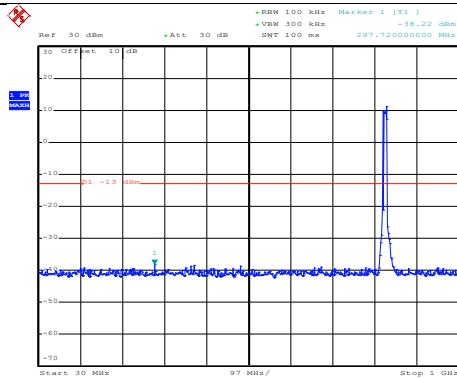


LTE Band 5: 16 QAM & RB Size 50

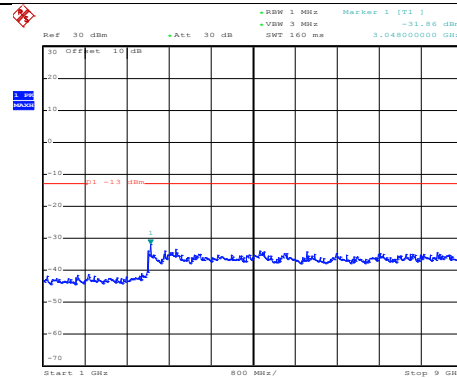
BW: 10MHz

Lowest channel



Date: 29.SEP.2018 04:44:12

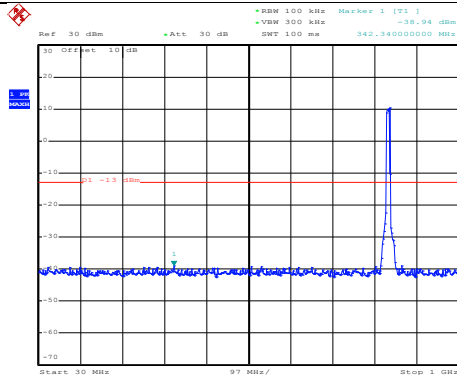
30MHz~1GHz



Date: 29.SEP.2018 04:27:08

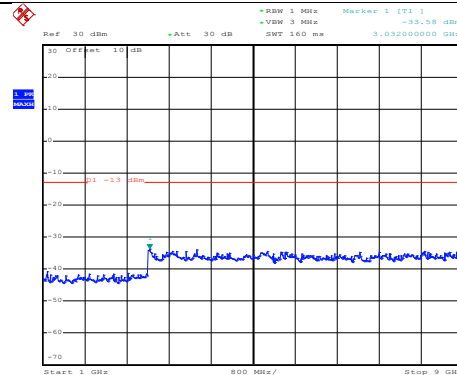
1GHz~9GHz

Middle channel



Date: 29.SEP.2018 04:45:25

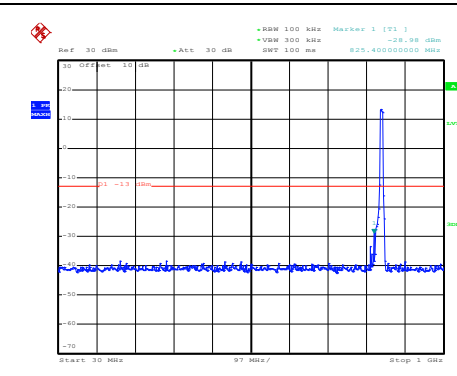
30MHz~1GHz



Date: 29.SEP.2018 04:27:52

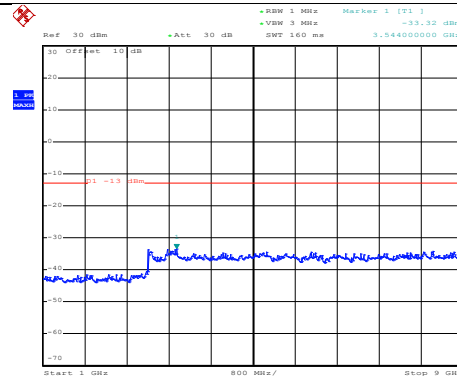
1GHz~9GHz

High channel



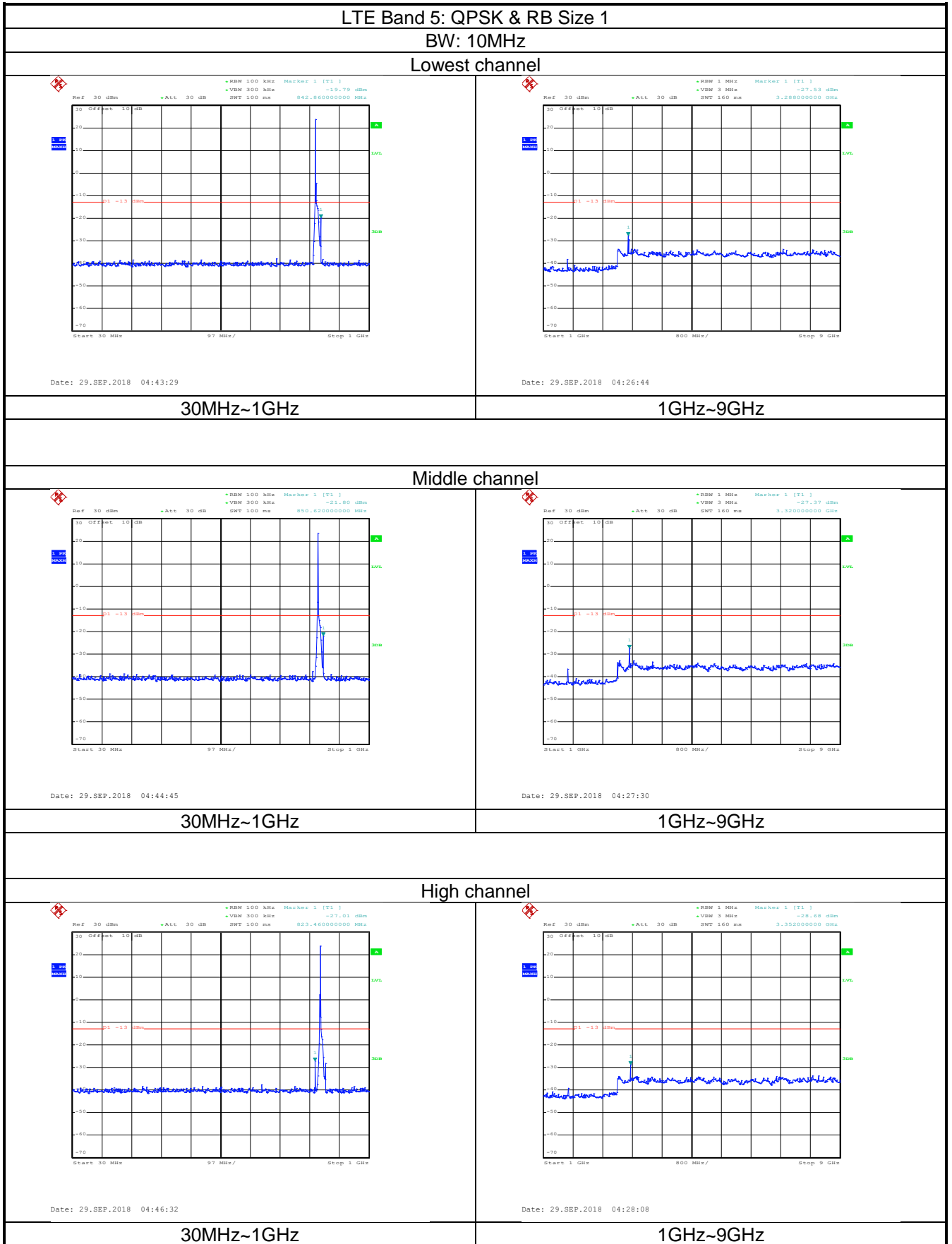
Date: 1.OCT.2018 08:34:19

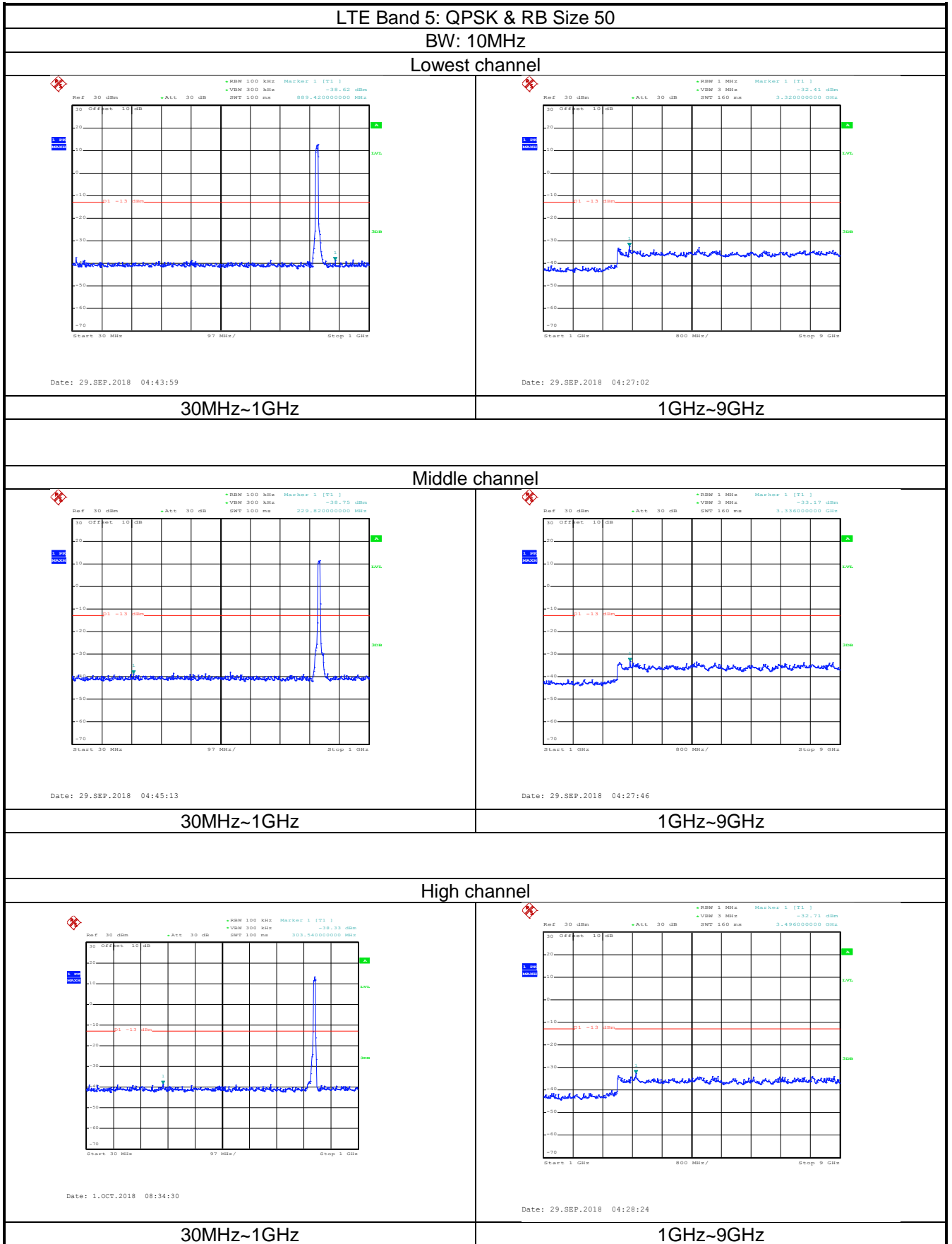
30MHz~1GHz



Date: 29.SEP.2018 04:28:32

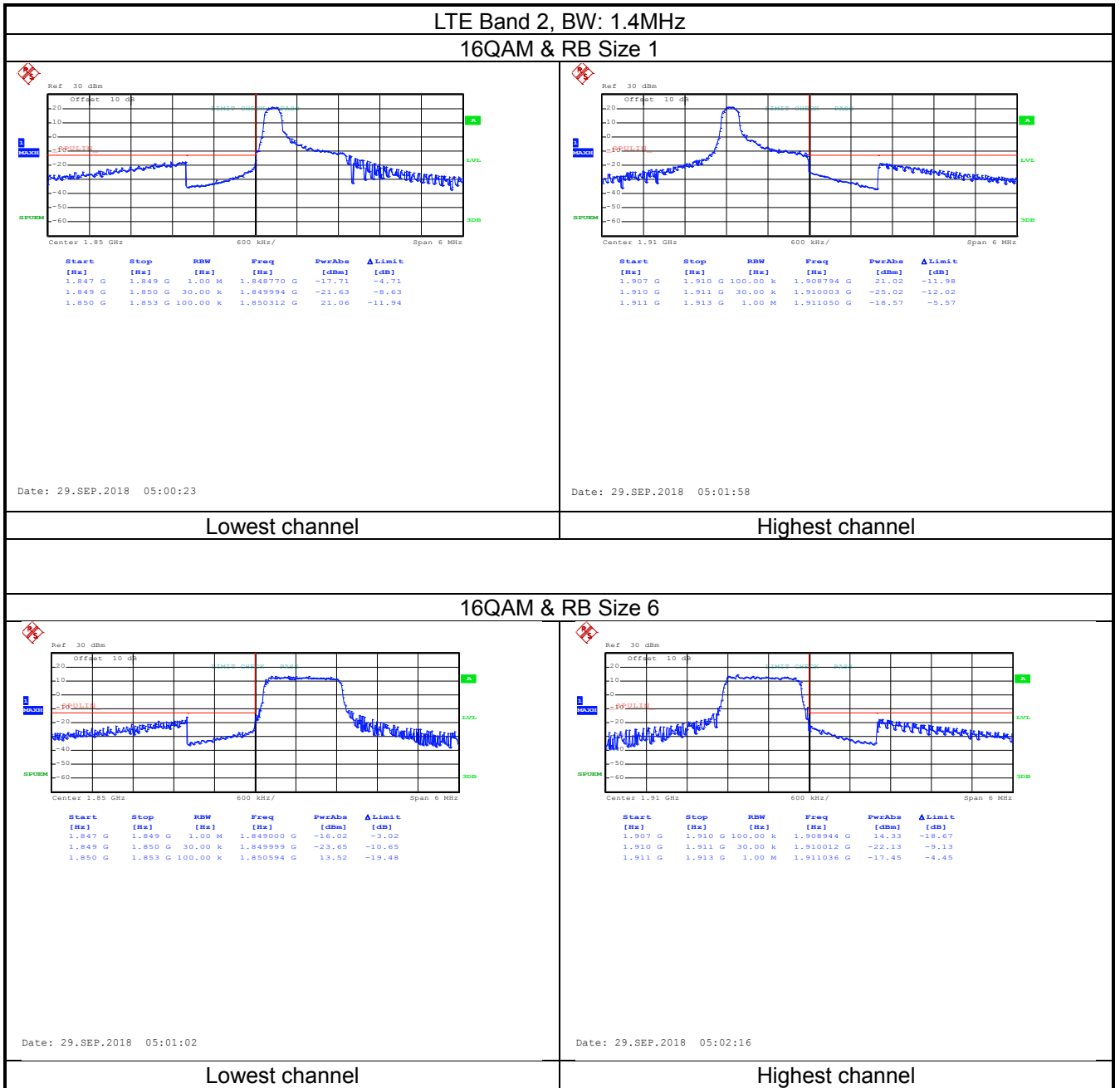
1GHz~9GHz



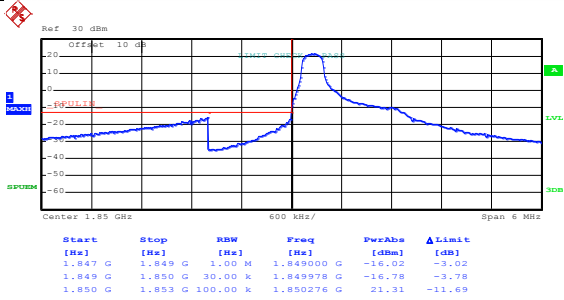


Band edge emission:

LTE Band 2 part:

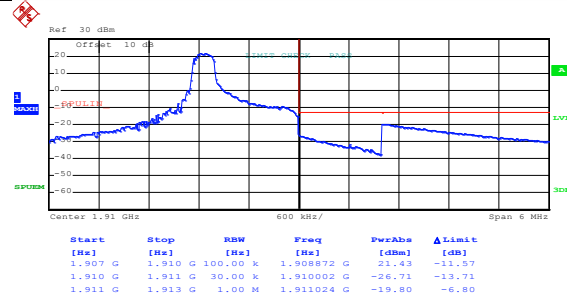


LTE Band 2, BW: 1.4MHz QPSK & RB Size 1



Date: 29.SEP.2018 05:00:11

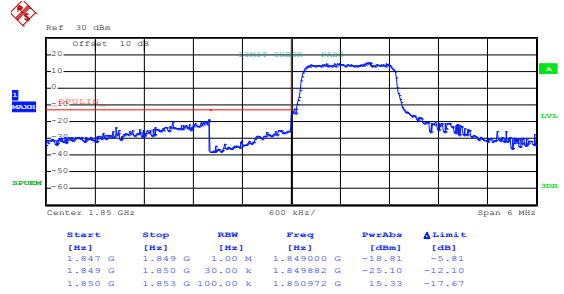
Lowest channel



Date: 29.SEP.2018 05:01:44

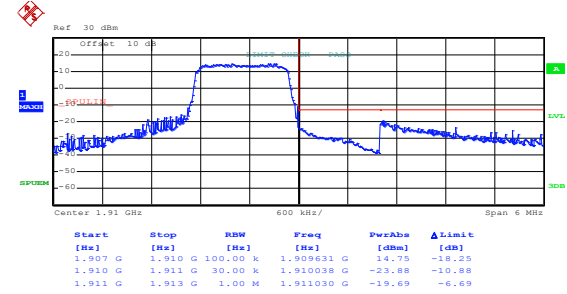
Highest channel

QPSK & RB Size 6



Date: 29.SEP.2018 05:00:50

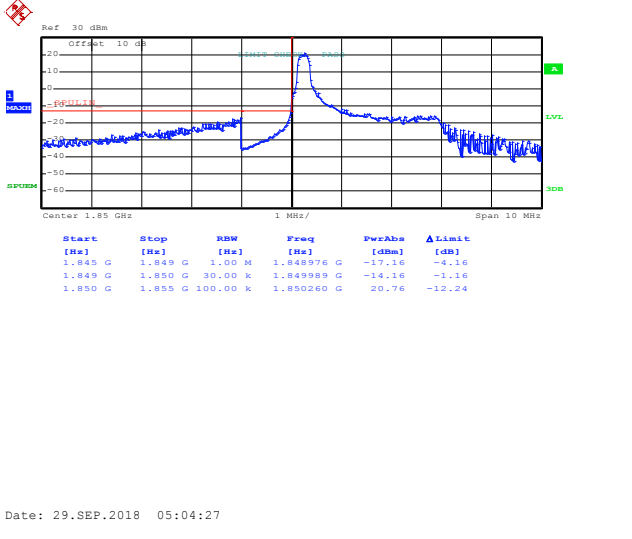
Lowest channel



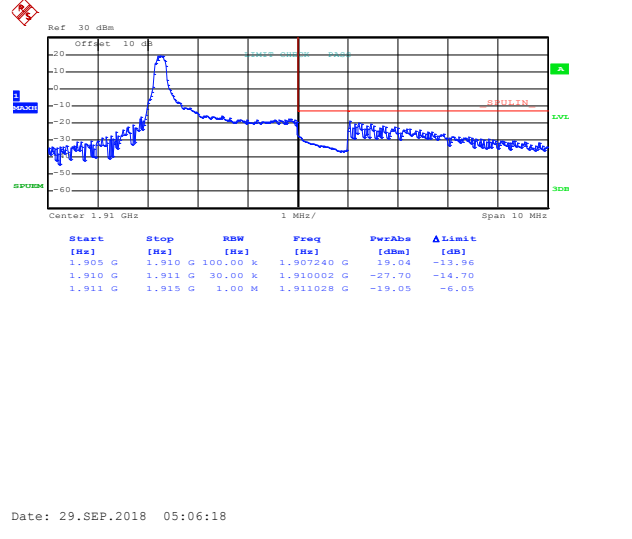
Date: 29.SEP.2018 05:02:08

Highest channel

LTE Band 2, BW: 3MHz 16QAM & RB Size 1



Lowest channel



Highest channel

16QAM & RB Size 15

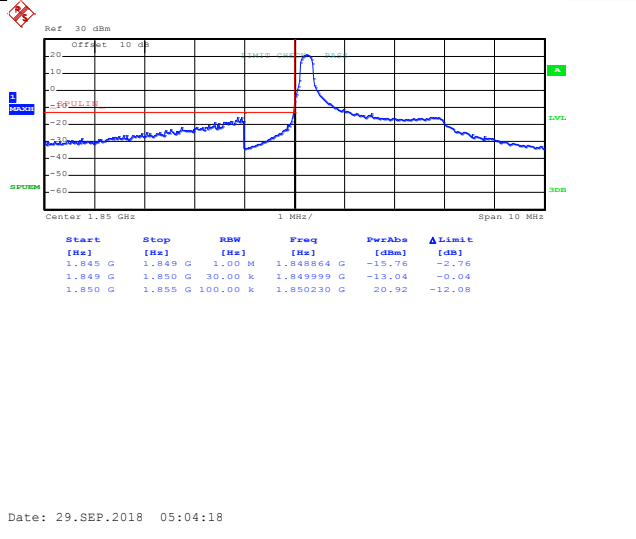


Lowest channel

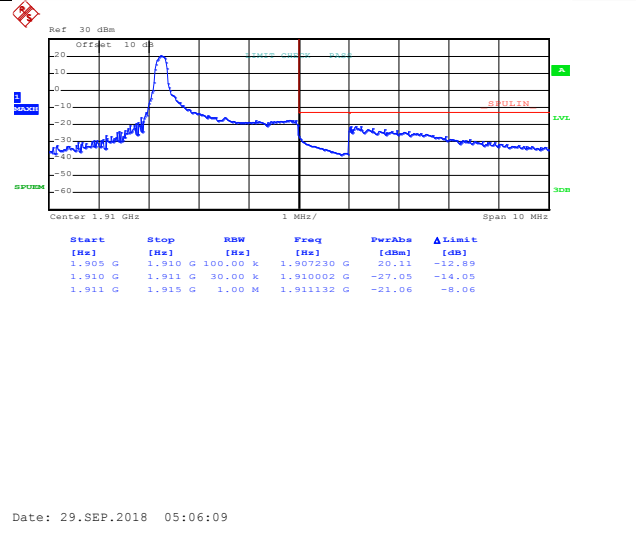


Highest channel

LTE Band 2, BW: 3MHz QPSK & RB Size 1



Lowest channel

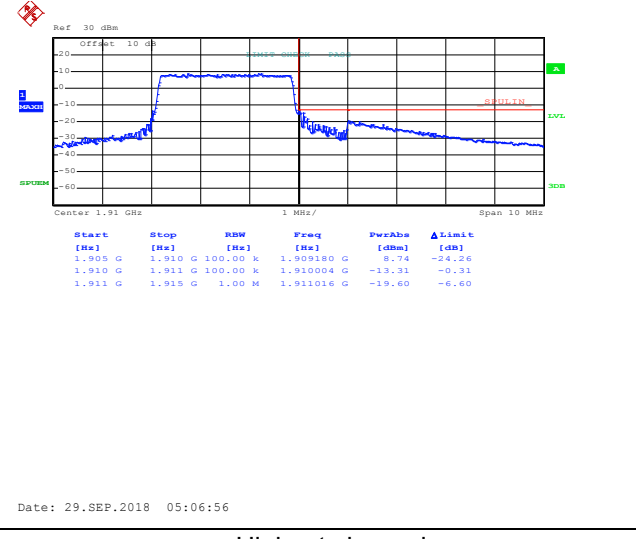


Highest channel

QPSK & RB Size 15



Lowest channel

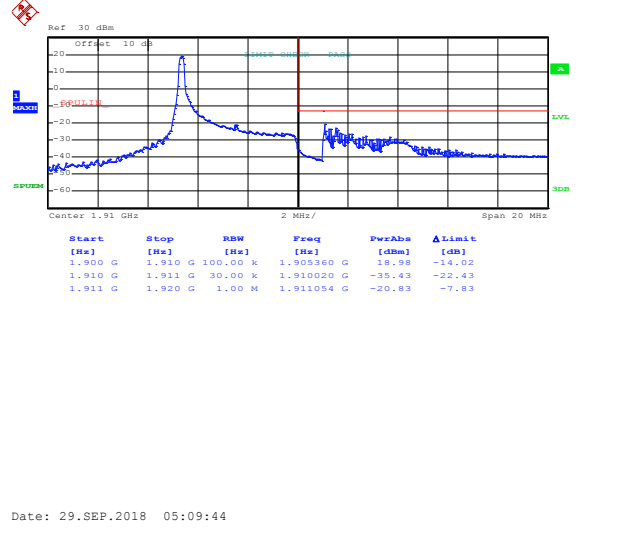


Highest channel

LTE Band 2, BW: 5MHz 16QAM & RB Size 1

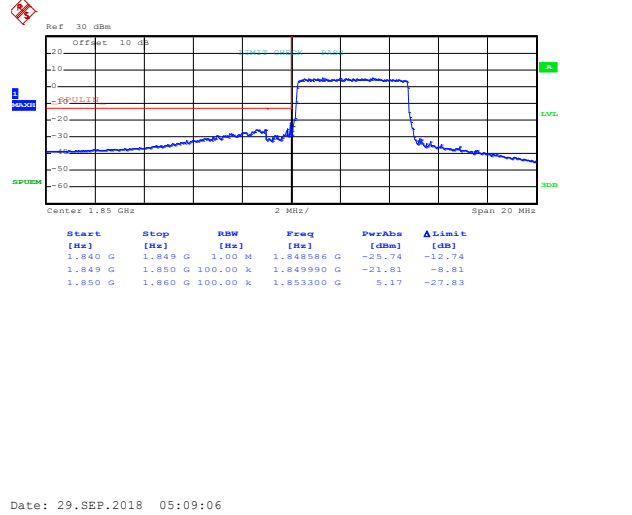


Lowest channel



Highest channel

16QAM & RB Size 25

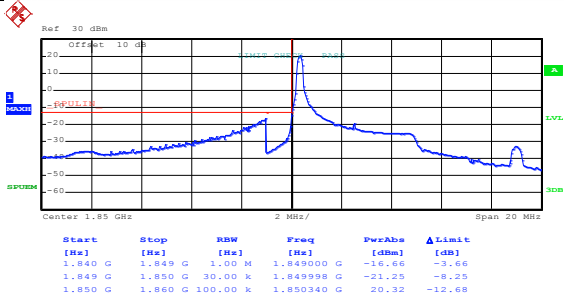


Lowest channel



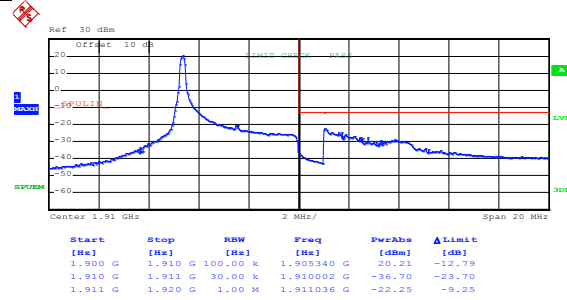
Highest channel

LTE Band 2, BW: 5MHz QPSK & RB Size 1



Date: 29.SEP.2018 05:08:33

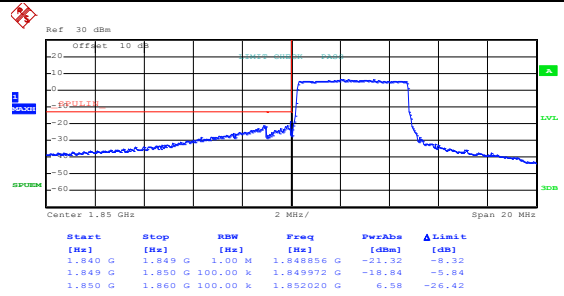
Lowest channel



Date: 29.SEP.2018 05:09:32

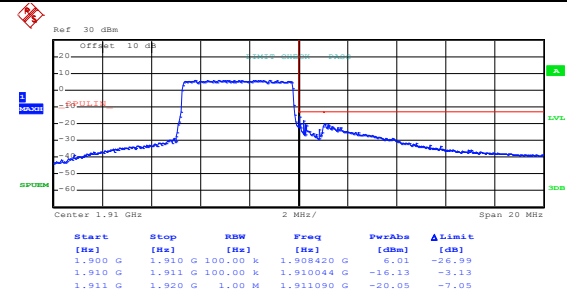
Highest channel

QPSK & RB Size 25



Date: 29.SEP.2018 05:08:59

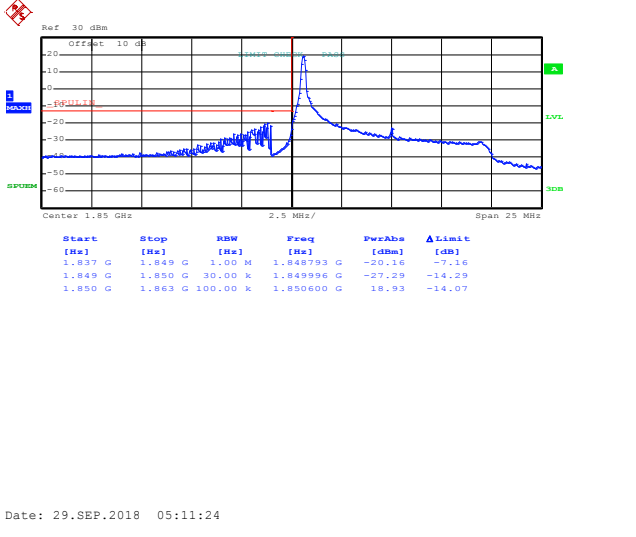
Lowest channel



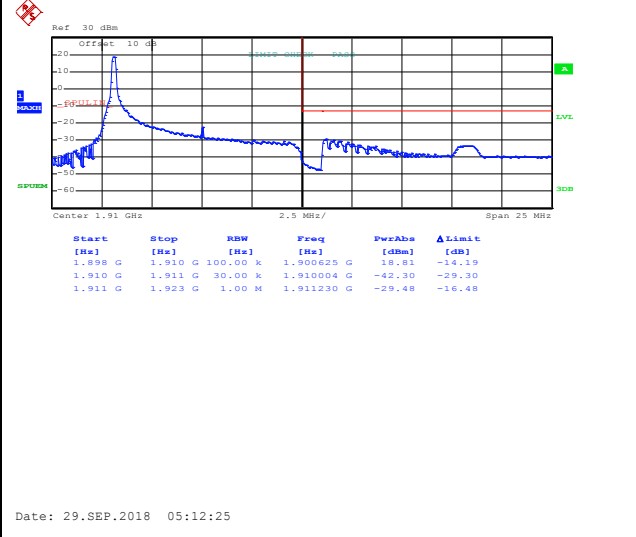
Date: 29.SEP.2018 05:10:07

Highest channel

LTE Band 2, BW: 10MHz 16QAM & RB Size 1



Lowest channel



Highest channel

16QAM & RB Size 50

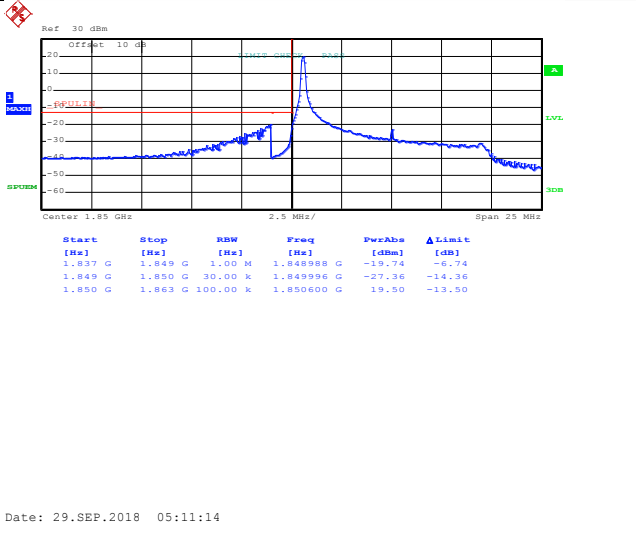


Lowest channel

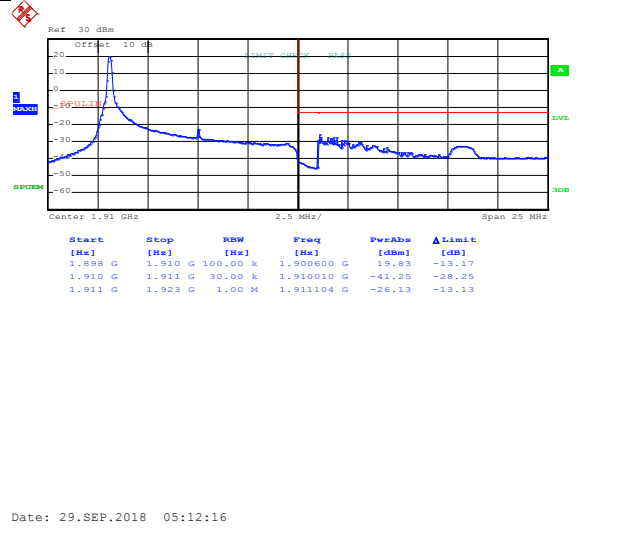


Highest channel

LTE Band 2, BW: 10MHz QPSK & RB Size 1

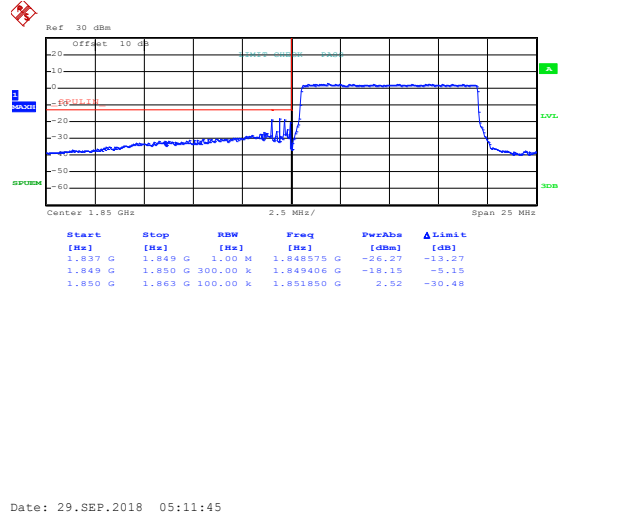


Lowest channel

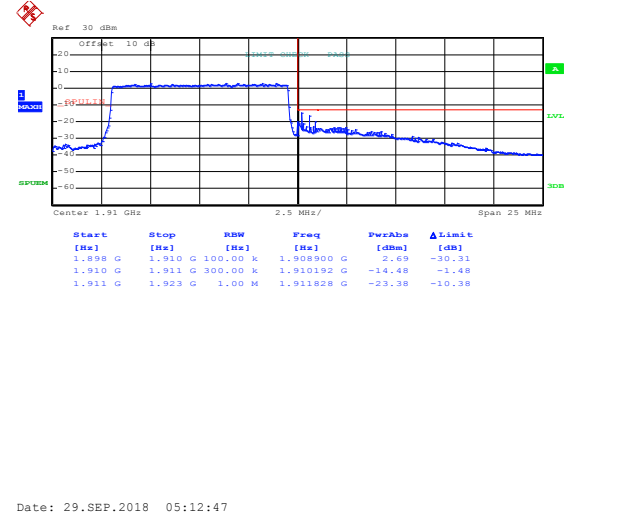


Highest channel

QPSK & RB Size 50

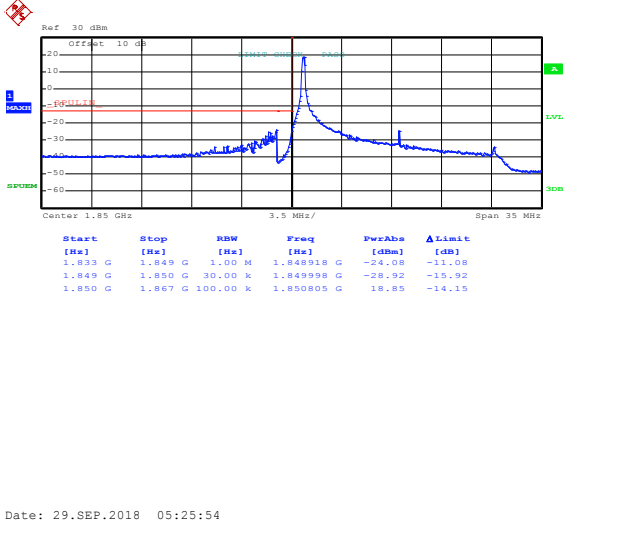


Lowest channel

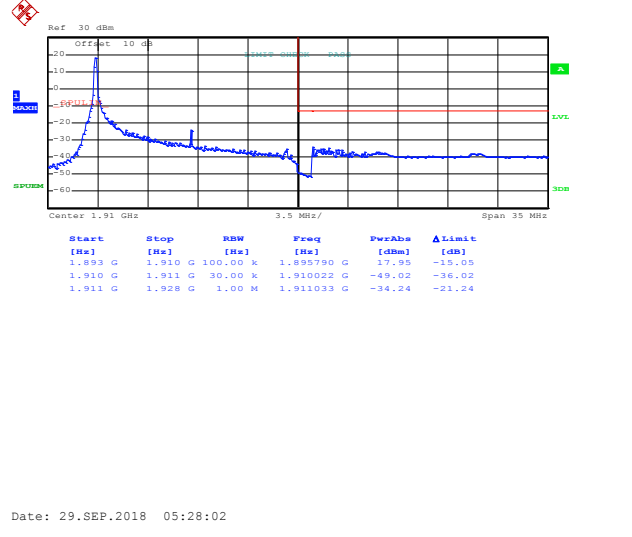


Highest channel

LTE Band 2, BW: 15MHz 16QAM & RB Size 1

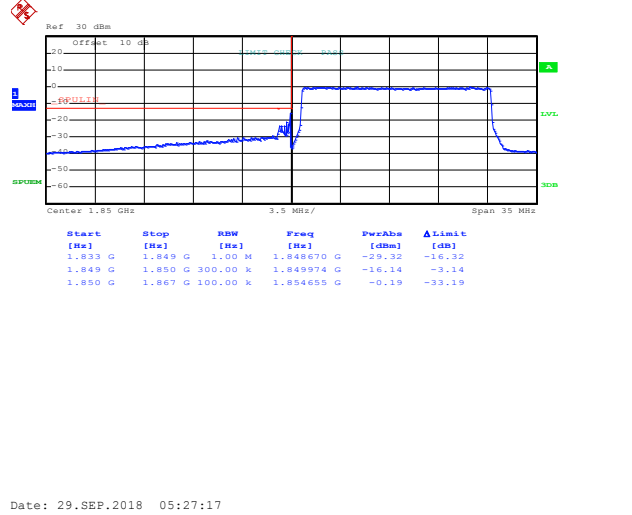


Lowest channel



Highest channel

16QAM & RB Size 75

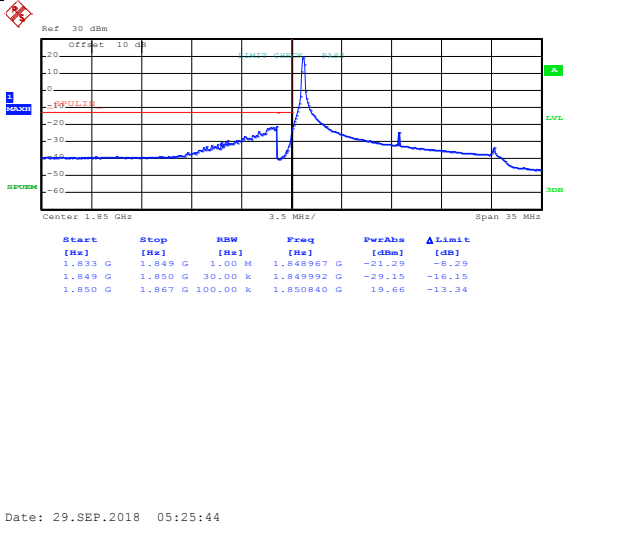


Lowest channel

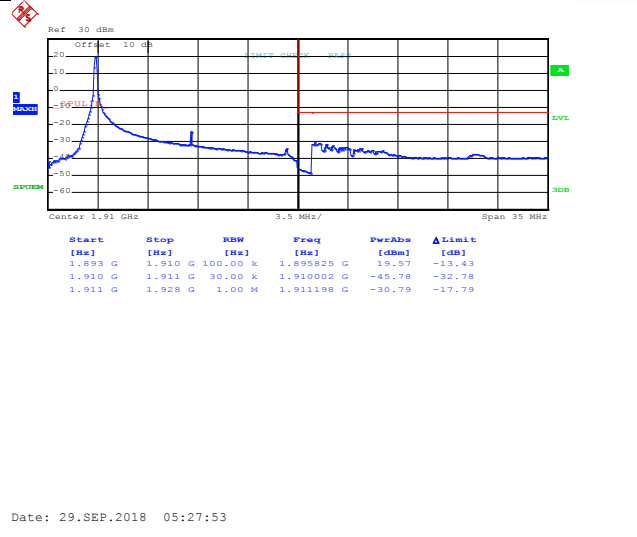


Highest channel

LTE Band 2, BW: 15MHz QPSK & RB Size 1

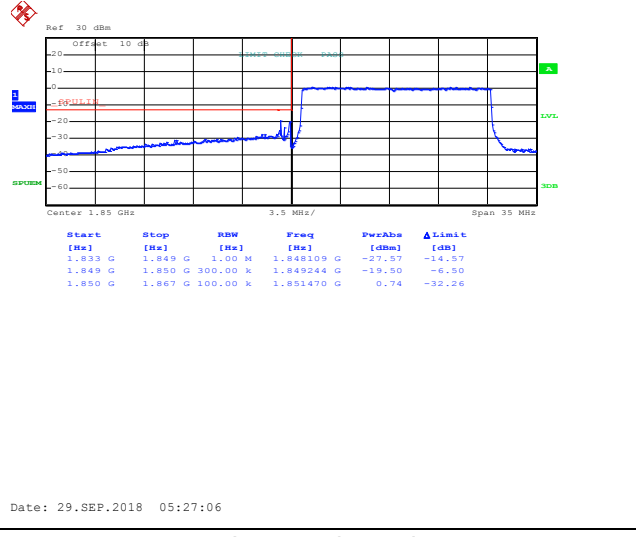


Lowest channel

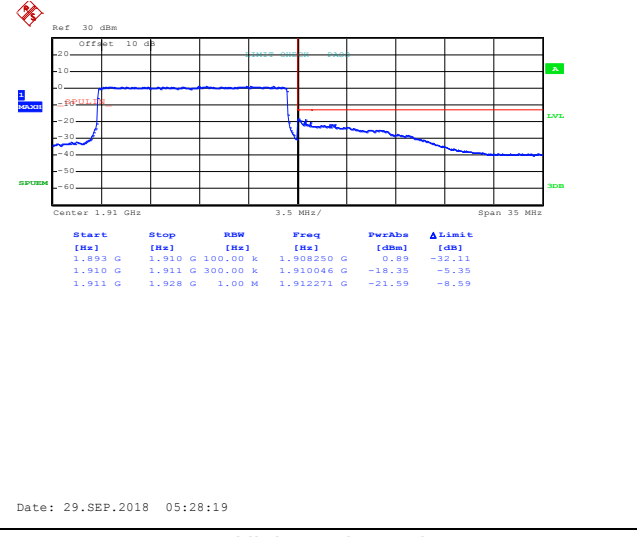


Highest channel

QPSK & RB Size 75

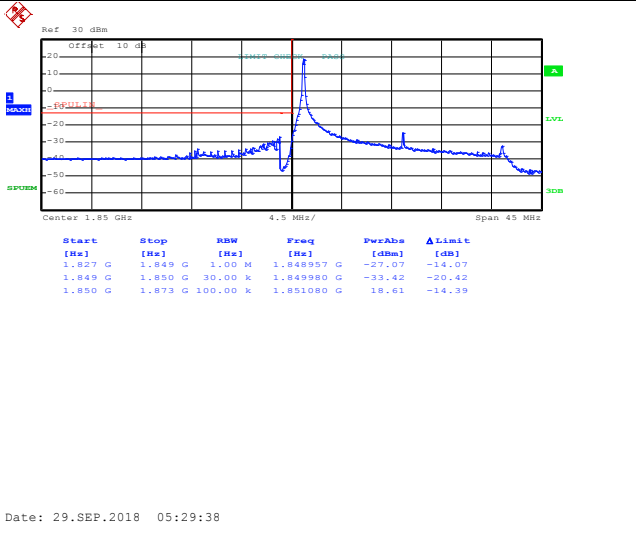


Lowest channel

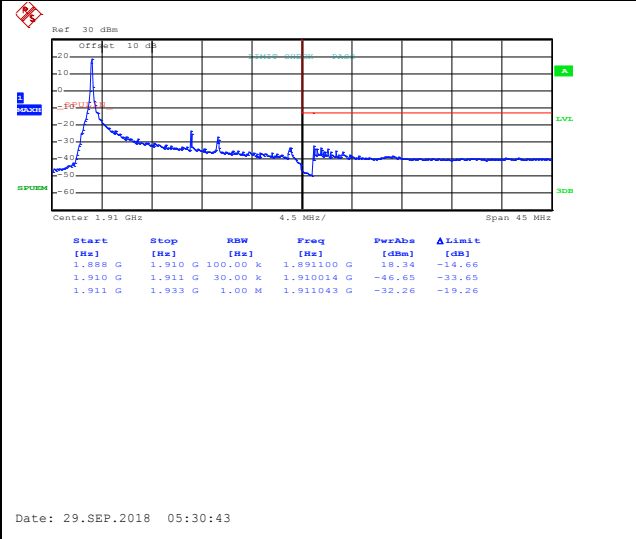


Highest channel

LTE Band 2, BW: 20MHz 16QAM & RB Size 1

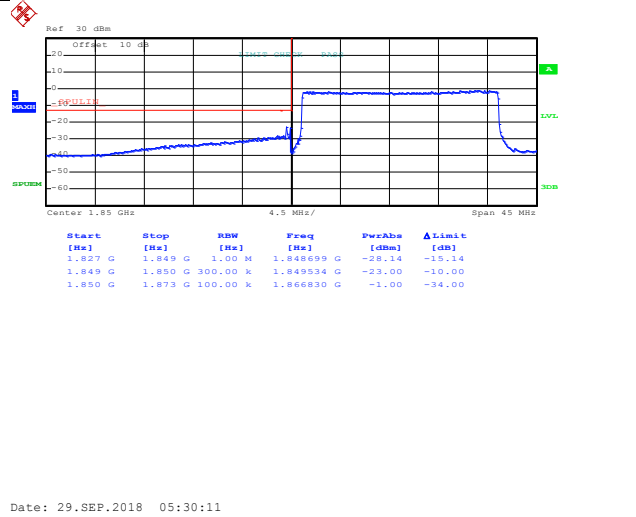


Lowest channel

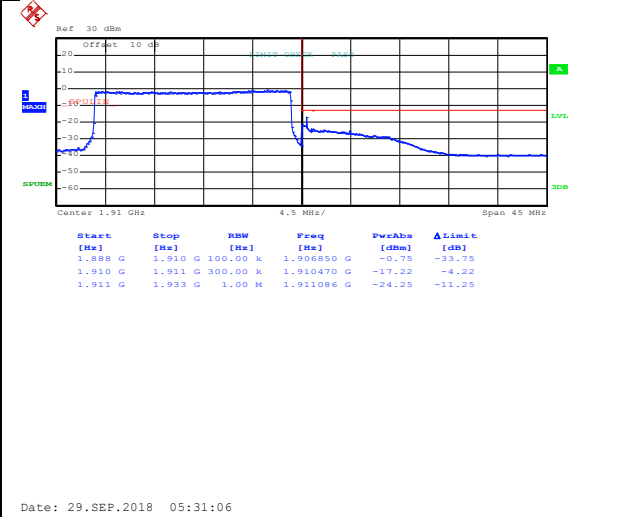


Highest channel

16QAM & RB Size 100

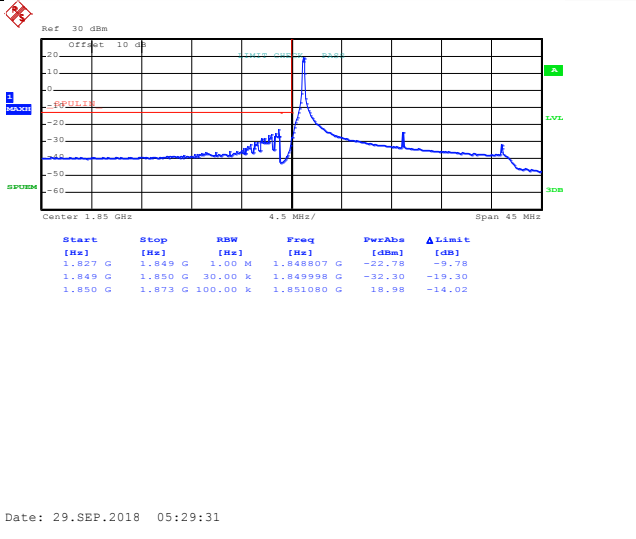


Lowest channel



Highest channel

LTE Band 2, BW: 20MHz QPSK & RB Size 1

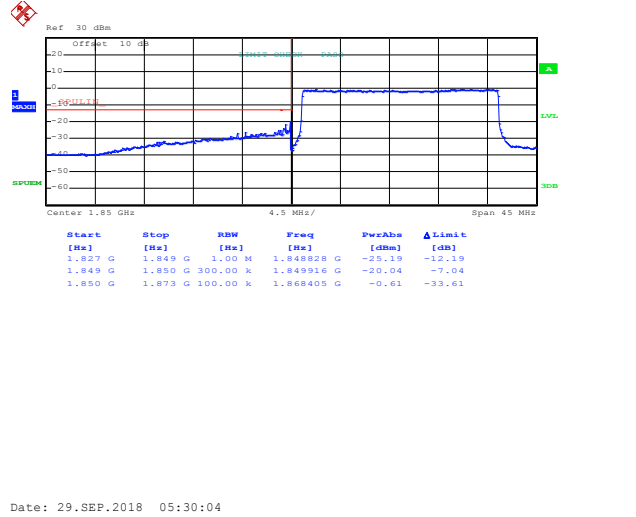


Lowest channel

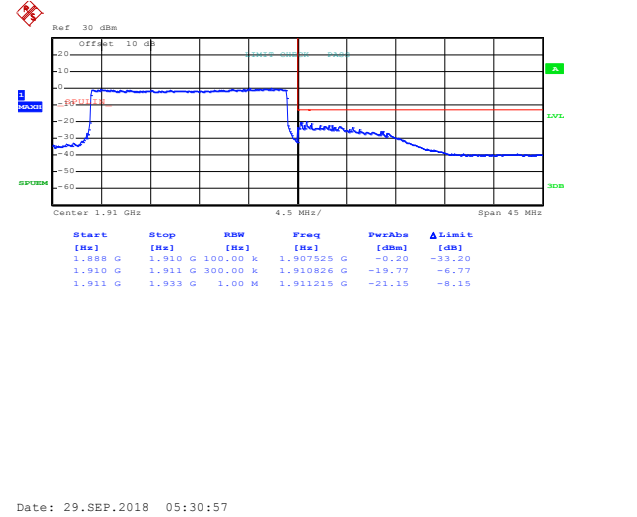


Highest channel

QPSK & RB Size 100



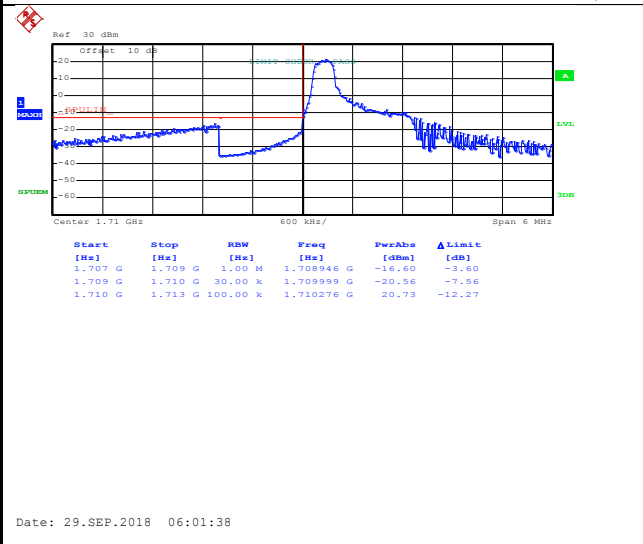
Lowest channel



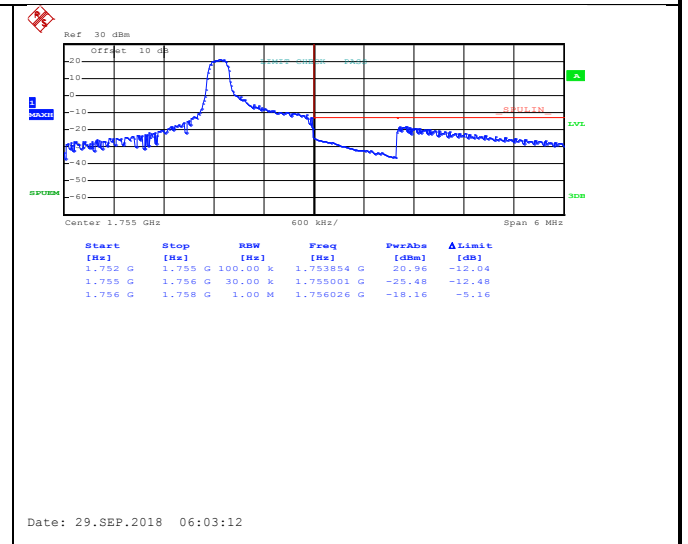
Highest channel

LTE Band 4 part:

LTE Band 4, BW: 1.4MHz
16QAM & RB Size 1

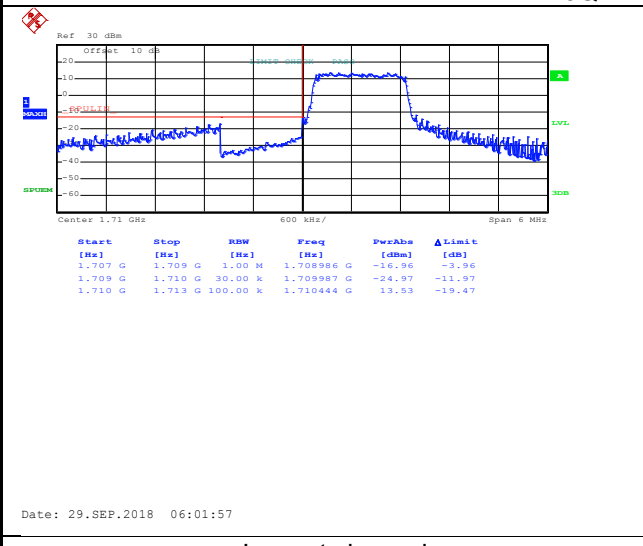


Lowest channel

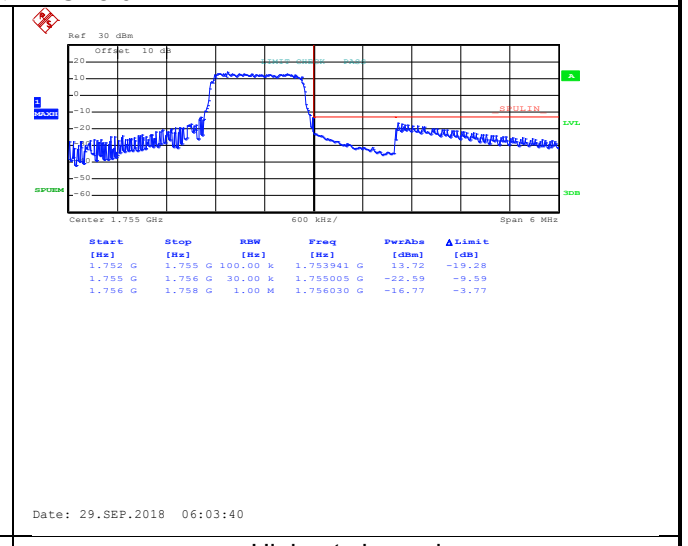


Highest channel

16QAM & RB Size 6

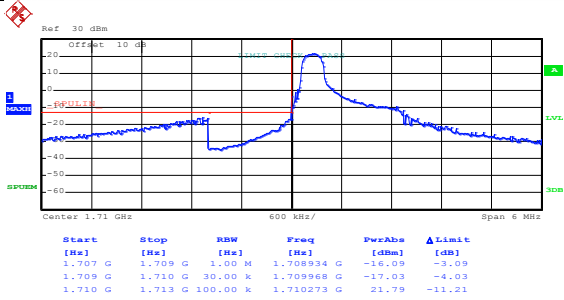


Lowest channel



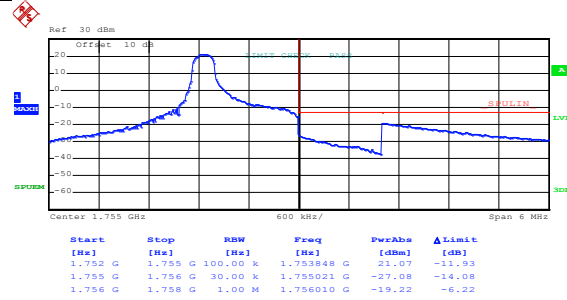
Highest channel

LTE Band 4, BW: 1.4MHz QPSK & RB Size 1



Date: 29.SEP.2018 06:01:24

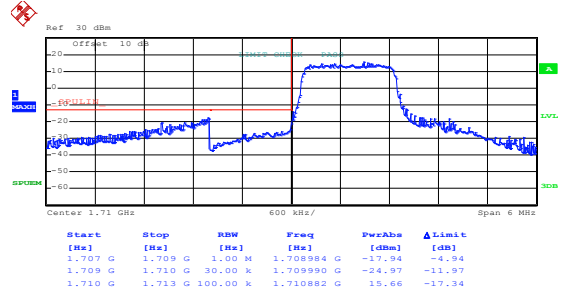
Lowest channel



Date: 29.SEP.2018 06:03:00

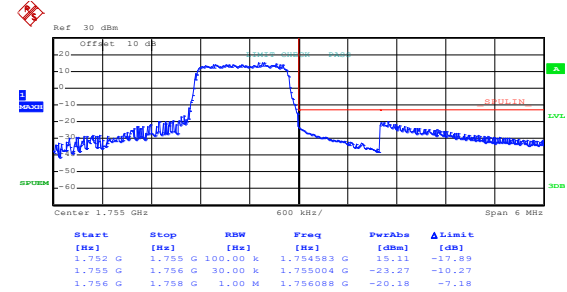
Highest channel

QPSK & RB Size 6



Date: 29.SEP.2018 06:01:49

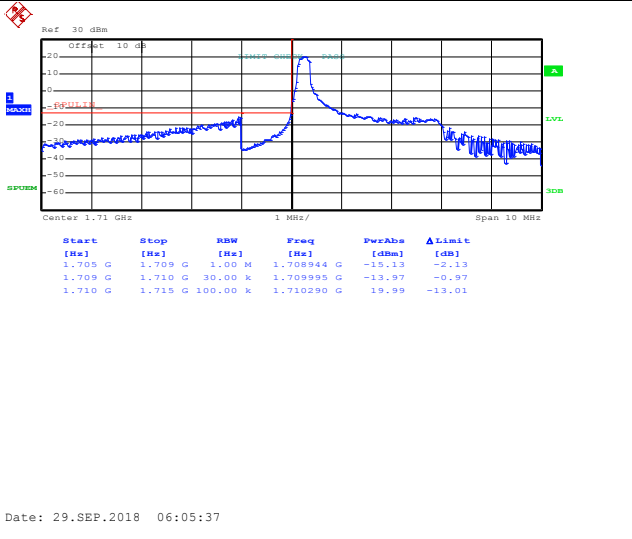
Lowest channel



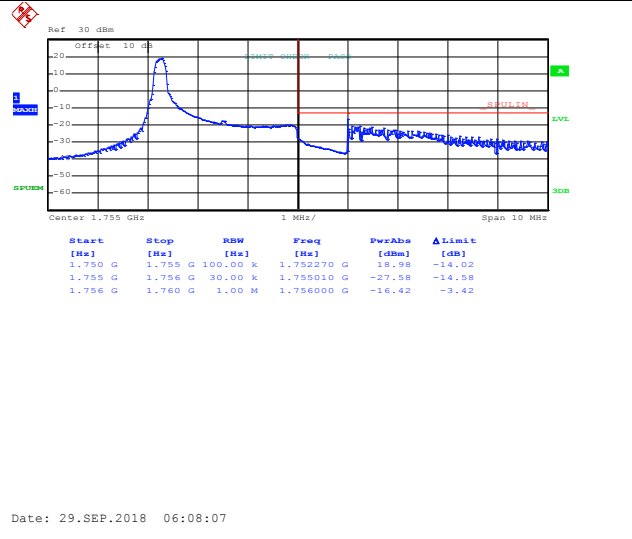
Date: 29.SEP.2018 06:03:30

Highest channel

LTE Band 4, BW: 3MHz 16QAM & RB Size 1

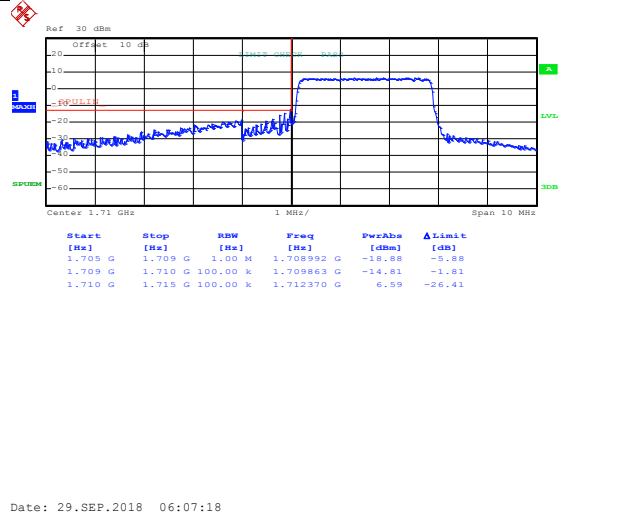


Lowest channel



Highest channel

16QAM & RB Size 15

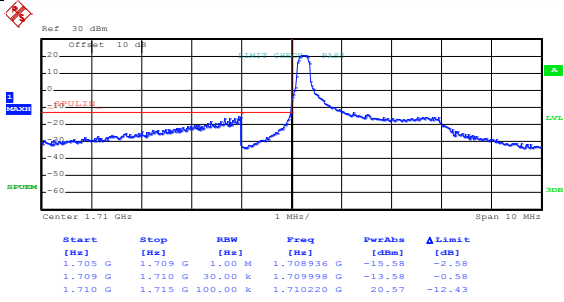


Lowest channel



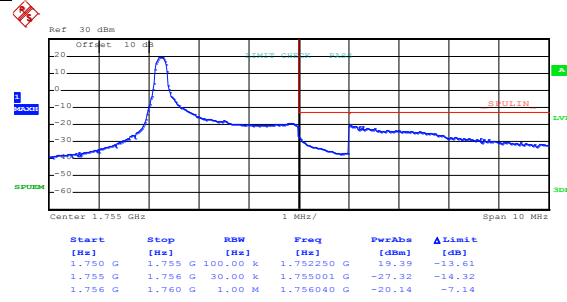
Highest channel

LTE Band 4, BW: 3MHz QPSK & RB Size 1



Date: 29.SEP.2018 06:05:28

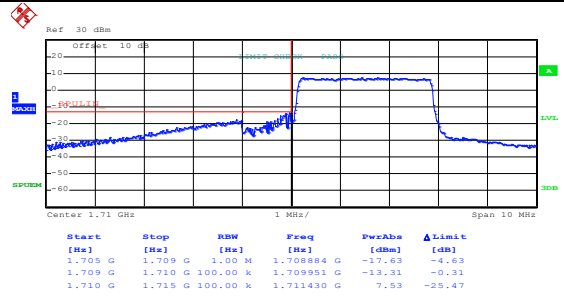
Lowest channel



Date: 29.SEP.2018 06:07:57

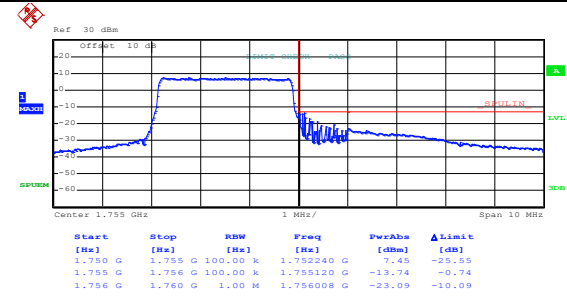
Highest channel

QPSK & RB Size 15



Date: 29.SEP.2018 06:07:02

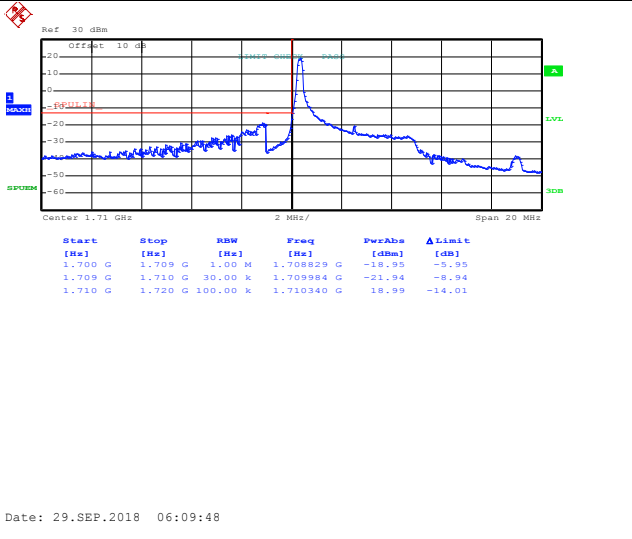
Lowest channel



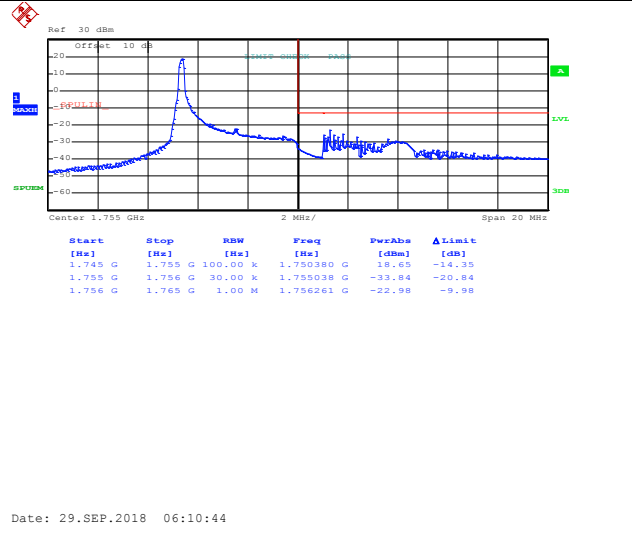
Date: 29.SEP.2018 06:08:31

Highest channel

LTE Band 4, BW: 5MHz 16QAM & RB Size 1

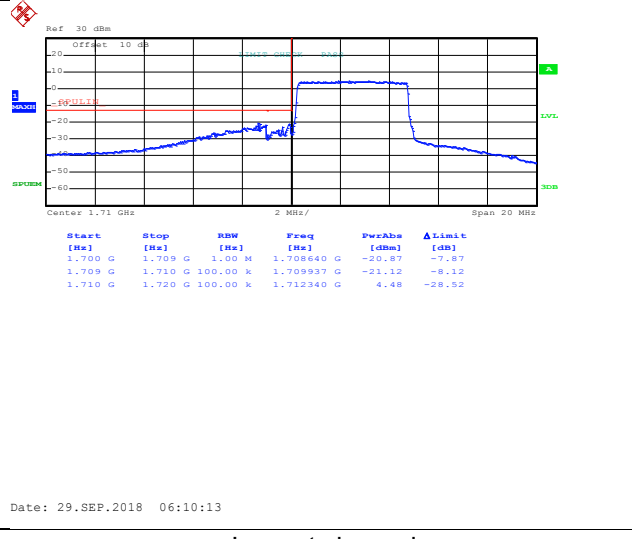


Lowest channel



Highest channel

16QAM & RB Size 25

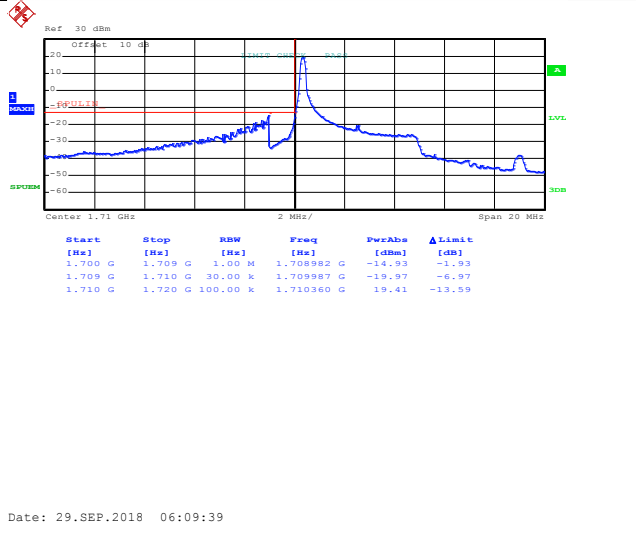


Lowest channel

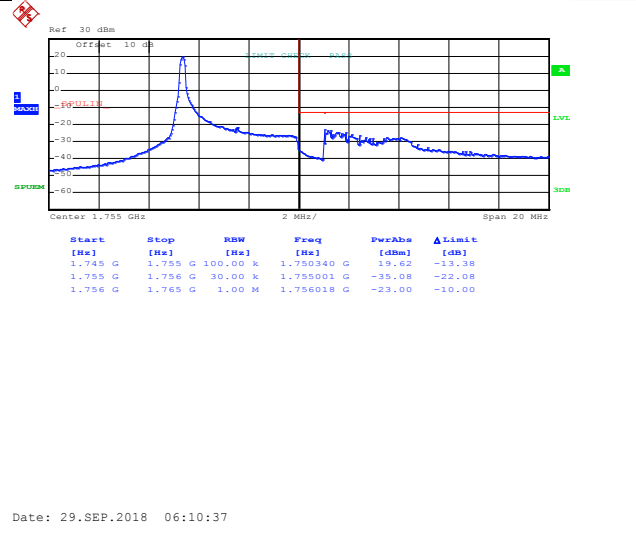


Highest channel

LTE Band 4, BW: 5MHz QPSK & RB Size 1

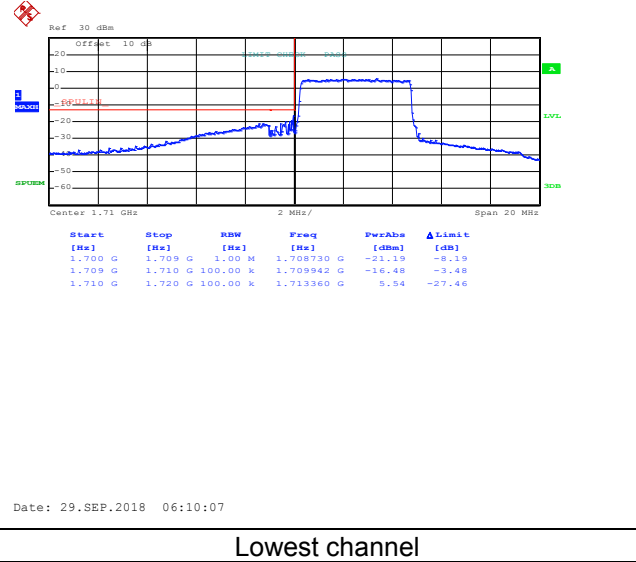


Lowest channel

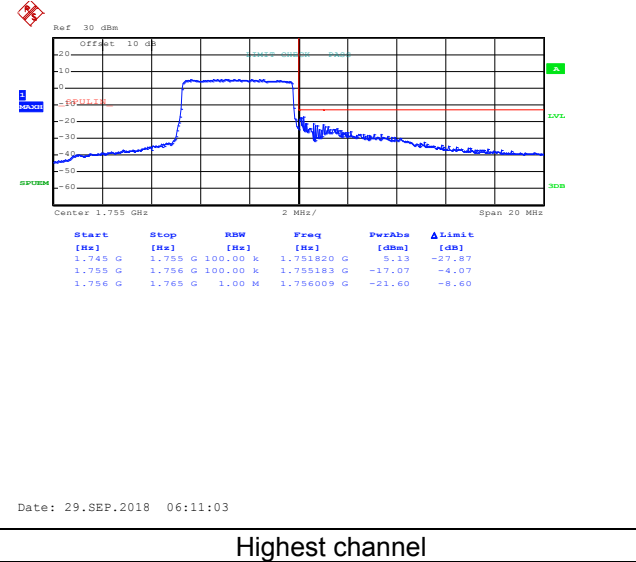


Highest channel

QPSK & RB Size 25

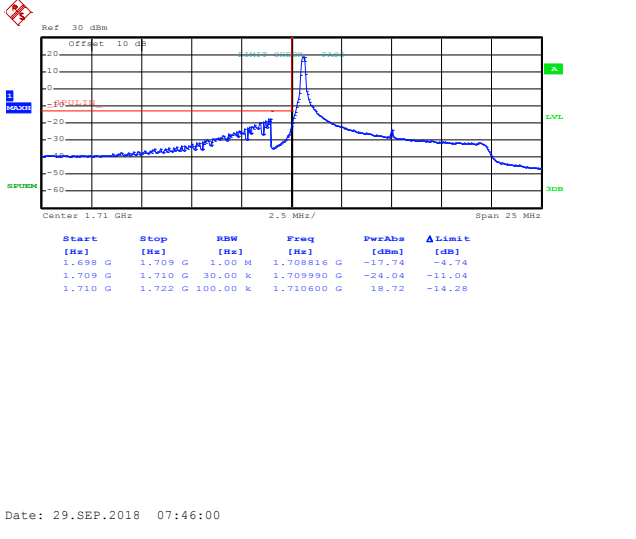


Lowest channel

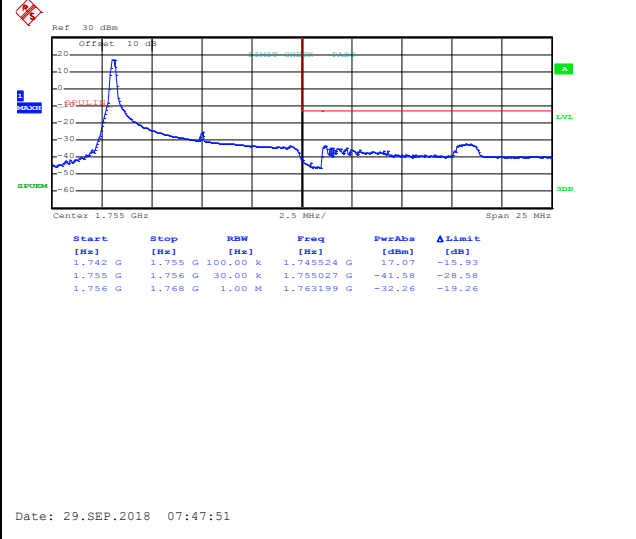


Highest channel

LTE Band 4, BW: 10MHz 16QAM & RB Size 1

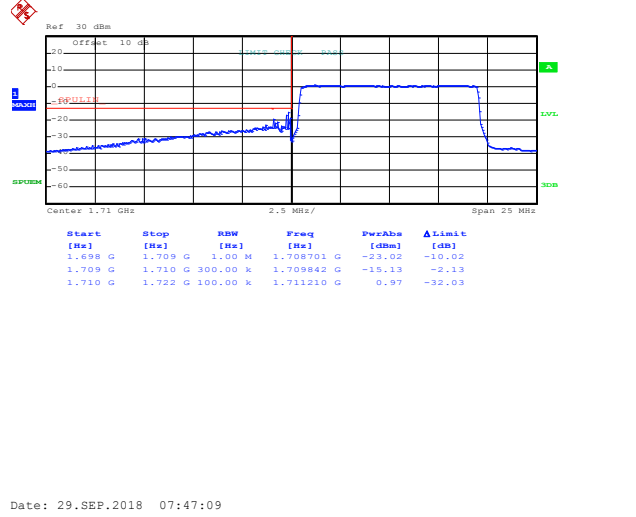


Lowest channel



Highest channel

16QAM & RB Size 50

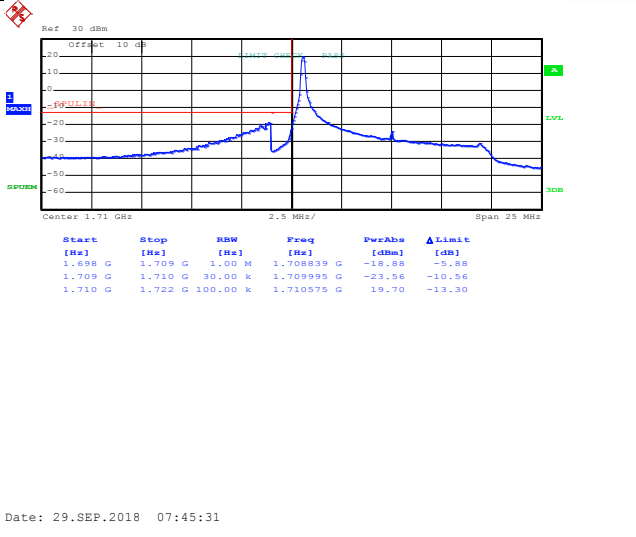


Lowest channel

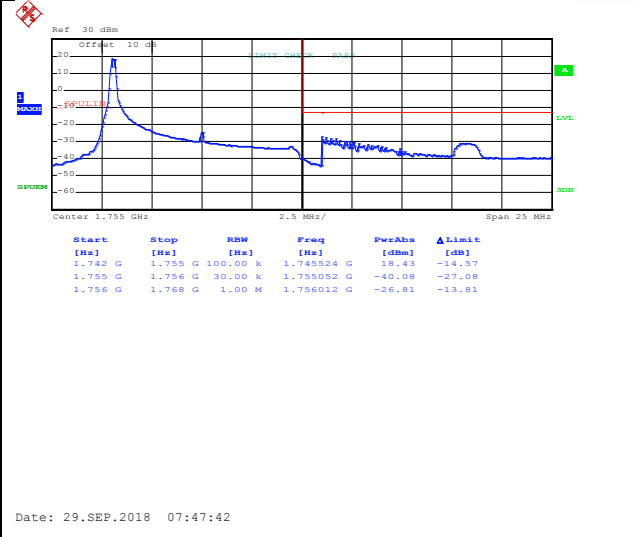


Highest channel

LTE Band 4, BW: 10MHz QPSK & RB Size 1

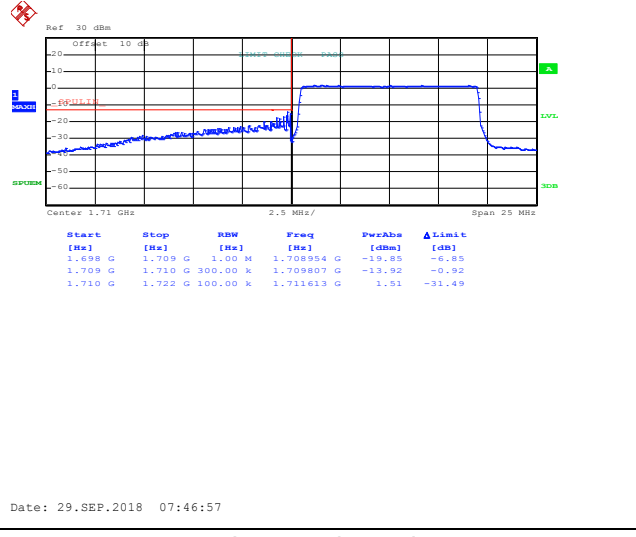


Lowest channel

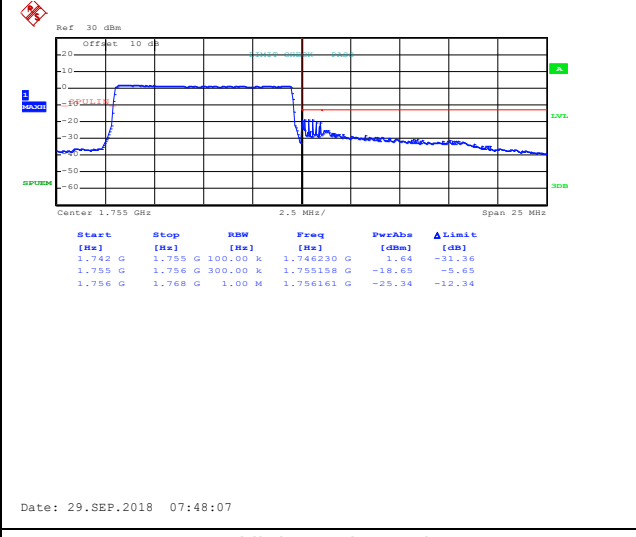


Highest channel

QPSK & RB Size 50

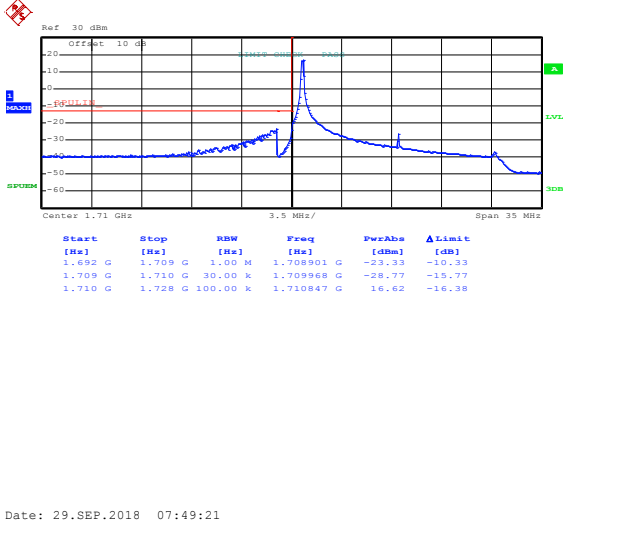


Lowest channel

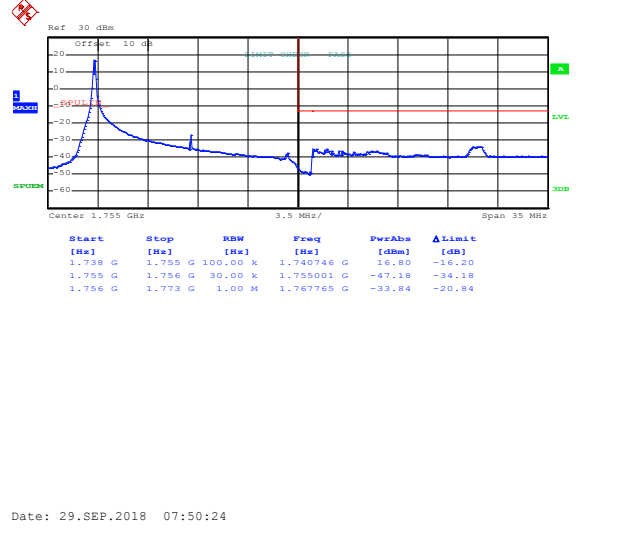


Highest channel

LTE Band 4, BW: 15MHz 16QAM & RB Size 1

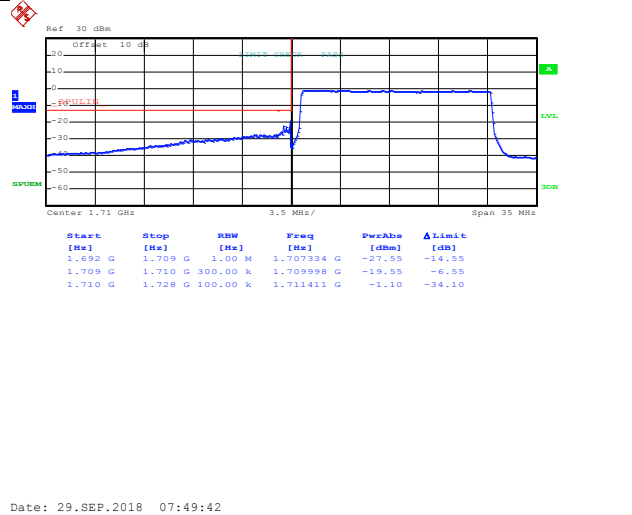


Lowest channel



Highest channel

16QAM & RB Size 75

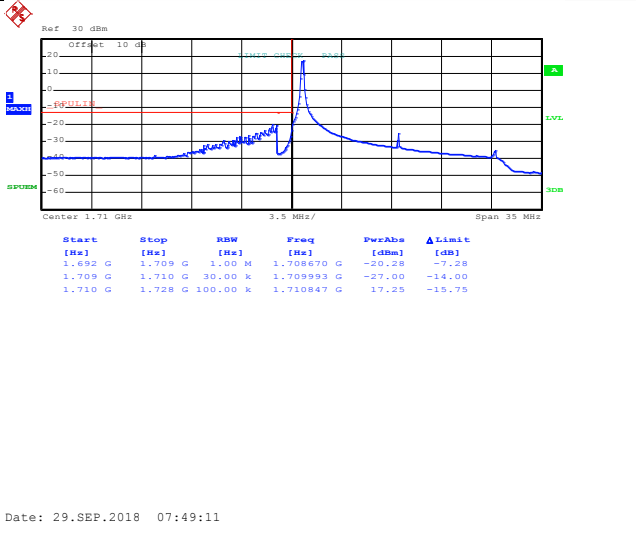


Lowest channel

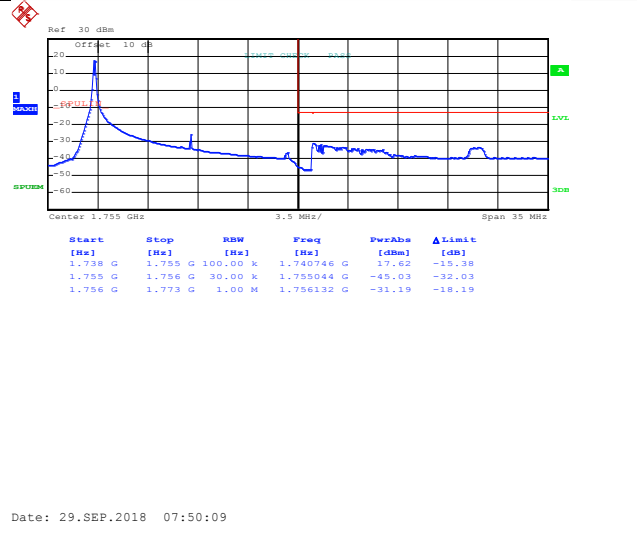


Highest channel

LTE Band 4, BW: 15MHz QPSK & RB Size 1

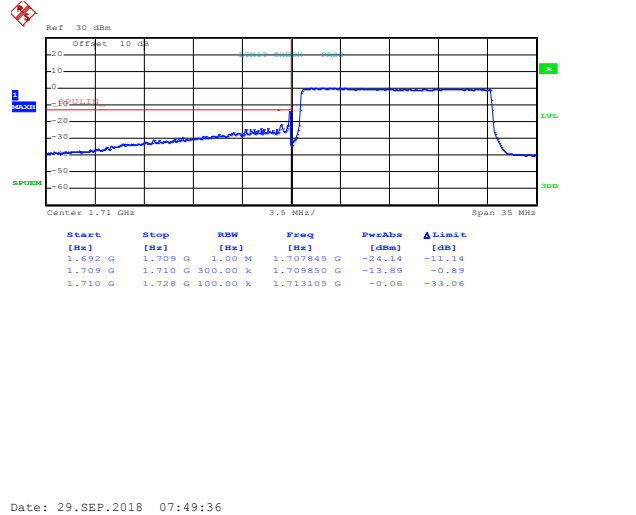


Lowest channel

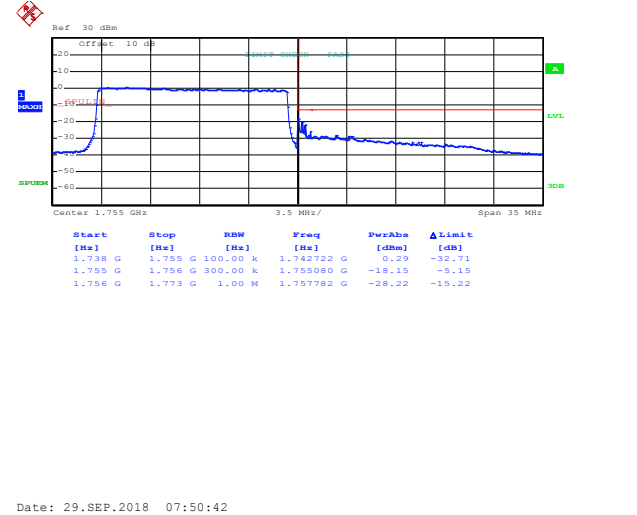


Highest channel

QPSK & RB Size 75

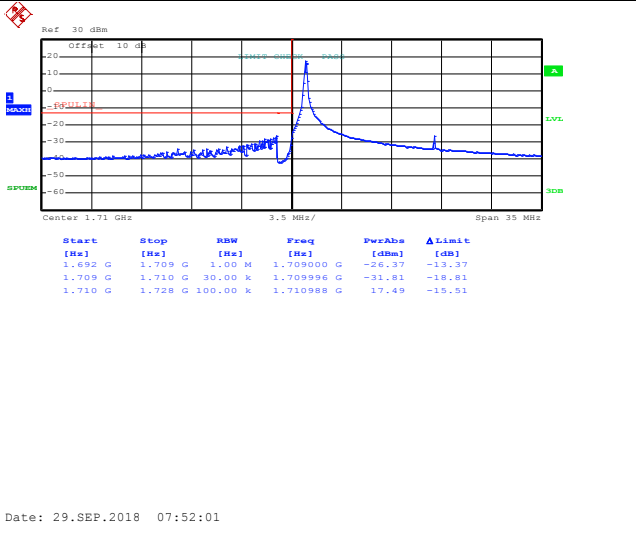


Lowest channel

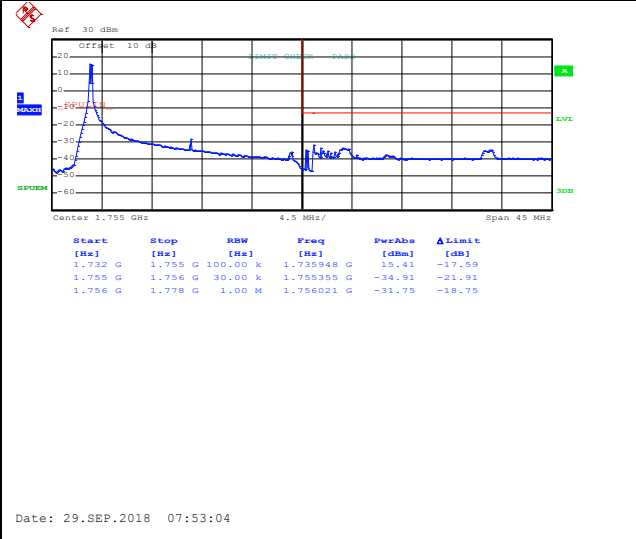


Highest channel

LTE Band 4, BW: 20MHz 16QAM & RB Size 1

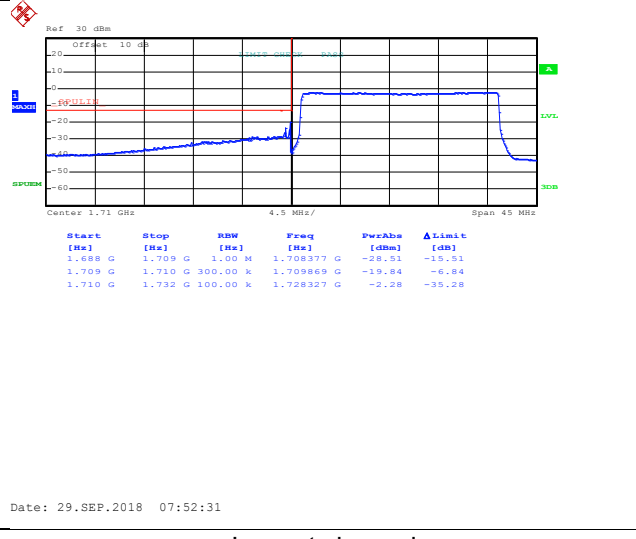


Lowest channel

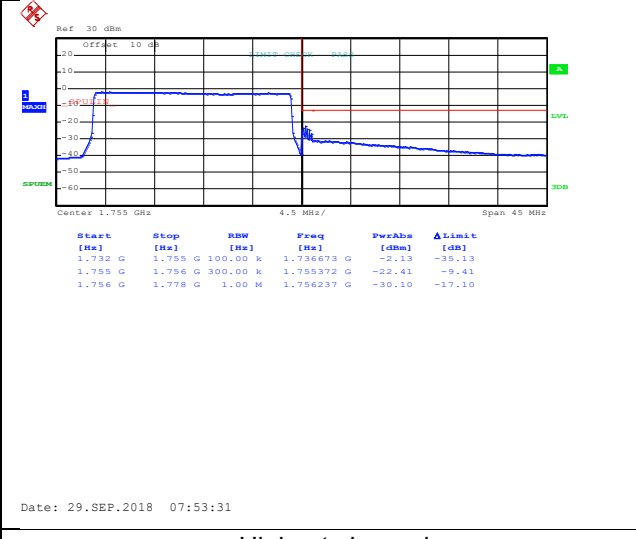


Highest channel

16QAM & RB Size 100

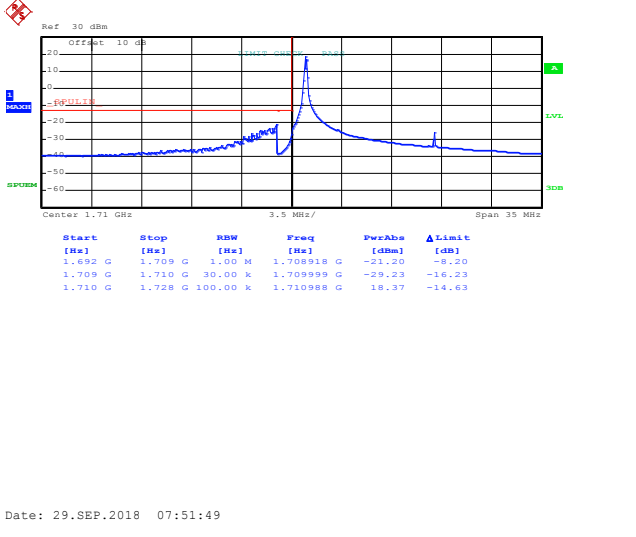


Lowest channel

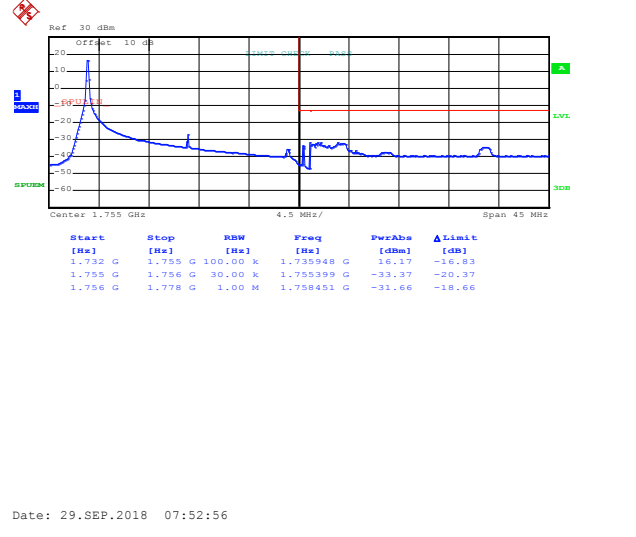


Highest channel

LTE Band 4, BW: 20MHz QPSK & RB Size 1

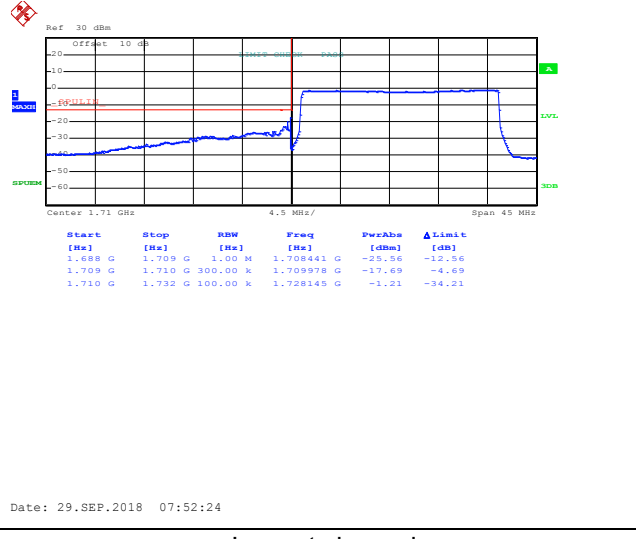


Lowest channel

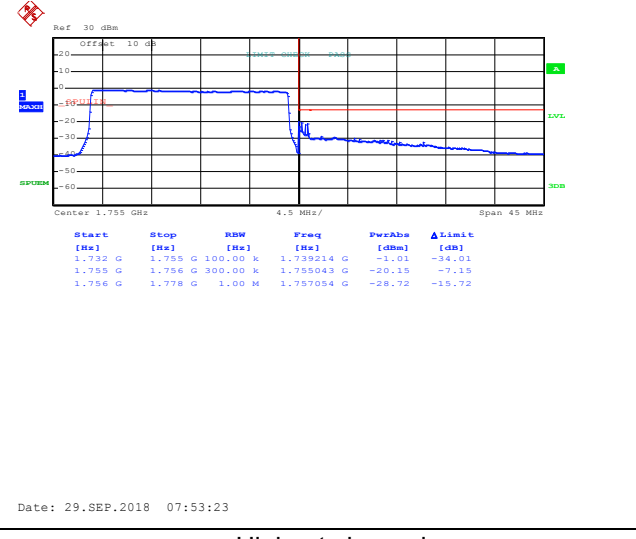


Highest channel

QPSK & RB Size 100



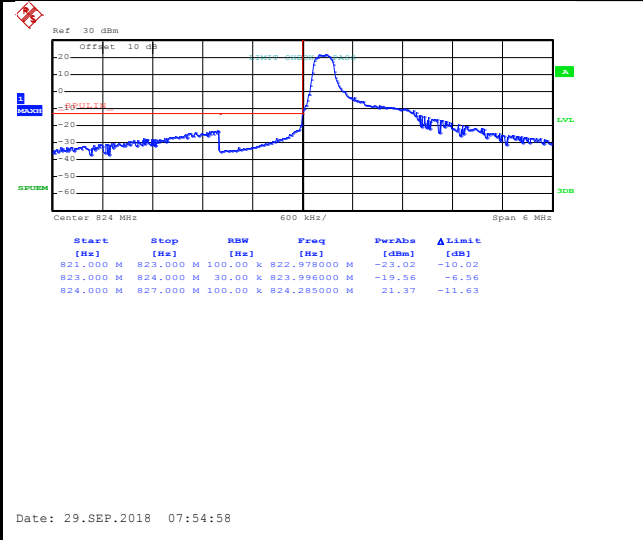
Lowest channel



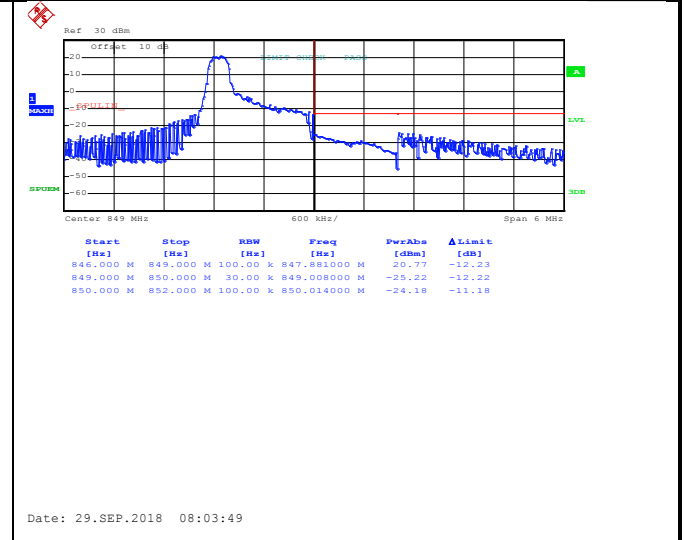
Highest channel

LTE Band 5 part:

LTE Band 5, BW: 1.4MHz
16QAM & RB Size 1

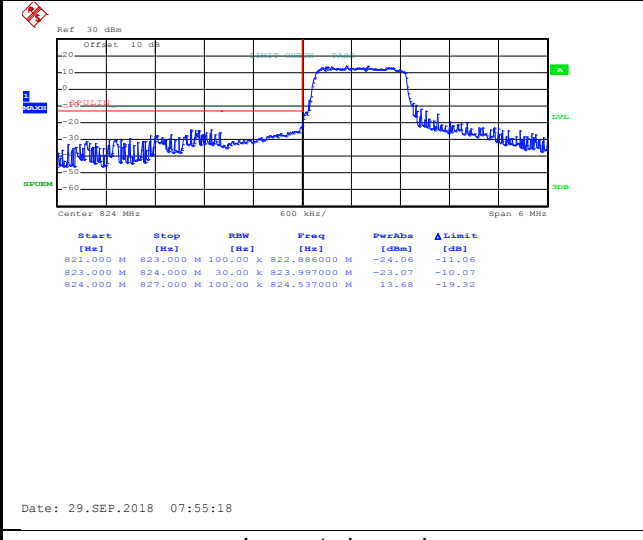


Lowest channel



Highest channel

16QAM & RB Size 6

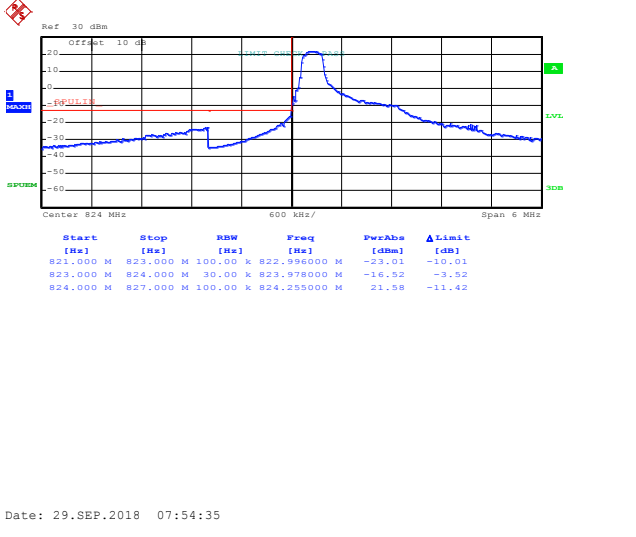


Lowest channel

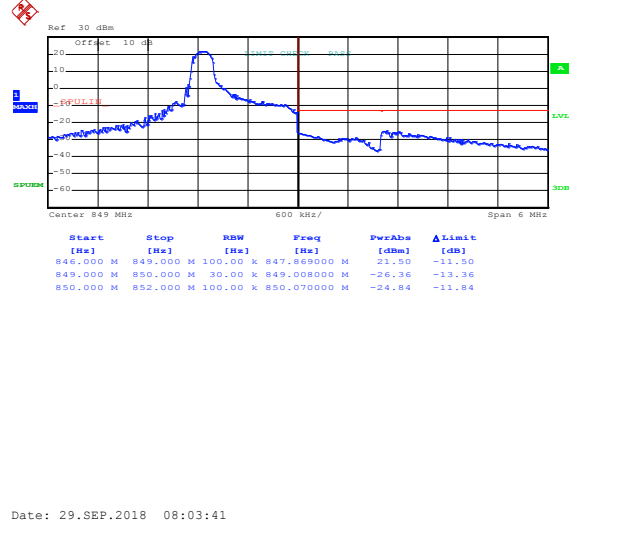


Highest channel

LTE Band 5, BW: 1.4MHz QPSK & RB Size 1

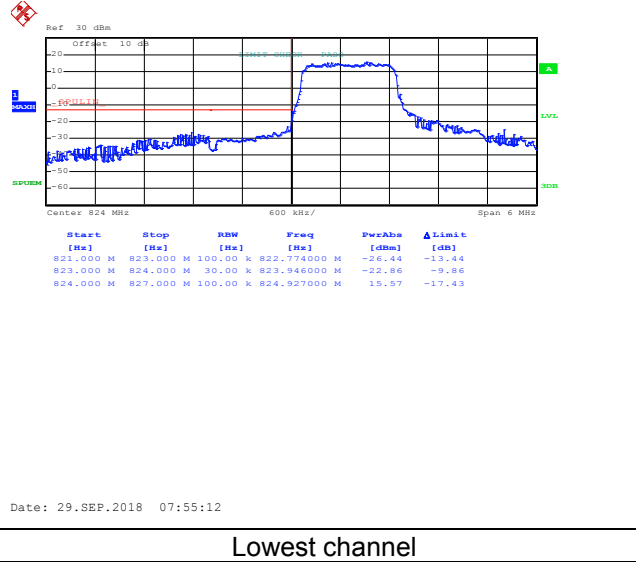


Lowest channel

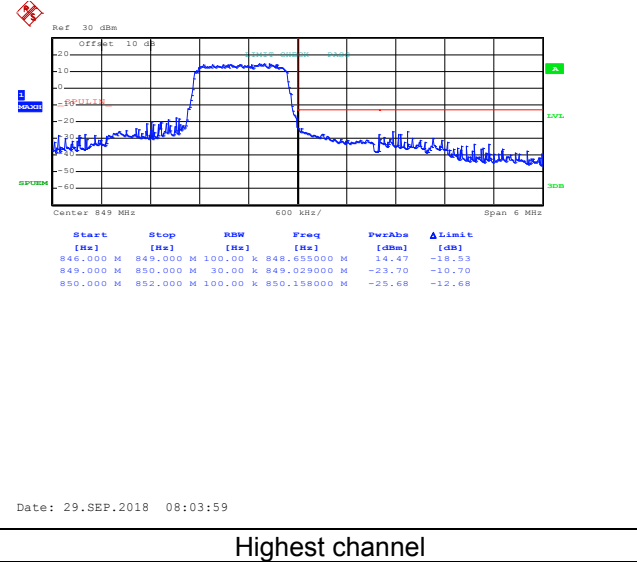


Highest channel

QPSK & RB Size 6



Lowest channel

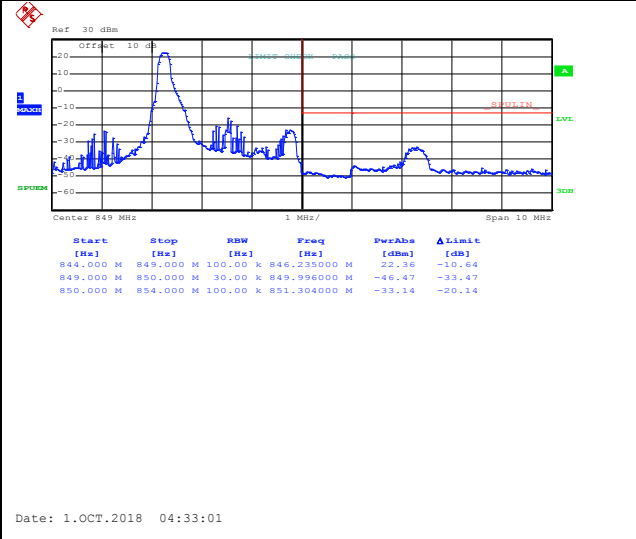


Highest channel

LTE Band 5, BW: 3MHz
16QAM & RB Size 1



Lowest channel

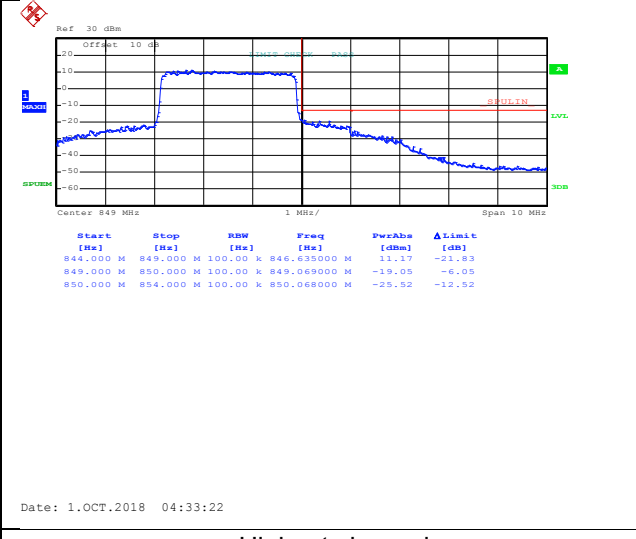


Highest channel

16QAM & RB Size 15



Lowest channel

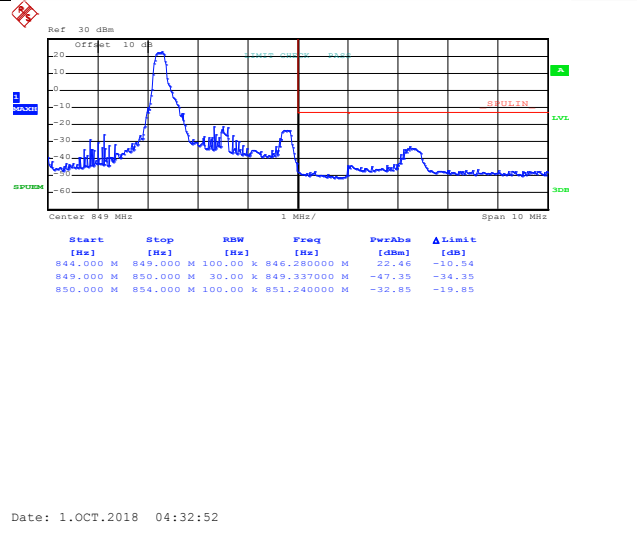


Highest channel

LTE Band 5, BW: 3MHz QPSK & RB Size 1

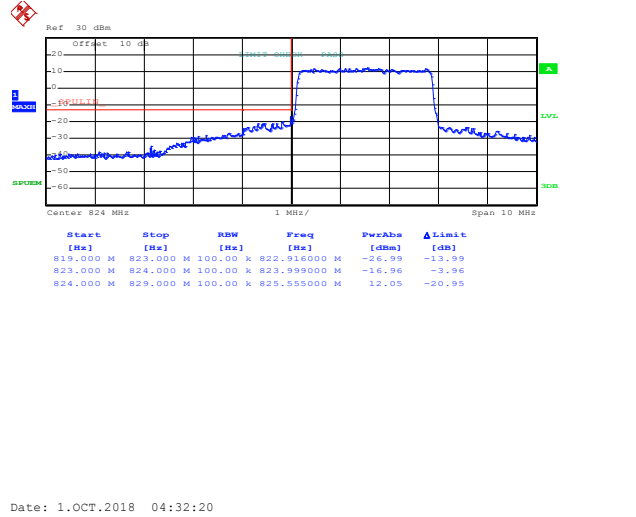


Lowest channel

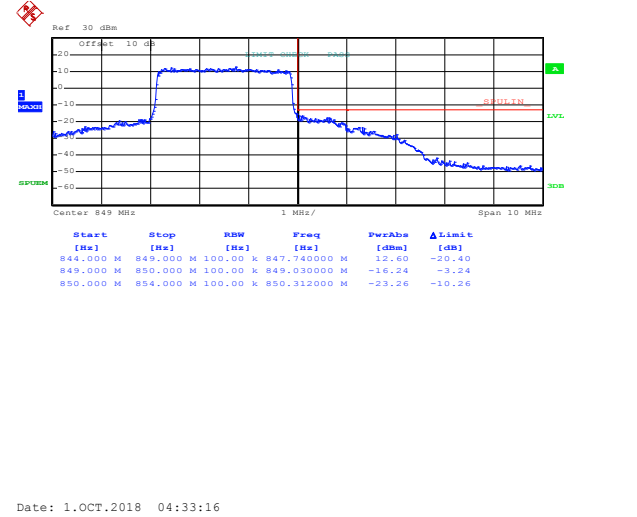


Highest channel

QPSK & RB Size 15



Lowest channel

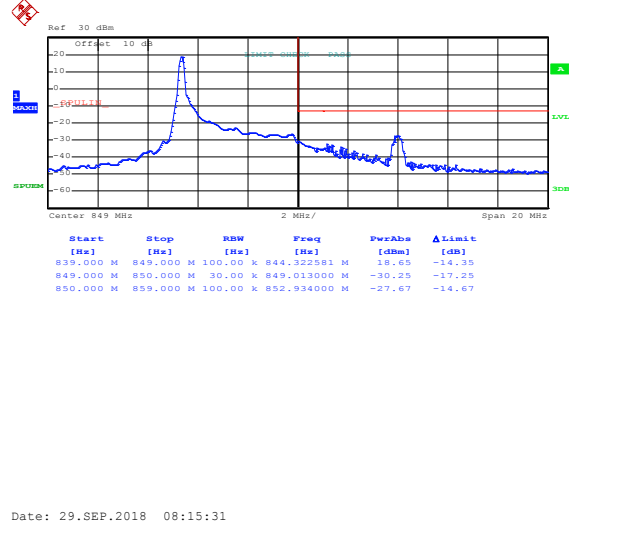


Highest channel

LTE Band 5, BW: 5MHz 16QAM & RB Size 1

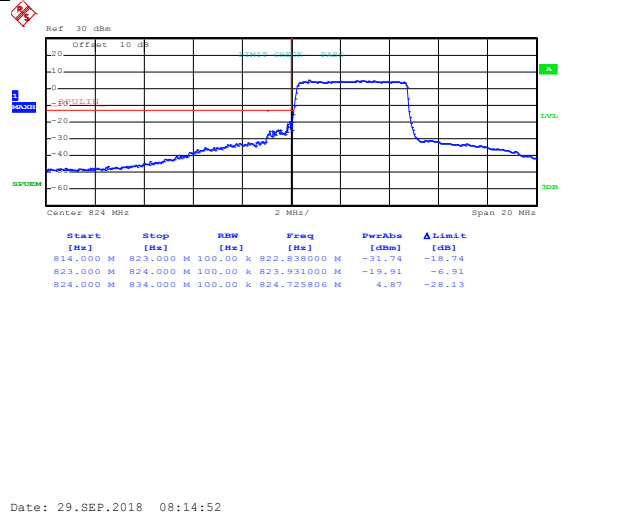


Lowest channel

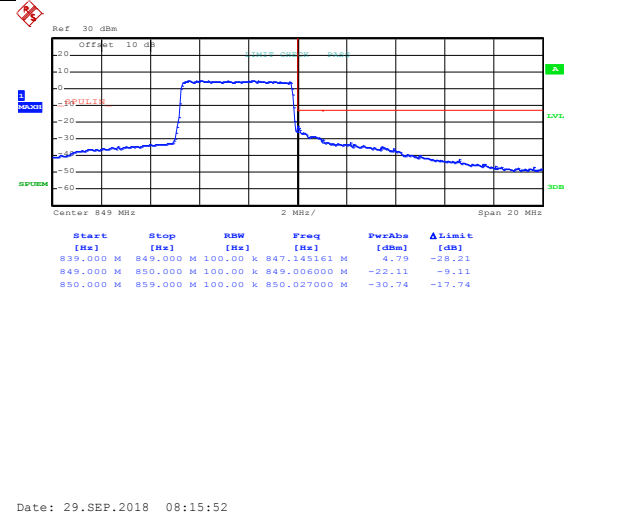


Highest channel

16QAM & RB Size 25

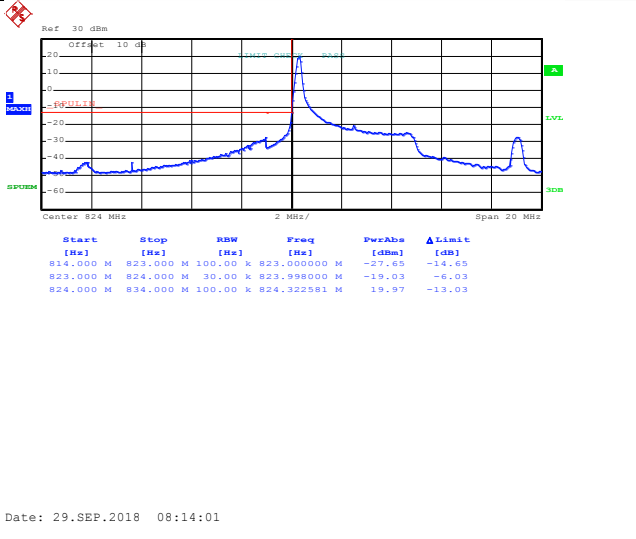


Lowest channel

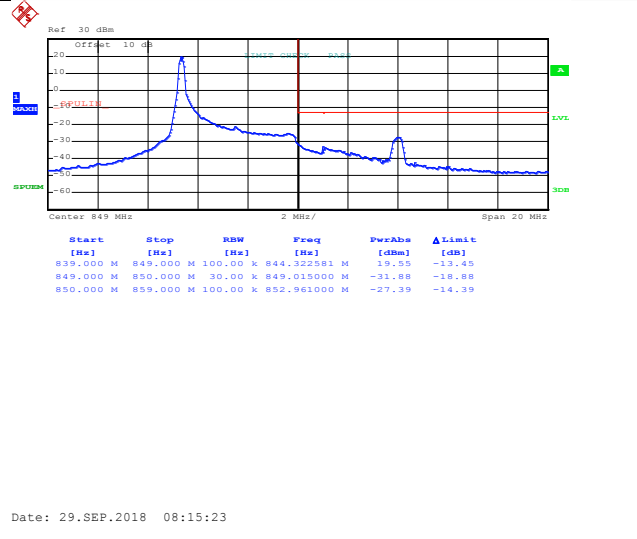


Highest channel

LTE Band 5, BW: 5MHz QPSK & RB Size 1

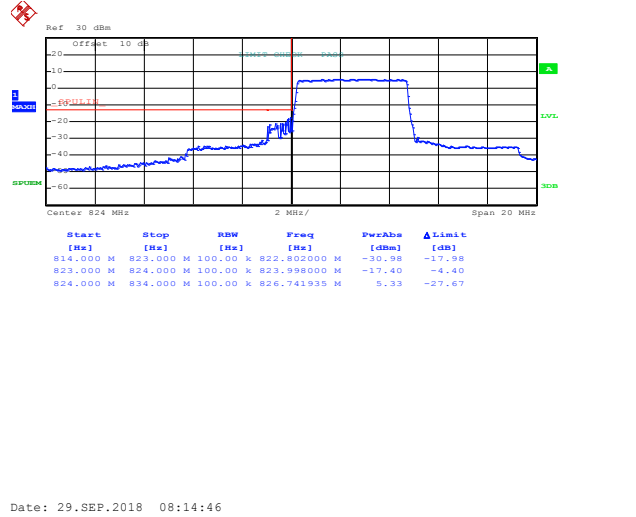


Lowest channel

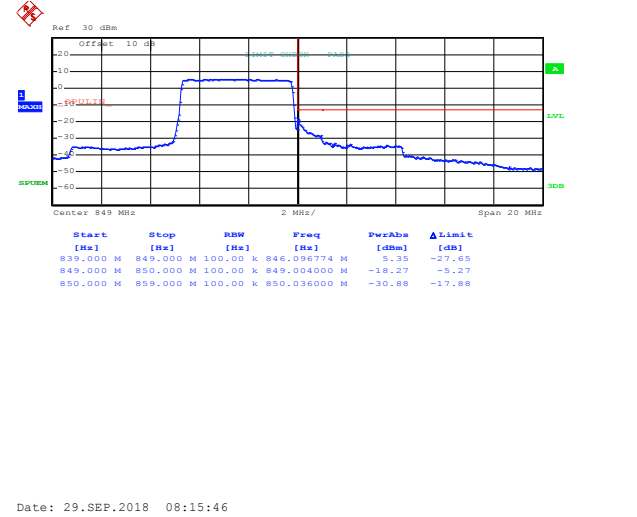


Highest channel

QPSK & RB Size 25

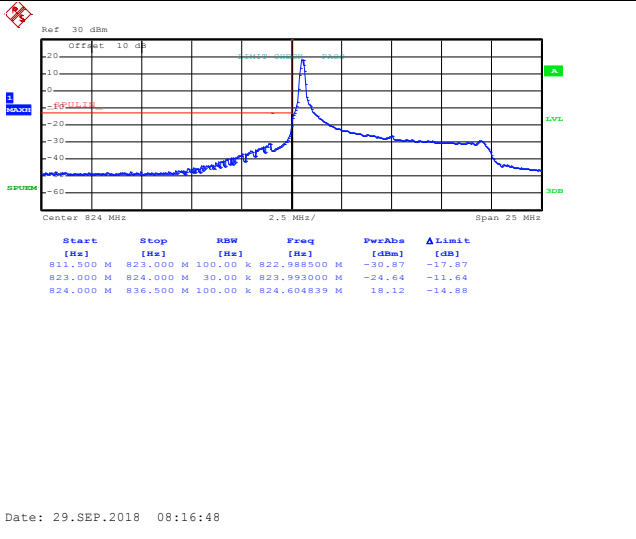


Lowest channel

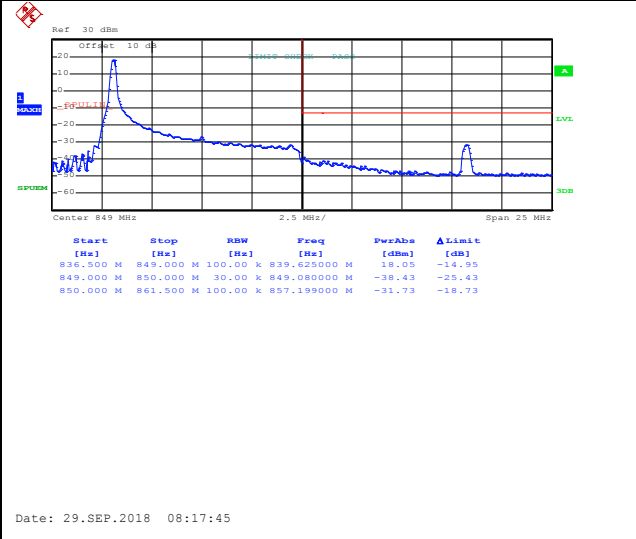


Highest channel

LTE Band 5, BW: 10MHz 16QAM & RB Size 1

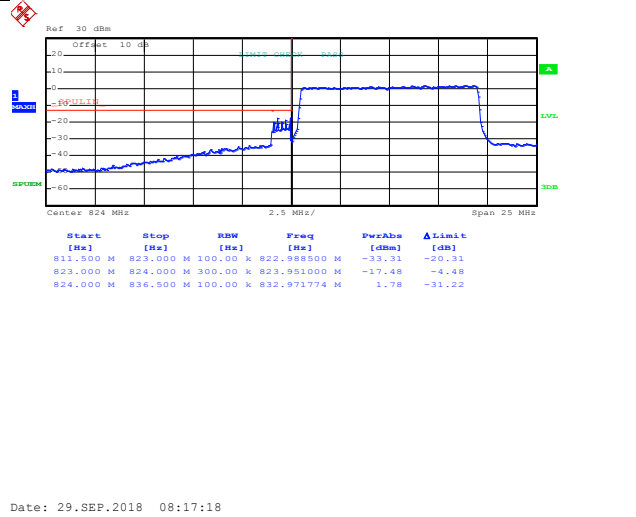


Lowest channel

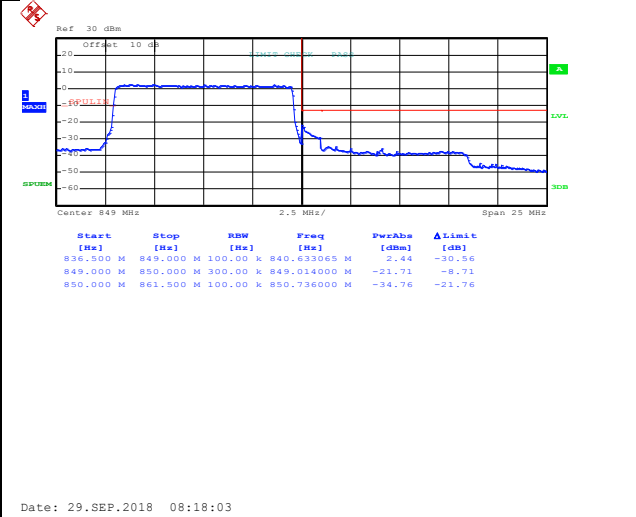


Highest channel

16QAM & RB Size 50

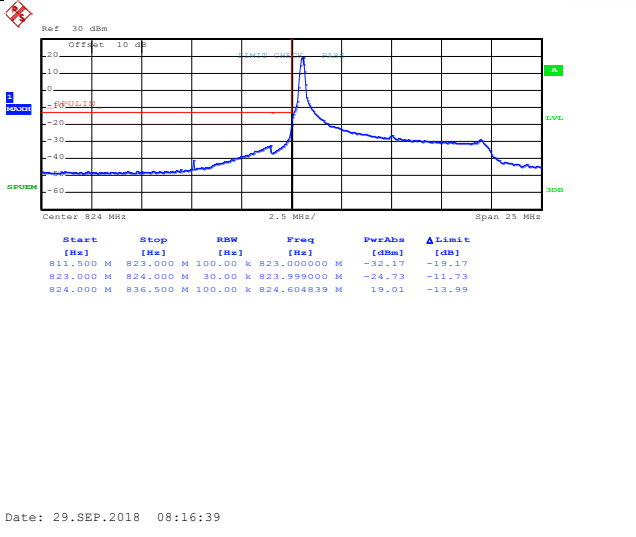


Lowest channel

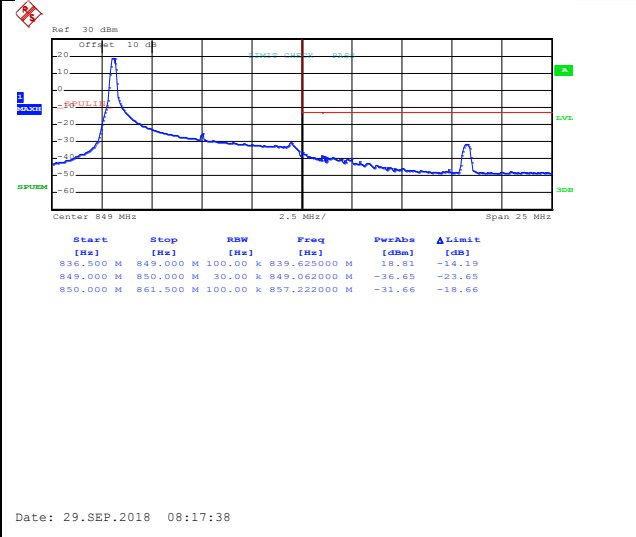


Highest channel

LTE Band 5, BW: 10MHz QPSK & RB Size 1

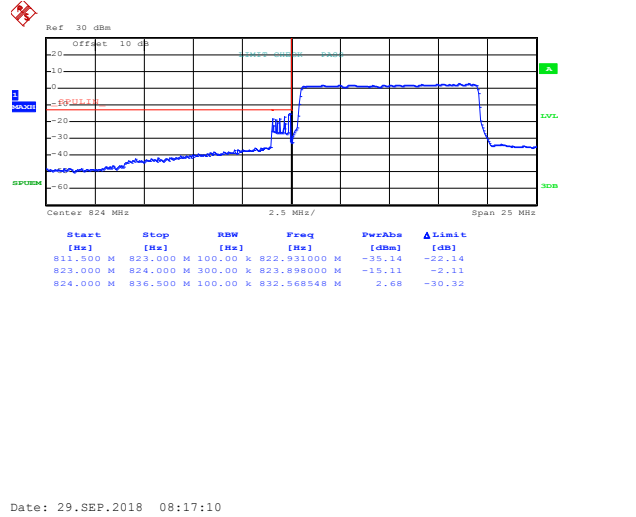


Lowest channel

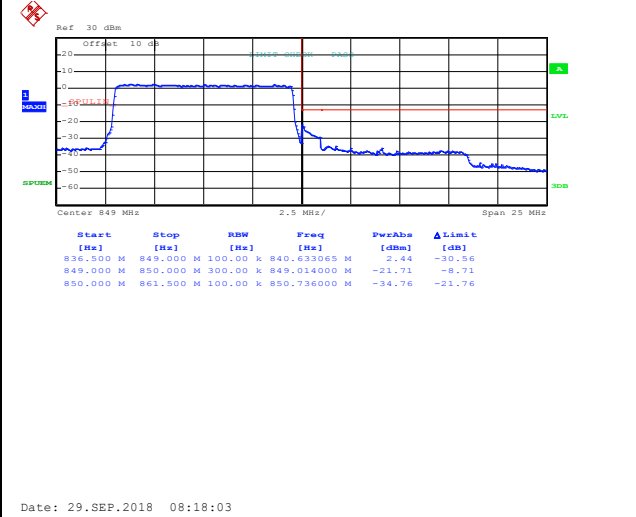


Highest channel

QPSK & RB Size 50

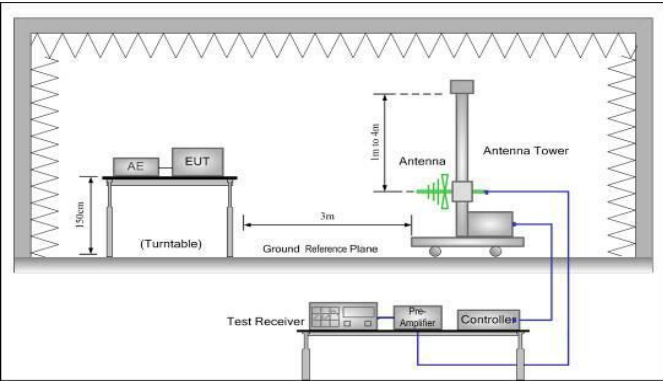
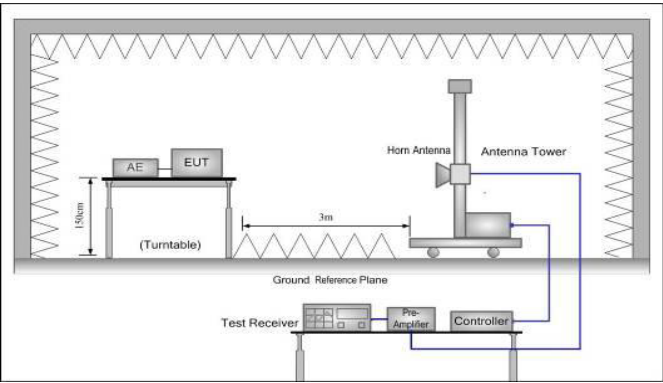


Lowest channel



Highest channel

6.5 Field strength of spurious radiation measurement

Test Requirement:	Part 22.917(b), Part 24.238 (a), Part 27.53(m).
Test Method:	ANSI/TIA-603-D 2010
Limit:	<p>LTE Band 2 & 4 & 5 : 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 (-13 dBm).</p> <p>LTE Band 7: 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 that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz.</p>
Test setup:	<p>Below 1GHz</p>  <p>Above 1GHz</p> 
Test Procedure:	<ol style="list-style-type: none"> 1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each

	<p>of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.</p> <p>4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. $ERP / EIRP = S.G. \text{ output (dBm) + Antenna Gain(dB/dBi) - Cable Loss (dB)}$</p>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed

Measurement Data:

LTE Band 2 part:

LTE Band 2, WB: 1.4MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3701.40	Vertical	-46.72	-13.00	Pass
5552.10	V	-31.12		
7402.00	V	-37.48		
3701.40	Horizontal	-45.36		
5552.10	H	-19.92		
7402.00	H	-36.80		
Middle Channel				
3760.00	Vertical	-48.22	-13.00	Pass
5640.00	V	-28.75		
7520.00	V	-38.56		
3760.00	Horizontal	-50.70		
5640.00	H	-22.48		
7520.00	H	-37.31		
Highest Channel				
3816.60	Vertical	-44.68	-13.00	Pass
5724.90	V	-31.32		
7633.20	V	-38.56		
3816.60	Horizontal	-45.81		
5724.90	H	-26.73		
7633.20	H	-34.40		
<p>Note:</p> <ol style="list-style-type: none"> The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report. For above 1 GHz, all test modes were performed, and just the worst case shown in the report. 				

LTE Band 2, WB: 3MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3703.00	Vertical	-45.21	-13.00	Pass
5554.50	V	-29.56		
7406.00	V	-37.64		
3703.00	Horizontal	-49.11		
5554.50	H	-25.46		
7406.00	H	-37.62		
Middle Channel				
3760.00	Vertical	-52.02	-13.00	Pass
5640.00	V	-41.16		
7520.00	V	-36.62		
3760.00	Horizontal	-44.51		
5640.00	H	-39.87		
7520.00	H	-35.40		
Highest Channel				
3817.00	Vertical	-45.62	-13.00	Pass
5725.50	V	-42.25		
7634.00	V	-36.61		
3817.00	Horizontal	-49.75		
5725.50	H	-41.41		
7634.00	H	-36.45		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 2, WB: 5MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3705.00	Vertical	-45.36	-13.00	Pass
5557.50	V	-32.54		
7410.00	V	-38.67		
3705.00	Horizontal	-42.98		
5557.50	H	-18.54		
7410.00	H	-37.45		
Middle Channel				
3760.00	Vertical	-49.63	-13.00	Pass
5640.00	V	-27.94		
7520.00	V	-38.15		
3760.00	Horizontal	-49.61		
5640.00	H	-21.64		
7520.00	H	-37.54		
Highest Channel				
3815.00	Vertical	-44.21	-13.00	Pass
5722.50	V	-32.03		
7630.00	V	-37.64		
3815.00	Horizontal	-46.51		
5722.50	H	-25.87		
7630.00	H	-31.44		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 2, WB: 10MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3710.00	Vertical	-46.61	-13.00	Pass
5565.00	V	-30.22		
7420.00	V	-36.54		
3710.00	Horizontal	-49.11		
5565.00	H	-27.62		
7420.00	H	-38.59		
Middle Channel				
3760.00	Vertical	-51.64	-13.00	Pass
5640.00	V	-42.52		
7520.00	V	-37.64		
3760.00	Horizontal	-45.16		
5640.00	H	-39.54		
7520.00	H	-36.11		
Highest Channel				
3810.00	Vertical	-44.61	-13.00	Pass
5715.00	V	-41.57		
7620.00	V	-37.89		
3810.00	Horizontal	-50.21		
5715.00	H	-42.19		
7620.00	H	-37.52		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 2, WB: 15MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3715.00	Vertical	-44.62	-13.00	Pass
5572.50	V	-31.58		
7430.00	V	-37.59		
3715.00	Horizontal	-42.11		
5572.50	H	-17.44		
7430.00	H	-36.23		
Middle Channel				
3760.00	Vertical	-48.61	-13.00	Pass
5640.00	V	-27.64		
7520.00	V	-39.65		
3760.00	Horizontal	-50.12		
5640.00	H	-21.45		
7520.00	H	-37.48		
Highest Channel				
3805.00	Vertical	-43.16	-13.00	Pass
5707.50	V	-32.74		
7610.00	V	-37.62		
3805.00	Horizontal	-45.21		
5707.50	H	-26.75		
7610.00	H	-33.52		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 2, WB: 20MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3720.00	Vertical	-47.23	-13.00	Pass
5580.00	V	-29.19		
7440.00	V	-37.90		
3720.00	Horizontal	-49.85		
5580.00	H	-28.15		
7440.00	H	-38.08		
Middle Channel				
3760.00	Vertical	-50.20	-13.00	Pass
5640.00	V	-43.82		
7520.00	V	-38.05		
3760.00	Horizontal	-44.34		
5640.00	H	-40.32		
7520.00	H	-37.73		
Highest Channel				
3800.00	Vertical	-45.98	-13.00	Pass
5700.00	V	-42.90		
7600.00	V	-38.60		
3800.00	Horizontal	-49.93		
5700.00	H	-43.12		
7600.00	H	-36.49		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 4 part:

LTE Band 4, WB: 1.4MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3421.40	Vertical	-49.48	-13.00	Pass
5132.10	V	-43.87		
6842.80	V	-38.93		
3421.40	Horizontal	-50.07		
5132.10	H	-42.44		
6842.80	H	-38.89		
Middle Channel				
3465.00	Vertical	-50.23	-13.00	Pass
5197.50	V	-43.61		
6930.00	V	-37.64		
3465.00	Horizontal	-49.51		
5197.50	H	-41.60		
6930.00	H	-37.49		
Highest Channel				
3508.60	Vertical	-49.56	-13.00	Pass
5262.90	V	-42.51		
7017.20	V	-39.62		
3508.60	Horizontal	-49.27		
5262.90	H	-42.15		
7017.20	H	-39.78		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 4, WB: 3MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3423.00	Vertical	-48.02	-13.00	Pass
5134.50	V	-42.61		
6846.00	V	-39.60		
3423.00	Horizontal	-49.75		
5134.50	H	-41.62		
6846.00	H	-39.57		
Middle Channel				
3465.00	Vertical	-49.61	-13.00	Pass
5197.50	V	-42.61		
6930.00	V	-36.64		
3465.00	Horizontal	-49.57		
5197.50	H	-41.54		
6930.00	H	-37.42		
Highest Channel				
3507.00	Vertical	-48.21	-13.00	Pass
5260.50	V	-41.67		
7014.00	V	-39.45		
3507.00	Horizontal	-42.12		
5260.50	H	-39.56		
7014.00	H	-38.42		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 4, WB: 5MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3425.00	Vertical	-47.63	-13.00	Pass
5137.50	V	-42.53		
6850.00	V	-37.64		
3425.00	Horizontal	-49.51		
5137.50	H	-42.57		
6850.00	H	-37.42		
Middle Channel				
3465.00	Vertical	-49.21	-13.00	Pass
5197.50	V	-42.62		
6930.00	V	-37.64		
3465.00	Horizontal	-49.15		
5197.50	H	-42.57		
6930.00	H	-37.42		
Highest Channel				
3505.00	Vertical	-48.21	-13.00	Pass
5257.50	V	-41.37		
7010.00	V	-38.62		
3505.00	Horizontal	-47.61		
5257.50	H	-41.25		
7010.00	H	-37.20		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 4, WB: 10MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3430.00	Vertical	-47.62	-13.00	Pass
5145.00	V	-39.62		
6860.00	V	-41.25		
3430.00	Horizontal	-48.17		
5145.00	H	-42.15		
6860.00	H	-37.84		
Middle Channel				
3465.00	Vertical	-48.51	-13.00	Pass
5197.50	V	-41.37		
6930.00	V	-37.85		
3465.00	Horizontal	-48.51		
5197.50	H	-42.77		
6930.00	H	-39.86		
Highest Channel				
3500.00	Vertical	-47.61	-13.00	Pass
5250.00	V	-42.53		
7000.00	V	-39.78		
3500.00	Horizontal	-42.56		
5250.00	H	-37.64		
7000.00	H	-38.58		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 4, WB: 15MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3435.00	Vertical	-46.26	-13.00	Pass
5152.50	V	-41.25		
6870.00	V	-38.62		
3435.00	Horizontal	-49.70		
5152.50	H	-41.32		
6870.00	H	-36.62		
Middle Channel				
3465.00	Vertical	-47.61	-13.00	Pass
5197.50	V	-42.58		
6930.00	V	-36.61		
3465.00	Horizontal	-49.83		
5197.50	H	-41.47		
6930.00	H	-36.56		
Highest Channel				
3495.00	Vertical	-47.31	-13.00	Pass
5242.50	V	-42.56		
6990.00	V	-37.25		
3495.00	Horizontal	-46.25		
5242.50	H	-42.51		
6990.00	H	-38.21		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 4, WB: 20MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
3440.00	Vertical	-44.51	-13.00	Pass
5160.00	V	-39.64		
6880.00	V	-38.56		
3440.00	Horizontal	-47.61		
5160.00	H	-72.56		
6880.00	H	-37.49		
Middle Channel				
3465.00	Vertical	-48.61	-13.00	Pass
5197.50	V	-71.24		
6930.00	V	-37.64		
3465.00	Horizontal	-48.55		
5197.50	H	-42.57		
6930.00	H	-37.14		
Highest Channel				
3490.00	Vertical	-47.56	-13.00	Pass
5235.00	V	-42.98		
6980.00	V	-37.68		
3490.00	Horizontal	-42.53		
5235.00	H	-37.98		
6980.00	H	-38.44		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

LTE Band 5 part:

LTE Band 5, WB: 1.4MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
1649.40	Vertical	-59.36	-13.00	Pass
2474.10	V	-52.74		
3298.80	V	-45.63		
1649.40	Horizontal	-54.47		
2474.10	H	-55.55		
3298.80	H	-44.97		
Middle Channel				
1673.00	Vertical	-55.81	-13.00	Pass
2509.50	V	-52.68		
3346.00	V	-44.23		
1673.00	Horizontal	-54.17		
2509.50	H	-48.59		
3346.00	H	-43.15		
Highest Channel				
1696.60	Vertical	-53.35	-13.00	Pass
2544.90	V	-49.00		
3393.20	V	-41.13		
1696.60	Horizontal	-51.55		
2544.90	H	-49.60		
3393.20	H	-42.71		

Note:

1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

LTE Band 5, WB: 3MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
1651.00	Vertical	-55.26	-13.00	Pass
2476.50	V	-54.51		
3302.00	V	-46.32		
1651.00	Horizontal	-52.27		
2476.50	H	-51.46		
3302.00	H	-45.19		
Middle Channel				
1673.00	Vertical	-54.27	-13.00	Pass
2509.50	V	-53.61		
3346.00	V	-46.52		
1673.00	Horizontal	-51.49		
2509.50	H	-52.72		
3346.00	H	-46.11		
Highest Channel				
1695.00	Vertical	-54.25	-13.00	Pass
2542.50	V	-53.03		
3390.00	V	-46.21		
1695.00	Horizontal	-53.02		
2542.50	H	-54.27		
3390.00	H	-45.19		
<i>Note:</i>				
1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.				
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.				

LTE Band 5, WB: 5MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
1653.00	Vertical	-60.25	-13.00	Pass
2479.50	V	-51.34		
3306.00	V	-45.77		
1653.00	Horizontal	-53.62		
2479.50	H	-54.31		
3306.00	H	-45.27		
Middle Channel				
1673.00	Vertical	-54.21	-13.00	Pass
2509.50	V	-52.29		
3346.00	V	-45.69		
1673.00	Horizontal	-52.27		
2509.50	H	-49.31		
3346.00	H	-42.02		
Highest Channel				
1693.00	Vertical	-52.63	-13.00	Pass
2539.50	V	-47.91		
3386.00	V	-42.51		
1693.00	Horizontal	-51.46		
2539.50	H	-49.56		
3386.00	H	-42.15		
<i>Note:</i>				
1. The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.				
2. For above 1 GHz, all test modes were performed, and just the worst case shown in the report.				

LTE Band 5, WB: 10MHz				
RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest Channel				
1658.00	Vertical	-56.21	-13.00	Pass
2487.00	V	-55.78		
3316.00	V	-45.90		
1658.00	Horizontal	-53.93		
2487.00	H	-52.69		
3316.00	H	-45.39		
Middle Channel				
1673.00	Vertical	-55.21	-13.00	Pass
2509.50	V	-54.63		
3346.00	V	-46.31		
1673.00	Horizontal	-52.27		
2509.50	H	-53.15		
3346.00	H	-46.98		
Highest Channel				
1688.00	Vertical	-55.26	-13.00	Pass
2532.00	V	-54.16		
3376.00	V	-46.98		
1688.00	Horizontal	-52.21		
2532.00	H	-53.64		
3376.00	H	-46.79		
<p><i>Note:</i></p> <ol style="list-style-type: none"> <i>The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.</i> <i>For above 1 GHz, all test modes were performed, and just the worst case shown in the report.</i> 				

6.6 Frequency stability V.S. Temperature measurement

Test Requirement:	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(a)(1)(b)
Test Method:	ANSI/TIA-603-D 2010
Limit:	±2.5ppm
Test setup:	<p>The diagram illustrates the test setup. A Power Source is connected to a Divider. The Divider is connected to two Spectrum Analyzers (SS and SA) and an Equipment Under Test (EUT). The EUT is placed inside a Temperature & Humidity Chamber.</p>
Test procedure:	<ol style="list-style-type: none"> 1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (worst case):

LTE Band 2 part:

Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 channel=1880.00MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	198	0.105319	±2.5	Pass
	-20	155	0.082447		
	-10	163	0.086702		
	0	123	0.065426		
	10	188	0.100000		
	20	174	0.092553		
	30	114	0.060638		
	40	105	0.055851		
	50	150	0.079787		
16QAM					
3.80	-30	123	0.065426	±2.5	Pass
	-20	150	0.079787		
	-10	166	0.088298		
	0	122	0.064894		
	10	144	0.076596		
	20	140	0.074468		
	30	156	0.082979		
	40	133	0.070745		
	50	138	0.073404		
<i>Note: Only the worst case shown in the report.</i>					

LTE Band 4 part:

Reference Frequency: LTE Band 4 (10MHz) Middle channel=20175 channel=1732.50MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	198	0.114286	±2.5	Pass
	-20	155	0.089466		
	-10	163	0.094084		
	0	123	0.070996		
	10	188	0.108514		
	20	174	0.100433		
	30	114	0.065801		
	40	105	0.060606		
	50	150	0.086580		
16QAM					
3.80	-30	123	0.070996	±2.5	Pass
	-20	150	0.086580		
	-10	166	0.095815		
	0	122	0.070418		
	10	144	0.083117		
	20	140	0.080808		
	30	156	0.090043		
	40	133	0.076768		
	50	138	0.079654		
<i>Note: Only the worst case shown in the report.</i>					

LTE Band 5 part:

Reference Frequency: LTE Band 5 (10MHz) Middle channel=20525 channel=836.50MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	198	0.236672	±2.5	Pass
	-20	155	0.185274		
	-10	163	0.194836		
	0	123	0.147024		
	10	188	0.224719		
	20	174	0.207985		
	30	114	0.136266		
	40	105	0.125508		
	50	150	0.179297		
16QAM					
3.80	-30	123	0.147024	±2.5	Pass
	-20	150	0.179297		
	-10	166	0.198422		
	0	122	0.145828		
	10	144	0.172125		
	20	140	0.167344		
	30	156	0.186469		
	40	133	0.158977		
	50	138	0.164953		
<i>Note: Only the worst case shown in the report.</i>					

6.7 Frequency stability V.S. Voltage measurement

Test Requirement:	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(d)(2)
Test Method:	ANSI/TIA-603-D 2010
Limit:	±2.5ppm
Test setup:	
Test procedure:	<ol style="list-style-type: none"> 1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (worst case):

LTE Band 2 part:

Reference Frequency: LTE Band 2(10MHz) Middle channel=18900 channel=1880.00MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	98	0.052128	±2.5	Pass
	3.80	65	0.034574		
	3.50	74	0.039362		
16QAM					
25	4.35	80	0.042553	±2.5	Pass
	3.80	96	0.051064		
	3.50	48	0.025532		

Note: Only the worst case shown in the report.

LTE Band 4 part:

Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 channel=1732.50MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	98	0.056566	±2.5	Pass
	3.80	65	0.037518		
	3.50	74	0.042713		
16QAM					
25	4.35	80	0.046176	±2.5	Pass
	3.80	96	0.055411		
	3.50	48	0.027706		

Note: Only the worst case shown in the report.

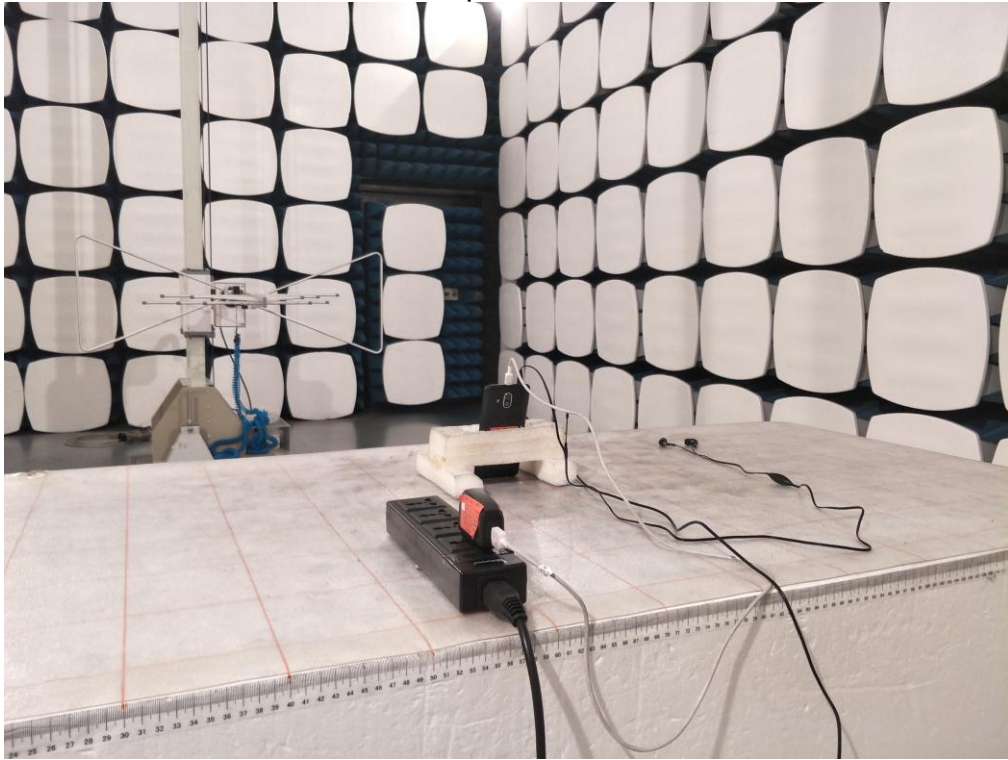
LTE Band 5 part:

Reference Frequency: LTE Band 5(10MHz) Middle channel=20525 channel=836.50MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	98	0.117141	±2.5	Pass
	3.80	65	0.077695		
	3.50	74	0.088453		
16QAM					
25	4.35	80	0.095625	±2.5	Pass
	3.80	96	0.114750		
	3.50	48	0.057375		

Note: Only the worst case shown in the report.

7 Test Setup Photo

Radiated Spurious Emission



8 EUT Constructional Details

Reference to the test report No. CCISE180907501.

-----End of report-----