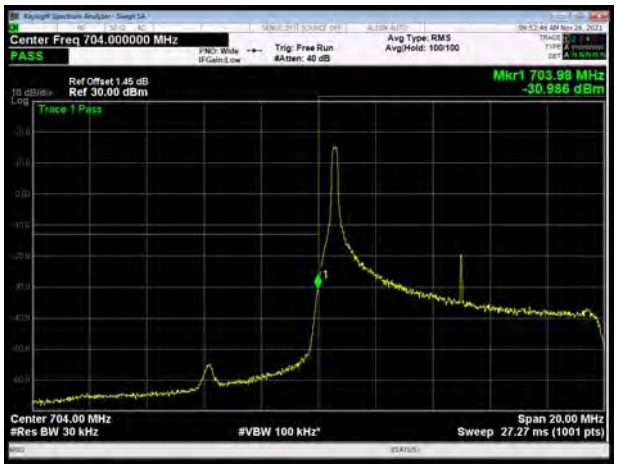
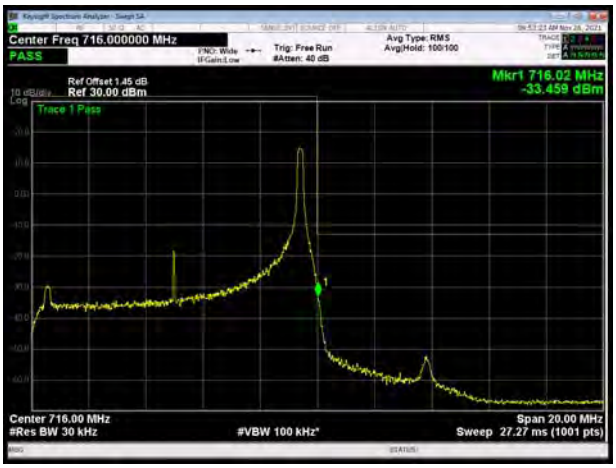
LTE Band 17 16QAM 10MHz CH-Low, 1 RB



LTE Band 17 16QAM 10MHz CH-High, 1 RB



LTE Band 17 16QAM 10MHz CH-Low, 100%RB

LTE Band 17 16QAM 10MHz CH-High, 100%RB

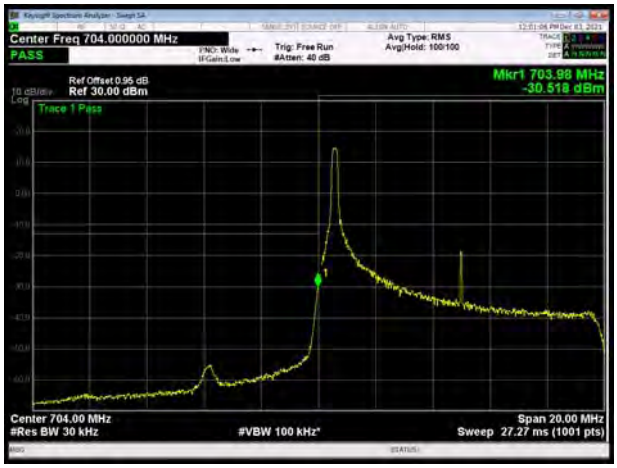
LTE Band 17 64QAM 5MHz CH-Low, 1 RB

LTE Band 17 64QAM 5MHz CH-High, 1 RB

LTE Band 17 64QAM 5MHz CH-Low, 100%RB

LTE Band 17 64QAM 5MHz CH-High, 100%RB

LTE Band 17 64QAM 10MHz CH-Low, 1 RB



LTE Band 17 64QAM 10MHz CH-High, 1 RB

LTE Band 17 64QAM 10MHz CH-Low, 100%RB

LTE Band 17 64QAM 10MHz CH-High, 100%RB

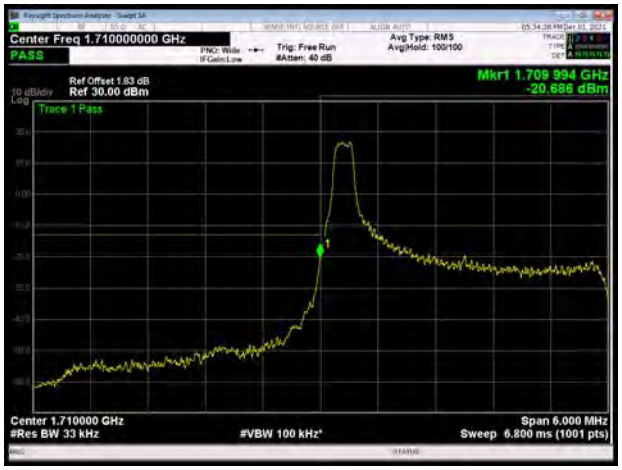
LTE Band 66 QPSK 1.4MHz CH-Low, 1 RB

LTE Band 66 QPSK 1.4MHz CH-High, 1 RB

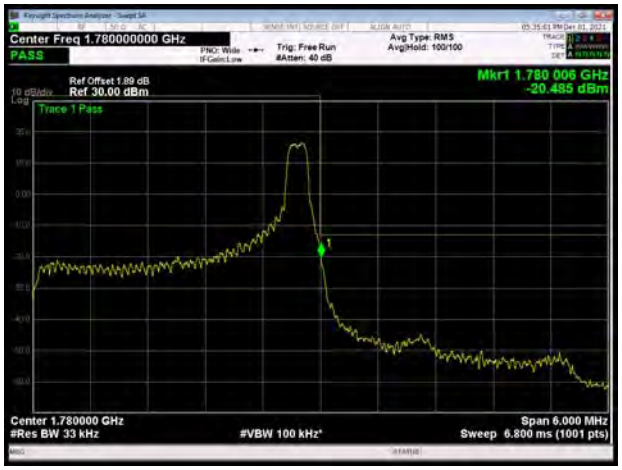
LTE Band 66 QPSK 1.4MHz CH-Low, 100%RB

LTE Band 66 QPSK 1.4MHz CH-High, 100%RB

LTE Band 66 QPSK 3MHz CH-Low, 1 RB



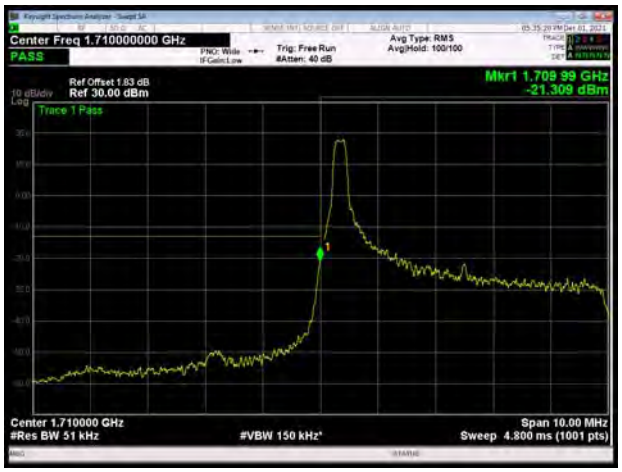
LTE Band 66 QPSK 3MHz CH-High, 1 RB



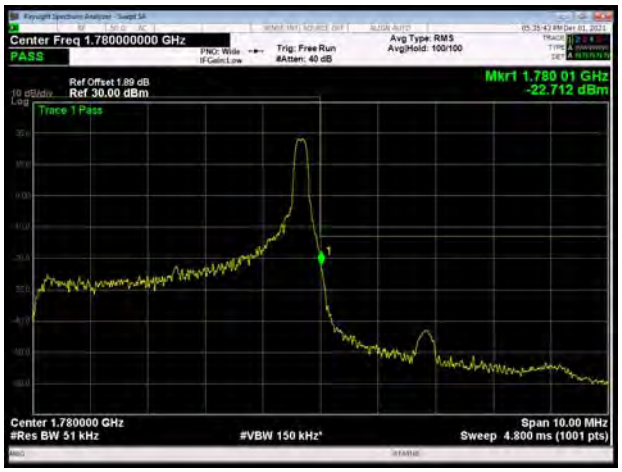
LTE Band 66 QPSK 3MHz CH-Low, 100%RB

LTE Band 66 QPSK 3MHz CH-High, 100%RB

LTE Band 66 QPSK 5MHz CH-Low, 1 RB



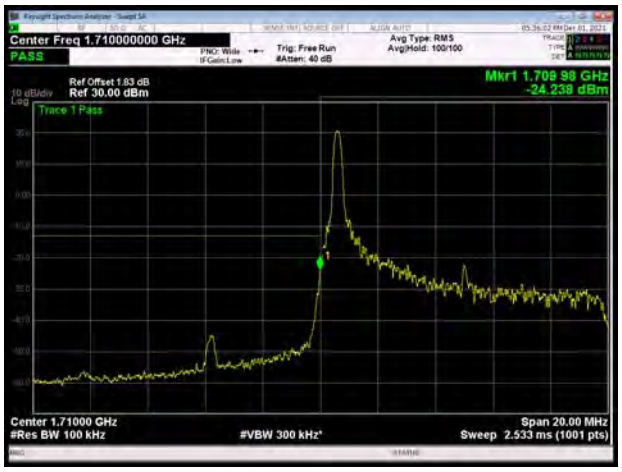
LTE Band 66 QPSK 5MHz CH-High, 1 RB



LTE Band 66 QPSK 5MHz CH-Low, 100%RB

LTE Band 66 QPSK 5MHz CH-High, 100%RB

LTE Band 66 QPSK 10MHz CH-Low, 1 RB



LTE Band 66 QPSK 10MHz CH-High, 1 RB

LTE Band 66 QPSK 10MHz CH-Low, 100%RB

LTE Band 66 QPSK 10MHz CH-High, 100%RB

LTE Band 66 QPSK 15MHz CH-Low, 1 RB

LTE Band 66 QPSK 15MHz CH-High, 1 RB

LTE Band 66 QPSK 15MHz CH-Low, 100%RB

LTE Band 66 QPSK 15MHz CH-High, 100%RB

LTE Band 66 QPSK 20MHz CH-Low, 1 RB

LTE Band 66 QPSK 20MHz CH-High, 1 RB

LTE Band 66 QPSK 20MHz CH-Low, 100%RB

LTE Band 66 QPSK 20MHz CH-High, 100%RB

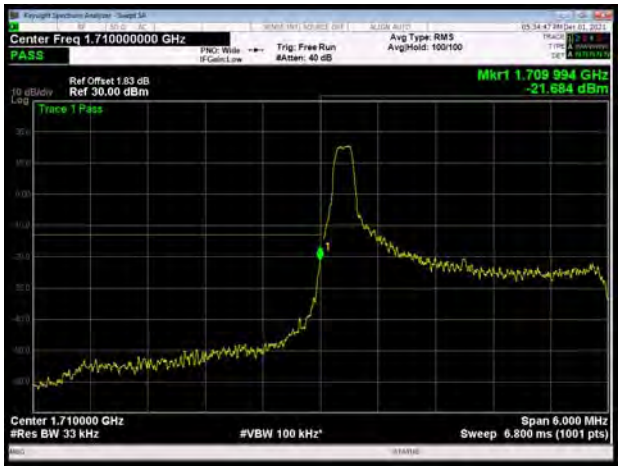
LTE Band 66 16QAM 1.4MHz CH-Low, 1 RB

LTE Band 66 16QAM 1.4MHz CH-High, 1 RB

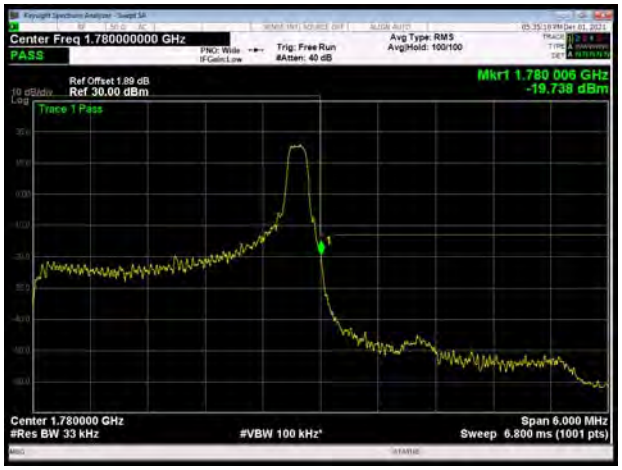
LTE Band 66 16QAM 1.4MHz CH-Low, 100%RB

LTE Band 66 16QAM 1.4MHz CH-High, 100%RB

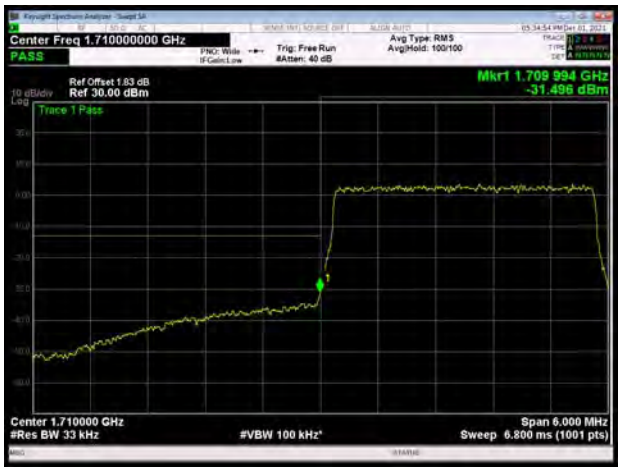
LTE Band 66 16QAM 3MHz CH-Low, 1 RB



LTE Band 66 16QAM 3MHz CH-High, 1 RB

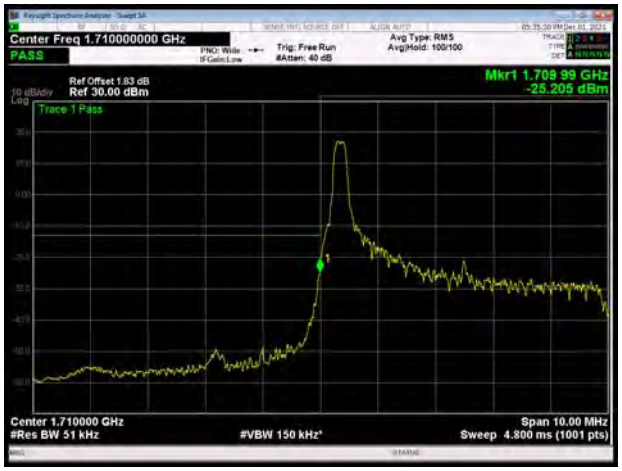


LTE Band 66 16QAM 3MHz CH-Low, 100%RB

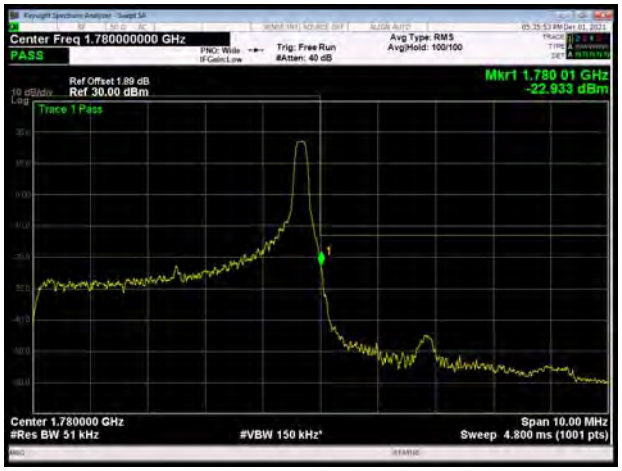


LTE Band 66 16QAM 3MHz CH-High, 100%RB

LTE Band 66 16QAM 5MHz CH-Low, 1 RB



LTE Band 66 16QAM 5MHz CH-High, 1 RB



LTE Band 66 16QAM 5MHz CH-Low, 100%RB

LTE Band 66 16QAM 5MHz CH-High, 100%RB

LTE Band 66 16QAM 10MHz CH-Low, 1 RB

LTE Band 66 16QAM 10MHz CH-High, 1 RB

LTE Band 66 16QAM 10MHz CH-Low, 100%RB

LTE Band 66 16QAM 10MHz CH-High, 100%RB

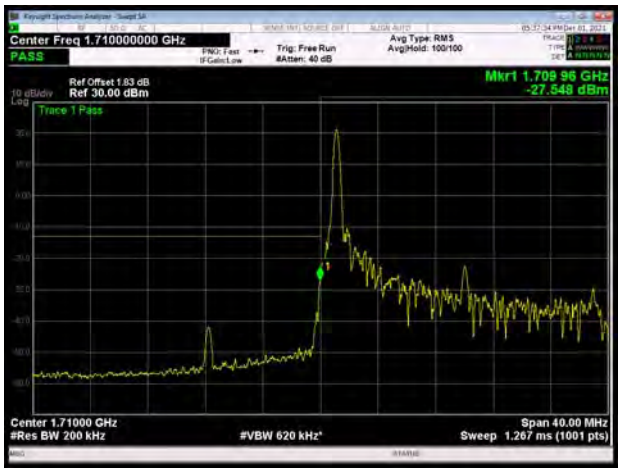
LTE Band 66 16QAM 15MHz CH-Low, 1 RB

LTE Band 66 16QAM 15MHz CH-High, 1 RB

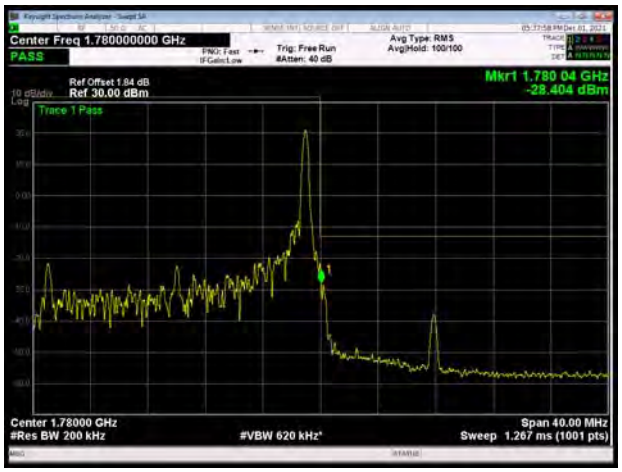
LTE Band 66 16QAM 15MHz CH-Low, 100%RB

LTE Band 66 16QAM 15MHz CH-High, 100%RB

LTE Band 66 16QAM 20MHz CH-Low, 1 RB

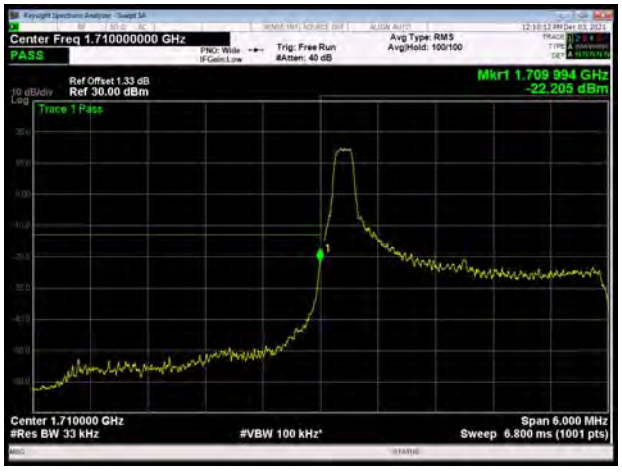
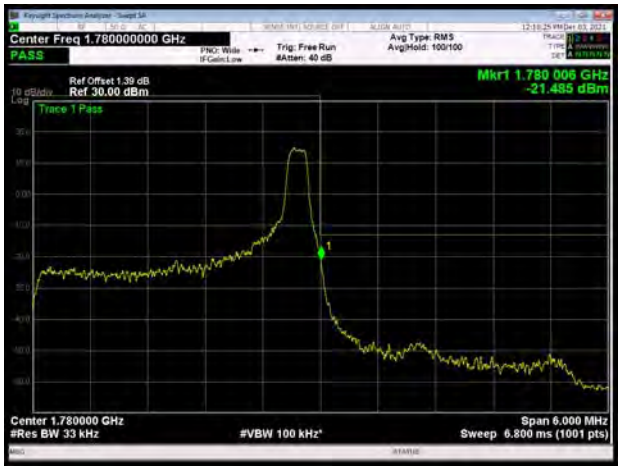


LTE Band 66 16QAM 20MHz CH-High, 1 RB

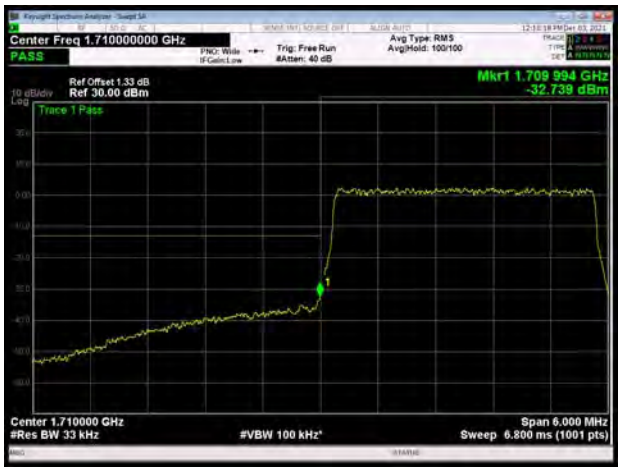


LTE Band 66 16QAM 20MHz CH-Low, 100%RB

LTE Band 66 16QAM 20MHz CH-High, 100%RB

LTE Band 66 64QAM 1.4MHz CH-Low, 1 RB	LTE Band 66 64QAM 1.4MHz CH-High, 1 RB
	
LTE Band 66 64QAM 1.4MHz CH-Low, 100%RB	LTE Band 66 64QAM 1.4MHz CH-High, 100%RB
	
LTE Band 66 64QAM 3MHz CH-Low, 1 RB	LTE Band 66 64QAM 3MHz CH-High, 1 RB
	

LTE Band 66 64QAM 3MHz CH-Low, 100%RB



LTE Band 66 64QAM 3MHz CH-High, 100%RB

LTE Band 66 64QAM 5MHz CH-Low, 1 RB

LTE Band 66 64QAM 5MHz CH-High, 1 RB

LTE Band 66 64QAM 5MHz CH-Low, 100%RB

LTE Band 66 64QAM 5MHz CH-High, 100%RB

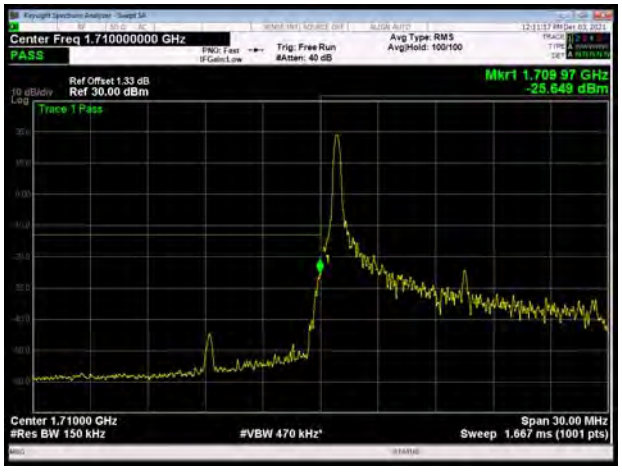
LTE Band 66 64QAM 10MHz CH-Low, 1 RB

LTE Band 66 64QAM 10MHz CH-High, 1 RB

LTE Band 66 64QAM 10MHz CH-Low, 100%RB

LTE Band 66 64QAM 10MHz CH-High, 100%RB

LTE Band 66 64QAM 15MHz CH-Low, 1 RB



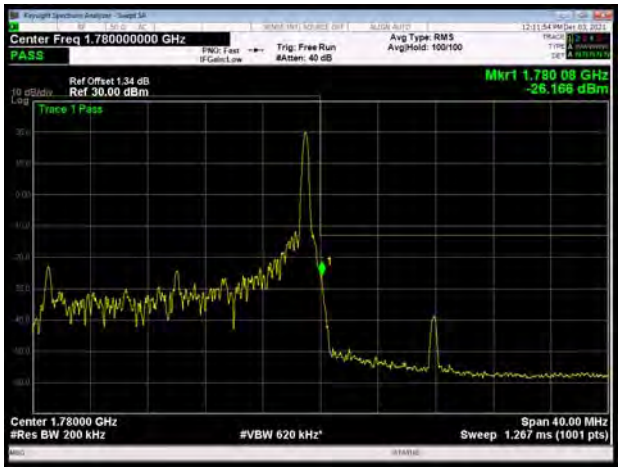
LTE Band 66 64QAM 15MHz CH-High, 1 RB

LTE Band 66 64QAM 15MHz CH-Low, 100%RB

LTE Band 66 64QAM 15MHz CH-High, 100%RB

LTE Band 66 64QAM 20MHz CH-Low, 1 RB

LTE Band 66 64QAM 20MHz CH-High, 1 RB



LTE Band 66 64QAM 20MHz CH-Low, 100%RB

LTE Band 66 64QAM 20MHz CH-High, 100%RB

5.4 Peak-to-Average Power Ratio (PAPR)

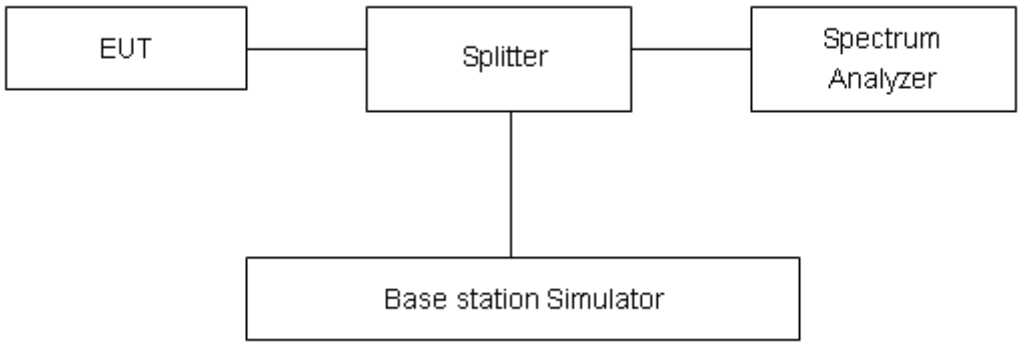
Ambient condition

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

Methods of Measurement

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

Test Setup



Limits

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

Measurement Uncertainty

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

Test Results

WCDMA Band IV	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
RMC	1312	1712.4	26.24	23.35	2.89	≤13	PASS
	1413	1732.6	26.30	23.33	2.97	≤13	PASS
	1513	1752.6	26.08	23.22	2.86	≤13	PASS

LTE Band 4								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	19957	1710.7	26.88	21.77	5.11	≤13	PASS
		20175	1732.5	27.11	21.83	5.28	≤13	PASS
		20393	1754.3	26.75	21.84	4.91	≤13	PASS
	3	19965	1711.5	26.93	21.82	5.11	≤13	PASS
		20175	1732.5	27.01	21.89	5.12	≤13	PASS
		20385	1753.5	26.81	21.91	4.90	≤13	PASS
	5	19975	1712.5	26.82	21.85	4.97	≤13	PASS
		20175	1732.5	27.04	21.86	5.18	≤13	PASS
		20375	1752.5	26.86	21.99	4.87	≤13	PASS
	10	20000	1715	27.00	21.91	5.09	≤13	PASS
		20175	1732.5	27.14	21.95	5.19	≤13	PASS
		20350	1750	26.85	21.96	4.89	≤13	PASS
	15	20025	1717.5	27.38	21.94	5.44	≤13	PASS
		20175	1732.5	27.38	21.91	5.47	≤13	PASS
		20325	1747.5	27.20	21.95	5.25	≤13	PASS
	20	20050	1720	27.14	21.84	5.30	≤13	PASS
		20175	1732.5	27.18	21.89	5.29	≤13	PASS
		20300	1745	27.07	21.91	5.16	≤13	PASS
16QAM	1.4	19957	1710.7	26.45	20.76	5.69	≤13	PASS
		20175	1732.5	26.52	20.77	5.75	≤13	PASS
		20393	1754.3	26.16	20.79	5.37	≤13	PASS
	3	19965	1711.5	26.48	20.76	5.72	≤13	PASS
		20175	1732.5	26.53	20.82	5.71	≤13	PASS
		20385	1753.5	26.27	20.87	5.40	≤13	PASS
	5	19975	1712.5	26.44	20.77	5.67	≤13	PASS
		20175	1732.5	26.58	20.80	5.78	≤13	PASS
		20375	1752.5	26.35	20.94	5.41	≤13	PASS
	10	20000	1715	26.50	20.85	5.65	≤13	PASS
		20175	1732.5	26.65	20.85	5.80	≤13	PASS
		20350	1750	26.27	20.89	5.38	≤13	PASS

	15	20025	1717.5	26.70	20.84	5.86	≤13	PASS
		20175	1732.5	26.75	20.83	5.92	≤13	PASS
		20325	1747.5	26.50	20.87	5.63	≤13	PASS
	20	20050	1720	26.71	20.79	5.92	≤13	PASS
		20175	1732.5	26.77	20.84	5.93	≤13	PASS
		20300	1745	26.59	20.83	5.76	≤13	PASS
64QAM	1.4	19957	1710.7	25.77	19.99	5.78	≤13	PASS
		20175	1732.5	25.76	19.96	5.80	≤13	PASS
		20393	1754.3	25.43	20.03	5.40	≤13	PASS
	3	19965	1711.5	25.58	20.05	5.53	≤13	PASS
		20175	1732.5	25.84	20.06	5.78	≤13	PASS
		20385	1753.5	25.54	20.11	5.43	≤13	PASS
	5	19975	1712.5	25.67	20.10	5.57	≤13	PASS
		20175	1732.5	25.86	20.05	5.81	≤13	PASS
		20375	1752.5	25.53	20.05	5.48	≤13	PASS
	10	20000	1715	25.70	20.04	5.66	≤13	PASS
		20175	1732.5	25.84	20.00	5.84	≤13	PASS
		20350	1750	25.49	20.00	5.49	≤13	PASS
	15	20025	1717.5	25.89	20.00	5.89	≤13	PASS
		20175	1732.5	25.95	19.99	5.96	≤13	PASS
		20325	1747.5	25.70	20.01	5.69	≤13	PASS
	20	20050	1720	25.95	19.95	6.00	≤13	PASS
		20175	1732.5	25.93	19.94	5.99	≤13	PASS
		20300	1745	25.79	20.00	5.79	≤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	27.32	22.21	5.11	≤13	PASS
		21100	2535	27.23	22.00	5.23	≤13	PASS
		21425	2567.5	27.29	22.06	5.23	≤13	PASS
	10	20800	2505	27.40	22.23	5.17	≤13	PASS
		21100	2535	27.19	21.99	5.20	≤13	PASS
		21400	2565	27.23	22.09	5.14	≤13	PASS
	15	20825	2507.5	27.73	22.18	5.55	≤13	PASS
		21100	2535	27.51	22.02	5.49	≤13	PASS
		21375	2562.5	27.68	22.12	5.56	≤13	PASS
	20	20850	2510	27.57	22.24	5.33	≤13	PASS

		21100	2535	27.32	21.99	5.33	≤13	PASS
		21350	2560	27.42	21.99	5.43	≤13	PASS
16QAM	5	20775	2502.5	26.90	21.18	5.72	≤13	PASS
		21100	2535	26.83	20.98	5.85	≤13	PASS
		21425	2567.5	26.94	21.01	5.93	≤13	PASS
	10	20800	2505	27.07	21.15	5.92	≤13	PASS
		21100	2535	26.83	20.97	5.86	≤13	PASS
		21400	2565	26.83	21.04	5.79	≤13	PASS
	15	20825	2507.5	27.20	21.21	5.99	≤13	PASS
		21100	2535	26.89	20.93	5.96	≤13	PASS
		21375	2562.5	27.10	21.07	6.03	≤13	PASS
	20	20850	2510	27.27	21.21	6.06	≤13	PASS
		21100	2535	26.91	20.93	5.98	≤13	PASS
		21350	2560	27.05	20.94	6.11	≤13	PASS
64QAM	5	20775	2502.5	26.22	20.37	5.85	≤13	PASS
		21100	2535	26.00	20.12	5.88	≤13	PASS
		21425	2567.5	26.19	20.17	6.02	≤13	PASS
	10	20800	2505	26.23	20.29	5.94	≤13	PASS
		21100	2535	25.98	20.10	5.88	≤13	PASS
		21400	2565	26.00	20.19	5.81	≤13	PASS
	15	20825	2507.5	26.35	20.32	6.03	≤13	PASS
		21100	2535	26.08	20.09	5.99	≤13	PASS
		21375	2562.5	26.24	20.15	6.09	≤13	PASS
	20	20850	2510	26.18	20.22	5.96	≤13	PASS
		21100	2535	26.07	20.05	6.02	≤13	PASS
		21350	2560	26.10	20.01	6.09	≤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	27.58	22.25	5.33	≤13	PASS
		23095	707.5	27.48	22.32	5.16	≤13	PASS
		23173	715.3	27.50	22.33	5.17	≤13	PASS
	3	23025	700.5	27.82	22.50	5.32	≤13	PASS
		23095	707.5	27.54	22.40	5.14	≤13	PASS

		23165	714.5	27.65	22.43	5.22	≤13	PASS
	5	23035	701.5	27.81	22.47	5.34	≤13	PASS
		23095	707.5	27.56	22.39	5.17	≤13	PASS
		23155	713.5	27.67	22.46	5.21	≤13	PASS
	10	23060	704	27.69	22.46	5.23	≤13	PASS
		23095	707.5	27.55	22.46	5.09	≤13	PASS
		23130	711	27.65	22.43	5.22	≤13	PASS
16QAM	1.4	23017	699.7	27.20	21.30	5.90	≤13	PASS
		23095	707.5	26.96	21.26	5.70	≤13	PASS
		23173	715.3	27.26	21.33	5.93	≤13	PASS
	3	23025	700.5	27.53	21.42	6.11	≤13	PASS
		23095	707.5	27.10	21.36	5.74	≤13	PASS
		23165	714.5	27.39	21.37	6.02	≤13	PASS
	5	23035	701.5	27.51	21.42	6.09	≤13	PASS
		23095	707.5	27.10	21.36	5.74	≤13	PASS
		23155	713.5	27.40	21.39	6.01	≤13	PASS
	10	23060	704	27.38	21.39	5.99	≤13	PASS
		23095	707.5	27.29	21.39	5.90	≤13	PASS
		23130	711	27.31	21.35	5.96	≤13	PASS
64QAM	1.4	23017	699.7	26.69	20.69	6.00	≤13	PASS
		23095	707.5	26.39	20.70	5.69	≤13	PASS
		23173	715.3	26.64	20.67	5.97	≤13	PASS
	3	23025	700.5	26.89	20.86	6.03	≤13	PASS
		23095	707.5	26.43	20.73	5.70	≤13	PASS
		23165	714.5	26.73	20.74	5.99	≤13	PASS
	5	23035	701.5	26.91	20.83	6.08	≤13	PASS
		23095	707.5	26.66	20.78	5.88	≤13	PASS
		23155	713.5	26.83	20.81	6.02	≤13	PASS
	10	23060	704	26.76	20.76	6.00	≤13	PASS
		23095	707.5	26.66	20.78	5.88	≤13	PASS
		23130	711	26.74	20.78	5.96	≤13	PASS

LTE Band 17								
Modulation	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**Peak (dBm)**	**Avg (dBm)**	**PAPR (dB)**	**Limit (dB)**	**Conclusion**
QPSK	5	23755	706.5	27.34	22.11	5.23	≤13	PASS
		23790	710	27.27	22.11	5.16	≤13	PASS
		23825	713.5	27.38	22.14	5.24	≤13	PASS
	10	23780	709	27.31	22.16	5.15	≤13	PASS
		23790	710	27.36	22.17	5.19	≤13	PASS

		23800	711	27.36	22.12	5.24	≤13	PASS
16QAM	5	23755	706.5	27.08	21.10	5.98	≤13	PASS
		23790	710	27.03	21.08	5.95	≤13	PASS
		23825	713.5	27.09	21.06	6.03	≤13	PASS
	10	23780	709	27.03	21.12	5.91	≤13	PASS
		23790	710	27.05	21.05	6.00	≤13	PASS
		23800	711	26.99	21.04	5.95	≤13	PASS
64QAM	5	23755	706.5	26.79	20.82	5.97	≤13	PASS
		23790	710	26.69	20.82	5.87	≤13	PASS
		23825	713.5	26.69	20.74	5.95	≤13	PASS
	10	23780	709	26.68	20.79	5.89	≤13	PASS
		23790	710	26.69	20.76	5.93	≤13	PASS
		23800	711	26.63	20.71	5.92	≤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	27.00	21.96	5.04	≤13	PASS
		132322	1745	26.85	21.98	4.87	≤13	PASS
		132665	1779.3	26.85	21.94	4.91	≤13	PASS
	3	131987	1711.5	27.06	21.96	5.10	≤13	PASS
		132322	1745	26.86	21.98	4.88	≤13	PASS
		132657	1778.5	27.01	22.09	4.92	≤13	PASS
	5	131997	1712.5	27.06	21.98	5.08	≤13	PASS
		132322	1745	26.85	21.99	4.86	≤13	PASS
		132647	1777.5	27.07	22.14	4.93	≤13	PASS
	10	132022	1715	27.11	21.96	5.15	≤13	PASS
		132322	1745	26.84	21.94	4.90	≤13	PASS
		132622	1775	27.06	22.14	4.92	≤13	PASS
	15	132047	1717.5	27.40	21.88	5.52	≤13	PASS
		132322	1745	27.20	21.95	5.25	≤13	PASS
		132597	1772.5	27.35	22.01	5.34	≤13	PASS
	20	132072	1720	27.26	21.91	5.35	≤13	PASS
		132322	1745	27.11	21.98	5.13	≤13	PASS
		132572	1770	27.28	22.06	5.22	≤13	PASS
16QAM	1.4	131979	1710.7	26.62	20.92	5.70	≤13	PASS
		132322	1745	26.20	20.87	5.33	≤13	PASS
		132665	1779.3	26.64	20.95	5.69	≤13	PASS
	3	131987	1711.5	26.66	20.94	5.72	≤13	PASS
		132322	1745	26.35	20.95	5.40	≤13	PASS

		132657	1778.5	26.80	21.08	5.72	≤13	PASS
	5	131997	1712.5	26.73	20.91	5.82	≤13	PASS
		132322	1745	26.32	20.94	5.38	≤13	PASS
		132647	1777.5	26.79	21.08	5.71	≤13	PASS
	10	132022	1715	26.67	20.88	5.79	≤13	PASS
		132322	1745	26.30	20.88	5.42	≤13	PASS
		132622	1775	26.73	21.05	5.68	≤13	PASS
	15	132047	1717.5	26.79	20.81	5.98	≤13	PASS
		132322	1745	26.49	20.87	5.62	≤13	PASS
		132597	1772.5	26.83	20.97	5.86	≤13	PASS
	20	132072	1720	26.85	20.79	6.06	≤13	PASS
		132322	1745	26.64	20.91	5.73	≤13	PASS
		132572	1770	26.99	21.03	5.96	≤13	PASS
64QAM	1.4	131979	1710.7	25.85	20.09	5.76	≤13	PASS
		132322	1745	25.47	20.04	5.43	≤13	PASS
		132665	1779.3	25.71	20.13	5.58	≤13	PASS
	3	131987	1711.5	25.85	20.12	5.73	≤13	PASS
		132322	1745	25.60	20.18	5.42	≤13	PASS
		132657	1778.5	25.96	20.23	5.73	≤13	PASS
	5	131997	1712.5	26.01	20.16	5.85	≤13	PASS
		132322	1745	25.61	20.14	5.47	≤13	PASS
		132647	1777.5	26.00	20.25	5.75	≤13	PASS
	10	132022	1715	25.95	20.16	5.79	≤13	PASS
		132322	1745	25.60	20.10	5.50	≤13	PASS
		132622	1775	25.96	20.21	5.75	≤13	PASS
	15	132047	1717.5	26.11	20.11	6.00	≤13	PASS
		132322	1745	25.78	20.10	5.68	≤13	PASS
		132597	1772.5	26.08	20.15	5.93	≤13	PASS
	20	132072	1720	26.12	20.04	6.08	≤13	PASS
		132322	1745	25.87	20.13	5.74	≤13	PASS
		132572	1770	26.16	20.17	5.99	≤13	PASS

5.5 Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -20°C to +55°C in 10°C step size.

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

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

(3) Repeat the above measurements at 10°C increments from -20°C to +55°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

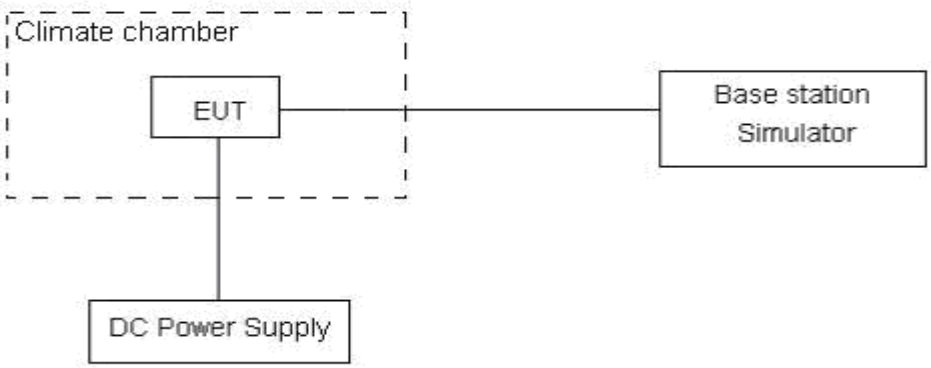
Frequency Stability (Voltage Variation)

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

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

Test setup



Limits

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

Measurement Uncertainty

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

Test Result

WCDMA Band IV						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
Temperature	Voltage	QPSK	BPSK	QPSK	BPSK	
Normal（25℃）	Normal	2.92	3.91	0.00168	0.00226	PASS
Extreme（55℃）		3.92	15.90	0.00226	0.00918	PASS
Extreme（50℃）		4.36	2.85	0.00252	0.00164	PASS
Extreme（40℃）		14.34	15.74	0.00828	0.00909	PASS
Extreme（30℃）		17.56	10.45	0.01013	0.00603	PASS
Extreme（20℃）		2.57	14.06	0.00149	0.00811	PASS
Extreme（10℃）		5.26	6.31	0.00303	0.00364	PASS
Extreme（0℃）		7.11	9.37	0.00410	0.00541	PASS
Extreme（-10℃）		15.06	17.30	0.00869	0.00999	PASS
Extreme（-20℃）		14.53	12.29	0.00839	0.00709	PASS
25℃	LV	9.26	8.84	0.00534	0.00510	PASS
	HV	7.62	3.33	0.00440	0.00192	PASS

LTE Band 4								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	7.89	2.99	16.95	0.00455	0.00173	0.00978	PASS
Extreme（55℃）		15.37	10.77	1.42	0.00887	0.00621	0.00082	PASS
Extreme（50℃）		1.04	4.65	5.53	0.00060	0.00269	0.00319	PASS
Extreme（40℃）		13.83	11.89	7.16	0.00798	0.00686	0.00413	PASS
Extreme（30℃）		13.52	15.34	15.92	0.00781	0.00885	0.00919	PASS
Extreme（20℃）		15.51	7.30	11.25	0.00895	0.00421	0.00650	PASS
Extreme（10℃）		5.14	5.74	3.29	0.00297	0.00331	0.00190	PASS
Extreme（0℃）		6.44	2.66	11.41	0.00372	0.00154	0.00659	PASS
Extreme（-10℃）		2.41	5.32	15.74	0.00139	0.00307	0.00908	PASS
Extreme（-20℃）		2.91	4.93	12.28	0.00168	0.00284	0.00709	PASS
25℃	LV	16.67	9.35	7.20	0.00962	0.00540	0.00416	PASS
	HV	7.04	7.49	16.30	0.00406	0.00432	0.00941	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℃）	Normal	14.59	13.55	16.14	0.00842	0.00782	0.00932	PASS
Extreme（55℃）		15.41	9.49	9.95	0.00890	0.00548	0.00574	PASS
Extreme（50℃）		2.76	10.42	17.10	0.00159	0.00602	0.00987	PASS
Extreme（40℃）		1.97	9.25	14.68	0.00114	0.00534	0.00847	PASS
Extreme（30℃）		12.34	8.00	2.16	0.00712	0.00462	0.00124	PASS
Extreme（20℃）		11.28	12.12	12.95	0.00651	0.00700	0.00747	PASS
Extreme（10℃）		6.81	8.38	12.82	0.00393	0.00484	0.00740	PASS
Extreme（0℃）		16.30	14.15	14.92	0.00941	0.00817	0.00861	PASS
Extreme（-10℃）		6.79	4.96	2.46	0.00392	0.00286	0.00142	PASS
Extreme（-20℃）		14.15	7.48	1.14	0.00817	0.00432	0.00066	PASS
25℃	LV	10.03	12.17	17.16	0.00579	0.00702	0.00991	PASS
	HV	11.86	9.08	5.39	0.00684	0.00524	0.00311	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	9.98	7.43	10.99	0.00576	0.00429	0.00634	PASS
Extreme（55℃）		8.64	1.99	1.84	0.00499	0.00115	0.00106	PASS
Extreme（50℃）		7.89	11.40	4.74	0.00455	0.00658	0.00273	PASS
Extreme（40℃）		5.39	2.61	10.18	0.00311	0.00150	0.00587	PASS
Extreme（30℃）		1.40	11.34	9.33	0.00081	0.00655	0.00539	PASS
Extreme（20℃）		3.44	5.81	3.60	0.00199	0.00335	0.00208	PASS
Extreme（10℃）		1.53	9.80	3.39	0.00088	0.00566	0.00196	PASS
Extreme（0℃）		8.94	15.93	11.65	0.00516	0.00919	0.00672	PASS
Extreme（-10℃）		9.01	6.06	12.00	0.00520	0.00350	0.00693	PASS
Extreme（-20℃）		15.16	9.47	11.15	0.00875	0.00546	0.00644	PASS
25℃	LV	2.46	2.02	1.07	0.00142	0.00117	0.00062	PASS
	HV	14.44	5.96	8.22	0.00834	0.00344	0.00475	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	10.11	2.99	1.17	0.00584	0.00173	0.00068	PASS
Extreme（55℃）		6.37	1.80	15.59	0.00367	0.00104	0.00900	PASS
Extreme（50℃）		7.54	1.44	9.49	0.00435	0.00083	0.00548	PASS
Extreme（40℃）		7.94	12.71	1.42	0.00458	0.00734	0.00082	PASS
Extreme（30℃）		1.22	16.19	16.51	0.00070	0.00934	0.00953	PASS

Extreme（20℃）		1.29	5.98	1.99	0.00075	0.00345	0.00115	PASS
Extreme（10℃）		15.92	11.11	5.78	0.00919	0.00641	0.00334	PASS
Extreme（0℃）		13.89	9.33	1.49	0.00802	0.00538	0.00086	PASS
Extreme（-10℃）		5.39	15.32	14.51	0.00311	0.00884	0.00838	PASS
Extreme（-20℃）		5.93	8.99	5.72	0.00343	0.00519	0.00330	PASS
25℃	LV	7.29	11.54	6.92	0.00421	0.00666	0.00400	PASS
	HV	6.56	2.03	14.62	0.00379	0.00117	0.00844	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	16.13	11.13	1.54	0.00931	0.00643	0.00089	PASS
Extreme（55℃）		9.30	7.94	4.78	0.00537	0.00458	0.00276	PASS
Extreme（50℃）		5.02	14.78	11.58	0.00290	0.00853	0.00668	PASS
Extreme（40℃）		6.90	11.36	12.10	0.00398	0.00656	0.00698	PASS
Extreme（30℃）		14.60	10.47	12.35	0.00843	0.00604	0.00713	PASS
Extreme（20℃）		8.32	5.95	5.04	0.00480	0.00343	0.00291	PASS
Extreme（10℃）		12.76	17.28	3.65	0.00737	0.00997	0.00211	PASS
Extreme（0℃）		10.93	14.16	2.70	0.00631	0.00817	0.00156	PASS
Extreme（-10℃）		17.40	8.12	12.56	0.01004	0.00469	0.00725	PASS
Extreme（-20℃）		1.13	8.20	17.37	0.00065	0.00473	0.01002	PASS
25℃	LV	14.87	13.27	5.14	0.00858	0.00766	0.00297	PASS
	HV	4.94	17.71	3.48	0.00285	0.01022	0.00201	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	3.50	9.32	6.12	0.00202	0.00538	0.00353	PASS
Extreme（55℃）		10.88	4.32	9.48	0.00628	0.00250	0.00547	PASS
Extreme（50℃）		11.57	9.34	2.65	0.00668	0.00539	0.00153	PASS
Extreme（40℃）		1.35	15.82	6.13	0.00078	0.00913	0.00354	PASS
Extreme（30℃）		13.82	9.77	6.57	0.00798	0.00564	0.00379	PASS
Extreme（20℃）		8.90	14.67	17.57	0.00514	0.00846	0.01014	PASS
Extreme（10℃）		15.82	16.80	5.62	0.00913	0.00970	0.00325	PASS
Extreme（0℃）		13.23	17.39	12.38	0.00763	0.01004	0.00715	PASS
Extreme（-10℃）		7.16	13.10	14.69	0.00413	0.00756	0.00848	PASS
Extreme（-20℃）		8.21	8.32	11.44	0.00474	0.00480	0.00660	PASS
25℃	LV	15.78	16.64	10.02	0.00911	0.00961	0.00578	PASS
	HV	9.14	16.62	5.05	0.00527	0.00959	0.00291	PASS

LTE Band 7								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	4.89	3.17	1.85	0.00193	0.00125	0.00073	PASS
Extreme（55℃）		11.61	4.22	10.25	0.00458	0.00167	0.00404	PASS
Extreme（50℃）		16.29	11.55	16.15	0.00643	0.00455	0.00637	PASS
Extreme（40℃）		3.32	4.51	8.69	0.00131	0.00178	0.00343	PASS
Extreme（30℃）		12.68	16.04	16.04	0.00500	0.00633	0.00633	PASS
Extreme（20℃）		17.65	14.01	9.77	0.00696	0.00553	0.00385	PASS
Extreme（10℃）		15.33	14.51	14.22	0.00605	0.00573	0.00561	PASS
Extreme（0℃）		2.39	11.50	13.46	0.00094	0.00454	0.00531	PASS
Extreme（-10℃）		15.79	11.16	2.89	0.00623	0.00440	0.00114	PASS
Extreme（-20℃）		16.24	4.30	8.36	0.00641	0.00169	0.00330	PASS
25℃	LV	9.61	4.90	10.58	0.00379	0.00193	0.00417	PASS
	HV	11.72	14.49	9.91	0.00462	0.00572	0.00391	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	7.73	5.19	10.75	0.00305	0.00205	0.00424	PASS
Extreme（55℃）		15.00	10.05	14.17	0.00592	0.00397	0.00559	PASS
Extreme（50℃）		16.65	1.05	2.20	0.00657	0.00041	0.00087	PASS
Extreme（40℃）		15.00	5.03	5.69	0.00592	0.00198	0.00224	PASS
Extreme（30℃）		14.71	17.87	5.68	0.00580	0.00705	0.00224	PASS
Extreme（20℃）		10.06	9.45	5.20	0.00397	0.00373	0.00205	PASS
Extreme（10℃）		17.67	14.99	7.15	0.00697	0.00592	0.00282	PASS
Extreme（0℃）		10.80	5.21	16.90	0.00426	0.00206	0.00667	PASS
Extreme（-10℃）		14.46	17.00	15.35	0.00570	0.00671	0.00605	PASS
Extreme（-20℃）		12.60	16.22	16.12	0.00497	0.00640	0.00636	PASS
25℃	LV	12.89	7.58	5.84	0.00508	0.00299	0.00230	PASS
	HV	10.88	15.27	16.54	0.00429	0.00602	0.00652	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	4.19	15.01	9.79	0.00165	0.00592	0.00386	PASS
Extreme（55℃）		14.13	13.69	7.65	0.00557	0.00540	0.00302	PASS
Extreme（50℃）		7.95	10.81	2.27	0.00314	0.00427	0.00089	PASS
Extreme（40℃）		8.67	4.39	15.17	0.00342	0.00173	0.00599	PASS

Extreme（30℃）		6.25	12.22	2.62	0.00247	0.00482	0.00103	PASS
Extreme（20℃）		6.61	10.58	10.15	0.00261	0.00417	0.00401	PASS
Extreme（10℃）		11.55	17.43	17.47	0.00456	0.00687	0.00689	PASS
Extreme（0℃）		11.45	11.11	1.99	0.00452	0.00438	0.00078	PASS
Extreme（-10℃）		10.01	17.55	5.66	0.00395	0.00692	0.00223	PASS
Extreme（-20℃）		7.30	17.27	1.97	0.00288	0.00681	0.00078	PASS
25℃	LV	5.49	11.11	8.11	0.00217	0.00438	0.00320	PASS
	HV	17.29	11.31	3.42	0.00682	0.00446	0.00135	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	2.04	14.10	4.37	0.00081	0.00556	0.00173	PASS
Extreme（55℃）		12.75	10.10	9.09	0.00503	0.00398	0.00358	PASS
Extreme（50℃）		17.47	10.05	2.18	0.00689	0.00397	0.00086	PASS
Extreme（40℃）		11.12	14.24	6.23	0.00439	0.00562	0.00246	PASS
Extreme（30℃）		8.47	9.00	3.51	0.00334	0.00355	0.00138	PASS
Extreme（20℃）		7.40	3.61	6.14	0.00292	0.00143	0.00242	PASS
Extreme（10℃）		3.24	17.29	4.04	0.00128	0.00682	0.00159	PASS
Extreme（0℃）		7.59	5.67	8.12	0.00299	0.00224	0.00320	PASS
Extreme（-10℃）		16.28	13.07	2.93	0.00642	0.00516	0.00115	PASS
Extreme（-20℃）		12.21	2.59	14.01	0.00482	0.00102	0.00553	PASS
25℃	LV	10.82	15.73	9.68	0.00427	0.00620	0.00382	PASS
	HV	4.85	2.09	2.69	0.00191	0.00082	0.00106	PASS

LTE Band 12								
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℃）	Normal	13.76	13.37	9.94	0.01945	0.01890	0.01405	PASS
Extreme（55℃）		8.16	13.76	11.63	0.01154	0.01945	0.01643	PASS
Extreme（50℃）		16.87	6.52	16.96	0.02384	0.00921	0.02397	PASS
Extreme（40℃）		12.23	6.72	1.20	0.01729	0.00949	0.00169	PASS
Extreme（30℃）		5.05	10.89	12.91	0.00714	0.01539	0.01825	PASS
Extreme（20℃）		5.86	1.43	14.67	0.00828	0.00202	0.02073	PASS
Extreme（10℃）		13.81	13.48	11.38	0.01952	0.01905	0.01608	PASS
Extreme（0℃）		4.80	10.78	6.69	0.00678	0.01524	0.00946	PASS
Extreme（-10℃）		8.85	6.72	8.99	0.01250	0.00950	0.01271	PASS
Extreme（-20℃）		10.97	1.22	17.67	0.01551	0.00173	0.02498	PASS
25℃	LV	17.61	14.65	1.22	0.02488	0.02070	0.00172	PASS

	HV	4.63	13.11	16.97	0.00654	0.01854	0.02398	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℃）	Normal	16.91	7.51	13.28	0.02390	0.01062	0.01878	PASS
Extreme（55℃）		1.08	9.08	7.12	0.00153	0.01284	0.01006	PASS
Extreme（50℃）		1.12	16.28	9.73	0.00158	0.02302	0.01375	PASS
Extreme（40℃）		15.32	14.75	10.47	0.02165	0.02085	0.01480	PASS
Extreme（30℃）		14.53	6.45	10.60	0.02053	0.00911	0.01498	PASS
Extreme（20℃）		4.43	7.12	3.96	0.00626	0.01006	0.00560	PASS
Extreme（10℃）		1.89	14.11	7.10	0.00267	0.01994	0.01004	PASS
Extreme（0℃）		10.71	3.29	4.34	0.01513	0.00465	0.00613	PASS
Extreme（-10℃）		6.69	7.91	4.41	0.00945	0.01118	0.00623	PASS
Extreme（-20℃）		16.58	13.15	13.95	0.02343	0.01859	0.01971	PASS
25℃	LV	13.52	4.87	14.25	0.01911	0.00688	0.02015	PASS
	HV	13.97	12.12	13.03	0.01975	0.01714	0.01841	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	9.27	9.54	10.96	0.01310	0.01349	0.01550	PASS
Extreme（55℃）		13.05	2.02	6.50	0.01844	0.00286	0.00918	PASS
Extreme（50℃）		14.37	10.61	8.56	0.02031	0.01499	0.01210	PASS
Extreme（40℃）		11.60	16.72	5.78	0.01639	0.02364	0.00817	PASS
Extreme（30℃）		6.36	3.44	17.44	0.00899	0.00486	0.02464	PASS
Extreme（20℃）		5.13	16.28	6.90	0.00725	0.02301	0.00975	PASS
Extreme（10℃）		11.17	6.09	13.65	0.01579	0.00861	0.01929	PASS
Extreme（0℃）		6.08	8.84	7.90	0.00859	0.01249	0.01116	PASS
Extreme（-10℃）		8.73	12.57	4.67	0.01234	0.01777	0.00660	PASS
Extreme（-20℃）		13.29	1.75	11.00	0.01879	0.00247	0.01555	PASS
25℃	LV	15.97	9.28	5.21	0.02257	0.01312	0.00736	PASS
	HV	14.17	2.75	12.68	0.02003	0.00389	0.01793	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	10.07	5.08	5.78	0.01423	0.00719	0.00816	PASS
Extreme（55℃）		11.68	9.37	3.96	0.01650	0.01325	0.00560	PASS
Extreme（50℃）		12.77	3.78	12.36	0.01804	0.00534	0.01747	PASS
Extreme（40℃）		16.66	9.76	5.93	0.02355	0.01379	0.00837	PASS

Extreme（30℃）		3.08	1.67	6.58	0.00436	0.00236	0.00930	PASS
Extreme（20℃）		10.70	14.03	10.76	0.01512	0.01983	0.01520	PASS
Extreme（10℃）		3.79	16.53	3.55	0.00536	0.02336	0.00502	PASS
Extreme（0℃）		4.25	1.39	13.03	0.00601	0.00197	0.01842	PASS
Extreme（-10℃）		8.93	10.68	12.79	0.01262	0.01510	0.01808	PASS
Extreme（-20℃）		13.43	2.02	8.73	0.01899	0.00285	0.01234	PASS
25℃	LV	8.88	7.35	8.20	0.01256	0.01038	0.01160	PASS
	HV	14.89	10.11	15.48	0.02104	0.01429	0.02188	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℃）	Normal	6.21	6.60	14.64	0.00874	0.00929	0.02062	PASS
Extreme（55℃）		11.86	7.24	2.34	0.01671	0.01020	0.00329	PASS
Extreme（50℃）		11.17	16.82	17.33	0.01573	0.02369	0.02441	PASS
Extreme（40℃）		12.17	2.32	15.67	0.01714	0.00326	0.02207	PASS
Extreme（30℃）		9.65	14.62	5.95	0.01360	0.02059	0.00838	PASS
Extreme（20℃）		7.90	15.52	11.79	0.01113	0.02186	0.01661	PASS
Extreme（10℃）		7.37	17.58	16.59	0.01039	0.02476	0.02336	PASS
Extreme（0℃）		17.27	3.02	5.67	0.02433	0.00425	0.00799	PASS
Extreme（-10℃）		2.25	5.05	16.80	0.00317	0.00712	0.02367	PASS
Extreme（-20℃）		5.20	12.16	1.38	0.00732	0.01712	0.00194	PASS
25℃	LV	5.24	9.91	7.47	0.00738	0.01395	0.01052	PASS
	HV	3.07	17.90	14.68	0.00432	0.02521	0.02068	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	9.26	12.67	4.74	0.01304	0.01784	0.00668	PASS
Extreme（55℃）		10.90	17.59	5.93	0.01535	0.02478	0.00835	PASS
Extreme（50℃）		13.75	12.63	14.00	0.01936	0.01779	0.01972	PASS
Extreme（40℃）		13.50	2.84	11.51	0.01901	0.00401	0.01621	PASS
Extreme（30℃）		3.96	2.99	8.37	0.00558	0.00422	0.01179	PASS
Extreme（20℃）		10.77	5.63	7.27	0.01517	0.00793	0.01025	PASS
Extreme（10℃）		13.70	1.96	12.94	0.01929	0.00276	0.01823	PASS
Extreme（0℃）		14.65	5.96	5.70	0.02064	0.00839	0.00802	PASS
Extreme（-10℃）		16.71	11.40	12.56	0.02353	0.01605	0.01770	PASS
Extreme（-20℃）		7.59	10.64	13.87	0.01068	0.01499	0.01953	PASS
25℃	LV	10.05	9.10	14.16	0.01415	0.01282	0.01995	PASS
	HV	11.70	5.80	6.70	0.01648	0.00817	0.00943	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℃）	Normal	17.00	15.00	17.00	0.00974	0.00860	0.00974	PASS
Extreme（55℃）		3.00	10.00	7.00	0.00172	0.00573	0.00401	PASS
Extreme（50℃）		14.00	8.00	12.00	0.00802	0.00458	0.00688	PASS
Extreme（40℃）		13.00	14.00	17.00	0.00745	0.00802	0.00974	PASS
Extreme（30℃）		6.00	12.00	5.00	0.00344	0.00688	0.00287	PASS
Extreme（20℃）		10.00	13.00	12.00	0.00573	0.00745	0.00688	PASS
Extreme（10℃）		14.00	4.00	12.00	0.00802	0.00229	0.00688	PASS
Extreme（0℃）		10.00	16.00	13.00	0.00573	0.00917	0.00745	PASS
Extreme（-10℃）		7.00	16.00	11.00	0.00401	0.00917	0.00630	PASS
Extreme（-20℃）		16.00	15.00	11.00	0.00917	0.00860	0.00630	PASS
25℃	LV	11.00	4.00	3.00	0.00630	0.00229	0.00172	PASS
	HV	12.00	1.00	9.00	0.00688	0.00057	0.00516	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℃）	Normal	11.00	13.00	3.00	0.00630	0.00745	0.00172	PASS
Extreme（55℃）		15.00	15.00	4.00	0.00860	0.00860	0.00229	PASS
Extreme（50℃）		9.00	15.00	3.00	0.00516	0.00860	0.00172	PASS
Extreme（40℃）		9.00	4.00	15.00	0.00516	0.00229	0.00860	PASS
Extreme（30℃）		11.00	13.00	16.00	0.00630	0.00745	0.00917	PASS
Extreme（20℃）		4.00	6.00	14.00	0.00229	0.00344	0.00802	PASS
Extreme（10℃）		7.00	5.00	10.00	0.00401	0.00287	0.00573	PASS
Extreme（0℃）		3.00	17.00	5.00	0.00172	0.00974	0.00287	PASS
Extreme（-10℃）		17.00	15.00	6.00	0.00974	0.00860	0.00344	PASS
Extreme（-20℃）		10.00	4.00	6.00	0.00573	0.00229	0.00344	PASS
25℃	LV	14.00	1.00	15.00	0.00802	0.00057	0.00860	PASS
	HV	9.00	13.00	6.00	0.00516	0.00745	0.00344	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	17.00	11.00	12.00	0.00974	0.00630	0.00688	PASS
Extreme（55℃）		17.00	1.00	9.00	0.00974	0.00057	0.00516	PASS
Extreme（50℃）		3.00	4.00	17.00	0.00172	0.00229	0.00974	PASS
Extreme（40℃）		6.00	5.00	7.00	0.00344	0.00287	0.00401	PASS

Extreme（30℃）		11.00	1.00	3.00	0.00630	0.00057	0.00172	PASS
Extreme（20℃）		17.00	2.00	10.00	0.00974	0.00115	0.00573	PASS
Extreme（10℃）		16.00	7.00	12.00	0.00917	0.00401	0.00688	PASS
Extreme（0℃）		1.00	17.00	3.00	0.00057	0.00974	0.00172	PASS
Extreme（-10℃）		8.00	13.00	16.00	0.00458	0.00745	0.00917	PASS
Extreme（-20℃）		12.00	3.00	1.00	0.00688	0.00172	0.00057	PASS
25℃	LV	9.00	8.00	13.00	0.00516	0.00458	0.00745	PASS
	HV	11.00	8.00	17.00	0.00630	0.00458	0.00974	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	8.00	6.00	5.00	0.00458	0.00344	0.00287	PASS
Extreme（55℃）		3.00	4.00	7.00	0.00172	0.00229	0.00401	PASS
Extreme（50℃）		5.00	6.00	8.00	0.00287	0.00344	0.00458	PASS
Extreme（40℃）		9.00	10.00	11.00	0.00516	0.00573	0.00630	PASS
Extreme（30℃）		7.00	10.00	9.00	0.00401	0.00573	0.00516	PASS
Extreme（20℃）		9.00	7.00	7.00	0.00516	0.00401	0.00401	PASS
Extreme（10℃）		15.00	11.00	2.00	0.00860	0.00630	0.00115	PASS
Extreme（0℃）		17.00	9.00	8.00	0.00974	0.00516	0.00458	PASS
Extreme（-10℃）		15.00	11.00	3.00	0.00860	0.00630	0.00172	PASS
Extreme（-20℃）		14.00	5.00	11.00	0.00802	0.00287	0.00630	PASS
25℃	LV	1.00	14.00	10.00	0.00057	0.00802	0.00573	PASS
	HV	2.00	12.00	10.00	0.00115	0.00688	0.00573	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	16.00	13.00	12.00	0.00917	0.00745	0.00688	PASS
Extreme（55℃）		4.00	15.00	1.00	0.00229	0.00860	0.00057	PASS
Extreme（50℃）		9.00	2.00	14.00	0.00516	0.00115	0.00802	PASS
Extreme（40℃）		2.00	10.00	16.00	0.00115	0.00573	0.00917	PASS
Extreme（30℃）		11.00	11.00	2.00	0.00630	0.00630	0.00115	PASS
Extreme（20℃）		4.00	8.00	4.00	0.00229	0.00458	0.00229	PASS
Extreme（10℃）		14.00	12.00	12.00	0.00802	0.00688	0.00688	PASS
Extreme（0℃）		9.00	14.00	1.00	0.00516	0.00802	0.00057	PASS
Extreme（-10℃）		12.00	16.00	17.00	0.00688	0.00917	0.00974	PASS
Extreme（-20℃）		14.00	17.00	17.00	0.00802	0.00974	0.00974	PASS
25℃	LV	14.00	4.00	16.00	0.00802	0.00229	0.00917	PASS
	HV	6.00	6.00	15.00	0.00344	0.00344	0.00860	PASS
Condition		Freq.Error	Freq.Error	Freq.Error	Frequency	Frequency	Frequency	Verdict

		(Hz)	(Hz)	(Hz)	Stability （ppm）	Stability （ppm）	Stability （ppm）	
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	12.00	14.00	2.00	0.00688	0.00802	0.00115	PASS
Extreme（55℃）		3.00	11.00	15.00	0.00172	0.00630	0.00860	PASS
Extreme（50℃）		10.00	2.00	3.00	0.00573	0.00115	0.00172	PASS
Extreme（40℃）		11.00	9.00	16.00	0.00630	0.00516	0.00917	PASS
Extreme（30℃）		5.00	2.00	9.00	0.00287	0.00115	0.00516	PASS
Extreme（20℃）		7.00	11.00	7.00	0.00401	0.00630	0.00401	PASS
Extreme（10℃）		3.00	12.00	1.00	0.00172	0.00688	0.00057	PASS
Extreme（0℃）		5.00	5.00	5.00	0.00287	0.00287	0.00287	PASS
Extreme（-10℃）		1.00	16.00	9.00	0.00057	0.00917	0.00516	PASS
Extreme（-20℃）		10.00	8.00	1.00	0.00573	0.00458	0.00057	PASS
25℃	LV	2.00	17.00	12.00	0.00115	0.00974	0.00688	PASS
	HV	3.00	2.00	16.00	0.00172	0.00115	0.00917	PASS

5.6 Spurious Emissions at Antenna Terminals

Ambient condition

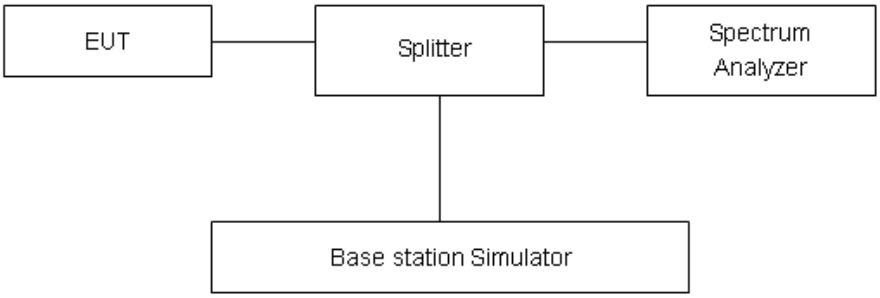
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 log10 (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(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.

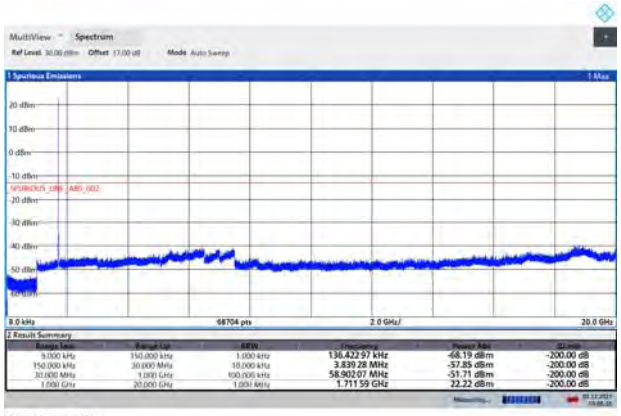
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

Test Result

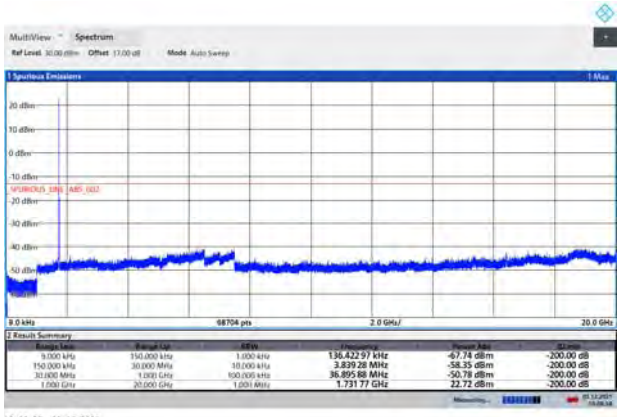
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

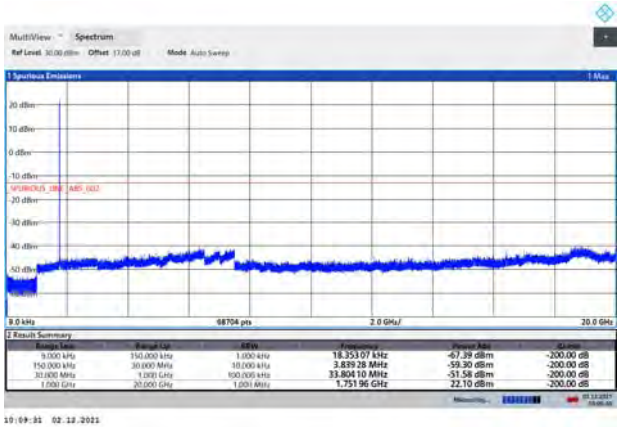
WCDMA Band IV CH-Low 9kHz~20GHz



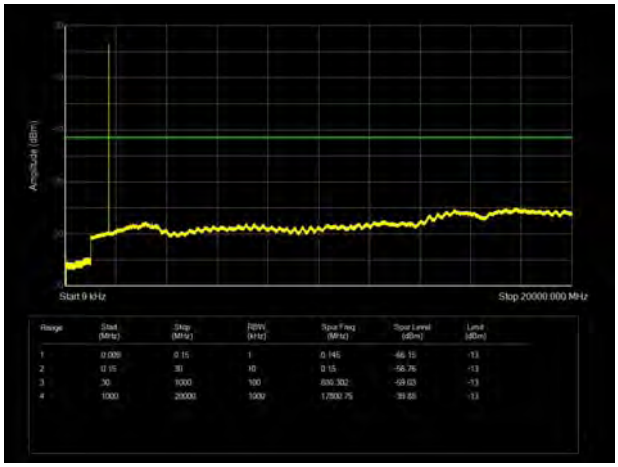
WCDMA Band IV CH-Middle 9kHz~20GHz



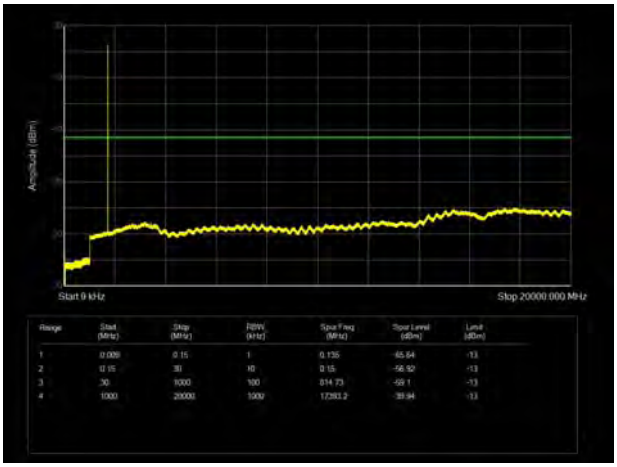
WCDMA Band IV CH-High 9kHz~20GHz



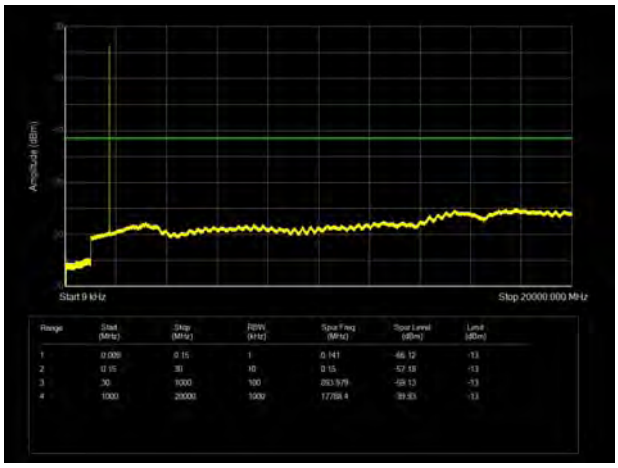
LTE Band 4 1.4MHz CH-Low 9kHz~20GHz



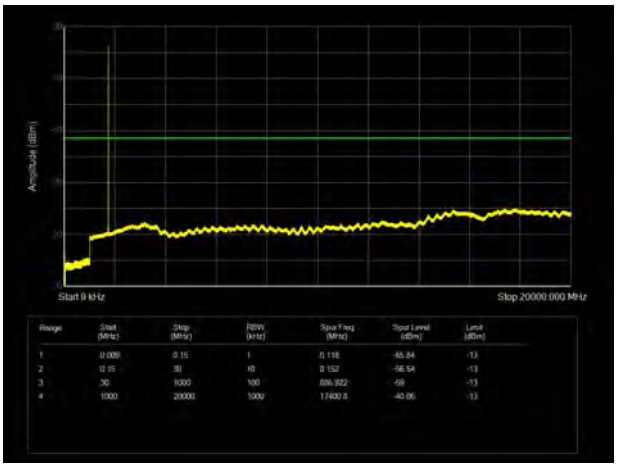
LTE Band 4 3MHz CH- Low 9kHz~20GHz



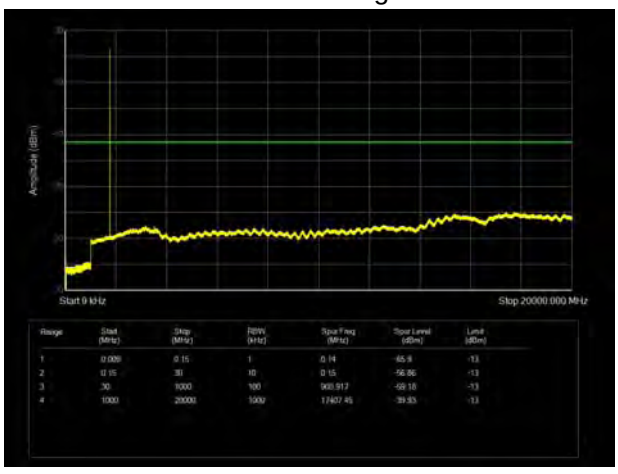
LTE Band 4 1.4MHz CH- Middle 9kHz~20GHz



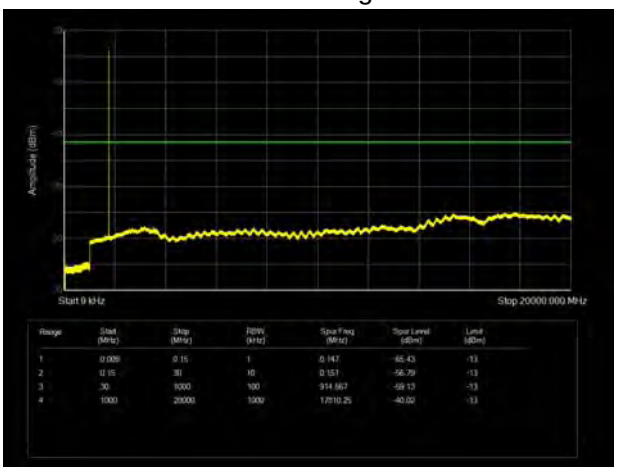
LTE Band 4 3MHz CH- Middle 9kHz~20GHz



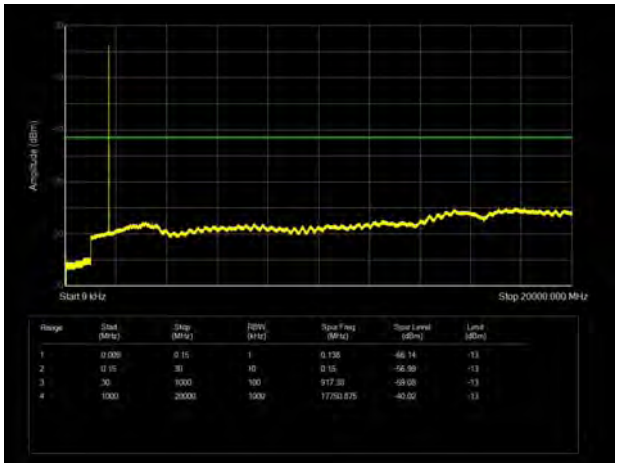
LTE Band 4 1.4MHz CH- High 9kHz~20GHz



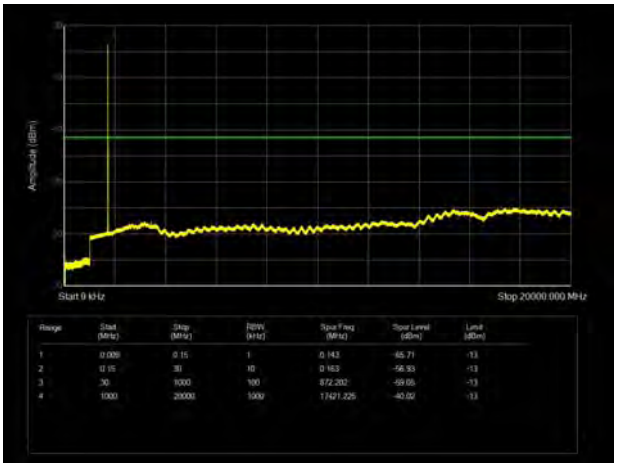
LTE Band 4 3MHz CH-High 9kHz~20GHz



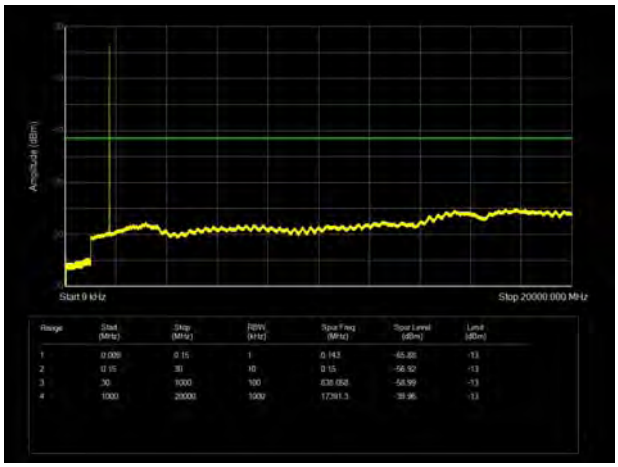
LTE Band 4 5MHz CH- Low 9kHz~20GHz



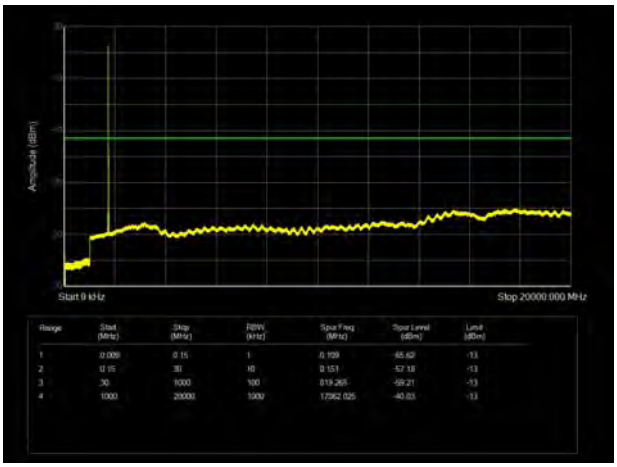
LTE Band 4 10MHz CH-Low 9kHz~20GHz



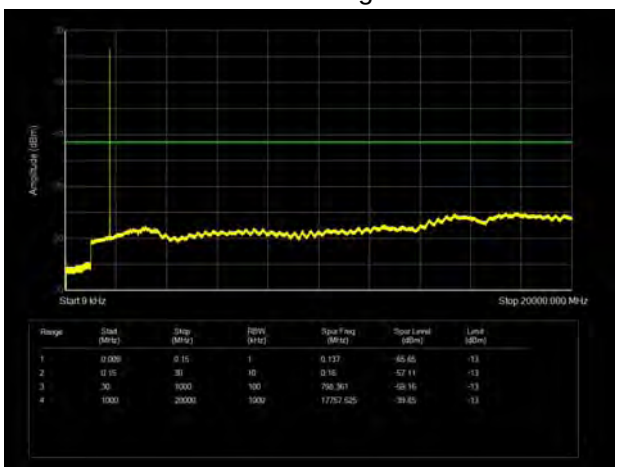
LTE Band 4 5MHz CH- Middle 9kHz~20GHz



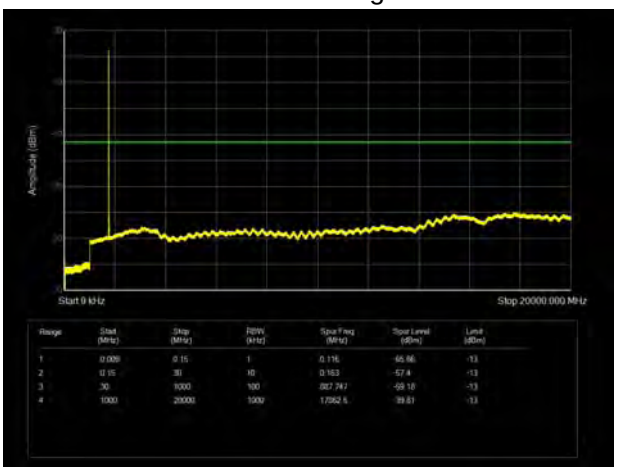
LTE Band 4 10MHz CH- Middle 9kHz~20GHz



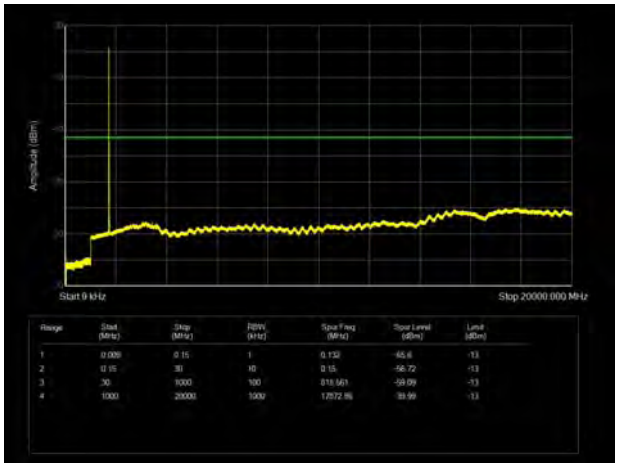
LTE Band 4 5MHz CH-High 9kHz~20GHz



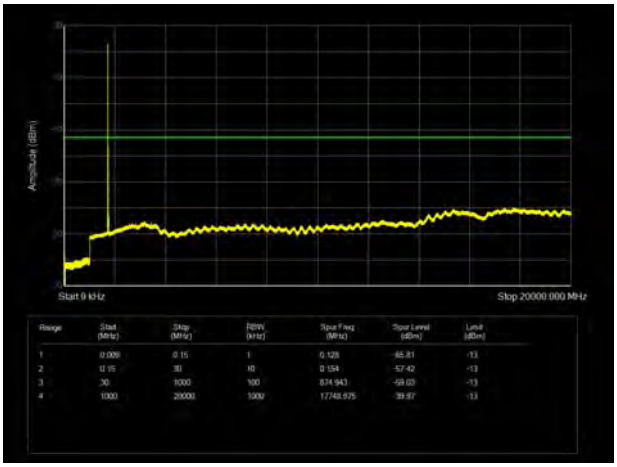
LTE Band 4 10MHz CH- High 9kHz~20GHz



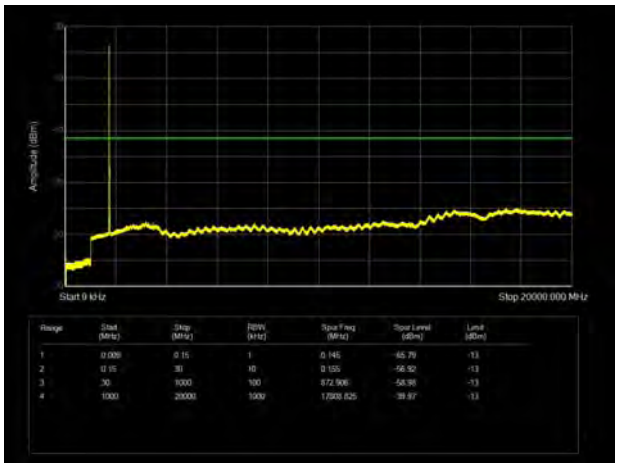
LTE Band 4 15MHz CH- Low 9kHz~20GHz



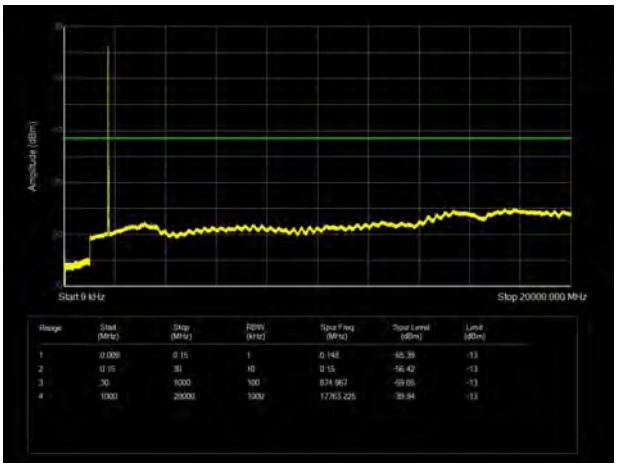
LTE Band 4 20MHz CH-Low 9kHz~20GHz



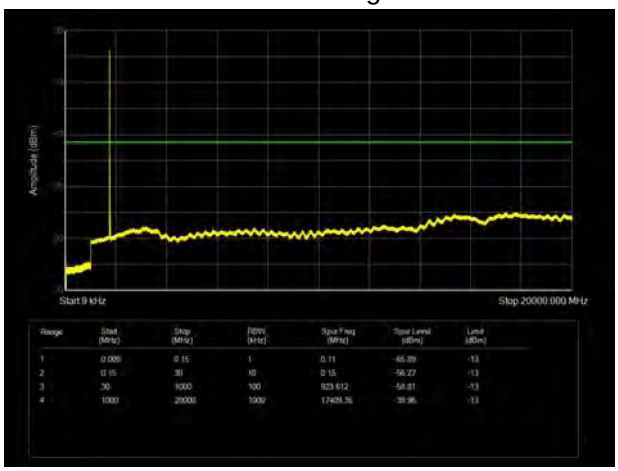
LTE Band 4 15MHz CH- Middle 9kHz~20GHz



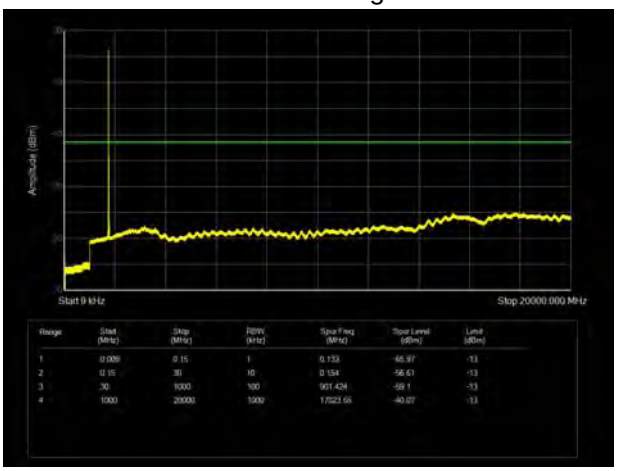
LTE Band 4 20MHz CH- Middle 9kHz~20GHz



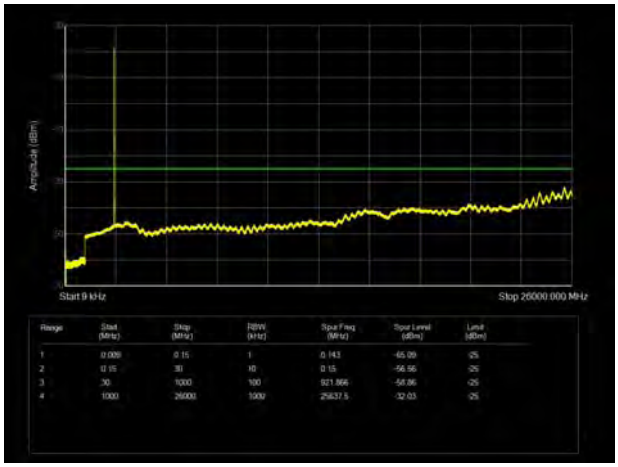
LTE Band 4 15MHz CH-High 9kHz~20GHz



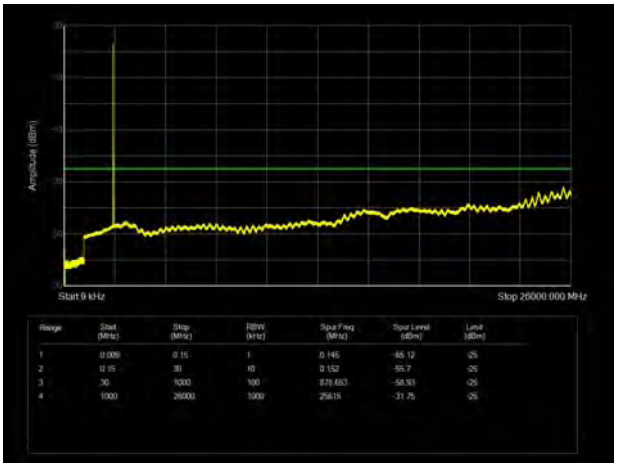
LTE Band 4 20MHz CH- High 9kHz~20GHz



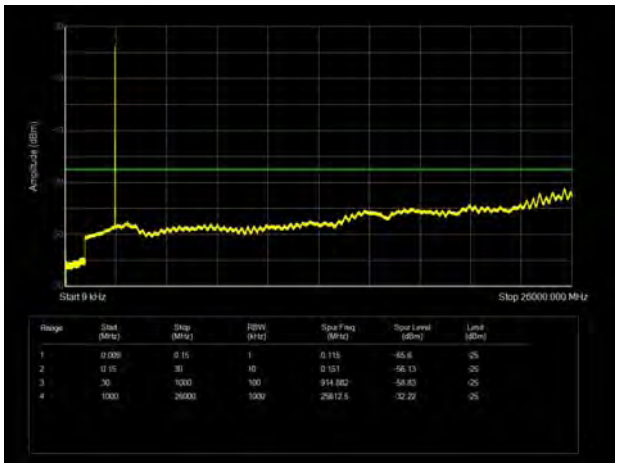
LTE Band 7 5MHz CH- Low 9kHz~26GHz



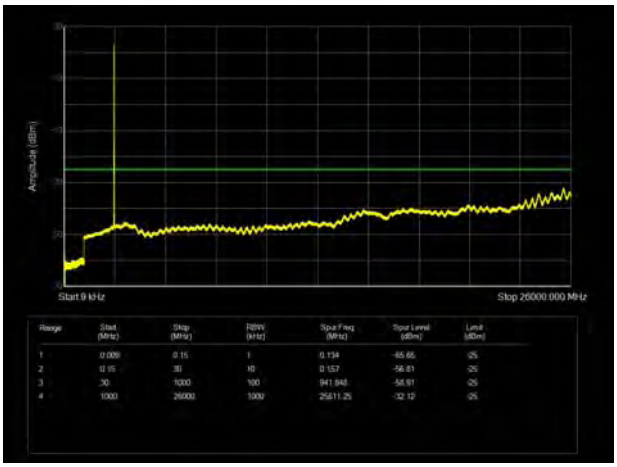
LTE Band 7 10MHz CH-Low 9kHz~26GHz



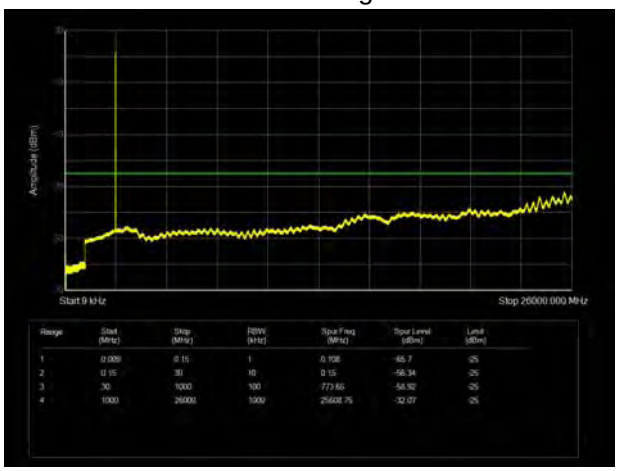
LTE Band 7 5MHz CH- Middle 9kHz~26GHz



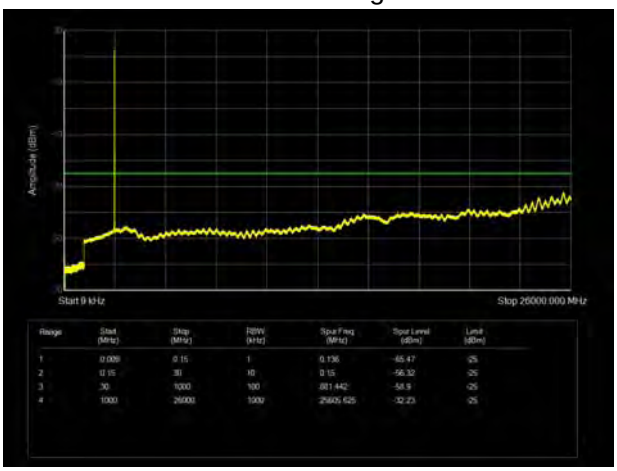
LTE Band 7 10MHz CH- Middle 9kHz~26GHz



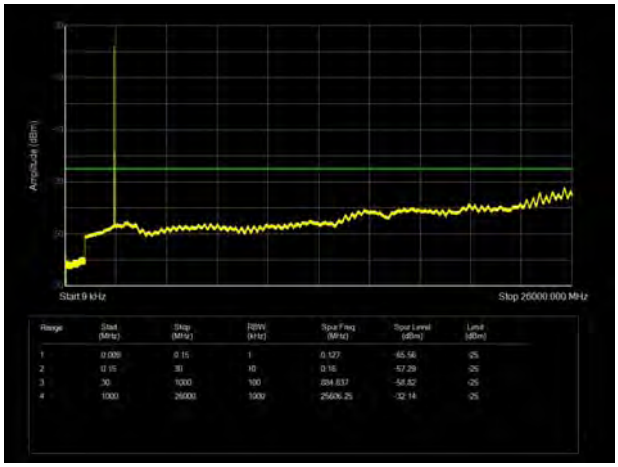
LTE Band 7 5MHz CH-High 9kHz~26GHz



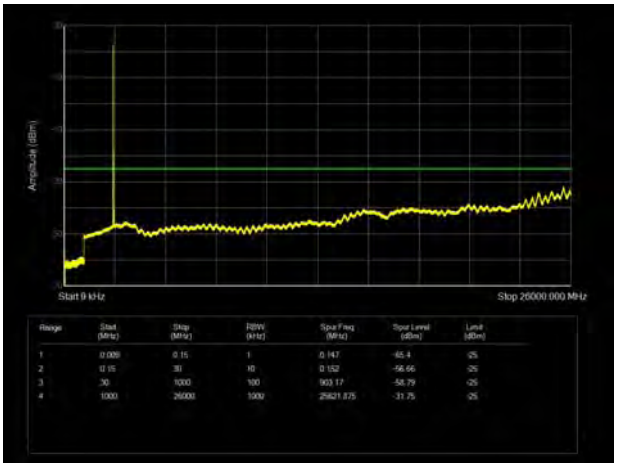
LTE Band 7 10MHz CH- High 9kHz~26GHz



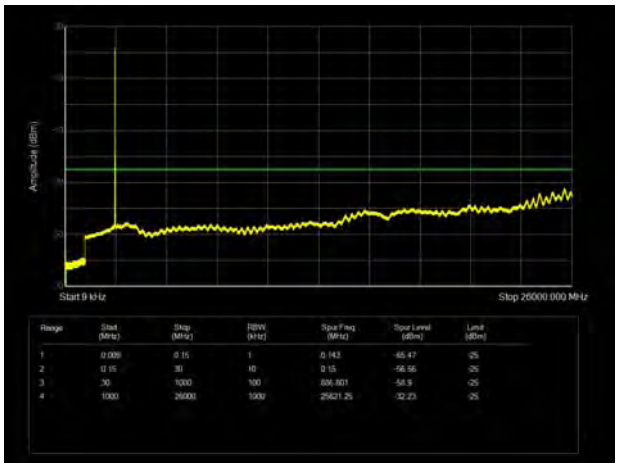
LTE Band 7 15MHz CH- Low 9kHz~26GHz



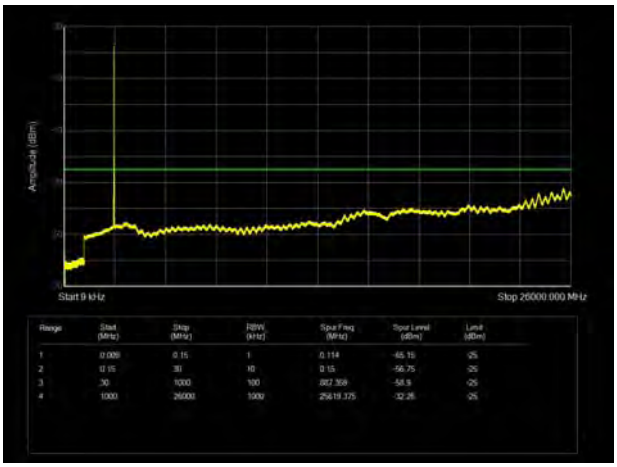
LTE Band 7 20MHz CH-Low 9kHz~26GHz



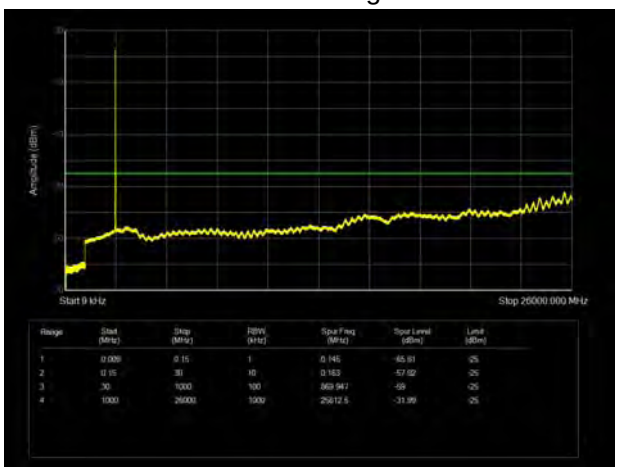
LTE Band 7 15MHz CH- Middle 9kHz~26GHz



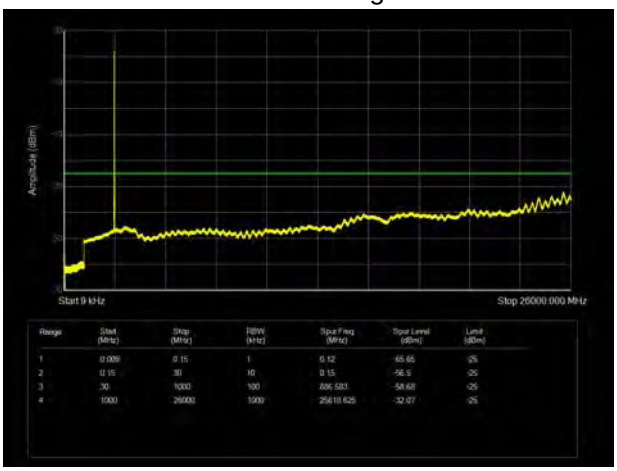
LTE Band 7 20MHz CH- Middle 9kHz~26GHz



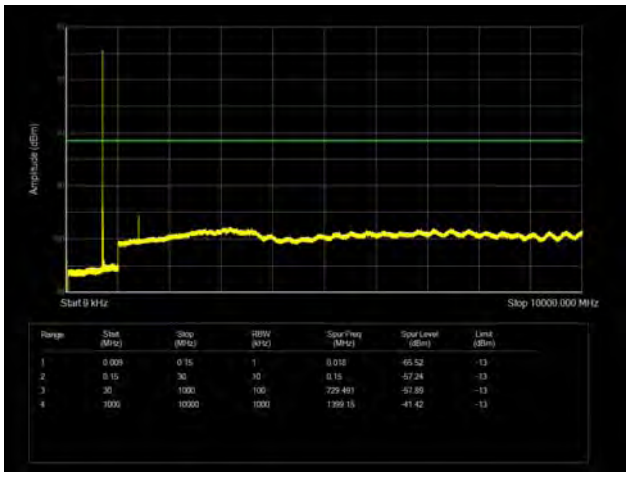
LTE Band 7 15MHz CH-High 9kHz~26GHz



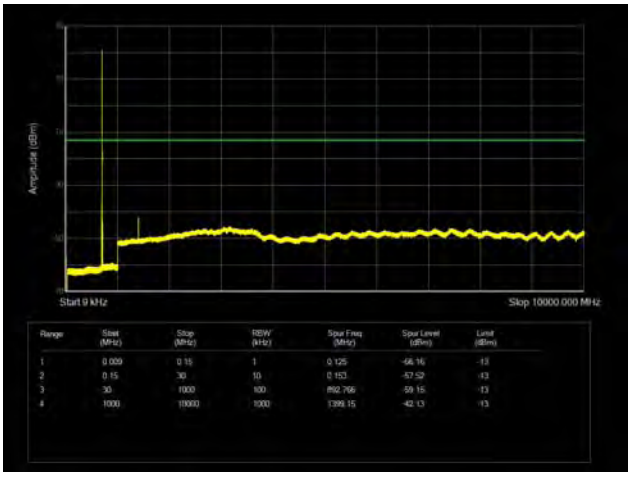
LTE Band 7 20MHz CH- High 9kHz~26GHz



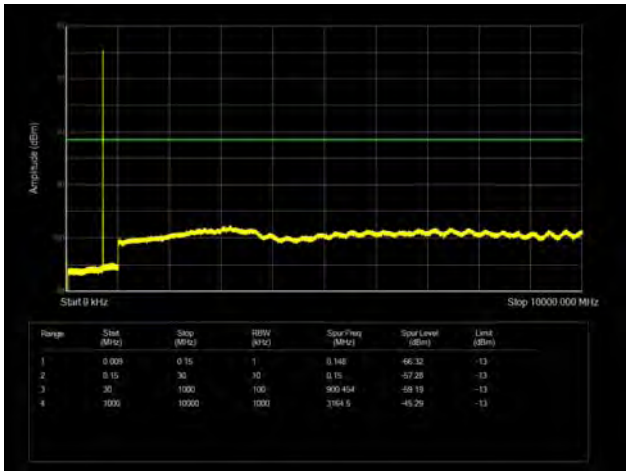
LTE Band 12 1.4MHz CH-Low 9kHz ~10GHz



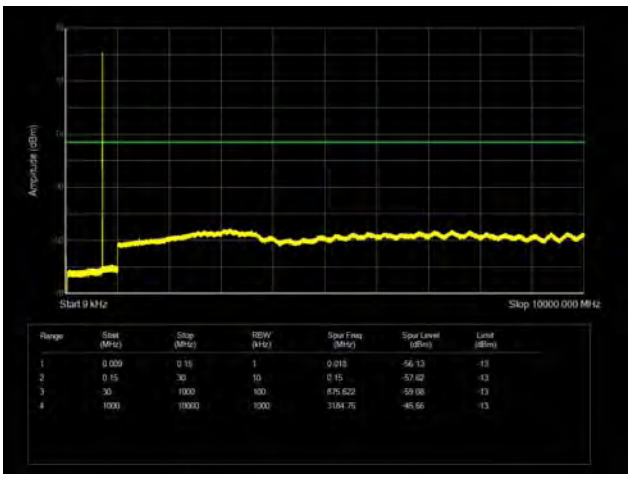
LTE Band 12 3MHz CH-Low 9kHz ~10GHz



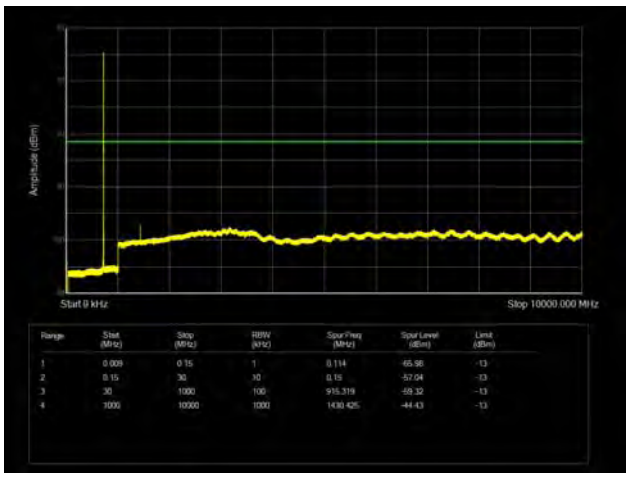
LTE Band 12 1.4MHz CH- Middle 9kHz ~10GHz



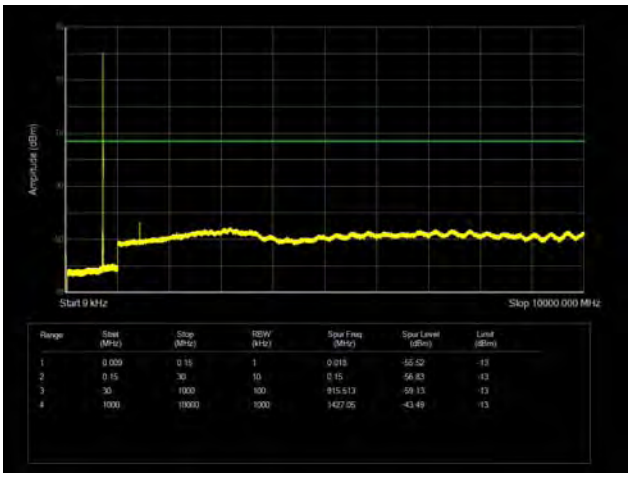
LTE Band 12 3MHz CH- Middle 9kHz ~10GHz



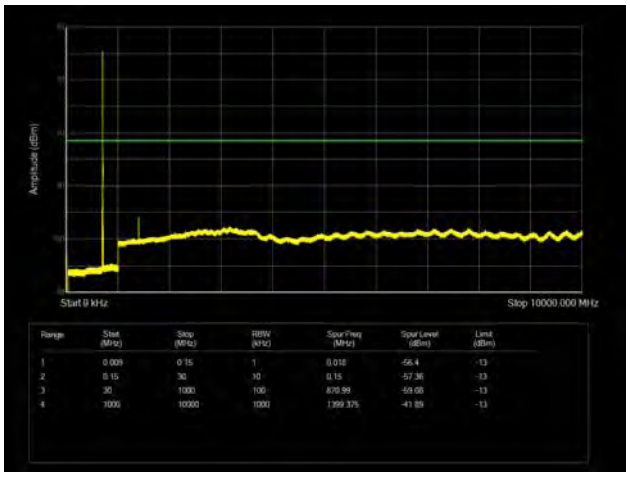
LTE Band 12 1.4MHz CH-High 9kHz ~10GHz



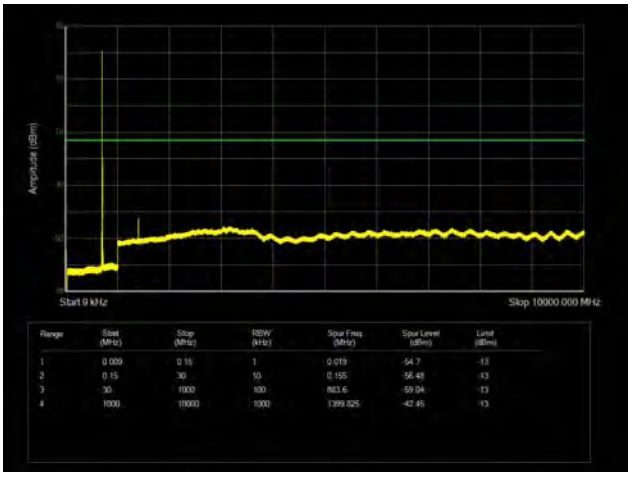
LTE Band 12 3MHz CH-High 9kHz ~10GHz



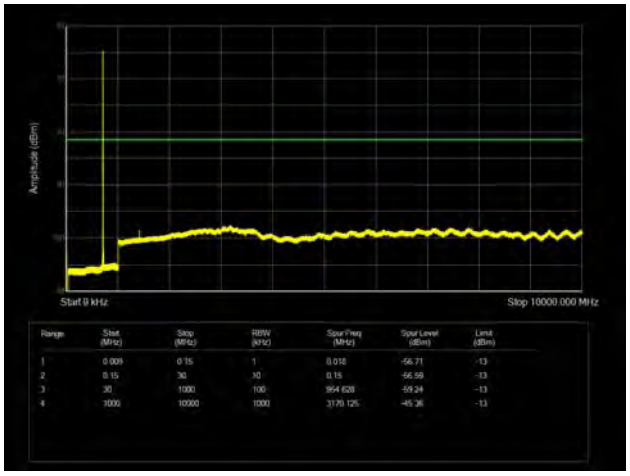
LTE Band 12 5MHz CH-Low 9kHz ~10GHz



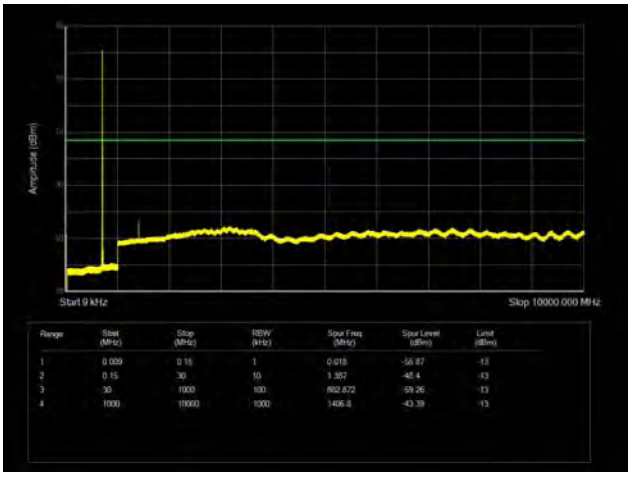
LTE Band 12 10MHz CH-Low 9kHz ~10GHz



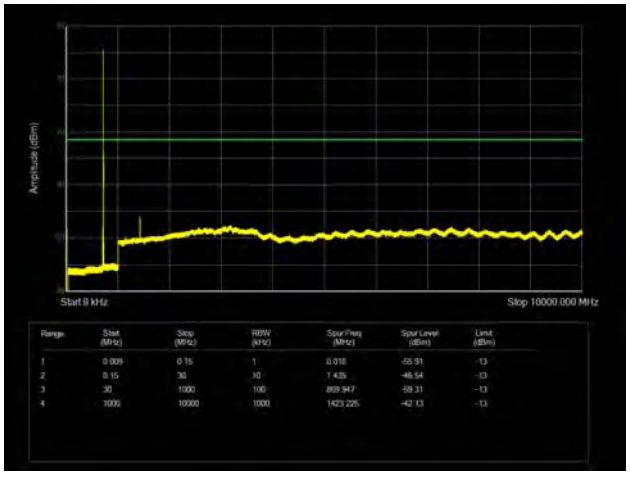
LTE Band 12 5MHz CH- Middle 9kHz ~10GHz



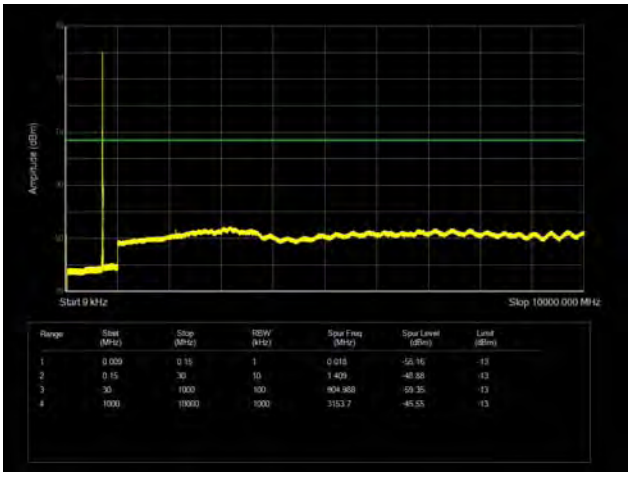
LTE Band 12 10MHz CH- Middle 9kHz ~10GHz



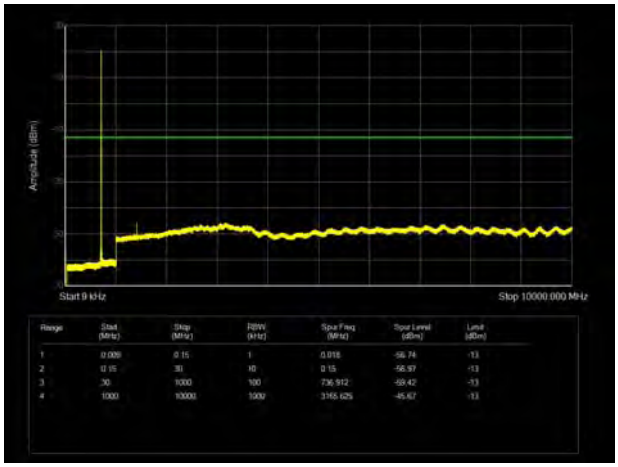
LTE Band 12 5MHz CH-High 9kHz ~10GHz



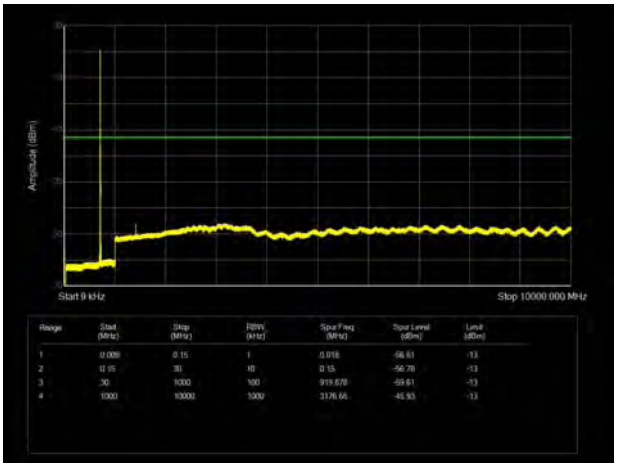
LTE Band 12 10MHz CH-High 9kHz ~10GHz



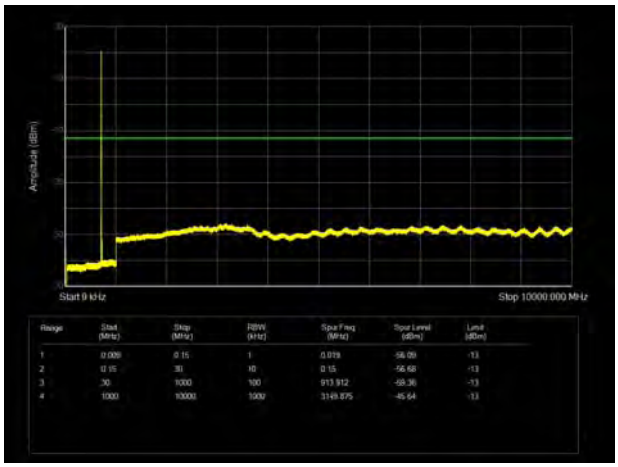
LTE Band 17 5MHz CH-Low 9kHz ~10GHz



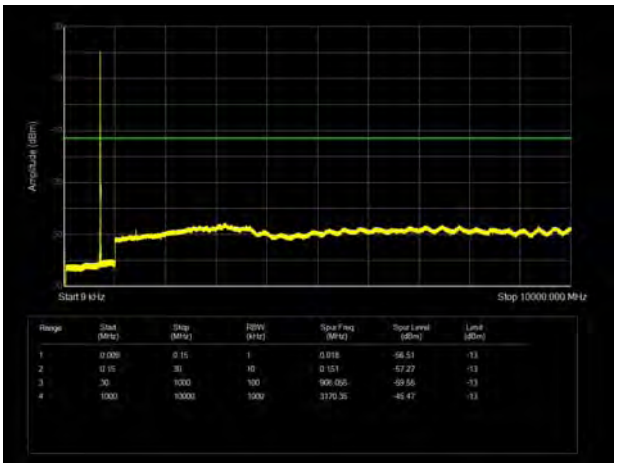
LTE Band 17 10MHz CH-Low 9kHz ~10GHz



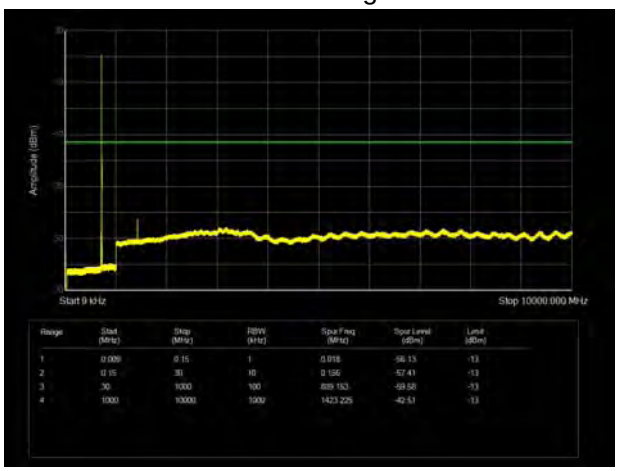
LTE Band 17 5MHz CH-Middle 9kHz ~10GHz



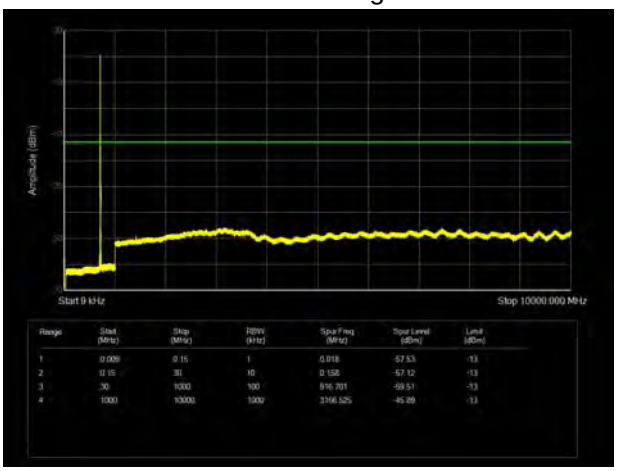
LTE Band 17 10MHz CH-Middle 9kHz ~10GHz



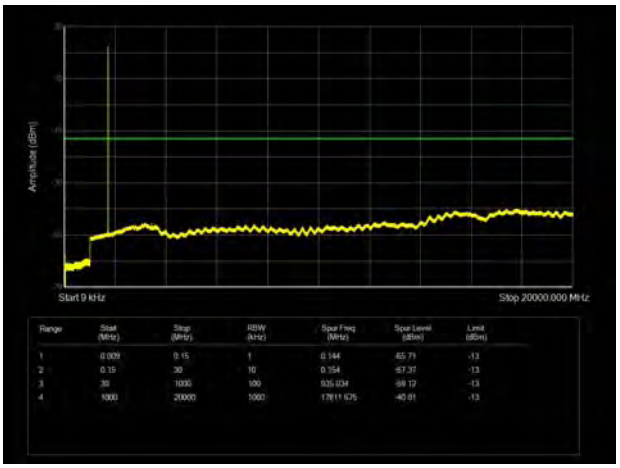
LTE Band 17 5MHz CH-High 9kHz ~10GHz



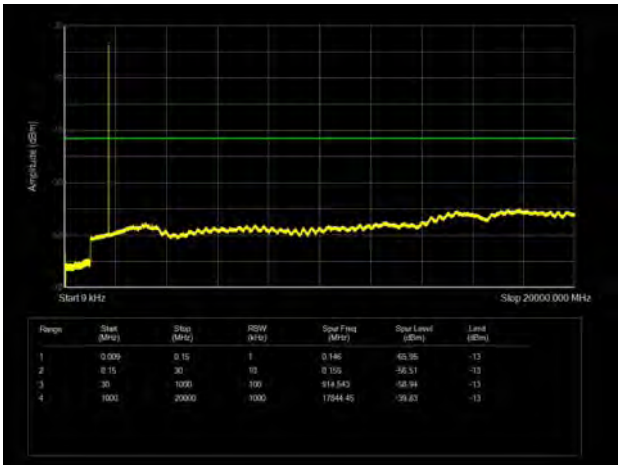
LTE Band 17 10MHz CH-High 9kHz ~10GHz



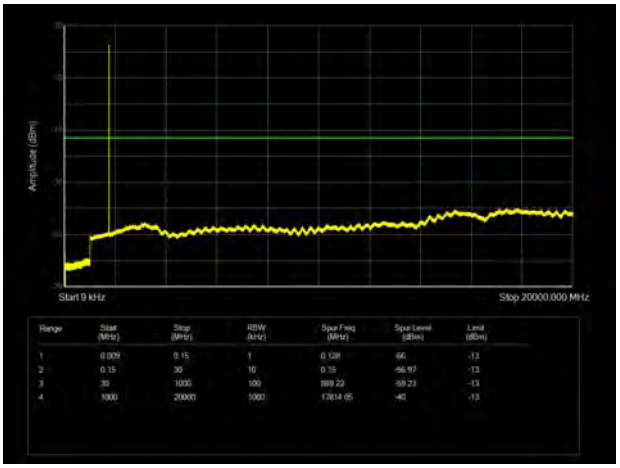
LTE Band 66 1.4MHz CH-Low 9kHz ~20GHz



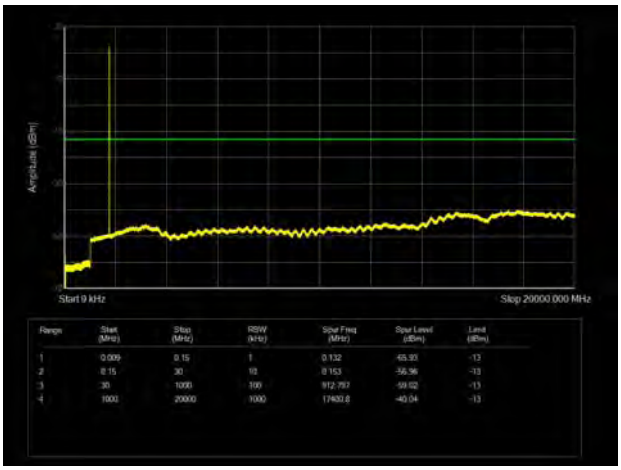
LTE Band 66 3MHz CH-Low 9kHz ~20GHz



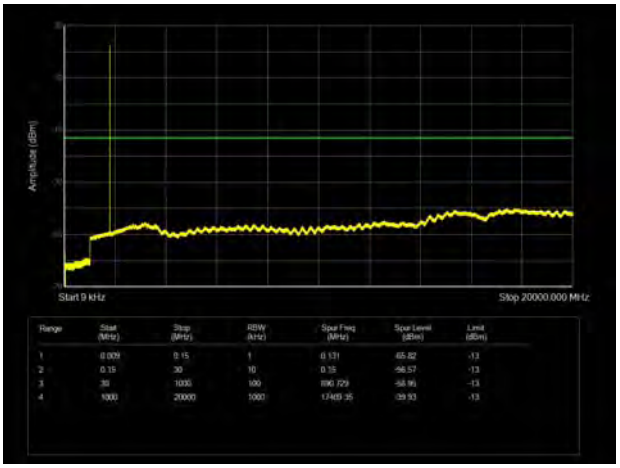
LTE Band 66 1.4MHz CH-Middle 9kHz ~20GHz



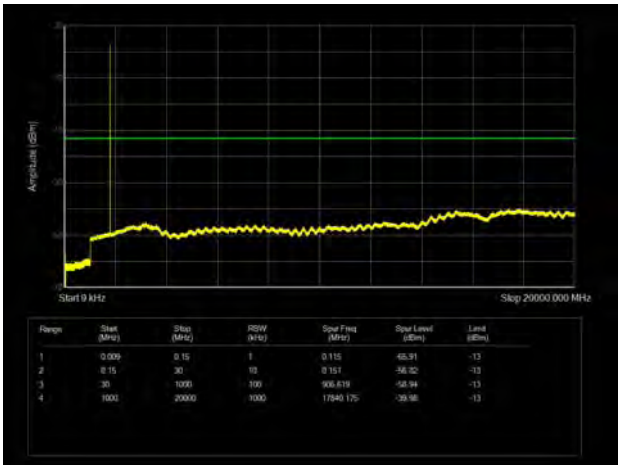
LTE Band 66 3MHz CH-Middle 9kHz ~20GHz



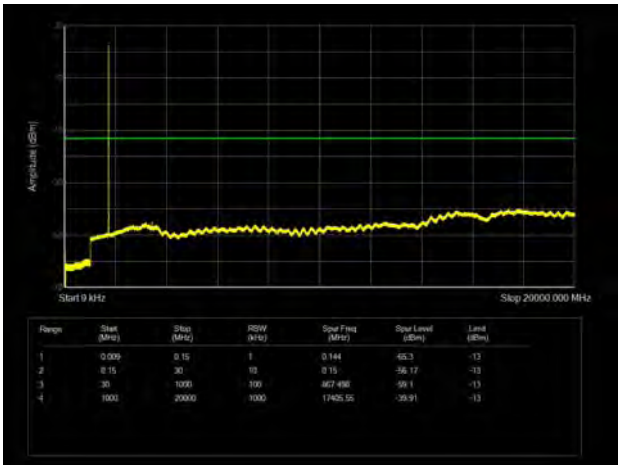
LTE Band 66 1.4MHz CH-High 9kHz ~20GHz



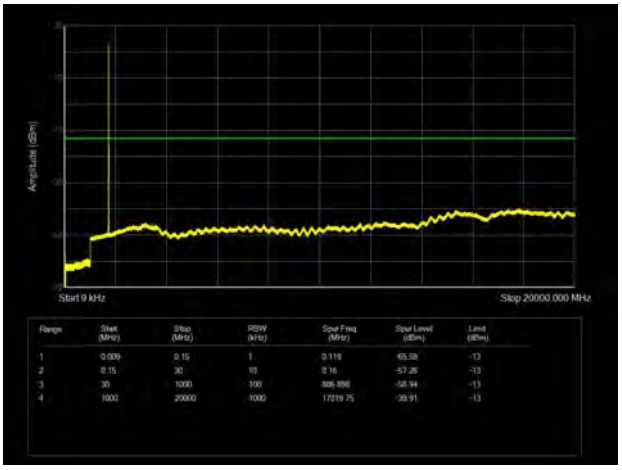
LTE Band 66 3MHz CH-High 9kHz ~20GHz



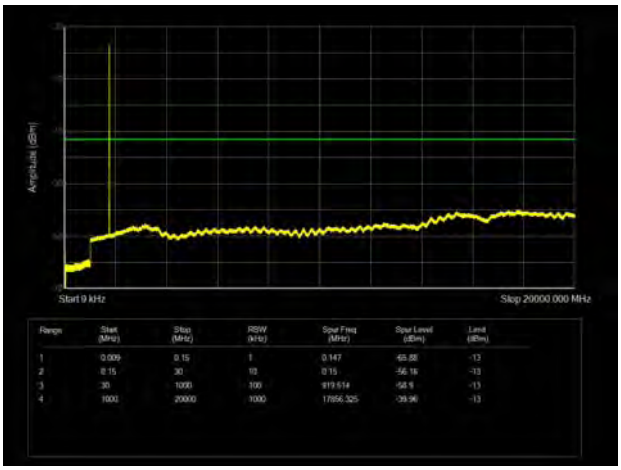
LTE Band 66 5MHz CH-Low 9kHz ~20GHz



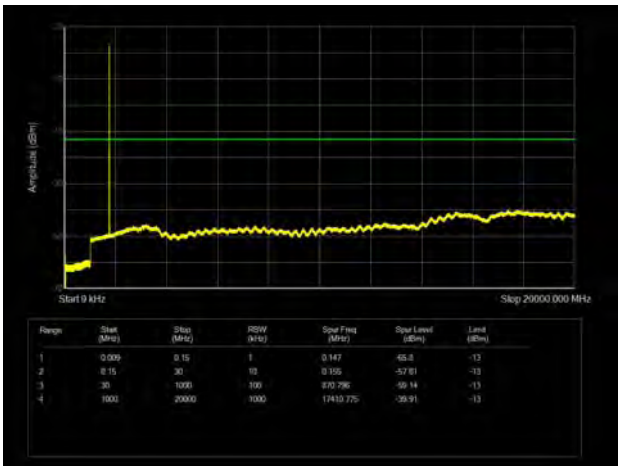
LTE Band 66 10MHz CH-Low 9kHz ~20GHz



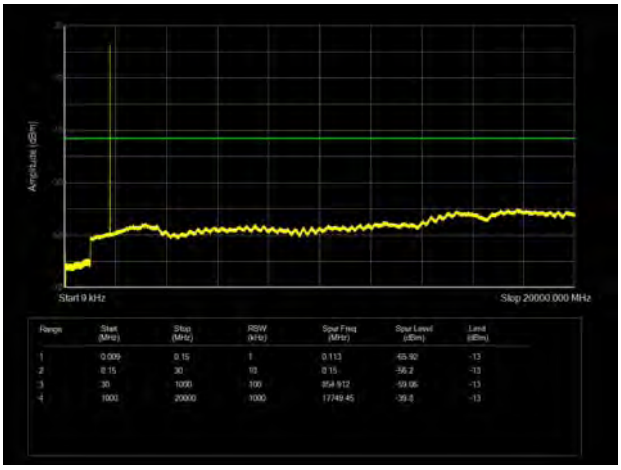
LTE Band 66 5MHz CH-Middle 9kHz ~20GHz



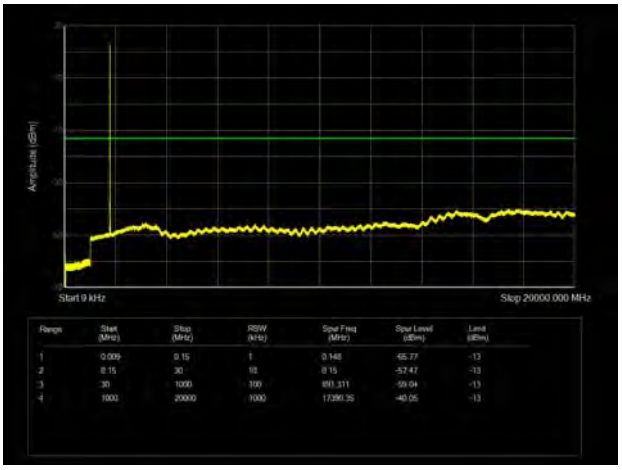
LTE Band 66 10MHz CH-Middle 9kHz ~20GHz



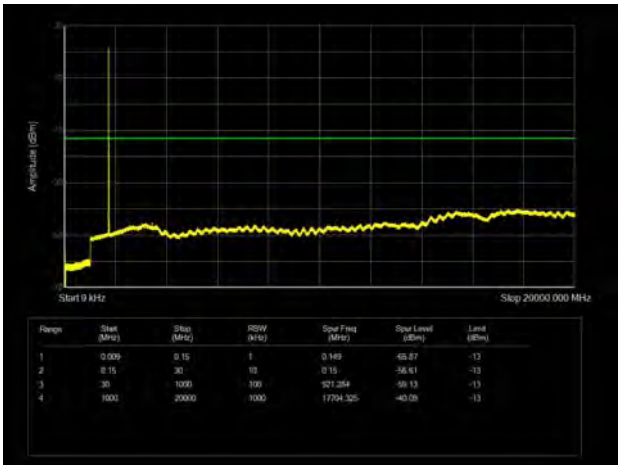
LTE Band 66 5MHz CH-High 9kHz ~20GHz



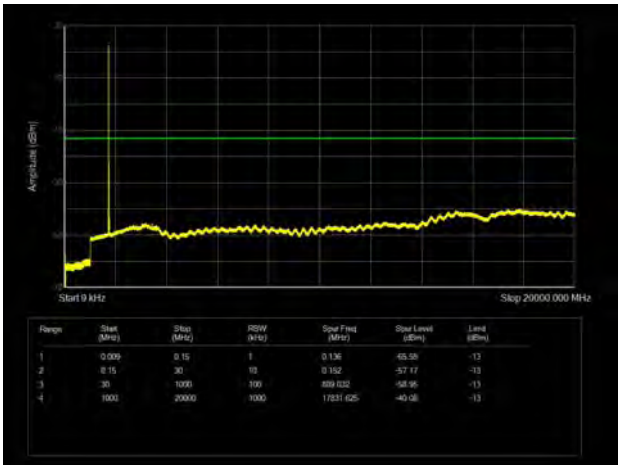
LTE Band 66 10MHz CH-High 9kHz ~20GHz



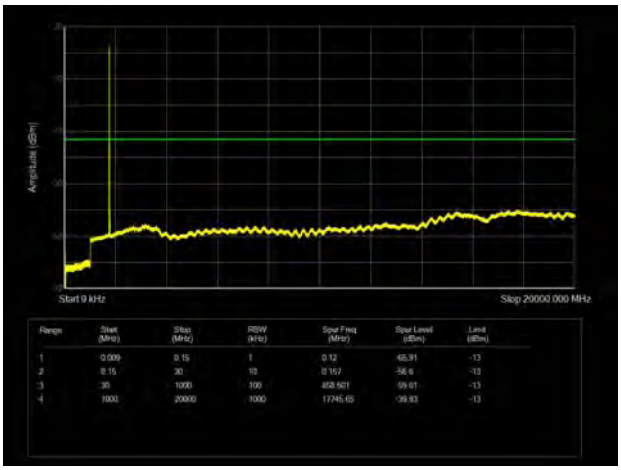
LTE Band 66 15MHz CH-Low 9kHz ~20GHz



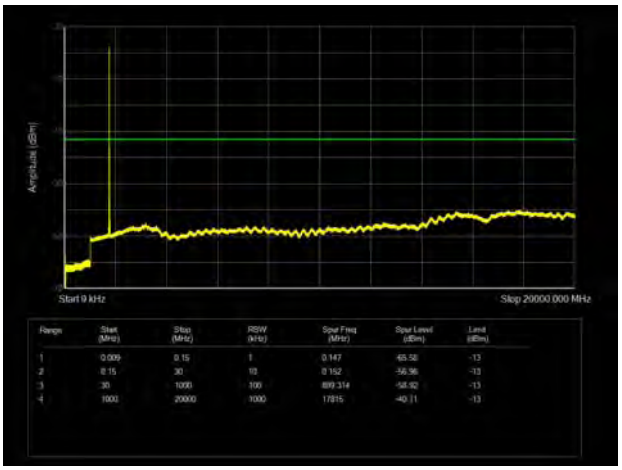
LTE Band 66 20MHz CH-Low 9kHz ~20GHz



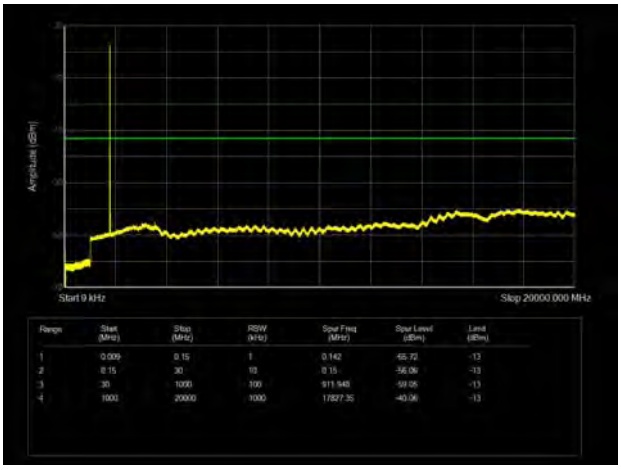
LTE Band 66 15MHz CH-Middle 9kHz ~20GHz



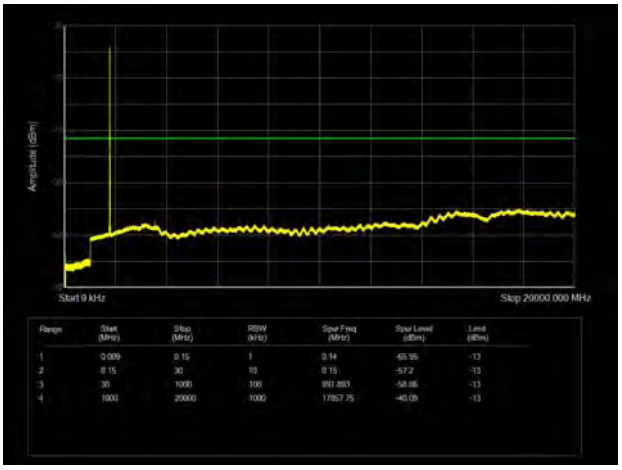
LTE Band 66 20MHz CH-Middle 9kHz ~20GHz



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



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



5.7 Radiates Spurious Emission

Ambient condition

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

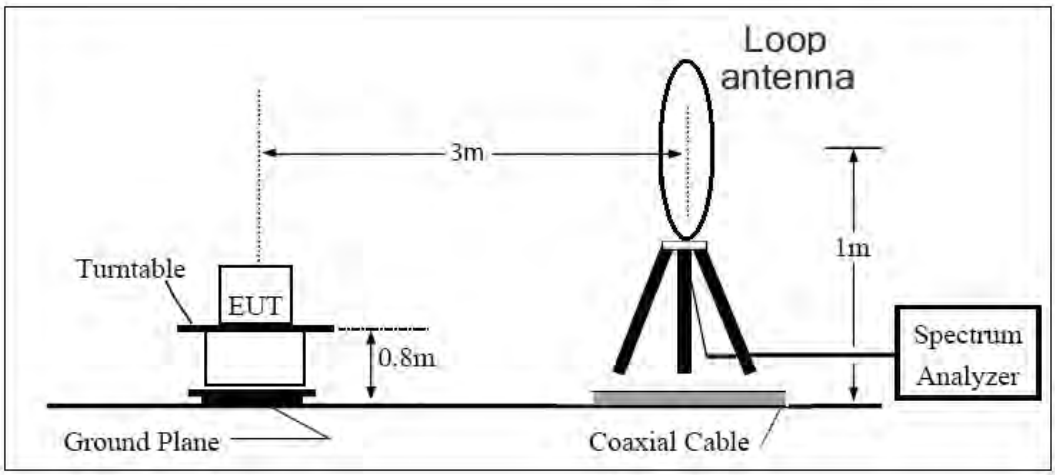
Method of Measurement

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

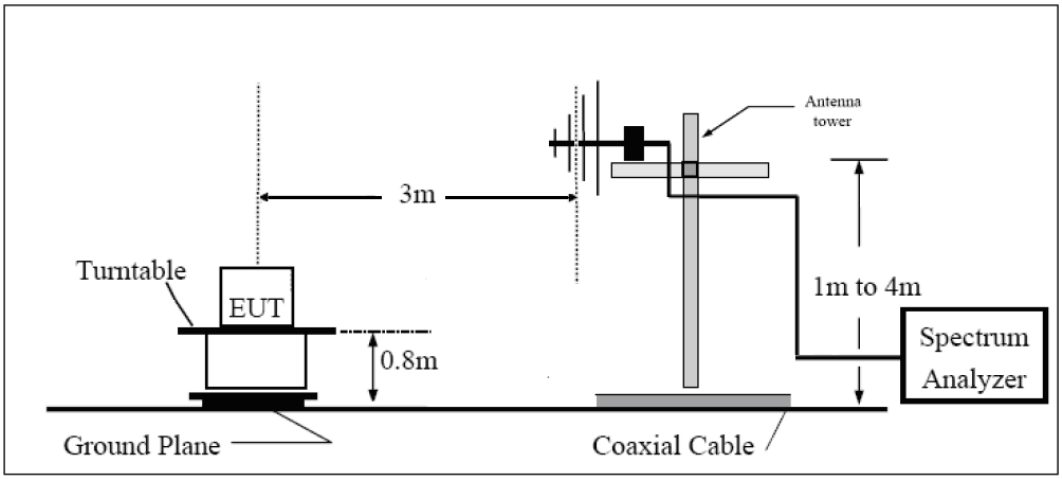
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

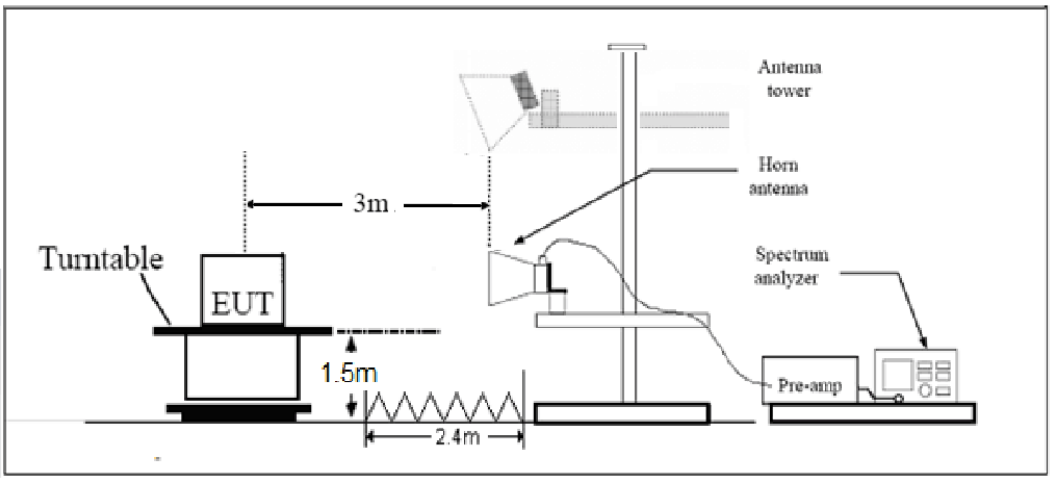
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (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(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 = ±1.96, U= ±3.55 dB.

Test Result

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

WCDMA Band IV CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.20	-67.30	2.70	12.70	Vertical	-57.30	-13.00	44.30	315
3	5197.80	-65.29	3.20	12.50	Vertical	-55.99	-13.00	42.99	45
4	6930.40	-59.45	4.20	11.80	Vertical	-51.85	-13.00	38.85	180
5	8663.00	-59.14	4.40	12.50	Vertical	-51.04	-13.00	38.04	135
6	10395.60	-53.67	4.70	11.30	Vertical	-47.07	-13.00	34.07	225
7	12128.20	-49.95	5.20	13.80	Vertical	-41.35	-13.00	28.35	45
8	13860.80	-47.75	5.70	11.30	Vertical	-42.15	-13.00	29.15	0
9	15593.40	-58.26	6.10	16.80	Vertical	-47.56	-13.00	34.56	315
10	17326.00	-50.59	6.10	14.20	Vertical	-42.49	-13.00	29.49	270
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Vertical position.									

LTE Band 4 QPSK 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	-66.98	2.70	12.70	Horizontal	-56.98	-13.00	43.98	45
3	5197.50	-62.50	3.20	12.50	Horizontal	-53.20	-13.00	40.20	135
4	6930.00	-59.96	4.20	11.80	Horizontal	-52.36	-13.00	39.36	270
5	8662.50	-58.23	4.40	12.50	Horizontal	-50.13	-13.00	37.13	90
6	10395.00	-52.42	4.70	11.30	Horizontal	-45.82	-13.00	32.82	45
7	12127.50	-52.09	5.20	13.80	Horizontal	-43.49	-13.00	30.49	225
8	13860.00	-48.00	5.70	11.30	Horizontal	-42.40	-13.00	29.40	90
9	15592.50	-58.30	6.10	16.80	Horizontal	-47.60	-13.00	34.60	45
10	17325.00	-48.39	6.10	14.20	Horizontal	-40.29	-13.00	27.29	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is 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	-67.24	2.70	12.70	Horizontal	-57.24	-13.00	44.24	225
3	5191.50	-63.06	3.20	12.50	Horizontal	-53.76	-13.00	40.76	90
4	6930.00	-59.66	4.20	11.80	Horizontal	-52.06	-13.00	39.06	0
5	8662.50	-57.62	4.40	12.50	Horizontal	-49.52	-13.00	36.52	45
6	10395.00	-53.60	4.70	11.30	Horizontal	-47.00	-13.00	34.00	45
7	12127.50	-49.32	5.20	13.80	Horizontal	-40.72	-13.00	27.72	315
8	13860.00	-48.00	5.70	11.30	Horizontal	-42.40	-13.00	29.40	90
9	15592.50	-57.54	6.10	16.80	Horizontal	-46.84	-13.00	33.84	45
10	17325.00	-49.69	6.10	14.20	Horizontal	-41.59	-13.00	28.59	270
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

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

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.00	-65.85	2.70	12.70	Horizontal	-55.85	-13.00	42.85	45
3	5170.88	-62.55	3.20	12.50	Horizontal	-53.25	-13.00	40.25	90
4	6930.00	-59.36	4.20	11.80	Horizontal	-51.76	-13.00	38.76	315
5	8662.50	-57.60	4.40	12.50	Horizontal	-49.50	-13.00	36.50	90
6	10395.00	-51.91	4.70	11.30	Horizontal	-45.31	-13.00	32.31	0
7	12127.50	-49.26	5.20	13.80	Horizontal	-40.66	-13.00	27.66	0
8	13860.00	-47.56	5.70	11.30	Horizontal	-41.96	-13.00	28.96	45
9	15592.50	-58.73	6.10	16.80	Horizontal	-48.03	-13.00	35.03	315
10	17325.00	-49.58	6.10	14.20	Horizontal	-41.48	-13.00	28.48	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	-62.29	3.40	12.50	Horizontal	-53.19	-25.00	28.19	90
3	7598.60	-57.97	4.40	12.20	Horizontal	-50.17	-25.00	25.17	45
4	10130.63	-51.90	4.70	11.30	Horizontal	-45.30	-25.00	20.30	135
5	12675.00	-51.67	5.40	13.20	Horizontal	-43.87	-25.00	18.87	180
6	15210.00	-54.63	6.10	13.10	Horizontal	-47.63	-25.00	22.63	315
7	17745.00	-51.38	6.10	14.20	Horizontal	-43.28	-25.00	18.28	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 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	5052.20	-62.86	3.40	12.50	Horizontal	-53.76	-25.00	28.76	270
3	7578.30	-58.17	4.40	12.20	Horizontal	-50.37	-25.00	25.37	45
4	10104.40	-51.93	4.70	11.30	Horizontal	-45.33	-25.00	20.33	315
5	12630.50	-50.47	5.40	13.20	Horizontal	-42.67	-25.00	17.67	90
6	15156.60	-53.90	6.10	13.10	Horizontal	-46.90	-25.00	21.90	45
7	17682.70	-50.24	6.10	14.20	Horizontal	-42.14	-25.00	17.14	315
8	20208.80	--	--	--	--	--	--	--	--
9	22734.90	--	--	--	--	--	--	--	--
10	25261.00	--	--	--	--	--	--	--	--
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	-60.42	1.70	8.70	Horizontal	-55.57	-13.00	42.57	45
3	2122.50	-61.99	2.10	11.10	Horizontal	-55.14	-13.00	42.14	315
4	2830.00	-64.69	2.30	13.10	Horizontal	-56.04	-13.00	43.04	90
5	3537.50	-65.00	2.60	12.70	Horizontal	-57.05	-13.00	44.05	90
6	4245.00	-62.73	3.30	12.50	Horizontal	-55.68	-13.00	42.68	45
7	4952.50	-62.04	3.40	12.50	Horizontal	-55.09	-13.00	42.09	225
8	5660.00	-62.72	3.30	12.50	Horizontal	-55.67	-13.00	42.67	90
9	6367.50	-59.00	3.80	11.50	Horizontal	-53.45	-13.00	40.45	45
10	7075.00	-55.33	4.20	11.80	Horizontal	-49.88	-13.00	36.88	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 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	-60.08	1.70	8.70	Horizontal	-55.23	-13.00	42.23	45
3	2115.90	-64.20	2.10	11.10	Horizontal	-57.35	-13.00	44.35	225
4	2821.20	-63.44	2.30	13.10	Horizontal	-54.79	-13.00	41.79	90
5	3512.50	-64.13	2.60	12.70	Horizontal	-56.18	-13.00	43.18	90
6	4215.00	-63.27	3.30	12.50	Horizontal	-56.22	-13.00	43.22	0
7	4917.50	-61.45	3.40	12.50	Horizontal	-54.50	-13.00	41.50	45
8	5620.00	-61.87	3.30	12.50	Horizontal	-54.82	-13.00	41.82	180
9	6322.50	-59.12	3.80	11.50	Horizontal	-53.57	-13.00	40.57	45
10	7025.00	-55.92	4.20	11.80	Horizontal	-50.47	-13.00	37.47	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 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	-60.92	1.70	8.70	Horizontal	-56.07	-13.00	43.07	45
3	2109.60	-64.56	2.10	11.10	Horizontal	-57.71	-13.00	44.71	270
4	2812.80	-64.84	2.30	13.10	Horizontal	-56.19	-13.00	43.19	90
5	3537.50	-63.86	2.60	12.70	Horizontal	-55.91	-13.00	42.91	135
6	4245.00	-62.65	3.30	12.50	Horizontal	-55.60	-13.00	42.60	180
7	4952.50	-61.28	3.40	12.50	Horizontal	-54.33	-13.00	41.33	0
8	5660.00	-62.95	3.30	12.50	Horizontal	-55.90	-13.00	42.90	90
9	6367.50	-59.46	3.80	11.50	Horizontal	-53.91	-13.00	40.91	45
10	7075.00	-56.08	4.20	11.80	Horizontal	-50.63	-13.00	37.63	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is 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	1415.00	-58.99	1.70	8.70	Horizontal	-54.14	-13.00	41.14	45
3	2122.50	-64.16	2.10	11.10	Horizontal	-57.31	-13.00	44.31	315
4	2830.00	-63.44	2.50	13.10	Horizontal	-54.99	-13.00	41.99	90
5	3537.50	-64.08	2.60	12.70	Horizontal	-56.13	-13.00	43.13	45
6	4245.00	-63.50	3.30	12.50	Horizontal	-56.45	-13.00	43.45	225
7	4952.50	-61.11	3.40	12.50	Horizontal	-54.16	-13.00	41.16	90
8	5660.00	-62.80	3.40	12.80	Horizontal	-55.55	-13.00	42.55	45
9	6367.50	-59.17	4.10	11.50	Horizontal	-53.92	-13.00	40.92	315
10	7075.00	-55.72	4.20	12.20	Horizontal	-49.87	-13.00	36.87	270
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is 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	1410.00	-61.69	1.70	8.70	Horizontal	-56.84	-13.00	43.84	90
3	2115.00	-64.53	2.10	11.10	Horizontal	-57.68	-13.00	44.68	315
4	2820.00	-64.79	2.50	13.10	Horizontal	-56.34	-13.00	43.34	90
5	3525.00	-64.51	2.60	12.70	Horizontal	-56.56	-13.00	43.56	225
6	4230.00	-63.13	3.30	12.50	Horizontal	-56.08	-13.00	43.08	45
7	4935.00	-61.79	3.40	12.50	Horizontal	-54.84	-13.00	41.84	315
8	5640.00	-62.84	3.40	12.80	Horizontal	-55.59	-13.00	42.59	90
9	6345.00	-59.00	4.10	11.50	Horizontal	-53.75	-13.00	40.75	45
10	7050.00	-55.46	4.20	12.20	Horizontal	-49.61	-13.00	36.61	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 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	3464.30	-66.11	2.70	12.70	Horizontal	-56.11	-13.00	43.11	0
3	5233.50	-64.23	3.20	12.50	Horizontal	-54.93	-13.00	41.93	45
4	6930.00	-59.83	4.20	11.80	Horizontal	-52.23	-13.00	39.23	180
5	8722.50	-57.63	4.40	12.50	Horizontal	-49.53	-13.00	36.53	270
6	10395.00	-54.50	4.70	11.80	Horizontal	-47.40	-13.00	34.40	45
7	12211.50	-51.65	5.20	13.80	Horizontal	-43.05	-13.00	30.05	135
8	13860.00	-50.55	5.70	13.20	Horizontal	-43.05	-13.00	30.05	90
9	15701.25	-56.14	6.10	16.80	Horizontal	-45.44	-13.00	32.44	45
10	17325.00	-49.40	6.10	14.20	Horizontal	-41.30	-13.00	28.30	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 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	3460.50	-66.45	2.70	12.70	Horizontal	-56.45	-13.00	43.45	225
3	5228.63	-65.42	3.20	12.50	Horizontal	-56.12	-13.00	43.12	0
4	6930.00	-58.99	4.20	11.80	Horizontal	-51.39	-13.00	38.39	0
5	8714.25	-57.49	4.40	12.50	Horizontal	-49.39	-13.00	36.39	90
6	10395.00	-52.32	4.70	11.80	Horizontal	-45.22	-13.00	32.22	45
7	12199.50	-49.38	5.20	13.80	Horizontal	-40.78	-13.00	27.78	135
8	13860.00	-50.13	5.70	13.20	Horizontal	-42.63	-13.00	29.63	315
9	15685.50	-53.27	6.10	16.80	Horizontal	-42.57	-13.00	29.57	90
10	17325.00	-49.19	6.10	14.20	Horizontal	-41.09	-13.00	28.09	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 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	3447.00	-66.10	2.70	12.70	Horizontal	-56.10	-13.00	43.10	90
3	5208.00	-64.29	3.20	12.50	Horizontal	-54.99	-13.00	41.99	0
4	6930.00	-58.80	4.20	11.80	Horizontal	-51.20	-13.00	38.20	45
5	8680.50	-57.27	4.40	12.50	Horizontal	-49.17	-13.00	36.17	45
6	10395.00	-53.45	4.70	11.80	Horizontal	-46.35	-13.00	33.35	315
7	12151.50	-48.94	5.20	13.80	Horizontal	-40.34	-13.00	27.34	90
8	13860.00	-49.68	5.70	13.20	Horizontal	-42.18	-13.00	29.18	45
9	15592.50	-56.94	6.10	16.80	Horizontal	-46.24	-13.00	33.24	270
10	17325.00	-48.53	6.10	14.20	Horizontal	-40.43	-13.00	27.43	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Horn Antenna	Schwarzbeck	BBHA 9120D	1594	2020-12-17	2021-12-16
Signal Analyzer	R&S	FSV30	104028	2021-05-15	2022-05-14
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	01111	2019-09-12	2022-09-11
Software	R&S	EMC32	10.35.10	/	/
Climate Chamber	WEISS	VT 4002	58226119450010	2021-05-15	2022-05-14
Universal Radio Communication Tester	R&S	CMW500	150415	2021-05-15	2022-05-14
Spectrum Analyzer	Keysight	N9020A	MY52330084	2021-05-15	2022-05-14
Universal Radio Communication Tester	Agilent	E5515C	GB44400275	2021-05-15	2022-05-14
Spectrum Analyzer	R&S	FSV3030	101411	2020-12-13	2021-12-12

********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.