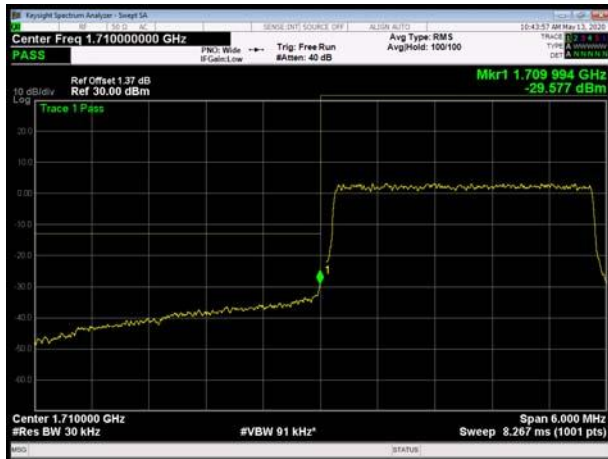




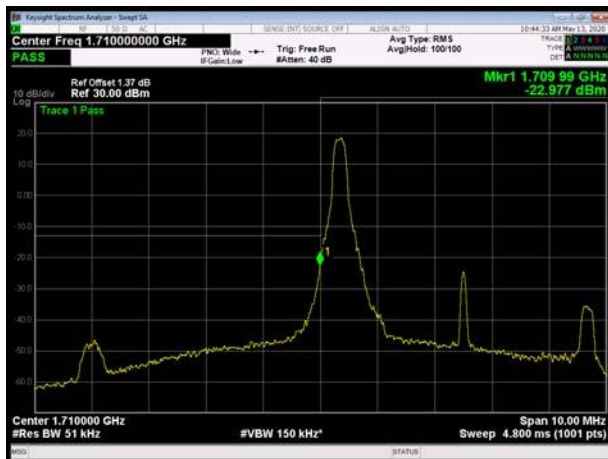
LTE Band 4 16QAM 3MHz CH-Low, 100%RB



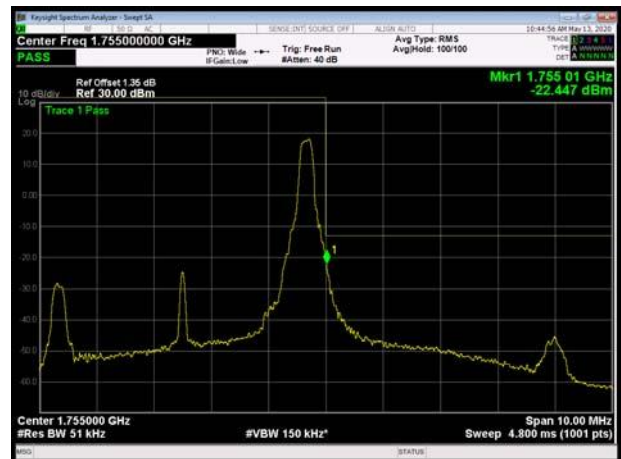
LTE Band 4 16QAM 3MHz CH-High, 100%RB



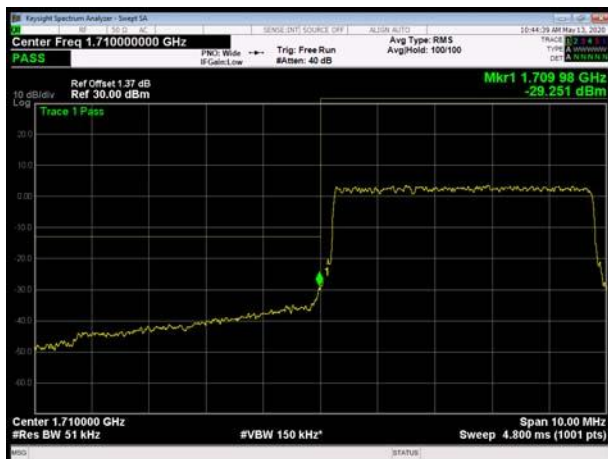
LTE Band 4 16QAM 5MHz CH-Low, 1 RB



LTE Band 4 16QAM 5MHz CH-High, 1 RB



LTE Band 4 16QAM 5MHz CH-Low, 100%RB

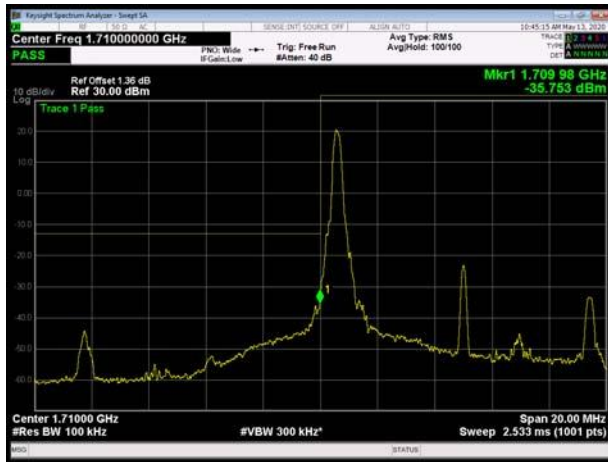


LTE Band 4 16QAM 5MHz CH-High, 100%RB

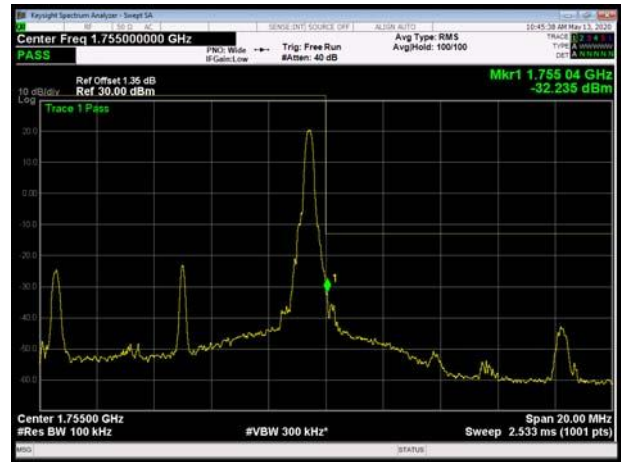




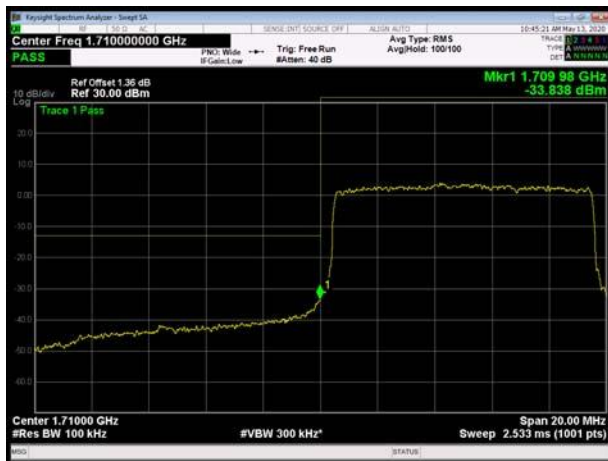
LTE Band 4 16QAM 10MHz CH-Low, 1 RB



LTE Band 4 16QAM 10MHz CH-High, 1 RB



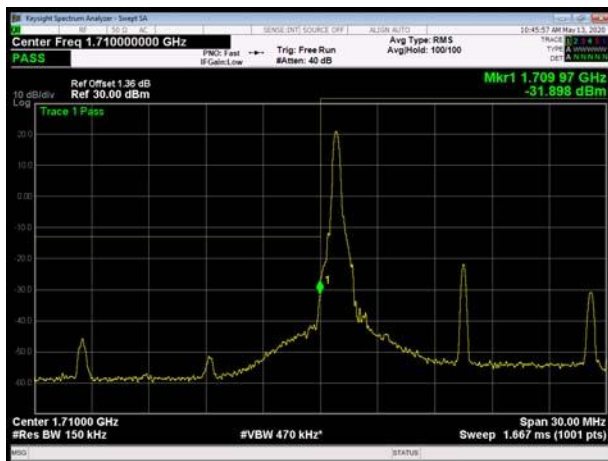
LTE Band 4 16QAM 10MHz CH-Low, 100%RB



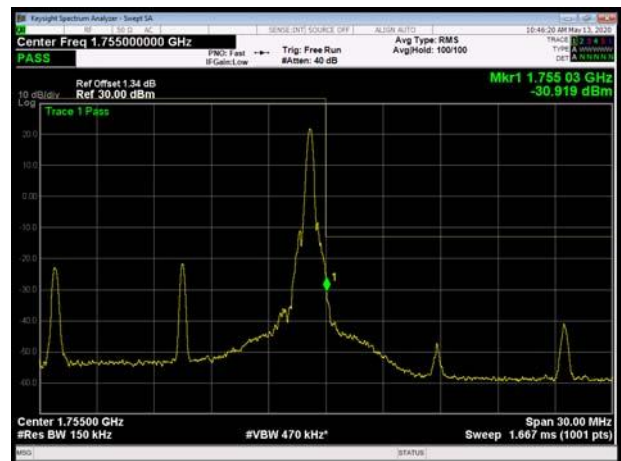
LTE Band 4 16QAM 10MHz CH-High, 100%RB



LTE Band 4 16QAM 15MHz CH-Low, 1 RB



LTE Band 4 16QAM 15MHz CH-High, 1 RB





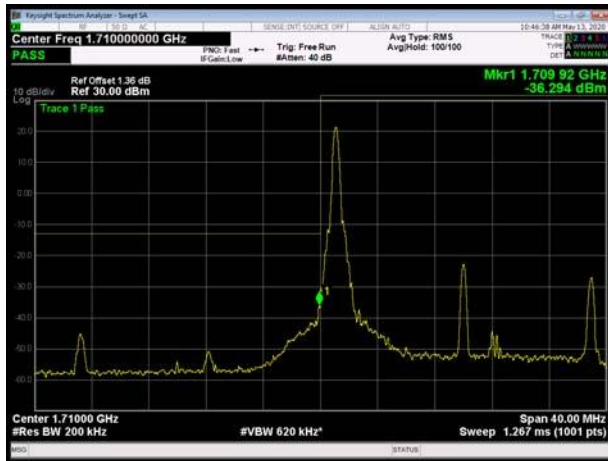
LTE Band 4 16QAM 15MHz CH-Low, 100%RB



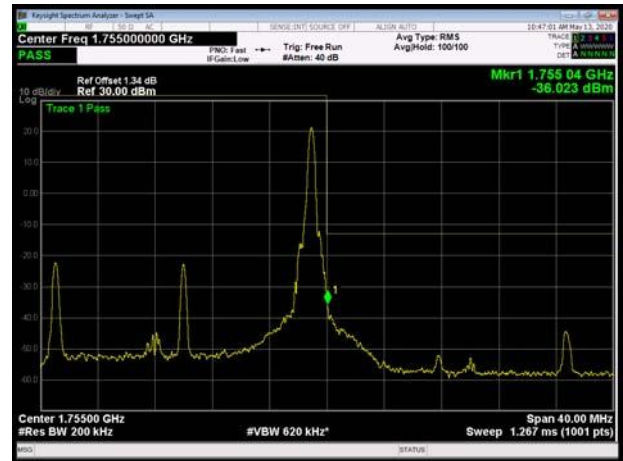
LTE Band 4 16QAM 15MHz CH-High, 100%RB



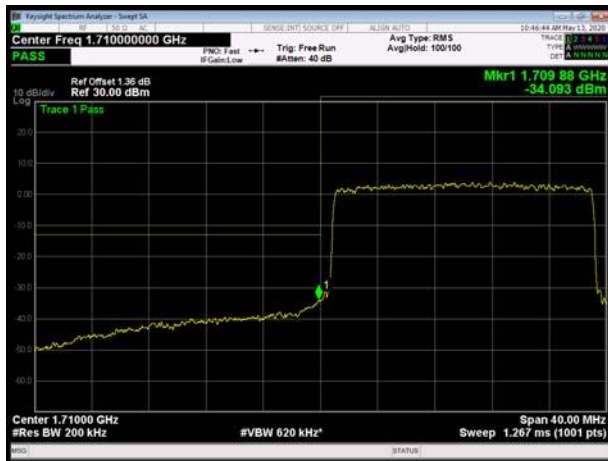
LTE Band 4 16QAM 20MHz CH-Low, 1 RB



LTE Band 4 16QAM 20MHz CH-High, 1 RB



LTE Band 4 16QAM 20MHz CH-Low, 100%RB

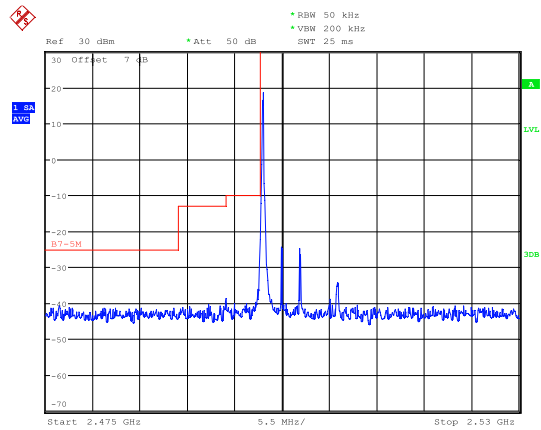


LTE Band 4 16QAM 20MHz CH-High, 100%RB



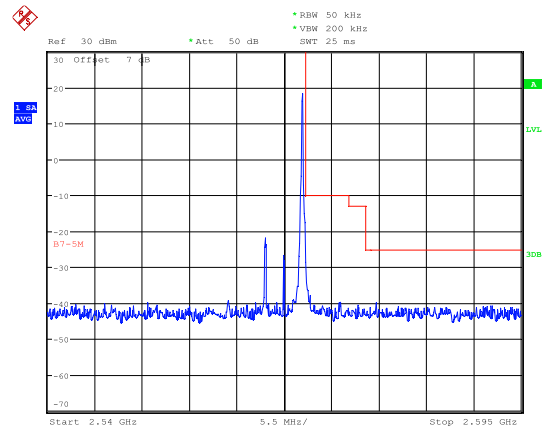


LTE Band 7 QPSK 5MHz CH-Low, 1 RB



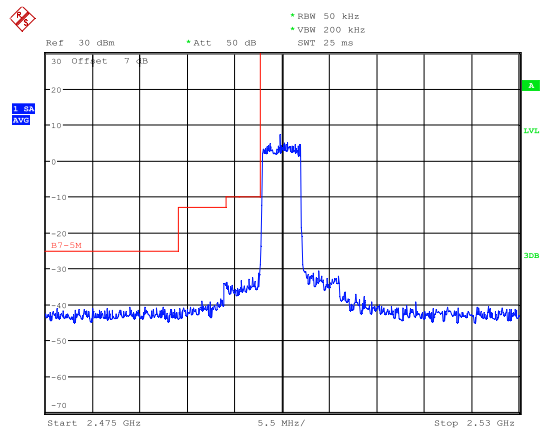
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LTE Band 7 QPSK 5MHz CH-High, 1 RB



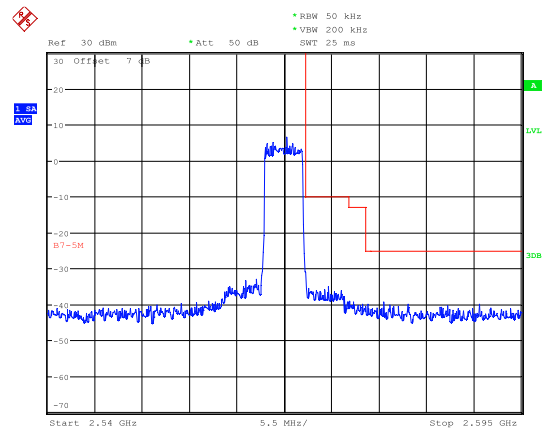
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LTE Band 7 QPSK 5MHz CH-Low, 100%RB



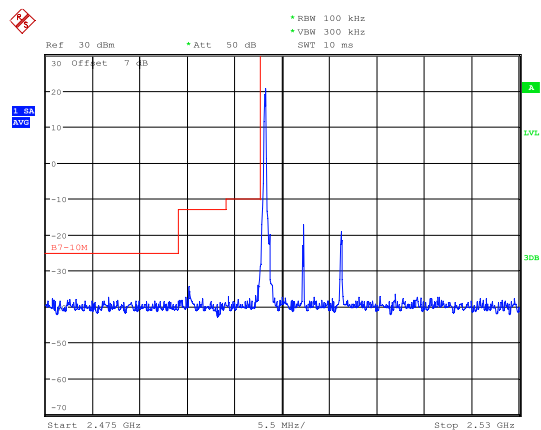
Date: 12.MAY.2020 15:12:46

LTE Band 7 QPSK 5MHz CH-High, 100%RB



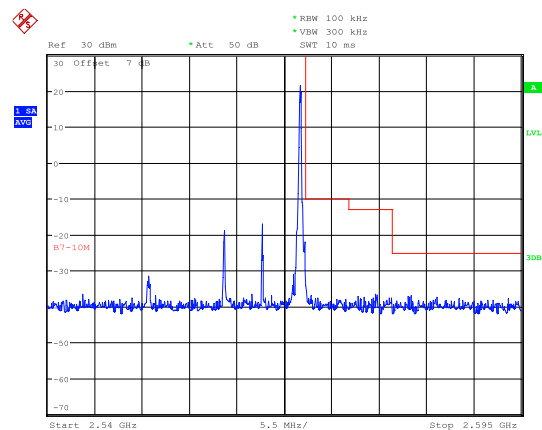
Date: 12.MAY.2020 15:15:14

LTE Band 7 QPSK 10MHz CH-Low, 1 RB



Date: 12.MAY.2020 15:17:57

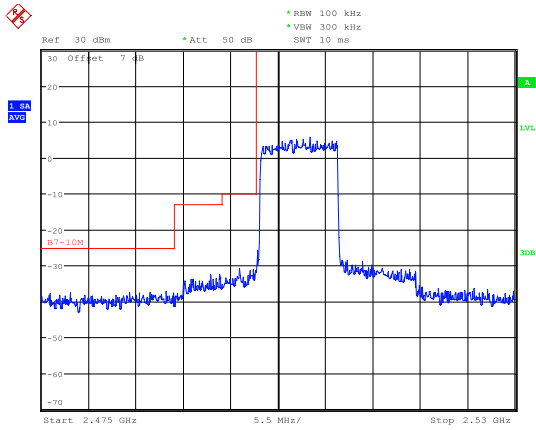
LTE Band 7 QPSK 10MHz CH-High, 1 RB



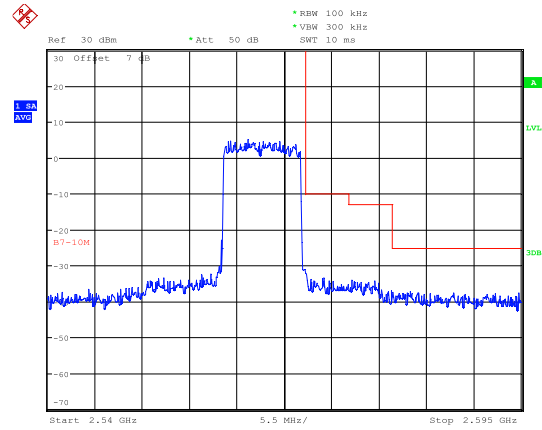
Date: 12.MAY.2020 15:20:20



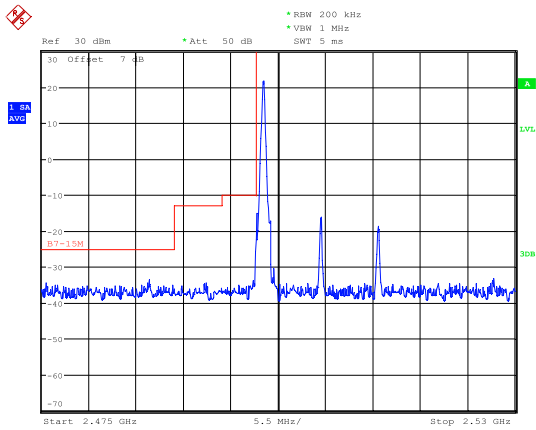
LTE Band 7 QPSK 10MHz CH-Low, 100%RB



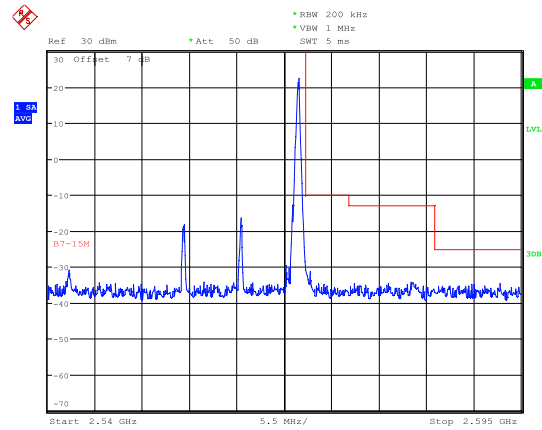
LTE Band 7 QPSK 10MHz CH-High, 100%RB



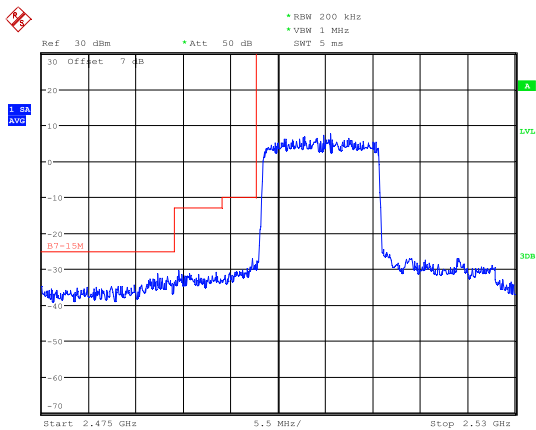
LTE Band 7 QPSK 15MHz CH-Low, 1 RB



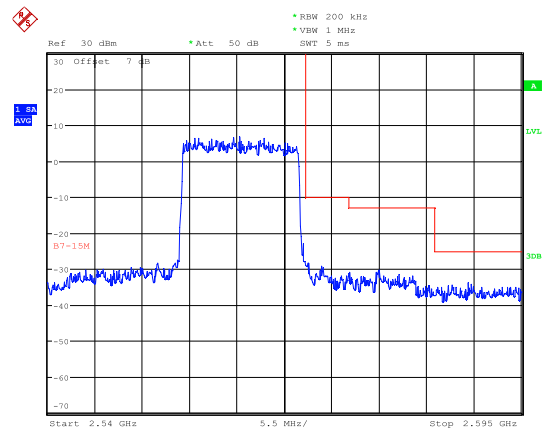
LTE Band 7 QPSK 15MHz CH-High, 1 RB



LTE Band 7 QPSK 15MHz CH-Low, 100%RB

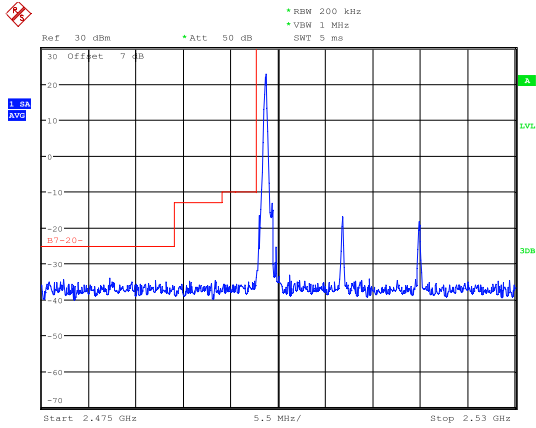


LTE Band 7 QPSK 15MHz CH-High, 100%RB



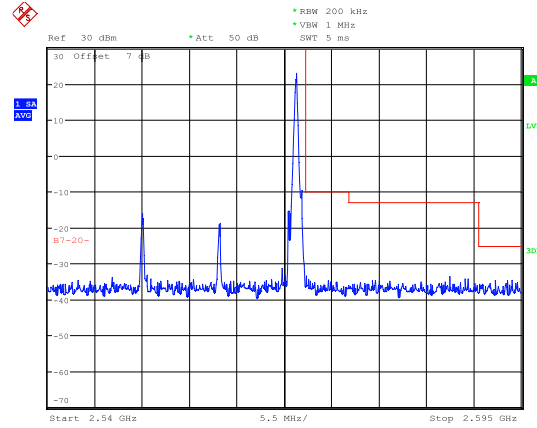


LTE Band 7 QPSK 20MHz CH-Low, 1 RB



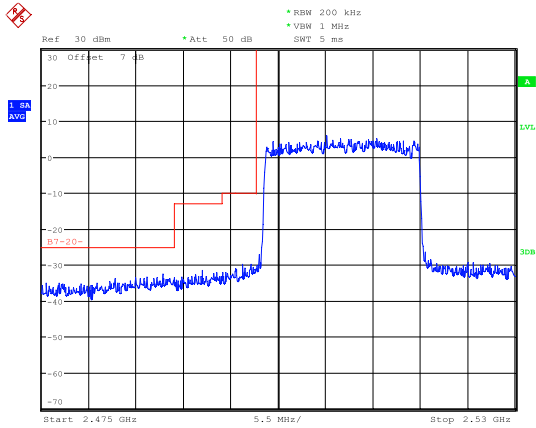
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LTE Band 7 QPSK 20MHz CH-High, 1 RB



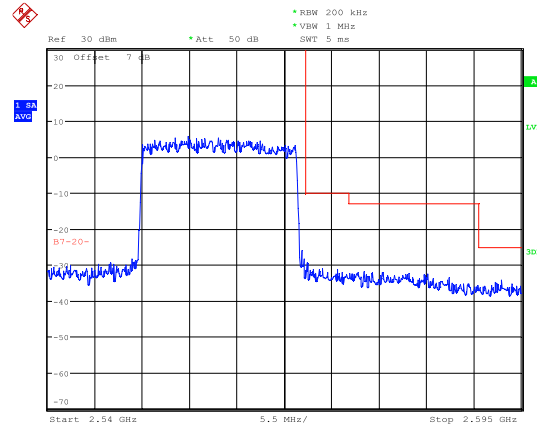
Date: 12.MAY.2020 15:31:23

LTE Band 7 QPSK 20MHz CH-Low, 100%RB



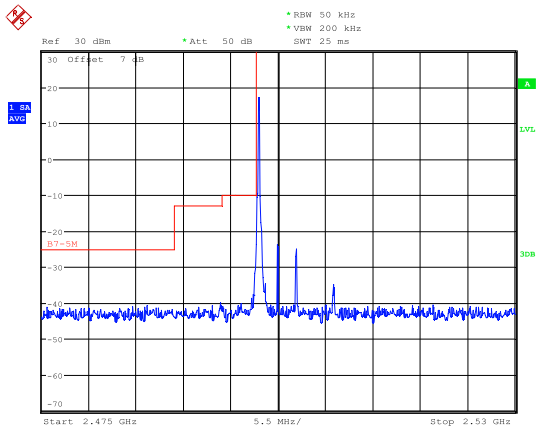
Date: 12.MAY.2020 15:33:45

LTE Band 7 QPSK 20MHz CH-High, 100%RB



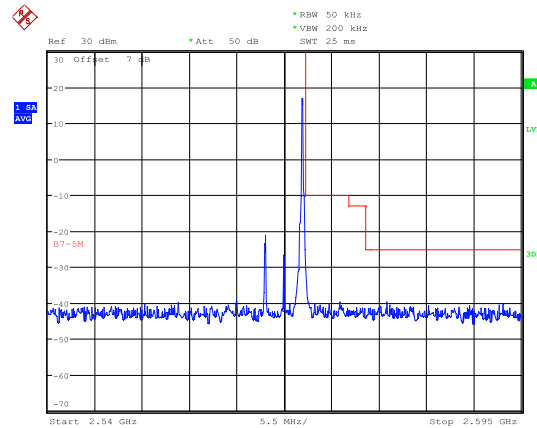
Date: 12.MAY.2020 15:31:42

LTE Band 7 16QAM 5MHz CH-Low, 1 RB



Date: 12.MAY.2020 15:13:10

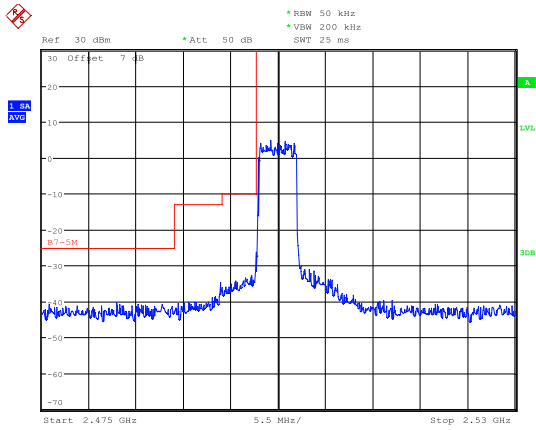
LTE Band 7 16QAM 5MHz CH-High, 1 RB



Date: 12.MAY.2020 15:15:44

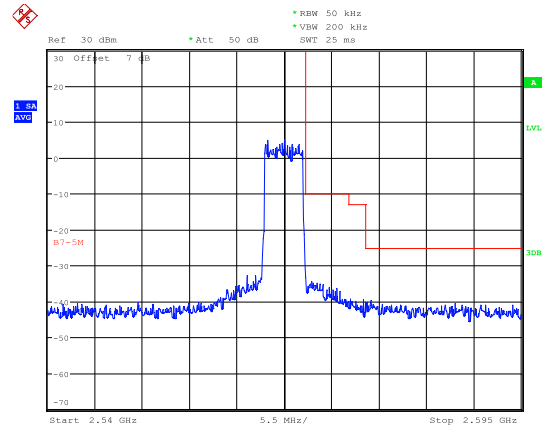


LTE Band 7 16QAM 5MHz CH-Low, 100%RB



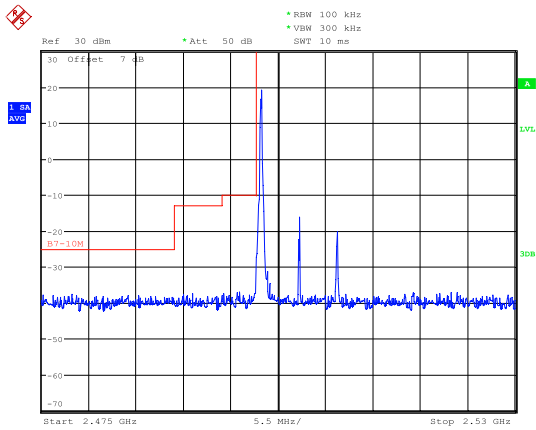
Date: 12.MAY.2020 15:13:34

LTE Band 7 16QAM 5MHz CH-High, 100%RB



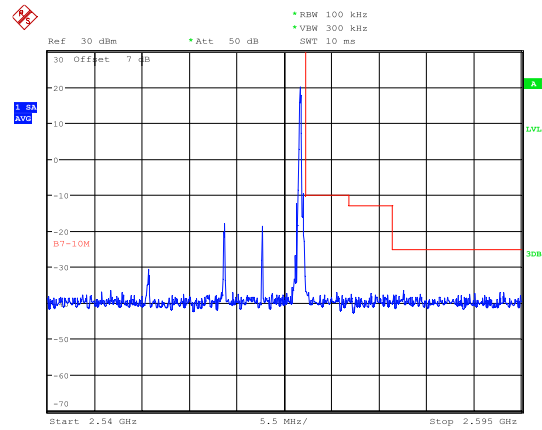
Date: 12.MAY.2020 15:16:01

LTE Band 7 16QAM 10MHz CH-Low, 1 RB



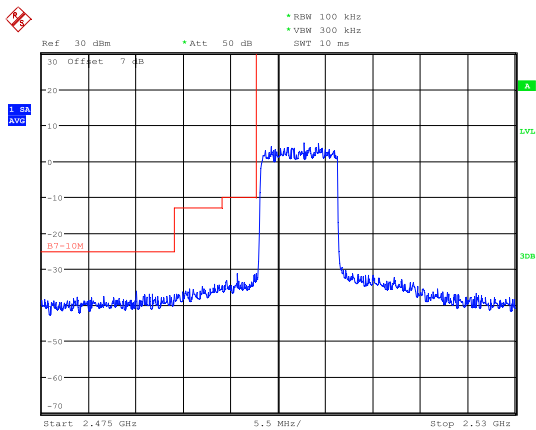
Date: 12.MAY.2020 15:18:56

LTE Band 7 16QAM 10MHz CH-High, 1 RB



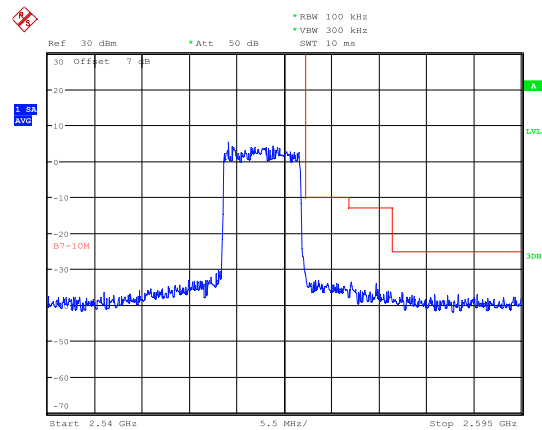
Date: 12.MAY.2020 15:21:07

LTE Band 7 16QAM 10MHz CH-Low, 100%RB



Date: 12.MAY.2020 15:19:28

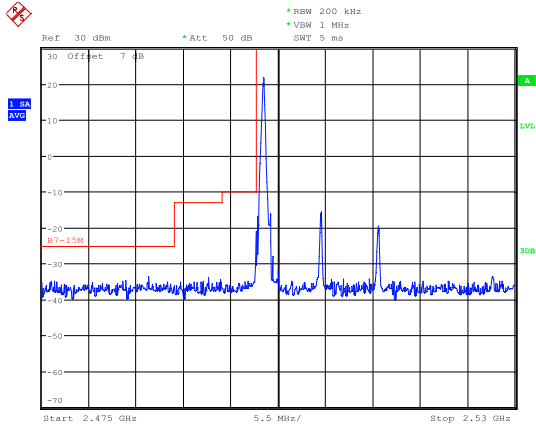
LTE Band 7 16QAM 10MHz CH-High, 100%RB



Date: 12.MAY.2020 15:21:22

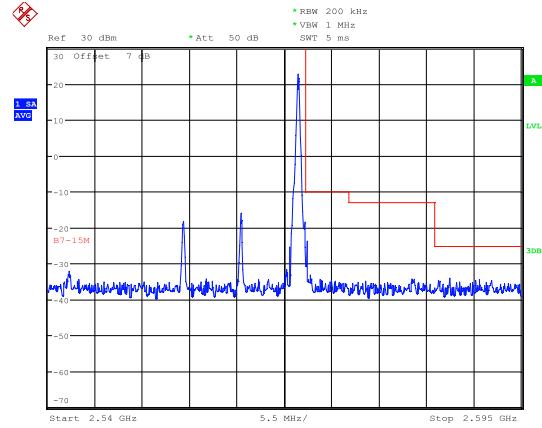


LTE Band 7 16QAM 15MHz CH-Low, 1 RB



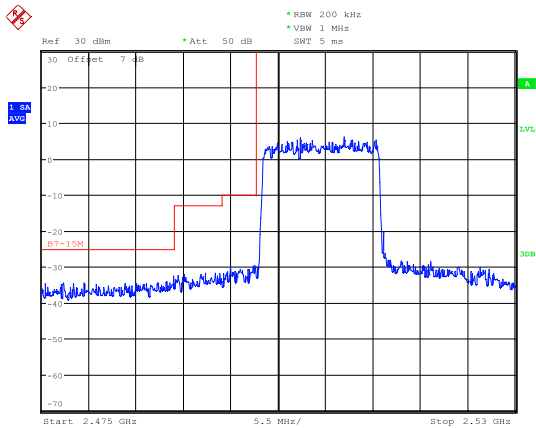
Date: 12.MAY.2020 15:23:36

LTE Band 7 16QAM 15MHz CH-High, 1 RB



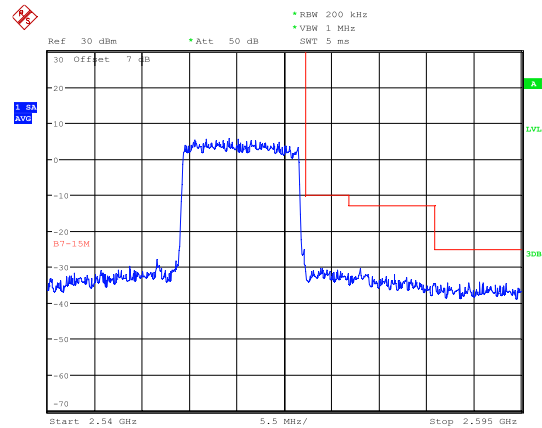
Date: 12.MAY.2020 15:27:12

LTE Band 7 16QAM 15MHz CH-Low, 100%RB



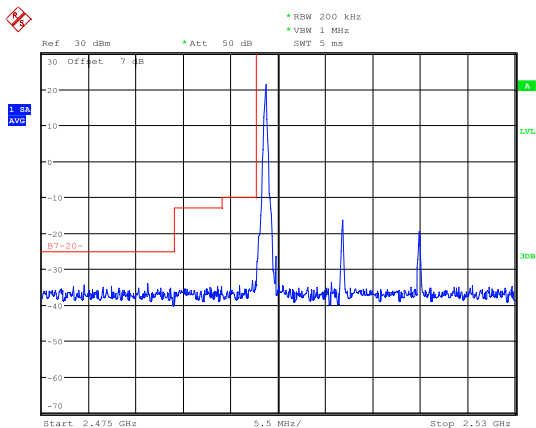
Date: 12.MAY.2020 15:23:55

LTE Band 7 16QAM 15MHz CH-High, 100%RB



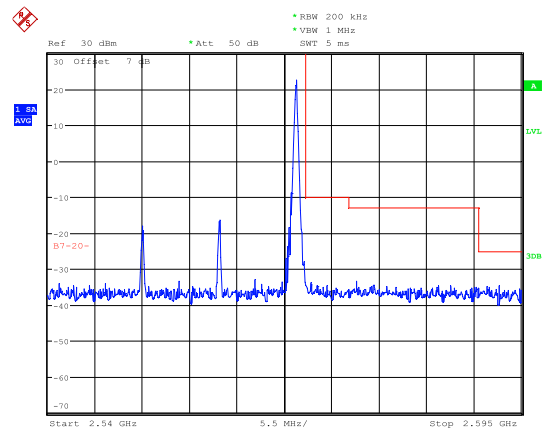
Date: 12.MAY.2020 15:27:49

LTE Band 7 16QAM 20MHz CH-Low, 1 RB



Date: 12.MAY.2020 15:34:05

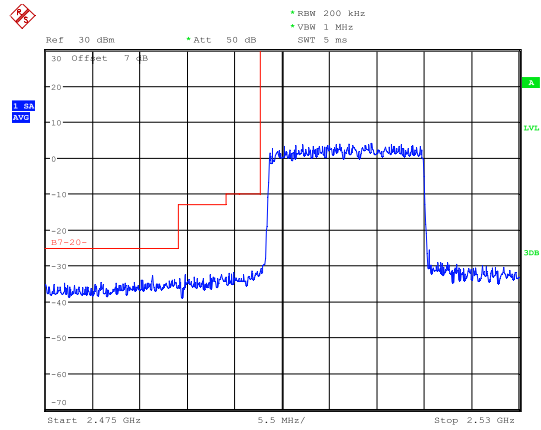
LTE Band 7 16QAM 20MHz CH-High, 1 RB



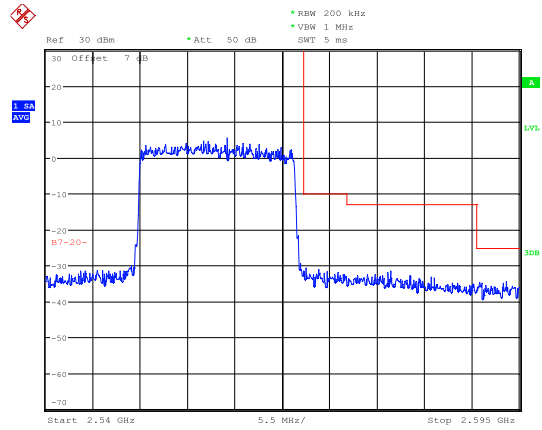
Date: 12.MAY.2020 15:32:18



LTE Band 7 16QAM 20MHz CH-Low, 100%RB



LTE Band 7 16QAM 20MHz CH-High, 100%RB



5.4 Peak-to-Average Power Ratio (PAPR)

Ambient condition

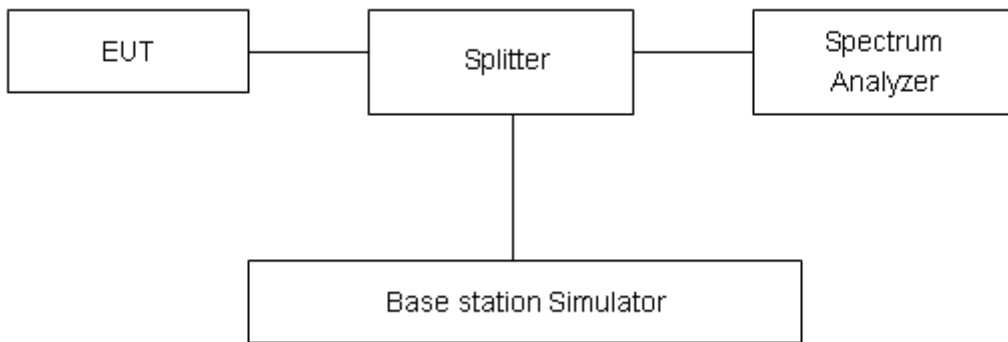
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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:

$$PAPR (dB) = PPk (dBm) - PAvg (dBm).$$

Test Setup



Limits

Rule Part 27.50(d)(5) 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.

Measurement Uncertainty

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



Test Results

LTE Band 4								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	19957	1710.7	27.87	23.01	4.86	≤13	PASS
		20175	1732.5	27.84	22.79	5.05	≤13	PASS
		20393	1754.3	28.02	22.96	5.06	≤13	PASS
	3	19965	1711.5	27.85	22.87	4.98	≤13	PASS
		20175	1732.5	27.98	22.83	5.15	≤13	PASS
		20385	1753.5	28.18	22.99	5.19	≤13	PASS
	5	19975	1712.5	27.73	22.85	4.88	≤13	PASS
		20175	1732.5	27.95	22.82	5.13	≤13	PASS
		20375	1752.5	28.12	22.97	5.15	≤13	PASS
	10	20000	1715	27.74	22.93	4.81	≤13	PASS
		20175	1732.5	27.96	22.84	5.12	≤13	PASS
		20350	1750	28.22	23.01	5.21	≤13	PASS
	15	20025	1717.5	27.65	22.91	4.74	≤13	PASS
		20175	1732.5	27.92	22.80	5.12	≤13	PASS
		20325	1747.5	28.26	22.96	5.30	≤13	PASS
20	20050	1720	27.64	22.88	4.76	≤13	PASS	
	20175	1732.5	27.84	22.75	5.09	≤13	PASS	
	20300	1745	28.15	22.92	5.23	≤13	PASS	
16QAM	1.4	19957	1710.7	27.20	21.53	5.67	≤13	PASS
		20175	1732.5	27.64	21.77	5.87	≤13	PASS
		20393	1754.3	27.53	21.64	5.89	≤13	PASS
	3	19965	1711.5	27.34	21.56	5.78	≤13	PASS
		20175	1732.5	27.76	21.81	5.95	≤13	PASS
		20385	1753.5	27.68	21.67	6.01	≤13	PASS
	5	19975	1712.5	27.16	21.54	5.62	≤13	PASS
		20175	1732.5	27.65	21.77	5.88	≤13	PASS
		20375	1752.5	27.55	21.62	5.93	≤13	PASS
	10	20000	1715	27.17	21.57	5.60	≤13	PASS
		20175	1732.5	27.70	21.82	5.88	≤13	PASS
		20350	1750	27.65	21.66	5.99	≤13	PASS
	15	20025	1717.5	27.03	21.54	5.49	≤13	PASS
		20175	1732.5	27.60	21.77	5.83	≤13	PASS
		20325	1747.5	27.60	21.62	5.98	≤13	PASS
20	20050	1720	27.07	21.52	5.55	≤13	PASS	
	20175	1732.5	27.54	21.73	5.81	≤13	PASS	
	20300	1745	27.55	21.59	5.96	≤13	PASS	



LTE Band 7								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	20775	2502.5	28.11	22.98	5.13	≤13	PASS
		21100	2535	27.99	23.11	4.88	≤13	PASS
		21425	2567.5	28.15	23.25	4.90	≤13	PASS
	10	20800	2505	28.28	23.06	5.22	≤13	PASS
		21100	2535	28.15	23.13	5.02	≤13	PASS
		21400	2565	28.18	23.11	5.07	≤13	PASS
	15	20825	2507.5	28.20	23.04	5.16	≤13	PASS
		21100	2535	28.14	23.09	5.05	≤13	PASS
		21375	2562.5	28.21	23.06	5.15	≤13	PASS
	20	20850	2510	28.07	23.01	5.06	≤13	PASS
		21100	2535	28.18	23.04	5.14	≤13	PASS
		21350	2560	28.19	23.02	5.17	≤13	PASS
16QAM	5	20775	2502.5	27.93	22.00	5.93	≤13	PASS
		21100	2535	27.76	22.06	5.70	≤13	PASS
		21425	2567.5	27.55	21.84	5.71	≤13	PASS
	10	20800	2505	28.08	22.03	6.05	≤13	PASS
		21100	2535	27.95	22.11	5.84	≤13	PASS
		21400	2565	27.77	21.88	5.89	≤13	PASS
	15	20825	2507.5	27.95	22.00	5.95	≤13	PASS
		21100	2535	27.88	22.06	5.82	≤13	PASS
		21375	2562.5	27.79	21.84	5.95	≤13	PASS
	20	20850	2510	27.83	21.98	5.85	≤13	PASS
		21100	2535	27.92	22.02	5.90	≤13	PASS
		21350	2560	27.81	21.81	6.00	≤13	PASS

5.5 Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -40°C to +85°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 -40°C to +85°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

Frequency Stability (Voltage Variation)

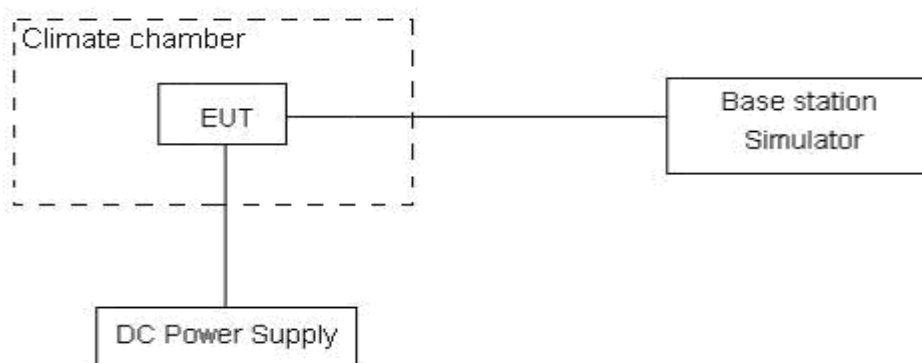
The frequency stability shall be measured with variation of primary supply voltage as follows:

(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 3.3 V and 4.3 V, with a nominal voltage of 3.8V.

Test setup



Limits

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Measurement Uncertainty

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



Test Result

LTE Band 4						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz	16QAM	QPSK	16QAM	QPSK	
Temperature	Voltage					
Normal (25°C)	Normal	2.72	15.52	0.00144	0.00825	PASS
Extreme (85°C)		8.98	5.14	0.00478	0.00273	PASS
Extreme (80°C)		8.83	1.96	0.00470	0.00104	PASS
Extreme (70°C)		6.55	11.10	0.00348	0.00590	PASS
Extreme (60°C)		11.97	8.52	0.00637	0.00453	PASS
Extreme (50°C)		5.46	3.34	0.00291	0.00177	PASS
Extreme (40°C)		5.77	6.04	0.00307	0.00321	PASS
Extreme (30°C)		7.52	11.84	0.00400	0.00630	PASS
Extreme (20°C)		10.26	11.21	0.00546	0.00596	PASS
Extreme (10°C)		3.72	11.94	0.00198	0.00635	PASS
Extreme (0°C)		9.01	3.93	0.00479	0.00209	PASS
Extreme (-10°C)		8.31	8.32	0.00442	0.00442	PASS
Extreme (-20°C)		5.41	5.61	0.00288	0.00299	PASS
Extreme (-30°C)		12.77	13.33	0.00679	0.00709	PASS
Extreme (-40°C)		2.96	10.76	0.00157	0.00573	PASS
25°C	LV	7.00	10.97	0.00372	0.00583	PASS
	HV	7.76	13.17	0.00413	0.00701	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz	16QAM	QPSK	16QAM	QPSK	
Temperature	Voltage					
Normal (25°C)	Normal	2.60	3.94	0.00139	0.00210	PASS
Extreme (85°C)		14.56	16.11	0.00775	0.00857	PASS
Extreme (80°C)		6.45	3.57	0.00343	0.00190	PASS
Extreme (70°C)		8.57	9.50	0.00456	0.00505	PASS
Extreme (60°C)		8.16	15.97	0.00434	0.00849	PASS
Extreme (50°C)		12.61	3.28	0.00671	0.00175	PASS
Extreme (40°C)		9.60	3.04	0.00511	0.00162	PASS
Extreme (30°C)		2.40	2.50	0.00128	0.00133	PASS
Extreme (20°C)		1.37	9.52	0.00073	0.00506	PASS
Extreme (10°C)		2.10	5.71	0.00112	0.00304	PASS
Extreme (0°C)		12.35	4.67	0.00657	0.00249	PASS
Extreme (-10°C)		2.82	12.01	0.00150	0.00639	PASS
Extreme (-20°C)		6.43	1.78	0.00342	0.00095	PASS
Extreme (-30°C)		9.83	8.37	0.00523	0.00445	PASS



Extreme (-40°C)		2.51	15.36	0.00134	0.00817	PASS
25°C	LV	8.81	14.77	0.00468	0.00786	PASS
	HV	10.31	3.37	0.00548	0.00179	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	12.73	14.39	0.00677	0.00765	
Extreme (85°C)		4.20	3.38	0.00223	0.00180	PASS
Extreme (80°C)		4.00	5.87	0.00213	0.00312	PASS
Extreme (70°C)		9.32	4.12	0.00496	0.00219	PASS
Extreme (60°C)		2.31	9.59	0.00123	0.00510	PASS
Extreme (50°C)		17.50	16.91	0.00931	0.00899	PASS
Extreme (40°C)		6.53	9.40	0.00347	0.00500	PASS
Extreme (30°C)		7.94	8.77	0.00422	0.00466	PASS
Extreme (20°C)		7.48	13.17	0.00398	0.00700	PASS
Extreme (10°C)		14.75	2.70	0.00784	0.00144	PASS
Extreme (0°C)		14.17	17.62	0.00754	0.00937	PASS
Extreme (-10°C)		11.55	10.29	0.00615	0.00547	PASS
Extreme (-20°C)		12.41	15.68	0.00660	0.00834	PASS
Extreme (-30°C)		5.21	14.47	0.00277	0.00769	PASS
Extreme (-40°C)		6.28	6.60	0.00334	0.00351	PASS
25°C		LV	17.75	6.55	0.00944	0.00348
	HV	5.69	10.54	0.00302	0.00561	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	10.10	4.17	0.00537	0.00222	
Extreme (85°C)		9.16	15.75	0.00487	0.00838	PASS
Extreme (80°C)		9.50	17.01	0.00505	0.00905	PASS
Extreme (70°C)		9.73	4.59	0.00517	0.00244	PASS
Extreme (60°C)		15.19	5.22	0.00808	0.00278	PASS
Extreme (50°C)		10.20	1.90	0.00543	0.00101	PASS
Extreme (40°C)		3.44	6.62	0.00183	0.00352	PASS
Extreme (30°C)		17.30	8.28	0.00920	0.00440	PASS
Extreme (20°C)		2.68	9.01	0.00143	0.00479	PASS
Extreme (10°C)		10.39	3.54	0.00553	0.00188	PASS
Extreme (0°C)		1.63	17.80	0.00087	0.00947	PASS
Extreme (-10°C)		12.49	8.15	0.00664	0.00434	PASS
Extreme (-20°C)		17.67	7.74	0.00940	0.00412	PASS
Extreme (-30°C)	15.56	14.33	0.00828	0.00762	PASS	



Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Extreme (-40°C)		14.70	17.70	0.00782	0.00941	PASS
25°C	LV	16.09	1.07	0.00856	0.00057	PASS
	HV	2.84	11.68	0.00151	0.00621	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	5.88	6.98	0.00313	0.00372	PASS
Extreme (85°C)		15.35	14.81	0.00816	0.00788	PASS
Extreme (80°C)		17.65	11.86	0.00939	0.00631	PASS
Extreme (70°C)		16.02	17.57	0.00852	0.00935	PASS
Extreme (60°C)		16.27	10.38	0.00865	0.00552	PASS
Extreme (50°C)		8.91	4.26	0.00474	0.00227	PASS
Extreme (40°C)		17.00	7.90	0.00904	0.00420	PASS
Extreme (30°C)		17.94	7.37	0.00954	0.00392	PASS
Extreme (20°C)		9.30	12.80	0.00495	0.00681	PASS
Extreme (10°C)		10.54	2.37	0.00561	0.00126	PASS
Extreme (0°C)		9.20	9.78	0.00490	0.00520	PASS
Extreme (-10°C)		1.48	10.71	0.00079	0.00570	PASS
Extreme (-20°C)		14.16	11.33	0.00753	0.00603	PASS
Extreme (-30°C)		5.83	13.70	0.00310	0.00729	PASS
Extreme (-40°C)		5.89	4.65	0.00313	0.00247	PASS
25°C	LV	17.65	16.12	0.00939	0.00858	PASS
	HV	16.16	1.75	0.00859	0.00093	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	2.03	11.78	0.00108	0.00626	PASS
Extreme (85°C)		16.14	5.52	0.00859	0.00294	PASS
Extreme (80°C)		16.07	17.59	0.00855	0.00935	PASS
Extreme (70°C)		15.00	5.98	0.00798	0.00318	PASS
Extreme (60°C)		10.29	3.42	0.00547	0.00182	PASS
Extreme (50°C)		1.26	16.50	0.00067	0.00878	PASS
Extreme (40°C)		7.75	1.11	0.00412	0.00059	PASS
Extreme (30°C)		5.80	17.84	0.00309	0.00949	PASS
Extreme (20°C)		5.17	15.31	0.00275	0.00814	PASS
Extreme (10°C)		7.31	5.08	0.00389	0.00270	PASS
Extreme (0°C)		6.35	6.61	0.00338	0.00351	PASS
Extreme (-10°C)		12.81	4.72	0.00681	0.00251	PASS
Extreme (-20°C)		1.88	10.38	0.00100	0.00552	PASS
Extreme (-30°C)		7.91	7.53	0.00421	0.00400	PASS



Extreme (-40°C)		11.65	2.94	0.00620	0.00156	PASS
25°C	LV	9.92	4.72	0.00528	0.00251	PASS
	HV	2.93	2.08	0.00156	0.00111	PASS

LTE Band 7						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	3.99	12.39	0.00212	0.00659	PASS
Extreme (85°C)		1.85	5.69	0.00098	0.00302	PASS
Extreme (80°C)		7.17	11.76	0.00381	0.00626	PASS
Extreme (70°C)		1.40	4.41	0.00074	0.00235	PASS
Extreme (60°C)		9.45	4.87	0.00503	0.00259	PASS
Extreme (50°C)		13.00	10.75	0.00692	0.00572	PASS
Extreme (40°C)		7.82	2.04	0.00416	0.00108	PASS
Extreme (30°C)		13.25	8.14	0.00705	0.00433	PASS
Extreme (20°C)		17.74	5.66	0.00943	0.00301	PASS
Extreme (10°C)		2.12	2.82	0.00113	0.00150	PASS
Extreme (0°C)		15.60	9.69	0.00830	0.00515	PASS
Extreme (-10°C)		15.30	8.57	0.00814	0.00456	PASS
Extreme (-20°C)		6.07	11.21	0.00323	0.00596	PASS
Extreme (-30°C)		7.44	2.46	0.00395	0.00131	PASS
Extreme (-40°C)		9.46	10.19	0.00503	0.00542	PASS
25°C	LV	5.83	15.43	0.00310	0.00821	PASS
	HV	3.21	6.31	0.00171	0.00336	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	6.59	8.55	0.00351	0.00455	PASS
Extreme (85°C)		3.61	16.86	0.00192	0.00897	PASS
Extreme (80°C)		6.22	1.01	0.00331	0.00053	PASS
Extreme (70°C)		13.14	7.57	0.00699	0.00403	PASS
Extreme (60°C)		3.06	12.56	0.00163	0.00668	PASS
Extreme (50°C)		7.06	4.17	0.00376	0.00222	PASS
Extreme (40°C)		14.76	14.30	0.00785	0.00761	PASS
Extreme (30°C)		4.46	3.38	0.00237	0.00180	PASS
Extreme (20°C)		16.17	4.88	0.00860	0.00260	PASS
Extreme (10°C)		9.40	4.96	0.00500	0.00264	PASS
Extreme (0°C)		2.55	2.64	0.00136	0.00141	PASS



Extreme (-10°C)		8.26	11.45	0.00439	0.00609	PASS
Extreme (-20°C)		15.60	15.92	0.00830	0.00847	PASS
Extreme (-30°C)		17.55	3.09	0.00933	0.00164	PASS
Extreme (-40°C)		17.70	9.97	0.00942	0.00530	PASS
25°C	LV	16.12	4.49	0.00857	0.00239	PASS
	HV	7.62	5.93	0.00405	0.00316	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage					
Normal (25°C)	Normal	6.87	16.26	0.00366	0.00865	PASS
Extreme (85°C)		3.45	10.66	0.00183	0.00567	PASS
Extreme (80°C)		12.43	4.26	0.00661	0.00227	PASS
Extreme (70°C)		8.70	4.32	0.00463	0.00230	PASS
Extreme (60°C)		17.15	8.41	0.00912	0.00447	PASS
Extreme (50°C)		16.03	3.10	0.00853	0.00165	PASS
Extreme (40°C)		14.42	3.24	0.00767	0.00172	PASS
Extreme (30°C)		13.60	7.75	0.00723	0.00412	PASS
Extreme (20°C)		1.42	1.64	0.00076	0.00087	PASS
Extreme (10°C)		6.77	12.81	0.00360	0.00681	PASS
Extreme (0°C)		12.83	2.66	0.00683	0.00142	PASS
Extreme (-10°C)		13.92	11.90	0.00741	0.00633	PASS
Extreme (-20°C)		15.32	2.00	0.00815	0.00106	PASS
Extreme (-30°C)		16.54	1.64	0.00880	0.00087	PASS
Extreme (-40°C)		13.90	17.94	0.00739	0.00955	PASS
25°C	LV	4.85	11.28	0.00258	0.00600	PASS
	HV	5.69	15.10	0.00303	0.00803	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage					
Normal (25°C)	Normal	15.54	1.00	0.00827	0.00053	PASS
Extreme (85°C)		9.98	14.01	0.00531	0.00745	PASS
Extreme (80°C)		3.20	10.30	0.00170	0.00548	PASS
Extreme (70°C)		7.12	6.75	0.00379	0.00359	PASS
Extreme (60°C)		4.95	8.06	0.00263	0.00429	PASS
Extreme (50°C)		4.37	6.42	0.00232	0.00341	PASS
Extreme (40°C)		17.20	12.13	0.00915	0.00645	PASS
Extreme (30°C)		13.78	11.35	0.00733	0.00604	PASS
Extreme (20°C)		4.65	3.08	0.00248	0.00164	PASS
Extreme (10°C)		12.08	1.40	0.00642	0.00075	PASS



Extreme (0°C)		2.05	5.50	0.00109	0.00293	PASS
Extreme (-10°C)		16.41	17.68	0.00873	0.00940	PASS
Extreme (-20°C)		6.04	1.06	0.00321	0.00056	PASS
Extreme (-30°C)		9.34	10.31	0.00497	0.00548	PASS
Extreme (-40°C)		7.14	14.99	0.00380	0.00797	PASS
25°C	LV	7.32	16.22	0.00389	0.00863	PASS
	HV	2.78	10.53	0.00148	0.00560	PASS

5.6 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 9kHz to the 10th harmonic of the carrier. The peak detector is used.

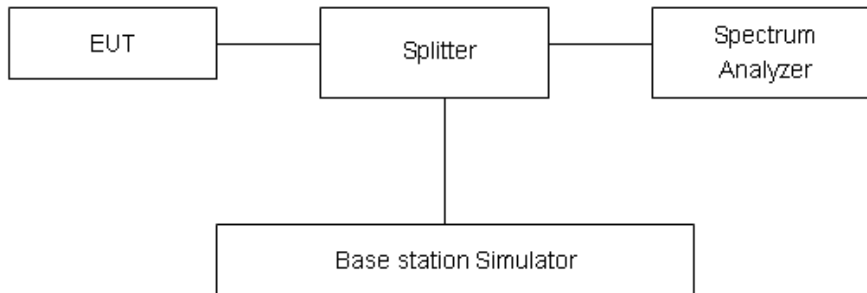
RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz

RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.

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

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB..”

Rule Part 27.53(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.

Part 27.53(a)/(h)/(g) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

**Measurement Uncertainty**

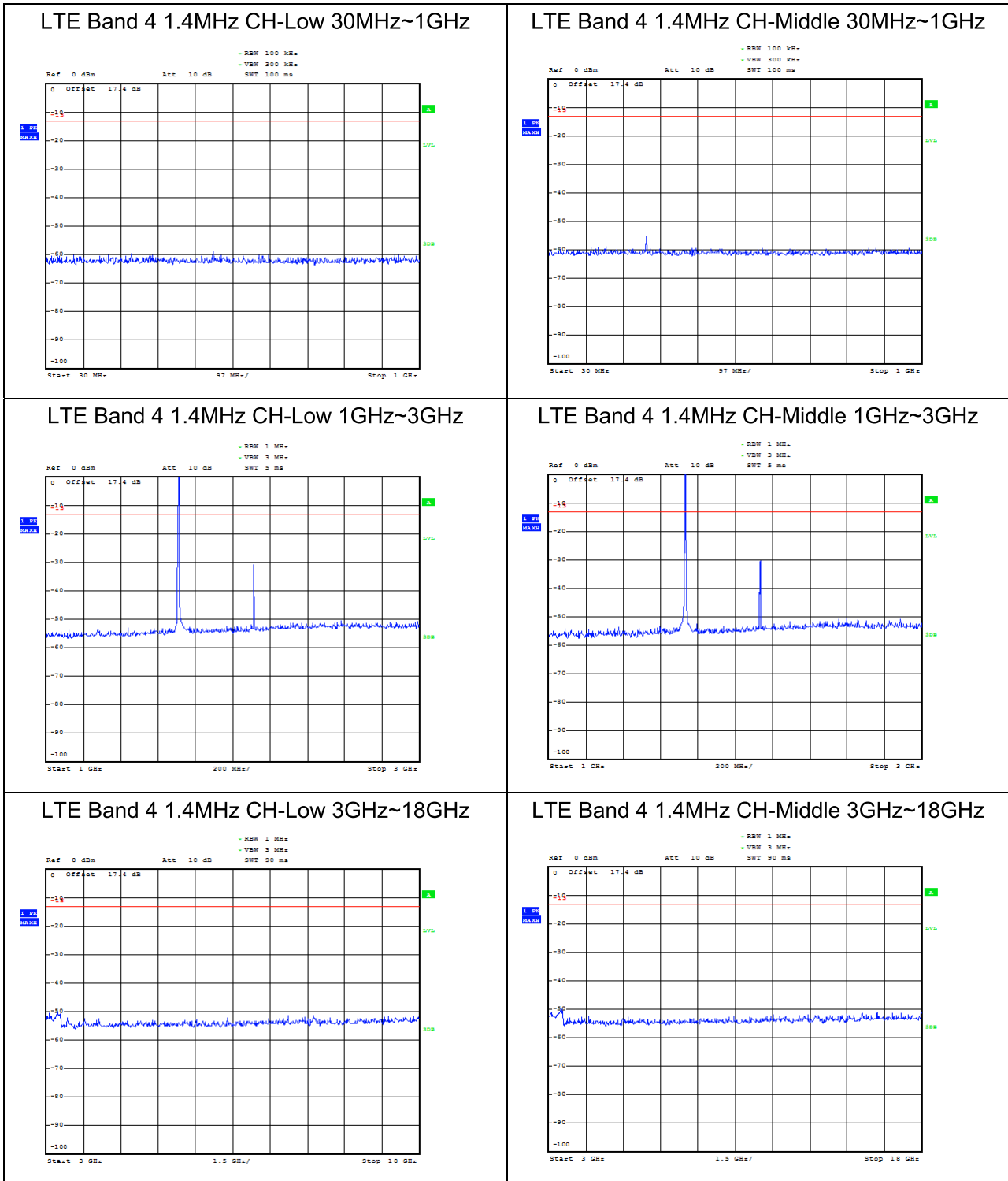
The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

Test Result

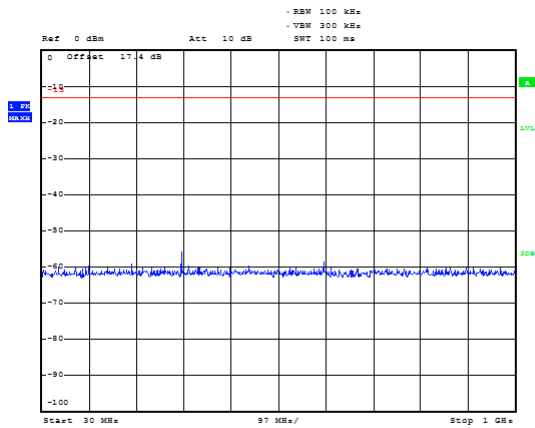
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

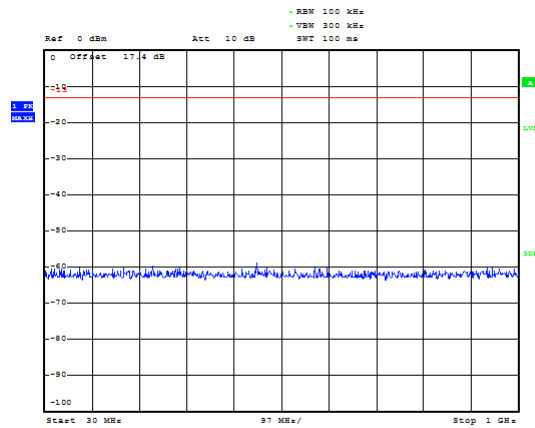




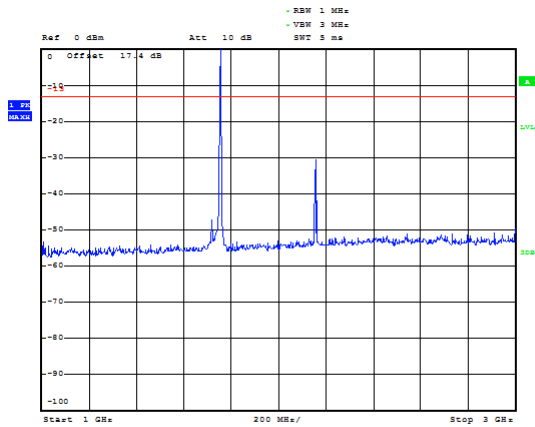
LTE Band 4 1.4MHz CH-High 30MHz~1GHz



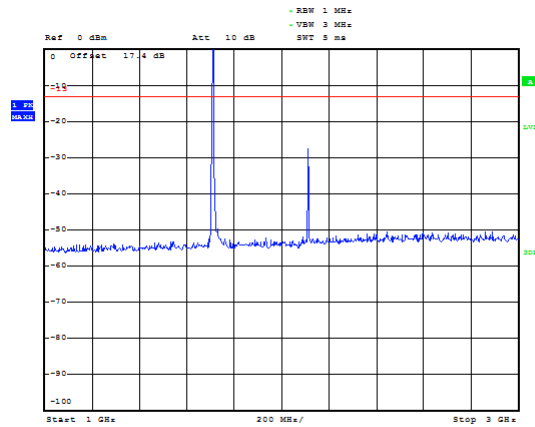
LTE Band 4 3MHz CH-Low 30MHz~1GHz



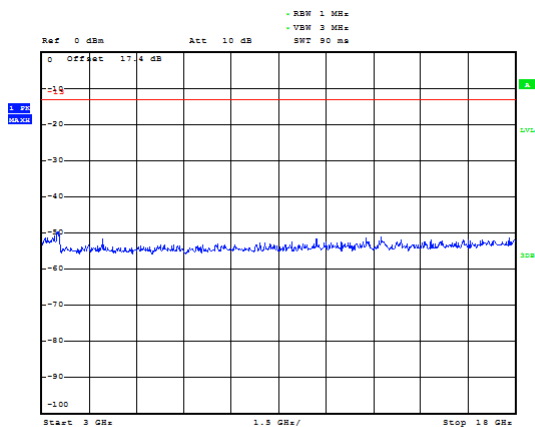
LTE Band 4 1.4MHz CH-High 1GHz~3GHz



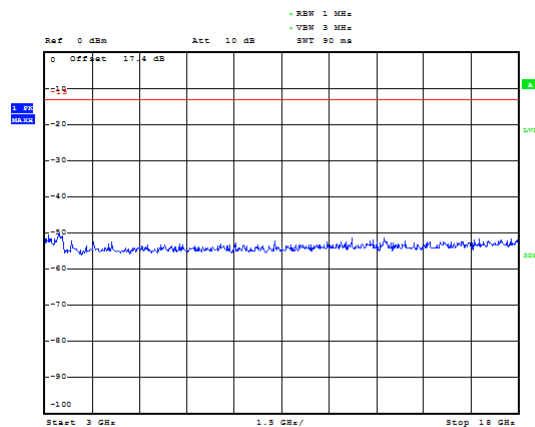
LTE Band 4 3MHz CH-Low 1GHz~3GHz



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

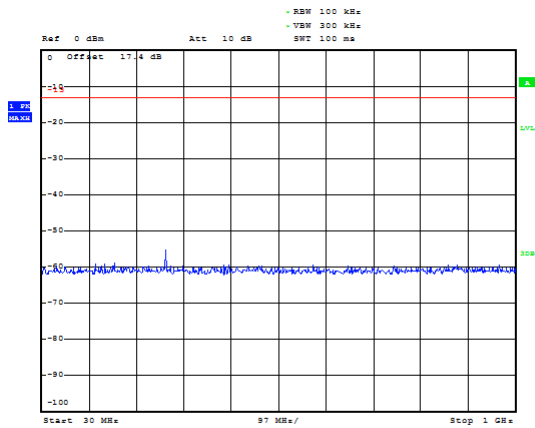


LTE Band 4 3MHz CH-Low 3GHz~18GHz

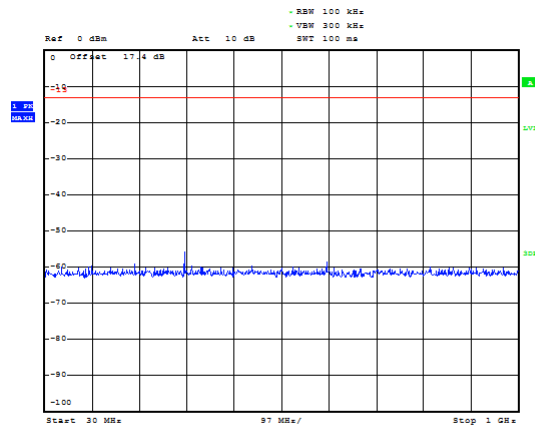




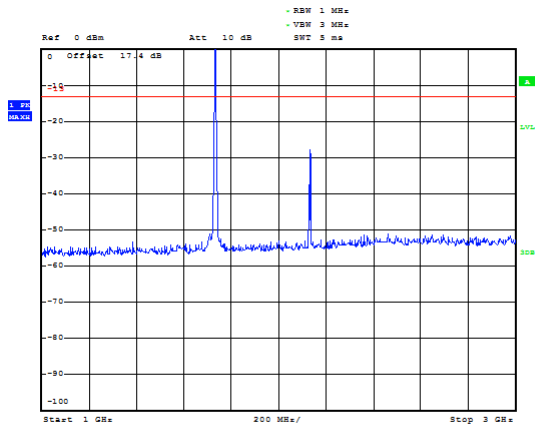
LTE Band 4 3MHz CH-Middle 30MHz~1GHz



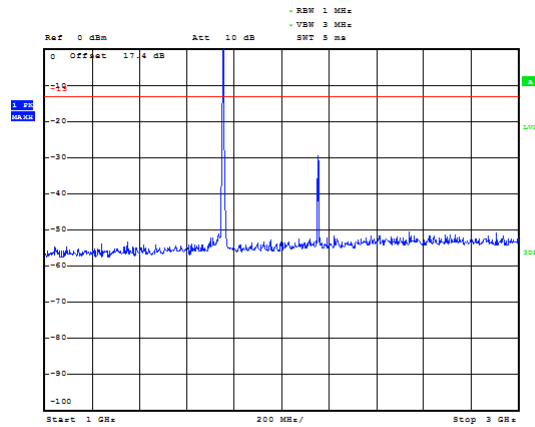
LTE Band 4 3MHz CH-High 30MHz~1GHz



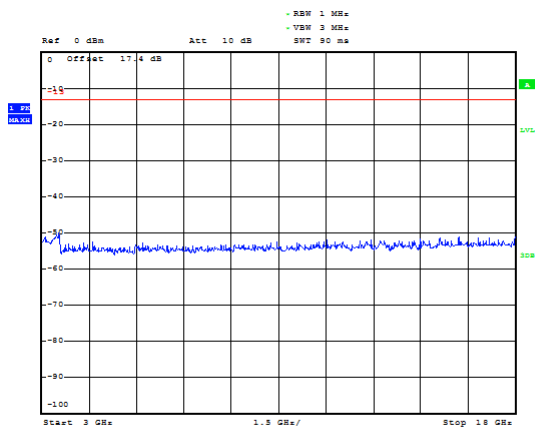
LTE Band 4 3MHz CH-Middle 1GHz~3GHz



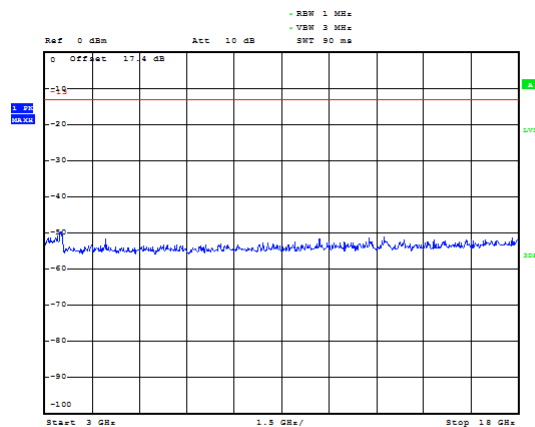
LTE Band 4 3MHz CH-High 1GHz~3GHz



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

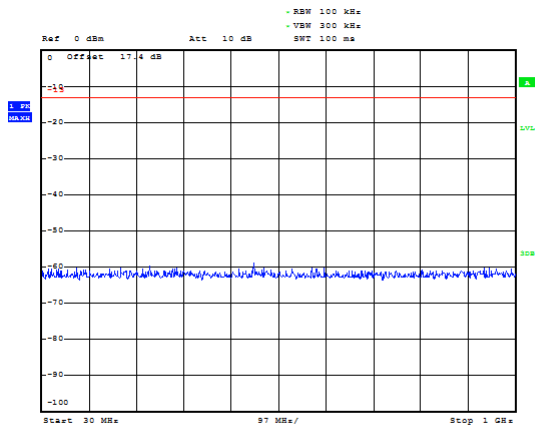


LTE Band 4 3MHz CH-High 3GHz~18GHz

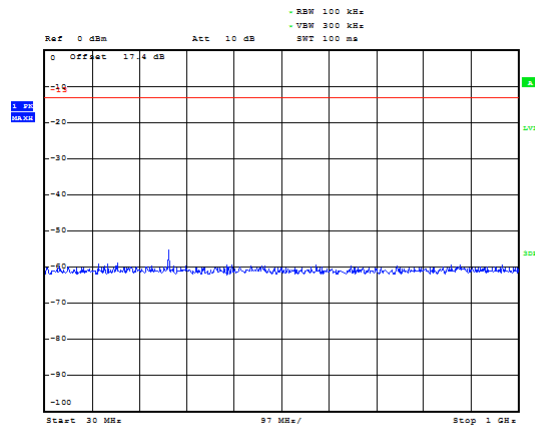




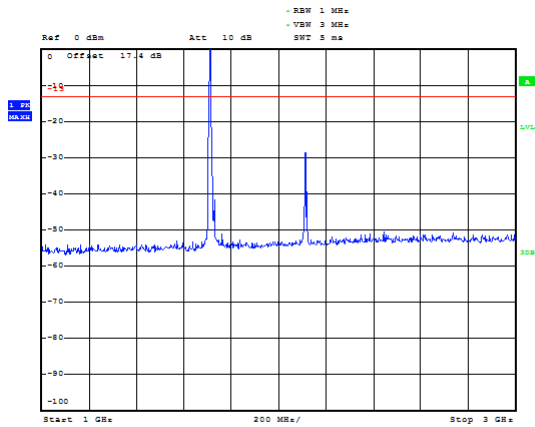
LTE Band 4 5MHz CH-Low 30MHz~1GHz



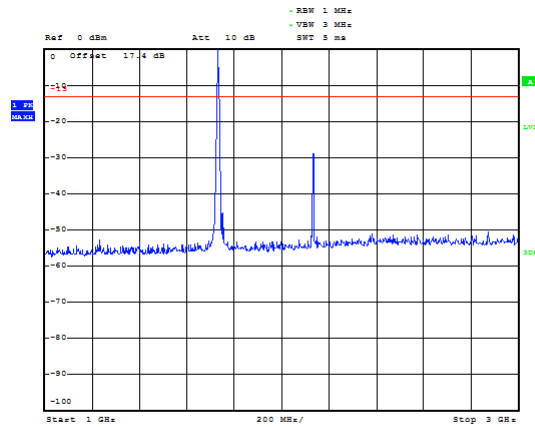
LTE Band 4 5MHz CH-Middle 30MHz~1GHz



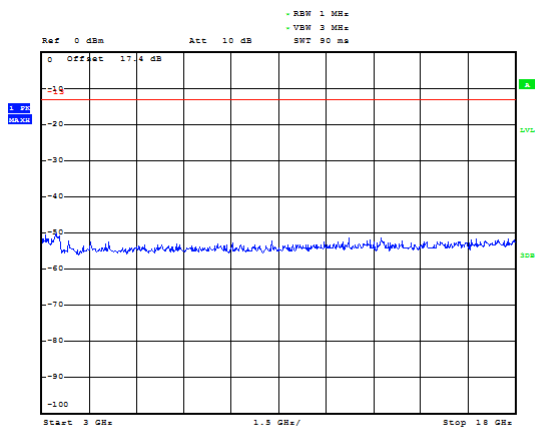
LTE Band 4 5MHz CH-Low 1GHz~3GHz



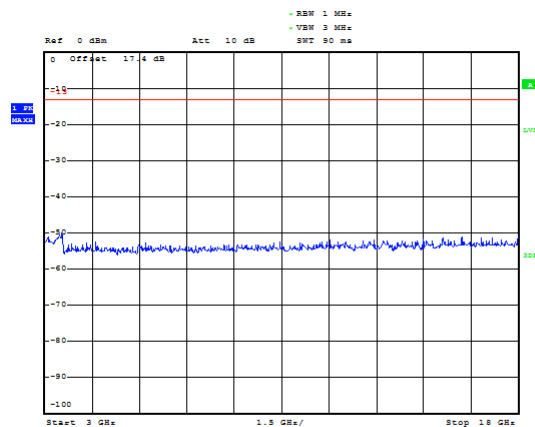
LTE Band 4 5MHz CH-Middle 1GHz~3GHz



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

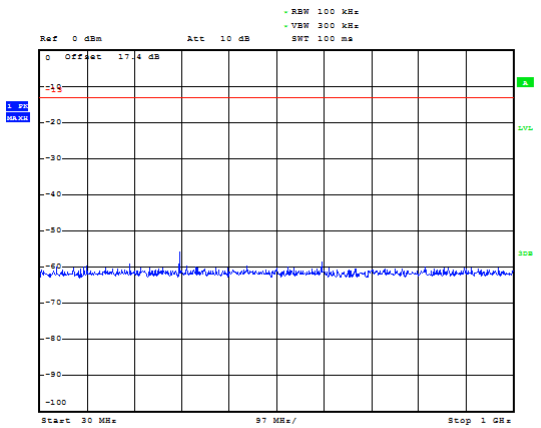


LTE Band 4 5MHz CH-Middle 3GHz~18GHz

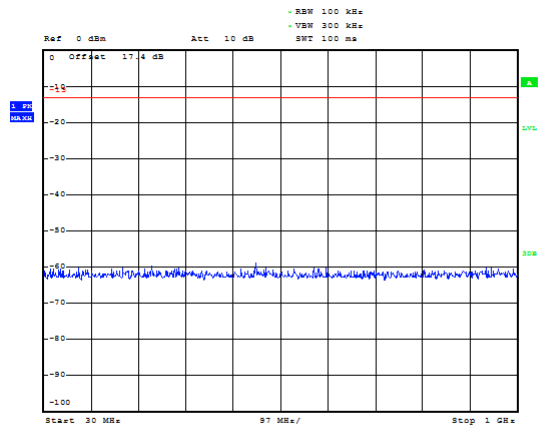




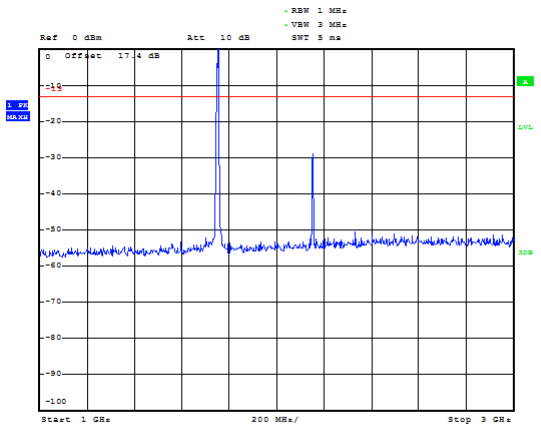
LTE Band 4 5MHz CH-High 30MHz~1GHz



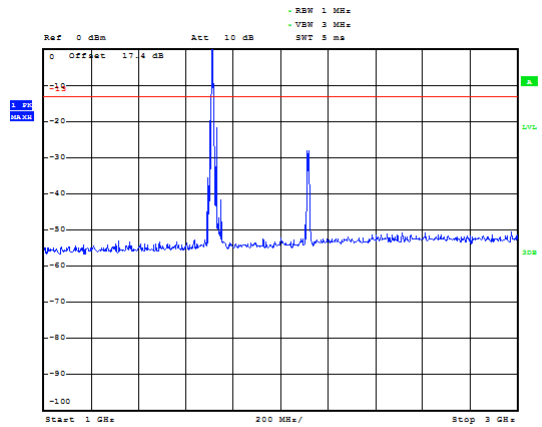
LTE Band 4 10MHz CH-Low 30MHz~1GHz



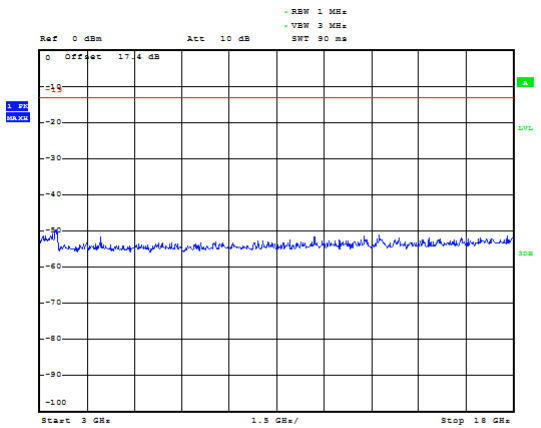
LTE Band 4 5MHz CH-High 1GHz~3GHz



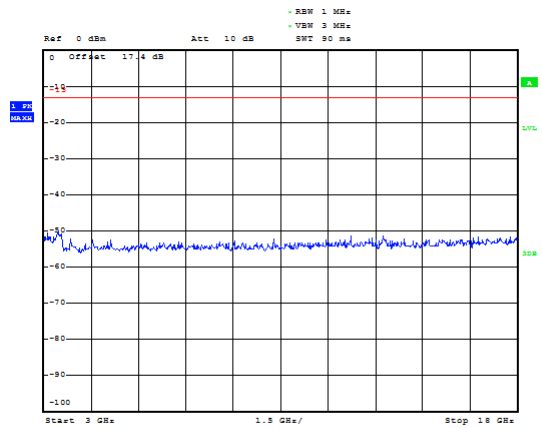
LTE Band 4 10MHz CH-Low 1GHz~3GHz



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

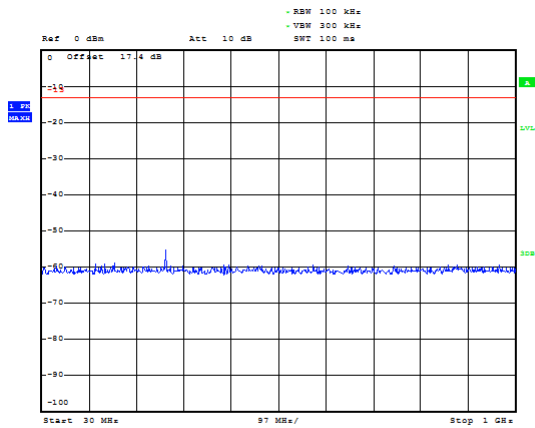


LTE Band 4 10MHz CH-Low 3GHz~18GHz

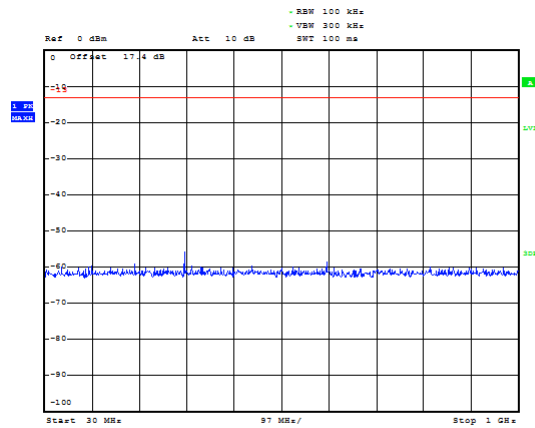




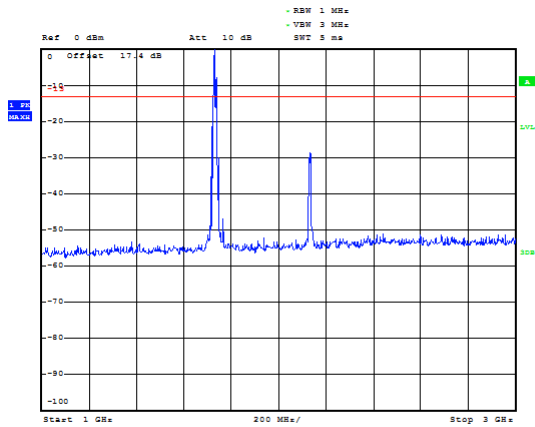
LTE Band 4 10MHz CH-Middle 30MHz~1GHz



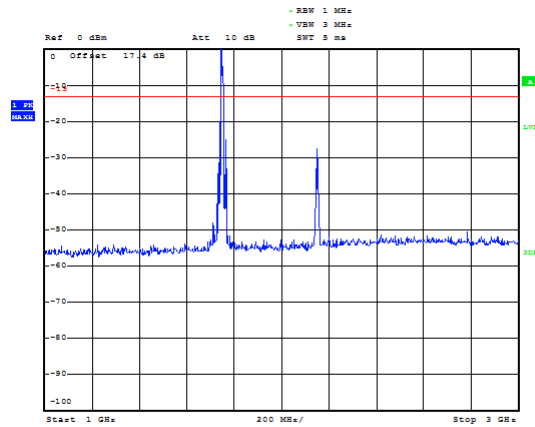
LTE Band 4 10MHz CH-High 30MHz~1GHz



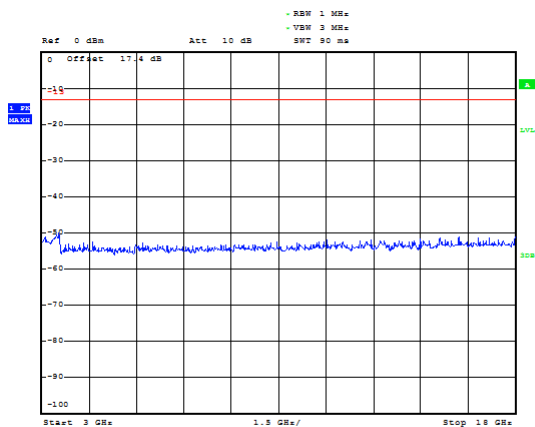
LTE Band 4 10MHz CH-Middle 1GHz~3GHz



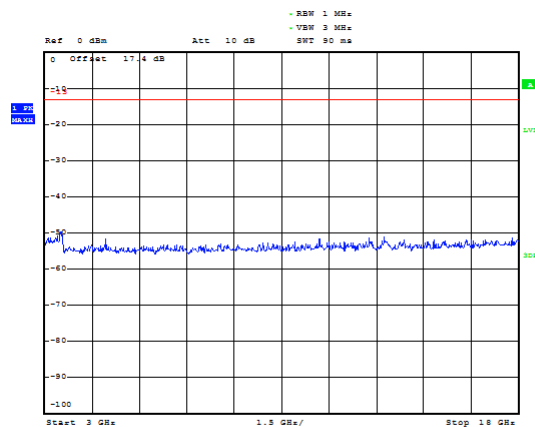
LTE Band 4 10MHz CH-High 1GHz~3GHz



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

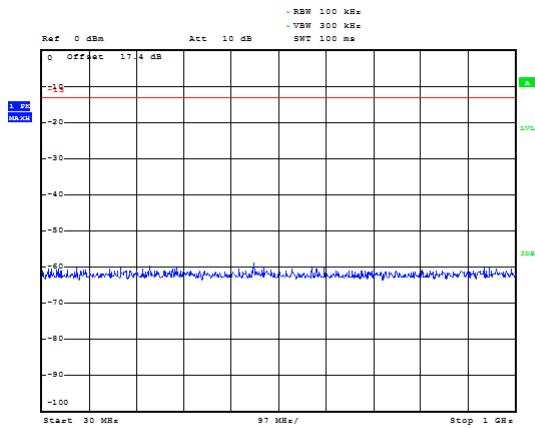


LTE Band 4 10MHz CH-High 3GHz~18GHz

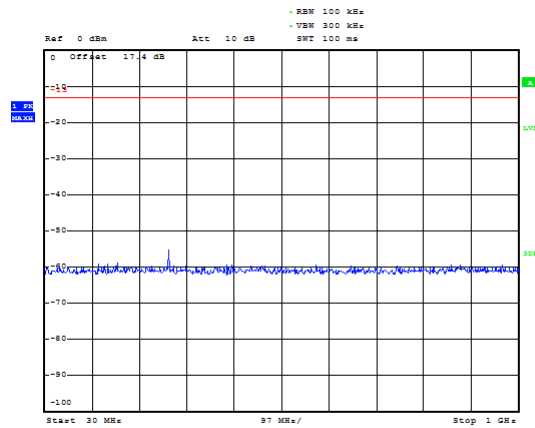




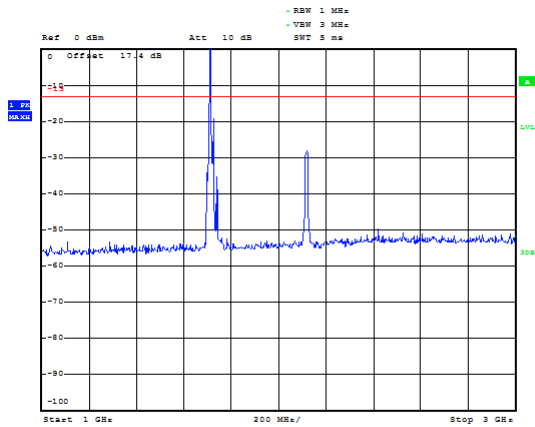
LTE Band 4 15MHz CH-Low 30MHz~1GHz



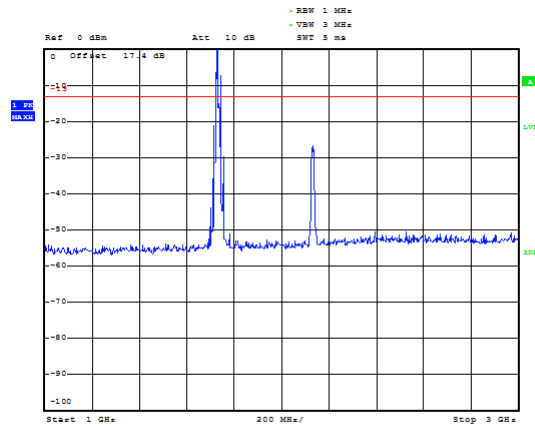
LTE Band 4 15MHz CH-Middle 30MHz~1GHz



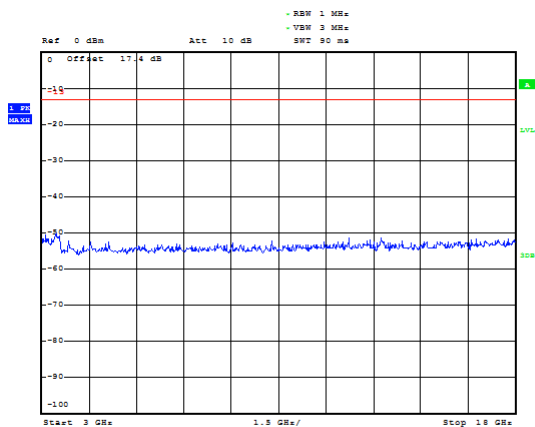
LTE Band 4 15MHz CH-Low 1GHz~3GHz



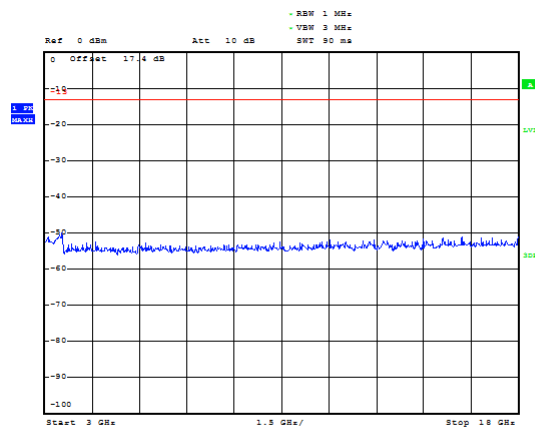
LTE Band 4 15MHz CH-Middle 1GHz~3GHz



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

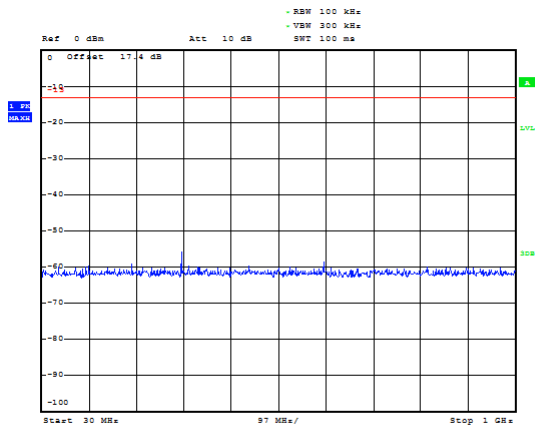


LTE Band 4 15MHz CH-Middle 3GHz~18GHz

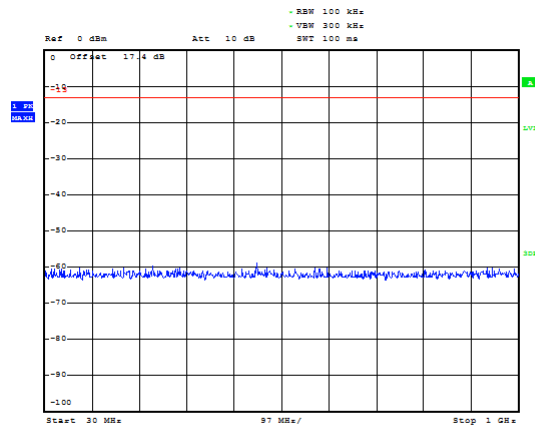




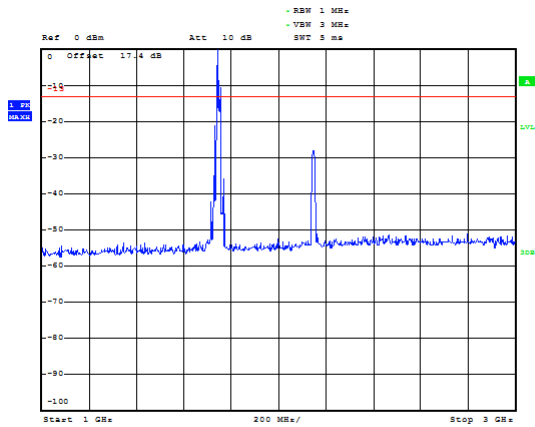
LTE Band 4 15MHz CH-High 30MHz~1GHz



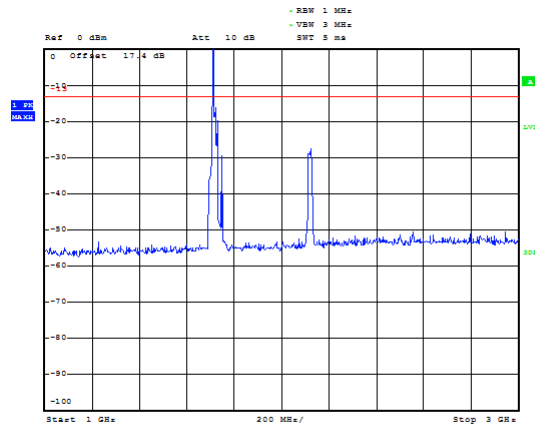
LTE Band 4 20MHz CH-Low 30MHz~1GHz



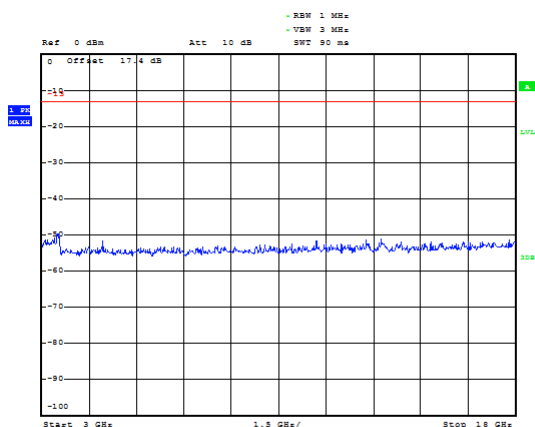
LTE Band 4 15MHz CH-High 1GHz~3GHz



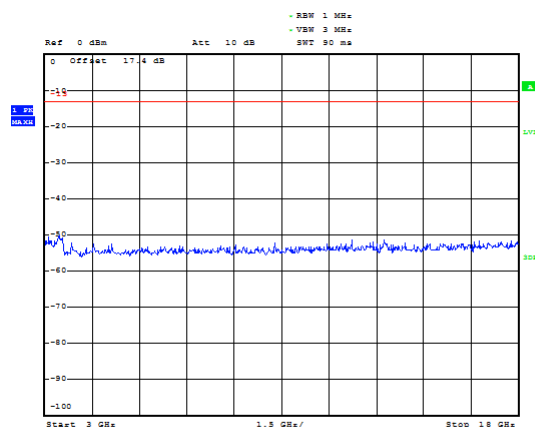
LTE Band 4 20MHz CH-Low 1GHz~3GHz



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

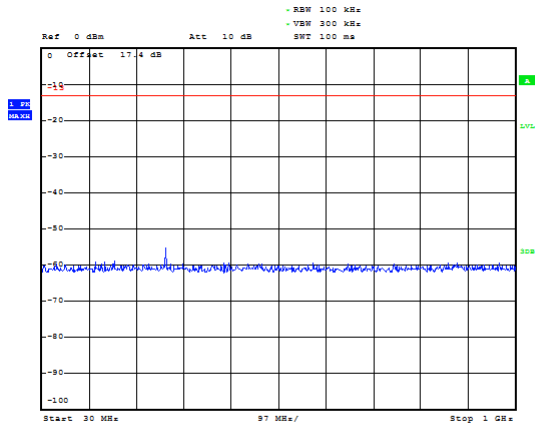


LTE Band 4 20MHz CH-Low 3GHz~18GHz

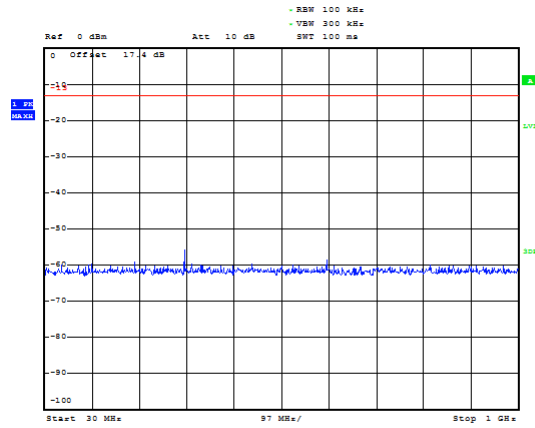




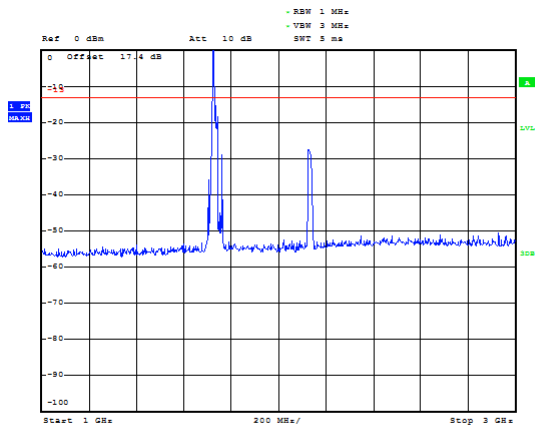
LTE Band 4 20MHz CH- Middle 30MHz~1GHz



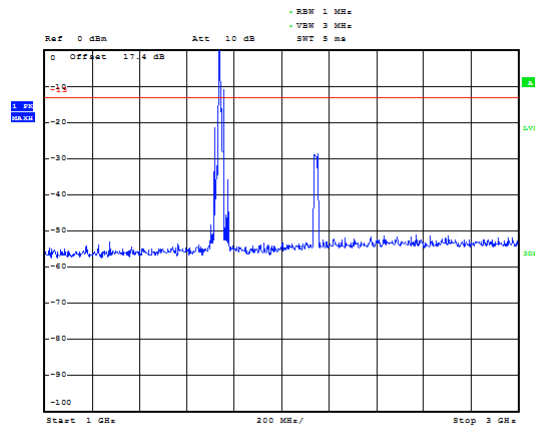
LTE Band 4 20MHz CH- High 30MHz~1GHz



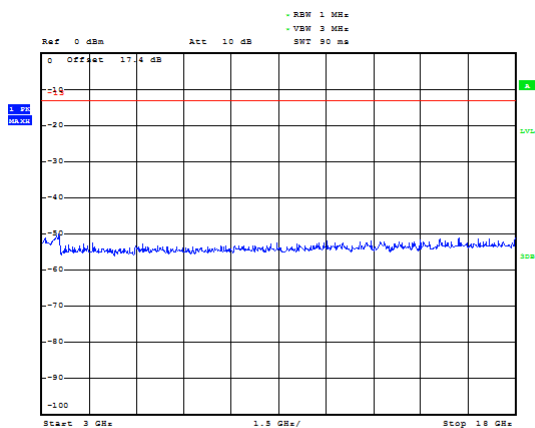
LTE Band 4 20MHz CH- Middle 1GHz~3GHz



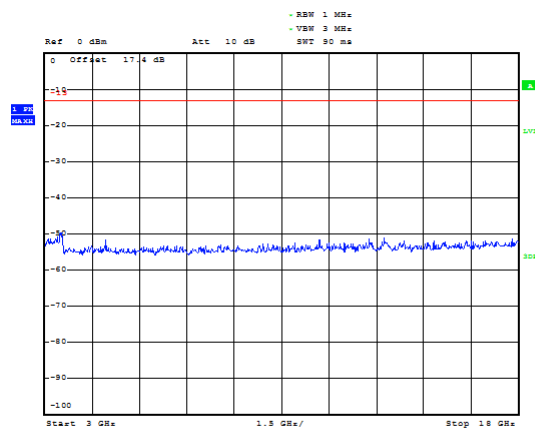
LTE Band 4 20MHz CH- High 1GHz~3GHz



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

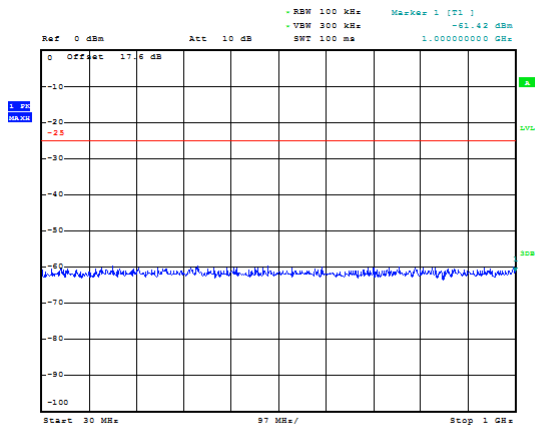


LTE Band 4 20MHz CH- High 3GHz~18GHz

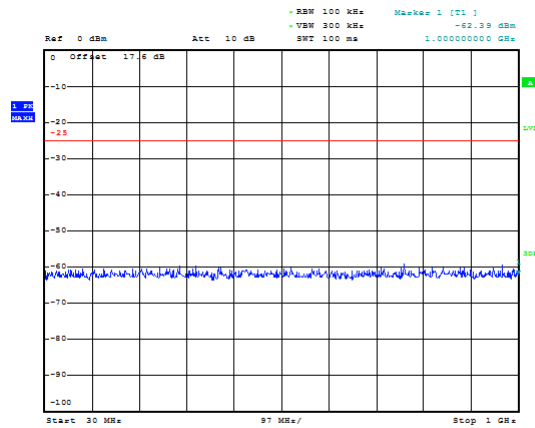




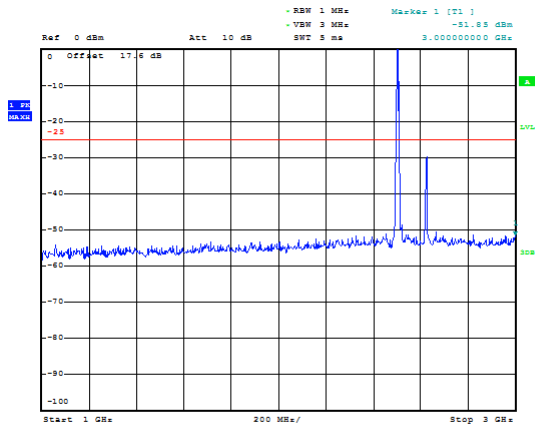
LTE Band 7 5MHz CH-Low 30MHz~1GHz



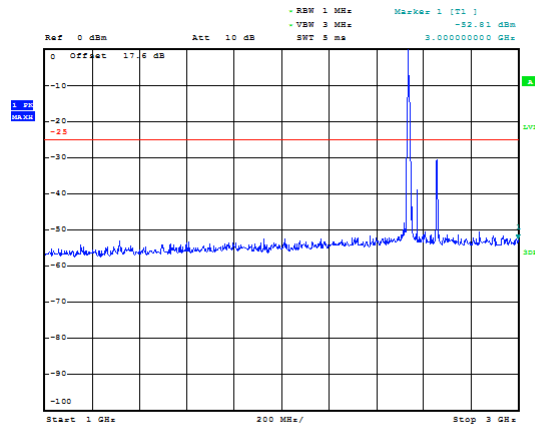
LTE Band 7 5MHz CH-Middle 30MHz~1GHz



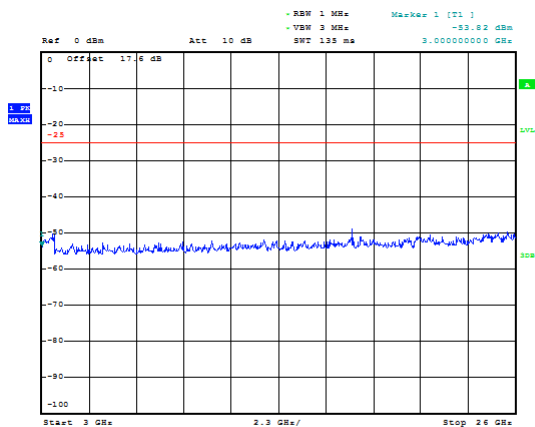
LTE Band 7 5MHz CH-Low 1GHz~3GHz



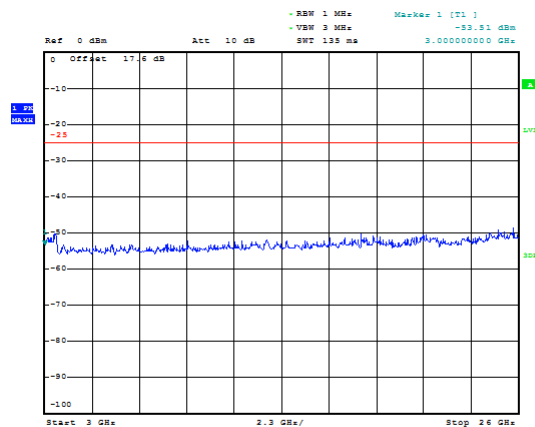
LTE Band 7 5MHz CH-Middle 1GHz~3GHz



LTE Band 7 5MHz CH-Low 3GHz~26GHz

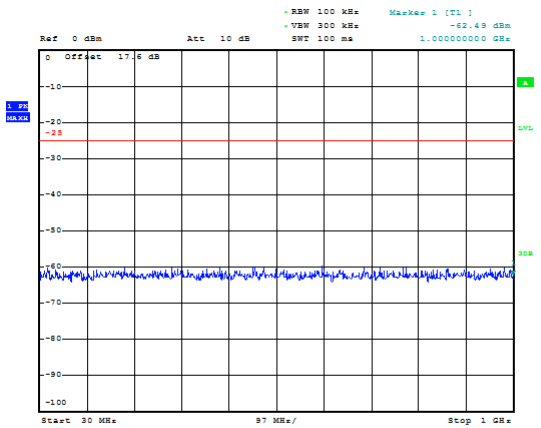


LTE Band 7 5MHz CH-Middle 3GHz~26GHz

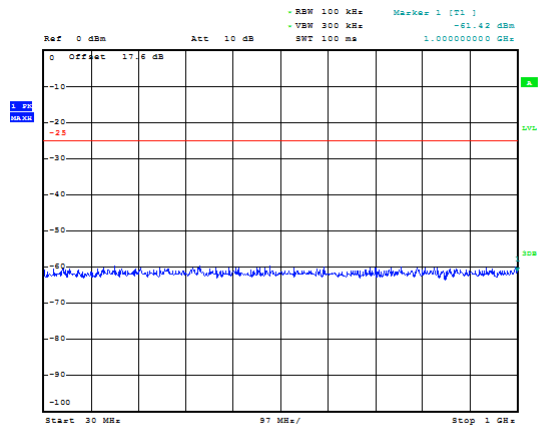




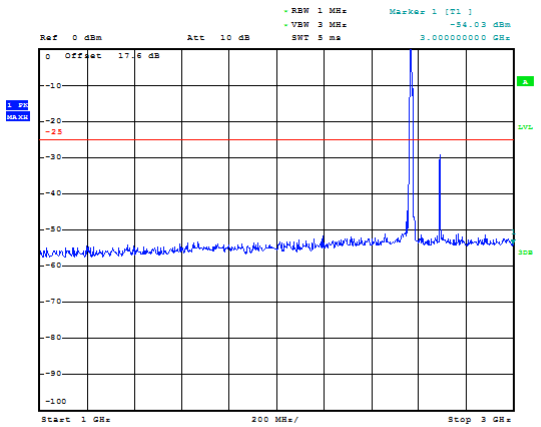
LTE Band 7 5MHz CH-High 30MHz~1GHz



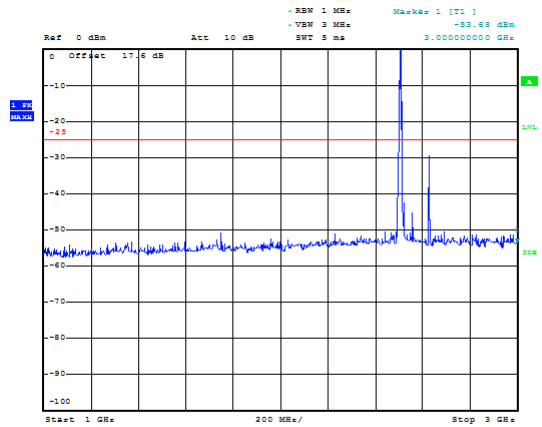
LTE Band 7 10MHz CH-Low 30MHz~1GHz



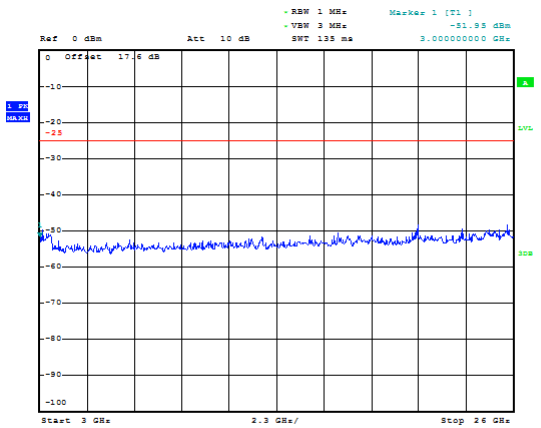
LTE Band 7 5MHz CH-High 1GHz~3GHz



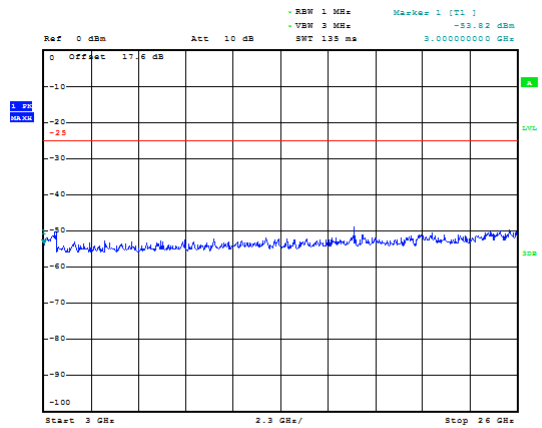
LTE Band 7 10MHz CH-Low 1GHz~3GHz



LTE Band 7 5MHz CH-High 3GHz~26GHz

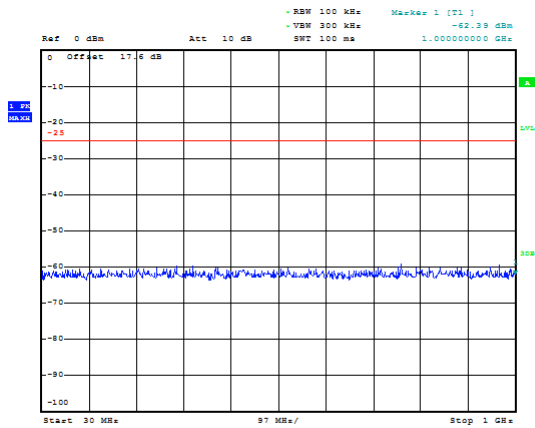


LTE Band 7 10MHz CH-Low 3GHz~26GHz

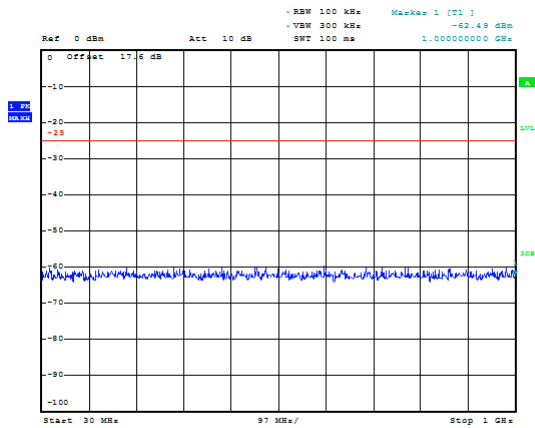




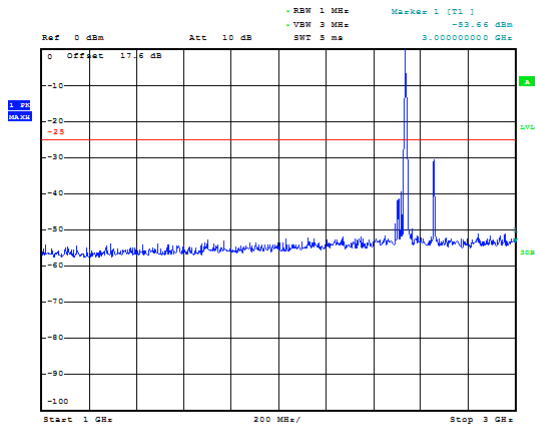
LTE Band 7 10MHz CH-Middle 30MHz~1GHz



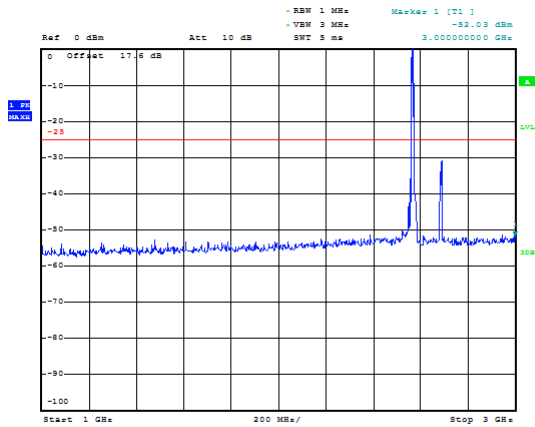
LTE Band 7 10MHz CH-High 30MHz~1GHz



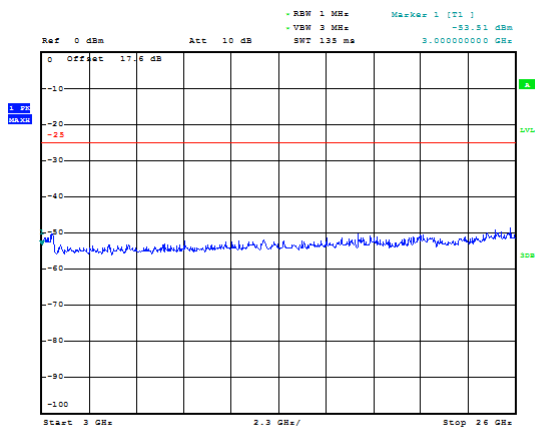
LTE Band 7 10MHz CH-Middle 1GHz~3GHz



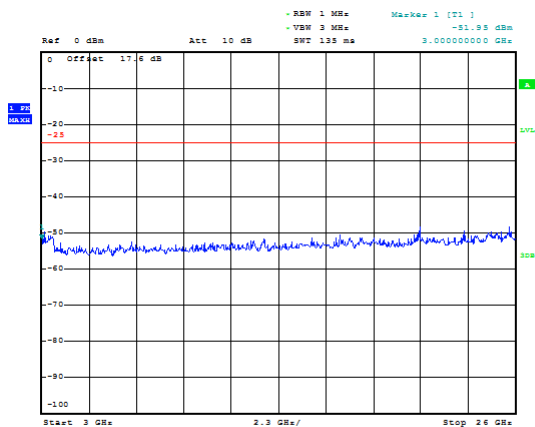
LTE Band 7 10MHz CH-High 1GHz~3GHz



LTE Band 7 10MHz CH-Middle 3GHz~26GHz

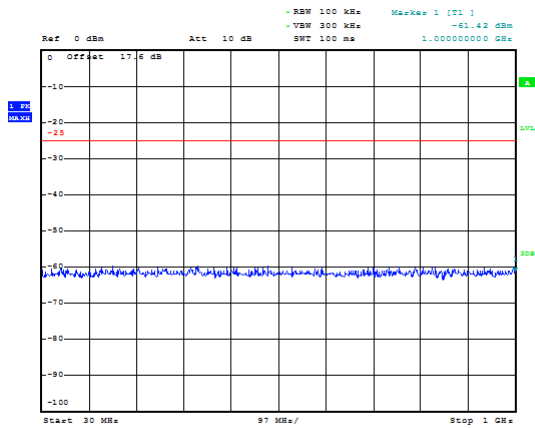


LTE Band 7 10MHz CH-High 3GHz~26GHz

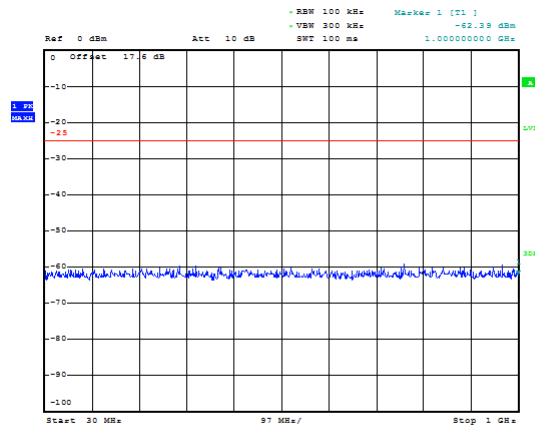




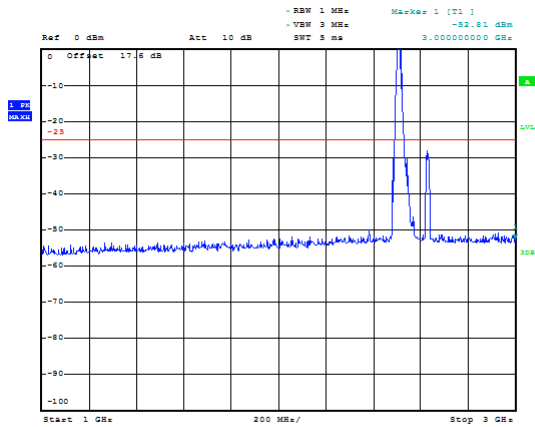
LTE Band 7 15MHz CH-Low 30MHz~1GHz



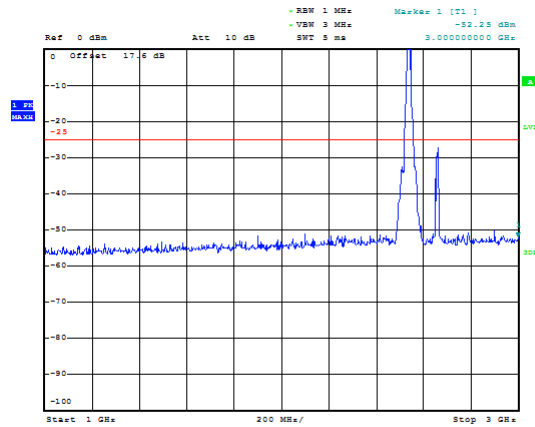
LTE Band 7 15MHz CH-Middle 30MHz~1GHz



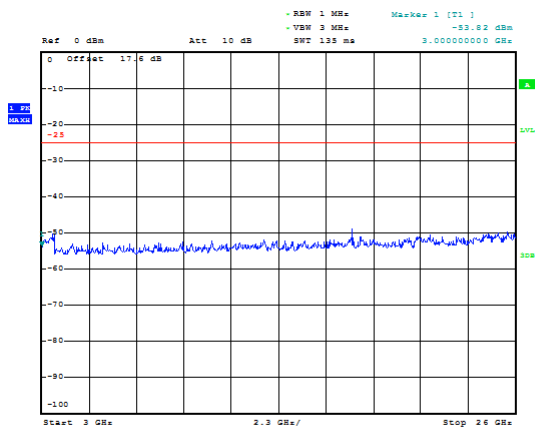
LTE Band 7 15MHz CH-Low 1GHz~3GHz



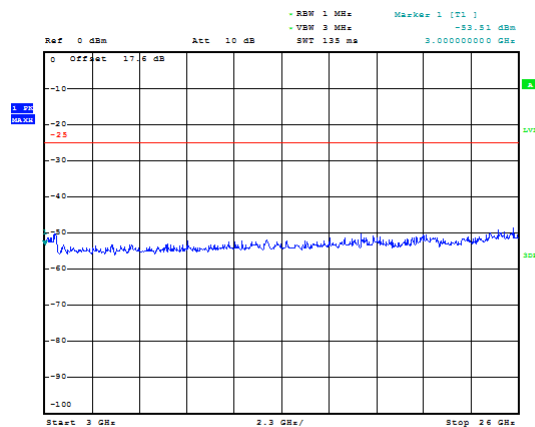
LTE Band 7 15MHz CH-Middle 1GHz~3GHz



LTE Band 7 15MHz CH-Low 3GHz~26GHz

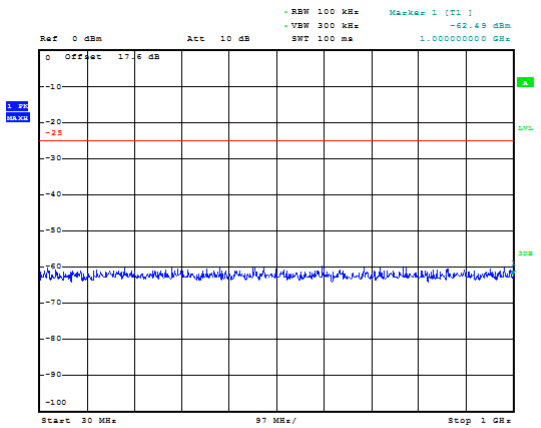


LTE Band 7 15MHz CH-Middle 3GHz~26GHz

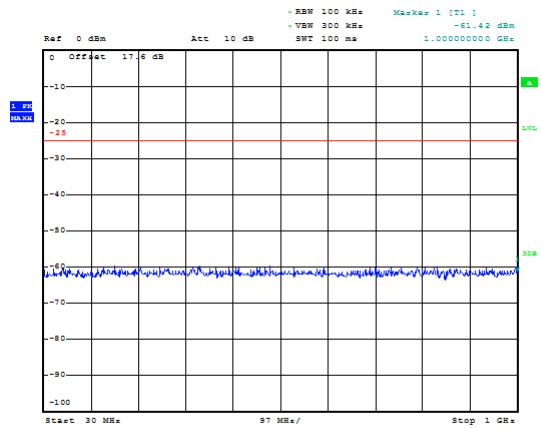




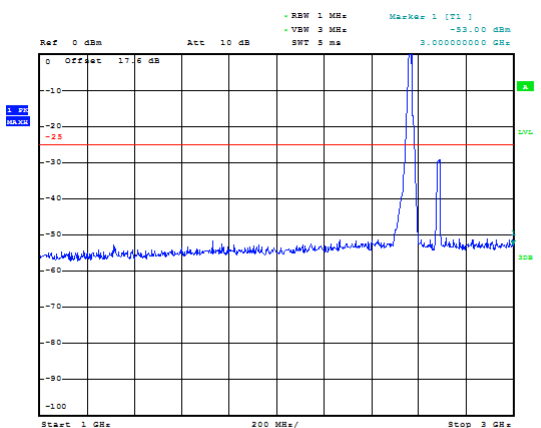
LTE Band 7 15MHz CH-High 30MHz~1GHz



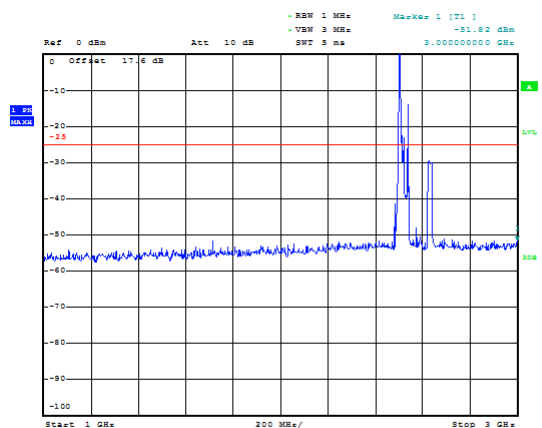
LTE Band 7 20MHz CH-Low 30MHz~1GHz



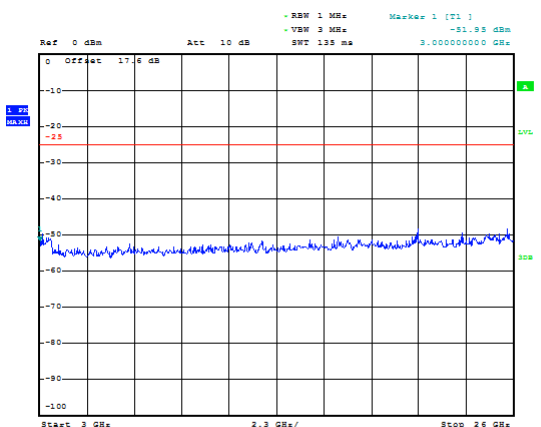
LTE Band 7 15MHz CH-High 1GHz~3GHz



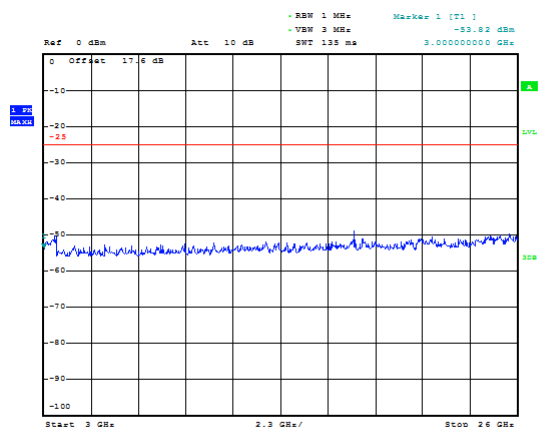
LTE Band 7 20MHz CH-Low 1GHz~3GHz



LTE Band 7 15MHz CH-High 3GHz~26GHz

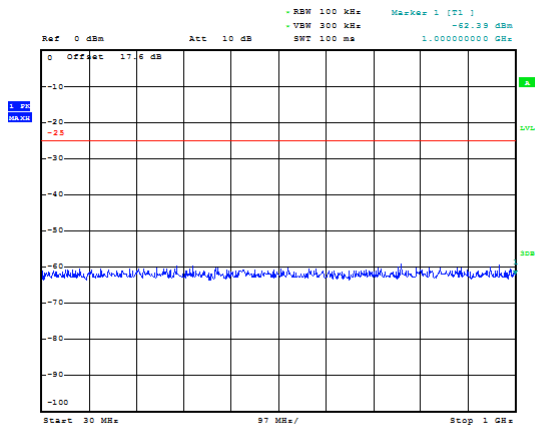


LTE Band 7 20MHz CH-Low 3GHz~26GHz

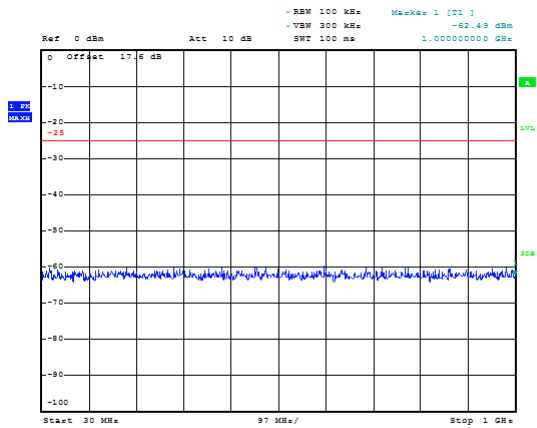




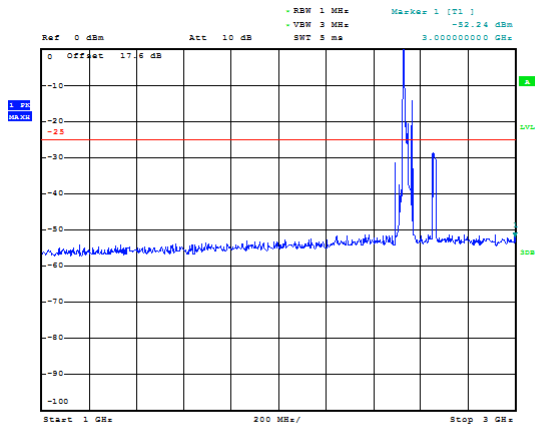
LTE Band 7 20MHz CH-Middle 30MHz~1GHz



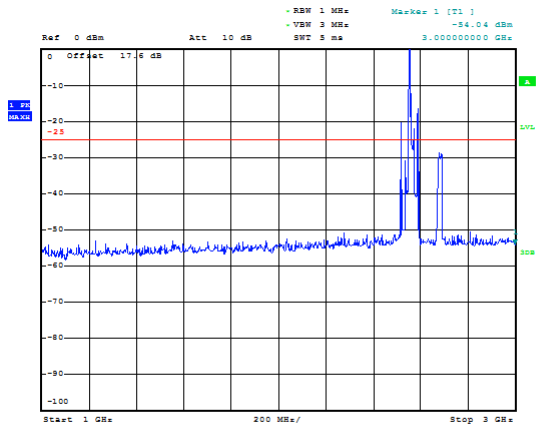
LTE Band 7 20MHz CH-High 30MHz~1GHz



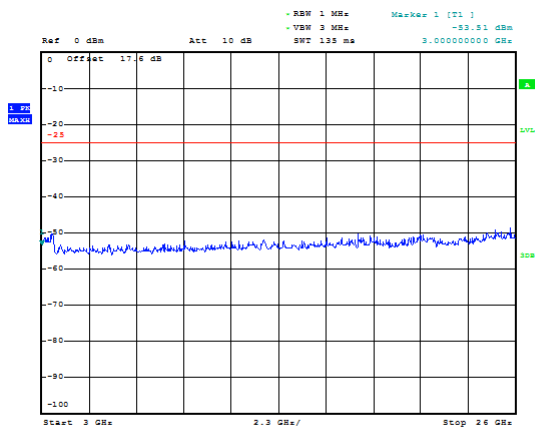
LTE Band 7 20MHz CH-Middle 1GHz~3GHz



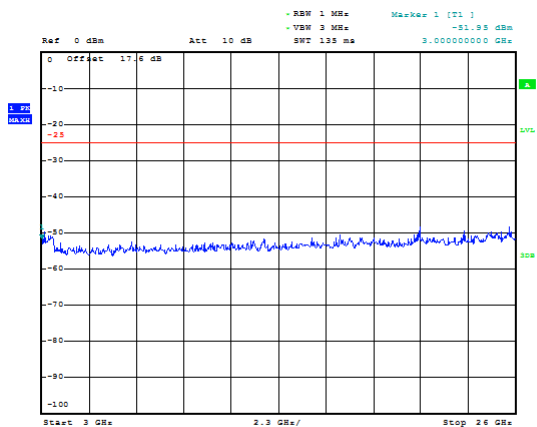
LTE Band 7 20MHz CH-High 1GHz~3GHz



LTE Band 7 20MHz CH-Middle 3GHz~26GHz



LTE Band 7 20MHz CH-High 3GHz~26GHz



5.7 Radiates Spurious Emission

Ambient condition

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

Method of Measurement

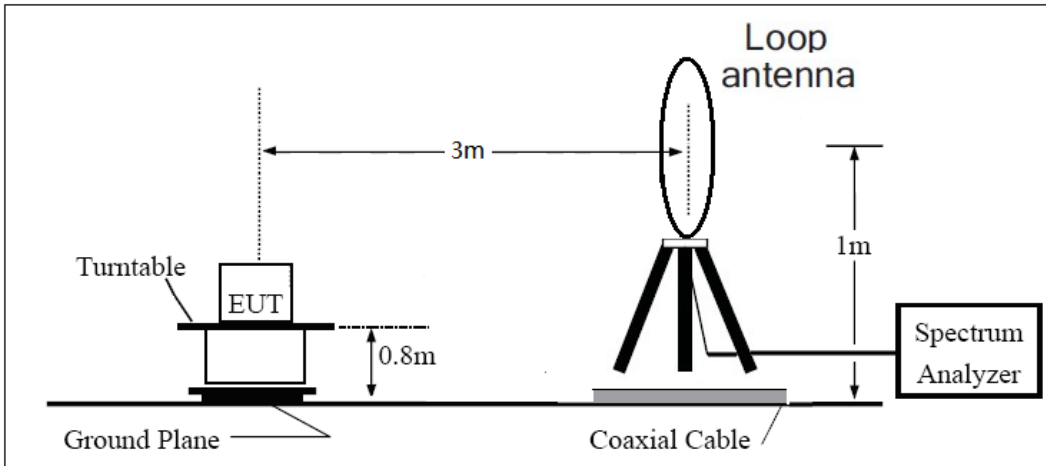
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100kHz, VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, and the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$

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

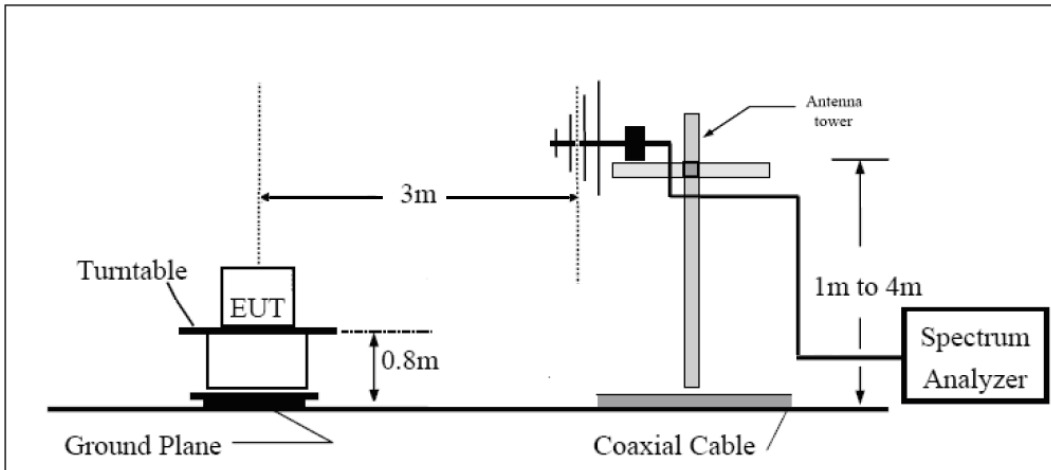
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

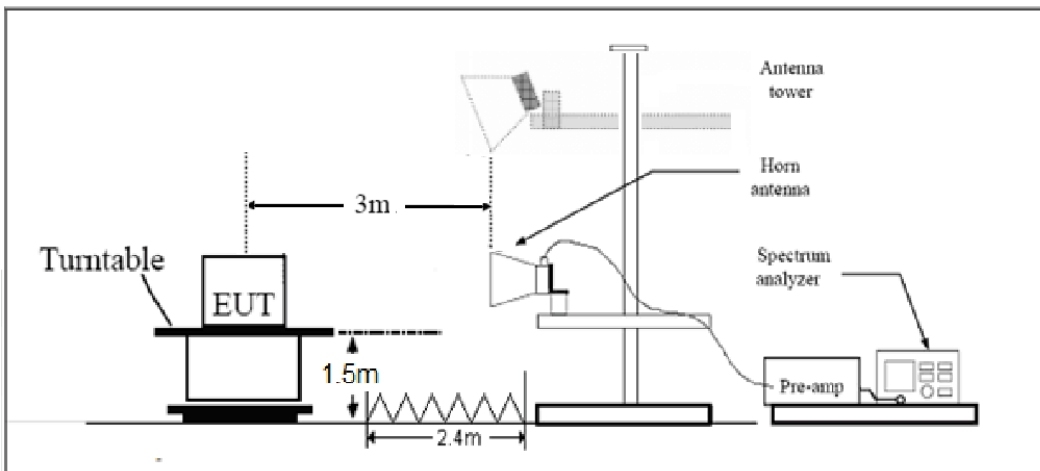
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m



Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.”

Rule Part 27.53(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.

Part 27.53(a)/(h)/(g) Limit	-13 dBm
Part 27.53(m) 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**

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE Band 4 QPSK 1.4MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3464.3	-52.35	2.6	10.75	Horizontal	-44.20	-13.00	31.20	315
3	5197.5	-53.56	2.4	11.05	Horizontal	-44.91	-13.00	31.91	270
4	6930.8	-57.19	4.5	11.15	Horizontal	-50.54	-13.00	37.54	225
5	8664.0	-54.13	5.1	11.35	Horizontal	-47.88	-13.00	34.88	180
6	10397.3	-49.24	5.3	11.95	Horizontal	-42.59	-13.00	29.59	90
7	12130.5	-51.16	5.5	13.55	Horizontal	-43.11	-13.00	30.11	315
8	13863.8	-49.99	6.3	13.75	Horizontal	-42.54	-13.00	29.54	0
9	15597.0	-49.17	6.7	13.85	Horizontal	-42.02	-13.00	29.02	135
10	17330.3	-47.66	6.8	14.25	Horizontal	-40.21	-13.00	27.21	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 Horizontal position.

LTE Band 4 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3460.5	-51.66	2.6	10.75	Horizontal	-43.51	-13.00	30.51	90
3	5191.5	-54.73	2.4	11.05	Horizontal	-46.08	-13.00	33.08	315
4	6922.5	-55.43	4.5	11.15	Horizontal	-48.78	-13.00	35.78	225
5	8653.5	-55.08	5.1	11.35	Horizontal	-48.83	-13.00	35.83	135
6	10384.5	-50.13	5.3	11.95	Horizontal	-43.48	-13.00	30.48	45
7	12115.5	-51.14	5.5	13.55	Horizontal	-43.09	-13.00	30.09	90
8	13846.5	-50.84	6.3	13.75	Horizontal	-43.39	-13.00	30.39	315
9	15577.5	-49.63	6.7	13.85	Horizontal	-42.48	-13.00	29.48	180
10	17308.5	-47.87	6.8	14.25	Horizontal	-40.42	-13.00	27.42	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 Horizontal position.



LTE Band 4 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3447.0	-55.23	2.6	10.75	Horizontal	-47.08	-13.00	34.08	270
3	5170.9	-56.27	2.4	11.05	Horizontal	-47.62	-13.00	34.62	180
4	6894.8	-59.94	4.5	11.15	Horizontal	-53.29	-13.00	40.29	315
5	8618.6	-54.97	5.1	11.35	Horizontal	-48.72	-13.00	35.72	180
6	10342.5	-50.57	5.3	11.95	Horizontal	-43.92	-13.00	30.92	135
7	12066.4	-51.66	5.5	13.55	Horizontal	-43.61	-13.00	30.61	90
8	13790.3	-49.74	6.3	13.75	Horizontal	-42.29	-13.00	29.29	45
9	15514.1	-49.23	6.7	13.85	Horizontal	-42.08	-13.00	29.08	270
10	17238.0	-47.06	6.8	14.25	Horizontal	-39.61	-13.00	26.61	0

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

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

LTE Band 7 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5065.8	-49.83	2.00	9.15	Horizontal	-42.68	-25.00	17.68	135
3	7598.6	-53.30	2.50	11.35	Horizontal	-44.45	-25.00	19.45	180
4	10130.6	-47.91	4.20	12.05	Horizontal	-40.06	-25.00	15.06	270
5	12675.0	-48.71	5.20	12.85	Horizontal	-41.06	-25.00	16.06	225
6	15210.0	-51.38	5.50	14.23	Horizontal	-42.65	-25.00	17.65	315
7	17745.0	-49.32	5.70	14.15	Horizontal	-40.87	-25.00	15.87	0
8	20280.0	--	--	--	--	--	--	--	--
9	22815.0	--	--	--	--	--	--	--	--
10	25350.0	--	--	--	--	--	--	--	--

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

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



LTE Band 7 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5052.4	-50.86	2.00	10.15	Horizontal	-42.71	-25.00	17.71	135
3	7578.0	-54.16	2.50	11.35	Horizontal	-45.31	-25.00	20.31	270
4	10103.6	-47.81	4.20	12.05	Horizontal	-39.96	-25.00	14.96	90
5	12629.3	-51.36	5.20	14.85	Horizontal	-41.71	-25.00	16.71	45
6	15154.9	-50.41	5.50	13.23	Horizontal	-42.68	-25.00	17.68	180
7	17680.5	-46.44	5.70	12.15	Horizontal	-39.99	-25.00	14.99	45
8	20206.1	--	--	--	--	--	--	--	--
9	22731.8	--	--	--	--	--	--	--	--
10	25257.4	--	--	--	--	--	--	--	--

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

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



6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2017-05-21	2018-05-20
Base Station Simulator	R&S	CMW500	113824	2018-05-20	2019-05-19
Base Station Simulator	R&S	CMW500	113824	2019-05-19	2020-05-18
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2017-05-21	2018-05-20
Spectrum Analyzer	Key sight	N9010A	MY50210259	2018-05-20	2019-05-19
Spectrum Analyzer	Key sight	N9010A	MY50210259	2019-05-19	2020-05-18
Signal Analyzer	R&S	FSV30	100815	2017-12-17	2018-12-16
Signal Analyzer	R&S	FSV30	100815	2018-12-16	2019-12-15
Signal Analyzer	R&S	FSV30	100815	2019-12-15	2020-12-14
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2017-09-26	2020-09-25
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	100126	2016-07-08	2018-07-07
Horn Antenna	R&S	HF907	100126	2018-07-07	2020-07-06
Horn Antenna	ETS-Lindgren	3160-09	00102643	2016-06-21	2018-06-20
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2020-06-19
Signal generator	R&S	SMB 100A	102594	2017-05-21	2018-05-20
Signal generator	R&S	SMB 100A	102594	2018-05-20	2019-05-19
Signal generator	R&S	SMB 100A	102594	2019-05-19	2020-05-18
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preamplifier	R&S	SCU18	102327	2017-05-21	2018-05-20
Preamplifier	R&S	SCU18	102327	2018-05-20	2019-05-19
Preamplifier	R&S	SCU18	102327	2019-05-19	2020-05-18



MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2017-05-21	2018-05-20
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2018-05-20	2019-05-19
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2019-05-19	2020-05-18
RF Cable	Agilent	SMA 15cm	0001	2017-12-17	2018-06-16
RF Cable	Agilent	SMA 15cm	0001	2018-06-16	2018-12-15
RF Cable	Agilent	SMA 15cm	0001	2018-12-15	2019-06-14
RF Cable	Agilent	SMA 15cm	0001	2019-06-14	2019-12-13
RF Cable	Agilent	SMA 15cm	0001	2019-12-13	2020-06-12
Software	R&S	EMC32	9.26.0	/	/

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



ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.



ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.



ANNEX C: Product Change Description

The Product Change Description are submitted separately.



ANNEX D: Verify data

The Verify data are submitted separately.