

5.4. Emission Mask

Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The average detector is used.

RBW is set to 51kHz, VBW is set to 100kHz for 5MHz, .

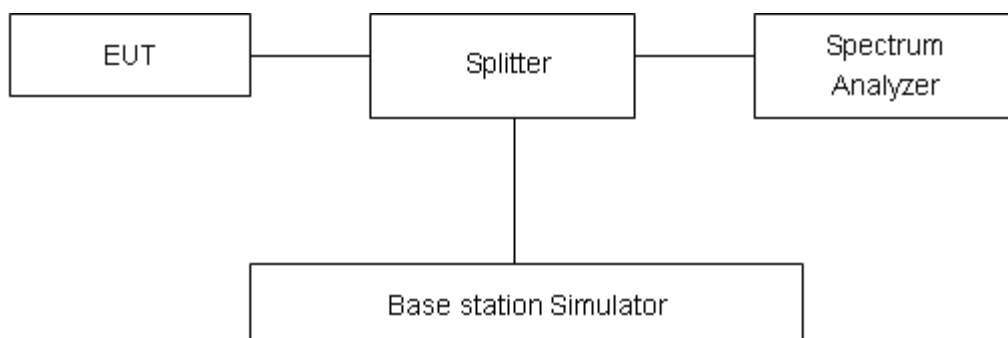
RBW is set to 100kHz, VBW is set to 300kHz for 10MHz,

RBW is set to 150kHz, VBW is set to 510kHz for 15MHz,

RBW is set to 200kHz, VBW is set to 620kHz for 20MHz.

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 90.210(b) For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least $43 + 10 \log (P)$ dB.

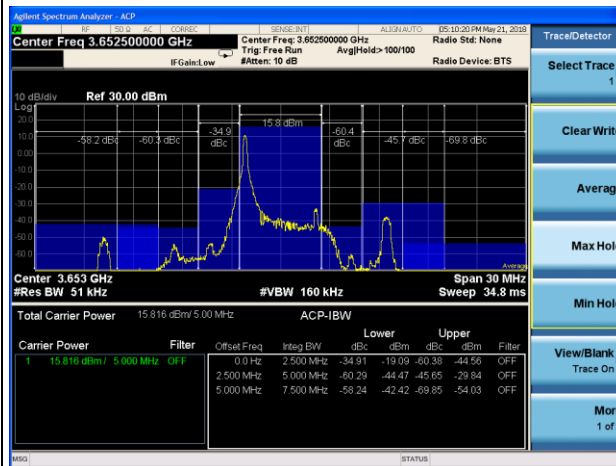
Rule Part 90.1323(a) The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

Measurement Uncertainty

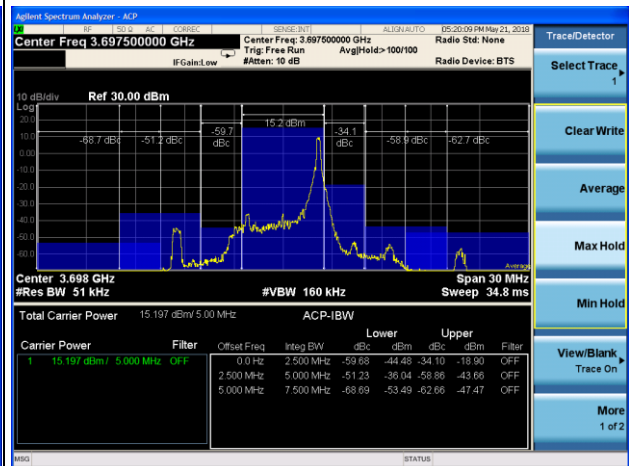
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684$ dB.

Test Result:

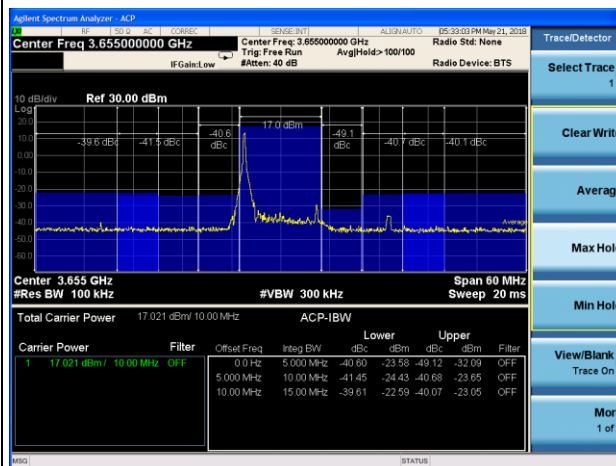
LTE Band 43 QPSK 1RB 5MHz CH Low



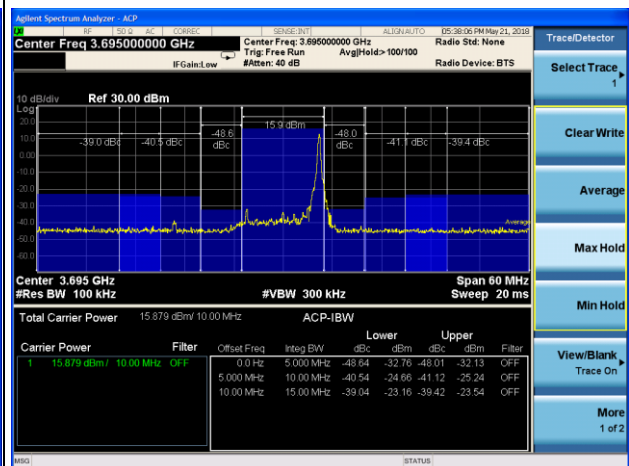
LTE Band 43 QPSK 1RB 5MHz CH High



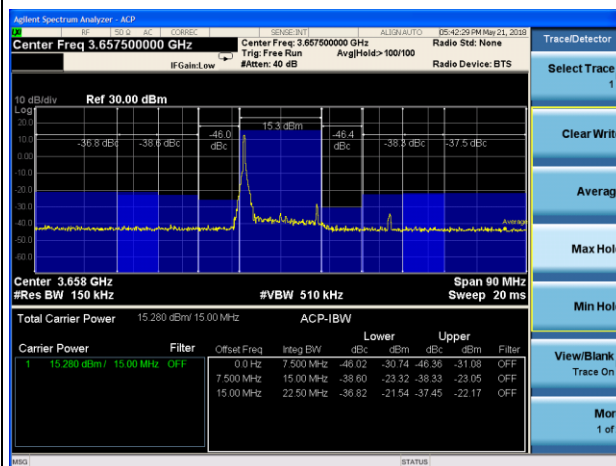
LTE Band 43 QPSK 1RB 10MHz CH Low



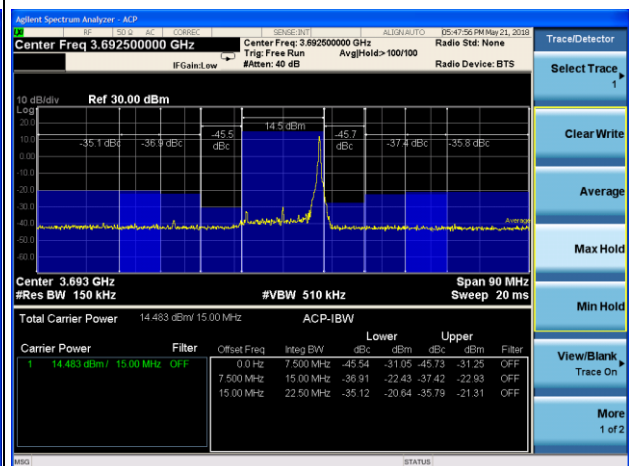
LTE Band 43 QPSK 1RB 10MHz CH High



LTE Band 43 QPSK 1RB 15MHz CH Low

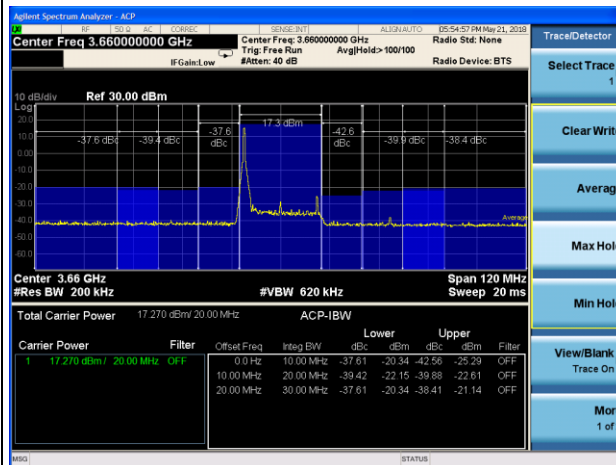


LTE Band 43 QPSK 1RB 15MHz CH High

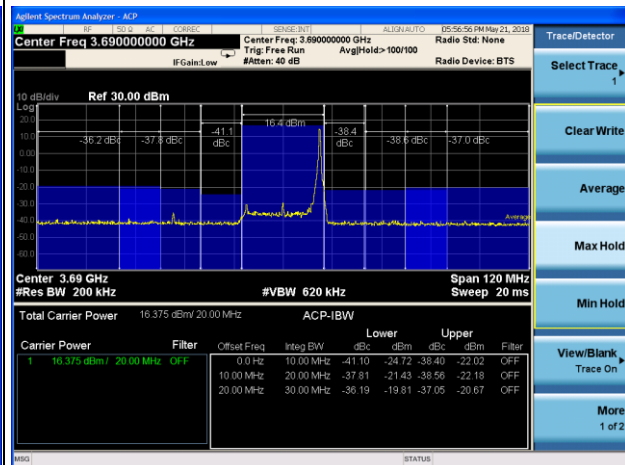




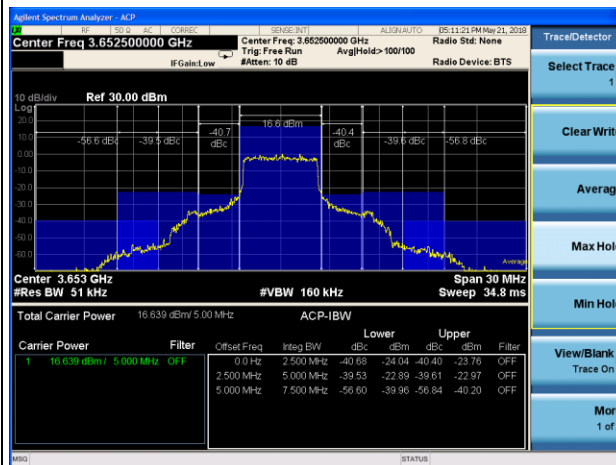
LTE Band 43 QPSK 1RB 20MHz CH Low



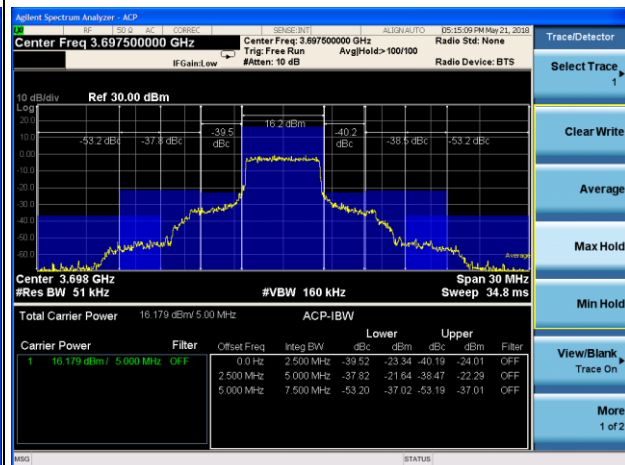
LTE Band 43 16QAM 1RB 20MHz CH High



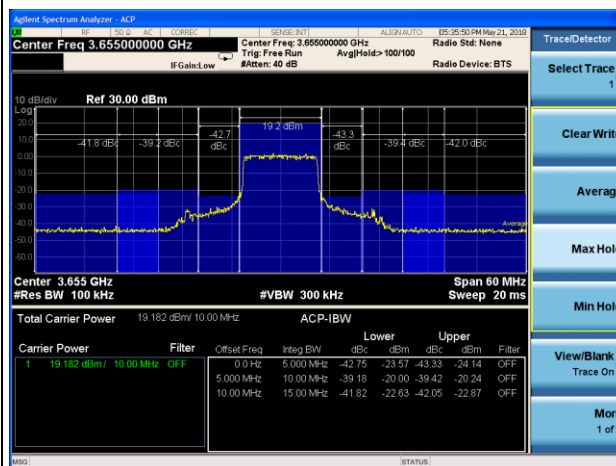
LTE Band 43 QPSK 100%RB 5MHz CH Low



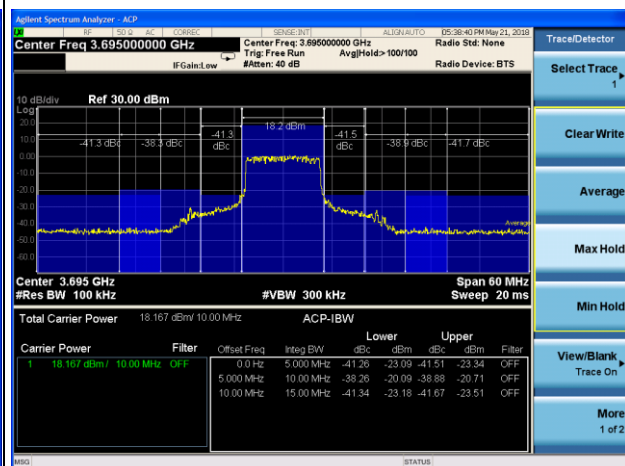
LTE Band 43 QPSK 100%RB 5MHz CH High



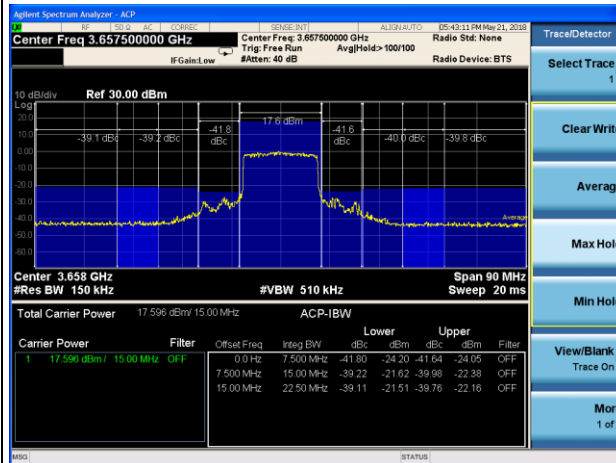
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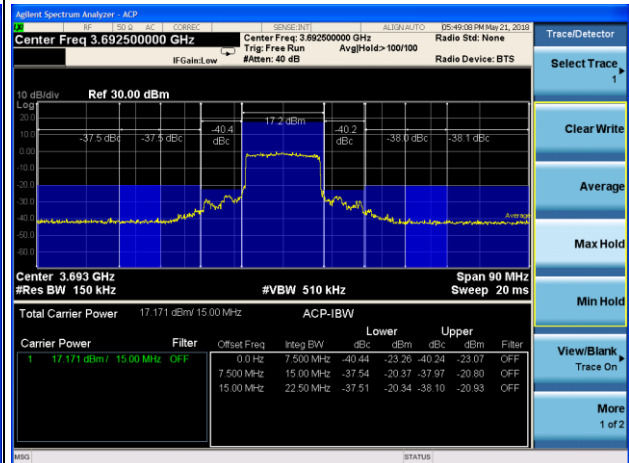
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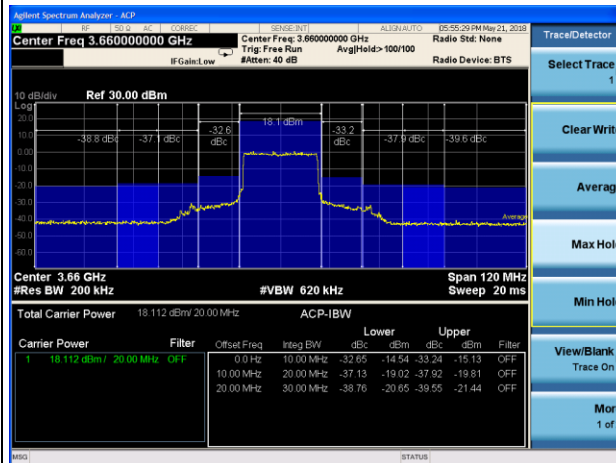
LTE Band 43 QPSK 100%RB 15MHz CH Low



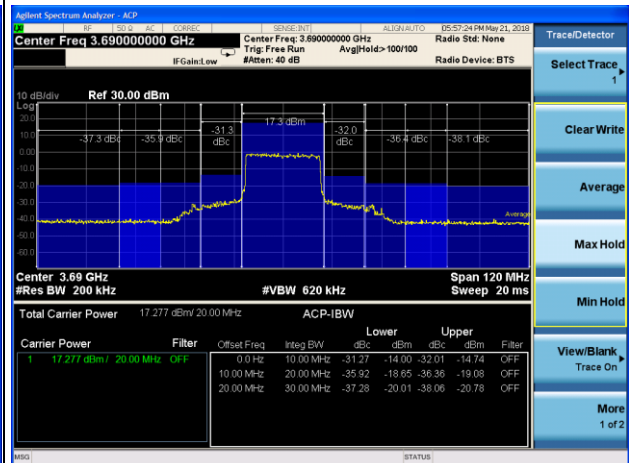
LTE Band 43 QPSK 100%RB 15MHz CH High



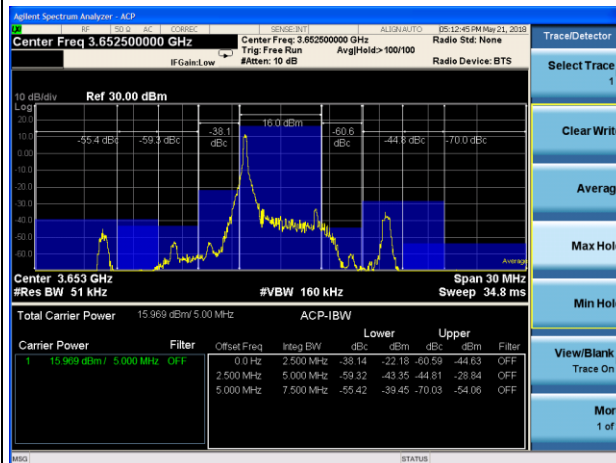
LTE Band 43 QPSK 100%RB 20MHz CH Low



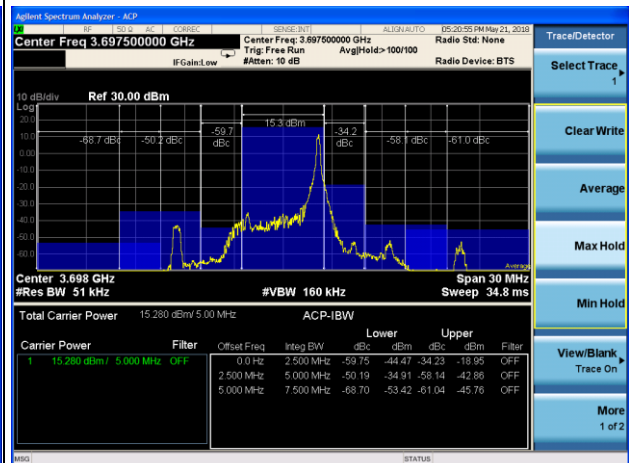
LTE Band 43 QPSK 100%RB 20MHz CH High



LTE Band 43 16QAM 1RB 5MHz CH Low

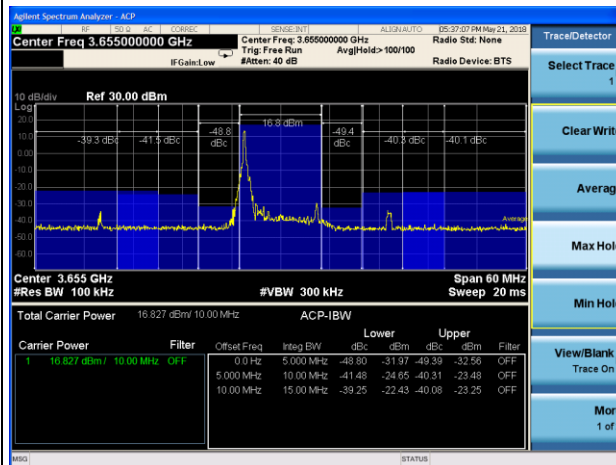


LTE Band 43 16QAM 1RB 5MHz CH High

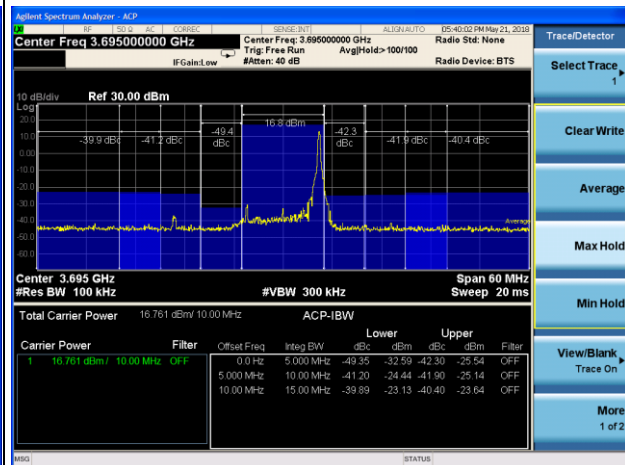




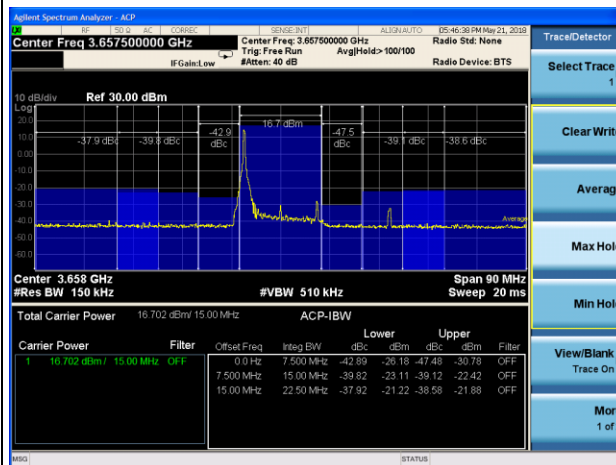
LTE Band 43 16QAM 1RB 10MHz CH Low



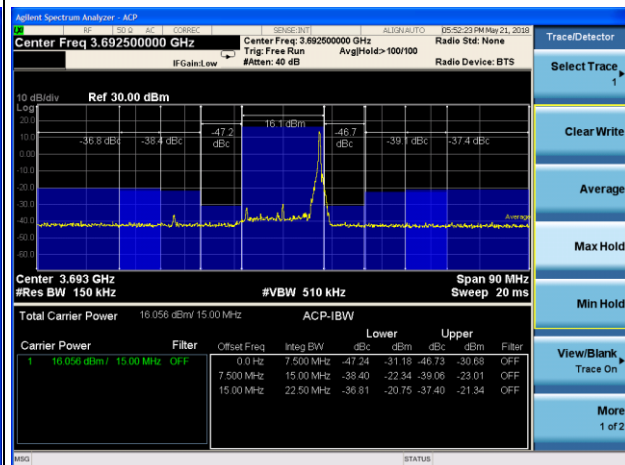
LTE Band 43 16QAM 1RB 10MHz CH High



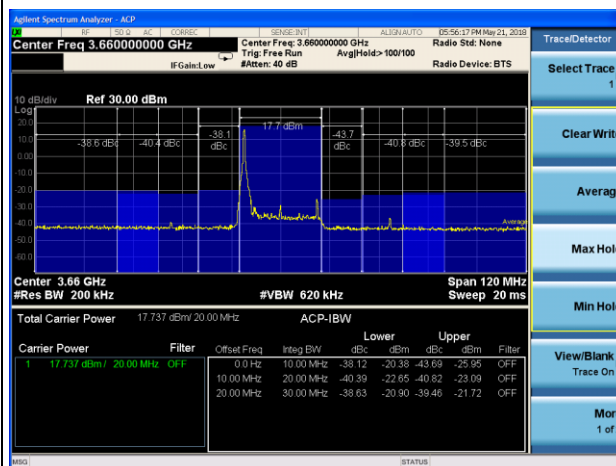
LTE Band 43 16QAM 1RB 15MHz CH Low



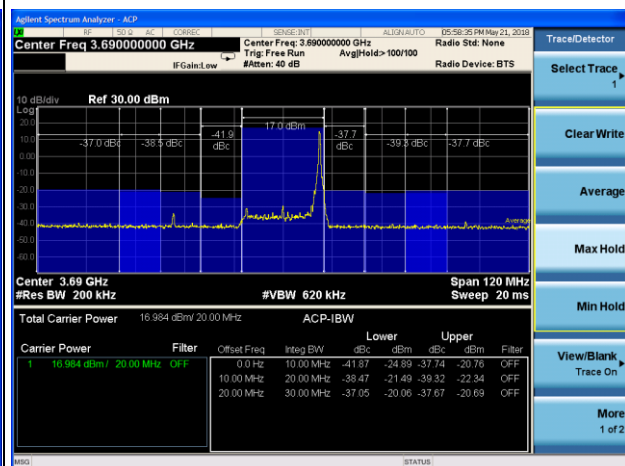
LTE Band 43 16QAM 1RB 15MHz CH High



LTE Band 43 16QAM 1RB 20MHz CH Low

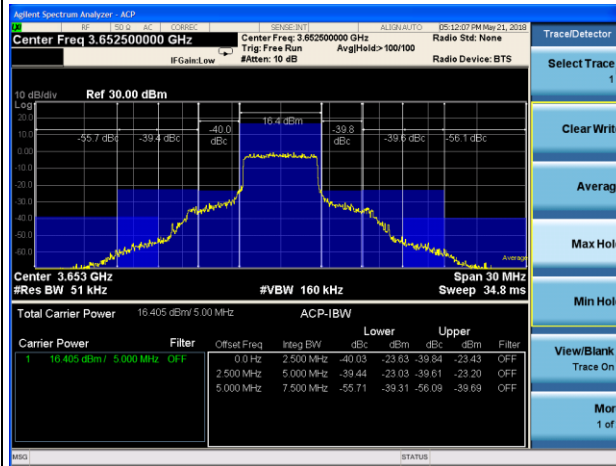


LTE Band 43 16QAM 1RB 20MHz CH High

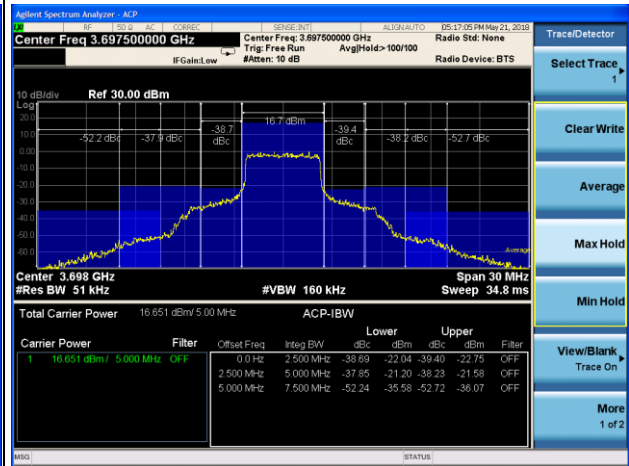




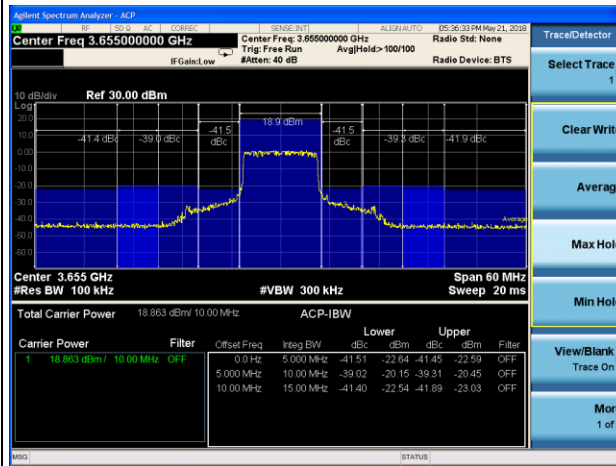
LTE Band 43 16QAM 100%RB 5MHz CH Low



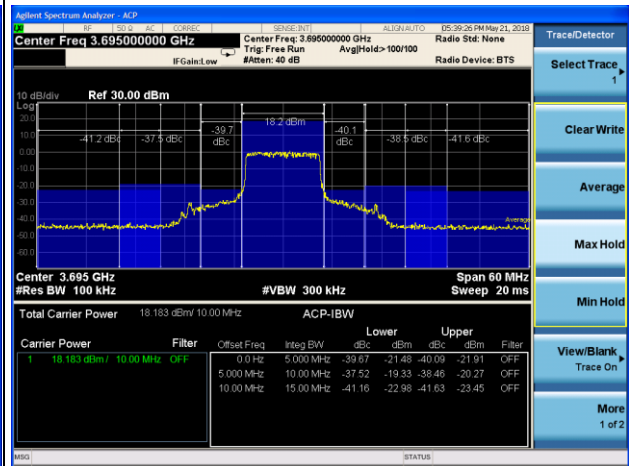
LTE Band 43 16QAM 100%RB 5MHz CH High



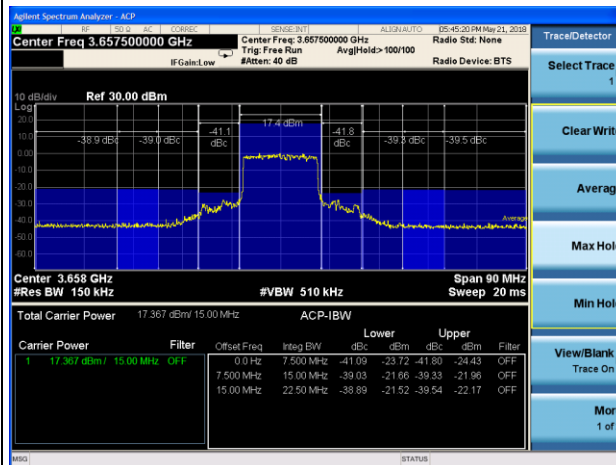
LTE Band 43 16QAM 100%RB 10MHz CH Low



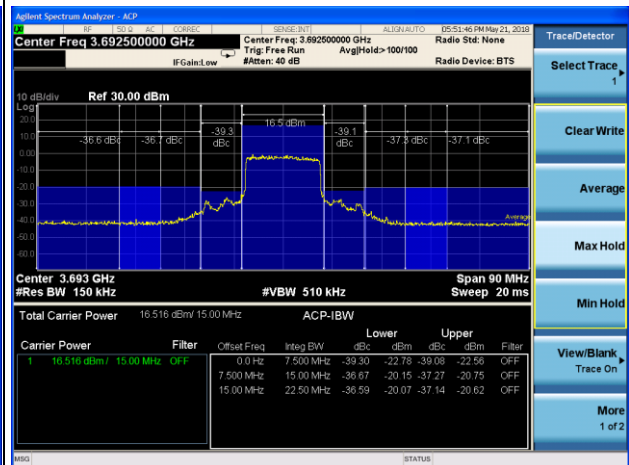
LTE Band 43 16QAM 100%RB 10MHz CH High



LTE Band 43 16QAM 100%RB 15MHz CH Low

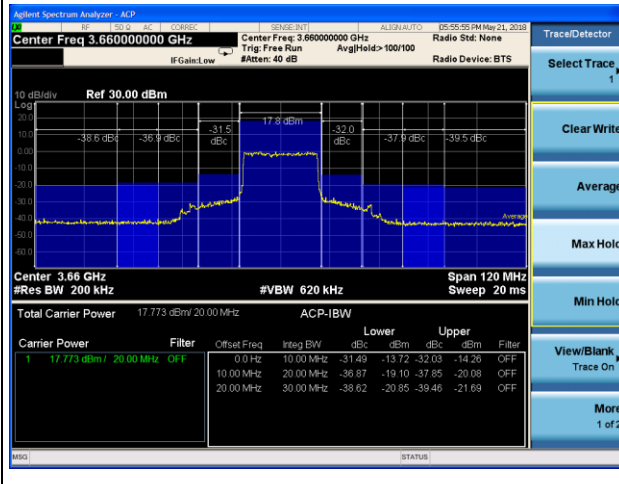


LTE Band 43 16QAM 100%RB 15MHz CH High

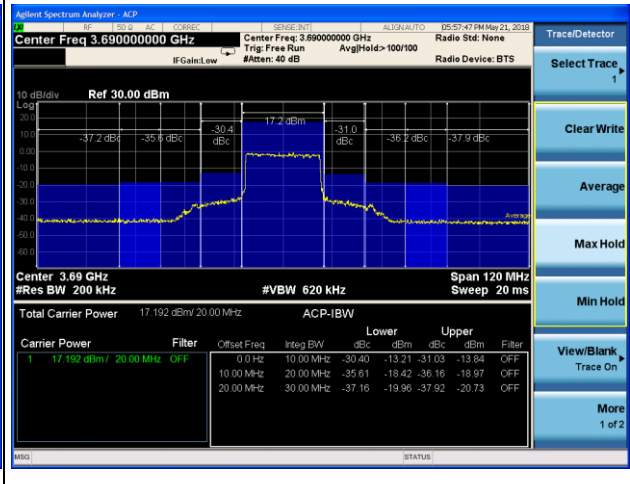




LTE Band 43 16QAM 100%RB 20MHz CH Low



LTE Band 43 16QAM 100%RB 20MHz CH High



5.5. Frequency Stability

Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

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 0°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)

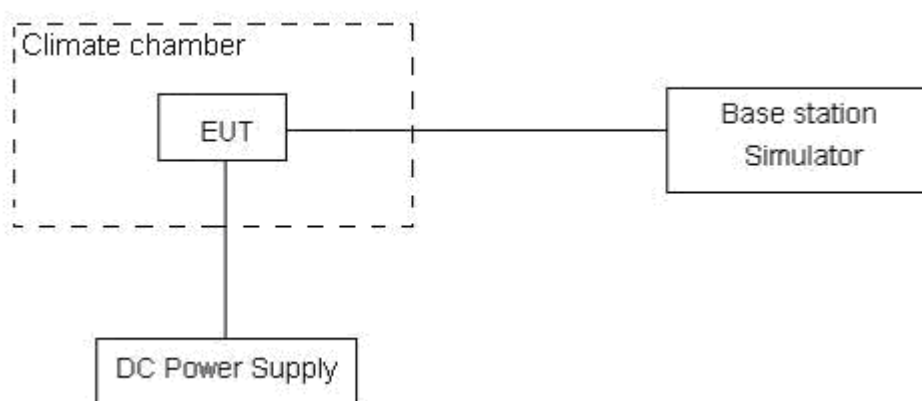
The frequency stability shall be measured with variation of primary supply voltage as follows:

(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 9 V and 13 V, with a nominal voltage of 12V.

Test setup



Limits

Requirements: FCC § 2.1055 (a)(d), The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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

LTE Band 43					
QPSK,(20MHz BANDWIDTH)					
Condition		3650	3700	Delta (Hz)	Frequency Stability (ppm)
Temperature	Voltage	F low@-13dBm (MHz)	F high@-13dBm (MHz)		
Normal (25°C)	Normal	3650.3146	3699.7833	8.73	0.00238
Extreme (50°C)		3650.3146	3699.7833	-4.67	-0.00127
Extreme (40°C)		3650.3146	3699.7833	1.02	0.00028
Extreme (30°C)		3650.3146	3699.7833	6.71	0.00183
Extreme (20°C)		3650.3146	3699.7833	2.66	0.00072
Extreme (10°C)		3650.3146	3699.7833	1.11	0.00030
Extreme (0°C)		3650.3146	3699.7833	0.54	0.00015
Extreme (-10°C)		3650.3146	3699.7833	0.15	0.00004
Extreme (-20°C)		3650.3146	3699.7833	9.72	0.00264
Extreme (-30°C)		3650.3146	3699.7833	5.89	0.00160
25°C	LV	3650.3146	3699.7833	-8.51	-0.00232
	HV	3650.3146	3699.7833	4.04	0.00110
16QAM,(20MHz BANDWIDTH)					
Condition		3650	3700	Delta (Hz)	Frequency Stability (ppm)
Temperature	Voltage	F low@-13dBm (MHz)	F high@-13dBm (MHz)		
Normal (25°C)	Normal	3650.3672	3699.7249	9.92	0.00270
Extreme (50°C)		3650.3672	3699.7249	-2.29	-0.00062
Extreme (40°C)		3650.3672	3699.7249	3.40	0.00093
Extreme (30°C)		3650.3672	3699.7249	9.09	0.00247
Extreme (20°C)		3650.3672	3699.7249	5.04	0.00137
Extreme (10°C)		3650.3672	3699.7249	2.30	0.00063
Extreme (0°C)		3650.3672	3699.7249	1.73	0.00047
Extreme (-10°C)		3650.3672	3699.7249	1.34	0.00036
Extreme (-20°C)		3650.3672	3699.7249	10.91	0.00297
Extreme (-30°C)		3650.3672	3699.7249	7.08	0.00193
25°C	LV	3650.3672	3699.7249	-7.32	-0.00199
	HV	3650.3672	3699.7249	5.23	0.00142

5.6. Spurious Emissions at Antenna Terminals

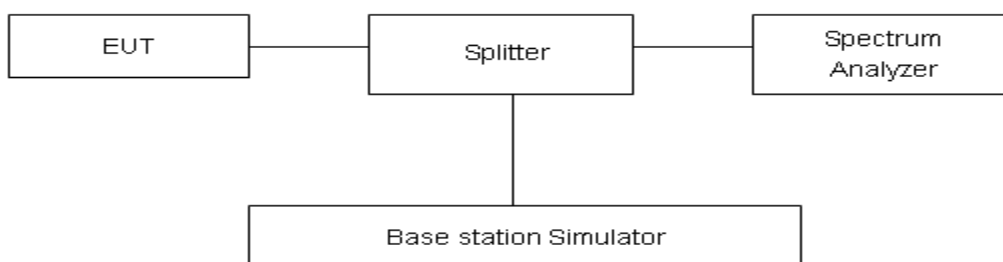
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

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 9kHz to the 10th harmonic of the carrier. The peak detector is used. RBW are set to 100 kHz and VBW are set to 300 kHz for below 1G, RBW are set to 1MHz and VBW are set to 3MHz for above 1G, Sweep is set to ATUO.

Test setup



Limits

Rule Part 2.1051&90.1323 specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

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

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-3GHz	1.407 dB
3GHz-40GHz	1.815 dB

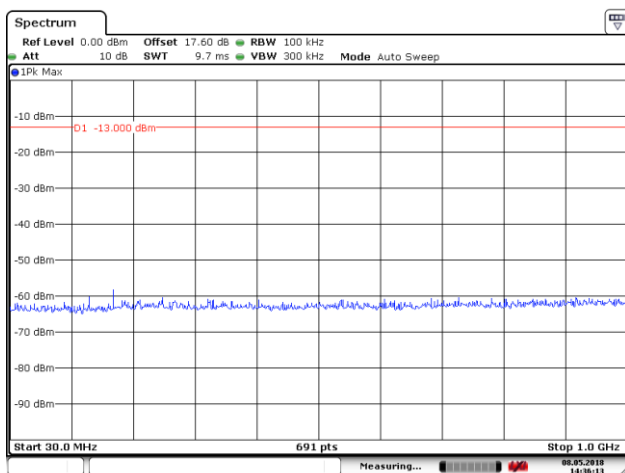
Test Result:

Sweep from 9 kHz to 30MHz, and the emissions more than 20 dB below the permissible value are not reported.

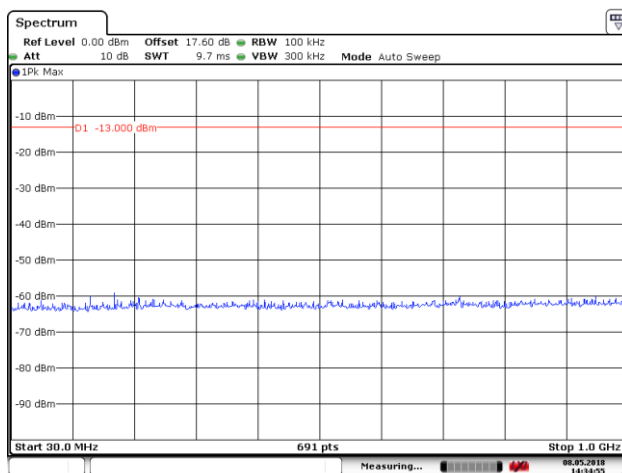
If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.

The signal beyond the limit is carrier in the following plots.

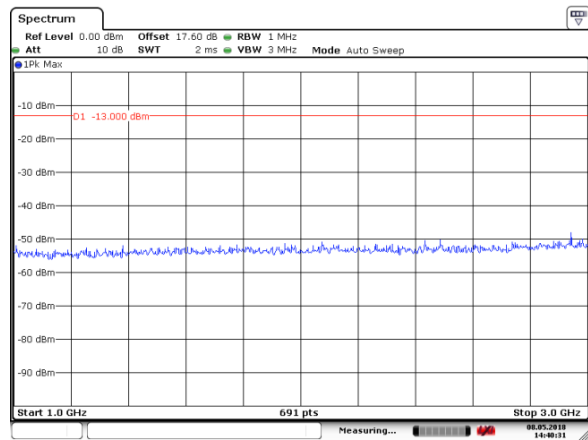
LTE Band 43 5MHz CH Low 30MHz~1GHz



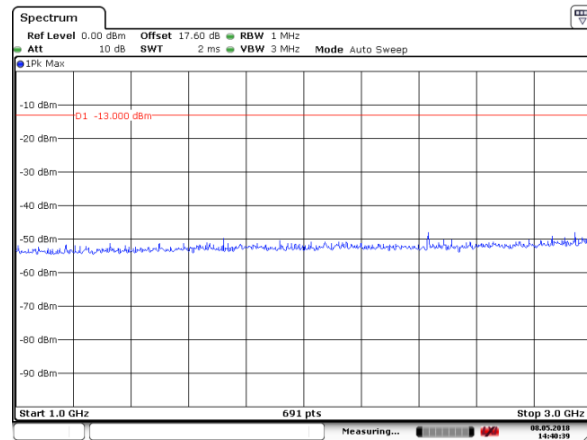
LTE Band 43 5MHz CH Middle 30MHz~1GHz



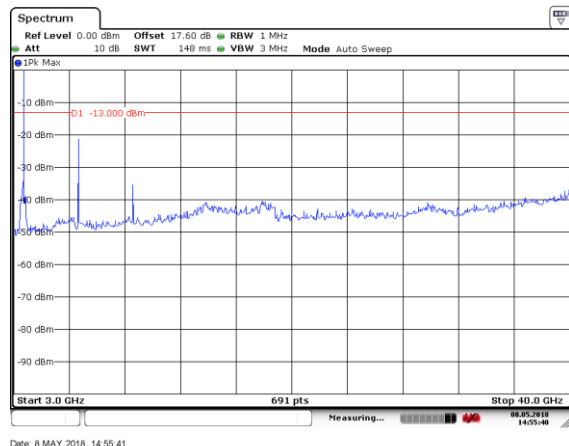
LTE Band 43 5MHz CH Low 1GHz~3GHz



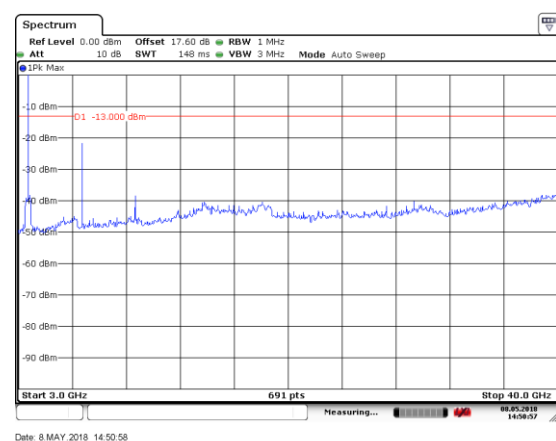
LTE Band 43 5MHz CH Middle 1GHz~3GHz



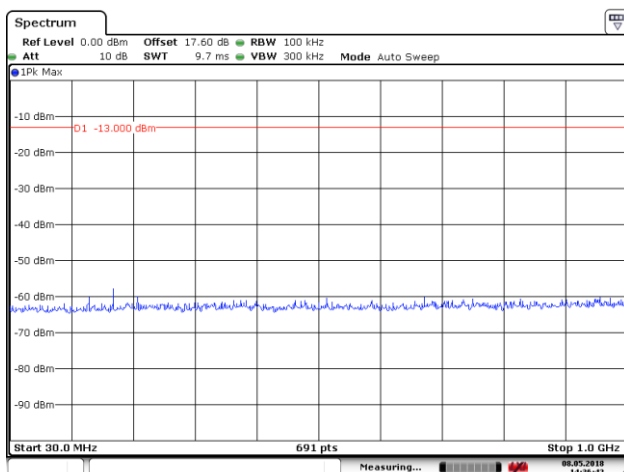
LTE Band 43 5MHz CH Low 3GHz~40GHz



LTE Band 43 5MHz CH Middle 3GHz~40GHz

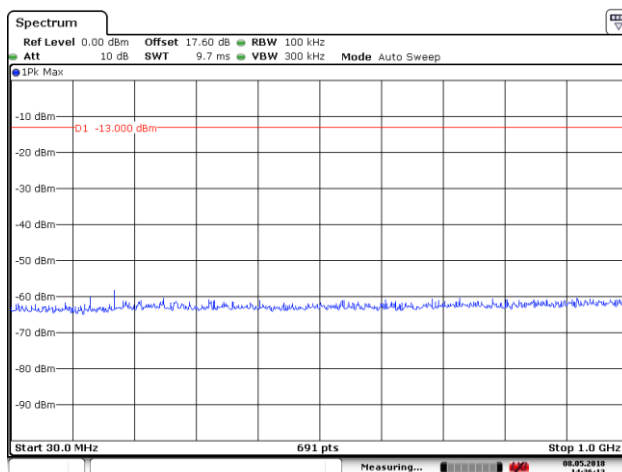


LTE Band 43 5MHz CH High 30MHz~1GHz



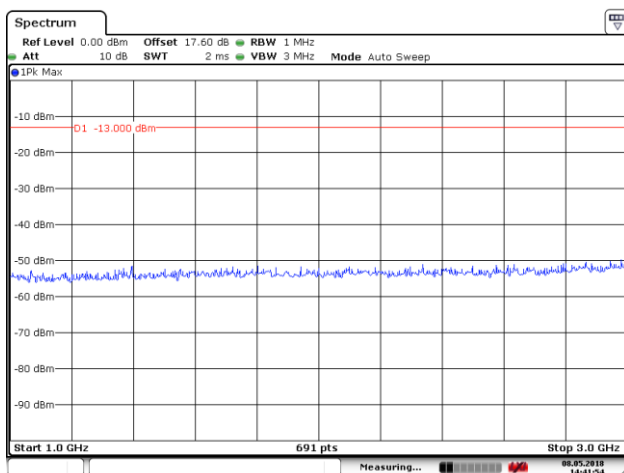
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LTE Band 43 10MHz CH Low 30MHz~1GHz



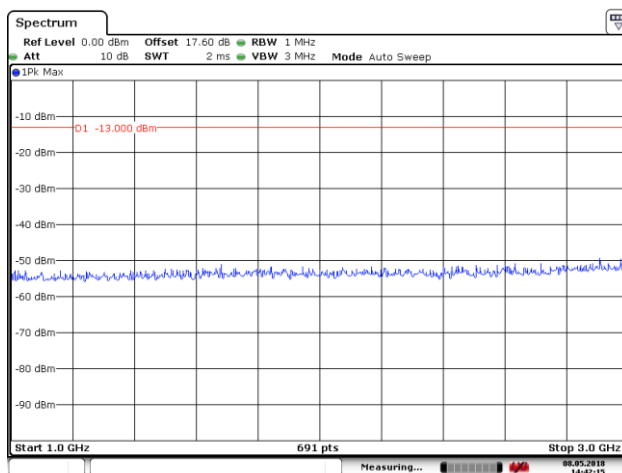
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LTE Band 43 5MHz CH High 1GHz~3GHz



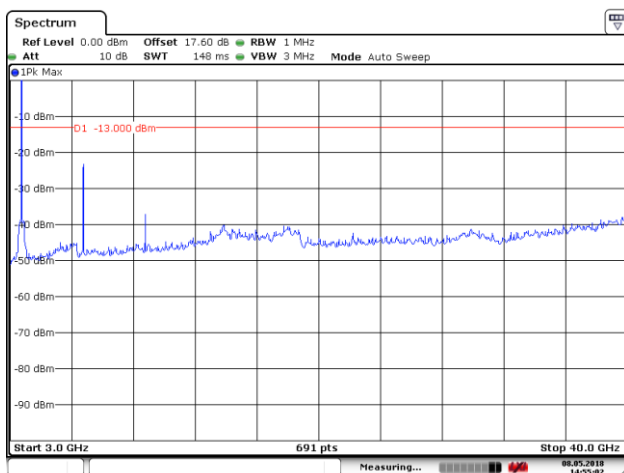
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LTE Band 43 10MHz CH Low 1GHz~3GHz



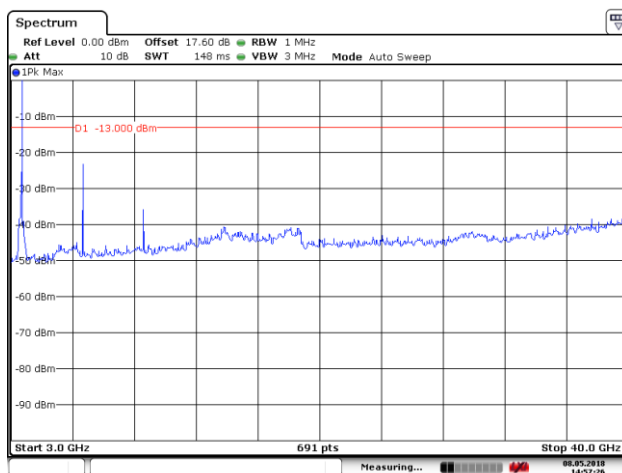
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LTE Band 43 5MHz CH High 3GHz~40GHz



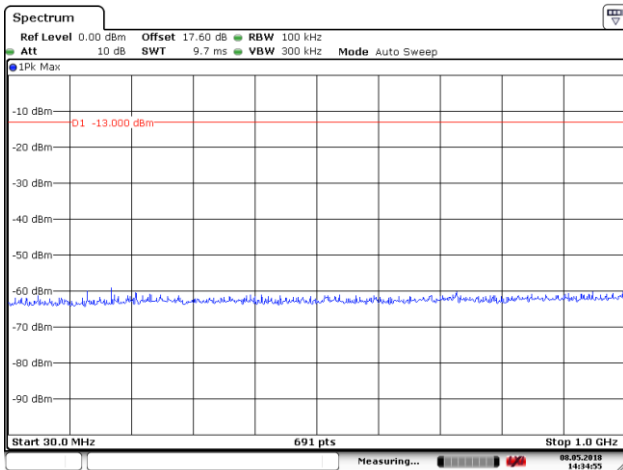
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LTE Band 43 10MHz CH Low 3GHz~40GHz



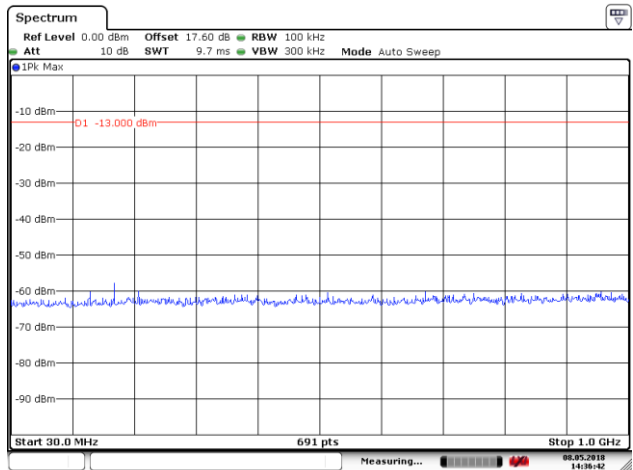
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LTE Band 43 10MHz CH Middle 30MHz~1GHz



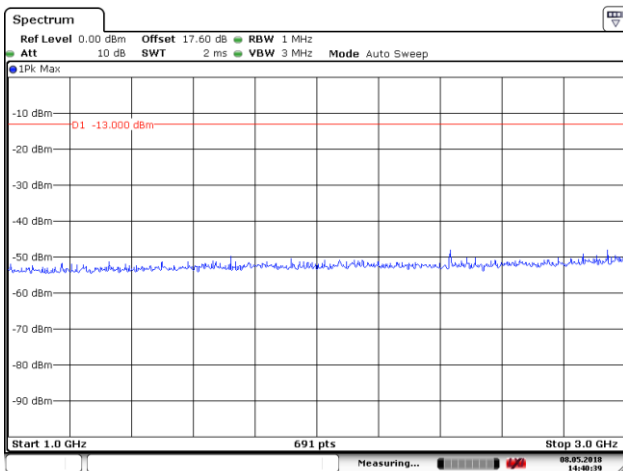
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LTE Band 43 10MHz CH High 30MHz~1GHz



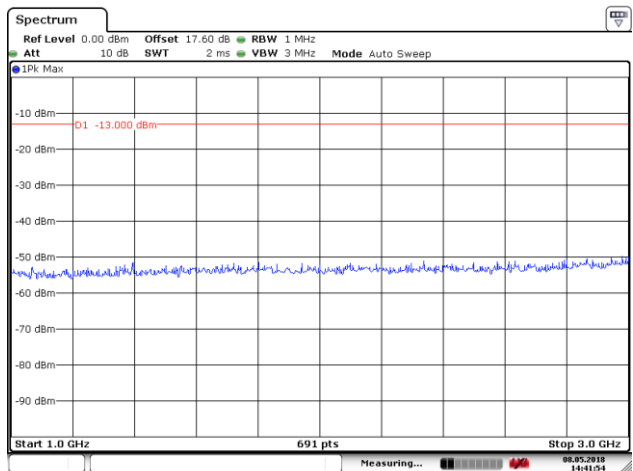
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LTE Band 43 10MHz CH Middle 1GHz~3GHz



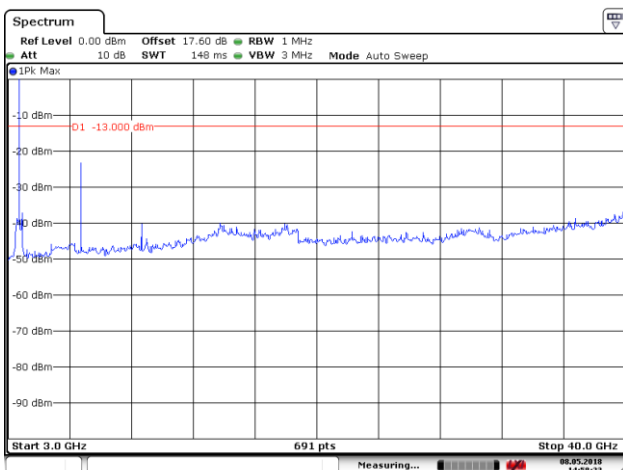
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LTE Band 43 10MHz CH High 1GHz~3GHz



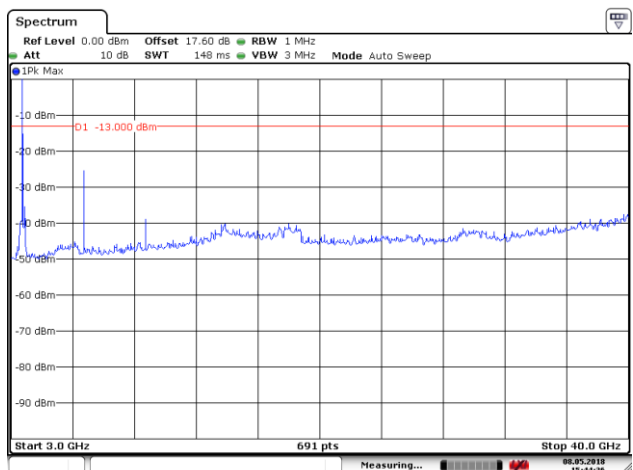
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LTE Band 43 10MHz CH Middle 3GHz~40GHz



Date: 8.MAY.2018 14:58:24

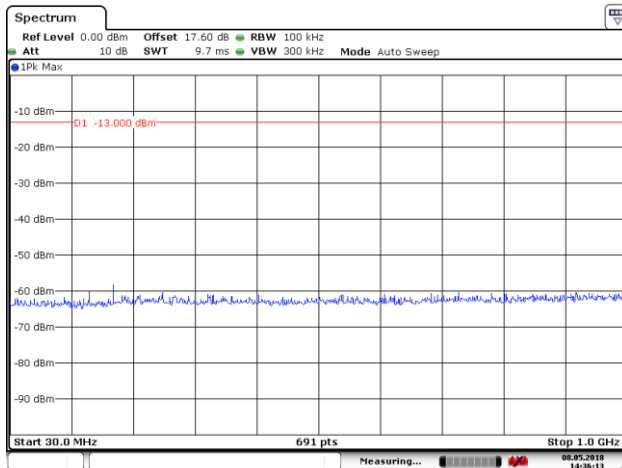
LTE Band 43 10MHz CH High 3GHz~40GHz



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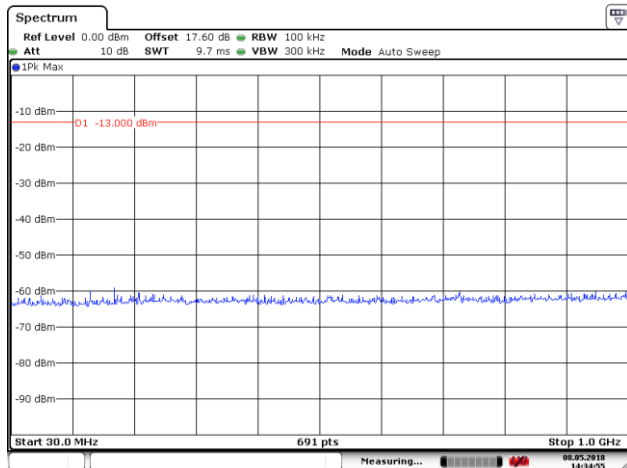


LTE Band 43 15MHz CH Low 30MHz~1GHz



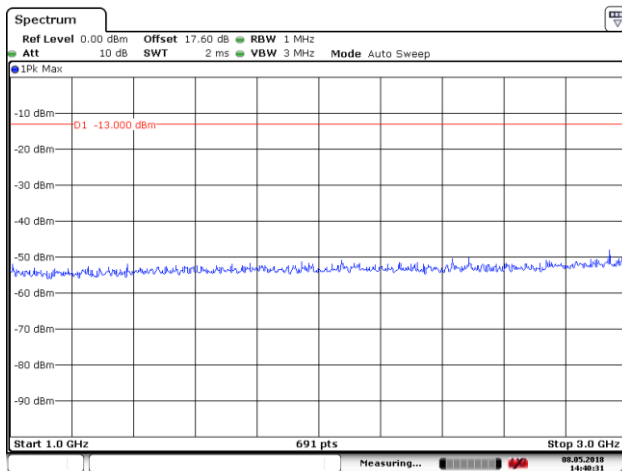
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LTE Band 43 15MHz CH Middle 30MHz~1GHz



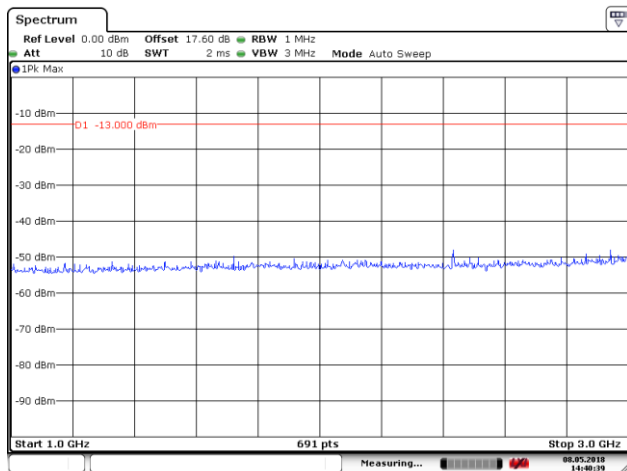
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LTE Band 43 15MHz CH Low 1GHz~3GHz



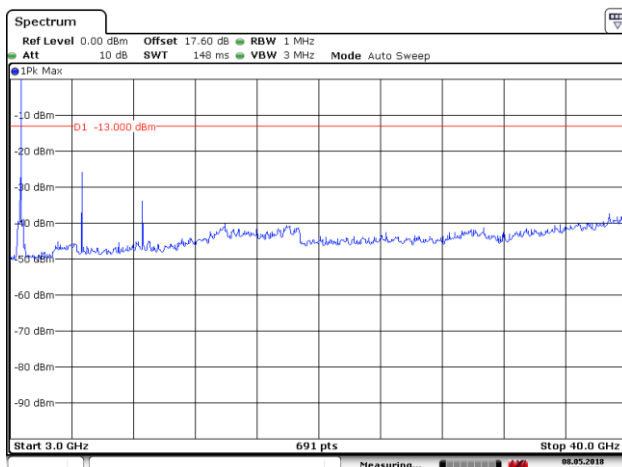
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LTE Band 43 15MHz CH Middle 1GHz~3GHz



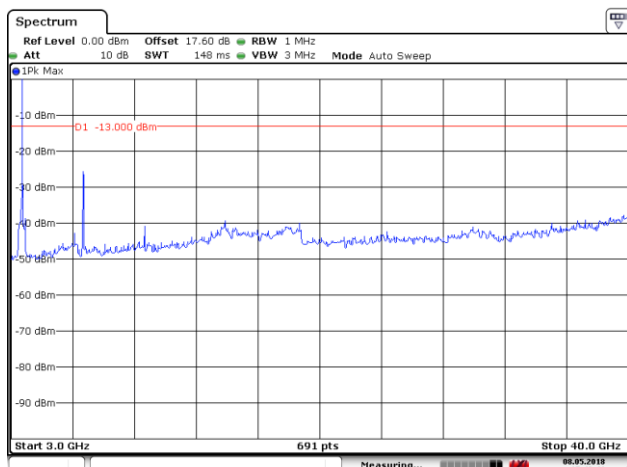
Date: 8 MAY 2018 14:40:40

LTE Band 43 15MHz CH Low 3GHz~40GHz



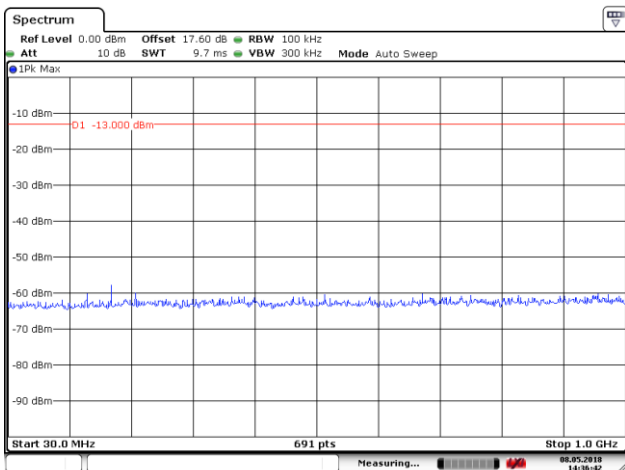
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LTE Band 43 15MHz CH Middle 3GHz~40GHz



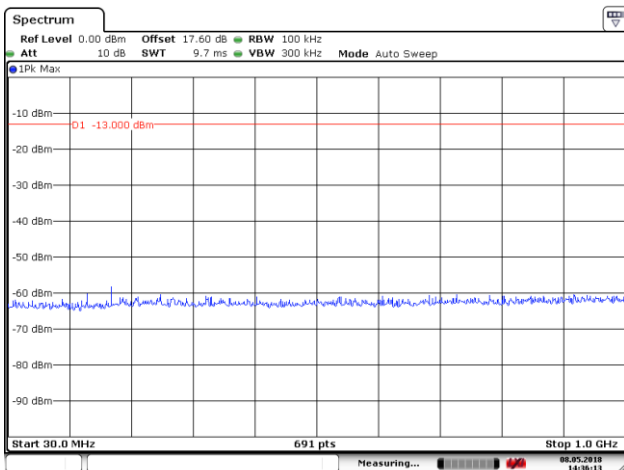
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LTE Band 43 15MHz CH High 30MHz~1GHz



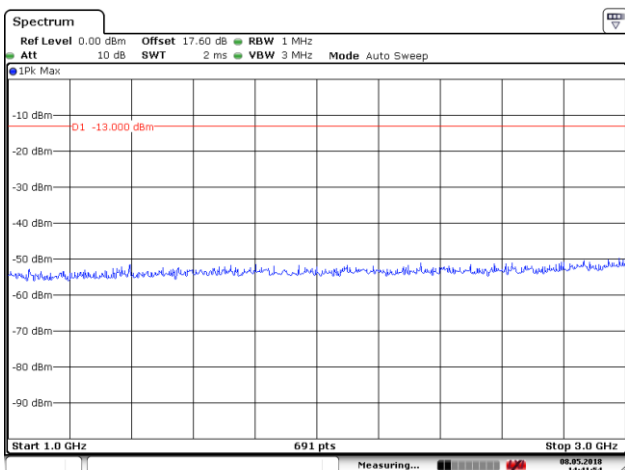
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LTE Band 43 20MHz CH Low 30MHz~1GHz



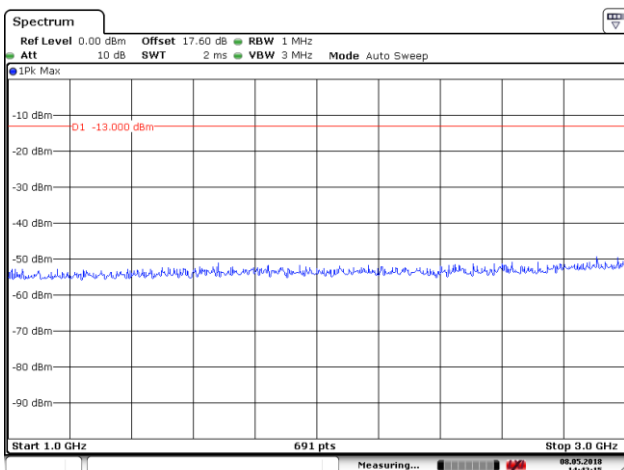
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LTE Band 43 15MHz CH High 1GHz~3GHz



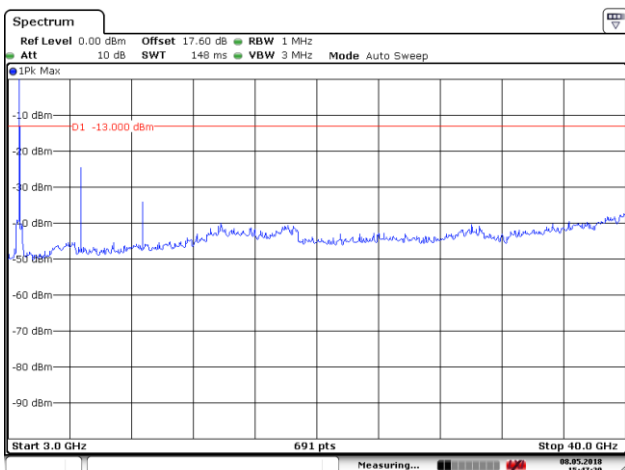
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LTE Band 43 20MHz CH Low 1GHz~3GHz



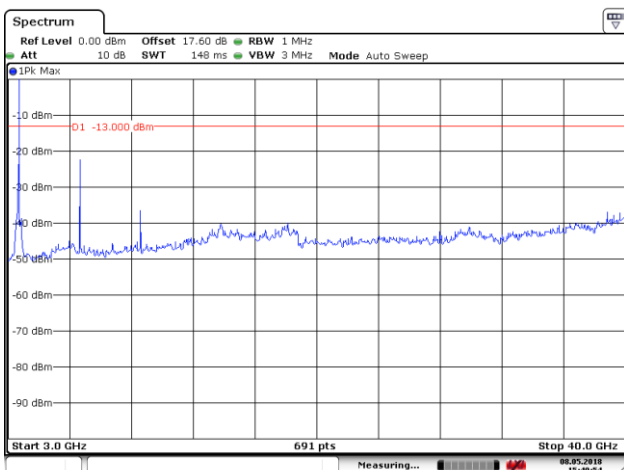
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LTE Band 43 15MHz CH High 3GHz~40GHz



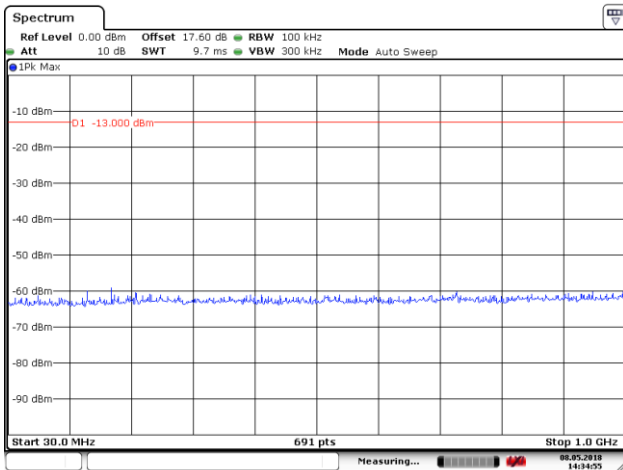
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LTE Band 43 20MHz CH Low 3GHz~40GHz

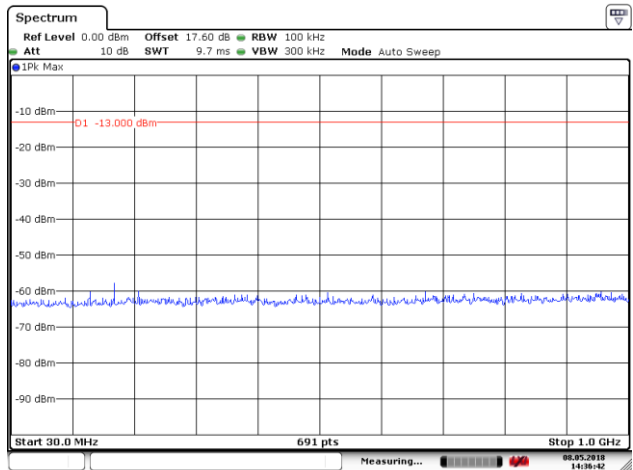


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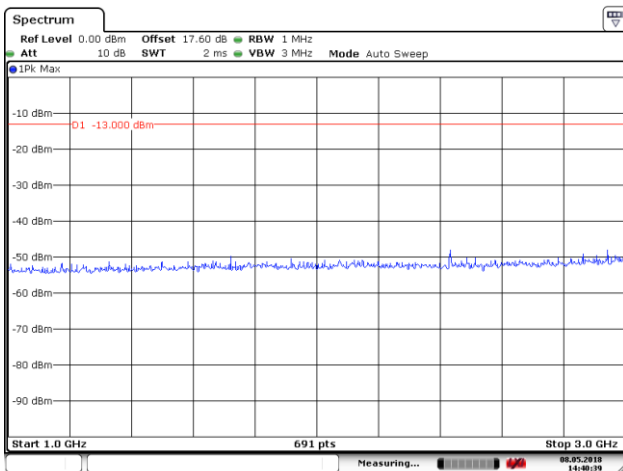
LTE Band 43 20MHz CH Middle 30MHz~1GHz



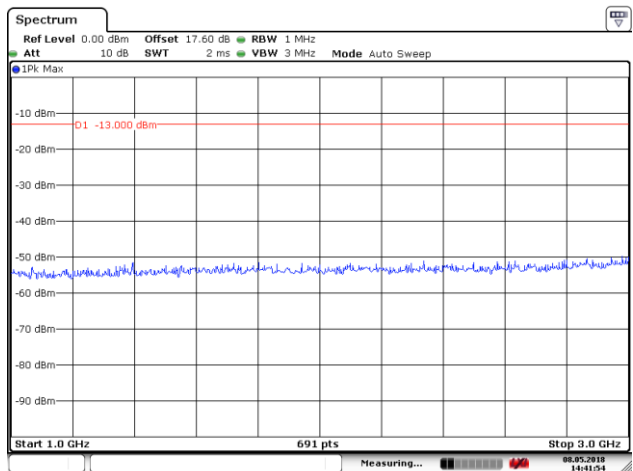
LTE Band 43 20MHz CH High 30MHz~1GHz



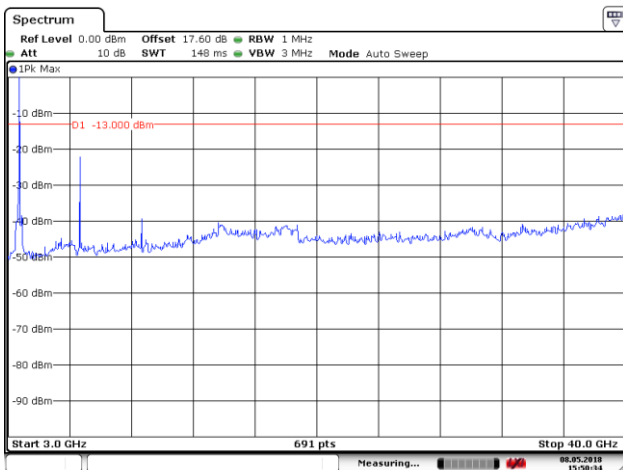
LTE Band 43 20MHz CH Middle 1GHz~3GHz



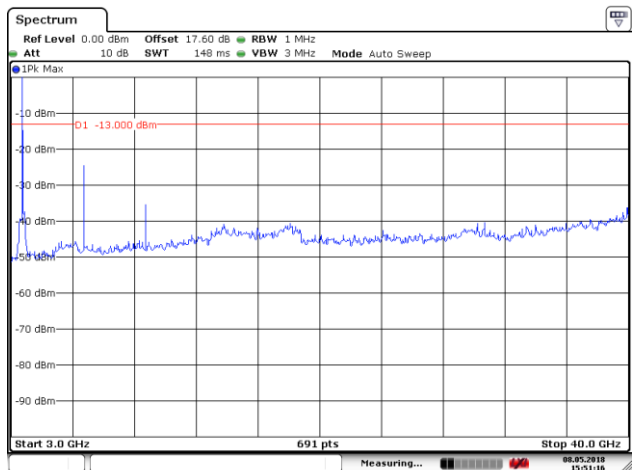
LTE Band 43 20MHz CH High 1GHz~3GHz



LTE Band 43 20MHz CH Middle 3GHz~40GHz



LTE Band 43 20MHz CH High 3GHz~40GHz



If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.

Mode	Frequency (MHz)	Peak (dBm)	Limit (dBm)	Margin (dB)
B43_CHLOW_5M_RB1_3-40GHz	7310.0	-21.257	-13	8.257
B43_CHMID_5M_RB1_3-40GHz	7364.0	-21.415	-13	8.415
B43_CHHIGH_5M_RB1_3-40GHz	7418.0	-22.641	-13	9.641
B43_CHLOW_10M_RB1_3-40GHz	7310.0	-22.348	-13	9.348
B43_CHMID_10M_RB1_3-40GHz	7364.0	-22.412	-13	9.412
B43_CHHIGH_10M_RB1_3-40GHz	7418.0	-25.847	-13	12.847
B43_CHLOW_15M_RB1_3-40GHz	7310.0	-25.497	-13	12.497
B43_CHMID_15M_RB1_3-40GHz	7364.0	-25.488	-13	12.488
B43_CHHIGH_15M_RB1_3-40GHz	7418.0	-24.565	-13	11.565
B43_CHLOW_20M_RB1_3-40GHz	7310.0	-22.978	-13	9.978
B43_CHMID_20M_RB1_3-40GHz	7364.0	-22.213	-13	9.213
B43_CHHIGH_20M_RB1_3-40GHz	7418.0	-22.317	-13	9.317

5.7. Field Strength of Spurious Radiation/ Radiated Spurious Emissions

Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Method of Measurement

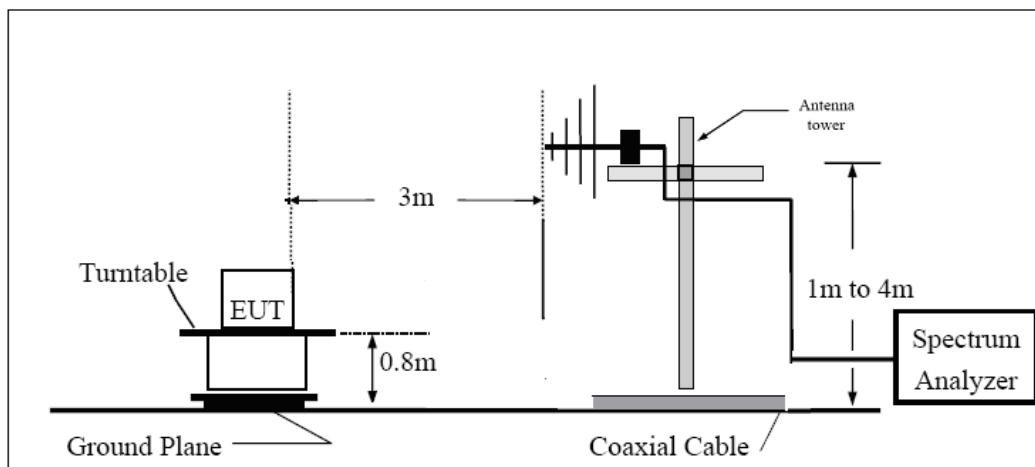
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI/TIA-603-E (2016).
2. The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. 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).
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:

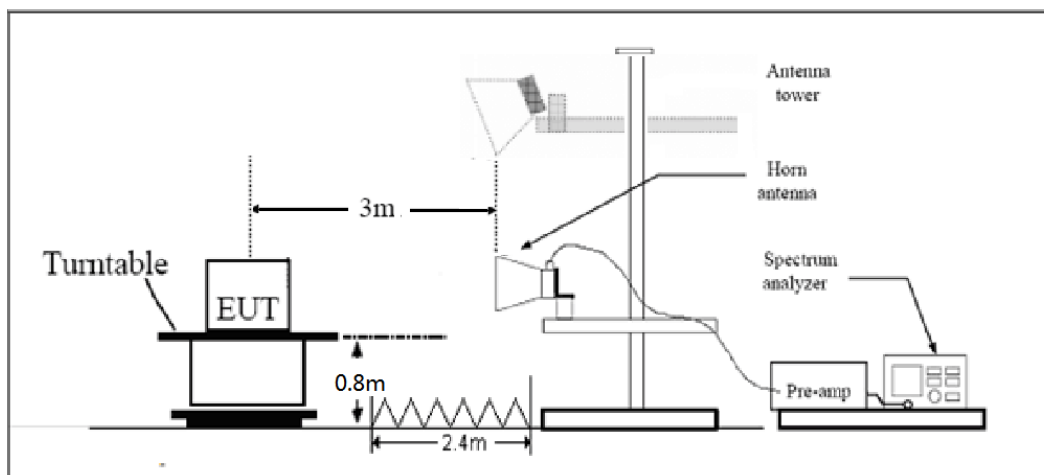
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dBi}$.

Test setup

30MHz~~~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

Rule Part 90.1323 specifies that "The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB."

Limit	-13 dBm
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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

Sweep above 18 GHz and the emissions more than 20 dB below the permissible value are not reported.

LTE Band 43 5MHz CH Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7200.8	-36.45	2.50	11.35	horizontal	-27.6	-13.0	14.6	180
3	10801.1	-24.75	4.20	12.05	horizontal	-16.9	-13.0	3.9	315
4	14402.3	-44.53	5.50	14.23	horizontal	-35.8	-13.0	22.8	225
5	18012.5	--	--	--	--	--	--	--	--
6	21615.0	--	--	--	--	--	--	--	--
7	25217.5	--	--	--	--	--	--	--	--
8	28820.0	--	--	--	--	--	--	--	--
9	32422.5	--	--	--	--	--	--	--	--
10	36025.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 5MHz CH Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7396.0	-36.25	2.50	11.35	horizontal	-27.4	-13.0	14.4	180
3	11093.6	-23.25	4.20	12.05	horizontal	-15.4	-13.0	2.4	180
4	14791.5	-45.43	5.50	14.23	horizontal	-36.7	-13.0	23.7	315
5	18500.0	--	--	--	--	--	--	--	--
6	22200.0	--	--	--	--	--	--	--	--
7	25900.0	--	--	--	--	--	--	--	--
8	29600.0	--	--	--	--	--	--	--	--
9	33300.0	--	--	--	--	--	--	--	--
10	37000.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 5MHz CH High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7590.8	-37.65	2.50	11.35	horizontal	-28.8	-13.0	15.8	180
3	11386.1	-30.55	4.20	12.05	horizontal	-22.7	-13.0	9.7	225
4	15181.9	-44.23	5.50	14.23	horizontal	-35.5	-13.0	22.5	225
5	18987.5	--	--	--	--	--	--	--	--
6	22785.0	--	--	--	--	--	--	--	--
7	26582.5	--	--	--	--	--	--	--	--
8	30380.0	--	--	--	--	--	--	--	--
9	34177.5	--	--	--	--	--	--	--	--
10	37975.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 10MHz CH Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7201.0	-34.75	2.50	11.35	horizontal	-25.9	-13.0	12.9	180
3	10801.1	-25.55	4.20	12.05	horizontal	-17.7	-13.0	4.7	315
4	14402.3	-44.53	5.50	14.23	horizontal	-35.8	-13.0	22.8	135
5	18025.0	--	--	--	--	--	--	--	--
6	21630.0	--	--	--	--	--	--	--	--
7	25235.0	--	--	--	--	--	--	--	--
8	28840.0	--	--	--	--	--	--	--	--
9	32445.0	--	--	--	--	--	--	--	--
10	36050.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 10MHz CH Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7391.0	-36.15	2.50	11.35	horizontal	-27.3	-13.0	14.3	180
3	11086.9	-23.05	4.20	12.05	horizontal	-15.2	-13.0	2.2	180
4	14782.5	-47.23	5.50	14.23	horizontal	-38.5	-13.0	25.5	135
5	18500.0	--	--	--	--	--	--	--	--
6	22200.0	--	--	--	--	--	--	--	--
7	25900.0	--	--	--	--	--	--	--	--
8	29600.0	--	--	--	--	--	--	--	--
9	33300.0	--	--	--	--	--	--	--	--
10	37000.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 10MHz CH High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7581.3	-39.15	2.50	11.35	horizontal	-30.3	-13.0	17.3	180
3	11371.5	-29.85	4.20	12.05	horizontal	-22.0	-13.0	9.0	180
4	15162.8	-44.93	5.50	14.23	horizontal	-36.2	-13.0	23.2	225
5	18975.0	--	--	--	--	--	--	--	--
6	22770.0	--	--	--	--	--	--	--	--
7	26565.0	--	--	--	--	--	--	--	--
8	30360.0	--	--	--	--	--	--	--	--
9	34155.0	--	--	--	--	--	--	--	--
10	37950.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 15MHz CH Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7201.8	-35.05	2.50	11.35	horizontal	-26.2	-13.0	13.2	180
3	10802.3	-26.95	4.20	12.05	horizontal	-19.1	-13.0	6.1	315
4	14403.4	-44.43	5.50	14.23	horizontal	-35.7	-13.0	22.7	225
5	18037.5	--	--	--	--	--	--	--	--
6	21645.0	--	--	--	--	--	--	--	--
7	25252.5	--	--	--	--	--	--	--	--
8	28860.0	--	--	--	--	--	--	--	--
9	32467.5	--	--	--	--	--	--	--	--
10	36075.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 15MHz CH Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7386.8	-36.85	2.50	11.35	horizontal	-28.0	-13.0	15.0	180
3	11080.1	-25.95	4.20	12.05	horizontal	-18.1	-13.0	5.1	315
4	14773.5	-46.63	5.50	14.23	horizontal	-37.9	-13.0	24.9	180
5	18500.0	--	--	--	--	--	--	--	--
6	22200.0	--	--	--	--	--	--	--	--
7	25900.0	--	--	--	--	--	--	--	--
8	29600.0	--	--	--	--	--	--	--	--
9	33300.0	--	--	--	--	--	--	--	--
10	37000.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 15MHz CH High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7572.0	-41.45	2.50	11.35	horizontal	-32.6	-13.0	19.6	180
3	11358.0	-30.55	4.20	12.05	horizontal	-22.7	-13.0	9.7	225
4	15142.5	-45.73	5.50	14.23	horizontal	-37.0	-13.0	24.0	225
5	18962.5	--	--	--	--	--	--	--	--
6	22755.0	--	--	--	--	--	--	--	--
7	26547.5	--	--	--	--	--	--	--	--
8	30340.0	--	--	--	--	--	--	--	--
9	34132.5	--	--	--	--	--	--	--	--
10	37925.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 20MHz CH Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7202.0	-32.25	2.50	11.35	horizontal	-23.4	-13.0	10.4	180
3	10803.4	-23.95	4.20	12.05	horizontal	-16.1	-13.0	3.1	180
4	14404.5	-44.53	5.50	14.23	horizontal	-35.8	-13.0	22.8	225
5	18050.0	--	--	--	--	--	--	--	--
6	21660.0	--	--	--	--	--	--	--	--
7	25270.0	--	--	--	--	--	--	--	--
8	28880.0	--	--	--	--	--	--	--	--
9	32490.0	--	--	--	--	--	--	--	--
10	36100.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 20MHz CH Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7382.0	-33.55	2.50	11.35	horizontal	-24.7	-13.0	11.7	180
3	11073.4	-25.15	4.20	12.05	horizontal	-17.3	-13.0	4.3	180
4	14800.0	-41.63	5.50	14.23	horizontal	-32.9	-13.0	19.9	45
5	14764.5	-46.15	5.70	14.15	horizontal	-37.7	-13.0	24.7	135
6	22200.0	--	--	--	--	--	--	--	--
7	25900.0	--	--	--	--	--	--	--	--
8	29600.0	--	--	--	--	--	--	--	--
9	33300.0	--	--	--	--	--	--	--	--
10	37000.0	--	--	--	--	--	--	--	--

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

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

LTE Band 43 20MHz CH High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	7562.3	-40.55	2.50	11.35	horizontal	-31.7	-13.0	18.7	180
3	11343.4	-28.75	4.20	12.05	horizontal	-20.9	-13.0	7.9	315
4	15124.5	-44.63	5.50	14.23	horizontal	-35.9	-13.0	22.9	225
5	18950.0	--	--	--	--	--	--	--	--
6	22740.0	--	--	--	--	--	--	--	--
7	26530.0	--	--	--	--	--	--	--	--
8	30320.0	--	--	--	--	--	--	--	--
9	34110.0	--	--	--	--	--	--	--	--
10	37900.0	--	--	--	--	--	--	--	--

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

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

6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113645	2017-05-14	2018-05-13
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	NA	NA
Spectrum Analyzer	Agilent	N9010A	MY47191109	2017-05-20	2018-05-19
Signal Analyzer	R&S	FSV40	15195-01-00	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	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	100126	2014-12-06	2019-12-05
Horn Antenna	ETS-Lindgren	3160-09	00102643	2015-01-30	2020-01-29
Horn Antenna	STEATITE	QSH-SL-26-40-K-15	16779	2016-03-21	2019-03-20
Climatic Chamber	Re Ce	PT-30B	20101891	2015-07-18	2018-07-17
RF Cable	Agilent	SMA 15cm	0001	2018-02-03	2018-08-02

*******END OF REPORT *******

ANNEX A:EUT Appearanceand Test Setup

A.1 EUT Appearance



Front Side



Back Side

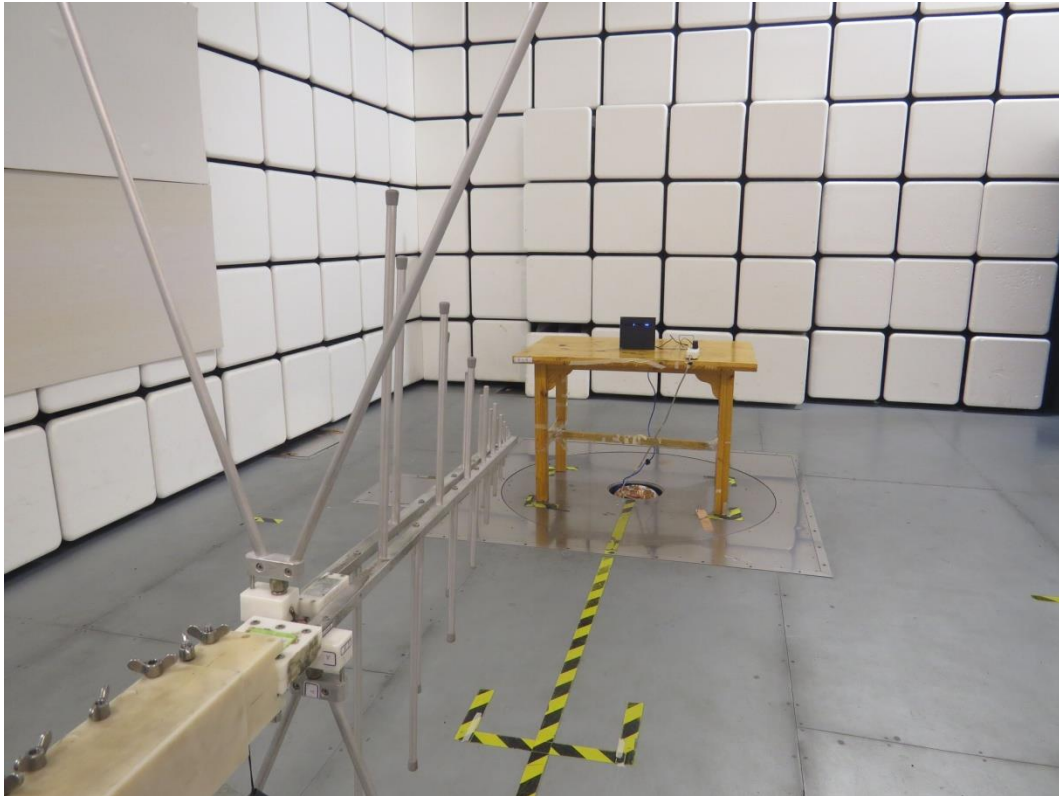
a: EUT



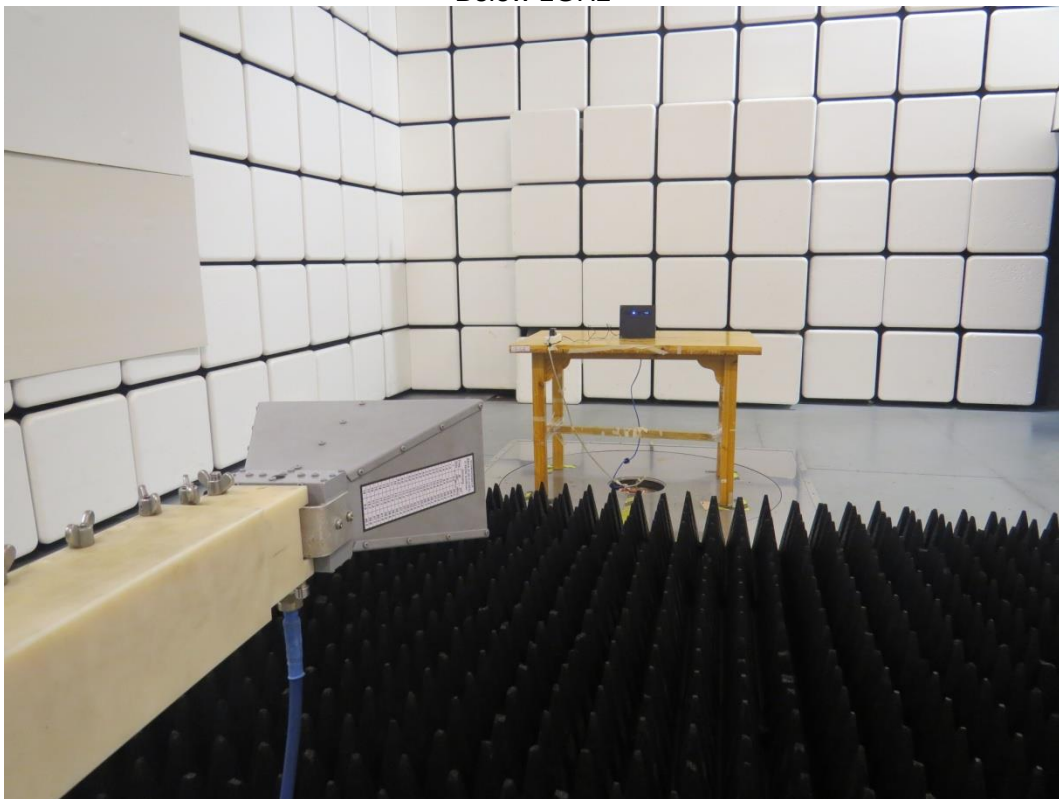
b: Adapter

Picture 1: EUT and Auxiliary

A.2 Test Setup



Below 1GHz



Above 1GHz

Picture 2: Radiated Spurious Emissions Test setup