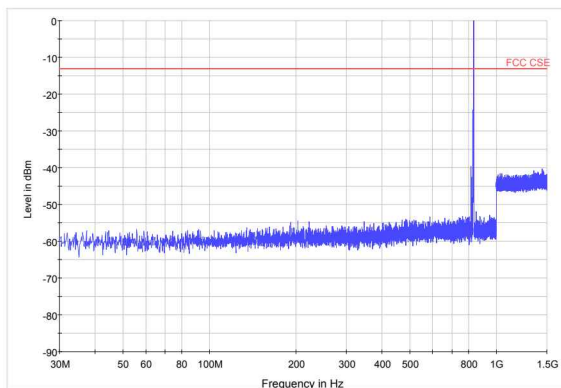
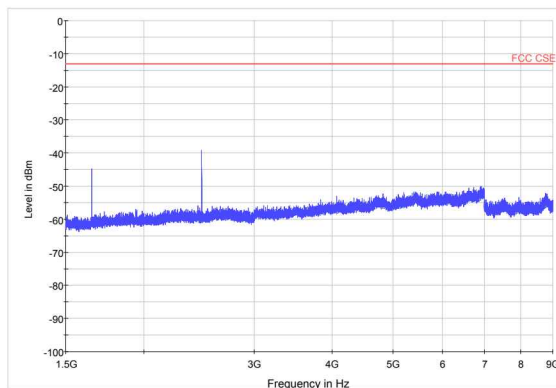




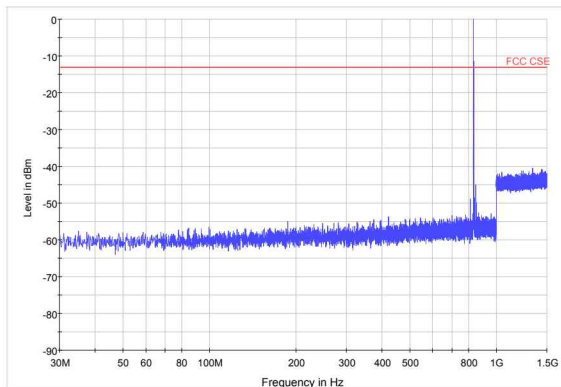
LTE Band 5 10MHz CH-Low 30MHz-1.5GHz



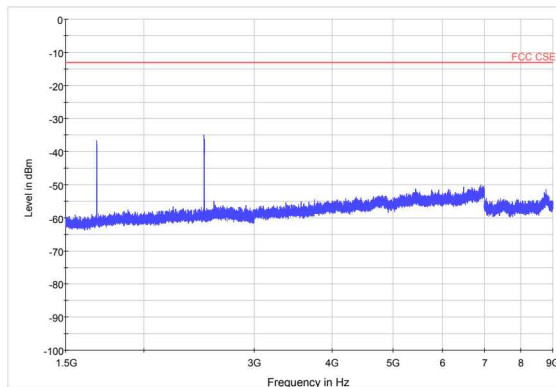
LTE Band 5 10MHz CH-Low 1.5GHz-9GHz



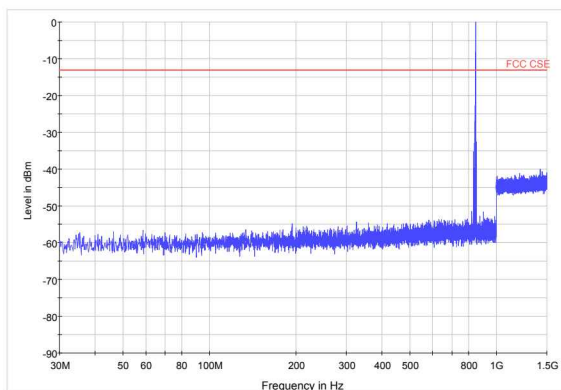
LTE Band 5 10MHz CH-Middle 30MHz-1.5GHz



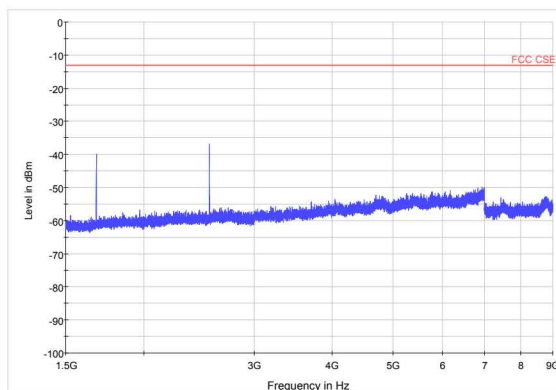
LTE Band 5 10MHz CH-Middle 1.5GHz-9GHz



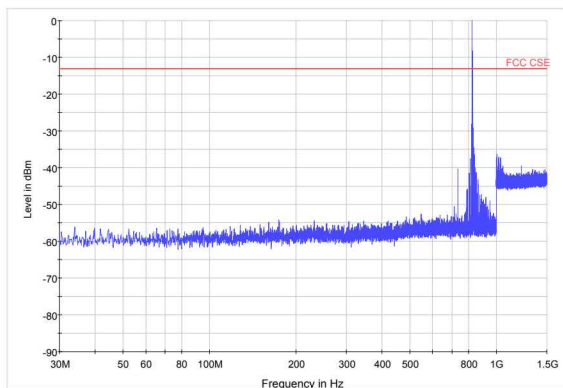
LTE Band 5 10MHz CH-High 30MHz-1.5GHz



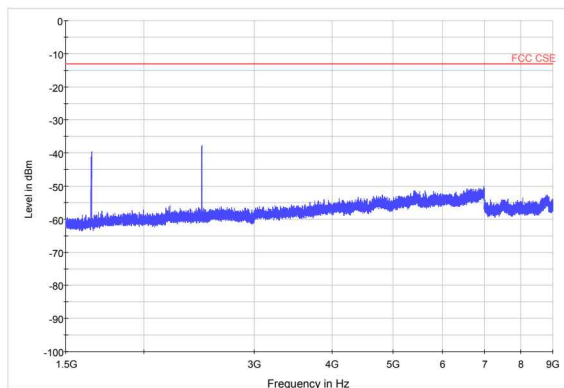
LTE Band 5 10MHz CH-High 1.5GHz-9GHz



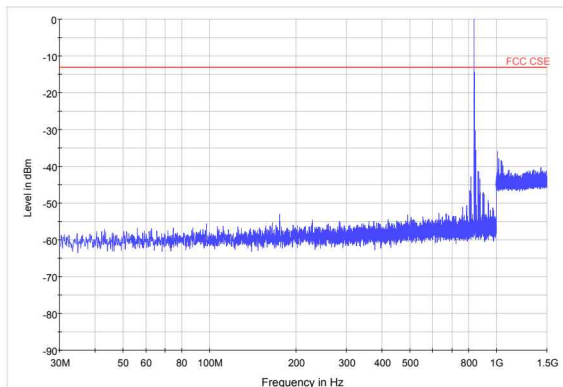
LTE Band 26 1.4MHz CH-Low 1.5MHz~3GHz



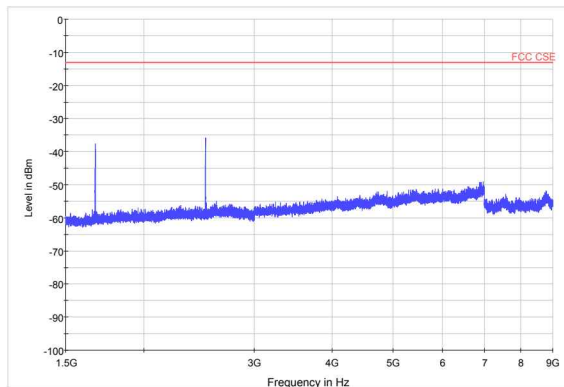
LTE Band 26 1.4MHz CH-Low 1.5GHz~9GHz



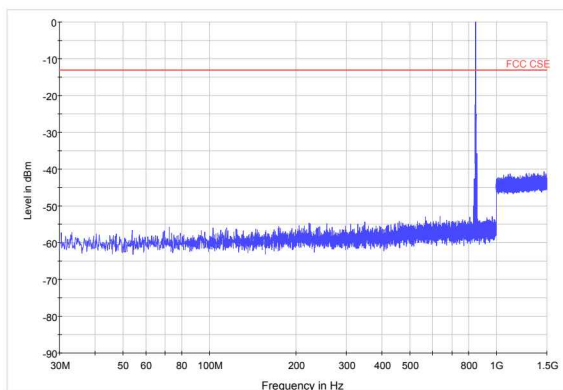
LTE Band 26 1.4MHz CH-Middle 1.5MHz~3GHz



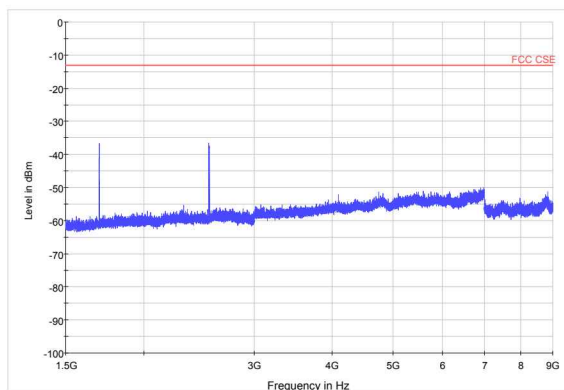
LTE Band 26 1.4MHz CH-Middle 1.5GHz~9GHz



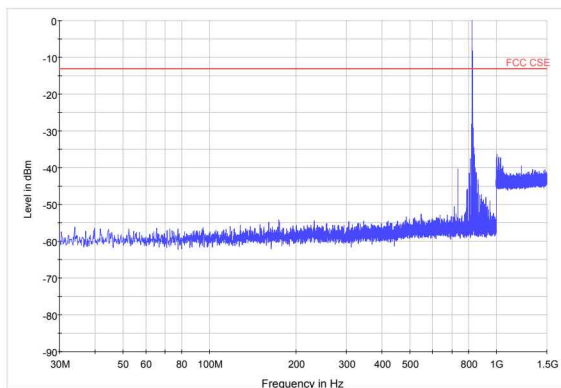
LTE Band 26 1.4MHz CH-High 1.5MHz~3GHz



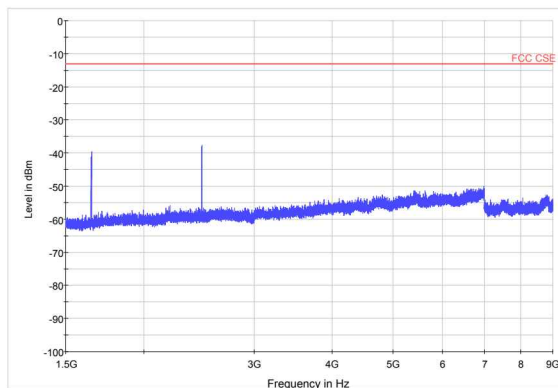
LTE Band 26 1.4MHz CH-High 1.5GHz~9GHz



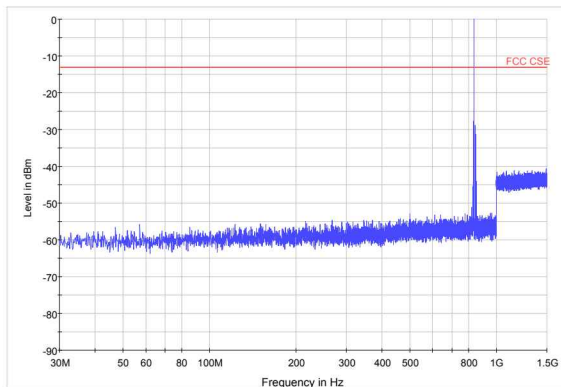
LTE Band 26 3MHz CH-Low 1.5MHz~3GHz



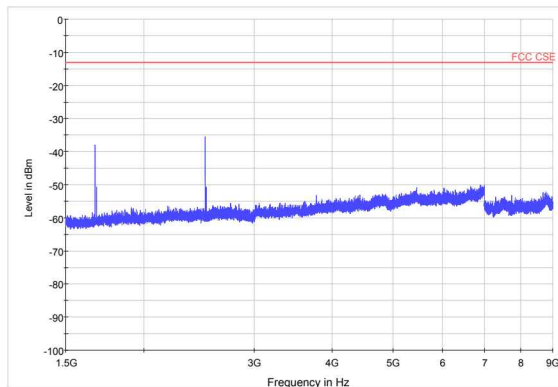
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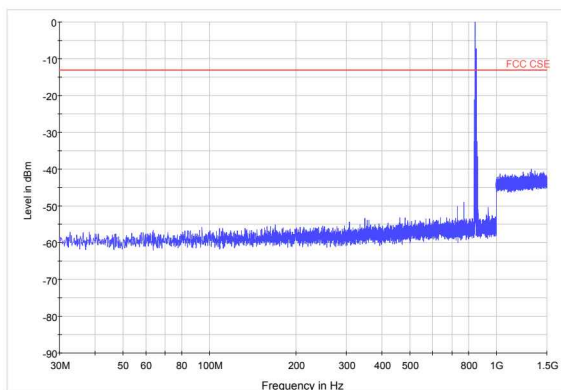
LTE Band 26 3MHz CH-Middle 1.5MHz~3GHz



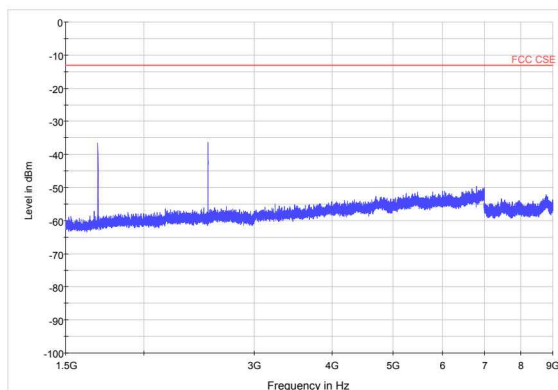
LTE Band 26 3MHz CH-Middle 1.5GHz~9GHz



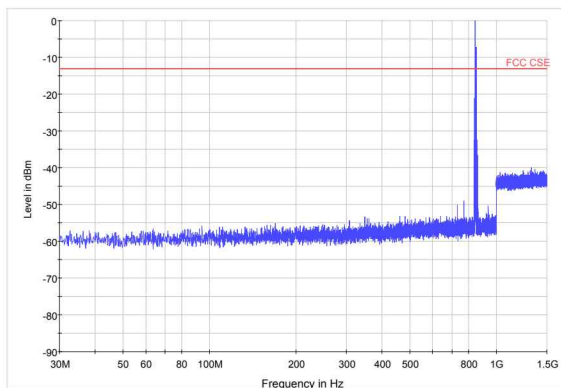
LTE Band 26 3MHz CH-High 1.5MHz~3GHz



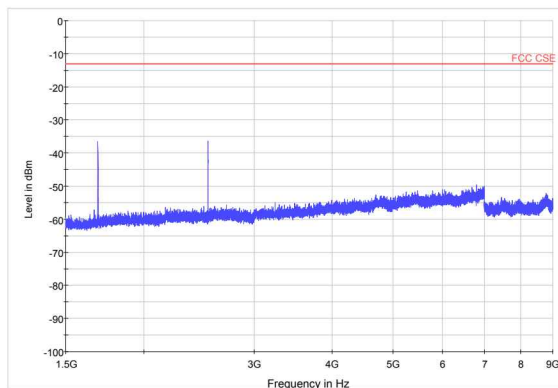
LTE Band 26 3MHz CH-High 1.5GHz~9GHz



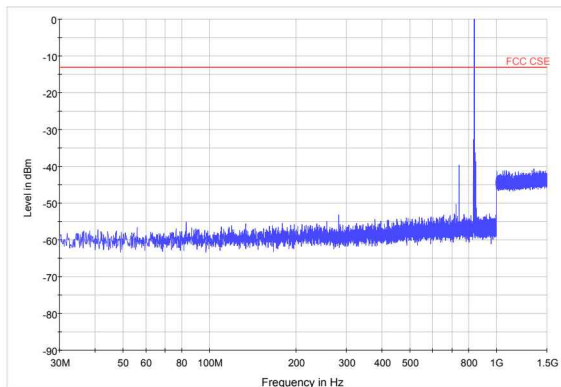
LTE Band 26 5MHz CH-Low 1.5MHz~3GHz



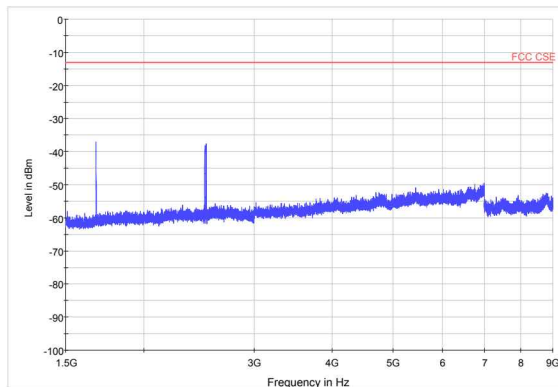
LTE Band 26 5MHz CH-Low 1.5GHz~9GHz



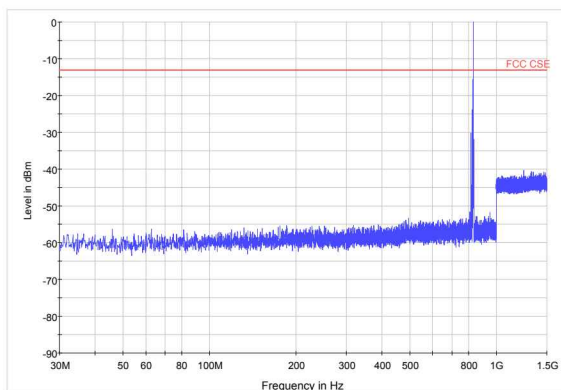
LTE Band 26 5MHz CH-Middle 1.5MHz~3GHz



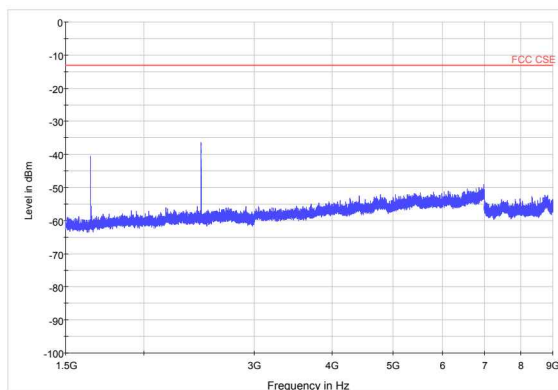
LTE Band 26 5MHz CH-Middle 1.5GHz~9GHz



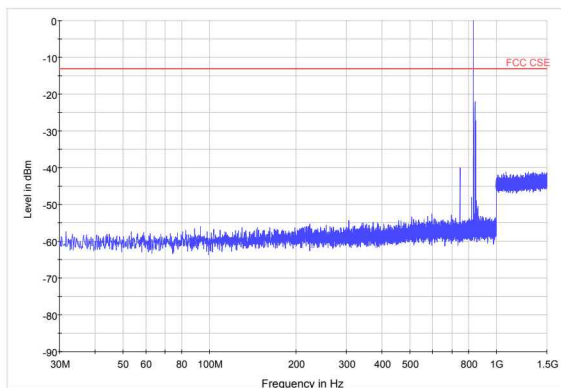
LTE Band 26 10MHz CH-Low 1.5MHz~3GHz



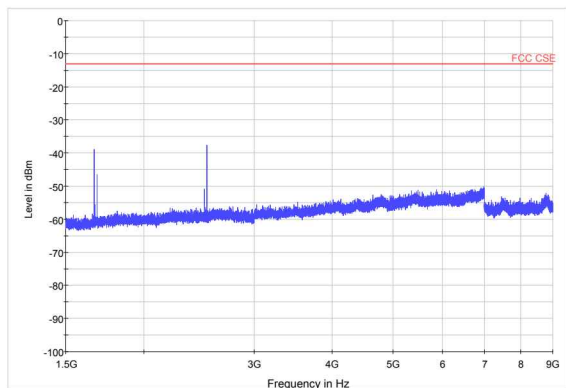
LTE Band 26 10MHz CH-Low 1.5GHz~9GHz



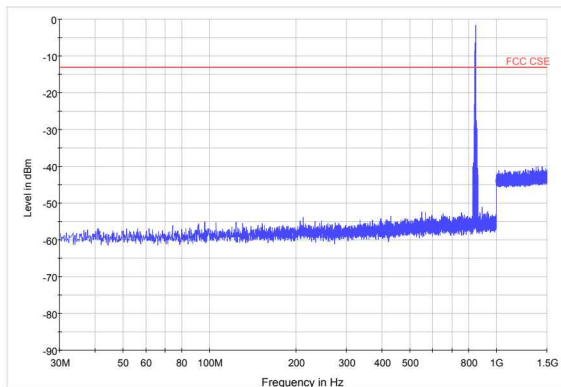
LTE Band 26 10MHz CH-Middle 1.5MHz~3GHz



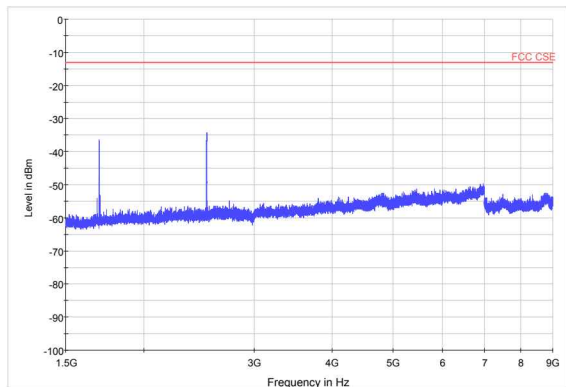
LTE Band 26 10MHz CH-Middle 1.5GHz~9GHz



LTE Band 26 10MHz CH-High 1.5MHz~3GHz



LTE Band 26 10MHz CH-High 1.5GHz~9GHz



5.8. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

1. The testing follows ANSI C63.26 (2015) Section 5.5.2.3.
2. Above 30MHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz, VBW=300kHz for 30MHz to 1GHz, 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:

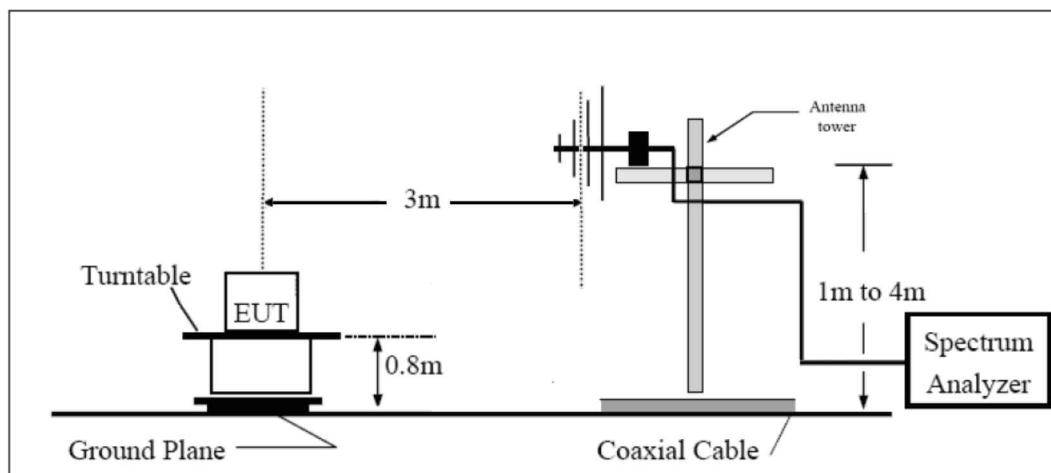
$$\text{Power(EIRP)} = \text{PMea} - \text{PAG} - \text{Pcl} + \text{Ga}$$
The measurement results are amend as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

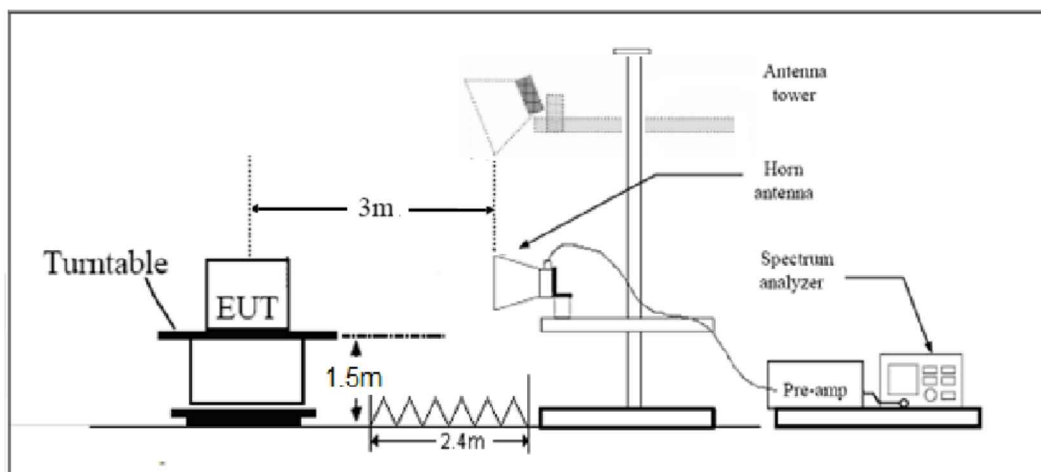
and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15\text{dBi}$.

Test setup

30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

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

Limits

Rule Part 22.917(a) 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

GSM 850 CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1648	-56.00	2	10.15	Vertical	-50.0	-13.0	37.0	45
3	2473	-56.69	2.51	11.35	Vertical	-50.0	-13.0	37.0	180
4	3297	-54.60	4.2	10.85	Vertical	-50.1	-13.0	37.1	180
5	4121	-53.30	5.2	11.35	Vertical	-49.3	-13.0	36.3	225
6	4945	-52.00	5.5	11.95	Vertical	-47.7	-13.0	34.7	135
7	5769	-52.30	5.7	13.55	Vertical	-46.6	-13.0	33.6	135
8	6594	-48.40	6.3	13.75	Vertical	-43.1	-13.0	30.1	45
9	7418	-46.30	6.8	13.85	Vertical	-41.4	-13.0	28.4	180
10	8242	-46.40	6.9	14.25	Vertical	-41.2	-13.0	28.2	270

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

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

GSM 850 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673	-53.6	2	10.75	Vertical	-47.0	-13.0	34.0	225
3	2498	-55.49	2.51	11.05	Vertical	-49.1	-13.0	36.1	135
4	3346	-56.6	4.2	11.15	Vertical	-51.8	-13.0	38.8	135
5	4183	-53	5.2	11.15	Vertical	-49.2	-13.0	36.2	45
6	5020	-50.4	5.5	11.95	Vertical	-46.1	-13.0	33.1	270
7	5856	-51	5.7	13.55	Vertical	-45.3	-13.0	32.3	180
8	6693	-49.6	6.3	13.75	Vertical	-44.3	-13.0	31.3	270
9	7529	-46.9	6.8	13.85	Vertical	-42.0	-13.0	29.0	135
10	8366	-47	6.9	14.25	Vertical	-41.8	-13.0	28.8	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.



GSM 850 CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1698	-58.4	2	10.15	Vertical	-52.4	-13.0	39.4	90
3	2546	-57.49	2.51	11.05	Vertical	-51.1	-13.0	38.1	45
4	3395	-57.7	4.2	11.15	Vertical	-52.9	-13.0	39.9	180
5	4244	-53.7	5.2	11.15	Vertical	-49.9	-13.0	36.9	270
6	5093	-50.7	5.5	11.95	Vertical	-46.4	-13.0	33.4	135
7	5942	-51.6	5.7	13.55	Vertical	-45.9	-13.0	32.9	45
8	6790	-49.6	6.3	13.75	Vertical	-44.3	-13.0	31.3	270
9	7639	-46.9	6.8	13.85	Vertical	-42.0	-13.0	29.0	180
10	8488	-46.4	6.9	14.25	Vertical	-41.2	-13.0	28.2	270

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

LTE Band 5 1.4MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1649.4	-51.4	2.00	10.75	vertical	-44.8	-13.0	31.8	0
3	2474.1	-50.19	2.51	11.05	vertical	-43.8	-13.0	30.8	135
4	3298.8	-54.02	4.20	11.15	vertical	-49.22	-13.0	36.2	225
5	4123.5	-52.28	5.20	11.15	vertical	-48.48	-13.0	35.5	90
6	4948.2	-51.49	5.50	11.95	vertical	-47.19	-13.0	34.2	45
7	5772.9	-53.53	5.70	13.55	vertical	-47.83	-13.0	34.8	180
8	6597.6	-49	6.30	13.75	vertical	-43.70	-13.0	30.7	45
9	7422.3	-45.85	6.80	13.85	vertical	-40.95	-13.0	27.9	0
10	8247.0	-46.71	6.90	14.25	vertical	-41.51	-13.0	28.5	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 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-50.4	2.00	10.75	vertical	-43.8	-13.0	30.8	225
3	2509.5	-54.09	2.51	11.05	vertical	-47.7	-13.0	34.7	315
4	3346.0	-54.15	4.20	11.15	vertical	-49.35	-13.0	36.3	45
5	4182.5	-52.83	5.20	11.15	vertical	-49.03	-13.0	36.0	0
6	5019.0	-52.27	5.50	11.95	vertical	-47.97	-13.0	35.0	135
7	5855.5	-51.23	5.70	13.55	vertical	-45.53	-13.0	32.5	225
8	6692.0	-51.64	6.30	13.75	vertical	-46.34	-13.0	33.3	90
9	7528.5	-46.57	6.80	13.85	vertical	-41.67	-13.0	28.7	45
10	8365.0	-48.16	6.90	14.25	vertical	-42.96	-13.0	30.0	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 5 1.4MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1696.6	-46.4	2.00	10.75	vertical	-39.8	-13.0	26.8	45
3	2544.9	-53.39	2.51	11.05	vertical	-47.0	-13.0	34.0	0
4	3393.2	-53.33	4.20	11.15	vertical	-48.53	-13.0	35.5	135
5	4241.5	-51.5	5.20	11.15	vertical	-47.70	-13.0	34.7	225
6	5089.8	-49.5	5.50	11.95	vertical	-45.20	-13.0	32.2	315
7	5938.1	-51.84	5.70	13.55	vertical	-46.14	-13.0	33.1	45
8	6786.4	-49.44	6.30	13.75	vertical	-44.14	-13.0	31.1	0
9	7634.7	-47.51	6.80	13.85	vertical	-42.61	-13.0	29.6	135
10	8483.0	-47.72	6.90	14.25	vertical	-42.52	-13.0	29.5	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 5 3MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1648.3	-50.9	2.00	10.75	vertical	-44.3	-13.0	31.3	90
3	2476.5	-51.59	2.51	11.05	vertical	-45.2	-13.0	32.2	45
4	3302.0	-54.1	4.20	11.15	vertical	-49.3	-13.0	36.3	180
5	4127.5	-53	5.20	11.15	vertical	-49.2	-13.0	36.2	45
6	4953.0	-51.5	5.50	11.95	vertical	-47.2	-13.0	34.2	0
7	5778.5	-52.6	5.70	13.55	vertical	-46.9	-13.0	33.9	135
8	6604.0	-50.7	6.30	13.75	vertical	-45.4	-13.0	32.4	225
9	7429.5	-46.5	6.80	13.85	vertical	-41.6	-13.0	28.6	315
10	8255.0	-46.7	6.90	14.25	vertical	-41.5	-13.0	28.5	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 5 3MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1670.3	-50.3	2.00	10.75	vertical	-43.7	-13.0	30.7	0
3	2509.5	-54.09	2.51	11.05	vertical	-47.7	-13.0	34.7	135
4	3346.0	-54.5	4.20	11.15	vertical	-49.7	-13.0	36.7	225
5	4182.5	-53.4	5.20	11.15	vertical	-49.6	-13.0	36.6	90
6	5019.0	-51	5.50	11.95	vertical	-46.7	-13.0	33.7	45
7	5855.5	-51.7	5.70	13.55	vertical	-46.0	-13.0	33.0	180
8	6692.0	-51	6.30	13.75	vertical	-45.7	-13.0	32.7	45
9	7528.5	-47.3	6.80	13.85	vertical	-42.4	-13.0	29.4	0
10	8365.0	-48.3	6.90	14.25	vertical	-43.1	-13.0	30.1	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 5 3MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1692.5	-47.2	2.00	10.75	vertical	-40.6	-13.0	27.6	0
3	2542.5	-54.39	2.51	11.05	vertical	-48.0	-13.0	35.0	135
4	3390.0	-55.1	4.20	11.15	vertical	-50.3	-13.0	37.3	225
5	4237.5	-52.5	5.20	11.15	vertical	-48.7	-13.0	35.7	90
6	5085.0	-50.2	5.50	11.95	vertical	-45.9	-13.0	32.9	45
7	5932.5	-51.9	5.70	13.55	vertical	-46.2	-13.0	33.2	180
8	6780.0	-49.7	6.30	13.75	vertical	-44.4	-13.0	31.4	45
9	7627.5	-48.9	6.80	13.85	vertical	-44.0	-13.0	31.0	0
10	8475.0	-48	6.90	14.25	vertical	-42.8	-13.0	29.8	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 5 5MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1649.6	-50.4	2.00	10.75	vertical	-43.8	-13.0	30.8	45
3	2479.5	-49.59	2.51	11.05	vertical	-43.2	-13.0	30.2	0
4	3306.0	-52.3	4.20	11.15	vertical	-47.5	-13.0	34.5	135
5	4132.5	-53.6	5.20	11.15	vertical	-49.8	-13.0	36.8	225
6	4959.0	-52.2	5.50	11.95	vertical	-47.9	-13.0	34.9	90
7	5785.5	-51.6	5.70	13.55	vertical	-45.9	-13.0	32.9	45
8	6612.0	-49.8	6.30	13.75	vertical	-44.5	-13.0	31.5	180
9	7438.5	-45.7	6.80	13.85	vertical	-40.8	-13.0	27.8	45
10	8265.0	-48.4	6.90	14.25	vertical	-43.2	-13.0	30.2	0

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

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



LTE Band 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-50.2	2.00	10.75	vertical	-43.6	-13.0	30.6	135
3	2509.5	-53.99	2.51	11.05	vertical	-47.6	-13.0	34.6	225
4	3346.0	-54.2	4.20	11.15	vertical	-49.4	-13.0	36.4	90
5	4182.5	-52.3	5.20	11.15	vertical	-48.5	-13.0	35.5	45
6	5019.0	-50	5.50	11.95	vertical	-45.7	-13.0	32.7	180
7	5855.5	-51.9	5.70	13.55	vertical	-46.2	-13.0	33.2	45
8	6692.0	-49.9	6.30	13.75	vertical	-44.6	-13.0	31.6	0
9	7528.5	-45.3	6.80	13.85	vertical	-40.4	-13.0	27.4	45
10	8365.0	-47.3	6.90	14.25	vertical	-42.1	-13.0	29.1	0

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

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

LTE Band 5 5MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1693.0	-46	2.00	10.75	vertical	-39.4	-13.0	26.4	135
3	2539.5	-55.09	2.51	11.05	vertical	-48.7	-13.0	35.7	225
4	3386.0	-54.8	4.20	11.15	vertical	-50.0	-13.0	37.0	90
5	4232.5	-53.5	5.20	11.15	vertical	-49.7	-13.0	36.7	45
6	5079.0	-49	5.50	11.95	vertical	-44.7	-13.0	31.7	180
7	5925.5	-52.5	5.70	13.55	vertical	-46.8	-13.0	33.8	45
8	6772.0	-50.5	6.30	13.75	vertical	-45.2	-13.0	32.2	0
9	7618.5	-45	6.80	13.85	vertical	-40.1	-13.0	27.1	45
10	8465.0	-47.2	6.90	14.25	vertical	-42.0	-13.0	29.0	0

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

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



LTE Band 5 10MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1658.0	-51.4	2.00	10.75	vertical	-44.8	-13.0	31.8	135
3	2487.0	-50.89	2.51	11.05	vertical	-44.5	-13.0	31.5	225
4	3316.0	-53.7	4.20	11.15	vertical	-48.9	-13.0	35.9	90
5	4145.0	-52.7	5.20	11.15	vertical	-48.9	-13.0	35.9	45
6	4974.0	-51.9	5.50	11.95	vertical	-47.6	-13.0	34.6	180
7	5803.0	-50.2	5.70	13.55	vertical	-44.5	-13.0	31.5	45
8	6632.0	-48.9	6.30	13.75	vertical	-43.6	-13.0	30.6	0
9	7461.0	-47.3	6.80	13.85	vertical	-42.4	-13.0	29.4	135
10	8290.0	-47.8	6.90	14.25	vertical	-42.6	-13.0	29.6	45

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

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

LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-51.1	2.00	10.75	vertical	-44.5	-13.0	31.5	0
3	2509.5	-54.39	2.51	11.05	vertical	-48.0	-13.0	35.0	135
4	3346.0	-53.8	4.20	11.15	vertical	-49.0	-13.0	36.0	225
5	4182.5	-52.4	5.20	11.15	vertical	-48.6	-13.0	35.6	90
6	5019.0	-49.7	5.50	11.95	vertical	-45.4	-13.0	32.4	45
7	5855.5	-51.3	5.70	13.55	vertical	-45.6	-13.0	32.6	180
8	6692.0	-48.5	6.30	13.75	vertical	-43.2	-13.0	30.2	45
9	7528.5	-46.4	6.80	13.85	vertical	-41.5	-13.0	28.5	0
10	8365.0	-48	6.90	14.25	vertical	-42.8	-13.0	29.8	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.