



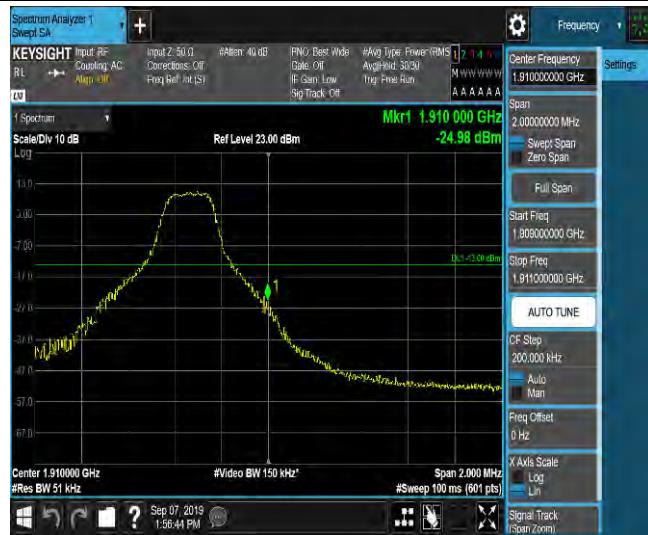
## LTE Band 2\_5MHz\_QPSK\_19175\_1RB#12\_-51.96\_PASS



## LTE Band 2\_5MHz\_16QAM\_19175\_1RB#12\_-51.76\_PASS

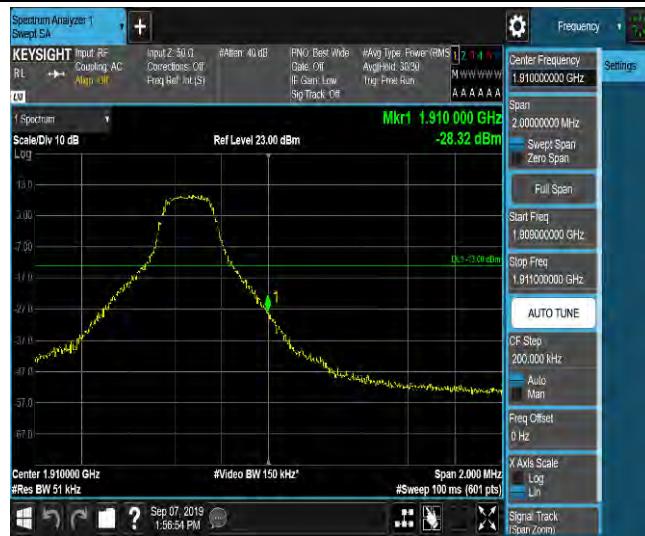


## LTE Band 2\_5MHz\_QPSK\_19175\_1RB#24\_-24.98\_PASS





## LTE Band 2\_5MHz\_16QAM\_19175\_1RB#24\_-28.32\_PASS



## LTE Band 2\_5MHz\_QPSK\_19175\_12RB#0\_-46.08\_PASS



## LTE Band 2\_5MHz\_16QAM\_19175\_12RB#0\_-46.90\_PASS





## LTE Band 2\_5MHz\_QPSK\_19175\_12RB#6\_-46.31\_PASS



## LTE Band 2\_5MHz\_16QAM\_19175\_12RB#6\_-47.60\_PASS



## LTE Band 2\_5MHz\_QPSK\_19175\_12RB#13\_-31.99\_PASS



LTE Band 2\_5MHz\_16QAM\_19175\_12RB#13\_-32.32\_PASS



LTE Band 2\_5MHz\_QPSK\_19175\_25RB#0\_-34.93\_PASS



LTE Band 2\_5MHz\_16QAM\_19175\_25RB#0\_-36.26\_PASS





## LTE Band 2\_10MHz\_QPSK\_18650\_1RB#0\_-36.61\_PASS



## LTE Band 2\_10MHz\_16QAM\_18650\_1RB#0\_-34.00\_PASS

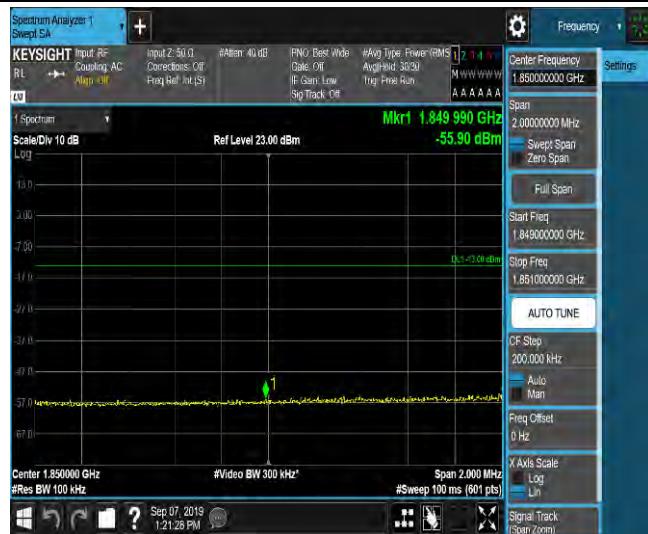


## LTE Band 2\_10MHz\_QPSK\_18650\_1RB#24\_-55.33\_PASS





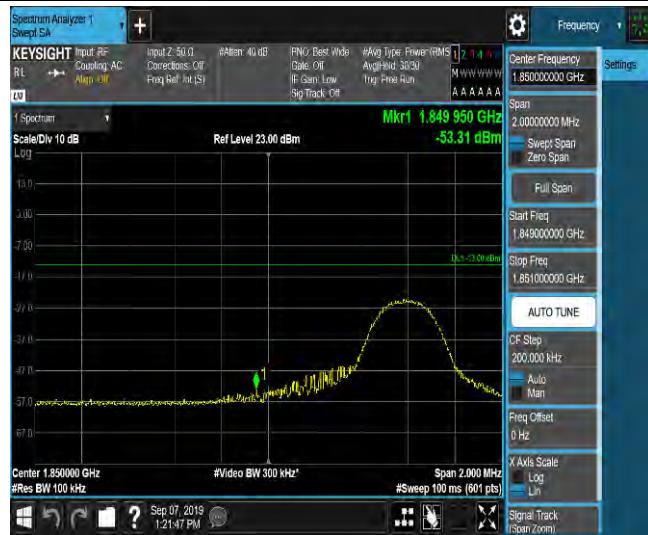
## LTE Band 2\_10MHz\_16QAM\_18650\_1RB#24\_-55.90\_PASS



## LTE Band 2\_10MHz\_QPSK\_18650\_1RB#49\_-54.52\_PASS



## LTE Band 2\_10MHz\_16QAM\_18650\_1RB#49\_-53.31\_PASS





## LTE Band 2\_10MHz\_QPSK\_18650\_25RB#0\_-35.98\_PASS



## LTE Band 2\_10MHz\_16QAM\_18650\_25RB#0\_-36.43\_PASS

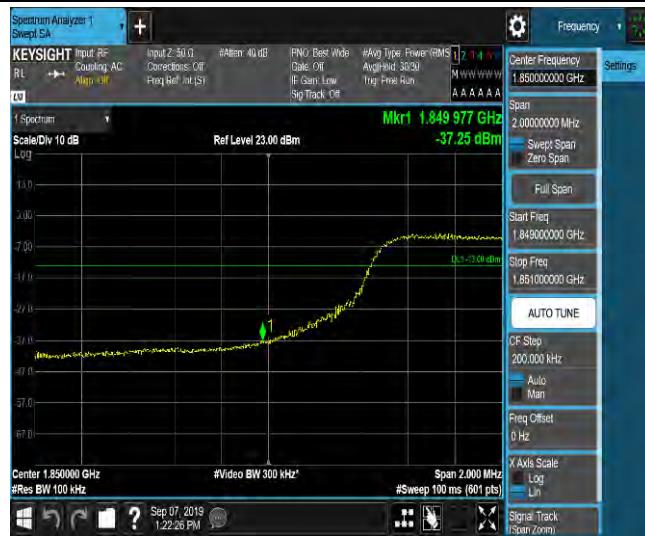


## LTE Band 2\_10MHz\_QPSK\_18650\_25RB#12\_-35.95\_PASS





## LTE Band 2\_10MHz\_16QAM\_18650\_25RB#12\_-37.25\_PASS



## LTE Band 2\_10MHz\_QPSK\_18650\_25RB#25\_-45.22\_PASS



## LTE Band 2\_10MHz\_16QAM\_18650\_25RB#25\_-47.12\_PASS





## LTE Band 2\_10MHz\_QPSK\_18650\_50RB#0\_-38.83\_PASS



## LTE Band 2\_10MHz\_16QAM\_18650\_50RB#0\_-38.02\_PASS



## LTE Band 2\_10MHz\_QPSK\_19150\_1RB#0\_-55.65\_PASS





## LTE Band 2\_10MHz\_16QAM\_19150\_1RB#0\_-55.40\_PASS



## LTE Band 2\_10MHz\_QPSK\_19150\_1RB#24\_-55.32\_PASS



## LTE Band 2\_10MHz\_16QAM\_19150\_1RB#24\_-55.75\_PASS





## LTE Band 2\_10MHz\_QPSK\_19150\_1RB#49\_-38.72\_PASS



## LTE Band 2\_10MHz\_16QAM\_19150\_1RB#49\_-38.56\_PASS



## LTE Band 2\_10MHz\_QPSK\_19150\_25RB#0\_-45.95\_PASS





## LTE Band 2\_10MHz\_16QAM\_19150\_25RB#0\_-47.50\_PASS



## LTE Band 2\_10MHz\_QPSK\_19150\_25RB#12\_-46.08\_PASS



## LTE Band 2\_10MHz\_16QAM\_19150\_25RB#12\_-47.47\_PASS



## LTE Band 2\_10MHz\_QPSK\_19150\_25RB#25\_-36.56\_PASS



LTE Band 2\_10MHz\_16QAM\_19150\_25RB#25\_-36.86\_PASS



LTE Band 2\_10MHz\_QPSK\_19150\_50RB#0\_-39.01\_PASS





## LTE Band 2\_10MHz\_16QAM\_19150\_50RB#0\_-39.16\_PASS



## LTE Band 2\_15MHz\_QPSK\_18675\_1RB#0\_-42.33\_PASS



## LTE Band 2\_15MHz\_16QAM\_18675\_1RB#0\_-38.28\_PASS





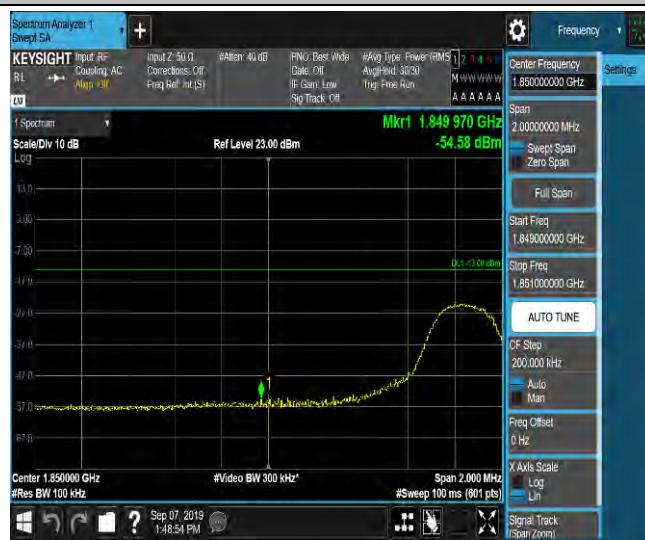
## LTE Band 2\_15MHz\_QPSK\_18675\_1RB#38\_-56.24\_PASS



## LTE Band 2\_15MHz\_16QAM\_18675\_1RB#38\_-56.42\_PASS



## LTE Band 2\_15MHz\_QPSK\_18675\_1RB#74\_-54.58\_PASS





## LTE Band 2\_15MHz\_16QAM\_18675\_1RB#74\_-54.59\_PASS



## LTE Band 2\_15MHz\_QPSK\_18675\_38RB#0\_-38.19\_PASS



## LTE Band 2\_15MHz\_16QAM\_18675\_38RB#0\_-38.30\_PASS





## LTE Band 2\_15MHz\_QPSK\_18675\_38RB#18\_-56.29\_PASS



## LTE Band 2\_15MHz\_16QAM\_18675\_38RB#18\_-56.39\_PASS



## LTE Band 2\_15MHz\_QPSK\_18675\_38RB#37\_-54.71\_PASS





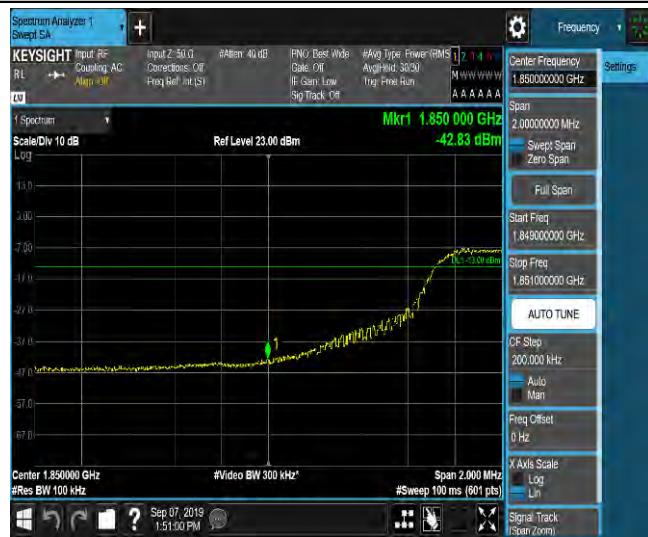
## LTE Band 2\_15MHz\_16QAM\_18675\_38RB#37\_-54.02\_PASS



## LTE Band 2\_15MHz\_QPSK\_18675\_75RB#0\_-42.65\_PASS



## LTE Band 2\_15MHz\_16QAM\_18675\_75RB#0\_-42.83\_PASS





## LTE Band 2\_15MHz\_QPSK\_19125\_1RB#0\_-53.61\_PASS



## LTE Band 2\_15MHz\_16QAM\_19125\_1RB#0\_-54.12\_PASS



## LTE Band 2\_15MHz\_QPSK\_19125\_1RB#38\_-56.13\_PASS



LTE Band 2\_15MHz\_16QAM\_19125\_1RB#38\_-55.91\_PASS



LTE Band 2\_15MHz\_QPSK\_19125\_1RB#74\_-38.15\_PASS



LTE Band 2 15MHz 16QAM 19125 1RB#74 -38.46 PASS





## LTE Band 2\_15MHz\_QPSK\_19125\_38RB#0\_-38.71\_PASS



## LTE Band 2\_15MHz\_16QAM\_19125\_38RB#0\_-38.42\_PASS



## LTE Band 2\_15MHz\_QPSK\_19125\_38RB#18\_-38.56\_PASS





## LTE Band 2\_15MHz\_16QAM\_19125\_38RB#18\_-39.22\_PASS



## LTE Band 2\_15MHz\_QPSK\_19125\_38RB#37\_-39.45\_PASS



## LTE Band 2\_15MHz\_16QAM\_19125\_38RB#37\_-39.34\_PASS





## LTE Band 2\_15MHz\_QPSK\_19125\_75RB#0\_-39.31\_PASS



## LTE Band 2\_15MHz\_16QAM\_19125\_75RB#0\_-38.96\_PASS



## LTE Band 2\_20MHz\_QPSK\_18700\_1RB#0\_-41.73\_PASS





## LTE Band 2\_20MHz\_16QAM\_18700\_1RB#0\_-42.57\_PASS



## LTE Band 2\_20MHz\_QPSK\_18700\_1RB#49\_-56.25\_PASS



## LTE Band 2\_20MHz\_16QAM\_18700\_1RB#49\_-56.05\_PASS





## LTE Band 2\_20MHz\_QPSK\_18700\_1RB#99\_-55.98\_PASS



## LTE Band 2\_20MHz\_16QAM\_18700\_1RB#99\_-56.25\_PASS



## LTE Band 2\_20MHz\_QPSK\_18700\_50RB#0\_-43.46\_PASS





## LTE Band 2\_20MHz\_16QAM\_18700\_50RB#0\_-43.52\_PASS



## LTE Band 2\_20MHz\_QPSK\_18700\_50RB#25\_-43.06\_PASS

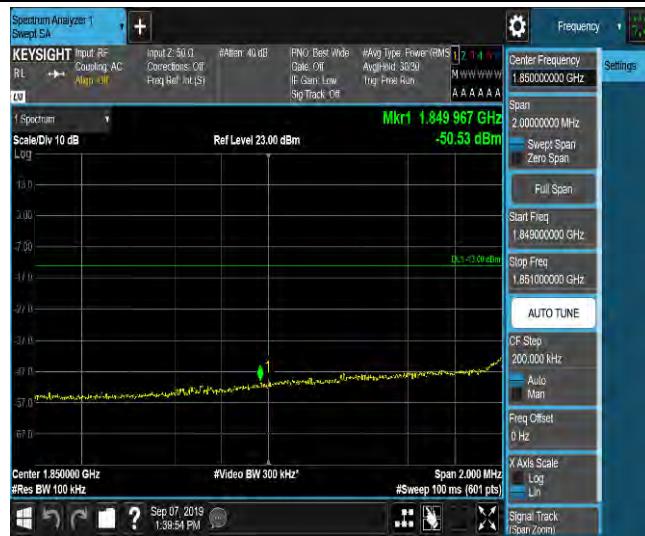


## LTE Band 2\_20MHz\_16QAM\_18700\_50RB#25\_-43.67\_PASS





## LTE Band 2\_20MHz\_QPSK\_18700\_50RB#50\_-50.53\_PASS



## LTE Band 2\_20MHz\_16QAM\_18700\_50RB#50\_-50.42\_PASS



## LTE Band 2\_20MHz\_QPSK\_18700\_100RB#0\_-43.85\_PASS





## LTE Band 2\_20MHz\_16QAM\_18700\_100RB#0\_-44.23\_PASS



## LTE Band 2\_20MHz\_QPSK\_19100\_1RB#0\_-55.99\_PASS



## LTE Band 2\_20MHz\_16QAM\_19100\_1RB#0\_-55.88\_PASS





## LTE Band 2\_20MHz\_QPSK\_19100\_1RB#49\_-56.18\_PASS



## LTE Band 2\_20MHz\_16QAM\_19100\_1RB#49\_-56.06\_PASS



## LTE Band 2\_20MHz\_QPSK\_19100\_1RB#99\_-42.62\_PASS





## LTE Band 2\_20MHz\_16QAM\_19100\_1RB#99\_-43.29\_PASS



## LTE Band 2\_20MHz\_QPSK\_19100\_50RB#0\_-49.15\_PASS



## LTE Band 2\_20MHz\_16QAM\_19100\_50RB#0\_-49.42\_PASS





## LTE Band 2\_20MHz\_QPSK\_19100\_50RB#25\_-49.06\_PASS



## LTE Band 2\_20MHz\_16QAM\_19100\_50RB#25\_-49.62\_PASS

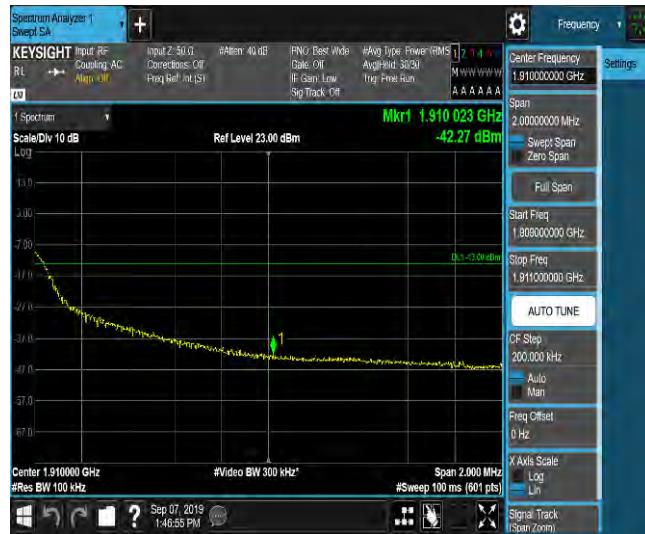


## LTE Band 2\_20MHz\_QPSK\_19100\_50RB#50\_-42.25\_PASS





## LTE Band 2\_20MHz\_16QAM\_19100\_50RB#50\_-42.27\_PASS



## LTE Band 2\_20MHz\_QPSK\_19100\_100RB#0\_-45.20\_PASS



## LTE Band 2\_20MHz\_16QAM\_19100\_100RB#0\_-44.83\_PASS



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

### Ambient condition

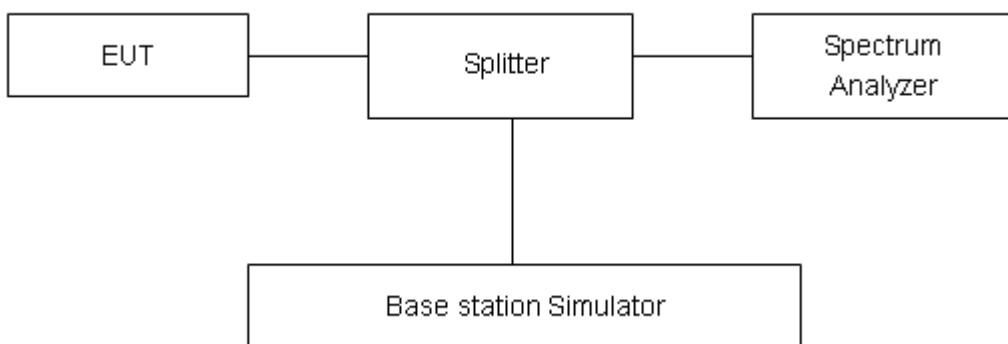
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### 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:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

### Test Setup



### Limits

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

**Test Results**

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
GPRS1900	512	2.70	13	PASS
GPRS1900	661	2.63	13	PASS
GPRS1900	810	2.63	13	PASS
EGPRS1900	512	5.88	13	PASS
EGPRS1900	661	5.76	13	PASS
EGPRS1900	810	5.68	13	PASS
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
WCDMA Band II	9262	3.20	13	PASS
WCDMA Band II	9400	3.17	13	PASS
WCDMA Band II	9538	3.11	13	PASS

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
LTE Band 2	1.4MHz	QPSK	18607	6RB#0	5.36	13	PASS
LTE Band 2	1.4MHz	16QAM	18607	6RB#0	5.37	13	PASS
LTE Band 2	1.4MHz	QPSK	18900	6RB#0	5.29	13	PASS
LTE Band 2	1.4MHz	16QAM	18900	6RB#0	5.32	13	PASS
LTE Band 2	1.4MHz	QPSK	19193	6RB#0	5.12	13	PASS
LTE Band 2	1.4MHz	16QAM	19193	6RB#0	5.13	13	PASS
LTE Band 2	3MHz	QPSK	18615	15RB#0	5.41	13	PASS
LTE Band 2	3MHz	16QAM	18615	15RB#0	5.43	13	PASS
LTE Band 2	3MHz	QPSK	18900	15RB#0	5.39	13	PASS
LTE Band 2	3MHz	16QAM	18900	15RB#0	5.39	13	PASS
LTE Band 2	3MHz	QPSK	19185	15RB#0	5.15	13	PASS
LTE Band 2	3MHz	16QAM	19185	15RB#0	5.13	13	PASS
LTE Band 2	5MHz	QPSK	18625	25RB#0	5.41	13	PASS
LTE Band 2	5MHz	16QAM	18625	25RB#0	5.40	13	PASS
LTE Band 2	5MHz	QPSK	18900	25RB#0	5.38	13	PASS
LTE Band 2	5MHz	16QAM	18900	25RB#0	5.40	13	PASS
LTE Band 2	5MHz	QPSK	19175	25RB#0	5.16	13	PASS
LTE Band 2	5MHz	16QAM	19175	25RB#0	5.17	13	PASS
LTE Band 2	10MHz	QPSK	18650	50RB#0	5.27	13	PASS
LTE Band 2	10MHz	16QAM	18650	50RB#0	5.26	13	PASS
LTE Band 2	10MHz	QPSK	18900	50RB#0	5.20	13	PASS
LTE Band 2	10MHz	16QAM	18900	50RB#0	5.20	13	PASS
LTE Band 2	10MHz	QPSK	19150	50RB#0	5.08	13	PASS
LTE Band 2	10MHz	16QAM	19150	50RB#0	5.10	13	PASS
LTE Band 2	15MHz	QPSK	18675	75RB#0	5.03	13	PASS
LTE Band 2	15MHz	16QAM	18675	75RB#0	5.02	13	PASS
LTE Band 2	15MHz	QPSK	18900	75RB#0	4.98	13	PASS



LTE Band 2	15MHz	16QAM	18900	75RB#0	4.98	13	PASS
LTE Band 2	15MHz	QPSK	19125	75RB#0	4.89	13	PASS
LTE Band 2	15MHz	16QAM	19125	75RB#0	4.90	13	PASS
LTE Band 2	20MHz	QPSK	18700	100RB#0	5.25	13	PASS
LTE Band 2	20MHz	16QAM	18700	100RB#0	5.25	13	PASS
LTE Band 2	20MHz	QPSK	18900	100RB#0	5.27	13	PASS
LTE Band 2	20MHz	16QAM	18900	100RB#0	5.28	13	PASS
LTE Band 2	20MHz	QPSK	19100	100RB#0	5.31	13	PASS
LTE Band 2	20MHz	16QAM	19100	100RB#0	5.27	13	PASS

## 5.6. 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 -40°C to +85°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 -40°C to +85°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

#### Frequency Stability (Voltage Variation)

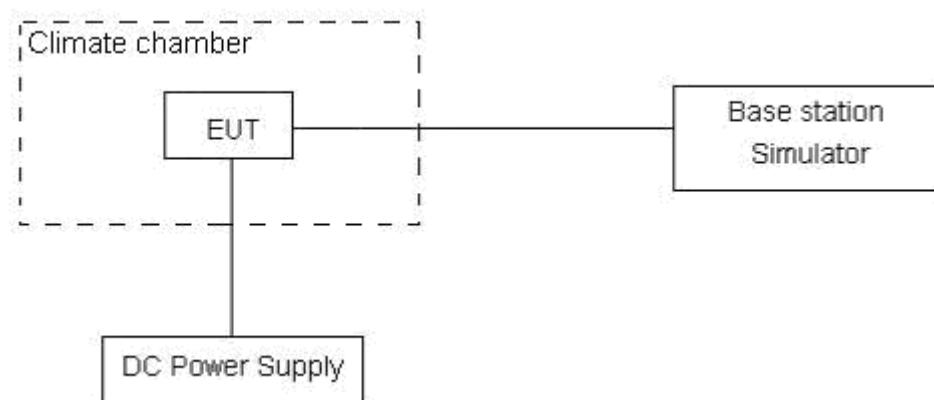
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage 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





## 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  $k = 3$ ,  $U = 0.01\text{ppm}$ .

**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°C)	Normal	6.26	17.10	0.00333	0.00910	PASS
Extreme (85°C)		12.20	14.60	0.00649	0.00776	PASS
Extreme (80°C)		3.56	13.74	0.00189	0.00731	PASS
Extreme (70°C)		8.18	16.62	0.00435	0.00884	PASS
Extreme (60°C)		7.26	2.80	0.00386	0.00149	PASS
Extreme (50°C)		1.01	7.67	0.00054	0.00408	PASS
Extreme (40°C)		15.82	3.59	0.00842	0.00191	PASS
Extreme (30°C)		4.20	12.93	0.00223	0.00688	PASS
Extreme (20°C)		15.91	14.32	0.00847	0.00762	PASS
Extreme (10°C)		2.28	3.74	0.00121	0.00199	PASS
Extreme (0°C)		5.50	14.99	0.00293	0.00797	PASS
Extreme (-10°C)		8.31	3.27	0.00442	0.00174	PASS
Extreme (-20°C)		13.45	3.50	0.00716	0.00186	PASS
Extreme (-30°C)		17.96	7.85	0.00955	0.00418	PASS
Extreme (-40°C)		1.79	12.46	0.00095	0.00663	PASS
25°C	LV	17.85	17.69	0.00949	0.00941	PASS
	HV	15.32	11.61	0.00815	0.00618	PASS

WCDMA B2						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
Normal (25°C)	Normal	11.14	10.84	0.00593	0.00577	PASS
Extreme (85°C)		11.87	1.42	0.00631	0.00076	PASS
Extreme (80°C)		16.04	12.00	0.00853	0.00639	PASS
Extreme (70°C)		8.82	13.14	0.00469	0.00699	PASS
Extreme (60°C)		9.56	6.44	0.00508	0.00343	PASS
Extreme (50°C)		15.73	10.39	0.00837	0.00552	PASS
Extreme (40°C)		2.26	1.50	0.00120	0.00080	PASS
Extreme (30°C)		5.28	15.22	0.00281	0.00809	PASS
Extreme (20°C)		13.94	11.47	0.00741	0.00610	PASS
Extreme (10°C)		11.56	12.09	0.00615	0.00643	PASS
Extreme (0°C)		7.45	16.97	0.00396	0.00903	PASS
Extreme (-10°C)		15.47	4.99	0.00823	0.00265	PASS



Extreme (-20°C)		1.01	9.43	0.00054	0.00501	PASS
Extreme (-30°C)		8.70	5.09	0.00463	0.00271	PASS
Extreme (-40°C)		2.47	3.17	0.00131	0.00169	PASS
25°C	LV	9.95	11.94	0.00529	0.00635	PASS
	HV	6.14	11.76	0.00327	0.00626	PASS

LTE Band 2						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	Normal
Normal (25°C)	7.49	9.69	0.00399	0.00515		
Extreme (85°C)	5.14	6.78	0.00274	0.00360		
Extreme (80°C)	12.64	5.89	0.00672	0.00313		
Extreme (70°C)	15.83	11.14	0.00842	0.00593		
Extreme (60°C)	13.46	10.59	0.00716	0.00563		
Extreme (50°C)	5.83	14.63	0.00310	0.00778		
Extreme (40°C)	15.96	9.44	0.00849	0.00502		
Extreme (30°C)	4.46	4.81	0.00237	0.00256		
Extreme (20°C)	1.81	9.55	0.00096	0.00508		
Extreme (10°C)	3.17	8.02	0.00168	0.00427		
Extreme (0°C)	4.22	14.67	0.00224	0.00780		
Extreme (-10°C)	6.16	10.08	0.00328	0.00536		
Extreme (-20°C)	13.91	2.71	0.00740	0.00144		
Extreme (-30°C)	9.27	10.05	0.00493	0.00534		
Extreme (-40°C)	17.15	9.81	0.00912	0.00522		
25°C	LV	7.75	13.07	0.00412	0.00695	PASS
	HV	16.61	6.78	0.00884	0.00360	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	Normal
Normal (25°C)	6.64	17.02	0.00353	0.00905		
Extreme (85°C)	12.72	16.43	0.00677	0.00874		
Extreme (80°C)	9.62	10.55	0.00512	0.00561		
Extreme (70°C)	5.29	4.76	0.00282	0.00253		
Extreme (60°C)	7.44	9.22	0.00396	0.00491		
Extreme (50°C)	12.27	15.87	0.00653	0.00844		
Extreme (40°C)	14.71	7.54	0.00783	0.00401		
Extreme (30°C)	3.74	2.24	0.00199	0.00119		



Extreme (20°C)		2.86	2.79	0.00152	0.00148	PASS
Extreme (10°C)		4.74	16.86	0.00252	0.00897	PASS
Extreme (0°C)		9.06	14.58	0.00482	0.00775	PASS
Extreme (-10°C)		2.30	13.44	0.00122	0.00715	PASS
Extreme (-20°C)		10.41	8.41	0.00553	0.00447	PASS
Extreme (-30°C)		7.40	13.07	0.00394	0.00695	PASS
Extreme (-40°C)		7.17	9.09	0.00381	0.00484	PASS
25°C	LV	3.59	13.24	0.00191	0.00704	PASS
	HV	10.74	5.16	0.00571	0.00274	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal		2.20	4.50	0.00117	0.00239	PASS
		12.45	15.68	0.00662	0.00834	PASS
		2.01	5.03	0.00107	0.00267	PASS
		3.20	5.05	0.00170	0.00268	PASS
		1.11	6.23	0.00059	0.00331	PASS
		9.56	10.24	0.00508	0.00545	PASS
		11.39	6.66	0.00606	0.00354	PASS
		12.53	13.08	0.00666	0.00696	PASS
		14.34	7.44	0.00763	0.00396	PASS
		16.11	4.45	0.00857	0.00237	PASS
		17.39	11.00	0.00925	0.00585	PASS
		17.90	16.31	0.00952	0.00868	PASS
		12.16	1.24	0.00647	0.00066	PASS
		11.45	16.73	0.00609	0.00890	PASS
		8.31	10.46	0.00442	0.00557	PASS
25°C	LV	14.94	1.03	0.00795	0.00055	PASS
	HV	4.46	14.85	0.00237	0.00790	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal		12.79	3.04	0.00680	0.00162	PASS
		15.04	1.15	0.00800	0.00061	PASS
		17.20	1.78	0.00915	0.00095	PASS
		15.10	4.54	0.00803	0.00241	PASS
		4.79	6.03	0.00255	0.00321	PASS
		7.20	14.17	0.00383	0.00754	PASS
		8.26	11.12	0.00440	0.00592	PASS



Extreme (30°C)		12.91	6.81	0.00687	0.00362	PASS
Extreme (20°C)		12.21	15.82	0.00649	0.00842	PASS
Extreme (10°C)		17.59	6.35	0.00935	0.00338	PASS
Extreme (0°C)		8.87	8.11	0.00472	0.00432	PASS
Extreme (-10°C)		15.82	10.78	0.00841	0.00573	PASS
Extreme (-20°C)		12.16	16.66	0.00647	0.00886	PASS
Extreme (-30°C)		5.04	1.11	0.00268	0.00059	PASS
Extreme (-40°C)		9.51	9.73	0.00506	0.00517	PASS
25°C	LV	9.09	2.66	0.00484	0.00142	PASS
	HV	2.06	10.20	0.00110	0.00543	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	10.53	15.87	0.00560	0.00844	PASS
Extreme (85°C)		11.96	2.44	0.00636	0.00130	PASS
Extreme (80°C)		3.88	5.68	0.00207	0.00302	PASS
Extreme (70°C)		6.24	8.91	0.00332	0.00474	PASS
Extreme (60°C)		8.97	11.82	0.00477	0.00629	PASS
Extreme (50°C)		3.56	1.43	0.00190	0.00076	PASS
Extreme (40°C)		7.59	9.89	0.00404	0.00526	PASS
Extreme (30°C)		15.26	14.79	0.00812	0.00786	PASS
Extreme (20°C)		16.63	17.81	0.00885	0.00947	PASS
Extreme (10°C)		13.69	17.66	0.00728	0.00940	PASS
Extreme (0°C)		6.69	10.19	0.00356	0.00542	PASS
Extreme (-10°C)		6.92	13.92	0.00368	0.00740	PASS
Extreme (-20°C)		7.59	13.77	0.00404	0.00733	PASS
Extreme (-30°C)		14.32	16.67	0.00762	0.00887	PASS
Extreme (-40°C)		1.79	11.28	0.00095	0.00600	PASS
25°C	LV	12.22	2.74	0.00650	0.00146	PASS
	HV	5.11	6.87	0.00272	0.00365	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	3.02	1.74	0.00161	0.00093	PASS
Extreme (85°C)		3.71	10.92	0.00197	0.00581	PASS
Extreme (80°C)		5.79	4.54	0.00308	0.00242	PASS
Extreme (70°C)		9.64	11.94	0.00513	0.00635	PASS
Extreme (60°C)		9.06	15.22	0.00482	0.00809	PASS
Extreme (50°C)		8.83	11.86	0.00470	0.00631	PASS



Extreme (40°C)		6.65	3.17	0.00354	0.00169	PASS
Extreme (30°C)		14.48	5.88	0.00770	0.00313	PASS
Extreme (20°C)		13.30	10.27	0.00707	0.00546	PASS
Extreme (10°C)		11.93	14.22	0.00635	0.00756	PASS
Extreme (0°C)		4.49	11.97	0.00239	0.00636	PASS
Extreme (-10°C)		11.18	15.48	0.00595	0.00824	PASS
Extreme (-20°C)		9.52	8.76	0.00507	0.00466	PASS
Extreme (-30°C)		9.15	2.14	0.00487	0.00114	PASS
Extreme (-40°C)		11.97	14.58	0.00637	0.00775	PASS
25°C	LV	3.82	11.88	0.00203	0.00632	PASS
	HV	6.86	8.68	0.00365	0.00462	PASS

## 5.7.Spurious Emissions at Antenna Terminals

### Ambient condition

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

### Method of Measurement

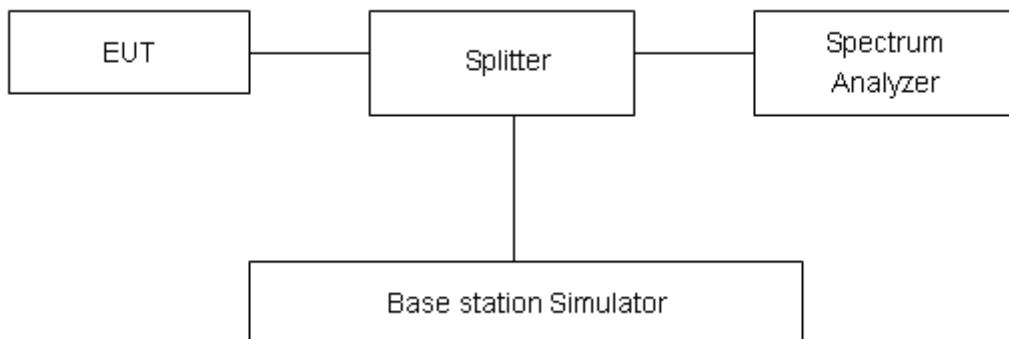
The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

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.

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  $43 + 10 \log_{10} (P)$  dB.”

Limit	-13 dBm
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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  $k = 1.96$ .

Frequency	Uncertainty
9kHz-1GHz	0.684 dB



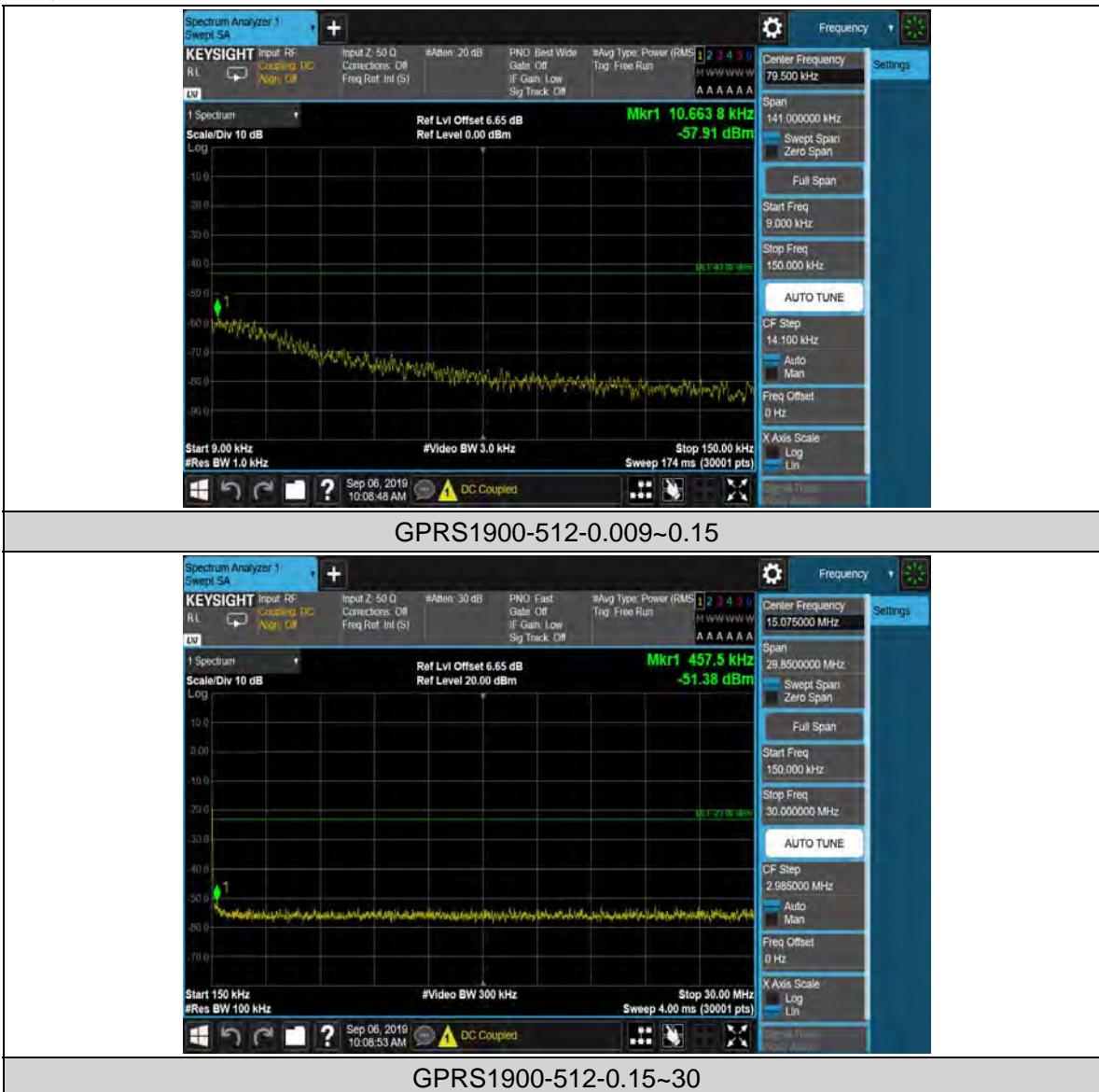
1GHz-20GHz	1.407 dB
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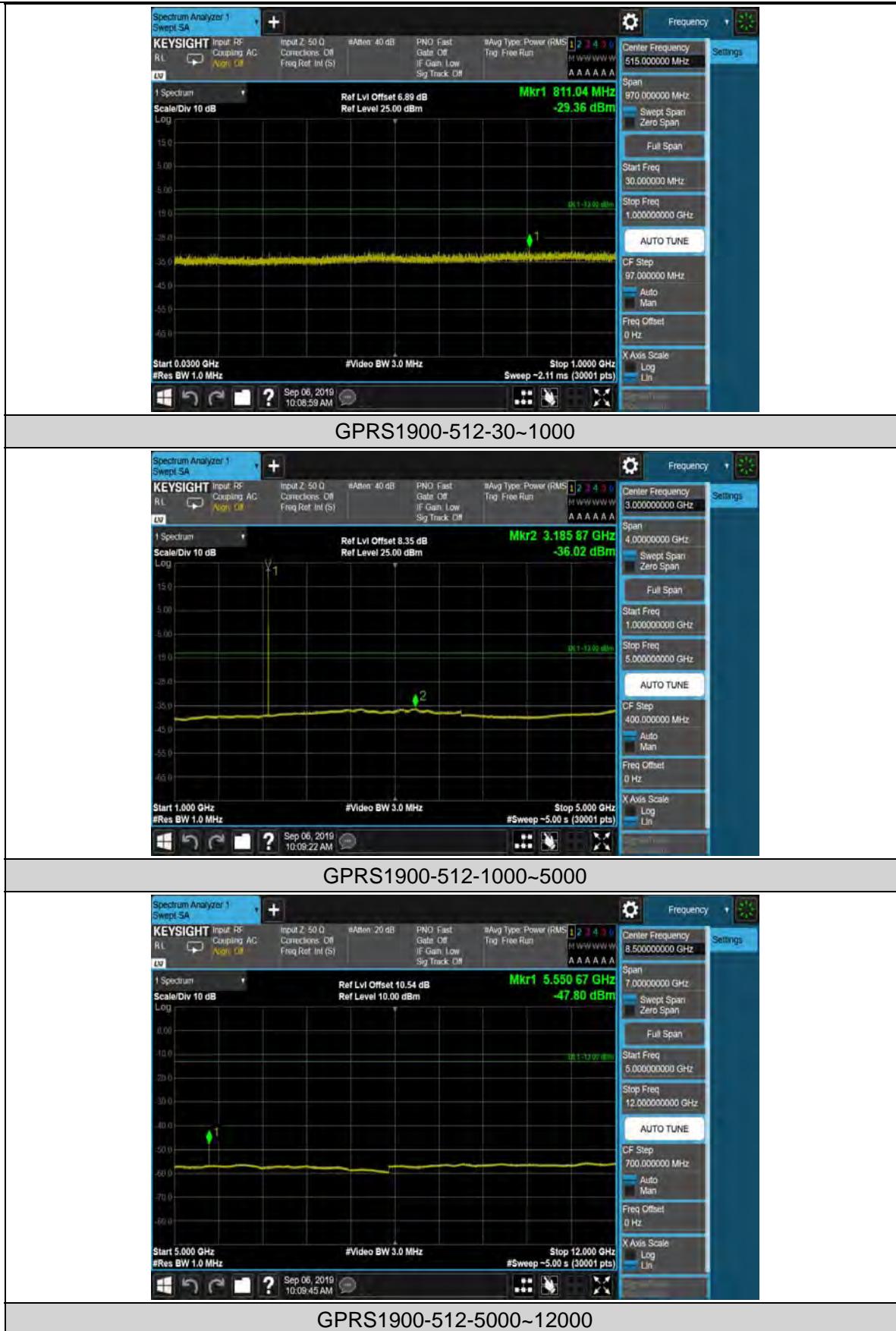


## Test Result

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.

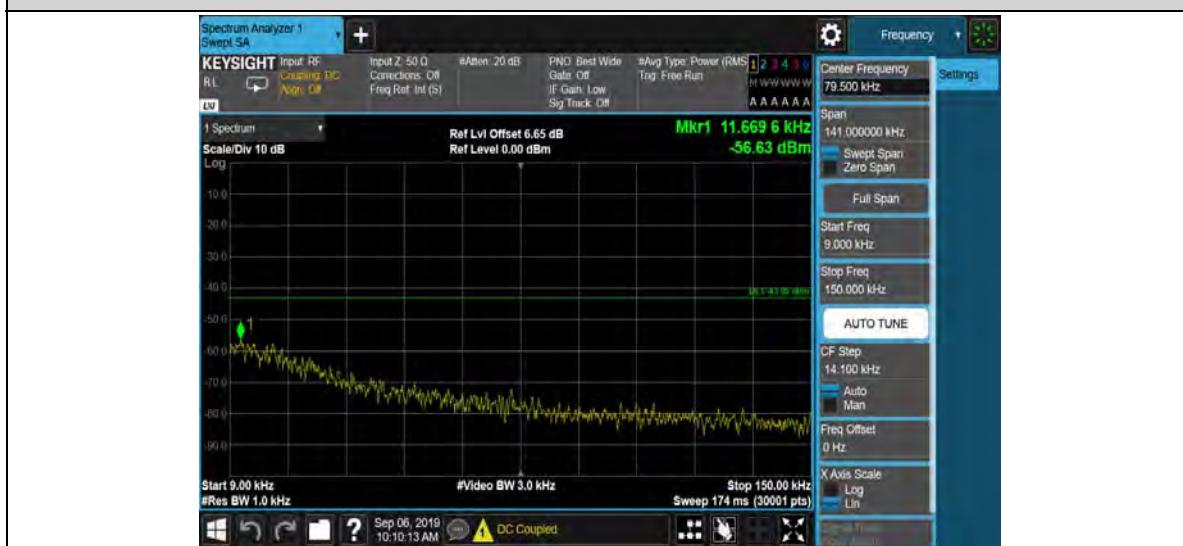
The signal beyond the limit is carrier.







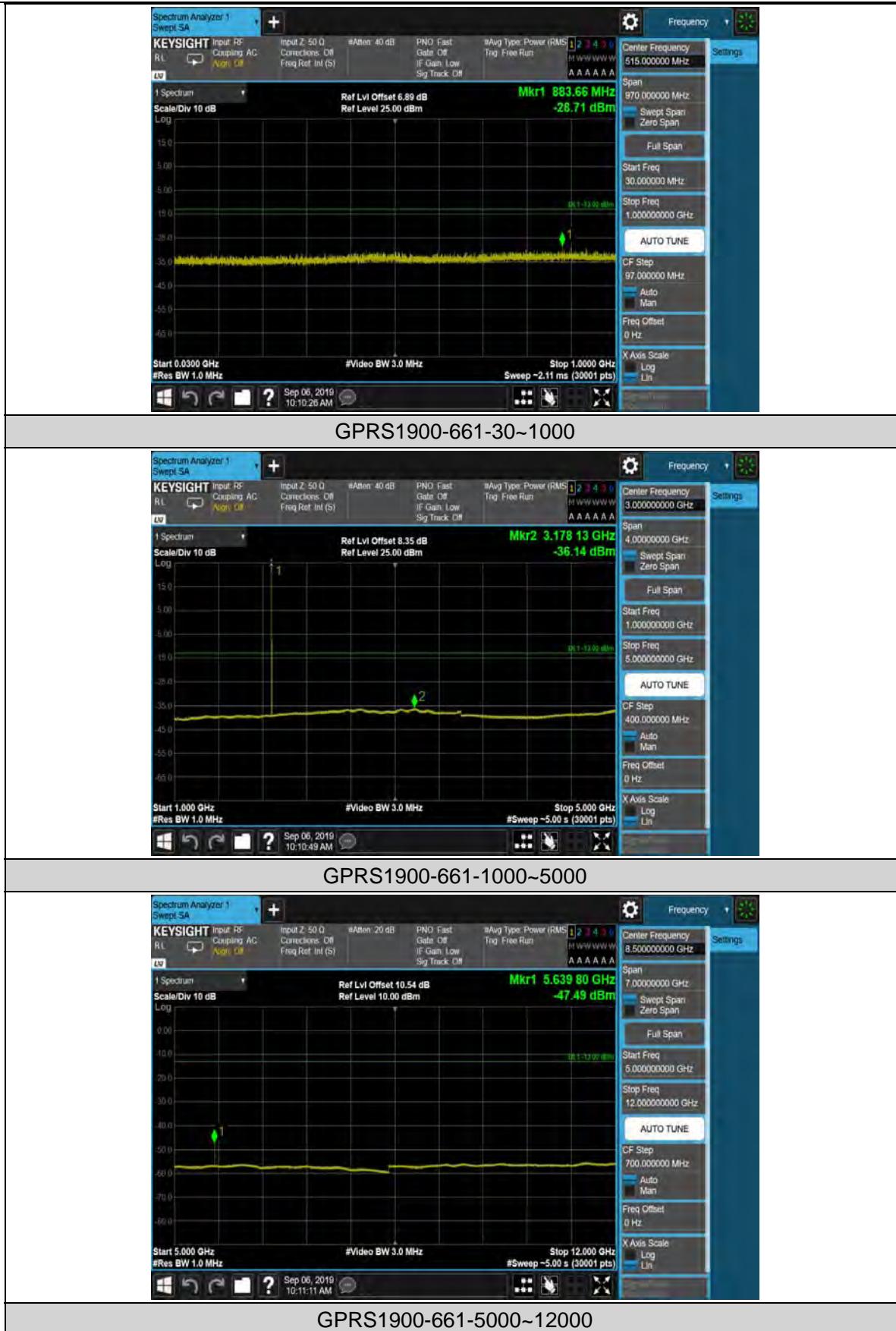
GPRS1900-512-12000~26500



GPRS1900-661-0.009~0.15



GPRS1900-661-0.15~30

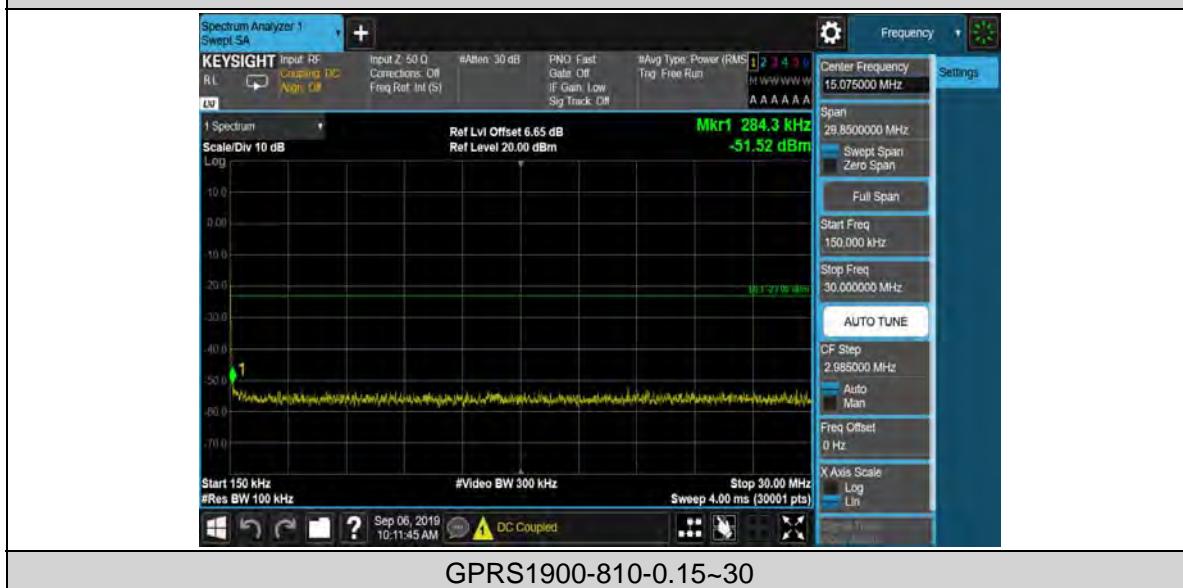




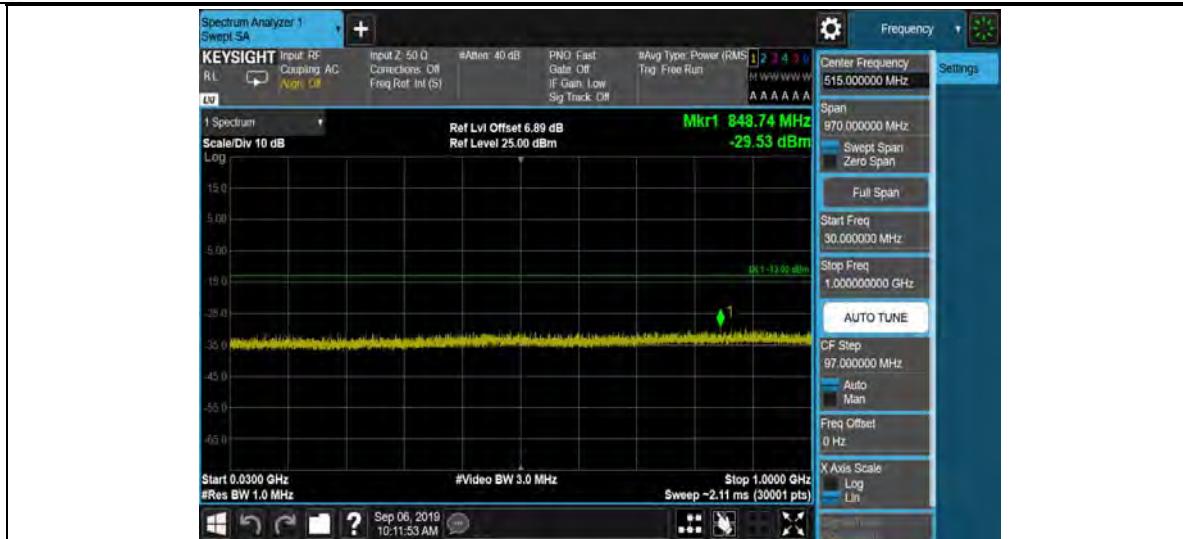
GPRS1900-661-12000~26500



GPRS1900-810-0.009~0.15



GPRS1900-810-0.15~30



GPRS1900-810-30~1000



GPRS1900-810-1000~5000



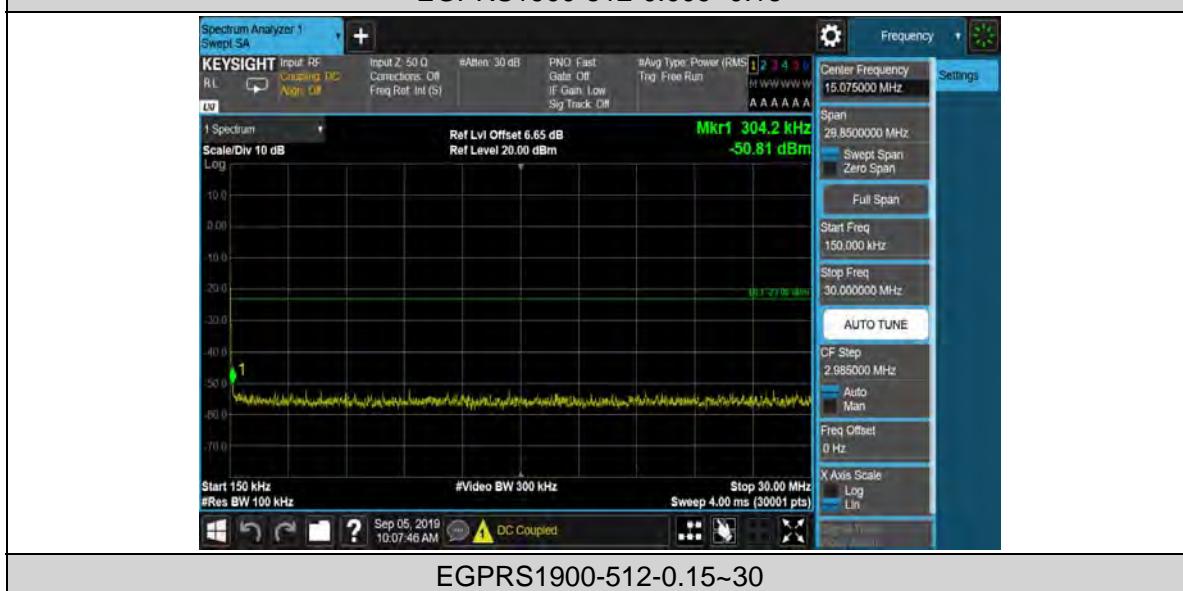
GPRS1900-810-5000~12000



GPRS1900-810-12000~26500



EGPRS1900-512-0.009~0.15



EGPRS1900-512-0.15~30



EGPRS1900-512-30~1000



EGPRS1900-512-1000~5000



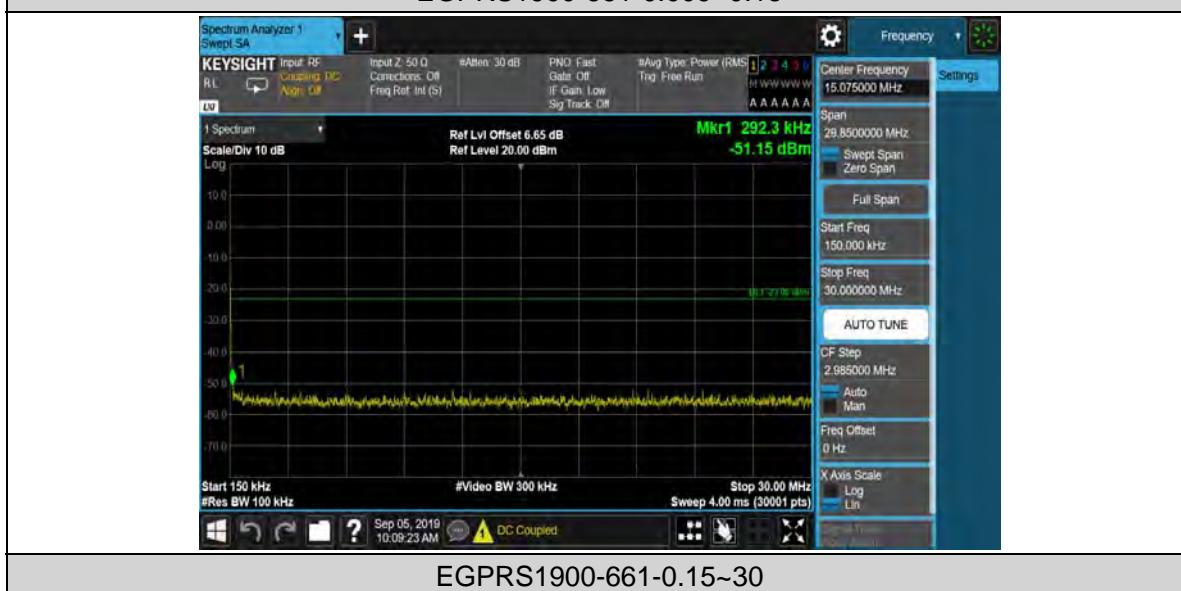
EGPRS1900-512-5000~12000



EGPRS1900-512-12000~26500



EGPRS1900-661-0.009~0.15



EGPRS1900-661-0.15~30



EGPRS1900-661-30~1000



EGPRS1900-661-1000~5000



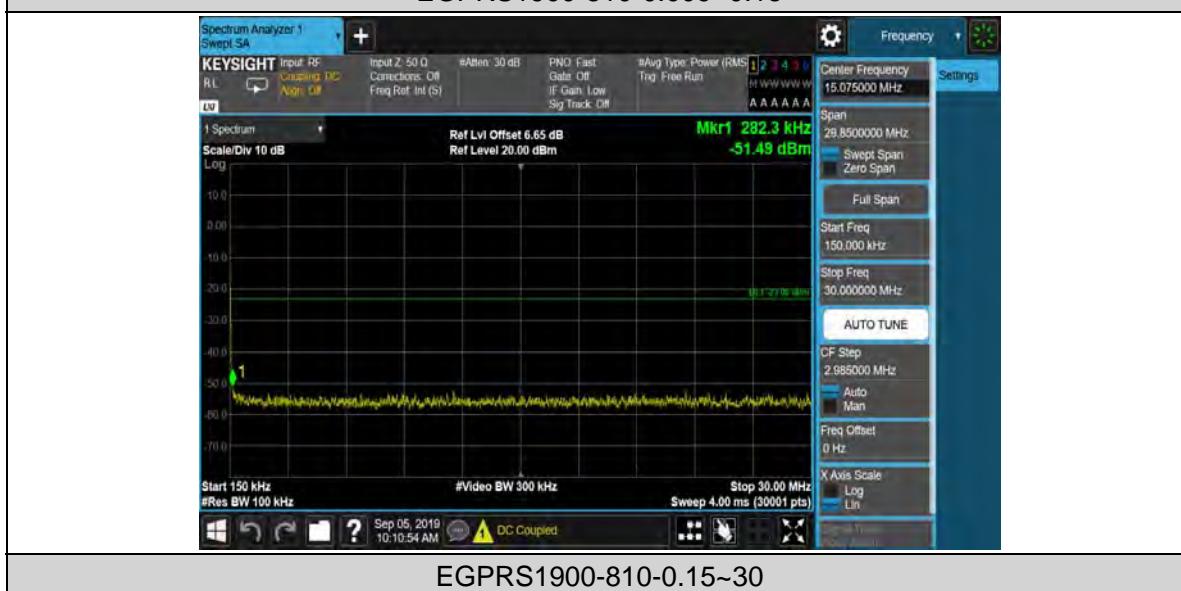
EGPRS1900-661-5000~12000



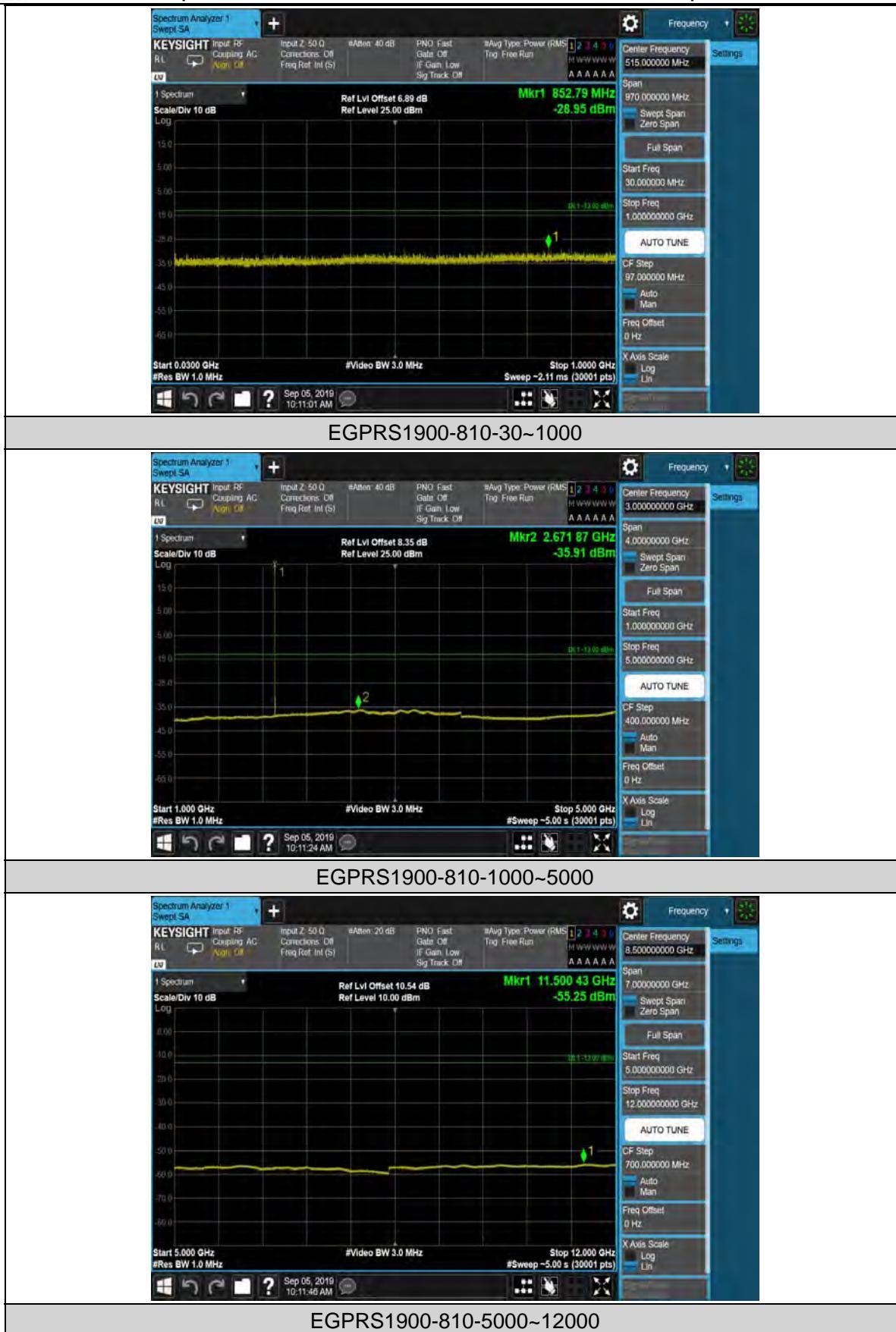
EGPRS1900-661-12000~26500



EGPRS1900-810-0.009~0.15



EGPRS1900-810-0.15~30

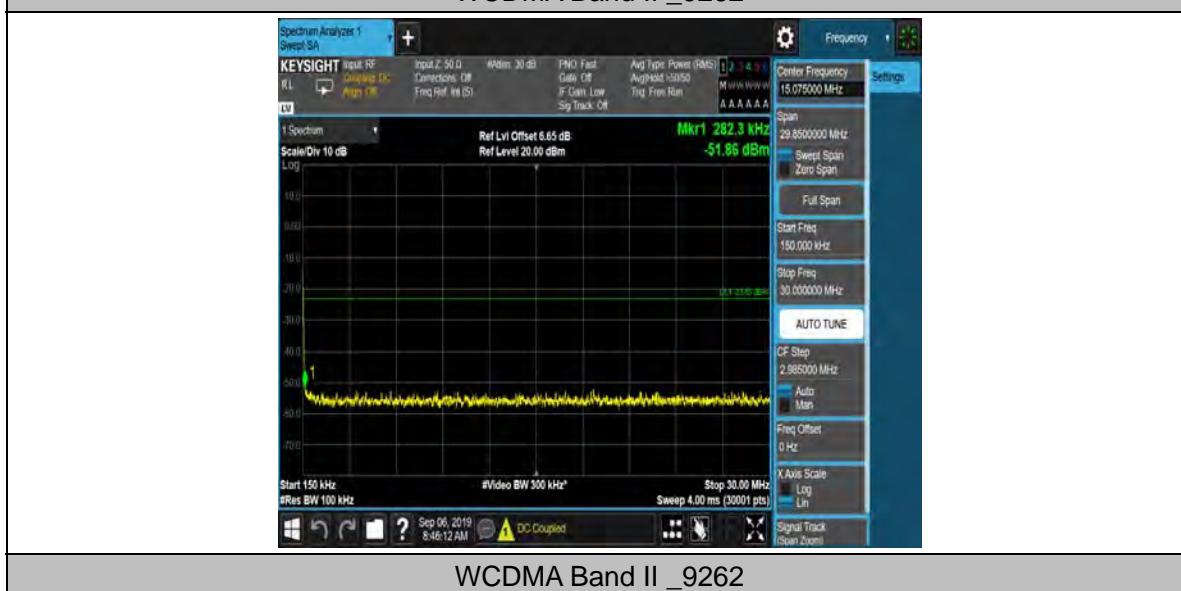




EGPRS1900-810-12000~26500



WCDMA Band II \_9262



WCDMA Band II \_9262



WCDMA Band II \_9262



WCDMA Band II \_9262



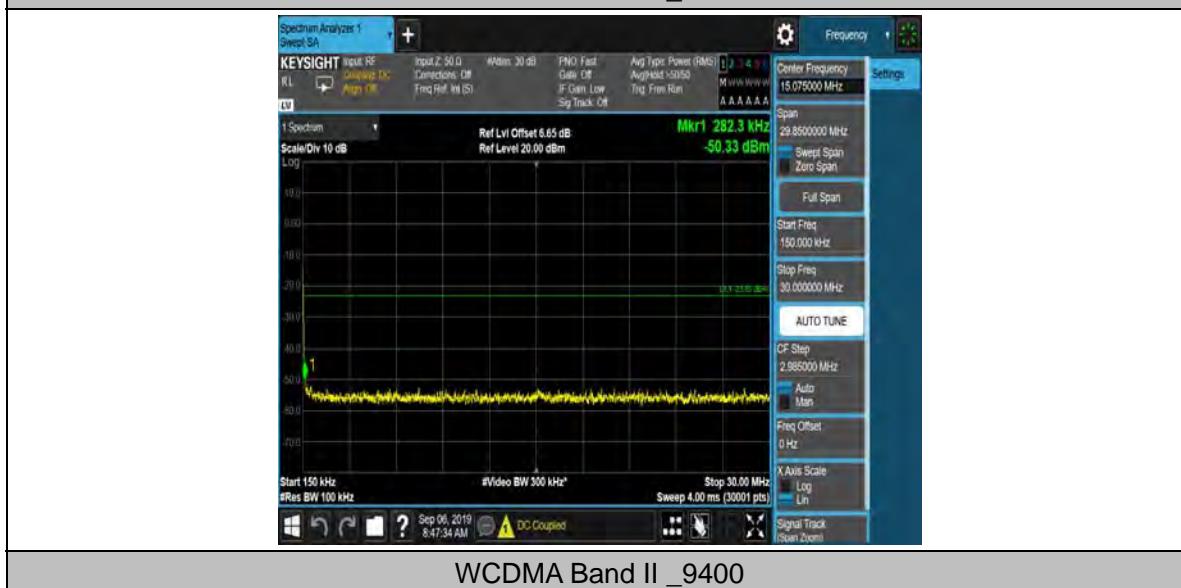
WCDMA Band II \_9262



WCDMA Band II \_9262



WCDMA Band II \_9400



WCDMA Band II \_9400







WCDMA Band II \_9538



WCDMA Band II \_9538



WCDMA Band II \_9538





## LTE Band 2\_1.4MHz\_QPSK\_18607\_1RB#0\_Range1:0.009~0.15MHz\_-63.19\_PASS



## LTE Band 2\_1.4MHz\_QPSK\_18607\_1RB#0\_Range2:0.15~30MHz\_-59.12\_PASS



## LTE Band 2\_1.4MHz\_QPSK\_18607\_1RB#0\_Range3:30~1000MHz\_-47.44\_PASS



## LTE Band 2\_1.4MHz\_QPSK\_18607\_1RB#0\_Range4:1000~5000MHz\_-54.55\_PASS





LTE Band 2\_1.4MHz\_16QAM\_18607\_1RB#0\_Range2:0.15~30MHz\_-56.7\_PASS



LTE Band 2\_1.4MHz\_16QAM\_18607\_1RB#0\_Range3:30~1000MHz\_-46.58\_PASS



LTE Band 2\_1.4MHz\_16QAM\_18607\_1RB#0\_Range4:1000~5000MHz\_-54.33\_PASS



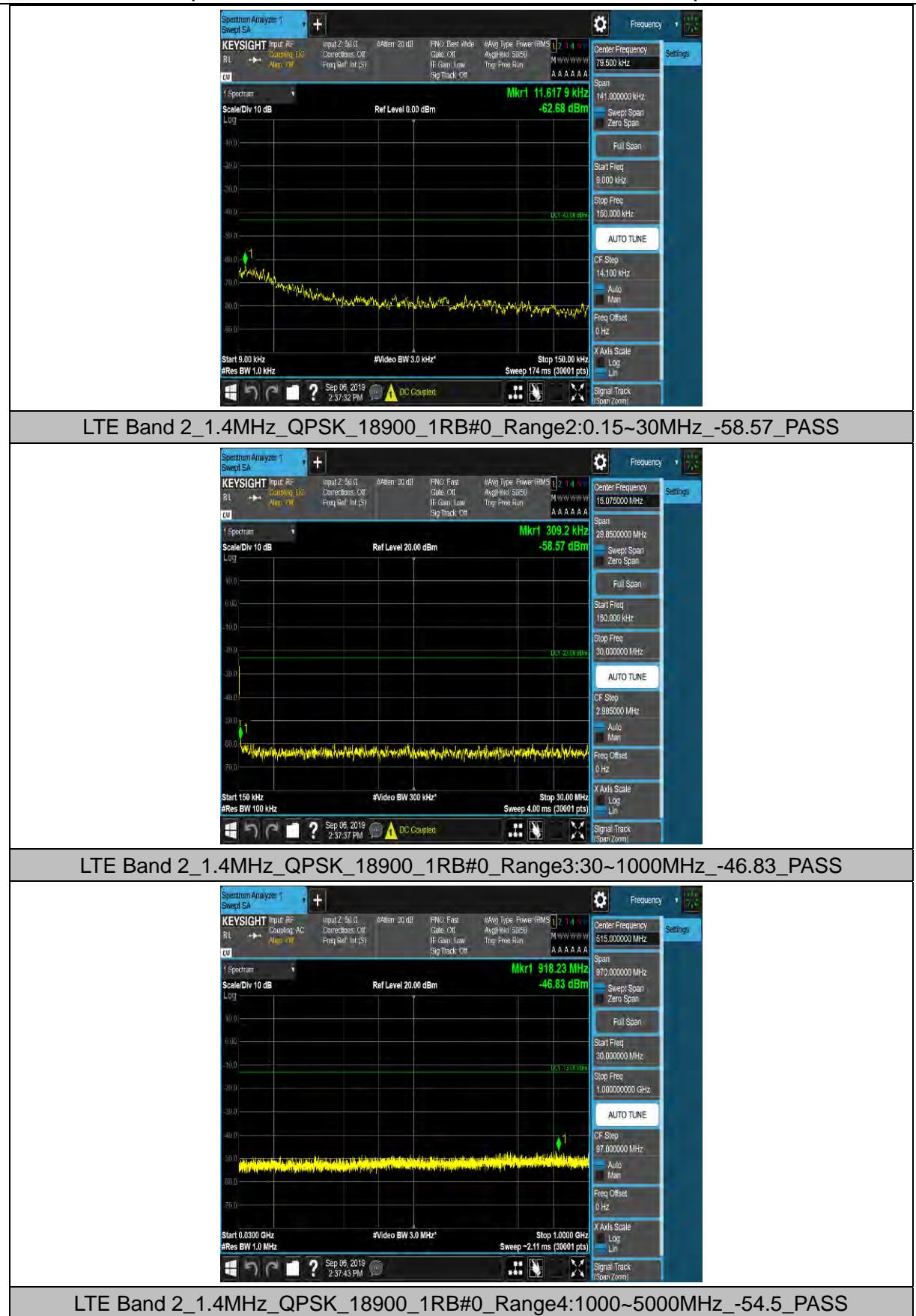
LTE Band 2\_1.4MHz\_16QAM\_18607\_1RB#0\_Range5:5000~12000MHz\_-65.56\_PASS



LTE Band 2\_1.4MHz\_16QAM\_18607\_1RB#0\_Range6:12000~18000MHz\_-55.37\_PASS



LTE Band 2\_1.4MHz\_QPSK\_18900\_1RB#0\_Range1:0.009~0.15MHz\_-62.68\_PASS





LTE Band 2\_1.4MHz\_QPSK\_18900\_1RB#0\_Range5:5000~12000MHz\_-65.05\_PASS



LTE Band 2\_1.4MHz\_QPSK\_18900\_1RB#0\_Range6:12000~18000MHz\_-55.35\_PASS



LTE Band 2\_1.4MHz\_16QAM\_18900\_1RB#0\_Range1:0.009~0.15MHz\_-61.09\_PASS

