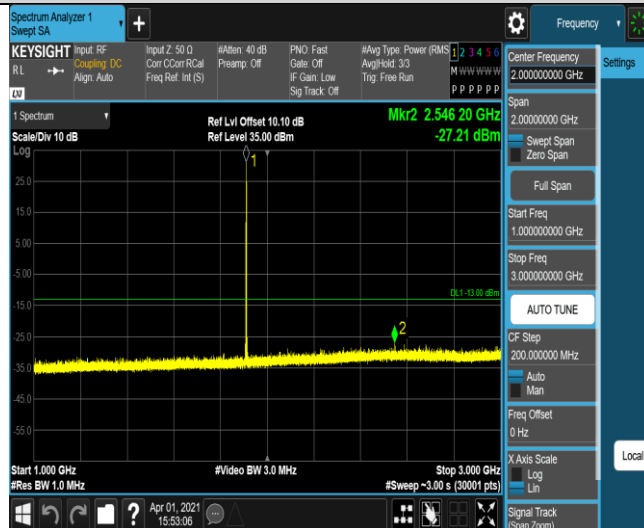
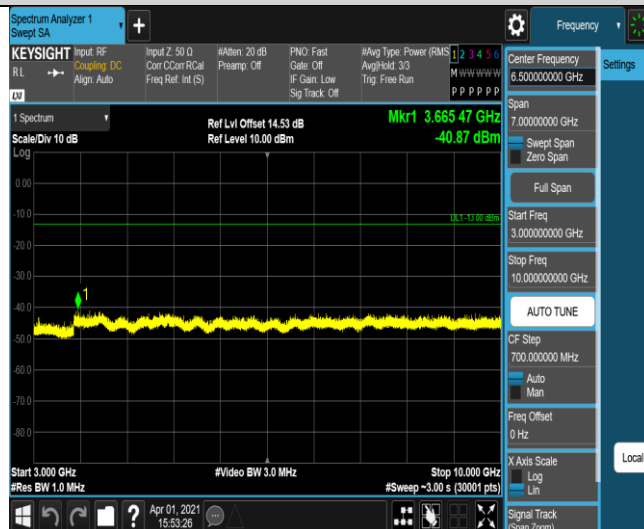


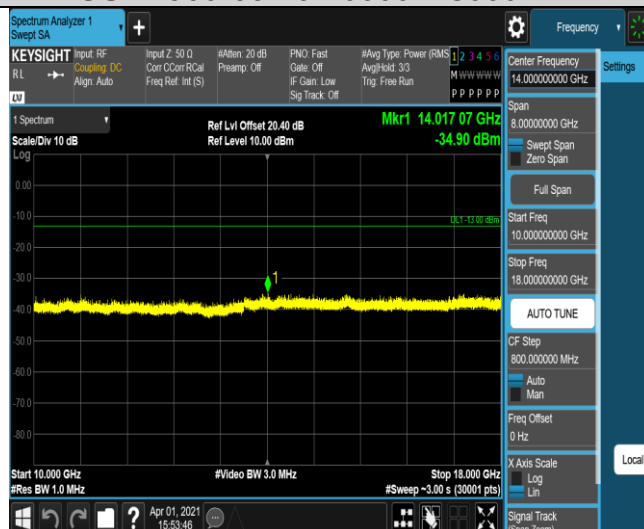
GSM1900-661-0-1000~3000MHz



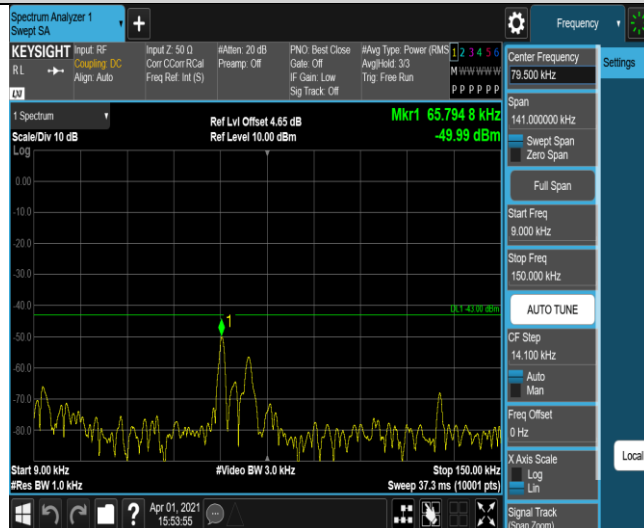
GSM1900-661-0-3000~10000MHz



GSM1900-661-0-10000~18000MHz



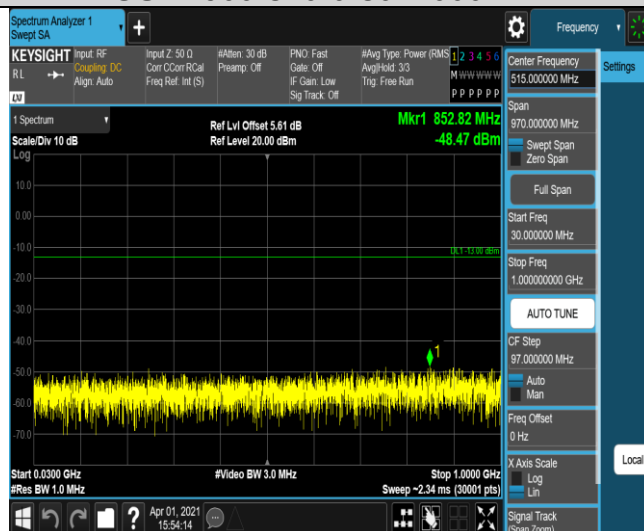
GSM1900-810-0-0.009~0.15MHz



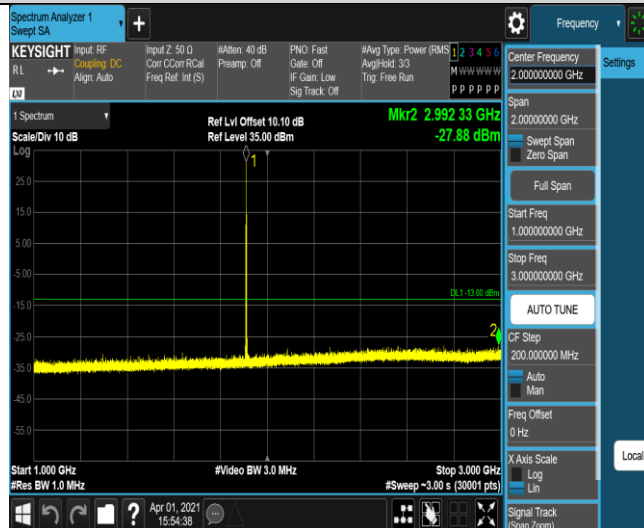
GSM1900-810-0-0.15~30MHz



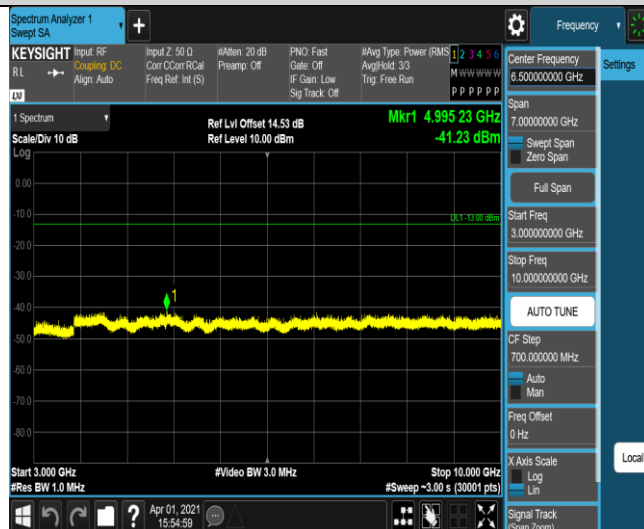
GSM1900-810-0-30~1000MHz



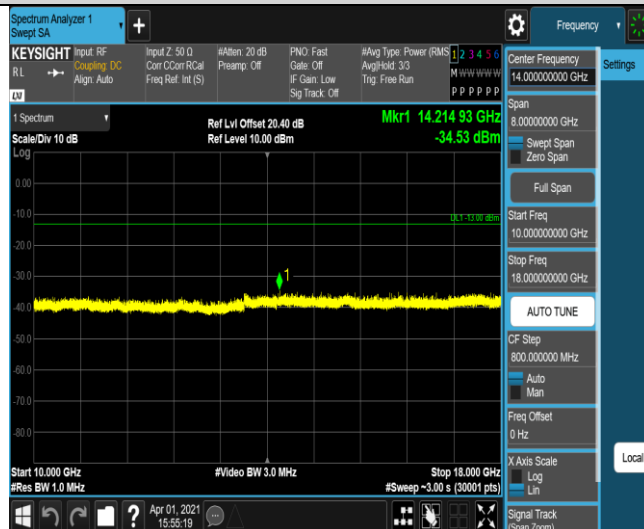
GSM1900-810-0-1000~3000MHz



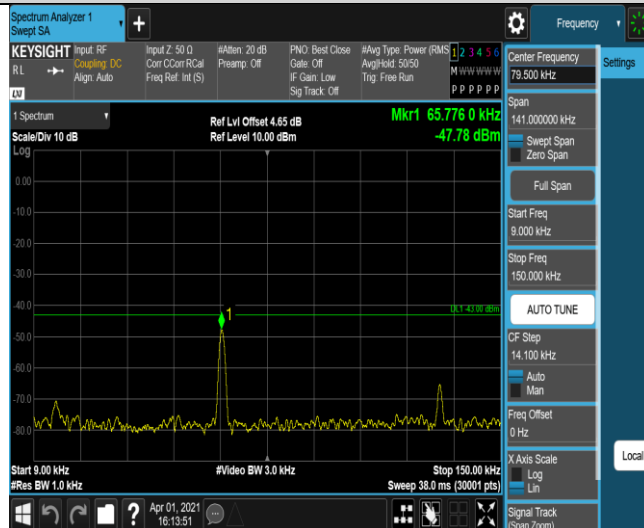
GSM1900-810-0-3000~10000MHz



GSM1900-810-0-10000~18000MHz



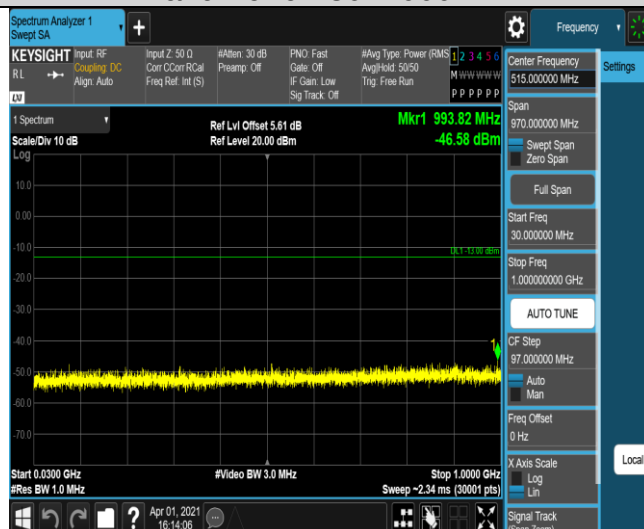
Band2-9262-0.009~0.15MHz



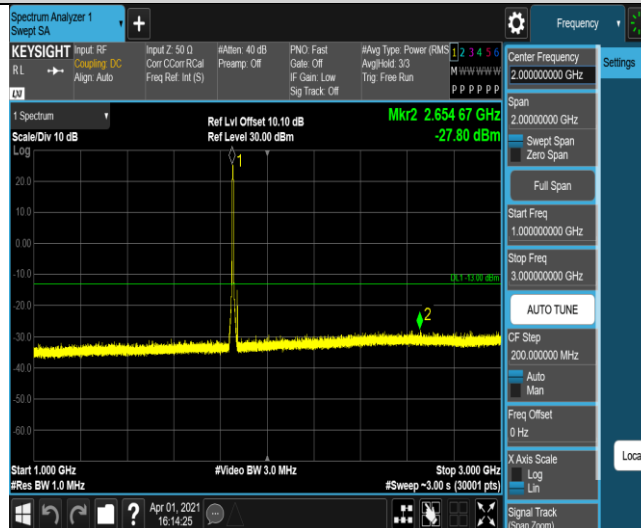
Band2-9262-0.15~30MHz



Band2-9262-30~1000MHz



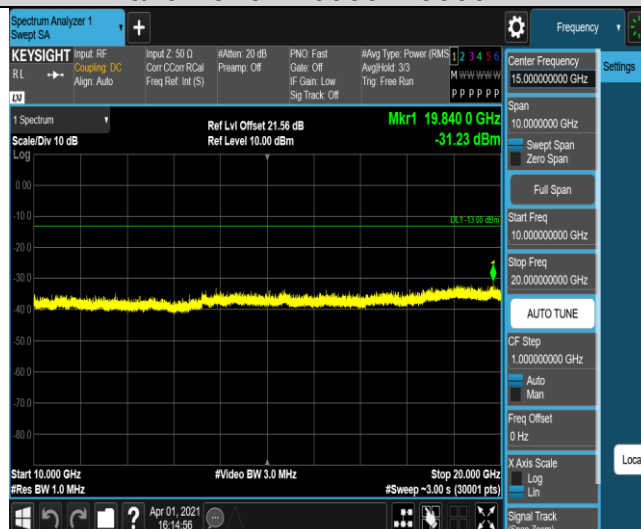
Band2-9262-1000~3000MHz



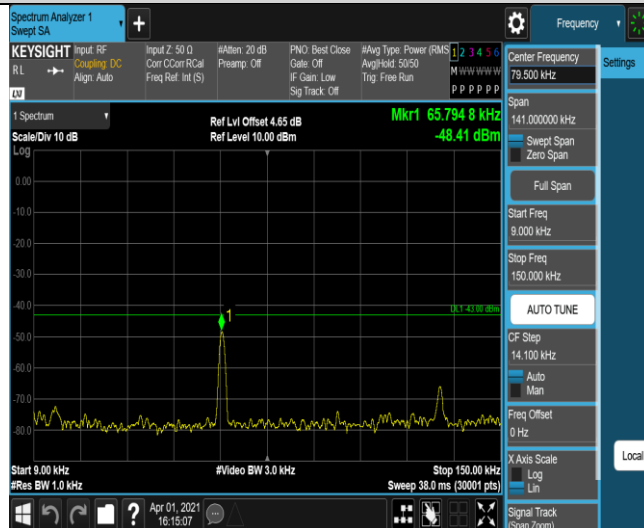
Band2-9262-3000~10000MHz



Band2-9262-10000~20000MHz



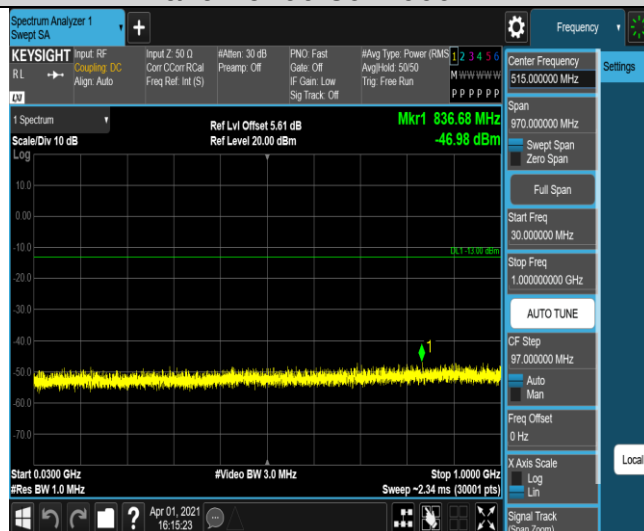
Band2-9400-0.009~0.15MHz



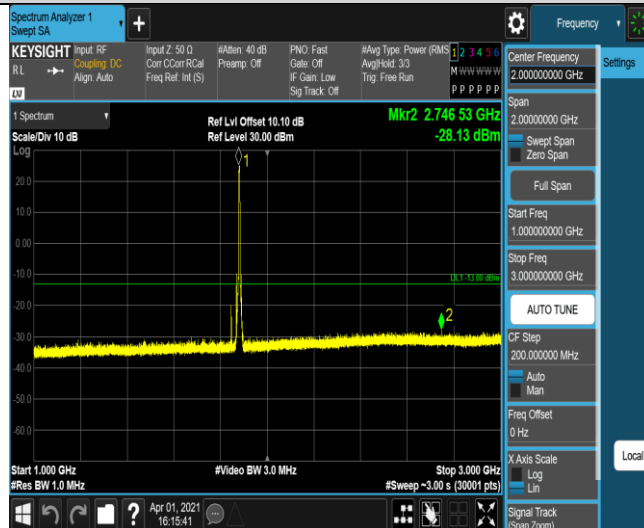
Band2-9400-0.15~30MHz



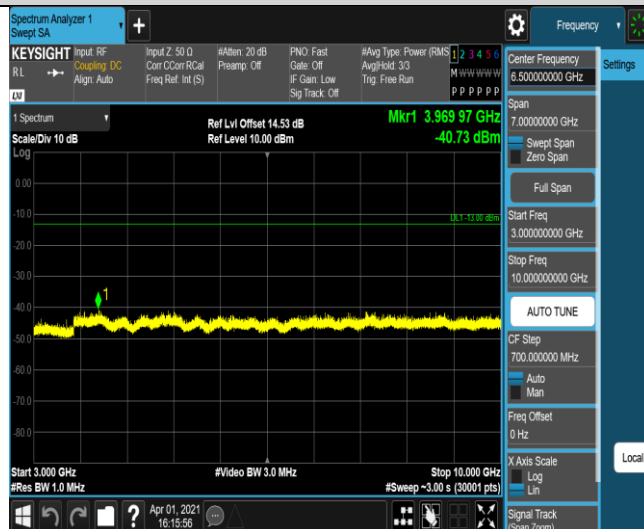
Band2-9400-30~1000MHz



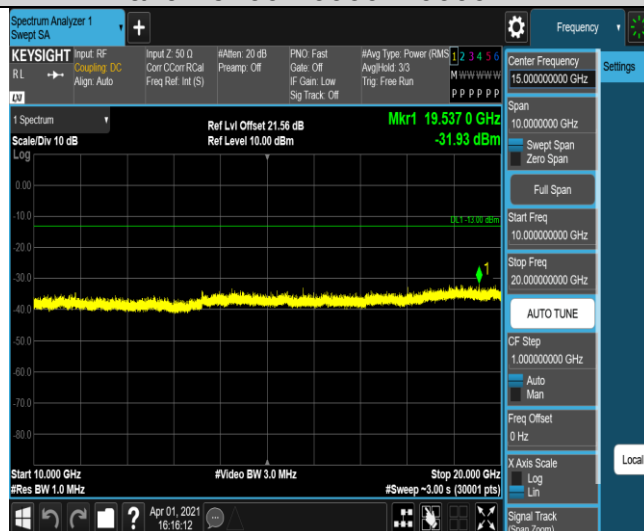
Band2-9400-1000~3000MHz



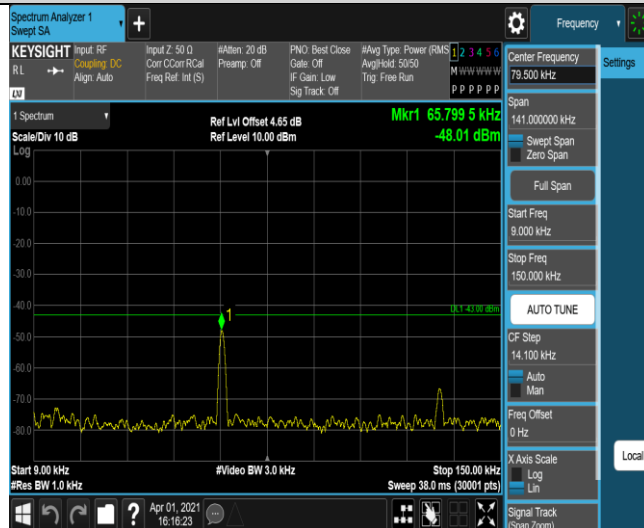
Band2-9400-3000~10000MHz



Band2-9400-10000~20000MHz



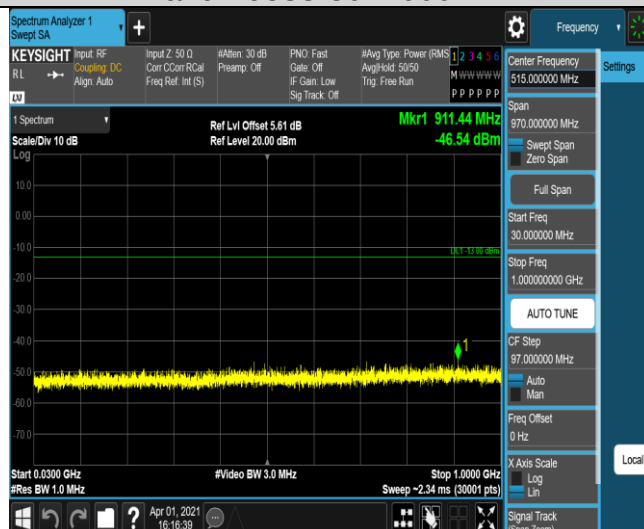
Band2-9538-0.009~0.15MHz



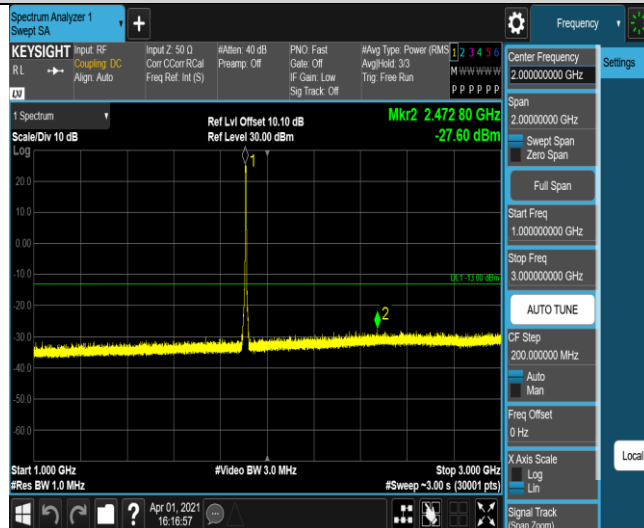
Band2-9538-0.15~30MHz



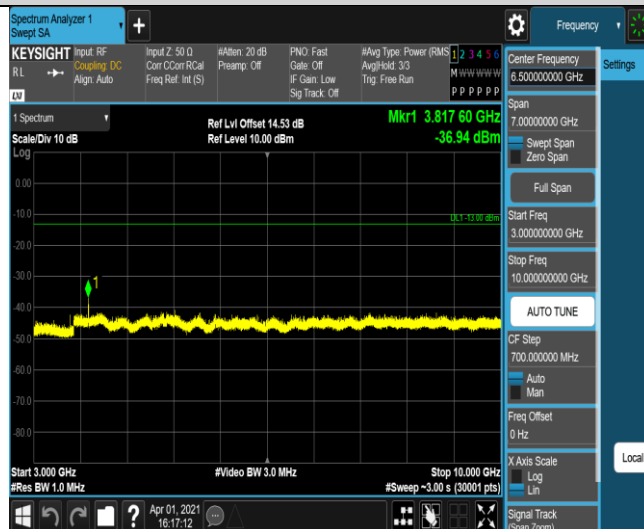
Band2-9538-30~1000MHz



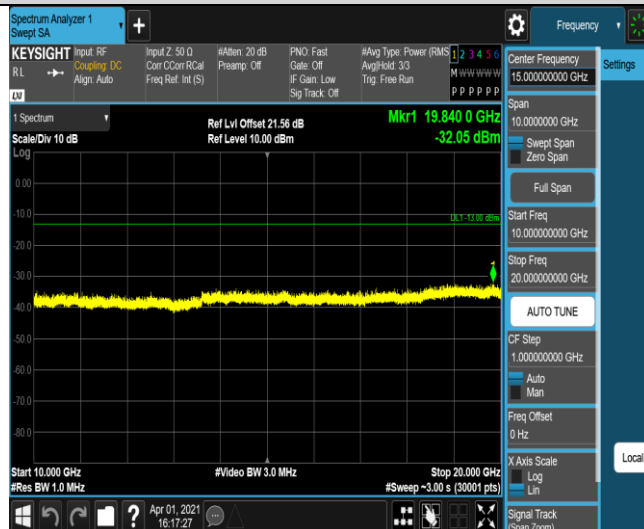
Band2-9538-1000~3000MHz



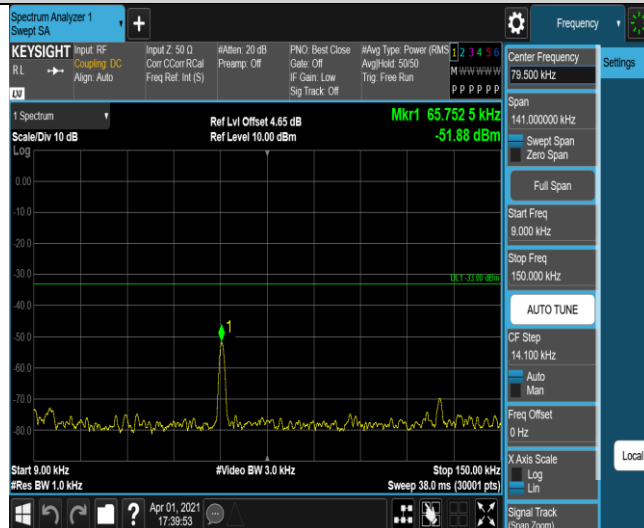
Band2-9538-3000~10000MHz



Band2-9538-10000~20000MHz



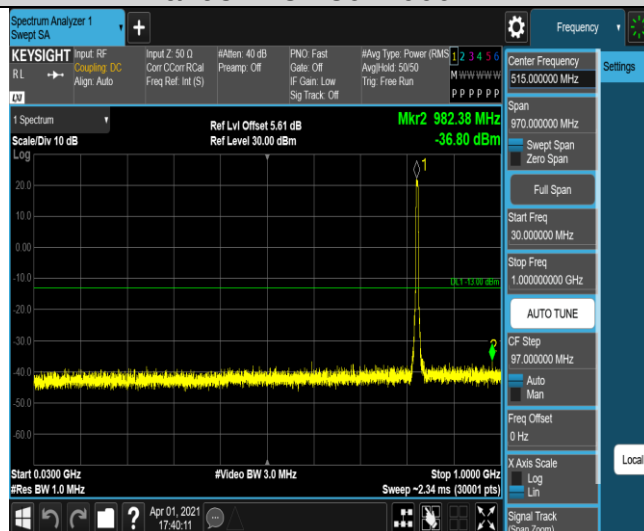
Band5-4132-0.009~0.15MHz



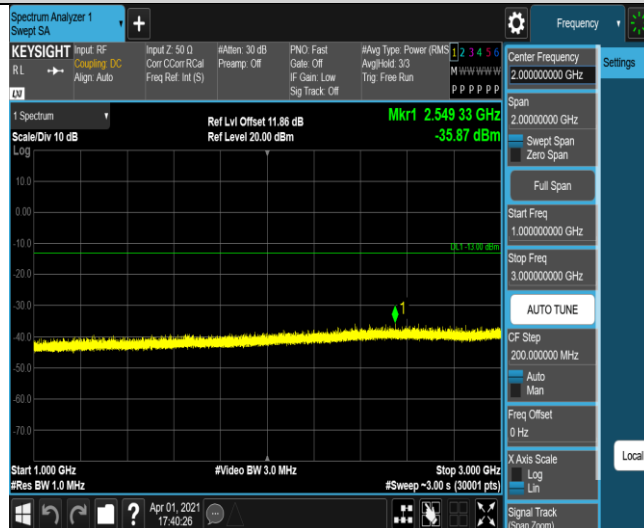
Band5-4132-0.15~30MHz



Band5-4132-30~1000MHz



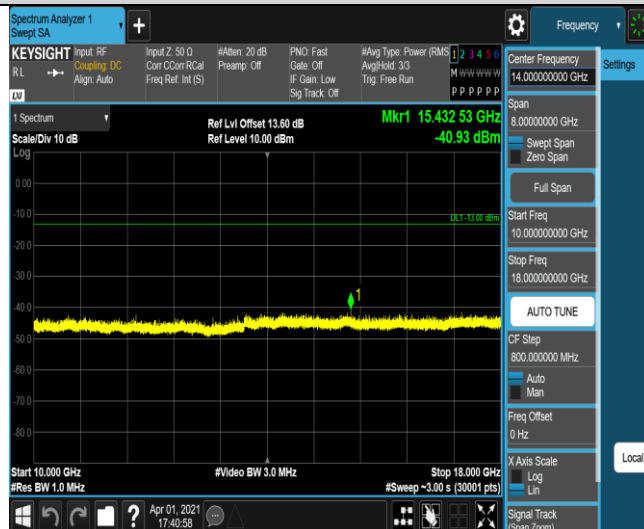
Band5-4132-1000~3000MHz



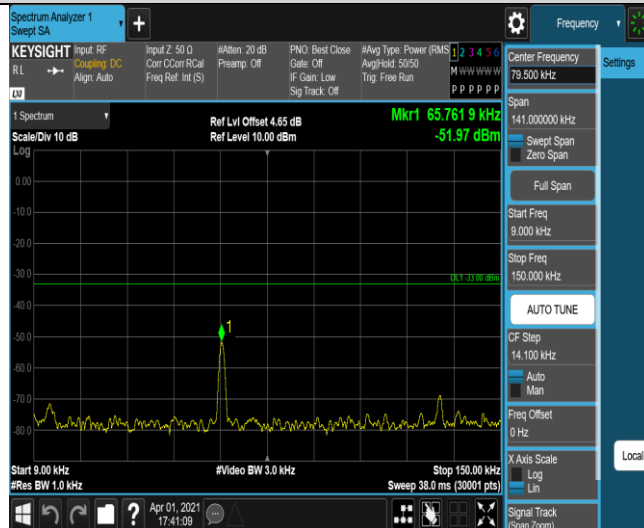
Band5-4132-3000~10000MHz



Band5-4132-10000~18000MHz



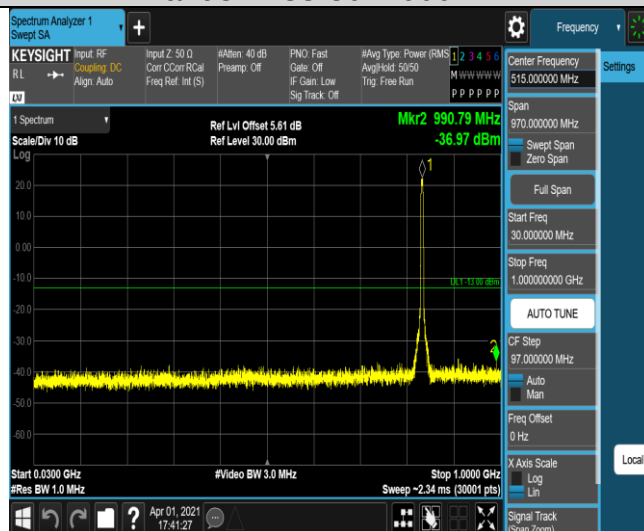
Band5-4183-0.009~0.15MHz



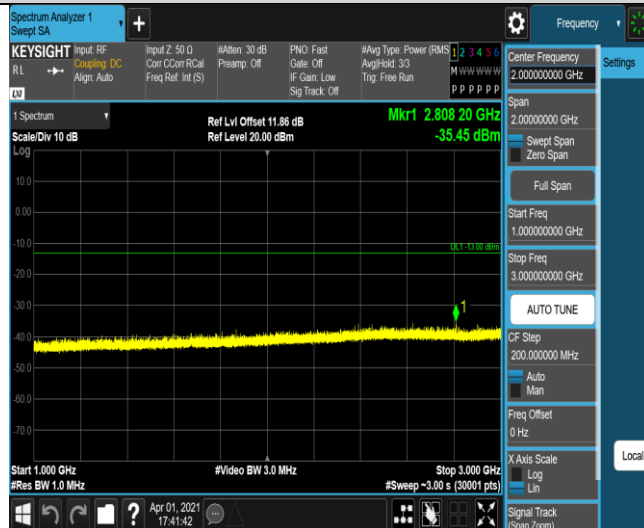
Band5-4183-0.15~30MHz



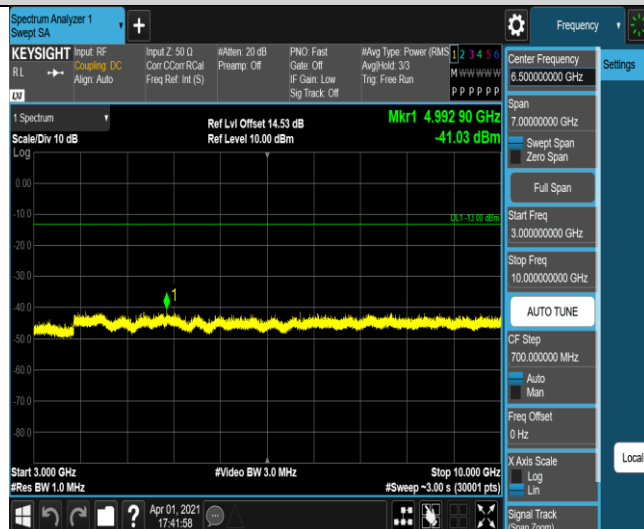
Band5-4183-30~1000MHz



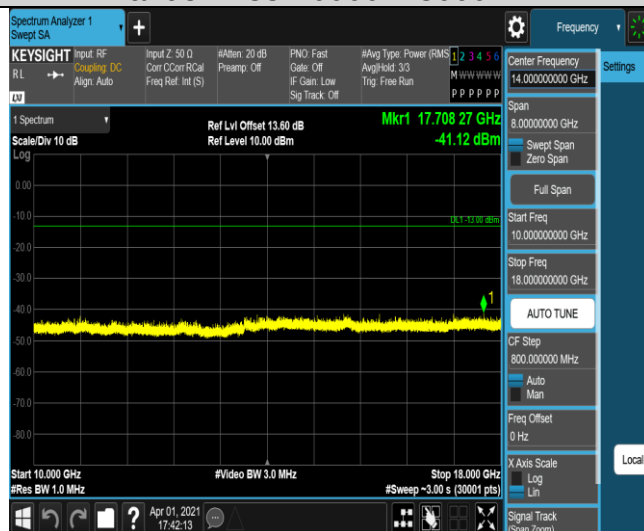
Band5-4183-1000~3000MHz



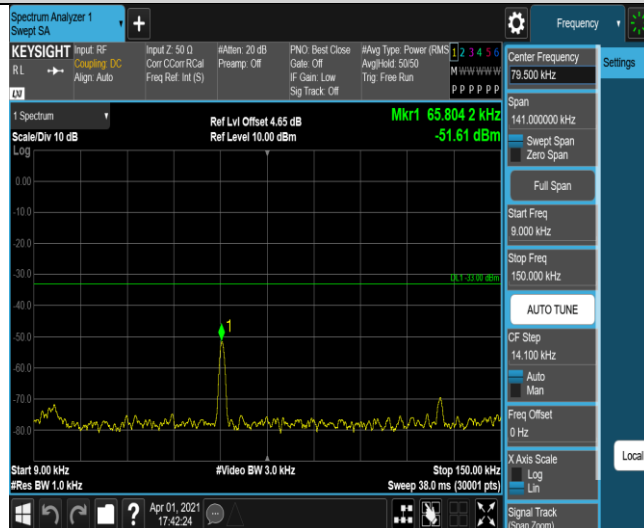
Band5-4183-3000~10000MHz



Band5-4183-10000~18000MHz



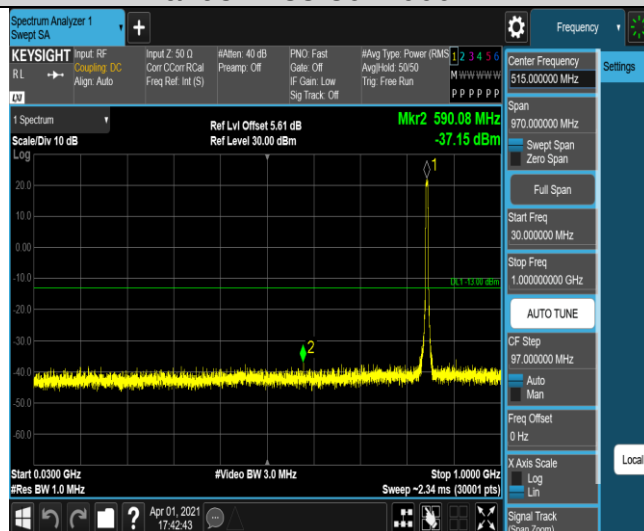
Band5-4233-0.009~0.15MHz



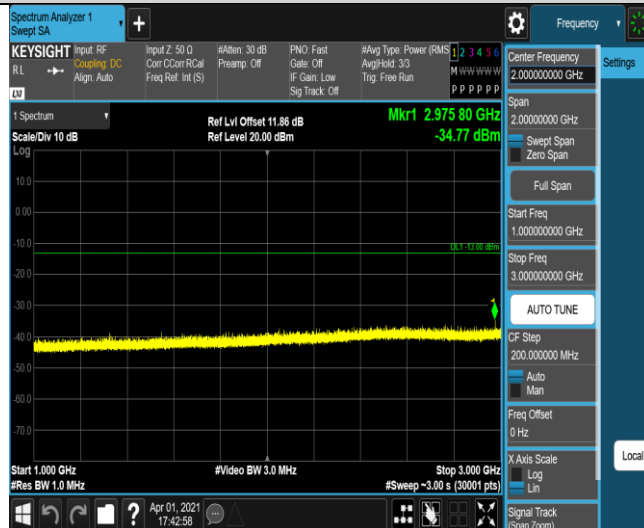
Band5-4233-0.15~30MHz



Band5-4233-30~1000MHz



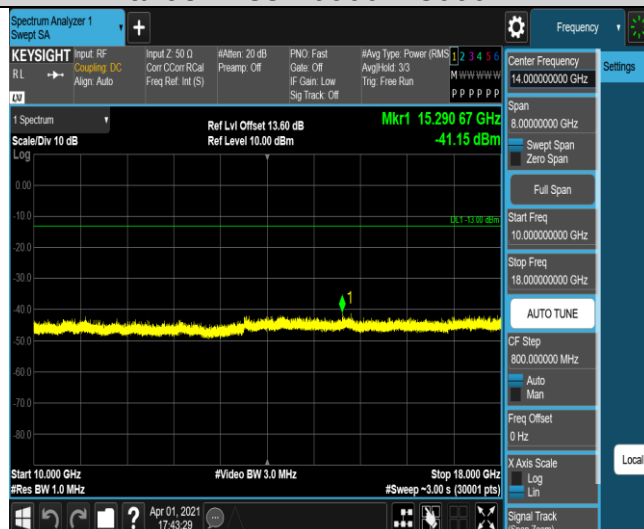
Band5-4233-1000~3000MHz



Band5-4233-3000~10000MHz



Band5-4233-10000~18000MHz



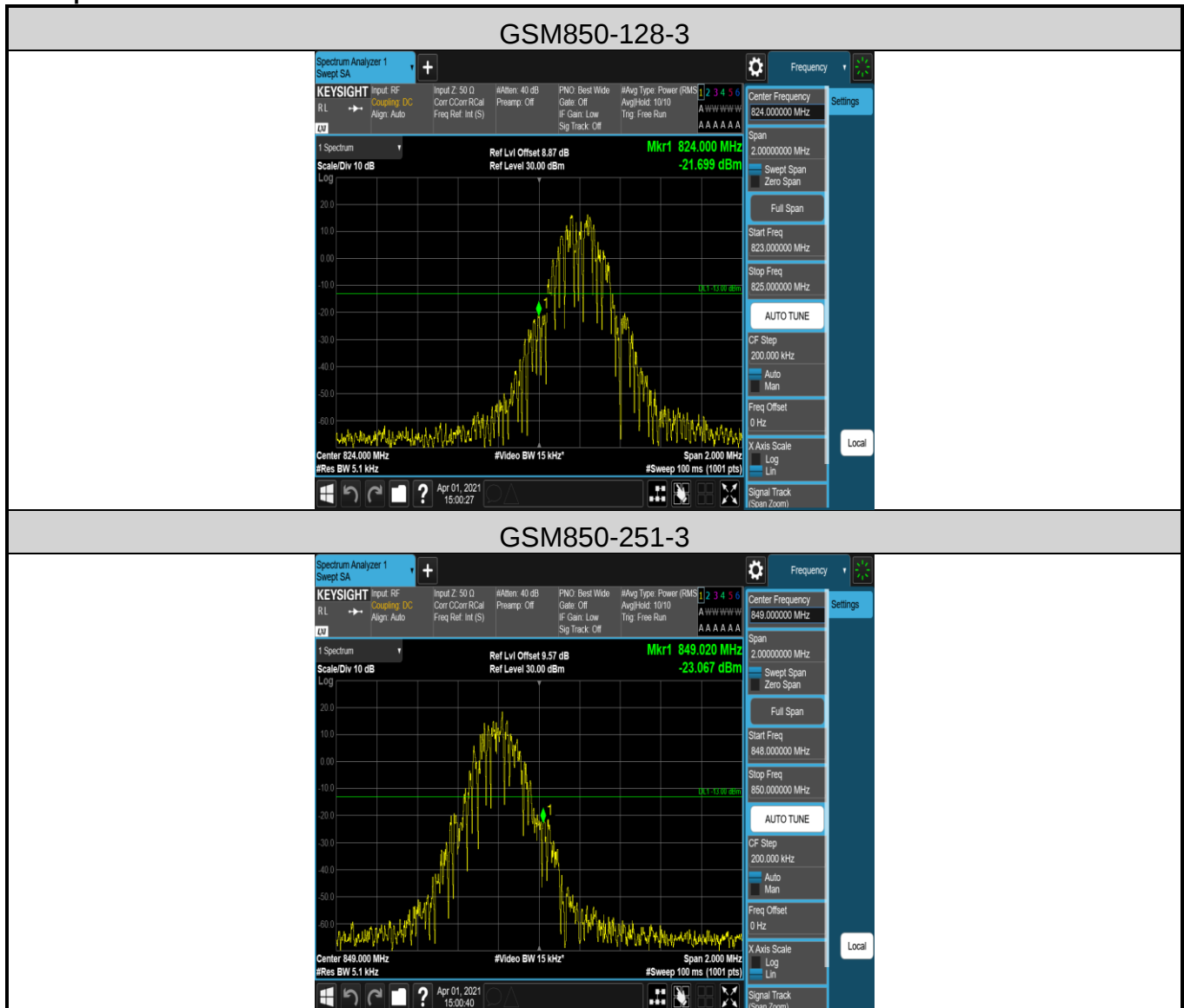
Band edge emission:

Measurement Data:

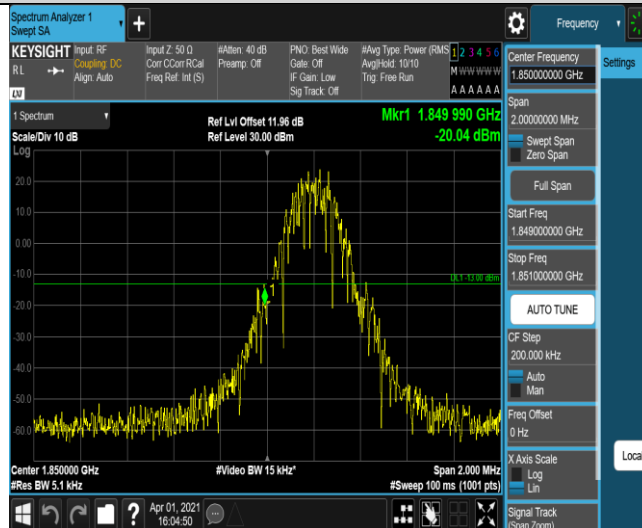
Band	Channel	PCL	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GSM850	128	3	824.00	-19.93	-13	PASS
GSM850	251	3	849.02	-20.55	-13	PASS
GSM1900	512	0	1849.99	-13.06	-13	PASS
GSM1900	810	0	1910.01	-15.78	-13	PASS

Band	Channel	Frequency (MHz)	Result (dBm)	Limit(dBm)	Verdict
Band2	9262	1850.00	-15.20	-13	PASS
Band2	9538	1910.00	-15.87	-13	PASS
Band5	4132	824.00	-15.84	-13	PASS
Band5	4233	849.00	-16.37	-13	PASS

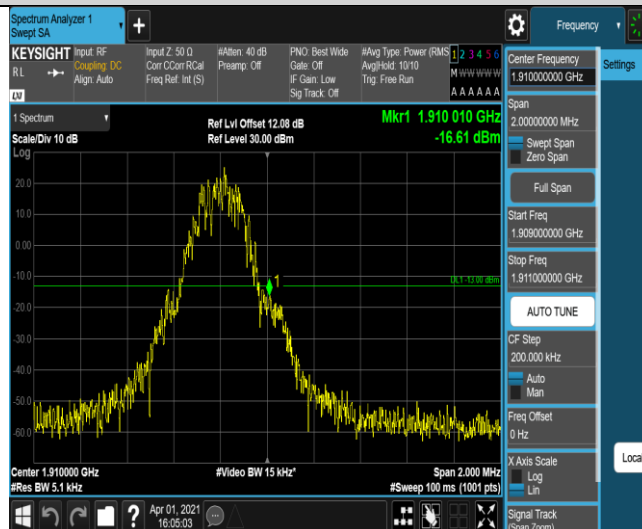
Test plot as follows:



GSM1900-512-0



GSM1900-810-0



Band2-9262



Band2-9538



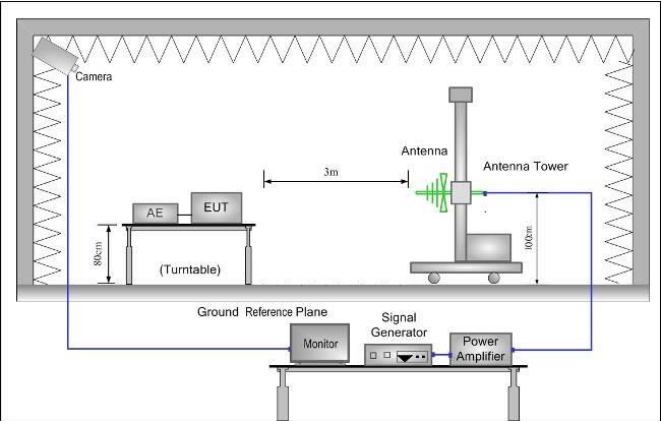
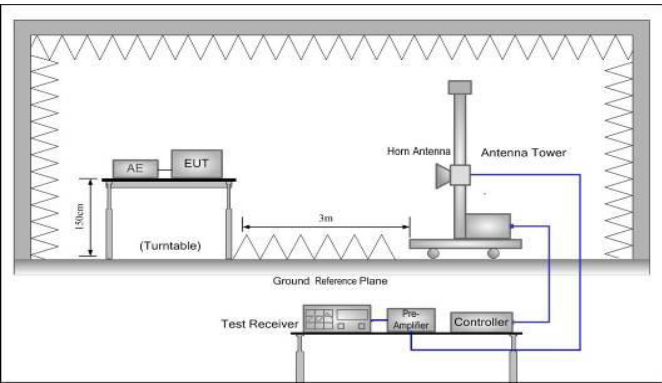
Band5-4132



Band5-4233



6.6 Field strength of spurious radiation measurement

Test Requirement:	FCC part 22.917(a), FCC part 24.238(a)
Limit:	-13dBm
Test setup:	Below 1GHz  Above 1GHz 
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. $ERP / EIRP = S.G. \text{ output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}$
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed

Measurement Data (worst case):

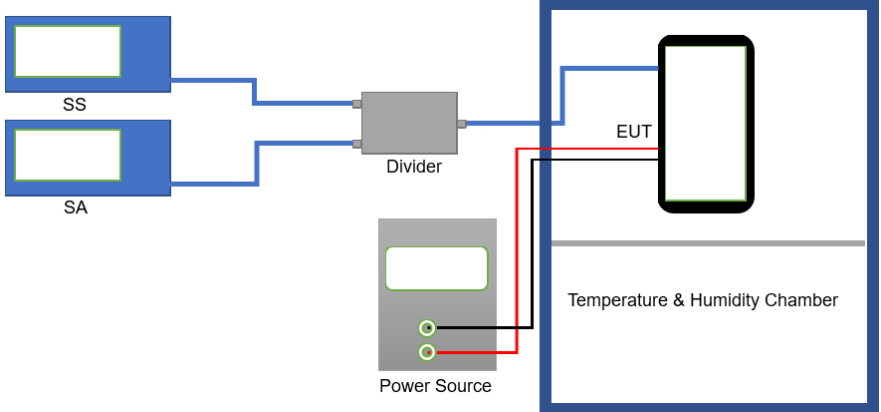
GSM850							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1648.40	-45.43	9.57	0.19	-36.05	-13.00	-23.05	Vertical
2472.60	-52.39	10.86	0.42	-41.95	-13.00	-28.95	Vertical
3296.80	-53.02	10.49	0.64	-43.17	-13.00	-30.17	Vertical
1648.40	-52.66	9.57	0.19	-43.28	-13.00	-30.28	Horizontal
2472.60	-56.08	10.86	0.42	-45.64	-13.00	-32.64	Horizontal
3296.80	-56.48	10.49	0.64	-46.63	-13.00	-33.63	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1673.20	-45.10	9.66	0.21	-35.65	-13.00	-22.65	Vertical
2509.80	-50.60	10.91	0.46	-40.15	-13.00	-27.15	Vertical
3346.40	-53.00	12.09	0.66	-41.57	-13.00	-28.57	Vertical
1673.20	-51.10	9.66	0.21	-41.65	-13.00	-28.65	Horizontal
2509.80	-54.07	10.91	0.46	-43.62	-13.00	-30.62	Horizontal
3346.40	-57.30	12.09	0.66	-45.87	-13.00	-32.87	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1697.60	-46.15	9.74	0.24	-36.65	-13.00	-23.65	Vertical
2546.40	-49.90	10.95	0.50	-39.45	-13.00	-26.45	Vertical
3395.20	-52.59	12.19	0.68	-41.08	-13.00	-28.08	Vertical
1697.60	-51.96	9.74	0.24	-42.46	-13.00	-29.46	Horizontal
2546.40	-53.14	10.95	0.50	-42.69	-13.00	-29.69	Horizontal
3395.20	-58.22	12.19	0.68	-46.71	-13.00	-33.71	Horizontal
Remark:							
1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

PCS1900							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3700.40	-59.26	12.64	0.74	-47.36	-13.00	-34.36	Vertical
5550.60	-53.27	12.76	1.12	-41.63	-13.00	-28.63	Vertical
3700.40	-59.86	12.64	0.74	-47.96	-13.00	-34.96	Horizontal
5550.60	-54.11	12.76	1.12	-42.47	-13.00	-29.47	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3760.00	-58.59	12.71	0.77	-46.65	-13.00	-33.65	Vertical
5640.00	-51.37	12.87	1.15	-39.65	-13.00	-26.65	Vertical
3760.00	-57.46	12.71	0.77	-45.52	-13.00	-32.52	Horizontal
5640.00	-53.19	12.87	1.15	-41.47	-13.00	-28.47	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3819.60	-57.22	12.78	0.81	-45.25	-13.00	-32.25	Vertical
5729.40	-50.76	12.98	1.20	-38.98	-13.00	-25.98	Vertical
3819.60	-56.38	12.78	0.81	-44.41	-13.00	-31.41	Horizontal
5729.40	-54.47	12.98	1.20	-42.69	-13.00	-29.69	Horizontal
Remark:							
1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

WCDMA BAND V 12.2k RMC							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1652.80	-62.55	9.58	0.20	-53.17	-13.00	-40.17	Vertical
2479.20	-55.44	10.87	0.44	-45.01	-13.00	-32.01	Vertical
3305.60	-60.05	12.01	0.65	-48.69	-13.00	-35.69	Vertical
1652.80	-61.78	9.58	0.20	-52.40	-13.00	-39.40	Horizontal
2479.20	-57.94	10.87	0.44	-47.51	-13.00	-34.51	Horizontal
3305.60	-59.53	12.01	0.65	-48.17	-13.00	-35.17	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1673.20	-60.70	9.66	0.21	-51.25	-13.00	-38.25	Vertical
2509.80	-54.10	10.91	0.46	-43.65	-13.00	-30.65	Vertical
3346.40	-58.41	12.09	0.66	-46.98	-13.00	-33.98	Vertical
1673.20	-60.87	9.66	0.21	-51.42	-13.00	-38.42	Horizontal
2509.80	-57.10	10.91	0.46	-46.65	-13.00	-33.65	Horizontal
3346.40	-59.24	12.09	0.66	-47.81	-13.00	-34.81	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1697.60	-59.45	9.74	0.24	-49.95	-13.00	-36.95	Vertical
2546.40	-54.24	12.09	0.50	-42.65	-13.00	-29.65	Vertical
3395.20	-56.62	12.19	0.68	-45.11	-13.00	-32.11	Vertical
1697.60	-59.45	9.74	0.24	-49.95	-13.00	-36.95	Horizontal
2546.40	-57.44	12.09	0.50	-45.85	-13.00	-32.85	Horizontal
3395.20	-57.88	12.19	0.68	-46.37	-13.00	-33.37	Horizontal
Remark:							
1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

WCDMA Band II 12.2k RMC							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3704.80	-52.71	12.65	0.76	-40.82	-13.00	-27.82	Vertical
5557.20	-51.31	12.77	1.14	-39.68	-13.00	-26.68	Vertical
3704.80	-54.54	12.65	0.76	-42.65	-13.00	-29.65	Horizontal
5557.20	-50.58	12.77	1.14	-38.95	-13.00	-25.95	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3760.00	-50.93	12.71	0.77	-38.99	-13.00	-25.99	Vertical
5640.00	-48.85	12.87	1.15	-37.13	-13.00	-24.13	Vertical
3760.00	-53.44	12.71	0.77	-41.50	-13.00	-28.50	Horizontal
5640.00	-48.88	12.87	1.15	-37.16	-13.00	-24.16	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3815.20	-48.63	12.78	0.80	-36.65	-13.00	-23.65	Vertical
5722.80	-50.19	12.97	1.19	-38.41	-13.00	-25.41	Vertical
3815.20	-54.63	12.78	0.80	-42.65	-13.00	-29.65	Horizontal
5722.80	-47.91	12.97	1.19	-36.13	-13.00	-23.13	Horizontal
Remark: 1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

6.7 Frequency stability V.S. Temperature measurement

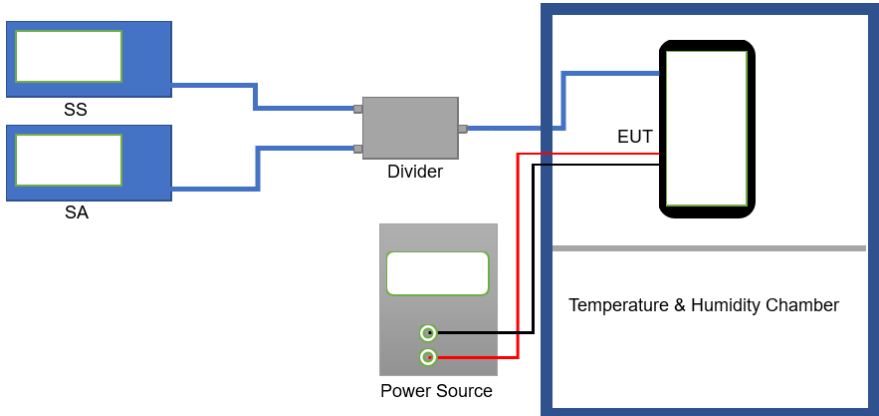
Test Requirement:	FCC Part 22.355, FCC Part 24.235, FCC Part 2.1055(a)(1)(b)
Limit:	±2.5 ppm for GSM 850 and WCDMA 850 Within authorized band for PCS 1900 and WCDMA 1900
Test setup:	
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (the worst channel):

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.80	-30	173	0.206789	±2.5	Pass
	-20	167	0.199617		
	-10	155	0.185274		
	0	148	0.176907		
	10	117	0.139852		
	20	131	0.156586		
	30	123	0.147024		
	40	161	0.192446		
	50	140	0.167344		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.80	-30	170	0.090426	Within authorized band for PCS 1900	Pass
	-20	152	0.080851		
	-10	146	0.077660		
	0	139	0.073936		
	10	115	0.061170		
	20	165	0.087766		
	30	157	0.083511		
	40	134	0.071277		
	50	126	0.067021		
Note: Only the worst case shown in the report.					

Reference Frequency: WCDMA BAND V 12.2k RMC Middle channel=4183 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.80	-30	180	0.215157	±2.5	Pass
	-20	173	0.206789		
	-10	165	0.197227		
	0	159	0.190055		
	10	142	0.169735		
	20	138	0.164953		
	30	120	0.143438		
	40	130	0.155391		
	50	150	0.179297		
Reference Frequency: WCDMA BAND II 12.2k RMC Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.80	-30	176	0.093617	Within authorized band for WCDMA 1900	Pass
	-20	154	0.081915		
	-10	149	0.079255		
	0	133	0.070745		
	10	126	0.067021		
	20	160	0.085106		
	30	116	0.061702		
	40	140	0.074468		
	50	169	0.089894		
Note: Only the worst case shown in the report.					

6.8 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part 22.355, FCC Part 24.235, FCC Part 2.1055(d)(2)
Limit:	±2.5 ppm for GSM 850 and WCDMA 850 Within authorized band for PCS 1900 and WCDMA 1900
Test setup:	
Test procedure:	1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (the worst channel):

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.35	80	0.095625	±2.5	Pass
	3.80	70	0.083672		
	3.50	60	0.071719		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.35	83	0.044149	Within authorized band for PCS 1900	Pass
	3.80	71	0.037766		
	3.50	66	0.035106		
Note: Only the worst case shown in the report.					

Reference Frequency: UMTS 850 12.2k RMC Middle channel=4183 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.35	79	0.094430	±2.5	Pass
	3.80	60	0.071719		
	3.50	52	0.062156		
Reference Frequency: UMTS 1900 12.2k RMC Middle channel=9400 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.35	80	0.042553	Within authorized band for WCDMA 1900	Pass
	3.80	51	0.027128		
	3.50	70	0.037234		
Note: Only the worst case shown in the report.					