



20°C/4.4 V	0.00522	-0.00600	PASS
20°C/3.6 V	0.00459	-0.00161	PASS
50°C/3.84 V	-0.00571	0.00716	PASS
40°C/3.84 V	0.00251	-0.00161	PASS
30°C/3.84 V	0.00280	-0.00080	PASS
20°C/3.84 V	0.00211	-0.00334	PASS
10°C/3.84 V	0.00084	-0.00023	PASS
0°C/3.84 V	0.00188	-0.00346	PASS
-10°C/3.84 V	0.00424	0.00491	PASS
-20°C/3.84 V	-0.00293	-0.00296	PASS
-30°C/3.84 V	-0.00271	-0.00253	PASS
20°C/4.4 V	0.00124	0.00255	PASS
20°C/3.6 V	0.00113	0.00185	PASS
50°C/3.84 V	0.00124	0.00255	PASS
40°C/3.84 V	0.00274	0.00457	PASS
30°C/3.84 V	-0.00014	0.00283	PASS
20°C/3.84 V	0.00038	0.00324	PASS
10°C/3.84 V	0.00216	0.00445	PASS
0°C/3.84 V	0.00222	0.00526	PASS
-10°C/3.84 V	0.00418	0.00670	PASS
-20°C/3.84 V	-0.00079	-0.00048	PASS
-30°C/3.84 V	-0.00050	0.00005	PASS
20°C/4.4 V	0.00476	0.00843	PASS
20°C/3.6 V	0.00349	0.00503	PASS
50°C/3.84 V	0.00623	-0.00277	PASS
40°C/3.84 V	0.00159	0.00393	PASS
30°C/3.84 V	0.00101	0.00335	PASS
20°C/3.84 V	0.00211	0.00433	PASS
10°C/3.84 V	-0.00124	0.00687	PASS
0°C/3.84 V	-0.00361	0.00341	PASS
-10°C/3.84 V	-0.00170	0.00370	PASS
-20°C/3.84 V	0.00012	0.00048	PASS
-30°C/3.84 V	0.00002	-0.00031	PASS
20°C/4.4 V	-0.00580	0.00185	PASS
20°C/3.6 V	-0.00488	0.00584	PASS
50°C/3.84 V	0.00468	-0.00704	PASS
40°C/3.84 V	-0.00320	0.00376	PASS
30°C/3.84 V	-0.00551	0.00203	PASS
20°C/3.84 V	-0.00413	0.00312	PASS
10°C/3.84 V	-0.00690	0.00278	PASS



	0°C/3.84 V	-0.00499	0.00399	PASS
	-10°C/3.84 V	-0.00297	0.00387	PASS
	-20°C/3.84 V	0.00055	0.00006	PASS
	-30°C/3.84 V	0.00066	0.00052	PASS
	20°C/4.4 V	-0.00165	0.00151	PASS
	20°C/3.6 V	-0.00268	0.00260	PASS

	Test status	LTE Band 12 Channel 23095 Test Results (ppm)		
		QPSK	16QAM	Conclusion
Bandwidth	50°C/3.84 V	0.00615	-0.00394	PASS
	40°C/3.84 V	0.01357	0.00523	PASS
	30°C/3.84 V	-0.00961	0.00424	PASS
	20°C/3.84 V	0.01102	0.00382	PASS
	10°C/3.84 V	0.02148	0.01272	PASS
	0°C/3.84 V	0.01611	0.00170	PASS
	-10°C/3.84 V	-0.02318	0.00452	PASS
	-20°C/3.84 V	-0.00117	-0.00116	PASS
	-30°C/3.84 V	-0.00083	-0.00133	PASS
	20°C/4.4 V	0.00777	0.00240	PASS
	20°C/3.6 V	-0.00947	0.00325	PASS
	50°C/3.84 V	-0.00892	0.01927	PASS
	40°C/3.84 V	-0.00749	0.00806	PASS
	30°C/3.84 V	0.00636	-0.00269	PASS
	20°C/3.84 V	-0.00297	-0.00509	PASS
	10°C/3.84 V	-0.01060	-0.00297	PASS
	0°C/3.84 V	0.00367	0.00961	PASS
	-10°C/3.84 V	-0.01159	-0.00650	PASS
	-20°C/3.84 V	-0.00127	0.00024	PASS
	-30°C/3.84 V	-0.00290	0.00079	PASS
	20°C/4.4 V	0.00608	0.00495	PASS
	20°C/3.6 V	-0.00777	0.00961	PASS
	50°C/3.84 V	-0.01194	0.01429	PASS
	40°C/3.84 V	0.01216	0.00792	PASS
	30°C/3.84 V	0.00650	0.00184	PASS
	20°C/3.84 V	0.00325	-0.00198	PASS
	10°C/3.84 V	0.00622	0.00749	PASS
	0°C/3.84 V	-0.00749	0.01102	PASS
	-10°C/3.84 V	-0.01201	0.01102	PASS
	-20°C/3.84 V	-0.00003	-0.00085	PASS



	-30°C/3.84 V	-0.00083	-0.00083	PASS
	20°C/4.4 V	0.00890	-0.00735	PASS
	20°C/3.6 V	0.01611	0.01640	PASS
	50°C/3.84 V	-0.00397	0.01601	PASS
	40°C/3.84 V	0.01102	-0.01032	PASS
	30°C/3.84 V	-0.02968	-0.00763	PASS
	20°C/3.84 V	0.01894	0.01074	PASS
	10°C/3.84 V	-0.01117	0.00905	PASS
	0°C/3.84 V	0.02177	-0.00749	PASS
	-10°C/3.84 V	0.01852	-0.01117	PASS
	-20°C/3.84 V	-0.00141	-0.00140	PASS
	-30°C/3.84 V	0.00052	-0.00062	PASS
	20°C/4.4 V	-0.00947	0.00919	PASS
	20°C/3.6 V	0.00792	0.00876	PASS

### 4.7 Spurious Emissions at Antenna Terminals

#### Ambient condition

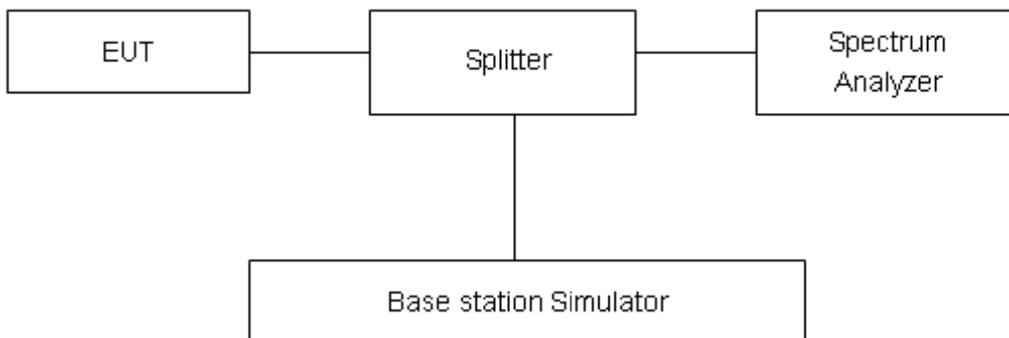
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

#### Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. RBW and VBW are set to 100 kHz for the carrier frequency, or RBW and VBW are set to 1MHz (other frequency), Sweep is set to ATUO.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

#### Test setup



#### Limits

Rule Part 27.53(h)/ 27.53(g) specifies that “the power of any emission outside a licensee’s frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log<sub>10</sub>(P) dB.”

Limit	-13 dBm
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#### Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

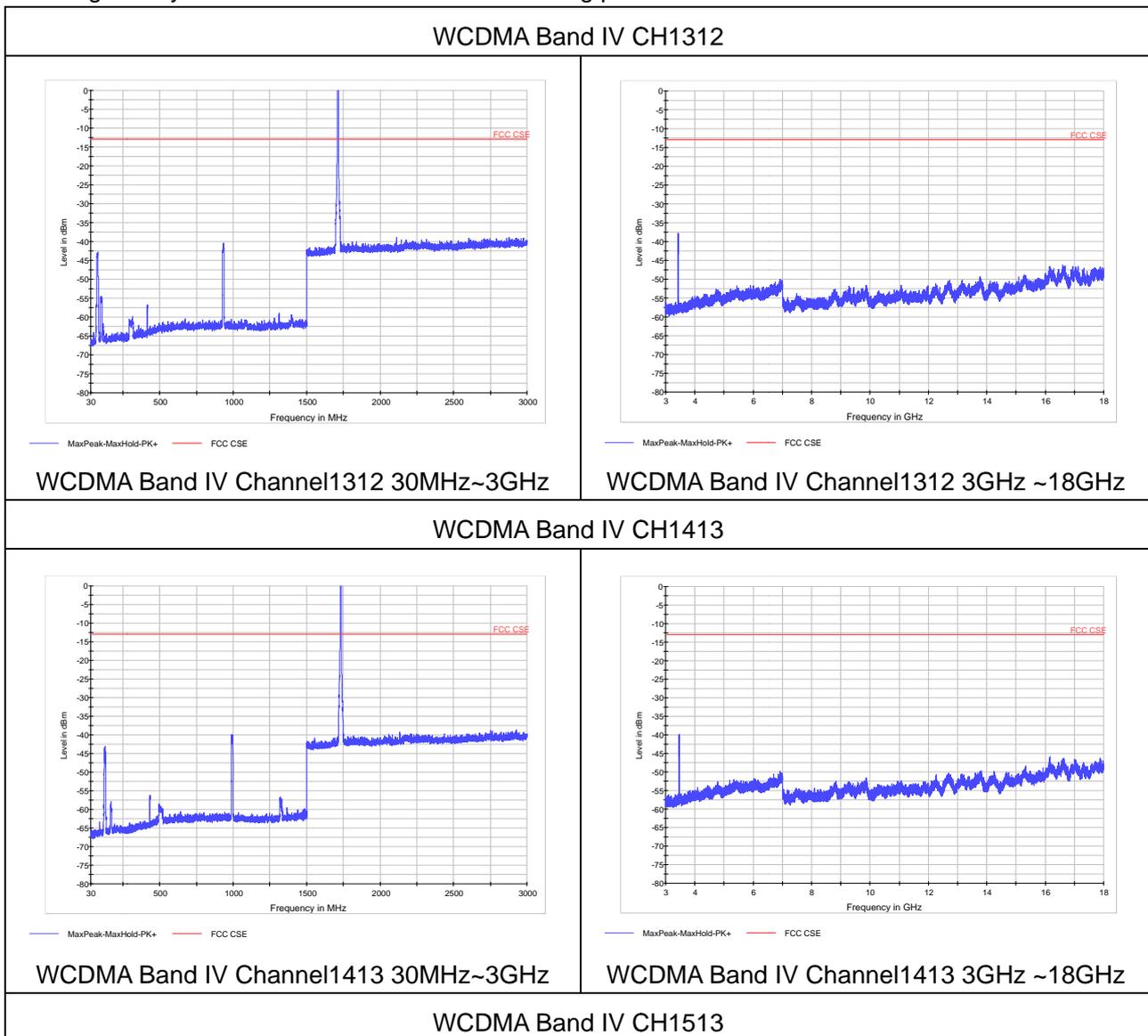
Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-12.75GHz	1.407 dB

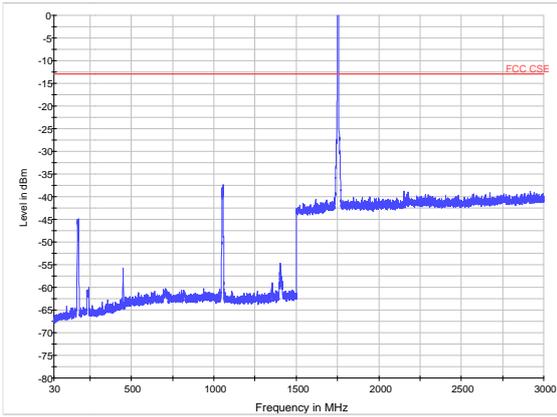


Test Result: PASS

Test Data File Name	Harmonic	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
LTE B12 1.4M CHMID_RB1_1-3GHz	2	1414.0	-31.95	-13	18.95
LTE B12 3M CHLOW_RB1_1-3GHz	2	1400.3	-32.88	-13	19.88
LTE B12 3M CHMID_RB1_1-3GHz	2	1414.0	-32.31	-13	19.31
	3	2121.3	-32.84	-13	19.84
LTE B12 5M CHMID_RB1_1-3GHz	2	1414.3	-32.99	-13	19.99
LTE B12 10M CHLOW_RB1_1-3GHz	2	1407.0	-32.11	-13	19.11
LTE B12 10M CHMID_RB1_1-3GHz	2	1414.0	-32.59	-13	19.59

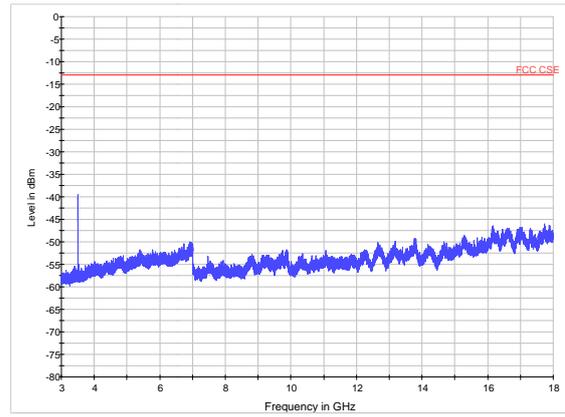
If disturbances were found more than 20dB below limit line, the mark is not required for the EUT. The signal beyond the limit is carrier in the following plots.





MaxPeak-MaxHold-PK+ FCC CSE

WCDMA Band IV Channel1513 30MHz~3GHz

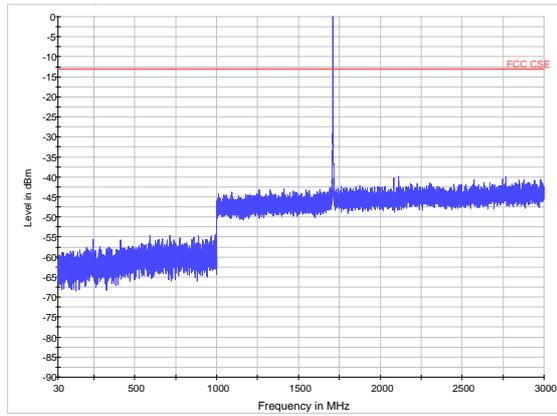


MaxPeak-MaxHold-PK+ FCC CSE

WCDMA Band IV Channel1513 3GHz~18GHz

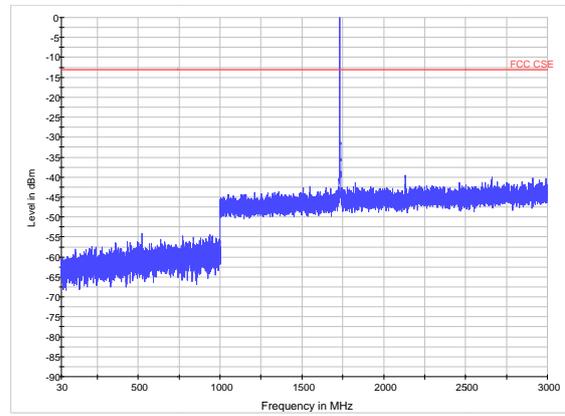
LTE Band 4 QPSK Bandwidth = 1.4MHz  
CH19957, RB 1

LTE Band 4 QPSK Bandwidth = 1.4MHz  
CH20175, RB 1



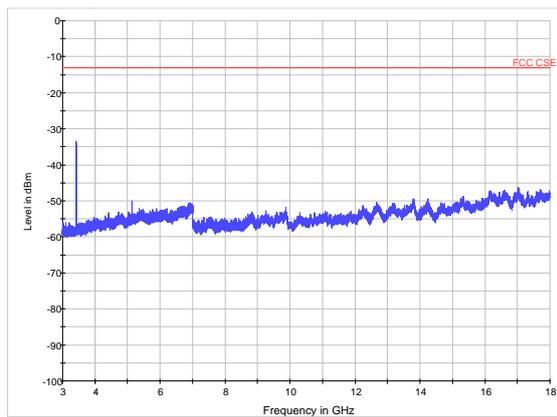
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH19957 30MHz~3GHz



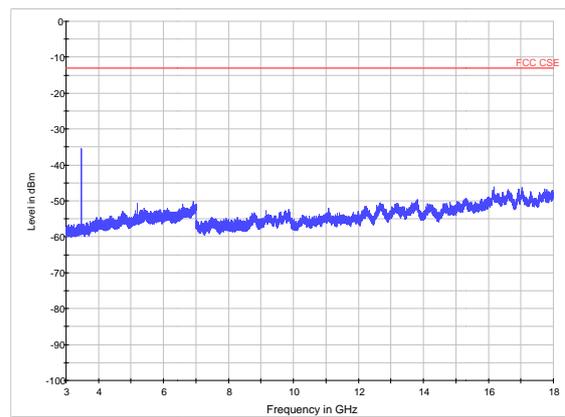
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 30MHz~3GHz



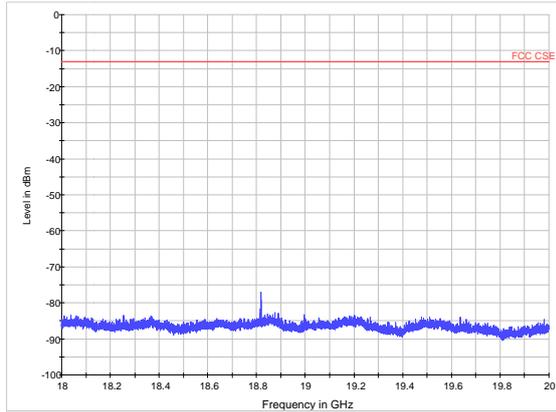
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH19957 3GHz~18GHz

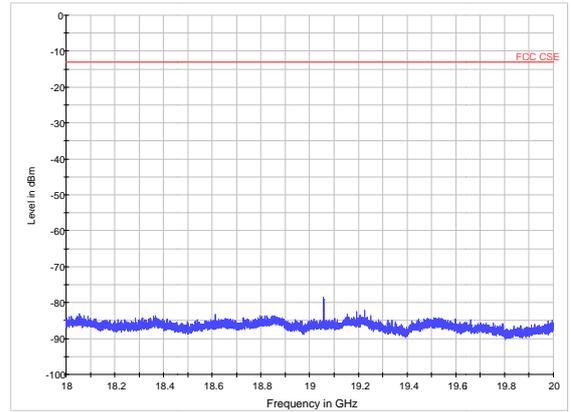


MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 3GHz~18GHz



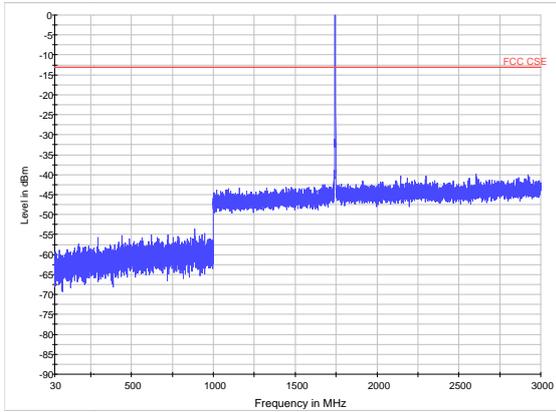
LTE Band 4 CH19957 18GHz ~20GHz



LTE Band 4 CH20175 18GHz ~20GHz

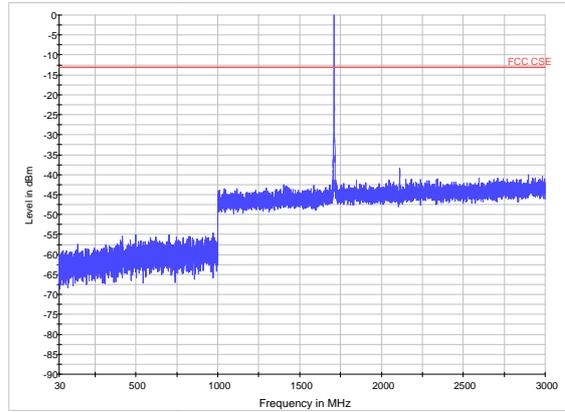


LTE Band 4 QPSK Bandwidth = 1.4MHz  
CH20393, RB 1



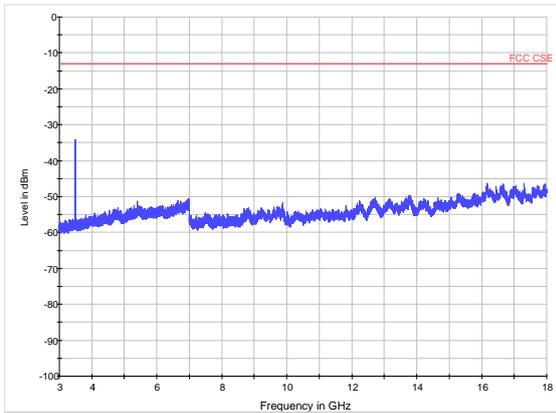
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 QPSK Bandwidth = 3MHz CH19965,  
RB 1



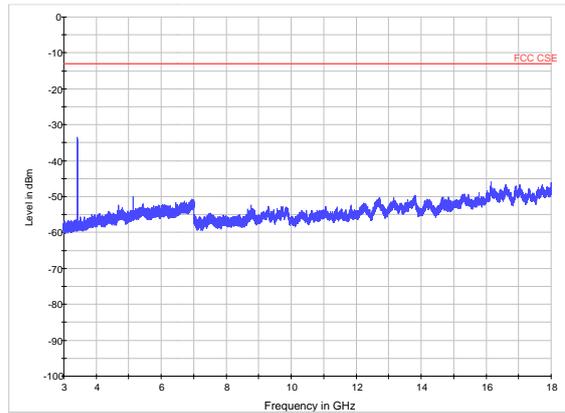
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20393 30MHz~3GHz



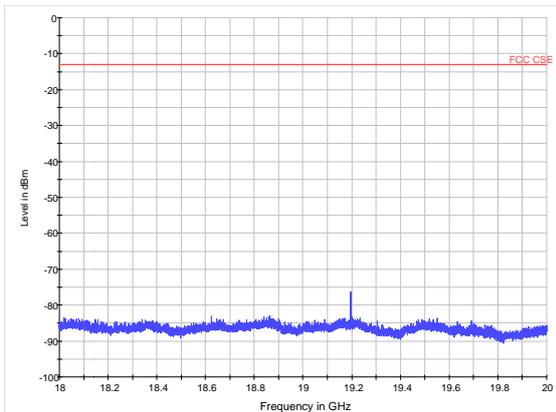
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH19965 30MHz~3GHz



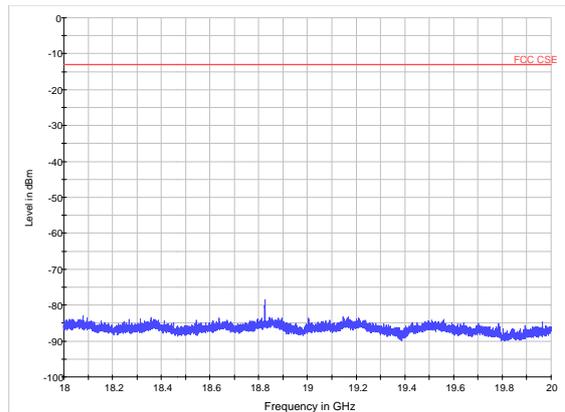
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20393 3GHz~18GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH19965 3GHz~18GHz



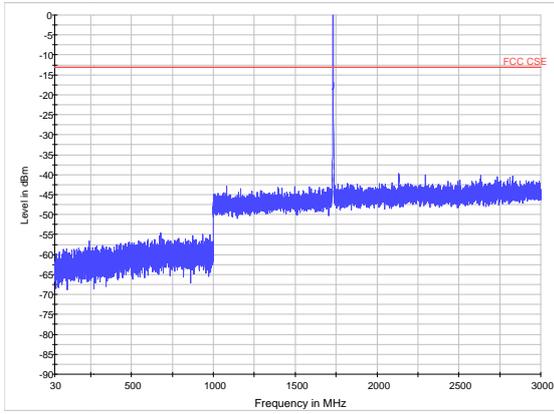
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20393 18GHz ~20GHz

LTE Band 4 CH19965 18GHz ~20GHz



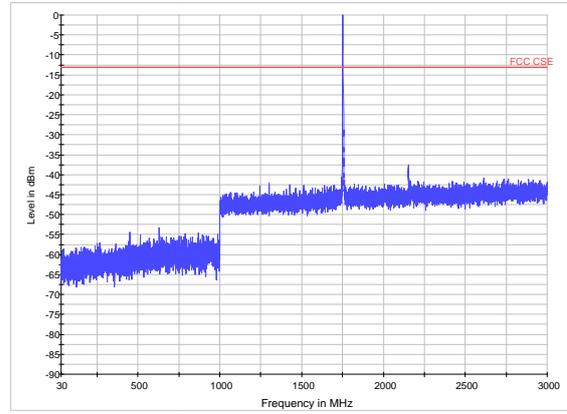
LTE Band 4 QPSK Bandwidth = 3MHz CH20175, RB 1



MaxPeak-MaxHold-PK+ FCC CSE

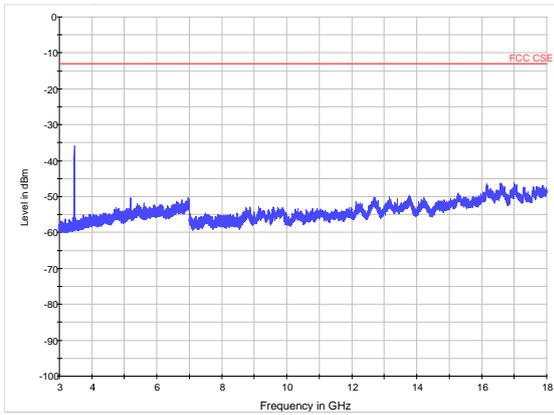
LTE Band 4 CH20175 30MHz~3GHz

LTE Band 4 QPSK Bandwidth = 3MHz CH20385, RB 1



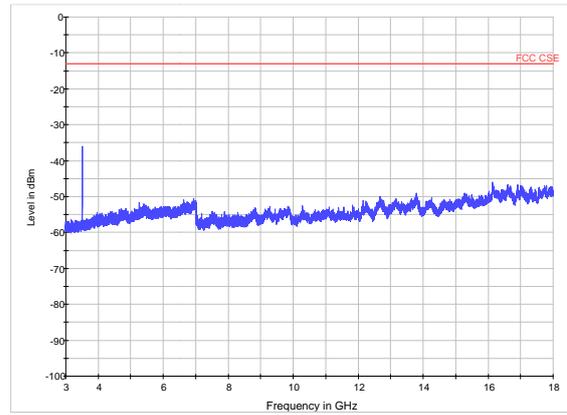
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20385 30MHz~3GHz



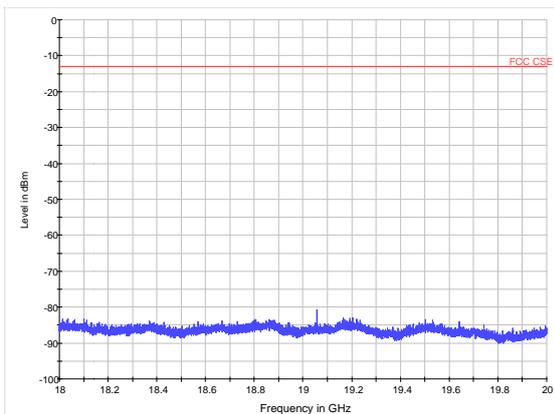
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 3GHz~18GHz



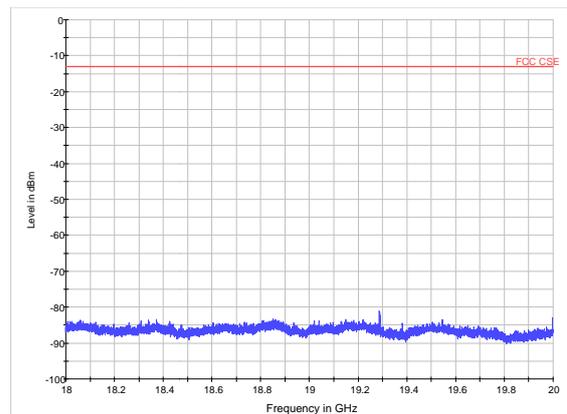
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20385 3GHz~18GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 18GHz ~20GHz

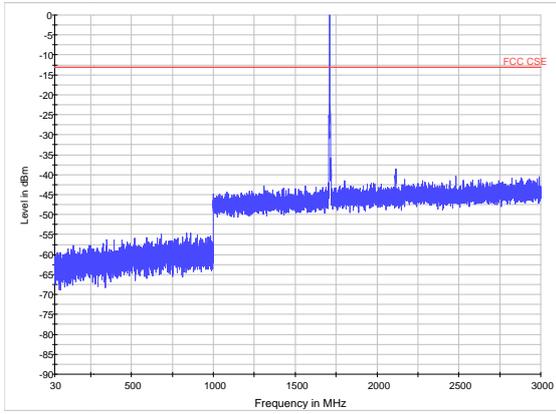


MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20385 18GHz ~20GHz

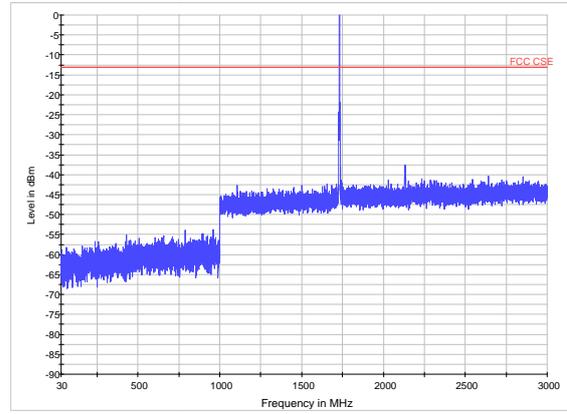


LTE Band 4 QPSK Bandwidth = 5MHz CH19975, RB 1

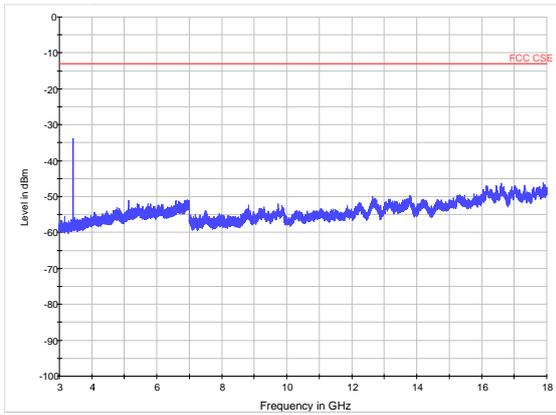


LTE Band 4 CH19975 30MHz~3GHz

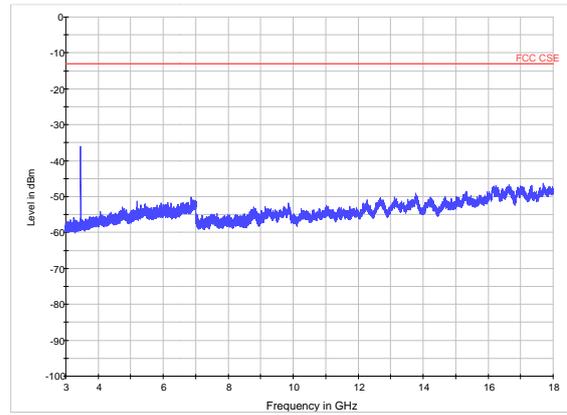
LTE Band 4 QPSK Bandwidth = 5MHz CH20175, RB 1



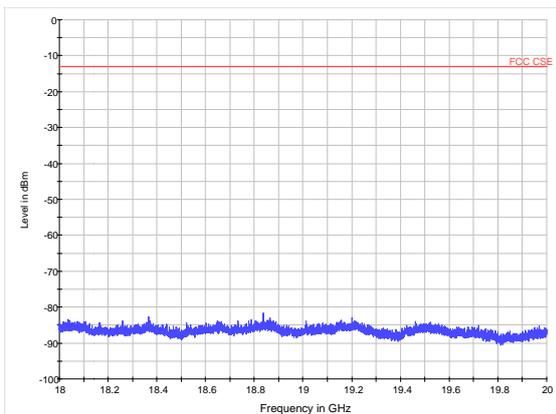
LTE Band 4 CH20175 30MHz~3GHz



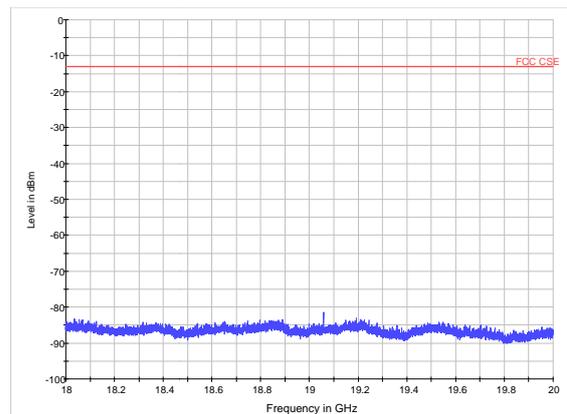
LTE Band 4 CH19975 3GHz~18GHz



LTE Band 4 CH20175 3GHz~18GHz



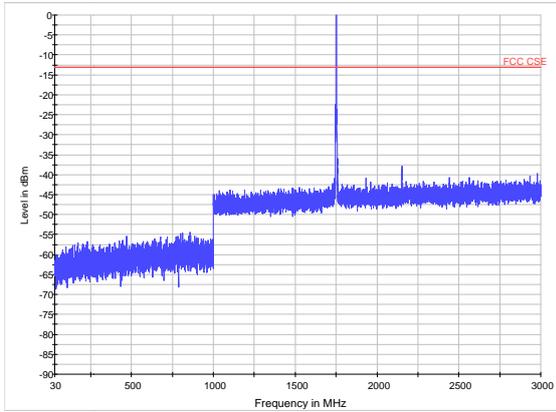
LTE Band 4 CH19975 18GHz ~20GHz



LTE Band 4 CH20175 18GHz ~20GHz

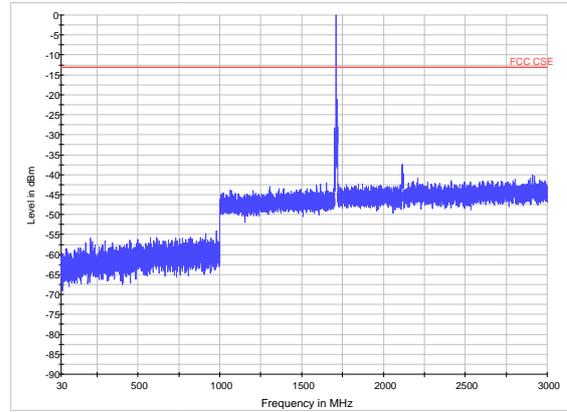


LTE Band 4 QPSK Bandwidth = 5MHz CH20375, RB 1



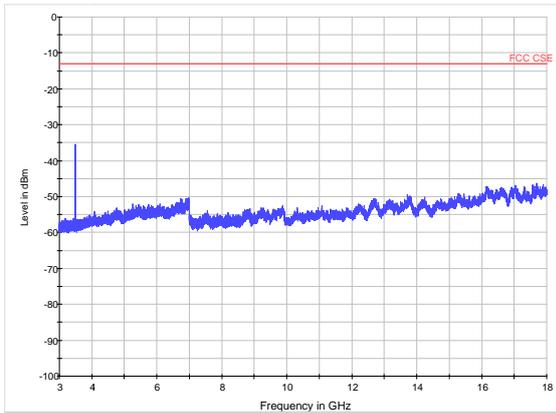
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 QPSK Bandwidth = 10MHz CH20000, RB 1



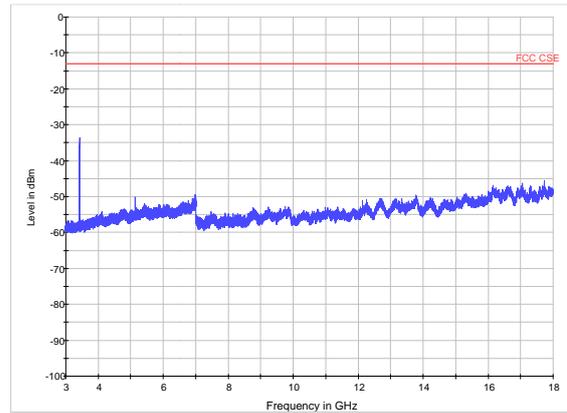
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20375 30MHz~3GHz



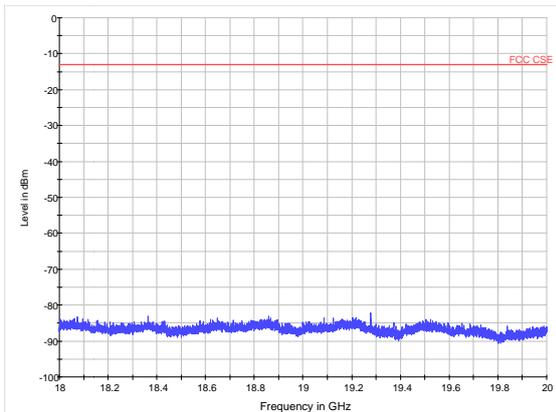
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20000 30MHz~3GHz



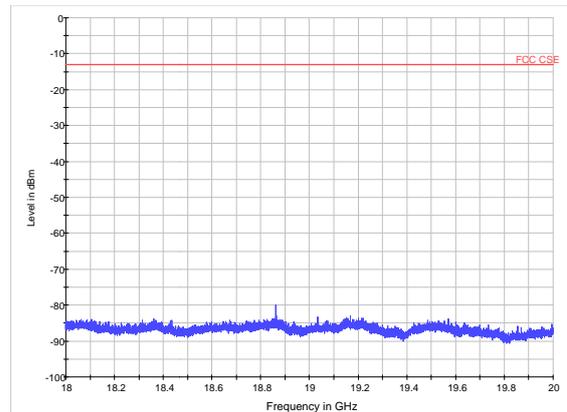
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20375 3GHz~18GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20000 3GHz~18GHz



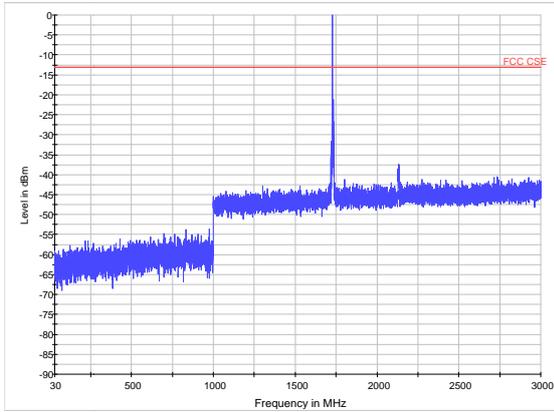
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20375 18GHz ~20GHz

LTE Band 4 CH20000 18GHz ~20GHz

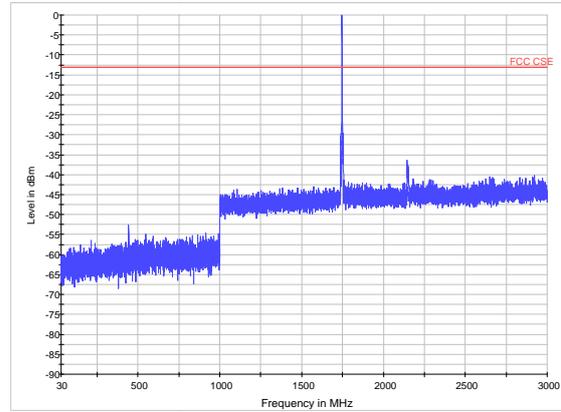


LTE Band 4 QPSK Bandwidth = 10MHz  
CH20175, RB 1



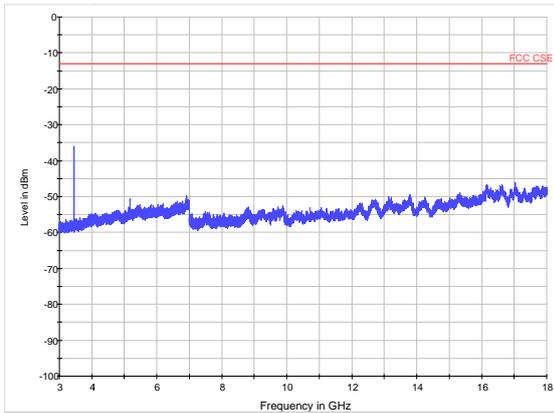
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 QPSK Bandwidth = 10MHz  
CH20350, RB 1



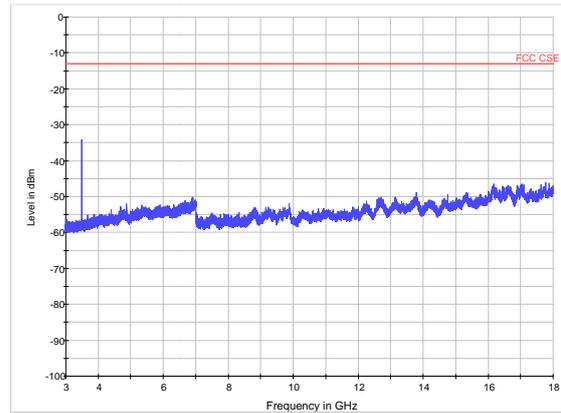
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 30MHz~3GHz



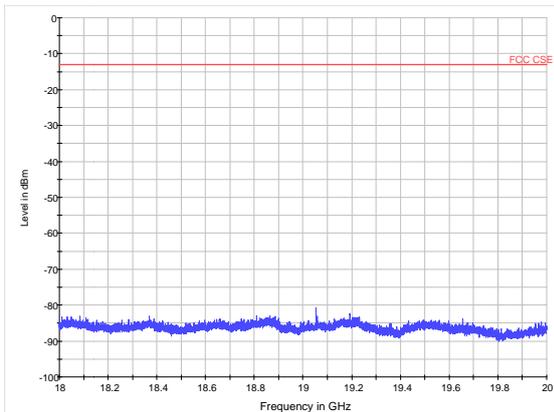
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20350 30MHz~3GHz



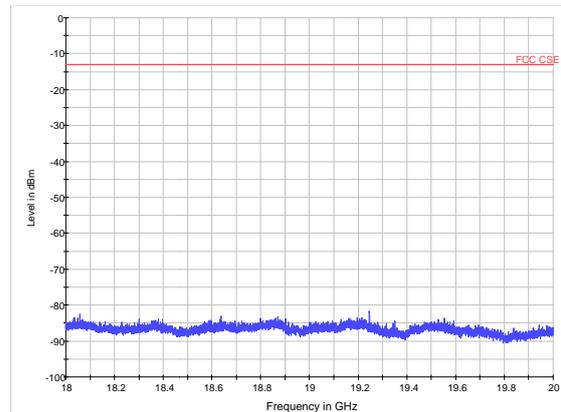
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 3GHz~18GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20350 3GHz~18GHz



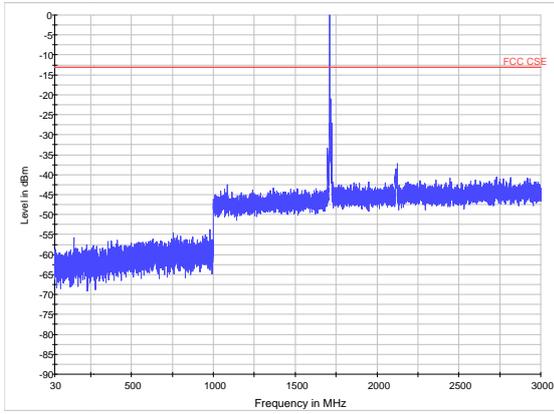
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 18GHz ~20GHz

LTE Band 4 CH20350 18GHz ~20GHz

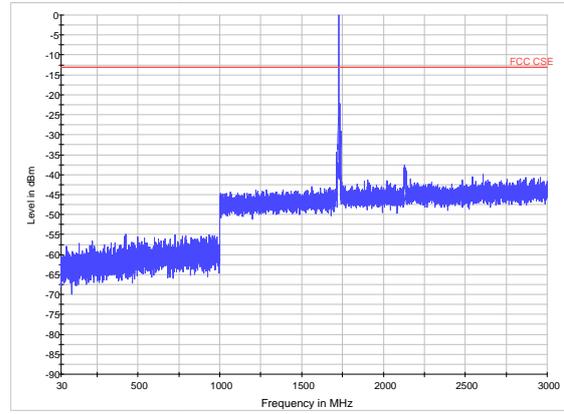


LTE Band 4 QPSK Bandwidth = 15MHz  
CH20025, RB 1



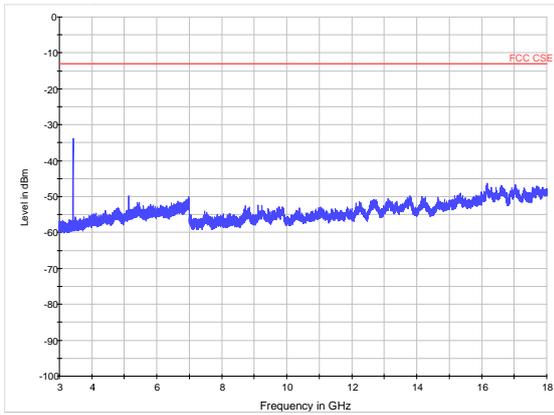
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 QPSK Bandwidth = 15MHz  
CH20175, RB 1



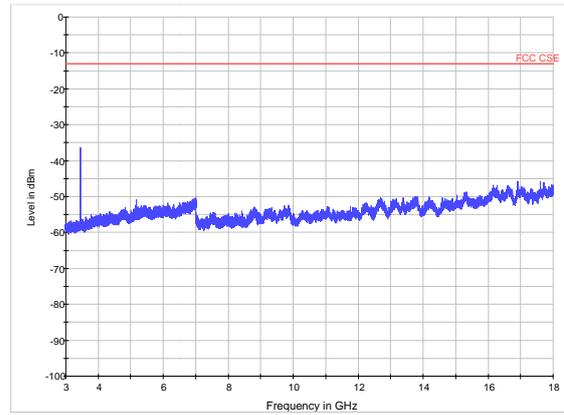
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20025 30MHz~3GHz



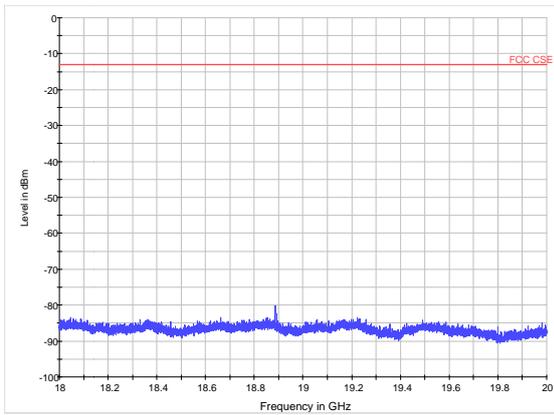
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 30MHz~3GHz



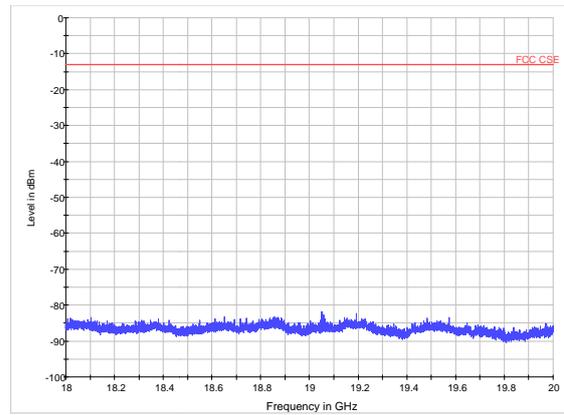
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20025 3GHz~18GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 3GHz~18GHz



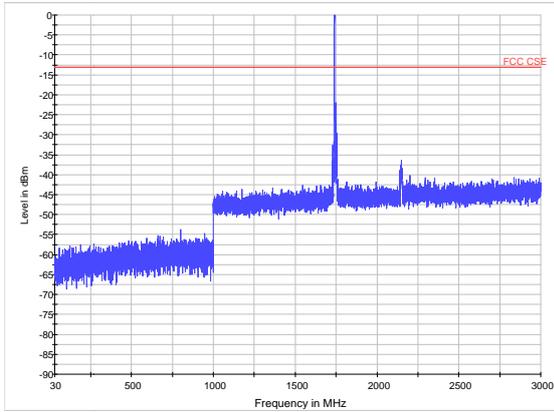
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20025 18GHz ~20GHz

LTE Band 4 CH20175 18GHz ~20GHz

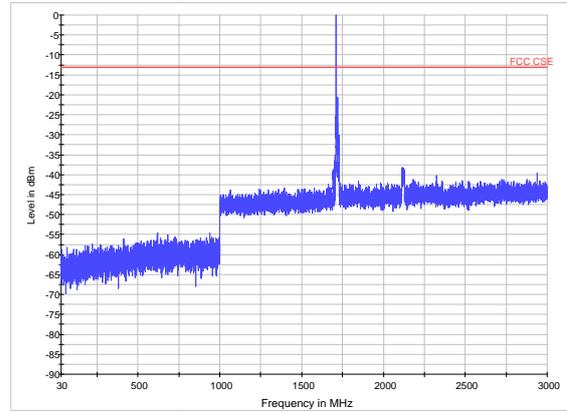


LTE Band 4 QPSK Bandwidth = 15MHz  
CH20325, RB 1



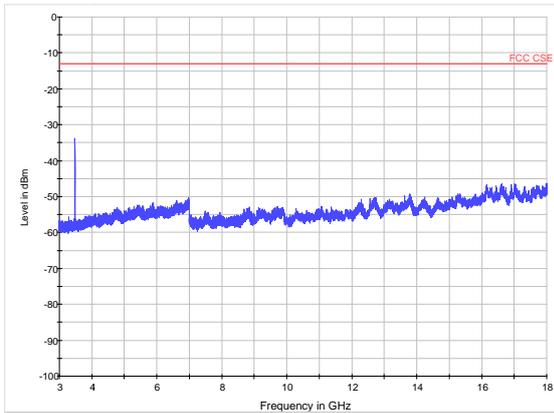
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 QPSK Bandwidth = 20MHz  
CH20050, RB 1



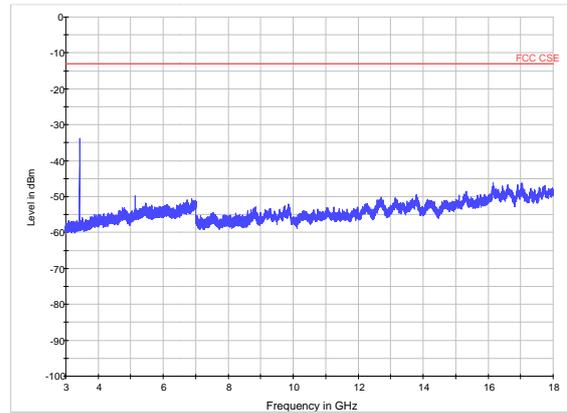
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20325 30MHz~3GHz



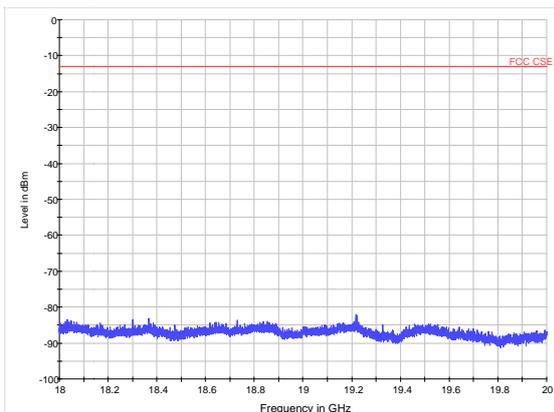
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20050 30MHz~3GHz



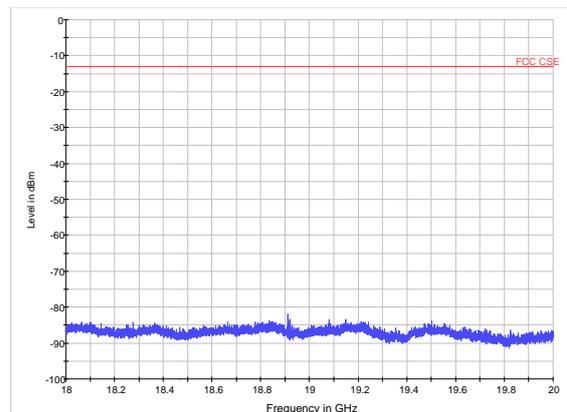
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20325 3GHz~18GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20050 3GHz~18GHz



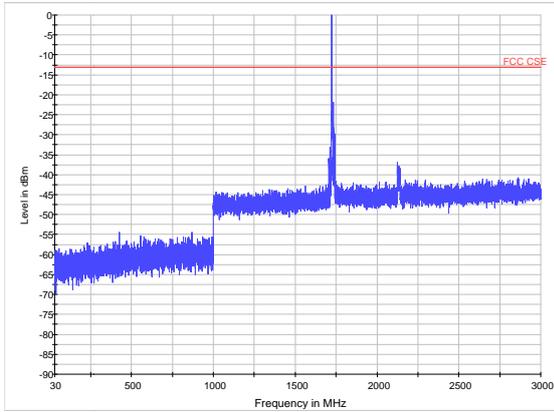
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20325 18GHz ~20GHz

LTE Band 4 CH20050 18GHz ~20GHz

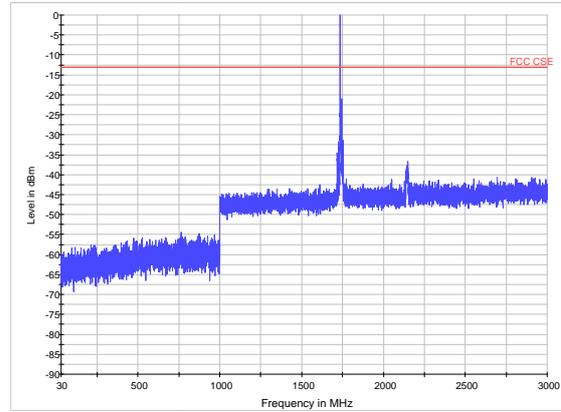


LTE Band 4 QPSK Bandwidth = 20MHz  
CH20175, RB 1



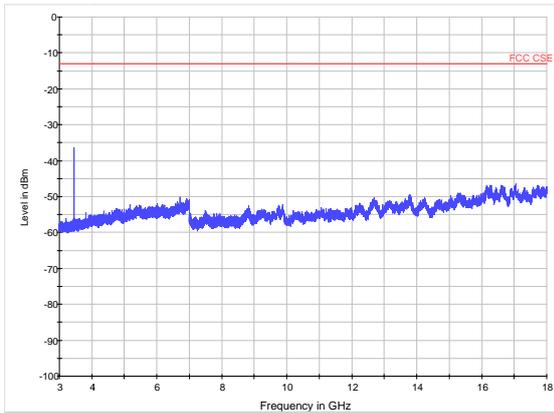
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 QPSK Bandwidth = 20MHz  
CH20300, RB 1



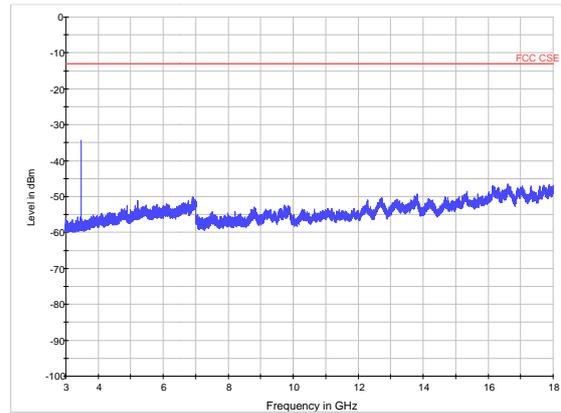
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 30MHz~3GHz



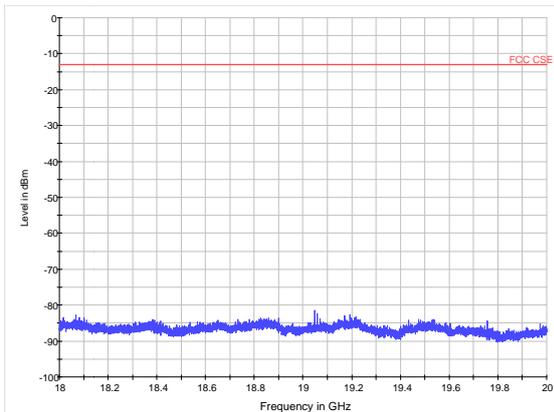
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LTE Band 4 CH20300 30MHz~3GHz



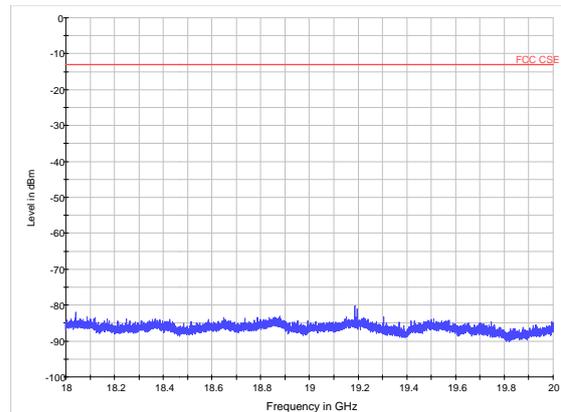
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 3GHz~18GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20300 3GHz~18GHz



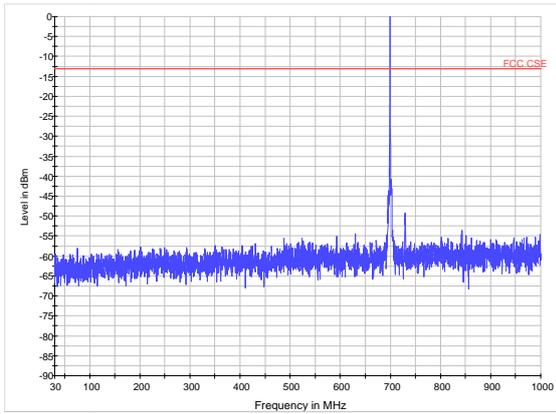
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 4 CH20175 18GHz ~20GHz

LTE Band 4 CH20300 18GHz ~20GHz

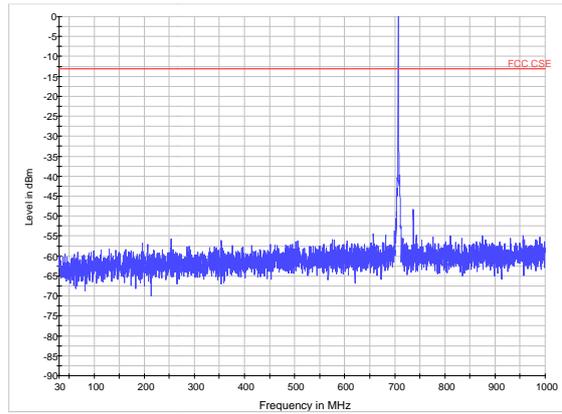


LTE Band 12 QPSK Bandwidth = 1.4MHz  
CH23017, RB 1



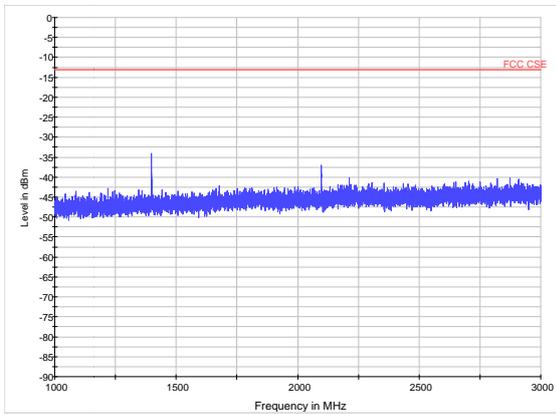
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 QPSK Bandwidth = 1.4MHz  
CH23095, RB 1



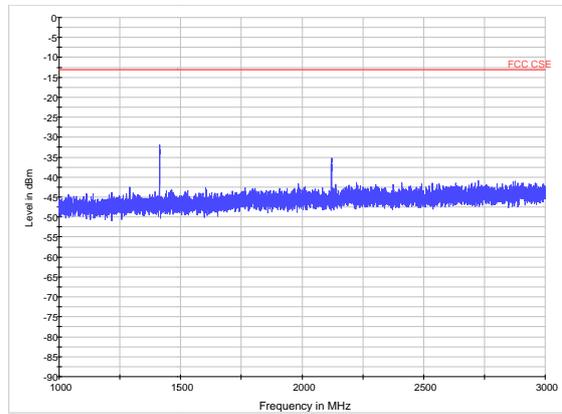
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23017 30MHz~1GHz



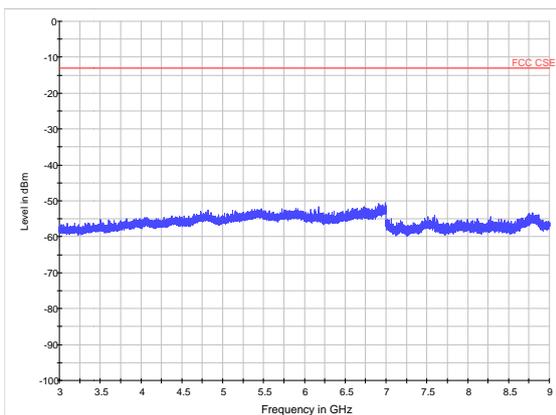
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 30MHz~1GHz



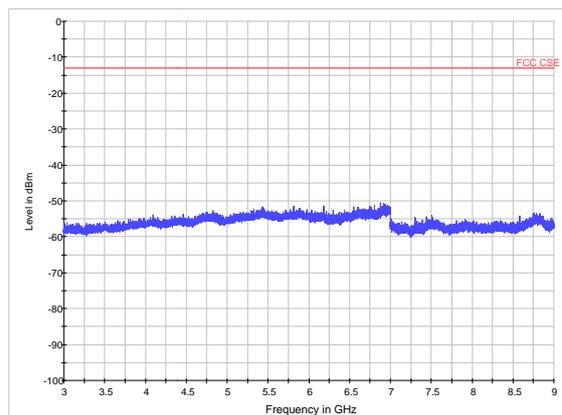
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23017 1GHz~3GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 1GHz~3GHz



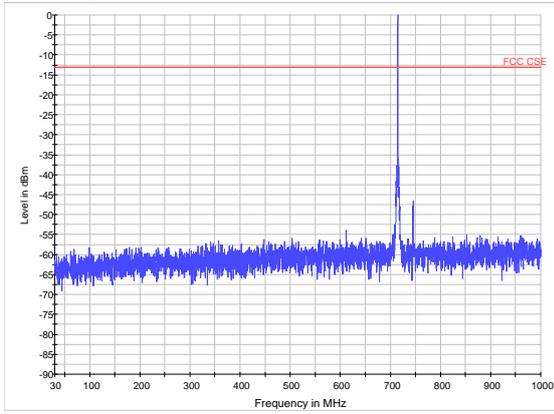
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23017 3GHz~9GHz

LTE Band 12 CH23095 3GHz~9GHz

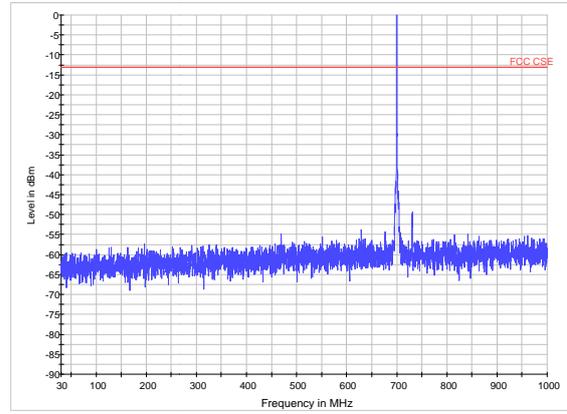


LTE Band 12 QPSK Bandwidth = 1.4MHz  
CH23173, RB 1



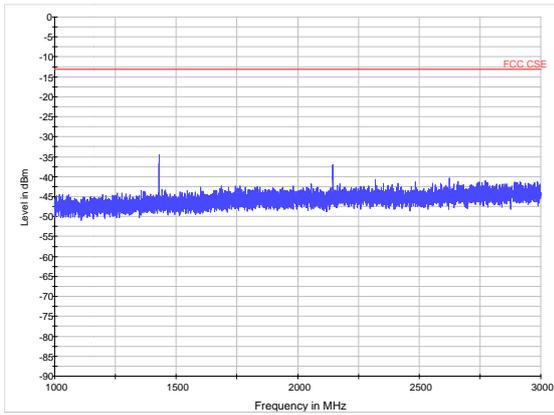
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 QPSK Bandwidth = 3MHz  
CH23025, RB 1



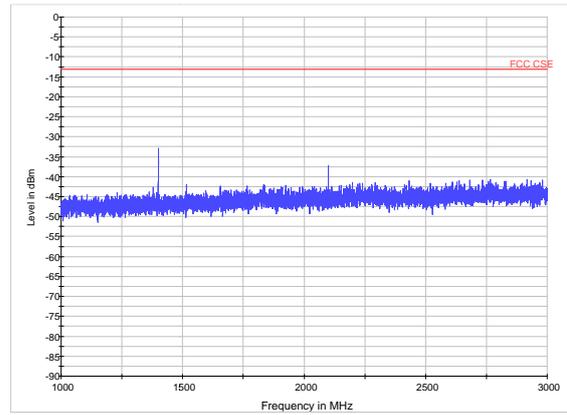
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23173 30MHz~1GHz



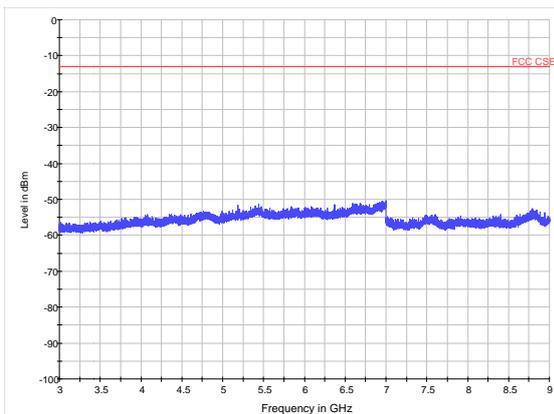
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23025 30MHz~1GHz



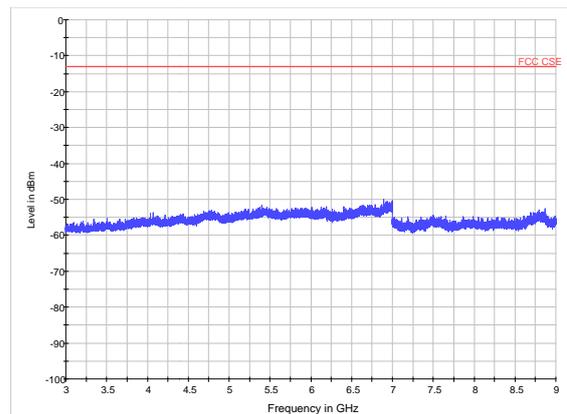
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23173 1GHz~3GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23025 1GHz~3GHz



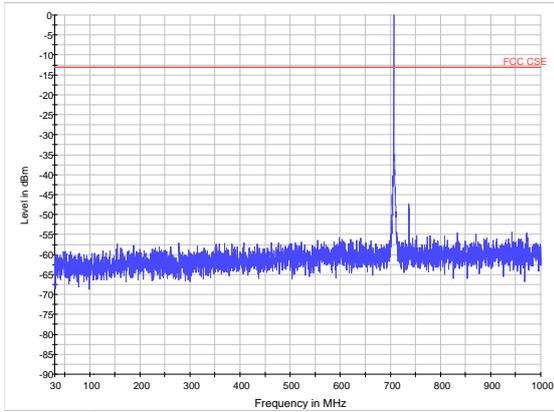
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23173 3GHz~9GHz

LTE Band 12 CH23025 3GHz~9GHz

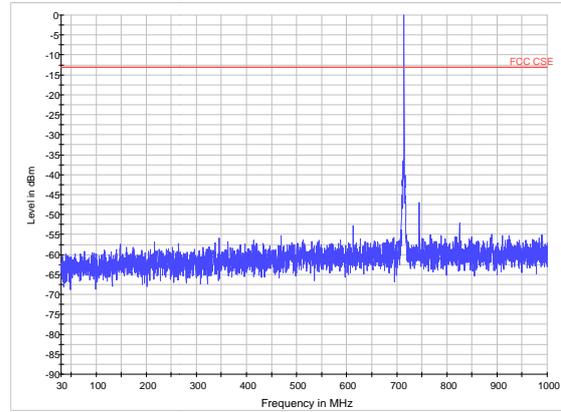


LTE Band 12 QPSK Bandwidth = 3MHz  
CH23095, RB 1



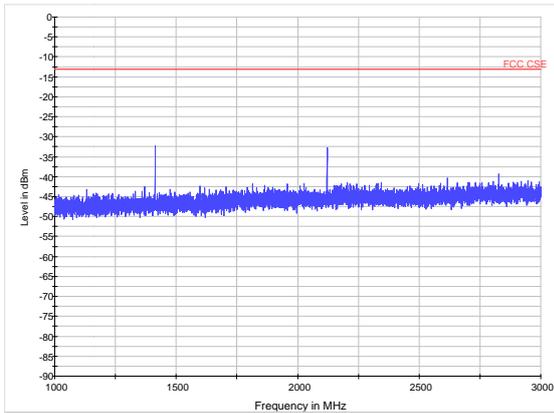
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 QPSK Bandwidth = 3MHz  
CH23165, RB 1



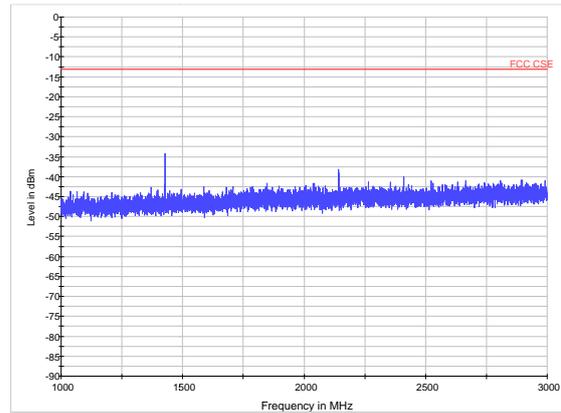
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 30MHz~1GHz



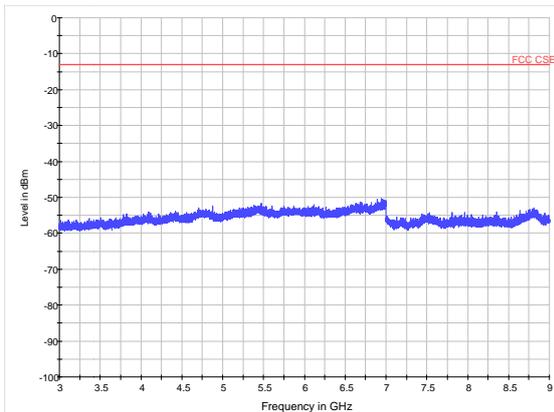
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23165 30MHz~1GHz



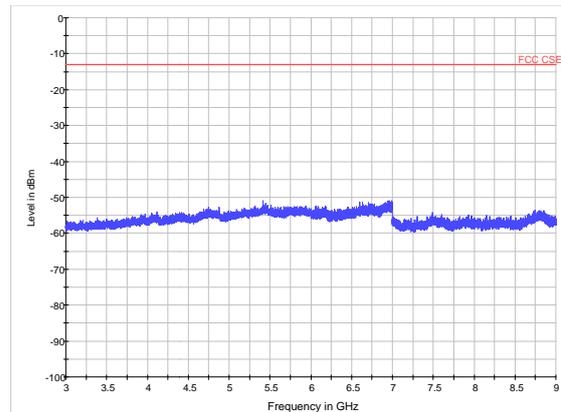
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 1GHz~3GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23165 1GHz~3GHz



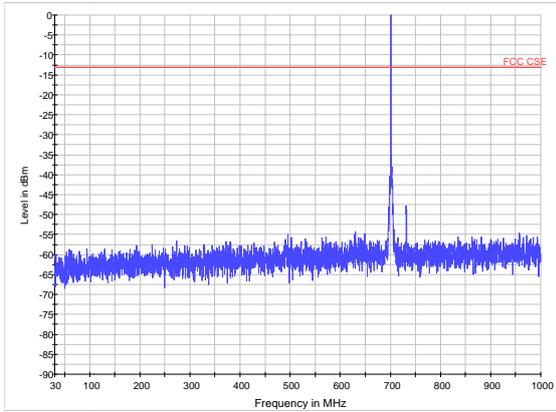
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 3GHz~9GHz

LTE Band 12 CH23165 3GHz~9GHz

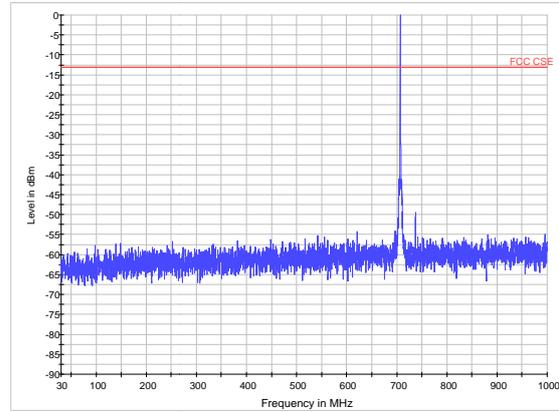


LTE Band 12 QPSK Bandwidth = 5MHz  
CH23035, RB 1



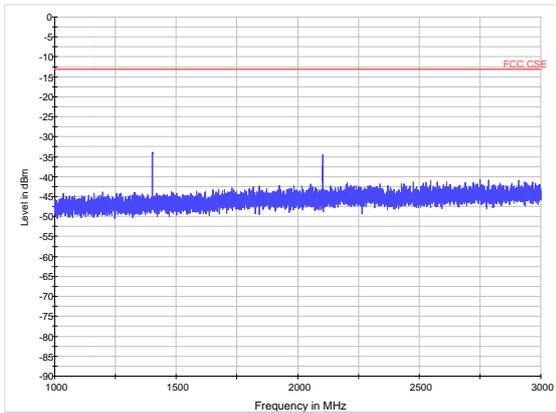
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 QPSK Bandwidth = 5MHz  
CH23095, RB 1



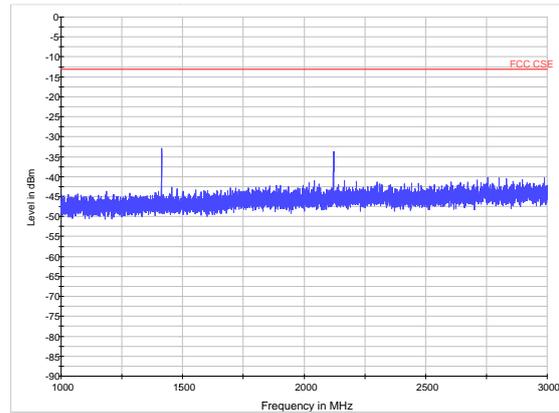
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23035 30MHz~1GHz



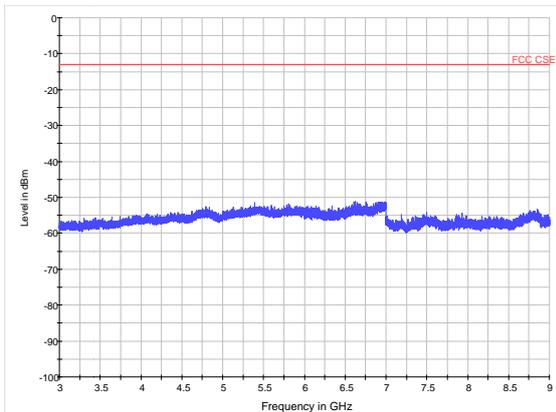
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 30MHz~1GHz



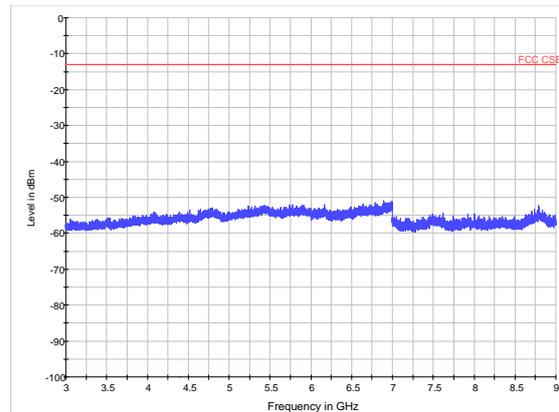
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23035 1GHz~3GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 1GHz~3GHz



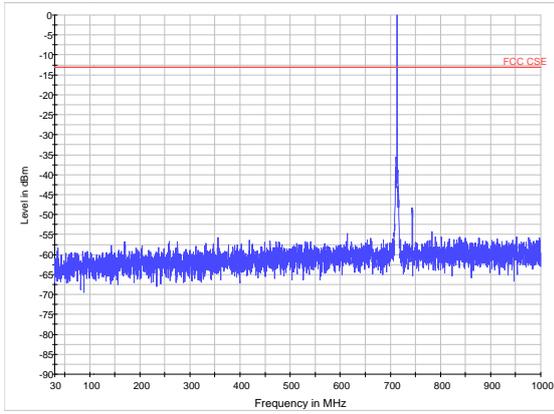
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23035 3GHz~9GHz

LTE Band 12 CH23095 3GHz~9GHz

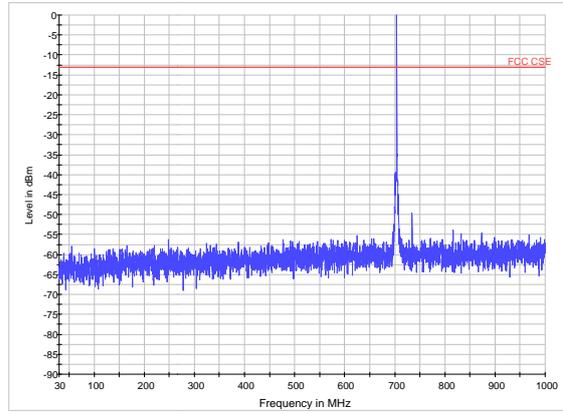


LTE Band 12 QPSK Bandwidth = 5MHz  
CH23155, RB 1



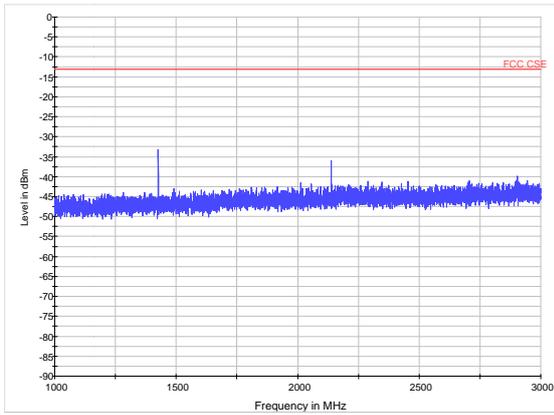
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 QPSK Bandwidth = 10MHz  
CH23060, RB 1



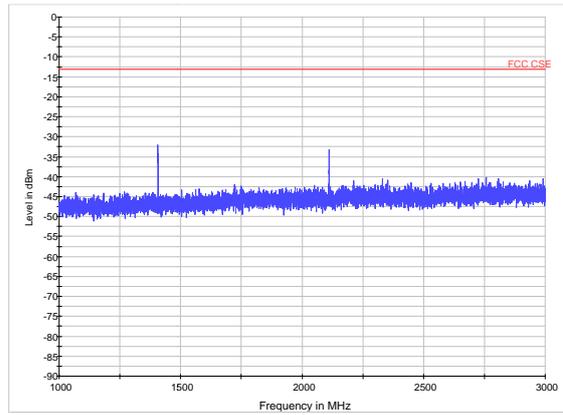
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23155 30MHz~1GHz



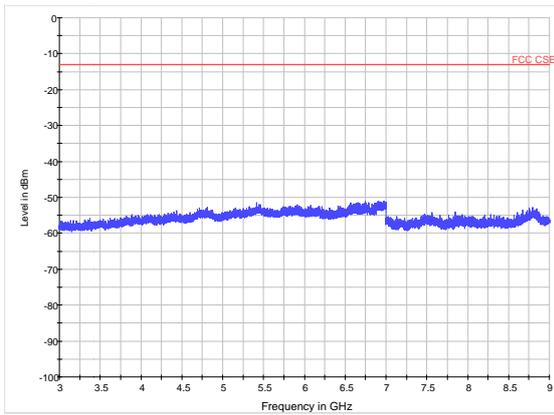
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23060 30MHz~1GHz



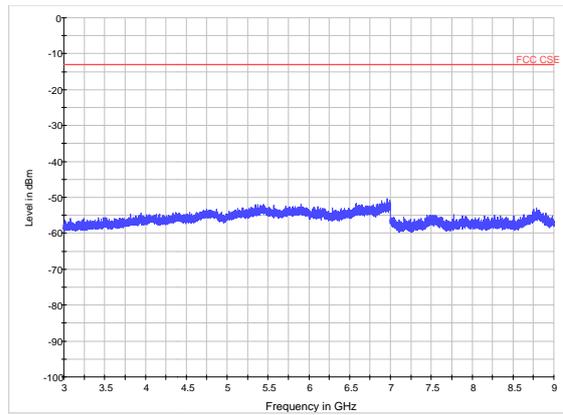
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23155 1GHz~3GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23060 1GHz~3GHz



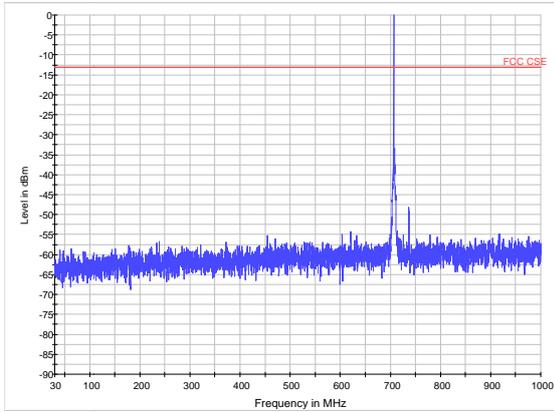
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23155 3GHz~9GHz

LTE Band 12 CH23060 3GHz~9GHz

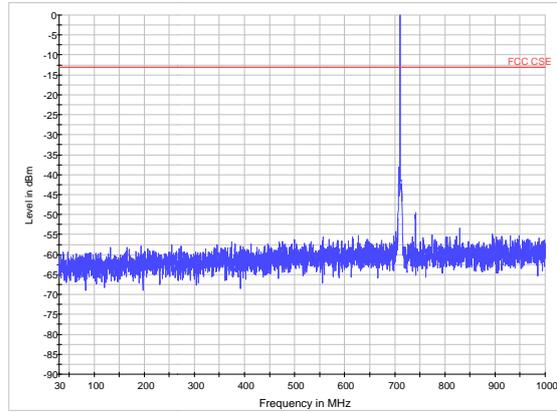


LTE Band 12 QPSK Bandwidth = 10MHz  
CH23095, RB 1



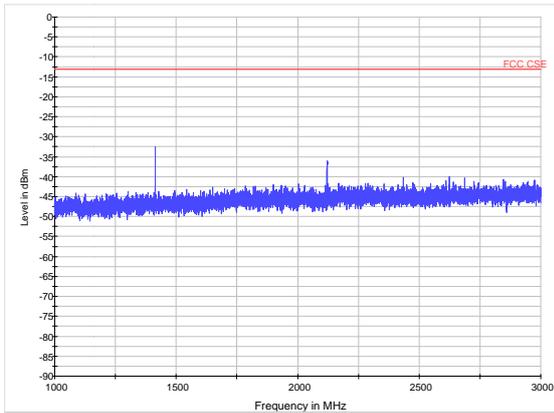
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 QPSK Bandwidth = 10MHz  
CH23130, RB 1



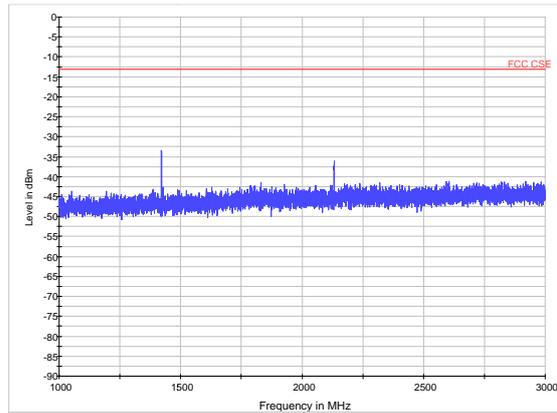
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 30MHz~1GHz



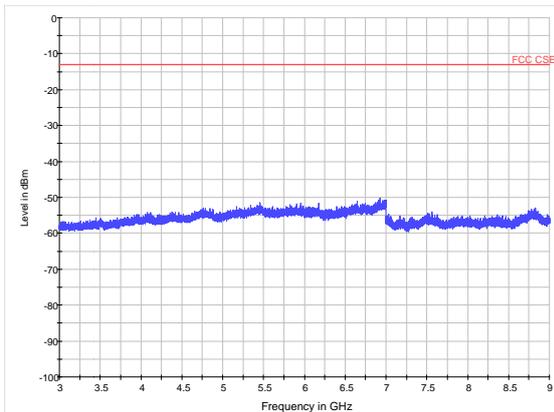
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23130 30MHz~1GHz



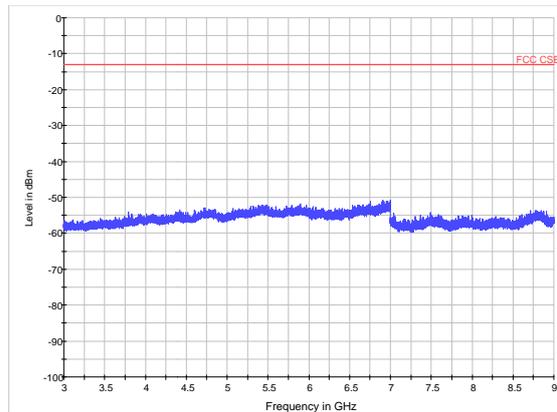
MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 1GHz~3GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23130 1GHz~3GHz



MaxPeak-MaxHold-PK+ FCC CSE

LTE Band 12 CH23095 3GHz~9GHz



## 4.8 Radiates Spurious Emission

### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

The measurements procedures in TIA -603-D are used.

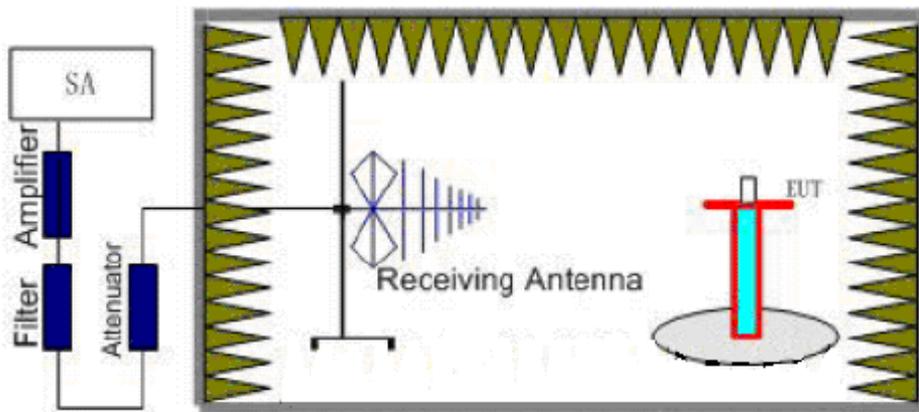
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment.

The emissions less than 20 dB below the permissible value are reported.

The procedure of Radiates Spurious Emission is as follows:

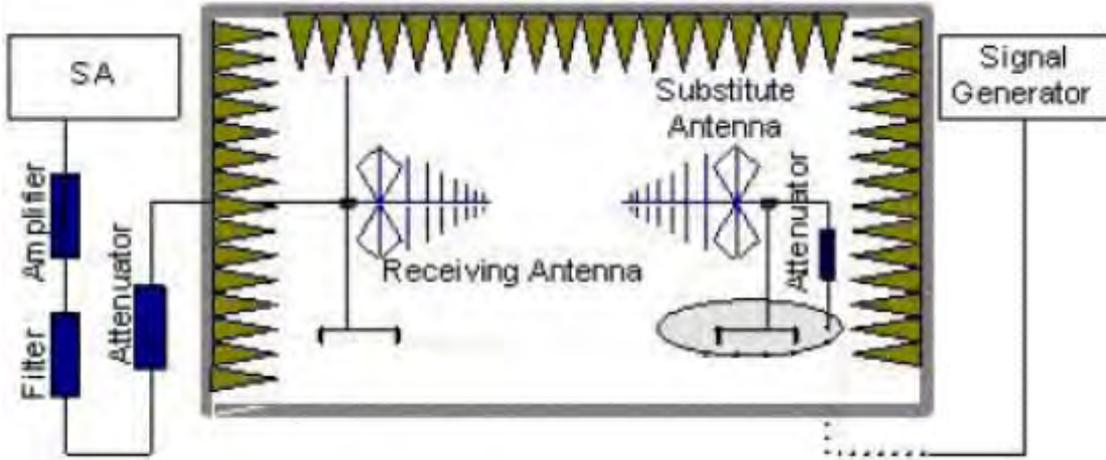
Step 1:

The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 1.5 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations. The test setup refers to figure below.



Step 2:

A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a Tx cable. Adjust the level of the signal generator output until the value of the receiver reach the previously recorded analyzer power level (LVL). Then The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable loss and the gain of the substitution antenna. The test setup refers to figure below.



$$E.R.P \text{ (peak power)} = S.G. - Tx \text{ Cable loss} + \text{Substitution antenna gain} - 2.15.$$

$$EIRP = E.R.P + 2.15$$

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), The worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.

**Limits**

Rule Part 27.53(h)/ 27.53(g) specifies that “the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log<sub>10</sub>(P) dB.”

Limit	-13 dBm
-------	---------

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = \pm 1.96$ ,  $U = \pm 3.55$  dB.

**Test Result**

## WCDMA Band IV CH1312

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3424.8	-56.41	2.6	10.15	Vertical	-51.01	-13	38.01	135
3	5137.2	-60.04	2.4	11.35	Vertical	-53.24	-13	40.24	0
4	6849.6	-57.17	4.5	10.85	Vertical	-52.97	-13	39.97	45
5	8562.0	-57.53	5.1	11.35	Vertical	-53.43	-13	40.43	180
6	10274.4	-54.04	5.3	11.95	Vertical	-49.54	-13	36.54	90
7	11986.8	-51.88	5.5	13.55	Vertical	-45.98	-13	32.98	180
8	13699.2	-49.60	6.3	13.75	Vertical	-44.30	-13	31.30	270
9	15411.6	-48.98	6.7	13.85	Vertical	-43.98	-13	30.98	135
10	17124.0	-46.42	6.8	14.25	Vertical	-41.12	-13	28.12	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

## WCDMA Band IV CH1413

Harmonic	TX ch.1413 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.2	-58.10	2.6	10.75	Vertical	-52.10	-13	39.10	0
3	5197.8	-57.85	2.4	11.05	Vertical	-51.35	-13	38.35	270
4	6930.4	-58.24	4.5	11.15	Vertical	-53.74	-13	40.74	315
5	8663.0	-58.03	5.1	11.35	Vertical	-53.93	-13	40.93	225
6	10395.6	-50.60	5.3	11.95	Vertical	-46.10	-13	33.10	135
7	12128.2	-51.58	5.5	13.55	Vertical	-45.68	-13	32.68	270
8	13860.8	-47.40	6.3	13.75	Vertical	-42.10	-13	29.10	0
9	15593.4	-49.54	6.7	13.85	Vertical	-44.54	-13	31.54	135
10	17326.0	-48.97	6.8	14.25	Vertical	-43.67	-13	30.67	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.



## WCDMA Band IV CH1513

Harmonic	TX ch.1513 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3505.2	-58.75	2.6	10.15	Vertical	-53.35	-13	40.35	45
3	5257.8	-59.12	2.4	11.05	Vertical	-52.62	-13	39.62	180
4	7010.4	-54.56	4.5	11.15	Vertical	-50.06	-13	37.06	90
5	8763.0	-56.69	5.1	11.35	Vertical	-52.59	-13	39.59	225
6	10515.6	-53.17	5.3	11.95	Vertical	-48.67	-13	35.67	270
7	12268.2	-50.15	5.5	13.55	Vertical	-44.25	-13	31.25	180
8	14020.8	-50.40	6.3	13.75	Vertical	-45.10	-13	32.10	135
9	15773.4	-46.10	6.7	13.85	Vertical	-41.10	-13	28.10	270
10	17526.0	-47.65	6.8	14.25	Vertical	-42.35	-13	29.35	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

## LTE Band 4 QPSK Bandwidth = 1.4MHz CH19957, RB 1

Harmonic	CH19957 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3421.4	-64.16	2.6	10.15	Vertical	-58.76	-13	45.76	270
3	5132.1	-68.59	2.4	11.35	Vertical	-61.79	-13	48.79	0
4	6842.8	-65.78	4.5	10.85	Vertical	-61.58	-13	48.58	90
5	8553.5	-66.62	5.1	11.35	Vertical	-62.52	-13	49.52	315
6	10264.2	-67.12	5.3	11.95	Vertical	-62.62	-13	49.62	180
7	11974.9	-67.13	5.5	13.55	Vertical	-61.23	-13	48.23	45
8	13685.6	-63.55	6.3	13.75	Vertical	-58.25	-13	45.25	90
9	15396.3	-60.42	6.7	13.85	Vertical	-55.42	-13	42.42	225
10	17107.0	-60.78	6.8	14.25	Vertical	-55.48	-13	42.48	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 1.4MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-68.00	2.6	10.75	Vertical	-62.00	-13	49.00	180
3	5197.5	-60.70	2.4	11.05	Vertical	-54.20	-13	41.20	135
4	6930.0	-65.33	4.5	11.15	Vertical	-60.83	-13	47.83	270
5	8662.5	-65.02	5.1	11.35	Vertical	-60.92	-13	47.92	0
6	10395.0	-66.47	5.3	11.95	Vertical	-61.97	-13	48.97	90
7	12127.5	-67.58	5.5	13.55	Vertical	-61.68	-13	48.68	315
8	13860.0	-63.46	6.3	13.75	Vertical	-58.16	-13	45.16	180
9	15592.5	-61.47	6.7	13.85	Vertical	-56.47	-13	43.47	45
10	17325.0	-59.08	6.8	14.25	Vertical	-53.78	-13	40.78	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK Bandwidth = 1.4MHz CH20393, RB 1

Harmonic	CH20393 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3508.6	-64.12	2.6	10.15	Vertical	-58.72	-13	45.72	135
3	5262.9	-63.17	2.4	11.05	Vertical	-56.67	-13	43.67	0
4	7017.2	-66.95	4.5	11.15	Vertical	-62.45	-13	49.45	45
5	8771.5	-64.36	5.1	11.35	Vertical	-60.26	-13	47.26	90
6	10525.8	-67.15	5.3	11.95	Vertical	-62.65	-13	49.65	225
7	12280.1	-67.29	5.5	13.55	Vertical	-61.39	-13	48.39	270
8	14034.4	-63.98	6.3	13.75	Vertical	-58.68	-13	45.68	180
9	15788.7	-60.44	6.7	13.85	Vertical	-55.44	-13	42.44	135
10	17543.0	-58.89	6.8	14.25	Vertical	-53.59	-13	40.59	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 3MHz CH19965, RB 1

Harmonic	CH19965 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3423.0	-63.86	2.6	10.15	Vertical	-58.46	-13	45.46	0
3	5134.5	-67.30	2.4	11.35	Vertical	-60.50	-13	47.50	90
4	6846.0	-66.18	4.5	10.85	Vertical	-61.98	-13	48.98	315
5	8557.5	-66.76	5.1	11.35	Vertical	-62.66	-13	49.66	180
6	10269.0	-67.22	5.3	11.95	Vertical	-62.72	-13	49.72	45
7	11980.5	-67.24	5.5	13.55	Vertical	-61.34	-13	48.34	90
8	13692.0	-63.83	6.3	13.75	Vertical	-58.53	-13	45.53	225
9	15403.5	-61.62	6.7	13.85	Vertical	-56.62	-13	43.62	270
10	17115.0	-60.14	6.8	14.25	Vertical	-54.84	-13	41.84	180

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK Bandwidth = 3MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-68.29	2.6	10.75	Vertical	-62.29	-13	49.29	135
3	5197.5	-60.95	2.4	11.05	Vertical	-54.45	-13	41.45	270
4	6930.0	-65.69	4.5	11.15	Vertical	-61.19	-13	48.19	0
5	8662.5	-63.79	5.1	11.35	Vertical	-59.69	-13	46.69	90
6	10395.0	-66.31	5.3	11.95	Vertical	-61.81	-13	48.81	315
7	12127.5	-67.38	5.5	13.55	Vertical	-61.48	-13	48.48	225
8	13860.0	-62.88	6.3	13.75	Vertical	-57.58	-13	44.58	180
9	15592.5	-61.12	6.7	13.85	Vertical	-56.12	-13	43.12	45
10	17325.0	-58.97	6.8	14.25	Vertical	-53.67	-13	40.67	90

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 3MHz CH20385, RB 1

Harmonic	CH20385 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3507.0	-63.61	2.6	10.15	Vertical	-58.21	-13	45.21	135
3	5260.5	-63.52	2.4	11.05	Vertical	-57.02	-13	44.02	0
4	7014.0	-67.21	4.5	11.15	Vertical	-62.71	-13	49.71	45
5	8767.5	-64.98	5.1	11.35	Vertical	-60.88	-13	47.88	90
6	10521.0	-66.91	5.3	11.95	Vertical	-62.41	-13	49.41	225
7	12274.5	-66.51	5.5	13.55	Vertical	-60.61	-13	47.61	270
8	14028.0	-63.59	6.3	13.75	Vertical	-58.29	-13	45.29	180
9	15781.5	-60.90	6.7	13.85	Vertical	-55.90	-13	42.90	135
10	17535.0	-59.05	6.8	14.25	Vertical	-53.75	-13	40.75	270

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK Bandwidth = 5MHz CH19975, RB 1

Harmonic	CH19975 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3425.0	-64.45	2.6	10.15	Vertical	-59.05	-13	46.05	0
3	5137.5	-68.45	2.4	11.35	Vertical	-61.65	-13	48.65	90
4	6850.0	-66.15	4.5	10.85	Vertical	-61.95	-13	48.95	45
5	8562.5	-67.44	5.1	11.35	Vertical	-63.34	-13	50.34	90
6	10275.0	-67.37	5.3	11.95	Vertical	-62.87	-13	49.87	225
7	11987.5	-67.83	5.5	13.55	Vertical	-61.93	-13	48.93	270
8	13700.0	-63.74	6.3	13.75	Vertical	-58.44	-13	45.44	180
9	15412.5	-61.71	6.7	13.85	Vertical	-56.71	-13	43.71	135
10	17125.0	-63.15	6.8	14.25	Vertical	-57.85	-13	44.85	270

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 5MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-68.64	2.6	10.75	Vertical	-62.64	-13	49.64	0
3	5197.5	-62.13	2.4	11.05	Vertical	-55.63	-13	42.63	90
4	6930.0	-65.99	4.5	11.15	Vertical	-61.49	-13	48.49	315
5	8662.5	-64.59	5.1	11.35	Vertical	-60.49	-13	47.49	225
6	10395.0	-66.87	5.3	11.95	Vertical	-62.37	-13	49.37	180
7	12127.5	-67.71	5.5	13.55	Vertical	-61.81	-13	48.81	45
8	13860.0	-63.30	6.3	13.75	Vertical	-58.00	-13	45.00	90
9	15592.5	-61.43	6.7	13.85	Vertical	-56.43	-13	43.43	135
10	17325.0	-58.38	6.8	14.25	Vertical	-53.08	-13	40.08	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK Bandwidth = 5MHz CH20375, RB 1

Harmonic	CH20375 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3505.0	-63.60	2.6	10.15	Vertical	-58.20	-13	45.20	45
3	5257.5	-64.43	2.4	11.05	Vertical	-57.93	-13	44.93	90
4	7010.0	-67.18	4.5	11.15	Vertical	-62.68	-13	49.68	45
5	8762.5	-65.58	5.1	11.35	Vertical	-61.48	-13	48.48	45
6	10515.0	-66.91	5.3	11.95	Vertical	-62.41	-13	49.41	90
7	12267.5	-66.89	5.5	13.55	Vertical	-60.99	-13	47.99	225
8	14020.0	-63.54	6.3	13.75	Vertical	-58.24	-13	45.24	90
9	15772.5	-61.29	6.7	13.85	Vertical	-56.29	-13	43.29	270
10	17525.0	-58.53	6.8	14.25	Vertical	-53.23	-13	40.23	315

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 10MHz CH20000, RB 1

Harmonic	CH20000 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3430.0	-64.39	2.6	10.15	Vertical	-58.99	-13	45.99	270
3	5145.0	-68.06	2.4	11.35	Vertical	-61.26	-13	48.26	45
4	6860.0	-65.76	4.5	10.85	Vertical	-61.56	-13	48.56	270
5	8575.0	-67.24	5.1	11.35	Vertical	-63.14	-13	50.14	0
6	10290.0	-67.25	5.3	11.95	Vertical	-62.75	-13	49.75	270
7	12005.0	-68.37	5.5	13.55	Vertical	-62.47	-13	49.47	180
8	13720.0	-63.50	6.3	13.75	Vertical	-58.20	-13	45.20	135
9	15435.0	-62.15	6.7	13.85	Vertical	-57.15	-13	44.15	45
10	17150.0	-59.85	6.8	14.25	Vertical	-54.55	-13	41.55	315

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK Bandwidth = 10MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-66.93	2.6	10.75	Vertical	-60.93	-13	47.93	270
3	5197.5	-61.07	2.4	11.05	Vertical	-54.57	-13	41.57	225
4	6930.0	-64.96	4.5	11.15	Vertical	-60.46	-13	47.46	180
5	8662.5	-63.31	5.1	11.35	Vertical	-59.21	-13	46.21	45
6	10395.0	-66.37	5.3	11.95	Vertical	-61.87	-13	48.87	90
7	12127.5	-67.20	5.5	13.55	Vertical	-61.30	-13	48.30	135
8	13860.0	-63.45	6.3	13.75	Vertical	-58.15	-13	45.15	0
9	15592.5	-61.53	6.7	13.85	Vertical	-56.53	-13	43.53	45
10	17325.0	-59.03	6.8	14.25	Vertical	-53.73	-13	40.73	90

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 10MHz CH20350, RB 1

Harmonic	CH20350 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3500.0	-63.37	2.6	10.15	Vertical	-57.97	-13	44.97	45
3	5250.0	-62.76	2.4	11.05	Vertical	-56.26	-13	43.26	45
4	7000.0	-66.12	4.5	11.15	Vertical	-61.62	-13	48.62	90
5	8750.0	-64.47	5.1	11.35	Vertical	-60.37	-13	47.37	225
6	10500.0	-67.05	5.3	11.95	Vertical	-62.55	-13	49.55	90
7	12250.0	-66.72	5.5	13.55	Vertical	-60.82	-13	47.82	270
8	14000.0	-63.58	6.3	13.75	Vertical	-58.28	-13	45.28	315
9	15750.0	-61.04	6.7	13.85	Vertical	-56.04	-13	43.04	270
10	17500.0	-59.23	6.8	14.25	Vertical	-53.93	-13	40.93	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK Bandwidth = 15MHz CH20025, RB 1

Harmonic	CH20025 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3435.0	-63.92	2.6	10.15	Vertical	-58.52	-13	45.52	270
3	5152.5	-68.37	2.4	11.35	Vertical	-61.57	-13	48.57	0
4	6870.0	-66.07	4.5	10.85	Vertical	-61.87	-13	48.87	270
5	8587.5	-66.86	5.1	11.35	Vertical	-62.76	-13	49.76	270
6	10305.0	-68.03	5.3	11.95	Vertical	-63.53	-13	50.53	0
7	12022.5	-68.34	5.5	13.55	Vertical	-62.44	-13	49.44	270
8	13740.0	-63.42	6.3	13.75	Vertical	-58.12	-13	45.12	180
9	15457.5	-61.74	6.7	13.85	Vertical	-56.74	-13	43.74	135
10	17175.0	-59.56	6.8	14.25	Vertical	-54.26	-13	41.26	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 15MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-66.18	2.6	10.75	Vertical	-60.18	-13	47.18	315
3	5197.5	-62.74	2.4	11.05	Vertical	-56.24	-13	43.24	270
4	6930.0	-64.83	4.5	11.15	Vertical	-60.33	-13	47.33	225
5	8662.5	-63.89	5.1	11.35	Vertical	-59.79	-13	46.79	180
6	10395.0	-65.98	5.3	11.95	Vertical	-61.48	-13	48.48	45
7	12127.5	-67.76	5.5	13.55	Vertical	-61.86	-13	48.86	90
8	13860.0	-63.38	6.3	13.75	Vertical	-58.08	-13	45.08	135
9	15592.5	-61.55	6.7	13.85	Vertical	-56.55	-13	43.55	0
10	17325.0	-58.52	6.8	14.25	Vertical	-53.22	-13	40.22	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK Bandwidth = 15MHz CH20325, RB 1

Harmonic	CH20325 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3495.0	-63.98	2.6	10.15	Vertical	-58.58	-13	45.58	90
3	5242.5	-61.33	2.4	11.05	Vertical	-54.83	-13	41.83	45
4	6990.0	-65.38	4.5	11.15	Vertical	-60.88	-13	47.88	270
5	8737.5	-64.60	5.1	11.35	Vertical	-60.50	-13	47.50	90
6	10485.0	-67.52	5.3	11.95	Vertical	-63.02	-13	50.02	270
7	12232.5	-66.92	5.5	13.55	Vertical	-61.02	-13	48.02	0
8	13980.0	-63.59	6.3	13.75	Vertical	-58.29	-13	45.29	270
9	15727.5	-60.83	6.7	13.85	Vertical	-55.83	-13	42.83	45
10	17475.0	-59.75	6.8	14.25	Vertical	-54.45	-13	41.45	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 20MHz CH20050, RB 1

Harmonic	CH20050 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3440.0	-69.67	2.6	10.15	Vertical	-64.27	-13	51.27	90
3	5160.0	-73.05	2.4	11.35	Vertical	-66.25	-13	53.25	225
4	6880.0	-68.06	4.5	10.85	Vertical	-63.86	-13	50.86	90
5	8600.0	-67.78	5.1	11.35	Vertical	-63.68	-13	50.68	270
6	10320.0	-67.46	5.3	11.95	Vertical	-62.96	-13	49.96	315
7	12040.0	-68.25	5.5	13.55	Vertical	-62.35	-13	49.35	270
8	13760.0	-63.30	6.3	13.75	Vertical	-58.00	-13	45.00	45
9	15480.0	-61.57	6.7	13.85	Vertical	-56.57	-13	43.57	270
10	17200.0	-59.54	6.8	14.25	Vertical	-54.24	-13	41.24	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK Bandwidth = 20MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-72.65	2.6	10.75	Vertical	-66.65	-13	53.65	270
3	5197.5	-72.07	2.4	11.05	Vertical	-65.57	-13	52.57	180
4	6930.0	-67.69	4.5	11.15	Vertical	-63.19	-13	50.19	135
5	8662.5	-67.94	5.1	11.35	Vertical	-63.84	-13	50.84	45
6	10395.0	-66.76	5.3	11.95	Vertical	-62.26	-13	49.26	90
7	12127.5	-67.93	5.5	13.55	Vertical	-62.03	-13	49.03	225
8	13860.0	-63.26	6.3	13.75	Vertical	-57.96	-13	44.96	270
9	15592.5	-61.82	6.7	13.85	Vertical	-56.82	-13	43.82	180
10	17325.0	-58.60	6.8	14.25	Vertical	-53.30	-13	40.30	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 4 QPSK Bandwidth = 20MHz CH20300, RB 1

Harmonic	CH20300 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3490.0	-72.19	2.6	10.15	Vertical	-66.79	-13	53.79	270
3	5235.0	-72.08	2.4	11.05	Vertical	-65.58	-13	52.58	0
4	6980.0	-67.41	4.5	11.15	Vertical	-62.91	-13	49.91	90
5	8725.0	-67.43	5.1	11.35	Vertical	-63.33	-13	50.33	180
6	10470.0	-67.41	5.3	11.95	Vertical	-62.91	-13	49.91	90
7	12215.0	-66.82	5.5	13.55	Vertical	-60.92	-13	47.92	225
8	13960.0	-63.63	6.3	13.75	Vertical	-58.33	-13	45.33	270
9	15705.0	-60.92	6.7	13.85	Vertical	-55.92	-13	42.92	135
10	17450.0	-59.81	6.8	14.25	Vertical	-54.51	-13	41.51	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK Bandwidth = 1.4MHz CH23017, RB 1

Harmonic	CH23017 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1399.40	-60.25	2.00	10.15	Vertical	-54.25	-13	41.25	90
3	2099.10	-58.72	2.50	11.35	Vertical	-52.02	-13	39.02	225
4	2798.80	-51.56	4.20	10.85	Vertical	-47.06	-13	34.06	90
5	3498.50	-54.49	5.20	11.35	Vertical	-50.49	-13	37.49	270
6	4198.20	-53.07	5.50	11.95	Vertical	-48.77	-13	35.77	315
7	4897.90	-53.21	5.70	13.55	Vertical	-47.51	-13	34.51	270
8	5597.60	-52.15	6.30	13.75	Vertical	-46.85	-13	33.85	45
9	6297.30	-51.75	6.80	13.85	Vertical	-46.85	-13	33.85	270
10	6997.00	-50.00	6.90	14.25	Vertical	-44.80	-13	31.80	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 12 QPSK Bandwidth = 1.4MHz CH23095, RB 1

Harmonic	CH23095 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-57.75	2.00	10.75	Vertical	-51.15	-13	38.15	270
3	2122.50	-56.64	2.51	11.05	Vertical	-50.25	-13	37.25	270
4	2830.00	-51.65	4.20	11.15	Vertical	-46.85	-13	33.85	0
5	3537.50	-54.15	5.20	11.15	Vertical	-50.35	-13	37.35	270
6	4245.00	-50.46	5.50	11.95	Vertical	-46.16	-13	33.16	180
7	4952.50	-53.26	5.70	13.55	Vertical	-47.56	-13	34.56	135
8	5660.00	-52.56	6.30	13.75	Vertical	-47.26	-13	34.26	45
9	6367.50	-51.18	6.80	13.85	Vertical	-46.28	-13	33.28	315
10	7075.00	-50.22	6.90	14.25	Vertical	-45.02	-13	32.02	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK Bandwidth = 1.4MHz CH23173, RB 1

Harmonic	CH23173 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1430.60	-60.35	2.00	10.15	Vertical	-54.35	-13	41.35	315
3	2145.90	-58.54	2.51	11.05	Vertical	-52.15	-13	39.15	270
4	2861.20	-52.15	4.20	11.15	Vertical	-47.35	-13	34.35	45
5	3576.50	-54.03	5.20	11.15	Vertical	-50.23	-13	37.23	270
6	4291.80	-52.09	5.50	11.95	Vertical	-47.79	-13	34.79	0
7	5007.10	-52.86	5.70	13.55	Vertical	-47.16	-13	34.16	270
8	5722.40	-52.55	6.30	13.75	Vertical	-47.25	-13	34.25	180
9	6437.70	-52.48	6.80	13.85	Vertical	-47.58	-13	34.58	135
10	7153.00	-51.25	6.90	14.25	Vertical	-46.05	-13	33.05	315

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 12 QPSK Bandwidth = 3MHz CH23025, RB 1

Harmonic	CH23025 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1401.00	-60.37	2.00	10.15	Vertical	-54.37	-13	41.37	180
3	2101.50	-59.54	2.51	11.35	Vertical	-52.85	-13	39.85	135
4	2802.00	-52.11	4.20	10.85	Vertical	-47.61	-13	34.61	270
5	3502.50	-54.75	5.20	11.35	Vertical	-50.75	-13	37.75	0
6	4203.00	-51.66	5.50	11.95	Vertical	-47.36	-13	34.36	90
7	4903.50	-53.65	5.70	13.55	Vertical	-47.95	-13	34.95	315
8	5604.00	-52.18	6.30	13.75	Vertical	-46.88	-13	33.88	180
9	6304.50	-51.15	6.80	13.85	Vertical	-46.25	-13	33.25	45
10	7005.00	-49.35	6.90	14.25	Vertical	-44.15	-13	31.15	90

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK Bandwidth = 3MHz CH23095, RB 1

Harmonic	CH23095 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-58.45	2.00	10.75	Vertical	-51.85	-13	38.85	225
3	2122.50	-57.24	2.51	11.05	Vertical	-50.85	-13	37.85	270
4	2830.00	-51.45	4.20	11.15	Vertical	-46.65	-13	33.65	180
5	3537.50	-54.18	5.20	11.15	Vertical	-50.38	-13	37.38	135
6	4245.00	-51.14	5.50	11.95	Vertical	-46.84	-13	33.84	270
7	4952.50	-52.96	5.70	13.55	Vertical	-47.26	-13	34.26	0
8	5660.00	-53.05	6.30	13.75	Vertical	-47.75	-13	34.75	90
9	6367.50	-51.53	6.80	13.85	Vertical	-46.63	-13	33.63	315
10	7075.00	-51.71	6.90	14.25	Vertical	-46.51	-13	33.51	180

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 12 QPSK Bandwidth = 3MHz CH23165, RB 1

Harmonic	CH23165 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1429.00	-59.79	2.00	10.15	Vertical	-53.79	-13	40.79	45
3	2143.50	-58.88	2.51	11.05	Vertical	-52.49	-13	39.49	90
4	2858.00	-50.95	4.20	11.15	Vertical	-46.15	-13	33.15	135
5	3572.50	-55.29	5.20	11.15	Vertical	-51.49	-13	38.49	0
6	4287.00	-51.78	5.50	11.95	Vertical	-47.48	-13	34.48	270
7	5001.50	-53.32	5.70	13.55	Vertical	-47.62	-13	34.62	180
8	5716.00	-54.25	6.30	13.75	Vertical	-48.95	-13	35.95	135
9	6430.50	-52.11	6.80	13.85	Vertical	-47.21	-13	34.21	45
10	7145.00	-52.16	6.90	14.25	Vertical	-46.96	-13	33.96	315

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK Bandwidth = 5MHz CH23035, RB 1

Harmonic	CH23035 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1403.00	-58.49	2.00	10.15	Vertical	-52.49	-13	39.49	225
3	2104.50	-58.19	2.50	11.35	Vertical	-51.49	-13	38.49	135
4	2806.00	-51.53	4.20	10.85	Vertical	-47.03	-13	34.03	270
5	3507.50	-54.84	5.20	11.35	Vertical	-50.84	-13	37.84	0
6	4209.00	-50.89	5.50	11.95	Vertical	-46.59	-13	33.59	135
7	4910.50	-53.18	5.70	13.55	Vertical	-47.48	-13	34.48	0
8	5612.00	-51.45	6.30	13.75	Vertical	-46.15	-13	33.15	45
9	6313.50	-51.75	6.80	13.85	Vertical	-46.85	-13	33.85	90
10	7015.00	-50.16	6.90	14.25	Vertical	-44.96	-13	31.96	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK Bandwidth = 5MHz CH23095, RB 1

Harmonic	CH23095 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-56.75	2.00	10.75	Vertical	-50.15	-13	37.15	45
3	2122.50	-56.88	2.51	11.05	Vertical	-50.49	-13	37.49	45
4	2830.00	-51.48	4.20	11.15	Vertical	-46.68	-13	33.68	90
5	3537.50	-54.65	5.20	11.15	Vertical	-50.85	-13	37.85	225
6	4245.00	-50.51	5.50	11.95	Vertical	-46.21	-13	33.21	90
7	4952.50	-52.78	5.70	13.55	Vertical	-47.08	-13	34.08	270
8	5660.00	-53.15	6.30	13.75	Vertical	-47.85	-13	34.85	315
9	6367.50	-50.95	6.80	13.85	Vertical	-46.05	-13	33.05	270
10	7075.00	-52.15	6.90	14.25	Vertical	-46.95	-13	33.95	45

- Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK Bandwidth = 5MHz CH23155, RB 1

Harmonic	CH23155 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1427.00	-59.25	2.00	10.15	Vertical	-53.25	-13	40.25	270
3	2140.50	-59.24	2.51	11.05	Vertical	-52.85	-13	39.85	0
4	2854.00	-51.44	4.20	11.15	Vertical	-46.64	-13	33.64	270
5	3567.50	-55.15	5.20	11.15	Vertical	-51.35	-13	38.35	270
6	4281.00	-51.79	5.50	11.95	Vertical	-47.49	-13	34.49	0
7	4994.50	-53.55	5.70	13.55	Vertical	-47.85	-13	34.85	270
8	5708.00	-53.61	6.30	13.75	Vertical	-48.31	-13	35.31	180
9	6421.50	-52.85	6.80	13.85	Vertical	-47.95	-13	34.95	135
10	7135.00	-51.45	6.90	14.25	Vertical	-46.25	-13	33.25	45

- Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.



LTE Band 12 QPSK Bandwidth = 10MHz CH23060, RB 1

Harmonic	CH23060 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1408.00	-58.65	2.00	10.15	Vertical	-52.65	-13	39.65	315
3	2112.00	-58.64	2.51	11.35	Vertical	-51.95	-13	38.95	270
4	2816.00	-52.15	4.20	10.85	Vertical	-47.65	-13	34.65	315
5	3520.00	-54.35	5.20	11.35	Vertical	-50.35	-13	37.35	270
6	4224.00	-51.00	5.50	11.95	Vertical	-46.70	-13	33.70	45
7	4928.00	-53.36	5.70	13.55	Vertical	-47.66	-13	34.66	270
8	5632.00	-52.17	6.30	13.75	Vertical	-46.87	-13	33.87	0
9	6336.00	-51.55	6.80	13.85	Vertical	-46.65	-13	33.65	270
10	7040.00	-49.51	6.90	14.25	Vertical	-44.31	-13	31.31	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

LTE Band 12 QPSK Bandwidth = 10MHz CH23095, RB 1

Harmonic	CH23095 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-58.24	2.00	10.75	Vertical	-51.64	-13	38.64	135
3	2122.50	-57.34	2.51	11.05	Vertical	-50.95	-13	37.95	45
4	2830.00	-51.65	4.20	11.15	Vertical	-46.85	-13	33.85	90
5	3537.50	-54.02	5.20	11.15	Vertical	-50.22	-13	37.22	225
6	4245.00	-50.98	5.50	11.95	Vertical	-46.68	-13	33.68	270
7	4952.50	-53.02	5.70	13.55	Vertical	-47.32	-13	34.32	180
8	5660.00	-53.25	6.30	13.75	Vertical	-47.95	-13	34.95	135
9	6367.50	-51.55	6.80	13.85	Vertical	-46.65	-13	33.65	270
10	7075.00	-51.88	6.90	14.25	Vertical	-46.68	-13	33.68	225

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



LTE Band 12 QPSK Bandwidth = 10MHz CH23130, RB 1

Harmonic	CH23130 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1422.00	-59.65	2.00	10.15	Vertical	-53.65	-13	40.65	270
3	2133.00	-57.86	2.51	11.05	Vertical	-51.47	-13	38.47	0
4	2844.00	-51.79	4.20	11.15	Vertical	-46.99	-13	33.99	135
5	3555.00	-55.65	5.20	11.15	Vertical	-51.85	-13	38.85	0
6	4266.00	-52.15	5.50	11.95	Vertical	-47.85	-13	34.85	45
7	4977.00	-53.31	5.70	13.55	Vertical	-47.61	-13	34.61	90
8	5688.00	-53.98	6.30	13.75	Vertical	-48.68	-13	35.68	180
9	6399.00	-52.15	6.80	13.85	Vertical	-47.25	-13	34.25	45
10	7110.00	-51.85	6.90	14.25	Vertical	-46.65	-13	33.65	45

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.



## 5 Main Test Equipment

Name of Equipment	Type/ Model	Manufacturer	Serial Number	Last Cal.	Cal. Due Date
Base Station Simulator	CMW500	R&S	113645	2015-05-22	2016-05-21
Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
Spectrum Analyzer	E4445A	Agilent	MY46181146	2015-05-22	2016-05-21
Universal Radio Communication Tester	E5515C	Agilent	MY48367192	2015-12-17	2016-12-16
Spectrum Analyzer	N9010A	Agilent	MY47191109	2015-05-22	2016-05-21
Signal Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
Signal generator	SMB 100A	R&S	102594	2015-05-06	2016-05-05
EMI Test Receiver	ESCI	R&S	100948	2015-05-25	2016-05-24
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-201	2013-11-25	2016-11-24
Horn Antenna	HF907	R&S	100126	2015-07-01	2018-06-30
Climatic Chamber	PT-30B	Re Ce	20101891	2015-07-18	2018-07-17
RF Cable	SMA 15cm	Agilent	0001	2015-12-09	2016-02-08