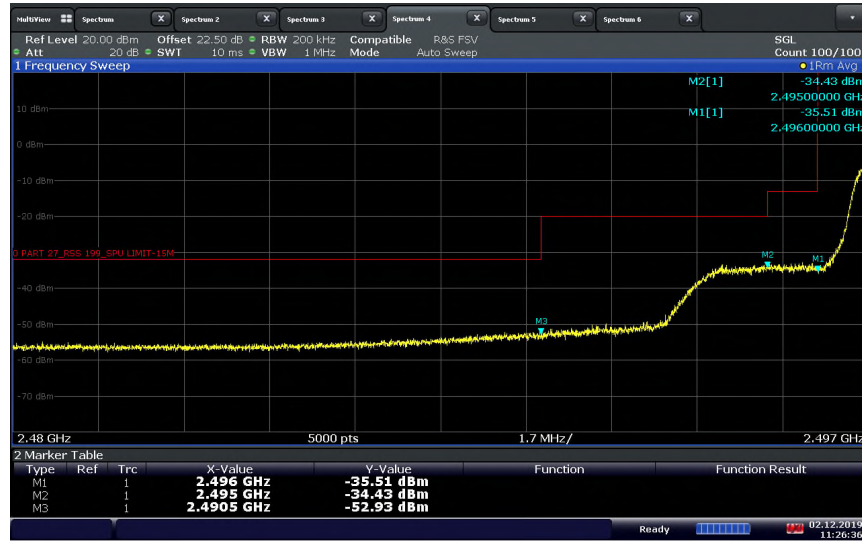


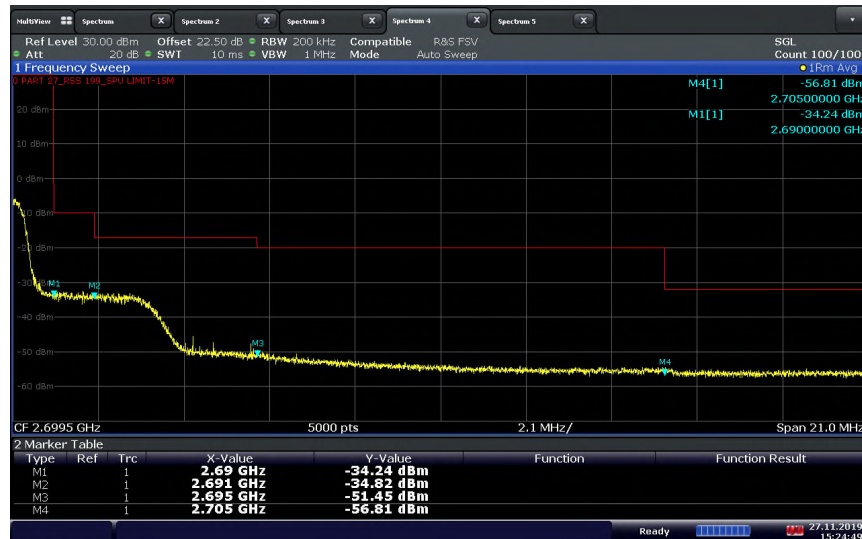


**LTE Band 41 Downlink 15 MHz BW / Low Channel 2503.5 MHz Low Band Edge @2496 MHz**



11:26:36 02.12.2019

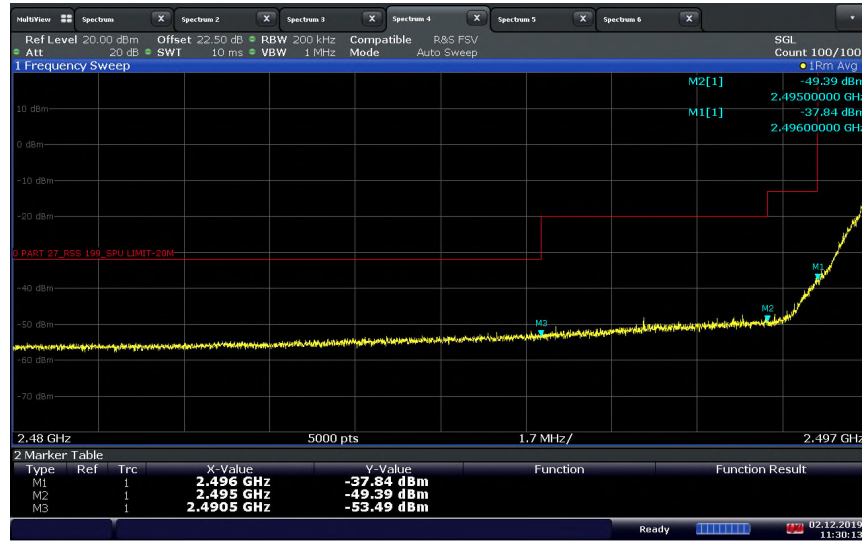
**LTE Band 41 Downlink 15 MHz BW / High Channel 2682.5 MHz High Band Edge @2690 MHz**



15:24:50 27.11.2019

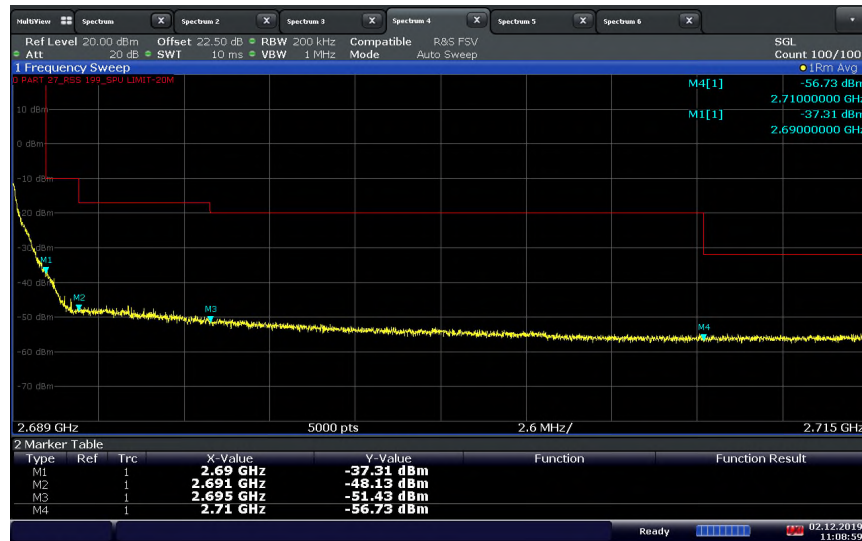


**LTE Band 41 Downlink 20 MHz BW / Low Channel 2506 MHz Low Band Edge @2496 MHz**



11:30:13 02.12.2019

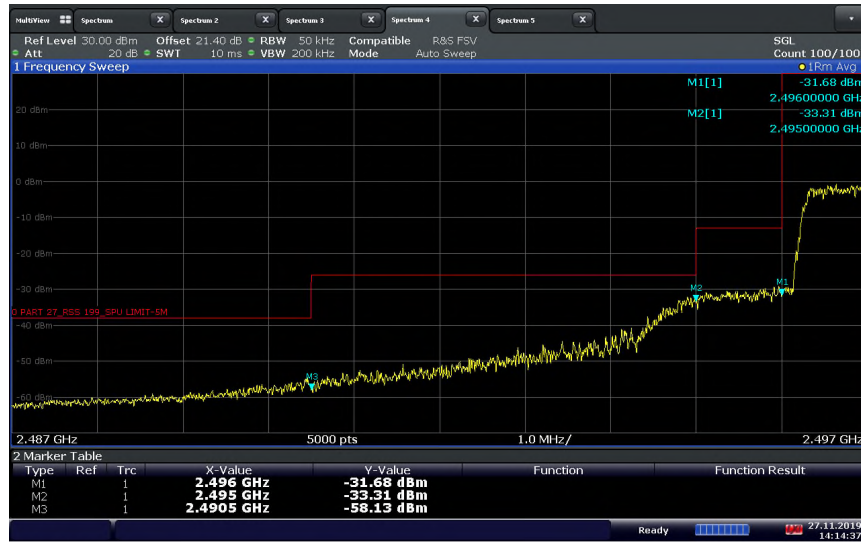
**LTE Band 41 Downlink 20 MHz BW / High Channel 2680 MHz High Band Edge @2690 MHz**



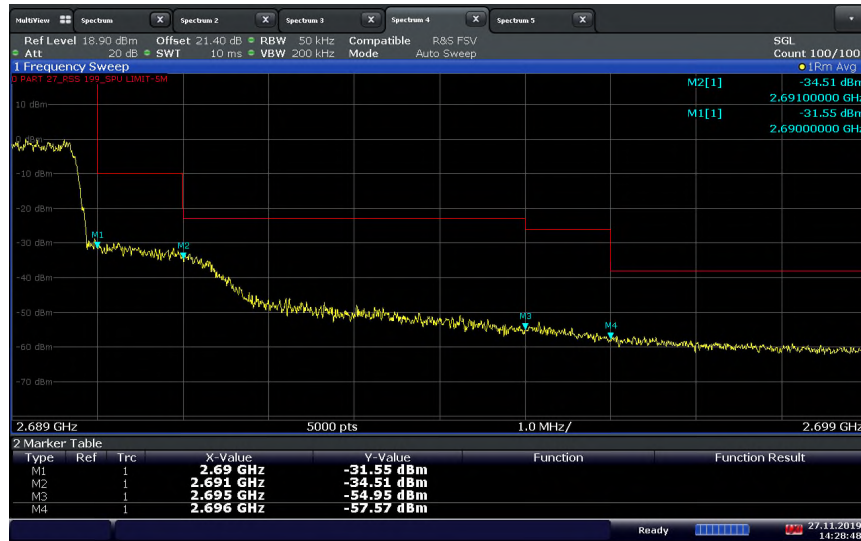
11:09:00 02.12.2019



**LTE Band 41 Uplink 5 MHz BW / Low Channel 2498.5 MHz Low Band Edge @2496 MHz**

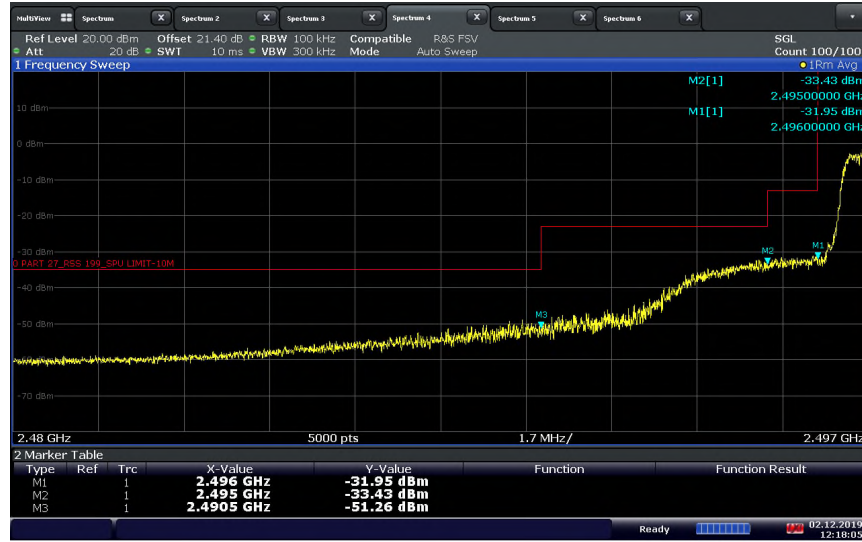


**LTE Band 41 Uplink 5 MHz BW / High Channel 2687.5 MHz High Band Edge @2690 MHz**



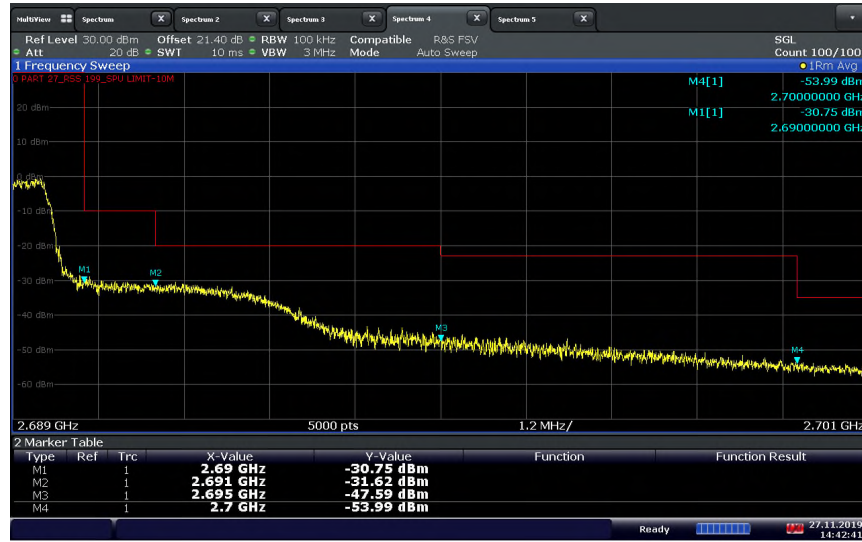


**LTE Band 41 Uplink 10 MHz BW / Low Channel 2501 MHz Low Band Edge @2496 MHz**



12:18:06 02.12.2019

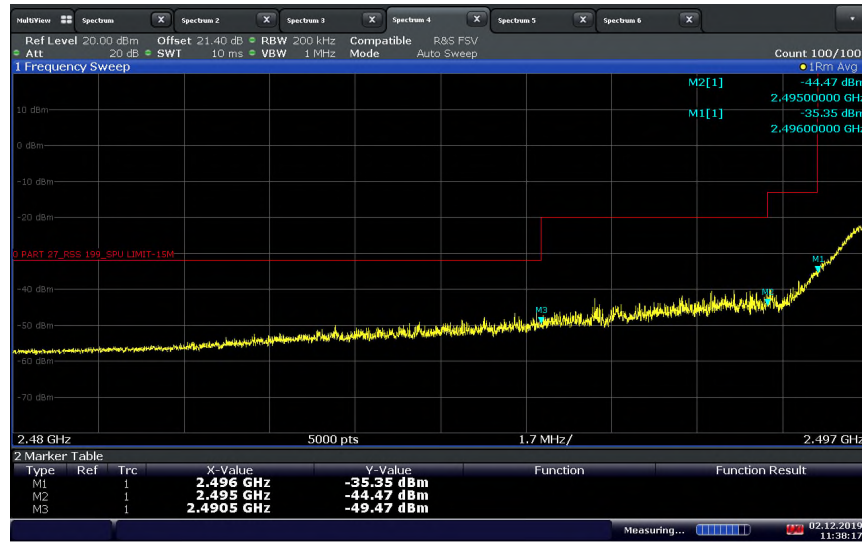
**LTE Band 41 Uplink 10 MHz BW / High Channel 2685 MHz High Band Edge @2690 MHz**



14:42:41 27.11.2019

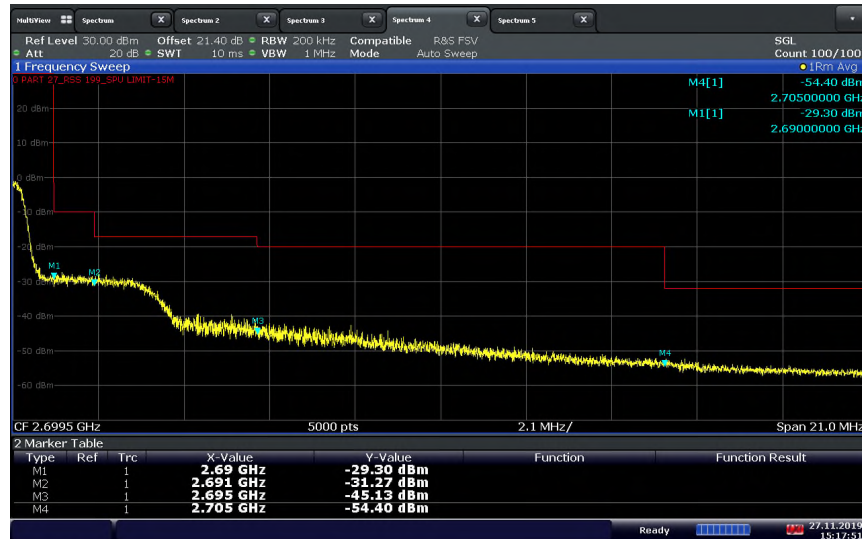


**LTE Band 41 Uplink 15 MHz BW / Low Channel 2503.5 MHz Low Band Edge @2496 MHz**



11:38:18 02.12.2019

**LTE Band 41 Uplink 15 MHz BW / High Channel 2682.5 MHz High Band Edge @2690 MHz**



15:17:52 27.11.2019



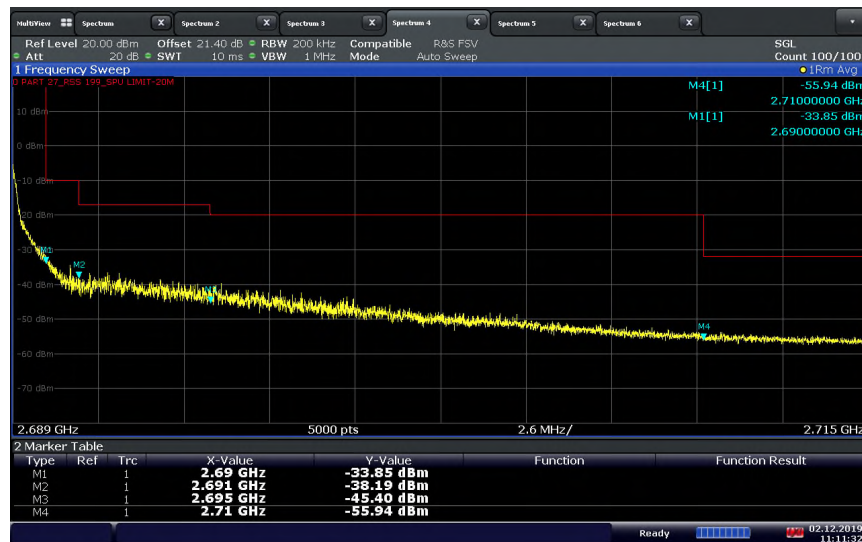


**LTE Band 41 Uplink 20 MHz BW / Low Channel 2506 MHz Low Band Edge @2496 MHz**



11:15:46 02.12.2019

**LTE Band 41 Uplink 20 MHz BW / High Channel 2680 MHz High Band Edge @2690 MHz**



11:11:32 02.12.2019

## 2.6 CONDUCTED SPURIOUS EMISSIONS

### 2.6.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1051  
FCC 47 CFR Part 27, Clause 27.53(m)(2)(v) and (4)  
FCC 47 CFR Part 90, Clause 90.691(a)  
RSS-199, Clause 4.5

### 2.6.2 Standard Applicable

FCC 47 CFR Part 27.53(m)(2):

(v) For all fixed digital user stations, the attenuation factor shall be not less than  $43 + 10 \log (P)$  dB at the channel edge.

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

FCC 47 CFR Part 90.691(a):

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

RSS-199, Clause 4.5:

In the 1 MHz 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 MHz band, a resolution bandwidth of 1 MHz 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 MHz, or 1% or 2% of the occupied bandwidth, as applicable.

Equipment shall comply with the following unwanted emission limits:

(a) for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least  $43 + 10 \log_{10} p$ .

(b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:



- (i)  $40 + 10 \log_{10} p$  from the channel edges to 5 MHz away
- (ii)  $43 + 10 \log_{10} p$  between 5 MHz and X MHz from the channel edges, and
- (iii)  $55 + 10 \log_{10} p$  at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than  $43 + 10 \log_{10} p$  on all frequencies between 2490.5 MHz and 2496 MHz, and  $55 + 10 \log_{10} p$  at or below 2490.5 MHz.

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

### 2.6.3 Equipment Under Test and Modification State

Serial No: 370920000139 (NU) and 371929000156, 443935000064 (CU) / Test Configuration A and B

### 2.6.4 Date of Test/Initial of test personnel who performed the test

November 11, 2019 / ZXY

### 2.6.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.6.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

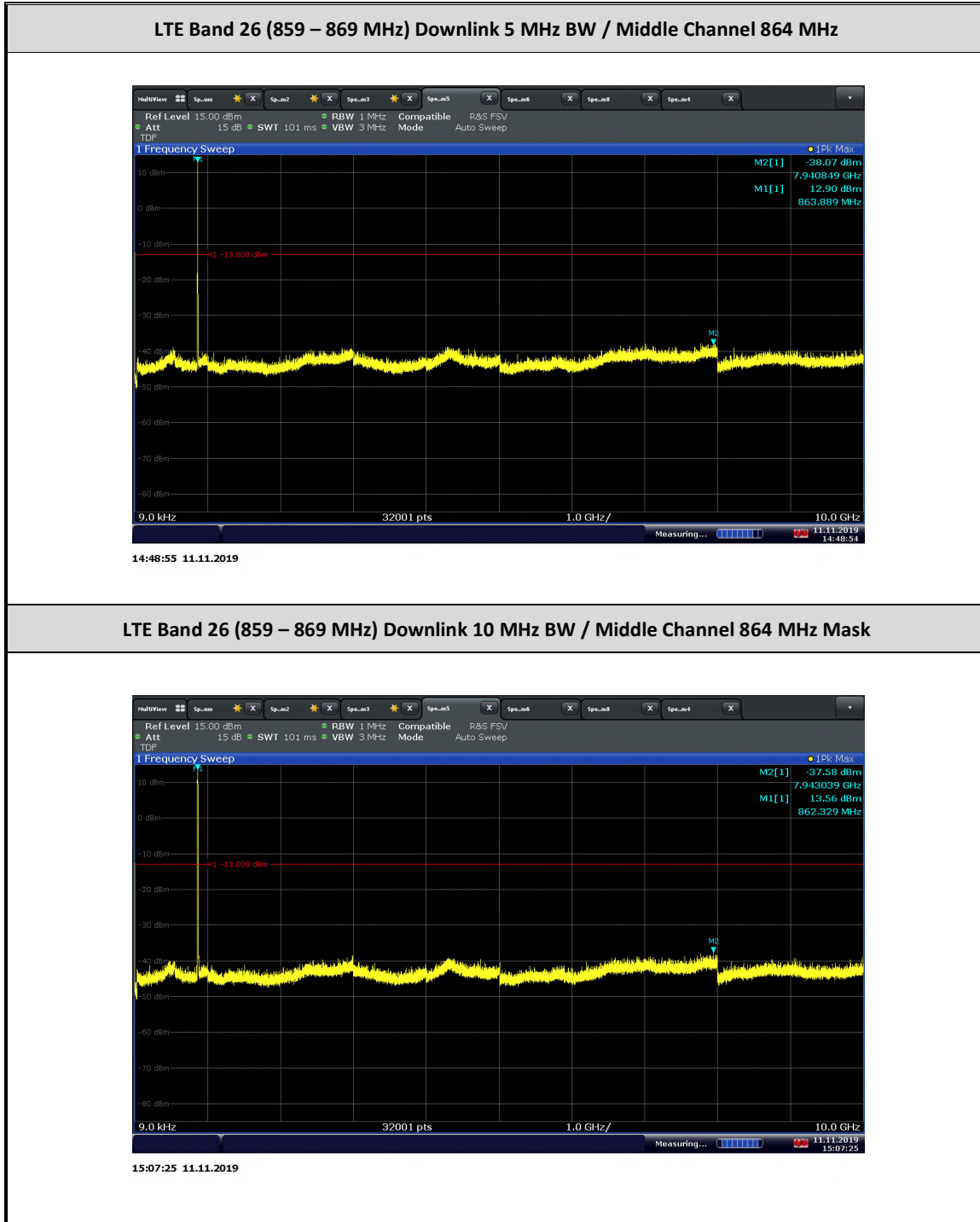
Ambient Temperature	24.8°C
Relative Humidity	44.6%
ATM Pressure	99.2kPa

### 2.6.7 Additional Observations

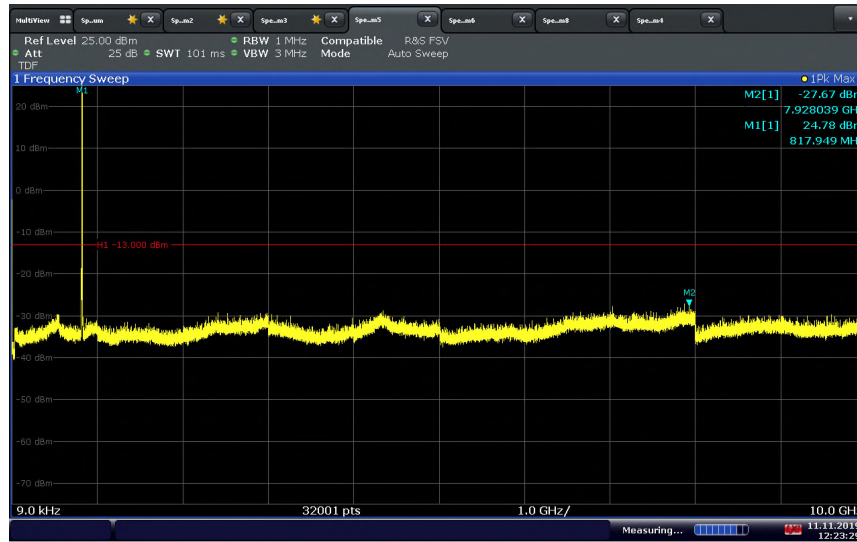
- This is a conducted test.
- The path loss was measured and entered as a transducer factor (TDF).
- The spectrum was searched from 30MHz to the 10<sup>th</sup> harmonic.
- All channels on all channel bandwidth are verified.



### 2.6.8 Test Results

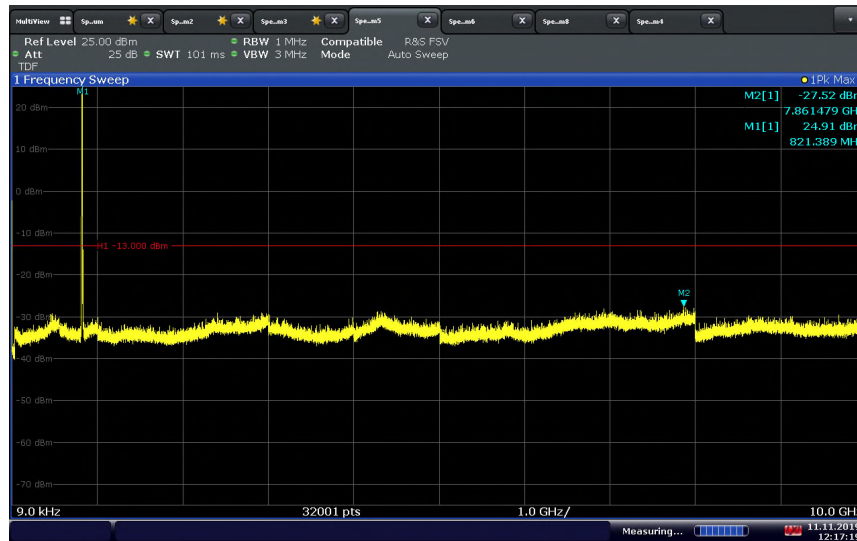


### LTE Band 26 (814 – 824 MHz) Uplink 5 MHz BW / Middle Channel 819 MHz



12:23:29 11.11.2019

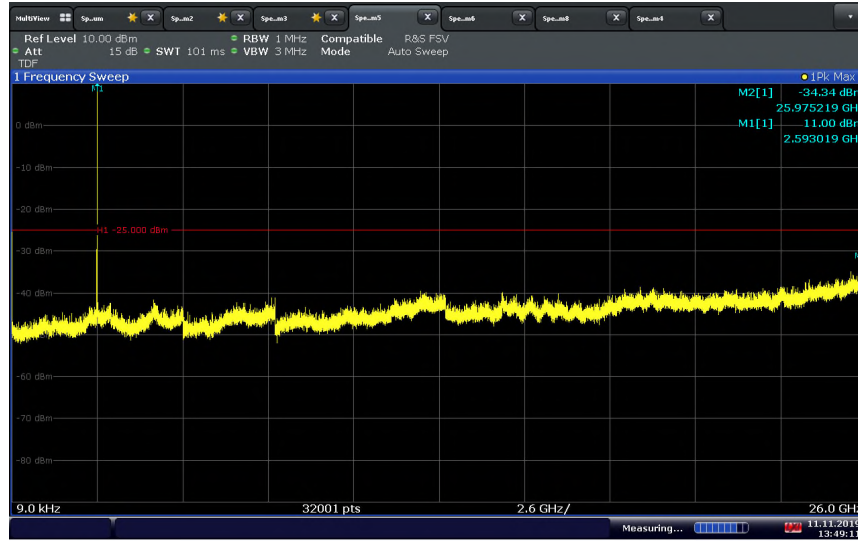
### LTE Band 26 (814 – 824 MHz) Uplink 10 MHz BW / Middle Channel 819 MHz



12:17:19 11.11.2019

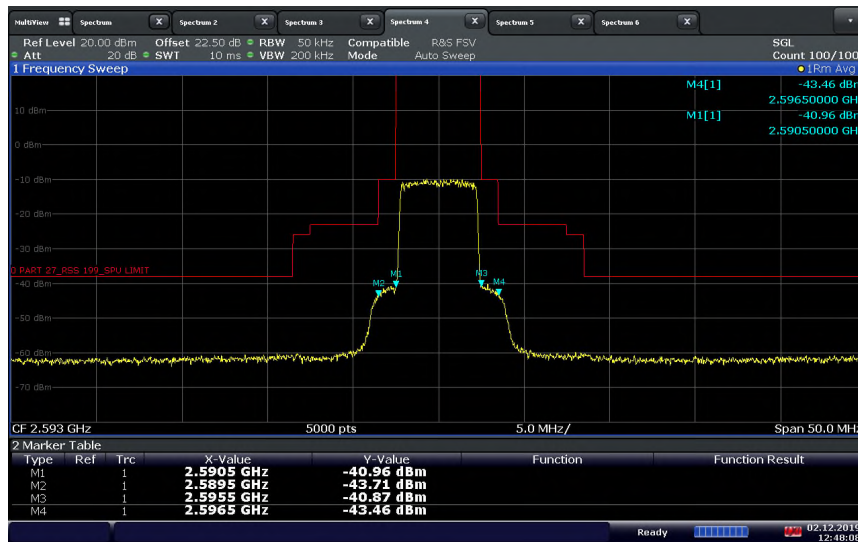


LTE Band 41 Downlink 5 MHz BW / Middle Channel 2593 MHz



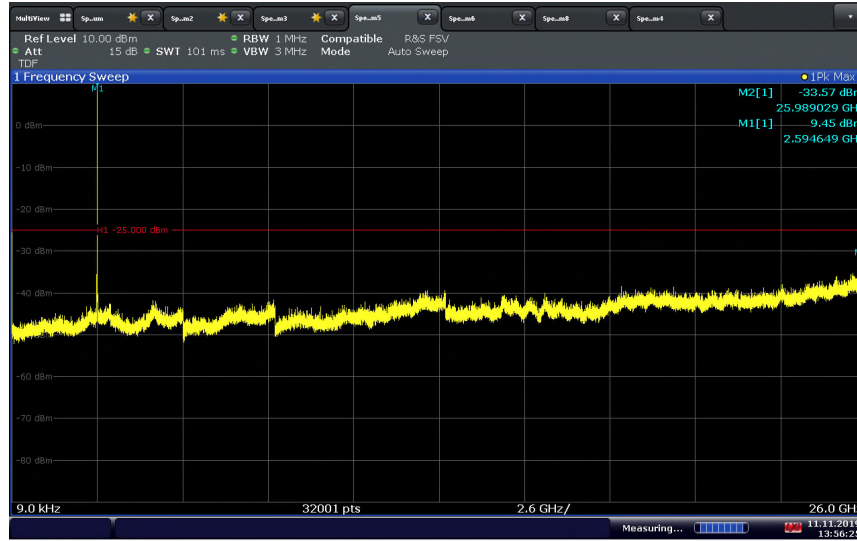
13:49:11 11.11.2019

LTE Band 41 Downlink 5 MHz BW / Middle Channel 2593 MHz Mask

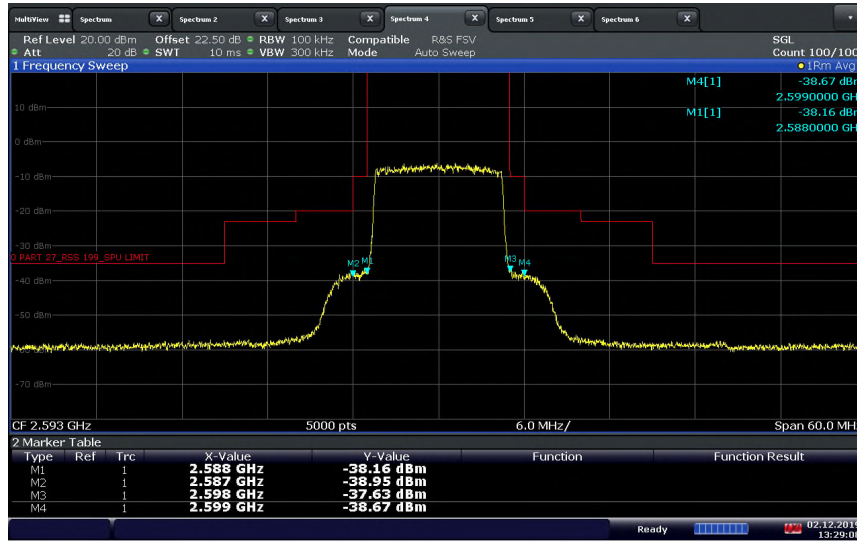


12:48:09 02.12.2019

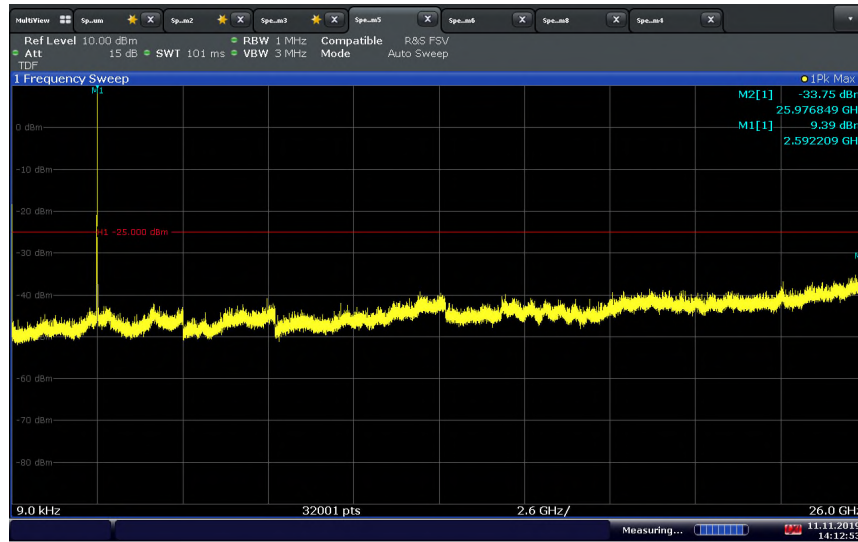
LTE Band 41 Downlink 10 MHz BW / Middle Channel 2593 MHz



LTE Band 41 Downlink 10 MHz BW / Middle Channel 2593 MHz Mask

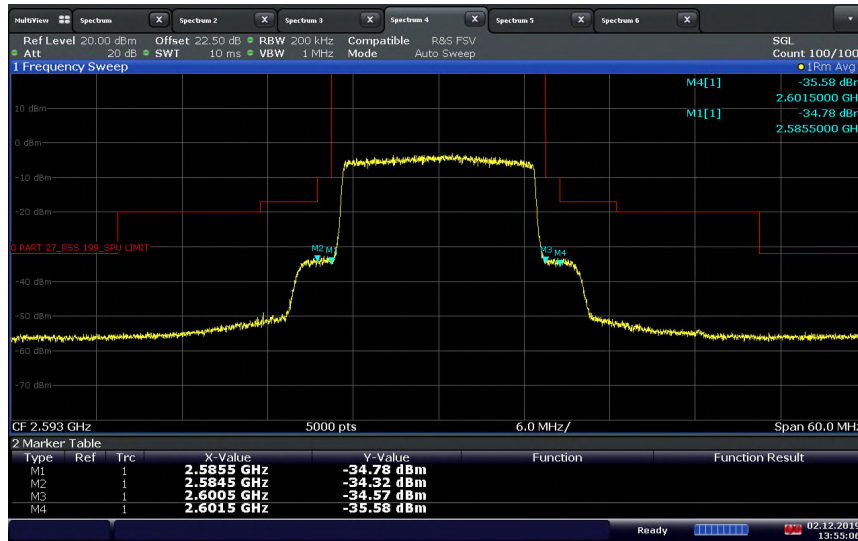


LTE Band 41 Downlink 15 MHz BW / Middle Channel 2593 MHz



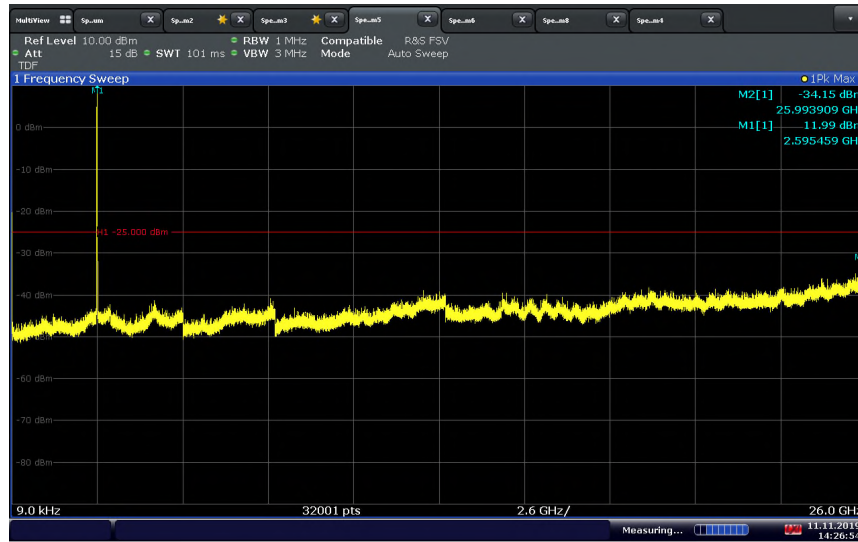
14:12:53 11.11.2019

LTE Band 41 Downlink 15 MHz BW / Middle Channel 2593 MHz Mask



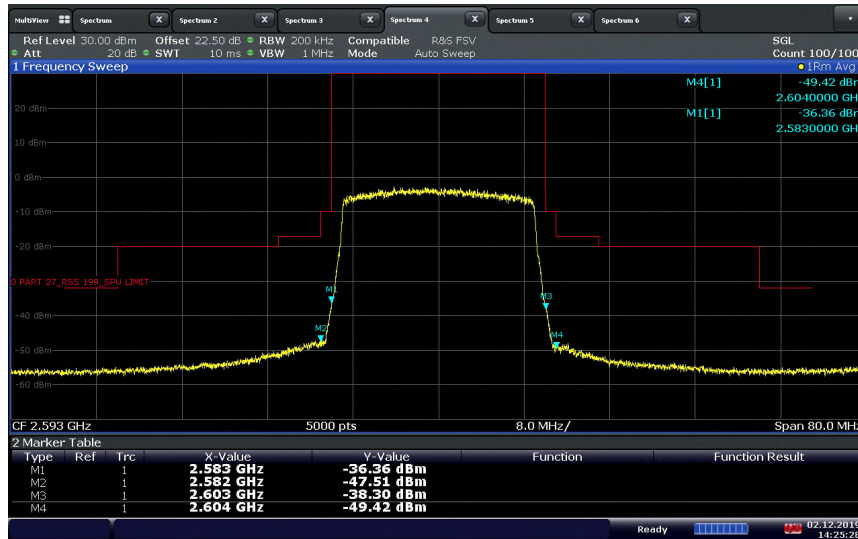
13:55:06 02.12.2019

LTE Band 41 Downlink 20 MHz BW / Middle Channel 2593 MHz



14:26:55 11.11.2019

LTE Band 41 Downlink 20 MHz BW / Middle Channel 2593 MHz Mask

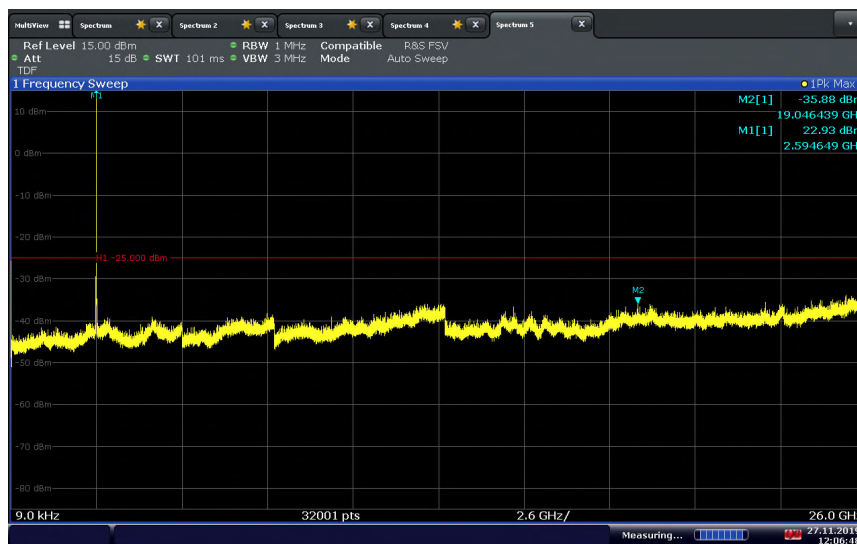


14:25:29 02.12.2019



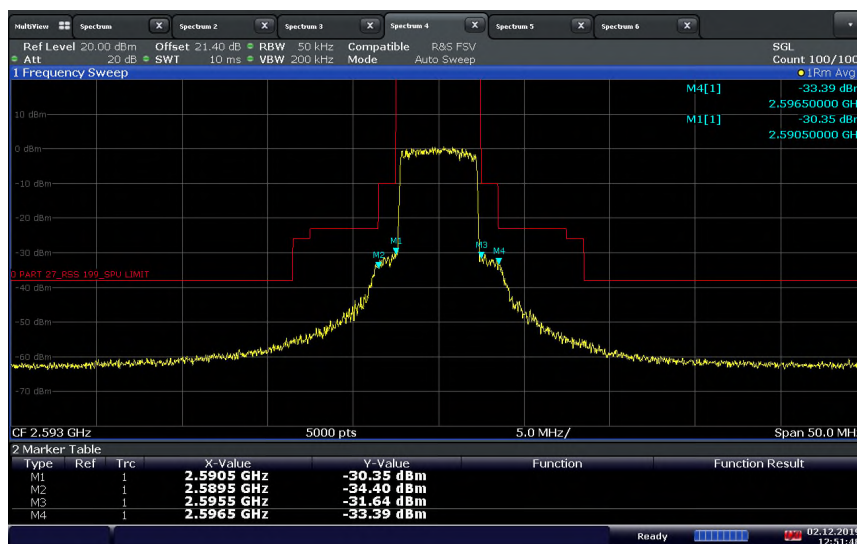


LTE Band 41 Uplink 5 MHz BW / Middle Channel 2593 MHz



12:06:48 27.11.2019

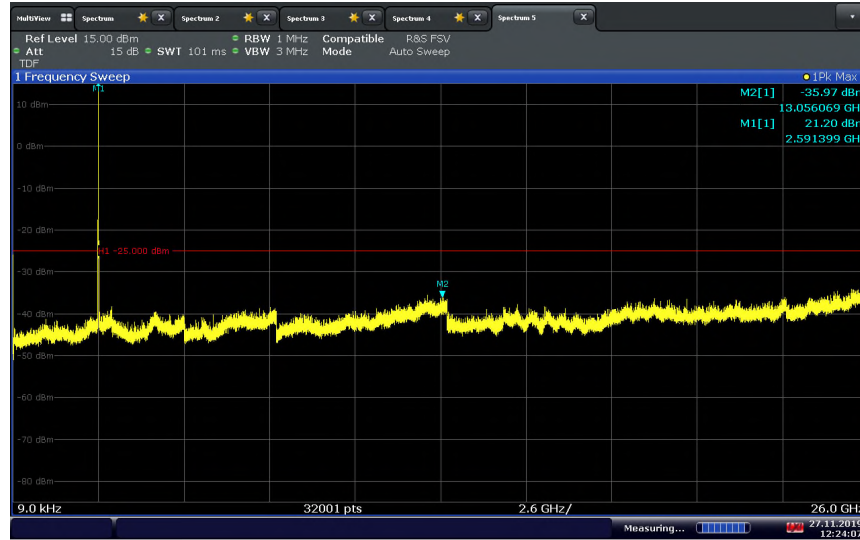
LTE Band 41 Uplink 5 MHz BW / Middle Channel 2593 MHz Mask



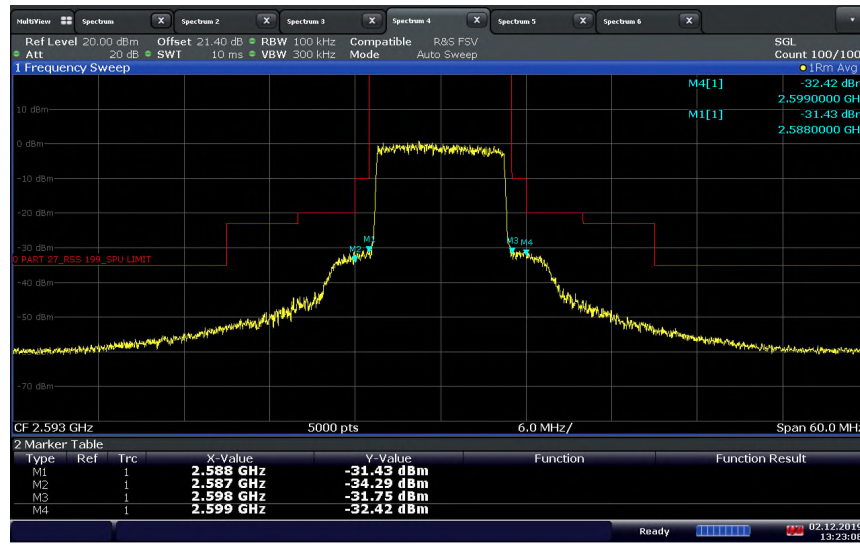
12:51:48 02.12.2019



LTE Band 41 Uplink 10 MHz BW / Middle Channel 2593 MHz

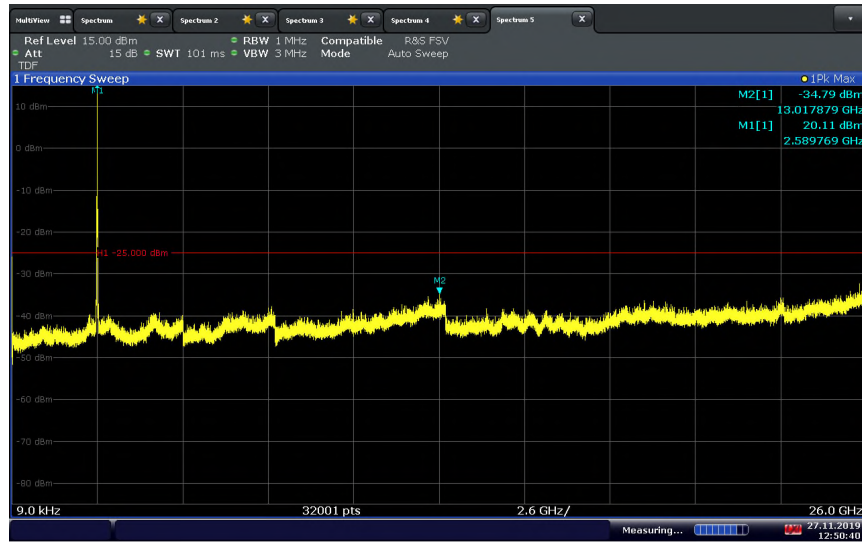


LTE Band 41 Uplink 10 MHz BW / Middle Channel 2593 MHz Mask



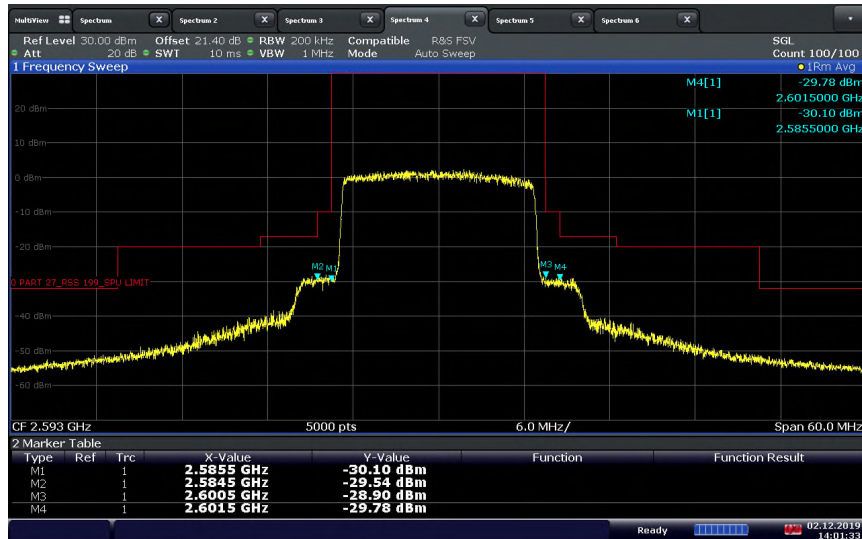


LTE Band 41 Uplink 15 MHz BW / Middle Channel 2593 MHz



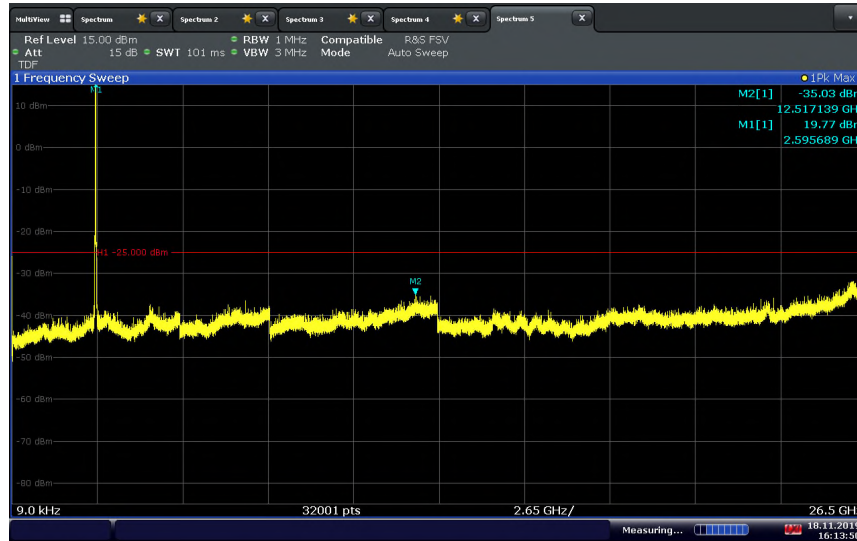
12:50:40 27.11.2019

LTE Band 41 Uplink 15 MHz BW / Middle Channel 2593 MHz Mask



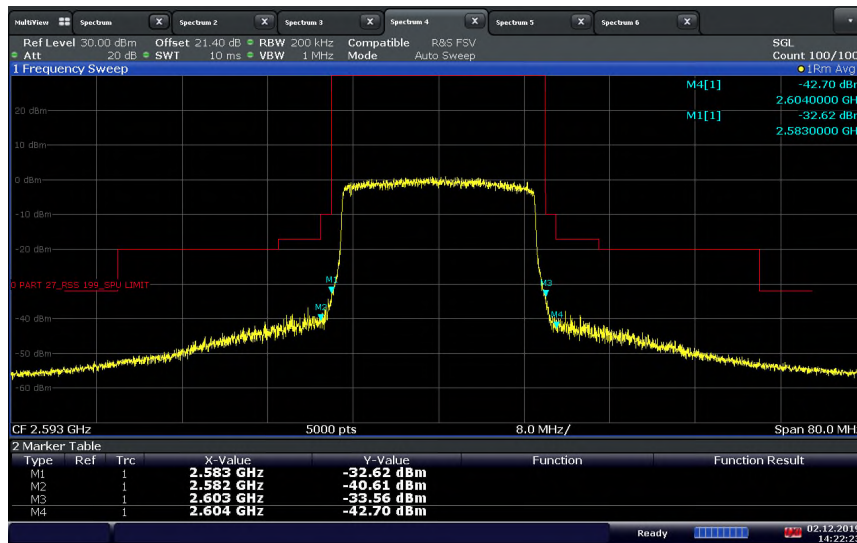
14:01:33 02.12.2019

LTE Band 41 Uplink 20 MHz BW / Middle Channel 2593 MHz



16:13:51 18.11.2019

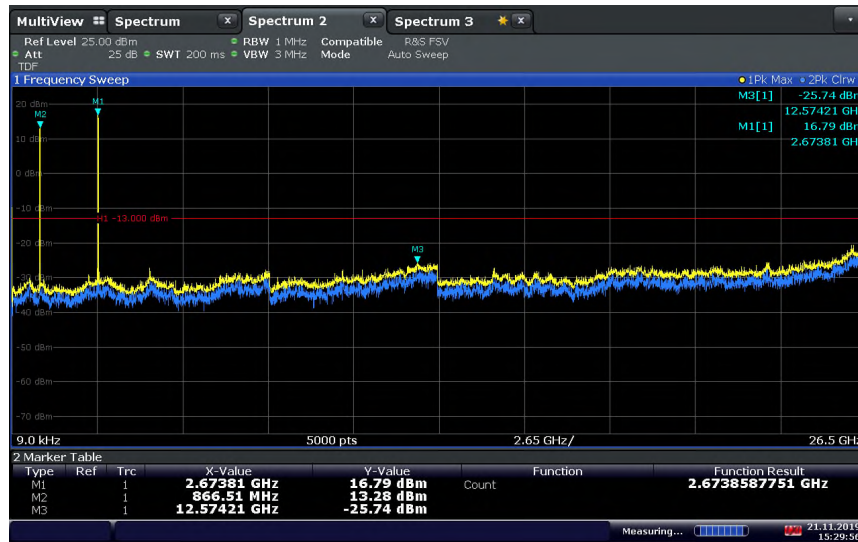
LTE Band 41 Uplink 20 MHz BW / Middle Channel 2593 MHz Mask



14:22:24 02.12.2019

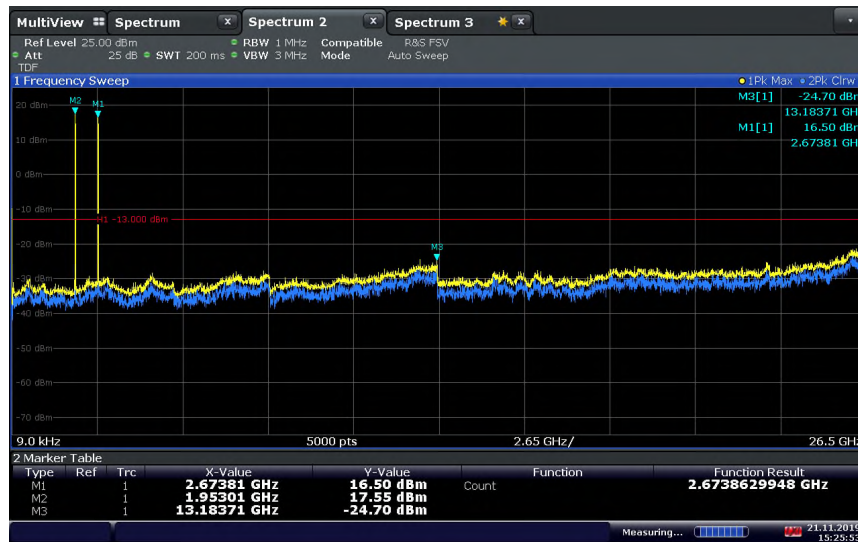


**2 Bands per antenna port Conducted Spurious Emissions**  
**Ant Port D Downlink: LTE Band 41 20MHz BW High Ch & LTE Band 26 (859 – 869 MHz) 10MHz BW Mid Ch**



15:29:56 21.11.2019

**2 Bands per antenna port Conducted Spurious Emissions**  
**Ant Port D Downlink: LTE Band 41 20MHz BW High Ch & LTE Band 25 20MHz BW Mid Ch**

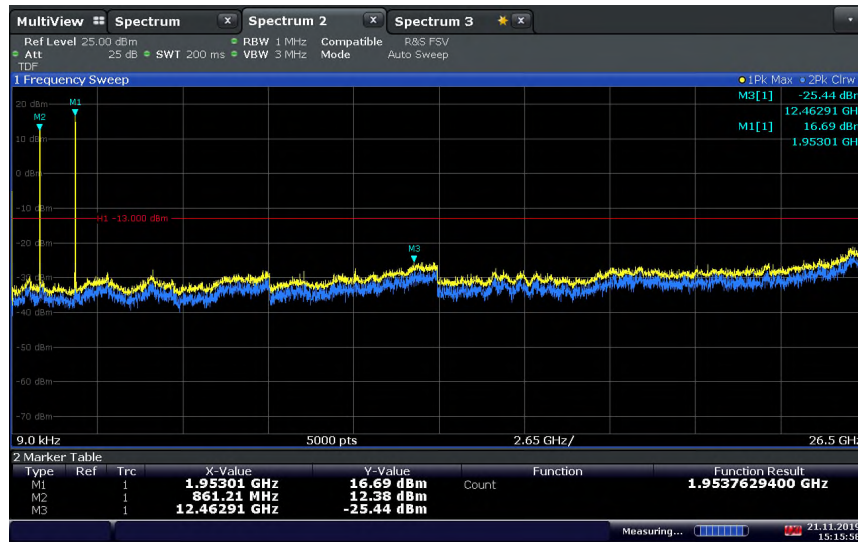


15:25:54 21.11.2019



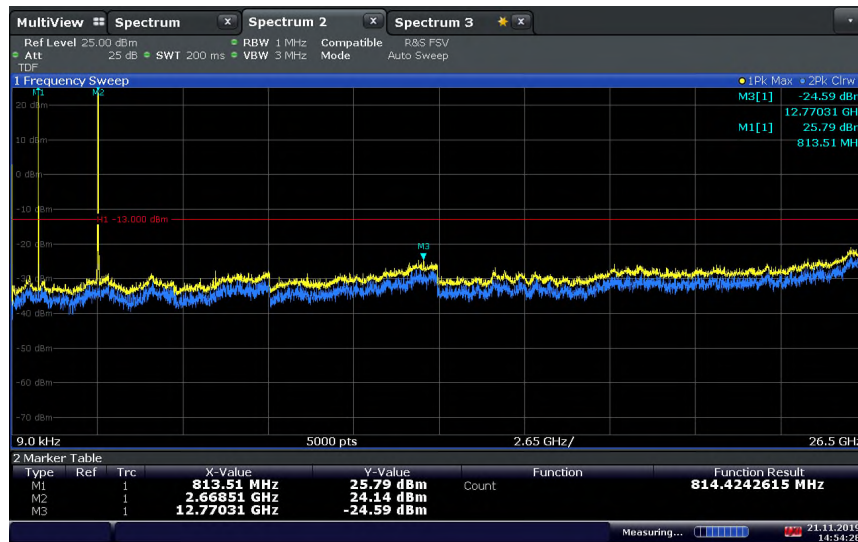


**2 Bands per antenna port Conducted Spurious Emissions**  
**Ant Port D Downlink: LTE Band 26 (859 – 869 MHz) 10MHz BW Mid Ch & LTE Band 25 20MHz BW Mid Ch**



15:15:59 21.11.2019

**2 Bands per antenna port Conducted Spurious Emissions**  
**Ant Port D Uplink: LTE Band 41 20MHz BW High Ch & LTE Band 26 (814 – 824 MHz) 5MHz BW Low Ch**

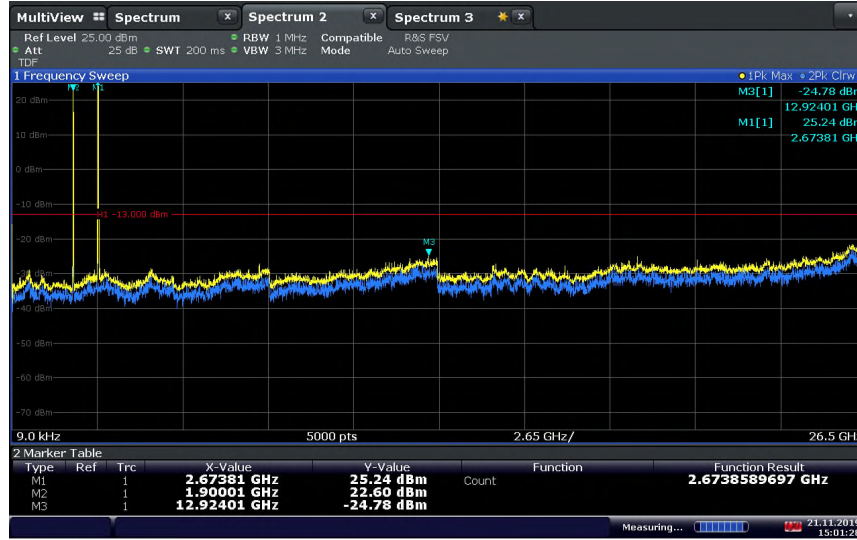


14:54:29 21.11.2019



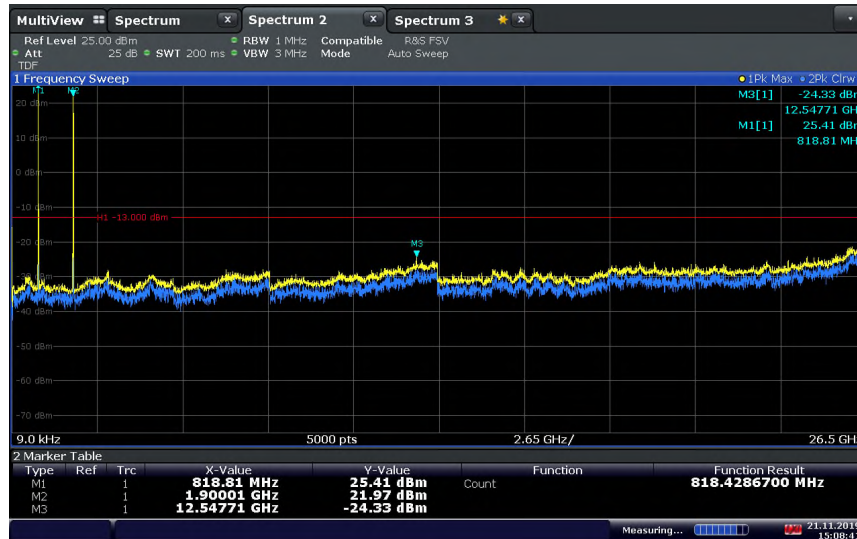


**2 Bands per antenna port Conducted Spurious Emissions**  
**Ant Port D Uplink: LTE Band 41 20MHz BW High Ch & LTE Band 25 20MHz BW High Ch**



15:01:29 21.11.2019

**2 Bands per antenna port Conducted Spurious Emissions**  
**Ant Port D Uplink: LTE Band 26 (814 - 824 MHz) 5MHz BW Low Ch & LTE Band 25 20MHz BW High Ch**



15:08:41 21.11.2019



## 2.7 FIELD STRENGTH OF SPURIOUS RADIATION

### 2.7.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1053  
FCC 47 CFR Part 27.53(m)(2) and (4)  
FCC 47 CFR Part 90, Clause 90.691(a)  
KDB 935210 D05, Clause 4.9  
RSS-199, Clause 4.5

### 2.7.2 Standard Applicable

FCC 47 CFR Part 27.53(m)(2):

(v) For all fixed digital user stations, the attenuation factor shall be not less than  $43 + 10 \log (P)$  dB at the channel edge.

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

FCC 47 CFR Part 90.691(a):

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

RSS-199, Clause 4.5:

In the 1 MHz 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 MHz band, a resolution bandwidth of 1 MHz 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 MHz, or 1% or 2% of the occupied bandwidth, as applicable.

Equipment shall comply with the following unwanted emission limits:

(a) for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least  $43 + 10 \log_{10} p$ .

(b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:

- (i)  $40 + 10 \log_{10} p$  from the channel edges to 5 MHz away
- (ii)  $43 + 10 \log_{10} p$  between 5 MHz and X MHz from the channel edges, and
- (iii)  $55 + 10 \log_{10} p$  at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than  $43 + 10 \log_{10} p$  on all frequencies between 2490.5 MHz and 2496 MHz, and  $55 + 10 \log_{10} p$  at or below 2490.5 MHz.

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

### 2.7.3 Equipment Under Test and Modification State

Serial No: 370920000139 (NU) and 443935000064 (CU) / Test Configuration C and D

### 2.7.4 Date of Test/Initial of test personnel who performed the test

November 19 and 20, 2019/XYZ

### 2.7.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.7.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility.

Ambient Temperature	24.2 - 24.7 °C
Relative Humidity	40.6 - 43.3 %
ATM Pressure	97.9 - 98.1 kPa

### 2.7.7 Additional Observations

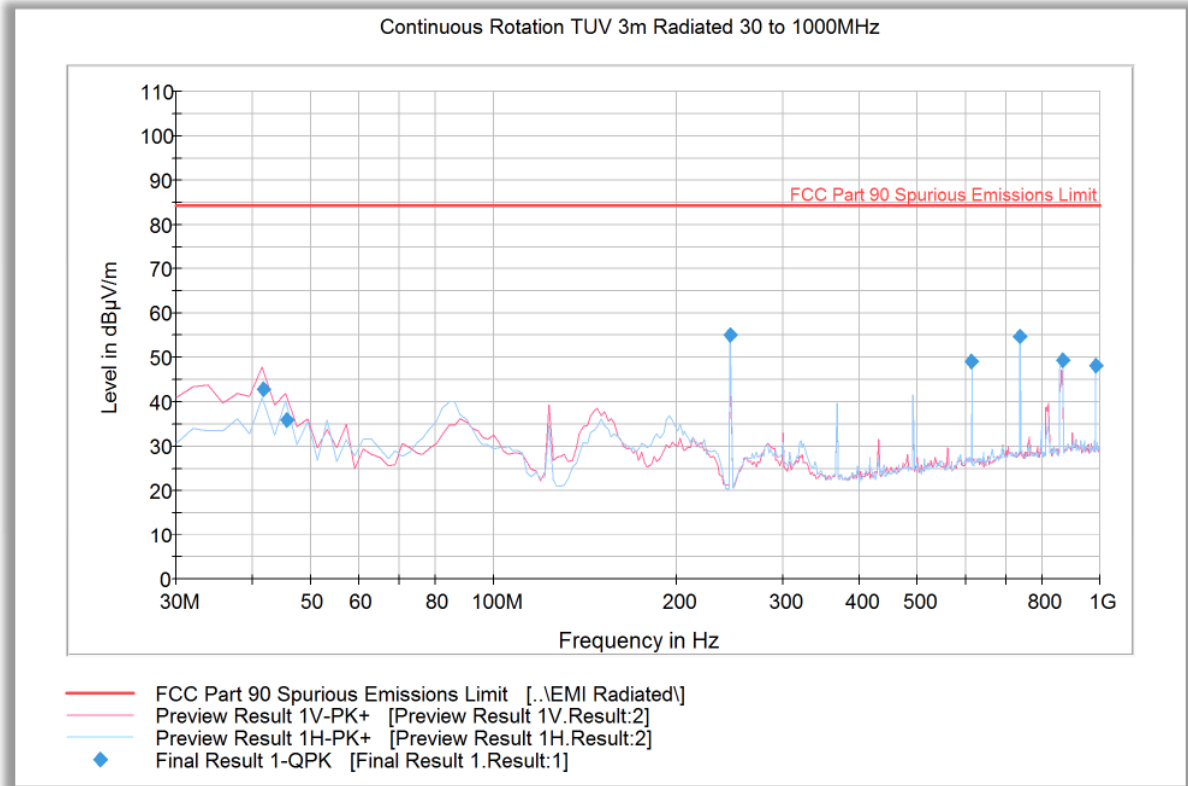
- This is a radiated test using the direct Radiated Field Strength method of C63.26 2015.
- This is cabinet spurious emissions testing. Main antenna port was terminated during the test. Fundamental frequency measurement will be ignored for this test.
- Only the worst case configuration presented in this test report.
- Measurement was done using EMC32 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only.

### 2.7.8 Test Results

**Compliant.** See attached plots.



**2.7.9 Radiated Emission Test Results Below 1GHz – LTE Band 26 Downlink (859 - 869 MHz) 10MHz Bandwidth Middle Channel**



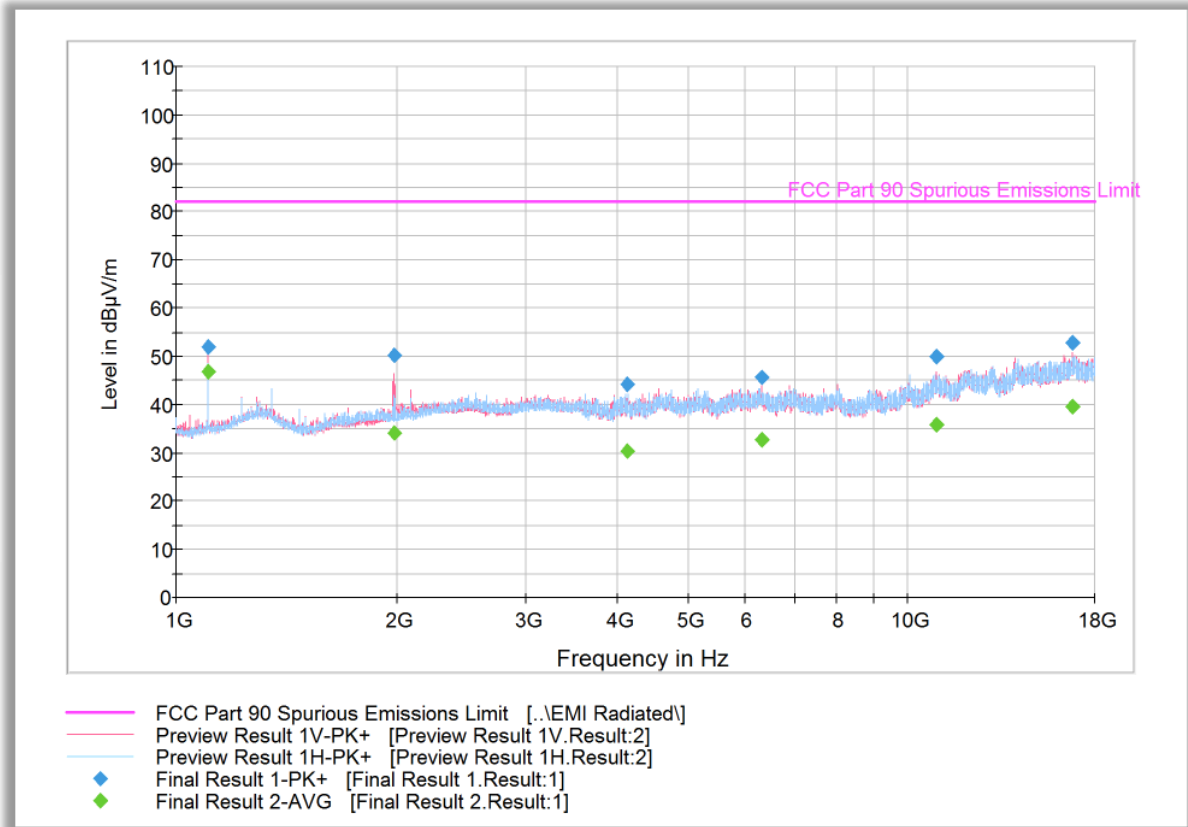
**Quasi Peak Data**

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
41.743327	42.7	1000.0	120.000	115.0	V	335.0	-12.4	39.5	82.2
45.671102	36.1	1000.0	120.000	150.0	V	322.0	-13.7	46.1	82.2
245.731543	54.9	1000.0	120.000	105.0	H	78.0	-8.7	27.3	82.2
614.390220	49.1	1000.0	120.000	105.0	H	88.0	0.9	33.1	82.2
737.255150	54.6	1000.0	120.000	105.0	H	254.0	2.9	27.6	82.2
866.911743	49.4	1000.0	120.000	150.0	H	144.0	4.6	Fundamental*	
983.008898	48.1	1000.0	120.000	109.0	H	294.0	5.5	34.1	82.2

\* This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.



**2.7.10 Radiated Emission Test Results Above 1GHz – LTE Band 26 Downlink (859 - 869 MHz) 10MHz Bandwidth Middle Channel**



**Peak Data**

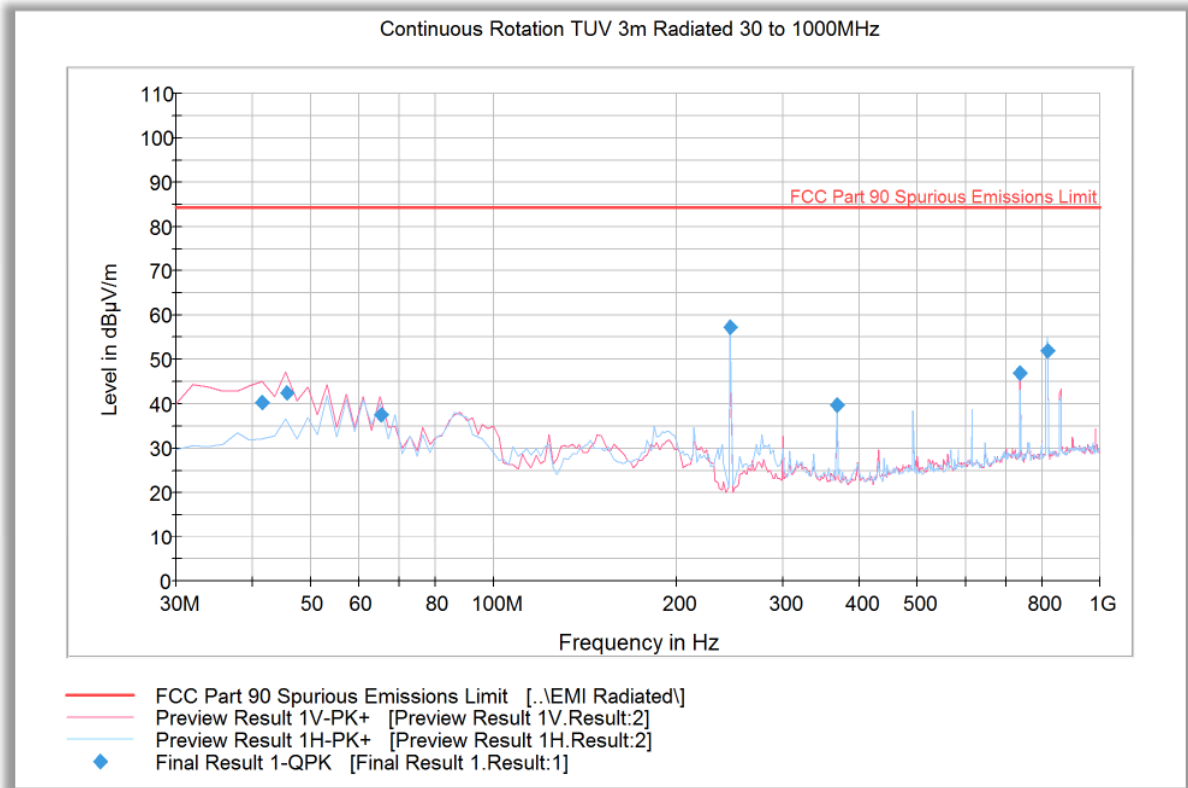
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	51.9	1000.0	1000.000	208.5	V	254.0	-6.9	30.3	82.2
1987.933333	50.3	1000.0	1000.000	127.7	V	166.0	-2.3	31.9	82.2
4141.566667	44.1	1000.0	1000.000	323.2	H	215.0	2.6	38.1	82.2
6314.800000	45.8	1000.0	1000.000	265.3	V	19.0	6.2	36.4	82.2
10938.000000	49.9	1000.0	1000.000	231.4	V	90.0	11.9	32.3	82.2
16808.100000	52.8	1000.0	1000.000	342.1	V	288.0	17.9	29.4	82.2

**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	46.8	1000.0	1000.000	208.5	V	254.0	-6.9	35.4	82.2
1987.933333	34.2	1000.0	1000.000	127.7	V	166.0	-2.3	48.0	82.2
4141.566667	30.4	1000.0	1000.000	323.2	H	215.0	2.6	51.8	82.2
6314.800000	32.7	1000.0	1000.000	265.3	V	19.0	6.2	49.5	82.2
10938.000000	35.9	1000.0	1000.000	231.4	V	90.0	11.9	46.3	82.2
16808.100000	39.7	1000.0	1000.000	342.1	V	288.0	17.9	42.5	82.2



**2.7.11 Radiated Emission Test Results Below 1GHz – LTE Band 26 Uplink (814 - 824 MHz) 5MHz Bandwidth Low Channel**



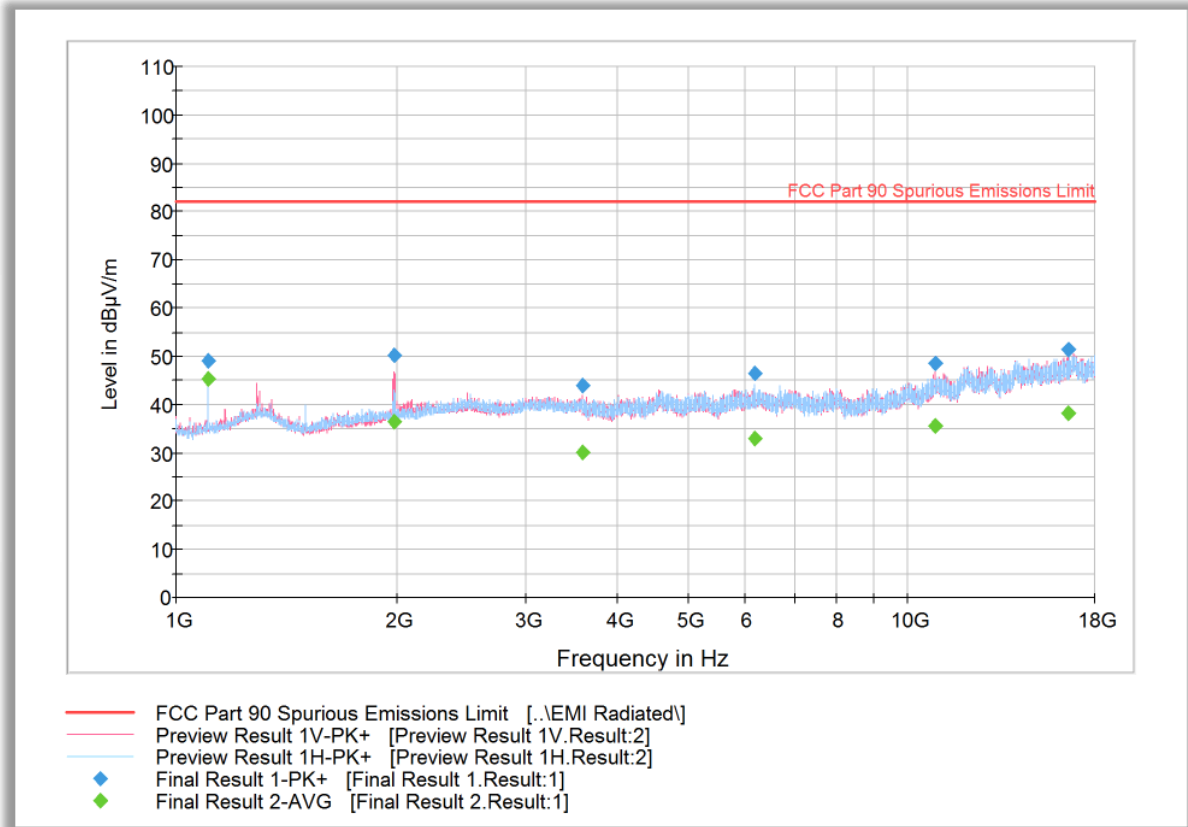
**Quasi Peak Data**

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
41.543327	40.5	1000.0	120.000	100.0	V	247.0	-12.4	41.7	82.2
45.671102	42.5	1000.0	120.000	100.0	V	106.0	-13.7	39.7	82.2
65.349980	37.4	1000.0	120.000	204.0	V	298.0	-16.6	44.8	82.2
245.731543	57.1	1000.0	120.000	121.0	H	122.0	-8.7	25.1	82.2
368.636473	39.7	1000.0	120.000	128.0	H	-2.0	-4.4	42.5	82.2
737.255150	46.8	1000.0	120.000	109.0	V	262.0	2.9	35.4	82.2
817.394549	52.0	1000.0	120.000	100.0	H	93.0	4.2	Fundamental*	

\* This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.



**2.7.12 Radiated Emission Test Results Above 1GHz – LTE Band 26 Uplink (814 - 824 MHz) 5MHz Bandwidth Low Channel**



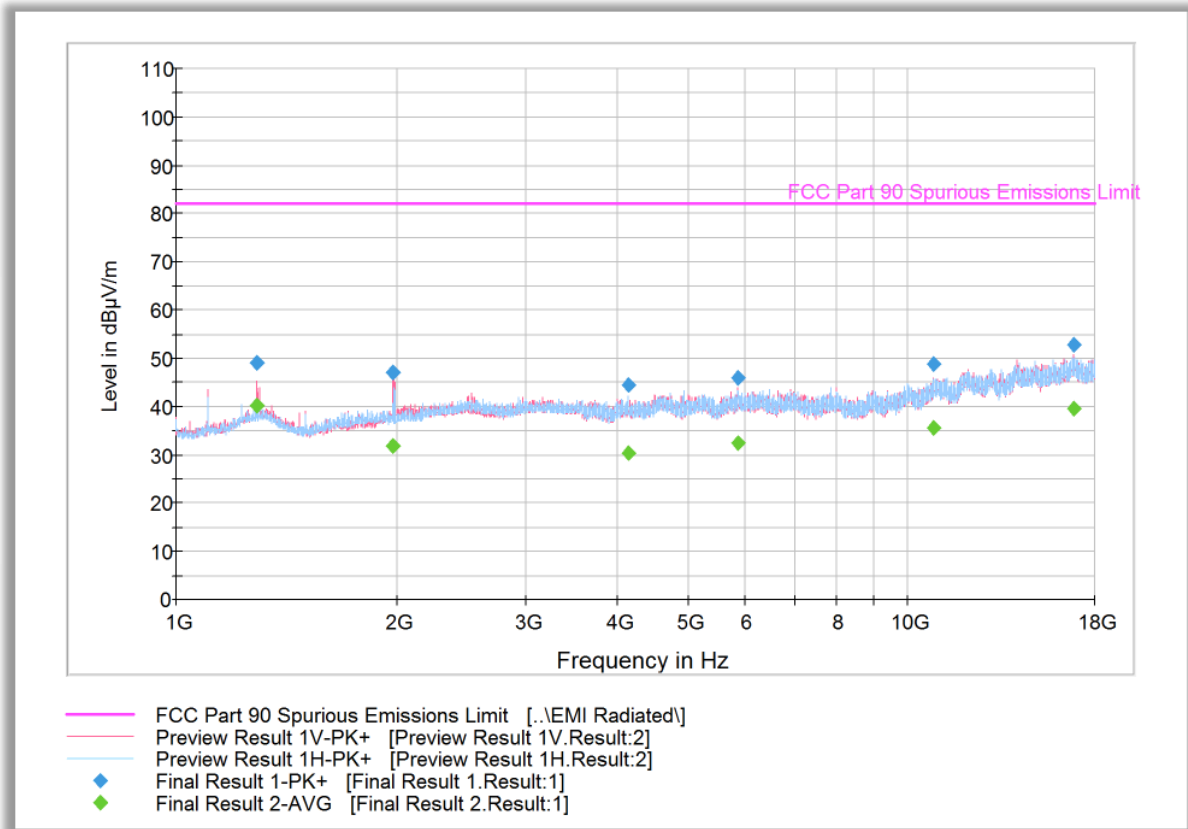
**Peak Data**

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.766667	49.1	1000.0	1000.000	225.4	V	338.0	-6.9	33.1	82.2
1987.700000	50.3	1000.0	1000.000	275.3	V	8.0	-2.3	31.9	82.2
3590.100000	44.0	1000.0	1000.000	252.3	V	180.0	1.7	38.2	82.2
6171.200000	46.5	1000.0	1000.000	265.3	H	0.0	6.1	35.7	82.2
10913.300000	48.6	1000.0	1000.000	182.6	V	47.0	11.9	33.6	82.2
16597.300000	51.4	1000.0	1000.000	116.7	V	46.0	17.5	30.8	82.2

**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.766667	45.3	1000.0	1000.000	225.4	V	338.0	-6.9	36.9	82.2
1987.700000	36.5	1000.0	1000.000	275.3	V	8.0	-2.3	45.7	82.2
3590.100000	30.1	1000.0	1000.000	252.3	V	180.0	1.7	52.1	82.2
6171.200000	32.9	1000.0	1000.000	265.3	H	0.0	6.1	49.3	82.2
10913.300000	35.6	1000.0	1000.000	182.6	V	47.0	11.9	46.6	82.2
16597.300000	38.3	1000.0	1000.000	116.7	V	46.0	17.5	43.9	82.2

**2.7.13 Radiated Emission Test Results Above 1GHz – LTE Band 26 Uplink (814 - 824 MHz) 5MHz Bandwidth Middle Channel**



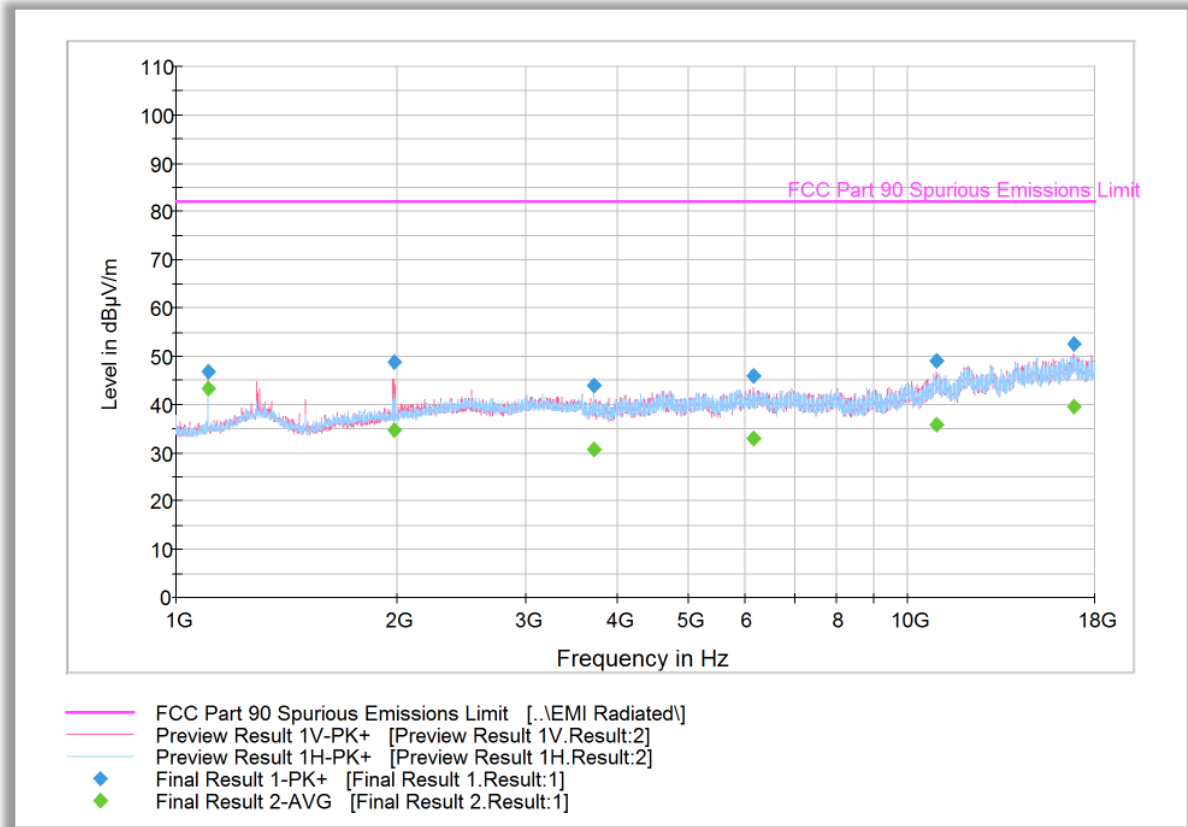
**Peak Data**

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1290.333333	49.2	1000.0	1000.000	104.7	V	179.0	-5.3	33.0	82.2
1976.600000	47.1	1000.0	1000.000	103.7	V	165.0	-2.3	35.1	82.2
4152.933333	44.4	1000.0	1000.000	213.4	H	229.0	2.6	37.8	82.2
5867.800000	45.9	1000.0	1000.000	250.5	V	288.0	5.7	36.3	82.2
10861.500000	48.9	1000.0	1000.000	203.5	V	16.0	11.9	33.3	82.2
16862.500000	52.8	1000.0	1000.000	352.7	V	230.0	18.0	29.4	82.2

**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1290.333333	40.2	1000.0	1000.000	104.7	V	179.0	-5.3	42.0	82.2
1976.600000	31.8	1000.0	1000.000	103.7	V	165.0	-2.3	50.4	82.2
4152.933333	30.4	1000.0	1000.000	213.4	H	229.0	2.6	51.8	82.2
5867.800000	32.5	1000.0	1000.000	250.5	V	288.0	5.7	49.7	82.2
10861.500000	35.6	1000.0	1000.000	203.5	V	16.0	11.9	46.6	82.2
16862.500000	39.6	1000.0	1000.000	352.7	V	230.0	18.0	42.6	82.2

**2.7.14 Radiated Emission Test Results Above 1GHz – LTE Band 26 Uplink (814 - 824 MHz) 5MHz Bandwidth High Channel**



**Peak Data**

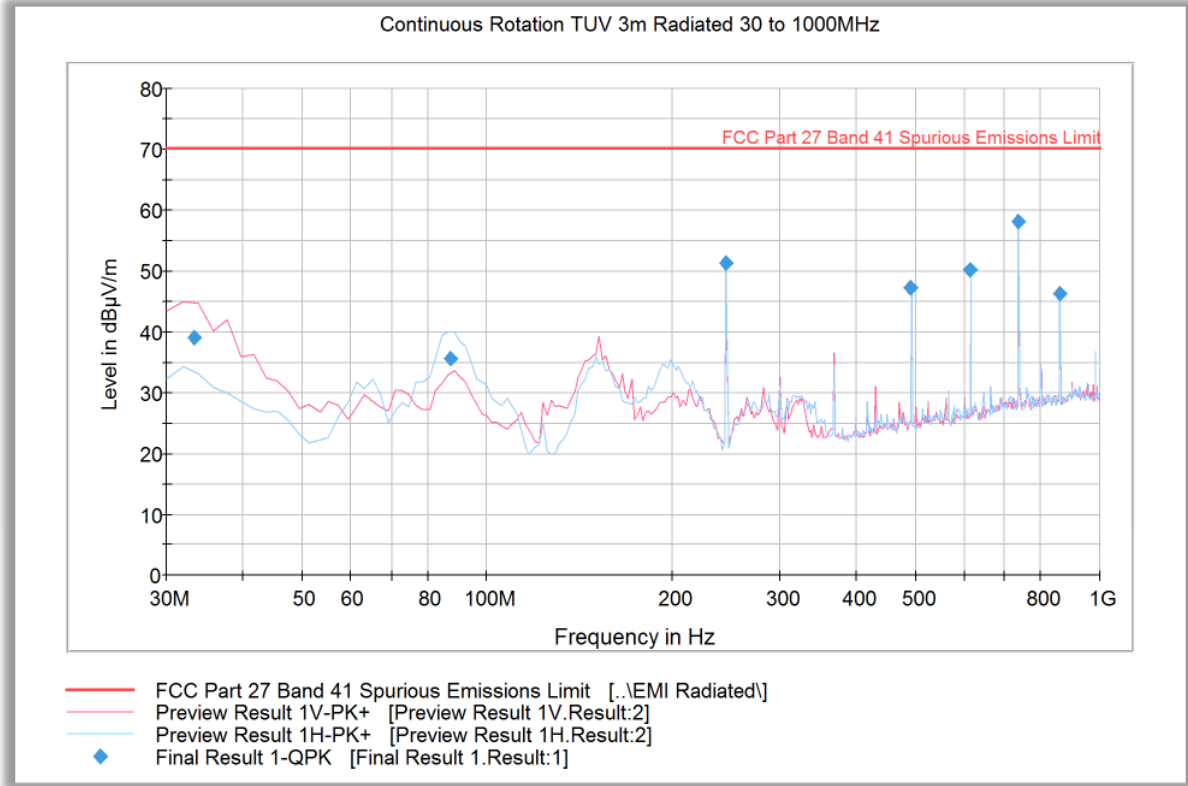
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	47.0	1000.0	1000.000	174.6	V	339.0	-6.9	35.2	82.2
1988.700000	48.7	1000.0	1000.000	302.2	V	-4.0	-2.3	33.5	82.2
3729.466667	43.8	1000.0	1000.000	352.7	H	123.0	2.0	38.4	82.2
6152.333333	46.0	1000.0	1000.000	352.7	V	12.0	6.0	36.2	82.2
10921.033333	49.0	1000.0	1000.000	339.1	V	342.0	11.9	33.2	82.2
16844.133333	52.5	1000.0	1000.000	140.7	V	145.0	18.0	29.7	82.2

**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	43.3	1000.0	1000.000	174.6	V	339.0	-6.9	38.9	82.2
1988.700000	34.7	1000.0	1000.000	302.2	V	-4.0	-2.3	47.5	82.2
3729.466667	30.6	1000.0	1000.000	352.7	H	123.0	2.0	51.6	82.2
6152.333333	32.9	1000.0	1000.000	352.7	V	12.0	6.0	49.3	82.2
10921.033333	35.9	1000.0	1000.000	339.1	V	342.0	11.9	46.3	82.2
16844.133333	39.7	1000.0	1000.000	140.7	V	145.0	18.0	42.5	82.2



**2.7.15 Radiated Emission Test Results Below 1GHz – LTE Band 41 Downlink 20MHz Bandwidth High Channel**

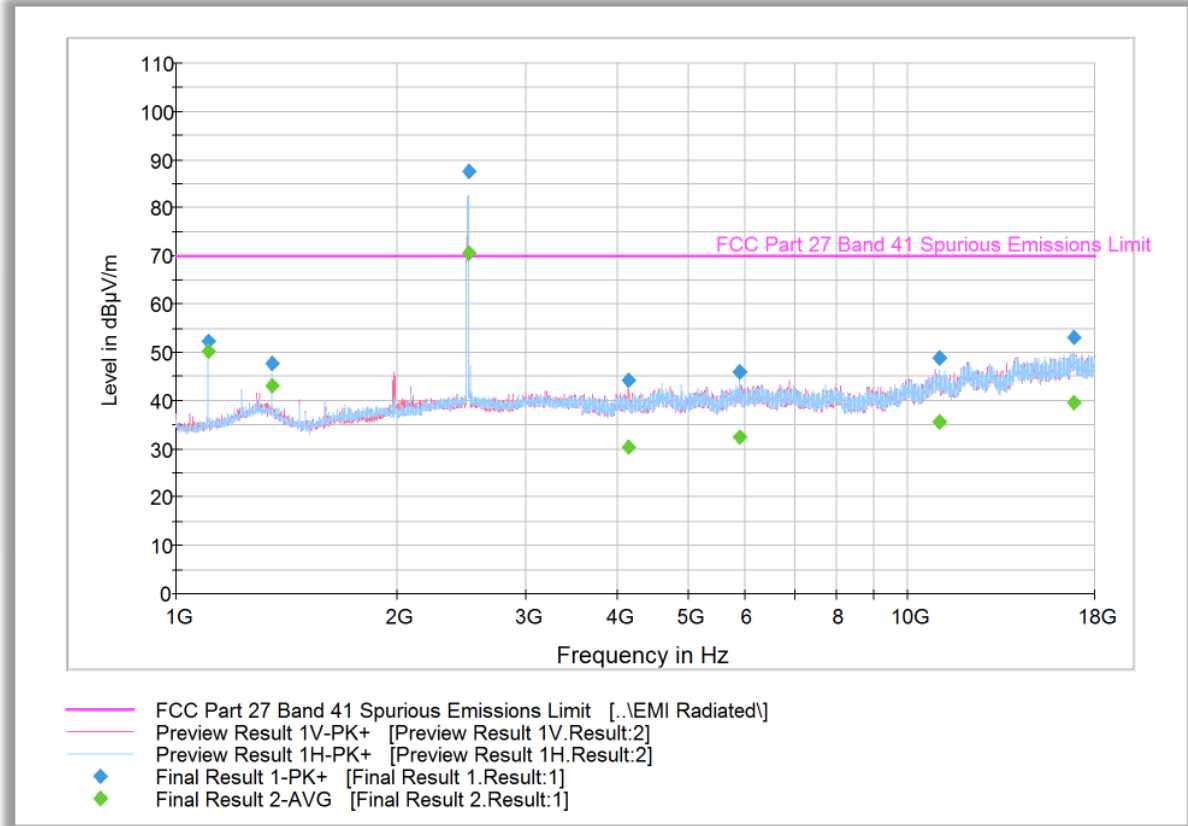


**Quasi Peak Data**

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.320000	39.0	1000.0	120.000	100.0	V	284.0	-9.2	31.2	70.2
87.356633	35.7	1000.0	120.000	233.0	H	15.0	-15.4	34.5	70.2
245.731543	51.5	1000.0	120.000	100.0	H	251.0	-8.7	18.7	70.2
491.485291	47.2	1000.0	120.000	100.0	V	324.0	-1.7	23.0	70.2
614.390220	50.2	1000.0	120.000	100.0	H	262.0	0.9	20.0	70.2
737.255150	58.2	1000.0	120.000	100.0	H	248.0	2.9	12.0	70.2
860.143968	46.3	1000.0	120.000	100.0	V	352.0	4.4	23.9	70.2



**2.7.16 Radiated Emission Test Results Above 1GHz – LTE Band 41 Downlink 20MHz Bandwidth Low Channel**



**Peak Data**

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	52.3	1000.0	1000.000	116.7	H	301.0	-6.9	17.9	70.2
1351.533333	47.8	1000.0	1000.000	103.7	H	302.0	-5.1	22.4	70.2
2508.100000	87.5	1000.0	1000.000	127.7	H	135.0	-0.2	Fundamental*	
4159.933333	44.1	1000.0	1000.000	152.2	V	75.0	2.6	26.1	70.2
5874.466667	45.9	1000.0	1000.000	352.7	H	189.0	5.7	24.3	70.2
11025.266667	48.9	1000.0	1000.000	131.7	H	303.0	11.8	21.3	70.2
16885.933333	53.2	1000.0	1000.000	338.2	H	53.0	18.0	17.0	70.2

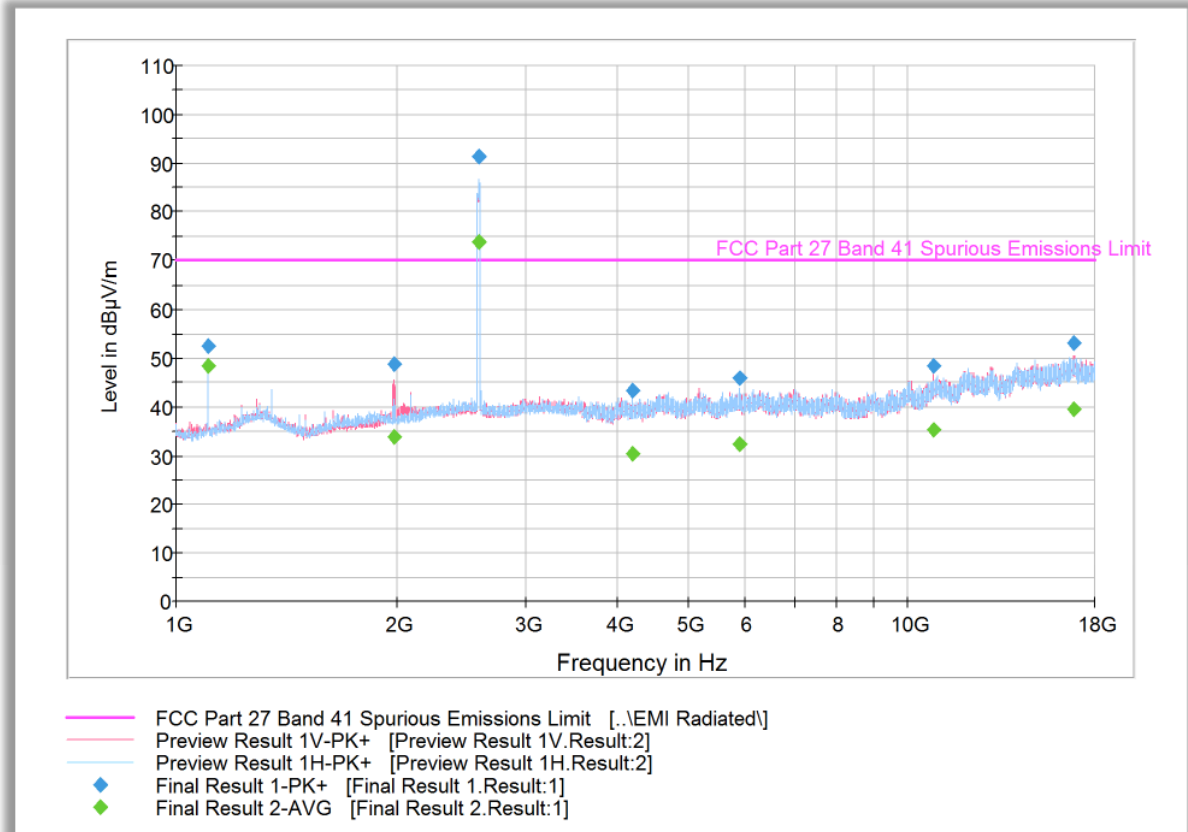
**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	50.3	1000.0	1000.000	116.7	H	301.0	-6.9	19.9	70.2
1351.533333	43.0	1000.0	1000.000	103.7	H	302.0	-5.1	27.2	70.2
2508.100000	70.6	1000.0	1000.000	127.7	H	135.0	-0.2	Fundamental*	
4159.933333	30.4	1000.0	1000.000	152.2	V	75.0	2.6	39.8	70.2
5874.466667	32.5	1000.0	1000.000	352.7	H	189.0	5.7	37.7	70.2
11025.266667	35.8	1000.0	1000.000	131.7	H	303.0	11.8	34.4	70.2
16885.933333	39.8	1000.0	1000.000	338.2	H	53.0	18.0	30.4	70.2

\* This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.



**2.7.17 Radiated Emission Test Results Above 1GHz – LTE Band 41 Downlink 20MHz Bandwidth Mid Channel**



**Peak Data**

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	52.4	1000.0	1000.000	143.7	H	302.0	-6.9	17.8	70.2
1988.866667	48.8	1000.0	1000.000	300.2	V	0.0	-2.3	21.4	70.2
2595.400000	91.3	1000.0	1000.000	195.5	H	136.0	-0.3	Fundamental*	
4204.466667	43.2	1000.0	1000.000	338.1	H	231.0	2.7	27.0	70.2
5880.500000	46.0	1000.0	1000.000	143.7	H	223.0	5.7	24.2	70.2
10859.233333	48.4	1000.0	1000.000	275.3	V	83.0	11.9	21.8	70.2
16875.400000	53.0	1000.0	1000.000	352.7	V	323.0	18.0	17.2	70.2

**Average Data**

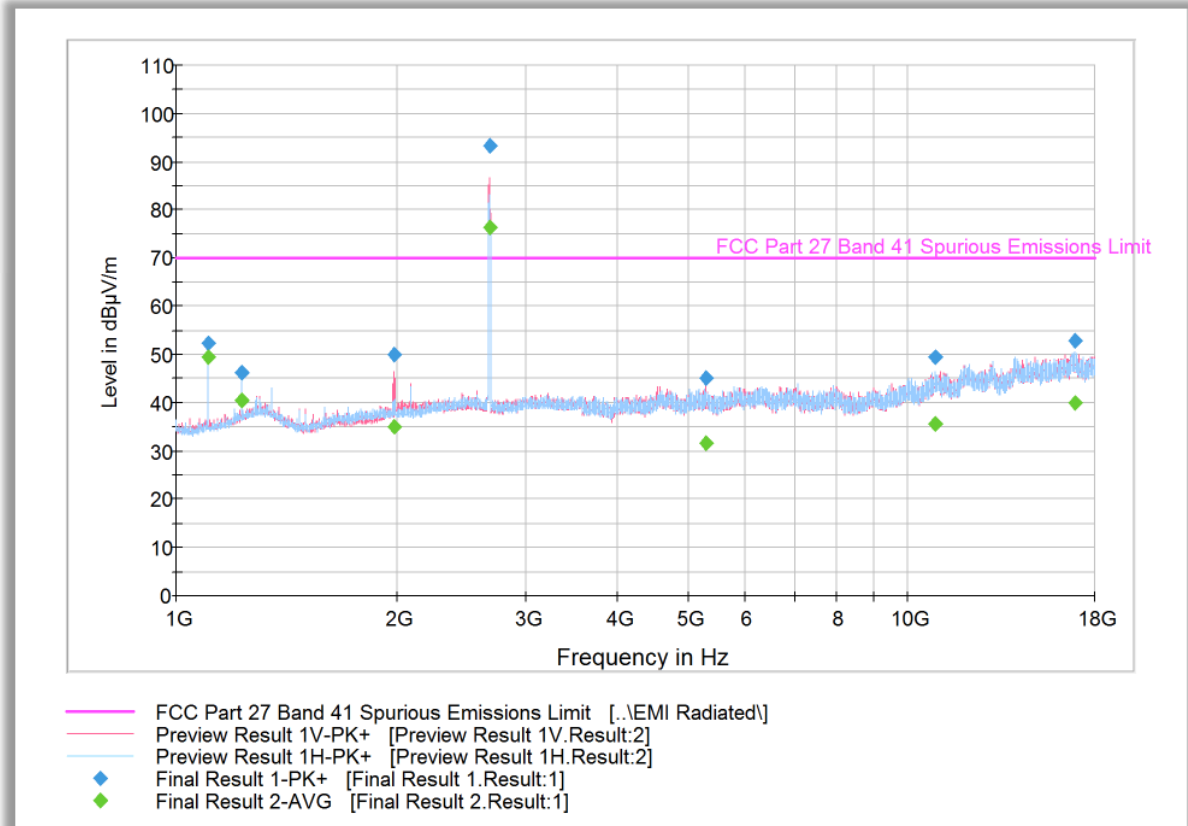
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	48.6	1000.0	1000.000	143.7	H	302.0	-6.9	21.6	70.2
1988.866667	34.0	1000.0	1000.000	300.2	V	0.0	-2.3	36.2	70.2
2595.400000	73.7	1000.0	1000.000	195.5	H	136.0	-0.3	Fundamental*	
4204.466667	30.4	1000.0	1000.000	338.1	H	231.0	2.7	39.8	70.2
5880.500000	32.4	1000.0	1000.000	143.7	H	223.0	5.7	37.8	70.2
10859.233333	35.5	1000.0	1000.000	275.3	V	83.0	11.9	34.7	70.2
16875.400000	39.7	1000.0	1000.000	352.7	V	323.0	18.0	30.5	70.2

\* This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.





**2.7.18 Radiated Emission Test Results Above 1GHz – LTE Band 41 Downlink 20MHz Bandwidth High Channel**



**Peak Data**

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	52.3	1000.0	1000.000	203.5	V	254.0	-6.9	17.9	70.2
1228.766667	46.3	1000.0	1000.000	300.2	V	352.0	-5.9	23.9	70.2
1987.333333	50.1	1000.0	1000.000	300.2	V	204.0	-2.3	20.1	70.2
2680.366667	93.4	1000.0	1000.000	187.5	V	173.0	-0.2	Fundamental*	
5293.600000	45.0	1000.0	1000.000	285.3	V	15.0	4.6	25.2	70.2
10916.300000	49.3	1000.0	1000.000	192.5	H	316.0	11.9	20.9	70.2
16926.033333	53.0	1000.0	1000.000	322.2	H	177.0	18.0	17.2	70.2

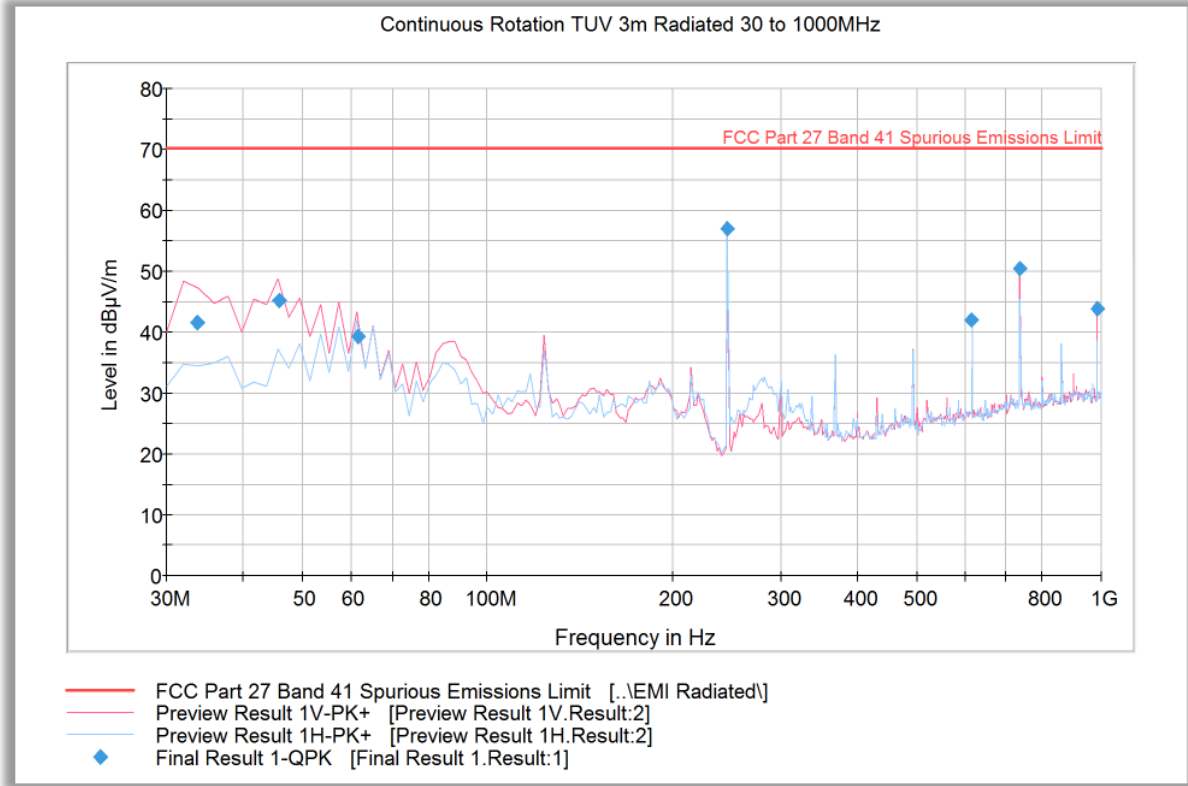
**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.800000	49.4	1000.0	1000.000	203.5	V	254.0	-6.9	20.8	70.2
1228.766667	40.4	1000.0	1000.000	300.2	V	352.0	-5.9	29.8	70.2
1987.333333	34.9	1000.0	1000.000	300.2	V	204.0	-2.3	35.3	70.2
2680.366667	76.3	1000.0	1000.000	187.5	V	173.0	-0.2	Fundamental*	
5293.600000	31.5	1000.0	1000.000	285.3	V	15.0	4.6	38.7	70.2
10916.300000	35.7	1000.0	1000.000	192.5	H	316.0	11.9	34.5	70.2
16926.033333	39.8	1000.0	1000.000	322.2	H	177.0	18.0	30.4	70.2

\* This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.



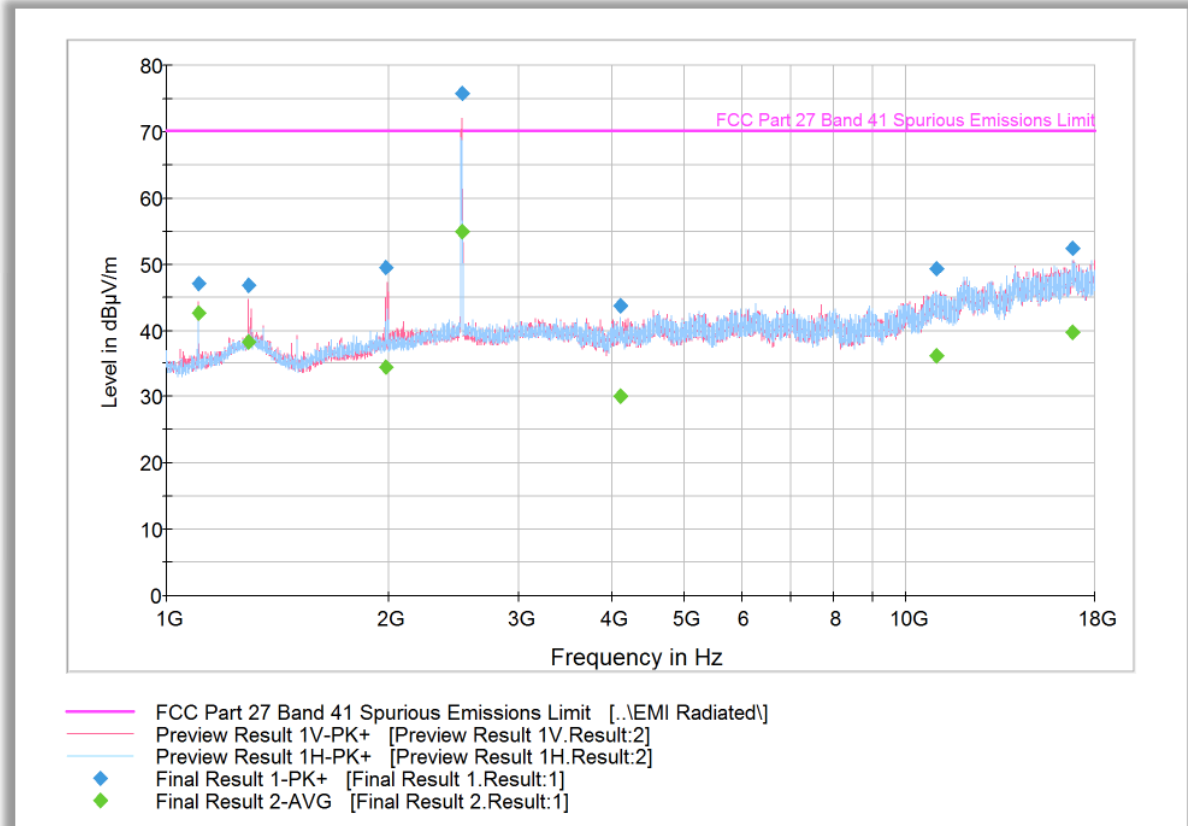
**2.7.19 Radiated Emission Test Results Below 1GHz – LTE Band 41 Uplink 20MHz Bandwidth High Channel**



**Quasi Peak Data**

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.680000	41.5	1000.0	120.000	100.0	V	49.0	-9.4	28.7	70.2
45.671102	45.3	1000.0	120.000	100.0	V	97.0	-13.7	24.9	70.2
61.422204	39.4	1000.0	120.000	133.0	V	223.0	-16.7	30.8	70.2
245.731543	57.0	1000.0	120.000	122.0	H	119.0	-8.7	13.2	70.2
614.390220	42.0	1000.0	120.000	100.0	H	246.0	0.9	28.2	70.2
737.255150	50.4	1000.0	120.000	109.0	V	260.0	2.9	19.8	70.2
983.008898	44.0	1000.0	120.000	100.0	V	254.0	5.5	26.2	70.2

**2.7.20 Radiated Emission Test Results Above 1GHz – LTE Band 41 Uplink 20MHz Bandwidth Low Channel**



**Peak Data**

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.766667	46.9	1000.0	1000.000	203.5	V	342.0	-6.9	23.3	70.2
1290.333333	46.7	1000.0	1000.000	143.7	V	183.0	-5.3	23.5	70.2
1976.600000	49.4	1000.0	1000.000	296.2	V	119.0	-2.3	20.8	70.2
2511.500000	75.8	1000.0	1000.000	300.2	V	184.0	-0.3	Fundamental*	
4115.966667	43.6	1000.0	1000.000	151.2	H	8.0	2.7	26.6	70.2
10997.100000	49.3	1000.0	1000.000	236.4	V	8.0	11.8	20.9	70.2
16776.433333	52.5	1000.0	1000.000	232.4	H	138.0	17.8	17.7	70.2

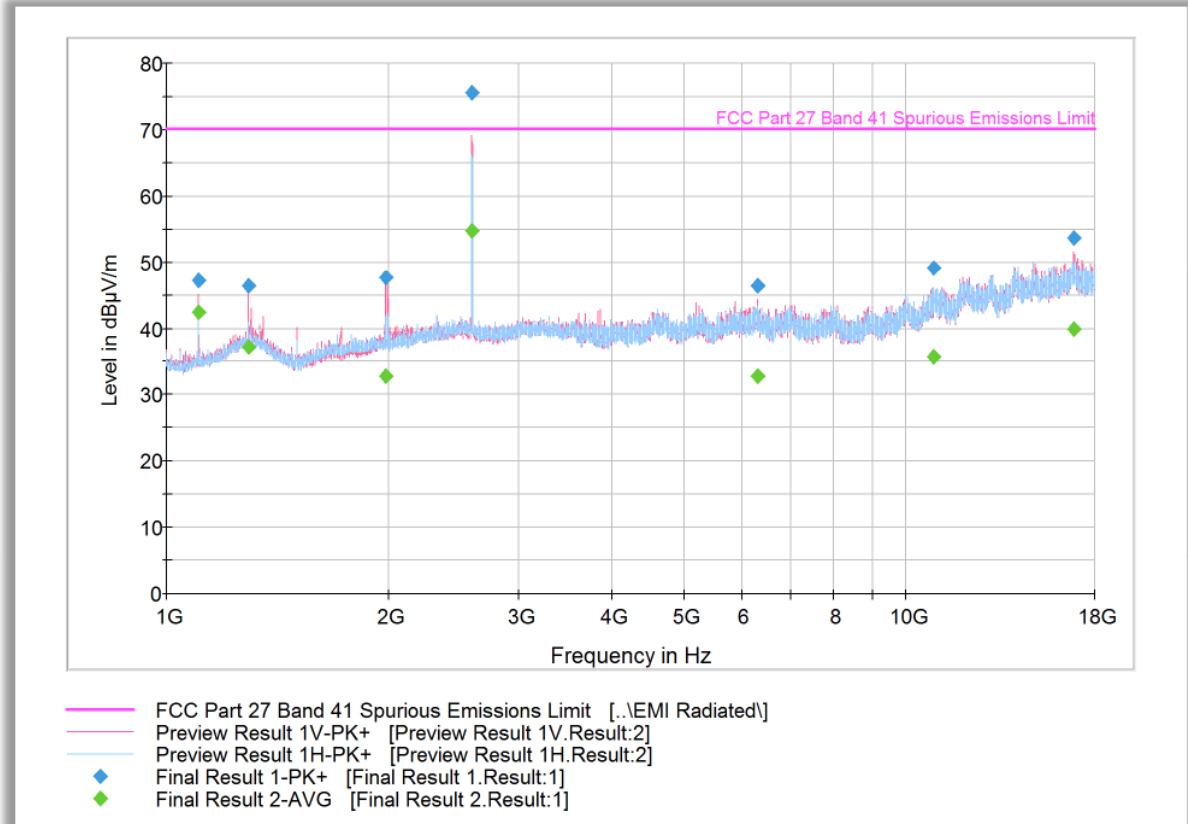
**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.766667	42.7	1000.0	1000.000	203.5	V	342.0	-6.9	27.5	70.2
1290.333333	38.1	1000.0	1000.000	143.7	V	183.0	-5.3	32.1	70.2
1976.600000	34.4	1000.0	1000.000	296.2	V	119.0	-2.3	35.8	70.2
2511.500000	54.9	1000.0	1000.000	300.2	V	184.0	-0.3	Fundamental*	
4115.966667	30.2	1000.0	1000.000	151.2	H	8.0	2.7	40.0	70.2
10997.100000	36.1	1000.0	1000.000	236.4	V	8.0	11.8	34.1	70.2
16776.433333	39.6	1000.0	1000.000	232.4	H	138.0	17.8	30.6	70.2

\* This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.



**2.7.21 Radiated Emission Test Results Above 1GHz – LTE Band 41 Uplink 20MHz Bandwidth Middle Channel**



**Peak Data**

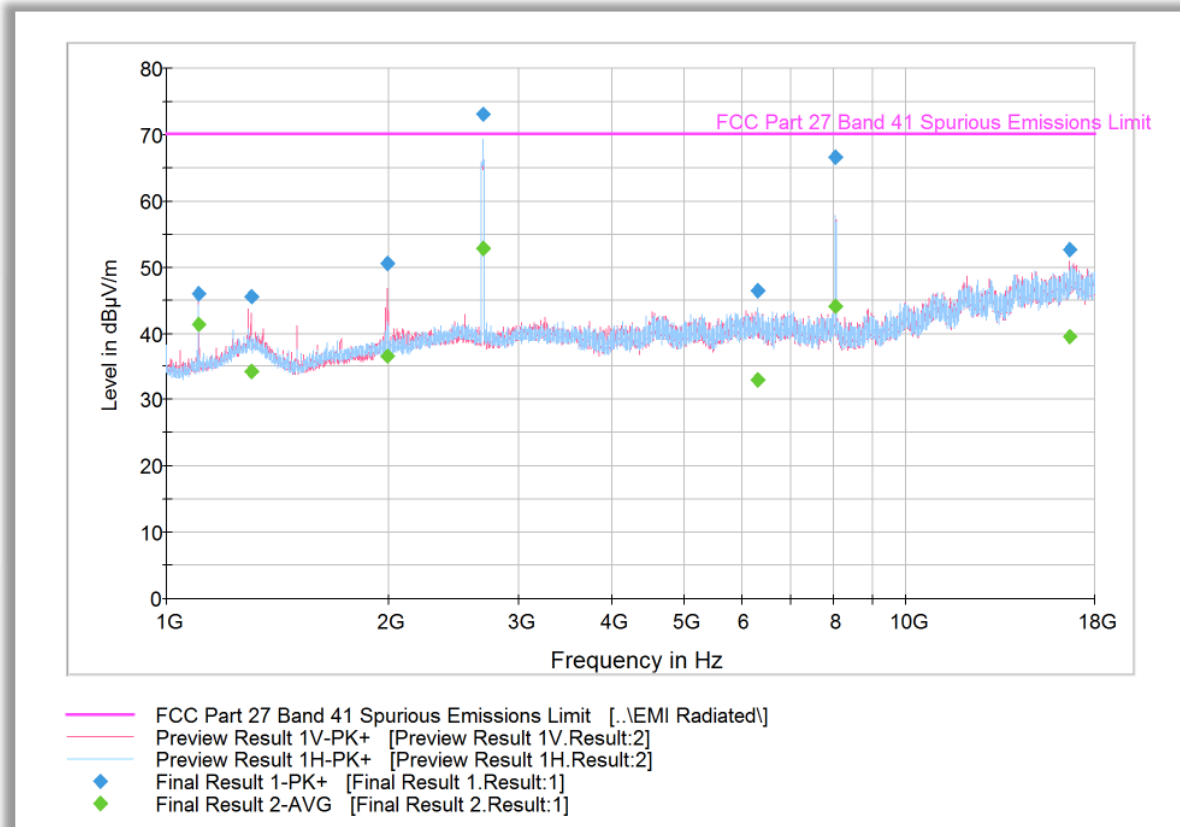
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.766667	47.2	1000.0	1000.000	244.4	V	339.0	-6.9	23.0	70.2
1289.933333	46.4	1000.0	1000.000	139.7	V	177.0	-5.3	23.8	70.2
1976.566667	47.7	1000.0	1000.000	285.3	V	254.0	-2.3	22.5	70.2
2585.333333	75.7	1000.0	1000.000	285.3	V	174.0	-0.3	Fundamental*	
6301.766667	46.4	1000.0	1000.000	151.2	V	42.0	6.2	23.8	70.2
10913.633333	49.0	1000.0	1000.000	127.7	H	119.0	11.9	21.2	70.2
16878.200000	53.6	1000.0	1000.000	151.2	V	68.0	18.0	16.6	70.2

**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.766667	42.5	1000.0	1000.000	244.4	V	339.0	-6.9	27.7	70.2
1289.933333	37.2	1000.0	1000.000	139.7	V	177.0	-5.3	33.0	70.2
1976.566667	32.8	1000.0	1000.000	285.3	V	254.0	-2.3	37.4	70.2
2585.333333	54.7	1000.0	1000.000	285.3	V	174.0	-0.3	Fundamental*	
6301.766667	32.8	1000.0	1000.000	151.2	V	42.0	6.2	37.4	70.2
10913.633333	35.8	1000.0	1000.000	127.7	H	119.0	11.9	34.4	70.2
16878.200000	39.9	1000.0	1000.000	151.2	V	68.0	18.0	30.3	70.2

\* This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.

**2.7.22 Radiated Emission Test Results Above 1GHz – LTE Band 41 Uplink 20MHz Bandwidth High Channel**



**Peak Data**

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.766667	46.0	1000.0	1000.000	250.5	V	342.0	-6.9	24.2	70.2
1299.733333	45.5	1000.0	1000.000	139.7	V	175.0	-5.1	24.7	70.2
1987.333333	50.6	1000.0	1000.000	300.2	V	242.0	-2.3	19.6	70.2
2675.433333	73.1	1000.0	1000.000	212.4	H	265.0	-0.2	Fundamental*	
6287.400000	46.4	1000.0	1000.000	123.7	H	257.0	6.3	23.8	70.2
8039.900000	66.5	1000.0	1000.000	270.3	H	339.0	6.8	3.7	70.2
16671.533333	52.6	1000.0	1000.000	131.7	V	226.0	17.6	17.6	70.2

**Average Data**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1105.766667	41.3	1000.0	1000.000	250.5	V	342.0	-6.9	28.9	70.2
1299.733333	34.3	1000.0	1000.000	139.7	V	175.0	-5.1	35.9	70.2
1987.333333	36.6	1000.0	1000.000	300.2	V	242.0	-2.3	33.6	70.2
2675.433333	52.9	1000.0	1000.000	212.4	H	265.0	-0.2	Fundamental*	
6287.400000	32.9	1000.0	1000.000	123.7	H	257.0	6.3	37.3	70.2
8039.900000	44.0	1000.0	1000.000	270.3	H	339.0	6.8	26.2	70.2
16671.533333	39.4	1000.0	1000.000	131.7	V	226.0	17.6	30.8	70.2

\* This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.



**2.8 FREQUENCY STABILITY**

**2.8.1 Specification Reference**

FCC 47 CFR Part 2, Clause 2.1055  
 FCC 47 CFR Part 27, Clause 27.54  
 FCC 47 CFR Part 90, Clause 90.213  
 KDB 935210 D05, Clause 3.7 and 4.8  
 RSS-199, Clause 4.3  
 RSS-131, Clause 5.2.4

**2.8.2 Standard Applicable**

FCC Part 27, Clause 27.54:  
 The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

FCC Part 90, Clause 90.213:  
 (a) Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table.

**MINIMUM FREQUENCY STABILITY**  
 [Parts per million (ppm)]

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25 .....	<sup>1 2 3</sup> 100	100	200
25-50 .....	20	20	50
72-76 .....	5	.....	50
150-174 .....	<sup>5 11</sup> 5	<sup>6</sup> 5	<sup>4 6</sup> 50
216-220 .....	1.0	.....	1.0
220-222 <sup>12</sup> .....	0.1	1.5	1.5
421-512 .....	<sup>7 11 14</sup> 2.5	<sup>8</sup> 5	<sup>8</sup> 5
806-809 .....	<sup>14</sup> 1.0	1.5	1.5
809-824 .....	<sup>14</sup> 1.5	2.5	2.5
851-854 .....	1.0	1.5	1.5
854-869 .....	1.5	2.5	2.5
896-901 .....	<sup>14</sup> 0.1	1.5	1.5
902-928 .....	2.5	2.5	2.5
902-928 <sup>13</sup> .....	2.5	2.5	2.5
929-930 .....	1.5	.....	.....
935-940 .....	0.1	1.5	1.5
1427-1435 .....	<sup>9</sup> 300	300	300
Above 2450 <sup>10</sup> .....	.....	.....	.....



RSS-199, Clause 4.3:

The transmitter frequency stability limit shall be determined as follows:

(a) the frequency offset shall be measured according to the procedure described in RSS-Gen and recorded.

(b) using a resolution bandwidth equal to that permitted within the 1 MHz band immediately outside the channel edge, as found in section 4.5, reference points will be selected at the unwanted emission limits, which comply with the attenuation specified in section 4.5 for the type of device under test, on the emission mask of the lowest and highest channels. The frequency at these points shall be recorded as  $f_L$  and  $f_H$  respectively.

The applicant shall ensure compliance with frequency stability requirements by showing that  $f_L$  minus the frequency offset and  $f_H$  plus the frequency offset is within the frequency range in which the equipment is designed to operate.

RSS-131, Clause 5.2.4:

Industrial Zone Enhancers shall comply with the frequency stability given in the RSS that applies to the equipment with which the zone enhancer is to be used. In cases where the frequency stability limit is not given in the applicable RSS, the equipment shall comply with a frequency stability of  $\pm 1.5$  ppm.

For zone enhancers with no input signal processing capability, the frequency stability measurement in this section is not required.

### **2.8.3 Equipment Under Test and Modification State**

Serial No: 370920000139 (NU) and 371929000156, 443935000064 (CU) / Test Configuration A and B

### **2.8.4 Date of Test/Initial of test personnel who performed the test**

November 13 and December 02, 2019/XYZ

### **2.8.5 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

### **2.8.6 Environmental Conditions**

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility.

Ambient Temperature	22.5 - 24.3°C
Relative Humidity	37.8 - 45.5%
ATM Pressure	99.1 - 99.5kPa





**2.8.7 Additional Observations**

- This is a conducted test.
- The EUT was operated at 120.0VAC nominal voltage and was placed in the temperature chamber for the series of evaluations performed.
- Test performed in 10 MHz Bandwidth Middle channel as the representative configuration.
- The Temperature was reduced to -30°C and allowed to sit for 1 hour to allow the equipment and chamber temperature to stabilize. The measurements on both downlink and uplink were then performed. The temperature was then increased by 10°C steps and allowed to settle before taking the next set of measurements. The EUT was tested over the temperature -30°C to +50°C.
- Voltage variation was also performed at 85% and 115% of the nominal voltage.
- EUT was injected a CW signal from a Signal Generator and maximum frequency error was monitored using the spectrum analyser.
- 5MHz bandwidth Middle Channel was tested as the representative configuration.

**2.8.8 Test Results**

LTE Band 26 (859 – 869 MHz) Downlink – 5 MHz BW-Middle Channel 864 MHz				
Voltage (VDC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
120	-30	0	0	± 1.5
	-20	0	0	± 1.5
	-10	0	0	± 1.5
	0	0	0	± 1.5
	+10	0	0	± 1.5
	+20	0	0	± 1.5
	+30	0	0	± 1.5
	+40	0	0	± 1.5
102	+50	0	0	± 1.5
		0	0	± 1.5
138	+20	0	0	± 1.5

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature interval and voltage variations across the measured range.