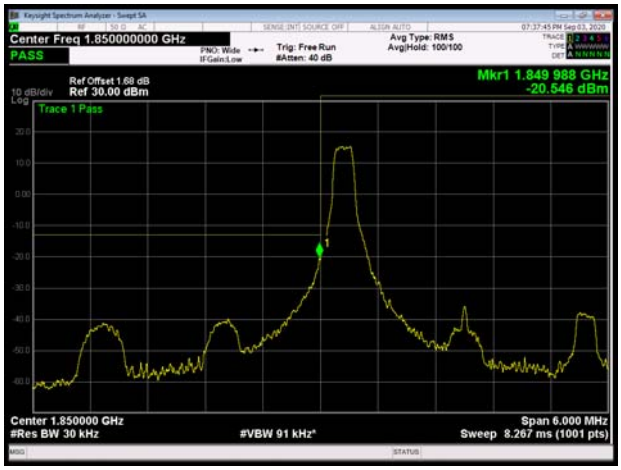
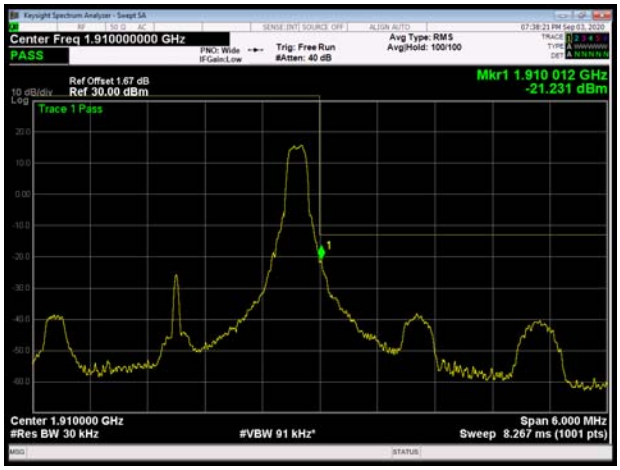
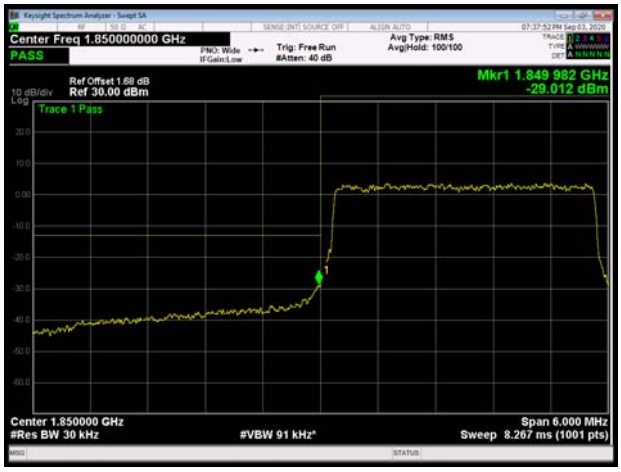
LTE Band 2 3MHz 64QAM 1RB CH-Low



LTE Band 2 3MHz 64QAM 1RB CH-High

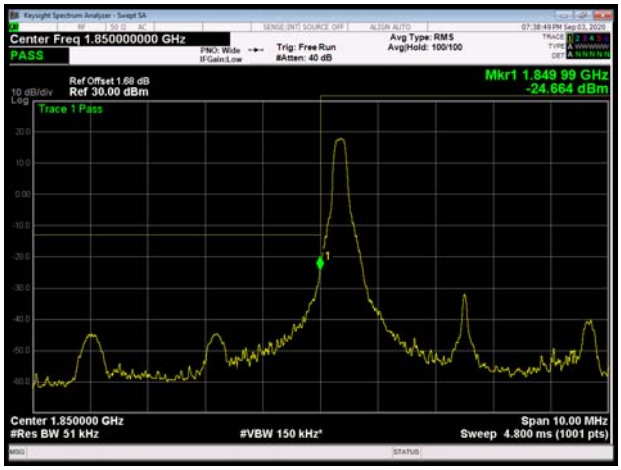


LTE Band 2 3MHz 64QAM 100%RB CH-Low

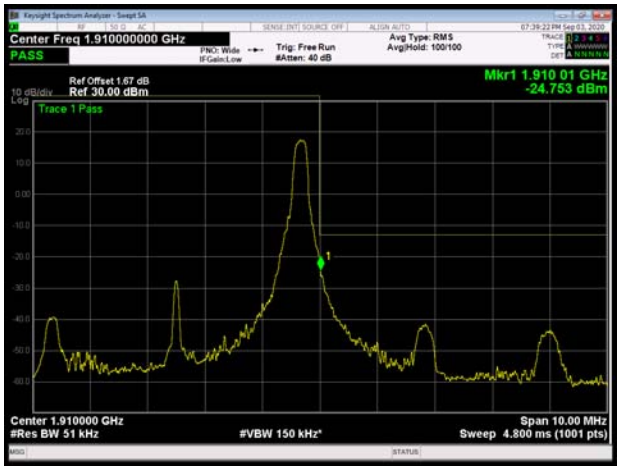


LTE Band 2 3MHz 64QAM 100%RB CH-High

LTE Band 2 5MHz 64QAM 1RB CH-Low



LTE Band 2 5MHz 64QAM 1RB CH-High



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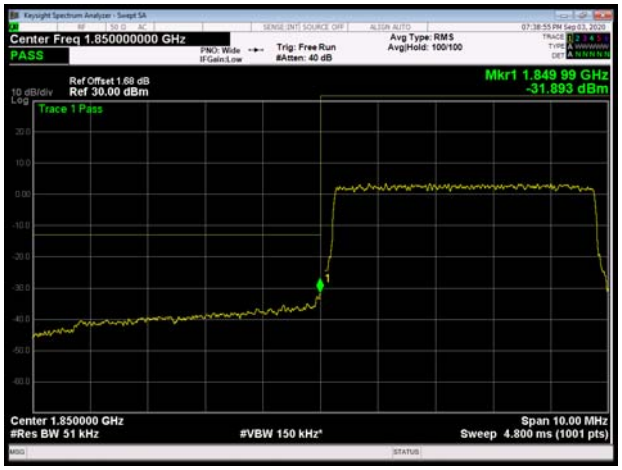
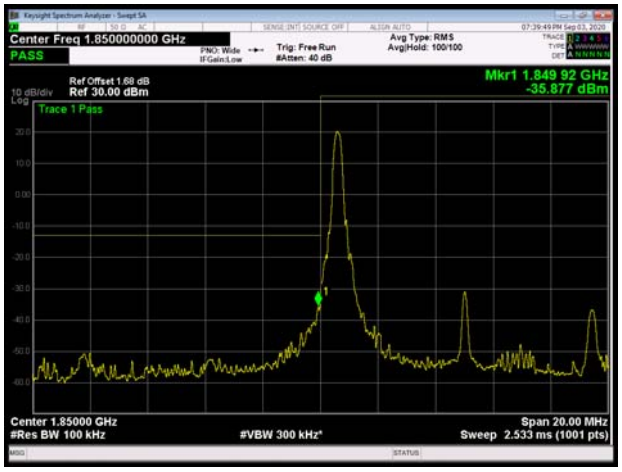
LTE Band 2 5MHz 64QAM 100%RB CH-Low

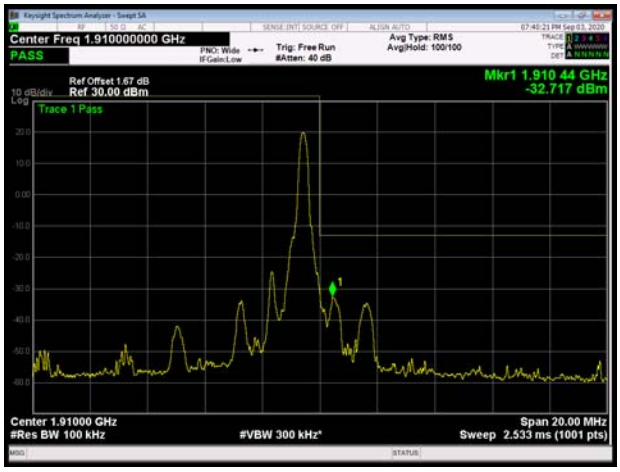


LTE Band 2 5MHz 64QAM 100%RB CH-High

LTE Band 2 10MHz 64QAM 1RB CH-Low



LTE Band 2 10MHz 64QAM 1RB CH-High



LTE Band 2 10MHz 64QAM 100%RB CH-Low

LTE Band 2 10MHz 64QAM 100%RB CH-High

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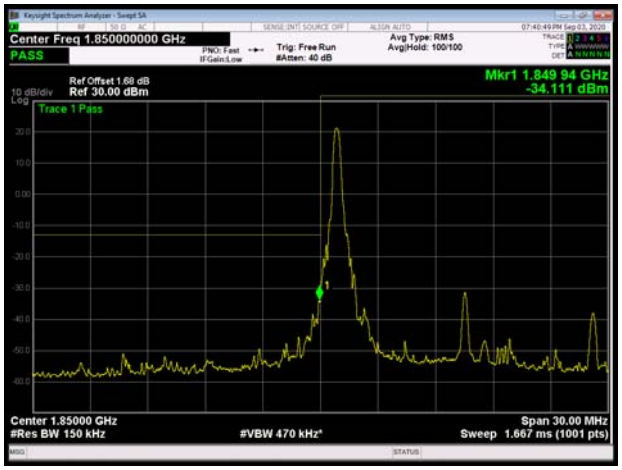
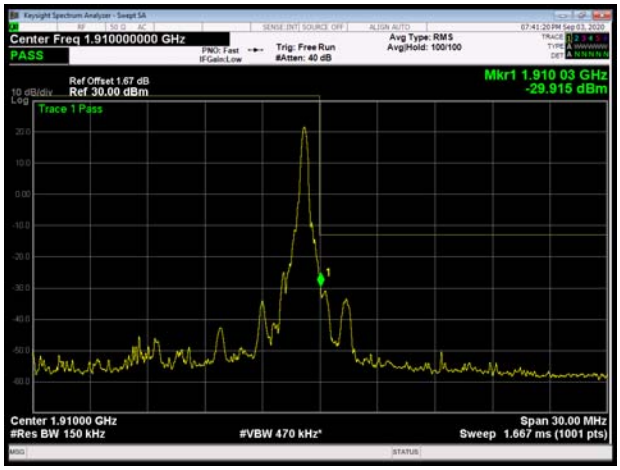
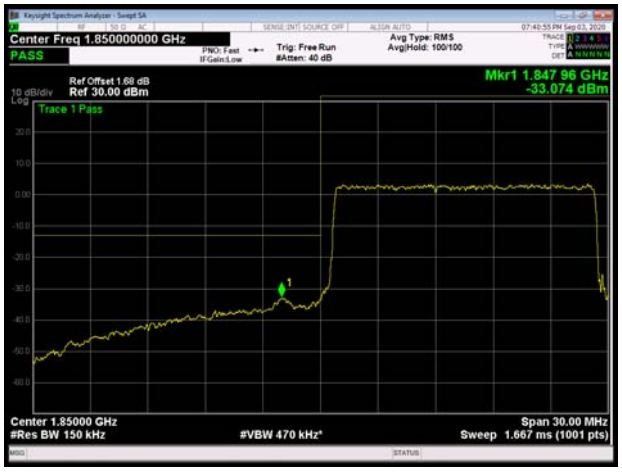
LTE Band 2 15MHz 64QAM 1RB CH-Low



LTE Band 2 15MHz 64QAM 1RB CH-High

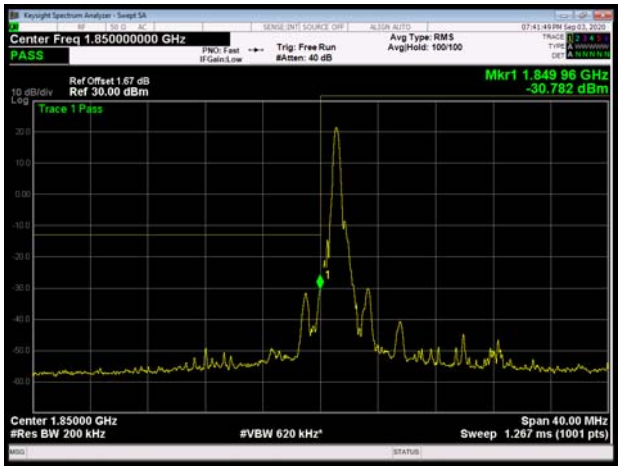


LTE Band 2 15MHz 64QAM 100%RB CH-Low

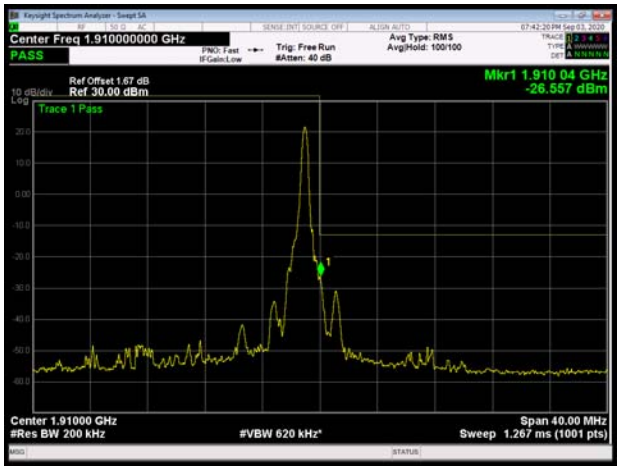


LTE Band 2 15MHz 64QAM 100%RB CH-High

LTE Band 2 20MHz 64QAM 1RB CH-Low



LTE Band 2 20MHz 64QAM 1RB CH-High



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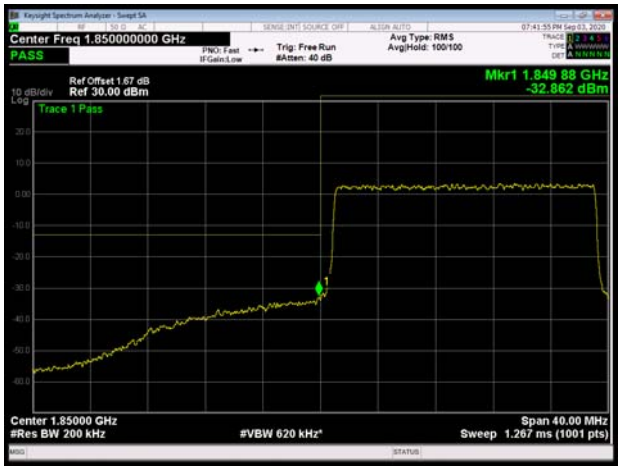
LTE Band 2 20MHz 64QAM 100%RB CH-Low



LTE Band 2 20MHz 64QAM 100%RB CH-High

LTE Band 25 1.4MHz QPSK 1RB CH-Low

LTE Band 25 1.4MHz QPSK 1RB CH-High

LTE Band 25 1.4MHz QPSK 100%RB CH-Low

LTE Band 25 1.4MHz QPSK 100%RB CH-High

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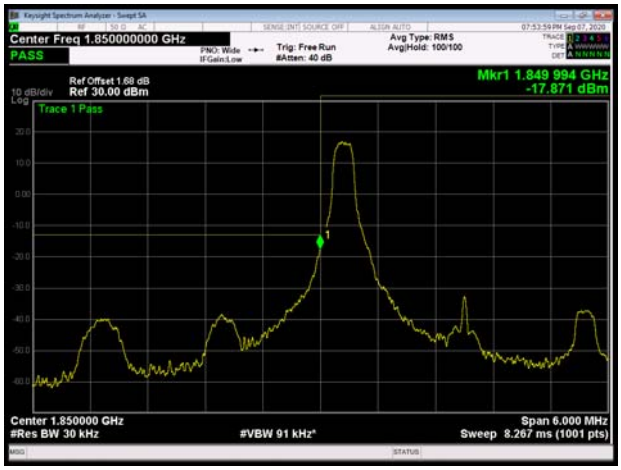
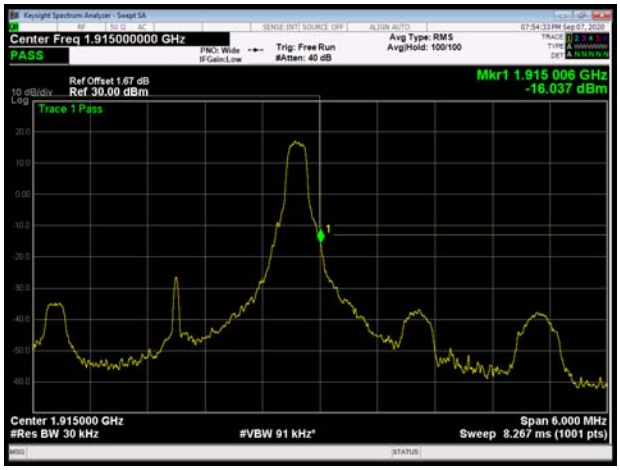
LTE Band 25 3MHz QPSK 1RB CH-Low



LTE Band 25 3MHz QPSK 1RB CH-High



LTE Band 25 3MHz QPSK 100%RB CH-Low

LTE Band 25 3MHz QPSK 100%RB CH-High

LTE Band 25 5MHz QPSK 1RB CH-Low

LTE Band 25 5MHz QPSK 1RB CH-High

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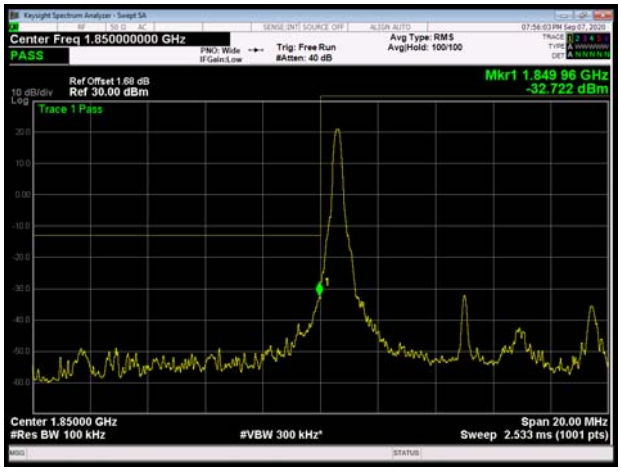
LTE Band 25 5MHz QPSK 100%RB CH-Low

LTE Band 25 5MHz QPSK 100%RB CH-High

LTE Band 25 10MHz QPSK 1RB CH-Low



LTE Band 25 10MHz QPSK 1RB CH-High

LTE Band 25 10MHz QPSK 100%RB CH-Low

LTE Band 25 10MHz QPSK 100%RB CH-High

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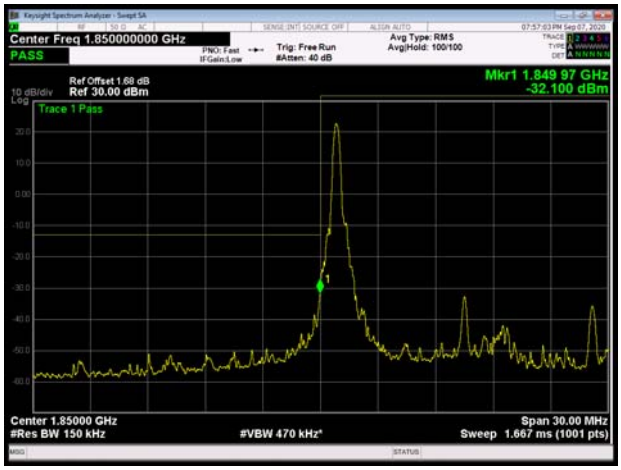
LTE Band 25 15MHz QPSK 1RB CH-Low

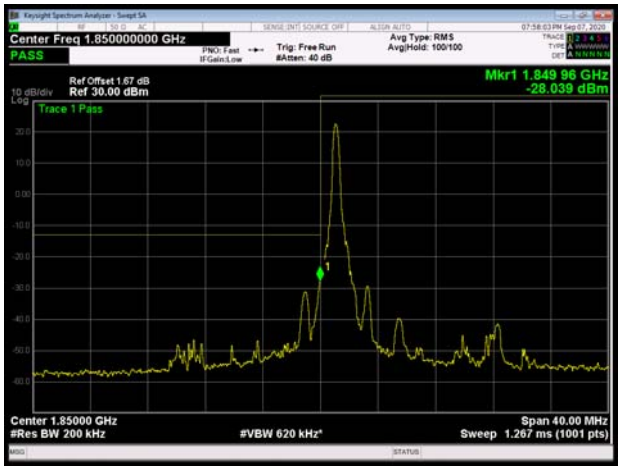


LTE Band 25 15MHz QPSK 1RB CH-High

LTE Band 25 15MHz QPSK 100%RB CH-Low

LTE Band 25 15MHz QPSK 100%RB CH-High

LTE Band 25 20MHz QPSK 1RB CH-Low



LTE Band 25 20MHz QPSK 1RB CH-High

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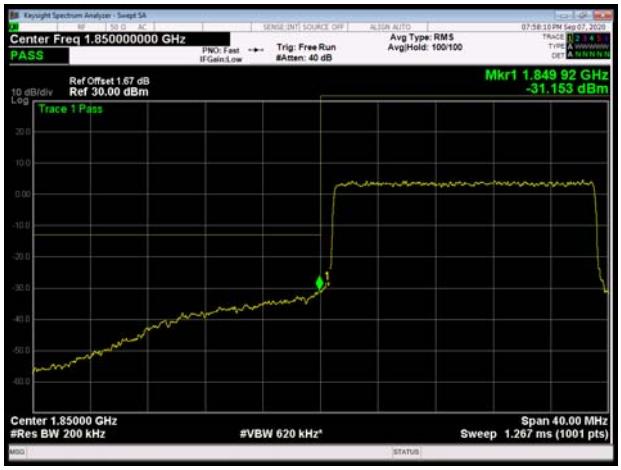
LTE Band 25 20MHz QPSK 100%RB CH-Low



LTE Band 25 20MHz QPSK 100%RB CH-High

LTE Band 25 1.4MHz 16QAM 1RB CH-Low

LTE Band 25 1.4MHz 16QAM 1RB CH-High

LTE Band 25 1.4MHz 16QAM 100%RB CH-Low

LTE Band 25 1.4MHz 16QAM 100%RB CH-High

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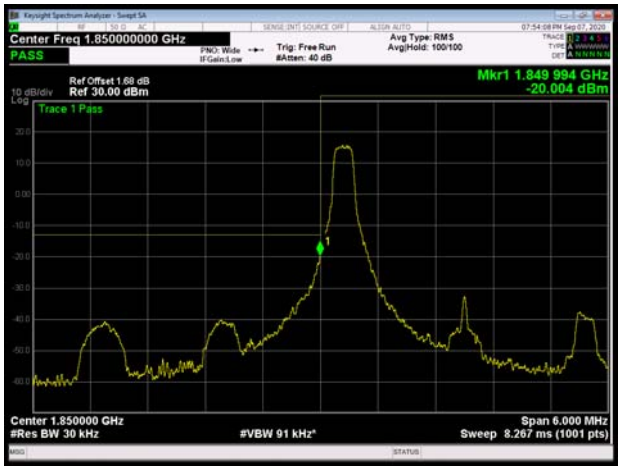
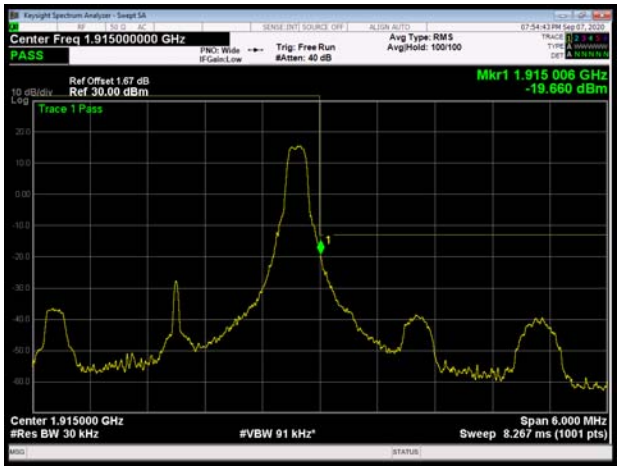
LTE Band 25 3MHz 16QAM 1RB CH-Low

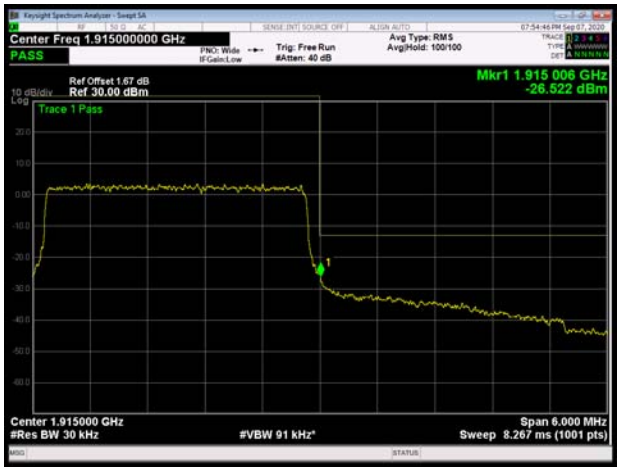


LTE Band 25 3MHz 16QAM 1RB CH-High

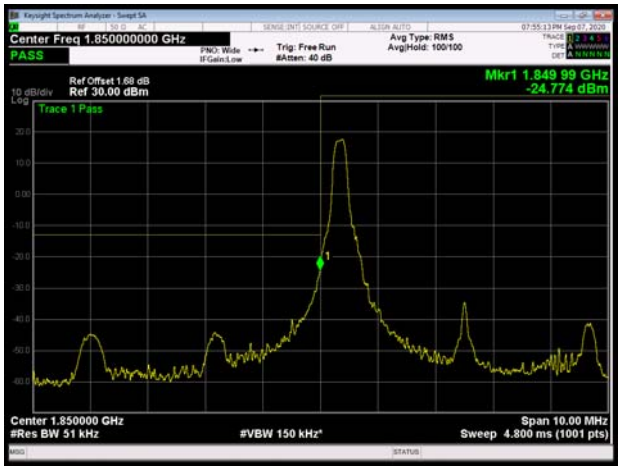


LTE Band 25 3MHz 16QAM 100%RB CH-Low

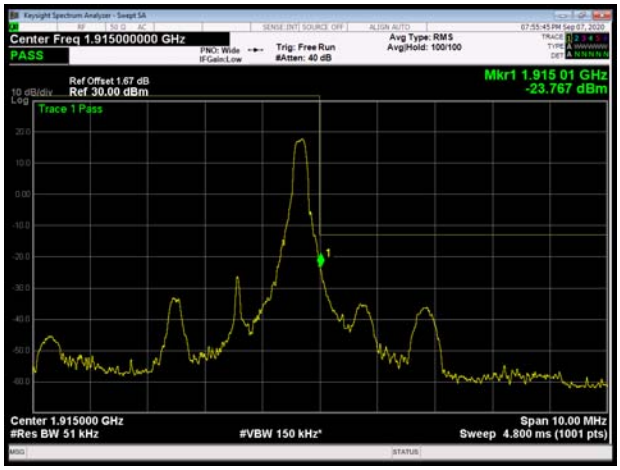
LTE Band 25 3MHz 16QAM 100%RB CH-High



LTE Band 25 5MHz 16QAM 1RB CH-Low



LTE Band 25 5MHz 16QAM 1RB CH-High



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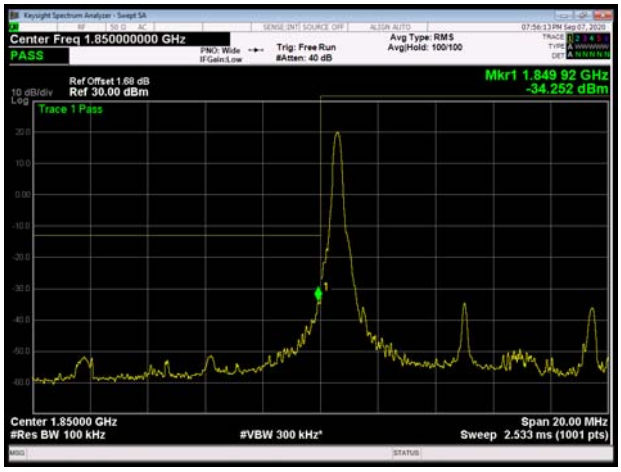
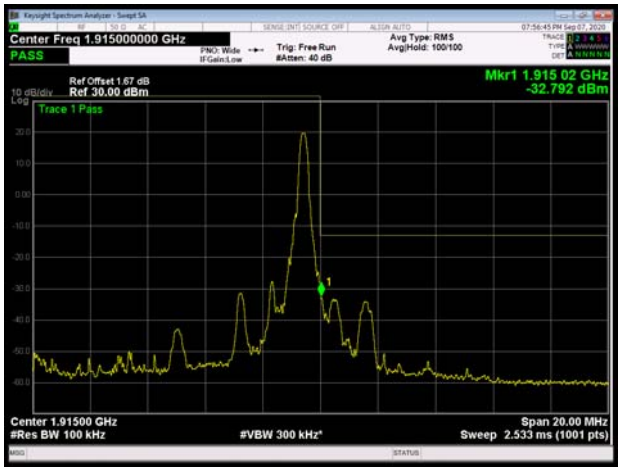
LTE Band 25 5MHz 16QAM 100%RB CH-Low

LTE Band 25 5MHz 16QAM 100%RB CH-High

LTE Band 25 10MHz 16QAM 1RB CH-Low



LTE Band 25 10MHz 16QAM 1RB CH-High



LTE Band 25 10MHz 16QAM 100%RB CH-Low

LTE Band 25 10MHz 16QAM 100%RB CH-High

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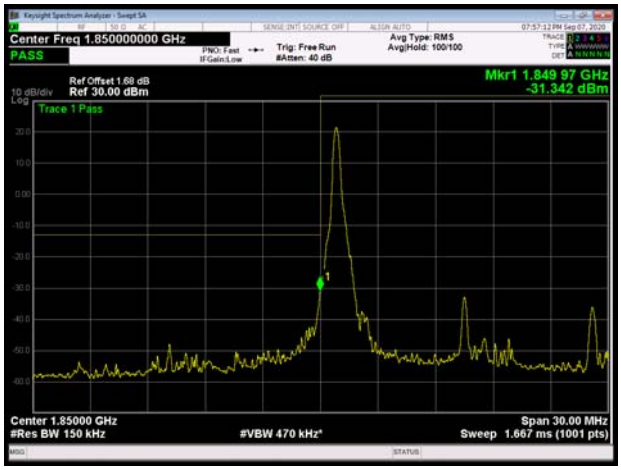
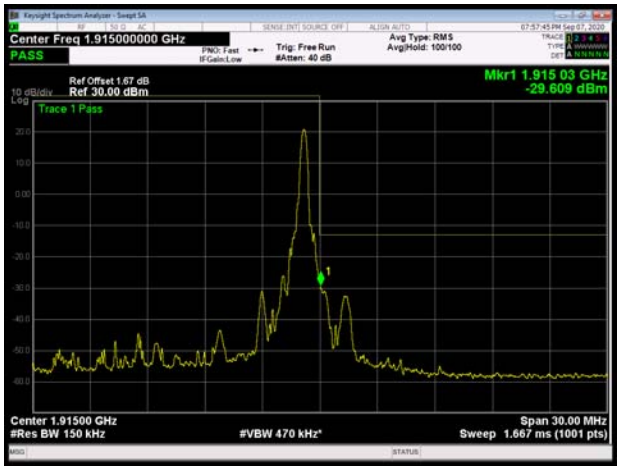
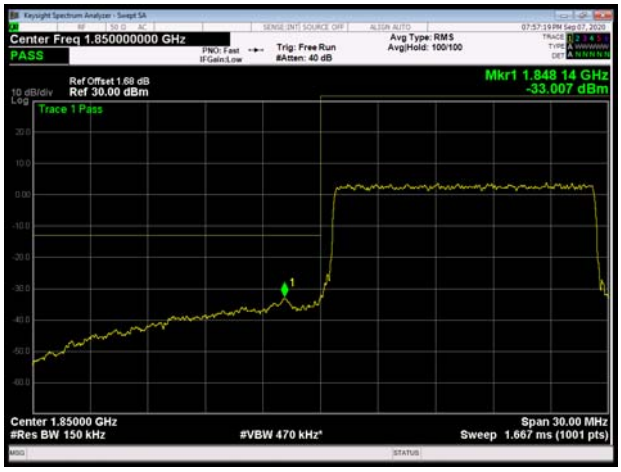
LTE Band 25 15MHz 16QAM 1RB CH-Low



LTE Band 25 15MHz 16QAM 1RB CH-High

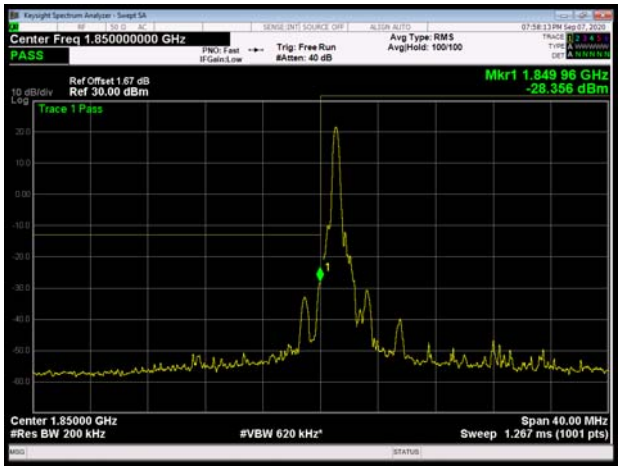


LTE Band 25 15MHz 16QAM 100%RB CH-Low

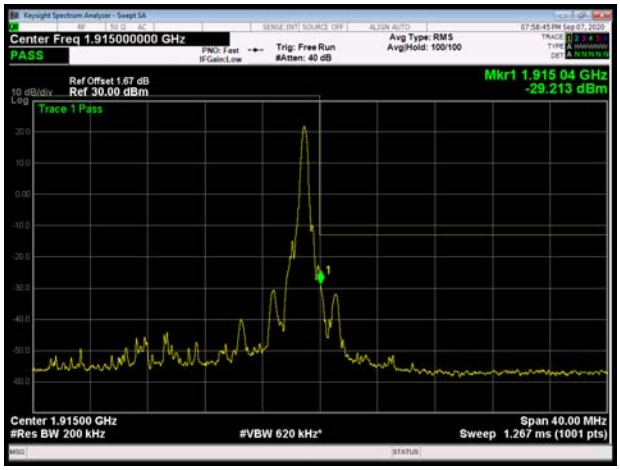


LTE Band 25 15MHz 16QAM 100%RB CH-High

LTE Band 25 20MHz 16QAM 1RB CH-Low



LTE Band 25 20MHz 16QAM 1RB CH-High



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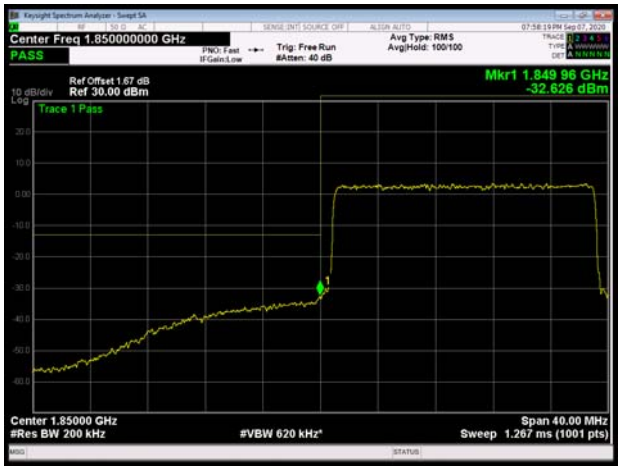
LTE Band 25 20MHz 16QAM 100%RB CH-Low

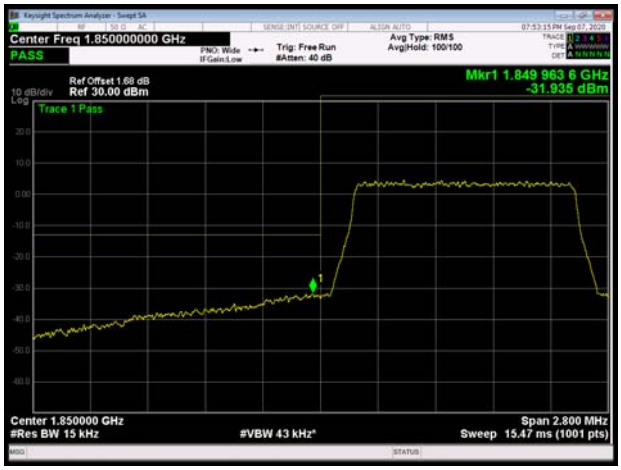


LTE Band 25 20MHz 16QAM 100%RB CH-High

LTE Band 25 1.4MHz 64QAM 1RB CH-Low

LTE Band 25 1.4MHz 64QAM 1RB CH-High

LTE Band 25 1.4MHz 64QAM 100%RB CH-Low



LTE Band 25 1.4MHz 64QAM 100%RB CH-High

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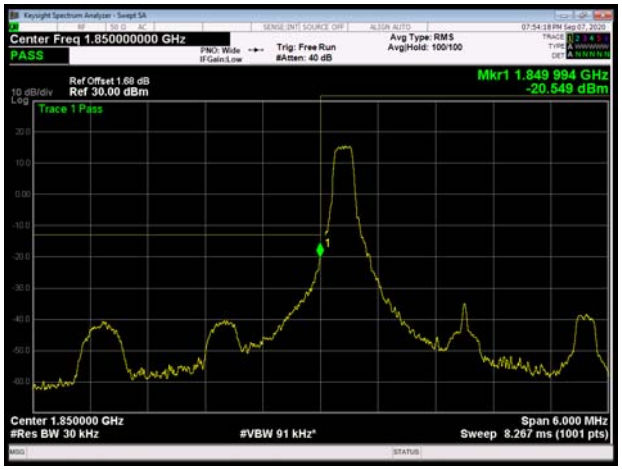
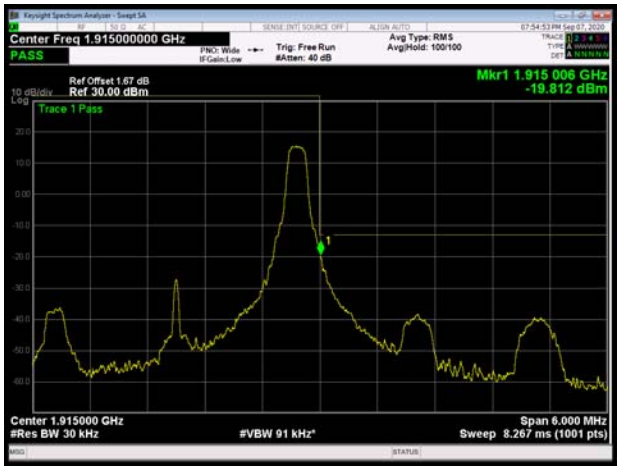
LTE Band 25 3MHz 64QAM 1RB CH-Low



LTE Band 25 3MHz 64QAM 1RB CH-High

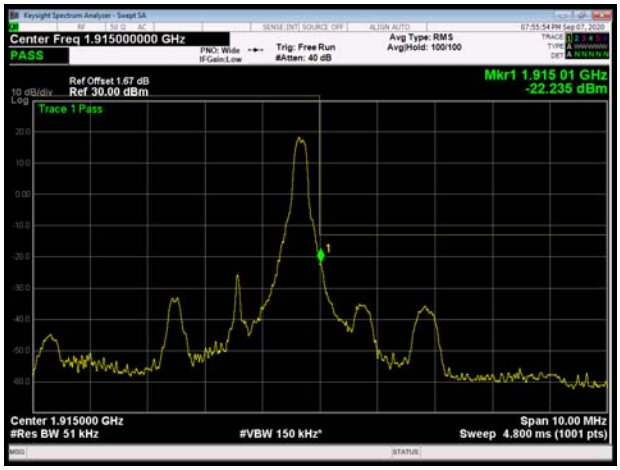


LTE Band 25 3MHz 64QAM 100%RB CH-Low

LTE Band 25 3MHz 64QAM 100%RB CH-High

LTE Band 25 5MHz 64QAM 1RB CH-Low

LTE Band 25 5MHz 64QAM 1RB CH-High



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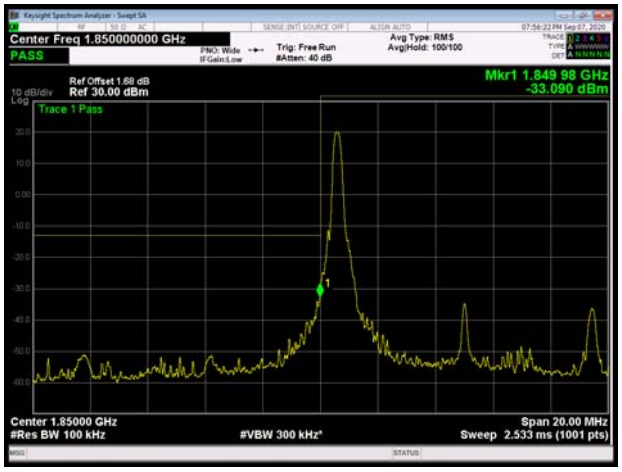
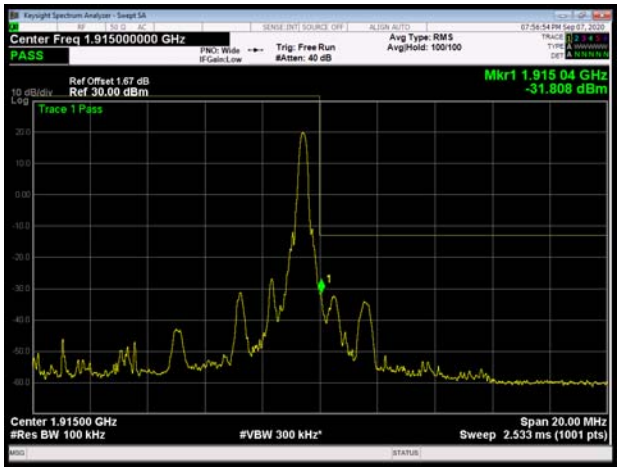
LTE Band 25 5MHz 64QAM 100%RB CH-Low

LTE Band 25 5MHz 64QAM 100%RB CH-High

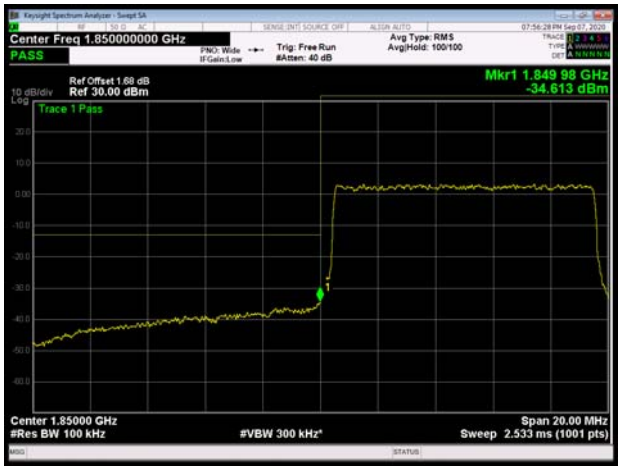
LTE Band 25 10MHz 64QAM 1RB CH-Low



LTE Band 25 10MHz 64QAM 1RB CH-High



LTE Band 25 10MHz 64QAM 100%RB CH-Low



LTE Band 25 10MHz 64QAM 100%RB CH-High

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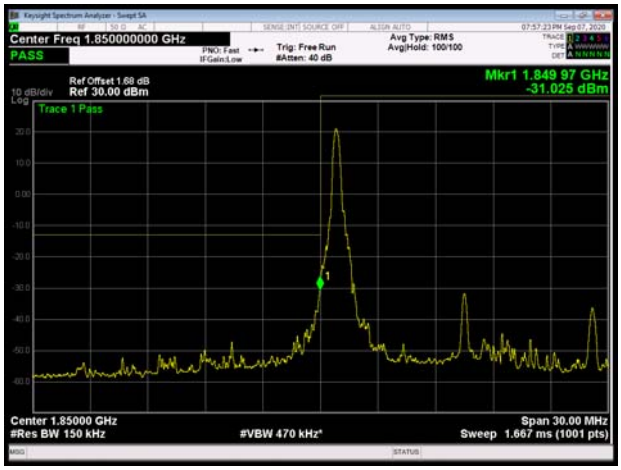
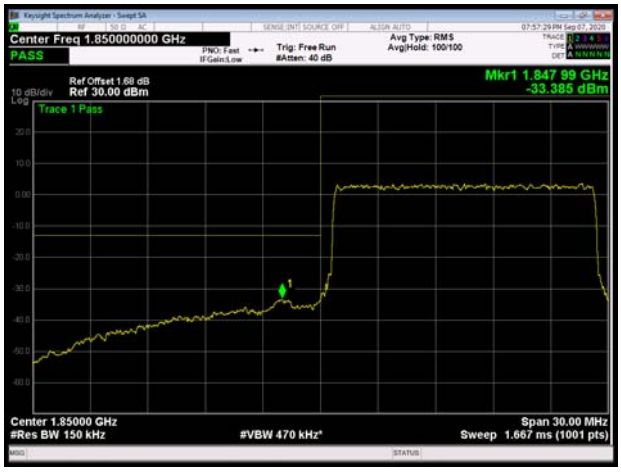
LTE Band 25 15MHz 64QAM 1RB CH-Low



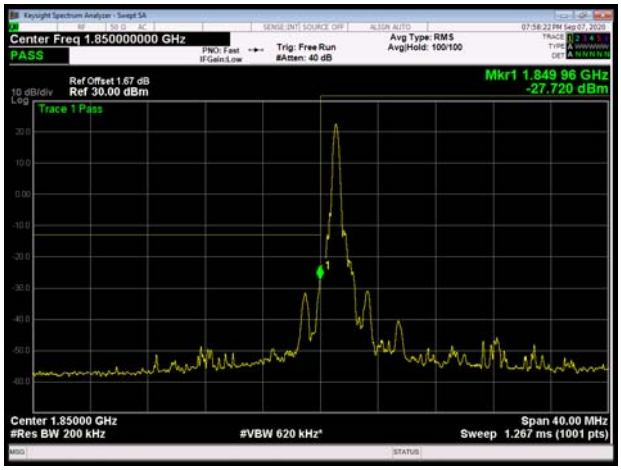
LTE Band 25 15MHz 64QAM 1RB CH-High

LTE Band 25 15MHz 64QAM 100%RB CH-Low

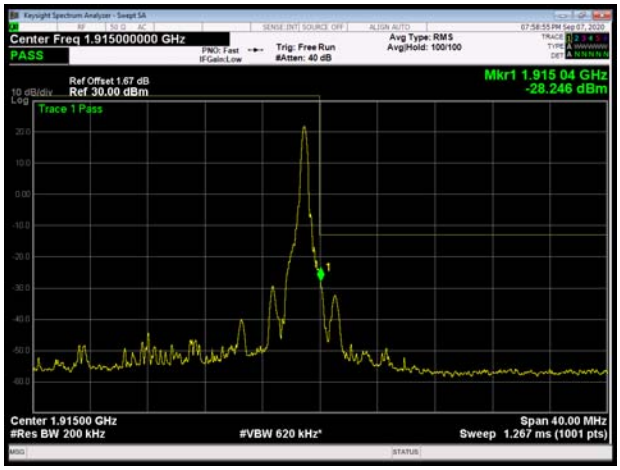


LTE Band 25 15MHz 64QAM 100%RB CH-High

LTE Band 25 20MHz 64QAM 1RB CH-Low



LTE Band 25 20MHz 64QAM 1RB CH-High



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LTE Band 25 20MHz 64QAM 100%RB CH-Low	LTE Band 25 20MHz 64QAM 100%RB CH-High

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5.4. Peak-to-Average Power Ratio (PAPR)

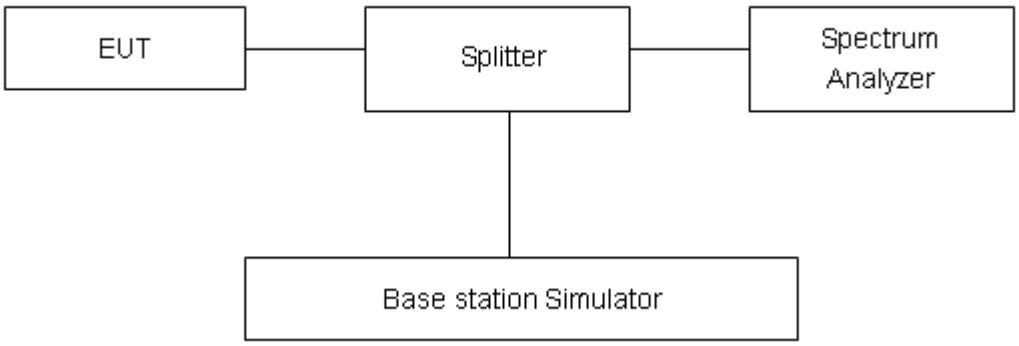
Ambient condition

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

In measuring transmissions in this band using an average power technique, the peakto-average ratio (PAR) of the transmission may not exceed 13 dB in 24.232(d).

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the

normal distribution is with the coverage factor k = 2, U= 0.4 dB.

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Test Results

Mode	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Limit(dB)	Conclusion
GSM 1900 (GMSK)	512	1850.2	31.29	29.71	1.58	≤13	PASS
	661	1880	31.18	29.64	1.54	≤13	PASS
	810	1909.8	31.02	29.52	1.50	≤13	PASS
GPRS 1900 (GMSK)	512	1850.2	31.11	29.64	1.47	≤13	PASS
	661	1880	31.06	29.50	1.56	≤13	PASS
	810	1909.8	30.95	29.36	1.59	≤13	PASS
EGPRS 1900 (8PSK)	512	1850.2	27.77	25.72	2.05	≤13	PASS
	661	1880	27.67	25.57	2.10	≤13	PASS
	810	1909.8	27.70	25.63	2.07	≤13	PASS
WCDMA Band II (RMC)	9262	1852.4	25.56	22.72	2.84	≤13	PASS
	9400	1880	25.51	22.66	2.85	≤13	PASS
	9538	1907.6	25.07	22.27	2.80	≤13	PASS

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LTE Band 2								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	18607	1850.7	26.85	22.51	4.34	≤13	PASS
		18900	1880.0	26.97	22.40	4.57	≤13	PASS
		19193	1909.3	26.81	22.37	4.44	≤13	PASS
	3	18615	1851.5	26.87	22.59	4.28	≤13	PASS
		18900	1880	26.97	22.47	4.50	≤13	PASS
		19185	1908.5	26.87	22.43	4.44	≤13	PASS
	5	18625	1852.5	26.95	22.56	4.39	≤13	PASS
		18900	1880	27.02	22.44	4.58	≤13	PASS
		19175	1907.5	27.00	22.39	4.61	≤13	PASS
	10	18650	1855	27.23	22.54	4.69	≤13	PASS
		18900	1880	27.13	22.44	4.69	≤13	PASS
		19150	1905	27.24	22.42	4.82	≤13	PASS
	15	18675	1857.5	27.72	22.70	5.02	≤13	PASS
		18900	1880	27.55	22.63	4.92	≤13	PASS
		19125	1902.5	27.69	22.63	5.06	≤13	PASS
	20	18700	1860	27.66	22.66	5.00	≤13	PASS
		18900	1880	27.52	22.57	4.95	≤13	PASS
		19100	1900	27.60	22.55	5.05	≤13	PASS
16QAM	1.4	18607	1850.7	26.70	21.45	5.25	≤13	PASS
		18900	1880.0	26.82	21.38	5.44	≤13	PASS
		19193	1909.3	26.74	21.37	5.37	≤13	PASS
	3	18615	1851.5	26.80	21.60	5.20	≤13	PASS
		18900	1880	26.91	21.49	5.42	≤13	PASS
		19185	1908.5	26.80	21.47	5.33	≤13	PASS
	5	18625	1852.5	26.85	21.59	5.26	≤13	PASS
		18900	1880	26.92	21.47	5.45	≤13	PASS
		19175	1907.5	26.84	21.43	5.41	≤13	PASS
	10	18650	1855	27.08	21.54	5.54	≤13	PASS
		18900	1880	27.01	21.48	5.53	≤13	PASS
		19150	1905	27.09	21.46	5.63	≤13	PASS
	15	18675	1857.5	27.49	21.68	5.81	≤13	PASS
		18900	1880	27.32	21.63	5.69	≤13	PASS
		19125	1902.5	27.43	21.63	5.80	≤13	PASS
	20	18700	1860	27.53	21.68	5.85	≤13	PASS
		18900	1880	27.34	21.60	5.74	≤13	PASS
		19100	1900	27.51	21.63	5.88	≤13	PASS
64QAM	1.4	18607	1850.7	26.49	20.03	6.46	≤13	PASS
		18900	1880.0	26.32	19.76	6.56	≤13	PASS
		19193	1909.3	26.39	19.93	6.46	≤13	PASS

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	3	18615	1851.5	26.50	20.14	6.36	≤13	PASS
		18900	1880	26.34	19.88	6.46	≤13	PASS
		19185	1908.5	26.30	20.02	6.28	≤13	PASS
	5	18625	1852.5	26.45	20.09	6.36	≤13	PASS
		18900	1880	26.20	19.82	6.38	≤13	PASS
		19175	1907.5	26.41	19.99	6.42	≤13	PASS
	10	18650	1855	26.54	20.02	6.52	≤13	PASS
		18900	1880	26.24	19.82	6.42	≤13	PASS
		19150	1905	26.43	19.97	6.46	≤13	PASS
	15	18675	1857.5	26.59	20.11	6.48	≤13	PASS
		18900	1880	26.46	19.92	6.54	≤13	PASS
		19125	1902.5	26.63	20.07	6.56	≤13	PASS
	20	18700	1860	26.72	20.14	6.58	≤13	PASS
		18900	1880	26.42	19.90	6.52	≤13	PASS
		19100	1900	26.65	20.15	6.50	≤13	PASS

LTE Band 25								
Modulation	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**Peak (dBm)**	**Avg (dBm)**	**PAPR (dB)**	**Limit (dB)**	**Conclusion**
QPSK	1.4	26047	1850.7	26.90	22.60	4.30	≤13	PASS
		26365	1882.5	27.03	22.43	4.60	≤13	PASS
		26683	1914.3	26.21	22.54	3.67	≤13	PASS
	3	26055	1851.5	26.95	22.66	4.29	≤13	PASS
		26365	1882.5	27.05	22.52	4.53	≤13	PASS
		26675	1913.5	26.37	22.54	3.83	≤13	PASS
	5	26065	1852.5	27.03	22.61	4.42	≤13	PASS
		26365	1882.5	27.09	22.47	4.62	≤13	PASS
		26665	1912.5	26.59	22.53	4.06	≤13	PASS
	10	26090	1855	27.30	22.61	4.69	≤13	PASS
		26365	1882.5	27.25	22.56	4.69	≤13	PASS
		26640	1910	26.99	22.53	4.46	≤13	PASS
	15	26115	1857.5	27.80	22.81	4.99	≤13	PASS
		26365	1882.5	27.68	22.79	4.89	≤13	PASS
		26615	1907.5	27.58	22.80	4.78	≤13	PASS
	20	26140	1860	27.75	22.75	5.00	≤13	PASS
		26365	1882.5	27.67	22.74	4.93	≤13	PASS
		26590	1905	27.64	22.74	4.90	≤13	PASS
16QAM	1.4	26047	1850.7	26.77	21.56	5.21	≤13	PASS
		26365	1882.5	26.92	21.42	5.50	≤13	PASS
		26683	1914.3	26.19	21.43	4.76	≤13	PASS

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	3	26055	1851.5	26.84	21.65	5.19	≤13	PASS
		26365	1882.5	26.96	21.52	5.44	≤13	PASS
		26675	1913.5	26.31	21.54	4.77	≤13	PASS
	5	26065	1852.5	26.91	21.64	5.27	≤13	PASS
		26365	1882.5	27.01	21.60	5.41	≤13	PASS
		26665	1912.5	26.47	21.52	4.95	≤13	PASS
	10	26090	1855	27.15	21.64	5.51	≤13	PASS
		26365	1882.5	27.11	21.57	5.54	≤13	PASS
		26640	1910	26.84	21.52	5.32	≤13	PASS
	15	26115	1857.5	27.59	21.84	5.75	≤13	PASS
		26365	1882.5	27.44	21.76	5.68	≤13	PASS
		26615	1907.5	27.32	21.76	5.56	≤13	PASS
	20	26140	1860	27.59	21.75	5.84	≤13	PASS
		26365	1882.5	27.48	21.76	5.72	≤13	PASS
		26590	1905	27.49	21.76	5.73	≤13	PASS
64QAM	1.4	26047	1850.7	26.30	19.66	6.64	≤13	PASS
		26365	1882.5	26.18	19.44	6.74	≤13	PASS
		26683	1914.3	25.42	19.48	5.94	≤13	PASS
	3	26055	1851.5	26.19	19.63	6.56	≤13	PASS
		26365	1882.5	26.24	19.58	6.66	≤13	PASS
		26675	1913.5	25.56	19.62	5.94	≤13	PASS
	5	26065	1852.5	26.20	19.64	6.56	≤13	PASS
		26365	1882.5	25.97	19.37	6.60	≤13	PASS
		26665	1912.5	25.80	19.64	6.16	≤13	PASS
	10	26090	1855	26.17	19.53	6.64	≤13	PASS
		26365	1882.5	26.14	19.50	6.64	≤13	PASS
		26640	1910	26.11	19.69	6.42	≤13	PASS
	15	26115	1857.5	26.30	19.72	6.58	≤13	PASS
		26365	1882.5	26.31	19.59	6.72	≤13	PASS
		26615	1907.5	26.29	19.75	6.54	≤13	PASS
	20	26140	1860	26.27	19.65	6.62	≤13	PASS
		26365	1882.5	26.23	19.57	6.66	≤13	PASS
		26590	1905	26.33	19.71	6.62	≤13	PASS

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5.5. Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

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

(1) With all power removed, the temperature was decreased to 0°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.

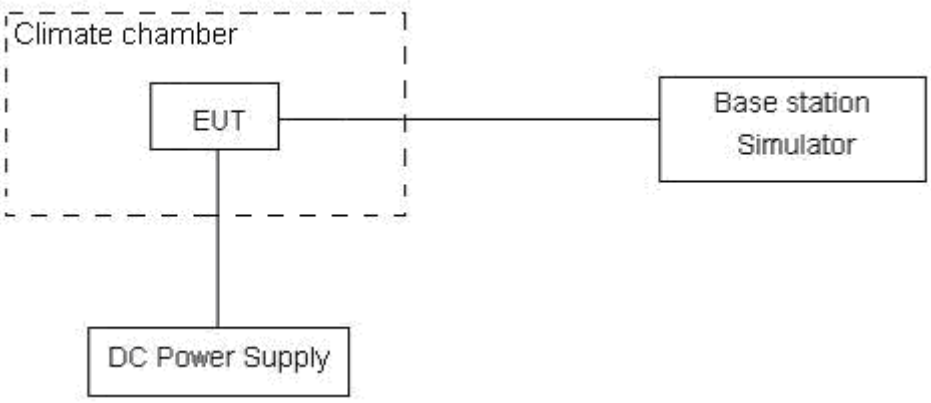
Frequency Stability (Voltage Variation)

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 3.3 V and 4.3 V, with a nominal voltage of 3.8V.

Test setup



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Limits

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block

Measurement Uncertainty

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

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Test Result

GSM1900						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
Normal（25℃）	Normal	17.57	1.14	0.00934	0.00060	PASS
Extreme（50℃）		17.31	1.35	0.00921	0.00072	PASS
Extreme（40℃）		5.07	3.87	0.00270	0.00206	PASS
Extreme（30℃）		15.74	16.35	0.00837	0.00869	PASS
Extreme（20℃）		13.06	14.75	0.00695	0.00785	PASS
Extreme（10℃）		14.59	15.05	0.00776	0.00800	PASS
Extreme（0℃）		10.48	14.92	0.00558	0.00794	PASS
Extreme（-10℃）		13.34	12.68	0.00710	0.00674	PASS
Extreme（-20℃）		11.40	7.05	0.00606	0.00375	PASS
Extreme（-30℃）		5.28	2.51	0.00281	0.00134	PASS
Extreme（-40℃）		8.01	3.76	0.00426	0.00200	PASS
25℃	LV	13.29	10.37	0.00707	0.00552	PASS
	HV	7.84	15.16	0.00417	0.00806	PASS

WCDMA Band II						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
Normal（25℃）	Normal	6.04	14.25	0.00321	0.00758	PASS
Extreme（50℃）		6.50	3.71	0.00346	0.00197	PASS
Extreme（40℃）		1.21	16.41	0.00064	0.00873	PASS
Extreme（30℃）		5.87	7.18	0.00312	0.00382	PASS
Extreme（20℃）		16.04	4.72	0.00853	0.00251	PASS
Extreme（10℃）		3.18	7.20	0.00169	0.00383	PASS
Extreme（0℃）		4.74	16.09	0.00252	0.00856	PASS
Extreme（-10℃）		10.09	7.31	0.00536	0.00389	PASS
Extreme（-20℃）		5.60	8.49	0.00298	0.00452	PASS
Extreme（-30℃）		16.47	2.28	0.00876	0.00121	PASS
25℃	LV	8.03	13.53	0.00427	0.00720	PASS
	HV	1.74	5.38	0.00093	0.00286	PASS

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LTE Band 2								
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	2.53	14.39	10.33	0.00135	0.00766	0.00549	PASS
Extreme（50℃）		14.23	1.17	10.89	0.00757	0.00062	0.00579	PASS
Extreme（40℃）		3.03	9.17	13.14	0.00161	0.00488	0.00699	PASS
Extreme（30℃）		3.07	15.93	8.76	0.00163	0.00847	0.00466	PASS
Extreme（20℃）		16.09	3.05	9.64	0.00856	0.00162	0.00513	PASS
Extreme（10℃）		5.32	9.94	1.41	0.00283	0.00528	0.00075	PASS
Extreme（0℃）		10.64	10.45	7.71	0.00566	0.00556	0.00410	PASS
Extreme（-10℃）		10.07	17.63	10.53	0.00535	0.00938	0.00560	PASS
Extreme（-20℃）		12.84	17.57	17.17	0.00683	0.00935	0.00913	PASS
Extreme（-30℃）		4.24	16.35	1.01	0.00226	0.00870	0.00054	PASS
25℃	LV	13.27	1.42	16.07	0.00706	0.00075	0.00855	PASS
	HV	4.78	12.76	9.68	0.00254	0.00679	0.00515	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	6.54	12.31	14.44	0.00348	0.00655	0.00768	PASS
Extreme（50℃）		17.74	6.28	3.79	0.00943	0.00334	0.00202	PASS
Extreme（40℃）		2.75	12.69	17.36	0.00147	0.00675	0.00924	PASS
Extreme（30℃）		11.00	2.75	13.71	0.00585	0.00146	0.00729	PASS
Extreme（20℃）		15.76	11.84	12.36	0.00839	0.00630	0.00657	PASS
Extreme（10℃）		16.69	9.36	1.85	0.00888	0.00498	0.00099	PASS
Extreme（0℃）		13.29	12.45	17.49	0.00707	0.00662	0.00930	PASS
Extreme（-10℃）		16.89	9.53	17.36	0.00899	0.00507	0.00923	PASS
Extreme（-20℃）		12.48	1.15	13.72	0.00664	0.00061	0.00730	PASS
Extreme（-30℃）		6.57	8.21	4.89	0.00349	0.00437	0.00260	PASS
25℃	LV	15.95	2.46	11.41	0.00849	0.00131	0.00607	PASS
	HV	14.29	14.14	17.41	0.00760	0.00752	0.00926	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	9.15	17.62	5.07	0.00486	0.00937	0.00270	PASS
Extreme（50℃）		12.27	16.80	9.33	0.00653	0.00894	0.00496	PASS

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Extreme（40℃）		13.16	7.52	1.53	0.00700	0.00400	0.00081	PASS
Extreme（30℃）		17.54	4.30	10.26	0.00933	0.00229	0.00546	PASS
Extreme（20℃）		8.76	16.88	8.60	0.00466	0.00898	0.00457	PASS
Extreme（10℃）		12.43	5.76	13.05	0.00661	0.00306	0.00694	PASS
Extreme（0℃）		15.13	5.07	12.62	0.00805	0.00270	0.00671	PASS
Extreme（-10℃）		4.07	8.57	17.46	0.00217	0.00456	0.00929	PASS
Extreme（-20℃）		7.16	17.43	9.88	0.00381	0.00927	0.00526	PASS
Extreme（-30℃）		8.98	8.11	15.16	0.00478	0.00431	0.00806	PASS
25℃	LV	12.96	11.93	9.77	0.00689	0.00635	0.00520	PASS
	HV	15.62	6.68	6.73	0.00831	0.00355	0.00358	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	11.59	11.41	9.19	0.00616	0.00607	0.00489	PASS
Extreme（50℃）		12.77	5.53	1.62	0.00679	0.00294	0.00086	PASS
Extreme（40℃）		11.49	14.01	12.86	0.00611	0.00745	0.00684	PASS
Extreme（30℃）		1.64	4.75	4.33	0.00087	0.00253	0.00230	PASS
Extreme（20℃）		9.24	5.74	1.85	0.00491	0.00305	0.00098	PASS
Extreme（10℃）		9.87	13.65	12.17	0.00525	0.00726	0.00647	PASS
Extreme（0℃）		14.52	4.65	12.27	0.00772	0.00247	0.00653	PASS
Extreme（-10℃）		1.45	12.67	13.54	0.00077	0.00674	0.00720	PASS
Extreme（-20℃）		16.81	3.80	8.02	0.00894	0.00202	0.00427	PASS
Extreme（-30℃）		7.10	14.55	9.04	0.00378	0.00774	0.00481	PASS
25℃	LV	14.53	8.17	3.28	0.00773	0.00434	0.00175	PASS
	HV	17.30	9.73	12.67	0.00920	0.00518	0.00674	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	4.59	11.85	16.56	0.00244	0.00630	0.00881	PASS
Extreme（50℃）		6.55	4.38	7.02	0.00348	0.00233	0.00373	PASS
Extreme（40℃）		4.79	4.52	17.22	0.00255	0.00241	0.00916	PASS
Extreme（30℃）		8.42	10.43	7.39	0.00448	0.00555	0.00393	PASS
Extreme（20℃）		8.92	6.18	9.99	0.00475	0.00329	0.00532	PASS
Extreme（10℃）		7.22	6.95	9.04	0.00384	0.00370	0.00481	PASS
Extreme（0℃）		5.81	7.19	12.49	0.00309	0.00382	0.00665	PASS
Extreme（-10℃）		1.84	13.16	2.52	0.00098	0.00700	0.00134	PASS
Extreme（-20℃）		8.29	10.55	16.35	0.00441	0.00561	0.00870	PASS
Extreme（-30℃）		11.43	15.92	17.82	0.00608	0.00847	0.00948	PASS
25℃	LV	9.92	6.32	12.22	0.00528	0.00336	0.00650	PASS

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	HV	5.79	4.18	13.19	0.00308	0.00223	0.00702	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	13.44	13.51	9.23	0.00715	0.00718	0.00491	PASS
Extreme（50℃）		2.15	4.60	10.57	0.00115	0.00245	0.00562	PASS
Extreme（40℃）		1.42	3.74	2.87	0.00076	0.00199	0.00152	PASS
Extreme（30℃）		11.42	9.45	10.26	0.00608	0.00503	0.00546	PASS
Extreme（20℃）		1.19	15.75	4.02	0.00063	0.00838	0.00214	PASS
Extreme（10℃）		5.94	6.45	8.17	0.00316	0.00343	0.00435	PASS
Extreme（0℃）		1.58	16.63	1.16	0.00084	0.00885	0.00062	PASS
Extreme（-10℃）		14.12	14.87	11.18	0.00751	0.00791	0.00595	PASS
Extreme（-20℃）		17.75	15.04	9.17	0.00944	0.00800	0.00488	PASS
Extreme（-30℃）		9.29	4.82	1.38	0.00494	0.00256	0.00073	PASS
25℃	LV	4.14	15.83	14.02	0.00220	0.00842	0.00746	PASS
	HV	9.25	2.41	15.06	0.00492	0.00128	0.00801	PASS

LTE Band 25								
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	14.63	16.56	7.81	0.00778	0.00881	0.00416	PASS
Extreme（50℃）		15.00	8.87	10.66	0.00798	0.00472	0.00567	PASS
Extreme（40℃）		2.18	11.31	11.67	0.00116	0.00602	0.00621	PASS
Extreme（30℃）		1.50	9.81	12.54	0.00080	0.00522	0.00667	PASS
Extreme（20℃）		16.19	14.34	2.52	0.00861	0.00763	0.00134	PASS
Extreme（10℃）		17.04	13.81	1.99	0.00906	0.00735	0.00106	PASS
Extreme（0℃）		16.33	6.65	14.67	0.00868	0.00354	0.00780	PASS
Extreme（-10℃）		8.82	8.50	7.23	0.00469	0.00452	0.00385	PASS
Extreme（-20℃）		14.21	1.57	16.88	0.00756	0.00084	0.00898	PASS
Extreme（-30℃）		8.57	13.06	4.31	0.00456	0.00695	0.00229	PASS
25℃	LV	4.01	9.74	6.25	0.00213	0.00518	0.00332	PASS
	HV	14.37	13.65	14.01	0.00765	0.00726	0.00745	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	

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Normal（25℃）	Normal	11.32	7.91	1.83	0.00602	0.00421	0.00097	PASS
Extreme（50℃）		13.00	7.76	6.85	0.00692	0.00413	0.00365	PASS
Extreme（40℃）		13.96	8.58	4.61	0.00743	0.00456	0.00245	PASS
Extreme（30℃）		13.22	14.13	17.21	0.00703	0.00751	0.00915	PASS
Extreme（20℃）		17.91	14.49	17.41	0.00953	0.00771	0.00926	PASS
Extreme（10℃）		7.38	2.94	6.31	0.00392	0.00157	0.00336	PASS
Extreme（0℃）		17.43	7.85	3.22	0.00927	0.00418	0.00171	PASS
Extreme（-10℃）		8.76	11.82	13.51	0.00466	0.00629	0.00719	PASS
Extreme（-20℃）		9.80	5.28	11.64	0.00521	0.00281	0.00619	PASS
Extreme（-30℃）		5.62	6.28	14.28	0.00299	0.00334	0.00760	PASS
25℃	LV	12.79	4.18	1.75	0.00680	0.00222	0.00093	PASS
	HV	17.34	4.44	6.39	0.00922	0.00236	0.00340	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	4.83	7.28	15.77	0.00257	0.00387	0.00839	PASS
Extreme（50℃）		15.46	1.14	4.26	0.00822	0.00061	0.00226	PASS
Extreme（40℃）		3.17	2.99	4.09	0.00169	0.00159	0.00217	PASS
Extreme（30℃）		1.23	17.97	10.42	0.00066	0.00956	0.00554	PASS
Extreme（20℃）		12.08	7.25	11.10	0.00642	0.00386	0.00590	PASS
Extreme（10℃）		8.34	15.65	3.12	0.00443	0.00832	0.00166	PASS
Extreme（0℃）		14.96	3.60	8.42	0.00796	0.00191	0.00448	PASS
Extreme（-10℃）		12.27	3.07	5.40	0.00653	0.00163	0.00287	PASS
Extreme（-20℃）		14.04	1.30	8.22	0.00747	0.00069	0.00437	PASS
Extreme（-30℃）		4.68	17.82	15.80	0.00249	0.00948	0.00840	PASS
25℃	LV	16.94	11.21	8.50	0.00901	0.00596	0.00452	PASS
	HV	16.59	17.13	4.10	0.00882	0.00911	0.00218	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	12.87	11.96	13.78	0.00684	0.00636	0.00733	PASS
Extreme（50℃）		1.38	18.00	9.23	0.00074	0.00957	0.00491	PASS
Extreme（40℃）		6.17	3.35	13.18	0.00328	0.00178	0.00701	PASS
Extreme（30℃）		10.20	15.58	15.25	0.00542	0.00829	0.00811	PASS
Extreme（20℃）		15.22	12.36	6.15	0.00809	0.00658	0.00327	PASS
Extreme（10℃）		10.13	9.66	11.36	0.00539	0.00514	0.00604	PASS
Extreme（0℃）		16.62	15.18	17.19	0.00884	0.00808	0.00914	PASS
Extreme（-10℃）		14.83	17.79	7.93	0.00789	0.00946	0.00422	PASS
Extreme（-20℃）		7.35	9.84	9.10	0.00391	0.00524	0.00484	PASS

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Extreme（-30℃）		12.56	9.94	7.13	0.00668	0.00529	0.00379	PASS
25℃	LV	2.11	12.19	9.15	0.00112	0.00648	0.00487	PASS
	HV	4.41	1.02	2.06	0.00235	0.00054	0.00109	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	12.44	16.75	7.35	0.00662	0.00891	0.00391	PASS
Extreme（50℃）		3.94	17.01	14.63	0.00210	0.00905	0.00778	PASS
Extreme（40℃）		12.22	7.30	16.51	0.00650	0.00388	0.00878	PASS
Extreme（30℃）		4.49	4.14	3.50	0.00239	0.00220	0.00186	PASS
Extreme（20℃）		12.70	16.71	9.75	0.00675	0.00889	0.00519	PASS
Extreme（10℃）		6.02	1.32	17.64	0.00320	0.00070	0.00938	PASS
Extreme（0℃）		1.61	7.62	11.11	0.00086	0.00405	0.00591	PASS
Extreme（-10℃）		12.39	5.27	4.33	0.00659	0.00280	0.00231	PASS
Extreme（-20℃）		11.02	3.55	5.58	0.00586	0.00189	0.00297	PASS
Extreme（-30℃）		2.99	5.77	6.48	0.00159	0.00307	0.00345	PASS
25℃	LV	14.07	4.12	2.45	0.00748	0.00219	0.00130	PASS
	HV	6.83	11.48	8.26	0.00363	0.00610	0.00439	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	17.67	11.37	12.42	0.00940	0.00605	0.00661	PASS
Extreme（50℃）		5.01	3.46	12.70	0.00266	0.00184	0.00675	PASS
Extreme（40℃）		6.06	8.38	16.02	0.00323	0.00446	0.00852	PASS
Extreme（30℃）		8.50	6.39	11.89	0.00452	0.00340	0.00632	PASS
Extreme（20℃）		12.33	9.63	5.34	0.00656	0.00512	0.00284	PASS
Extreme（10℃）		12.65	15.73	12.19	0.00673	0.00837	0.00649	PASS
Extreme（0℃）		10.04	15.78	3.84	0.00534	0.00839	0.00204	PASS
Extreme（-10℃）		6.73	11.37	14.44	0.00358	0.00605	0.00768	PASS
Extreme（-20℃）		4.28	5.15	5.04	0.00228	0.00274	0.00268	PASS
Extreme（-30℃）		8.91	5.88	12.44	0.00474	0.00313	0.00661	PASS
25℃	LV	11.22	4.29	12.19	0.00597	0.00228	0.00648	PASS
	HV	14.87	17.58	17.91	0.00791	0.00935	0.00953	PASS

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5.6. Spurious Emissions at Antenna Terminals

Ambient condition

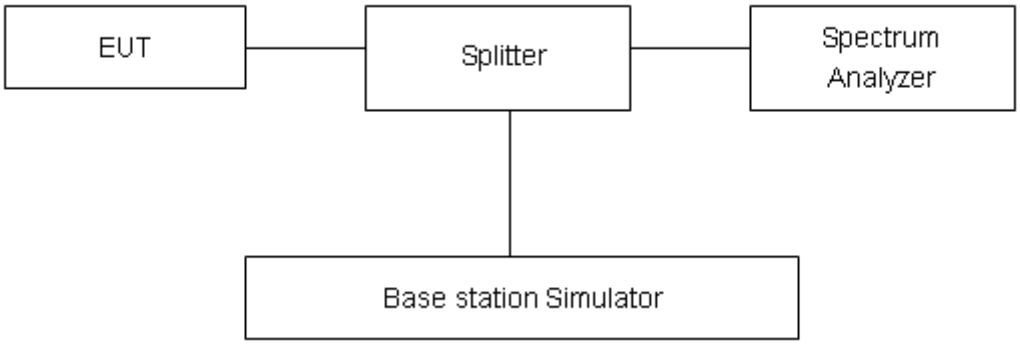
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.
RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz
RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.
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)

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

Test setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 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.

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Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-20GHz	1.407 dB

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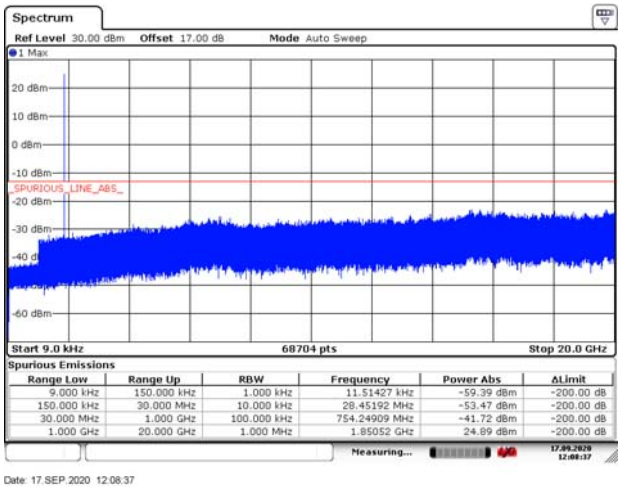
Test Result

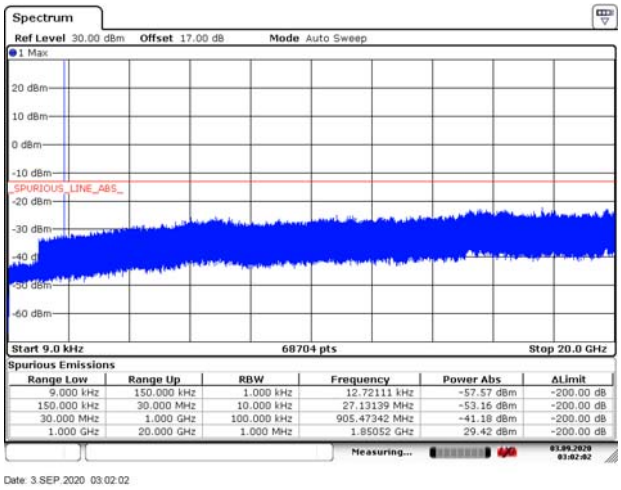
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

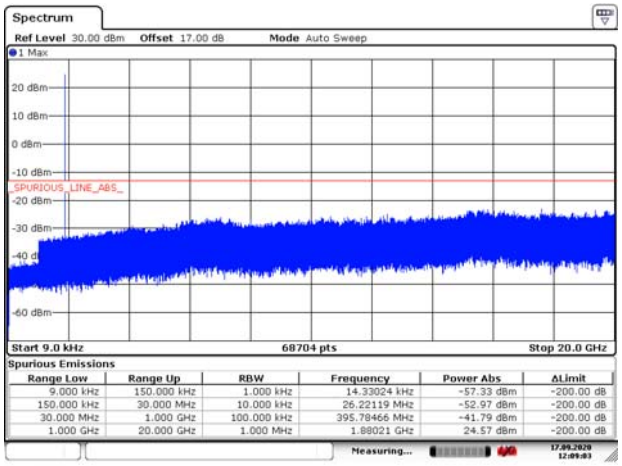
GSM 1900 CH-Low 9kHz ~ 20GHz



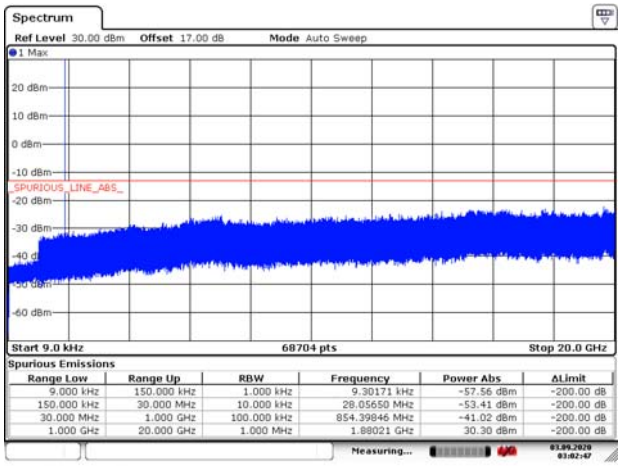
GPRS 1900 CH-Low 9kHz ~ 20GHz



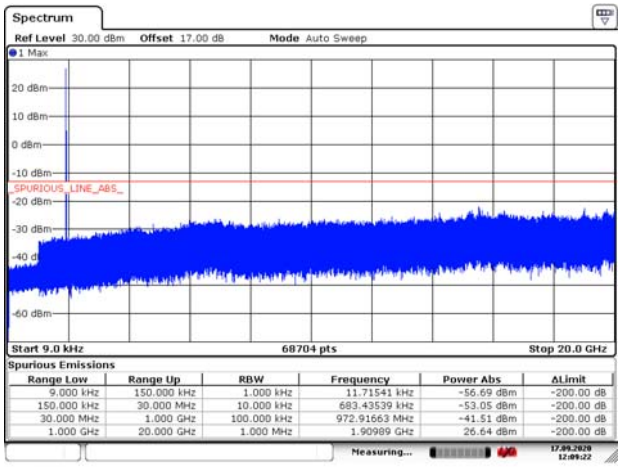
GSM 1900 CH-Middle 9kHz ~ 20GHz



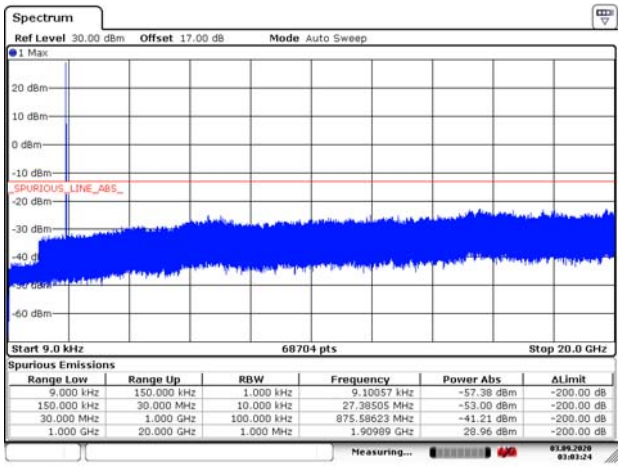
GPRS 1900 CH-Middle 9kHz ~ 20GHz



GSM 1900 CH-High 9kHz ~ 20GHz



GPRS 1900 CH-High 9kHz ~ 20GHz



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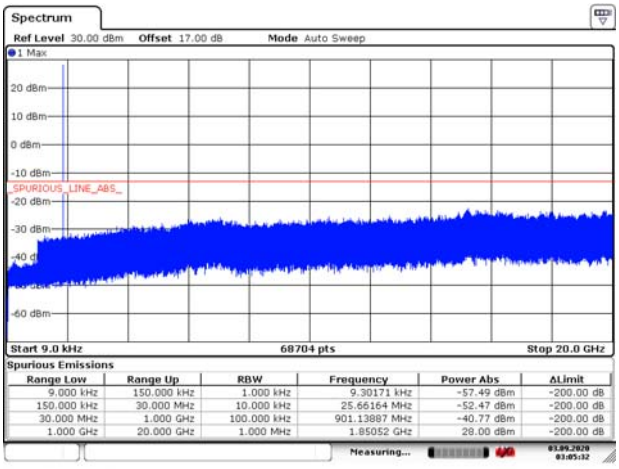
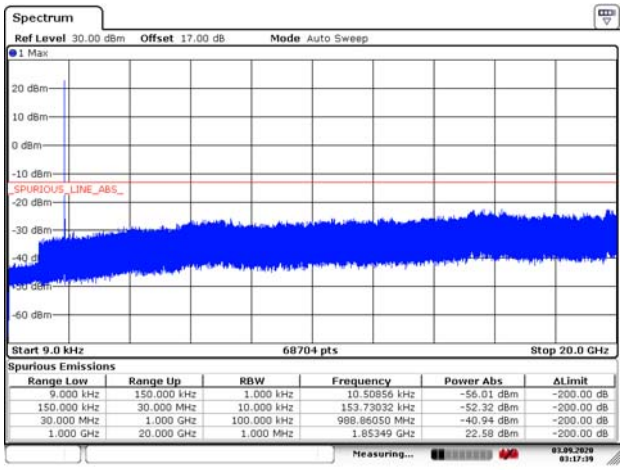
EGPRS 1900 CH-Low 9kHz ~ 20GHz



Date: 3.SEP.2020 03:05:32

WCDMA BAND II CH-Low 9kHz ~ 20GHz



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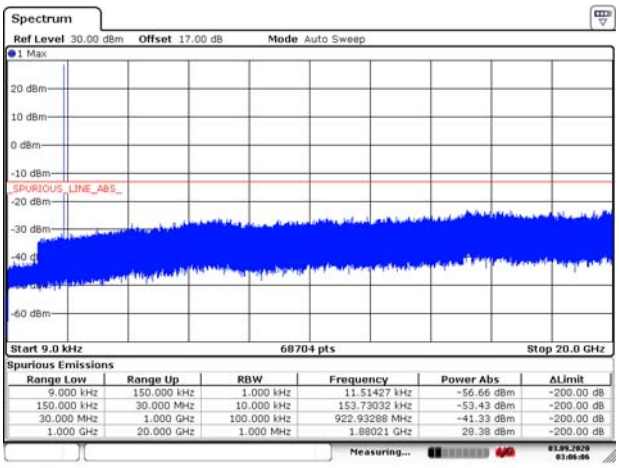
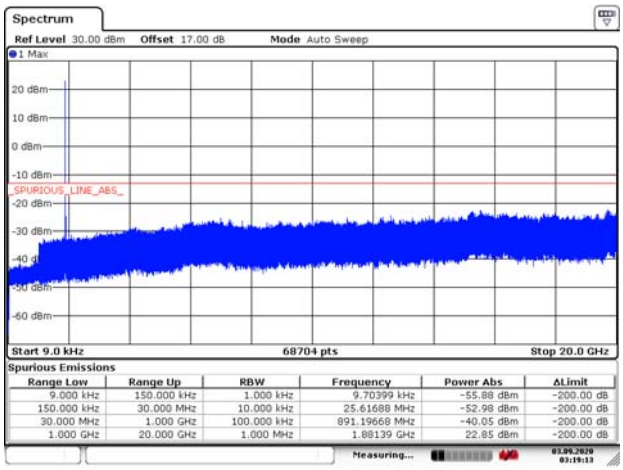
EGPRS 1900 CH-Middle 9kHz ~ 20GHz



Date: 3.SEP.2020 03:06:05

WCDMA BAND II CH-Middle 9kHz ~ 20GHz



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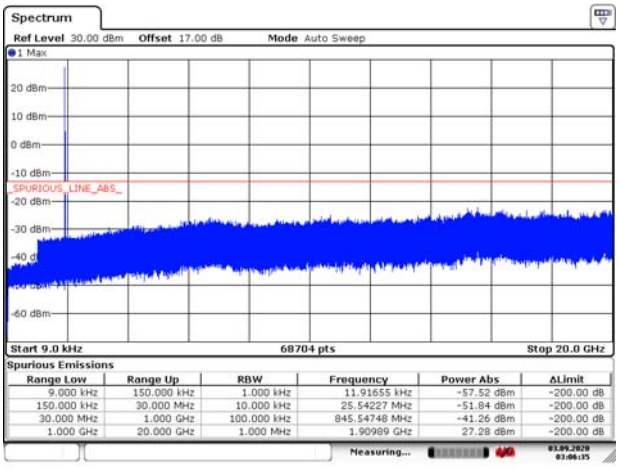
EGPRS 1900 CH-High 9kHz ~ 20GHz



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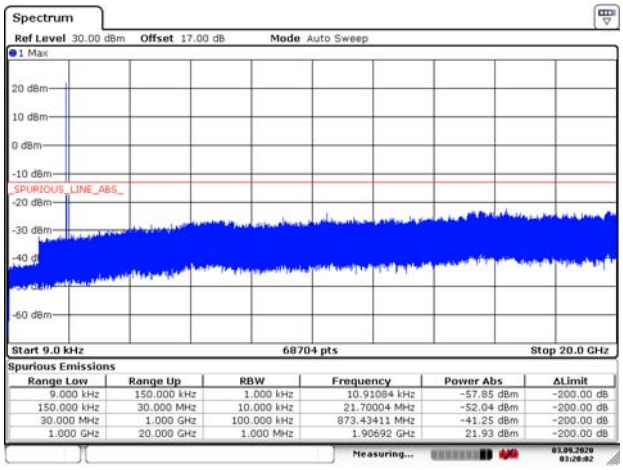
WCDMA BAND II CH-High 9kHz ~ 20GHz



Date: 3.SEP.2020 03:20:02

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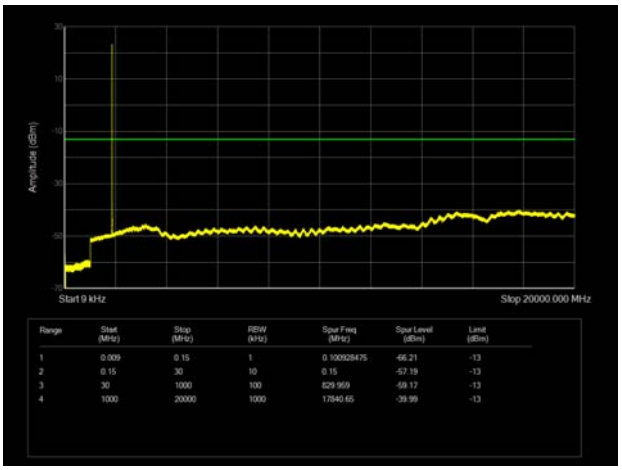
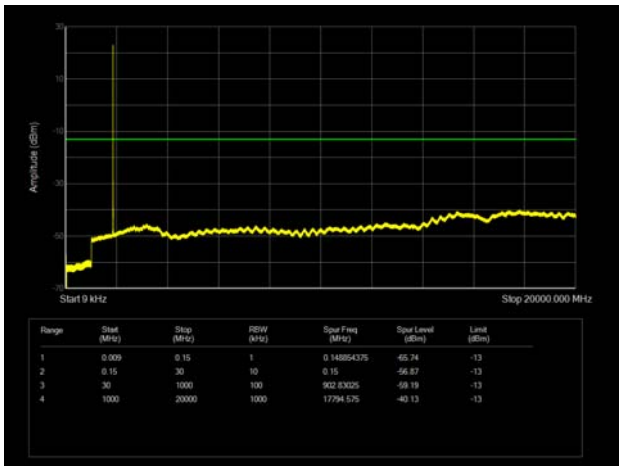
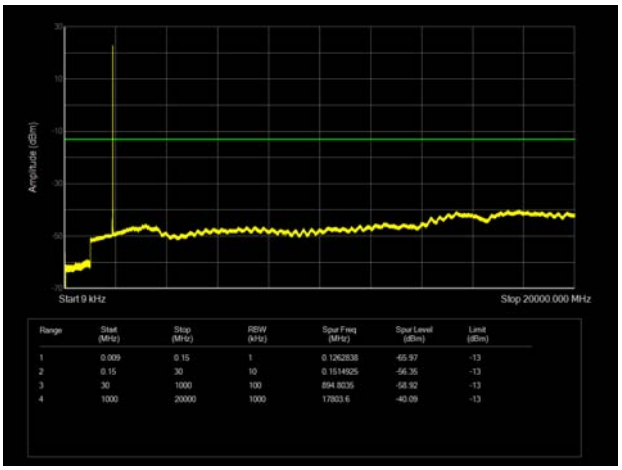
LTE Band 2 1.4MHz CH-Low 9kHz~20GHz



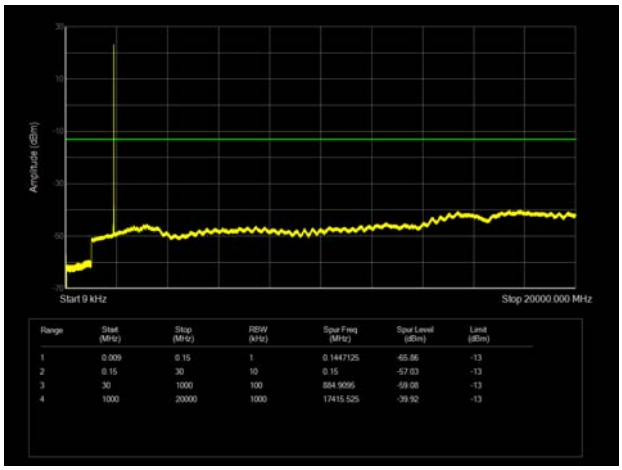
LTE Band 2 3MHz CH-Low 9kHz~20GHz



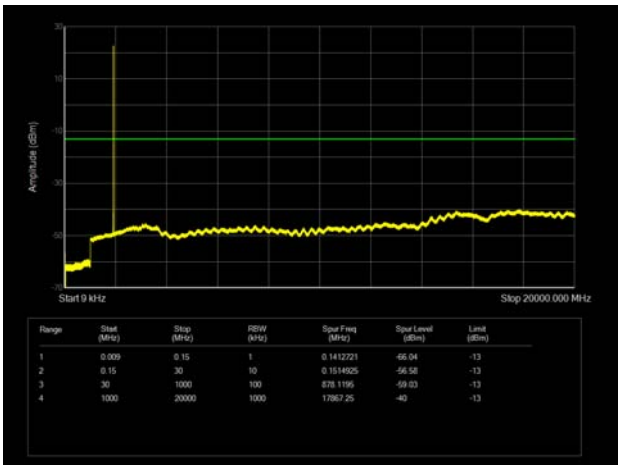
LTE Band 2 1.4MHz CH-Middle 9kHz~20GHz



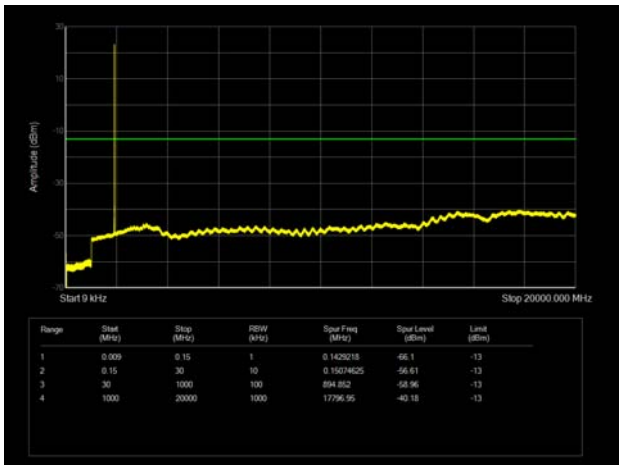
LTE Band 2 3MHz CH-Middle 9kHz~20GHz



LTE Band 2 1.4MHz CH-High 9kHz~20GHz



LTE Band 2 3MHz CH-High 9kHz~20GHz



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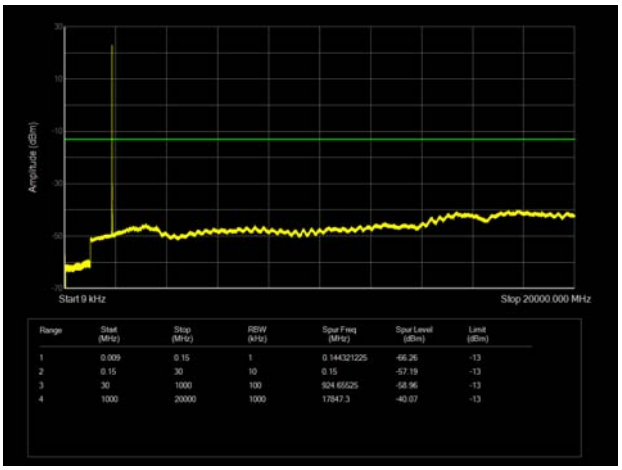
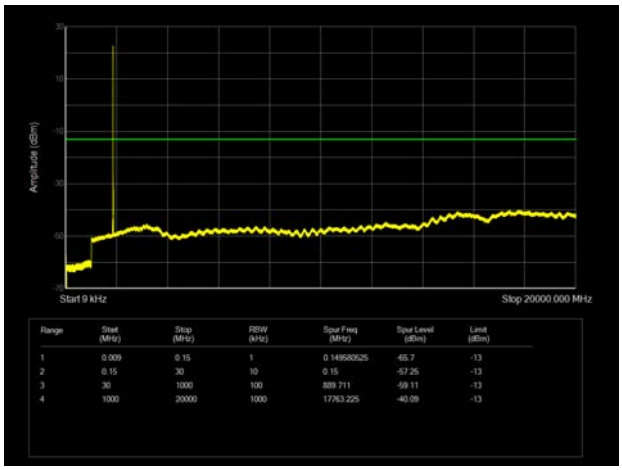
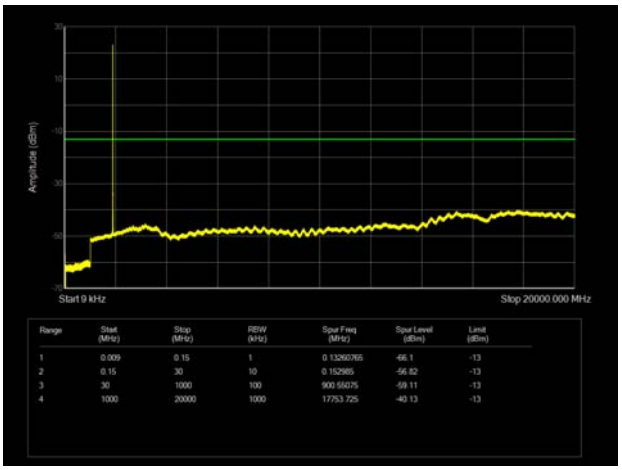
LTE Band 2 5MHz CH-Low 9kHz~20GHz



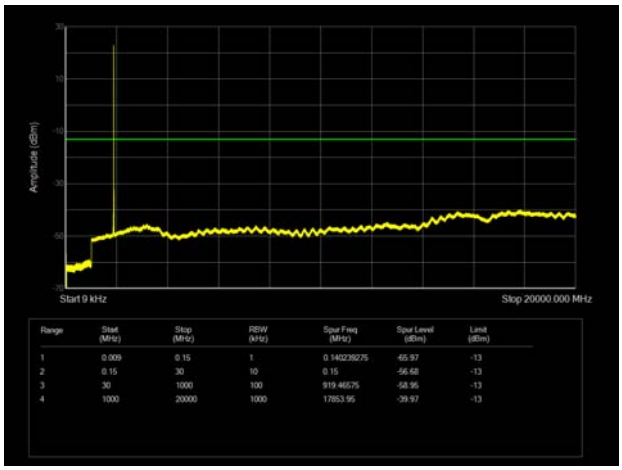
LTE Band 2 10MHz CH-Low 9kHz~20GHz



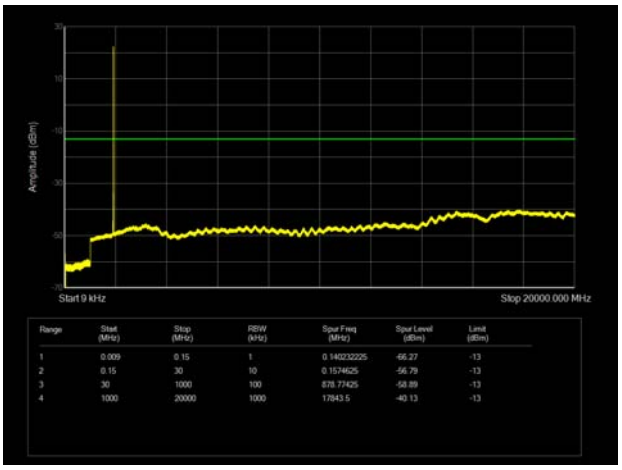
LTE Band 2 5MHz CH-Middle 9kHz~20GHz



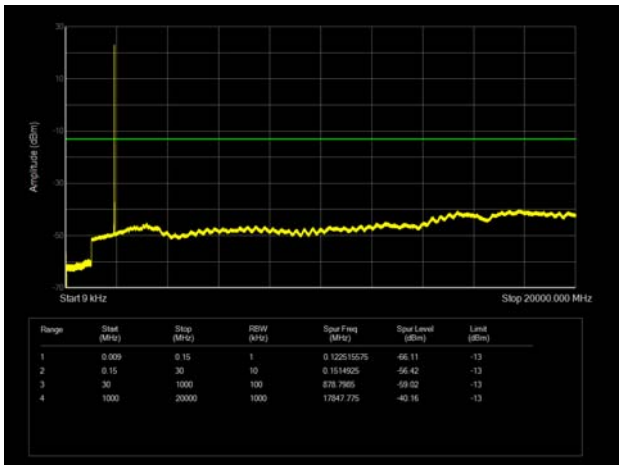
LTE Band 2 10MHz CH-Middle 9kHz~20GHz



LTE Band 2 5MHz CH-High 9kHz~20GHz



LTE Band 2 10MHz CH-High 9kHz~20GHz



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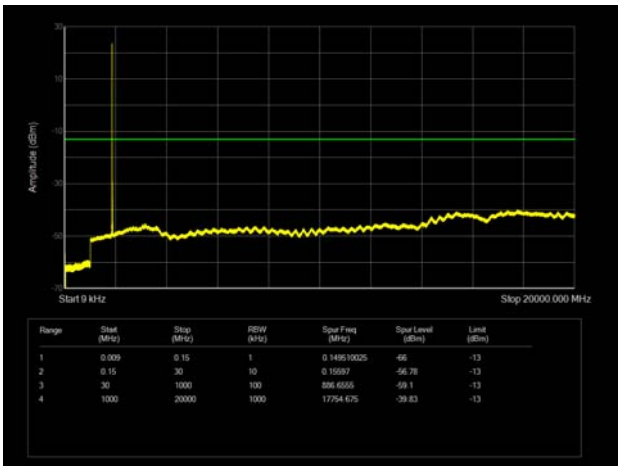
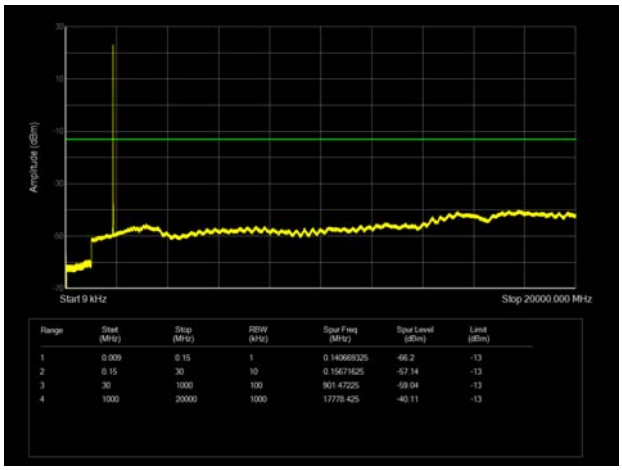
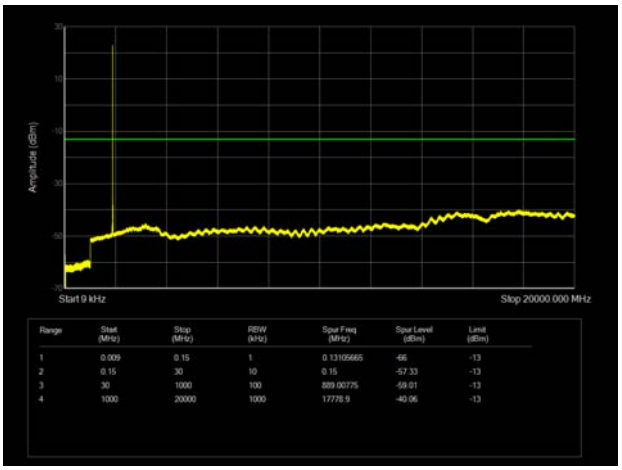
LTE Band 2 15MHz CH-Low 9kHz~20GHz



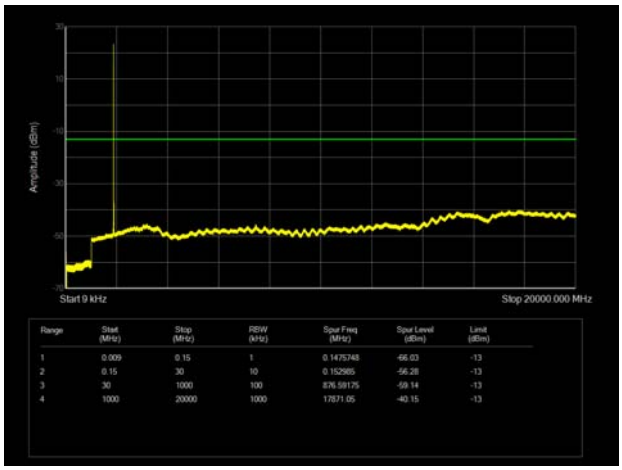
LTE Band 2 20MHz CH-Low 9kHz~20GHz



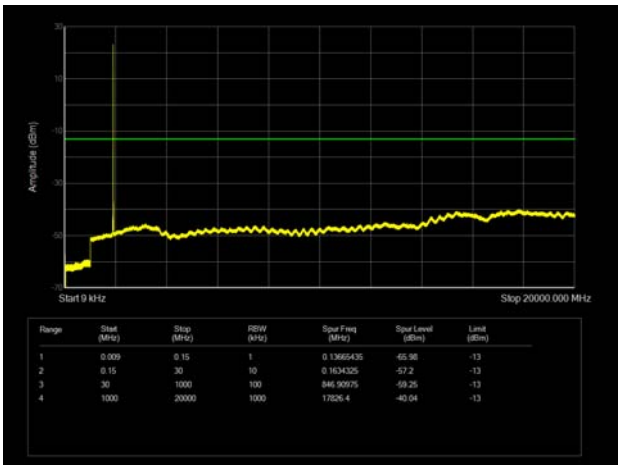
LTE Band 2 15MHz CH-Middle 9kHz~20GHz



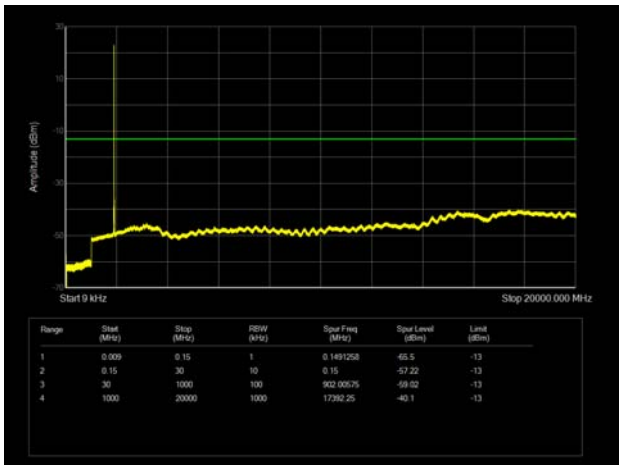
LTE Band 2 20MHz CH-Middle 9kHz~20GHz



LTE Band 2 15MHz CH-High 9kHz~20GHz



LTE Band 2 20MHz CH-High 9kHz~20GHz



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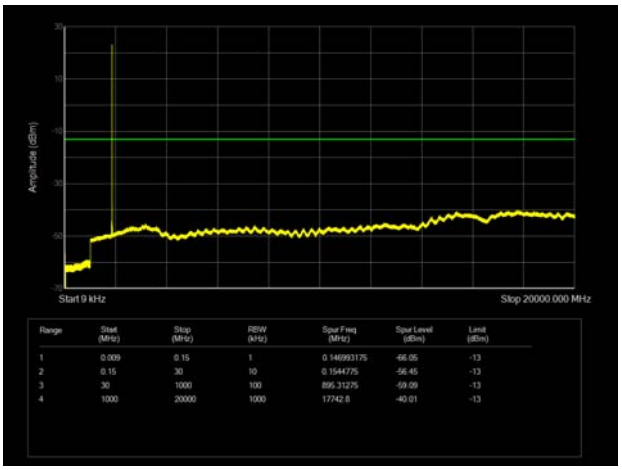
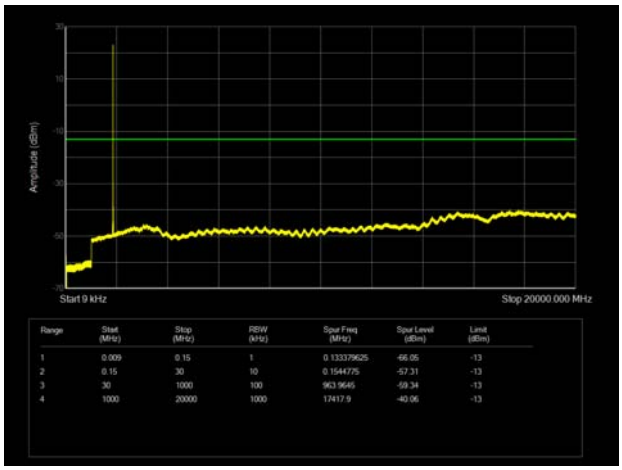
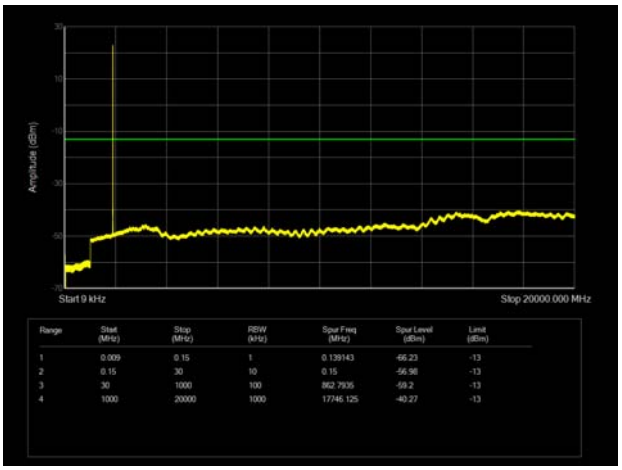
LTE Band 25 1.4MHz CH-Low 9kHz~20GHz



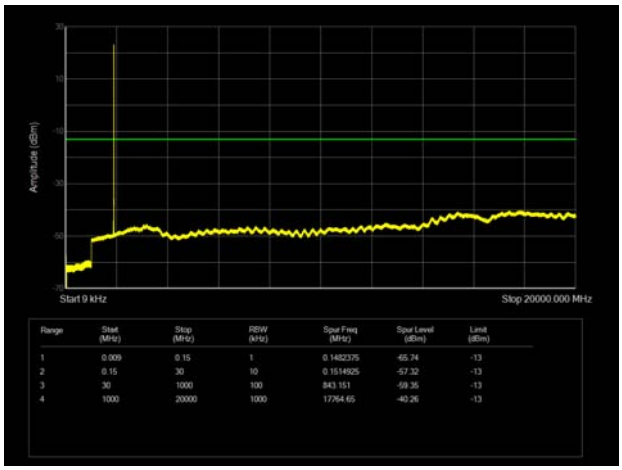
LTE Band 25 3MHz CH-Low 9kHz~20GHz



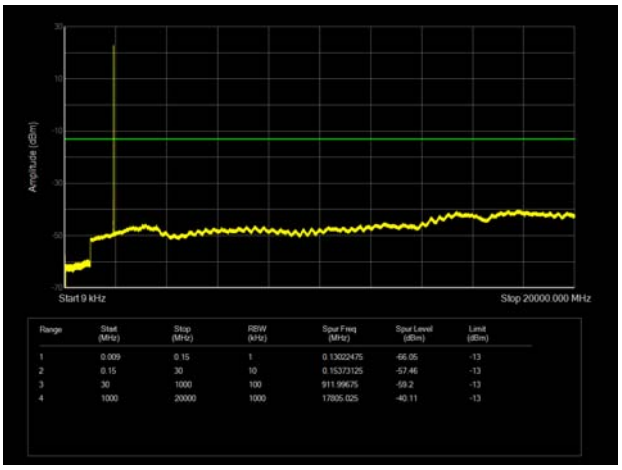
LTE Band 25 1.4MHz CH-Middle 9kHz~20GHz



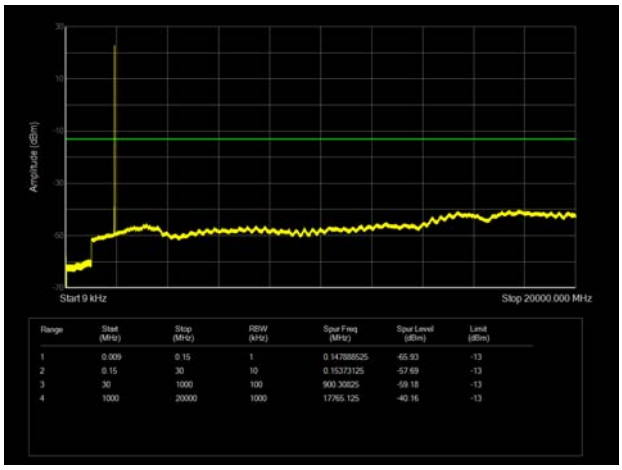
LTE Band 25 3MHz CH-Middle 9kHz~20GHz



LTE Band 25 1.4MHz CH-High 9kHz~20GHz



LTE Band 25 3MHz CH-High 9kHz~20GHz



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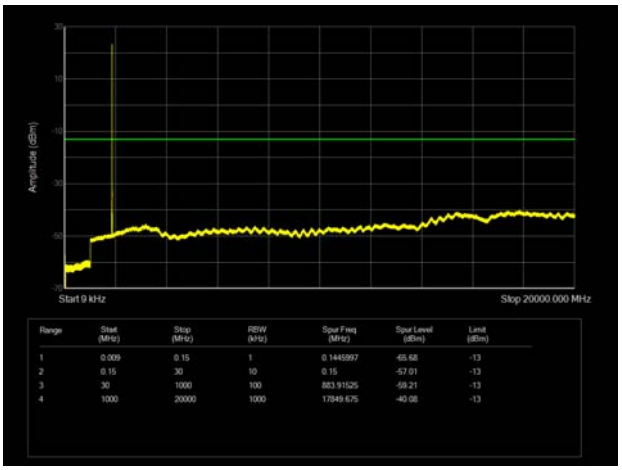
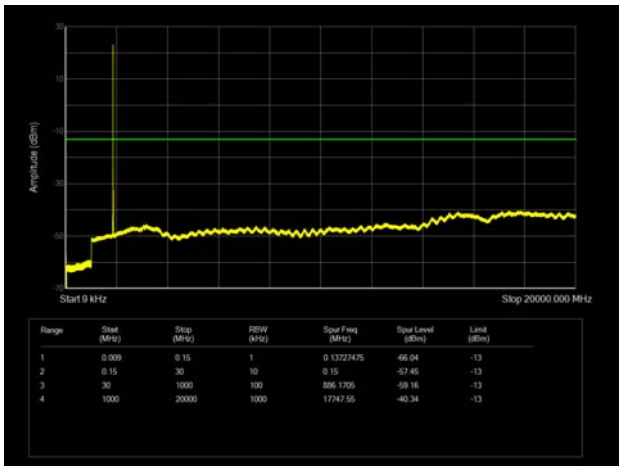
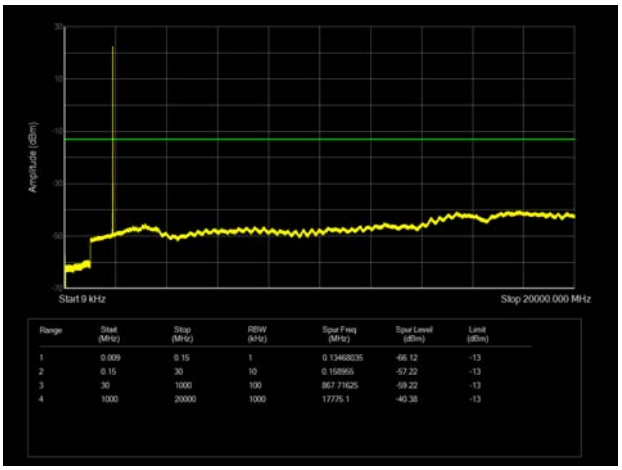
LTE Band 25 5MHz CH-Low 9kHz~20GHz



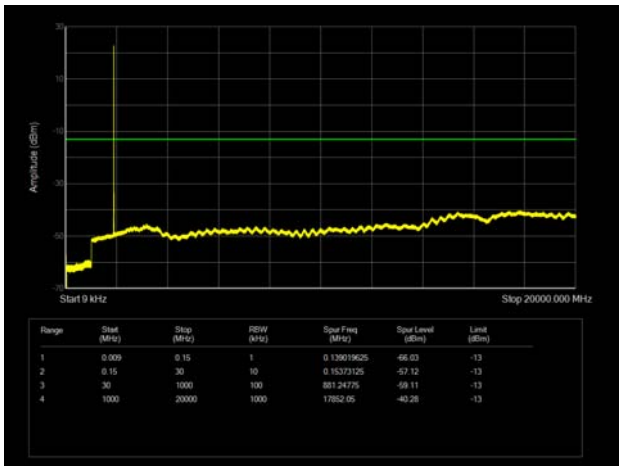
LTE Band 25 10MHz CH-Low 9kHz~20GHz



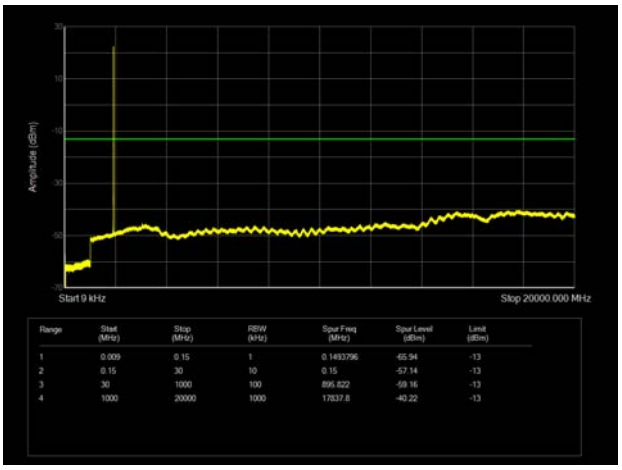
LTE Band 25 5MHz CH-Middle 9kHz~20GHz



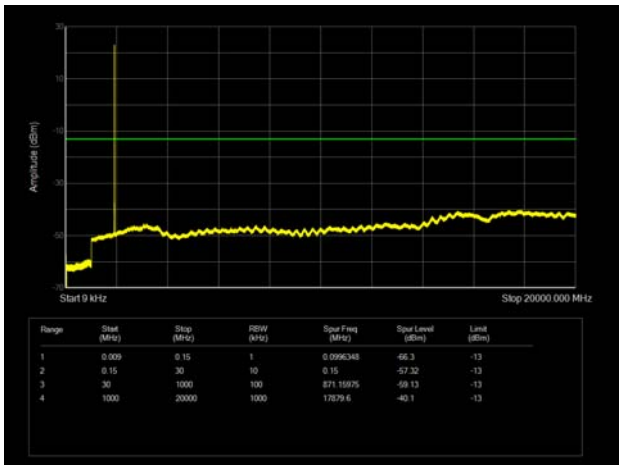
LTE Band 25 10MHz CH-Middle 9kHz~20GHz



LTE Band 25 5MHz CH-High 9kHz~20GHz



LTE Band 25 10MHz CH-High 9kHz~20GHz



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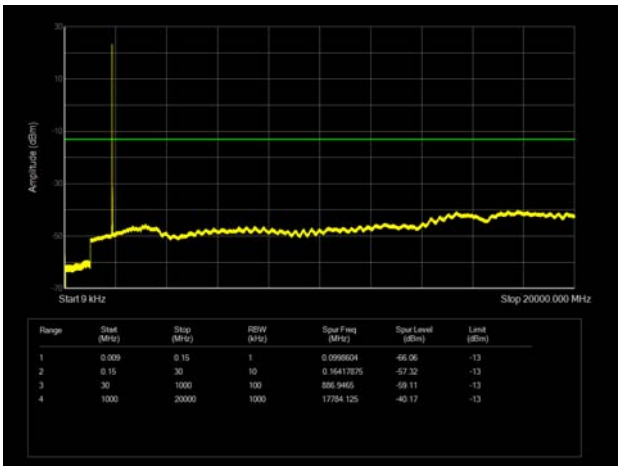
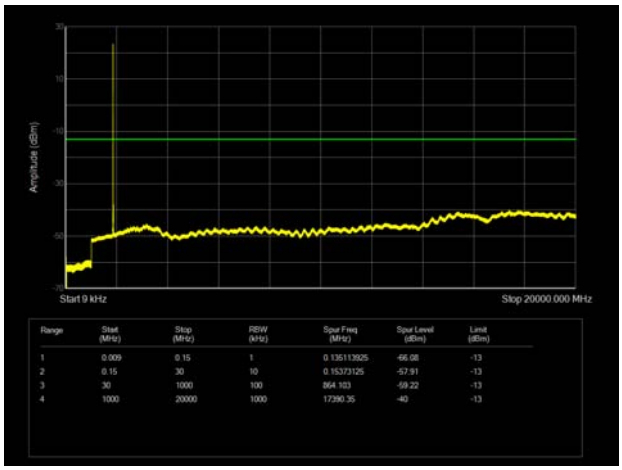
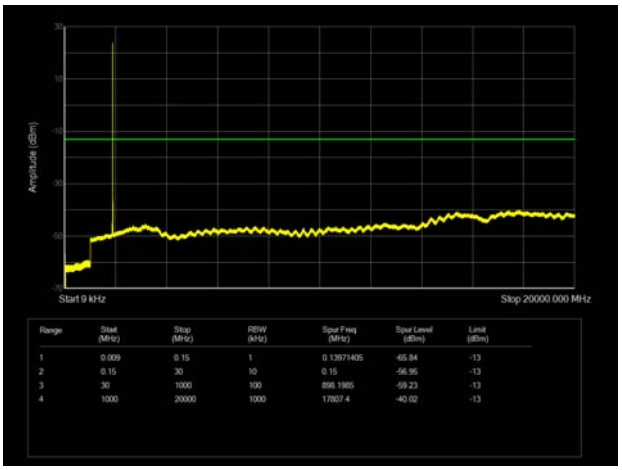
LTE Band 25 15MHz CH-Low 9kHz~20GHz



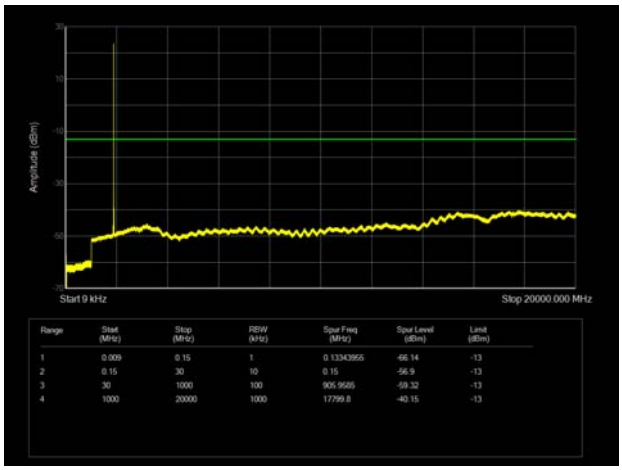
LTE Band 25 20MHz CH-Low 9kHz~20GHz



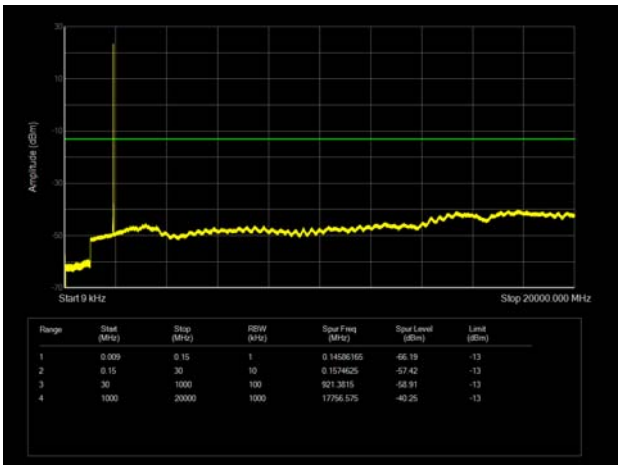
LTE Band 25 15MHz CH-Middle 9kHz~20GHz



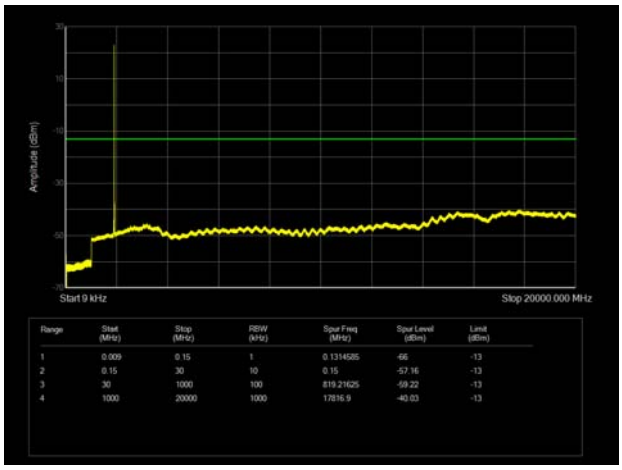
LTE Band 25 20MHz CH-Middle 9kHz~20GHz



LTE Band 25 15MHz CH-High 9kHz~20GHz



LTE Band 25 20MHz CH-High 9kHz~20GHz



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5.7. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=200Hz,VBW=600Hz for 9kHz-150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz , RBW=100kHz,VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

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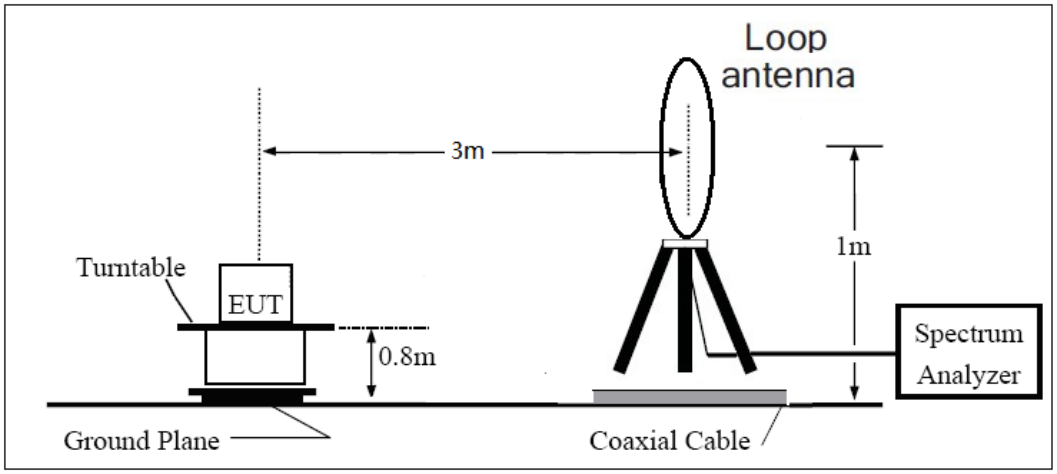
and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

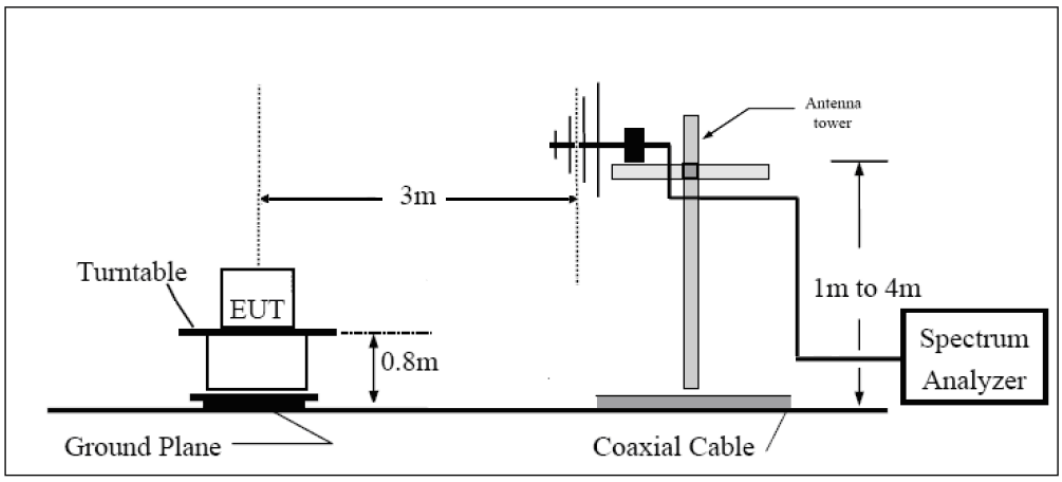
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

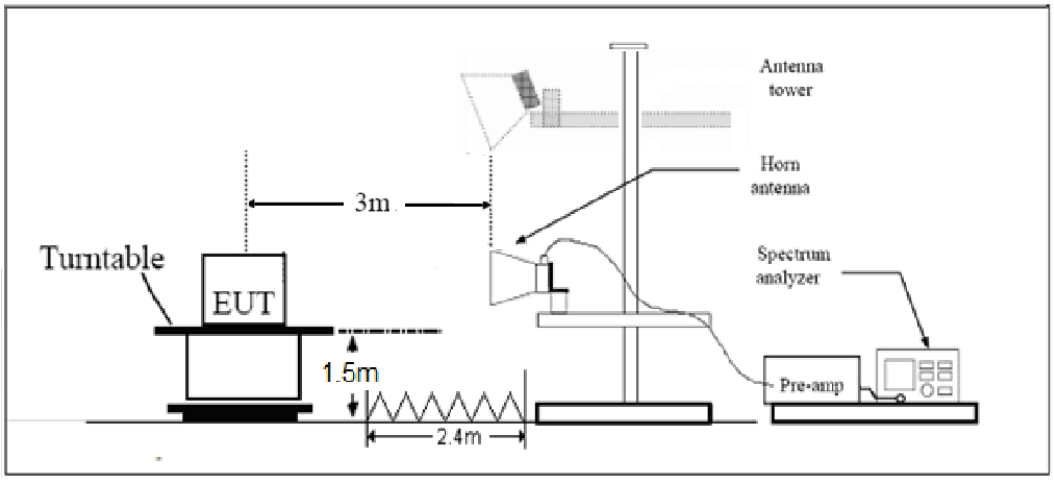
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



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Note: Area side: 2.4mX3.6m

Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

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

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Test Result

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

GSM 1900 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-46.52	5.10	11.05	Horizontal	-40.57	-13.00	27.57	45
3	5640.0	-55.57	5.42	12.65	Horizontal	-48.34	-13.00	35.34	135
4	7520.0	-55.85	6.70	13.85	Horizontal	-48.70	-13.00	35.70	180
5	9400.0	-51.56	7.01	14.75	Horizontal	-43.82	-13.00	30.82	225
6	11280.0	-52.77	7.48	15.95	Horizontal	-44.30	-13.00	31.30	90
7	13160.0	-51.80	7.51	16.55	Horizontal	-42.76	-13.00	29.76	90
8	15040.0	-50.21	8.24	15.35	Horizontal	-43.10	-13.00	30.10	45
9	16920.0	-45.39	8.41	14.95	Horizontal	-38.85	-13.00	25.85	135
10	18800.0	-	-	-	-	-	-	-	-
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.									

WCDMA Band II CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-59.19	5.10	11.05	Horizontal	-53.24	-13.00	40.24	90
3	5640.0	-59.10	5.42	12.65	Horizontal	-51.87	-13.00	38.87	0
4	7520.0	-57.43	6.70	13.85	Horizontal	-50.28	-13.00	37.28	45
5	9400.0	-53.36	7.01	14.75	Horizontal	-45.62	-13.00	32.62	315
6	11280.0	-52.61	7.48	15.95	Horizontal	-44.14	-13.00	31.14	180
7	13160.0	-52.78	7.51	16.55	Horizontal	-43.74	-13.00	30.74	0
8	15040.0	-49.45	8.24	15.35	Horizontal	-42.34	-13.00	29.34	45
9	16920.0	-47.71	8.41	14.95	Horizontal	-41.17	-13.00	28.17	0
10	18800.0	-	-	-	-	-	-	-	-
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

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LTE Band 2 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3759.0	-58.19	5.10	11.05	Horizontal	-52.24	-13.00	39.24	90
3	5638.9	-55.93	5.42	12.65	Horizontal	-48.70	-13.00	35.70	45
4	7520.0	-50.47	6.70	13.85	Horizontal	-43.32	-13.00	30.32	135
5	9400.0	-42.40	7.01	14.75	Horizontal	-34.66	-13.00	21.66	90
6	11280.0	-52.76	7.48	15.95	Horizontal	-44.29	-13.00	31.29	270
7	13160.0	-50.03	7.51	16.55	Horizontal	-40.99	-13.00	27.99	90
8	15040.0	-47.74	8.24	15.35	Horizontal	-40.63	-13.00	27.63	45
9	16920.0	-45.13	8.41	14.95	Horizontal	-38.59	-13.00	25.59	135
10	18800.0	-	-	-	-	-	-	-	-
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 2 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3755.6	-58.36	5.10	11.05	Horizontal	-52.41	-13.00	39.41	180
3	5633.6	-57.06	5.42	12.65	Horizontal	-49.83	-13.00	36.83	225
4	7520.0	-50.61	6.70	13.85	Horizontal	-43.46	-13.00	30.46	90
5	9400.0	-42.09	7.01	14.75	Horizontal	-34.35	-13.00	21.35	45
6	11280.0	-52.51	7.48	15.95	Horizontal	-44.04	-13.00	31.04	315
7	13160.0	-50.57	7.51	16.55	Horizontal	-41.53	-13.00	28.53	90
8	15040.0	-48.77	8.24	15.35	Horizontal	-41.66	-13.00	28.66	0
9	16920.0	-46.83	8.41	14.95	Horizontal	-40.29	-13.00	27.29	45
10	18800.0	-	-	-	-	-	-	-	-
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

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LTE Band 2 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3742.1	-57.46	5.10	11.05	Horizontal	-51.51	-13.00	38.51	0
3	5613.4	-53.80	5.42	12.65	Horizontal	-46.57	-13.00	33.57	90
4	7484.6	-48.84	6.70	13.85	Horizontal	-41.69	-13.00	28.69	45
5	9400.0	-40.02	7.01	14.75	Horizontal	-32.28	-13.00	19.28	180
6	11280.0	-51.94	7.48	15.95	Horizontal	-43.47	-13.00	30.47	225
7	13160.0	-50.98	7.51	16.55	Horizontal	-41.94	-13.00	28.94	0
8	15040.0	-48.28	8.24	15.35	Horizontal	-41.17	-13.00	28.17	45
9	16920.0	-45.97	8.41	14.95	Horizontal	-39.43	-13.00	26.43	315
10	18800.0	-	-	-	-	-	-	-	-
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 25 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3765.0	-57.99	5.10	11.05	Horizontal	-52.04	-13.00	39.04	180
3	5647.5	-57.35	5.42	12.65	Horizontal	-50.12	-13.00	37.12	90
4	7530.0	-52.58	6.70	13.85	Horizontal	-45.43	-13.00	32.43	225
5	9412.5	-43.69	7.01	14.75	Horizontal	-35.95	-13.00	22.95	45
6	11295.0	-52.08	7.48	15.95	Horizontal	-43.61	-13.00	30.61	135
7	13177.5	-51.51	7.51	16.55	Horizontal	-42.47	-13.00	29.47	90
8	15060.0	-48.17	8.24	15.35	Horizontal	-41.06	-13.00	28.06	45
9	16942.5	-45.14	8.41	14.95	Horizontal	-38.60	-13.00	25.60	0
10	18825.0	-	-	-	-	-	-	-	-
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

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LTE Band 25 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3765.0	-57.88	5.10	11.05	Horizontal	-51.93	-13.00	38.93	315
3	5647.5	-56.80	5.42	12.65	Horizontal	-49.57	-13.00	36.57	45
4	7530.0	-50.67	6.70	13.85	Horizontal	-43.52	-13.00	30.52	90
5	9412.5	-42.70	7.01	14.75	Horizontal	-34.96	-13.00	21.96	180
6	11295.0	-53.30	7.48	15.95	Horizontal	-44.83	-13.00	31.83	315
7	13177.5	-50.22	7.51	16.55	Horizontal	-41.18	-13.00	28.18	90
8	15060.0	-48.74	8.24	15.35	Horizontal	-41.63	-13.00	28.63	45
9	16942.5	-45.74	8.41	14.95	Horizontal	-39.20	-13.00	26.20	0
10	18825.0	-	-	-	-	-	-	-	-

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 25 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3748.1	-58.07	5.10	11.05	Horizontal	-52.12	-13.00	39.12	0
3	5622.0	-54.73	5.42	12.65	Horizontal	-47.50	-13.00	34.50	45
4	7496.0	-49.52	6.70	13.85	Horizontal	-42.37	-13.00	29.37	270
5	9370.0	-50.09	7.01	14.75	Horizontal	-42.35	-13.00	29.35	225
6	11244.0	-52.64	7.48	15.95	Horizontal	-44.17	-13.00	31.17	315
7	13118.0	-50.91	7.51	16.55	Horizontal	-41.87	-13.00	28.87	45
8	14992.0	-48.09	8.24	15.35	Horizontal	-40.98	-13.00	27.98	180
9	16866.0	-45.62	8.41	14.95	Horizontal	-39.08	-13.00	26.08	0
10	18740.0	-	-	-	-	-	-	-	-

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

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6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMU200	118133	2020-05-17	2021-05-16
Base Station Simulator	R&S	CMW500	113824	2020-05-18	2021-05-17
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2020-05-27	2021-05-26
Signal Analyzer	R&S	FSV30	100815	2019-12-15	2020-12-14
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preampflier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-06-12	2020-12-11
Software	R&S	EMC32	9.26.0	/	/

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

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ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

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ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

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