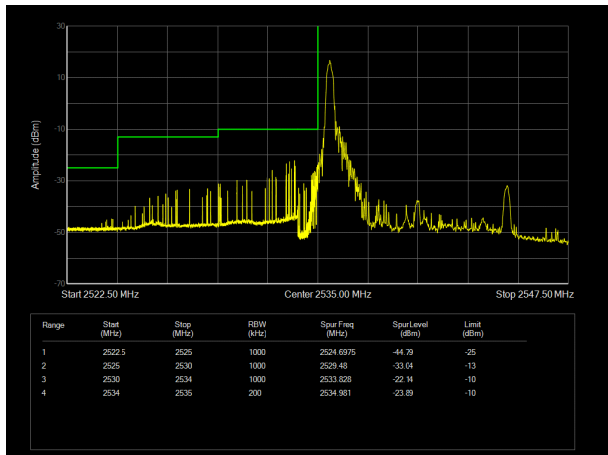
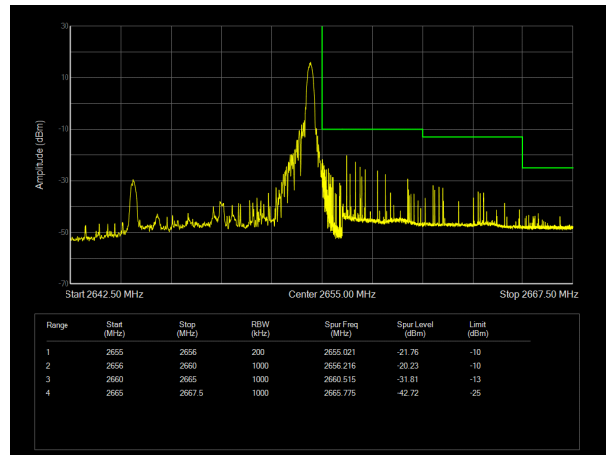


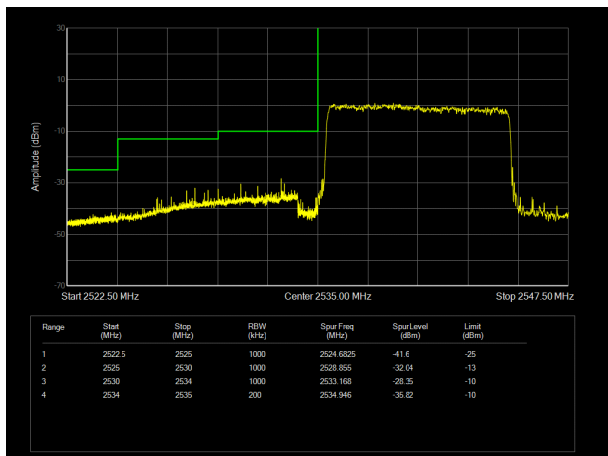
LTE Band 41 64QAM 10MHz CH-Low, 1 RB



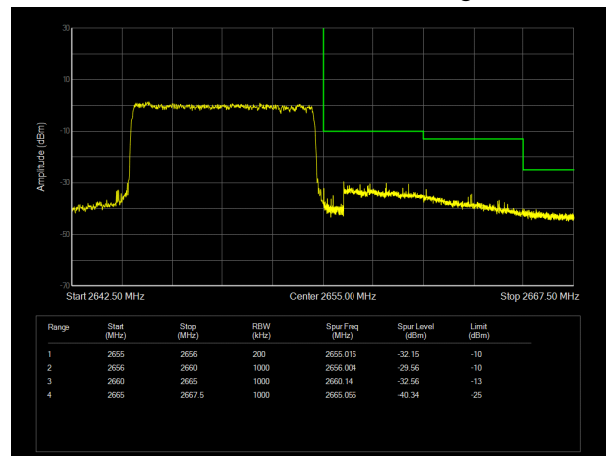
LTE Band 41 64QAM 10MHz CH-High, 1 RB



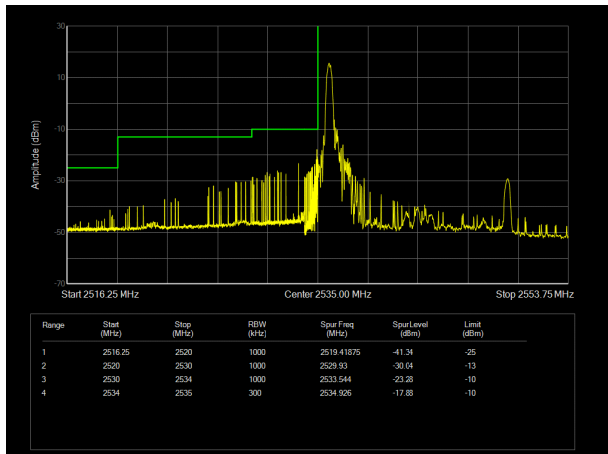
LTE Band 41 64QAM 10MHz CH-Low, 100%RB



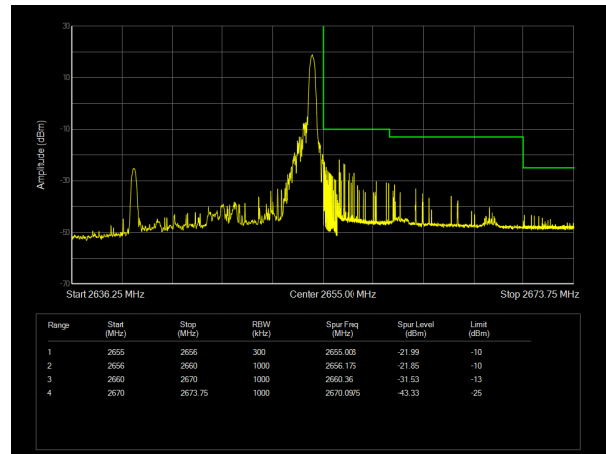
LTE Band 41 64QAM 10MHz CH-High, 100%RB



LTE Band 41 64QAM 15MHz CH-Low, 1 RB

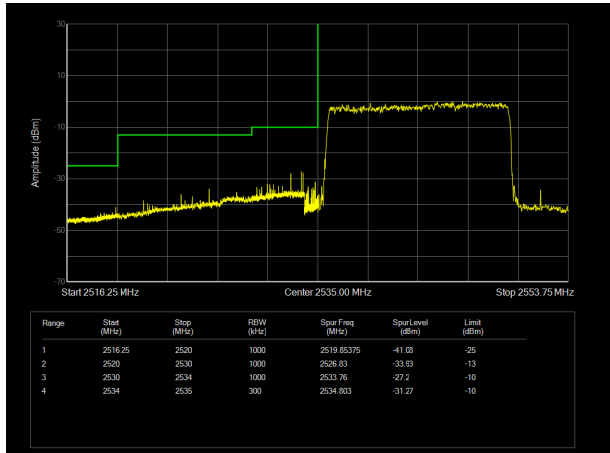


LTE Band 41 64QAM 15MHz CH-High, 1 RB

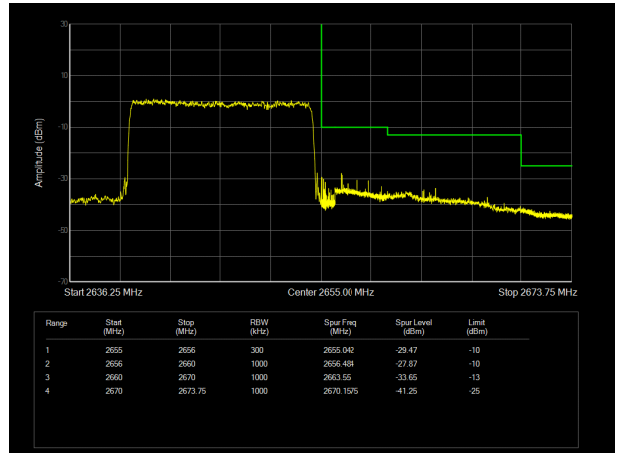




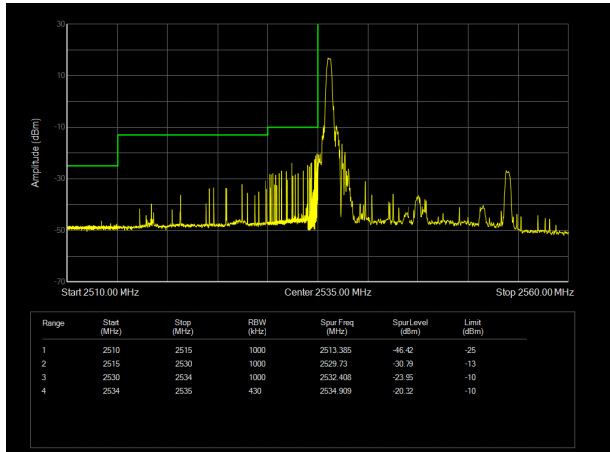
LTE Band 41 64QAM 15MHz CH-Low, 100%RB



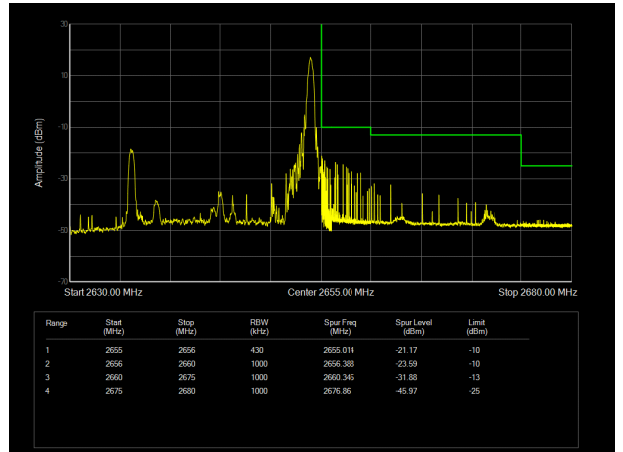
LTE Band 41 64QAM 15MHz CH-High, 100%RB



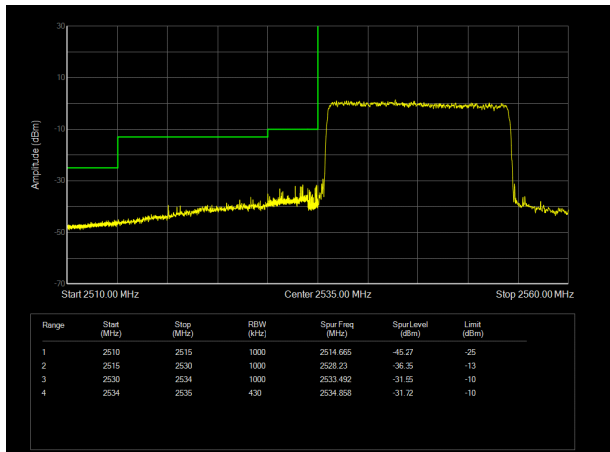
LTE Band 41 64QAM 20MHz CH-Low, 1 RB



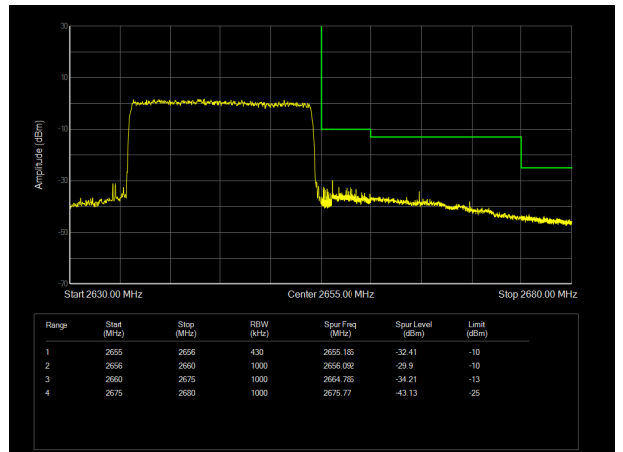
LTE Band 41 64QAM 20MHz CH-High, 1 RB



LTE Band 41 64QAM 20MHz CH-Low, 100%RB



LTE Band 41 64QAM 20MHz CH-High, 100%RB



5.4 Peak-to-Average Power Ratio (PAPR)

Ambient condition

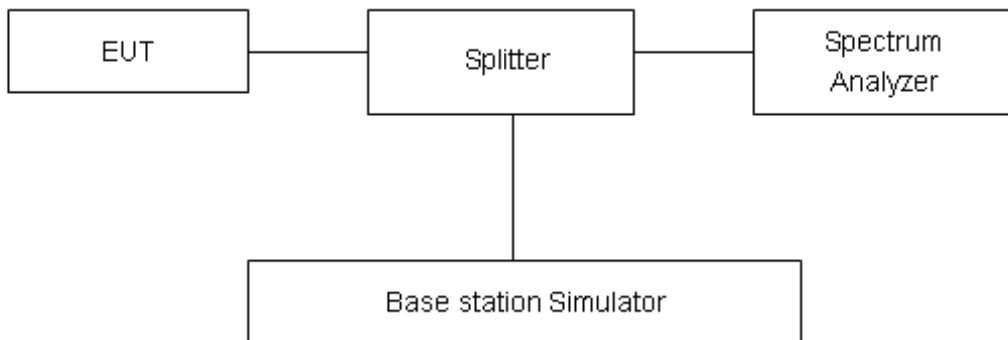
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

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

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

Test Setup



Limits

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Measurement Uncertainty

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



Test Results

WCDMA Band IV	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
RMC	1312	1712.4	24.43	21.26	3.17	≤13	PASS
	1413	1732.6	25.24	22.07	3.17	≤13	PASS
	1513	1752.6	25.56	22.49	3.07	≤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	26.36	21.22	5.14	≤13	PASS
		20175	1732.5	26.56	21.24	5.32	≤13	PASS
		20393	1754.3	26.22	21.26	4.96	≤13	PASS
	3	19965	1711.5	26.42	21.22	5.20	≤13	PASS
		20175	1732.5	26.53	21.22	5.31	≤13	PASS
		20385	1753.5	26.29	21.25	5.04	≤13	PASS
	5	19975	1712.5	26.49	21.23	5.26	≤13	PASS
		20175	1732.5	26.78	21.27	5.51	≤13	PASS
		20375	1752.5	26.31	21.26	5.05	≤13	PASS
	10	20000	1715	26.60	21.28	5.32	≤13	PASS
		20175	1732.5	26.80	21.30	5.50	≤13	PASS
		20350	1750	26.48	21.30	5.18	≤13	PASS
	15	20025	1717.5	26.91	21.27	5.64	≤13	PASS
		20175	1732.5	27.06	21.29	5.77	≤13	PASS
		20325	1747.5	26.89	21.30	5.59	≤13	PASS
20	20050	1720	26.73	21.20	5.53	≤13	PASS	
	20175	1732.5	26.82	21.23	5.59	≤13	PASS	
	20300	1745	26.59	21.17	5.42	≤13	PASS	
16QAM	1.4	19957	1710.7	26.24	20.24	6.00	≤13	PASS
		20175	1732.5	26.54	20.30	6.24	≤13	PASS
		20393	1754.3	26.22	20.33	5.89	≤13	PASS
	3	19965	1711.5	26.35	20.25	6.10	≤13	PASS
		20175	1732.5	26.50	20.25	6.25	≤13	PASS
		20385	1753.5	26.20	20.29	5.91	≤13	PASS
	5	19975	1712.5	26.33	20.28	6.05	≤13	PASS
		20175	1732.5	26.60	20.34	6.26	≤13	PASS
		20375	1752.5	26.19	20.29	5.90	≤13	PASS
	10	20000	1715	26.43	20.32	6.11	≤13	PASS
		20175	1732.5	26.65	20.37	6.28	≤13	PASS
		20350	1750	26.31	20.29	6.02	≤13	PASS



	15	20025	1717.5	26.55	20.26	6.29	≤13	PASS
		20175	1732.5	26.69	20.30	6.39	≤13	PASS
		20325	1747.5	26.52	20.27	6.25	≤13	PASS
	20	20050	1720	26.54	20.26	6.28	≤13	PASS
		20175	1732.5	26.59	20.25	6.34	≤13	PASS
		20300	1745	26.45	20.20	6.25	≤13	PASS
64QAM	1.4	19957	1710.7	25.40	19.24	6.16	≤13	PASS
		20175	1732.5	25.49	19.25	6.24	≤13	PASS
		20393	1754.3	25.37	19.30	6.07	≤13	PASS
	3	19965	1711.5	25.52	19.29	6.23	≤13	PASS
		20175	1732.5	25.58	19.26	6.32	≤13	PASS
		20385	1753.5	25.38	19.24	6.14	≤13	PASS
	5	19975	1712.5	25.50	19.29	6.21	≤13	PASS
		20175	1732.5	25.69	19.33	6.36	≤13	PASS
		20375	1752.5	25.43	19.27	6.16	≤13	PASS
	10	20000	1715	25.66	19.32	6.34	≤13	PASS
		20175	1732.5	25.79	19.36	6.43	≤13	PASS
		20350	1750	25.52	19.32	6.20	≤13	PASS
	15	20025	1717.5	25.69	19.25	6.44	≤13	PASS
		20175	1732.5	25.81	19.29	6.52	≤13	PASS
		20325	1747.5	25.63	19.27	6.36	≤13	PASS
	20	20050	1720	25.69	19.27	6.42	≤13	PASS
		20175	1732.5	25.72	19.25	6.47	≤13	PASS
		20300	1745	25.57	19.21	6.36	≤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	25.79	20.29	5.50	≤13	PASS
		21100	2535	25.77	20.12	5.65	≤13	PASS
		21425	2567.5	25.78	20.23	5.55	≤13	PASS
	10	20800	2505	25.98	20.30	5.68	≤13	PASS
		21100	2535	25.76	20.16	5.60	≤13	PASS
		21400	2565	25.75	20.24	5.51	≤13	PASS
	15	20825	2507.5	26.23	20.24	5.99	≤13	PASS
		21100	2535	26.14	20.19	5.95	≤13	PASS
		21375	2562.5	26.12	20.25	5.87	≤13	PASS
	20	20850	2510	25.80	20.13	5.67	≤13	PASS



		21100	2535	25.83	20.16	5.67	≤13	PASS
		21350	2560	25.81	20.21	5.60	≤13	PASS
16QAM	5	20775	2502.5	25.54	19.29	6.25	≤13	PASS
		21100	2535	25.44	19.13	6.31	≤13	PASS
		21425	2567.5	25.50	19.23	6.27	≤13	PASS
	10	20800	2505	25.64	19.30	6.34	≤13	PASS
		21100	2535	25.54	19.17	6.37	≤13	PASS
		21400	2565	25.50	19.25	6.25	≤13	PASS
	15	20825	2507.5	25.71	19.23	6.48	≤13	PASS
		21100	2535	25.59	19.15	6.44	≤13	PASS
		21375	2562.5	25.59	19.22	6.37	≤13	PASS
	20	20850	2510	25.56	19.19	6.37	≤13	PASS
		21100	2535	25.57	19.16	6.41	≤13	PASS
		21350	2560	25.56	19.22	6.34	≤13	PASS
64QAM	5	20775	2502.5	25.05	18.80	6.25	≤13	PASS
		21100	2535	24.94	18.65	6.29	≤13	PASS
		21425	2567.5	25.04	18.75	6.29	≤13	PASS
	10	20800	2505	25.16	18.80	6.36	≤13	PASS
		21100	2535	25.05	18.67	6.38	≤13	PASS
		21400	2565	25.04	18.74	6.30	≤13	PASS
	15	20825	2507.5	25.19	18.75	6.44	≤13	PASS
		21100	2535	25.12	18.65	6.47	≤13	PASS
		21375	2562.5	25.11	18.72	6.39	≤13	PASS
	20	20850	2510	25.05	18.66	6.39	≤13	PASS
		21100	2535	25.03	18.63	6.40	≤13	PASS
		21350	2560	25.04	18.71	6.33	≤13	PASS

LTE Band 28(703 ~ 716)							
Modulation	Bandwidth (MHz)	Channel	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	3	L	26.89	21.49	5.40	≤13	PASS
		M	26.89	21.50	5.39	≤13	PASS
		H	26.63	21.46	5.17	≤13	PASS
	5	L	27.01	21.49	5.52	≤13	PASS
		M	27.01	21.52	5.49	≤13	PASS



	10	H	26.83	21.50	5.33	≤13	PASS
		L	27.11	21.60	5.51	≤13	PASS
		M	27.05	21.56	5.49	≤13	PASS
		H	26.99	21.56	5.43	≤13	PASS
16QAM	3	L	26.72	20.51	6.21	≤13	PASS
		M	26.76	20.52	6.24	≤13	PASS
		H	26.47	20.44	6.03	≤13	PASS
	5	L	26.81	20.52	6.29	≤13	PASS
		M	26.70	20.52	6.18	≤13	PASS
		H	26.59	20.52	6.07	≤13	PASS
	10	L	26.88	20.61	6.27	≤13	PASS
		M	26.77	20.57	6.20	≤13	PASS
		H	26.73	20.57	6.16	≤13	PASS
64QAM	3	L	25.95	19.64	6.31	≤13	PASS
		M	25.89	19.62	6.27	≤13	PASS
		H	25.69	19.56	6.13	≤13	PASS
	5	L	25.95	19.64	6.31	≤13	PASS
		M	25.95	19.68	6.27	≤13	PASS
		H	25.81	19.65	6.16	≤13	PASS
	10	L	26.08	19.72	6.36	≤13	PASS
		M	26.00	19.67	6.33	≤13	PASS
		H	25.92	19.67	6.25	≤13	PASS

LTE Band 28(728 ~ 746)							
Modulation	Bandwidth (MHz)	Channel	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	3	L	26.77	21.03	5.74	≤13	PASS
		M	26.65	21.10	5.55	≤13	PASS
		H	26.49	21.20	5.29	≤13	PASS
	5	L	26.89	21.05	5.84	≤13	PASS
		M	26.84	21.12	5.72	≤13	PASS
		H	26.58	21.18	5.40	≤13	PASS
	10	L	27.06	21.28	5.78	≤13	PASS
		M	26.87	21.19	5.68	≤13	PASS
		H	26.74	21.22	5.52	≤13	PASS
	15	L	27.37	21.42	5.95	≤13	PASS
		M	27.16	21.18	5.98	≤13	PASS
		H	27.09	21.19	5.90	≤13	PASS
16QAM	3	L	26.60	20.03	6.57	≤13	PASS



		M	26.58	20.14	6.44	≤13	PASS	
		H	26.39	20.23	6.16	≤13	PASS	
		L	26.60	20.07	6.53	≤13	PASS	
	5	M	26.60	20.15	6.45	≤13	PASS	
		H	26.45	20.23	6.22	≤13	PASS	
		L	26.70	20.15	6.55	≤13	PASS	
	10	M	26.61	20.18	6.43	≤13	PASS	
		H	26.57	20.25	6.32	≤13	PASS	
		L	26.74	20.17	6.57	≤13	PASS	
	15	M	26.73	20.19	6.54	≤13	PASS	
		H	26.66	20.18	6.48	≤13	PASS	
		L	26.74	20.17	6.57	≤13	PASS	
	64QAM	3	L	26.37	19.79	6.58	≤13	PASS
			M	26.29	19.84	6.45	≤13	PASS
			H	26.07	19.89	6.18	≤13	PASS
5		L	26.69	20.27	6.42	≤13	PASS	
		M	26.35	19.90	6.45	≤13	PASS	
		H	26.07	19.86	6.21	≤13	PASS	
10		L	26.74	20.33	6.41	≤13	PASS	
		M	26.51	20.10	6.41	≤13	PASS	
		H	26.30	19.93	6.37	≤13	PASS	
15		L	26.80	20.35	6.45	≤13	PASS	
		M	26.79	20.34	6.45	≤13	PASS	
		H	26.53	20.04	6.49	≤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	26.03	16.74	9.29	≤13	PASS
		38000	2595	26.00	15.72	10.28	≤13	PASS
		38225	2617.5	26.06	16.73	9.33	≤13	PASS
	10	37800	2575	26.08	16.87	9.21	≤13	PASS
		38000	2595	26.09	16.95	9.14	≤13	PASS
		38200	2615	26.13	17.29	8.84	≤13	PASS
	15	37825	2577.5	26.38	16.74	9.64	≤13	PASS
		38000	2595	26.45	16.95	9.50	≤13	PASS
		38175	2612.5	26.49	17.25	9.24	≤13	PASS
	20	37850	2580	26.10	17.53	8.57	≤13	PASS



		38000	2595	25.98	16.51	9.47	≤13	PASS
		38150	2610	26.09	17.16	8.93	≤13	PASS
16QAM	5	37775	2572.5	25.56	15.12	10.44	≤13	PASS
		38000	2595	25.86	16.73	9.13	≤13	PASS
		38225	2617.5	25.89	16.71	9.18	≤13	PASS
	10	37800	2575	25.88	16.67	9.21	≤13	PASS
		38000	2595	25.72	15.42	10.30	≤13	PASS
		38200	2615	25.88	16.31	9.57	≤13	PASS
	15	37825	2577.5	25.89	15.66	10.23	≤13	PASS
		38000	2595	25.86	15.35	10.51	≤13	PASS
		38175	2612.5	25.91	15.38	10.53	≤13	PASS
	20	37850	2580	25.71	15.59	10.12	≤13	PASS
		38000	2595	25.61	15.61	10.00	≤13	PASS
		38150	2610	25.63	15.33	10.30	≤13	PASS
64QAM	5	37775	2572.5	25.31	15.20	10.11	≤13	PASS
		38000	2595	25.32	14.32	11.00	≤13	PASS
		38225	2617.5	25.61	16.66	8.95	≤13	PASS
	10	37800	2575	25.40	15.41	9.99	≤13	PASS
		38000	2595	25.20	13.90	11.30	≤13	PASS
		38200	2615	25.46	15.26	10.20	≤13	PASS
	15	37825	2577.5	25.47	14.84	10.63	≤13	PASS
		38000	2595	25.68	16.72	8.96	≤13	PASS
		38175	2612.5	25.59	15.25	10.34	≤13	PASS
	20	37850	2580	25.35	15.54	9.81	≤13	PASS
		38000	2595	25.34	15.57	9.77	≤13	PASS
		38150	2610	25.15	13.69	11.46	≤13	PASS

LTE band 40 subset 1							
RB	Modulation	Bandwidth (MHz)	Channel	Peak	Avg	PAPR	
100%	QPSK	5M	L	25.79	15.71	10.08	
			M	25.92	16.80	9.12	
			H	25.92	16.24	9.68	
		10M	M	25.91	16.01	9.90	
		16QAM	5M	L	25.64	16.09	9.55
				M	25.78	16.13	9.65
	H			25.75	15.63	10.12	
	10M	M	25.84	16.13	9.71		
	64QAM	5M	L	25.13	14.96	10.17	
			M	25.18	14.95	10.23	
			H	25.14	15.07	10.07	
			10M	M	25.33	16.16	9.17

LTE band 40 subset 2							
RB	Modulation	Bandwidth (MHz)	Channel	Peak	Avg	PAPR	
100%	QPSK	5M	L	25.99	17.64	8.35	
			M	26.07	18.48	7.59	
			H	25.90	15.71	10.19	
		10M	M	25.79	16.01	9.78	
		16QAM	5M	L	25.83	17.29	8.54
				M	25.67	14.92	10.75
	H			25.71	15.86	9.85	
	10M	M	25.79	15.97	9.82		
	64QAM	5M	L	25.38	16.13	9.25	
			M	25.36	16.04	9.32	
			H	25.30	15.84	9.46	
			10M	M	25.55	15.95	9.60



LTE Band 41								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	40065	2537.5	25.58	16.18	9.40	≤13	PASS
		40640	2595	26.48	18.49	7.99	≤13	PASS
		41215	2652.5	26.23	15.17	11.06	≤13	PASS
	10	40090	2540	25.73	16.48	9.25	≤13	PASS
		40640	2595	26.20	16.91	9.29	≤13	PASS
		41190	2650	26.37	17.13	9.24	≤13	PASS
	15	40115	2542.5	26.12	16.50	9.62	≤13	PASS
		40640	2595	26.57	17.10	9.47	≤13	PASS
		41165	2647.5	26.72	16.99	9.73	≤13	PASS
	20	40140	2545	25.91	16.98	8.93	≤13	PASS
		40640	2595	26.20	17.27	8.93	≤13	PASS
		41140	2645	26.39	17.19	9.20	≤13	PASS
16QAM	5	40065	2537.5	25.34	15.50	9.84	≤13	PASS
		40640	2595	25.89	16.31	9.58	≤13	PASS
		41215	2652.5	26.10	16.62	9.48	≤13	PASS
	10	40090	2540	25.48	15.74	9.74	≤13	PASS
		40640	2595	25.78	15.11	10.67	≤13	PASS
		41190	2650	26.17	16.83	9.34	≤13	PASS
	15	40115	2542.5	25.77	16.33	9.44	≤13	PASS
		40640	2595	25.96	15.25	10.71	≤13	PASS
		41165	2647.5	26.30	16.64	9.66	≤13	PASS
	20	40140	2545	25.55	15.25	10.30	≤13	PASS
		40640	2595	25.75	15.34	10.41	≤13	PASS
		41140	2645	26.12	16.71	9.41	≤13	PASS
64QAM	5	40065	2537.5	24.95	15.55	9.40	≤13	PASS
		40640	2595	25.28	15.02	10.26	≤13	PASS
		41215	2652.5	25.53	16.69	8.84	≤13	PASS
	10	40090	2540	25.08	15.88	9.20	≤13	PASS
		40640	2595	25.32	15.50	9.82	≤13	PASS
		41190	2650	25.52	15.30	10.22	≤13	PASS
	15	40115	2542.5	25.18	14.86	10.32	≤13	PASS



		40640	2595	25.50	15.08	10.42	≤13	PASS
		41165	2647.5	25.86	16.74	9.12	≤13	PASS
	20	40140	2545	25.09	15.34	9.75	≤13	PASS
		40640	2595	25.31	15.62	9.69	≤13	PASS
		41140	2645	25.42	14.94	10.48	≤13	PASS

5.5 Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

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

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

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

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

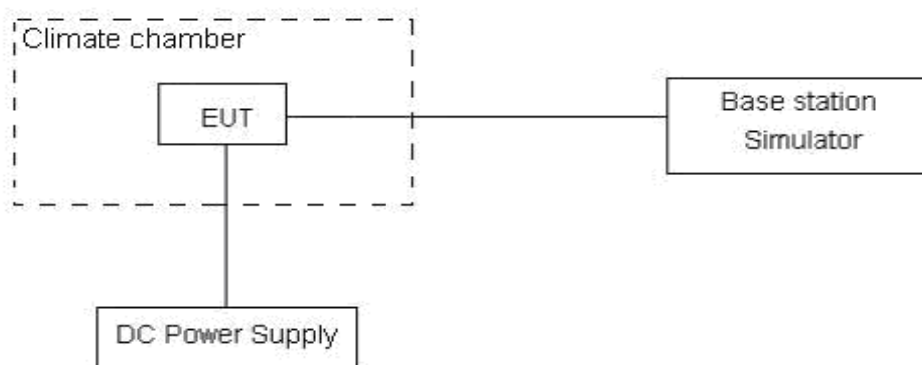
Frequency Stability (Voltage Variation)

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

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced 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 3.4 V and 4.33 V, with a nominal voltage of 3.85V.

Test setup



Limits

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

Measurement Uncertainty

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



Test Result

WCDMA Band IV						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	QPSK	BPSK	QPSK	BPSK	
Normal (25°C)	Normal	10.49	12.61	0.00605	0.00728	PASS
Extreme (50°C)		16.25	6.67	0.00938	0.00385	PASS
Extreme (40°C)		3.21	11.44	0.00185	0.00660	PASS
Extreme (30°C)		16.84	17.91	0.00972	0.01034	PASS
Extreme (20°C)		13.55	2.97	0.00782	0.00172	PASS
Extreme (10°C)		15.44	17.84	0.00891	0.01030	PASS
Extreme (0°C)		12.96	2.36	0.00748	0.00136	PASS
Extreme (-10°C)		5.81	6.22	0.00335	0.00359	PASS
Extreme (-20°C)		17.33	11.21	0.01000	0.00647	PASS
Extreme (-30°C)		13.85	16.14	0.00799	0.00931	PASS
25°C	LV	3.18	2.98	0.00184	0.00172	PASS
	HV	12.15	15.26	0.00701	0.00881	PASS

LTE band 4								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.13	6.95	16.60	0.00527	0.00401	0.00958	PASS
Extreme (50°C)		10.14	1.57	10.12	0.00586	0.00090	0.00584	PASS
Extreme (40°C)		2.93	15.13	11.29	0.00169	0.00873	0.00651	PASS
Extreme (30°C)		7.00	7.64	10.63	0.00404	0.00441	0.00613	PASS
Extreme (20°C)		8.56	12.15	9.85	0.00494	0.00701	0.00569	PASS
Extreme (10°C)		16.18	8.12	8.73	0.00934	0.00468	0.00504	PASS
Extreme (0°C)		6.09	9.51	1.31	0.00352	0.00549	0.00076	PASS
Extreme (-10°C)		4.32	4.51	14.84	0.00249	0.00260	0.00857	PASS
Extreme (-20°C)		9.96	6.19	8.89	0.00575	0.00357	0.00513	PASS
Extreme (-30°C)		7.62	15.83	1.78	0.00440	0.00914	0.00103	PASS
25°C	LV	6.78	3.80	16.81	0.00392	0.00219	0.00970	PASS
	HV	5.21	6.23	5.29	0.00301	0.00359	0.00305	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							



Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	13.77	7.73	13.10	0.00795	0.00446	0.00756	PASS
Extreme (50°C)		4.69	15.76	5.79	0.00271	0.00910	0.00334	PASS
Extreme (40°C)		16.71	8.17	7.20	0.00964	0.00472	0.00415	PASS
Extreme (30°C)		3.59	6.10	8.29	0.00207	0.00352	0.00479	PASS
Extreme (20°C)		10.46	7.21	6.30	0.00604	0.00416	0.00364	PASS
Extreme (10°C)		3.62	14.92	5.06	0.00209	0.00861	0.00292	PASS
Extreme (0°C)		16.28	6.03	8.64	0.00940	0.00348	0.00499	PASS
Extreme (-10°C)		14.91	2.34	2.69	0.00860	0.00135	0.00155	PASS
Extreme (-20°C)		17.18	12.22	12.82	0.00991	0.00705	0.00740	PASS
Extreme (-30°C)		10.16	14.42	15.04	0.00586	0.00832	0.00868	PASS
25°C		LV	12.91	13.71	14.45	0.00745	0.00791	0.00834
	HV	6.26	2.47	3.57	0.00361	0.00142	0.00206	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.01	6.73	7.19	0.00636	0.00389	0.00415	PASS
Extreme (50°C)		9.41	14.86	10.49	0.00543	0.00858	0.00606	PASS
Extreme (40°C)		11.90	6.15	11.10	0.00687	0.00355	0.00641	PASS
Extreme (30°C)		14.60	1.40	14.93	0.00843	0.00081	0.00862	PASS
Extreme (20°C)		7.07	17.85	4.17	0.00408	0.01030	0.00240	PASS
Extreme (10°C)		13.08	16.08	9.56	0.00755	0.00928	0.00552	PASS
Extreme (0°C)		14.56	10.43	7.61	0.00841	0.00602	0.00439	PASS
Extreme (-10°C)		14.46	5.24	6.74	0.00835	0.00302	0.00389	PASS
Extreme (-20°C)		11.61	8.23	4.17	0.00670	0.00475	0.00240	PASS
Extreme (-30°C)		5.01	10.56	13.78	0.00289	0.00609	0.00796	PASS
25°C		LV	3.87	12.41	17.93	0.00224	0.00716	0.01035
	HV	2.80	2.47	13.18	0.00162	0.00143	0.00761	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.07	7.28	14.73	0.00177	0.00420	0.00850	PASS
Extreme (50°C)		13.05	8.63	8.30	0.00753	0.00498	0.00479	PASS
Extreme (40°C)		10.98	4.57	5.39	0.00634	0.00264	0.00311	PASS
Extreme (30°C)		7.63	9.07	15.54	0.00441	0.00523	0.00897	PASS
Extreme (20°C)		10.74	1.22	2.12	0.00620	0.00070	0.00123	PASS
Extreme (10°C)		5.02	9.21	11.45	0.00290	0.00531	0.00661	PASS
Extreme (0°C)		15.54	17.58	14.47	0.00897	0.01015	0.00835	PASS
Extreme (-10°C)		14.17	8.15	9.36	0.00818	0.00470	0.00540	PASS



Extreme (-20℃)		12.10	2.93	1.68	0.00699	0.00169	0.00097	PASS
Extreme (-30℃)		5.04	3.38	7.43	0.00291	0.00195	0.00429	PASS
25℃	LV	2.25	14.01	11.30	0.00130	0.00809	0.00652	PASS
	HV	5.46	8.43	10.98	0.00315	0.00487	0.00633	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	12.73	11.16	15.62	0.00735	0.00644	0.00901	PASS
Extreme (50℃)		4.51	12.76	4.93	0.00260	0.00736	0.00284	PASS
Extreme (40℃)		15.09	14.49	4.46	0.00871	0.00836	0.00257	PASS
Extreme (30℃)		5.75	4.37	5.66	0.00332	0.00252	0.00327	PASS
Extreme (20℃)		12.96	1.91	11.59	0.00748	0.00110	0.00669	PASS
Extreme (10℃)		10.60	3.67	14.12	0.00612	0.00212	0.00815	PASS
Extreme (0℃)		17.30	12.98	1.24	0.00999	0.00749	0.00071	PASS
Extreme (-10℃)		15.22	2.51	10.50	0.00878	0.00145	0.00606	PASS
Extreme (-20℃)		10.44	1.13	8.97	0.00603	0.00065	0.00518	PASS
Extreme (-30℃)		14.60	7.65	7.90	0.00843	0.00442	0.00456	PASS
25℃		LV	2.87	3.87	13.90	0.00166	0.00223	0.00802
	HV	5.30	11.72	2.28	0.00306	0.00677	0.00132	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	8.24	3.76	3.42	0.00476	0.00217	0.00197	PASS
Extreme (50℃)		9.81	15.80	13.00	0.00566	0.00912	0.00750	PASS
Extreme (40℃)		4.99	6.18	12.39	0.00288	0.00357	0.00715	PASS
Extreme (30℃)		6.51	14.27	14.84	0.00376	0.00824	0.00857	PASS
Extreme (20℃)		2.18	3.87	8.68	0.00126	0.00223	0.00501	PASS
Extreme (10℃)		13.36	13.46	2.71	0.00771	0.00777	0.00156	PASS
Extreme (0℃)		12.10	2.87	9.42	0.00698	0.00166	0.00544	PASS
Extreme (-10℃)		2.58	2.70	16.09	0.00149	0.00156	0.00929	PASS
Extreme (-20℃)		3.42	1.69	14.68	0.00197	0.00098	0.00847	PASS
Extreme (-30℃)		8.10	1.40	4.91	0.00468	0.00081	0.00284	PASS
25℃		LV	11.99	16.03	6.75	0.00692	0.00925	0.00390
	HV	5.84	13.89	4.45	0.00337	0.00801	0.00257	PASS



LTE band 7								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.68	6.26	1.20	0.00461	0.00247	0.00047	PASS
Extreme (50°C)		15.33	3.85	5.64	0.00605	0.00152	0.00223	PASS
Extreme (40°C)		2.47	1.24	6.19	0.00097	0.00049	0.00244	PASS
Extreme (30°C)		5.38	9.38	3.76	0.00212	0.00370	0.00148	PASS
Extreme (20°C)		12.84	14.23	14.65	0.00507	0.00561	0.00578	PASS
Extreme (10°C)		7.30	2.78	6.67	0.00288	0.00110	0.00263	PASS
Extreme (0°C)		2.95	6.21	2.35	0.00116	0.00245	0.00093	PASS
Extreme (-10°C)		13.79	13.71	5.54	0.00544	0.00541	0.00218	PASS
Extreme (-20°C)		9.26	15.47	3.90	0.00365	0.00610	0.00154	PASS
Extreme (-30°C)		4.96	8.94	10.84	0.00196	0.00353	0.00427	PASS
25°C		LV	11.90	10.93	9.05	0.00469	0.00431	0.00357
	HV	6.19	5.11	3.28	0.00244	0.00202	0.00129	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.05	2.80	14.23	0.00081	0.00111	0.00561	PASS
Extreme (50°C)		13.17	5.39	1.21	0.00520	0.00213	0.00048	PASS
Extreme (40°C)		1.34	8.64	16.58	0.00053	0.00341	0.00654	PASS
Extreme (30°C)		14.14	14.20	10.85	0.00558	0.00560	0.00428	PASS
Extreme (20°C)		4.34	14.15	11.71	0.00171	0.00558	0.00462	PASS
Extreme (10°C)		8.99	5.32	16.73	0.00355	0.00210	0.00660	PASS
Extreme (0°C)		4.25	5.57	9.13	0.00168	0.00220	0.00360	PASS
Extreme (-10°C)		11.24	7.90	7.45	0.00443	0.00312	0.00294	PASS
Extreme (-20°C)		1.77	17.36	15.20	0.00070	0.00685	0.00600	PASS
Extreme (-30°C)		6.67	15.30	9.71	0.00263	0.00604	0.00383	PASS
25°C		LV	1.43	1.30	14.67	0.00056	0.00051	0.00579
	HV	8.52	1.41	17.91	0.00336	0.00056	0.00706	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	17.81	13.83	6.33	0.00702	0.00546	0.00250	PASS
Extreme (50°C)		12.03	3.99	3.18	0.00474	0.00157	0.00126	PASS
Extreme (40°C)		14.92	5.39	14.52	0.00589	0.00213	0.00573	PASS



Extreme (30°C)		16.17	12.02	13.37	0.00638	0.00474	0.00527	PASS
Extreme (20°C)		14.99	17.88	7.89	0.00591	0.00705	0.00311	PASS
Extreme (10°C)		12.78	6.83	12.88	0.00504	0.00270	0.00508	PASS
Extreme (0°C)		5.59	15.45	3.64	0.00221	0.00609	0.00144	PASS
Extreme (-10°C)		7.52	6.82	13.60	0.00297	0.00269	0.00536	PASS
Extreme (-20°C)		13.34	7.46	8.83	0.00526	0.00294	0.00348	PASS
Extreme (-30°C)		6.43	6.35	17.03	0.00254	0.00251	0.00672	PASS
25°C	LV	8.42	4.55	2.15	0.00332	0.00179	0.00085	PASS
	HV	4.22	2.64	15.37	0.00166	0.00104	0.00606	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.55	7.59	11.03	0.00653	0.00299	0.00435	PASS
Extreme (50°C)		9.09	1.53	4.50	0.00359	0.00060	0.00177	PASS
Extreme (40°C)		3.45	13.34	4.48	0.00136	0.00526	0.00177	PASS
Extreme (30°C)		15.62	14.93	3.08	0.00616	0.00589	0.00122	PASS
Extreme (20°C)		9.72	1.84	15.13	0.00383	0.00073	0.00597	PASS
Extreme (10°C)		12.10	5.85	14.25	0.00477	0.00231	0.00562	PASS
Extreme (0°C)		1.08	5.56	2.49	0.00043	0.00219	0.00098	PASS
Extreme (-10°C)		6.76	9.44	16.62	0.00267	0.00372	0.00656	PASS
Extreme (-20°C)		12.80	6.47	4.64	0.00505	0.00255	0.00183	PASS
Extreme (-30°C)		9.58	1.69	5.22	0.00378	0.00067	0.00206	PASS
25°C	LV	6.55	5.90	13.72	0.00258	0.00233	0.00541	PASS
	HV	5.59	7.11	14.37	0.00220	0.00281	0.00567	PASS

LTE band 28 subset 1								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	4.48	5.53	14.82	0.00631	0.00779	0.02088	PASS
Extreme (50°C)		13.20	17.91	6.16	0.01860	0.02525	0.00868	PASS
Extreme (40°C)		2.34	6.12	14.45	0.00329	0.00862	0.02037	PASS
Extreme (30°C)		15.10	10.75	13.47	0.02128	0.01516	0.01898	PASS
Extreme (20°C)		4.47	11.07	4.55	0.00631	0.01560	0.00641	PASS
Extreme (10°C)		13.79	9.91	2.57	0.01943	0.01397	0.00362	PASS
Extreme (0°C)		9.05	4.63	15.75	0.01276	0.00653	0.02220	PASS
Extreme (-10°C)		13.96	15.53	13.09	0.01967	0.02190	0.01845	PASS



Extreme (-20℃)		11.00	16.09	3.96	0.01551	0.02268	0.00558	PASS
Extreme (-30℃)		12.55	15.96	7.19	0.01769	0.02250	0.01014	PASS
25℃	LV	7.59	13.77	1.50	0.01070	0.01941	0.00211	PASS
	HV	1.77	17.85	13.37	0.00250	0.02515	0.01884	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	11.19	16.43	13.25	0.01577	0.02316	0.01868	PASS
Extreme (50℃)		12.49	9.20	13.92	0.01761	0.01297	0.01961	PASS
Extreme (40℃)		12.84	15.51	6.36	0.01810	0.02186	0.00897	PASS
Extreme (30℃)		10.29	7.82	7.47	0.01451	0.01102	0.01052	PASS
Extreme (20℃)		13.02	16.67	17.92	0.01836	0.02350	0.02525	PASS
Extreme (10℃)		1.28	6.63	3.07	0.00180	0.00935	0.00432	PASS
Extreme (0℃)		11.21	11.50	1.31	0.01580	0.01621	0.00185	PASS
Extreme (-10℃)		8.94	12.17	8.94	0.01259	0.01715	0.01261	PASS
Extreme (-20℃)		7.70	10.99	4.40	0.01086	0.01550	0.00620	PASS
Extreme (-30℃)		8.98	10.28	7.67	0.01266	0.01449	0.01081	PASS
25℃		LV	8.63	17.45	3.90	0.01217	0.02460	0.00549
	HV	2.99	5.58	13.55	0.00422	0.00786	0.01909	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	1.40	17.68	10.23	0.00197	0.02492	0.01442	PASS
Extreme (50℃)		1.36	2.64	9.92	0.00191	0.00371	0.01398	PASS
Extreme (40℃)		17.82	3.17	16.98	0.02511	0.00446	0.02393	PASS
Extreme (30℃)		17.42	15.47	6.77	0.02456	0.02181	0.00955	PASS
Extreme (20℃)		17.73	16.80	3.62	0.02499	0.02367	0.00511	PASS
Extreme (10℃)		11.24	2.93	8.18	0.01584	0.00413	0.01153	PASS
Extreme (0℃)		16.78	3.16	14.04	0.02365	0.00445	0.01979	PASS
Extreme (-10℃)		16.26	16.37	2.57	0.02292	0.02307	0.00362	PASS
Extreme (-20℃)		8.32	10.66	9.90	0.01173	0.01502	0.01396	PASS
Extreme (-30℃)		12.14	7.06	4.18	0.01711	0.00995	0.00589	PASS
25℃		LV	1.81	10.21	10.80	0.00255	0.01439	0.01522
	HV	15.61	16.78	17.76	0.02200	0.02365	0.02503	PASS



LTE band 28 subset 2								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.00	13.00	7.00	0.00271	0.01764	0.00950	PASS
Extreme (50°C)		7.00	7.00	9.00	0.00950	0.00950	0.01221	PASS
Extreme (40°C)		10.00	2.00	15.00	0.01357	0.00271	0.02035	PASS
Extreme (30°C)		6.00	7.00	13.00	0.00814	0.00950	0.01764	PASS
Extreme (20°C)		2.00	13.00	4.00	0.00271	0.01764	0.00543	PASS
Extreme (10°C)		7.00	1.00	11.00	0.00950	0.00136	0.01493	PASS
Extreme (0°C)		14.00	10.00	7.00	0.01900	0.01357	0.00950	PASS
Extreme (-10°C)		1.00	4.00	1.00	0.00136	0.00543	0.00136	PASS
Extreme (-20°C)		14.00	2.00	17.00	0.01900	0.00271	0.02307	PASS
Extreme (-30°C)		12.00	14.00	8.00	0.01628	0.01900	0.01085	PASS
25°C	LV	14.00	13.00	7.00	0.01900	0.01764	0.00950	PASS
	HV	11.00	6.00	7.00	0.01493	0.00814	0.00950	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.00	6.00	10.00	0.02171	0.00814	0.01357	PASS
Extreme (50°C)		5.00	15.00	13.00	0.00678	0.02035	0.01764	PASS
Extreme (40°C)		10.00	1.00	6.00	0.01357	0.00136	0.00814	PASS
Extreme (30°C)		9.00	12.00	7.00	0.01221	0.01628	0.00950	PASS
Extreme (20°C)		6.00	5.00	14.00	0.00814	0.00678	0.01900	PASS
Extreme (10°C)		9.00	12.00	4.00	0.01221	0.01628	0.00543	PASS
Extreme (0°C)		17.00	1.00	6.00	0.02307	0.00136	0.00814	PASS
Extreme (-10°C)		2.00	13.00	16.00	0.00271	0.01764	0.02171	PASS
Extreme (-20°C)		8.00	2.00	13.00	0.01085	0.00271	0.01764	PASS
Extreme (-30°C)		17.00	13.00	15.00	0.02307	0.01764	0.02035	PASS
25°C	LV	1.00	15.00	4.00	0.00136	0.02035	0.00543	PASS
	HV	8.00	13.00	11.00	0.01085	0.01764	0.01493	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.00	17.00	7.00	0.01221	0.02307	0.00950	PASS
Extreme (50°C)		7.00	16.00	1.00	0.00950	0.02171	0.00136	PASS
Extreme (40°C)		3.00	3.00	3.00	0.00407	0.00407	0.00407	PASS
Extreme (30°C)		5.00	7.00	10.00	0.00678	0.00950	0.01357	PASS



Extreme (20°C)		1.00	14.00	10.00	0.00136	0.01900	0.01357	PASS
Extreme (10°C)		9.00	12.00	6.00	0.01221	0.01628	0.00814	PASS
Extreme (0°C)		9.00	12.00	11.00	0.01221	0.01628	0.01493	PASS
Extreme (-10°C)		15.00	9.00	12.00	0.02035	0.01221	0.01628	PASS
Extreme (-20°C)		16.00	1.00	3.00	0.02171	0.00136	0.00407	PASS
Extreme (-30°C)		17.00	7.00	12.00	0.02307	0.00950	0.01628	PASS
25°C	LV	13.00	8.00	8.00	0.01764	0.01085	0.01085	PASS
	HV	15.00	3.00	1.00	0.02035	0.00407	0.00136	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	8.00	10.00	2.00	0.01085	0.01357	0.00271	PASS
Extreme (50°C)		4.00	6.00	8.00	0.00543	0.00814	0.01085	PASS
Extreme (40°C)		3.00	5.00	6.00	0.00407	0.00678	0.00814	PASS
Extreme (30°C)		16.00	7.00	8.00	0.02171	0.00950	0.01085	PASS
Extreme (20°C)		10.00	8.00	10.00	0.01357	0.01085	0.01357	PASS
Extreme (10°C)		15.00	12.00	6.00	0.02035	0.01628	0.00814	PASS
Extreme (0°C)		13.00	8.00	10.00	0.01764	0.01085	0.01357	PASS
Extreme (-10°C)		3.00	5.00	13.00	0.00407	0.00678	0.01764	PASS
Extreme (-20°C)		12.00	9.00	3.00	0.01628	0.01221	0.00407	PASS
Extreme (-30°C)		11.00	2.00	7.00	0.01493	0.00271	0.00950	PASS
25°C	LV	3.00	1.00	13.00	0.00407	0.00136	0.01764	PASS
	HV	7.00	7.00	1.00	0.00950	0.00950	0.00136	PASS

LTE band 38								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.24	10.85	16.87	0.00086	0.00418	0.00650	PASS
Extreme (50°C)		11.55	4.93	3.19	0.00445	0.00190	0.00123	PASS
Extreme (40°C)		6.46	17.23	4.32	0.00249	0.00664	0.00167	PASS
Extreme (30°C)		3.81	13.10	10.92	0.00147	0.00505	0.00421	PASS
Extreme (20°C)		2.15	3.06	11.57	0.00083	0.00118	0.00446	PASS
Extreme (10°C)		12.31	2.77	6.68	0.00474	0.00107	0.00257	PASS
Extreme (0°C)		7.10	2.64	13.59	0.00274	0.00102	0.00524	PASS
Extreme (-10°C)		5.30	10.55	5.84	0.00204	0.00406	0.00225	PASS
Extreme (-20°C)		8.16	16.01	17.82	0.00314	0.00617	0.00687	PASS
Extreme (-30°C)		14.75	5.86	4.22	0.00568	0.00226	0.00163	PASS



25°C	LV	7.38	3.81	2.47	0.00284	0.00147	0.00095	PASS
	HV	5.73	4.03	12.15	0.00221	0.00155	0.00468	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.96	2.84	13.48	0.00384	0.00110	0.00519	PASS
Extreme (50°C)		10.88	14.39	16.42	0.00419	0.00555	0.00633	PASS
Extreme (40°C)		7.46	6.14	14.87	0.00287	0.00236	0.00573	PASS
Extreme (30°C)		9.50	2.12	1.26	0.00366	0.00082	0.00048	PASS
Extreme (20°C)		11.02	16.57	9.17	0.00425	0.00638	0.00353	PASS
Extreme (10°C)		11.78	7.19	14.50	0.00454	0.00277	0.00559	PASS
Extreme (0°C)		11.45	10.57	16.65	0.00441	0.00407	0.00642	PASS
Extreme (-10°C)		6.72	14.58	11.84	0.00259	0.00562	0.00456	PASS
Extreme (-20°C)		17.23	3.02	10.90	0.00664	0.00117	0.00420	PASS
Extreme (-30°C)		3.86	7.19	15.50	0.00149	0.00277	0.00597	PASS
25°C	LV	16.85	9.24	16.90	0.00649	0.00356	0.00651	PASS
	HV	16.75	2.64	3.87	0.00645	0.00102	0.00149	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.00	10.00	2.00	0.00424	0.00385	0.00077	PASS
Extreme (50°C)		1.00	3.00	16.00	0.00039	0.00116	0.00617	PASS
Extreme (40°C)		10.00	14.00	17.00	0.00385	0.00539	0.00655	PASS
Extreme (30°C)		17.00	7.00	7.00	0.00655	0.00270	0.00270	PASS
Extreme (20°C)		12.00	17.00	8.00	0.00462	0.00655	0.00308	PASS
Extreme (10°C)		5.00	6.00	15.00	0.00193	0.00231	0.00578	PASS
Extreme (0°C)		14.00	16.00	8.00	0.00539	0.00617	0.00308	PASS
Extreme (-10°C)		17.00	2.00	7.00	0.00655	0.00077	0.00270	PASS
Extreme (-20°C)		14.00	12.00	2.00	0.00539	0.00462	0.00077	PASS
Extreme (-30°C)		7.00	16.00	8.00	0.00270	0.00617	0.00308	PASS
25°C	LV	7.00	1.00	9.00	0.00270	0.00039	0.00347	PASS
	HV	13.00	13.00	14.00	0.00501	0.00501	0.00539	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.00	14.00	9.00	0.00347	0.00539	0.00347	PASS
Extreme (50°C)		12.00	8.00	14.00	0.00462	0.00308	0.00539	PASS
Extreme (40°C)		16.00	9.00	13.00	0.00617	0.00347	0.00501	PASS



Extreme (30°C)		10.00	3.00	16.00	0.00385	0.00116	0.00617	PASS
Extreme (20°C)		14.00	13.00	8.00	0.00539	0.00501	0.00308	PASS
Extreme (10°C)		5.00	11.00	16.00	0.00193	0.00424	0.00617	PASS
Extreme (0°C)		12.00	10.00	14.00	0.00462	0.00385	0.00539	PASS
Extreme (-10°C)		9.00	1.00	17.00	0.00347	0.00039	0.00655	PASS
Extreme (-20°C)		6.00	10.00	7.00	0.00231	0.00385	0.00270	PASS
Extreme (-30°C)		1.00	15.00	16.00	0.00039	0.00578	0.00617	PASS
25°C	LV	6.00	10.00	3.00	0.00231	0.00385	0.00116	PASS
	HV	7.00	6.00	3.00	0.00270	0.00231	0.00116	PASS



LTE band 40 subset 1								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	17.00	11.00	13.00	0.00656	0.00424	0.00501	PASS
Extreme (50°C)		4.00	6.00	6.00	0.00154	0.00231	0.00231	PASS
Extreme (40°C)		3.00	6.00	2.00	0.00116	0.00231	0.00077	PASS
Extreme (30°C)		9.00	11.00	14.00	0.00347	0.00424	0.00540	PASS
Extreme (20°C)		2.00	5.00	2.00	0.00077	0.00193	0.00077	PASS
Extreme (10°C)		9.00	4.00	12.00	0.00347	0.00154	0.00463	PASS
Extreme (0°C)		5.00	16.00	5.00	0.00193	0.00617	0.00193	PASS
Extreme (-10°C)		12.00	3.00	1.00	0.00463	0.00116	0.00039	PASS
Extreme (-20°C)		1.00	15.00	6.00	0.00039	0.00578	0.00231	PASS
Extreme (-30°C)		3.00	6.00	10.00	0.00116	0.00231	0.00386	PASS
25°C	LV	2.00	10.00	11.00	0.00077	0.00386	0.00424	PASS
	HV	11.00	1.00	17.00	0.00424	0.00039	0.00656	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.00	11.00	15.00	0.00077	0.00424	0.00578	PASS
Extreme (50°C)		5.00	11.00	17.00	0.00193	0.00424	0.00656	PASS
Extreme (40°C)		1.00	3.00	4.00	0.00039	0.00116	0.00154	PASS
Extreme (30°C)		15.00	11.00	5.00	0.00578	0.00424	0.00193	PASS
Extreme (20°C)		9.00	4.00	12.00	0.00347	0.00154	0.00463	PASS
Extreme (10°C)		9.00	11.00	5.00	0.00347	0.00424	0.00193	PASS
Extreme (0°C)		10.00	9.00	11.00	0.00386	0.00347	0.00424	PASS
Extreme (-10°C)		4.00	13.00	2.00	0.00154	0.00501	0.00077	PASS
Extreme (-20°C)		2.00	10.00	5.00	0.00077	0.00386	0.00193	PASS
Extreme (-30°C)		15.00	17.00	11.00	0.00578	0.00656	0.00424	PASS
25°C	LV	12.00	3.00	10.00	0.00463	0.00116	0.00386	PASS
	HV	8.00	17.00	6.00	0.00309	0.00656	0.00231	PASS



LTE band 40 subset 2								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	17.00	11.00	13.00	0.00656	0.00424	0.00501	PASS
Extreme (50°C)		4.00	6.00	6.00	0.00154	0.00231	0.00231	PASS
Extreme (40°C)		3.00	6.00	2.00	0.00116	0.00231	0.00077	PASS
Extreme (30°C)		9.00	11.00	14.00	0.00347	0.00424	0.00540	PASS
Extreme (20°C)		2.00	5.00	2.00	0.00077	0.00193	0.00077	PASS
Extreme (10°C)		9.00	4.00	12.00	0.00347	0.00154	0.00463	PASS
Extreme (0°C)		5.00	16.00	5.00	0.00193	0.00617	0.00193	PASS
Extreme (-10°C)		12.00	3.00	1.00	0.00463	0.00116	0.00039	PASS
Extreme (-20°C)		1.00	15.00	6.00	0.00039	0.00578	0.00231	PASS
Extreme (-30°C)		3.00	6.00	10.00	0.00116	0.00231	0.00386	PASS
25°C	LV	2.00	10.00	11.00	0.00077	0.00386	0.00424	PASS
	HV	11.00	1.00	17.00	0.00424	0.00039	0.00656	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.00	11.00	15.00	0.00077	0.00424	0.00578	PASS
Extreme (50°C)		5.00	11.00	17.00	0.00193	0.00424	0.00656	PASS
Extreme (40°C)		1.00	3.00	4.00	0.00039	0.00116	0.00154	PASS
Extreme (30°C)		15.00	11.00	5.00	0.00578	0.00424	0.00193	PASS
Extreme (20°C)		9.00	4.00	12.00	0.00347	0.00154	0.00463	PASS
Extreme (10°C)		9.00	11.00	5.00	0.00347	0.00424	0.00193	PASS
Extreme (0°C)		10.00	9.00	11.00	0.00386	0.00347	0.00424	PASS
Extreme (-10°C)		4.00	13.00	2.00	0.00154	0.00501	0.00077	PASS
Extreme (-20°C)		2.00	10.00	5.00	0.00077	0.00386	0.00193	PASS
Extreme (-30°C)		15.00	17.00	11.00	0.00578	0.00656	0.00424	PASS
25°C	LV	12.00	3.00	10.00	0.00463	0.00116	0.00386	PASS
	HV	8.00	17.00	6.00	0.00309	0.00656	0.00231	PASS



LTE band 41								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.00	9.00	10.00	0.00347	0.00347	0.00386	PASS
Extreme (50°C)		13.00	17.00	12.00	0.00501	0.00656	0.00463	PASS
Extreme (40°C)		9.00	17.00	2.00	0.00347	0.00656	0.00077	PASS
Extreme (30°C)		15.00	15.00	12.00	0.00578	0.00578	0.00463	PASS
Extreme (20°C)		7.00	16.00	16.00	0.00270	0.00617	0.00617	PASS
Extreme (10°C)		15.00	3.00	4.00	0.00578	0.00116	0.00154	PASS
Extreme (0°C)		7.00	11.00	13.00	0.00270	0.00424	0.00501	PASS
Extreme (-10°C)		11.00	3.00	2.00	0.00424	0.00116	0.00077	PASS
Extreme (-20°C)		11.00	7.00	10.00	0.00424	0.00270	0.00386	PASS
Extreme (-30°C)		6.00	9.00	12.00	0.00231	0.00347	0.00463	PASS
25°C		LV	8.00	12.00	8.00	0.00309	0.00463	0.00309
	HV	16.00	8.00	14.00	0.00617	0.00309	0.00540	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.00	6.00	10.00	0.00617	0.00231	0.00386	PASS
Extreme (50°C)		2.00	14.00	11.00	0.00077	0.00540	0.00424	PASS
Extreme (40°C)		11.00	7.00	17.00	0.00424	0.00270	0.00656	PASS
Extreme (30°C)		8.00	1.00	9.00	0.00309	0.00039	0.00347	PASS
Extreme (20°C)		12.00	9.00	14.00	0.00463	0.00347	0.00540	PASS
Extreme (10°C)		17.00	6.00	7.00	0.00656	0.00231	0.00270	PASS
Extreme (0°C)		7.00	11.00	6.00	0.00270	0.00424	0.00231	PASS
Extreme (-10°C)		14.00	1.00	15.00	0.00540	0.00039	0.00578	PASS
Extreme (-20°C)		14.00	11.00	8.00	0.00540	0.00424	0.00309	PASS
Extreme (-30°C)		1.00	15.00	8.00	0.00039	0.00578	0.00309	PASS
25°C		LV	5.00	9.00	17.00	0.00193	0.00347	0.00656
	HV	17.00	11.00	13.00	0.00656	0.00424	0.00501	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	10.00	7.00	9.00	0.00386	0.00270	0.00347	PASS
Extreme (50°C)		8.00	4.00	16.00	0.00309	0.00154	0.00617	PASS
Extreme (40°C)		17.00	17.00	4.00	0.00656	0.00656	0.00154	PASS
Extreme (30°C)		14.00	13.00	1.00	0.00540	0.00501	0.00039	PASS



Extreme (20°C)		4.00	17.00	4.00	0.00154	0.00656	0.00154	PASS
Extreme (10°C)		12.00	5.00	1.00	0.00463	0.00193	0.00039	PASS
Extreme (0°C)		7.00	12.00	14.00	0.00270	0.00463	0.00540	PASS
Extreme (-10°C)		15.00	11.00	1.00	0.00578	0.00424	0.00039	PASS
Extreme (-20°C)		11.00	16.00	11.00	0.00424	0.00617	0.00424	PASS
Extreme (-30°C)		2.00	12.00	12.00	0.00077	0.00463	0.00463	PASS
25°C	LV	7.00	2.00	6.00	0.00270	0.00077	0.00231	PASS
	HV	9.00	16.00	1.00	0.00347	0.00617	0.00039	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	13.00	1.00	9.00	0.00501	0.00039	0.00347	PASS
Extreme (50°C)		7.00	12.00	14.00	0.00270	0.00463	0.00540	PASS
Extreme (40°C)		16.00	7.00	12.00	0.00617	0.00270	0.00463	PASS
Extreme (30°C)		13.00	1.00	1.00	0.00501	0.00039	0.00039	PASS
Extreme (20°C)		10.00	14.00	11.00	0.00386	0.00540	0.00424	PASS
Extreme (10°C)		14.00	11.00	5.00	0.00540	0.00424	0.00193	PASS
Extreme (0°C)		16.00	9.00	7.00	0.00617	0.00347	0.00270	PASS
Extreme (-10°C)		1.00	9.00	7.00	0.00039	0.00347	0.00270	PASS
Extreme (-20°C)		7.00	7.00	13.00	0.00270	0.00270	0.00501	PASS
Extreme (-30°C)		15.00	7.00	11.00	0.00578	0.00270	0.00424	PASS
25°C	LV	3.00	13.00	4.00	0.00116	0.00501	0.00154	PASS
	HV	9.00	8.00	3.00	0.00347	0.00309	0.00116	PASS

5.6 Spurious Emissions at Antenna Terminals

Ambient condition

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

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

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

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

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

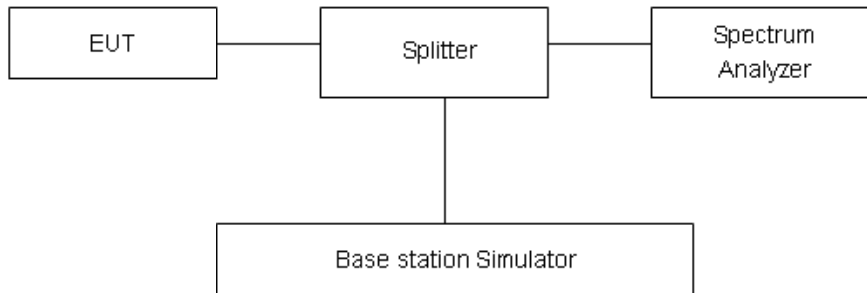
RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

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

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

Test setup



Limits

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

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



Part 27.53 (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 $k = 1.96$.

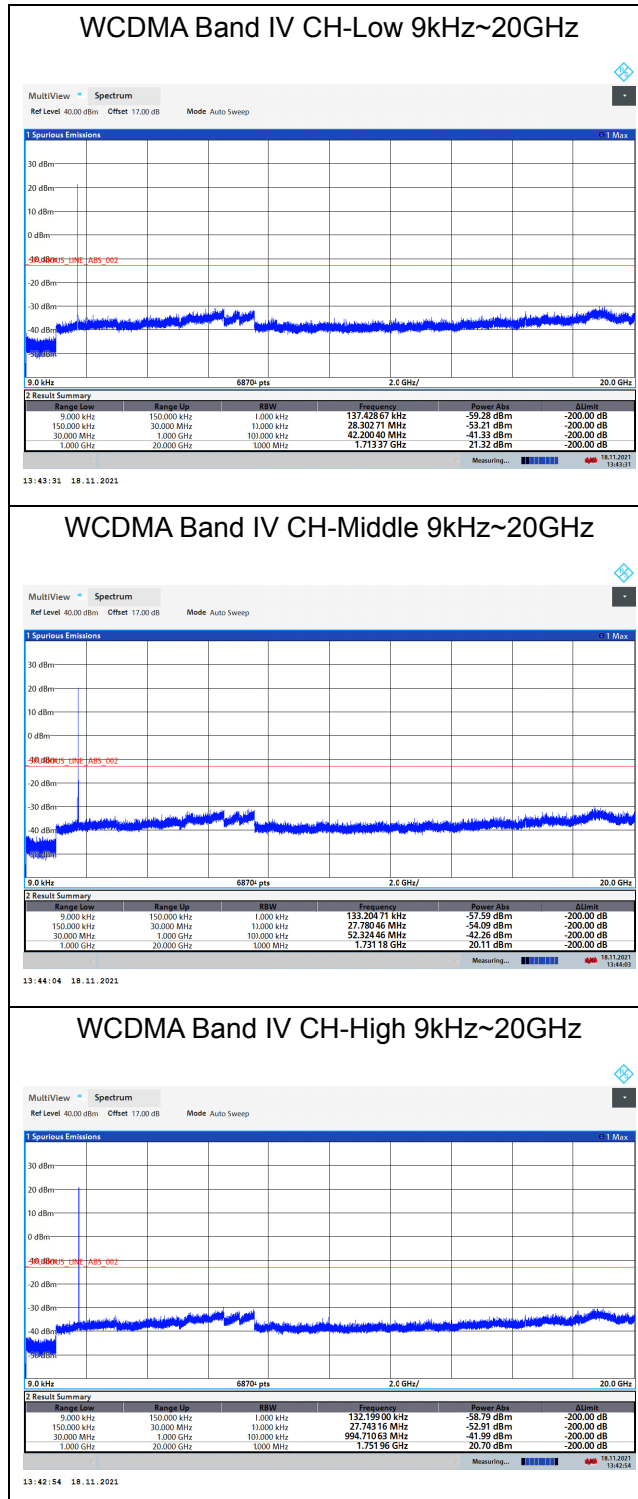
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB



Test Result

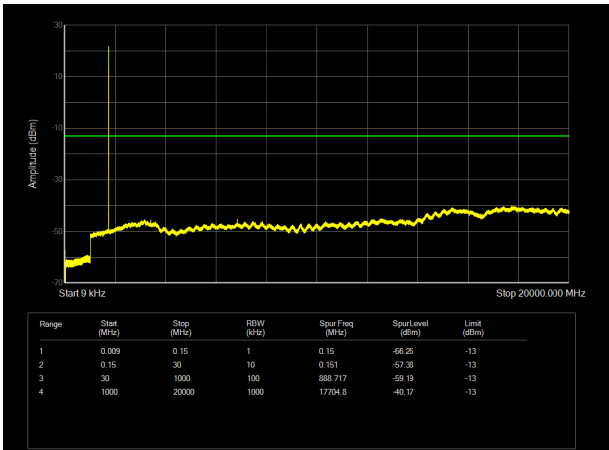
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

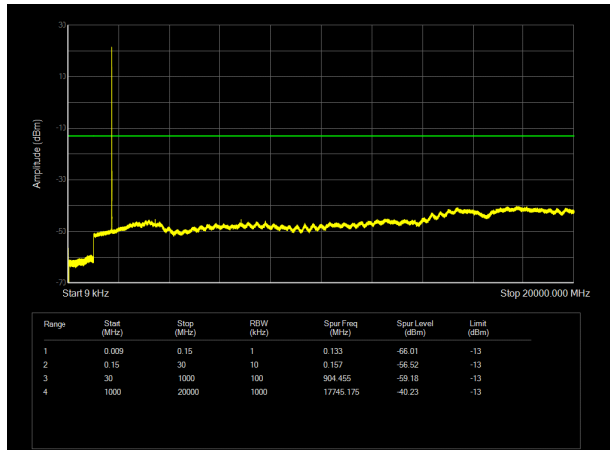




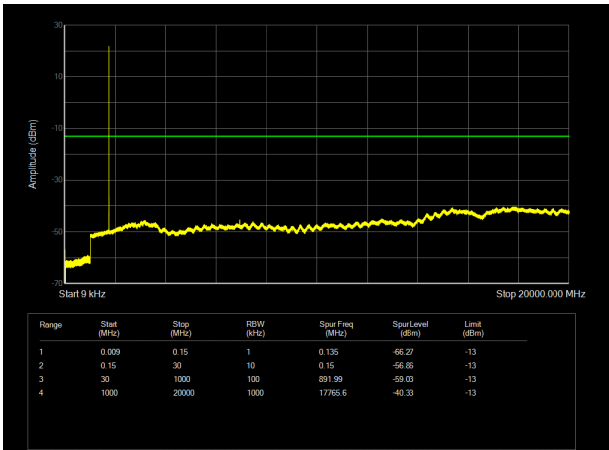
LTE Band 4 1.4MHz CH-Low 9kHz~20GHz



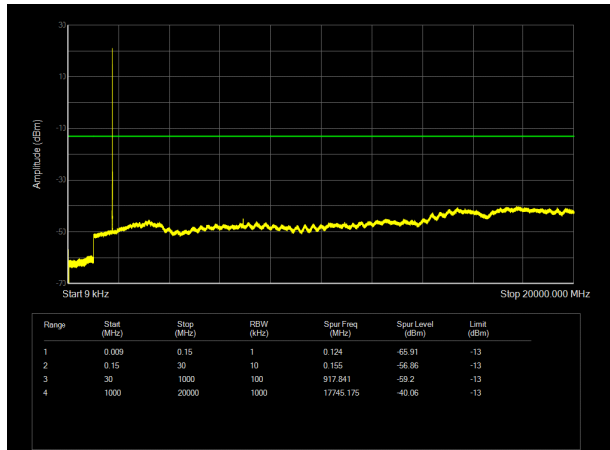
LTE Band 4 3MHz CH- Low 9kHz~20GHz



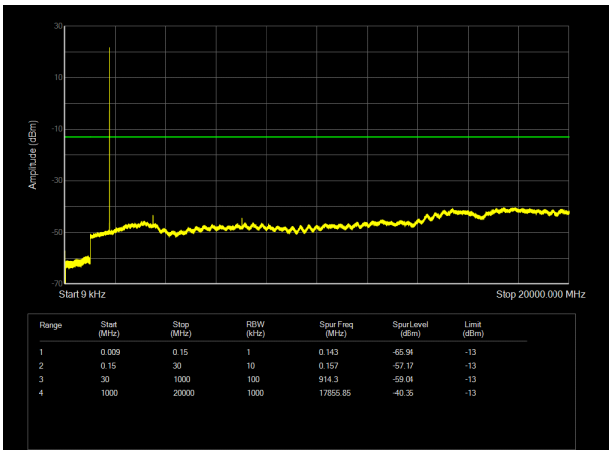
LTE Band 4 1.4MHz CH- Middle 9kHz~20GHz



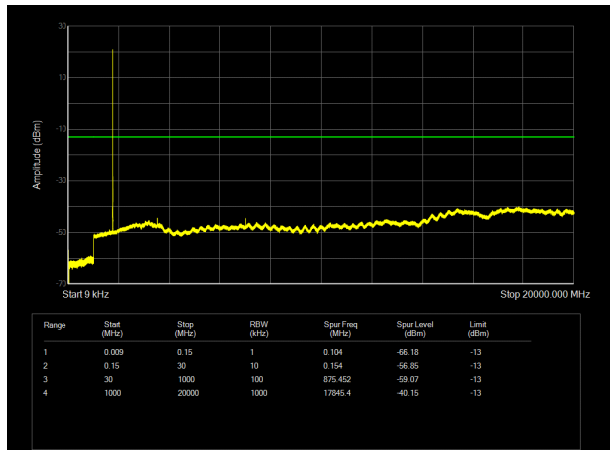
LTE Band 4 3MHz CH- Middle 9kHz~20GHz



LTE Band 4 1.4MHz CH- High 9kHz~20GHz

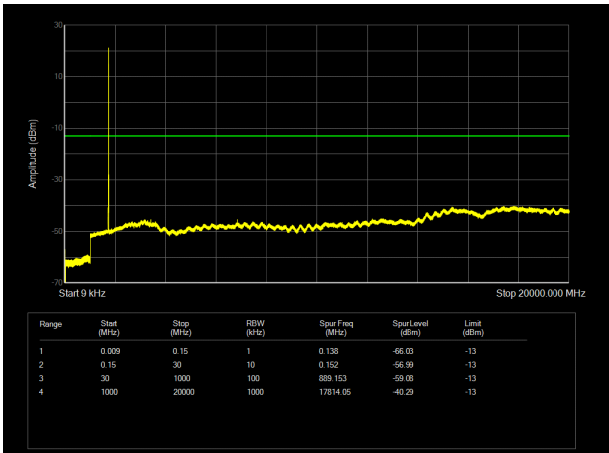


LTE Band 4 3MHz CH-High 9kHz~20GHz

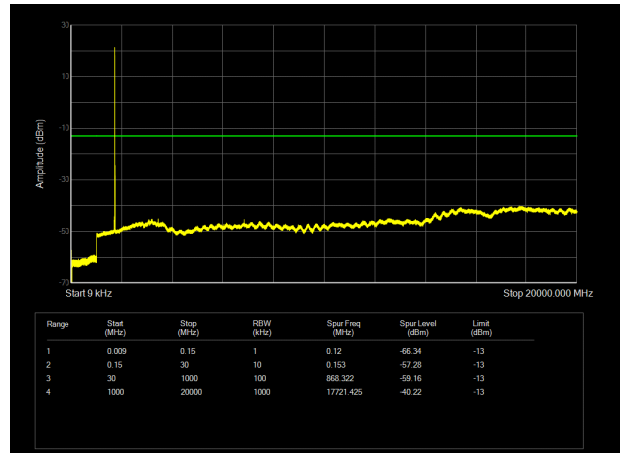




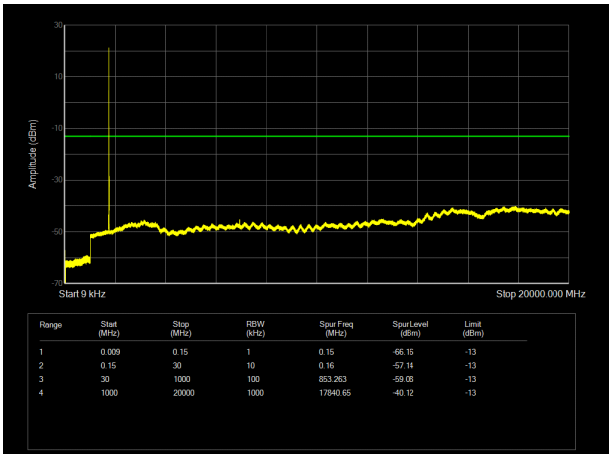
LTE Band 4 5MHz CH- Low 9kHz~20GHz



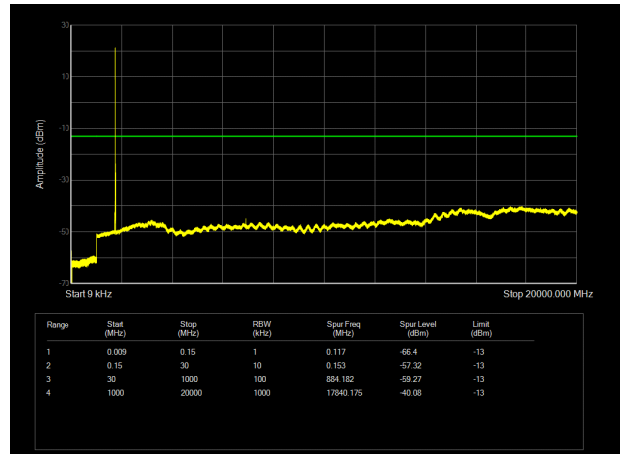
LTE Band 4 10MHz CH-Low 9kHz~20GHz



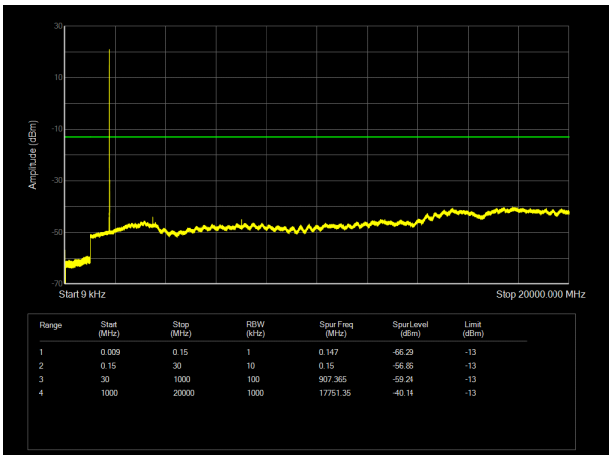
LTE Band 4 5MHz CH- Middle 9kHz~20GHz



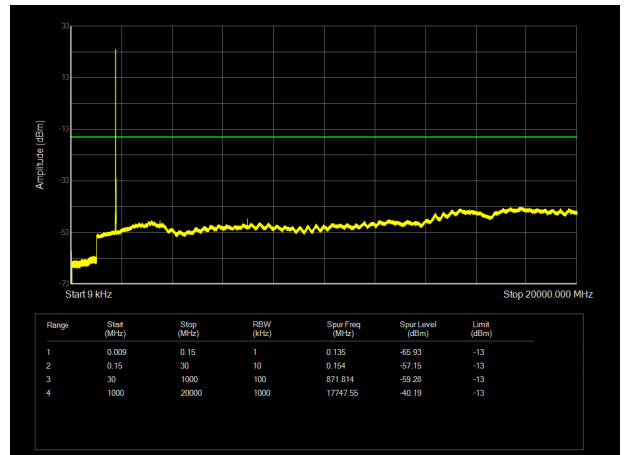
LTE Band 4 10MHz CH- Middle 9kHz~20GHz



LTE Band 4 5MHz CH-High 9kHz~20GHz

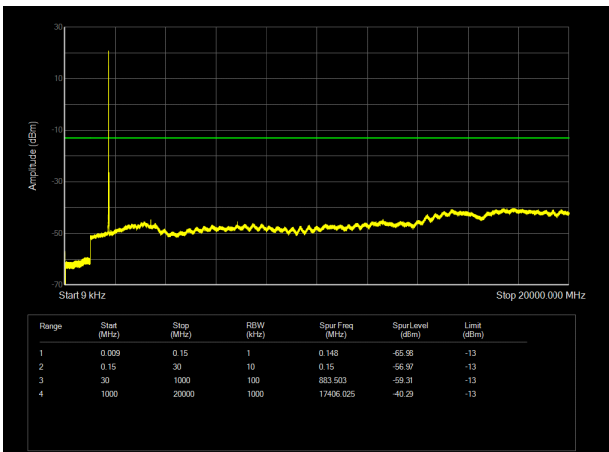


LTE Band 4 10MHz CH- High 9kHz~20GHz

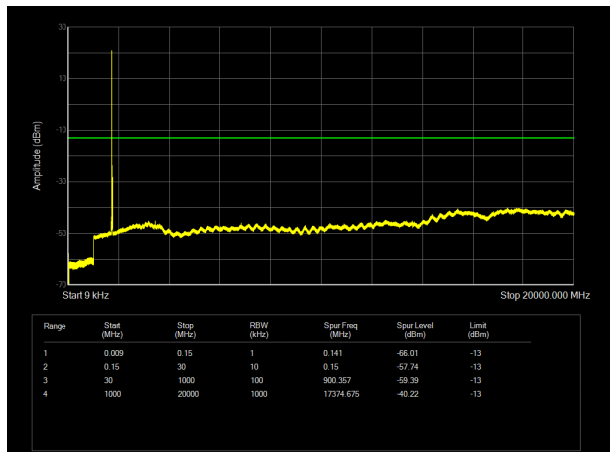




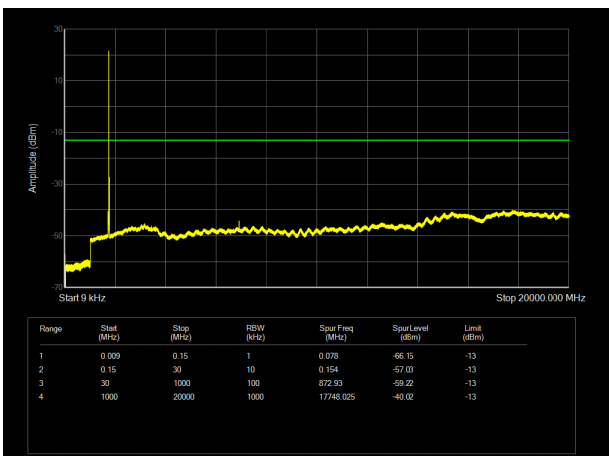
LTE Band 4 15MHz CH- Low 9kHz~20GHz



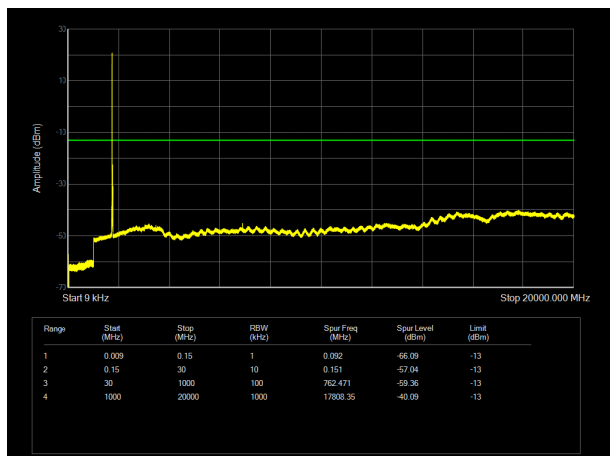
LTE Band 4 20MHz CH-Low 9kHz~20GHz



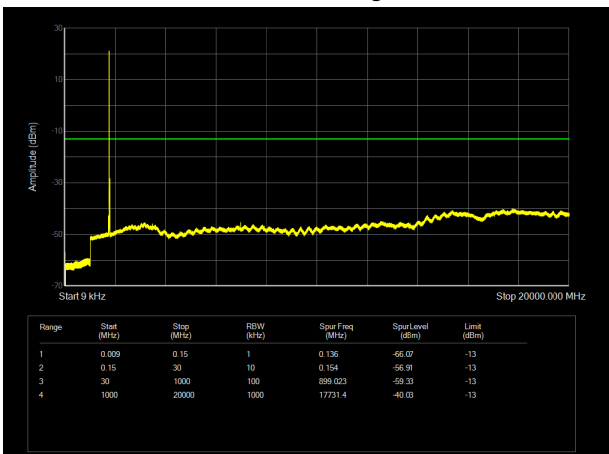
LTE Band 4 15MHz CH- Middle 9kHz~20GHz



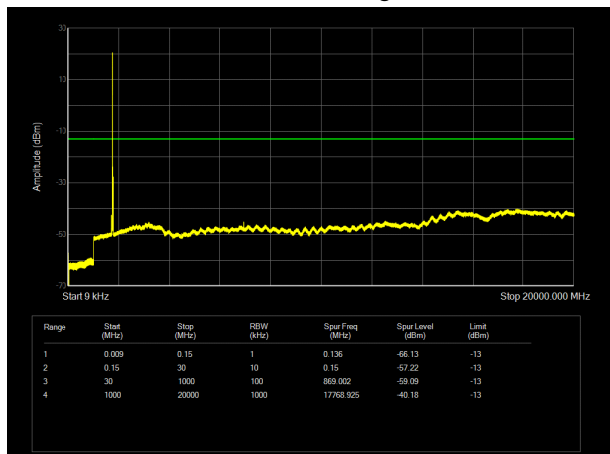
LTE Band 4 20MHz CH- Middle 9kHz~20GHz



LTE Band 4 15MHz CH-High 9kHz~20GHz

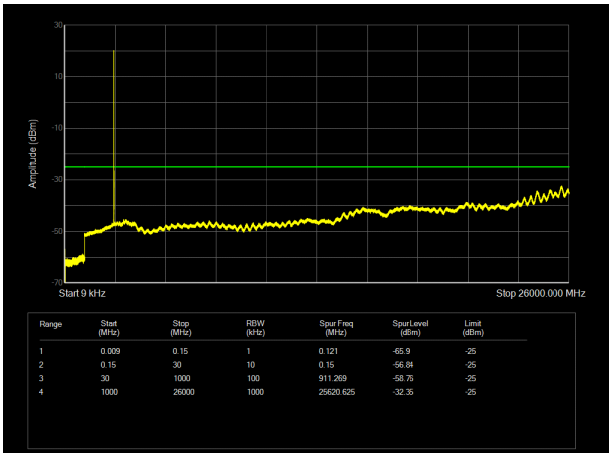


LTE Band 4 20MHz CH- High 9kHz~20GHz

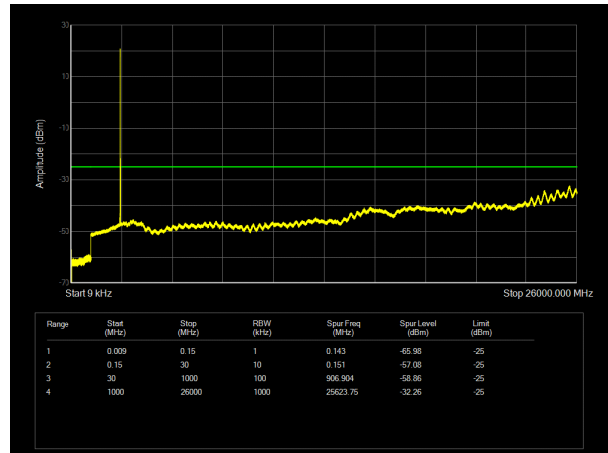




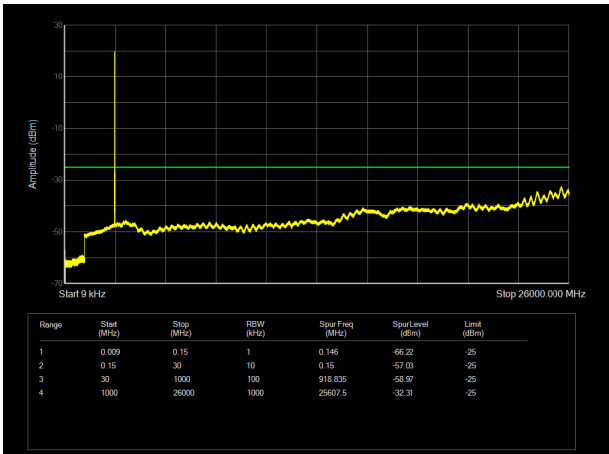
LTE Band 7 5MHz CH- Low 9kHz~26GHz



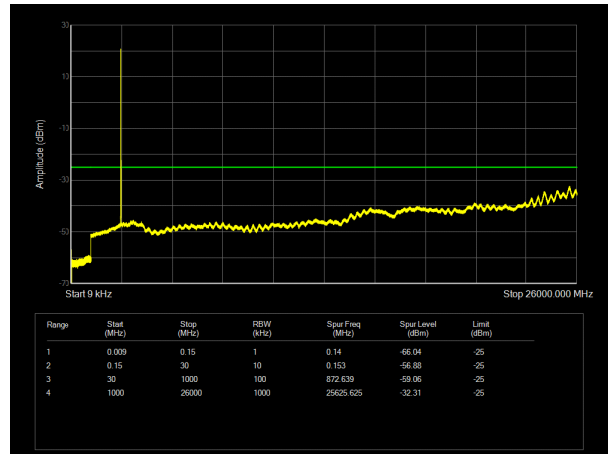
LTE Band 7 10MHz CH-Low 9kHz~26GHz



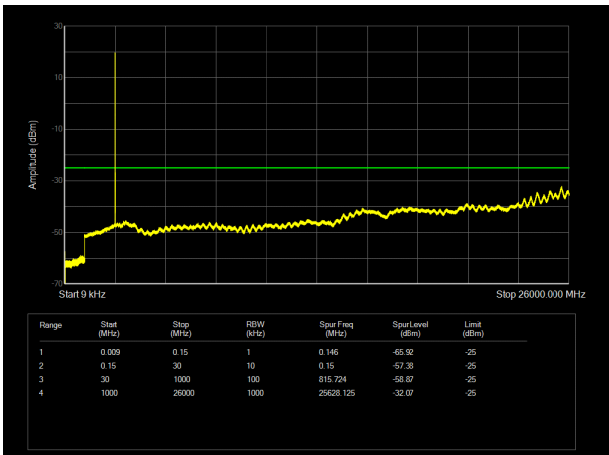
LTE Band 7 5MHz CH- Middle 9kHz~26GHz



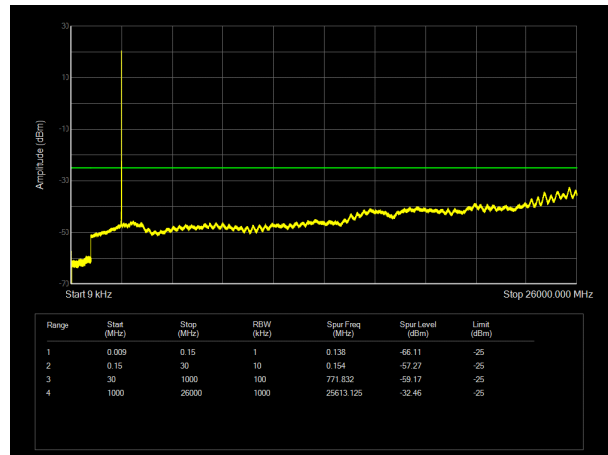
LTE Band 7 10MHz CH- Middle 9kHz~26GHz



LTE Band 7 5MHz CH-High 9kHz~26GHz

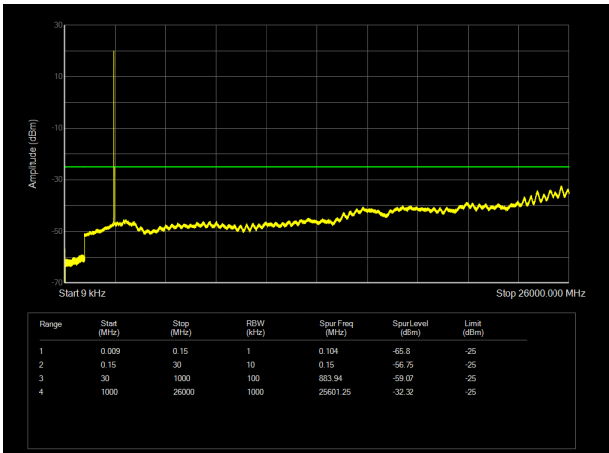


LTE Band 7 10MHz CH- High 9kHz~26GHz

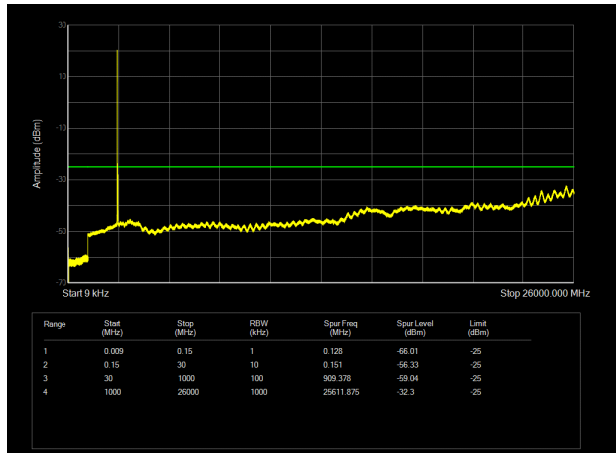




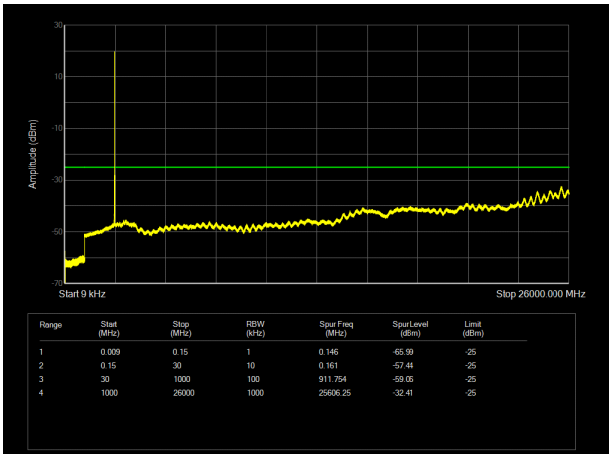
LTE Band 7 15MHz CH- Low 9kHz~26GHz



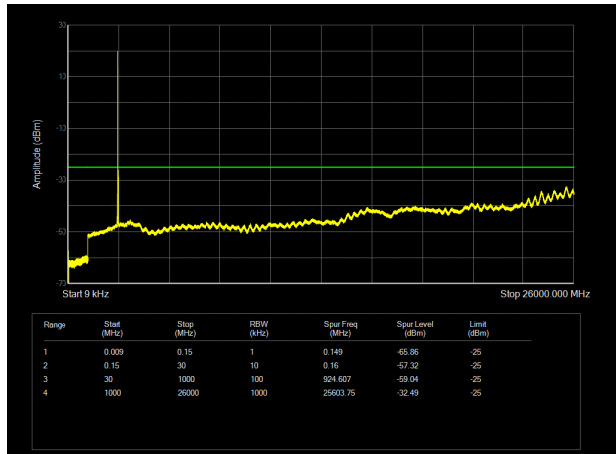
LTE Band 7 20MHz CH-Low 9kHz~26GHz



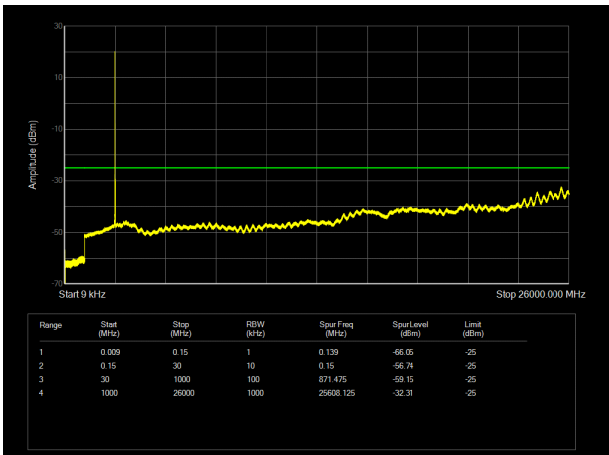
LTE Band 7 15MHz CH- Middle 9kHz~26GHz



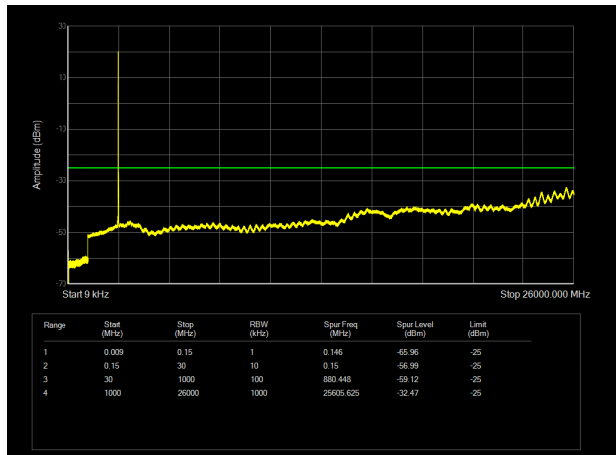
LTE Band 7 20MHz CH- Middle 9kHz~26GHz



LTE Band 7 15MHz CH-High 9kHz~26GHz

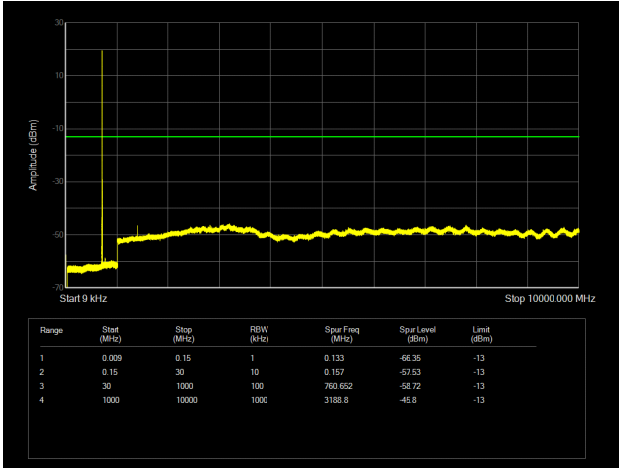


LTE Band 7 20MHz CH- High 9kHz~26GHz

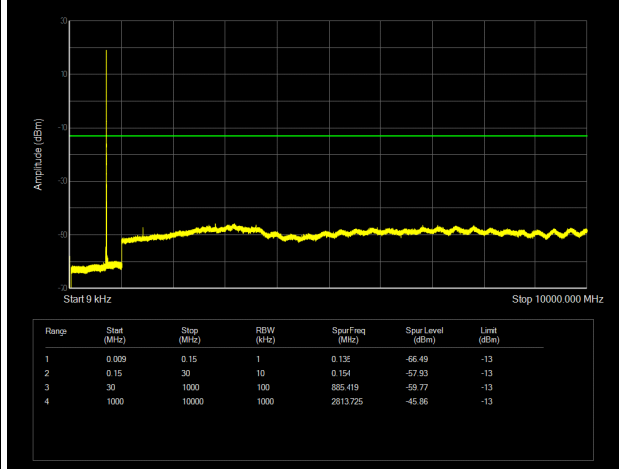




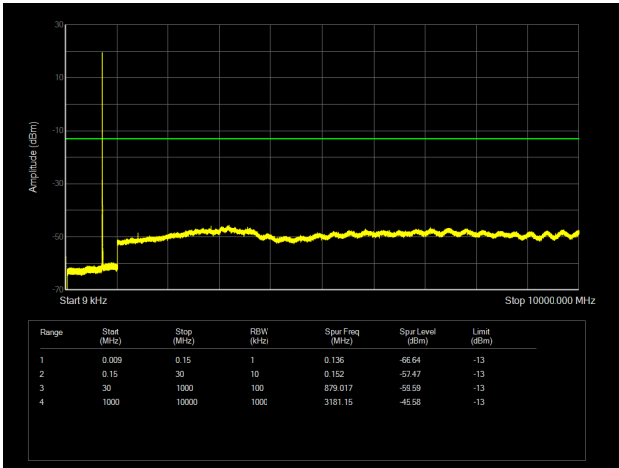
LTE Band 28 subset 1 3MHz CH-Low
9kHz ~10GHz



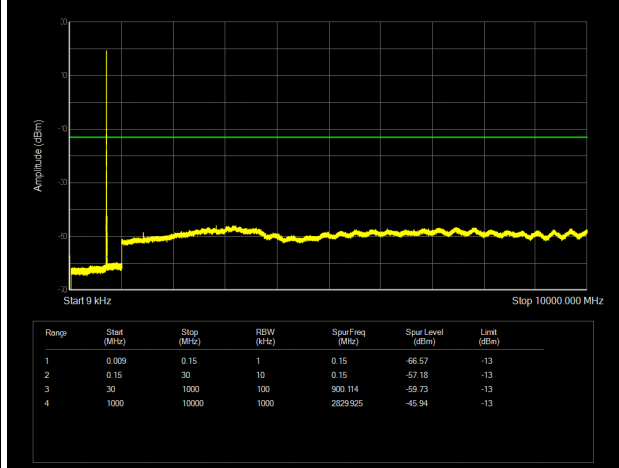
LTE Band 28 subset 1 5MHz CH-Low
9kHz ~10GHz



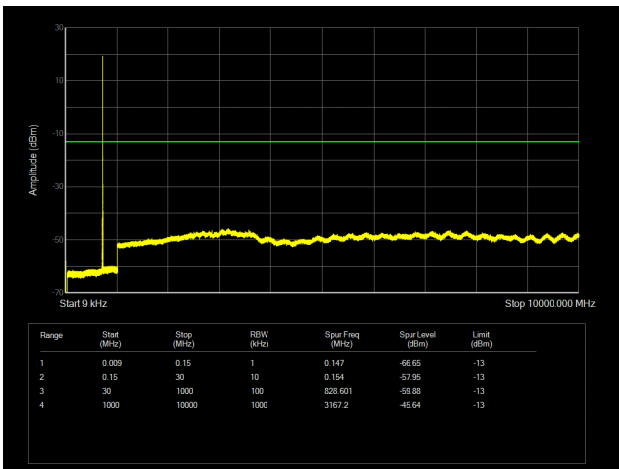
LTE Band 28 subset 1 3MHz CH- Middle
9kHz ~10GHz



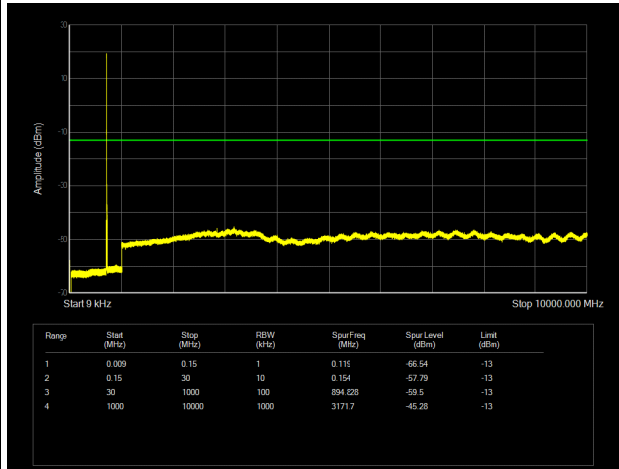
LTE Band 28 subset 1 5MHz CH- Middle
9kHz ~10GHz



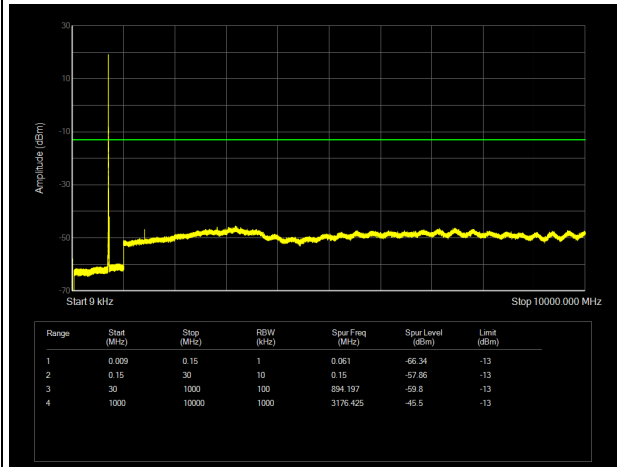
LTE Band 28 subset 1 3MHz CH-High
9kHz ~10GHz



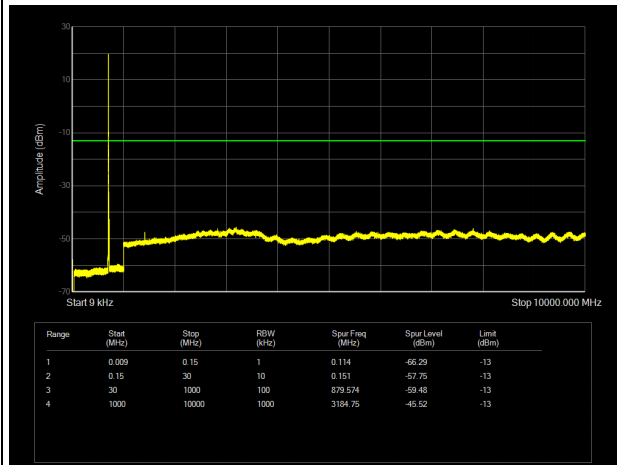
LTE Band 28 subset 1 5MHz CH-High
9kHz ~10GHz



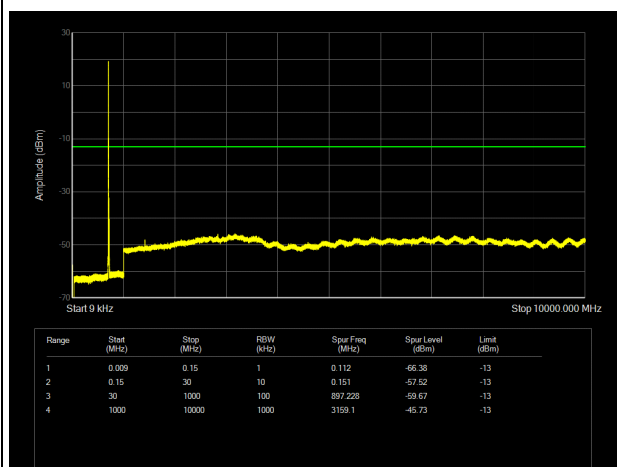
LTE Band 28 subset 1 10MHz CH-Low 9kHz ~10GHz



LTE Band 28 subset 1 10MHz CH- Middle 9kHz ~10GHz

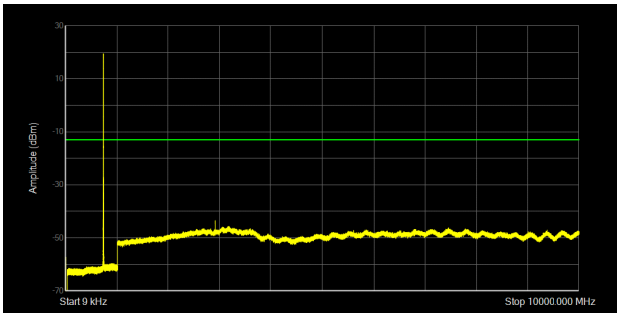


LTE Band 28 subset 1 10MHz CH-High 9kHz ~10GHz



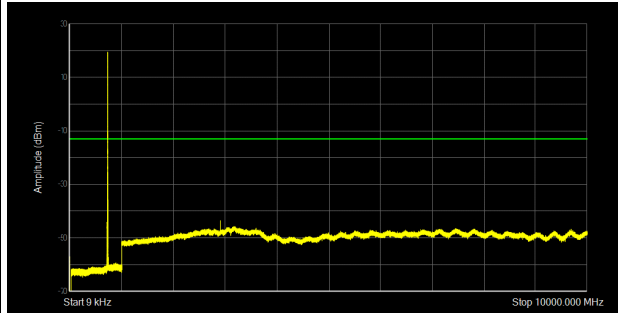


LTE Band 28 subset 2 3MHz CH-Low
9kHz ~10GHz



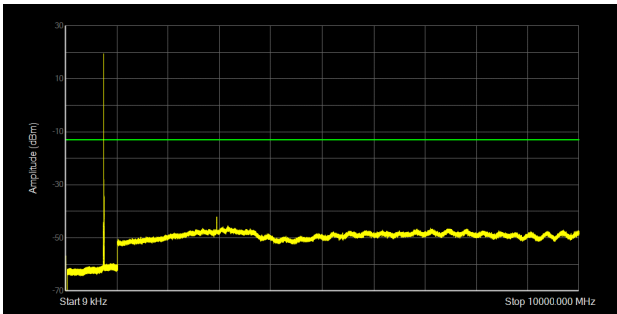
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.145	-66.59	-13
2	0.15	30	10	0.154	-52.28	-13
3	30	1000	100	912.336	-58.68	-13
4	1000	10000	1000	2913.625	-43.47	-13

LTE Band 28 subset 2 5MHz CH-Low
9kHz ~10GHz



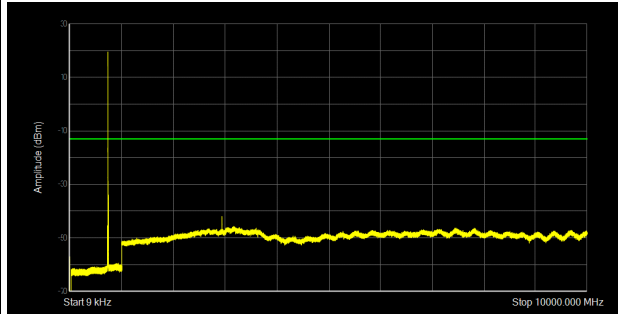
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.137	-66.47	-13
2	0.15	30	10	0.151	-67	-13
3	30	1000	100	885.54	-59.31	-13
4	1000	10000	1000	2913.85	-43.56	-13

LTE Band 28 subset 2 3MHz CH- Middle
9kHz ~10GHz



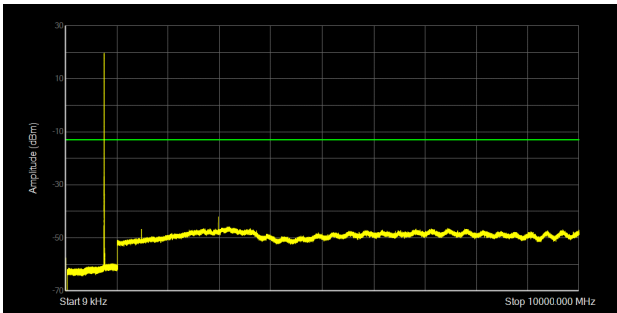
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.143	-66.66	-13
2	0.15	30	10	0.152	-56.77	-13
3	30	1000	100	924.17	-58.66	-13
4	1000	10000	1000	2943.55	-42.09	-13

LTE Band 28 subset 2 5MHz CH- Middle
9kHz ~10GHz



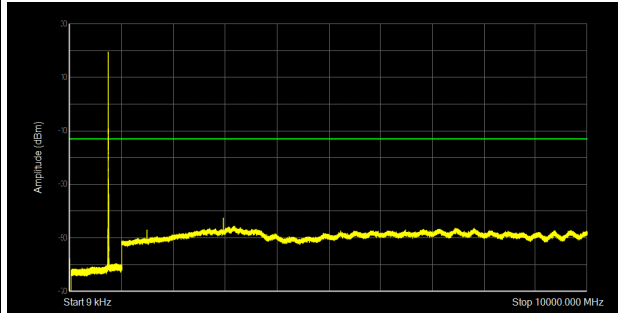
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.138	-66.24	-13
2	0.15	30	10	0.15	-57.04	-13
3	30	1000	100	935.51	-59.48	-13
4	1000	10000	1000	2939.95	-41.99	-13

LTE Band 28 subset 2 3MHz CH-High
9kHz ~10GHz



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.137	-66.43	-13
2	0.15	30	10	0.151	-57.55	-13
3	30	1000	100	907.704	-58.7	-13
4	1000	10000	1000	2973.7	-42.09	-13

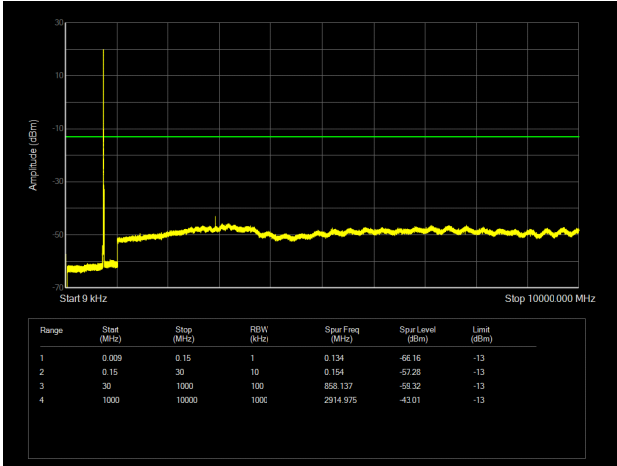
LTE Band 28 subset 2 5MHz CH-High
9kHz ~10GHz



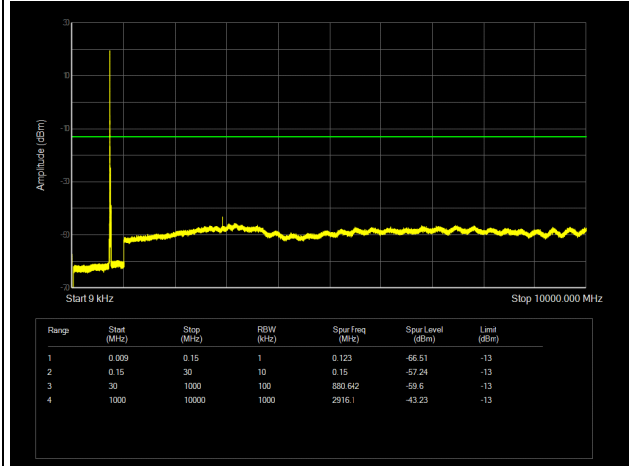
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.138	-66.73	-13
2	0.15	30	10	0.15	-57.67	-13
3	30	1000	100	897.52	-59.6	-13
4	1000	10000	1000	2965.825	-42.56	-13



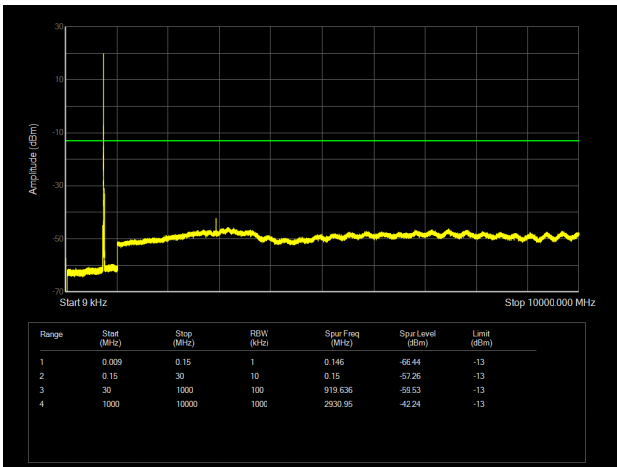
LTE Band 28 subset 2 10MHz CH-Low
9kHz ~10GHz



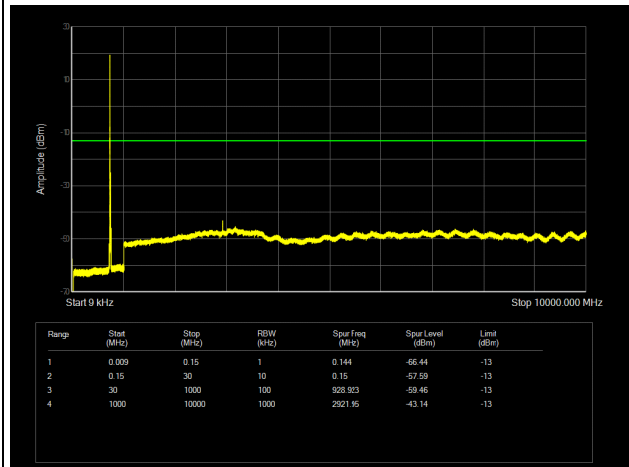
LTE Band 28 subset 2 15MHz CH-Low
9kHz ~10GHz



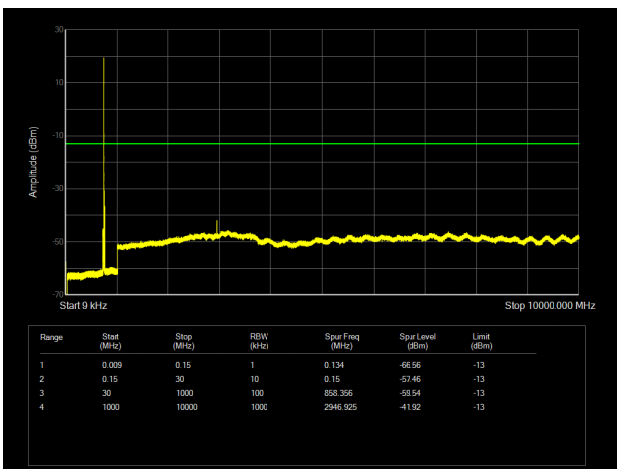
LTE Band 28 subset 2 10MHz CH- Middle
9kHz ~10GHz



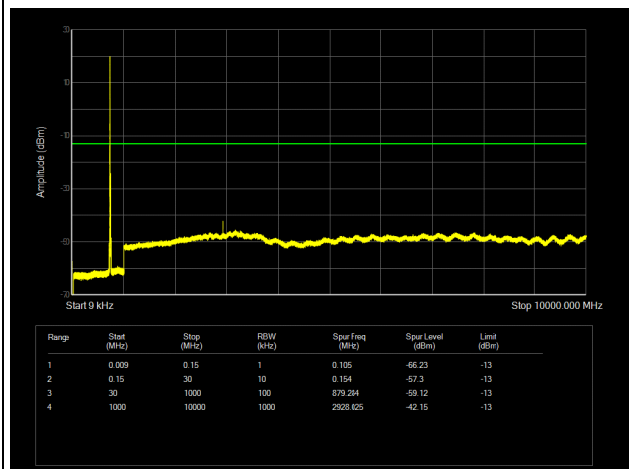
LTE Band 28 subset 2 15MHz CH- Middle
9kHz ~10GHz



LTE Band 28 subset 2 10MHz CH-High
9kHz ~10GHz

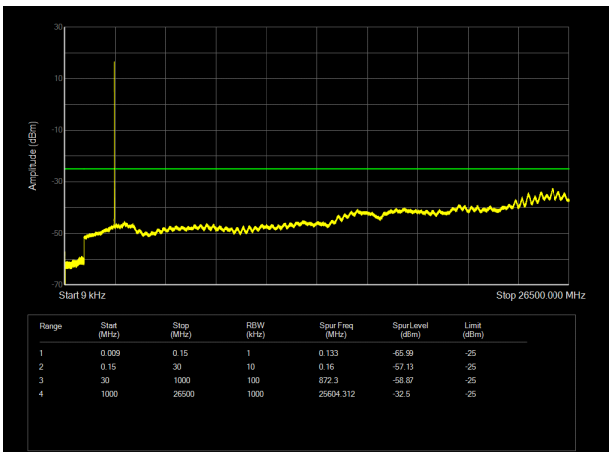


LTE Band 28 subset 2 15MHz CH-High
9kHz ~10GHz

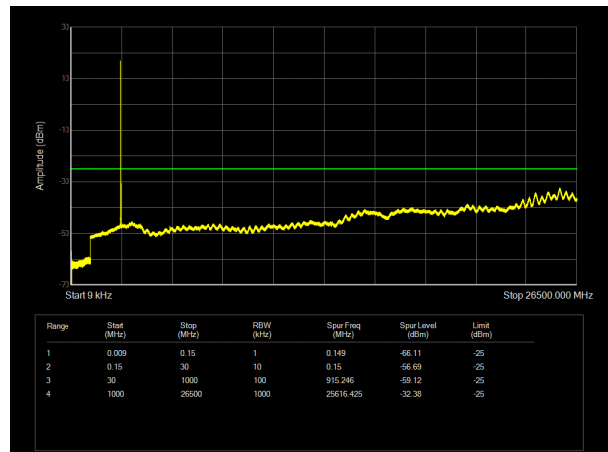




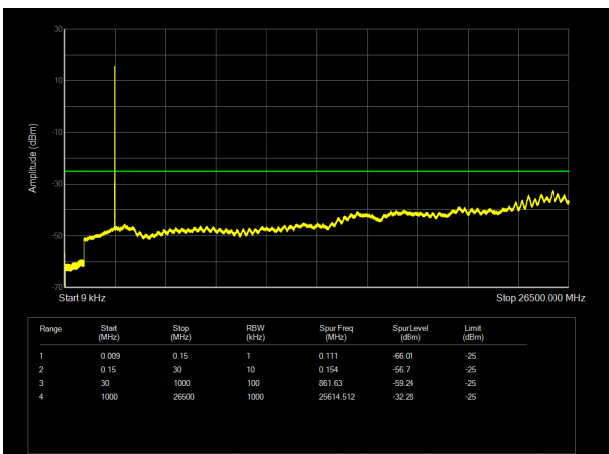
LTE Band 38 5MHz CH- Low 9kHz~26.5GHz



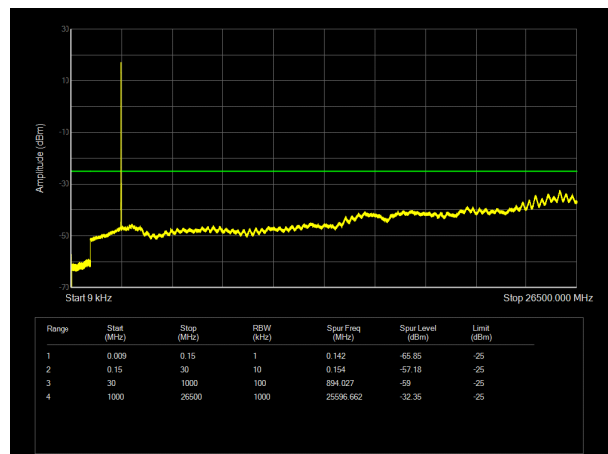
LTE Band 38 10MHz CH- Low 9kHz~26.5GHz



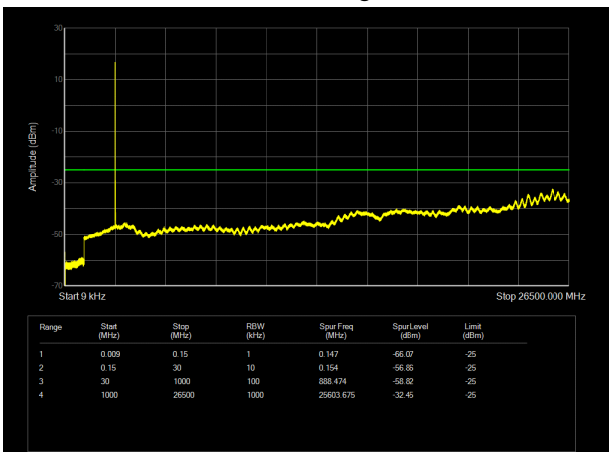
LTE Band 38 5MHz CH- Middle 9kHz~26.5GHz



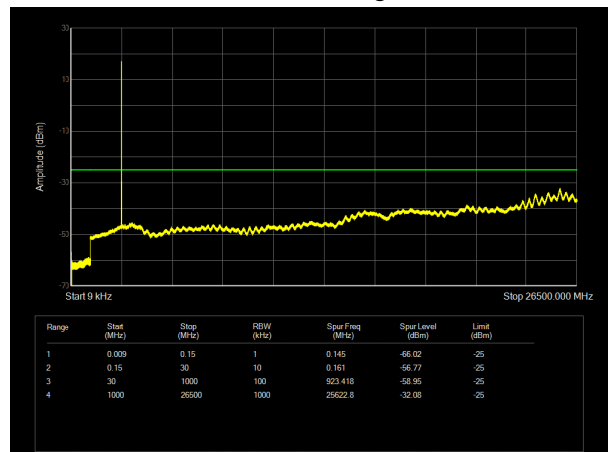
LTE Band 38 10MHz CH- Middle 9kHz~26.5GHz



LTE Band 38 5MHz CH-High 9kHz~26.5GHz

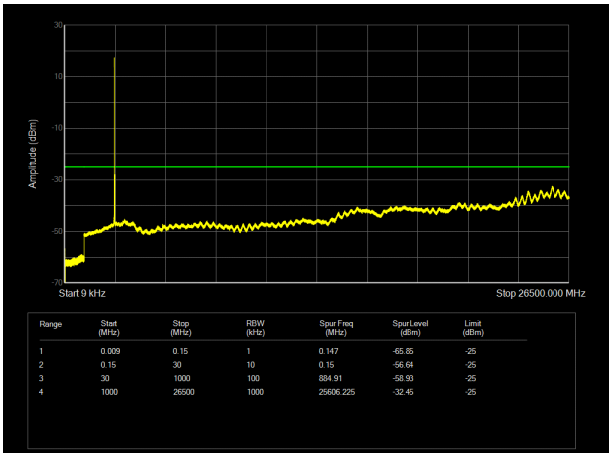


LTE Band 38 10MHz CH-High 9kHz~26.5GHz

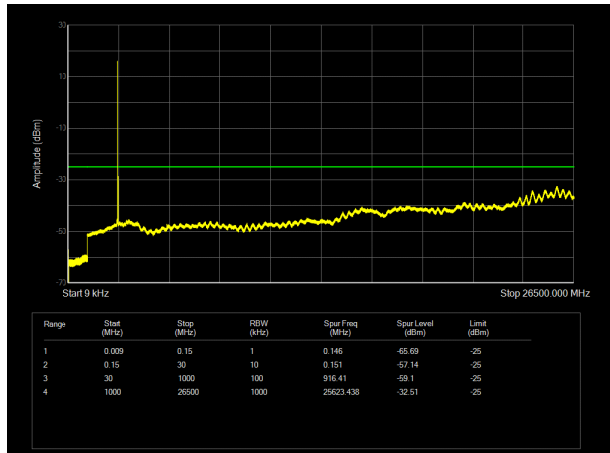




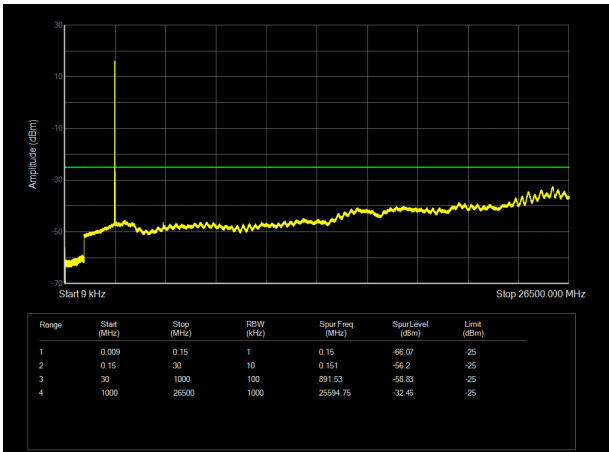
LTE Band 38 15MHz CH- Low 9kHz~26.5GHz



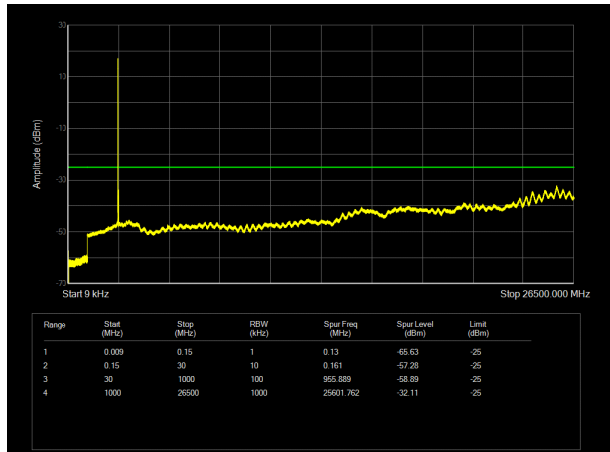
LTE Band 38 20MHz CH-Low 9kHz~26.5GHz



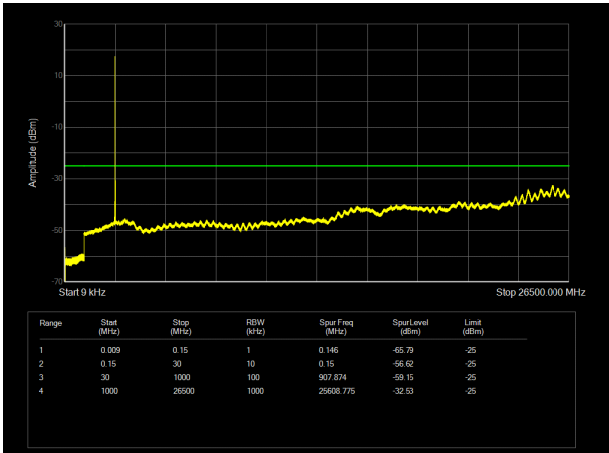
LTE Band 38 15MHz CH- Middle 9kHz~26.5GHz



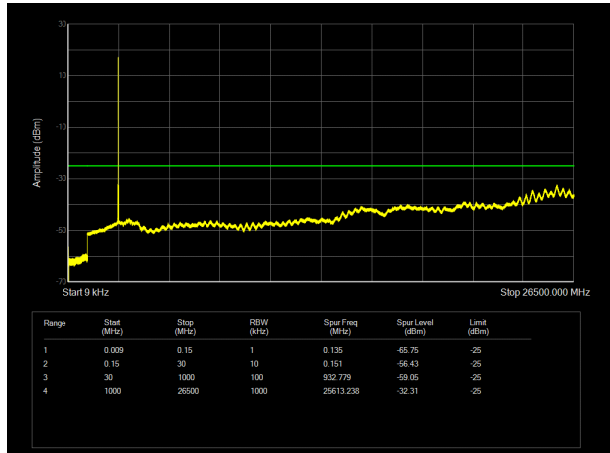
LTE Band 38 20MHz CH- Middle 9kHz~26.5GHz



LTE Band 38 15MHz CH-High 9kHz~26.5GHz

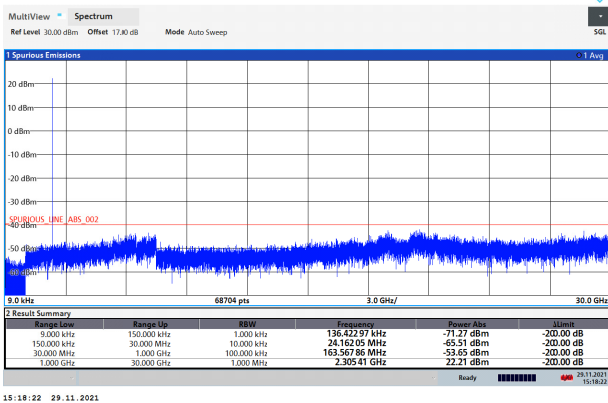


LTE Band 38 20MHz CH- High 9kHz~26.5GHz



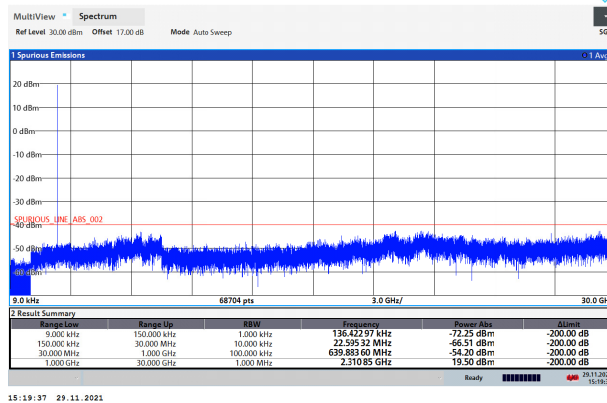


LTE Band 40 subset 1 5MHz CH- Low 9kHz~30GHz



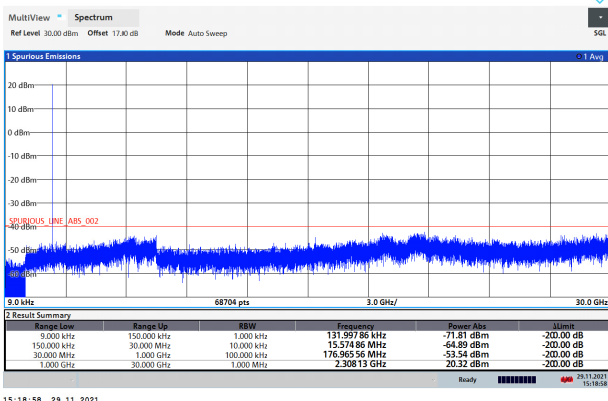
15:18:22 29.11.2021

LTE Band 40 subset 1 5MHz CH-High 9kHz~30GHz



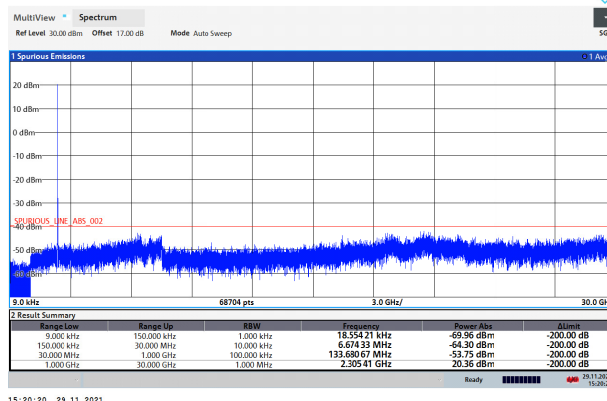
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LTE Band 40 subset 1 10MHz CH- Middel 9kHz~30GHz



15:18:58 29.11.2021

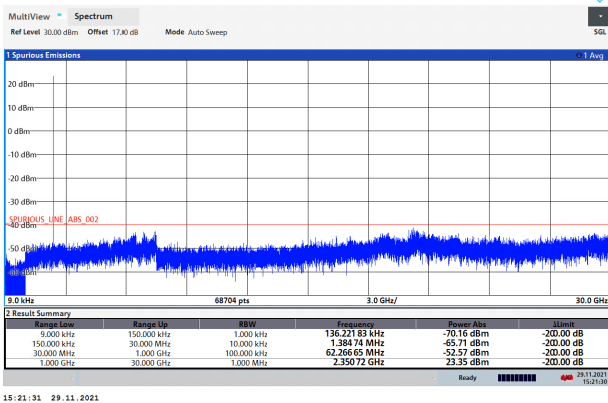
LTE Band 40 subset 1 10MHz 9kHz~30GHz



15:20:20 29.11.2021

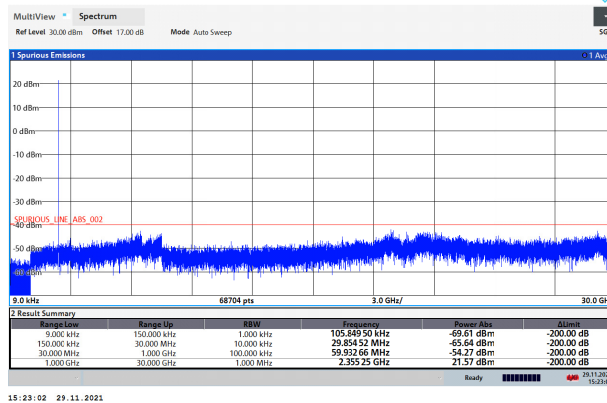


LTE Band 40 subset 2 5MHz CH- Low 9kHz~30GHz



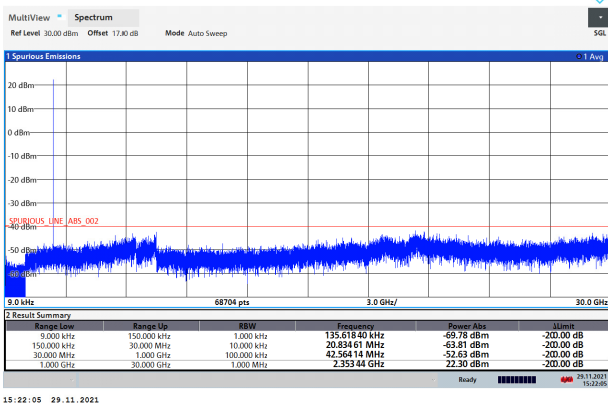
15:21:31 29.11.2021

LTE Band 40 subset 2 5MHz CH-High 9kHz~30GHz



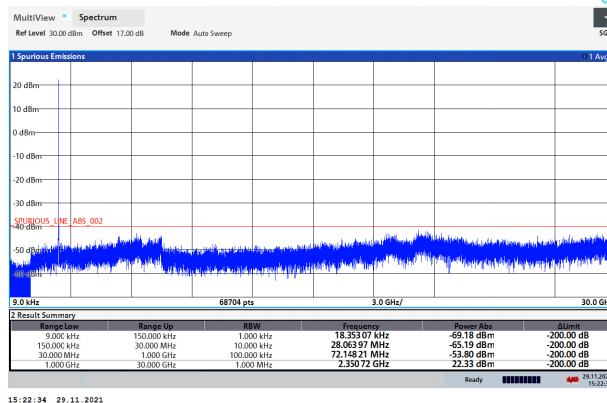
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LTE Band 40 subset 2 10MHz CH- Middel 9kHz~30GHz



15:22:05 29.11.2021

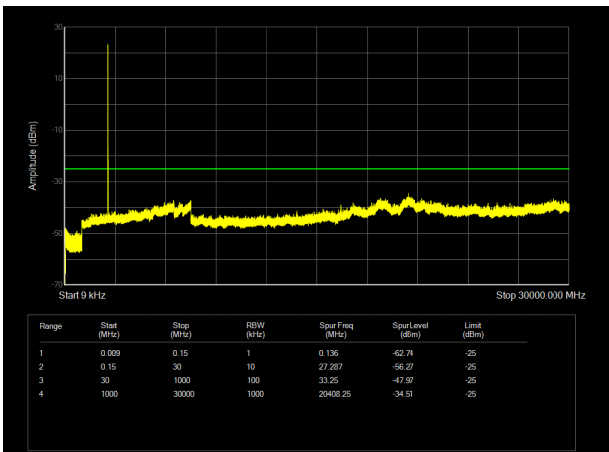
LTE Band 40 subset 2 10MHz 9kHz~30GHz



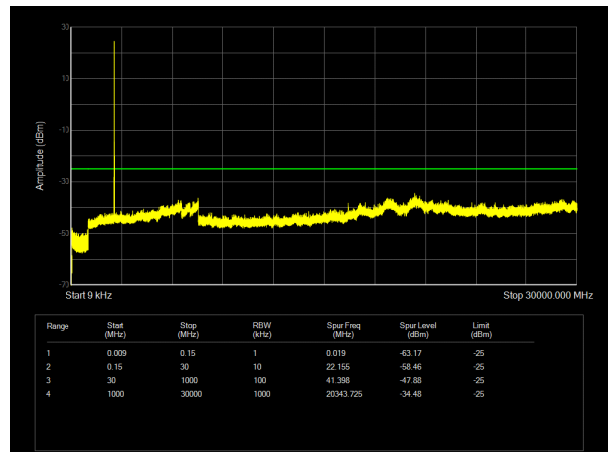
15:22:34 29.11.2021



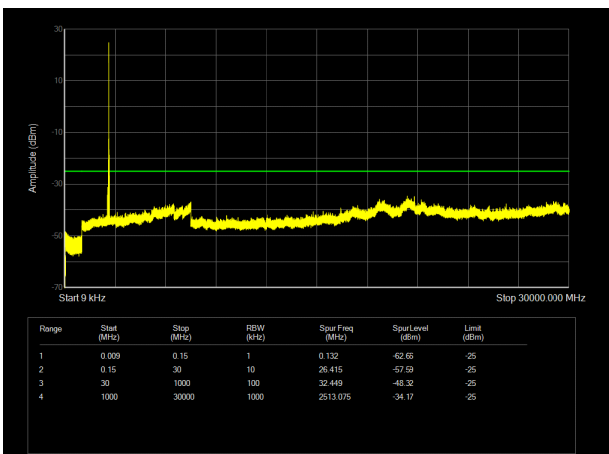
LTE Band 41 5MHz CH- Low 9kHz~30GHz



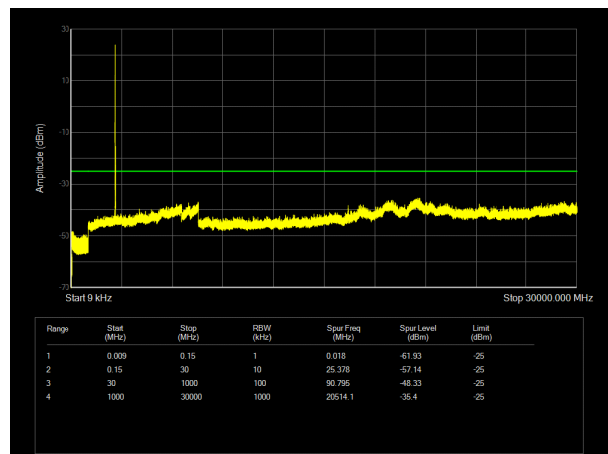
LTE Band 41 10MHz CH- Low 9kHz~30GHz



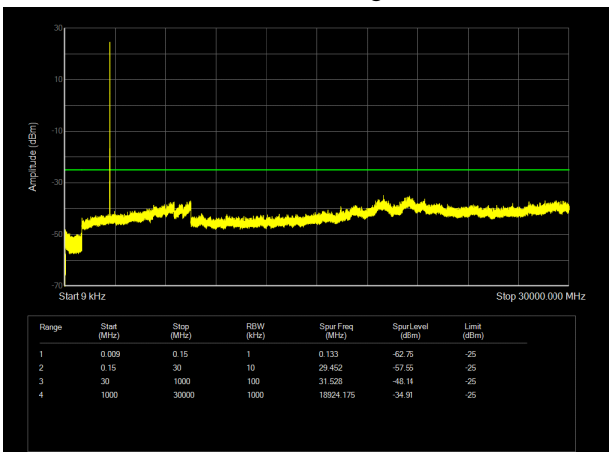
LTE Band 41 5MHz CH- Middle 9kHz~30GHz



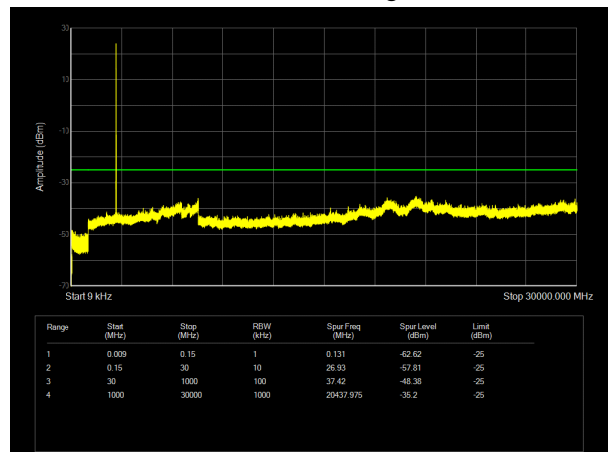
LTE Band 41 10MHz CH- Middle 9kHz~30GHz



LTE Band 41 5MHz CH-High 9kHz~30GHz

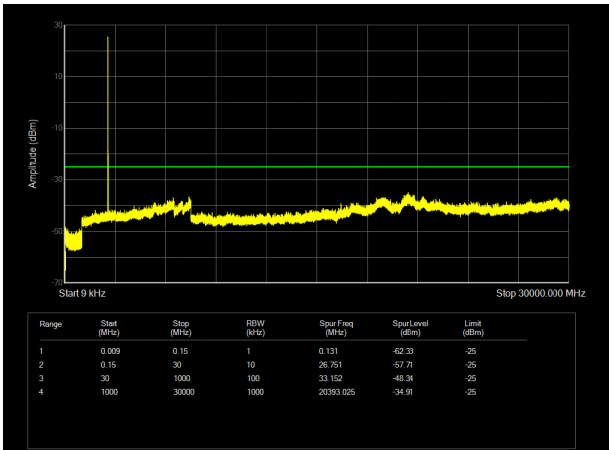


LTE Band 41 10MHz CH-High 9kHz~30GHz

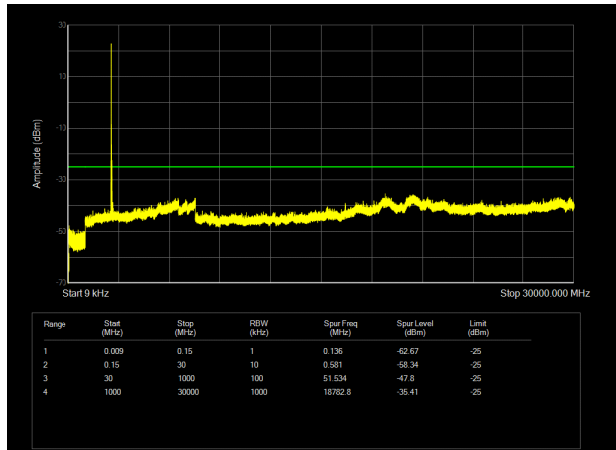




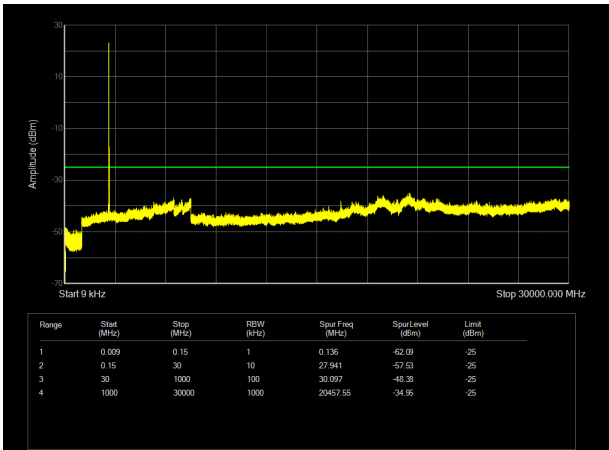
LTE Band 41 15MHz CH- Low 9kHz~30GHz



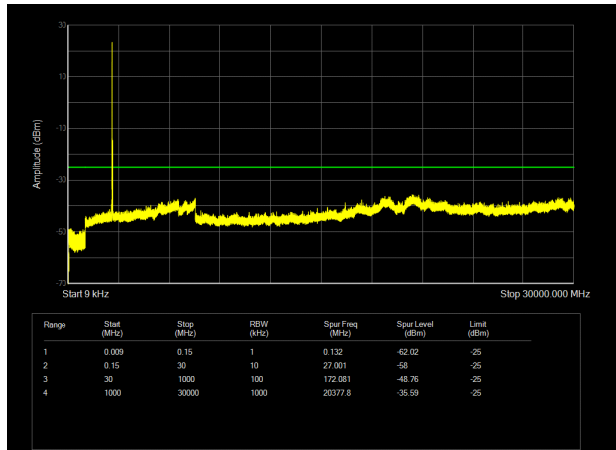
LTE Band 41 20MHz CH-Low 9kHz~30GHz



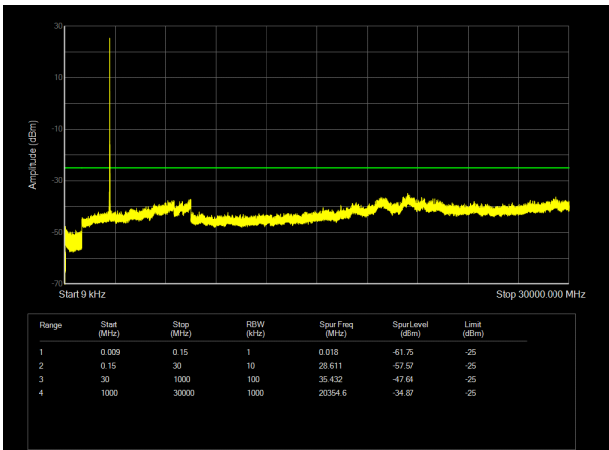
LTE Band 41 15MHz CH- Middle 9kHz~30GHz



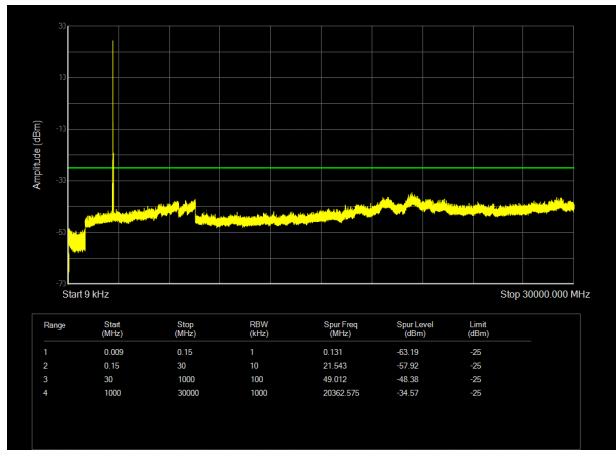
LTE Band 41 20MHz CH- Middle 9kHz~30GHz



LTE Band 41 15MHz CH-High 9kHz~30GHz



LTE Band 41 20MHz CH- High 9kHz~30GHz



5.7 Radiates Spurious Emission

Ambient condition

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

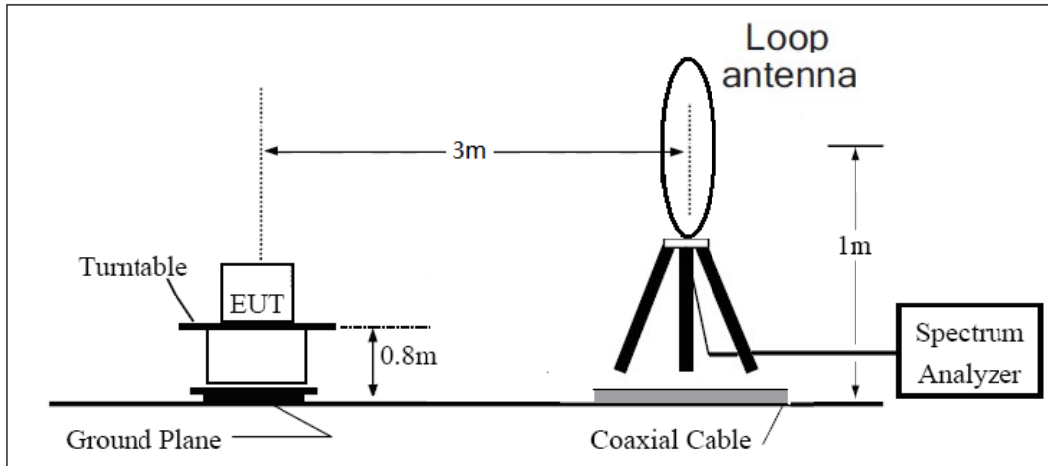
Method of Measurement

- The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
- 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).
- 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.
- The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100kHz, VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, and the maximum value of the receiver should be recorded as (Pr).
- 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.
- 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.
- The measurement results are obtained as described below:
 $Power(EIRP) = PMea - PAg - Pcl + Ga$
 The measurement results are amend as described below:
 $Power(EIRP) = PMea - Pcl + Ga$
- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15dB$.

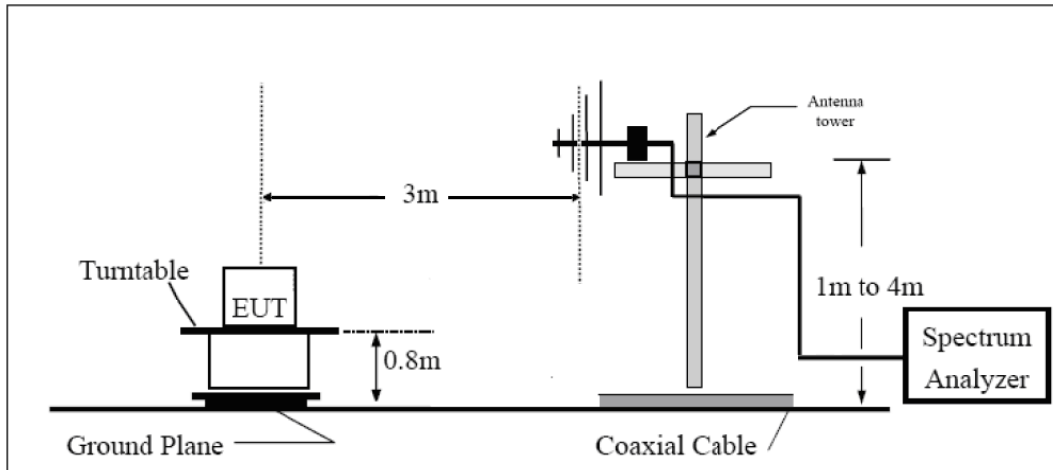
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

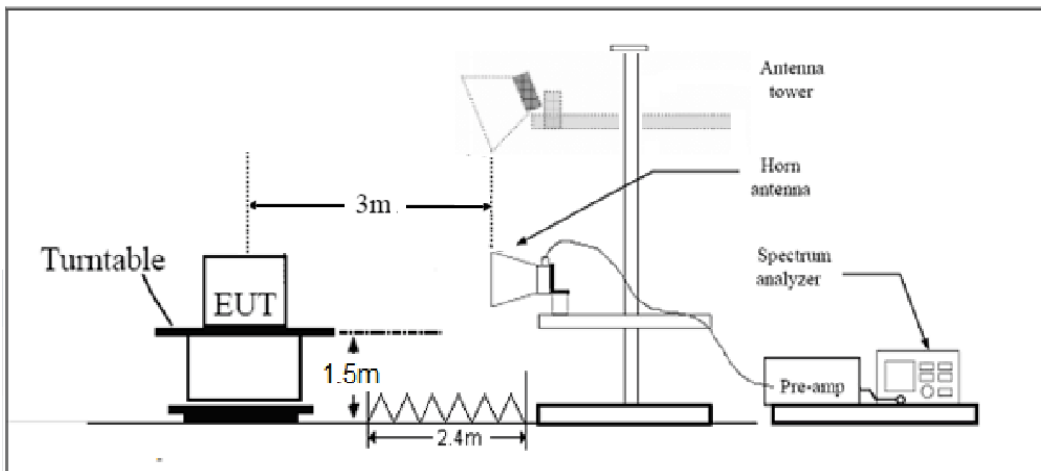
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits



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

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

Part 27.53(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 $k = \pm 1.96$, $U = \pm 3.55$ dB.

**Test Result**

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

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	3465.20	-63.94	2.70	12.70	Vertical	-53.94	-13.00	40.94	135
3	5197.80	-54.40	3.20	12.50	Vertical	-45.10	-13.00	32.10	180
4	6930.40	-51.86	4.20	11.80	Vertical	-44.26	-13.00	31.26	270
5	8663.00	-56.81	4.40	12.50	Vertical	-48.71	-13.00	35.71	0
6	10395.60	-52.45	4.70	11.30	Vertical	-45.85	-13.00	32.85	0
7	12128.20	-48.01	5.20	13.80	Vertical	-39.41	-13.00	26.41	90
8	13860.80	-48.57	5.70	11.30	Vertical	-42.97	-13.00	29.97	45
9	15593.40	-56.12	6.10	16.80	Vertical	-45.42	-13.00	32.42	315
10	17326.00	-50.02	6.10	14.20	Vertical	-41.92	-13.00	28.92	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.

LTE Band 4 QPSK 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	3464.25	-54.00	2.70	12.70	Vertical	-44.00	-13.00	31.00	90
3	5197.50	-38.34	3.20	12.50	Vertical	-29.04	-13.00	16.04	45
4	6930.00	-43.19	4.20	11.80	Vertical	-35.59	-13.00	22.59	135
5	8662.50	-42.18	4.40	12.50	Vertical	-34.08	-13.00	21.08	180
6	10395.00	-51.77	4.70	11.30	Vertical	-45.17	-13.00	32.17	0
7	12127.50	-46.63	5.20	13.80	Vertical	-38.03	-13.00	25.03	45
8	13860.00	-48.01	5.70	11.30	Vertical	-42.41	-13.00	29.41	90
9	15592.50	-57.76	6.10	16.80	Vertical	-47.06	-13.00	34.06	45
10	17325.00	-49.22	6.10	14.20	Vertical	-41.12	-13.00	28.12	315

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.



LTE Band 4 QPSK 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	3460.50	-53.68	2.70	12.70	Vertical	-43.68	-13.00	30.68	90
3	5191.50	-37.49	3.20	12.50	Vertical	-28.19	-13.00	15.19	0
4	6930.00	-43.95	4.20	11.80	Vertical	-36.35	-13.00	23.35	0
5	8662.50	-41.70	4.40	12.50	Vertical	-33.60	-13.00	20.60	45
6	10395.00	-51.85	4.70	11.30	Vertical	-45.25	-13.00	32.25	135
7	12127.50	-45.41	5.20	13.80	Vertical	-36.81	-13.00	23.81	90
8	13860.00	-48.38	5.70	11.30	Vertical	-42.78	-13.00	29.78	45
9	15592.50	-56.42	6.10	16.80	Vertical	-45.72	-13.00	32.72	315
10	17325.00	-49.39	6.10	14.20	Vertical	-41.29	-13.00	28.29	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.

LTE Band 4 QPSK 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	3447.75	-59.34	2.70	12.70	Vertical	-49.34	-13.00	36.34	315
3	5170.88	-38.91	3.20	12.50	Vertical	-29.61	-13.00	16.61	90
4	6930.00	-36.64	4.20	11.80	Vertical	-29.04	-13.00	16.04	45
5	8662.50	-46.99	4.40	12.50	Vertical	-38.89	-13.00	25.89	225
6	10395.00	-52.36	4.70	11.30	Vertical	-45.76	-13.00	32.76	0
7	12127.50	-49.27	5.20	13.80	Vertical	-40.67	-13.00	27.67	315
8	13860.00	-48.62	5.70	11.30	Vertical	-43.02	-13.00	30.02	90
9	15592.50	-56.13	6.10	16.80	Vertical	-45.43	-13.00	32.43	45
10	17325.00	-47.97	6.10	14.20	Vertical	-39.87	-13.00	26.87	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.



LTE Band 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	5065.80	-53.56	3.40	12.50	Vertical	-44.46	-25.00	19.46	315
3	7598.60	-50.73	4.40	12.20	Vertical	-42.93	-25.00	17.93	270
4	10130.63	-46.65	4.70	11.30	Vertical	-40.05	-25.00	15.05	90
5	12675.00	-46.57	5.40	13.20	Vertical	-38.77	-25.00	13.77	45
6	15210.00	-55.13	6.10	13.10	Vertical	-48.13	-25.00	23.13	225
7	17745.00	-49.93	6.10	14.20	Vertical	-41.83	-25.00	16.83	90
8	20280.00	--	--	--	--	--	--	--	--
9	22815.00	--	--	--	--	--	--	--	--
10	25350.00	--	--	--	--	--	--	--	--

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

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

LTE Band 7 QPSK 10MHz 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	5060.00	-51.36	3.40	12.50	Vertical	-42.26	-25.00	17.26	180
3	7590.00	-49.60	4.40	12.20	Vertical	-41.80	-25.00	16.80	180
4	10120.00	-47.37	4.70	11.30	Vertical	-40.77	-25.00	15.77	90
5	12650.00	-46.50	5.40	13.20	Vertical	-38.70	-25.00	13.70	45
6	15180.00	-54.26	6.10	13.10	Vertical	-47.26	-25.00	22.26	315
7	17710.00	-50.67	6.10	14.20	Vertical	-42.57	-25.00	17.57	270
8	20240.00	--	--	--	--	--	--	--	--
9	22770.00	--	--	--	--	--	--	--	--
10	25300.00	--	--	--	--	--	--	--	--

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

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



LTE band 28 subset 1 QPSK 3MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1434.60	-54.08	1.70	8.70	Vertical	-49.23	-13.00	36.23	45
3	2151.90	-56.84	2.10	11.10	Vertical	-49.99	-13.00	36.99	90
4	2869.20	-58.52	2.30	13.10	Vertical	-49.87	-13.00	36.87	315
5	3586.50	-64.55	2.60	12.70	Vertical	-56.60	-13.00	43.60	45
6	4303.80	-62.51	3.30	12.50	Vertical	-55.46	-13.00	42.46	270
7	5021.10	-61.40	3.40	12.50	Vertical	-54.45	-13.00	41.45	90
8	5738.40	-54.00	3.30	12.50	Vertical	-46.95	-13.00	33.95	45
9	6455.70	-58.25	3.80	11.50	Vertical	-52.70	-13.00	39.70	135
10	7173.00	-53.79	4.20	11.80	Vertical	-48.34	-13.00	35.34	90

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.

LTE band 28 subset 1 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1431.00	-53.99	1.70	8.70	Vertical	-49.14	-13.00	36.14	45
3	2146.50	-56.77	2.10	11.10	Vertical	-49.92	-13.00	36.92	90
4	2862.00	-58.39	2.30	13.10	Vertical	-49.74	-13.00	36.74	180
5	3577.50	-62.30	2.60	12.70	Vertical	-54.35	-13.00	41.35	135
6	4293.00	-61.73	3.30	12.50	Vertical	-54.68	-13.00	41.68	45
7	5008.50	-61.04	3.40	12.50	Vertical	-54.09	-13.00	41.09	270
8	5724.00	-53.20	3.30	12.50	Vertical	-46.15	-13.00	33.15	90
9	6439.50	-57.65	3.80	11.50	Vertical	-52.10	-13.00	39.10	0
10	7155.00	-54.69	4.20	11.80	Vertical	-49.24	-13.00	36.24	135

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.



LTE band 28 subset 1 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1426.00	-53.60	1.70	8.70	Vertical	-48.75	-13.00	35.75	45
3	2139.00	-44.16	2.10	11.10	Vertical	-37.31	-13.00	24.31	135
4	2852.00	-57.37	2.30	13.10	Vertical	-48.72	-13.00	35.72	180
5	3565.00	-60.09	2.60	12.70	Vertical	-52.14	-13.00	39.14	45
6	4278.00	-63.88	3.30	12.50	Vertical	-56.83	-13.00	43.83	225
7	4991.00	-62.08	3.40	12.50	Vertical	-55.13	-13.00	42.13	135
8	5704.00	-63.34	3.30	12.50	Vertical	-56.29	-13.00	43.29	0
9	6417.00	-59.01	3.80	11.50	Vertical	-53.46	-13.00	40.46	315
10	7130.00	-53.92	4.20	11.80	Vertical	-48.47	-13.00	35.47	270

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.

LTE band 28 subset 2 QPSK 3MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1464.60	-53.44	1.70	8.70	Vertical	-48.59	-13.00	35.59	45
3	2196.90	-54.05	2.10	11.10	Vertical	-47.20	-13.00	34.20	90
4	2929.20	-51.04	2.30	13.10	Vertical	-42.39	-13.00	29.39	180
5	3661.50	-62.45	2.60	12.70	Vertical	-54.50	-13.00	41.50	270
6	4393.80	-60.51	3.30	12.50	Vertical	-53.46	-13.00	40.46	0
7	5126.10	-61.85	3.40	12.50	Vertical	-54.90	-13.00	41.90	90
8	5858.40	-55.09	3.30	12.50	Vertical	-48.04	-13.00	35.04	45
9	6590.70	-56.94	3.80	11.50	Vertical	-51.39	-13.00	38.39	135
10	7323.00	-53.58	4.20	11.80	Vertical	-48.13	-13.00	35.13	90

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.



LTE band 28 subset 2 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1461.00	-51.60	1.70	8.70	Vertical	-46.75	-13.00	33.75	45
3	2191.50	-56.77	2.10	11.10	Vertical	-49.92	-13.00	36.92	90
4	2922.00	-50.79	2.30	13.10	Vertical	-42.14	-13.00	29.14	180
5	3652.50	-60.71	2.60	12.70	Vertical	-52.76	-13.00	39.76	90
6	4383.00	-61.14	3.30	12.50	Vertical	-54.09	-13.00	41.09	135
7	5113.50	-60.95	3.40	12.50	Vertical	-54.00	-13.00	41.00	45
8	5844.00	-53.11	3.30	12.50	Vertical	-46.06	-13.00	33.06	0
9	6574.50	-57.98	3.80	11.50	Vertical	-52.43	-13.00	39.43	180
10	7305.00	-55.75	4.20	11.80	Vertical	-50.30	-13.00	37.30	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.

LTE band 28 subset 2 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1456.00	-48.91	1.70	8.70	Vertical	-44.06	-13.00	31.06	45
3	2184.00	-56.73	2.10	11.10	Vertical	-49.88	-13.00	36.88	90
4	2912.00	-48.00	2.30	13.10	Vertical	-39.35	-13.00	26.35	180
5	3640.00	-61.15	2.60	12.70	Vertical	-53.20	-13.00	40.20	45
6	4368.00	-62.01	3.30	12.50	Vertical	-54.96	-13.00	41.96	225
7	5096.00	-60.19	3.40	12.50	Vertical	-53.24	-13.00	40.24	90
8	5824.00	-62.84	3.30	12.50	Vertical	-55.79	-13.00	42.79	315
9	6552.00	-59.11	3.80	11.50	Vertical	-53.56	-13.00	40.56	0
10	7280.00	-54.93	4.20	11.80	Vertical	-49.48	-13.00	36.48	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 Vertical 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	5185.00	-53.98	3.20	12.50	Vertical	-44.68	-25.00	19.68	225
3	7777.50	-48.34	4.40	12.30	Vertical	-40.44	-25.00	15.44	315
4	10370.00	-46.62	4.70	11.80	Vertical	-39.52	-25.00	14.52	45
5	12962.50	-52.58	5.40	14.00	Vertical	-43.98	-25.00	18.98	135
6	15555.00	-59.07	6.10	16.80	Vertical	-48.37	-25.00	23.37	90
7	18147.50	--	--	--	--	--	--	--	--
8	20740.00	--	--	--	--	--	--	--	--
9	23332.50	--	--	--	--	--	--	--	--
10	25925.00	--	--	--	--	--	--	--	--

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

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

LTE Band 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	5170.00	-52.70	3.20	12.50	Vertical	-43.40	-25.00	18.40	45
3	7755.00	-43.23	4.40	12.30	Vertical	-35.33	-25.00	10.33	225
4	10340.00	-47.37	4.70	11.80	Vertical	-40.27	-25.00	15.27	0
5	12925.00	-53.32	5.40	14.00	Vertical	-44.72	-25.00	19.72	135
6	15510.00	-59.82	6.10	16.80	Vertical	-49.12	-25.00	24.12	180
7	18095.00	--	--	--	--	--	--	--	--
8	20680.00	--	--	--	--	--	--	--	--
9	23265.00	--	--	--	--	--	--	--	--
10	25850.00	--	--	--	--	--	--	--	--

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

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



LTE Band 40 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	4695.00	-54.77	3.20	12.50	Vertical	-45.47	-25.00	20.47	225
3	7042.50	-57.14	4.40	12.30	Vertical	-49.24	-25.00	24.24	0
4	9390.00	-51.33	4.70	11.80	Vertical	-44.23	-25.00	19.23	135
5	11737.50	-39.92	5.40	14.00	Vertical	-31.32	-25.00	6.32	90
6	14085.00	-53.46	6.10	16.80	Vertical	-42.76	-25.00	17.76	315
7	16432.50	-54.94	5.70	14.15	Vertical	-46.49	-25.00	21.49	45
8	18780.00	--	--	--	--	--	--	--	--
9	21127.50	--	--	--	--	--	--	--	--
10	23475.00	--	--	--	--	--	--	--	--

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.



LTE Band 40 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	4680.00	-55.21	3.20	12.50	Vertical	-45.91	-25.00	20.91	315
3	7020.00	-55.83	4.40	12.30	Vertical	-47.93	-25.00	22.93	90
4	9360.00	-51.38	4.70	11.80	Vertical	-44.28	-25.00	19.28	135
5	11700.00	-43.69	5.40	14.00	Vertical	-35.09	-25.00	10.09	225
6	14040.00	-54.94	6.10	16.80	Vertical	-44.24	-25.00	19.24	45
7	16380.00	-55.26	5.70	14.15	Vertical	-46.81	-25.00	21.81	180
8	18720.00	--	--	--	--	--	--	--	--
9	21060.00	--	--	--	--	--	--	--	--
10	23400.00	--	--	--	--	--	--	--	--

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

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



LTE Band 41 QPSK 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	5163.30	-54.30	3.20	12.50	Vertical	-45.00	-25.00	20.00	45
3	7744.95	-47.35	4.40	12.30	Vertical	-39.45	-25.00	14.45	135
4	10326.60	-46.43	4.70	11.80	Vertical	-39.33	-25.00	14.33	0
5	12908.25	-53.64	5.40	14.00	Vertical	-45.04	-25.00	20.04	180
6	15489.90	-59.94	6.10	16.80	Vertical	-49.24	-25.00	24.24	315
7	18071.55	--	--	--	--	--	--	--	--
8	20653.20	--	--	--	--	--	--	--	--
9	23234.85	--	--	--	--	--	--	--	--
10	25816.50	--	--	--	--	--	--	--	--

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

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



LTE Band 41 QPSK 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	5166.00	-57.58	3.20	12.50	Vertical	-48.28	-25.00	23.28	315
3	7749.00	-47.19	4.40	12.30	Vertical	-39.29	-25.00	14.29	45
4	10332.00	-47.83	4.70	11.80	Vertical	-40.73	-25.00	15.73	135
5	12915.00	-51.17	5.40	14.00	Vertical	-42.57	-25.00	17.57	0
6	15498.00	-60.65	6.10	16.80	Vertical	-49.95	-25.00	24.95	270
7	18023.60	--	--	--	--	--	--	--	--
8	20598.40	--	--	--	--	--	--	--	--
9	23173.20	--	--	--	--	--	--	--	--
10	25748.00	--	--	--	--	--	--	--	--

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

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



6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2021-05-15	2022-05-14
Climate Chamber	Weiss	VT4002	582261194500 10	2021-05-15	2022-05-14
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2021-05-15	2022-05-14
Signal Analyzer	R&S	FSV3030	101411	2020-12-13	2021-12-12
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2022-12-15
Horn Antenna	R&S	HF907	102723	2020-08-11	2023-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2021-10-10	2024-10-09
Horn Antenna	STEATITE	QSH-SL-26-40-K-15	16779	2019-12-24	2022-12-23
Signal generator	R&S	SMB 100A	102594	2021-05-15	2022-05-14
Climatic Chamber	ESPEC	SU-242	93000506	2020-12-13	2021-12-12
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2021-06-09	2021-12-08
RF Cable	Agilent	SMA 15cm	0001	2021-06-09	2021-12-08
Software	R&S	EMC32	9.26.0	/	/

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



ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.



ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.