	15	20025	1717.5	24.71	18.77	5.94	≤13	PASS
		20175	1732.5	25.01	19.17	5.84	≤13	PASS
		20325	1747.5	24.62	18.57	6.05	≤13	PASS
	20	20050	1720	24.82	18.72	6.10	≤13	PASS
		20175	1732.5	25.06	19.20	5.86	≤13	PASS
		20300	1745	24.73	18.67	6.06	≤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	23.49	18.16	5.33	≤13	PASS
		21100	2535	24.07	18.62	5.45	≤13	PASS
		21425	2567.5	24.13	18.84	5.29	≤13	PASS
	10	20800	2505	23.40	17.99	5.41	≤13	PASS
		21100	2535	24.00	18.55	5.45	≤13	PASS
		21400	2565	23.54	18.13	5.41	≤13	PASS
	15	20825	2507.5	23.24	17.58	5.66	≤13	PASS
		21100	2535	24.09	18.48	5.61	≤13	PASS
		21375	2562.5	23.63	17.92	5.71	≤13	PASS
	20	20850	2510	22.92	17.41	5.51	≤13	PASS
		21100	2535	23.88	18.43	5.45	≤13	PASS
		21350	2560	23.41	17.89	5.52	≤13	PASS
16QAM	5	20775	2502.5	23.89	18.06	5.83	≤13	PASS
		21100	2535	24.55	18.56	5.99	≤13	PASS
		21425	2567.5	24.18	18.38	5.80	≤13	PASS
	10	20800	2505	23.79	17.86	5.93	≤13	PASS
		21100	2535	24.46	18.48	5.98	≤13	PASS
		21400	2565	23.99	18.06	5.93	≤13	PASS
	15	20825	2507.5	23.49	17.48	6.01	≤13	PASS
		21100	2535	24.34	18.40	5.94	≤13	PASS
		21375	2562.5	23.80	17.84	5.96	≤13	PASS
	20	20850	2510	23.44	17.35	6.09	≤13	PASS
		21100	2535	24.25	18.30	5.95	≤13	PASS
		21350	2560	23.83	17.82	6.01	≤13	PASS

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LTE Band 38								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	37775	2572.5	24.12	15.19	8.93	≤13	PASS
		38000	2595	24.39	15.92	8.47	≤13	PASS
		38225	2617.5	23.50	14.55	8.95	≤13	PASS
	10	37800	2575	24.60	15.49	9.11	≤13	PASS
		38000	2595	24.20	15.31	8.89	≤13	PASS
		38200	2615	23.43	15.24	8.19	≤13	PASS
	15	37825	2577.5	25.00	15.91	9.09	≤13	PASS
		38000	2595	24.34	15.27	9.07	≤13	PASS
		38175	2612.5	23.42	14.21	9.21	≤13	PASS
	20	37850	2580	24.80	15.89	8.91	≤13	PASS
		38000	2595	24.35	15.03	9.32	≤13	PASS
		38150	2610	23.42	14.34	9.08	≤13	PASS
16QAM	5	37775	2572.5	24.66	15.60	9.06	≤13	PASS
		38000	2595	24.79	15.46	9.33	≤13	PASS
		38225	2617.5	24.01	14.78	9.23	≤13	PASS
	10	37800	2575	25.08	16.75	8.33	≤13	PASS
		38000	2595	24.74	15.18	9.56	≤13	PASS
		38200	2615	23.67	13.95	9.72	≤13	PASS
	15	37825	2577.5	25.09	15.52	9.57	≤13	PASS
		38000	2595	24.51	14.64	9.87	≤13	PASS
		38175	2612.5	23.68	13.83	9.85	≤13	PASS
	20	37850	2580	25.15	15.40	9.75	≤13	PASS
		38000	2595	24.69	15.52	9.17	≤13	PASS
		38150	2610	24.06	14.71	9.35	≤13	PASS

LTE Band 41								
Modulation	Bandwidth ((MHz))	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	40165	2547.5	24.79	16.12	8.67	≤13	PASS
		40690	2600	23.62	14.50	9.12	≤13	PASS
		41215	2652.5	23.40	14.93	8.47	≤13	PASS
	10	40190	2550	24.63	16.29	8.34	≤13	PASS

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		40690	2600	23.85	14.92	8.93	≤13	PASS
		41190	2650	24.08	15.36	8.72	≤13	PASS
	15	40215	2552.5	24.15	14.65	9.50	≤13	PASS
		40690	2600	23.81	14.49	9.32	≤13	PASS
		41165	2647.5	24.35	14.96	9.39	≤13	PASS
	20	40240	2555	24.25	15.62	8.63	≤13	PASS
		40690	2600	24.18	15.14	9.04	≤13	PASS
		41140	2645	24.69	15.32	9.37	≤13	PASS
16QAM	5	40165	2547.5	25.02	15.66	9.36	≤13	PASS
		40690	2600	24.10	14.74	9.36	≤13	PASS
		41215	2652.5	23.84	14.70	9.14	≤13	PASS
	10	40190	2550	25.03	15.55	9.48	≤13	PASS
		40690	2600	24.31	14.94	9.37	≤13	PASS
		41190	2650	24.34	14.76	9.58	≤13	PASS
	15	40215	2552.5	24.77	14.88	9.89	≤13	PASS
		40690	2600	24.35	14.20	10.15	≤13	PASS
		41165	2647.5	24.64	14.85	9.79	≤13	PASS
	20	40240	2555	24.59	14.94	9.65	≤13	PASS
		40690	2600	24.71	15.44	9.27	≤13	PASS
		41140	2645	25.12	15.86	9.26	≤13	PASS

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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 -30°C to +55°C in 10°C or 5°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)

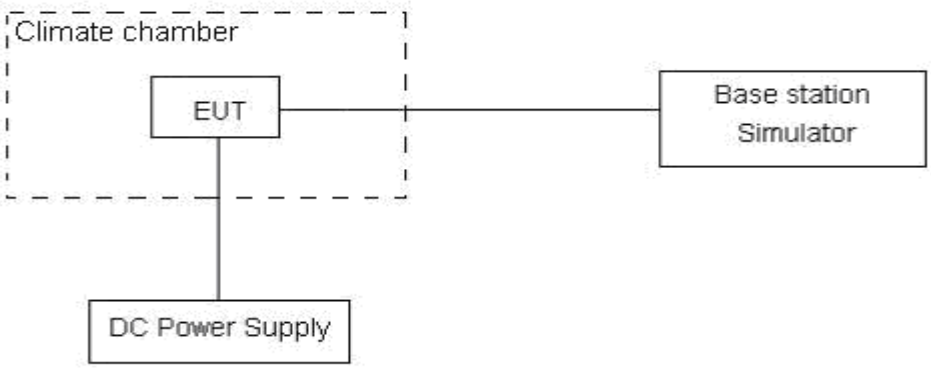
The frequency stability shall be measured with variation of primary supply voltage as follows:

(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 10.8 V and 13.2 V, with a nominal voltage of 12V.

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.

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Test Result

WCDMA Band IV						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	5.88	3.91	0.00313	0.00208	PASS
Extreme（55℃）		10.19	13.38	0.00542	0.00712	PASS
Extreme（50℃）		12.54	2.41	0.00667	0.00128	PASS
Extreme（40℃）		12.49	15.34	0.00664	0.00816	PASS
Extreme（30℃）		2.80	15.32	0.00149	0.00815	PASS
Extreme（20℃）		15.82	14.21	0.00842	0.00756	PASS
Extreme（10℃）		12.16	8.39	0.00647	0.00447	PASS
Extreme（0℃）		16.54	12.10	0.00880	0.00644	PASS
Extreme（-10℃）		12.81	9.52	0.00682	0.00506	PASS
Extreme（-20℃）		14.26	8.26	0.00758	0.00439	PASS
Extreme（-30℃）		6.32	10.00	0.00336	0.00532	PASS
25℃	LV	15.21	10.51	0.00809	0.00559	PASS
	HV	12.85	8.51	0.00684	0.00452	PASS

LTE Band 4						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	7.55	2.68	0.00401	0.00142	PASS
Extreme（55℃）		15.05	8.08	0.00801	0.00430	PASS
Extreme（50℃）		16.62	11.25	0.00884	0.00598	PASS
Extreme（40℃）		12.15	13.57	0.00646	0.00722	PASS
Extreme（30℃）		10.57	13.96	0.00562	0.00742	PASS
Extreme（20℃）		15.06	8.02	0.00801	0.00427	PASS
Extreme（10℃）		1.78	11.50	0.00095	0.00612	PASS
Extreme（0℃）		9.05	1.82	0.00481	0.00097	PASS
Extreme（-10℃）		16.78	3.99	0.00892	0.00212	PASS
Extreme（-20℃）		17.43	10.29	0.00927	0.00547	PASS
Extreme（-30℃）		12.20	5.84	0.00649	0.00311	PASS
25℃	LV	14.89	9.40	0.00792	0.00500	PASS
	HV	7.86	9.29	0.00418	0.00494	PASS

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LTE Band 4						
Cndition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	9.95	1.07	0.00529	0.00057	PASS
Extreme（55℃）		11.40	3.02	0.00607	0.00161	PASS
Extreme（50℃）		11.46	7.08	0.00610	0.00377	PASS
Extreme（40℃）		4.15	10.84	0.00221	0.00577	PASS
Extreme（30℃）		1.90	15.78	0.00101	0.00839	PASS
Extreme（20℃）		6.64	6.44	0.00353	0.00342	PASS
Extreme（10℃）		16.66	9.81	0.00886	0.00522	PASS
Extreme（0℃）		8.16	13.26	0.00434	0.00705	PASS
Extreme（-10℃）		13.31	14.69	0.00708	0.00781	PASS
Extreme（-20℃）		3.04	14.05	0.00162	0.00747	PASS
Extreme（-30℃）		9.11	2.09	0.00485	0.00111	PASS
25℃	LV	6.63	15.02	0.00353	0.00799	PASS
	HV	14.80	15.73	0.00787	0.00837	PASS

LTE Band 4						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	15.95	4.88	0.00849	0.00260	PASS
Extreme（55℃）		3.09	6.86	0.00164	0.00365	PASS
Extreme（50℃）		8.21	7.21	0.00437	0.00384	PASS
Extreme（40℃）		12.66	9.84	0.00673	0.00523	PASS
Extreme（30℃）		4.11	11.21	0.00219	0.00596	PASS
Extreme（20℃）		8.88	5.64	0.00472	0.00300	PASS
Extreme（10℃）		3.68	7.72	0.00196	0.00411	PASS
Extreme（0℃）		15.87	10.29	0.00844	0.00547	PASS
Extreme（-10℃）		16.13	11.96	0.00858	0.00636	PASS
Extreme（-20℃）		7.91	7.30	0.00421	0.00388	PASS
Extreme（-30℃）		11.35	15.01	0.00604	0.00798	PASS
25℃	LV	8.32	7.86	0.00442	0.00418	PASS
	HV	10.61	14.41	0.00565	0.00767	PASS

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LTE Band 4						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	1.36	2.15	0.00072	0.00114	PASS
Extreme（55℃）		14.13	16.65	0.00751	0.00885	PASS
Extreme（50℃）		14.95	6.62	0.00795	0.00352	PASS
Extreme（40℃）		14.72	8.74	0.00783	0.00465	PASS
Extreme（30℃）		7.60	1.60	0.00404	0.00085	PASS
Extreme（20℃）		3.89	15.26	0.00207	0.00812	PASS
Extreme（10℃）		3.68	3.09	0.00196	0.00165	PASS
Extreme（0℃）		7.49	13.21	0.00398	0.00703	PASS
Extreme（-10℃）		14.96	8.69	0.00796	0.00462	PASS
Extreme（-20℃）		6.46	3.07	0.00344	0.00163	PASS
Extreme（-30℃）		9.92	1.22	0.00528	0.00065	PASS
25℃	LV	13.17	17.23	0.00701	0.00917	PASS
	HV	12.56	13.72	0.00668	0.00730	PASS

LTE Band 4						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	13.20	11.78	0.00702	0.00626	PASS
Extreme（55℃）		3.49	5.50	0.00186	0.00293	PASS
Extreme（50℃）		7.55	10.56	0.00401	0.00561	PASS
Extreme（40℃）		9.40	7.59	0.00500	0.00404	PASS
Extreme（30℃）		7.51	15.83	0.00399	0.00842	PASS
Extreme（20℃）		13.47	8.66	0.00716	0.00461	PASS
Extreme（10℃）		11.58	10.60	0.00616	0.00564	PASS
Extreme（0℃）		11.08	4.64	0.00589	0.00247	PASS
Extreme（-10℃）		6.83	9.28	0.00363	0.00494	PASS
Extreme（-20℃）		13.92	8.67	0.00741	0.00461	PASS
Extreme（-30℃）		14.21	11.80	0.00756	0.00628	PASS
25℃	LV	13.98	13.48	0.00743	0.00717	PASS
	HV	17.45	14.07	0.00928	0.00748	PASS

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LTE Band 4						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	9.08	7.90	0.00483	0.00420	PASS
Extreme（55℃）		7.17	10.14	0.00382	0.00539	PASS
Extreme（50℃）		5.81	11.60	0.00309	0.00617	PASS
Extreme（40℃）		1.52	13.66	0.00081	0.00726	PASS
Extreme（30℃）		4.25	17.24	0.00226	0.00917	PASS
Extreme（20℃）		9.37	17.66	0.00498	0.00939	PASS
Extreme（10℃）		4.41	17.56	0.00234	0.00934	PASS
Extreme（0℃）		1.22	5.08	0.00065	0.00270	PASS
Extreme（-10℃）		13.67	6.35	0.00727	0.00338	PASS
Extreme（-20℃）		8.24	2.16	0.00438	0.00115	PASS
Extreme（-30℃）		2.95	7.03	0.00157	0.00374	PASS
25℃	LV	17.76	15.50	0.00945	0.00824	PASS
	HV	17.28	6.99	0.00919	0.00372	PASS

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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℃）	Normal	13.41	2.08	0.00713	0.00111	PASS
Extreme（55℃）		6.66	7.47	0.00354	0.00397	PASS
Extreme（50℃）		5.25	4.10	0.00279	0.00218	PASS
Extreme（40℃）		5.04	14.39	0.00268	0.00766	PASS
Extreme（30℃）		7.74	11.81	0.00411	0.00628	PASS
Extreme（20℃）		7.82	1.76	0.00416	0.00094	PASS
Extreme（10℃）		12.04	17.07	0.00641	0.00908	PASS
Extreme（0℃）		4.66	17.21	0.00248	0.00915	PASS
Extreme（-10℃）		12.05	8.80	0.00641	0.00468	PASS
Extreme（-20℃）		14.80	15.33	0.00787	0.00815	PASS
Extreme（-30℃）		12.60	12.51	0.00670	0.00665	PASS
25℃	LV	16.27	6.53	0.00865	0.00347	PASS
	HV	1.05	7.73	0.00056	0.00411	PASS

LTE Band 7						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	3.96	11.80	0.00211	0.00628	PASS
Extreme（55℃）		16.27	2.66	0.00866	0.00142	PASS
Extreme（50℃）		13.14	15.62	0.00699	0.00831	PASS
Extreme（40℃）		17.14	6.03	0.00912	0.00321	PASS
Extreme（30℃）		5.13	2.12	0.00273	0.00113	PASS
Extreme（20℃）		15.84	8.55	0.00843	0.00455	PASS
Extreme（10℃）		7.14	12.79	0.00380	0.00680	PASS
Extreme（0℃）		7.18	3.76	0.00382	0.00200	PASS
Extreme（-10℃）		2.84	12.70	0.00151	0.00676	PASS
Extreme（-20℃）		4.16	13.59	0.00221	0.00723	PASS
Extreme（-30℃）		15.76	8.69	0.00838	0.00462	PASS
25℃	LV	4.40	7.89	0.00234	0.00420	PASS
	HV	4.94	6.99	0.00263	0.00372	PASS

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LTE Band 7						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	5.13	3.85	0.00273	0.00205	PASS
Extreme（55℃）		5.05	15.24	0.00269	0.00811	PASS
Extreme（50℃）		2.07	5.42	0.00110	0.00288	PASS
Extreme（40℃）		16.73	7.70	0.00890	0.00410	PASS
Extreme（30℃）		15.18	12.05	0.00807	0.00641	PASS
Extreme（20℃）		5.48	10.14	0.00291	0.00540	PASS
Extreme（10℃）		13.33	15.02	0.00709	0.00799	PASS
Extreme（0℃）		1.31	6.98	0.00070	0.00371	PASS
Extreme（-10℃）		7.12	1.36	0.00379	0.00073	PASS
Extreme（-20℃）		2.35	8.71	0.00125	0.00463	PASS
Extreme（-30℃）		8.80	2.04	0.00468	0.00109	PASS
25℃	LV	8.59	9.55	0.00457	0.00508	PASS
	HV	12.30	10.35	0.00654	0.00551	PASS

LTE Band 7						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	15.36	10.35	0.00817	0.00551	PASS
Extreme（55℃）		5.80	17.79	0.00308	0.00946	PASS
Extreme（50℃）		1.02	9.41	0.00054	0.00500	PASS
Extreme（40℃）		10.12	5.33	0.00538	0.00283	PASS
Extreme（30℃）		4.21	13.90	0.00224	0.00740	PASS
Extreme（20℃）		15.06	9.79	0.00801	0.00521	PASS
Extreme（10℃）		15.32	8.65	0.00815	0.00460	PASS
Extreme（0℃）		11.09	1.56	0.00590	0.00083	PASS
Extreme（-10℃）		6.16	12.40	0.00327	0.00660	PASS
Extreme（-20℃）		3.87	8.84	0.00206	0.00470	PASS
Extreme（-30℃）		12.03	11.73	0.00640	0.00624	PASS
25℃	LV	1.80	6.50	0.00096	0.00346	PASS
	HV	9.14	8.62	0.00486	0.00459	PASS

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LTE Band 38						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	2.30	4.58	0.00122	0.00243	PASS
Extreme（55℃）		12.45	13.20	0.00662	0.00702	PASS
Extreme（50℃）		12.90	15.93	0.00686	0.00847	PASS
Extreme（40℃）		4.98	5.42	0.00265	0.00288	PASS
Extreme（30℃）		11.40	17.39	0.00606	0.00925	PASS
Extreme（20℃）		4.63	15.60	0.00246	0.00830	PASS
Extreme（10℃）		7.79	5.82	0.00414	0.00310	PASS
Extreme（0℃）		2.85	17.84	0.00151	0.00949	PASS
Extreme（-10℃）		3.51	3.94	0.00187	0.00209	PASS
Extreme（-20℃）		9.20	3.64	0.00490	0.00194	PASS
Extreme（-30℃）		13.28	10.86	0.00707	0.00578	PASS
25℃	LV	1.00	9.33	0.00053	0.00496	PASS
	HV	15.53	5.35	0.00826	0.00284	PASS

LTE Band 38						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	16.07	11.20	0.00855	0.00596	PASS
Extreme（55℃）		10.28	1.93	0.00547	0.00103	PASS
Extreme（50℃）		5.06	4.94	0.00269	0.00263	PASS
Extreme（40℃）		16.83	9.58	0.00895	0.00510	PASS
Extreme（30℃）		13.08	12.20	0.00696	0.00649	PASS
Extreme（20℃）		6.42	15.85	0.00341	0.00843	PASS
Extreme（10℃）		15.96	17.17	0.00849	0.00913	PASS
Extreme（0℃）		14.37	15.87	0.00764	0.00844	PASS
Extreme（-10℃）		17.35	7.88	0.00923	0.00419	PASS
Extreme（-20℃）		8.98	3.56	0.00478	0.00189	PASS
Extreme（-30℃）		11.63	7.48	0.00619	0.00398	PASS
25℃	LV	10.85	17.67	0.00577	0.00940	PASS
	HV	10.05	3.67	0.00534	0.00195	PASS

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LTE Band 38						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	15.59	13.29	0.00829	0.00707	PASS
Extreme（55℃）		14.78	12.32	0.00786	0.00656	PASS
Extreme（50℃）		17.58	12.12	0.00935	0.00644	PASS
Extreme（40℃）		1.21	5.88	0.00064	0.00313	PASS
Extreme（30℃）		12.96	6.13	0.00689	0.00326	PASS
Extreme（20℃）		13.58	3.16	0.00722	0.00168	PASS
Extreme（10℃）		5.25	2.04	0.00279	0.00108	PASS
Extreme（0℃）		13.10	5.26	0.00697	0.00280	PASS
Extreme（-10℃）		15.06	6.96	0.00801	0.00370	PASS
Extreme（-20℃）		8.78	17.26	0.00467	0.00918	PASS
Extreme（-30℃）		16.55	3.28	0.00880	0.00175	PASS
25℃	LV	2.42	12.86	0.00129	0.00684	PASS
	HV	4.35	1.06	0.00232	0.00056	PASS

LTE Band 38						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	1.72	17.91	0.00091	0.00953	PASS
Extreme（55℃）		17.66	2.23	0.00939	0.00119	PASS
Extreme（50℃）		5.71	9.97	0.00304	0.00531	PASS
Extreme（40℃）		7.99	1.97	0.00425	0.00105	PASS
Extreme（30℃）		7.92	11.85	0.00421	0.00630	PASS
Extreme（20℃）		1.00	11.02	0.00053	0.00586	PASS
Extreme（10℃）		4.45	8.28	0.00237	0.00440	PASS
Extreme（0℃）		2.05	11.41	0.00109	0.00607	PASS
Extreme（-10℃）		14.30	11.43	0.00761	0.00608	PASS
Extreme（-20℃）		8.68	14.16	0.00462	0.00753	PASS
Extreme（-30℃）		2.16	17.24	0.00115	0.00917	PASS
25℃	LV	7.23	2.72	0.00384	0.00144	PASS
	HV	12.28	11.95	0.00653	0.00636	PASS

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LTE Band 41						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	11.85	5.79	0.00630	0.00308	PASS
Extreme（55℃）		12.45	8.16	0.00662	0.00434	PASS
Extreme（50℃）		17.84	3.66	0.00949	0.00195	PASS
Extreme（40℃）		15.38	7.33	0.00818	0.00390	PASS
Extreme（30℃）		7.34	11.94	0.00390	0.00635	PASS
Extreme（20℃）		9.59	5.88	0.00510	0.00313	PASS
Extreme（10℃）		6.65	10.59	0.00354	0.00563	PASS
Extreme（0℃）		11.93	5.11	0.00635	0.00272	PASS
Extreme（-10℃）		5.17	8.71	0.00275	0.00463	PASS
Extreme（-20℃）		15.22	7.89	0.00810	0.00420	PASS
Extreme（-30℃）		13.57	12.11	0.00722	0.00644	PASS
25℃	LV	6.04	8.86	0.00321	0.00471	PASS
	HV	2.32	9.73	0.00124	0.00518	PASS

LTE Band 41						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	17.26	10.97	0.00918	0.00583	PASS
Extreme（55℃）		1.35	8.13	0.00072	0.00432	PASS
Extreme（50℃）		10.18	11.42	0.00541	0.00608	PASS
Extreme（40℃）		3.17	2.73	0.00169	0.00145	PASS
Extreme（30℃）		7.94	5.41	0.00423	0.00288	PASS
Extreme（20℃）		15.71	12.94	0.00836	0.00688	PASS
Extreme（10℃）		11.43	17.17	0.00608	0.00913	PASS
Extreme（0℃）		10.00	9.56	0.00532	0.00508	PASS
Extreme（-10℃）		16.87	14.48	0.00897	0.00770	PASS
Extreme（-20℃）		14.85	2.79	0.00790	0.00149	PASS
Extreme（-30℃）		6.10	15.55	0.00325	0.00827	PASS
25℃	LV	11.09	9.63	0.00590	0.00512	PASS
	HV	6.11	16.61	0.00325	0.00883	PASS

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LTE Band 41						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	17.15	13.50	0.00912	0.00718	PASS
Extreme（55℃）		3.80	7.71	0.00202	0.00410	PASS
Extreme（50℃）		1.11	13.95	0.00059	0.00742	PASS
Extreme（40℃）		2.22	4.57	0.00118	0.00243	PASS
Extreme（30℃）		5.78	14.55	0.00308	0.00774	PASS
Extreme（20℃）		11.74	3.36	0.00624	0.00179	PASS
Extreme（10℃）		8.23	17.91	0.00438	0.00952	PASS
Extreme（0℃）		4.70	5.18	0.00250	0.00275	PASS
Extreme（-10℃）		9.07	15.65	0.00483	0.00833	PASS
Extreme（-20℃）		2.41	2.54	0.00128	0.00135	PASS
Extreme（-30℃）		12.31	6.85	0.00655	0.00364	PASS
25℃	LV	6.39	16.93	0.00340	0.00901	PASS
	HV	2.78	6.46	0.00148	0.00344	PASS

LTE Band 41						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	13.74	11.27	0.00731	0.00599	PASS
Extreme（55℃）		7.76	12.63	0.00413	0.00672	PASS
Extreme（50℃）		13.71	15.55	0.00729	0.00827	PASS
Extreme（40℃）		11.66	12.76	0.00620	0.00679	PASS
Extreme（30℃）		1.51	9.42	0.00080	0.00501	PASS
Extreme（20℃）		3.18	10.51	0.00169	0.00559	PASS
Extreme（10℃）		15.14	4.39	0.00805	0.00233	PASS
Extreme（0℃）		6.79	12.28	0.00361	0.00653	PASS
Extreme（-10℃）		16.27	17.23	0.00865	0.00917	PASS
Extreme（-20℃）		5.58	14.69	0.00297	0.00781	PASS
Extreme（-30℃）		3.20	10.54	0.00170	0.00561	PASS
25℃	LV	13.30	15.57	0.00708	0.00828	PASS
	HV	17.71	14.88	0.00942	0.00791	PASS

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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.

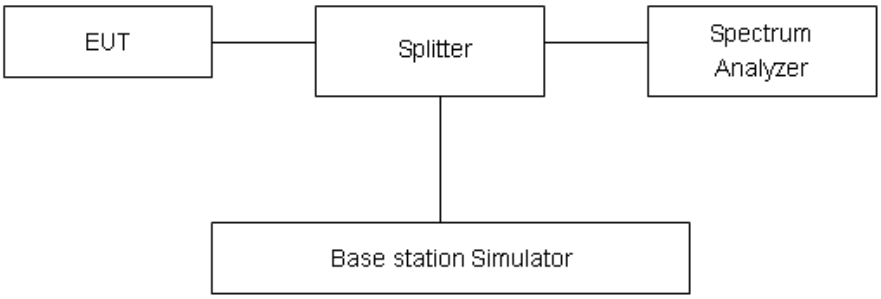
RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz

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 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

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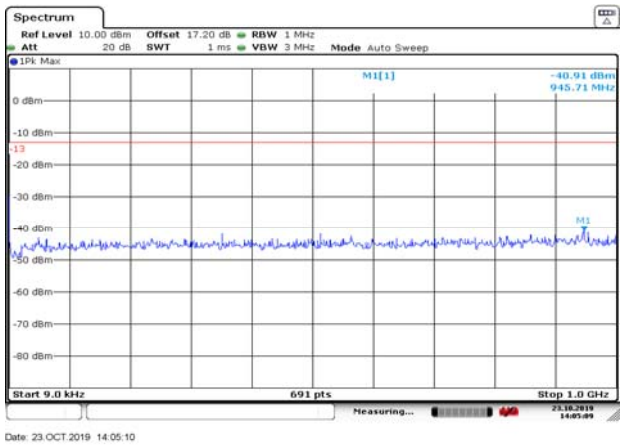
Test Result

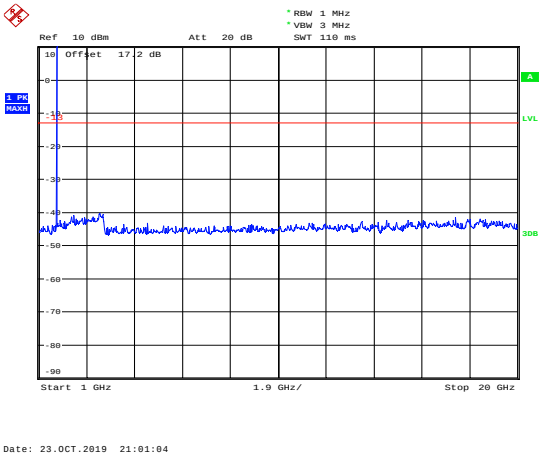
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

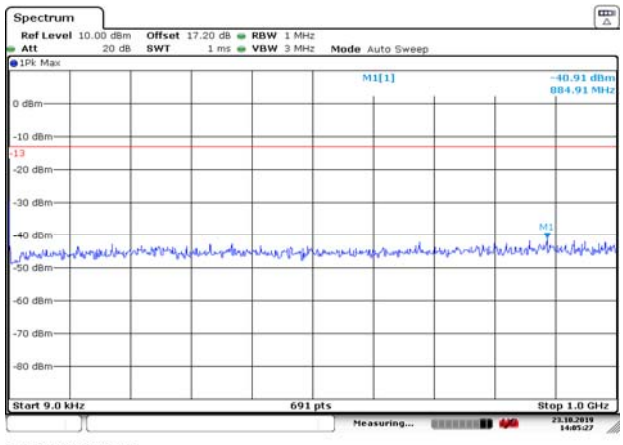
WCDMA Band IV CH-Low 9KHz~1GHz



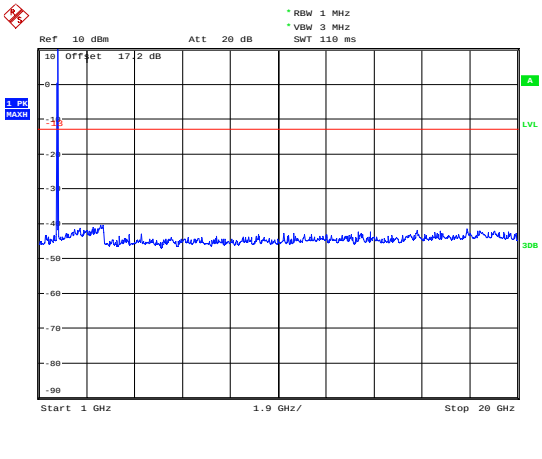
WCDMA Band IV CH-Low 1GHz ~20GHz



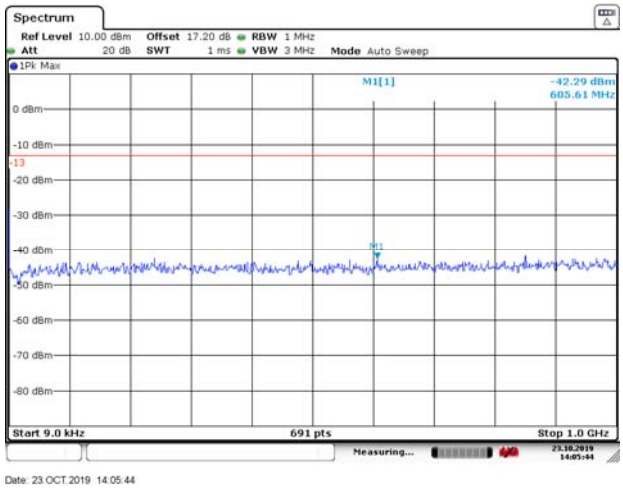
WCDMA Band IV CH-Middle 9KHz~1GHz



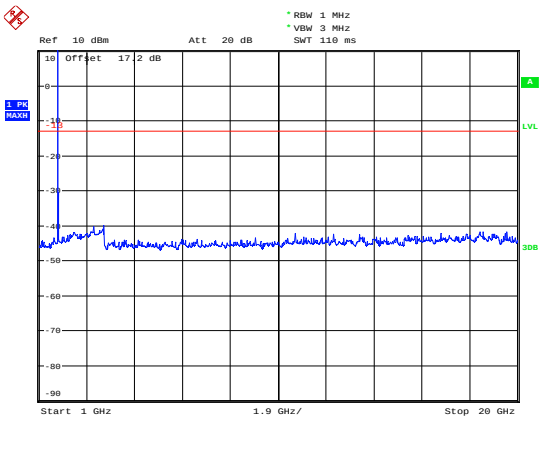
WCDMA Band IV CH-Middle 1GHz ~20GHz



WCDMA Band IV CH-High 9KHz~1GHz



WCDMA Band IV CH-High 1GHz ~20GHz



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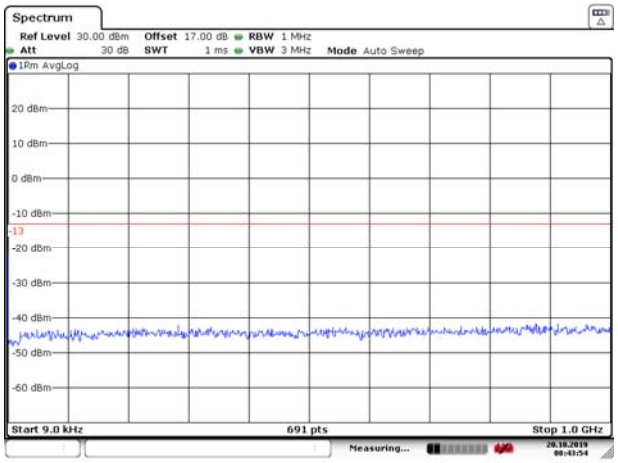
LTE Band 4 1.4MHz CH-Low 9KHz~1GHz



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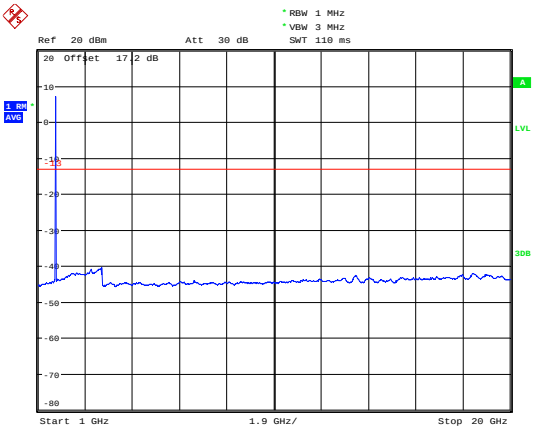
LTE Band 4 1.4MHz CH-Low 1GHz~20GHz



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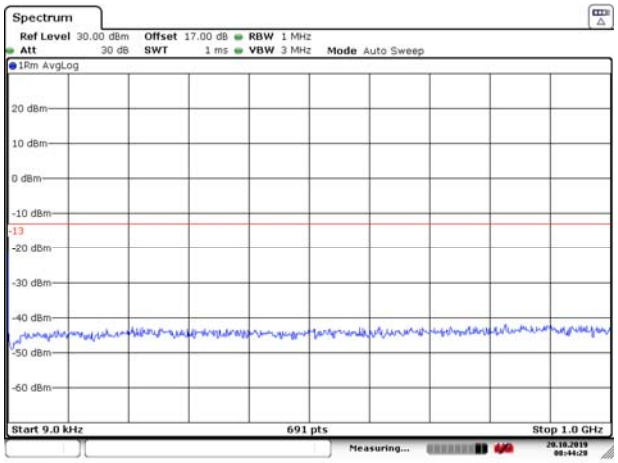
LTE Band 4 1.4MHz CH- Middle 9KHz~1GHz



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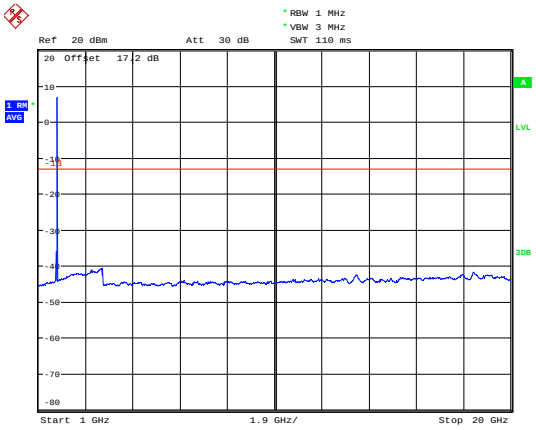
LTE Band 4 1.4MHz CH- Middle 1GHz~20GHz



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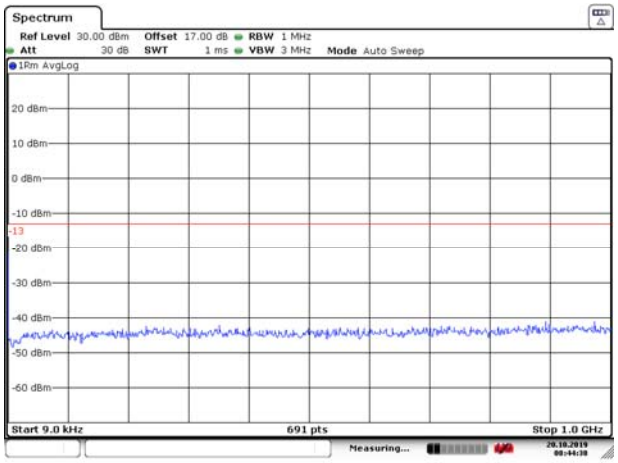
LTE Band 4 1.4MHz CH- High 9KHz~1GHz



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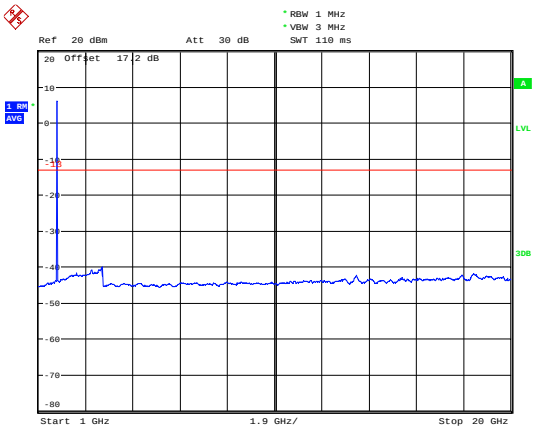
LTE Band 4 1.4MHz CH- High 1GHz~20GHz



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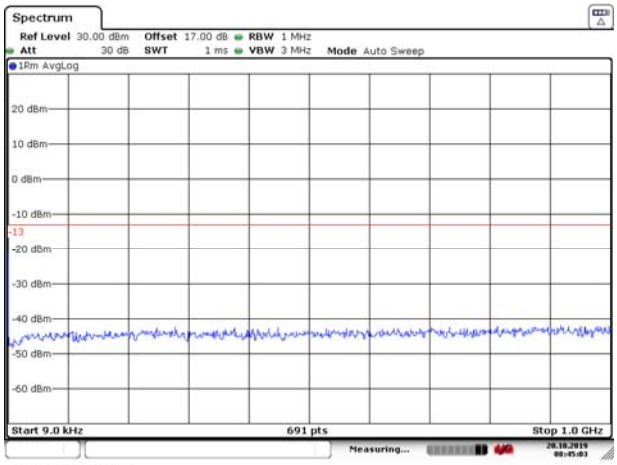
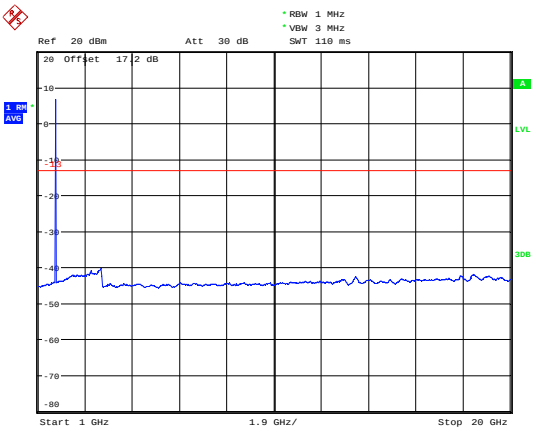
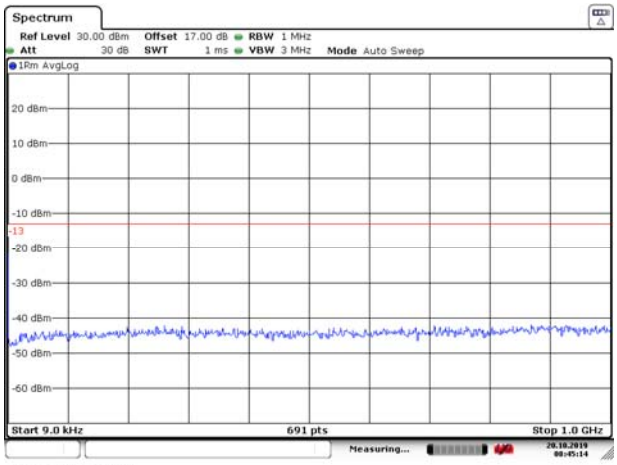
LTE Band 4 3MHz CH-Low 9KHz~1GHz



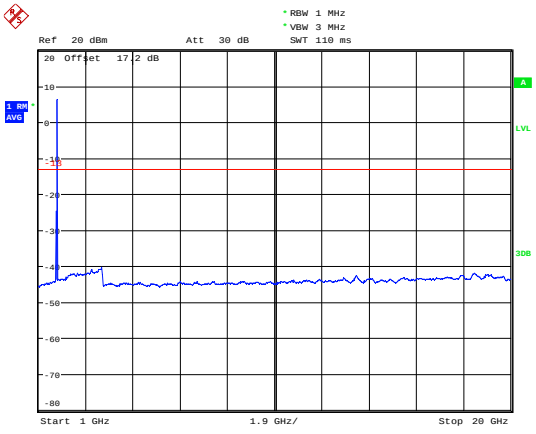
LTE Band 4 3MHz CH-Low 1GHz~20GHz



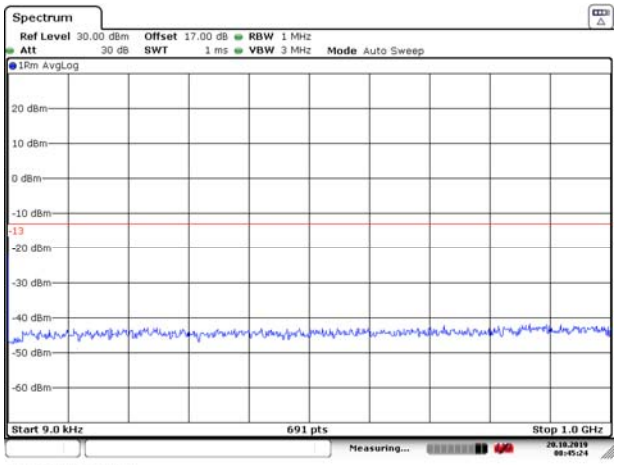
LTE Band 4 3MHz CH- Middle 9KHz~1GHz



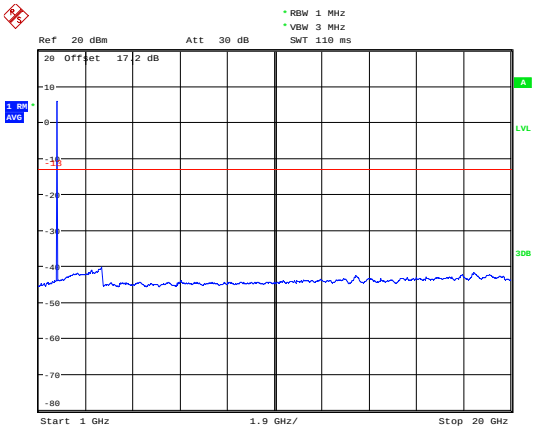
LTE Band 4 3MHz CH- Middle 1GHz~20GHz



LTE Band 4 3MHz CH- High 9KHz~1GHz



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



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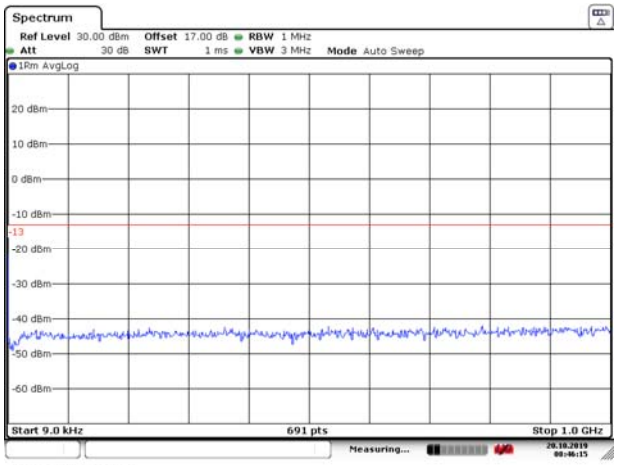
LTE Band 4 5MHz CH-Low 9KHz~1GHz



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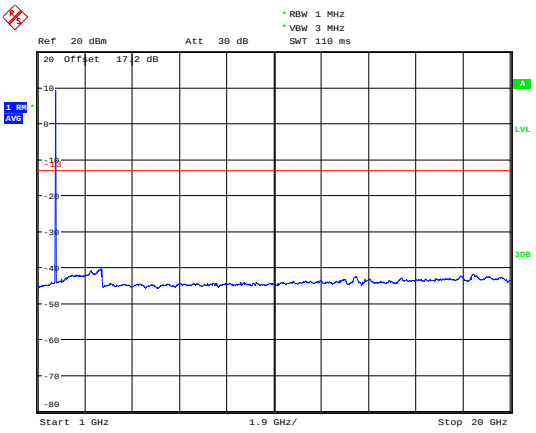
LTE Band 4 5MHz CH-Low 1GHz~20GHz



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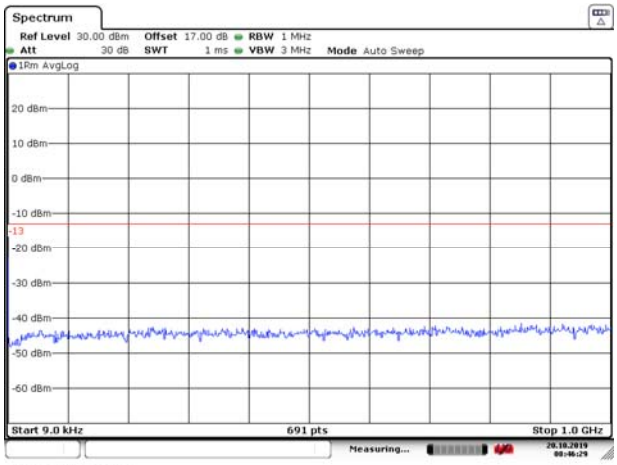
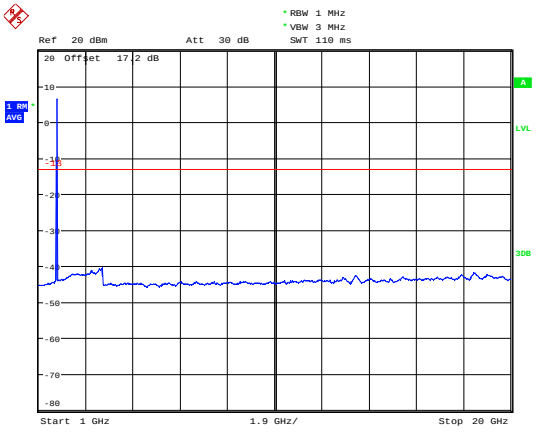
LTE Band 4 5MHz CH- Middle 9KHz~1GHz



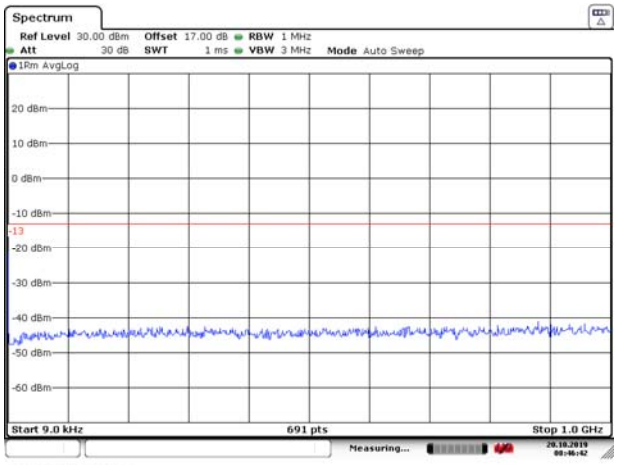
Date: 20.OCT.2019 08:46:29

LTE Band 4 5MHz CH- Middle 1GHz~20GHz



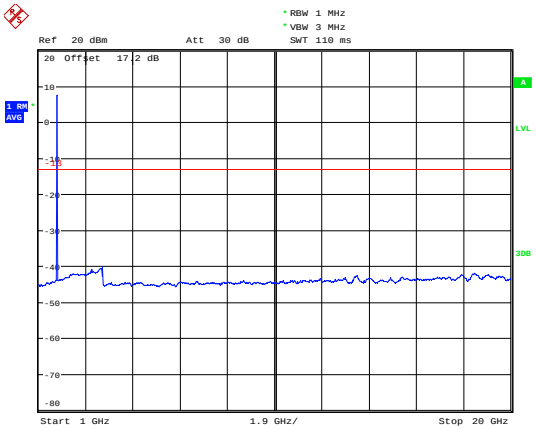
Date: 23.OCT.2019 16:19:25

LTE Band 4 5MHz CH- High 9KHz~1GHz



Date: 20.OCT.2019 08:46:43

LTE Band 4 5MHz CH- High 1GHz~20GHz



Date: 23.OCT.2019 16:19:48

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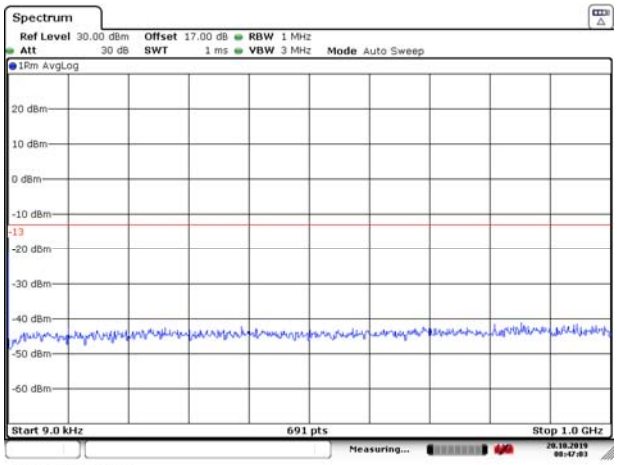
LTE Band 4 10MHz CH-Low 9KHz~1GHz



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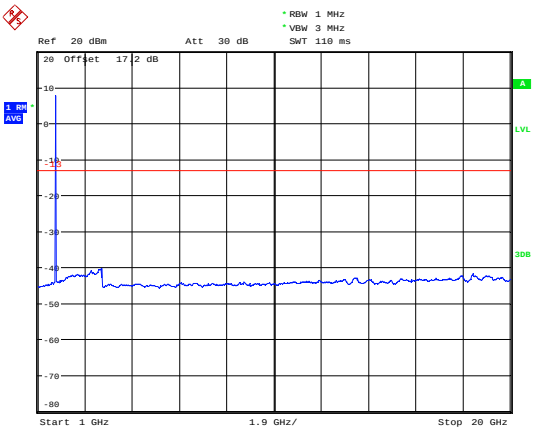
LTE Band 4 10MHz CH-Low 1GHz~20GHz



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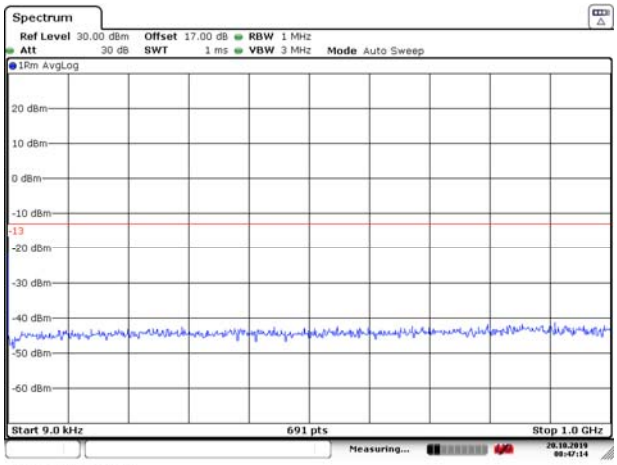
LTE Band 4 10MHz CH- Middle 9KHz~1GHz



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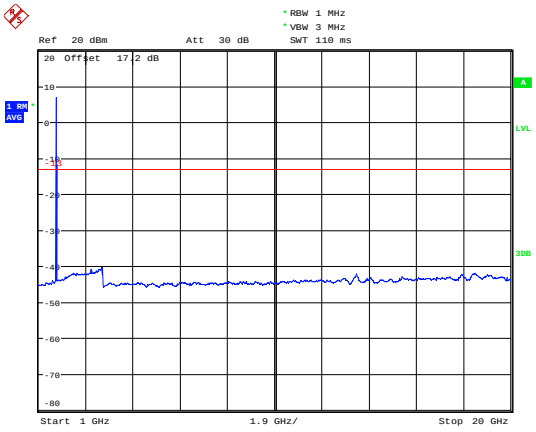
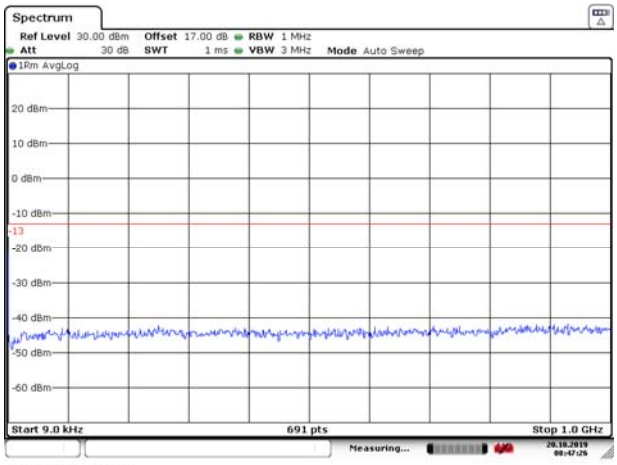
LTE Band 4 10MHz CH- Middle 1GHz~20GHz



Date: 23.OCT.2019 16:20:57

LTE Band 4 10MHz CH- High 9KHz~1GHz



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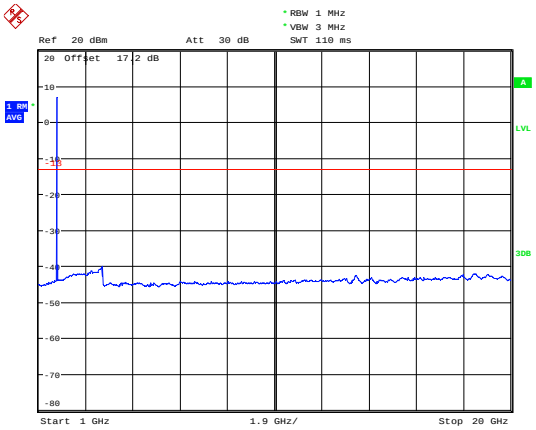
LTE Band 4 10MHz CH- High 1GHz~20GHz



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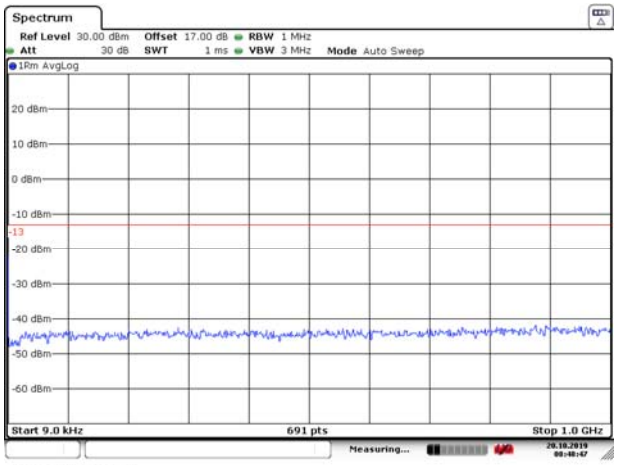
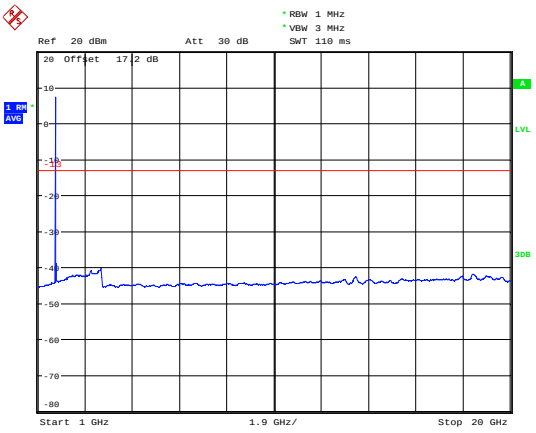
LTE Band 4 15MHz CH-Low 9KHz~1GHz



Date: 20.OCT.2019 08:48:47

LTE Band 4 15MHz CH-Low 1GHz~20GHz



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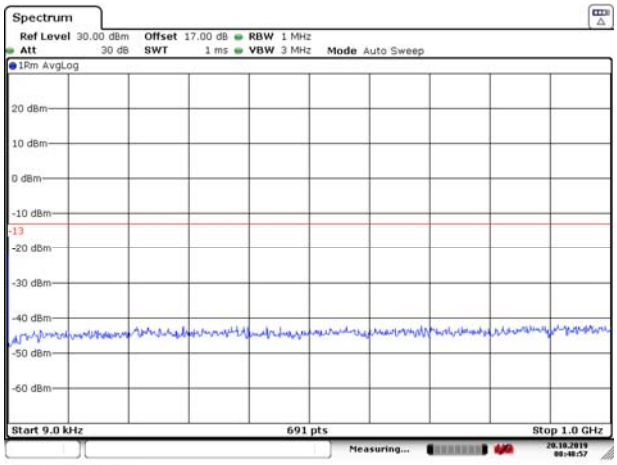
LTE Band 4 15MHz CH- Middle 9KHz~1GHz



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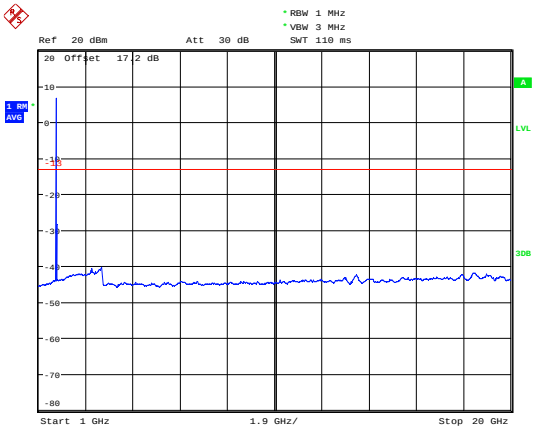
LTE Band 4 15MHz CH- Middle 1GHz~20GHz



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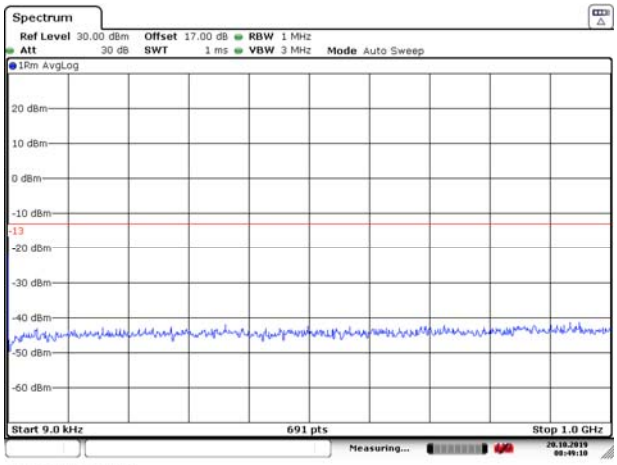
LTE Band 4 15MHz CH- High 9KHz~1GHz



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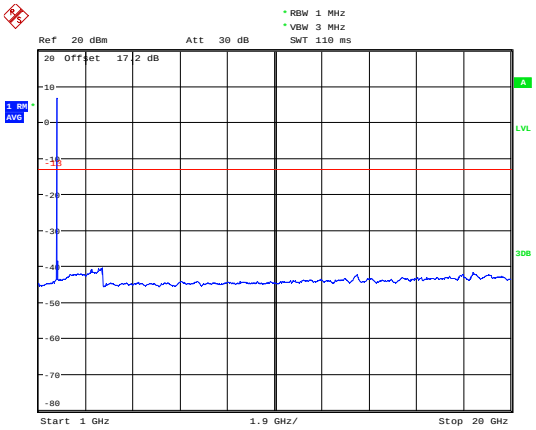
LTE Band 4 15MHz CH- High 1GHz~20GHz



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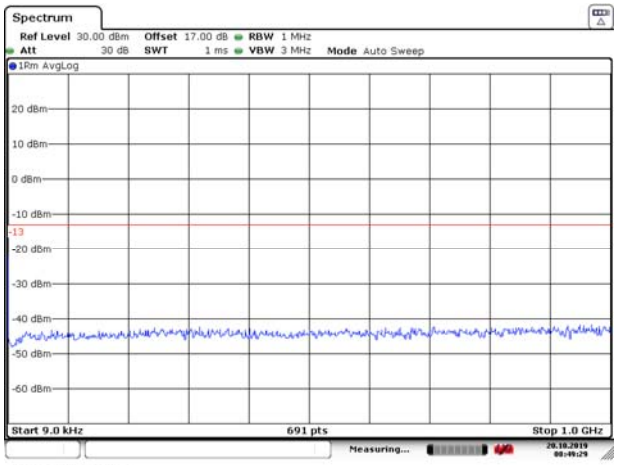
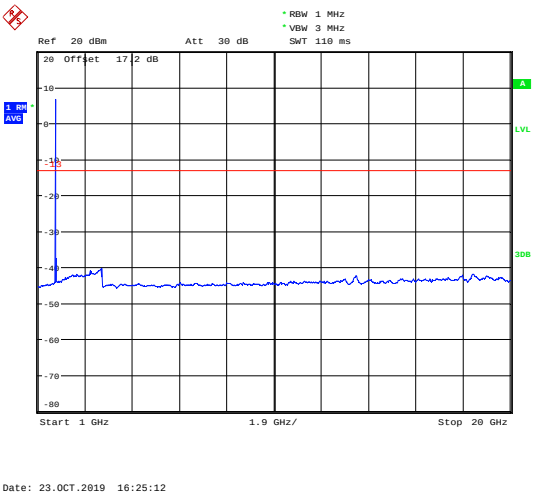
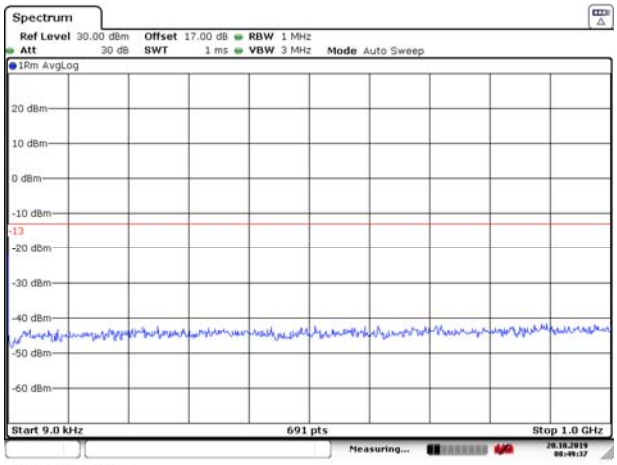
LTE Band 4 20MHz CH-Low 9KHz~1GHz



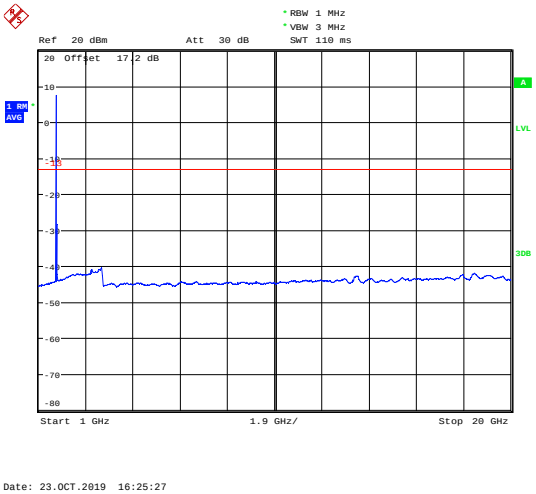
LTE Band 4 20MHz CH-Low 1GHz~20GHz



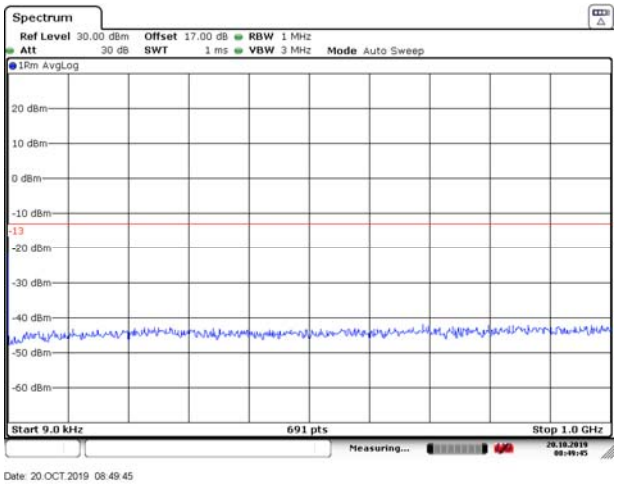
LTE Band 4 20MHz CH- Middle 9KHz~1GHz



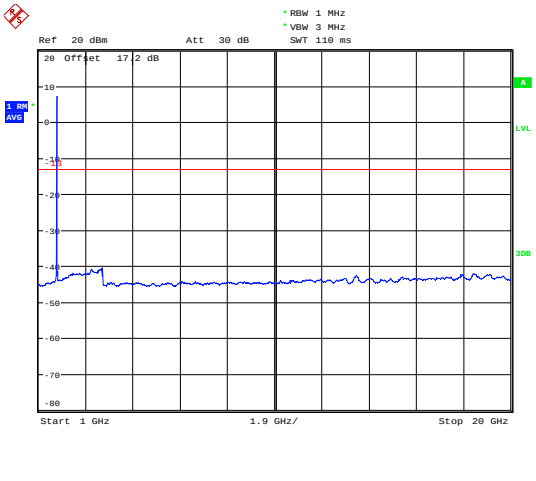
LTE Band 4 20MHz CH- Middle 1GHz~20GHz



LTE Band 4 20MHz CH- High 9KHz~1GHz



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



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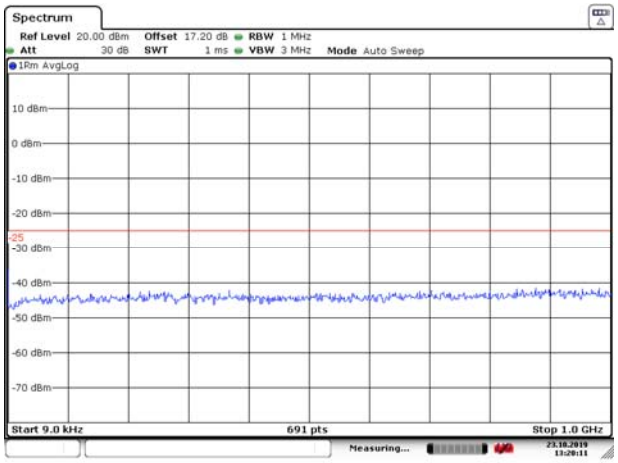
LTE Band 7 5MHz CH-Low 9KHz~1GHz



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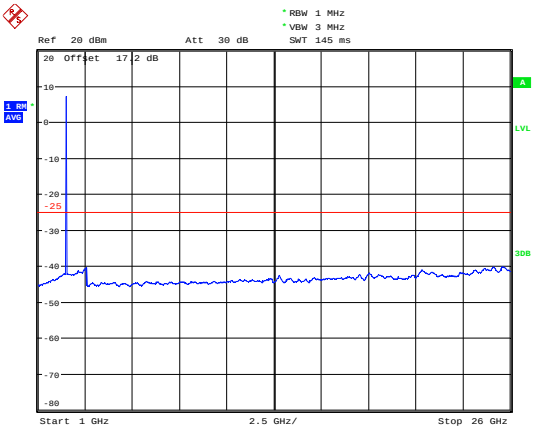
LTE Band 7 5MHz CH-Low 1GHz~26GHz



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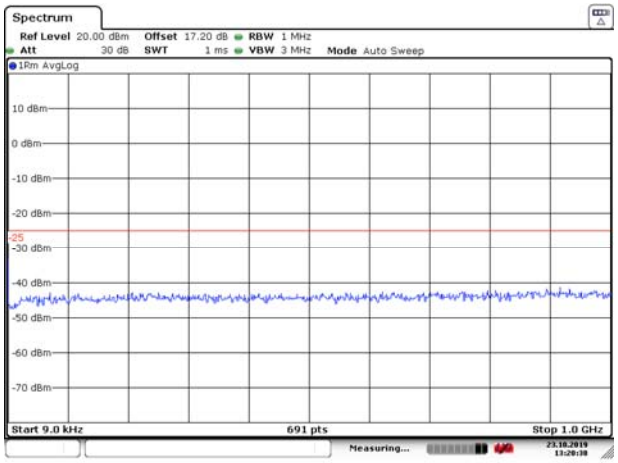
LTE Band 7 5MHz CH- Middle 9KHz~1GHz



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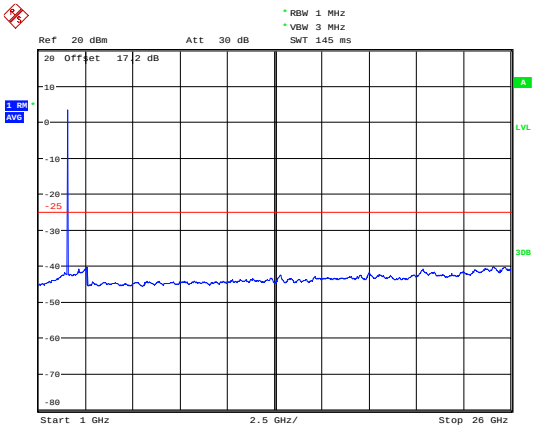
LTE Band 7 5MHz CH- Middle 1GHz~26GHz



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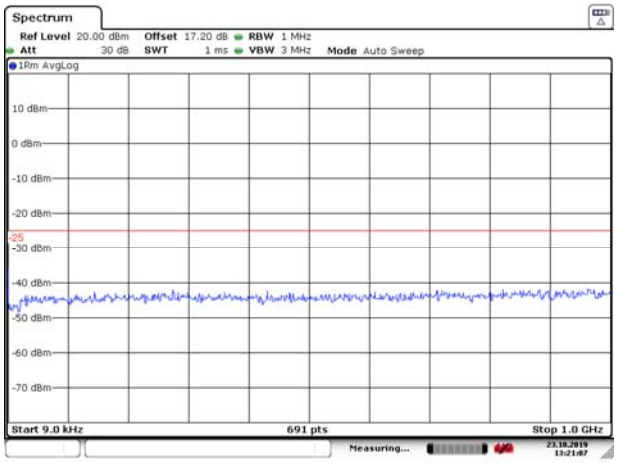
LTE Band 7 5MHz CH- High 9KHz~1GHz



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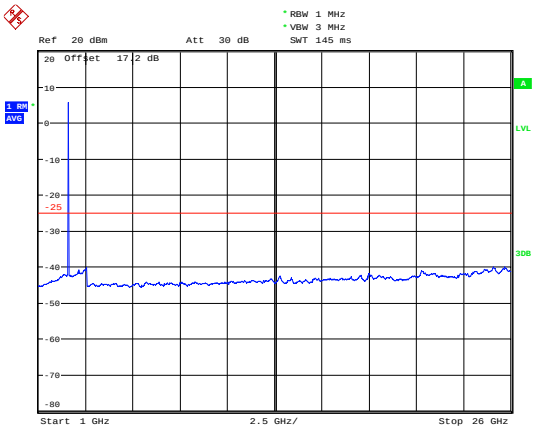
LTE Band 7 5MHz CH- High 1GHz~26GHz



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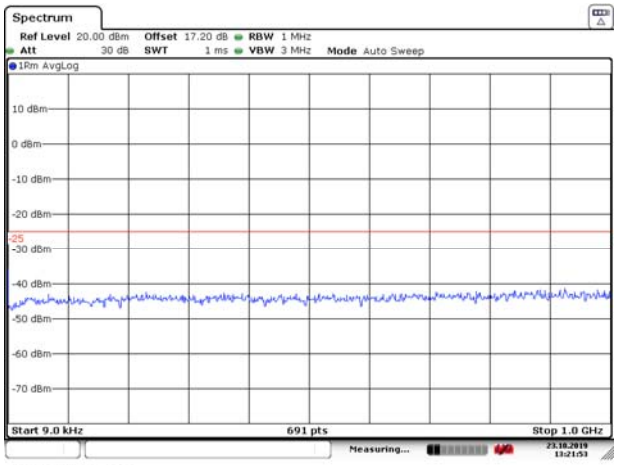
LTE Band 7 10MHz CH-Low 9KHz~1GHz



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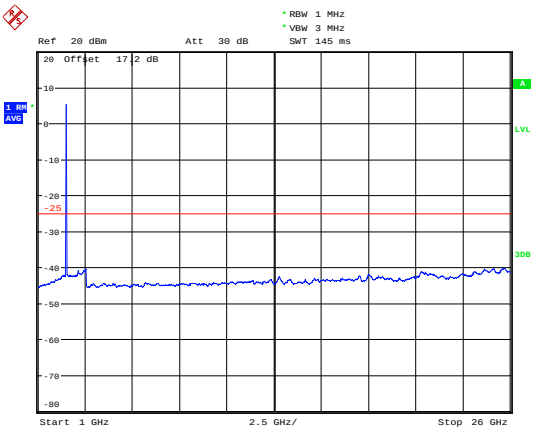
LTE Band 7 10MHz CH-Low 1GHz~26GHz



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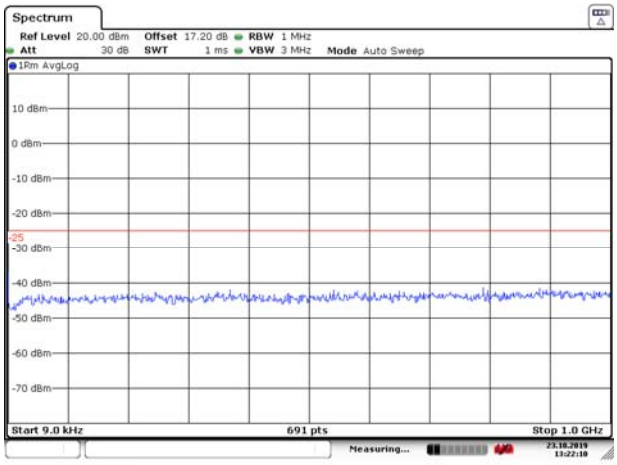
LTE Band 7 10MHz CH- Middle 9KHz~1GHz



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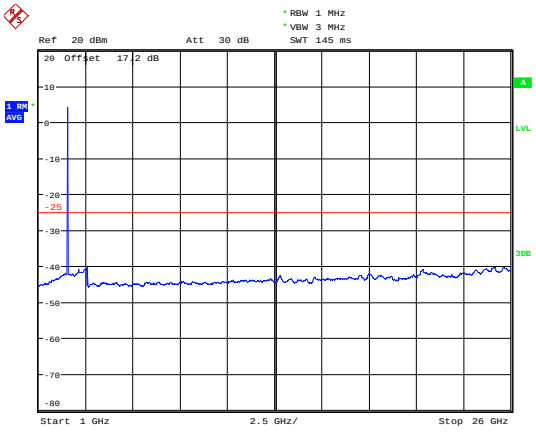
LTE Band 7 10MHz CH- Middle 1GHz~26GHz



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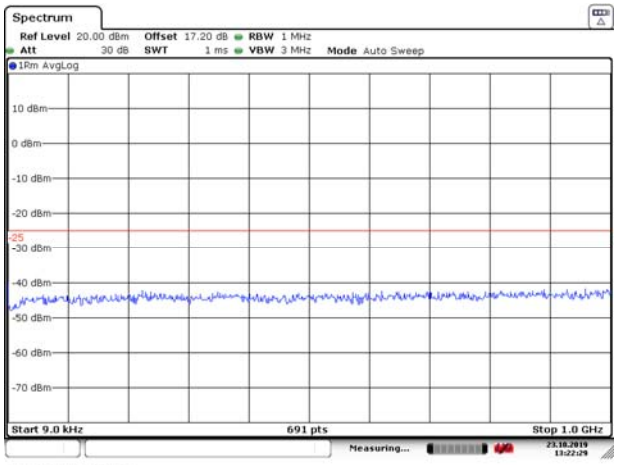
LTE Band 7 10MHz CH- High 9KHz~1GHz



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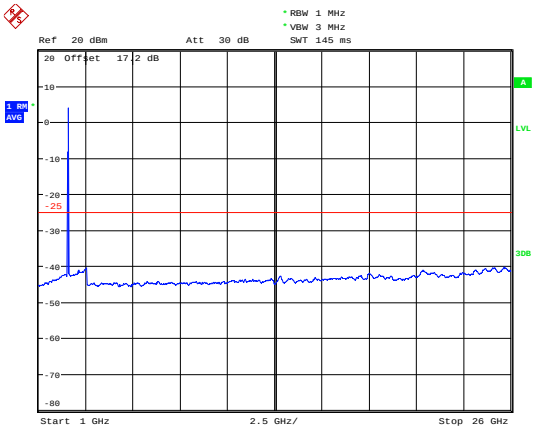
LTE Band 7 10MHz CH- High 1GHz~26GHz



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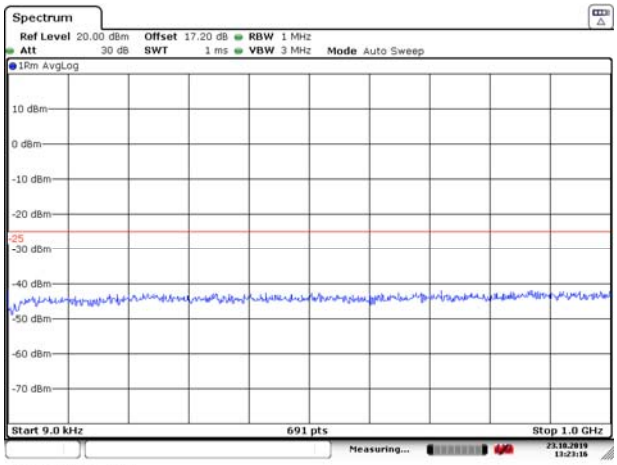
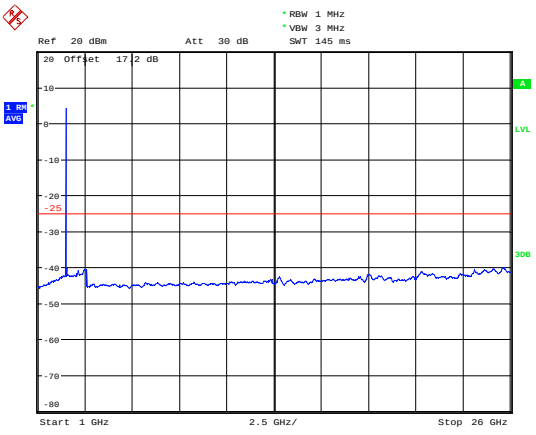
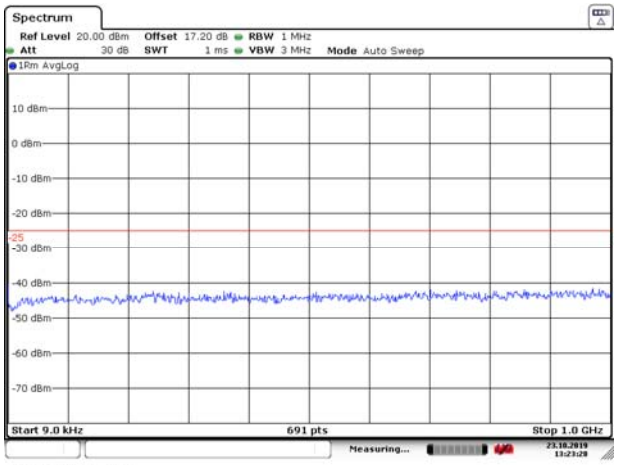
LTE Band 7 15MHz CH-Low 9KHz~1GHz



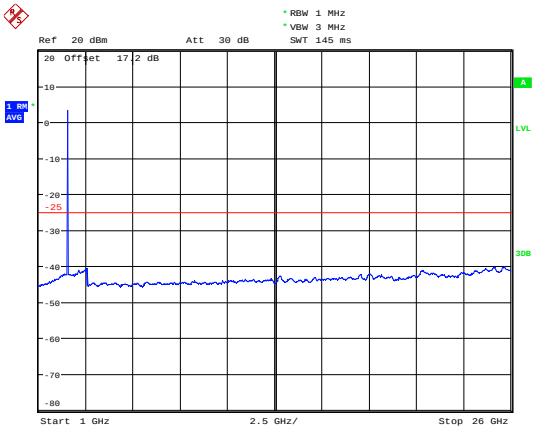
LTE Band 7 15MHz CH-Low 1GHz~26GHz



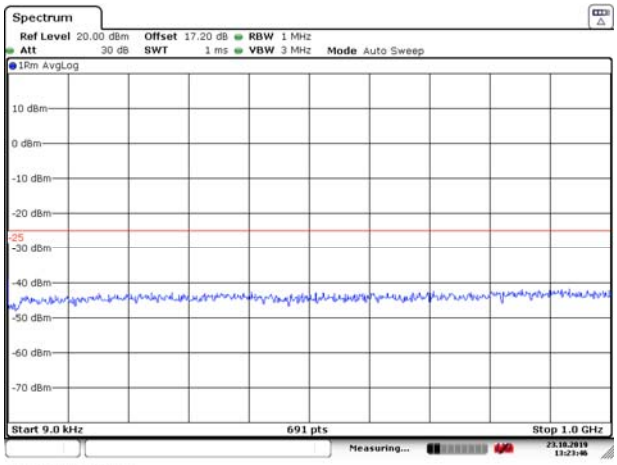
LTE Band 7 15MHz CH- Middle 9KHz~1GHz



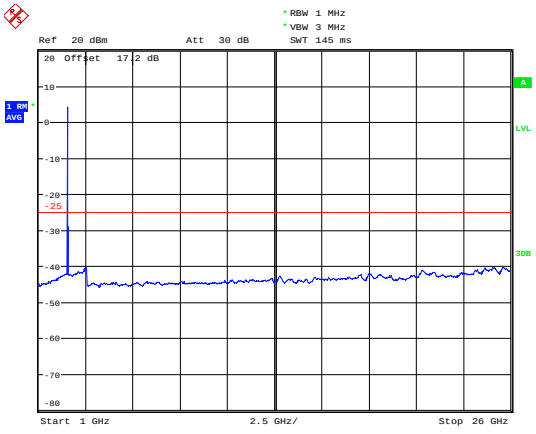
LTE Band 7 15MHz CH- Middle 1GHz~26GHz



LTE Band 7 15MHz CH- High 9KHz~1GHz



LTE Band 7 15MHz CH- High 1GHz~26GHz



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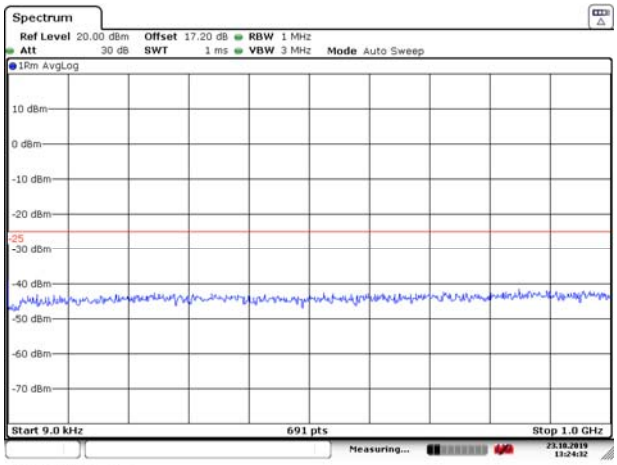
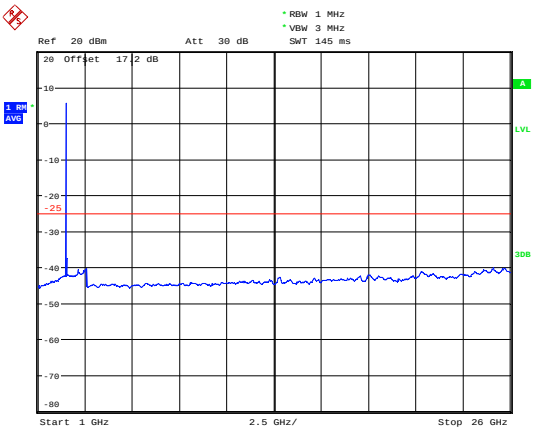
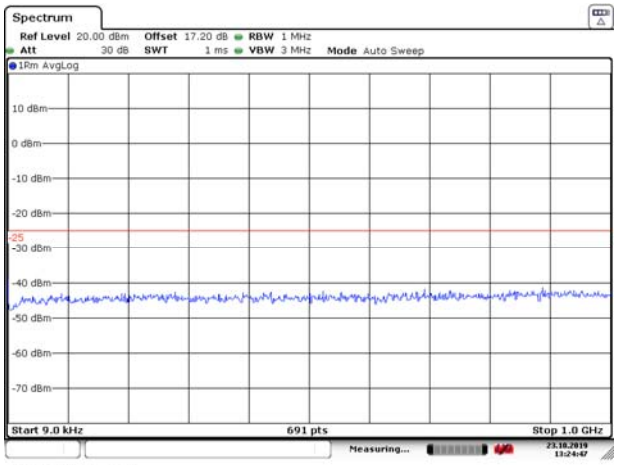
LTE Band 7 20MHz CH-Low 9KHz~1GHz



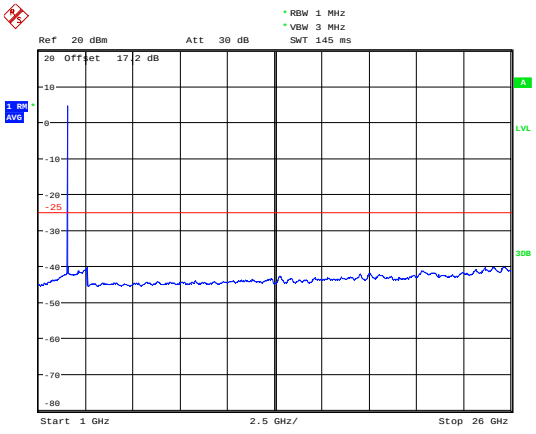
LTE Band 7 20MHz CH-Low 1GHz~26GHz



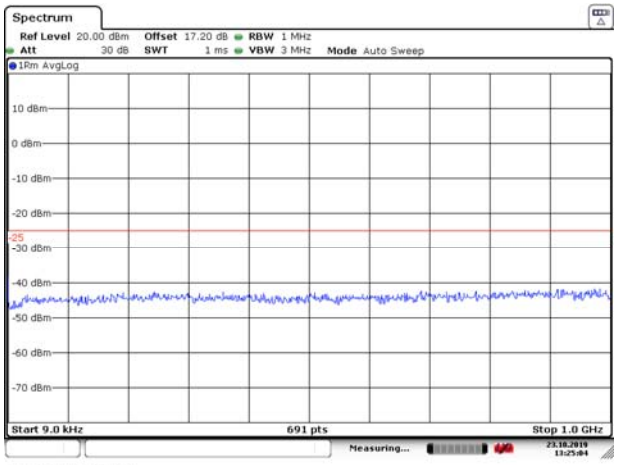
LTE Band 7 20MHz CH- Middle 9KHz~1GHz



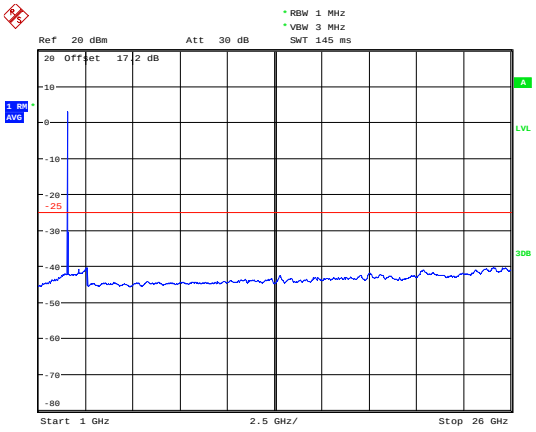
LTE Band 7 20MHz CH- Middle 1GHz~26GHz



LTE Band 7 20MHz CH- High 9KHz~1GHz



LTE Band 7 20MHz CH- High 1GHz~26GHz



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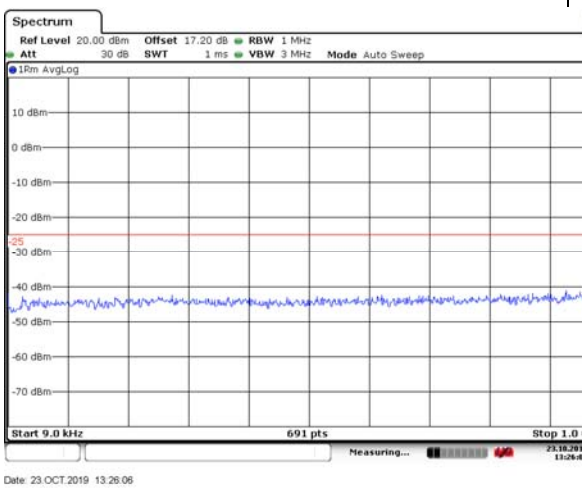
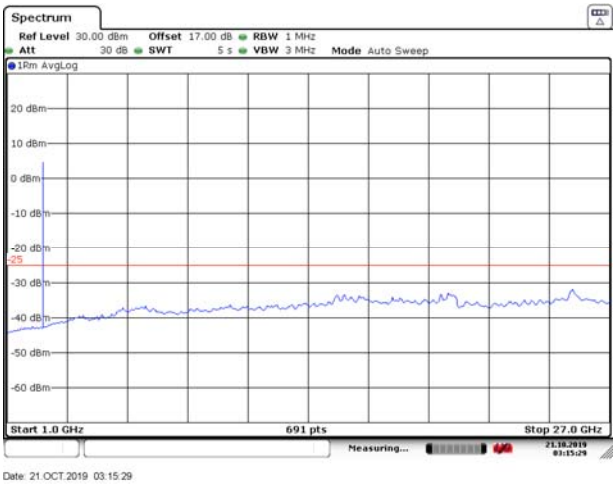
LTE Band 38 5MHz CH-L

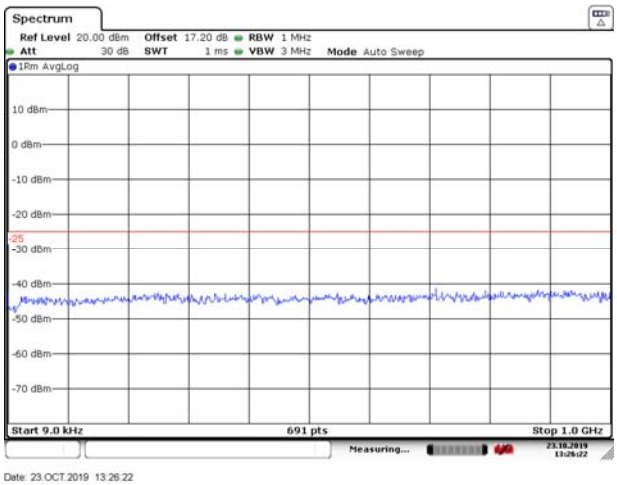


LTE Band 38 5MHz CH-Low 1GHz~27GHz

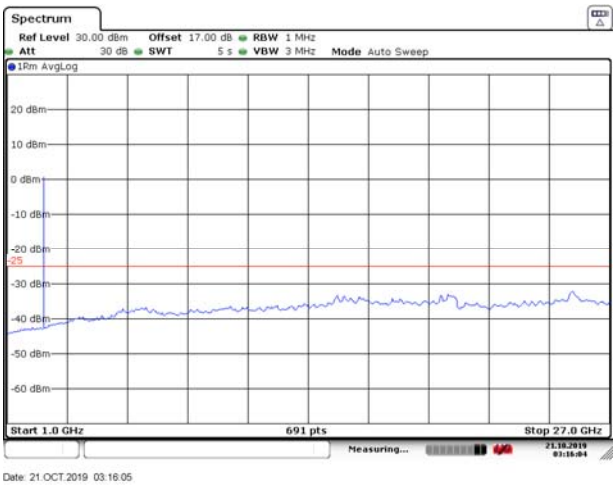


ow 9KHz~1GHz

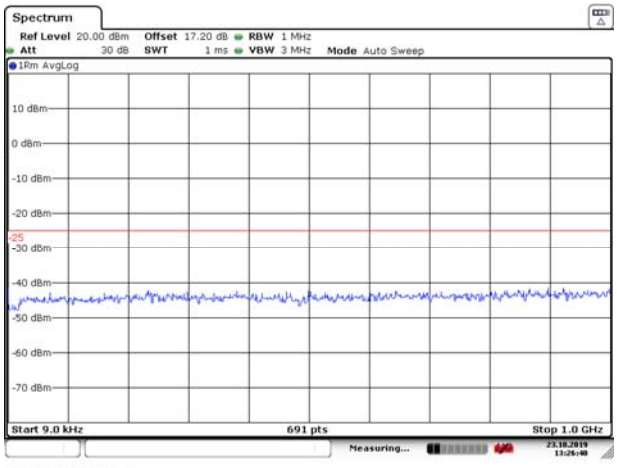
LTE Band 38 5MHz CH- Middle 9KHz~1GHz



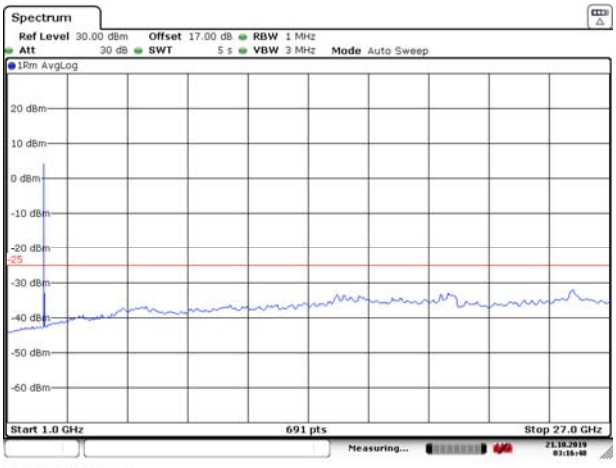
LTE Band 38 5MHz CH- Middle 1GHz~27GHz



LTE Band 38 5MHz CH- High 9KHz~1GHz



LTE Band 38 5MHz CH- High 1GHz~27GHz



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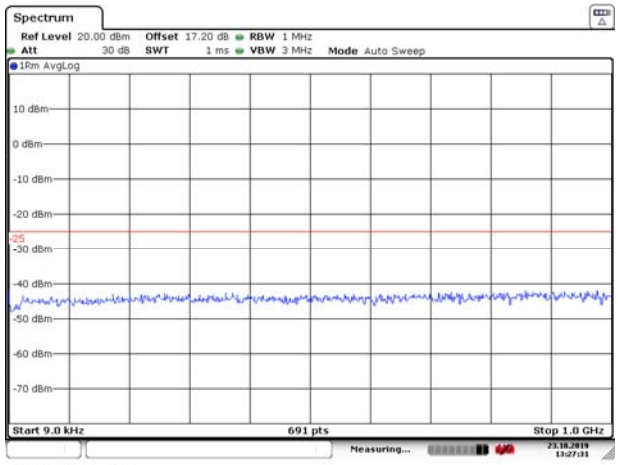
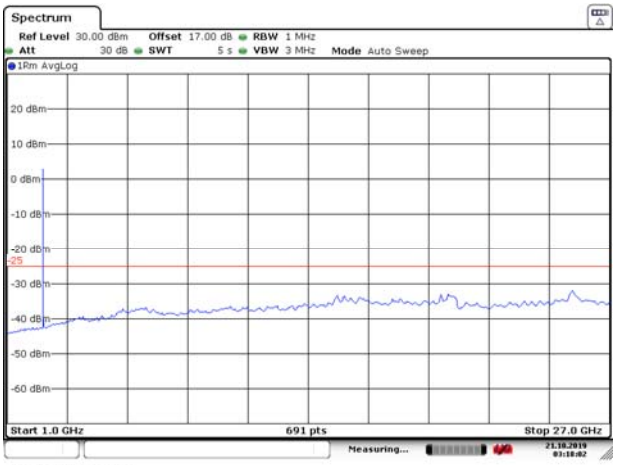
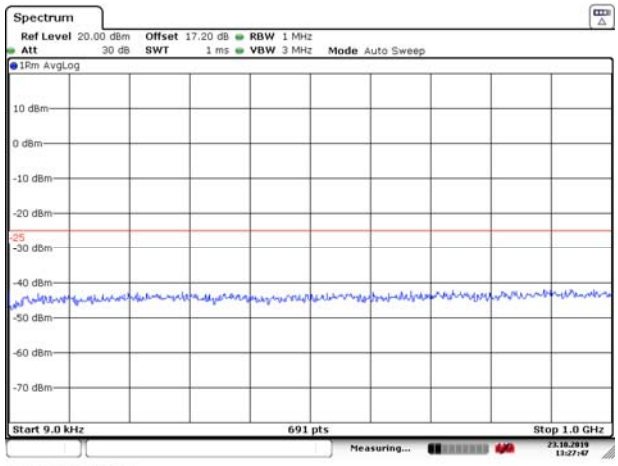
LTE Band 38 10MHz CH-Low 9KHz~1GHz



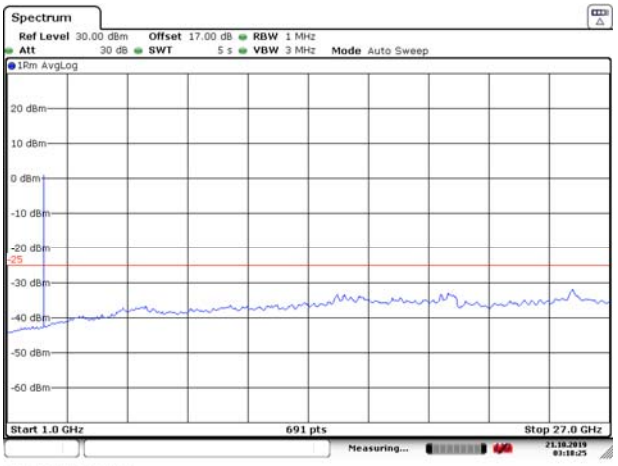
LTE Band 38 10MHz CH-Low 1GHz~27GHz



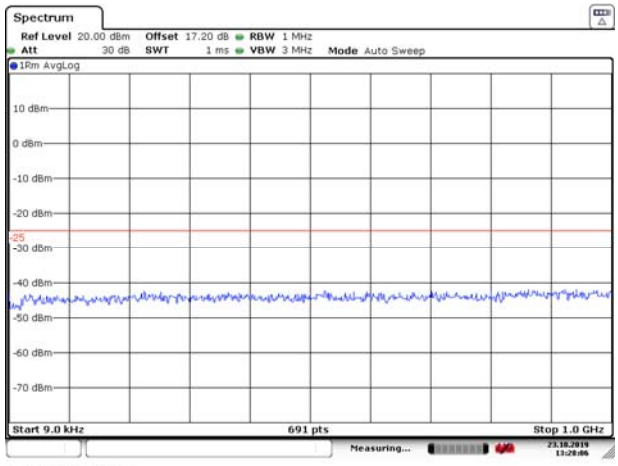
LTE Band 38 10MHz CH- Middle 9KHz~1GHz



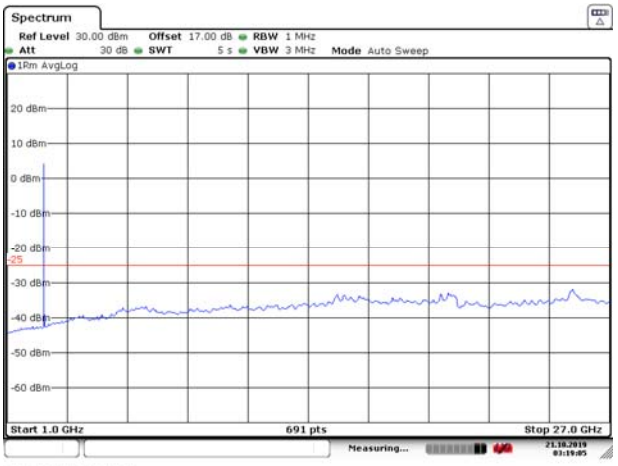
LTE Band 38 10MHz CH- Middle 1GHz~27GHz



LTE Band 38 10MHz CH- High 9KHz~1GHz



LTE Band 38 10MHz CH- High 1GHz~27GHz



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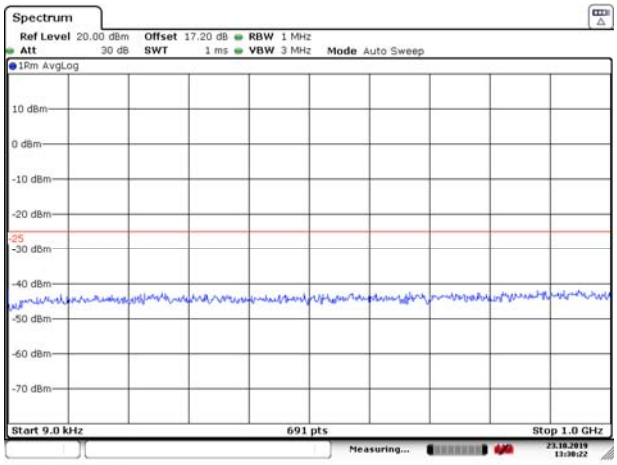
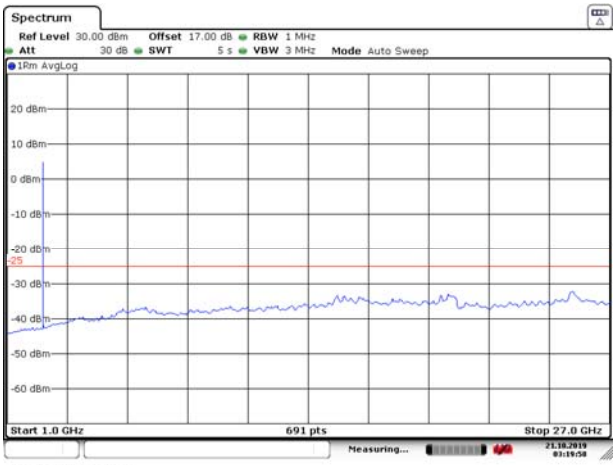
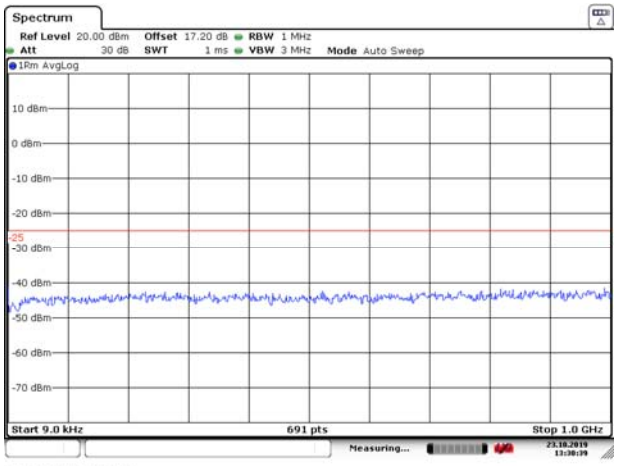
LTE Band 38 15MHz CH-Low 9KHz~1GHz



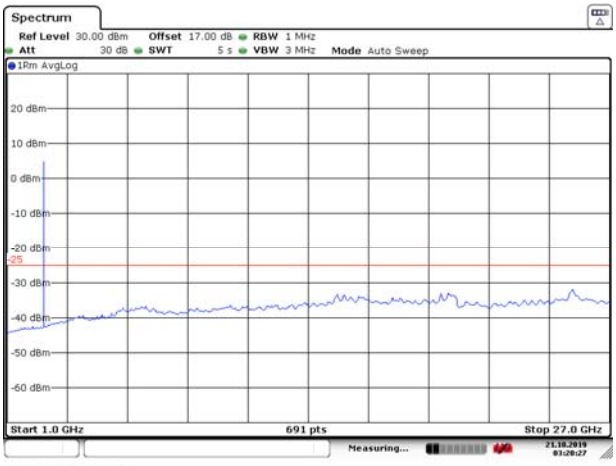
LTE Band 38 15MHz CH-Low 1GHz~27GHz



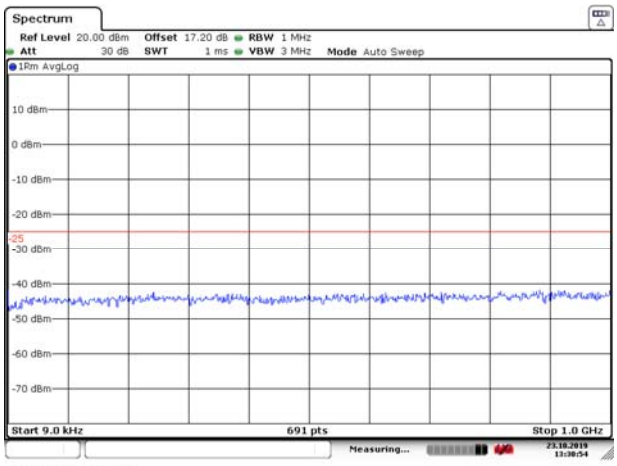
LTE Band 38 15MHz CH- Middle 9KHz~1GHz



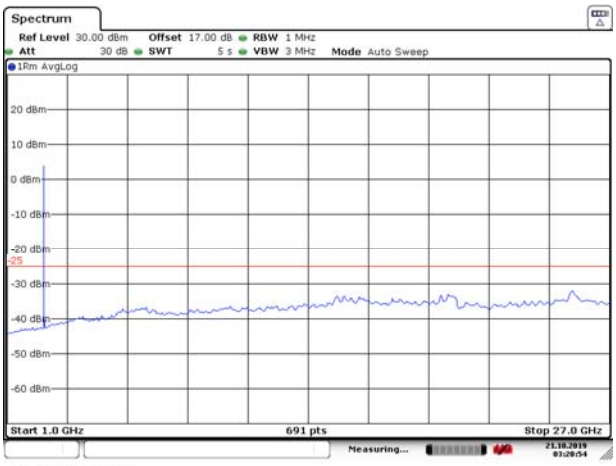
LTE Band 3815MHz CH- Middle 1GHz~27GHz



LTE Band 38 15MHz CH- High 9KHz~1GHz



LTE Band 38 15MHz CH- High 1GHz~27GHz



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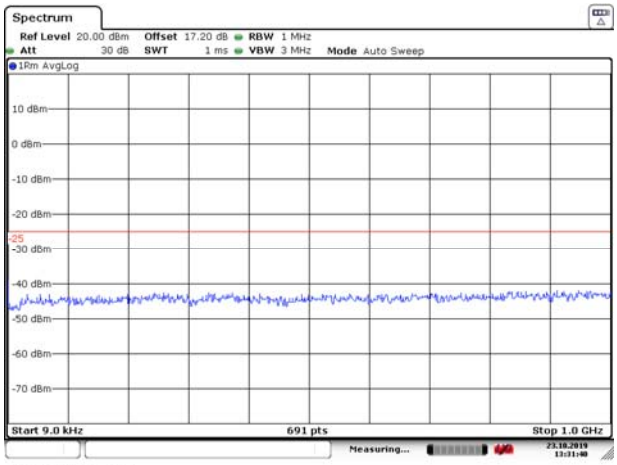
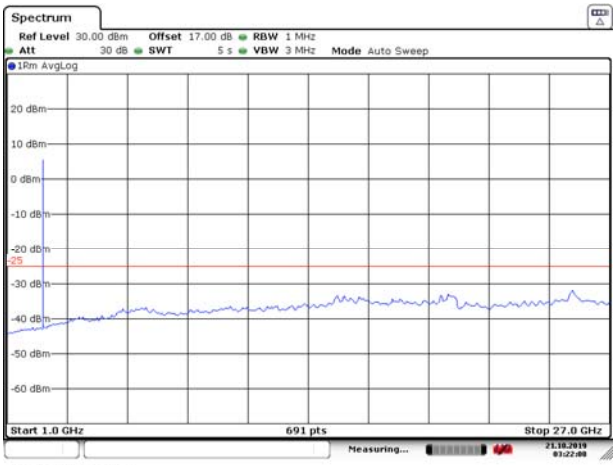
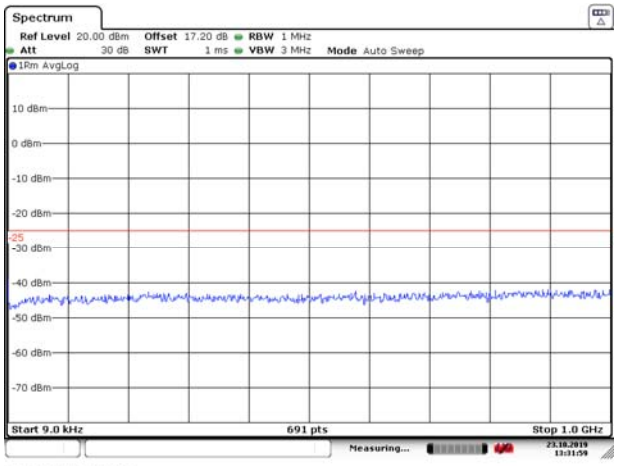
LTE Band 38 20MHz CH-Low 9KHz~1GHz



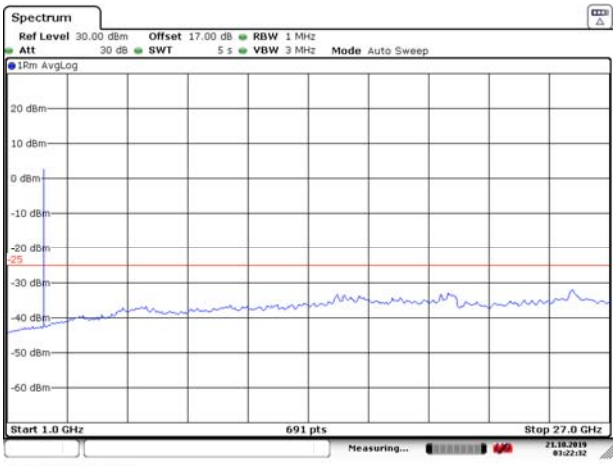
LTE Band 38 20MHz CH-Low 1GHz~27GHz



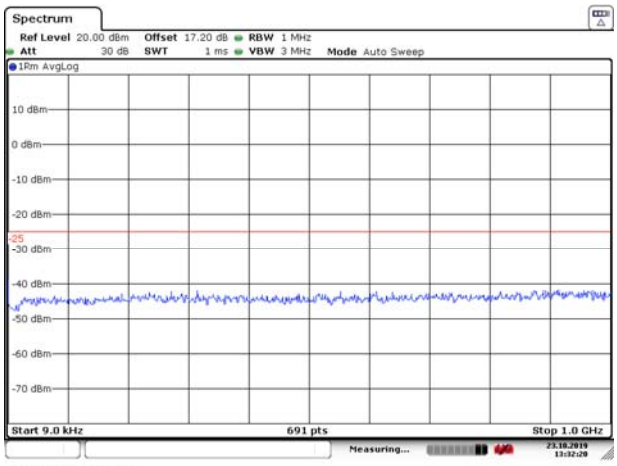
LTE Band 38 20MHz CH- Middle 9KHz~1GHz



LTE Band 38 20MHz CH- Middle 1GHz~27GHz



LTE Band 38 20MHz CH- High 9KHz~1GHz



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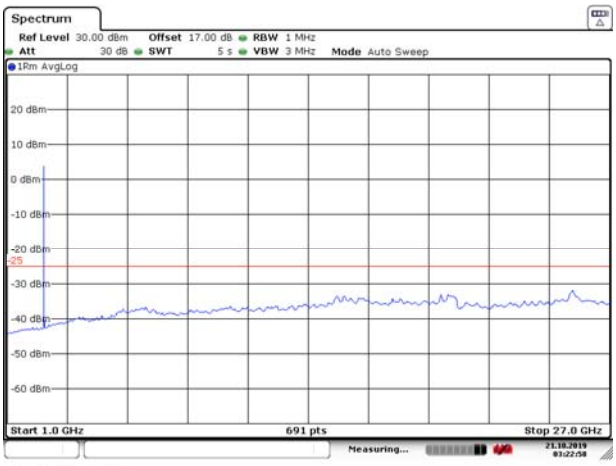

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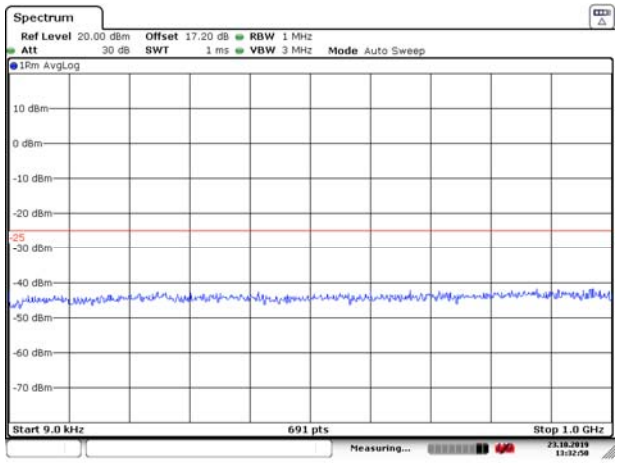
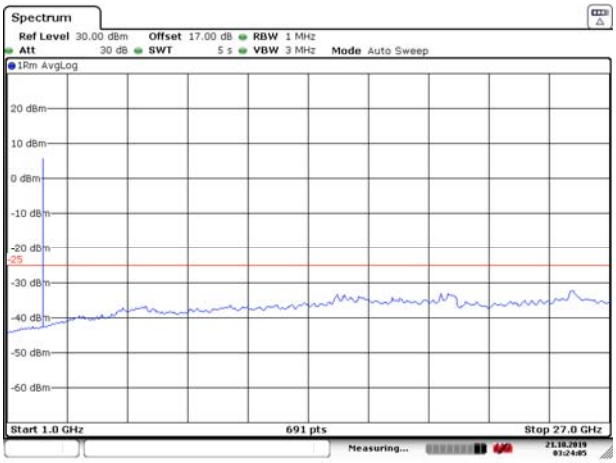
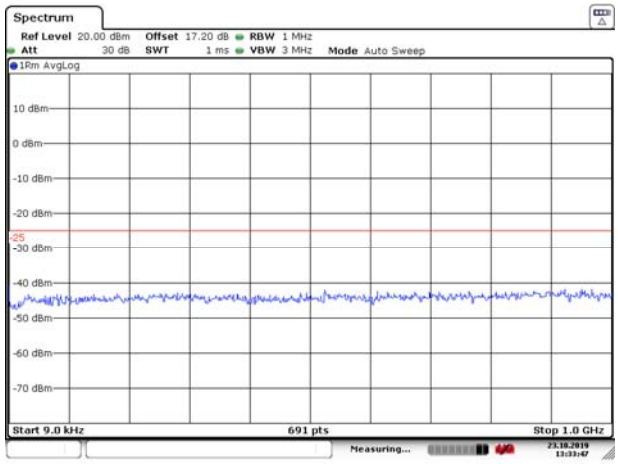
LTE Band 41 5MHz CH-Low 9KHz~1GHz



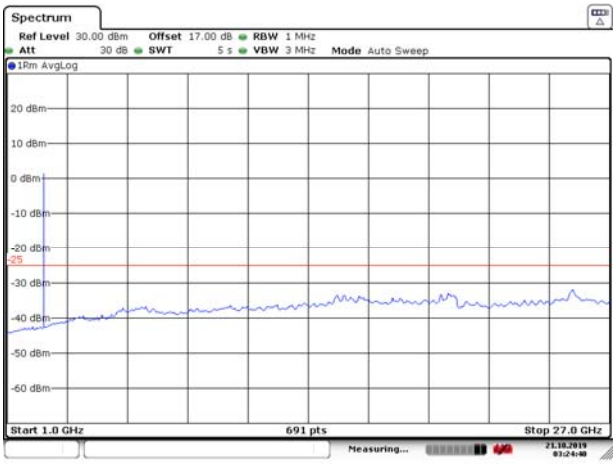
LTE Band 41 5MHz CH-Low 1GHz~27GHz



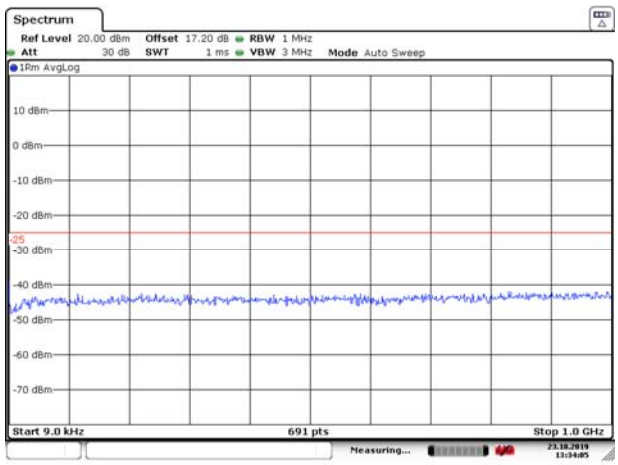
LTE Band 41 5MHz CH- Middle 9KHz~1GHz



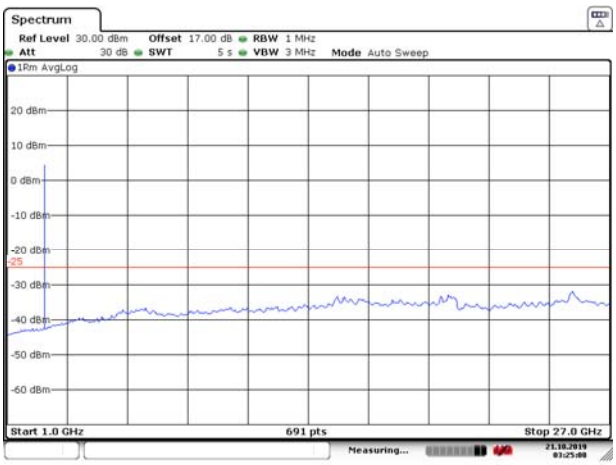
LTE Band 41 5MHz CH- Middle 1GHz~27GHz



LTE Band 41 5MHz CH- High 9KHz~1GHz



LTE Band 41 5MHz CH- High 1GHz~27GHz



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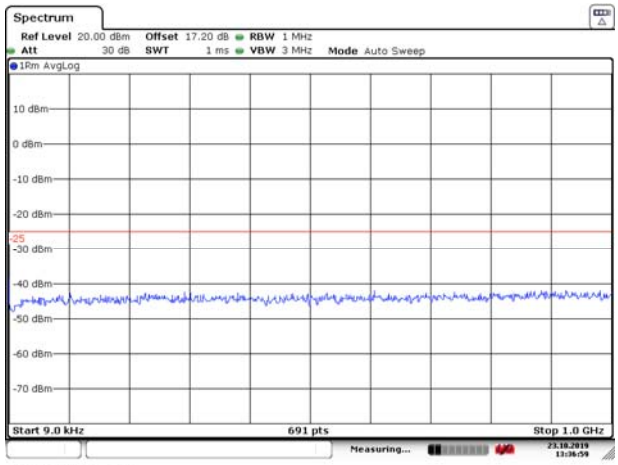
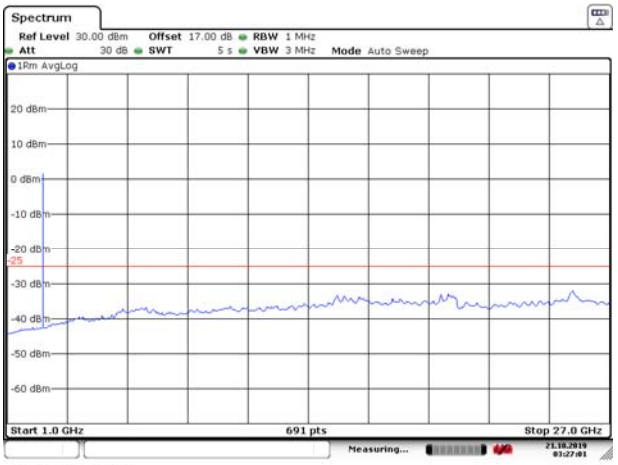
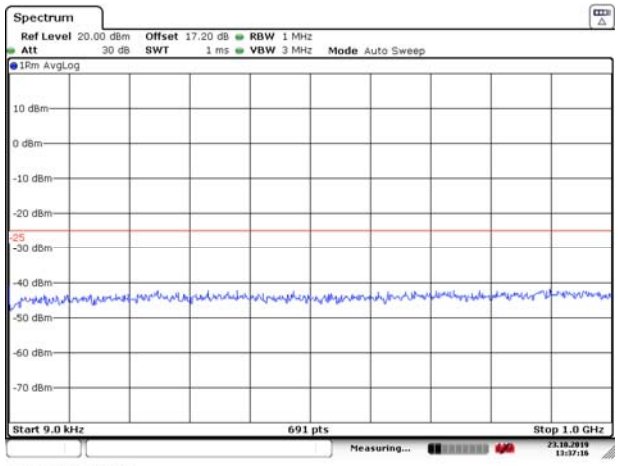
LTE Band 41 10MHz CH-Low 9KHz~1GHz



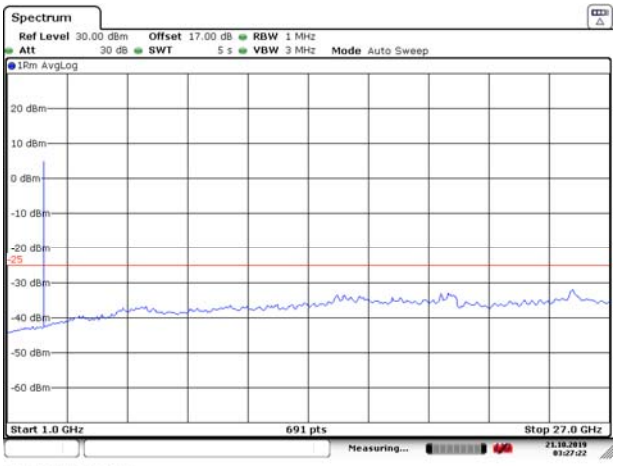
LTE Band 41 10MHz CH-Low 1GHz~27GHz



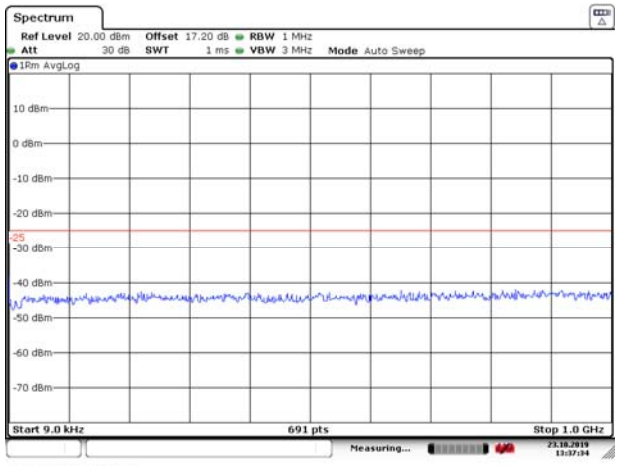
LTE Band 41 10MHz CH- Middle 9KHz~1GHz



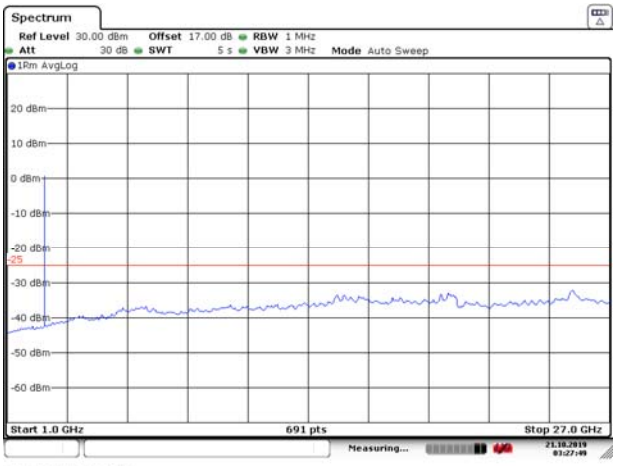
LTE Band 41 10MHz CH- Middle 1GHz~27GHz



LTE Band 41 10MHz CH- High 9KHz~1GHz



LTE Band 41 10MHz CH- High 1GHz~27GHz



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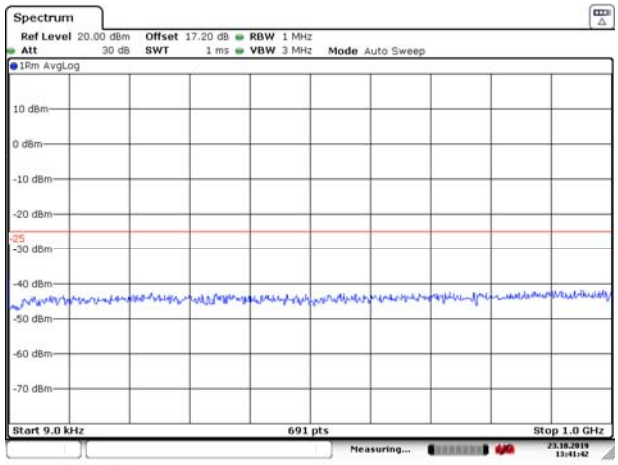
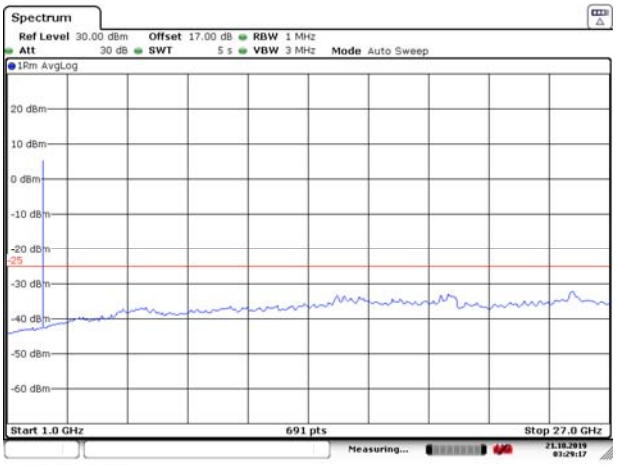
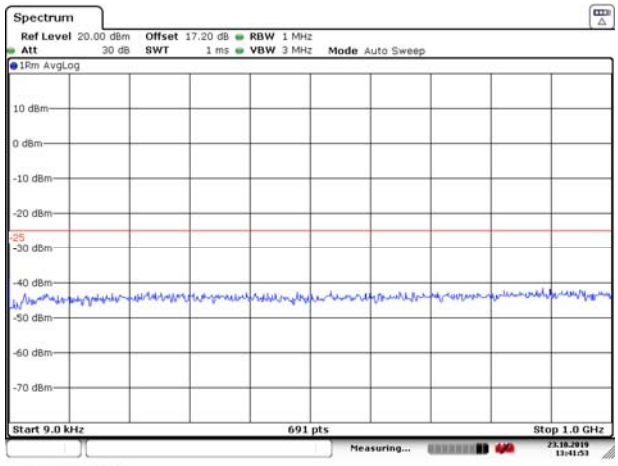
LTE Band 41 15MHz CH-Low 9KHz~1GHz



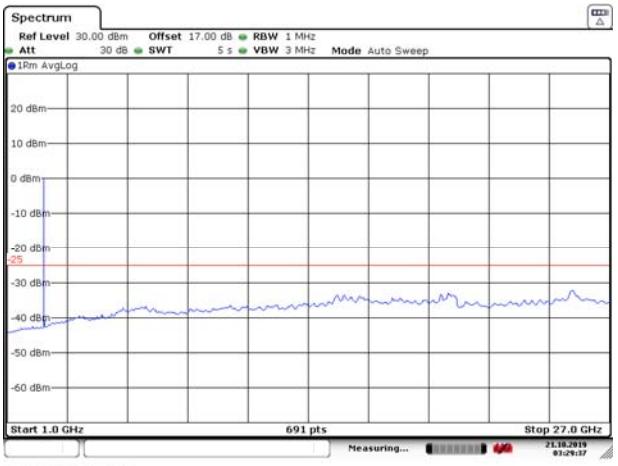
LTE Band 41 15MHz CH-Low 1GHz~27GHz



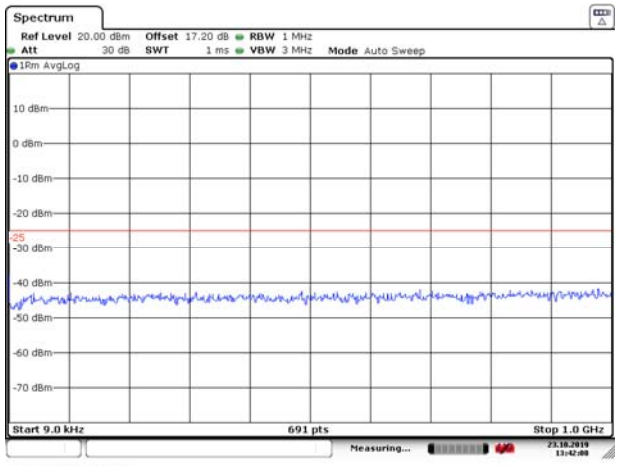
LTE Band 41 15MHz CH- Middle 9KHz~1GHz



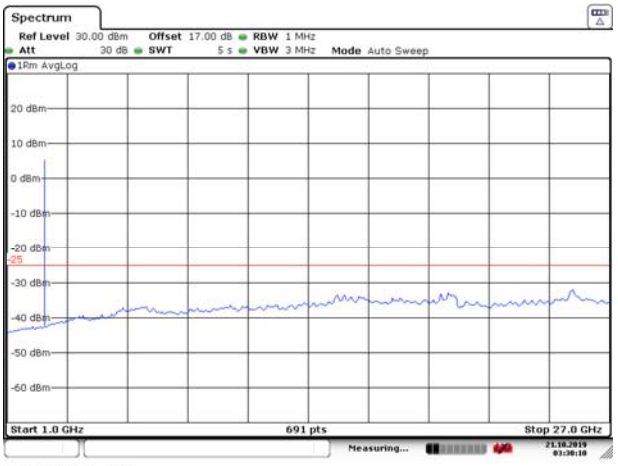
LTE Band 41 15MHz CH- Middle 1GHz~27GHz



LTE Band 41 15MHz CH- High 9KHz~1GHz



LTE Band 41 15MHz CH- High 1GHz~27GHz



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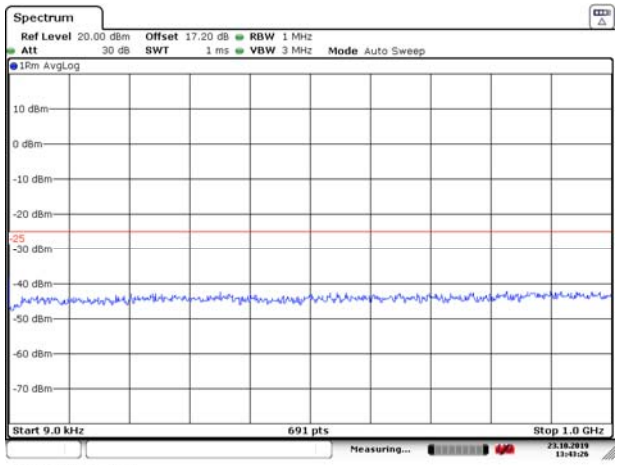
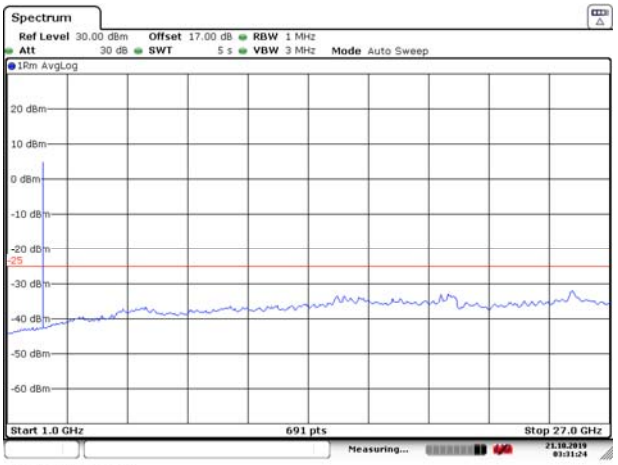
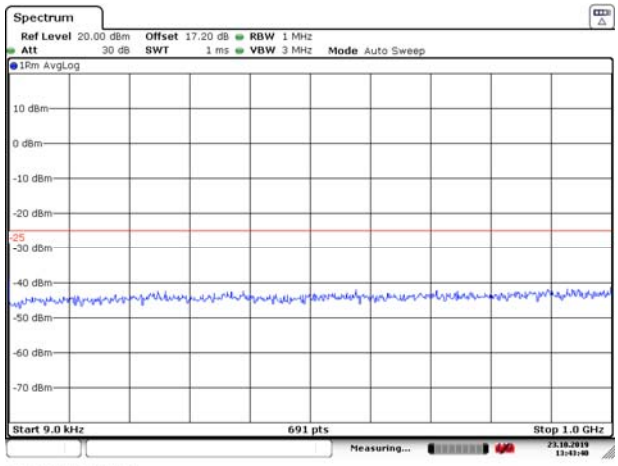
LTE Band 41 20MHz CH-Low 9KHz~1GHz



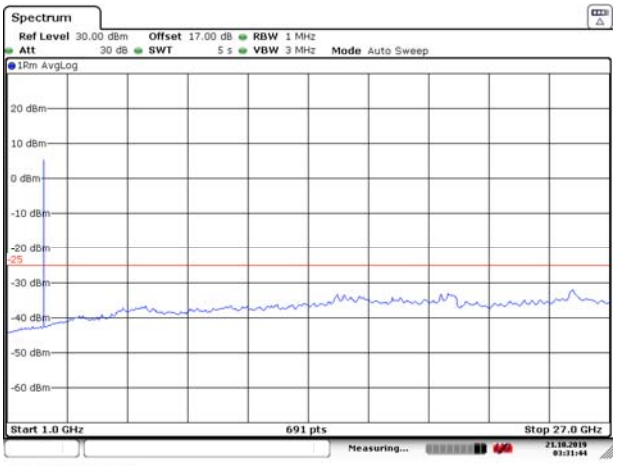
LTE Band 41 20MHz CH-Low 1GHz~27GHz



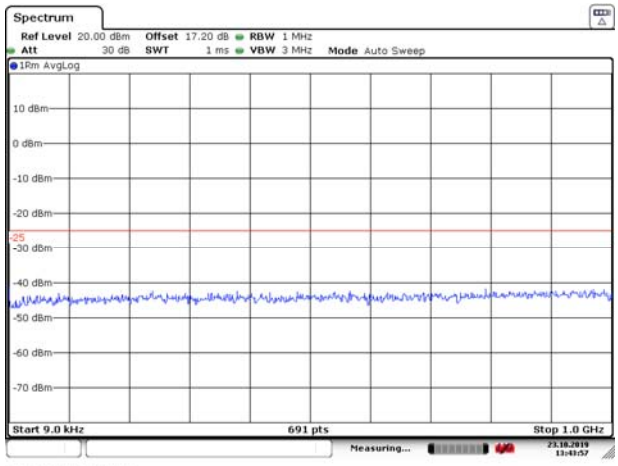
LTE Band 41 20MHz CH- Middle 9KHz~1GHz



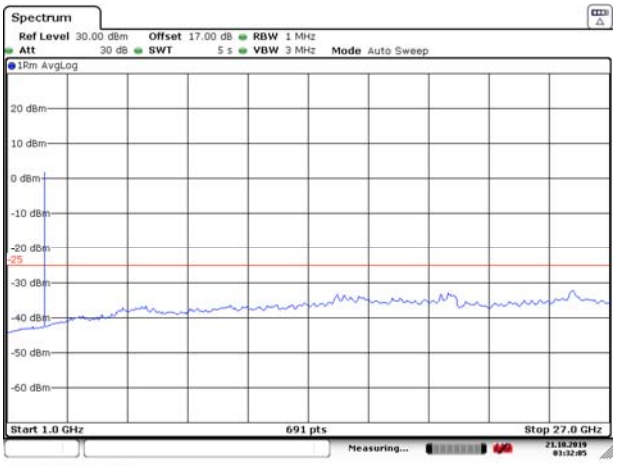
LTE Band 41 20MHz CH- Middle 1GHz~27GHz



LTE Band 41 20MHz CH- High 9KHz~1GHz



LTE Band 41 20MHz CH- High 1GHz~27GHz



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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=200Hz,VBW=600Hz for 9kHz150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz ,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:
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

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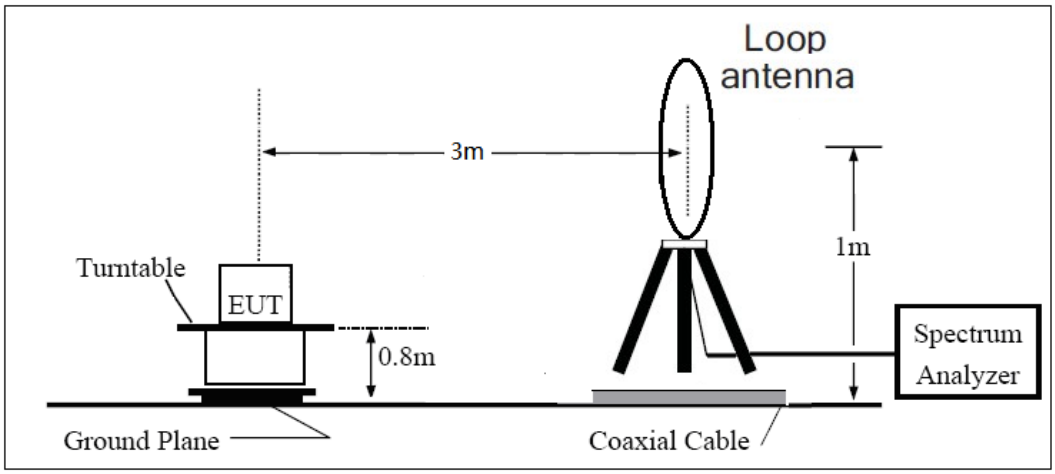
= EIRP-2.15dBi.

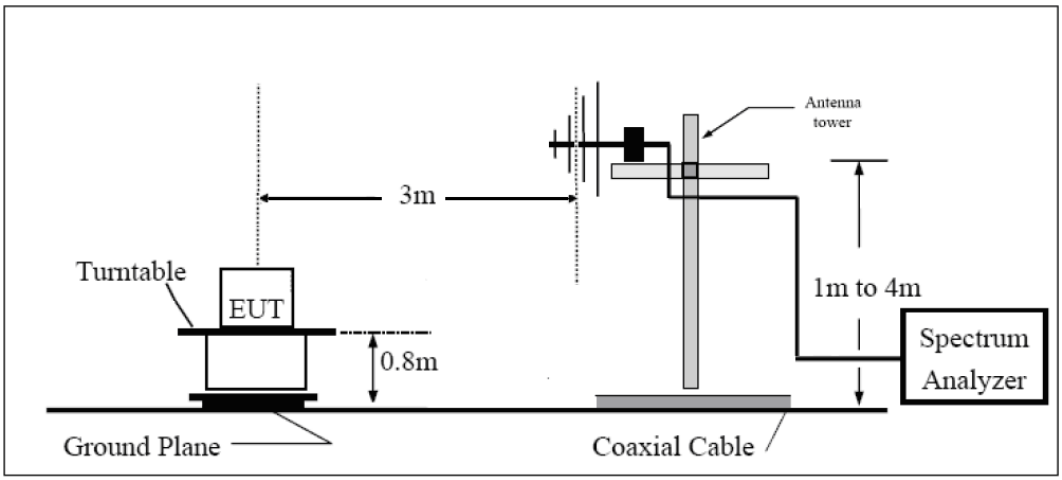
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

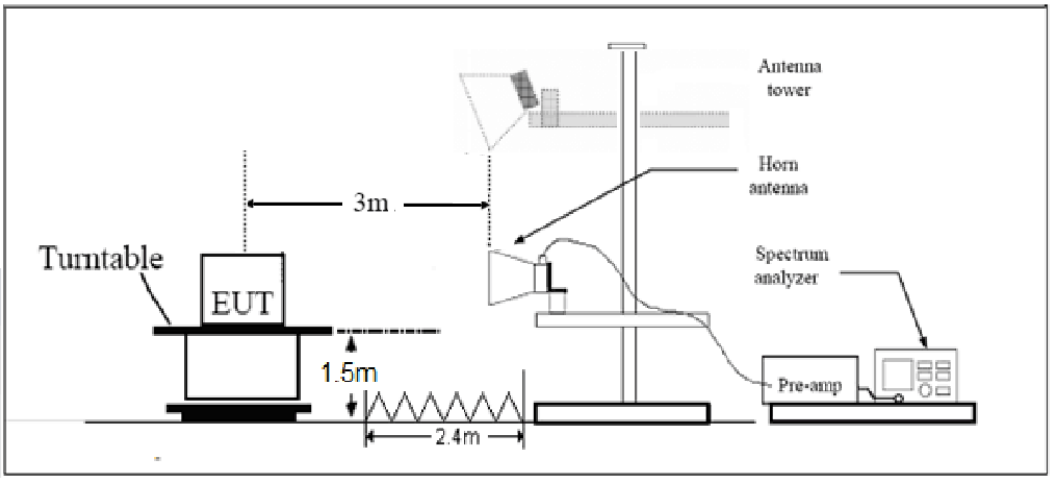
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

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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.

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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	3465.2	-74.78	2.6	10.75	Horizontal	-66.63	-13.00	53.63	135
3	5197.8	-73.78	2.4	11.05	Horizontal	-65.13	-13.00	52.13	225
4	6930.4	-67.94	4.5	11.15	Horizontal	-61.29	-13.00	48.29	90
5	8663.0	-65.72	5.1	11.35	Horizontal	-59.47	-13.00	46.47	180
6	10395.6	-64.90	5.3	11.95	Horizontal	-58.25	-13.00	45.25	0
7	12128.2	-64.09	5.5	13.55	Horizontal	-56.04	-13.00	43.04	315
8	13860.8	-61.86	6.3	13.75	Horizontal	-54.41	-13.00	41.41	45
9	15593.4	-64.33	6.7	13.85	Horizontal	-57.18	-13.00	44.18	180
10	17326.0	-61.46	6.8	14.25	Horizontal	-54.01	-13.00	41.01	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 4 QPSK 1.4MHz CH-Middle, RB1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3464.3	-62.72	2.6	10.75	Horizontal	-54.57	-13.00	41.57	225
3	5197.5	-64.91	2.4	11.05	Horizontal	-56.26	-13.00	43.26	270
4	6930.0	-59.33	4.5	11.15	Horizontal	-52.68	-13.00	39.68	315
5	8662.5	-56.53	5.1	11.35	Horizontal	-50.28	-13.00	37.28	180
6	10395.0	-55.98	5.3	11.95	Horizontal	-49.33	-13.00	36.33	135
7	12127.5	-54.60	5.5	13.55	Horizontal	-46.55	-13.00	33.55	0
8	13860.0	-52.94	6.3	13.75	Horizontal	-45.49	-13.00	32.49	90
9	15592.5	-55.31	6.7	13.85	Horizontal	-48.16	-13.00	35.16	180
10	17325.0	-50.94	6.8	14.25	Horizontal	-43.49	-13.00	30.49	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.									

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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	-59.74	2.6	10.75	Horizontal	-51.59	-13.00	38.59	90
3	5191.5	-65.45	2.4	11.05	Horizontal	-56.80	-13.00	43.80	135
4	6930.0	-59.55	4.5	11.15	Horizontal	-52.90	-13.00	39.90	180
5	8662.5	-56.12	5.1	11.35	Horizontal	-49.87	-13.00	36.87	225
6	10395.0	-54.95	5.3	11.95	Horizontal	-48.30	-13.00	35.30	315
7	12127.5	-55.06	5.5	13.55	Horizontal	-47.01	-13.00	34.01	270
8	13860.0	-52.90	6.3	13.75	Horizontal	-45.45	-13.00	32.45	0
9	15592.5	-55.95	6.7	13.85	Horizontal	-48.80	-13.00	35.80	180
10	17325.0	-51.55	6.8	14.25	Horizontal	-44.10	-13.00	31.10	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is 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	3465.0	-67.81	2.6	10.75	Horizontal	-59.66	-13.00	46.66	315
3	5170.9	-64.65	2.4	11.05	Horizontal	-56.00	-13.00	43.00	45
4	6930.0	-59.05	4.5	11.15	Horizontal	-52.40	-13.00	39.40	180
5	8662.5	-57.01	5.1	11.35	Horizontal	-50.76	-13.00	37.76	90
6	10395.0	-56.10	5.3	11.95	Horizontal	-49.45	-13.00	36.45	270
7	12127.5	-56.71	5.5	13.55	Horizontal	-48.66	-13.00	35.66	225
8	13860.0	-52.40	6.3	13.75	Horizontal	-44.95	-13.00	31.95	315
9	15592.5	-54.91	6.7	13.85	Horizontal	-47.76	-13.00	34.76	0
10	17325.0	-50.97	6.8	14.25	Horizontal	-43.52	-13.00	30.52	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.									

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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	-63.91	2.00	9.15	Horizontal	-56.76	-25.00	31.76	135
3	7598.6	-60.45	2.50	11.35	Horizontal	-51.60	-25.00	26.60	225
4	10130.6	-56.07	4.20	12.05	Horizontal	-48.22	-25.00	23.22	315
5	12675.0	-54.67	5.20	12.85	Horizontal	-47.02	-25.00	22.02	270
6	15210.0	-54.74	5.50	14.23	Horizontal	-46.01	-25.00	21.01	90
7	17745.0	-52.93	5.70	14.15	Horizontal	-44.48	-25.00	19.48	180
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	-63.18	2.00	10.15	Horizontal	-55.03	-25.00	30.03	0
3	7605.0	-60.40	2.50	11.35	Horizontal	-51.55	-25.00	26.55	90
4	10140.0	-54.73	4.20	12.05	Horizontal	-46.88	-25.00	21.88	135
5	12675.0	-57.07	5.20	14.85	Horizontal	-47.42	-25.00	22.42	225
6	15210.0	-53.12	5.50	13.23	Horizontal	-45.39	-25.00	20.39	180
7	17745.0	-51.29	5.70	12.15	Horizontal	-44.84	-25.00	19.84	270
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.									

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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	-63.56	2.00	9.15	Horizontal	-56.41	-13.00	43.41	45
3	7785.0	-59.44	2.50	11.35	Horizontal	-50.59	-13.00	37.59	135
4	10380.0	-55.57	4.20	12.05	Horizontal	-47.72	-13.00	34.72	225
5	12975.0	-52.69	5.20	12.85	Horizontal	-45.04	-13.00	32.04	180
6	15570.0	-56.71	5.50	14.23	Horizontal	-47.98	-13.00	34.98	315
7	18165.0	--	--	--	--	--	--	--	--
8	20760.0	--	--	--	--	--	--	--	--
9	23355.0	--	--	--	--	--	--	--	--
10	25950.0	--	--	--	--	--	--	--	--
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	-63.85	2.00	10.15	Horizontal	-55.70	-13.00	42.70	45
3	7785.0	-59.17	2.50	11.35	Horizontal	-50.32	-13.00	37.32	135
4	10380.0	-55.99	4.20	12.05	Horizontal	-48.14	-13.00	35.14	225
5	12975.0	-55.46	5.20	14.85	Horizontal	-45.81	-13.00	32.81	0
6	15570.0	-55.66	5.50	13.23	Horizontal	-47.93	-13.00	34.93	45
7	18165.0	--	--	--	--	--	--	--	--
8	20760.0	--	--	--	--	--	--	--	--
9	23355.0	--	--	--	--	--	--	--	--
10	25950.0	--	--	--	--	--	--	--	--
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.									

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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	-62.26	2.00	9.15	Horizontal	-55.11	-25.00	30.11	180
3	7495.5	-60.56	2.50	11.35	Horizontal	-51.71	-25.00	26.71	135
4	9994.0	-56.95	4.20	12.05	Horizontal	-49.10	-25.00	24.10	225
5	12492.5	-55.35	5.20	12.85	Horizontal	-47.70	-25.00	22.70	270
6	14991.0	-54.70	5.50	14.23	Horizontal	-45.97	-25.00	20.97	315
7	17489.5	-52.99	5.70	14.15	Horizontal	-44.54	-25.00	19.54	90
8	19988.0	--	--	--	--	--	--	--	--
9	22486.5	--	--	--	--	--	--	--	--
10	24985.0	--	--	--	--	--	--	--	--

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 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	-64.45	2.00	10.15	Horizontal	-56.30	-25.00	31.30	135
3	7779.0	-59.05	2.50	11.35	Horizontal	-50.24	-25.00	25.24	225
4	10372.0	-55.35	4.20	12.05	Horizontal	-47.48	-25.00	22.48	180
5	12965.0	-56.85	5.20	14.85	Horizontal	-47.20	-25.00	22.20	270
6	15558.0	-55.23	5.50	13.23	Horizontal	-47.54	-25.00	22.54	315
7	18151.0	--	--	--	--	--	--	--	--
8	20744.0	--	--	--	--	--	--	--	--
9	23337.0	--	--	--	--	--	--	--	--
10	25930.0	--	--	--	--	--	--	--	--

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.

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6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
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	2019-05-19	2020-05-18
Signal Analyzer	R&S	FSV30	100815	2018-12-16	2019-12-15
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2017-09-26	2020-09-25
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
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
Preampflier	R&S	SCU18	102327	2019-05-19	2020-05-18
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2019-05-19	2020-05-18
RF Cable	Agilent	SMA 15cm	0001	2019-06-14	2019-12-13
Software	R&S	EMC32	9.26.0	/	/

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