

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 +60°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 +60°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

2. Frequency Stability (Voltage Variation)

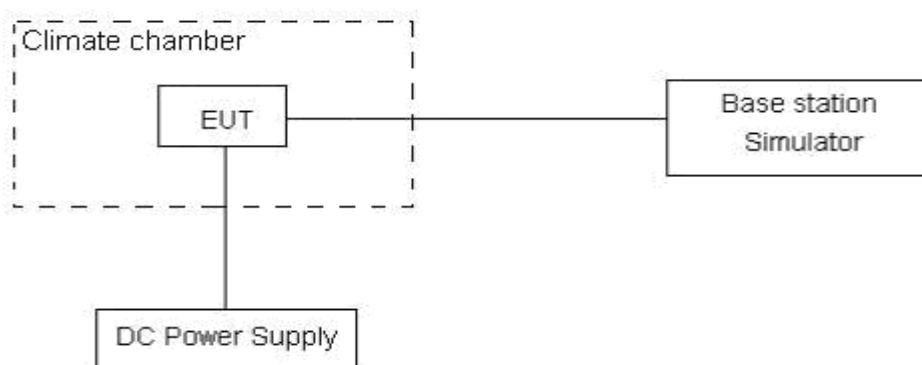
The frequency stability shall be measured with variation of primary supply voltage as follows:

(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 3.5 V and 3.7 V, with a nominal voltage of 4.2V.

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 $k = 3$, $U=0.01\text{ppm}$.

Test Result

Mode	Bandwidth	Channel/ Frequency(M Hz)	Test status	Frequency Stability (ppm)	
				QPSK	16QAM
LTE Band 4	1.4MHz	20175/1732.5	-30°C/Normal Voltage	0.00231	0.00190
		20175/1732.5	-20°C/Normal Voltage	0.00196	0.00150
		20175/1732.5	-10°C/Normal Voltage	0.00173	0.00081
		20175/1732.5	0°C/Normal Voltage	0.00029	0.00115
		20175/1732.5	10°C/Normal Voltage	0.00190	0.00023
		20175/1732.5	20°C/Normal Voltage	0.00144	-0.00029
		20175/1732.5	30°C/Normal Voltage	0.00052	0.00006
		20175/1732.5	40°C/Normal Voltage	0.00133	0.00196
		20175/1732.5	50°C/Normal Voltage	0.00029	-0.00092
		20175/1732.5	60°C/Normal Voltage	0.00335	0.00139
		20175/1732.5	20°C/Minimum Voltage	-0.00063	0.00040
		20175/1732.5	20°C/Maximum Voltage	-0.00173	-0.00127
	3MHz	20175/1732.5	-30°C/Normal Voltage	0.00092	0.00006
		20175/1732.5	-20°C/Normal Voltage	0.00352	0.00185
		20175/1732.5	-10°C/Normal Voltage	-0.00063	-0.00098
		20175/1732.5	0°C/Normal Voltage	0.00185	0.00127
		20175/1732.5	10°C/Normal Voltage	0.00081	0.00087
		20175/1732.5	20°C/Normal Voltage	0.00248	0.00006
		20175/1732.5	30°C/Normal Voltage	-0.00052	0.00012
		20175/1732.5	40°C/Normal Voltage	0.00035	0.00006
		20175/1732.5	50°C/Normal Voltage	-0.00040	0.00092
		20175/1732.5	60°C/Normal Voltage	0.00225	-0.00104
		20175/1732.5	20°C/Minimum Voltage	0.00202	-0.00058
		20175/1732.5	20°C/Maximum Voltage	0.00156	0.00092
	5MHz	20175/1732.5	-30°C/Normal Voltage	-0.00092	0.00110
		20175/1732.5	-20°C/Normal Voltage	0.00306	0.00225
		20175/1732.5	-10°C/Normal Voltage	0.00139	0.00167
		20175/1732.5	0°C/Normal Voltage	0.00006	0.00012
		20175/1732.5	10°C/Normal Voltage	0.00075	0.00104
		20175/1732.5	20°C/Normal Voltage	-0.00075	-0.00052
		20175/1732.5	30°C/Normal Voltage	0.00127	-0.00156
		20175/1732.5	40°C/Normal Voltage	-0.00052	-0.00139
		20175/1732.5	50°C/Normal Voltage	0.00092	-0.00058
		20175/1732.5	60°C/Normal Voltage	-0.00040	0.00040
		20175/1732.5	20°C/Minimum Voltage	0.00000	0.00017
		20175/1732.5	20°C/Maximum Voltage	-0.00127	0.00081
	10MHz	20175/1732.5	-30°C/Normal Voltage	0.00104	-0.00167
		20175/1732.5	-20°C/Normal Voltage	0.00144	0.00104
		20175/1732.5	-10°C/Normal Voltage	-0.00115	-0.00075



		20175/1732.5	0°C/Normal Voltage	-0.00087	-0.00121
		20175/1732.5	10°C/Normal Voltage	0.00115	-0.00069
		20175/1732.5	20°C/Normal Voltage	-0.00104	0.00069
		20175/1732.5	30°C/Normal Voltage	0.00150	-0.00115
		20175/1732.5	40°C/Normal Voltage	0.00087	0.00006
		20175/1732.5	50°C/Normal Voltage	0.00058	0.00000
		20175/1732.5	60°C/Normal Voltage	-0.00133	-0.00127
		20175/1732.5	20°C/Minimum Voltage	-0.00006	-0.00283
		20175/1732.5	20°C/Maximum Voltage	-0.00098	0.00063
	15MHz	20175/1732.5	-30°C/Normal Voltage	0.00063	0.00150
		20175/1732.5	-20°C/Normal Voltage	0.00196	0.00081
		20175/1732.5	-10°C/Normal Voltage	0.00144	-0.00069
		20175/1732.5	0°C/Normal Voltage	-0.00110	-0.00115
		20175/1732.5	10°C/Normal Voltage	0.00179	0.00121
		20175/1732.5	20°C/Normal Voltage	0.00110	-0.00046
		20175/1732.5	30°C/Normal Voltage	0.00000	-0.00104
		20175/1732.5	40°C/Normal Voltage	-0.00144	0.00133
		20175/1732.5	50°C/Normal Voltage	0.00069	0.00063
		20175/1732.5	60°C/Normal Voltage	-0.00052	-0.00012
		20175/1732.5	20°C/Minimum Voltage	-0.00271	0.00139
		20175/1732.5	20°C/Maximum Voltage	-0.00029	0.00000
	20MHz	20175/1732.5	-30°C/Normal Voltage	0.00115	-0.00058
		20175/1732.5	-20°C/Normal Voltage	0.00023	0.00046
		20175/1732.5	-10°C/Normal Voltage	-0.00144	-0.00058
		20175/1732.5	0°C/Normal Voltage	-0.00098	-0.00023
		20175/1732.5	10°C/Normal Voltage	-0.00040	0.00098
		20175/1732.5	20°C/Normal Voltage	0.00035	-0.00121
		20175/1732.5	30°C/Normal Voltage	-0.00179	0.00115
		20175/1732.5	40°C/Normal Voltage	-0.00063	0.00063
		20175/1732.5	50°C/Normal Voltage	-0.00069	0.00144
		20175/1732.5	60°C/Normal Voltage	-0.00098	-0.00040
		20175/1732.5	20°C/Minimum Voltage	0.00023	-0.00104
		20175/1732.5	20°C/Maximum Voltage	-0.00081	0.00179

Mode	Bandwidth	Channel/ Frequency (MHz)	Test status	Frequency Stability (ppm)	
				QPSK	16QAM
LTE Band 12	1.4MHz	23095/707.5	-30°C/Normal Voltage	-0.00141	-0.00014
		23095/707.5	-20°C/Normal Voltage	0.00608	-0.00495
		23095/707.5	-10°C/Normal Voltage	-0.00438	-0.00254
		23095/707.5	0°C/Normal Voltage	-0.00396	-0.00198
		23095/707.5	10°C/Normal Voltage	-0.00509	-0.00325
		23095/707.5	20°C/Normal Voltage	-0.00014	0.00113
		23095/707.5	30°C/Normal Voltage	-0.00240	-0.00269
		23095/707.5	40°C/Normal Voltage	-0.00141	-0.00325
		23095/707.5	50°C/Normal Voltage	-0.00198	-0.00353
		23095/707.5	60°C/Normal Voltage	0.00014	-0.00367
		23095/707.5	20°C/Minimum Voltage	0.00085	-0.00113
		23095/707.5	20°C/Maximum Voltage	-0.00325	-0.00254
	3MHz	23095/707.5	-30°C/Normal Voltage	-0.00198	-0.00325
		23095/707.5	-20°C/Normal Voltage	0.00240	0.00297
		23095/707.5	-10°C/Normal Voltage	-0.00014	-0.00113
		23095/707.5	0°C/Normal Voltage	-0.00438	-0.00042
		23095/707.5	10°C/Normal Voltage	-0.00198	-0.00099
		23095/707.5	20°C/Normal Voltage	-0.00127	-0.00198
		23095/707.5	30°C/Normal Voltage	-0.00155	-0.00311
		23095/707.5	40°C/Normal Voltage	-0.00240	-0.00297
		23095/707.5	50°C/Normal Voltage	-0.00155	-0.00071
		23095/707.5	60°C/Normal Voltage	-0.00297	0.00113
		23095/707.5	20°C/Minimum Voltage	-0.00170	0.00141
		23095/707.5	20°C/Maximum Voltage	-0.00212	0.00057
	5MHz	23095/707.5	-30°C/Normal Voltage	-0.00410	0.00071
		23095/707.5	-20°C/Normal Voltage	0.00862	0.00594
		23095/707.5	-10°C/Normal Voltage	-0.00099	-0.00170
		23095/707.5	0°C/Normal Voltage	-0.00170	-0.00099
		23095/707.5	10°C/Normal Voltage	-0.00240	-0.00509
		23095/707.5	20°C/Normal Voltage	-0.00254	-0.00339
		23095/707.5	30°C/Normal Voltage	0.00000	-0.00297
		23095/707.5	40°C/Normal Voltage	-0.00155	-0.00424
		23095/707.5	50°C/Normal Voltage	-0.00057	-0.00155
		23095/707.5	60°C/Normal Voltage	-0.00028	-0.00155
		23095/707.5	20°C/Minimum Voltage	0.00198	-0.00297
		23095/707.5	20°C/Maximum Voltage	-0.00367	0.00099
	10MHz	23095/707.5	-30°C/Normal Voltage	-0.00495	0.00396
		23095/707.5	-20°C/Normal Voltage	-0.00155	0.00170
		23095/707.5	-10°C/Normal Voltage	-0.00127	-0.00057



		23095/707.5	0°C/Normal Voltage	-0.00099	0.00170
		23095/707.5	10°C/Normal Voltage	-0.00057	-0.00382
		23095/707.5	20°C/Normal Voltage	-0.00283	-0.00325
		23095/707.5	30°C/Normal Voltage	-0.00537	-0.00297
		23095/707.5	40°C/Normal Voltage	-0.00240	-0.00269
		23095/707.5	50°C/Normal Voltage	-0.00438	-0.00212
		23095/707.5	60°C/Normal Voltage	-0.00155	-0.00155
		23095/707.5	20°C/Minimum Voltage	-0.00124	-0.00151
		23095/707.5	20°C/Maximum Voltage	-0.00136	-0.00166

Mode	Bandwidth	Channel/ Frequency (MHz)	Test status	Frequency Stability (ppm)	
				QPSK	16QAM
LTE Band 13	5MHz	23230/782	-30°C/Normal Voltage	-0.00340	-0.00454
		23230/782	-20°C/Normal Voltage	-0.00211	0.00531
		23230/782	-10°C/Normal Voltage	-0.00258	-0.00514
		23230/782	0°C/Normal Voltage	-0.00523	-0.00404
		23230/782	10°C/Normal Voltage	-0.00315	-0.00239
		23230/782	20°C/Normal Voltage	-0.00637	-0.00088
		23230/782	30°C/Normal Voltage	-0.00179	-0.00309
		23230/782	40°C/Normal Voltage	-0.00332	-0.00230
		23230/782	50°C/Normal Voltage	-0.00646	0.00101
		23230/782	60°C/Normal Voltage	-0.00426	-0.00221
		23230/782	20°C/Minimum Voltage	-0.00249	-0.00014
		23230/782	20°C/Maximum Voltage	-0.00527	-0.00184
	10MHz	23230/782	-30°C/Normal Voltage	-0.00400	-0.00153
		23230/782	-20°C/Normal Voltage	-0.00355	0.00114
		23230/782	-10°C/Normal Voltage	-0.00751	-0.00271
		23230/782	0°C/Normal Voltage	-0.00974	-0.00480
		23230/782	10°C/Normal Voltage	-0.00377	-0.00064
		23230/782	20°C/Normal Voltage	0.00114	-0.00757
		23230/782	30°C/Normal Voltage	-0.00419	-0.00221
		23230/782	40°C/Normal Voltage	-0.00191	-0.00714
		23230/782	50°C/Normal Voltage	-0.00402	0.00095
		23230/782	60°C/Normal Voltage	-0.00188	-0.00441
		23230/782	20°C/Minimum Voltage	-0.00523	-0.00468
		23230/782	20°C/Maximum Voltage	-0.00490	-0.00262

4.7 Spurious Emissions at Antenna Terminals

Ambient condition

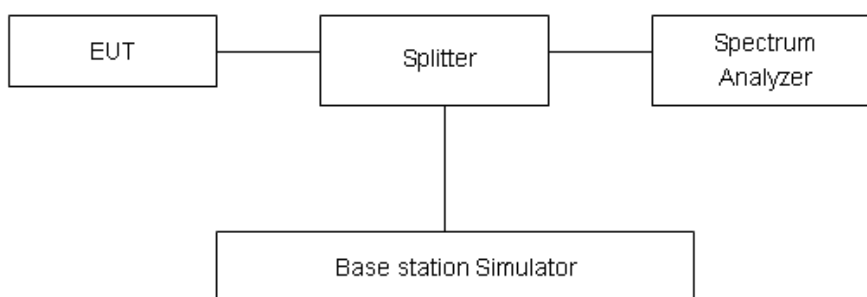
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 $43 + 10 \log_{10} (P)$ dB..”

Rule Part 27.53 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to –70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and –80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

**LTE B4/12 Limit**

Limit	-13 dBm
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LTE B13 Limit

Limit out of the band 1559-1610 MHz	-13 dBm
Limit in the band 1559-1610 MHz	-40 dBm

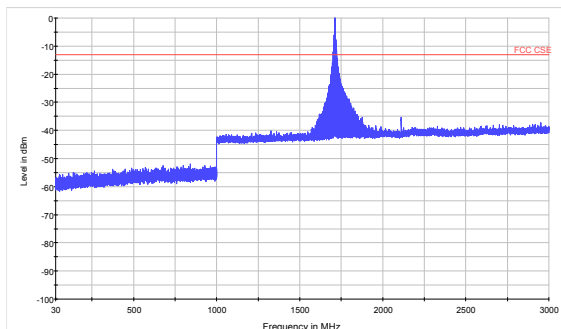
Measurement Uncertainty

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

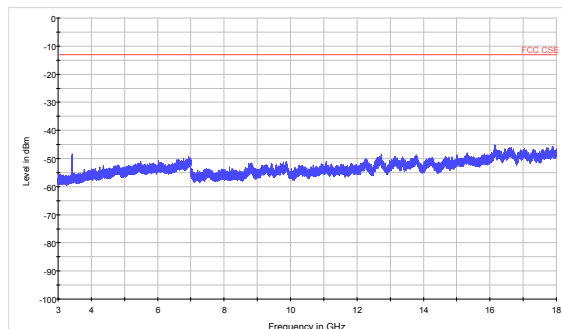
Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-12.75GHz	1.407 dB

Test Result: PASS

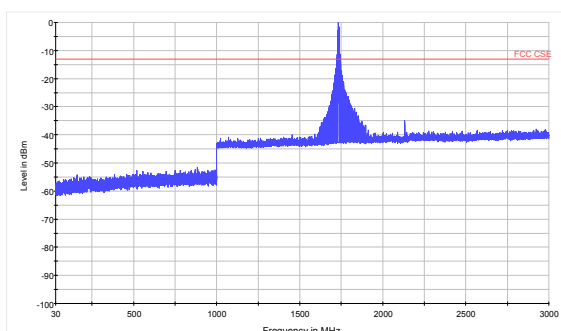
LTE Band 4 1.4MHz CH-Low 30MHz~3GHz



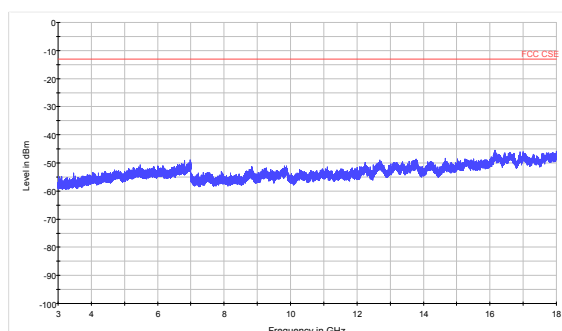
LTE Band 4 1.4MHz CH-Low 3GHz~18GHz



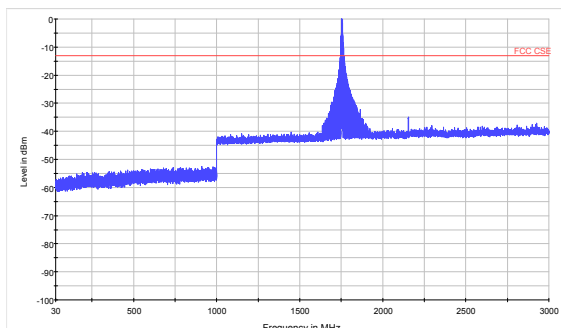
LTE Band 4 1.4MHz CH-Middle 30MHz~3GHz



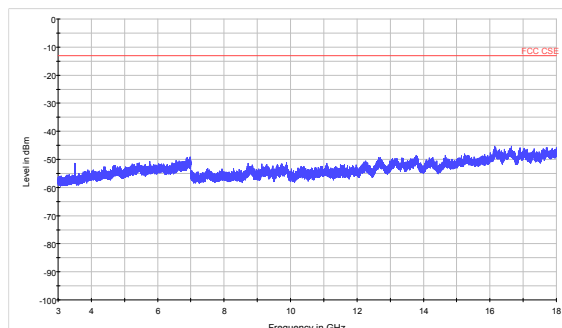
LTE Band 4 1.4MHz CH-Middle 3GHz~18GHz



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

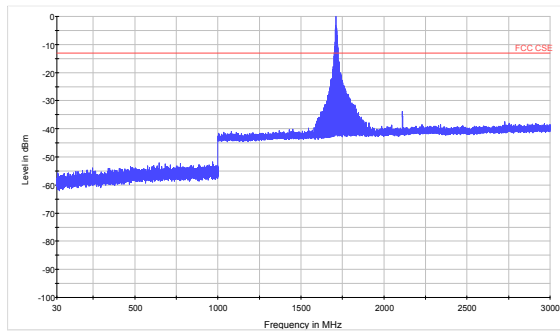


LTE Band 4 1.4MHz CH-High 3GHz~18GHz

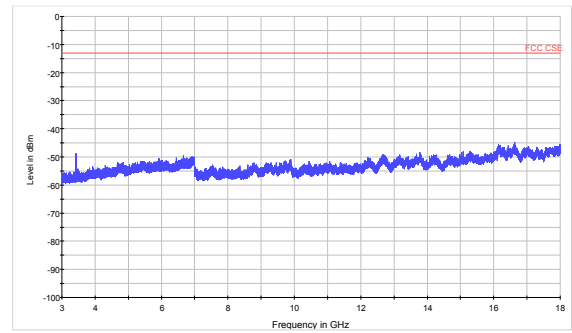




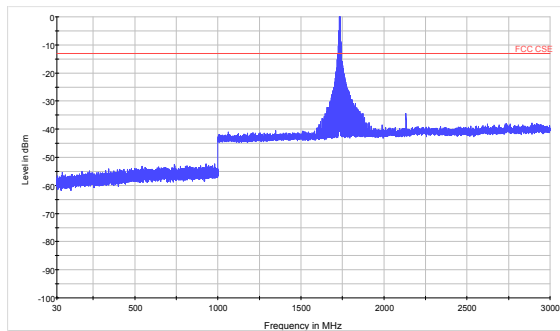
LTE Band 4 3MHz CH-Low 30MHz~3GHz



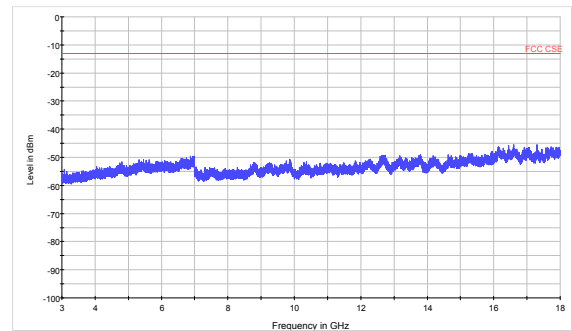
LTE Band 4 3MHz CH-Low 3GHz~18GHz



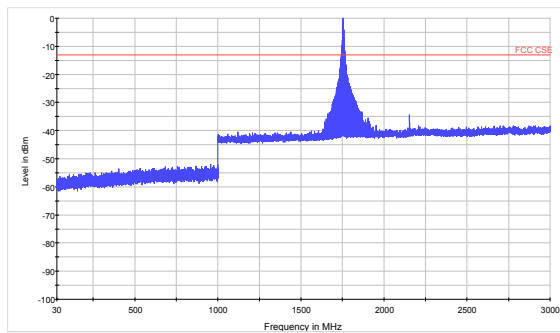
LTE Band 4 3MHz CH-Middle 30MHz~3GHz



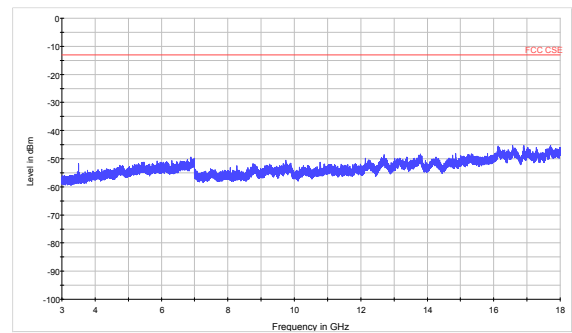
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LTE Band 4 3MHz CH-High 30MHz~3GHz

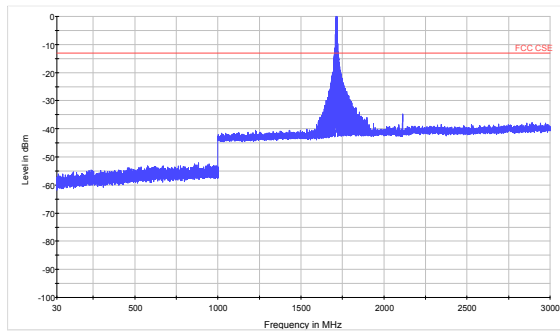


LTE Band 4 3MHz CH-High 3GHz~18GHz

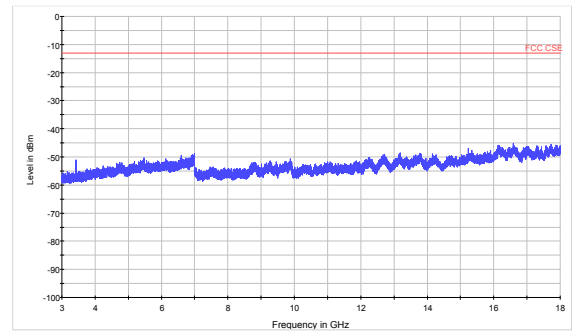




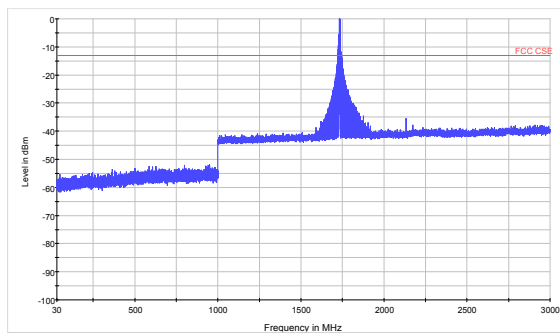
LTE Band 4 5MHz CH-Low 30MHz~3GHz



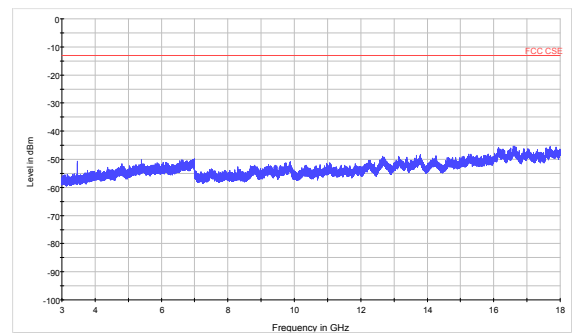
LTE Band 4 5MHz CH-Low 3GHz~18GHz



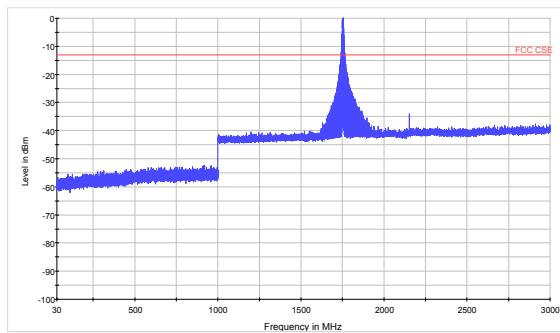
LTE Band 4 5MHz CH-Middle 30MHz~3GHz



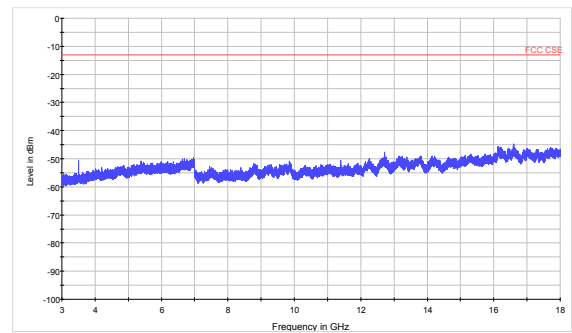
LTE Band 4 5MHz CH-Middle 3GHz~18GHz



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

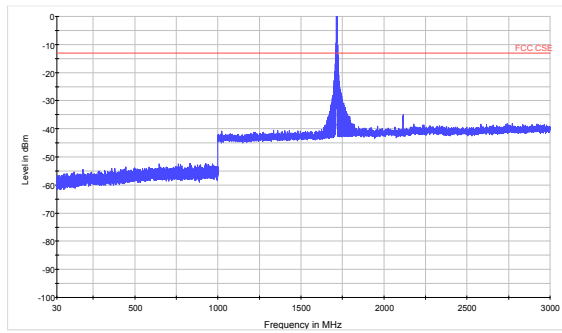


LTE Band 4 5MHz CH-High 3GHz~18GHz

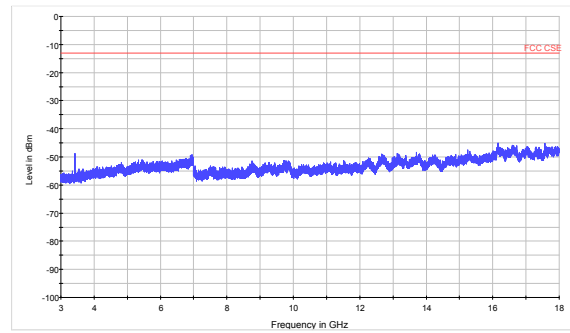




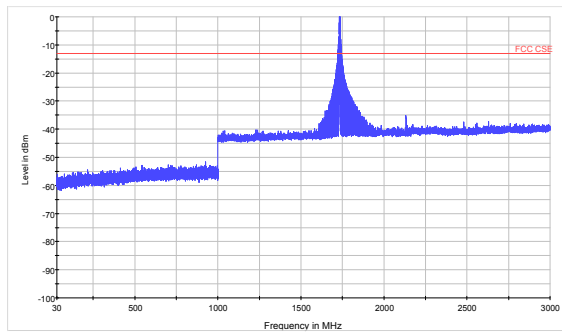
LTE Band 4 10MHz CH-Low 30MHz~3GHz



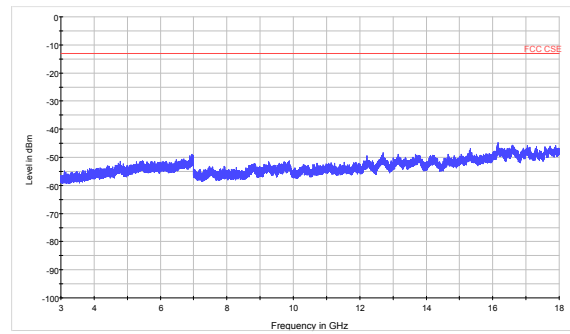
LTE Band 4 10MHz CH-Low 3GHz~18GHz



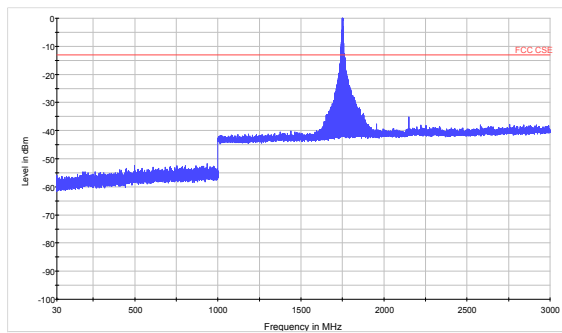
LTE Band 4 10MHz CH-Middle 30MHz~3GHz



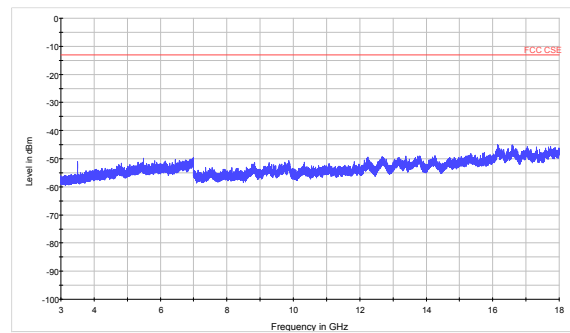
LTE Band 4 10MHz CH-Middle 3GHz~18GHz



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

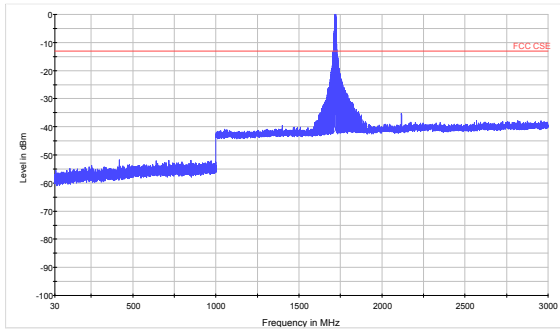


LTE Band 4 10MHz CH-High 3GHz~18GHz

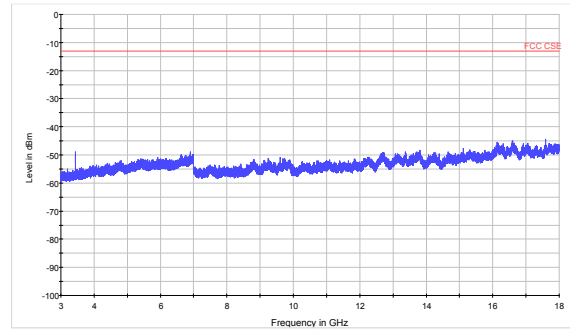




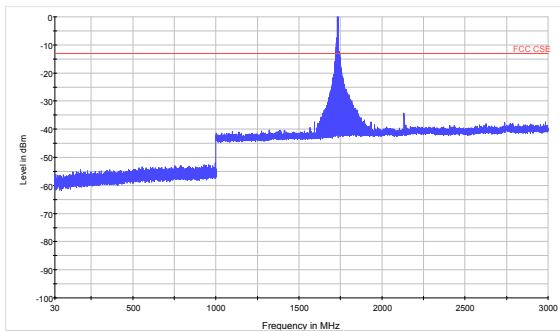
LTE Band 4 15MHz CH-Low 30MHz~3GHz



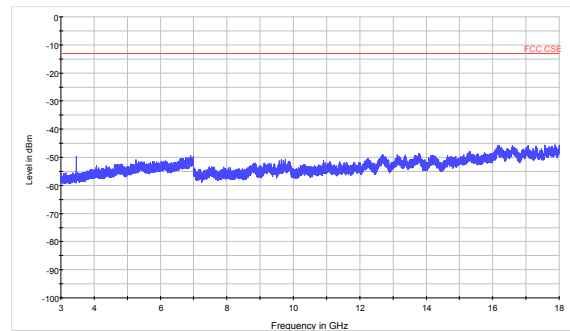
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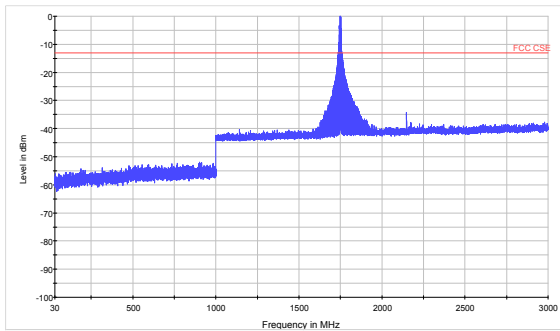
LTE Band 4 15MHz CH-Middle 30MHz~3GHz



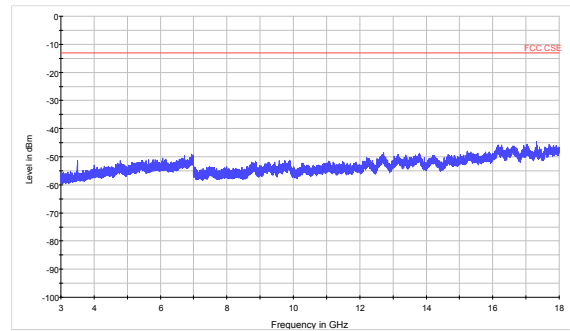
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LTE Band 4 15MHz CH-High 30MHz~3GHz

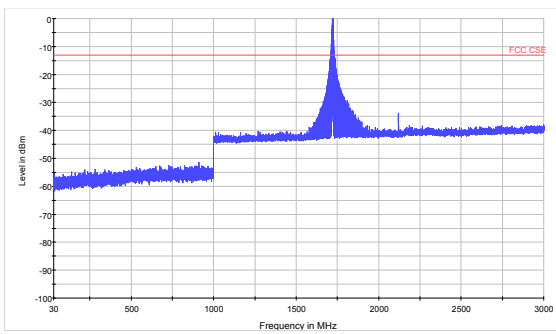


LTE Band 4 15MHz CH-High 3GHz~18GHz

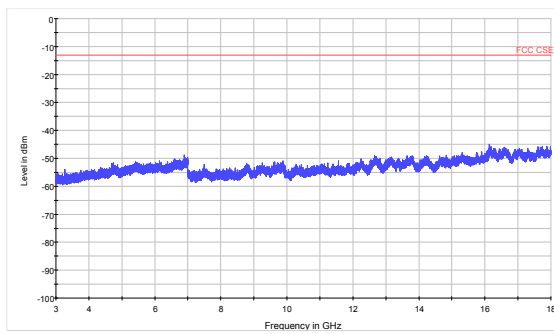




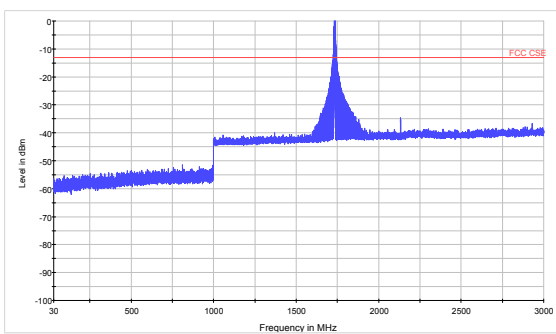
LTE Band 4 20MHz CH-Low 30MHz~3GHz



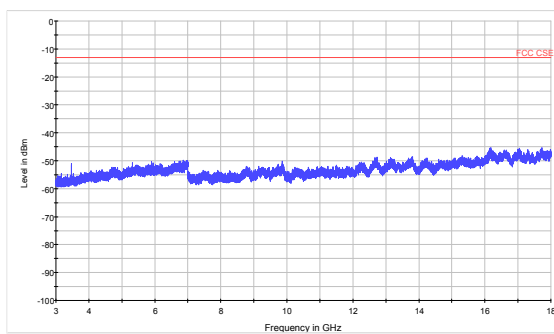
LTE Band 4 20MHz CH-Low 3GHz~18GHz



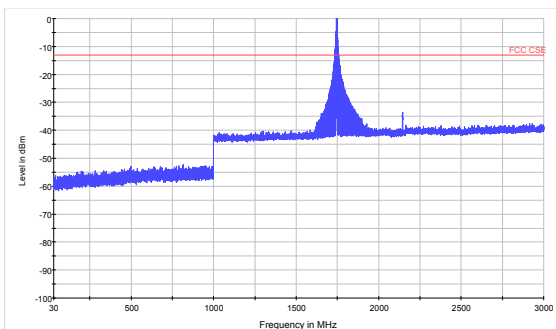
LTE Band 4 20MHz CH-Middle 30MHz~3GHz



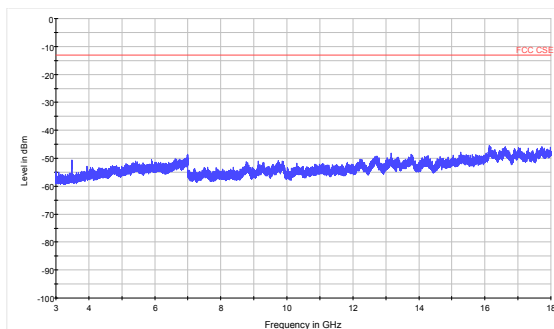
LTE Band 4 20MHz CH-Middle 3GHz~18GHz



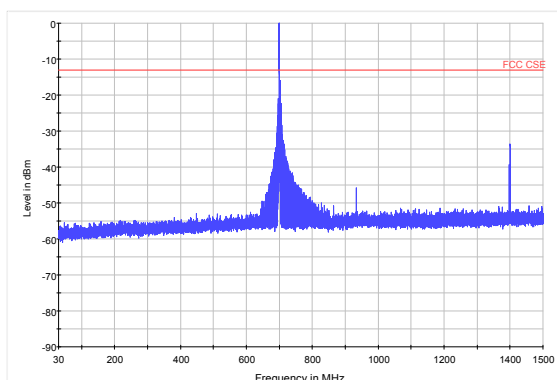
LTE Band 4 20MHz CH-High 30MHz~3GHz



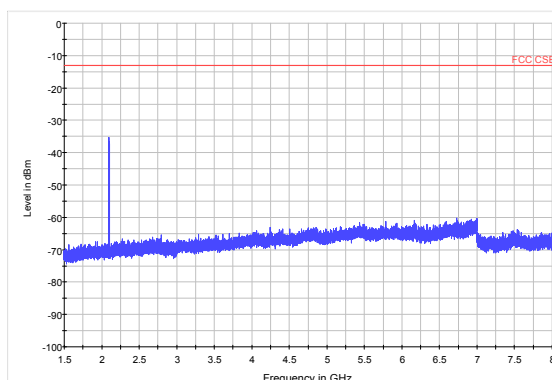
LTE Band 4 20MHz CH-High 3GHz~18GHz



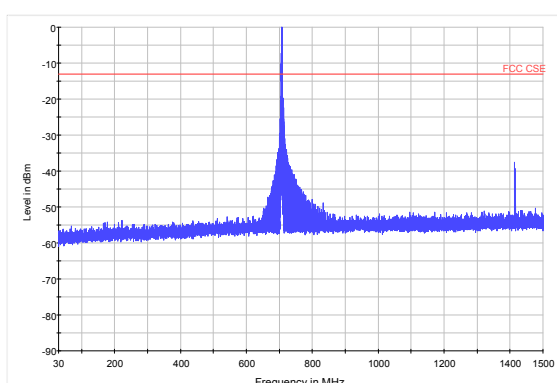
LTE Band 12 1.4MHz CH-Low 30MHz~1.5GHz



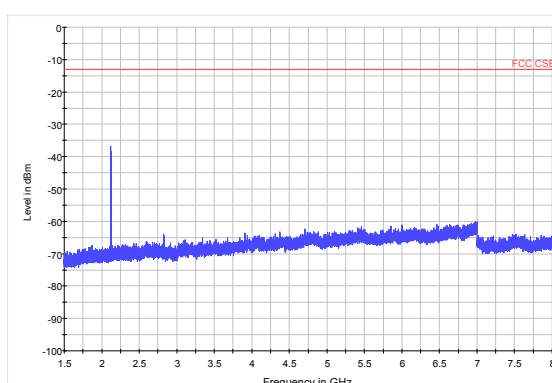
LTE Band 12 1.4MHz CH-Low 1.5GHz~8GHz



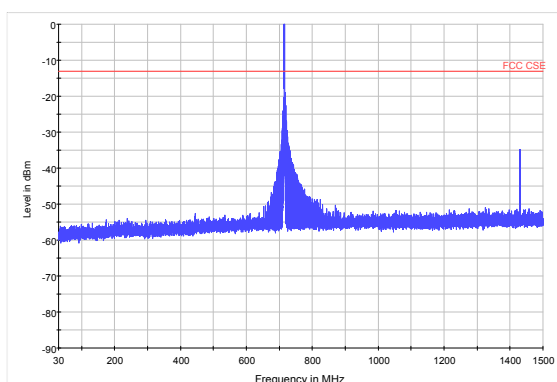
LTE Band 12 1.4MHz CH- Mid 30MHz~1.5GHz



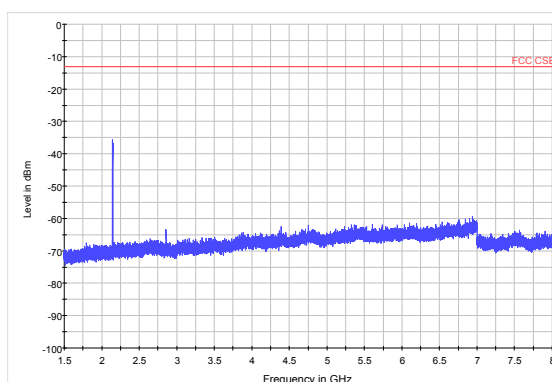
LTE Band 12 1.4MHz CH-Middle 1.5GHz~8GHz



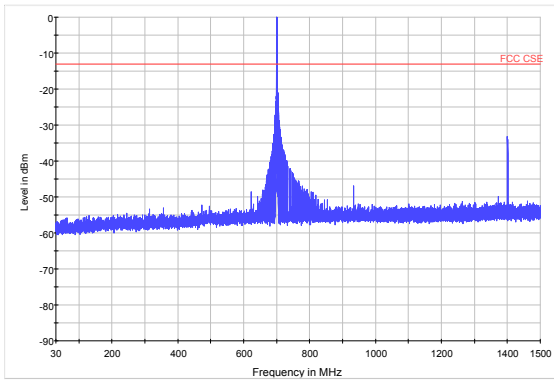
LTE Band 12 1.4MHz CH-High 30MHz~1.5GHz



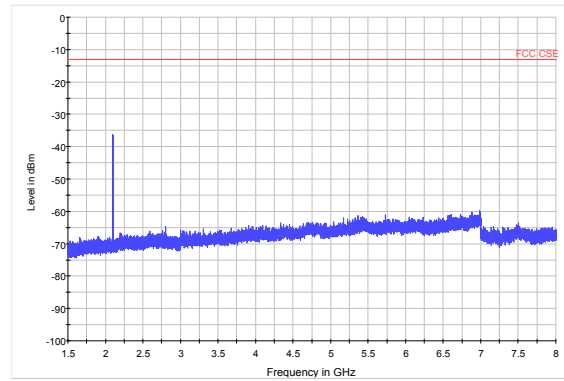
LTE Band 12 1.4MHz CH-High 1.5GHz~8GHz



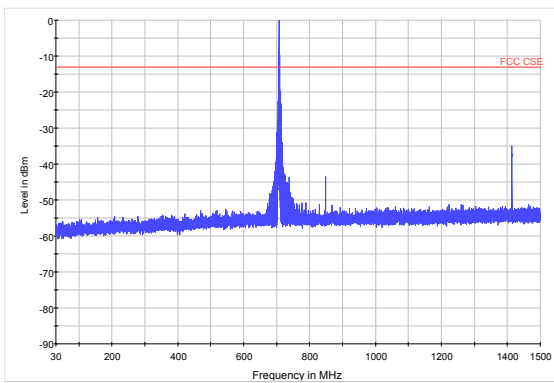
LTE Band 12 3MHz CH-Low 30MHz~1.5GHz



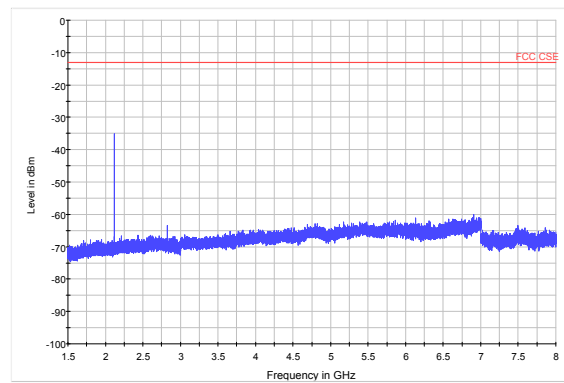
LTE Band 12 3MHz CH-Low 1.5GHz~8GHz



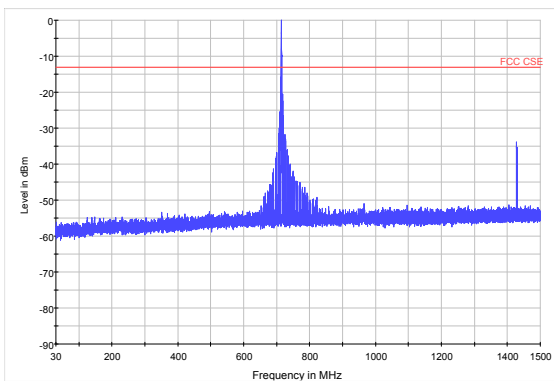
LTE Band 12 3MHz CH-Middle 30MHz~1.5GHz



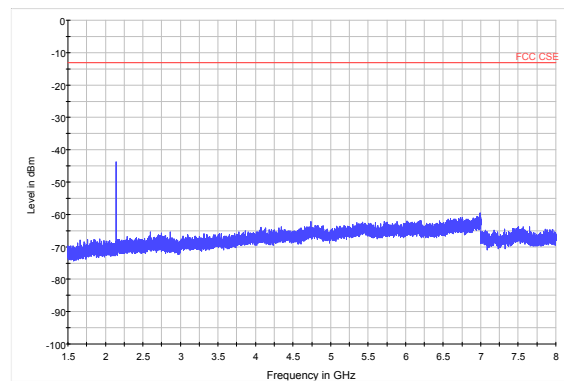
LTE Band 12 3MHz CH-Middle 1.5GHz~8GHz



LTE Band 12 3MHz CH-High 30MHz~1.5GHz

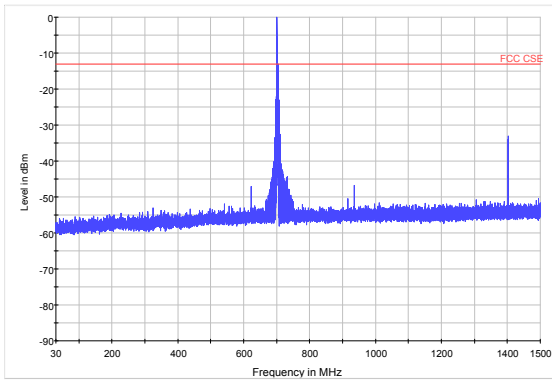


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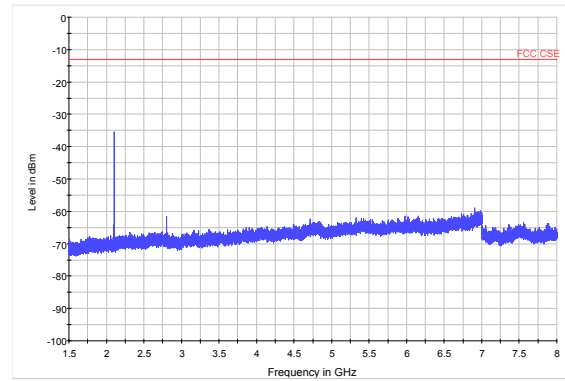




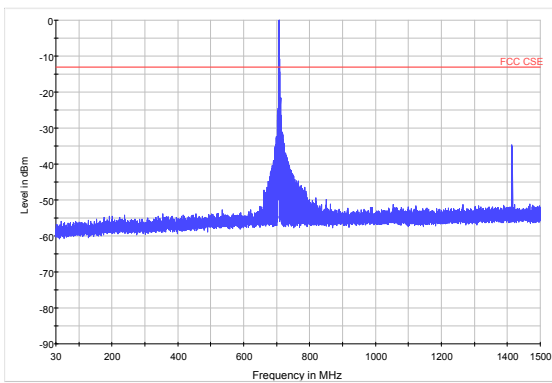
LTE Band 12 5MHz CH-Low 30MHz~1.5GHz



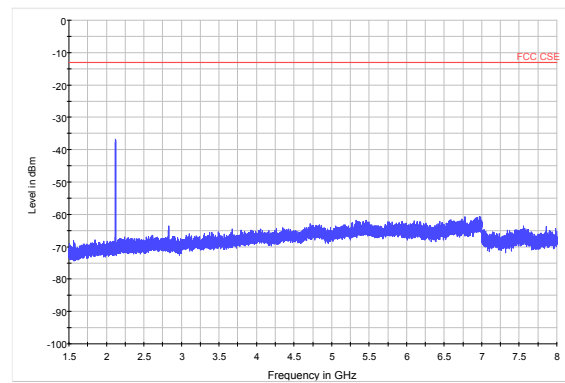
LTE Band 12 5MHz CH-Low 1.5GHz~8GHz



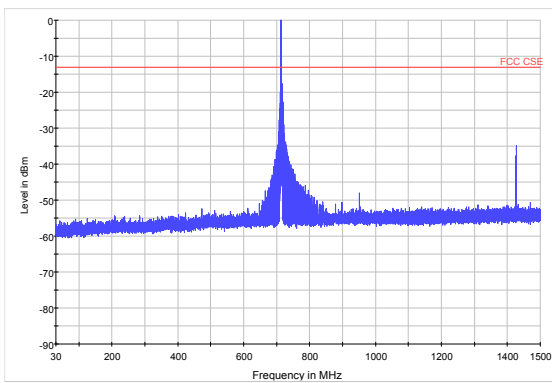
LTE Band 12 5MHz CH-Middle 30MHz~1.5GHz



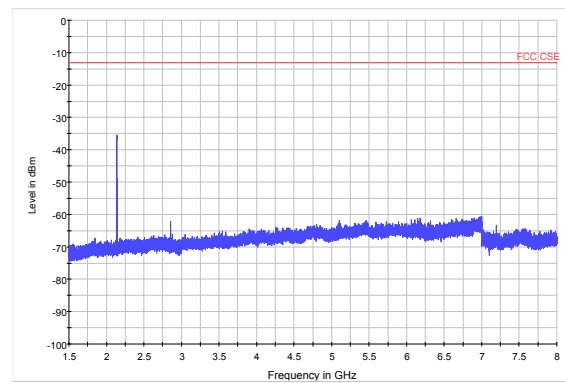
LTE Band 12 5MHz CH-Middle 1.5GHz~8GHz



LTE Band 12 5MHz CH-High 30MHz~1.5GHz

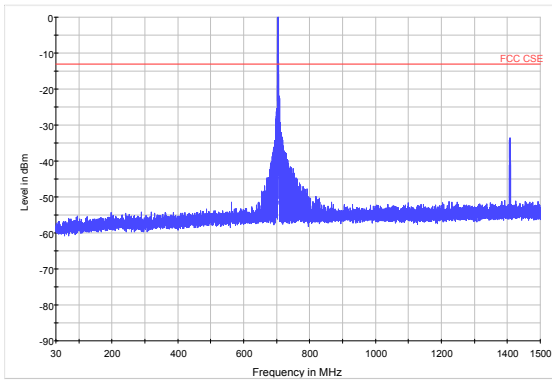


LTE Band 12 5MHz CH-High 1.5GHz~8GHz

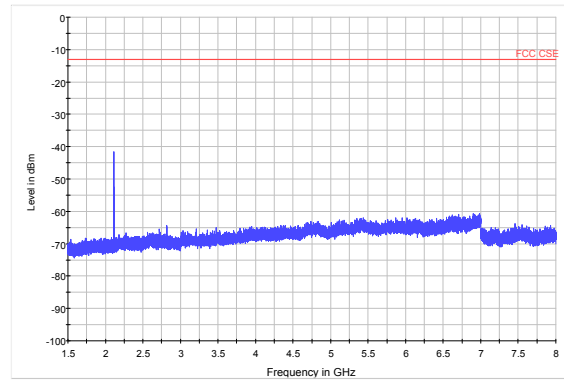




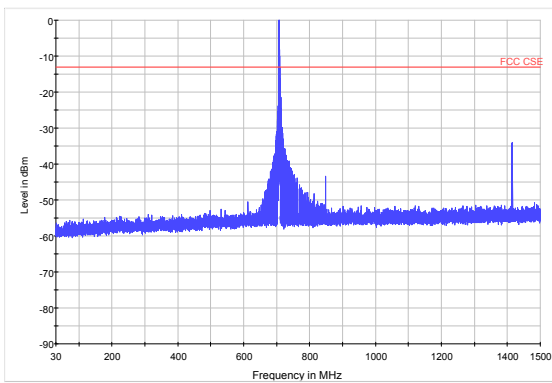
LTE Band 12 10MHz CH-Low 30MHz~1.5GHz



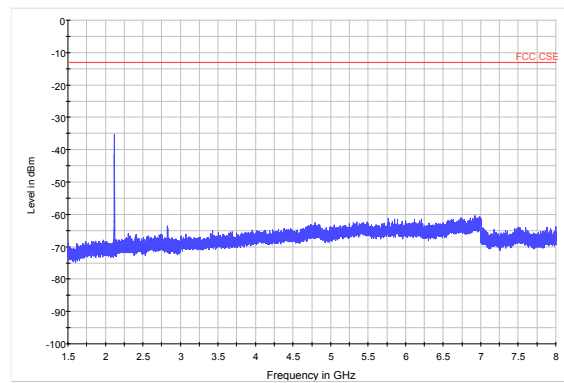
LTE Band 12 10MHz CH-Low 1.5GHz~8GHz



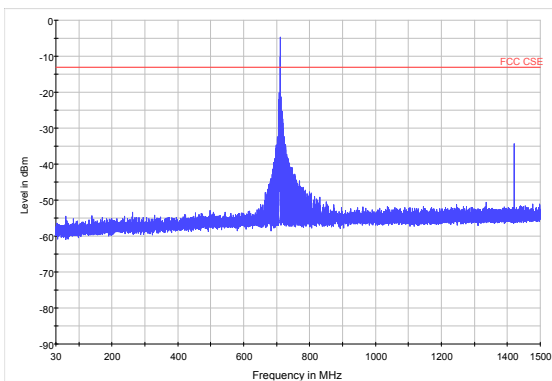
LTE Band 12 10MHz CH-Middle 30MHz~1.5GHz



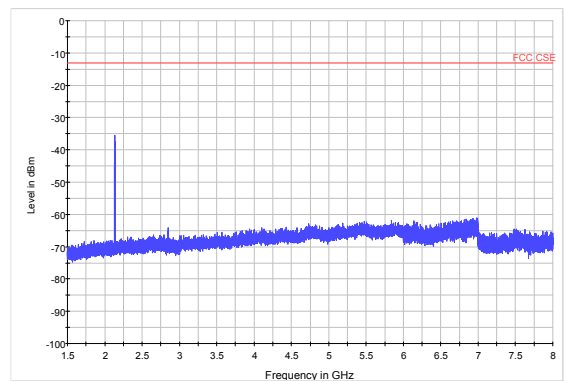
LTE Band 12 10MHz CH-Middle 1.5GHz~8GHz



LTE Band 12 10MHz CH-High 30MHz~1.5GHz

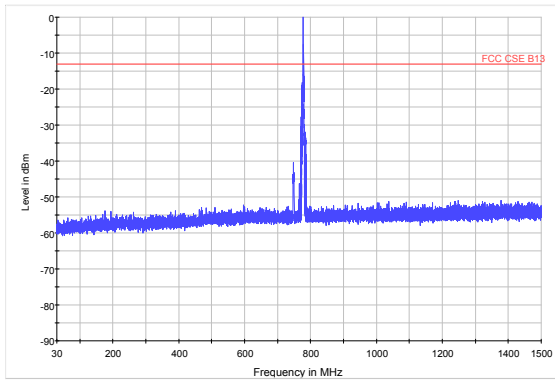


LTE Band 12 10MHz CH-High 1.5GHz~8GHz

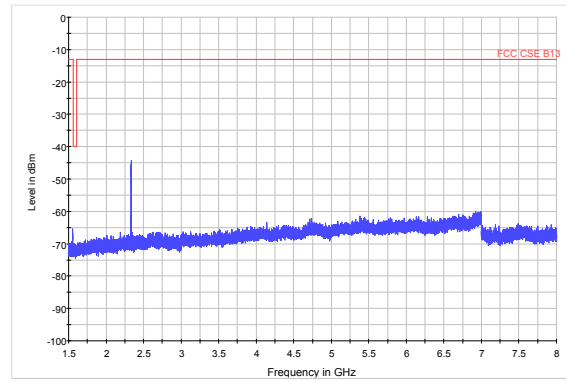




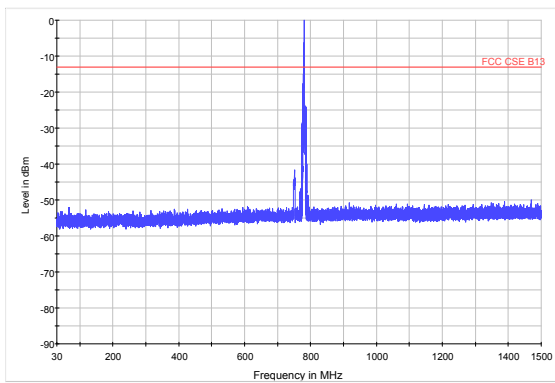
LTE Band 13 5MHz CH-Low 30MHz~1.5GHz



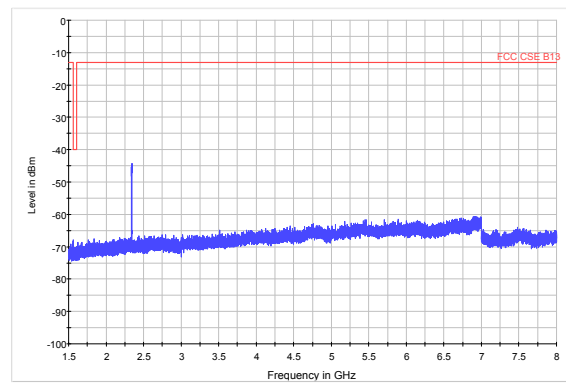
LTE Band 13 5MHz CH-Low 1.5GHz~8GHz



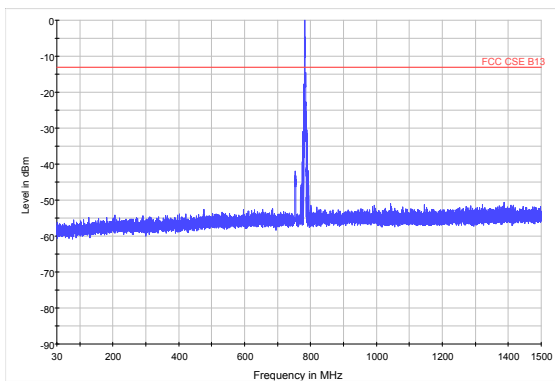
LTE Band 13 5MHz CH-Middle 30MHz~1.5GHz



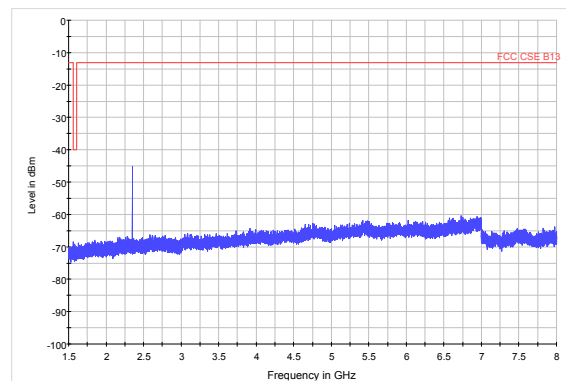
LTE Band 13 5MHz CH-Middle 1.5GHz~8GHz



LTE Band 13 5MHz CH-High 30MHz~1.5GHz

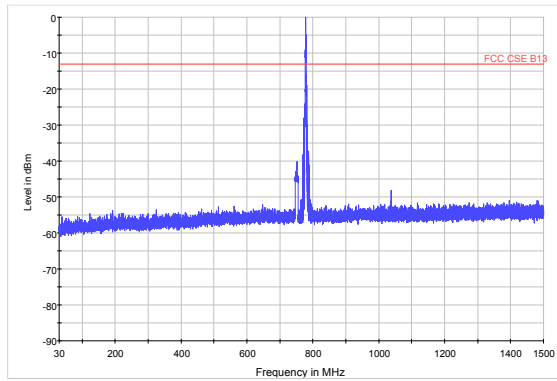


LTE Band 13 5MHz CH-High 1.5GHz~8GHz

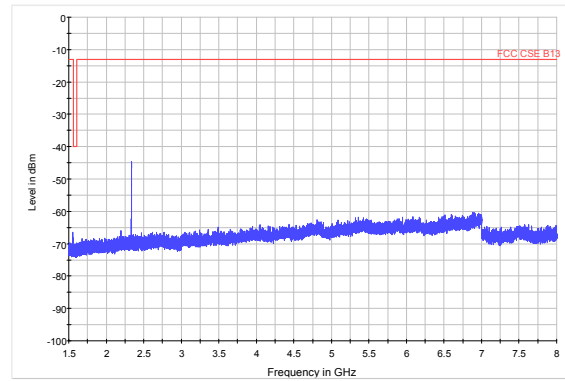




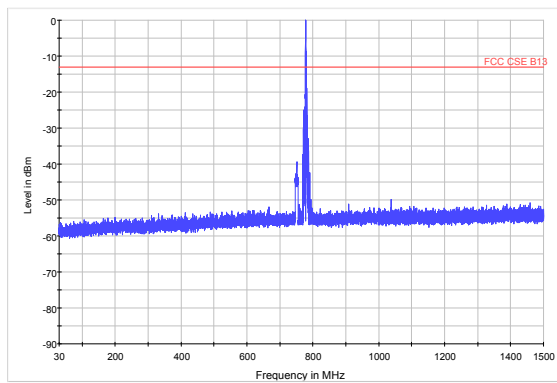
LTE Band 13 10MHz CH-Low 30MHz~1.5GHz



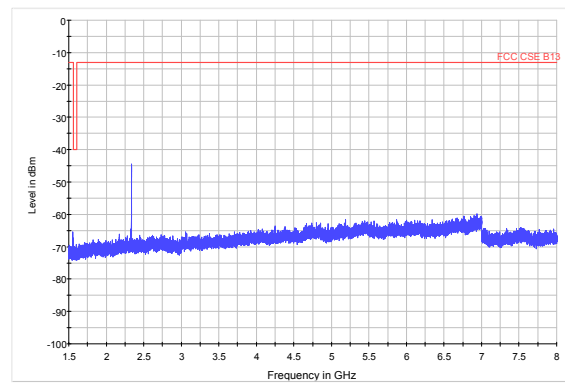
LTE Band 13 10MHz CH-Low 1.5GHz~8GHz



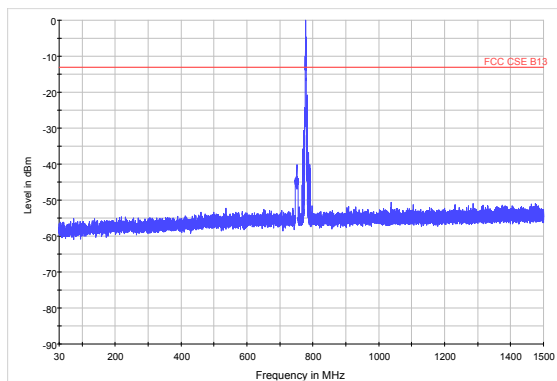
LTE Band 13 10MHz CH-Middle 30MHz~1.5GHz



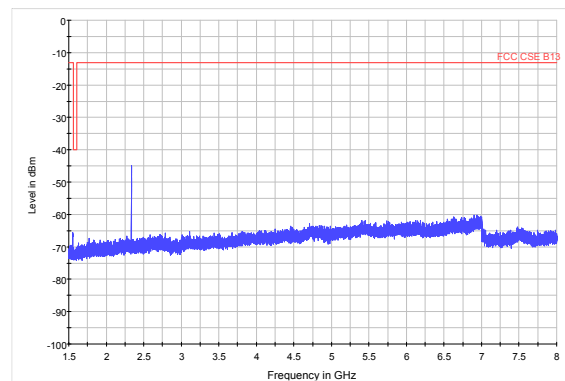
LTE Band 13 10MHz CH-Middle 1.5GHz~8GHz



LTE Band 13 10MHz CH-High 30MHz~1.5GHz



LTE Band 13 10MHz CH-High 1.5GHz~8GHz



4.8 Radiates Spurious Emission

Ambient condition

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

Method of Measurement

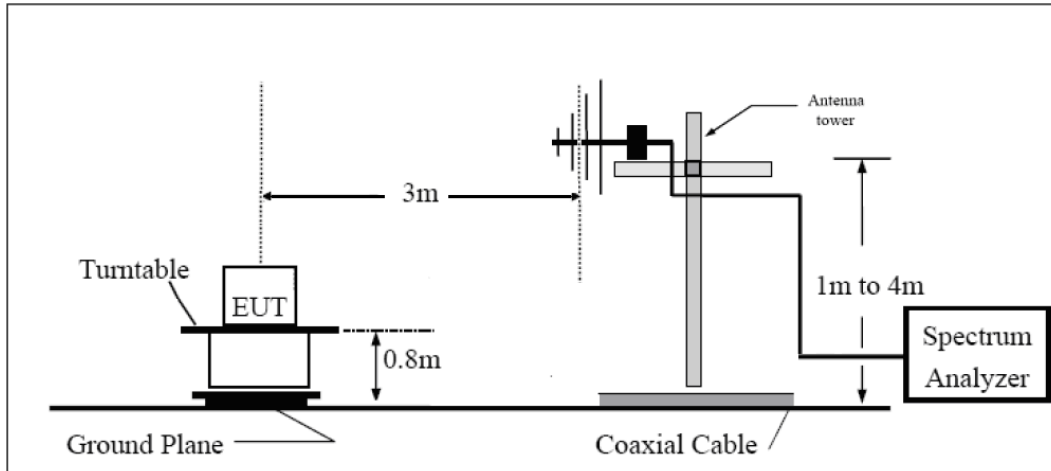
1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and **ANSI/TIA-603-E-2016**.
2. Above 30MHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable 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:

$$\text{Power(EIRP)} = \text{PMea} - \text{PAG} - \text{Pcl} + \text{Ga}$$
 The measurement results are amend as described below:

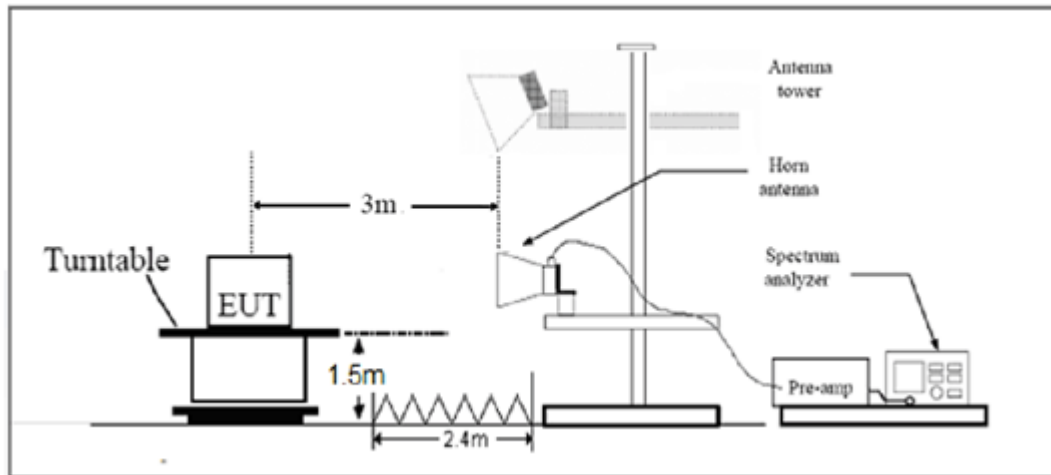
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dBi}$.

Test setup

30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT lie-down stand-up position (X, Y axis), lie-down position (Z 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

LTE -4 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 $43 + 10 \log_{10} (P)$ dB..”

LTE -12 Rule Part 27.53 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 +$

10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

LTE -13 Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

LTE B4/12 Limit

Limit	-13 dBm
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LTE B13 Limit

Limit out of the band 1559-1610 MHz	-13 dBm
Limit in the band 1559-1610 MHz	-40 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

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	-34.50	2.6	10.15	Vertical	-29.1	-13.0	16.1	225
3	5132.1	-54.70	2.4	11.35	Vertical	-47.9	-13.0	34.9	45
4	6842.8	-49.10	4.5	10.85	Vertical	-44.9	-13.0	31.9	90
5	8553.5	-55.80	5.1	11.35	Vertical	-51.7	-13.0	38.7	270
6	10264.2	-54.50	5.3	11.95	Vertical	-50.0	-13.0	37.0	180
7	11974.9	-55.00	5.5	13.55	Vertical	-49.1	-13.0	36.1	315
8	13685.6	-51.80	6.3	13.75	Vertical	-46.5	-13.0	33.5	90
9	15396.3	-53.50	6.7	13.85	Vertical	-48.5	-13.0	35.5	135
10	17107.0	-51.50	6.8	14.25	Vertical	-46.2	-13.0	33.2	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	-35.40	2.6	10.75	Vertical	-29.4	-13.0	16.4	135
3	5197.5	-54.60	2.4	11.05	Vertical	-48.1	-13.0	35.1	225
4	6930.0	-48.00	4.5	11.15	Vertical	-43.5	-13.0	30.5	90
5	8662.5	-54.10	5.1	11.35	Vertical	-50.0	-13.0	37.0	270
6	10395.0	-53.80	5.3	11.95	Vertical	-49.3	-13.0	36.3	315
7	12127.5	-54.90	5.5	13.55	Vertical	-49.0	-13.0	36.0	90
8	13860.0	-51.60	6.3	13.75	Vertical	-46.3	-13.0	33.3	45
9	15592.5	-54.40	6.7	13.85	Vertical	-49.4	-13.0	36.4	180
10	17325.0	-51.50	6.8	14.25	Vertical	-46.2	-13.0	33.2	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 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	-35.30	2.6	10.15	Vertical	-29.9	-13.0	16.9	270
3	5262.9	-54.60	2.4	11.05	Vertical	-48.1	-13.0	35.1	90
4	7017.2	-47.70	4.5	11.15	Vertical	-43.2	-13.0	30.2	315
5	8771.5	-54.00	5.1	11.35	Vertical	-49.9	-13.0	36.9	45
6	10525.8	-52.70	5.3	11.95	Vertical	-48.2	-13.0	35.2	225
7	12280.1	-54.70	5.5	13.55	Vertical	-48.8	-13.0	35.8	90
8	14034.4	-50.80	6.3	13.75	Vertical	-45.5	-13.0	32.5	180
9	15788.7	-54.30	6.7	13.85	Vertical	-49.3	-13.0	36.3	45
10	17543.0	-52.10	6.8	14.25	Vertical	-46.8	-13.0	33.8	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	-34.00	2.6	10.15	Vertical	-28.6	-13.0	15.6	45
3	5134.5	-54.20	2.4	11.35	Vertical	-47.4	-13.0	34.4	270
4	6846.0	-49.40	4.5	10.85	Vertical	-45.2	-13.0	32.2	315
5	8557.5	-55.60	5.1	11.35	Vertical	-51.5	-13.0	38.5	135
6	10269.0	-53.90	5.3	11.95	Vertical	-49.4	-13.0	36.4	180
7	11980.5	-55.00	5.5	13.55	Vertical	-49.1	-13.0	36.1	225
8	13692.0	-52.80	6.3	13.75	Vertical	-47.5	-13.0	34.5	270
9	15403.5	-54.30	6.7	13.85	Vertical	-49.3	-13.0	36.3	90
10	17115.0	-51.70	6.8	14.25	Vertical	-46.4	-13.0	33.4	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	-29.90	2.6	10.75	Vertical	-23.9	-13.0	10.9	45
3	5197.5	-47.20	2.4	11.05	Vertical	-40.7	-13.0	27.7	270
4	6930.0	-43.00	4.5	11.15	Vertical	-38.5	-13.0	25.5	180
5	8662.5	-51.60	5.1	11.35	Vertical	-47.5	-13.0	34.5	135
6	10395.0	-53.40	5.3	11.95	Vertical	-48.9	-13.0	35.9	315
7	12127.5	-55.10	5.5	13.55	Vertical	-49.2	-13.0	36.2	180
8	13860.0	-51.00	6.3	13.75	Vertical	-45.7	-13.0	32.7	90
9	15592.5	-53.40	6.7	13.85	Vertical	-48.4	-13.0	35.4	225
10	17325.0	-51.60	6.8	14.25	Vertical	-46.3	-13.0	33.3	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	-35.90	2.6	10.15	Vertical	-30.5	-13.0	17.5	315
3	5260.5	-54.40	2.4	11.05	Vertical	-47.9	-13.0	34.9	45
4	7014.0	-49.70	4.5	11.15	Vertical	-45.2	-13.0	32.2	180
5	8767.5	-55.30	5.1	11.35	Vertical	-51.2	-13.0	38.2	270
6	10521.0	-53.20	5.3	11.95	Vertical	-48.7	-13.0	35.7	225
7	12274.5	-54.70	5.5	13.55	Vertical	-48.8	-13.0	35.8	180
8	14028.0	-51.00	6.3	13.75	Vertical	-45.7	-13.0	32.7	315
9	15781.5	-53.60	6.7	13.85	Vertical	-48.6	-13.0	35.6	90
10	17535.0	-52.10	6.8	14.25	Vertical	-46.8	-13.0	33.8	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	-28.80	2.6	10.15	Vertical	-23.4	-13.0	10.4	225
3	5137.5	-49.90	2.4	11.35	Vertical	-43.1	-13.0	30.1	135
4	6850.0	-46.40	4.5	10.85	Vertical	-42.2	-13.0	29.2	315
5	8562.5	-52.70	5.1	11.35	Vertical	-48.6	-13.0	35.6	180
6	10275.0	-54.60	5.3	11.95	Vertical	-50.1	-13.0	37.1	270
7	11987.5	-55.20	5.5	13.55	Vertical	-49.3	-13.0	36.3	315
8	13700.0	-52.70	6.3	13.75	Vertical	-47.4	-13.0	34.4	90
9	15412.5	-54.00	6.7	13.85	Vertical	-49.0	-13.0	36.0	45
10	17125.0	-51.50	6.8	14.25	Vertical	-46.2	-13.0	33.2	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	-30.30	2.6	10.75	Vertical	-24.3	-13.0	11.3	135
3	5197.5	-48.90	2.4	11.05	Vertical	-42.4	-13.0	29.4	225
4	6930.0	-45.00	4.5	11.15	Vertical	-40.5	-13.0	27.5	180
5	8662.5	-51.90	5.1	11.35	Vertical	-47.8	-13.0	34.8	90
6	10395.0	-53.40	5.3	11.95	Vertical	-48.9	-13.0	35.9	45
7	12127.5	-54.70	5.5	13.55	Vertical	-48.8	-13.0	35.8	270
8	13860.0	-51.40	6.3	13.75	Vertical	-46.1	-13.0	33.1	315
9	15592.5	-54.40	6.7	13.85	Vertical	-49.4	-13.0	36.4	90
10	17325.0	-51.60	6.8	14.25	Vertical	-46.3	-13.0	33.3	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 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	-29.60	2.6	10.15	Vertical	-24.2	-13.0	11.2	180
3	5257.5	-47.90	2.4	11.05	Vertical	-41.4	-13.0	28.4	315
4	7010.0	-43.90	4.5	11.15	Vertical	-39.4	-13.0	26.4	45
5	8762.5	-52.30	5.1	11.35	Vertical	-48.2	-13.0	35.2	225
6	10515.0	-53.10	5.3	11.95	Vertical	-48.6	-13.0	35.6	135
7	12267.5	-55.00	5.5	13.55	Vertical	-49.1	-13.0	36.1	270
8	14020.0	-50.90	6.3	13.75	Vertical	-45.6	-13.0	32.6	225
9	15772.5	-53.50	6.7	13.85	Vertical	-48.5	-13.0	35.5	90
10	17525.0	-51.90	6.8	14.25	Vertical	-46.6	-13.0	33.6	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	-29.40	2.6	10.15	Vertical	-24.0	-13.0	11.0	45
3	5145.0	-47.70	2.4	11.35	Vertical	-40.9	-13.0	27.9	315
4	6860.0	-42.20	4.5	10.85	Vertical	-38.0	-13.0	25.0	90
5	8575.0	-52.30	5.1	11.35	Vertical	-48.2	-13.0	35.2	225
6	10290.0	-54.30	5.3	11.95	Vertical	-49.8	-13.0	36.8	180
7	12005.0	-55.20	5.5	13.55	Vertical	-49.3	-13.0	36.3	45
8	13720.0	-51.90	6.3	13.75	Vertical	-46.6	-13.0	33.6	315
9	15435.0	-53.40	6.7	13.85	Vertical	-48.4	-13.0	35.4	270
10	17150.0	-52.00	6.8	14.25	Vertical	-46.7	-13.0	33.7	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 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	-29.10	2.6	10.75	Vertical	-23.1	-13.0	10.1	270
3	5197.5	-48.90	2.4	11.05	Vertical	-42.4	-13.0	29.4	315
4	6930.0	-42.60	4.5	11.15	Vertical	-38.1	-13.0	25.1	90
5	8662.5	-52.50	5.1	11.35	Vertical	-48.4	-13.0	35.4	135
6	10395.0	-54.20	5.3	11.95	Vertical	-49.7	-13.0	36.7	315
7	12127.5	-55.10	5.5	13.55	Vertical	-49.2	-13.0	36.2	180
8	13860.0	-51.00	6.3	13.75	Vertical	-45.7	-13.0	32.7	270
9	15592.5	-53.90	6.7	13.85	Vertical	-48.9	-13.0	35.9	315
10	17325.0	-51.00	6.8	14.25	Vertical	-45.7	-13.0	32.7	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	-28.90	2.6	10.15	Vertical	-23.5	-13.0	10.5	270
3	5250.0	-47.50	2.4	11.05	Vertical	-41.0	-13.0	28.0	225
4	7000.0	-39.60	4.5	11.15	Vertical	-35.1	-13.0	22.1	90
5	8750.0	-51.50	5.1	11.35	Vertical	-47.4	-13.0	34.4	270
6	10500.0	-53.10	5.3	11.95	Vertical	-48.6	-13.0	35.6	90
7	12250.0	-54.60	5.5	13.55	Vertical	-48.7	-13.0	35.7	45
8	14000.0	-51.30	6.3	13.75	Vertical	-46.0	-13.0	33.0	315
9	15750.0	-53.00	6.7	13.85	Vertical	-48.0	-13.0	35.0	90
10	17500.0	-51.30	6.8	14.25	Vertical	-46.0	-13.0	33.0	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	-30.30	2.6	10.15	Vertical	-24.9	-13.0	11.9	180
3	5152.5	-50.60	2.4	11.35	Vertical	-43.8	-13.0	30.8	45
4	6870.0	-44.10	4.5	10.85	Vertical	-39.9	-13.0	26.9	315
5	8587.5	-52.80	5.1	11.35	Vertical	-48.7	-13.0	35.7	270
6	10305.0	-53.90	5.3	11.95	Vertical	-49.4	-13.0	36.4	135
7	12022.5	-55.40	5.5	13.55	Vertical	-49.5	-13.0	36.5	45
8	13740.0	-51.00	6.3	13.75	Vertical	-45.7	-13.0	32.7	315
9	15457.5	-53.90	6.7	13.85	Vertical	-48.9	-13.0	35.9	90
10	17175.0	-51.90	6.8	14.25	Vertical	-46.6	-13.0	33.6	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	-30.90	2.6	10.75	Vertical	-24.9	-13.0	11.9	180
3	5197.5	-48.30	2.4	11.05	Vertical	-41.8	-13.0	28.8	45
4	6930.0	-43.60	4.5	11.15	Vertical	-39.1	-13.0	26.1	315
5	8662.5	-53.00	5.1	11.35	Vertical	-48.9	-13.0	35.9	270
6	10395.0	-54.10	5.3	11.95	Vertical	-49.6	-13.0	36.6	135
7	12127.5	-54.00	5.5	13.55	Vertical	-48.1	-13.0	35.1	270
8	13860.0	-51.50	6.3	13.75	Vertical	-46.2	-13.0	33.2	45
9	15592.5	-53.70	6.7	13.85	Vertical	-48.7	-13.0	35.7	315
10	17325.0	-51.90	6.8	14.25	Vertical	-46.6	-13.0	33.6	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	-29.10	2.6	10.15	Vertical	-23.7	-13.0	10.7	225
3	5242.5	-48.40	2.4	11.05	Vertical	-41.9	-13.0	28.9	180
4	6990.0	-40.20	4.5	11.15	Vertical	-35.7	-13.0	22.7	45
5	8737.5	-52.60	5.1	11.35	Vertical	-48.5	-13.0	35.5	315
6	10485.0	-53.60	5.3	11.95	Vertical	-49.1	-13.0	36.1	270
7	12232.5	-55.10	5.5	13.55	Vertical	-49.2	-13.0	36.2	135
8	13980.0	-51.70	6.3	13.75	Vertical	-46.4	-13.0	33.4	270
9	15727.5	-52.80	6.7	13.85	Vertical	-47.8	-13.0	34.8	45
10	17475.0	-51.40	6.8	14.25	Vertical	-46.1	-13.0	33.1	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	-30.10	2.6	10.15	Vertical	-24.7	-13.0	11.7	90
3	5160.0	-49.80	2.4	11.35	Vertical	-43.0	-13.0	30.0	225
4	6880.0	-43.20	4.5	10.85	Vertical	-39.0	-13.0	26.0	180
5	8600.0	-52.90	5.1	11.35	Vertical	-48.8	-13.0	35.8	45
6	10320.0	-53.90	5.3	11.95	Vertical	-49.4	-13.0	36.4	315
7	12040.0	-54.80	5.5	13.55	Vertical	-48.9	-13.0	35.9	270
8	13760.0	-52.10	6.3	13.75	Vertical	-46.8	-13.0	33.8	45
9	15480.0	-55.00	6.7	13.85	Vertical	-50.0	-13.0	37.0	315
10	17200.0	-51.60	6.8	14.25	Vertical	-46.3	-13.0	33.3	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	-30.60	2.6	10.75	Vertical	-24.6	-13.0	11.6	225
3	5197.5	-48.80	2.4	11.05	Vertical	-42.3	-13.0	29.3	180
4	6930.0	-45.80	4.5	11.15	Vertical	-41.3	-13.0	28.3	45
5	8662.5	-52.80	5.1	11.35	Vertical	-48.7	-13.0	35.7	315
6	10395.0	-53.60	5.3	11.95	Vertical	-49.1	-13.0	36.1	270
7	12127.5	-53.70	5.5	13.55	Vertical	-47.8	-13.0	34.8	135
8	13860.0	-51.60	6.3	13.75	Vertical	-46.3	-13.0	33.3	270
9	15592.5	-54.30	6.7	13.85	Vertical	-49.3	-13.0	36.3	45
10	17325.0	-51.70	6.8	14.25	Vertical	-46.4	-13.0	33.4	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	-27.50	2.6	10.15	Vertical	-22.1	-13.0	9.1	90
3	5235.0	-49.30	2.4	11.05	Vertical	-42.8	-13.0	29.8	225
4	6980.0	-41.10	4.5	11.15	Vertical	-36.6	-13.0	23.6	180
5	8725.0	-51.70	5.1	11.35	Vertical	-47.6	-13.0	34.6	45
6	10470.0	-53.20	5.3	11.95	Vertical	-48.7	-13.0	35.7	315
7	12215.0	-54.10	5.5	13.55	Vertical	-48.2	-13.0	35.2	270
8	13960.0	-51.20	6.3	13.75	Vertical	-45.9	-13.0	32.9	135
9	15705.0	-53.00	6.7	13.85	Vertical	-48.0	-13.0	35.0	270
10	17450.0	-51.80	6.8	14.25	Vertical	-46.5	-13.0	33.5	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 12 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	1399.40	-34.30	2.00	10.15	Vertical	-28.3	-13.0	15.3	270
3	2099.10	-40.00	2.50	11.35	Vertical	-33.3	-13.0	20.3	225
4	2798.80	-40.90	4.20	10.85	Vertical	-36.4	-13.0	23.4	180
5	3498.50	-54.70	5.20	11.35	Vertical	-50.7	-13.0	37.7	135
6	4198.20	-63.50	5.50	11.95	Vertical	-59.2	-13.0	46.2	270
7	4897.90	-63.70	5.70	13.55	Vertical	-58.0	-13.0	45.0	315
8	5597.60	-63.40	6.30	13.75	Vertical	-58.1	-13.0	45.1	315
9	6297.30	-60.70	6.80	13.85	Vertical	-55.8	-13.0	42.8	270
10	6997.00	-58.60	6.90	14.25	Vertical	-53.4	-13.0	40.4	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 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	1415.00	-40.60	2.00	10.75	Vertical	-34.0	-13.0	21.0	45
3	2122.50	-41.19	2.51	11.05	Vertical	-34.8	-13.0	21.8	315
4	2830.00	-44.80	4.20	11.15	Vertical	-40.0	-13.0	27.0	270
5	3537.50	-57.90	5.20	11.15	Vertical	-54.1	-13.0	41.1	315
6	4245.00	-64.20	5.50	11.95	Vertical	-59.9	-13.0	46.9	90
7	4952.50	-63.20	5.70	13.55	Vertical	-57.5	-13.0	44.5	225
8	5660.00	-63.10	6.30	13.75	Vertical	-57.8	-13.0	44.8	180
9	6367.50	-61.10	6.80	13.85	Vertical	-56.2	-13.0	43.2	45
10	7075.00	-58.80	6.90	14.25	Vertical	-53.6	-13.0	40.6	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 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	1430.60	-38.80	2.00	10.15	Vertical	-32.8	-13.0	19.8	135
3	2145.90	-39.39	2.51	11.05	Vertical	-33.0	-13.0	20.0	270
4	2861.20	-47.20	4.20	11.15	Vertical	-42.4	-13.0	29.4	315
5	3576.50	-61.70	5.20	11.15	Vertical	-57.9	-13.0	44.92	270
6	4291.80	-63.30	5.50	11.95	Vertical	-59.0	-13.0	46.03	135
7	5007.10	-62.50	5.70	13.55	Vertical	-56.8	-13.0	43.81	270
8	5722.40	-62.40	6.30	13.75	Vertical	-57.1	-13.0	44.12	315
9	6437.70	-60.40	6.80	13.85	Vertical	-55.5	-13.0	42.51	225
10	7153.00	-57.80	6.90	14.25	Vertical	-52.6	-13.0	39.61	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 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	1401.00	-39.80	2.00	10.15	Vertical	-33.8	-13.0	20.8	135
3	2101.50	-40.39	2.51	11.35	Vertical	-33.7	-13.0	20.7	270
4	2802.00	-37.10	4.20	10.85	Vertical	-32.6	-13.0	19.6	315
5	3502.50	-57.50	5.20	11.35	Vertical	-53.5	-13.0	40.50	45
6	4203.00	-64.30	5.50	11.95	Vertical	-60.0	-13.0	47.00	225
7	4903.50	-63.80	5.70	13.55	Vertical	-58.1	-13.0	45.08	180
8	5604.00	-63.00	6.30	13.75	Vertical	-57.7	-13.0	44.75	45
9	6304.50	-61.10	6.80	13.85	Vertical	-56.2	-13.0	43.17	315
10	7005.00	-59.10	6.90	14.25	Vertical	-53.9	-13.0	40.88	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 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	1415.00	-42.20	2.00	10.75	Vertical	-35.6	-13.0	22.6	90
3	2122.50	-45.09	2.51	11.05	Vertical	-38.7	-13.0	25.7	225
4	2830.00	-50.20	4.20	11.15	Vertical	-45.4	-13.0	32.4	225
5	3537.50	-60.80	5.20	11.15	Vertical	-57.0	-13.0	43.99	270
6	4245.00	-64.20	5.50	11.95	Vertical	-59.9	-13.0	46.91	45
7	4952.50	-64.20	5.70	13.55	Vertical	-58.5	-13.0	45.53	315
8	5660.00	-62.70	6.30	13.75	Vertical	-57.4	-13.0	44.38	90
9	6367.50	-60.80	6.80	13.85	Vertical	-55.9	-13.0	42.88	225
10	7075.00	-57.70	6.90	14.25	Vertical	-52.5	-13.0	39.50	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 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	1429.00	-39.30	2.00	10.15	Vertical	-33.3	-13.0	20.3	180
3	2143.50	-38.99	2.51	11.05	Vertical	-32.6	-13.0	19.6	45
4	2858.00	-45.70	4.20	11.15	Vertical	-40.9	-13.0	27.9	315
5	3572.50	-60.40	5.20	11.15	Vertical	-56.6	-13.0	43.63	45
6	4287.00	-63.60	5.50	11.95	Vertical	-59.3	-13.0	46.30	315
7	5001.50	-62.90	5.70	13.55	Vertical	-57.2	-13.0	44.15	270
8	5716.00	-61.90	6.30	13.75	Vertical	-56.6	-13.0	43.65	135
9	6430.50	-60.20	6.80	13.85	Vertical	-55.3	-13.0	42.29	270
10	7145.00	-57.50	6.90	14.25	Vertical	-52.3	-13.0	39.26	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 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	1403.00	-40.80	2.00	10.15	Vertical	-34.8	-13.0	21.8	270
3	2104.50	-44.90	2.50	11.35	Vertical	-38.2	-13.0	25.2	135
4	2806.00	-44.90	4.20	10.85	Vertical	-40.4	-13.0	27.4	270
5	3507.50	-61.50	5.20	11.35	Vertical	-57.5	-13.0	44.5	135
6	4209.00	-63.30	5.50	11.95	Vertical	-59.0	-13.0	46.0	270
7	4910.50	-63.80	5.70	13.55	Vertical	-58.1	-13.0	45.1	315
8	5612.00	-63.10	6.30	13.75	Vertical	-57.8	-13.0	44.8	315
9	6313.50	-61.20	6.80	13.85	Vertical	-56.3	-13.0	43.3	270
10	7015.00	-59.50	6.90	14.25	Vertical	-54.3	-13.0	41.3	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 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	1415.00	-42.10	2.00	10.75	Vertical	-35.5	-13.0	22.5	315
3	2122.50	-47.09	2.51	11.05	Vertical	-40.7	-13.0	27.7	135
4	2830.00	-52.30	4.20	11.15	Vertical	-47.5	-13.0	34.5	270
5	3537.50	-64.90	5.20	11.15	Vertical	-61.1	-13.0	48.1	315
6	4245.00	-63.80	5.50	11.95	Vertical	-59.5	-13.0	46.5	90
7	4952.50	-63.90	5.70	13.55	Vertical	-58.2	-13.0	45.2	225
8	5660.00	-63.20	6.30	13.75	Vertical	-57.9	-13.0	44.9	180
9	6367.50	-60.50	6.80	13.85	Vertical	-55.6	-13.0	42.6	45
10	7075.00	-58.30	6.90	14.25	Vertical	-53.1	-13.0	40.1	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 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	1427.00	-42.80	2.00	10.15	Vertical	-36.8	-13.0	23.8	315
3	2140.50	-43.69	2.51	11.05	Vertical	-37.3	-13.0	24.3	315
4	2854.00	-50.40	4.20	11.15	Vertical	-45.6	-13.0	32.6	270
5	3567.50	-64.20	5.20	11.15	Vertical	-60.4	-13.0	47.35	270
6	4281.00	-63.00	5.50	11.95	Vertical	-58.7	-13.0	45.69	135
7	4994.50	-62.30	5.70	13.55	Vertical	-56.6	-13.0	43.60	270
8	5708.00	-62.80	6.30	13.75	Vertical	-57.5	-13.0	44.47	315
9	6421.50	-60.80	6.80	13.85	Vertical	-55.9	-13.0	42.87	225
10	7135.00	-57.70	6.90	14.25	Vertical	-52.5	-13.0	39.52	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 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	1408.00	-33.50	2.00	10.15	Vertical	-27.5	-13.0	14.5	270
3	2112.00	-39.89	2.51	11.35	Vertical	-33.2	-13.0	20.2	45
4	2816.00	-36.70	4.20	10.85	Vertical	-32.2	-13.0	19.2	315
5	3520.00	-58.00	5.20	11.35	Vertical	-54.0	-13.0	40.96	45
6	4224.00	-62.90	5.50	11.95	Vertical	-58.6	-13.0	45.57	225
7	4928.00	-63.20	5.70	13.55	Vertical	-57.5	-13.0	44.49	180
8	5632.00	-63.10	6.30	13.75	Vertical	-57.8	-13.0	44.79	45
9	6336.00	-60.00	6.80	13.85	Vertical	-55.1	-13.0	42.12	315
10	7040.00	-58.10	6.90	14.25	Vertical	-52.9	-13.0	39.90	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 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	1415.00	-36.40	2.00	10.75	Vertical	-29.8	-13.0	16.8	90
3	2122.50	-41.39	2.51	11.05	Vertical	-35.0	-13.0	22.0	225
4	2830.00	-41.40	4.20	11.15	Vertical	-36.6	-13.0	23.6	180
5	3537.50	-61.10	5.20	11.15	Vertical	-57.3	-13.0	44.31	270
6	4245.00	-63.70	5.50	11.95	Vertical	-59.4	-13.0	46.44	45
7	4952.50	-63.40	5.70	13.55	Vertical	-57.7	-13.0	44.69	315
8	5660.00	-63.20	6.30	13.75	Vertical	-57.9	-13.0	44.93	90
9	6367.50	-60.50	6.80	13.85	Vertical	-55.6	-13.0	42.64	225
10	7075.00	-58.30	6.90	14.25	Vertical	-53.1	-13.0	40.08	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 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	1422.00	-34.10	2.00	10.15	Vertical	-28.1	-13.0	15.1	45
3	2133.00	-39.19	2.51	11.05	Vertical	-32.8	-13.0	19.8	315
4	2844.00	-60.90	4.20	11.15	Vertical	-56.1	-13.0	43.12	45
5	3555.00	-63.00	5.20	11.15	Vertical	-59.2	-13.0	46.21	315
6	4266.00	-62.20	5.50	11.95	Vertical	-57.9	-13.0	44.90	270
7	4977.00	-62.50	5.70	13.55	Vertical	-56.8	-13.0	43.78	135
8	5688.00	-60.80	6.30	13.75	Vertical	-55.5	-13.0	42.46	270
9	6399.00	-58.00	6.80	13.85	Vertical	-53.1	-13.0	40.09	315
10	7110.00	-61.30	6.90	14.25	Vertical	-56.1	-13.0	43.12	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.

LTE Band 13 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	1555.8	-45.10	2.00	10.15	Vertical	-39.1	-13.0	26.1	45
3	2338.5	-52.80	2.50	11.35	Vertical	-46.1	-13.0	33.1	315
4	3118.0	-62.60	4.20	10.85	Vertical	-58.1	-13.0	45.1	270
5	3897.5	-62.80	5.20	11.35	Vertical	-58.8	-13.0	45.8	315
6	4677.0	-62.80	5.50	11.95	Vertical	-58.5	-13.0	45.5	90
7	5456.5	-62.90	5.70	13.55	Vertical	-57.2	-13.0	44.2	180
8	6236.0	-61.40	6.30	13.75	Vertical	-56.1	-13.0	43.1	45
9	7015.5	-58.40	6.80	13.85	Vertical	-53.5	-13.0	40.5	45
10	7795.0	-57.30	6.90	14.25	Vertical	-52.1	-13.0	39.1	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 13 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	1564.0	-52.20	2.00	10.75	Vertical	-45.6	-40.0	5.6	135
3	2346.0	-46.79	2.51	11.05	Vertical	-40.4	-13.0	27.4	270
4	3128.0	-59.60	4.20	11.15	Vertical	-54.8	-13.0	41.8	135
5	3910.0	-63.60	5.20	11.15	Vertical	-59.8	-13.0	46.8	270
6	4692.0	-62.60	5.50	11.95	Vertical	-58.3	-13.0	45.3	315
7	5474.0	-62.80	5.70	13.55	Vertical	-57.1	-13.0	44.1	90
8	6256.0	-60.70	6.30	13.75	Vertical	-55.4	-13.0	42.4	180
9	7038.0	-58.40	6.80	13.85	Vertical	-53.5	-13.0	40.5	45
10	7820.0	-57.00	6.90	14.25	Vertical	-51.8	-13.0	38.8	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 13 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	1569.0	-51.00	2.00	10.15	Vertical	-45.0	-40.0	5.0	315
3	2353.5	-52.59	2.51	11.05	Vertical	-46.2	-13.0	33.2	90
4	3138.0	-60.10	4.20	11.15	Vertical	-55.3	-13.0	42.3	315
5	3922.5	-62.90	5.20	11.15	Vertical	-59.1	-13.0	46.1	270
6	4707.0	-62.40	5.50	11.95	Vertical	-58.1	-13.0	45.1	135
7	5491.5	-62.60	5.70	13.55	Vertical	-56.9	-13.0	43.9	135
8	6276.0	-61.20	6.30	13.75	Vertical	-55.9	-13.0	42.9	90
9	7060.5	-59.00	6.80	13.85	Vertical	-54.1	-13.0	41.1	225
10	7845.0	-57.30	6.90	14.25	Vertical	-52.1	-13.0	39.1	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 13 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	1556.5	-41.40	2.00	10.15	Vertical	-35.4	-13.0	22.4	180
3	2346.0	-53.69	2.51	11.35	Vertical	-47.0	-13.0	34.0	45
4	3128.0	-64.30	4.20	10.85	Vertical	-59.8	-13.0	46.8	45
5	3910.0	-63.30	5.20	11.35	Vertical	-59.3	-13.0	46.3	225
6	4692.0	-62.30	5.50	11.95	Vertical	-58.0	-13.0	45.0	180
7	5474.0	-62.80	5.70	13.55	Vertical	-57.1	-13.0	44.1	270
8	6256.0	-61.10	6.30	13.75	Vertical	-55.8	-13.0	42.8	45
9	7038.0	-58.80	6.80	13.85	Vertical	-53.9	-13.0	40.9	315
10	7820.0	-57.20	6.90	14.25	Vertical	-52.0	-13.0	39.0	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 13 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	1555.3	-38.80	2.00	10.75	Vertical	-32.2	-13.0	19.2	180
3	2346.0	-51.69	2.51	11.05	Vertical	-45.3	-13.0	32.3	45
4	3128.0	-63.90	4.20	11.15	Vertical	-59.1	-13.0	46.1	315
5	3910.0	-63.30	5.20	11.15	Vertical	-59.5	-13.0	46.5	270
6	4692.0	-62.00	5.50	11.95	Vertical	-57.7	-13.0	44.7	45
7	5474.0	-62.30	5.70	13.55	Vertical	-56.6	-13.0	43.6	225
8	6256.0	-60.80	6.30	13.75	Vertical	-55.5	-13.0	42.5	180
9	7038.0	-59.30	6.80	13.85	Vertical	-54.4	-13.0	41.4	45
10	7820.0	-57.60	6.90	14.25	Vertical	-52.4	-13.0	39.4	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 13 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	1556.0	-45.10	2.00	10.15	Vertical	-39.1	-13.0	26.1	45
3	2346.0	-52.69	2.51	11.05	Vertical	-46.3	-13.0	33.3	135
4	3128.0	-65.10	4.20	11.15	Vertical	-60.3	-13.0	47.3	180
5	3910.0	-63.70	5.20	11.15	Vertical	-59.9	-13.0	46.9	270
6	4692.0	-62.90	5.50	11.95	Vertical	-58.6	-13.0	45.6	45
7	5474.0	-62.10	5.70	13.55	Vertical	-56.4	-13.0	43.4	315
8	6256.0	-61.00	6.30	13.75	Vertical	-55.7	-13.0	42.7	45
9	7038.0	-58.00	6.80	13.85	Vertical	-53.1	-13.0	40.1	315
10	7820.0	-58.20	6.90	14.25	Vertical	-53.0	-13.0	40.0	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.

5 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Time
Base Station Simulator	R&S	CMW500	150415	2017-05-14	2018-05-13
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	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	2017-08-04	2018-02-03
Preamplifier	R&S	SCU18	102327	2017-06-18	2018-06-17