5. Peak-Average Ratio

5.1. Limit

FCC

- §22.913(d) Measurement of the ERP of Cellular base transmitters and repeaters must be made using an average power measurement technique. The peak-to-average ratio (PAR) of the transmission must not exceed 13 ㏈.

- §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 ㏈.

- §27.50(d)(5), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 ㏈.

IC

- RSS-130 Issue 2

4.6.1, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 ㏈ for more than 0.1 % of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

- RSS-132 Issue 3

5.4, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 ㏈ for more than 0.1 % of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

- RSS-133 Issue 6

6.4, the transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 ㏈ for more than 0.1 % of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

- RSS-139 Issue 3

6.5, the peak to average power ratio (PAPR) of the equipment shall not exceed 13 ㏈ for more than 0.1 % of the time, using a signal that corresponds to the highest PAPR during periods of continuous transmission.

- RSS-140 Issue 1

4.3, the peak to average power ratio (PAPR) of the equipment shall not exceed 13 ㏈ for more than 0.1% of the time, using a signal that corresponds to the highest PAPR during periods of continuous transmission.

- RSS-199 Issue 3

4.4, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 ㏈ for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

5.2. Test Procedure

The test follows section 5.2.3.4 of ANSI C63.26-2015.

See instrumentation-specific application literature for further guidance regarding use of the CCDF capability.
The following guidelines are offered for performing a CCDF measurement.

a. Set resolution/measurement bandwidth ≥ OBW or specified reference bandwidth.

b. Set the number of counts to a value that stabilizes the measured CCDF curve.

c. Set the measurement interval as follows:

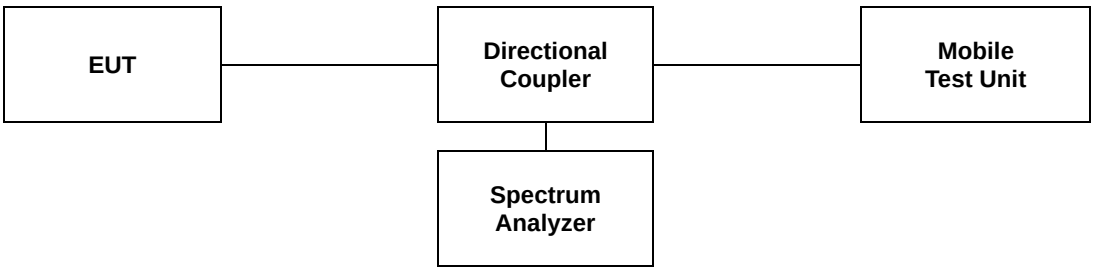
1) For continuous transmissions, set to greater of [10 x (number of points in sweep) x (transmission symbol period)] or 1 ㎳.

2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration.

3) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers.

d. Record the maximum PAPR level associated with a probability of 0.1 %.

e. The peak power level is calculated form the sum of the PAPR value from step d) to the measured average power.



5.3 Test Results

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

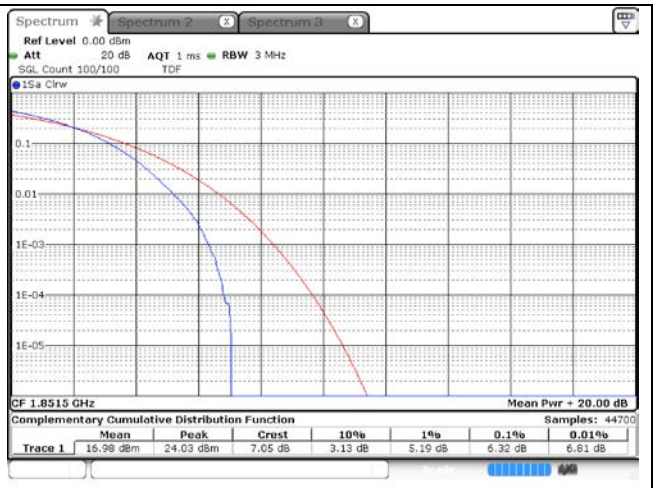
Band	Bandwidth (㎒)	Mode	Frequency (㎒)	PAR (dB)
2	1.4	64QAM	1 850.7	6.78
			1 880.0	7.36
			1 909.3	7.04
	3		1 851.5	6.32
			1 880.0	6.26
			1 908.5	6.81
	5		1 852.5	6.67
			1 880.0	6.55
			1 907.5	6.43
	10		1 855.0	6.38
			1 880.0	6.46
			1 905.0	6.49
	15		1 857.5	6.61
			1 880.0	6.64
			1 902.5	6.67
	20		1 860.0	6.58
			1 880.0	6.43
			1 900.0	6.52
5	1.4	64QAM	824.7	4.26
			836.5	4.12
			848.3	3.65
	3		825.5	4.81
			836.5	5.13
			847.5	4.41
	5		826.5	6.61
			836.5	6.52
			846.5	6.43
	10		829.0	6.38
			836.5	6.55
			844.0	6.49
7	5	64QAM	2 502.5	6.41
			2 535.0	6.52
			2 567.5	6.64
	10		2 505.0	6.55
			2 535.0	6.55
			2 565.0	6.55
	15		2 507.5	6.55
			2 535.0	6.49
			2 562.5	6.61
	20		2 510.0	6.49
			2 535.0	6.49
			2 560.0	6.46

Band	Bandwidth (㎒)	Mode	Frequency (㎒)	PAR (dB)
12	1.4	64QAM	699.7	4.52
			707.5	4.52
			715.3	4.41
	3		700.5	5.28
			707.5	5.19
			714.5	5.16
	5		701.5	6.43
			707.5	6.55
			713.5	6.49
	10		704.0	6.55
			707.5	6.49
			711.0	6.49
13	5	64QAM	779.5	6.64
			782.0	6.38
			784.5	6.55
	10		782.0	6.43
14	5	64QAM	790.5	6.90
			793.0	6.32
			795.5	6.17
	10		793.0	6.64
66/4	1.4	64QAM	1 710.7	7.04
			1 745.0	6.49
			1 779.3	6.23
	3		1 711.5	6.41
			1 745.0	6.35
			1 778.5	6.23
	5		1 712.5	6.78
			1 745.0	6.55
			1 777.5	6.64
	10		1 715.0	6.49
			1 745.0	6.43
			1 775.0	6.43
	15		1 717.5	6.75
			1 745.0	6.61
			1 772.5	6.75
	20		1 720.0	6.49
			1 745.0	6.64
			1 770.0	6.70

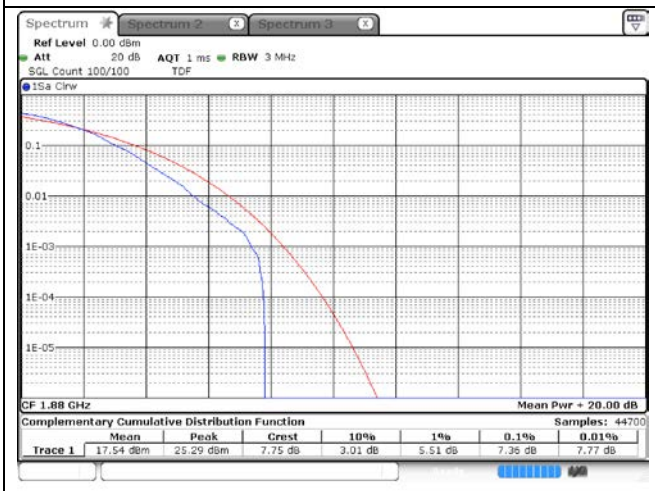
- Test plots

LTE band 2

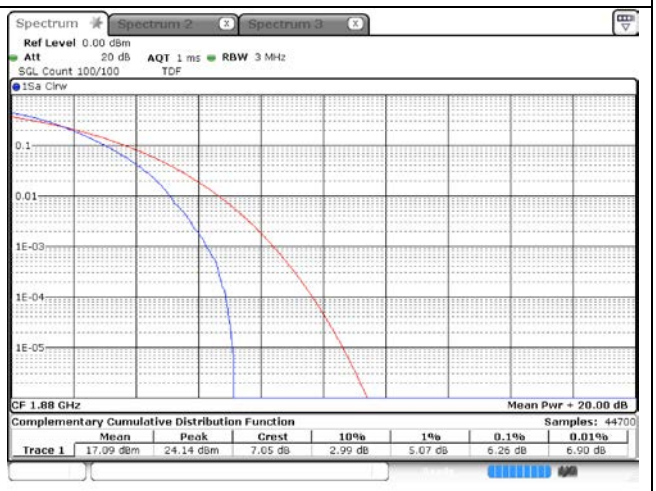
1.4 ㎒ Low Channel - Full RB



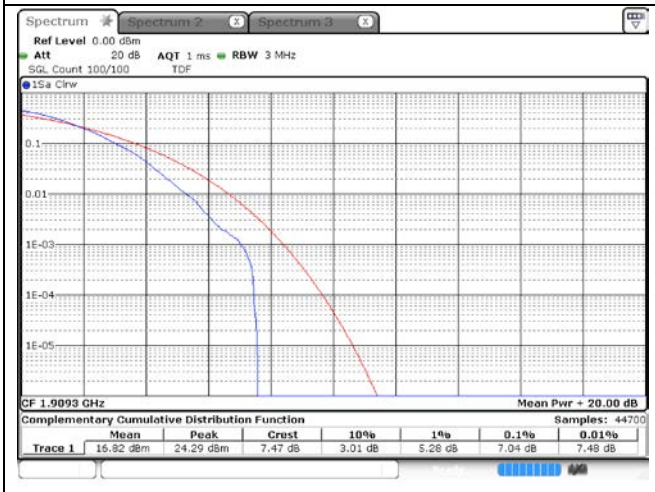
3 ㎒ Low Channel - Full RB



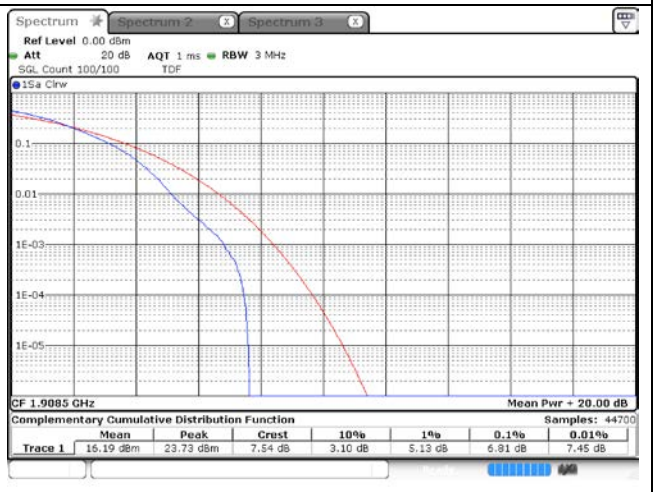
1.4 ㎒ Middle Channel - Full RB



3 ㎒ Middle Channel - Full RB



1.4 ㎒ High Channel - Full RB



3 ㎒ High Channel - Full RB

LTE band 2

5 ㎒ Low Channel - Full RB

10 ㎒ Low Channel - Full RB

5 ㎒ Middle Channel - Full RB

10 ㎒ Middle Channel - Full RB

5 ㎒ High Channel - Full RB

10 ㎒ High Channel - Full RB

LTE band 2

15 ㎒ Low Channel - Full RB

20 ㎒ Low Channel - Full RB

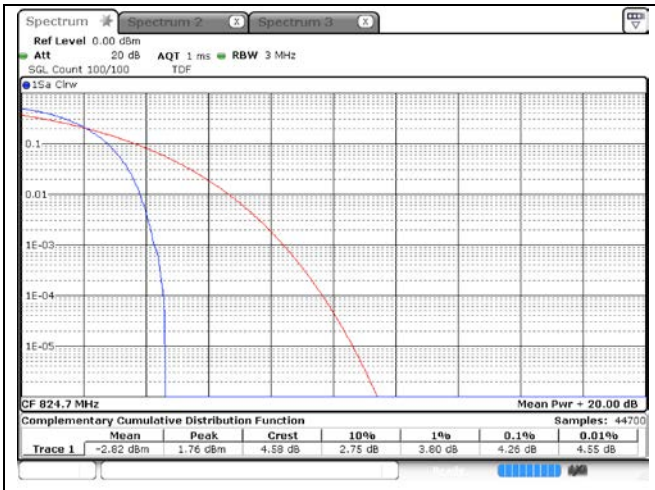
15 ㎒ Middle Channel - Full RB

20 ㎒ Middle Channel - Full RB

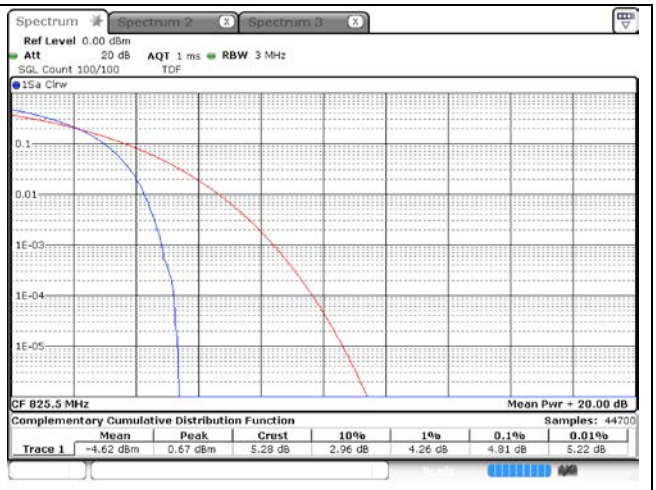
15 ㎒ High Channel - Full RB

20 ㎒ High Channel - Full RB

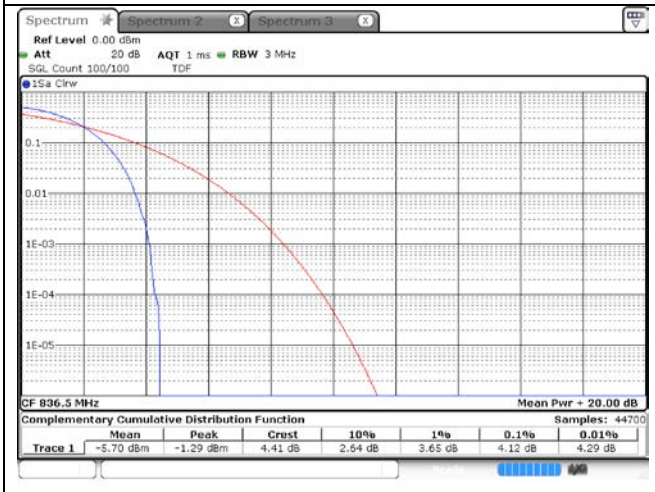
LTE band 5



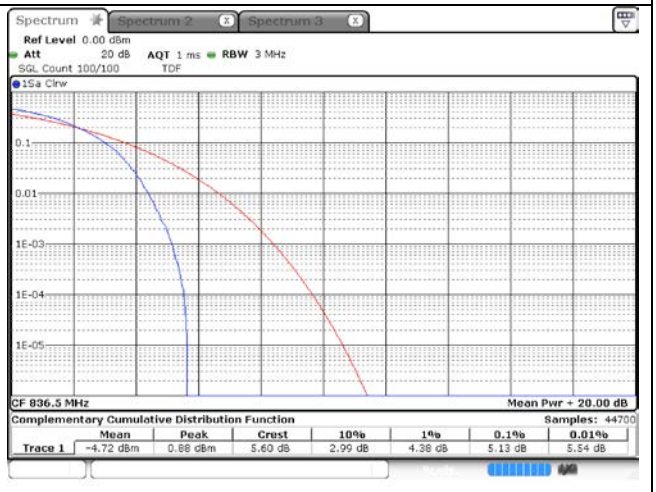
1.4 ㎒ Low Channel - Full RB



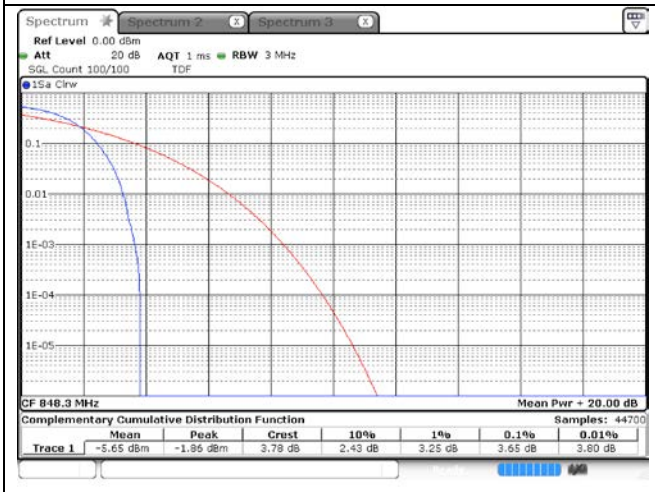
3 ㎒ Low Channel - Full RB



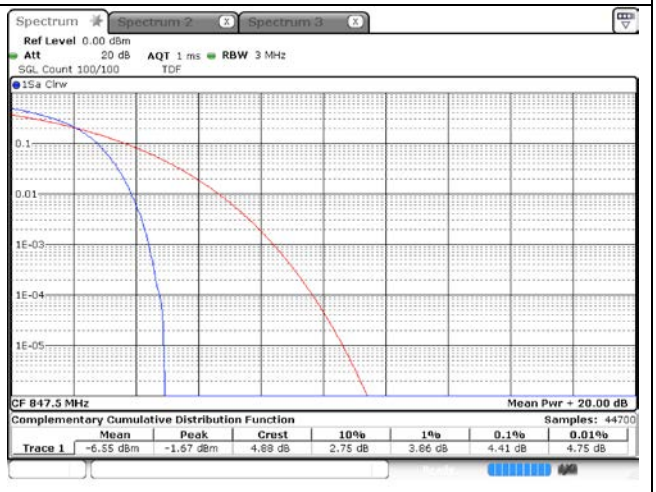
1.4 ㎒ Middle Channel - Full RB



3 ㎒ Middle Channel - Full RB



1.4 ㎒ High Channel - Full RB



3 ㎒ High Channel - Full RB

LTE band 5

<table>
<tr><td> 
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<tr><td>5 ㎒ Low Channel - Full RB</td><td>10 ㎒ Low Channel - Full RB</td></tr>
<tr><td> 
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<tr><td>5 ㎒ Middle Channel - Full RB</td><td>10 ㎒ Middle Channel - Full RB</td></tr>
<tr><td> 
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<tr><td>5 ㎒ High Channel - Full RB</td><td>10 ㎒ High Channel - Full RB</td></tr>
</table>

LTE band 7

5 ㎒ Low Channel - Full RB

10 ㎒ Low Channel - Full RB

5 ㎒ Middle Channel - Full RB

10 ㎒ Middle Channel - Full RB

5 ㎒ High Channel - Full RB

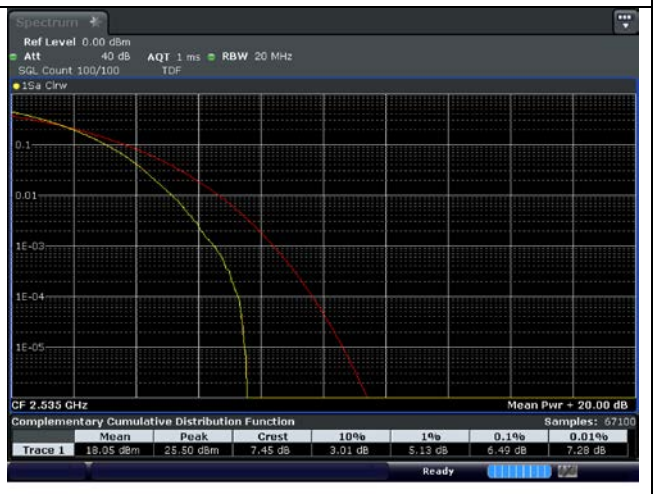
10 ㎒ High Channel - Full RB

LTE band 7

15 ㎒ Low Channel - Full RB

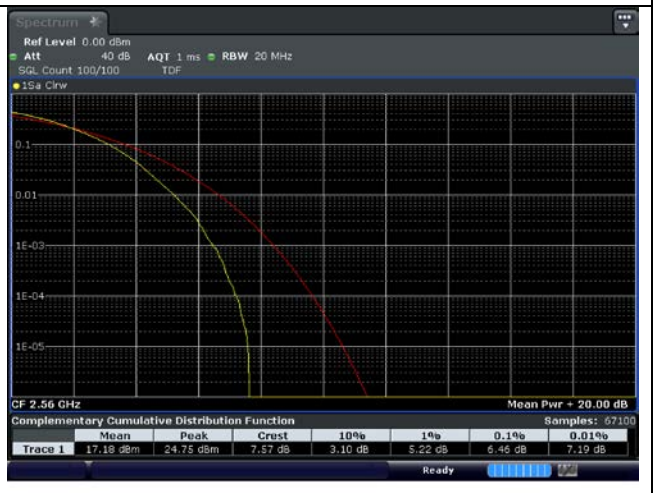
20 ㎒ Low Channel - Full RB

15 ㎒ Middle Channel - Full RB



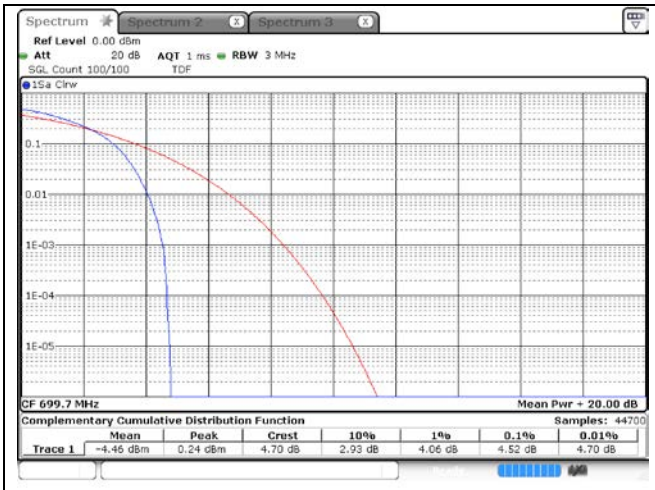
20 ㎒ Middle Channel - Full RB

15 ㎒ High Channel - Full RB

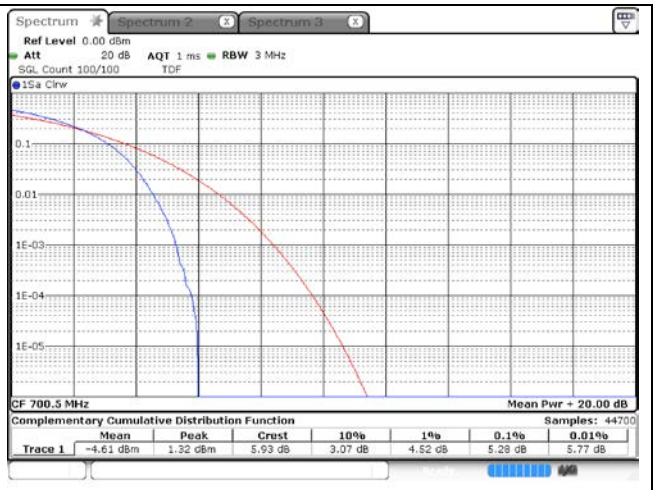


20 ㎒ High Channel - Full RB

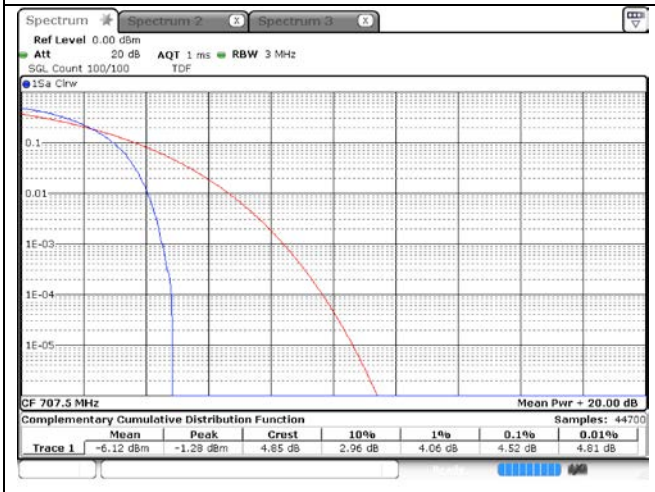
LTE band 12



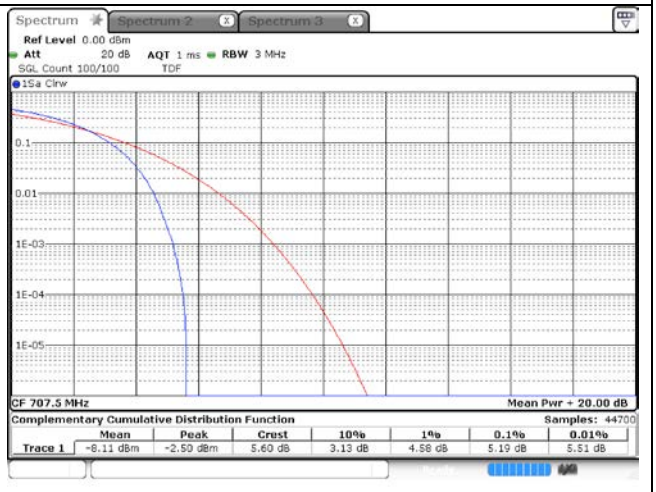
1.4 ㎒ Low Channel - Full RB



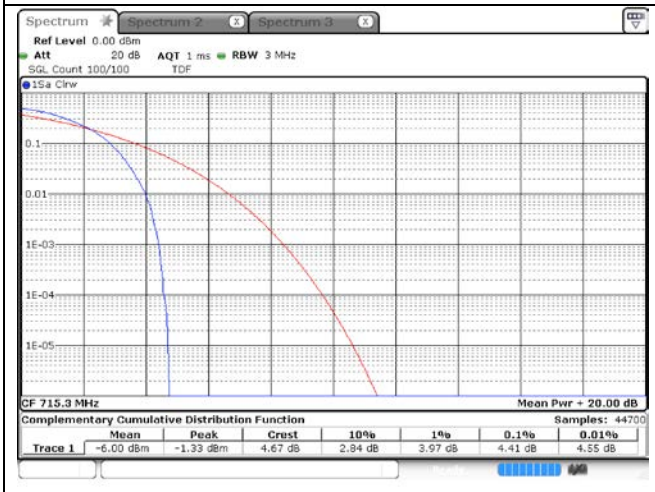
3 ㎒ Low Channel - Full RB



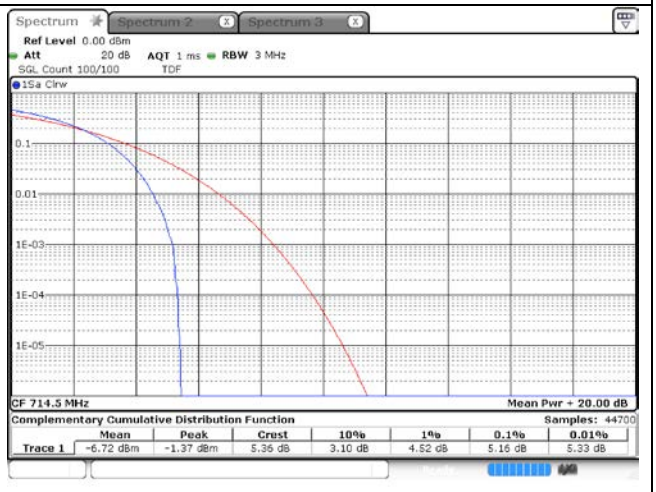
1.4 ㎒ Middle Channel - Full RB



3 ㎒ Middle Channel - Full RB



1.4 ㎒ High Channel - Full RB



3 ㎒ High Channel - Full RB

LTE band 12

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<tr><td>5 ㎒ Low Channel - Full RB</td><td>10 ㎒ Low Channel - Full RB</td></tr>
<tr><td> 
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<tr><td>5 ㎒ Middle Channel - Full RB</td><td>10 ㎒ Middle Channel - Full RB</td></tr>
<tr><td> 
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<tr><td>5 ㎒ High Channel - Full RB</td><td>10 ㎒ High Channel - Full RB</td></tr>
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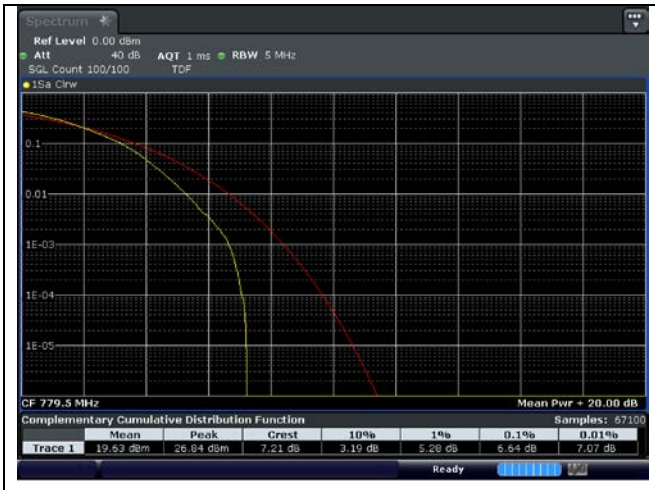
LTE band 13



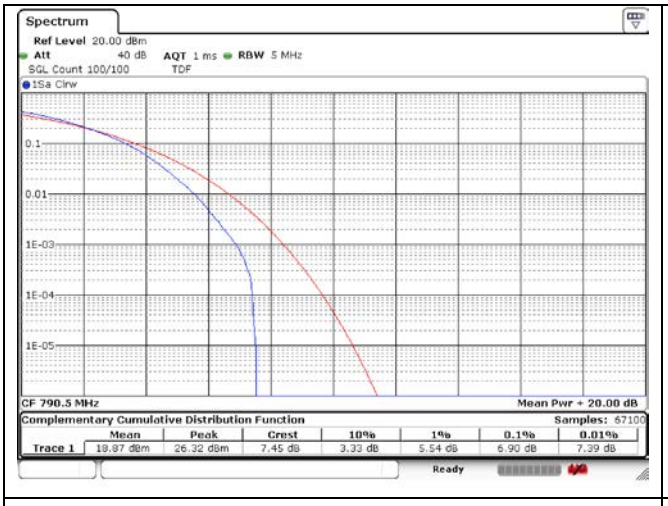
5 ㎒ Low Channel - Full RB

5 ㎒ Middle Channel - Full RB

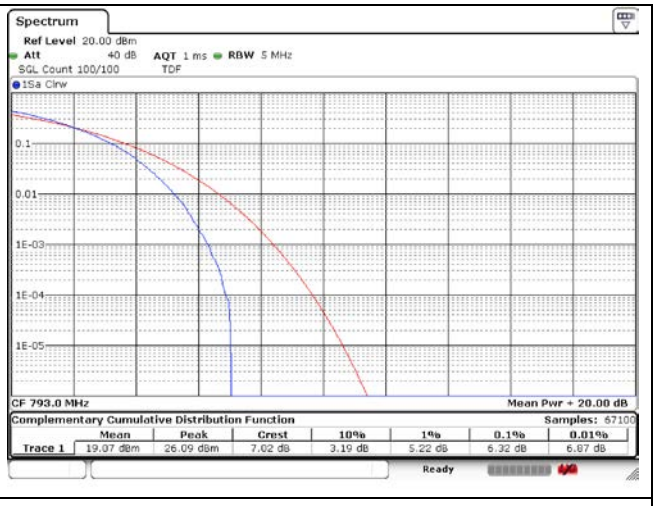
5 ㎒ High Channel - Full RB

10 ㎒ Middle Channel - Full RB

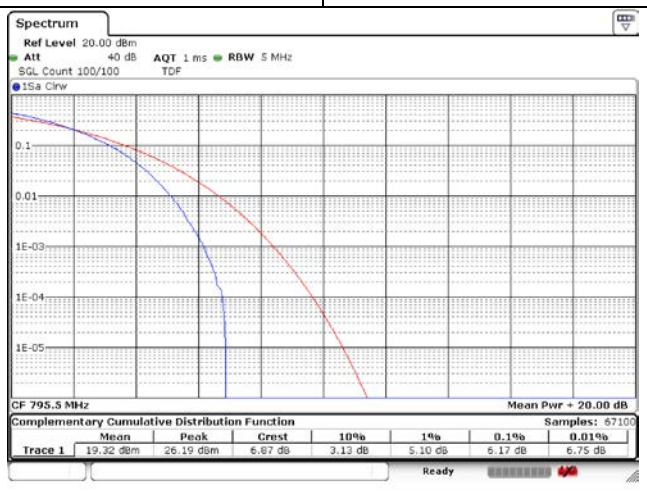
LTE band 14



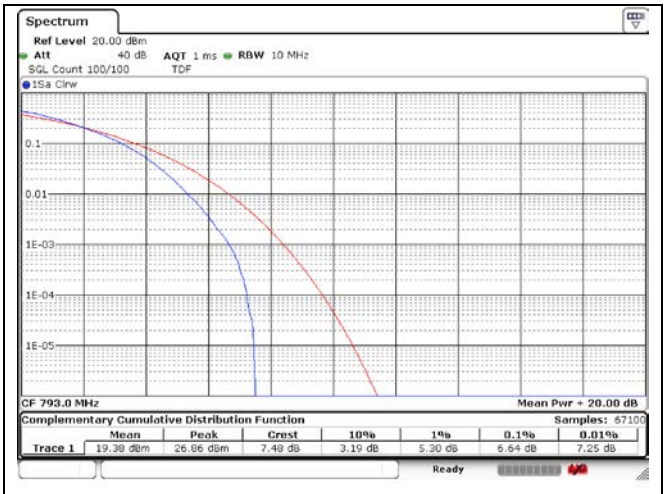
5 ㎒ Low Channel - Full RB



5 ㎒ Middle Channel - Full RB

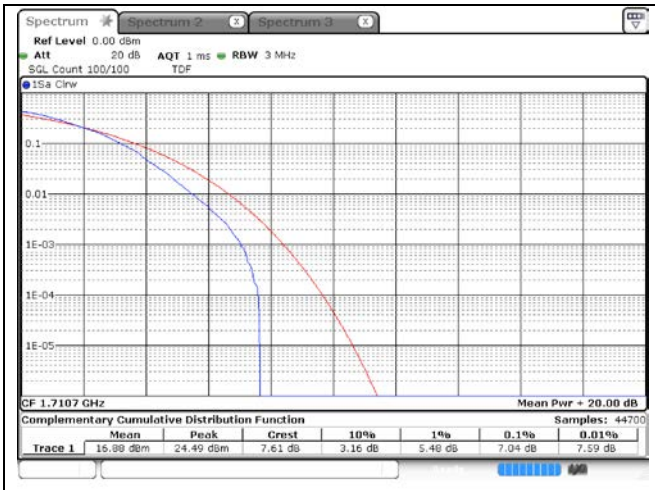


5 ㎒ High Channel - Full RB

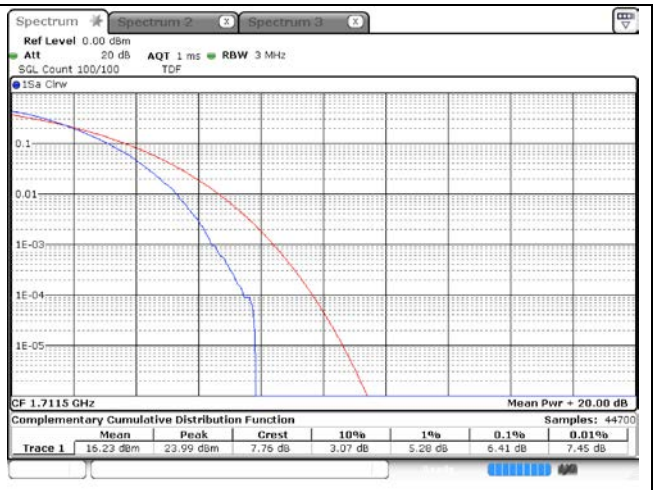


10 ㎒ Middle Channel - Full RB

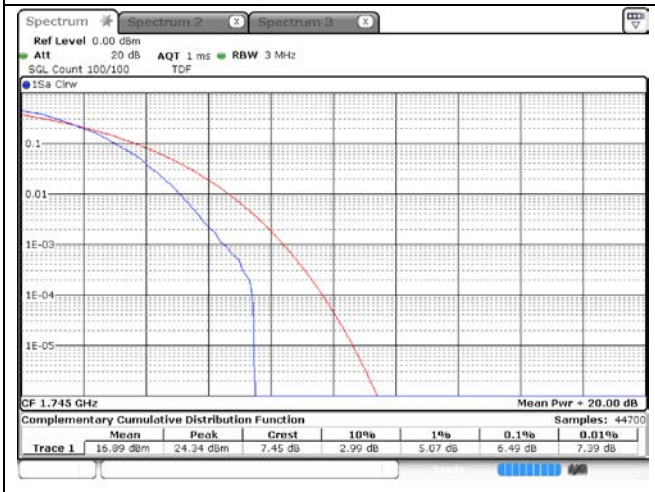
LTE band 66/4



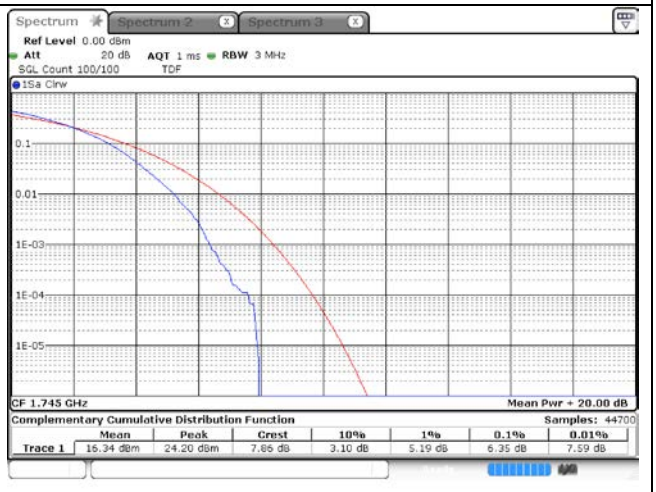
1.4 ㎒ Low Channel - Full RB



3 ㎒ Low Channel - Full RB



1.4 ㎒ Middle Channel - Full RB



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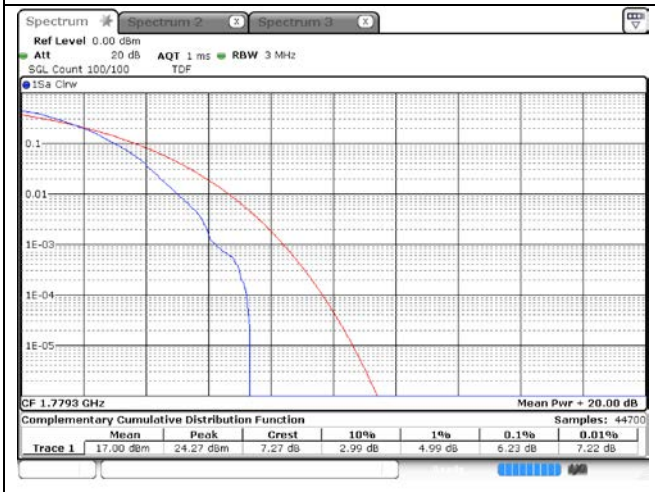
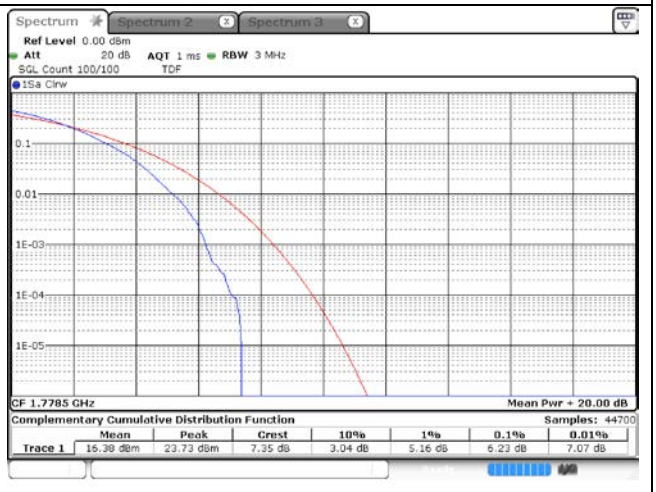


1.4 ㎒ High Channel - Full RB



3 ㎒ High Channel - Full RB

LTE band 66/4

5 ㎒ Low Channel - Full RB

10 ㎒ Low Channel - Full RB

5 ㎒ Middle Channel - Full RB

10 ㎒ Middle Channel - Full RB

5 ㎒ High Channel - Full RB

10 ㎒ High Channel - Full RB

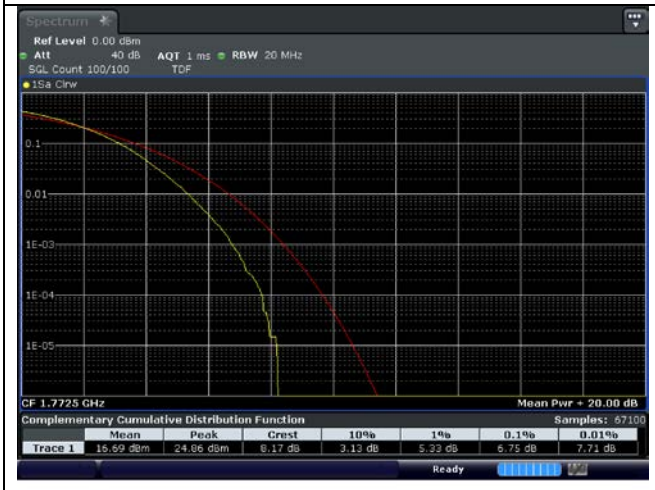
LTE band 66/4

15 ㎒ Low Channel - Full RB

20 ㎒ Low Channel - Full RB

15 ㎒ Middle Channel - Full RB

20 ㎒ Middle Channel - Full RB



15 ㎒ High Channel - Full RB

20 ㎒ High Channel - Full RB

6. Spurious Emissions at Antenna Terminal

6.1. Limit

FCC

- §22.917(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) ㏈.

- §24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) ㏈.

- §27.53(c)(2), on any frequency outside the 776-788 ㎒ band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) ㏈.

- §27.53(g), 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) ㏈.

- §27.53(h)(1), for operations in the 1 695-1 710 ㎒, 1 710-1 755 ㎒, 1 755-1 780 ㎒, 1 915-1 920 ㎒, 1 995-2 000 ㎒, 2 000-2 020 ㎒, 2 110-2 155 ㎒, 2 155-2 180 ㎒, and 2 180-2 200 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) ㏈.

- §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than 40 + 10 $\log_{10}$ (P) ㏈ on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 $\log_{10}$ (P) ㏈ on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 $\log_{10}$ (P) ㏈ 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 $\log_{10}$ (P) ㏈ on all frequencies between 2 490.5 ㎒ and 2 496 ㎒ and 55 + 10 $\log_{10}$ (P) ㏈ at or below 2 490.5 ㎒. Mobile Satellite Service licensees operating on frequencies below 2 495 ㎒ 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.

- §90.543(e), For operations in the 758-768 ㎒ and the 788-798 ㎒ bands, the power of any emission outside the 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, in accordance with the following:

(1) On all frequencies between 769-775 ㎒ and 799-805 ㎒, by a factor not less than 76 + 10 log (P) ㏈ in a 6.25 ㎑ band segment, for base and fixed stations.

(2) On all frequencies between 769-775 ㎒ and 799-805 ㎒, by a factor not less than 65 + 10 log (P) ㏈ in a 6.25 ㎑ band segment, for mobile and portable stations.

(3) On any frequency between 775-788 ㎒, above 805 ㎒, and below 758 ㎒, by at least 43 + 10 log (P) ㏈.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 ㎑ segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 ㎑ or greater. However, in the 100 ㎑ bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 ㎑ may be employed.

IC

- RSS-130 Issue 2

4.7.1, the unwanted emissions in any 100 ㎑ bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (㏈ W), by at least 43 + 10 $\log_{10}$ p (watts), ㏈. However, in the 100 ㎑ band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 ㎑ may be employed.

4.7.2, In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 ㎒ and 777-787 ㎒ shall also comply with the following restrictions:

a) The power of any unwanted emissions in any 6.25 ㎑ bandwidth for all frequencies between 763-775 ㎒ and 793-806 ㎒ shall be attenuated below the transmitter power, P (㏈ W), by at least:

(i) 76 + 10 log10 p (watts), ㏈, for base and fixed equipment, and

(ii) 65 + 10 log10 p (watts), ㏈, for mobile and portable equipment.

b) The e.i.r.p. in the band 1 559-1 610 ㎒ shall not exceed -70 ㏈ W/㎒ for wideband signal and -80 ㏈ W for discrete emission with bandwidth less than 700 ㎐.

- RSS-132 Issue 3

5.5, Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(i) In the first 1.0 ㎒ band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1 % of the occupied bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p (watts).

(ii) After the first 1.0 ㎒ immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 ㎑ bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p (watts). If the measurement is performed using 1 % of the occupied bandwidth, power integration over 100 ㎑ is required.

- RSS-133 Issue 6

6.5, Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 ㎒ bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1 % of the emission bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p(watts).

(ii) After the first 1.0 ㎒, the emission power in any 1 ㎒ bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p(watts). If the measurement is performed using 1 % of the emission bandwidth, power integration over 1.0 ㎒ is required.

- RSS-139 Issue 3

6.6, (i) In the first 1.0 ㎒ bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1 % of the emission bandwidth shall be attenuated below the transmitter output power P (in ㏈ W) by at least 43 + 10 $\log_{10}$ p (watts) ㏈.

(ii) After the first 1.0 ㎒ outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 ㎒ bandwidth shall be attenuated below the transmitter output power P (in ㏈ W) by at least 43 + 10 $\log_{10}$ p (watts) ㏈.

- RSS-140 Issue 1
4.4, The power of any unwanted emission outside the bands 758-768 ㎒ and 788-798 ㎒ shall be attenuated below the transmitter output power P in ㏈ W as follows, where p is the transmitter output power in watts:

a) For any frequency between 769-775 ㎒ and 799-806 ㎒:
i) 76 + 10 log (p), ㏈ in a 6.25 ㎑ band for fixed and base station equipment

ii) 65 + 10 log (p), ㏈ in a 6.25 ㎑ band for mobile and portable/hand-held equipment

b) For any frequency between 775-788 ㎒, above 806 ㎒, and below 758 ㎒: 43 + 10 log (p), ㏈ in a bandwidth of 100 ㎑ or greater. However, in the 100 ㎑ bands immediately outside and adjacent to the frequency bands 758-768 ㎒ and 788-798 ㎒, a resolution bandwidth of 30 ㎑ may be employed.

- RSS-199 Issue 3
4.5, In the 1 ㎒ band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment, and 2% for mobile subscriber equipment. Beyond the 1 ㎒ band, a resolution bandwidth of 1 ㎒ shall be used. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 ㎒, or 1% or 2% of the occupied bandwidth, as applicable.

Equipment shall comply with the following unwanted emission limits:

for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in ㏈) below the transmitter power, P (㏈ W), by at least 43 + 10 log10 p for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in ㏈) below the transmitter power, P (㏈ W), by at least:

i. 40 + 10 log10 p from the channel edges to 5 ㎒ away
ii. 43 + 10 log10 p between 5 ㎒ and X ㎒ from the channel edges, and
iii. 55 + 10 log10 p at X ㎒ and beyond from the channel edges

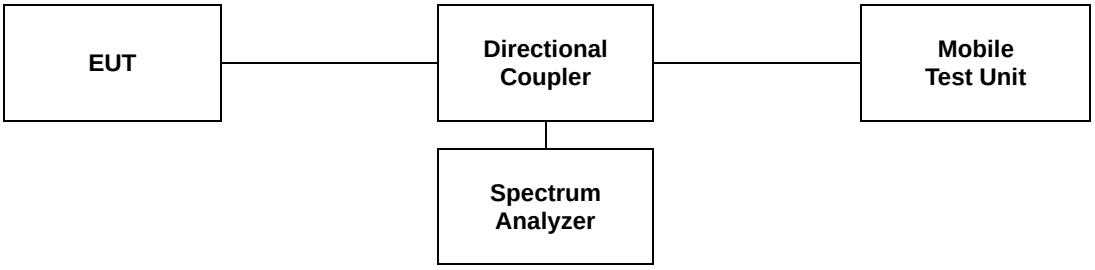
In addition, the attenuation shall not be less than 43 + 10 log10 p on all frequencies between 2 490.5 ㎒ and 2 496 ㎒, and 55 + 10 log10 p at or below 2 490.5 ㎒.

In (a) and (b), **p** is the transmitter power measured in watts and **X** is 6 ㎒ or the equipment occupied bandwidth, whichever is greater.

6.2. Test Procedure

The test follows section 5.7 of ANSI C63.26-2015.

1. Start frequency was set to 9 ㎑ and stop frequency was set to at least 10* the fundamental frequency.
2. Detector = RMS.
3. Trace mode = Max hold.
4. Sweep time = Auto couple.
5. The trace was allowed to stabilize.
6. Please see notes below for RBW and VBW settings.
7. For plots showing conducted spurious emissions from 9 ㎑ to 26 ㎓, all path loss of wide frequency range was investigated and compensated to spectrum analyzer as TDF function.



Note;

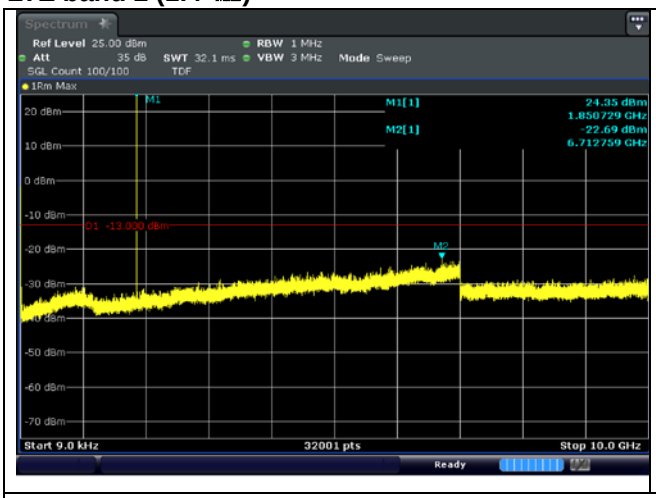
Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 ㎑ or greater for frequencies less than 1 ㎓ and frequencies greater than 1 ㎓. However, in the 1 ㎒ bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two point, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 ㏈ below the transmitter power.

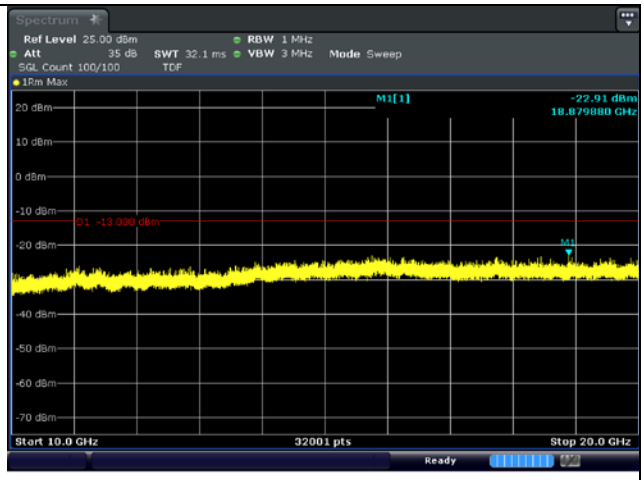
6.3. Test Results

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

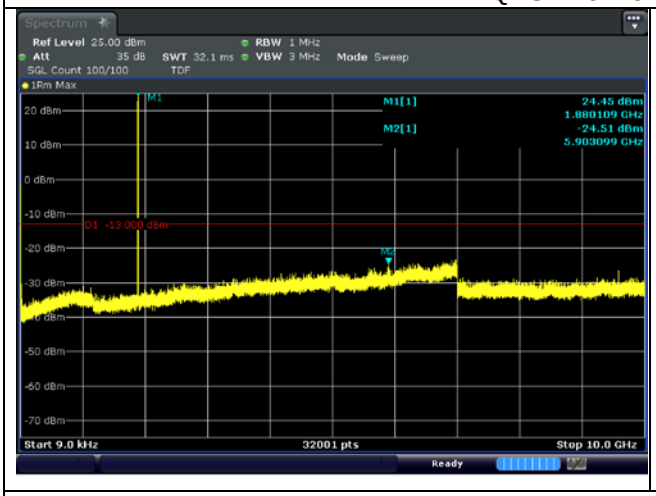
- Test plots

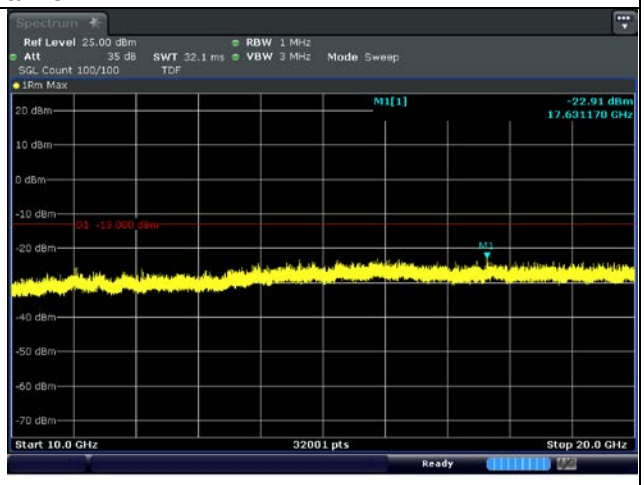
LTE band 2 (1.4 ㎒)



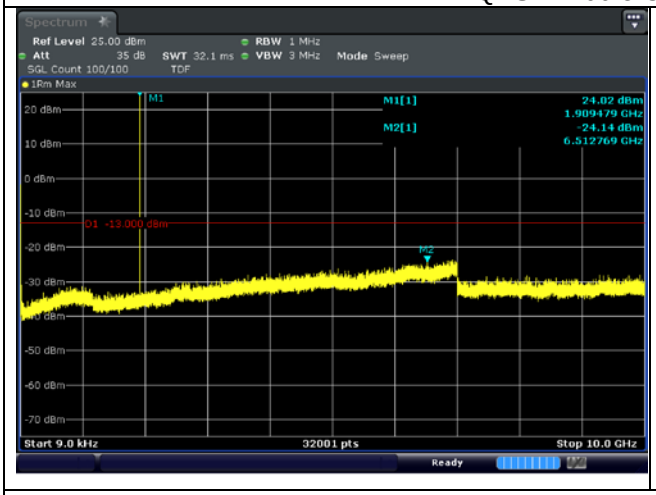


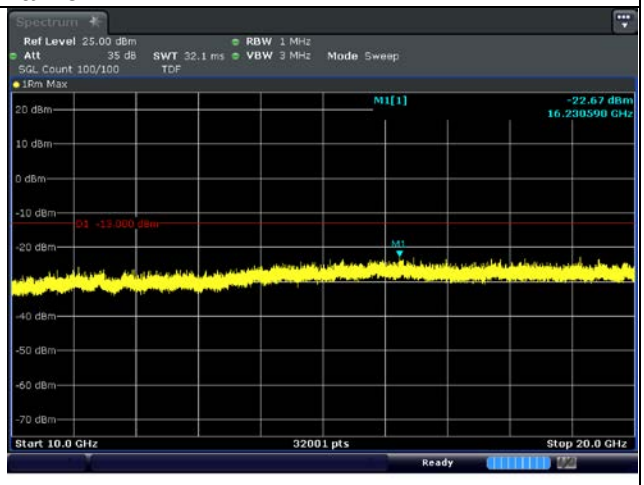
QPSK Low Channel - 1 RB





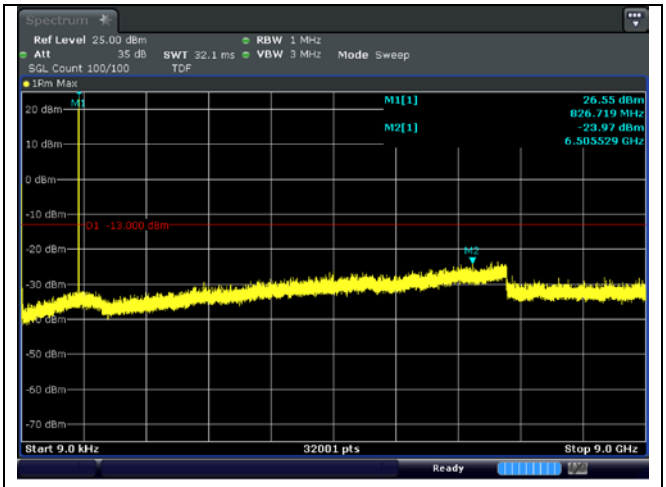
QPSK Middle Channel - 1 RB



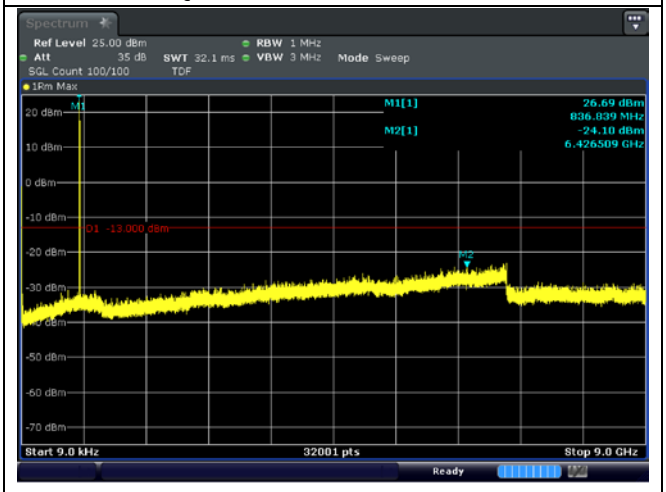


QPSK High Channel - 1 RB

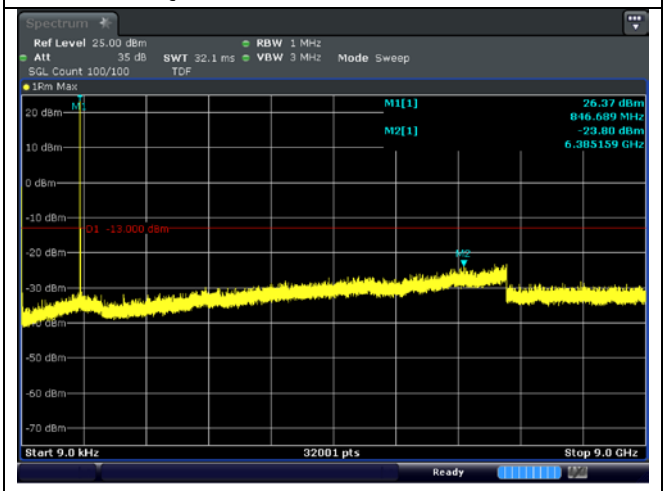
LTE band 5 (5 ㎒)



QPSK Low Channel - 1 RB

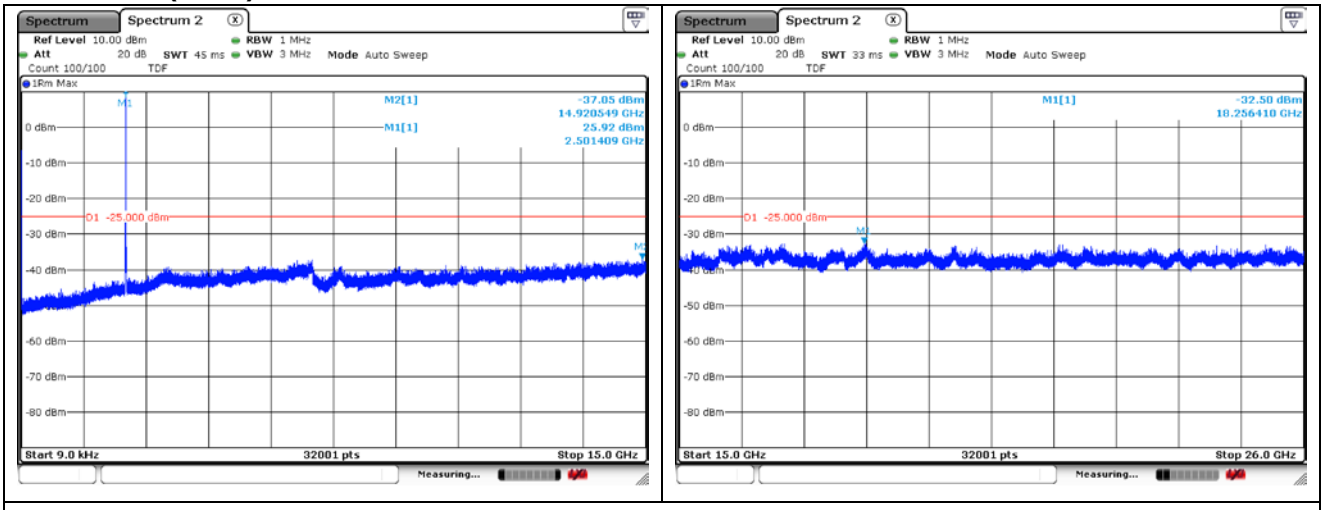


QPSK Middle Channel - 1 RB

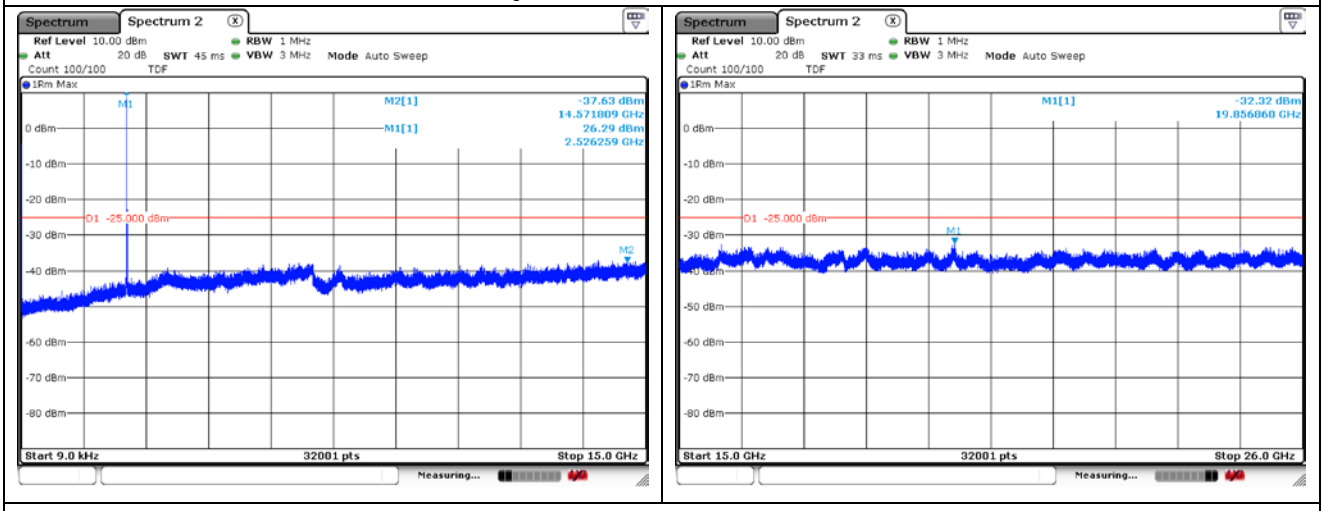


QPSK High Channel - 1 RB

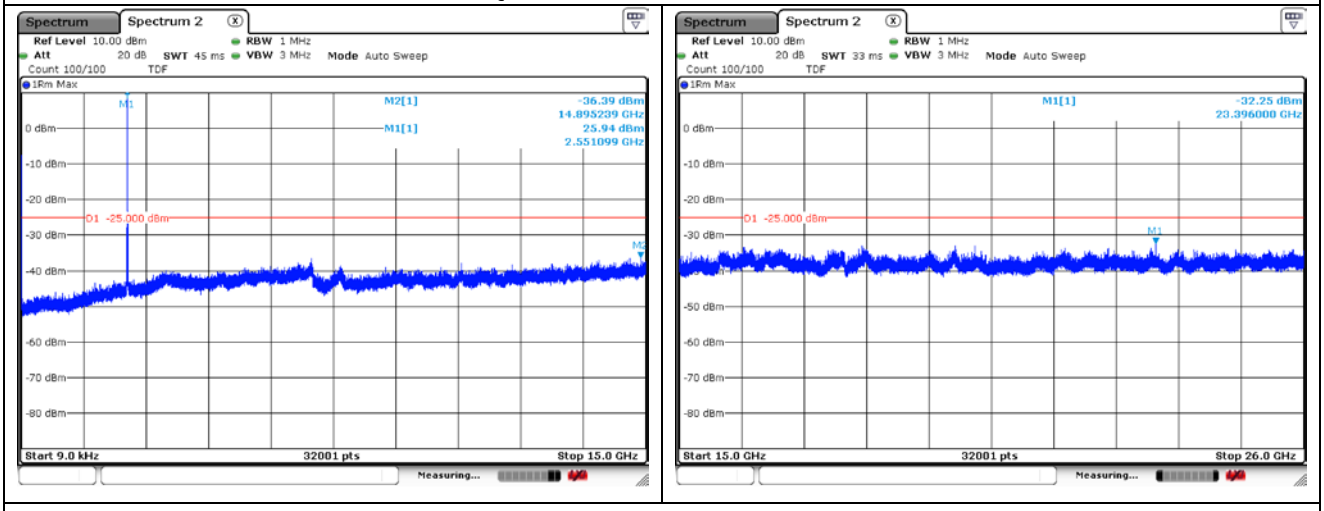
LTE band 7 (20 ㎒)



QPSK Low Channel - 1 RB

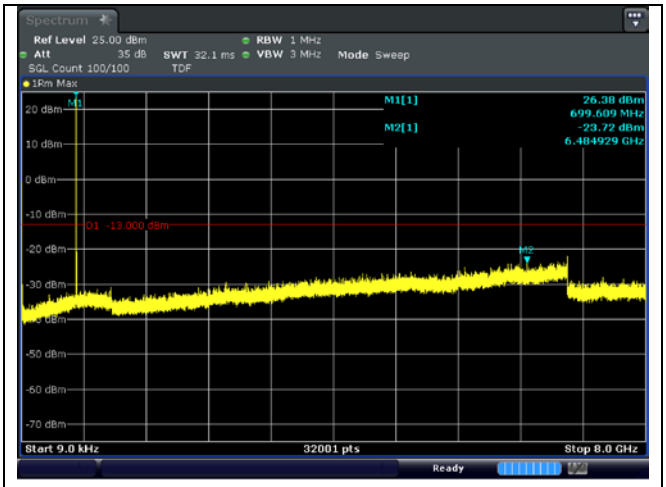


QPSK Middle Channel - 1 RB

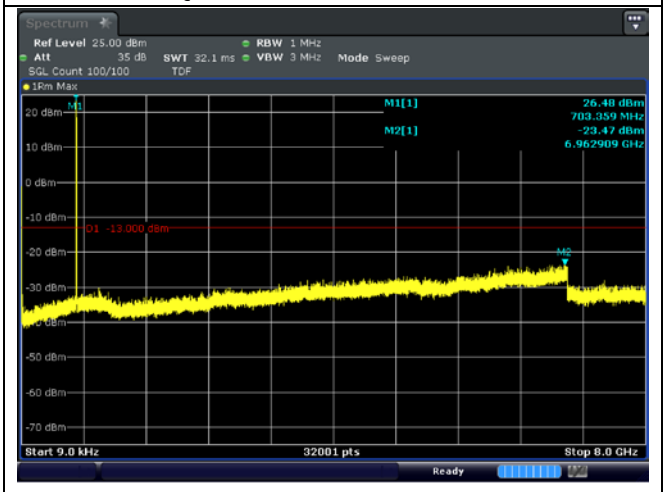


QPSK High Channel - 1 RB

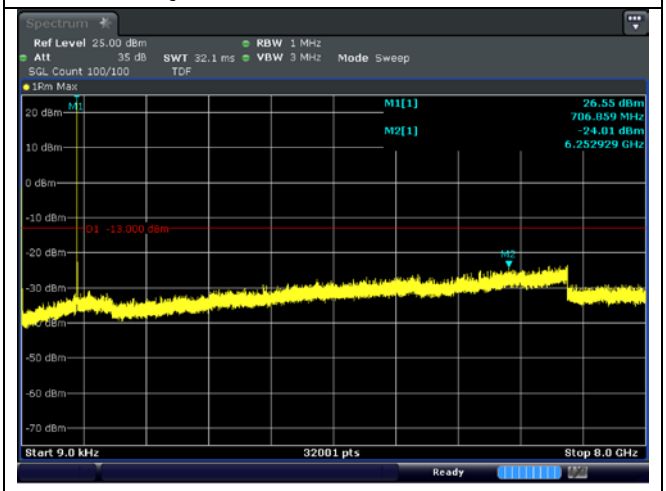
LTE band 12 (10 ㎒)



QPSK Low Channel - 1 RB

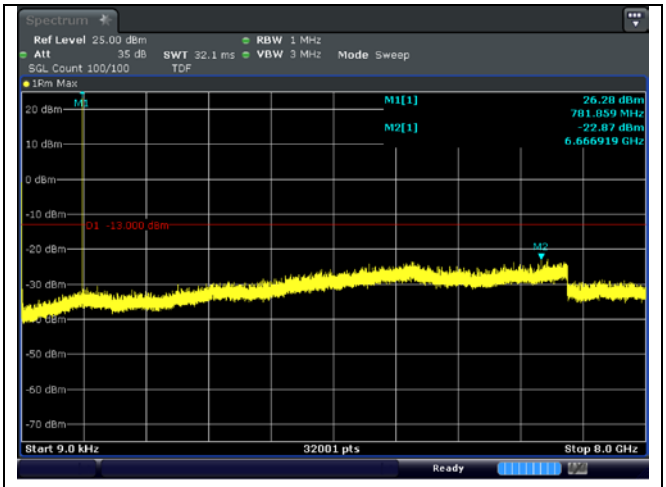


QPSK Middle Channel - 1 RB

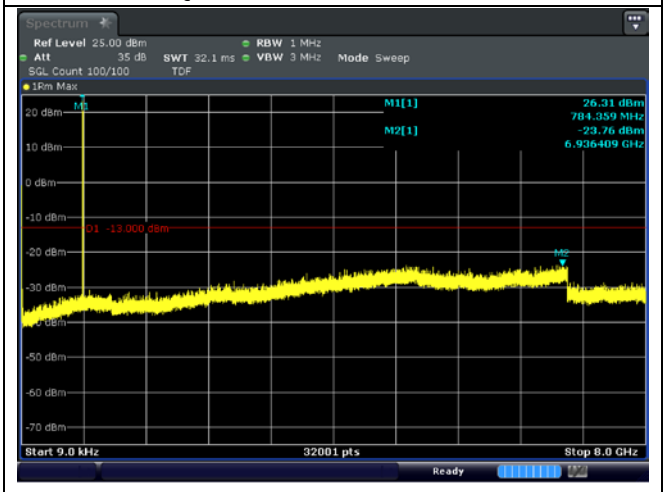


QPSK High Channel - 1 RB

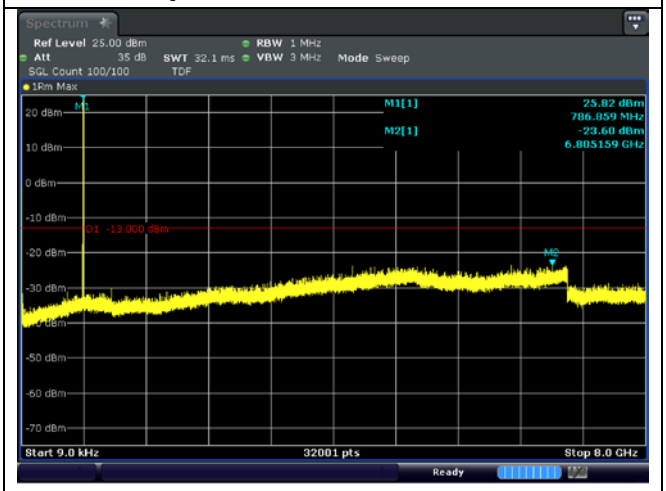
LTE band 13 (5 ㎒)



QPSK Low Channel - 1 RB

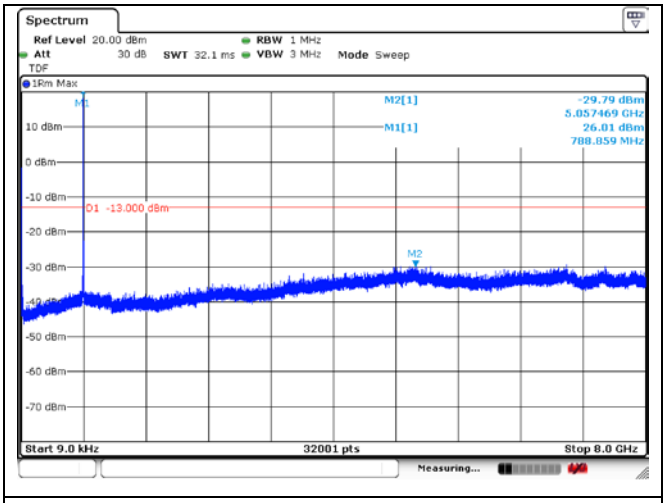


QPSK Middle Channel - 1 RB



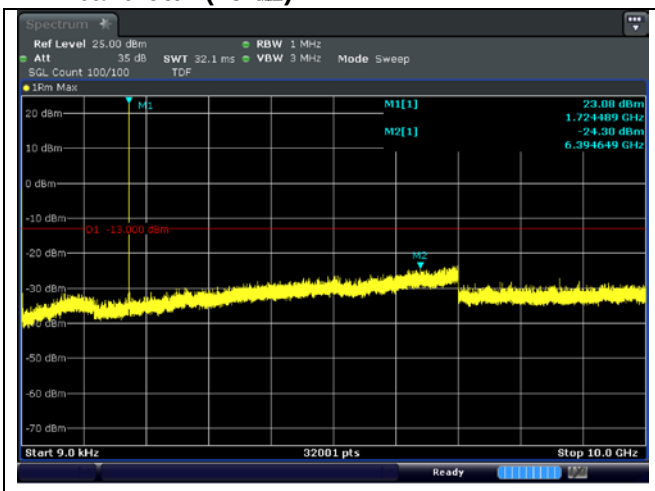
QPSK High Channel - 1 RB

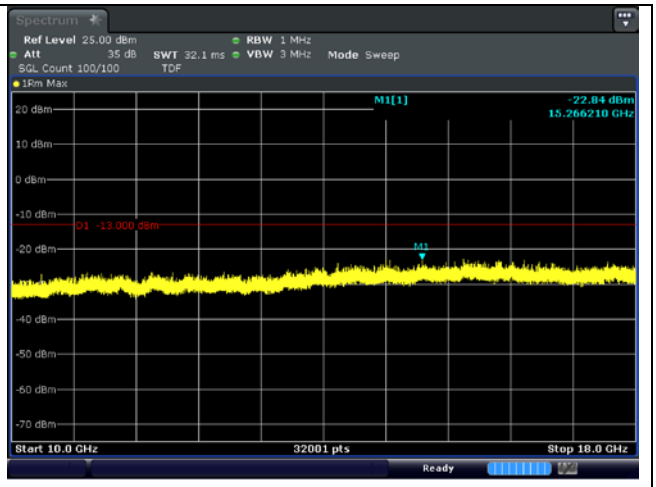
LTE band 14 (10 ㎒)



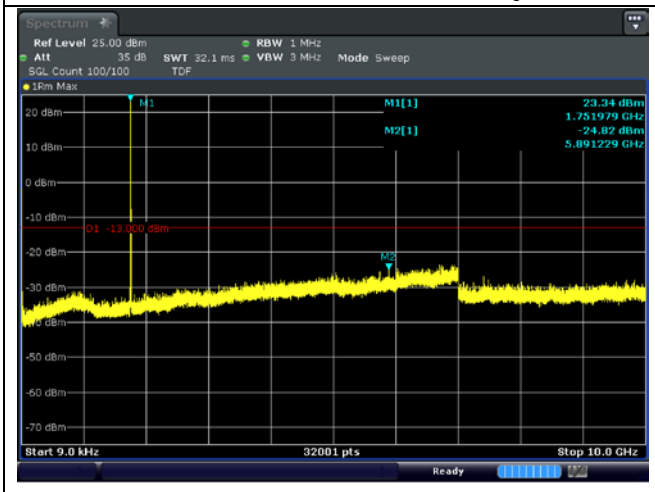
QPSK Middle Channel - 1 RB

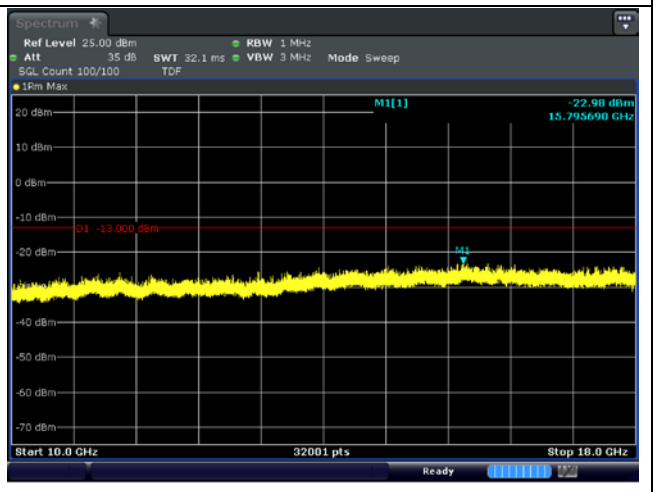
LTE band 66/4 (15 ㎒)



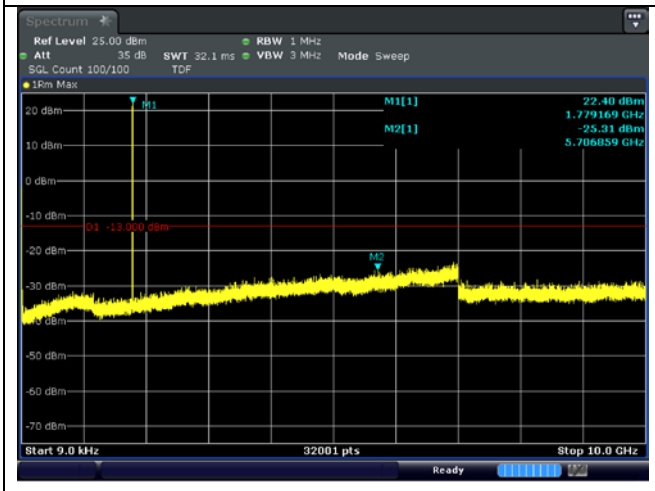


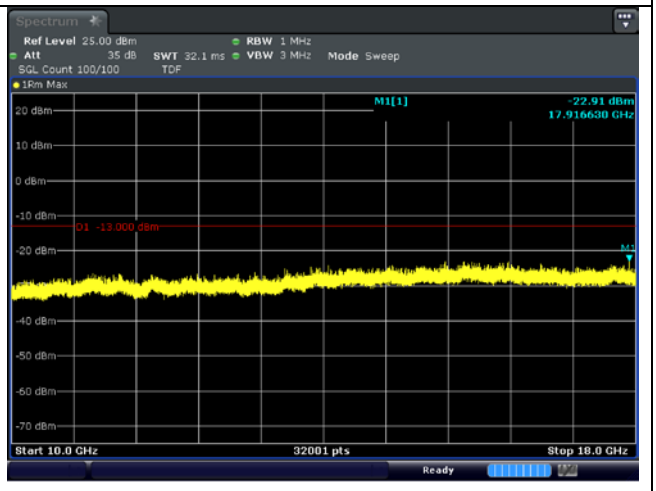
QPSK Low Channel - 1 RB





QPSK Middle Channel - 1 RB





QPSK High Channel - 1 RB

7. Band Edge and Emission Mask

7.1. Limit

FCC

- §22.917(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) ㏈.

- §24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) ㏈.

- §27.53(c)(2), on any frequency outside the 776-788 ㎒ band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) ㏈.

- §27.53(c)(4), on all frequencies between 763-775 ㎒ and 793-805 ㎒, by a factor not less than 65 + 10 log (P) ㏈ in a 6.25 ㎑ band segment, for mobile and portable stations;

- §27.53(g), 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) ㏈.

- §27.53(h)(1), for operations in the 1 695-1 710 ㎒, 1 710-1 755 ㎒, 1 755-1 780 ㎒, 1 915-1 920 ㎒, 1 995-2 000 ㎒, 2 000-2 020 ㎒, 2 110-2 155 ㎒, 2 155-2 180 ㎒, and 2 180-2 200 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) ㏈.

- §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than 40 + 10 $\log_{10}$ (P) ㏈ on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 $\log_{10}$ (P) ㏈ on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 $\log_{10}$ (P) ㏈ 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 $\log_{10}$ (P) ㏈ on all frequencies between 2 490.5 ㎒ and 2 496 ㎒ and 55 + 10 $\log_{10}$ (P) ㏈ at or below 2 490.5 ㎒. Mobile Satellite Service licensees operating on frequencies below 2 495 ㎒ 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.

- §90.543(e), For operations in the 758-768 ㎒ and the 788-798 ㎒ bands, the power of any emission outside the 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, in accordance with the following:

(1) On all frequencies between 769-775 ㎒ and 799-805 ㎒, by a factor not less than 76 + 10 log (P) ㏈ in a 6.25 ㎑ band segment, for base and fixed stations.

(2) On all frequencies between 769-775 ㎒ and 799-805 ㎒, by a factor not less than 65 + 10 log (P) ㏈ in a 6.25 ㎑ band segment, for mobile and portable stations.

(3) On any frequency between 775-788 ㎒, above 805 ㎒, and below 758 ㎒, by at least 43 + 10 log (P) ㏈.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 ㎑ segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 ㎑ or greater. However, in the 100 ㎑ bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 ㎑ may be employed.

IC

- RSS-130 Issue 2

4.7.1, the unwanted emissions in any 100 ㎑ bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (㏈ W), by at least 43 + 10 $\log_{10}$ p (watts), ㏈. However, in the 100 ㎑ band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 ㎑ may be employed.

4.7.2, In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 ㎒ and 777-787 ㎒ shall also comply with the following restrictions:

a) The power of any unwanted emissions in any 6.25 ㎑ bandwidth for all frequencies between 763-775 ㎒ and 793-806 ㎒ shall be attenuated below the transmitter power, P (㏈ W), by at least:

(i) 76 + 10 log10 p (watts), ㏈, for base and fixed equipment, and

(ii) 65 + 10 log10 p (watts), ㏈, for mobile and portable equipment.

b) The e.i.r.p. in the band 1 559-1 610 ㎒ shall not exceed -70 ㏈ W/㎒ for wideband signal and -80 ㏈ W for discrete emission with bandwidth less than 700 ㎐.

- RSS-132 Issue 3

5.5, Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(i) In the first 1.0 ㎒ band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1 % of the occupied bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p (watts).

(ii) After the first 1.0 ㎒ immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 ㎑ bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p (watts). If the measurement is performed using 1 % of the occupied bandwidth, power integration over 100 ㎑ is required.

- RSS-133 Issue 6

6.5, Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 ㎒ bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1 % of the emission bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p(watts).

(ii) After the first 1.0 ㎒, the emission power in any 1 ㎒ bandwidth shall be attenuated (in ㏈) below the transmitter output power P (㏈ W) by at least 43 + 10 $\log_{10}$ p(watts). If the measurement is performed using 1 % of the emission bandwidth, power integration over 1.0 ㎒ is required.

- RSS-139 Issue 3

6.6, (i) In the first 1.0 ㎒ bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1 % of the emission bandwidth shall be attenuated below the transmitter output power P (in ㏈ W) by at least 43 + 10 $\log_{10}$ p (watts) ㏈.

(ii) After the first 1.0 ㎒ outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 ㎒ bandwidth shall be attenuated below the transmitter output power P (in ㏈ W) by at least 43 + 10 $\log_{10}$ p (watts) ㏈.

- RSS-140 Issue 1
4.4, The power of any unwanted emission outside the bands 758-768 ㎒ and 788-798 ㎒ shall be attenuated below the transmitter output power P in ㏈ W as follows, where p is the transmitter output power in watts:

a) For any frequency between 769-775 ㎒ and 799-806 ㎒:
i) 76 + 10 log (p), ㏈ in a 6.25 ㎑ band for fixed and base station equipment

ii) 65 + 10 log (p), ㏈ in a 6.25 ㎑ band for mobile and portable/hand-held equipment

b) For any frequency between 775-788 ㎒, above 806 ㎒, and below 758 ㎒: 43 + 10 log (p), ㏈ in a bandwidth of 100 ㎑ or greater. However, in the 100 ㎑ bands immediately outside and adjacent to the frequency bands 758-768 ㎒ and 788-798 ㎒, a resolution bandwidth of 30 ㎑ may be employed.

- RSS-199 Issue 3
4.5, In the 1 ㎒ band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment, and 2% for mobile subscriber equipment. Beyond the 1 ㎒ band, a resolution bandwidth of 1 ㎒ shall be used. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 ㎒, or 1% or 2% of the occupied bandwidth, as applicable.

Equipment shall comply with the following unwanted emission limits:

for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in ㏈) below the transmitter power, P (㏈ W), by at least 43 + 10 log10 p for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in ㏈) below the transmitter power, P (㏈ W), by at least:

i. 40 + 10 log10 p from the channel edges to 5 ㎒ away
ii. 43 + 10 log10 p between 5 ㎒ and X ㎒ from the channel edges, and
iii. 55 + 10 log10 p at X ㎒ and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 log10 p on all frequencies between 2 490.5 ㎒ and 2 496 ㎒, and 55 + 10 log10 p at or below 2 490.5 ㎒.

In (a) and (b), p is the transmitter power measured in watts and X is 6 ㎒ or the equipment occupied bandwidth, whichever is greater.