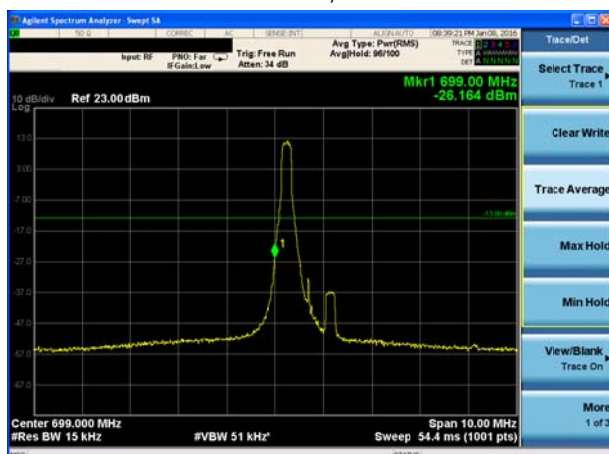
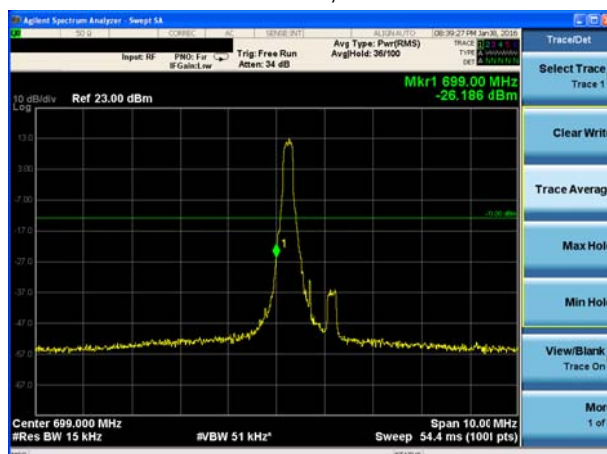


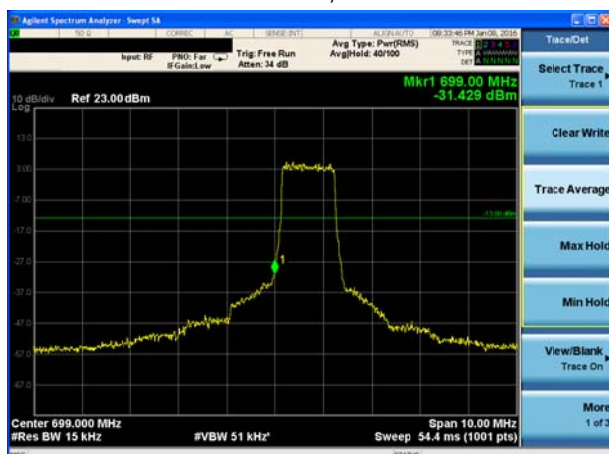
LTE Band 12 QPSK Bandwidth = 1.4MHz
CH23017, RB 1



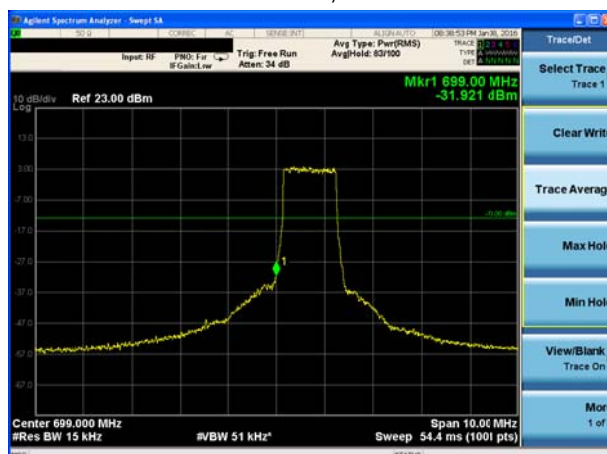
LTE Band 12 16QAM Bandwidth = 1.4MHz
CH23017, RB 1



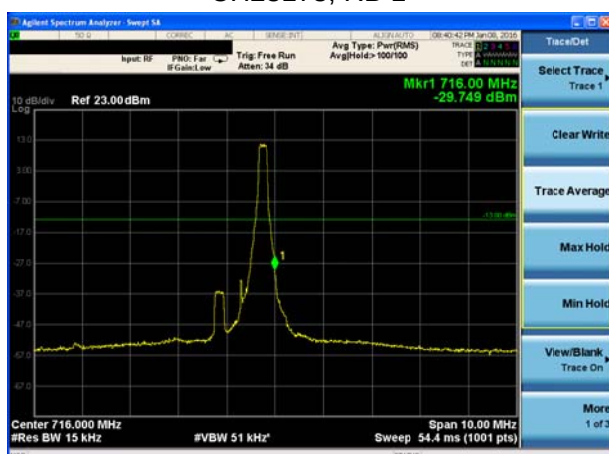
LTE Band 12 QPSK Bandwidth = 1.4MHz
CH23017, RB 6



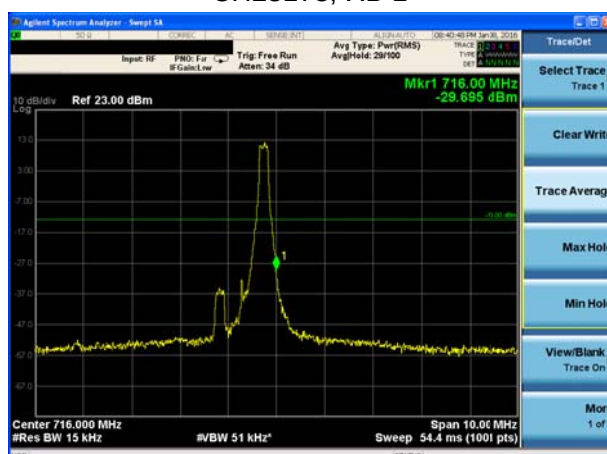
LTE Band 12 16QAM Bandwidth = 1.4MHz
CH23017, RB 6



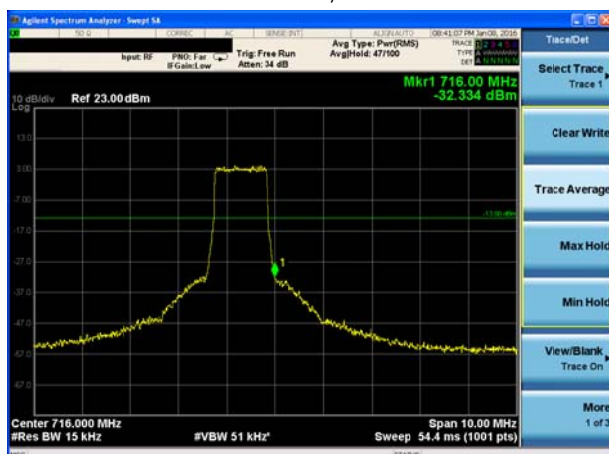
LTE Band 12 QPSK Bandwidth = 1.4MHz
CH23173, RB 1



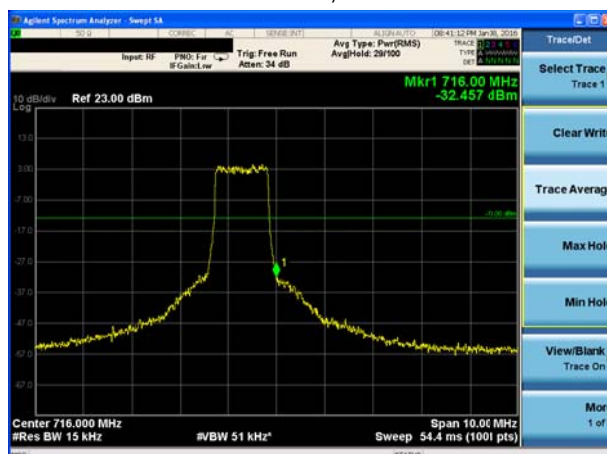
LTE Band 12 16QAM Bandwidth = 1.4MHz
CH23173, RB 1



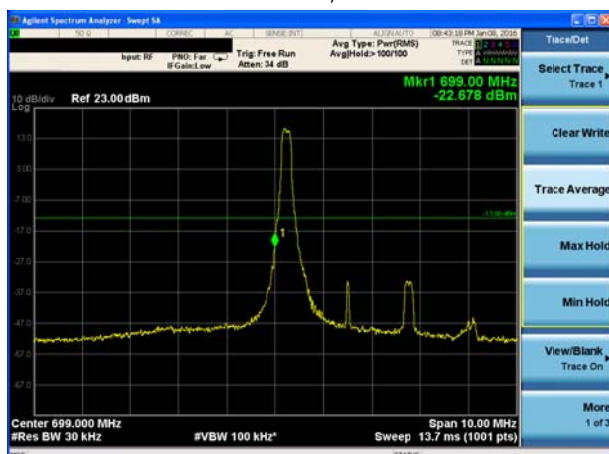
LTE Band 12 QPSK Bandwidth = 1.4MHz
CH23173, RB 6



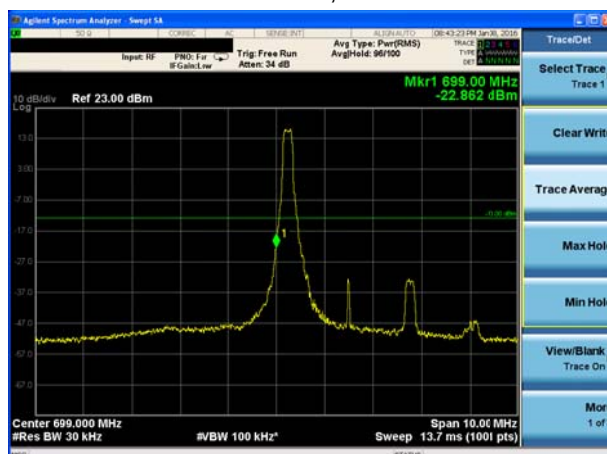
LTE Band 12 16QAM Bandwidth = 1.4MHz
CH23173, RB 6



LTE Band 12 QPSK Bandwidth = 3MHz
CH23025, RB 1



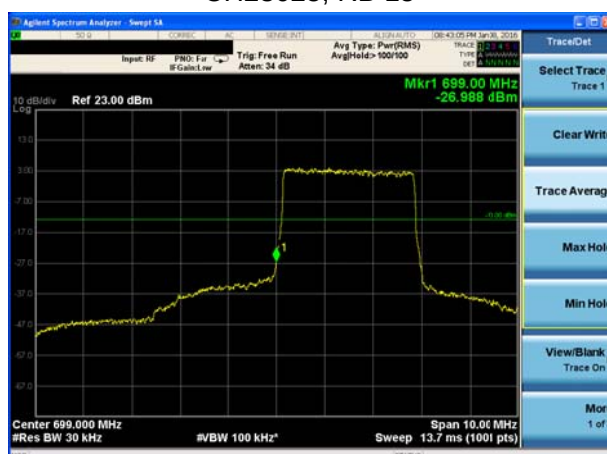
LTE Band 12 16QAM Bandwidth = 3MHz
CH23025, RB 1



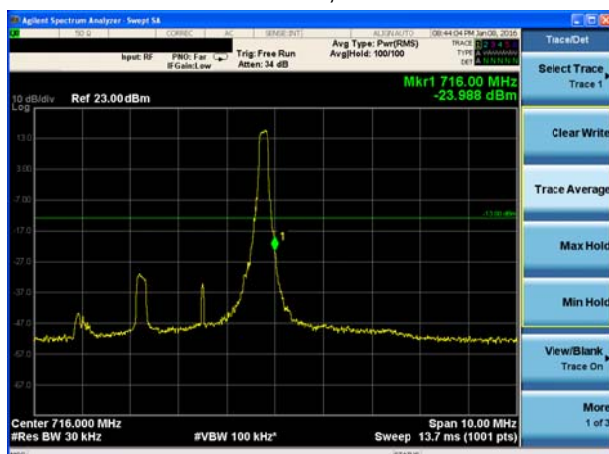
LTE Band 12 QPSK Bandwidth = 3MHz
CH23025, RB 15



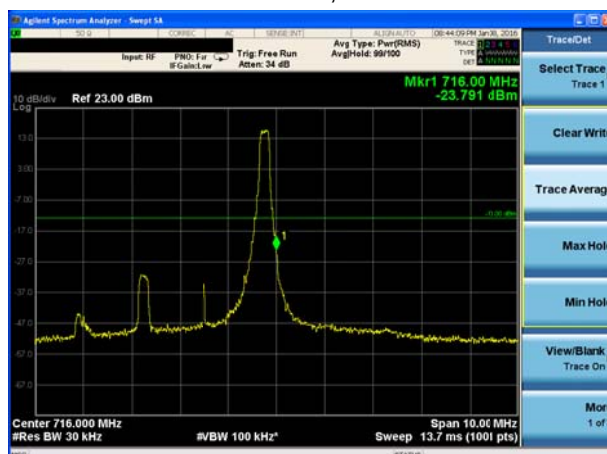
LTE Band 12 16QAM Bandwidth = 3MHz
CH23025, RB 15



LTE Band 12 QPSK Bandwidth = 3MHz
CH23165, RB 1



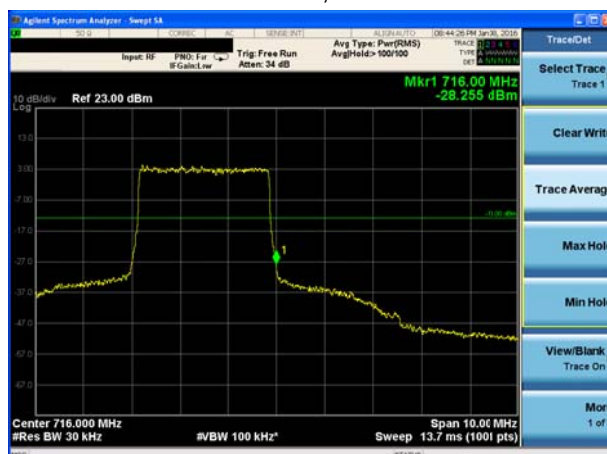
LTE Band 12 16QAM Bandwidth = 3MHz
CH23165, RB 1



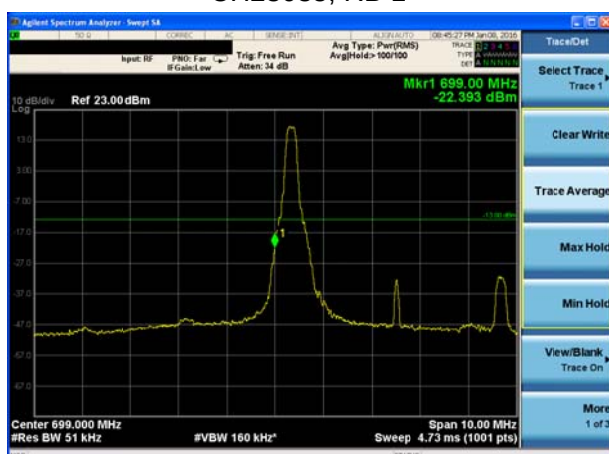
LTE Band 12 QPSK Bandwidth = 3MHz
CH23165, RB 15



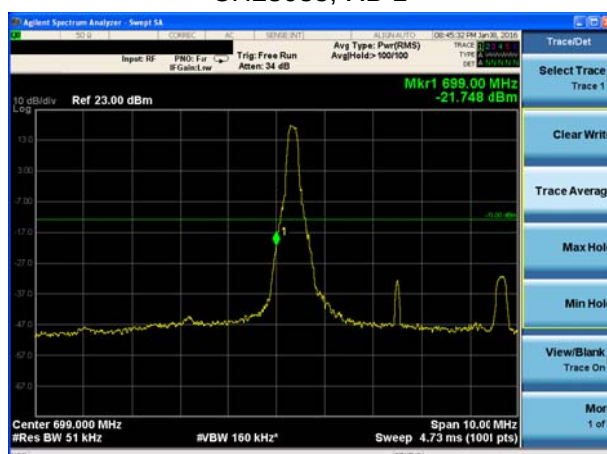
LTE Band 12 16QAM Bandwidth = 3MHz
CH23165, RB 15



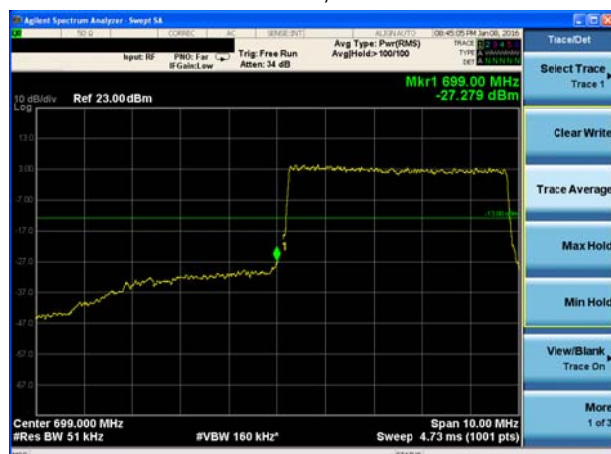
LTE Band 12 QPSK Bandwidth = 5MHz
CH23035, RB 1



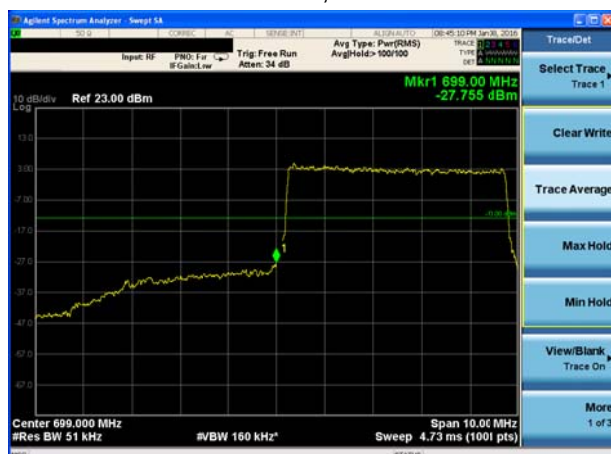
LTE Band 12 16QAM Bandwidth = 5MHz
CH23035, RB 1



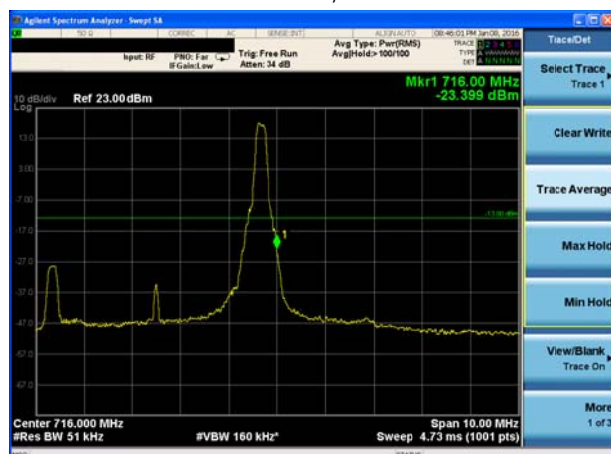
LTE Band 12 QPSK Bandwidth = 5MHz
CH23035, RB 25



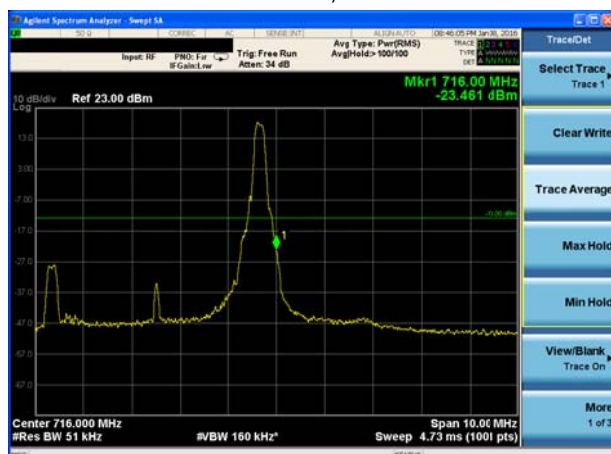
LTE Band 12 16QAM Bandwidth = 5MHz
CH23035, RB 25



LTE Band 12 QPSK Bandwidth = 5MHz
CH23155, RB 1



LTE Band 12 16QAM Bandwidth = 5MHz
CH23155, RB 1



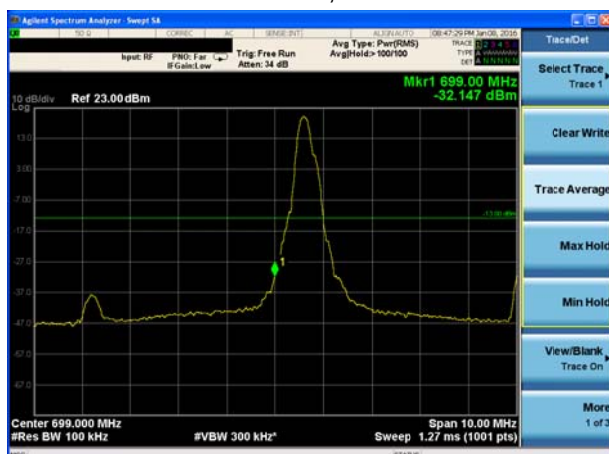
LTE Band 12 QPSK Bandwidth = 5MHz
CH23155, RB 25



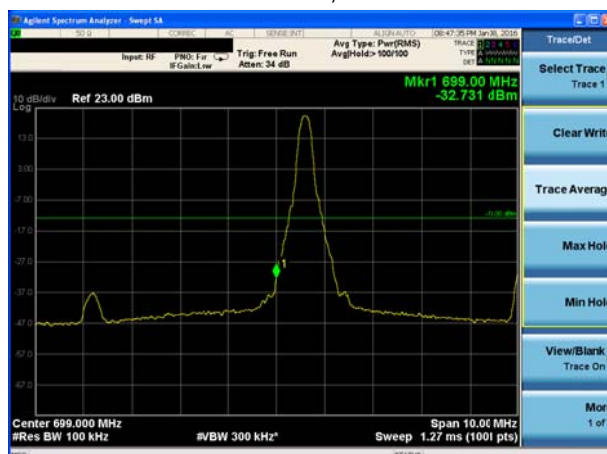
LTE Band 12 16QAM Bandwidth = 5MHz
CH23155, RB 25



LTE Band 12 QPSK Bandwidth = 10MHz
CH23060, RB 1



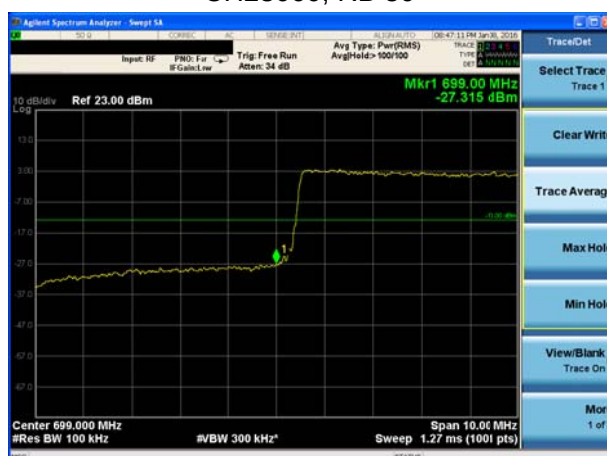
LTE Band 12 16QAM Bandwidth = 10MHz
CH23060, RB 1



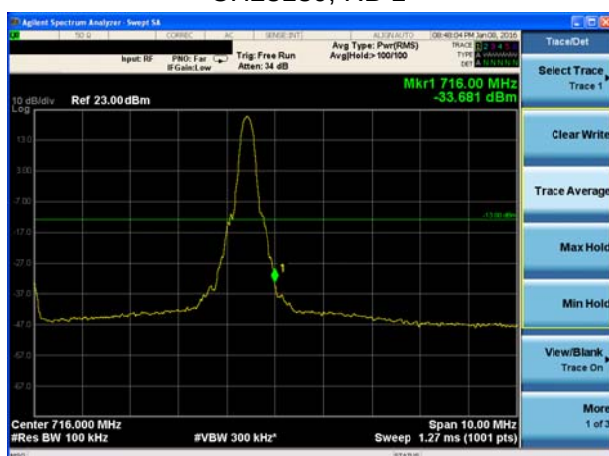
LTE Band 12 QPSK Bandwidth = 10MHz
CH23060, RB 50



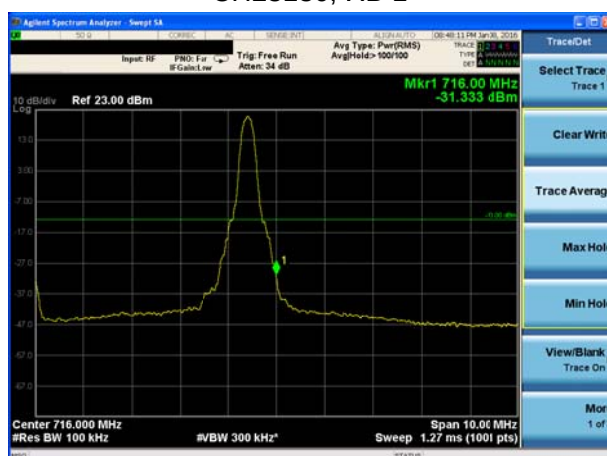
LTE Band 12 16QAM Bandwidth = 10MHz
CH23060, RB 50



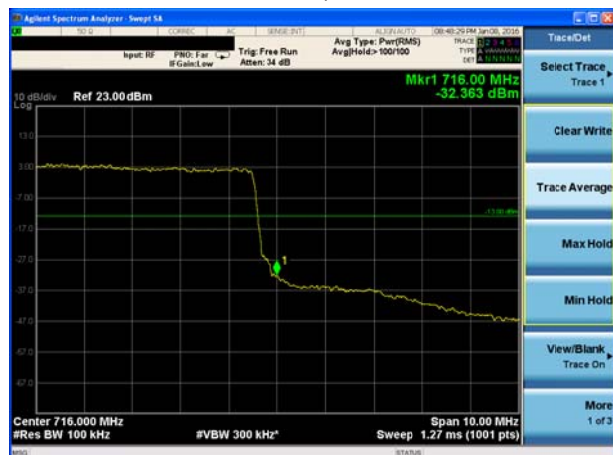
LTE Band 12 QPSK Bandwidth = 10MHz
CH23130, RB 1



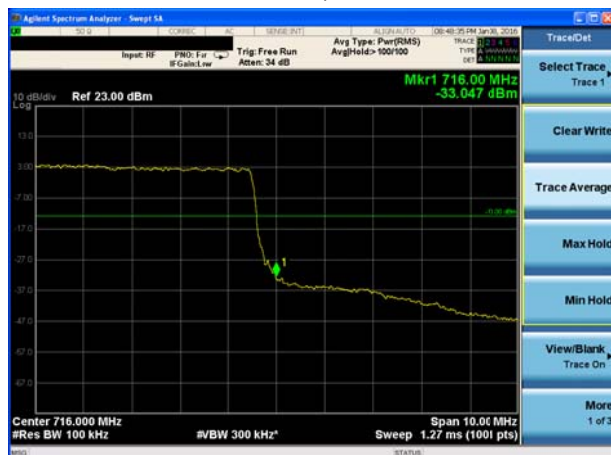
LTE Band 12 16QAM Bandwidth = 10MHz
CH23130, RB 1



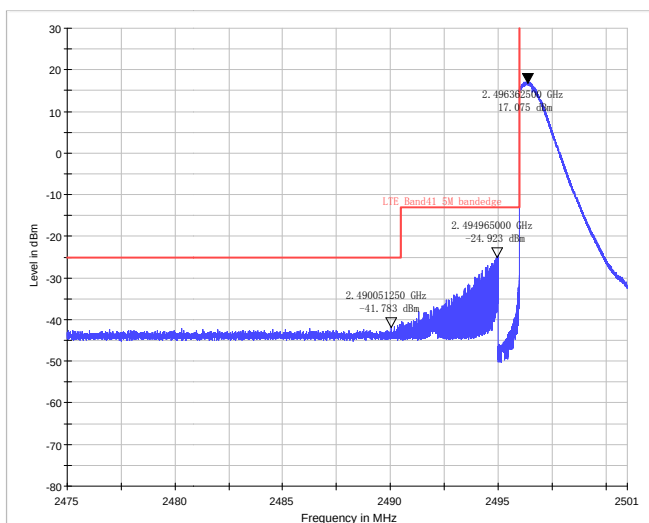
LTE Band 12 QPSK Bandwidth = 10MHz
CH23130, RB 50



LTE Band 12 16QAM Bandwidth = 10MHz
CH23130, RB 50

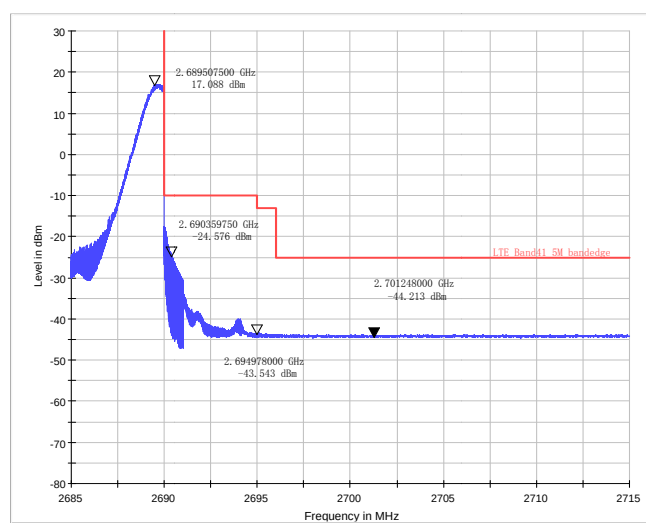


LTE Band 41 QPSK Bandwidth = 5MHz CH39675, RB 1



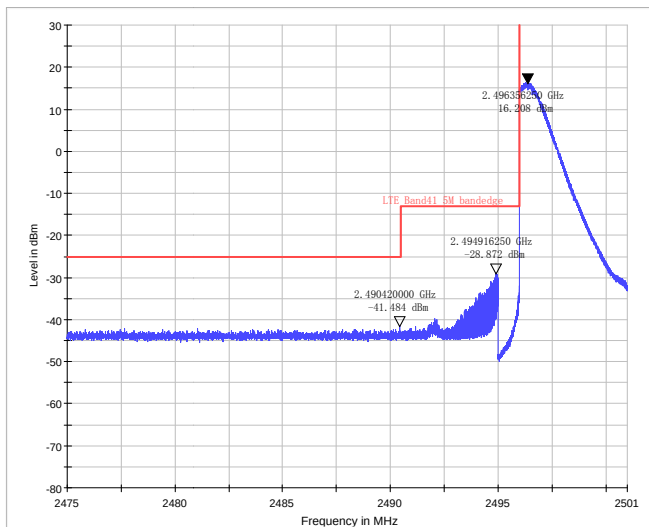
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.501	100kHz	2.496	17.075	/	/
2.495-2.496	50kHz	2.495	-24.923	-13	11.923
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-41.783	-25	16.783

LTE Band 41 QPSK Bandwidth = 5MHz CH41565, RB 1



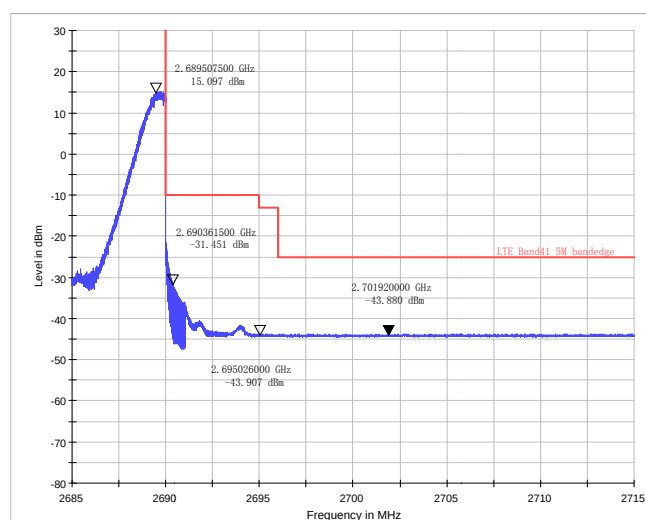
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.685-2.690	100kHz	2.690	17.088	/	/
2.690-2.691	100kHz	2.690	-24.576	-10	14.57
2.691-2.695	1MHz				
2.695-2.696	1MHz	2.695	-43.543	-13	30.54
2.696-2.715	1MHz	2.701	-44.213	-25	19.21

LTE Band 41 16QAM Bandwidth = 5MHz CH39675, RB 1



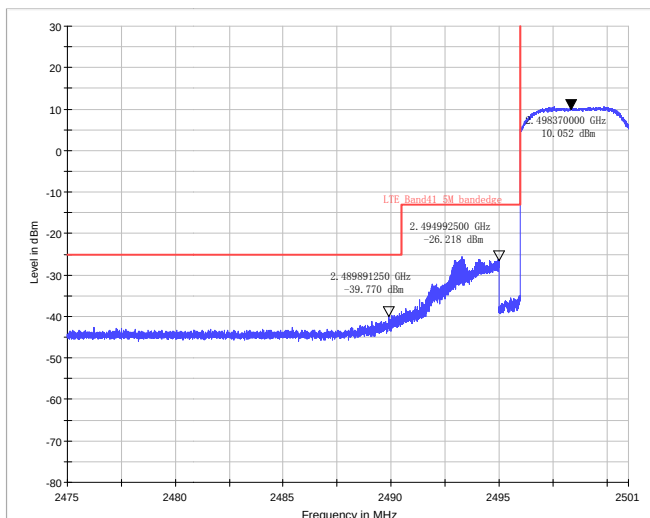
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.501	100kHz	2.496	16.208	/	/
2.495-2.496	50kHz	2.495	-28.872	-13	15.872
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-41.484	-25	16.484

LTE Band 41 16QAM Bandwidth = 5MHz CH41565, RB 1



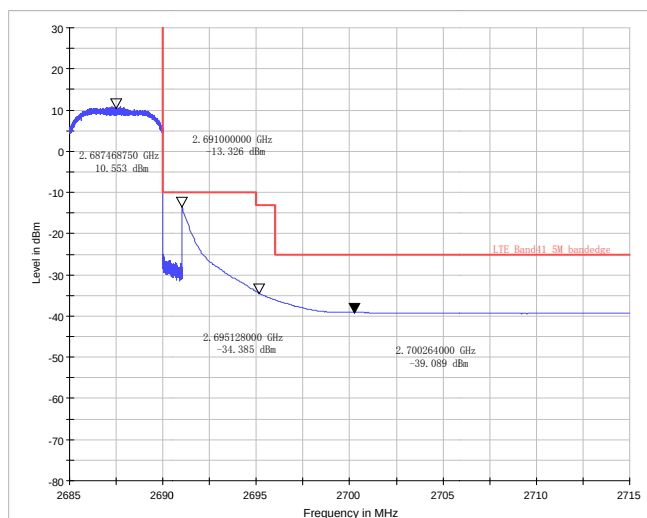
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.685-2.690	100kHz	2.690	15.097	/	/
2.690-2.691	100kHz	2.690	-31.451	-10	21.45
2.691-2.695	1MHz				
2.695-2.696	1MHz	2.695	-43.907	-13	30.90
2.696-2.715	1MHz	2.702	-43.880	-25	18.88

LTE Band 41 QPSK Bandwidth = 5MHz CH39675, RB 25



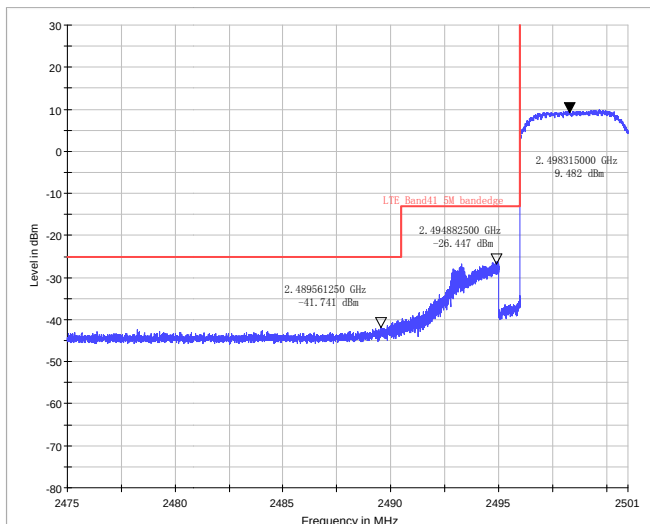
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.501	100kHz	2.498	10.052	/	/
2.495-2.496	50kHz	2.495	-26.218	-13	13.218
2.490-2.495	1MHz		-39.770	-25	14.77
2.475-2.490	1MHz	2.490	-39.770	-25	14.77

LTE Band 41 QPSK Bandwidth = 5MHz CH41565, RB 25



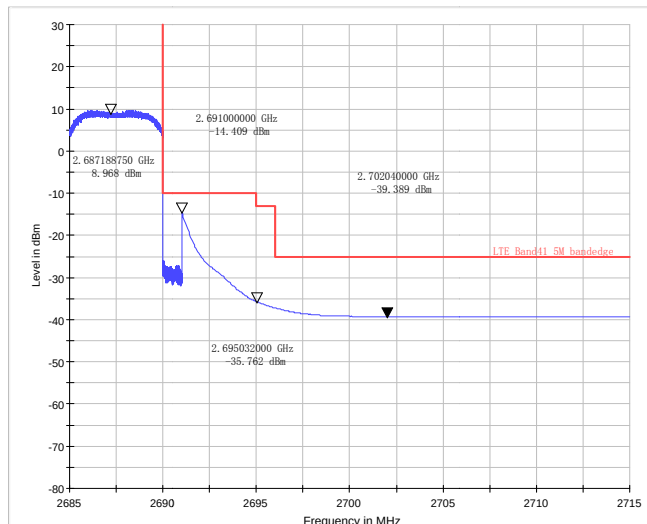
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.685-2.690	100kHz	2.687	10.553	/	/
2.690-2.691	100kHz	2.691	-13.326	-10	3.326
2.691-2.695	1MHz		-34.385	-13	21.385
2.695-2.696	1MHz	2.695	-34.385	-13	21.385
2.696-2.715	1MHz	2.700	-39.089	-25	14.089

LTE Band 41 16QAM Bandwidth = 5MHz CH39675, RB 25



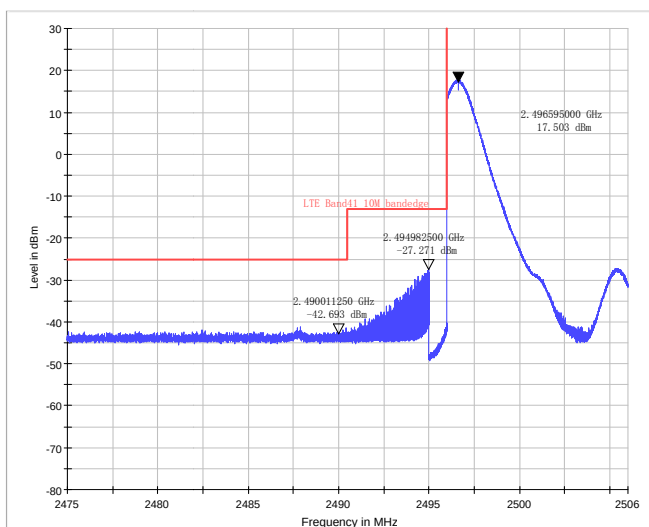
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.501	100kHz	2.498	9.482	/	/
2.495-2.496	50kHz	2.495	-26.447	-13	13.447
2.490-2.495	1MHz		-41.741	-25	16.741
2.475-2.490	1MHz	2.490	-41.741	-25	16.741

LTE Band 41 16QAM Bandwidth = 5MHz CH41565, RB 25



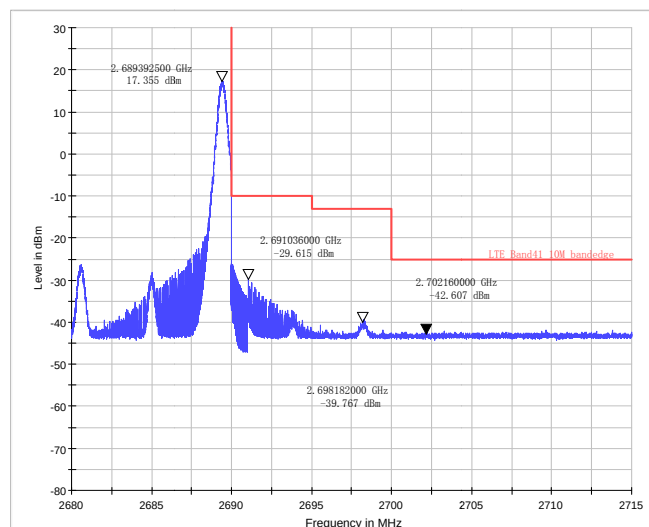
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.685-2.690	100kHz	2.687	8.968	/	/
2.690-2.691	100kHz	2.691	-14.409	-10	4.409
2.691-2.695	1MHz		-35.762	-13	22.762
2.695-2.696	1MHz	2.695	-35.762	-13	22.762
2.696-2.715	1MHz	2.702	-39.389	-25	14.389

LTE Band 41 QPSK Bandwidth = 10MHz CH39700, RB 1



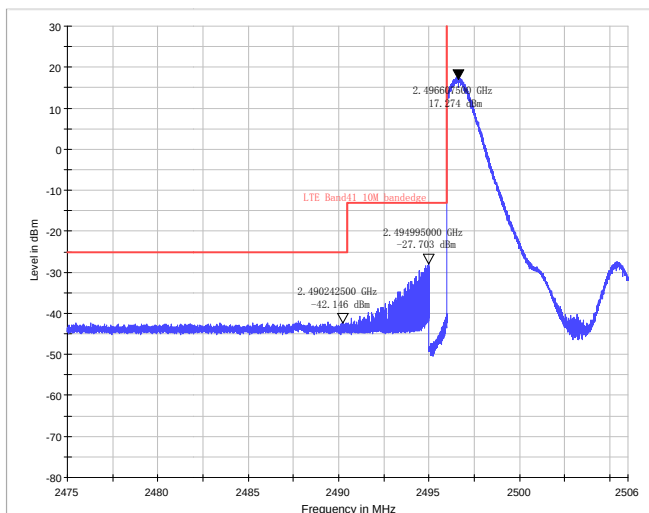
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.506	100kHz	2.497	17.503	/	/
2.495-2.496	100kHz	2.495	-27.271	-13	14.271
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-42.693	-25	17.693

LTE Band 41 QPSK Bandwidth = 10MHz CH41540, RB 1



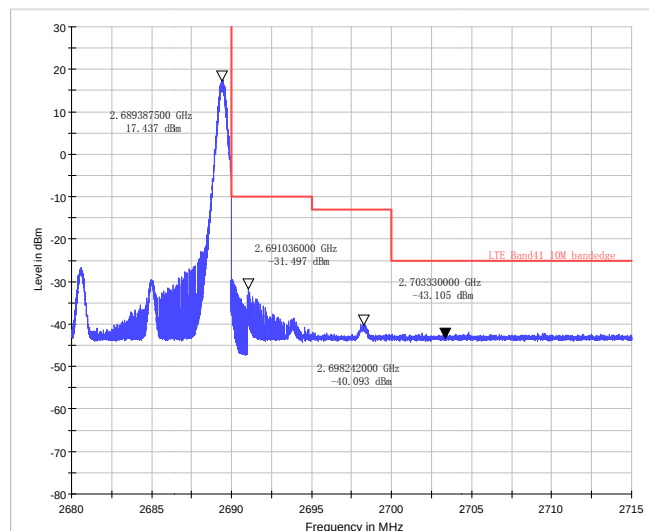
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.680-2.690	100kHz	2.689	17.355	/	/
2.690-2.691	200kHz	2.691	-29.615	-10	19.615
2.691-2.695	1MHz				
2.695-2.700	1MHz	2.698	-39.767	-13	26.767
2.700-2.715	1MHz	2.702	-42.607	-25	17.607

LTE Band 41 16QAM Bandwidth=10MHz CH39700, RB 1



Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.506	100kHz	2.497	17.274	/	/
2.495-2.496	100kHz	2.495	-27.703	-13	14.703
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-42.146	-25	17.146

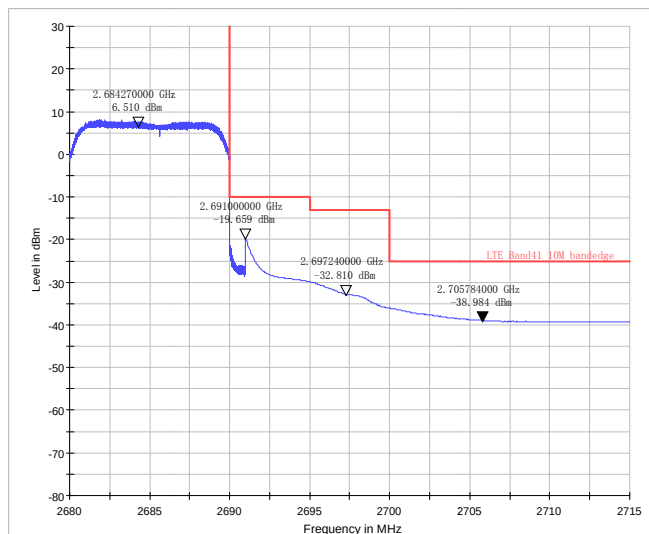
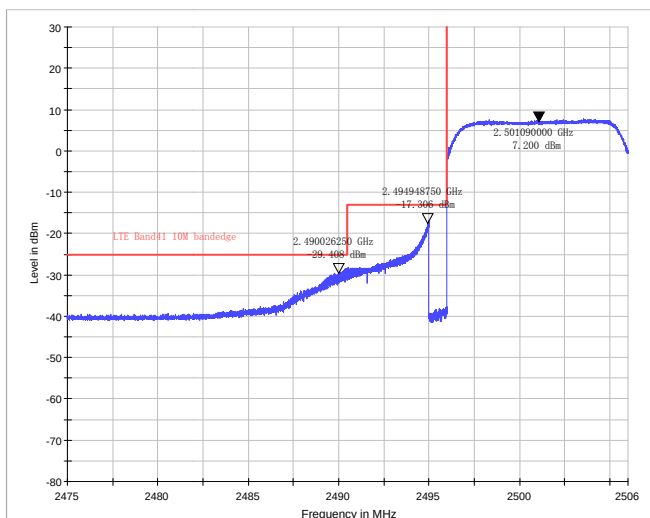
LTE Band 41 16QAM Bandwidth = 10MHz CH41540, RB 1



Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.680-2.690	100kHz	2.689	17.437	/	/
2.690-2.691	200kHz	2.691	-31.497	-10	21.497
2.691-2.695	1MHz				
2.695-2.700	1MHz	2.698	-40.093	-13	27.093
2.700-2.715	1MHz	2.703	-43.105	-25	18.105

LTE Band 41 QPSK Bandwidth = 10MHz CH39700, RB 50

LTE Band 41 QPSK Bandwidth = 10MHz CH41540, RB 50

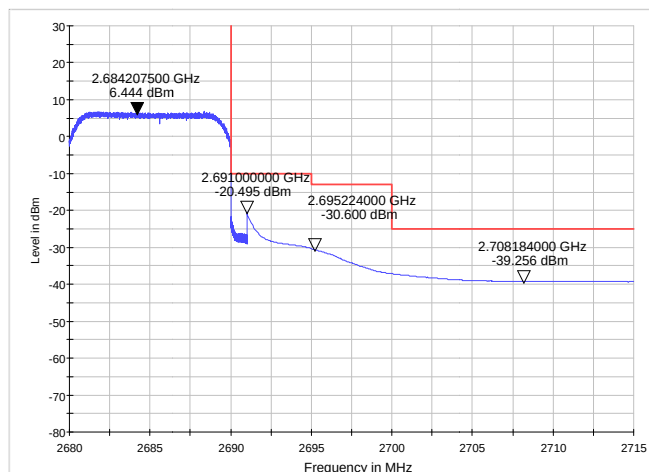
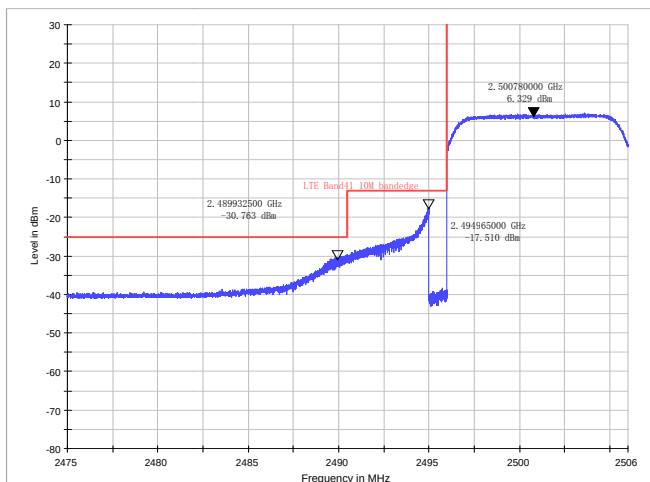


Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.506	100kHz	2.501	7.200	/	/
2.495-2.496	100kHz	2.495	-17.306	-13	4.306
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-29.408	-25	4.408

Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.680-2.690	100kHz	2.684	6.510	/	/
2.690-2.691	200kHz	2.691	-19.659	-10	9.659
2.691-2.695	1MHz				
2.695-2.700	1MHz	2.697	-32.810	-13	19.81
2.700-2.715	1MHz	2.706	-38.984	-25	13.984

LTE Band 41 16QAM Bandwidth = 10MHz CH39700, RB 50

LTE Band 41 16QAM Bandwidth = 10MHz CH41540, RB 50

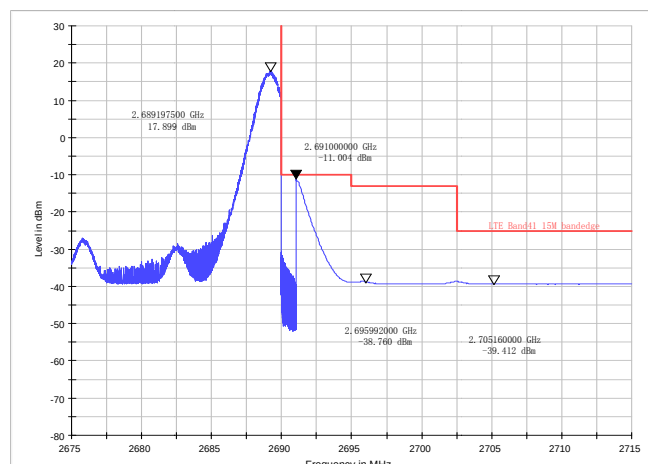
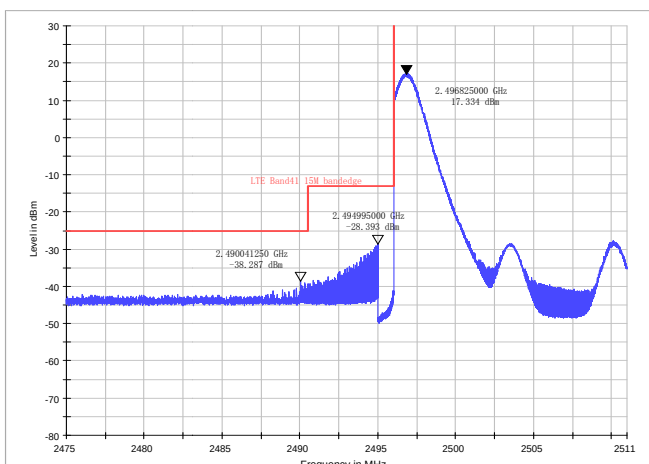


Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.506	100kHz	2.501	6.329	/	/
2.495-2.496	100kHz	2.495	-17.510	-13	4.51
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-30.763	-25	5.763

Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.680-2.690	100kHz	2.684	6.444	/	/
2.690-2.691	200kHz	2.691	-20.495	-10	10.495
2.691-2.695	1MHz				
2.695-2.700	1MHz	2.695	-30.600	-13	17.6
2.700-2.715	1MHz	2.708	-39.256	-25	14.256

LTE Band 41 QPSK Bandwidth = 15MHz CH39725, RB 1

LTE Band 41 QPSK Bandwidth = 15MHz CH41515, RB 1

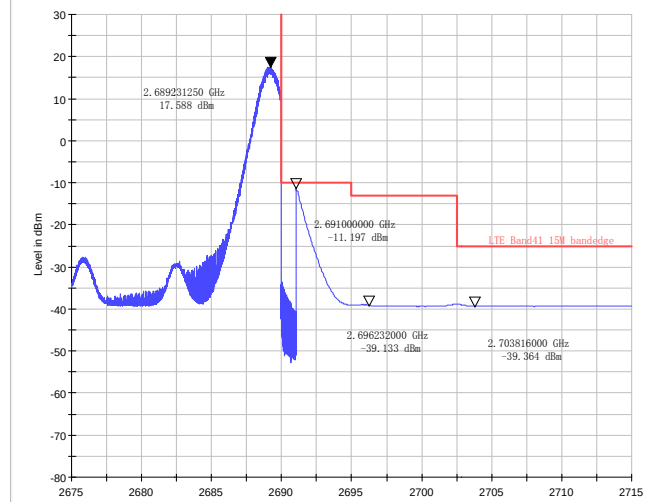
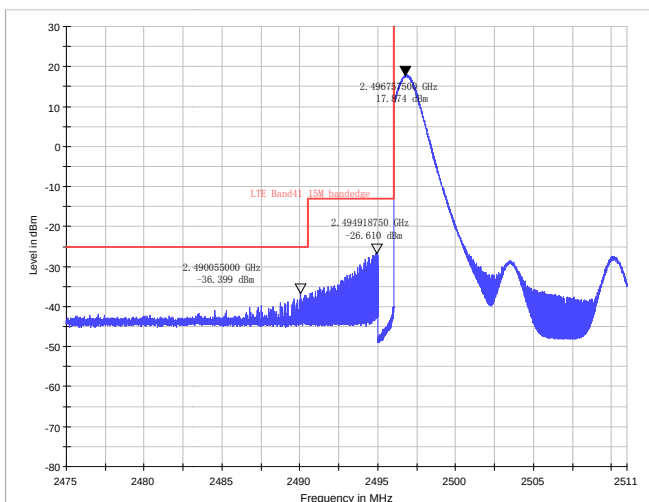


Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.511	100kHz	2.497	17.334	/	/
2.495-2.496	200kHz	2.495	-28.393	-13	15.393
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-38.287	-25	13.287

Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.675-2.690	100kHz	2.689	17.899	/	/
2.690-2.691	300kHz	2.691	-11.004	-10	1.004
2.691-2.695	1MHz				
2.695-2.696	1MHz	2.696	-38.760	-13	25.76
2.696-2.715	1MHz	2.705	-39.412	-25	14.412

LTE Band 41 16QAM Bandwidth = 15MHz CH39725, RB 1

LTE Band 41 16QAM Bandwidth = 15MHz CH41515, RB 1

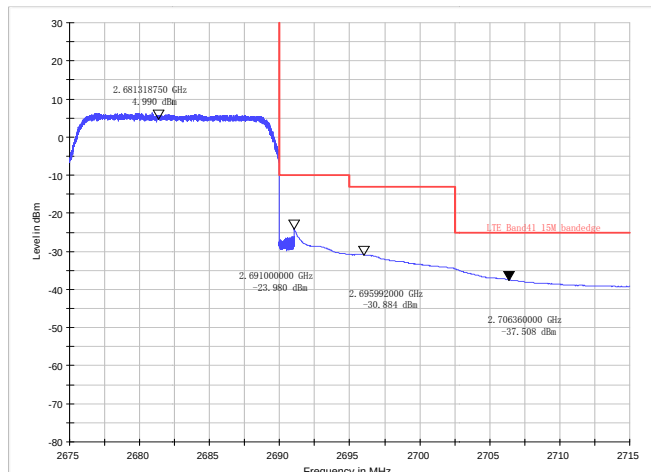
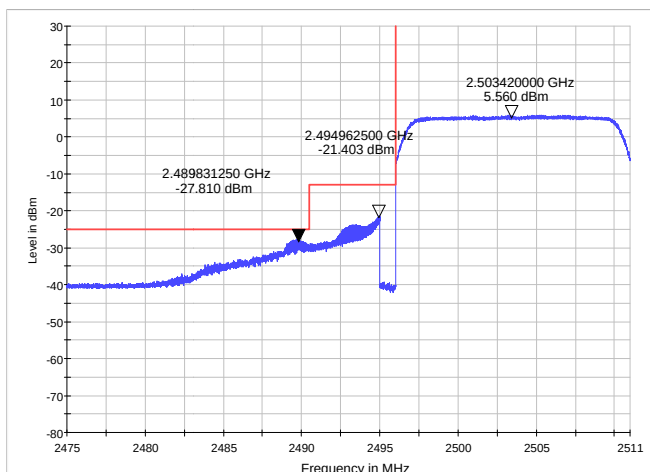


Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.511	100kHz	2.497	17.874	/	/
2.495-2.496	200kHz	2.495	-26.610	-13	13.61
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-36.399	-25	11.399

Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.675-2.690	100kHz	2.689	17.588	/	/
2.690-2.691	300kHz	2.691	-11.197	-10	1.197
2.691-2.695	1MHz				
2.695-2.696	1MHz	2.696	-39.133	-13	26.133
2.696-2.715	1MHz	2.704	-39.364	-25	14.364

LTE Band 41 QPSK Bandwidth = 15MHz CH39725, RB 75

LTE Band 41 QPSK Bandwidth = 15MHz CH41515, RB 75

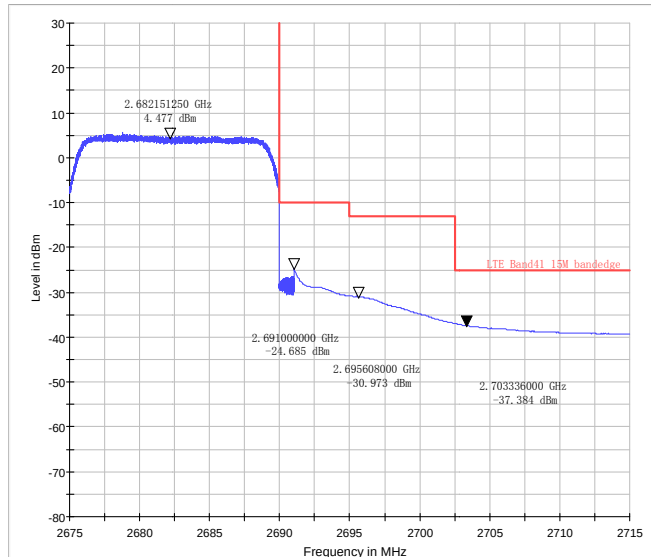
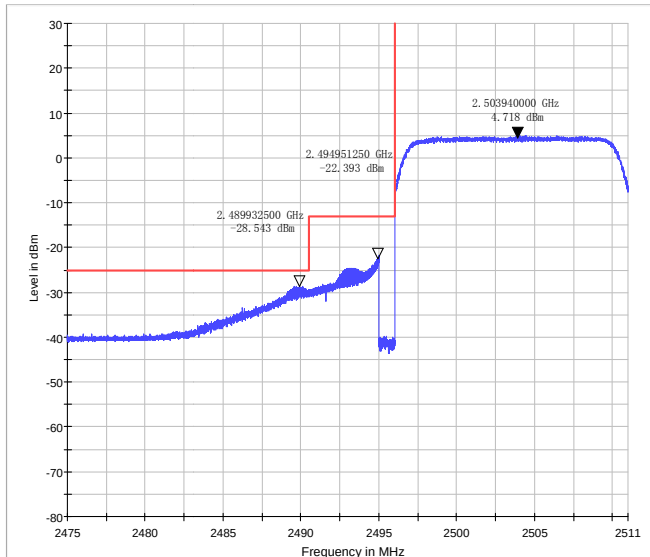


Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.511	100kHz	2.503	5.560	/	/
2.495-2.496	200kHz	2.495	-21.403	-13	8.403
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-27.810	-25	2.81

Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.675-2.690	100kHz	2.681	4.990	/	/
2.690-2.691	300kHz	2.691	-23.960	-10	13.96
2.691-2.695	1MHz				
2.695-2.696	1MHz	2.696	-30.884	-13	17.884
2.696-2.715	1MHz	2.706	-37.508	-25	12.508

LTE Band 41 16QAM Bandwidth = 15MHz CH39725, RB 75

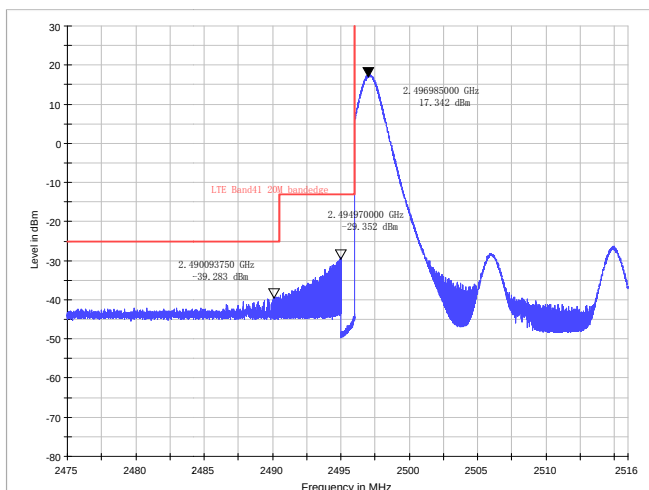
LTE Band 41 16QAM Bandwidth = 15MHz CH41515, RB 75



Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.511	100kHz	2.504	4.718	/	/
2.495-2.496	200kHz	2.495	-22.393	-13	9.393
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-28.543	-25	3.543

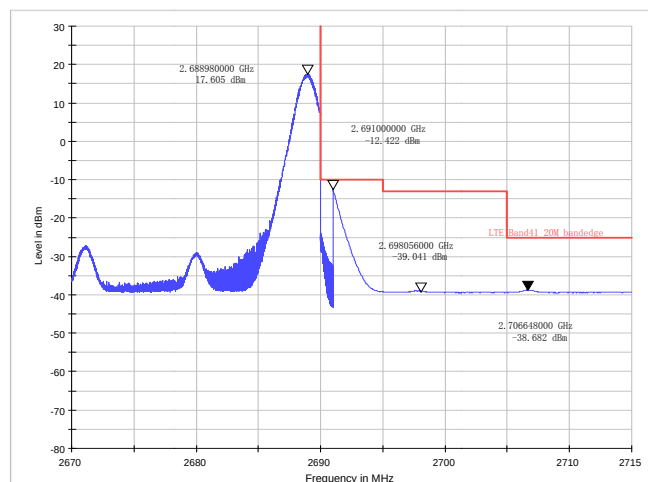
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.675-2.690	100kHz	2.682	4.477	/	/
2.690-2.691	300kHz	2.691	-24.685	-10	14.685
2.691-2.695	1MHz				
2.695-2.696	1MHz	2.696	-30.973	-13	17.973
2.696-2.715	1MHz	2.703	-37.384	-25	12.384

LTE Band 41 QPSK Bandwidth = 20MHz CH39750, RB 1



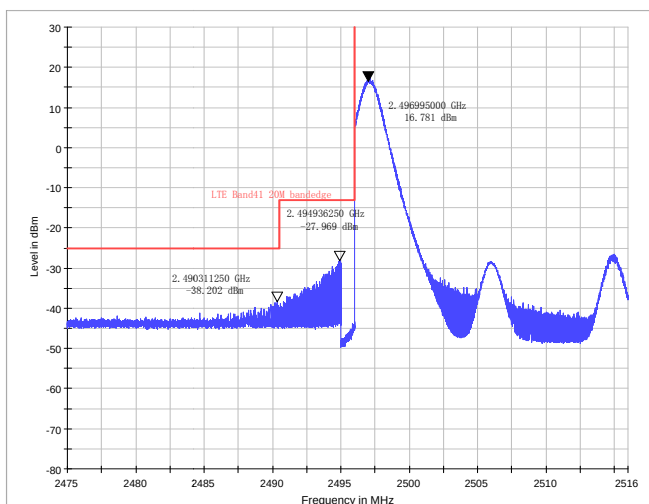
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.516	100kHz	2.497	17.342	/	/
2.495-2.496	200kHz	2.495	-29.352	-13	16.352
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-39.283	-25	14.283

LTE Band 41 QPSK Bandwidth = 20MHz CH41490, RB 1



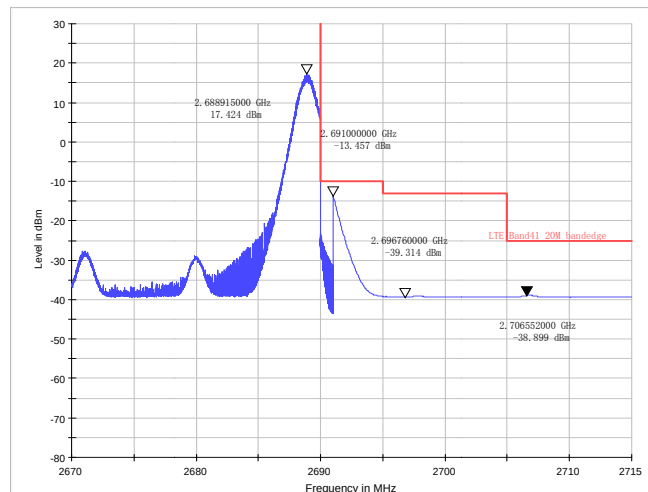
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.670-2.690	100kHz	2.689	17.605	/	/
2.690-2.691	500kHz	2.691	-12.422	-10	2.422
2.691-2.695	1MHz				
2.695-2.705	1MHz	2.698	-39.041	-13	26.041
2.705-2.715	1MHz	2.707	-38.682	-25	13.682

LTE Band 41 16QAM Bandwidth = 20MHz CH39750, RB 1



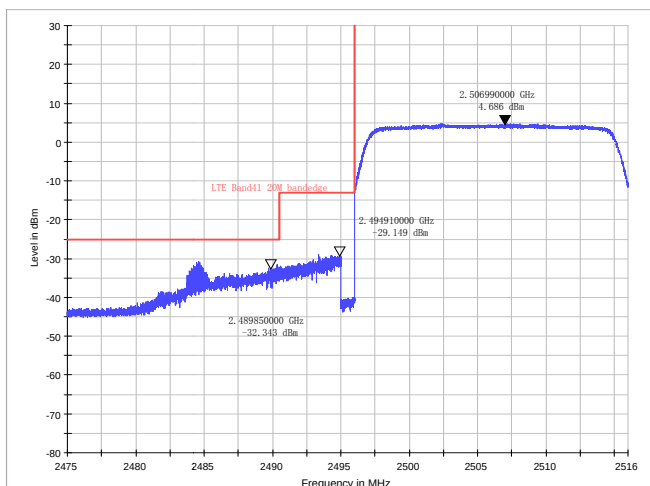
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.516	100kHz	2.497	16.781	/	/
2.495-2.496	200kHz	2.495	-27.969	-13	14.969
2.490-2.495	1MHz				
2.475-2.490	1MHz	2.490	-38.202	-25	13.202

LTE Band 41 16QAM Bandwidth = 20MHz CH41490, RB 1



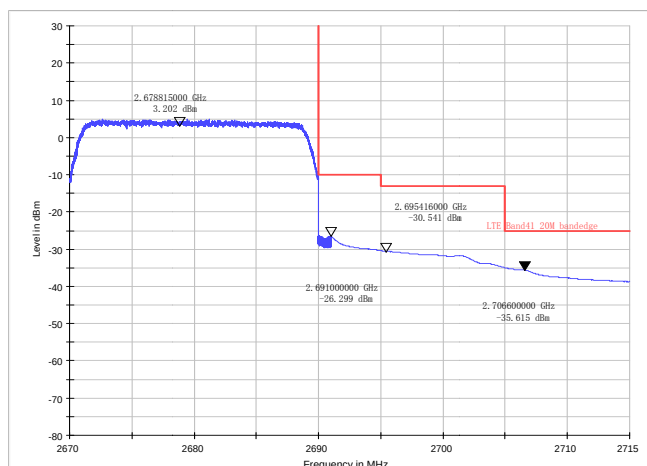
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.670-2.690	100kHz	2.689	17.424	/	/
2.690-2.691	500kHz	2.691	-13.457	-10	3.457
2.691-2.695	1MHz				
2.695-2.705	1MHz	2.697	-39.314	-13	26.314
2.705-2.715	1MHz	2.707	-38.899	-25	13.899

LTE Band 41 QPSK Bandwidth = 20MHz CH39750, RB 100



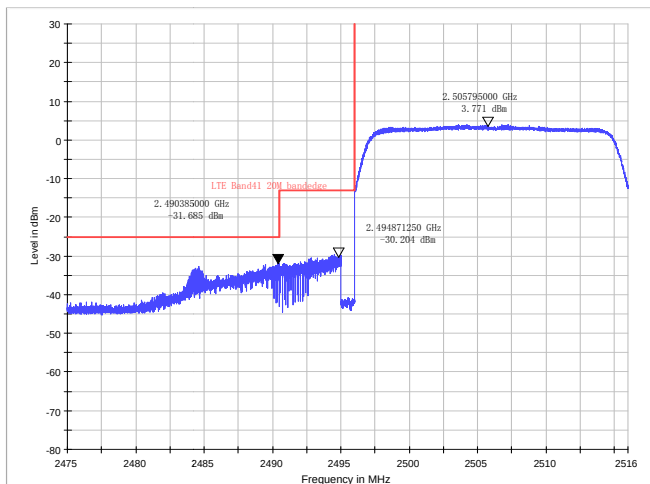
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.516	100kHz	2.507	4.686	/	/
2.495-2.496	200kHz	2.495	-29.149	-13	16.149
2.490-2.495	1MHz		-29.149	-13	16.149
2.475-2.490	1MHz	2.490	-32.343	-25	7.343

LTE Band 41 QPSK Bandwidth = 20MHz CH41490, RB 100



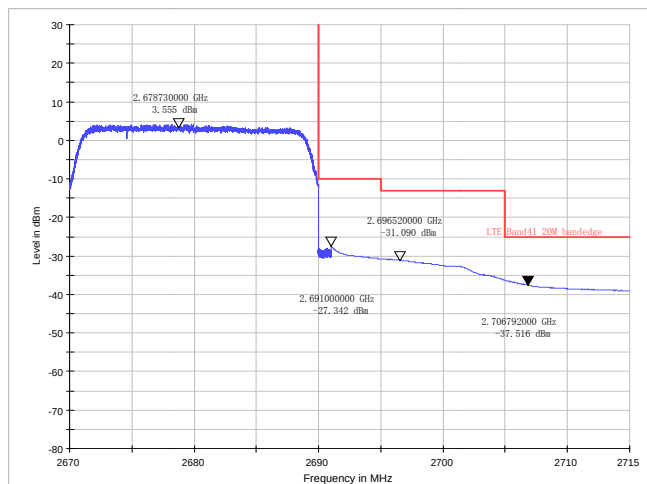
Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.670-2.690	100kHz	2.679	3.202	/	/
2.690-2.691	500kHz	2.691	-26.299	-10	16.299
2.691-2.695	1MHz		-26.299	-10	16.299
2.695-2.705	1MHz	2.695	-30.541	-13	17.541
2.705-2.715	1MHz	2.707	-35.615	-25	10.615

LTE Band 41 16QAM Bandwidth = 20MHz CH39750, RB 100



Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.496-2.516	100kHz	2.506	3.771	/	/
2.495-2.496	200kHz	2.495	-30.204	-13	17.204
2.490-2.495	1MHz		-30.204	-13	17.204
2.475-2.490	1MHz	2.490	-31.685	-25	6.685

LTE Band 41 16QAM Bandwidth = 20MHz CH41490, RB 100



Range (GHz)	RBW	Freq. (GHz)	Level (dBm)	Limit (dBm)	Margin (dBm)
2.670-2.690	100kHz	2.679	3.555	/	/
2.690-2.691	500kHz	2.691	-27.342	-10	17.342
2.691-2.695	1MHz		-27.342	-10	17.342
2.695-2.705	1MHz	2.697	-31.090	-13	18.09
2.705-2.715	1MHz	2.707	-37.516	-25	12.516

4.5 Peak-to-Average Power Ratio (PAPR)

Ambient condition

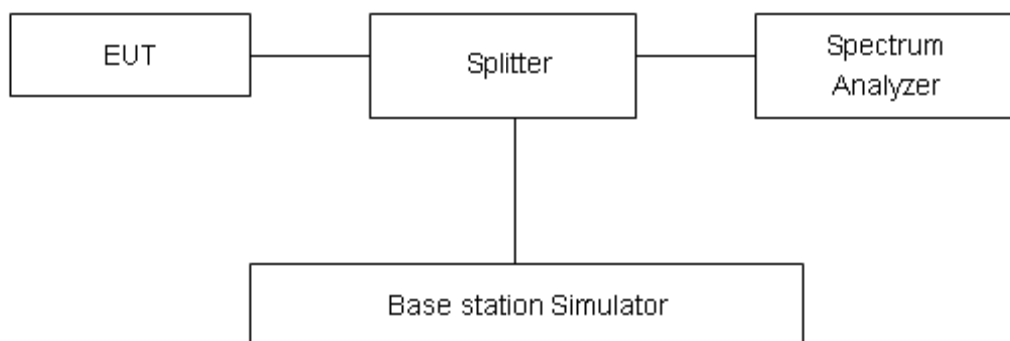
Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

Test Setup



Limits

Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.in Part27.50(d).

Measurement Uncertainty

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

Test Results

WCDMA Band IV	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Conclusion
RMC	1312	1712.4	27.61	23.6	4.01	PASS
	1413	1732.6	27.80	23.36	4.44	PASS
	1513	1752.6	27.31	23.34	3.97	PASS

LTE Band 4							
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Conclusion
QPSK	1.4	19957	1710.7	23.55	22.66	0.90	PASS
		20175	1732.5	23.14	22.70	0.44	PASS
		20393	1754.3	23.68	22.74	0.94	PASS
	3	19965	1711.5	23.49	22.55	0.95	PASS
		20175	1732.5	23.27	22.60	0.68	PASS
		20385	1753.5	23.54	22.63	0.91	PASS
	5	19975	1712.5	23.35	22.57	0.77	PASS
		20175	1732.5	23.09	22.62	0.48	PASS
		20375	1752.5	23.71	22.66	1.06	PASS
	10	20000	1715	23.66	22.60	1.07	PASS
		20175	1732.5	23.74	22.64	1.10	PASS
		20350	1750	23.39	22.68	0.71	PASS
	15	20025	1717.5	23.98	22.63	1.36	PASS
		20175	1732.5	23.83	22.67	1.16	PASS
		20325	1747.5	24.00	22.71	1.29	PASS
	20	20050	1720	23.82	22.65	1.18	PASS
		20175	1732.5	24.00	22.69	1.31	PASS
		20300	1745	24.05	22.73	1.32	PASS
16QAM	1.4	19957	1710.7	22.35	21.55	0.80	PASS
		20175	1732.5	22.49	21.61	0.88	PASS
		20393	1754.3	22.58	21.74	0.84	PASS
	3	19965	1711.5	22.24	21.44	0.80	PASS
		20175	1732.5	22.39	21.50	0.89	PASS
		20385	1753.5	22.45	21.63	0.82	PASS
	5	19975	1712.5	22.23	21.46	0.77	PASS
		20175	1732.5	22.65	21.52	1.13	PASS
		20375	1752.5	22.32	21.65	0.67	PASS
	10	20000	1715	22.62	21.48	1.14	PASS
		20175	1732.5	22.69	21.55	1.14	PASS
		20350	1750	22.85	21.67	1.17	PASS

	15	20025	1717.5	22.86	21.51	1.35	PASS
		20175	1732.5	22.83	21.58	1.25	PASS
		20325	1747.5	22.95	21.70	1.24	PASS
	20	20050	1720	22.71	21.54	1.17	PASS
		20175	1732.5	22.95	21.60	1.35	PASS
		20300	1745	22.95	21.72	1.22	PASS

LTE Band 12							
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Conclusion
QPSK	1.4	23017	699.7	22.55	22.17	0.38	PASS
		23095	707.5	23.12	22.13	0.99	PASS
		23173	715.3	22.49	22.11	0.38	PASS
	3	23025	700.5	22.47	22.12	0.35	PASS
		23095	707.5	23.03	22.08	0.95	PASS
		23165	714.5	22.83	22.06	0.77	PASS
	5	23035	701.5	23.31	22.14	1.17	PASS
		23095	707.5	23.29	22.11	1.18	PASS
		23155	713.5	23.36	22.08	1.28	PASS
	10	23060	704	23.63	22.15	1.48	PASS
		23095	707.5	23.38	22.12	1.26	PASS
		23130	711	23.39	22.10	1.29	PASS
16QAM	1.4	23017	699.7	21.40	20.94	0.46	PASS
		23095	707.5	21.57	21.02	0.55	PASS
		23173	715.3	22.04	20.93	1.11	PASS
	3	23025	700.5	21.63	20.90	0.73	PASS
		23095	707.5	21.79	20.97	0.82	PASS
		23165	714.5	21.35	20.88	0.47	PASS
	5	23035	701.5	22.13	20.92	1.21	PASS
		23095	707.5	22.24	20.99	1.25	PASS
		23155	713.5	22.06	20.90	1.16	PASS
	10	23060	704	22.22	20.93	1.29	PASS
		23095	707.5	22.27	21.01	1.26	PASS
		23130	711	22.28	20.92	1.36	PASS

LTE Band 41							
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Conclusion
QPSK	5	39675	2498.5	20.81	19.42	1.39	PASS
		40620	2593	21.42	19.43	1.99	PASS
		41565	2687.5	21.00	19.68	1.32	PASS
	10	39700	2501	20.58	19.63	0.95	PASS
		40620	2593	20.40	19.64	0.76	PASS
		41540	2685	20.66	19.89	0.77	PASS
	15	39725	2503.5	21.07	19.94	1.13	PASS
		40620	2593	21.02	19.95	1.07	PASS
		41515	2682.5	21.52	20.20	1.32	PASS
	20	39750	2506	21.61	20.16	1.45	PASS
		40620	2593	21.39	20.17	1.22	PASS
		41490	2680	22.39	20.41	1.98	PASS
16QAM	5	39675	2498.5	19.28	18.64	0.64	PASS
		40620	2593	21.16	19.61	1.55	PASS
		41565	2687.5	19.50	18.69	0.81	PASS
	10	39700	2501	19.59	18.85	0.74	PASS
		40620	2593	20.68	19.82	0.86	PASS
		41540	2685	19.38	18.91	0.47	PASS
	15	39725	2503.5	19.97	19.16	0.81	PASS
		40620	2593	21.65	20.13	1.52	PASS
		41515	2682.5	20.98	19.22	1.76	PASS
	20	39750	2506	20.30	19.38	0.92	PASS
		40620	2593	21.21	20.35	0.86	PASS
		41490	2680	21.19	19.43	1.76	PASS

4.6 Frequency Stability

Ambient condition

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

Method of Measurement

1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size.

(1)With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.

(2)Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

2. Frequency Stability (Voltage Variation)

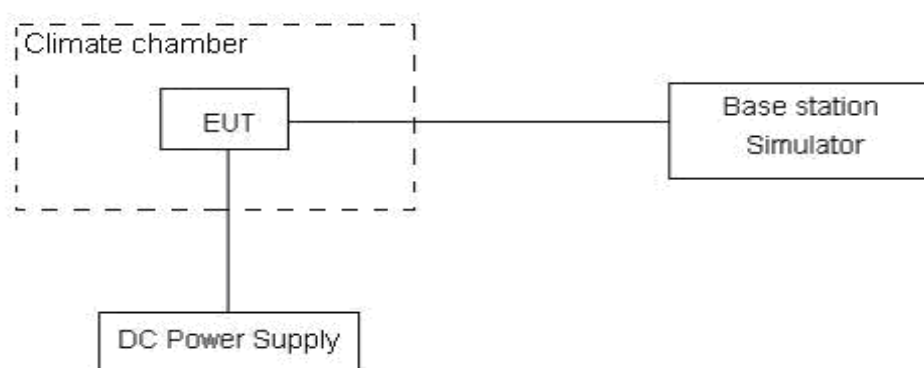
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.6 V and 4.35 V, with a nominal voltage of 3.8V.

Test setup



Limits

No specific frequency stability requirements in part 27.54

Measurement Uncertainty

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

Test Result
WCDMA Band IV

Test status	WCDMA Band IV Channel 1413 RMC	
	Test Results (ppm)	Conclusion
50°C/3.8 V	-0.00010	PASS
40°C/3.8 V	0.00006	PASS
30°C/3.8 V	0.00017	PASS
20°C/3.8 V	0.00020	PASS
10°C/3.8 V	0.00004	PASS
0°C/3.8 V	0.00036	PASS
-10°C/3.8 V	-0.00020	PASS
-20°C/3.8 V	0.00007	PASS
-30°C/3.8 V	0.0001	PASS
20°C/4.35 V	0.00016	PASS
20°C/3.6 V	0.00027	PASS

Bandwidth	Test status	LTE Band 4 Channel 20175 Test Results (ppm)		
		QPSK	16QAM	Conclusion
1.4MHz	50°C/3.8 V	-0.00028	0.00042	PASS
	40°C/3.8 V	-0.00053	0.00014	PASS
	30°C/3.8 V	0.00008	-0.00003	PASS
	20°C/3.8 V	0.00009	-0.00044	PASS
	10°C/3.8 V	0.00015	-0.00028	PASS
	0°C/3.8 V	0.00048	-0.00059	PASS
	-10°C/3.8 V	-0.00048	-0.00042	PASS
	-20°C/3.8 V	0.00045	-0.00055	PASS
	-30°C/3.8 V	-0.00046	-0.00041	PASS
	20°C/4.35 V	0.00002	0.00054	PASS
	20°C/3.6 V	0.00028	-0.00085	PASS
3MHz	50°C/3.8 V	-0.00237	-0.00195	PASS
	40°C/3.8 V	-0.00205	-0.00238	PASS
	30°C/3.8 V	-0.00148	-0.00358	PASS
	20°C/3.8 V	-0.00238	-0.00336	PASS
	10°C/3.8 V	-0.00123	-0.00279	PASS
	0°C/3.8 V	-0.00192	-0.00256	PASS
	-10°C/3.8 V	-0.00215	-0.00283	PASS
	-20°C/3.8 V	-0.00191	-0.00255	PASS
	-30°C/3.8 V	-0.00214	-0.00280	PASS



	20°C/4.35 V	-0.00225	-0.00223	PASS
	20°C/3.6 V	-0.00169	-0.00383	PASS
5MHz	50°C/3.8 V	-0.00293	-0.00201	PASS
	40°C/3.8 V	-0.00306	-0.00259	PASS
	30°C/3.8 V	-0.00286	-0.00278	PASS
	20°C/3.8 V	-0.00320	-0.00253	PASS
	10°C/3.8 V	-0.00293	-0.00296	PASS
	0°C/3.8 V	-0.00271	-0.00253	PASS
	-10°C/3.8 V	-0.00248	-0.00199	PASS
	-20°C/3.8 V	-0.00270	-0.00250	PASS
	-30°C/3.8 V	-0.00245	-0.00198	PASS
	20°C/4.35 V	-0.00266	-0.00205	PASS
	20°C/3.6 V	-0.00228	-0.00171	PASS
10MHz	50°C/3.8 V	-0.00067	-0.00127	PASS
	40°C/3.8 V	-0.00079	-0.00048	PASS
	30°C/3.8 V	-0.00050	0.00005	PASS
	20°C/3.8 V	-0.00037	-0.00056	PASS
	10°C/3.8 V	-0.00042	-0.00018	PASS
	0°C/3.8 V	-0.00023	-0.00050	PASS
	-10°C/3.8 V	-0.00088	-0.00076	PASS
	-20°C/3.8 V	-0.00020	-0.00051	PASS
	-30°C/3.8 V	-0.00087	-0.00075	PASS
	20°C/4.35 V	0.00002	-0.00006	PASS
	20°C/3.6 V	-0.00083	-0.00236	PASS
15MHz	50°C/3.8 V	0.00003	0.00031	PASS
	40°C/3.8 V	0.00014	0.00019	PASS
	30°C/3.8 V	0.00053	0.00031	PASS
	20°C/3.8 V	0.00012	0.00048	PASS
	10°C/3.8 V	0.00002	-0.00031	PASS
	0°C/3.8 V	0.00014	0.00029	PASS
	-10°C/3.8 V	0.00024	0.00032	PASS
	-20°C/3.8 V	0.00012	0.00027	PASS
	-30°C/3.8 V	0.00022	0.00030	PASS
	20°C/4.35 V	0.00068	-0.00002	PASS
	20°C/3.6 V	0.00047	-0.00051	PASS
20MHz	50°C/3.8 V	0.00077	0.00086	PASS
	40°C/3.8 V	-0.00006	0.00046	PASS
	30°C/3.8 V	0.00063	0.00073	PASS
	20°C/3.8 V	0.00055	0.00006	PASS
	10°C/3.8 V	0.00066	0.00052	PASS

	0°C/3.8 V	-0.00021	0.00047	PASS
	-10°C/3.8 V	0.00048	0.00057	PASS
	-20°C/3.8 V	-0.00020	0.00045	PASS
	-30°C/3.8 V	0.00047	0.00052	PASS
	20°C/4.35 V	0.00118	0.00027	PASS
	20°C/3.6 V	0.00008	0.00064	PASS

Bandwidth	Test status	LTE Band 12 Channel 23095 Test Results (ppm)		
		QPSK	16QAM	Conclusion
1.4M	50°C/3.8 V	-0.00297	-0.00099	PASS
	40°C/3.8 V	-0.00160	-0.00069	PASS
	30°C/3.8 V	-0.00081	-0.00010	PASS
	20°C/3.8 V	-0.00085	0.00014	PASS
	10°C/3.8 V	-0.00117	-0.00116	PASS
	0°C/3.8 V	-0.00083	-0.00133	PASS
	-10°C/3.8 V	-0.00158	-0.00247	PASS
	-20°C/3.8 V	-0.00081	-0.00130	PASS
	-30°C/3.8 V	-0.00157	-0.00245	PASS
	20°C/4.35 V	-0.00028	-0.00116	PASS
	20°C/3.6 V	-0.00130	-0.00154	PASS
3M	50°C/3.8 V	-0.00192	-0.00196	PASS
	40°C/3.8 V	-0.00030	-0.00109	PASS
	30°C/3.8 V	-0.00027	-0.00024	PASS
	20°C/3.8 V	-0.00075	0.00008	PASS
	10°C/3.8 V	-0.00127	0.00024	PASS
	0°C/3.8 V	-0.00290	0.00079	PASS
	-10°C/3.8 V	-0.00088	-0.00033	PASS
	-20°C/3.8 V	-0.00280	0.00078	PASS
	-30°C/3.8 V	-0.00075	-0.00031	PASS
	20°C/4.35 V	0.00051	-0.00276	PASS
	20°C/3.6 V	-0.00072	-0.00196	PASS
5MHz	50°C/3.8 V	-0.00105	-0.00130	PASS
	40°C/3.8 V	-0.00164	-0.00079	PASS
	30°C/3.8 V	-0.00003	-0.00085	PASS
	20°C/3.8 V	-0.00083	-0.00083	PASS
	10°C/3.8 V	-0.00081	-0.00055	PASS
	0°C/3.8 V	-0.00028	-0.00090	PASS
	-10°C/3.8 V	-0.00081	-0.00102	PASS
	-20°C/3.8 V	-0.00025	-0.00080	PASS

	-30°C/3.8 V	-0.00077	-0.00100	PASS
	20°C/4.35 V	-0.00105	-0.00076	PASS
	20°C/3.6 V	-0.00069	-0.00033	PASS
10MHz	50°C/3.8 V	-0.00141	-0.00140	PASS
	40°C/3.8 V	0.00052	-0.00062	PASS
	30°C/3.8 V	-0.00081	-0.00147	PASS
	20°C/3.8 V	-0.00071	-0.00253	PASS
	10°C/3.8 V	-0.00010	-0.00051	PASS
	0°C/3.8 V	-0.00075	-0.00076	PASS
	-10°C/3.8 V	-0.00192	-0.00058	PASS
	-20°C/3.8 V	-0.00072	-0.00074	PASS
	-30°C/3.8 V	-0.00190	-0.00052	PASS
	20°C/4.35 V	-0.00105	-0.00062	PASS
	20°C/3.6 V	-0.00117	0.00023	PASS

Bandwidth	Test status	LTE Band 41 Channel 40620 Test Results (ppm)		
		QPSK	16QAM	Conclusion
5MHz	50°C/3.8 V	0.00235	0.00366	PASS
	40°C/3.8 V	-0.00112	0.00409	PASS
	30°C/3.8 V	0.00378	0.00216	PASS
	20°C/3.8 V	0.00123	0.00231	PASS
	10°C/3.8 V	-0.00197	0.00386	PASS
	0°C/3.8 V	0.00174	0.00555	PASS
	-10°C/3.8 V	0.00255	0.00397	PASS
	-20°C/3.8 V	0.00153	0.00545	PASS
	-30°C/3.8 V	0.00245	0.00387	PASS
	20°C/4.35 V	0.00212	0.00282	PASS
	20°C/3.6 V	0.00247	0.00370	PASS
10MHz	50°C/3.8 V	0.00162	0.00332	PASS
	40°C/3.8 V	-0.00139	0.00548	PASS
	30°C/3.8 V	-0.00297	0.00316	PASS
	20°C/3.8 V	-0.00170	0.00336	PASS
	10°C/3.8 V	-0.00444	0.00212	PASS
	0°C/3.8 V	-0.00301	0.00251	PASS
	-10°C/3.8 V	-0.00382	0.00478	PASS
	-20°C/3.8 V	-0.00201	0.00241	PASS
	-30°C/3.8 V	-0.00372	0.00452	PASS
	20°C/4.35 V	-0.00424	0.00224	PASS



	20°C/3.6 V	-0.00332	0.00297	PASS
15MHz	50°C/3.8 V	-0.00390	0.00355	PASS
	40°C/3.8 V	-0.00255	0.00347	PASS
	30°C/3.8 V	-0.00166	0.00189	PASS
	20°C/3.8 V	-0.00301	0.00251	PASS
	10°C/3.8 V	-0.00382	0.00478	PASS
	0°C/3.8 V	-0.00424	0.00224	PASS
	-10°C/3.8 V	-0.00332	0.00297	PASS
	-20°C/3.8 V	-0.00422	0.00275	PASS
	-30°C/3.8 V	-0.00314	0.00285	PASS
	20°C/4.35 V	-0.00517	0.00274	PASS
	20°C/3.6 V	-0.00390	0.00355	PASS
20MHz	50°C/3.8 V	-0.00166	0.00189	PASS
	40°C/3.8 V	-0.00305	0.00247	PASS
	30°C/3.8 V	0.00594	-0.00204	PASS
	20°C/3.8 V	0.00505	-0.00305	PASS
	10°C/3.8 V	-0.00258	0.00251	PASS
	0°C/3.8 V	0.00216	0.00239	PASS
	-10°C/3.8 V	-0.00328	0.00301	PASS
	-20°C/3.8 V	0.00214	0.00225	PASS
	-30°C/3.8 V	-0.00325	0.00300	PASS
	20°C/4.35 V	0.00243	-0.00201	PASS
	20°C/3.6 V	0.00440	0.00447	PASS

4.7 Spurious Emissions at Antenna Terminals

Ambient condition

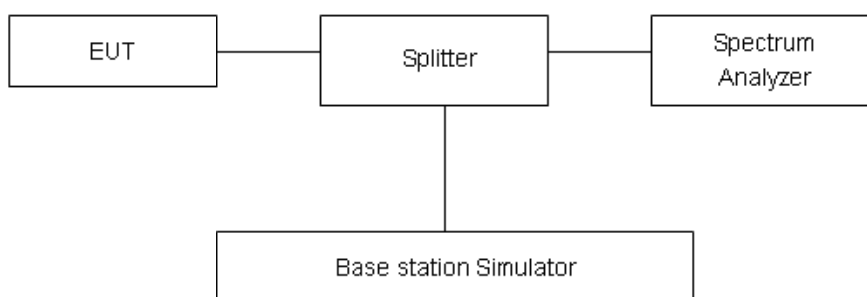
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. 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.

Test setup



Limits

LTE -4/12 Rule Part 27.53(h) specifies that “the power of any emission outside a licensee’s frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.”

LTE -41 Rule Part 27.53(m) $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

LTE -4/12 Limit	-13 dBm
LTE -41 Limit	-25 dBm

Measurement Uncertainty

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

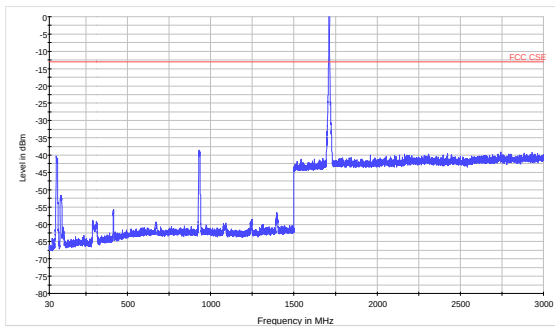
Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-12.75GHz	1.407 dB

Test Result: PASS

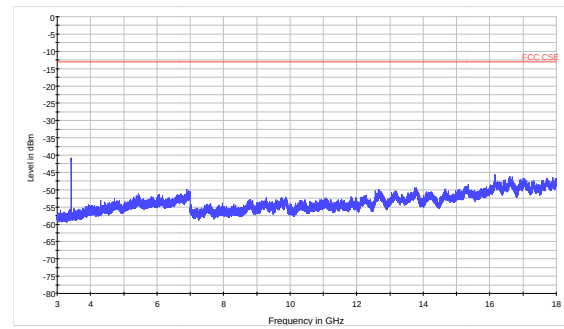
If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.
The signal beyond the limit is carrier in the following plots.

Test Data File Name	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
LTE B12 1.4M RB1_CHLOW_1-3GHz	1398.3	-30.49	-13	17.49
LTE B12 1.4M RB1_CHMID_1-3GHz	1414.1	-32.60	-13	19.60
LTE B12 1.4M RB1_CHHIG_1-3GHz	1429.9	-29.14	-13	16.14
LTE B12 3M RB1_CHLOW_1-3GHz	1398.5	-29.62	-13	16.62
LTE B12 3M RB1_CHMID_1-3GHz	1412.5	-31.49	-13	18.49
LTE B12 3M RB1_CHHIG_1-3GHz	1426.5	-29.28	-13	16.28
LTE B12 5M RB1_CHLOW_1-3GHz	1398.7	-30.05	-13	17.05
LTE B12 5M RB1_CHMID_1-3GHz	1410.8	-31.26	-13	18.26
LTE B12 5M RB1_CHHIG_1-3GHz	1422.7	-31.37	-13	18.37
LTE B12 10M RB1_CHLOW_1-3GHz	1399.2	-29.72	-13	16.72
LTE B12 10M RB1_CHMID_1-3GHz	1406.1	-30.44	-13	17.44
LTE B12 10M RB1_CHHIG_1-3GHz	1413.2	-32.07	-13	19.07
LTE B41 5M RB1_CHLOW_3-18GHz	7448.8	-44.43	-25	19.43
LTE B41 5M RB1_CHMID_3-18GHz	5180.6	-39.36	-25	14.36
LTE B41 10M RB1_CHLOW_3-18GHz	5010.0	-36.59	-25	11.59
LTE B41 10M RB1_CHMID_3-18GHz	5193.8	-38.69	-25	13.69
LTE B41 15M RB1_CHLOW_3-18GHz	4993.1	-34.97	-25	9.97
LTE B41 15M RB1_CHMID_3-18GHz	5173.1	-37.94	-25	12.94
LTE B41 15M RB1_CHHIG_3-18GHz	5351.3	-40.95	-25	15.95
LTE B41 20M RB1_CHLOW_3-18GHz	4993.1	-34.96	-25	9.96
LTE B41 20M RB1_CHMID_3-18GHz	5167.5	-38.15	-25	13.15
LTE B41 20M RB1_CHHIG_3-18GHz	5143.9	-42.45	-25	17.45

WCDMA Band IV CH1312

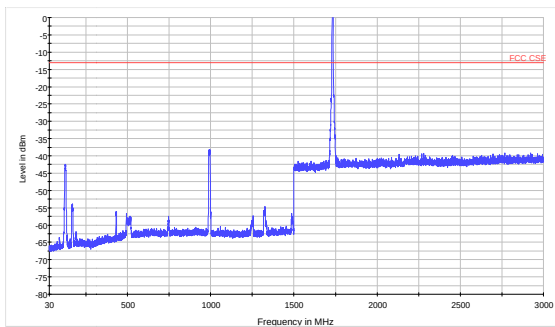


WCDMA Band IV Channel1312 30MHz~3GHz

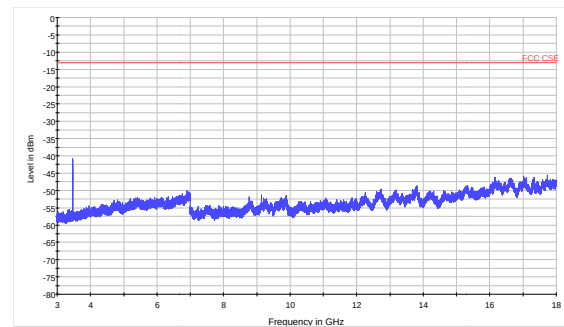


WCDMA Band IV Channel1312 3GHz ~18GHz

WCDMA Band IV CH1413

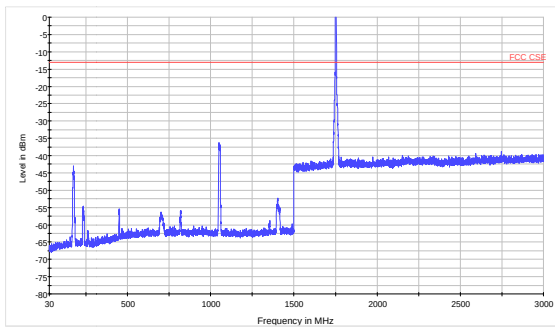


WCDMA Band IV Channel1413 30MHz~3GHz

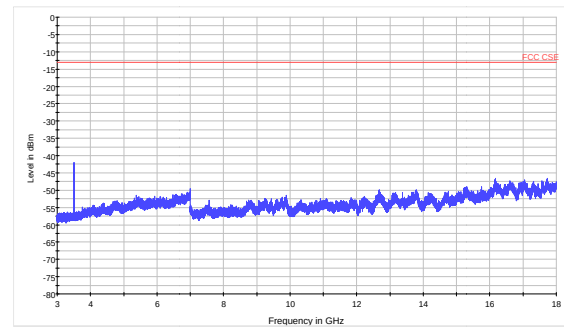


WCDMA Band IV Channel1413 3GHz ~18GHz

WCDMA Band IV CH1513

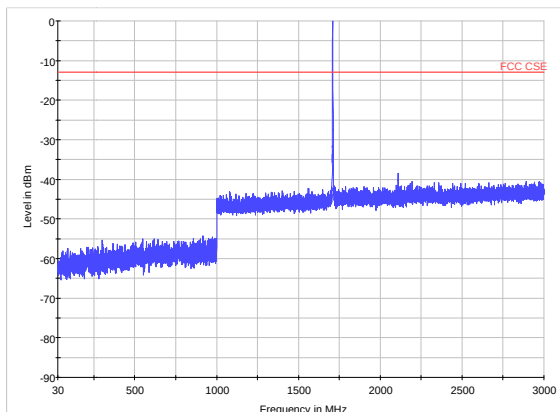


WCDMA Band IV Channel1513 30MHz~3GHz

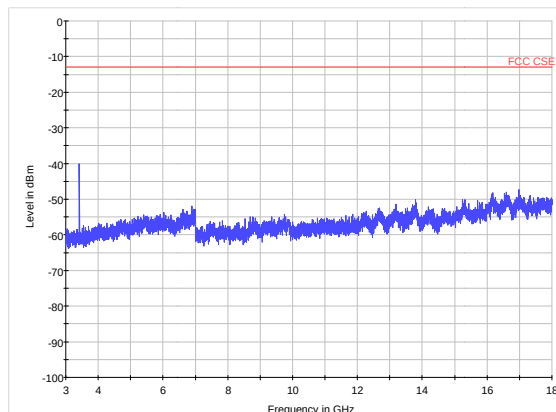


WCDMA Band IV Channel1513 3GHz ~18GHz

LTE Band 4 QPSK Bandwidth = 1.4MHz CH19957, RB 1

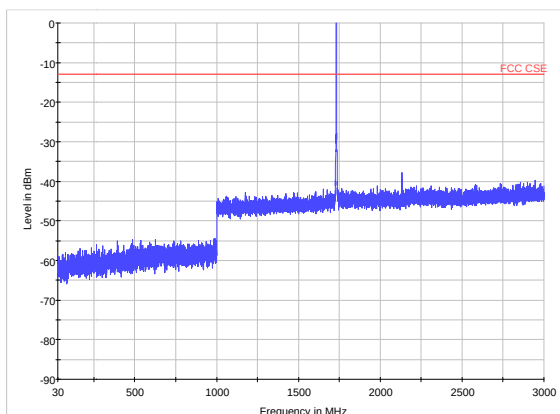


LTE Band 4 CH19957 30MHz~3GHz

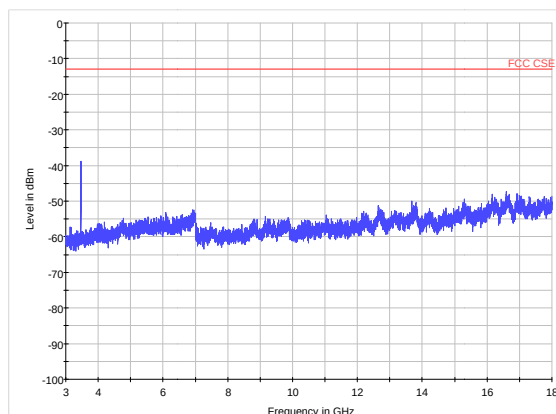


LTE Band 4 CH19957 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 1.4MHz CH20175, RB 1

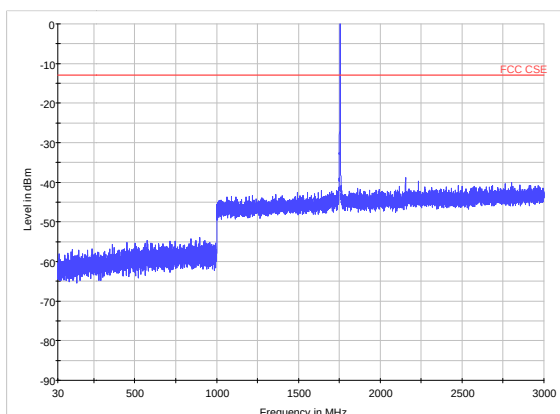


LTE Band 4 CH20175 30MHz~3GHz

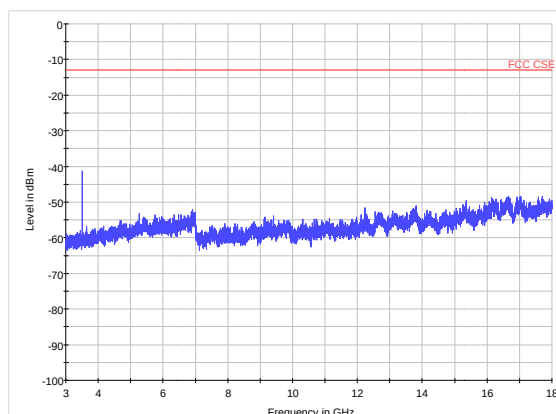


LTE Band 4 CH20175 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 1.4MHz CH20393, RB 1

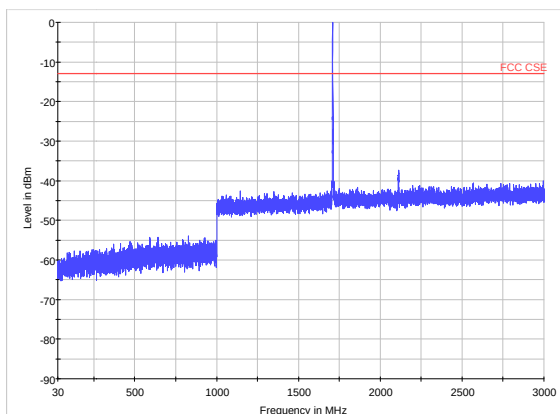


LTE Band 4 CH20393 30MHz~3GHz

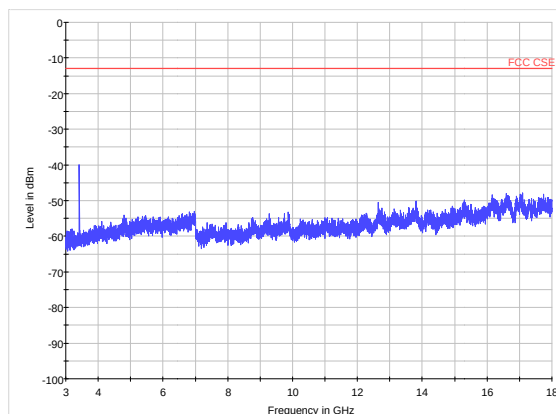


LTE Band 4 CH20393 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 3MHz CH19965, RB 1

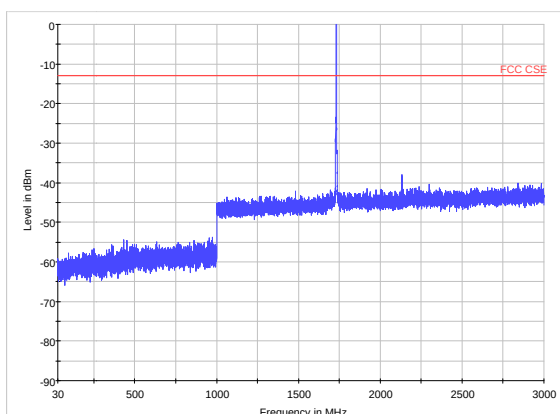


LTE Band 4 CH19965 30MHz~3GHz

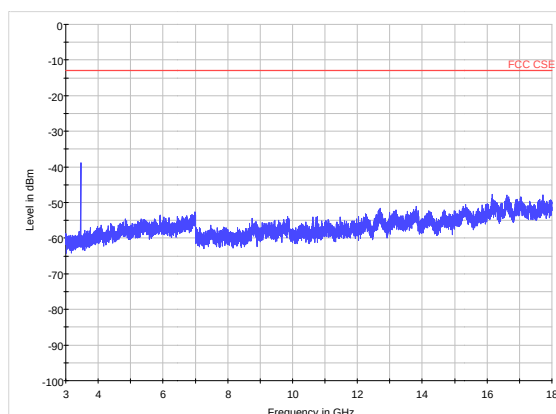


LTE Band 4 CH19965 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 3MHz CH20175, RB 1

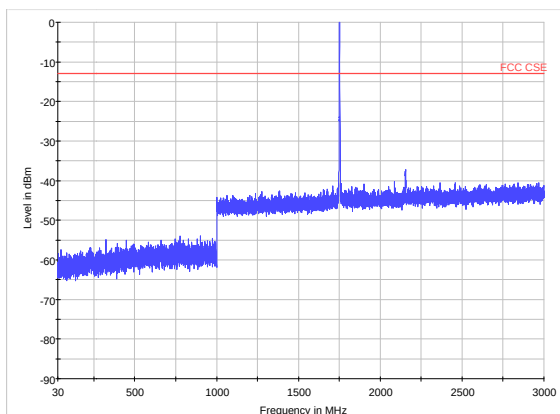


LTE Band 4 CH20175 30MHz~3GHz

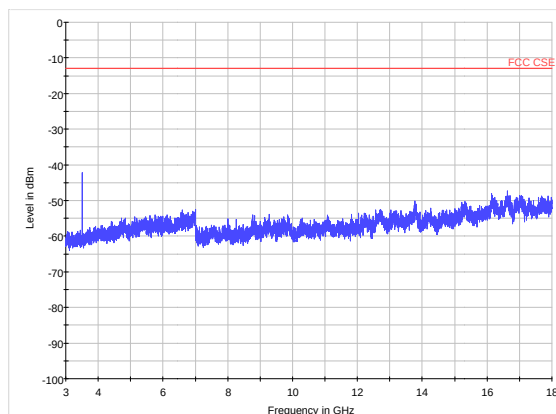


LTE Band 4 CH20175 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 3MHz CH20385, RB 1

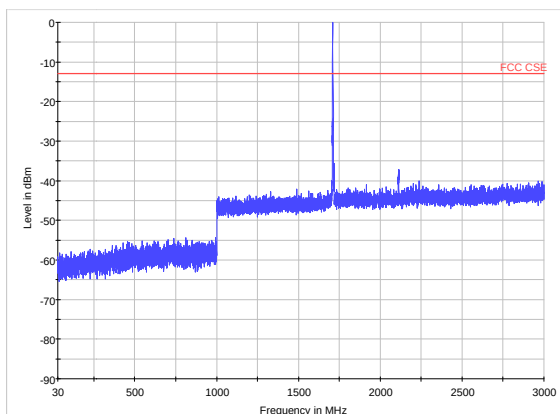


LTE Band 4 CH20385 30MHz~3GHz

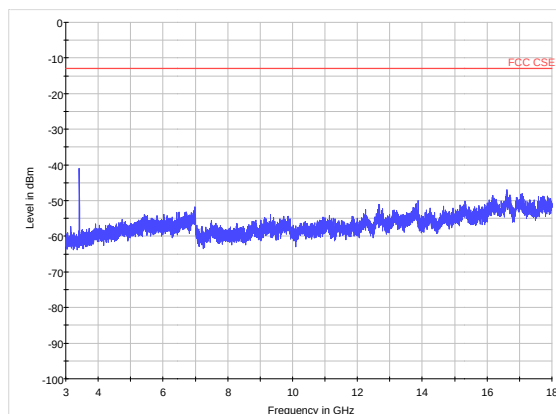


LTE Band 4 CH20385 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 5MHz CH19975, RB 1

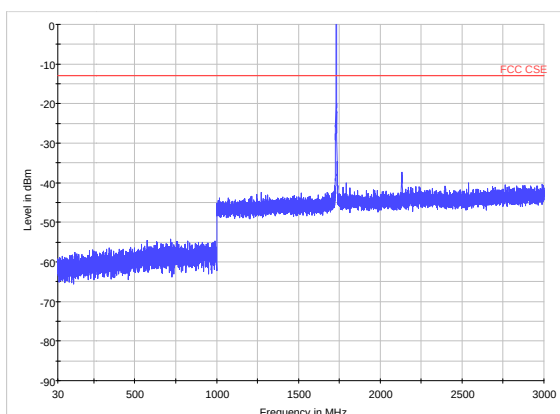


LTE Band 4 CH19975 30MHz~3GHz

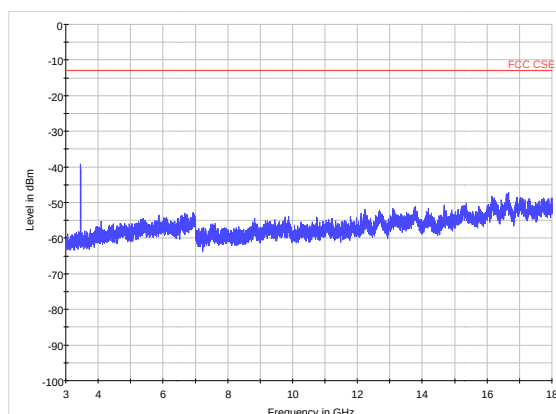


LTE Band 4 CH19975 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 5MHz CH20175, RB 1

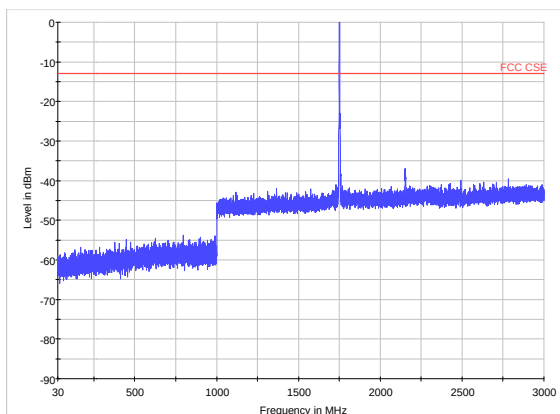


LTE Band 4 CH20175 30MHz~3GHz

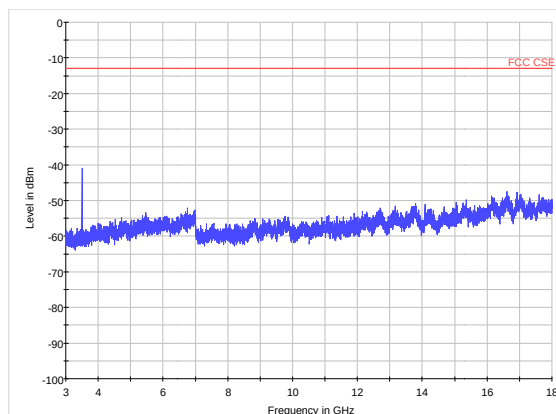


LTE Band 4 CH20175 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 5MHz CH20375, RB 1

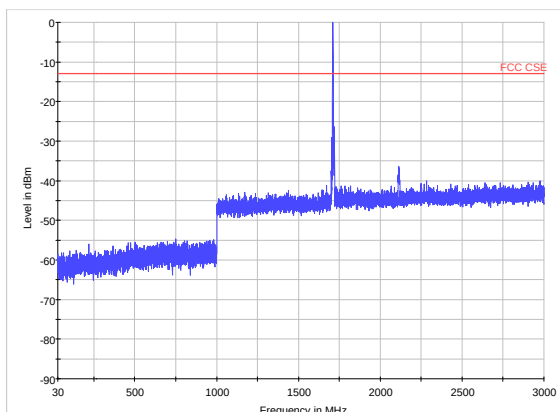


LTE Band 4 CH20375 30MHz~3GHz

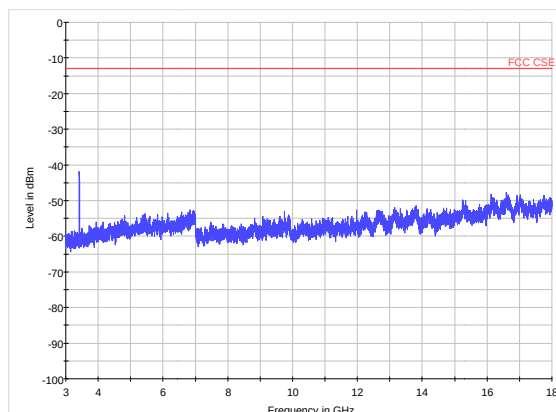


LTE Band 4 CH20375 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 10MHz CH20000, RB 1

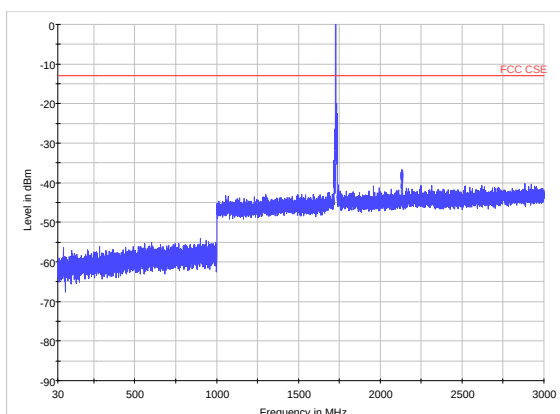


LTE Band 4 CH20000 30MHz~3GHz

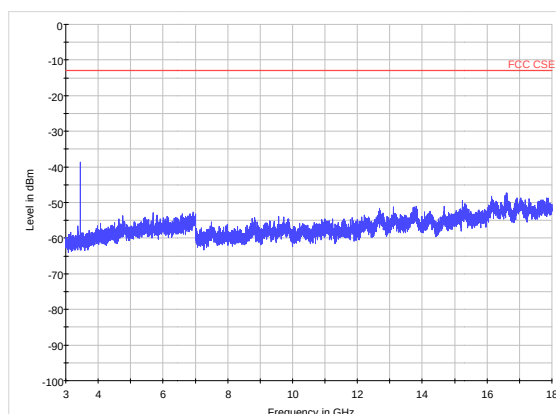


LTE Band 4 CH20000 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 10MHz CH20175, RB 1

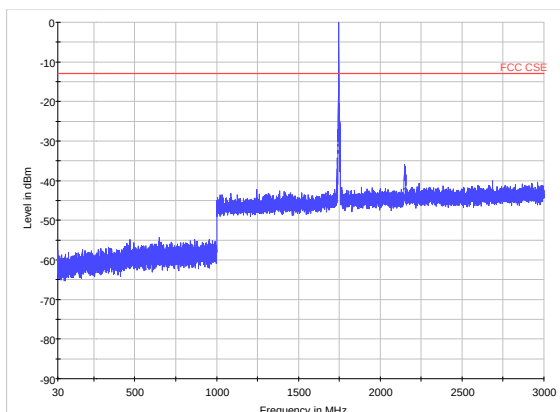


LTE Band 4 CH20175 30MHz~3GHz

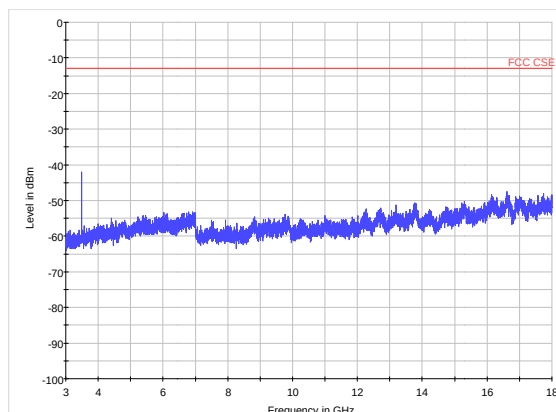


LTE Band 4 CH20175 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 10MHz CH20350, RB 1

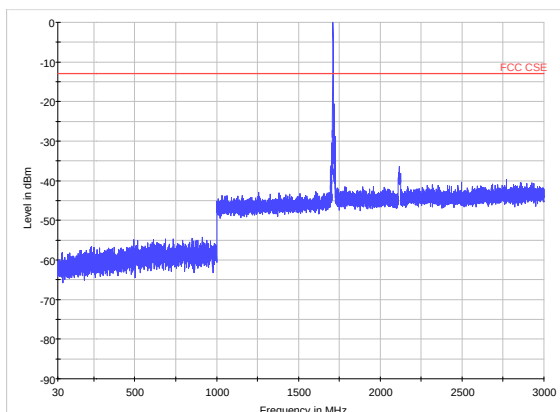


LTE Band 4 CH20350 30MHz~3GHz

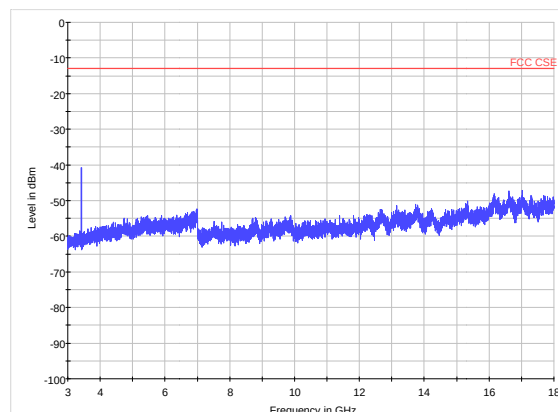


LTE Band 4 CH20350 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 15MHz CH20025, RB 1

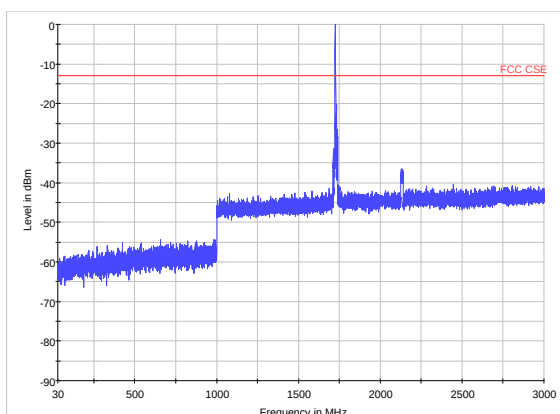


LTE Band 4 CH20025 30MHz~3GHz

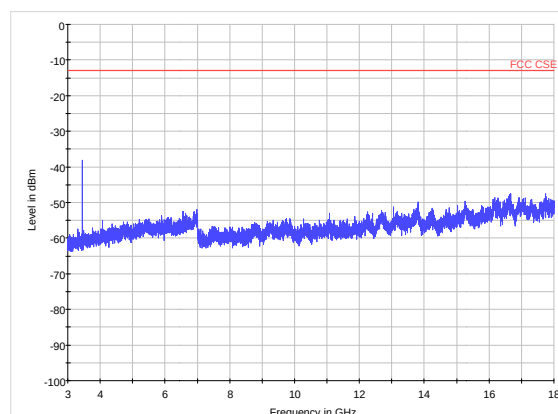


LTE Band 4 CH20025 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 15MHz CH20175, RB 1

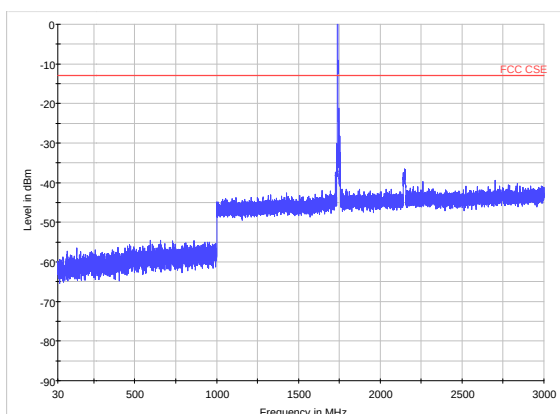


LTE Band 4 CH20175 30MHz~3GHz

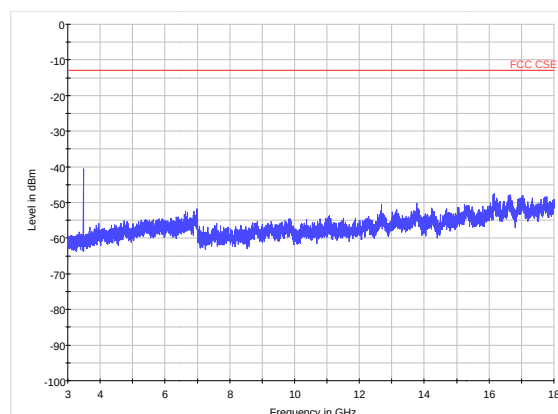


LTE Band 4 CH20175 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 15MHz CH20325, RB 1

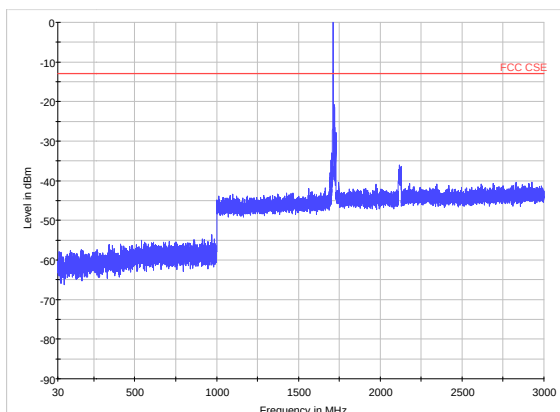


LTE Band 4 CH20325 30MHz~3GHz

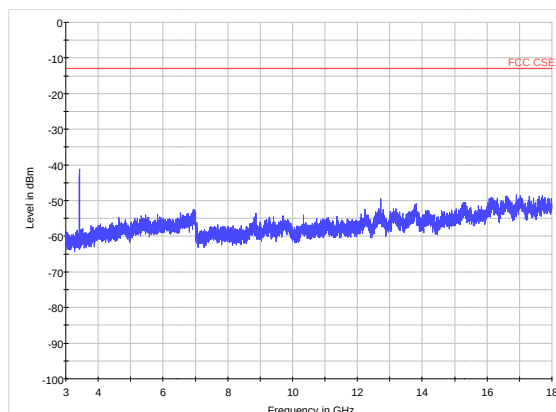


LTE Band 4 CH20325 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 20MHz CH20050, RB 1

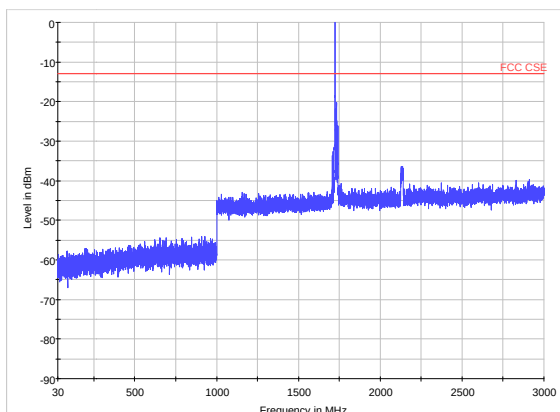


LTE Band 4 CH20050 30MHz~3GHz

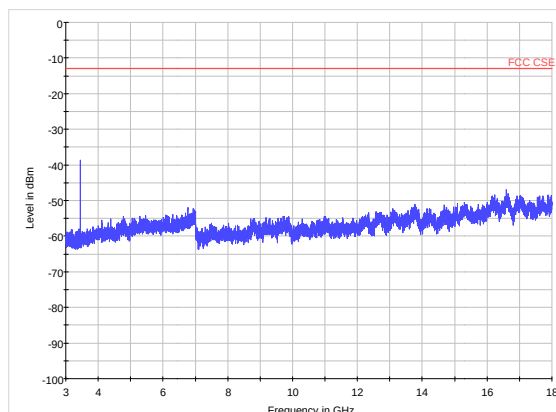


LTE Band 4 CH20050 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 20MHz CH20175, RB 1

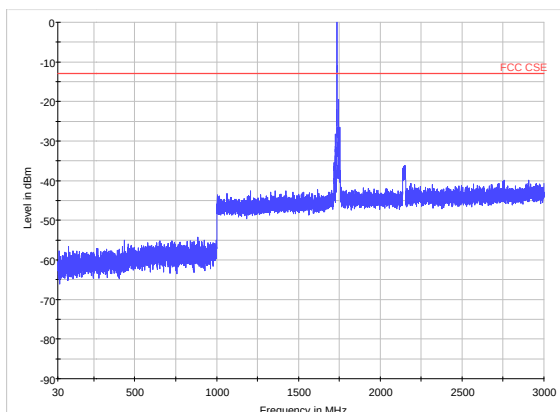


LTE Band 4 CH20175 30MHz~3GHz

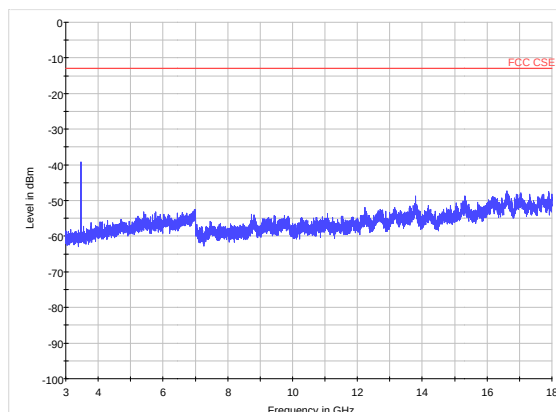


LTE Band 4 CH20175 3GHz~18GHz

LTE Band 4 QPSK Bandwidth = 20MHz CH20300, RB 1

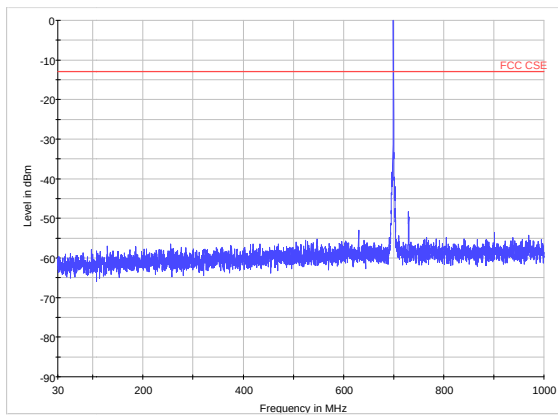


LTE Band 4 CH20300 30MHz~3GHz

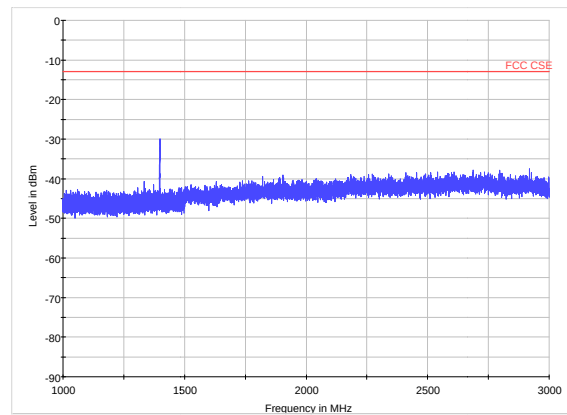


LTE Band 4 CH20300 3GHz~18GHz

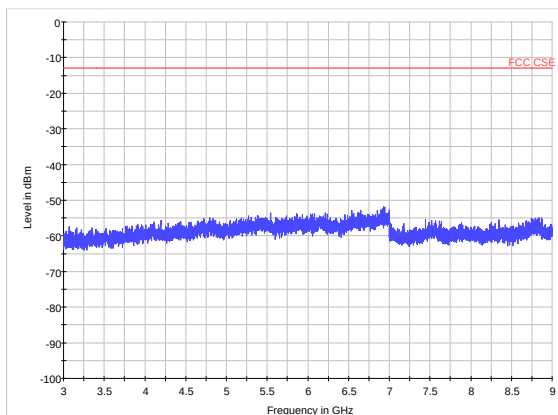
LTE Band 12 QPSK Bandwidth = 1.4MHz CH23017, RB 1



LTE Band 12 CH23017 30MHz~1GHz

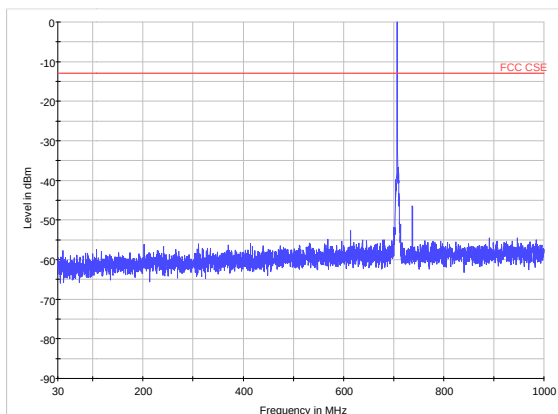


LTE Band 12 CH23017 1GHz~3GHz

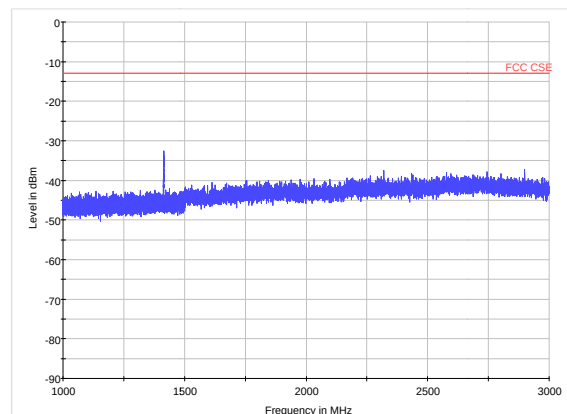


LTE Band 12 CH23017 3GHz~9GHz

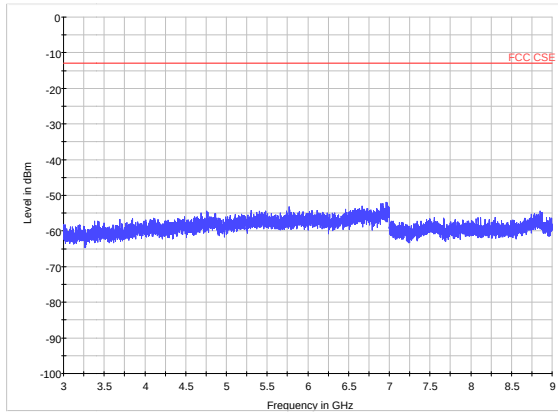
LTE Band 12 QPSK Bandwidth = 1.4MHz CH23095, RB 1



LTE Band 12 CH23095 30MHz~1GHz

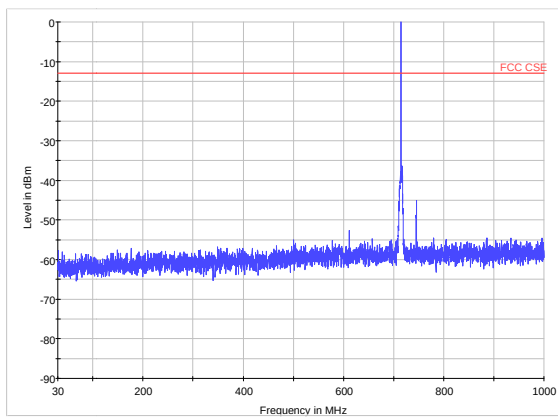


LTE Band 12 CH23095 1GHz~3GHz

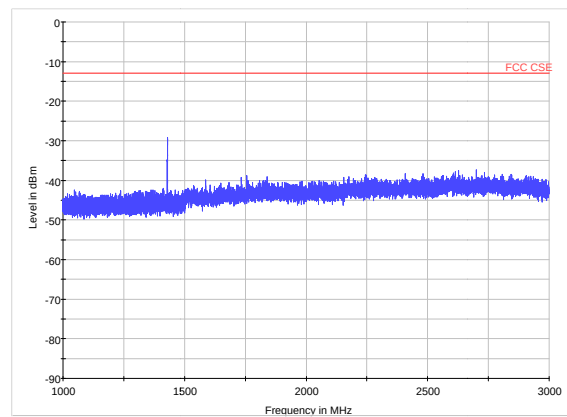


LTE Band 12 CH23095 3GHz~9GHz

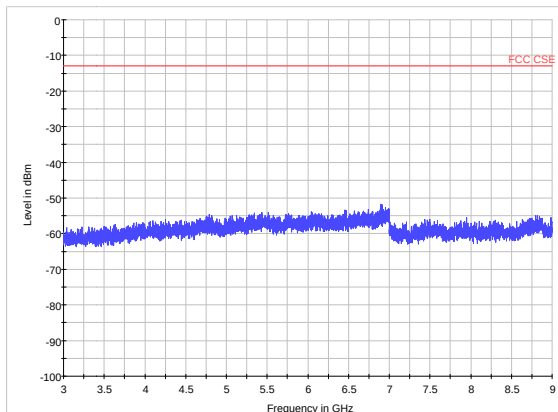
LTE Band 12 QPSK Bandwidth = 1.4MHz CH23173, RB 1



LTE Band 12 CH23173 30MHz~1GHz

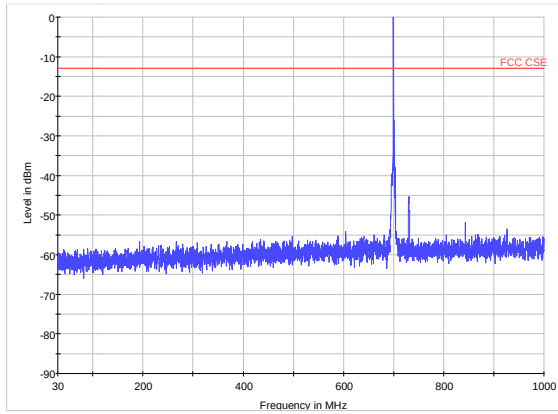


LTE Band 12 CH23173 1GHz~3GHz

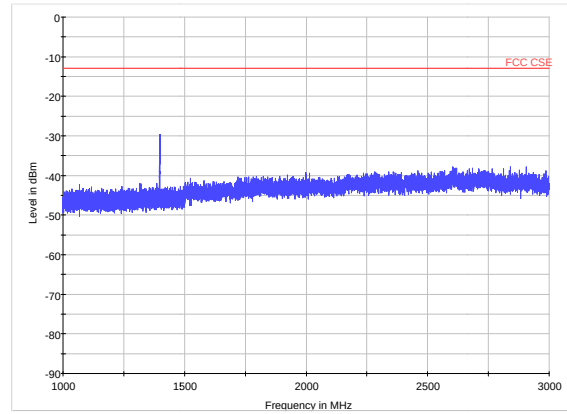


LTE Band 12 CH23173 3GHz~9GHz

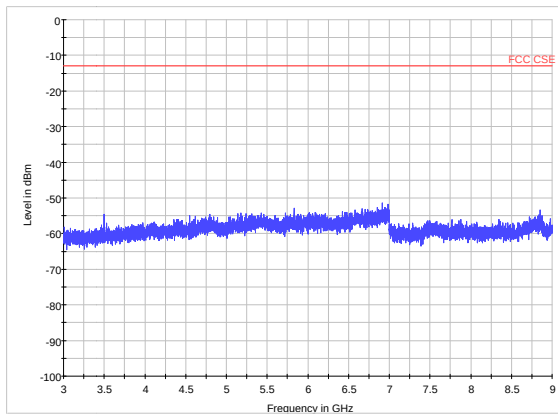
LTE Band 12 QPSK Bandwidth = 3MHz CH23025, RB 1



LTE Band 12 CH23025 30MHz~1GHz

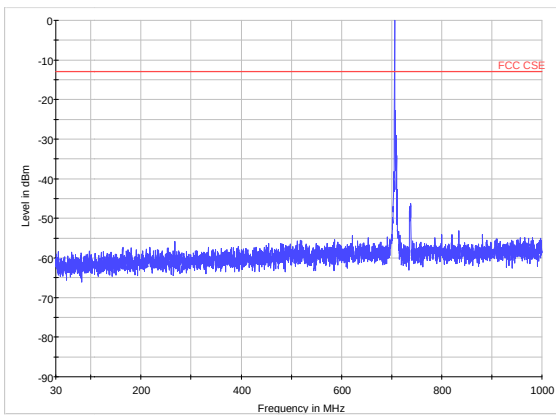


LTE Band 12 CH23025 1GHz~3GHz

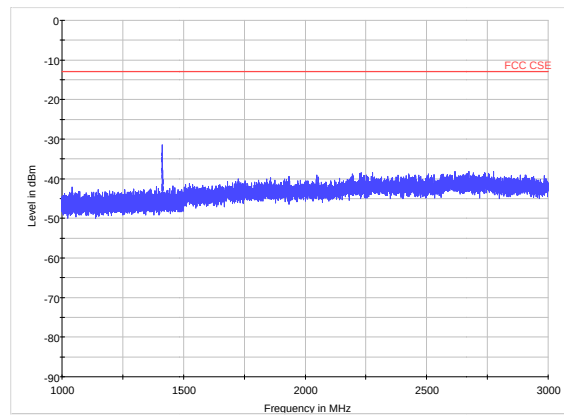


LTE Band 12 CH23025 3GHz~9GHz

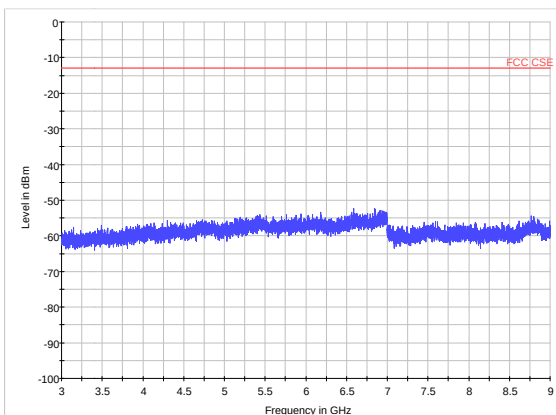
LTE Band 12 QPSK Bandwidth = 3MHz CH23095, RB 1



LTE Band 12 CH23095 30MHz~1GHz

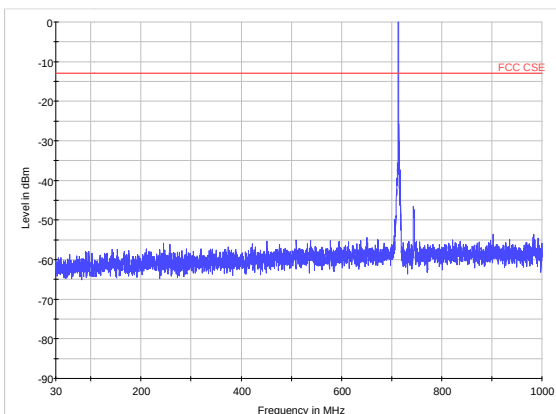


LTE Band 12 CH23095 1GHz~3GHz

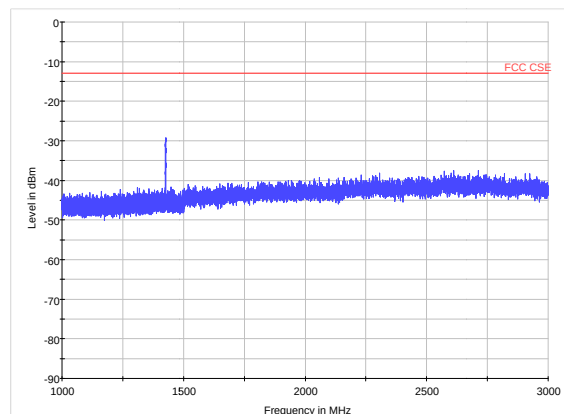


LTE Band 12 CH23095 3GHz~9GHz

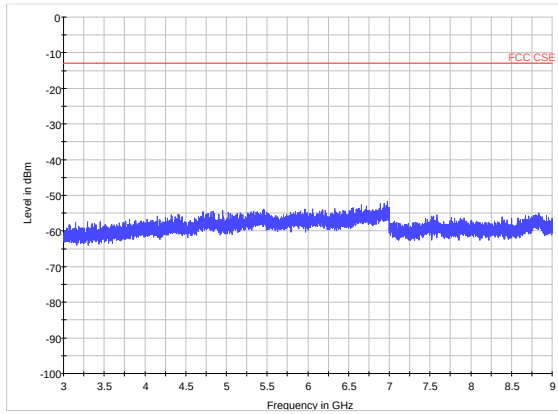
LTE Band 12 QPSK Bandwidth = 3MHz CH23165, RB 1



LTE Band 12 CH23165 30MHz~1GHz

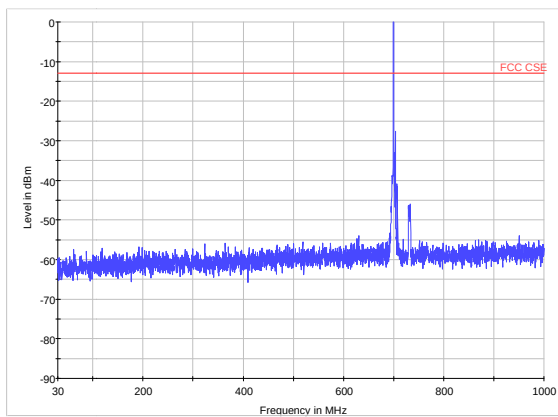


LTE Band 12 CH23165 1GHz~3GHz

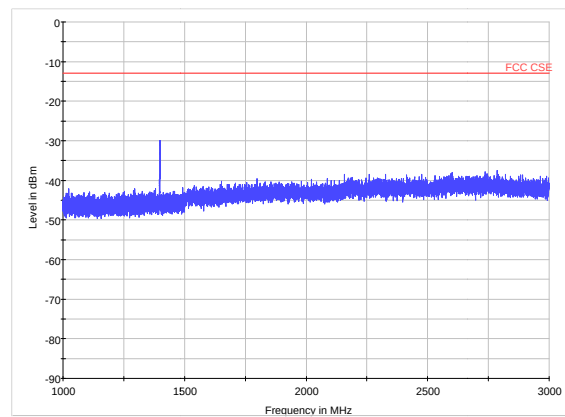


LTE Band 12 CH23165 3GHz~9GHz

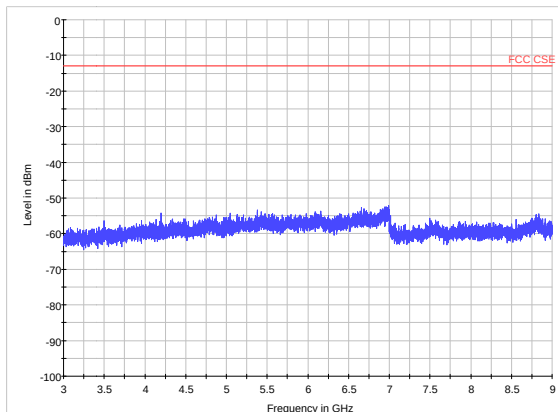
LTE Band 12 QPSK Bandwidth = 5MHz CH23035, RB 1



LTE Band 12 CH23035 30MHz~1GHz

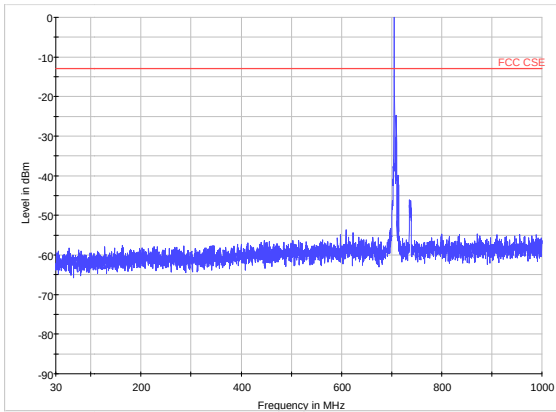


LTE Band 12 CH23035 1GHz~3GHz

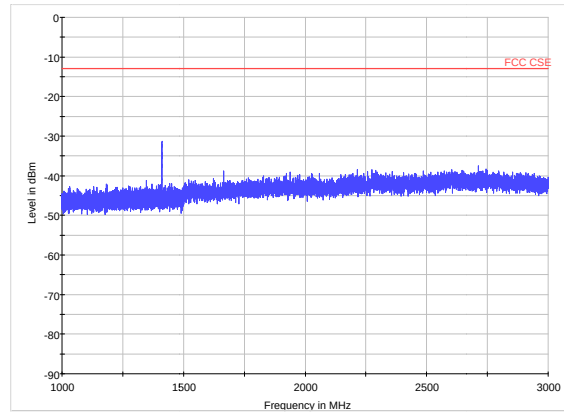


LTE Band 12 CH23035 3GHz~9GHz

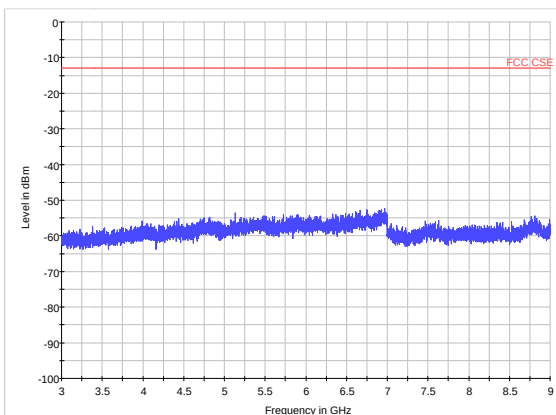
LTE Band 12 QPSK Bandwidth = 5MHz CH23095, RB 1



LTE Band 12 CH23095 30MHz~1GHz

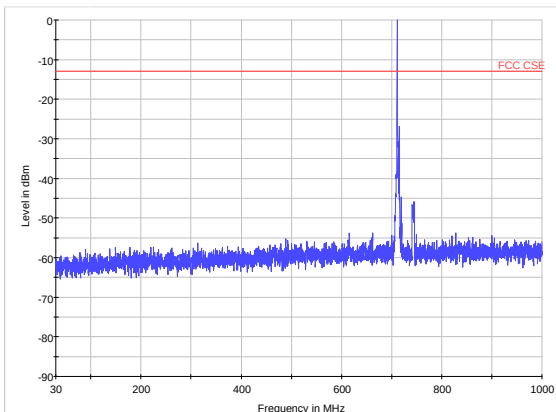


LTE Band 12 CH23095 1GHz~3GHz

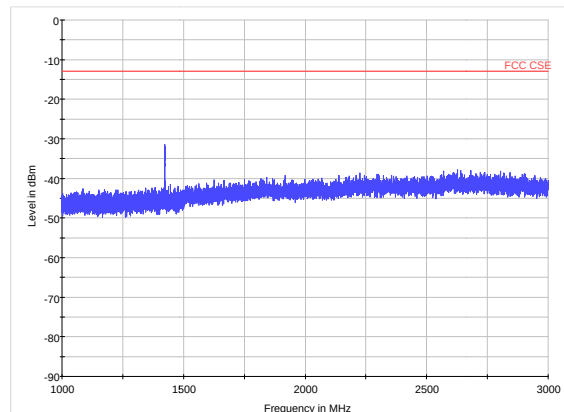


LTE Band 12 CH23095 3GHz~9GHz

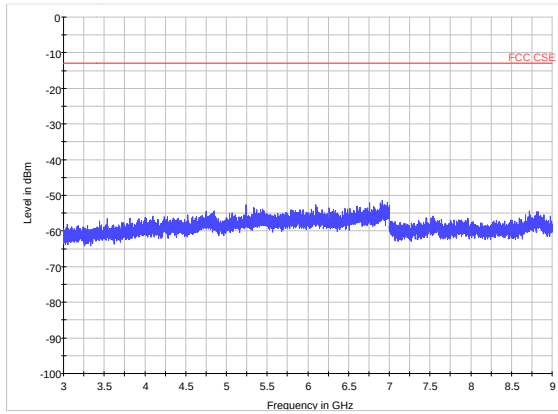
LTE Band 12 QPSK Bandwidth = 5MHz CH23155, RB 1



LTE Band 12 CH23155 30MHz~1GHz

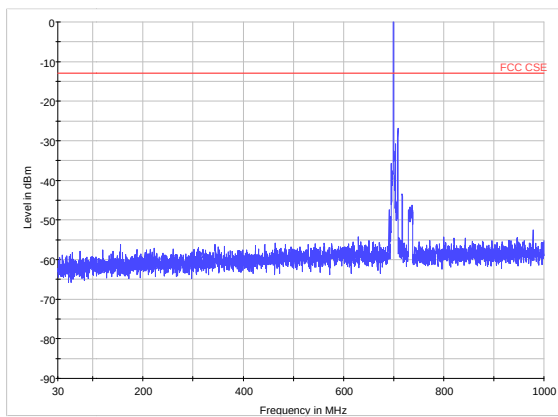


LTE Band 12 CH23155 1GHz~3GHz

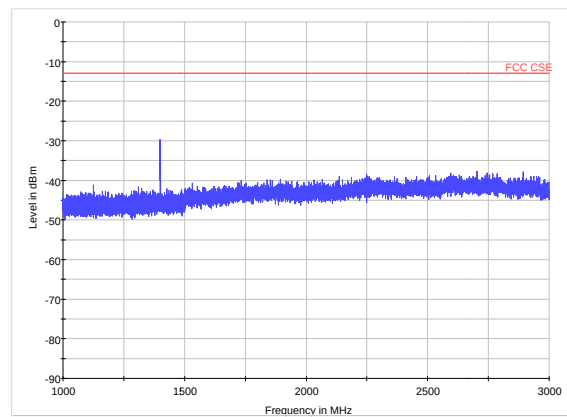


LTE Band 12 CH23155 3GHz~9GHz

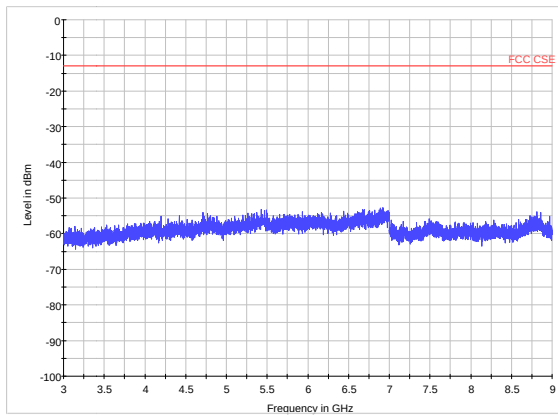
LTE Band 12 QPSK Bandwidth = 10MHz CH23060, RB 1



LTE Band 12 CH23060 30MHz~1GHz

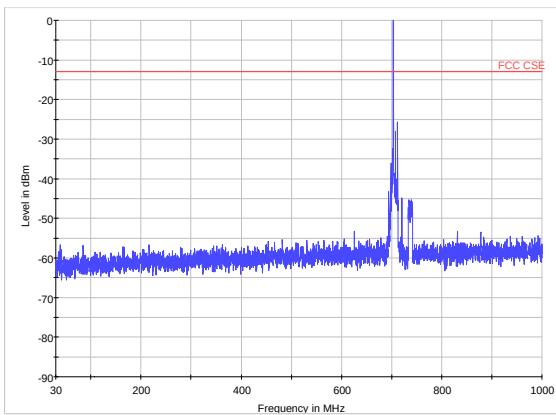


LTE Band 12 CH23060 1GHz~3GHz

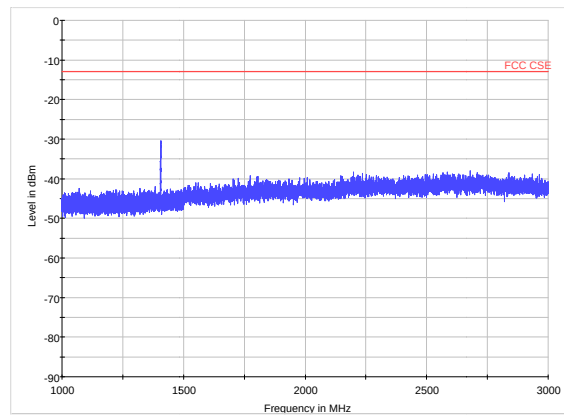


LTE Band 12 CH23060 3GHz~9GHz

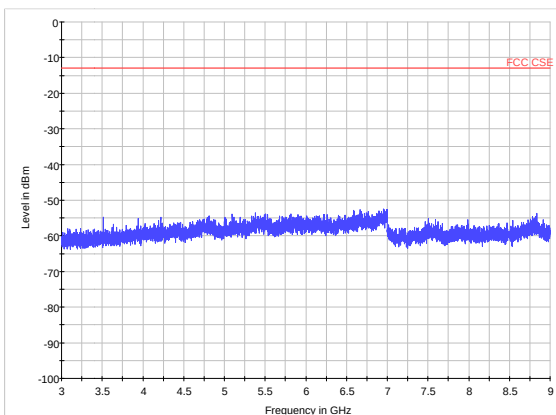
LTE Band 12 QPSK Bandwidth = 10MHz CH23095, RB 1



LTE Band 12 CH23095 30MHz~1GHz

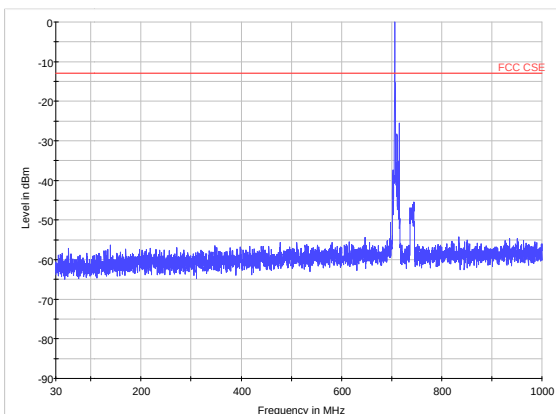


LTE Band 12 CH23095 1GHz~3GHz

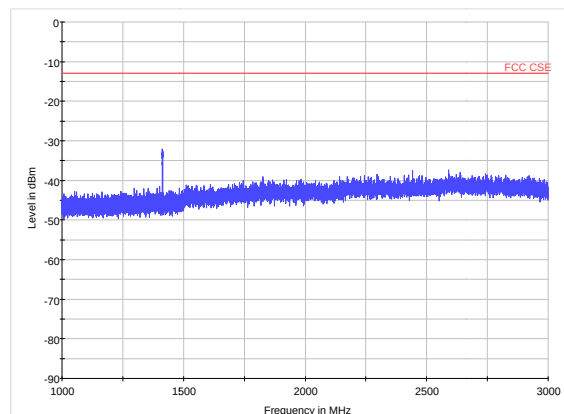


LTE Band 12 CH23095 3GHz~9GHz

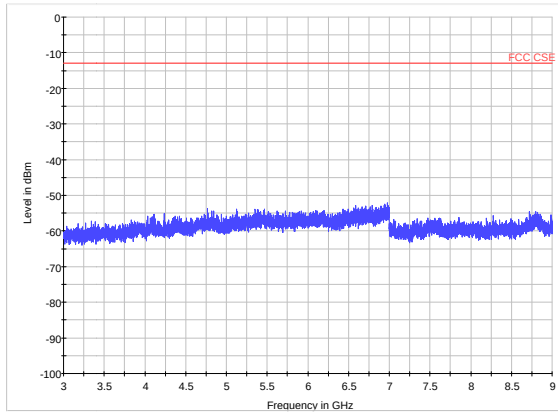
LTE Band 12 QPSK Bandwidth = 10MHz CH23130, RB 1



LTE Band 12 CH23130 30MHz~1GHz

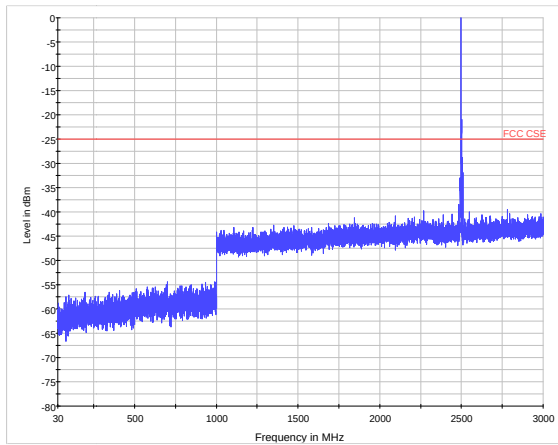


LTE Band 12 CH23130 1GHz~3GHz

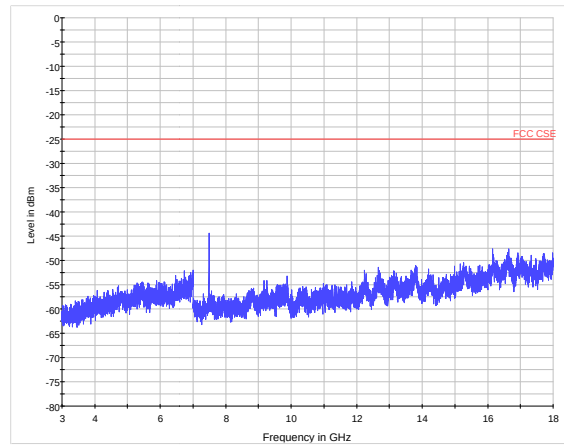


LTE Band 12 CH23130 3GHz~9GHz

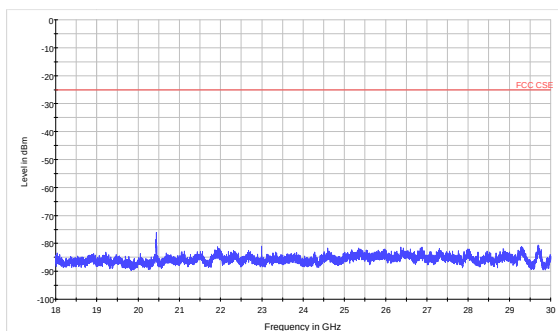
LTE Band 41 QPSK Bandwidth = 5MHz CH39675, RB 1



LTE Band 41 CH39675 30MHz~3GHz

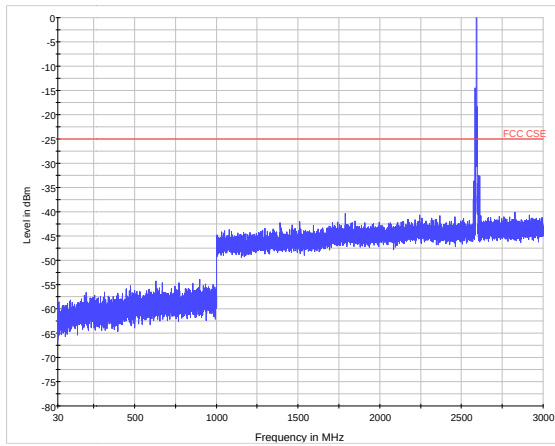


LTE Band CH427235 3GHz~18GHz

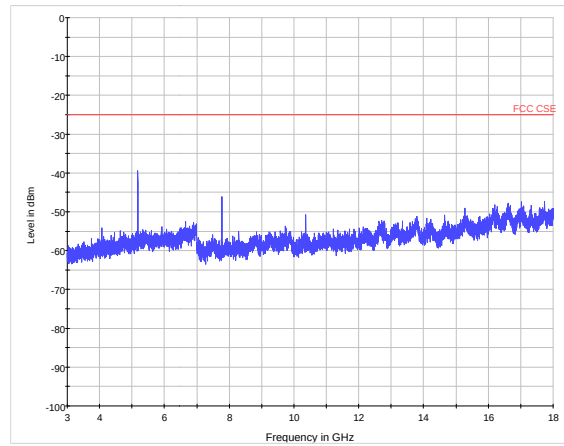


LTE Band 41 CH39675 18GHz~30GHz

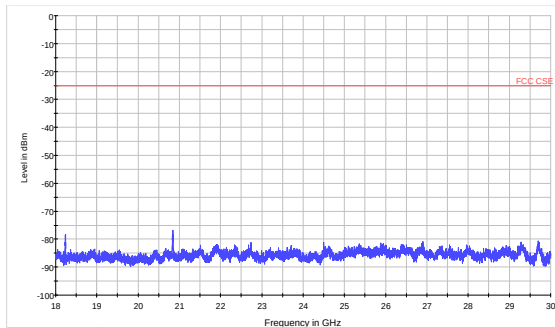
LTE Band 41 QPSK Bandwidth = 5MHz CH40620, RB 1



LTE Band 41 CH40620 30MHz~3GHz

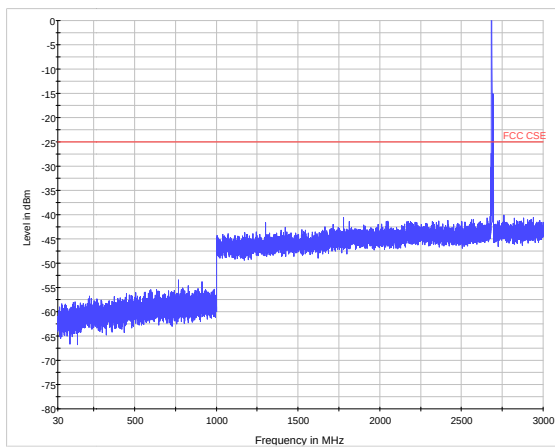


LTE Band 41 CH40620 3GHz~18GHz

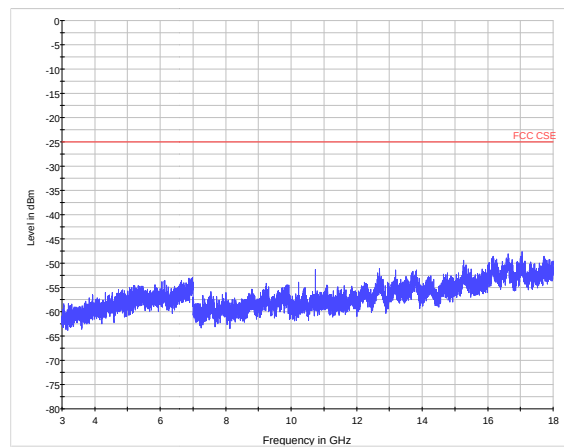


LTE Band 41 CH40620 18GHz~30GHz

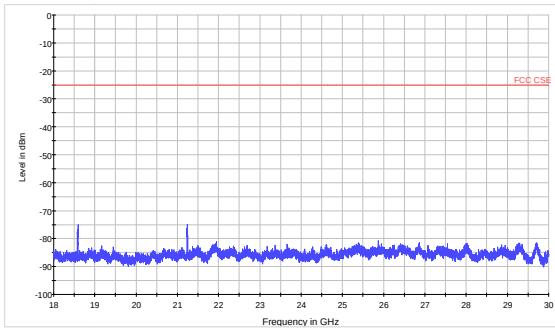
LTE Band 41 QPSK Bandwidth = 5MHz CH41565, RB 1



LTE Band 41 CH41565 30MHz~3GHz

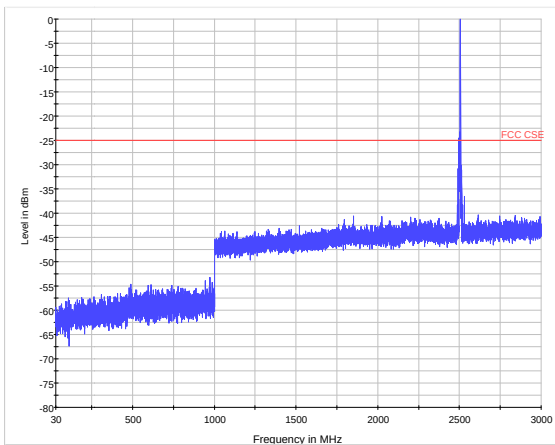


LTE Band 41 CH41565 3GHz~18GHz

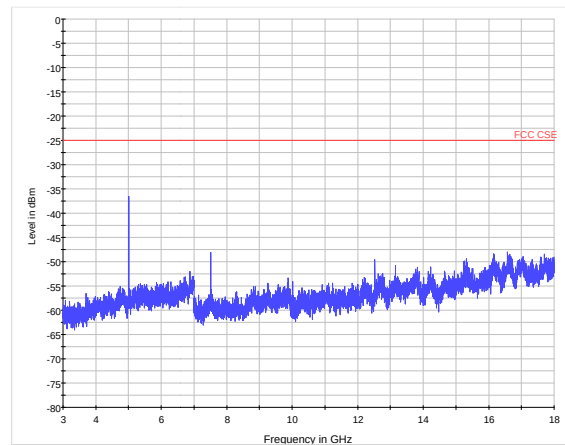


LTE Band 41 CH41565 18GHz~30GHz

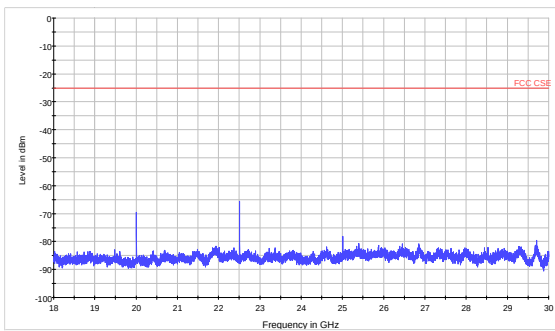
LTE Band 41 QPSK Bandwidth = 10MHz CH39700, RB 1



LTE Band 41 CH39700 30MHz~3GHz

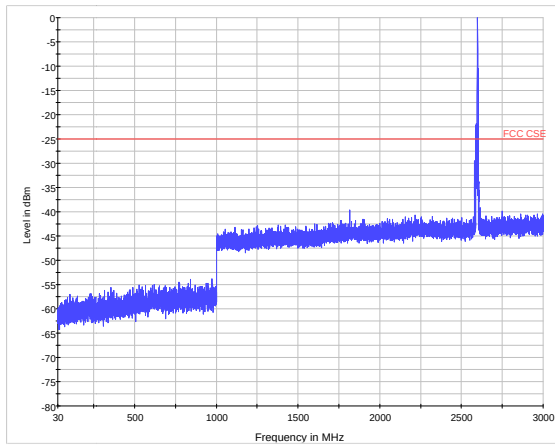


LTE Band 41 CH39700 3GHz~18GHz

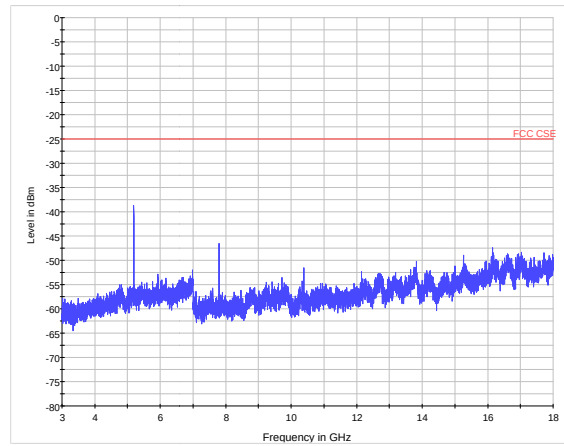


LTE Band 41 CH39700 18GHz~30GHz

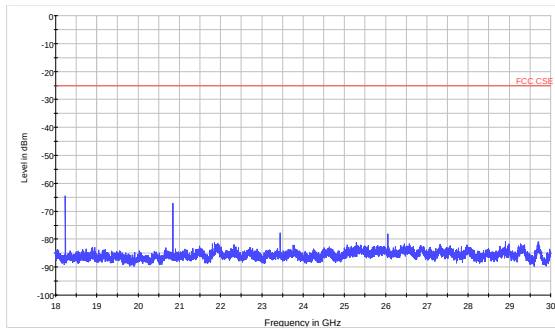
LTE Band 41 QPSK Bandwidth = 10MHz CH40620, RB 1



LTE Band 41 CH40620 30MHz~3GHz

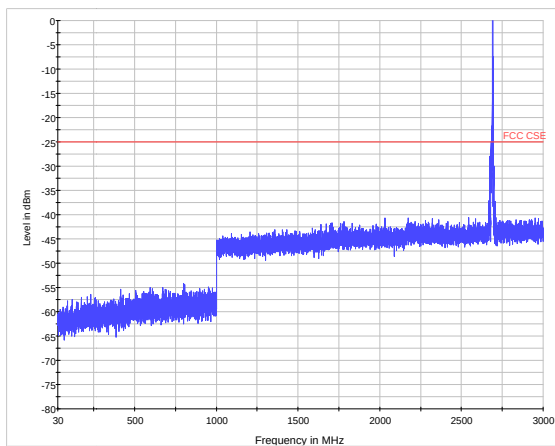


LTE Band 41 CH40620 3GHz~18GHz

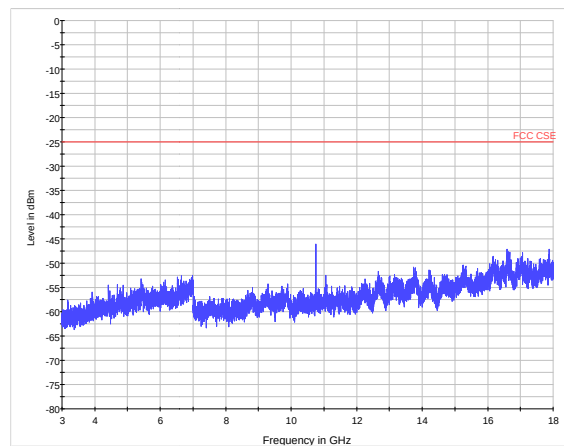


LTE Band 41 CH40620 18GHz~30GHz

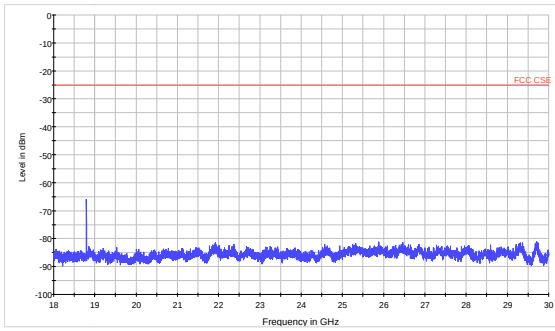
LTE Band 41 QPSK Bandwidth = 10MHz CH41540, RB 1



LTE Band 41 CH41540 30MHz~3GHz

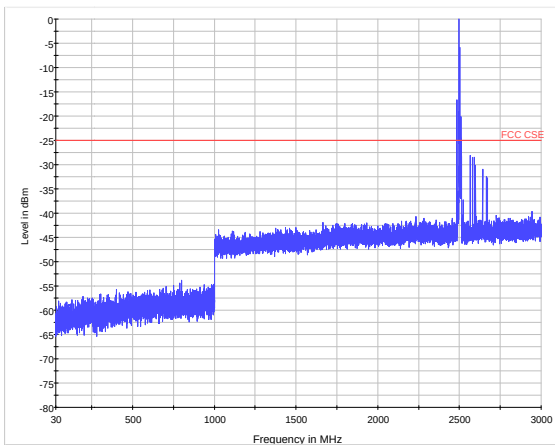


LTE Band 41 CH41540 3GHz~18GHz

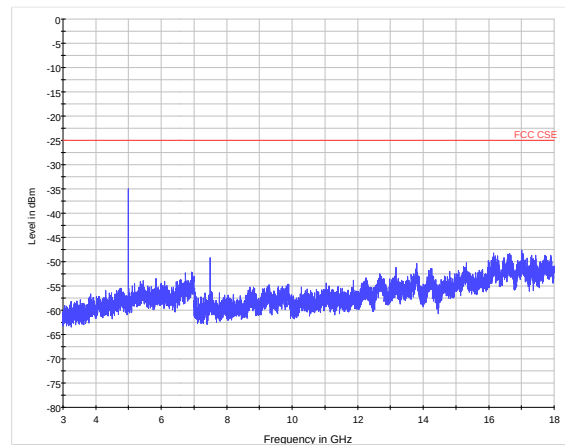


LTE Band 41 CH1540 18GHz~30GHz

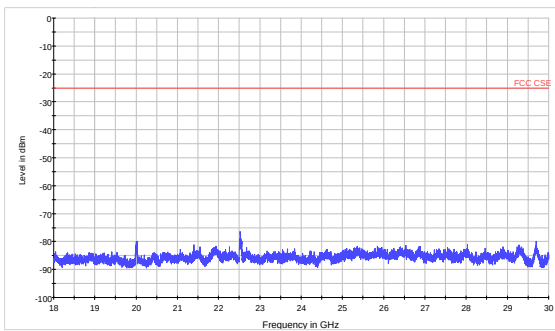
LTE Band 41 QPSK Bandwidth = 15MHz CH39725, RB 1



LTE Band 41 CH39725 30MHz~3GHz

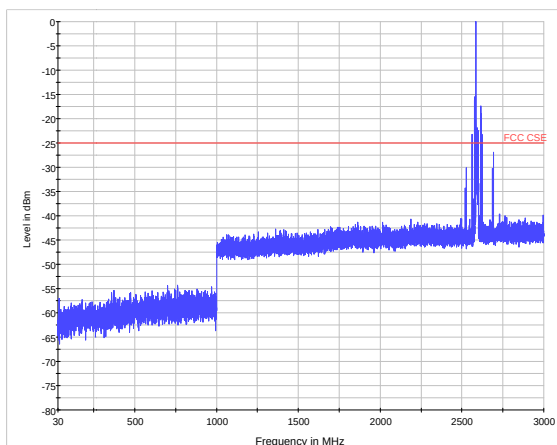


LTE Band 41 CH39725 3GHz~18GHz

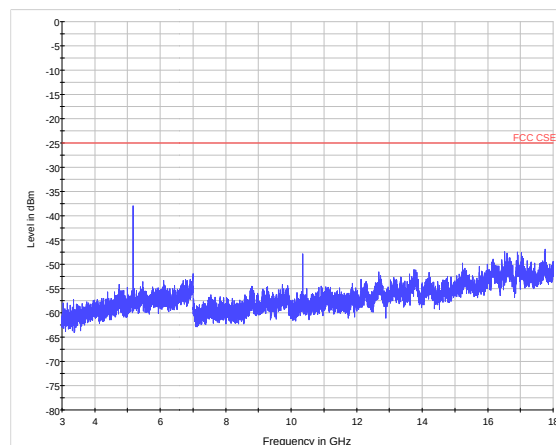


LTE Band 41 CH39725 18GHz~30GHz

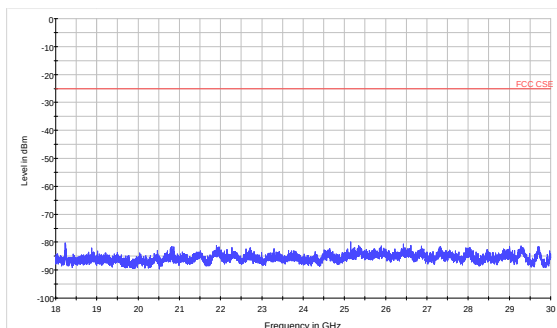
LTE Band 41 QPSK Bandwidth = 15MHz CH40620, RB 1



LTE Band 41 CH40620 30MHz~3GHz

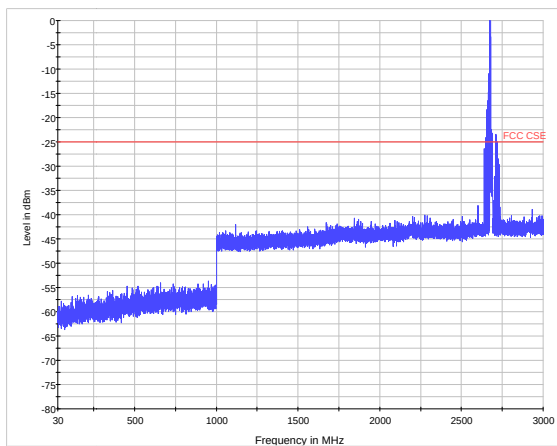


LTE Band 41 CH40620 3GHz~18GHz

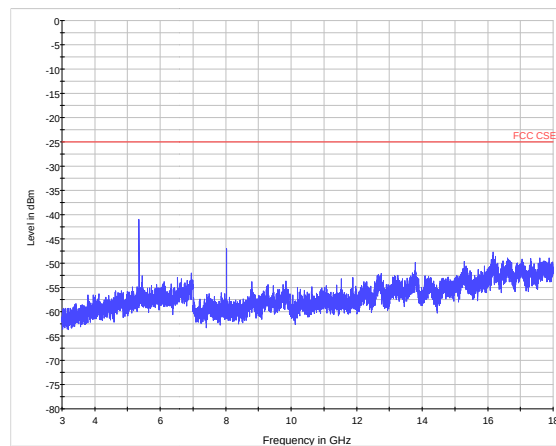


LTE Band 41 CH40620 18GHz~30GHz

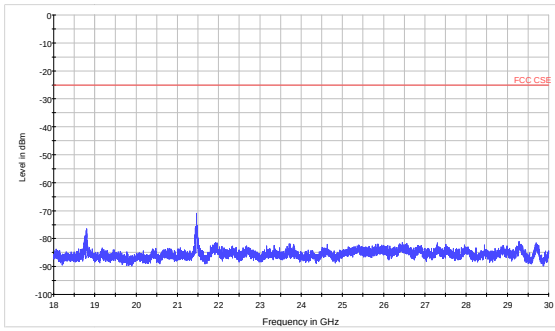
LTE Band 41 QPSK Bandwidth = 15MHz CH41515, RB 1



LTE Band 41 CH41515 30MHz~3GHz

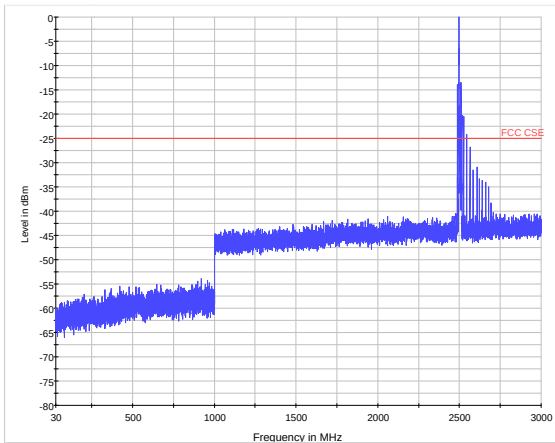


LTE Band 41 CH41515 3GHz~18GHz

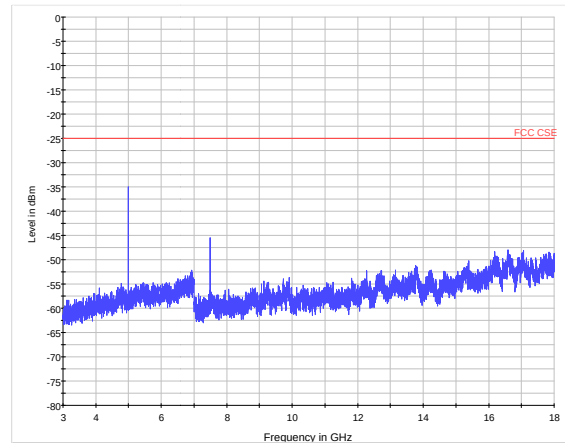


LTE Band 41 CH41515 18GHz~30GHz

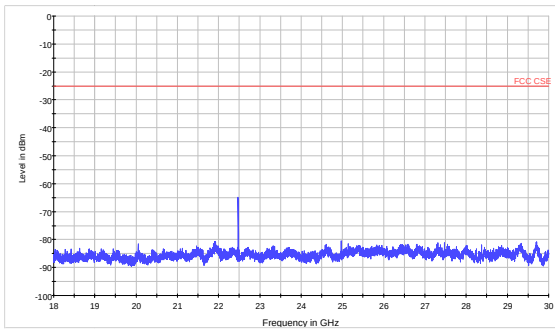
LTE Band 41 QPSK Bandwidth = 20MHz CH39750, RB 1



LTE Band 41 CH39750 30MHz~3GHz

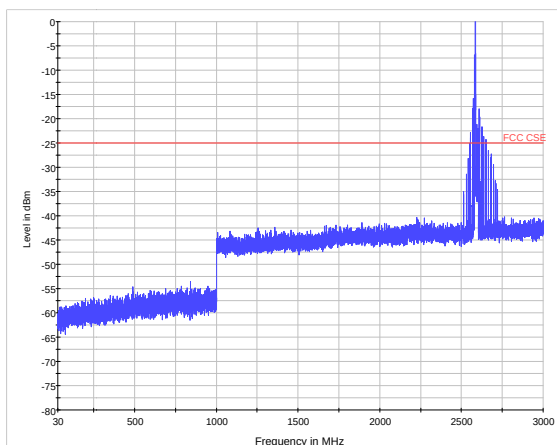


LTE Band 41 CH39750 3GHz~18GHz

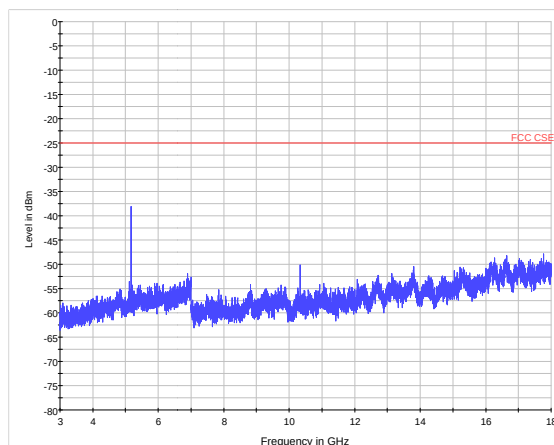


LTE Band 41 CH39750 18GHz~30GHz

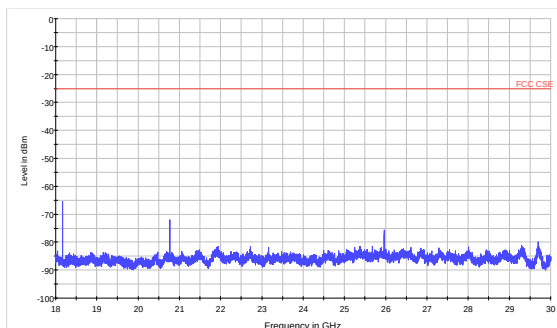
LTE Band 41 QPSK Bandwidth = 20MHz CH40620, RB 1



LTE Band 41 CH40620 30MHz~3GHz

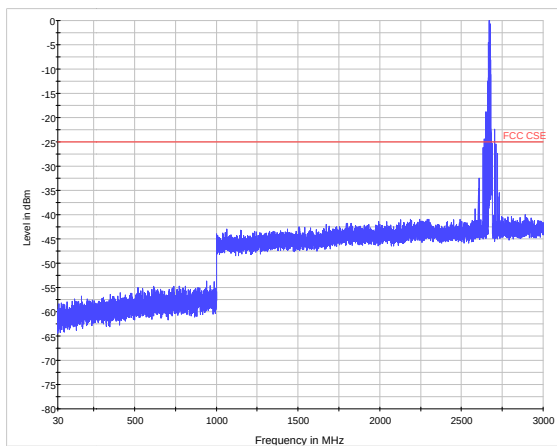


LTE Band 41 CH40620 3GHz~18GHz

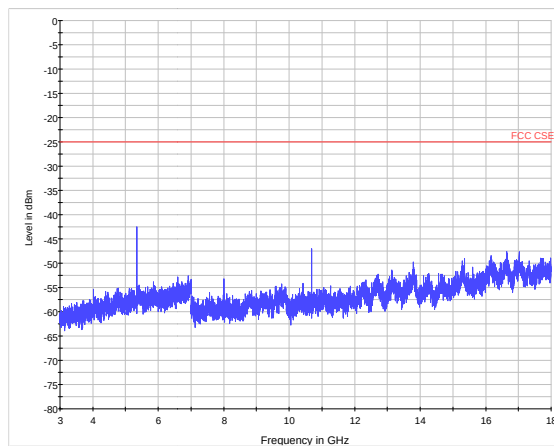


LTE Band 41 CH40620 18GHz~30GHz

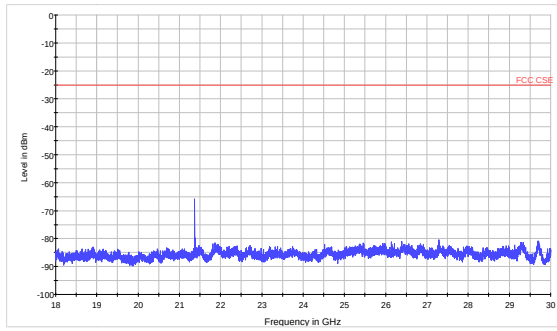
LTE Band 41 QPSK Bandwidth = 20MHz CH41490, RB 1



LTE Band 41 CH41490 30MHz~3GHz



LTE Band 41 CH41490 3GHz~18GHz



LTE Band 41 CH41490 18GHz~30GHz

4.8 Radiates Spurious Emission

Ambient condition

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

Method of Measurement

The measurements procedures in TIA -603-D are used.

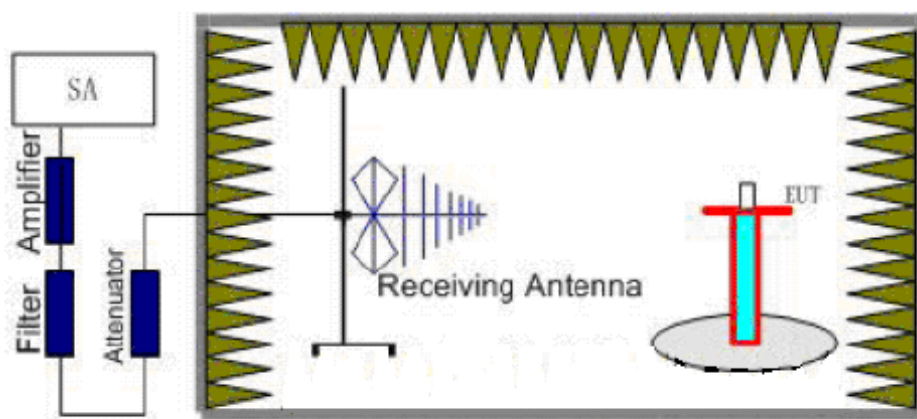
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment.

The emissions less than 20 dB below the permissible value are reported.

The procedure of Radiates Spurious Emission is as follows:

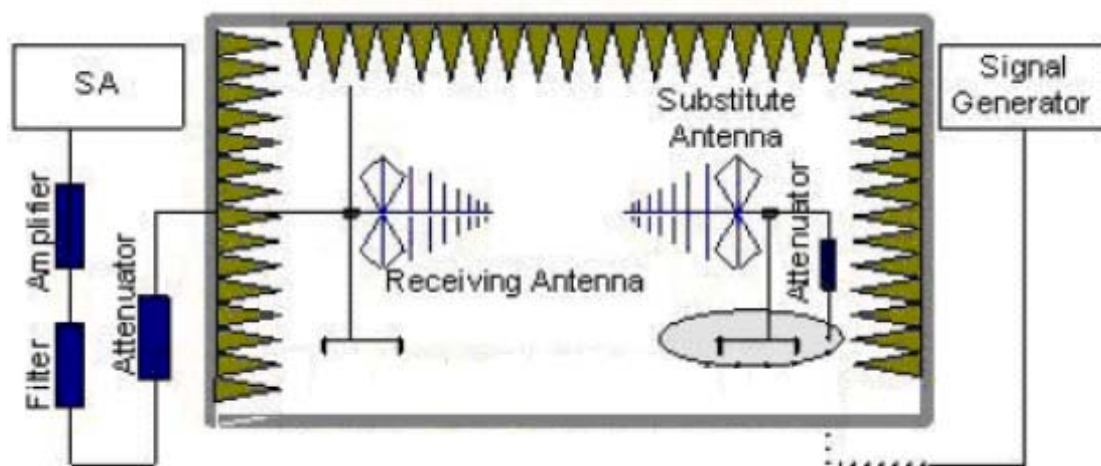
Step 1:

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 1MHz. 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.



E.R.P (peak power) =S.G. - Tx Cable loss + 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). Receiver antenna polarization (horizontal and vertical), The worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.

Limits

LTE -4/12 Rule Part 27.53(h) specifies that “the power of any emission outside a licensee’s frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.”

LTE -41 Rule Part 27.53(m) $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

LTE -4/12 Limit	-13 dBm
LTE -41 Limit	-25 dBm

Measurement Uncertainty

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

Test Result
WCDMA Band IV CH1312

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3424.8	-56.41	2.6	10.15	Vertical	-51.01	-13	38.01	135
3	5137.2	-60.04	2.4	11.35	Vertical	-53.24	-13	40.24	0
4	6849.6	-57.17	4.5	10.85	Vertical	-52.97	-13	39.97	45
5	8562.0	-57.53	5.1	11.35	Vertical	-53.43	-13	40.43	180
6	10274.4	-54.04	5.3	11.95	Vertical	-49.54	-13	36.54	90
7	11986.8	-51.88	5.5	13.55	Vertical	-45.98	-13	32.98	180
8	13699.2	-49.60	6.3	13.75	Vertical	-44.30	-13	31.30	270
9	15411.6	-48.98	6.7	13.85	Vertical	-43.98	-13	30.98	135
10	17124.0	-46.42	6.8	14.25	Vertical	-41.12	-13	28.12	45

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

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

WCDMA Band IV CH1413

Harmonic	TX ch.1413 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.2	-58.10	2.6	10.75	Vertical	-52.10	-13	39.10	0
3	5197.8	-57.85	2.4	11.05	Vertical	-51.35	-13	38.35	270
4	6930.4	-58.24	4.5	11.15	Vertical	-53.74	-13	40.74	315
5	8663.0	-58.03	5.1	11.35	Vertical	-53.93	-13	40.93	225
6	10395.6	-50.60	5.3	11.95	Vertical	-46.10	-13	33.10	135
7	12128.2	-51.58	5.5	13.55	Vertical	-45.68	-13	32.68	270
8	13860.8	-47.40	6.3	13.75	Vertical	-42.10	-13	29.10	0
9	15593.4	-49.54	6.7	13.85	Vertical	-44.54	-13	31.54	135
10	17326.0	-48.97	6.8	14.25	Vertical	-43.67	-13	30.67	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.

WCDMA Band IV CH1513

Harmonic	TX ch.1513 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3505.2	-58.75	2.6	10.15	Vertical	-53.35	-13	40.35	45
3	5257.8	-59.12	2.4	11.05	Vertical	-52.62	-13	39.62	180
4	7010.4	-54.56	4.5	11.15	Vertical	-50.06	-13	37.06	90
5	8763.0	-56.69	5.1	11.35	Vertical	-52.59	-13	39.59	225
6	10515.6	-53.17	5.3	11.95	Vertical	-48.67	-13	35.67	270
7	12268.2	-50.15	5.5	13.55	Vertical	-44.25	-13	31.25	180
8	14020.8	-50.40	6.3	13.75	Vertical	-45.10	-13	32.10	135
9	15773.4	-46.10	6.7	13.85	Vertical	-41.10	-13	28.10	270
10	17526.0	-47.65	6.8	14.25	Vertical	-42.35	-13	29.35	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 4 QPSK Bandwidth = 1.4MHz CH19957, RB 1

Harmonic	CH19957 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3421.4	-64.16	2.6	10.15	Vertical	-58.76	-13	45.76	270
3	5132.1	-68.59	2.4	11.35	Vertical	-61.79	-13	48.79	0
4	6842.8	-65.78	4.5	10.85	Vertical	-61.58	-13	48.58	90
5	8553.5	-66.62	5.1	11.35	Vertical	-62.52	-13	49.52	315
6	10264.2	-67.12	5.3	11.95	Vertical	-62.62	-13	49.62	180
7	11974.9	-67.13	5.5	13.55	Vertical	-61.23	-13	48.23	45
8	13685.6	-63.55	6.3	13.75	Vertical	-58.25	-13	45.25	90
9	15396.3	-60.42	6.7	13.85	Vertical	-55.42	-13	42.42	225
10	17107.0	-60.78	6.8	14.25	Vertical	-55.48	-13	42.48	270

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

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

LTE Band 4 QPSK Bandwidth = 1.4MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-68.00	2.6	10.75	Vertical	-62.00	-13	49.00	180
3	5197.5	-60.70	2.4	11.05	Vertical	-54.20	-13	41.20	135
4	6930.0	-65.33	4.5	11.15	Vertical	-60.83	-13	47.83	270
5	8662.5	-65.02	5.1	11.35	Vertical	-60.92	-13	47.92	0
6	10395.0	-66.47	5.3	11.95	Vertical	-61.97	-13	48.97	90
7	12127.5	-67.58	5.5	13.55	Vertical	-61.68	-13	48.68	315
8	13860.0	-63.46	6.3	13.75	Vertical	-58.16	-13	45.16	180
9	15592.5	-61.47	6.7	13.85	Vertical	-56.47	-13	43.47	45
10	17325.0	-59.08	6.8	14.25	Vertical	-53.78	-13	40.78	90

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

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

LTE Band 4 QPSK Bandwidth = 1.4MHz CH20393, RB 1

Harmonic	CH20393 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3508.6	-64.12	2.6	10.15	Vertical	-58.72	-13	45.72	135
3	5262.9	-63.17	2.4	11.05	Vertical	-56.67	-13	43.67	0
4	7017.2	-66.95	4.5	11.15	Vertical	-62.45	-13	49.45	45
5	8771.5	-64.36	5.1	11.35	Vertical	-60.26	-13	47.26	90
6	10525.8	-67.15	5.3	11.95	Vertical	-62.65	-13	49.65	225
7	12280.1	-67.29	5.5	13.55	Vertical	-61.39	-13	48.39	270
8	14034.4	-63.98	6.3	13.75	Vertical	-58.68	-13	45.68	180
9	15788.7	-60.44	6.7	13.85	Vertical	-55.44	-13	42.44	135
10	17543.0	-58.89	6.8	14.25	Vertical	-53.59	-13	40.59	270

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

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

LTE Band 4 QPSK Bandwidth = 3MHz CH19965, RB 1

Harmonic	CH19965 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3423.0	-63.86	2.6	10.15	Vertical	-58.46	-13	45.46	0
3	5134.5	-67.30	2.4	11.35	Vertical	-60.50	-13	47.50	90
4	6846.0	-66.18	4.5	10.85	Vertical	-61.98	-13	48.98	315
5	8557.5	-66.76	5.1	11.35	Vertical	-62.66	-13	49.66	180
6	10269.0	-67.22	5.3	11.95	Vertical	-62.72	-13	49.72	45
7	11980.5	-67.24	5.5	13.55	Vertical	-61.34	-13	48.34	90
8	13692.0	-63.83	6.3	13.75	Vertical	-58.53	-13	45.53	225
9	15403.5	-61.62	6.7	13.85	Vertical	-56.62	-13	43.62	270
10	17115.0	-60.14	6.8	14.25	Vertical	-54.84	-13	41.84	180

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

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

LTE Band 4 QPSK Bandwidth = 3MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-68.29	2.6	10.75	Vertical	-62.29	-13	49.29	135
3	5197.5	-60.95	2.4	11.05	Vertical	-54.45	-13	41.45	270
4	6930.0	-65.69	4.5	11.15	Vertical	-61.19	-13	48.19	0
5	8662.5	-63.79	5.1	11.35	Vertical	-59.69	-13	46.69	90
6	10395.0	-66.31	5.3	11.95	Vertical	-61.81	-13	48.81	315
7	12127.5	-67.38	5.5	13.55	Vertical	-61.48	-13	48.48	225
8	13860.0	-62.88	6.3	13.75	Vertical	-57.58	-13	44.58	180
9	15592.5	-61.12	6.7	13.85	Vertical	-56.12	-13	43.12	45
10	17325.0	-58.97	6.8	14.25	Vertical	-53.67	-13	40.67	90

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

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

LTE Band 4 QPSK Bandwidth = 3MHz CH20385, RB 1

Harmonic	CH20385 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3507.0	-63.61	2.6	10.15	Vertical	-58.21	-13	45.21	135
3	5260.5	-63.52	2.4	11.05	Vertical	-57.02	-13	44.02	0
4	7014.0	-67.21	4.5	11.15	Vertical	-62.71	-13	49.71	45
5	8767.5	-64.98	5.1	11.35	Vertical	-60.88	-13	47.88	90
6	10521.0	-66.91	5.3	11.95	Vertical	-62.41	-13	49.41	225
7	12274.5	-66.51	5.5	13.55	Vertical	-60.61	-13	47.61	270
8	14028.0	-63.59	6.3	13.75	Vertical	-58.29	-13	45.29	180
9	15781.5	-60.90	6.7	13.85	Vertical	-55.90	-13	42.90	135
10	17535.0	-59.05	6.8	14.25	Vertical	-53.75	-13	40.75	270

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

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

LTE Band 4 QPSK Bandwidth = 5MHz CH19975, RB 1

Harmonic	CH19975 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3425.0	-64.45	2.6	10.15	Vertical	-59.05	-13	46.05	0
3	5137.5	-68.45	2.4	11.35	Vertical	-61.65	-13	48.65	90
4	6850.0	-66.15	4.5	10.85	Vertical	-61.95	-13	48.95	45
5	8562.5	-67.44	5.1	11.35	Vertical	-63.34	-13	50.34	90
6	10275.0	-67.37	5.3	11.95	Vertical	-62.87	-13	49.87	225
7	11987.5	-67.83	5.5	13.55	Vertical	-61.93	-13	48.93	270
8	13700.0	-63.74	6.3	13.75	Vertical	-58.44	-13	45.44	180
9	15412.5	-61.71	6.7	13.85	Vertical	-56.71	-13	43.71	135
10	17125.0	-63.15	6.8	14.25	Vertical	-57.85	-13	44.85	270

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

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

LTE Band 4 QPSK Bandwidth = 5MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-68.64	2.6	10.75	Vertical	-62.64	-13	49.64	0
3	5197.5	-62.13	2.4	11.05	Vertical	-55.63	-13	42.63	90
4	6930.0	-65.99	4.5	11.15	Vertical	-61.49	-13	48.49	315
5	8662.5	-64.59	5.1	11.35	Vertical	-60.49	-13	47.49	225
6	10395.0	-66.87	5.3	11.95	Vertical	-62.37	-13	49.37	180
7	12127.5	-67.71	5.5	13.55	Vertical	-61.81	-13	48.81	45
8	13860.0	-63.30	6.3	13.75	Vertical	-58.00	-13	45.00	90
9	15592.5	-61.43	6.7	13.85	Vertical	-56.43	-13	43.43	135
10	17325.0	-58.38	6.8	14.25	Vertical	-53.08	-13	40.08	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 4 QPSK Bandwidth = 5MHz CH20375, RB 1

Harmonic	CH20375 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3505.0	-63.60	2.6	10.15	Vertical	-58.20	-13	45.20	45
3	5257.5	-64.43	2.4	11.05	Vertical	-57.93	-13	44.93	90
4	7010.0	-67.18	4.5	11.15	Vertical	-62.68	-13	49.68	45
5	8762.5	-65.58	5.1	11.35	Vertical	-61.48	-13	48.48	45
6	10515.0	-66.91	5.3	11.95	Vertical	-62.41	-13	49.41	90
7	12267.5	-66.89	5.5	13.55	Vertical	-60.99	-13	47.99	225
8	14020.0	-63.54	6.3	13.75	Vertical	-58.24	-13	45.24	90
9	15772.5	-61.29	6.7	13.85	Vertical	-56.29	-13	43.29	270
10	17525.0	-58.53	6.8	14.25	Vertical	-53.23	-13	40.23	315

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

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

LTE Band 4 QPSK Bandwidth = 10MHz CH20000, RB 1

Harmonic	CH20000 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3430.0	-64.39	2.6	10.15	Vertical	-58.99	-13	45.99	270
3	5145.0	-68.06	2.4	11.35	Vertical	-61.26	-13	48.26	45
4	6860.0	-65.76	4.5	10.85	Vertical	-61.56	-13	48.56	270
5	8575.0	-67.24	5.1	11.35	Vertical	-63.14	-13	50.14	0
6	10290.0	-67.25	5.3	11.95	Vertical	-62.75	-13	49.75	270
7	12005.0	-68.37	5.5	13.55	Vertical	-62.47	-13	49.47	180
8	13720.0	-63.50	6.3	13.75	Vertical	-58.20	-13	45.20	135
9	15435.0	-62.15	6.7	13.85	Vertical	-57.15	-13	44.15	45
10	17150.0	-59.85	6.8	14.25	Vertical	-54.55	-13	41.55	315

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

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

LTE Band 4 QPSK Bandwidth = 10MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-66.93	2.6	10.75	Vertical	-60.93	-13	47.93	270
3	5197.5	-61.07	2.4	11.05	Vertical	-54.57	-13	41.57	225
4	6930.0	-64.96	4.5	11.15	Vertical	-60.46	-13	47.46	180
5	8662.5	-63.31	5.1	11.35	Vertical	-59.21	-13	46.21	45
6	10395.0	-66.37	5.3	11.95	Vertical	-61.87	-13	48.87	90
7	12127.5	-67.20	5.5	13.55	Vertical	-61.30	-13	48.30	135
8	13860.0	-63.45	6.3	13.75	Vertical	-58.15	-13	45.15	0
9	15592.5	-61.53	6.7	13.85	Vertical	-56.53	-13	43.53	45
10	17325.0	-59.03	6.8	14.25	Vertical	-53.73	-13	40.73	90

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

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

LTE Band 4 QPSK Bandwidth = 10MHz CH20350, RB 1

Harmonic	CH20350 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3500.0	-63.37	2.6	10.15	Vertical	-57.97	-13	44.97	45
3	5250.0	-62.76	2.4	11.05	Vertical	-56.26	-13	43.26	45
4	7000.0	-66.12	4.5	11.15	Vertical	-61.62	-13	48.62	90
5	8750.0	-64.47	5.1	11.35	Vertical	-60.37	-13	47.37	225
6	10500.0	-67.05	5.3	11.95	Vertical	-62.55	-13	49.55	90
7	12250.0	-66.72	5.5	13.55	Vertical	-60.82	-13	47.82	270
8	14000.0	-63.58	6.3	13.75	Vertical	-58.28	-13	45.28	315
9	15750.0	-61.04	6.7	13.85	Vertical	-56.04	-13	43.04	270
10	17500.0	-59.23	6.8	14.25	Vertical	-53.93	-13	40.93	45

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

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

LTE Band 4 QPSK Bandwidth = 15MHz CH20025, RB 1

Harmonic	CH20025 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3435.0	-63.92	2.6	10.15	Vertical	-58.52	-13	45.52	270
3	5152.5	-68.37	2.4	11.35	Vertical	-61.57	-13	48.57	0
4	6870.0	-66.07	4.5	10.85	Vertical	-61.87	-13	48.87	270
5	8587.5	-66.86	5.1	11.35	Vertical	-62.76	-13	49.76	270
6	10305.0	-68.03	5.3	11.95	Vertical	-63.53	-13	50.53	0
7	12022.5	-68.34	5.5	13.55	Vertical	-62.44	-13	49.44	270
8	13740.0	-63.42	6.3	13.75	Vertical	-58.12	-13	45.12	180
9	15457.5	-61.74	6.7	13.85	Vertical	-56.74	-13	43.74	135
10	17175.0	-59.56	6.8	14.25	Vertical	-54.26	-13	41.26	45

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

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

LTE Band 4 QPSK Bandwidth = 15MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-66.18	2.6	10.75	Vertical	-60.18	-13	47.18	315
3	5197.5	-62.74	2.4	11.05	Vertical	-56.24	-13	43.24	270
4	6930.0	-64.83	4.5	11.15	Vertical	-60.33	-13	47.33	225
5	8662.5	-63.89	5.1	11.35	Vertical	-59.79	-13	46.79	180
6	10395.0	-65.98	5.3	11.95	Vertical	-61.48	-13	48.48	45
7	12127.5	-67.76	5.5	13.55	Vertical	-61.86	-13	48.86	90
8	13860.0	-63.38	6.3	13.75	Vertical	-58.08	-13	45.08	135
9	15592.5	-61.55	6.7	13.85	Vertical	-56.55	-13	43.55	0
10	17325.0	-58.52	6.8	14.25	Vertical	-53.22	-13	40.22	45

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

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

LTE Band 4 QPSK Bandwidth = 15MHz CH20325, RB 1

Harmonic	CH20325 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3495.0	-63.98	2.6	10.15	Vertical	-58.58	-13	45.58	90
3	5242.5	-61.33	2.4	11.05	Vertical	-54.83	-13	41.83	45
4	6990.0	-65.38	4.5	11.15	Vertical	-60.88	-13	47.88	270
5	8737.5	-64.60	5.1	11.35	Vertical	-60.50	-13	47.50	90
6	10485.0	-67.52	5.3	11.95	Vertical	-63.02	-13	50.02	270
7	12232.5	-66.92	5.5	13.55	Vertical	-61.02	-13	48.02	0
8	13980.0	-63.59	6.3	13.75	Vertical	-58.29	-13	45.29	270
9	15727.5	-60.83	6.7	13.85	Vertical	-55.83	-13	42.83	45
10	17475.0	-59.75	6.8	14.25	Vertical	-54.45	-13	41.45	45

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

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

LTE Band 4 QPSK Bandwidth = 20MHz CH20050, RB 1

Harmonic	CH20050 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3440.0	-69.67	2.6	10.15	Vertical	-64.27	-13	51.27	90
3	5160.0	-73.05	2.4	11.35	Vertical	-66.25	-13	53.25	225
4	6880.0	-68.06	4.5	10.85	Vertical	-63.86	-13	50.86	90
5	8600.0	-67.78	5.1	11.35	Vertical	-63.68	-13	50.68	270
6	10320.0	-67.46	5.3	11.95	Vertical	-62.96	-13	49.96	315
7	12040.0	-68.25	5.5	13.55	Vertical	-62.35	-13	49.35	270
8	13760.0	-63.30	6.3	13.75	Vertical	-58.00	-13	45.00	45
9	15480.0	-61.57	6.7	13.85	Vertical	-56.57	-13	43.57	270
10	17200.0	-59.54	6.8	14.25	Vertical	-54.24	-13	41.24	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 4 QPSK Bandwidth = 20MHz CH20175, RB 1

Harmonic	CH20175 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-72.65	2.6	10.75	Vertical	-66.65	-13	53.65	270
3	5197.5	-72.07	2.4	11.05	Vertical	-65.57	-13	52.57	180
4	6930.0	-67.69	4.5	11.15	Vertical	-63.19	-13	50.19	135
5	8662.5	-67.94	5.1	11.35	Vertical	-63.84	-13	50.84	45
6	10395.0	-66.76	5.3	11.95	Vertical	-62.26	-13	49.26	90
7	12127.5	-67.93	5.5	13.55	Vertical	-62.03	-13	49.03	225
8	13860.0	-63.26	6.3	13.75	Vertical	-57.96	-13	44.96	270
9	15592.5	-61.82	6.7	13.85	Vertical	-56.82	-13	43.82	180
10	17325.0	-58.60	6.8	14.25	Vertical	-53.30	-13	40.30	135

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

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

LTE Band 4 QPSK Bandwidth = 20MHz CH20300, RB 1

Harmonic	CH20300 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3490.0	-72.19	2.6	10.15	Vertical	-66.79	-13	53.79	270
3	5235.0	-72.08	2.4	11.05	Vertical	-65.58	-13	52.58	0
4	6980.0	-67.41	4.5	11.15	Vertical	-62.91	-13	49.91	90
5	8725.0	-67.43	5.1	11.35	Vertical	-63.33	-13	50.33	180
6	10470.0	-67.41	5.3	11.95	Vertical	-62.91	-13	49.91	90
7	12215.0	-66.82	5.5	13.55	Vertical	-60.92	-13	47.92	225
8	13960.0	-63.63	6.3	13.75	Vertical	-58.33	-13	45.33	270
9	15705.0	-60.92	6.7	13.85	Vertical	-55.92	-13	42.92	135
10	17450.0	-59.81	6.8	14.25	Vertical	-54.51	-13	41.51	45

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

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

LTE Band 12 QPSK Bandwidth = 1.4MHz CH23017, RB 1

Harmonic	CH23017 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1399.40	-60.25	2.00	10.15	Vertical	-54.25	-13	41.25	90
3	2099.10	-58.72	2.50	11.35	Vertical	-52.02	-13	39.02	225
4	2798.80	-51.56	4.20	10.85	Vertical	-47.06	-13	34.06	90
5	3498.50	-54.49	5.20	11.35	Vertical	-50.49	-13	37.49	270
6	4198.20	-53.07	5.50	11.95	Vertical	-48.77	-13	35.77	315
7	4897.90	-53.21	5.70	13.55	Vertical	-47.51	-13	34.51	270
8	5597.60	-52.15	6.30	13.75	Vertical	-46.85	-13	33.85	45
9	6297.30	-51.75	6.80	13.85	Vertical	-46.85	-13	33.85	270
10	6997.00	-50.00	6.90	14.25	Vertical	-44.80	-13	31.80	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 12 QPSK Bandwidth = 1.4MHz CH23095, RB 1

Harmonic	CH23095 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-57.75	2.00	10.75	Vertical	-51.15	-13	38.15	270
3	2122.50	-56.64	2.51	11.05	Vertical	-50.25	-13	37.25	270
4	2830.00	-51.65	4.20	11.15	Vertical	-46.85	-13	33.85	0
5	3537.50	-54.15	5.20	11.15	Vertical	-50.35	-13	37.35	270
6	4245.00	-50.46	5.50	11.95	Vertical	-46.16	-13	33.16	180
7	4952.50	-53.26	5.70	13.55	Vertical	-47.56	-13	34.56	135
8	5660.00	-52.56	6.30	13.75	Vertical	-47.26	-13	34.26	45
9	6367.50	-51.18	6.80	13.85	Vertical	-46.28	-13	33.28	315
10	7075.00	-50.22	6.90	14.25	Vertical	-45.02	-13	32.02	270

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

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

LTE Band 12 QPSK Bandwidth = 1.4MHz CH23173, RB 1

Harmonic	CH23173 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1430.60	-60.35	2.00	10.15	Vertical	-54.35	-13	41.35	315
3	2145.90	-58.54	2.51	11.05	Vertical	-52.15	-13	39.15	270
4	2861.20	-52.15	4.20	11.15	Vertical	-47.35	-13	34.35	45
5	3576.50	-54.03	5.20	11.15	Vertical	-50.23	-13	37.23	270
6	4291.80	-52.09	5.50	11.95	Vertical	-47.79	-13	34.79	0
7	5007.10	-52.86	5.70	13.55	Vertical	-47.16	-13	34.16	270
8	5722.40	-52.55	6.30	13.75	Vertical	-47.25	-13	34.25	180
9	6437.70	-52.48	6.80	13.85	Vertical	-47.58	-13	34.58	135
10	7153.00	-51.25	6.90	14.25	Vertical	-46.05	-13	33.05	315

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

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

LTE Band 12 QPSK Bandwidth = 3MHz CH23025, RB 1

Harmonic	CH23025 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1401.00	-60.37	2.00	10.15	Vertical	-54.37	-13	41.37	180
3	2101.50	-59.54	2.51	11.35	Vertical	-52.85	-13	39.85	135
4	2802.00	-52.11	4.20	10.85	Vertical	-47.61	-13	34.61	270
5	3502.50	-54.75	5.20	11.35	Vertical	-50.75	-13	37.75	0
6	4203.00	-51.66	5.50	11.95	Vertical	-47.36	-13	34.36	90
7	4903.50	-53.65	5.70	13.55	Vertical	-47.95	-13	34.95	315
8	5604.00	-52.18	6.30	13.75	Vertical	-46.88	-13	33.88	180
9	6304.50	-51.15	6.80	13.85	Vertical	-46.25	-13	33.25	45
10	7005.00	-49.35	6.90	14.25	Vertical	-44.15	-13	31.15	90

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

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

LTE Band 12 QPSK Bandwidth = 3MHz CH23095, RB 1

Harmonic	CH23095 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-58.45	2.00	10.75	Vertical	-51.85	-13	38.85	225
3	2122.50	-57.24	2.51	11.05	Vertical	-50.85	-13	37.85	270
4	2830.00	-51.45	4.20	11.15	Vertical	-46.65	-13	33.65	180
5	3537.50	-54.18	5.20	11.15	Vertical	-50.38	-13	37.38	135
6	4245.00	-51.14	5.50	11.95	Vertical	-46.84	-13	33.84	270
7	4952.50	-52.96	5.70	13.55	Vertical	-47.26	-13	34.26	0
8	5660.00	-53.05	6.30	13.75	Vertical	-47.75	-13	34.75	90
9	6367.50	-51.53	6.80	13.85	Vertical	-46.63	-13	33.63	315
10	7075.00	-51.71	6.90	14.25	Vertical	-46.51	-13	33.51	180

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

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

LTE Band 12 QPSK Bandwidth = 3MHz CH23165, RB 1

Harmonic	CH23165 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1429.00	-59.79	2.00	10.15	Vertical	-53.79	-13	40.79	45
3	2143.50	-58.88	2.51	11.05	Vertical	-52.49	-13	39.49	90
4	2858.00	-50.95	4.20	11.15	Vertical	-46.15	-13	33.15	135
5	3572.50	-55.29	5.20	11.15	Vertical	-51.49	-13	38.49	0
6	4287.00	-51.78	5.50	11.95	Vertical	-47.48	-13	34.48	270
7	5001.50	-53.32	5.70	13.55	Vertical	-47.62	-13	34.62	180
8	5716.00	-54.25	6.30	13.75	Vertical	-48.95	-13	35.95	135
9	6430.50	-52.11	6.80	13.85	Vertical	-47.21	-13	34.21	45
10	7145.00	-52.16	6.90	14.25	Vertical	-46.96	-13	33.96	315

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

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

LTE Band 12 QPSK Bandwidth = 5MHz CH23035, RB 1

Harmonic	CH23035 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1403.00	-58.49	2.00	10.15	Vertical	-52.49	-13	39.49	225
3	2104.50	-58.19	2.50	11.35	Vertical	-51.49	-13	38.49	135
4	2806.00	-51.53	4.20	10.85	Vertical	-47.03	-13	34.03	270
5	3507.50	-54.84	5.20	11.35	Vertical	-50.84	-13	37.84	0
6	4209.00	-50.89	5.50	11.95	Vertical	-46.59	-13	33.59	135
7	4910.50	-53.18	5.70	13.55	Vertical	-47.48	-13	34.48	0
8	5612.00	-51.45	6.30	13.75	Vertical	-46.15	-13	33.15	45
9	6313.50	-51.75	6.80	13.85	Vertical	-46.85	-13	33.85	90
10	7015.00	-50.16	6.90	14.25	Vertical	-44.96	-13	31.96	180

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

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

LTE Band 12 QPSK Bandwidth = 5MHz CH23095, RB 1

Harmonic	CH23095 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-56.75	2.00	10.75	Vertical	-50.15	-13	37.15	45
3	2122.50	-56.88	2.51	11.05	Vertical	-50.49	-13	37.49	45
4	2830.00	-51.48	4.20	11.15	Vertical	-46.68	-13	33.68	90
5	3537.50	-54.65	5.20	11.15	Vertical	-50.85	-13	37.85	225
6	4245.00	-50.51	5.50	11.95	Vertical	-46.21	-13	33.21	90
7	4952.50	-52.78	5.70	13.55	Vertical	-47.08	-13	34.08	270
8	5660.00	-53.15	6.30	13.75	Vertical	-47.85	-13	34.85	315
9	6367.50	-50.95	6.80	13.85	Vertical	-46.05	-13	33.05	270
10	7075.00	-52.15	6.90	14.25	Vertical	-46.95	-13	33.95	45

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

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

LTE Band 12 QPSK Bandwidth = 5MHz CH23155, RB 1

Harmonic	CH23155 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1427.00	-59.25	2.00	10.15	Vertical	-53.25	-13	40.25	270
3	2140.50	-59.24	2.51	11.05	Vertical	-52.85	-13	39.85	0
4	2854.00	-51.44	4.20	11.15	Vertical	-46.64	-13	33.64	270
5	3567.50	-55.15	5.20	11.15	Vertical	-51.35	-13	38.35	270
6	4281.00	-51.79	5.50	11.95	Vertical	-47.49	-13	34.49	0
7	4994.50	-53.55	5.70	13.55	Vertical	-47.85	-13	34.85	270
8	5708.00	-53.61	6.30	13.75	Vertical	-48.31	-13	35.31	180
9	6421.50	-52.85	6.80	13.85	Vertical	-47.95	-13	34.95	135
10	7135.00	-51.45	6.90	14.25	Vertical	-46.25	-13	33.25	45

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

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

LTE Band 12 QPSK Bandwidth = 10MHz CH23060, RB 1

Harmonic	CH23060 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1408.00	-58.65	2.00	10.15	Vertical	-52.65	-13	39.65	315
3	2112.00	-58.64	2.51	11.35	Vertical	-51.95	-13	38.95	270
4	2816.00	-52.15	4.20	10.85	Vertical	-47.65	-13	34.65	315
5	3520.00	-54.35	5.20	11.35	Vertical	-50.35	-13	37.35	270
6	4224.00	-51.00	5.50	11.95	Vertical	-46.70	-13	33.70	45
7	4928.00	-53.36	5.70	13.55	Vertical	-47.66	-13	34.66	270
8	5632.00	-52.17	6.30	13.75	Vertical	-46.87	-13	33.87	0
9	6336.00	-51.55	6.80	13.85	Vertical	-46.65	-13	33.65	270
10	7040.00	-49.51	6.90	14.25	Vertical	-44.31	-13	31.31	180

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

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

LTE Band 12 QPSK Bandwidth = 10MHz CH23095, RB 1

Harmonic	CH23095 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-58.24	2.00	10.75	Vertical	-51.64	-13	38.64	135
3	2122.50	-57.34	2.51	11.05	Vertical	-50.95	-13	37.95	45
4	2830.00	-51.65	4.20	11.15	Vertical	-46.85	-13	33.85	90
5	3537.50	-54.02	5.20	11.15	Vertical	-50.22	-13	37.22	225
6	4245.00	-50.98	5.50	11.95	Vertical	-46.68	-13	33.68	270
7	4952.50	-53.02	5.70	13.55	Vertical	-47.32	-13	34.32	180
8	5660.00	-53.25	6.30	13.75	Vertical	-47.95	-13	34.95	135
9	6367.50	-51.55	6.80	13.85	Vertical	-46.65	-13	33.65	270
10	7075.00	-51.88	6.90	14.25	Vertical	-46.68	-13	33.68	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 12 QPSK Bandwidth = 10MHz CH23130, RB 1

Harmonic	CH23130 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1422.00	-59.65	2.00	10.15	Vertical	-53.65	-13	40.65	270
3	2133.00	-57.86	2.51	11.05	Vertical	-51.47	-13	38.47	0
4	2844.00	-51.79	4.20	11.15	Vertical	-46.99	-13	33.99	135
5	3555.00	-55.65	5.20	11.15	Vertical	-51.85	-13	38.85	0
6	4266.00	-52.15	5.50	11.95	Vertical	-47.85	-13	34.85	45
7	4977.00	-53.31	5.70	13.55	Vertical	-47.61	-13	34.61	90
8	5688.00	-53.98	6.30	13.75	Vertical	-48.68	-13	35.68	180
9	6399.00	-52.15	6.80	13.85	Vertical	-47.25	-13	34.25	45
10	7110.00	-51.85	6.90	14.25	Vertical	-46.65	-13	33.65	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 41 QPSK Bandwidth = 5MHz CH39675, RB 1

Harmonic	CH39675 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5110.00	-58.45	2.00	9.15	Vertical	-53.45	-25	28.45	315
3	7665.00	-61.32	2.50	11.35	Vertical	-54.62	-25	29.62	90
4	10220.00	-58.37	4.20	12.05	Vertical	-52.67	-25	27.67	90
5	12775.00	-57.73	5.20	12.85	Vertical	-52.23	-25	27.23	315
6	15330.00	-87.25	5.50	14.23	Vertical	-80.67	-25	55.67	45
7	17885.00	-89.20	5.70	14.15	Vertical	-82.90	-25	57.9	90
8	20440.00	-90.18	6.30	13.76	Vertical	-84.87	-25	59.87	315
9	22995.00	-86.74	6.80	14.05	Vertical	-81.64	-25	56.64	180
10	25550.00	-85.09	6.90	14.84	Vertical	-79.30	-25	54.3	90

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

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

LTE Band 41 QPSK Bandwidth = 5MHz CH40620, RB 1

Harmonic	CH40620 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5186.00	-53.91	2.00	9.15	Vertical	-48.91	-25	23.91	315
3	7779.00	-57.98	2.50	11.35	Vertical	-51.28	-25	26.28	315
4	10372.00	-52.45	4.20	12.05	Vertical	-46.75	-25	21.75	270
5	12965.00	-53.40	5.20	12.85	Vertical	-47.90	-25	22.9	180
6	15558.00	-88.20	5.50	14.23	Vertical	-81.62	-25	56.62	45
7	18151.00	-87.94	5.70	14.15	Vertical	-81.64	-25	56.64	0
8	20744.00	-88.58	6.30	13.76	Vertical	-83.27	-25	58.27	180
9	23337.00	-85.27	6.80	14.05	Vertical	-80.17	-25	55.17	135
10	25930.00	-85.23	6.90	14.84	Vertical	-79.44	-25	54.44	315

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

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

LTE Band 41 QPSK Bandwidth = 5MHz CH41565, RB 1

Harmonic	CH41565 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5375.00	-51.90	2.00	9.15	Vertical	-46.90	-25	21.9	315
3	8062.50	-45.96	2.50	11.35	Vertical	-39.26	-25	14.26	270
4	10750.00	-47.62	4.20	12.05	Vertical	-41.92	-25	16.92	270
5	13437.50	-41.14	5.20	12.85	Vertical	-35.64	-25	10.64	225
6	16125.00	-86.88	5.50	14.23	Vertical	-80.30	-25	55.3	90
7	18812.50	-88.92	5.70	14.15	Vertical	-82.62	-25	57.62	135
8	21500.00	-89.04	6.30	13.76	Vertical	-83.73	-25	58.73	270
9	24187.50	-86.74	6.80	14.05	Vertical	-81.64	-25	56.64	225
10	26875.00	-85.53	6.90	14.84	Vertical	-79.74	-25	54.74	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 41 QPSK Bandwidth = 10MHz CH39700, RB 1

Harmonic	CH39700 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5002.00	-46.35	2.00	9.15	Vertical	-41.35	-25	16.35	315
3	7503.00	-50.68	2.50	11.35	Vertical	-43.98	-25	18.98	315
4	10004.00	-51.39	4.20	12.05	Vertical	-45.69	-25	20.69	135
5	12505.00	-49.12	5.20	12.85	Vertical	-43.62	-25	18.62	225
6	15006.00	-88.22	5.50	14.23	Vertical	-81.64	-25	56.64	315
7	17507.00	-88.91	5.70	14.15	Vertical	-82.61	-25	57.61	180
8	20008.00	-90.18	6.30	13.76	Vertical	-84.87	-25	59.87	270
9	22509.00	-86.74	6.80	14.05	Vertical	-81.64	-25	56.64	270
10	25010.00	-85.52	6.90	14.84	Vertical	-79.73	-25	54.73	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 41 QPSK Bandwidth = 10MHz CH40620, RB 1

Harmonic	CH40620 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5186.00	-51.35	2.00	9.15	Vertical	-46.35	-25	21.35	90
3	7779.00	-49.96	2.50	11.35	Vertical	-43.26	-25	18.26	270
4	10372.00	-48.68	4.20	12.05	Vertical	-42.98	-25	17.98	270
5	12965.00	-39.53	5.20	12.85	Vertical	-34.03	-25	9.03	225
6	15558.00	-88.22	5.50	14.23	Vertical	-81.64	-25	56.64	135
7	18151.00	-87.70	5.70	14.15	Vertical	-81.4	-25	56.4	180
8	20744.00	-88.58	6.30	13.76	Vertical	-83.27	-25	58.27	270
9	23337.00	-85.27	6.80	14.05	Vertical	-80.17	-25	55.17	135
10	25930.00	-85.71	6.90	14.84	Vertical	-79.92	-25	54.92	315

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

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

LTE Band 41 QPSK Bandwidth = 10MHz CH41540, RB 1

Harmonic	CH41540 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5370.00	-52.32	2.00	10.15	Vertical	-46.32	-25	21.32	90
3	8055.00	-46.57	2.50	11.35	Vertical	-39.87	-25	14.87	45
4	10740.00	-43.32	4.20	12.05	Vertical	-37.62	-25	12.62	135
5	13425.00	-43.06	5.20	14.85	Vertical	-35.56	-25	10.56	45
6	16110.00	-85.88	5.50	13.23	Vertical	-80.30	-25	55.3	0
7	18795.00	-86.54	5.70	12.15	Vertical	-82.24	-25	57.24	90
8	21480.00	-89.04	6.30	13.76	Vertical	-83.73	-25	58.73	90
9	24165.00	-85.83	6.80	14.05	Vertical	-80.73	-25	55.73	180
10	26850.00	-85.13	6.90	14.84	Vertical	-79.34	-25	54.34	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 41 QPSK Bandwidth = 15MHz CH39725, RB 1

Harmonic	CH39725 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5007.00	-43.25	2.00	10.15	Vertical	-37.25	-25	12.25	225
3	7510.50	-49.05	2.50	11.35	Vertical	-42.35	-25	17.35	135
4	10014.00	-48.37	4.20	12.05	Vertical	-42.67	-25	17.67	45
5	12517.50	-47.86	5.20	14.85	Vertical	-40.36	-25	15.36	180
6	15021.00	-86.25	5.50	13.23	Vertical	-80.67	-25	55.67	225
7	17524.50	-84.34	5.70	12.15	Vertical	-80.04	-25	55.04	180
8	20028.00	-85.71	6.30	13.76	Vertical	-80.40	-25	55.4	45
9	22531.50	-86.34	6.80	14.05	Vertical	-81.24	-25	56.24	270
10	25035.00	-85.17	6.90	14.84	Vertical	-79.38	-25	54.38	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 41 QPSK Bandwidth = 15MHz CH40620, RB 1

Harmonic	CH40620 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5186.00	-51.63	2.00	10.15	Vertical	-45.63	-25	20.63	90
3	7779.00	-49.06	2.50	11.35	Vertical	-42.36	-25	17.36	270
4	10372.00	-44.66	4.20	12.05	Vertical	-38.96	-25	13.96	225
5	12965.00	-42.84	5.20	14.85	Vertical	-35.34	-25	10.34	180
6	15558.00	-86.31	5.50	13.23	Vertical	-80.73	-25	55.73	225
7	18151.00	-84.22	5.70	12.15	Vertical	-79.92	-25	54.92	315
8	20744.00	-88.58	6.30	13.76	Vertical	-83.27	-25	58.27	180
9	23337.00	-85.27	6.80	14.05	Vertical	-80.17	-25	55.17	45
10	25930.00	-85.31	6.90	14.84	Vertical	-79.52	-25	54.52	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 41 QPSK Bandwidth = 15MHz CH41515, RB 1

Harmonic	CH20325 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5365.00	-48.04	2.00	10.15	Vertical	-42.04	-25	17.04	90
3	8047.50	-46.66	2.50	11.35	Vertical	-39.96	-25	14.96	90
4	10730.00	-44.55	4.20	12.05	Vertical	-38.85	-25	13.85	90
5	13412.50	-43.12	5.20	14.85	Vertical	-35.62	-25	10.62	270
6	16095.00	-85.88	5.50	13.23	Vertical	-80.30	-25	55.3	90
7	18777.50	-86.92	5.70	12.15	Vertical	-82.62	-25	57.62	180
8	21460.00	-89.04	6.30	13.76	Vertical	-83.73	-25	58.73	270
9	24142.50	-85.83	6.80	14.05	Vertical	-80.73	-25	55.73	270
10	26825.00	-85.71	6.90	14.84	Vertical	-79.92	-25	54.92	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 41 QPSK Bandwidth = 20MHz CH39750, RB 1

Harmonic	CH39750 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5012.00	-46.67	2.00	10.15	Vertical	-40.67	-25	15.67	270
3	7518.00	-49.05	2.50	11.35	Vertical	-42.35	-25	17.35	270
4	10024.00	-51.05	4.20	12.05	Vertical	-45.35	-25	20.35	225
5	12530.00	-51.48	5.20	14.85	Vertical	-43.98	-25	18.98	90
6	15036.00	-87.30	5.50	13.23	Vertical	-81.72	-25	56.72	225
7	17542.00	-86.39	5.70	12.15	Vertical	-82.09	-25	57.09	225
8	20048.00	-90.03	6.30	13.76	Vertical	-84.72	-25	59.72	90
9	22554.00	-86.74	6.80	14.05	Vertical	-81.64	-25	56.64	270
10	25060.00	-85.18	6.90	14.84	Vertical	-79.39	-25	54.39	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 41 QPSK Bandwidth = 20MHz CH40620, RB 1

Harmonic	CH40620 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5186.00	-51.68	2.00	10.15	Vertical	-45.68	-25	20.68	45
3	7779.00	-51.38	2.50	11.35	Vertical	-44.68	-25	19.68	225
4	10372.00	-47.74	4.20	12.05	Vertical	-42.04	-25	17.04	45
5	12965.00	-42.54	5.20	14.85	Vertical	-35.04	-25	10.04	90
6	15558.00	-86.82	5.50	13.23	Vertical	-81.24	-25	56.24	135
7	18151.00	-85.65	5.70	12.15	Vertical	-81.35	-25	56.35	225
8	20744.00	-89.01	6.30	13.76	Vertical	-83.70	-25	58.7	90
9	23337.00	-85.27	6.80	14.05	Vertical	-80.17	-25	55.17	270
10	25930.00	-84.96	6.90	14.84	Vertical	-79.17	-25	54.17	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 41 QPSK Bandwidth = 20MHz CH41490, RB 1

Harmonic	CH41490 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5360.00	-51.62	2.00	10.15	Vertical	-45.62	-25	20.62	270
3	8040.00	-46.53	2.50	11.35	Vertical	-39.83	-25	14.83	180
4	10720.00	-41.73	4.20	12.05	Vertical	-36.03	-25	11.03	180
5	13400.00	-43.43	5.20	14.85	Vertical	-35.93	-25	10.93	270
6	16080.00	-85.62	5.50	13.23	Vertical	-80.04	-25	55.04	315
7	18760.00	-85.54	5.70	12.15	Vertical	-81.24	-25	56.24	90
8	21440.00	-88.61	6.30	13.76	Vertical	-83.30	-25	58.3	135
9	24120.00	-85.83	6.80	14.05	Vertical	-80.73	-25	55.73	90
10	26800.00	-85.03	6.90	14.84	Vertical	-79.24	-25	54.24	270

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

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

5 Main Test Equipment

Name of Equipment	Type/ Model	Manufacturer	Serial Number	Last Cal.	Cal. Due Date
Base Station Simulator	CMW500	R&S	113645	2015-05-22	2016-05-21
Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
Spectrum Analyzer	E4445A	Agilent	MY46181146	2015-05-22	2016-05-21
Universal Radio Communication Tester	E5515C	Agilent	MY48367192	2015-12-17	2016-12-16
Spectrum Analyzer	N9010A	Agilent	MY47191109	2015-05-22	2016-05-21
Spectrum Analyzer	FSP13	R&S	100679	2015-12-17	2016-12-16
Signal Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
Signal generator	SMB 100A	R&S	102594	2015-05-06	2016-05-05
Signal generator	SMR27	R&S	100365	2015-05-22	2016-05-21
EMI Test Receiver	ESCI	R&S	100948	2015-05-25	2016-05-24
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-201	2013-11-25	2016-11-24
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-391	2014-12-06	2017-12-05
Horn Antenna	HF907	R&S	100126	2015-07-01	2018-06-30
Horn Antenna	HF907	R&S	100125	2014-12-06	2017-12-05
Horn Antenna	3160-09	ETS-Lindgren	00102643	2014-12-06	2017-12-05
Horn Antenna	3160-09	ETS-Lindgren	00102644	2014-12-06	2017-12-05
Climatic Chamber	PT-30B	Re Ce	20101891	2015-07-18	2016-07-17
RF Cable	SMA 15cm	Agilent	0001	2016-01-09	2016-03-08