4.6 Frequency Stability

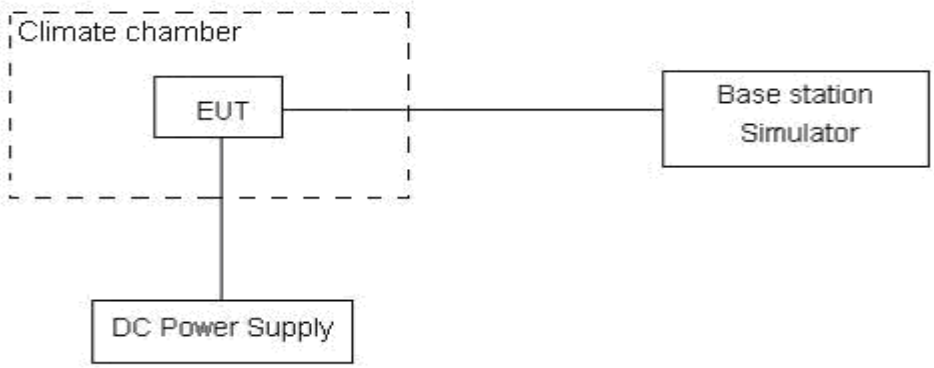
Ambient condition

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

Method of Measurement

1. Frequency Stability (Temperature Variation)
   The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size.
   (1)With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.
   (2)Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.
   (3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.
2. Frequency Stability (Voltage Variation)
   The frequency stability shall be measured with variation of primary supply voltage as follows:
   (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
   (2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.
   This transceiver is specified to operate with an input voltage of between 3.6 V and 4.35 V, with a nominal voltage of 3.8V.

Test setup



Limits

No specific frequency stability requirements in part 27.54

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor k = 3,U=0.01ppm.

Test Result

WCDMA Band IV

Test status	WCDMA Band IV Channel 1413 RMC
	Test Results (ppm)
-30°C/Normal Voltage	-0.000307
-20°C/Normal Voltage	0.000234
-10°C/Normal Voltage	-0.000254
0°C/Normal Voltage	-0.000287
10°C/Normal Voltage	-0.000098
20°C/Normal Voltage	-0.000012
30°C/Normal Voltage	-0.000283
40°C/Normal Voltage	-0.000057
50°C/Normal Voltage	-0.000315
20°C/Min Voltage	-0.000258
20°C/Max Voltage	-0.000209

Bandwidth	Test status	LTE Band 4 Channel 20175 Test Results (ppm)	
		QPSK	16QAM
1.4MHz	-30°C/Normal Voltage	-0.00046	0.00084
	-20°C/Normal Voltage	0.00072	0.00029
	-10°C/Normal Voltage	0.00040	-0.00079
	0°C/Normal Voltage	0.00091	0.00034
	10°C/Normal Voltage	-0.00122	0.00037
	20°C/Normal Voltage	-0.00110	0.00136
	30°C/Normal Voltage	0.00237	-0.00070
	40°C/Normal Voltage	0.00088	0.00181
	50°C/Normal Voltage	-0.00027	0.00102
	20°C/Min Voltage	0.00122	-0.00156
	20°C/Max Voltage	-0.00006	-0.00107
3MHz	-30°C/Normal Voltage	-0.00117	0.00085
	-20°C/Normal Voltage	0.00046	0.00106
	-10°C/Normal Voltage	-0.00083	-0.00065
	0°C/Normal Voltage	0.00001	0.00062
	10°C/Normal Voltage	-0.00088	-0.00046
	20°C/Normal Voltage	-0.00195	0.00083
	30°C/Normal Voltage	-0.00102	-0.00034
	40°C/Normal Voltage	0.00053	-0.00024
	50°C/Normal Voltage	0.00143	0.00094

	20°C/Min Voltage	-0.00065	0.00181
	20°C/Max Voltage	0.00063	-0.00072
5MHz	-30°C/Normal Voltage	-0.00068	0.00155
	-20°C/Normal Voltage	0.00083	0.00107
	-10°C/Normal Voltage	0.00002	-0.00126
	0°C/Normal Voltage	-0.00091	0.00058
	10°C/Normal Voltage	-0.00142	0.00014
	20°C/Normal Voltage	-0.00020	-0.00031
	30°C/Normal Voltage	-0.00113	-0.00018
	40°C/Normal Voltage	0.00087	-0.00103
	50°C/Normal Voltage	-0.00005	-0.00063
	20°C/Min Voltage	0.00102	0.00019
	20°C/Max Voltage	0.00021	0.00099
10MHz	-30°C/Normal Voltage	-0.00025	-0.00048
	-20°C/Normal Voltage	0.00141	-0.00031
	-10°C/Normal Voltage	-0.00070	-0.00144
	0°C/Normal Voltage	0.00015	-0.00103
	10°C/Normal Voltage	-0.00100	0.00154
	20°C/Normal Voltage	-0.00092	-0.00006
	30°C/Normal Voltage	0.00033	0.00098
	40°C/Normal Voltage	-0.00081	-0.00068
	50°C/Normal Voltage	-0.00018	-0.00034
	20°C/Min Voltage	-0.00190	0.00070
	20°C/Max Voltage	-0.00001	-0.00117
15MHz	-30°C/Normal Voltage	-0.00092	0.00065
	-20°C/Normal Voltage	-0.00052	-0.00147
	-10°C/Normal Voltage	-0.00092	-0.00150
	0°C/Normal Voltage	-0.00059	-0.00121
	10°C/Normal Voltage	0.00177	-0.00074
	20°C/Normal Voltage	-0.00226	0.00101
	30°C/Normal Voltage	0.00048	-0.00143
	40°C/Normal Voltage	0.00065	0.00182
	50°C/Normal Voltage	0.00122	0.00111
	20°C/Min Voltage	-0.00084	0.00087
	20°C/Max Voltage	0.00061	0.00079
20MHz	-30°C/Normal Voltage	0.00083	-0.00081
	-20°C/Normal Voltage	-0.00032	0.00059
	-10°C/Normal Voltage	-0.00203	-0.00088
	0°C/Normal Voltage	0.00057	0.00143
	10°C/Normal Voltage	-0.00300	0.00072

	20°C/Normal Voltage	-0.00130	0.00122
	30°C/Normal Voltage	-0.00098	0.00059
	40°C/Normal Voltage	0.00004	0.00069
	50°C/Normal Voltage	0.00036	0.00114
	20°C/Min Voltage	-0.00257	-0.00127
	20°C/Max Voltage	0.00025	-0.00040

Bandwidth	Test status	LTE Band 7 Channel 21100 Test Results (ppm)	
		QPSK	16QAM
5MHz	-30°C/Normal Voltage	-0.00093	-0.00057
	-20°C/Normal Voltage	-0.00231	-0.00001
	-10°C/Normal Voltage	-0.00204	-0.00297
	0°C/Normal Voltage	-0.00052	-0.00160
	10°C/Normal Voltage	-0.00130	-0.00236
	20°C/Normal Voltage	-0.00147	-0.00107
	30°C/Normal Voltage	-0.00073	0.00125
	40°C/Normal Voltage	-0.00321	-0.00165
	50°C/Normal Voltage	-0.00023	-0.00219
	20°C/Min Voltage	-0.00045	0.00084
	20°C/Max Voltage	-0.00011	-0.00055
10MHz	-30°C/Normal Voltage	-0.00056	-0.00049
	-20°C/Normal Voltage	-0.00010	-0.00135
	-10°C/Normal Voltage	-0.00243	-0.00200
	0°C/Normal Voltage	-0.00232	-0.00012
	10°C/Normal Voltage	-0.00033	-0.00090
	20°C/Normal Voltage	-0.00008	-0.00140
	30°C/Normal Voltage	-0.00097	-0.00162
	40°C/Normal Voltage	-0.00130	-0.00198
	50°C/Normal Voltage	-0.00091	-0.00169
	20°C/Min Voltage	-0.00059	-0.00186
	20°C/Max Voltage	-0.00088	-0.00060
15MHz	-30°C/Normal Voltage	-0.00133	-0.00161
	-20°C/Normal Voltage	-0.00183	-0.00020
	-10°C/Normal Voltage	-0.00060	-0.00068
	0°C/Normal Voltage	-0.00047	-0.00200
	10°C/Normal Voltage	-0.00199	-0.00042
	20°C/Normal Voltage	0.00013	-0.00236
	30°C/Normal Voltage	-0.00305	0.00097
	40°C/Normal Voltage	-0.00147	-0.00166
	50°C/Normal Voltage	0.00022	-0.00075

	20°C/Min Voltage	-0.00183	0.00230
	20°C/Max Voltage	0.00007	-0.00262
20MHz	-30°C/Normal Voltage	-0.00090	-0.00121
	-20°C/Normal Voltage	-0.00084	-0.00020
	-10°C/Normal Voltage	-0.00028	-0.00068
	0°C/Normal Voltage	-0.00004	-0.00200
	10°C/Normal Voltage	-0.00011	-0.00042
	20°C/Normal Voltage	-0.00142	-0.00236
	30°C/Normal Voltage	-0.00006	0.00097
	40°C/Normal Voltage	0.00075	-0.00166
	50°C/Normal Voltage	-0.00170	-0.00075
	20°C/Min Voltage	-0.00081	0.00230
	20°C/Max Voltage	0.00125	-0.00262

4.7 Spurious Emissions at Antenna Terminals

Ambient condition

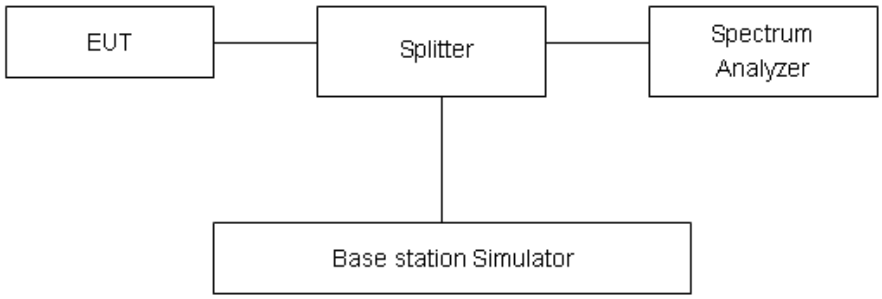
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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. Set RBW 1MHz and VBW3MHz， 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) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

Rule Part 27.53(m) 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)(4) of this section.

WCDMA Band IV /LTE Band 4 Limit	-13 dBm
LTE Band 7 Limit	-25 dBm

Measurement Uncertainty

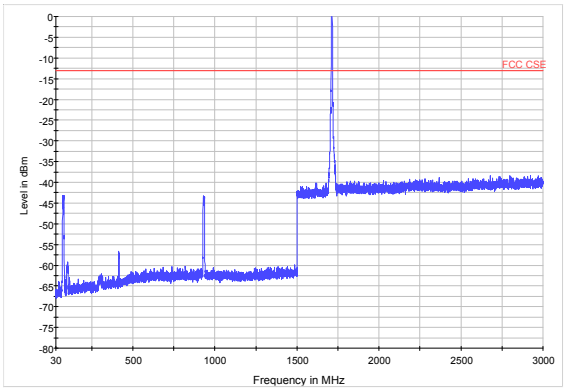
The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor *k* = 1.96.

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

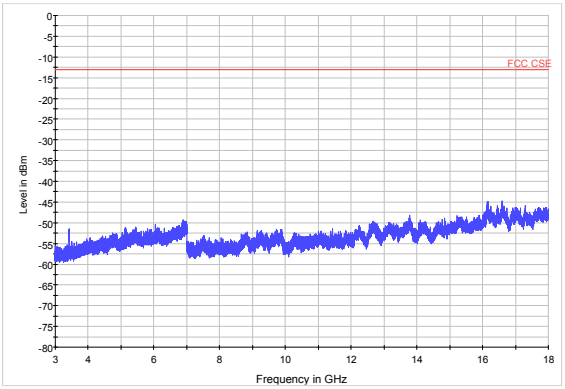
Test Result: PASS

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.

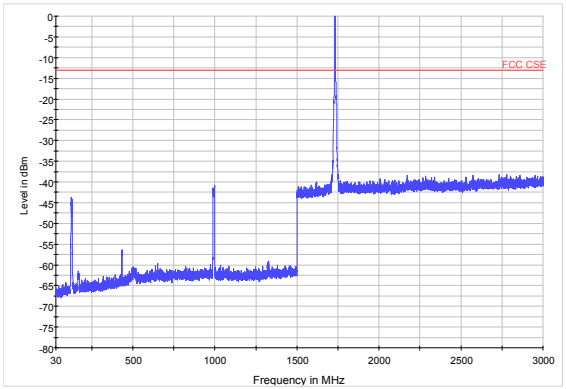
WCDMA Band IV CH-Low 30MHz~3GHz



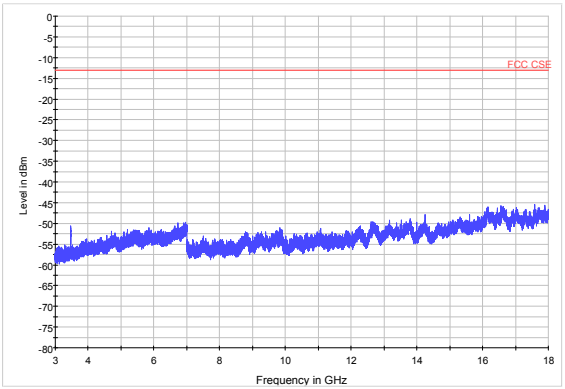
WCDMA Band IV CH-Low 3GHz ~18GHz



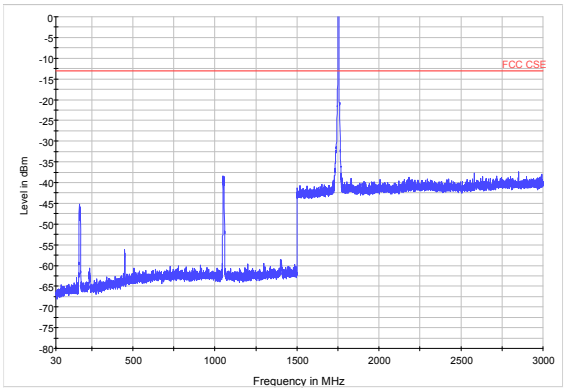
WCDMA Band IV CH-Middle 30MHz~3GHz



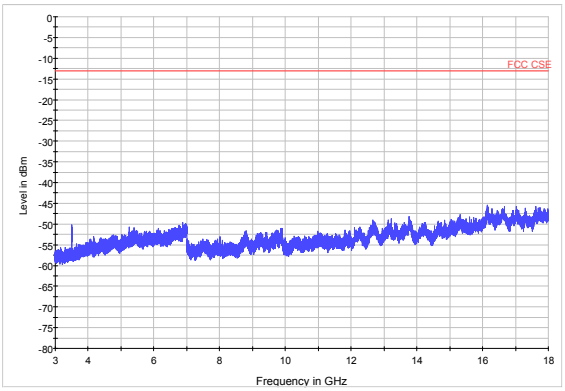
WCDMA Band IV CH-Middle 3GHz ~18GHz



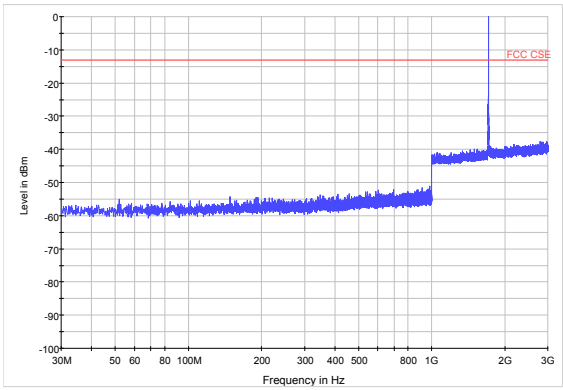
WCDMA Band IV CH-High 30MHz~3GHz



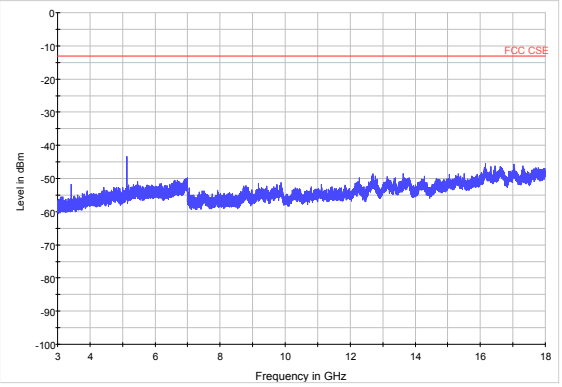
WCDMA Band IV CH-High 3GHz ~18GHz



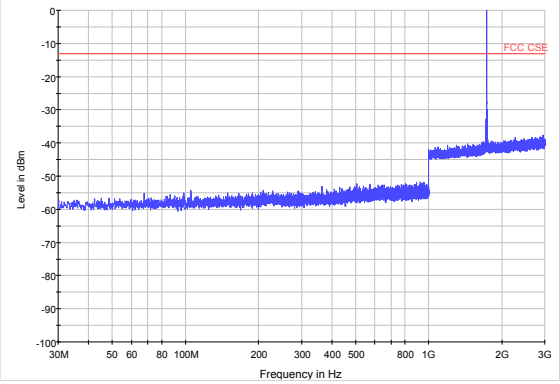
LTE Band 4 1.4MHz CH-Low 30MHz~3GHz



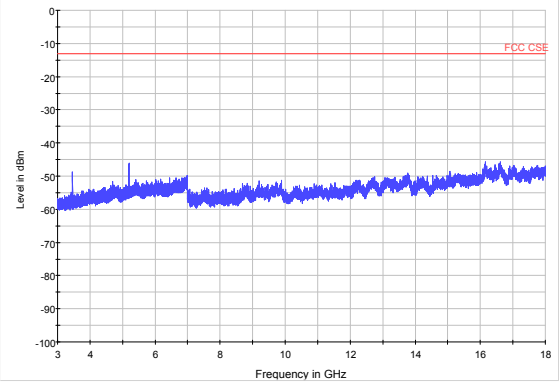
LTE Band 4 1.4MHz CH-Low 3GHz~18GHz



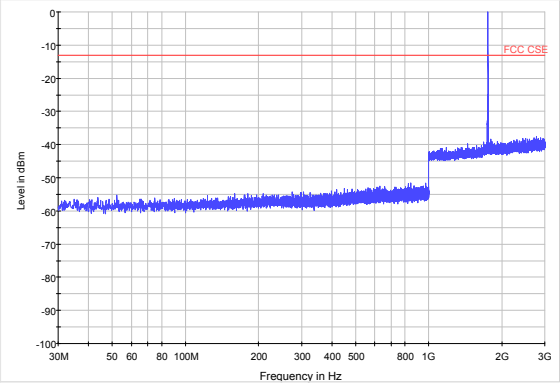
LTE Band 4 1.4MHz CH-Middle 30MHz~3GHz



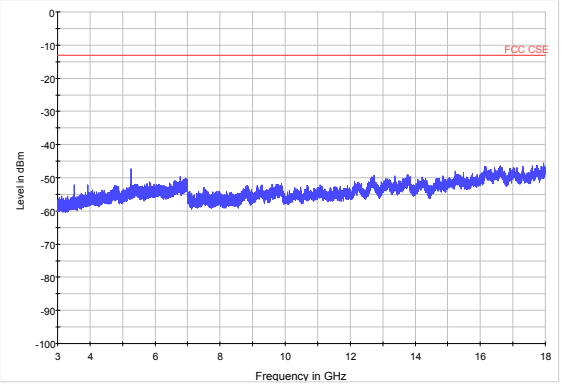
LTE Band 4 1.4MHz CH-Middle 3GHz~18GHz



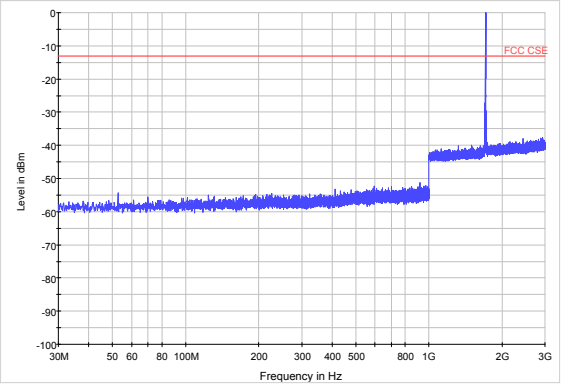
LTE Band 4 1.4MHz CH-High 30MHz~3GHz



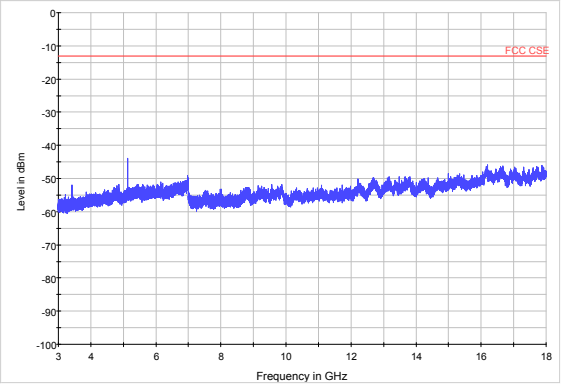
LTE Band 4 1.4MHz CH-High 3GHz~18GHz



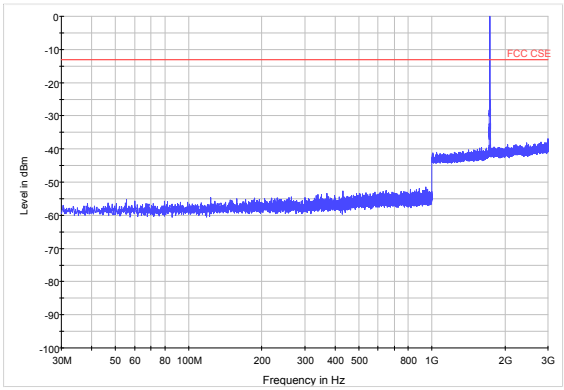
LTE Band 4 3MHz CH-Low 30MHz~3GHz



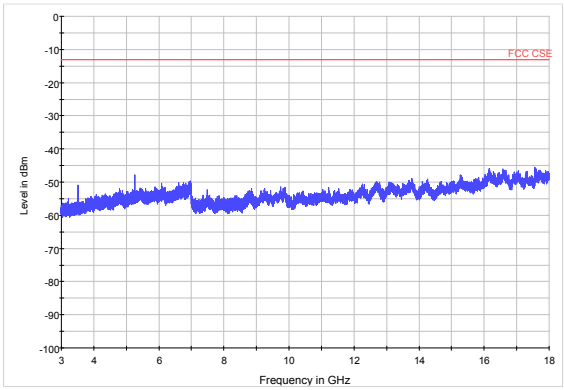
LTE Band 4 3MHz CH-Low 3GHz~18GHz



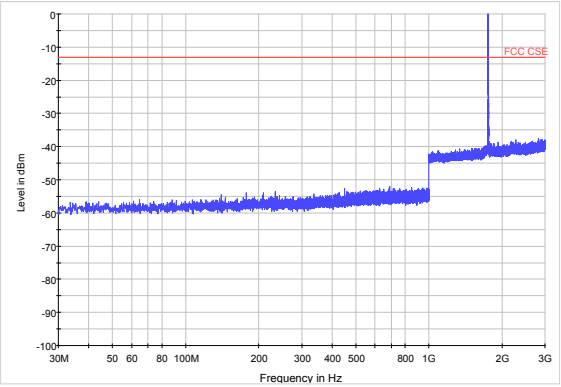
LTE Band 4 3MHz CH-Middle 30MHz~3GHz



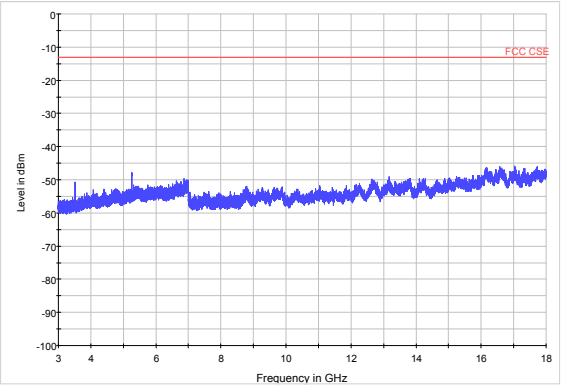
LTE Band 4 3MHz CH-Middle 3GHz~18GHz



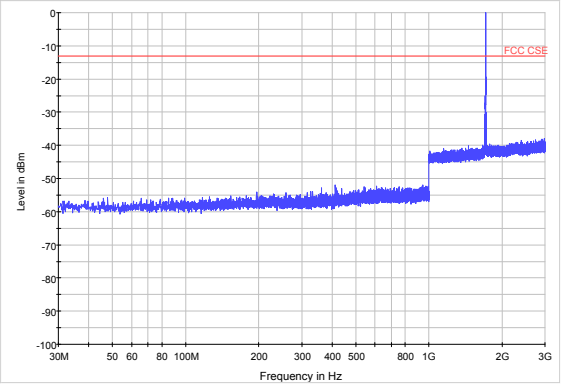
LTE Band 4 3MHz CH-High 30MHz~3GHz



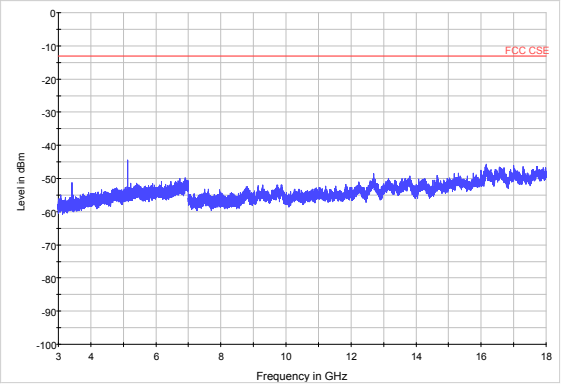
LTE Band 4 3MHz CH-High 3GHz~18GHz



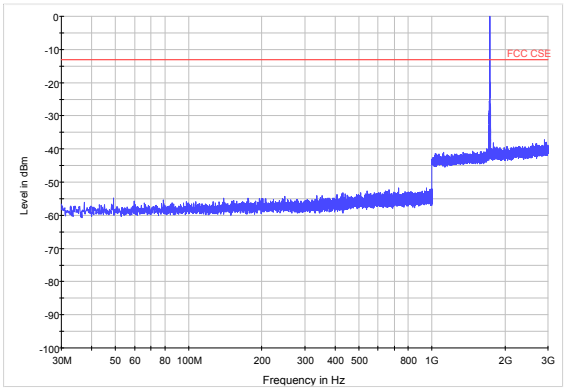
LTE Band 4 5MHz CH-Low 30MHz~3GHz



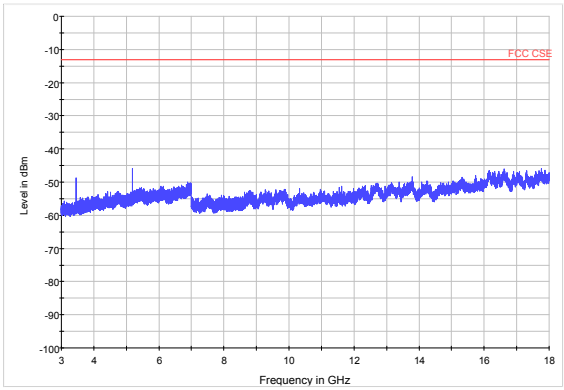
LTE Band 4 5MHz CH-Low 3GHz~18GHz



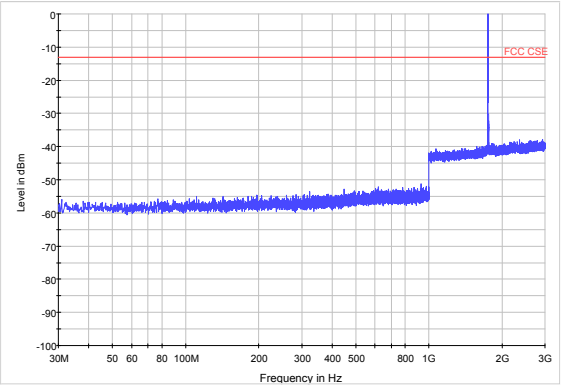
LTE Band 4 5MHz CH-Middle 30MHz~3GHz



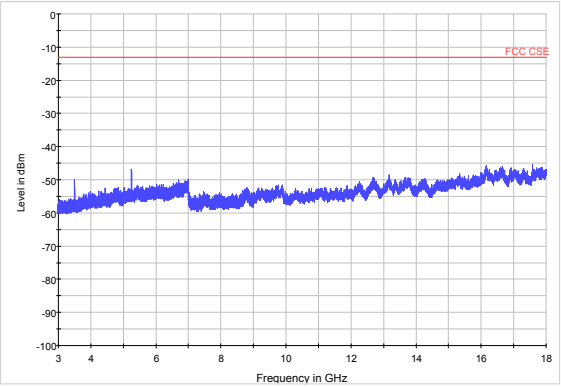
LTE Band 4 5MHz CH-Middle 3GHz~18GHz



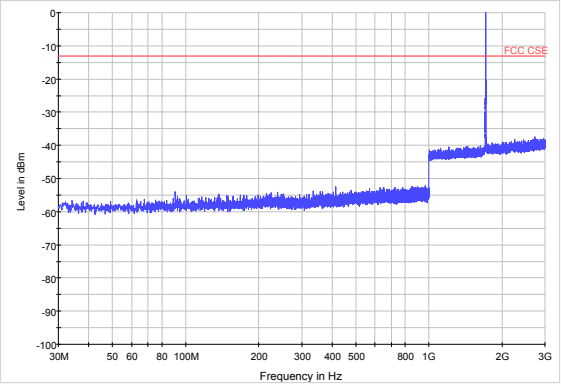
LTE Band 4 5MHz CH-High 30MHz~3GHz



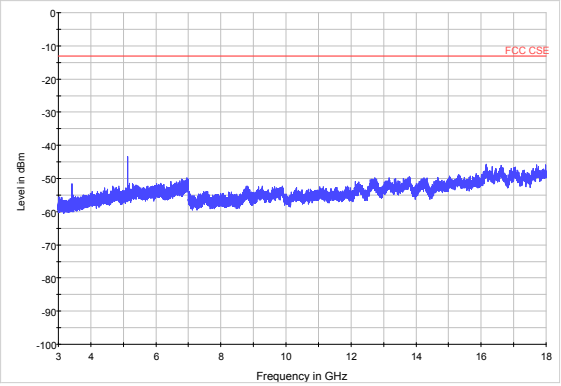
LTE Band 4 5MHz CH-High 3GHz~18GHz



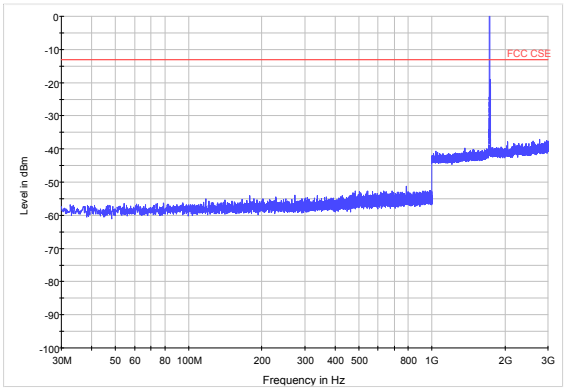
LTE Band 4 10MHz CH-Low 30MHz~3GHz



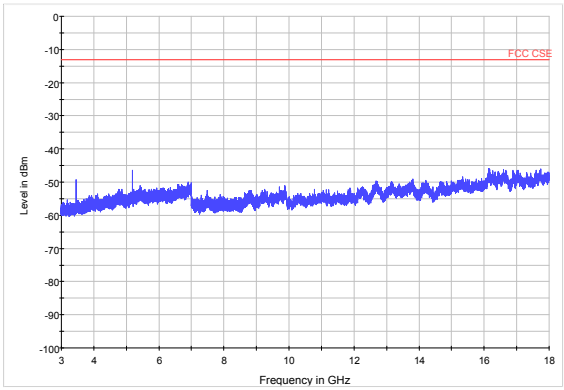
LTE Band 4 10MHz CH-Low 3GHz~18GHz



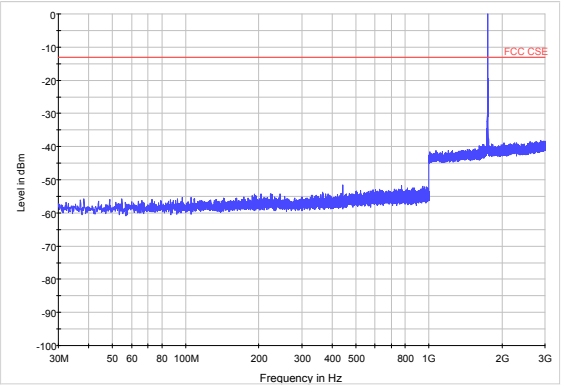
LTE Band 4 10MHz CH-Middle 30MHz~3GHz



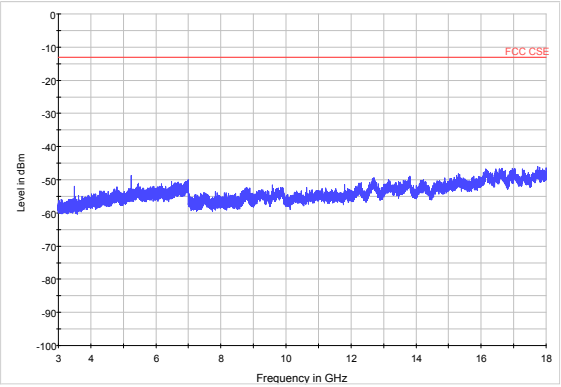
LTE Band 4 10MHz CH-Middle 3GHz~18GHz



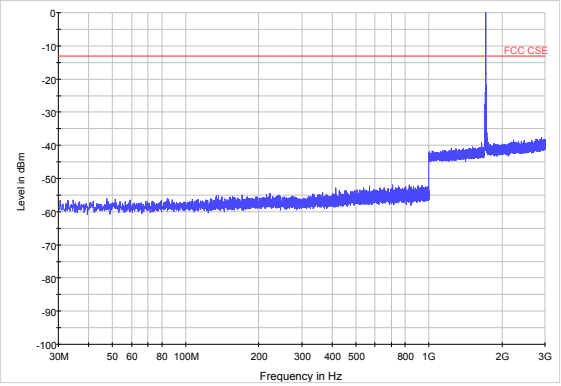
LTE Band 4 10MHz CH-High 30MHz~3GHz



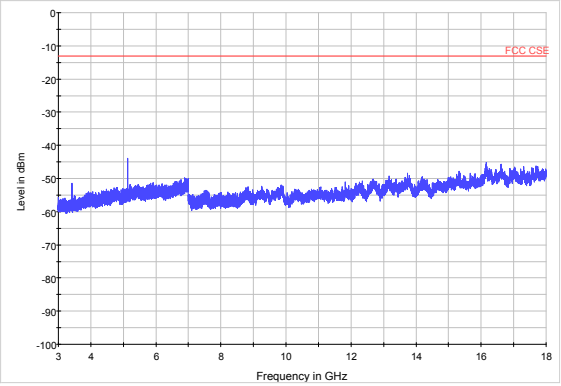
LTE Band 4 10MHz CH-High 3GHz~18GHz



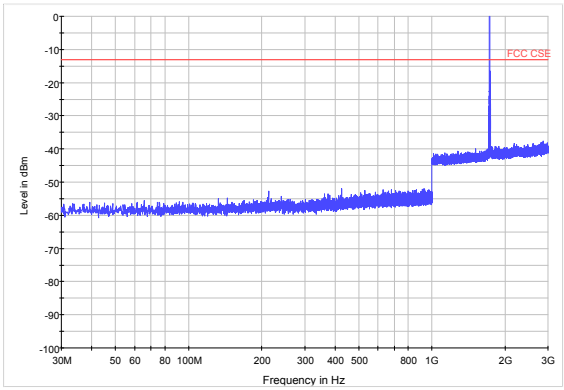
LTE Band 4 15MHz CH-Low 30MHz~3GHz



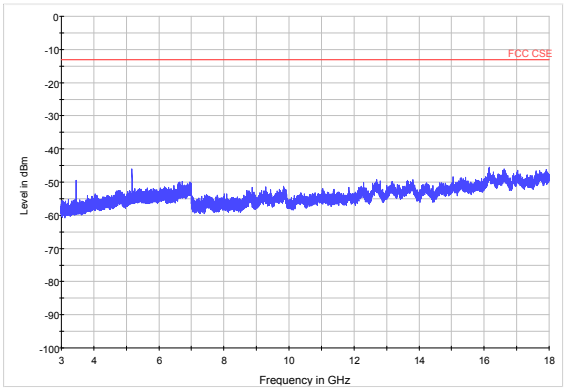
LTE Band 4 15MHz CH-Low 3GHz~18GHz



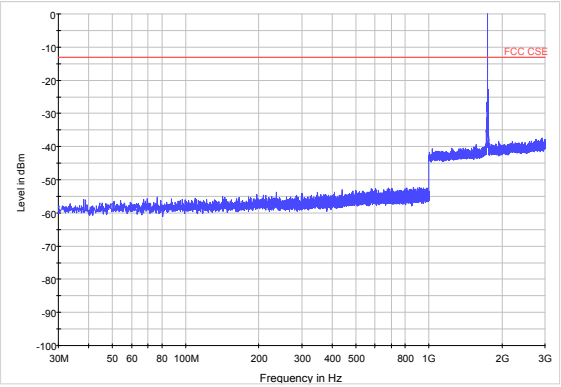
LTE Band 4 15MHz CH-Middle 30MHz~3GHz



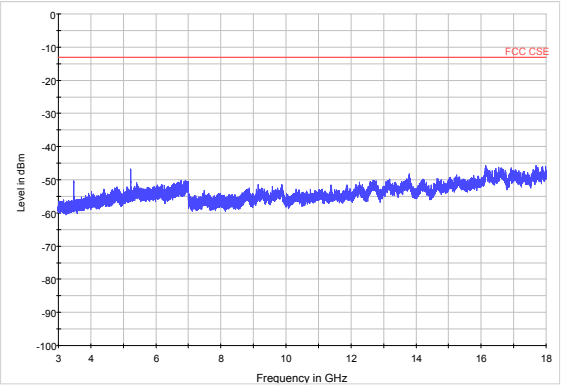
LTE Band 4 15MHz CH-Middle 3GHz~18GHz



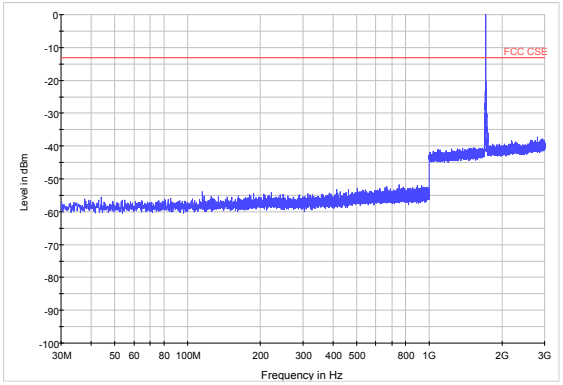
LTE Band 4 15MHz CH-High 30MHz~3GHz



LTE Band 4 15MHz CH-High 3GHz~18GHz



LTE Band 4 20MHz CH-Low 30MHz~3GHz



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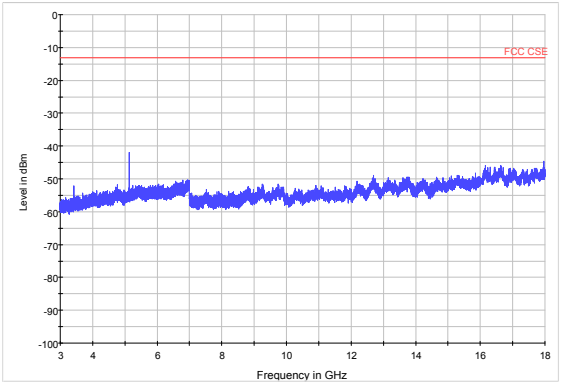
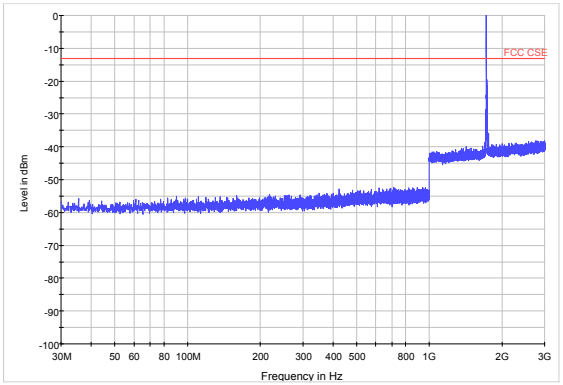
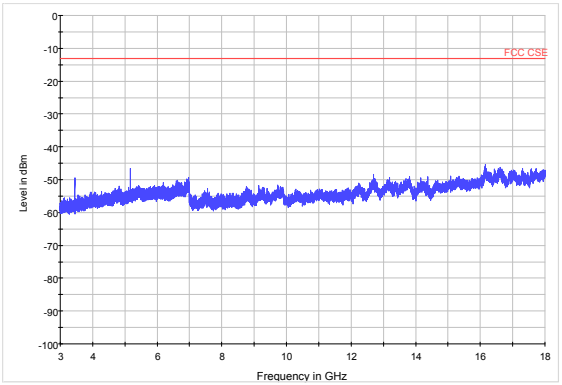


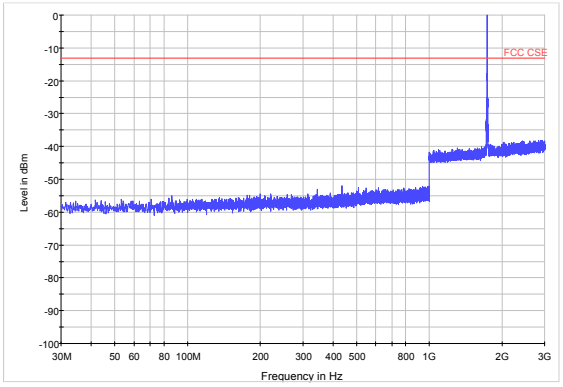
LTE Band 4 20MHz CH-Middle 30MHz~3GHz



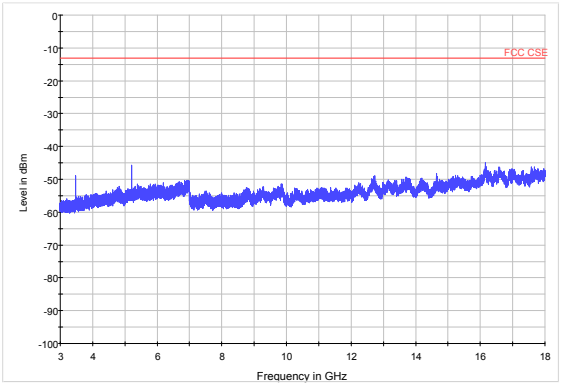
LTE Band 4 20MHz CH-Middle 3GHz~18GHz



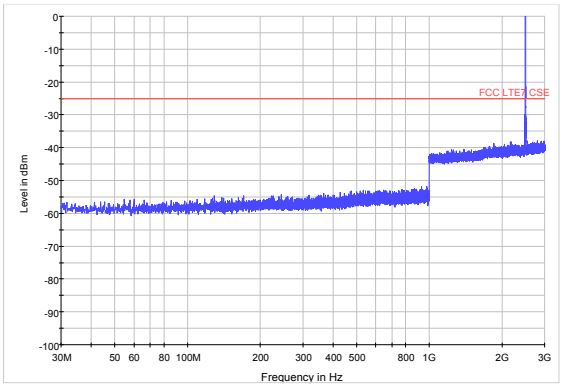
LTE Band 4 20MHz CH-High 30MHz~3GHz



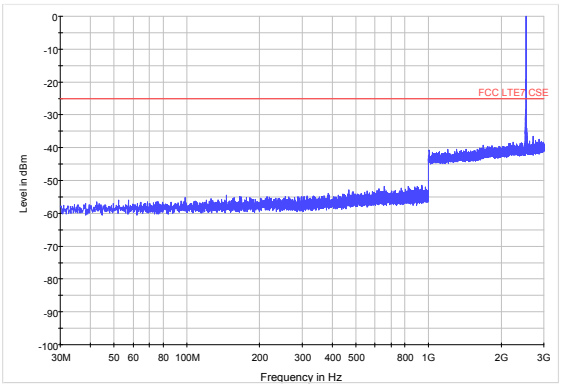
LTE Band 4 20MHz CH-High 3GHz~18GHz



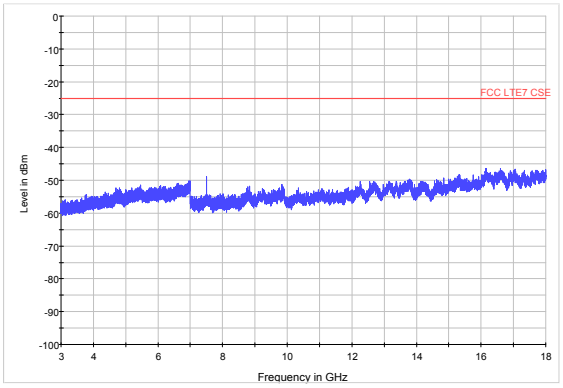
LTE Band 7 5MHz CH-Low 30MHz~3GHz



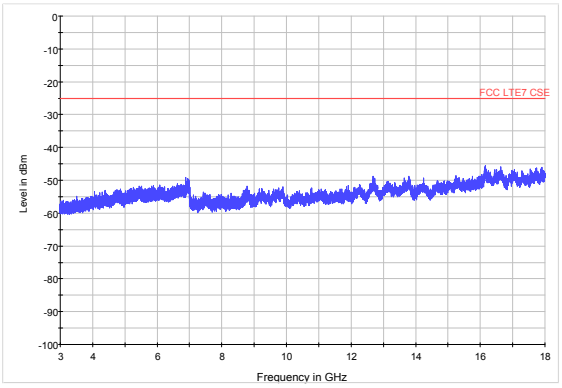
LTE Band 7 5MHz CH-Middle 30MHz~3GHz



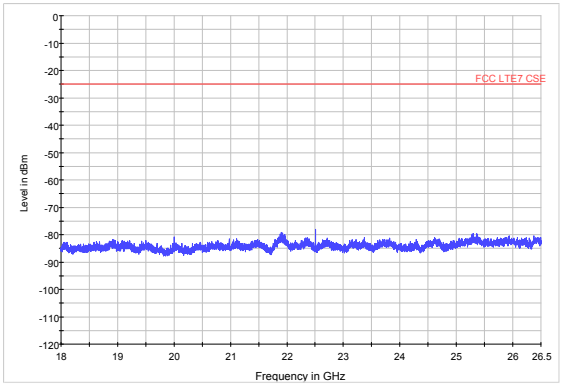
LTE Band 7 5MHz CH-Low 3GHz~18GHz



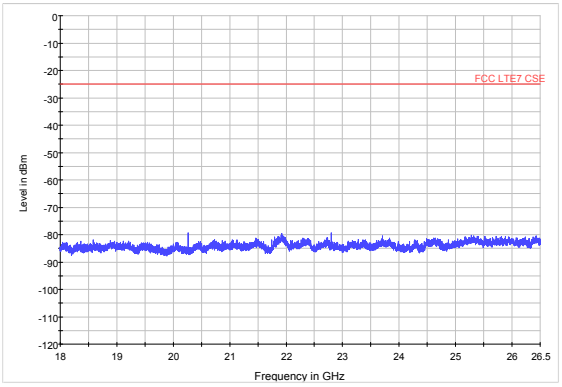
LTE Band 7 5MHz CH-Middle 3GHz~18GHz



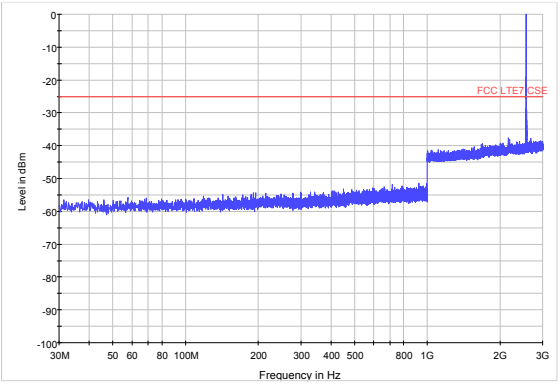
LTE Band 7 5MHz CH-Low 18GHz~26.5GHz



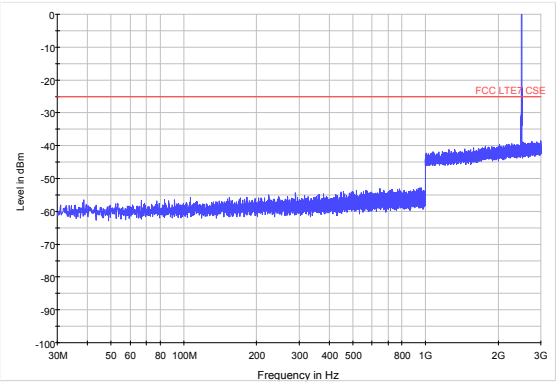
LTE Band 7 5MHz CH-Middle 18GHz~26.5GHz



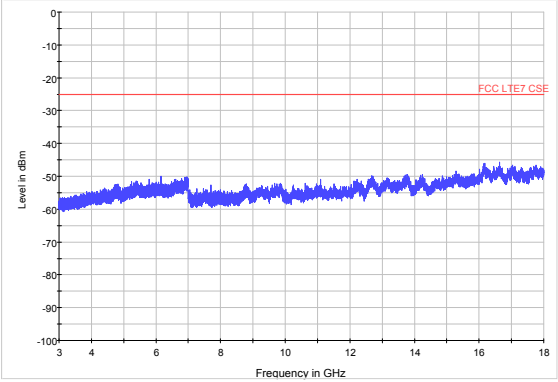
LTE Band 7 5MHz CH-High 30MHz~3GHz



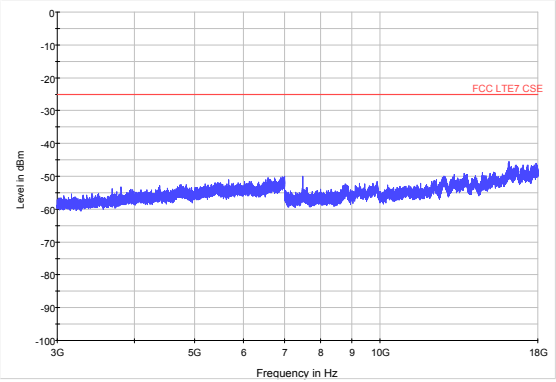
LTE Band 7 10MHz CH-Low 30MHz~3GHz



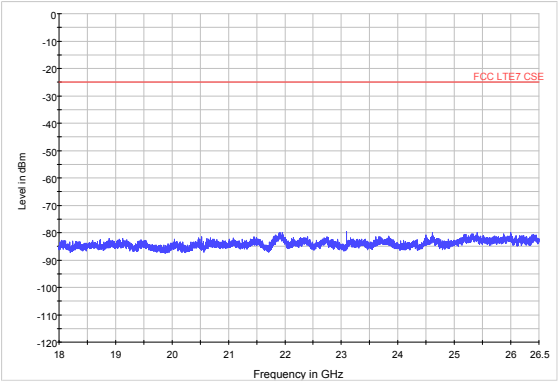
LTE Band 7 5MHz CH-High 3GHz~18GHz



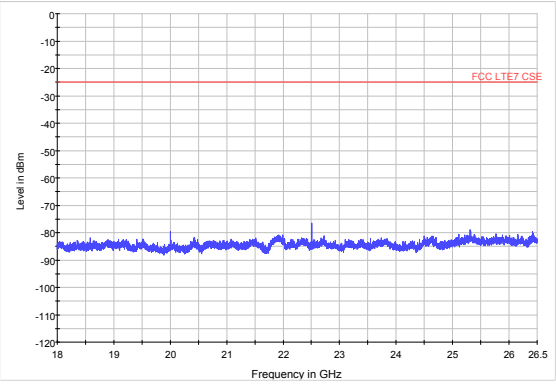
LTE Band 7 10MHz CH-Low 3GHz~18GHz



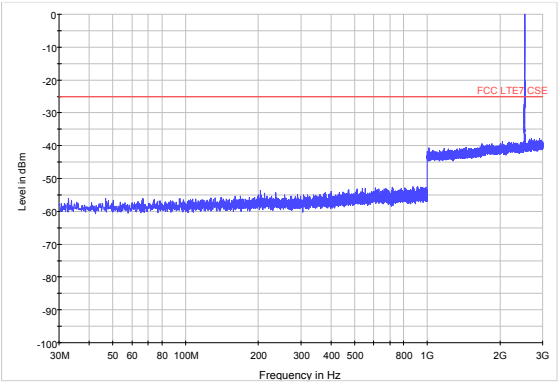
LTE Band 7 5MHz CH-High 18GHz~26.5GHz



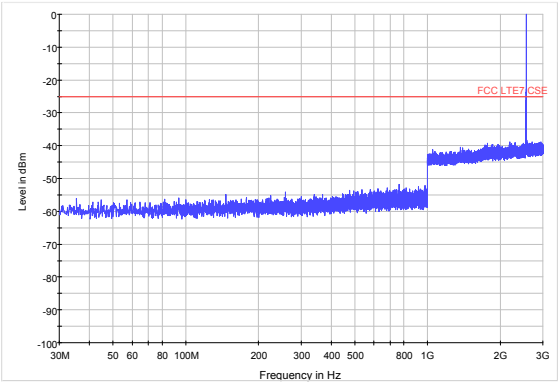
LTE Band 7 10MHz C CH-Low 18GHz~26.5GHz



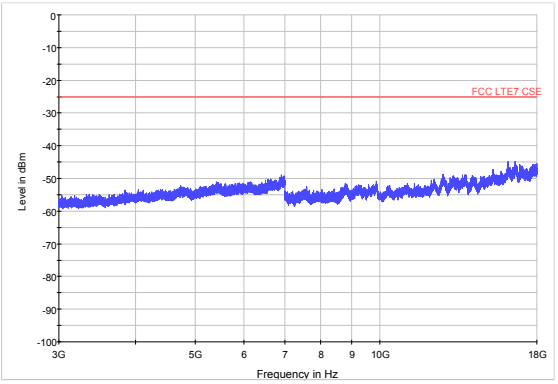
LTE Band 7 10MHz CH-Middle 30MHz~3GHz



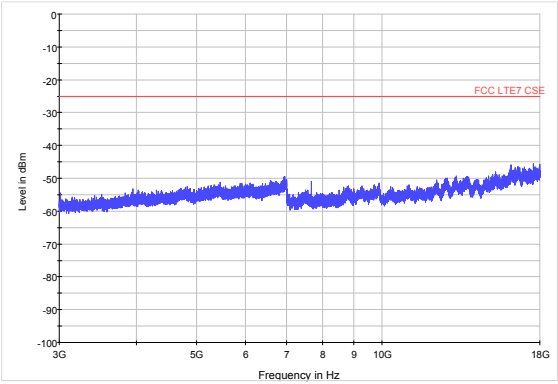
LTE Band 7 10MHz CH-High 30MHz~3GHz



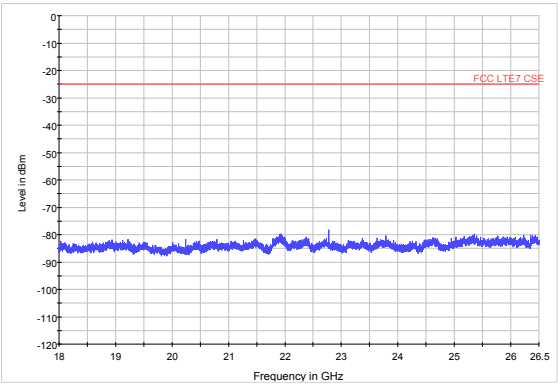
LTE Band 7 10MHz CH-Middle 3GHz~18GHz



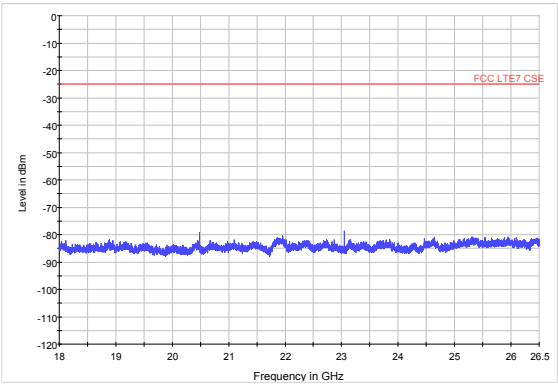
LTE Band 7 10MHz CH-High 3GHz~18GHz



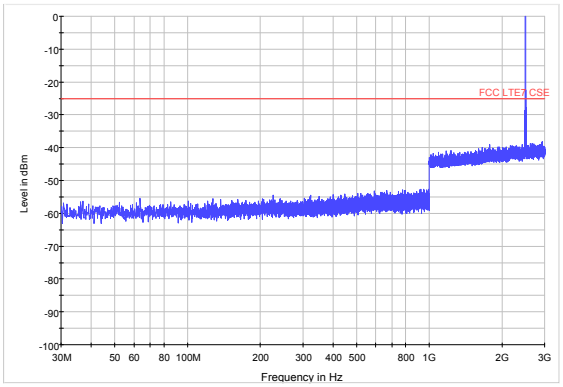
LTE Band 7 10MHz CH-Middle 18GHz~26.5GHz



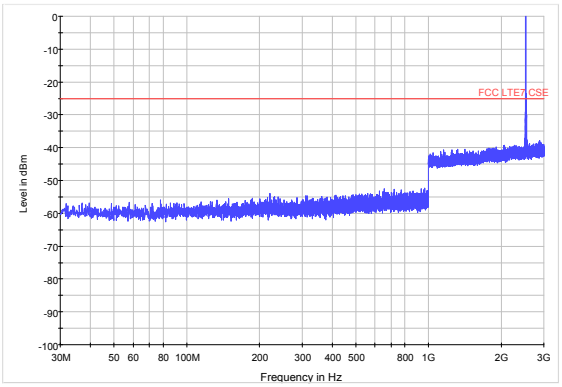
LTE Band 710MHz CH-High 18GHz~26.5GHz



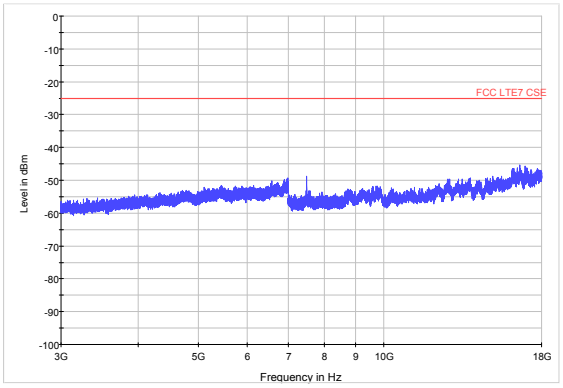
LTE Band 7 15MHz CH-Low 30MHz~3GHz



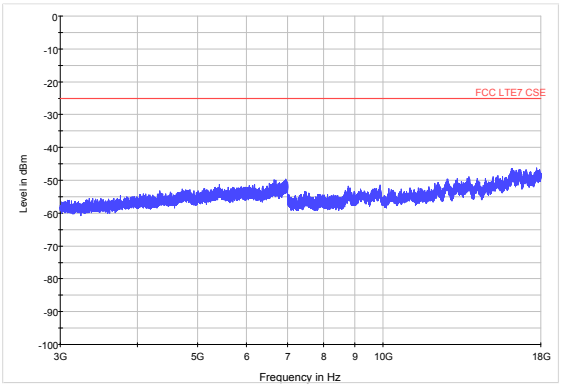
LTE Band 7 15MHz CH-Middle 30MHz~3GHz



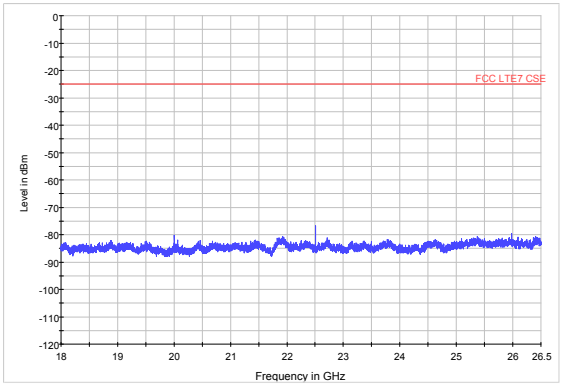
LTE Band 7 15MHz CH-Low 3GHz~18GHz



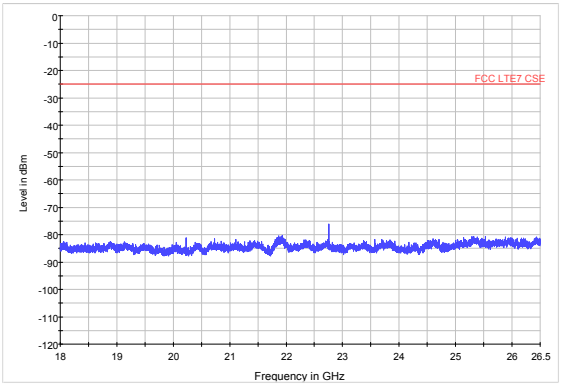
LTE Band 7 15MHz CH-Middle 3GHz~18GHz



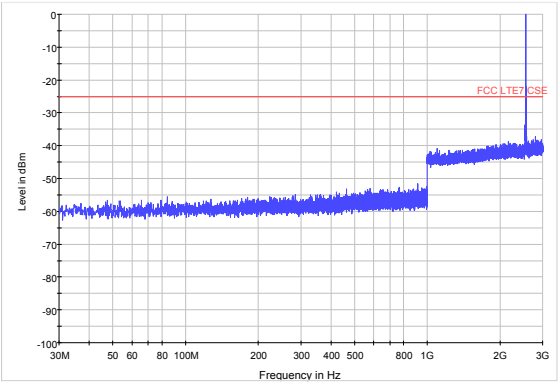
LTE Band 7 15MHz CH-Low 18GHz~26.5GHz



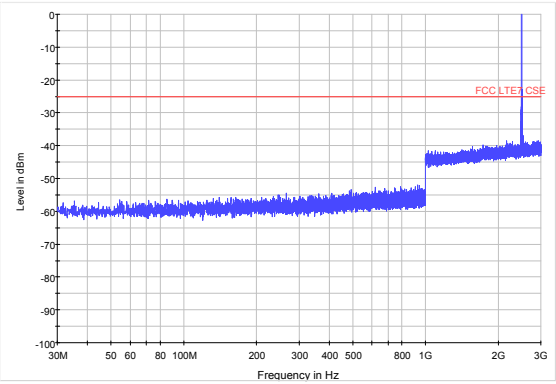
LTE Band 7 15MHz CH-Middle 18GHz~26.5GHz



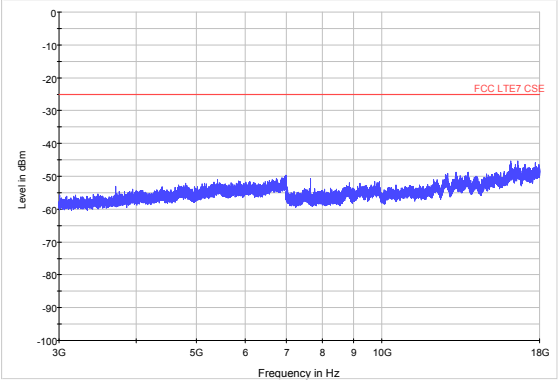
LTE Band 7 15MHz CH-High 30MHz~3GHz



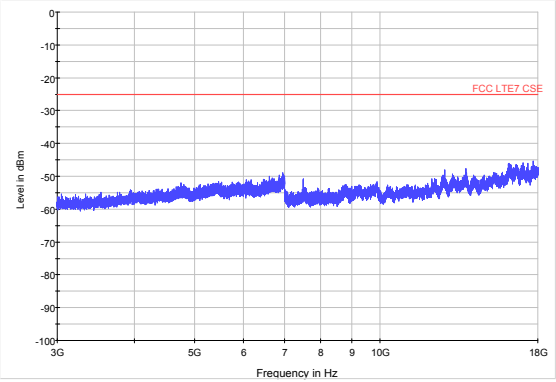
LTE Band 7 20MHz CH-Low 30MHz~3GHz



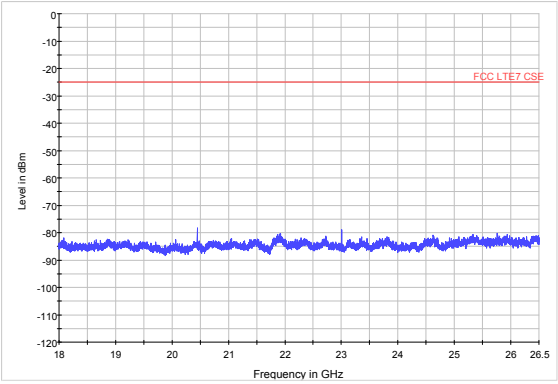
LTE Band 7 15MHz CH-High 3GHz~18GHz



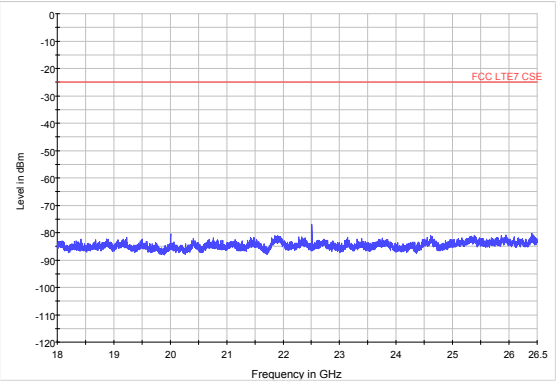
LTE Band 7 20MHz CH-Low 3GHz~18GHz



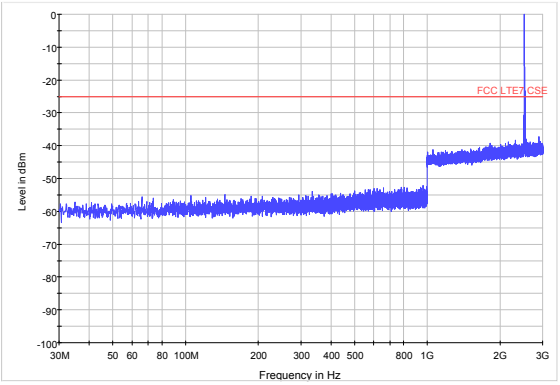
LTE Band 7 15MHz CH-High 18GHz~26.5GHz



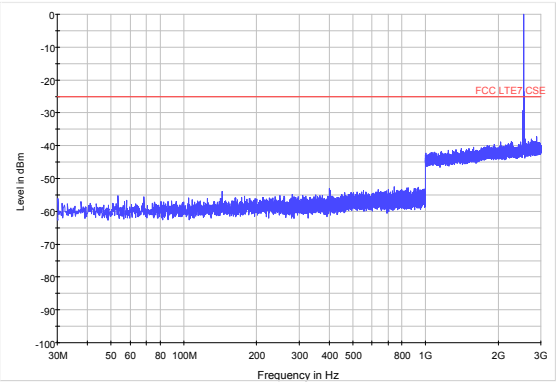
LTE Band 7 20MHz CH-Low 18GHz~26.5GHz



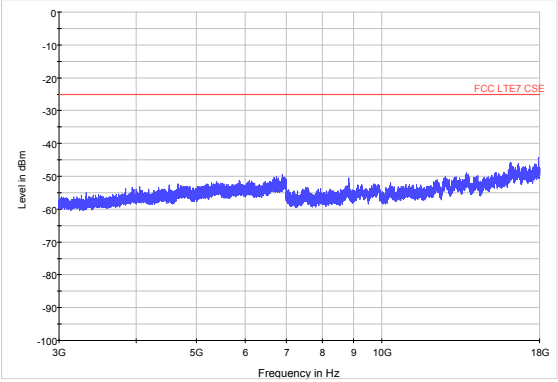
LTE Band 7 20MHz CH-Middle 30MHz~3GHz



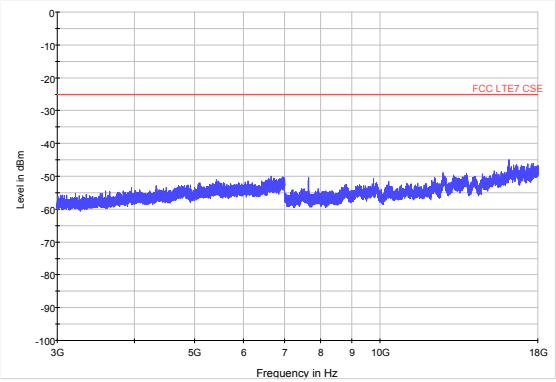
LTE Band 7 20MHz CH-High 30MHz~3GHz



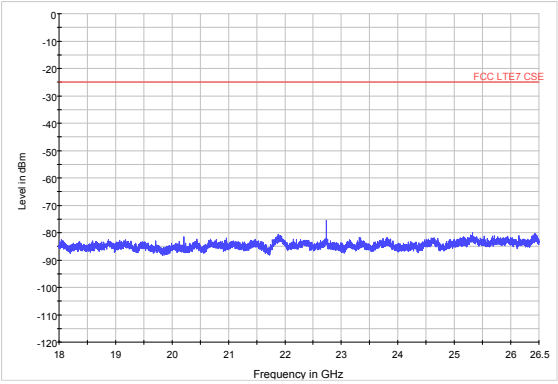
LTE Band 7 20MHz CH-Middle 3GHz~18GHz



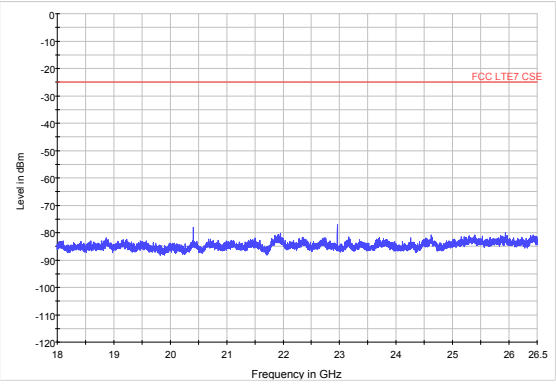
LTE Band 7 20MHz CH-High 3GHz~18GHz



LTE Band 7 20MHz CH-Middle 18GHz~26.5GHz



LTE Band 7 20MHz CH-High 18GHz~26.5GHz



4.8 Radiates Spurious Emission

Ambient condition

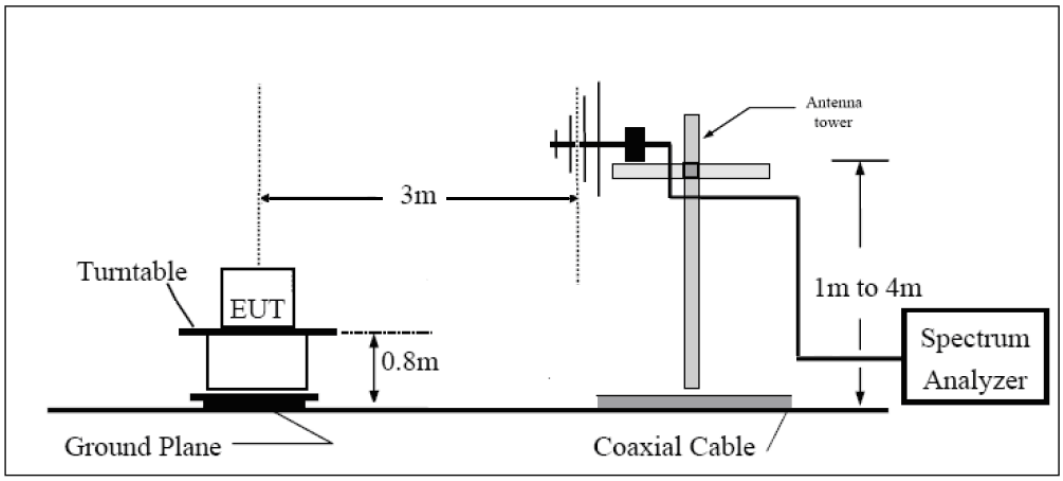
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

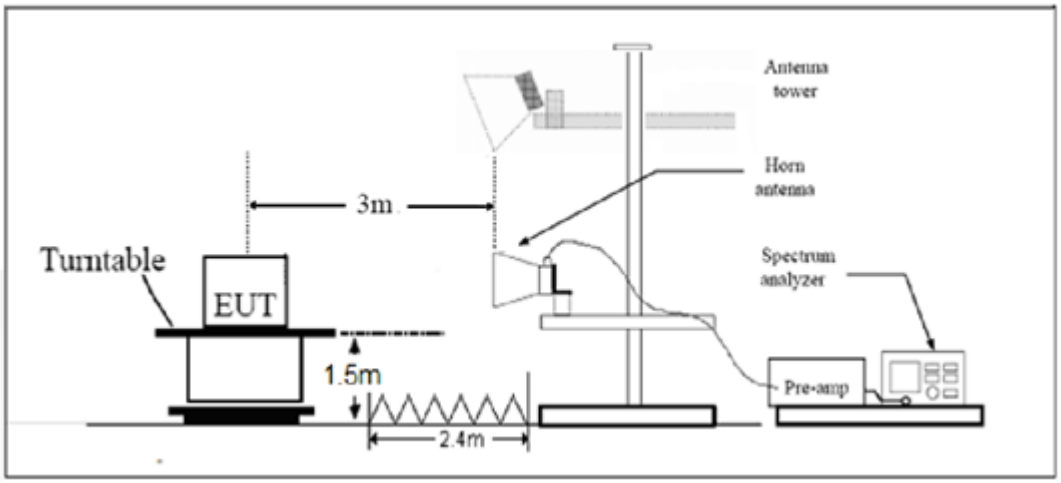
1. The testing follows ANSI C63.26 (2015) Section 5.5.2.3.
2. Above 30MHz： The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

Test setup

30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

Rule Part 27.53(m) 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)(4) of this section.

WCDMA Band IV /LTE Band 4 Limit	-13 dBm
LTE Band 7 Limit	-25 dBm

Measurement Uncertainty

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

Test Result

WCDMA Band IV CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3424.8	-56.65	2.6	10.15	Vertical	-49.1	-13.0	36.12	270
3	5137.2	-54.75	2.4	11.35	Vertical	-45.8	-13.0	32.75	180
4	6849.6	-47.75	4.5	10.85	Vertical	-41.4	-13.0	28.38	45
5	8562.0	-45.75	5.1	11.35	Vertical	-39.5	-13.0	26.45	225
6	10274.4	-43.45	5.3	11.95	Vertical	-36.8	-13.0	23.75	180
7	11986.8	-45.55	5.5	13.55	Vertical	-37.5	-13.0	24.45	45
8	13699.2	-42.75	6.3	13.75	Vertical	-35.3	-13.0	22.27	315
9	15411.6	-42.95	6.7	13.85	Vertical	-35.8	-13.0	22.75	270
10	17124.0	-41.75	6.8	14.25	Vertical	-34.3	-13.0	21.25	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.

WCDMA Band IV CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.2	-58.15	2.6	10.75	Vertical	-50.0	-13.0	37.01	90
3	5197.8	-55.25	2.4	11.05	Vertical	-46.6	-13.0	33.58	225
4	6930.4	-49.05	4.5	11.15	Vertical	-42.4	-13.0	29.35	180
5	8663.0	-45.55	5.1	11.35	Vertical	-39.3	-13.0	26.25	45
6	10395.6	-42.95	5.3	11.95	Vertical	-36.3	-13.0	23.25	315
7	12128.2	-43.55	5.5	13.55	Vertical	-35.5	-13.0	22.45	270
8	13860.8	-43.15	6.3	13.75	Vertical	-35.7	-13.0	22.68	135
9	15593.4	-42.95	6.7	13.85	Vertical	-35.8	-13.0	22.75	90
10	17326.0	-42.75	6.8	14.25	Vertical	-35.3	-13.0	22.25	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.

WCDMA Band IV CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3505.2	-57.35	2.6	10.15	Vertical	-49.8	-13.0	36.78	45
3	5257.8	-52.35	2.4	11.05	Vertical	-43.7	-13.0	30.74	315
4	7010.4	-49.25	4.5	11.15	Vertical	-42.6	-13.0	29.57	270
5	8763.0	-46.05	5.1	11.35	Vertical	-39.8	-13.0	26.80	135
6	10515.6	-42.85	5.3	11.95	Vertical	-36.2	-13.0	23.22	90
7	12268.2	-43.55	5.5	13.55	Vertical	-35.5	-13.0	22.45	270
8	14020.8	-42.75	6.3	13.75	Vertical	-35.3	-13.0	22.26	135
9	15773.4	-41.65	6.7	13.85	Vertical	-34.5	-13.0	21.45	90
10	17526.0	-41.75	6.8	14.25	Vertical	-34.3	-13.0	21.25	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 4 QPSK 1.4MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3421.4	-58.15	2.6	10.15	Vertical	-50.6	-13.0	37.6	225
3	5132.1	-52.95	2.4	11.35	Vertical	-44.0	-13.0	31.0	45
4	6842.8	-49.65	4.5	10.85	Vertical	-43.3	-13.0	30.3	90
5	8553.5	-47.15	5.1	11.35	Vertical	-40.9	-13.0	27.9	270
6	10264.2	-45.55	5.3	11.95	Vertical	-38.9	-13.0	25.9	180
7	11974.9	-45.85	5.5	13.55	Vertical	-37.8	-13.0	24.8	315
8	13685.6	-42.85	6.3	13.75	Vertical	-35.4	-13.0	22.4	90
9	15396.3	-43.35	6.7	13.85	Vertical	-36.2	-13.0	23.2	135
10	17107.0	-43.05	6.8	14.25	Vertical	-35.6	-13.0	22.6	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 1.4MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-57.05	2.6	10.75	Vertical	-48.9	-13.0	35.9	135
3	5197.5	-49.65	2.4	11.05	Vertical	-41.0	-13.0	28.0	225
4	6930.0	-49.45	4.5	11.15	Vertical	-42.8	-13.0	29.8	90
5	8662.5	-48.55	5.1	11.35	Vertical	-42.3	-13.0	29.3	270
6	10395.0	-44.35	5.3	11.95	Vertical	-37.7	-13.0	24.7	315
7	12127.5	-45.95	5.5	13.55	Vertical	-37.9	-13.0	24.9	90
8	13860.0	-41.75	6.3	13.75	Vertical	-34.3	-13.0	21.3	45
9	15592.5	-45.65	6.7	13.85	Vertical	-38.5	-13.0	25.5	180
10	17325.0	-41.95	6.8	14.25	Vertical	-34.5	-13.0	21.5	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 1.4MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3508.6	-57.45	2.6	10.15	Vertical	-49.9	-13.0	36.9	270
3	5262.9	-46.15	2.4	11.05	Vertical	-37.5	-13.0	24.5	90
4	7017.2	-49.75	4.5	11.15	Vertical	-43.1	-13.0	30.1	315
5	8771.5	-47.05	5.1	11.35	Vertical	-40.8	-13.0	27.8	45
6	10525.8	-45.05	5.3	11.95	Vertical	-38.4	-13.0	25.4	225
7	12280.1	-45.25	5.5	13.55	Vertical	-37.2	-13.0	24.2	90
8	14034.4	-42.15	6.3	13.75	Vertical	-34.7	-13.0	21.7	180
9	15788.7	-44.55	6.7	13.85	Vertical	-37.4	-13.0	24.4	45
10	17543.0	-42.45	6.8	14.25	Vertical	-35.0	-13.0	22.0	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 3MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3423.0	-59.35	2.6	10.15	Vertical	-51.8	-13.0	38.8	45
3	5134.5	-47.45	2.4	11.35	Vertical	-38.5	-13.0	25.5	270
4	6846.0	-50.65	4.5	10.85	Vertical	-44.3	-13.0	31.3	315
5	8557.5	-47.25	5.1	11.35	Vertical	-41.0	-13.0	28.0	135
6	10269.0	-45.35	5.3	11.95	Vertical	-38.7	-13.0	25.7	180
7	11980.5	-46.15	5.5	13.55	Vertical	-38.1	-13.0	25.1	225
8	13692.0	-42.65	6.3	13.75	Vertical	-35.2	-13.0	22.2	270
9	15403.5	-45.35	6.7	13.85	Vertical	-38.2	-13.0	25.2	90
10	17115.0	-43.05	6.8	14.25	Vertical	-35.6	-13.0	22.6	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 3MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-58.95	2.6	10.75	Vertical	-50.8	-13.0	37.8	45
3	5197.5	-48.95	2.4	11.05	Vertical	-40.3	-13.0	27.3	270
4	6930.0	-48.75	4.5	11.15	Vertical	-42.1	-13.0	29.1	180
5	8662.5	-46.55	5.1	11.35	Vertical	-40.3	-13.0	27.3	135
6	10395.0	-45.25	5.3	11.95	Vertical	-38.6	-13.0	25.6	315
7	12127.5	-44.75	5.5	13.55	Vertical	-36.7	-13.0	23.7	180
8	13860.0	-41.95	6.3	13.75	Vertical	-34.5	-13.0	21.5	90
9	15592.5	-44.95	6.7	13.85	Vertical	-37.8	-13.0	24.8	225
10	17325.0	-41.65	6.8	14.25	Vertical	-34.2	-13.0	21.2	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 3MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3507.0	-58.35	2.6	10.15	Vertical	-50.8	-13.0	37.8	315
3	5260.5	-47.15	2.4	11.05	Vertical	-38.5	-13.0	25.5	45
4	7014.0	-50.25	4.5	11.15	Vertical	-43.6	-13.0	30.6	180
5	8767.5	-45.95	5.1	11.35	Vertical	-39.7	-13.0	26.7	270
6	10521.0	-44.35	5.3	11.95	Vertical	-37.7	-13.0	24.7	225
7	12274.5	-46.55	5.5	13.55	Vertical	-38.5	-13.0	25.5	180
8	14028.0	-42.35	6.3	13.75	Vertical	-34.9	-13.0	21.9	315
9	15781.5	-44.75	6.7	13.85	Vertical	-37.6	-13.0	24.6	90
10	17535.0	-42.15	6.8	14.25	Vertical	-34.7	-13.0	21.7	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 5MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3425.0	-57.85	2.6	10.15	Vertical	-50.3	-13.0	37.3	225
3	5137.5	-47.95	2.4	11.35	Vertical	-39.0	-13.0	26.0	135
4	6850.0	-49.75	4.5	10.85	Vertical	-43.4	-13.0	30.4	315
5	8562.5	-47.05	5.1	11.35	Vertical	-40.8	-13.0	27.8	180
6	10275.0	-45.15	5.3	11.95	Vertical	-38.5	-13.0	25.5	270
7	11987.5	-45.65	5.5	13.55	Vertical	-37.6	-13.0	24.6	315
8	13700.0	-44.75	6.3	13.75	Vertical	-37.3	-13.0	24.3	90
9	15412.5	-45.25	6.7	13.85	Vertical	-38.1	-13.0	25.1	45
10	17125.0	-42.75	6.8	14.25	Vertical	-35.3	-13.0	22.3	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 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-57.75	2.6	10.75	Vertical	-49.6	-13.0	36.6	135
3	5197.5	-48.45	2.4	11.05	Vertical	-39.8	-13.0	26.8	225
4	6930.0	-49.45	4.5	11.15	Vertical	-42.8	-13.0	29.8	180
5	8662.5	-48.65	5.1	11.35	Vertical	-42.4	-13.0	29.4	90
6	10395.0	-44.75	5.3	11.95	Vertical	-38.1	-13.0	25.1	45
7	12127.5	-47.25	5.5	13.55	Vertical	-39.2	-13.0	26.2	270
8	13860.0	-41.65	6.3	13.75	Vertical	-34.2	-13.0	21.2	315
9	15592.5	-44.35	6.7	13.85	Vertical	-37.2	-13.0	24.2	90
10	17325.0	-41.35	6.8	14.25	Vertical	-33.9	-13.0	20.9	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 4 QPSK 5MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3505.0	-57.15	2.6	10.15	Vertical	-49.6	-13.0	36.6	180
3	5257.5	-47.15	2.4	11.05	Vertical	-38.5	-13.0	25.5	315
4	7010.0	-49.75	4.5	11.15	Vertical	-43.1	-13.0	30.1	45
5	8762.5	-46.85	5.1	11.35	Vertical	-40.6	-13.0	27.6	225
6	10515.0	-44.75	5.3	11.95	Vertical	-38.1	-13.0	25.1	135
7	12267.5	-46.55	5.5	13.55	Vertical	-38.5	-13.0	25.5	270
8	14020.0	-41.35	6.3	13.75	Vertical	-33.9	-13.0	20.9	225
9	15772.5	-44.15	6.7	13.85	Vertical	-37.0	-13.0	24.0	90
10	17525.0	-43.85	6.8	14.25	Vertical	-36.4	-13.0	23.4	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 10MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3430.0	-58.05	2.6	10.15	Vertical	-50.5	-13.0	37.5	45
3	5145.0	-47.45	2.4	11.35	Vertical	-38.5	-13.0	25.5	315
4	6860.0	-49.25	4.5	10.85	Vertical	-42.9	-13.0	29.9	90
5	8575.0	-46.95	5.1	11.35	Vertical	-40.7	-13.0	27.7	225
6	10290.0	-44.55	5.3	11.95	Vertical	-37.9	-13.0	24.9	180
7	12005.0	-44.45	5.5	13.55	Vertical	-36.4	-13.0	23.4	45
8	13720.0	-43.15	6.3	13.75	Vertical	-35.7	-13.0	22.7	315
9	15435.0	-44.65	6.7	13.85	Vertical	-37.5	-13.0	24.5	270
10	17150.0	-42.65	6.8	14.25	Vertical	-35.2	-13.0	22.2	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 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-58.35	2.6	10.75	Vertical	-50.2	-13.0	37.2	270
3	5197.5	-49.15	2.4	11.05	Vertical	-40.5	-13.0	27.5	315
4	6930.0	-50.05	4.5	11.15	Vertical	-43.4	-13.0	30.4	90
5	8662.5	-46.35	5.1	11.35	Vertical	-40.1	-13.0	27.1	135
6	10395.0	-44.85	5.3	11.95	Vertical	-38.2	-13.0	25.2	315
7	12127.5	-45.55	5.5	13.55	Vertical	-37.5	-13.0	24.5	180
8	13860.0	-42.45	6.3	13.75	Vertical	-35.0	-13.0	22.0	270
9	15592.5	-43.85	6.7	13.85	Vertical	-36.7	-13.0	23.7	315
10	17325.0	-41.45	6.8	14.25	Vertical	-34.0	-13.0	21.0	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 10MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3500.0	-57.55	2.6	10.15	Vertical	-50.0	-13.0	37.0	270
3	5250.0	-48.25	2.4	11.05	Vertical	-39.6	-13.0	26.6	225
4	7000.0	-49.95	4.5	11.15	Vertical	-43.3	-13.0	30.3	90
5	8750.0	-47.15	5.1	11.35	Vertical	-40.9	-13.0	27.9	270
6	10500.0	-44.35	5.3	11.95	Vertical	-37.7	-13.0	24.7	90
7	12250.0	-45.65	5.5	13.55	Vertical	-37.6	-13.0	24.6	45
8	14000.0	-42.15	6.3	13.75	Vertical	-34.7	-13.0	21.7	315
9	15750.0	-44.75	6.7	13.85	Vertical	-37.6	-13.0	24.6	90
10	17500.0	-42.45	6.8	14.25	Vertical	-35.0	-13.0	22.0	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 4 QPSK 15MHz CH Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3435.0	-58.45	2.6	10.15	Vertical	-50.9	-13.0	37.9	180
3	5152.5	-47.55	2.4	11.35	Vertical	-38.6	-13.0	25.6	45
4	6870.0	-49.45	4.5	10.85	Vertical	-43.1	-13.0	30.1	315
5	8587.5	-46.45	5.1	11.35	Vertical	-40.2	-13.0	27.2	270
6	10305.0	-46.95	5.3	11.95	Vertical	-40.3	-13.0	27.3	135
7	12022.5	-45.65	5.5	13.55	Vertical	-37.6	-13.0	24.6	45
8	13740.0	-43.75	6.3	13.75	Vertical	-36.3	-13.0	23.3	315
9	15457.5	-44.65	6.7	13.85	Vertical	-37.5	-13.0	24.5	90
10	17175.0	-41.65	6.8	14.25	Vertical	-34.2	-13.0	21.2	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 4 QPSK 15MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-59.25	2.6	10.75	Vertical	-51.1	-13.0	38.1	180
3	5197.5	-48.35	2.4	11.05	Vertical	-39.7	-13.0	26.7	45
4	6930.0	-50.45	4.5	11.15	Vertical	-43.8	-13.0	30.8	315
5	8662.5	-47.85	5.1	11.35	Vertical	-41.6	-13.0	28.6	270
6	10395.0	-43.95	5.3	11.95	Vertical	-37.3	-13.0	24.3	135
7	12127.5	-45.75	5.5	13.55	Vertical	-37.7	-13.0	24.7	270
8	13860.0	-41.75	6.3	13.75	Vertical	-34.3	-13.0	21.3	45
9	15592.5	-45.65	6.7	13.85	Vertical	-38.5	-13.0	25.5	315
10	17325.0	-42.05	6.8	14.25	Vertical	-34.6	-13.0	21.6	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 15MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3495.0	-55.95	2.6	10.15	Vertical	-48.4	-13.0	35.4	225
3	5242.5	-48.65	2.4	11.05	Vertical	-40.0	-13.0	27.0	180
4	6990.0	-49.85	4.5	11.15	Vertical	-43.2	-13.0	30.2	45
5	8737.5	-47.05	5.1	11.35	Vertical	-40.8	-13.0	27.8	315
6	10485.0	-44.25	5.3	11.95	Vertical	-37.6	-13.0	24.6	270
7	12232.5	-45.25	5.5	13.55	Vertical	-37.2	-13.0	24.2	135
8	13980.0	-41.05	6.3	13.75	Vertical	-33.6	-13.0	20.6	270
9	15727.5	-46.15	6.7	13.85	Vertical	-39.0	-13.0	26.0	45
10	17475.0	-42.65	6.8	14.25	Vertical	-35.2	-13.0	22.2	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 20MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3440.0	-59.05	2.6	10.15	Vertical	-51.5	-13.0	38.5	90
3	5160.0	-48.25	2.4	11.35	Vertical	-39.3	-13.0	26.3	225
4	6880.0	-51.25	4.5	10.85	Vertical	-44.9	-13.0	31.9	180
5	8600.0	-47.05	5.1	11.35	Vertical	-40.8	-13.0	27.8	45
6	10320.0	-45.95	5.3	11.95	Vertical	-39.3	-13.0	26.3	315
7	12040.0	-47.75	5.5	13.55	Vertical	-39.7	-13.0	26.7	270
8	13760.0	-41.95	6.3	13.75	Vertical	-34.5	-13.0	21.5	45
9	15480.0	-47.05	6.7	13.85	Vertical	-39.9	-13.0	26.9	315
10	17200.0	-44.75	6.8	14.25	Vertical	-37.3	-13.0	24.3	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 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-59.65	2.6	10.75	Vertical	-51.5	-13.0	38.5	225
3	5197.5	-48.65	2.4	11.05	Vertical	-40.0	-13.0	27.0	180
4	6930.0	-50.15	4.5	11.15	Vertical	-43.5	-13.0	30.5	45
5	8662.5	-46.55	5.1	11.35	Vertical	-40.3	-13.0	27.3	315
6	10395.0	-45.25	5.3	11.95	Vertical	-38.6	-13.0	25.6	270
7	12127.5	-44.95	5.5	13.55	Vertical	-36.9	-13.0	23.9	135
8	13860.0	-42.45	6.3	13.75	Vertical	-35.0	-13.0	22.0	270
9	15592.5	-44.95	6.7	13.85	Vertical	-37.8	-13.0	24.8	45
10	17325.0	-42.85	6.8	14.25	Vertical	-35.4	-13.0	22.4	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 20MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3490.0	-56.35	2.6	10.15	Vertical	-48.8	-13.0	35.8	90
3	5235.0	-48.85	2.4	11.05	Vertical	-40.2	-13.0	27.2	225
4	6980.0	-49.55	4.5	11.15	Vertical	-42.9	-13.0	29.9	180
5	8725.0	-47.05	5.1	11.35	Vertical	-40.8	-13.0	27.8	45
6	10470.0	-45.35	5.3	11.95	Vertical	-38.7	-13.0	25.7	315
7	12215.0	-45.65	5.5	13.55	Vertical	-37.6	-13.0	24.6	270
8	13960.0	-44.45	6.3	13.75	Vertical	-37.0	-13.0	24.0	135
9	15705.0	-45.25	6.7	13.85	Vertical	-38.1	-13.0	25.1	270
10	17450.0	-43.65	6.8	14.25	Vertical	-36.2	-13.0	23.2	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 7 QPSK 5MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5000.6	-52.15	2.00	9.15	Vertical	-45.0	-25.0	20.0	225
3	7501.1	-49.85	2.50	11.35	Vertical	-41.0	-25.0	16.0	180
4	10001.3	-41.35	4.20	12.05	Vertical	-33.5	-25.0	8.5	45
5	12512.5	-45.65	5.20	12.85	Vertical	-38.0	-25.0	13.0	315
6	15015.0	-45.83	5.50	14.23	Vertical	-37.1	-25.0	12.1	270
7	17517.5	-44.05	5.70	14.15	Vertical	-35.6	-25.0	10.6	135
8	20002.4	-43.66	6.30	13.76	Vertical	-36.2	-25.0	11.2	90
9	22502.7	-42.75	6.80	14.05	Vertical	-35.5	-25.0	10.5	225
10	25003.0	-43.24	6.90	14.84	Vertical	-35.3	-25.0	10.3	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 7 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5065.8	-51.15	2.00	9.15	Vertical	-44.0	-25.0	19.0	180
3	7598.6	-50.85	2.50	11.35	Vertical	-42.0	-25.0	17.0	45
4	10130.6	-41.35	4.20	12.05	Vertical	-33.5	-25.0	8.5	315
5	12675.0	-45.95	5.20	12.85	Vertical	-38.3	-25.0	13.3	270
6	15210.0	-45.13	5.50	14.23	Vertical	-36.4	-25.0	11.4	135
7	17745.0	-44.05	5.70	14.15	Vertical	-35.6	-25.0	10.6	225
8	20280.0	-42.96	6.30	13.76	Vertical	-35.5	-25.0	10.5	180
9	22815.0	-43.65	6.80	14.05	Vertical	-36.4	-25.0	11.4	45
10	25350.0	-42.44	6.90	14.84	Vertical	-34.5	-25.0	9.5	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 7 QPSK 5MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5130.8	-49.95	2.00	9.15	Vertical	-42.8	-25.0	17.8	270
3	7696.1	-46.95	2.50	11.35	Vertical	-38.1	-25.0	13.1	135
4	10261.1	-40.85	4.20	12.05	Vertical	-33.0	-25.0	8.0	90
5	12837.5	-44.25	5.20	12.85	Vertical	-36.6	-25.0	11.6	225
6	15405.0	-47.03	5.50	14.23	Vertical	-38.3	-25.0	13.3	180
7	17972.5	-43.05	5.70	14.15	Vertical	-34.6	-25.0	9.6	225
8	20540.0	-42.76	6.30	13.76	Vertical	-35.3	-25.0	10.3	180
9	23107.5	-41.65	6.80	14.05	Vertical	-34.4	-25.0	9.4	45
10	25675.0	-42.84	6.90	14.84	Vertical	-34.9	-25.0	9.9	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 7 QPSK 10MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5001.0	-48.55	2.00	9.15	Vertical	-41.4	-25.0	16.4	270
3	7515.0	-46.85	2.50	11.35	Vertical	-38.0	-25.0	13.0	225
4	10002.4	-41.15	4.20	12.05	Vertical	-33.3	-25.0	8.3	180
5	12525.0	-44.25	5.20	12.85	Vertical	-36.6	-25.0	11.6	45
6	15030.0	-44.93	5.50	14.23	Vertical	-36.2	-25.0	11.2	315
7	17535.0	-44.35	5.70	14.15	Vertical	-35.9	-25.0	10.9	270
8	20040.0	-44.16	6.30	13.76	Vertical	-36.7	-25.0	11.7	135
9	22545.0	-41.75	6.80	14.05	Vertical	-34.5	-25.0	9.5	225
10	25050.0	-40.74	6.90	14.84	Vertical	-32.8	-25.0	7.8	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 7 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5070.0	-50.05	2.00	9.15	Vertical	-42.9	-25.0	17.9	45
3	75915.0	-50.35	2.50	11.35	Vertical	-41.5	-25.0	16.5	315
4	10140.0	-41.15	4.20	12.05	Vertical	-33.3	-25.0	8.3	270
5	12675.0	-44.25	5.20	12.85	Vertical	-36.6	-25.0	11.6	135
6	15210.0	-46.83	5.50	14.23	Vertical	-38.1	-25.0	13.1	90
7	17745.0	-44.85	5.70	14.15	Vertical	-36.4	-25.0	11.4	225
8	20280.0	-44.26	6.30	13.76	Vertical	-36.8	-25.0	11.8	180
9	22815.0	-42.05	6.80	14.05	Vertical	-34.8	-25.0	9.8	45
10	25350.0	-41.24	6.90	14.84	Vertical	-33.3	-25.0	8.3	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 7 QPSK 10MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5121.4	-49.35	2.00	10.15	Vertical	-41.2	-25.0	16.2	225
3	7681.9	-50.75	2.50	11.35	Vertical	-41.9	-25.0	16.9	180
4	10242.0	-43.15	4.20	12.05	Vertical	-35.3	-25.0	10.3	45
5	12825.0	-46.65	5.20	14.85	Vertical	-37.0	-25.0	12.0	315
6	15390.0	-45.43	5.50	13.23	Vertical	-37.7	-25.0	12.7	270
7	17955.0	-42.75	5.70	12.15	Vertical	-36.3	-25.0	11.3	135
8	20520.0	-44.16	6.30	13.76	Vertical	-36.7	-25.0	11.7	90
9	23085.0	-42.05	6.80	14.05	Vertical	-34.8	-25.0	9.8	225
10	25650.0	-40.84	6.90	14.84	Vertical	-32.9	-25.0	7.9	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 7 QPSK 15MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5001.8	-51.45	2.00	10.15	Vertical	-43.3	-25.0	18.3	45
3	7502.6	-50.95	2.50	11.35	Vertical	-42.1	-25.0	17.1	315
4	1000.4	-41.95	4.20	12.05	Vertical	-34.1	-25.0	9.1	270
5	12537.5	-46.15	5.20	14.85	Vertical	-36.5	-25.0	11.5	135
6	15045.0	-45.43	5.50	13.23	Vertical	-37.7	-25.0	12.7	225
7	17552.5	-42.45	5.70	12.15	Vertical	-36.0	-25.0	11.0	180
8	20060.0	-43.86	6.30	13.76	Vertical	-36.4	-25.0	11.4	45
9	22567.5	-41.95	6.80	14.05	Vertical	-34.7	-25.0	9.7	315
10	25075.0	-42.04	6.90	14.84	Vertical	-34.1	-25.0	9.1	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 7 QPSK 15MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5056.9	-51.05	2.00	10.15	Vertical	-42.9	-25.0	17.9	135
3	7584.8	-50.75	2.50	11.35	Vertical	-41.9	-25.0	16.9	90
4	10140.0	27.05	4.20	12.05	Vertical	34.9	-25.0	-59.9	225
5	12675.0	-46.65	5.20	14.85	Vertical	-37.0	-25.0	12.0	225
6	15210.0	-45.53	5.50	13.23	Vertical	-37.8	-25.0	12.8	180
7	17745.0	-42.65	5.70	12.15	Vertical	-36.2	-25.0	11.2	45
8	20280.0	-44.56	6.30	13.76	Vertical	-37.1	-25.0	12.1	315
9	22815.0	-41.35	6.80	14.05	Vertical	-34.1	-25.0	9.1	270
10	25350.0	-41.34	6.90	14.84	Vertical	-33.4	-25.0	8.4	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 7 QPSK 15MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5112.0	-49.05	2.00	10.15	Vertical	-40.9	-25.0	15.9	90
3	7667.3	-47.85	2.50	11.35	Vertical	-39.0	-25.0	14.0	225
4	10250.0	-38.25	4.20	12.05	Vertical	-30.4	-25.0	5.4	225
5	12812.5	-46.75	5.20	14.85	Vertical	-37.1	-25.0	12.1	180
6	15375.0	-45.53	5.50	13.23	Vertical	-37.8	-25.0	12.8	45
7	17937.5	-42.85	5.70	12.15	Vertical	-36.4	-25.0	11.4	315
8	20500.0	-44.36	6.30	13.76	Vertical	-36.9	-25.0	11.9	270
9	23062.5	-41.65	6.80	14.05	Vertical	-34.4	-25.0	9.4	135
10	25625.0	-41.84	6.90	14.84	Vertical	-33.9	-25.0	8.9	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 7 QPSK 20MHz CH-Low, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5002.5	-53.65	2.00	10.15	Vertical	-45.5	-25.0	20.5	225
3	7503.4	-46.85	2.50	11.35	Vertical	-38.0	-25.0	13.0	225
4	10040.0	-43.35	4.20	12.05	Vertical	-35.5	-25.0	10.5	180
5	12550.0	-46.15	5.20	14.85	Vertical	-36.5	-25.0	11.5	45
6	15060.0	-45.53	5.50	13.23	Vertical	-37.8	-25.0	12.8	315
7	17570.0	-43.05	5.70	12.15	Vertical	-36.6	-25.0	11.6	270
8	20080.0	-44.16	6.30	13.76	Vertical	-36.7	-25.0	11.7	135
9	22590.0	-41.35	6.80	14.05	Vertical	-34.1	-25.0	9.1	90
10	25100.0	-41.64	6.90	14.84	Vertical	-33.7	-25.0	8.7	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 7 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5052.0	-50.55	2.00	10.15	Vertical	-42.4	-25.0	17.4	180
3	7578.0	-46.05	2.50	11.35	Vertical	-37.2	-25.0	12.2	45
4	10140.0	-42.75	4.20	12.05	Vertical	-34.9	-25.0	9.9	315
5	12675.0	-46.75	5.20	14.85	Vertical	-37.1	-25.0	12.1	270
6	15210.0	-45.43	5.50	13.23	Vertical	-37.7	-25.0	12.7	135
7	17745.0	-42.65	5.70	12.15	Vertical	-36.2	-25.0	11.2	90
8	20280.0	-44.66	6.30	13.76	Vertical	-37.2	-25.0	12.2	225
9	22815.0	-41.95	6.80	14.05	Vertical	-34.7	-25.0	9.7	180
10	25350.0	-42.14	6.90	14.84	Vertical	-34.2	-25.0	9.2	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 7 QPSK 20MHz CH-High, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5102.3	-49.95	2.00	10.15	Vertical	-41.8	-25.0	16.8	180
3	7653.4	-50.45	2.50	11.35	Vertical	-41.6	-25.0	16.6	45
4	10240.0	-41.05	4.20	12.05	Vertical	-33.2	-25.0	8.2	315
5	12800.0	-46.05	5.20	14.85	Vertical	-36.4	-25.0	11.4	270
6	15360.0	-45.53	5.50	13.23	Vertical	-37.8	-25.0	12.8	135
7	17920.0	-42.55	5.70	12.15	Vertical	-36.1	-25.0	11.1	90
8	20480.0	-44.46	6.30	13.76	Vertical	-37.0	-25.0	12.0	225
9	23040.0	-41.65	6.80	14.05	Vertical	-34.4	-25.0	9.4	180
10	25600.0	-41.84	6.90	14.84	Vertical	-33.9	-25.0	8.9	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 Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Time
Base Station Simulator	R&S	CMW500	113645	2017-05-14	2018-05-13
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	2017-05-14	2018-05-13
Universal Radio Communication Tester	Agilent	E5515C	MY48367192	2017-05-14	2018-05-13
Spectrum Analyzer	Agilent	N9010A	MY47191109	2017-05-14	2018-05-13
Signal Analyzer	R&S	FSV30	100815	2016-12-16	2017-12-15
Signal generator	R&S	SMB 100A	102594	2017-05-14	2018-05-13
EMI Test Receiver	R&S	ESCI	100948	2017-05-20	2018-05-19
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2014-12-06	2017-12-05
Horn Antenna	R&S	HF907	100126	2014-12-06	2017-12-05
Horn Antenna	ETS-Lindgren	3160-09	00102643	2015-01-30	2018-01-29
Climatic Chamber	Re Ce	PT-30B	20101891	2015-07-18	2018-07-17
RF Cable	Agilent	SMA 15cm	0001	2017-02-06	2017-08-05
Preampflier	R&S	SCU18	102327	2017-06-18	2018-06-17

ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance

Front Side

Back Side

a: EUT

b: Battery

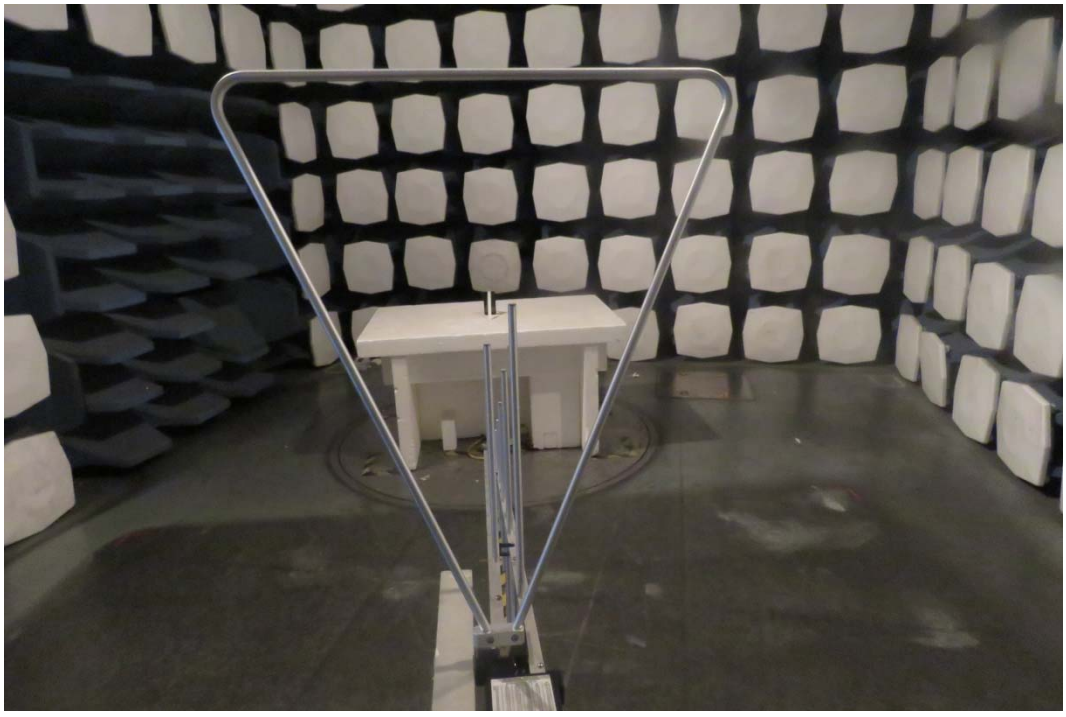
c: Adapter

d: USB Cable

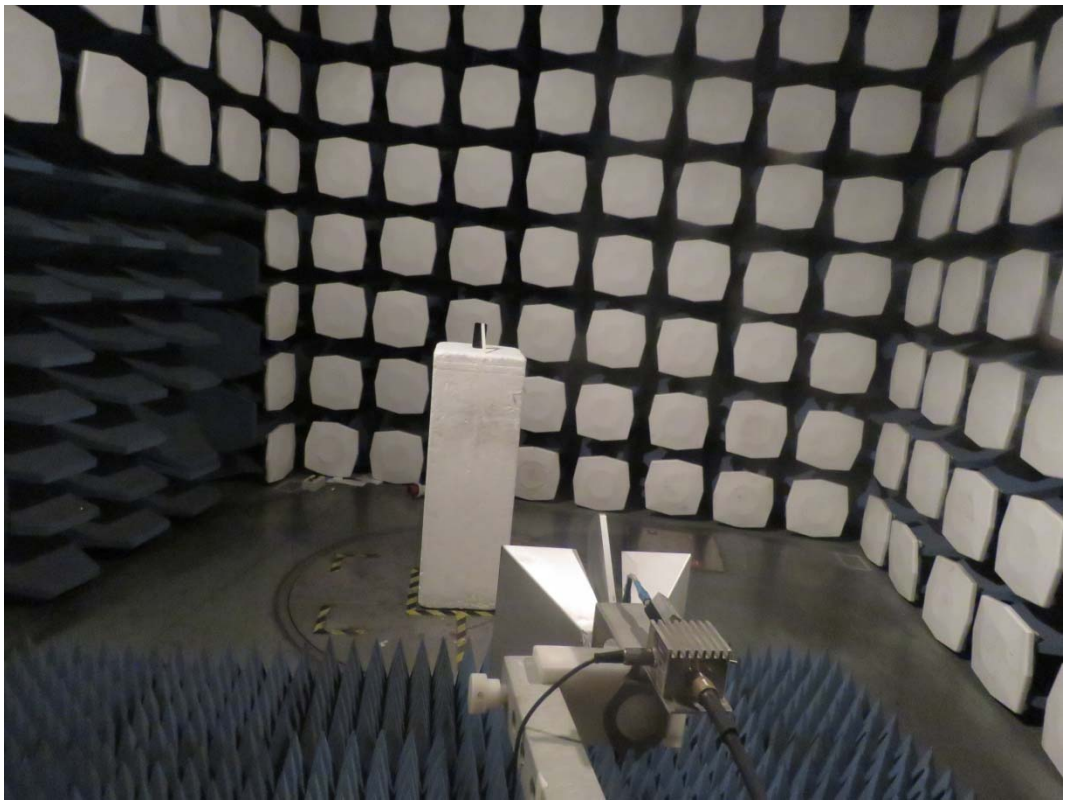
d: USB Cable

Picture 1 EUT and Accessory

A.2 Test Setup



30MHz~ 1GHz



Above 1G

Picture 2: Radiated Spurious Emissions Test setup