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TA Technology (Shanghai) Co., Ltd.

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LTE Band 5 QPSK Bandwidth = 10MHz CH20450,RB 25



LTE Band 5 QPSK Bandwidth = 10MHz CH20450,RB 50

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LTE Band 5 QPSK Bandwidth = 10MHz CH20600,RB 1



LTE Band 5 QPSK Bandwidth = 10MHz CH20600,RB 25

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LTE Band 5 QPSK Bandwidth = 10MHz CH20600,RB 50



LTE Band 5 16QAM Bandwidth = 10MHz CH20450,RB 1

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LTE Band 5 16QAM Bandwidth = 10MHz CH20450, RB 25



LTE Band 5 16QAM Bandwidth = 10MHz CH20450, RB 50

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LTE Band 5 16QAM Bandwidth = 10MHz CH20600, RB 1



LTE Band 5 16QAM Bandwidth = 10MHz CH20600, RB 25

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LTE Band 5 16QAM Bandwidth = 10MHz CH20600,RB 50

2.6. Peak-to-Average Power Ratio (PAPR)

Ambient condition

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

Methods of Measurement

The measurement procedures in KDB971168 are used.

The inherent randomness of the power peaks in a noise-like signal makes it difficult to quantify the peak power using traditional measurement techniques for determining the peak power of an analog signal. The peak power of a digitally-modulated signal is predictable only on a statistical basis. Thus, for these types of signals, a statistical measurement of the peak power is necessary.

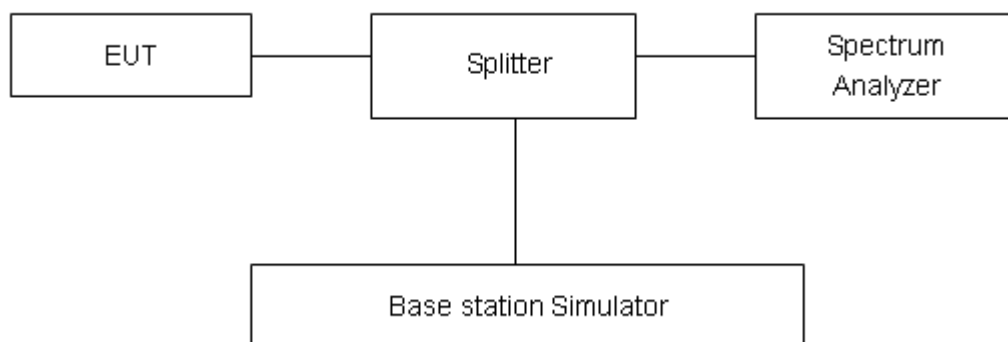
Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth.

Step 1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.

Step 2. Set the CCDF option in Spectrum analyzer.

Step 3. Record the maximum PAPR level associated with a probability of 0.1%.

Test Setup



Limits

No specific Peak-to-Average Ratio requirements in KDB 971168.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

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Test Results: PASS

LTE Band 5					
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Test Result(dB)
100%	QPSK	1.4	20407	824.7	5.83
			20525	836.5	4.53
			20643	848.3	5.60
		3	20415	825.5	5.81
			20525	836.5	4.96
			20635	847.5	5.74
		5	20425	826.5	5.84
			20525	836.5	4.71
			20625	846.5	5.64
		10	20450	829	5.76
			20525	836.5	5.15
			20600	844	5.78
	16QAM	1.4	20407	824.7	6.18
			20525	836.5	4.77
			20643	848.3	5.94
		3	20415	825.5	6.34
			20525	836.5	5.31
			20635	847.5	6.45
		5	20425	826.5	6.47
			20525	836.5	5.10
			20625	846.5	6.33
		10	20450	829	6.24
			20525	836.5	5.61
			20600	844	6.06

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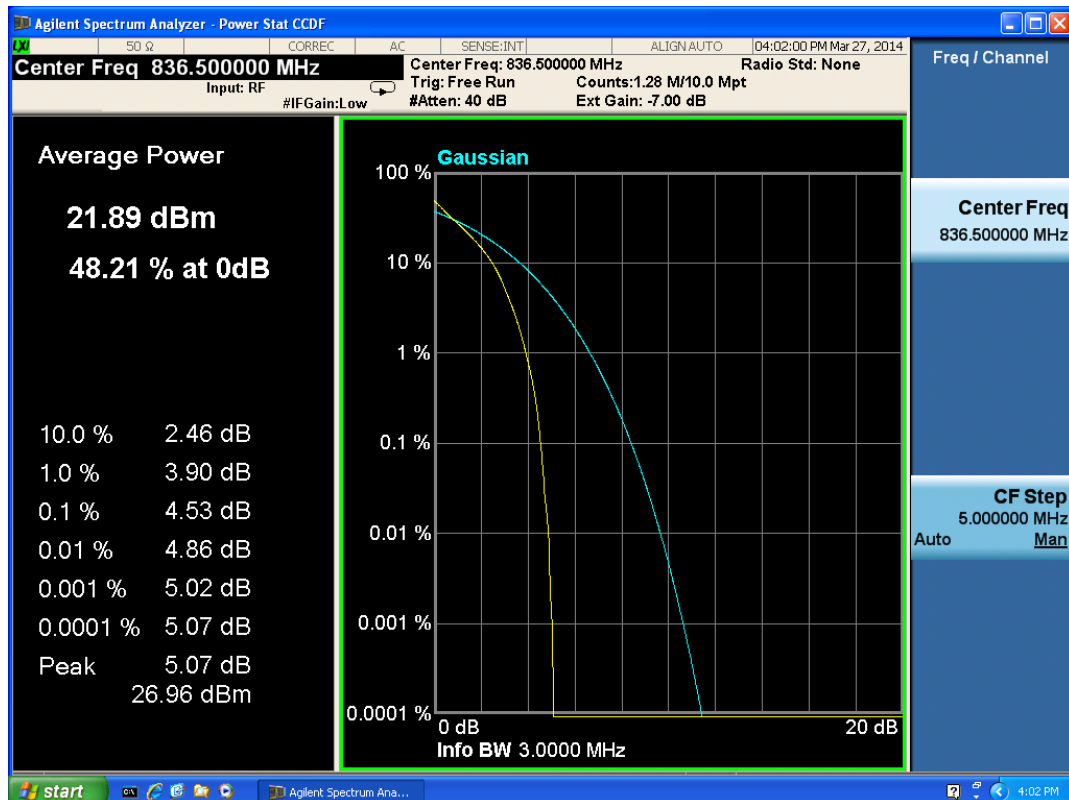
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LTE Band 5 QPSK Bandwidth = 1.4MHz CH20407



LTE Band 5 QPSK Bandwidth = 1.4MHz CH20525

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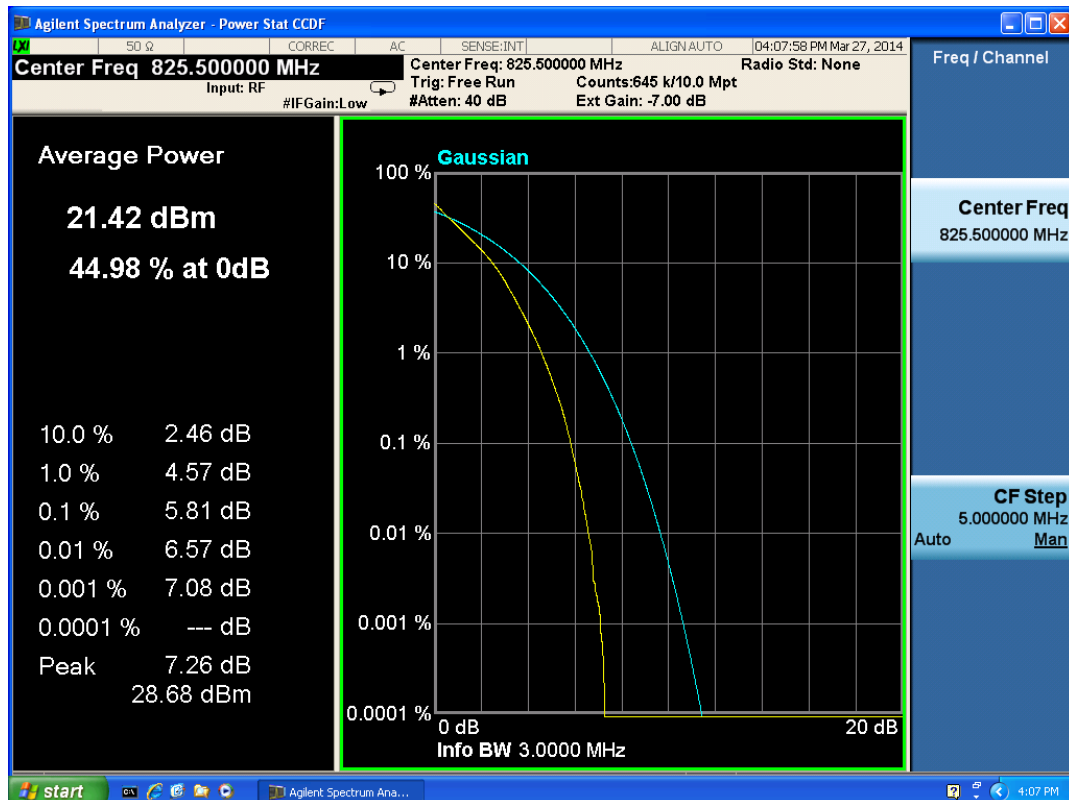
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LTE Band 5 QPSK Bandwidth = 1.4MHz CH20643



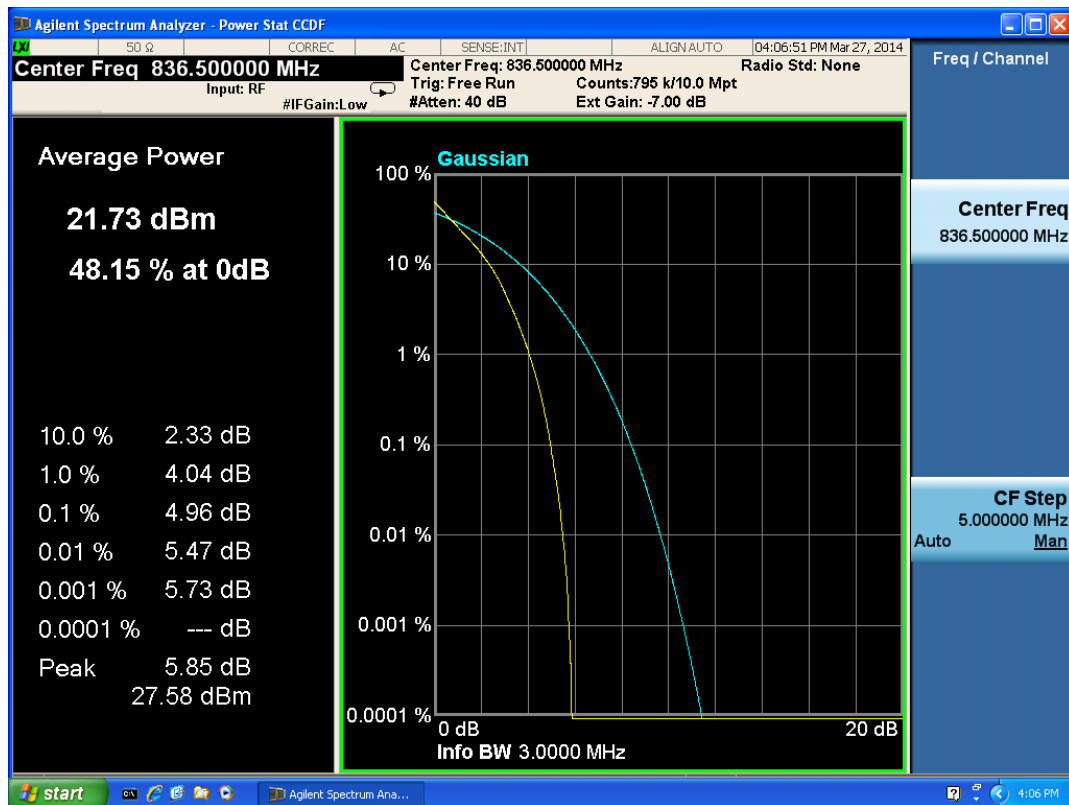
LTE Band 5 QPSK Bandwidth = 3MHz CH20415

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LTE Band 5 QPSK Bandwidth = 3MHz CH20525



LTE Band 5 QPSK Bandwidth = 3MHz CH20635

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LTE Band 5 QPSK Bandwidth = 5MHz CH20425



LTE Band 5 QPSK Bandwidth = 5MHz CH20525

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LTE Band 5 QPSK Bandwidth = 5MHz CH20625



LTE Band 5 QPSK Bandwidth = 10MHz CH20450

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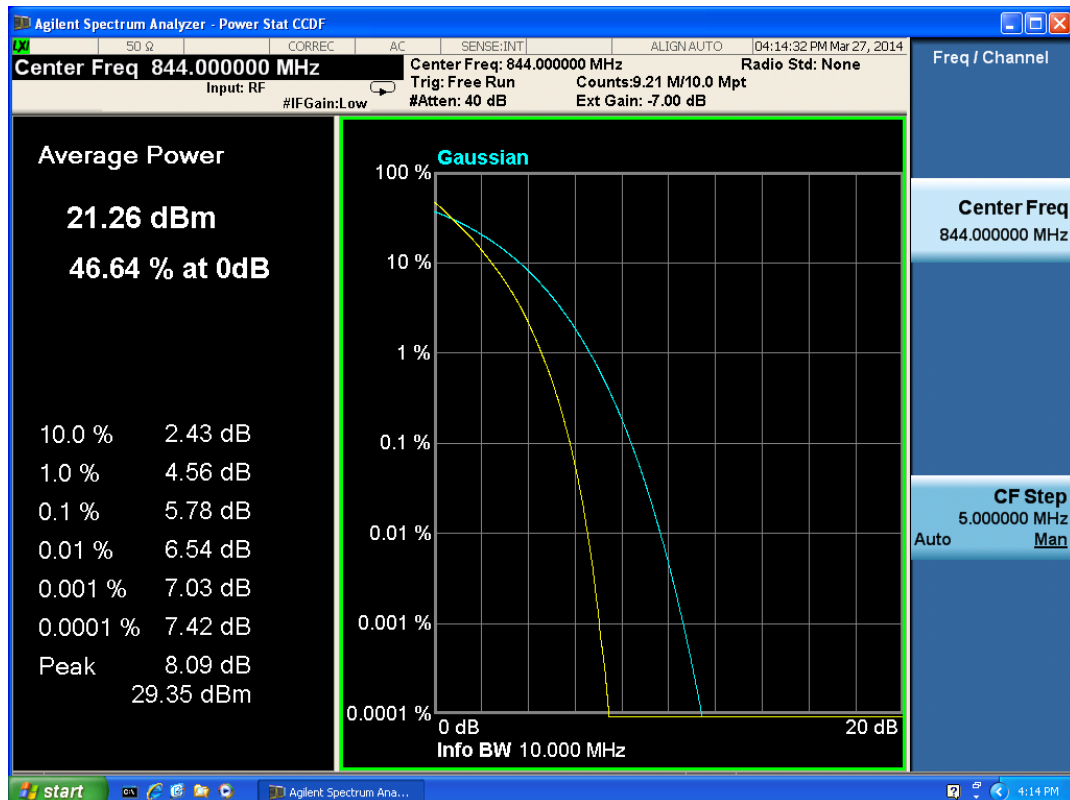
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LTE Band 5 QPSK Bandwidth = 10MHz CH20525



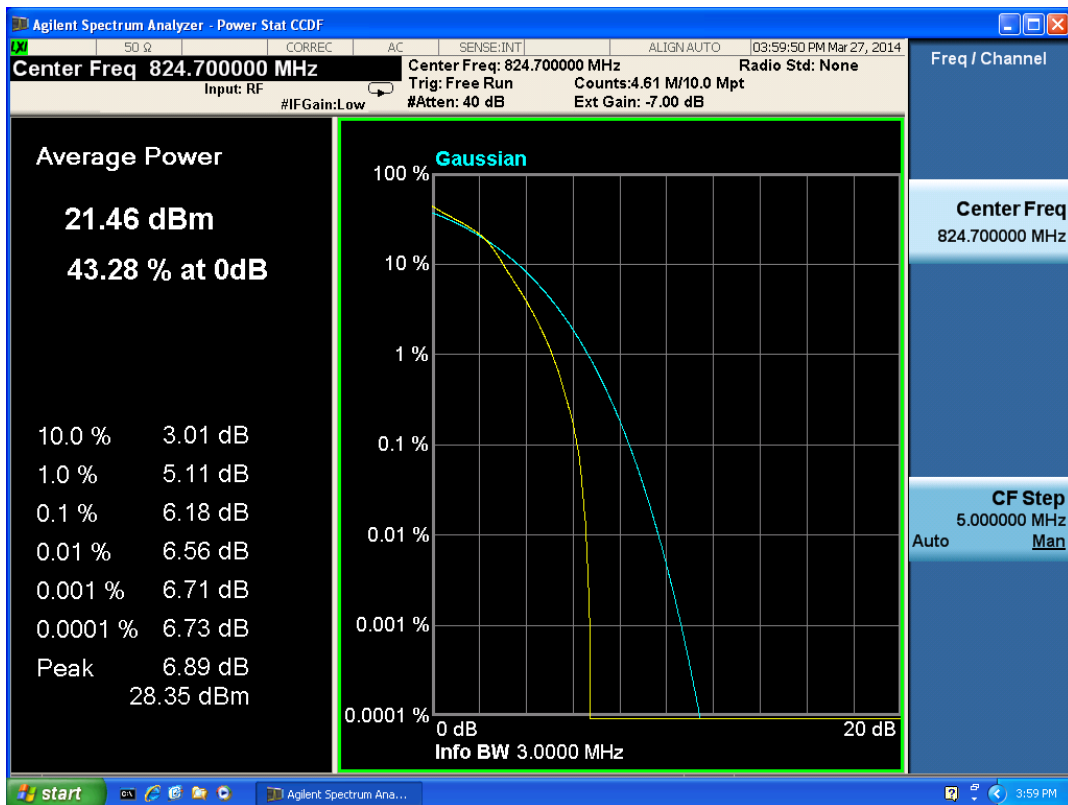
LTE Band 5 QPSK Bandwidth = 10MHz CH20600

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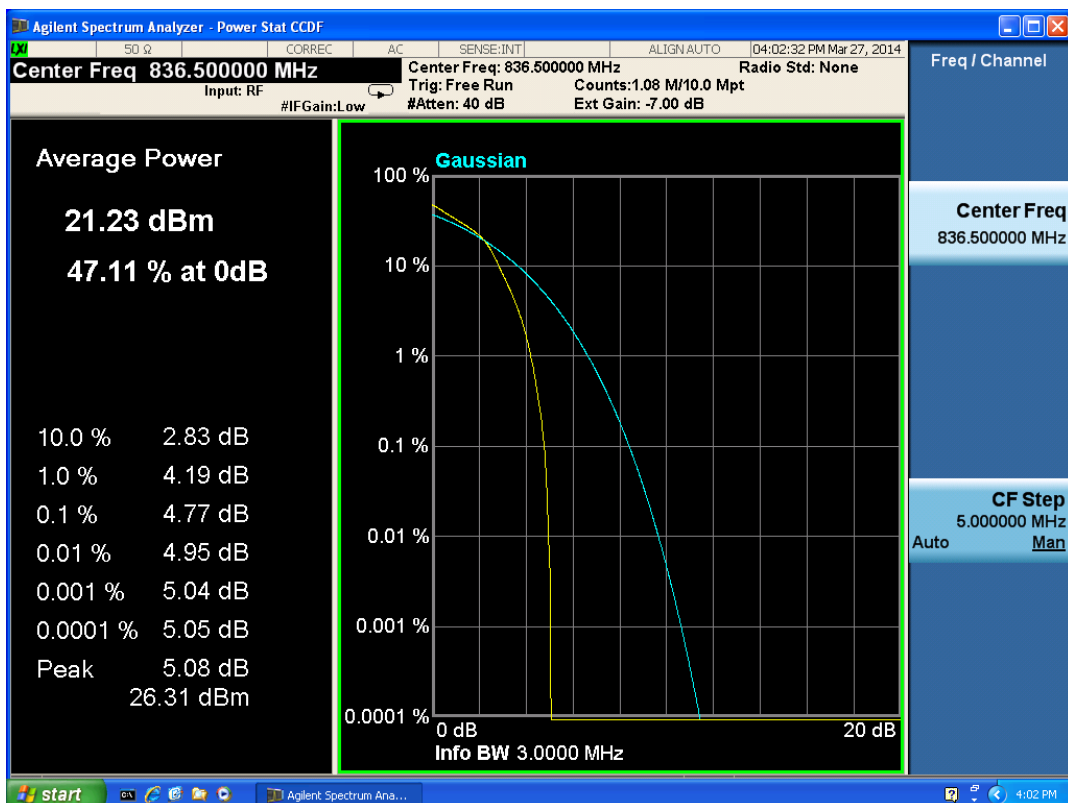
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LTE Band 5 16QAM Bandwidth = 1.4MHz CH20407



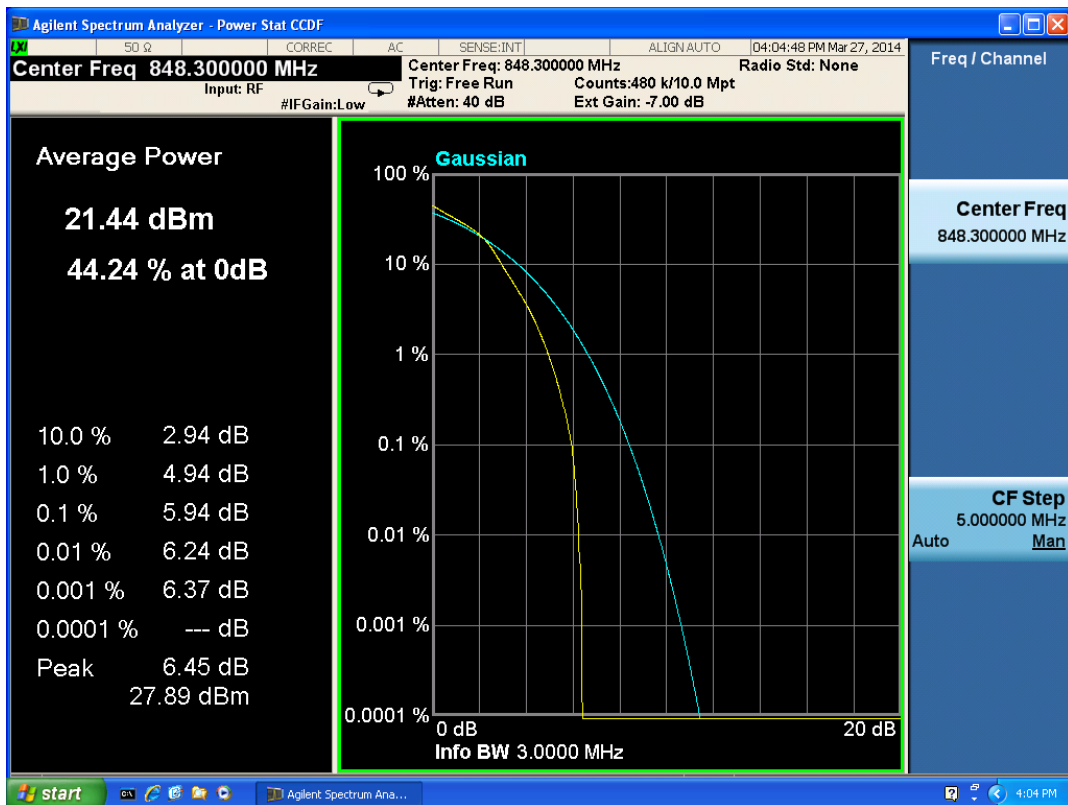
LTE Band 5 16QAM Bandwidth = 1.4MHz CH20525

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LTE Band 5 16QAM Bandwidth = 1.4MHz CH20643



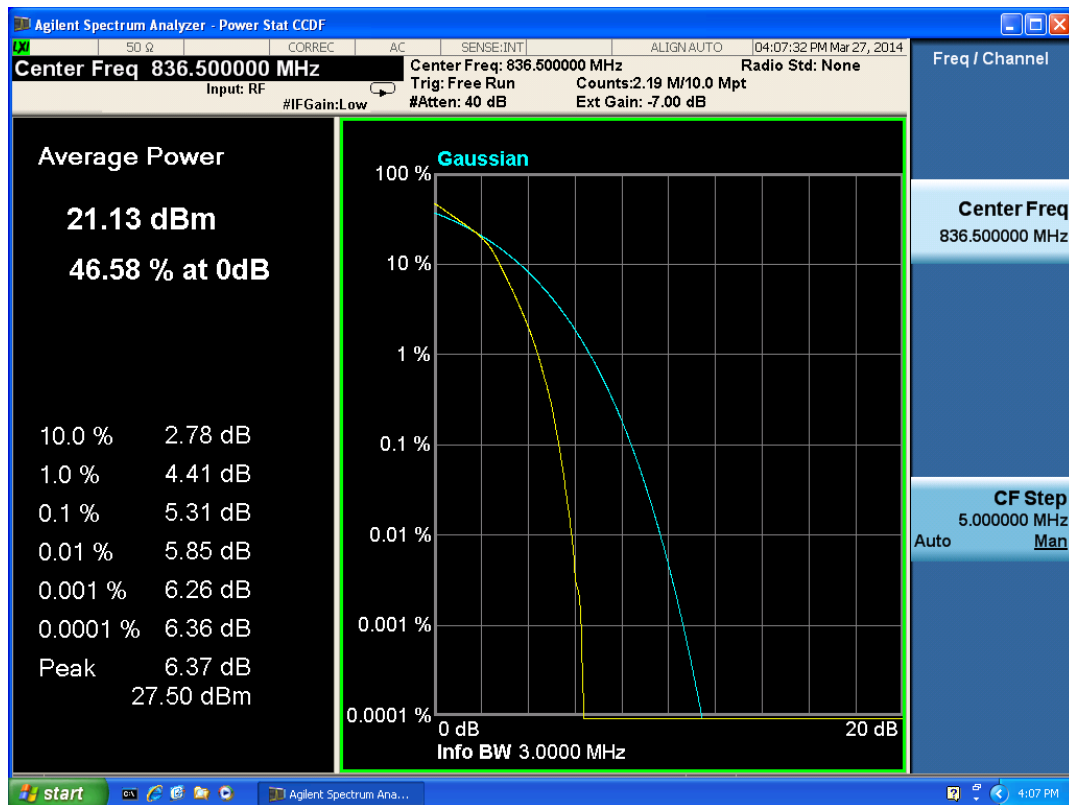
LTE Band 5 16QAM Bandwidth = 3MHz CH20415

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LTE Band 5 16QAM Bandwidth = 3MHz CH20525



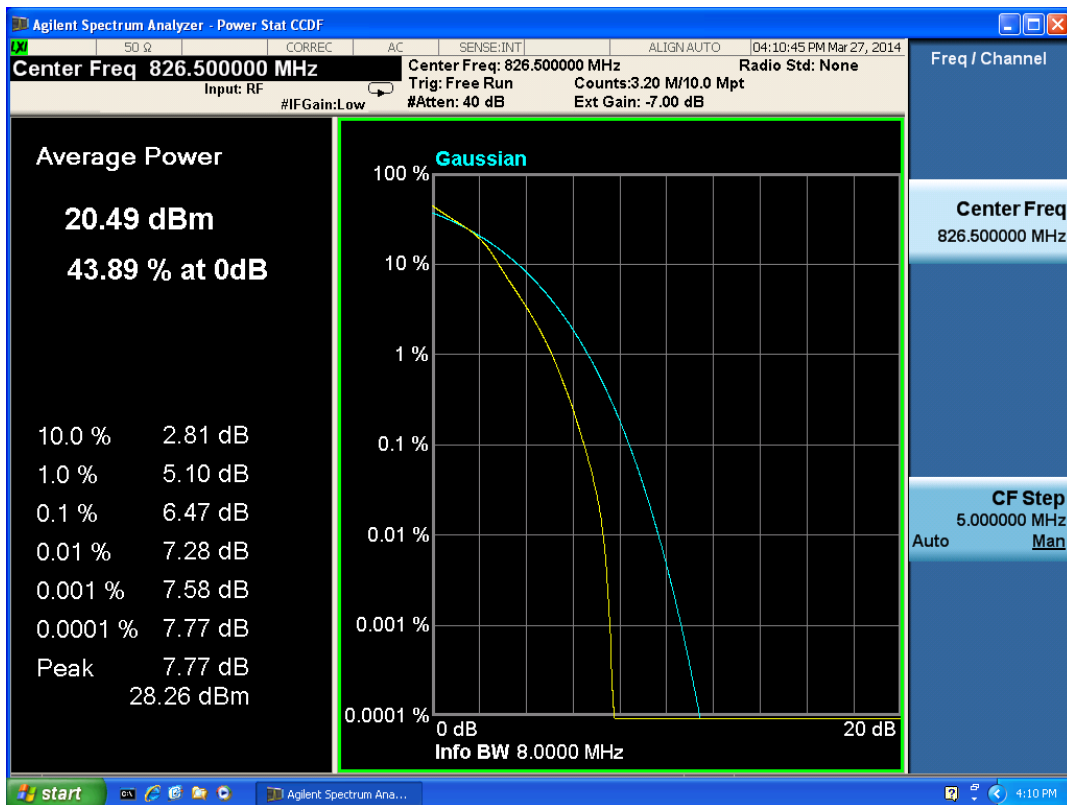
LTE Band 5 16QAM Bandwidth = 3MHz CH20635

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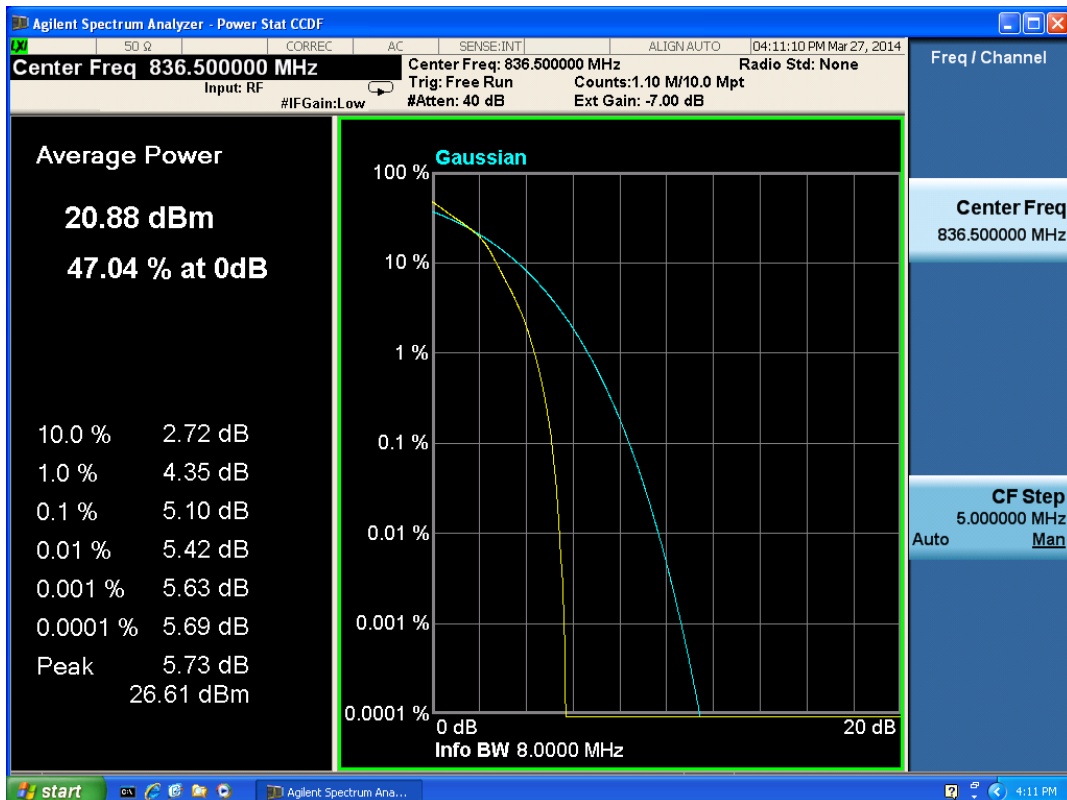
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LTE Band 5 16QAM Bandwidth = 5MHz CH20425



LTE Band 5 16QAM Bandwidth = 5MHz CH20525

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LTE Band 5 16QAM Bandwidth = 5MHz CH20625



LTE Band 5 16QAM Bandwidth = 10MHz CH20450

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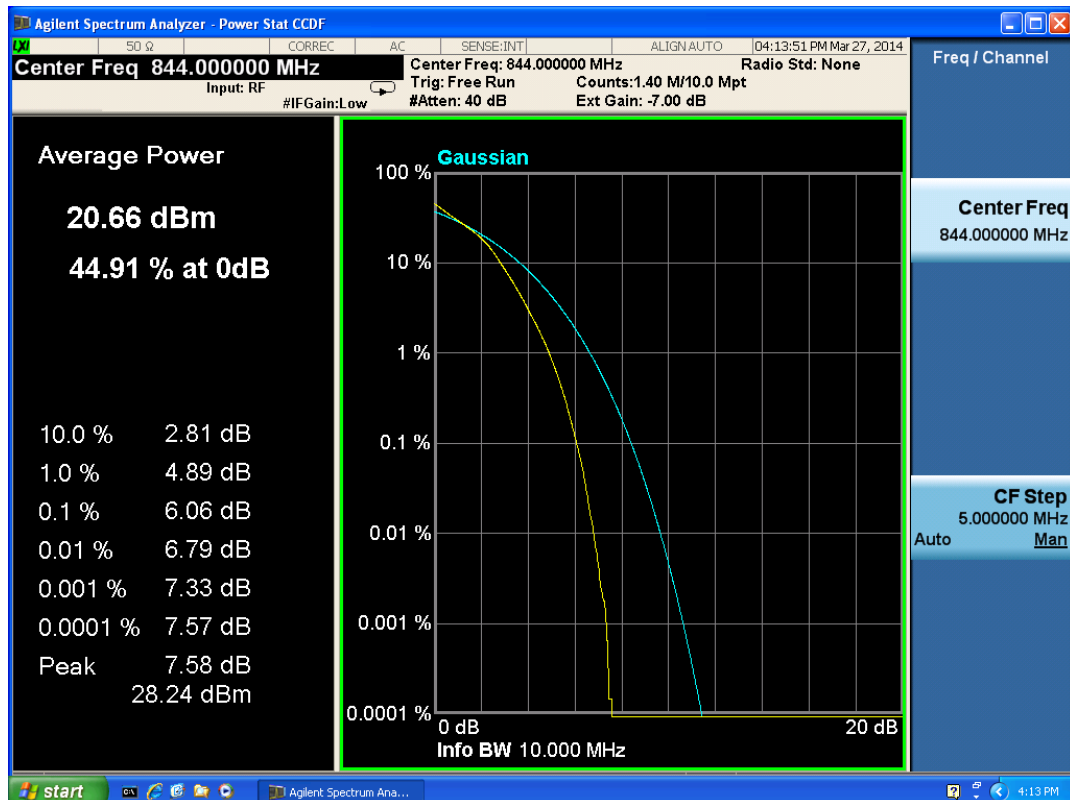
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LTE Band 5 16QAM Bandwidth = 10MHz CH20525



LTE Band 5 16QAM Bandwidth = 10MHz CH20600

2.7. 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 0°C to +40°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 0°C to +40°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

2. Frequency Stability (Voltage Variation)

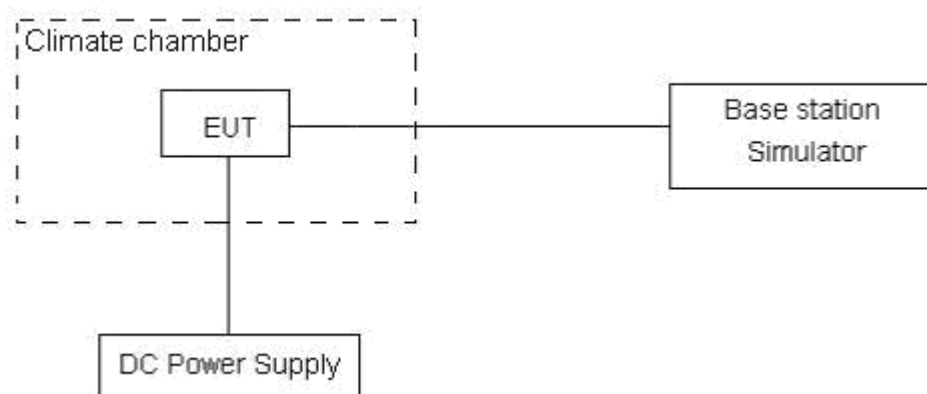
The frequency stability shall be measured with variation of primary supply voltage as follows:

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

Test setup



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Limits

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

Limits	$\leq 2.5 \text{ ppm}$
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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 $k = 3$, $U = 0.01 \text{ ppm}$.

Test Result

Temperature (°C)	Test Results (ppm) / 3.7 V Power supply Channel 20525							
	QPSK, 100%RB				16QAM, 100%RB			
	Channel Bandwidth(MHz)				Channel Bandwidth(MHz)			
	1.4	3	5	10	1.4	3	5	10
40	0.0161	0.0073	0.0038	0.0042	0.0084	0.0121	0.0073	0.0074
30	0.0116	0.0082	0.0000	-0.0007	0.0035	0.0157	0.0086	0.0033
20	0.0141	0.0063	0.0082	0.0016	0.0020	0.0086	0.0026	0.0062
10	0.0055	0.0029	0.0004	-0.0020	0.0041	0.0051	0.0031	0.0088
0	0.0062	0.0051	0.0026	-0.0048	0.0049	0.0072	0.0079	-0.0049

Voltage (V)	Test Results(ppm) / 20°C Channel 20525							
	QPSK, 100%RB				16QAM, 100%RB			
	Channel Bandwidth(MHz)				Channel Bandwidth(MHz)			
	1.4	3	5	10	1.4	3	5	10
3.5	0.0050	0.0032	0.0044	-0.0066	0.0091	0.0151	0.0082	0.0071
3.7	0.0141	0.0063	0.0082	0.0016	0.0020	0.0086	0.0026	0.0062
4.2	0.0037	0.0104	0.0019	0.0011	0.0074	0.0063	0.0132	-0.0011

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2.8. Spurious Emissions at Antenna Terminals

Ambient condition

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

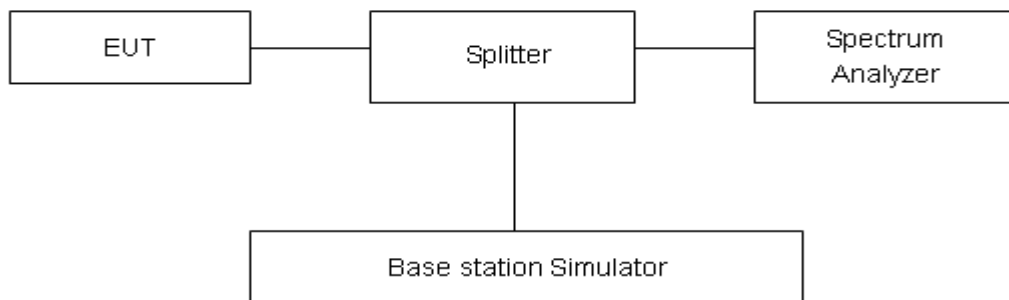
Method of Measurement

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 30MHz to the 10th harmonic of the carrier. RBW and VBW are set to 100 kHz for the carrier frequency, or RBW and VBW are set to 1MHz(other frequency), Sweep is set to ATUO.

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

We tested all modes for LTE Band 5. The worst emission was recorded in the report.

Test setup



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 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

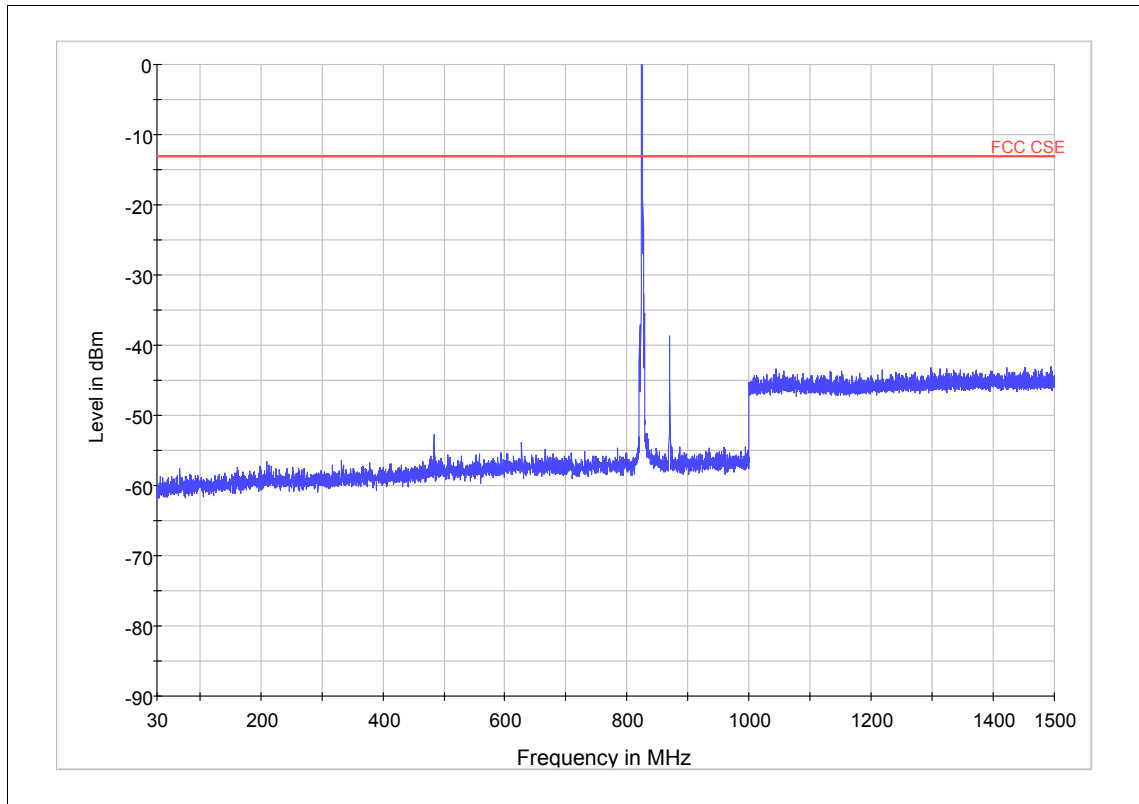
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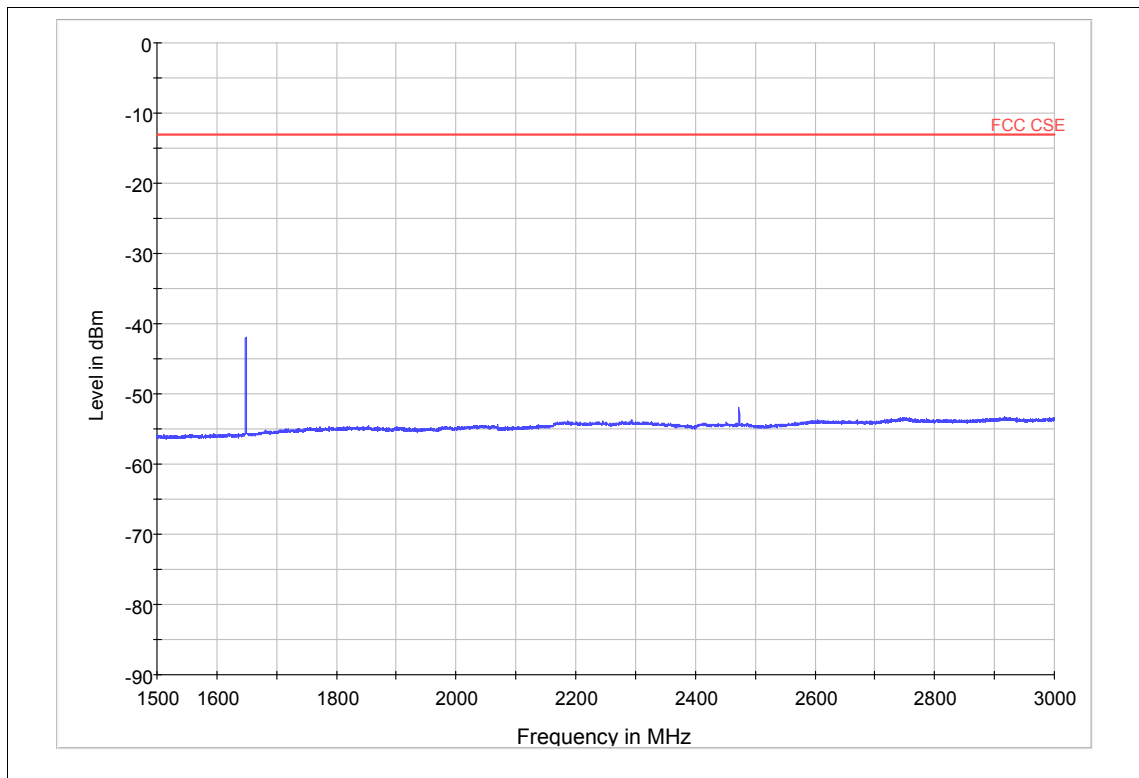
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Test Result

LTE Band 5 QPSK Bandwidth = 1.4MHz CH20407, RB 1



Note: The signal beyond the limit is carrier
LTE Band 5 20407 Channel 30MHz~1.5GHz

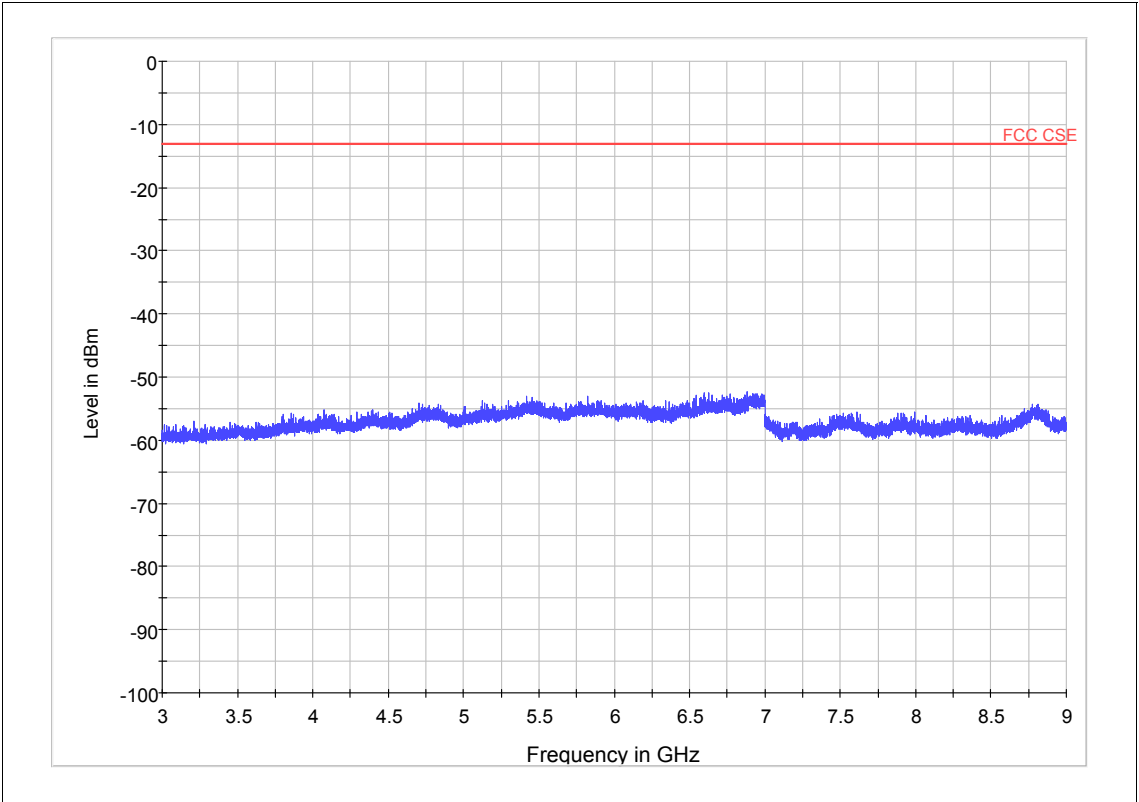


LTE Band 5 20407 Channel 1.5GHz~3GHz

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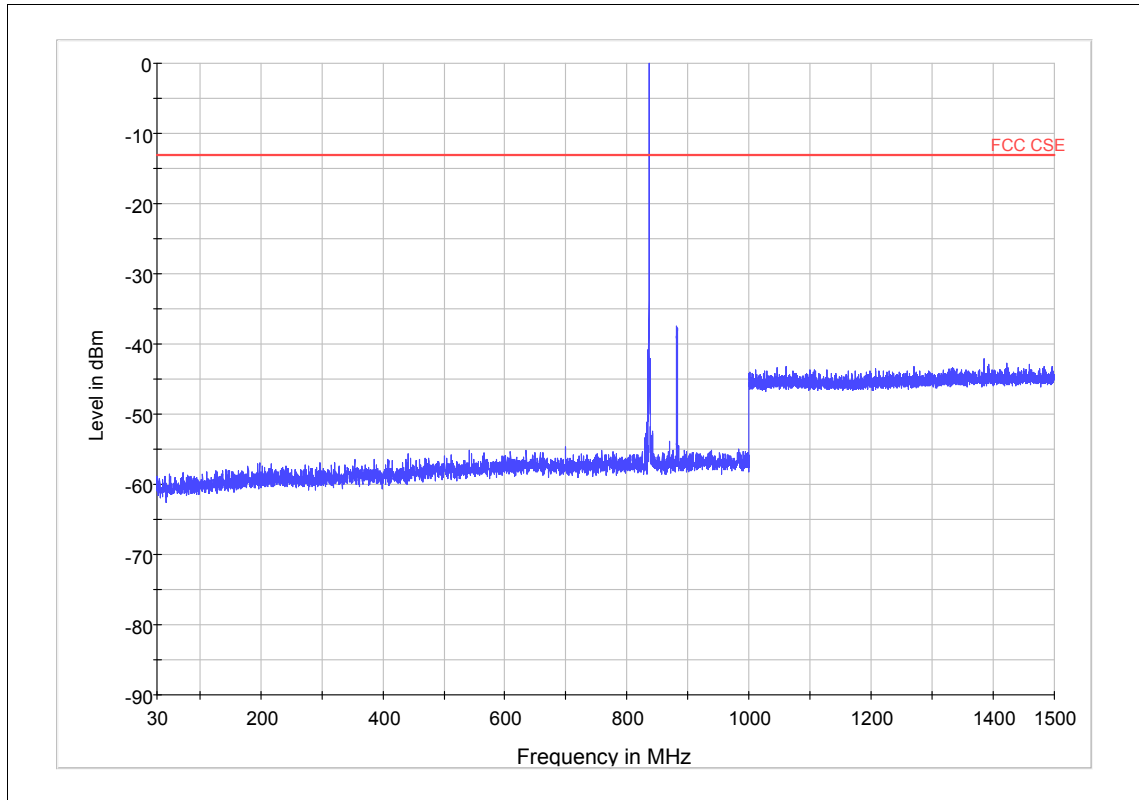
LTE Band 5 20407 Channel 3GHz~9GHz

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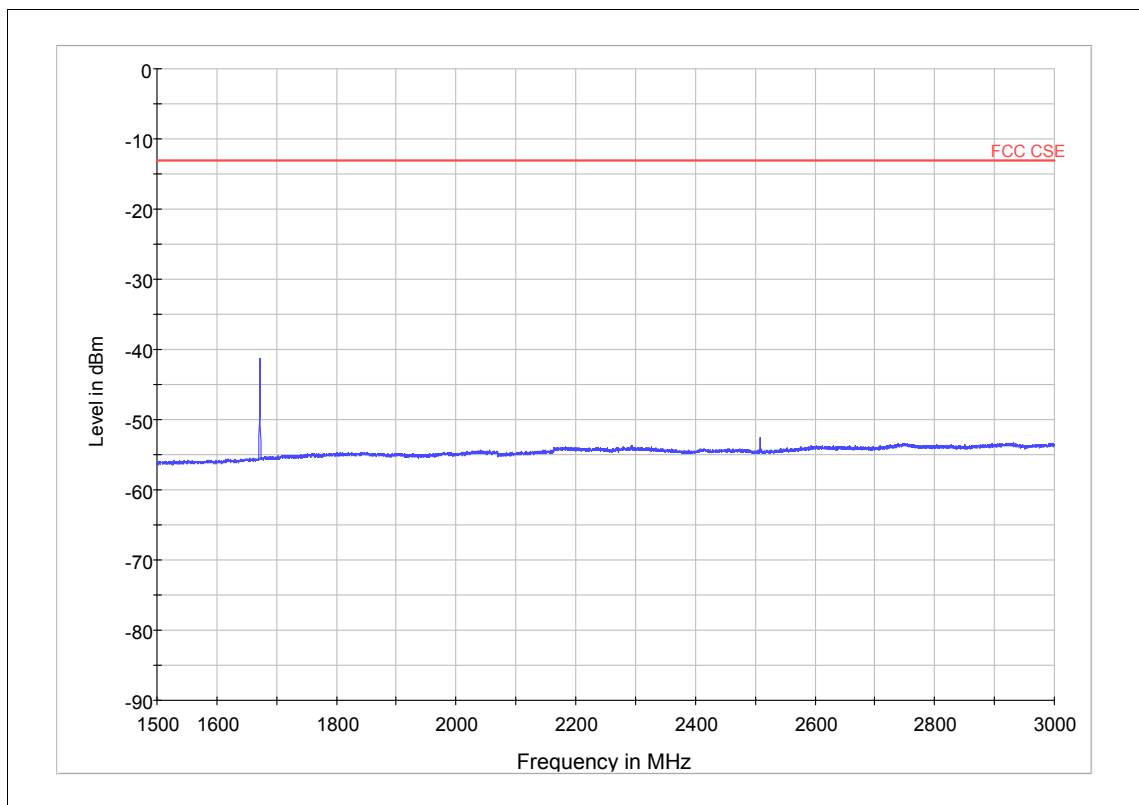
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LTE Band 5 QPSK Bandwidth = 1.4MHz CH20525, RB 1

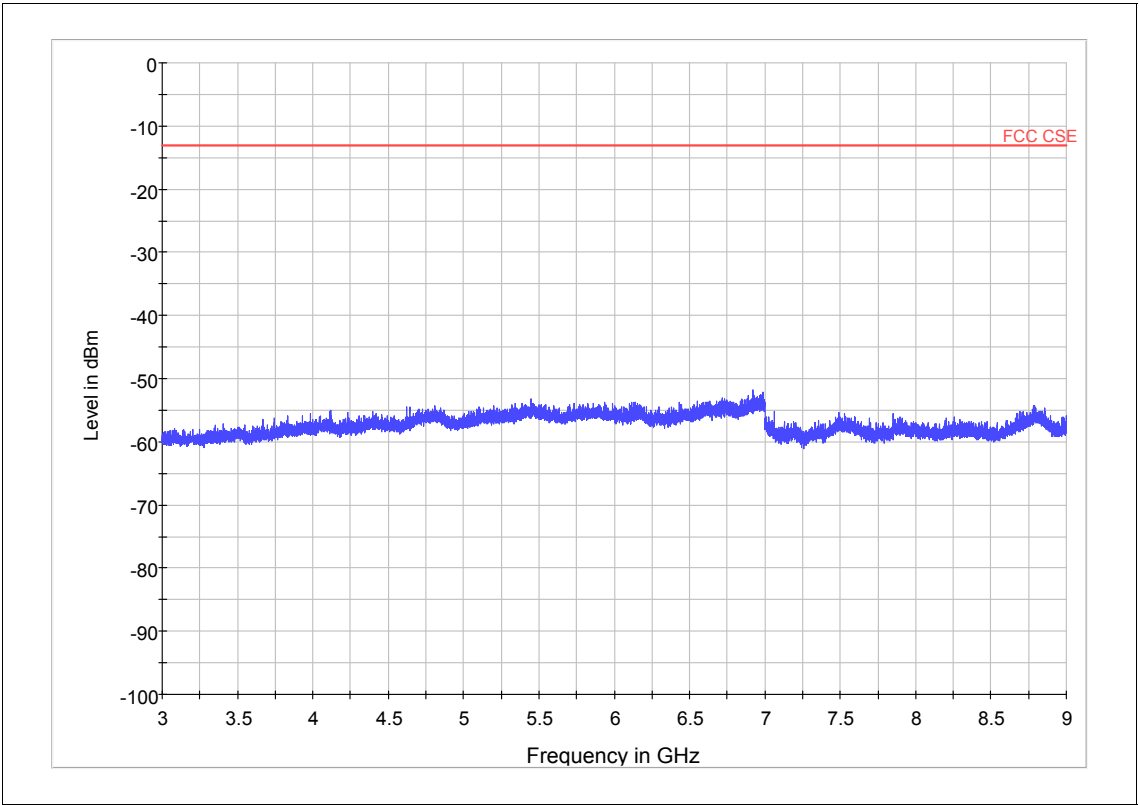


Note: The signal beyond the limit is carrier
LTE Band 5 20525 Channel 30MHz~1.5GHz



LTE Band 5 20525 Channel 1.5GHz~3GHz

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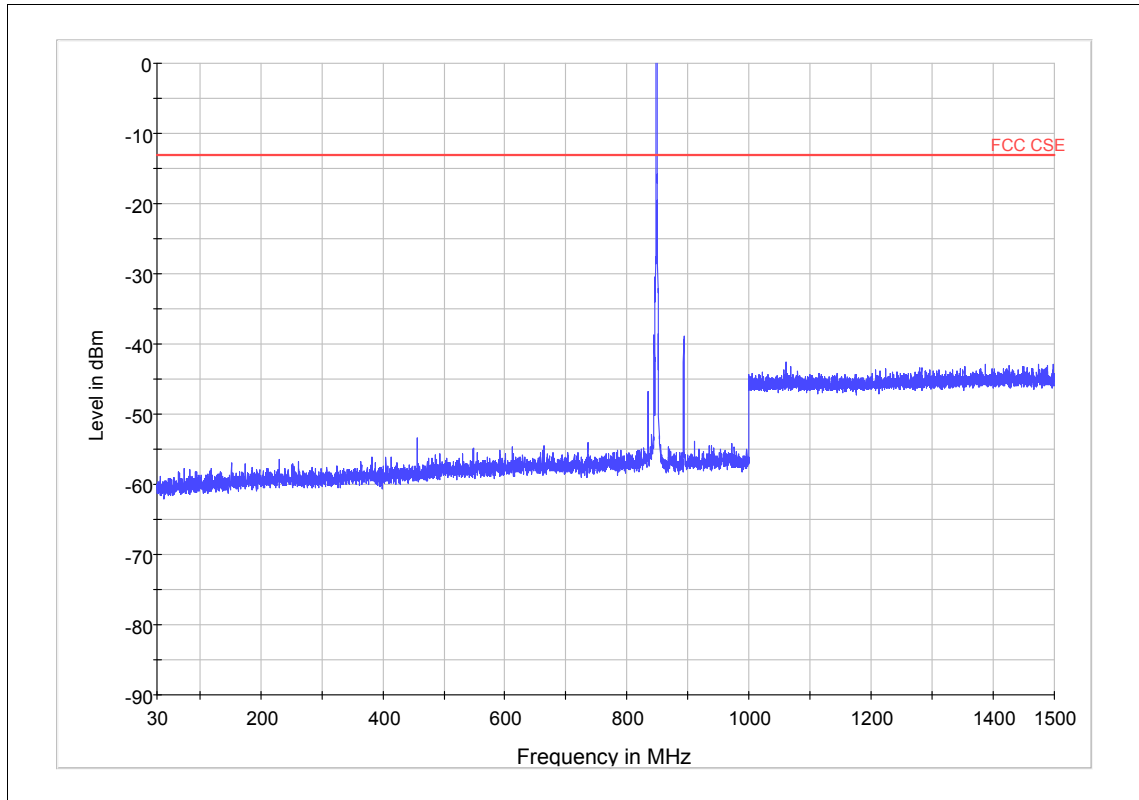
LTE Band 5 20525 Channel 3GHz~9GHz

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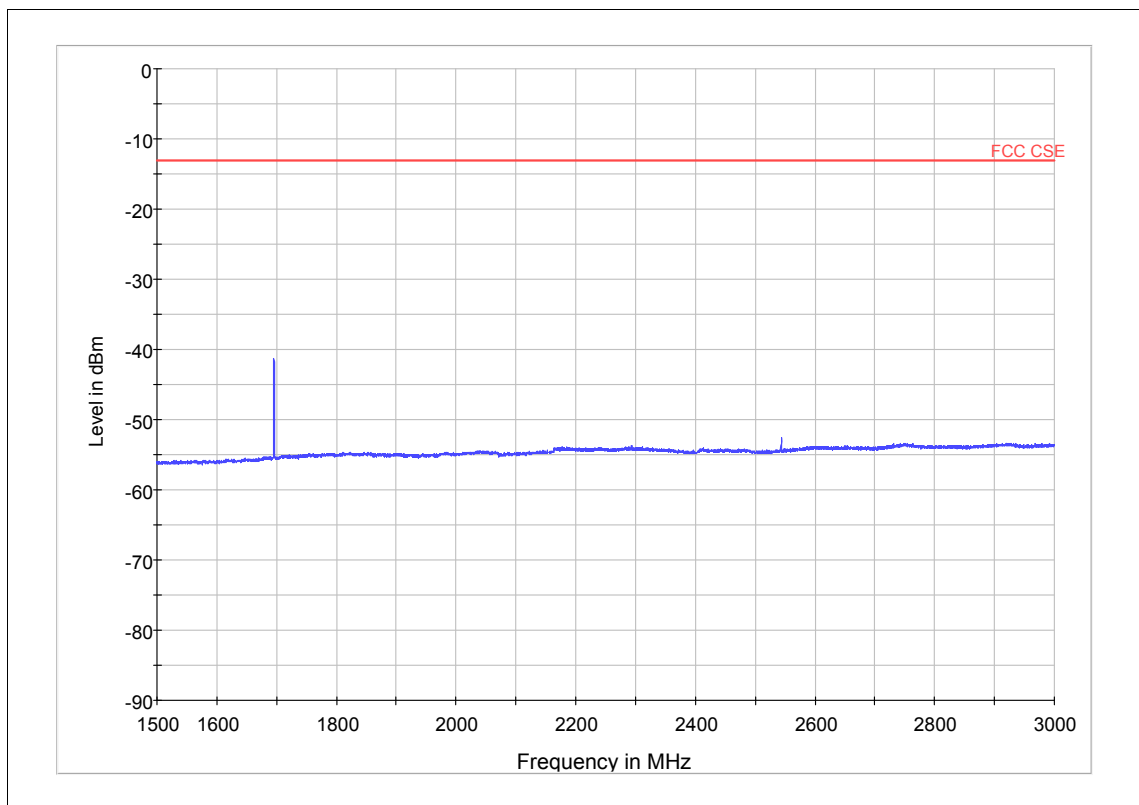
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LTE Band 5 QPSK Bandwidth = 1.4MHz CH20643,RB 1

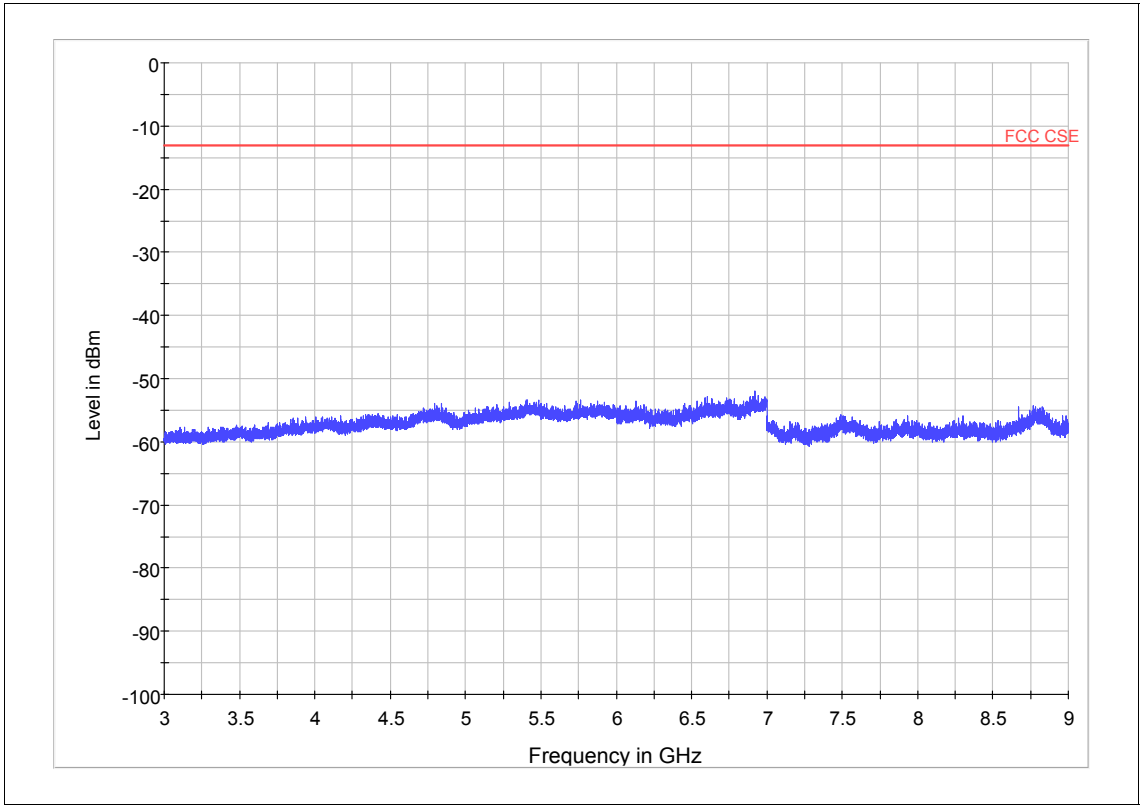


Note: The signal beyond the limit is carrier
LTE Band 5 20643 Channel 30MHz~1.5GHz



LTE Band 5 20643 Channel 1.5GHz~3GHz

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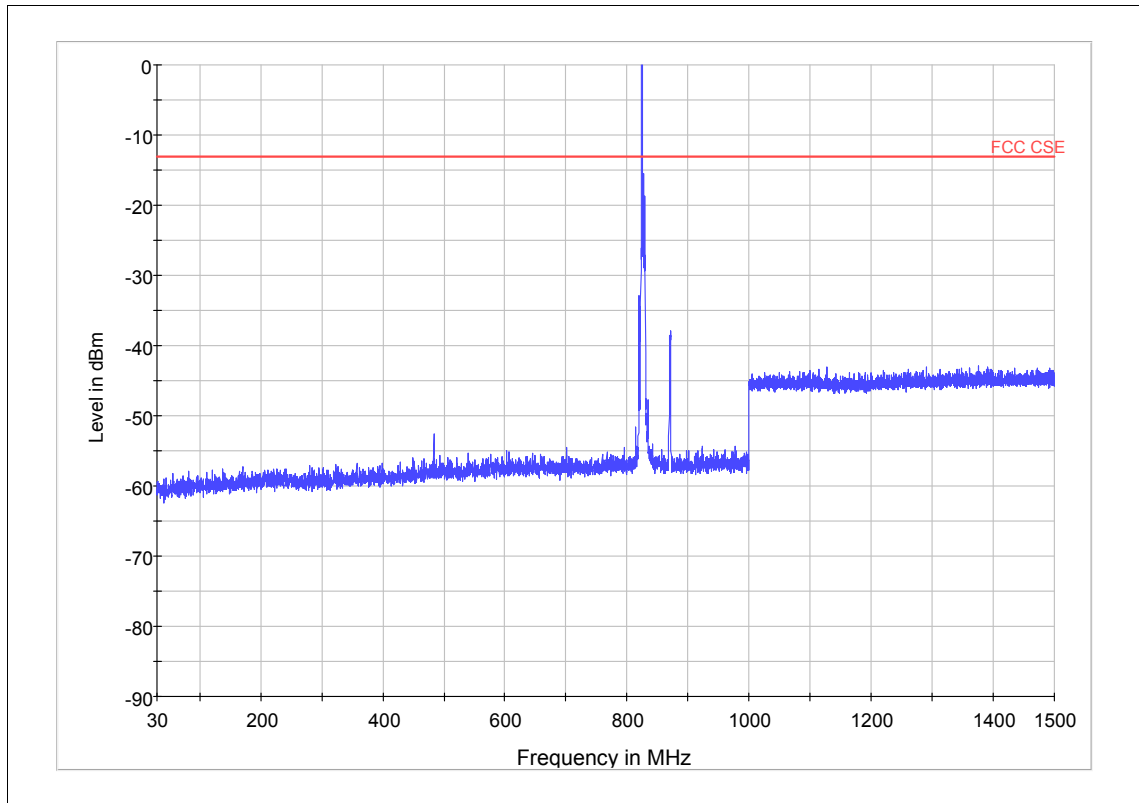
LTE Band 5 20643 Channel 3GHz~9GHz

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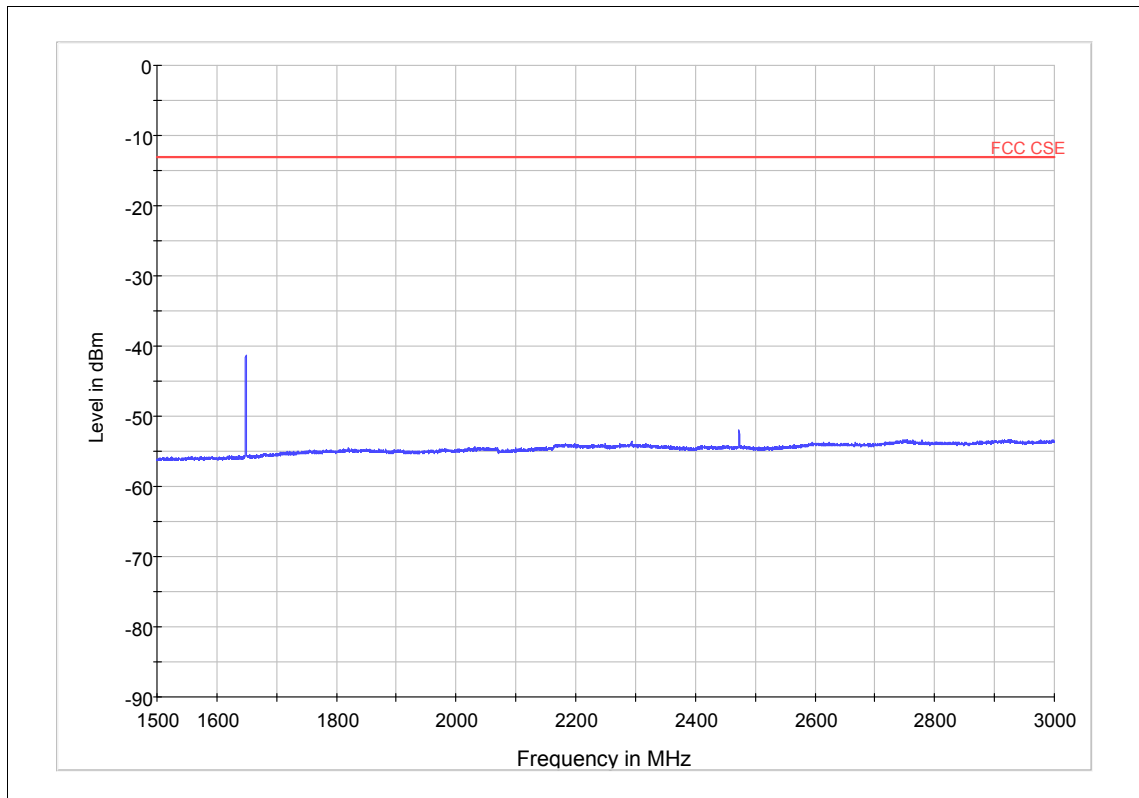
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LTE Band 5 QPSK Bandwidth = 3MHz CH20415, RB 1



Note: The signal beyond the limit is carrier
LTE Band 5 20415 Channel 30MHz~1.5GHz

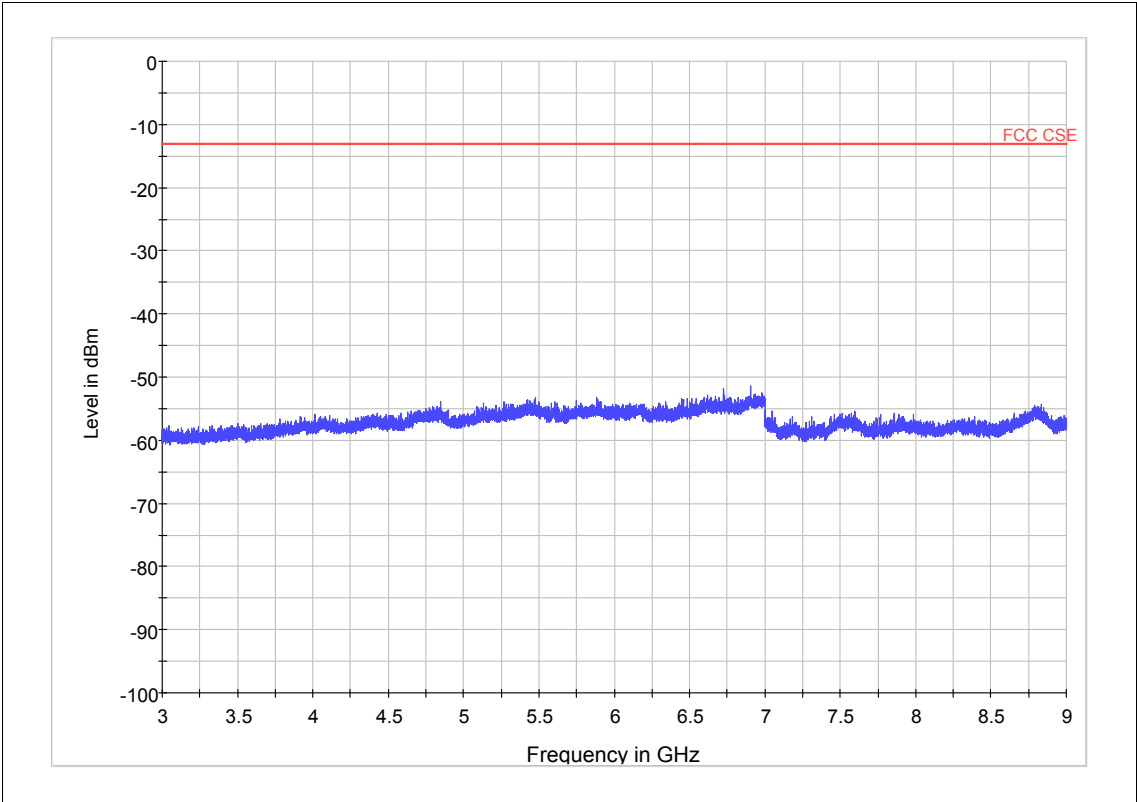


LTE Band 5 20415 Channel 1.5GHz~3GHz

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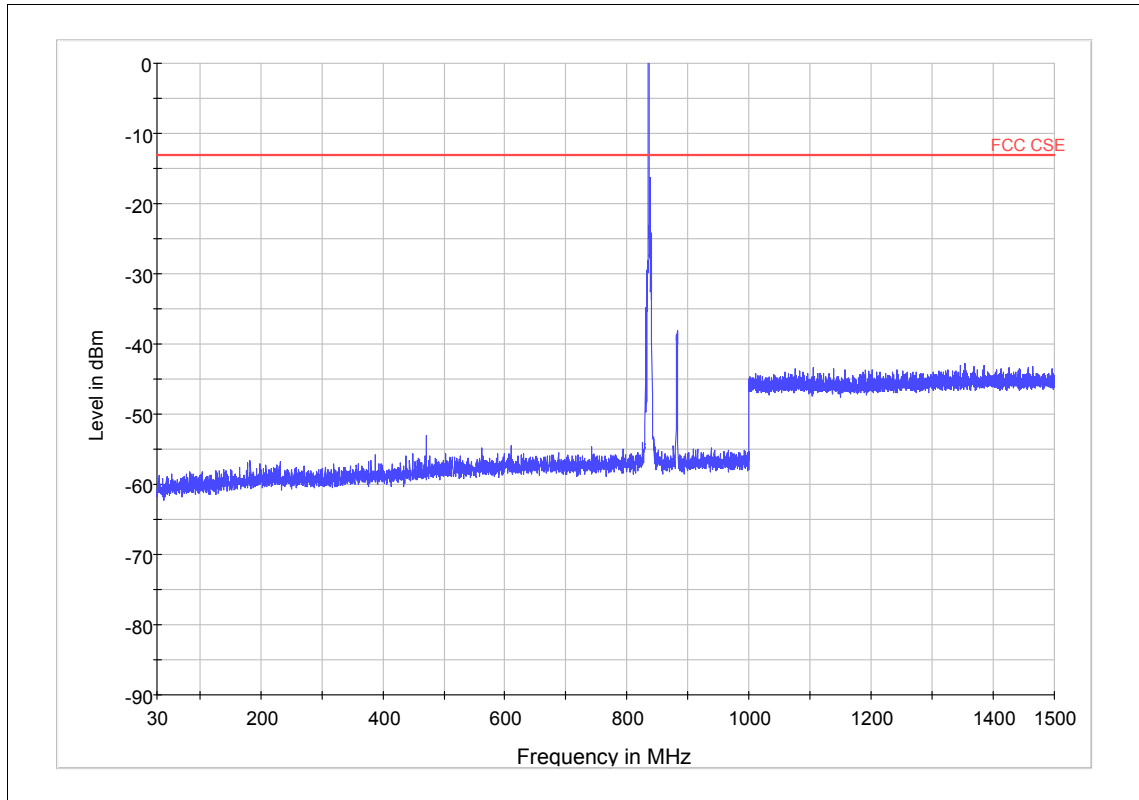
LTE Band 5 20415 Channel 3GHz~9GHz

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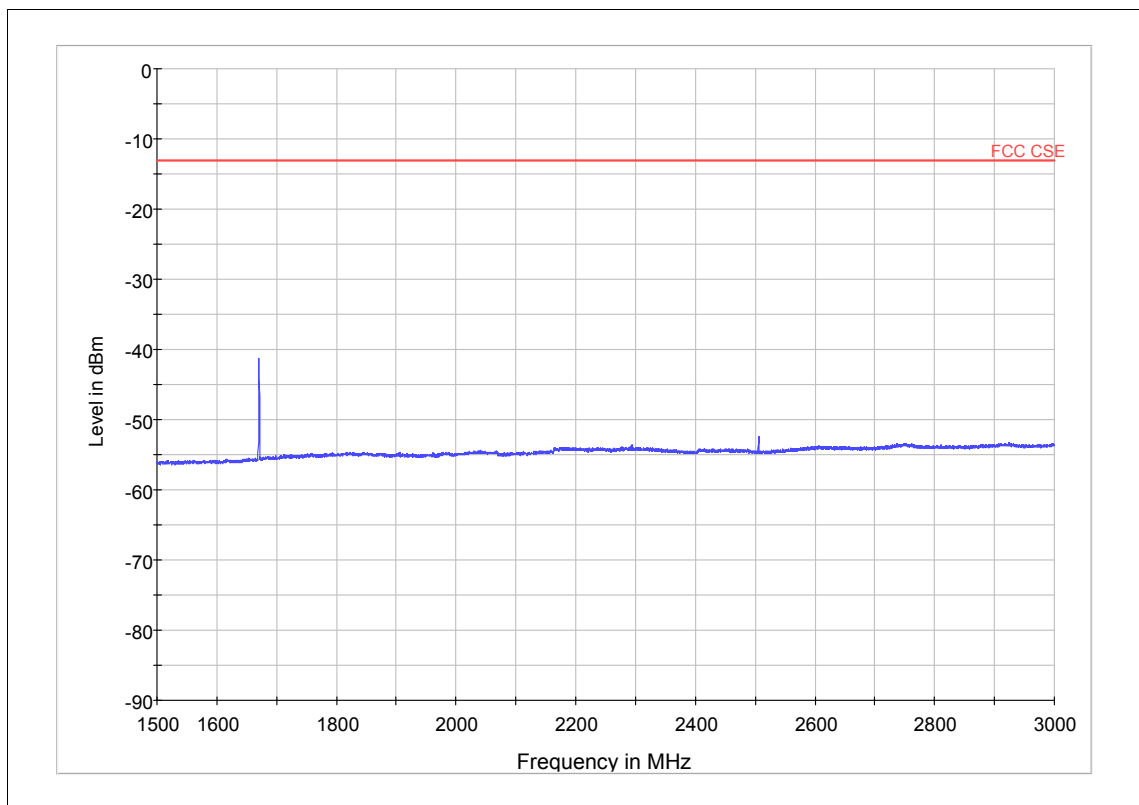
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LTE Band 5 QPSK Bandwidth = 3MHz CH20525,RB 1

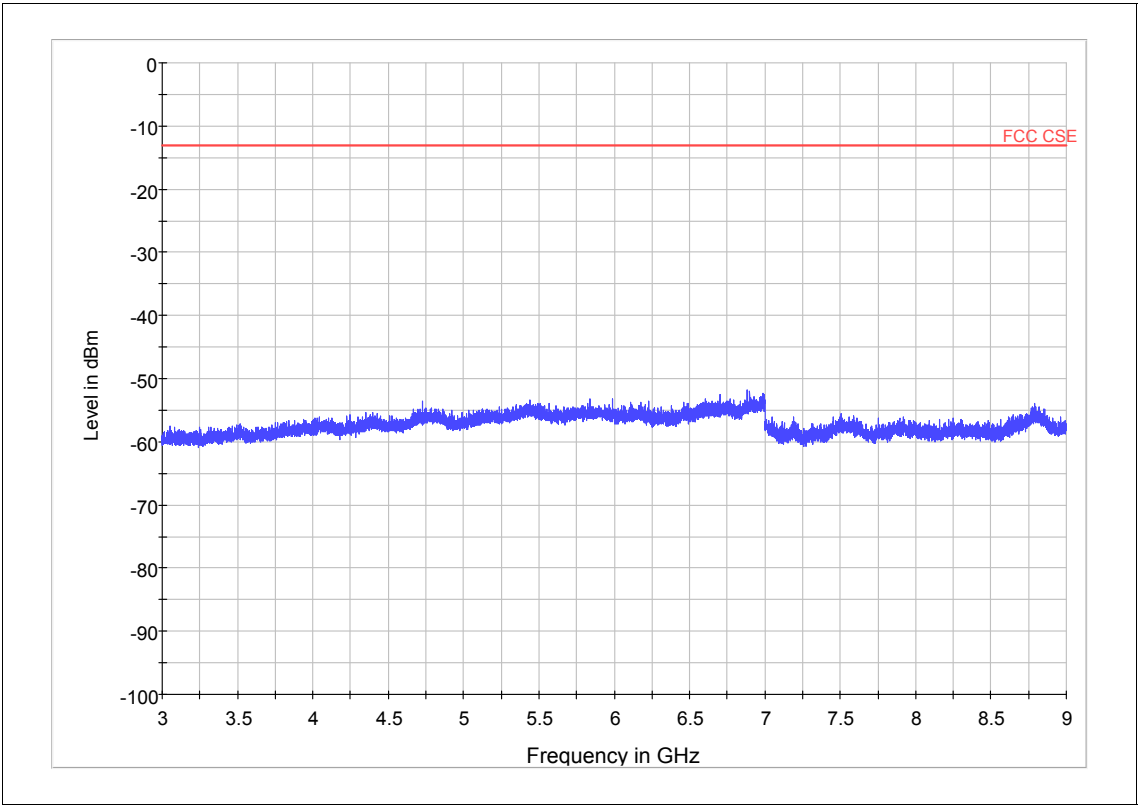


Note: The signal beyond the limit is carrier
LTE Band 5 20525 Channel 30MHz~1.5GHz



LTE Band 5 20525 Channel 1.5GHz~3GHz

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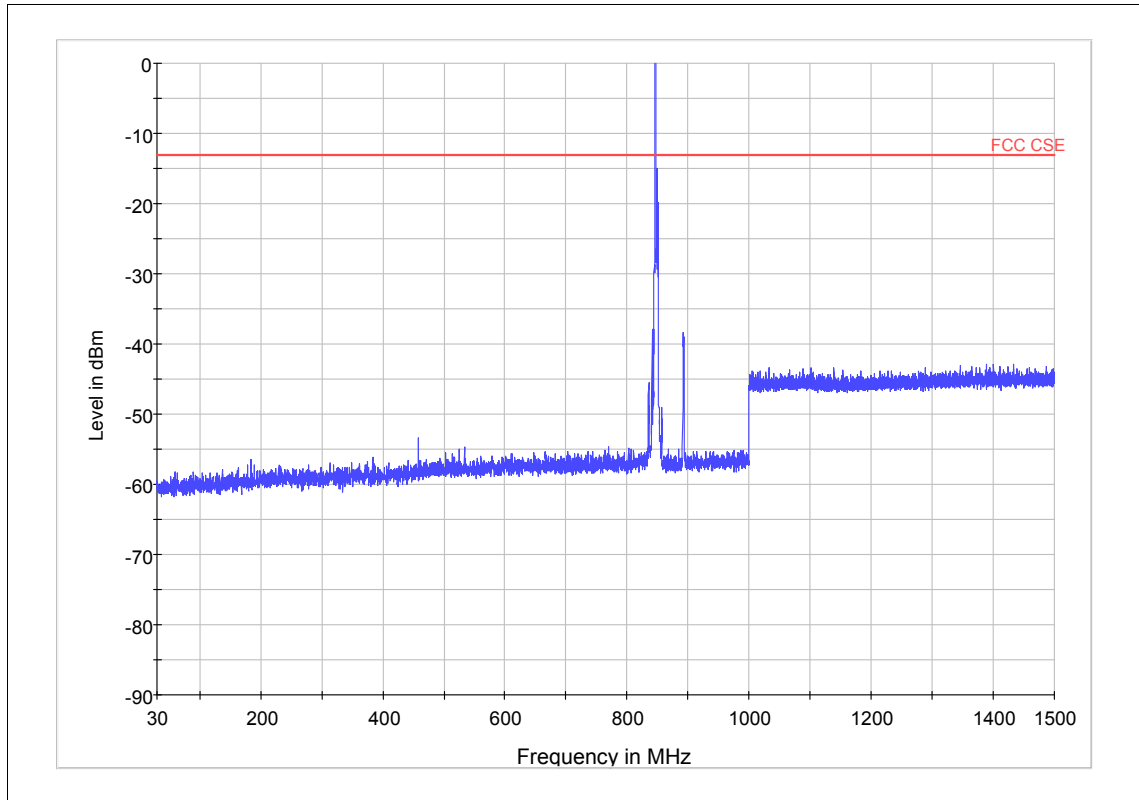
LTE Band 5 20525 Channel 3GHz~9GHz

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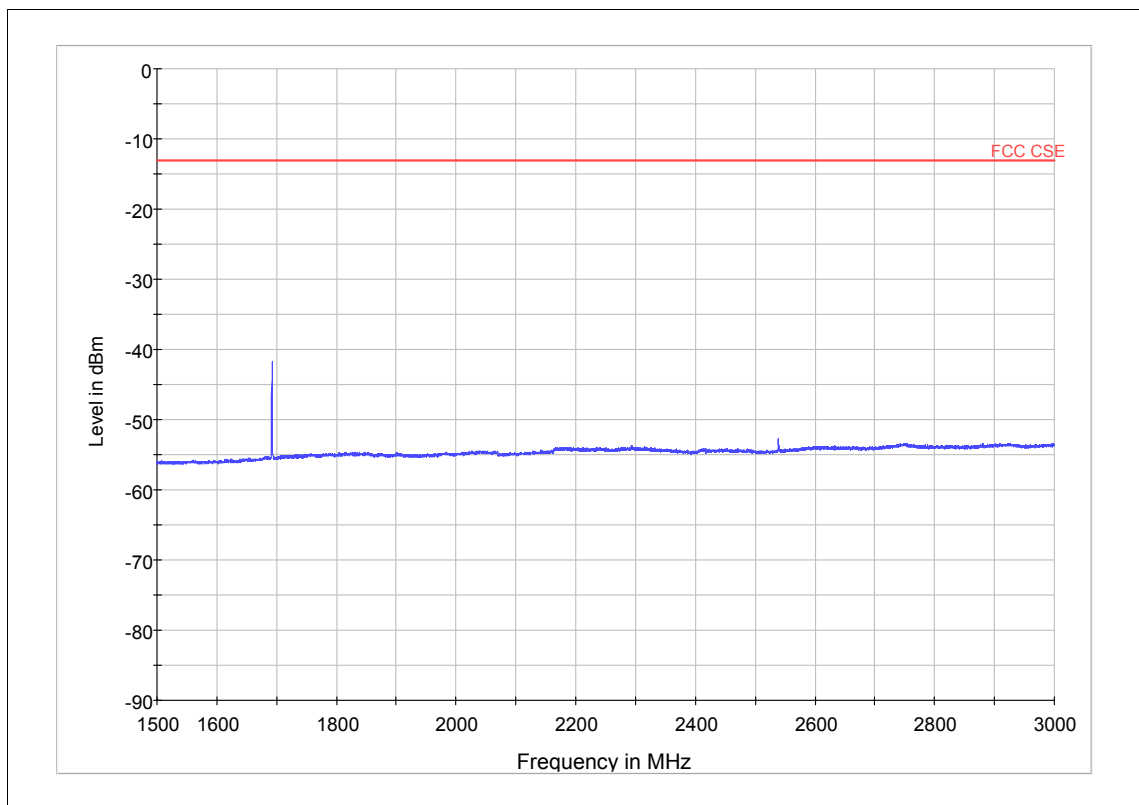
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LTE Band 5 QPSK Bandwidth = 3MHz CH20635, RB 1

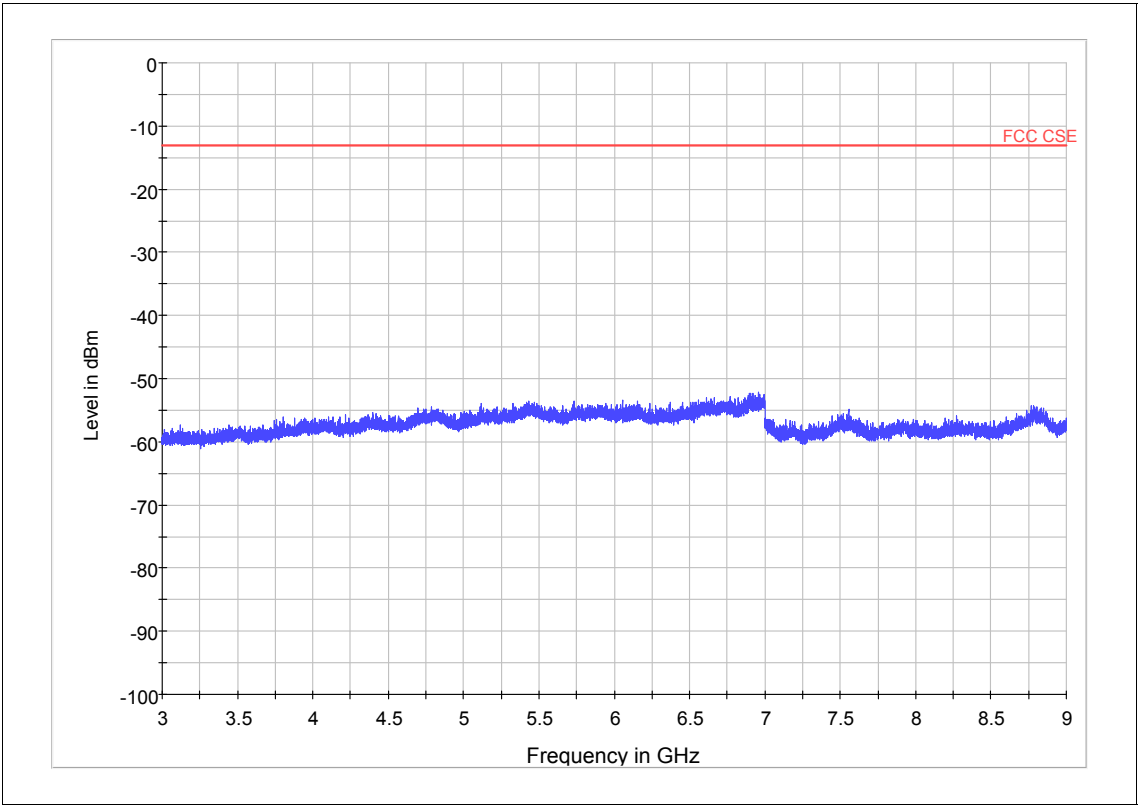


Note: The signal beyond the limit is carrier
LTE Band 5 20635 Channel 30MHz~1.5GHz



LTE Band 5 20635 Channel 1.5GHz~3GHz

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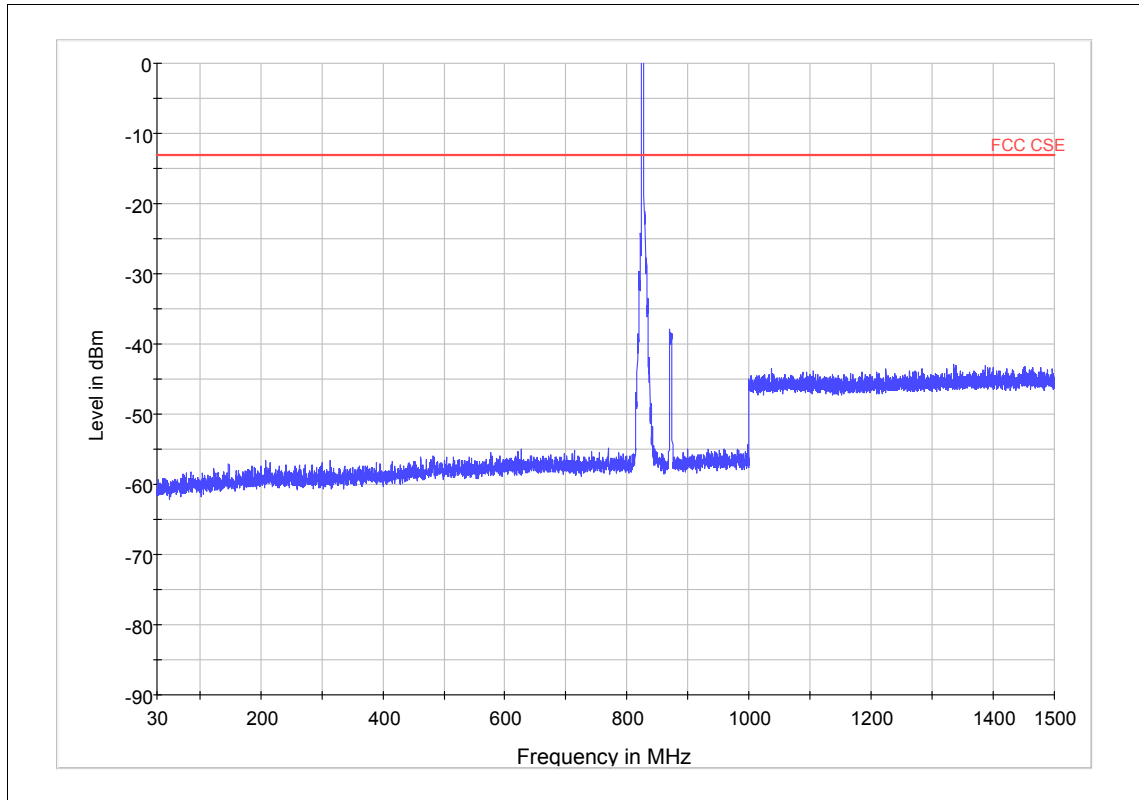
LTE Band 5 20635 Channel 3GHz~9GHz

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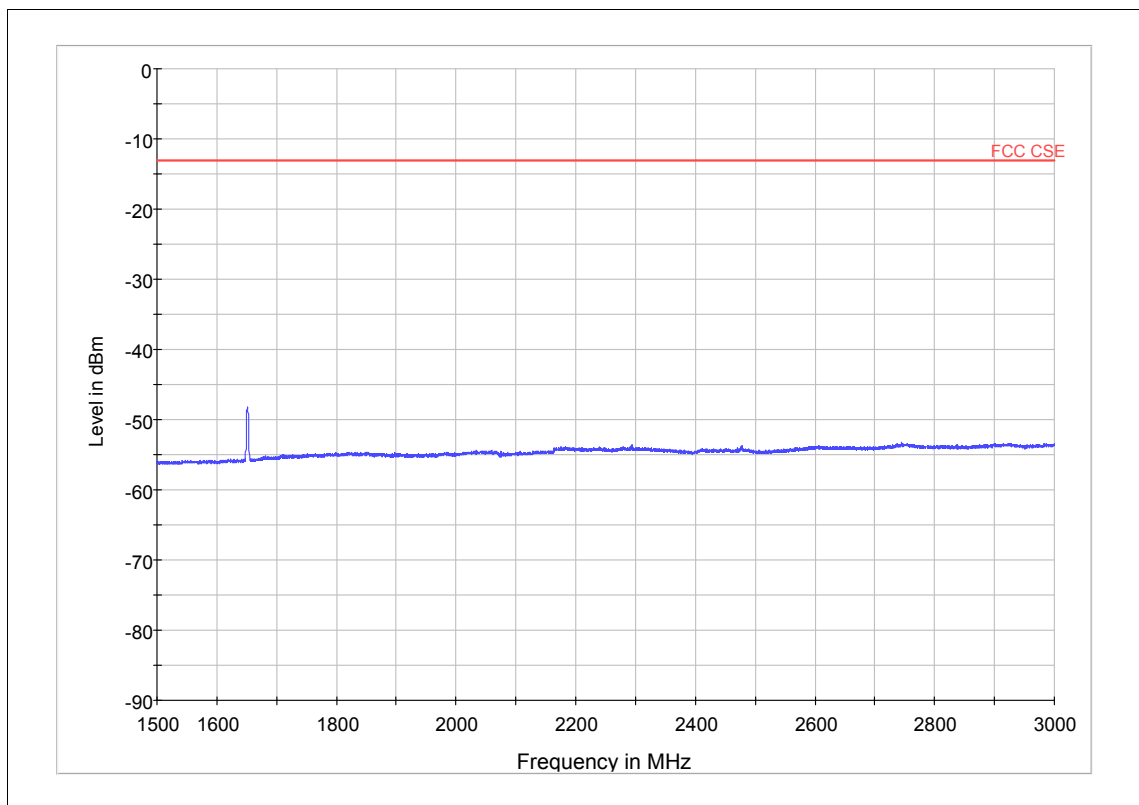
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LTE Band 5 QPSK Bandwidth = 5MHz CH20425, RB 1

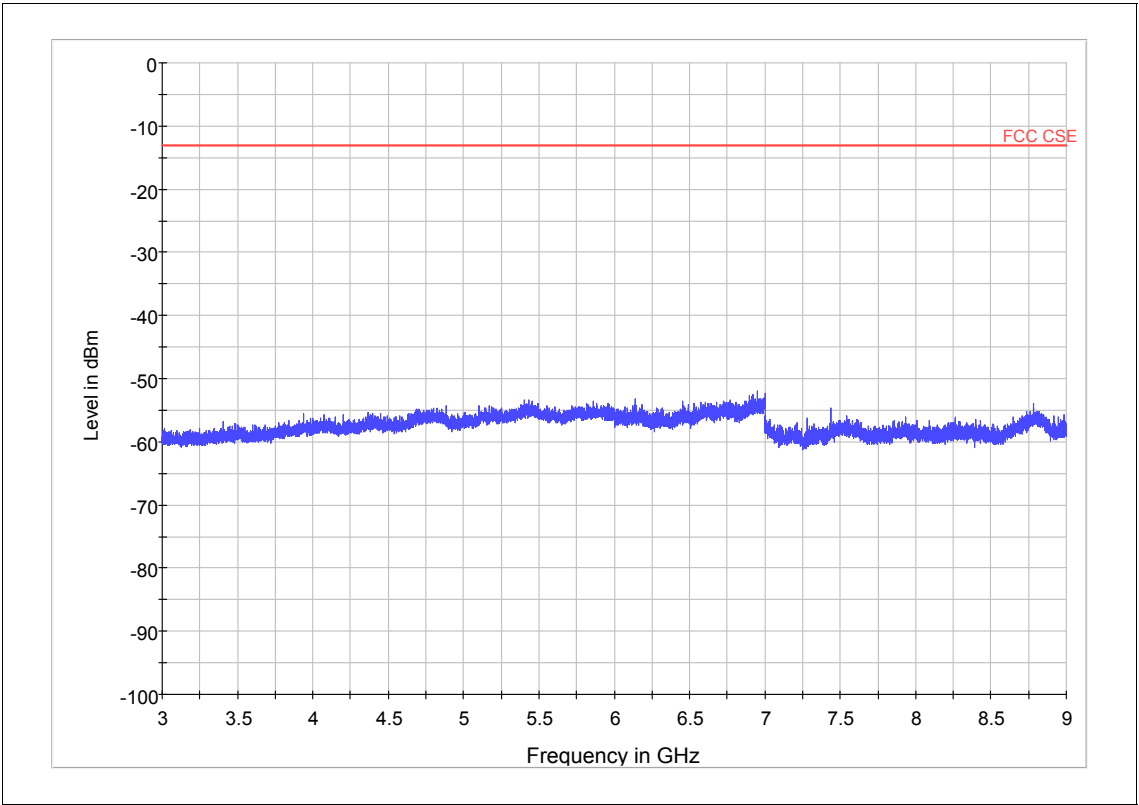


Note: The signal beyond the limit is carrier
LTE Band 5 20425 Channel 30MHz~1.5GHz



LTE Band 520425 Channel 1.5GHz~3GHz

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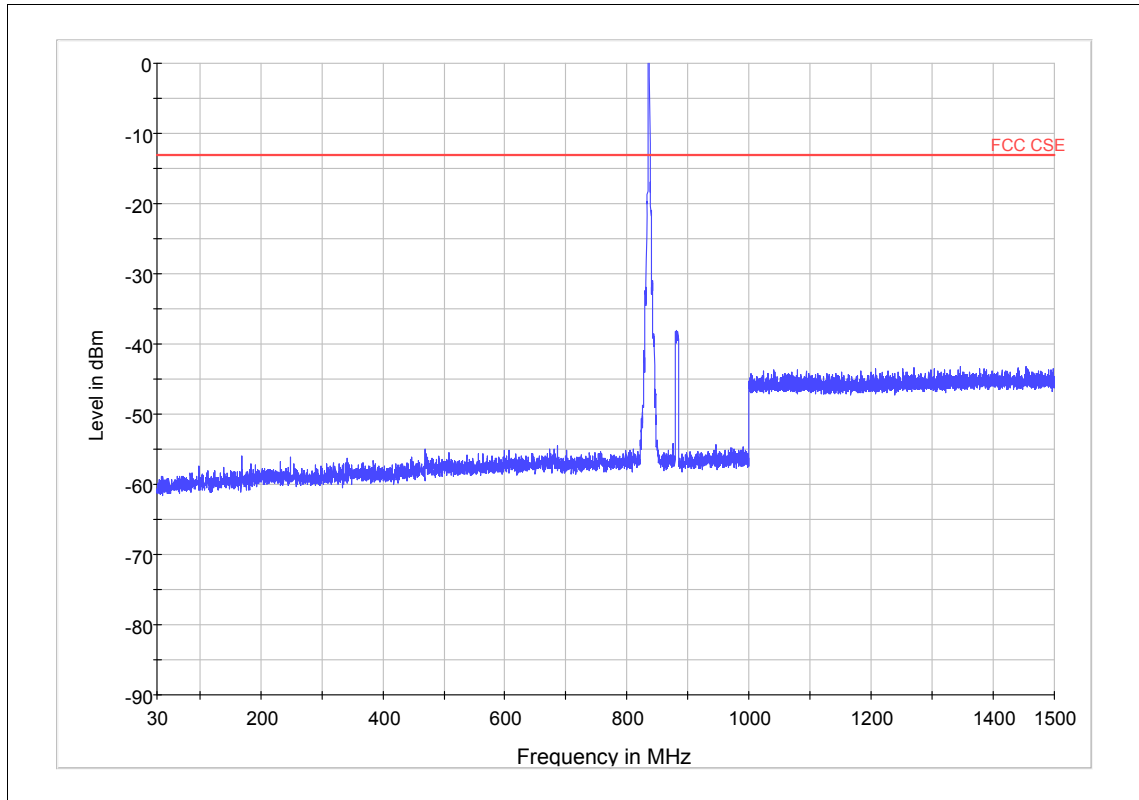
LTE Band 5 20425 Channel 3GHz~9GHz

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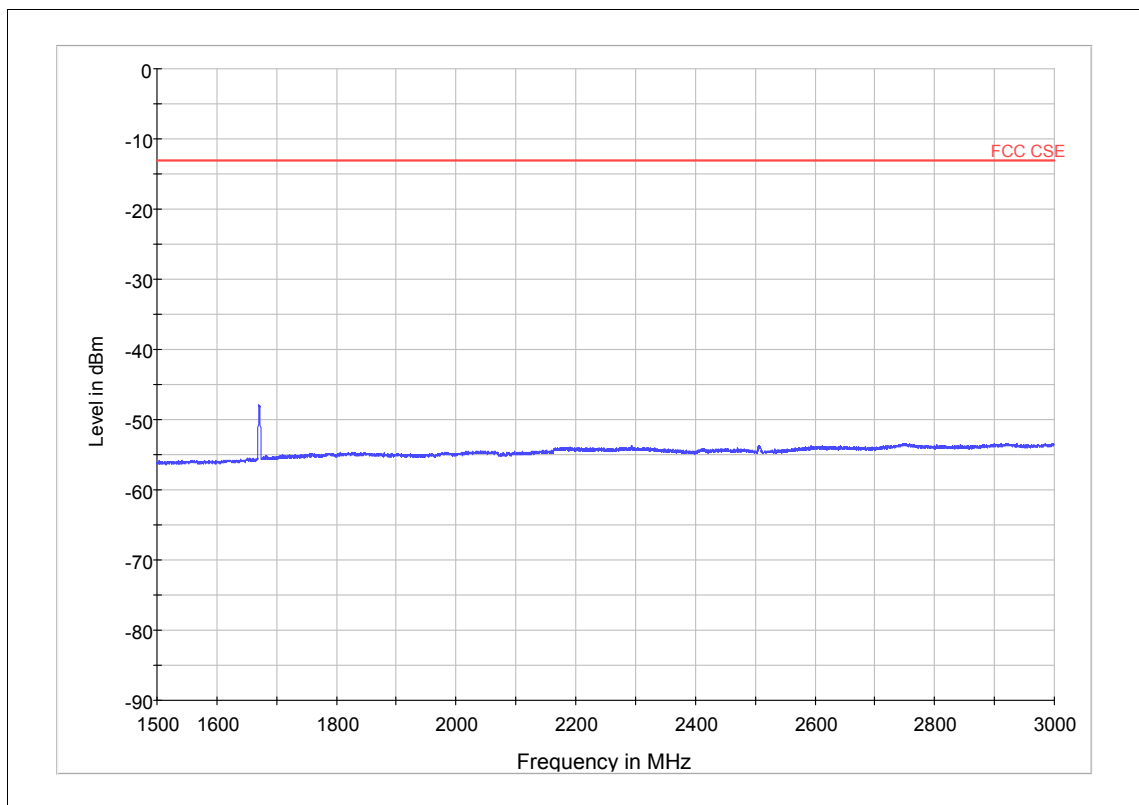
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LTE Band 5 QPSK Bandwidth = 5MHz CH20525,RB 1



Note: The signal beyond the limit is carrier
LTE Band 5 20525 Channel 30MHz~1.5GHz

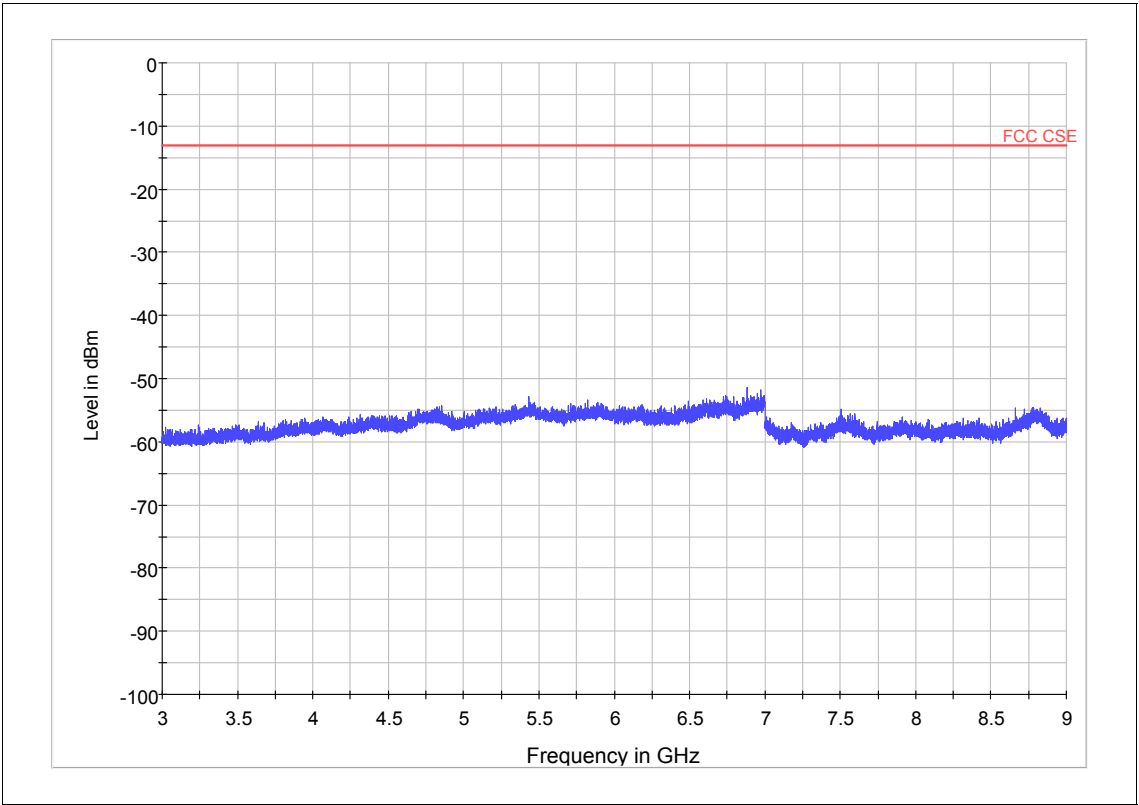


LTE Band 5 20525 Channel 1.5GHz~3GHz

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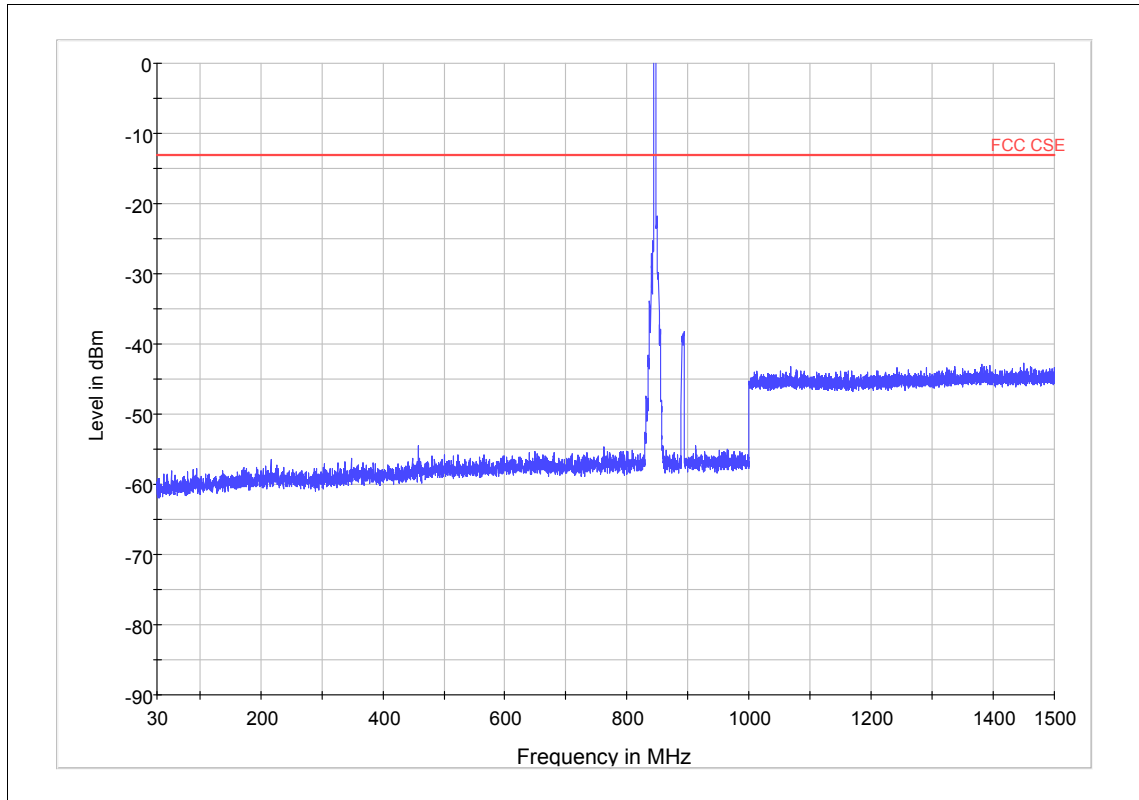
LTE Band 5 20525 Channel 3GHz~9GHz

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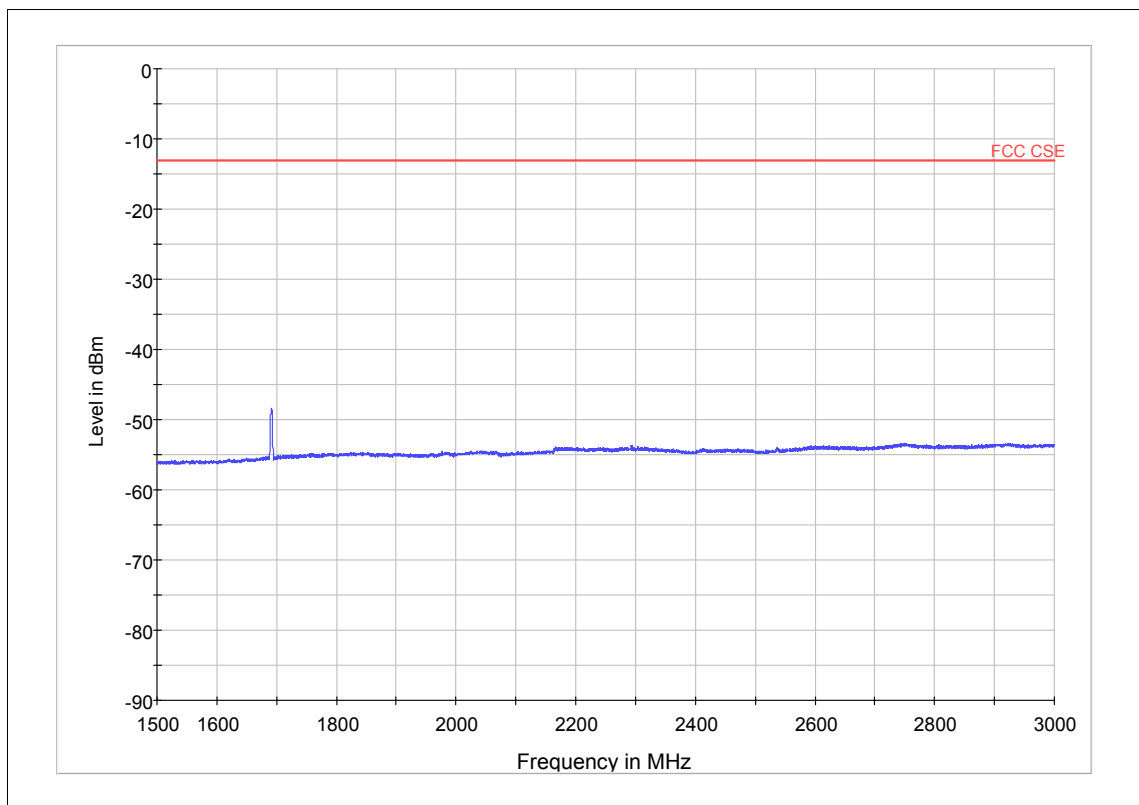
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LTE Band 5 QPSK Bandwidth = 5MHz CH20625, RB 1



Note: The signal beyond the limit is carrier
LTE Band 5 20625 Channel 30MHz~1.5GHz

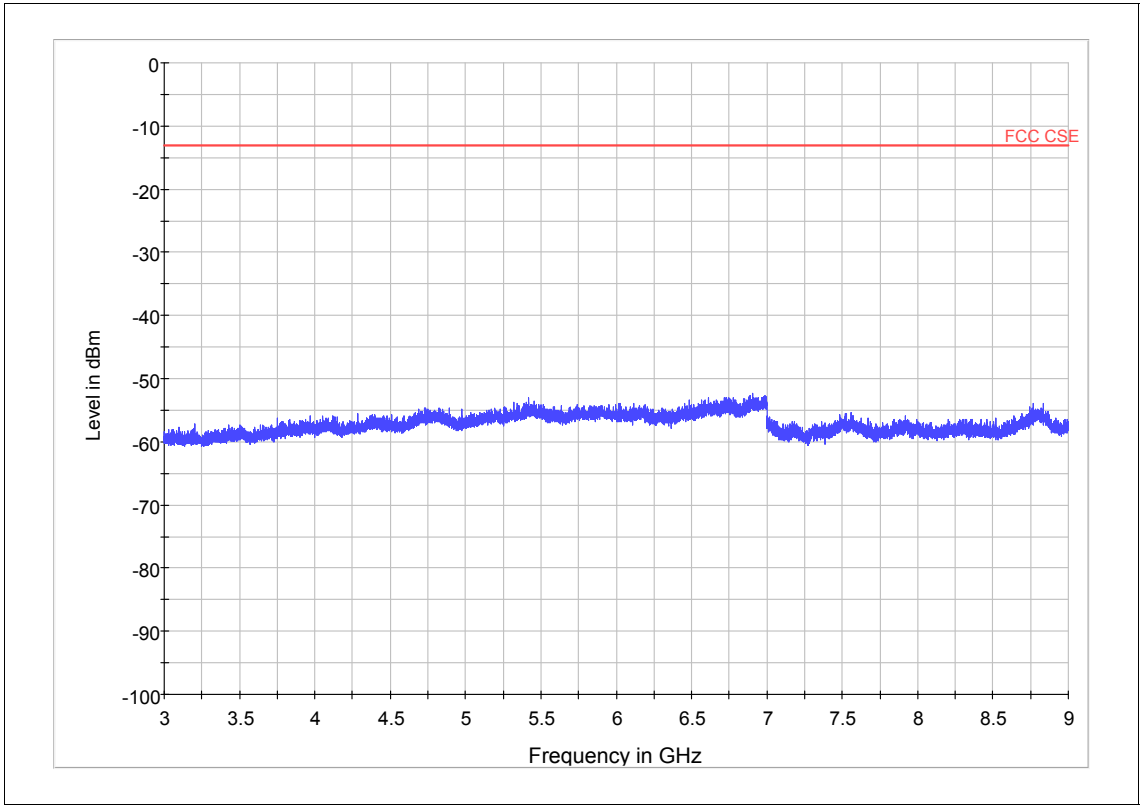


LTE Band 5 20625 Channel 1.5GHz~3GHz

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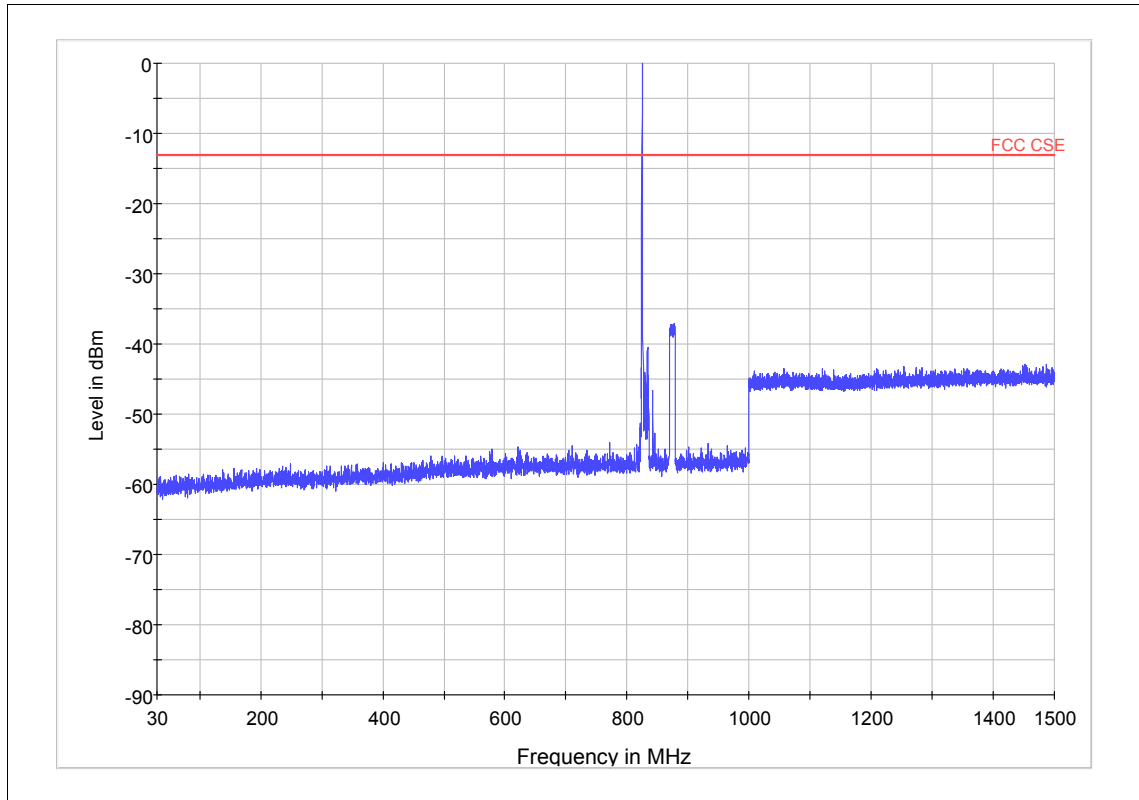
LTE Band 5 20625 Channel 3GHz~9GHz

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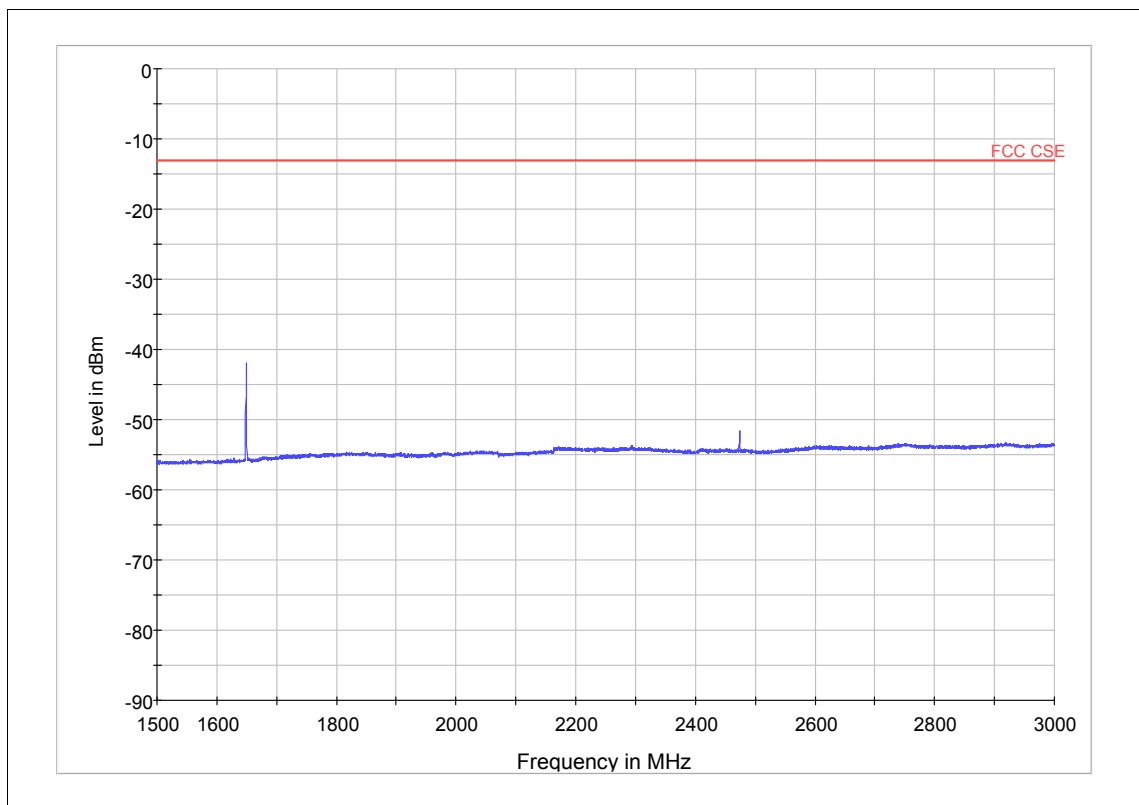
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LTE Band 5 QPSK Bandwidth = 10MHz CH20450, RB 1

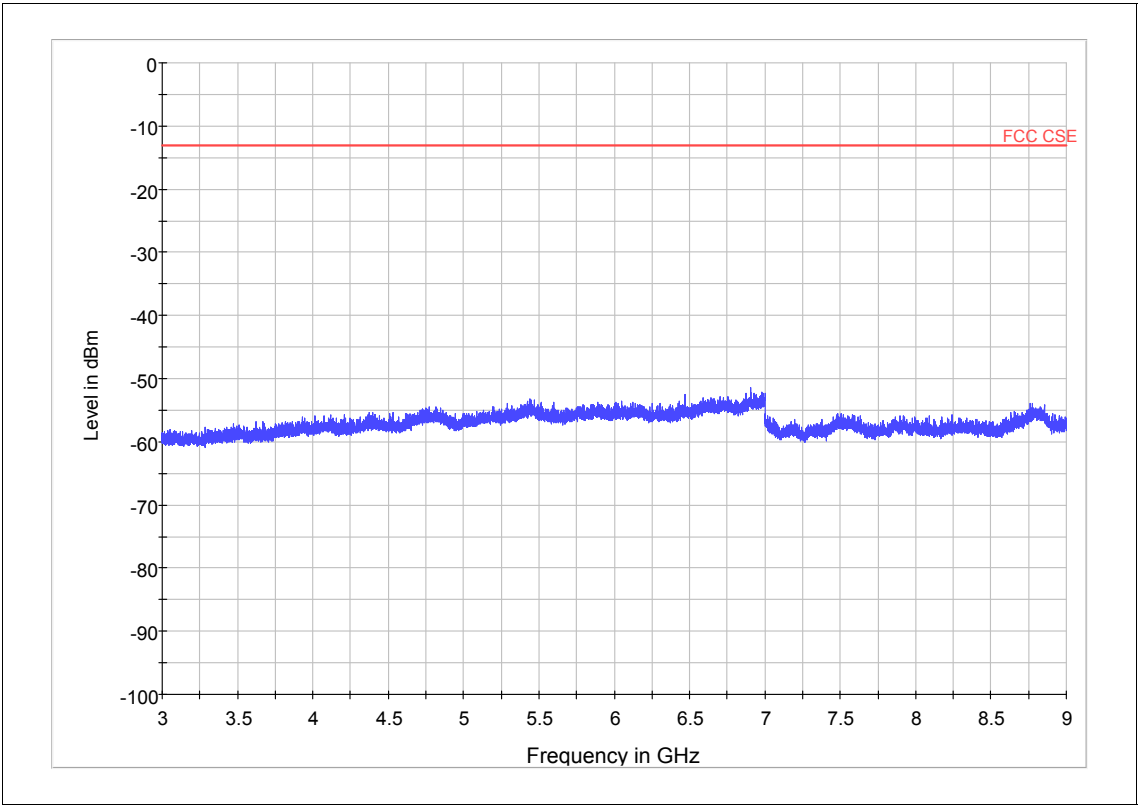


Note: The signal beyond the limit is carrier
LTE Band 5 20450 Channel 30MHz~1.5GHz



LTE Band 5 20450 Channel 1.5GHz~3GHz

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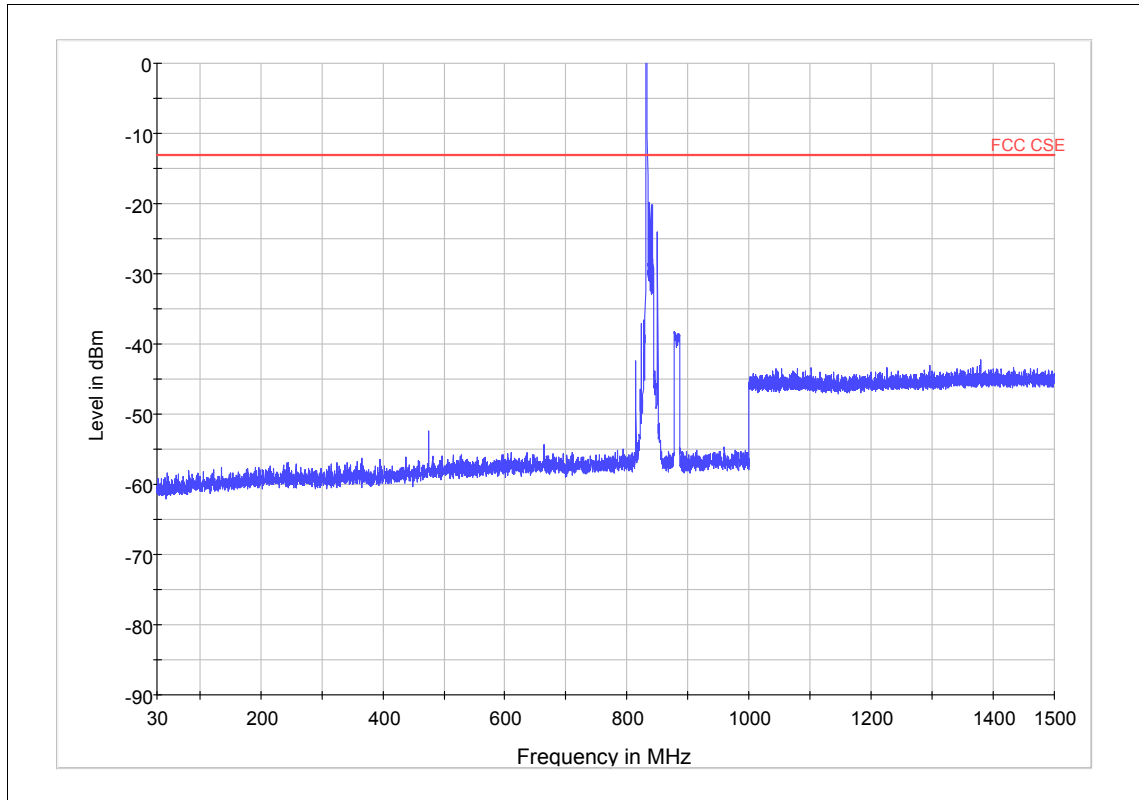
LTE Band 5 20450 Channel 3GHz~9GHz

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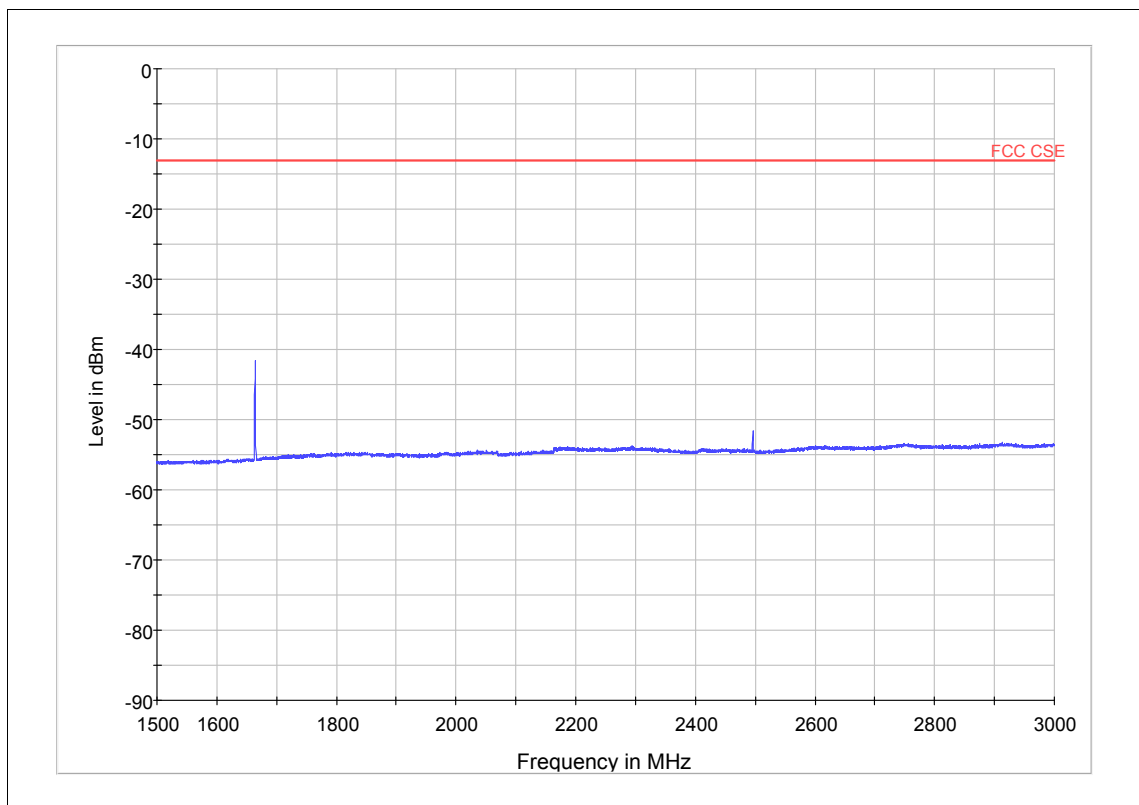
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LTE Band 5 QPSK Bandwidth = 10MHz CH20525, RB 1

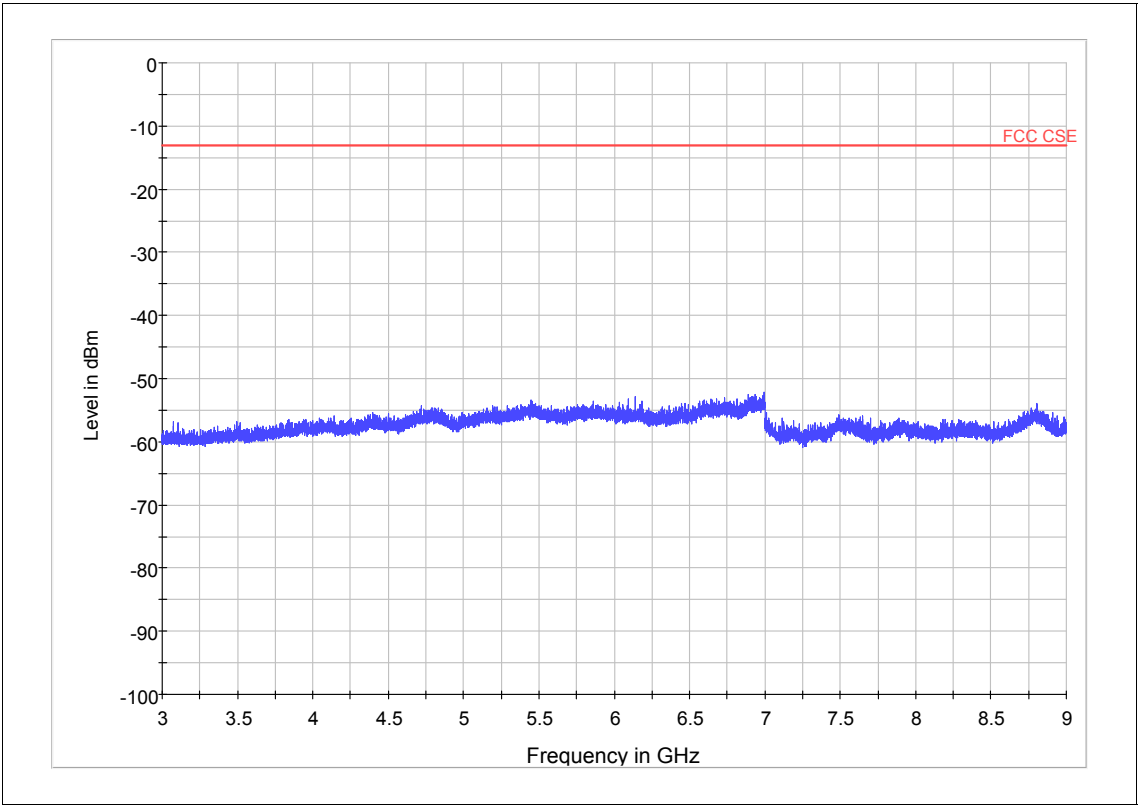


Note: The signal beyond the limit is carrier
LTE Band 5 20525 Channel 30MHz~1.5GHz



LTE Band 5 20525 Channel 1.5GHz~3GHz

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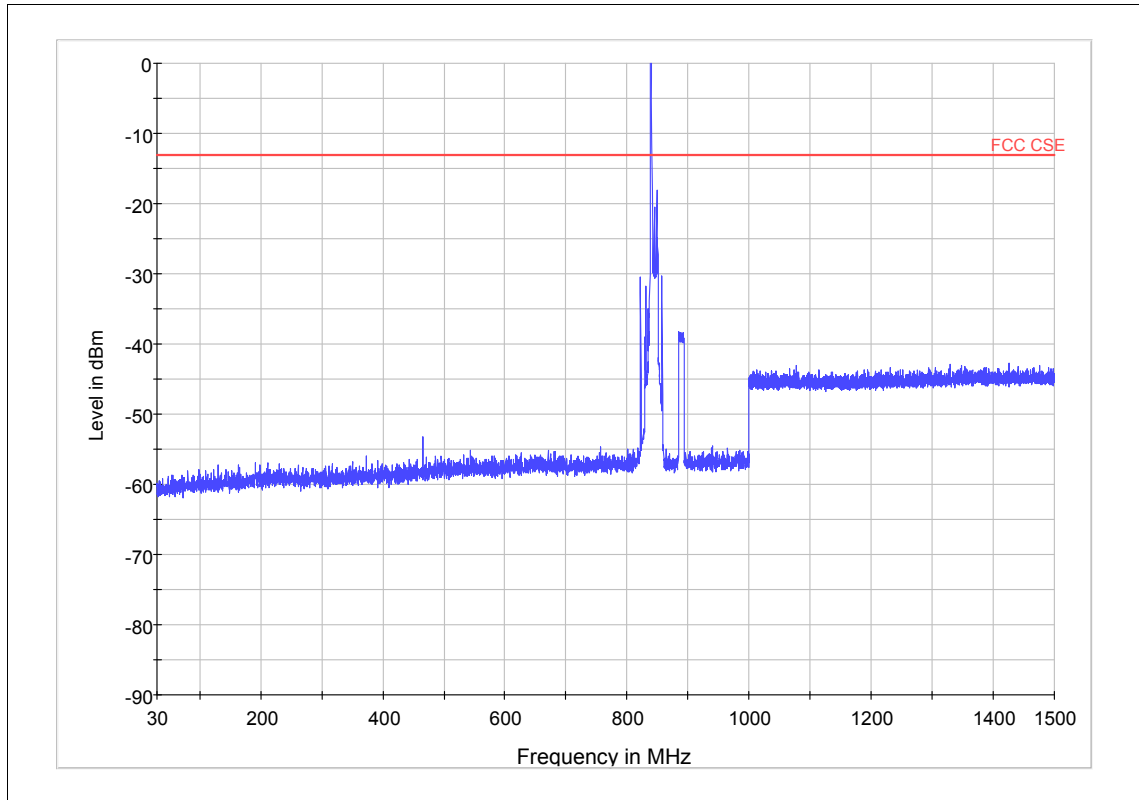
LTE Band 5 20525 Channel 3GHz~9GHz

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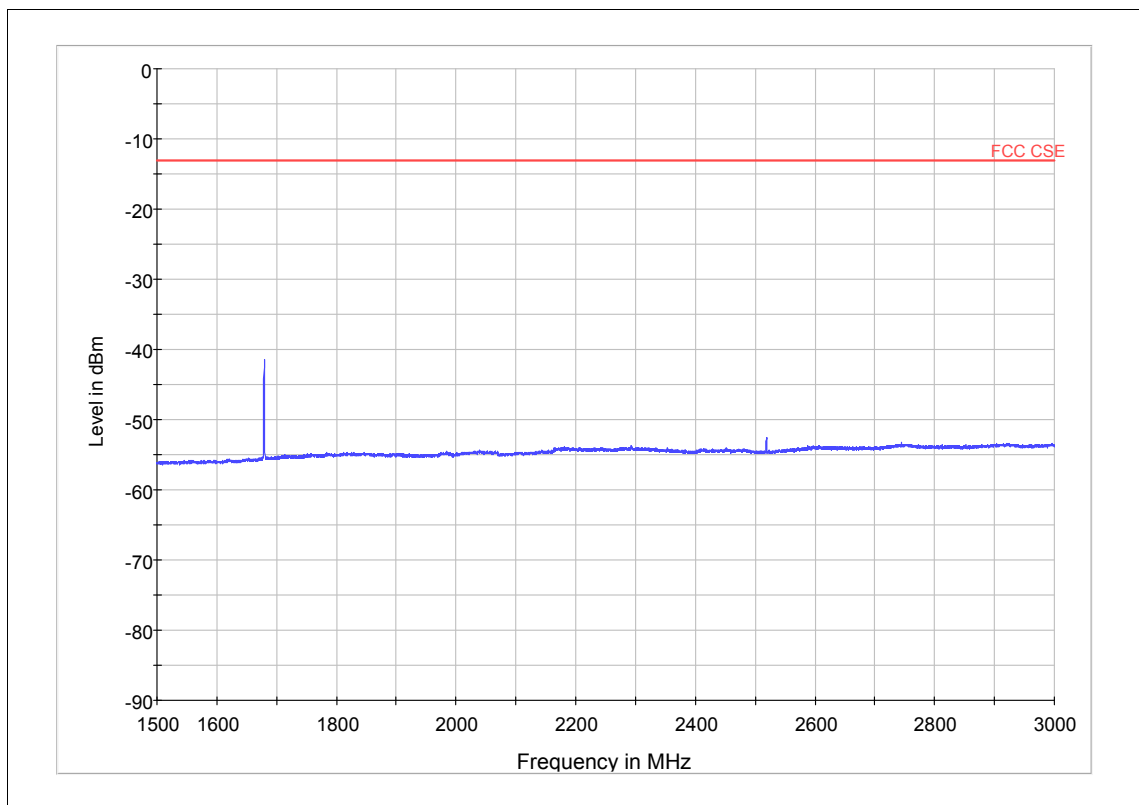
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LTE Band 5 QPSK Bandwidth = 10MHz CH20600,RB 1

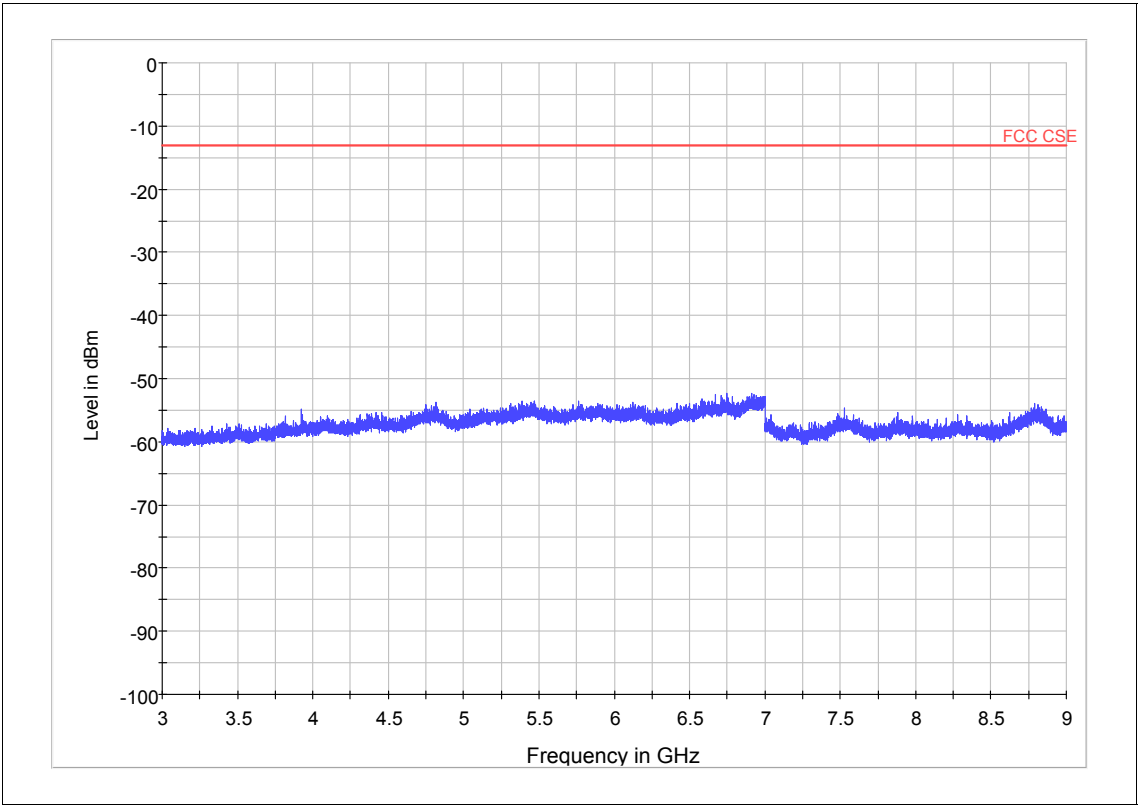


Note: The signal beyond the limit is carrier
LTE Band 5 20600 Channel 30MHz~1.5GHz



LTE Band 5 20600 Channel 1.5GHz~3GHz

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LTE Band 5 20600 Channel 3GHz~9GHz

2.9. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

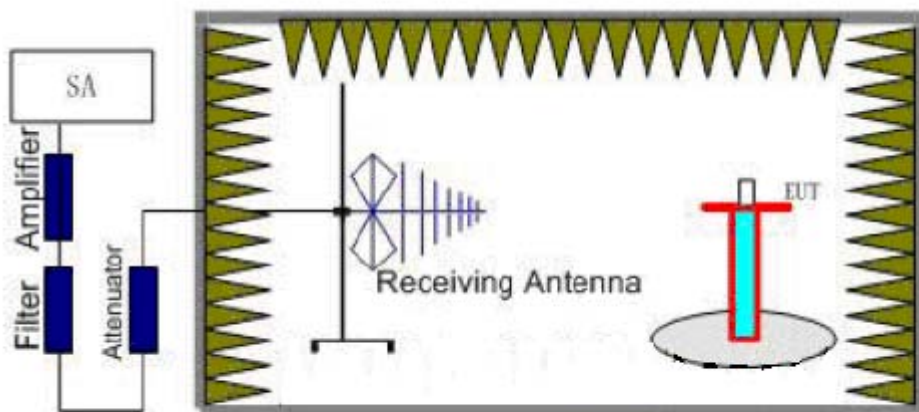
The measurements procedures in TIA -603C are used.

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

The procedure of Radiates Spurious Emission is as follows:

Step 1:

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



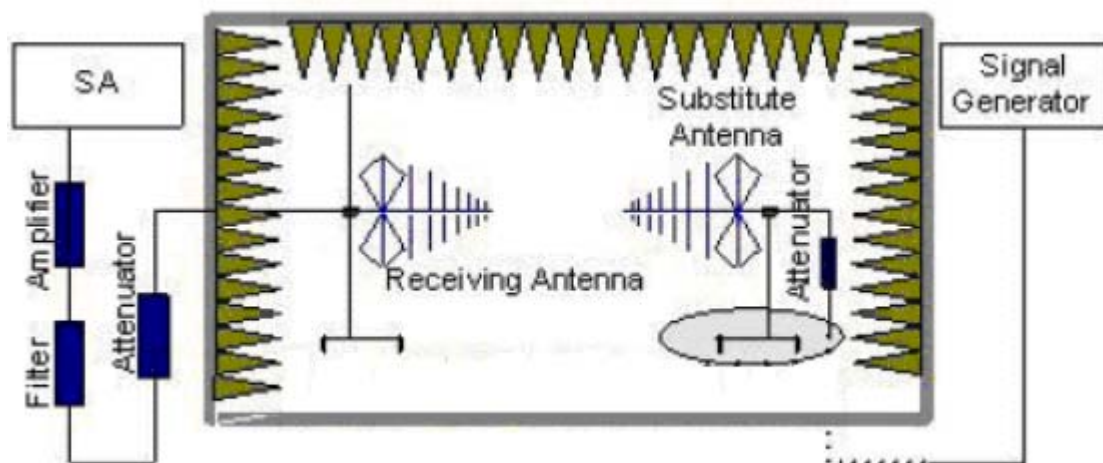
Step 2:

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

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

$EIRP = E.R.P + 2.15$

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

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

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.

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Test Result

LTE Band 5 QPSK Bandwidth = 1.4MHz CH20407, RB 1

Harmonic	CH20407 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1649.4	-69.24	2.00	10.15	Vertical	-63.24	-13	50.24	180
3	2474.1	-66.74	2.51	11.35	Vertical	-60.05	-13	47.05	270
4	3298.8	-64.45	4.20	10.85	Vertical	-59.95	-13	46.95	0
5	4121.6	-47.30	5.20	11.35	Vertical	-43.30	-13	30.30	90
6	4945.5	-53.22	5.50	11.95	Vertical	-48.92	-13	35.92	270
7	5770.5	-55.26	5.70	13.55	Vertical	-49.56	-13	36.56	225
8	6594.0	-53.55	6.30	13.75	Vertical	-48.25	-13	35.25	180
9	7418.6	-50.12	6.80	13.85	Vertical	-45.22	-13	32.22	0
10	8247.0	-61.86	6.90	14.25	Vertical	-56.66	-13	43.66	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 QPSK Bandwidth = 1.4MHz CH20525, RB 1

Harmonic	CH20525 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-66.58	2.00	10.75	Vertical	-59.98	-13	46.98	180
3	2509.5	-62.78	2.51	11.05	Vertical	-56.39	-13	43.39	270
4	3346.0	-64.61	4.20	11.15	Vertical	-59.81	-13	46.81	0
5	4180.5	-47.54	5.20	11.15	Vertical	-43.74	-13	30.74	90
6	5019.0	-61.23	5.50	11.95	Vertical	-56.93	-13	43.93	90
7	5853.0	-53.45	5.70	13.55	Vertical	-47.75	-13	34.75	225
8	6688.5	-55.19	6.30	13.75	Vertical	-49.89	-13	36.89	180
9	7524.8	-48.69	6.80	13.85	Vertical	-43.79	-13	30.79	0
10	8365.0	-61.88	6.90	14.25	Vertical	-56.68	-13	43.68	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.

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LTE Band 5 QPSK Bandwidth = 1.4MHz CH20643, RB 1

Harmonic	CH20643 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1696.6	-60.63	2.00	10.15	Vertical	-54.63	-13	41.63	180
3	2544.9	-56.60	2.51	11.05	Vertical	-50.21	-13	37.21	270
4	3393.2	-64.16	4.20	11.15	Vertical	-59.36	-13	46.36	0
5	4239.4	-49.62	5.20	11.15	Vertical	-45.82	-13	32.82	135
6	5089.8	-62.89	5.50	11.95	Vertical	-58.59	-13	45.59	90
7	5935.5	-52.19	5.70	13.55	Vertical	-46.49	-13	33.49	270
8	6786.4	-60.84	6.30	13.75	Vertical	-55.54	-13	42.54	270
9	7630.9	-49.31	6.80	13.85	Vertical	-44.41	-13	31.41	0
10	8483.0	-62.22	6.90	14.25	Vertical	-57.02	-13	44.02	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 QPSK Bandwidth = 3MHz CH20415, RB 1

Harmonic	CH20415 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1651.0	-69.24	2.00	10.15	Vertical	-63.24	-13	50.24	180
3	2476.5	-66.74	2.51	11.35	Vertical	-60.05	-13	47.05	270
4	3302.0	-64.45	4.20	10.85	Vertical	-59.95	-13	46.95	0
5	4128.4	-54.38	5.20	11.35	Vertical	-50.38	-13	37.38	90
6	4953.0	-63.43	5.50	11.95	Vertical	-59.13	-13	46.13	90
7	5778.5	-61.76	5.70	13.55	Vertical	-56.06	-13	43.06	0
8	6604.0	-61.10	6.30	13.75	Vertical	-55.80	-13	42.80	270
9	7429.5	-61.08	6.80	13.85	Vertical	-56.18	-13	43.18	180
10	8255.0	-61.86	6.90	14.25	Vertical	-56.66	-13	43.66	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.

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LTE Band 5 QPSK Bandwidth = 3MHz CH20525, RB 1

Harmonic	CH20525 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-66.58	2.00	10.75	Vertical	-59.98	-13	46.98	180
3	2505.8	-60.43	2.51	11.05	Vertical	-54.04	-13	41.04	135
4	3346.0	-64.61	4.20	11.15	Vertical	-59.81	-13	46.81	0
5	4182.5	-62.67	5.20	11.15	Vertical	-58.87	-13	45.87	180
6	5019.0	-61.23	5.50	11.95	Vertical	-56.93	-13	43.93	90
7	5855.5	-62.70	5.70	13.55	Vertical	-57.00	-13	44.00	0
8	6692.0	-61.77	6.30	13.75	Vertical	-56.47	-13	43.47	270
9	7528.5	-60.26	6.80	13.85	Vertical	-55.36	-13	42.36	180
10	8365.0	-61.88	6.90	14.25	Vertical	-56.68	-13	43.68	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 QPSK Bandwidth = 3MHz CH20635, RB 1

Harmonic	CH20635 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1695.0	-60.63	2.00	10.15	Vertical	-54.63	-13	41.63	180
3	2542.5	-56.60	2.51	11.05	Vertical	-50.21	-13	37.21	270
4	3390.0	-64.16	4.20	11.15	Vertical	-59.36	-13	46.36	0
5	4231.1	-55.18	5.20	11.15	Vertical	-51.38	-13	38.38	90
6	5085.0	-62.89	5.50	11.95	Vertical	-58.59	-13	45.59	90
7	5924.3	-54.22	5.70	13.55	Vertical	-48.52	-13	35.52	270
8	6780.0	-60.84	6.30	13.75	Vertical	-55.54	-13	42.54	270
9	7627.5	-60.52	6.80	13.85	Vertical	-55.62	-13	42.62	180
10	8475.0	-62.22	6.90	14.25	Vertical	-57.02	-13	44.02	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.

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LTE Band 5 QPSK Bandwidth = 5MHz CH20425, RB 1

Harmonic	CH20425 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1653.0	-69.24	2.00	10.15	Vertical	-63.24	-13	50.24	180
3	2479.5	-66.74	2.51	11.35	Vertical	-60.05	-13	47.05	270
4	3306.0	-64.45	4.20	10.85	Vertical	-59.95	-13	46.95	0
5	4116.8	-49.42	5.20	11.35	Vertical	-45.42	-13	32.42	90
6	4959.0	-63.43	5.50	11.95	Vertical	-59.13	-13	46.13	90
7	5764.1	-55.58	5.70	13.55	Vertical	-49.88	-13	36.88	180
8	6586.9	-53.39	6.30	13.75	Vertical	-48.09	-13	35.09	45
9	7410.4	-49.92	6.80	13.85	Vertical	-45.02	-13	32.02	0
10	8265.0	-61.86	6.90	14.25	Vertical	-56.66	-13	43.66	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 QPSK Bandwidth = 5MHz CH20525, RB 1

Harmonic	CH20525 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-66.58	2.00	10.75	Vertical	-59.98	-13	46.98	180
3	2503.5	-56.91	2.51	11.05	Vertical	-50.52	-13	37.52	90
4	3337.5	-58.72	4.20	11.15	Vertical	-53.92	-13	40.92	90
5	4172.3	-48.26	5.20	11.15	Vertical	-44.46	-13	31.46	90
6	5019.0	-61.23	5.50	11.95	Vertical	-56.93	-13	43.93	90
7	5841.0	-54.39	5.70	13.55	Vertical	-48.69	-13	35.69	225
8	6692.0	-61.77	6.30	13.75	Vertical	-56.47	-13	43.47	270
9	7509.4	-52.05	6.80	13.85	Vertical	-47.15	-13	34.15	0
10	8365.0	-61.88	6.90	14.25	Vertical	-56.68	-13	43.68	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.

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LTE Band 5 QPSK Bandwidth = 5MHz CH20625, RB 1

Harmonic	CH20625 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1693.0	-60.63	2.00	10.15	Vertical	-54.63	-13	41.63	180
3	2539.5	-56.60	2.51	11.05	Vertical	-50.21	-13	37.21	270
4	3386.0	-64.16	4.20	11.15	Vertical	-59.36	-13	46.36	0
5	4232.5	-61.50	5.20	11.15	Vertical	-57.70	-13	44.70	180
6	5079.0	-62.89	5.50	11.95	Vertical	-58.59	-13	45.59	90
7	5925.5	-63.04	5.70	13.55	Vertical	-57.34	-13	44.34	0
8	6772.0	-60.84	6.30	13.75	Vertical	-55.54	-13	42.54	270
9	7618.5	-60.52	6.80	13.85	Vertical	-55.62	-13	42.62	180
10	8465.0	-62.22	6.90	14.25	Vertical	-57.02	-13	44.02	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 QPSK Bandwidth = 10MHz CH20450, RB 1

Harmonic	CH20450 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1658.0	-69.24	2.00	10.15	Vertical	-63.24	-13	50.24	180
3	2487.0	-66.74	2.51	11.35	Vertical	-60.05	-13	47.05	270
4	3298.5	-58.47	4.20	10.85	Vertical	-53.97	-13	40.97	90
5	4123.1	-48.10	5.20	11.35	Vertical	-44.10	-13	31.10	90
6	4974.0	-63.43	5.50	11.95	Vertical	-59.13	-13	46.13	90
7	5773.1	-55.22	5.70	13.55	Vertical	-49.52	-13	36.52	180
8	6597.0	-54.34	6.30	13.75	Vertical	-49.04	-13	36.04	135
9	7421.6	-49.64	6.80	13.85	Vertical	-44.74	-13	31.74	0
10	8290.0	-61.86	6.90	14.25	Vertical	-56.66	-13	43.66	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.

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LTE Band 5 QPSK Bandwidth = 10MHz CH20525, RB 1

Harmonic	CH20525 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-66.58	2.00	10.75	Vertical	-59.98	-13	46.98	180
3	2509.5	-62.78	2.51	11.05	Vertical	-56.39	-13	43.39	270
4	3328.5	-58.96	4.20	11.15	Vertical	-54.16	-13	41.16	90
5	4160.6	-48.83	5.20	11.15	Vertical	-45.03	-13	32.03	135
6	5019.0	-61.23	5.50	11.95	Vertical	-56.93	-13	43.93	90
7	5824.9	-53.50	5.70	13.55	Vertical	-47.80	-13	34.80	225
8	6657.0	-55.55	6.30	13.75	Vertical	-50.25	-13	37.25	45
9	7488.8	-51.37	6.80	13.85	Vertical	-46.47	-13	33.47	0
10	8365.0	-61.88	6.90	14.25	Vertical	-56.68	-13	43.68	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 QPSK Bandwidth = 10MHz CH20600, RB 1

Harmonic	CH20600 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1688.0	-60.63	2.00	10.15	Vertical	-54.63	-13	41.63	180
3	2532.0	-56.60	2.51	11.05	Vertical	-50.21	-13	37.21	270
4	3358.1	-59.10	4.20	11.15	Vertical	-54.30	-13	41.30	90
5	4198.1	-55.67	5.20	11.15	Vertical	-51.87	-13	38.87	90
6	5064.0	-62.89	5.50	11.95	Vertical	-58.59	-13	45.59	90
7	5877.4	-57.20	5.70	13.55	Vertical	-51.50	-13	38.50	270
8	6752.0	-60.84	6.30	13.75	Vertical	-55.54	-13	42.54	270
9	7596.0	-60.52	6.80	13.85	Vertical	-55.62	-13	42.62	180
10	8440.0	-62.22	6.90	14.25	Vertical	-57.02	-13	44.02	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.

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3. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	Base Station Simulator	CMU200	R&S	118133	2013-06-29	One year
02	Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
03	Spectrum Analyzer	E4445A	Agilent	MY46181146	2013-06-29	One year
04	Wideband radio communication tester	CMW 500	R&S	113645	2013-08-29	One year
05	Signal Analyzer	FSV30	R&S	100815	2013-06-29	One year
06	Signal generator	SMB 100A	R&S	102594	2013-06-29	One year
07	EMI Test Receiver	ESCI	R&S	100948	2013-06-29	One year
08	Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-201	2013-06-29	Three years
09	Horn Antenna	HF907	R&S	100126	2012-07-01	Three years
10	Climatic Chamber	PT-30B	Re Ce	20101891	2013-09-09	Three years

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