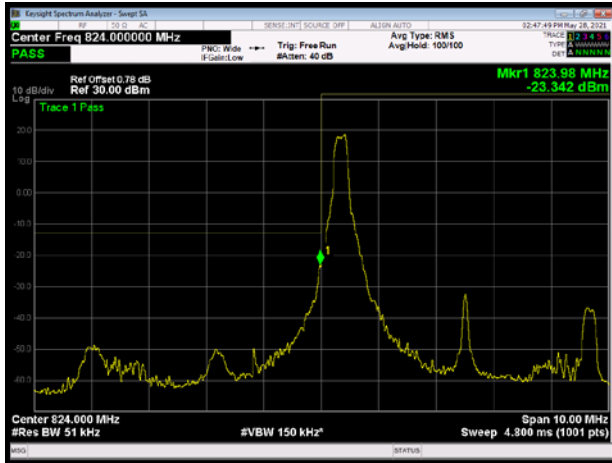
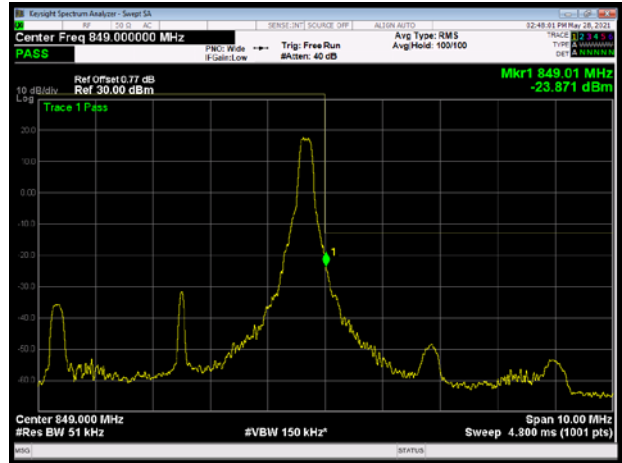


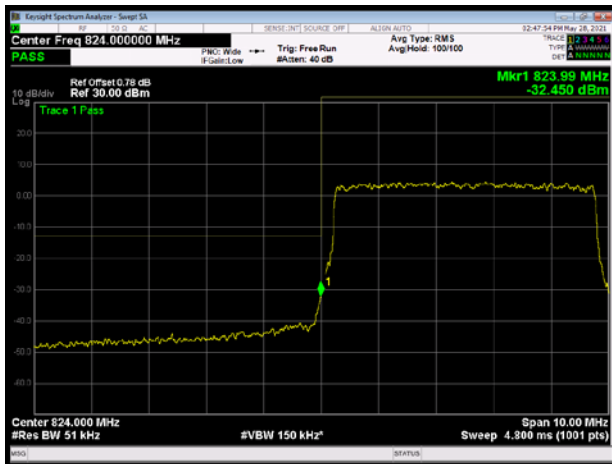
LTE Band 5 64QAM 5MHz CH-Low 1RB



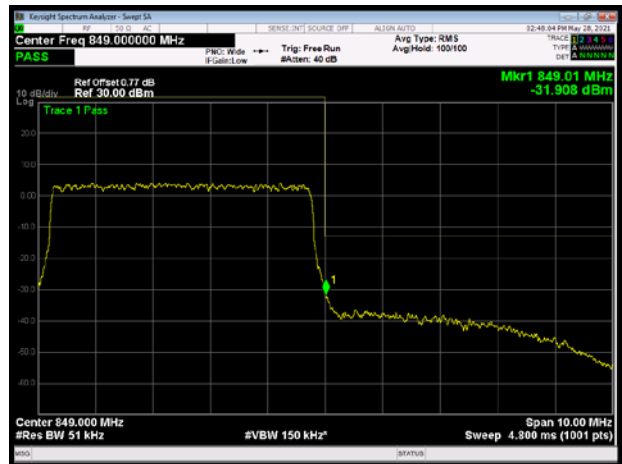
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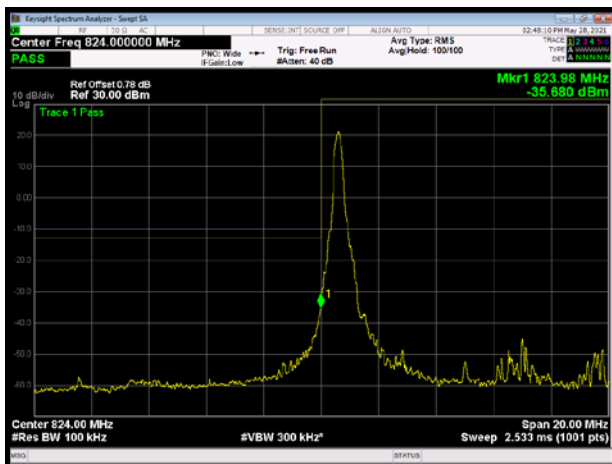
LTE Band 5 64QAM 5MHz CH-Low 100%RB



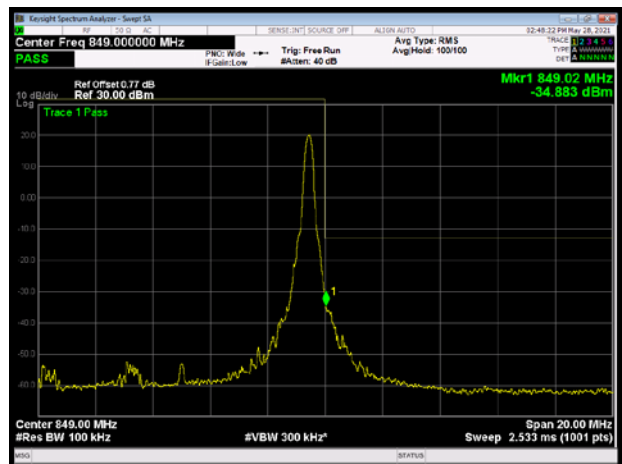
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LTE Band 5 64QAM 10MHz CH-Low 1RB

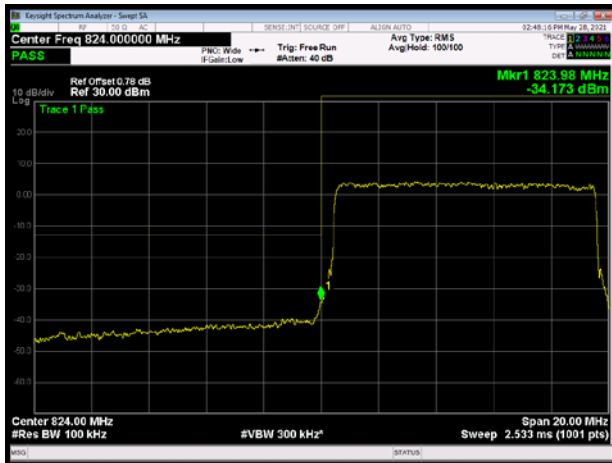


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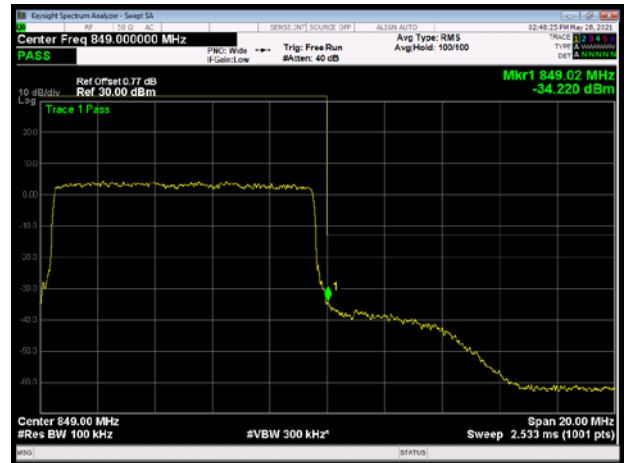




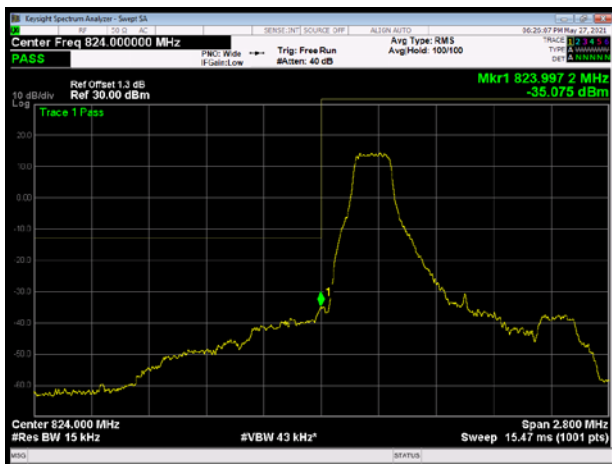
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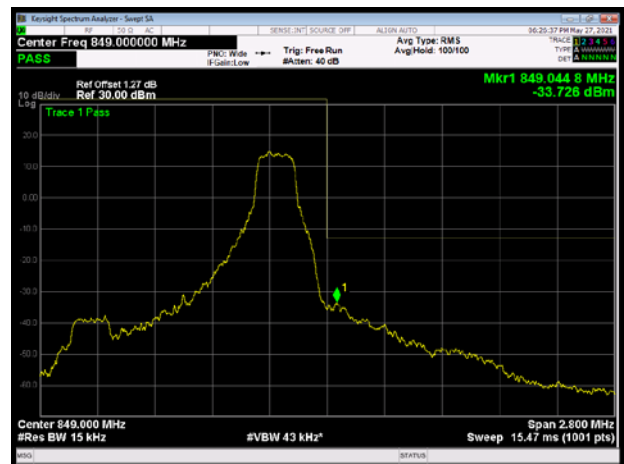
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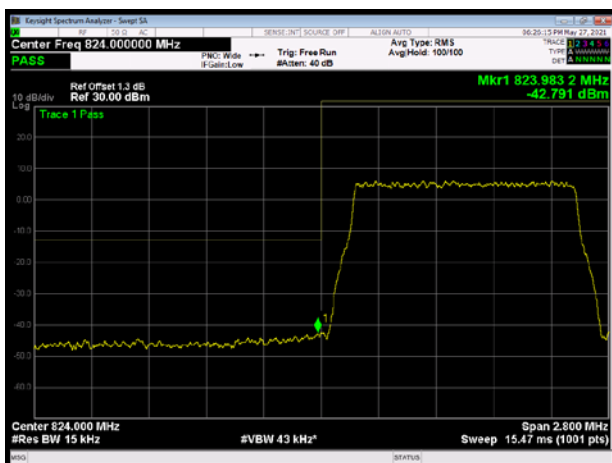
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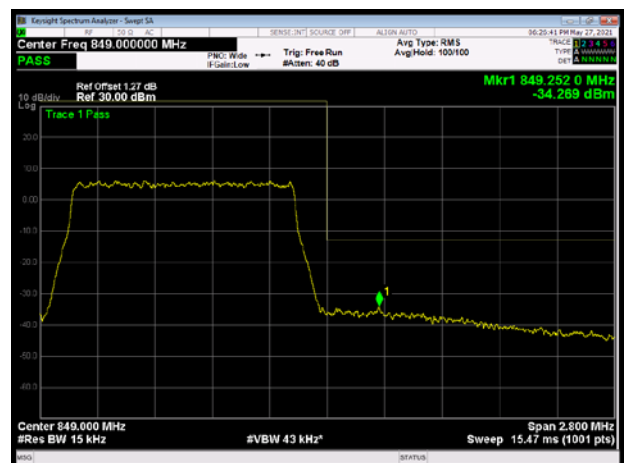
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LTE Band 26 QPSK 1.4MHz CH-Low 100%RB

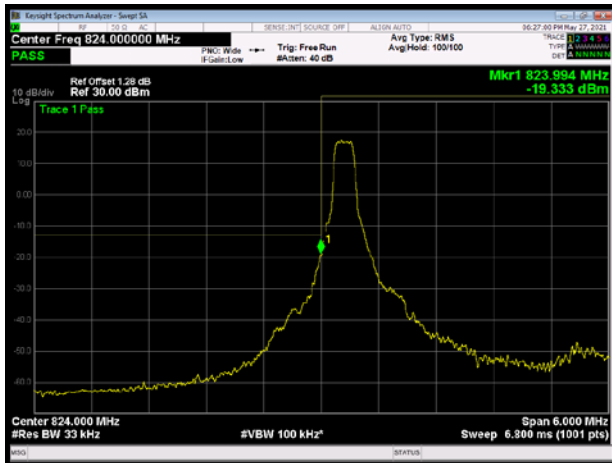


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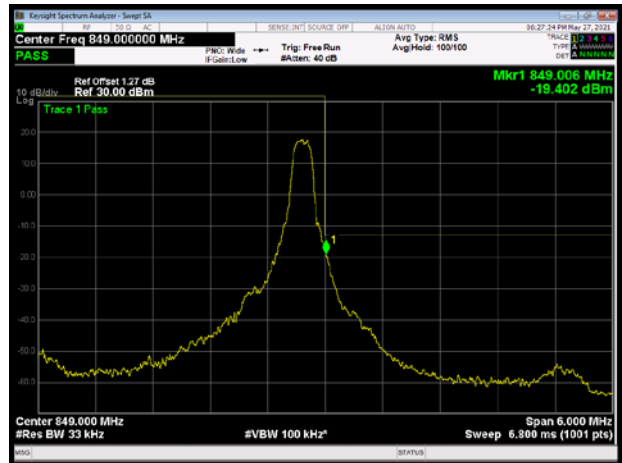




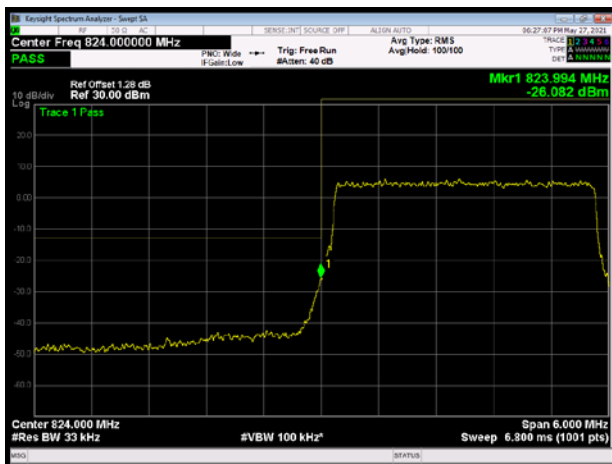
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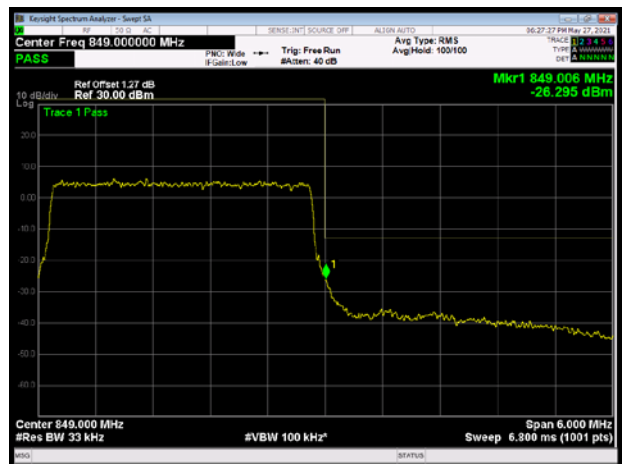
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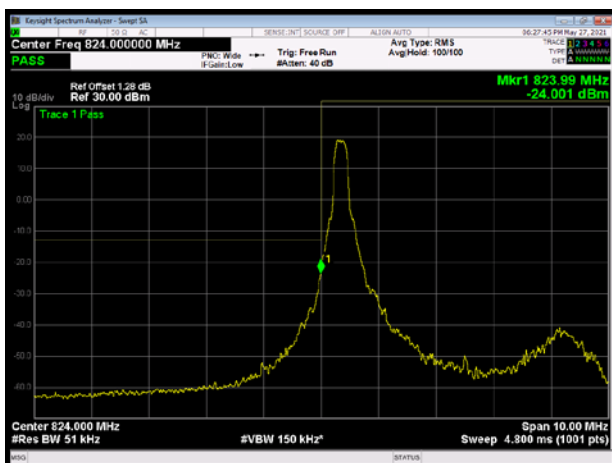
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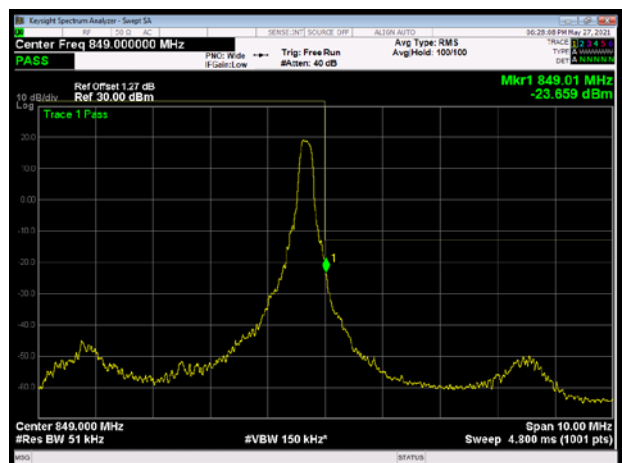
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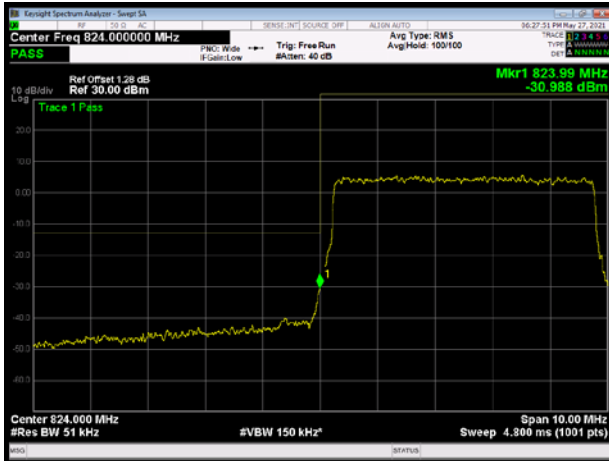


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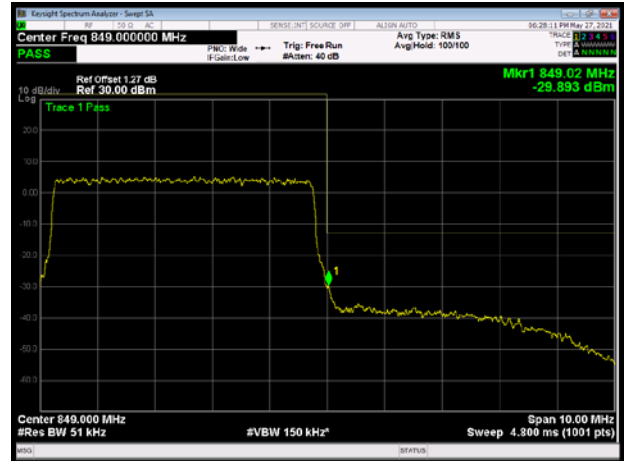




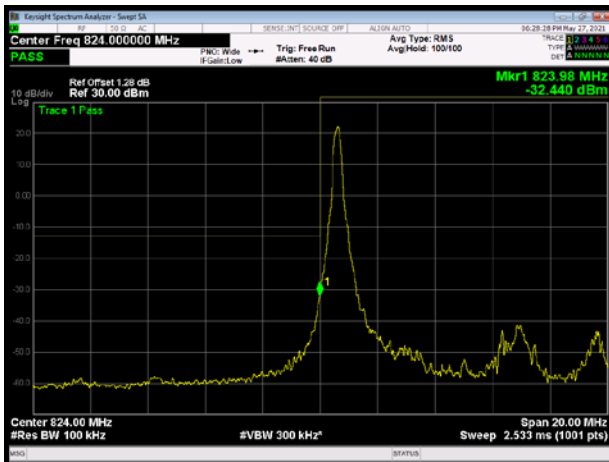
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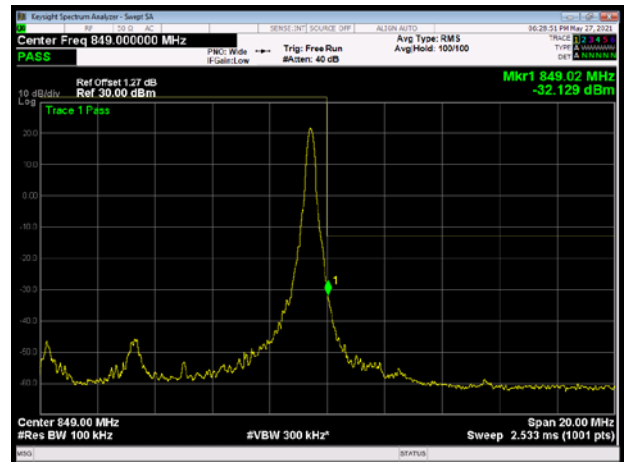
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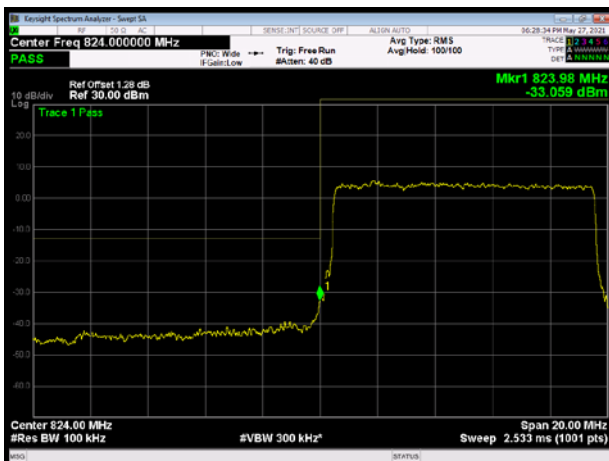
LTE Band 26 QPSK 10MHz CH-Low 1RB



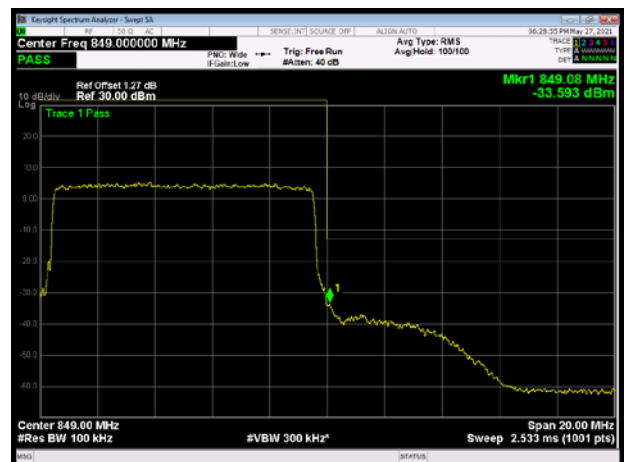
LTE Band 26 QPSK 10MHz CH-High 1RB



LTE Band 26 QPSK 10MHz CH-Low 100%RB

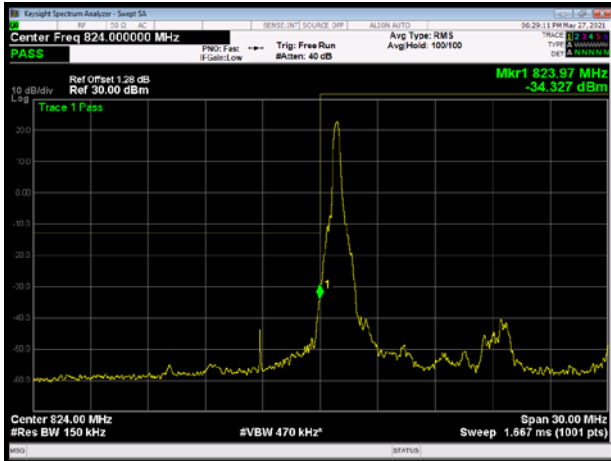


LTE Band 26 QPSK 10MHz CH-High 100%RB

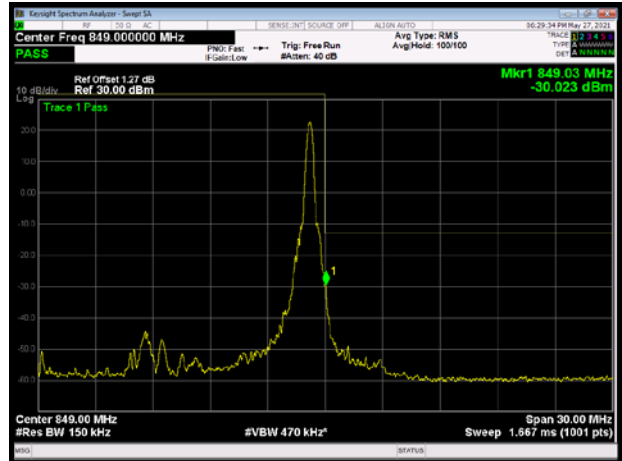




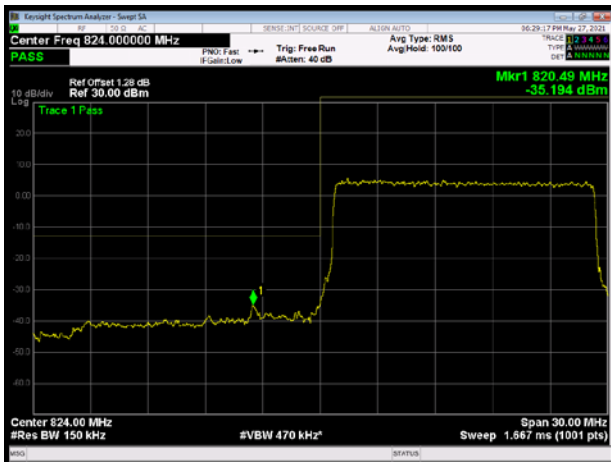
LTE Band 26 QPSK 15MHz CH-Low 1RB



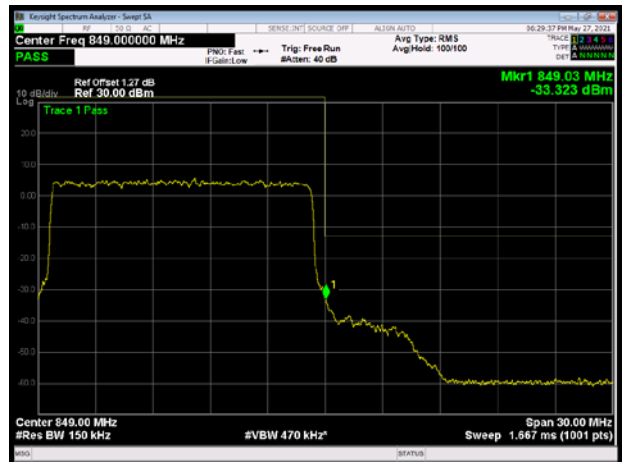
LTE Band 26 QPSK 15MHz CH-High 1RB



LTE Band 26 QPSK 15MHz CH-Low 100%RB

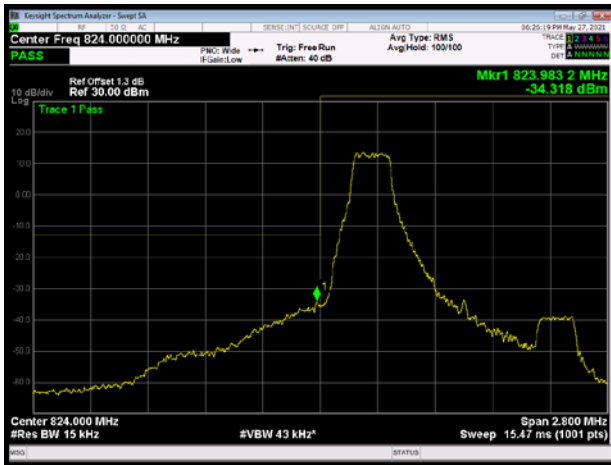


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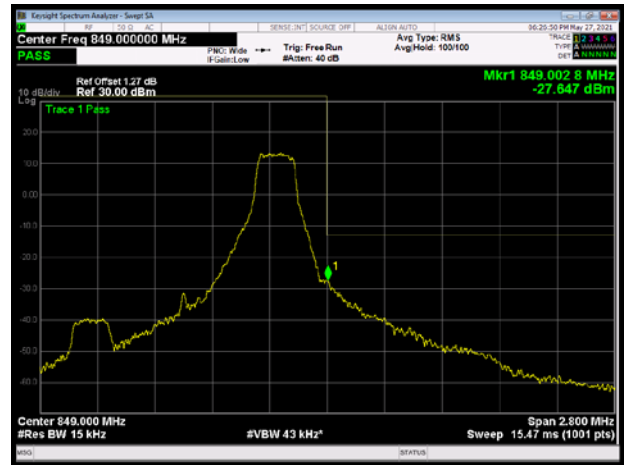




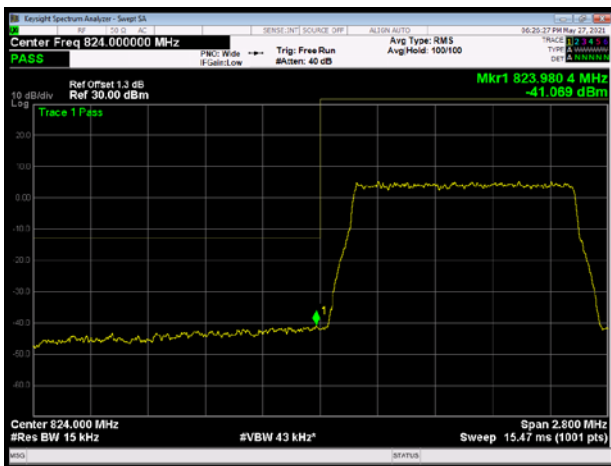
LTE Band 26 16QAM 1.4MHz CH-Low 1RB



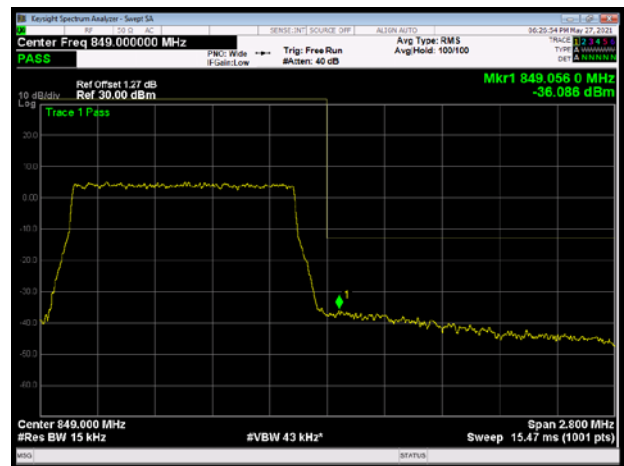
LTE Band 26 16QAM 1.4MHz CH-High 1RB



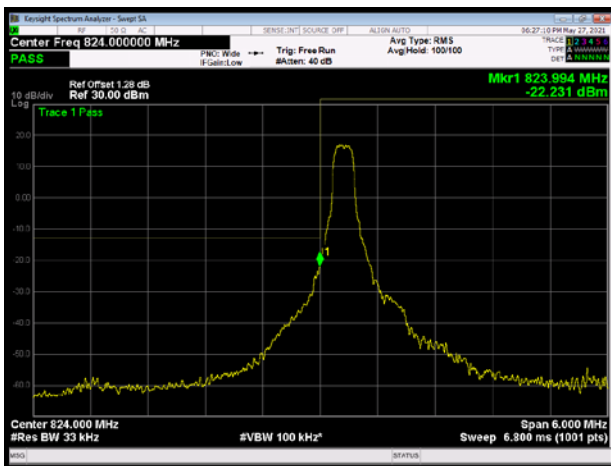
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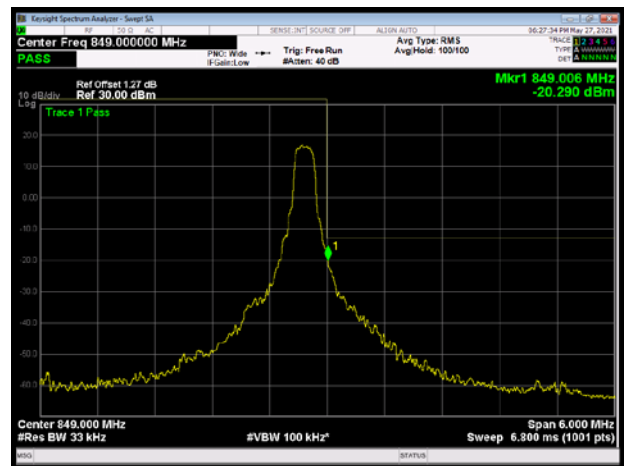
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LTE Band 26 16QAM 3MHz CH-Low 1RB

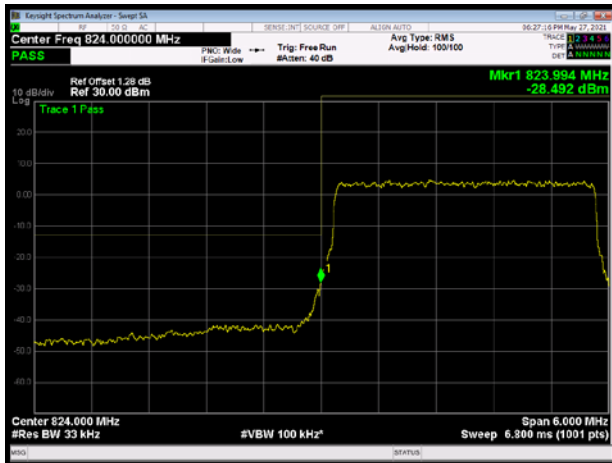


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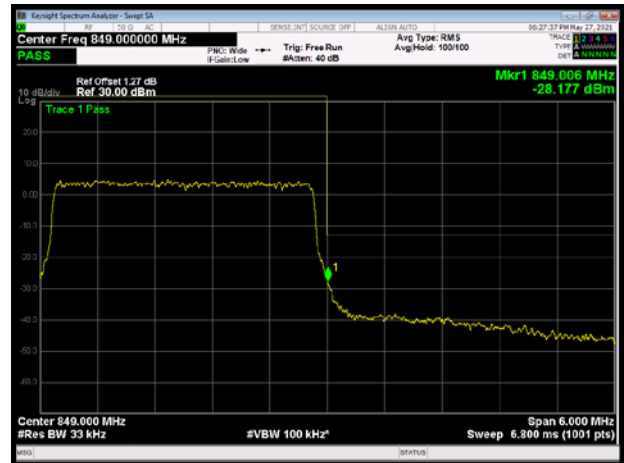




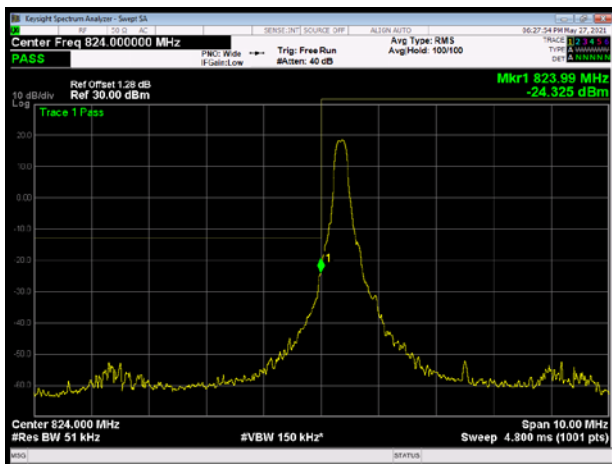
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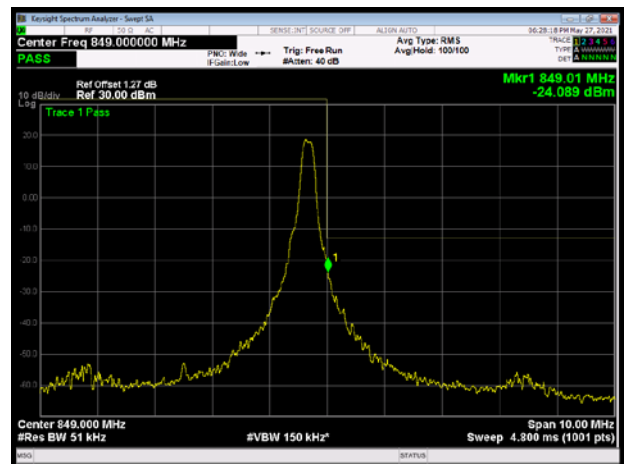
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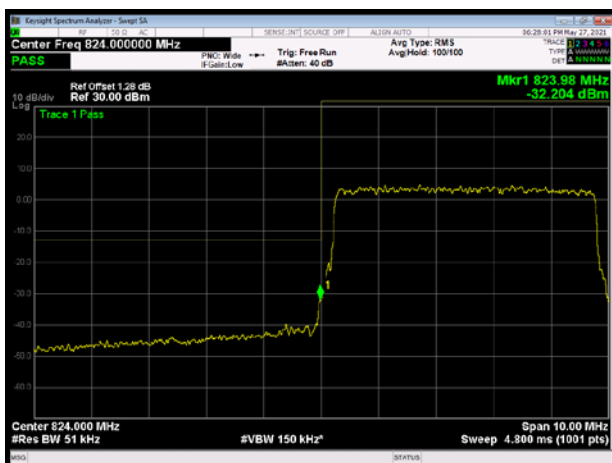
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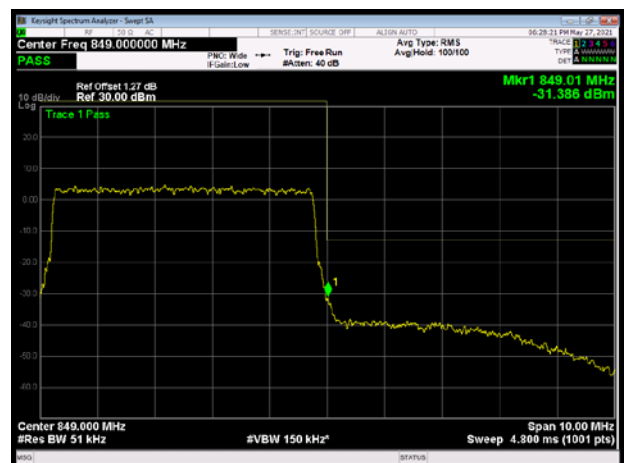
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LTE Band 26 16QAM 5MHz CH-Low 100%RB

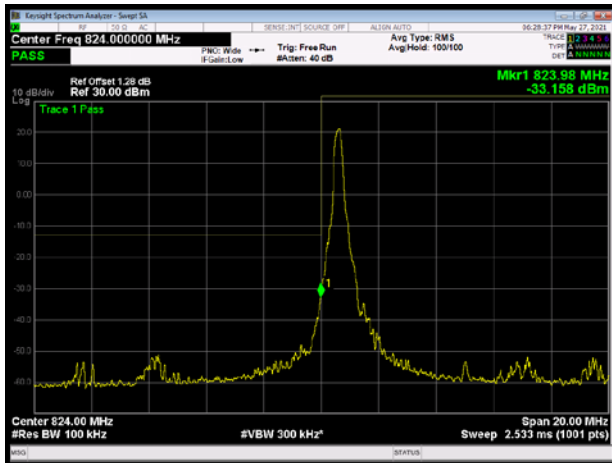


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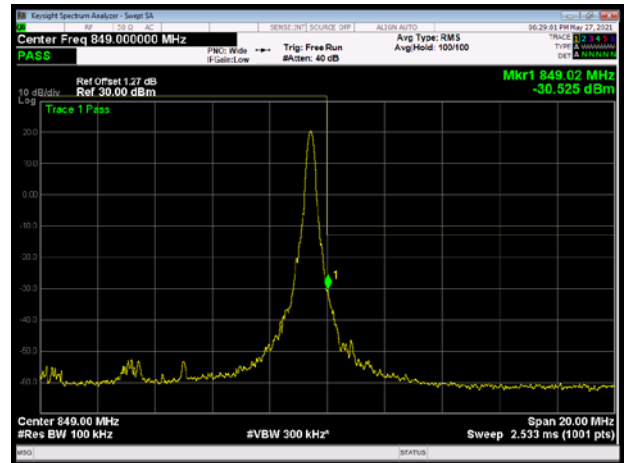




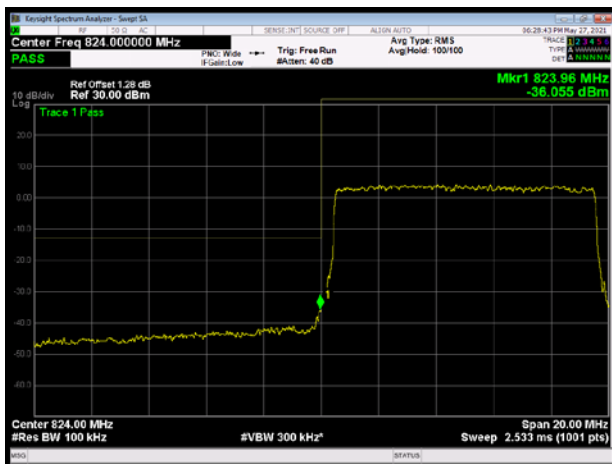
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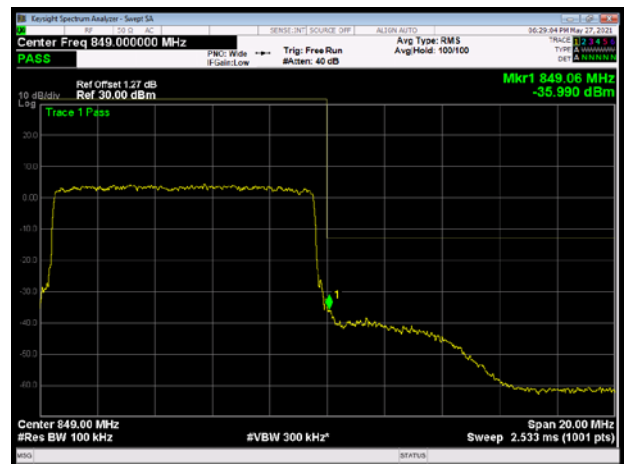
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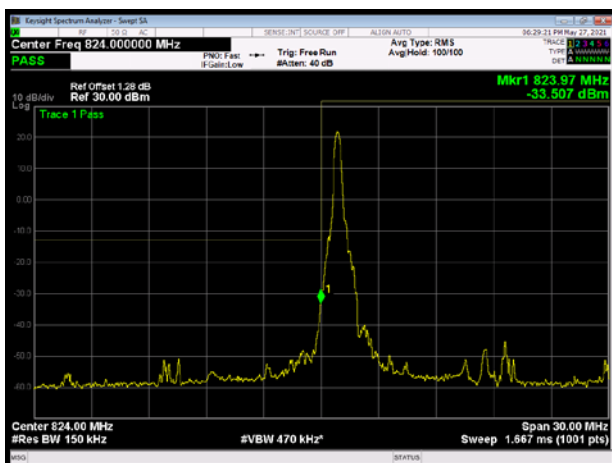
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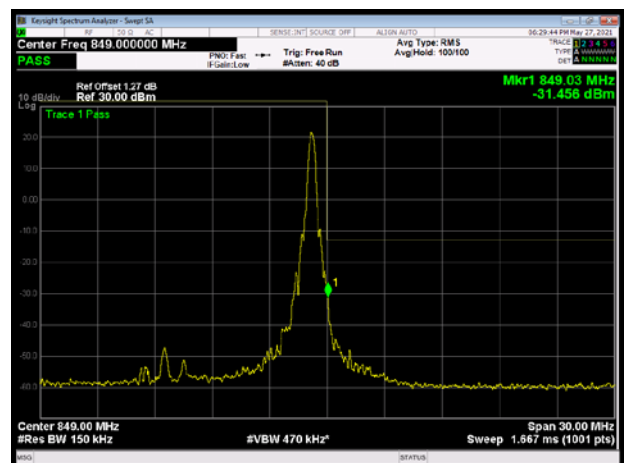
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LTE Band 26 16QAM 15MHz CH-Low 1RB



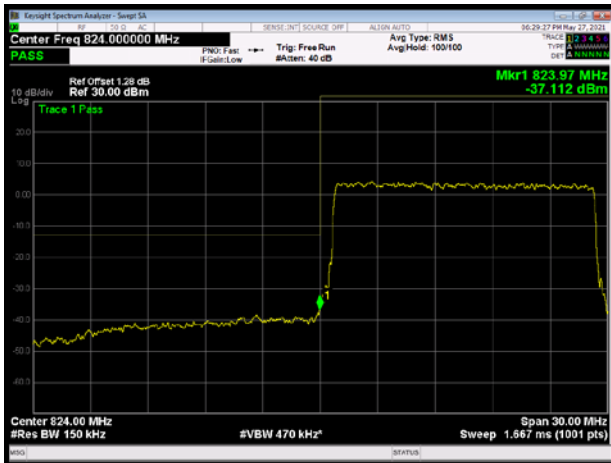
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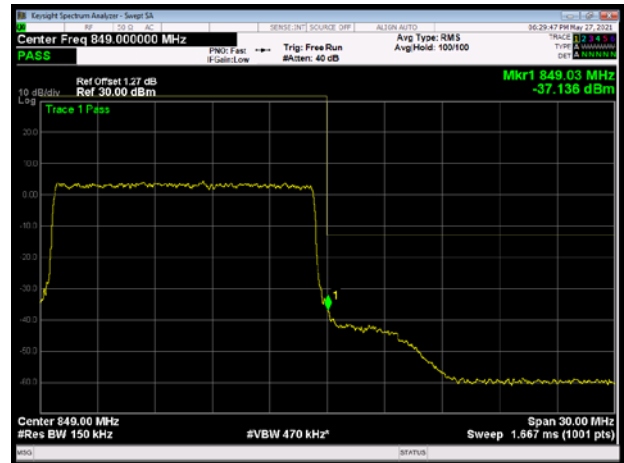




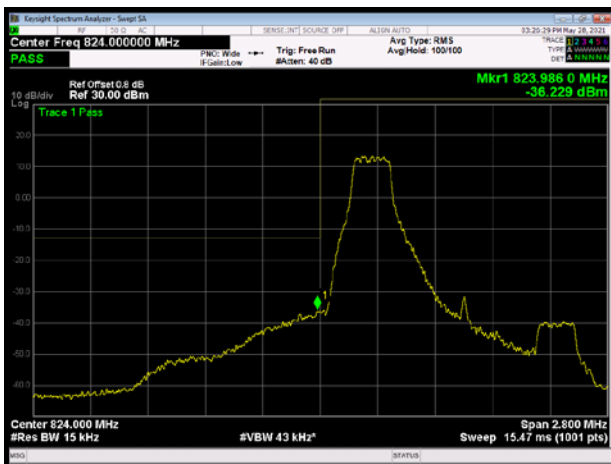
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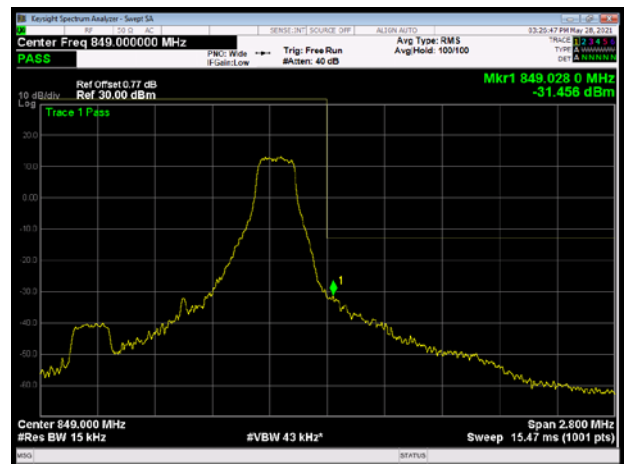
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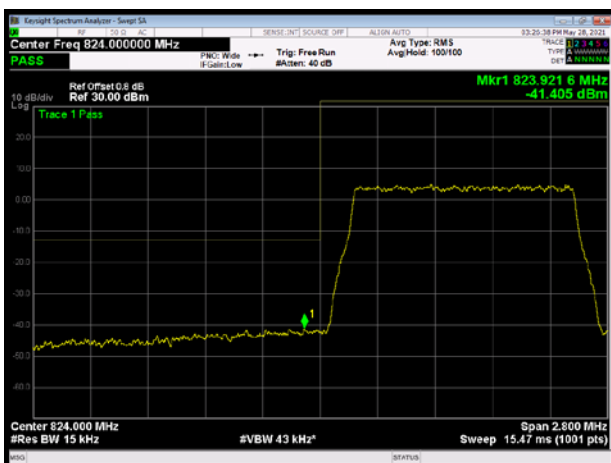
LTE Band 26 64QAM 1.4MHz CH-Low 1RB



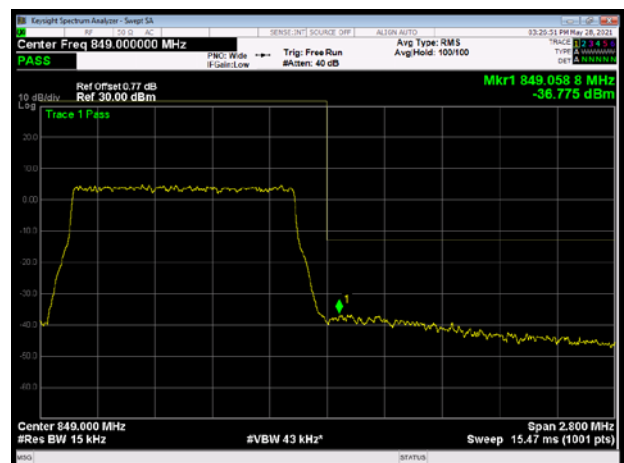
LTE Band 26 64QAM 1.4MHz CH-High 1RB



LTE Band 26 64QAM 1.4MHz CH-Low 100%RB

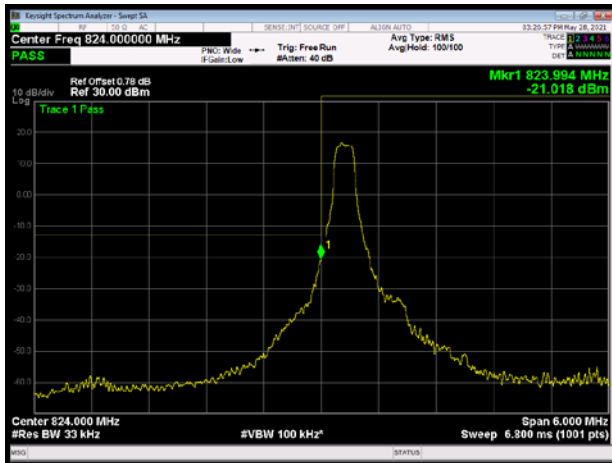


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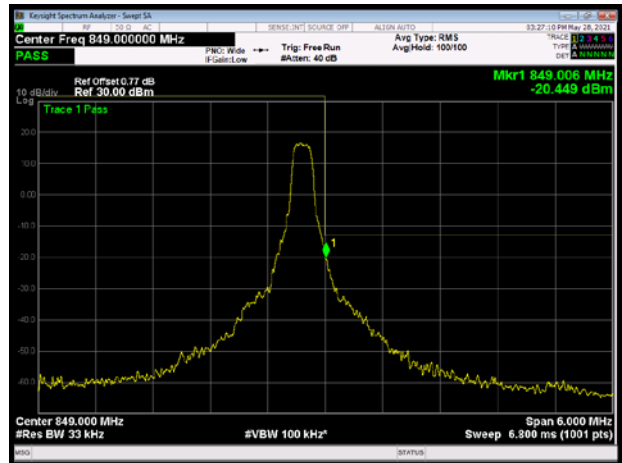




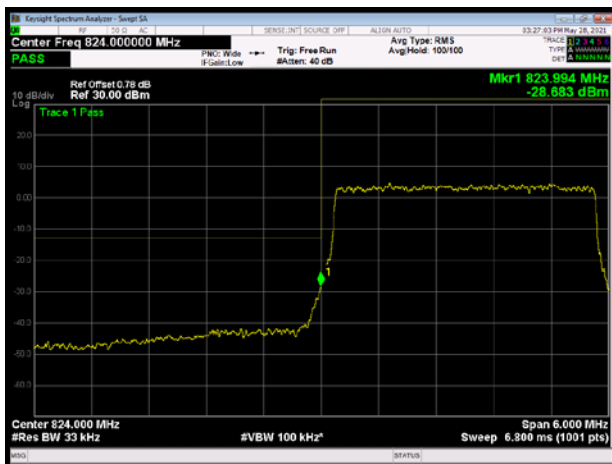
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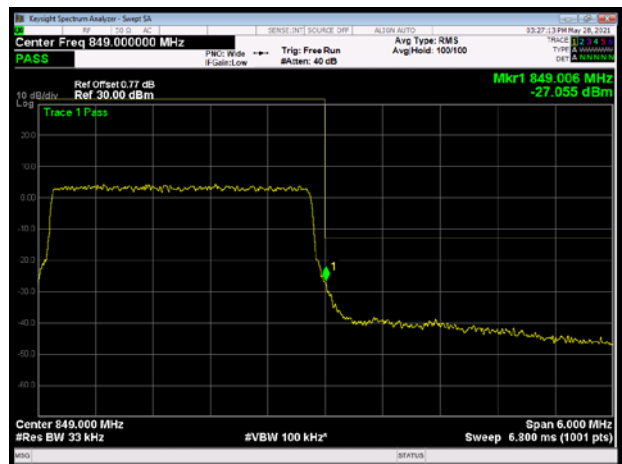
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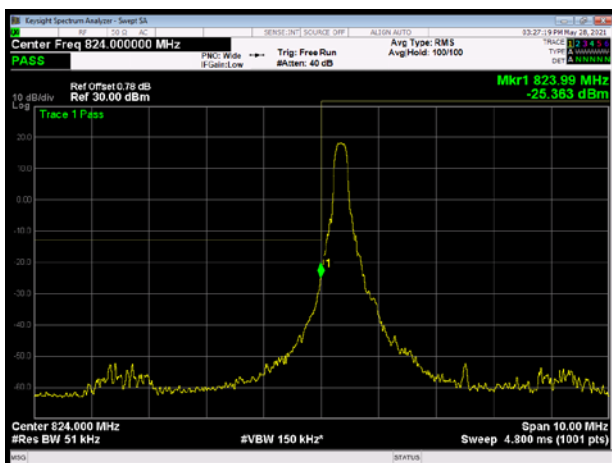
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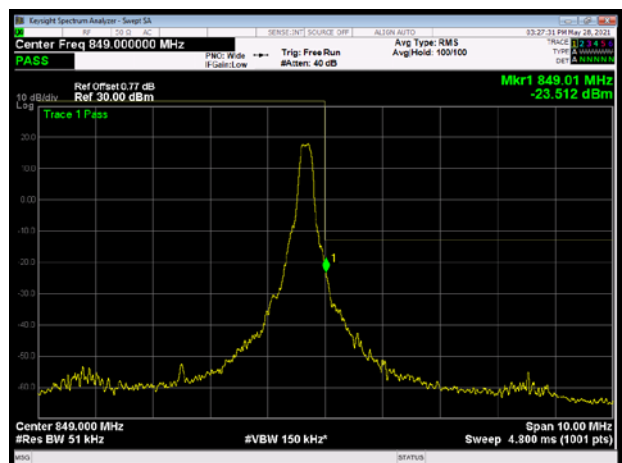
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### LTE Band 26 64QAM 5MHz CH-Low 1RB

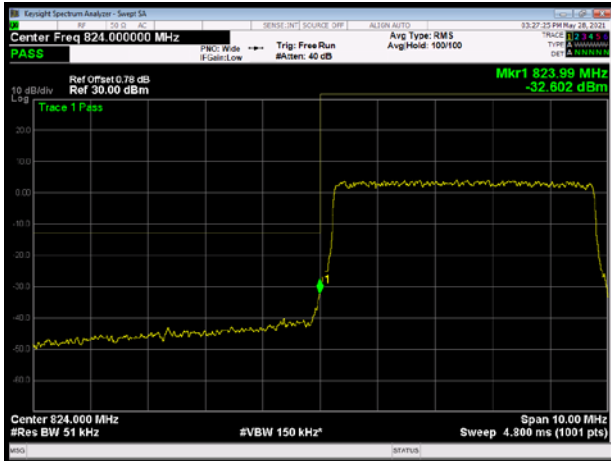


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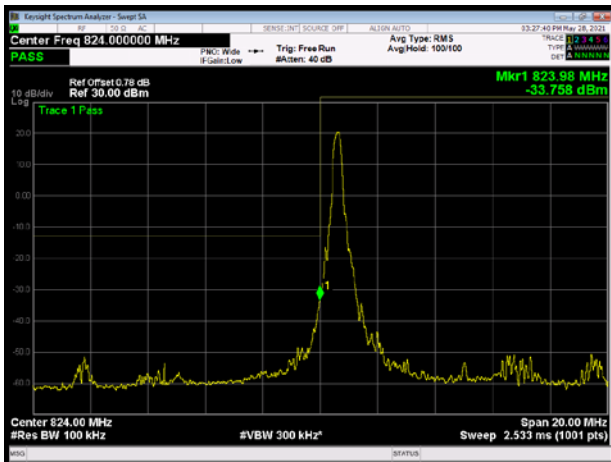
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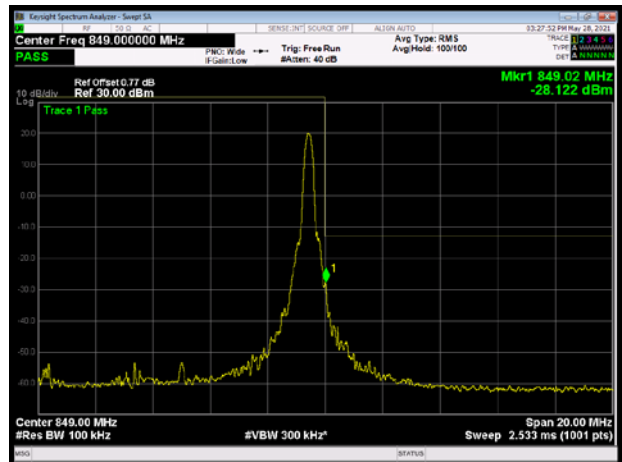
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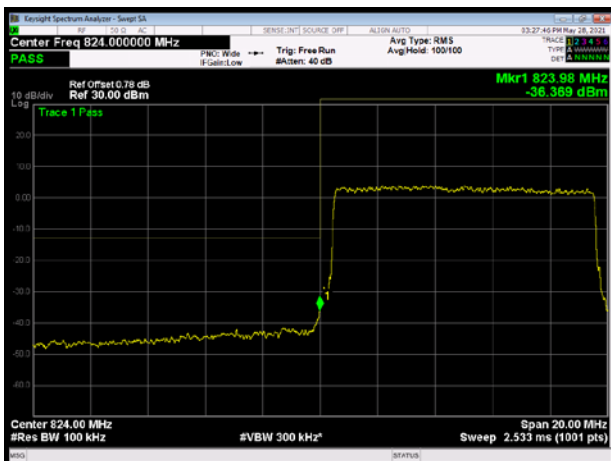
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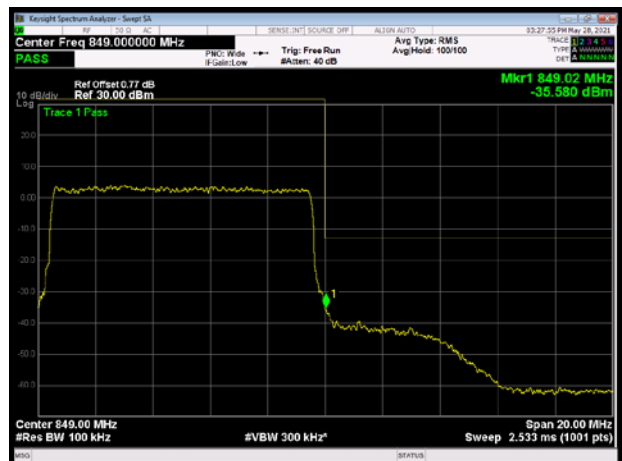
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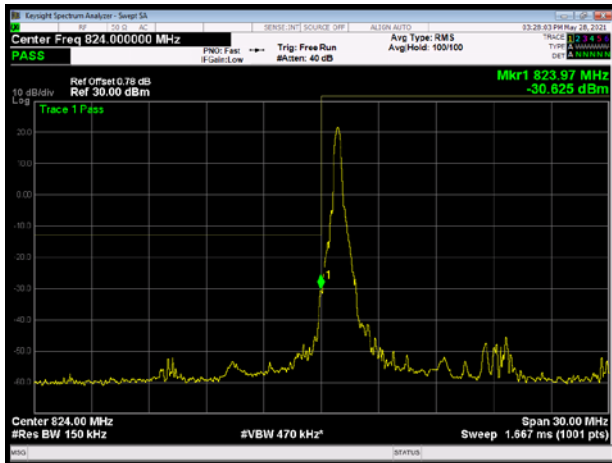


LTE Band 26 64QAM 10MHz CH-High 100%RB

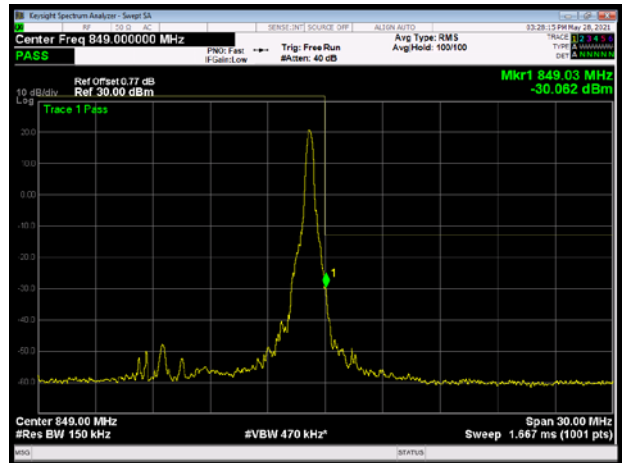




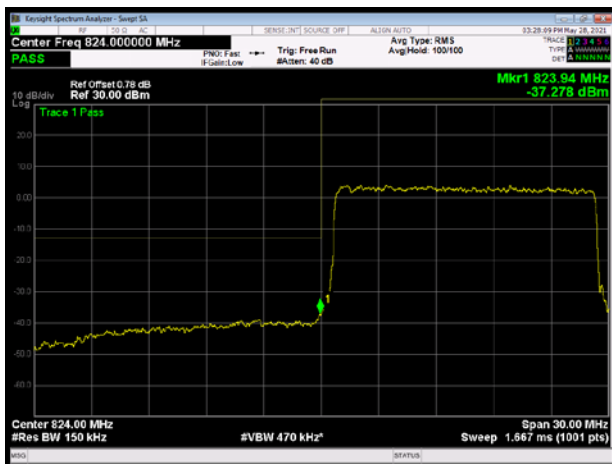
LTE Band26 64QAM 15MHz CH-Low 1RB



LTE Band 26 64QAM 15MHz CH-High 1RB



LTE Band 26 64QAM 15MHz CH-Low 100%RB



LTE Band 26 64QAM 15MHz CH-High 100%RB



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

### Ambient condition

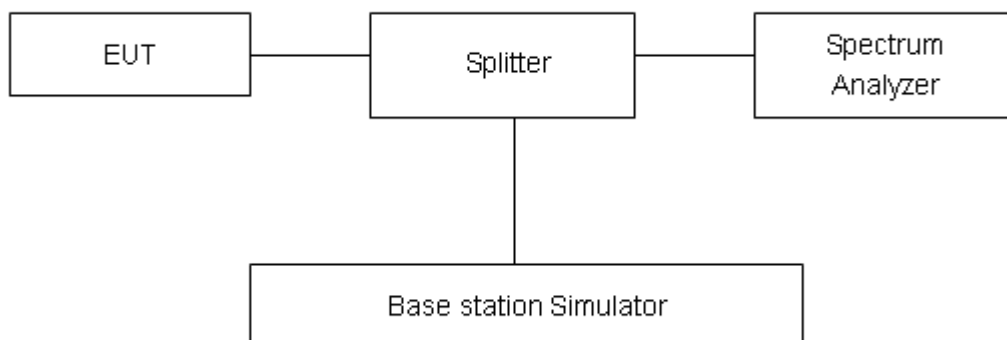
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Methods of Measurement

Measure the total peak power and record as  $P_{Pk}$ . And measure the total average power and record as  $P_{Avg}$ . Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).$$

### Test Setup



### Limits

According to the Sec. 22.913(d), The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

### Measurement Uncertainty

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

**Test Results**

Mode	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
<b>GSM 850 (GMSK)</b>	128	824.2	32.52	29.66	2.86	≤13	PASS
	190	836.6	32.78	29.93	2.85	≤13	PASS
	251	848.8	32.62	29.78	2.84	≤13	PASS
<b>GPRS 850 (GMSK)</b>	128	824.2	32.54	29.67	2.87	≤13	PASS
	190	836.6	32.78	29.94	2.84	≤13	PASS
	251	848.8	32.62	29.79	2.83	≤13	PASS
<b>EGPRS 850 (8PSK)</b>	128	824.2	29.45	23.51	5.94	≤13	PASS
	190	836.6	29.79	23.89	5.90	≤13	PASS
	251	848.8	29.44	23.54	5.90	≤13	PASS
<b>WCDMA Band V (RMC)</b>	4132	826.4	26.54	23.83	2.71	≤13	PASS
	4183	836.6	26.57	23.89	2.68	≤13	PASS
	4233	846.6	26.59	23.86	2.73	≤13	PASS

LTE Band 5								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	20407	824.7	28.98	23.71	5.27	≤13	PASS
		20525	836.5	28.39	23.65	4.74	≤13	PASS
		20643	848.3	27.74	23.52	4.22	≤13	PASS
	3	20415	825.5	28.84	23.72	5.12	≤13	PASS
		20525	836.5	28.32	23.76	4.56	≤13	PASS
		20635	847.5	27.68	23.47	4.21	≤13	PASS
	5	20425	826.5	28.65	23.75	4.90	≤13	PASS
		20525	836.5	28.22	23.75	4.47	≤13	PASS
		20625	846.5	27.67	23.34	4.33	≤13	PASS
	10	20450	829	28.55	23.78	4.77	≤13	PASS
		20525	836.5	28.26	23.74	4.52	≤13	PASS
		20600	844	27.95	23.42	4.53	≤13	PASS
16QAM	1.4	20407	824.7	28.83	22.73	6.10	≤13	PASS
		20525	836.5	28.54	22.62	5.92	≤13	PASS
		20643	848.3	27.98	22.71	5.27	≤13	PASS
	3	20415	825.5	28.79	22.74	6.05	≤13	PASS
		20525	836.5	28.46	22.69	5.77	≤13	PASS
		20635	847.5	27.92	22.75	5.17	≤13	PASS
	5	20425	826.5	28.69	22.77	5.92	≤13	PASS
		20525	836.5	28.35	22.76	5.59	≤13	PASS
		20625	846.5	27.86	22.61	5.25	≤13	PASS
	10	20450	829	28.52	22.77	5.75	≤13	PASS
		20525	836.5	28.28	22.75	5.53	≤13	PASS
		20600	844	28.20	22.72	5.48	≤13	PASS
64QAM	1.4	20407	824.7	28.45	22.28	6.17	≤13	PASS
		20525	836.5	28.16	22.23	5.93	≤13	PASS
		20643	848.3	27.60	22.25	5.35	≤13	PASS
	3	20415	825.5	28.35	22.32	6.03	≤13	PASS
		20525	836.5	28.08	22.29	5.79	≤13	PASS
		20635	847.5	27.56	22.34	5.22	≤13	PASS
	5	20425	826.5	28.32	22.34	5.98	≤13	PASS
		20525	836.5	28.00	22.33	5.67	≤13	PASS
		20625	846.5	27.58	22.31	5.27	≤13	PASS
	10	20450	829	28.21	22.36	5.85	≤13	PASS
		20525	836.5	28.02	22.30	5.72	≤13	PASS



		20600	844	27.88	22.30	5.58	≤13	PASS
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LTE Band 26								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	26797	824.7	28.53	23.23	5.30	≤13	PASS
		26915	836.5	28.12	23.23	4.89	≤13	PASS
		27033	848.3	27.45	23.18	4.27	≤13	PASS
	3	26805	825.5	28.48	23.31	5.17	≤13	PASS
		26915	836.5	28.09	23.30	4.79	≤13	PASS
		27025	847.5	27.47	23.18	4.29	≤13	PASS
	5	26815	826.5	28.41	23.30	5.11	≤13	PASS
		26915	836.5	28.02	23.32	4.70	≤13	PASS
		27015	846.5	27.61	23.21	4.40	≤13	PASS
	10	26840	829	28.28	23.32	4.96	≤13	PASS
		26915	836.5	28.14	23.31	4.83	≤13	PASS
		26990	844	27.90	23.26	4.64	≤13	PASS
	15	26865	831.5	28.32	23.22	5.10	≤13	PASS
		26915	836.5	28.38	23.32	5.06	≤13	PASS
		26965	841.5	28.34	23.26	5.08	≤13	PASS
16QAM	1.4	26797	824.7	28.30	22.22	6.08	≤13	PASS
		26915	836.5	28.19	22.22	5.97	≤13	PASS
		27033	848.3	27.60	22.21	5.39	≤13	PASS
	3	26805	825.5	28.35	22.32	6.03	≤13	PASS
		26915	836.5	28.22	22.32	5.90	≤13	PASS
		27025	847.5	27.65	22.26	5.39	≤13	PASS
	5	26815	826.5	28.32	22.32	6.00	≤13	PASS
		26915	836.5	28.10	22.30	5.80	≤13	PASS
		27015	846.5	27.67	22.30	5.37	≤13	PASS
	10	26840	829	28.17	22.30	5.87	≤13	PASS
		26915	836.5	28.10	22.35	5.75	≤13	PASS
		26990	844	27.93	22.24	5.69	≤13	PASS
	15	26865	831.5	28.19	22.21	5.98	≤13	PASS
		26915	836.5	28.19	22.34	5.85	≤13	PASS
		26965	841.5	28.16	22.29	5.87	≤13	PASS
64QAM	1.4	20407	824.7	28.00	21.93	6.07	≤13	PASS
		20525	836.5	27.89	21.97	5.92	≤13	PASS
		20643	848.3	27.31	21.83	5.48	≤13	PASS
	3	20415	825.5	28.03	22.00	6.03	≤13	PASS





		20525	836.5	27.89	21.95	5.94	≤13	PASS
		20635	847.5	27.29	21.96	5.33	≤13	PASS
	5	20425	826.5	28.01	22.03	5.98	≤13	PASS
		20525	836.5	27.83	21.97	5.86	≤13	PASS
		20625	846.5	27.36	21.94	5.42	≤13	PASS
	10	20450	829	27.87	22.00	5.87	≤13	PASS
		20525	836.5	27.85	22.03	5.82	≤13	PASS
		20600	844	27.66	21.91	5.75	≤13	PASS
	15	26865	26865	27.90	21.93	5.97	≤13	PASS
		26915	26915	27.94	22.04	5.90	≤13	PASS
		26965	26965	27.70	21.94	5.76	≤13	PASS

### 5.5. Frequency Stability

#### Ambient condition

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

#### Method of Measurement

##### Frequency Stability (Temperature Variation)

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

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

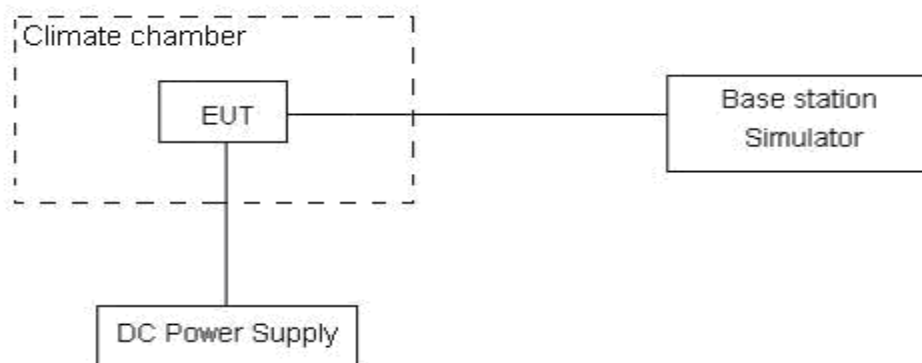
(3) Repeat the above measurements at 10°C increments from -30°C to +55°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

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

#### Test setup



#### Limits

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

Limits	≤ 2.5 ppm
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#### Measurement Uncertainty

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

**Test Result**

	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
GSM850	Normal (25°C)	Normal	2.10	2.99	0.00112	0.00159	PASS
	Extreme (50°C)		3.29	3.70	0.00175	0.00197	PASS
	Extreme (40°C)		10.77	4.18	0.00573	0.00222	PASS
	Extreme (30°C)		17.30	7.94	0.00920	0.00422	PASS
	Extreme (20°C)		5.82	8.01	0.00310	0.00426	PASS
	Extreme (10°C)		5.68	14.04	0.00302	0.00747	PASS
	Extreme (0°C)		3.89	7.11	0.00207	0.00378	PASS
	Extreme (-10°C)		11.01	14.49	0.00585	0.00771	PASS
	Extreme (-20°C)		2.32	1.66	0.00123	0.00088	PASS
	Extreme (-30°C)		1.02	6.44	0.00054	0.00343	PASS
	25°C	LV	13.89	7.54	0.00739	0.00401	PASS
		HV	10.06	8.44	0.00535	0.00449	PASS

	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
WCDMA B5	Normal (25°C)	Normal	8.78	3.60	0.00467	0.00191	PASS
	Extreme (50°C)		12.03	14.89	0.00640	0.00792	PASS
	Extreme (40°C)		9.70	9.15	0.00516	0.00487	PASS
	Extreme (30°C)		2.39	6.73	0.00127	0.00358	PASS
	Extreme (20°C)		15.22	6.30	0.00810	0.00335	PASS
	Extreme (10°C)		11.68	4.39	0.00621	0.00234	PASS
	Extreme (0°C)		12.15	4.65	0.00646	0.00248	PASS
	Extreme (-10°C)		11.16	13.89	0.00594	0.00739	PASS
	Extreme (-20°C)		14.03	7.60	0.00746	0.00404	PASS
	Extreme (-30°C)		11.89	8.62	0.00633	0.00459	PASS
	25°C	LV	1.32	13.56	0.00070	0.00721	PASS
		HV	11.26	3.39	0.00599	0.00181	PASS



LTE Band 5								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.62	4.84	8.43	0.00618	0.00257	0.00448	PASS
Extreme (50°C)		5.10	2.15	7.59	0.00271	0.00114	0.00404	PASS
Extreme (40°C)		6.11	7.30	10.04	0.00325	0.00388	0.00534	PASS
Extreme (30°C)		11.77	17.93	6.50	0.00626	0.00954	0.00346	PASS
Extreme (20°C)		2.18	6.04	15.79	0.00116	0.00322	0.00840	PASS
Extreme (10°C)		3.47	12.86	6.96	0.00184	0.00684	0.00370	PASS
Extreme (0°C)		2.08	3.13	12.82	0.00111	0.00167	0.00682	PASS
Extreme (-10°C)		16.16	17.56	2.06	0.00859	0.00934	0.00110	PASS
Extreme (-20°C)		4.37	8.72	2.63	0.00232	0.00464	0.00140	PASS
Extreme (-30°C)		13.30	3.46	9.67	0.00708	0.00184	0.00514	PASS
25°C	LV	2.77	3.53	5.93	0.00147	0.00188	0.00315	PASS
	HV	4.21	4.68	17.36	0.00224	0.00249	0.00923	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.65	12.88	4.28	0.00513	0.00685	0.00227	PASS
Extreme (50°C)		16.64	9.58	7.12	0.00885	0.00510	0.00379	PASS
Extreme (40°C)		12.65	6.51	13.43	0.00673	0.00346	0.00714	PASS
Extreme (30°C)		10.81	7.74	7.73	0.00575	0.00412	0.00411	PASS
Extreme (20°C)		1.71	6.21	7.96	0.00091	0.00330	0.00424	PASS
Extreme (10°C)		17.85	14.76	14.87	0.00949	0.00785	0.00791	PASS
Extreme (0°C)		1.27	16.28	8.62	0.00068	0.00866	0.00458	PASS
Extreme (-10°C)		3.55	16.99	4.03	0.00189	0.00904	0.00214	PASS
Extreme (-20°C)		8.16	5.07	8.37	0.00434	0.00270	0.00445	PASS
Extreme (-30°C)		5.10	9.36	15.55	0.00271	0.00498	0.00827	PASS
25°C	LV	14.63	1.50	5.03	0.00778	0.00080	0.00268	PASS
	HV	9.79	9.41	4.45	0.00521	0.00500	0.00237	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.25	4.77	8.59	0.00120	0.00254	0.00457	PASS
Extreme (50°C)		4.04	2.22	9.89	0.00215	0.00118	0.00526	PASS



Extreme (40°C)		10.76	13.07	11.36	0.00572	0.00695	0.00604	PASS
Extreme (30°C)		14.45	1.53	12.54	0.00769	0.00081	0.00667	PASS
Extreme (20°C)		13.92	11.24	6.94	0.00740	0.00598	0.00369	PASS
Extreme (10°C)		10.52	13.42	17.20	0.00560	0.00714	0.00915	PASS
Extreme (0°C)		6.31	9.67	10.65	0.00336	0.00514	0.00567	PASS
Extreme (-10°C)		6.31	11.13	17.73	0.00336	0.00592	0.00943	PASS
Extreme (-20°C)		14.51	9.78	5.83	0.00772	0.00520	0.00310	PASS
Extreme (-30°C)		10.91	6.76	15.11	0.00580	0.00359	0.00804	PASS
25°C	LV	15.69	15.05	3.52	0.00835	0.00800	0.00187	PASS
	HV	11.00	2.98	8.18	0.00585	0.00158	0.00435	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.97	6.33	15.56	0.00637	0.00336	0.00828	PASS
Extreme (50°C)		2.91	2.11	9.06	0.00155	0.00112	0.00482	PASS
Extreme (40°C)		11.16	12.62	15.04	0.00594	0.00671	0.00800	PASS
Extreme (30°C)		8.77	1.75	12.37	0.00466	0.00093	0.00658	PASS
Extreme (20°C)		4.99	8.32	9.96	0.00266	0.00442	0.00530	PASS
Extreme (10°C)		10.29	11.35	13.69	0.00548	0.00604	0.00728	PASS
Extreme (0°C)		8.05	2.89	2.01	0.00428	0.00154	0.00107	PASS
Extreme (-10°C)		2.92	9.90	9.20	0.00155	0.00527	0.00489	PASS
Extreme (-20°C)		14.57	8.42	15.13	0.00775	0.00448	0.00805	PASS
Extreme (-30°C)		11.20	14.52	3.71	0.00596	0.00772	0.00197	PASS
25°C	LV	5.37	1.98	14.64	0.00286	0.00105	0.00779	PASS
	HV	12.75	2.18	13.38	0.00678	0.00116	0.00712	PASS



LTE Band 26								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	6.59	5.87	6.69	0.00350	0.00312	0.00356	PASS
Extreme (50°C)		17.95	3.43	1.06	0.00955	0.00183	0.00056	PASS
Extreme (40°C)		15.00	17.33	14.47	0.00798	0.00922	0.00769	PASS
Extreme (30°C)		2.08	6.01	6.59	0.00111	0.00320	0.00351	PASS
Extreme (20°C)		13.05	2.59	9.42	0.00694	0.00138	0.00501	PASS
Extreme (10°C)		8.98	17.98	13.42	0.00478	0.00956	0.00714	PASS
Extreme (0°C)		9.89	11.04	7.13	0.00526	0.00587	0.00379	PASS
Extreme (-10°C)		12.55	11.42	11.75	0.00668	0.00607	0.00625	PASS
Extreme (-20°C)		7.20	3.80	7.97	0.00383	0.00202	0.00424	PASS
Extreme (-30°C)		16.62	17.47	9.30	0.00884	0.00929	0.00495	PASS
25°C	LV	4.14	13.44	15.72	0.00220	0.00715	0.00836	PASS
	HV	11.46	17.83	17.98	0.00610	0.00949	0.00956	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	10.66	7.58	1.04	0.00567	0.00403	0.00055	PASS
Extreme (50°C)		16.91	2.09	4.44	0.00899	0.00111	0.00236	PASS
Extreme (40°C)		1.90	4.86	9.93	0.00101	0.00259	0.00528	PASS
Extreme (30°C)		8.31	1.49	13.58	0.00442	0.00079	0.00722	PASS
Extreme (20°C)		17.88	13.51	15.76	0.00951	0.00719	0.00838	PASS
Extreme (10°C)		6.73	4.33	12.20	0.00358	0.00231	0.00649	PASS
Extreme (0°C)		12.41	11.84	7.06	0.00660	0.00630	0.00375	PASS
Extreme (-10°C)		14.15	3.81	5.19	0.00753	0.00203	0.00276	PASS
Extreme (-20°C)		6.49	7.95	2.22	0.00345	0.00423	0.00118	PASS
Extreme (-30°C)		4.88	9.15	4.75	0.00260	0.00486	0.00252	PASS
25°C	LV	17.72	6.73	17.08	0.00943	0.00358	0.00909	PASS
	HV	7.30	16.16	9.16	0.00388	0.00859	0.00487	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	4.47	17.96	6.08	0.00238	0.00955	0.00323	PASS
Extreme (50°C)		4.64	8.01	10.83	0.00247	0.00426	0.00576	PASS



Extreme (40°C)		12.17	11.11	11.87	0.00647	0.00591	0.00632	PASS
Extreme (30°C)		5.99	3.27	3.08	0.00319	0.00174	0.00164	PASS
Extreme (20°C)		1.13	14.70	5.87	0.00060	0.00782	0.00312	PASS
Extreme (10°C)		7.19	8.05	1.98	0.00382	0.00428	0.00105	PASS
Extreme (0°C)		11.85	4.94	2.52	0.00630	0.00263	0.00134	PASS
Extreme (-10°C)		1.88	13.19	11.14	0.00100	0.00702	0.00593	PASS
Extreme (-20°C)		15.27	11.03	16.65	0.00812	0.00587	0.00886	PASS
Extreme (-30°C)		1.70	1.33	1.98	0.00090	0.00071	0.00105	PASS
25°C	LV	11.22	8.18	17.72	0.00597	0.00435	0.00943	PASS
	HV	12.37	4.10	10.31	0.00658	0.00218	0.00549	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	4.19	7.12	17.51	0.00223	0.00379	0.00931	PASS
Extreme (50°C)		11.12	8.07	17.47	0.00592	0.00429	0.00929	PASS
Extreme (40°C)		6.07	6.11	15.75	0.00323	0.00325	0.00838	PASS
Extreme (30°C)		14.24	1.17	15.44	0.00758	0.00062	0.00821	PASS
Extreme (20°C)		7.93	1.70	17.52	0.00422	0.00090	0.00932	PASS
Extreme (10°C)		7.08	13.41	4.88	0.00377	0.00713	0.00260	PASS
Extreme (0°C)		16.54	10.62	4.85	0.00880	0.00565	0.00258	PASS
Extreme (-10°C)		11.81	16.03	5.45	0.00628	0.00853	0.00290	PASS
Extreme (-20°C)		2.14	7.50	13.21	0.00114	0.00399	0.00703	PASS
Extreme (-30°C)		9.18	11.01	8.29	0.00489	0.00586	0.00441	PASS
25°C	LV	8.25	2.17	9.33	0.00439	0.00116	0.00496	PASS
	HV	10.28	9.46	11.82	0.00547	0.00503	0.00629	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	13.32	12.34	8.00	0.00709	0.00657	0.00426	PASS
Extreme (50°C)		10.23	11.24	5.41	0.00544	0.00598	0.00288	PASS
Extreme (40°C)		7.39	13.17	16.93	0.00393	0.00701	0.00901	PASS
Extreme (30°C)		2.36	4.12	1.84	0.00125	0.00219	0.00098	PASS
Extreme (20°C)		17.52	16.92	8.73	0.00932	0.00900	0.00464	PASS
Extreme (10°C)		12.97	16.91	1.82	0.00690	0.00900	0.00097	PASS
Extreme (0°C)		16.37	2.35	5.57	0.00871	0.00125	0.00296	PASS
Extreme (-10°C)		8.07	9.13	5.92	0.00429	0.00486	0.00315	PASS
Extreme (-20°C)		8.50	1.20	14.05	0.00452	0.00064	0.00748	PASS
Extreme (-30°C)		4.76	12.50	11.72	0.00253	0.00665	0.00624	PASS
25°C	LV	16.24	17.82	2.66	0.00864	0.00948	0.00141	PASS



	HV	11.13	7.95	8.50	0.00592	0.00423	0.00452	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 are set to 100 kHz and VBW are set to 300 kHz for below 1G, RBW are set to 1MHz and VBW are set to 3MHz for above 1G, Sweep is set to ATUO.

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

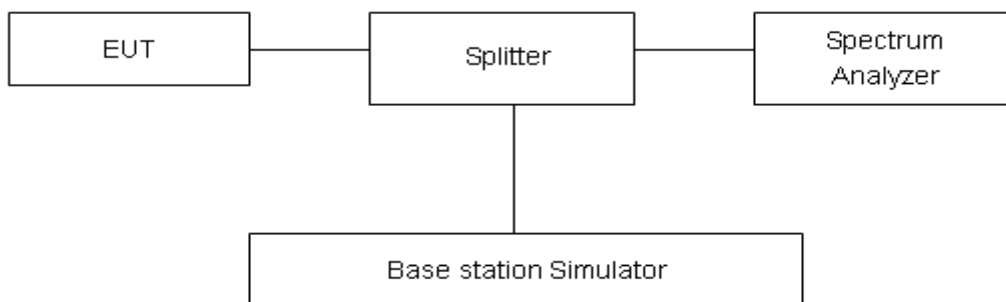
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

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 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (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  $k = 1.96$ .

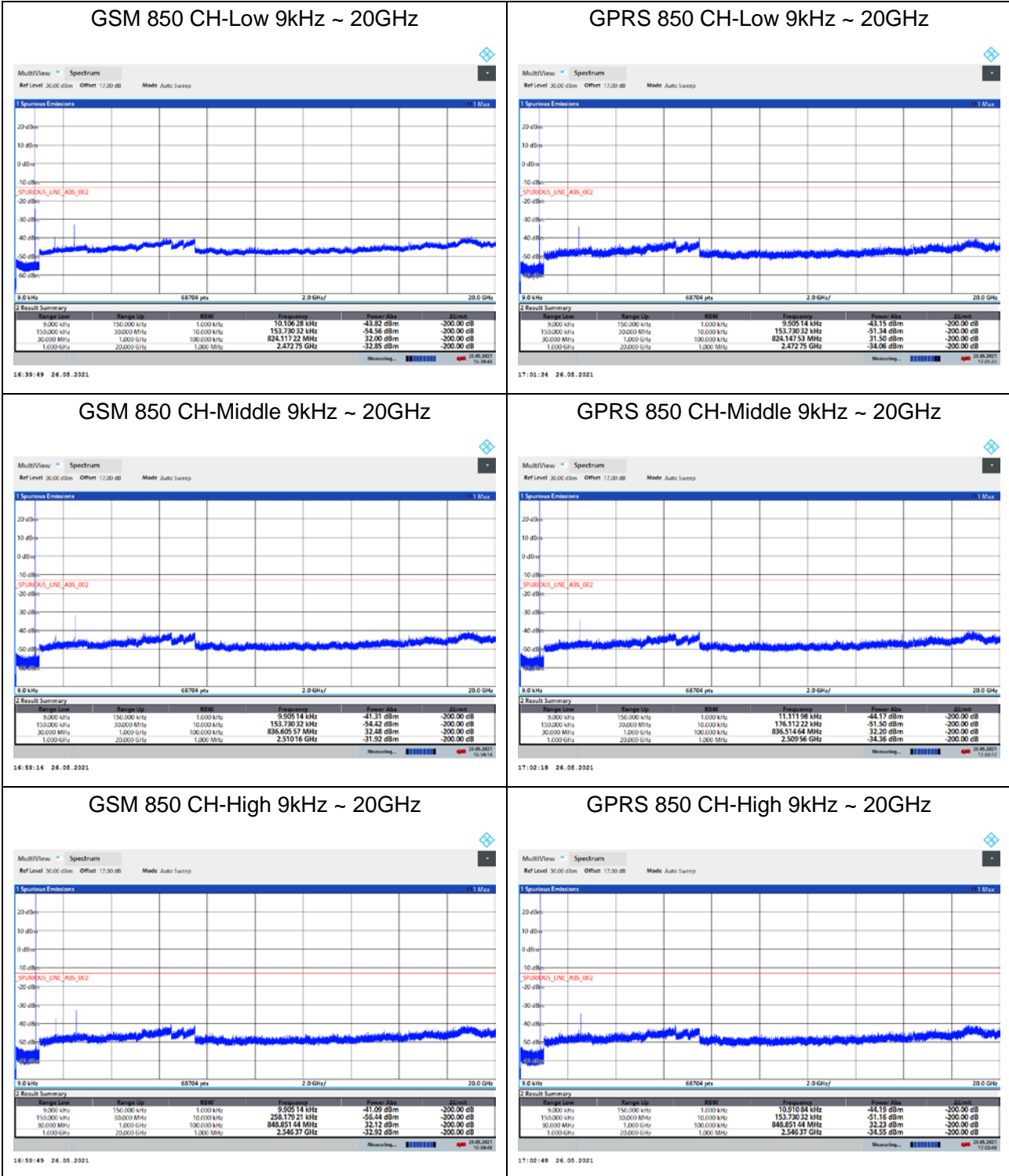
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-18GHz	1.407 dB



### Test Result

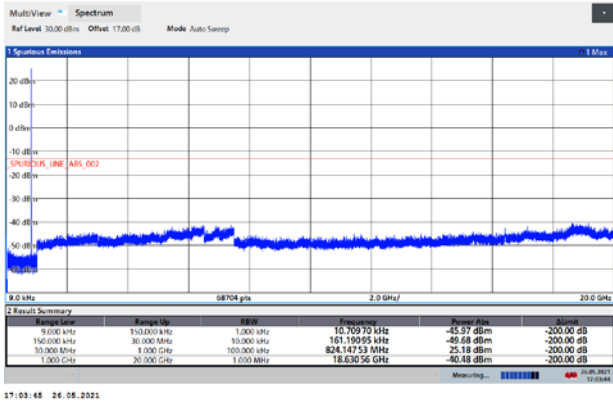
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.



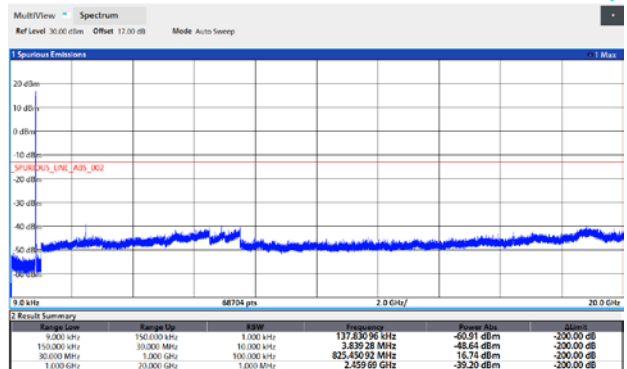


### EGPRS 850 CH-Low 9kHz ~ 20GHz



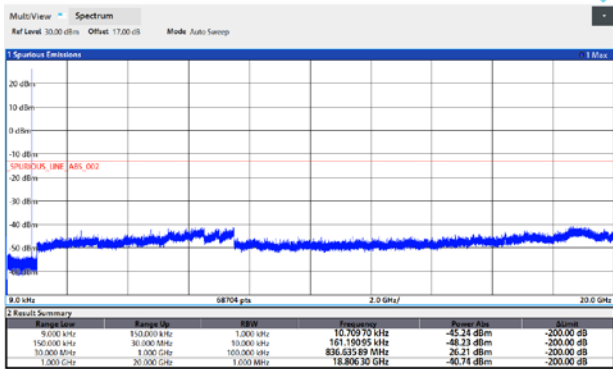
17:03:48 26.05.2021

### WCDMA BAND V CH-Low 9kHz ~ 20GHz



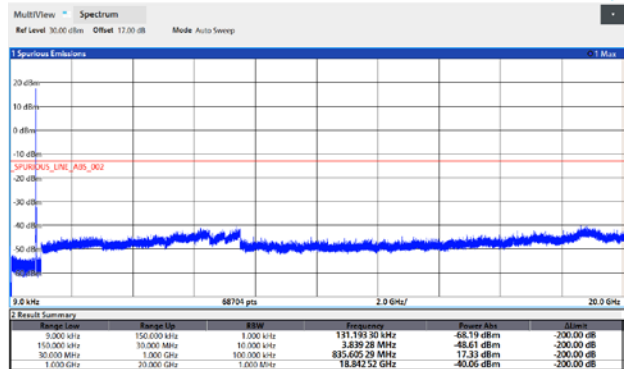
16:31:00 26.05.2021

### EGPRS 850 CH-Middle 9kHz ~ 20GHz



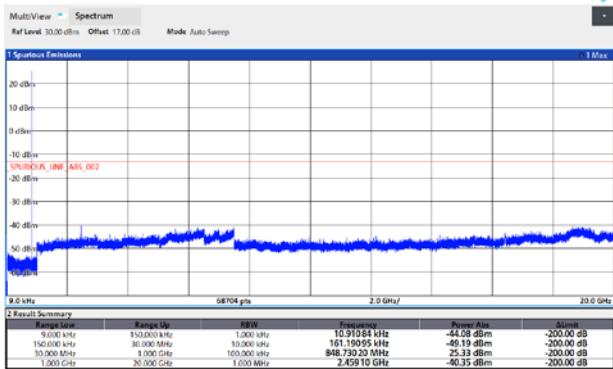
17:04:20 26.05.2021

### WCDMA BAND V CH-Middle 9kHz ~ 20GHz



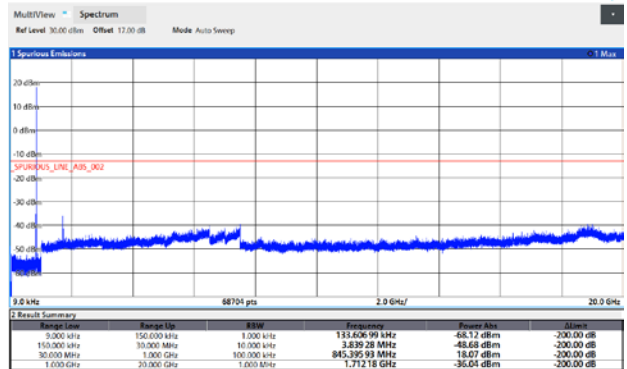
16:31:47 26.05.2021

### EGPRS 850 CH-High 9kHz ~ 20GHz



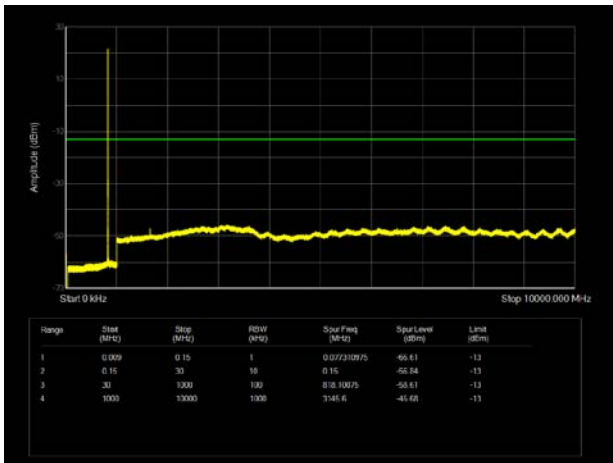
17:05:00 26.05.2021

### WCDMA BAND V CH-High 9kHz ~ 20GHz

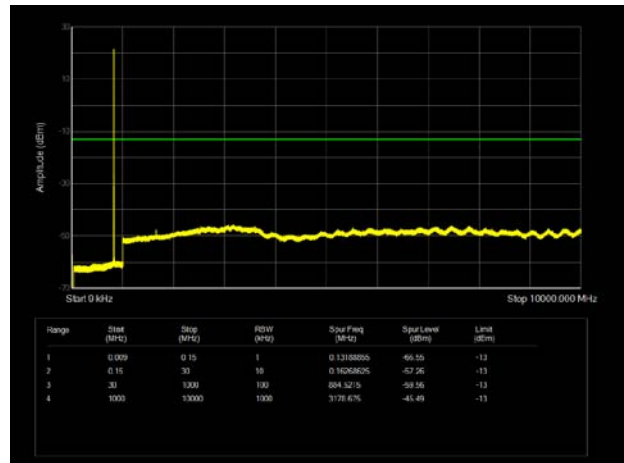


16:32:51 26.05.2021

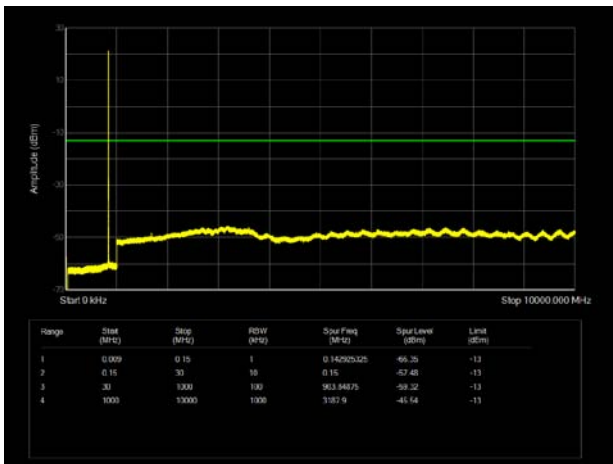
LTE Band 5 1.4MHz CH-Low 9kHz~10GHz



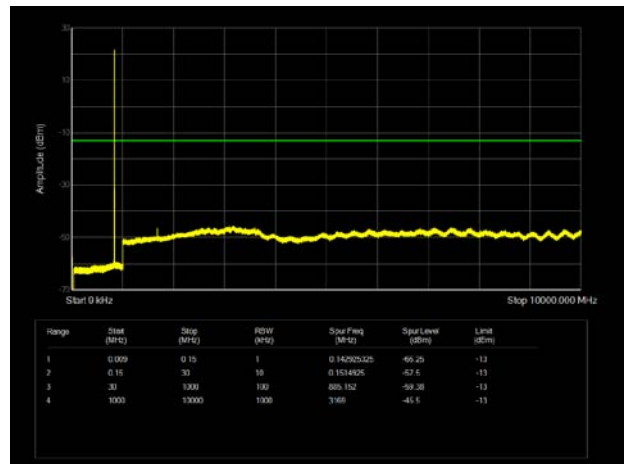
LTE Band 5 3MHz CH-Low 9kHz~10GHz



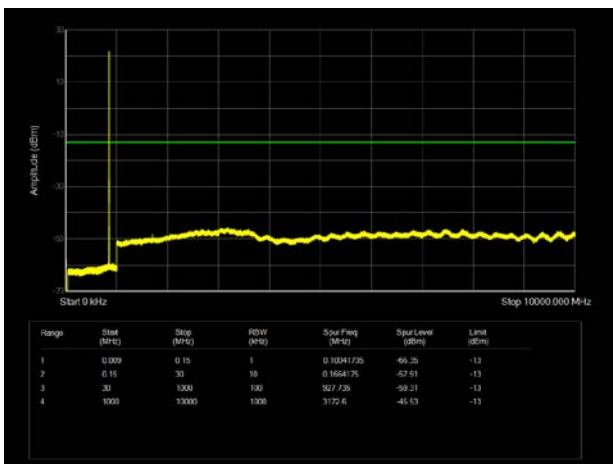
LTE Band 5 1.4MHz CH-Middle 9kHz~10GHz



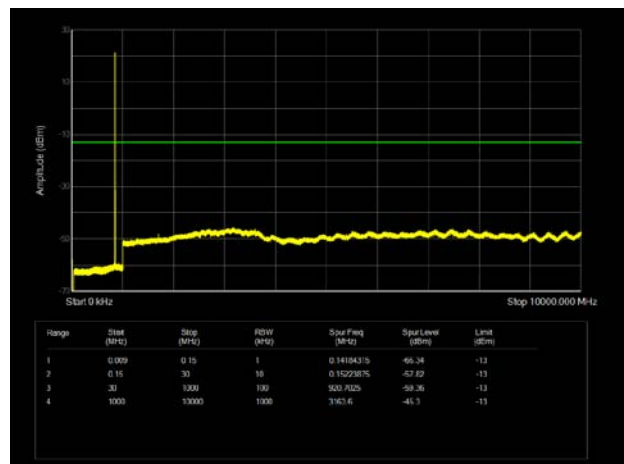
LTE Band 5 3MHz CH-Middle 9kHz~10GHz



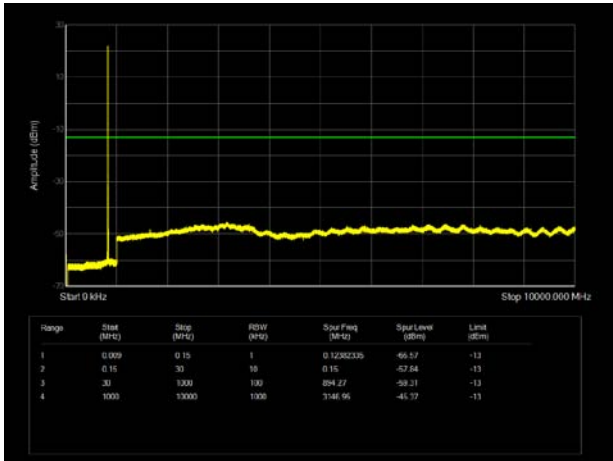
LTE Band 5 1.4MHz CH-High 9kHz~10GHz



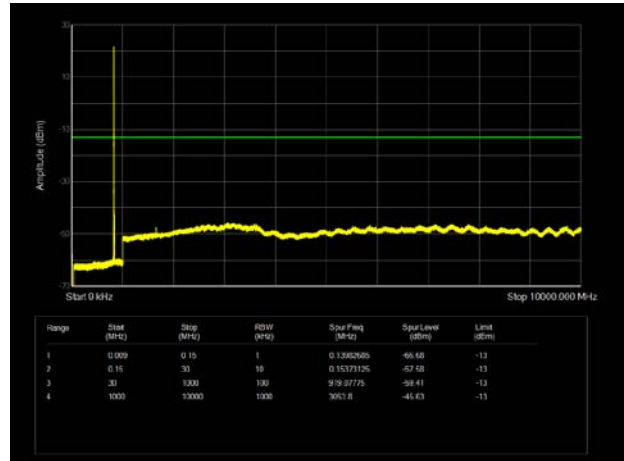
LTE Band 5 3MHz CH-High 9kHz~10GHz



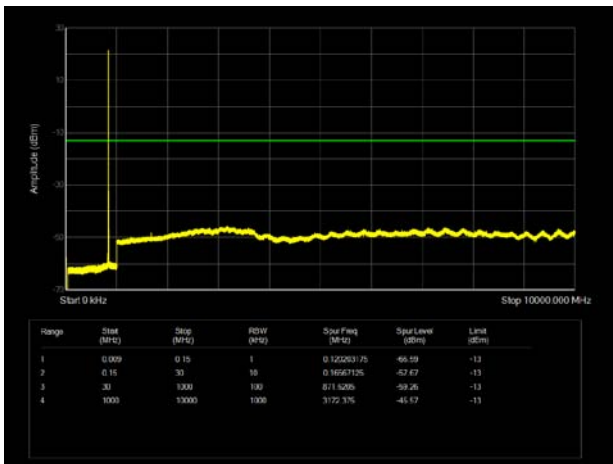
LTE Band 5 5MHz CH-Low 9kHz~10GHz



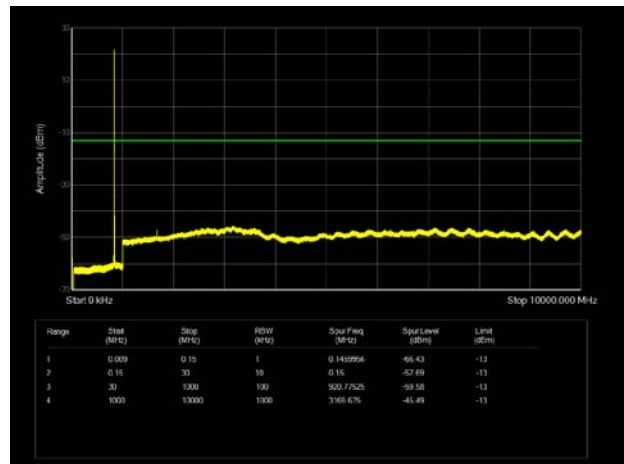
LTE Band 5 10MHz CH-Low 9kHz~10GHz



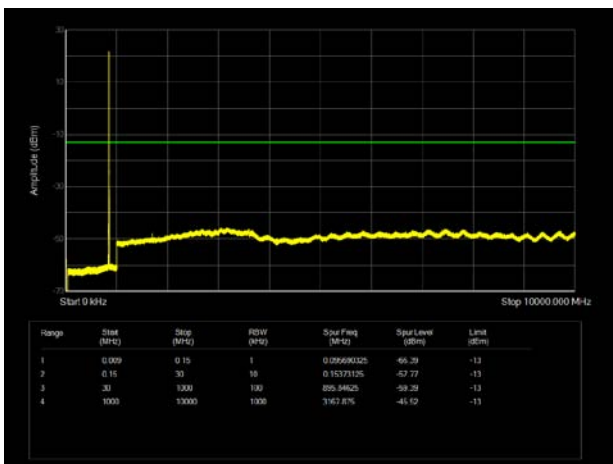
LTE Band 5 5MHz CH-Middle 9kHz~10GHz



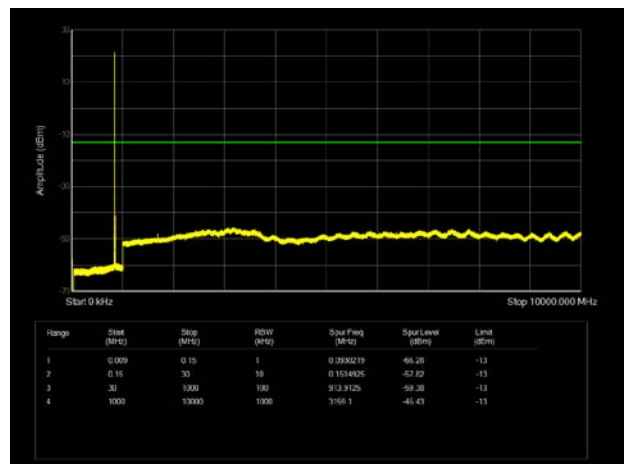
LTE Band 5 10MHz CH-Middle 9kHz~10GHz



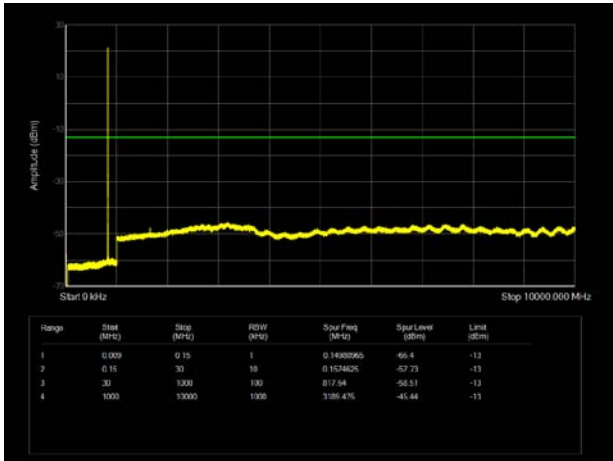
LTE Band 5 5MHz CH-High 9kHz~10GHz



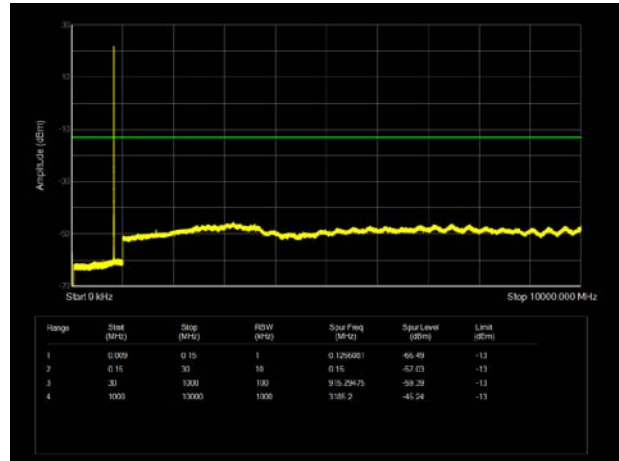
LTE Band 5 10MHz CH-High 9kHz~10GHz



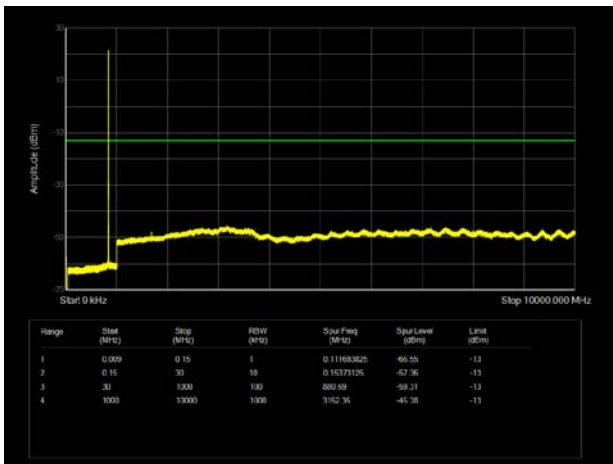
LTE Band 26 1.4MHz CH-Low 9kHz~10GHz



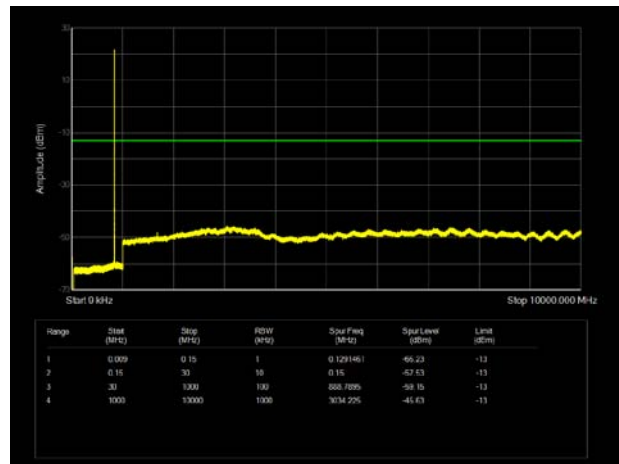
LTE Band 26 3MHz CH-Low 9kHz~10GHz



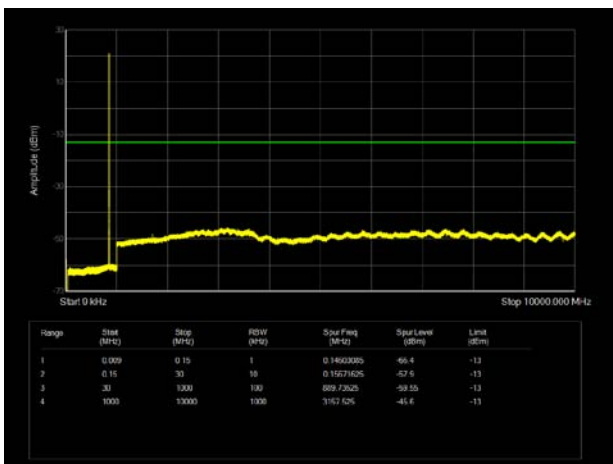
LTE Band 26 1.4MHz CH-Middle 9kHz~10GHz



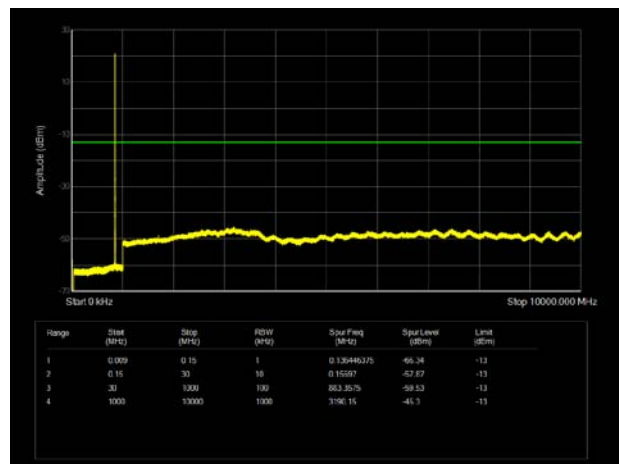
LTE Band 26 3MHz CH-Middle 9kHz~10GHz



LTE Band 26 1.4MHz CH-High 9kHz~10GHz

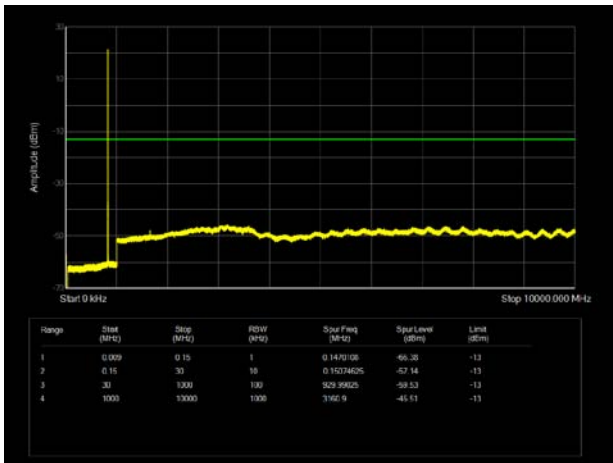


LTE Band 26 3MHz CH-High 9kHz~10GHz

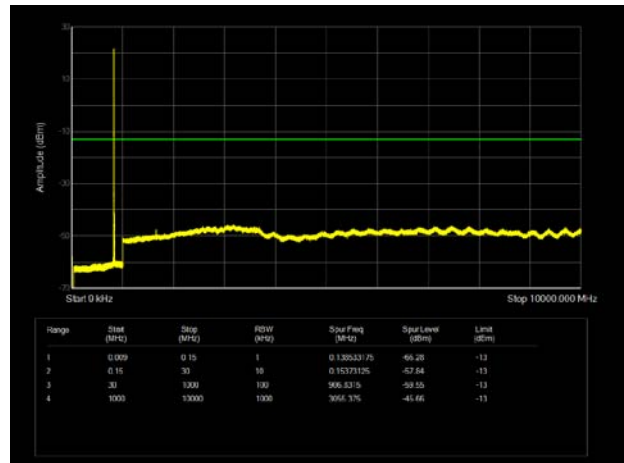




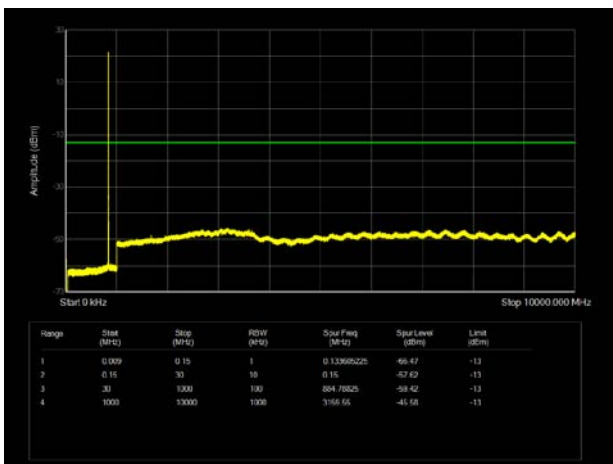
LTE Band 26 5MHz CH-Low 9kHz~10GHz



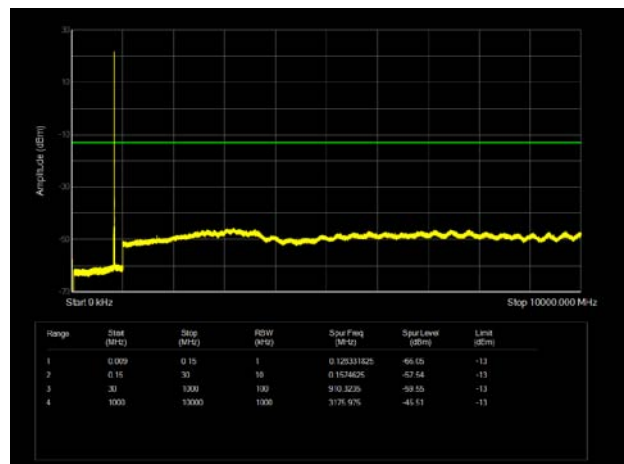
LTE Band 26 10MHz CH-Low 9kHz~10GHz



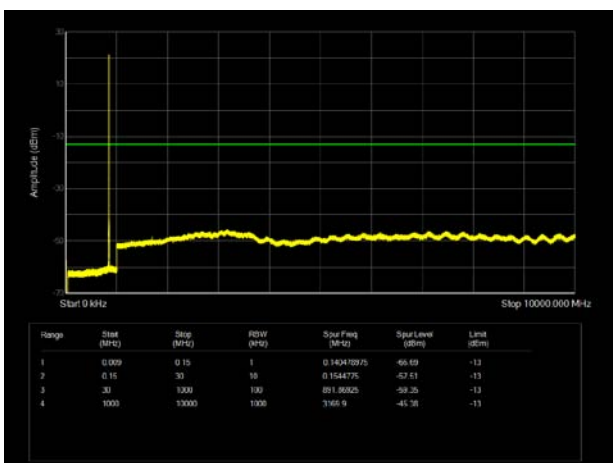
LTE Band 26 5MHz CH-Middle 9kHz~10GHz



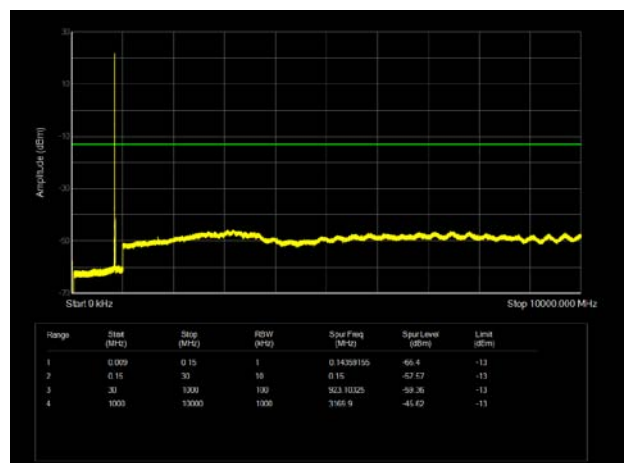
LTE Band 26 10MHz CH-Middle 9kHz~10GHz



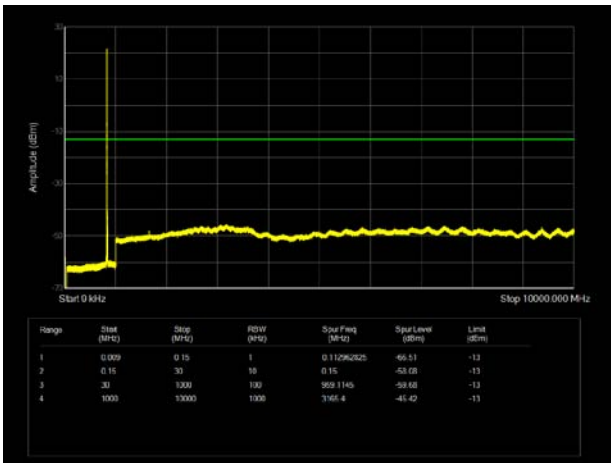
LTE Band 26 5MHz CH-High 9kHz~10GHz



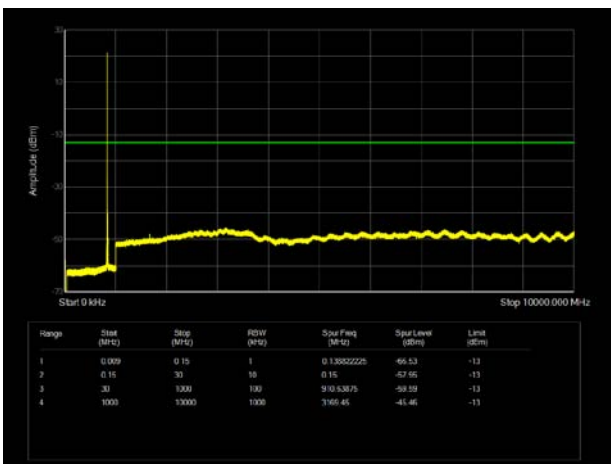
LTE Band 26 10MHz CH-High 9kHz~10GHz



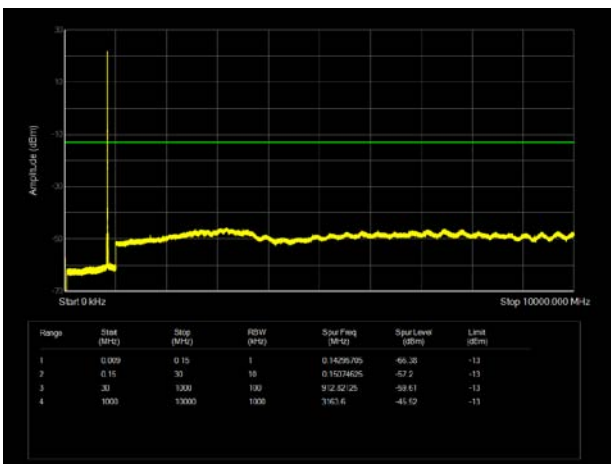
LTE Band 26 15MHz CH-Low 9kHz~10GHz



LTE Band 26 15MHz CH-Middle 9kHz~10GHz



LTE Band 26 15MHz CH-High 9kHz~10GHz





## 5.7. Radiates Spurious Emission

### Ambient condition

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

### Method of Measurement

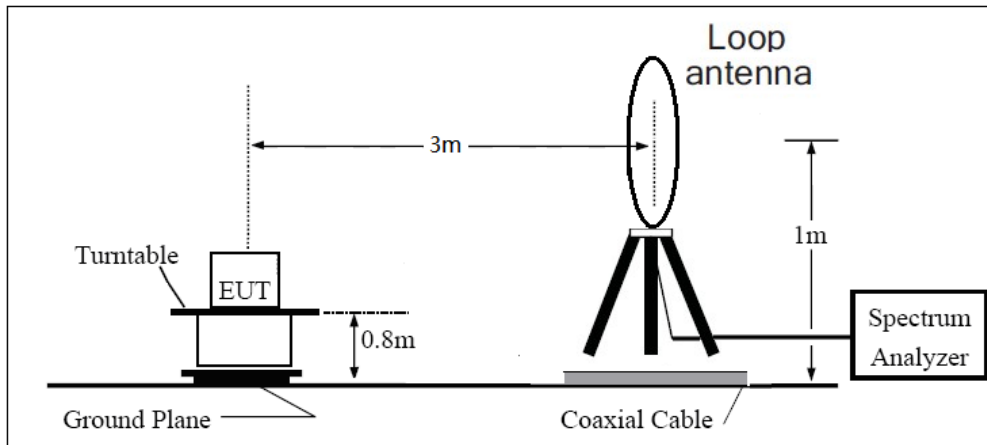
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable 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=100kHz,VBW=300kHz, 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:  
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$
  
The measurement results are amend as described below:  
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP

= EIRP-2.15dBi.

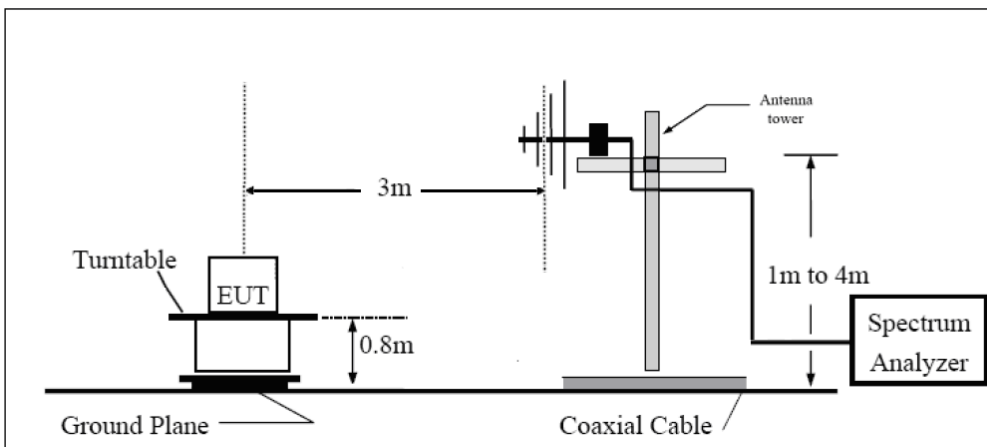
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

**Test setup**

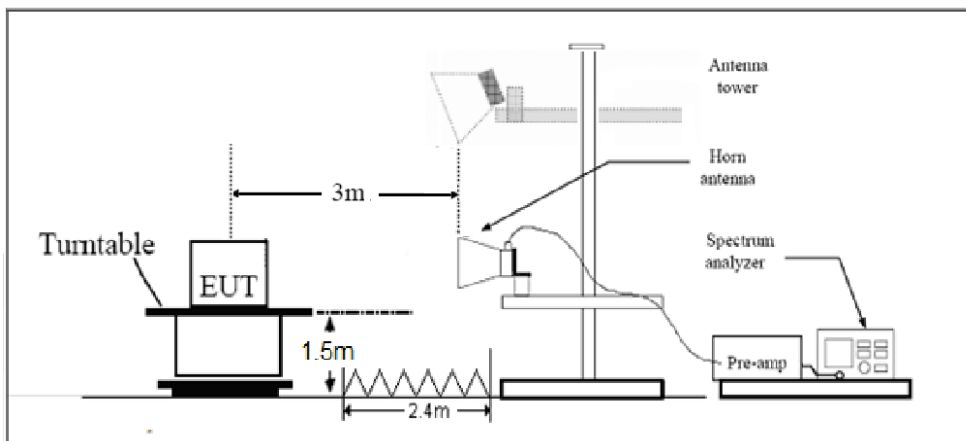
**9KHz ~ 30MHz**



**30MHz ~ 1GHz**



**Above 1GHz**



Note: Area side:2.4mX3.6m



### Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  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.

**Test Result**

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

**Antenna 1**

GSM 850 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.30	-65.56	1.70	8.70	Horizontal	-60.71	-13.00	47.71	180
3	2509.75	-48.31	2.30	12.00	Horizontal	-40.76	-13.00	27.76	45
4	3346.40	-66.40	2.70	12.70	Horizontal	-58.55	-13.00	45.55	45
5	4183.00	-63.06	3.00	12.50	Horizontal	-55.71	-13.00	42.71	270
6	5019.60	-60.49	3.40	12.50	Horizontal	-53.54	-13.00	40.54	180
7	5856.20	-58.08	3.40	12.80	Horizontal	-50.83	-13.00	37.83	0
8	6692.80	-58.37	4.10	11.50	Horizontal	-53.12	-13.00	40.12	90
9	7529.40	-54.66	4.20	12.20	Horizontal	-48.81	-13.00	35.81	315
10	8366.00	-55.21	4.30	12.50	Horizontal	-49.16	-13.00	36.16	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.

WCDMA Band V CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.20	-66.94	1.70	8.70	Horizontal	-62.09	-13.00	49.09	0
3	2509.80	-65.08	2.30	12.00	Horizontal	-57.53	-13.00	44.53	180
4	3346.40	-65.25	2.70	12.70	Horizontal	-57.40	-13.00	44.40	45
5	4183.00	-63.10	3.00	12.50	Horizontal	-55.75	-13.00	42.75	315
6	5019.60	-60.06	3.40	12.50	Horizontal	-53.11	-13.00	40.11	0
7	5856.20	-58.10	3.40	12.80	Horizontal	-50.85	-13.00	37.85	90
8	6692.80	-57.14	4.10	11.50	Horizontal	-51.89	-13.00	38.89	45
9	7529.40	-54.78	4.20	12.20	Horizontal	-48.93	-13.00	35.93	180
10	8366.00	-55.01	4.30	12.50	Horizontal	-48.96	-13.00	35.96	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 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1672.25	-64.18	1.70	8.70	Horizontal	-59.33	-13.00	46.33	45
3	2508.20	-53.84	2.30	12.00	Horizontal	-46.29	-13.00	33.29	45
4	3346.00	-64.41	2.70	12.70	Horizontal	-56.56	-13.00	43.56	45
5	4182.50	-63.05	3.00	12.50	Horizontal	-55.70	-13.00	42.70	0
6	5019.00	-59.56	3.40	12.50	Horizontal	-52.61	-13.00	39.61	135
7	5855.50	-59.44	3.40	12.80	Horizontal	-52.19	-13.00	39.19	225
8	6692.00	-59.82	4.10	11.50	Horizontal	-54.57	-13.00	41.57	225
9	7528.50	-55.76	4.20	12.20	Horizontal	-49.91	-13.00	36.91	135
10	8365.00	-56.71	4.30	12.50	Horizontal	-50.66	-13.00	37.66	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 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1668.60	-65.64	1.70	8.70	Horizontal	-60.79	-13.00	47.79	0
3	2503.30	-55.03	2.30	12.00	Horizontal	-47.48	-13.00	34.48	135
4	3466.20	-66.14	2.70	12.70	Horizontal	-58.29	-13.00	45.29	90
5	4215.90	-64.91	3.00	12.50	Horizontal	-57.56	-13.00	44.56	90
6	5165.60	-60.27	3.40	12.50	Horizontal	-53.32	-13.00	40.32	135
7	5815.30	-59.51	3.40	12.80	Horizontal	-52.26	-13.00	39.26	225
8	6765.00	-60.38	4.10	11.50	Horizontal	-55.13	-13.00	42.13	315
9	7614.70	-56.16	4.20	12.20	Horizontal	-50.31	-13.00	37.31	315
10	8464.40	-54.12	4.30	12.50	Horizontal	-48.07	-13.00	35.07	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 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.05	-65.97	1.70	8.70	Horizontal	-61.12	-13.00	48.12	90
3	2509.25	-56.27	2.30	12.00	Horizontal	-48.72	-13.00	35.72	90
4	3346.00	-65.15	2.70	12.70	Horizontal	-57.30	-13.00	44.30	45
5	4182.50	-65.00	3.00	12.50	Horizontal	-57.65	-13.00	44.65	0
6	5019.00	-58.89	3.40	12.50	Horizontal	-51.94	-13.00	38.94	180
7	5855.50	-59.15	3.40	12.80	Horizontal	-51.90	-13.00	38.90	180
8	6692.00	-59.74	4.10	11.50	Horizontal	-54.49	-13.00	41.49	180
9	7528.50	-56.71	4.20	12.20	Horizontal	-50.86	-13.00	37.86	0
10	8365.00	-55.13	4.30	12.50	Horizontal	-49.08	-13.00	36.08	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 26 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-64.39	1.70	8.70	Horizontal	-59.54	-13.00	46.54	180
3	2509.50	-54.33	2.30	12.00	Horizontal	-46.78	-13.00	33.78	45
4	3346.00	-66.32	2.70	12.70	Horizontal	-58.47	-13.00	45.47	135
5	4182.50	-64.87	3.00	12.50	Horizontal	-57.52	-13.00	44.52	90
6	5019.00	-61.36	3.40	12.50	Horizontal	-54.41	-13.00	41.41	90
7	5855.50	-58.03	3.40	12.80	Horizontal	-50.78	-13.00	37.78	135
8	6692.00	-57.69	4.10	11.50	Horizontal	-52.44	-13.00	39.44	225
9	7528.50	-54.80	4.20	12.20	Horizontal	-48.95	-13.00	35.95	90
10	8365.00	-57.33	4.30	12.50	Horizontal	-51.28	-13.00	38.28	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 26 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-69.71	1.70	8.70	Horizontal	-64.86	-13.00	51.86	90
3	2502.90	-54.56	2.30	12.00	Horizontal	-47.01	-13.00	34.01	225
4	3346.00	-65.50	2.70	12.70	Horizontal	-57.65	-13.00	44.65	0
5	4182.50	-64.90	3.00	12.50	Horizontal	-57.55	-13.00	44.55	0
6	5019.00	-59.42	3.40	12.50	Horizontal	-52.47	-13.00	39.47	135
7	5855.50	-58.98	3.40	12.80	Horizontal	-51.73	-13.00	38.73	225
8	6692.00	-58.53	4.10	11.50	Horizontal	-53.28	-13.00	40.28	45
9	7528.50	-56.02	4.20	12.20	Horizontal	-50.17	-13.00	37.17	225
10	8365.00	-57.31	4.30	12.50	Horizontal	-51.26	-13.00	38.26	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 26 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-63.93	1.70	8.70	Horizontal	-59.08	-13.00	46.08	270
3	2509.50	-54.16	2.30	12.00	Horizontal	-46.61	-13.00	33.61	180
4	3346.00	-63.86	2.70	12.70	Horizontal	-56.01	-13.00	43.01	135
5	4182.50	-64.18	3.00	12.50	Horizontal	-56.83	-13.00	43.83	0
6	5019.00	-61.84	3.40	12.50	Horizontal	-54.89	-13.00	41.89	0
7	5855.50	-59.02	3.40	12.80	Horizontal	-51.77	-13.00	38.77	90
8	6692.00	-58.70	4.10	11.50	Horizontal	-53.45	-13.00	40.45	135
9	7528.50	-55.49	4.20	12.20	Horizontal	-49.64	-13.00	36.64	225
10	8365.00	-55.16	4.30	12.50	Horizontal	-49.11	-13.00	36.11	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.



**Antenna 2**

## WCDMA Band V CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1674.40	-64.76	1.70	8.70	Vertical	-59.91	-13.00	46.91	45
3	2513.00	-59.51	2.30	12.00	Vertical	-51.96	-13.00	38.96	180
4	3346.40	-66.45	2.70	12.70	Vertical	-58.60	-13.00	45.60	45
5	4183.00	-62.53	3.00	12.50	Vertical	-55.18	-13.00	42.18	315
6	5019.60	-59.76	3.40	12.50	Vertical	-52.81	-13.00	39.81	0
7	5856.20	-60.06	3.40	12.80	Vertical	-52.81	-13.00	39.81	90
8	6692.80	-57.71	4.10	11.50	Vertical	-52.46	-13.00	39.46	45
9	7529.40	-54.76	4.20	12.20	Vertical	-48.91	-13.00	35.91	180
10	8366.00	-54.82	4.30	12.50	Vertical	-48.77	-13.00	35.77	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 Vertical position.

## LTE Band 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	2508.10	-48.31	1.70	8.70	Vertical	-43.46	-13.00	30.46	0
3	2508.10	-51.07	2.30	12.00	Vertical	-43.52	-13.00	30.52	180
4	3346.00	-66.35	2.70	12.70	Vertical	-58.50	-13.00	45.50	45
5	4182.50	-63.41	3.00	12.50	Vertical	-56.06	-13.00	43.06	0
6	5019.00	-60.28	3.40	12.50	Vertical	-53.33	-13.00	40.33	135
7	5855.50	-58.68	3.40	12.80	Vertical	-51.43	-13.00	38.43	225
8	6692.00	-57.31	4.10	11.50	Vertical	-52.06	-13.00	39.06	225
9	7528.50	-54.13	4.20	12.20	Vertical	-48.28	-13.00	35.28	135
10	8365.00	-54.44	4.30	12.50	Vertical	-48.39	-13.00	35.39	0

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

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

LTE Band 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1668.75	-64.22	1.70	8.70	Vertical	-59.37	-13.00	46.37	0
3	2503.00	-52.41	2.30	12.00	Vertical	-44.86	-13.00	31.86	135
4	3346.00	-66.63	2.70	12.70	Vertical	-58.78	-13.00	45.78	90
5	4182.50	-62.20	3.00	12.50	Vertical	-54.85	-13.00	41.85	90
6	5019.00	-59.70	3.40	12.50	Vertical	-52.75	-13.00	39.75	135
7	5855.50	-59.02	3.40	12.80	Vertical	-51.77	-13.00	38.77	225
8	6692.00	-57.69	4.10	11.50	Vertical	-52.44	-13.00	39.44	315
9	7528.50	-53.65	4.20	12.20	Vertical	-47.80	-13.00	34.80	315
10	8365.00	-54.50	4.30	12.50	Vertical	-48.45	-13.00	35.45	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 Vertical position.

LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1663.95	-64.04	1.70	8.70	Vertical	-59.19	-13.00	46.19	90
3	2496.20	-53.41	2.30	12.00	Vertical	-45.86	-13.00	32.86	90
4	3346.00	-66.89	2.70	12.70	Vertical	-59.04	-13.00	46.04	45
5	4182.50	-63.37	3.00	12.50	Vertical	-56.02	-13.00	43.02	0
6	5019.00	-60.28	3.40	12.50	Vertical	-53.33	-13.00	40.33	180
7	5855.50	-60.22	3.40	12.80	Vertical	-52.97	-13.00	39.97	180
8	6692.00	-57.84	4.10	11.50	Vertical	-52.59	-13.00	39.59	180
9	7528.50	-54.53	4.20	12.20	Vertical	-48.68	-13.00	35.68	0
10	8365.00	-54.81	4.30	12.50	Vertical	-48.76	-13.00	35.76	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 Vertical position.



## LTE Band 26 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.15	-66.84	1.70	8.70	Vertical	-61.99	-13.00	48.99	90
3	2508.30	-63.45	2.30	12.00	Vertical	-55.90	-13.00	42.90	0
4	3346.00	-65.86	2.70	12.70	Vertical	-58.01	-13.00	45.01	315
5	4182.50	-63.09	3.00	12.50	Vertical	-55.74	-13.00	42.74	225
6	5019.00	-59.99	3.40	12.50	Vertical	-53.04	-13.00	40.04	135
7	5855.50	-59.27	3.40	12.80	Vertical	-52.02	-13.00	39.02	0
8	6692.00	-58.24	4.10	11.50	Vertical	-52.99	-13.00	39.99	315
9	7528.50	-54.48	4.20	12.20	Vertical	-48.63	-13.00	35.63	0
10	8365.00	-55.59	4.30	12.50	Vertical	-49.54	-13.00	36.54	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 Vertical position.

## LTE Band 26 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.90	-66.64	1.70	8.70	Vertical	-61.79	-13.00	48.79	315
3	2503.00	-52.20	2.30	12.00	Vertical	-44.65	-13.00	31.65	270
4	3346.00	-65.87	2.70	12.70	Vertical	-58.02	-13.00	45.02	315
5	4182.50	-63.70	3.00	12.50	Vertical	-56.35	-13.00	43.35	135
6	5019.00	-59.93	3.40	12.50	Vertical	-52.98	-13.00	39.98	135
7	5855.50	-59.02	3.40	12.80	Vertical	-51.77	-13.00	38.77	270
8	6692.00	-57.40	4.10	11.50	Vertical	-52.15	-13.00	39.15	90
9	7528.50	-54.92	4.20	12.20	Vertical	-49.07	-13.00	36.07	135
10	8365.00	-56.00	4.30	12.50	Vertical	-49.95	-13.00	36.95	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 Vertical position.



## LTE Band 26 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1672.40	-67.05	1.70	8.70	Vertical	-62.20	-13.00	49.20	315
3	2489.35	-58.77	2.30	12.00	Vertical	-51.22	-13.00	38.22	135
4	3346.00	-65.20	2.70	12.70	Vertical	-57.35	-13.00	44.35	225
5	4182.50	-63.17	3.00	12.50	Vertical	-55.82	-13.00	42.82	0
6	5019.00	-59.07	3.40	12.50	Vertical	-52.12	-13.00	39.12	90
7	5855.50	-58.68	3.40	12.80	Vertical	-51.43	-13.00	38.43	270
8	6692.00	-57.32	4.10	11.50	Vertical	-52.07	-13.00	39.07	0
9	7528.50	-54.49	4.20	12.20	Vertical	-48.64	-13.00	35.64	270
10	8365.00	-54.62	4.30	12.50	Vertical	-48.57	-13.00	35.57	315

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

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

## 6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113645	2021-05-15	2022-05-14
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-12-13	2021-12-12
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2021-05-15	2022-05-14
Signal Analyzer	R&S	FSV3030	101411	2020-12-13	2021-12-12
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102644	2018-06-20	2023-06-19
Signal generator	R&S	SMB 100A	180235	2021-05-15	2022-05-14
Climatic Chamber	ESPEC	SU-242	93000506	2020-12-13	2021-12-12
Preamplifier	R&S	SCU18	102327	2021-05-15	2022-05-14
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2021-05-15	2022-05-14
RF Cable	Agilent	SMA 15cm	0001	2021-06-09	2021-12-08
Software	R&S	EMC32	9.26.0	/	/

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



## **ANNEX A: The EUT Appearance**

The EUT Appearance are submitted separately.



## **ANNEX B: Test Setup Photos**

The Test Setup Photos are submitted separately.