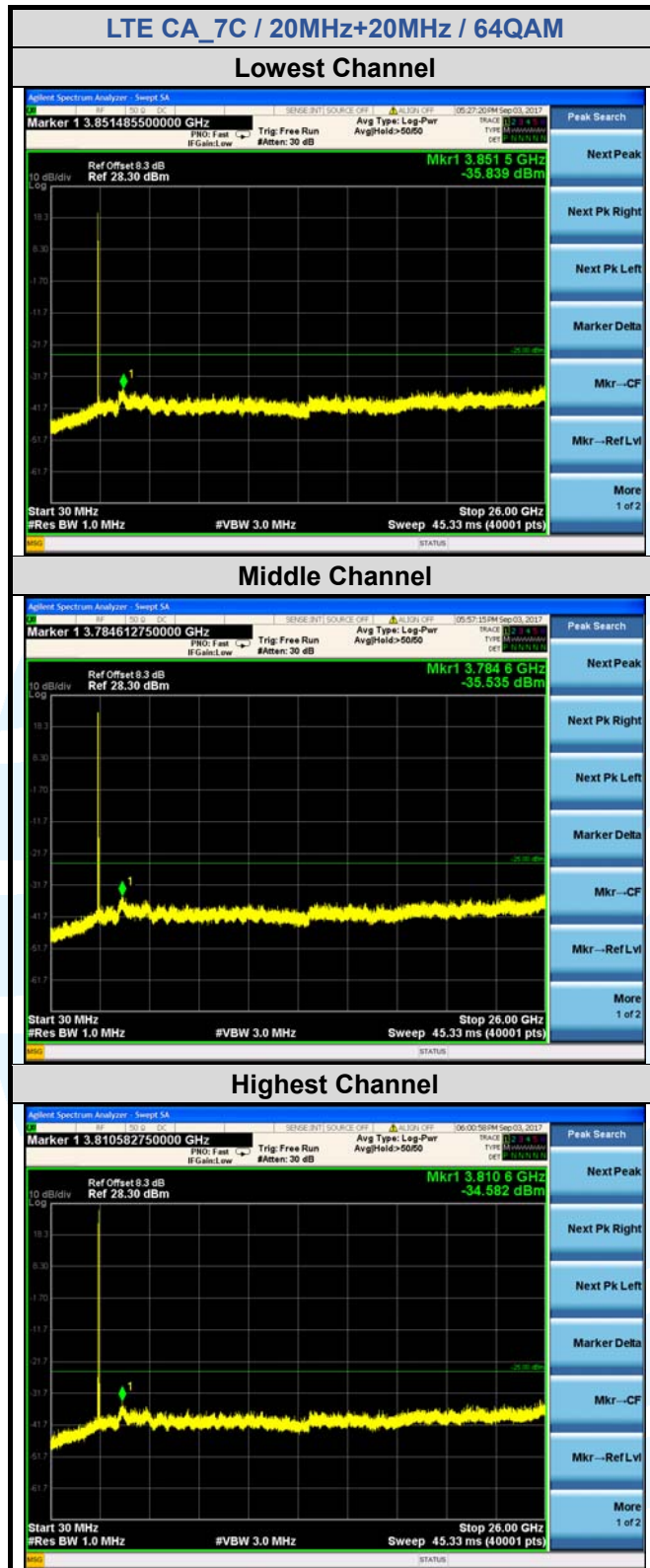
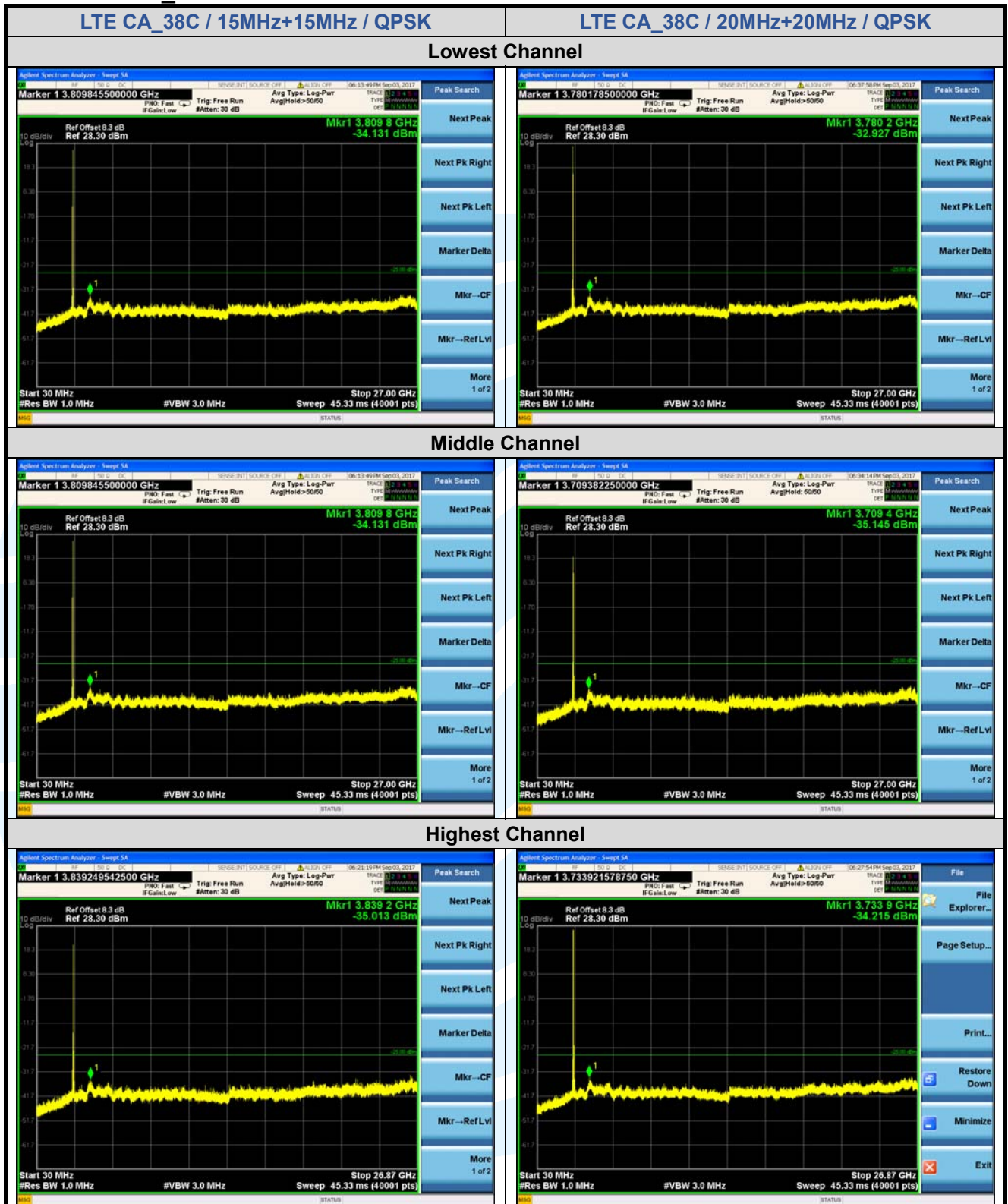
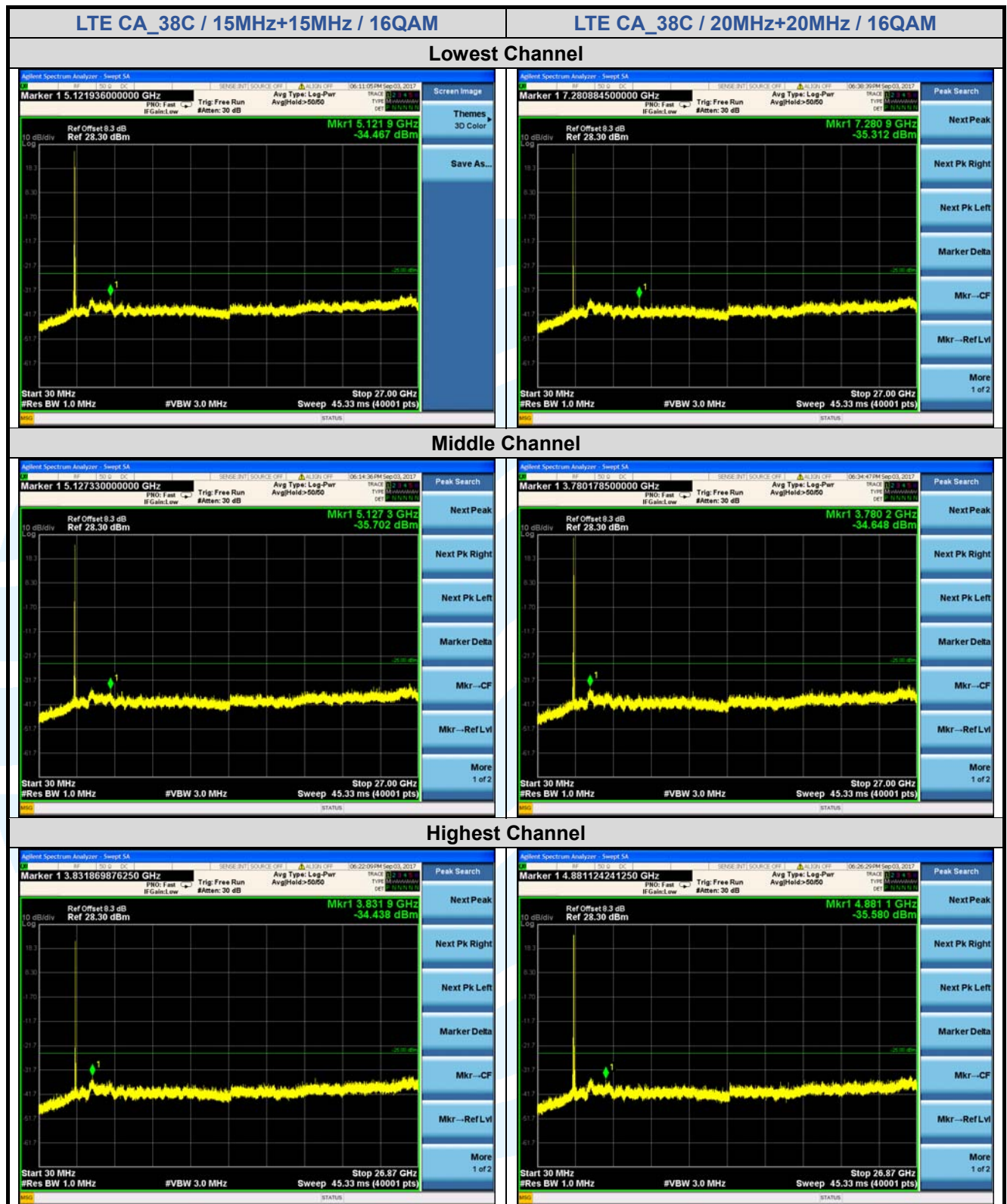


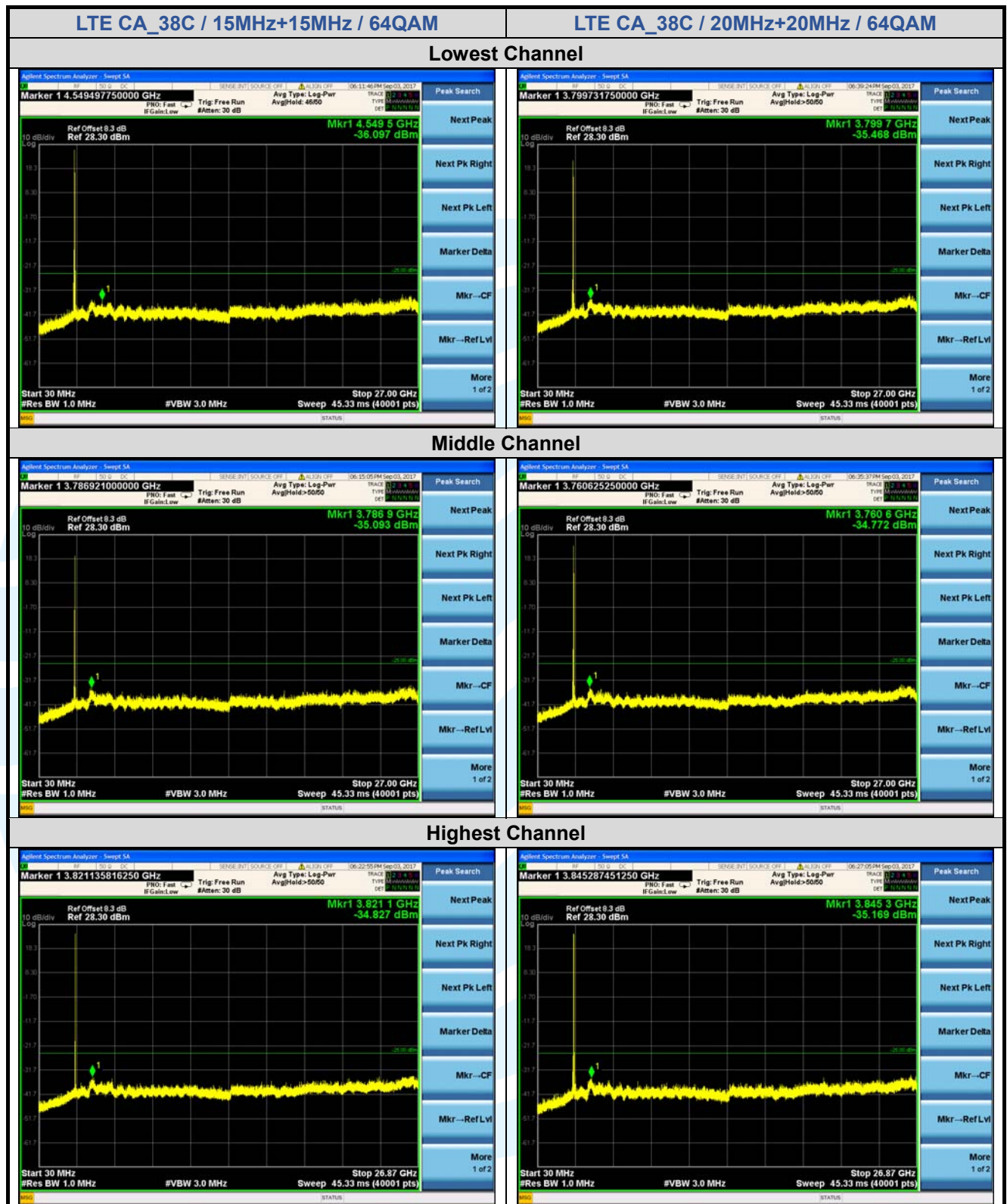




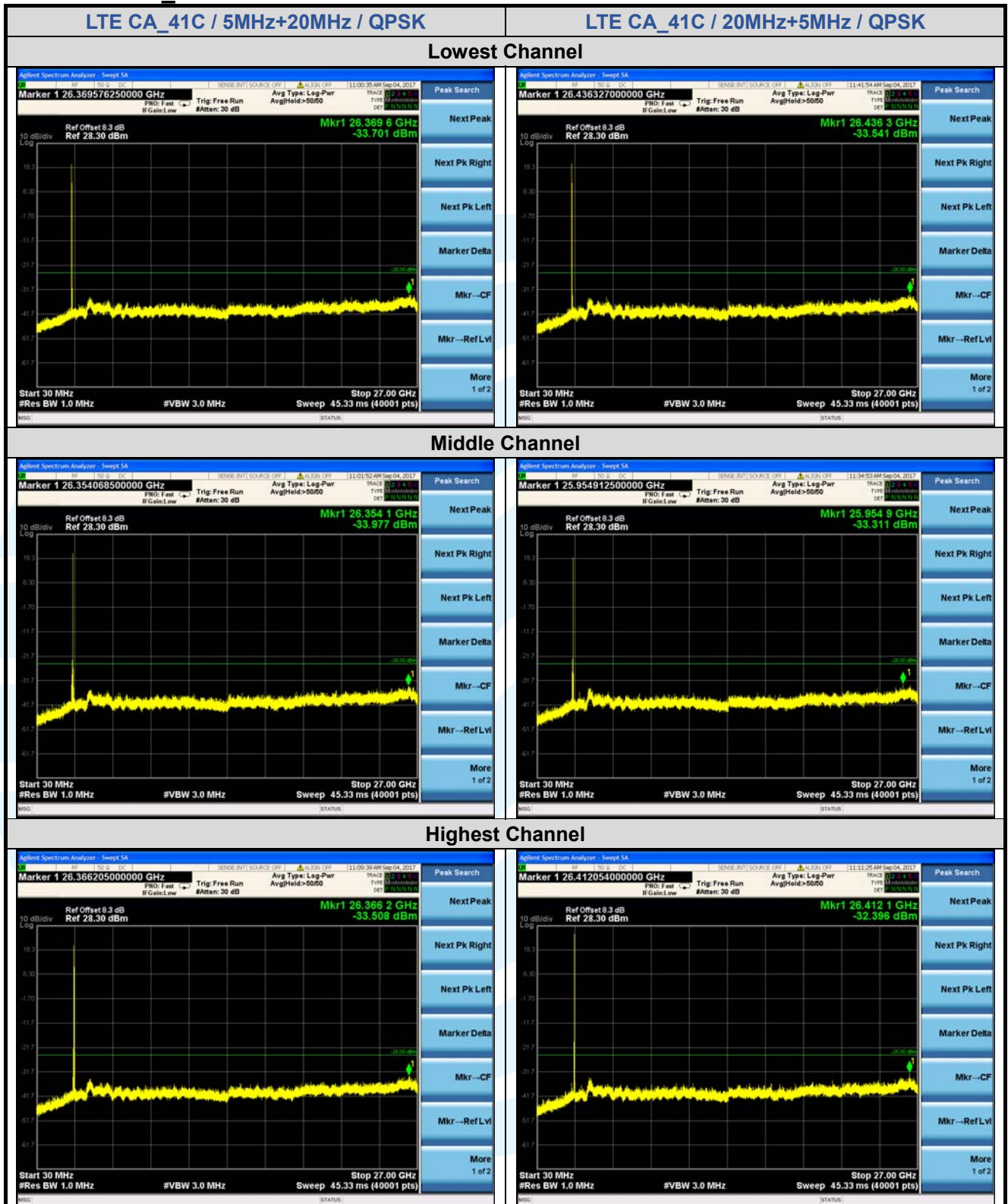
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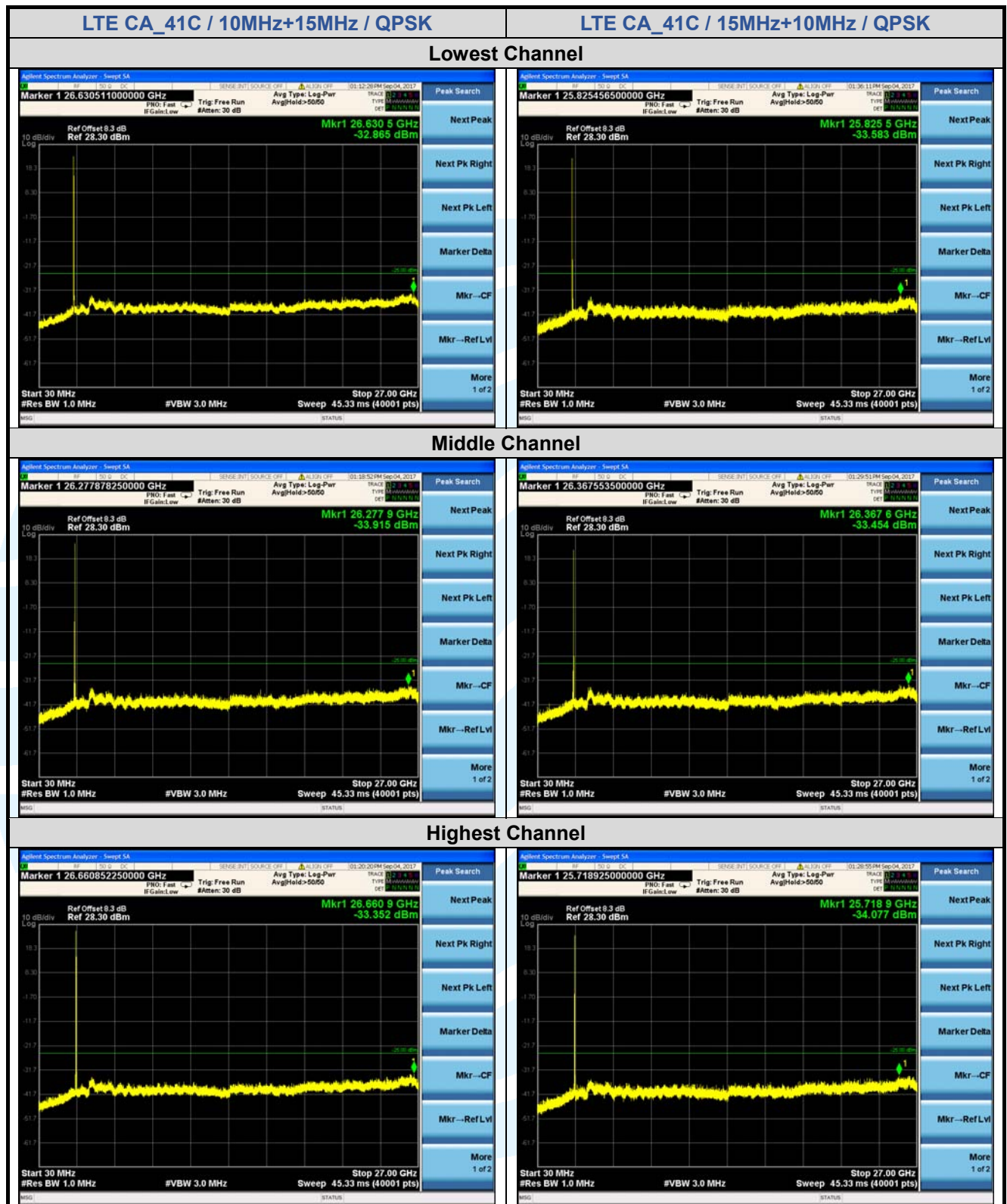


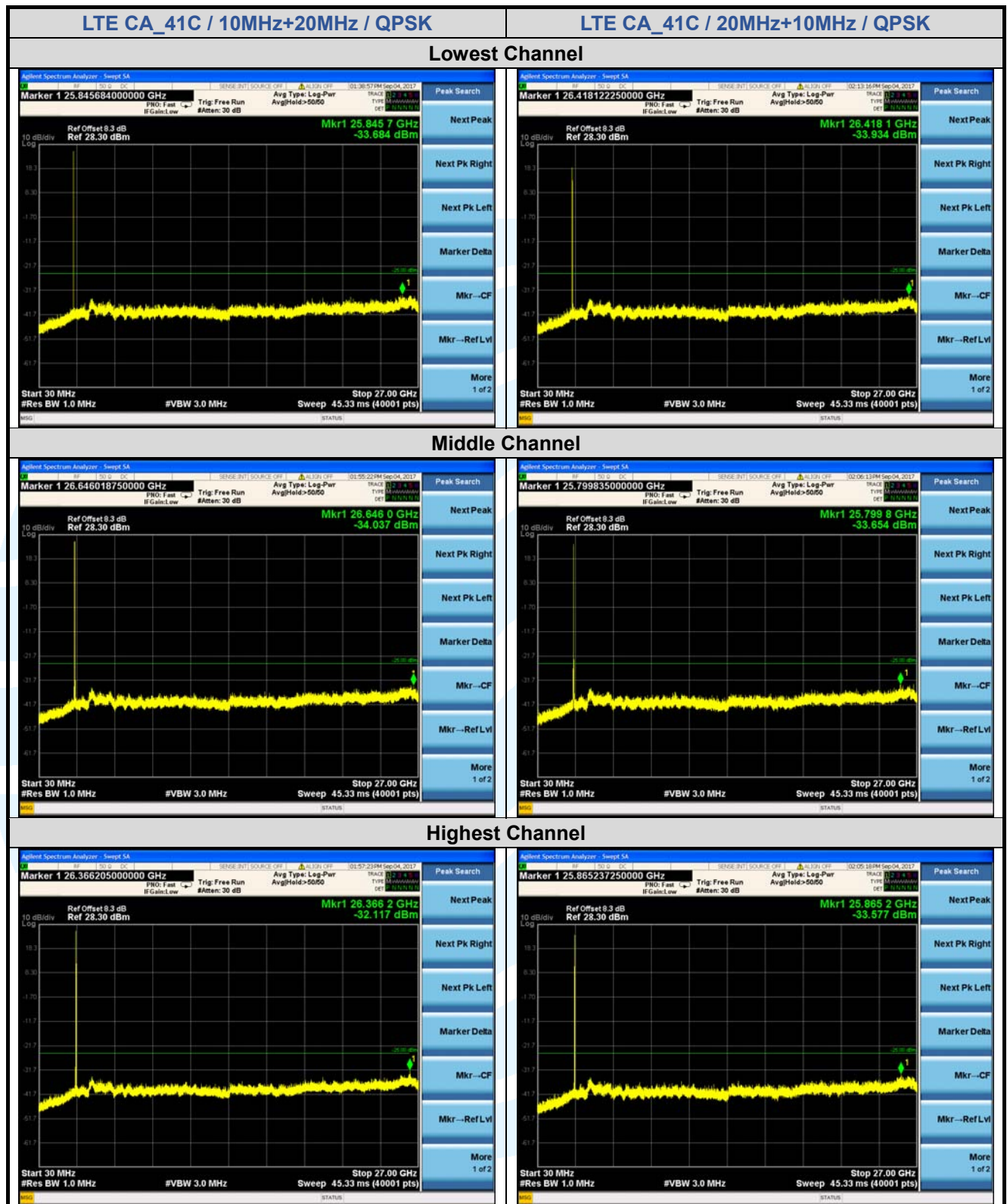


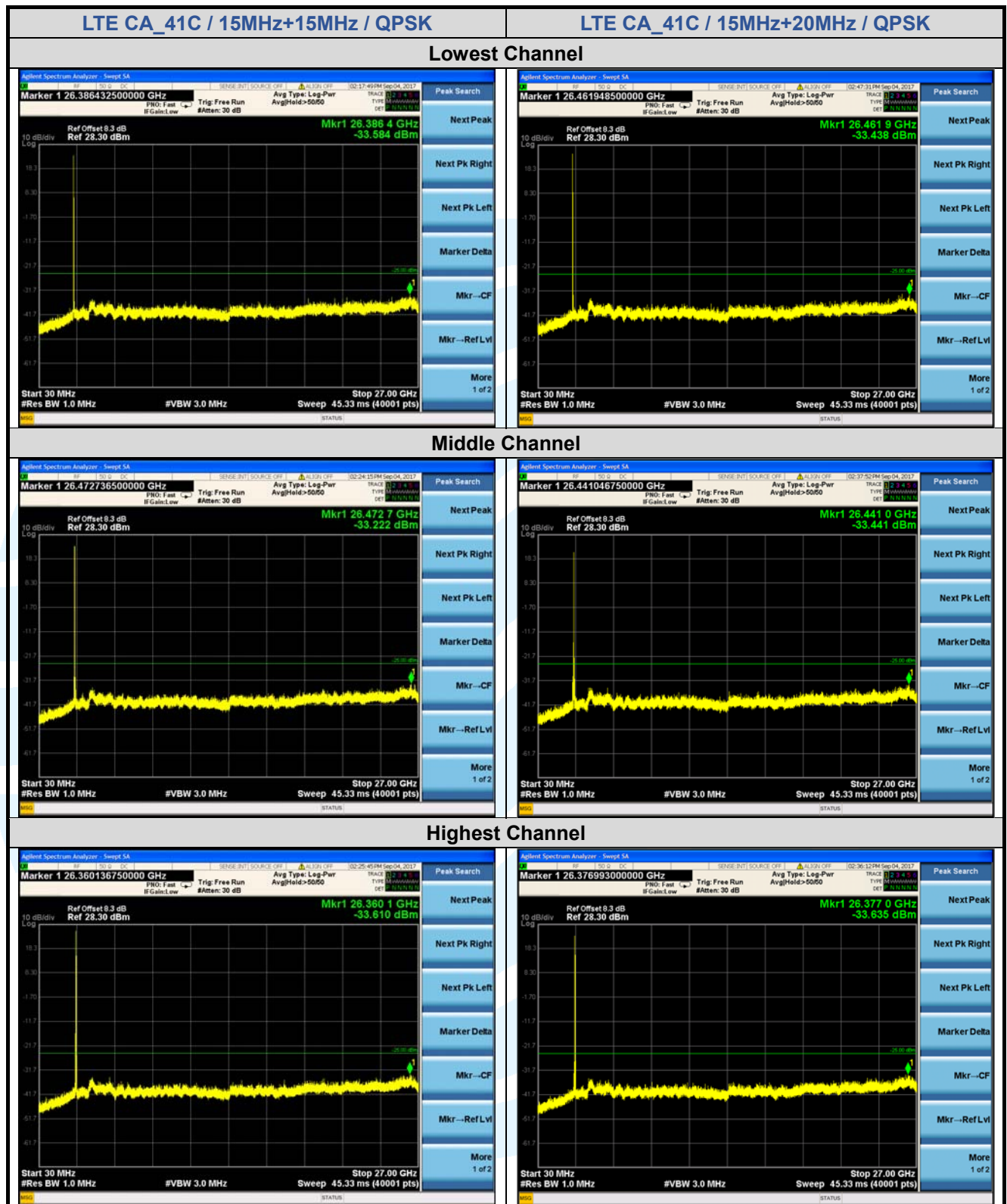


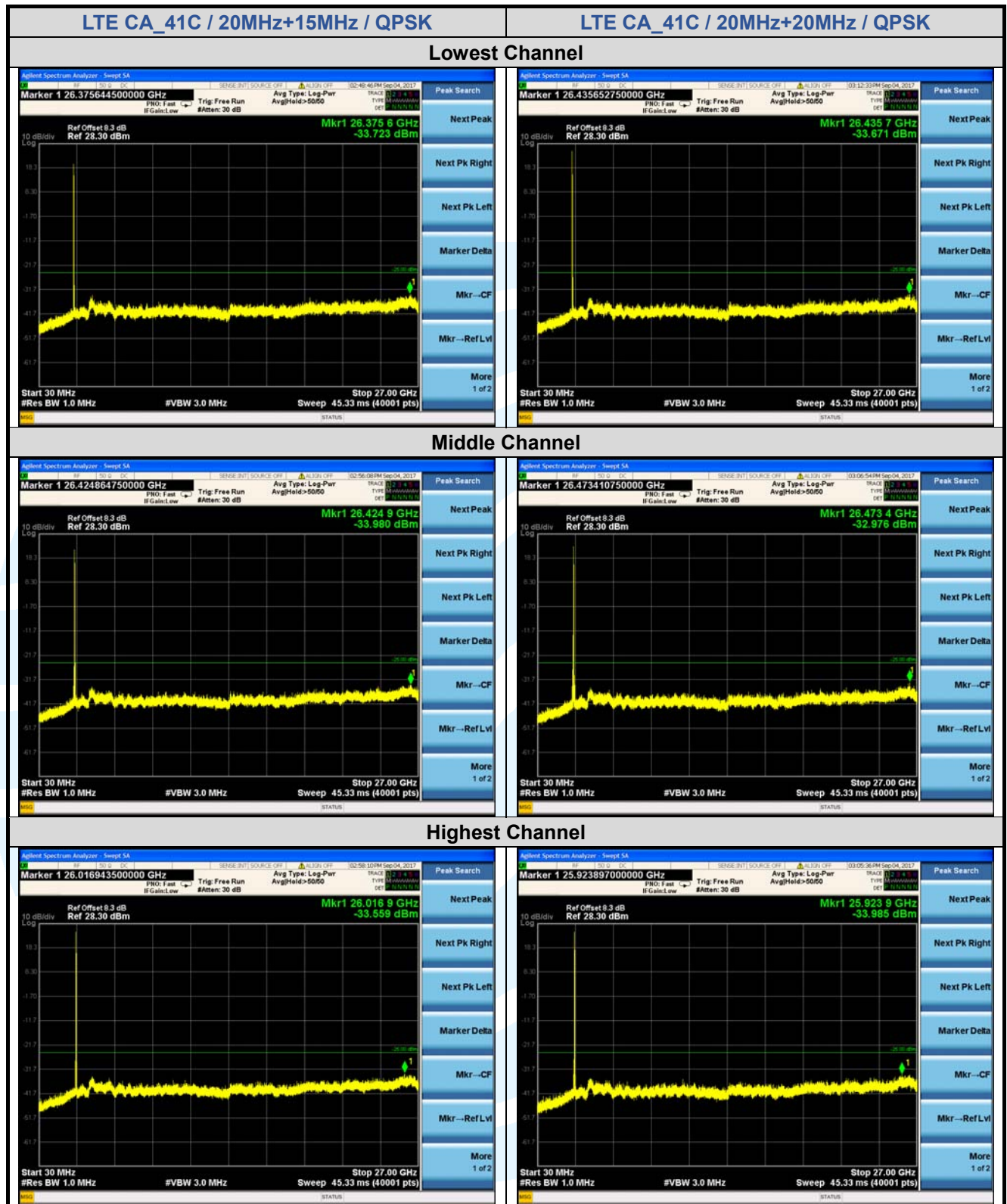
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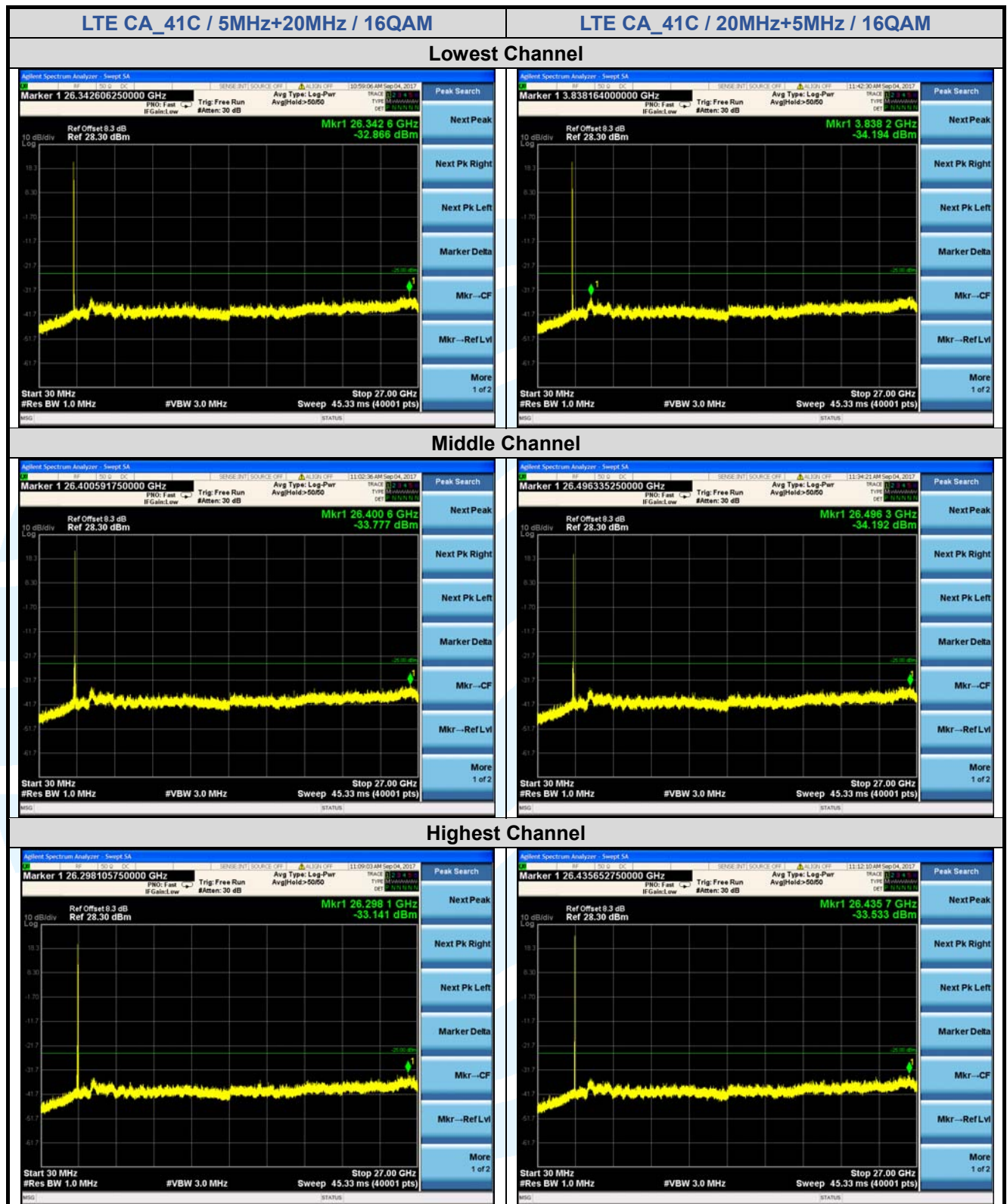


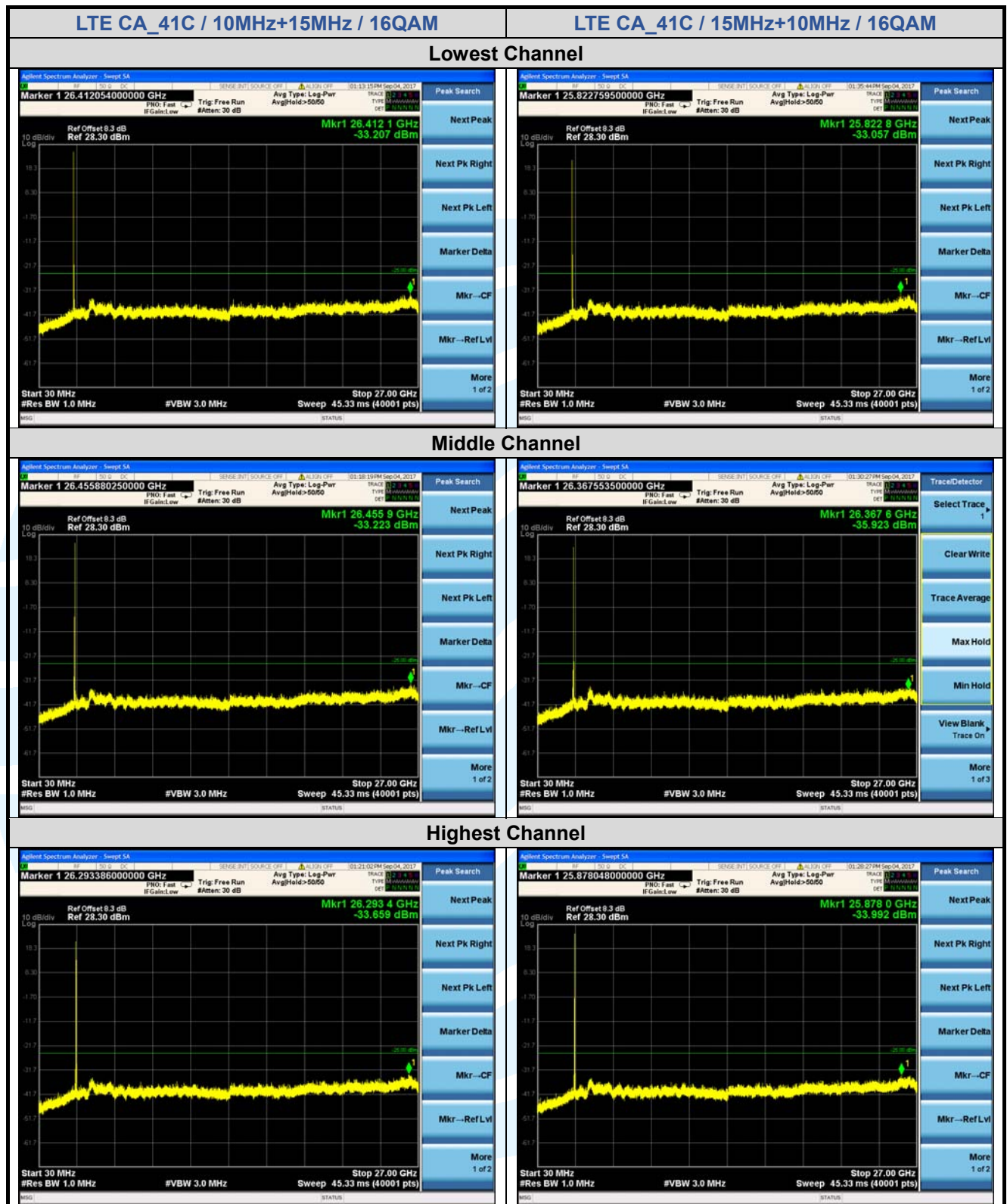


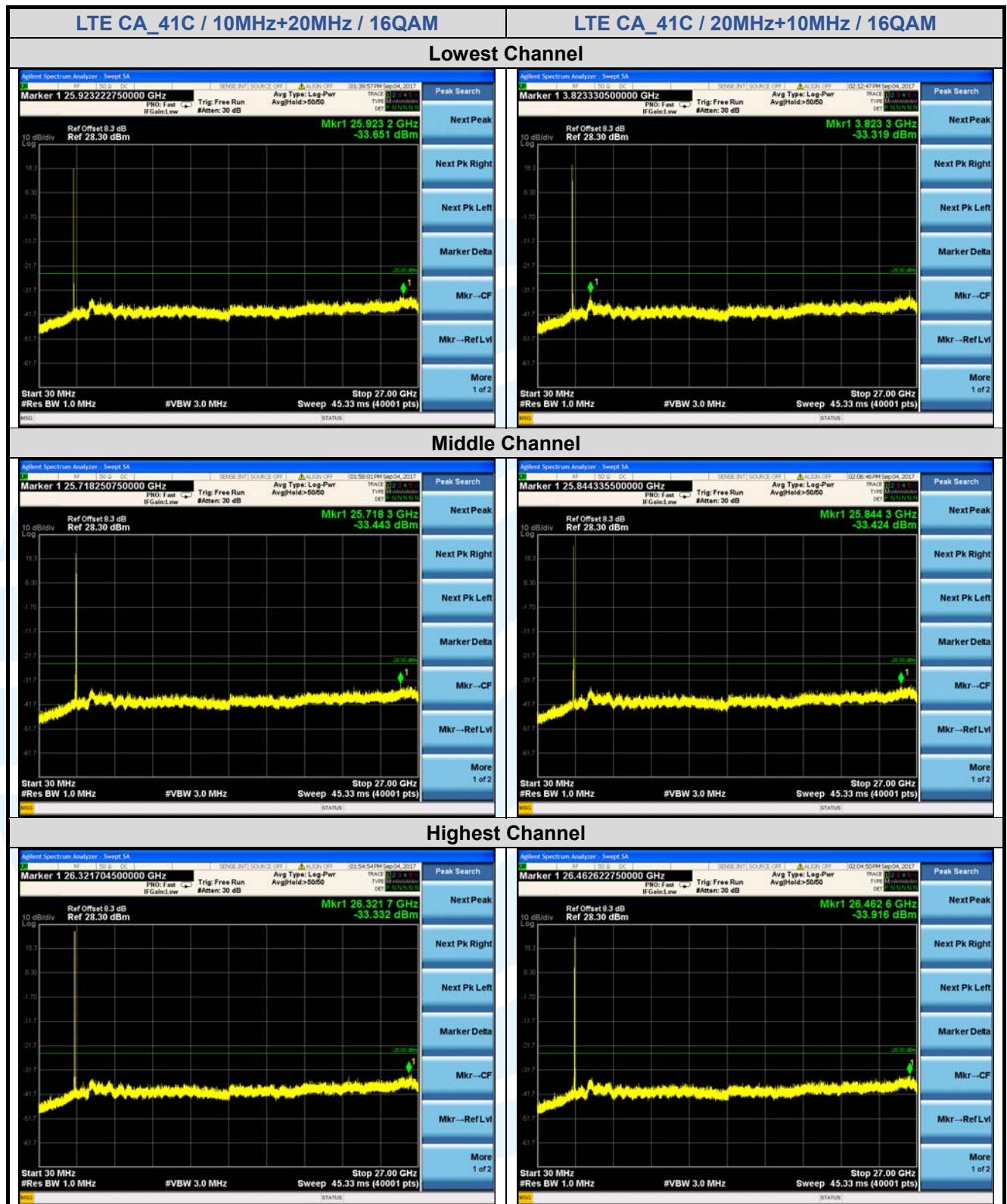


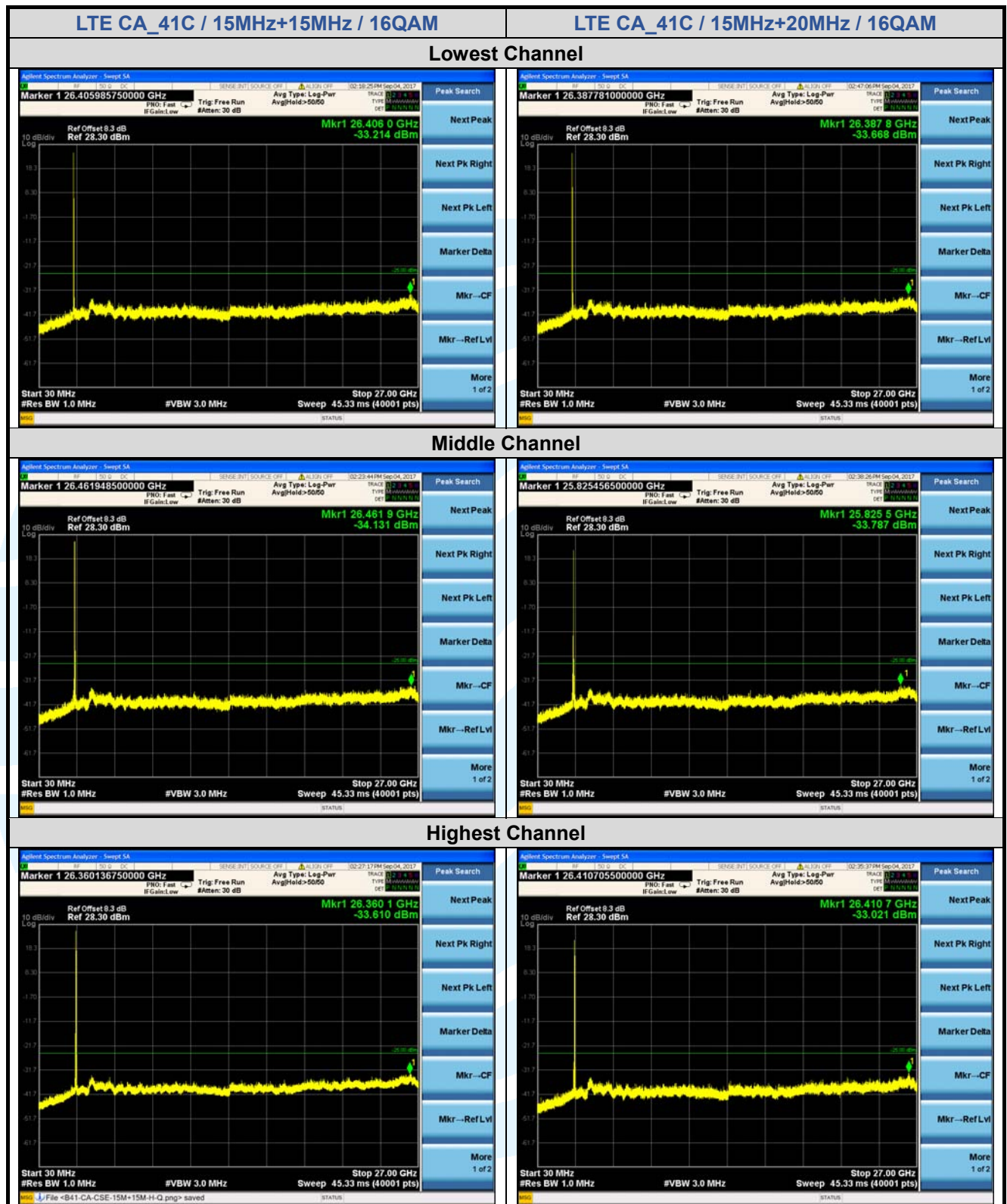


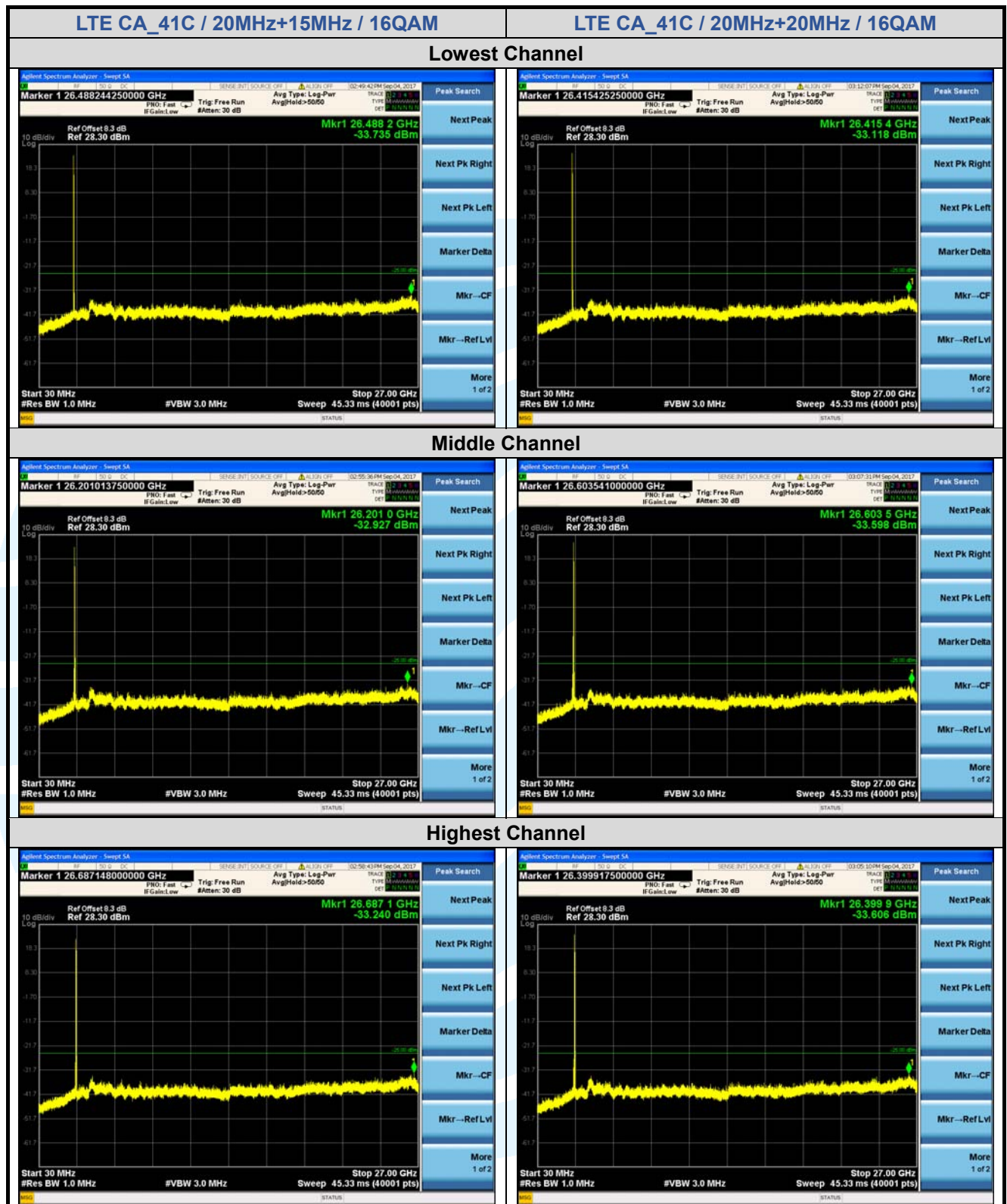


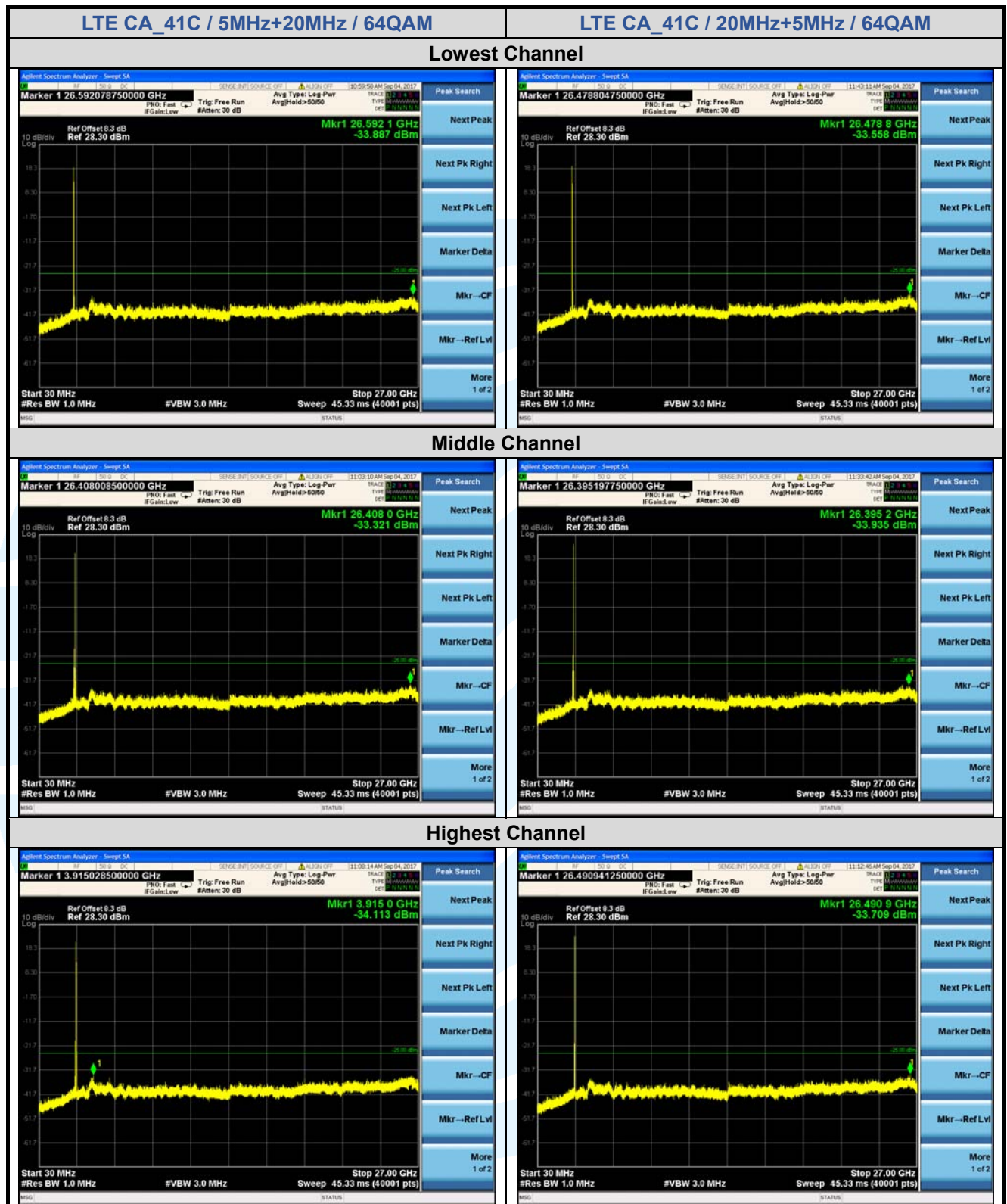


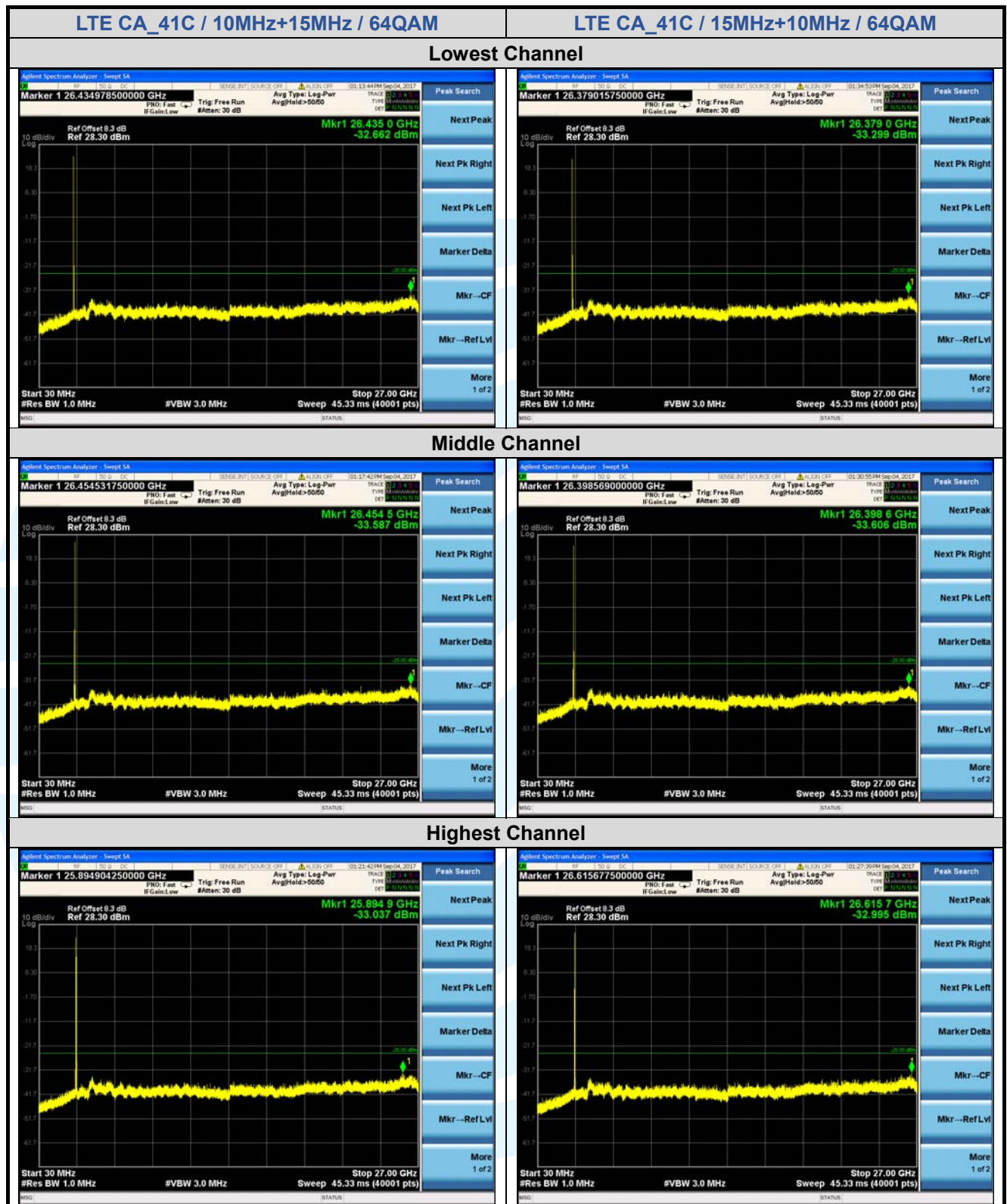


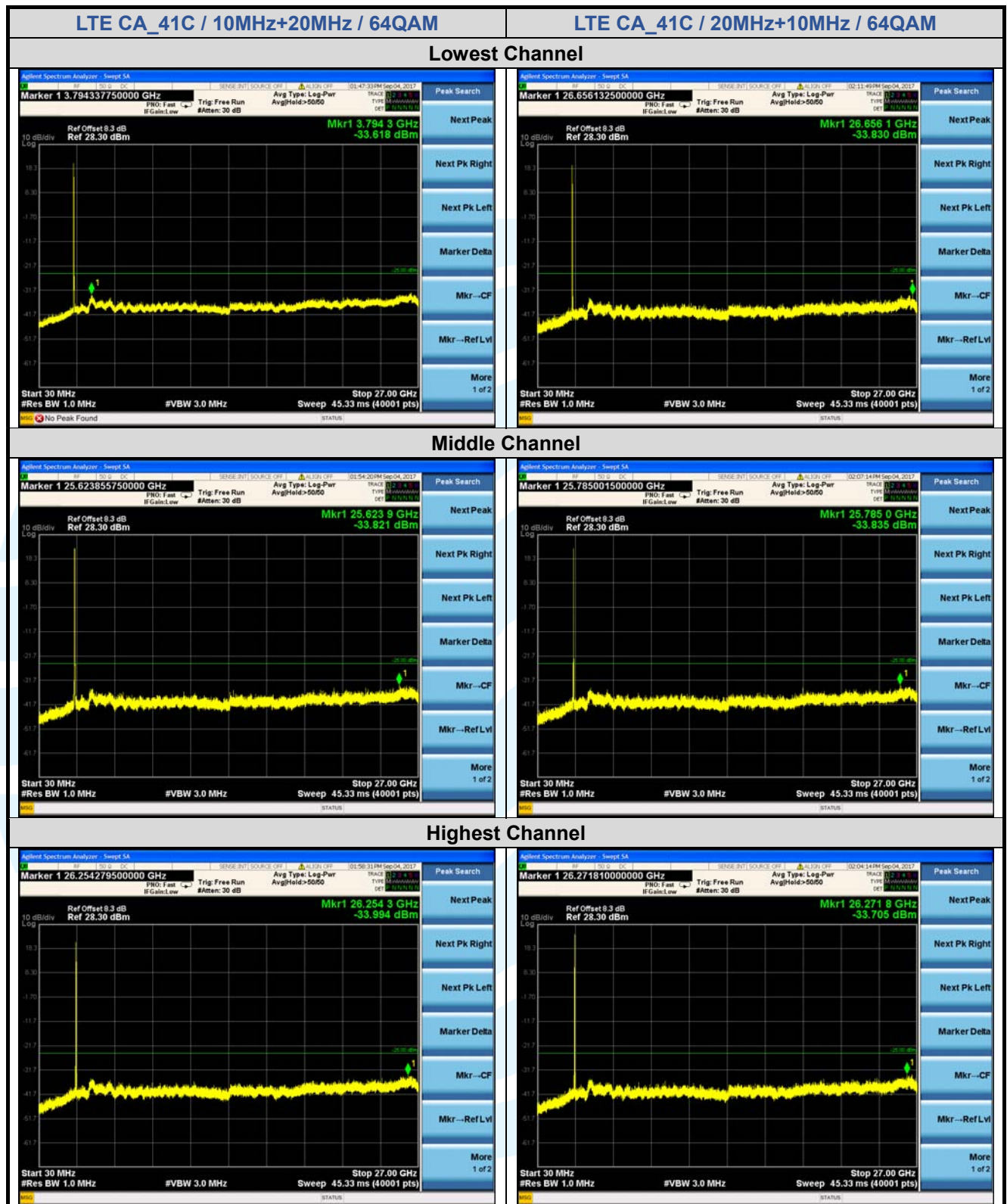


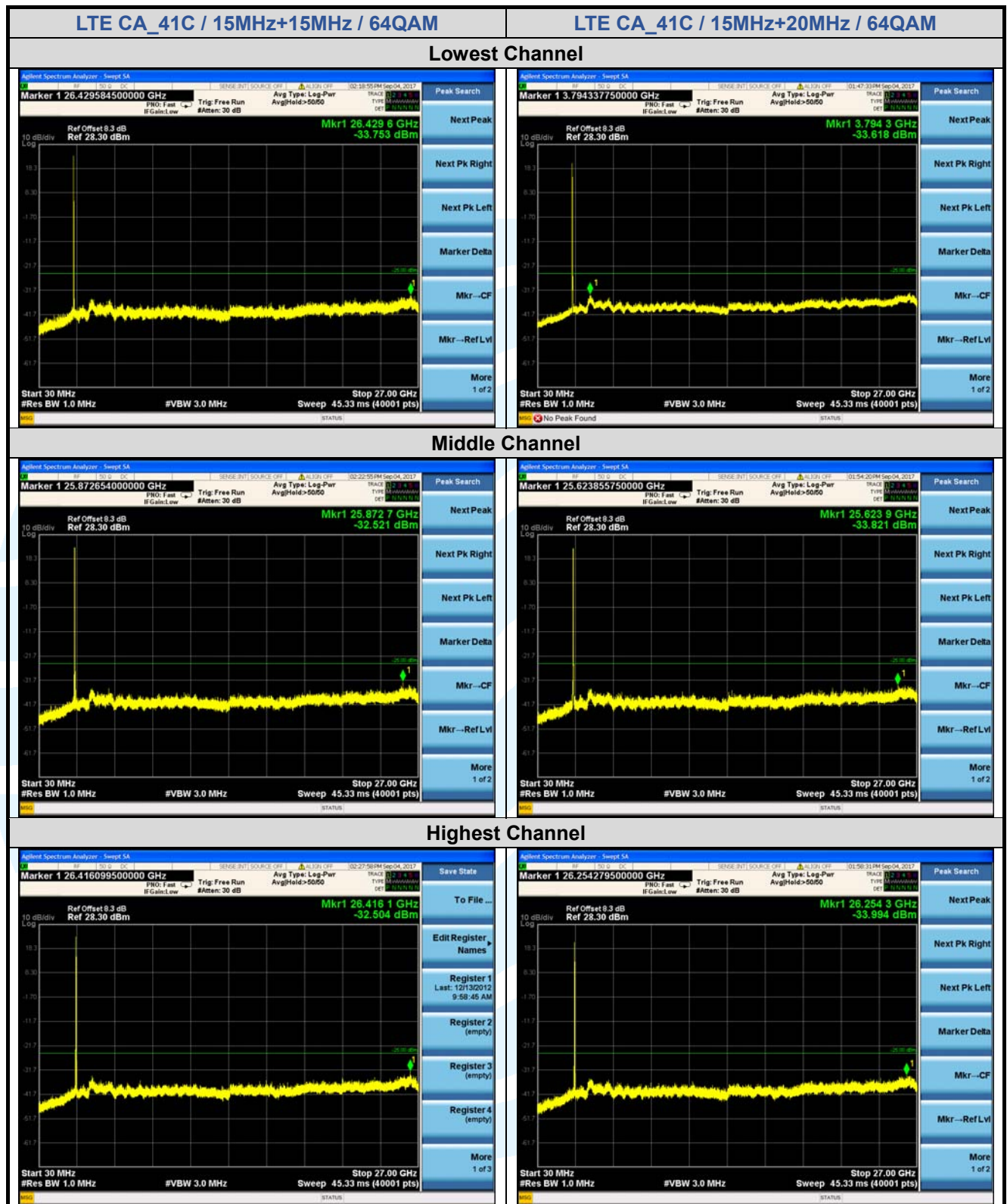


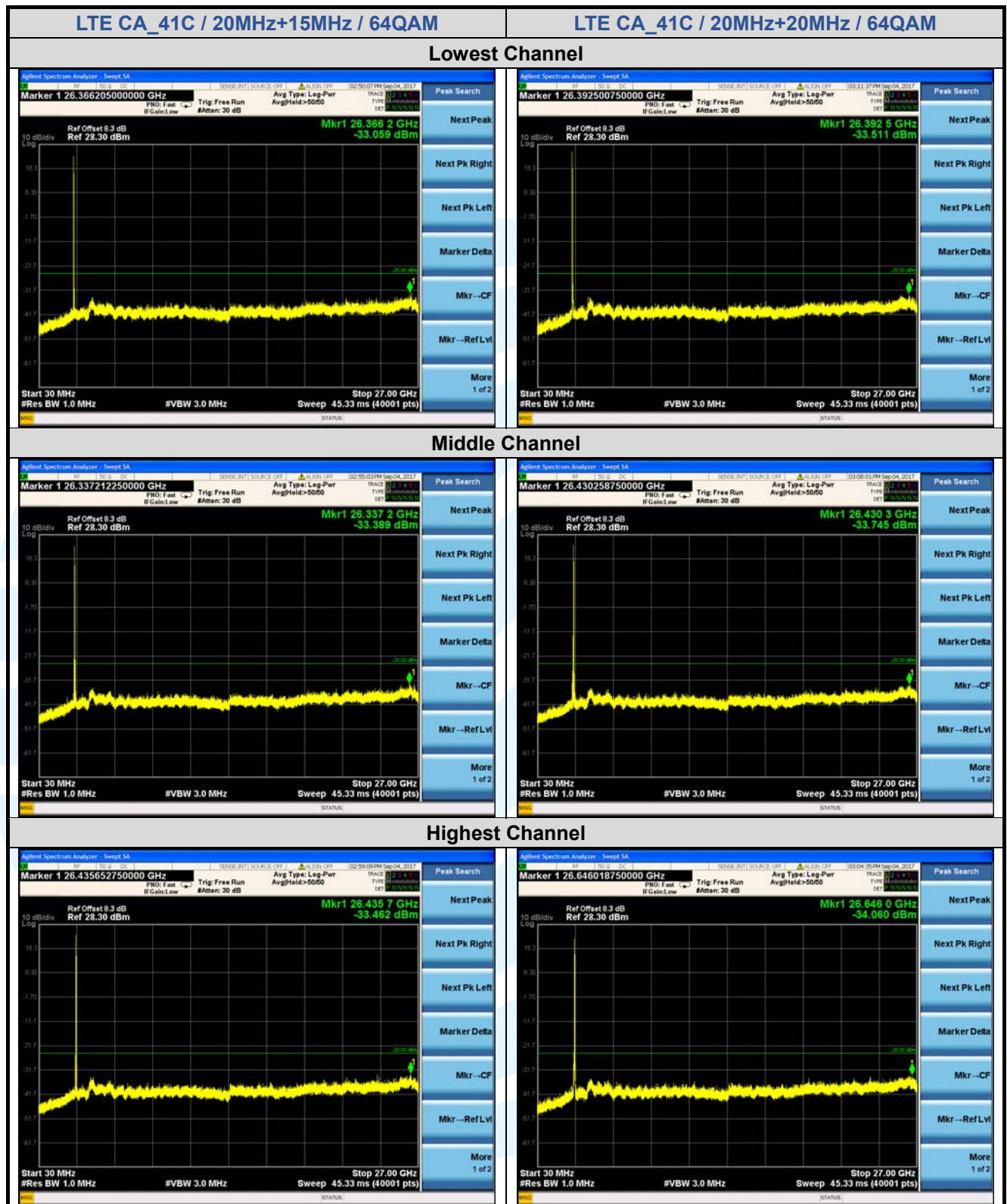












5.8 FIELD STRENGTH OF SPURIOUS RADIATION

Test Requirement: WCDMA Band IV & LTE Band 4: FCC 47 CFR Part 27.53(h)(1)
 LTE Band 7 & Band 38 & Band 41: FCC 47 CFR Part 27.53(m)(4)
 LTE Band 12 & Band 17: FCC 47 CFR Part 27.53(g)
 LTE Band 13: FCC 47 CFR Part 27.53(c)(2)
 LTE Band 30: FCC 47 CFR Part 27.53(a)(4)

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

Receiver Setup:

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

Limits:

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(c)(2): On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

FCC 47 CFR Part 27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

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 Setup: Refer to section 4.2.1 for details.

Test Procedures:

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 0.8/1.5m high table at a 3 meter semi/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 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:

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

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

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

where:

P_g 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 Y axis positioning which it is worse case.
- 12) Repeat above procedures until all frequencies measured was complete.

Equipment Used: Refer to section 3 for details.

Test Result: Pass

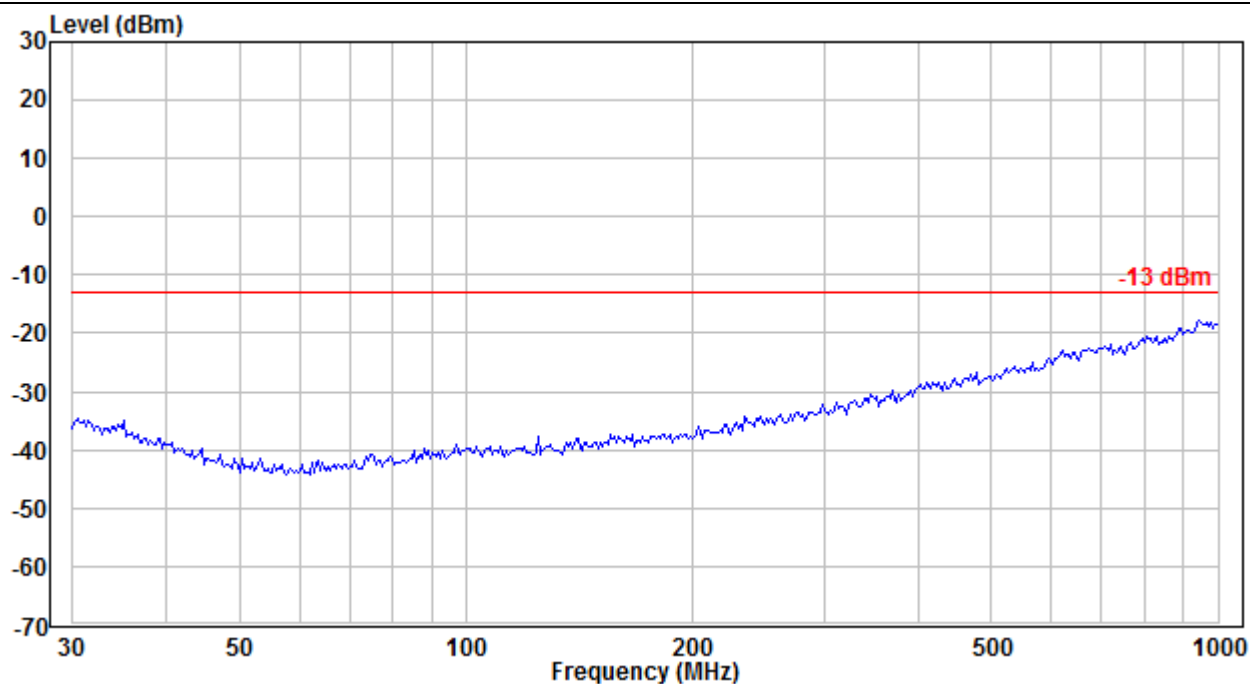
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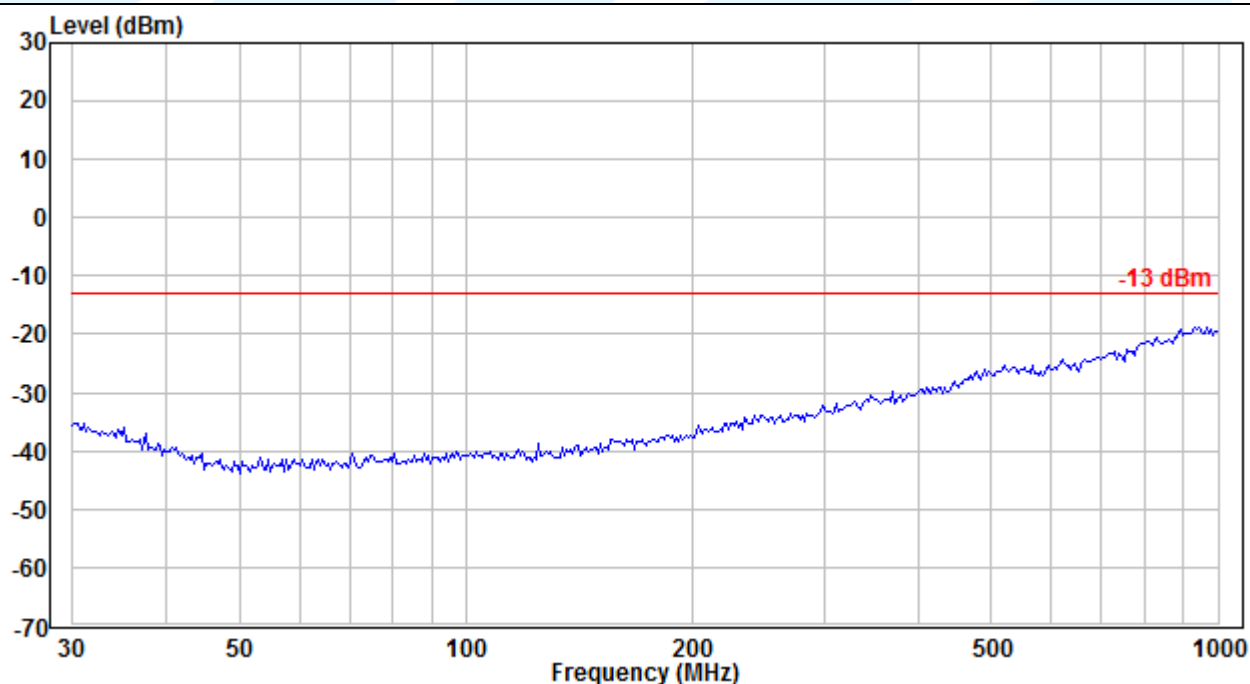
5.8.1 Radiated Emission Test Data (30 MHz to 1 GHz)

WCDMA RMC 12.2Kbps_Middle Channel

Horizontal

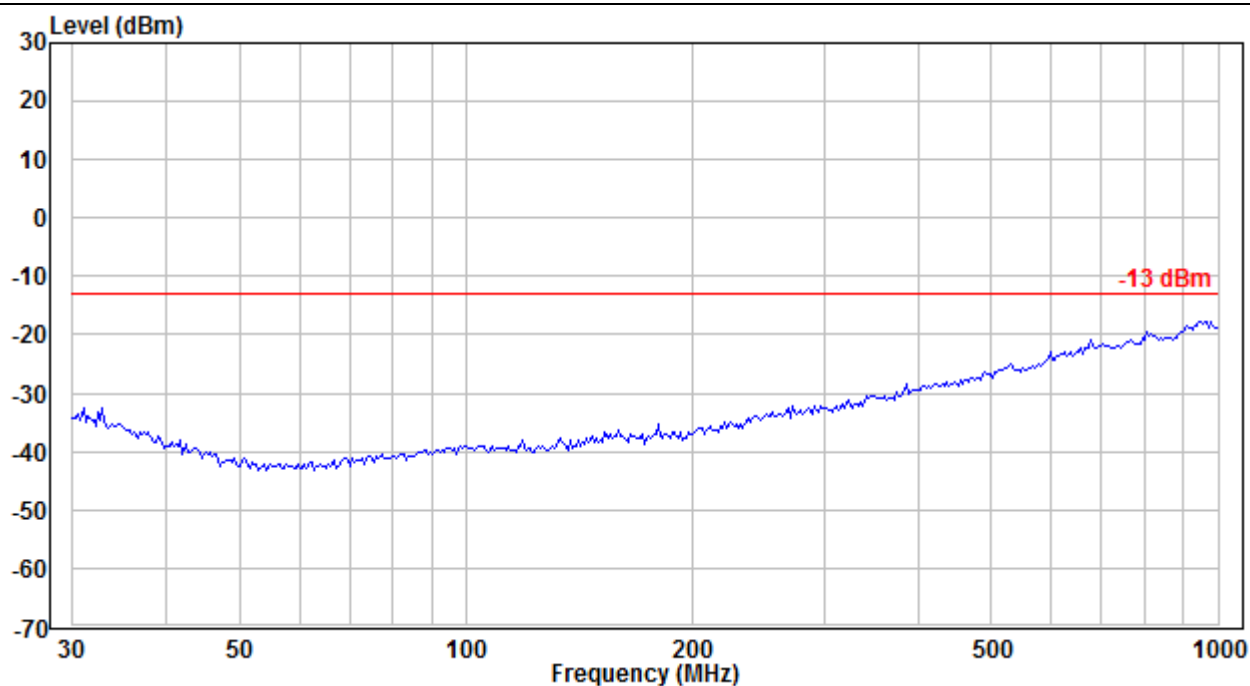


Vertical

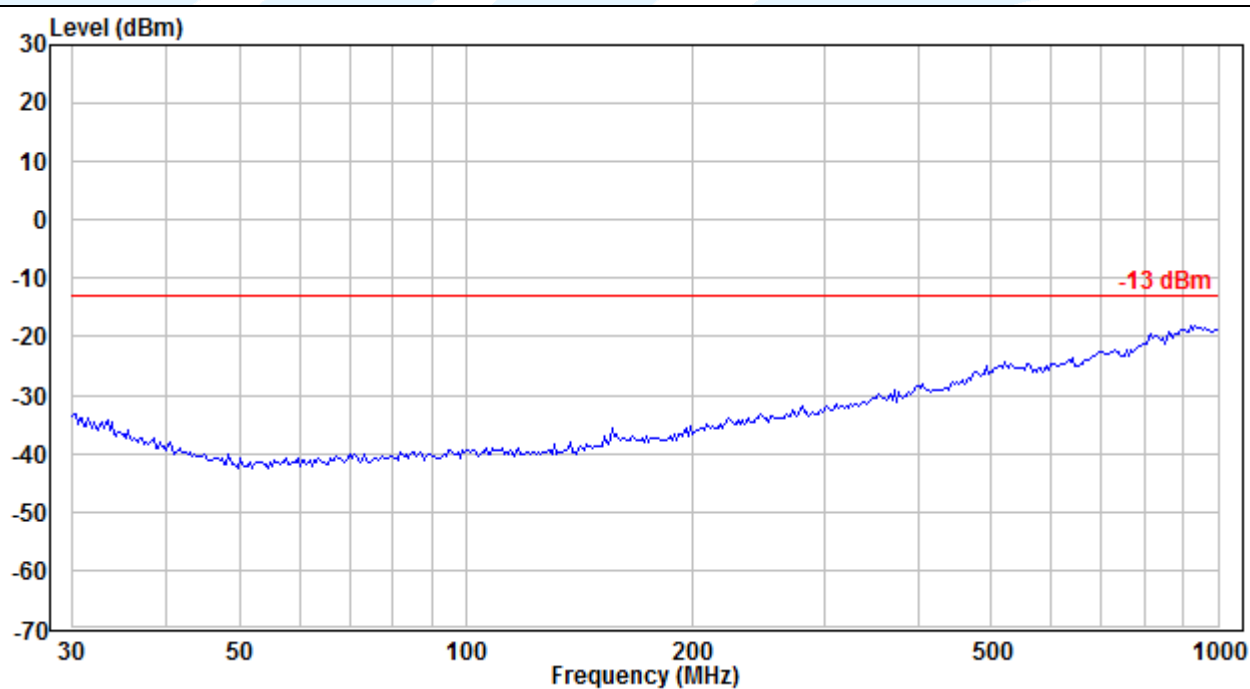


LTE Band 4 / 1.4 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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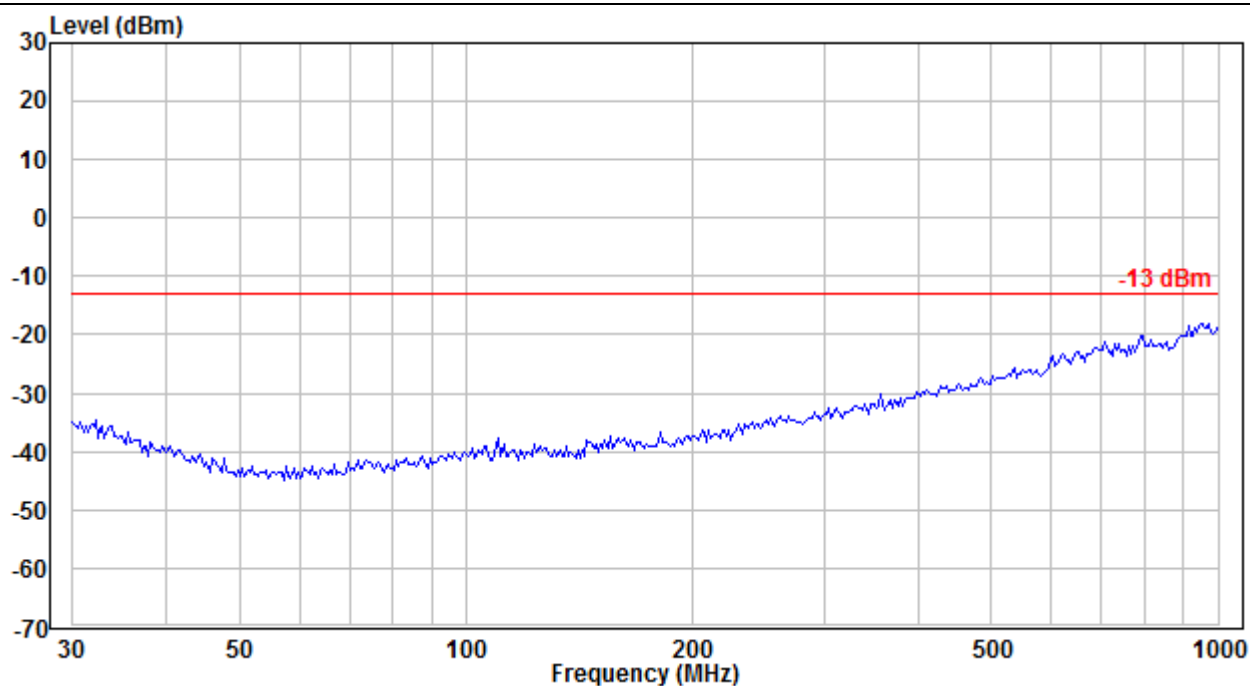
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E-mail: info@uttlab.com

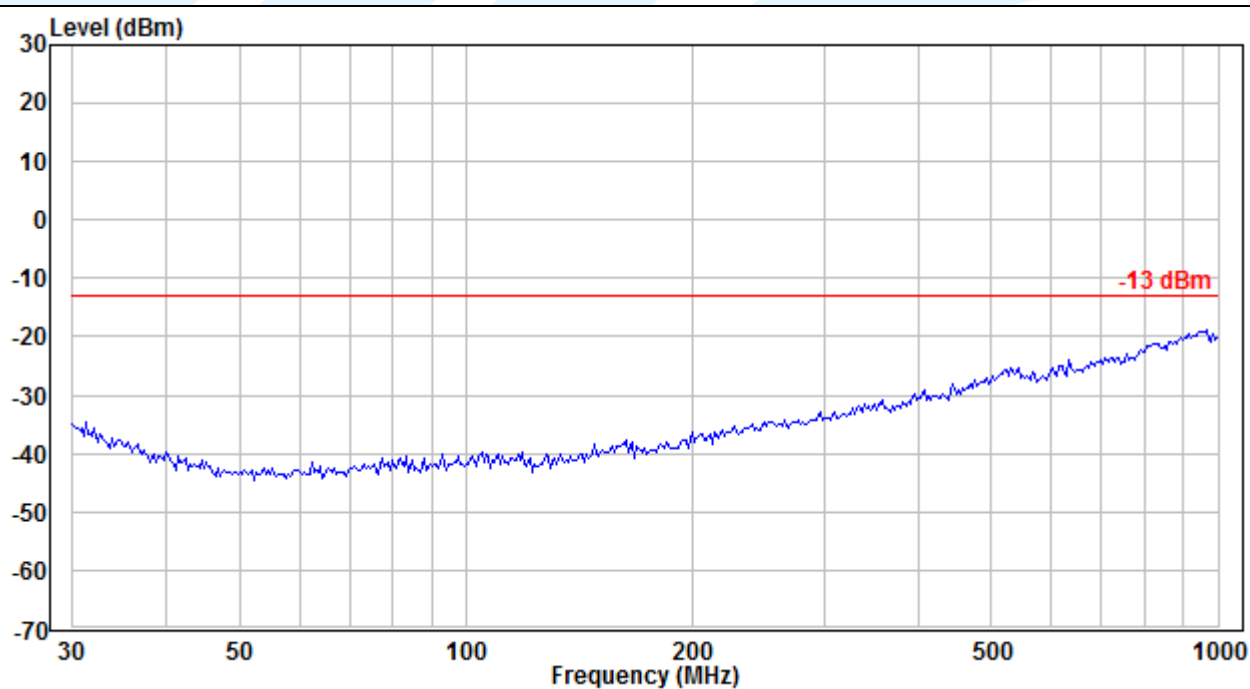
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LTE Band 4 / 3 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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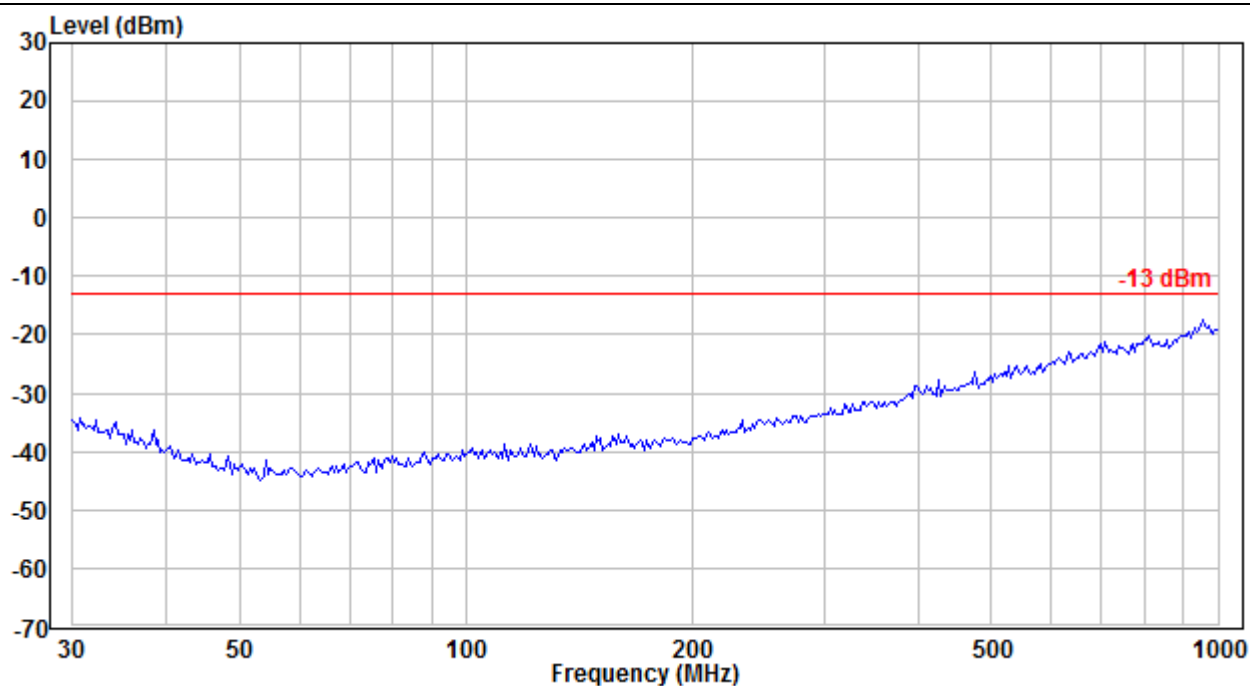
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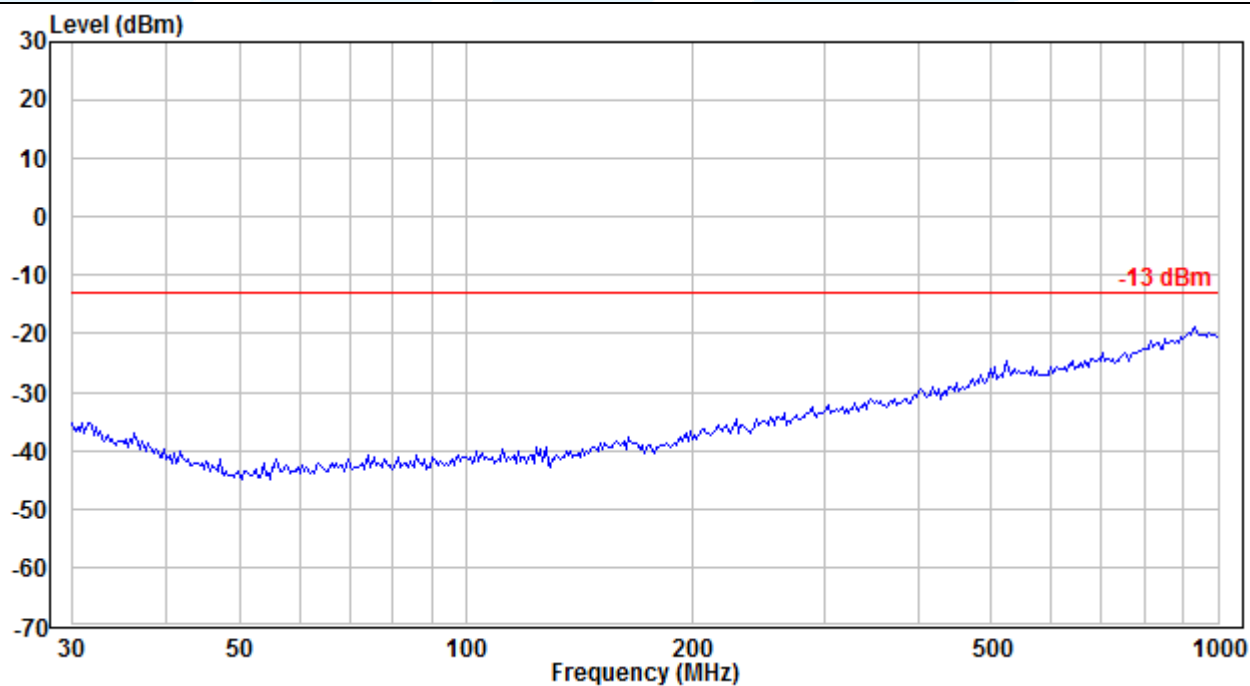
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LTE Band 4 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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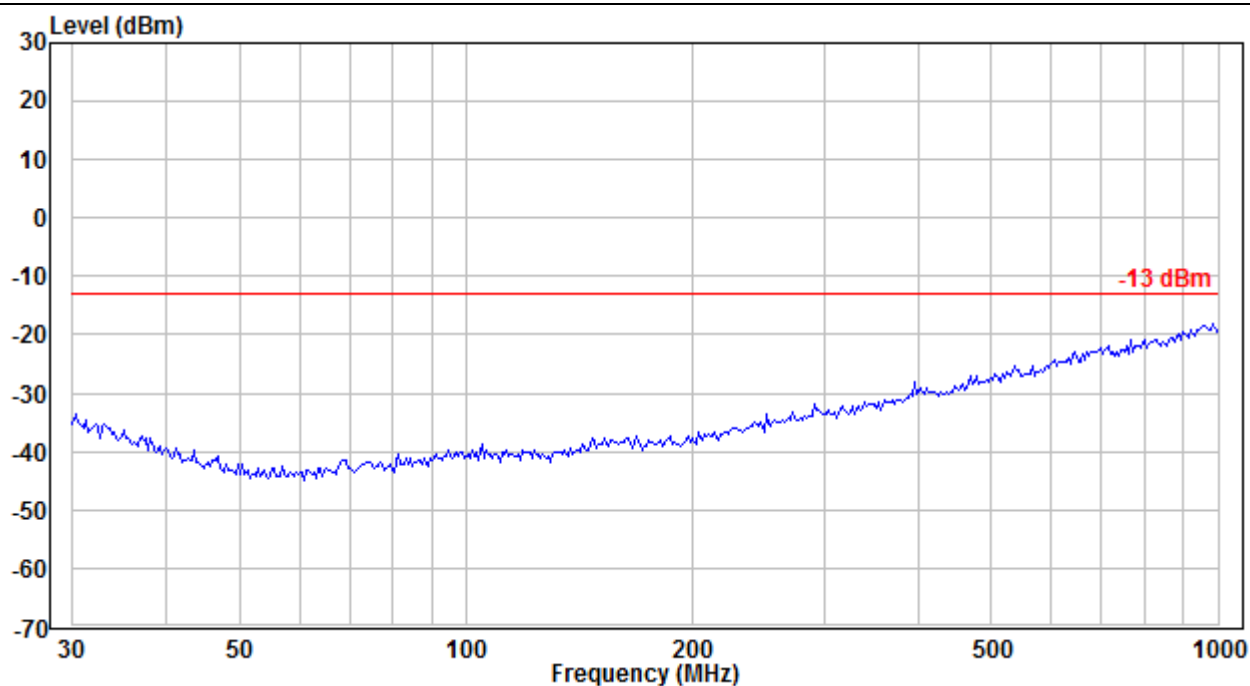
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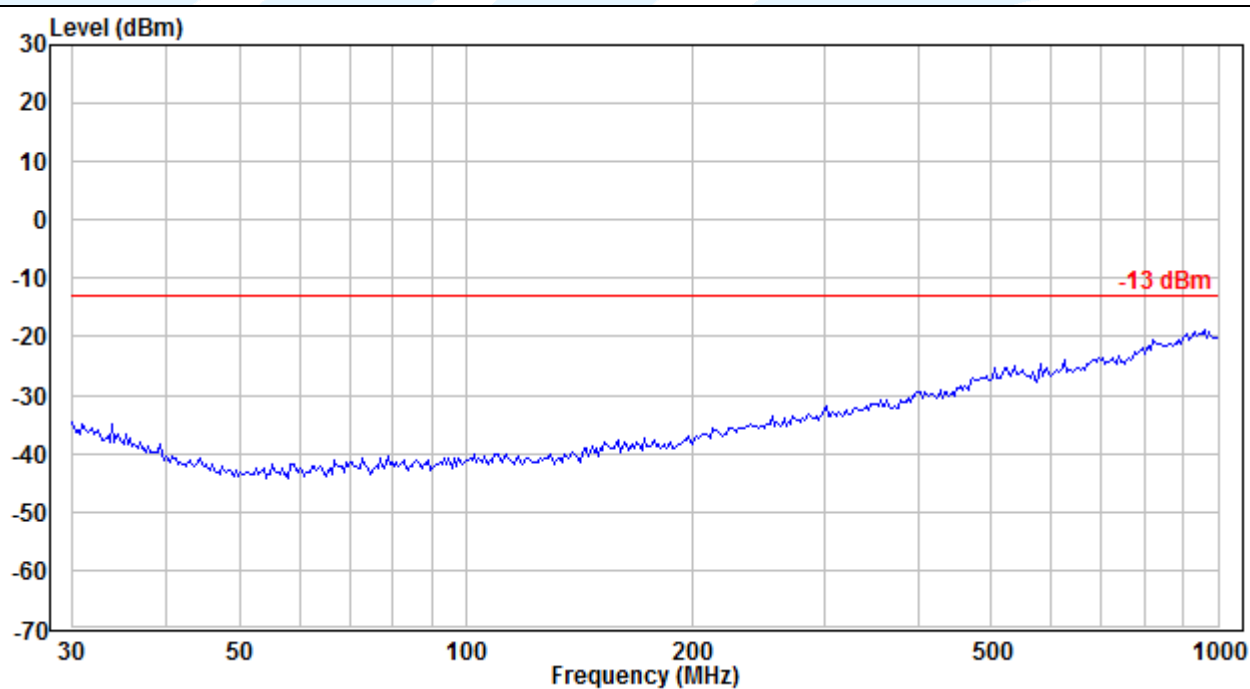
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LTE Band 4 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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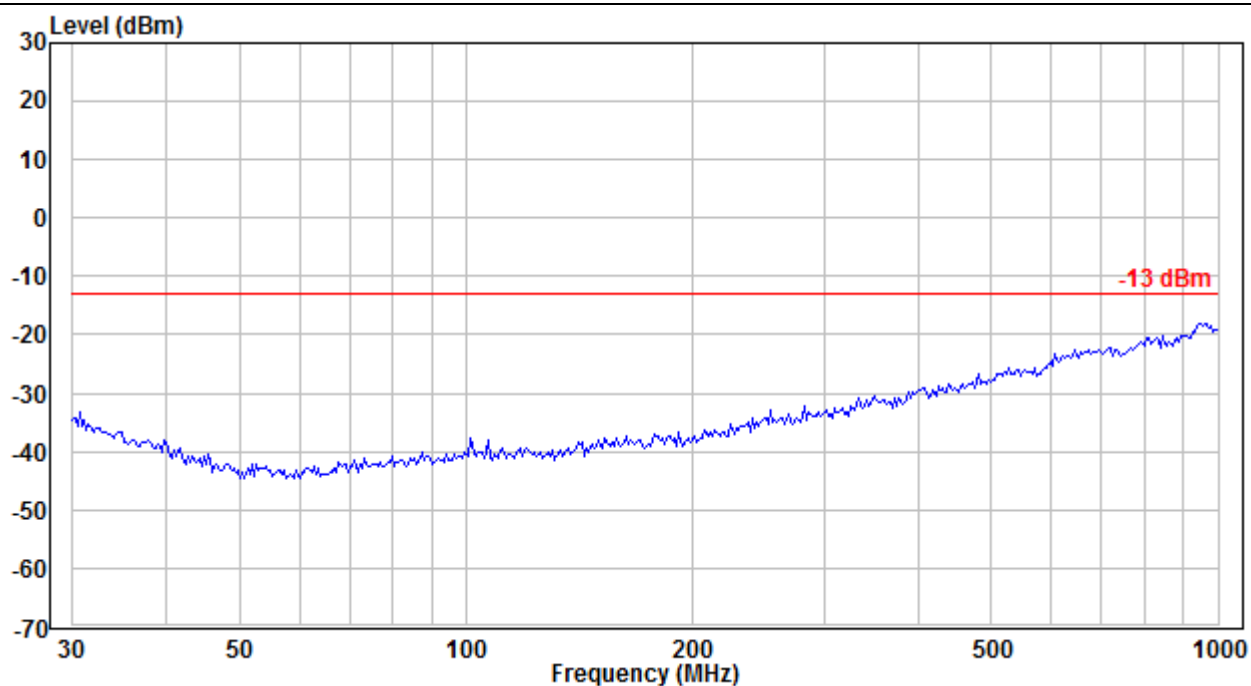
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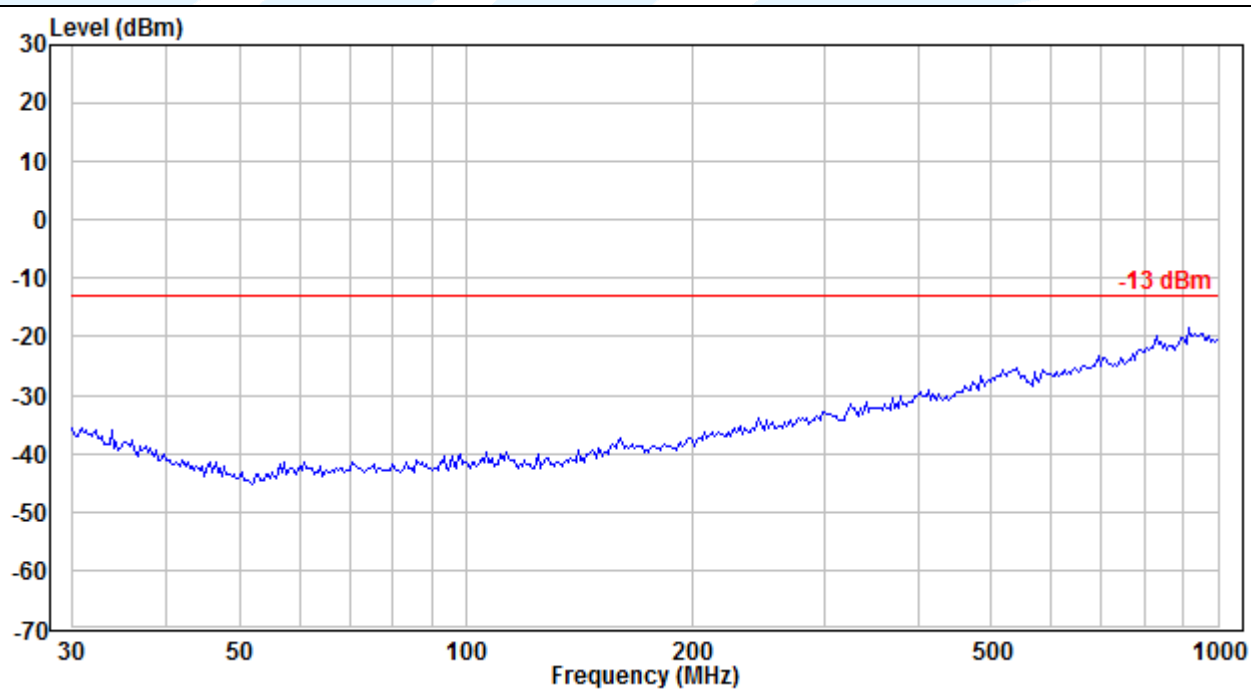
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LTE Band 4 / 15 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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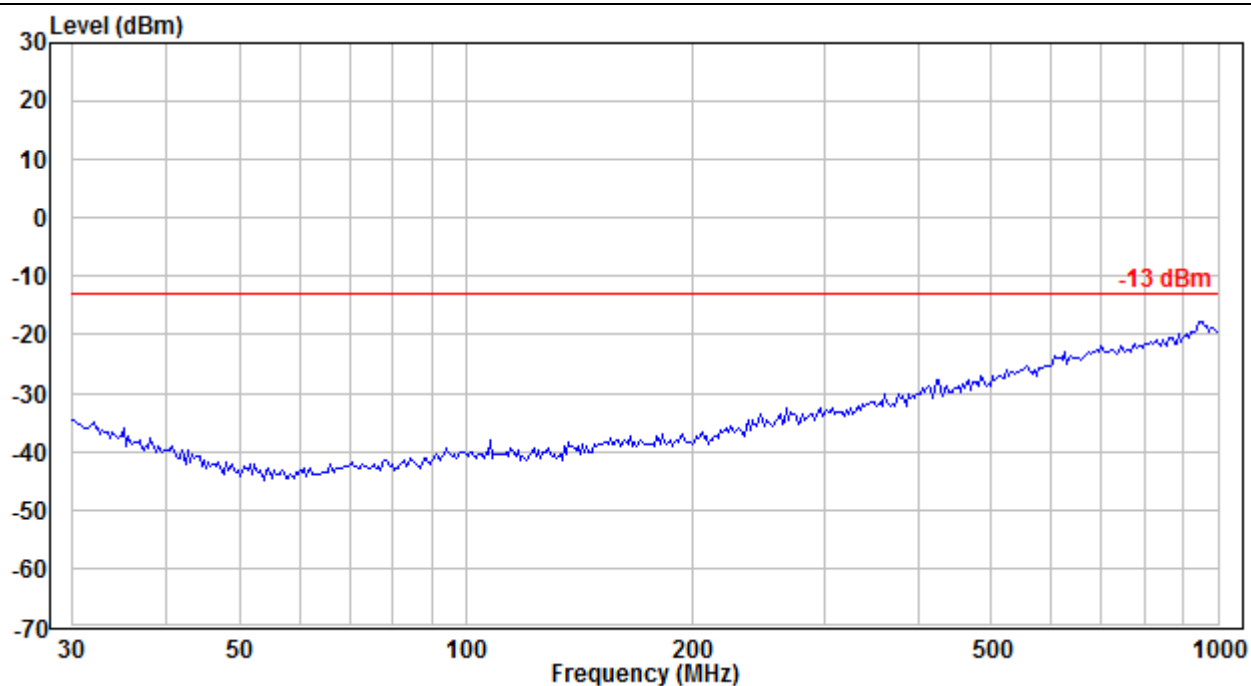
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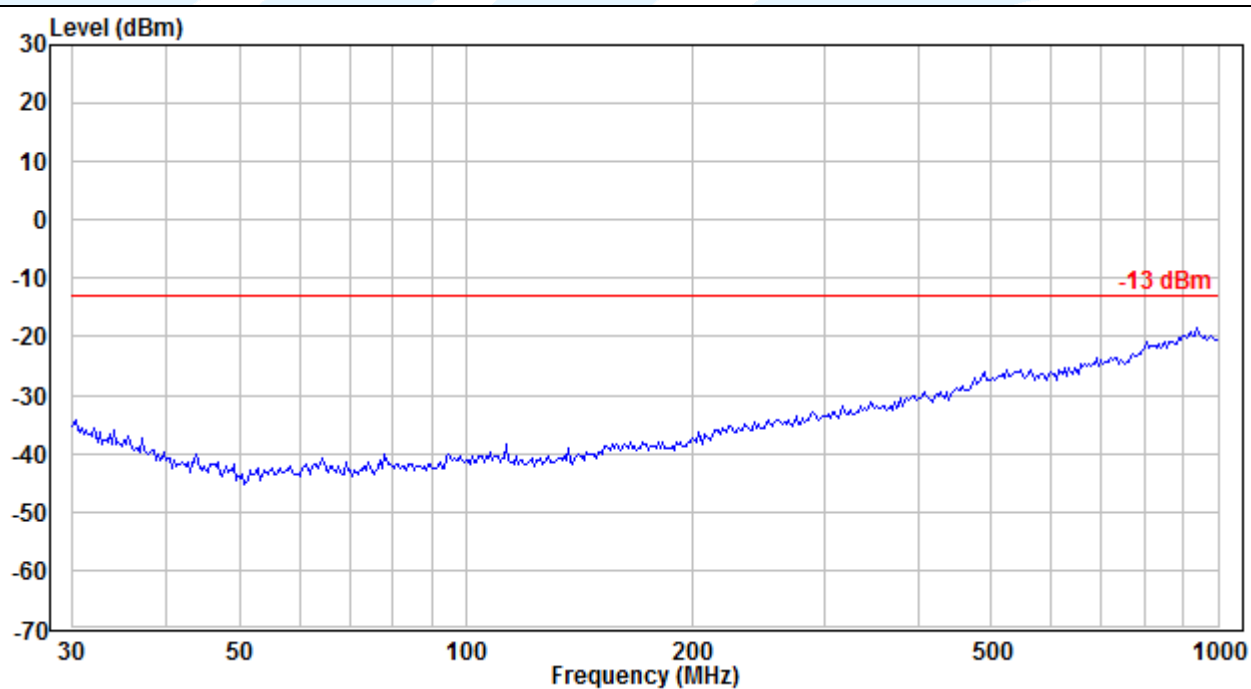
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LTE Band 4 / 20 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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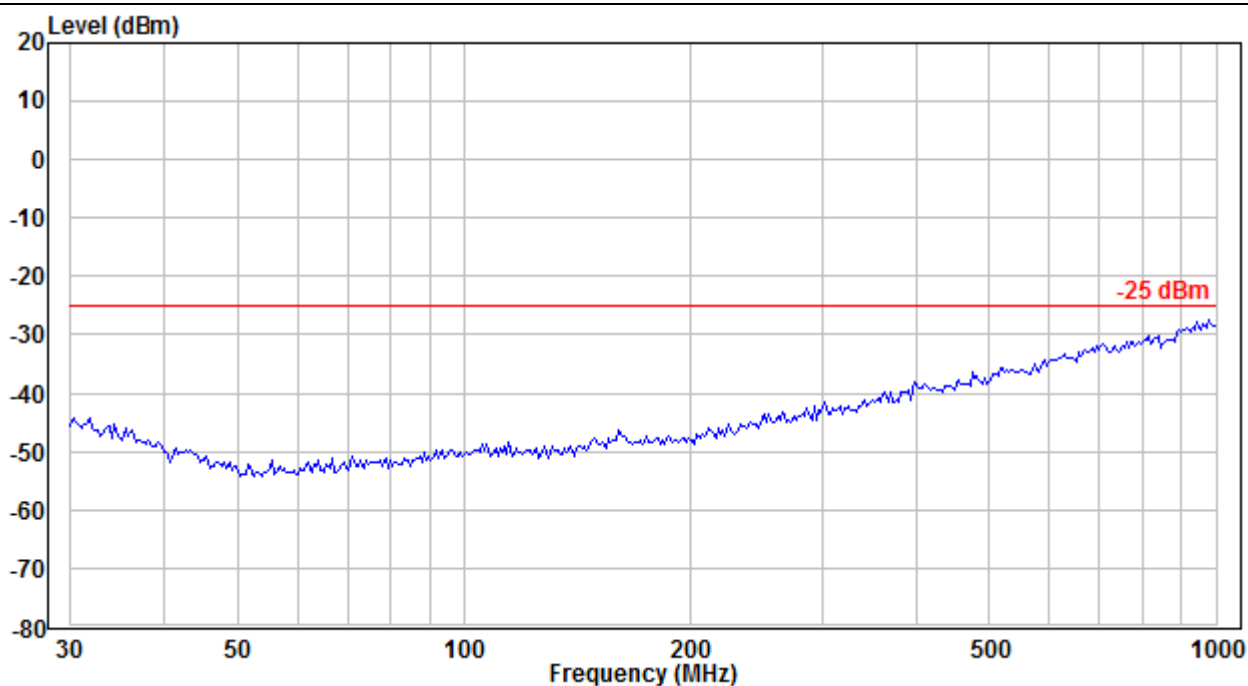
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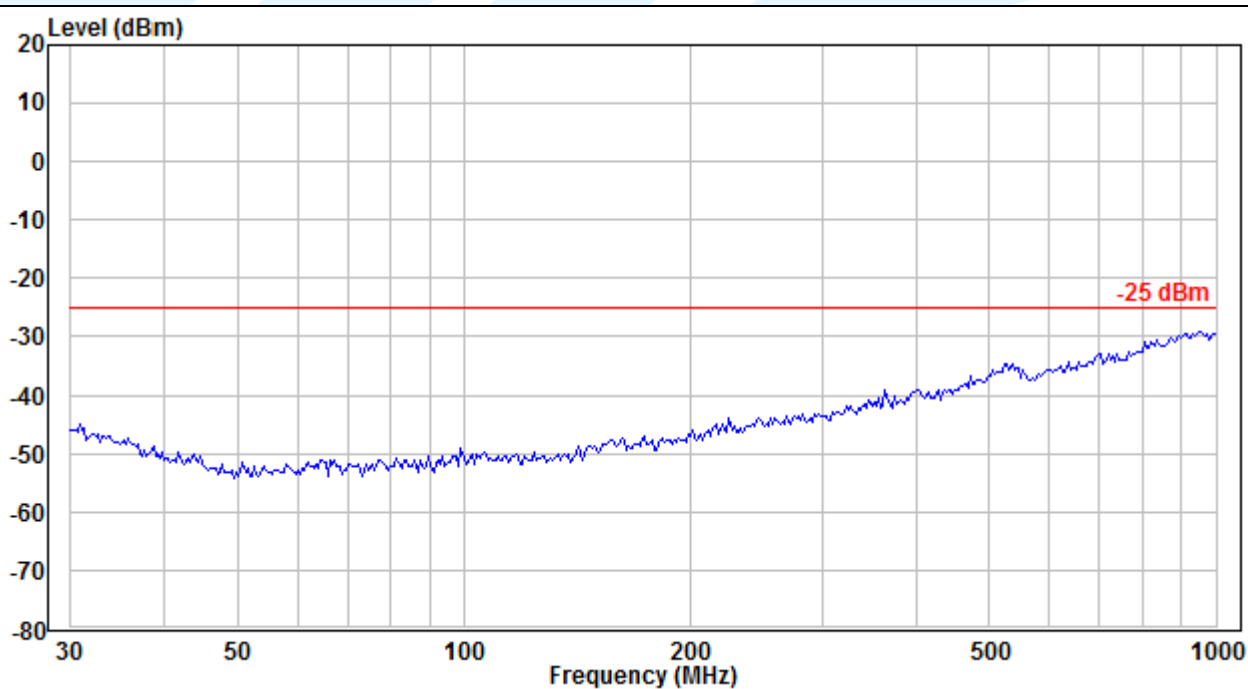
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LTE Band 7 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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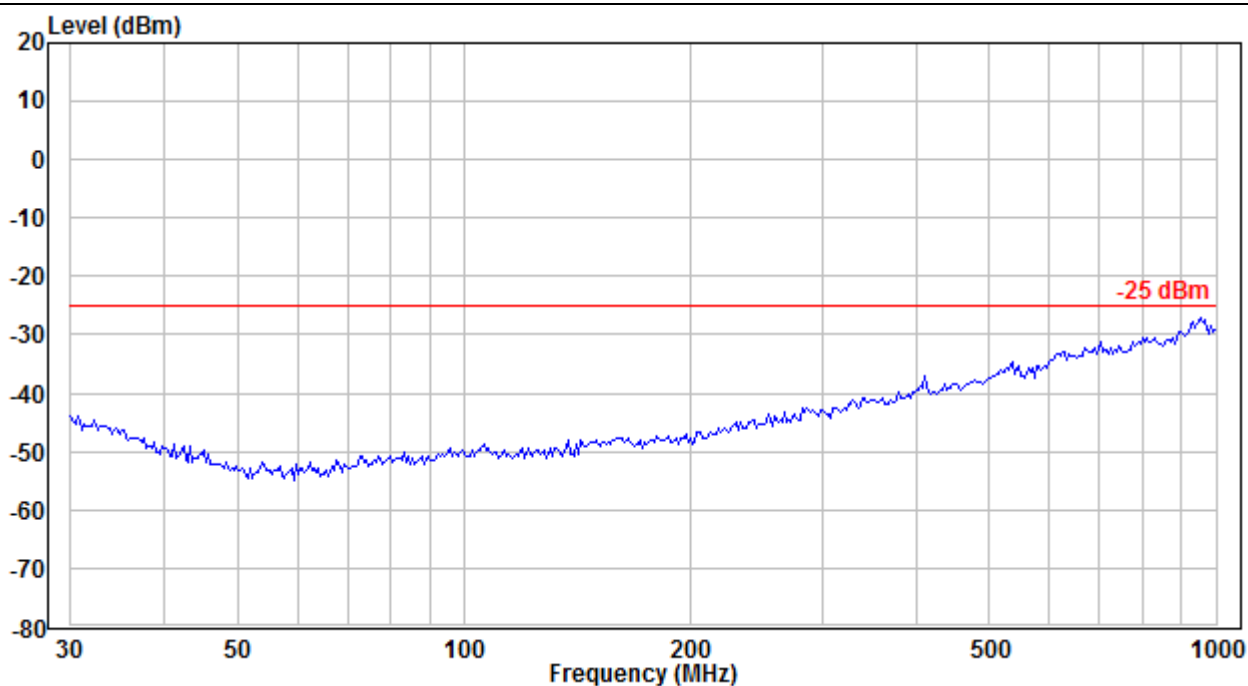
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Fax: +86-755-28230886

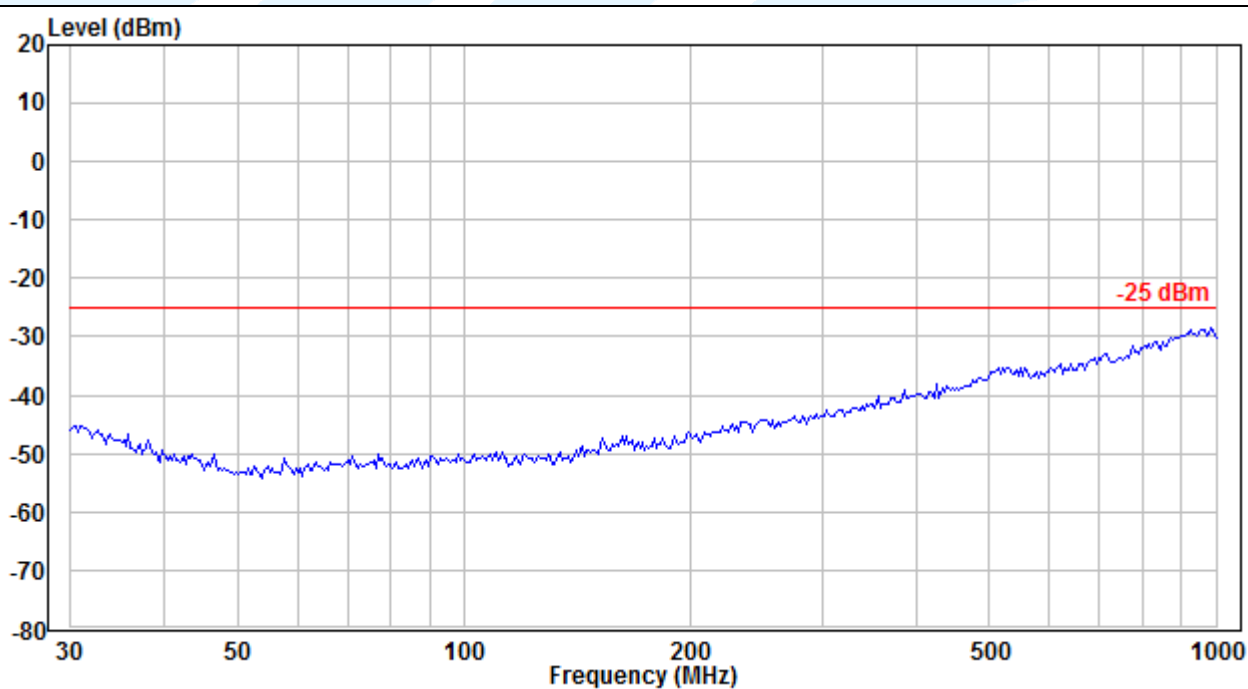
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LTE Band 7 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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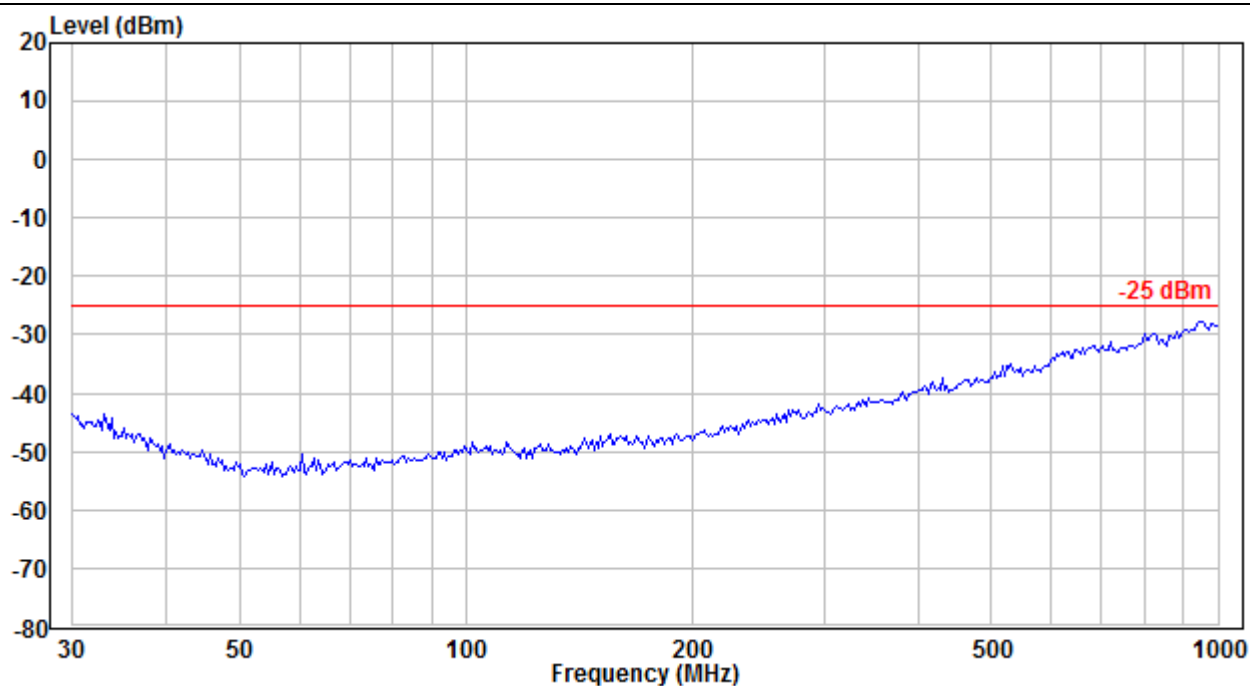
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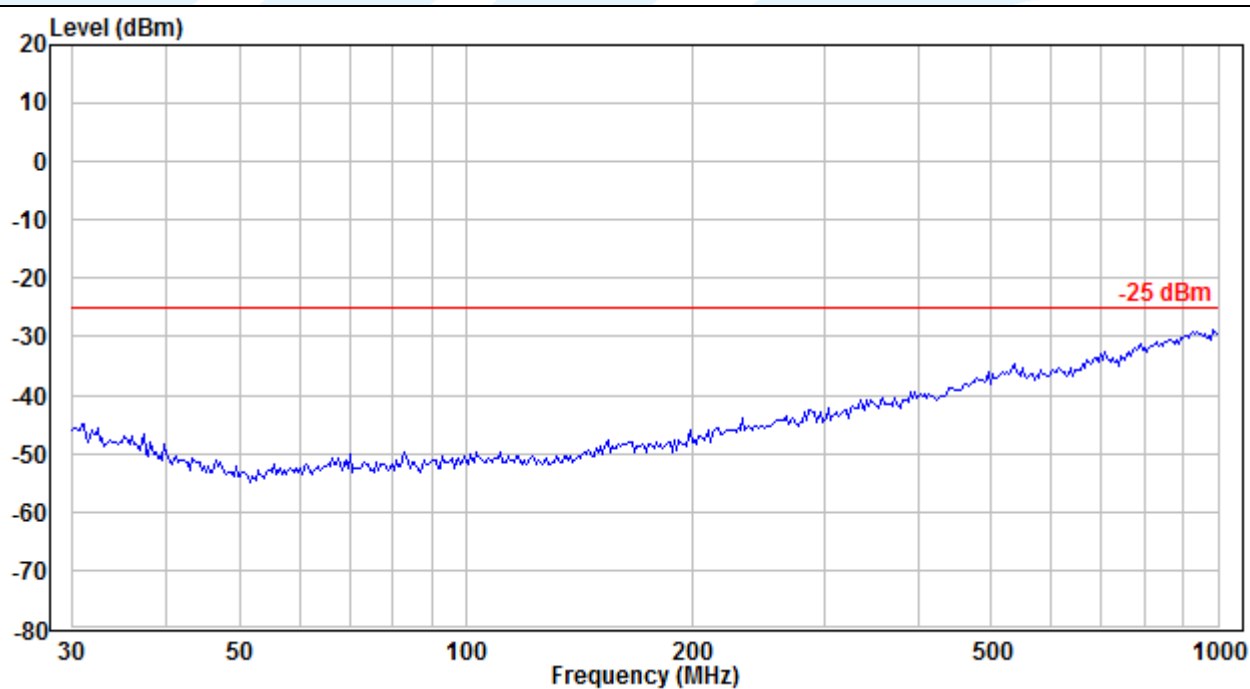
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LTE Band 7 / 15 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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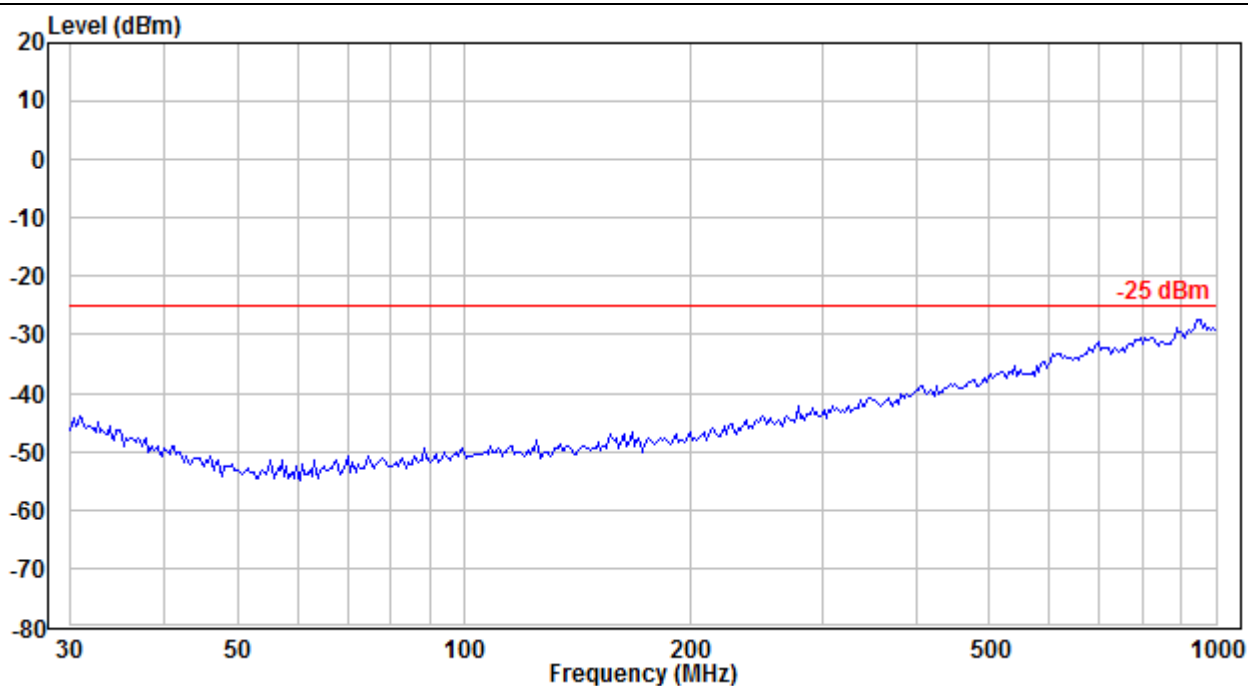
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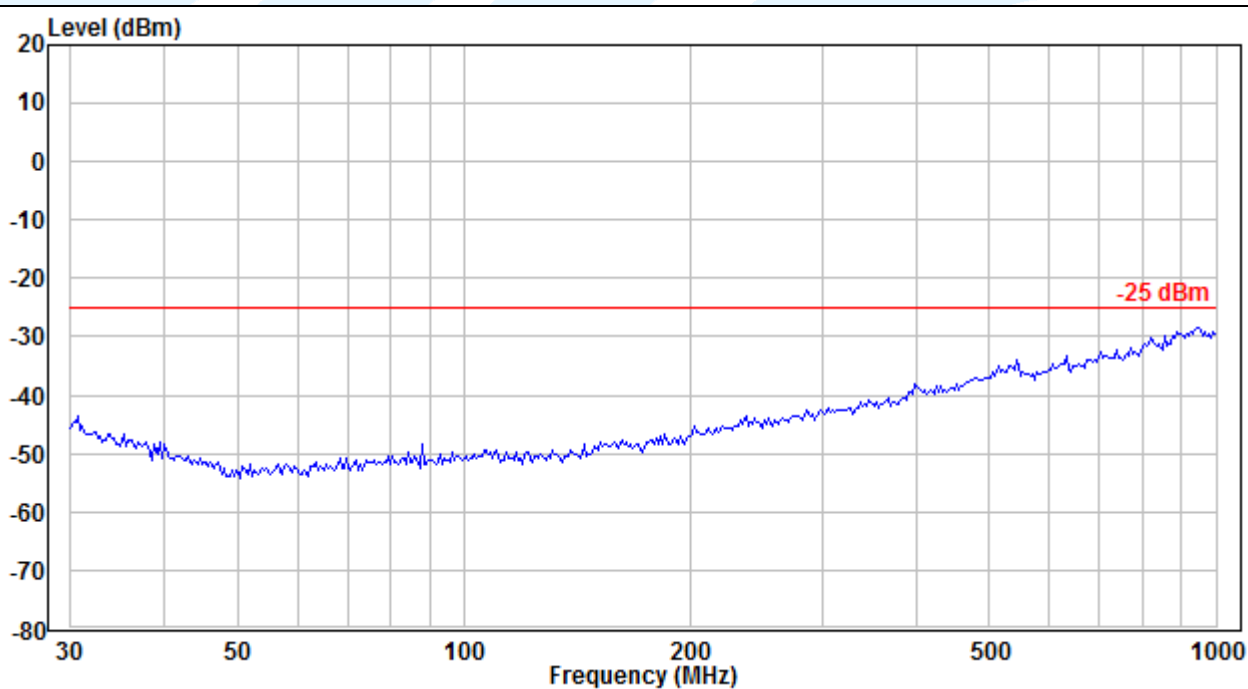
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LTE Band 7 / 20 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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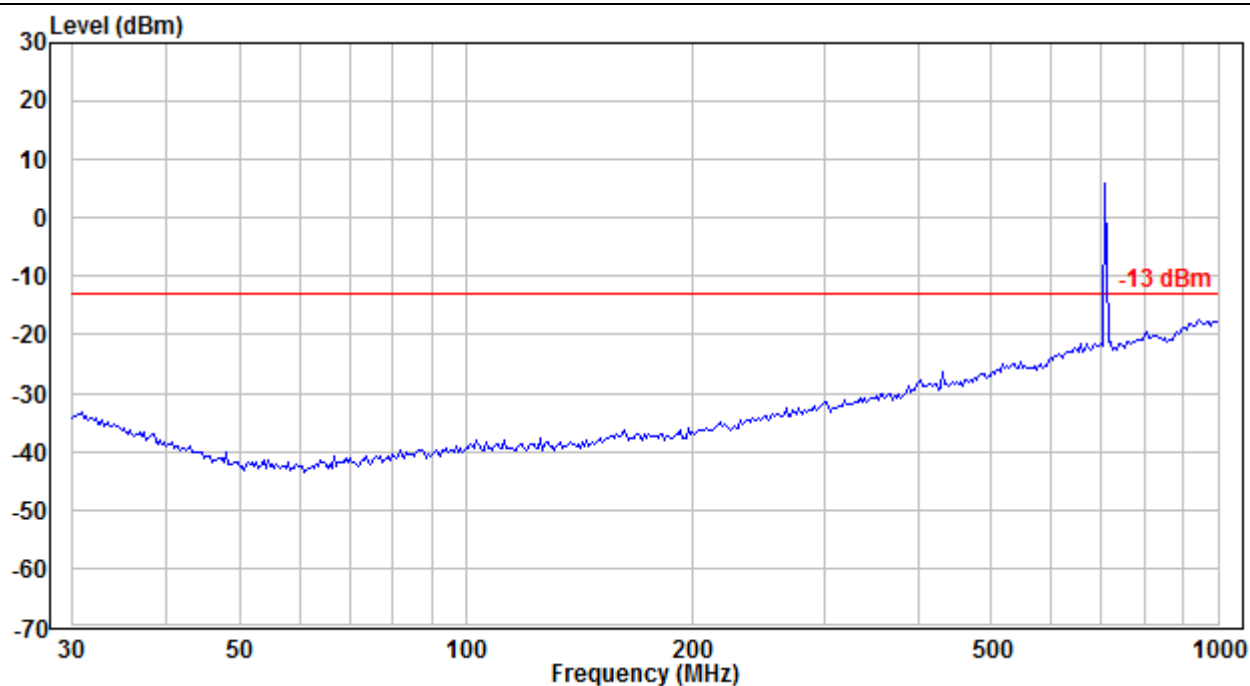
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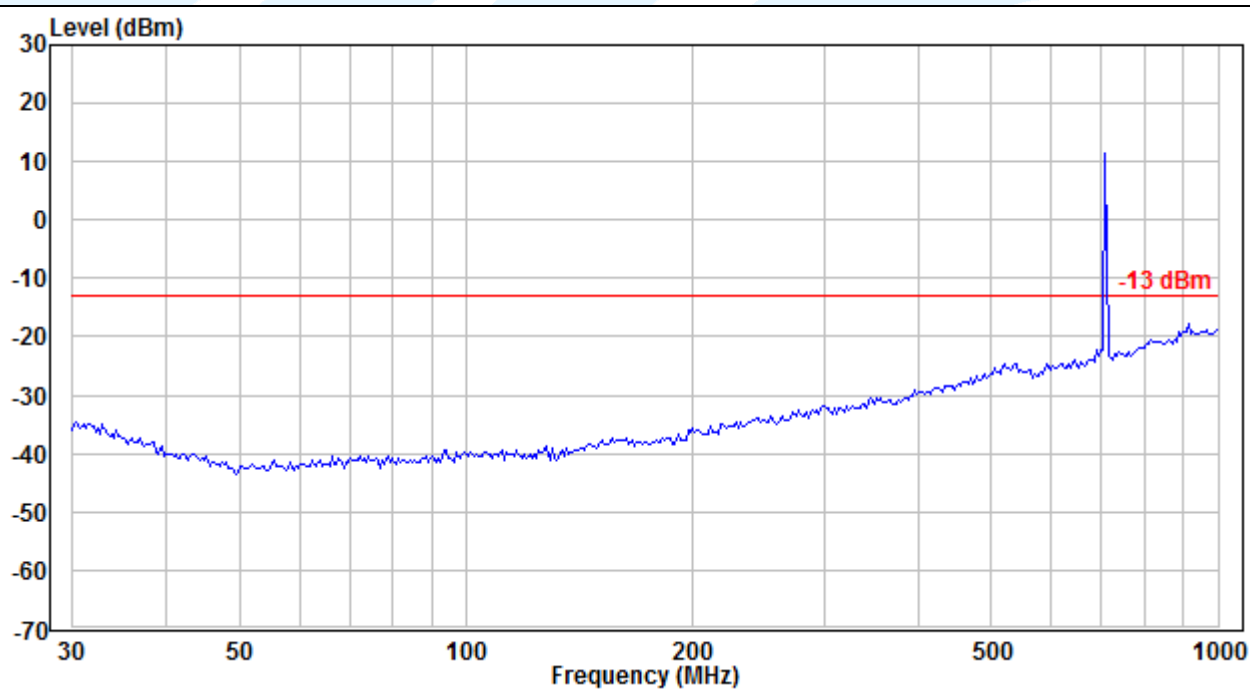
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LTE Band 12 / 1.4 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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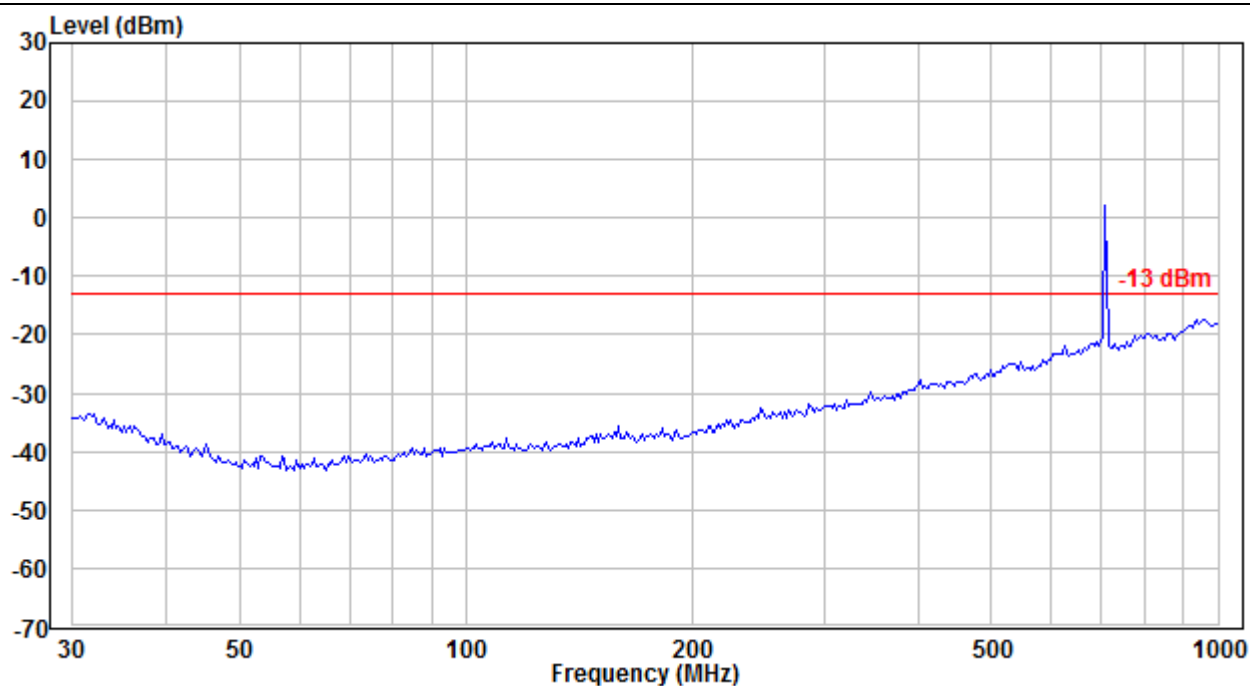
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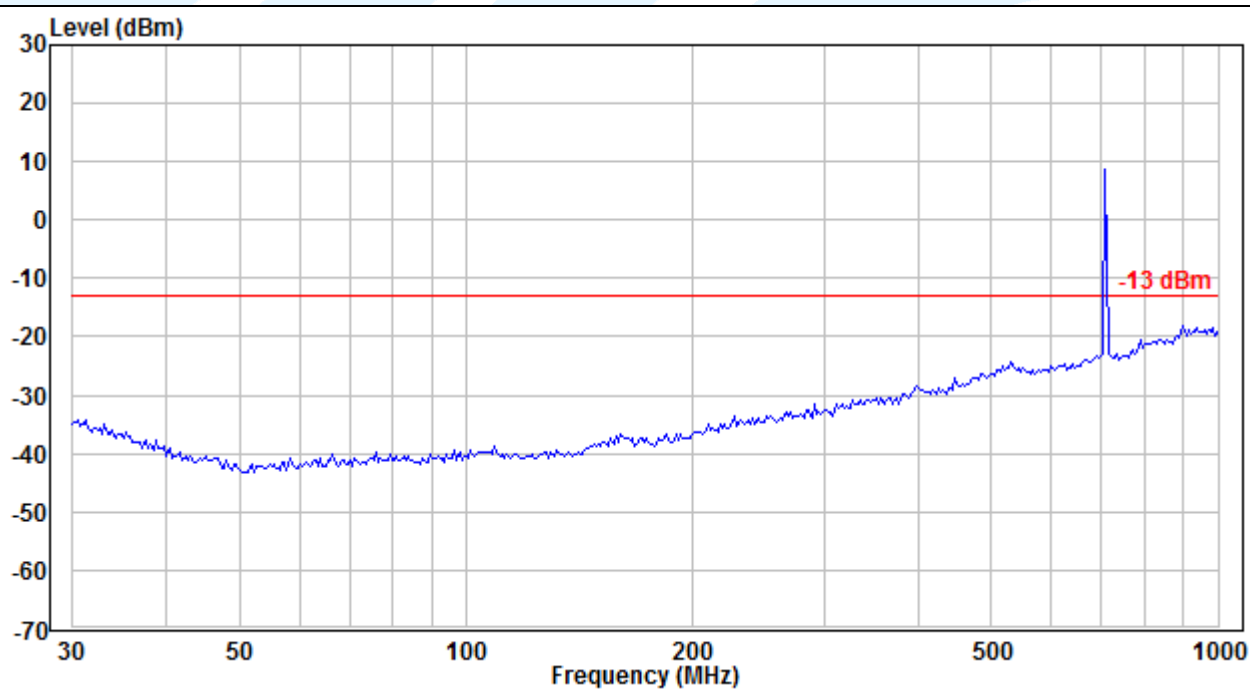
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LTE Band 12 / 3 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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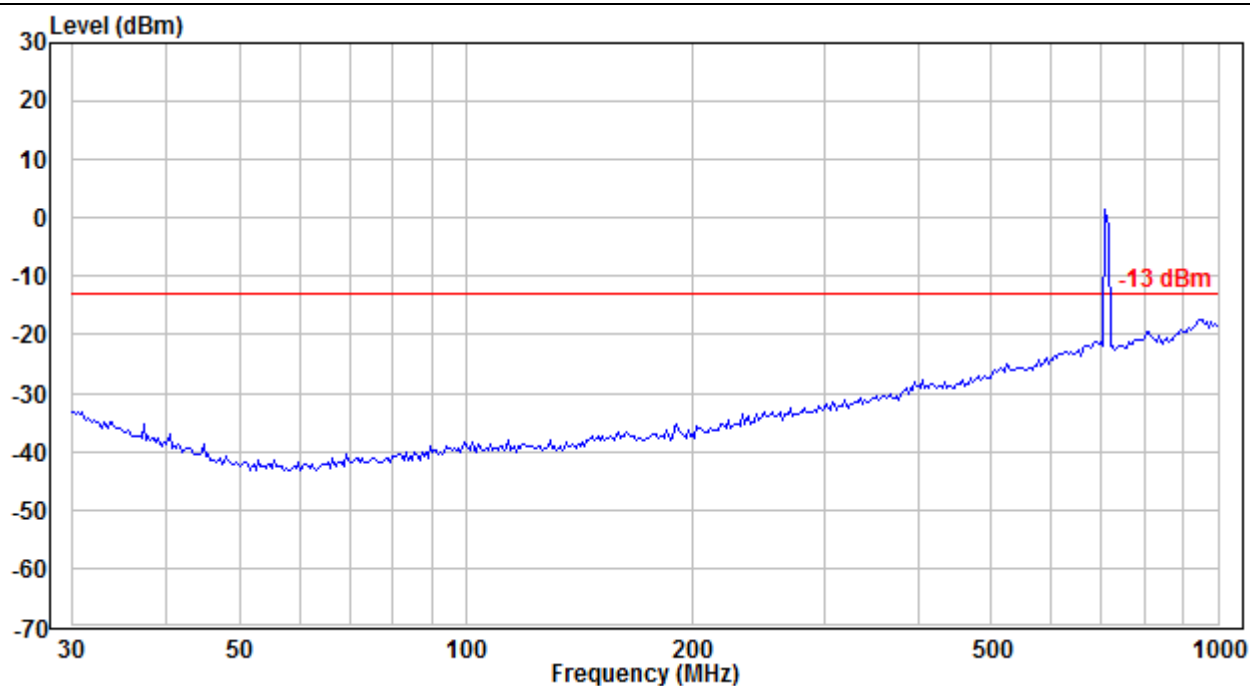
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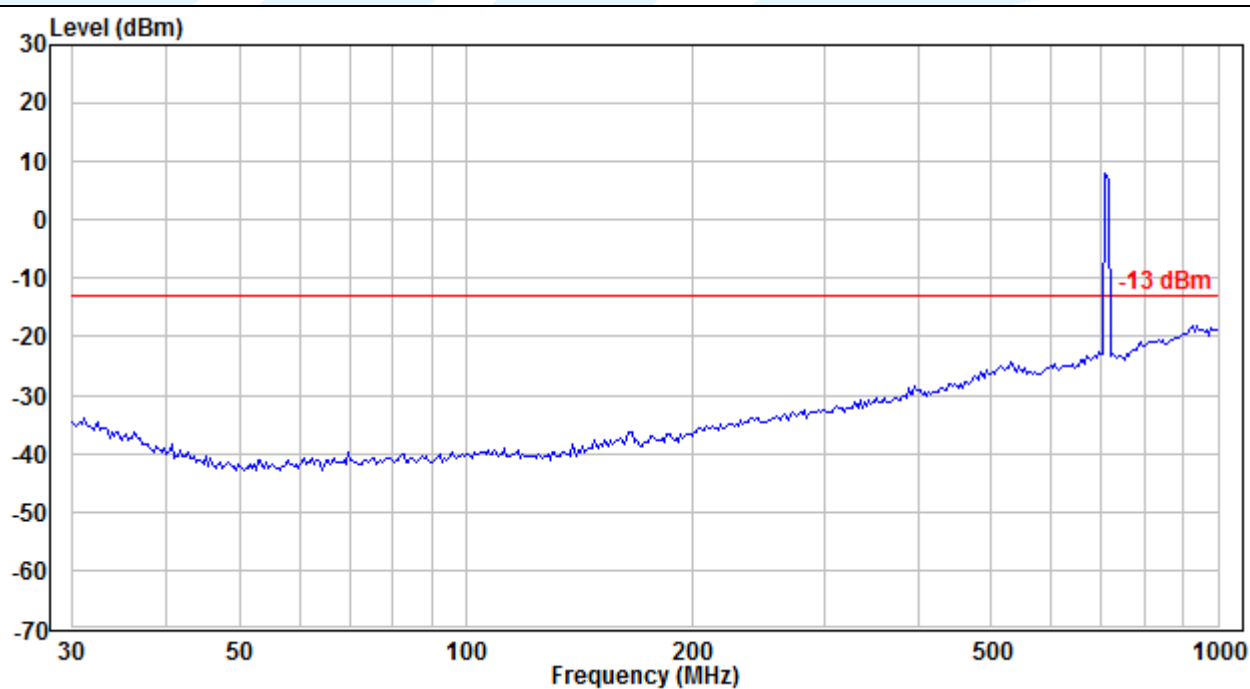
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LTE Band 12 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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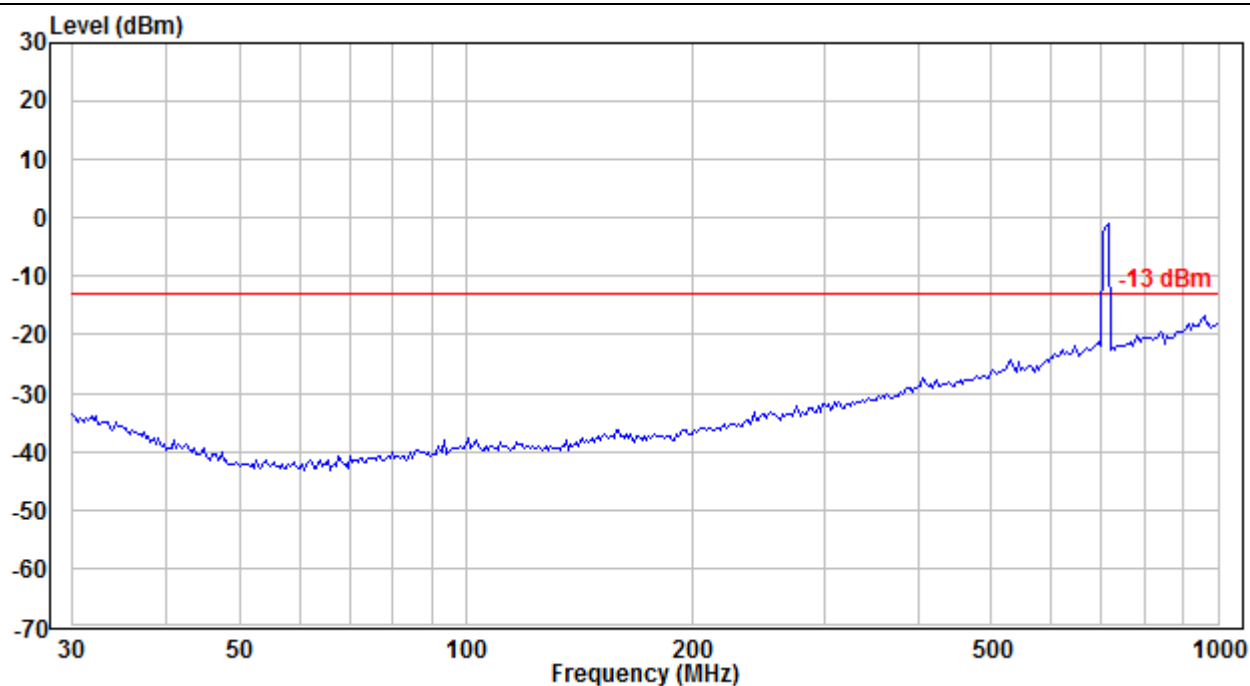
Tel: +86-755-28230888

Fax: +86-755-28230886

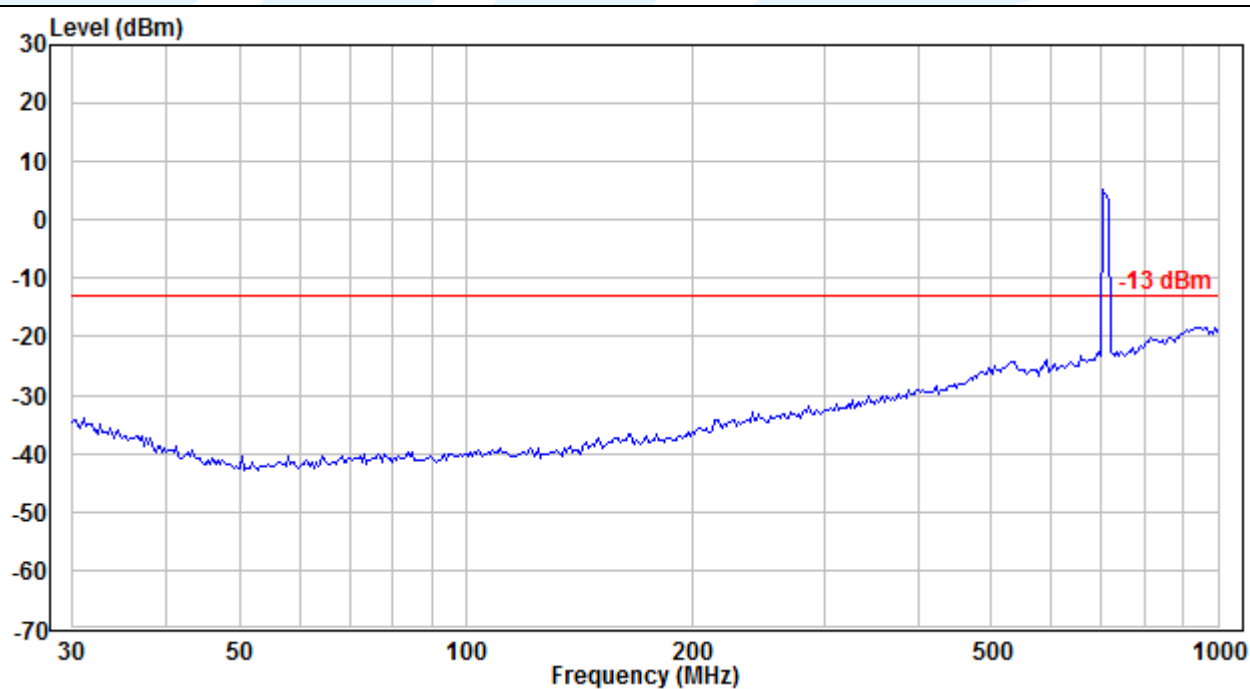
E-mail: info@uttlab.com
<http://www.uttlab.com>

LTE Band 12 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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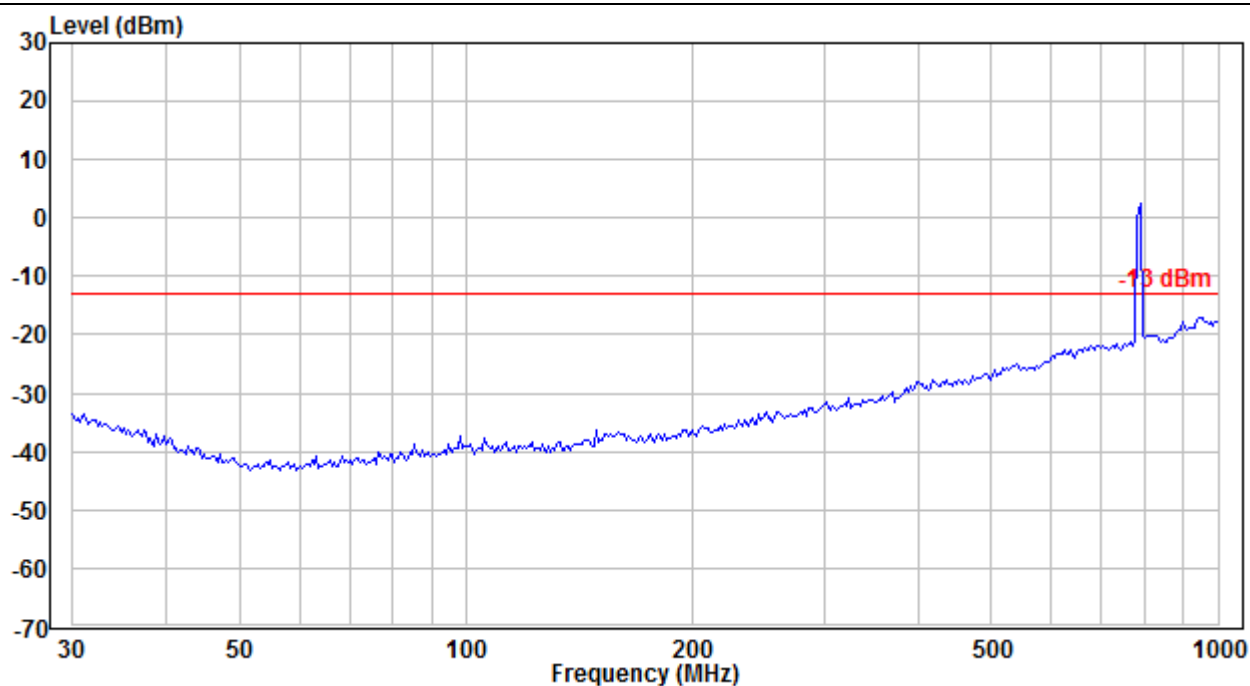
Tel: +86-755-28230888

Fax: +86-755-28230886

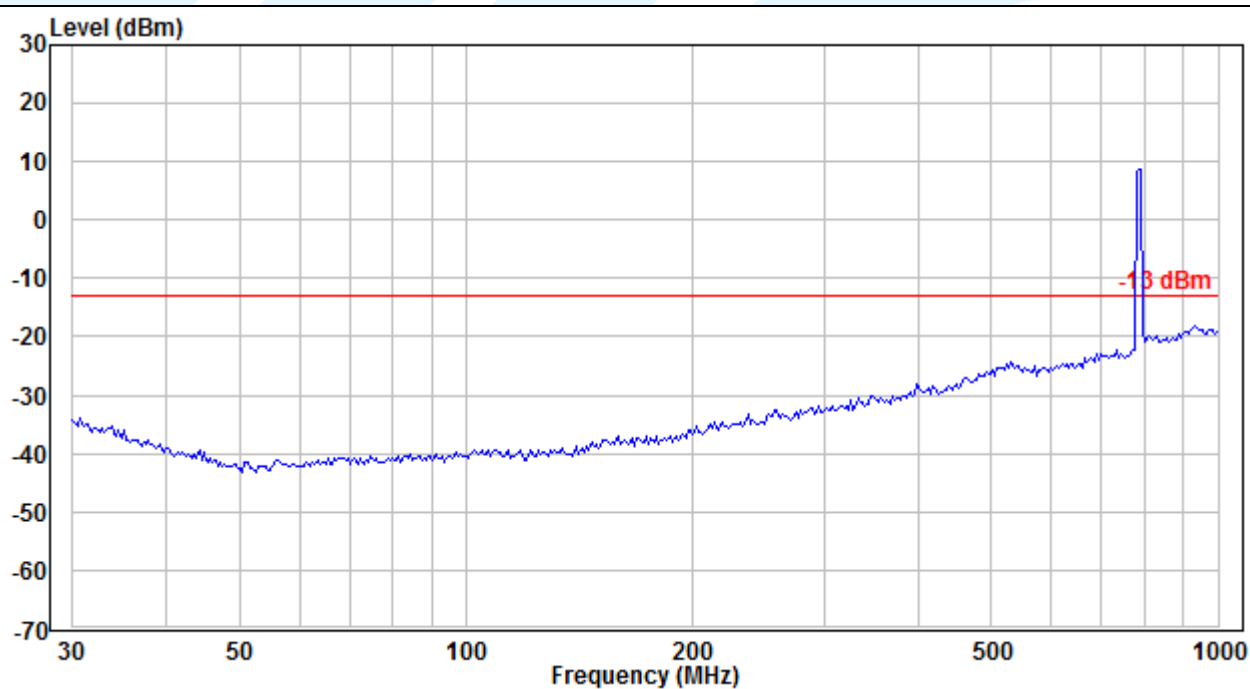
E-mail: info@uttlab.com
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LTE Band 13 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

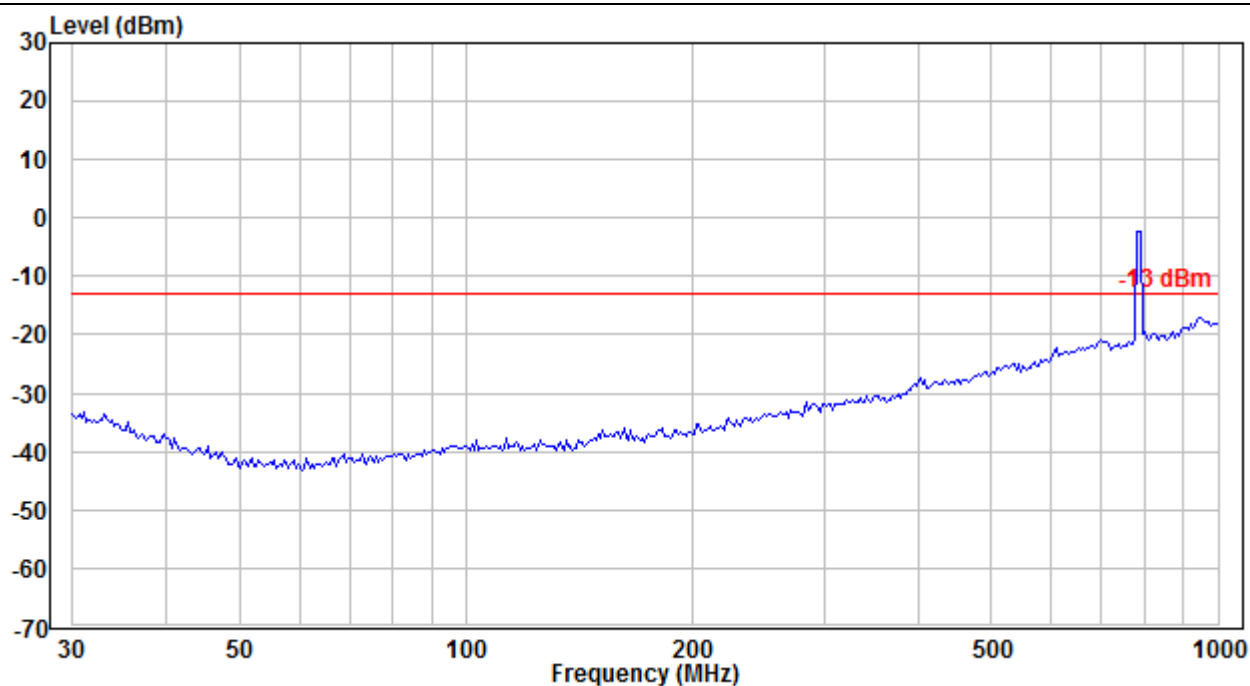
Fax: +86-755-28230886

E-mail: info@uttlab.com

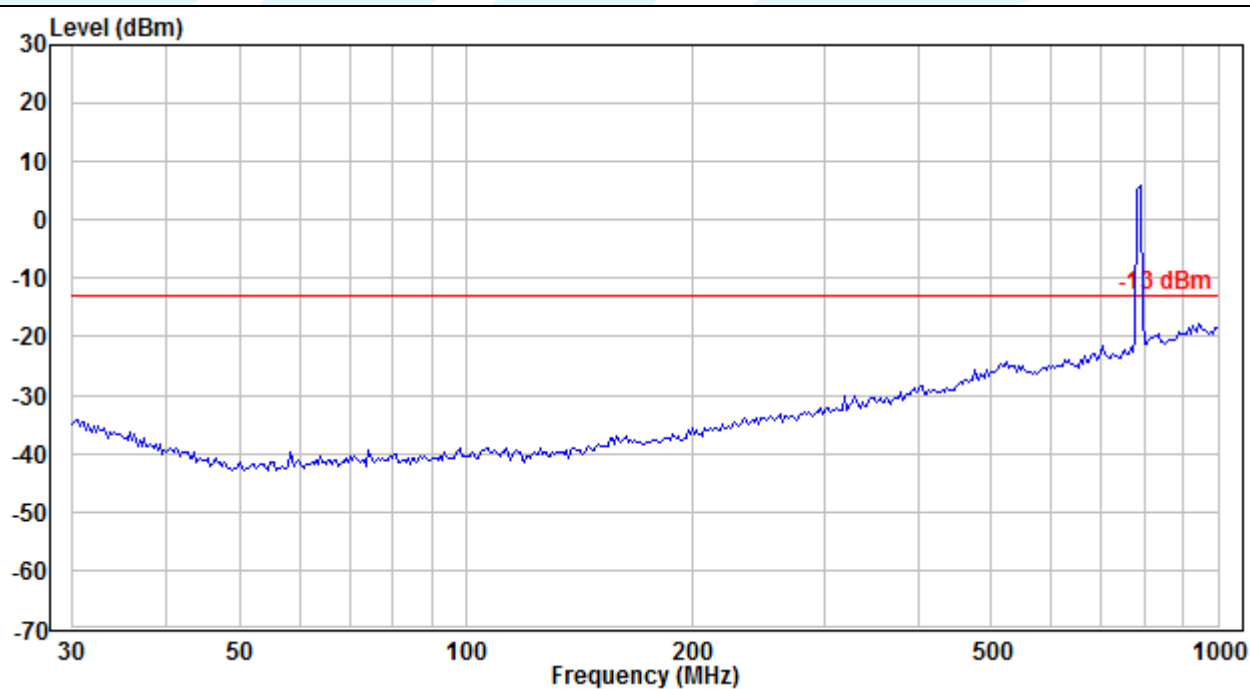
<http://www.uttlab.com>

LTE Band 13 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

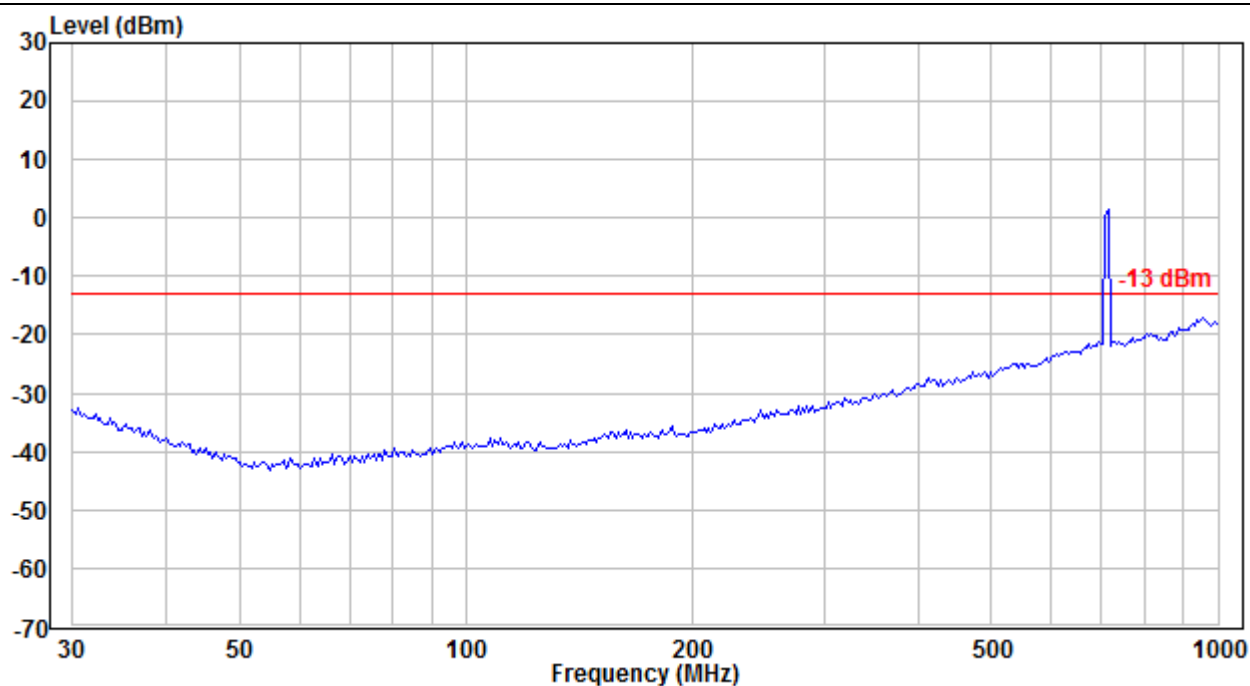
Fax: +86-755-28230886

E-mail: info@uttlab.com

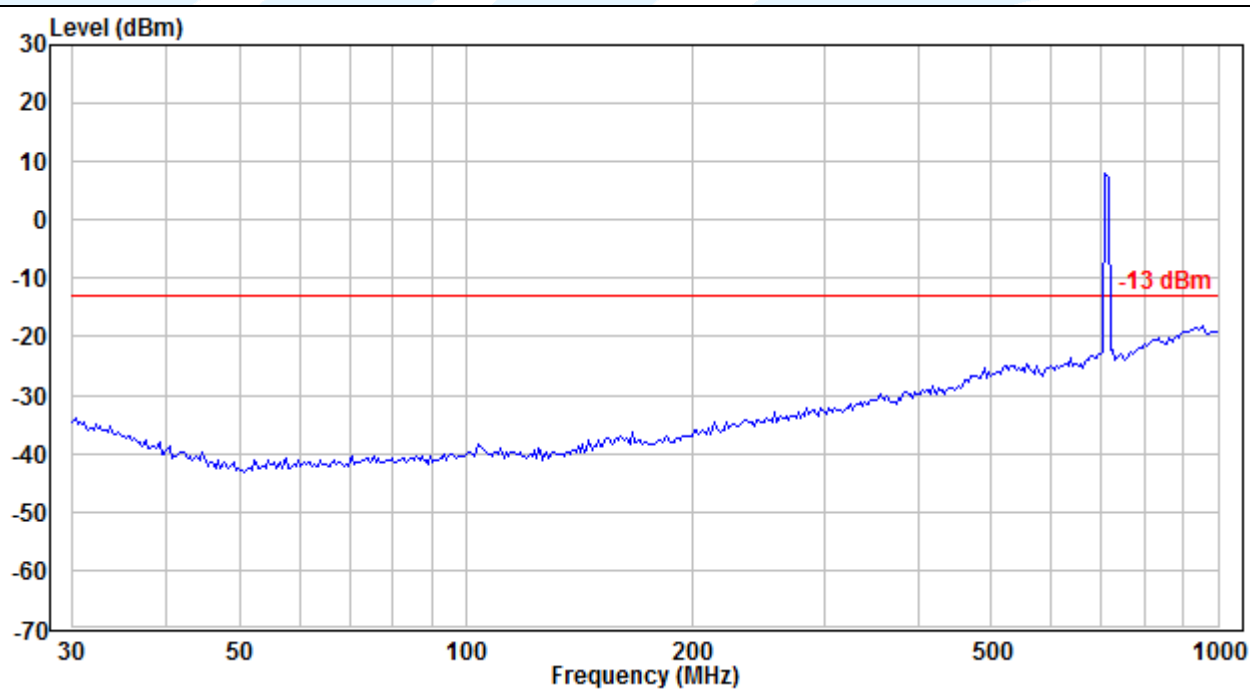
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LTE Band 17 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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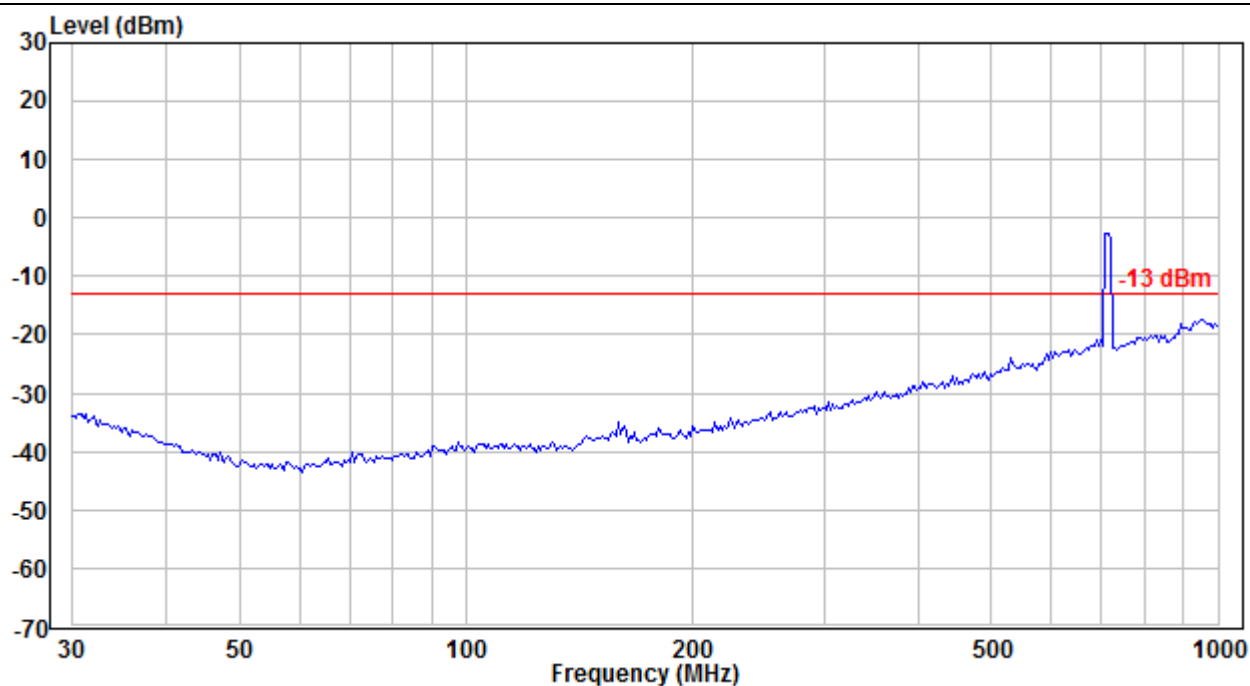
Tel: +86-755-28230888

Fax: +86-755-28230886

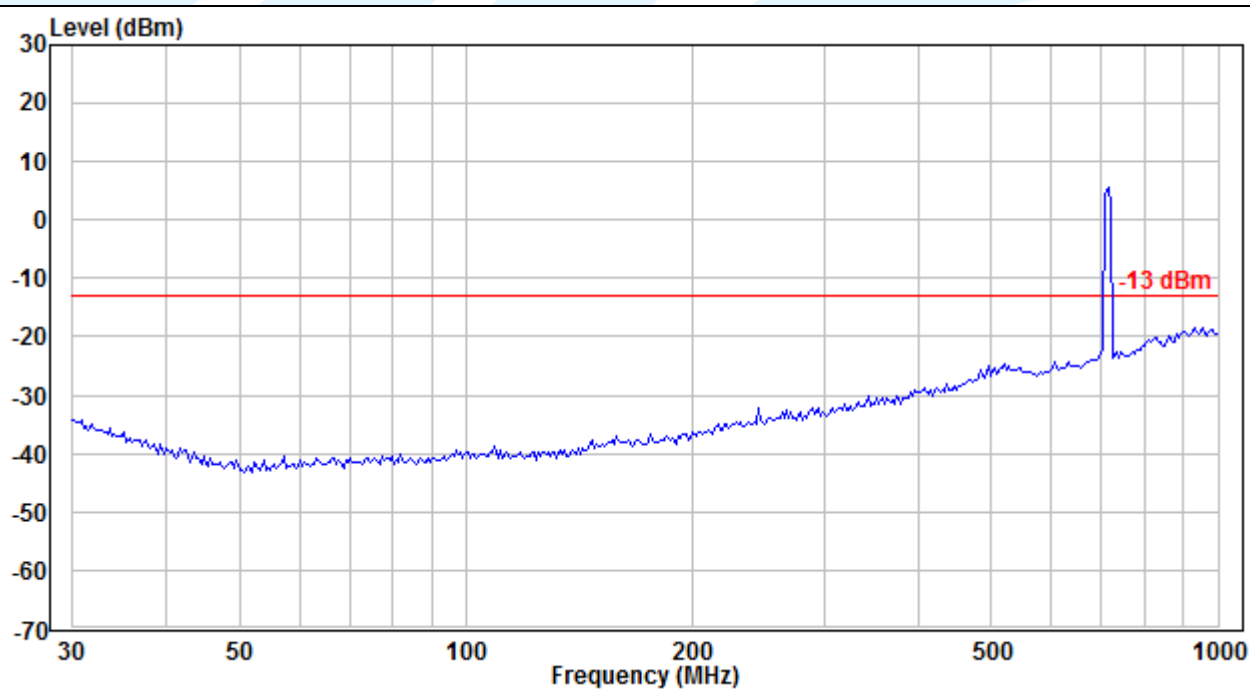
E-mail: info@uttlab.com
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LTE Band 17 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

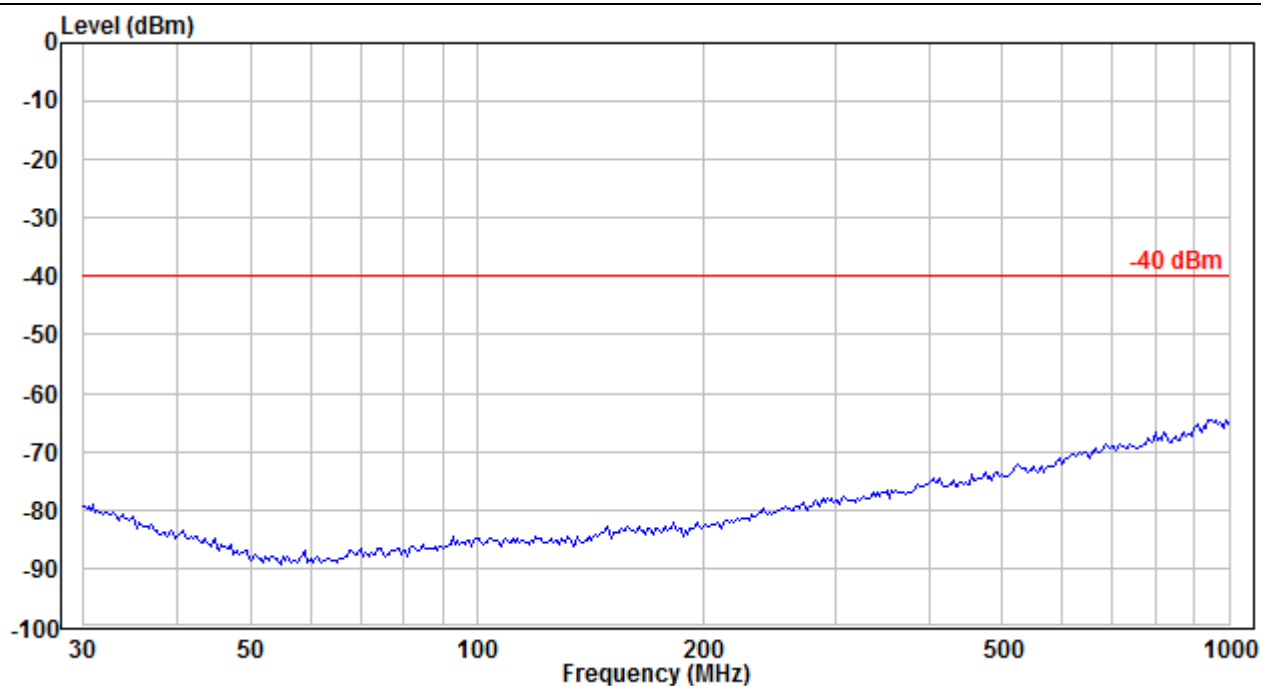
Fax: +86-755-28230886

E-mail: info@uttlab.com

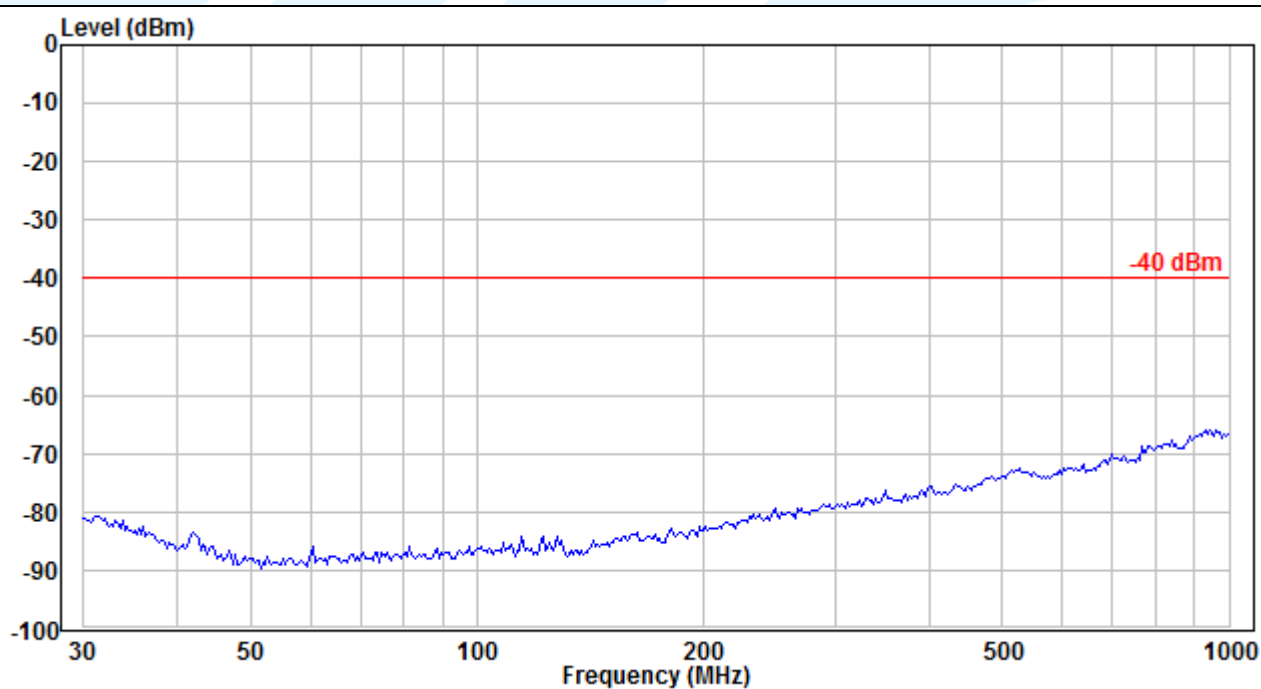
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LTE Band 30 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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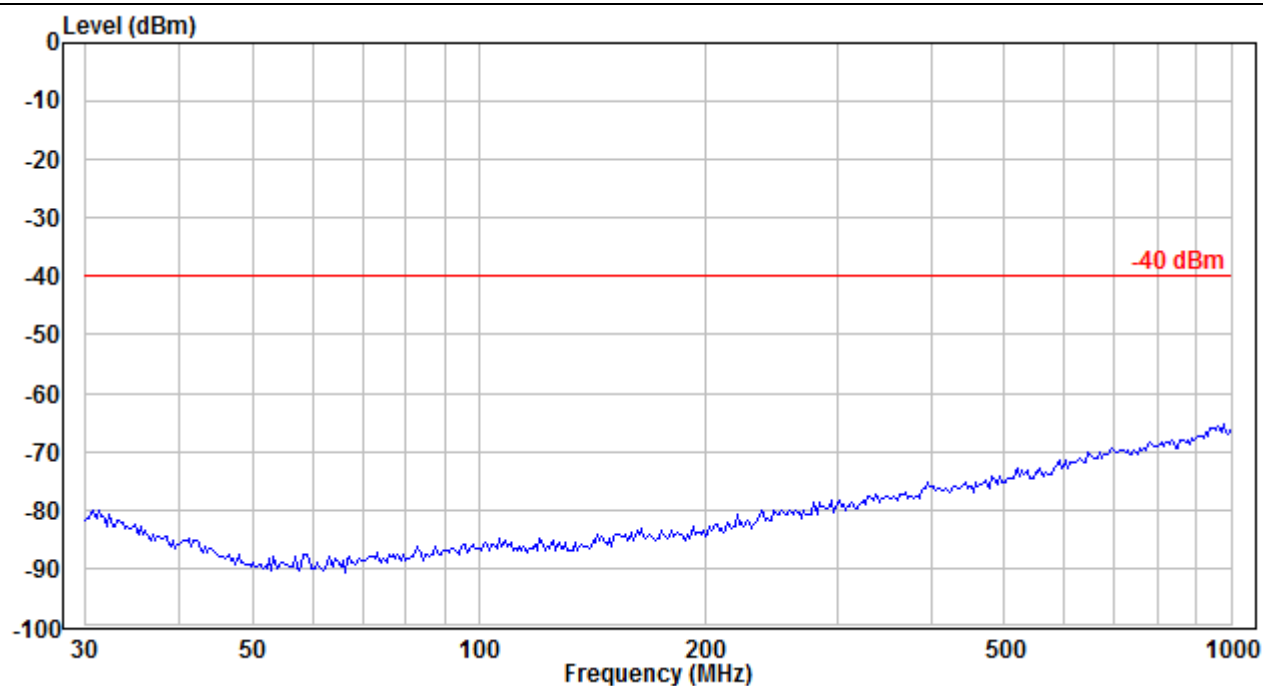
Tel: +86-755-28230888

Fax: +86-755-28230886

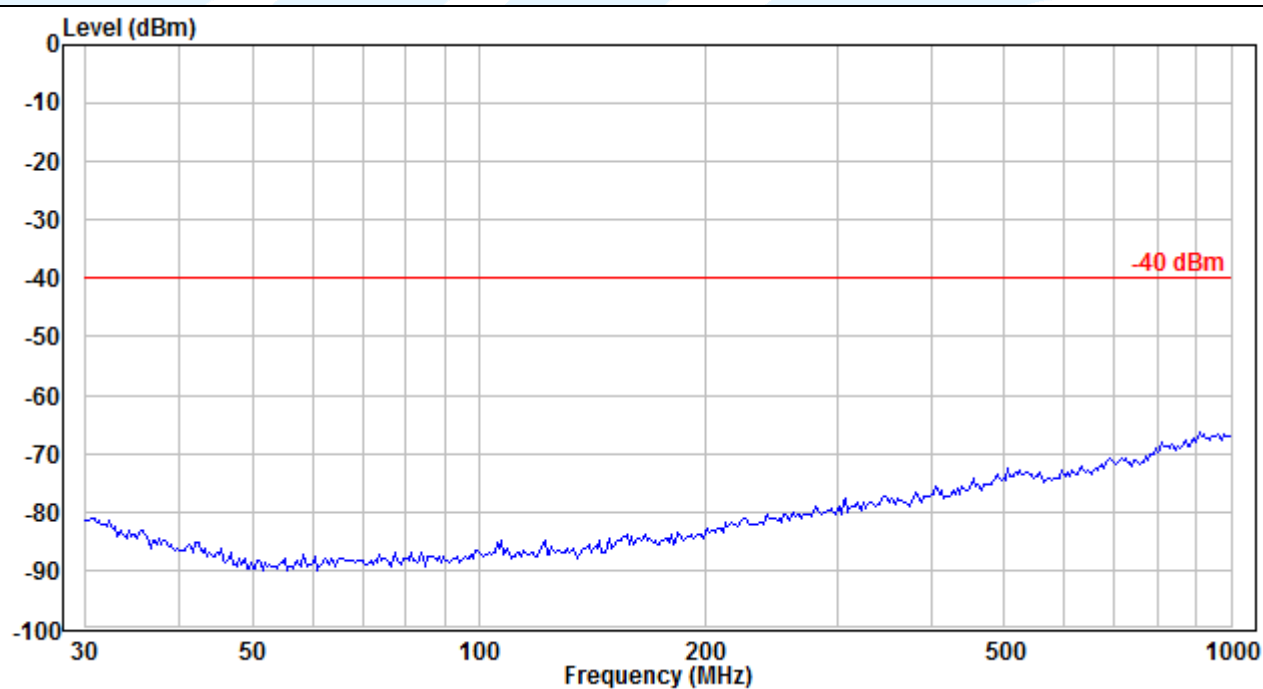
E-mail: info@uttlab.com
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LTE Band 30 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

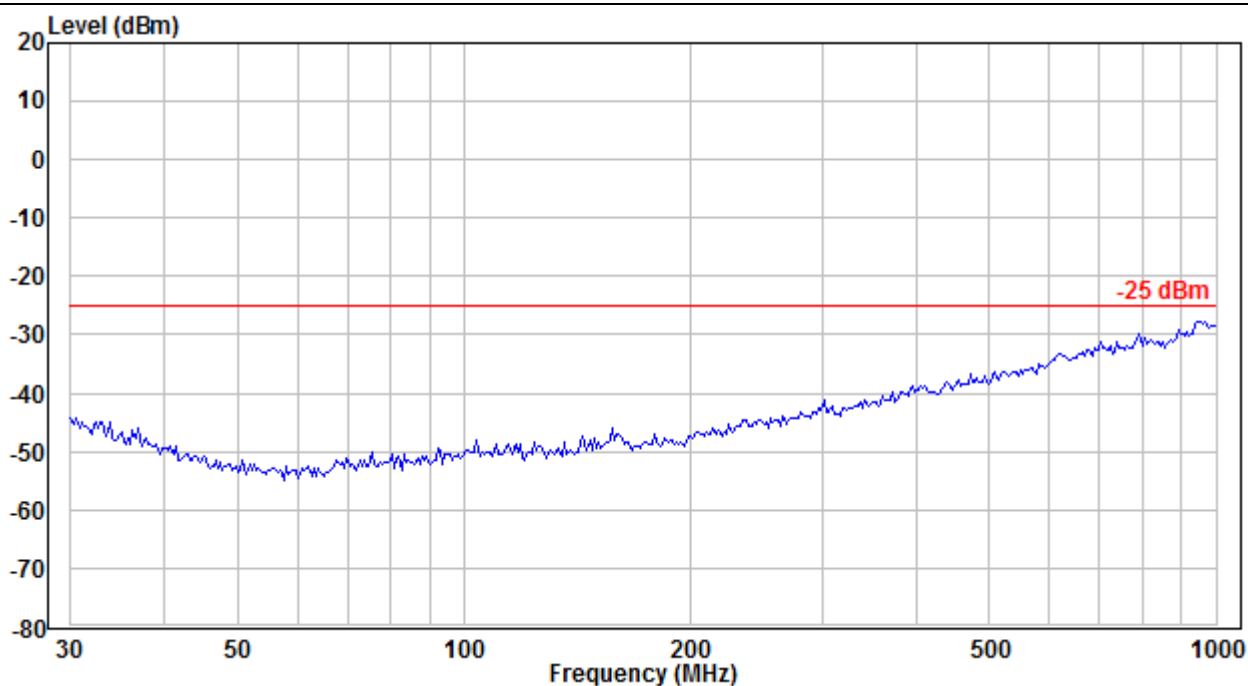
Fax: +86-755-28230886

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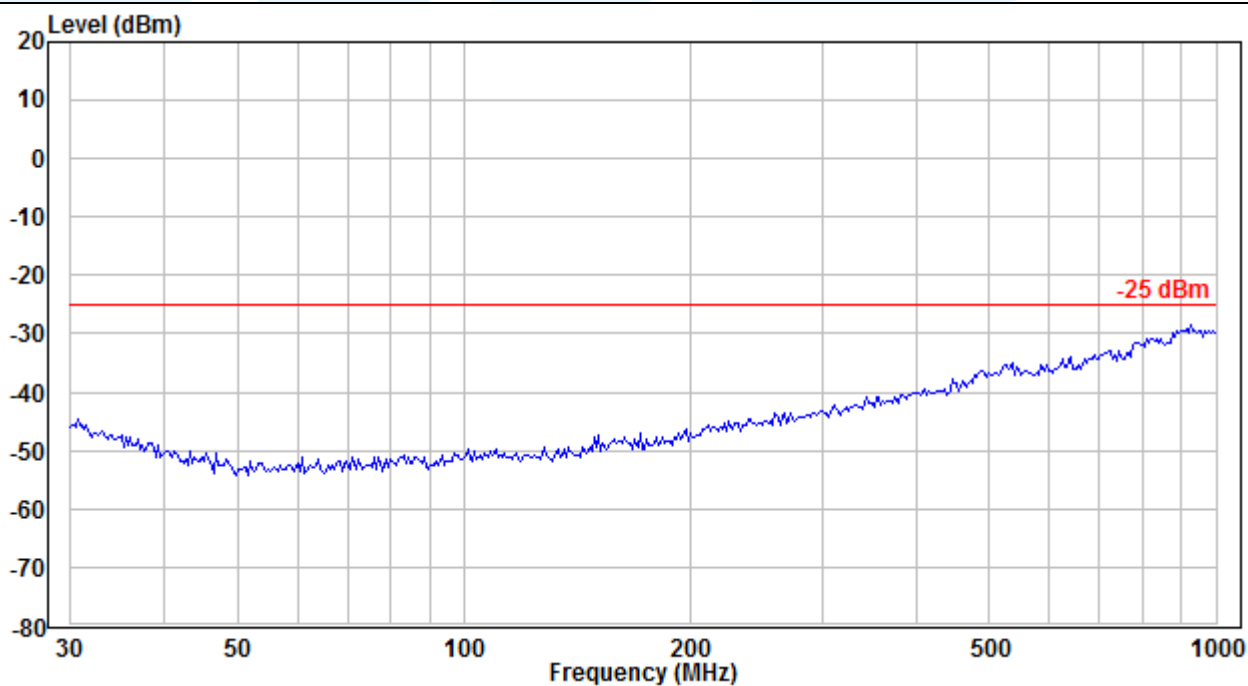
[Http://www.uttlab.com](http://www.uttlab.com)

LTE Band 38 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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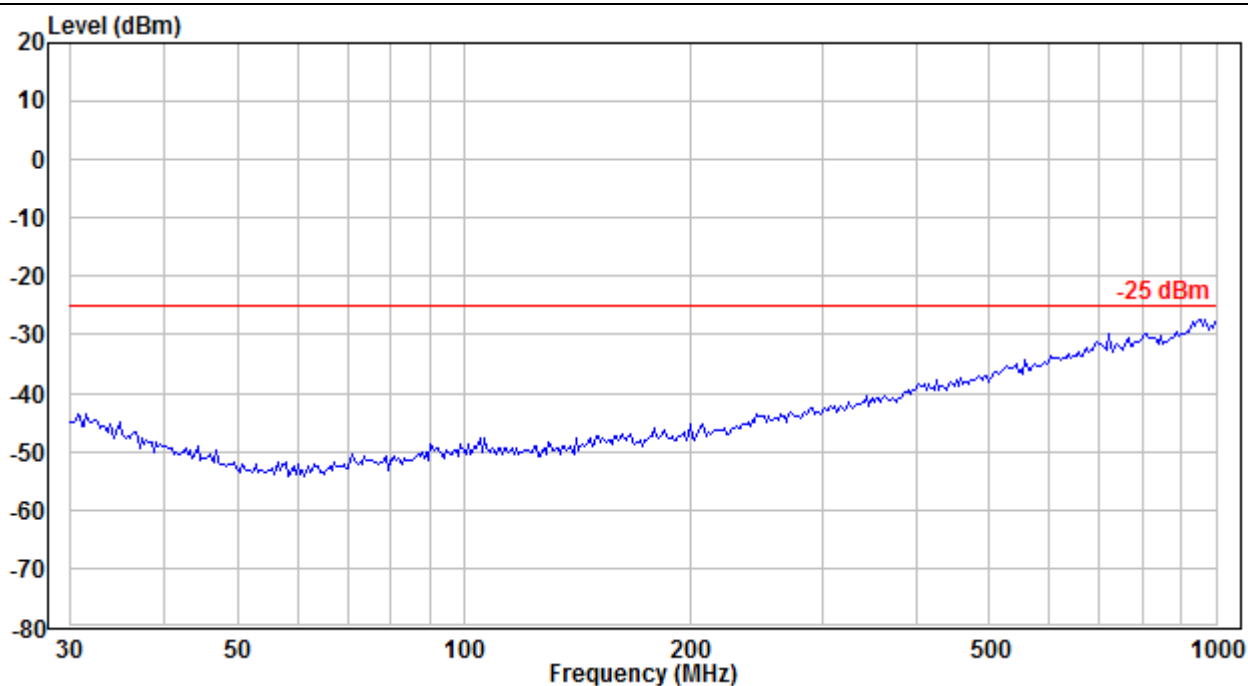
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Fax: +86-755-28230886

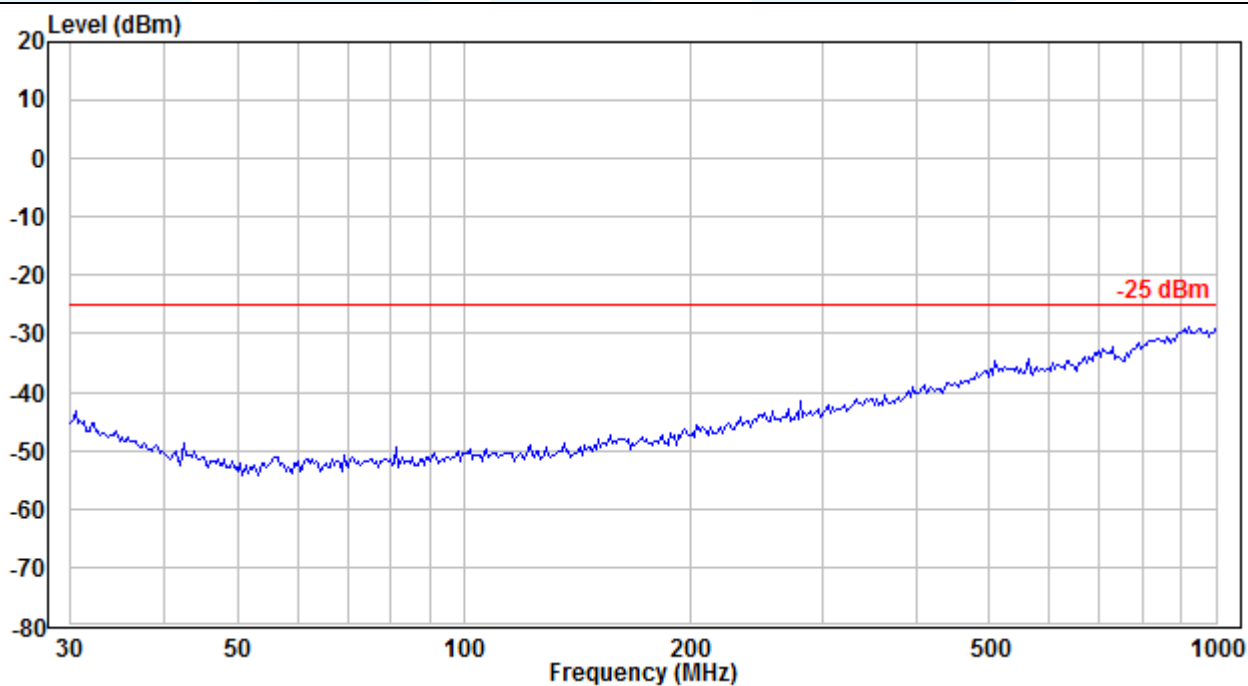
E-mail: info@uttlab.com
<http://www.uttlab.com>

LTE Band 38 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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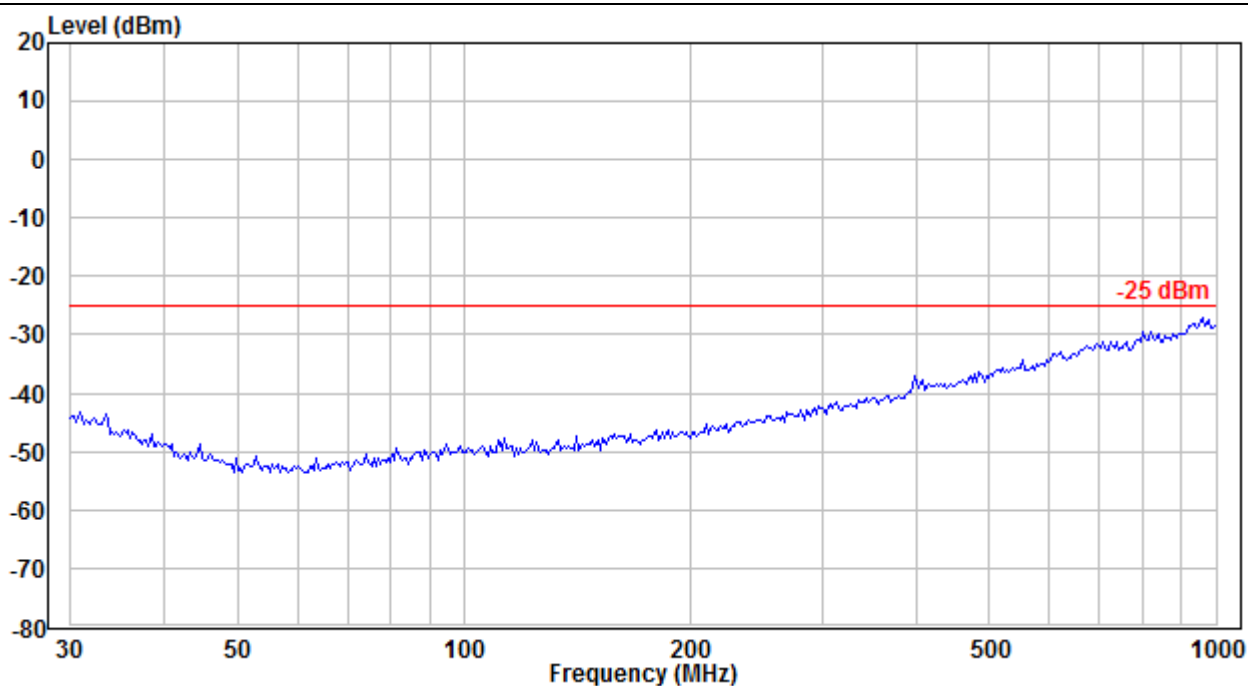
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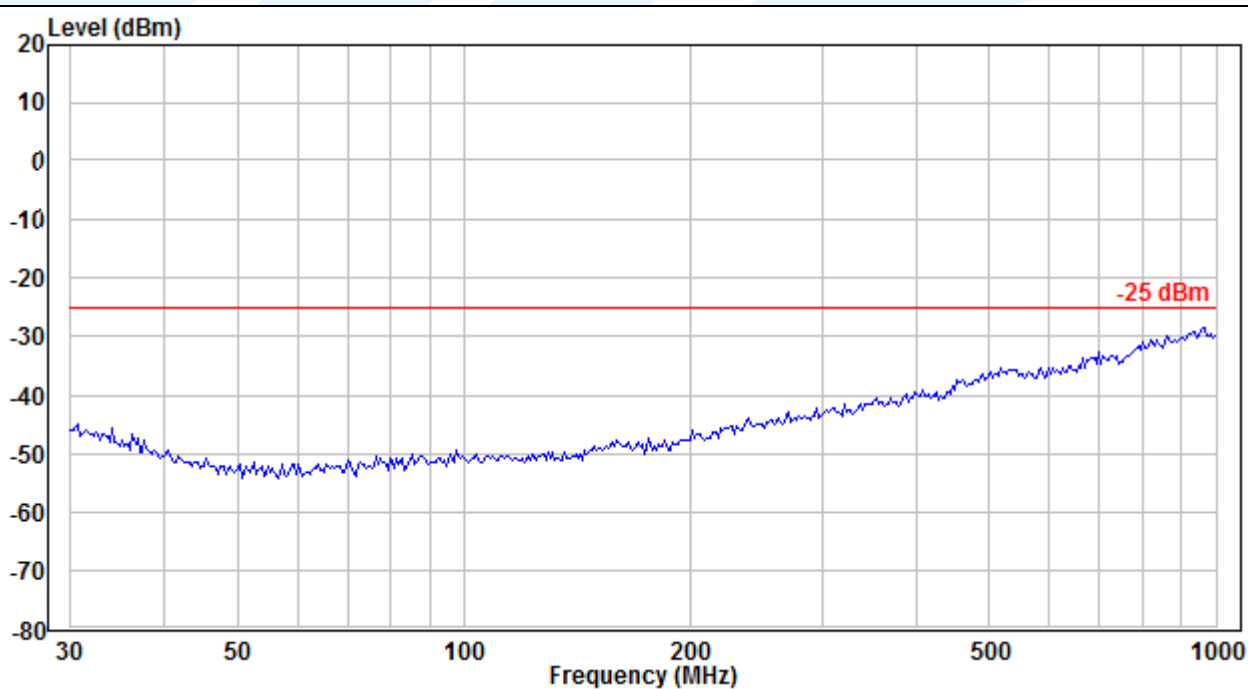
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LTE Band 38 / 15 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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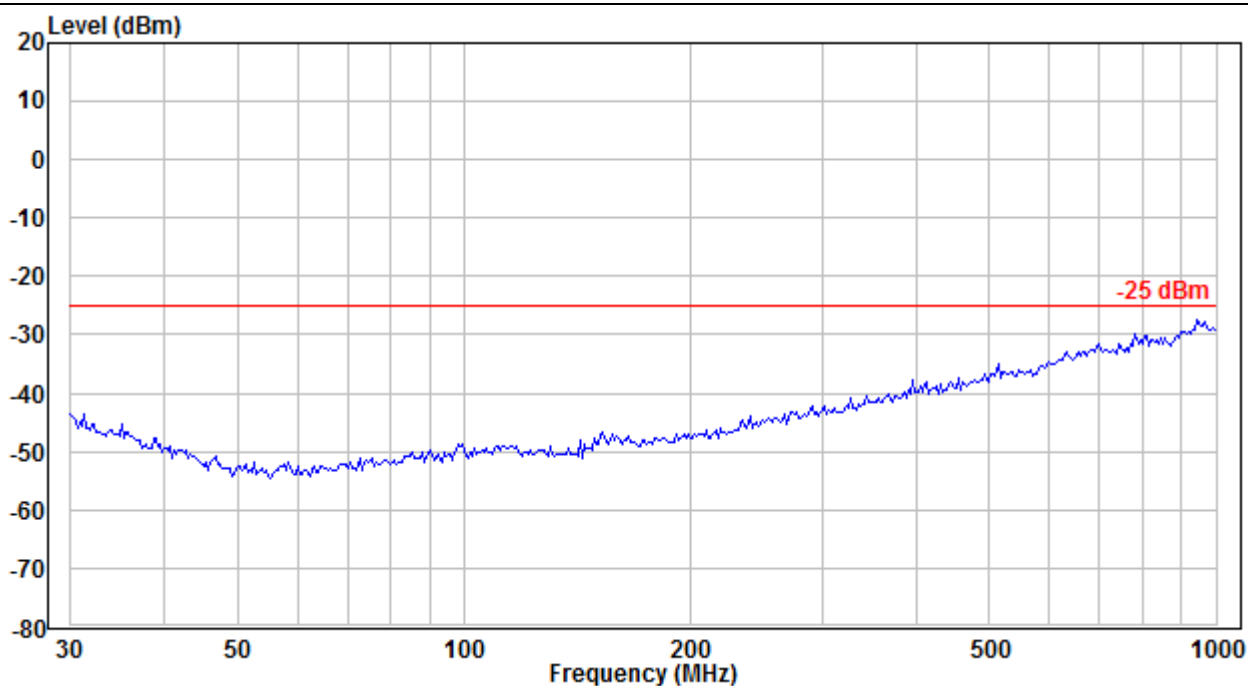
Tel: +86-755-28230888

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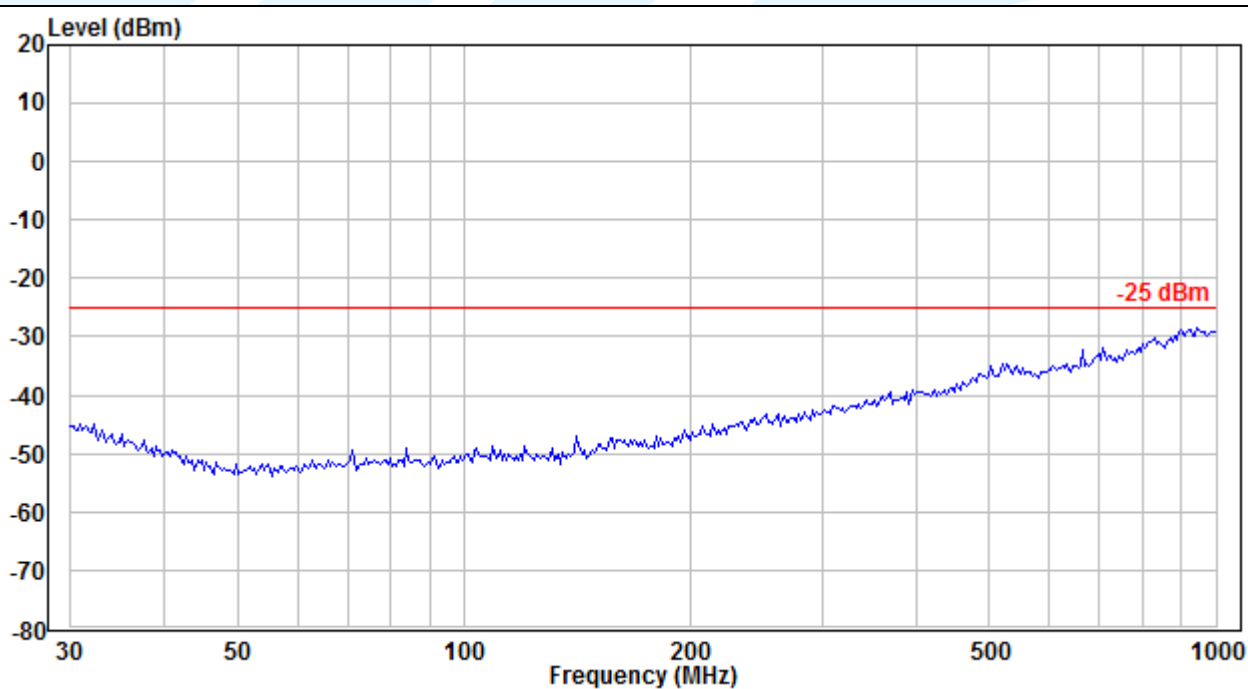
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LTE Band 38 / 20 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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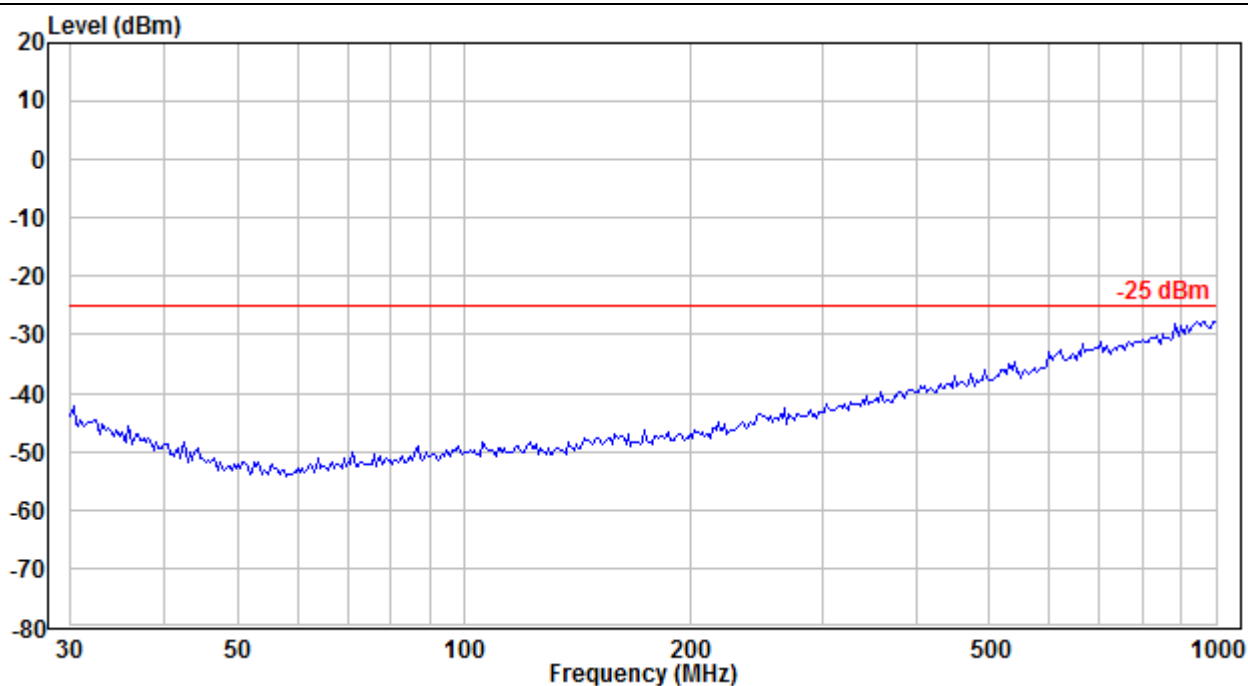
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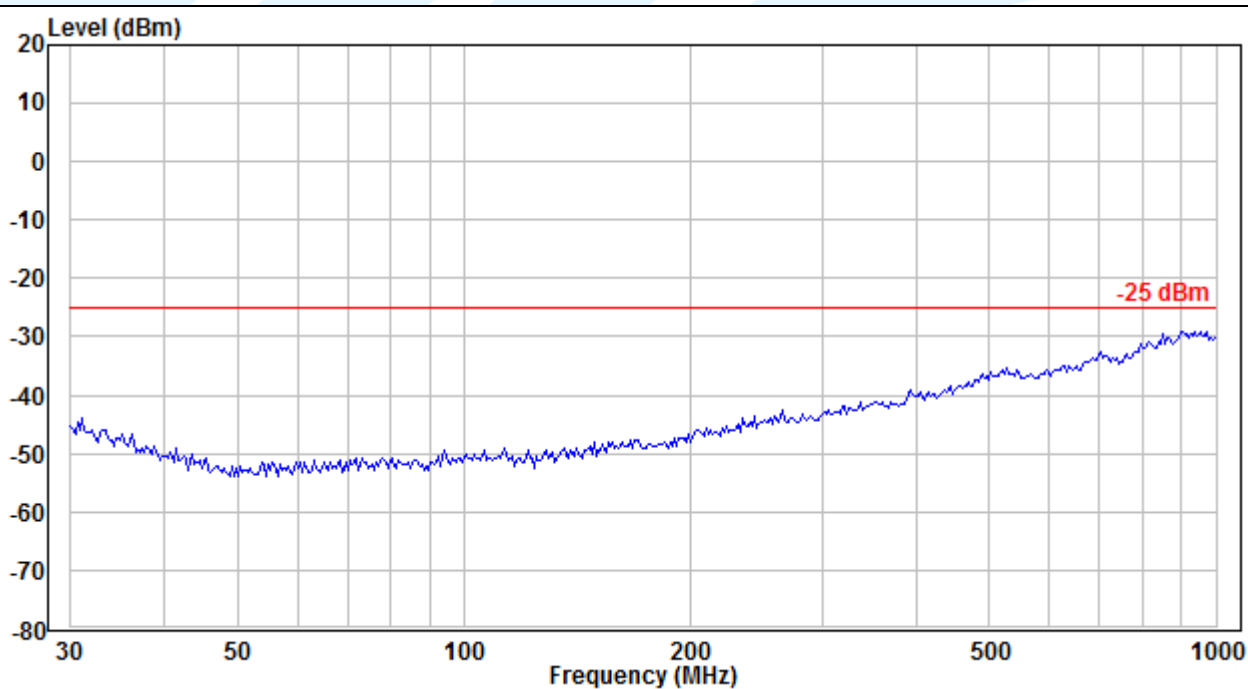
<http://www.uttlab.com>

LTE Band 41 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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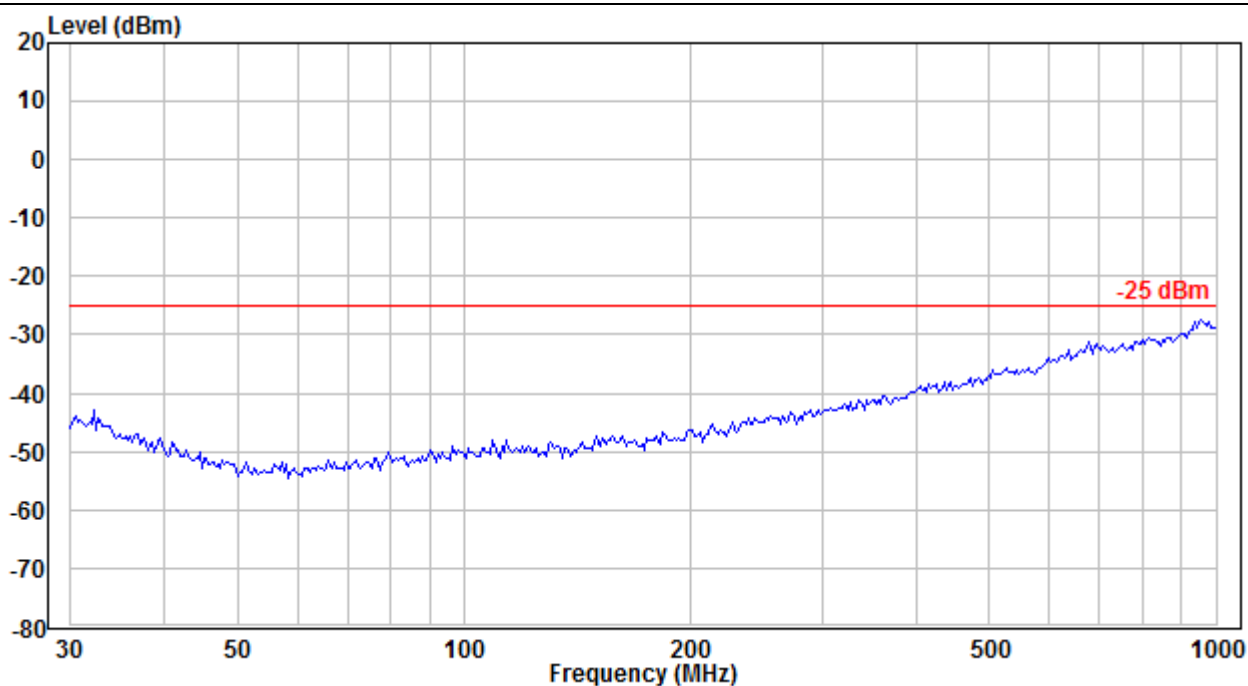
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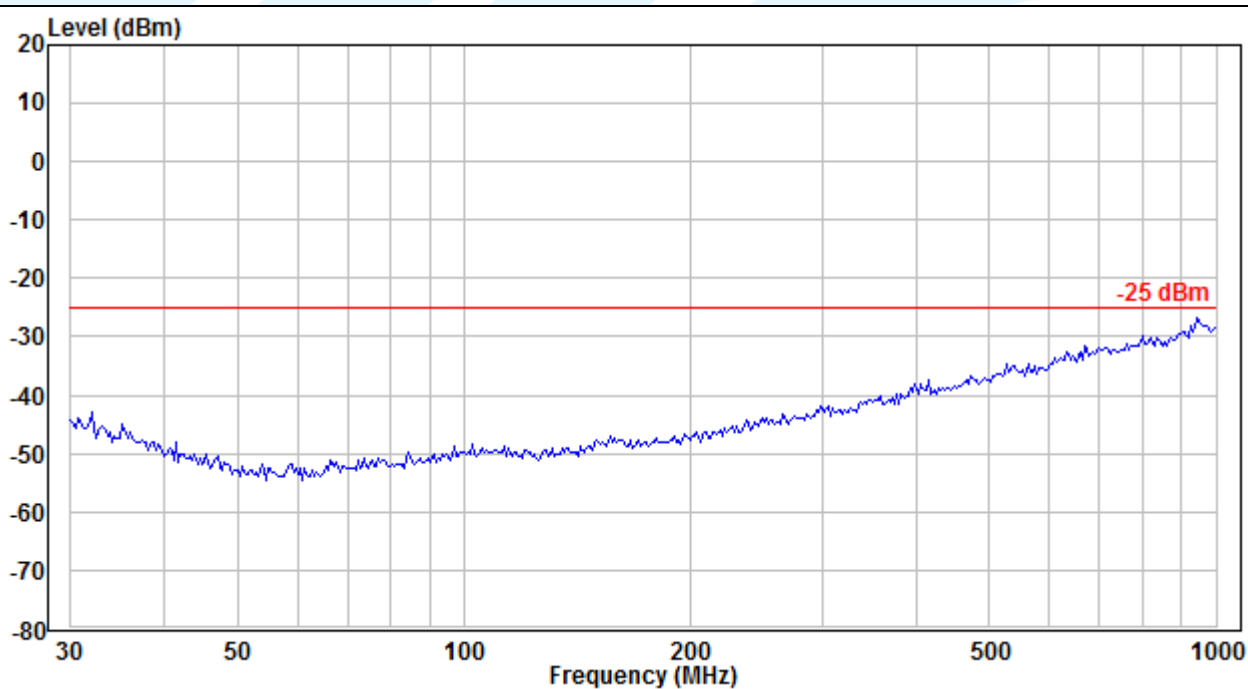
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<http://www.uttlab.com>

LTE Band 41 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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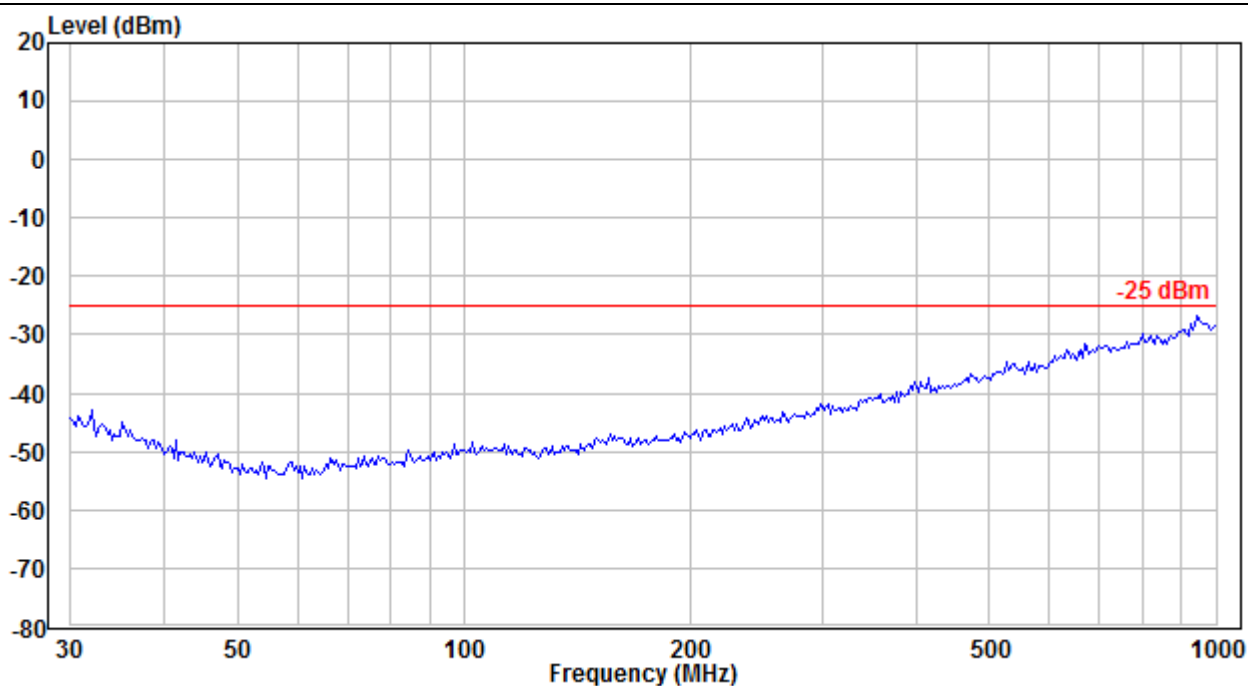
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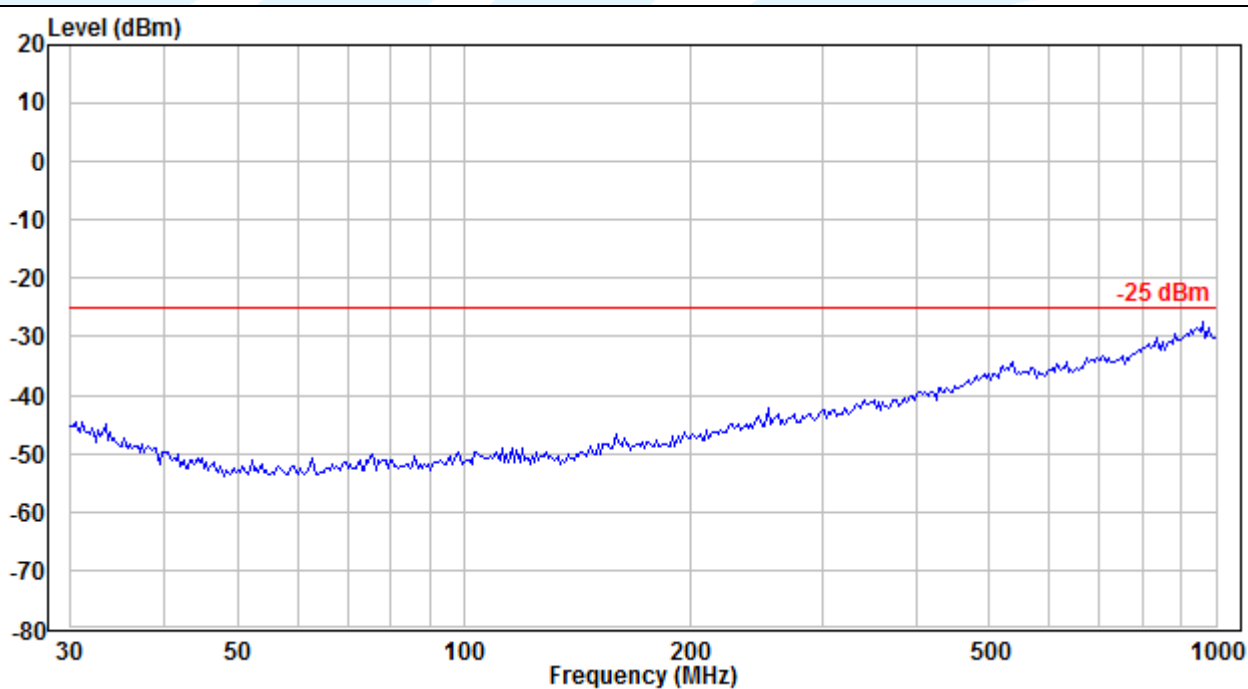
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LTE Band 41 / 15 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

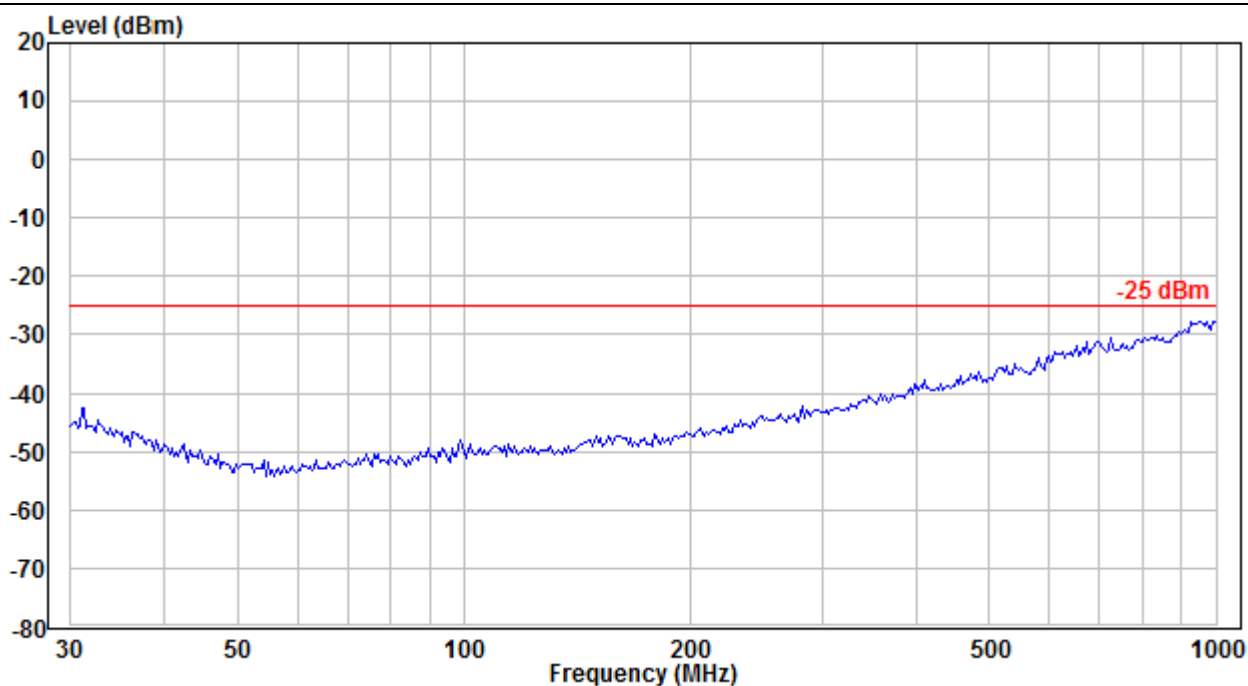
Fax: +86-755-28230886

E-mail: info@uttlab.com

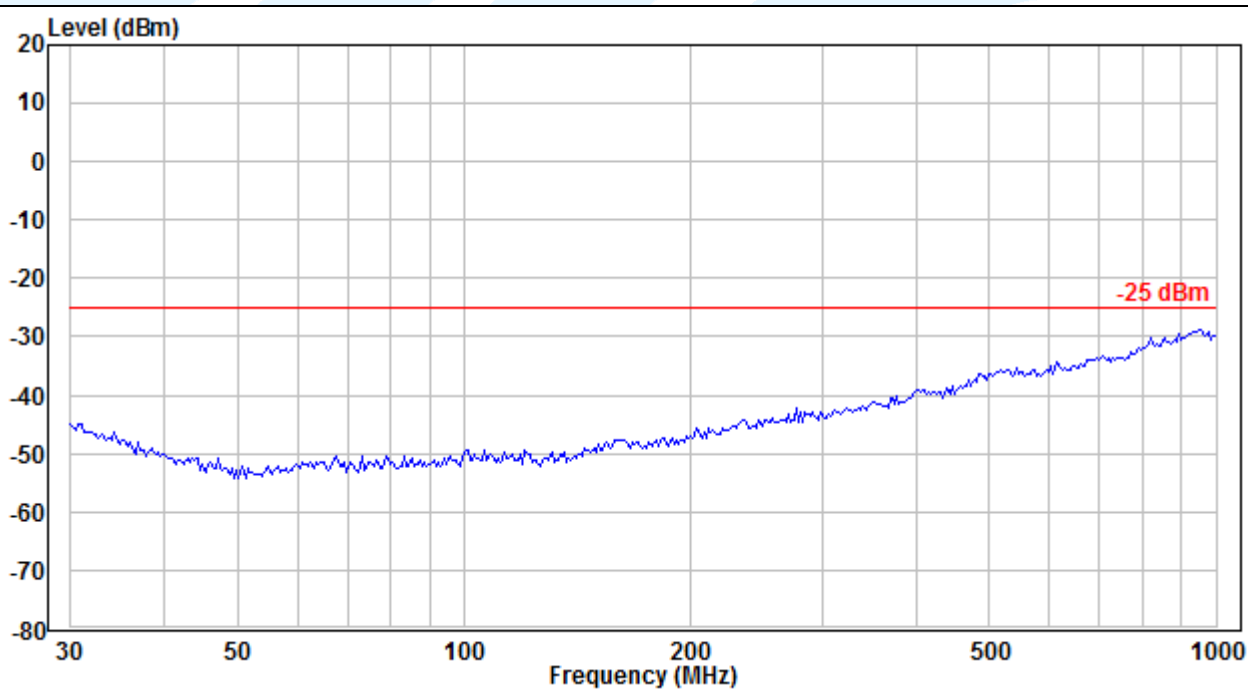
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LTE Band 41 / 20 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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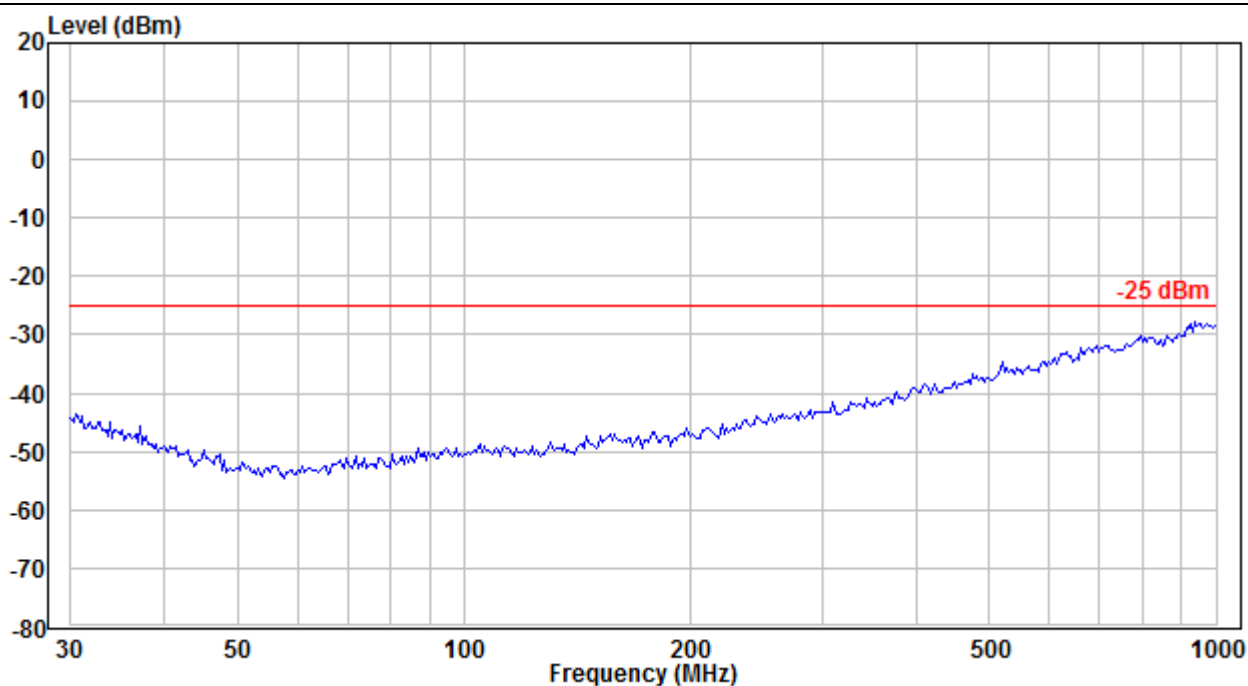
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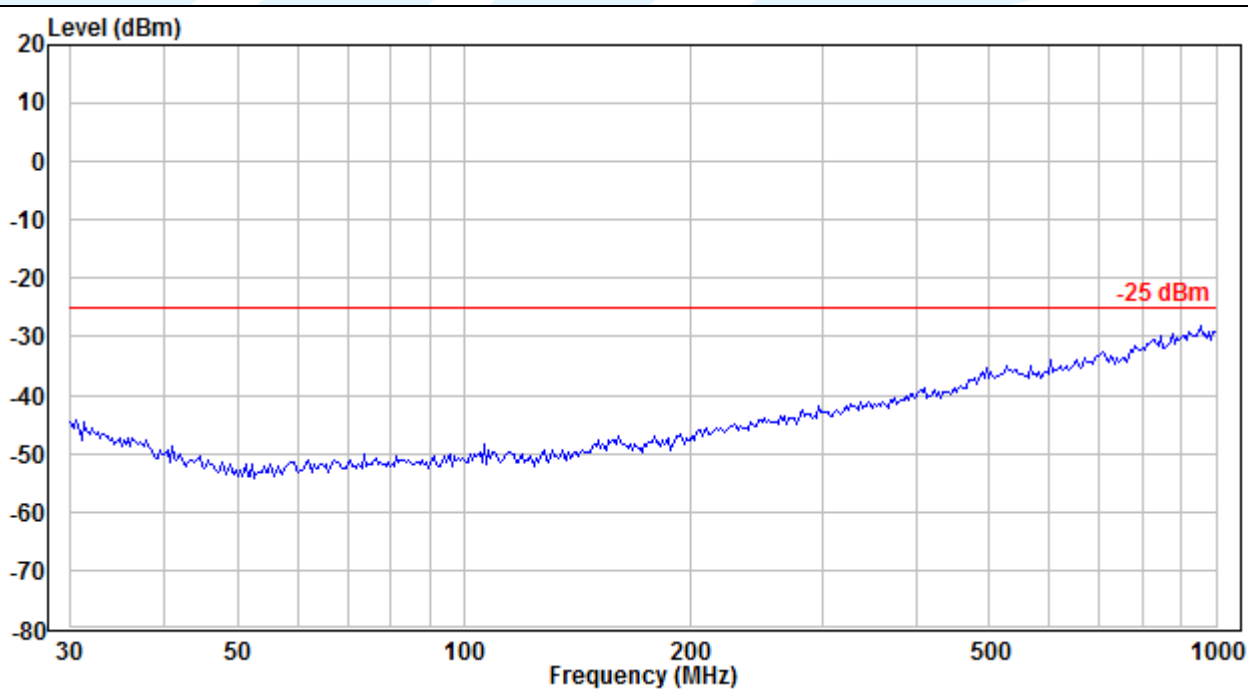
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LTE CA_7C / 10MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

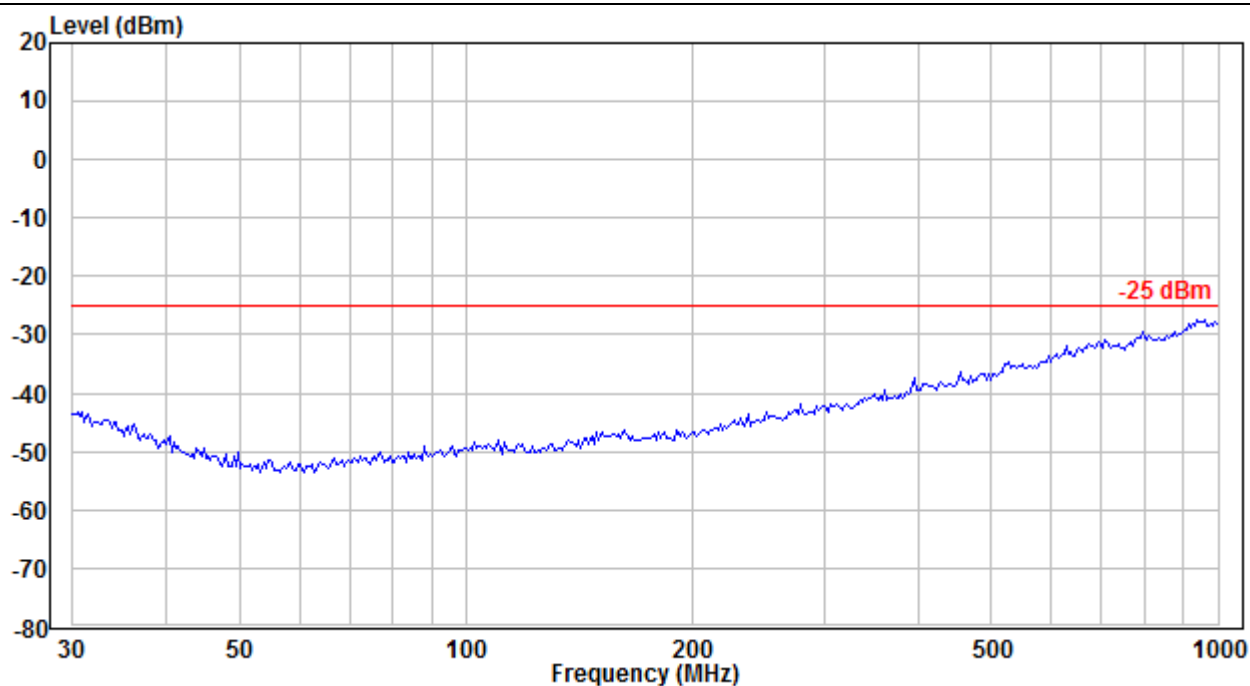
Fax: +86-755-28230886

E-mail: info@uttlab.com

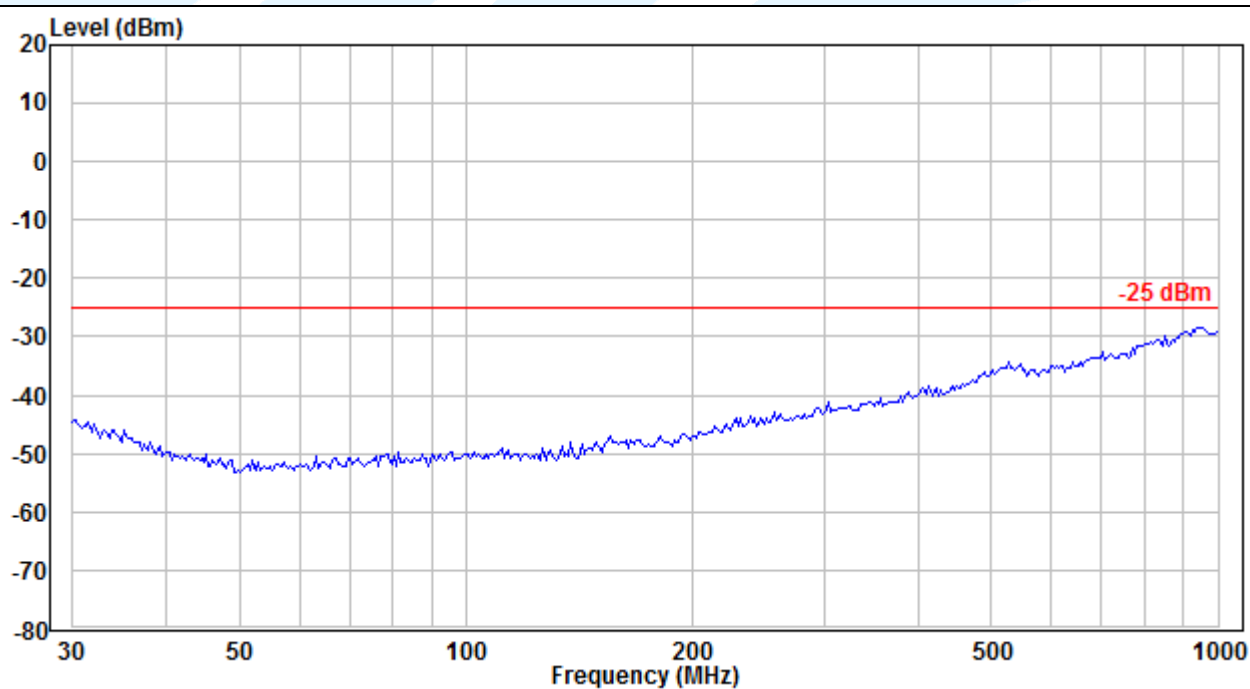
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LTE CA_7C / 20MHz+10MHz / QPSK_ Middle Channel

Horizontal



Vertical



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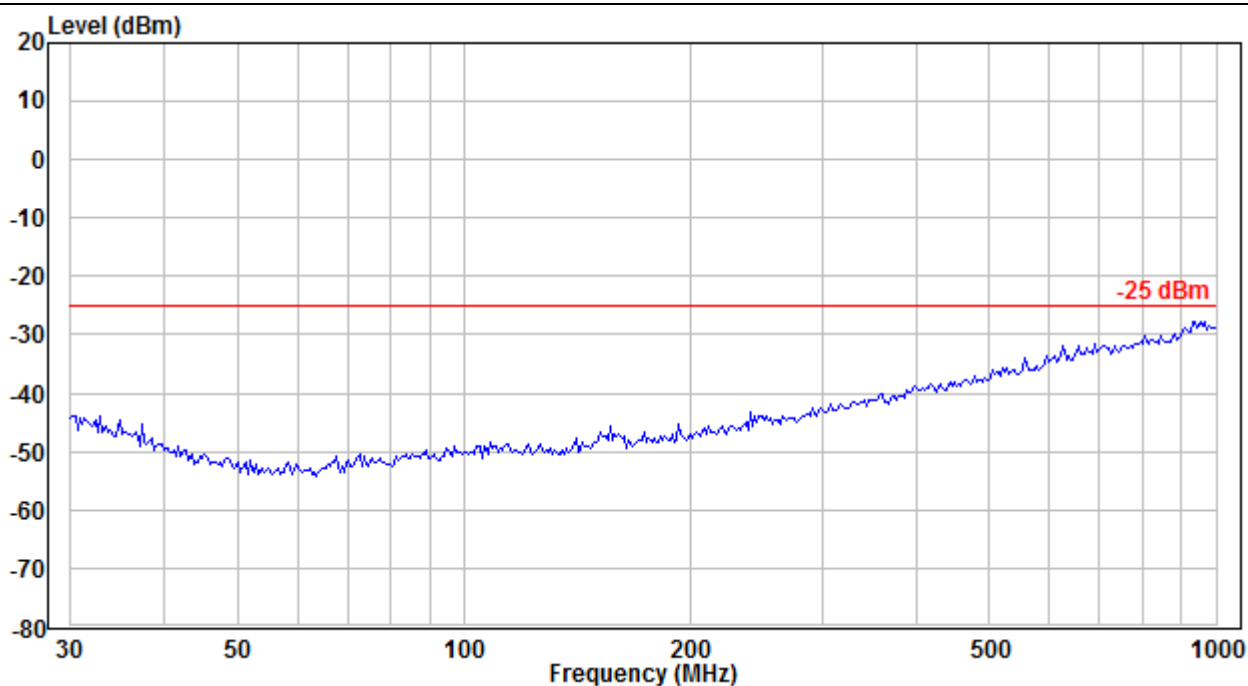
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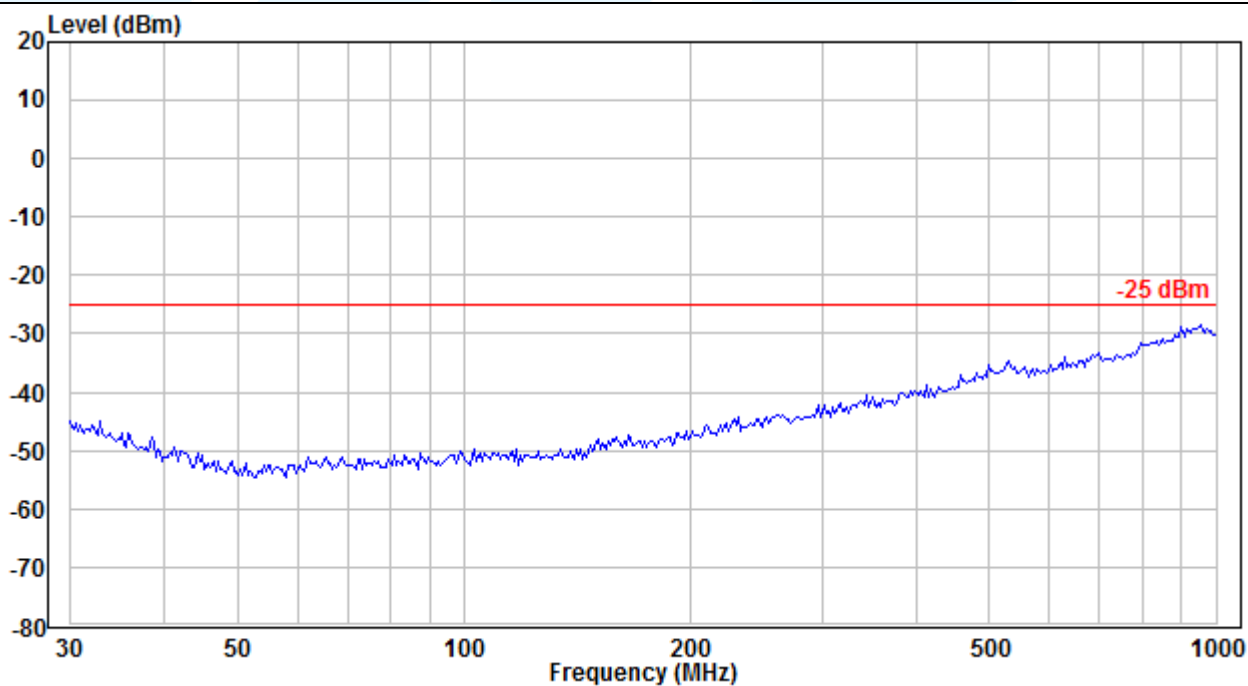
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LTE CA_7C / 15MHz+10MHz / QPSK_ Middle Channel

Horizontal



Vertical



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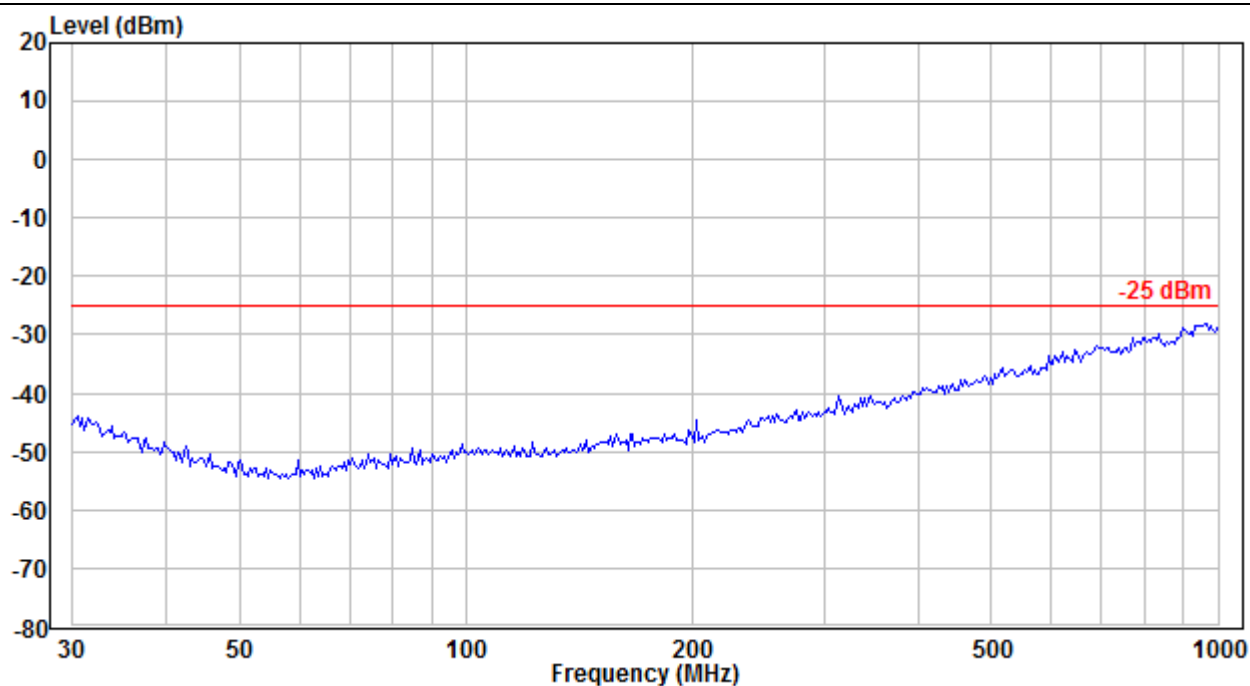
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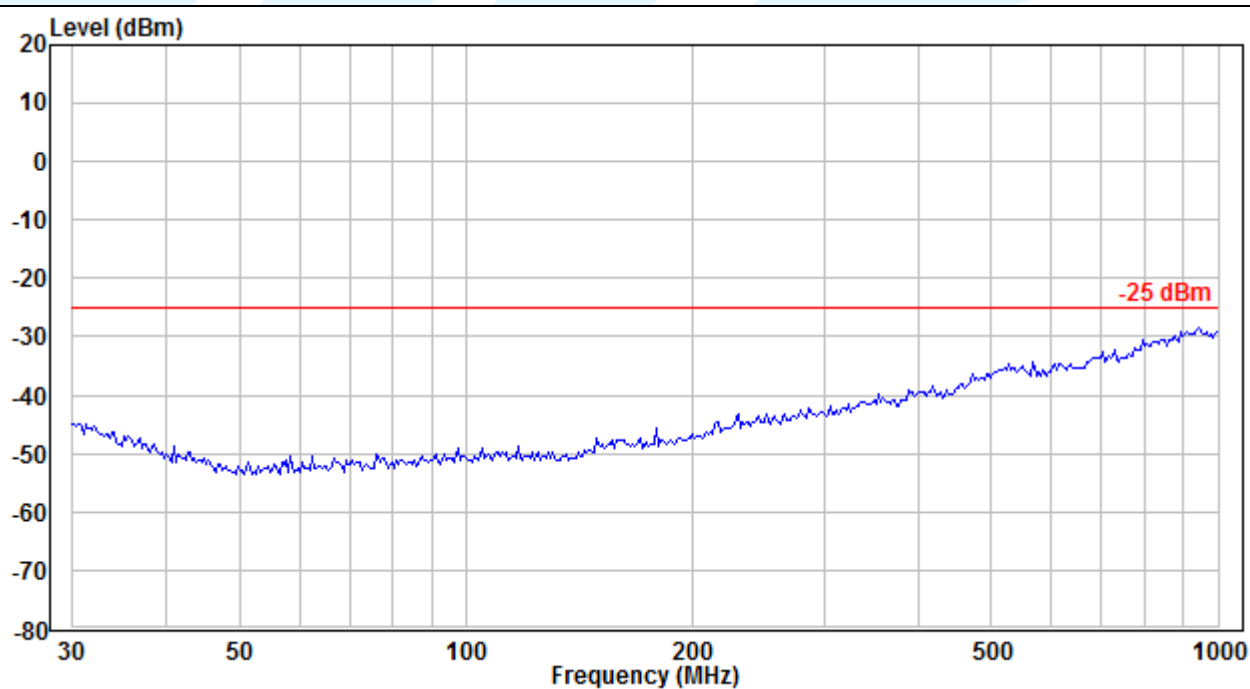
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LTE CA_7C / 15MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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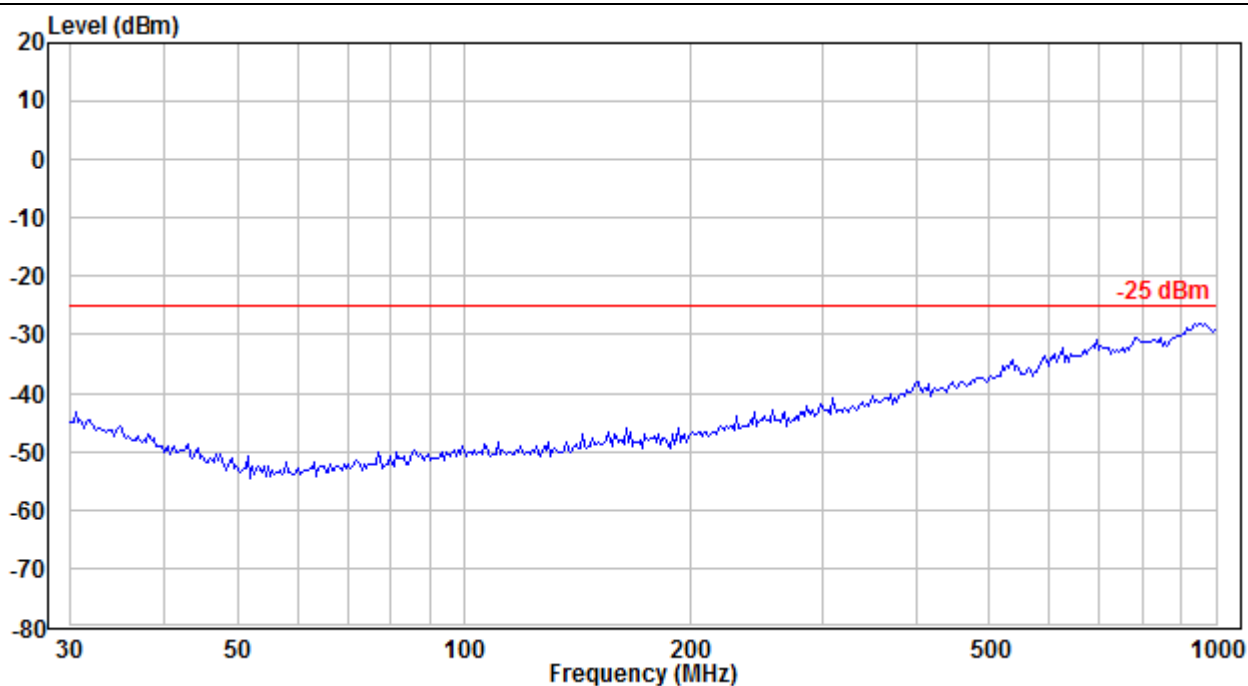
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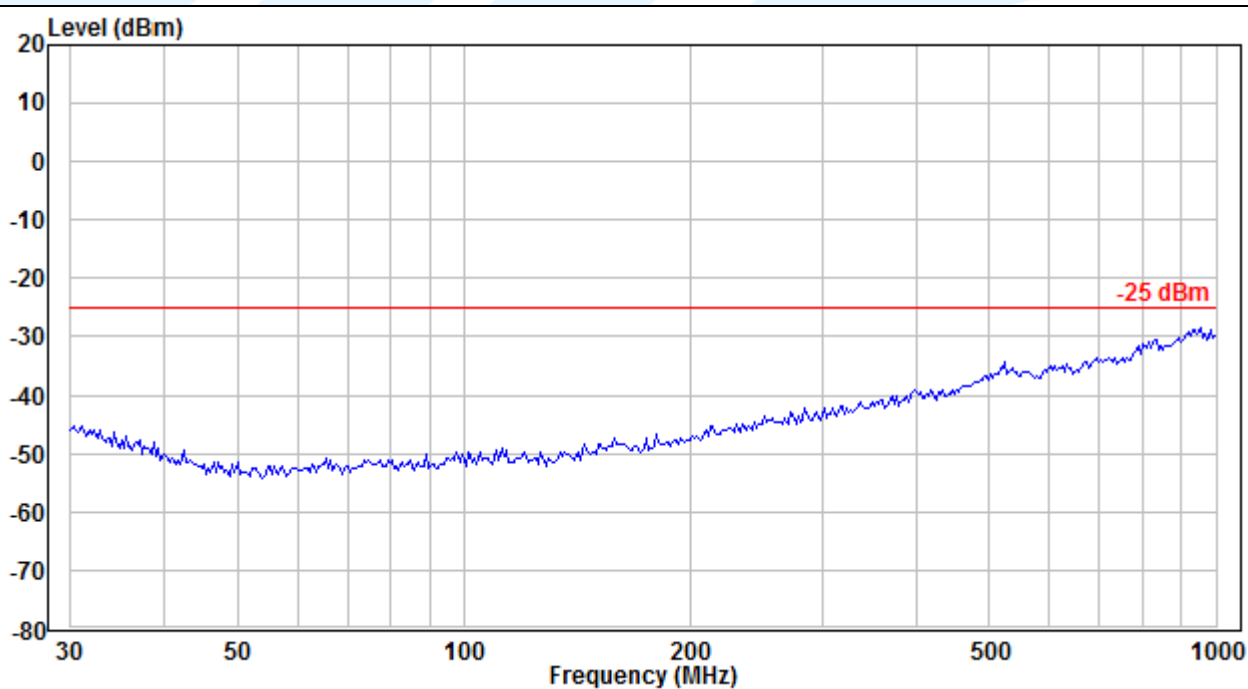
E-mail: info@uttlab.com
<http://www.uttlab.com>

LTE CA_7C / 15MHz+20MHz / QPSK_ Middle Channel

Horizontal

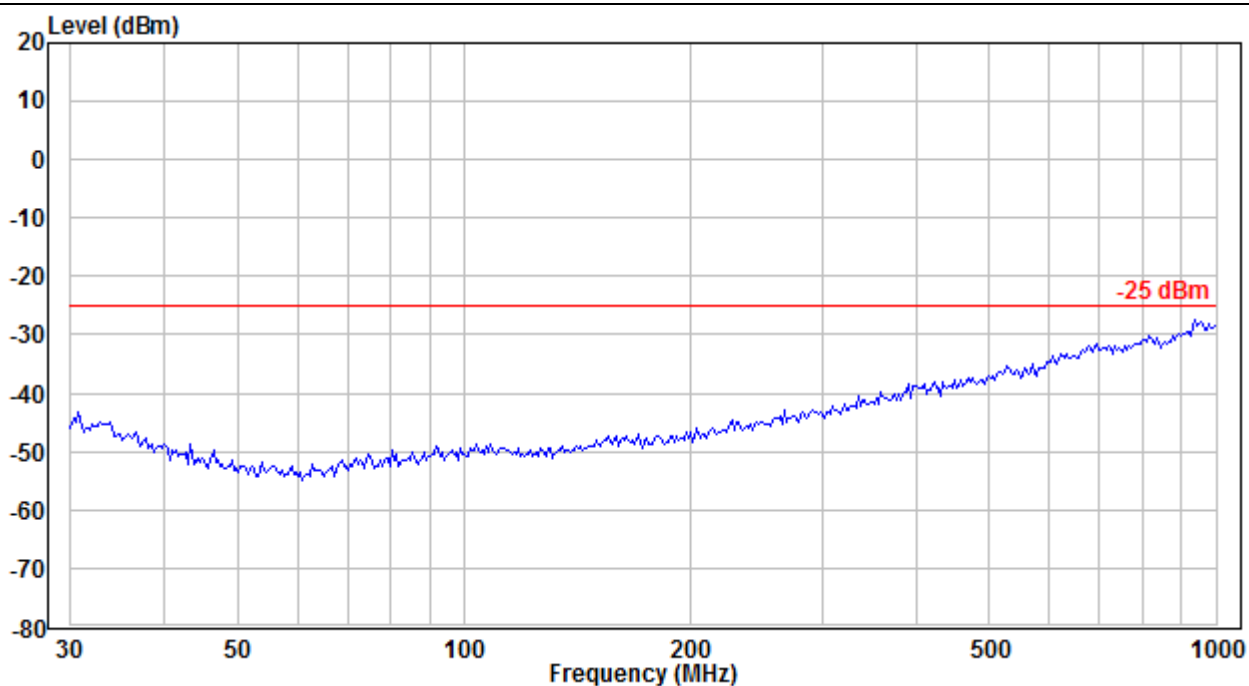


Vertical

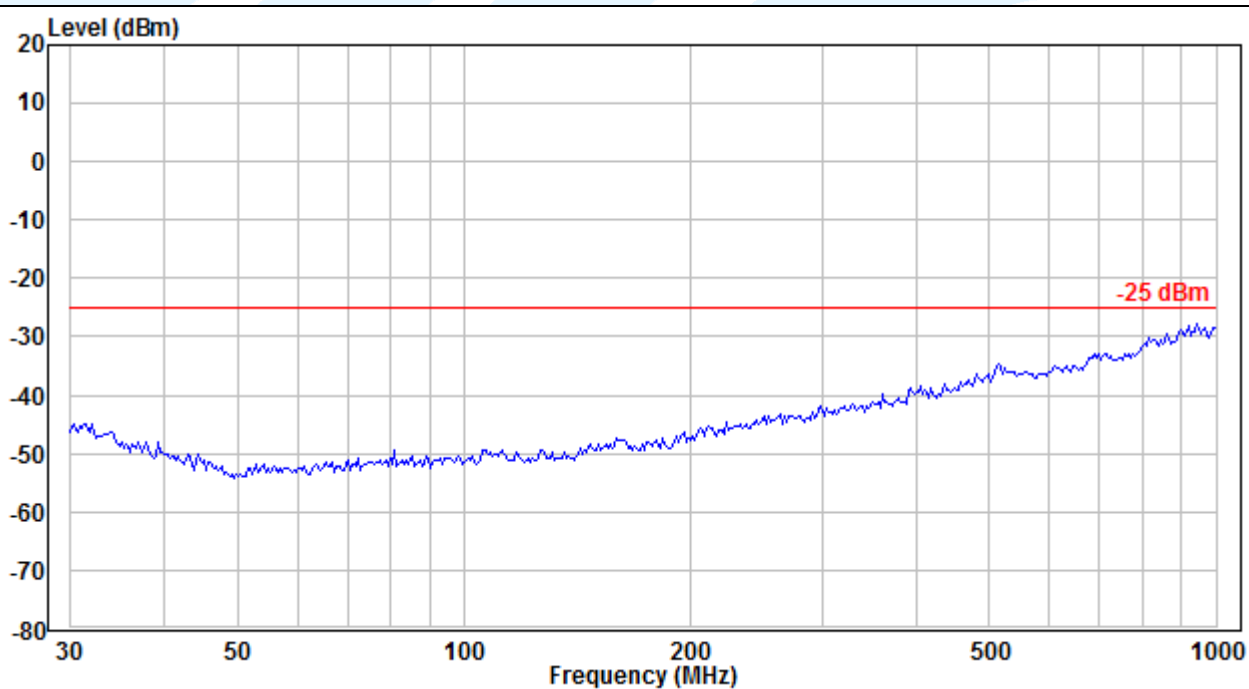


LTE CA_7C / 20MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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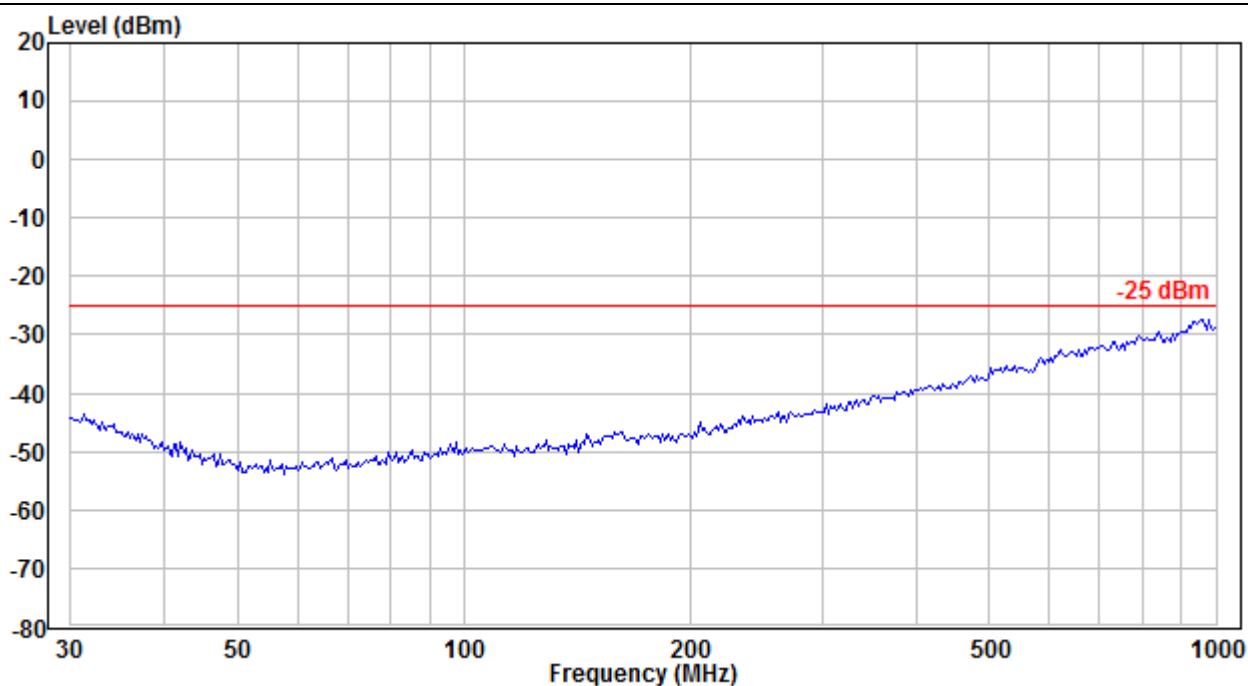
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Fax: +86-755-28230886

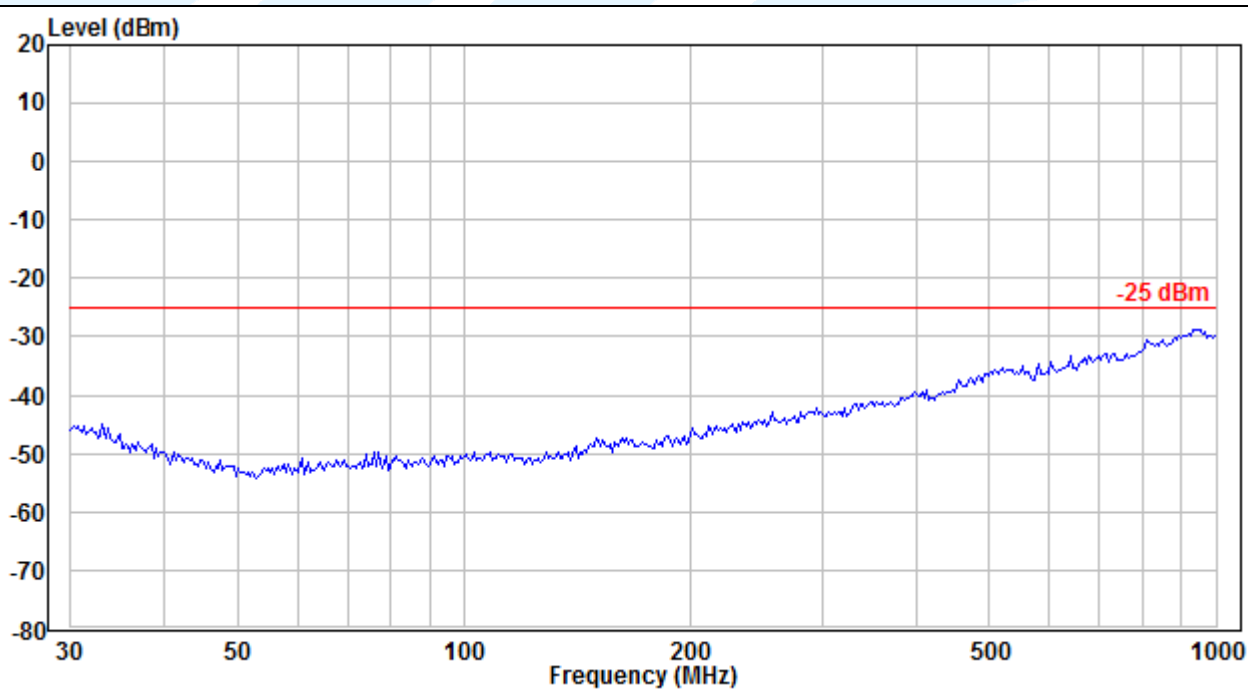
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LTE CA_7C / 20MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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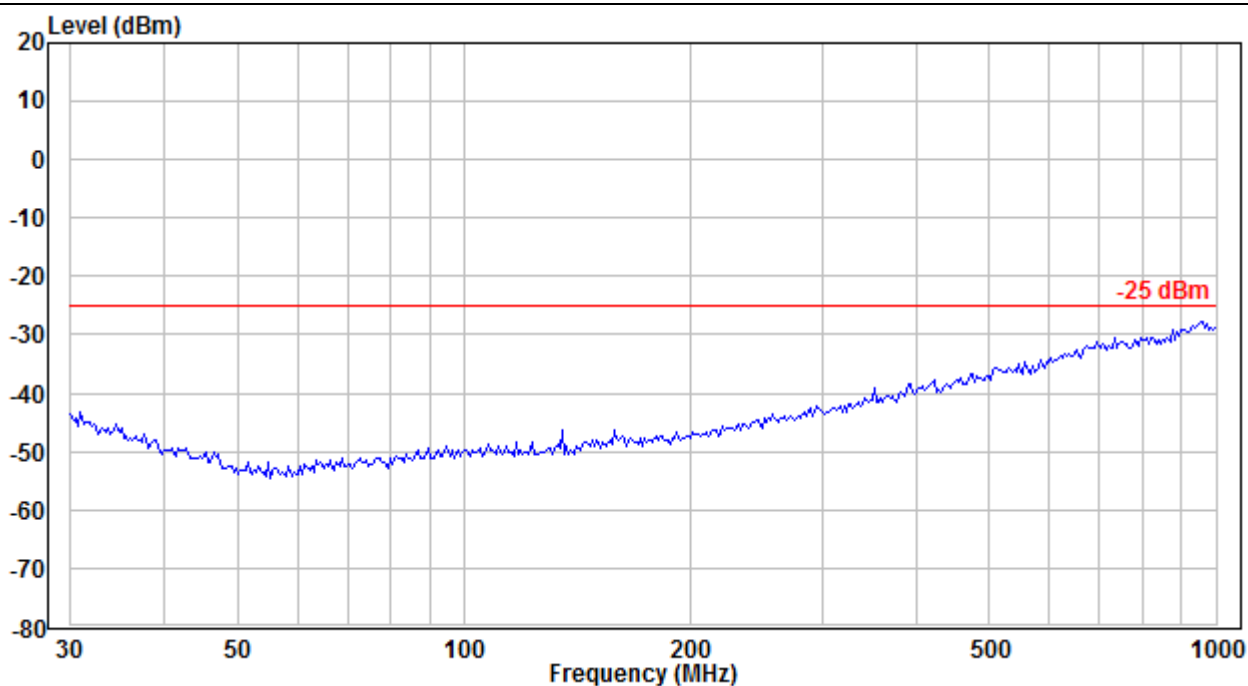
Fax: +86-755-28230886

E-mail: info@uttlab.com

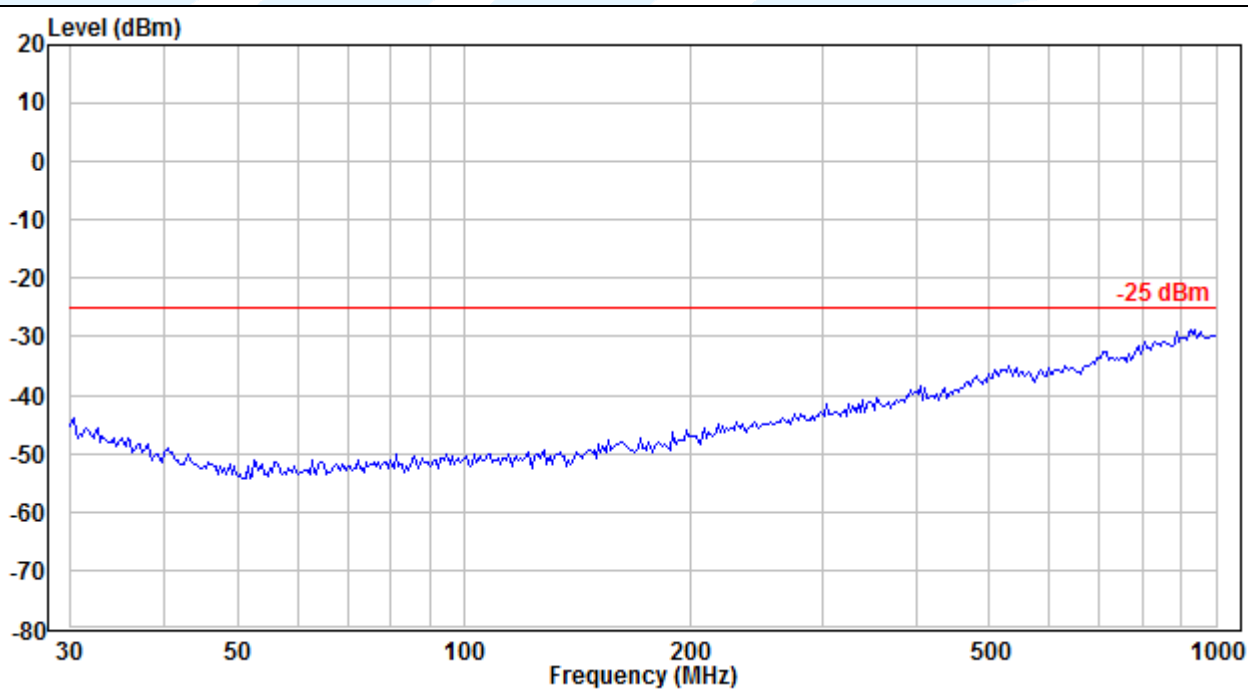
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LTE CA_38C / 15MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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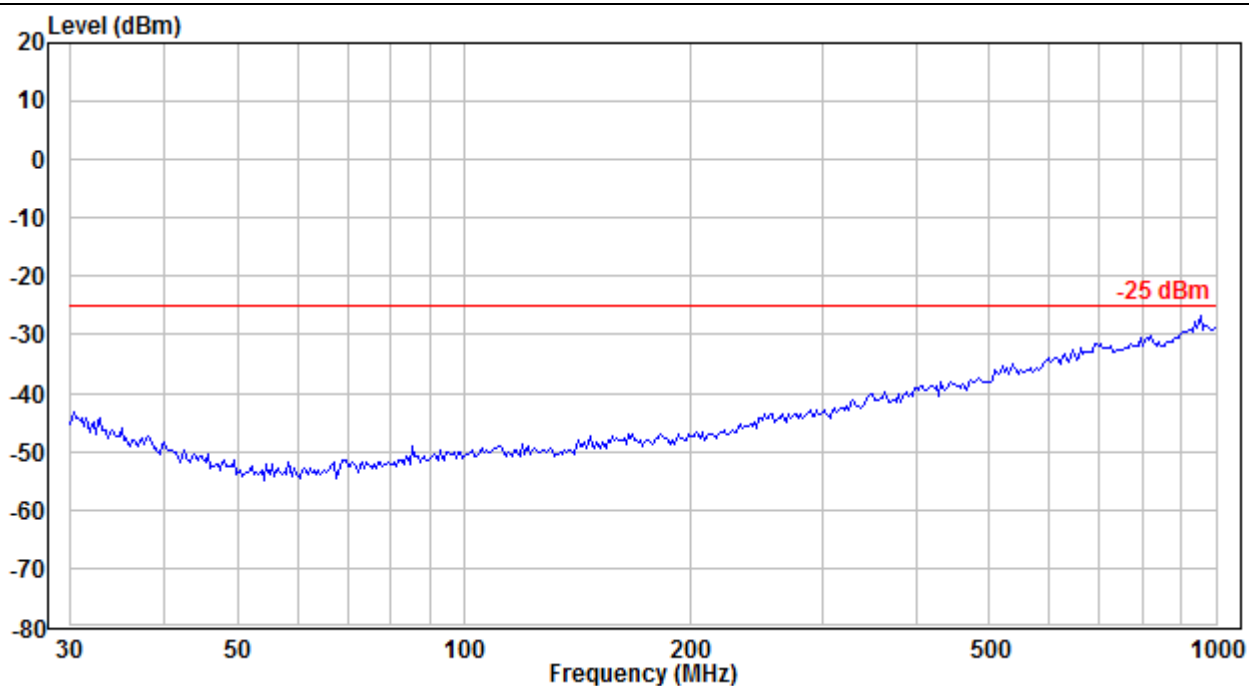
Tel: +86-755-28230888

Fax: +86-755-28230886

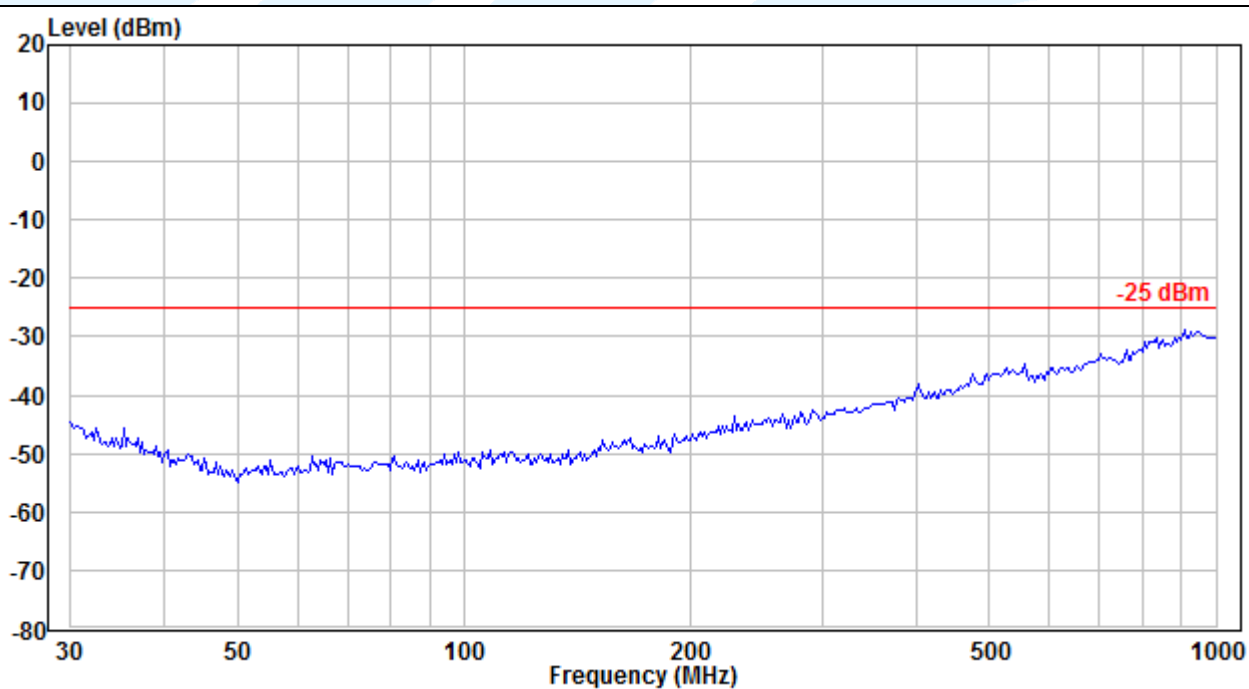
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LTE CA_38C / 20MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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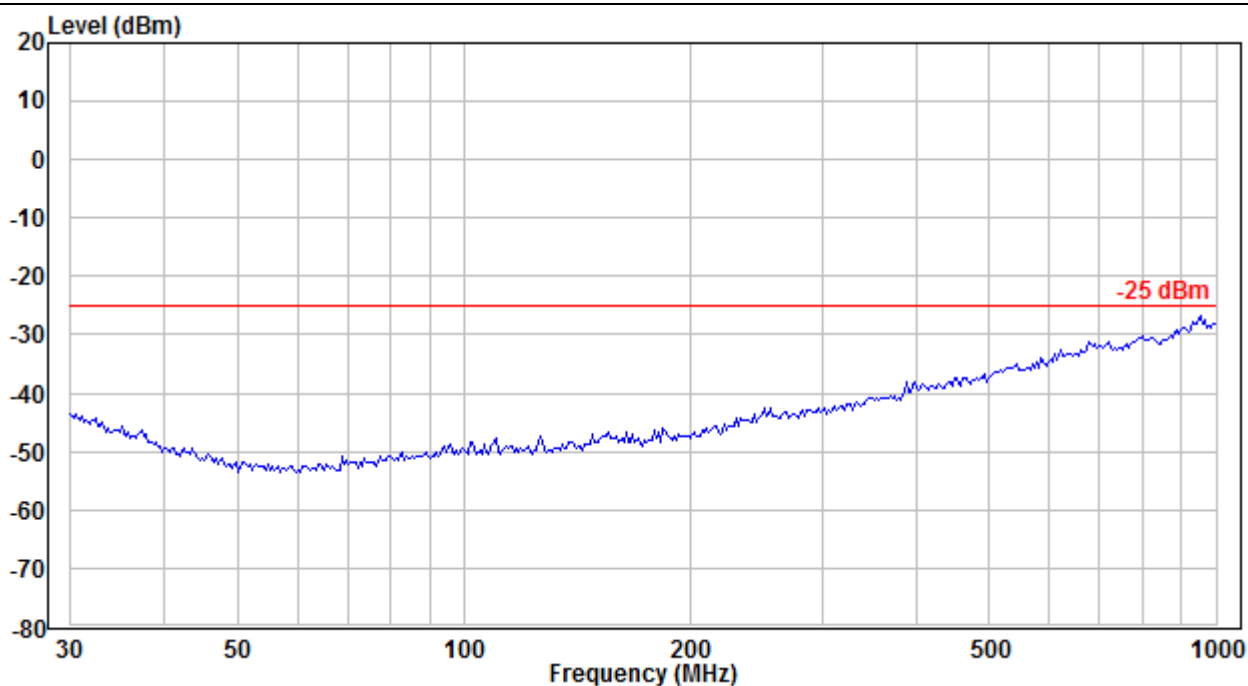
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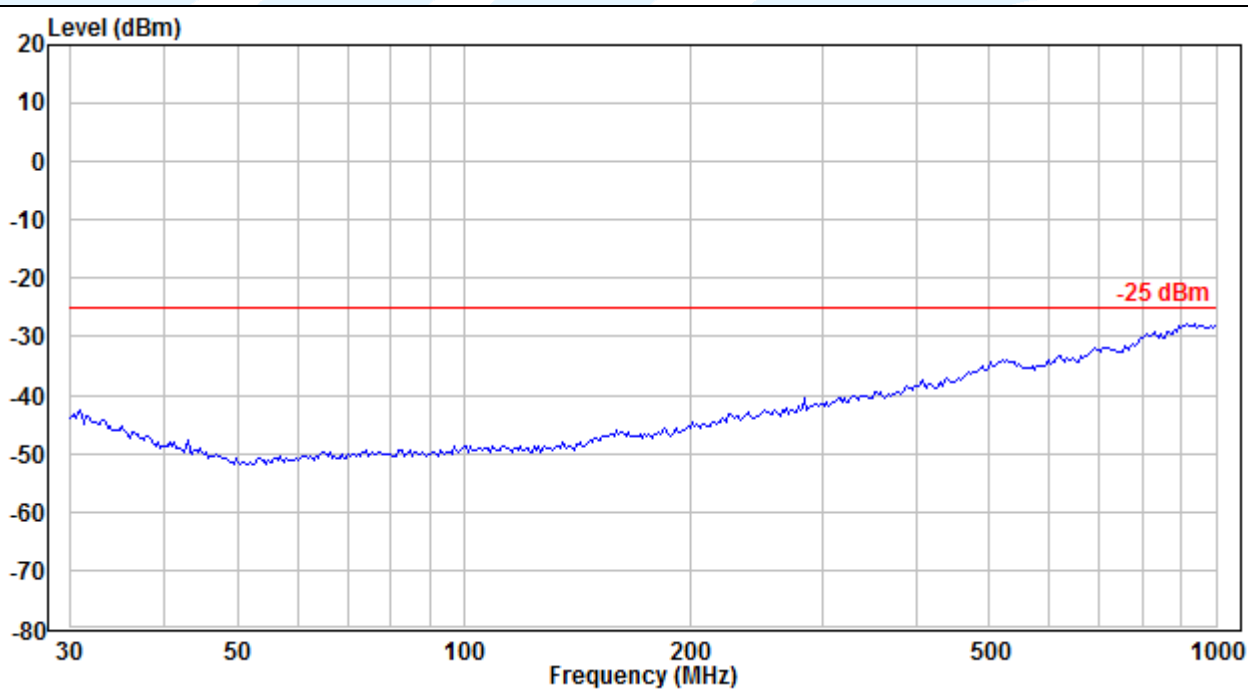
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LTE CA_41C / 5MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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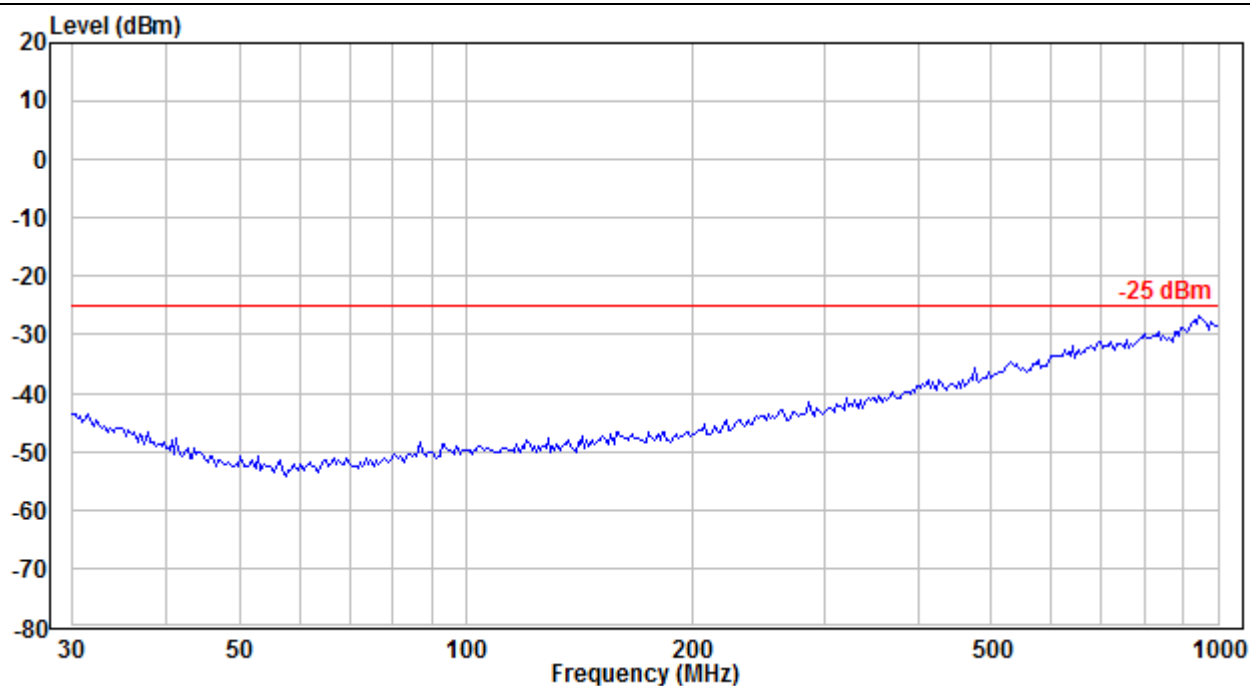
Fax: +86-755-28230886

E-mail: info@uttlab.com

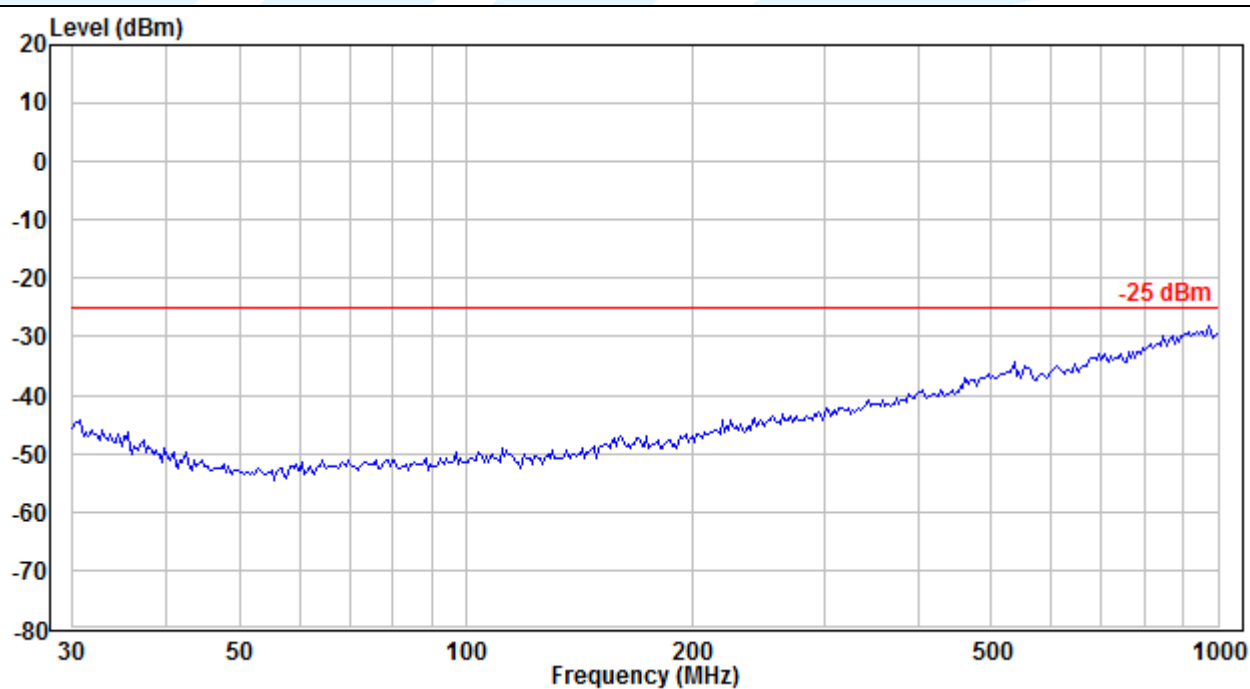
<http://www.uttlab.com>

LTE CA_41C / 20MHz+5MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

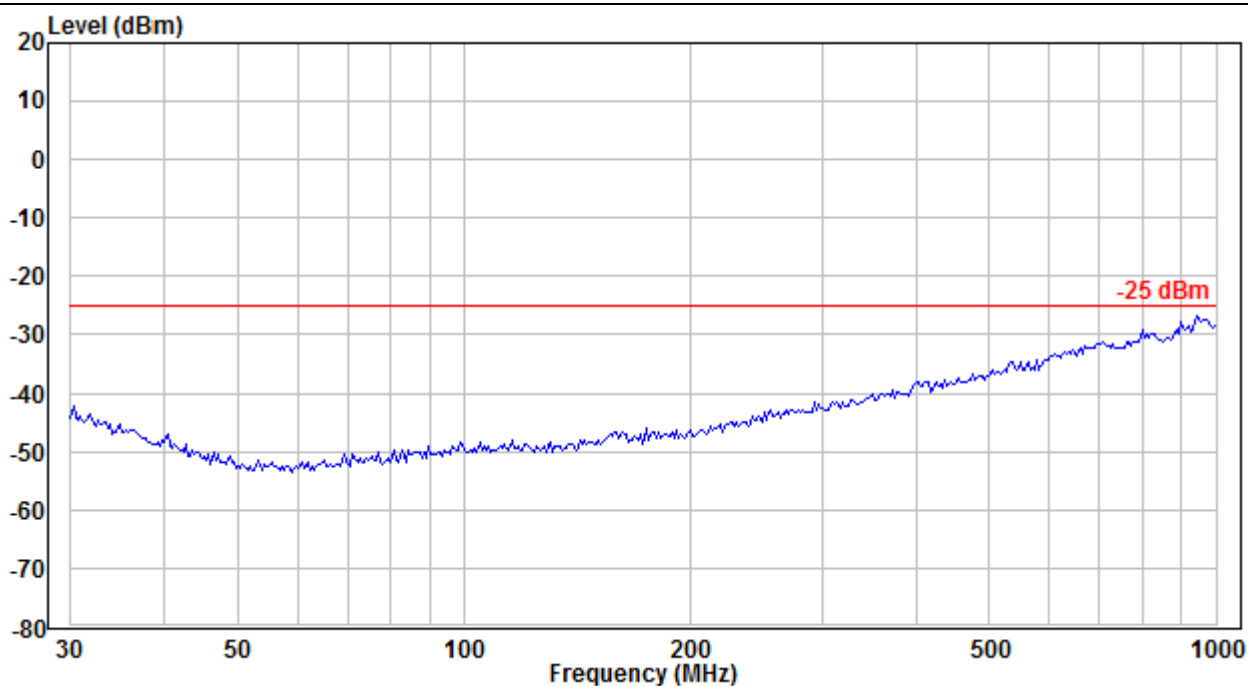
Fax: +86-755-28230886

E-mail: info@uttlab.com

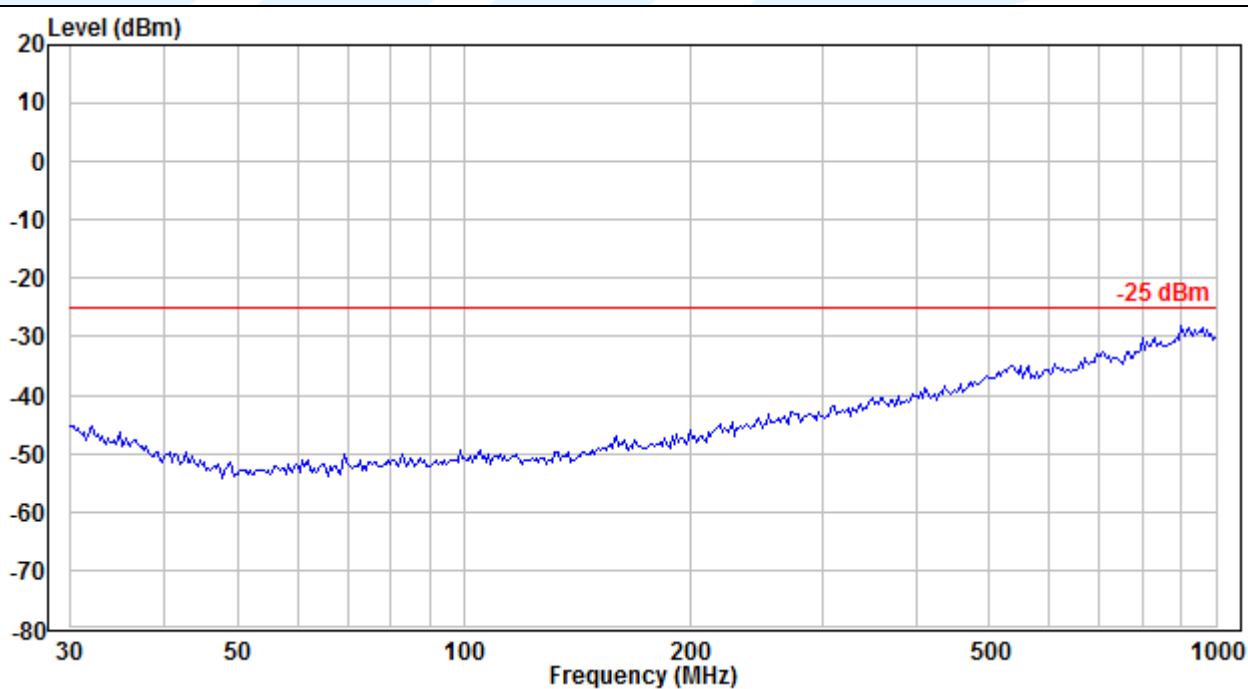
<http://www.uttlab.com>

LTE CA_41C / 10MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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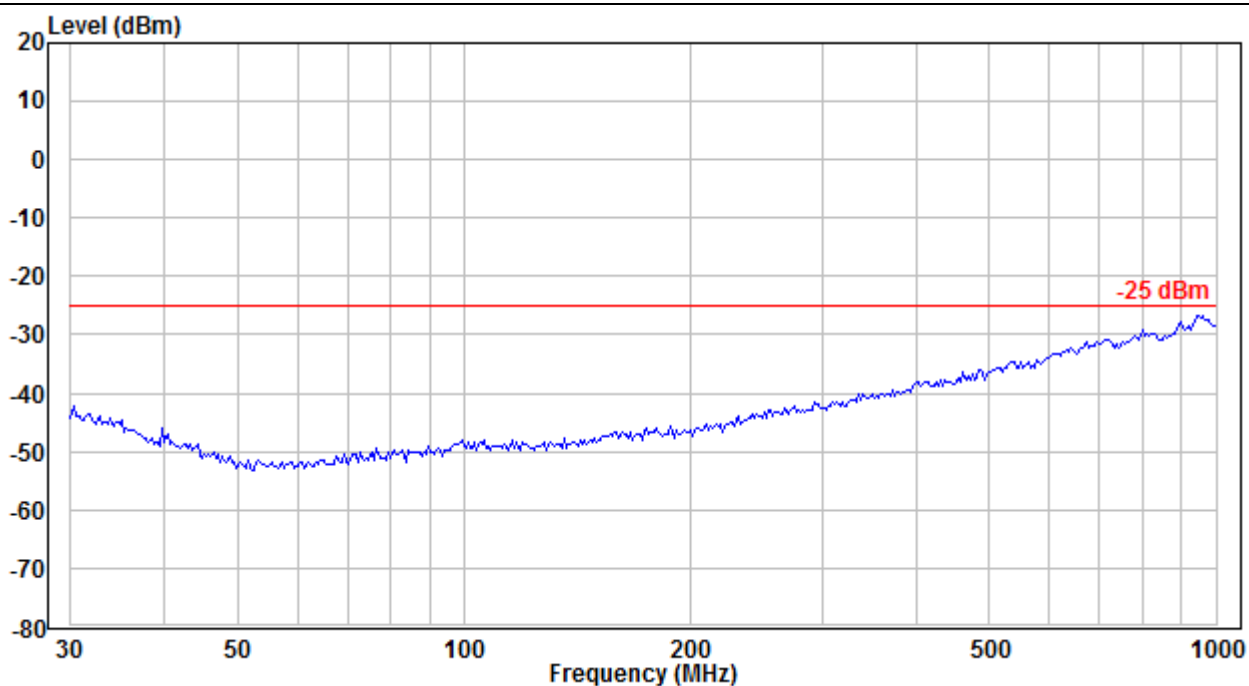
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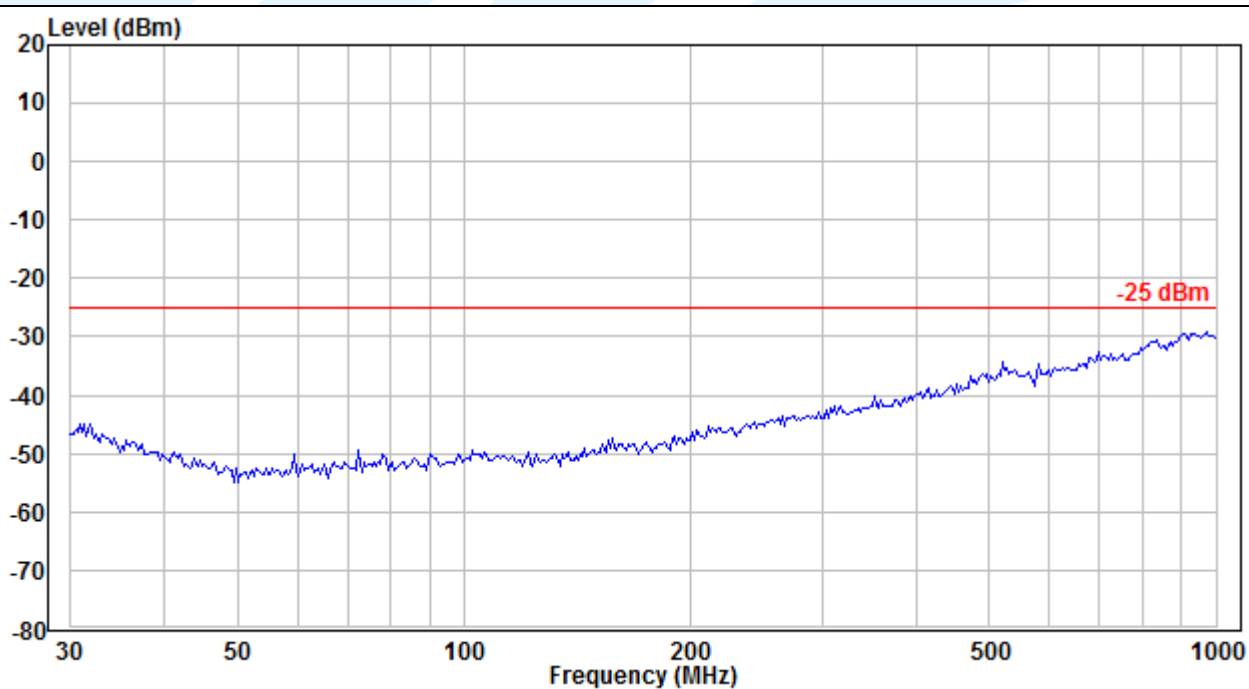
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LTE CA_41C / 15MHz+10MHz / QPSK_ Middle Channel

Horizontal

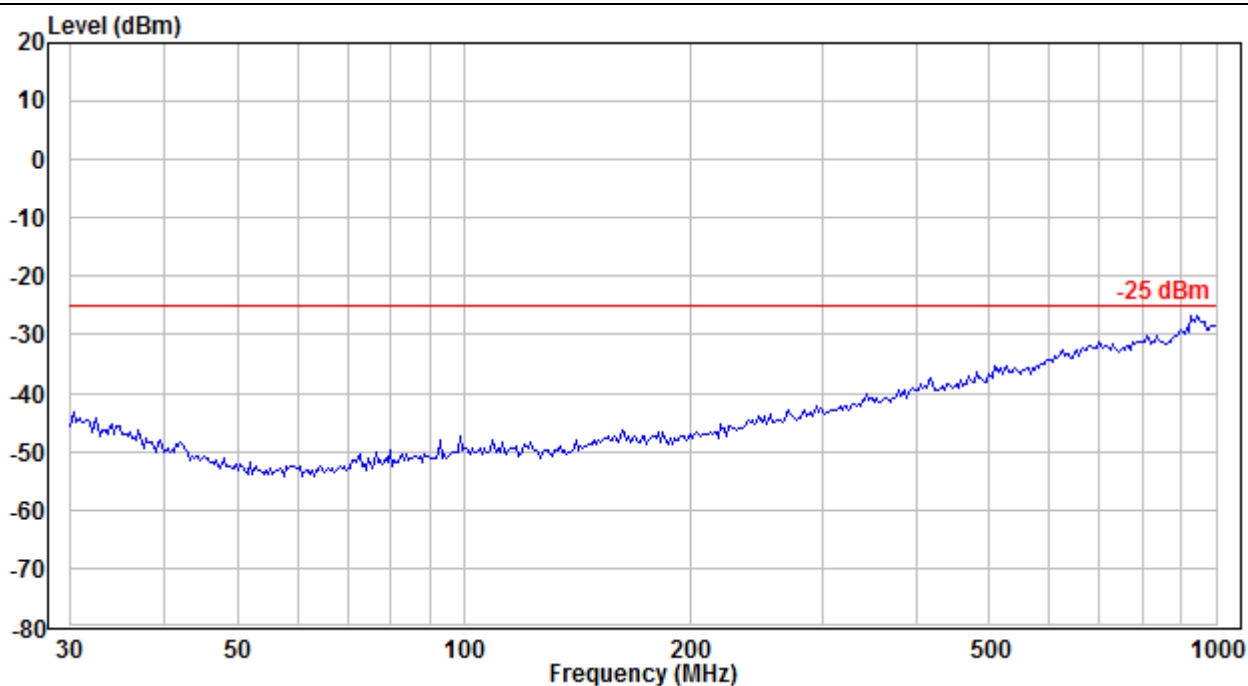


Vertical

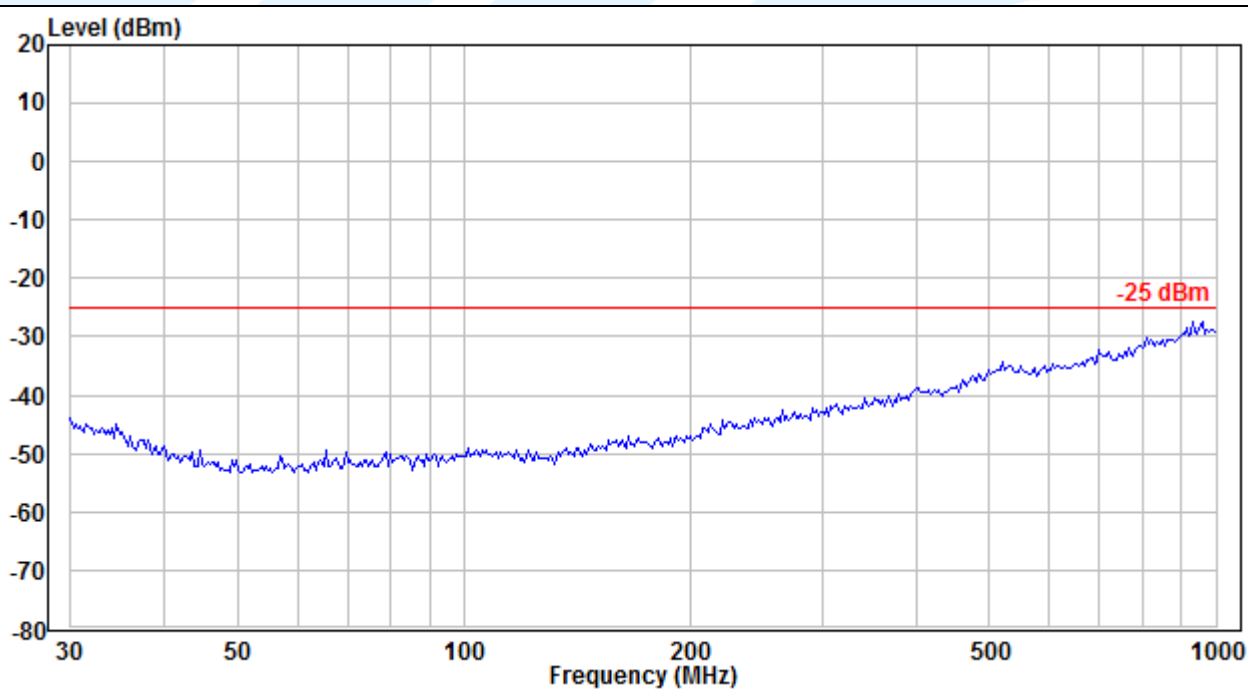


LTE CA_41C / 10MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

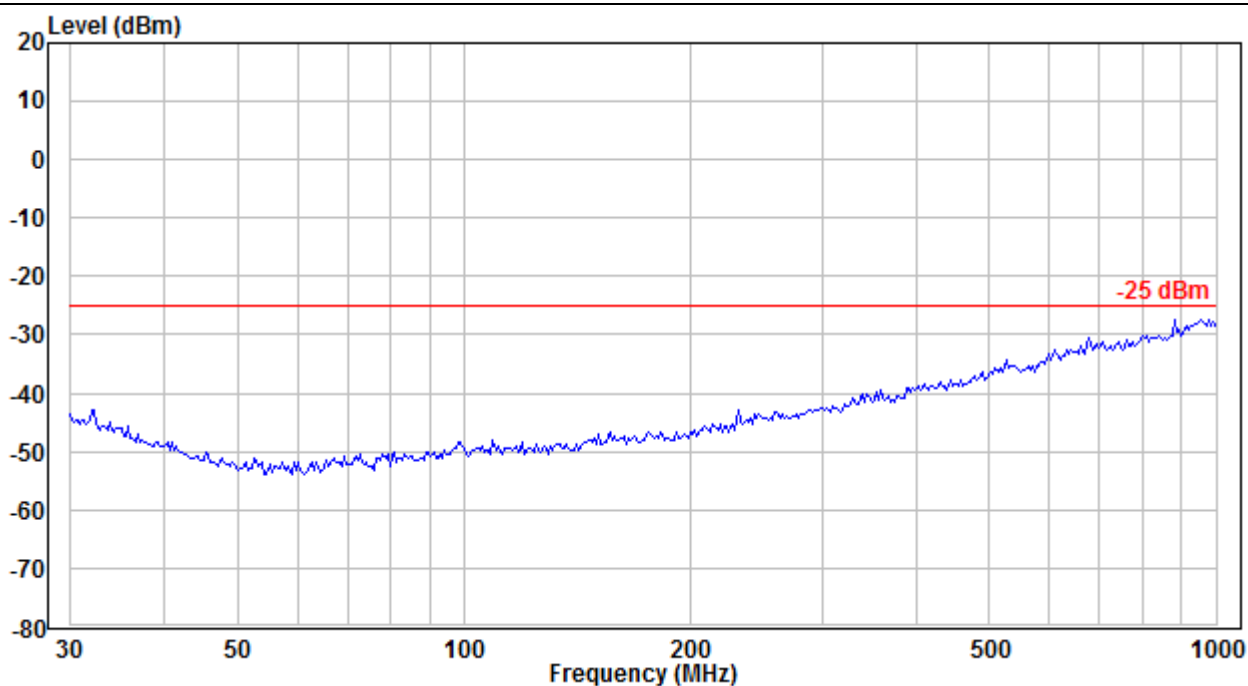
Fax: +86-755-28230886

E-mail: info@uttlab.com

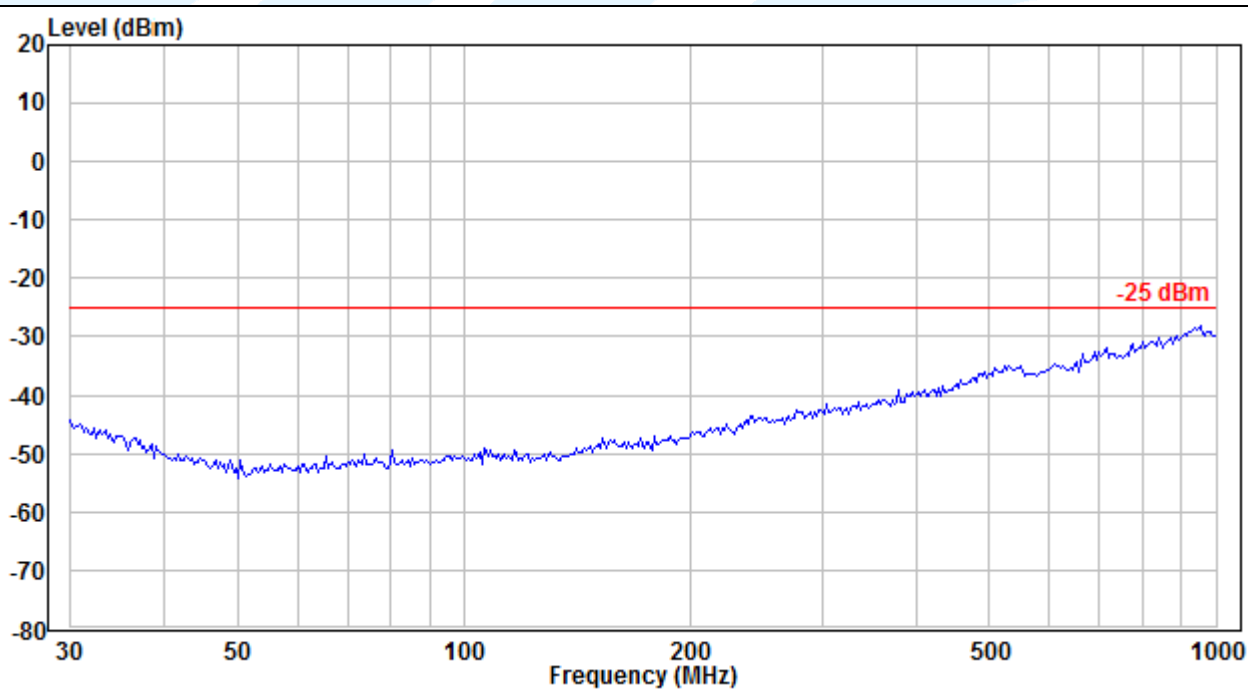
<http://www.uttlab.com>

LTE CA_41C / 20MHz+10MHz / QPSK_ Middle Channel

Horizontal



Vertical



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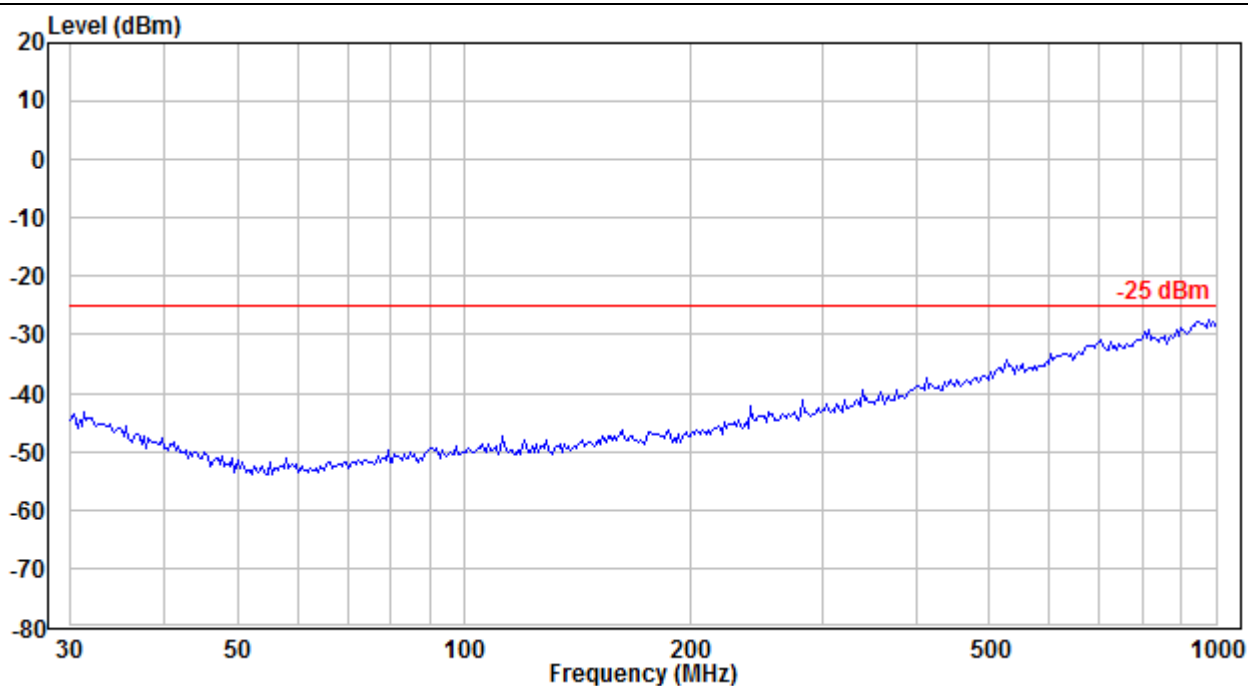
Fax: +86-755-28230886

E-mail: info@uttlab.com

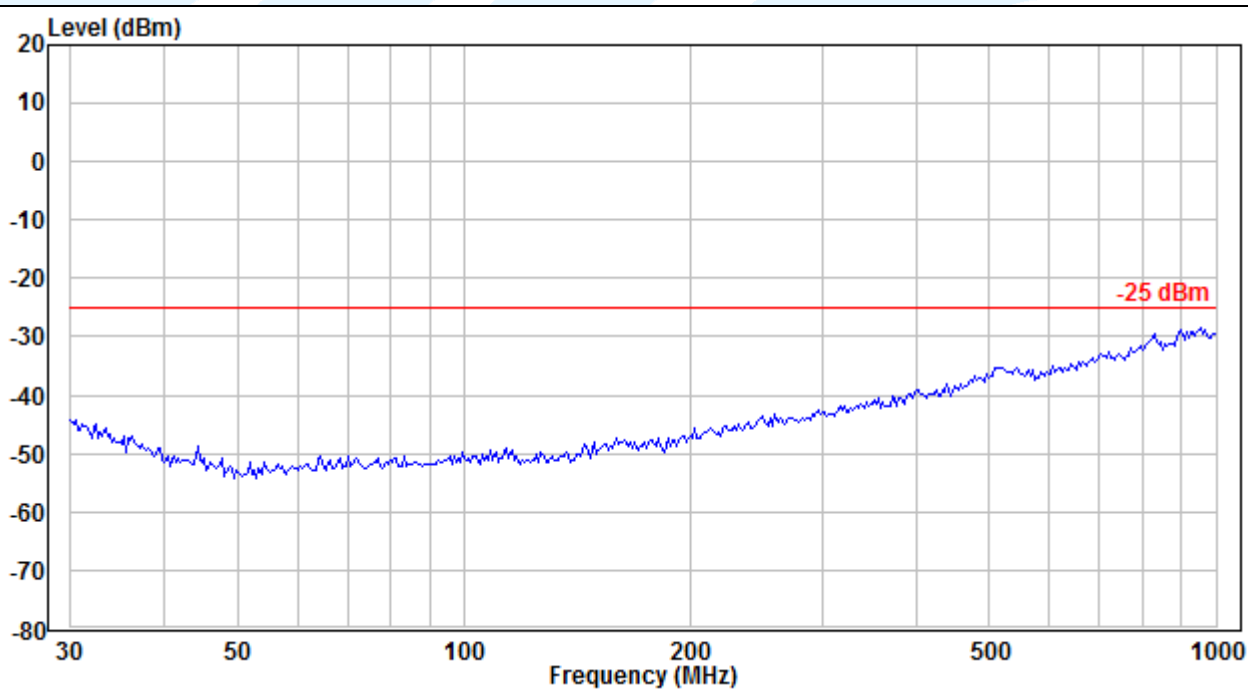
<http://www.uttlab.com>

LTE CA_41C / 15MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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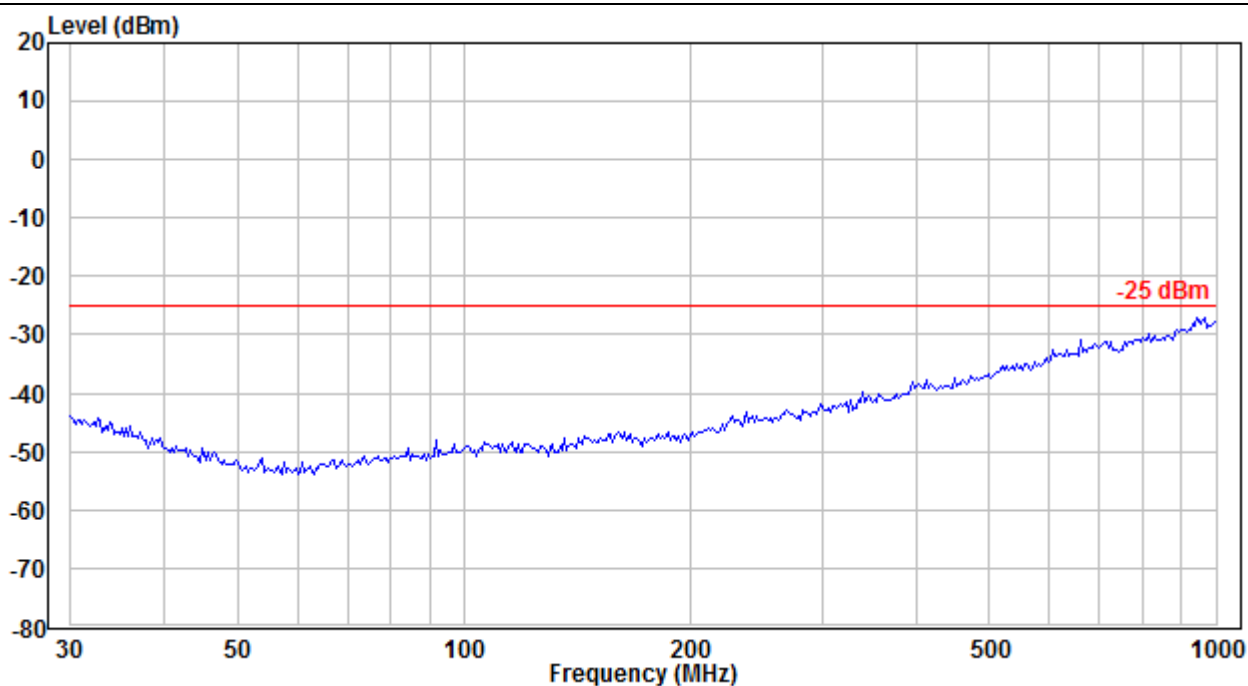
Fax: +86-755-28230886

E-mail: info@uttlab.com

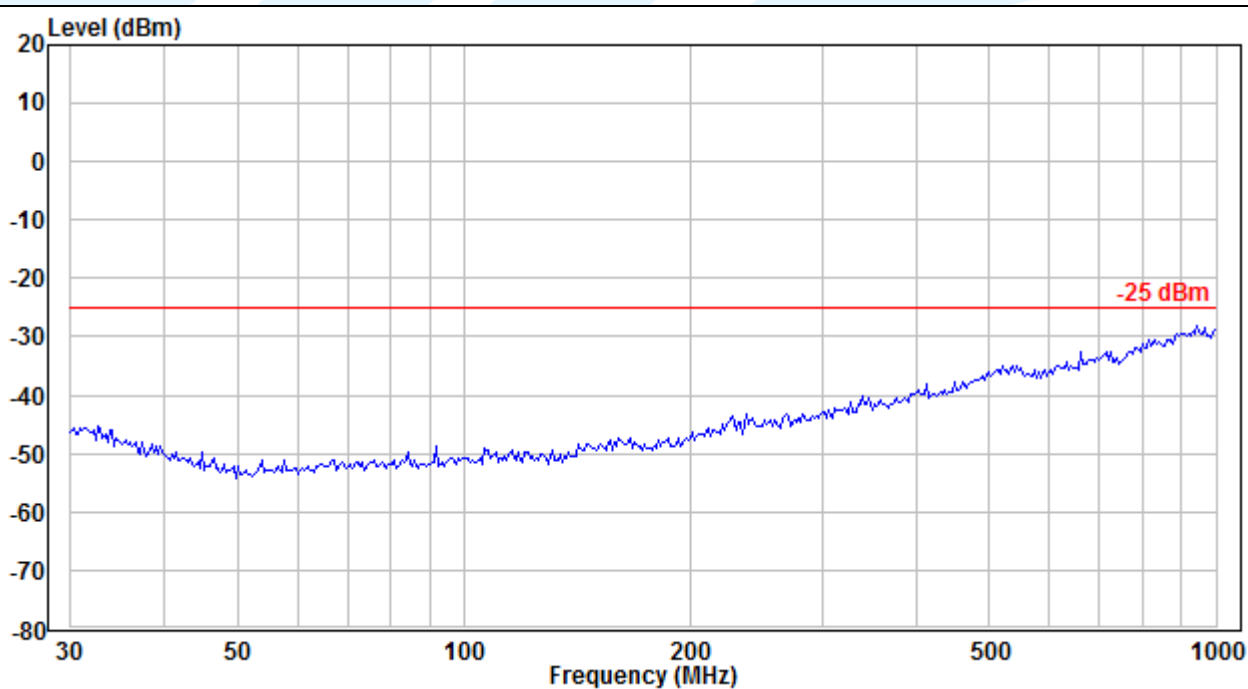
<http://www.uttlab.com>

LTE CA_41C / 15MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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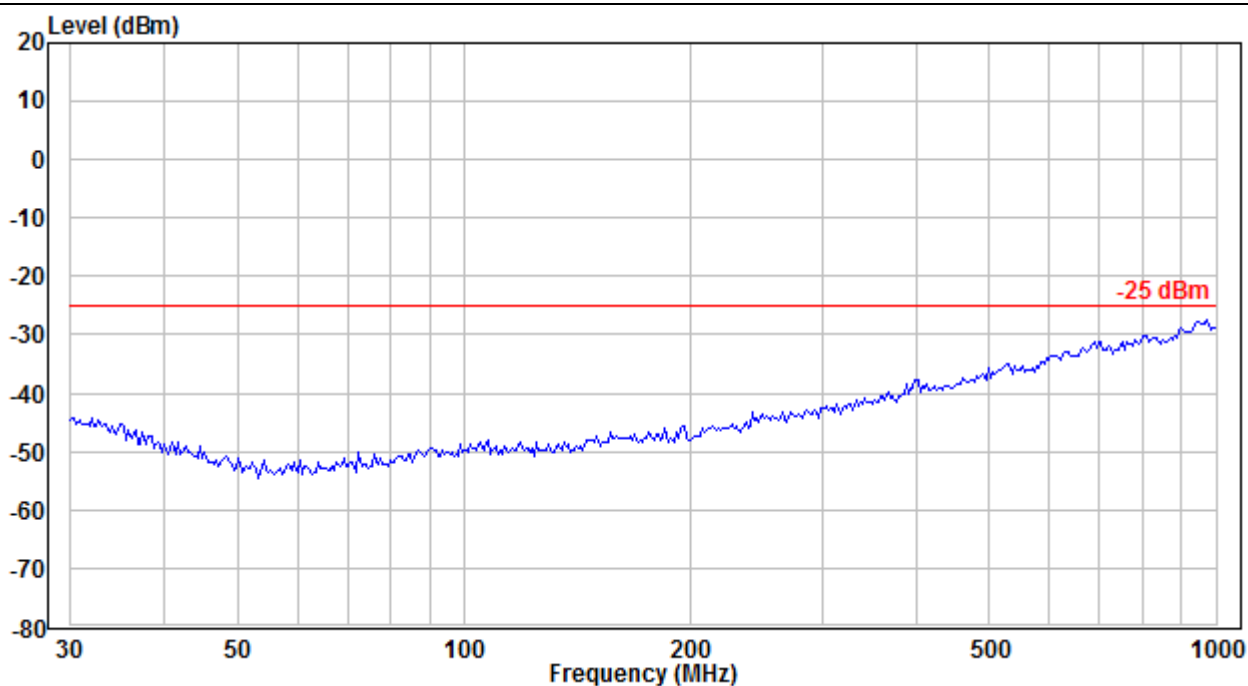
Tel: +86-755-28230888

Fax: +86-755-28230886

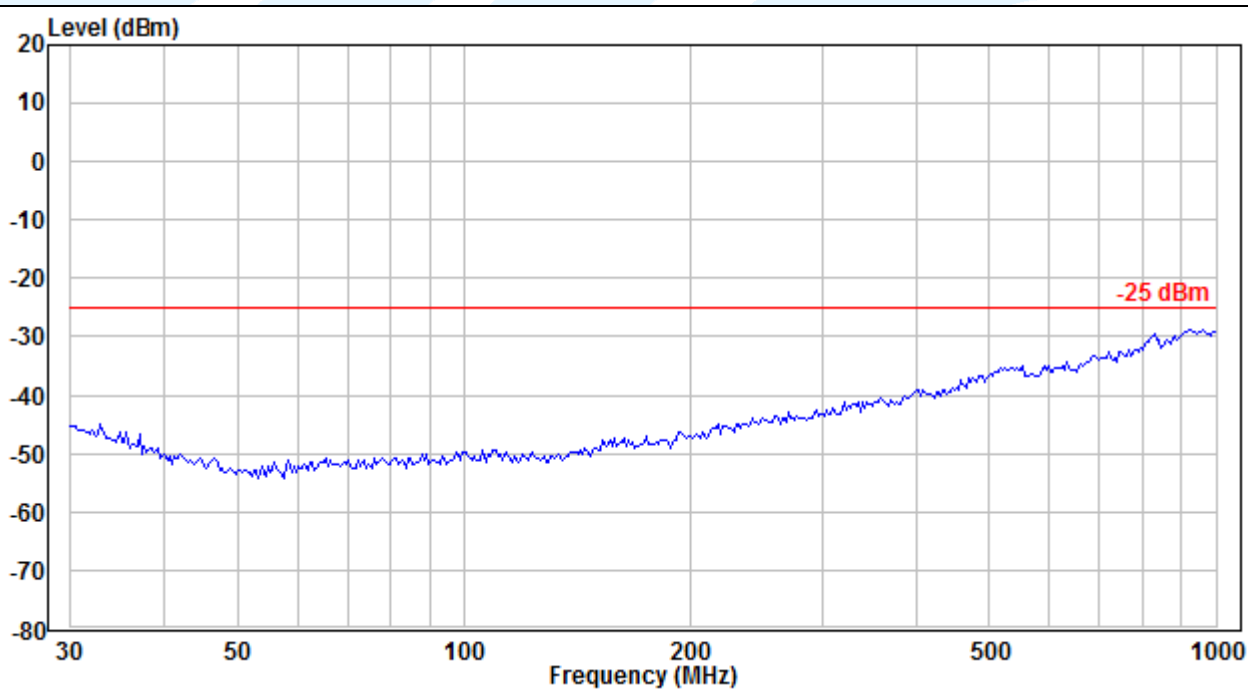
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<http://www.uttlab.com>

LTE CA_41C / 20MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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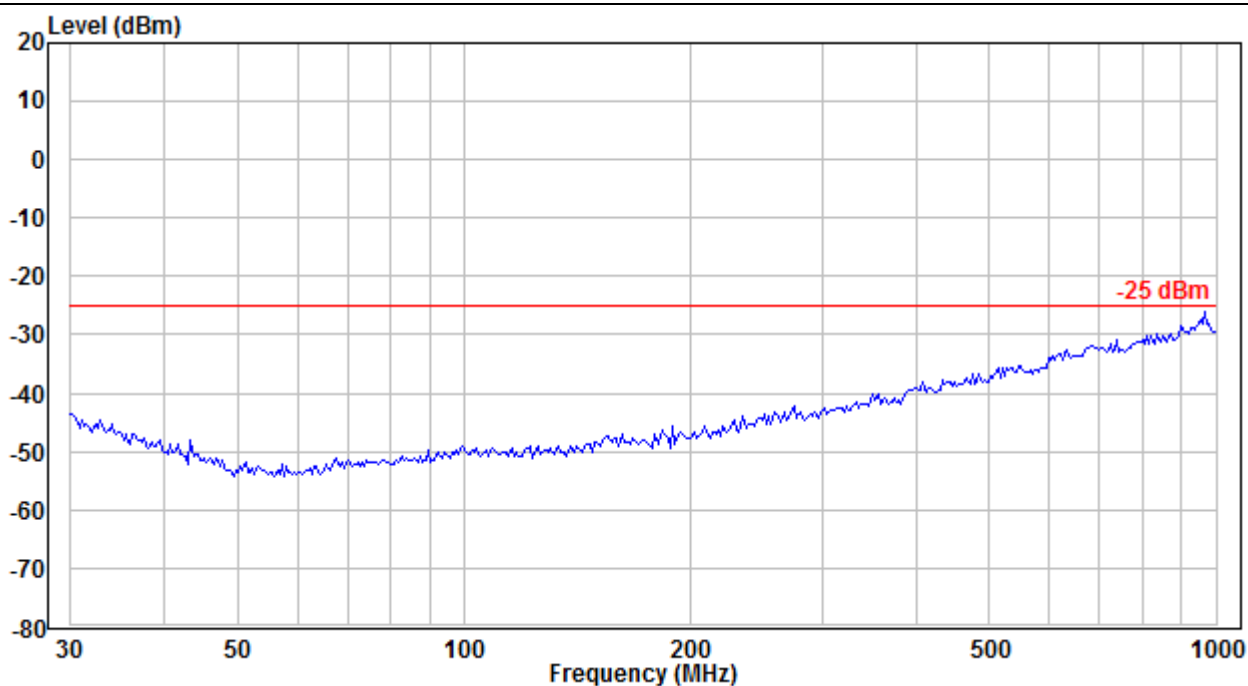
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Fax: +86-755-28230886

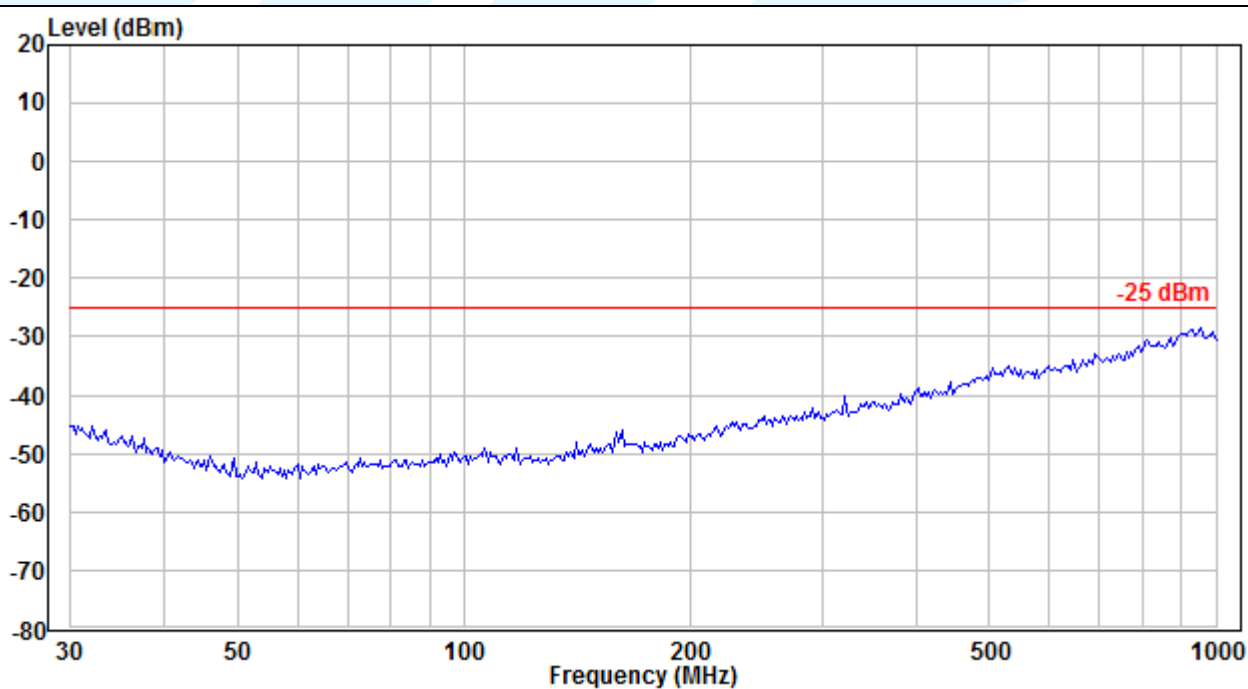
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LTE CA_41C / 20MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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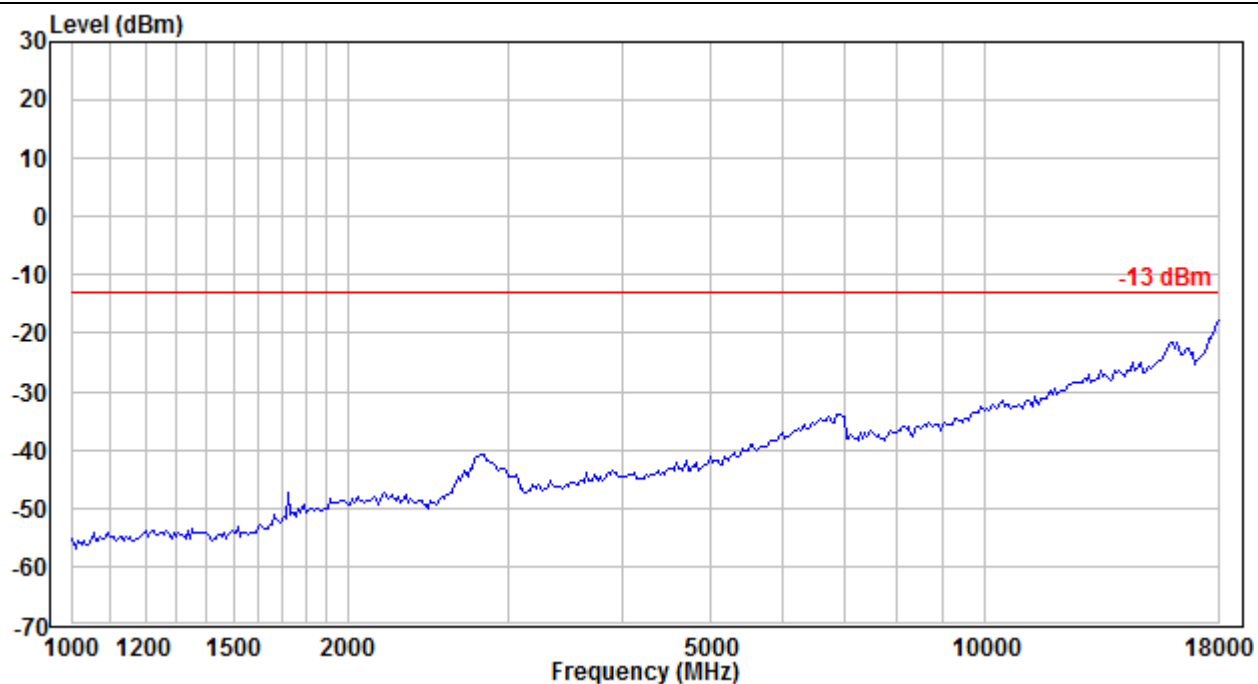
E-mail: info@uttlab.com

[Http://www.uttlab.com](http://www.uttlab.com)

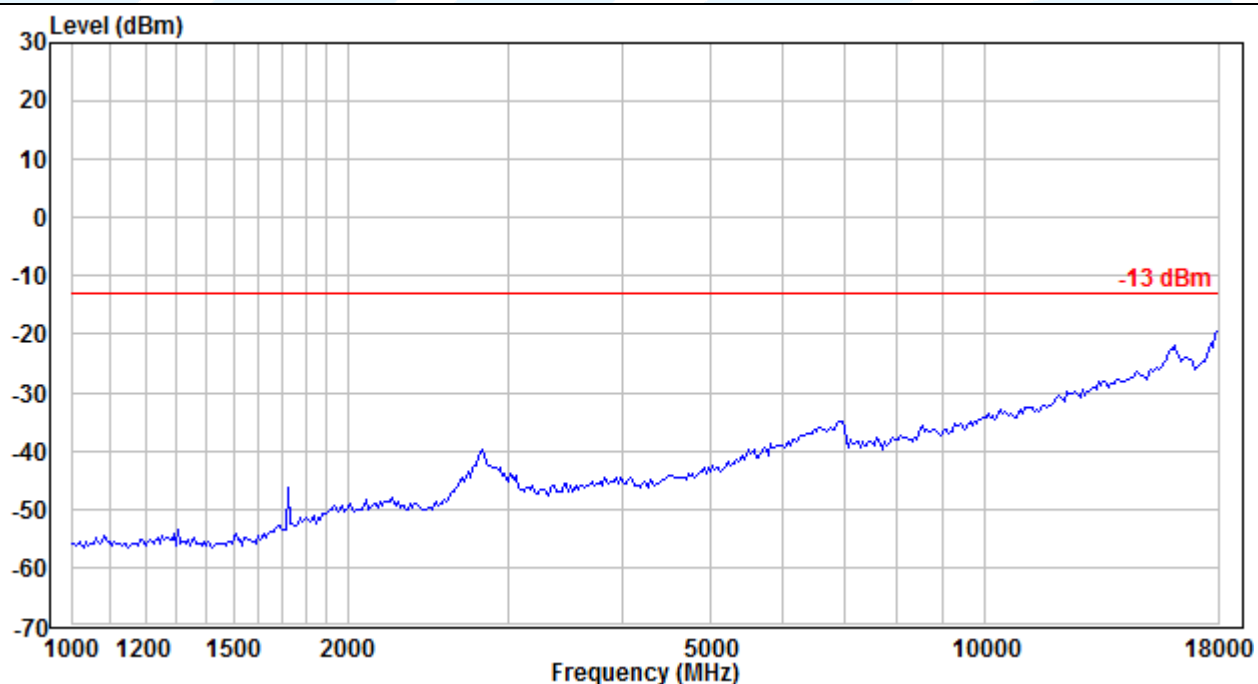
5.8.2 Radiated Emission Test Data (Above 1GHz)

WCDMA RMC 12.2Kbps_Middle Channel

Horizontal

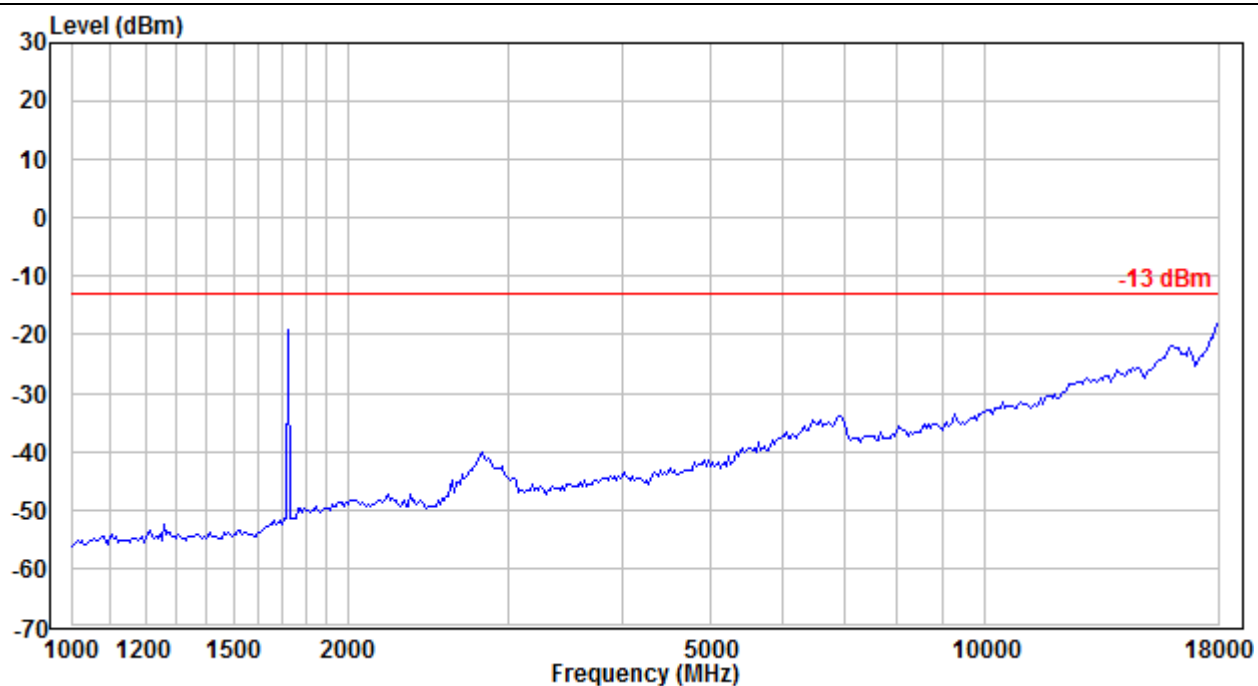


Vertical

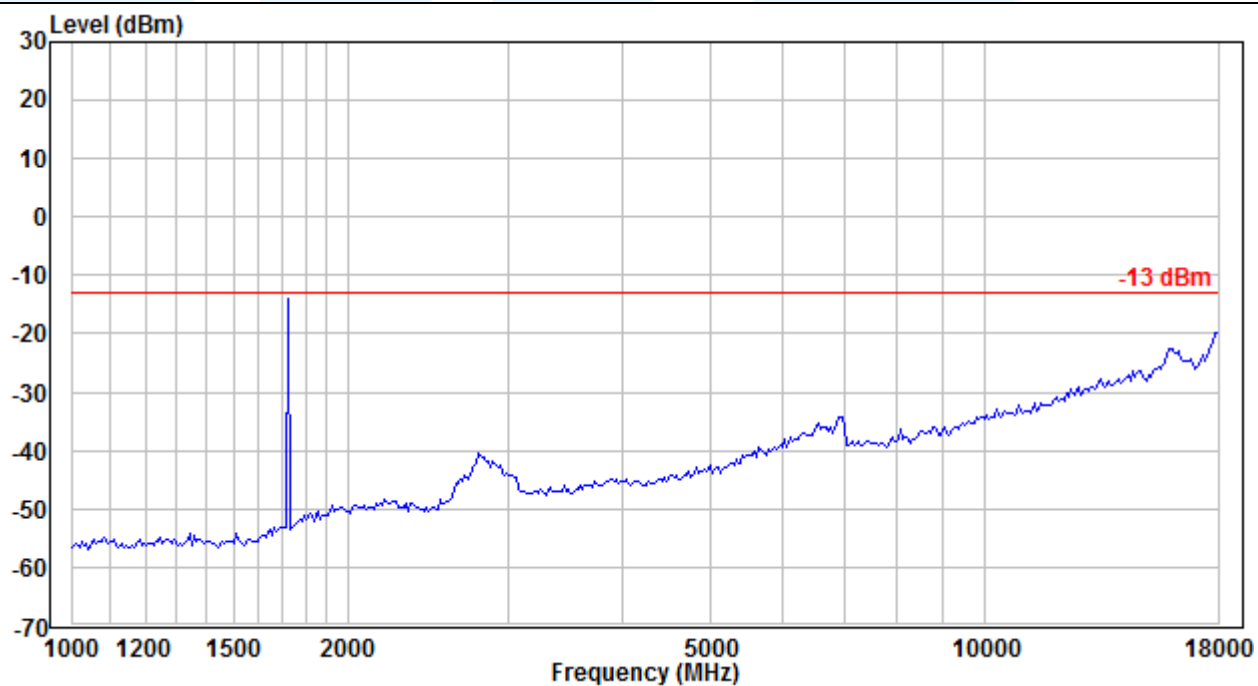


LTE Band 4 / 1.4 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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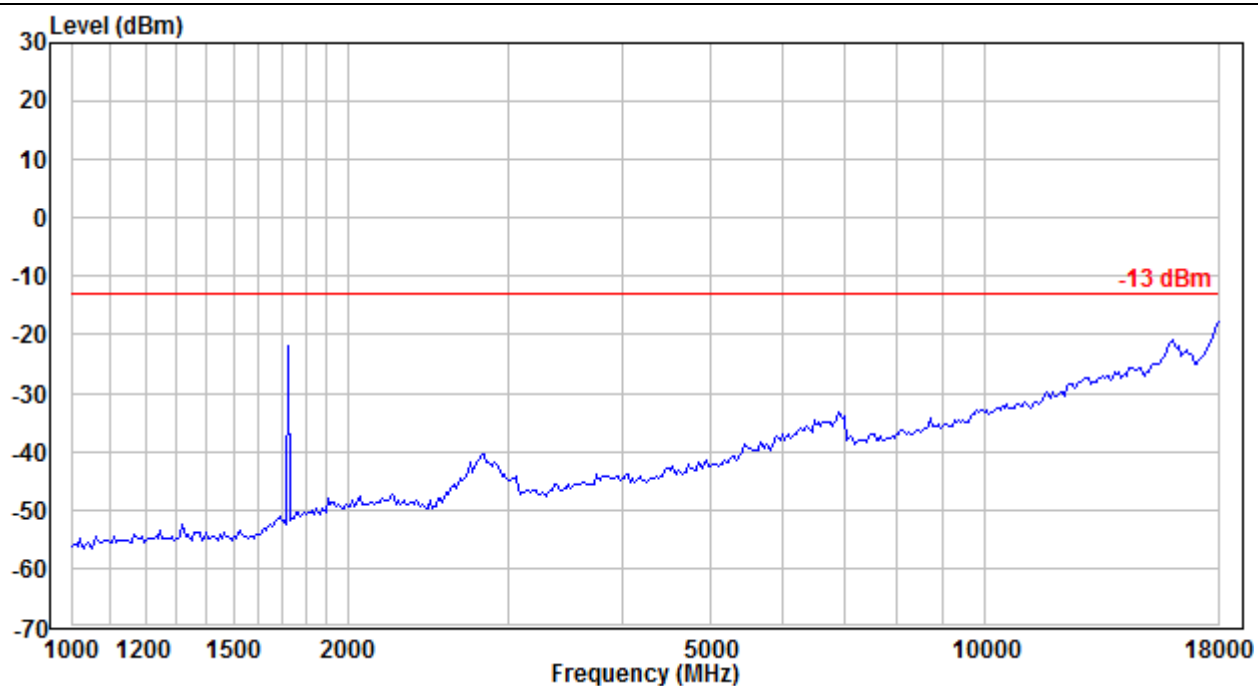
Tel: +86-755-28230888

Fax: +86-755-28230886

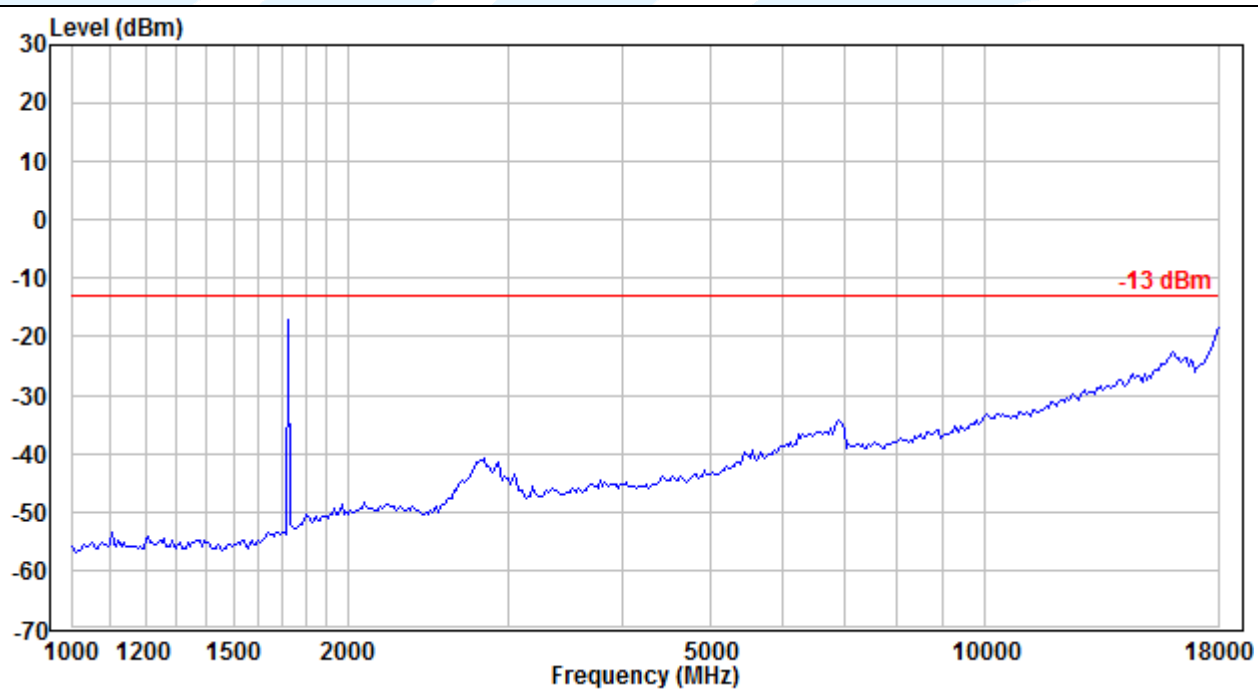
E-mail: info@uttlab.com
[Http://www.uttlab.com](http://www.uttlab.com)

LTE Band 4 / 3 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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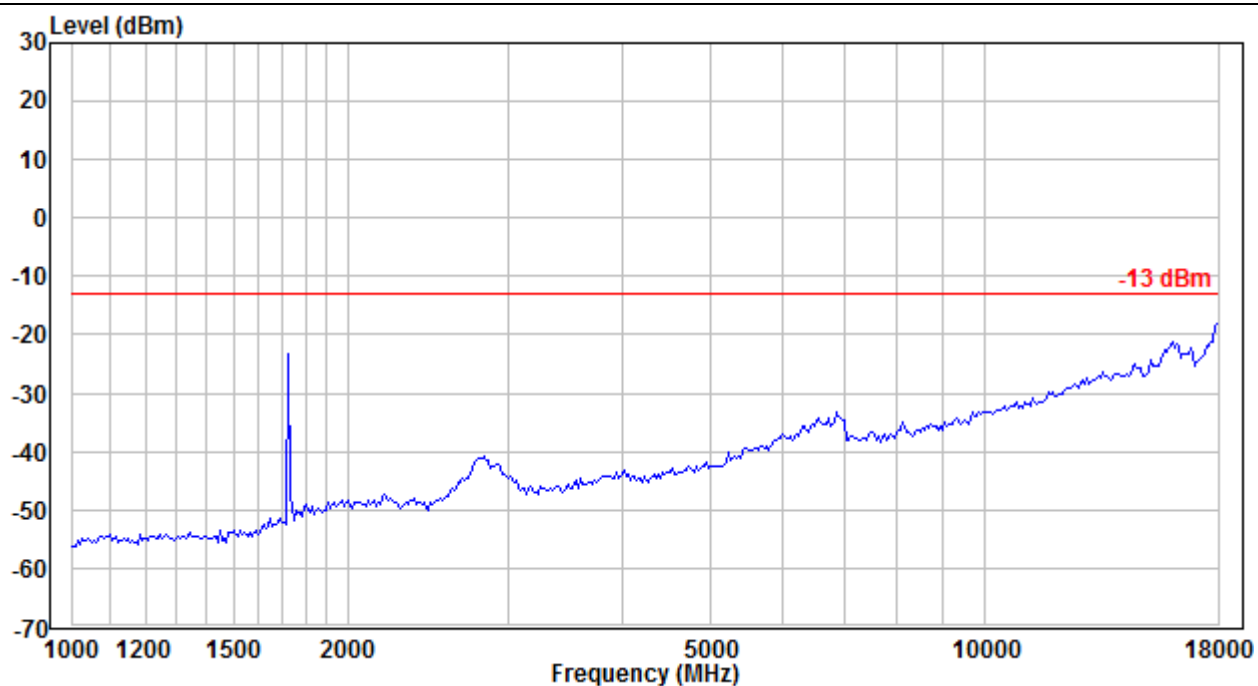
Tel: +86-755-28230888

Fax: +86-755-28230886

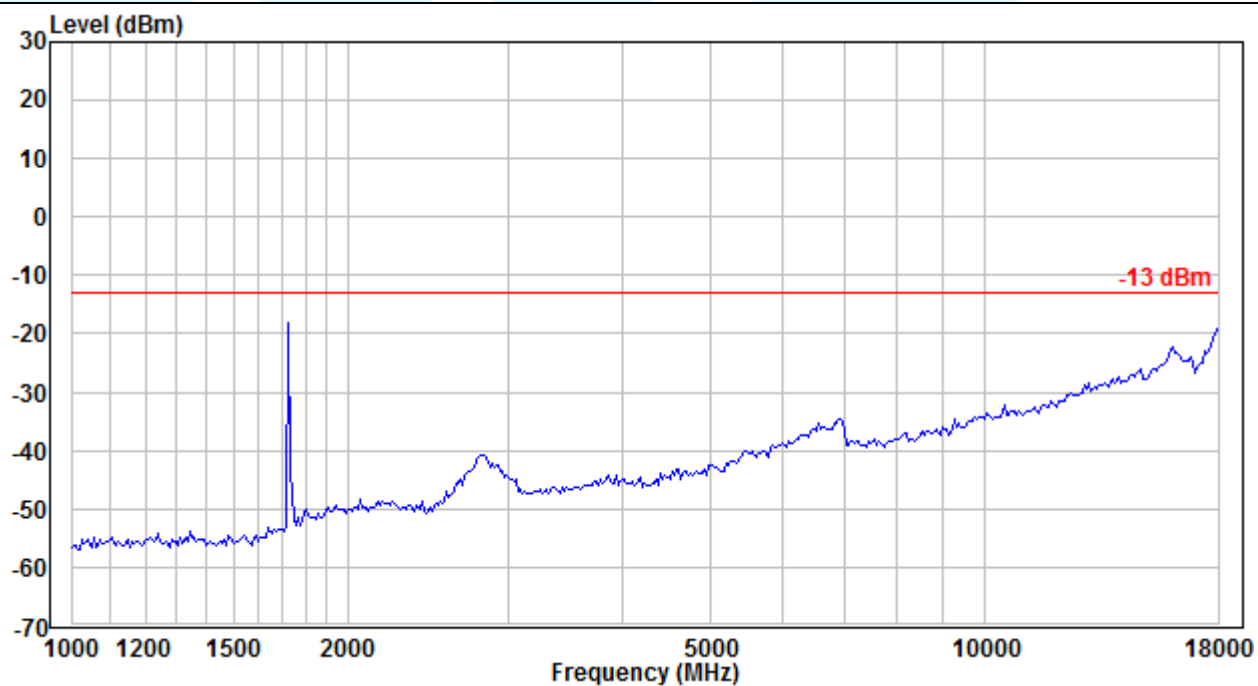
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<http://www.uttlab.com>

LTE Band 4 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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Tel: +86-755-28230888

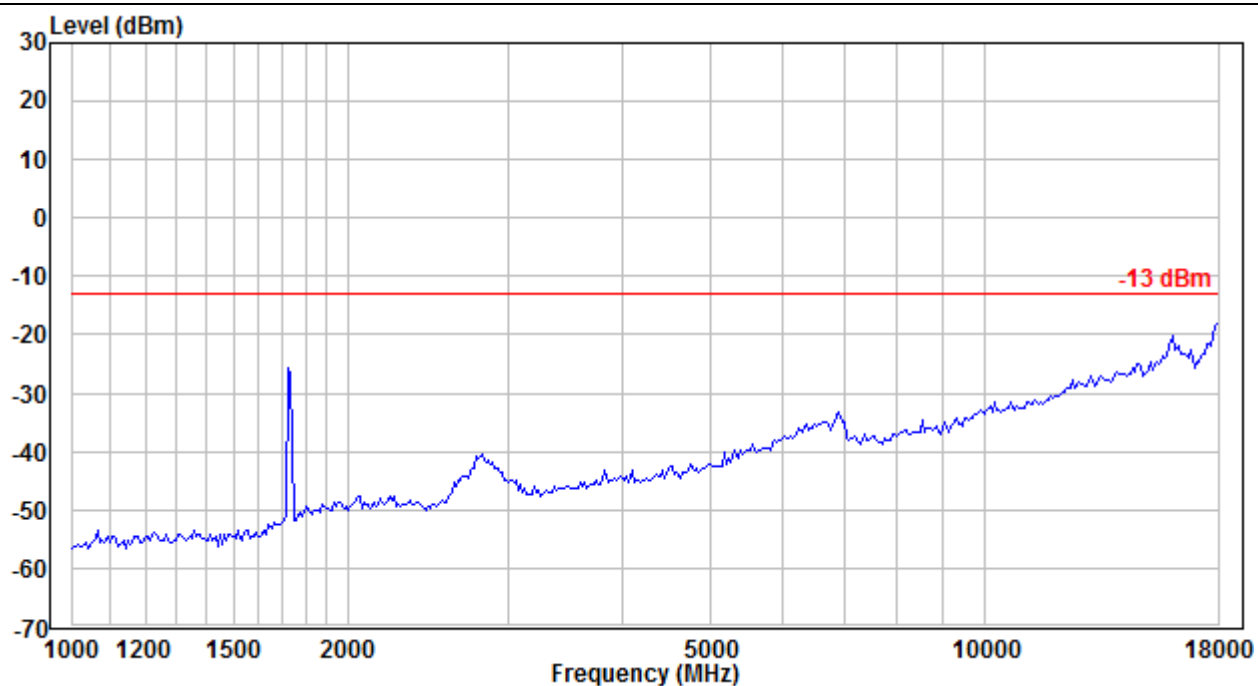
Fax: +86-755-28230886

E-mail: info@uttlab.com

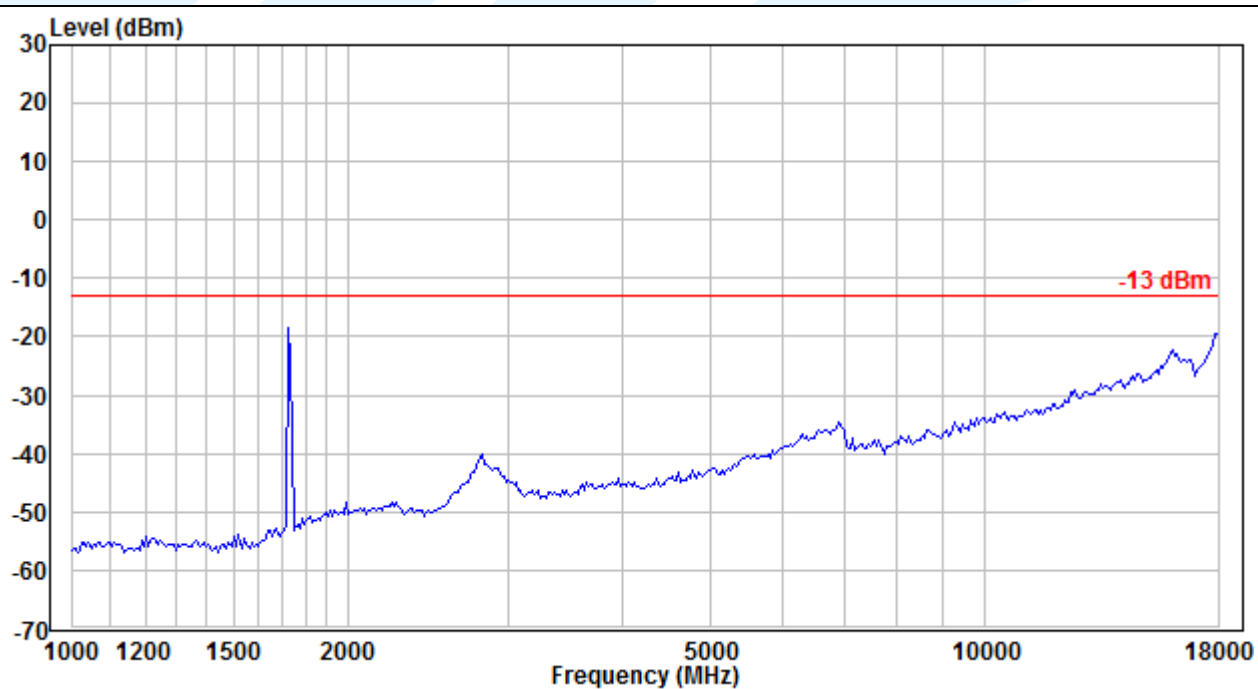
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LTE Band 4 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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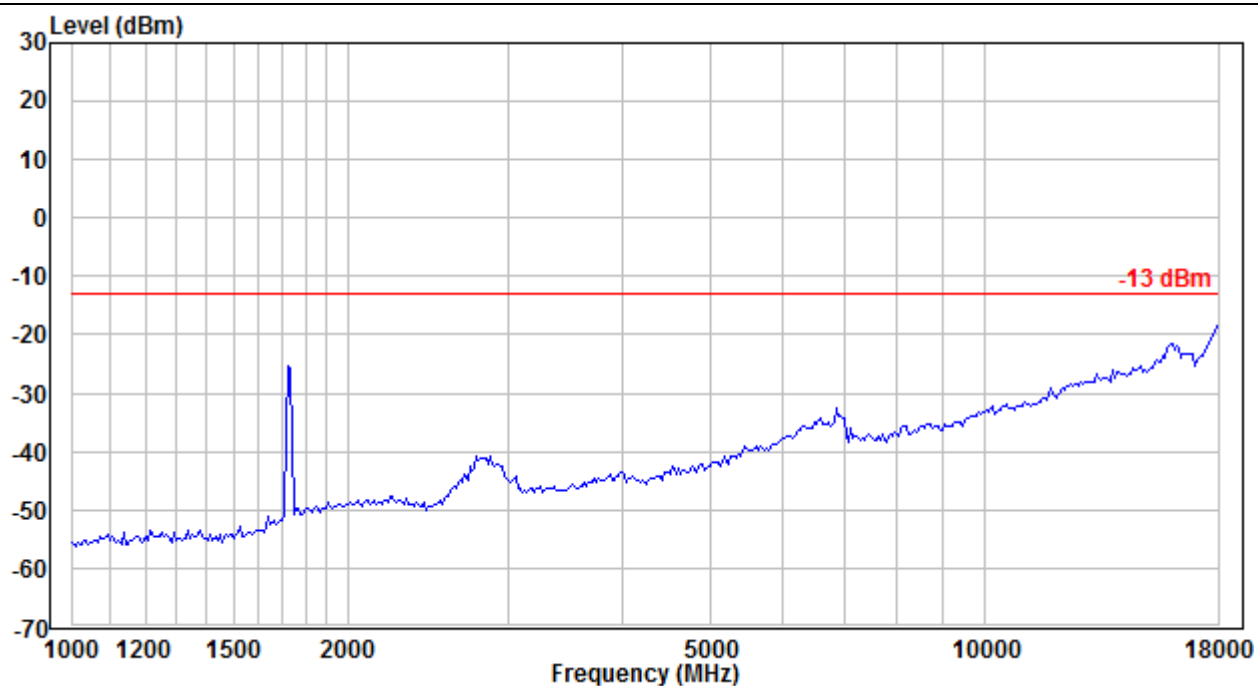
Tel: +86-755-28230888

Fax: +86-755-28230886

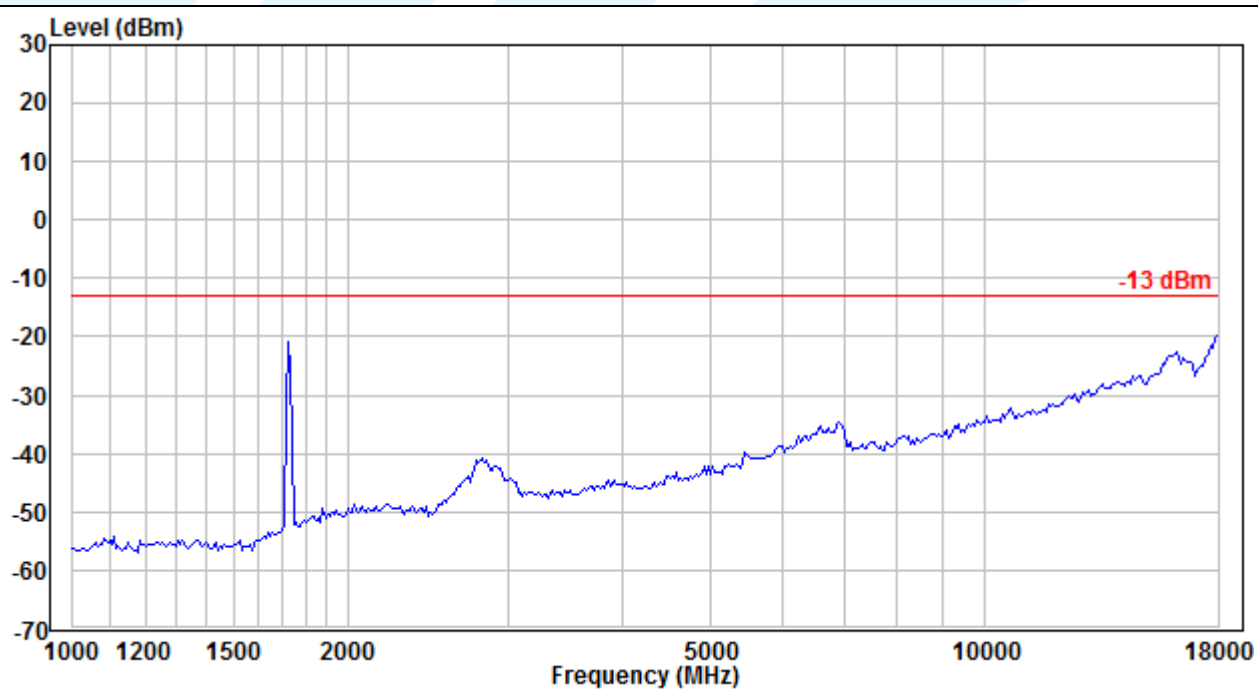
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LTE Band 4 / 15 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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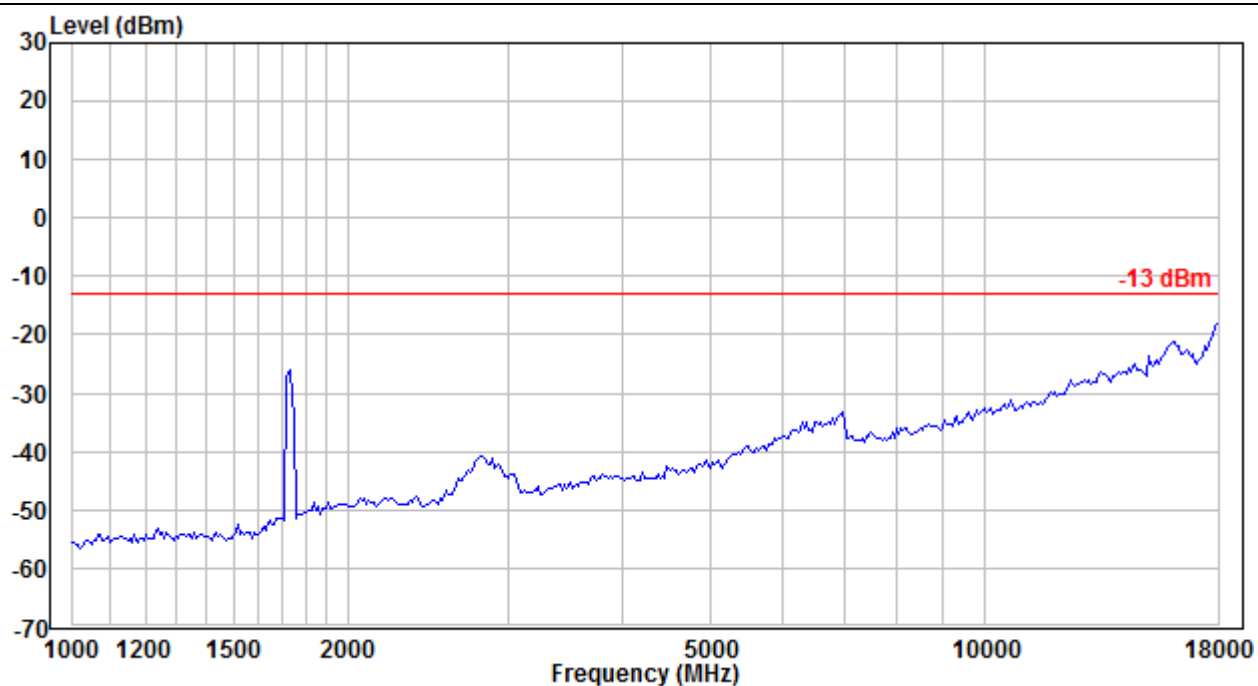
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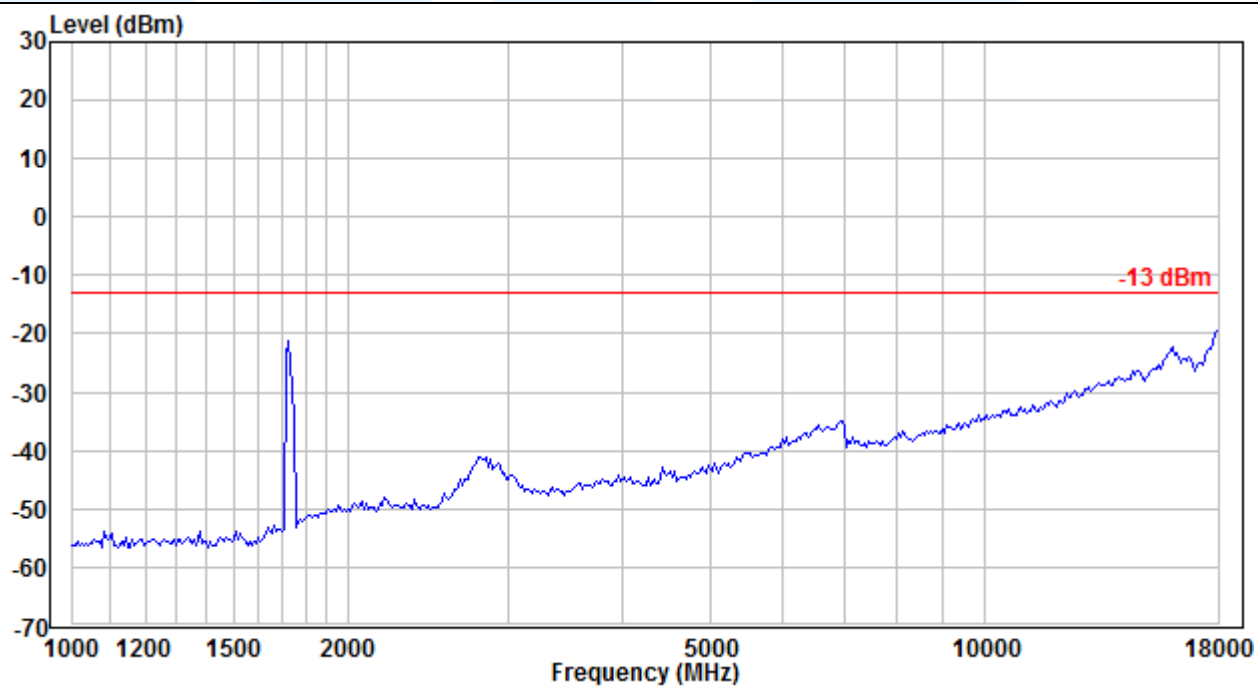
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LTE Band 4 / 20 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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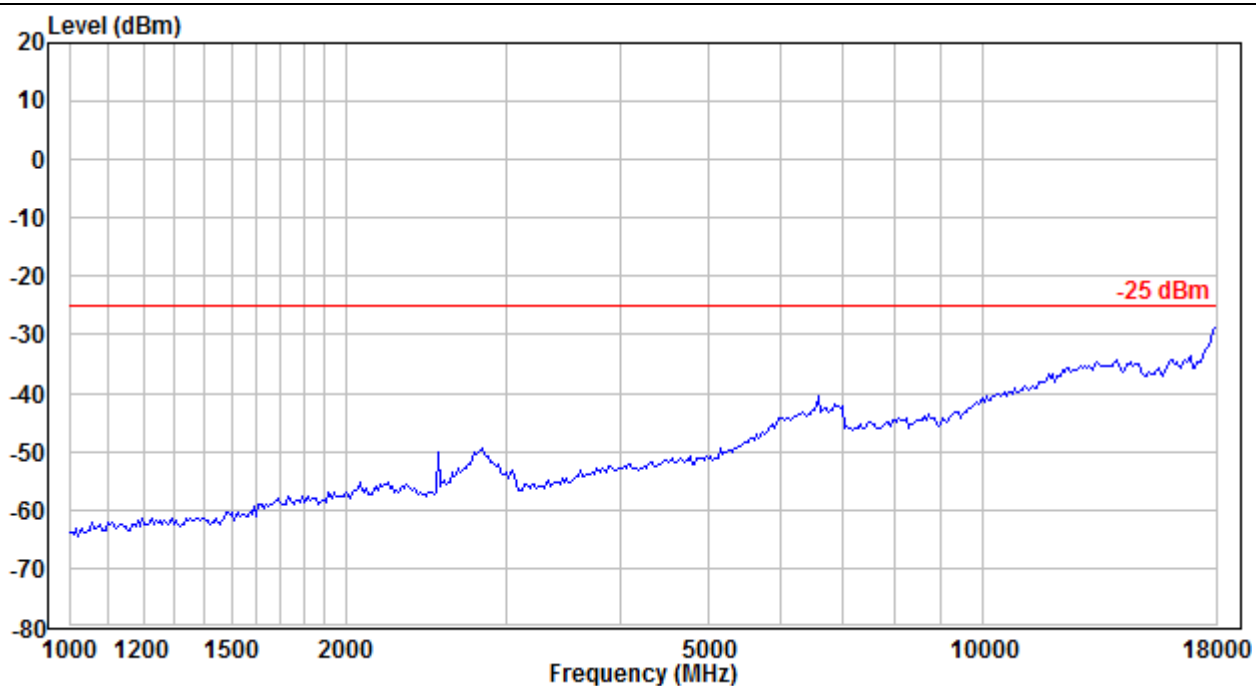
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Fax: +86-755-28230886

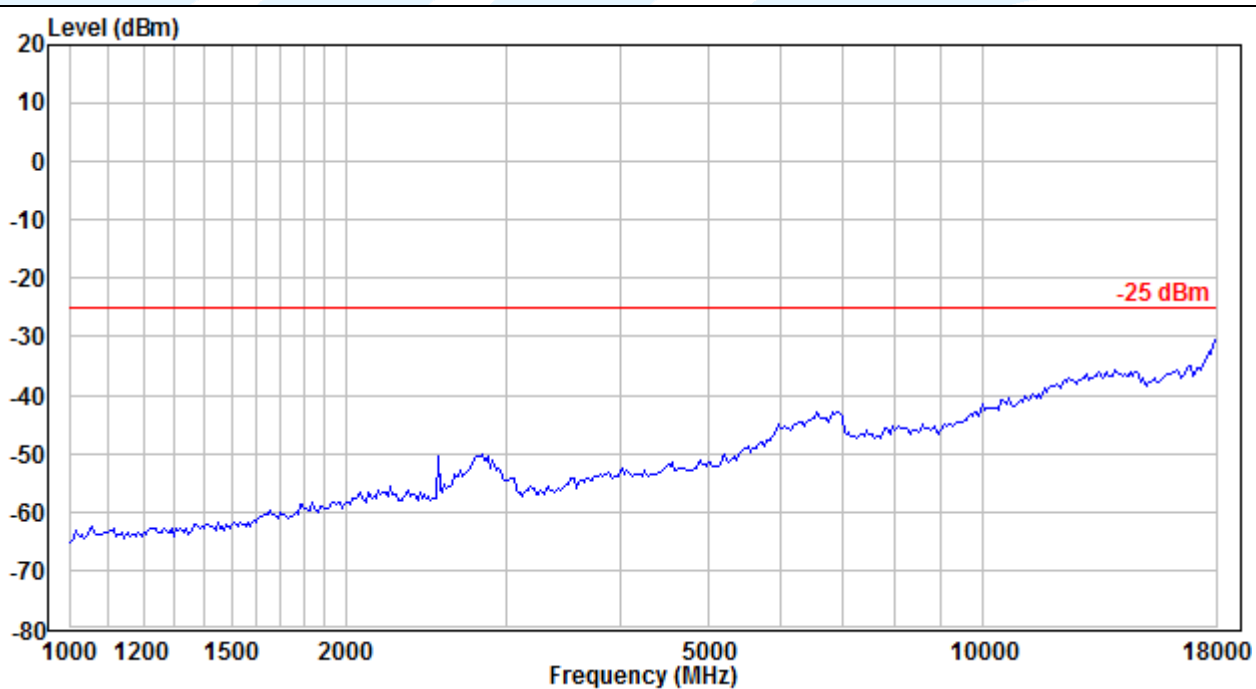
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LTE Band 7 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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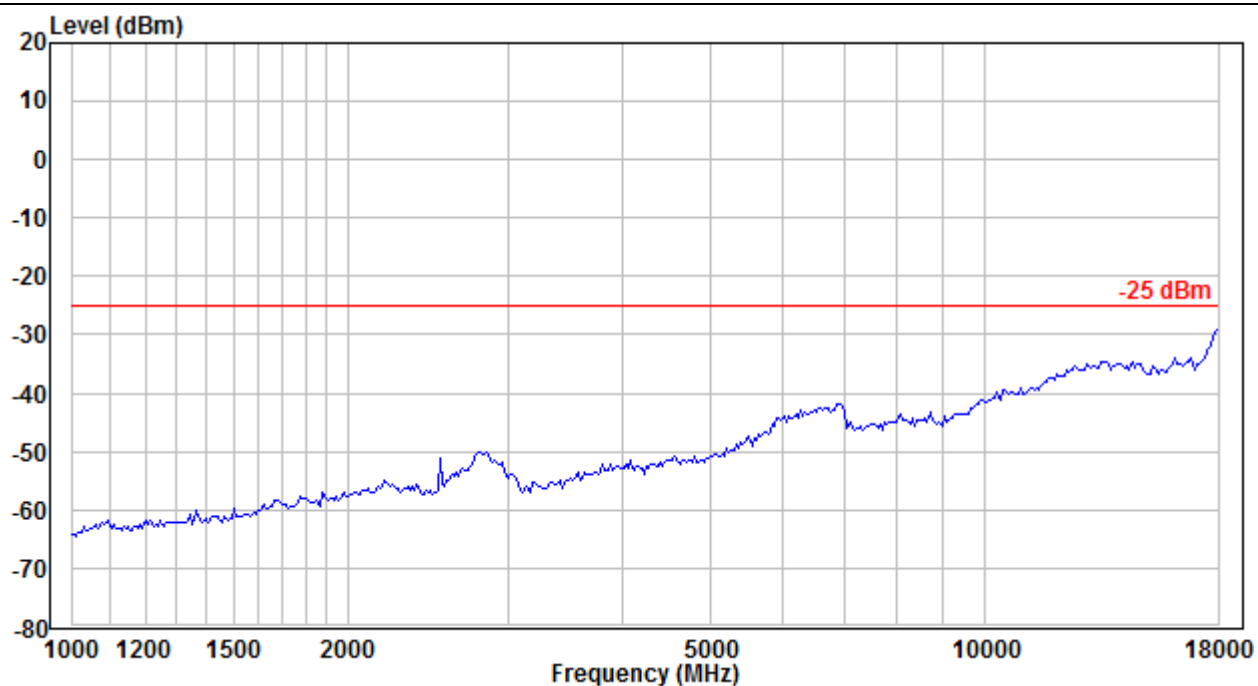
Tel: +86-755-28230888

Fax: +86-755-28230886

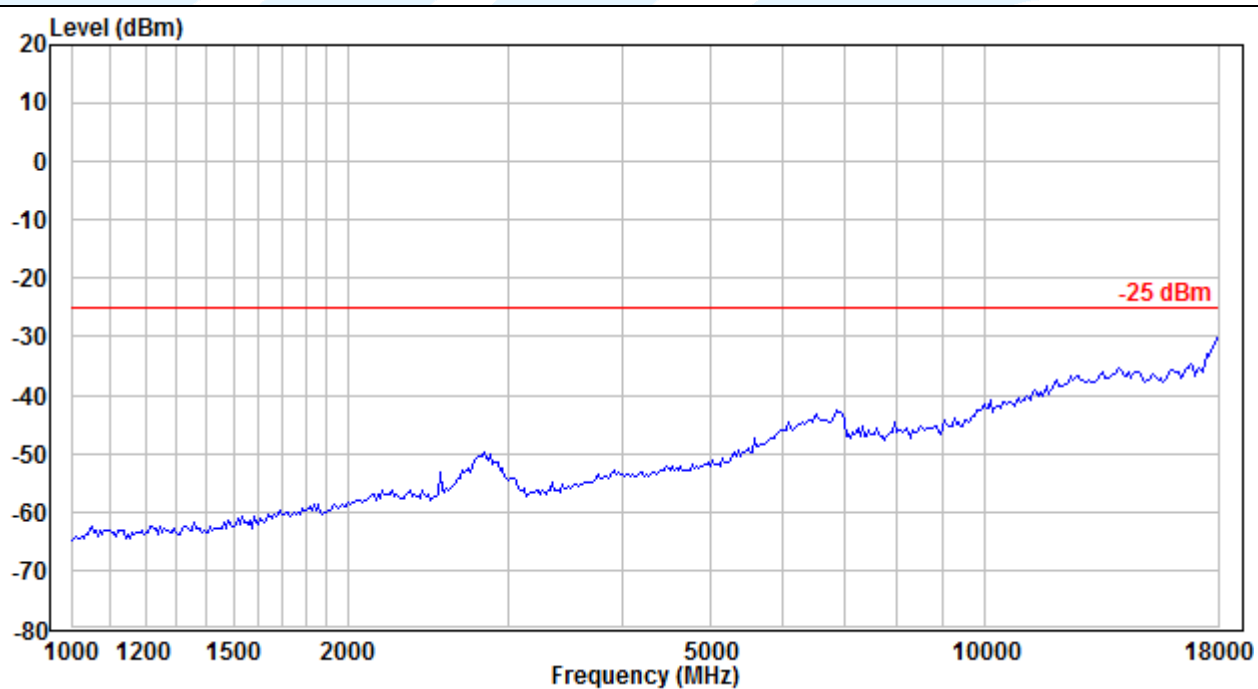
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<http://www.uttlab.com>

LTE Band 7 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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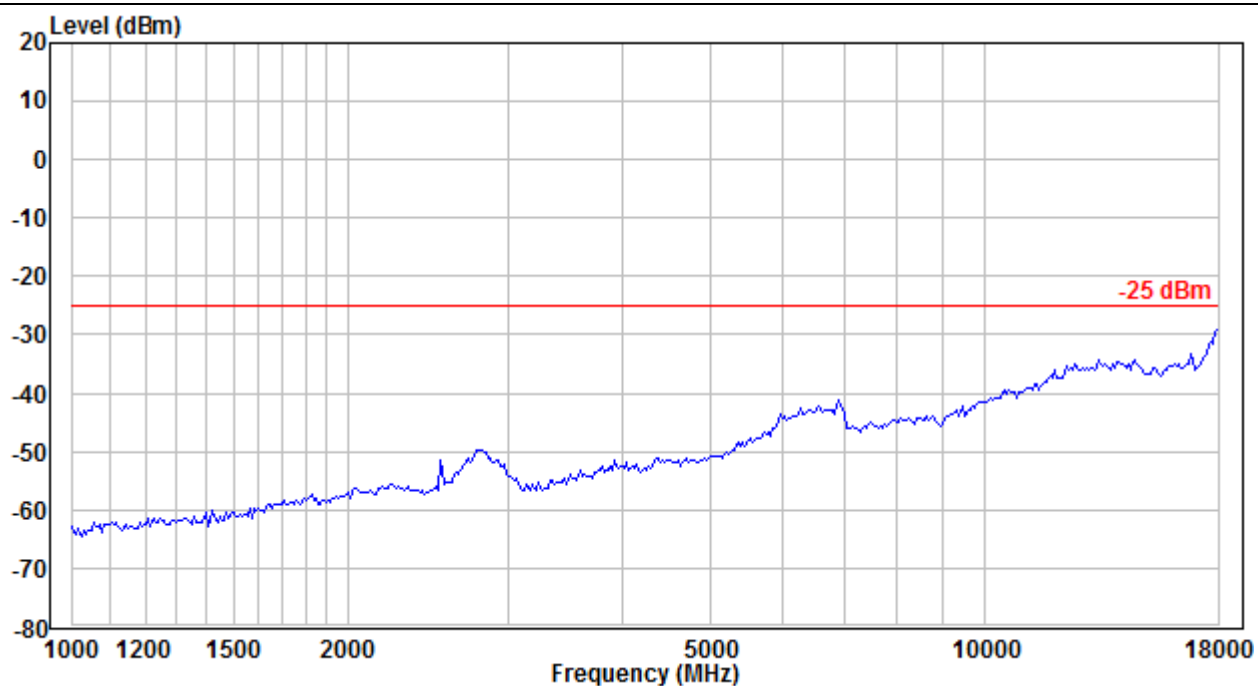
Tel: +86-755-28230888

Fax: +86-755-28230886

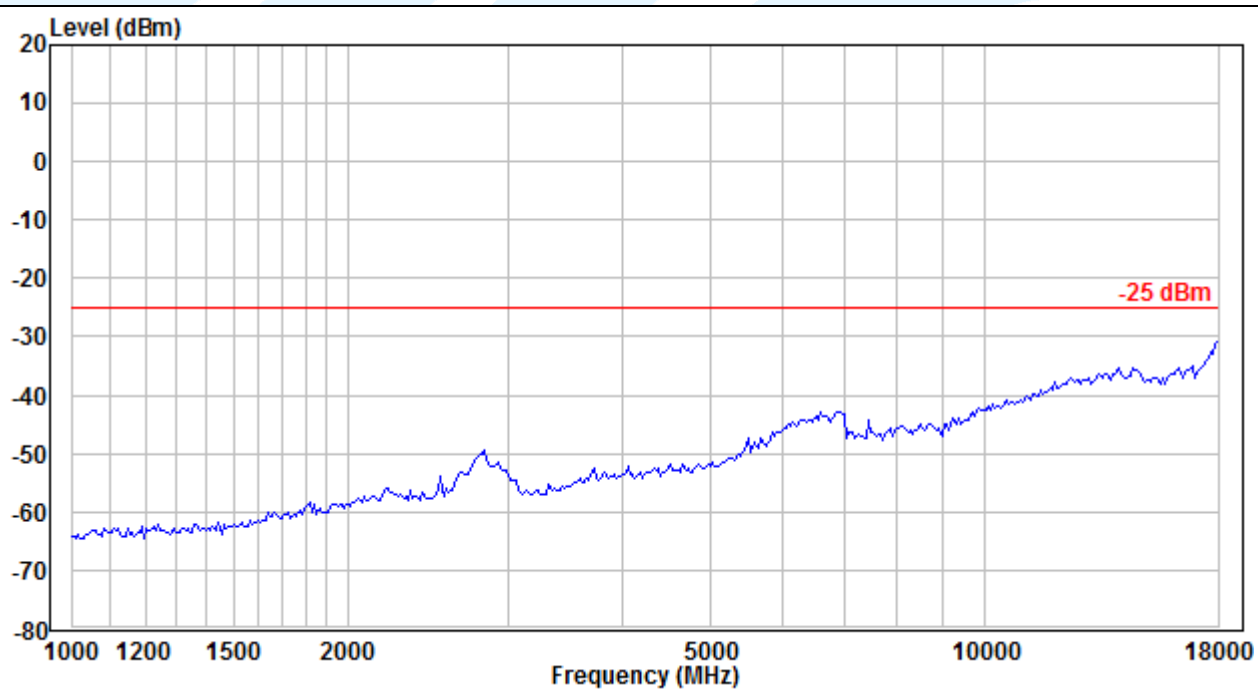
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LTE Band 7 / 15 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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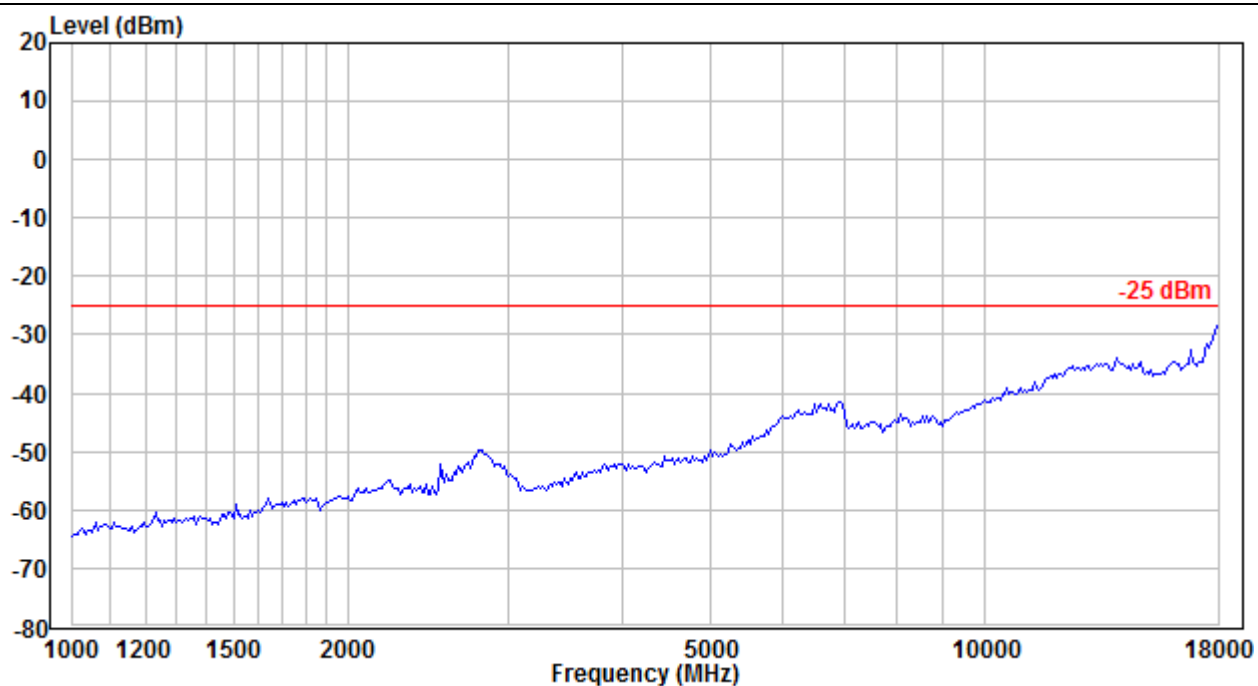
Tel: +86-755-28230888

Fax: +86-755-28230886

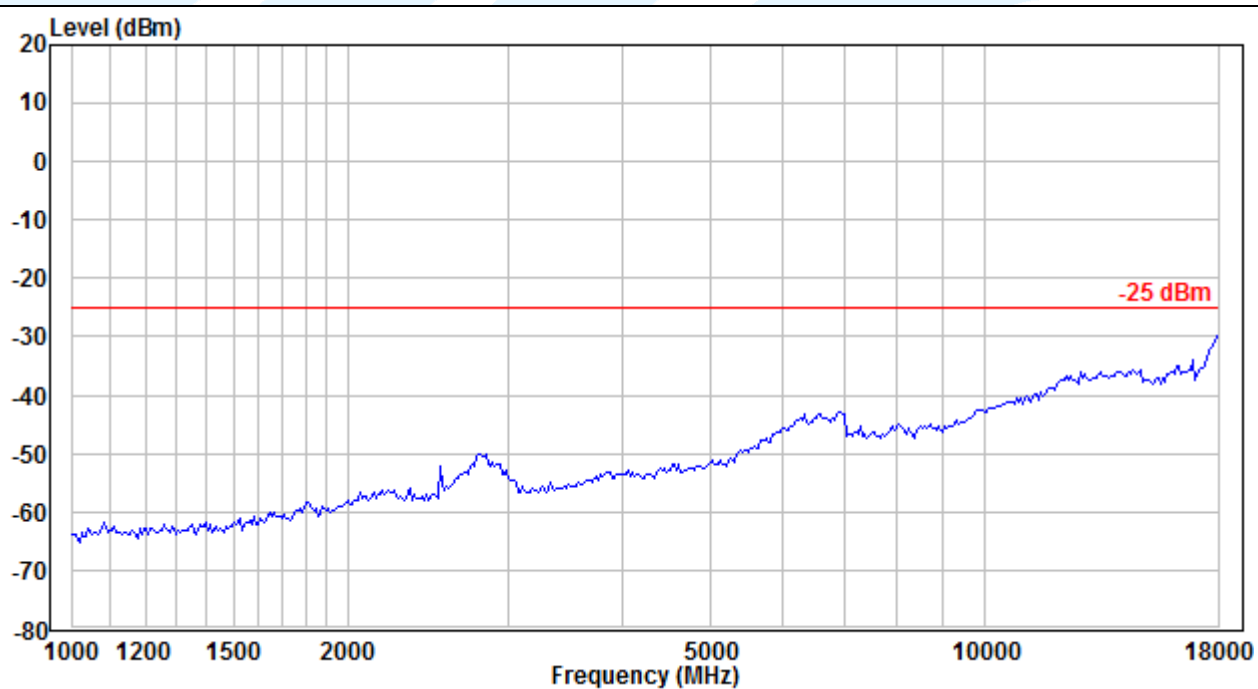
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LTE Band 7 / 20 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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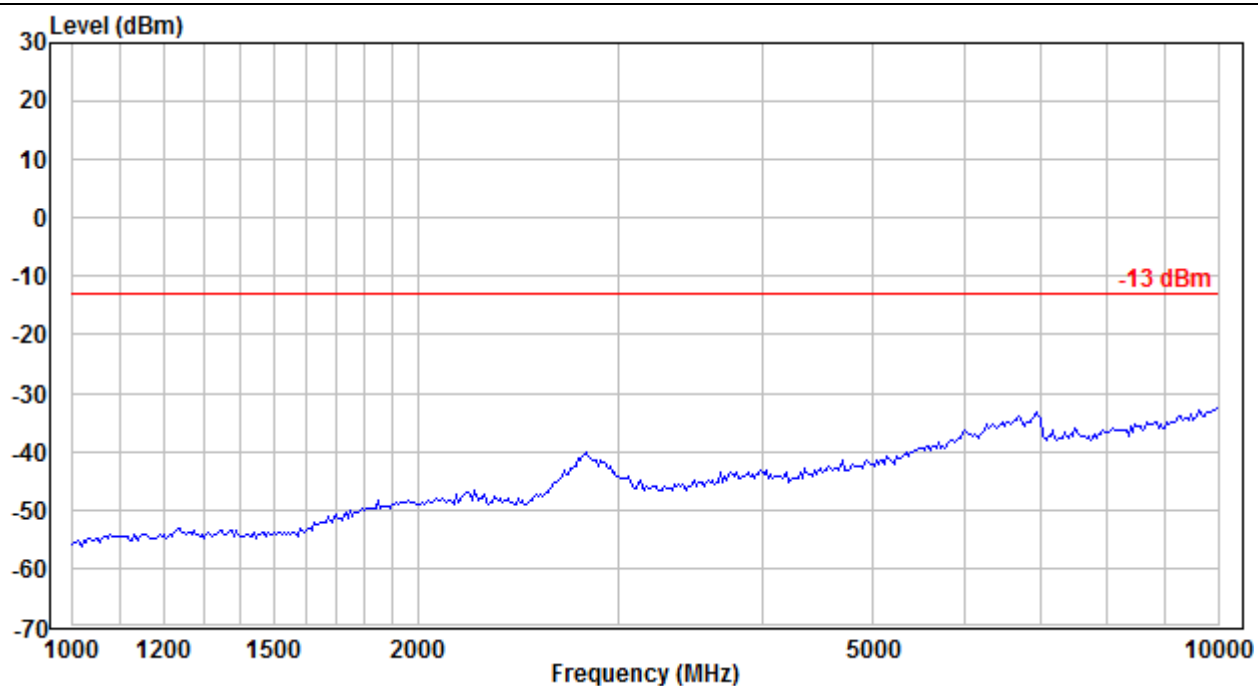
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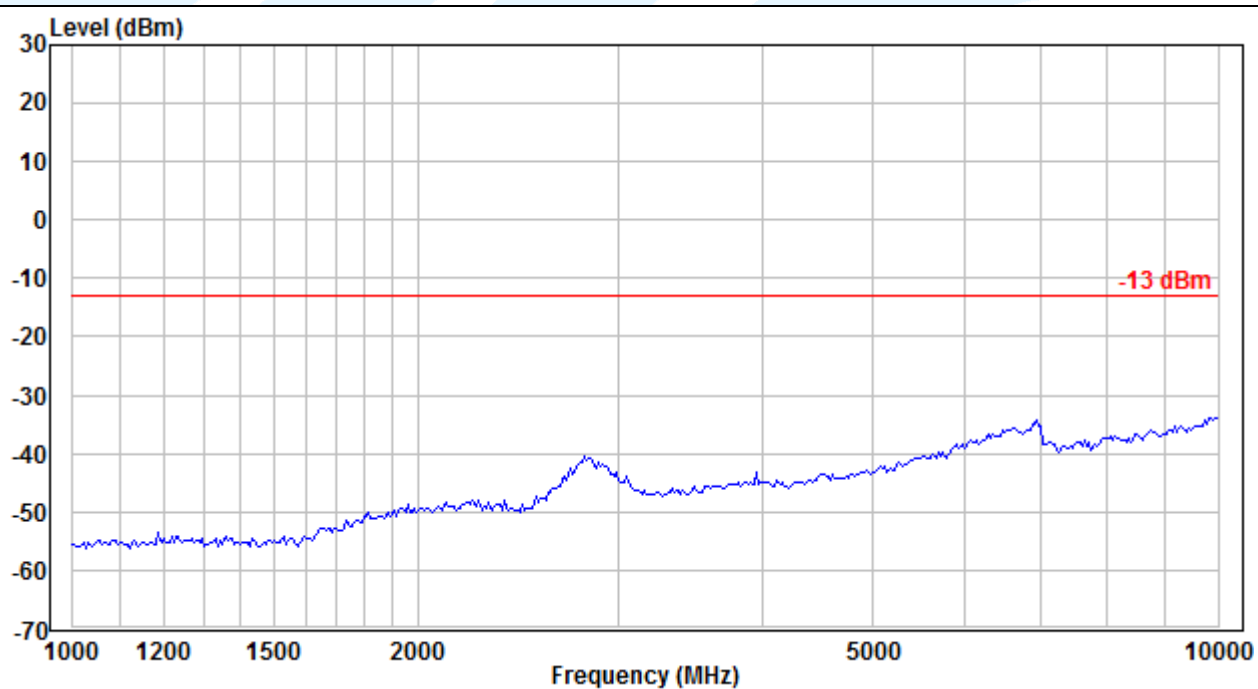
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LTE Band 12 / 1.4 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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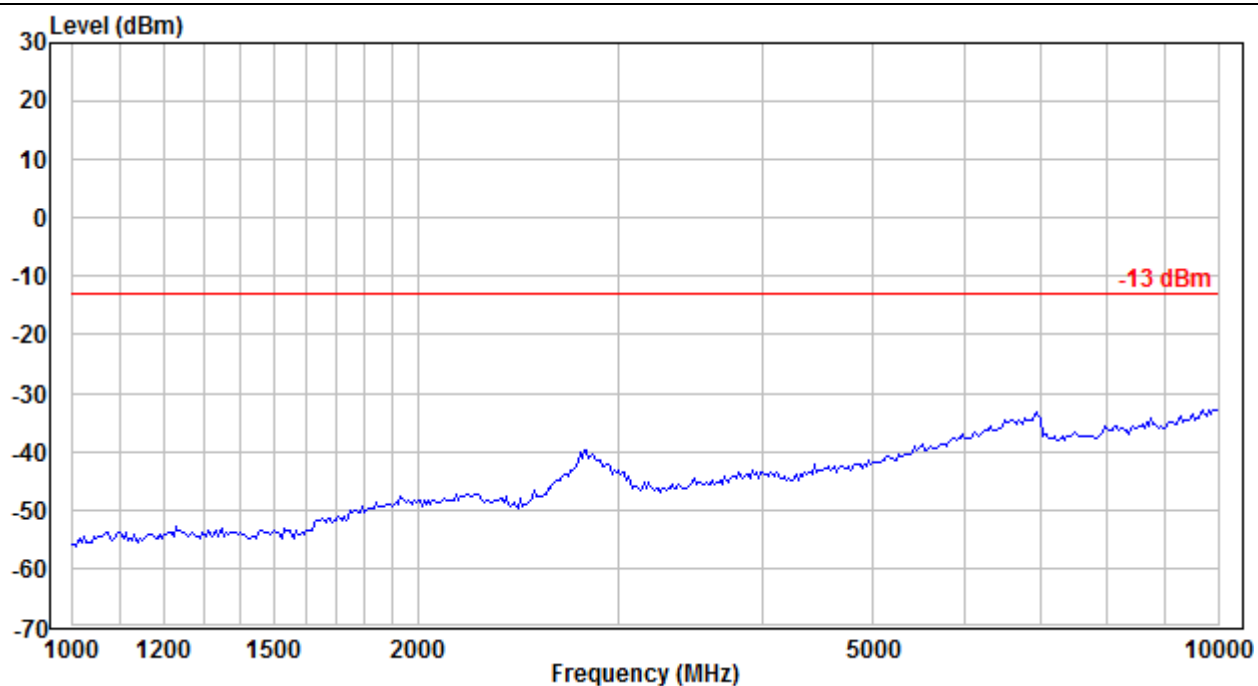
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Fax: +86-755-28230886

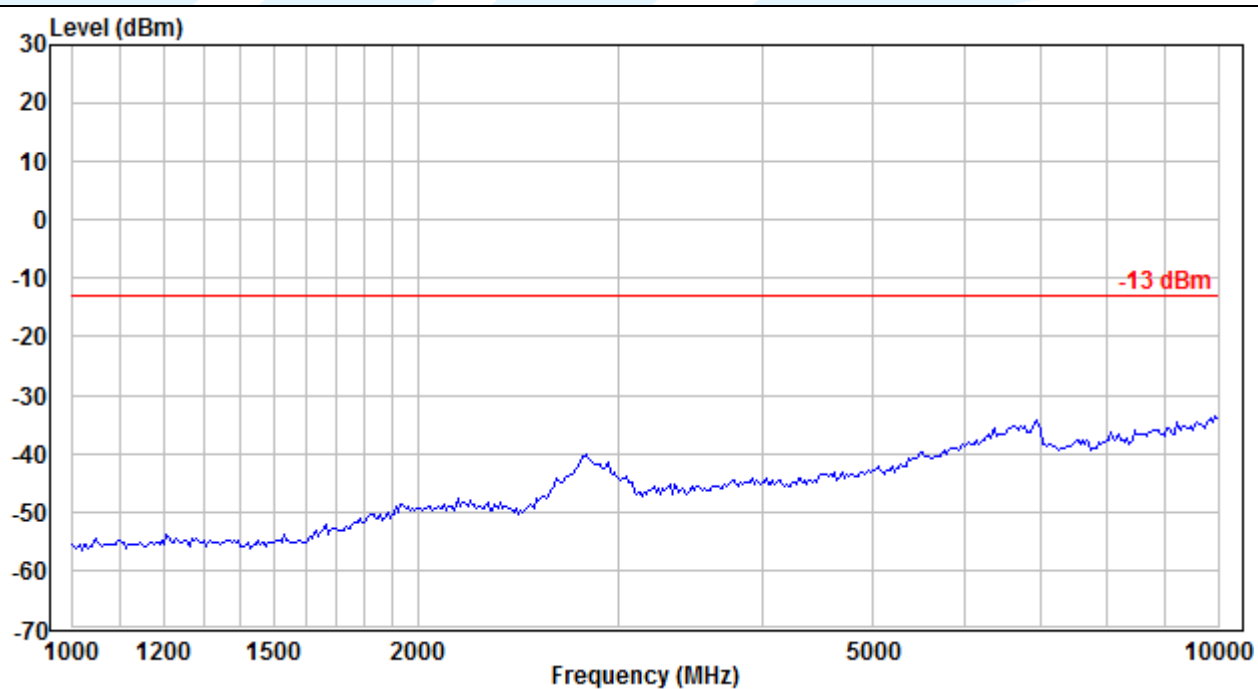
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LTE Band 12 / 3 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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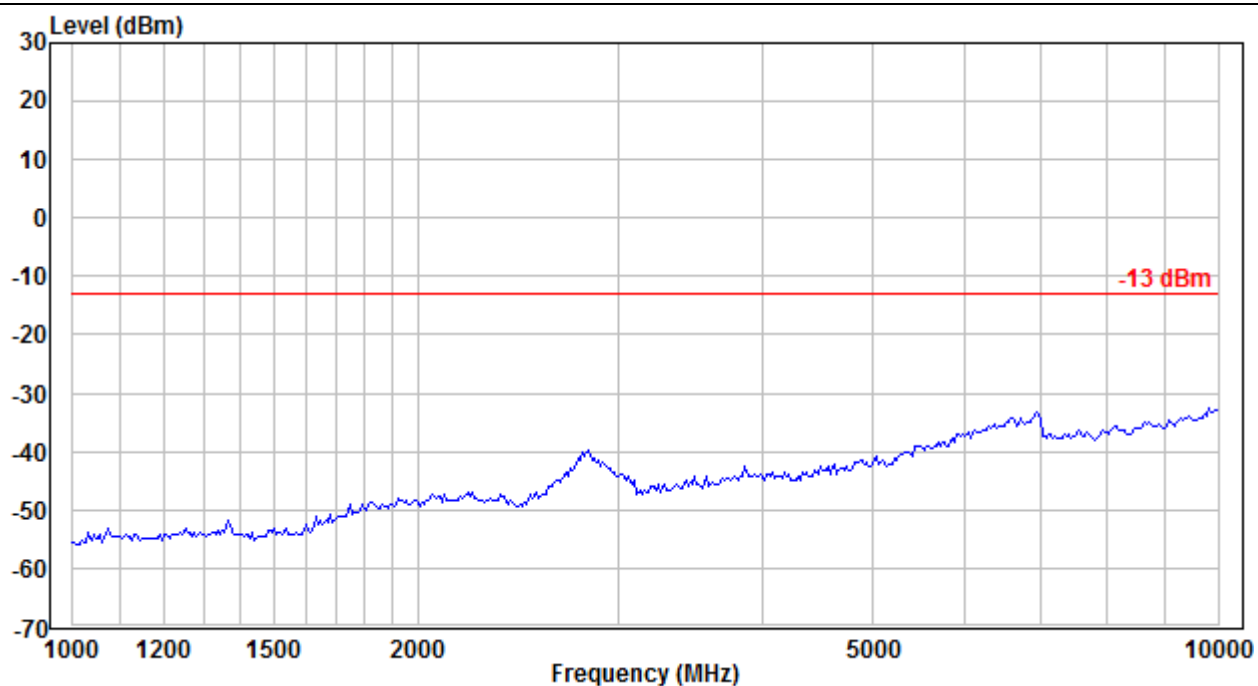
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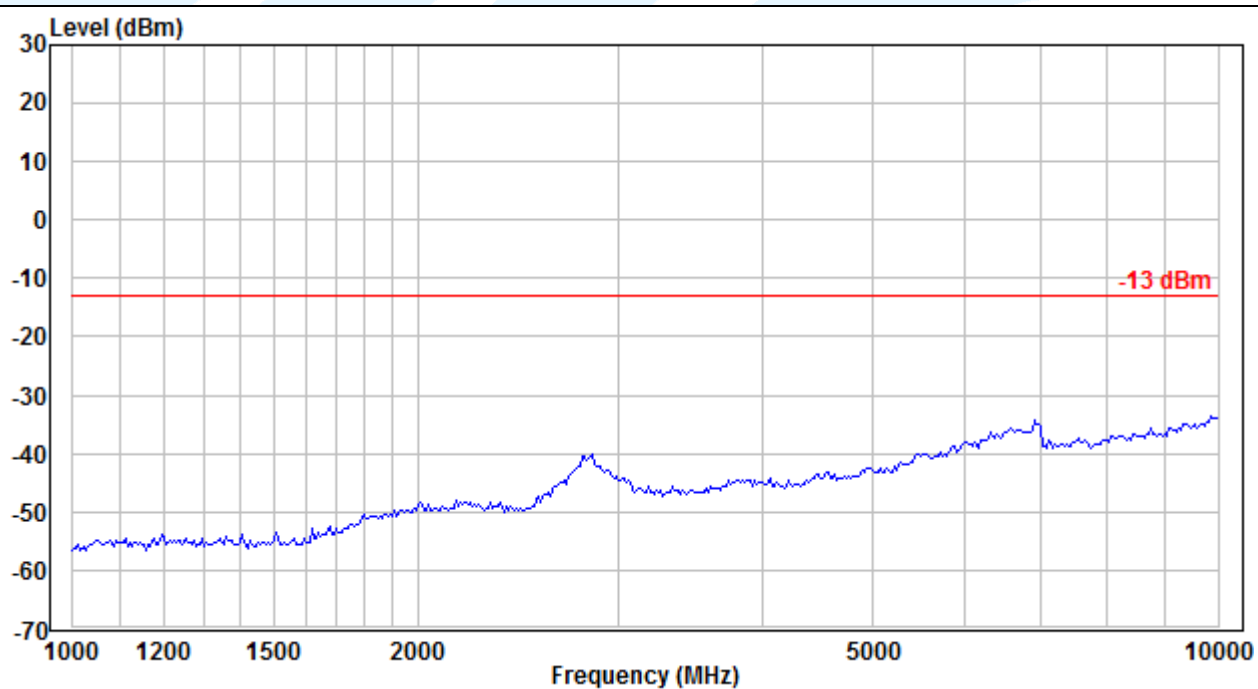
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LTE Band 12 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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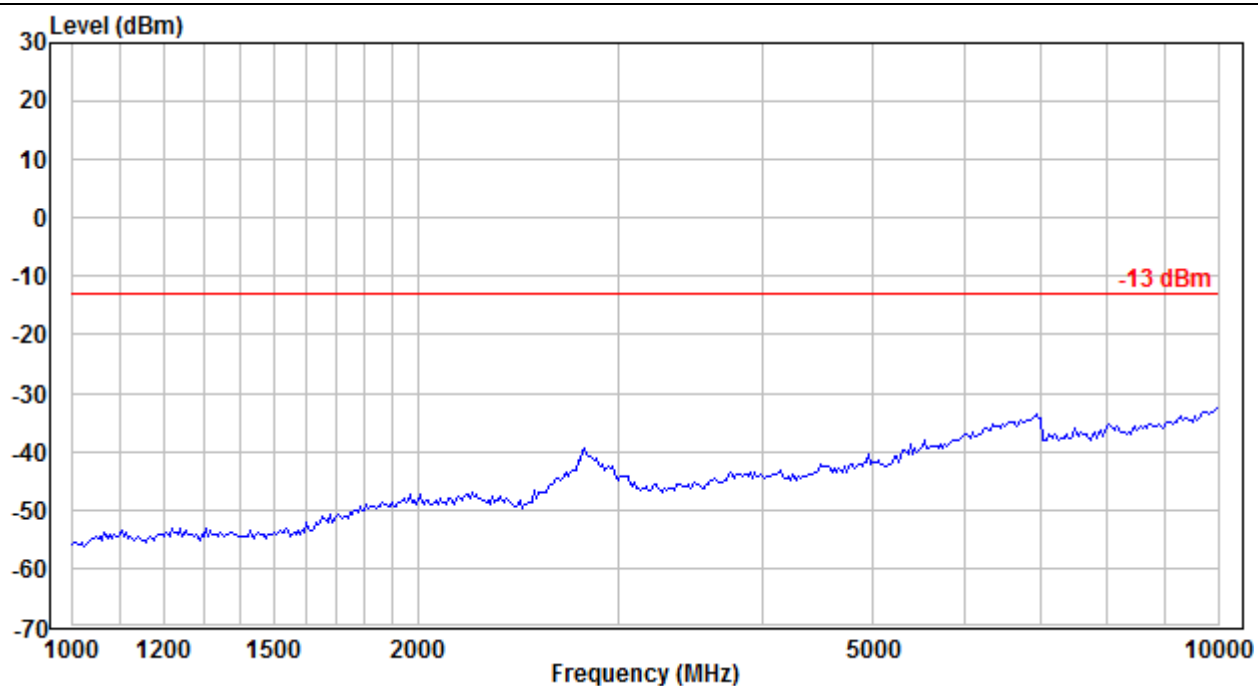
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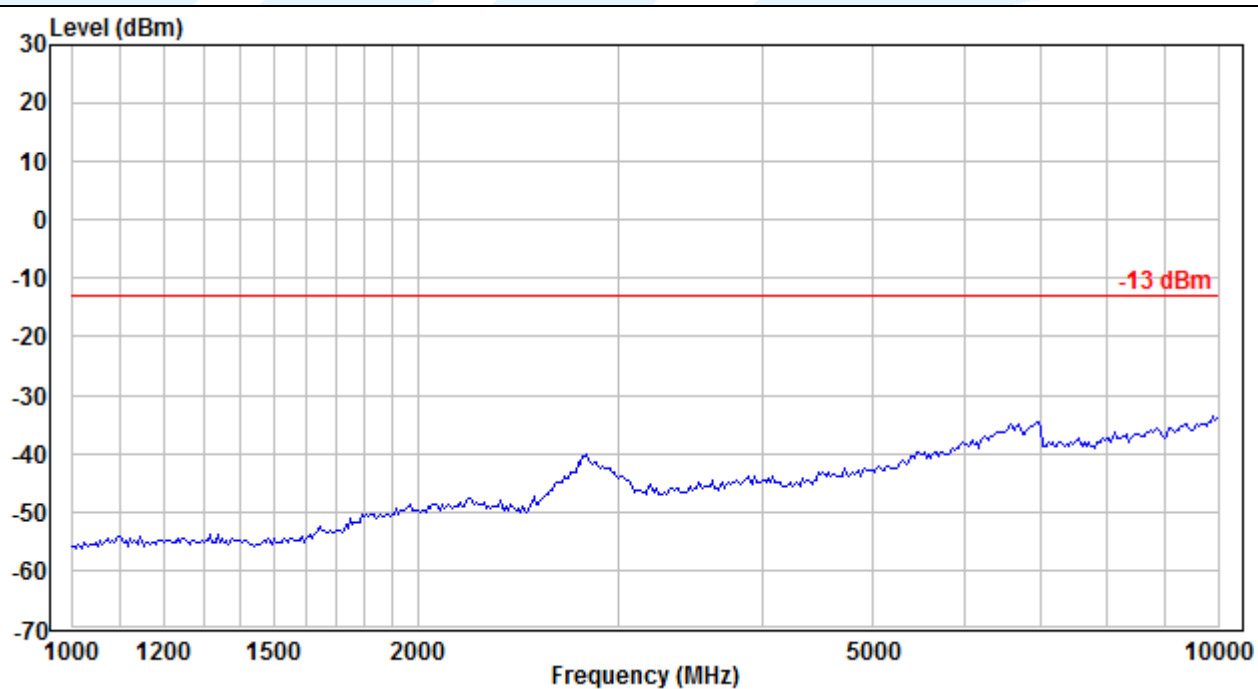
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LTE Band 12 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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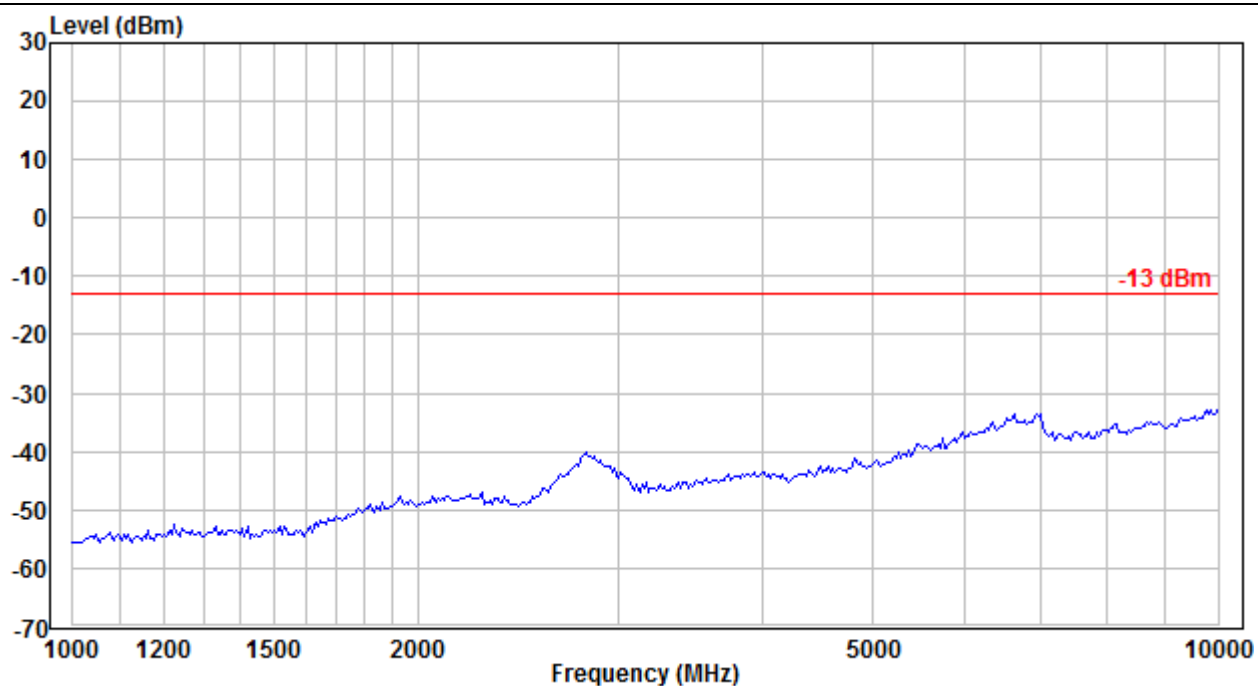
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Fax: +86-755-28230886

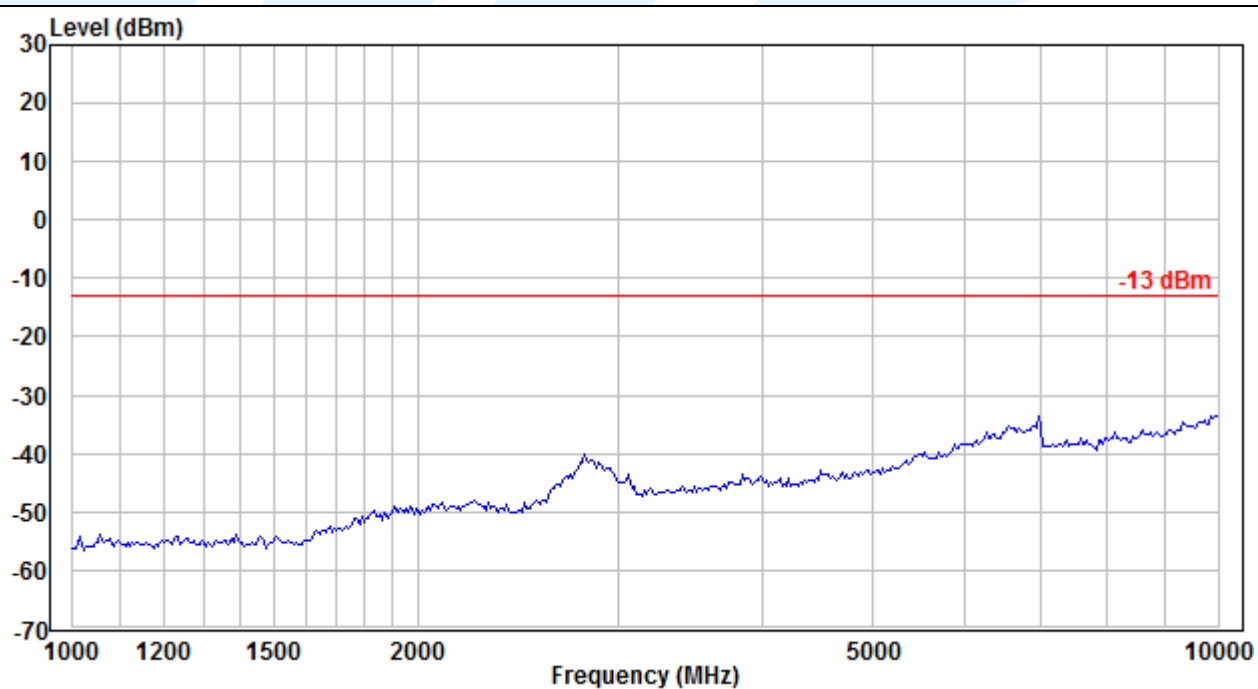
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LTE Band 13 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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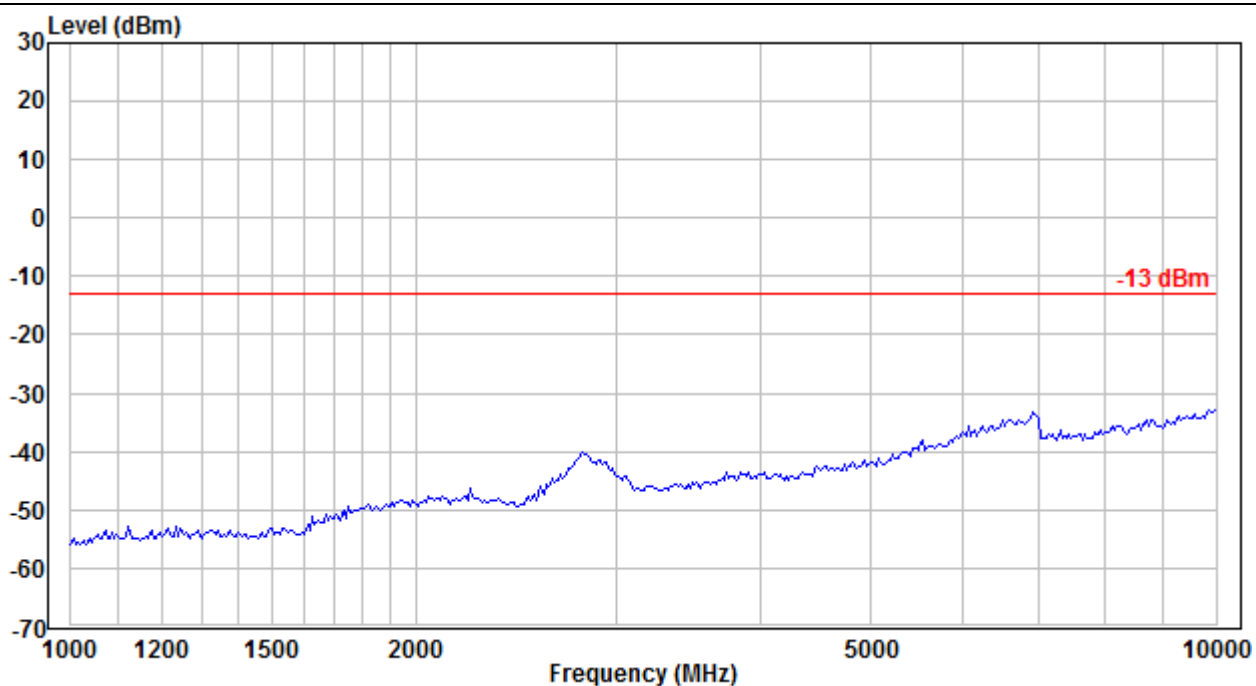
Tel: +86-755-28230888

Fax: +86-755-28230886

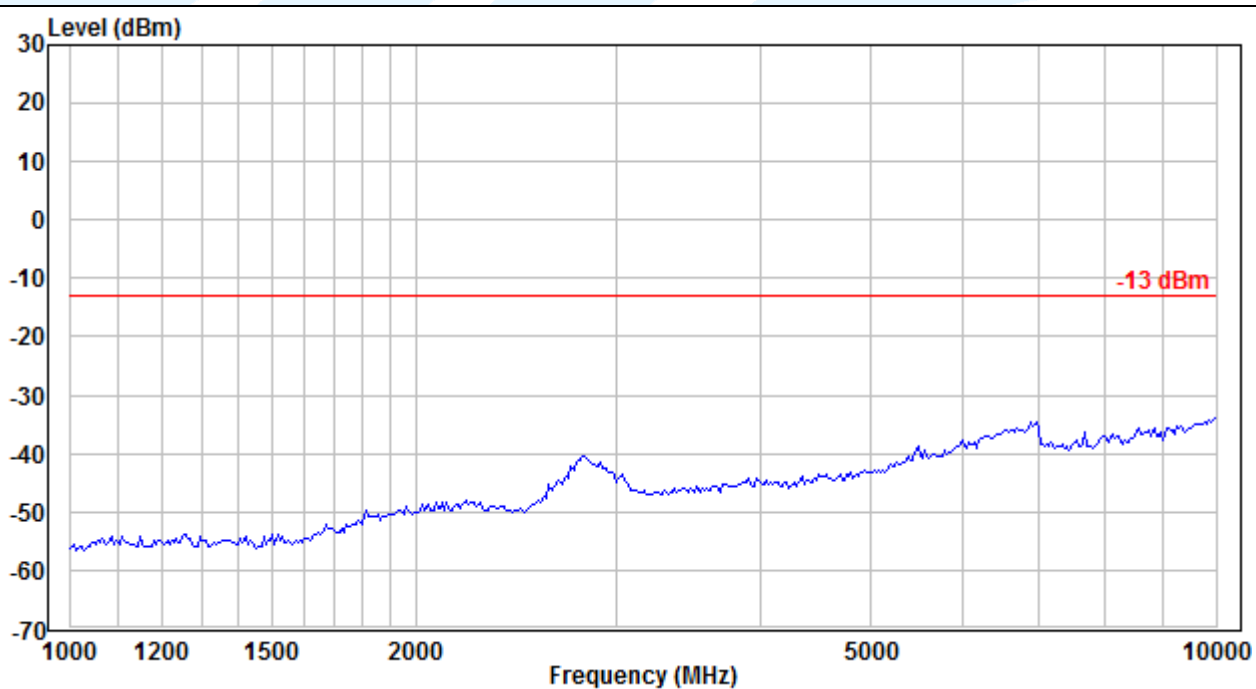
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LTE Band 13 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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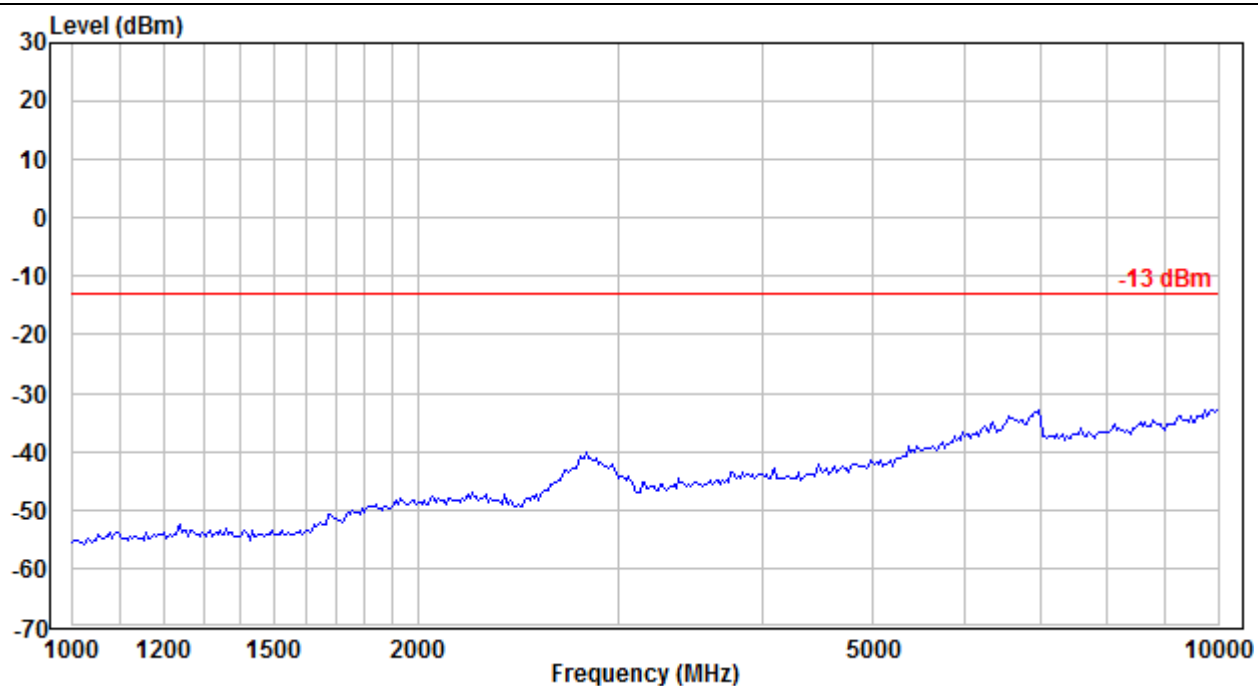
Tel: +86-755-28230888

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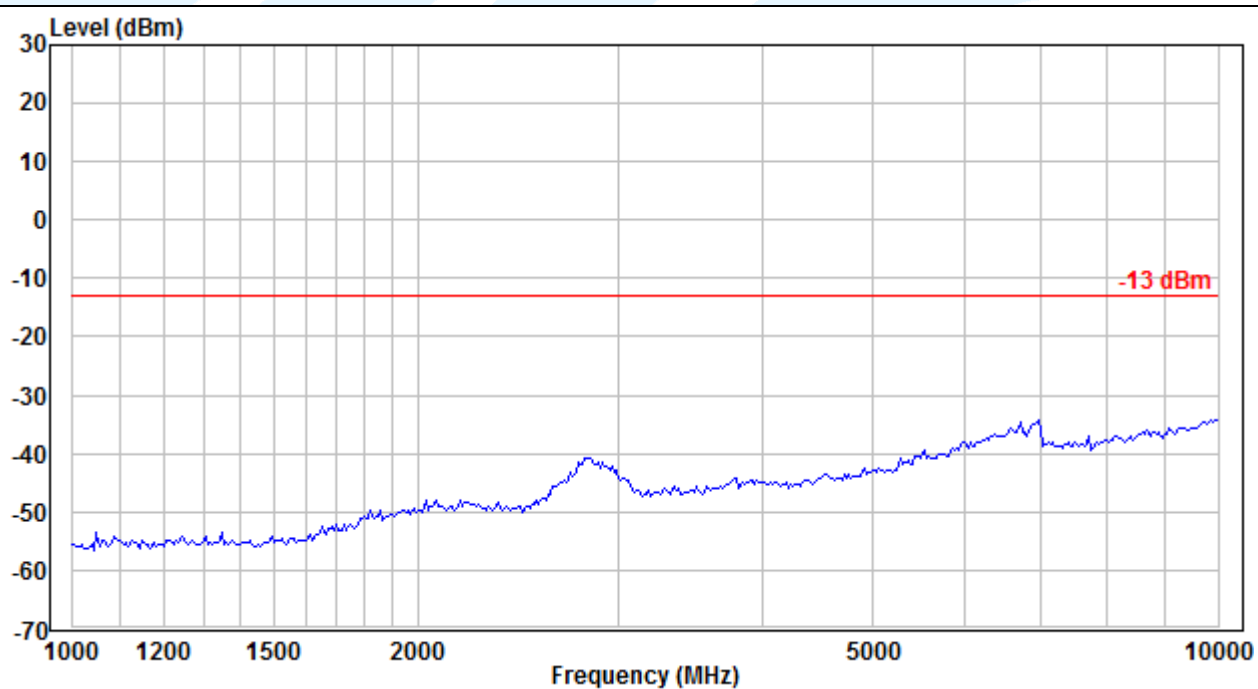
E-mail: info@uttlab.com
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LTE Band 17 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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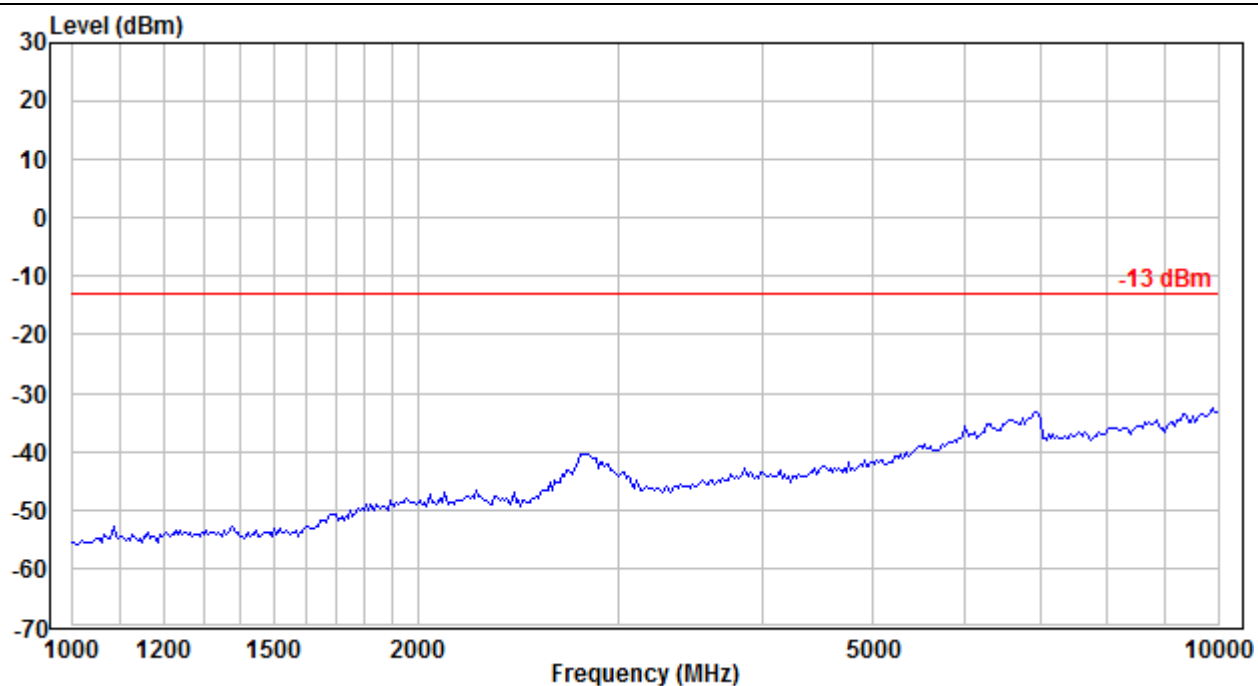
Tel: +86-755-28230888

Fax: +86-755-28230886

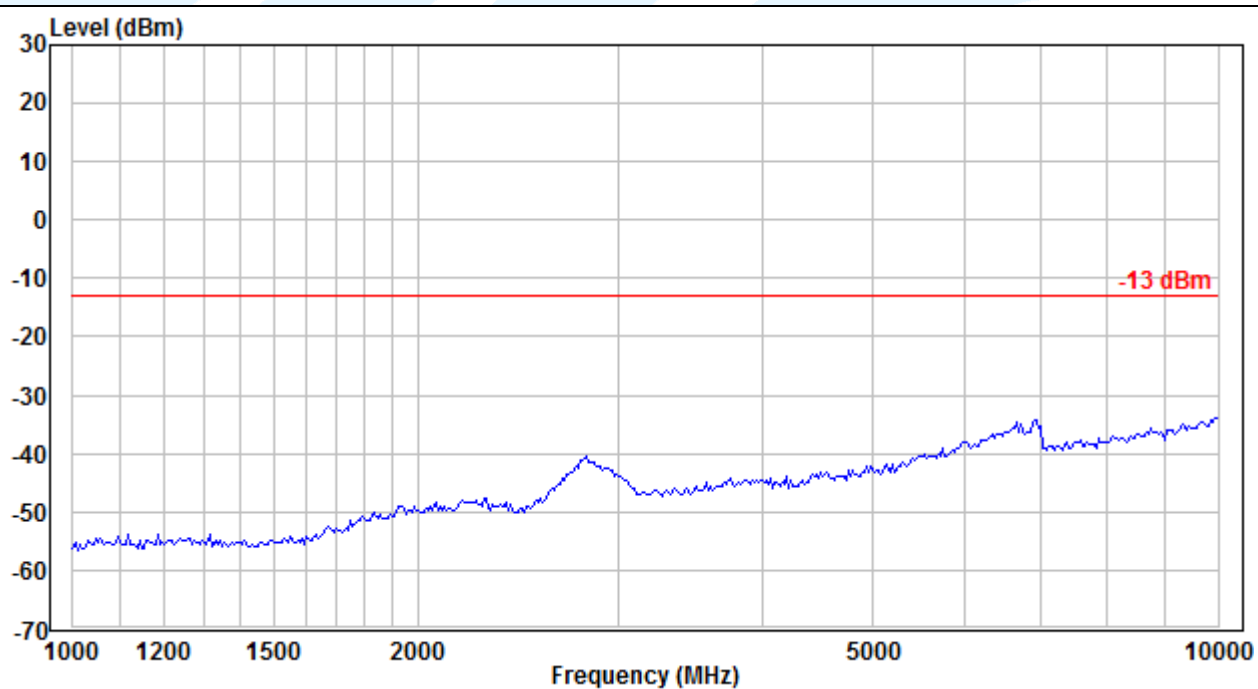
E-mail: info@uttlab.com
[Http://www.uttlab.com](http://www.uttlab.com)

LTE Band 17 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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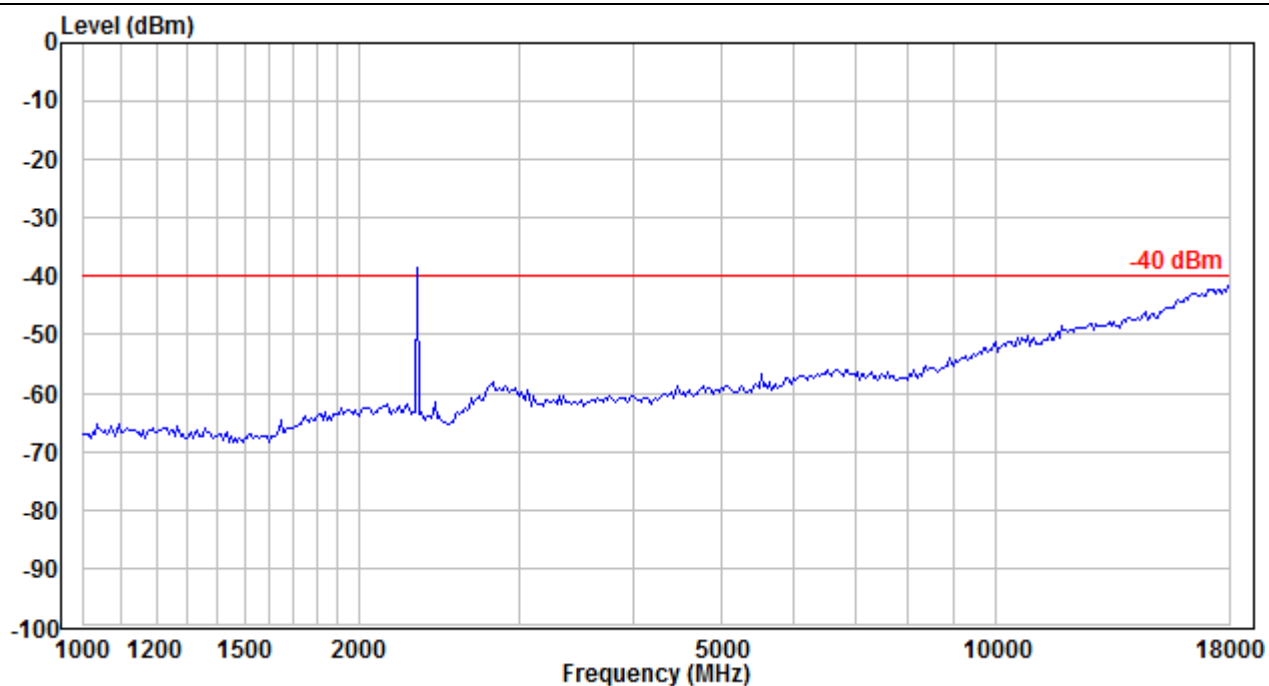
Tel: +86-755-28230888

Fax: +86-755-28230886

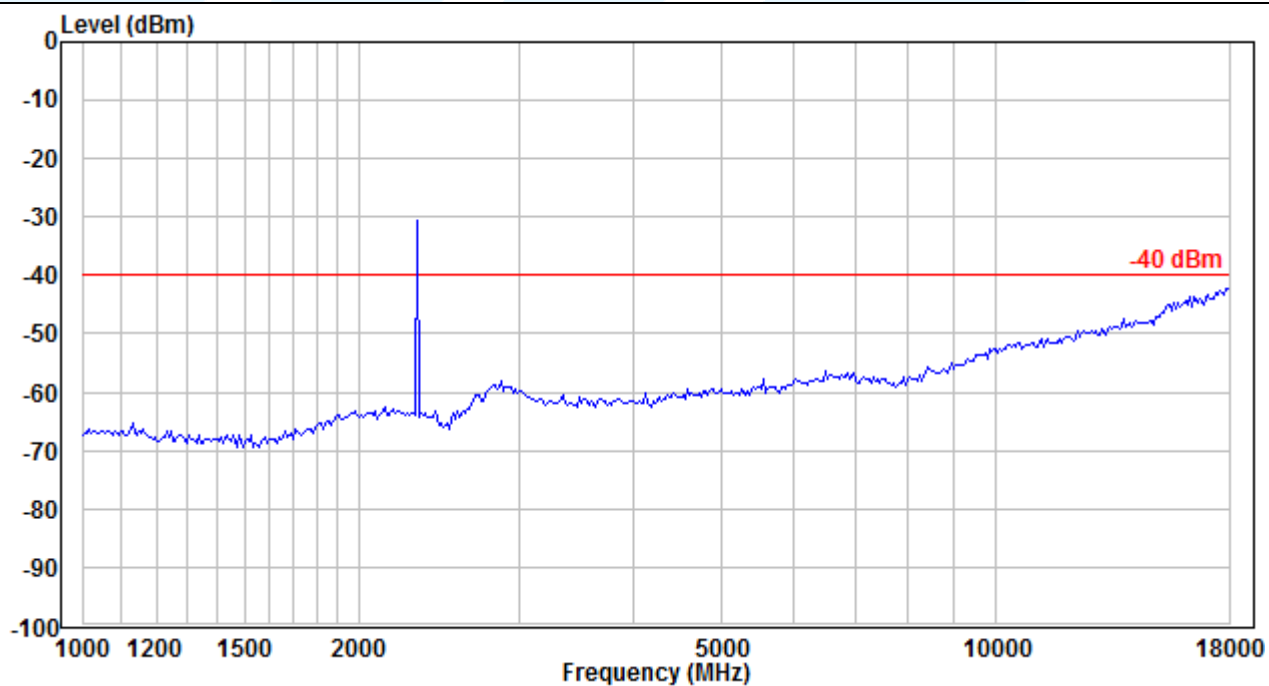
E-mail: info@uttlab.com
[Http://www.uttlab.com](http://www.uttlab.com)

LTE Band 30 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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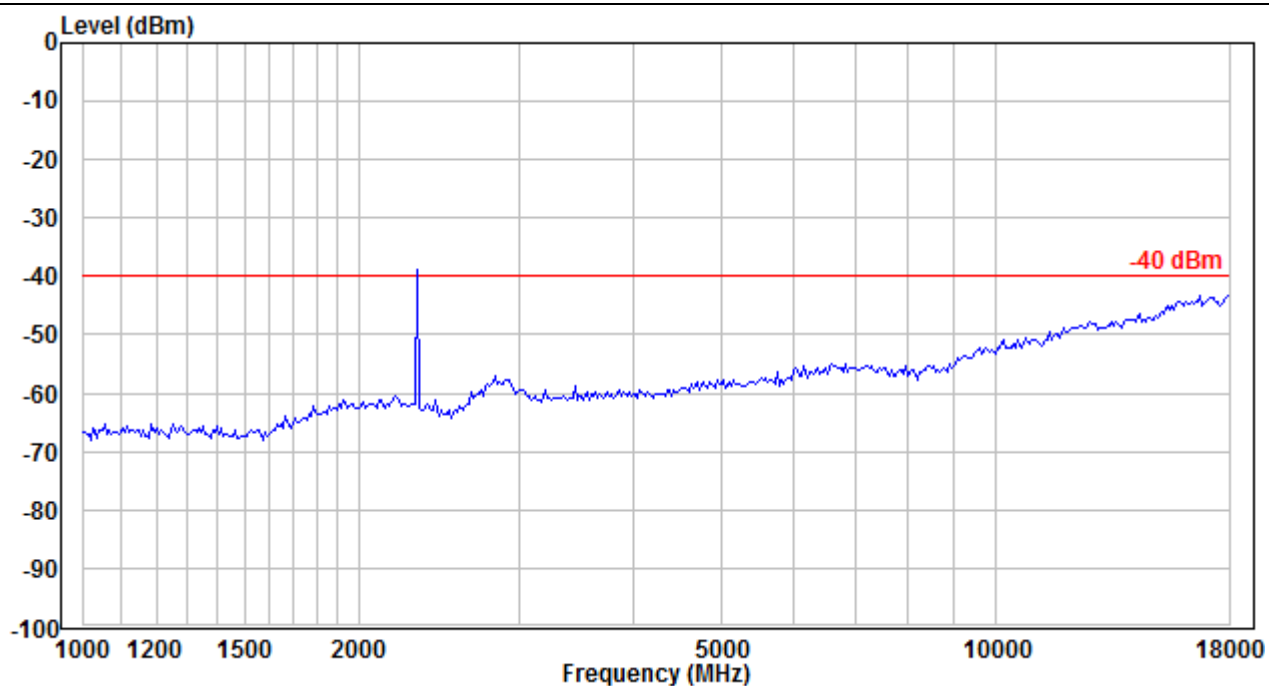
Tel: +86-755-28230888

Fax: +86-755-28230886

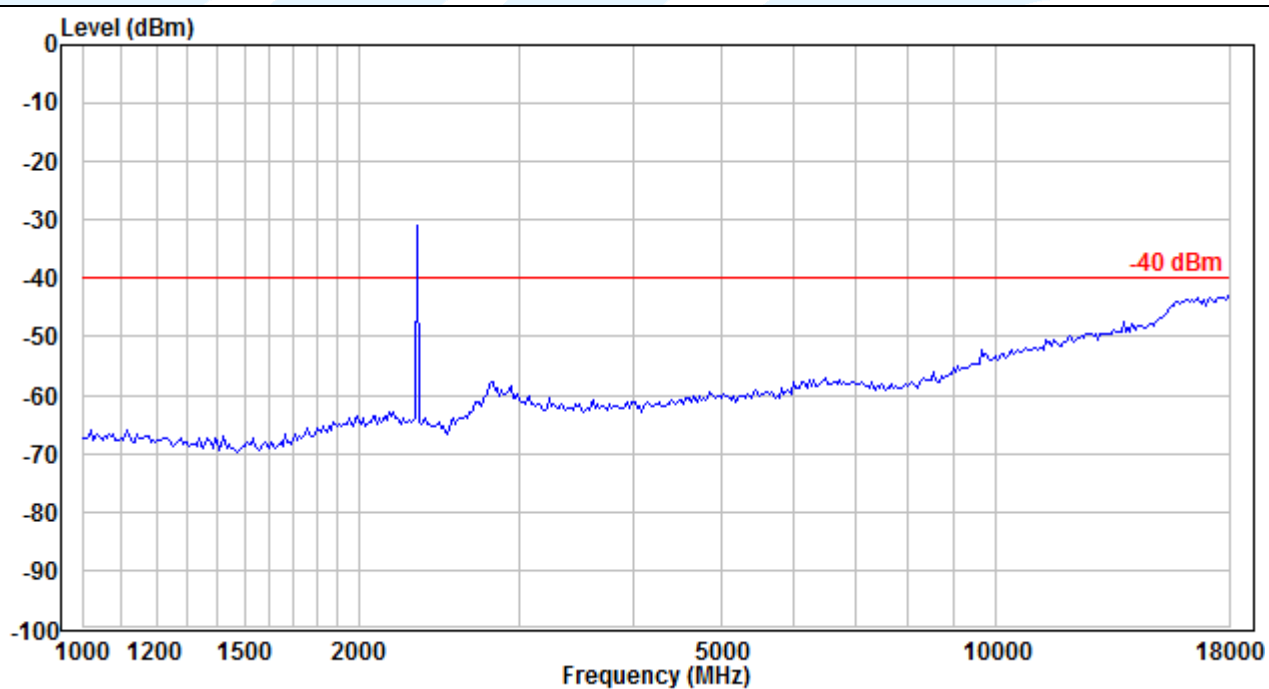
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<http://www.uttlab.com>

LTE Band 30 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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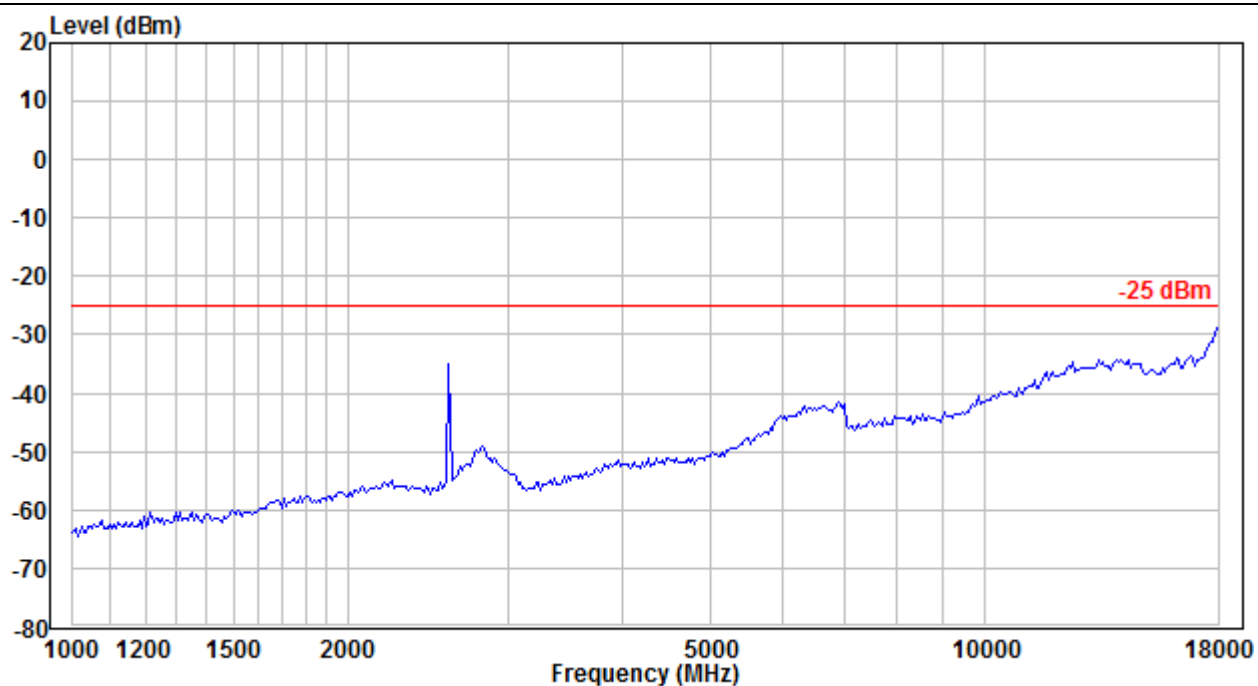
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Fax: +86-755-28230886

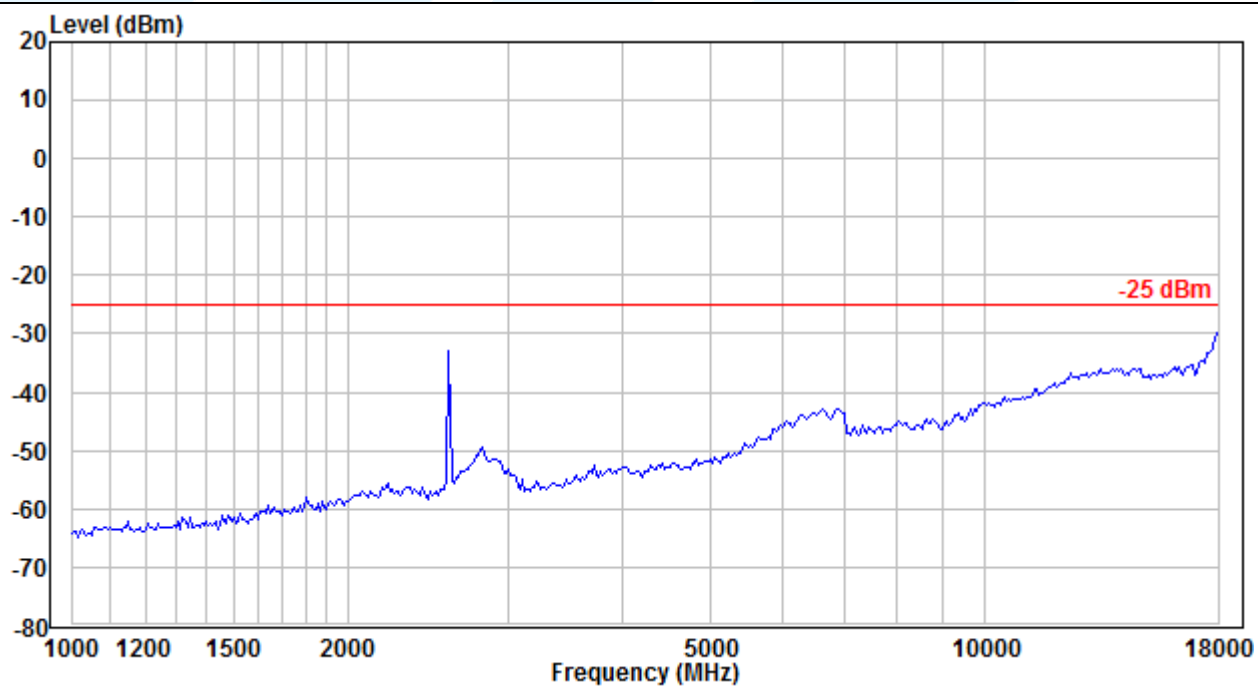
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LTE Band 38 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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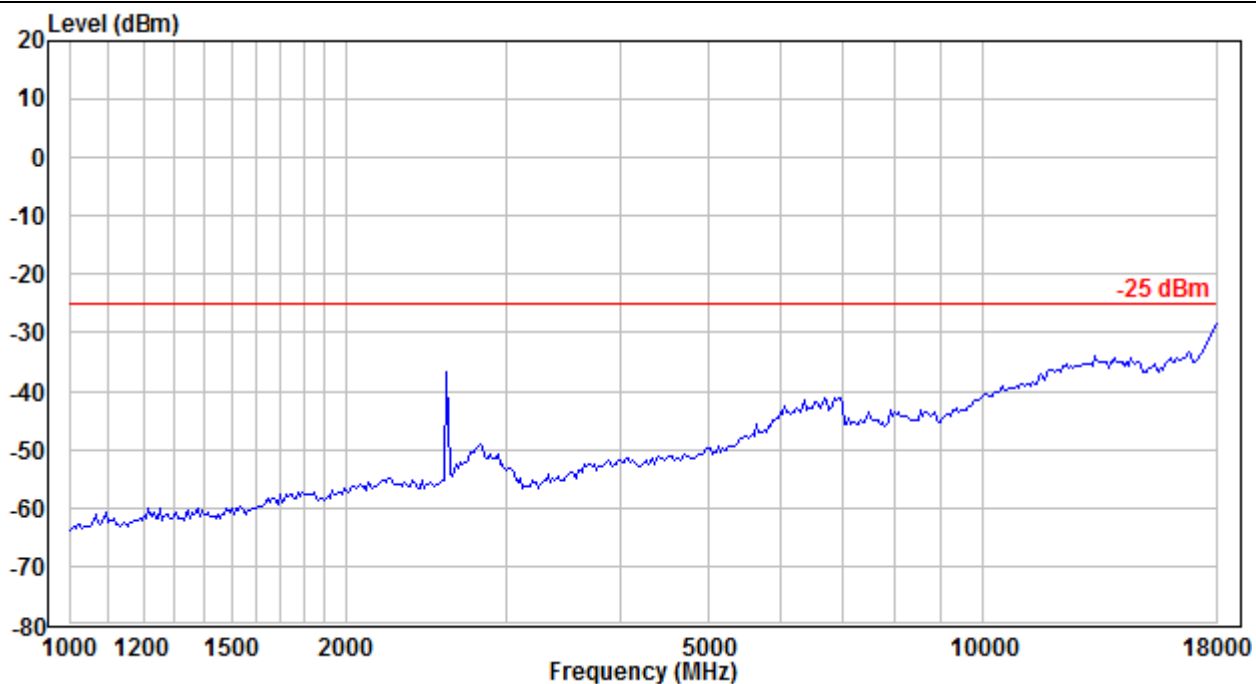
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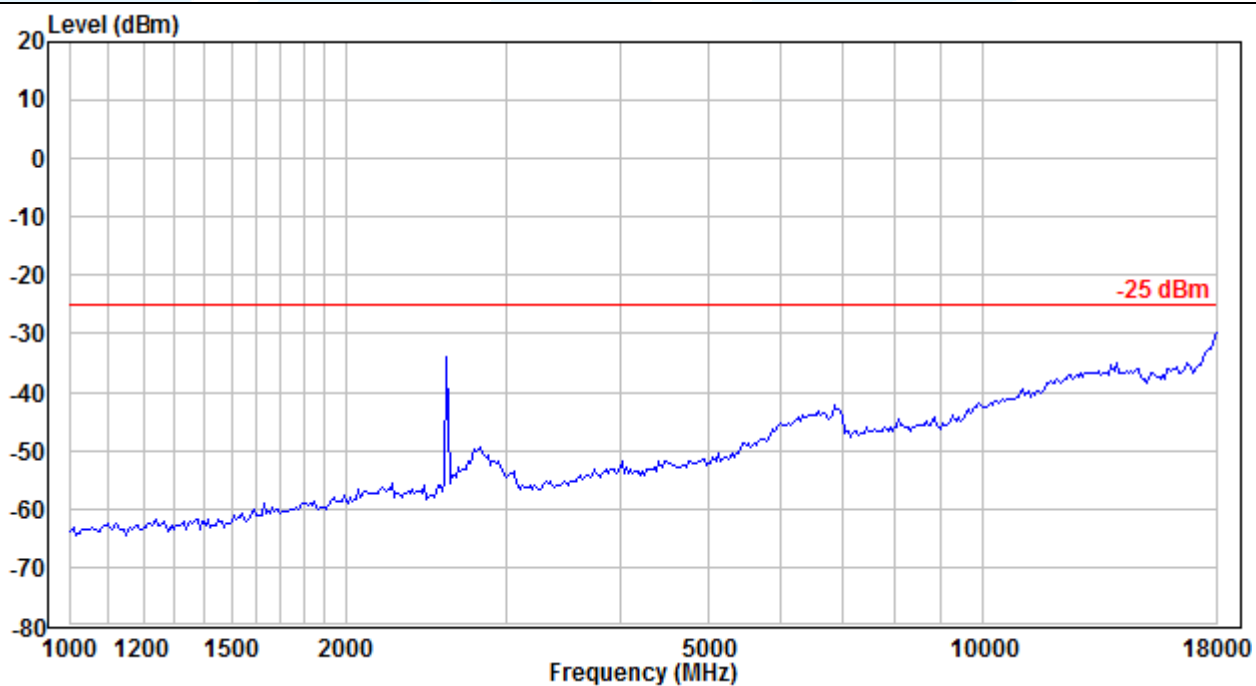
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LTE Band 38 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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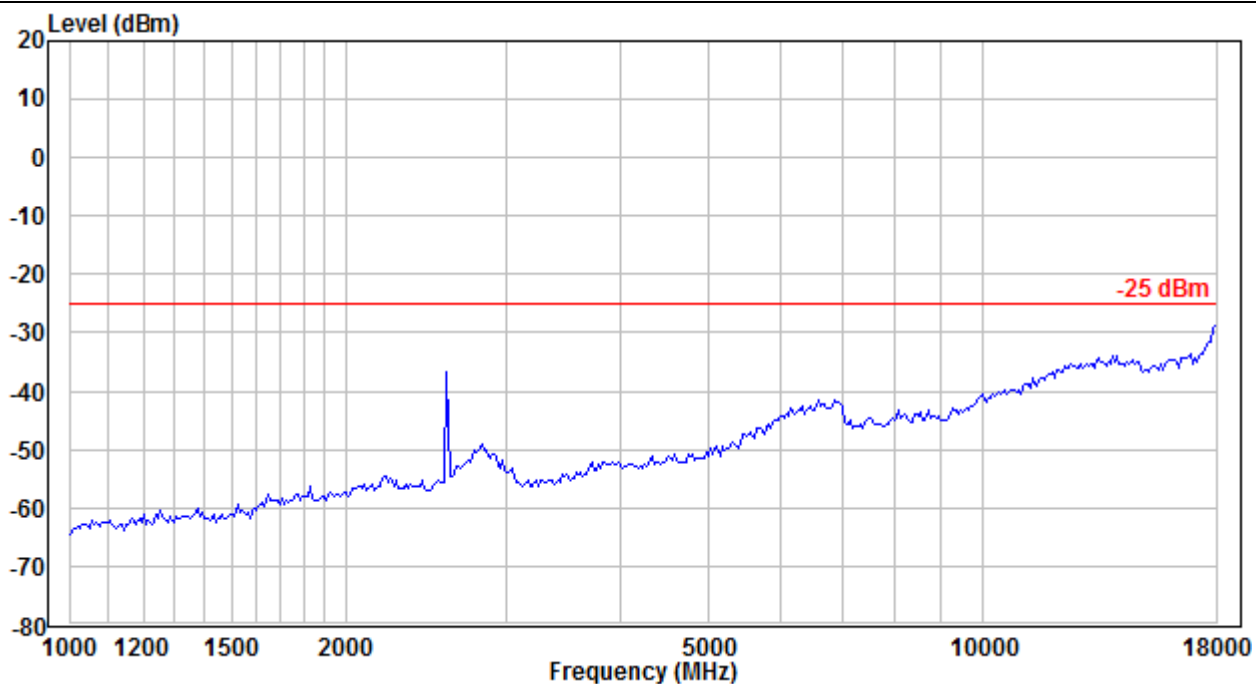
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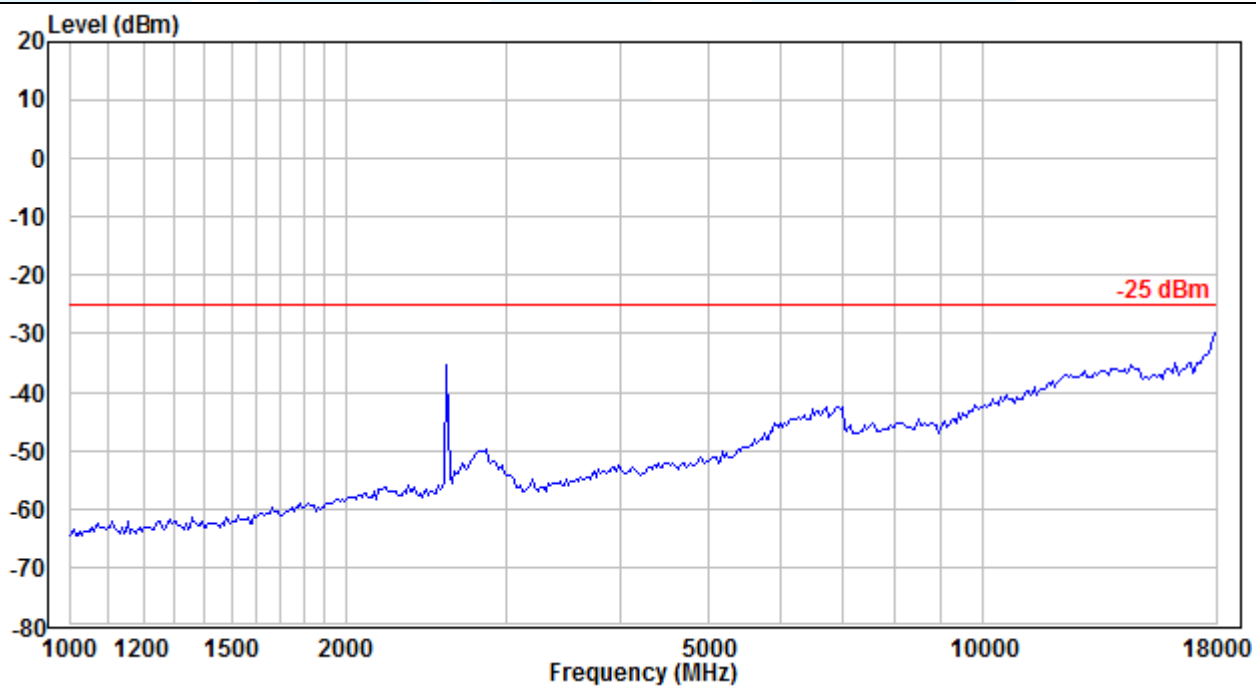
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LTE Band 38 / 15 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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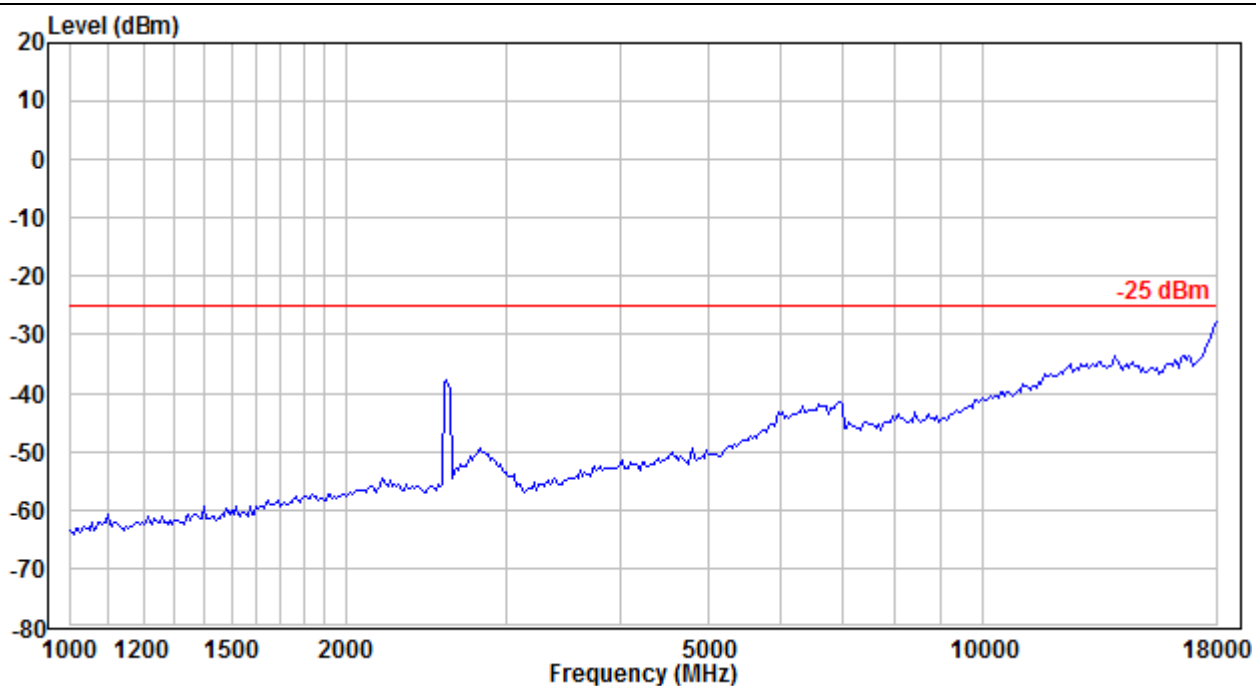
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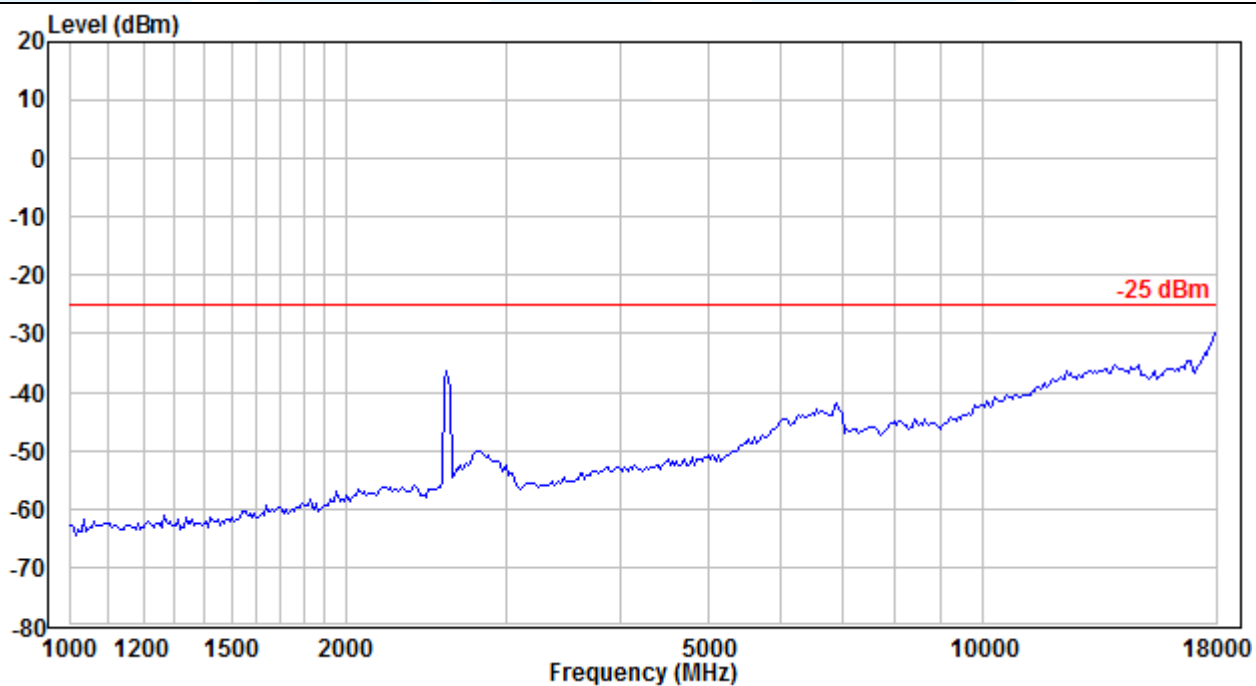
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LTE Band 38 / 20 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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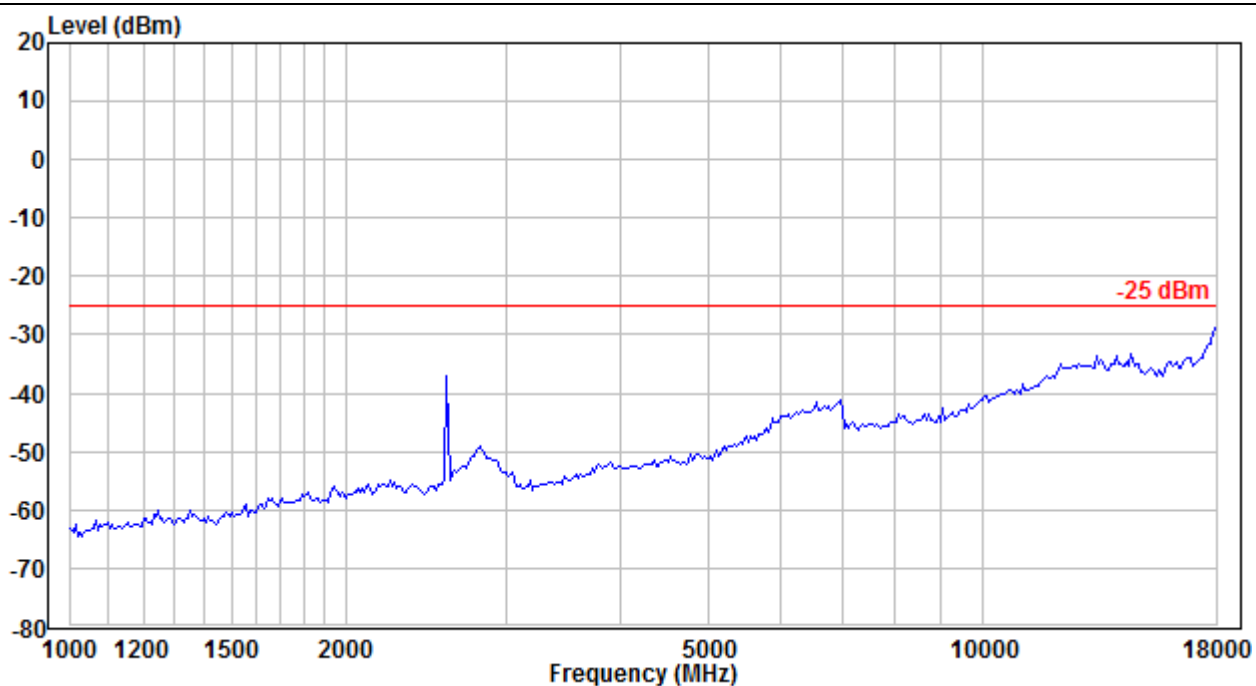
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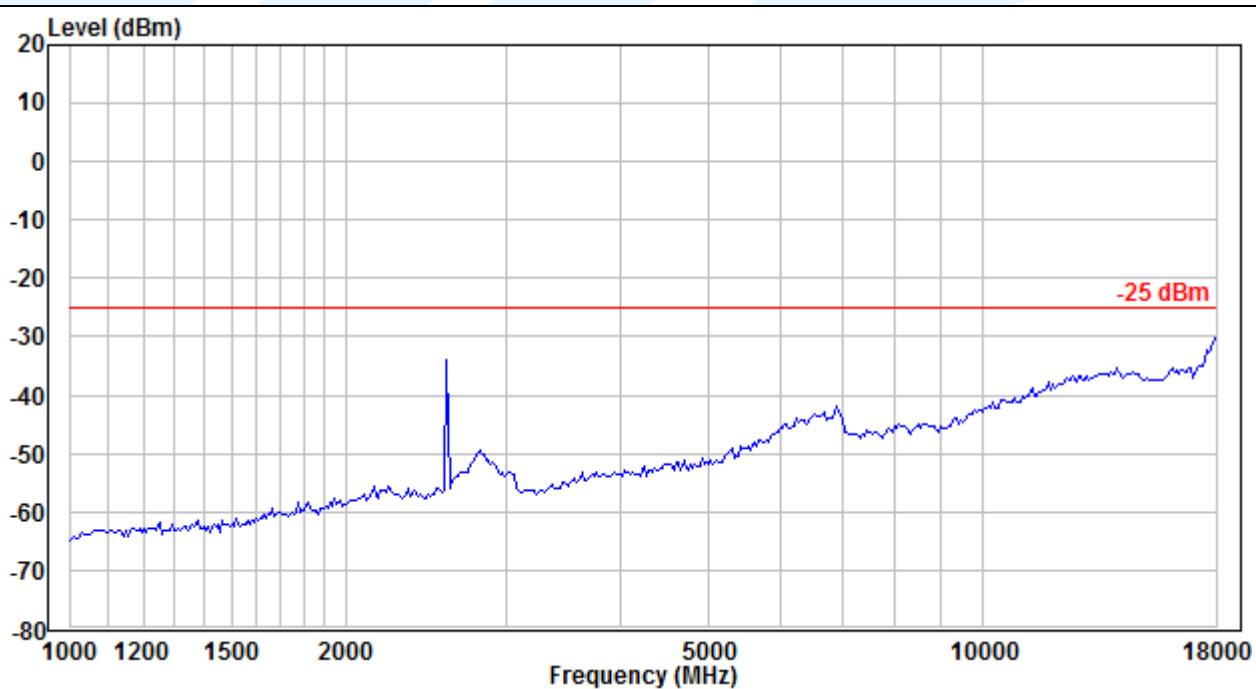
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LTE Band 41 / 5 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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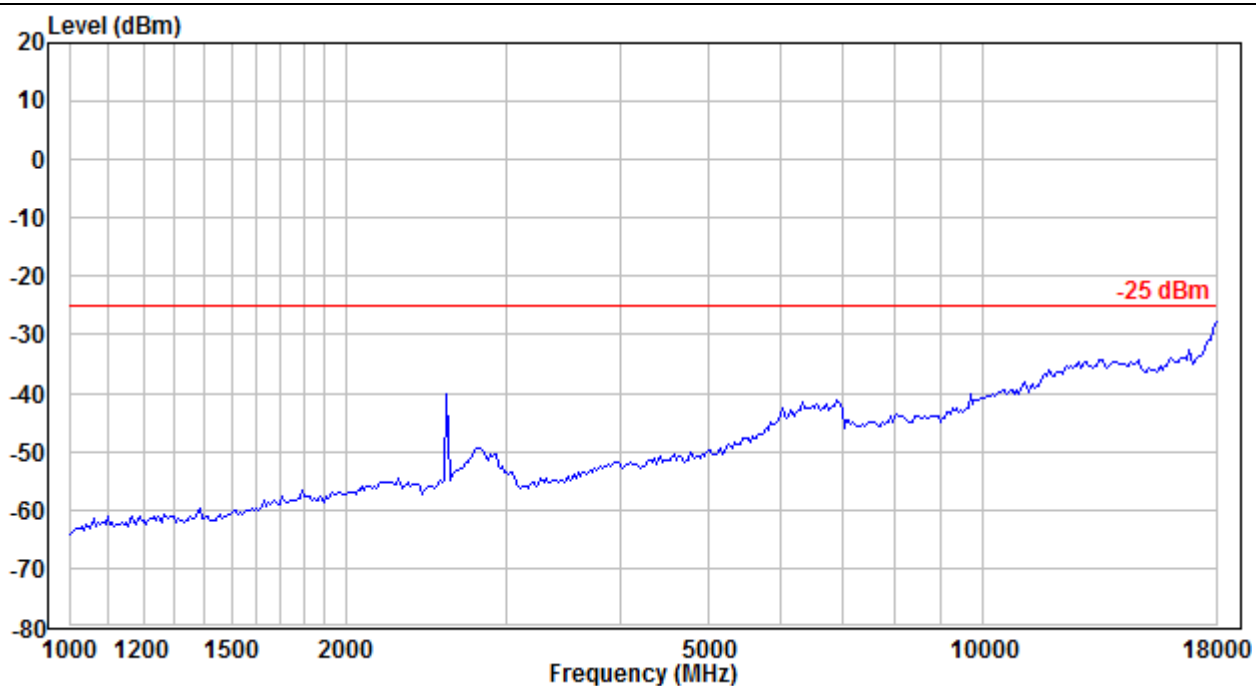
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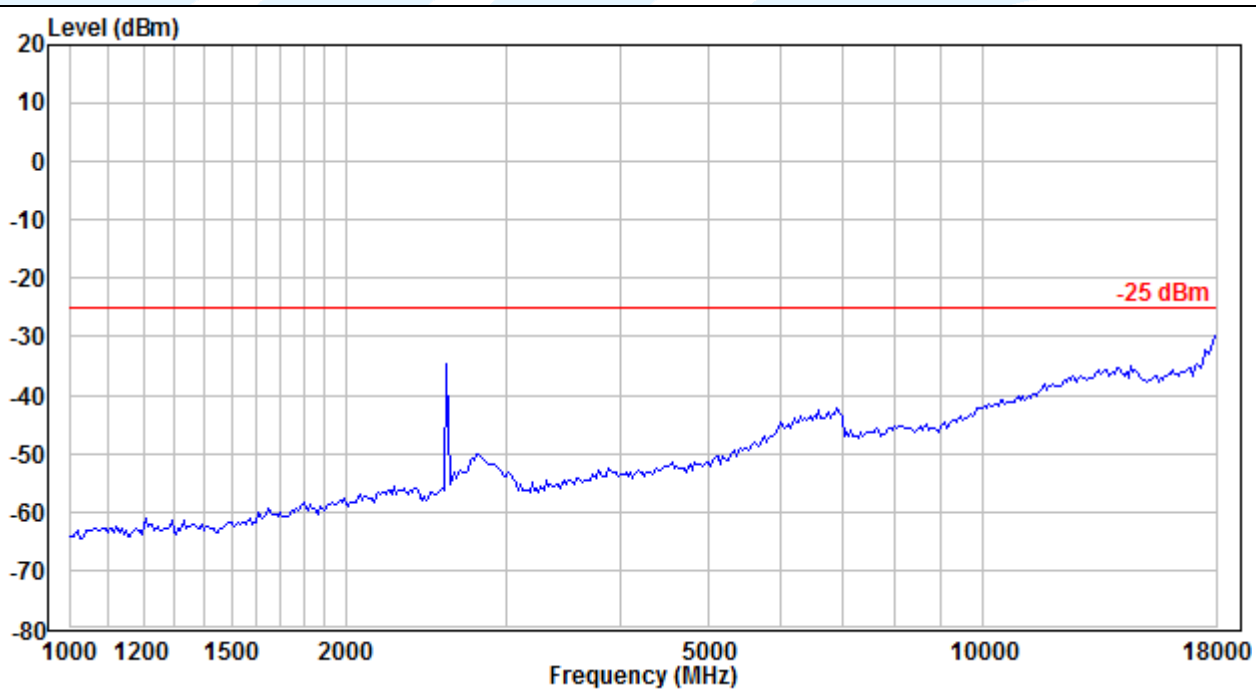
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LTE Band 41 / 10 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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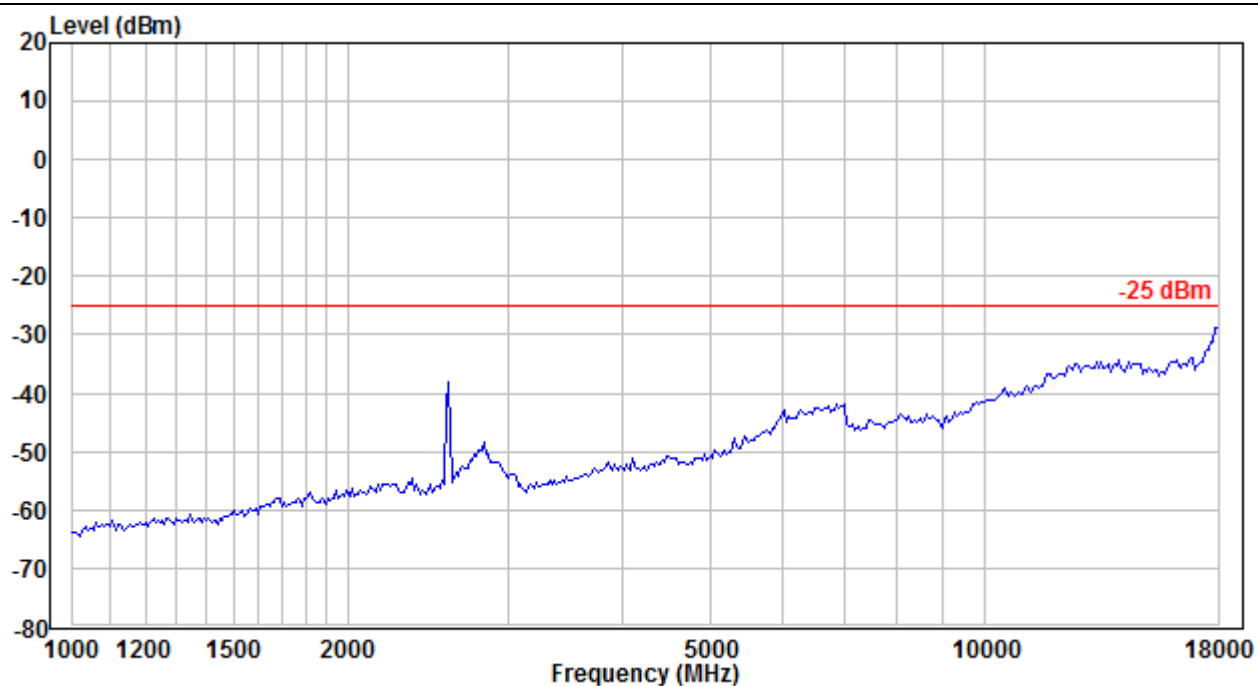
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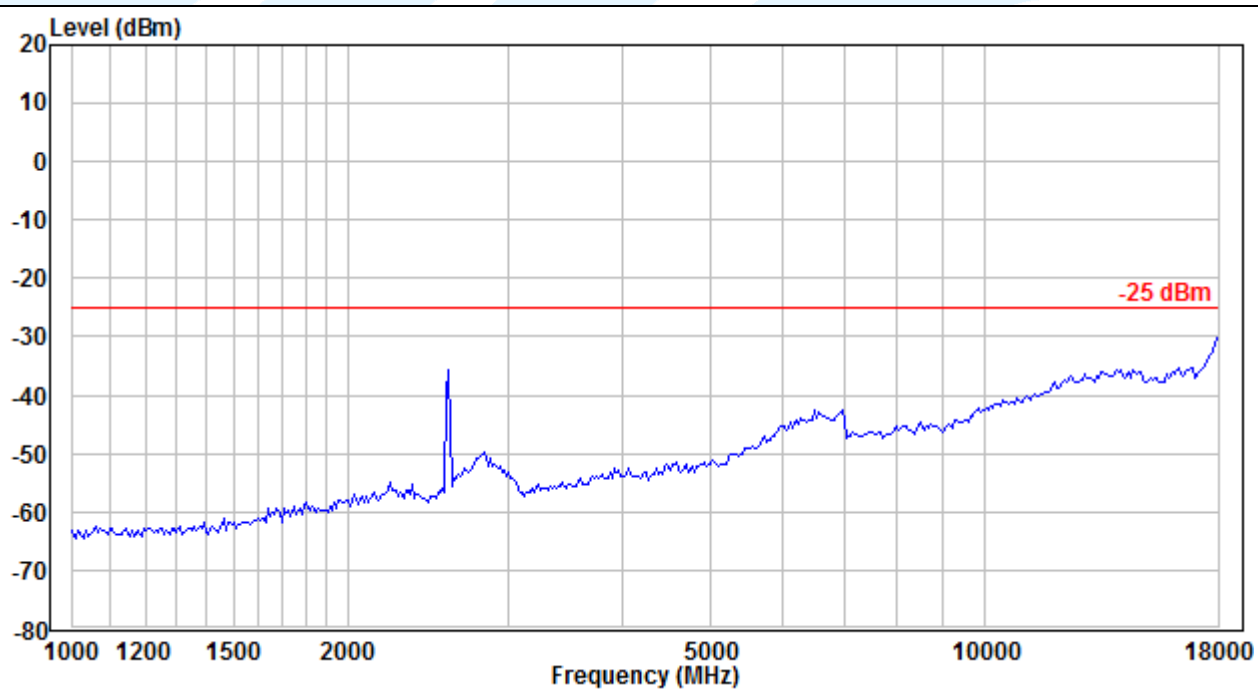
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LTE Band 41 / 15 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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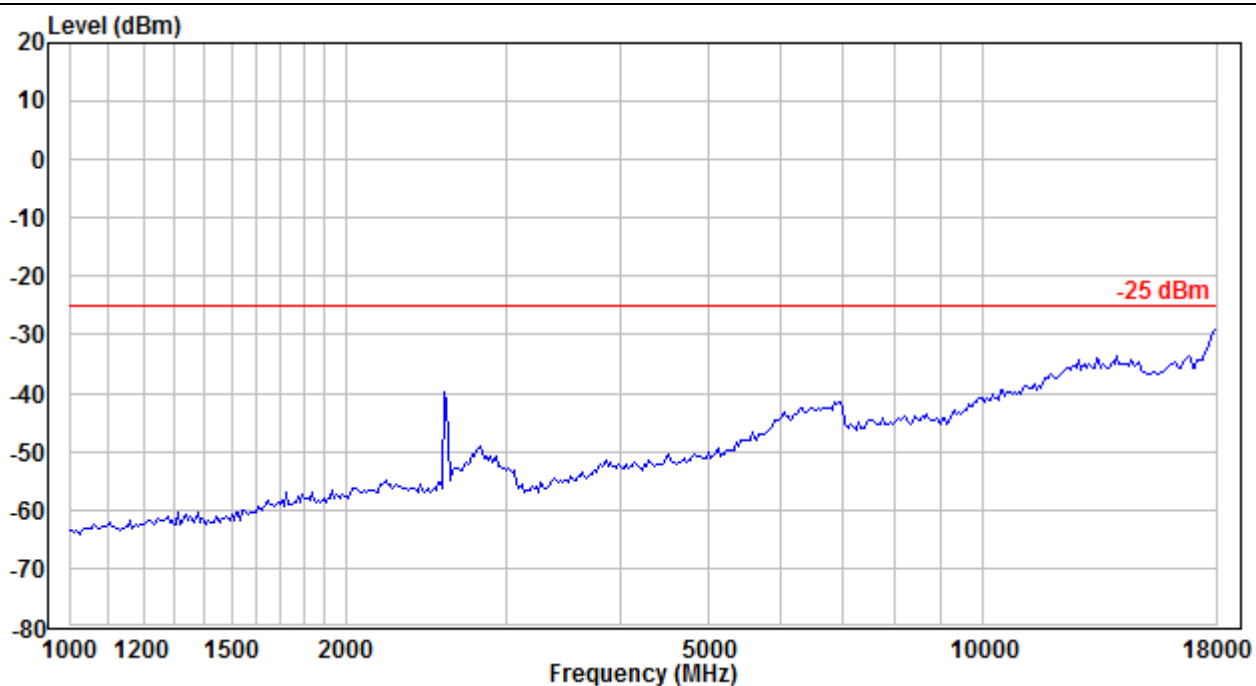
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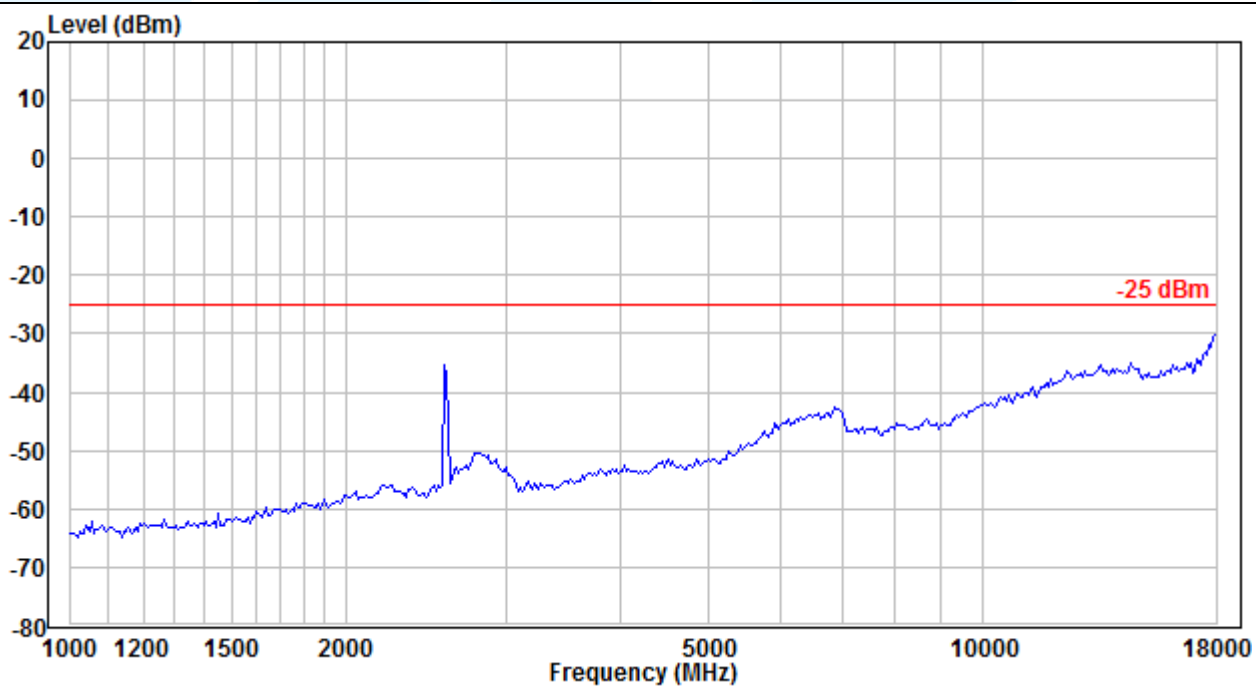
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LTE Band 41 / 20 MHz / QPSK_ Middle Channel

Horizontal



Vertical



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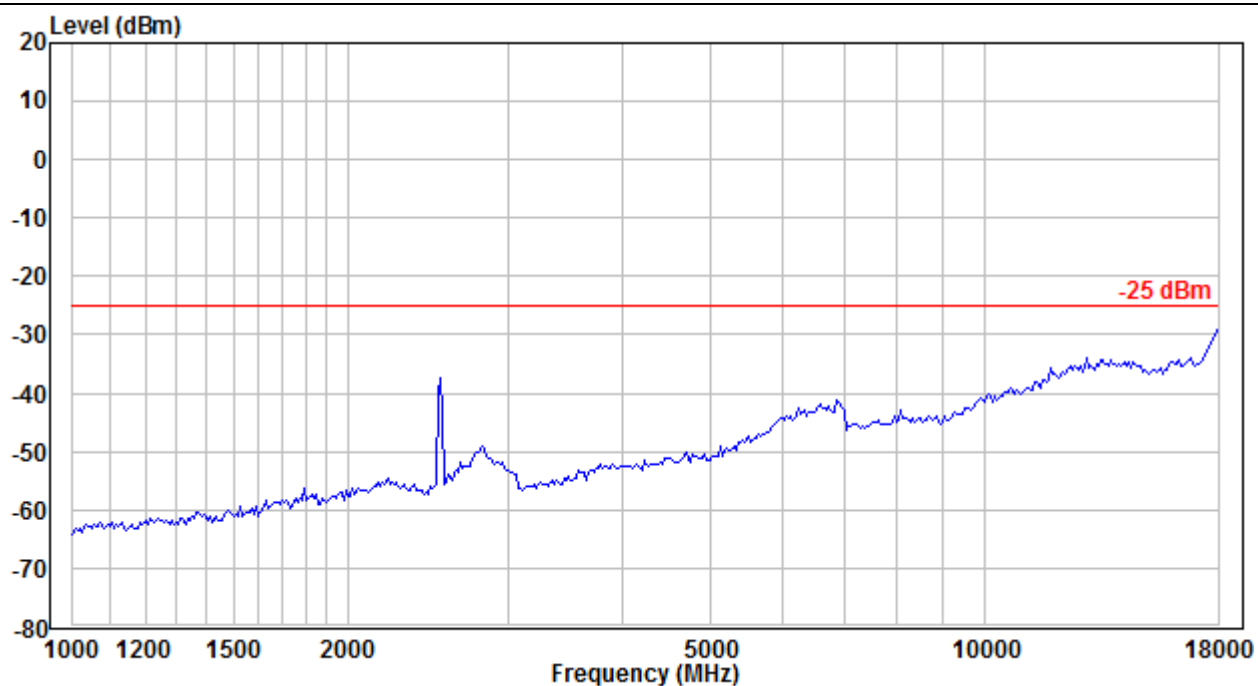
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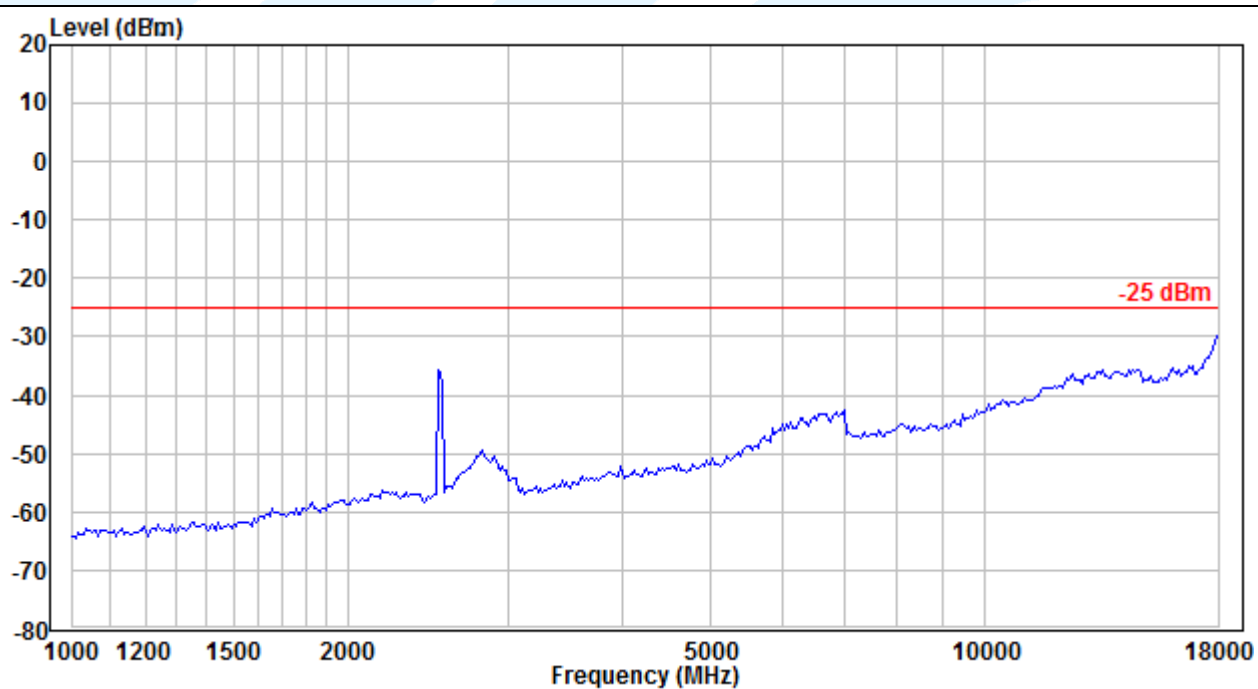
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LTE CA_7C / 10MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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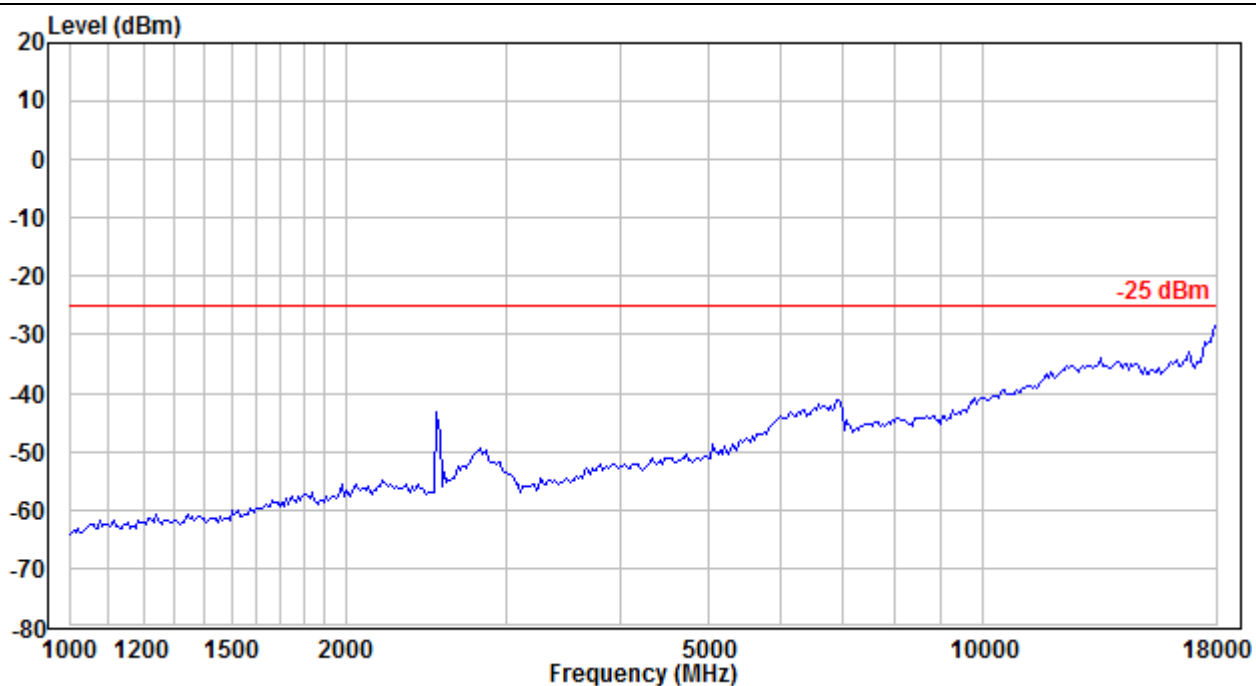
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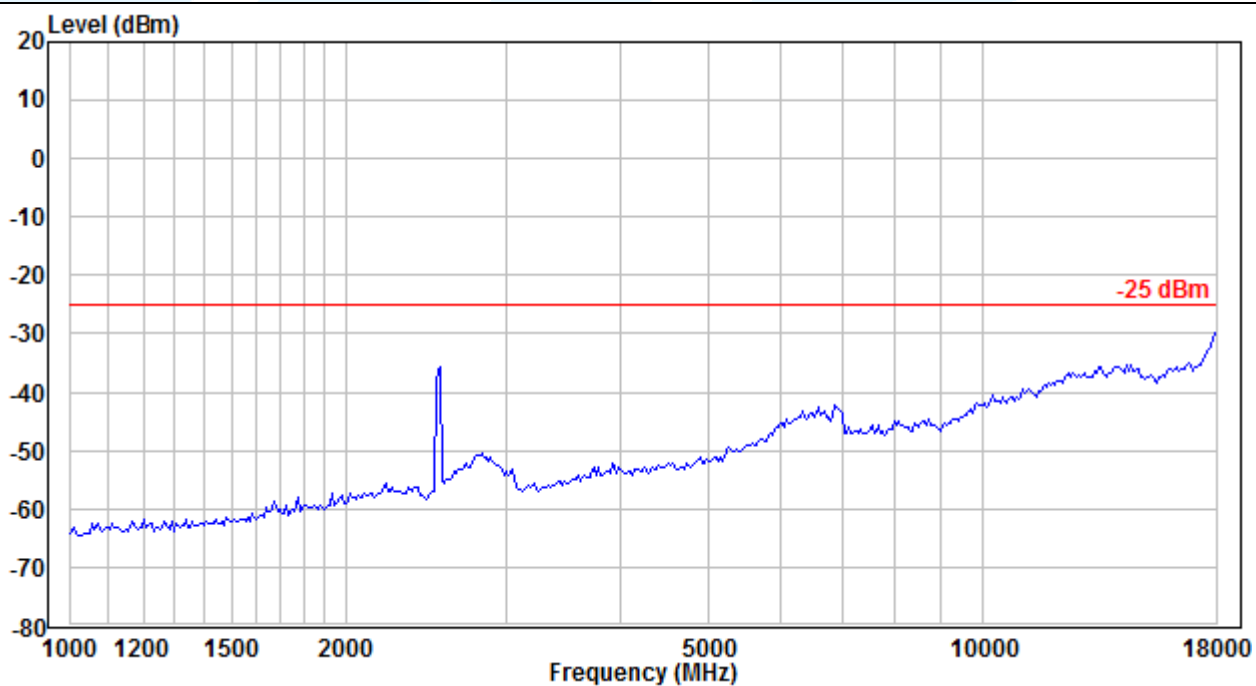
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LTE CA_7C / 20MHz+10MHz / QPSK_ Middle Channel

Horizontal



Vertical



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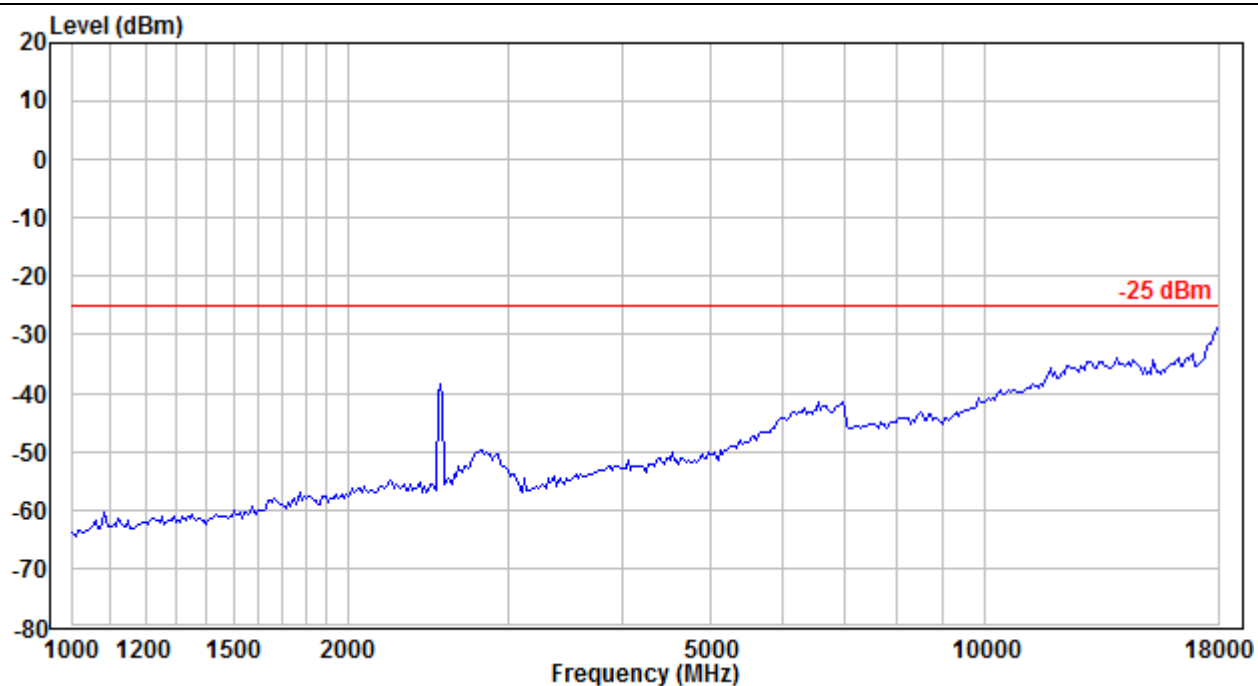
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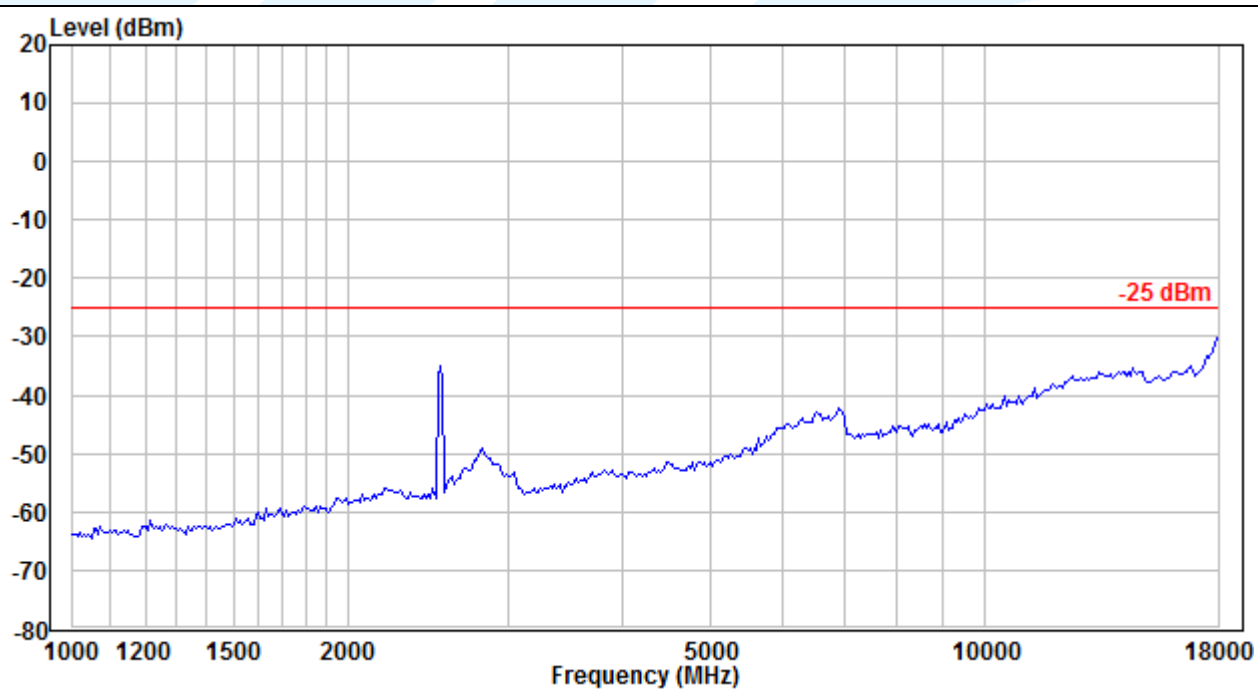
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LTE CA_7C / 15MHz+10MHz / QPSK_ Middle Channel

Horizontal



Vertical



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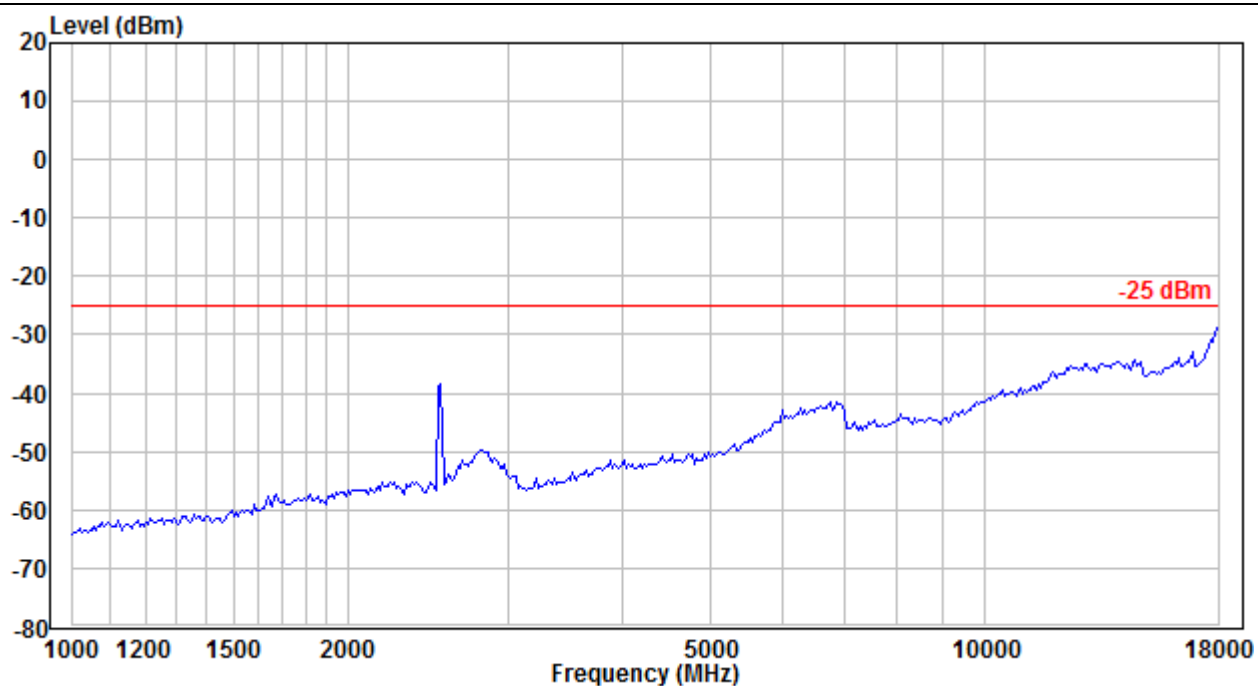
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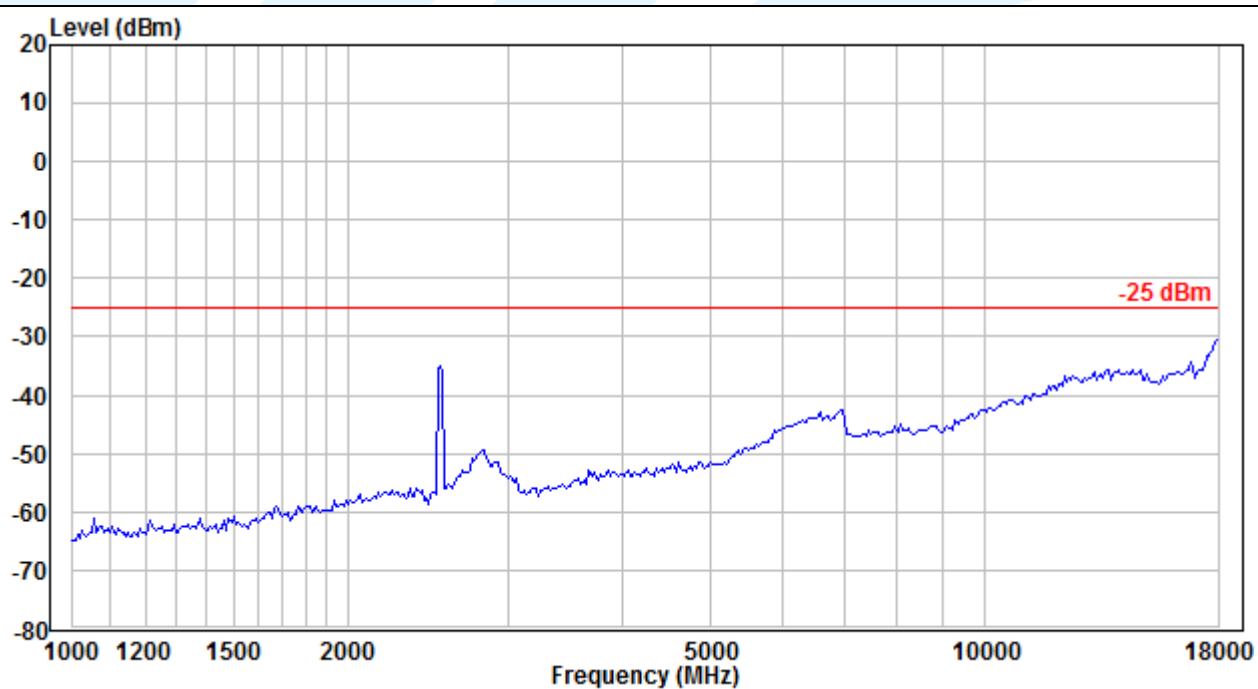
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LTE CA_7C / 15MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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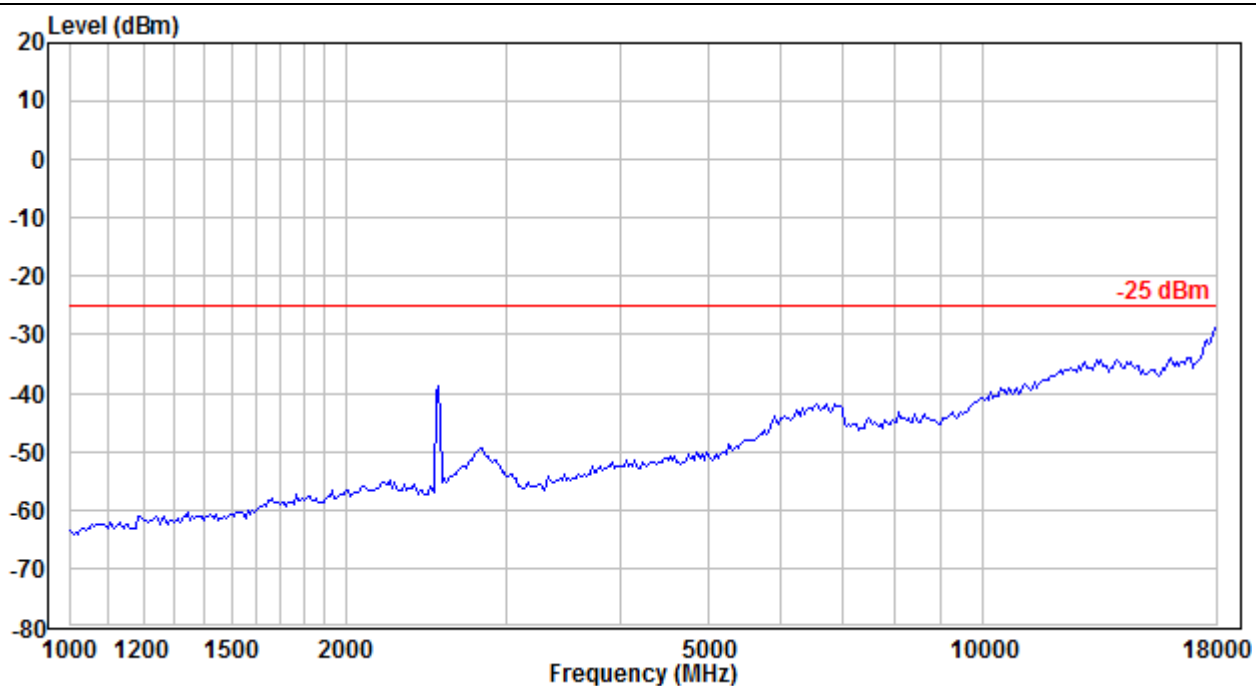
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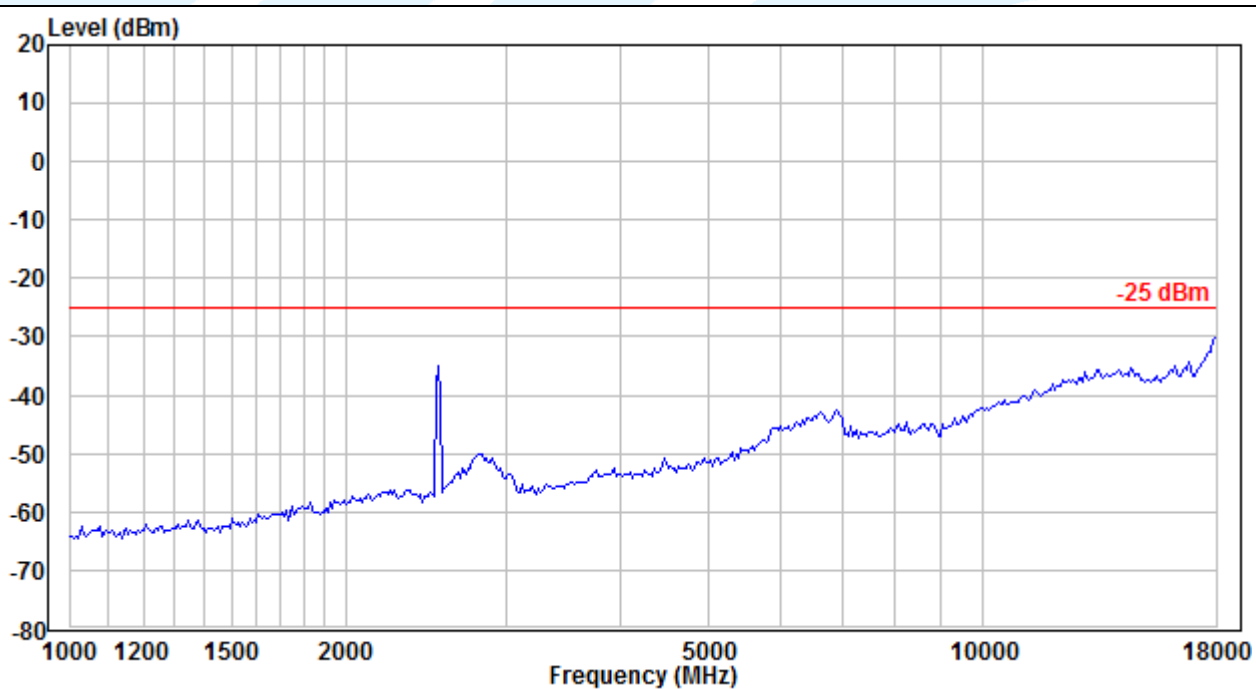
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LTE CA_7C / 15MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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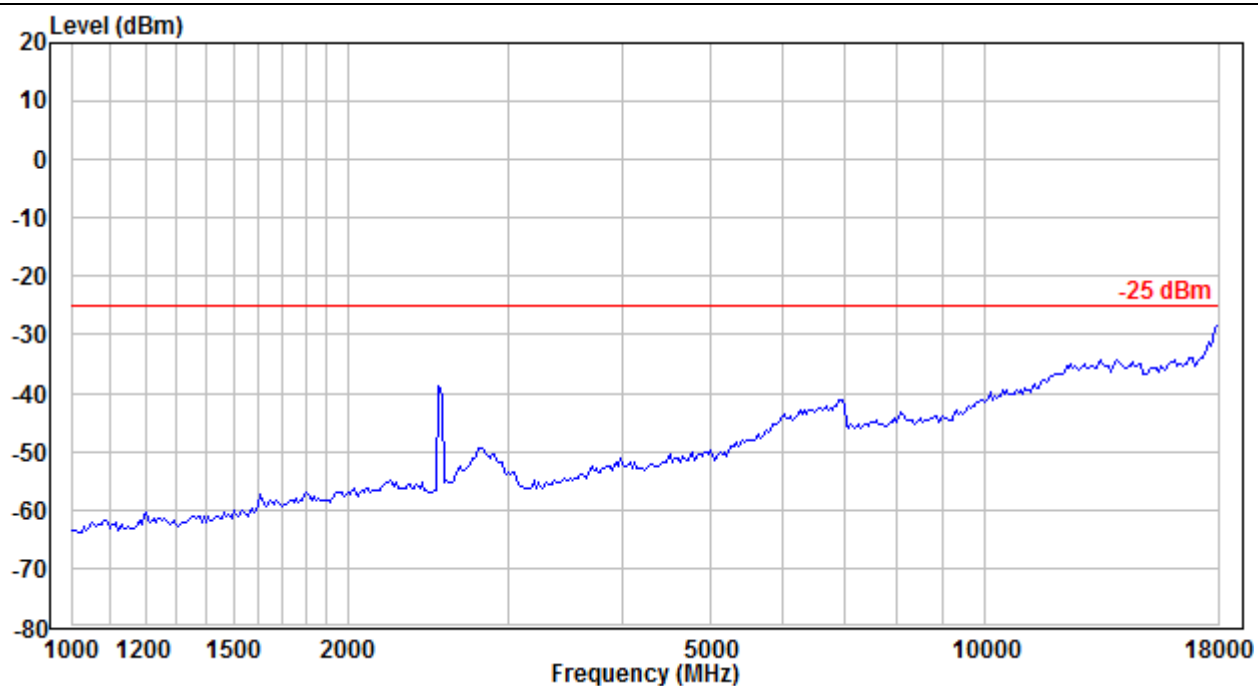
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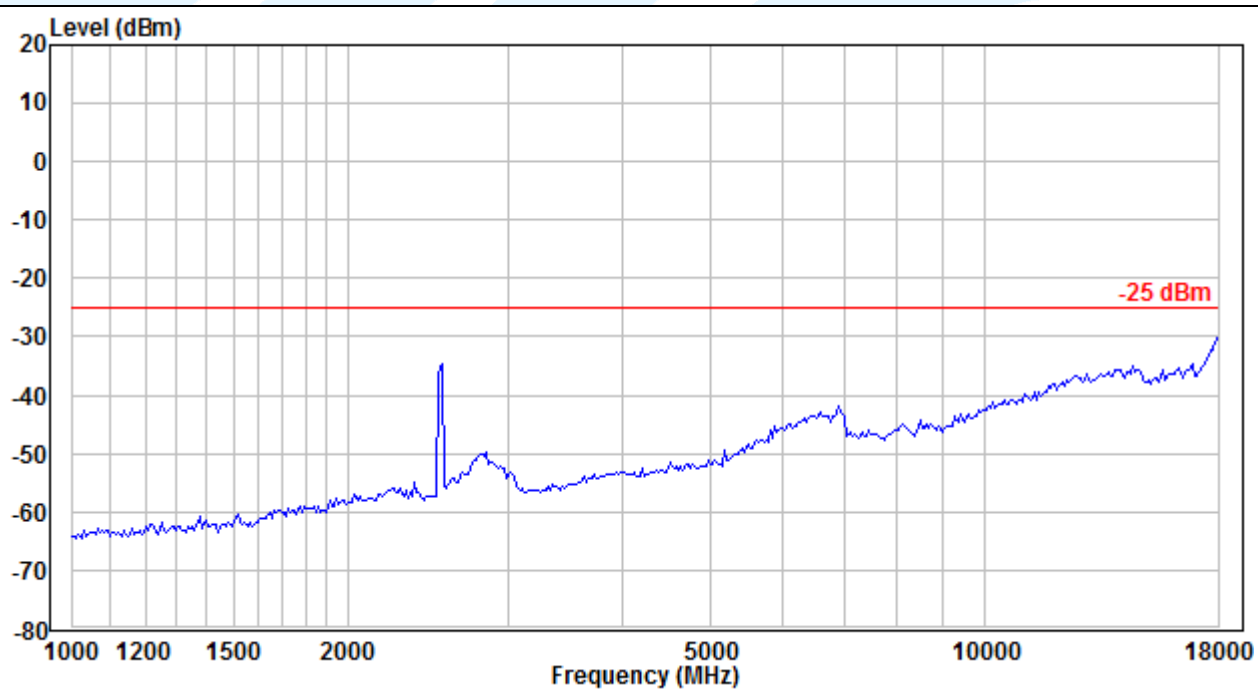
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LTE CA_7C / 20MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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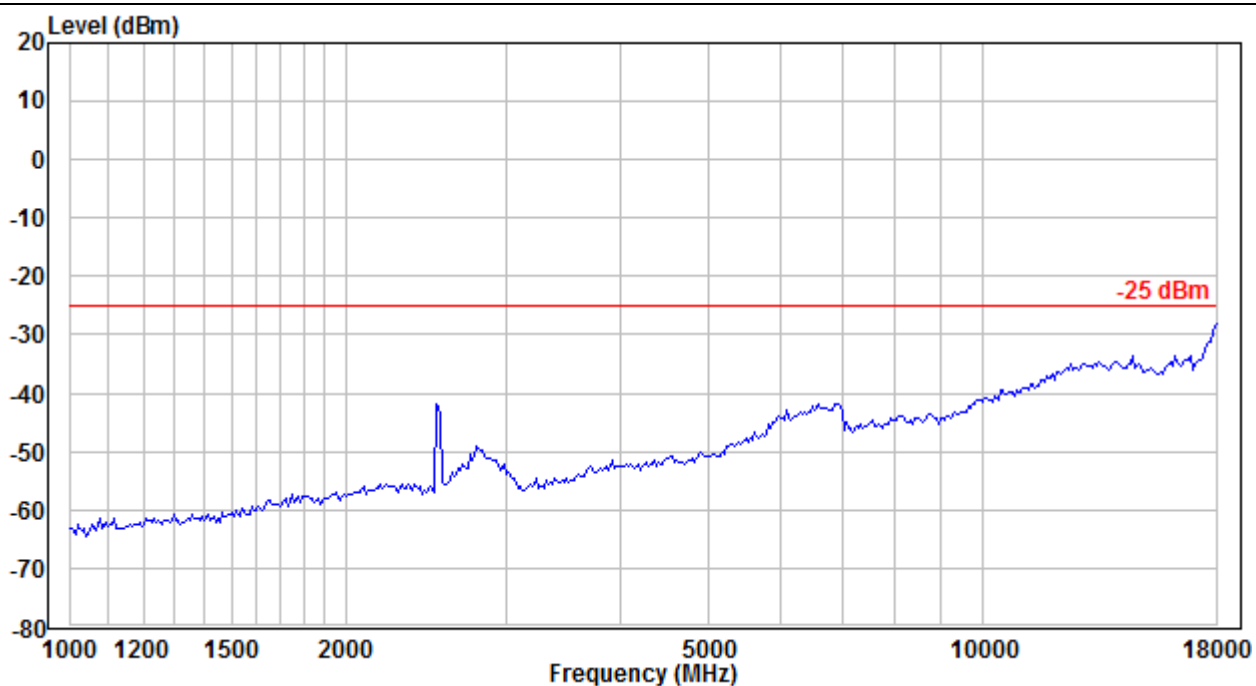
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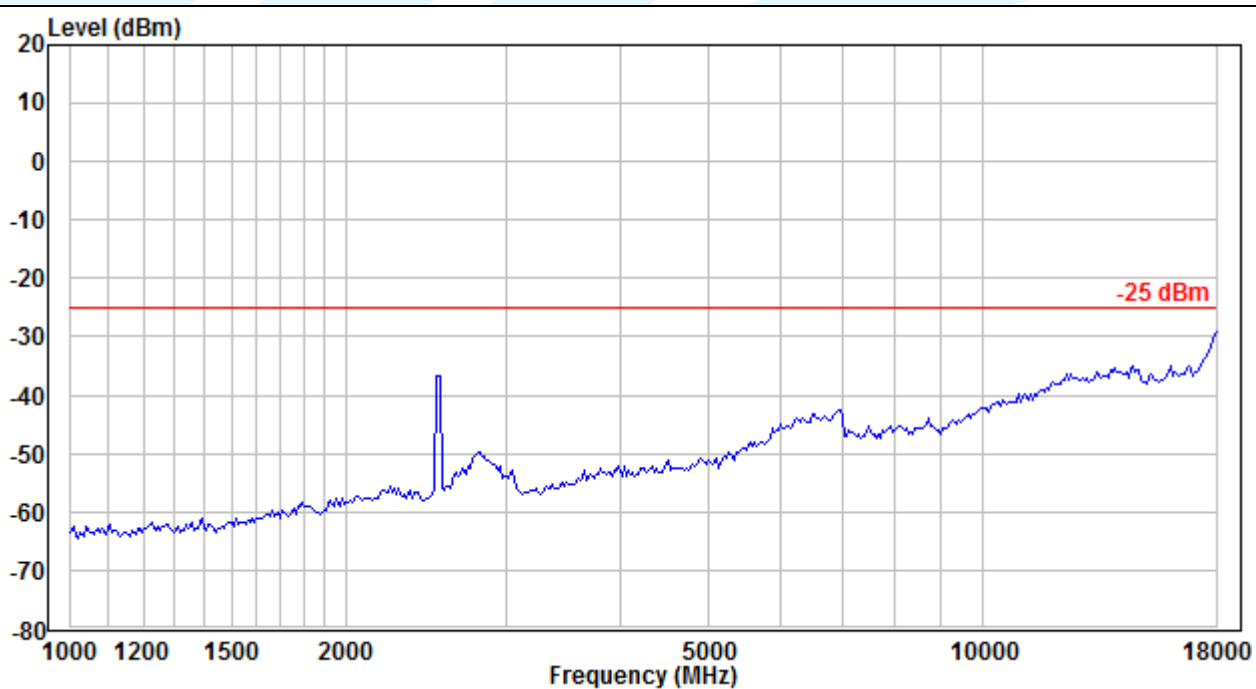
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LTE CA_7C / 20MHz+20MHz / QPSK_ Middle Channel

Horizontal

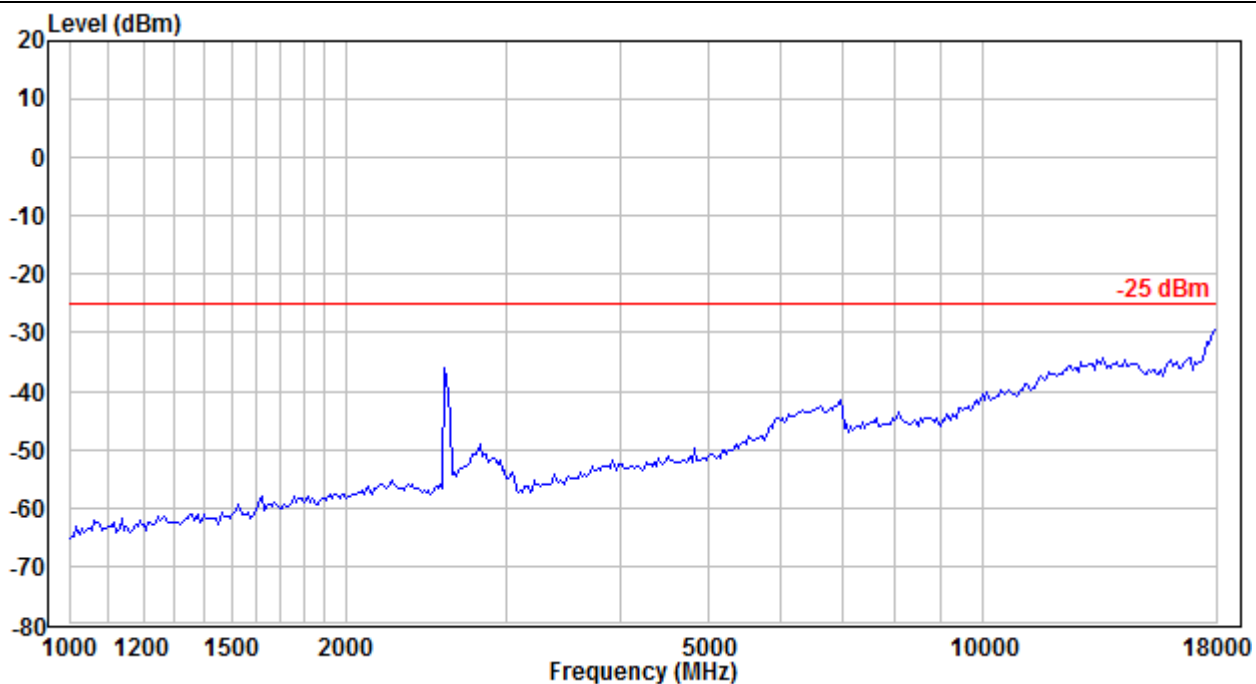


Vertical

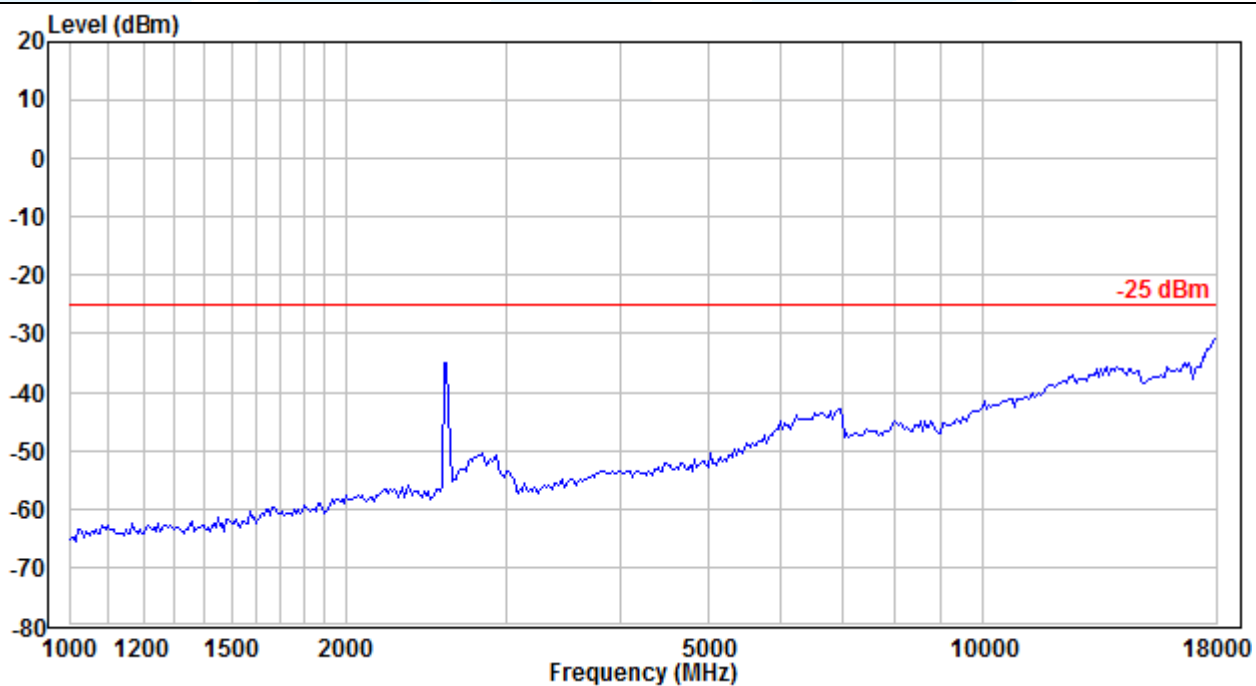


LTE CA_38C / 15MHz+15MHz / QPSK_ Middle Channel

Horizontal



Vertical



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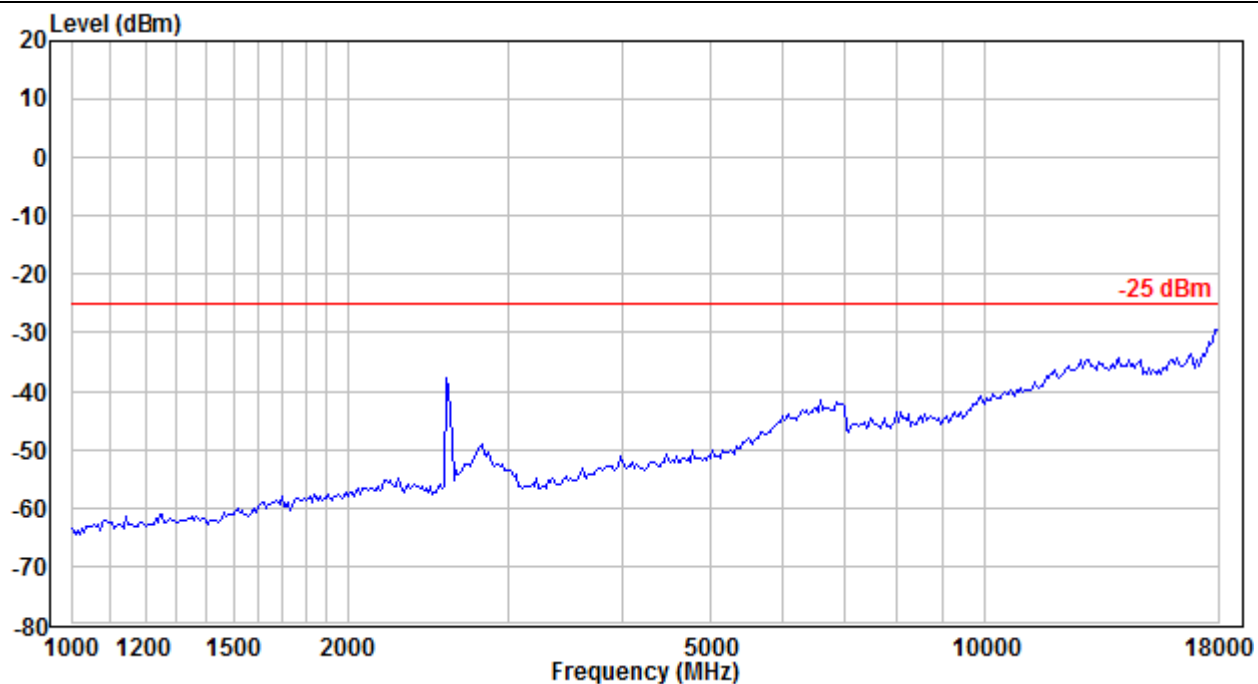
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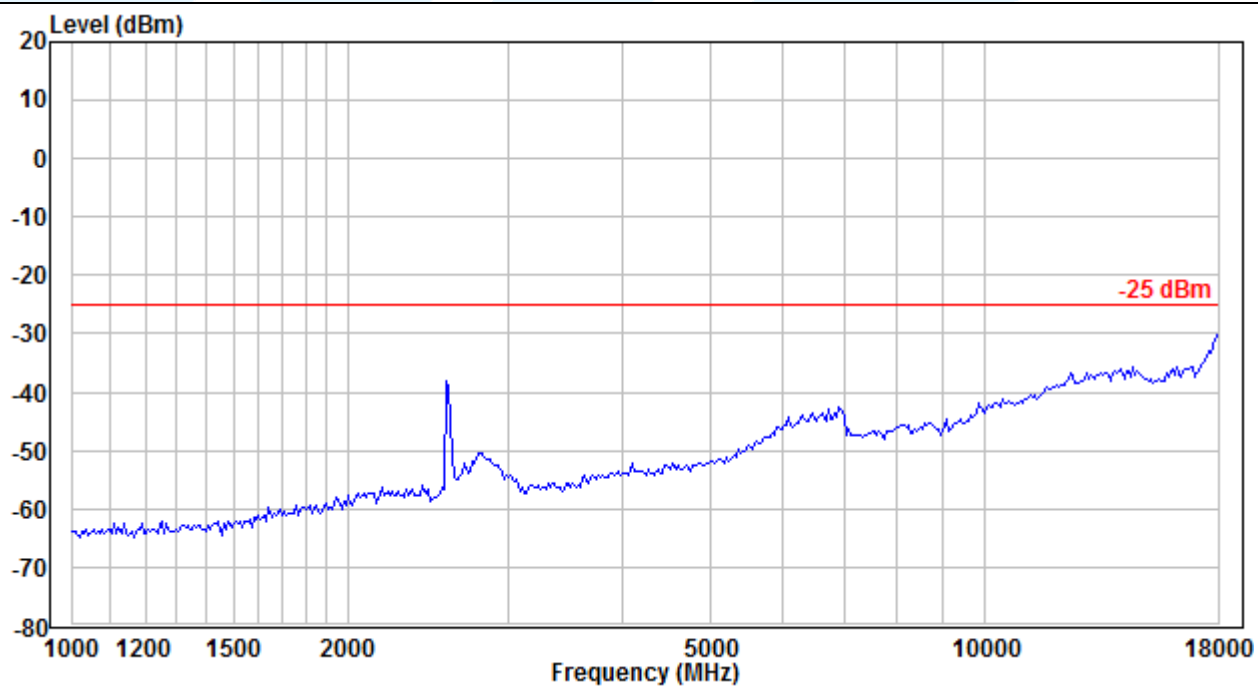
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LTE CA_38C / 20MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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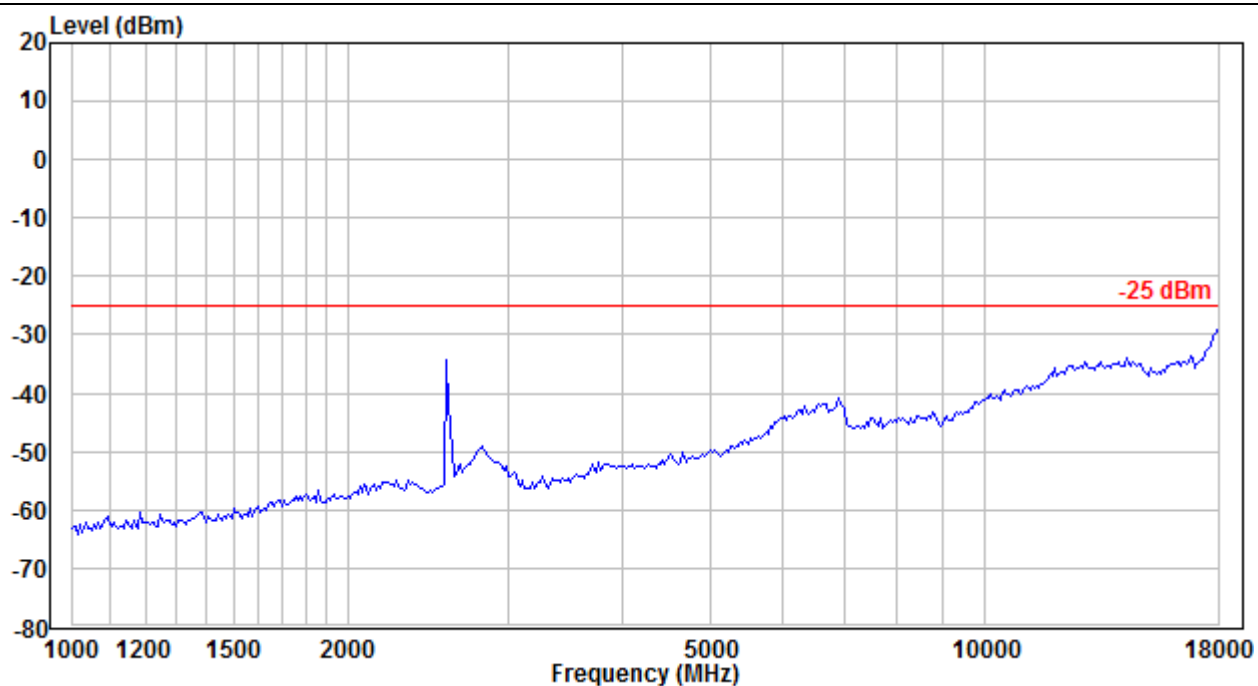
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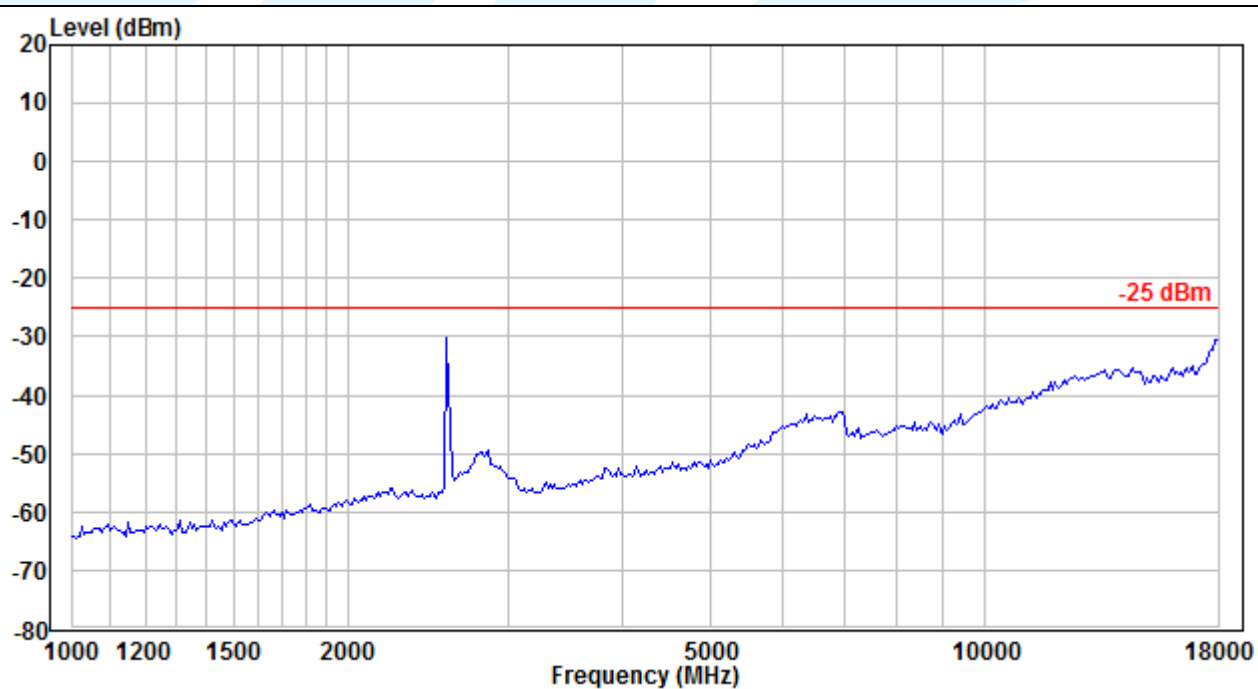
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LTE CA_41C / 5MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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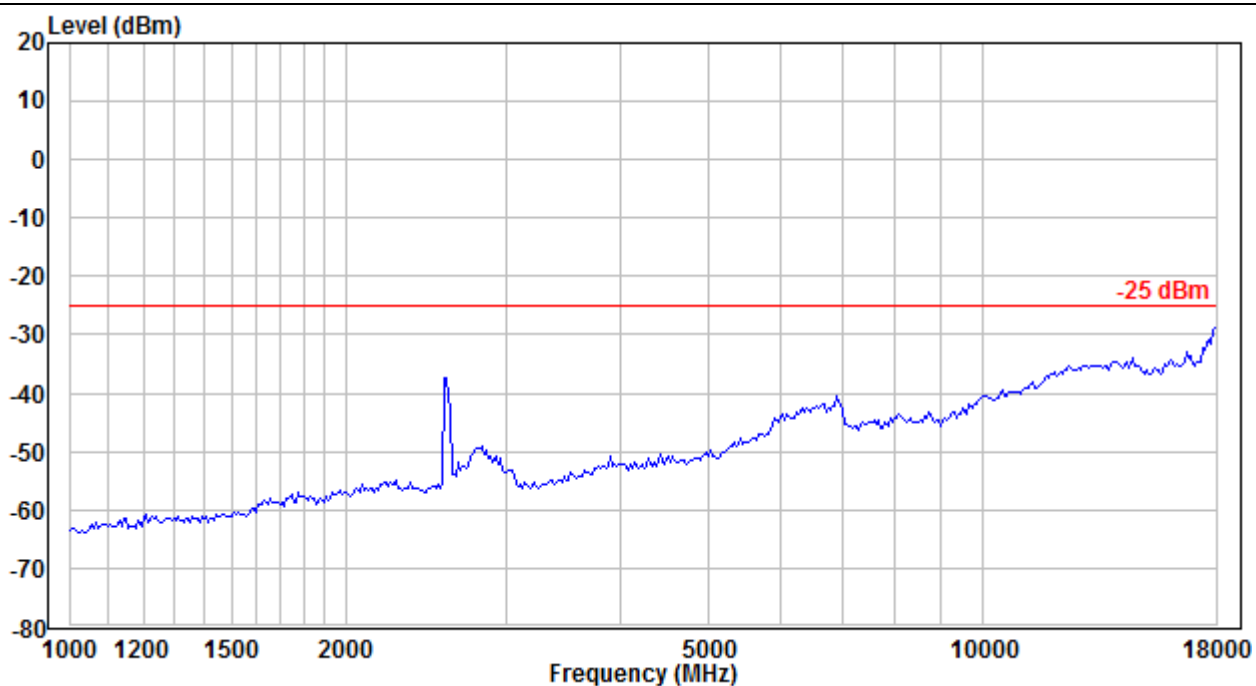
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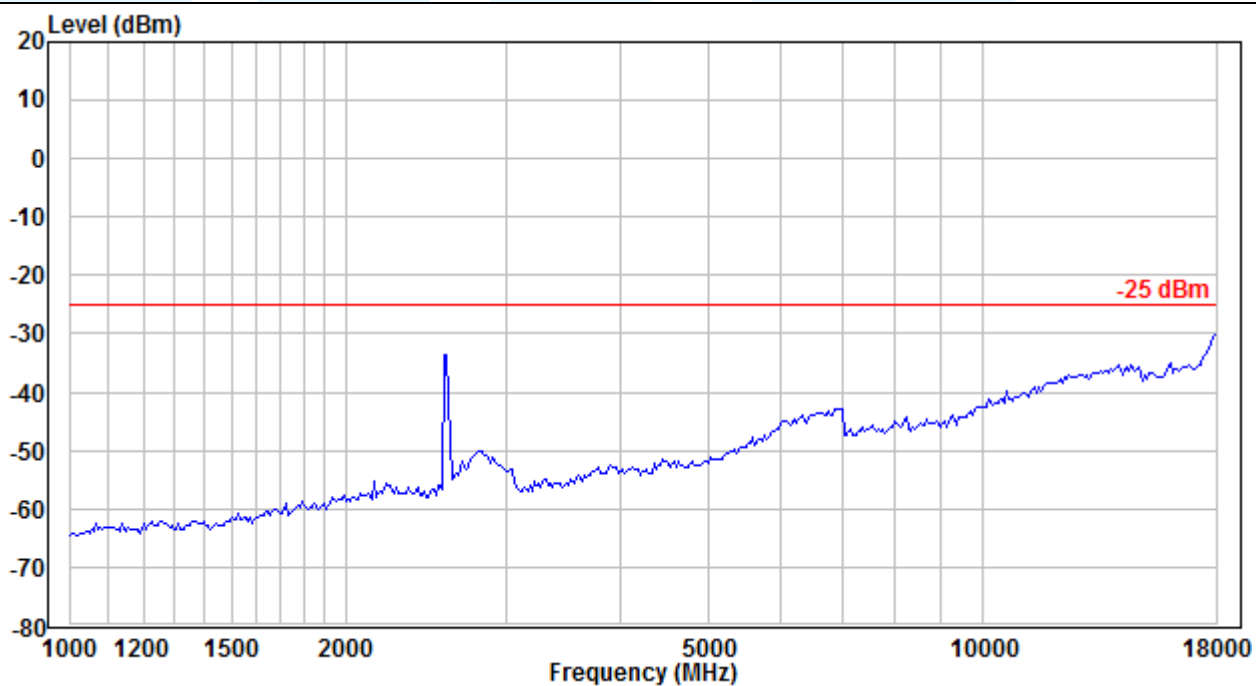
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LTE CA_41C / 20MHz+5MHz / QPSK_ Middle Channel

Horizontal

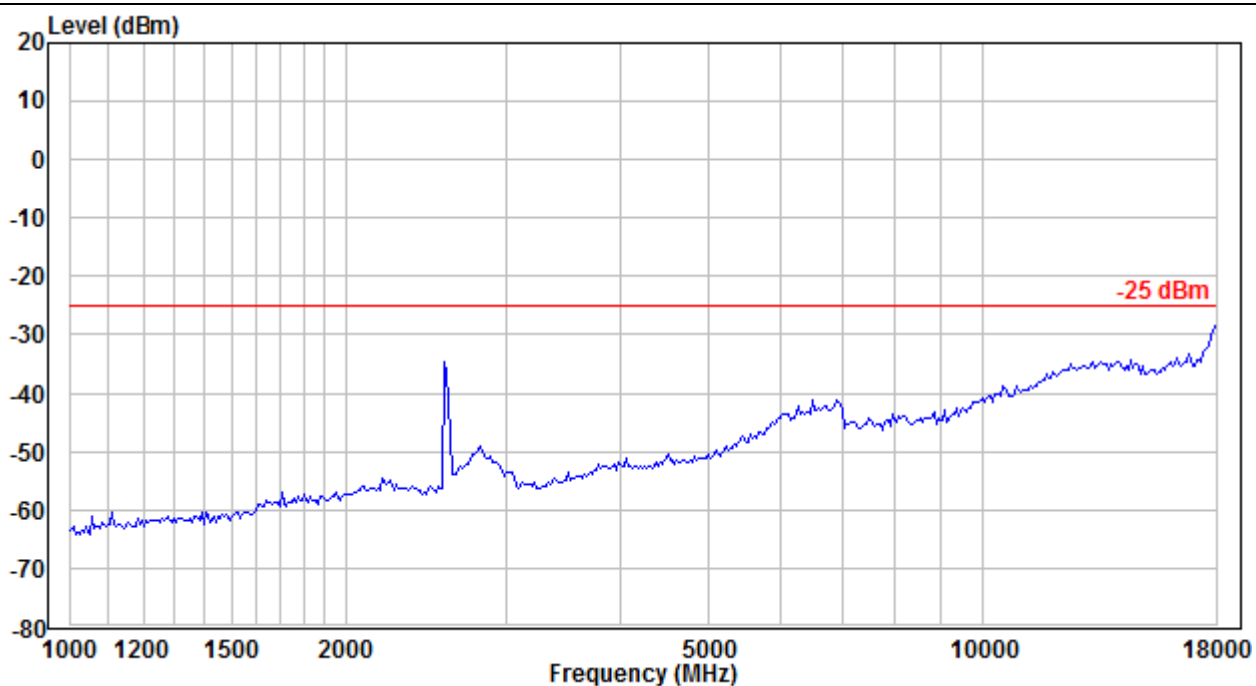


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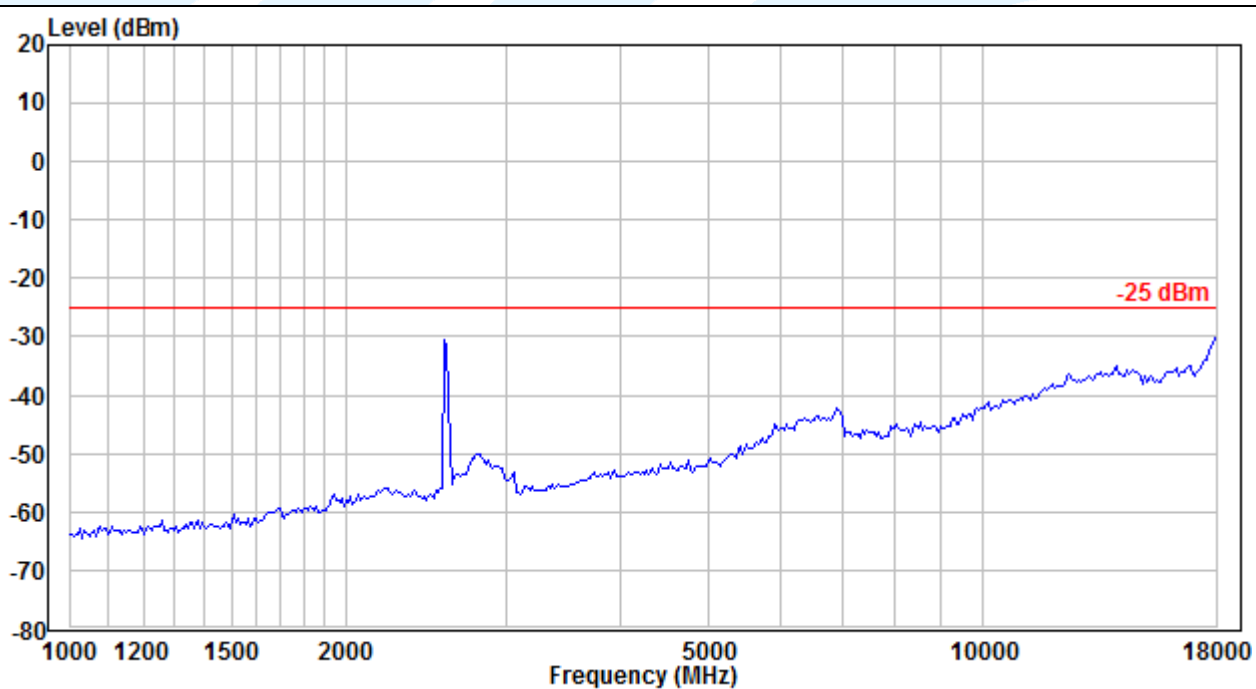


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Horizontal



Vertical



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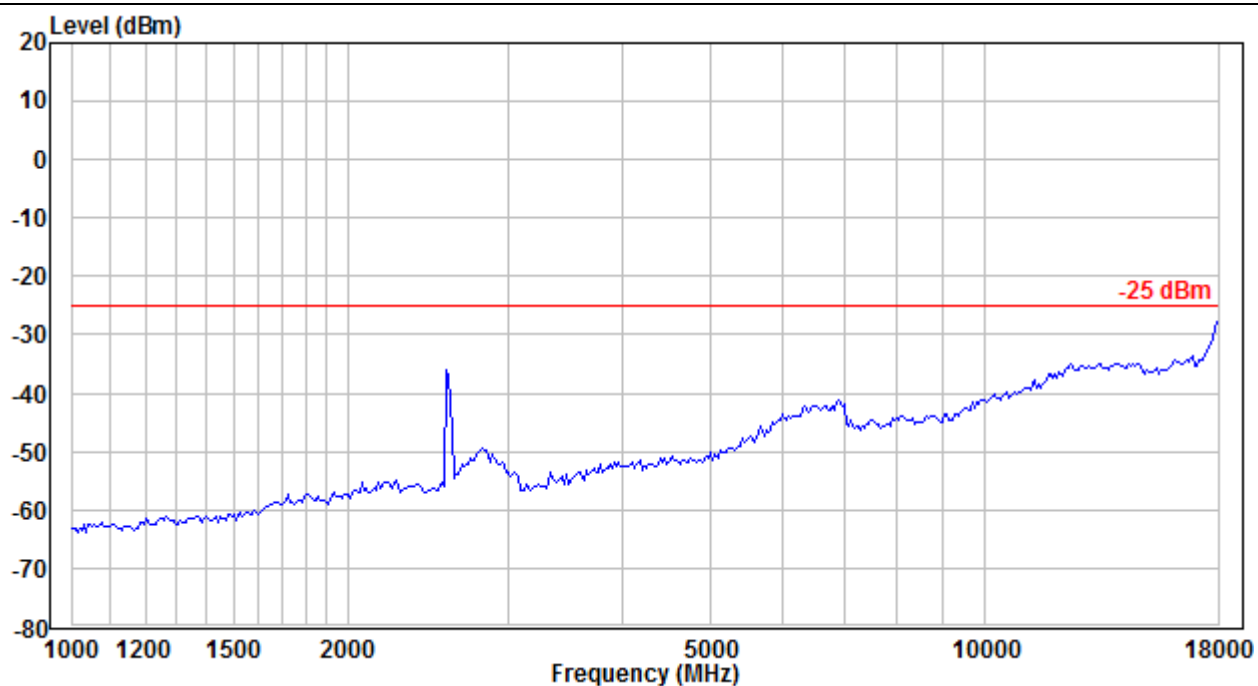
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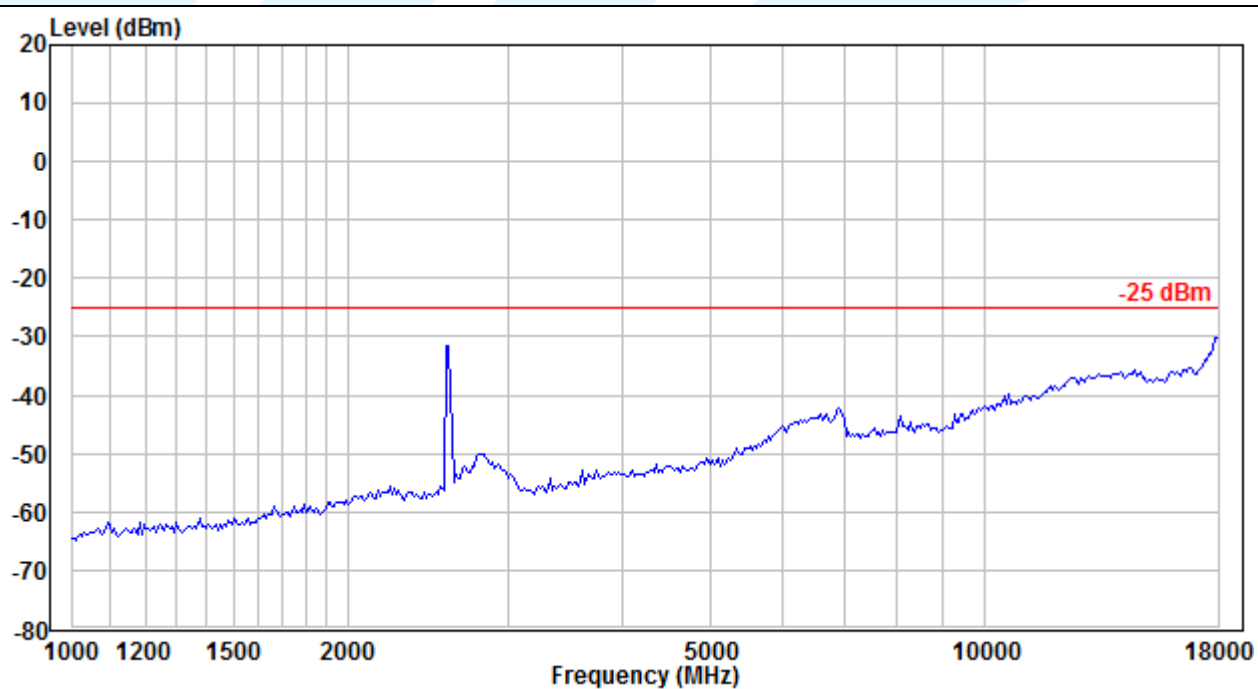
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LTE CA_41C / 15MHz+10MHz / QPSK_ Middle Channel

Horizontal



Vertical



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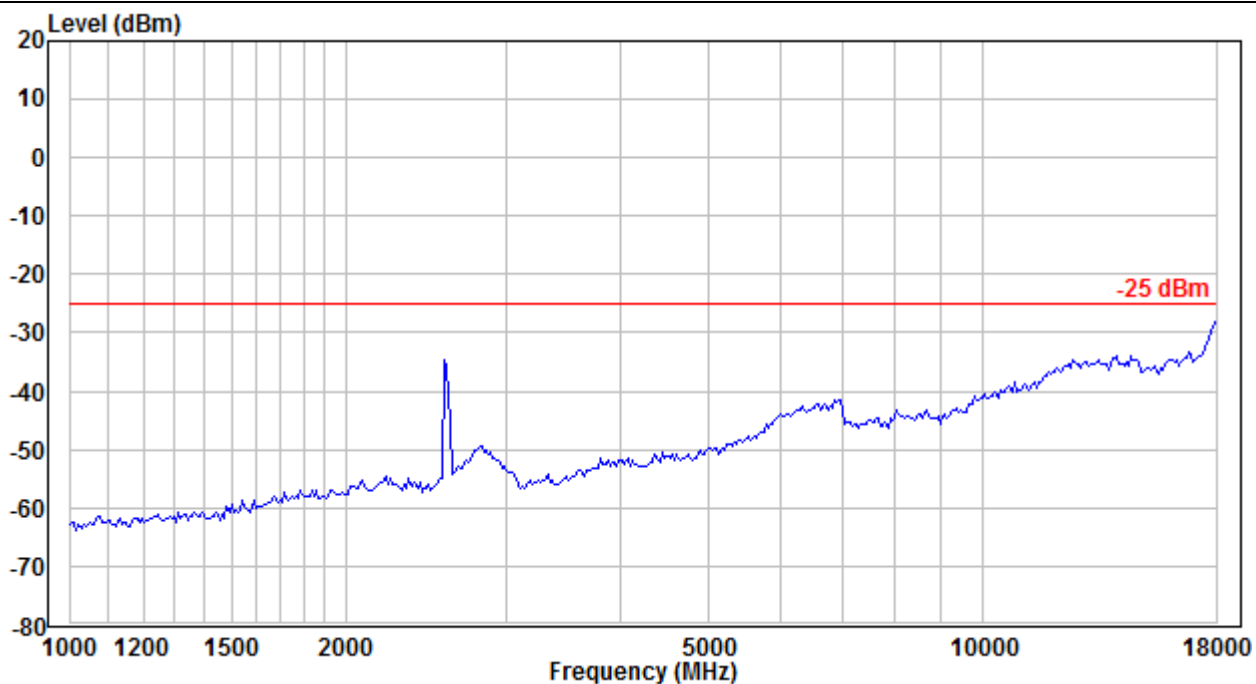
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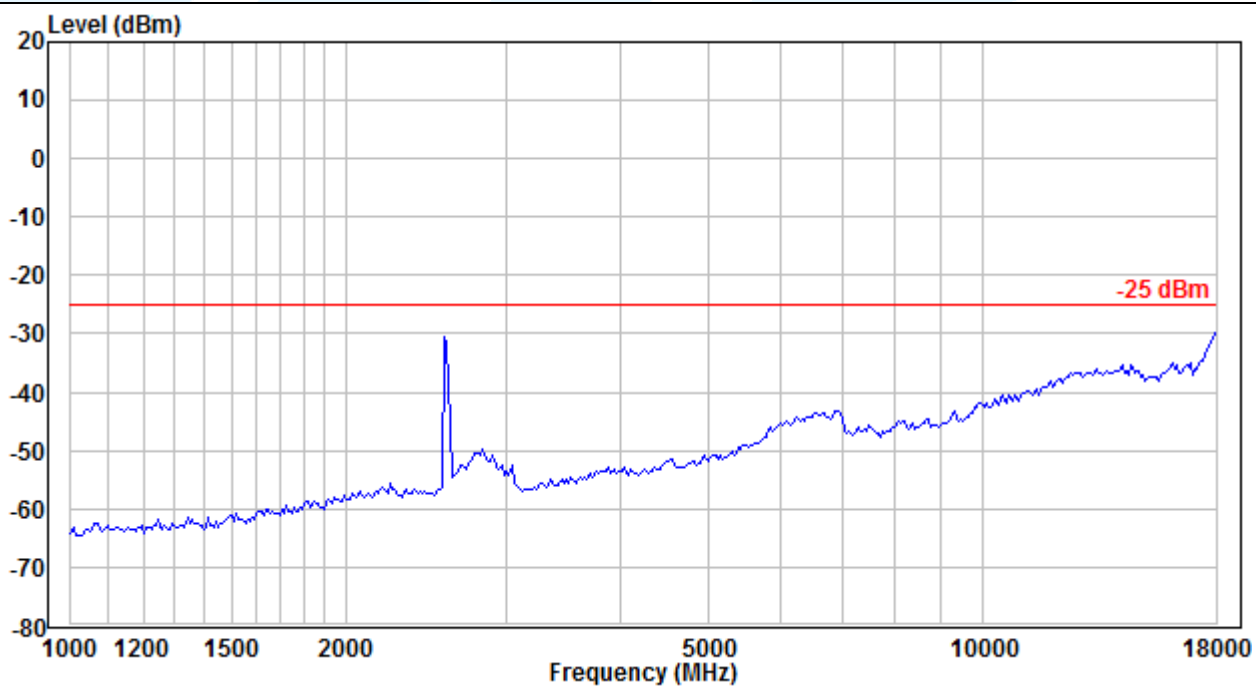
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LTE CA_41C / 10MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



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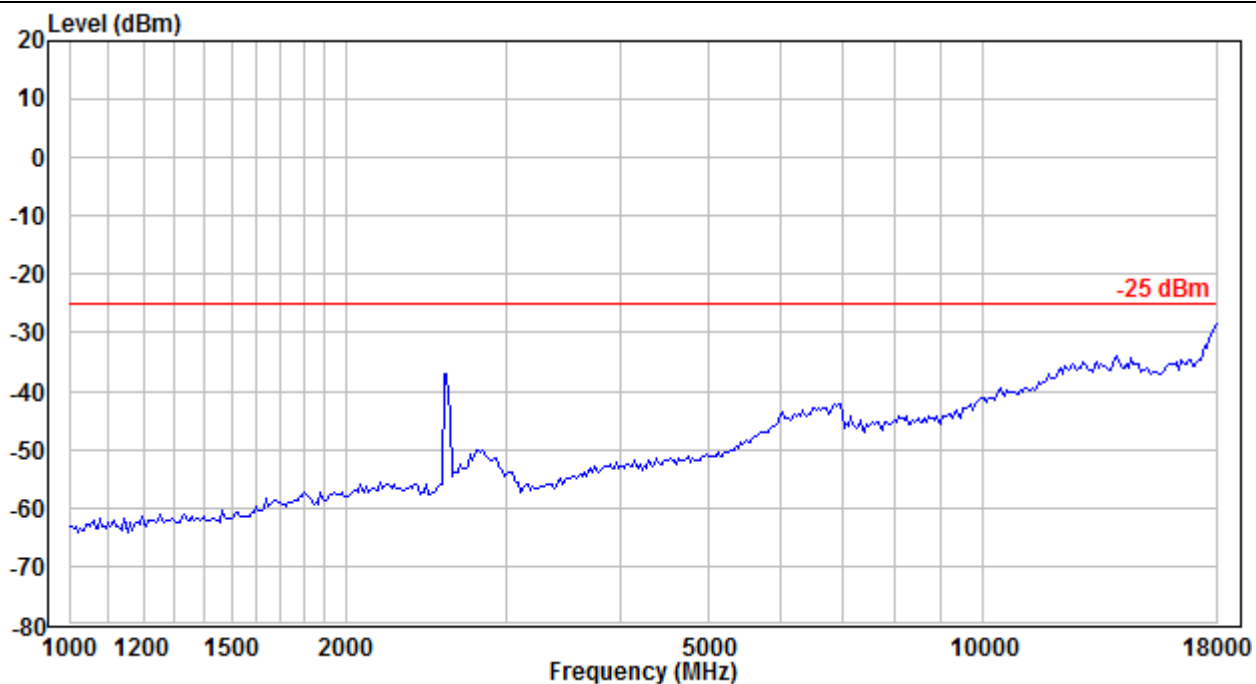
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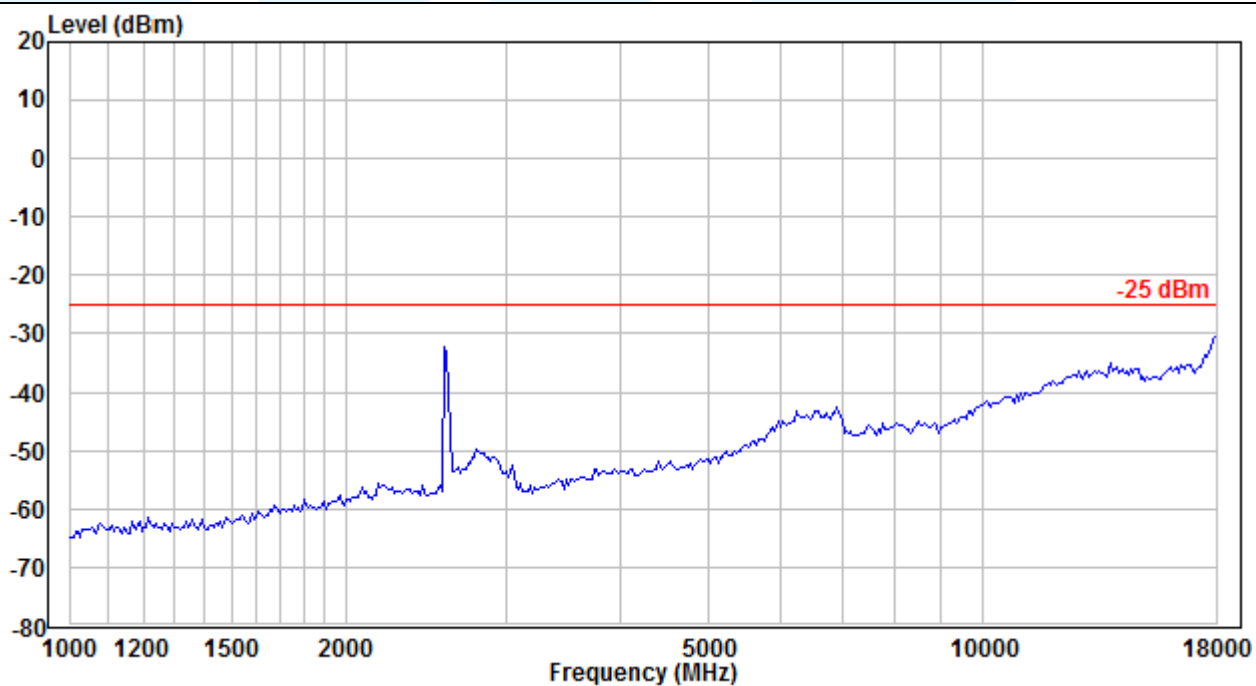
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LTE CA_41C / 20MHz+10MHz / QPSK_ Middle Channel

Horizontal



Vertical



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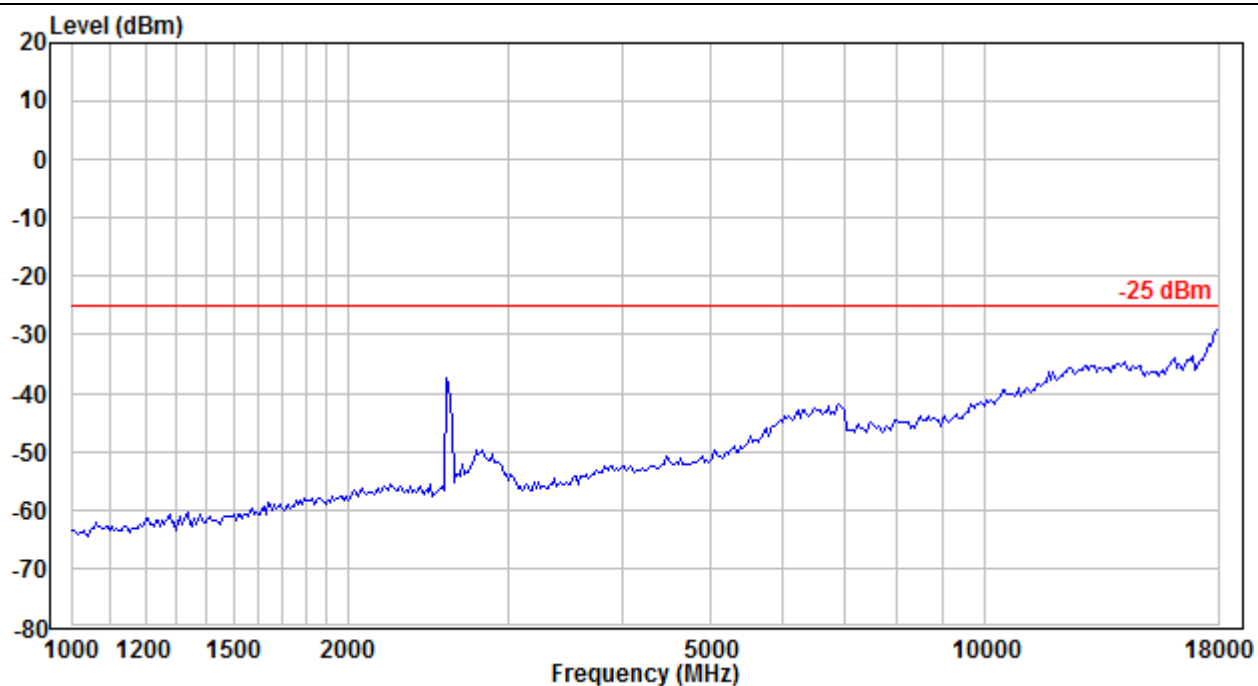
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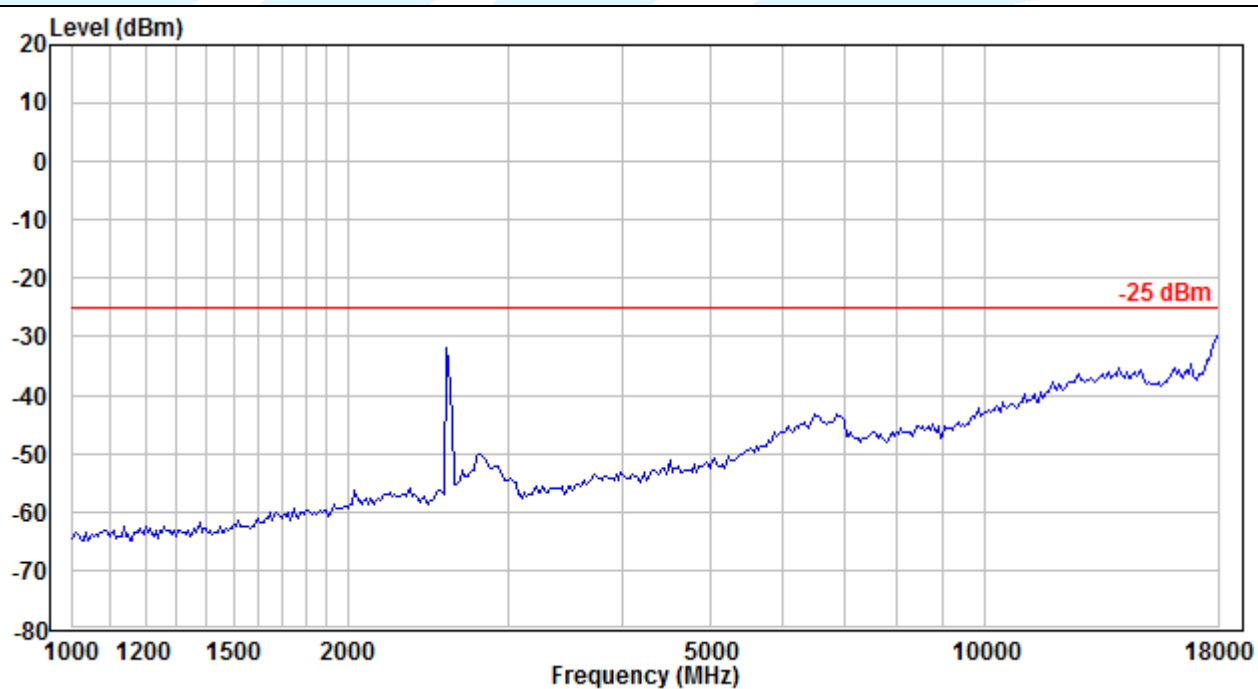
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Horizontal



Vertical



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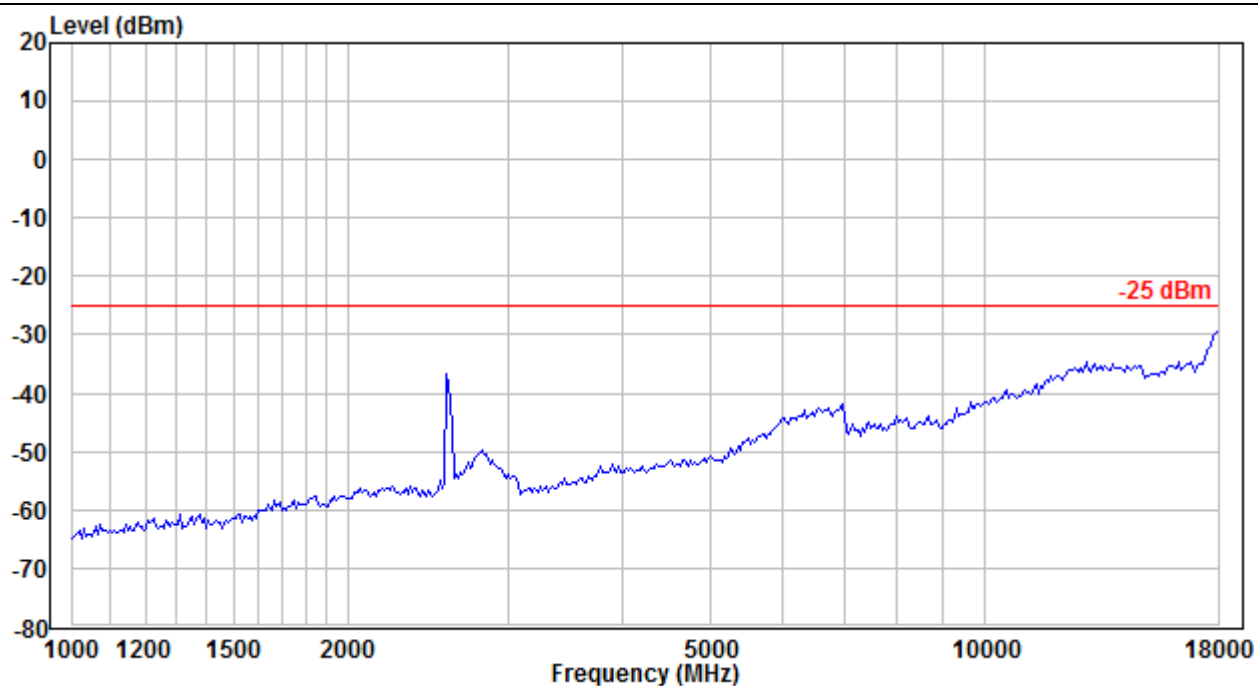
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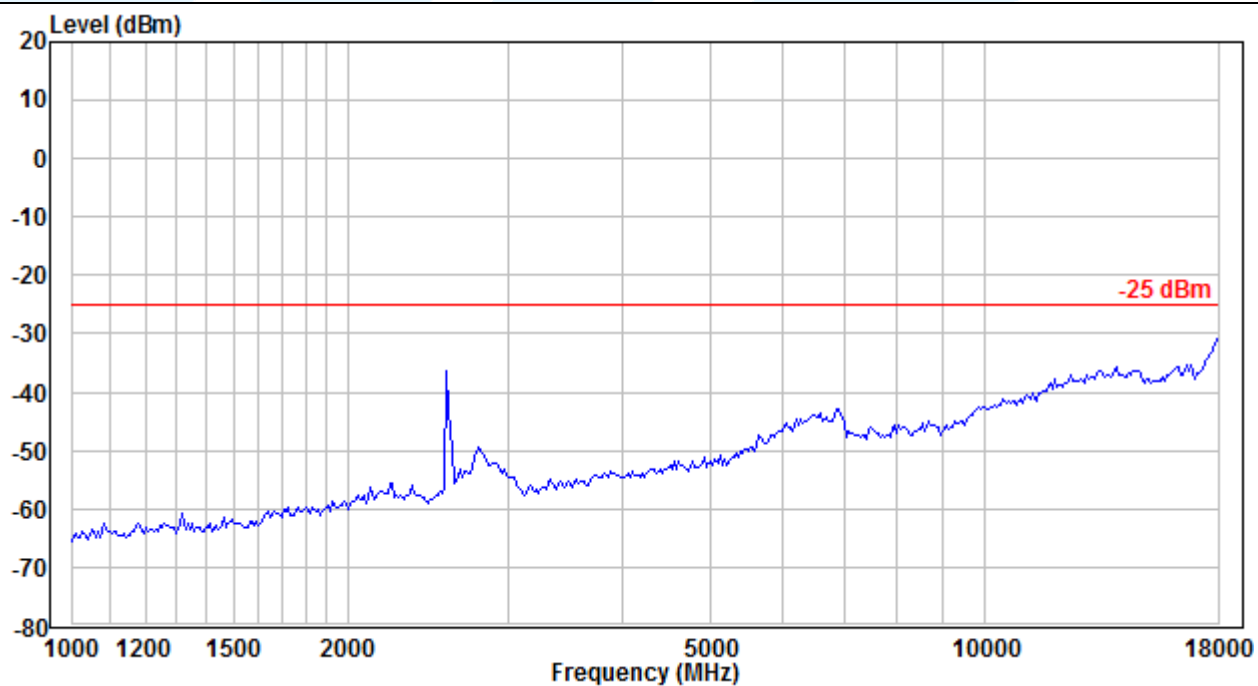
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Horizontal



Vertical



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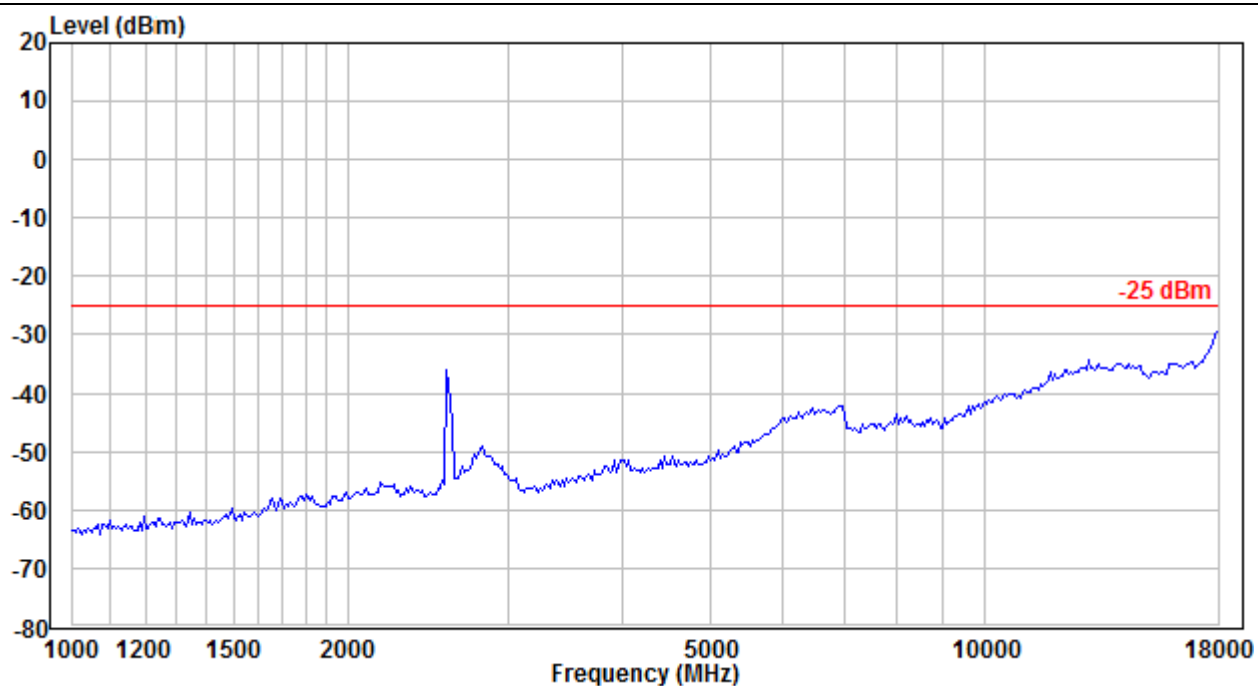
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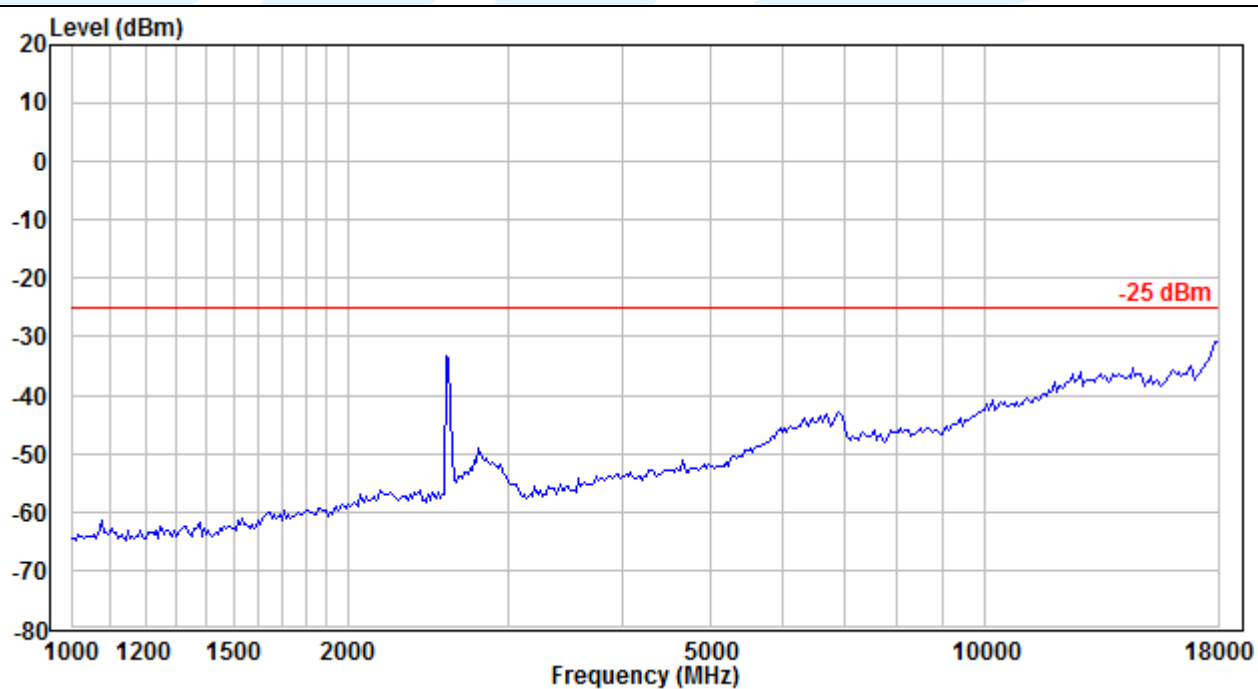
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Horizontal



Vertical



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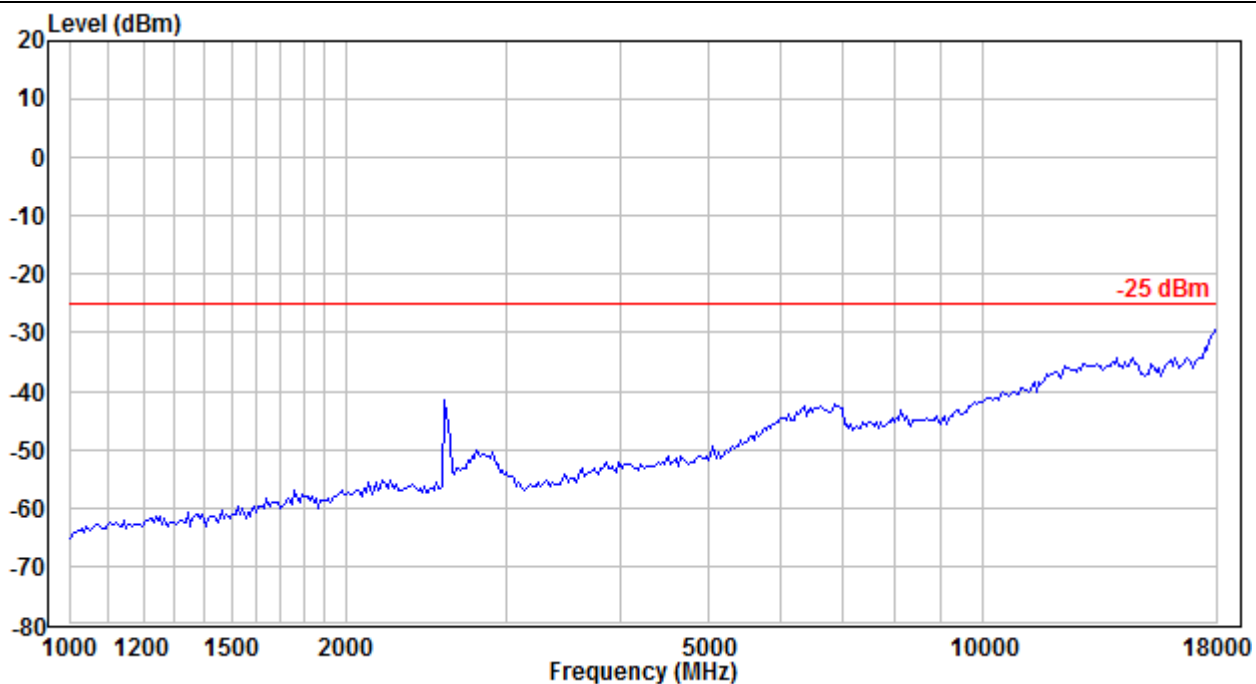
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E-mail: info@uttlab.com

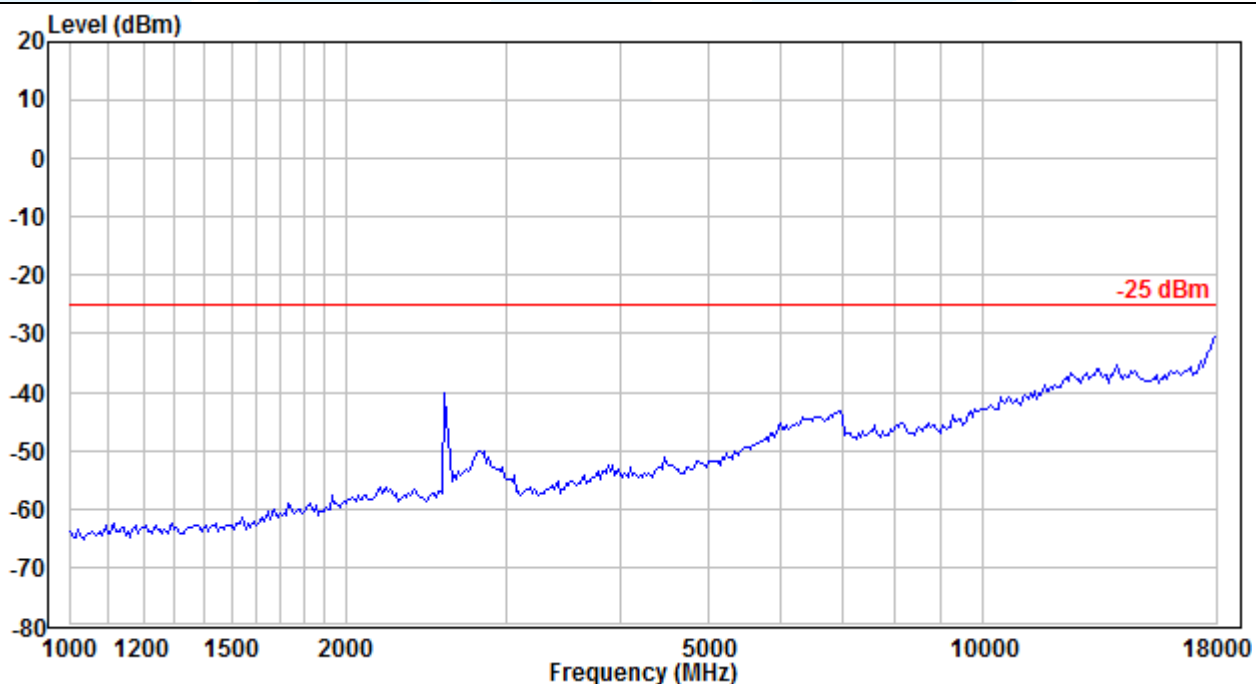
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LTE CA_41C / 20MHz+20MHz / QPSK_ Middle Channel

Horizontal



Vertical



Remark:

1) The disturbance above 18GHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

2) All tested is under the condition of the main wave is filtered out.

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5.9 FREQUENCY STABILITY

Test Requirement: FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 27.54

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

Limits: The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Setup: Refer to section 4.2.2 for details.

Test Procedures:

- 1) Use CMW 500 or CMU 200 with Frequency Error measurement capability.
 - a) Temp. = -30° to + 50°C
 - b) Voltage =low voltage, 3.7 Vdc, Normal, 3.85 Vdc and High voltage, 4.4 Vdc.

2) 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.

3) Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

Equipment Used: Refer to section 3 for details.

Test Result: Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Pass/ Fail
WCDMA RMC 12.2Kbps							
GMSK	1412 / 1732.4	VL	TN	-6	-0.0035	Note 1	Pass
		VN		-6	-0.0035		Pass
		VH		-7	-0.0040		Pass
		VN	50	-8	-0.0046		Pass
			40	-5	-0.0029		Pass
			30	-8	-0.0046		Pass
			20	-7	-0.0040		Pass
			10	-4	-0.0023		Pass
			0	0	0.0000		Pass
			-10	-3	-0.0017		Pass
			-20	-1	-0.0006		Pass
			-30	-3	-0.0017		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 4 / 20MHz / Full RB							
QPSK	20175 / 1732.5	VL	TN	16	0.0092	Note 1	Pass
		VN		17	0.0098		Pass
		VH		16	0.0092		Pass
		VN	50	23	0.0133		Pass
			40	21	0.0121		Pass
			30	17	0.0098		Pass
			20	14	0.0081		Pass
			10	19	0.0110		Pass
			0	29	0.0167		Pass
			-10	22	0.0127		Pass
			-20	26	0.0150		Pass
			-30	26	0.0150		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 7 / 20MHz / Full RB							
QPSK	21100 / 2535	VL	TN	11	0.0043	Note 1	Pass
		VN		12	0.0047		Pass
		VH		10	0.0039		Pass
		VN	50	12	0.0047		Pass
			40	10	0.0039		Pass
			30	14	0.0055		Pass
			20	10	0.0039		Pass
			10	15	0.0059		Pass
			0	16	0.0063		Pass
			-10	18	0.0071		Pass
			-20	21	0.0083		Pass
			-30	14	0.0055		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 12 / 10MHz / Full RB							
QPSK	23095 / 707.5	VL	TN	-10	-0.0141	Note 1	Pass
		VN		-11	-0.0155		Pass
		VH		-12	-0.0170		Pass
		VN	50	-5	-0.0071		Pass
			40	-7	-0.0099		Pass
			30	-1	-0.0014		Pass
			20	-12	-0.0170		Pass
			10	-7	-0.0099		Pass
			0	-10	-0.0141		Pass
			-10	-8	-0.0113		Pass
			-20	-5	-0.0071		Pass
			-30	-8	-0.0113		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(℃)	(Hz)	(ppm)	(ppm)	
LTE Band 13 / 10MHz / Full RB							
QPSK	23230 / 782	VL	TN	-17	-0.0217	Note 1	Pass
		VN		-15	-0.0192		Pass
		VH		-20	-0.0256		Pass
		VN	50	-10	-0.0128		Pass
			40	-12	-0.0153		Pass
			30	-15	-0.0192		Pass
			20	-14	-0.0179		Pass
			10	-11	-0.0141		Pass
			0	-16	-0.0205		Pass
			-10	-14	-0.0179		Pass
			-20	-5	-0.0064		Pass
			-30	-4	-0.0051		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(℃)	(Hz)	(ppm)	(ppm)	
LTE Band 17 / 10MHz / Full RB							
QPSK	23790 / 710	VL	TN	13	0.0183	Note 1	Pass
		VN		13	0.0183		Pass
		VH		8	0.0113		Pass
		VN	50	15	0.0211		Pass
			40	12	0.0169		Pass
			30	21	0.0296		Pass
			20	11	0.0155		Pass
			10	16	0.0225		Pass
			0	14	0.0197		Pass
			-10	14	0.0197		Pass
			-20	18	0.0254		Pass
			-30	16	0.0225		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 30 / 10MHz / Full RB							
QPSK	27710 /2310	VL	TN	-12	-0.0052	Note 1	Pass
		VN		-17	-0.0074		Pass
		VH		-20	-0.0087		Pass
		VN	50	-13	-0.0056		Pass
			40	-12	-0.0052		Pass
			30	-6	-0.0026		Pass
			20	-16	-0.0069		Pass
			10	-14	-0.0061		Pass
			0	-4	-0.0017		Pass
			-10	-15	-0.0065		Pass
			-20	-8	-0.0035		Pass
			-30	-9	-0.0039		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 38 / 20MHz / Full RB							
QPSK	38000 / 2595	VL	TN	22	0.0085	Note 1	Pass
		VN		17	0.0066		Pass
		VH		16	0.0062		Pass
		VN	50	16	0.0062		Pass
			40	17	0.0066		Pass
			30	25	0.0096		Pass
			20	13	0.0050		Pass
			10	20	0.0077		Pass
			0	19	0.0073		Pass
			-10	20	0.0077		Pass
			-20	25	0.0096		Pass
			-30	19	0.0073		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 41 / 20MHz / Full RB							
QPSK	40620 / 2593	VL	TN	24	0.0093	Note 1	Pass
		VN		21	0.0081		Pass
		VH		16	0.0062		Pass
		VN	50	25	0.0096		Pass
			40	25	0.0096		Pass
			30	22	0.0085		Pass
			20	19	0.0073		Pass
			10	21	0.0081		Pass
			0	31	0.0120		Pass
			-10	26	0.0100		Pass
			-20	26	0.0100		Pass
			-30	28	0.0108		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE CA_7C / 20MHz+20MHz / Full RB							
QPSK	21001 / 2525.1	VL	TN	21	0.0083	Note 1	Pass
		VN		23	0.0091		Pass
		VH		20	0.0079		Pass
		VN	50	21	0.0083		Pass
			40	26	0.0103		Pass
			30	24	0.0095		Pass
			20	20	0.0079		Pass
			10	25	0.0099		Pass
			0	22	0.0087		Pass
			-10	26	0.0103		Pass
			-20	31	0.0123		Pass
			-30	32	0.0127		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE CA_38C / 20MHz+20MHz / Full RB							
QPSK	37901 / 2585.1	VL	TN	14	0.0054	Note 1	Pass
		VN		15	0.0058		Pass
		VH		13	0.0050		Pass
		VN	50	20	0.0077		Pass
			40	13	0.0050		Pass
			30	20	0.0077		Pass
			20	16	0.0062		Pass
			10	17	0.0066		Pass
			0	17	0.0066		Pass
			-10	21	0.0081		Pass
			-20	22	0.0085		Pass
			-30	25	0.0097		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE CA_41C / 20MHz+20MHz / Full RB							
QPSK	40521 / 2583.1	VL	TN	17	0.0066	Note 1	Pass
		VN		18	0.0070		Pass
		VH		14	0.0054		Pass
		VN	50	18	0.0070		Pass
			40	15	0.0058		Pass
			30	19	0.0074		Pass
			20	19	0.0074		Pass
			10	17	0.0066		Pass
			0	15	0.0058		Pass
			-10	22	0.0085		Pass
			-20	16	0.0062		Pass
			-30	19	0.0074		Pass

Note1: The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

APPENDIX 1 PHOTOS OF TEST SETUP

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

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photos.

*** End of Report ***

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