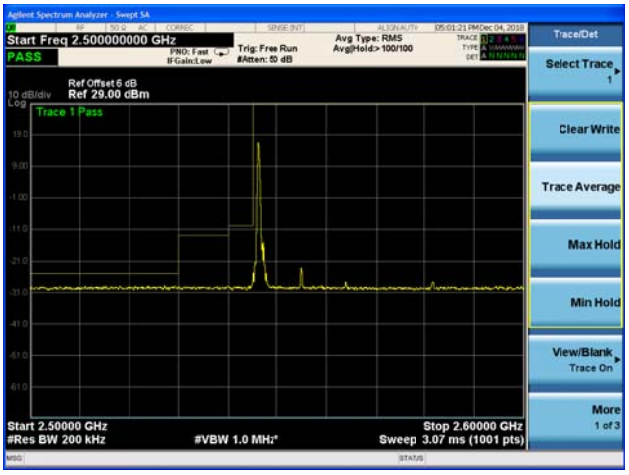
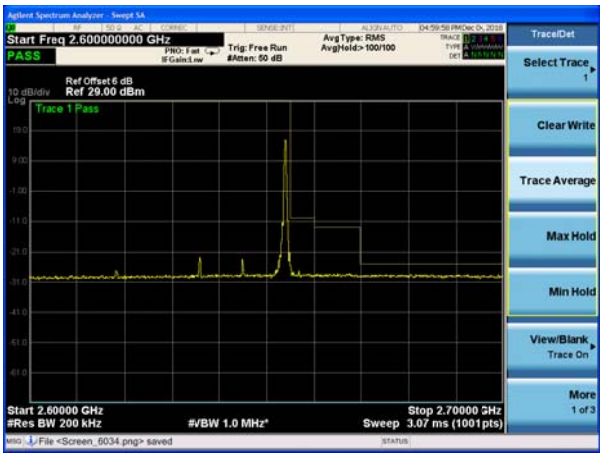
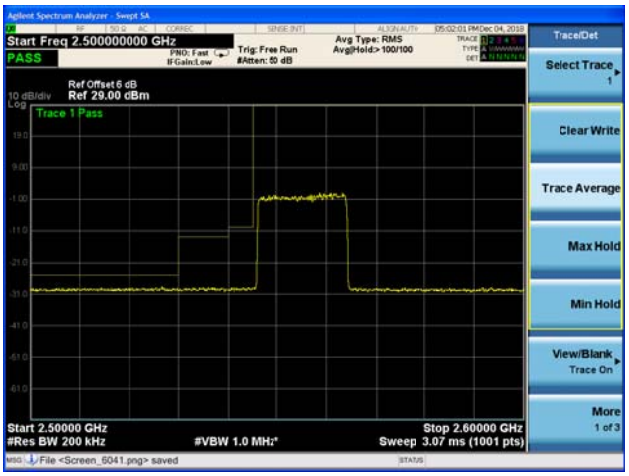
LTE Band 41 QPSK 20MHz CH-Low, 1 RB



LTE Band 41 QPSK 20MHz CH-High, 1 RB

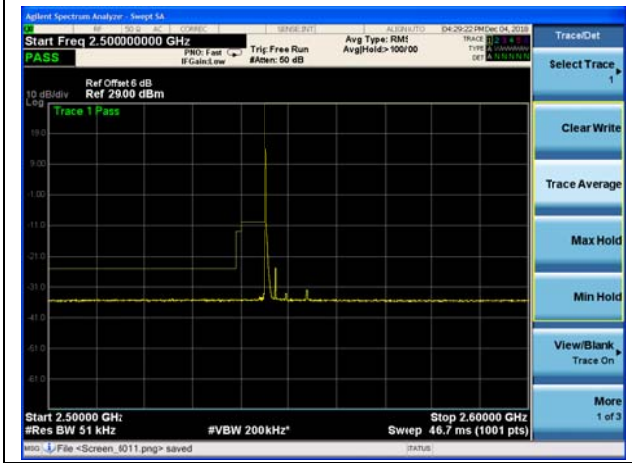


LTE Band 41 QPSK 20MHz CH-Low, 100%RB

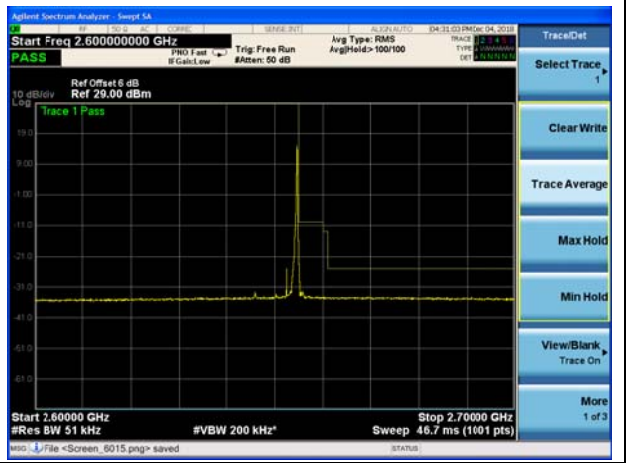


LTE Band 41 QPSK 20MHz CH-High, 100%RB

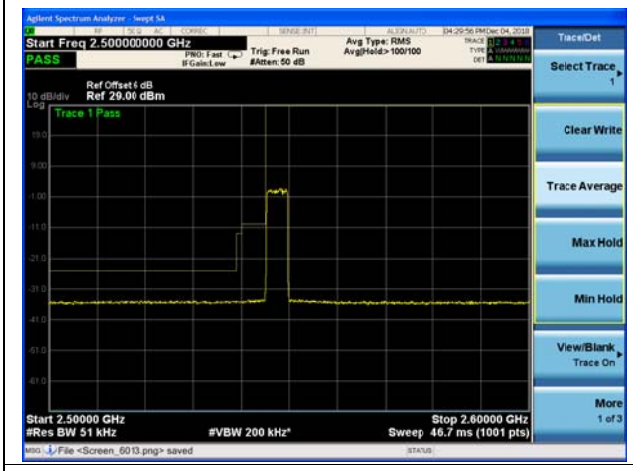
LTE Band 41 16QAM 5MHz CH-Low, 1 RB



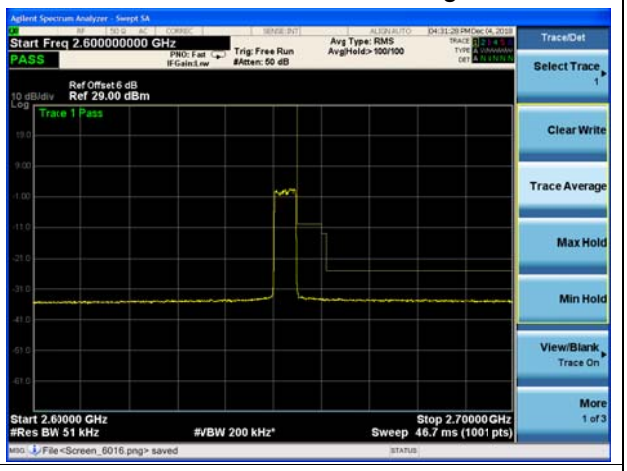
LTE Band 41 16QAM 5MHz CH-High, 1 RB



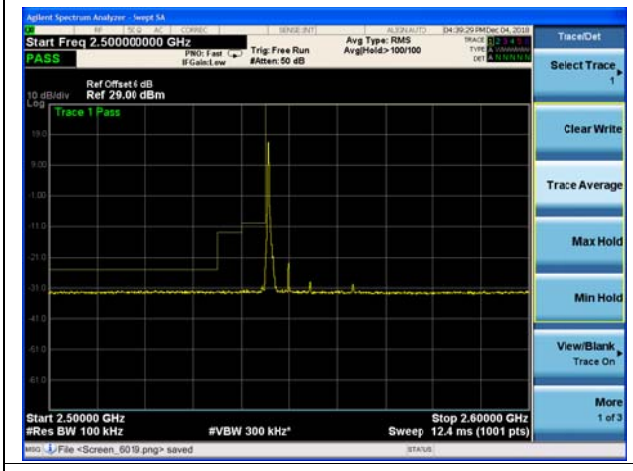
LTE Band 41 16QAM 5MHz CH-Low, 100%RB



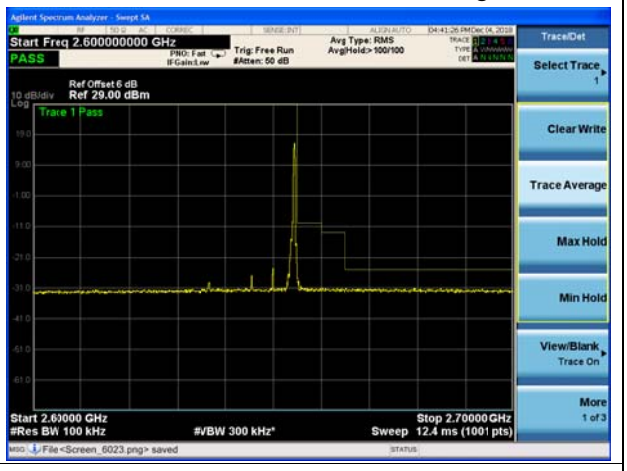
LTE Band 41 16QAM 5MHz CH-High, 100%RB



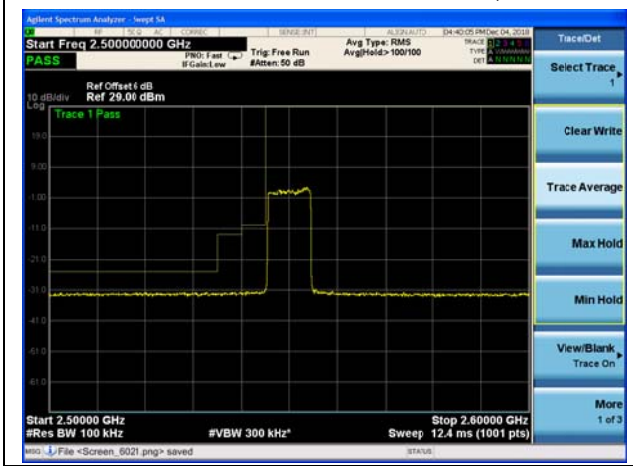
LTE Band 41 16QAM 10MHz CH-Low, 1 RB



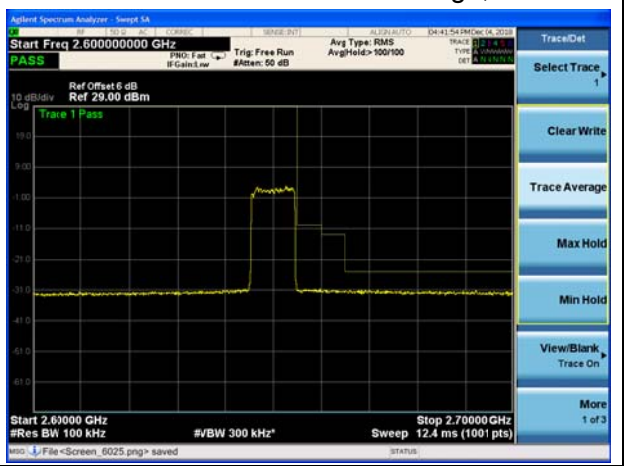
LTE Band 41 16QAM 10MHz CH-High, 1 RB



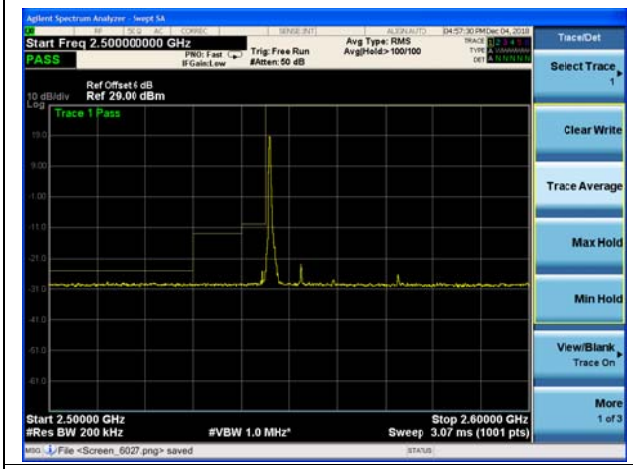
LTE Band 41 16QAM 10MHz CH-Low, 100%RB



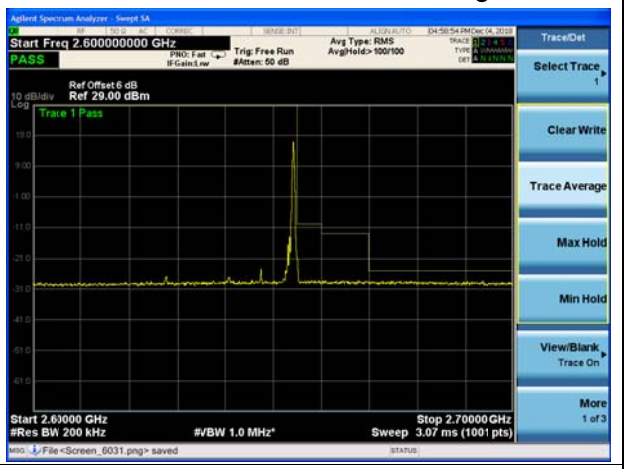
LTE Band 41 16QAM 10MHz CH-High, 100%RB



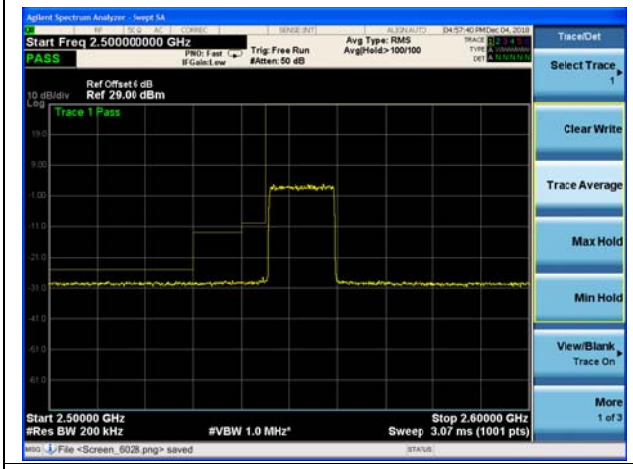
LTE Band 41 16QAM 15MHz CH-Low, 1 RB



LTE Band 41 16QAM 15MHz CH-High, 1 RB

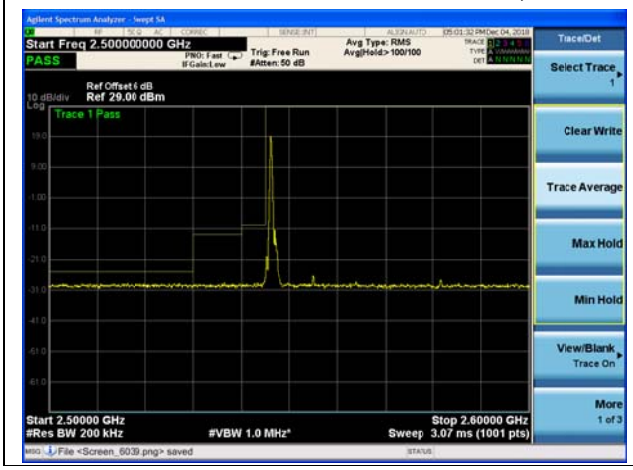


LTE Band 41 16QAM 15MHz CH-Low, 100%RB

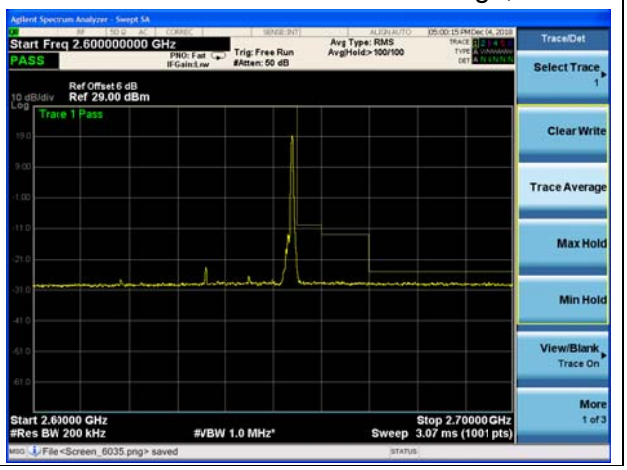


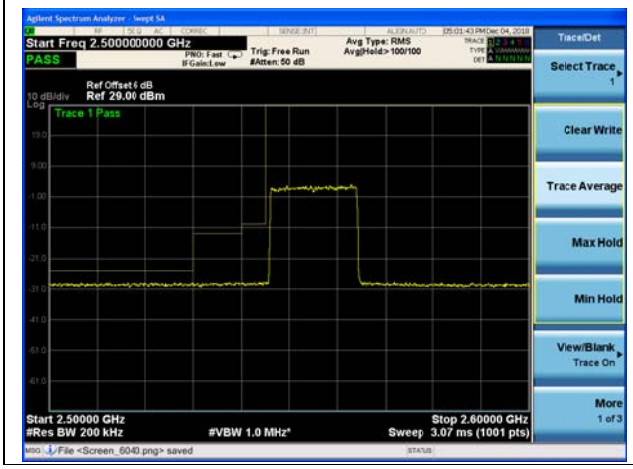
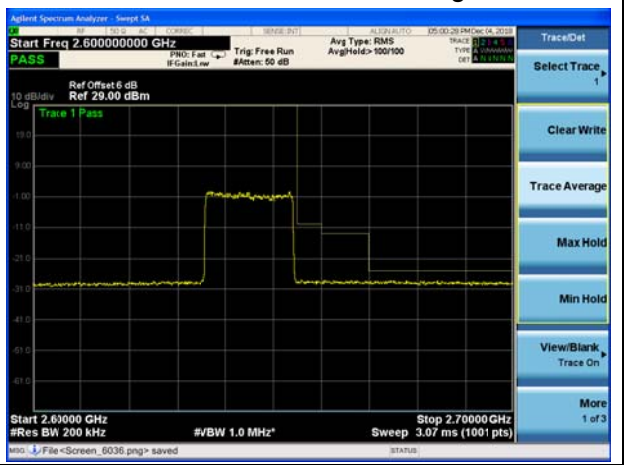
LTE Band 41 16QAM 15MHz CH-High, 100%RB

LTE Band 41 16QAM 20MHz CH-Low, RB 1



LTE Band 41 16QAM 20MHz CH-High, RB 1



LTE Band 41 16QAM 20MHz CH-Low, 100%RB	LTE Band 41 16QAM 20MHz CH-High, 100%RB
	

5.5 Peak-to-Average Power Ratio (PAPR)

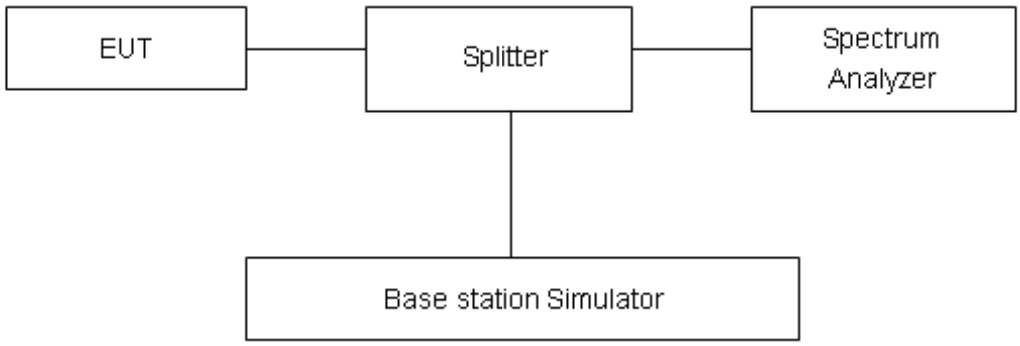
Ambient condition

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 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)	Limit (dB)	Conclusion
RMC	1312	1712.4	23.78	20.71	3.07	≤13	PASS
	1413	1732.6	23.64	20.65	2.99	≤13	PASS
	1513	1752.6	23.69	20.74	2.95	≤13	PASS

LTE Band 4								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	19957	1710.7	23.97	18.12	5.85	≤13	PASS
		20175	1732.5	22.04	16.83	5.21	≤13	PASS
		20393	1754.3	20.31	14.72	5.59	≤13	PASS
	3	19965	1711.5	24.03	18.08	5.95	≤13	PASS
		20175	1732.5	22.07	16.76	5.31	≤13	PASS
		20385	1753.5	20.33	14.78	5.55	≤13	PASS
	5	19975	1712.5	24.05	18.03	6.02	≤13	PASS
		20175	1732.5	22.15	16.77	5.38	≤13	PASS
		20375	1752.5	20.65	14.97	5.68	≤13	PASS
	10	20000	1715	23.89	17.91	5.98	≤13	PASS
		20175	1732.5	22.13	16.72	5.41	≤13	PASS
		20350	1750	20.91	15.27	5.64	≤13	PASS
	15	20025	1717.5	23.80	17.83	5.97	≤13	PASS
		20175	1732.5	23.42	17.44	5.98	≤13	PASS
		20325	1747.5	22.65	17.40	5.25	≤13	PASS
	20	20050	1720	23.55	17.61	5.94	≤13	PASS
		20175	1732.5	22.05	16.67	5.38	≤13	PASS
		20300	1745	21.33	15.75	5.58	≤13	PASS
16QAM	1.4	19957	1710.7	24.91	18.20	6.71	≤13	PASS
		20175	1732.5	22.60	16.73	5.87	≤13	PASS
		20393	1754.3	21.10	14.80	6.30	≤13	PASS
	3	19965	1711.5	24.85	18.13	6.72	≤13	PASS
		20175	1732.5	22.75	16.74	6.01	≤13	PASS
		20385	1753.5	21.17	14.79	6.38	≤13	PASS
	5	19975	1712.5	24.81	18.12	6.69	≤13	PASS
		20175	1732.5	22.69	16.75	5.94	≤13	PASS
		20375	1752.5	21.31	15.00	6.31	≤13	PASS
	10	20000	1715	24.64	17.97	6.67	≤13	PASS
		20175	1732.5	22.73	16.70	6.03	≤13	PASS
		20350	1750	21.64	15.31	6.33	≤13	PASS

	15	20025	1717.5	23.84	17.84	6.00	≤13	PASS
		20175	1732.5	23.60	17.46	6.14	≤13	PASS
		20325	1747.5	22.69	17.30	5.39	≤13	PASS
	20	20050	1720	24.24	17.61	6.63	≤13	PASS
		20175	1732.5	22.75	16.65	6.10	≤13	PASS
		20300	1745	21.97	15.76	6.21	≤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	19.11	14.12	4.99	≤13	PASS
		21100	2535	18.61	13.80	4.81	≤13	PASS
		21425	2567.5	14.68	9.93	4.75	≤13	PASS
	10	20800	2505	19.56	14.36	5.20	≤13	PASS
		21100	2535	18.67	13.81	4.86	≤13	PASS
		21400	2565	15.23	10.32	4.91	≤13	PASS
	15	20825	2507.5	17.93	13.58	4.35	≤13	PASS
		21100	2535	18.26	13.94	4.32	≤13	PASS
		21375	2562.5	19.01	13.88	5.13	≤13	PASS
	20	20850	2510	20.04	14.57	5.47	≤13	PASS
		21100	2535	18.65	13.15	5.50	≤13	PASS
		21350	2560	16.37	11.13	5.24	≤13	PASS
16QAM	5	20775	2502.5	20.41	14.17	6.24	≤13	PASS
		21100	2535	19.92	13.80	6.12	≤13	PASS
		21425	2567.5	16.07	9.97	6.10	≤13	PASS
	10	20800	2505	20.80	14.41	6.39	≤13	PASS
		21100	2535	20.00	13.83	6.17	≤13	PASS
		21400	2565	16.56	10.36	6.20	≤13	PASS
	15	20825	2507.5	19.61	13.46	6.15	≤13	PASS
		21100	2535	19.63	13.62	6.01	≤13	PASS
		21375	2562.5	20.39	13.91	6.48	≤13	PASS
	20	20850	2510	21.13	14.61	6.52	≤13	PASS
		21100	2535	19.01	12.81	6.20	≤13	PASS
		21350	2560	17.52	11.15	6.37	≤13	PASS

LTE Band 38								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	37775	2572.5	16.56	7.10	9.46	≤13	PASS
		38000	2595	14.82	5.28	9.54	≤13	PASS
		38225	2617.5	14.31	4.94	9.37	≤13	PASS
	10	37800	2575	16.37	6.84	9.53	≤13	PASS
		38000	2595	14.91	5.41	9.50	≤13	PASS
		38200	2615	14.39	5.04	9.35	≤13	PASS
	15	37825	2577.5	21.06	11.27	9.79	≤13	PASS
		38000	2595	21.52	11.17	10.35	≤13	PASS
		38175	2612.5	21.53	11.19	10.34	≤13	PASS
	20	37850	2580	16.01	6.61	9.40	≤13	PASS
		38000	2595	14.97	5.22	9.75	≤13	PASS
		38150	2610	26.28	16.77	9.51	≤13	PASS
16QAM	5	37775	2572.5	17.12	7.13	9.99	≤13	PASS
		38000	2595	15.52	5.24	10.28	≤13	PASS
		38225	2617.5	15.16	5.26	9.90	≤13	PASS
	10	37800	2575	17.02	6.84	10.18	≤13	PASS
		38000	2595	15.59	5.50	10.09	≤13	PASS
		38200	2615	15.24	5.41	9.83	≤13	PASS
	15	37825	2577.5	21.44	11.37	10.07	≤13	PASS
		38000	2595	21.74	11.54	10.20	≤13	PASS
		38175	2612.5	21.73	11.32	10.41	≤13	PASS
	20	37850	2580	16.80	6.79	10.01	≤13	PASS
		38000	2595	15.70	5.40	10.30	≤13	PASS
		38150	2610	26.95	16.56	10.39	≤13	PASS

LTE Band 41								
Modulation	Bandwidth ((MHz))	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	40265	2557.5	23.15	13.72	9.43	≤13	PASS
		40740	2605	23.64	13.83	9.81	≤13	PASS
		41215	2652.5	23.75	13.81	9.94	≤13	PASS
	10	40290	2560	23.69	13.97	9.72	≤13	PASS
		40740	2605	23.50	14.15	9.35	≤13	PASS
		41190	2650	23.36	13.98	9.38	≤13	PASS
	15	40315	2562.5	23.86	14.00	9.86	≤13	PASS
		40740	2605	24.34	14.15	10.19	≤13	PASS
		41165	2647.5	23.87	14.45	9.42	≤13	PASS
	20	40340	2565	24.03	14.11	9.92	≤13	PASS
		40740	2605	23.58	14.20	9.38	≤13	PASS
		41140	2645	24.05	14.06	9.99	≤13	PASS
16QAM	5	40265	2557.5	23.75	14.07	9.68	≤13	PASS
		40740	2605	24.00	13.82	10.18	≤13	PASS
		41215	2652.5	24.09	14.11	9.98	≤13	PASS
	10	40290	2560	24.25	14.34	9.91	≤13	PASS
		40740	2605	24.09	14.39	9.70	≤13	PASS
		41190	2650	24.07	14.36	9.71	≤13	PASS
	15	40315	2562.5	24.45	14.05	10.40	≤13	PASS
		40740	2605	24.52	14.21	10.31	≤13	PASS
		41165	2647.5	24.30	14.23	10.07	≤13	PASS
	20	40340	2565	24.36	14.16	10.20	≤13	PASS
		40740	2605	24.12	14.34	9.78	≤13	PASS
		41140	2645	24.51	14.64	9.87	≤13	PASS

5.6 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 -30°C to +55°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 +55°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

Frequency Stability (Voltage Variation)

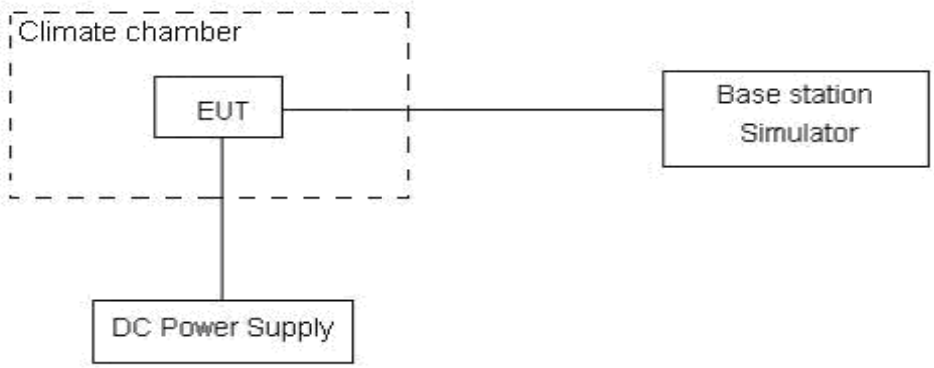
The frequency stability shall be measured with variation of primary supply voltage as follows:

(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 3.6 V and 4.4V, with a nominal voltage of 3.82V.

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=0.01ppm.

Test Result

WCDMA Band IV					
Condition		1710	1755	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	1710.0279	1754.9113	8.17	0.00435
Extreme（55°C）		1710.0272	1754.9122	1.10	0.00059
Extreme（50°C）		1710.0269	1754.9123	-3.06	-0.00163
Extreme（40°C）		1710.0284	1754.9108	2.60	0.00138
Extreme（30°C）		1710.0273	1754.9119	-0.92	-0.00049
Extreme（20°C）		1710.0271	1754.9122	-1.66	-0.00088
Extreme（10C）		1710.0286	1754.9106	1.09	0.00058
Extreme（0°C）		1710.0277	1754.9115	-1.04	-0.00055
Extreme（-10°C）		1710.0291	1754.9122	-1.12	-0.00060
Extreme（-20°C）		1710.0323	1754.9153	2.40	0.00128
Extreme（-30°C）		1710.0339	1754.9175	2.78	0.00148
25C	LV	1710.0316	1754.9147	1.65	0.00088
	HV	1710.0303	1754.9156	2.83	0.00151

LTE Band 4					
(QPSK, 20MHz BANDWIDTH)					
Condition		1710	1755	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	1710.6538	1754.4302	-3.67	-0.00212
Extreme（55°C）		1710.6515	1754.4285	-1.61	-0.00093
Extreme（50°C）		1710.6521	1754.4286	-2.64	-0.00152
Extreme（40°C）		1710.6534	1754.4299	3.05	0.00176
Extreme（30°C）		1710.6541	1754.4306	1.04	0.00060
Extreme（20°C）		1710.6523	1754.4285	-3.16	-0.00182
Extreme（10C）		1710.6532	1754.4297	-1.93	-0.00111
Extreme（0°C）		1710.6519	1754.4284	1.67	0.00096
Extreme（-10°C）		1710.6514	1754.4279	4.43	0.00256
Extreme（-20°C）		1710.6525	1754.4291	-2.79	-0.00161
Extreme（-30°C）		1710.6558	1754.4323	3.25	0.00188
25°C	LV	1710.6522	1754.4287	2.85	0.00165
	HV	1710.6528	1754.4293	4.36	0.00252
(16QAM, 20MHz BANDWIDTH)					
Condition		1710	1755	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	1710.6387	1754.5105	5.32	0.00307
Extreme（55°C）		1710.6403	1754.5128	-1.87	-0.00108

Extreme（50°C）		1710.6397	1754.5122	-5.99	-0.00346
Extreme（40°C）		1710.6384	1754.5109	-2.42	-0.00140
Extreme（30°C）		1710.6377	1754.5102	-5.04	-0.00291
Extreme（20°C）		1710.6398	1754.5123	3.79	0.00219
Extreme（10C）		1710.6386	1754.5111	2.15	0.00124
Extreme（0°C）		1710.6399	1754.5124	-0.38	-0.00022
Extreme（-10°C）		1710.6404	1754.5129	0.39	0.00023
Extreme（-20°C）		1710.6393	1754.5118	-2.99	-0.00173
Extreme（-30°C）		1710.6363	1754.5085	4.28	0.00247
25°C	LV	1710.6396	1754.5121	2.73	0.00158
	HV	1710.6391	1754.5115	3.54	0.00204

LTE Band 7					
(QPSK, 20MHz BANDWIDTH)					
Condition		2500	2570	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	2500.4379	2569.6783	3.12	0.00180
Extreme（55°C）		2500.4379	2569.6783	2.52	0.00145
Extreme（50°C）		2500.4379	2569.6783	-3.54	-0.00204
Extreme（40°C）		2500.4379	2569.6783	5.65	0.00326
Extreme（30°C）		2500.4379	2569.6783	2.87	0.00166
Extreme（20°C）		2500.4379	2569.6783	-1.45	-0.00084
Extreme（10C）		2500.4379	2569.6783	0.27	0.00016
Extreme（0°C）		2500.4379	2569.6783	2.56	0.00148
Extreme（-10°C）		2500.4379	2569.6783	2.76	0.00159
Extreme（-20°C）		2500.4379	2569.6783	4.74	0.00274
Extreme（-30°C）		2500.4379	2569.6783	1.46	0.00084
25°C	LV	2500.4379	2569.6783	1.35	0.00078
	HV	2500.4379	2569.6783	2.85	0.00165
(16QAM,20MHz BANDWIDTH)					
Condition		2500	2570	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	2500.3994	2569.6124	5.21	0.00301
Extreme（55°C）		2500.3994	2569.6124	2.21	0.00128
Extreme（50°C）		2500.3994	2569.6124	-2.13	-0.00123
Extreme（40°C）		2500.3994	2569.6124	-0.41	-0.00024
Extreme（30°C）		2500.3994	2569.6124	-3.44	-0.00199
Extreme（20°C）		2500.3994	2569.6124	9.56	0.00552
Extreme（10C）		2500.3994	2569.6124	-5.99	-0.00346
Extreme（0°C）		2500.3994	2569.6124	-1.54	-0.00089

Extreme（-10°C）		2500.3994	2569.6124	4.76	0.00275
Extreme（-20°C）		2500.3994	2569.6124	2.74	0.00158
Extreme（-30°C）		2500.3994	2569.6124	6.49	0.00375
25°C	LV	2500.3994	2569.6124	1.43	0.00083
	HV	2500.3994	2569.6124	2.52	0.00145

LTE Band 38					
(QPSK, 20MHz BANDWIDTH)					
Condition		2570	2620	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	2570.4146	2619.5955	3.75	0.00515
Extreme（55°C）		2570.4139	2619.5962	0.94	0.00129
Extreme（50°C）		2570.4136	2619.5965	-1.25	-0.00172
Extreme（40°C）		2570.4151	2619.5953	3.27	0.00449
Extreme（30°C）		2570.4142	2619.5961	4.38	0.00602
Extreme（20°C）		2570.4137	2619.5964	2.18	0.00299
Extreme（10C）		2570.4153	2619.5948	2.49	0.00342
Extreme（0°C）		2570.4144	2619.5957	-2.68	-0.00368
Extreme（-10°C）		2570.4139	2619.5962	3.79	0.00521
Extreme（-20°C）		2570.4145	2619.5956	4.17	0.00573
Extreme（-30°C）		2570.4145	2619.5964	3.28	0.00451
25°C	LV	2570.4156	2619.5951	4.06	0.00558
	HV	2570.4147	2619.5960	3.45	0.00474
(16QAM,20MHz BANDWIDTH)					
Condition		2570	2620	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	2570.4685	2619.5148	2.43	0.00334
Extreme（55°C）		2570.4692	2619.5141	2.43	0.00334
Extreme（50°C）		2570.4695	2619.5138	4.81	0.00661
Extreme（40°C）		2570.4682	2619.5153	-2.13	-0.00293
Extreme（30°C）		2570.4691	2619.5142	0.46	0.00063
Extreme（20°C）		2570.4694	2619.5139	2.16	0.00297
Extreme（10C）		2570.4678	2619.5155	2.43	0.00334
Extreme（0°C）		2570.4687	2619.5146	2.79	0.00383
Extreme（-10°C）		2570.4692	2619.5141	3.28	0.00451
Extreme（-20°C）		2570.4686	2619.5147	3.62	0.00497
Extreme（-30°C）		2570.4685	2619.5156	-1.57	-0.00216
25°C	LV	2570.4697	2619.5142	3.74	0.00514
	HV	2570.4681	2619.5158	2.49	0.00342

LTE Band 41					
(QPSK, 20MHz BANDWIDTH)					
Condition		2496	2690	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	2496.4246	2689.6772	1.91	0.00074
Extreme（55°C）		2496.4238	2689.6782	4.49	0.00173
Extreme（50°C）		2496.4245	2689.6773	3.67	0.00142
Extreme（40°C）		2496.4241	2689.6777	1.32	0.00051
Extreme（30°C）		2496.4244	2689.6774	0.60	0.00023
Extreme（20°C）		2496.4247	2689.6771	11.60	0.00447
Extreme（10C）		2496.4252	2689.6768	-6.07	-0.00234
Extreme（0°C）		2496.4243	2689.6775	9.98	0.00385
Extreme（-10°C）		2496.4243	2689.6775	1.87	0.00072
Extreme（-20°C）		2496.4245	2689.6773	4.96	0.00191
Extreme（-30°C）		2496.4249	2689.6785	1.39	0.00054
25°C	LV	2496.4255	2689.6779	11.67	0.00450
	HV	2496.4260	2689.6776	-6.00	-0.00231
(16QAM,20MHz BANDWIDTH)					
Condition		2496	2690	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	2496.4392	2689.6642	-2.66	-0.00103
Extreme（55°C）		2496.4384	2689.6648	-4.57	-0.00176
Extreme（50°C）		2496.4391	2689.6641	-2.11	-0.00081
Extreme（40°C）		2496.4387	2689.6645	-2.78	-0.00107
Extreme（30°C）		2496.4394	2689.6642	-1.34	-0.00052
Extreme（20°C）		2496.4393	2689.6639	3.70	0.00143
Extreme（10C）		2496.4396	2689.6636	-0.62	-0.00024
Extreme（0°C）		2496.4389	2689.6643	-1.18	-0.00046
Extreme（-10°C）		2496.4389	2689.6643	-2.14	-0.00083
Extreme（-20°C）		2496.4391	2689.6641	-1.25	-0.00048
Extreme（-30°C）		2496.4399	2689.6645	3.76	0.00145
25°C	LV	2496.4395	2689.6649	-1.12	-0.00043
	HV	2496.4395	2689.6649	-2.08	-0.00080

5.7 Spurious Emissions at Antenna Terminals

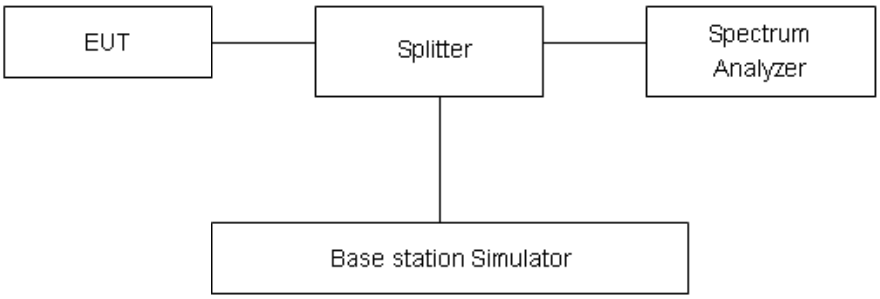
Ambient condition

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 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 log10 (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(h) 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.

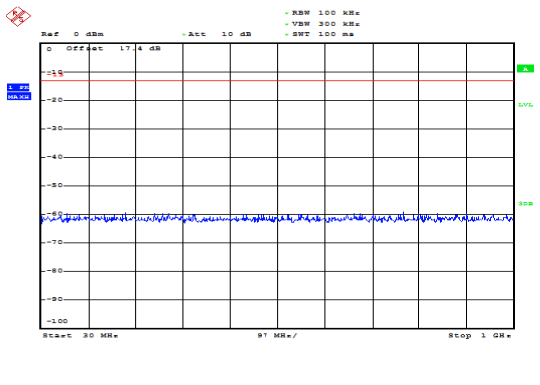
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

Test Result

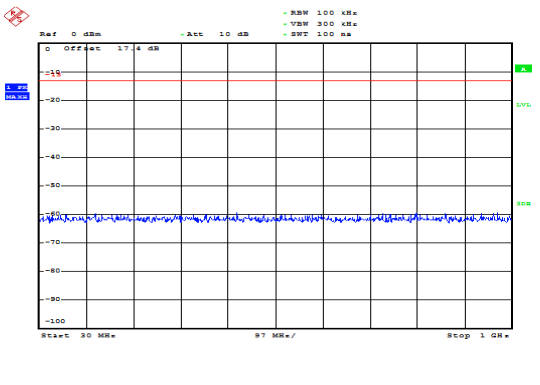
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

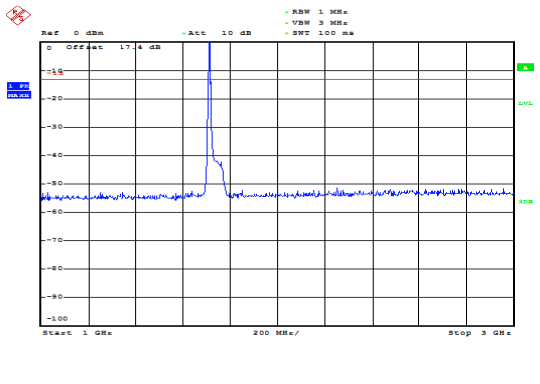
WCDMA Band IV CH-Low 30MHz~1GHz



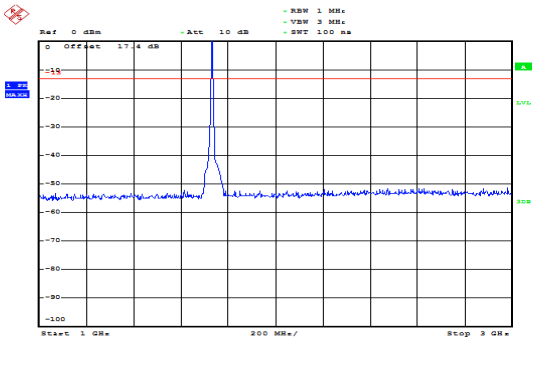
WCDMA Band IV CH-Middle 30MHz~1GHz



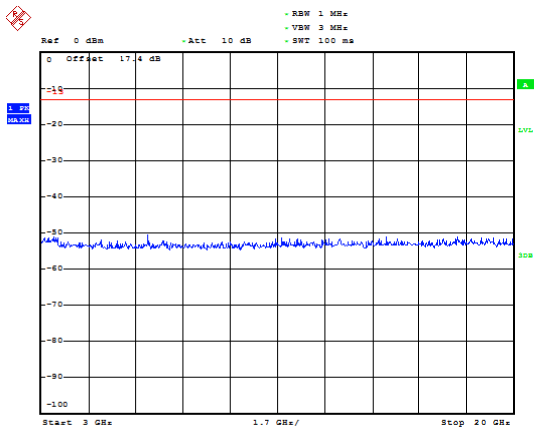
WCDMA Band IV CH-Low 1GHz~3GHz



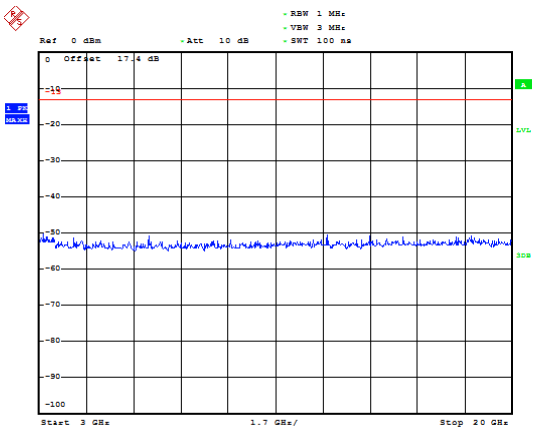
WCDMA Band IV CH-Middle 1GHz~3GHz



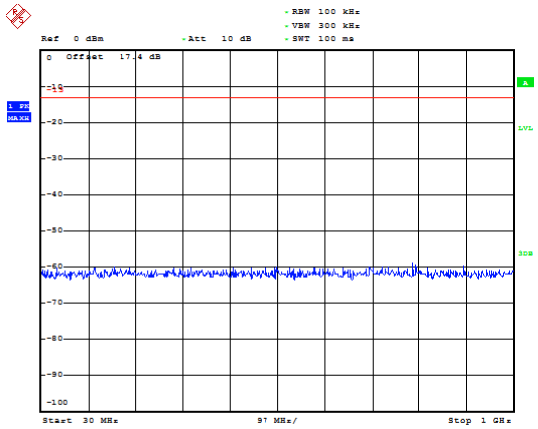
WCDMA Band IV CH-Low 3GHz~20GHz



WCDMA Band IV CH-Middle 3GHz~20GHz

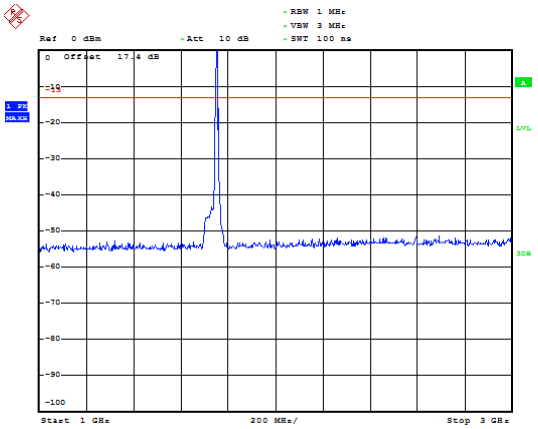


WCDMA Band IV CH-High 30MHz~1GHz



Date: 21.NOV.2018 15:11:47

WCDMA Band IV CH-High 1GHz~3GHz



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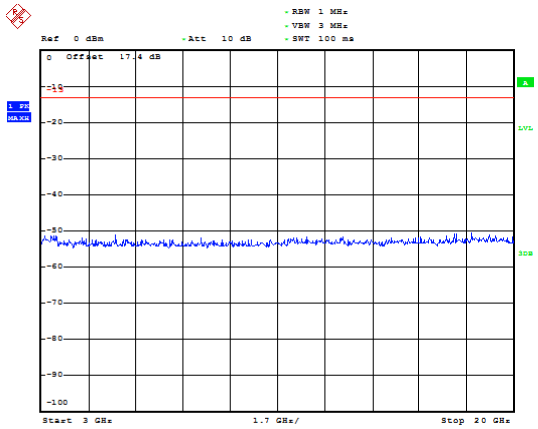
WCDMA Band IV CH-High 3GHz~20GHz



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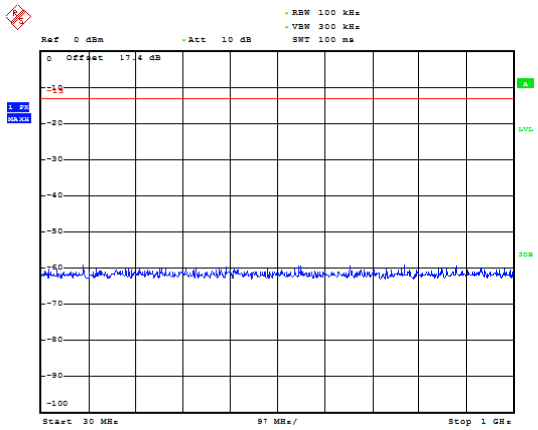
LTE Band 4 1.4MHz CH-Low 30MHz~1GHz



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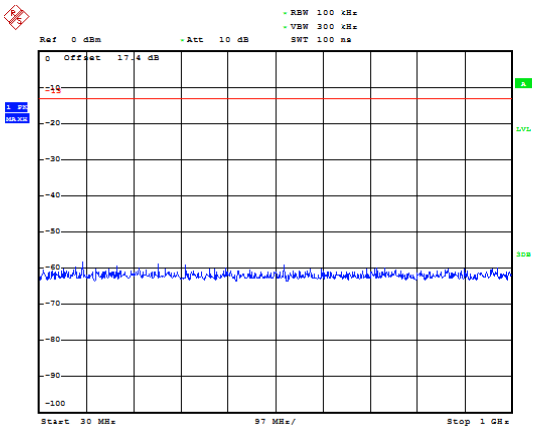
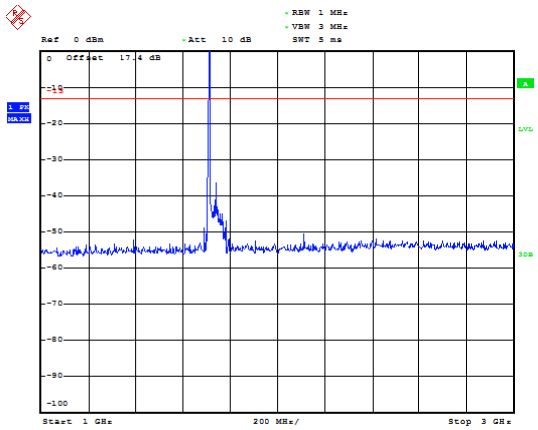
LTE Band 4 1.4MHz CH-Middle 30MHz~1GHz



Date: 26.NOV.2018 14:19:01

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



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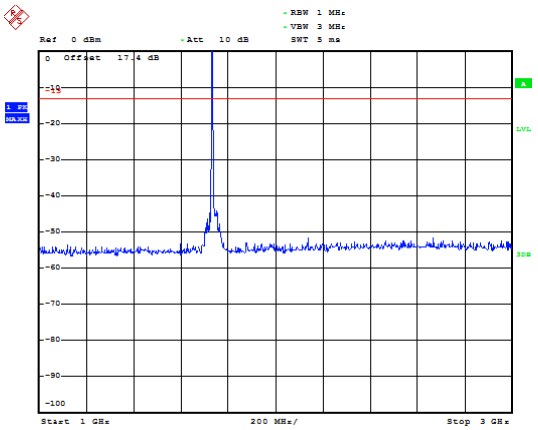
LTE Band 4 1.4MHz CH-Middle 1GHz~3GHz



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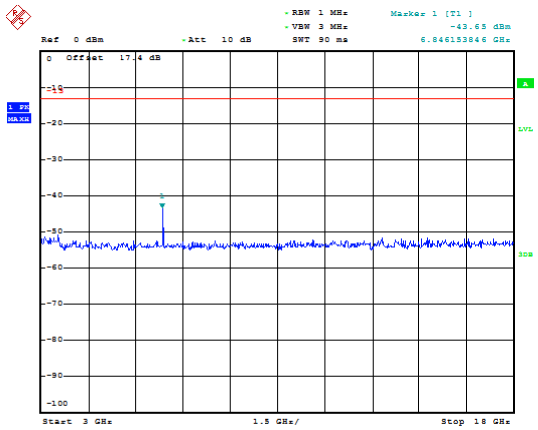
LTE Band 4 1.4MHz CH-Low 3GHz~18GHz



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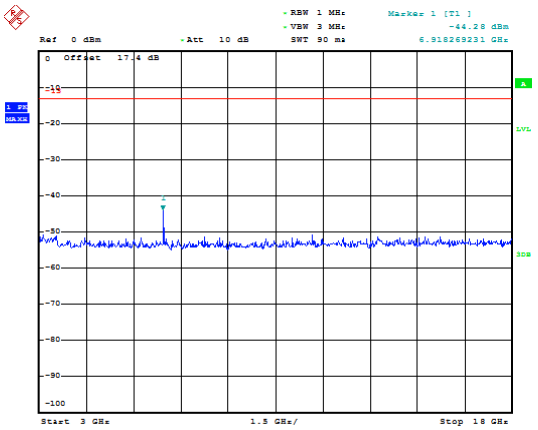
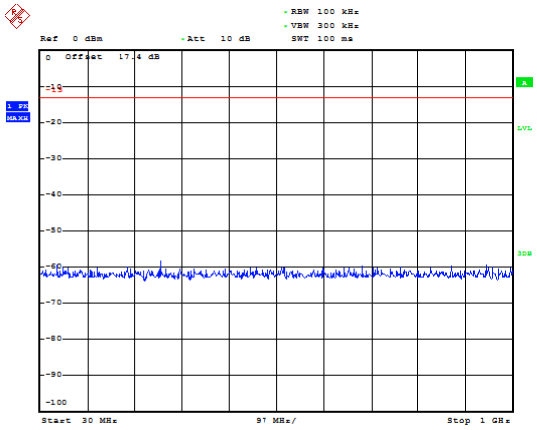
LTE Band 4 1.4MHz CH-Middle 3GHz~18GHz



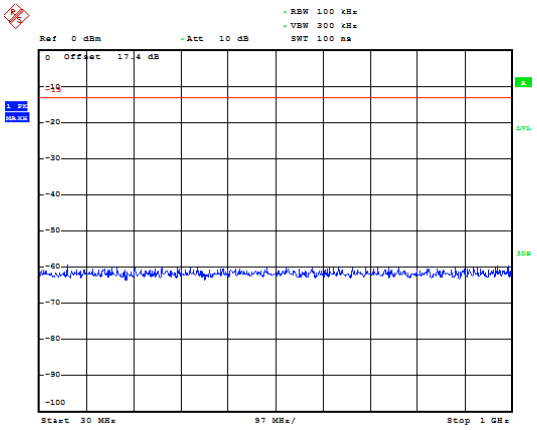
Date: 26.NOV.2018 14:18:03

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



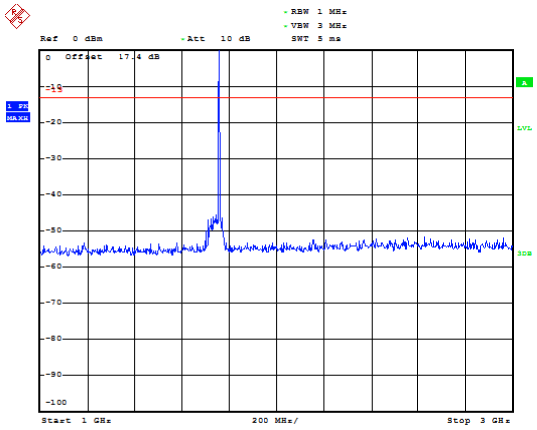
Date: 26.NOV.2018 14:19:32

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



Date: 26.NOV.2018 14:26:01

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



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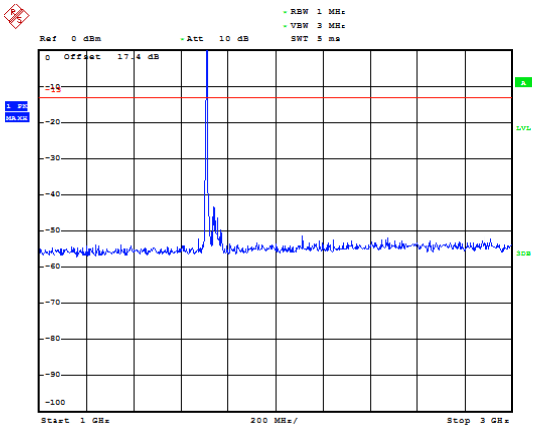
LTE Band 4 3MHz CH-Low 1GHz~3GHz



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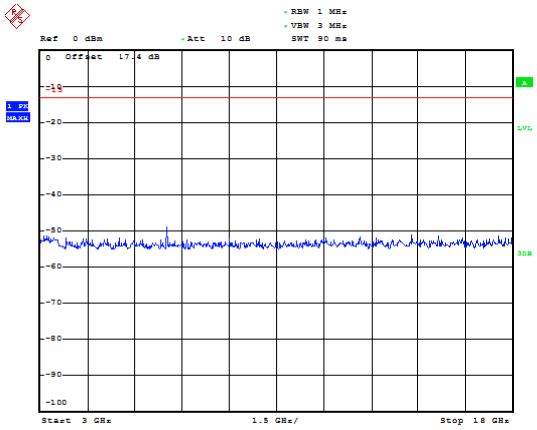
LTE Band 4 1.4MHz CH-High 3GHz~18GHz



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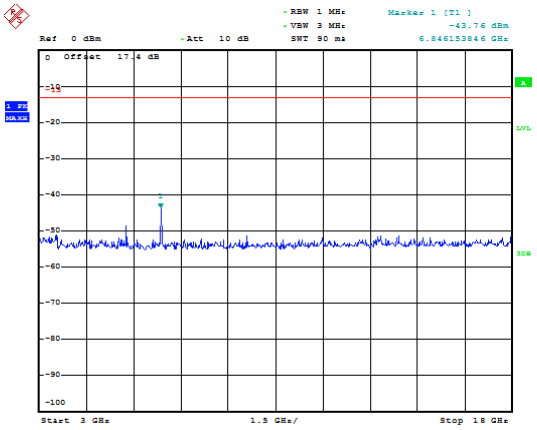
LTE Band 4 3MHz CH-Low 3GHz~18GHz



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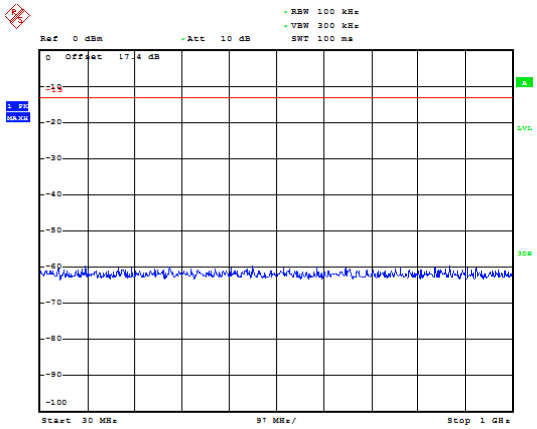
LTE Band 4 3MHz CH-Middle 30MHz~1GHz



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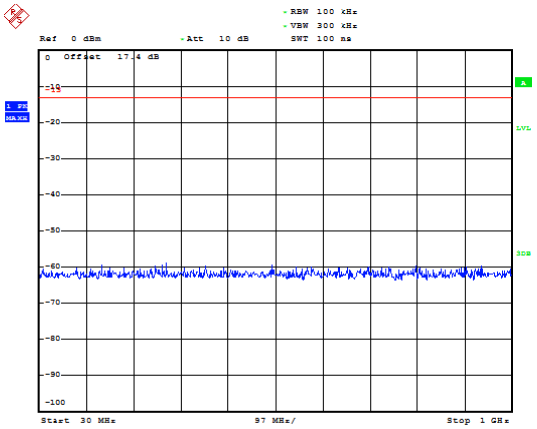
LTE Band 4 3MHz CH-High 30MHz~1GHz



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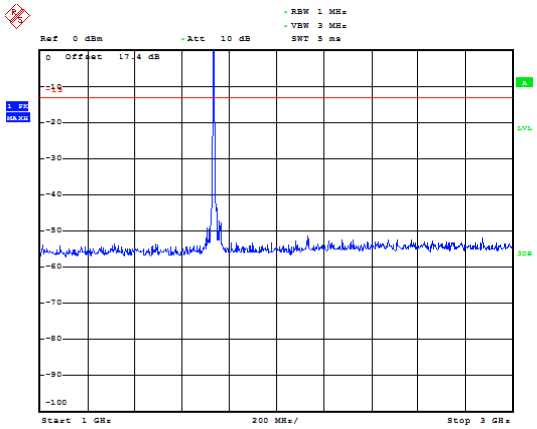
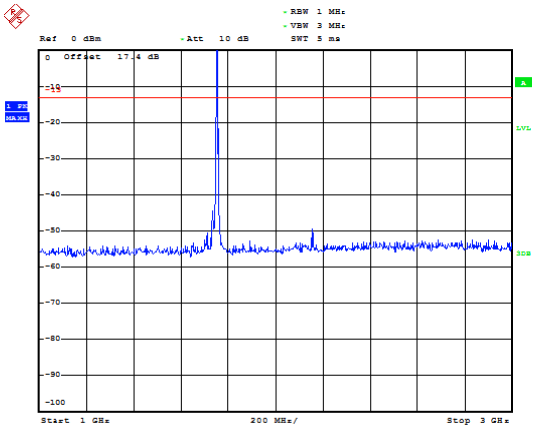
LTE Band 4 3MHz CH-Middle 1GHz~3GHz



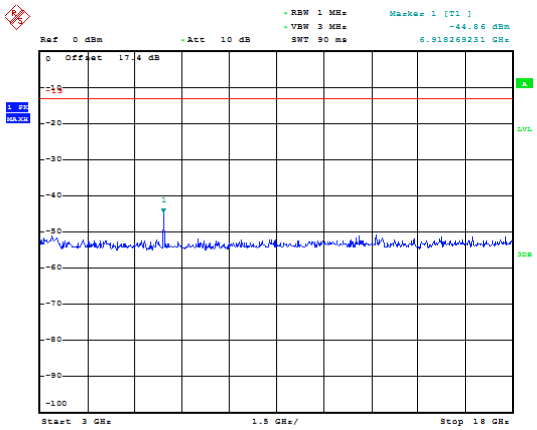
Date: 26.NOV.2018 14:26:47

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



Date: 26.NOV.2018 14:28:42

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



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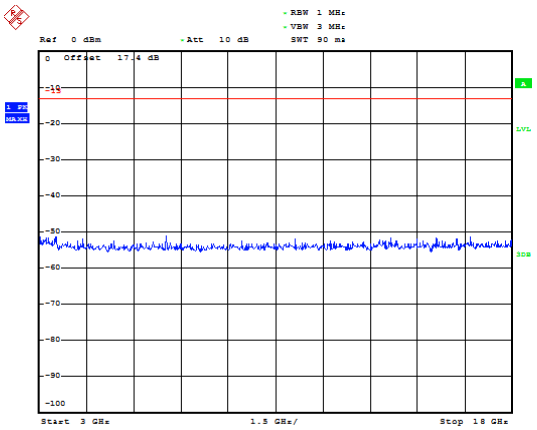
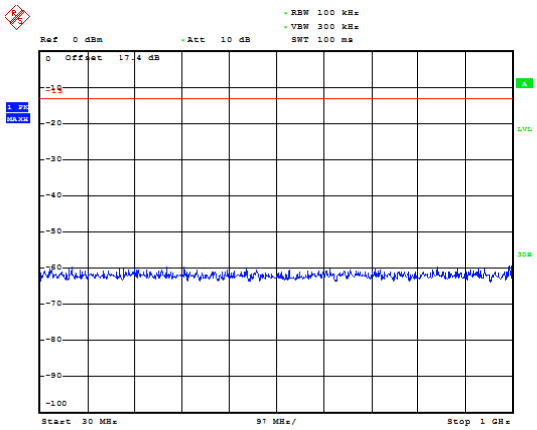
LTE Band 4 3MHz CH-High 3GHz~18GHz



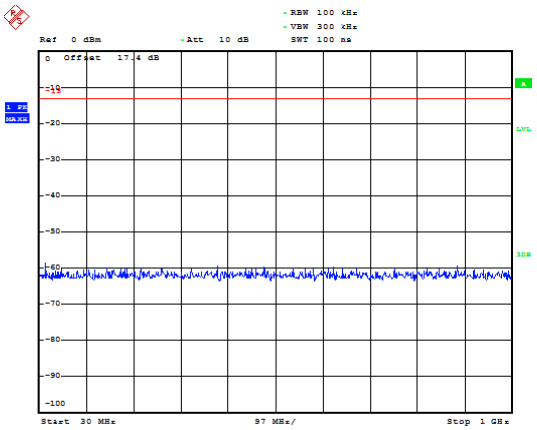
Date: 26.NOV.2018 14:28:01

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



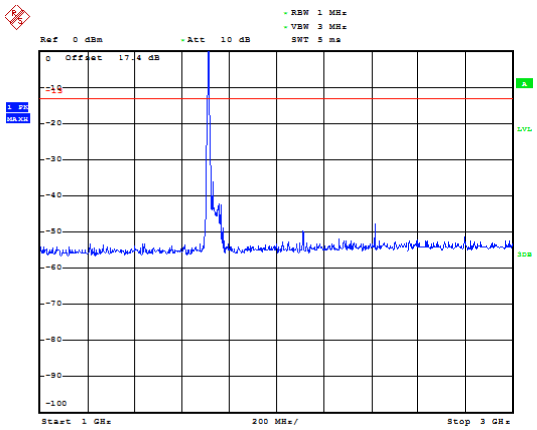
Date: 26.NOV.2018 14:37:10

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



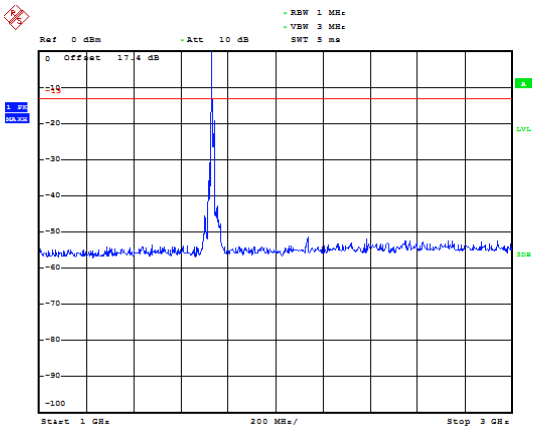
Date: 26.NOV.2018 14:40:08

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



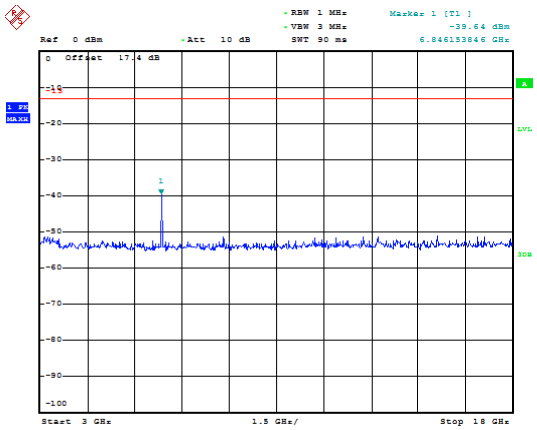
Date: 26.NOV.2018 14:37:27

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



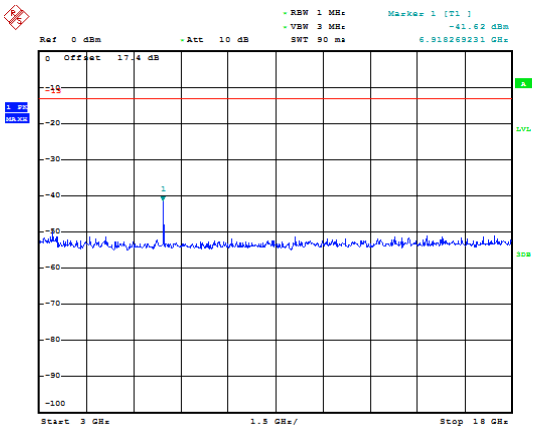
Date: 26.NOV.2018 14:39:44

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



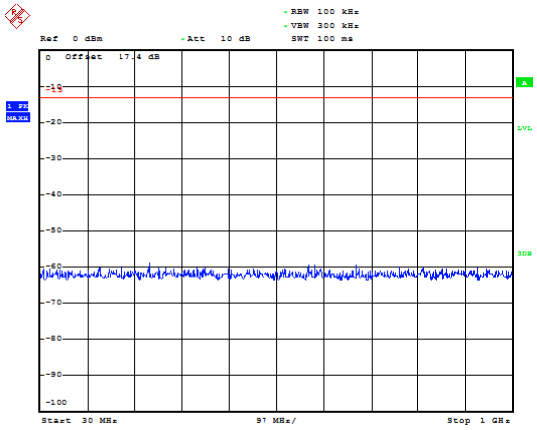
Date: 26.NOV.2018 14:38:10

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



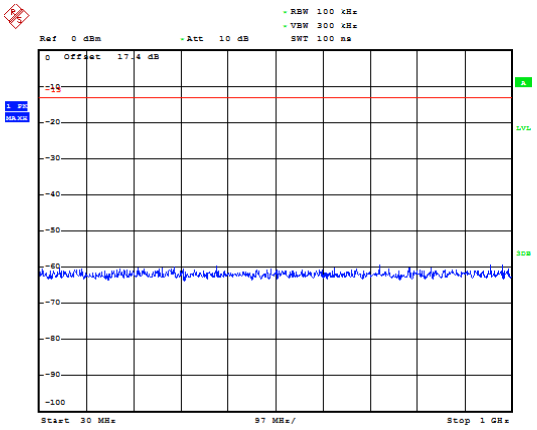
Date: 26.NOV.2018 14:38:43

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



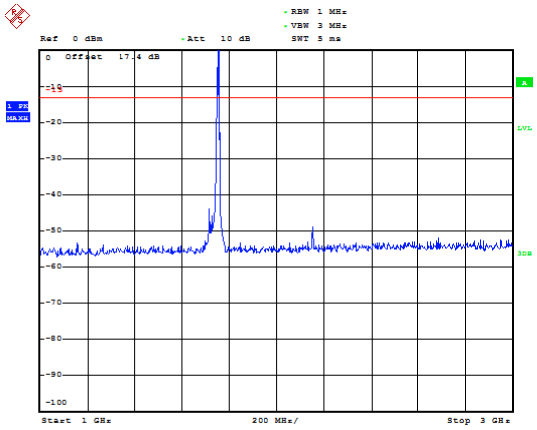
Date: 26.NOV.2018 14:40:38

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



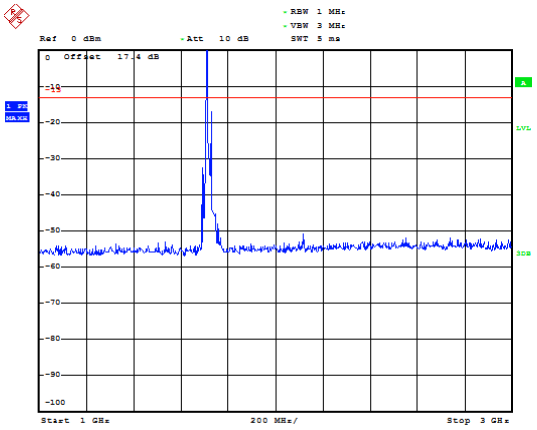
Date: 26.NOV.2018 14:47:34

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



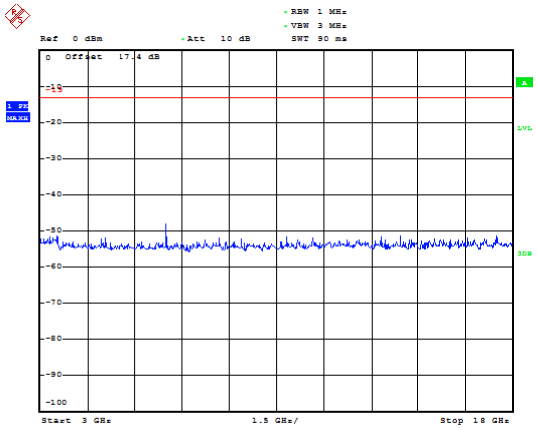
Date: 26.NOV.2018 14:40:53

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



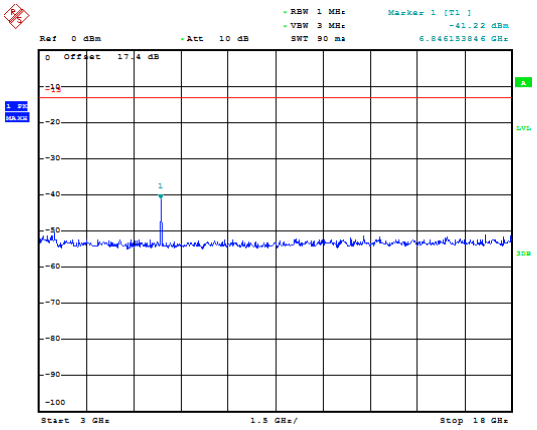
Date: 26.NOV.2018 14:47:13

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



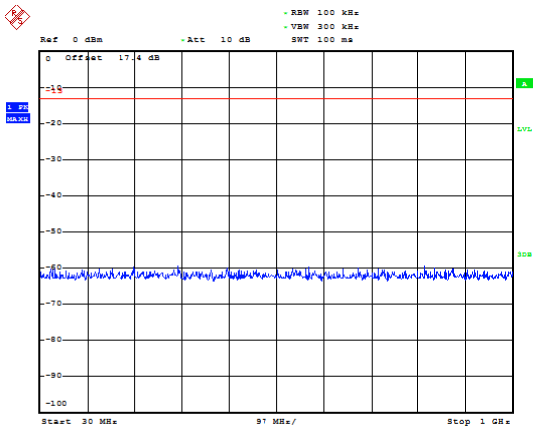
Date: 26.NOV.2018 14:41:28

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



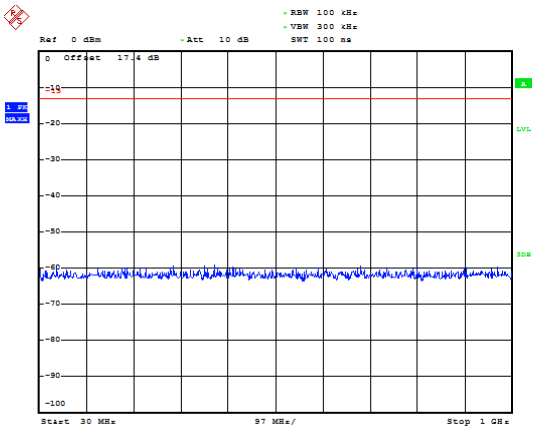
Date: 26.NOV.2018 14:43:07

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



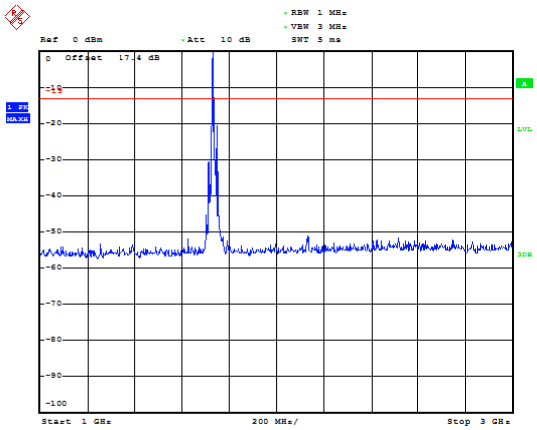
Date: 26.NOV.2018 14:47:56

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



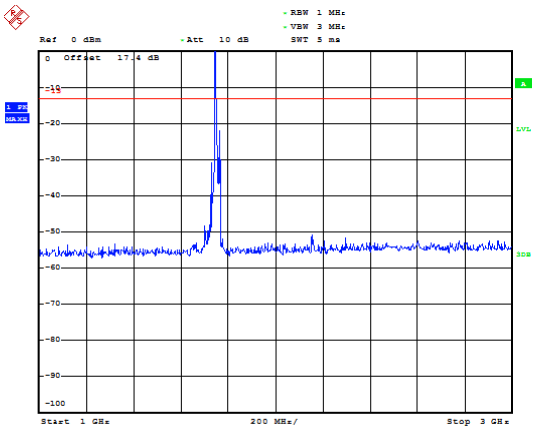
Date: 26.NOV.2018 14:50:29

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



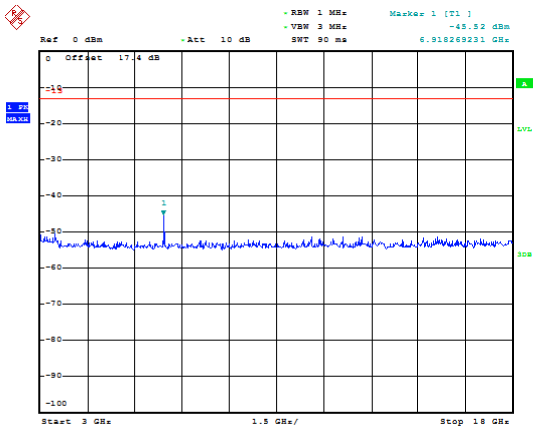
Date: 26.NOV.2018 14:48:13

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



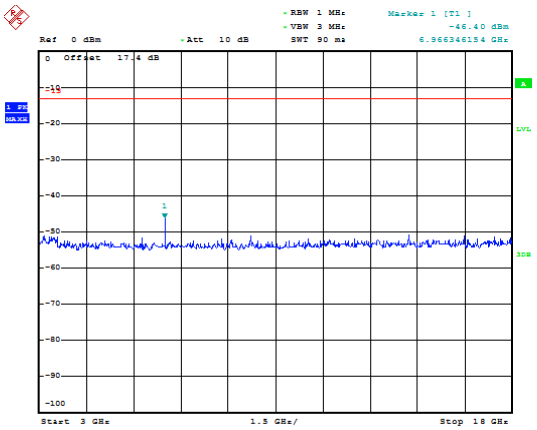
Date: 26.NOV.2018 14:50:10

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



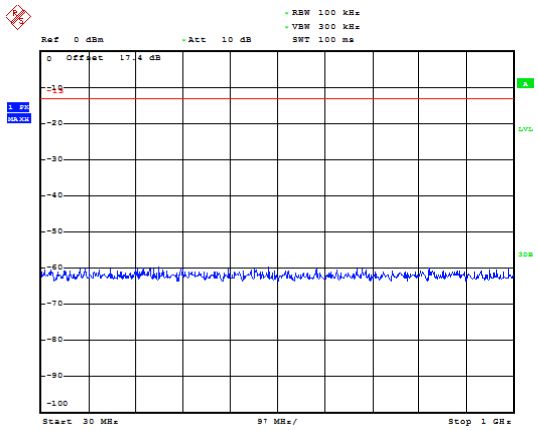
Date: 26.NOV.2018 14:49:04

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



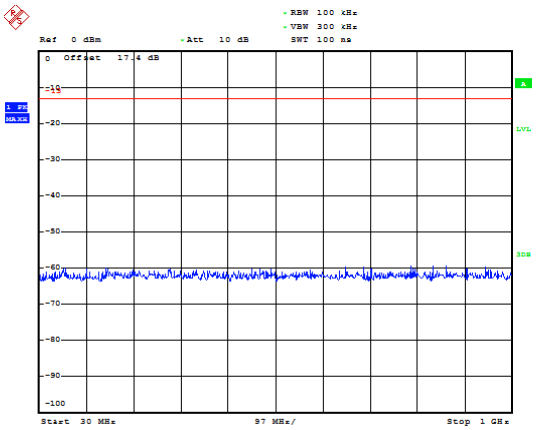
Date: 26.NOV.2018 14:49:27

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



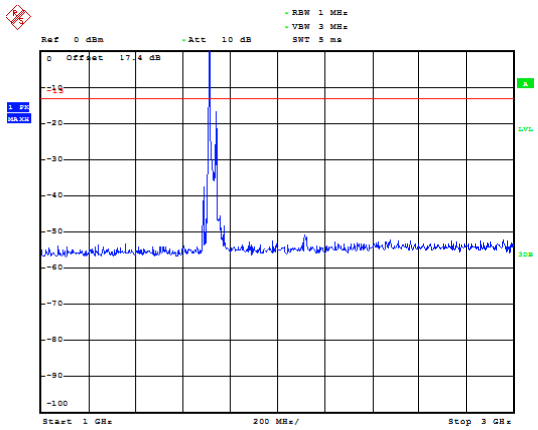
Date: 26.NOV.2018 14:56:38

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



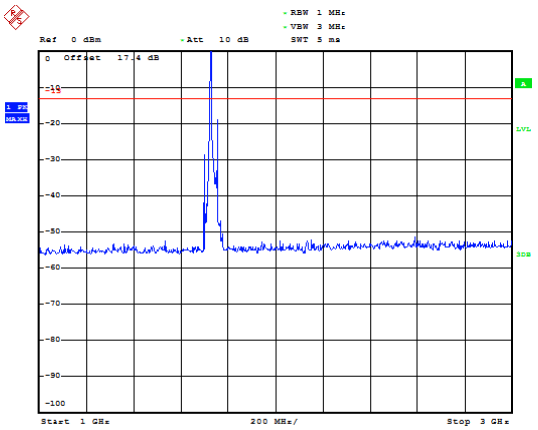
Date: 26.NOV.2018 14:59:11

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



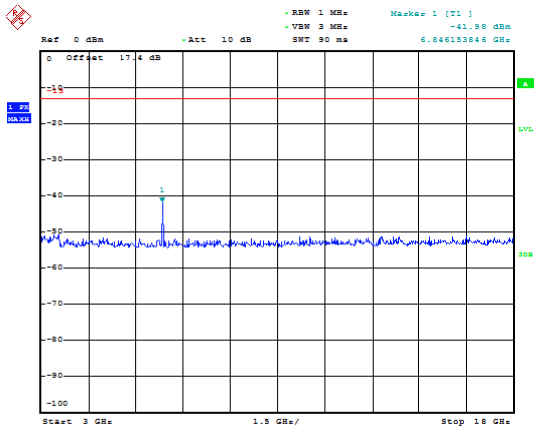
Date: 26.NOV.2018 14:56:54

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



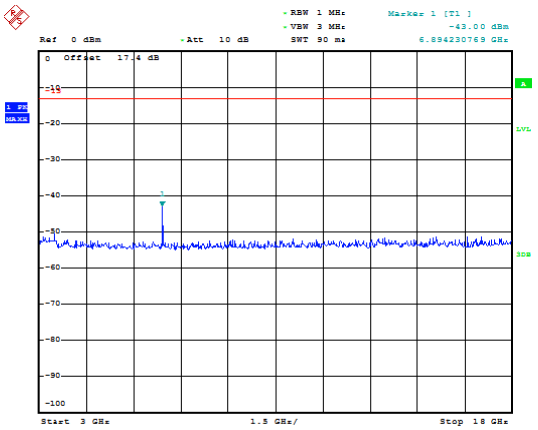
Date: 26.NOV.2018 14:58:49

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



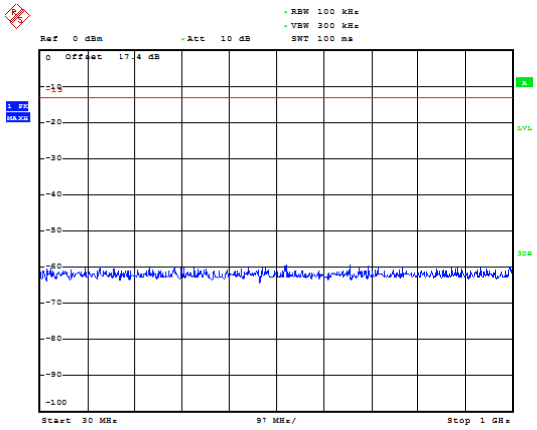
Date: 26.NOV.2018 14:57:42

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



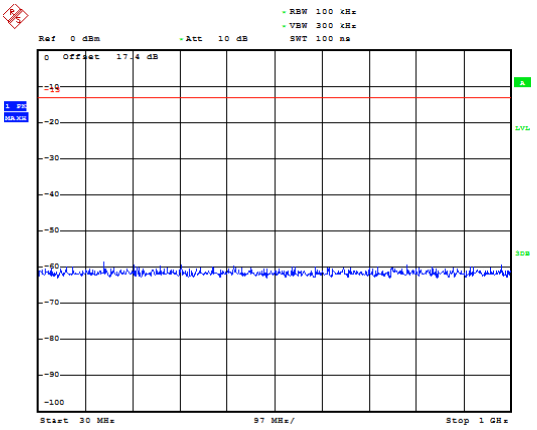
Date: 26.NOV.2018 14:58:08

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



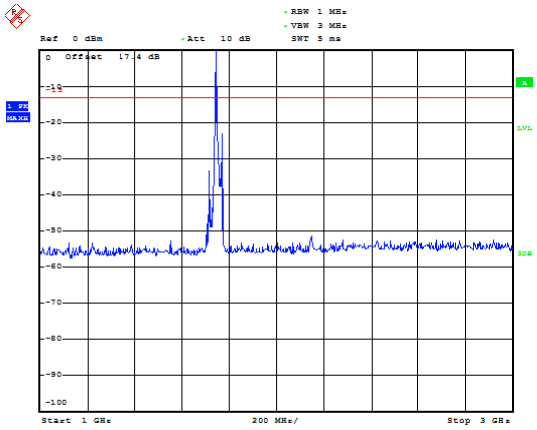
Date: 26.NOV.2018 14:59:44

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



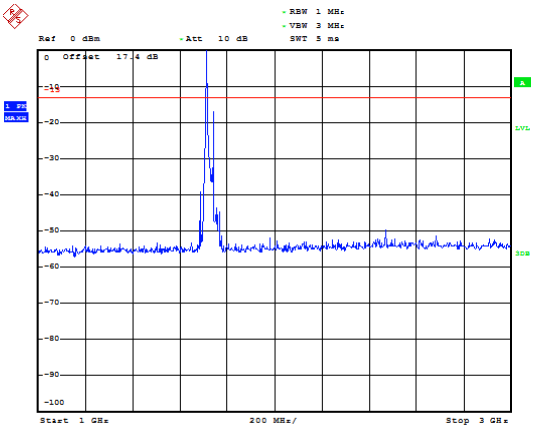
Date: 26.NOV.2018 15:02:07

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



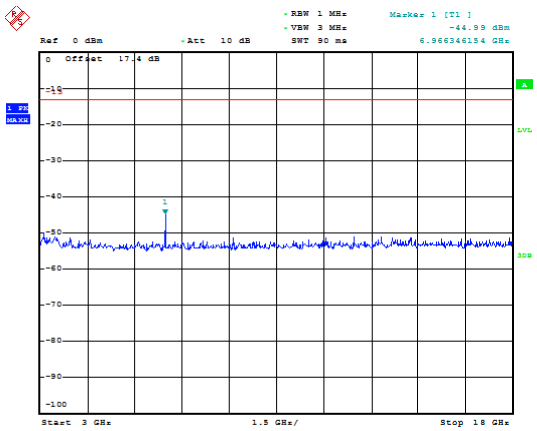
Date: 26.NOV.2018 14:59:58

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



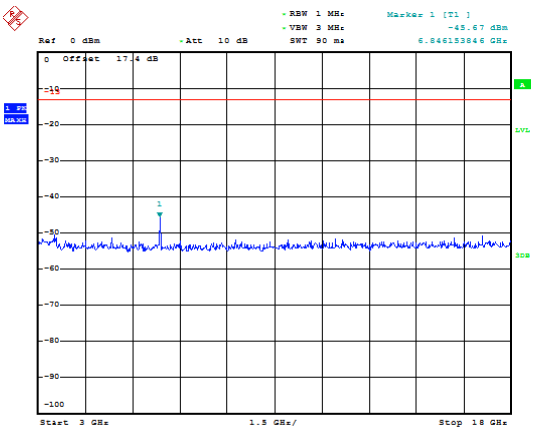
Date: 26.NOV.2018 15:01:47

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



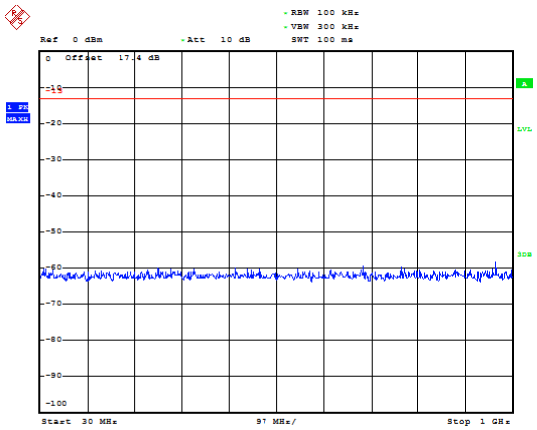
Date: 26.NOV.2018 15:00:40

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



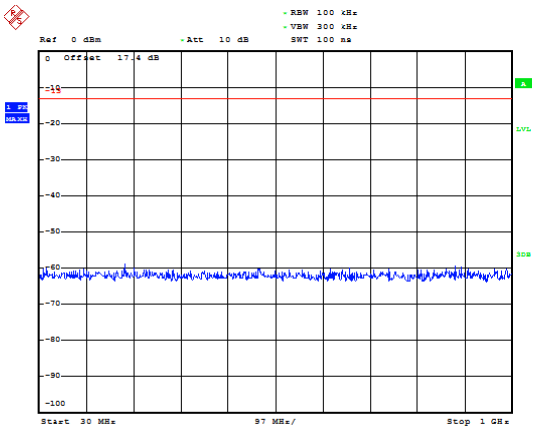
Date: 26.NOV.2018 15:01:10

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



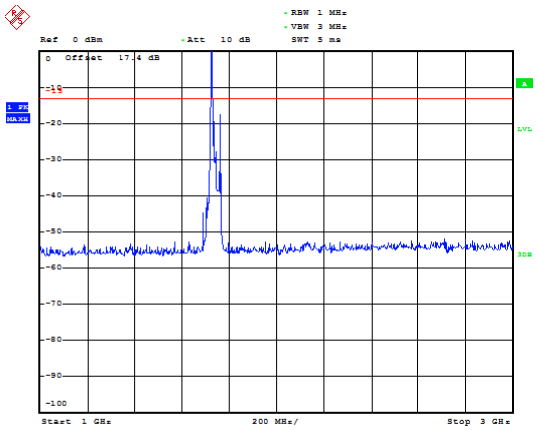
Date: 26.NOV.2018 15:02:38

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



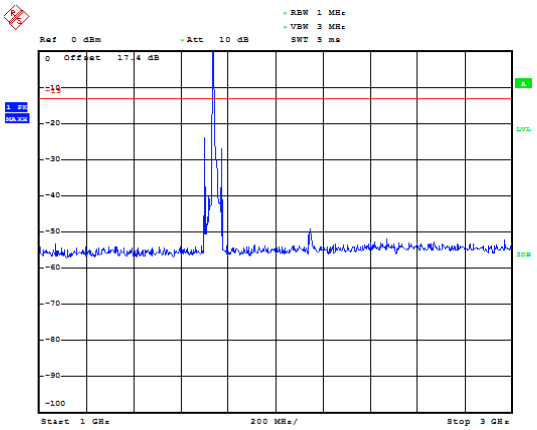
Date: 26.NOV.2018 15:05:22

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



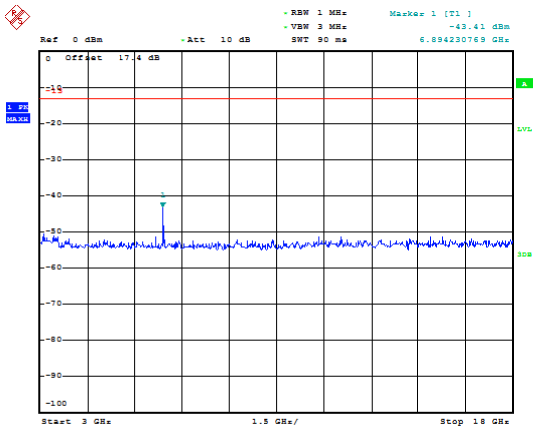
Date: 26.NOV.2018 15:02:59

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



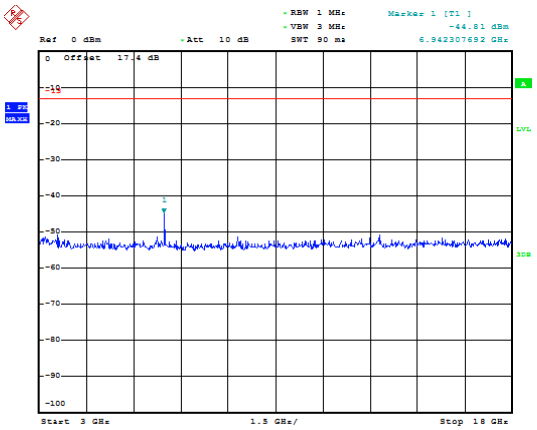
Date: 26.NOV.2018 15:05:05

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



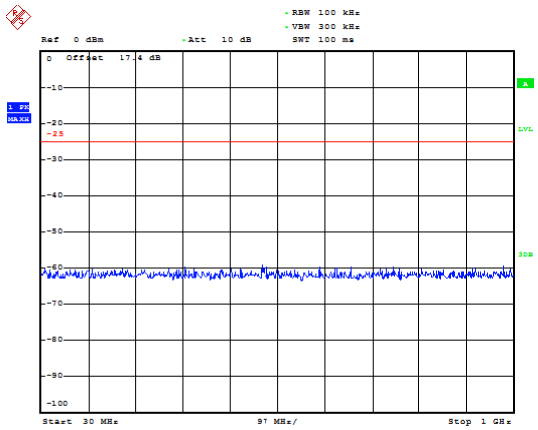
Date: 26.NOV.2018 15:04:09

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



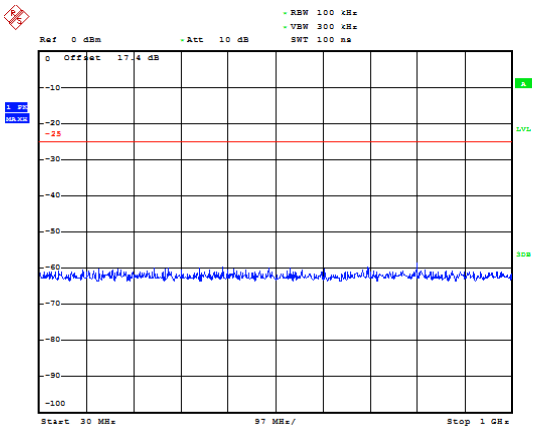
Date: 26.NOV.2018 15:04:28

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



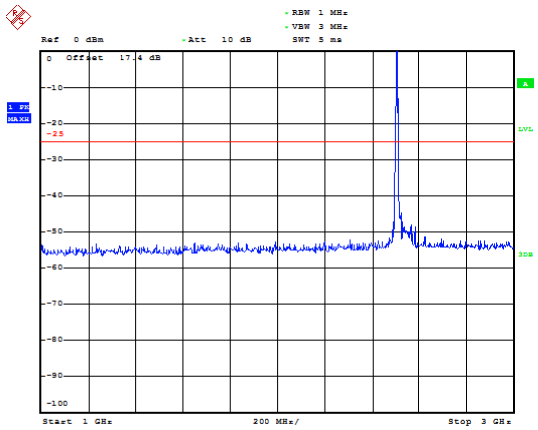
Date: 27.NOV.2018 10:54:47

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



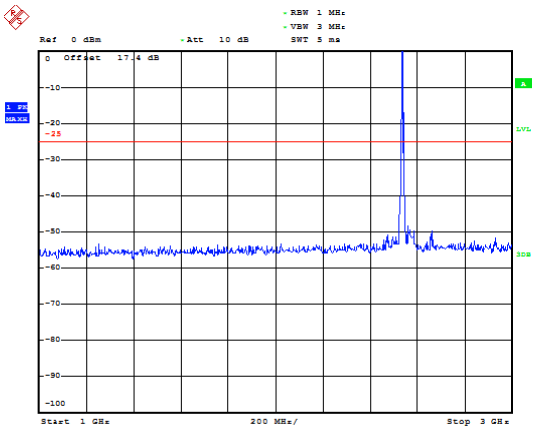
Date: 27.NOV.2018 10:55:15

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



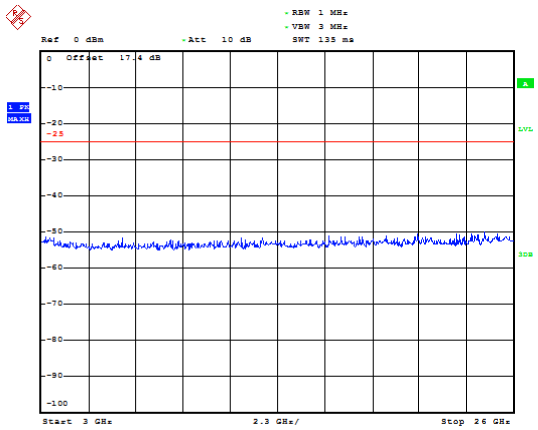
Date: 27.NOV.2018 10:53:24

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



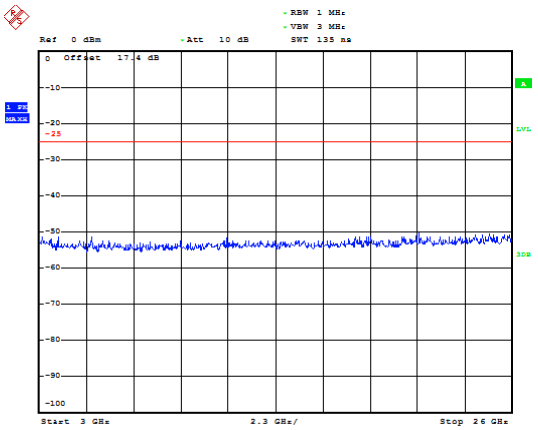
Date: 27.NOV.2018 10:53:02

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



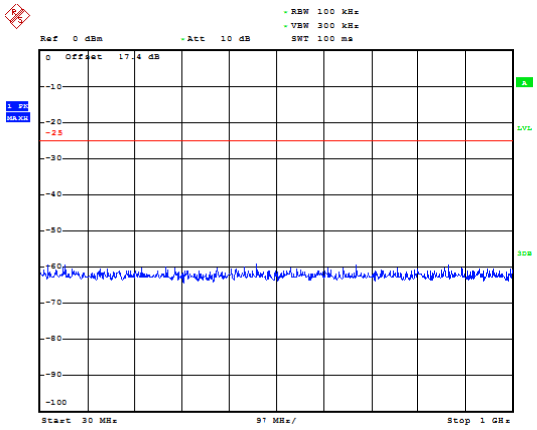
Date: 27.NOV.2018 10:47:26

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



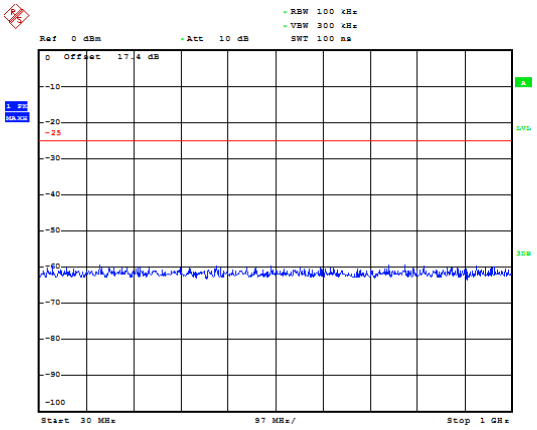
Date: 27.NOV.2018 10:51:03

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



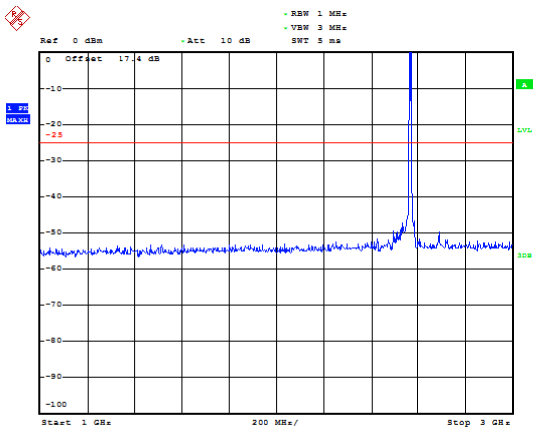
Date: 27.NOV.2018 10:55:35

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



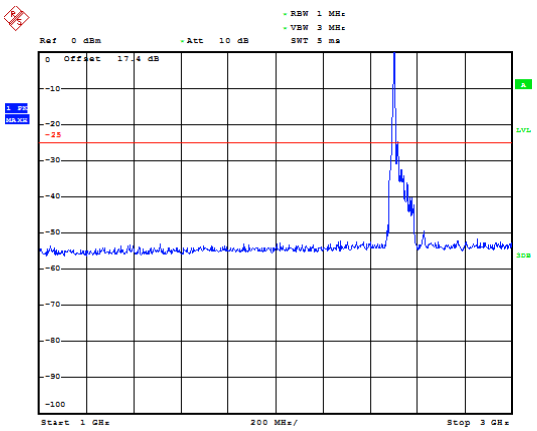
Date: 27.NOV.2018 11:13:25

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



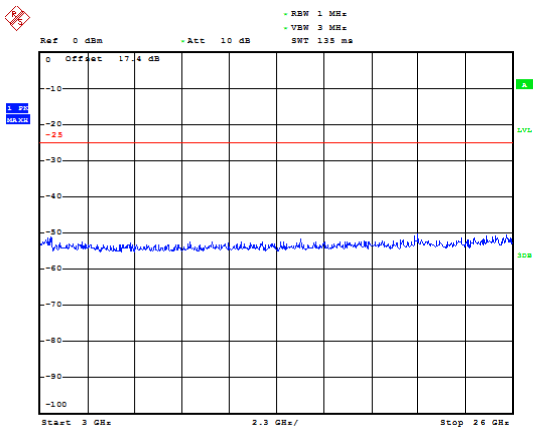
Date: 27.NOV.2018 10:52:38

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



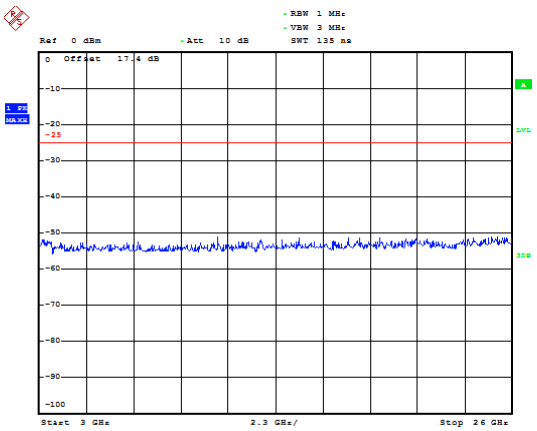
Date: 27.NOV.2018 11:52:13

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



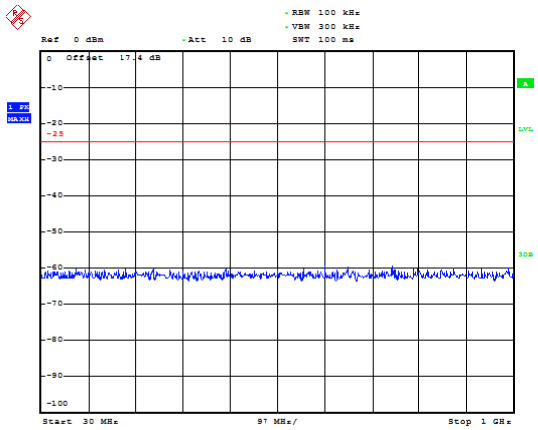
Date: 27.NOV.2018 10:51:19

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



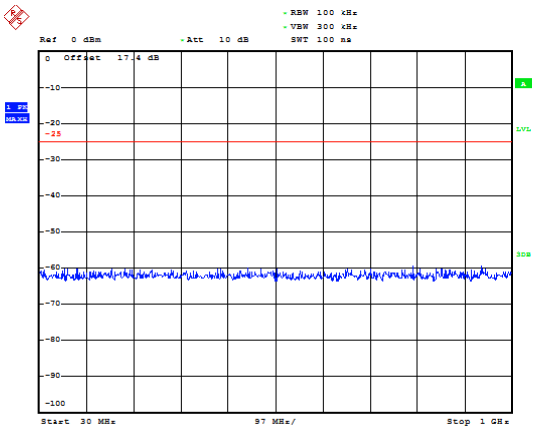
Date: 27.NOV.2018 11:51:17

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



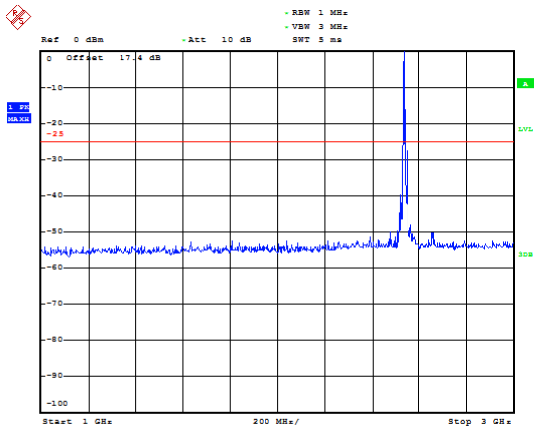
Date: 27.NOV.2018 13:59:41

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



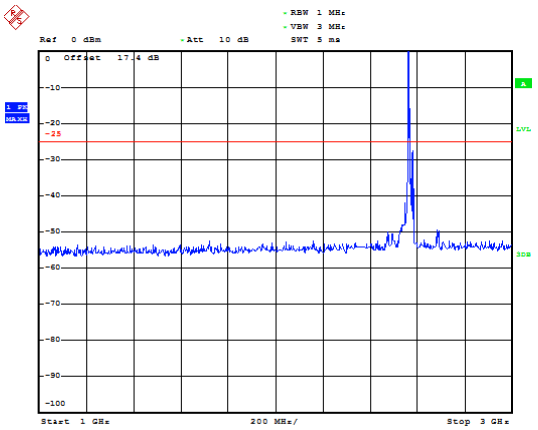
Date: 27.NOV.2018 11:21:52

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



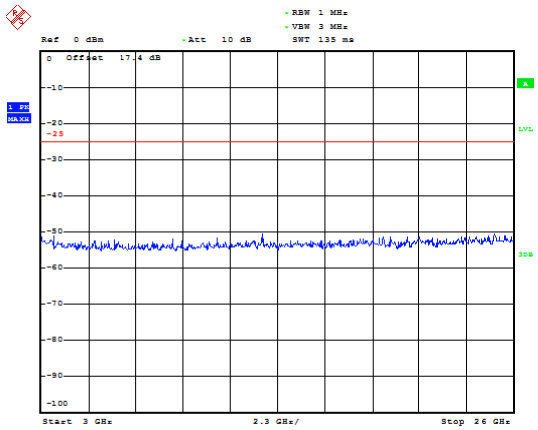
Date: 27.NOV.2018 11:52:32

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



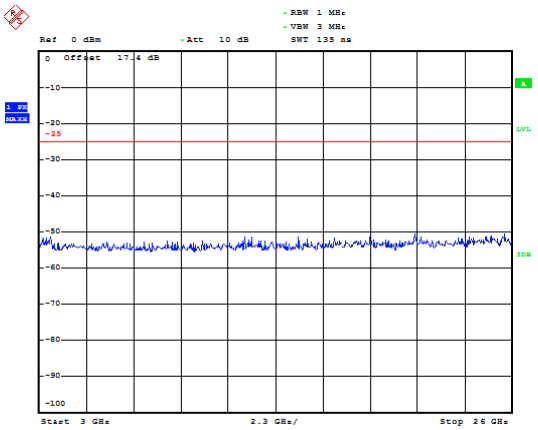
Date: 27.NOV.2018 11:52:50

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



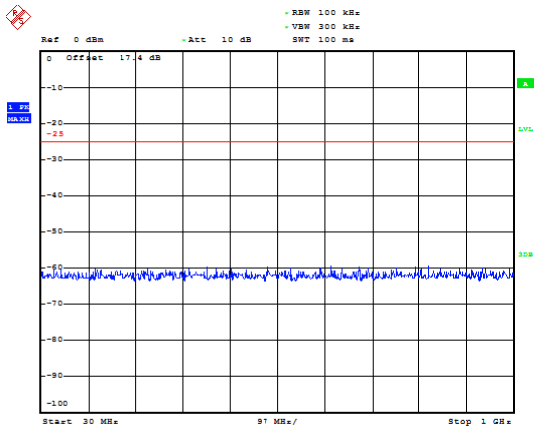
Date: 27.NOV.2018 11:51:00

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



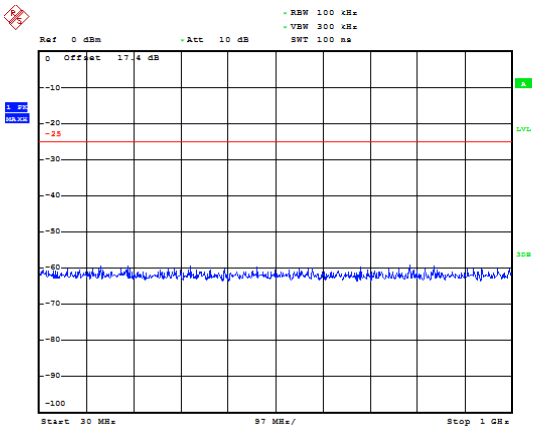
Date: 27.NOV.2018 11:50:42

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



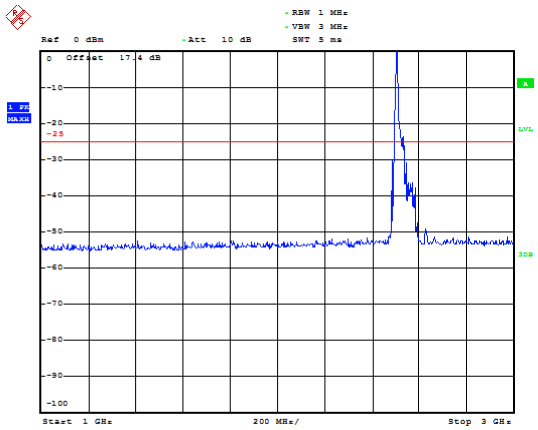
Date: 27.NOV.2018 14:00:31

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



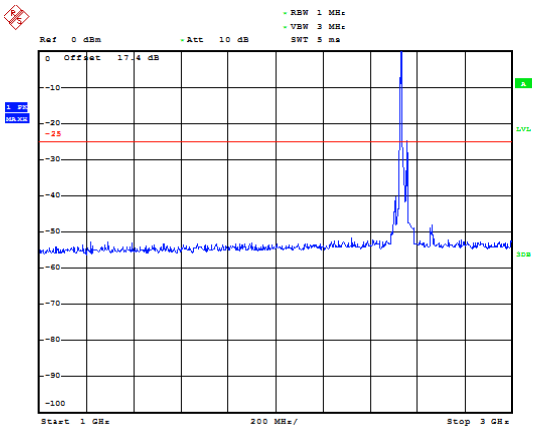
Date: 27.NOV.2018 14:03:28

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



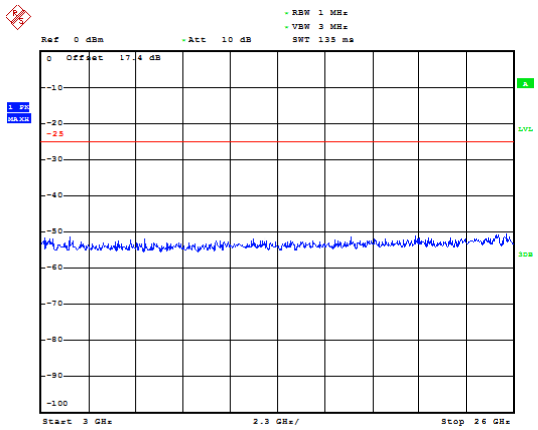
Date: 27.NOV.2018 14:06:53

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



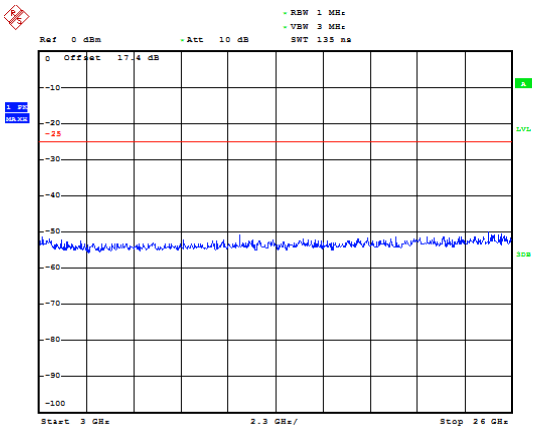
Date: 27.NOV.2018 14:07:16

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



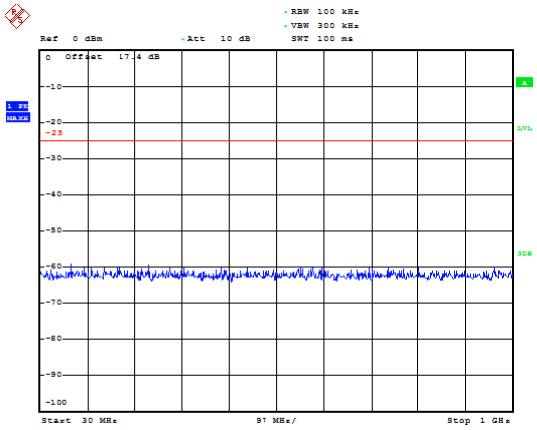
Date: 27.NOV.2018 14:05:26

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



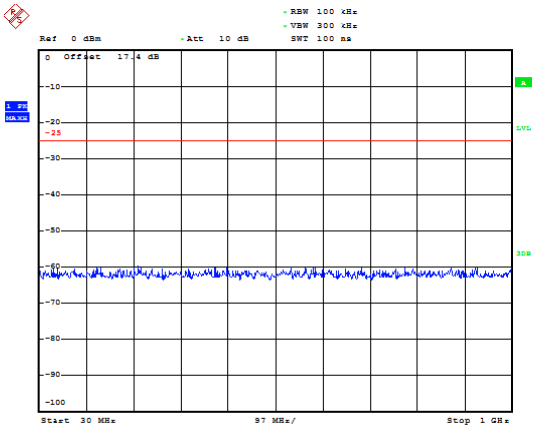
Date: 27.NOV.2018 14:04:59

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



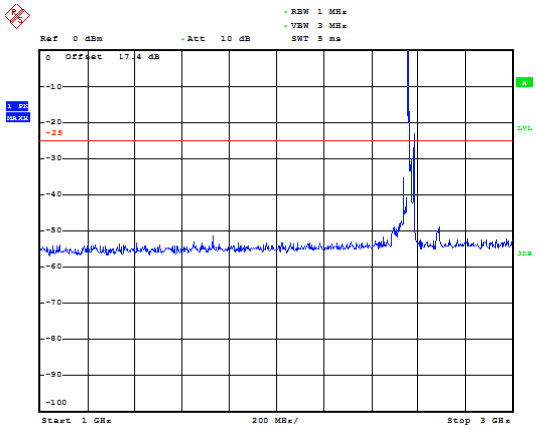
Date: 27.NOV.2018 14:03:48

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



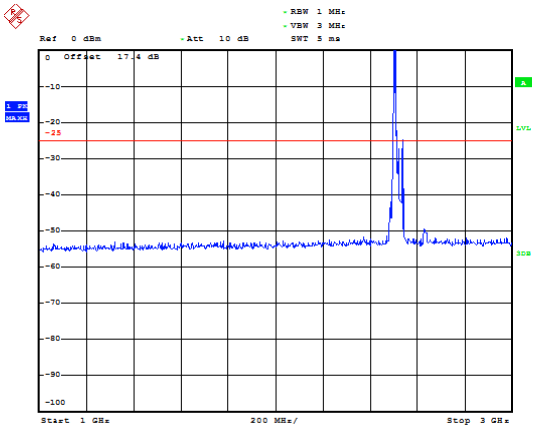
Date: 28.NOV.2018 13:49:50

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



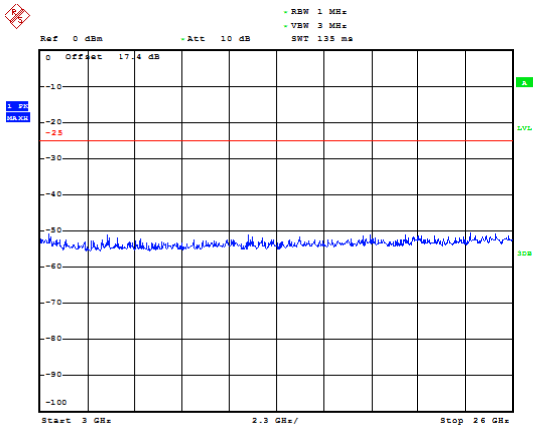
Date: 27.NOV.2018 14:08:18

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



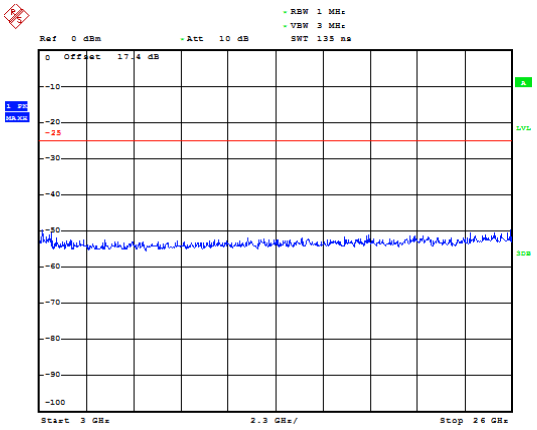
Date: 27.NOV.2018 14:12:50

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



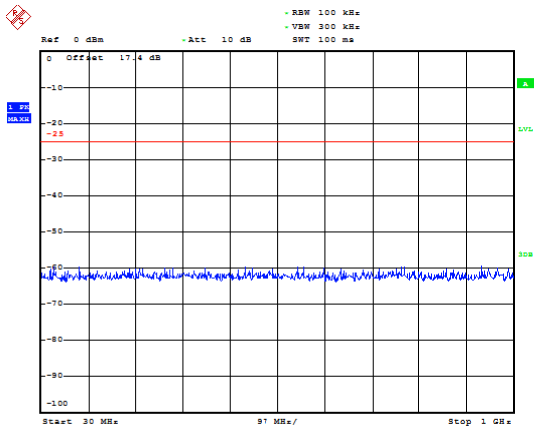
Date: 27.NOV.2018 14:04:38

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



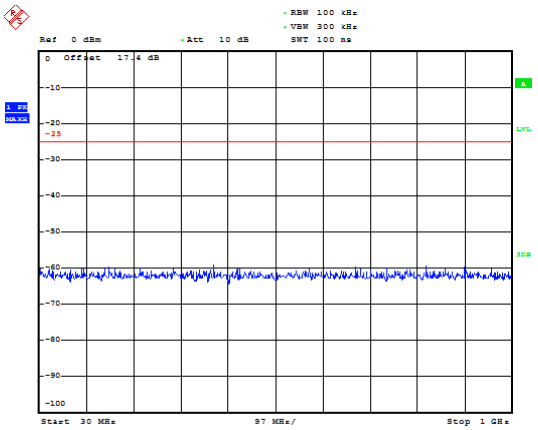
Date: 27.NOV.2018 14:20:24

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



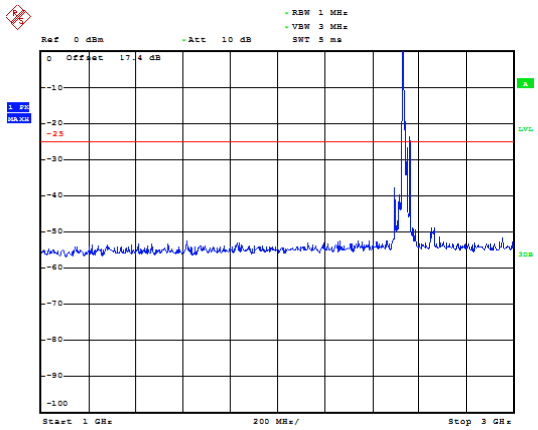
Date: 28.NOV.2018 13:49:27

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



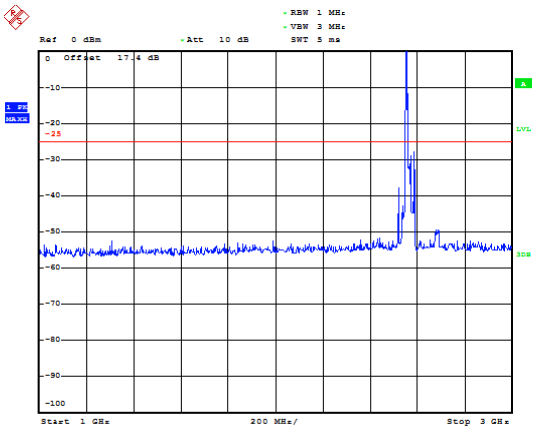
Date: 28.NOV.2018 13:49:05

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



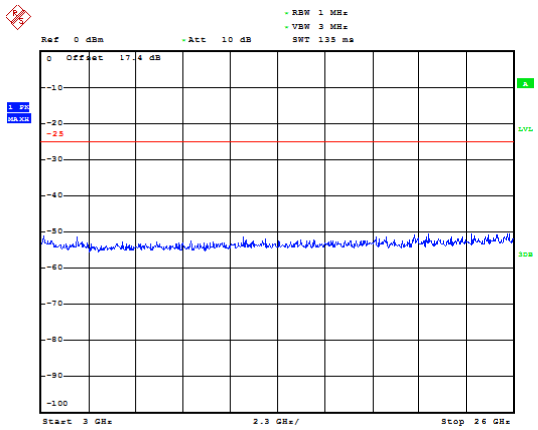
Date: 27.NOV.2018 14:18:24

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



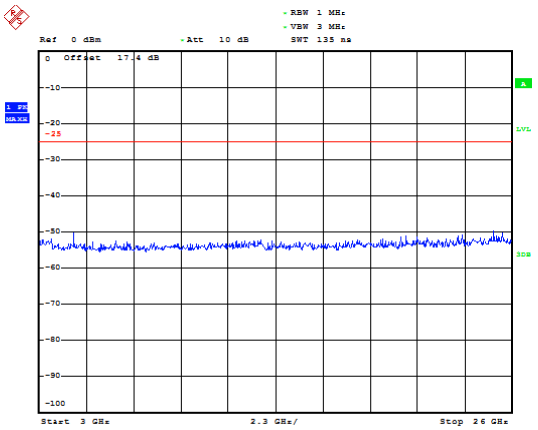
Date: 27.NOV.2018 14:18:44

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



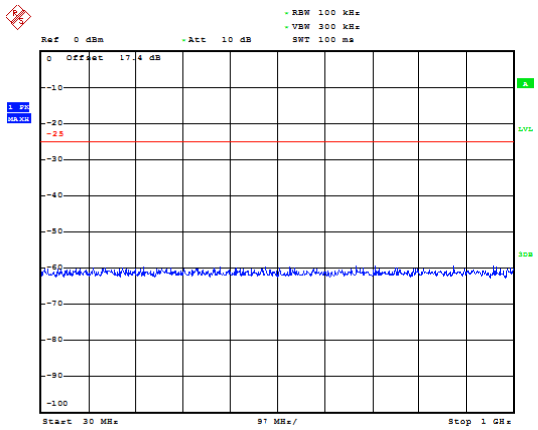
Date: 27.NOV.2018 14:20:04

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



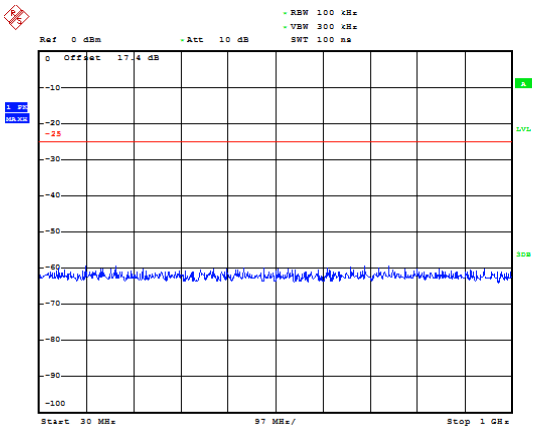
Date: 27.NOV.2018 14:19:44

LTE Band 38 5MHz CH-Low 30MHz~1GHz



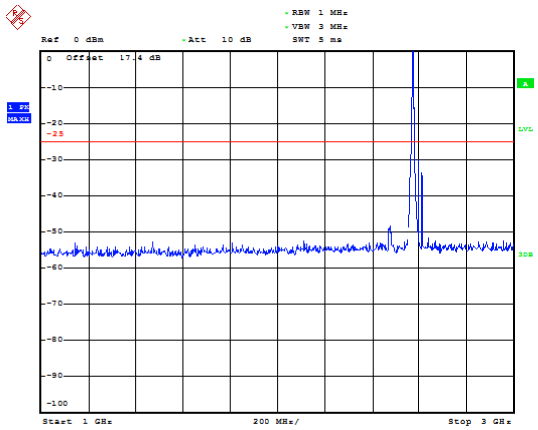
Date: 27.NOV.2018 20:10:21

LTE Band 38 5MHz CH-Middle 30MHz~1GHz



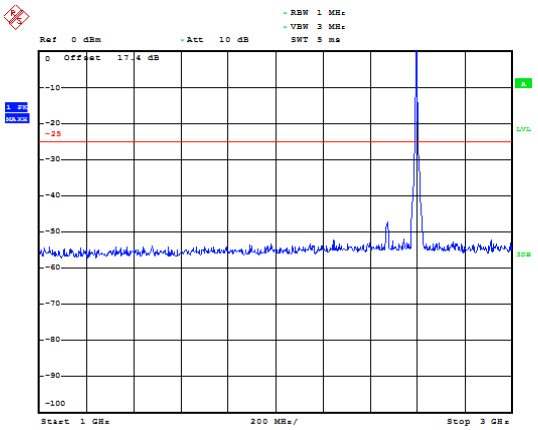
Date: 27.NOV.2018 20:11:23

LTE Band 38 5MHz CH-Low 1GHz~3GHz



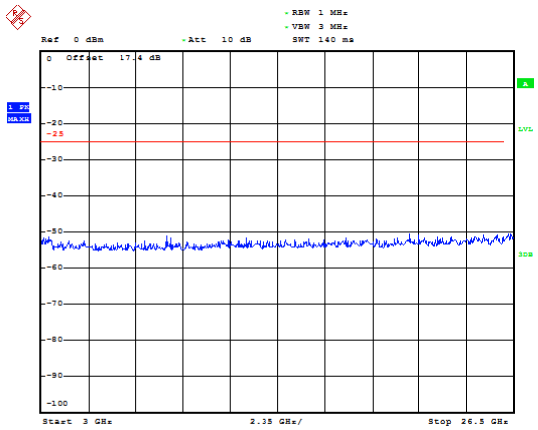
Date: 27.NOV.2018 20:20:15

LTE Band 38 5MHz CH-Middle 1GHz~3GHz



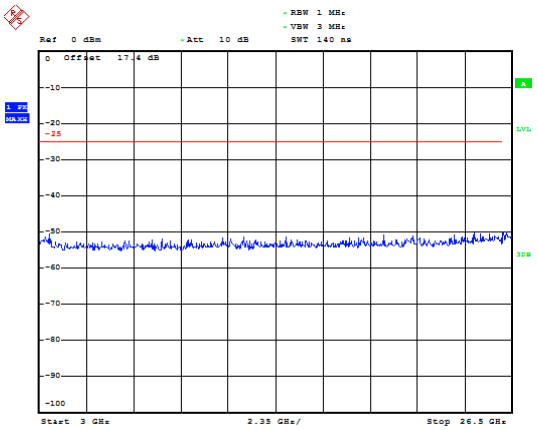
Date: 27.NOV.2018 20:20:00

LTE Band 38 5MHz CH-Low 3GHz~26.5GHz



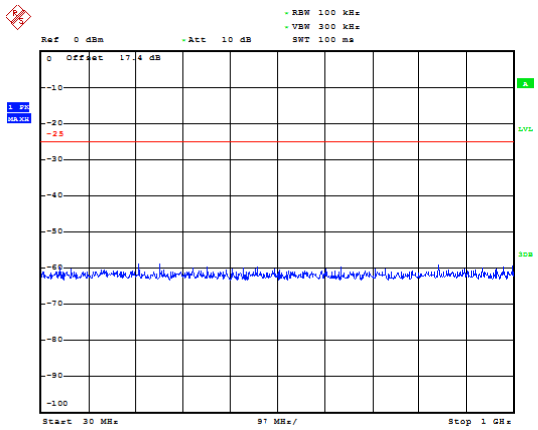
Date: 27.NOV.2018 20:18:38

LTE Band 38 5MHz CH-Middle 3GHz~26.5GHz



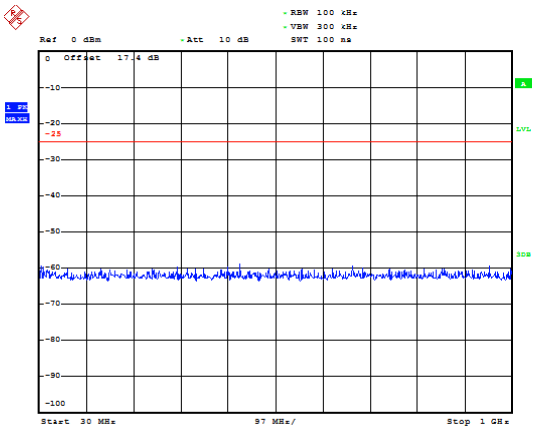
Date: 27.NOV.2018 20:18:13

LTE Band 38 5MHz CH-High 30MHz~1GHz



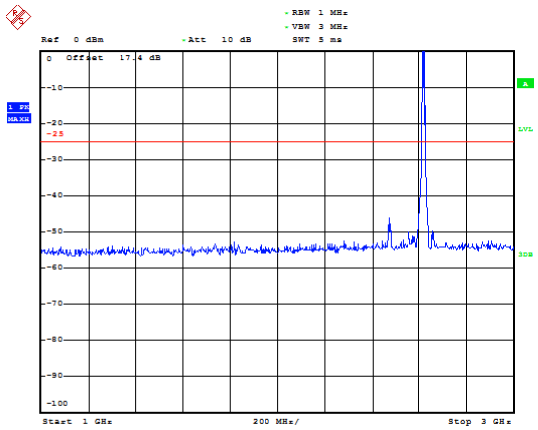
Date: 27.NOV.2018 20:15:02

LTE Band 38 10MHz CH-Low 30MHz~1GHz



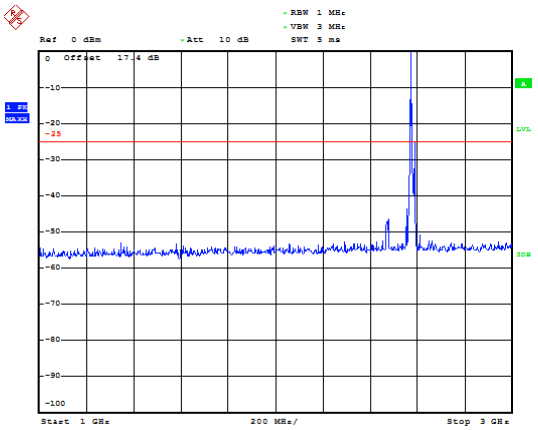
Date: 27.NOV.2018 20:27:48

LTE Band 38 5MHz CH-High 1GHz~3GHz



Date: 27.NOV.2018 20:19:45

LTE Band 38 10MHz CH-Low 1GHz~3GHz



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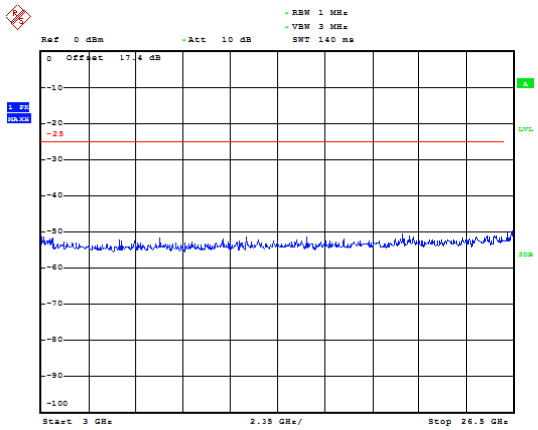
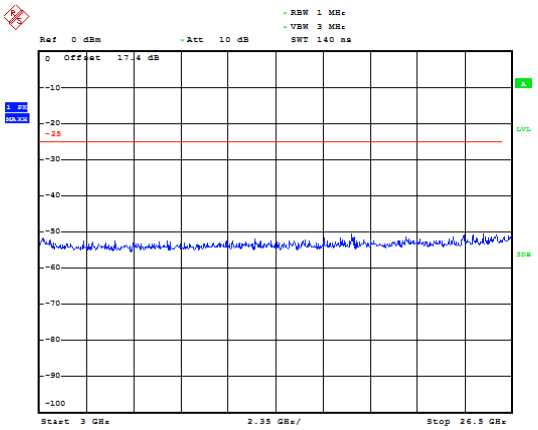
LTE Band 38 5MHz CH-High 3GHz~26.5GHz



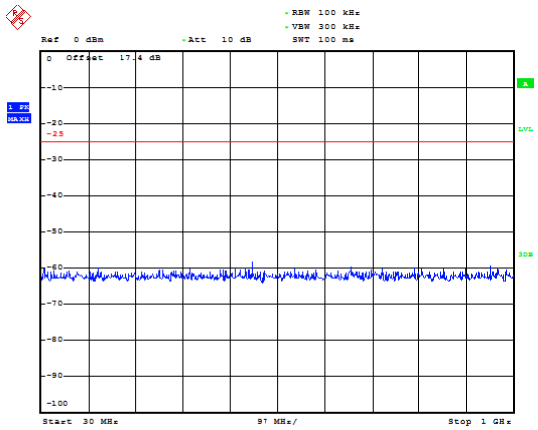
Date: 27.NOV.2018 20:18:57

LTE Band 38 10MHz CH-Low 3GHz~26.5GHz



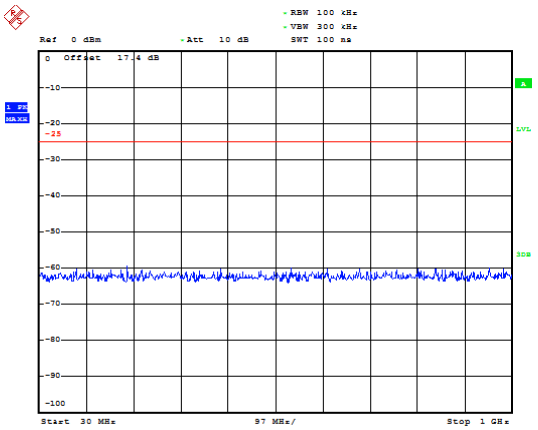
Date: 27.NOV.2018 20:25:44

LTE Band 38 10MHz CH-Middle 30MHz~1GHz



Date: 27.NOV.2018 20:30:18

LTE Band 38 10MHz CH-High 30MHz~1GHz



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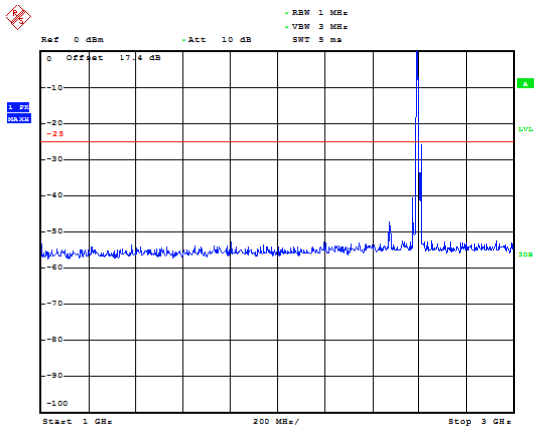
LTE Band 38 10MHz CH-Middle 1GHz~3GHz



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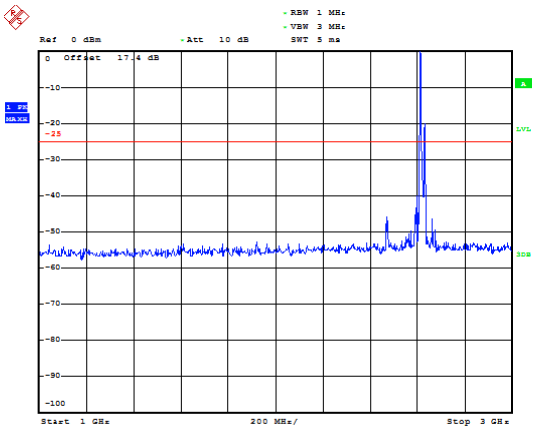
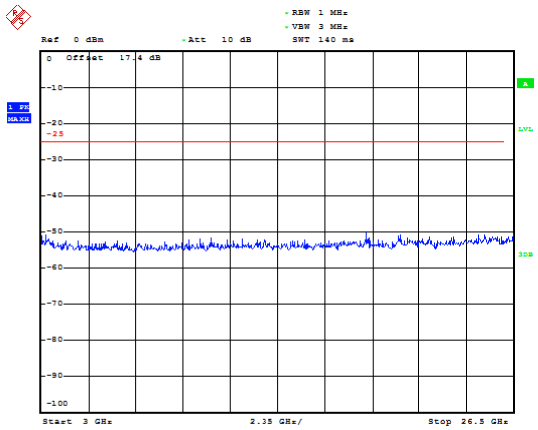
LTE Band 38 10MHz CH-High 1GHz~3GHz



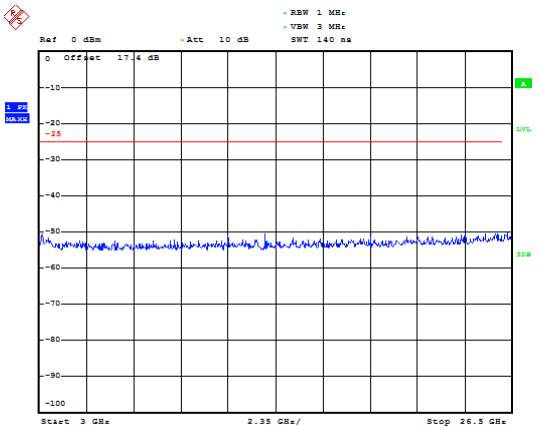
Date: 27.NOV.2018 20:23:50

LTE Band 38 10MHz CH-Middle 3GHz~26.5GHz



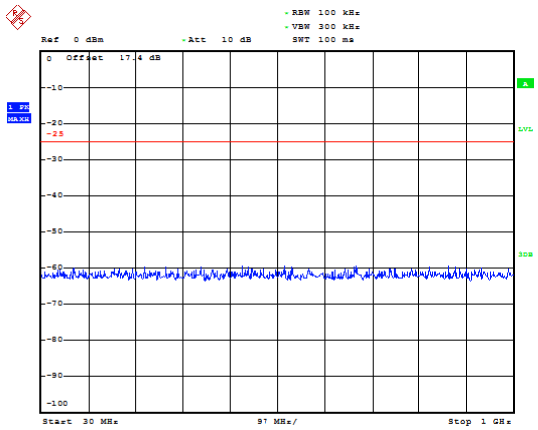
Date: 27.NOV.2018 20:25:26

LTE Band 38 10MHz CH-High 3GHz~26.5GHz



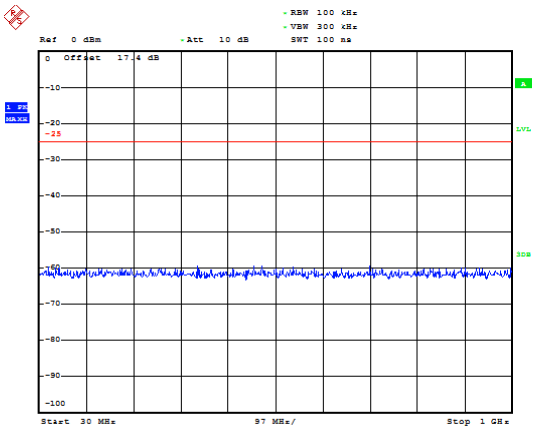
Date: 27.NOV.2018 20:25:11

LTE Band 38 15MHz CH-Low 30MHz~1GHz



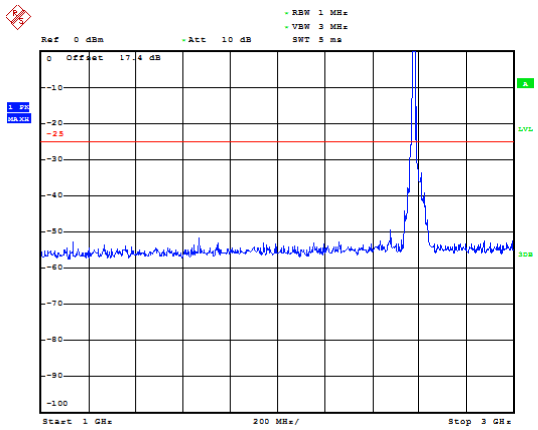
Date: 27.NOV.2018 20:33:23

LTE Band 38 15MHz CH-Middle 30MHz~1GHz



Date: 27.NOV.2018 20:47:11

LTE Band 38 15MHz CH-Low 1GHz~3GHz



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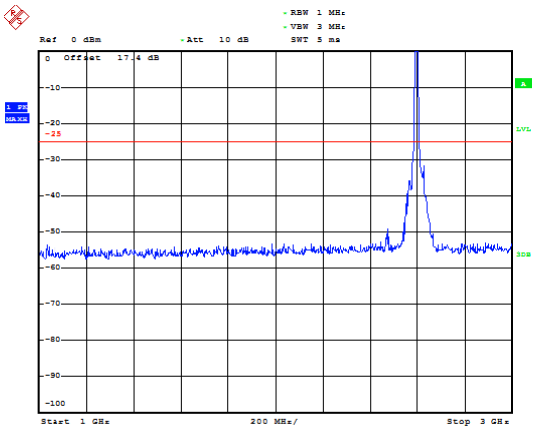
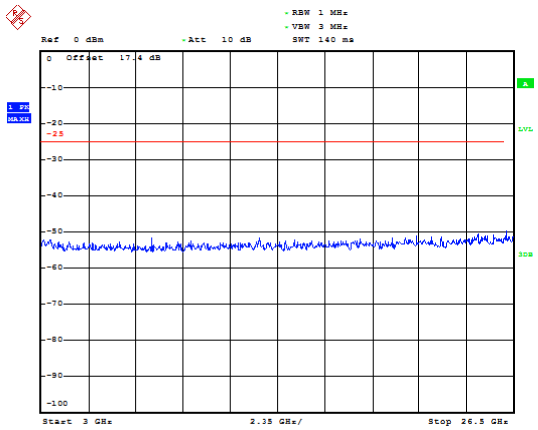
LTE Band 38 15MHz CH-Middle 1GHz~3GHz



Date: 27.NOV.2018 20:35:38

LTE Band 38 15MHz CH-Low 3GHz~26.5GHz



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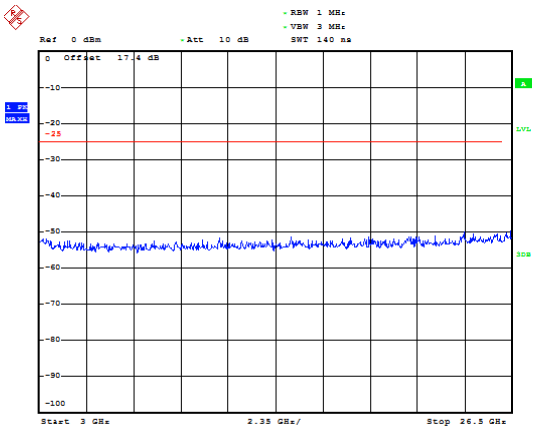
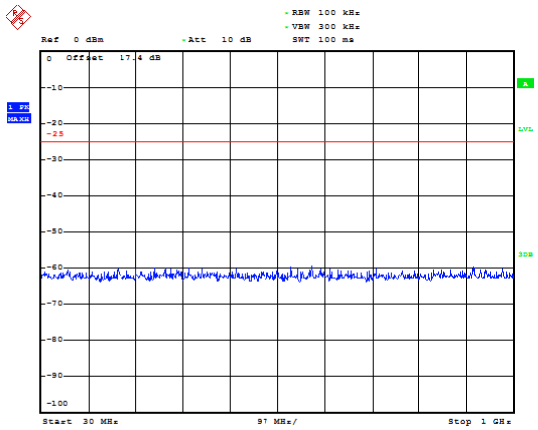
LTE Band 38 15MHz CH-Middle 3GHz~26.5GHz



Date: 27.NOV.2018 20:37:58

LTE Band 38 15MHz CH-High 30MHz~1GHz



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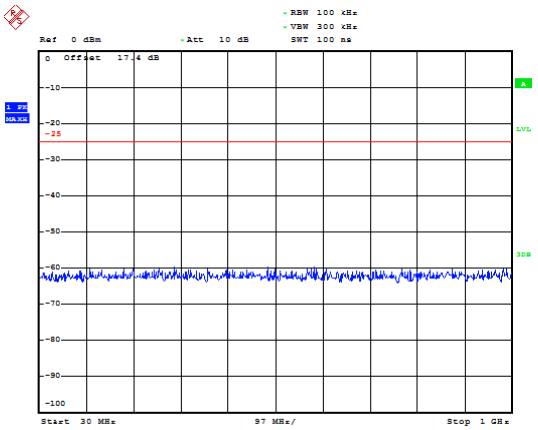
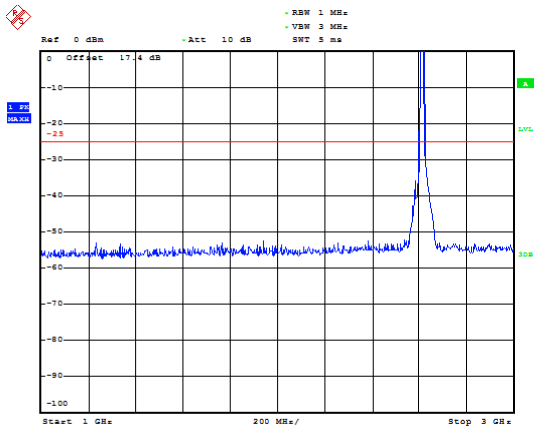
LTE Band 38 20MHz CH-Low 30MHz~1GHz



Date: 27.NOV.2018 20:46:45

LTE Band 38 15MHz CH-High 1GHz~3GHz



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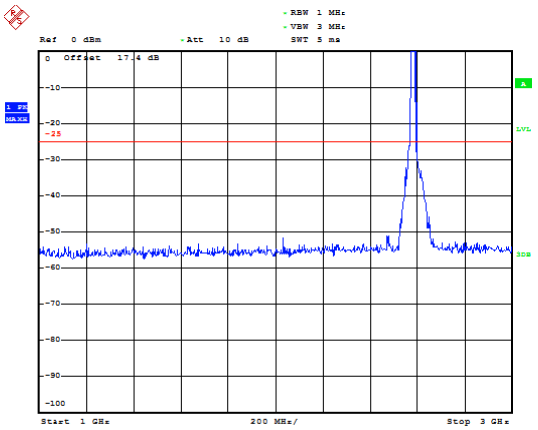
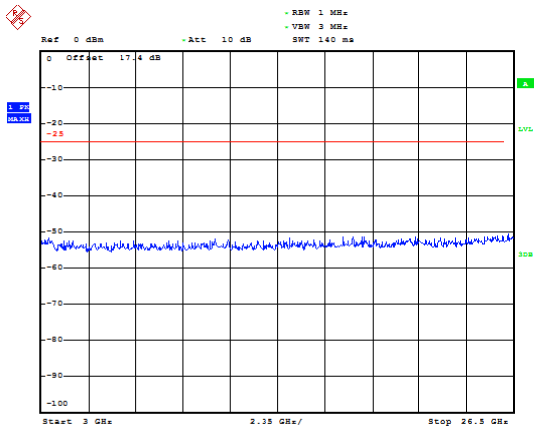
LTE Band 38 20MHz CH-Low 1GHz~3GHz



Date: 27.NOV.2018 20:53:44

LTE Band 38 15MHz CH-High 3GHz~26.5GHz



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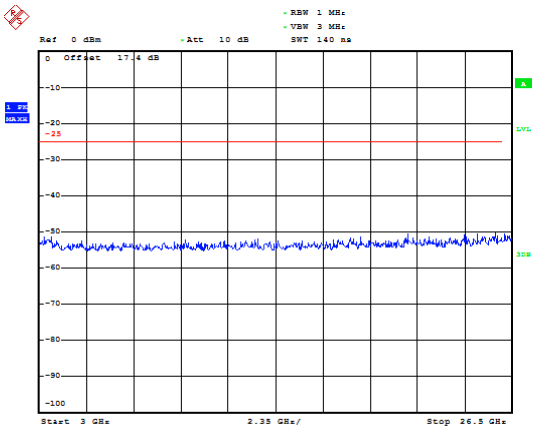
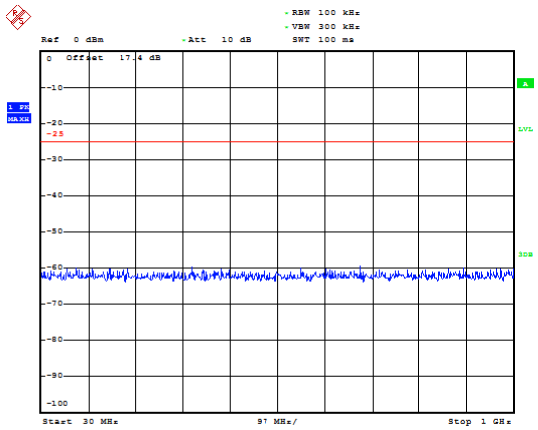
LTE Band 38 20MHz CH-Low 3GHz~26.5GHz



Date: 27.NOV.2018 20:45:02

LTE Band 38 20MHz CH-Middle 30MHz~1GHz



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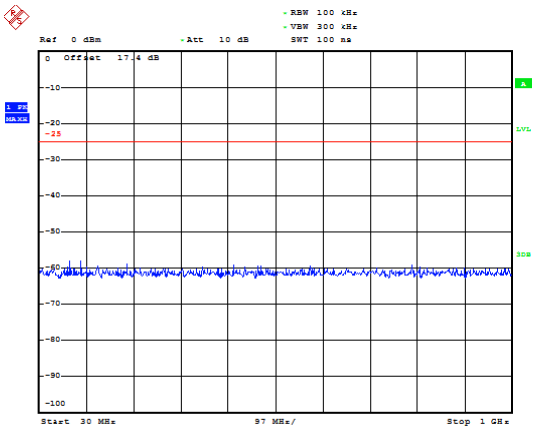
LTE Band 38 20MHz CH-High 30MHz~1GHz



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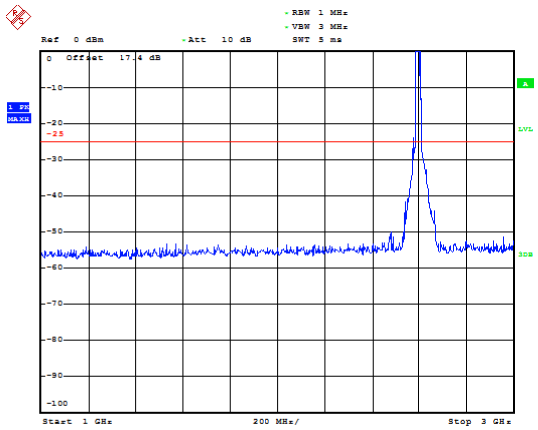
LTE Band 38 20MHz CH-Middle 1GHz~3GHz



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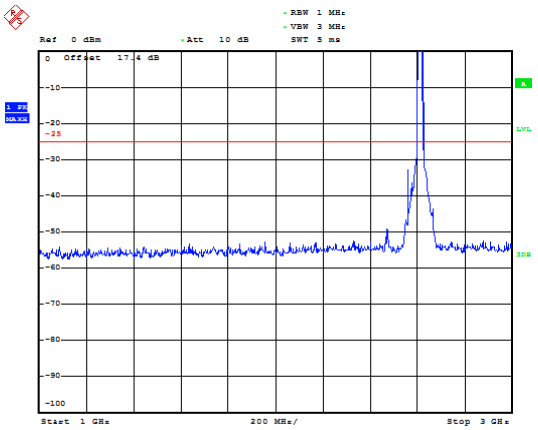
LTE Band 38 20MHz CH-High 1GHz~3GHz



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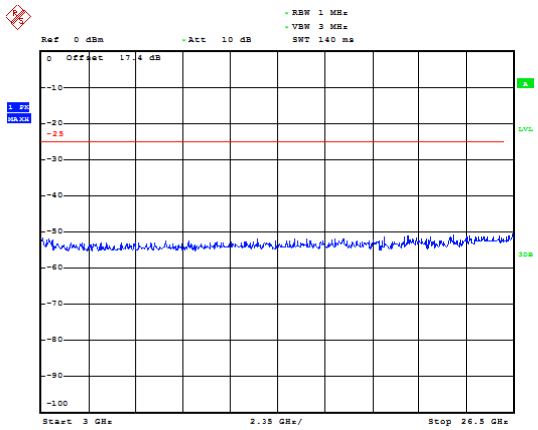
LTE Band 38 20MHz CH-Middle 3GHz~26.5GHz



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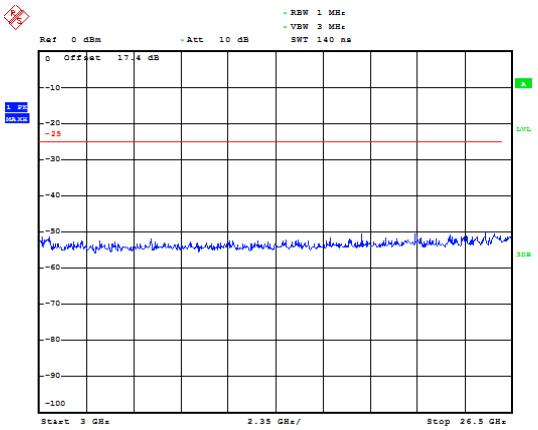
LTE Band 38 20MHz CH-High 3GHz~26.5GHz



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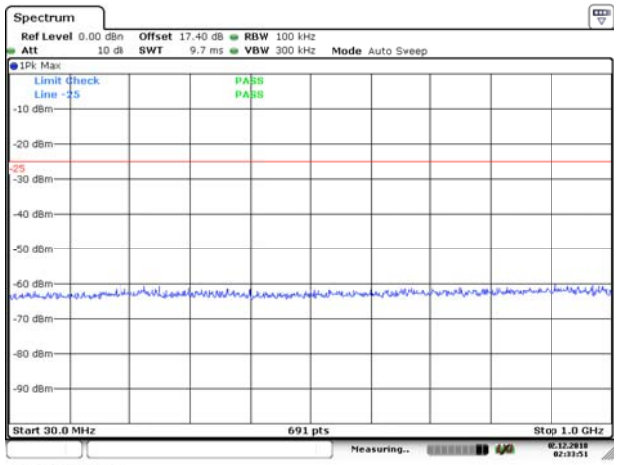
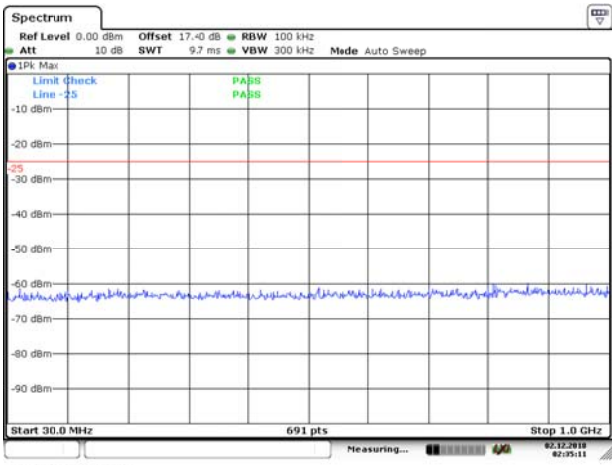
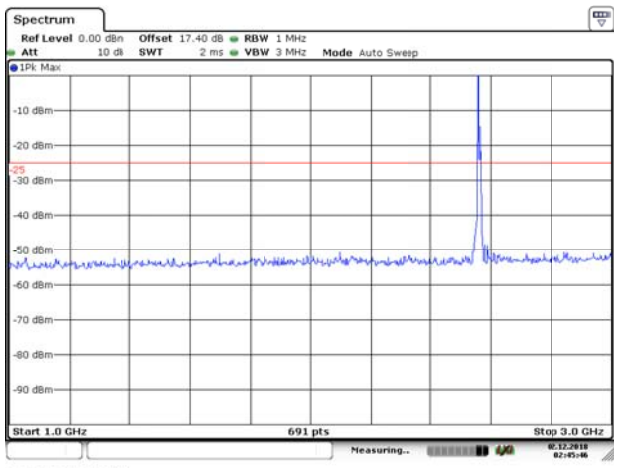
LTE Band 41 5MHz CH-Low 30MHz~1GHz



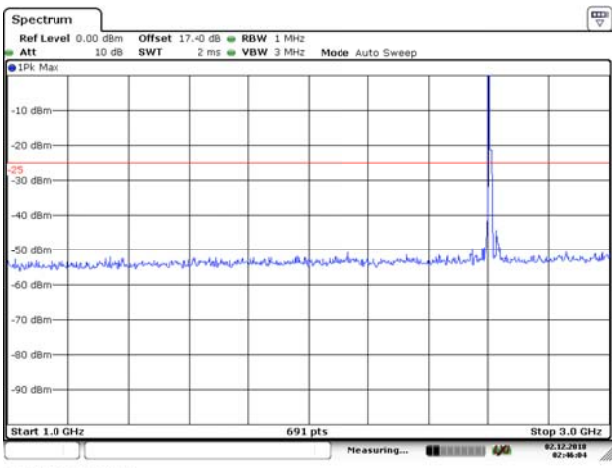
LTE Band 41 5MHz CH-Middle 30MHz~1GHz



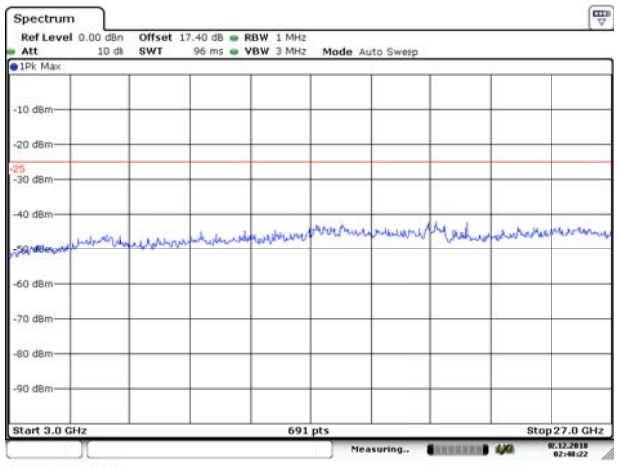
LTE Band 41 5MHz CH Low 1GHz~3GHz



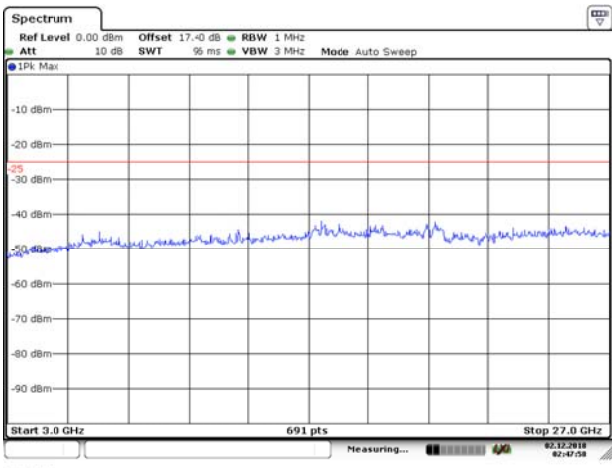
LTE Band 41 5MHz CH-Middle 1GHz~3GHz



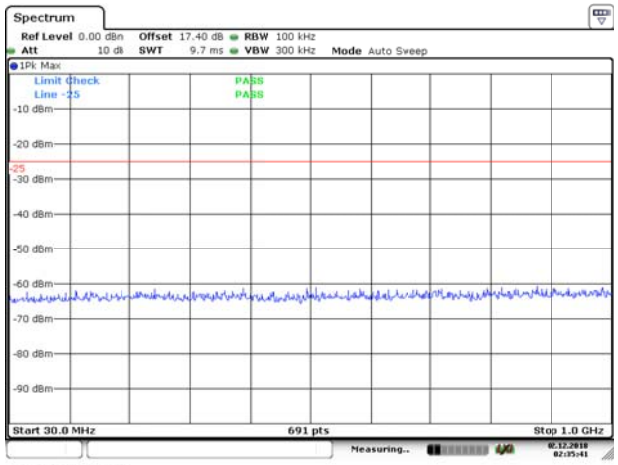
LTE Band 41 5MHz CH-Low 3GHz~27GHz



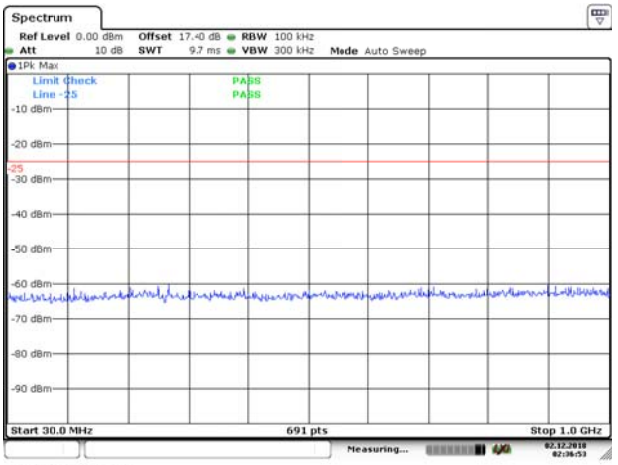
LTE Band 41 5MHz CH-Middle 3GHz~27GH



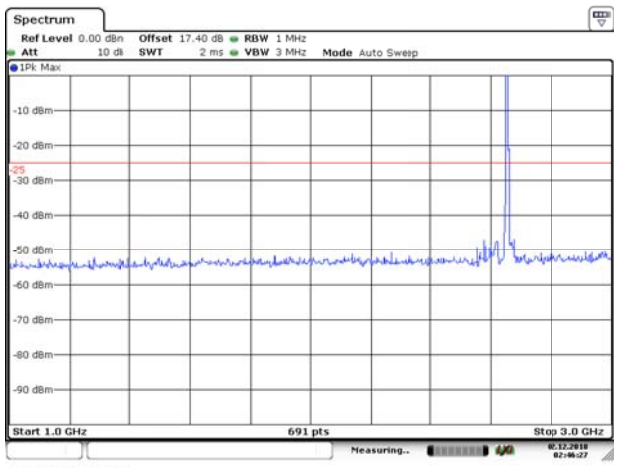
LTE Band 41 5MHz CH-High 30MHz~1GHz



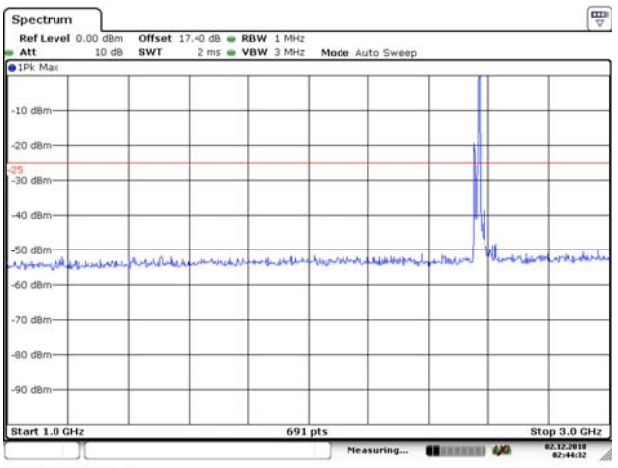
LTE Band 41 10MHz CH-Low 30MHz~1GHz



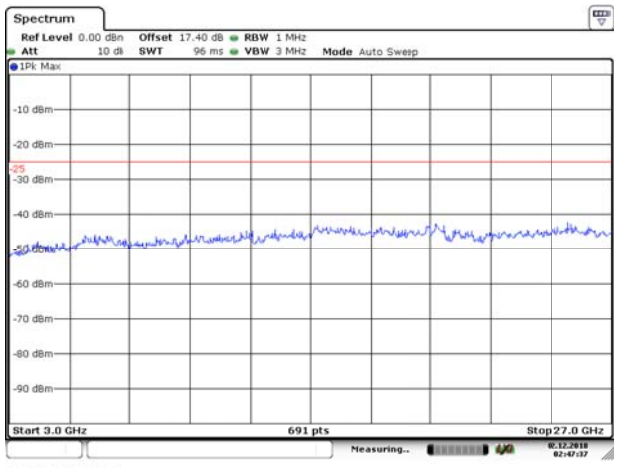
LTE Band 41 5MHz CH-High 1GHz~3GHz



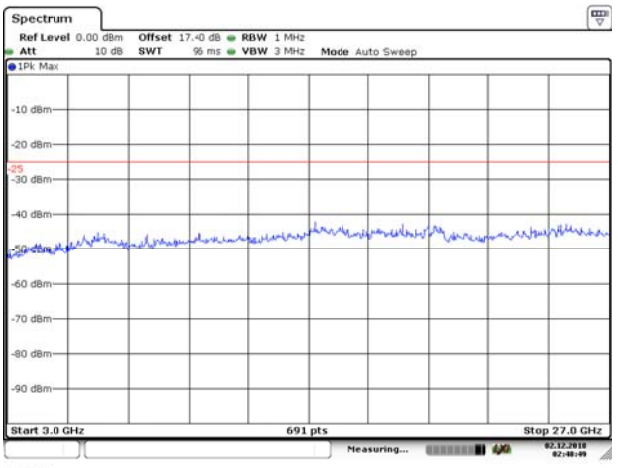
LTE Band 41 10MHz CH-Low 1GHz~3GHz



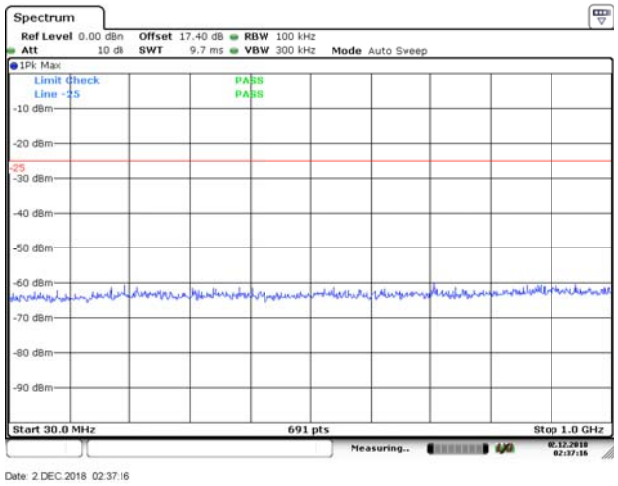
LTE Band 41 5MHz CH-High 3GHz~27GHz



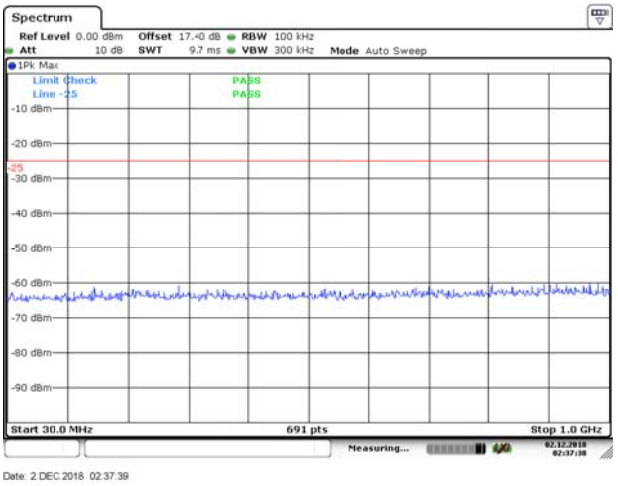
LTE Band 41 10MHz CH-Low 3GHz~27GH



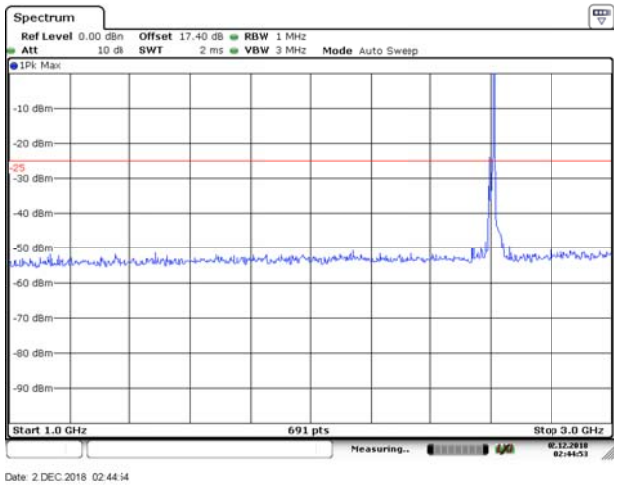
LTE Band 41 10MHz CH-Middle 30MHz~1GHz



LTE Band 41 10MHz CH-High 30MHz~1GHz



LTE Band 41 10MHz CH-Middle 1GHz~3GHz



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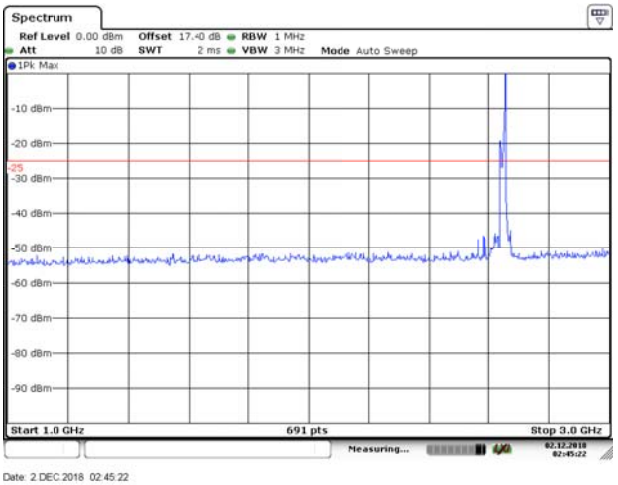
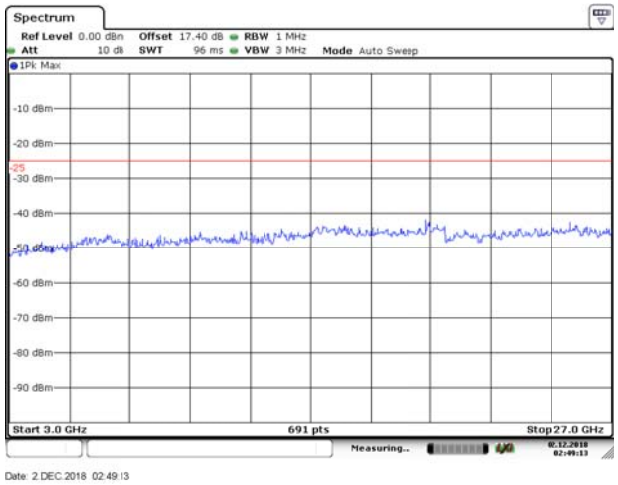
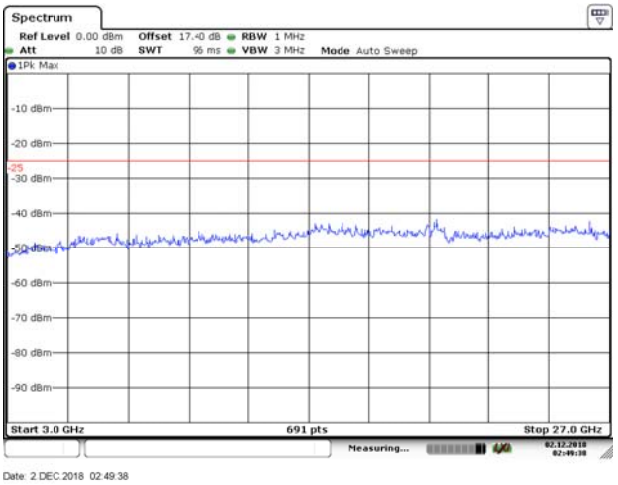


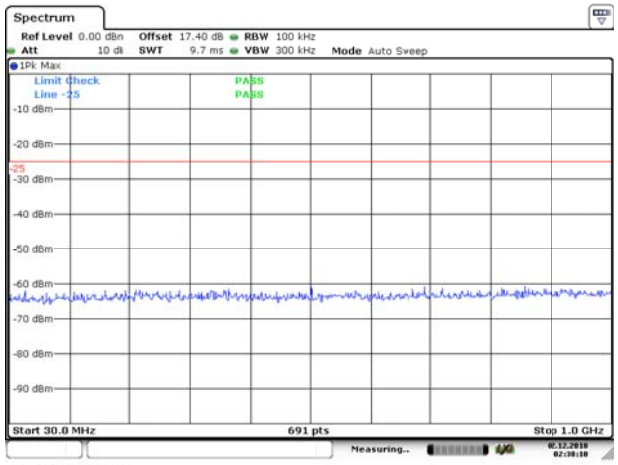
LTE Band 41 10MHz CH-Middle 3GHz~27GHz



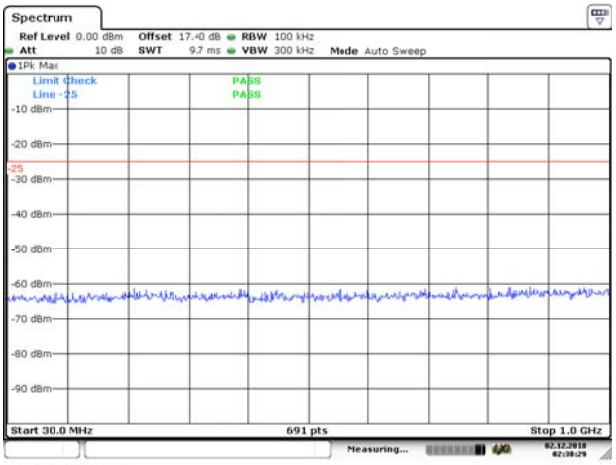
LTE Band 4110MHz CH-High 3GHz~27GH



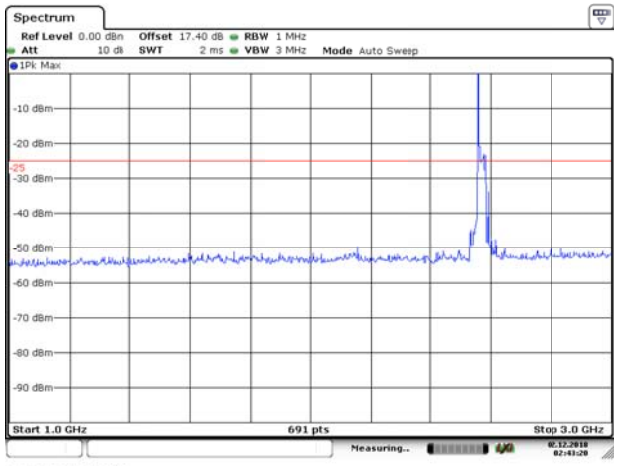
LTE Band 41 15MHz CH-Low 30MHz~1GHz



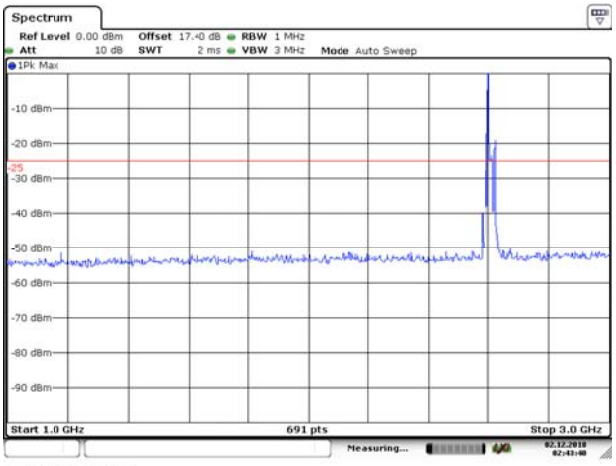
LTE Band 41 15MHz CH-Middle 30MHz~1GHz



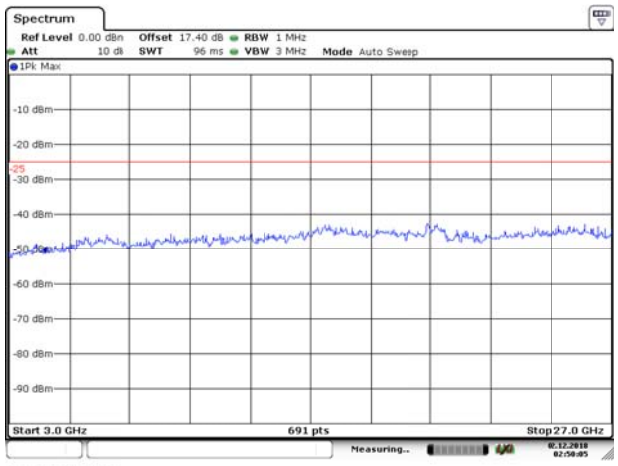
LTE Band 41 15MHz CH-Low 1GHz~3GHz



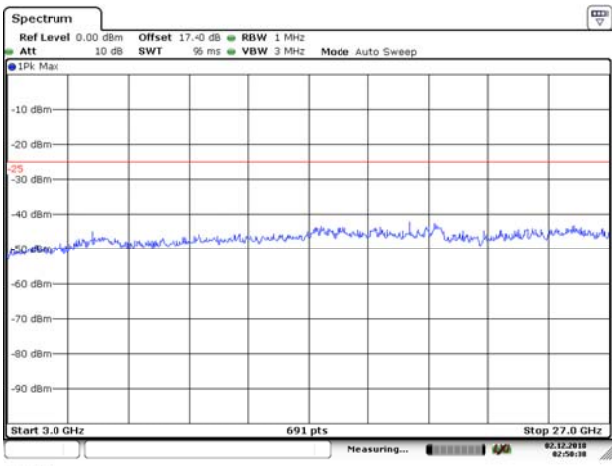
LTE Band 41 15MHz CH-Middle 1GHz~3GHz



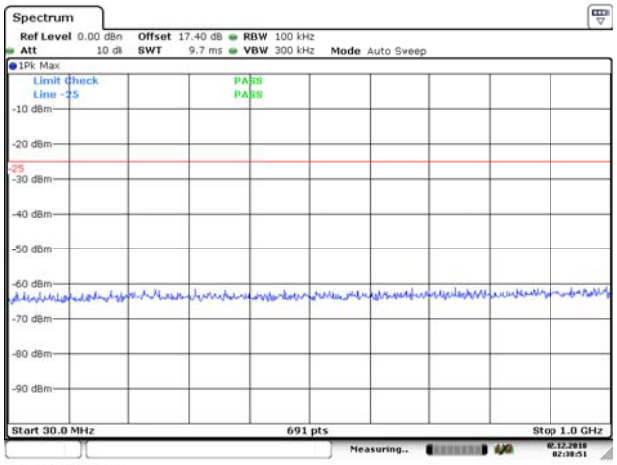
LTE Band 41 15MHz CH-Low 3GHz~27GHz



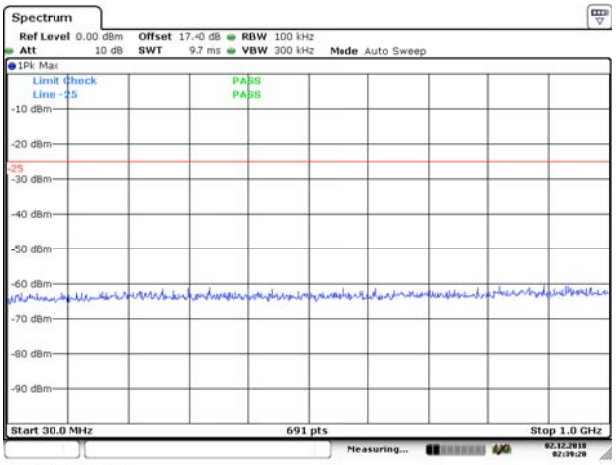
LTE Band 41 15MHz CH-Middle 3GHz~27GH



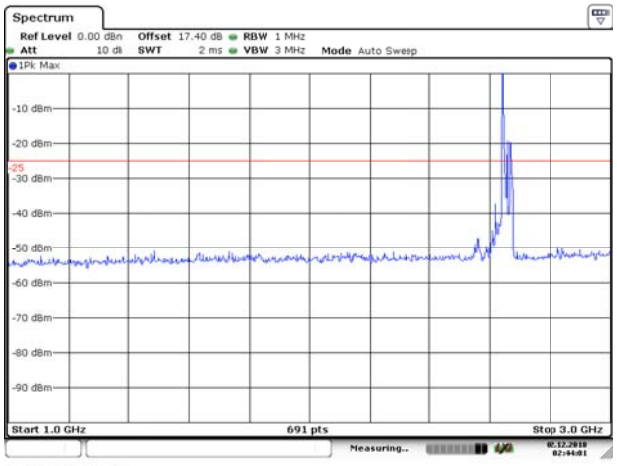
LTE Band 41 15MHz CH-High 30MHz~1GHz



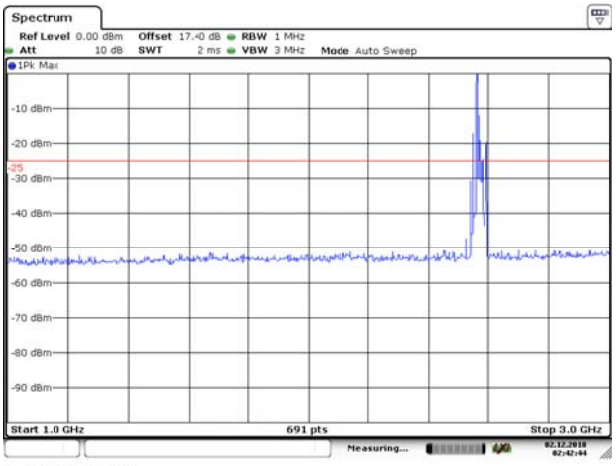
LTE Band 41 20MHz CH-Low 30MHz~1GHz



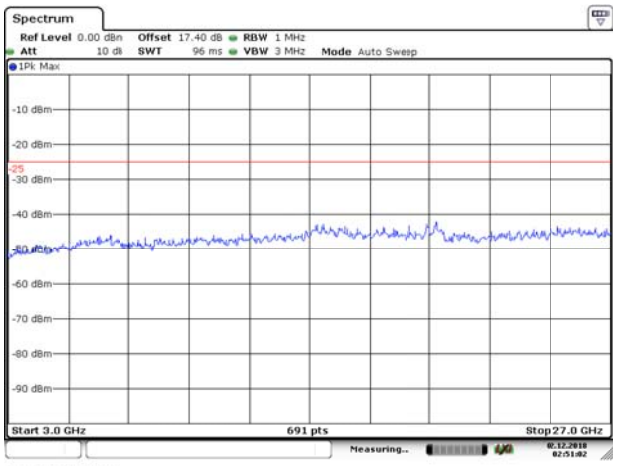
LTE Band 41 15MHz CH-High 1GHz~3GHz



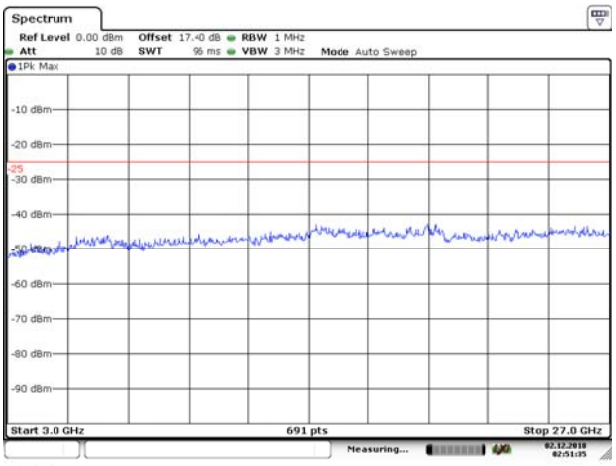
LTE Band 41 20MHz CH-Low 1GHz~3GHz



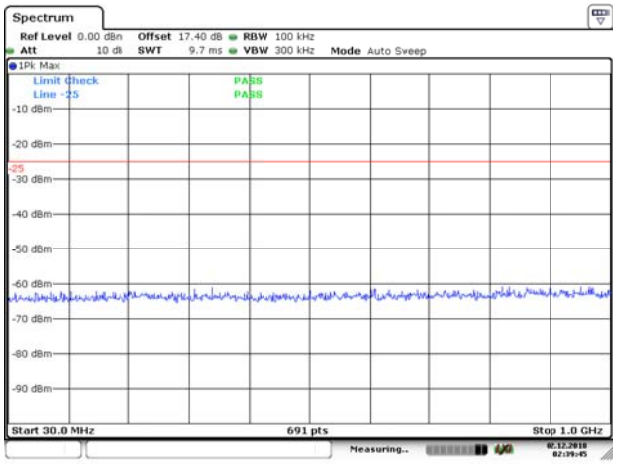
LTE Band 41 15MHz CH-High 3GHz~27GHz



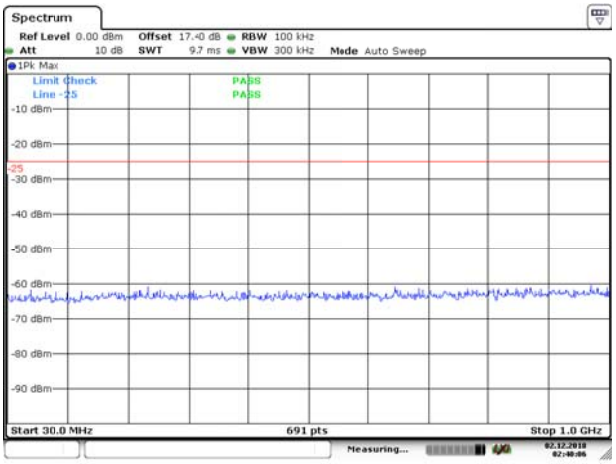
LTE Band 41 20MHz CH-Low 3GHz~27GH



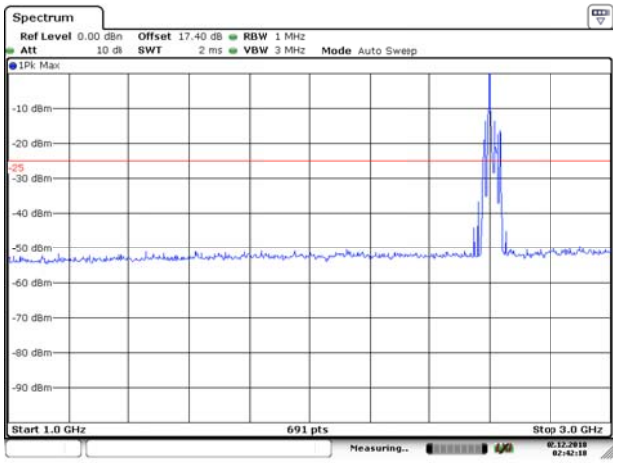
LTE Band 41 20MHz CH-Middle 30MHz~1GHz



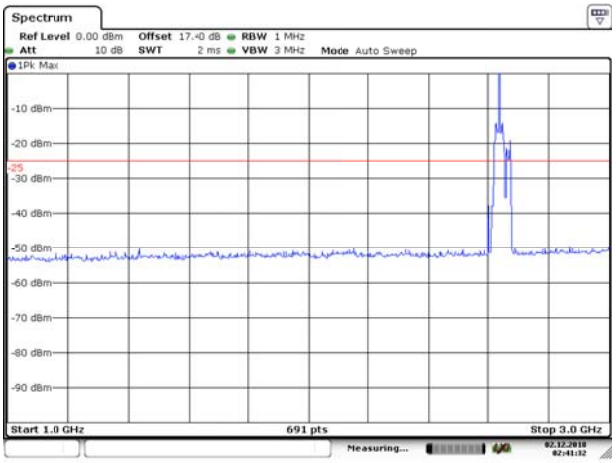
LTE Band 41 20MHz CH-High 30MHz~1GHz



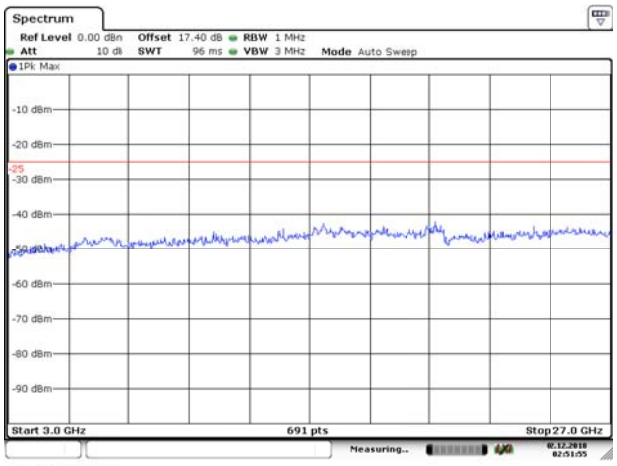
LTE Band 41 20MHz CH-Middle 1GHz~3GHz



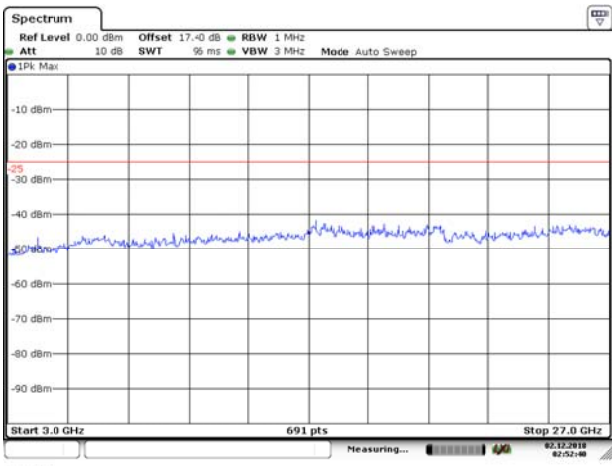
LTE Band 41 20MHz CH-High 1GHz~3GHz



LTE Band 41 20MHz CH-Middle 3GHz~27GHz



LTE Band 41 20MHz CH-High 3GHz~27GH



5.8 Radiates Spurious Emission

Ambient condition

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

Method of Measurement

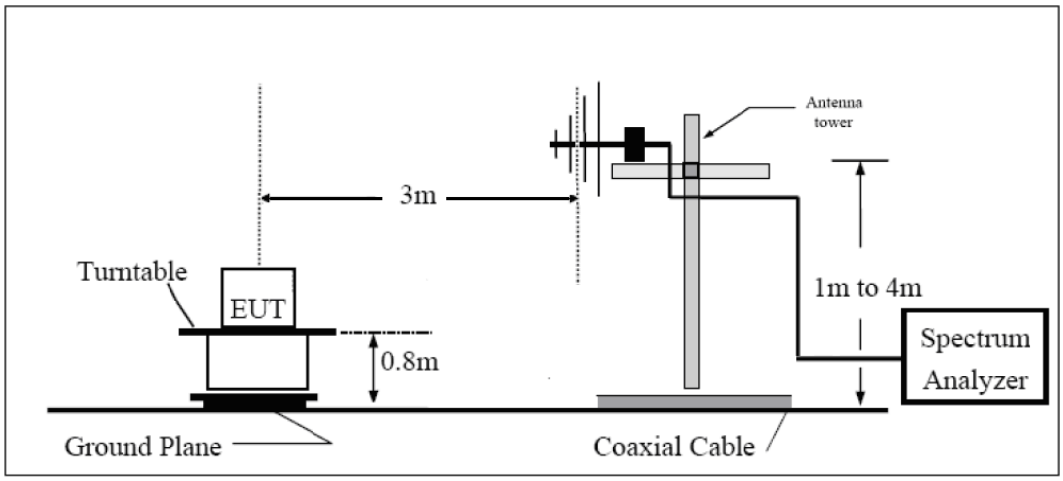
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Above 30MHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz for above 1GHz and RBW=100kHz,VBW=300kHz for 30MHz to 1GHz,, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP

= EIRP-2.15dBi.

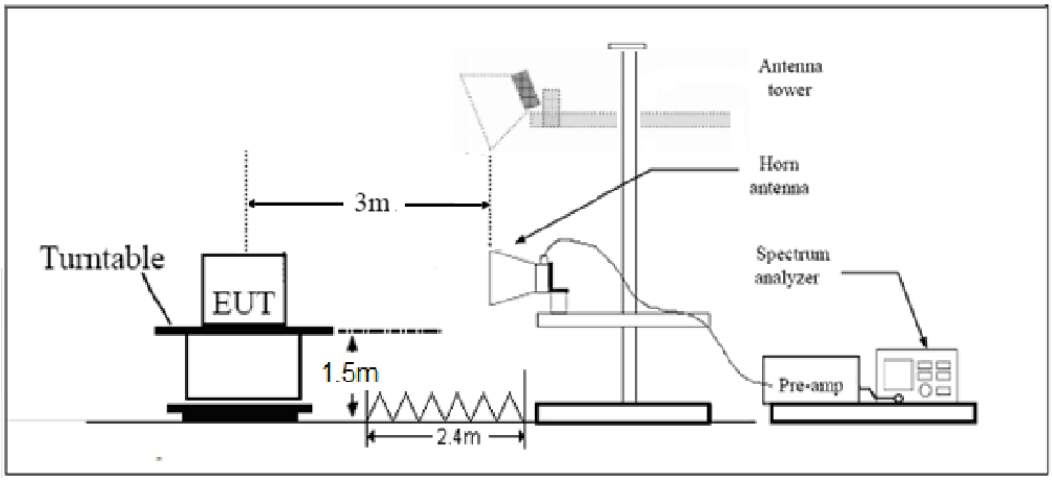
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

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 log10 (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(h) 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 = ±1.96, U= ±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.

WCDMA Band IV CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3462.8	-65.98	2.6	10.75	Horizontal	-57.83	-13.00	44.83	135
3	5201.3	-63.24	2.4	11.05	Horizontal	-54.59	-13.00	41.59	45
4	6925.1	-57.38	4.5	11.15	Horizontal	-50.73	-13.00	37.73	225
5	8663.0	-55.85	5.1	11.35	Horizontal	-49.60	-13.00	36.60	45
6	10395.6	-53.53	5.3	11.95	Horizontal	-46.88	-13.00	33.88	0
7	12128.2	-54.24	5.5	13.55	Horizontal	-46.19	-13.00	33.19	315
8	13860.8	-52.12	6.3	13.75	Horizontal	-44.67	-13.00	31.67	0
9	15593.4	-54.96	6.7	13.85	Horizontal	-47.81	-13.00	34.81	45
10	17326.0	-51.51	6.8	14.25	Horizontal	-44.06	-13.00	31.06	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 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	-62.86	2.6	10.75	Horizontal	-54.71	-13.00	41.71	135
3	5197.5	-61.99	2.4	11.05	Horizontal	-53.34	-13.00	40.34	45
4	6930.0	-52.67	4.5	11.15	Horizontal	-46.02	-13.00	33.02	315
5	8662.5	-54.98	5.1	11.35	Horizontal	-48.73	-13.00	35.73	135
6	10395.0	-52.34	5.3	11.95	Horizontal	-45.69	-13.00	32.69	315
7	12127.5	-54.08	5.5	13.55	Horizontal	-46.03	-13.00	33.03	45
8	13860.0	-51.43	6.3	13.75	Horizontal	-43.98	-13.00	30.98	0
9	15592.5	-51.76	6.7	13.85	Horizontal	-44.61	-13.00	31.61	180
10	17325.0	-54.95	6.8	14.25	Horizontal	-47.50	-13.00	34.50	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 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	-63.85	2.6	10.75	Horizontal	-55.70	-13.00	42.70	135
3	5191.5	-60.96	2.4	11.05	Horizontal	-52.31	-13.00	39.31	180
4	6930.0	-52.12	4.5	11.15	Horizontal	-45.47	-13.00	32.47	45
5	8662.5	-55.54	5.1	11.35	Horizontal	-49.29	-13.00	36.29	135
6	10395.0	-52.14	5.3	11.95	Horizontal	-45.49	-13.00	32.49	45
7	12127.5	-53.23	5.5	13.55	Horizontal	-45.18	-13.00	32.18	0
8	13860.0	-50.88	6.3	13.75	Horizontal	-43.43	-13.00	30.43	315
9	15592.5	-53.70	6.7	13.85	Horizontal	-46.55	-13.00	33.55	135
10	17325.0	-51.31	6.8	14.25	Horizontal	-43.86	-13.00	30.86	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 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	-63.81	2.6	10.75	Horizontal	-55.66	-13.00	42.66	90
3	5170.5	-62.12	2.4	11.05	Horizontal	-53.47	-13.00	40.47	135
4	6930.0	-51.25	4.5	11.15	Horizontal	-44.60	-13.00	31.60	45
5	8662.5	-55.57	5.1	11.35	Horizontal	-49.32	-13.00	36.32	135
6	10395.0	-52.09	5.3	11.95	Horizontal	-45.44	-13.00	32.44	45
7	12127.5	-53.78	5.5	13.55	Horizontal	-45.73	-13.00	32.73	0
8	13860.0	-51.48	6.3	13.75	Horizontal	-44.03	-13.00	31.03	90
9	15592.5	-54.22	6.7	13.85	Horizontal	-47.07	-13.00	34.07	0
10	17325.0	-51.41	6.8	14.25	Horizontal	-43.96	-13.00	30.96	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 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	5070.0	-60.44	2.00	9.15	Horizontal	-53.29	-25.00	28.29	45
3	7605.0	-58.86	2.50	11.35	Horizontal	-50.01	-25.00	25.01	135
4	10140.0	-54.14	4.20	12.05	Horizontal	-46.29	-25.00	21.29	90
5	12675.0	-52.82	5.20	12.85	Horizontal	-45.17	-25.00	20.17	180
6	15210.0	-56.24	5.50	14.23	Horizontal	-47.51	-25.00	22.51	225
7	17745.0	-52.71	5.70	14.15	Horizontal	-44.26	-25.00	19.26	270
8	20280.0	-63.06	6.30	13.76	Horizontal	-55.60	-25.00	30.60	180
9	22815.0	-62.14	6.80	14.05	Horizontal	-54.89	-25.00	29.89	45
10	25350.0	-60.33	6.90	14.84	Horizontal	-52.39	-25.00	27.39	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 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	5070.0	-61.63	2.00	10.15	Horizontal	-53.48	-25.00	28.48	45
3	7605.0	-57.52	2.50	11.35	Horizontal	-48.67	-25.00	23.67	0
4	10140.0	-53.28	4.20	12.05	Horizontal	-45.43	-25.00	20.43	135
5	12675.0	-54.97	5.20	14.85	Horizontal	-45.32	-25.00	20.32	45
6	15210.0	-52.79	5.50	13.23	Horizontal	-45.06	-25.00	20.06	315
7	17745.0	-50.51	5.70	12.15	Horizontal	-44.06	-25.00	19.06	0
8	20280.0	-62.26	6.30	13.76	Horizontal	-54.80	-25.00	29.80	45
9	22815.0	-61.35	6.80	14.05	Horizontal	-54.10	-25.00	29.10	90
10	25350.0	-61.14	6.90	14.84	Horizontal	-53.20	-25.00	28.20	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 38 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	5190.0	-61.37	2.00	9.15	Horizontal	-54.22	-25.0	29.22	45
3	7785.0	-58.45	2.50	11.35	Horizontal	-49.60	-25.0	24.60	0
4	10380.0	-54.18	4.20	12.05	Horizontal	-46.33	-25.0	21.33	135
5	12975.0	-52.31	5.20	12.85	Horizontal	-44.66	-25.0	19.66	45
6	15570.0	-55.34	5.50	14.23	Horizontal	-46.61	-25.0	21.61	315
7	18165.0	-62.45	5.70	14.15	Horizontal	-54.00	-25.0	29.00	45
8	20760.0	-61.46	6.30	13.76	Horizontal	-54.00	-25.0	29.00	135
9	23355.0	-60.35	6.80	14.05	Horizontal	-53.10	-25.0	28.10	90
10	25950.0	-60.94	6.90	14.84	Horizontal	-53.00	-25.0	28.00	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 38 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	5190.0	-62.87	2.00	10.15	Horizontal	-54.72	-25.0	29.72	45
3	7785.0	-57.08	2.50	11.35	Horizontal	-48.23	-25.0	23.23	0
4	10380.0	-53.59	4.20	12.05	Horizontal	-45.74	-25.0	20.74	135
5	12975.0	-53.11	5.20	14.85	Horizontal	-43.46	-25.0	18.46	45
6	15570.0	-55.74	5.50	13.23	Horizontal	-48.01	-25.0	23.01	315
7	18165.0	-61.86	5.70	12.15	Horizontal	-55.41	-25.0	30.41	315
8	20760.0	-62.89	6.30	13.76	Horizontal	-55.43	-25.0	30.43	90
9	23355.0	-60.66	6.80	14.05	Horizontal	-53.41	-25.0	28.41	45
10	25950.0	-60.13	6.90	14.84	Horizontal	-52.19	-25.0	27.19	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 Horizontal position.									

LTE Band 41 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	4997.0	-61.89	2.00	9.15	Horizontal	-54.74	-25.00	29.74	0
3	7495.5	-58.74	2.50	11.35	Horizontal	-49.89	-25.00	24.89	180
4	9994.0	-54.97	4.20	12.05	Horizontal	-47.12	-25.00	22.12	135
5	12492.5	-53.46	5.20	12.85	Horizontal	-45.81	-25.00	20.81	225
6	14991.0	-53.43	5.50	14.23	Horizontal	-44.70	-25.00	19.70	135
7	17489.5	-51.98	5.70	14.15	Horizontal	-43.53	-25.00	18.53	45
8	19988.0	-62.32	6.30	13.76	Horizontal	-54.86	-25.00	29.86	45
9	22486.5	-61.62	6.80	14.05	Horizontal	-54.37	-25.00	29.37	90
10	24985.0	-59.58	6.90	14.84	Horizontal	-51.64	-25.00	26.64	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 41 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	5186.0	-62.38	2.00	10.15	Horizontal	-54.23	-25.00	29.23	45
3	7779.0	-58.53	2.50	11.35	Horizontal	-49.68	-25.00	24.68	0
4	10372.0	-54.11	4.20	12.05	Horizontal	-46.26	-25.00	21.26	135
5	12965.0	-54.16	5.20	14.85	Horizontal	-44.51	-25.00	19.51	180
6	15558.0	-54.60	5.50	13.23	Horizontal	-46.87	-25.00	21.87	270
7	18151.0	-61.92	5.70	12.15	Horizontal	-55.47	-25.00	30.47	90
8	20744.0	-62.44	6.30	13.76	Horizontal	-54.98	-25.00	29.98	135
9	23337.0	-61.40	6.80	14.05	Horizontal	-54.15	-25.00	29.15	45
10	25930.0	-59.42	6.90	14.84	Horizontal	-51.48	-25.00	26.48	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 Horizontal position.									

6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2018-05-20	2019-05-19
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2018-05-20	2019-05-19
Signal Analyzer	R&S	FSV30	100815	2017-12-17	2018-12-16
EMI Test Receiver	R&S	ESCI	100948	2018-05-20	2019-05-19
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2017-09-26	2019-09-25
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2019-11-17
Horn Antenna	R&S	HF907	100126	2018-07-07	2020-07-06
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2020-06-19
Horn Antenna	STEATITE	QSH-SL-26-40-K-15	16779	2017-07-20	2019-07-19
Signal generator	R&S	SMB 100A	102594	2018-05-20	2019-05-19
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preampflier	R&S	SCU18	102327	2018-05-20	2019-05-19
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2018-05-21	2019-05-20
RF Cable	Agilent	SMA 15cm	0001	/	/
Software	R&S	EMC32	9.26.0	/	/

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