



64QAM	1.4	19957	1710.7	27.56	21.70	5.86	≤13	PASS
		20175	1732.5	27.88	21.84	6.04	≤13	PASS
		20393	1754.3	26.96	21.77	5.19	≤13	PASS
	3	19965	1711.5	27.77	21.77	6.00	≤13	PASS
		20175	1732.5	27.93	21.88	6.05	≤13	PASS
		20385	1753.5	27.09	21.80	5.29	≤13	PASS
	5	19975	1712.5	27.80	21.82	5.98	≤13	PASS
		20175	1732.5	27.97	21.89	6.08	≤13	PASS
		20375	1752.5	27.21	21.80	5.41	≤13	PASS
	10	20000	1715	27.70	21.82	5.88	≤13	PASS
		20175	1732.5	27.97	21.91	6.06	≤13	PASS
		20350	1750	27.39	21.83	5.56	≤13	PASS
	15	20025	1717.5	27.91	21.88	6.03	≤13	PASS
		20175	1732.5	28.10	21.93	6.17	≤13	PASS
		20325	1747.5	27.49	21.85	5.64	≤13	PASS
	20	20050	1720	27.75	21.81	5.94	≤13	PASS
		20175	1732.5	27.83	21.82	6.01	≤13	PASS
		20300	1745	27.44	21.80	5.64	≤13	PASS



LTE Band 7								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	20775	2502.5	28.89	23.52	5.37	≤13	PASS
		21100	2535	28.86	23.51	5.35	≤13	PASS
		21425	2567.5	28.82	23.47	5.35	≤13	PASS
	10	20800	2505	28.73	23.53	5.20	≤13	PASS
		21100	2535	28.81	23.52	5.29	≤13	PASS
		21400	2565	28.65	23.41	5.24	≤13	PASS
	15	20825	2507.5	29.04	23.55	5.49	≤13	PASS
		21100	2535	29.08	23.54	5.54	≤13	PASS
		21375	2562.5	28.95	23.46	5.49	≤13	PASS
	20	20850	2510	28.81	23.58	5.23	≤13	PASS
		21100	2535	28.79	23.57	5.22	≤13	PASS
		21350	2560	28.66	23.49	5.17	≤13	PASS
16QAM	5	20775	2502.5	28.59	22.54	6.05	≤13	PASS
		21100	2535	28.61	22.52	6.09	≤13	PASS
		21425	2567.5	28.61	22.50	6.11	≤13	PASS
	10	20800	2505	28.54	22.53	6.01	≤13	PASS
		21100	2535	28.63	22.53	6.10	≤13	PASS
		21400	2565	28.42	22.41	6.01	≤13	PASS
	15	20825	2507.5	28.69	22.59	6.10	≤13	PASS
		21100	2535	28.76	22.60	6.16	≤13	PASS
		21375	2562.5	28.55	22.48	6.07	≤13	PASS
	20	20850	2510	28.61	22.63	5.98	≤13	PASS
		21100	2535	28.53	22.56	5.97	≤13	PASS
		21350	2560	28.46	22.50	5.96	≤13	PASS
64QAM	5	20775	2502.5	28.21	22.15	6.06	≤13	PASS
		21100	2535	28.31	22.19	6.12	≤13	PASS
		21425	2567.5	28.28	22.12	6.16	≤13	PASS
	10	20800	2505	28.16	22.15	6.01	≤13	PASS
		21100	2535	28.24	22.15	6.09	≤13	PASS
		21400	2565	28.11	22.04	6.07	≤13	PASS
	15	20825	2507.5	28.32	22.20	6.12	≤13	PASS



		21100	2535	28.39	22.18	6.21	≤13	PASS
		21375	2562.5	28.23	22.09	6.14	≤13	PASS
	20	20850	2510	28.26	22.24	6.02	≤13	PASS
		21100	2535	28.17	22.17	6.00	≤13	PASS
		21350	2560	28.14	22.12	6.02	≤13	PASS



LTE Band 12								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	23017	699.7	28.98	23.69	5.29	≤13	PASS
		23095	707.5	28.92	23.61	5.31	≤13	PASS
		23173	715.3	28.94	23.60	5.34	≤13	PASS
	3	23025	700.5	28.98	23.77	5.21	≤13	PASS
		23095	707.5	28.86	23.66	5.20	≤13	PASS
		23165	714.5	28.68	23.64	5.04	≤13	PASS
	5	23035	701.5	28.98	23.74	5.24	≤13	PASS
		23095	707.5	28.90	23.71	5.19	≤13	PASS
		23155	713.5	28.51	23.65	4.86	≤13	PASS
	10	23060	704	28.93	23.77	5.16	≤13	PASS
		23095	707.5	28.76	23.69	5.07	≤13	PASS
		23130	711	28.71	23.77	4.94	≤13	PASS
16QAM	1.4	23017	699.7	28.91	22.68	6.23	≤13	PASS
		23095	707.5	28.71	22.63	6.08	≤13	PASS
		23173	715.3	28.86	22.61	6.25	≤13	PASS
	3	23025	700.5	28.85	22.76	6.09	≤13	PASS
		23095	707.5	28.72	22.70	6.02	≤13	PASS
		23165	714.5	28.66	22.66	6.00	≤13	PASS
	5	23035	701.5	28.89	22.76	6.13	≤13	PASS
		23095	707.5	28.76	22.74	6.02	≤13	PASS
		23155	713.5	28.46	22.69	5.77	≤13	PASS
	10	23060	704	28.81	22.79	6.02	≤13	PASS
		23095	707.5	28.68	22.70	5.98	≤13	PASS
		23130	711	28.63	22.78	5.85	≤13	PASS
64QAM	1.4	23017	699.7	28.53	22.29	6.24	≤13	PASS
		23095	707.5	28.29	22.17	6.12	≤13	PASS
		23173	715.3	28.28	22.16	6.12	≤13	PASS
	3	23025	700.5	28.50	22.36	6.14	≤13	PASS
		23095	707.5	28.35	22.29	6.06	≤13	PASS
		23165	714.5	28.23	22.23	6.00	≤13	PASS
	5	23035	701.5	28.49	22.36	6.13	≤13	PASS
		23095	707.5	28.36	22.32	6.04	≤13	PASS
		23155	713.5	28.05	22.23	5.82	≤13	PASS
	10	23060	704	28.39	22.37	6.02	≤13	PASS
		23095	707.5	28.26	22.30	5.96	≤13	PASS
		23130	711	28.24	22.34	5.90	≤13	PASS



LTE Band 17								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	23755	779.5	29.14	23.78	5.36	≤13	PASS
		23790	782	28.77	23.72	5.05	≤13	PASS
		23825	784.5	28.67	23.69	4.98	≤13	PASS
	10	23780	782	28.89	23.69	5.20	≤13	PASS
		23790	782	28.85	23.72	5.13	≤13	PASS
		23800	782	28.85	23.69	5.16	≤13	PASS
16QAM	5	23755	779.5	28.94	22.78	6.16	≤13	PASS
		23790	782	28.71	22.75	5.96	≤13	PASS
		23825	784.5	28.69	22.69	6.00	≤13	PASS
	10	23780	782	28.77	22.71	6.06	≤13	PASS
		23790	782	28.76	22.69	6.07	≤13	PASS
		23800	782	28.75	22.69	6.06	≤13	PASS
64QAM	5	23755	779.5	28.47	22.34	6.13	≤13	PASS
		23790	782	28.33	22.30	6.03	≤13	PASS
		23825	784.5	28.27	22.24	6.03	≤13	PASS
	10	23780	782	28.34	22.28	6.06	≤13	PASS
		23790	782	28.31	22.28	6.03	≤13	PASS
		23800	782	28.31	22.26	6.05	≤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	28.63	19.25	9.38	≤13	PASS
		38000	2595	28.58	19.60	8.98	≤13	PASS
		38225	2617.5	28.57	19.41	9.16	≤13	PASS
	10	37800	2575	28.35	17.89	10.46	≤13	PASS
		38000	2595	28.63	20.05	8.58	≤13	PASS
		38200	2615	28.40	18.08	10.32	≤13	PASS
	15	37825	2577.5	28.66	18.38	10.28	≤13	PASS
		38000	2595	28.65	18.18	10.47	≤13	PASS
		38175	2612.5	28.89	20.67	8.22	≤13	PASS
	20	37850	2580	28.32	18.21	10.11	≤13	PASS
		38000	2595	28.47	19.88	8.59	≤13	PASS
		38150	2610	28.44	19.19	9.25	≤13	PASS
16QAM	5	37775	2572.5	28.29	18.95	9.34	≤13	PASS
		38000	2595	28.37	19.21	9.16	≤13	PASS
		38225	2617.5	28.43	19.41	9.02	≤13	PASS
	10	37800	2575	28.20	17.89	10.31	≤13	PASS
		38000	2595	28.28	17.67	10.61	≤13	PASS
		38200	2615	28.32	18.74	9.58	≤13	PASS
	15	37825	2577.5	28.37	18.15	10.22	≤13	PASS
		38000	2595	28.46	19.09	9.37	≤13	PASS
		38175	2612.5	28.35	17.59	10.76	≤13	PASS
	20	37850	2580	28.26	18.94	9.32	≤13	PASS
		38000	2595	28.30	19.44	8.86	≤13	PASS
		38150	2610	28.31	19.32	8.99	≤13	PASS
64QAM	5	37775	2572.5	28.29	18.95	9.34	≤13	PASS
		38000	2595	28.37	19.21	9.16	≤13	PASS
		38225	2617.5	28.43	19.41	9.02	≤13	PASS
	10	37800	2575	28.20	17.89	10.31	≤13	PASS
		38000	2595	28.28	17.67	10.61	≤13	PASS
		38200	2615	28.32	18.74	9.58	≤13	PASS
	15	37825	2577.5	28.37	18.15	10.22	≤13	PASS



		38000	2595	28.46	19.09	9.37	≤13	PASS
		38175	2612.5	28.35	17.59	10.76	≤13	PASS
	20	37850	2580	28.26	18.94	9.32	≤13	PASS
		38000	2595	28.30	19.44	8.86	≤13	PASS
		38150	2610	28.31	19.32	8.99	≤13	PASS



LTE Band 41								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	39675	2498.5	29.24	18.83	10.41	≤13	PASS
		40620	2593	29.61	19.36	10.25	≤13	PASS
		41565	2687.5	29.56	20.13	9.43	≤13	PASS
	10	39700	2501	29.49	21.46	8.03	≤13	PASS
		40620	2593	29.74	21.01	8.73	≤13	PASS
		41540	2685	29.38	20.01	9.37	≤13	PASS
	15	39725	2503.5	29.78	21.32	8.46	≤13	PASS
		40620	2593	29.93	21.00	8.93	≤13	PASS
		41515	2682.5	29.79	20.09	9.70	≤13	PASS
	20	39750	2506	29.41	20.21	9.20	≤13	PASS
		40620	2593	29.65	21.00	8.65	≤13	PASS
		41490	2680	29.49	20.34	9.15	≤13	PASS
16QAM	5	39675	2498.5	29.31	20.67	8.64	≤13	PASS
		40620	2593	29.96	20.53	9.43	≤13	PASS
		41565	2687.5	29.80	19.93	9.87	≤13	PASS
	10	39700	2501	29.56	19.78	9.78	≤13	PASS
		40620	2593	29.99	20.67	9.32	≤13	PASS
		41540	2685	29.77	20.13	9.64	≤13	PASS
	15	39725	2503.5	29.88	20.11	9.77	≤13	PASS
		40620	2593	30.04	19.69	10.35	≤13	PASS
		41515	2682.5	29.93	20.21	9.72	≤13	PASS
	20	39750	2506	29.65	18.72	10.93	≤13	PASS
		40620	2593	29.89	20.88	9.01	≤13	PASS
		41490	2680	29.79	20.50	9.29	≤13	PASS
16QAM	5	39675	2498.5	29.31	20.67	8.64	≤13	PASS
		40620	2593	29.96	20.53	9.43	≤13	PASS
		41565	2687.5	29.80	19.93	9.87	≤13	PASS
	10	39700	2501	29.56	19.78	9.78	≤13	PASS
		40620	2593	29.99	20.67	9.32	≤13	PASS
		41540	2685	29.77	20.13	9.64	≤13	PASS





	15	39725	2503.5	29.88	20.11	9.77	≤13	PASS
		40620	2593	30.04	19.69	10.35	≤13	PASS
		41515	2682.5	29.93	20.21	9.72	≤13	PASS
	20	39750	2506	29.65	18.72	10.93	≤13	PASS
		40620	2593	29.89	20.88	9.01	≤13	PASS
		41490	2680	29.79	20.50	9.29	≤13	PASS



LTE Band 66								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	131979	1710.7	27.99	22.61	5.38	≤13	PASS
		132322	1745	28.29	22.72	5.57	≤13	PASS
		132665	1779.3	27.62	22.73	4.89	≤13	PASS
	3	131987	1711.5	27.89	22.65	5.24	≤13	PASS
		132322	1745	28.28	22.82	5.46	≤13	PASS
		132657	1778.5	27.65	22.84	4.81	≤13	PASS
	5	131997	1712.5	27.94	22.65	5.29	≤13	PASS
		132322	1745	28.36	22.76	5.60	≤13	PASS
		132647	1777.5	27.75	22.87	4.88	≤13	PASS
	10	132022	1715	27.85	22.67	5.18	≤13	PASS
		132322	1745	28.27	22.80	5.47	≤13	PASS
		132622	1775	27.67	22.77	4.90	≤13	PASS
	15	132047	1717.5	28.15	22.64	5.51	≤13	PASS
		132322	1745	28.45	22.73	5.72	≤13	PASS
		132597	1772.5	28.09	22.83	5.26	≤13	PASS
	20	132072	1720	27.88	22.69	5.19	≤13	PASS
		132322	1745	28.11	22.74	5.37	≤13	PASS
		132572	1770	27.89	22.74	5.15	≤13	PASS
16QAM	1.4	131979	1710.7	27.72	21.62	6.10	≤13	PASS
		132322	1745	28.14	21.77	6.37	≤13	PASS
		132665	1779.3	27.58	21.83	5.75	≤13	PASS
	3	131987	1711.5	27.77	21.67	6.10	≤13	PASS
		132322	1745	28.12	21.85	6.27	≤13	PASS
		132657	1778.5	27.56	21.90	5.66	≤13	PASS
	5	131997	1712.5	27.71	21.67	6.04	≤13	PASS
		132322	1745	28.15	21.83	6.32	≤13	PASS
		132647	1777.5	27.57	21.92	5.65	≤13	PASS
	10	132022	1715	27.64	21.66	5.98	≤13	PASS
		132322	1745	28.05	21.81	6.24	≤13	PASS
		132622	1775	27.52	21.80	5.72	≤13	PASS
	15	132047	1717.5	27.76	21.66	6.10	≤13	PASS
		132322	1745	28.11	21.77	6.34	≤13	PASS
		132597	1772.5	27.78	21.83	5.95	≤13	PASS
	20	132072	1720	27.67	21.68	5.99	≤13	PASS
		132322	1745	27.92	21.78	6.14	≤13	PASS
		132572	1770	27.75	21.77	5.98	≤13	PASS



16QAM	1.4	131979	1710.7	27.76	21.62	6.14	≤13	PASS
		132322	1745	28.03	21.76	6.27	≤13	PASS
		132665	1779.3	27.57	21.80	5.77	≤13	PASS
	3	131987	1711.5	27.72	21.68	6.04	≤13	PASS
		132322	1745	28.05	21.77	6.28	≤13	PASS
		132657	1778.5	27.52	21.88	5.64	≤13	PASS
	5	131997	1712.5	27.71	21.68	6.03	≤13	PASS
		132322	1745	28.12	21.83	6.29	≤13	PASS
		132647	1777.5	27.58	21.89	5.69	≤13	PASS
	10	132022	1715	27.61	21.63	5.98	≤13	PASS
		132322	1745	28.03	21.77	6.26	≤13	PASS
		132622	1775	27.54	21.78	5.76	≤13	PASS
	15	132047	1717.5	27.77	21.67	6.10	≤13	PASS
		132322	1745	28.09	21.76	6.33	≤13	PASS
		132597	1772.5	27.84	21.83	6.01	≤13	PASS
	20	132072	1720	27.69	21.70	5.99	≤13	PASS
		132322	1745	27.91	21.78	6.13	≤13	PASS
		132572	1770	27.74	21.75	5.99	≤13	PASS



Mode	Bandwidth	PCC		SCC1		Modulation	Peak-to-Average Power Ratio (PAPR)		
		Channel	Frequency (MHz)	Channel	Frequency (MHz)		Peak (dBm)	Avg (dBm)	PAPR (dB)
CA_7C	CA_7C_10MHz+20 MHz_QPSK	21006	2525.6	21150	2540	QPSK	27.68	21.81	5.87
	CA_7C_10MHz+20 MHz_16QAM	21006	2525.6	21150	2540	16QAM	27.36	20.70	6.66
	CA_7C_10MHz+20 MHz_64QAM	21006	2525.6	21150	2540	64QAM	25.77	18.82	6.95
	CA_7C_20MHz+10 MHz_QPSK	21051	2530.1	21195	2544.5	QPSK	28.11	22.27	5.84
	CA_7C_20MHz+10 MHz_16QAM	21051	2530.1	21195	2544.5	16QAM	27.73	21.13	6.60
	CA_7C_20MHz+10 MHz_64QAM	21051	2530.1	21195	2544.5	64QAM	26.17	19.23	6.94
	CA_7C_15MHz+10 MHz_QPSK	21051	2530.1	21171	2542.1	QPSK	28.41	22.62	5.79
	CA_7C_15MHz+10 MHz_16QAM	21051	2530.1	21171	2542.1	16QAM	28.11	21.54	6.57
	CA_7C_15MHz+10 MHz_64QAM	21051	2530.1	21171	2542.1	64QAM	26.56	19.52	7.04
	CA_7C_15MHz+15 MHz_QPSK	21025	2527.5	21175	2542.5	QPSK	28.13	22.22	5.91
	CA_7C_15MHz+15 MHz_16QAM	21025	2527.5	21175	2542.5	16QAM	27.62	20.95	6.67
	CA_7C_15MHz+15 MHz_64QAM	21025	2527.5	21175	2542.5	64QAM	25.88	18.93	6.95
	CA_7C_15MHz+20 MHz_QPSK	21003	2525.3	21174	2542.4	QPSK	27.69	21.41	6.28
	CA_7C_15MHz+20 MHz_16QAM	21003	2525.3	21174	2542.4	16QAM	27.13	20.16	6.97
	CA_7C_15MHz+20 MHz_64QAM	21003	2525.3	21174	2542.4	64QAM	25.41	18.24	7.17
	CA_7C_20MHz+1 MHz_QPSK	21026	2527.6	21197	2544.7	QPSK	27.81	21.73	6.08
	CA_7C_20MHz+15 MHz_16QAM	21026	2527.6	21197	2544.7	16QAM	27.35	20.51	6.84
	CA_7C_20MHz+15 MHz_64QAM	21026	2527.6	21197	2544.7	64QAM	25.49	18.45	7.04
	CA_7C_20MHz+20 MHz_QPSK	21001	2525.1	21199	2544.9	QPSK	27.54	21.01	6.53
CA_7C_20MHz+20 MHz_16QAM	21001	2525.1	21199	2544.9	16QAM	27.06	19.77	7.29	



MHz_16QAM									
CA_7C_20MHz+20 MHz_64QAM	21001	2525.1	21199	2544.9	64QAM	25.21	17.76	7.45	



Mode	Bandwidth	PCC		SCC1		Modulation	Peak-to-Average Power Ratio (PAPR)		
		Channel	Frequency(MHz)	Channel	Frequency (MHz)		Peak (dBm)	Avg (dBm)	PAPR (dB)
CA_41C	CA_41C_5MHz+20MHz_QPSK	40528	2583.8	40645	2595.5	QPSK	28.63	19.10	9.53
	CA_41C_5MHz+20MHz_16QAM	40528	2583.8	40645	2595.5	16QAM	28.04	17.46	10.58
	CA_41C_5MHz+20MHz_64QAM	40528	2583.8	40645	2595.5	64QAM	28.20	18.36	9.84
	CA_41C_20MHz+5MHz_QPSK	40595	2590.5	40712	2602.2	QPSK	28.65	19.07	9.58
	CA_41C_20MHz+5MHz_16QAM	40595	2590.5	40712	2602.2	16QAM	28.08	17.43	10.65
	CA_41C_20MHz+5MHz_64QAM	40595	2590.5	40712	2602.2	64QAM	28.23	17.43	10.80
	CA_41C_10MHz+20MHz_QPSK	40526	2583.6	40670	2598	QPSK	27.67	17.87	9.80
	CA_41C_10MHz+20MHz_16QAM	40526	2583.6	40670	2598	16QAM	27.20	16.86	10.34
	CA_41C_10MHz+20MHz_64QAM	40526	2583.6	40670	2598	64QAM	27.26	16.85	10.41
	CA_41C_20MHz+10MHz_QPSK	40571	2588.1	40715	2602.5	QPSK	27.87	18.11	9.76
	CA_41C_20MHz+10MHz_16QAM	40571	2588.1	40715	2602.5	16QAM	27.40	17.15	10.25
	CA_41C_20MHz+10MHz_64QAM	40571	2588.1	40715	2602.5	64QAM	27.68	17.28	10.40
	CA_41C_15MHz+15MHz_QPSK	40545	2585.5	40695	2600.5	QPSK	28.28	18.51	9.77
	CA_41C_15MHz+15MHz_16QAM	40545	2585.5	40695	2600.5	16QAM	28.15	17.36	10.79
	CA_41C_15MHz+15MHz_64QAM	40545	2585.5	40695	2600.5	64QAM	28.32	17.16	11.16
	CA_41C_15MHz+20MHz_QPSK	40523	2583.3	40694	2600.4	QPSK	27.49	17.83	9.66
	CA_41C_15MHz+20MHz_16QAM	40523	2583.3	40694	2600.4	16QAM	27.15	16.60	10.55
	CA_41C_15MHz+20MHz_64QAM	40523	2583.3	40694	2600.4	64QAM	27.22	16.57	10.65
	CA_41C_20MHz+15MHz_QPSK	40546	2585.6	40717	2602.7	QPSK	27.56	17.52	10.04
	CA_41C_20MHz+15MHz_16QAM	40546	2585.6	40717	2602.7	16QAM	27.25	16.65	10.60



5MHz_16QAM									
CA_41C_20MHz+1 5MHz_64QAM	40546	2585.6	40717	2602.7	64QAM	27.44	16.74	10.70	
CA_41C_20MHz+2 0MHz_QPSK	40521	2583.1	40719	2602.9	QPSK	26.35	17.05	9.30	
CA_41C_20MHz+2 0MHz_16QAM	40521	2583.1	40719	2602.9	16QAM	26.35	16.05	10.30	
CA_41C_20MHz+2 0MHz_64QAM	40521	2583.1	40719	2602.9	64QAM	26.54	16.02	10.52	

## 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.

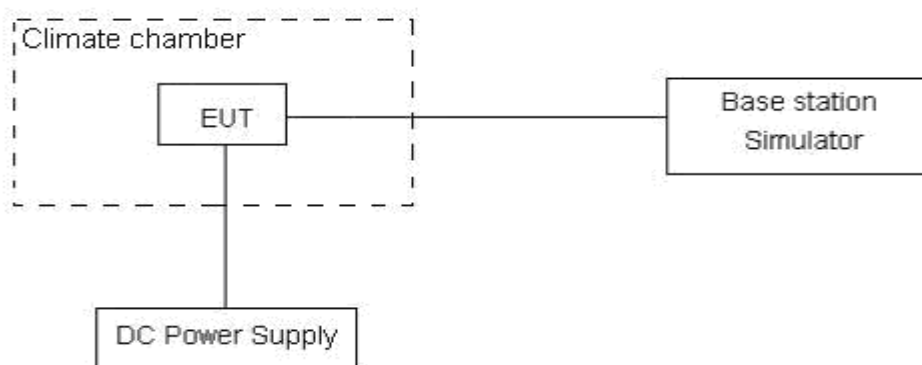
#### Frequency Stability (Voltage Variation)

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 3.6 V and 4.2 V, with a nominal voltage of 3.87V.

### Test setup



### Limits

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

### Measurement Uncertainty

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





## Test Result

LTE Band 4								
Condition		Freq. Error	Freq. Error	Freq. Error	Frequency Stability	Frequency Stability	Frequency Stability	Verdict
BANDWIDTH	1.4MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.07	1.21	13.69	0.00163	0.00064	0.00728	PASS
Extreme (50°C)		14.76	9.47	10.85	0.00785	0.00504	0.00577	PASS
Extreme (40°C)		14.47	4.90	16.37	0.00770	0.00261	0.00871	PASS
Extreme (30°C)		5.83	6.94	11.82	0.00310	0.00369	0.00629	PASS
Extreme (20°C)		6.68	1.42	5.74	0.00355	0.00076	0.00305	PASS
Extreme (10°C)		17.44	10.62	8.29	0.00928	0.00565	0.00441	PASS
Extreme (0°C)		7.94	10.94	17.43	0.00422	0.00582	0.00927	PASS
Extreme (-10°C)		15.72	13.15	16.05	0.00836	0.00700	0.00853	PASS
Extreme (-20°C)		11.82	14.92	17.27	0.00629	0.00794	0.00919	PASS
Extreme (-30°C)		17.69	15.72	6.01	0.00941	0.00836	0.00320	PASS
25°C	LV	15.62	6.60	5.16	0.00831	0.00351	0.00274	PASS
	HV	4.85	1.75	14.15	0.00258	0.00093	0.00753	PASS
Condition		Freq. Error	Freq. Error	Freq. Error	Frequency Stability	Frequency Stability	Frequency Stability	Verdict
BANDWIDTH	3MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	6.67	11.76	7.65	0.00355	0.00625	0.00407	PASS
Extreme (50°C)		6.91	13.08	13.91	0.00367	0.00696	0.00740	PASS
Extreme (40°C)		4.04	2.25	10.60	0.00215	0.00119	0.00564	PASS
Extreme (30°C)		5.65	6.55	4.79	0.00301	0.00348	0.00255	PASS
Extreme (20°C)		9.40	3.57	17.69	0.00500	0.00190	0.00941	PASS
Extreme (10°C)		11.58	10.85	6.66	0.00616	0.00577	0.00354	PASS
Extreme (0°C)		13.10	15.82	4.82	0.00697	0.00842	0.00256	PASS
Extreme (-10°C)		16.45	14.05	16.79	0.00875	0.00748	0.00893	PASS
Extreme (-20°C)		4.21	1.58	4.14	0.00224	0.00084	0.00220	PASS
Extreme (-30°C)		9.43	2.38	1.29	0.00502	0.00126	0.00069	PASS
25°C	LV	1.00	10.50	16.38	0.00053	0.00559	0.00871	PASS
	HV	13.19	2.04	10.11	0.00701	0.00108	0.00538	PASS
Condition		Freq. Error	Freq. Error	Freq. Error	Frequency Stability	Frequency Stability	Frequency Stability	Verdict
BANDWIDTH	5MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.19	14.42	4.93	0.00861	0.00767	0.00262	PASS
Extreme (50°C)		13.30	12.28	9.64	0.00707	0.00653	0.00513	PASS



Extreme (40°C)		15.62	6.46	15.87	0.00831	0.00343	0.00844	PASS
Extreme (30°C)		16.72	15.30	1.70	0.00889	0.00814	0.00090	PASS
Extreme (20°C)		4.21	6.53	7.58	0.00224	0.00348	0.00403	PASS
Extreme (10°C)		11.15	1.40	15.09	0.00593	0.00075	0.00803	PASS
Extreme (0°C)		14.03	9.99	2.61	0.00746	0.00531	0.00139	PASS
Extreme (-10°C)		11.68	5.20	13.76	0.00621	0.00277	0.00732	PASS
Extreme (-20°C)		14.45	8.87	12.25	0.00768	0.00472	0.00652	PASS
Extreme (-30°C)		1.72	5.16	5.63	0.00092	0.00274	0.00300	PASS
25°C	LV	9.26	11.19	5.96	0.00493	0.00595	0.00317	PASS
	HV	13.06	10.65	1.11	0.00695	0.00566	0.00059	PASS
Condition		Freq. Error	Freq. Error	Freq. Error	Frequency Stability	Frequency Stability	Frequency Stability	Verdict
BANDWIDTH	10MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	7.30	10.28	13.40	0.00388	0.00547	0.00713	PASS
Extreme (50°C)		5.92	2.41	4.13	0.00315	0.00128	0.00220	PASS
Extreme (40°C)		3.35	2.97	12.94	0.00178	0.00158	0.00688	PASS
Extreme (30°C)		1.36	11.71	14.56	0.00072	0.00623	0.00775	PASS
Extreme (20°C)		6.46	5.96	6.38	0.00344	0.00317	0.00340	PASS
Extreme (10°C)		1.51	3.45	1.11	0.00080	0.00184	0.00059	PASS
Extreme (0°C)		5.92	14.79	15.60	0.00315	0.00787	0.00830	PASS
Extreme (-10°C)		5.86	9.79	10.39	0.00312	0.00521	0.00553	PASS
Extreme (-20°C)		12.41	15.68	14.23	0.00660	0.00834	0.00757	PASS
Extreme (-30°C)		1.48	13.22	9.82	0.00079	0.00703	0.00523	PASS
25°C	LV	7.87	14.13	15.90	0.00419	0.00751	0.00846	PASS
	HV	6.38	6.74	9.17	0.00339	0.00359	0.00488	PASS
Condition		Freq. Error	Freq. Error	Freq. Error	Frequency Stability	Frequency Stability	Frequency Stability	Verdict
BANDWIDTH	15MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	10.67	15.09	4.77	0.00568	0.00803	0.00254	PASS
Extreme (50°C)		1.02	17.34	12.49	0.00054	0.00922	0.00664	PASS
Extreme (40°C)		2.47	11.65	12.99	0.00132	0.00620	0.00691	PASS
Extreme (30°C)		5.12	12.09	13.07	0.00272	0.00643	0.00695	PASS
Extreme (20°C)		3.76	14.01	10.26	0.00200	0.00745	0.00546	PASS
Extreme (10°C)		17.30	9.12	11.01	0.00920	0.00485	0.00586	PASS
Extreme (0°C)		17.85	16.00	15.32	0.00950	0.00851	0.00815	PASS
Extreme (-10°C)		17.19	16.95	14.99	0.00915	0.00901	0.00797	PASS
Extreme (-20°C)		14.46	17.04	13.11	0.00769	0.00907	0.00697	PASS
Extreme (-30°C)		1.37	15.46	3.91	0.00073	0.00822	0.00208	PASS
25°C	LV	17.80	16.84	15.47	0.00947	0.00896	0.00823	PASS



Condition		Freq. Error (Hz)	Freq. Error (Hz)	Freq. Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.88	2.10	16.12	0.00206	0.00112	0.00858	PASS
Extreme (50°C)		6.66	6.52	1.22	0.00354	0.00347	0.00065	PASS
Extreme (40°C)		14.96	11.45	2.02	0.00796	0.00609	0.00108	PASS
Extreme (30°C)		9.30	10.83	6.79	0.00495	0.00576	0.00361	PASS
Extreme (20°C)		1.03	11.10	2.04	0.00055	0.00591	0.00109	PASS
Extreme (10°C)		12.32	2.32	2.87	0.00655	0.00123	0.00153	PASS
Extreme (0°C)		7.88	10.43	12.62	0.00419	0.00555	0.00671	PASS
Extreme (-10°C)		13.60	9.60	2.65	0.00723	0.00511	0.00141	PASS
Extreme (-20°C)		6.82	16.22	11.74	0.00363	0.00863	0.00625	PASS
Extreme (-30°C)		4.25	16.25	14.52	0.00226	0.00864	0.00772	PASS
25°C	LV	8.22	10.62	6.33	0.00437	0.00565	0.00337	PASS
	HV	16.97	9.78	13.85	0.00903	0.00520	0.00737	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	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.23	12.34	4.19	0.00491	0.00657	0.00223	PASS
Extreme (50°C)		1.40	14.06	5.92	0.00075	0.00748	0.00315	PASS
Extreme (40°C)		10.36	8.35	11.25	0.00551	0.00444	0.00598	PASS
Extreme (30°C)		1.96	8.03	5.02	0.00104	0.00427	0.00267	PASS
Extreme (20°C)		11.45	9.20	8.88	0.00609	0.00489	0.00472	PASS
Extreme (10°C)		10.39	8.44	9.53	0.00553	0.00449	0.00507	PASS
Extreme (0°C)		3.43	6.74	5.62	0.00182	0.00358	0.00299	PASS
Extreme (-10°C)		9.35	12.19	6.13	0.00497	0.00649	0.00326	PASS
Extreme (-20°C)		1.07	1.86	6.00	0.00057	0.00099	0.00319	PASS
Extreme (-30°C)		10.72	2.16	3.30	0.00570	0.00115	0.00176	PASS
25°C	LV	16.01	14.68	7.67	0.00852	0.00781	0.00408	PASS
	HV	14.22	10.42	14.70	0.00756	0.00554	0.00782	PASS
Condition		Freq. Error (Hz)	Freq. Error (Hz)	Freq. Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	



Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	7.15	1.84	14.39	0.00380	0.00098	0.00765	PASS
Extreme (50°C)		7.49	2.60	16.94	0.00398	0.00138	0.00901	PASS
Extreme (40°C)		12.88	4.92	3.26	0.00685	0.00262	0.00173	PASS
Extreme (30°C)		15.12	16.54	5.75	0.00804	0.00880	0.00306	PASS
Extreme (20°C)		4.05	3.08	17.85	0.00216	0.00164	0.00950	PASS
Extreme (10°C)		4.39	3.49	6.02	0.00234	0.00186	0.00320	PASS
Extreme (0°C)		4.18	1.44	8.48	0.00222	0.00077	0.00451	PASS
Extreme (-10°C)		15.48	3.99	13.08	0.00824	0.00212	0.00696	PASS
Extreme (-20°C)		1.13	7.64	9.41	0.00060	0.00407	0.00501	PASS
Extreme (-30°C)		6.04	8.63	7.32	0.00321	0.00459	0.00390	PASS
25°C	LV	2.19	16.73	15.06	0.00117	0.00890	0.00801	PASS
	HV	7.49	17.17	11.22	0.00398	0.00913	0.00597	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	7.29	11.83	7.53	0.00388	0.00629	0.00401	PASS
Extreme (50°C)		3.36	7.36	12.65	0.00179	0.00392	0.00673	PASS
Extreme (40°C)		10.76	17.77	13.93	0.00572	0.00945	0.00741	PASS
Extreme (30°C)		1.02	6.86	12.78	0.00054	0.00365	0.00680	PASS
Extreme (20°C)		2.36	5.54	13.42	0.00126	0.00295	0.00714	PASS
Extreme (10°C)		8.81	6.84	7.27	0.00468	0.00364	0.00387	PASS
Extreme (0°C)		4.32	8.58	5.81	0.00230	0.00456	0.00309	PASS
Extreme (-10°C)		8.45	14.42	3.88	0.00449	0.00767	0.00207	PASS
Extreme (-20°C)		12.19	3.07	4.42	0.00648	0.00163	0.00235	PASS
Extreme (-30°C)		4.65	5.26	16.96	0.00248	0.00280	0.00902	PASS
25°C	LV	3.50	14.44	7.56	0.00186	0.00768	0.00402	PASS
	HV	17.02	15.38	6.40	0.00905	0.00818	0.00340	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	3.58	6.29	14.54	0.00190	0.00334	0.00774	PASS
Extreme (50°C)		10.73	8.03	12.71	0.00571	0.00427	0.00676	PASS
Extreme (40°C)		1.91	10.27	16.98	0.00102	0.00546	0.00903	PASS
Extreme (30°C)		5.37	1.89	5.78	0.00286	0.00100	0.00308	PASS
Extreme (20°C)		1.66	4.71	12.26	0.00089	0.00251	0.00652	PASS
Extreme (10°C)		12.51	11.76	3.26	0.00666	0.00626	0.00173	PASS



Extreme (0°C)		4.51	9.83	2.21	0.00240	0.00523	0.00118	PASS
Extreme (-10°C)		1.03	12.95	3.80	0.00055	0.00689	0.00202	PASS
Extreme (-20°C)		11.17	13.34	6.75	0.00594	0.00710	0.00359	PASS
Extreme (-30°C)		12.85	9.21	16.66	0.00684	0.00490	0.00886	PASS
25°C	LV	13.30	16.99	10.27	0.00708	0.00904	0.00547	PASS
	HV	5.82	11.08	14.77	0.00310	0.00590	0.00786	PASS

LTE Band 12								
Condition		Freq. Error	Freq. Error	Freq. Error	Frequency	Frequency	Frequency	Verdict
BANDWIDTH	1.4MHz	(Hz)	(Hz)	(Hz)	Stability (ppm)	Stability (ppm)	Stability (ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	4.87	1.19	6.39	0.00259	0.00063	0.00340	PASS
Extreme (50°C)		14.40	6.52	3.08	0.00766	0.00347	0.00164	PASS
Extreme (40°C)		10.93	13.41	12.78	0.00581	0.00713	0.00680	PASS
Extreme (30°C)		9.98	4.97	3.59	0.00531	0.00264	0.00191	PASS
Extreme (20°C)		4.89	8.56	5.76	0.00260	0.00455	0.00306	PASS
Extreme (10°C)		6.33	9.19	17.63	0.00337	0.00489	0.00938	PASS
Extreme (0°C)		16.86	3.97	2.67	0.00897	0.00211	0.00142	PASS
Extreme (-10°C)		1.79	9.66	9.32	0.00095	0.00514	0.00496	PASS
Extreme (-20°C)		10.10	16.12	3.31	0.00537	0.00857	0.00176	PASS
Extreme (-30°C)		5.20	10.38	11.59	0.00276	0.00552	0.00616	PASS
25°C	LV	2.67	11.76	13.06	0.00142	0.00626	0.00695	PASS
	HV	16.35	17.19	8.40	0.00870	0.00914	0.00447	PASS
Condition		Freq. Error	Freq. Error	Freq. Error	Frequency	Frequency	Frequency	Verdict
BANDWIDTH	3MHz	(Hz)	(Hz)	(Hz)	Stability (ppm)	Stability (ppm)	Stability (ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	13.41	15.60	16.38	0.00714	0.00830	0.00871	PASS
Extreme (50°C)		2.62	14.30	14.85	0.00139	0.00761	0.00790	PASS
Extreme (40°C)		8.16	4.24	4.33	0.00434	0.00226	0.00230	PASS
Extreme (30°C)		4.74	10.65	4.02	0.00252	0.00566	0.00214	PASS
Extreme (20°C)		13.00	11.11	6.69	0.00692	0.00591	0.00356	PASS
Extreme (10°C)		13.69	4.71	16.19	0.00728	0.00251	0.00861	PASS
Extreme (0°C)		14.85	8.79	5.29	0.00790	0.00468	0.00281	PASS
Extreme (-10°C)		6.08	6.74	13.99	0.00323	0.00358	0.00744	PASS
Extreme (-20°C)		5.02	12.10	8.93	0.00267	0.00644	0.00475	PASS
Extreme (-30°C)		14.64	2.59	15.67	0.00779	0.00138	0.00834	PASS
25°C	LV	1.03	13.64	5.20	0.00055	0.00725	0.00277	PASS
	HV	9.97	12.13	17.33	0.00530	0.00645	0.00922	PASS



Condition		Freq. Error (Hz)	Freq. Error (Hz)	Freq. Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	10.78	10.49	1.57	0.00573	0.00558	0.00084	PASS
Extreme (50°C)		4.59	9.35	17.30	0.00244	0.00498	0.00920	PASS
Extreme (40°C)		9.34	6.20	9.13	0.00497	0.00330	0.00485	PASS
Extreme (30°C)		7.22	11.80	12.28	0.00384	0.00627	0.00653	PASS
Extreme (20°C)		3.71	11.90	8.23	0.00197	0.00633	0.00438	PASS
Extreme (10°C)		9.57	16.30	13.06	0.00509	0.00867	0.00695	PASS
Extreme (0°C)		10.32	7.06	9.65	0.00549	0.00375	0.00513	PASS
Extreme (-10°C)		6.39	15.07	9.94	0.00340	0.00801	0.00529	PASS
Extreme (-20°C)		5.47	7.58	5.00	0.00291	0.00403	0.00266	PASS
Extreme (-30°C)		9.63	13.98	1.69	0.00512	0.00744	0.00090	PASS
25°C	LV	13.91	12.77	5.27	0.00740	0.00679	0.00280	PASS
	HV	5.48	1.59	8.04	0.00292	0.00085	0.00428	PASS
Condition		Freq. Error (Hz)	Freq. Error (Hz)	Freq. Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz	(Hz)	(Hz)	(Hz)	(ppm)	(ppm)	(ppm)	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	12.20	12.59	11.17	0.00649	0.00670	0.00594	PASS
Extreme (50°C)		11.14	3.95	3.84	0.00593	0.00210	0.00205	PASS
Extreme (40°C)		12.23	8.44	7.38	0.00650	0.00449	0.00393	PASS
Extreme (30°C)		5.85	3.56	16.43	0.00311	0.00189	0.00874	PASS
Extreme (20°C)		2.34	13.59	11.19	0.00124	0.00723	0.00595	PASS
Extreme (10°C)		7.40	3.57	5.12	0.00393	0.00190	0.00272	PASS
Extreme (0°C)		7.63	5.83	2.07	0.00406	0.00310	0.00110	PASS
Extreme (-10°C)		10.73	6.83	1.56	0.00571	0.00363	0.00083	PASS
Extreme (-20°C)		8.23	10.79	15.47	0.00438	0.00574	0.00823	PASS
Extreme (-30°C)		5.87	9.31	11.80	0.00312	0.00495	0.00628	PASS
25°C	LV	15.24	1.82	17.13	0.00811	0.00097	0.00911	PASS
	HV	12.30	2.64	15.63	0.00654	0.00140	0.00831	PASS



LTE Band 17								
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	1.78	14.60	13.95	0.00095	0.00777	0.00742	PASS
Extreme (50°C)		7.30	8.78	1.15	0.00389	0.00467	0.00061	PASS
Extreme (40°C)		10.12	6.15	2.21	0.00539	0.00327	0.00118	PASS
Extreme (30°C)		17.60	6.79	12.27	0.00936	0.00361	0.00653	PASS
Extreme (20°C)		15.20	4.04	6.30	0.00809	0.00215	0.00335	PASS
Extreme (10°C)		15.52	15.81	16.81	0.00825	0.00841	0.00894	PASS
Extreme (0°C)		7.82	7.19	14.71	0.00416	0.00382	0.00783	PASS
Extreme (-10°C)		9.19	13.07	15.55	0.00489	0.00695	0.00827	PASS
Extreme (-20°C)		3.63	14.58	10.44	0.00193	0.00776	0.00555	PASS
Extreme (-30°C)		9.16	9.11	3.92	0.00487	0.00484	0.00209	PASS
25°C	LV	1.13	7.91	17.20	0.00060	0.00421	0.00915	PASS
	HV	9.72	4.73	10.19	0.00517	0.00251	0.00542	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	16.80	11.44	17.12	0.00894	0.00609	0.00911	PASS
Extreme (50°C)		15.81	11.01	8.10	0.00841	0.00586	0.00431	PASS
Extreme (40°C)		6.33	8.92	9.15	0.00337	0.00474	0.00487	PASS
Extreme (30°C)		7.06	7.08	7.35	0.00376	0.00376	0.00391	PASS
Extreme (20°C)		1.44	14.91	17.36	0.00077	0.00793	0.00924	PASS
Extreme (10°C)		14.07	9.94	9.30	0.00748	0.00529	0.00495	PASS
Extreme (0°C)		11.11	17.72	17.05	0.00591	0.00942	0.00907	PASS
Extreme (-10°C)		1.55	10.85	7.46	0.00083	0.00577	0.00397	PASS
Extreme (-20°C)		10.93	16.89	2.01	0.00582	0.00898	0.00107	PASS
Extreme (-30°C)		8.20	17.18	17.86	0.00436	0.00914	0.00950	PASS
25°C	LV	11.28	16.88	8.63	0.00600	0.00898	0.00459	PASS
	HV	13.27	15.88	7.22	0.00706	0.00845	0.00384	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	17.38	13.96	5.79	0.00924	0.00743	0.00308	PASS
Extreme (50°C)		17.66	5.90	14.39	0.00939	0.00314	0.00765	PASS
Extreme (40°C)		6.34	7.50	15.86	0.00337	0.00399	0.00844	PASS
Extreme (30°C)		7.16	1.06	17.48	0.00381	0.00056	0.00930	PASS
Extreme (20°C)		9.17	12.39	3.00	0.00488	0.00659	0.00159	PASS
Extreme (10°C)		1.48	4.31	14.61	0.00079	0.00229	0.00777	PASS
Extreme (0°C)		12.53	6.24	7.76	0.00666	0.00332	0.00413	PASS
Extreme (-10°C)		14.39	13.84	1.71	0.00766	0.00736	0.00091	PASS
Extreme (-20°C)		17.60	13.24	13.03	0.00936	0.00704	0.00693	PASS
Extreme (-30°C)		16.94	11.01	3.66	0.00901	0.00586	0.00195	PASS
25°C	LV	17.77	13.66	16.75	0.00945	0.00727	0.00891	PASS
	HV	8.04	10.71	1.84	0.00427	0.00570	0.00098	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	4.45	9.48	8.36	0.00237	0.00504	0.00445	PASS
Extreme (50°C)		7.26	9.42	7.77	0.00386	0.00501	0.00413	PASS
Extreme (40°C)		5.04	12.36	10.86	0.00268	0.00657	0.00578	PASS
Extreme (30°C)		2.82	16.79	5.44	0.00150	0.00893	0.00289	PASS
Extreme (20°C)		1.70	2.71	17.55	0.00091	0.00144	0.00934	PASS
Extreme (10°C)		12.84	8.68	16.34	0.00683	0.00462	0.00869	PASS
Extreme (0°C)		10.42	8.11	4.66	0.00554	0.00431	0.00248	PASS
Extreme (-10°C)		17.91	14.12	6.51	0.00953	0.00751	0.00347	PASS
Extreme (-20°C)		12.08	8.62	14.24	0.00643	0.00459	0.00757	PASS
Extreme (-30°C)		11.83	13.01	5.28	0.00629	0.00692	0.00281	PASS
25°C	LV	1.80	8.59	11.40	0.00096	0.00457	0.00607	PASS
	HV	6.56	2.60	5.72	0.00349	0.00138	0.00304	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	17.87	1.97	9.89	0.00950	0.00105	0.00526	PASS
Extreme (50°C)		14.91	8.88	17.28	0.00793	0.00472	0.00919	PASS
Extreme (40°C)		4.72	17.82	16.95	0.00251	0.00948	0.00902	PASS





Extreme (30°C)		12.47	14.09	5.36	0.00663	0.00750	0.00285	PASS
Extreme (20°C)		14.65	9.02	11.20	0.00779	0.00480	0.00596	PASS
Extreme (10°C)		3.24	11.03	5.07	0.00172	0.00586	0.00270	PASS
Extreme (0°C)		6.92	4.35	16.00	0.00368	0.00231	0.00851	PASS
Extreme (-10°C)		5.72	15.04	2.30	0.00304	0.00800	0.00122	PASS
Extreme (-20°C)		4.75	12.96	10.70	0.00253	0.00689	0.00569	PASS
Extreme (-30°C)		16.00	17.36	1.24	0.00851	0.00924	0.00066	PASS
25°C	LV	12.28	8.99	15.00	0.00653	0.00478	0.00798	PASS
	HV	1.58	4.34	5.41	0.00084	0.00231	0.00288	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	6.74	3.68	12.37	0.00359	0.00196	0.00658	
Extreme (50°C)		5.69	16.64	2.10	0.00303	0.00885	0.00111	PASS
Extreme (40°C)		5.23	14.24	4.62	0.00278	0.00758	0.00246	PASS
Extreme (30°C)		11.08	15.58	15.01	0.00589	0.00829	0.00798	PASS
Extreme (20°C)		17.22	5.03	8.54	0.00916	0.00268	0.00454	PASS
Extreme (10°C)		11.92	15.88	6.78	0.00634	0.00844	0.00361	PASS
Extreme (0°C)		9.46	12.54	12.78	0.00503	0.00667	0.00680	PASS
Extreme (-10°C)		7.11	16.88	2.35	0.00378	0.00898	0.00125	PASS
Extreme (-20°C)		4.34	11.35	6.01	0.00231	0.00604	0.00320	PASS
Extreme (-30°C)		6.65	5.94	6.38	0.00354	0.00316	0.00340	PASS
25°C	LV	11.20	17.23	1.75	0.00595	0.00917	0.00093	PASS
	HV	17.02	3.80	9.17	0.00905	0.00202	0.00488	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	6.18	1.09	13.54	0.00328	0.00058	0.00720	
Extreme (50°C)		17.68	13.77	6.26	0.00940	0.00733	0.00333	PASS
Extreme (40°C)		11.21	8.79	1.71	0.00596	0.00468	0.00091	PASS
Extreme (30°C)		3.27	6.76	9.06	0.00174	0.00359	0.00482	PASS
Extreme (20°C)		13.36	11.76	10.30	0.00711	0.00625	0.00548	PASS
Extreme (10°C)		9.88	3.45	4.58	0.00526	0.00183	0.00244	PASS
Extreme (0°C)		1.52	11.19	14.90	0.00081	0.00595	0.00792	PASS
Extreme (-10°C)		9.66	13.55	4.82	0.00514	0.00721	0.00257	PASS



Extreme (-20°C)		4.34	6.20	17.09	0.00231	0.00330	0.00909	PASS
Extreme (-30°C)		14.41	1.76	9.64	0.00766	0.00094	0.00513	PASS
25°C	LV	12.44	13.98	12.93	0.00662	0.00744	0.00688	PASS
	HV	13.94	2.00	2.60	0.00742	0.00106	0.00138	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	6.93	7.01	3.10	0.00369	0.00373	0.00165	PASS
Extreme (50°C)		12.60	14.37	2.41	0.00670	0.00764	0.00128	PASS
Extreme (40°C)		4.06	8.42	10.72	0.00216	0.00448	0.00570	PASS
Extreme (30°C)		2.34	14.54	8.99	0.00125	0.00773	0.00478	PASS
Extreme (20°C)		13.66	6.48	1.62	0.00727	0.00344	0.00086	PASS
Extreme (10°C)		2.08	8.66	6.20	0.00110	0.00461	0.00330	PASS
Extreme (0°C)		11.91	6.49	12.45	0.00633	0.00345	0.00662	PASS
Extreme (-10°C)		14.46	2.39	2.35	0.00769	0.00127	0.00125	PASS
Extreme (-20°C)		12.16	17.17	2.14	0.00647	0.00913	0.00114	PASS
Extreme (-30°C)		3.45	13.92	1.81	0.00183	0.00740	0.00096	PASS
25°C		LV	17.54	2.70	16.71	0.00933	0.00144	0.00889
	HV	1.61	6.04	11.87	0.00086	0.00322	0.00631	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	13.18	11.57	3.82	0.00701	0.00615	0.00203	PASS
Extreme (50°C)		3.03	2.04	17.40	0.00161	0.00109	0.00925	PASS
Extreme (40°C)		4.21	1.06	6.95	0.00224	0.00056	0.00370	PASS
Extreme (30°C)		1.68	3.89	6.44	0.00090	0.00207	0.00342	PASS
Extreme (20°C)		4.38	4.39	6.34	0.00233	0.00234	0.00337	PASS
Extreme (10°C)		10.84	4.50	3.73	0.00577	0.00239	0.00198	PASS
Extreme (0°C)		15.93	15.76	1.83	0.00847	0.00838	0.00097	PASS
Extreme (-10°C)		8.74	14.10	16.02	0.00465	0.00750	0.00852	PASS
Extreme (-20°C)		16.79	13.42	7.10	0.00893	0.00714	0.00378	PASS
Extreme (-30°C)		4.56	7.58	9.17	0.00243	0.00403	0.00488	PASS
25°C		LV	2.74	11.65	6.80	0.00146	0.00620	0.00362
	HV	16.42	16.57	6.00	0.00874	0.00881	0.00319	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	3.15	8.26	6.98	0.00167	0.00440	0.00371	PASS



Extreme (50°C)		16.25	16.33	11.74	0.00864	0.00868	0.00624	PASS
Extreme (40°C)		4.40	2.75	9.24	0.00234	0.00146	0.00492	PASS
Extreme (30°C)		11.47	6.82	9.67	0.00610	0.00363	0.00515	PASS
Extreme (20°C)		4.17	1.23	13.98	0.00222	0.00066	0.00744	PASS
Extreme (10°C)		17.65	17.56	9.93	0.00939	0.00934	0.00528	PASS
Extreme (0°C)		12.06	5.92	16.94	0.00642	0.00315	0.00901	PASS
Extreme (-10°C)		5.20	4.25	5.17	0.00277	0.00226	0.00275	PASS
Extreme (-20°C)		6.46	13.63	3.48	0.00344	0.00725	0.00185	PASS
Extreme (-30°C)		2.37	5.50	1.37	0.00126	0.00292	0.00073	PASS
25°C	LV	13.93	7.86	16.64	0.00741	0.00418	0.00885	PASS
	HV	13.90	4.95	3.76	0.00739	0.00263	0.00200	PASS

LTE Band 66								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.65	3.92	2.45	0.00886	0.00208	0.00130	PASS
Extreme (50°C)		2.48	8.57	16.37	0.00132	0.00456	0.00871	PASS
Extreme (40°C)		15.37	13.10	6.94	0.00817	0.00697	0.00369	PASS
Extreme (30°C)		6.21	10.24	2.13	0.00330	0.00545	0.00113	PASS
Extreme (20°C)		2.34	17.15	4.54	0.00124	0.00912	0.00242	PASS
Extreme (10°C)		2.07	11.95	17.62	0.00110	0.00636	0.00937	PASS
Extreme (0°C)		8.34	16.70	12.37	0.00444	0.00888	0.00658	PASS
Extreme (-10°C)		8.70	5.24	4.45	0.00463	0.00279	0.00237	PASS
Extreme (-20°C)		14.34	10.50	7.84	0.00763	0.00559	0.00417	PASS
Extreme (-30°C)		7.51	12.32	5.75	0.00400	0.00656	0.00306	PASS
25°C	LV	16.53	9.81	1.41	0.00879	0.00522	0.00075	PASS
	HV	11.54	3.21	13.06	0.00614	0.00171	0.00695	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	1.94	1.36	17.71	0.00103	0.00072	0.00942	PASS
Extreme (50°C)		15.96	3.22	7.48	0.00849	0.00171	0.00398	PASS
Extreme (40°C)		2.28	8.06	13.45	0.00121	0.00429	0.00715	PASS
Extreme (30°C)		9.15	8.40	1.01	0.00487	0.00447	0.00054	PASS
Extreme (20°C)		15.59	4.42	1.39	0.00829	0.00235	0.00074	PASS
Extreme (10°C)		5.84	7.42	17.40	0.00311	0.00395	0.00926	PASS
Extreme (0°C)		9.96	6.92	10.39	0.00530	0.00368	0.00553	PASS



Extreme (-10°C)		3.54	5.38	3.76	0.00188	0.00286	0.00200	PASS
Extreme (-20°C)		2.54	14.91	7.73	0.00135	0.00793	0.00411	PASS
Extreme (-30°C)		7.37	14.56	13.62	0.00392	0.00775	0.00724	PASS
25°C	LV	17.39	8.67	17.04	0.00925	0.00461	0.00906	PASS
	HV	17.63	2.41	13.00	0.00938	0.00128	0.00692	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	10.76	12.51	8.06	0.00572	0.00666	0.00429	PASS
Extreme (50°C)		13.89	9.07	3.72	0.00739	0.00482	0.00198	PASS
Extreme (40°C)		11.64	4.81	16.44	0.00619	0.00256	0.00874	PASS
Extreme (30°C)		13.07	6.74	2.90	0.00695	0.00358	0.00154	PASS
Extreme (20°C)		15.18	10.99	9.86	0.00807	0.00585	0.00524	PASS
Extreme (10°C)		14.24	4.16	5.59	0.00757	0.00221	0.00297	PASS
Extreme (0°C)		16.14	9.26	17.78	0.00858	0.00493	0.00946	PASS
Extreme (-10°C)		16.31	13.44	15.57	0.00867	0.00715	0.00828	PASS
Extreme (-20°C)		1.51	1.15	4.30	0.00080	0.00061	0.00229	PASS
Extreme (-30°C)		10.72	10.03	4.73	0.00570	0.00534	0.00252	PASS
25°C	LV	2.88	3.36	2.90	0.00153	0.00179	0.00155	PASS
	HV	7.44	4.75	15.84	0.00396	0.00253	0.00842	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	3.71	4.22	14.23	0.00197	0.00224	0.00757	PASS
Extreme (50°C)		10.14	13.82	13.28	0.00539	0.00735	0.00706	PASS
Extreme (40°C)		14.17	9.69	11.33	0.00754	0.00516	0.00602	PASS
Extreme (30°C)		16.85	9.37	5.92	0.00896	0.00498	0.00315	PASS
Extreme (20°C)		11.43	7.76	2.08	0.00608	0.00413	0.00111	PASS
Extreme (10°C)		15.13	17.06	2.89	0.00805	0.00908	0.00154	PASS
Extreme (0°C)		14.55	2.14	13.52	0.00774	0.00114	0.00719	PASS
Extreme (-10°C)		17.07	17.80	10.68	0.00908	0.00947	0.00568	PASS
Extreme (-20°C)		15.93	1.01	2.38	0.00847	0.00054	0.00127	PASS
Extreme (-30°C)		13.48	15.24	16.98	0.00717	0.00811	0.00903	PASS
25°C	LV	7.53	2.19	10.30	0.00401	0.00117	0.00548	PASS
	HV	12.63	8.15	11.12	0.00672	0.00433	0.00592	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	8.95	14.70	10.50	0.00476	0.00782	0.00558	PASS
Extreme (50°C)		13.20	8.00	15.28	0.00702	0.00426	0.00813	PASS
Extreme (40°C)		15.94	6.36	13.34	0.00848	0.00338	0.00709	PASS
Extreme (30°C)		17.75	10.75	6.79	0.00944	0.00572	0.00361	PASS
Extreme (20°C)		16.18	5.46	9.61	0.00861	0.00290	0.00511	PASS
Extreme (10°C)		2.48	7.60	17.62	0.00132	0.00404	0.00937	PASS
Extreme (0°C)		15.85	10.22	15.37	0.00843	0.00544	0.00818	PASS
Extreme (-10°C)		7.55	17.05	12.46	0.00402	0.00907	0.00663	PASS
Extreme (-20°C)		1.48	2.21	1.62	0.00079	0.00118	0.00086	PASS
Extreme (-30°C)		1.70	3.40	9.33	0.00090	0.00181	0.00496	PASS
25°C	LV	11.55	13.73	5.41	0.00614	0.00730	0.00288	PASS
	HV	17.97	8.89	9.48	0.00956	0.00473	0.00504	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	12.83	5.85	12.16	0.00683	0.00311	0.00647	
Extreme (50°C)		14.38	17.38	3.25	0.00765	0.00925	0.00173	
Extreme (40°C)		2.54	1.42	9.43	0.00135	0.00075	0.00502	
Extreme (30°C)		10.50	10.17	15.97	0.00559	0.00541	0.00850	
Extreme (20°C)		16.50	16.43	7.71	0.00877	0.00874	0.00410	
Extreme (10°C)		7.48	5.74	11.99	0.00398	0.00306	0.00638	
Extreme (0°C)		4.40	14.46	7.01	0.00234	0.00769	0.00373	
Extreme (-10°C)		13.61	2.56	11.67	0.00724	0.00136	0.00621	
Extreme (-20°C)		16.85	11.64	9.20	0.00896	0.00619	0.00489	
Extreme (-30°C)		14.25	2.73	9.51	0.00758	0.00145	0.00506	
25°C	LV	3.45	5.25	2.28	0.00184	0.00279	0.00121	
	HV	7.67	12.73	7.88	0.00408	0.00677	0.00419	



CA_7C_QPSK		20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Extreme (25°C)		6.43	0.00342	1.45	0.00077	PASS
Extreme (50°C)		10.24	0.00545	14.01	0.00745	PASS
Extreme (40°C)		7.79	0.00414	11.19	0.00595	PASS
Extreme (30°C)		8.10	0.00431	10.41	0.00554	PASS
Extreme (20°C)		17.06	0.00907	7.24	0.00385	PASS
Extreme (10°C)		2.35	0.00125	16.07	0.00855	PASS
Extreme (0°C)		10.94	0.00582	6.74	0.00358	PASS
Extreme (-10°C)		15.57	0.00828	10.07	0.00536	PASS
Extreme (-20°C)		13.61	0.00724	17.72	0.00943	PASS
Extreme (-30°C)		3.94	0.00209	12.58	0.00669	PASS
25°C	LV	11.24	0.00598	14.40	0.00766	PASS
	HV	12.37	0.00658	8.74	0.00465	PASS
CA_7C_16QAM		20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Extreme (25°C)		1.55	0.00082	8.45	0.00450	PASS
Extreme (50°C)		13.83	0.00736	15.42	0.00820	PASS
Extreme (40°C)		12.34	0.00657	7.98	0.00424	PASS
Extreme (30°C)		14.20	0.00755	15.86	0.00843	PASS
Extreme (20°C)		12.31	0.00655	15.80	0.00840	PASS
Extreme (10°C)		8.06	0.00429	16.14	0.00859	PASS
Extreme (0°C)		7.58	0.00403	4.98	0.00265	PASS
Extreme (-10°C)		10.01	0.00532	7.80	0.00415	PASS
Extreme (-20°C)		11.44	0.00608	11.44	0.00608	PASS
Extreme (-30°C)		14.93	0.00794	6.67	0.00355	PASS
25°C	LV	4.92	0.00262	10.21	0.00543	PASS
	HV	14.28	0.00760	12.36	0.00657	PASS
CA_7C_64QAM		20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Extreme (25°C)		10.53	0.00560	10.67	0.00568	PASS
Extreme (50°C)		3.90	0.00208	16.27	0.00865	PASS
Extreme (40°C)		1.18	0.00063	15.10	0.00803	PASS



Extreme (30°C)		8.19	0.00436	16.77	0.00892	PASS
Extreme (20°C)		6.68	0.00355	2.64	0.00141	PASS
Extreme (10°C)		13.61	0.00724	6.43	0.00342	PASS
Extreme (0°C)		11.99	0.00638	10.77	0.00573	PASS
Extreme (-10°C)		7.97	0.00424	7.65	0.00407	PASS
Extreme (-20°C)		17.53	0.00932	5.83	0.00310	PASS
Extreme (-30°C)		1.43	0.00076	13.53	0.00720	PASS
25°C	LV	16.99	0.00904	10.68	0.00568	PASS
	HV	8.91	0.00474	7.56	0.00402	PASS

CA_41C_QPSK		20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Extreme (25°C)		14.00	0.00745	4.00	0.00213	PASS
Extreme (50°C)		8.00	0.00426	11.00	0.00585	PASS
Extreme (40°C)		8.00	0.00426	17.00	0.00904	PASS
Extreme (30°C)		11.00	0.00585	10.00	0.00532	PASS
Extreme (20°C)		3.00	0.00160	3.00	0.00160	PASS
Extreme (10°C)		2.00	0.00106	4.00	0.00213	PASS
Extreme (0°C)		2.00	0.00106	10.00	0.00532	PASS
Extreme (-10°C)		2.00	0.00106	5.00	0.00266	PASS
Extreme (-20°C)		1.00	0.00053	6.00	0.00319	PASS
Extreme (-30°C)		10.00	0.00532	12.00	0.00638	PASS
25°C	LV	14.00	0.00745	14.00	0.00745	PASS
	HV	10.00	0.00532	11.00	0.00585	PASS
CA_41C_16QAM		20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition		Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage					
Extreme (25°C)		6.00	0.00319	14.00	0.00745	PASS
Extreme (50°C)		7.00	0.00372	17.00	0.00904	PASS
Extreme (40°C)		16.00	0.00851	12.00	0.00638	PASS
Extreme (30°C)		13.00	0.00691	16.00	0.00851	PASS
Extreme (20°C)		12.00	0.00638	1.00	0.00053	PASS
Extreme (10°C)		11.00	0.00585	3.00	0.00160	PASS
Extreme (0°C)		15.00	0.00798	4.00	0.00213	PASS
Extreme (-10°C)		7.00	0.00372	8.00	0.00426	PASS
Extreme (-20°C)		11.00	0.00585	6.00	0.00319	PASS
Extreme (-30°C)		11.00	0.00585	9.00	0.00479	PASS



25°C		LV	12.00	0.00638	9.00	0.00479	PASS
		HV	17.00	0.00904	4.00	0.00213	PASS
CA_41C_64QAM			20MHz+10MHz (Bandwidth)		20MHz+20MHz (Bandwidth)		Verdict
Condition			Delta (Hz)	Frequency Stability (ppm)	Delta (Hz)	Frequency Stability (ppm)	
Temperature	Voltage						
Extreme (25°C)			2.00	0.00106	10.00	0.00532	PASS
Extreme (50°C)			15.00	0.00798	2.00	0.00106	PASS
Extreme (40°C)			3.00	0.00160	5.00	0.00266	PASS
Extreme (30°C)			7.00	0.00372	1.00	0.00053	PASS
Extreme (20°C)			7.00	0.00372	14.00	0.00745	PASS
Extreme (10°C)			4.00	0.00213	12.00	0.00638	PASS
Extreme (0°C)			9.00	0.00479	11.00	0.00585	PASS
Extreme (-10°C)			11.00	0.00585	15.00	0.00798	PASS
Extreme (-20°C)			5.00	0.00266	7.00	0.00372	PASS
Extreme (-30°C)			11.00	0.00585	8.00	0.00426	PASS
25°C		LV	14.00	0.00745	12.00	0.00638	PASS
		HV	17.00	0.00904	4.00	0.00213	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)

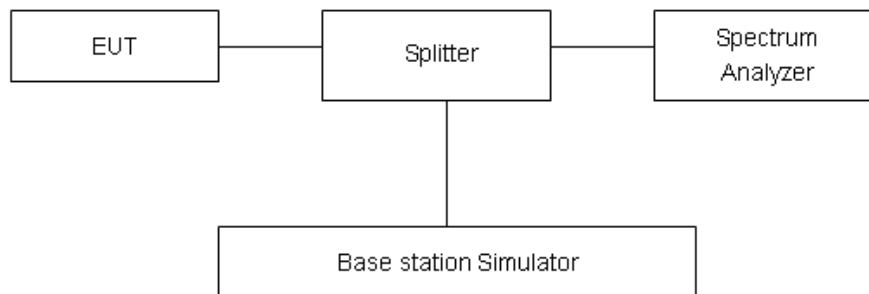
RBW is set to 100 kHz (30MHz~1000 MHz)

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 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least



30 kHz may be employed.

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

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

### Measurement Uncertainty

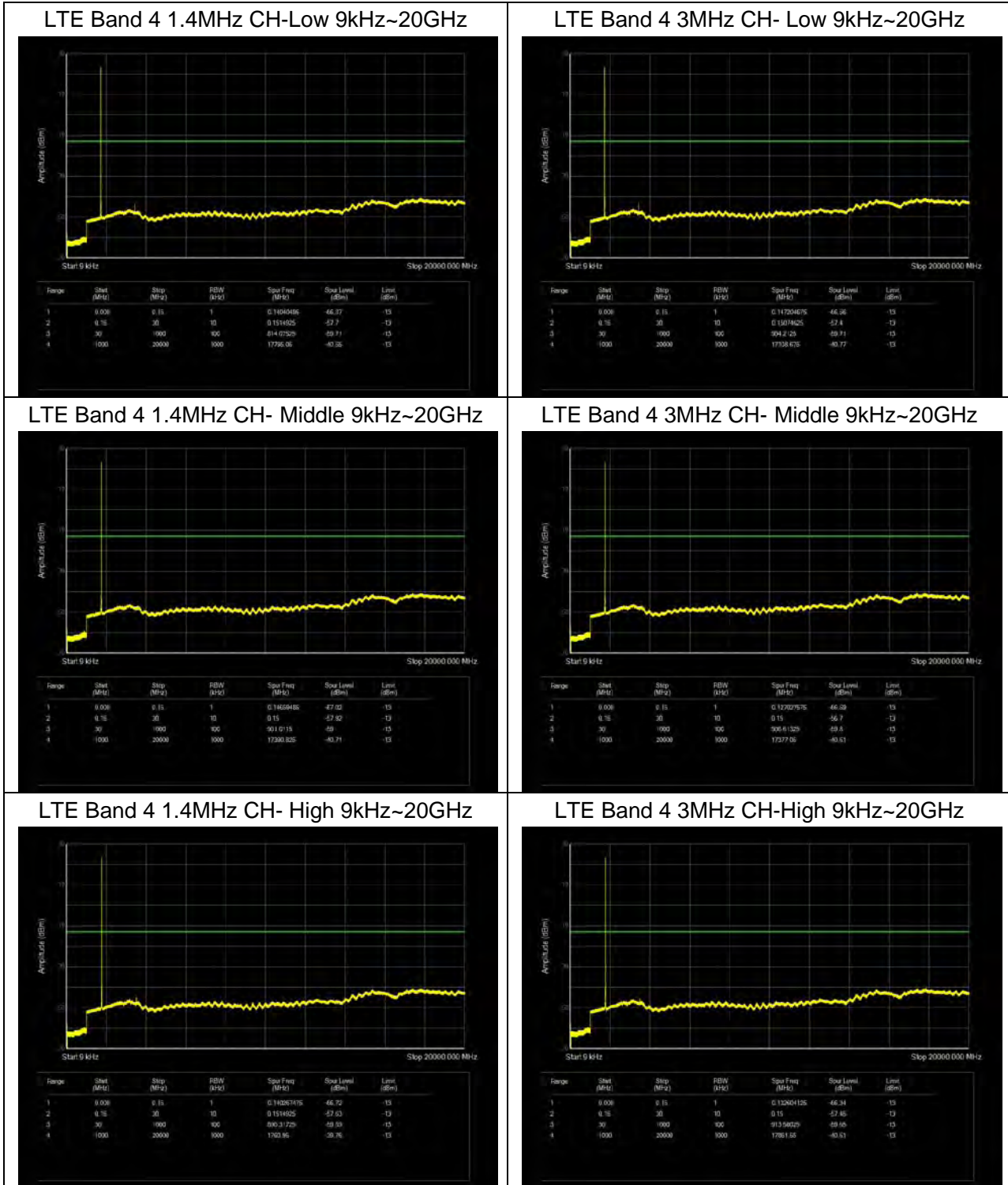
The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

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

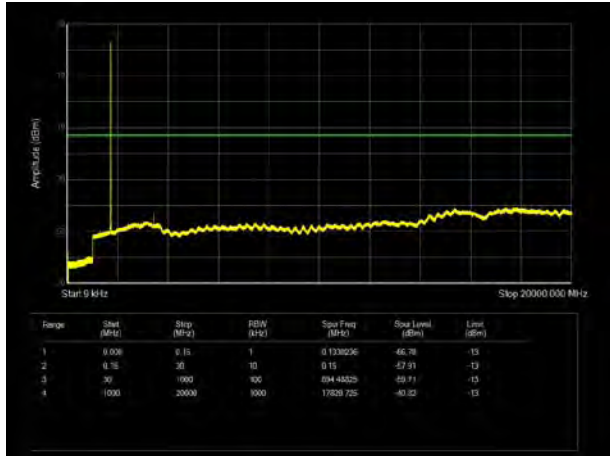
### Test Result

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

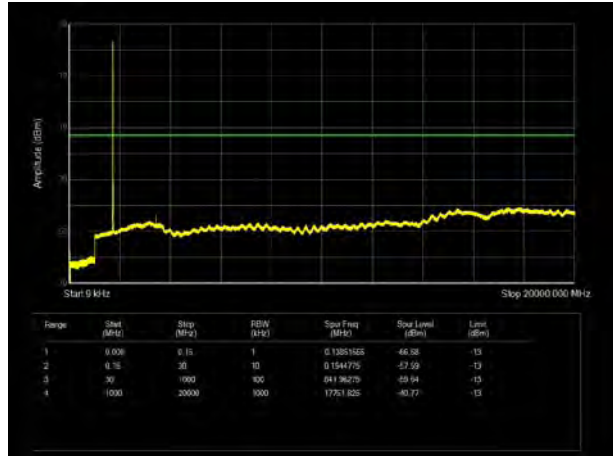
The signal beyond the limit is carrier.



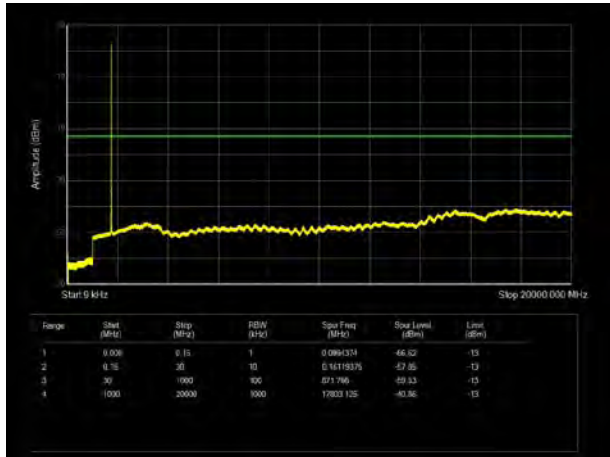
LTE Band 4 5MHz CH-Low 9kHz~20GHz



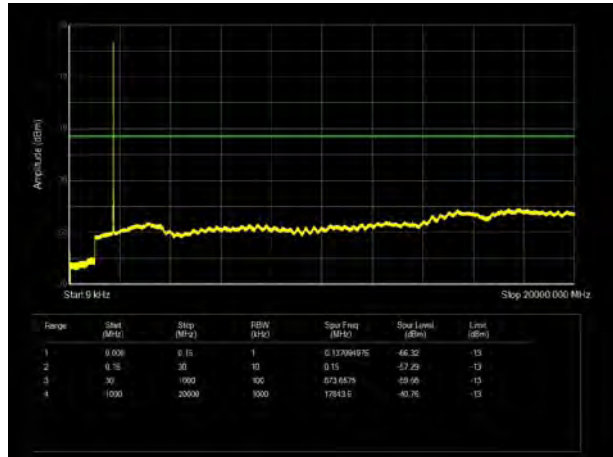
LTE Band 4 10MHz CH- Low 9kHz~20GHz



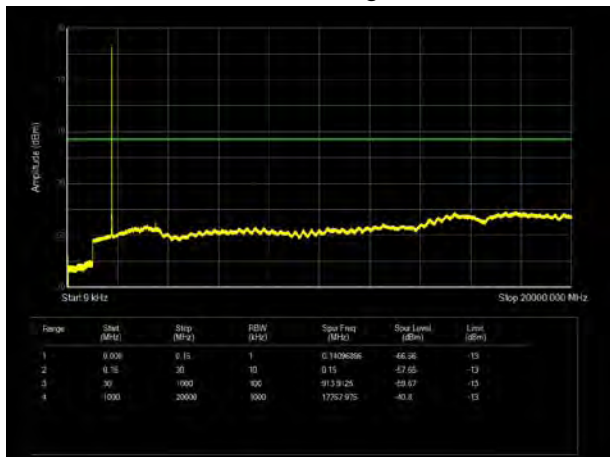
LTE Band 4 5MHz CH- Middle 9kHz~20GHz



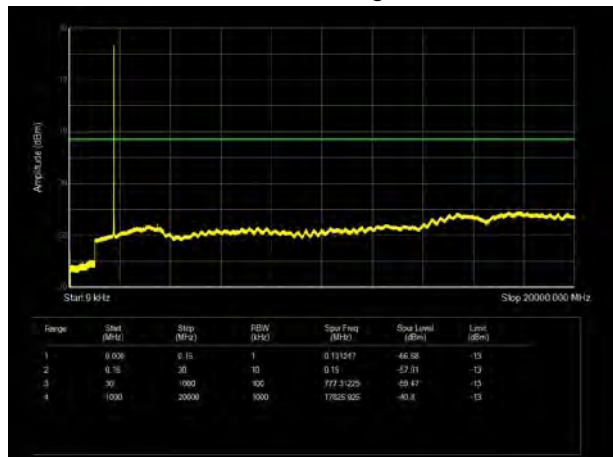
LTE Band 4 10MHz CH- Middle 9kHz~20GHz



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

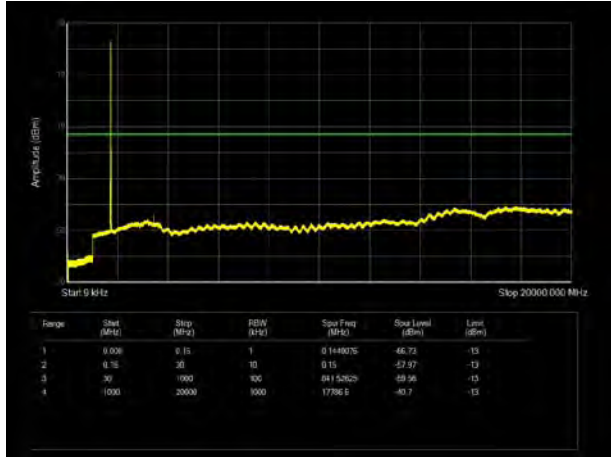


LTE Band 4 10MHz CH-High 9kHz~20GHz

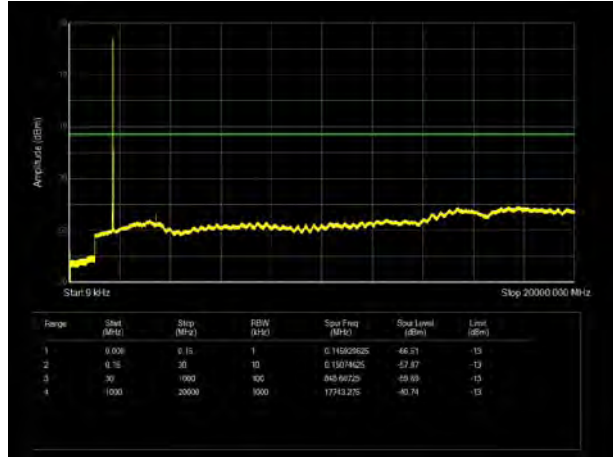




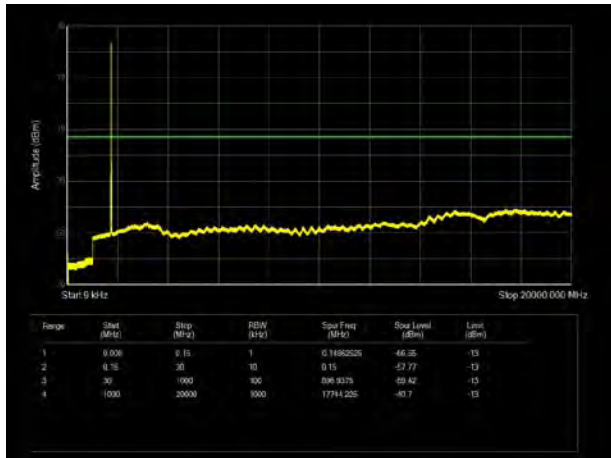
LTE Band 4 15MHz CH- Low 9kHz~20GHz



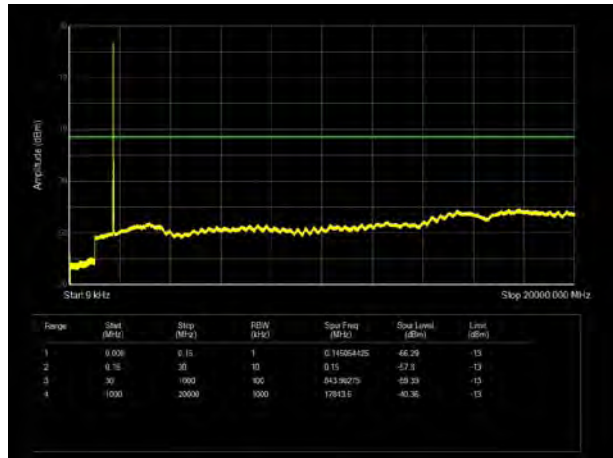
LTE Band 4 20MHz CH-Low 9kHz~20GHz



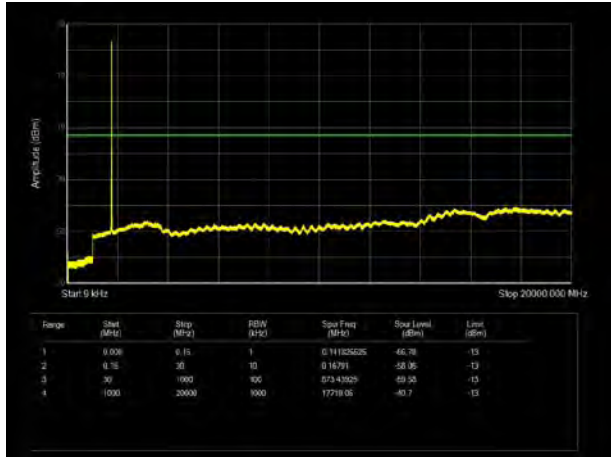
LTE Band 4 15MHz CH- Middle 9kHz~20GHz



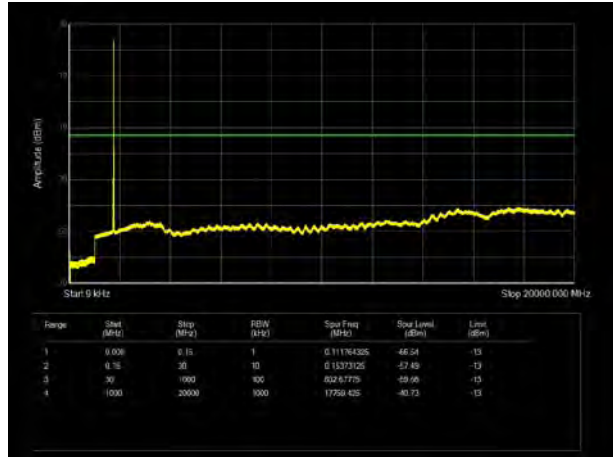
LTE Band 4 20MHz CH- Middle 9kHz~20GHz



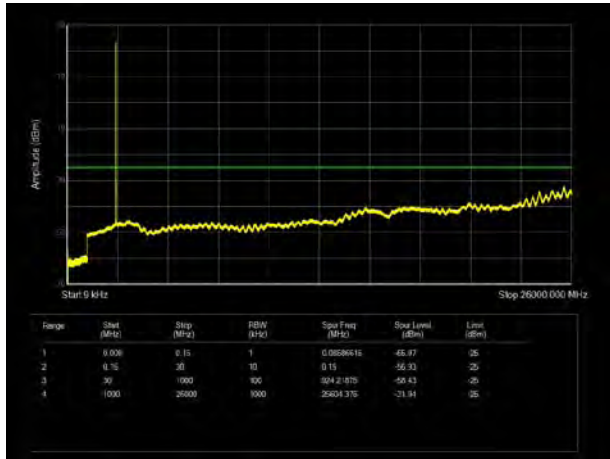
LTE Band 4 15MHz CH-High 9kHz~20GHz



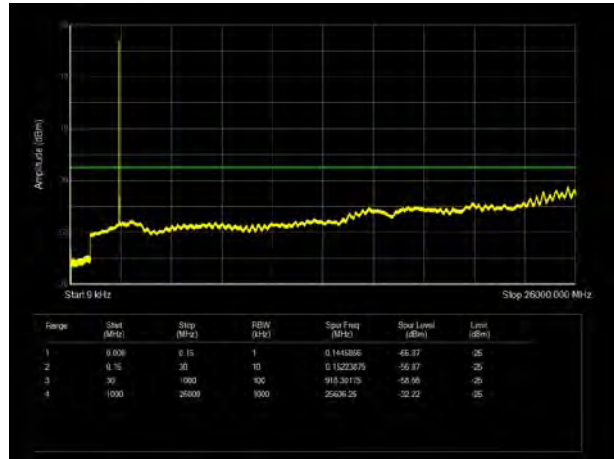
LTE Band 4 20MHz CH- High 9kHz~20GHz



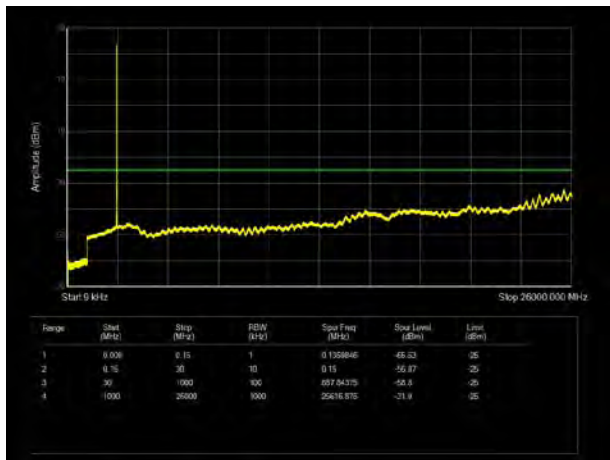
LTE Band 7 5MHz CH-Low 9kHz~26GHz



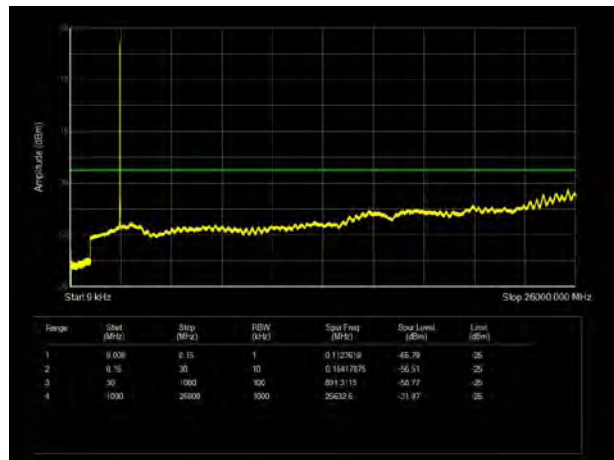
LTE Band 7 10MHz CH- Low 9kHz~26GHz



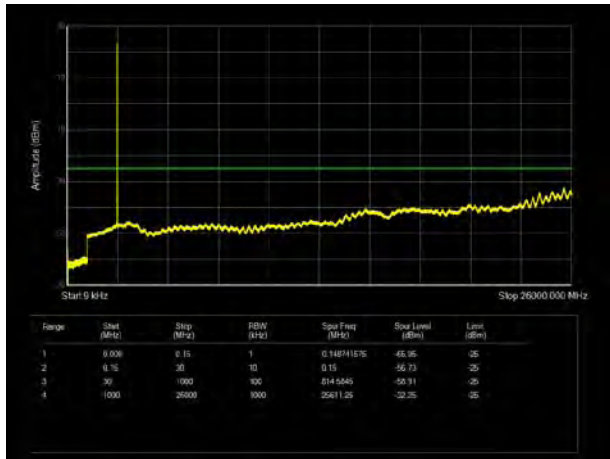
LTE Band 7 5MHz CH- Middle 9kHz~20GHz



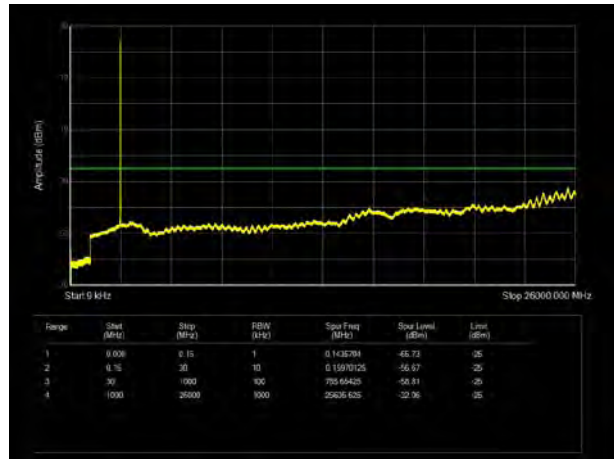
LTE Band 7 10MHz CH- Middle 9kHz~20GHz



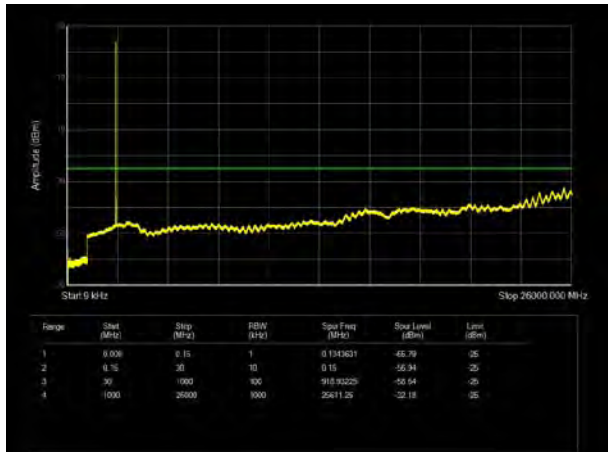
LTE Band 7 5MHz CH- High 9kHz~26GHz



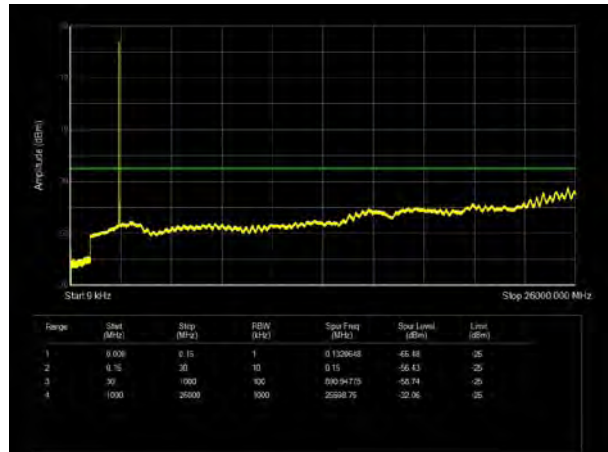
LTE Band 7 10MHz CH-High 9kHz~26GHz



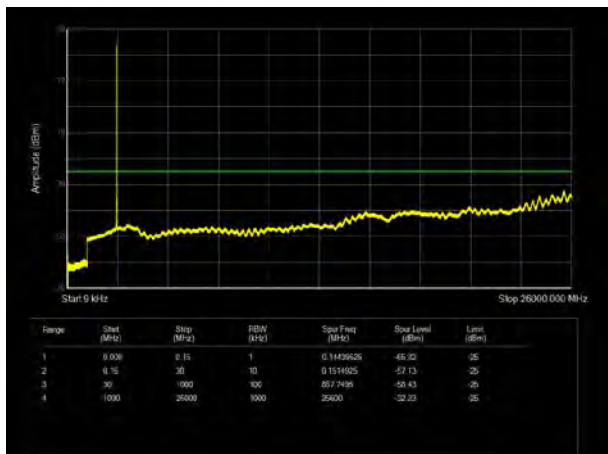
LTE Band 7 15MHz CH- Low 9kHz~26GHz



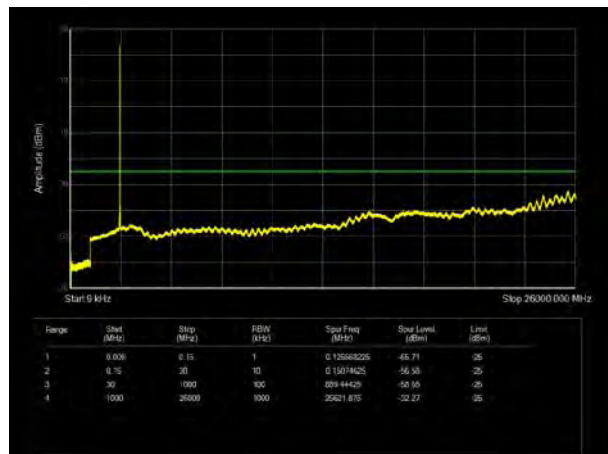
LTE Band 7 20MHz CH-Low 9kHz~26GHz



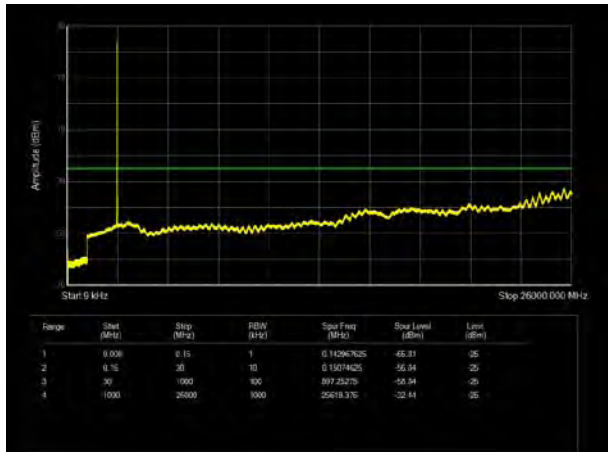
LTE Band 7 15MHz CH- Middle 9kHz~26GHz



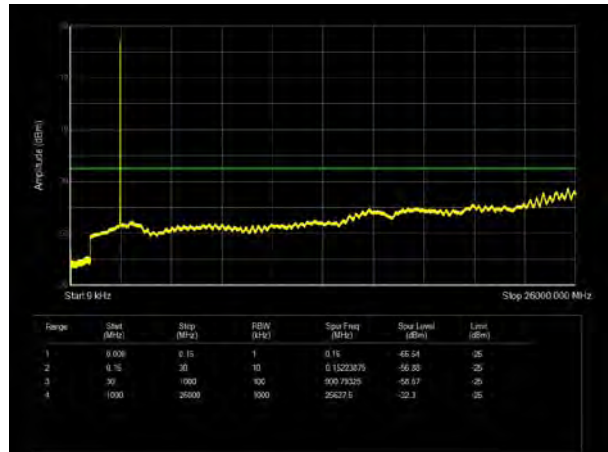
LTE Band 7 20MHz CH- Middle 9kHz~26GHz



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

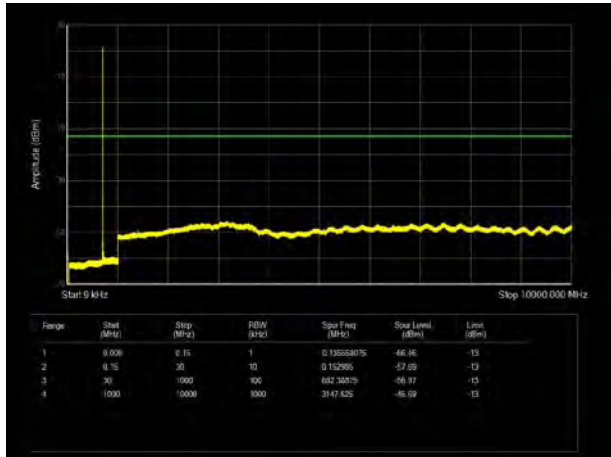


LTE Band 7 20MHz CH- High 9kHz~26GHz

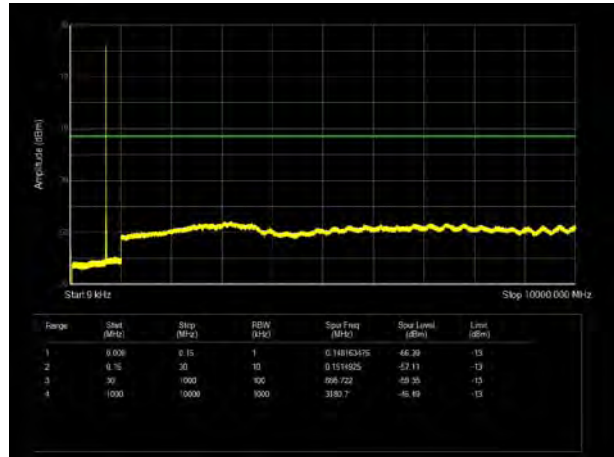




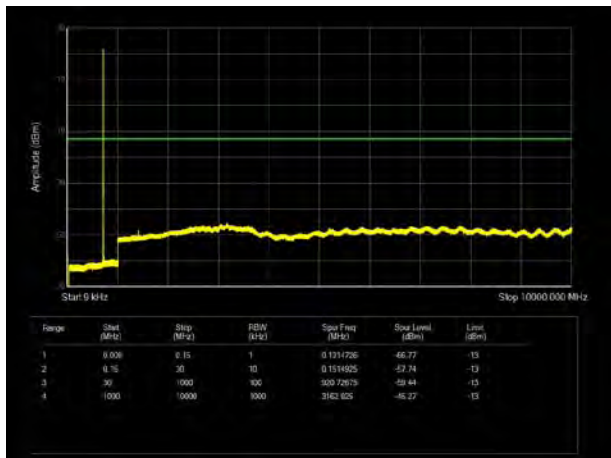
LTE Band 12 1.4MHz CH-Low 9kHz~10GHz



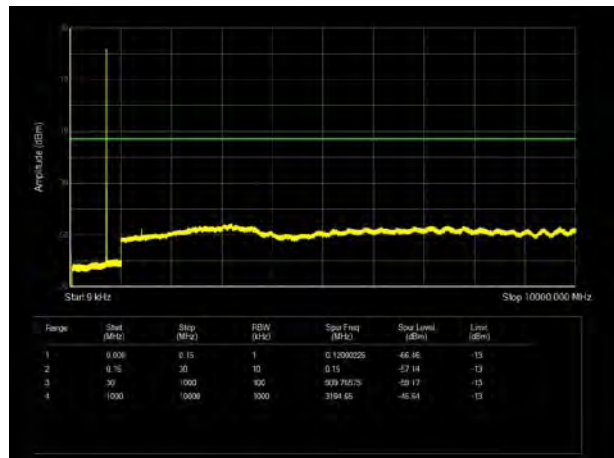
LTE Band 12 3MHz CH- Low 9kHz~10GHz



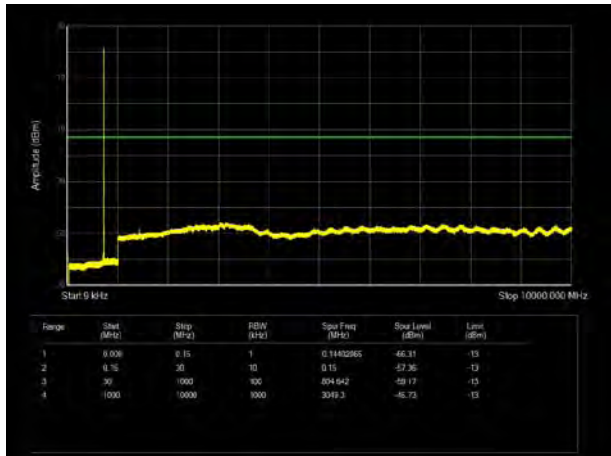
LTE Band 12 1.4MHz CH- Middle 9kHz~10GHz



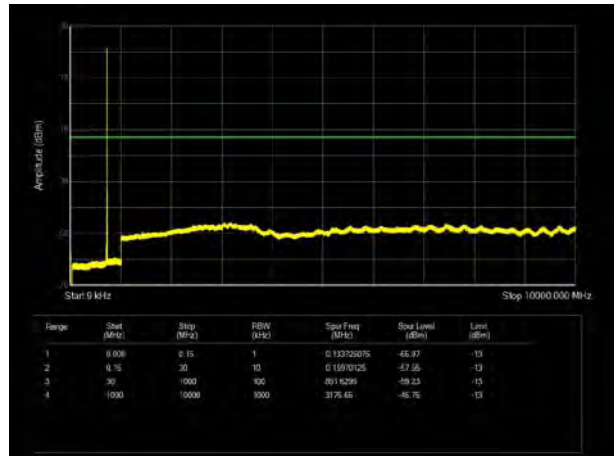
LTE Band 12 3MHz CH- Middle 9kHz~10GHz



LTE Band 12 1.4MHz CH- High 9kHz~10GHz



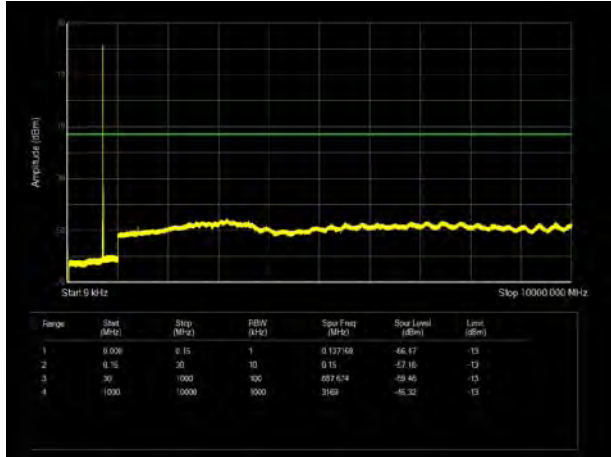
LTE Band 12 3MHz CH-High 9kHz~10GHz



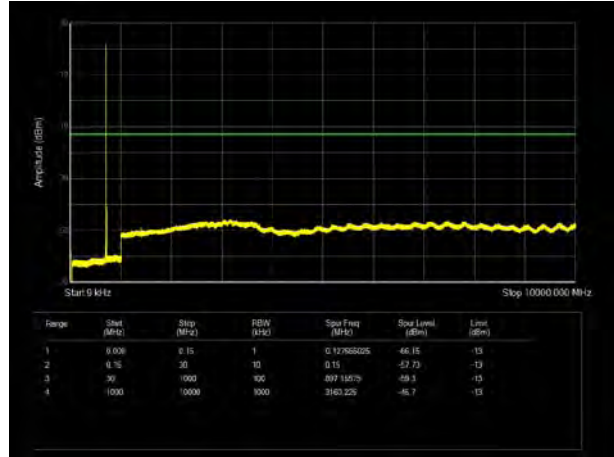




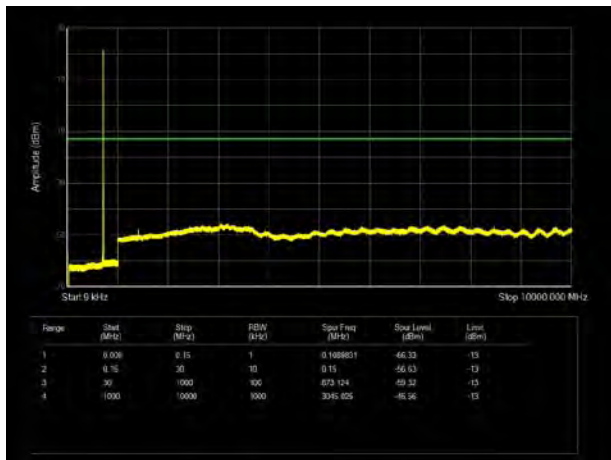
LTE Band 12 5MHz CH-Low 9kHz~10GHz



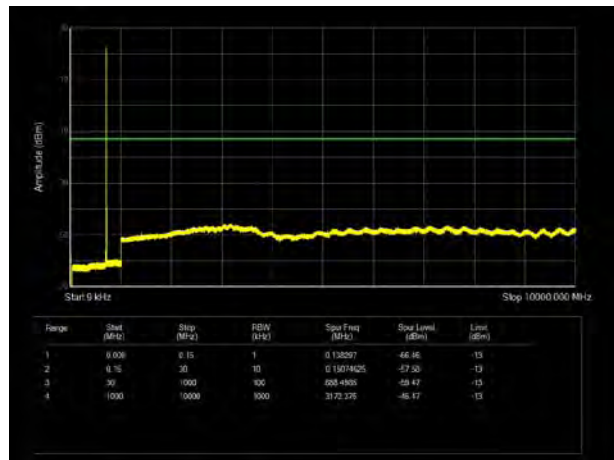
LTE Band 12 10MHz CH- Low 9kHz~10GHz



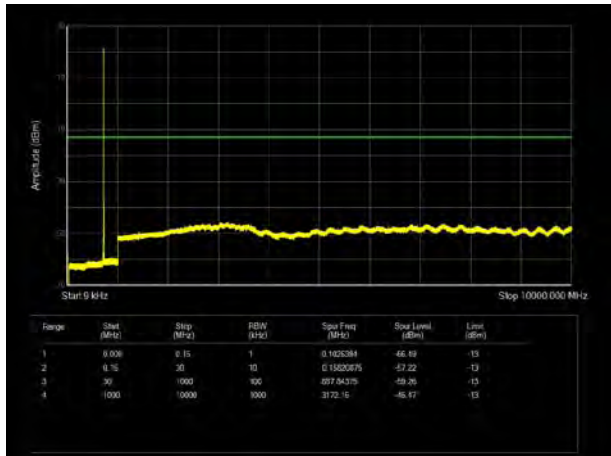
LTE Band 7 12 5MHz CH- Middle 9kHz~10GHz



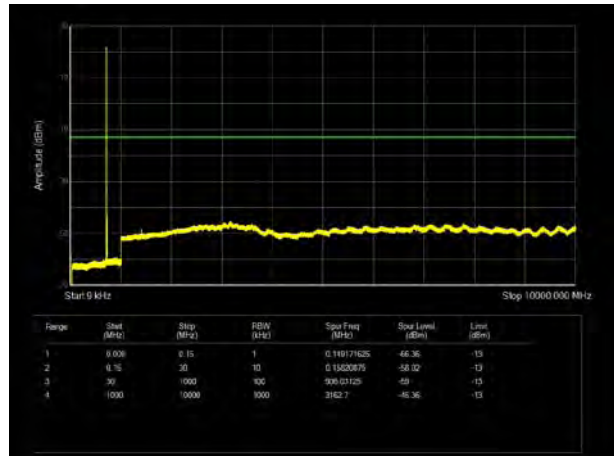
LTE Band 12 10MHz CH- Middle 9kHz~10GHz



LTE Band 12 5MHz CH- High 9kHz~10GHz

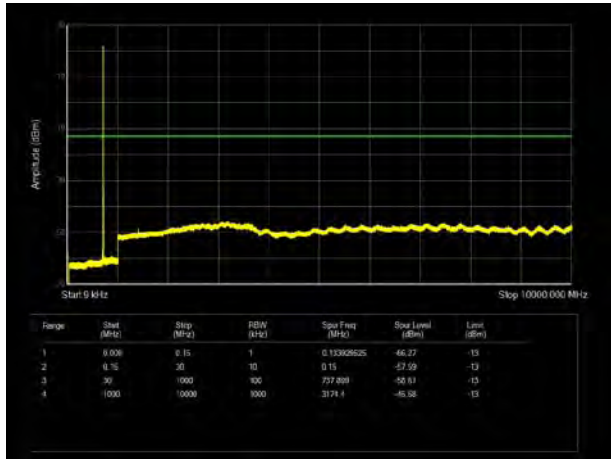


LTE Band 12 10MHz CH-High 9kHz~10GHz

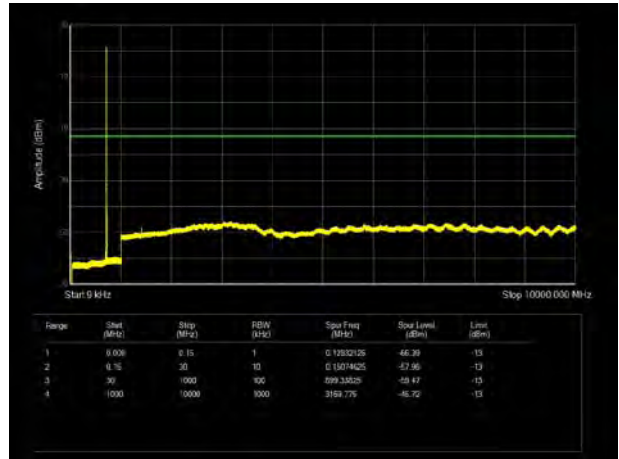




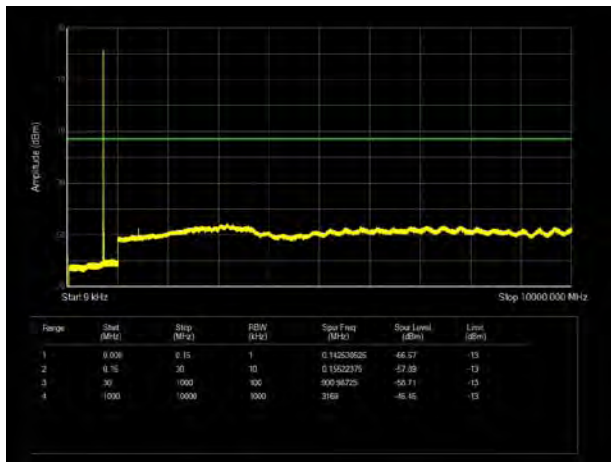
LTE Band 17 5MHz CH-Low 9kHz~10GHz



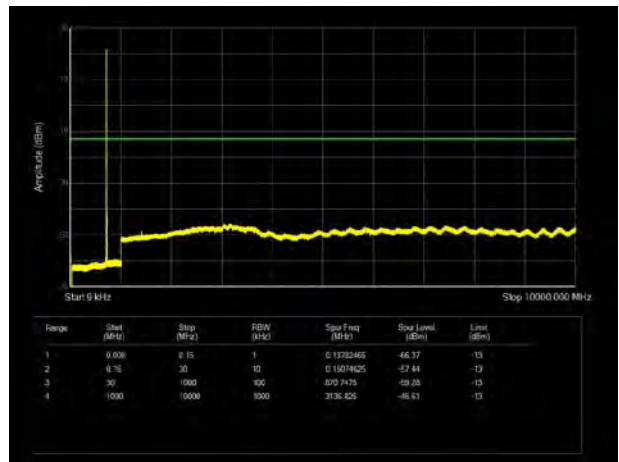
LTE Band 17 10MHz CH- Low 9kHz~10GHz



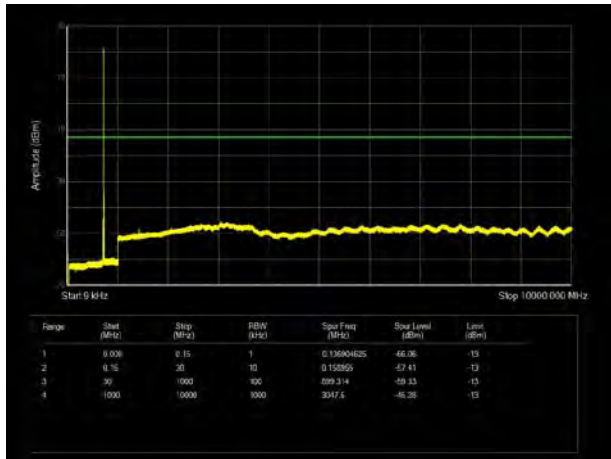
LTE Band 7 17 5MHz CH- Middle 9kHz~10GHz



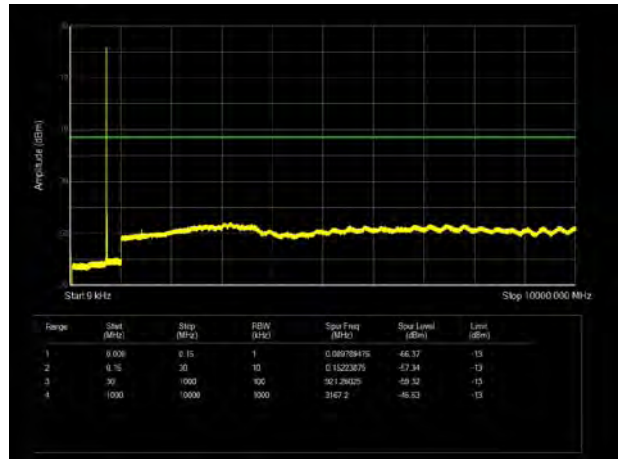
LTE Band 17 10MHz CH- Middle 9kHz~10GHz



LTE Band 17 5MHz CH- High 9kHz~10GHz

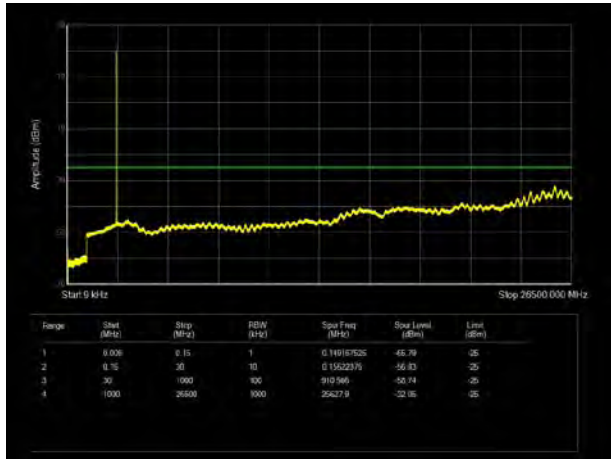


LTE Band 17 10MHz CH-High 9kHz~10GHz

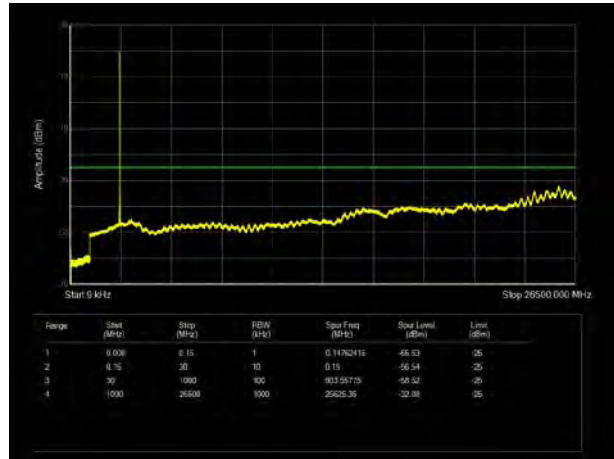




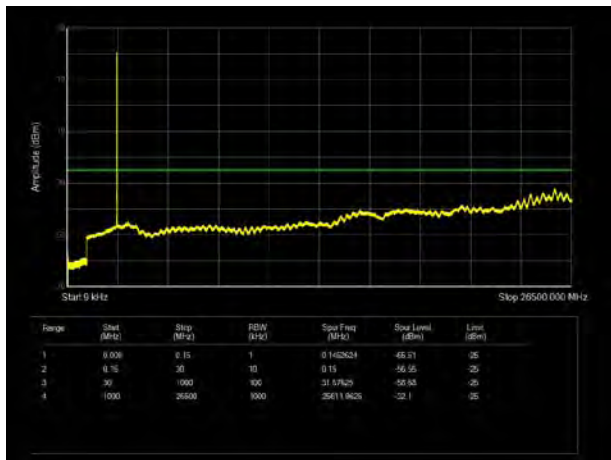
LTE Band 38 5MHz CH-Low 9kHz~26.5GHz



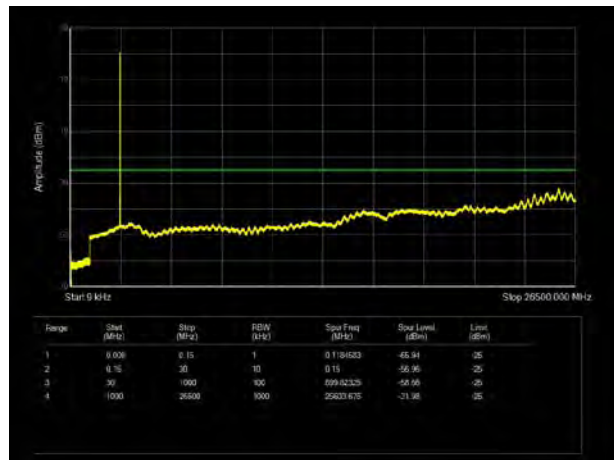
LTE Band 38 10MHz CH- Low 9kHz~26.5GHz



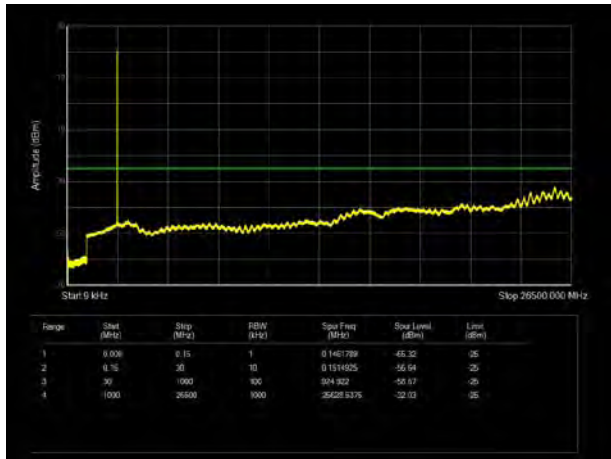
LTE Band 38 5MHz CH- Middle 9kHz~26.5GHz



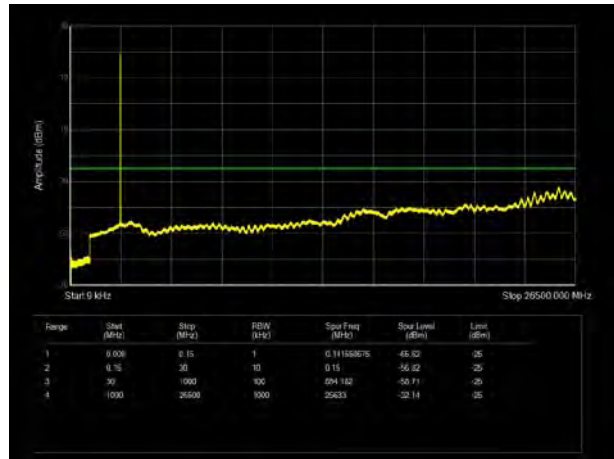
LTE Band 38 10MHz CH- Middle 9kHz~26.5GHz



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

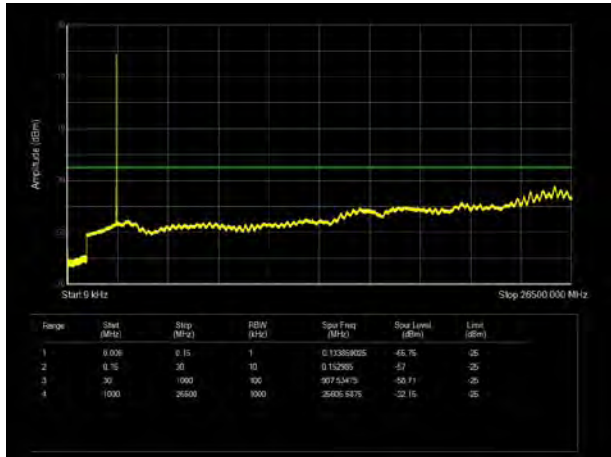


LTE Band 38 10MHz CH-High 9kHz~26.5GHz

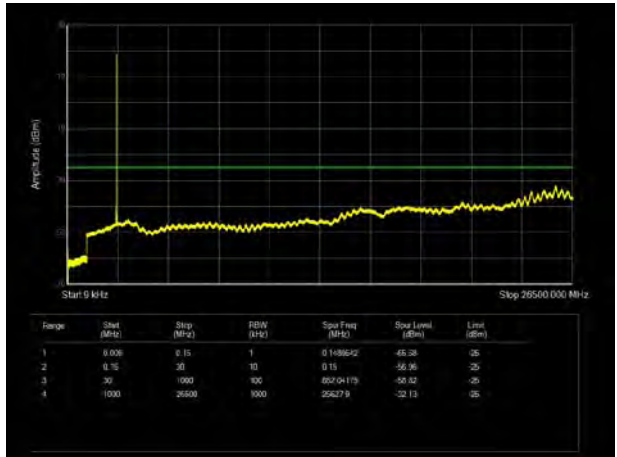




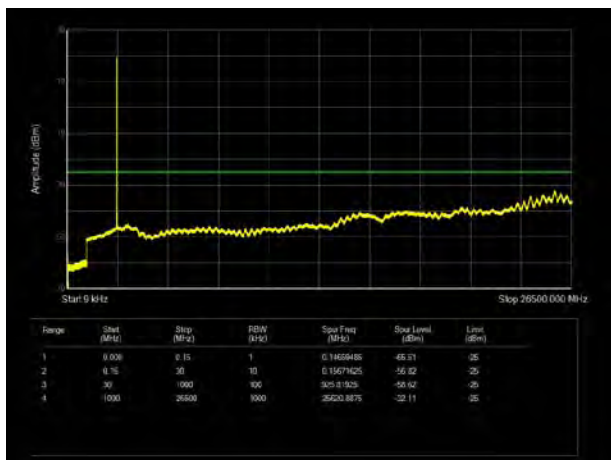
LTE Band 38 15MHz CH- Low 9kHz~26.5GHz



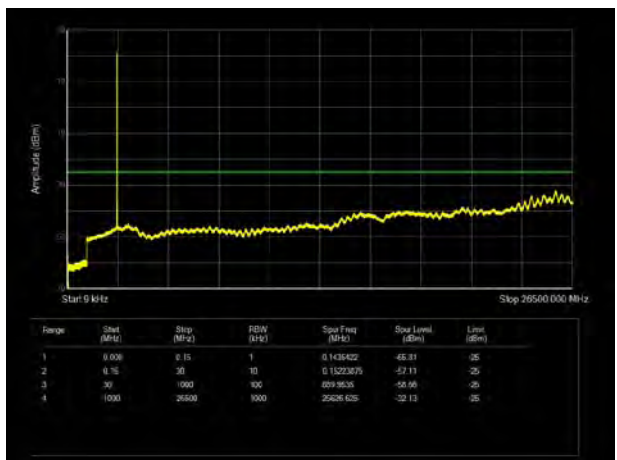
LTE Band 38 20MHz CH-Low 9kHz~26.5GHz



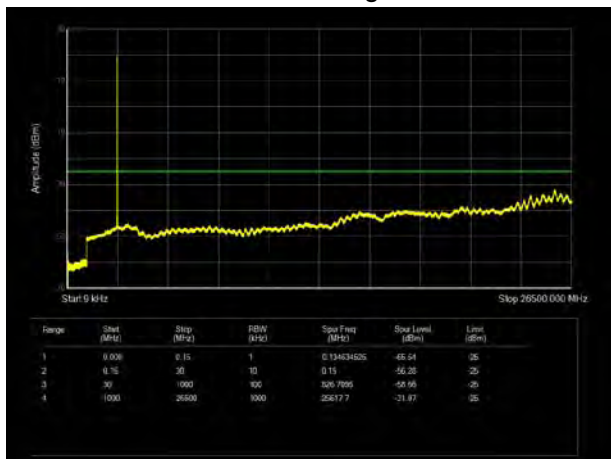
LTE Band 38 15MHz CH- Middle 9kHz~26.5GHz



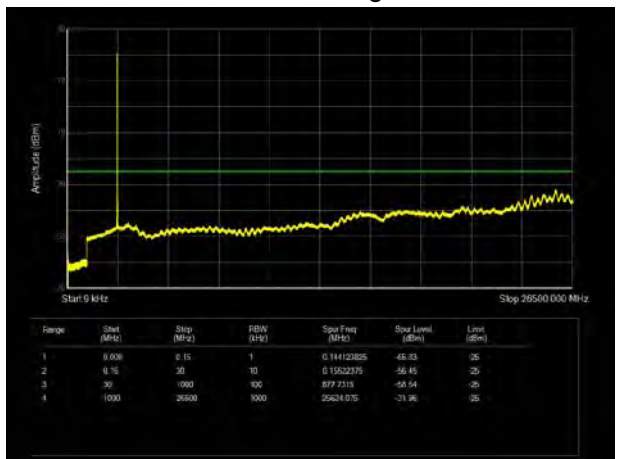
LTE Band 38 20MHz CH- Middle 9kHz~26.5GHz



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

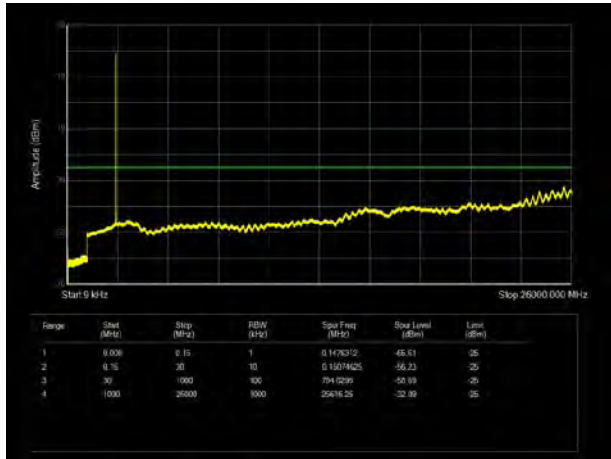


LTE Band 38 20MHz CH- High 9kHz~26.5GHz

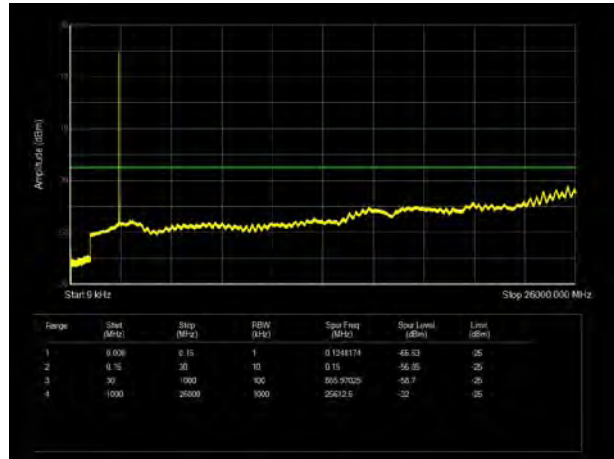




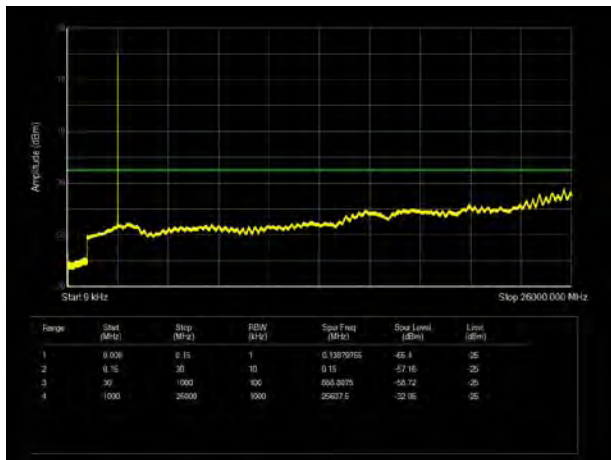
LTE Band 41 5MHz CH-Low 9kHz~26GHz



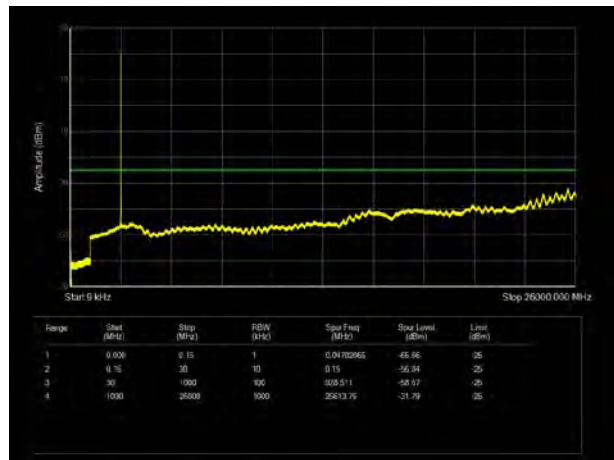
LTE Band 41 10MHz CH- Low 9kHz~26GHz



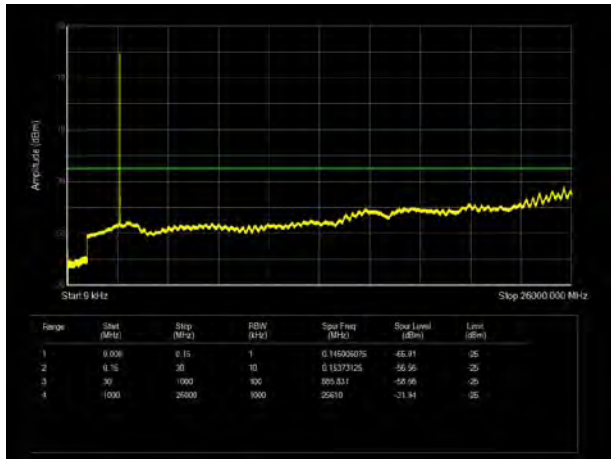
LTE Band 41 5MHz CH- Middle 9kHz~20GHz



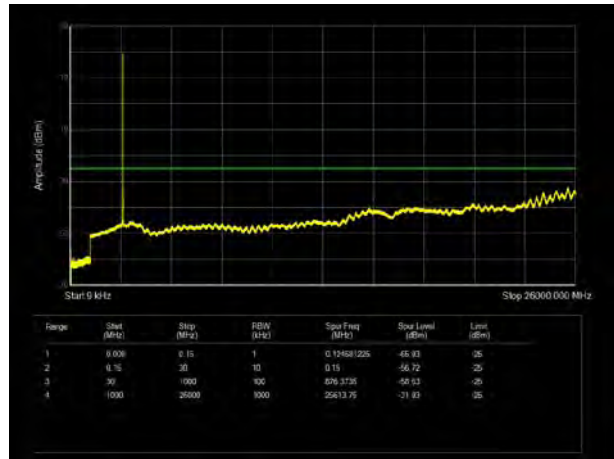
LTE Band 41 10MHz CH- Middle 9kHz~20GHz



LTE Band 41 5MHz CH- High 9kHz~26GHz

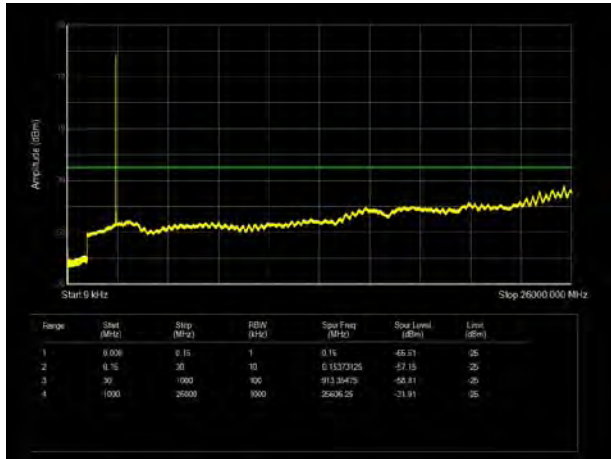


LTE Band 41 10MHz CH-High 9kHz~26GHz

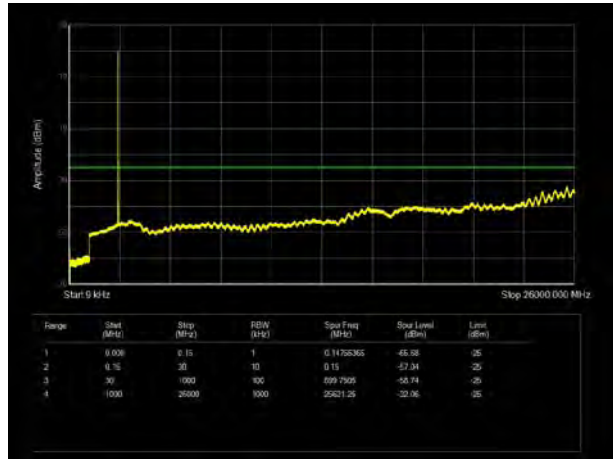




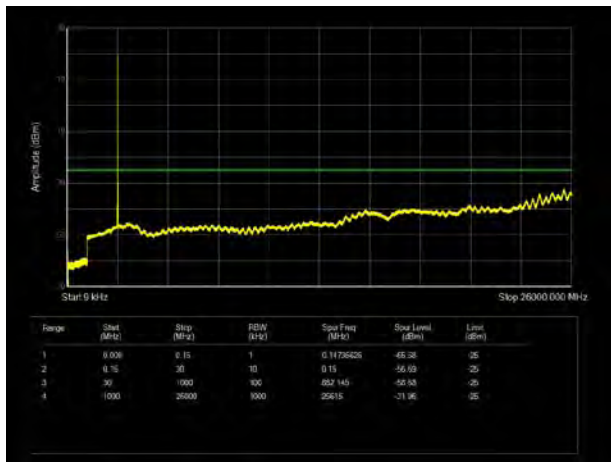
LTE Band 41 15MHz CH- Low 9kHz~26GHz



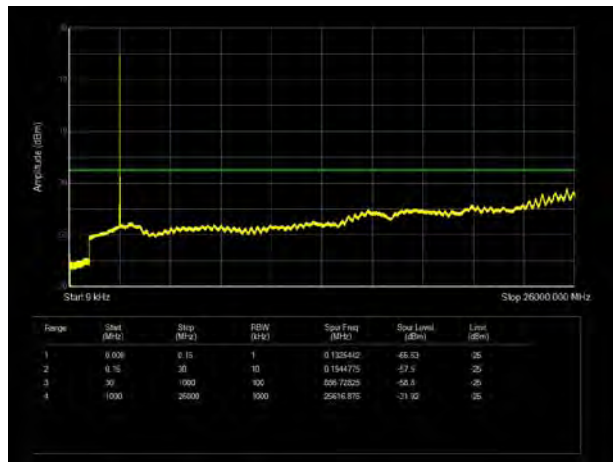
LTE Band 41 20MHz CH-Low 9kHz~26GHz



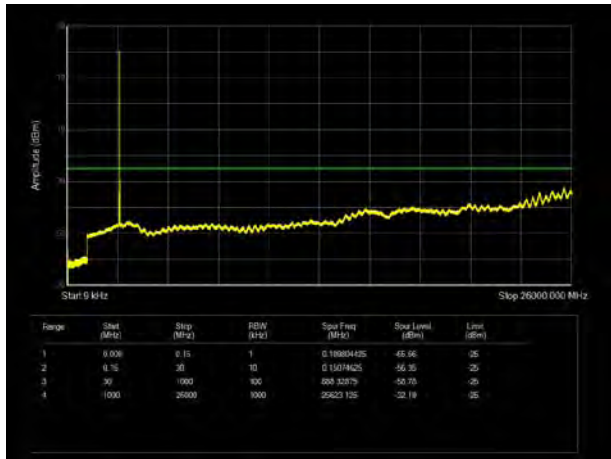
LTE Band 41 15MHz CH- Middle 9kHz~26GHz



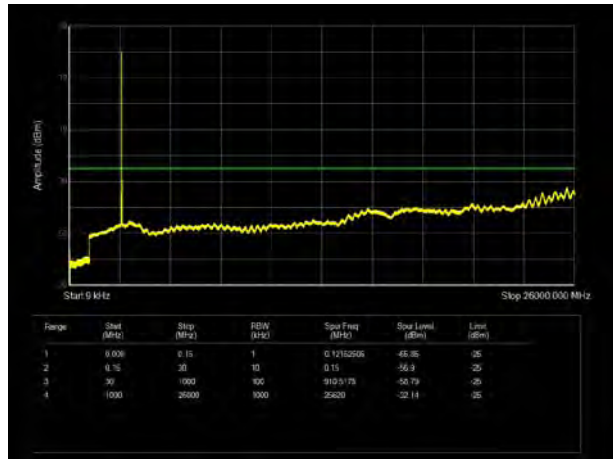
LTE Band 41 20MHz CH- Middle 9kHz~26GHz



LTE Band 41 15MHz CH-High 9kHz~26GHz

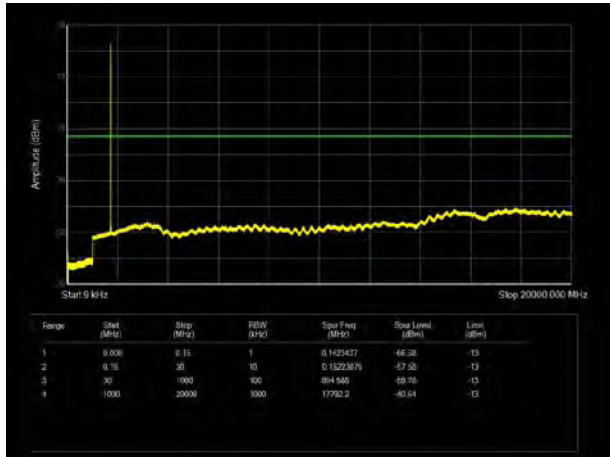


LTE Band 41 20MHz CH- High 9kHz~26GHz

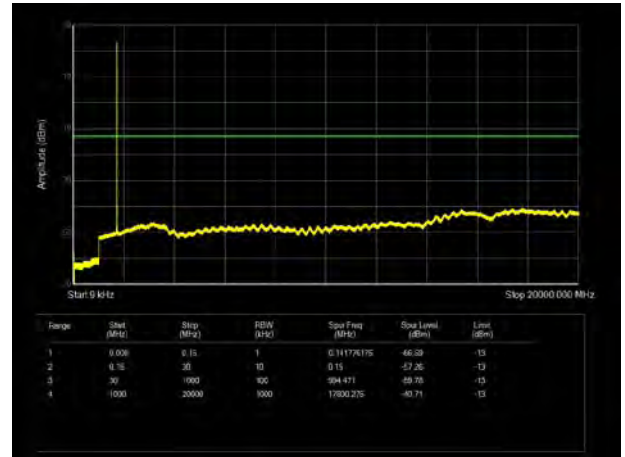




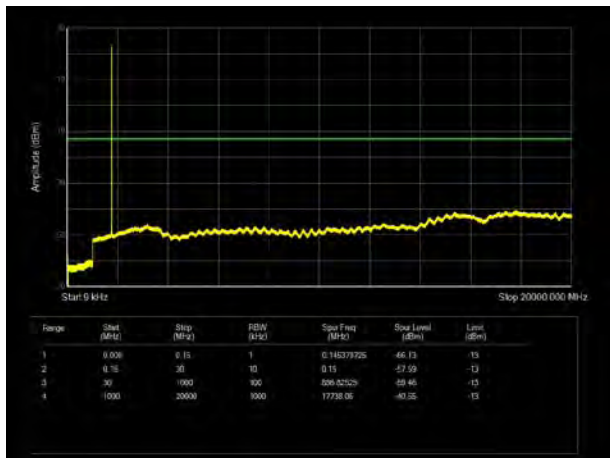
LTE Band 66 1.4MHz CH-Low 9kHz~20GHz



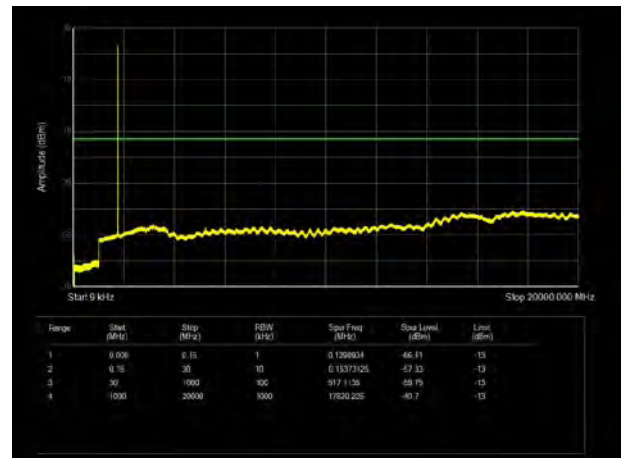
LTE Band 66 1.4MHz CH- Low 9kHz~20GHz



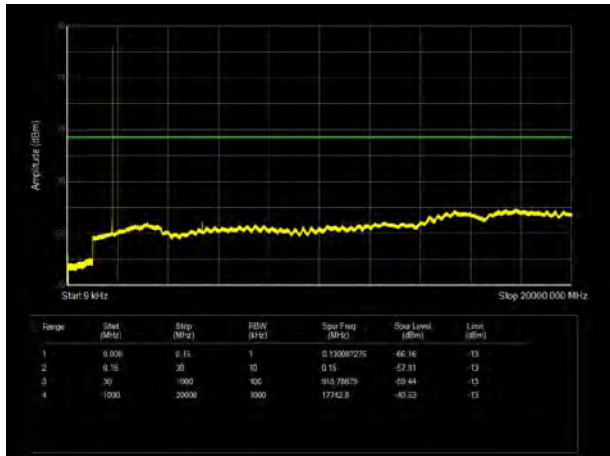
LTE Band 66 1.4MHz CH- Middle 9kHz~20GHz



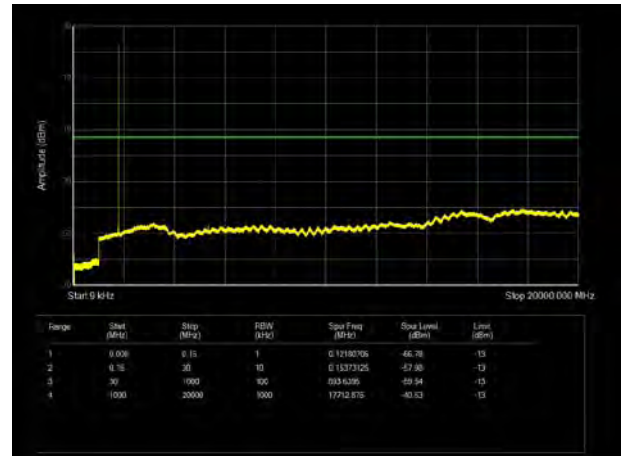
LTE Band 66 1.4MHz CH- Middle 9kHz~20GHz



LTE Band 66 1.4MHz CH- High 9kHz~20GHz

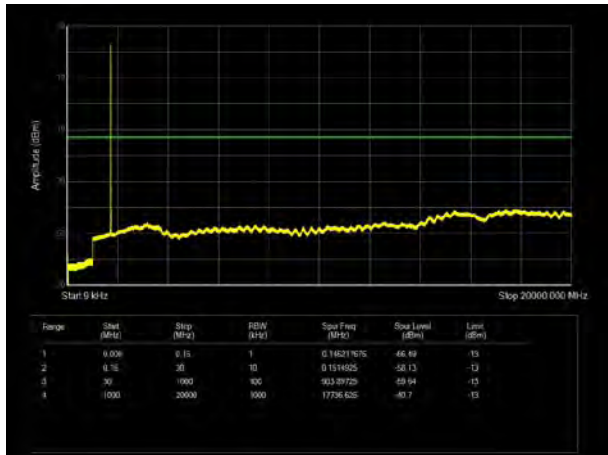


LTE Band 66 1.4MHz CH-High 9kHz~20GHz

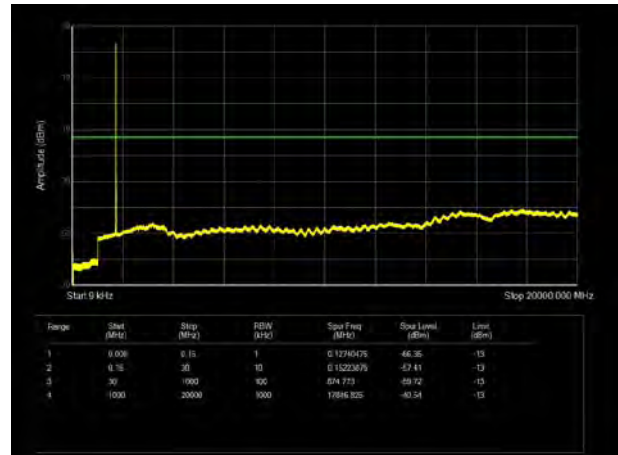




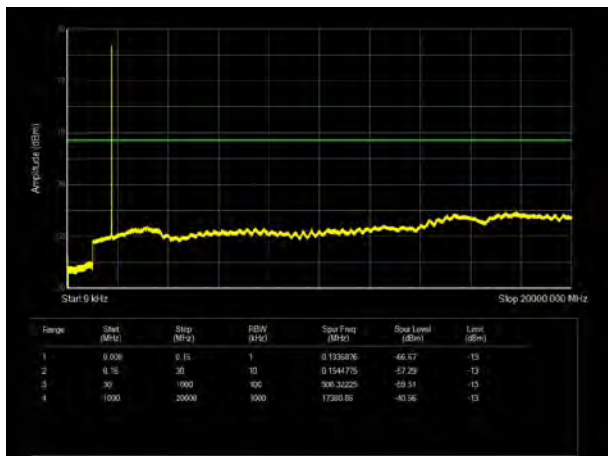
LTE Band 66 5MHz CH-Low 9kHz~20GHz



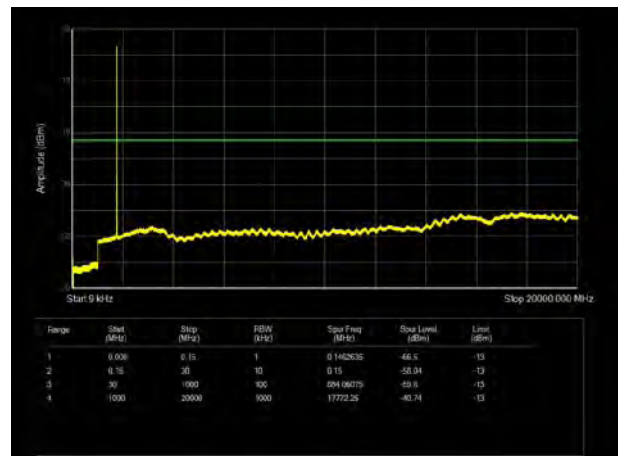
LTE Band 66 10MHz CH- Low 9kHz~20GHz



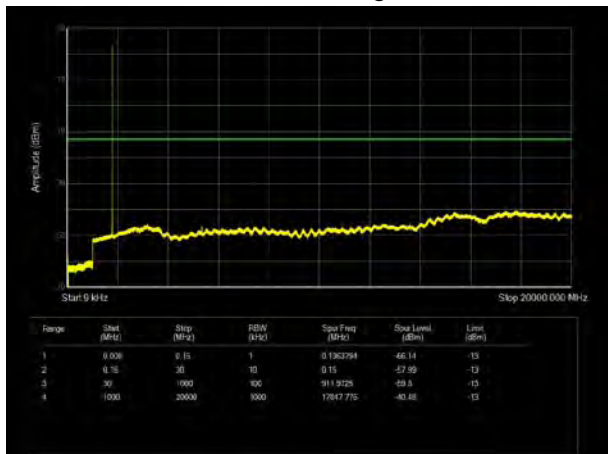
LTE Band 66 5MHz CH- Middle 9kHz~20GHz



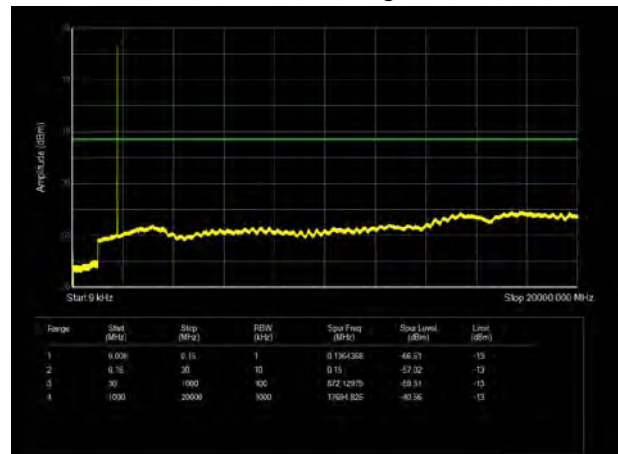
LTE Band 66 10MHz CH- Middle 9kHz~20GHz



LTE Band 66 5MHz CH- High 9kHz~20GHz



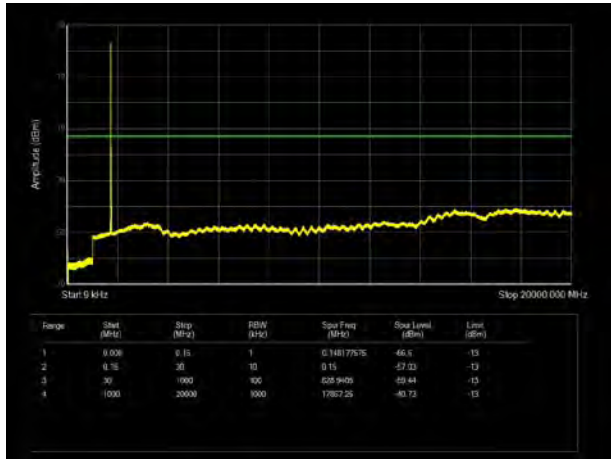
LTE Band 66 10MHz CH-High 9kHz~20GHz



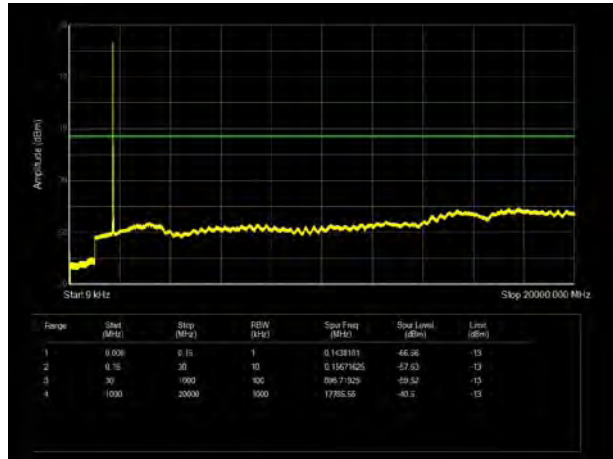




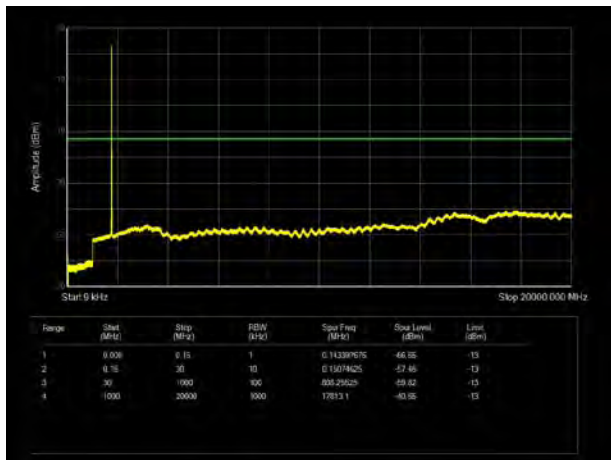
LTE Band 66 15MHz CH- Low 9kHz~20GHz



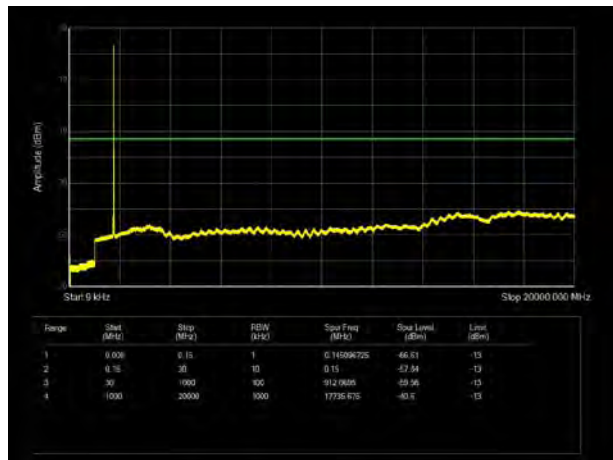
LTE Band 66 20MHz CH-Low 9kHz~20GHz



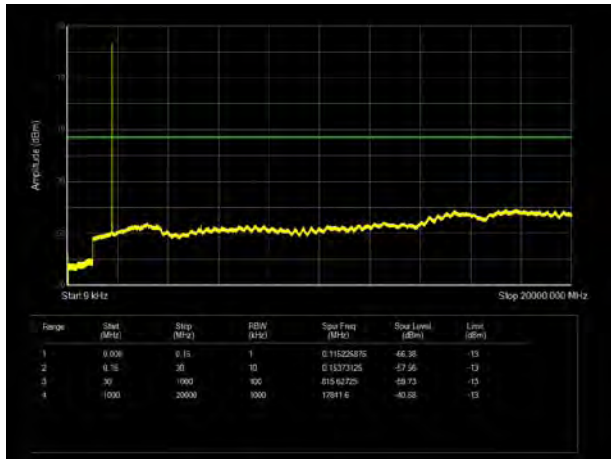
LTE Band 66 15MHz CH- Middle 9kHz~20GHz



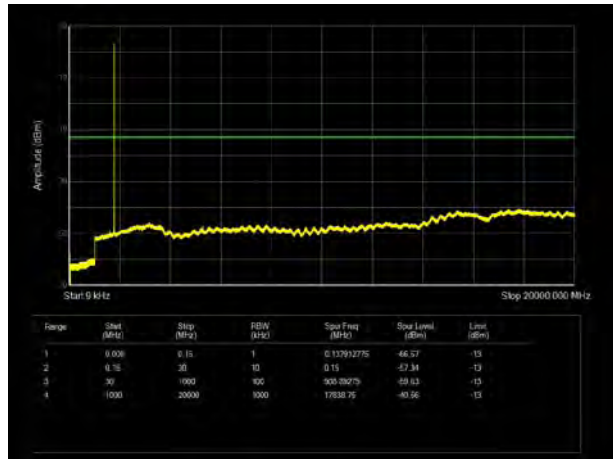
LTE Band 66 20MHz CH- Middle 9kHz~20GHz



LTE Band 66 15MHz CH-High 9kHz~20GHz

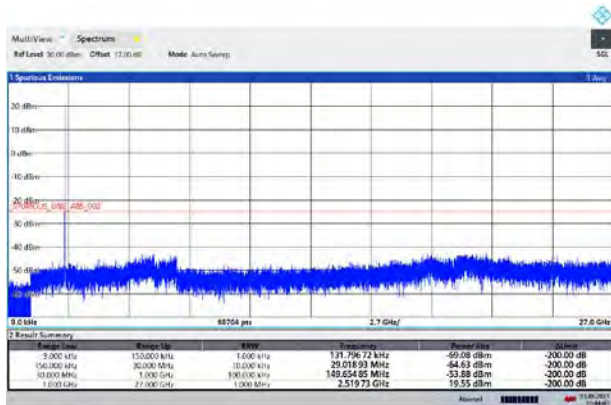


LTE Band 66 20MHz CH- High 9kHz~20GHz



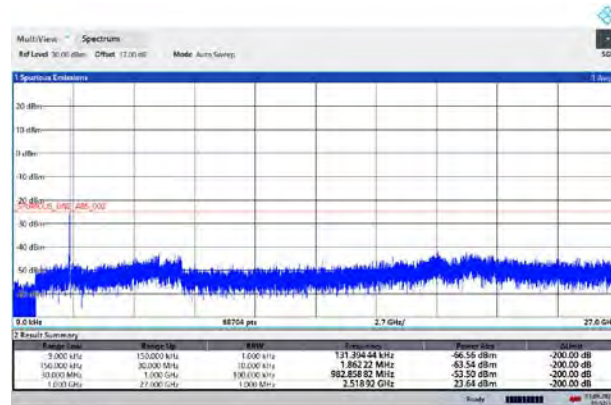


### CA\_7C QPSK 20MHz+10MHz CH- Low 9kHz~27GHz



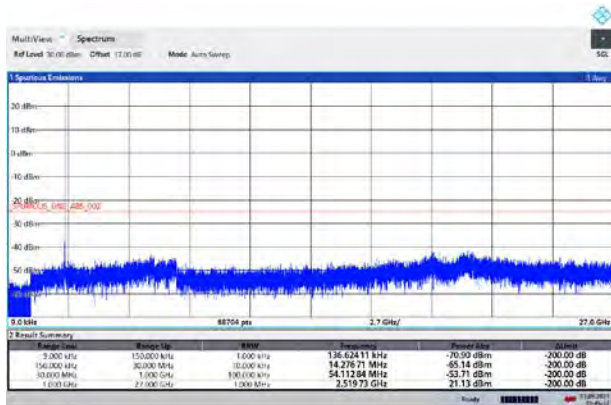
10:44:03 03.08.2021

### CA\_7C QPSK 20MHz+20MHz CH- Low 9kHz~27GHz



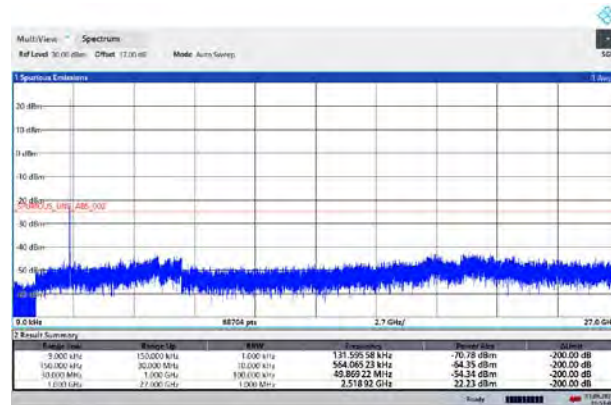
10:44:30 03.08.2021

### CA\_7C 16QAM 20MHz+10MHz CH- Low 9kHz~27GHz



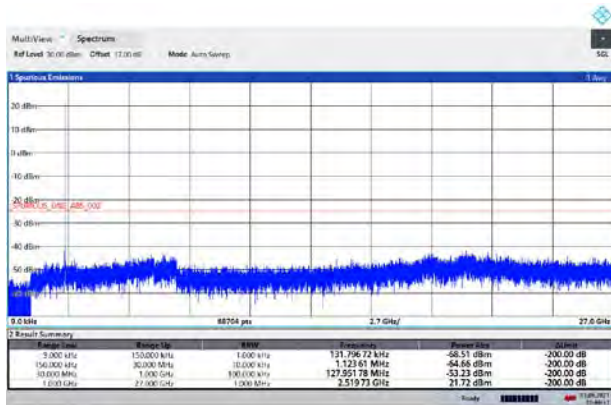
10:45:33 03.08.2021

### CA\_7C 16QAM 20MHz+20MHz CH- Low 9kHz~27GHz



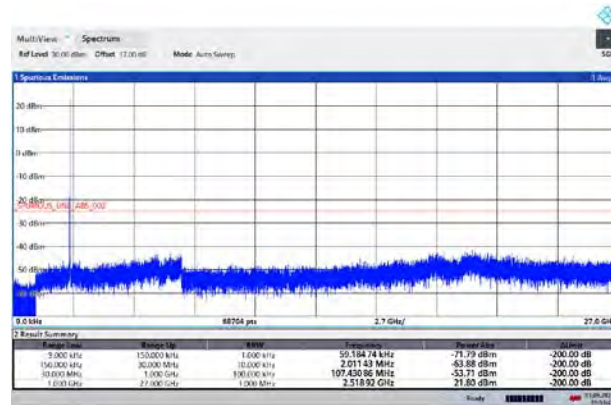
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### CA\_7C 64QAM 20MHz+10MHz CH- Low 9kHz~27GHz



10:44:31 03.08.2021

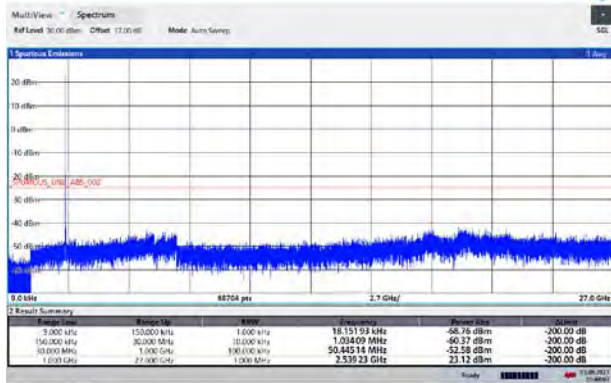
### CA\_7C 64QAM 20MHz+20MHz CH- Low 9kHz~27GHz



10:45:21 03.08.2021

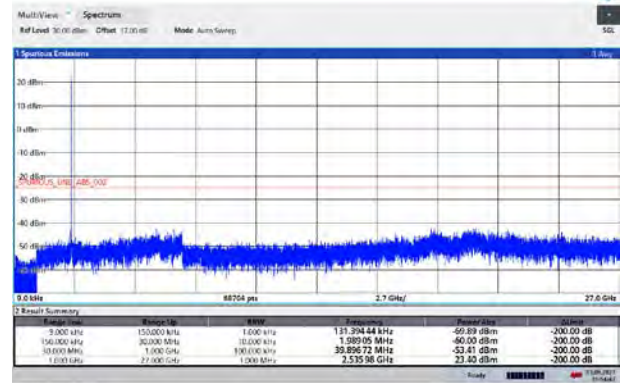


CA\_7C QPSK 20MHz+10MHz CH- Middle  
9kHz~27GHz



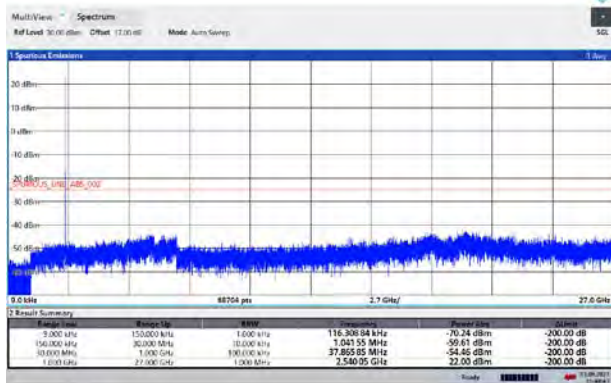
10:48:08 03.08.2021

CA\_7C QPSK 20MHz+20MHz CH- Middle  
9kHz~27GHz



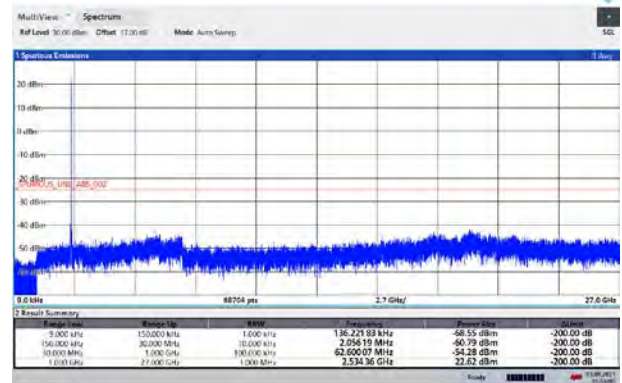
10:54:42 03.08.2021

CA\_7C 16QAM 20MHz+10MHz CH- Middle  
9kHz~27GHz



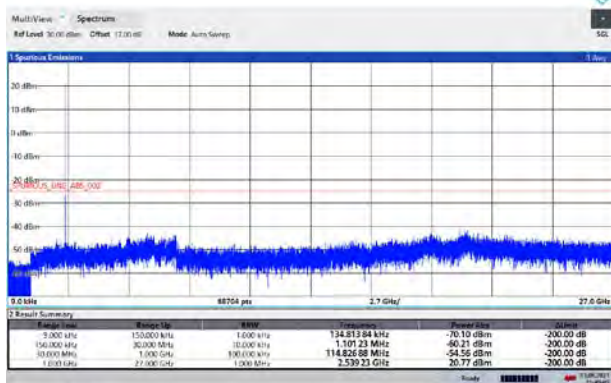
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CA\_7C 16QAM 20MHz+20MHz CH- Middle  
9kHz~27GHz



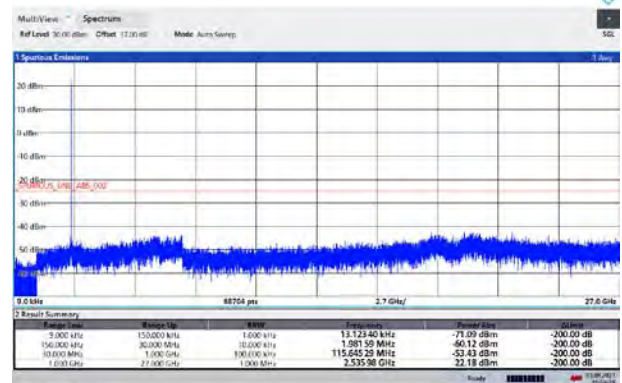
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CA\_7C 64QAM 20MHz+10MHz CH- Middle  
9kHz~27GHz



10:49:59 03.08.2021

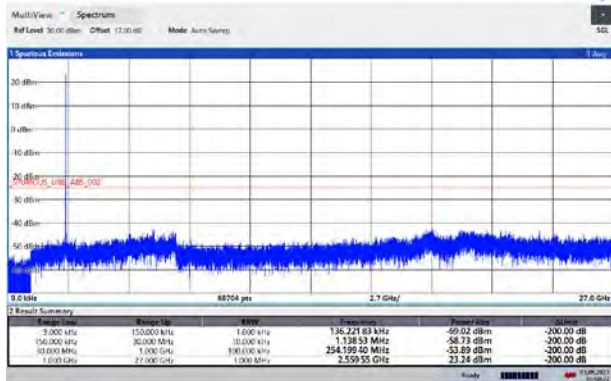
CA\_7C 64QAM 20MHz+20MHz CH- Middle  
9kHz~27GHz



10:55:28 03.08.2021

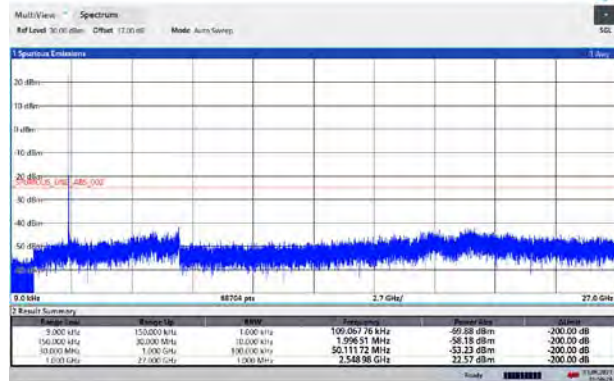


### CA\_7C QPSK 20MHz+10MHz CH- High 9kHz~27GHz



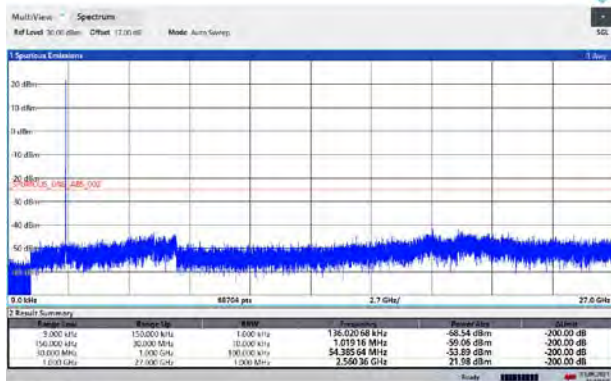
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### CA\_7C QPSK 20MHz+20MHz CH- High 9kHz~27GHz



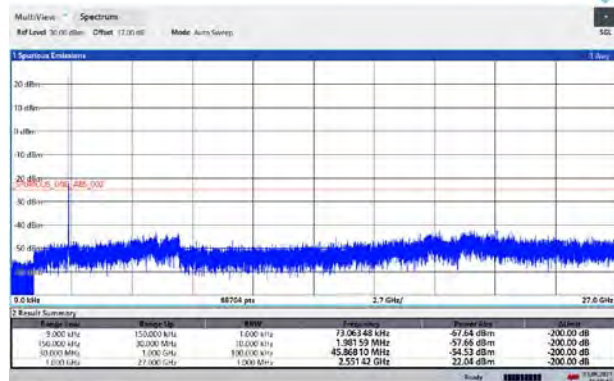
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### CA\_7C 16QAM 20MHz+10MHz CH- High 9kHz~27GHz



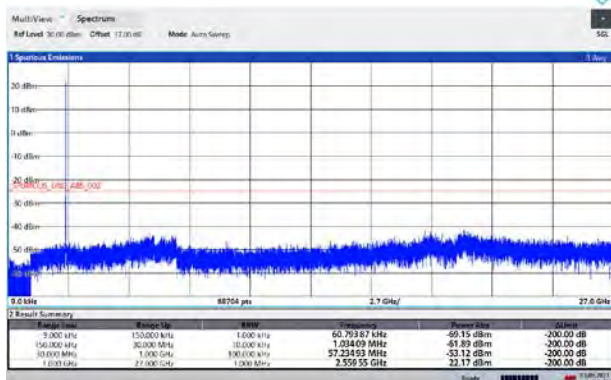
10:50:55 03.08.2021

### CA\_7C 16QAM 20MHz+20MHz CH- High 9kHz~27GHz



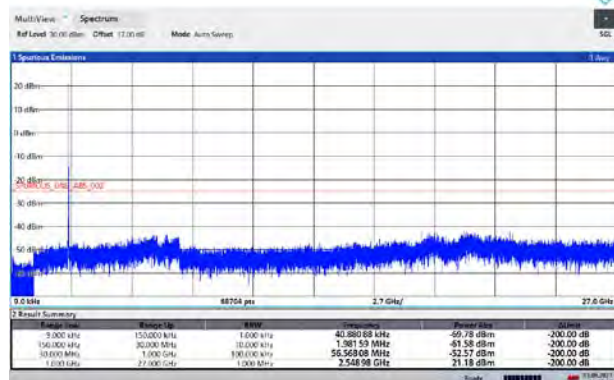
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### CA\_7C 64QAM 20MHz+10MHz CH- High 9kHz~27GHz



10:51:13 03.08.2021

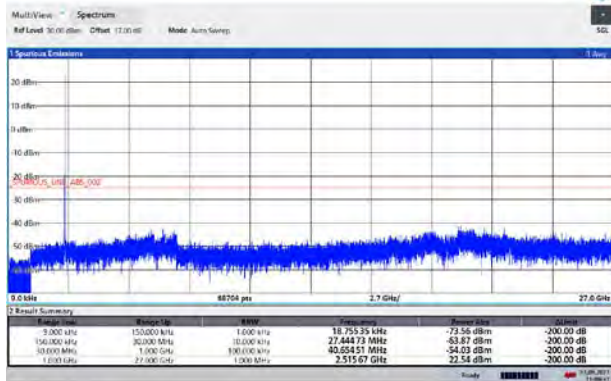
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10:57:12 03.08.2021

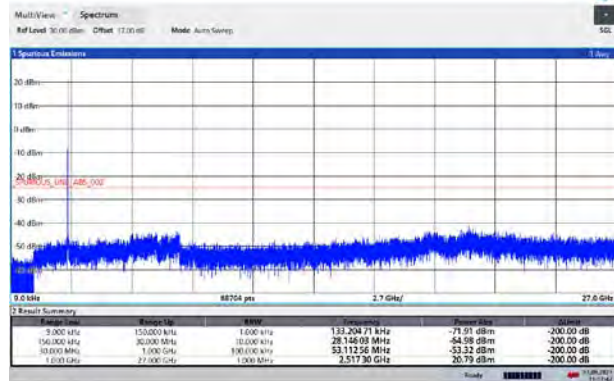


### CA\_41C QPSK 20MHz+5MHz CH- Low 9kHz~27GHz



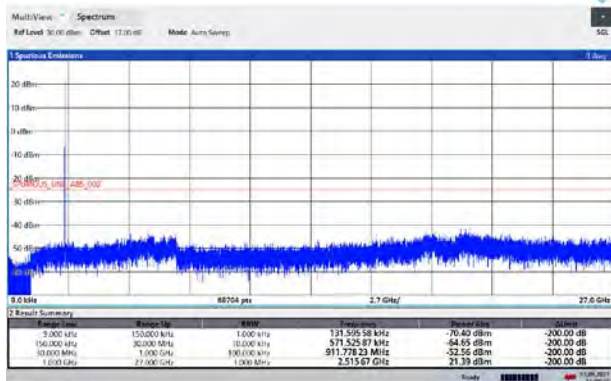
11:08:33 03.08.2021

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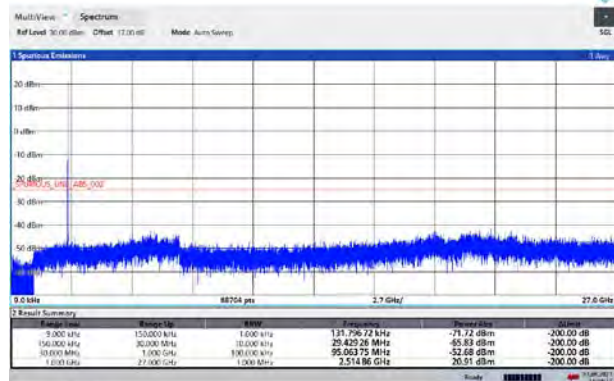
11:11:42 03.08.2021

### CA\_41C 16QAM 20MHz+5MHz CH- Low 9kHz~27GHz



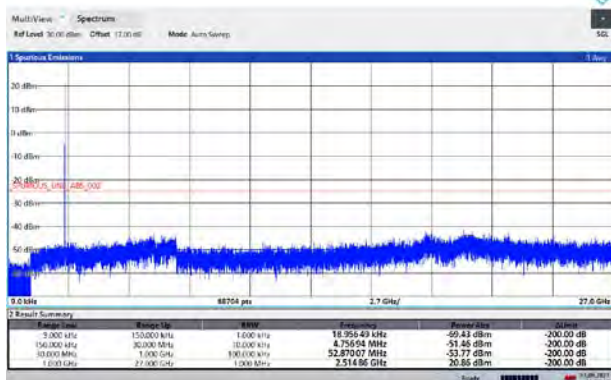
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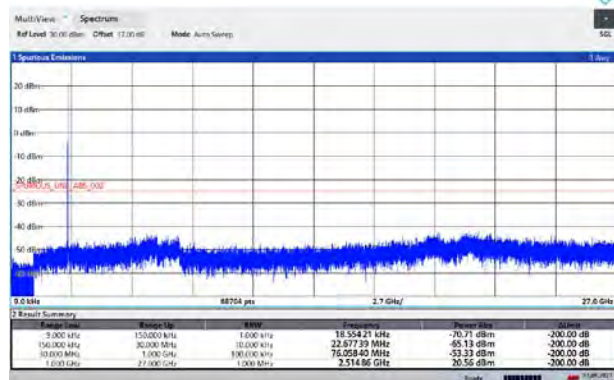
11:18:18 03.08.2021

### CA\_41C 64QAM 20MHz+5MHz CH- Low 9kHz~27GHz



11:09:47 03.08.2021

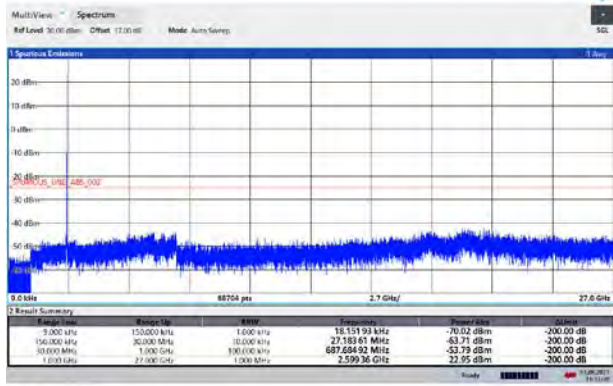
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11:18:45 03.08.2021

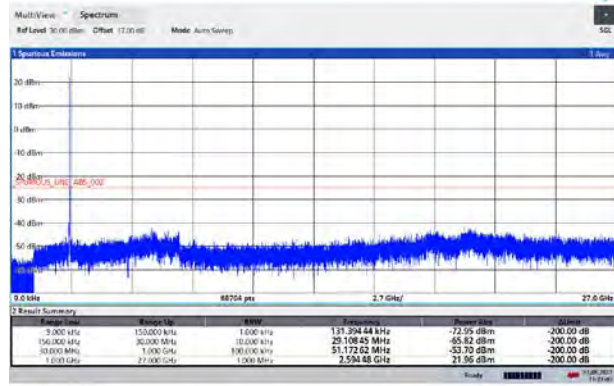


### CA\_41C QPSK 20MHz+5MHz CH- Middle 9kHz~27GHz



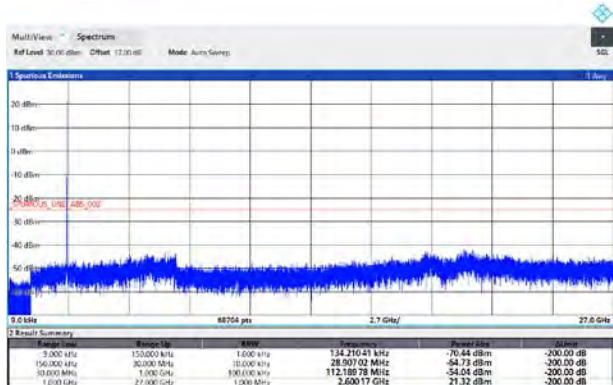
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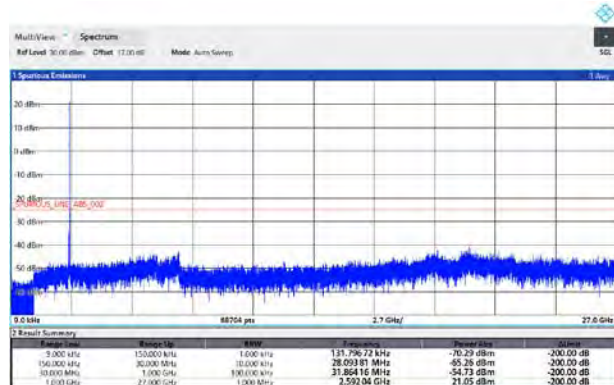
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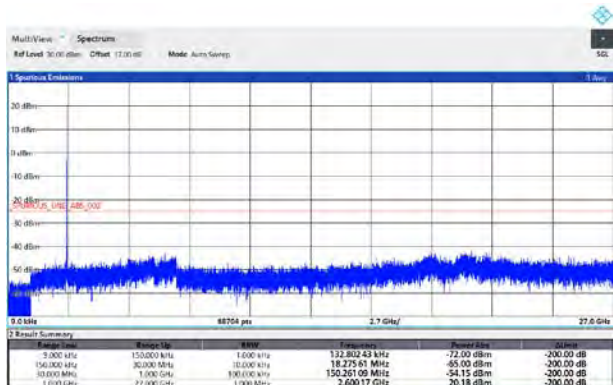
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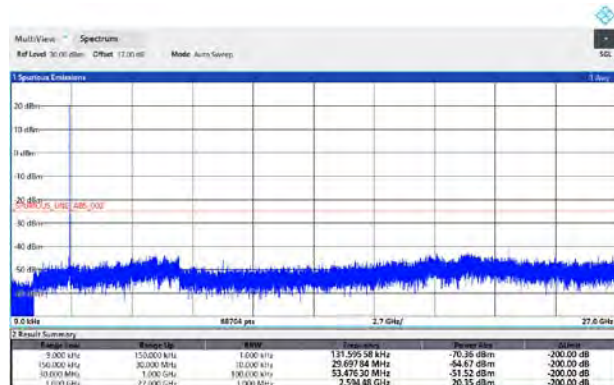
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11:12:28 03.08.2021

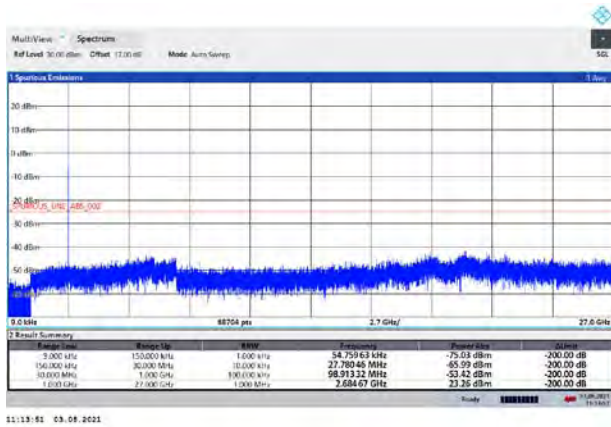
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11:21:48 03.08.2021

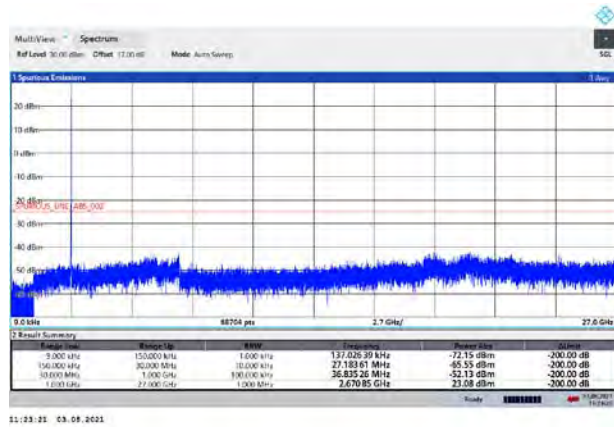


### CA\_41C QPSK 20MHz+5MHz CH- High 9kHz~27GHz



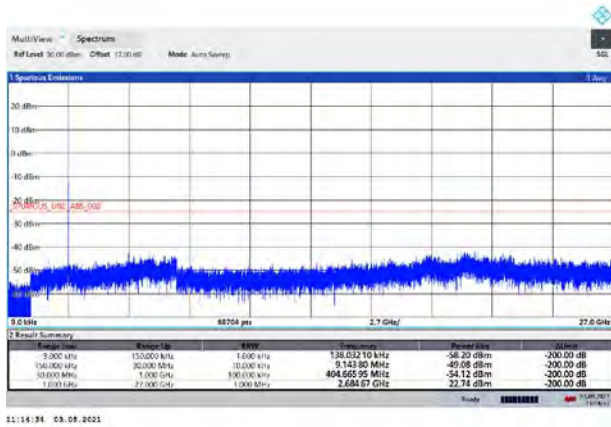
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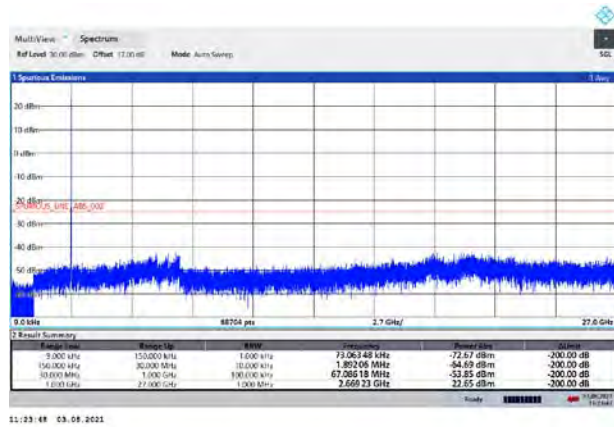
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### CA\_41C 16QAM 20MHz+5MHz CH- High 9kHz~27GHz



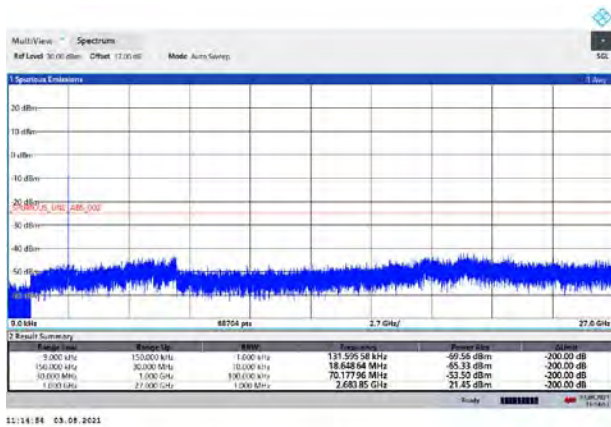
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### CA\_41C 16QAM 20MHz+20MHz CH- High 9kHz~27GHz



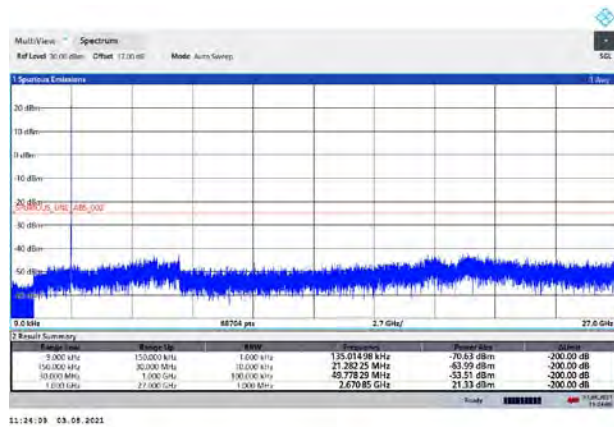
11:14:48 03.08.2021

### CA\_41C 64QAM 20MHz+5MHz CH- High 9kHz~27GHz



11:14:54 03.08.2021

### CA\_41C 64QAM 20MHz+20MHz CH- High 9kHz~27GHz



11:14:59 03.08.2021

## 5.7 Radiates Spurious Emission

### Ambient condition

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

### Method of Measurement

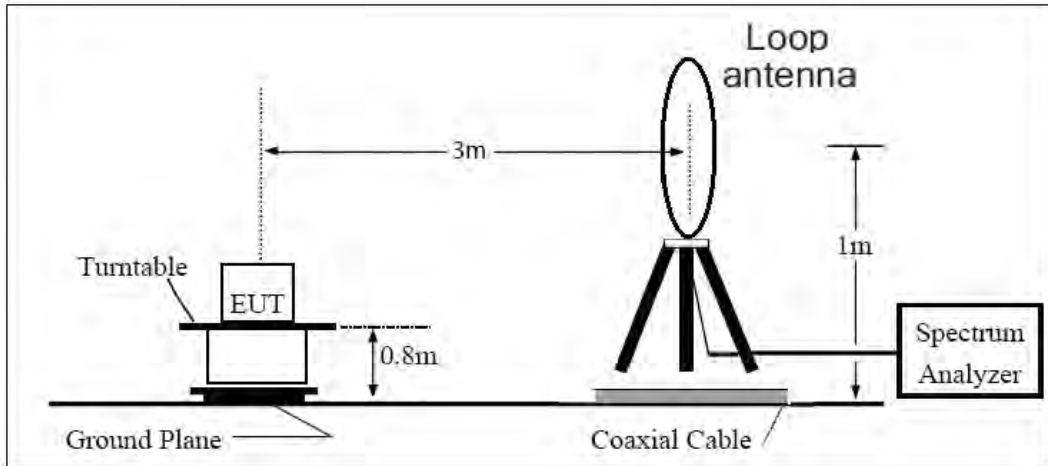
- The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
- Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable 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 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP-2.15dBi$ .



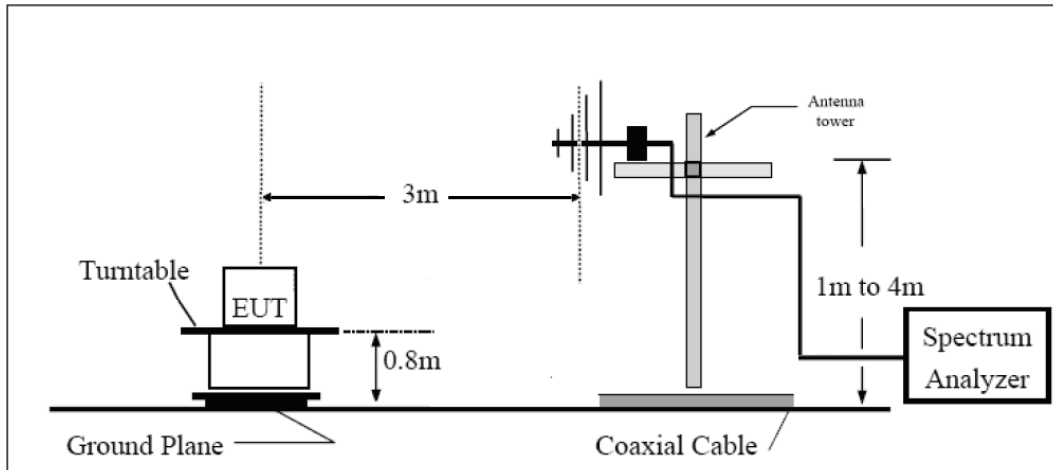
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

**Test setup**

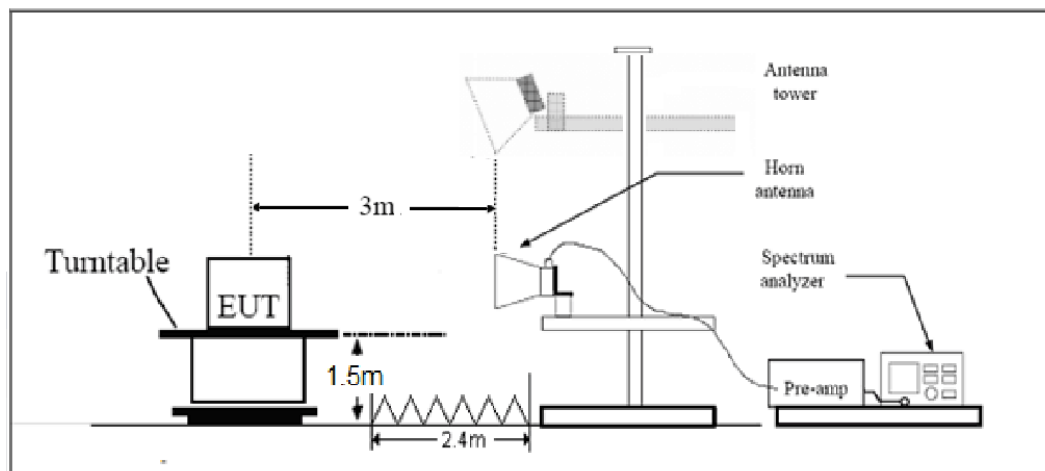
**9KHz ~ 30MHz**



**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 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

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

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

### Measurement Uncertainty

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

**Test Result**

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

**Antenna 1**

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	-54.31	2.70	12.70	Horizontal	-44.31	-13.00	31.31	45
3	5197.50	-50.82	3.20	12.50	Horizontal	-41.52	-13.00	28.52	0
4	6930.75	-63.18	4.20	11.80	Horizontal	-55.58	-13.00	42.58	0
5	8664.00	-56.21	4.40	12.50	Horizontal	-48.11	-13.00	35.11	135
6	10397.25	-51.23	4.70	11.30	Horizontal	-44.63	-13.00	31.63	90
7	12130.50	-53.57	5.20	13.80	Horizontal	-44.97	-13.00	31.97	90
8	13863.75	-49.69	5.70	11.30	Horizontal	-44.09	-13.00	31.09	135
9	15597.00	-51.63	6.10	16.80	Horizontal	-40.93	-13.00	27.93	135
10	17330.25	-49.24	6.10	14.20	Horizontal	-41.14	-13.00	28.14	90

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

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



## LTE Band 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	-54.23	2.70	12.70	Horizontal	-44.23	-13.00	31.23	90
3	5191.50	-50.86	3.20	12.50	Horizontal	-41.56	-13.00	28.56	135
4	6922.50	-61.91	4.20	11.80	Horizontal	-54.31	-13.00	41.31	0
5	8653.50	-55.93	4.40	12.50	Horizontal	-47.83	-13.00	34.83	90
6	10384.50	-53.60	4.70	11.30	Horizontal	-47.00	-13.00	34.00	90
7	12115.50	-51.40	5.20	13.80	Horizontal	-42.80	-13.00	29.80	45
8	13846.50	-48.60	5.70	11.30	Horizontal	-43.00	-13.00	30.00	135
9	15577.50	-54.41	6.10	16.80	Horizontal	-43.71	-13.00	30.71	135
10	17308.50	-48.92	6.10	14.20	Horizontal	-40.82	-13.00	27.82	45

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

## LTE Band 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	3447.00	-52.59	2.70	12.70	Horizontal	-42.59	-13.00	29.59	45
3	5170.88	-51.54	3.20	12.50	Horizontal	-42.24	-13.00	29.24	135
4	6894.75	-62.12	4.20	11.80	Horizontal	-54.52	-13.00	41.52	0
5	8618.63	-56.43	4.40	12.50	Horizontal	-48.33	-13.00	35.33	0
6	10342.50	-49.59	4.70	11.30	Horizontal	-42.99	-13.00	29.99	135
7	12066.38	-52.60	5.20	13.80	Horizontal	-44.00	-13.00	31.00	45
8	13790.25	-47.80	5.70	11.30	Horizontal	-42.20	-13.00	29.20	0
9	15514.13	-51.41	6.10	16.80	Horizontal	-40.71	-13.00	27.71	0
10	17238.00	-48.53	6.10	14.20	Horizontal	-40.43	-13.00	27.43	90

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



## LTE Band 7 QPSK 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	-49.37	3.40	12.50	Horizontal	-40.27	-25.00	15.27	135
3	7598.60	-49.51	4.40	12.20	Horizontal	-41.71	-25.00	16.71	45
4	10130.63	-48.41	4.70	11.30	Horizontal	-41.81	-25.00	16.81	90
5	12675.00	-51.53	5.40	13.20	Horizontal	-43.73	-25.00	18.73	135
6	15210.00	-48.06	6.10	13.10	Horizontal	-41.06	-25.00	16.06	225
7	17745.00	-47.42	6.10	14.20	Horizontal	-39.32	-25.00	14.32	45
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 Horizontal position.

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

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5052.38	-42.90	3.40	12.50	Horizontal	-33.80	-25.00	8.80	135
3	7605.00	-50.14	4.40	12.20	Horizontal	-42.34	-25.00	17.34	0
4	10140.00	-50.76	4.70	11.30	Horizontal	-44.16	-25.00	19.16	0
5	12675.00	-47.00	5.40	13.20	Horizontal	-39.20	-25.00	14.20	135
6	15210.00	-46.71	6.10	13.10	Horizontal	-39.71	-25.00	14.71	225
7	17745.00	-47.35	6.10	14.20	Horizontal	-39.25	-25.00	14.25	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 Horizontal position.



## LTE Band 12 QPSK 1.4MHz 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	1415.00	-65.69	1.70	8.70	Horizontal	-60.84	-13.00	47.84	180
3	2122.50	-56.44	2.10	11.10	Horizontal	-49.59	-13.00	36.59	0
4	2830.00	-65.59	2.30	13.10	Horizontal	-56.94	-13.00	43.94	270
5	3537.50	-65.08	2.60	12.70	Horizontal	-57.13	-13.00	44.13	45
6	4245.00	-63.02	3.30	12.50	Horizontal	-55.97	-13.00	42.97	90
7	4952.50	-60.84	3.40	12.50	Horizontal	-53.89	-13.00	40.89	90
8	5660.00	-60.97	3.30	12.50	Horizontal	-53.92	-13.00	40.92	180
9	6367.50	-58.04	3.80	11.50	Horizontal	-52.49	-13.00	39.49	45
10	7075.00	-55.84	4.20	11.80	Horizontal	-50.39	-13.00	37.39	0

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

## LTE Band 12 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	1410.60	-66.29	1.70	8.70	Horizontal	-61.44	-13.00	48.44	0
3	2115.90	-56.88	2.10	11.10	Horizontal	-50.03	-13.00	37.03	45
4	2821.20	-64.77	2.30	13.10	Horizontal	-56.12	-13.00	43.12	225
5	3537.50	-63.59	2.60	12.70	Horizontal	-55.64	-13.00	42.64	135
6	4245.00	-62.63	3.30	12.50	Horizontal	-55.58	-13.00	42.58	135
7	4952.50	-60.61	3.40	12.50	Horizontal	-53.66	-13.00	40.66	135
8	5660.00	-60.25	3.30	12.50	Horizontal	-53.20	-13.00	40.20	225
9	6367.50	-58.48	3.80	11.50	Horizontal	-52.93	-13.00	39.93	270
10	7075.00	-55.70	4.20	11.80	Horizontal	-50.25	-13.00	37.25	135

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



## LTE Band 12 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	1406.40	-65.36	1.70	8.70	Horizontal	-60.51	-13.00	47.51	315
3	2109.60	-57.31	2.10	11.10	Horizontal	-50.46	-13.00	37.46	315
4	2812.80	-64.80	2.30	13.10	Horizontal	-56.15	-13.00	43.15	90
5	3537.50	-64.38	2.60	12.70	Horizontal	-56.43	-13.00	43.43	270
6	4245.00	-62.46	3.30	12.50	Horizontal	-55.41	-13.00	42.41	0
7	4952.50	-60.83	3.40	12.50	Horizontal	-53.88	-13.00	40.88	180
8	5660.00	-59.79	3.30	12.50	Horizontal	-52.74	-13.00	39.74	135
9	6367.50	-58.31	3.80	11.50	Horizontal	-52.76	-13.00	39.76	0
10	7075.00	-56.09	4.20	11.80	Horizontal	-50.64	-13.00	37.64	180

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

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

## LTE Band 17 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	1420.00	-67.50	1.70	8.70	Horizontal	-62.65	-13.00	49.65	45
3	2130.00	-57.03	2.10	11.10	Horizontal	-50.18	-13.00	37.18	180
4	2840.00	-65.48	2.50	13.10	Horizontal	-57.03	-13.00	44.03	270
5	3550.00	-63.44	2.60	12.70	Horizontal	-55.49	-13.00	42.49	225
6	4260.00	-62.13	3.30	12.50	Horizontal	-55.08	-13.00	42.08	225
7	4970.00	-60.08	3.40	12.50	Horizontal	-53.13	-13.00	40.13	135
8	5680.00	-59.61	3.40	12.80	Horizontal	-52.36	-13.00	39.36	180
9	6390.00	-57.67	4.10	11.50	Horizontal	-52.42	-13.00	39.42	315
10	7100.00	-55.40	4.20	12.20	Horizontal	-49.55	-13.00	36.55	0

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

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



## LTE Band 17 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	1420.00	-67.78	1.70	8.70	Horizontal	-62.93	-13.00	49.93	225
3	2130.00	-58.01	2.10	11.10	Horizontal	-51.16	-13.00	38.16	180
4	2840.00	-65.18	2.50	13.10	Horizontal	-56.73	-13.00	43.73	270
5	3550.00	-63.64	2.60	12.70	Horizontal	-55.69	-13.00	42.69	45
6	4260.00	-62.52	3.30	12.50	Horizontal	-55.47	-13.00	42.47	225
7	4970.00	-60.95	3.40	12.50	Horizontal	-54.00	-13.00	41.00	135
8	5680.00	-59.45	3.40	12.80	Horizontal	-52.20	-13.00	39.20	315
9	6390.00	-56.29	4.10	11.50	Horizontal	-51.04	-13.00	38.04	90
10	7100.00	-55.20	4.20	12.20	Horizontal	-49.35	-13.00	36.35	270

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

## LTE Band 38 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5190.00	-50.36	3.20	12.50	Horizontal	-41.06	-25.00	16.06	180
3	7785.00	-52.20	4.40	12.30	Horizontal	-44.30	-25.00	19.30	315
4	10380.00	-48.56	4.70	11.80	Horizontal	-41.46	-25.00	16.46	0
5	12975.00	-51.27	5.40	14.00	Horizontal	-42.67	-25.00	17.67	225
6	15570.00	-52.16	6.10	16.80	Horizontal	-41.46	-25.00	16.46	45
7	18165.00	--	--	--	--	--	--	--	--
8	20760.00	--	--	--	--	--	--	--	--
9	23355.00	--	--	--	--	--	--	--	--
10	25950.00	--	--	--	--	--	--	--	--

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 Horizontal position.





## LTE Band 38 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5190.00	-49.59	3.20	12.50	Horizontal	-40.29	-25.00	15.29	45
3	7785.00	-55.28	4.40	12.30	Horizontal	-47.38	-25.00	22.38	0
4	10380.00	-48.93	4.70	11.80	Horizontal	-41.83	-25.00	16.83	270
5	12975.00	-51.22	5.40	14.00	Horizontal	-42.62	-25.00	17.62	180
6	15570.00	-52.64	6.10	16.80	Horizontal	-41.94	-25.00	16.94	90
7	18165.00	--	--	--	--	--	--	--	--
8	20760.00	--	--	--	--	--	--	--	--
9	23355.00	--	--	--	--	--	--	--	--
10	25950.00	--	--	--	--	--	--	--	--

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 Horizontal position.

## LTE Band 41 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5186.00	-50.11	3.20	12.50	Horizontal	-40.81	-25.00	15.81	0
3	7779.00	-53.63	4.40	12.30	Horizontal	-45.73	-25.00	20.73	225
4	10372.00	-50.02	4.70	11.80	Horizontal	-42.92	-25.00	17.92	45
5	12965.00	-51.24	5.40	14.00	Horizontal	-42.64	-25.00	17.64	180
6	15558.00	-51.70	6.10	16.80	Horizontal	-41.00	-25.00	16.00	90
7	18151.00	--	--	--	--	--	--	--	--
8	20744.00	--	--	--	--	--	--	--	--
9	23337.00	--	--	--	--	--	--	--	--
10	25930.00	--	--	--	--	--	--	--	--

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 Horizontal position.



## LTE Band 41 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5186.00	-49.53	3.20	12.50	Horizontal	-40.23	-25.00	15.23	45
3	7779.00	-57.55	4.40	12.30	Horizontal	-49.65	-25.00	24.65	0
4	10372.00	-50.81	4.70	11.80	Horizontal	-43.71	-25.00	18.71	270
5	12965.00	-51.34	5.40	14.00	Horizontal	-42.74	-25.00	17.74	180
6	15558.00	-52.43	6.10	16.80	Horizontal	-41.73	-25.00	16.73	315
7	18151.00		--	--	--	--	--	--	--
8	20744.00		--	--	--	--	--	--	--
9	23337.00		--	--	--	--	--	--	--
10	25930.00		--	--	--	--	--	--	--

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 Horizontal position.

## LTE Band 66 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	3490.00	-64.39	2.70	12.70	Horizontal	-54.39	-13.00	41.39	45
3	5235.00	-48.35	3.20	12.50	Horizontal	-39.05	-13.00	26.05	180
4	6980.00	-59.94	4.20	11.80	Horizontal	-52.34	-13.00	39.34	315
5	8725.00	-48.03	4.40	12.50	Horizontal	-39.93	-13.00	26.93	0
6	10470.00	-44.16	4.70	11.80	Horizontal	-37.06	-13.00	24.06	90
7	12215.00	-49.83	5.20	13.80	Horizontal	-41.23	-13.00	28.23	270
8	13960.00	-51.38	5.70	13.20	Horizontal	-43.88	-13.00	30.88	135
9	15705.00	-52.33	6.10	16.80	Horizontal	-41.63	-13.00	28.63	0
10	17450.00	-50.35	6.10	14.20	Horizontal	-42.25	-13.00	29.25	90

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



## LTE Band 66 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	3490.00	-64.58	2.70	12.70	Horizontal	-54.58	-13.00	41.58	45
3	5235.00	-47.95	3.20	12.50	Horizontal	-38.65	-13.00	25.65	180
4	6980.00	-62.96	4.20	11.80	Horizontal	-55.36	-13.00	42.36	270
5	8725.00	-49.40	4.40	12.50	Horizontal	-41.30	-13.00	28.30	315
6	10470.00	-43.82	4.70	11.80	Horizontal	-36.72	-13.00	23.72	0
7	12215.00	-49.97	5.20	13.80	Horizontal	-41.37	-13.00	28.37	45
8	13960.00	-51.00	5.70	13.20	Horizontal	-43.50	-13.00	30.50	90
9	15705.00	-52.13	6.10	16.80	Horizontal	-41.43	-13.00	28.43	180
10	17450.00	-50.44	6.10	14.20	Horizontal	-42.34	-13.00	29.34	270

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

## LTE Band 66 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	3490.00	-64.09	2.70	12.70	Horizontal	-54.09	-13.00	41.09	40
3	5235.00	-44.72	3.20	12.50	Horizontal	-35.42	-13.00	22.42	270
4	6980.00	-56.14	4.20	11.80	Horizontal	-48.54	-13.00	35.54	315
5	8725.00	-55.08	4.40	12.50	Horizontal	-46.98	-13.00	33.98	0
6	10470.00	-43.66	4.70	11.80	Horizontal	-36.56	-13.00	23.56	315
7	12215.00	-50.26	5.20	13.80	Horizontal	-41.66	-13.00	28.66	90
8	13960.00	-51.53	5.70	13.20	Horizontal	-44.03	-13.00	31.03	270
9	15705.00	-51.83	6.10	16.80	Horizontal	-41.13	-13.00	28.13	180
10	17450.00	-50.25	6.10	14.20	Horizontal	-42.15	-13.00	29.15	0

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



## CA\_7C QPSK 10MHz+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	5042.00	-54.66	3.40	12.50	Horizontal	-45.56	-25.00	20.56	135
3	7563.00	-56.67	4.20	12.20	Horizontal	-48.67	-25.00	23.67	45
4	10084.00	-50.16	4.70	11.30	Horizontal	-43.56	-25.00	18.56	45
5	12605.00	-49.83	5.40	13.20	Horizontal	-42.03	-25.00	17.03	90
6	15126.00	-47.72	6.10	13.10	Horizontal	-40.72	-25.00	15.72	0
7	17647.00	-48.20	6.10	14.20	Horizontal	-40.10	-25.00	15.10	0
8	20168.00	--	--	--	--	--	--	--	--
9	22689.00	--	--	--	--	--	--	--	--
10	25210.00	--	--	--	--	--	--	--	--

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 Horizontal position.

## CA\_7C QPSK 20MHz+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	5041.50	-55.53	3.40	12.50	Horizontal	-46.43	-25.00	21.43	45
3	7562.25	-56.76	4.20	12.20	Horizontal	-48.76	-25.00	23.76	180
4	10083.00	-51.59	4.70	11.30	Horizontal	-44.99	-25.00	19.99	90
5	12603.75	-51.59	5.40	13.20	Horizontal	-43.79	-25.00	18.79	90
6	15124.50	-49.01	6.10	13.10	Horizontal	-42.01	-25.00	17.01	0
7	17645.25	-48.62	6.10	14.20	Horizontal	-40.52	-25.00	15.52	45
8	20166.00	--	--	--	--	--	--	--	--
9	22686.75	--	--	--	--	--	--	--	--
10	25207.50	--	--	--	--	--	--	--	--

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 Horizontal position.



## CA\_7C QPSK 20MHz+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	5032.00	-53.63	3.40	12.50	Horizontal	-44.53	-25.00	19.53	135
3	7548.00	-56.84	4.20	12.20	Horizontal	-48.84	-25.00	23.84	0
4	10064.00	-47.92	4.70	11.30	Horizontal	-41.32	-25.00	16.32	0
5	12580.00	-48.13	5.40	13.20	Horizontal	-40.33	-25.00	15.33	45
6	15096.00	-47.06	6.10	13.10	Horizontal	-40.06	-25.00	15.06	225
7	17612.00	-49.41	6.10	14.20	Horizontal	-41.31	-25.00	16.31	90
8	20128.00	--	--	--	--	--	--	--	--
9	22644.00	--	--	--	--	--	--	--	--
10	25160.00	--	--	--	--	--	--	--	--

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 Horizontal position.

## CA\_41C QPSK 5MHz+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	5167.60	-57.74	3.20	12.50	Horizontal	-48.44	-25.00	23.44	90
3	7754.40	-57.27	4.40	12.20	Horizontal	-49.47	-25.00	24.47	135
4	10343.20	-49.00	4.70	11.30	Horizontal	-42.40	-25.00	17.40	45
5	12934.00	-52.35	5.40	14.00	Horizontal	-43.75	-25.00	18.75	135
6	15526.80	-50.19	6.10	16.80	Horizontal	-39.49	-25.00	14.49	0
7	18121.60	--	--	--	--	--	--	--	--
8	20718.40	--	--	--	--	--	--	--	--
9	23317.20	--	--	--	--	--	--	--	--
10	25918.00	--	--	--	--	--	--	--	--

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 Horizontal position.



## CA\_41C QPSK 20MHz+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	5181.00	-59.42	3.20	12.50	Horizontal	-50.12	-25.00	25.12	0
3	7774.50	-56.15	4.40	12.20	Horizontal	-48.35	-25.00	23.35	225
4	10370.00	-49.30	4.70	11.30	Horizontal	-42.70	-25.00	17.70	90
5	12967.50	-50.76	5.40	14.00	Horizontal	-42.16	-25.00	17.16	45
6	15567.00	-52.78	6.10	16.80	Horizontal	-42.08	-25.00	17.08	135
7	18168.50	--	--	--	--	--	--	--	--
8	20772.00	--	--	--	--	--	--	--	--
9	23377.50	--	--	--	--	--	--	--	--
10	25985.00	--	--	--	--	--	--	--	--

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 Horizontal position.

## CA\_41C QPSK 15MHz+15MHz 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	5171.00	-57.11	3.20	12.50	Horizontal	-47.81	-25.00	22.81	90
3	7759.50	-57.85	4.40	12.20	Horizontal	-50.05	-25.00	25.05	135
4	10350.00	-49.85	4.70	11.30	Horizontal	-43.25	-25.00	18.25	0
5	12942.50	-51.10	5.40	14.00	Horizontal	-42.50	-25.00	17.50	45
6	15537.00	-53.35	6.10	16.80	Horizontal	-42.65	-25.00	17.65	45
7	18133.50	--	--	--	--	--	--	--	--
8	20732.00	--	--	--	--	--	--	--	--
9	23332.50	--	--	--	--	--	--	--	--
10	25935.00	--	--	--	--	--	--	--	--

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 Horizontal position.



## CA\_41C QPSK 20MHz+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	5166.20	-57.45	3.20	12.50	Horizontal	-48.15	-25.00	23.15	90
3	7752.30	-56.37	4.40	12.20	Horizontal	-48.57	-25.00	23.57	0
4	10340.40	-50.40	4.70	11.30	Horizontal	-43.80	-25.00	18.80	0
5	12930.50	-50.20	5.40	14.00	Horizontal	-41.60	-25.00	16.60	225
6	15522.60	-53.35	6.10	16.80	Horizontal	-42.65	-25.00	17.65	135
7	18116.70	--	--	--	--	--	--	--	--
8	20712.80	--	--	--	--	--	--	--	--
9	23310.90	--	--	--	--	--	--	--	--
10	25911.00	--	--	--	--	--	--	--	--

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 Horizontal position.

**Antenna 2**

LTE Band 12 QPSK 1.4MHz 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	1414.60	-66.91	1.70	8.70	Vertical	-62.06	-13.00	49.06	180
3	2121.27	-64.30	2.10	11.10	Vertical	-57.45	-13.00	44.45	135
4	2828.66	-65.16	2.30	13.10	Vertical	-56.51	-13.00	43.51	45
5	3537.50	-64.70	2.60	12.70	Vertical	-56.75	-13.00	43.75	270
6	4245.00	-63.33	3.30	12.50	Vertical	-56.28	-13.00	43.28	225
7	4952.50	-60.61	3.40	12.50	Vertical	-53.66	-13.00	40.66	180
8	5660.00	-59.82	3.30	12.50	Vertical	-52.77	-13.00	39.77	180
9	6367.50	-57.78	3.80	11.50	Vertical	-52.23	-13.00	39.23	90
10	7075.00	-55.25	4.20	11.80	Vertical	-49.80	-13.00	36.80	180

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

LTE Band 12 QPSK 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	1415.73	-67.31	1.70	8.70	Vertical	-62.46	-13.00	49.46	225
3	2123.53	-64.69	2.10	11.10	Vertical	-57.84	-13.00	44.84	90
4	2828.66	-63.87	2.30	13.10	Vertical	-55.22	-13.00	42.22	180
5	3537.50	-64.12	2.60	12.70	Vertical	-56.17	-13.00	43.17	0
6	4245.00	-63.26	3.30	12.50	Vertical	-56.21	-13.00	43.21	135
7	4952.50	-60.98	3.40	12.50	Vertical	-54.03	-13.00	41.03	135
8	5660.00	-60.01	3.30	12.50	Vertical	-52.96	-13.00	39.96	225
9	6367.50	-58.49	3.80	11.50	Vertical	-52.94	-13.00	39.94	270
10	7075.00	-55.62	4.20	11.80	Vertical	-50.17	-13.00	37.17	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 12 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	1415.13	-66.78	1.70	8.70	Vertical	-61.93	-13.00	48.93	225
3	2121.40	-64.19	2.10	11.10	Vertical	-57.34	-13.00	44.34	225
4	2829.07	-64.14	2.30	13.10	Vertical	-55.49	-13.00	42.49	90
5	3537.50	-64.33	2.60	12.70	Vertical	-56.38	-13.00	43.38	270
6	4245.00	-63.22	3.30	12.50	Vertical	-56.17	-13.00	43.17	0
7	4952.50	-60.76	3.40	12.50	Vertical	-53.81	-13.00	40.81	180
8	5660.00	-59.16	3.30	12.50	Vertical	-52.11	-13.00	39.11	135
9	6367.50	-58.24	3.80	11.50	Vertical	-52.69	-13.00	39.69	0
10	7075.00	-55.23	4.20	11.80	Vertical	-49.78	-13.00	36.78	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 17 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	1419.80	-67.64	1.70	8.70	Vertical	-62.79	-13.00	49.79	90
3	2130.33	-65.12	2.10	11.10	Vertical	-58.27	-13.00	45.27	180
4	2839.07	-65.09	2.50	13.10	Vertical	-56.64	-13.00	43.64	315
5	3550.00	-64.16	2.60	12.70	Vertical	-56.21	-13.00	43.21	0
6	4260.00	-62.20	3.30	12.50	Vertical	-55.15	-13.00	42.15	225
7	4970.00	-60.11	3.40	12.50	Vertical	-53.16	-13.00	40.16	135
8	5680.00	-58.84	3.40	12.80	Vertical	-51.59	-13.00	38.59	270
9	6390.00	-57.09	4.10	11.50	Vertical	-51.84	-13.00	38.84	0
10	7100.00	-56.11	4.20	12.20	Vertical	-50.26	-13.00	37.26	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 17 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	1419.60	-67.66	1.70	8.70	Vertical	-62.81	-13.00	49.81	135
3	2130.73	-64.40	2.10	11.10	Vertical	-57.55	-13.00	44.55	90
4	2840.20	-64.85	2.50	13.10	Vertical	-56.40	-13.00	43.40	225
5	3550.00	-64.67	2.60	12.70	Vertical	-56.72	-13.00	43.72	45
6	4260.00	-62.17	3.30	12.50	Vertical	-55.12	-13.00	42.12	45
7	4970.00	-60.47	3.40	12.50	Vertical	-53.52	-13.00	40.52	45
8	5680.00	-58.57	3.40	12.80	Vertical	-51.32	-13.00	38.32	0
9	6390.00	-57.04	4.10	11.50	Vertical	-51.79	-13.00	38.79	45
10	7100.00	-55.10	4.20	12.20	Vertical	-49.25	-13.00	36.25	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.



## 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
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	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102644	2018-06-20	2023-06-19
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
Preamplifier	R&S	SCU18	102327	2021-05-15	2022-05-14
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.**