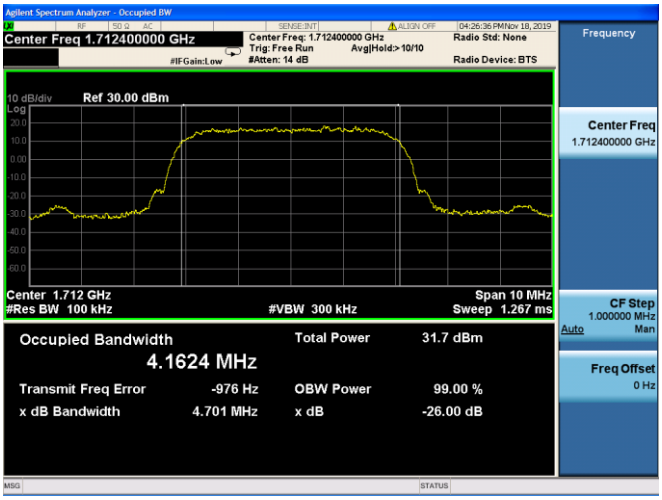
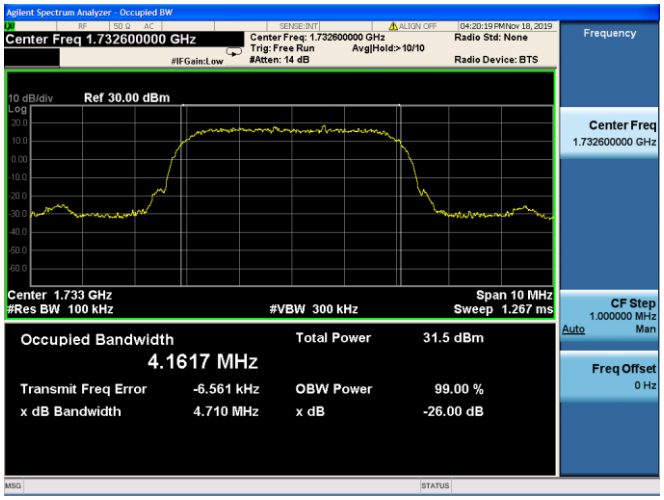
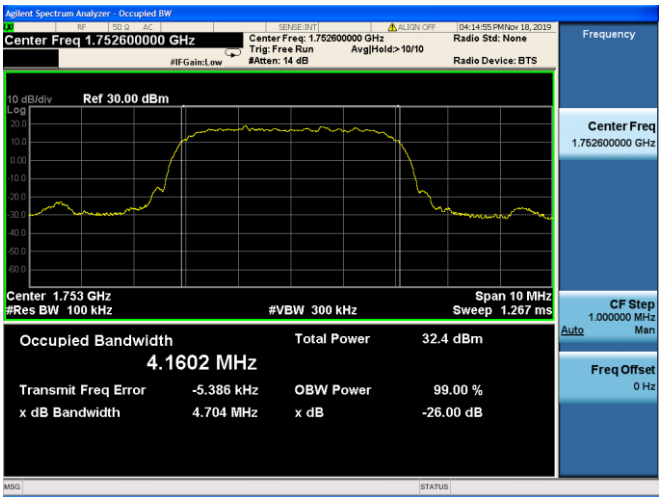
WCDMA Band IV CH1312 1712.4MHz	WCDMA Band IV CH1413 1732.6MHz
	
WCDMA Band IV CH1513 1752.6MHz	
	

2.4. Frequency Stability

2.4.1. Requirement

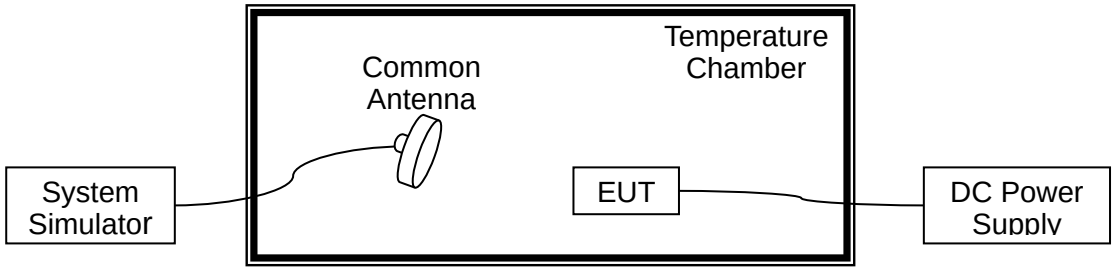
According to FCC section 22.355, 24.235 and 27.54 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -10°C to +55°C at intervals of not more than 10°C.

(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.4.2. Test Description

Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS via a Common Antenna.

2.4.3. Test Result

A. Test Verdict:

GSM 850MHz, Channel 190, Frequency 836.6MHz Limit =±2.5ppm					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	-36	-0.043	PASS
100		-10	-59	-0.071	
100		0	62	0.074	
100		+10	-16	-0.019	
100		+20	49	0.059	
100		+30	-83	-0.099	
100		+40	52	0.062	
100		+50	12	0.014	
100		+55	24	0.029	
115	4.40	+20	-16	-0.019	
85	3.80	+20	9	0.011	

GSM 1900MHz, Channel 661, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	-42	-0.022	PASS
100		-10	54	0.029	
100		0	-32	-0.017	
100		+10	-54	-0.029	
100		+20	38	0.020	
100		+30	-58	-0.031	
100		+40	41	0.022	
100		+50	59	0.031	
100		+55	81	0.043	
115	4.40	+20	39	0.021	
85	3.80	+20	87	0.046	

EDGE 850MHz, Channel 190, Frequency 836.6MHz

Limit =±2.5ppm					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	16	0.019	PASS
100		-10	-78	-0.093	
100		0	-88	-0.105	
100		+10	-3	-0.004	
100		+20	-4	-0.005	
100		+30	1	0.001	
100		+40	17	0.020	
100		+50	-25	-0.03	
100		+55	76	0.091	
115	4.40	+20	28	0.033	
85	3.80	+20	84	0.100	

EDGE 1900MHz, Channel 661, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	-6	-0.003	PASS
100		-10	44	0.023	
100		0	100	0.053	
100		+10	28	0.015	
100		+20	-46	-0.024	
100		+30	-23	-0.012	
100		+40	19	0.010	
100		+50	67	0.036	
100		+55	-98	-0.052	
115	4.40	+20	-8	-0.004	
85	3.80	+20	19	0.010	

WCDMA Band V, Channel 4182, Frequency 836.4MHz Limit =±2.5ppm					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	31	0.037	PASS
100		-10	-77	-0.092	
100		0	-53	-0.063	
100		+10	-75	-0.090	
100		+20	-59	-0.071	
100		+30	54	0.065	
100		+40	25	0.030	
100		+50	26	0.031	
100		+55	82	0.098	
115	4.40	+20	21	0.025	
85	3.80	+20	-58	-0.069	

WCDMA Band II, Channel 9400, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	3.85	+20(Ref)	42	0.022	PASS
100		-10	-38	-0.02	
100		0	-88	-0.047	
100		+10	-35	-0.019	
100		+20	-19	-0.01	
100		+30	42	0.022	
100		+40	84	0.045	
100		+50	-14	-0.007	
100		+55	64	0.034	
115	4.40	+20	24	0.013	
85	3.80	+20	-1	-0.001	

WCDMA Band IV, Channel 1413, Frequency 1732.6MHz Limit =Within Authorized Band					
Voltage (%)	**Power**	**Temp (°C)**	**Fre. Dev.**	**Deviation**	**Result**

	(VDC)		(Hz)	(ppm)	
100	3.85	+20(Ref)	-40	-0.023	PASS
100		-10	24	0.014	
100		0	-51	-0.029	
100		+10	10	0.006	
100		+20	-73	-0.042	
100		+30	-33	-0.019	
100		+40	-68	-0.039	
100		+50	-3	-0.002	
100		+55	-49	-0.028	
115	4.40	+20	64	0.037	
85	3.80	+20	-3	-0.002	

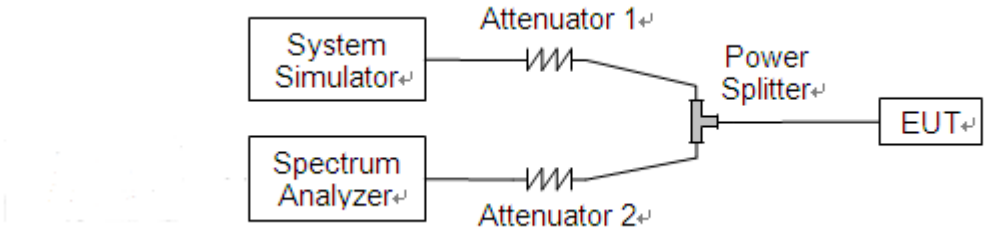
2.5. Conducted Out of Band Emissions

2.5.1. Requirement

According to FCC section 22.917(a), 24.238(a) and 27.53(h) 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. This calculated to be -13dBm.

2.5.2. Test Description

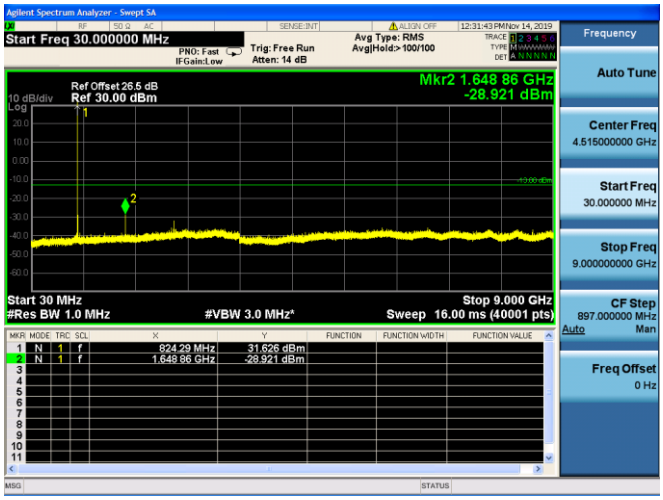
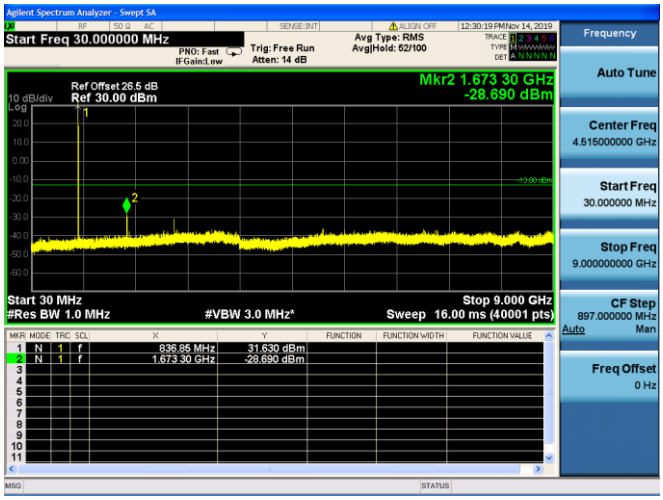
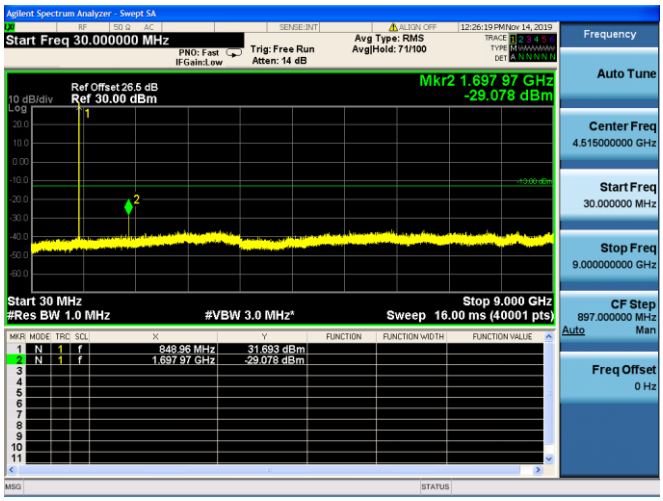
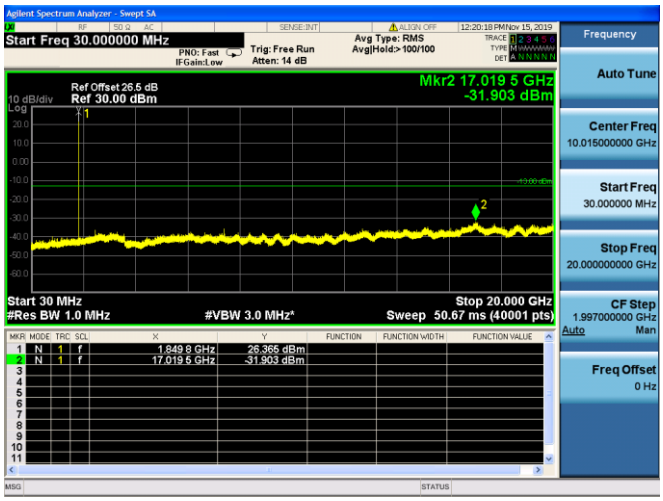
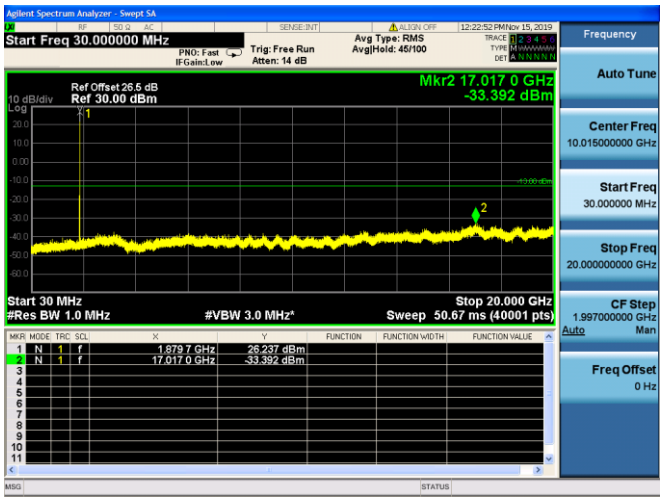
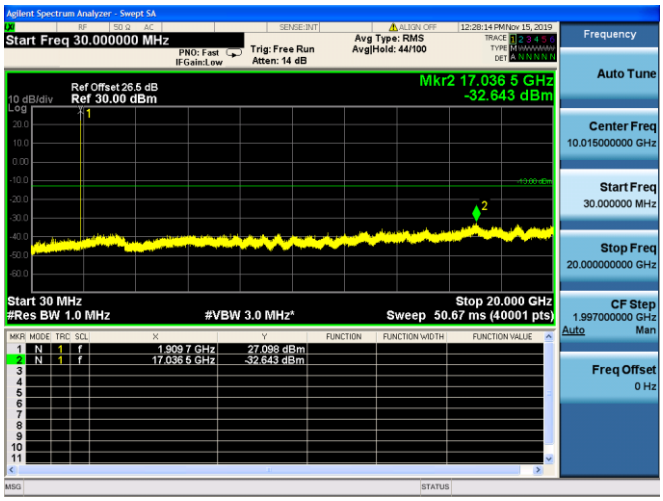
Test Setup:

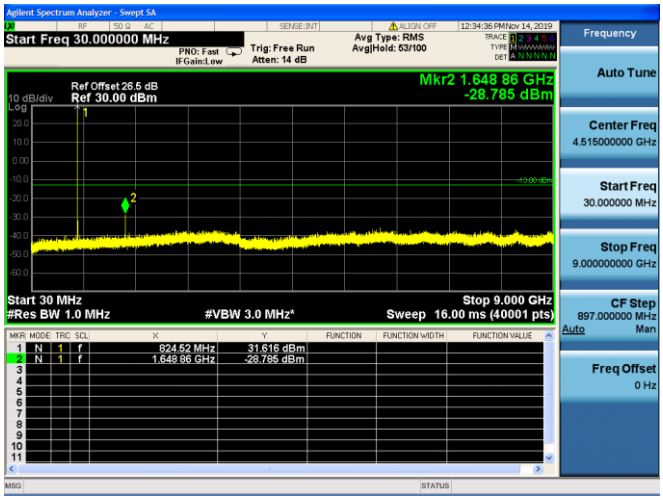
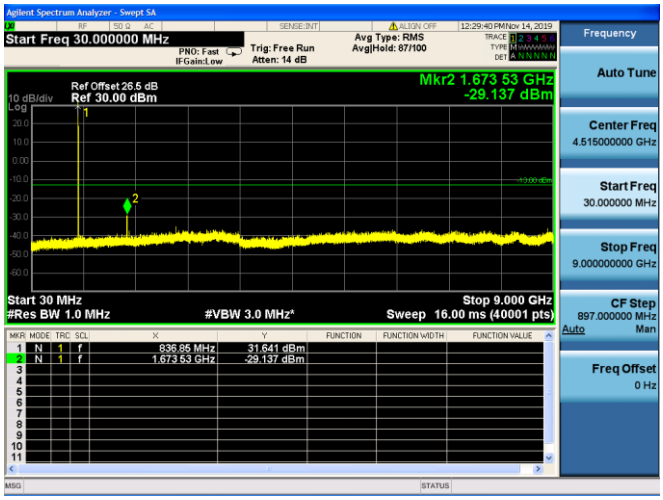
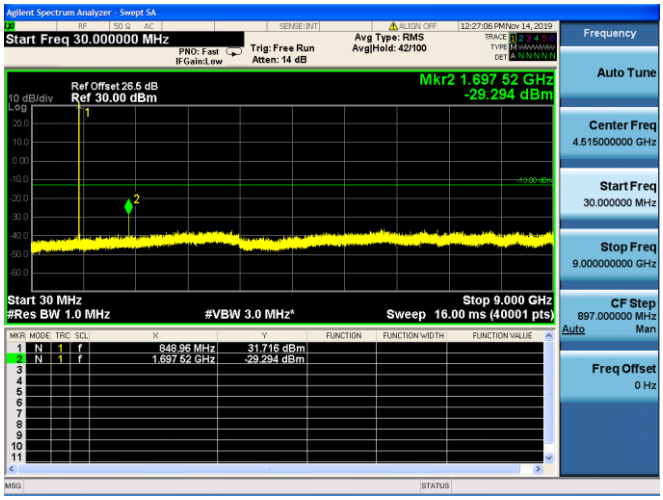
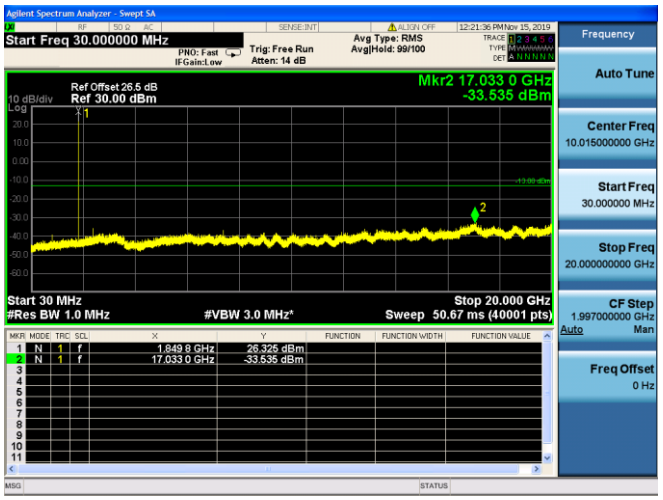
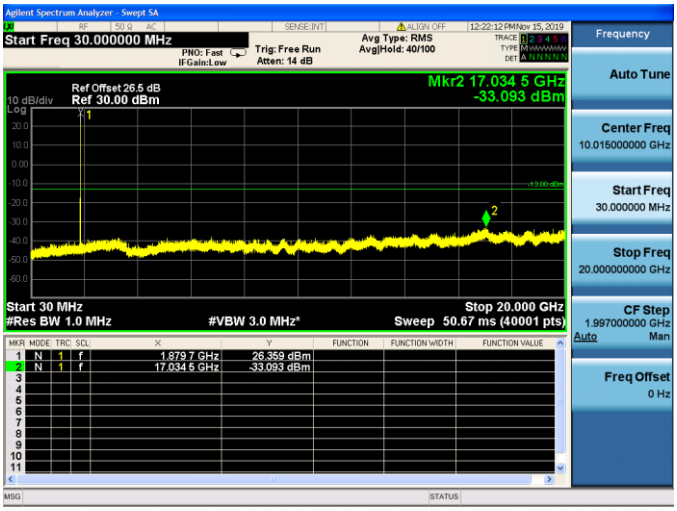
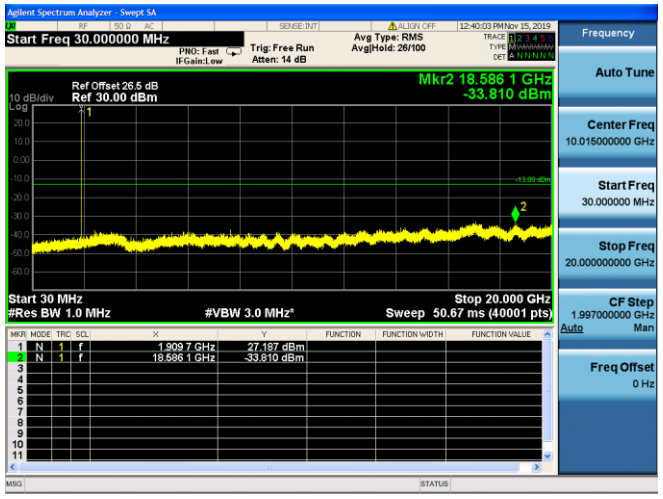


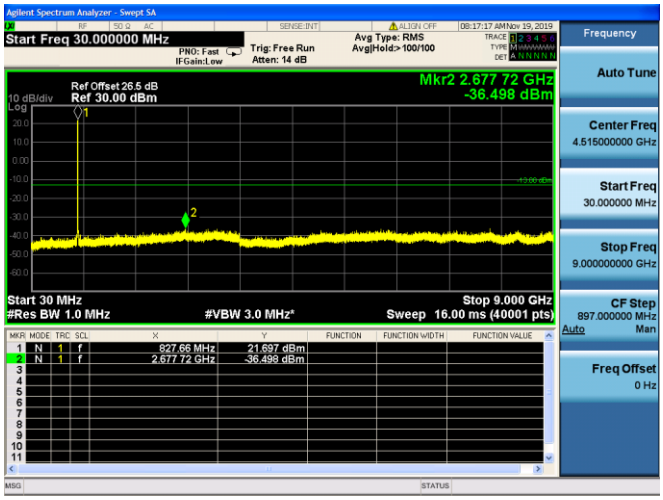
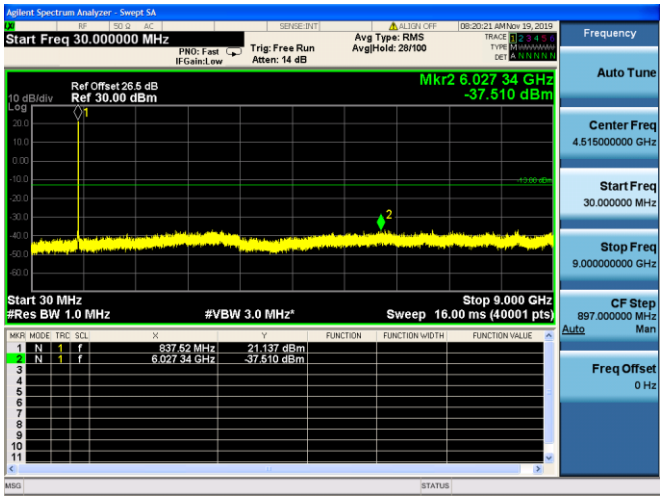
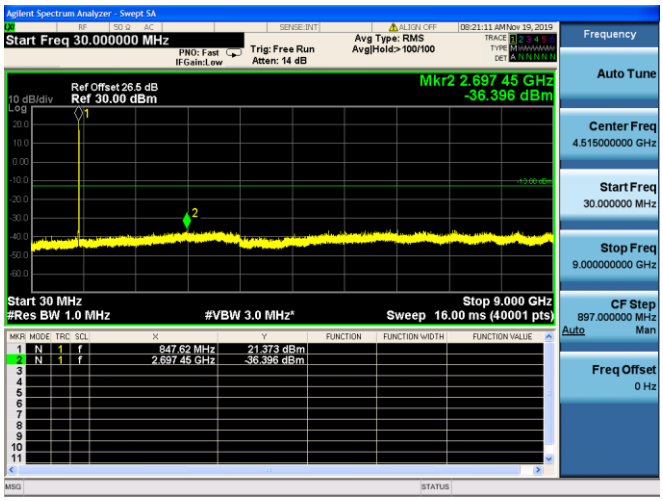
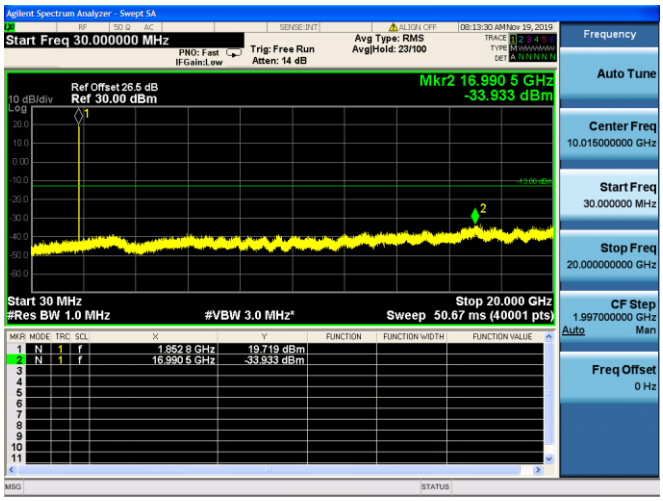
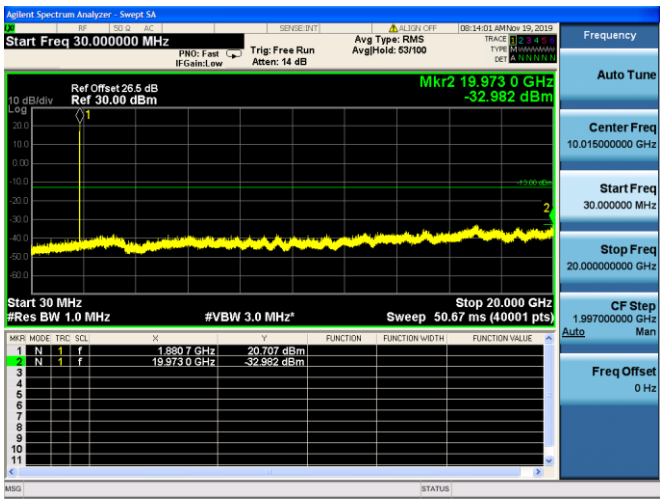
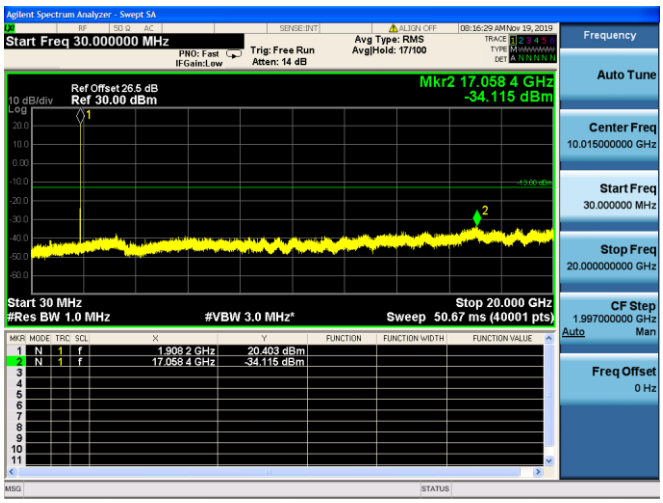
The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

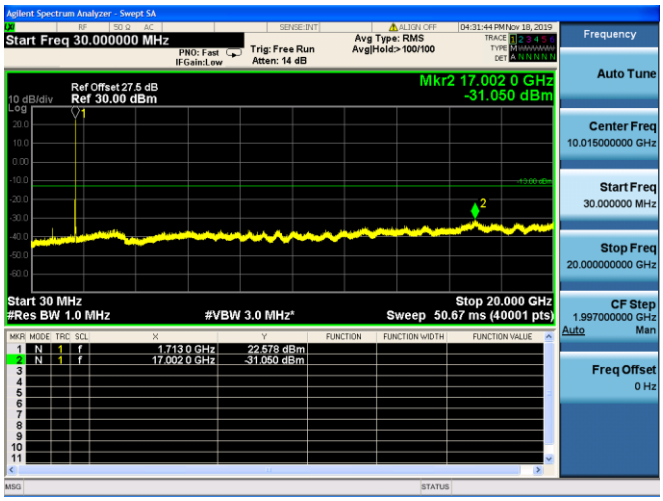
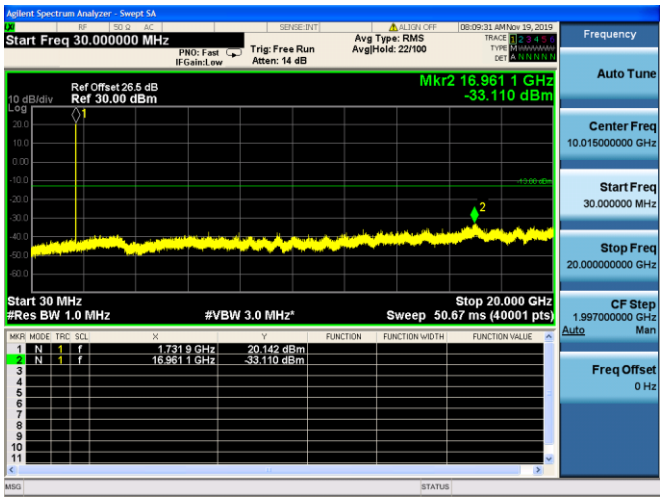
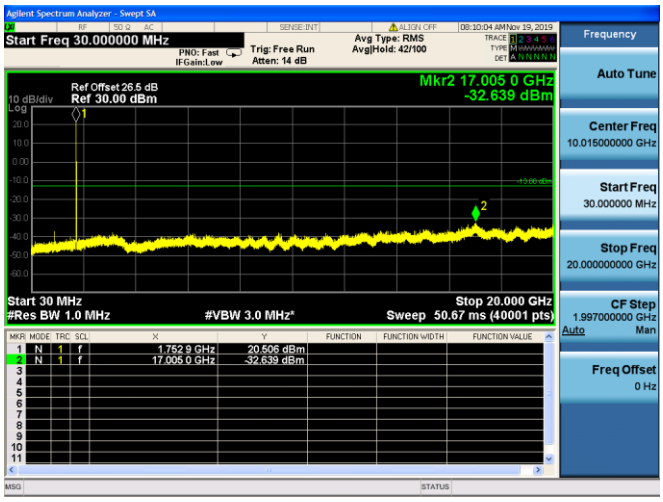
2.5.3. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

GSM 850MHz CH128 824.2MHz	GSM 850MHz CH190 836.6MHz
	
GSM 850MHz CH251 848.8MHz	**GSM 1900MHz CH521 1850.2MHz**
	
GSM 1900MHz CH661 1880.0MHz	**GSM 1900MHz CH810 1909.8MHz**
	

EDGE 850MHz CH128 824.2MHz	EDGE 850MHz CH190 836.6MHz
	
EDGE 850MHz CH251 848.8MHz	**EDGE 1900MHz CH521 1850.2MHz**
	
EDGE 1900MHz CH661 1880.0MHz	**EDGE 1900MHz CH810 1909.8MHz**
	

WCDMA Band V CH4132 826.4MHz	WCDMA Band V CH4183 836.4MHz
	
WCDMA Band V CH4233 846.6MHz	**WCDMA Band II CH9262 1852.4MHz**
	
WCDMA Band II CH9400 1880.0MHz	**WCDMA Band II CH9538 1907.6MHz**
	

WCDMA Band IV CH1312 1712.4MHz	WCDMA Band IV CH1413 1732.6MHz
	
WCDMA Band IV CH1513 1752.6MHz	
	

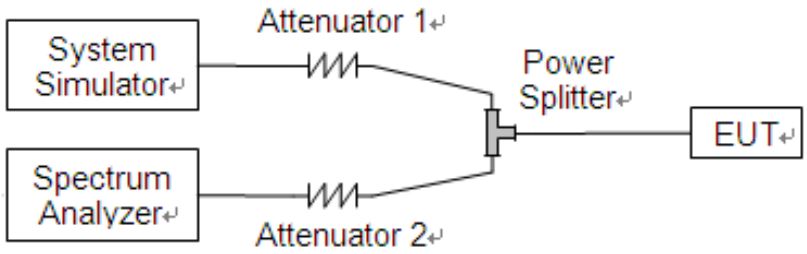
2.6. Band Edge

2.6.1. Requirement

According to FCC section 22.917(b), 24.238(b) and 27.53(h) in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

2.6.2. Test Description

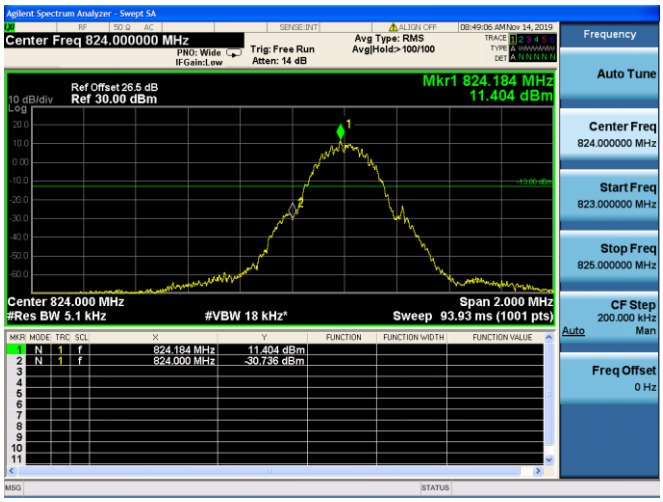
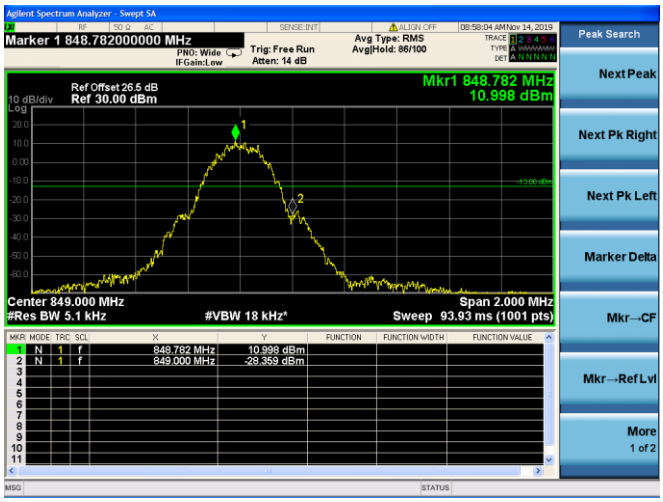
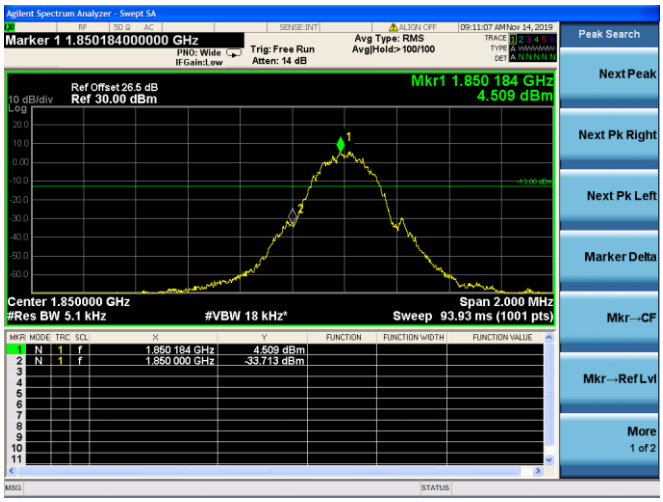
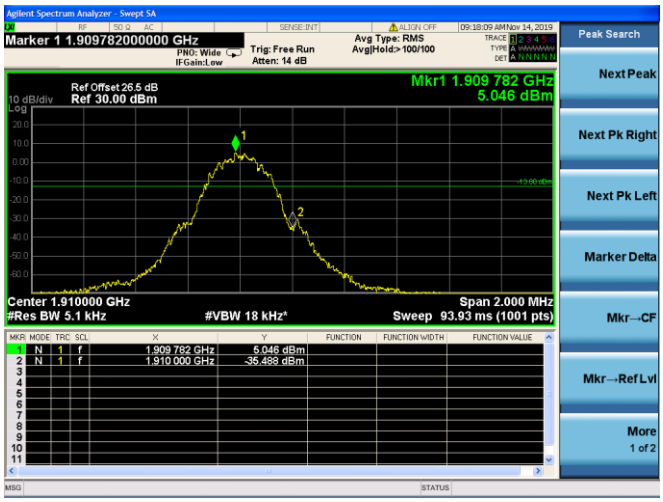
Test Setup:

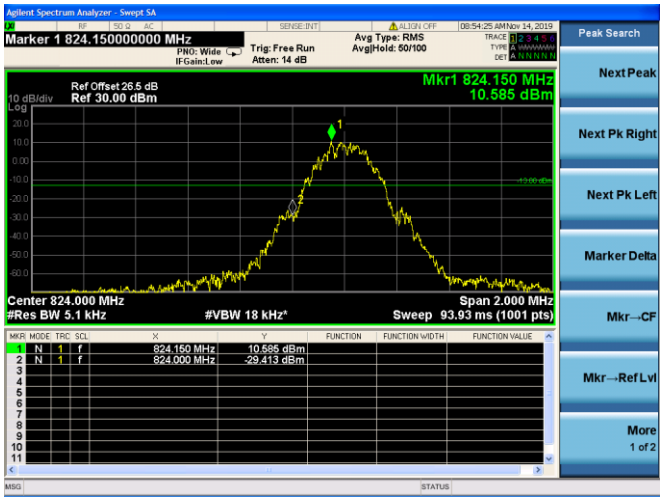
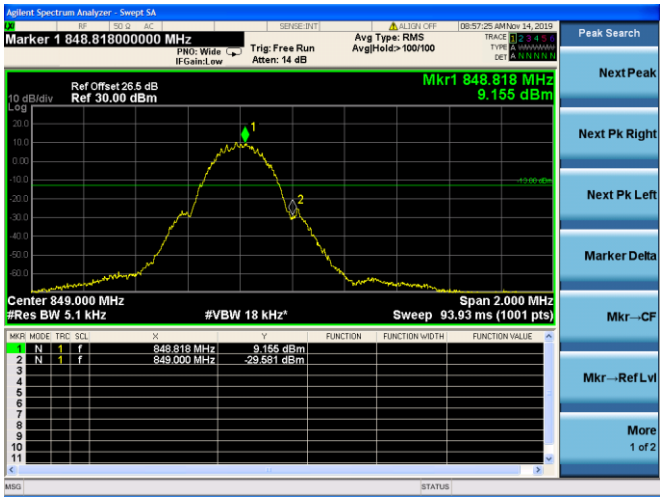
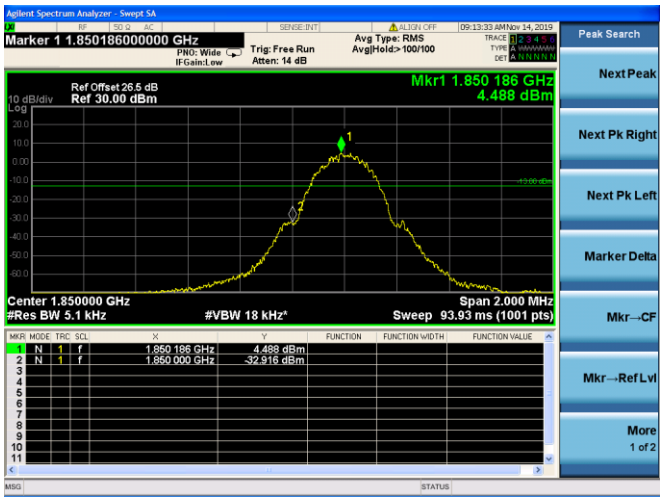
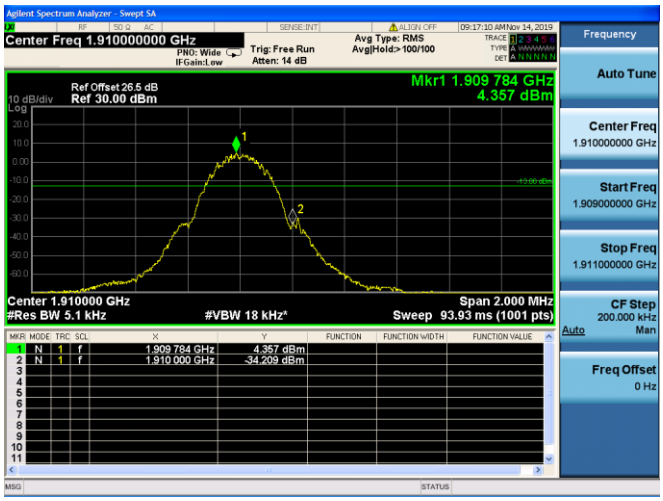


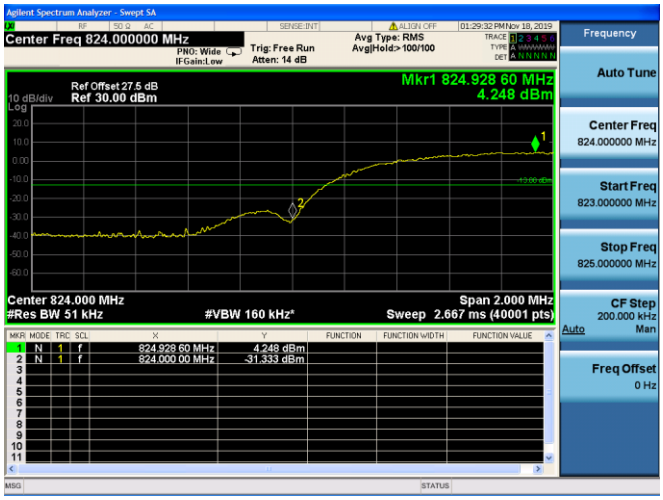
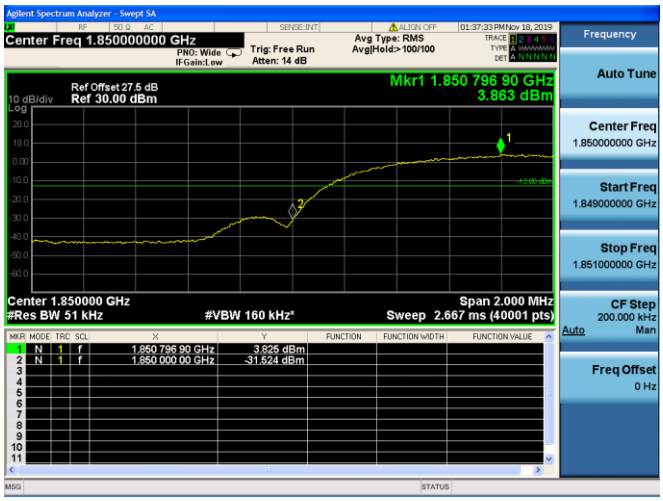
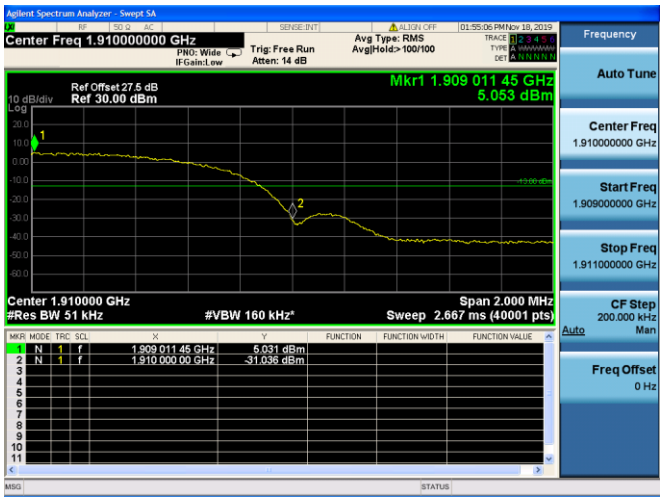
The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

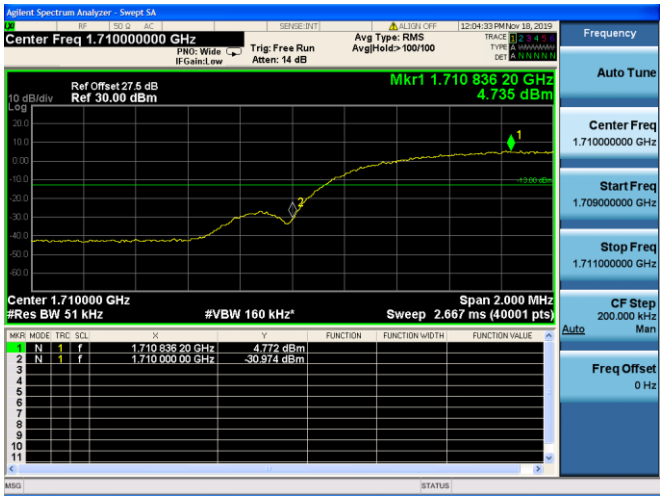
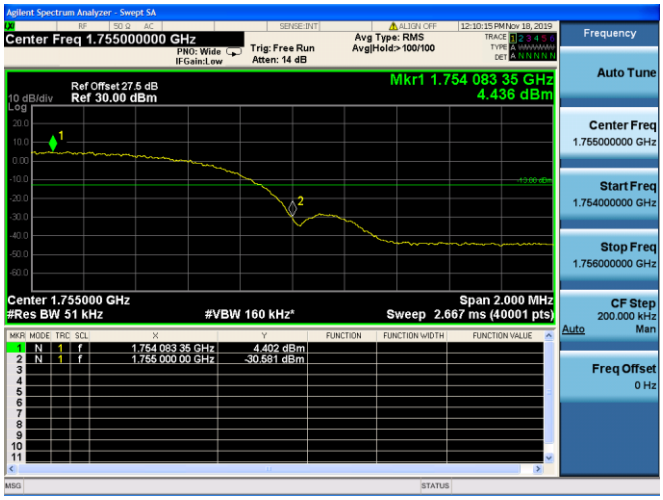
2.6.3. Test Result

The lowest and highest channels are tested to verify the band edge emissions.

GSM 850MHz CH128 824.2MHz	GSM 850MHz CH251 848.8MHz
	
GSM 1900MHz CH521 1850.2MHz	**GSM 1900MHz CH810 1909.8MHz**
	

EDGE 850MHz CH128 824.2MHz	EDGE 850MHz CH251 848.8MHz
	
EDGE 1900MHz CH521 1850.2MHz	**EDGE 1900MHz CH810 1909.8MHz**
	

WCDMA Band V CH4132 826.4MHz	WCDMA Band V CH4233 846.6MHz
	
WCDMA Band II CH9262 1852.4MHz	**WCDMA Band II CH9538 1907.6MHz**
	

WCDMA Band IV CH1312 1712.4MHz	WCDMA Band IV CH1513 1752.6MHz
	

2.7. Transmitter Radiated Power (EIRP/ERP)

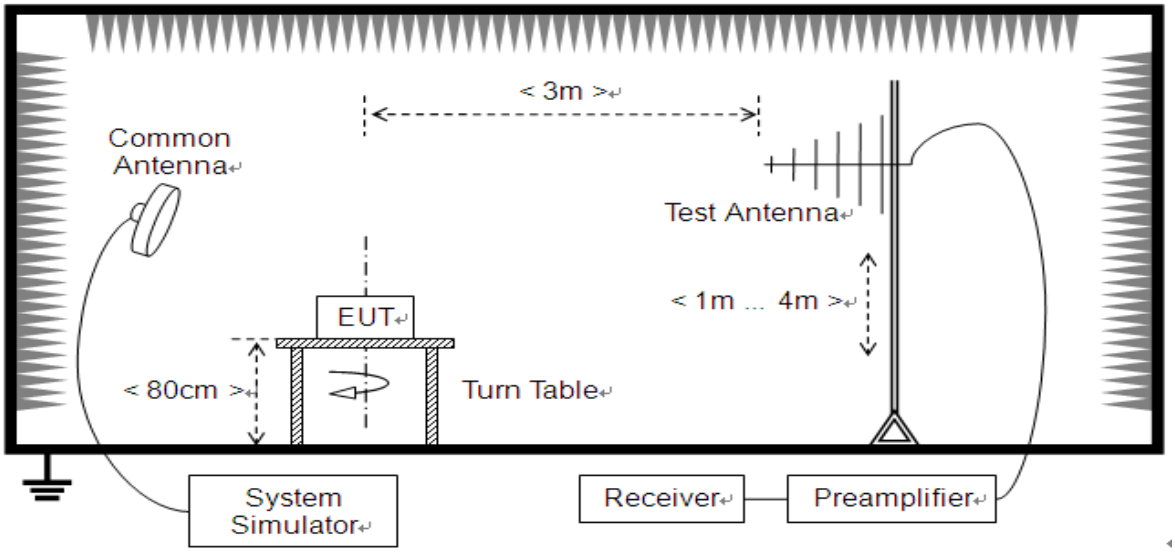
2.7.1. Requirement

According to FCC section 22.913, the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
According to FCC section 24.232, the broadband PCS mobile station is limited to 2 Watts e.i.r.p. peak power.
According to FCC section 27.50, mobile, and portable (hand-held) stations is limited to 1 Watts e.i.r.p. peak power.

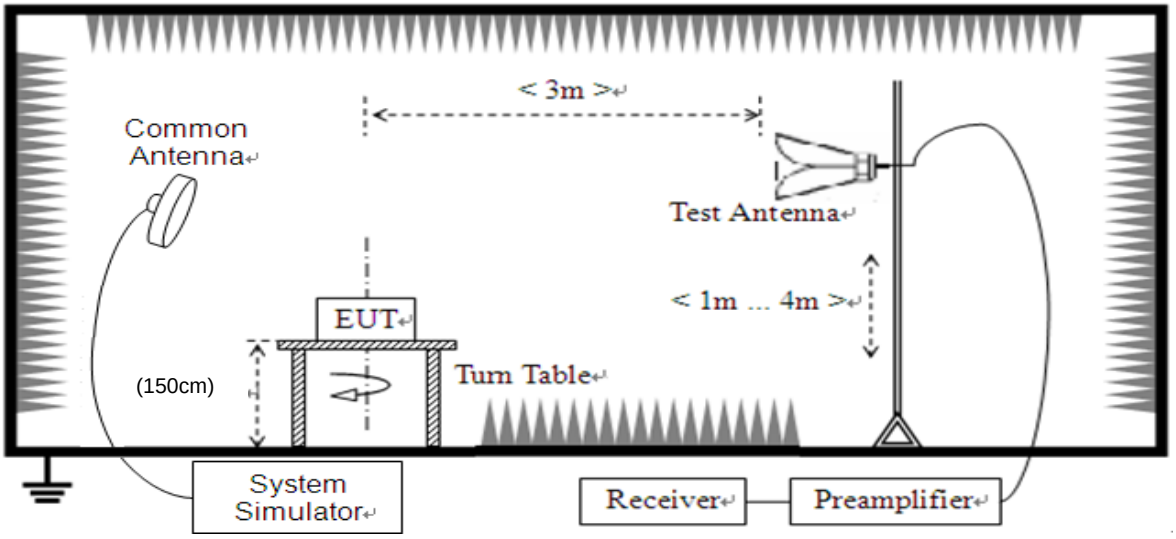
2.7.2. Test Description

Test Setup:

1) Below1GHz



2) Above 1GHz



The EUT is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded. Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

2.7.3. Test Result

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

$A_{SUBST} = P_{SUBST\_TX} - P_{SUBST\_RX} - L_{SUBST\_CABLES} + G_{SUBST\_TX\_ANT}$

$A_{TOT} = L_{CABLES} + A_{SUBST}$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

P_{SUBST_TX} is signal generator level,

P_{SUBST_RX} is receiver level,

L_{SUBST_CABLES} is cable losses including TX cable,

$G_{SUBST\_TX\_ANT}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of A_{TOT}.

GSM Test verdict:

Band	Channel	Frequency (MHz)	PCL	Measured ERP		Limit		Verdict
				dBm	W	dBm	W	
GSM 850MHz	128	824.20	5	33.18	2.080	38.5	7	PASS
	190	836.60	5	33.19	2.084			PASS
	251	848.80	5	33.17	2.075			PASS
GPRS 850MHz	128	824.20	5	33.16	2.070	38.5	7	PASS
	190	836.60	5	33.17	2.075			PASS
	251	848.80	5	33.16	2.070			PASS
EDGE 850MHz	128	824.20	5	27.47	0.558	38.5	7	PASS
	190	836.60	5	27.39	0.548			PASS
	251	848.80	5	27.38	0.547			PASS

Note 1: For the GPRS and EDGE model, all the slots were tested and just the worst data were recorded in this report.

Note 2: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.

Band	Channel	Frequency (MHz)	PCL	Measured EIRP		Limit		Verdict
				dBm	W	dBm	W	
GSM 1900MHz	512	1850.2	0	30.62	1.153	33	2	PASS
	661	1880.0	0	30.51	1.125			PASS
	810	1909.8	0	30.41	1.099			PASS
GPRS 1900MHz	512	1850.2	0	30.62	1.153	33	2	PASS
	661	1880.0	0	30.52	1.127			PASS
	810	1909.8	0	30.44	1.107			PASS
EDGE 1900MHz	512	1850.2	0	25.68	0.370	33	2	PASS
	661	1880.0	0	25.66	0.368			PASS
	810	1909.8	0	25.59	0.362			PASS

Note 1: For the GPRS and EDGE model, all the slots were tested and just the worst data were recorded in this report.

Note 2: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.

WCDMA Test verdict:

Band	Channel	Frequency (MHz)	Measured ERP		Limit		Verdict
			dBm	W	dBm	W	
WCDMA Band V	4132	826.4	20.97	0.125	38.5	7	PASS
	4182	836.4	21.02	0.126			PASS
	4233	846.6	20.98	0.125			PASS
HSDPA Band V	4132	826.4	19.23	0.084	38.5	7	PASS
	4182	836.4	19.26	0.084			PASS
	4233	846.6	19.36	0.086			PASS
HSUPA Band V	4132	826.4	17.25	0.053	38.5	7	PASS
	4182	836.4	17.33	0.054			PASS
	4233	846.6	17.34	0.054			PASS
HSPA + Band V	4132	826.4	17.35	0.054	38.5	7	PASS
	4182	836.4	17.38	0.055			PASS
	4233	846.6	17.39	0.055			PASS
Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.							

Band	Channel	Frequency (MHz)	Measured EIRP		Limit		Verdict
			dBm	W	dBm	W	
WCDMA Band II	9262	1852.4	23.61	0.230	33	2	PASS
	9400	1880.0	23.63	0.231			PASS
	9538	1907.6	23.56	0.227			PASS
HSDPA Band II	9262	1852.4	22.01	0.159	33	2	PASS
	9400	1880.0	22.04	0.160			PASS
	9538	1907.6	21.92	0.156			PASS
HSUPA Band II	9262	1852.4	19.96	0.099	33	2	PASS
	9400	1880.0	19.99	0.100			PASS
	9538	1907.6	19.90	0.098			PASS
HSPA + Band II	9262	1852.4	19.85	0.097	33	2	PASS
	9400	1880.0	19.86	0.097			PASS
	9538	1907.6	19.87	0.097			PASS
Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.							

Band	Channel	Frequency (MHz)	Measured EIRP		Limit		Verdict
			dBm	W	dBm	W	
WCDMA Band IV	1312	1712.4	23.61	0.230	30	1	PASS
	1413	1732.6	23.66	0.232			PASS
	1513	1752.6	23.60	0.229			PASS
HSDPA Band IV	1312	1712.4	21.90	0.155	30	1	PASS
	1413	1732.6	21.98	0.158			PASS
	1513	1752.6	21.99	0.158			PASS
HSUPA Band IV	1312	1712.4	20.41	0.110	30	1	PASS
	1413	1732.6	20.35	0.108			PASS
	1513	1752.6	20.46	0.111			PASS
HSPA + Band IV	1312	1712.4	19.97	0.099	30	1	PASS
	1413	1732.6	19.92	0.098			PASS
	1513	1752.6	19.96	0.099			PASS
Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.							

2.8. Radiated Out of Band Emissions

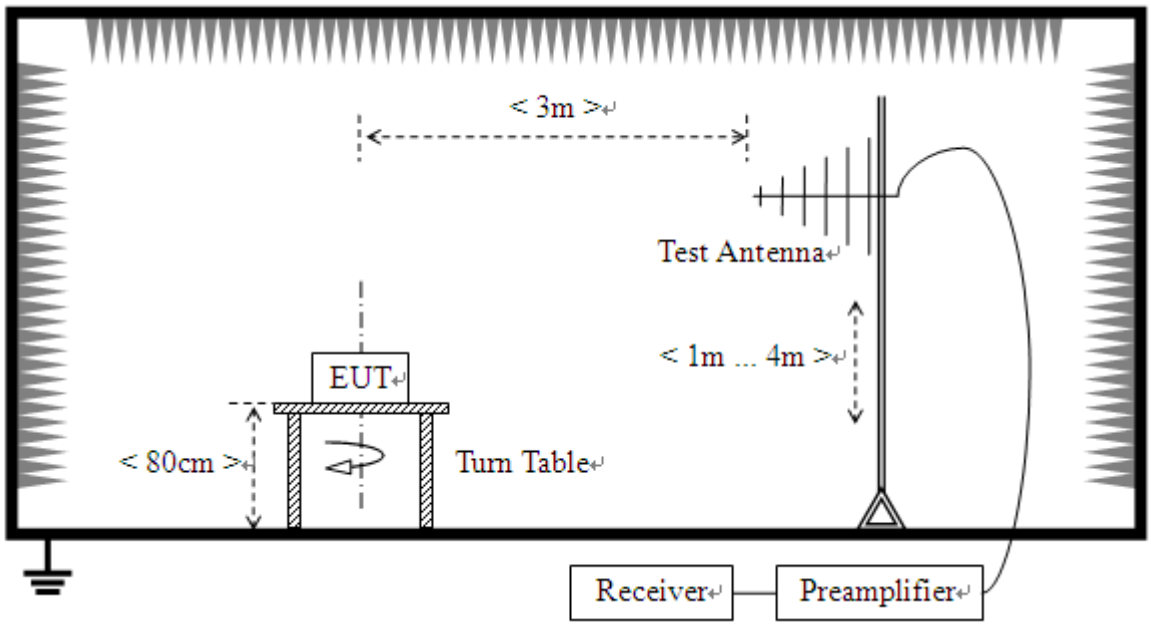
2.8.1. Requirement

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. This calculated to be -13dBm.

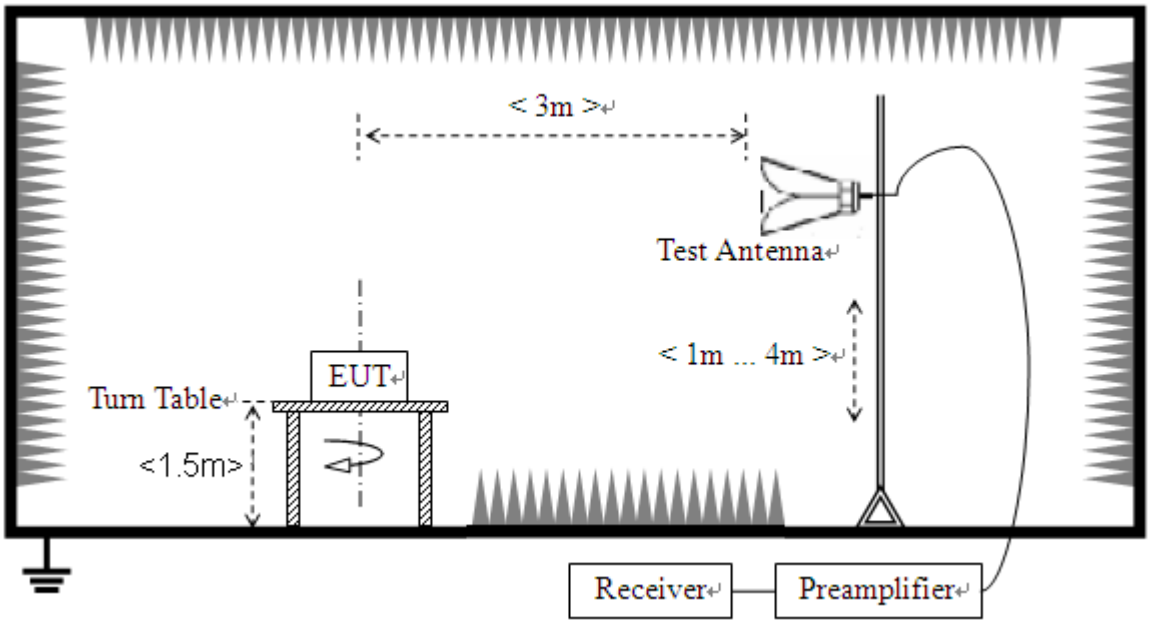
2.8.2. Test Description

Test Setup:

1) Below1GHz



2) Above 1GHz



The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded. Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) and a Horn one (used for above 3 GHz), it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

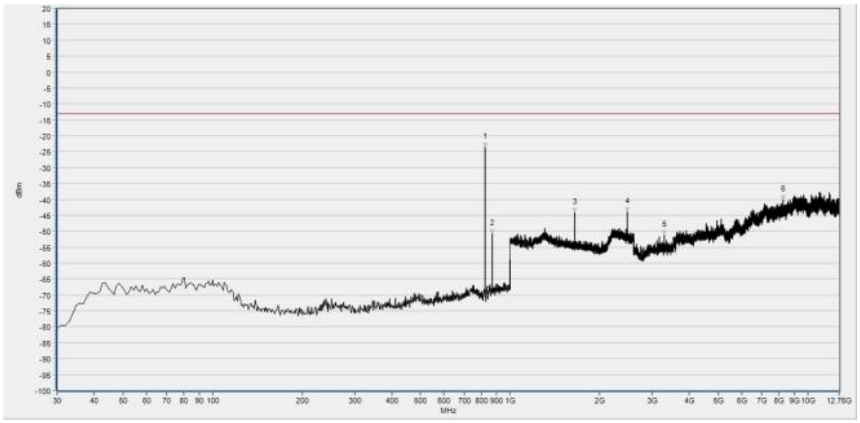
2.8.3. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions. The power of the EUT transmitting frequency should be ignored.

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical		
GSM 850MHz	128	824.2	< -25	< -25	-13	PASS
	190	836.6	< -25	< -25		PASS
	251	848.8	< -25	< -25		PASS
GSM 1900MHz	512	1850.2	< -25	< -25	-13	PASS
	661	1880.0	< -25	< -25		PASS
	810	1909.8	< -25	< -25		PASS
EDGE 850MHz	128	824.2	< -25	< -25	-13	PASS
	190	836.6	< -25	< -25		PASS
	251	848.8	< -25	< -25		PASS
EDGE 1900MHz	512	1850.2	< -25	< -25	-13	PASS
	661	1880.0	< -25	< -25		PASS
	810	1909.8	< -25	< -25		PASS
WCDMA Band V	4132	826.4	< -25	< -25	-13	PASS
	4183	836.4	< -25	< -25		PASS
	4233	846.6	< -25	< -25		PASS
WCDMA Band II	9262	1852.4	< -25	< -25	-13	PASS
	9400	1880.0	< -25	< -25		PASS
	9538	1907.6	< -25	< -25		PASS

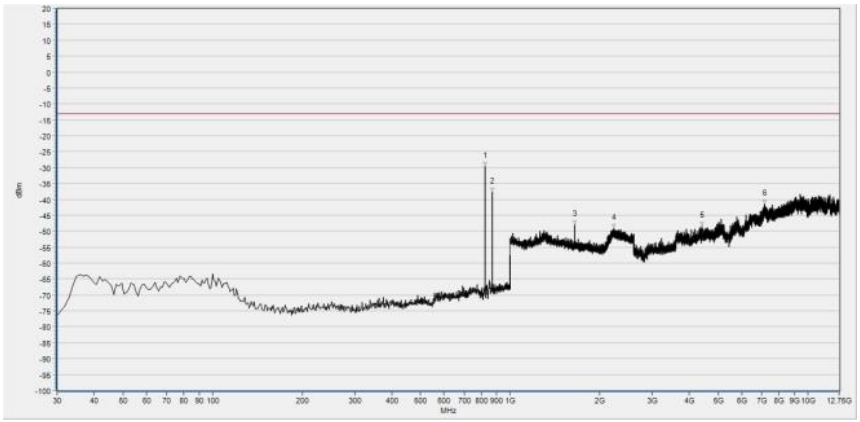
Note 1: All test mode and condition mentioned were considered and evaluated respectively by performing full test, only the worst data were recorded and reported.

Note 2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.



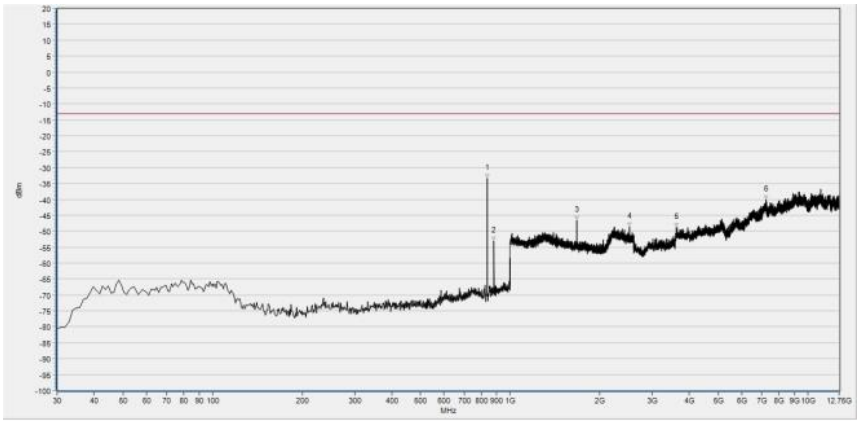
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	824.430	-23.66	-13.00	Horizontal	N/A
2	869.050	-50.91	-13.00	Horizontal	N/A
3	1648.579	-44.09	-13.00	Horizontal	PASS
4	2472.589	-43.94	-13.00	Horizontal	PASS
5	3295.863	-51.21	-13.00	Horizontal	PASS
6	8264.730	-40.04	-13.00	Horizontal	PASS

(GSM 850MHz, Channel = 128, Horizontal)



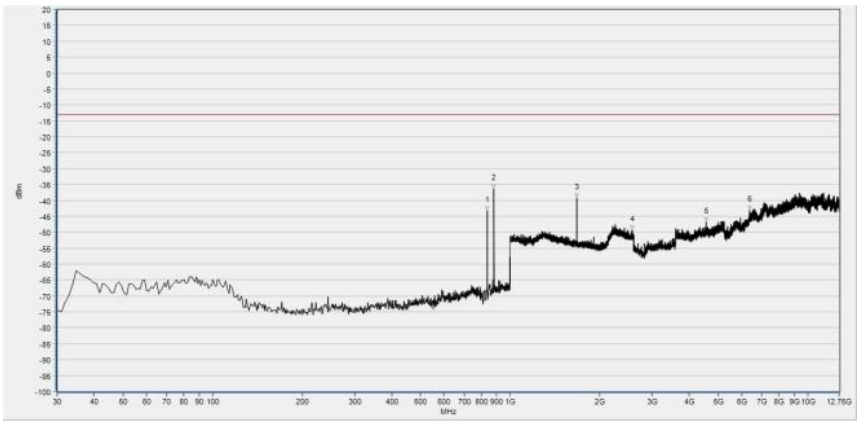
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	824.430	-29.67	-13.00	Vertical	N/A
2	869.050	-37.59	-13.00	Vertical	N/A
3	1647.939	-48.03	-13.00	Vertical	PASS
4	2231.853	-49.12	-13.00	Vertical	PASS
5	4410.720	-48.46	-13.00	Vertical	PASS
6	7159.102	-41.51	-13.00	Vertical	PASS

(GSM 850MHz, Channel = 128, Vertical)



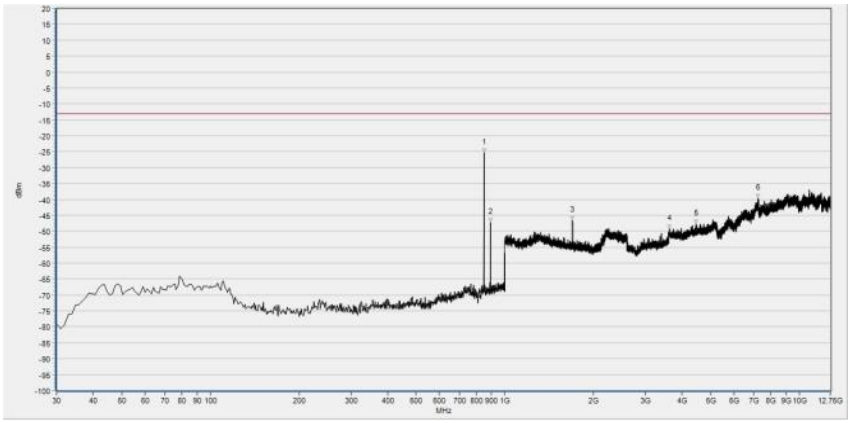
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	836.070	-33.47	-13.00	Horizontal	N/A
2	881.660	-53.06	-13.00	Horizontal	N/A
3	1672.909	-46.63	-13.00	Horizontal	PASS
4	2510.364	-48.53	-13.00	Horizontal	PASS
5	3615.185	-48.92	-13.00	Horizontal	PASS
6	7216.321	-40.19	-13.00	Horizontal	PASS

(GSM850MHz, Channel = 190, Horizontal)



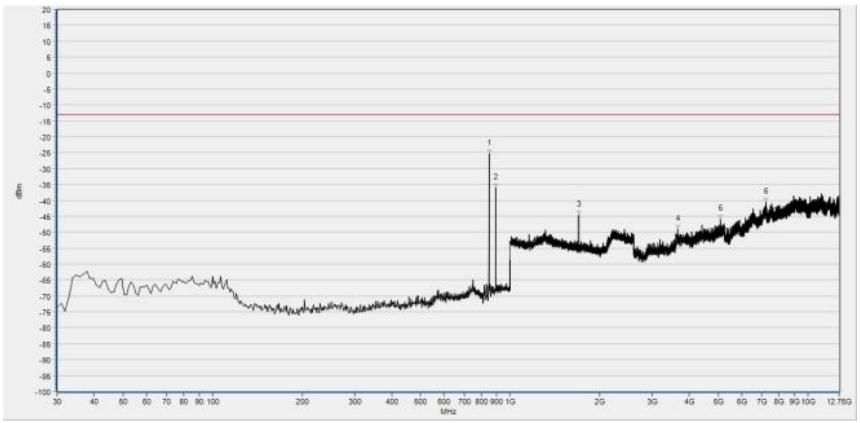
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	836.070	-43.18	-13.00	Vertical	N/A
2	881.660	-36.34	-13.00	Vertical	N/A
3	1672.909	-39.19	-13.00	Vertical	PASS
4	2565.426	-49.36	-13.00	Vertical	PASS
5	4545.463	-46.74	-13.00	Vertical	PASS
6	6380.178	-43.06	-13.00	Vertical	PASS

(GSM 850MHz, Channel = 190, Vertical)



Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	848.680	-25.39	-13.00	Horizontal	N/A
2	894.270	-47.33	-13.00	Horizontal	N/A
3	1697.239	-46.58	-13.00	Horizontal	PASS
4	3626.259	-49.38	-13.00	Horizontal	PASS
5	4447.636	-47.63	-13.00	Horizontal	PASS
6	7236.625	-39.72	-13.00	Horizontal	PASS

(GSM 850MHz, Channel = 251, Horizontal)



Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	848.680	-25.46	-13.00	Vertical	N/A
2	893.300	-36.06	-13.00	Vertical	N/A
3	1697.879	-44.47	-13.00	Vertical	PASS
4	3659.484	-49.06	-13.00	Vertical	PASS
5	5088.125	-46.02	-13.00	Vertical	PASS
6	7234.779	-40.65	-13.00	Vertical	PASS

(GSM 850MHz, Channel = 251, Vertical)