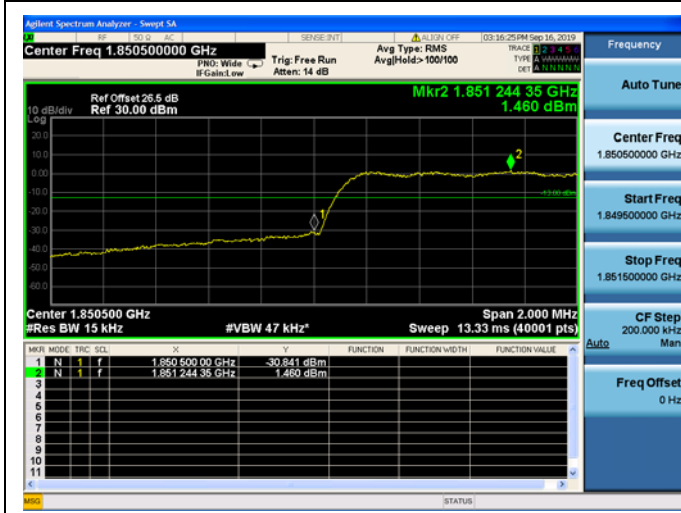




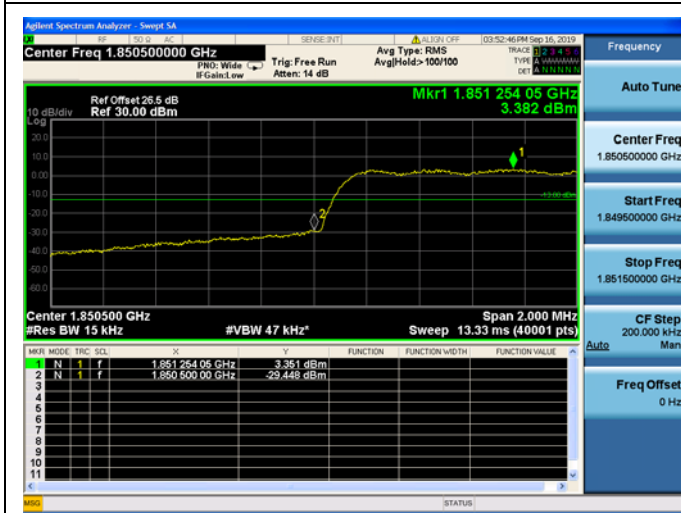
**CDMA BC1, Channel=25**



**CDMA BC1, Channel=1175**

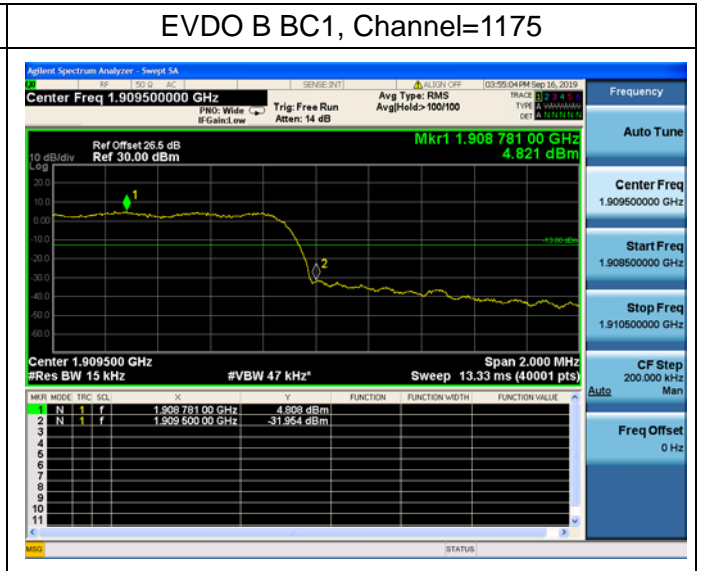
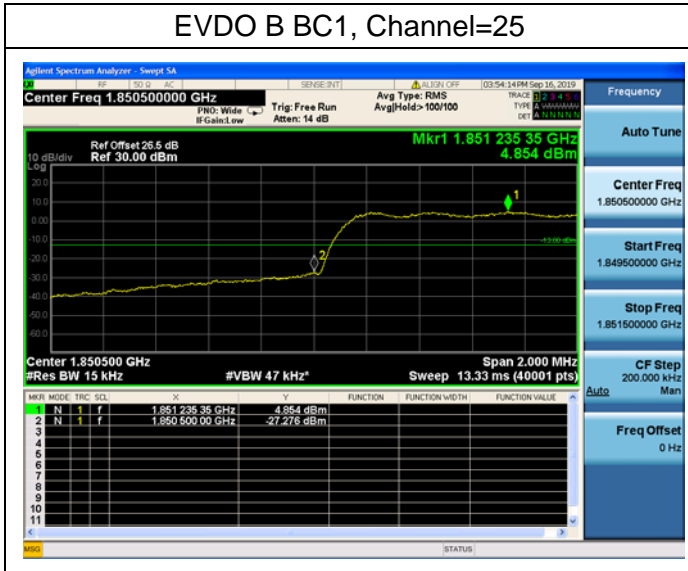
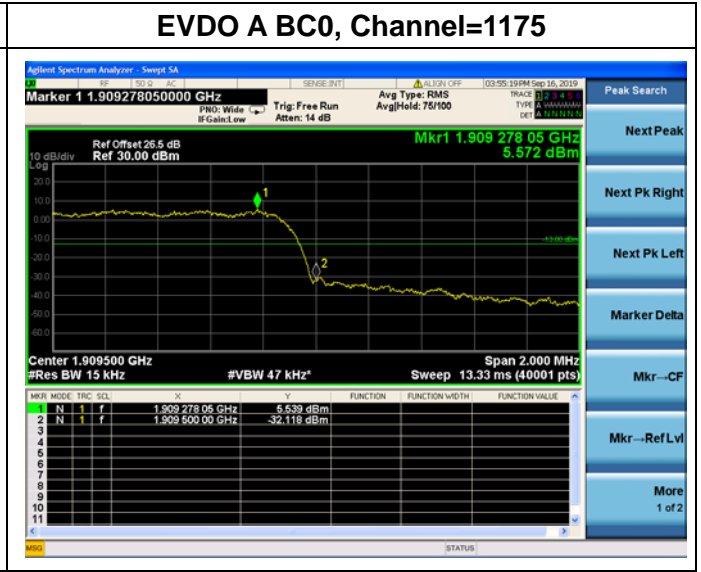
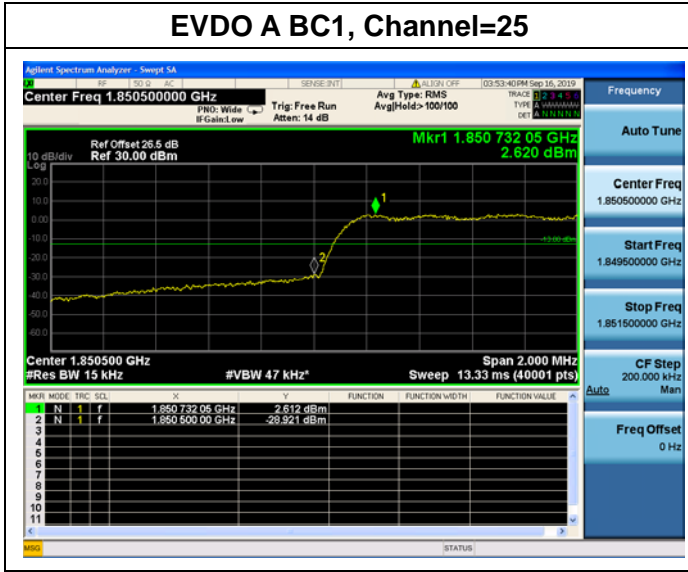


**EVDO 0 BC1, Channel=25**



**EVDO 0 BC1, Channel=1175**





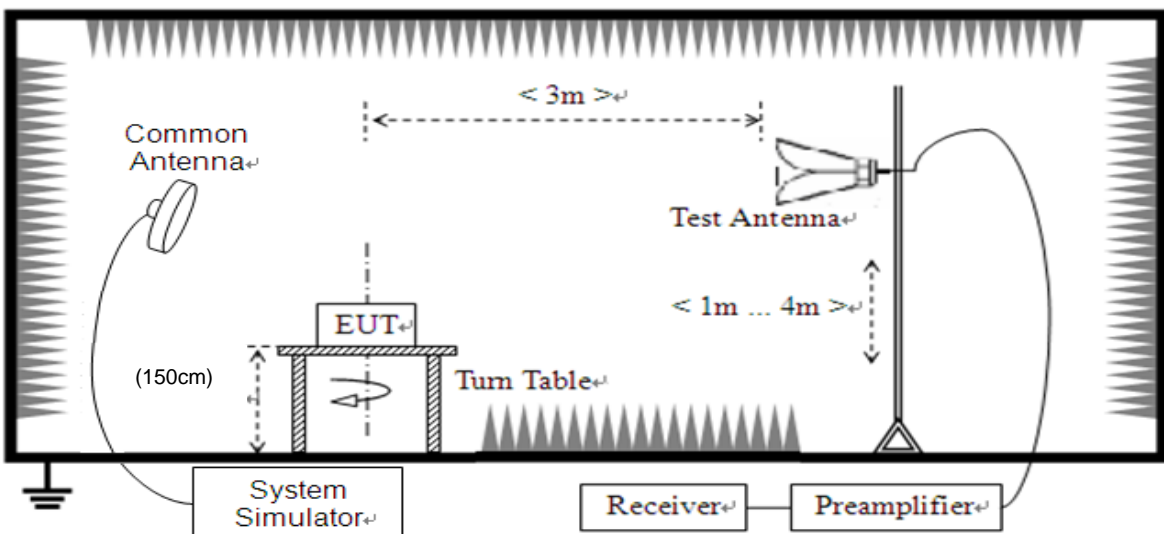
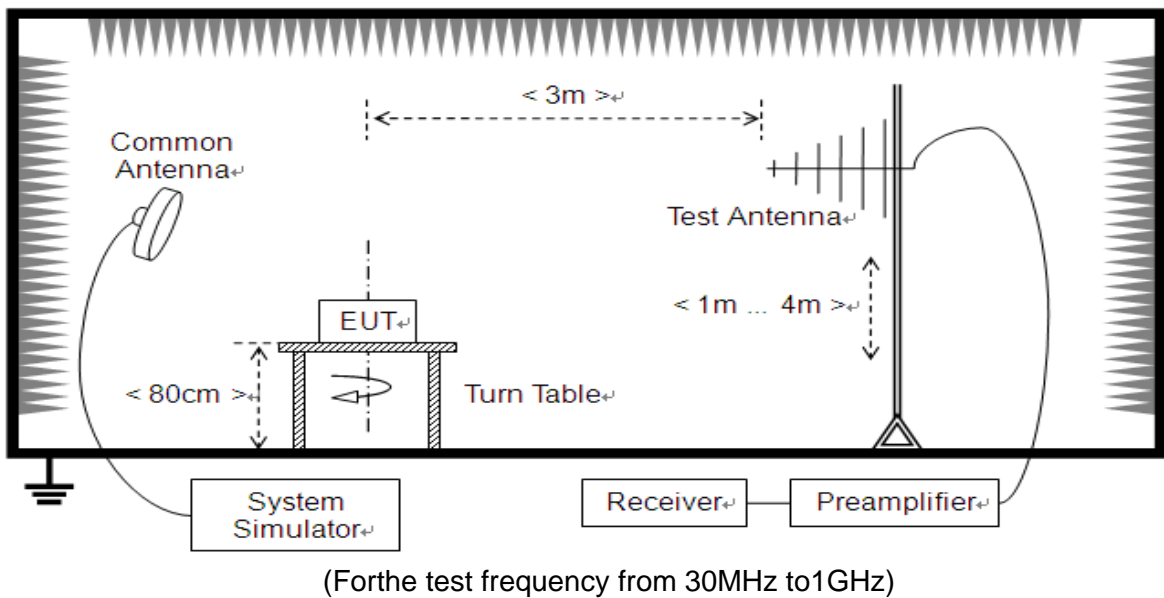
## 2.7. Transmitter Radiated Power (EIRP/ERP)

### 2.7.1. Requirement

According to FCC section 22.913 (a.2) for CDMA BC0, the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC section 24.232 (c) for CDMA BC1, Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

### 2.7.2. Test Description





(For the test frequency 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, and only the test result of the maximum output power was recorded.

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360° to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consist of Notch Filters and High Pass Filter.

### 2.7.3. Test procedure

KDB 971168 D01v03 Section 51&5.2 and ANSI/TIA-603-E-2016.

### 2.7.4. Test Result

The EUT was verified under all configurations (RB size and offset) and the worst case radiated power reported for each modulation/channel bandwidth.

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:

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

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

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

$P_{\text{SUBST\_TX}}$  is signal generator level,

$P_{\text{SUBST\_RX}}$  is receiver level,

$L_{\text{SUBST\_CABLES}}$  is cable losses including TX cable,

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

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

During the test, the data of  $A_{\text{TOT}}$  was added in the Test Spectrum Analyze, so Spectrum Analyze



reading is the final values which contain the data of  $A_{TOT}$ .

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

Top Antenna:

Band	CDMA2000 BC0					
TX Channel	1013		384		777	
Frequency (MHz)	824.7		836.52		848.31	
	dBm	W	dBm	W	dBm	W
RC1 SO55	22.77	0.189	22.78	0.190	22.83	0.192
RC3 SO55	22.92	0.196	22.95	0.197	22.87	0.194
RC3 SO32 (F+SCH)	22.85	0.193	22.89	0.195	22.71	0.187
RC3 SO32 (+SCH)	22.84	0.192	22.85	0.193	22.71	0.187
1xEVDO Rev 0	22.71	0.187	22.73	0.187	22.69	0.186
1xEVDO Rev A	22.52	0.179	22.46	0.176	22.51	0.178
1xEVDO Rev B	21.95	0.157	21.98	0.158	21.87	0.154

Band	CDMA2000 BC1					
TX Channel	25		600		1175	
Frequency (MHz)	1851.25		1880		1908.75	
	dBm	W	dBm	W	dBm	W
RC1 SO55	16.62	0.046	16.51	0.045	16.33	0.043
RC3 SO55	16.80	0.048	16.75	0.047	16.79	0.048
RC3 SO32 (F+SCH)	16.63	0.046	16.72	0.047	16.71	0.047
RC3 SO32 (+SCH)	16.63	0.046	16.68	0.047	16.69	0.047
1xEVDO Rev 0	16.60	0.046	16.53	0.045	16.02	0.040
1xEVDO Rev A	16.23	0.042	16.34	0.043	15.97	0.040
1xEVDO Rev B	16.23	0.042	16.34	0.043	15.97	0.040



**Test Plots:**

Bottom Antenna:

Band	CDMA2000 BC0					
TX Channel	1013		384		777	
Frequency (MHz)	824.7		836.52		848.31	
	dBm	W	dBm	W	dBm	W
RC1 SO55	22.77	0.189	22.78	0.190	22.83	0.192
RC3 SO55	22.92	0.196	22.95	0.197	22.87	0.194
RC3 SO32 (F+SCH)	22.85	0.193	22.89	0.195	22.71	0.187
RC3 SO32 (+SCH)	22.84	0.192	22.85	0.193	22.71	0.187
1XEVD0 Rev 0	22.71	0.187	22.73	0.187	22.69	0.186
1XEVD0 Rev A	22.52	0.179	22.46	0.176	22.51	0.178
1XEVD0 Rev B	21.95	0.157	21.98	0.158	21.87	0.154

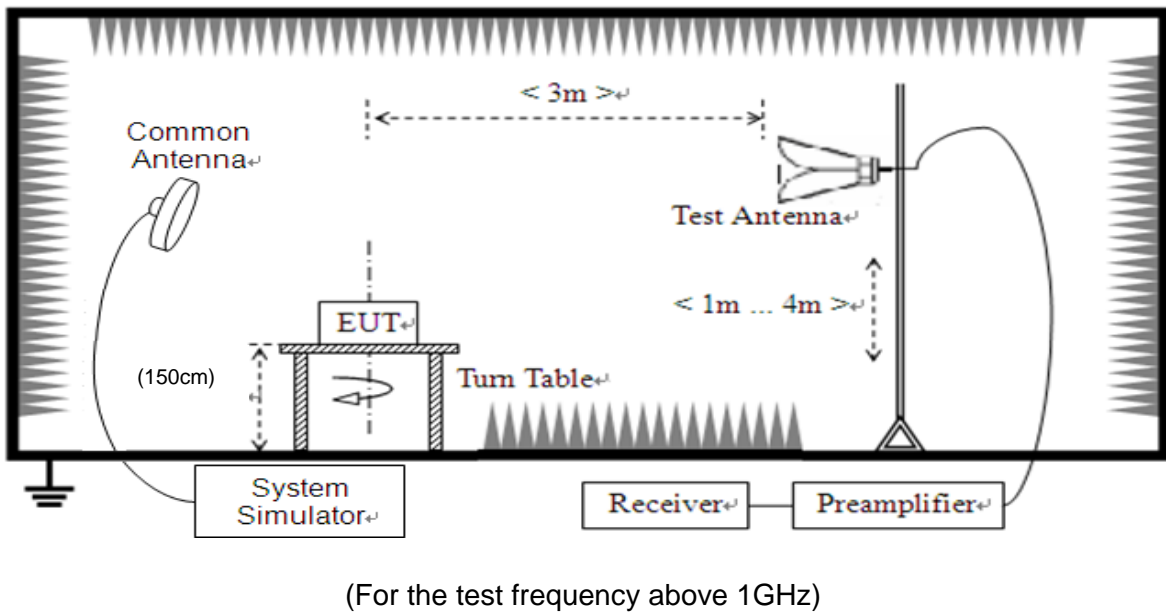
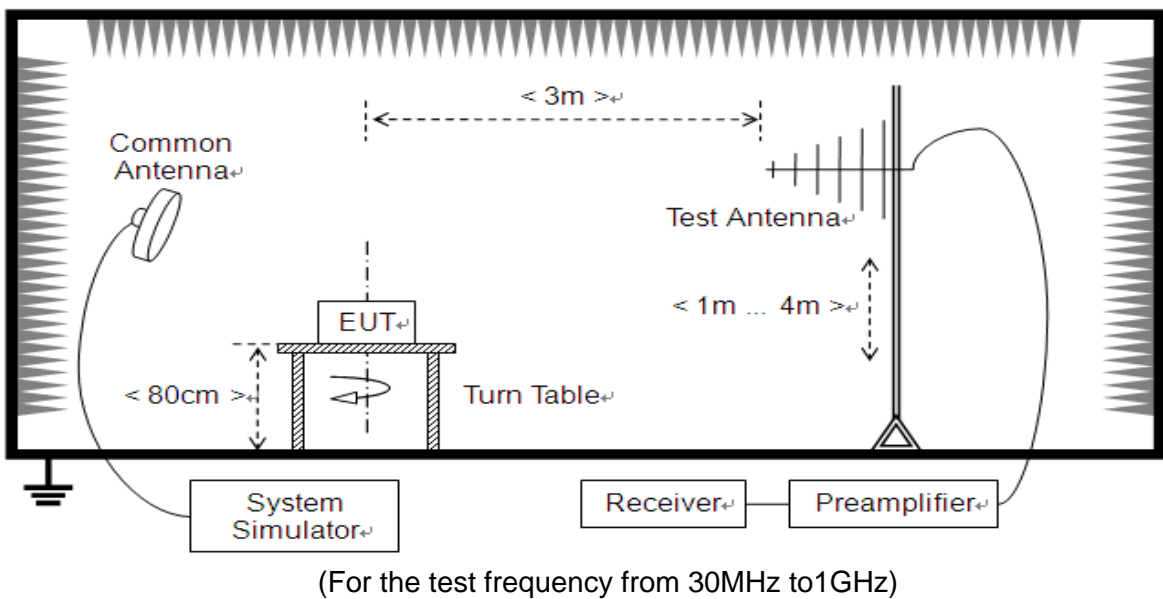
Band	CDMA2000 BC1					
TX Channel	25		600		1175	
Frequency (MHz)	1851.25		1880		1908.75	
	dBm	W	dBm	W	dBm	W
RC1 SO55	19.04	0.080	18.93	0.078	18.75	0.075
RC3 SO55	19.22	0.084	19.17	0.083	19.21	0.083
RC3 SO32 (F+SCH)	19.05	0.080	19.14	0.082	19.13	0.082
RC3 SO32 (+SCH)	19.05	0.080	19.10	0.081	19.11	0.081
1XEVD0 Rev 0	19.02	0.080	18.95	0.079	18.44	0.070
1XEVD0 Rev A	18.65	0.073	18.76	0.075	18.39	0.069
1XEVD0 Rev B	18.11	0.065	18.03	0.064	17.91	0.062

## 2.8. Radiated Spurious Emissions

### 2.8.1. Requirement

According to FCC section 2.1051, 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







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, and only the test result of the maximum output power was recorded.

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360° to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. 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 procedure

KDB 971168 D01v03 Section 5.8 and ANSI/TIA-603-E-2016.

### 2.8.4. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. Test Antenna height is varied from 1m to 4m above the ground, and the Turn Table is actuated to turn from 0° to 360°, both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

**Note1:** The power of the EUT transmitting frequency should be ignored.

**Note2:** 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.

**Note3:** All bandwidth and test channel were considered and evaluated respectively by performing full test for each band, only the worst cases were recorded in this test report.

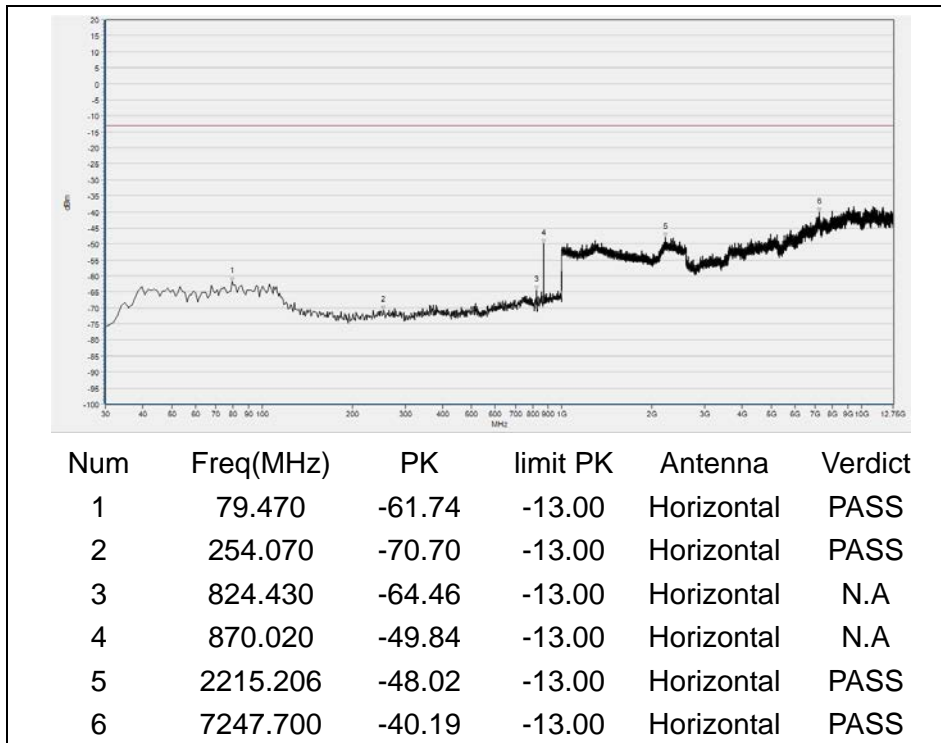


**A. Test Verdict:**

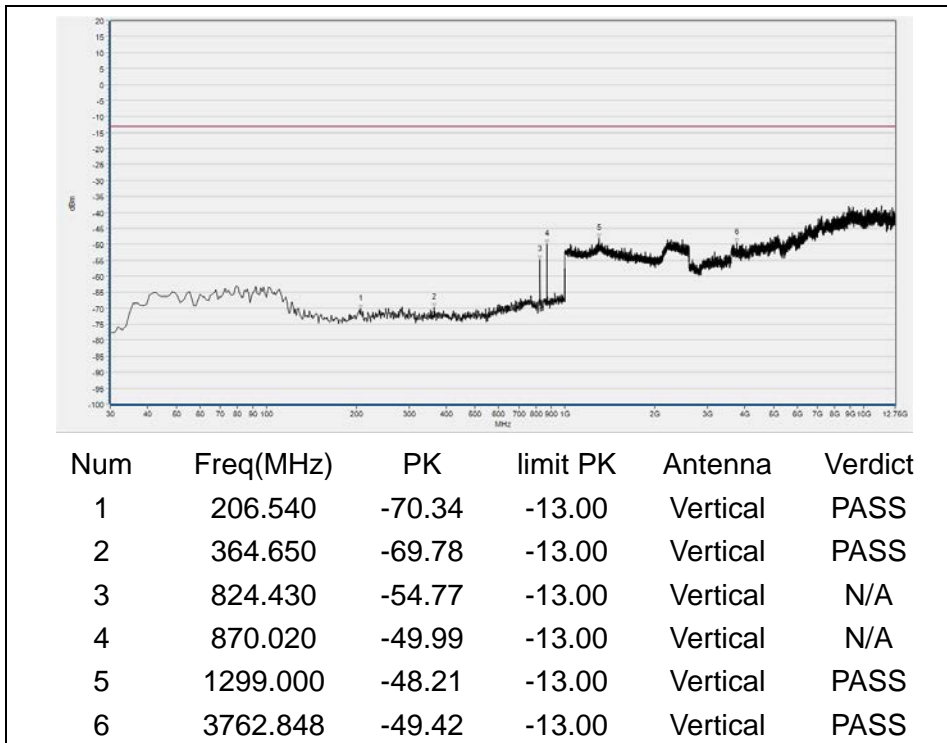
Top Antenna:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical		
CDMA (BC0)	1013	824.7	< -25	< -25	-13	PASS
	384	836.52	< -25	< -25		PASS
	777	848.31	< -25	< -25		PASS
CDMA (BC1)	25	1851.25	< -25	< -25	-13	PASS
	600	1880	< -25	< -25		PASS
	1175	1908.75	< -25	< -25		PASS

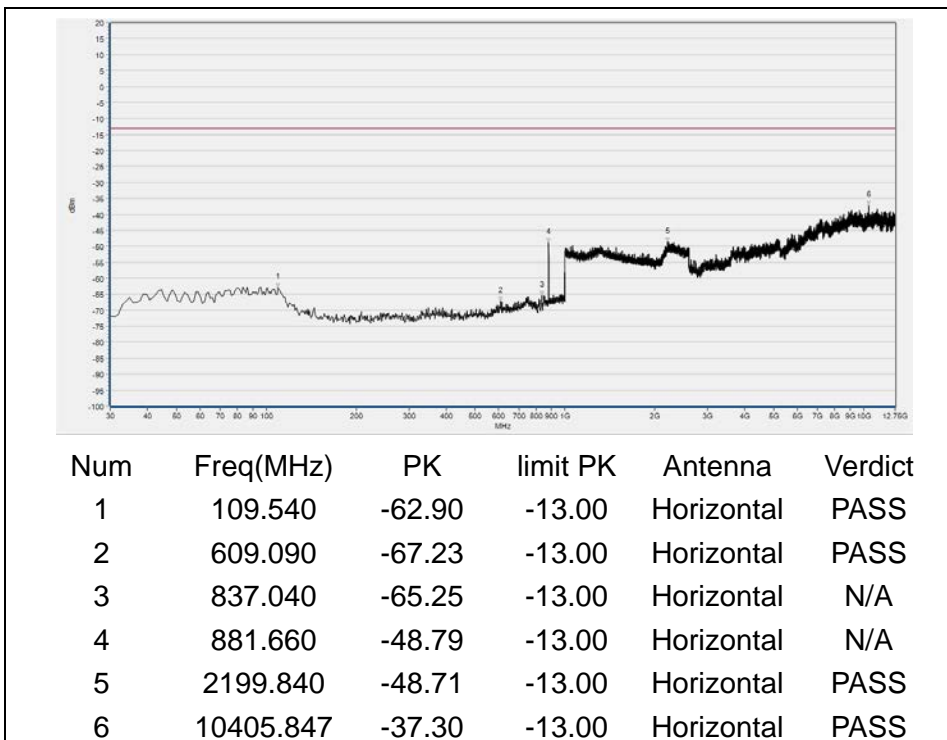
**B. Test Plots**



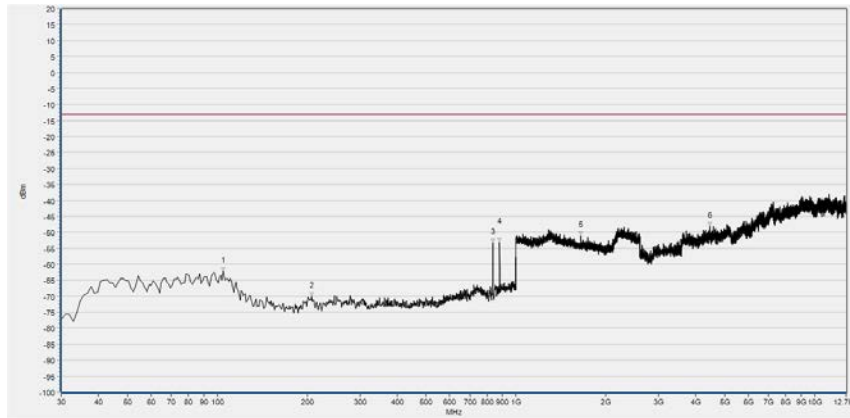
(CDMA BC0, Channel = 1013)



(CDMA BC0, Channel = 1013)

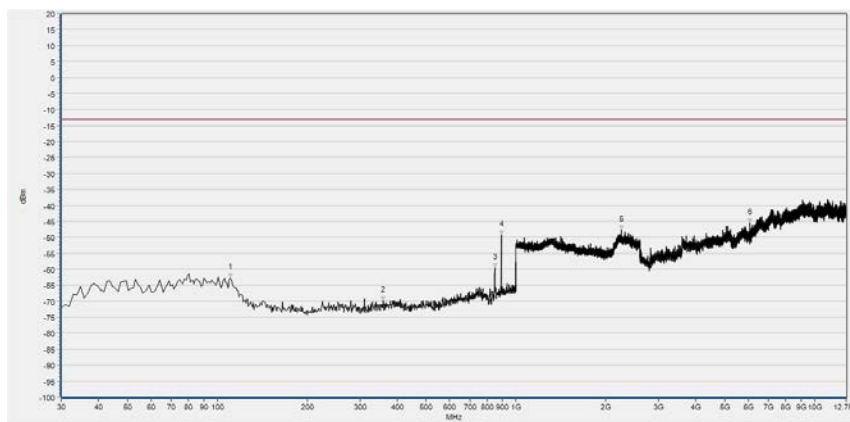


(CDMA BC0, Channel = 384)



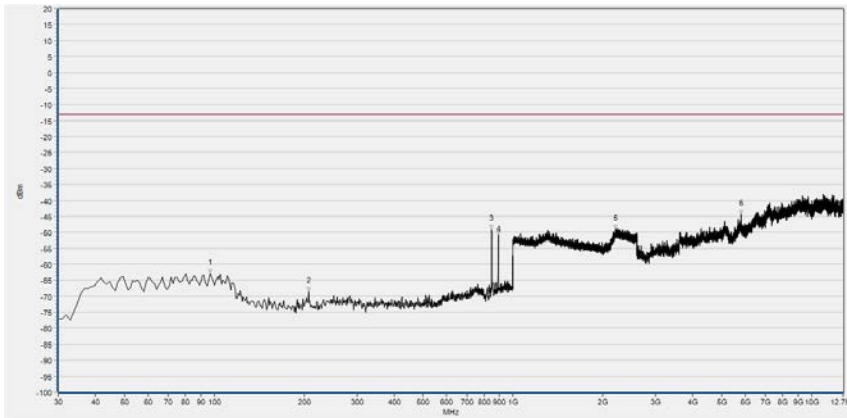
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	104.690	-62.21	-13.00	Vertical	PASS
2	206.540	-70.03	-13.00	Vertical	PASS
3	836.070	-53.25	-13.00	Vertical	N/A
4	880.690	-53.03	-13.00	Vertical	N/A
5	1649.220	-51.07	-13.00	Vertical	PASS
6	4455.019	-48.20	-13.00	Vertical	PASS

(CDMA BC0, Channel = 384)



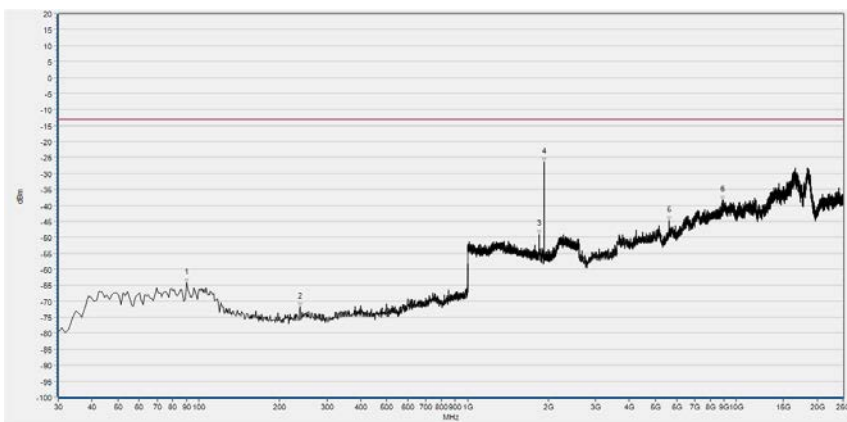
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	110.510	-62.67	-13.00	Horizontal	PASS
2	358.830	-69.89	-13.00	Horizontal	PASS
3	848.680	-59.59	-13.00	Horizontal	N/A
4	892.330	-49.22	-13.00	Horizontal	N/A
5	2253.621	-47.63	-13.00	Horizontal	PASS
6	6059.011	-45.44	-13.00	Horizontal	PASS

(CDMA BC0, Channel = 777)



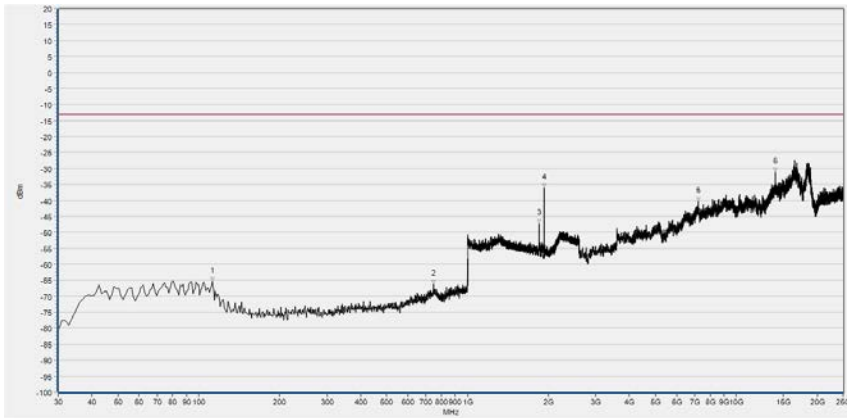
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	96.930	-62.97	-13.00	Vertical	PASS
2	206.540	-68.42	-13.00	Vertical	PASS
3	847.710	-49.05	-13.00	Vertical	N/A
4	893.300	-50.74	-13.00	Vertical	N/A
5	2204.322	-49.12	-13.00	Vertical	PASS
6	5807.983	-44.39	-13.00	Vertical	PASS

(CDMA BC0, Channel = 777)



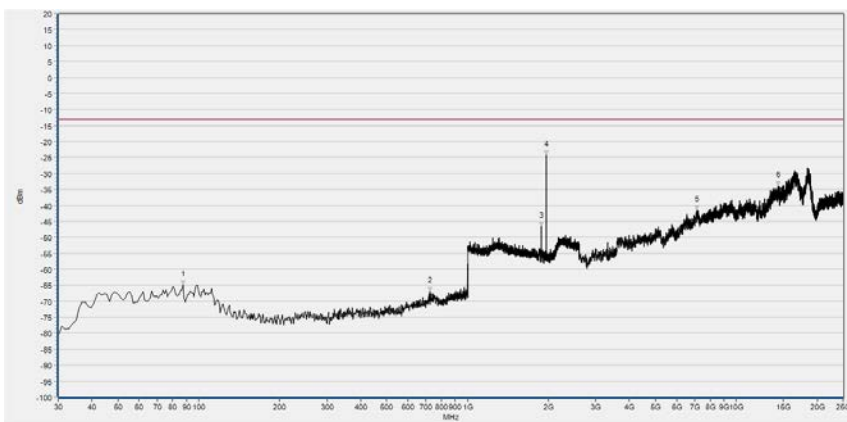
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	90.140	-64.35	-13.00	Horizontal	PASS
2	238.550	-71.77	-13.00	Horizontal	PASS
3	1851.541	-49.06	-13.00	Horizontal	N/A
4	1931.573	-26.41	-13.00	Horizontal	N/A
5	5618.440	-44.88	-13.00	Horizontal	PASS
6	8893.508	-38.43	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 25)



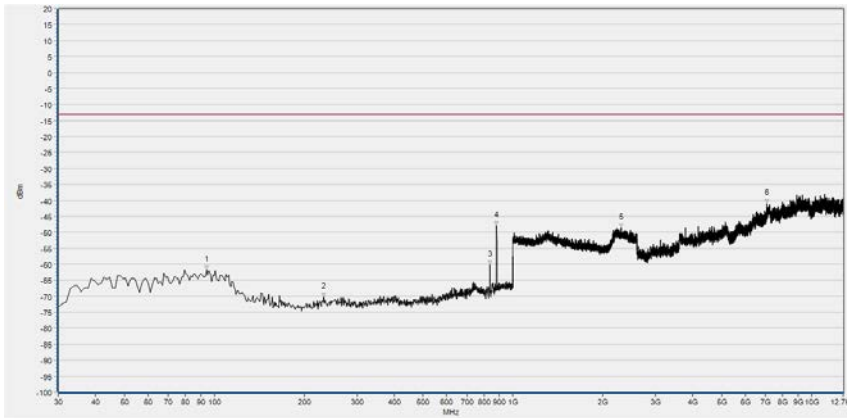
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	112.450	-65.43	-13.00	Vertical	PASS
2	748.770	-66.25	-13.00	Vertical	PASS
3	1851.541	-47.25	-13.00	Vertical	N/A
4	1931.573	-36.04	-13.00	Vertical	N/A
5	7207.092	-40.44	-13.00	Vertical	PASS
6	13964.975	-31.14	-13.00	Vertical	PASS

(CDMA BC1, Channel = 25)



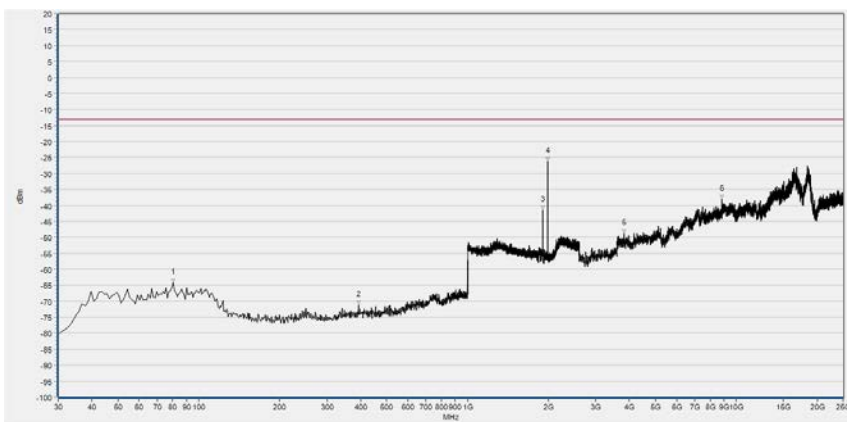
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	90.140	-63.25	-13.00	Horizontal	PASS
2	356.890	-70.39	-13.00	Horizontal	PASS
3	1879.072	-43.20	-13.00	Horizontal	N/A
4	1959.744	-27.19	-13.00	Horizontal	N/A
5	5154.064	-45.63	-13.00	Horizontal	PASS
6	9455.646	-38.08	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 600)



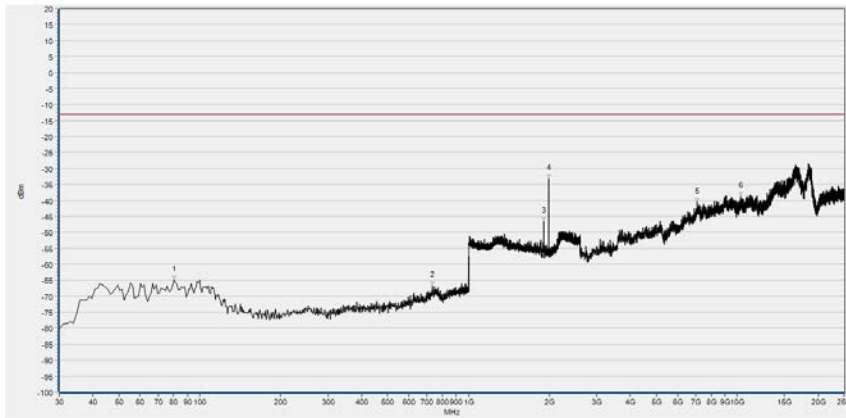
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	87.230	-65.01	-13.00	Vertical	PASS
2	725.490	-66.83	-13.00	Vertical	PASS
3	1879.072	-46.52	-13.00	Vertical	N/A
4	1959.744	-24.32	-13.00	Vertical	N/A
5	7150.064	-41.38	-13.00	Vertical	PASS
6	14315.294	-33.95	-13.00	Vertical	PASS

(CDMA BC1, Channel = 600)



Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	80.440	-64.29	-13.00	Horizontal	PASS
2	392.780	-71.22	-13.00	Horizontal	PASS
3	1908.523	-41.43	-13.00	Horizontal	N/A
4	1988.555	-26.34	-13.00	Horizontal	N/A
5	3826.114	-48.93	-13.00	Horizontal	PASS
6	8860.920	-38.04	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 1175)



Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	80.440	-64.94	-13.00	Vertical	PASS
2	733.250	-66.77	-13.00	Vertical	PASS
3	1908.523	-46.57	-13.00	Vertical	N/A
4	1988.555	-33.16	-13.00	Vertical	N/A
5	7105.256	-40.59	-13.00	Vertical	PASS
6	10274.414	-38.83	-13.00	Vertical	PASS

(CDMA BC1, Channel = 1175)



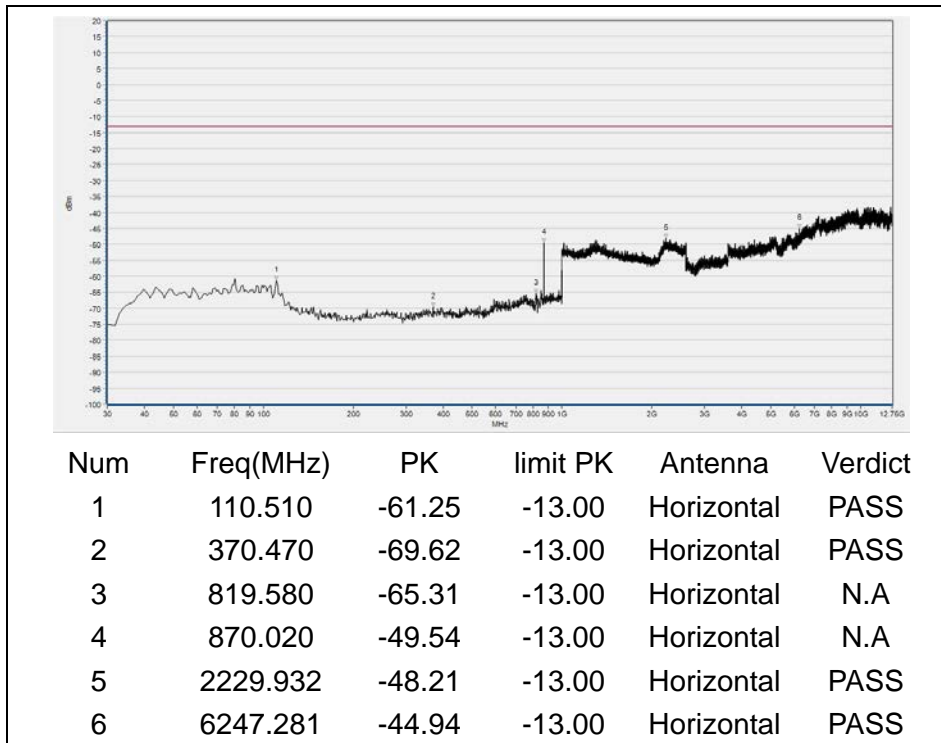


**C. Test Verdict:**

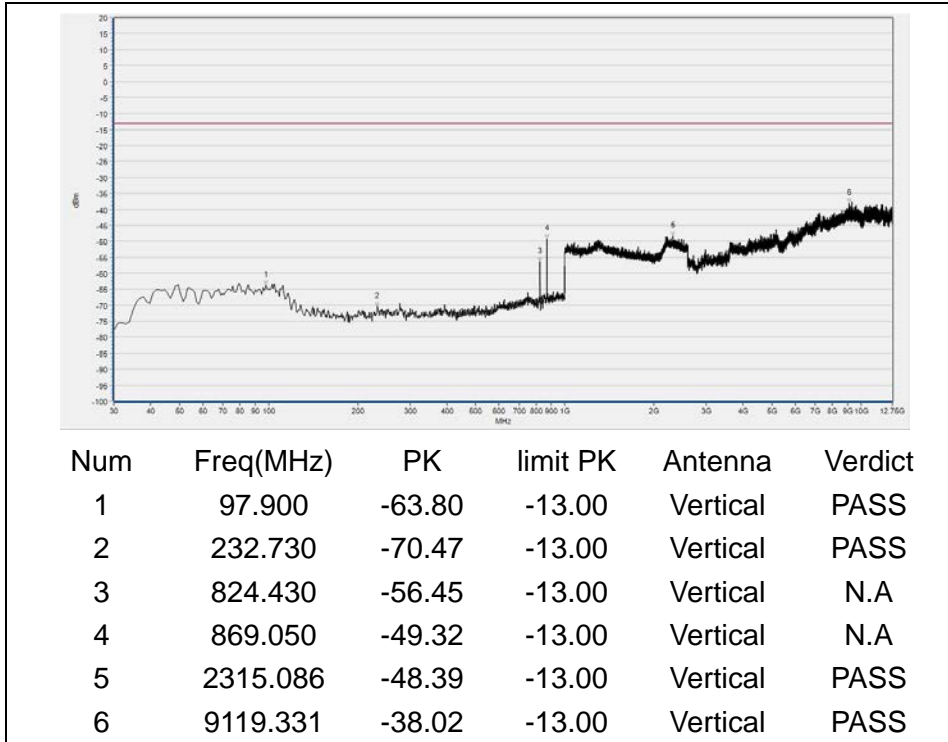
Bottom Antenna:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical		
CDMA (BC0)	1013	824.7	< -25	< -25	-13	PASS
	384	836.52	< -25	< -25		PASS
	777	848.31	< -25	< -25		PASS
CDMA (BC1)	25	1851.25	< -25	< -25	-13	PASS
	600	1880	< -25	< -25		PASS
	1175	1908.75	< -25	< -25		PASS

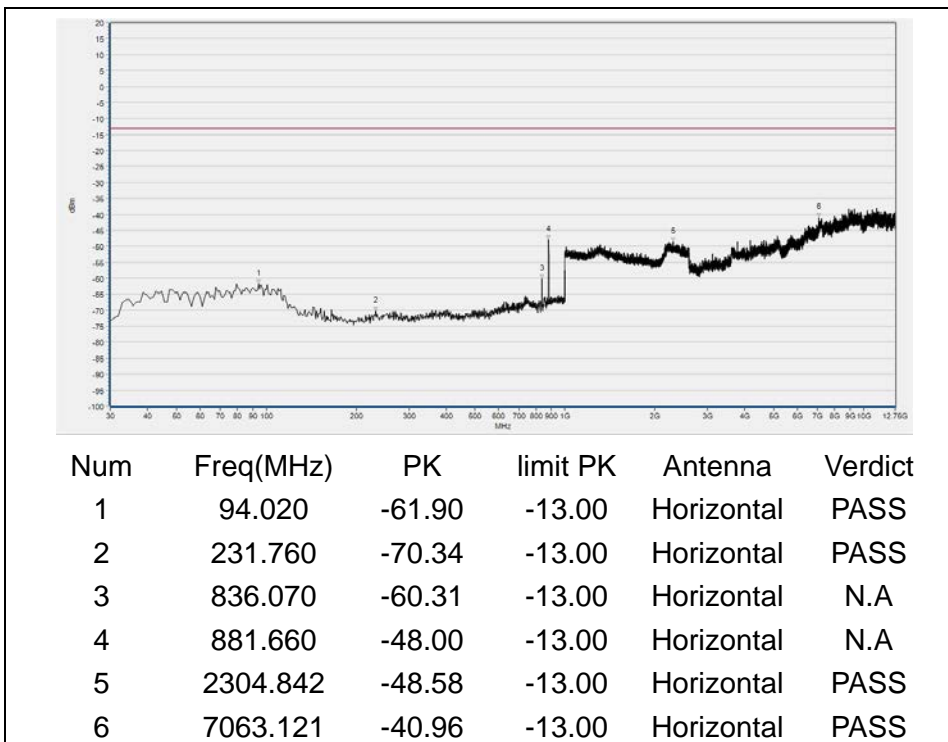
**D. Test Plots**



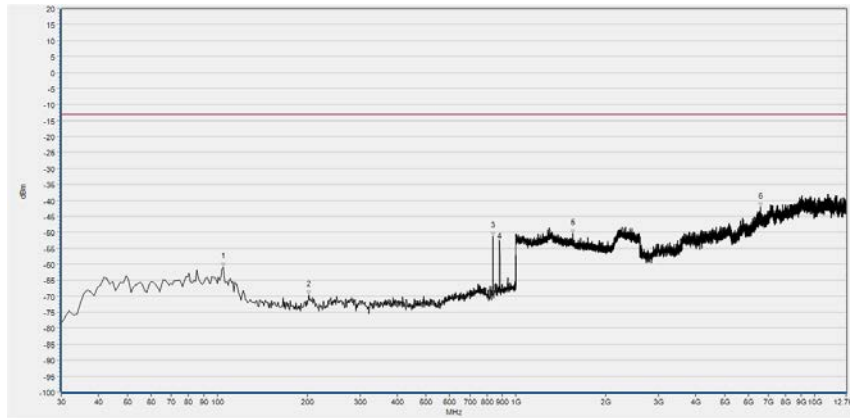
(CDMA BC0, Channel = 1013)



(CDMA BC0, Channel = 1013)

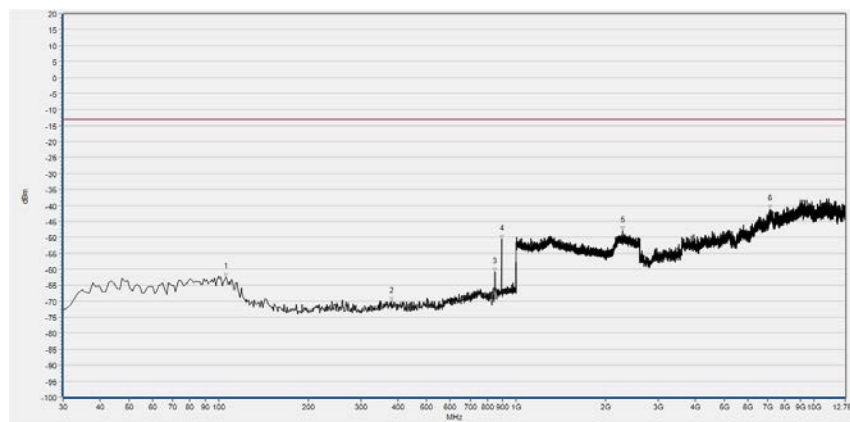


(CDMA BC0, Channel = 384)



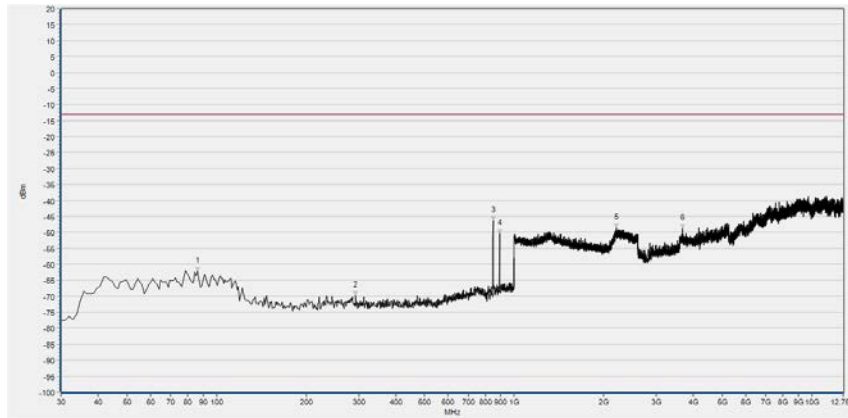
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	104.690	-60.84	-13.00	Vertical	PASS
2	202.660	-69.72	-13.00	Vertical	PASS
3	836.070	-51.35	-13.00	Vertical	N.A
4	881.660	-52.74	-13.00	Vertical	N.A
5	1550.620	-50.42	-13.00	Vertical	PASS
6	6579.524	-42.05	-13.00	Vertical	PASS

(CDMA BC0, Channel = 384)



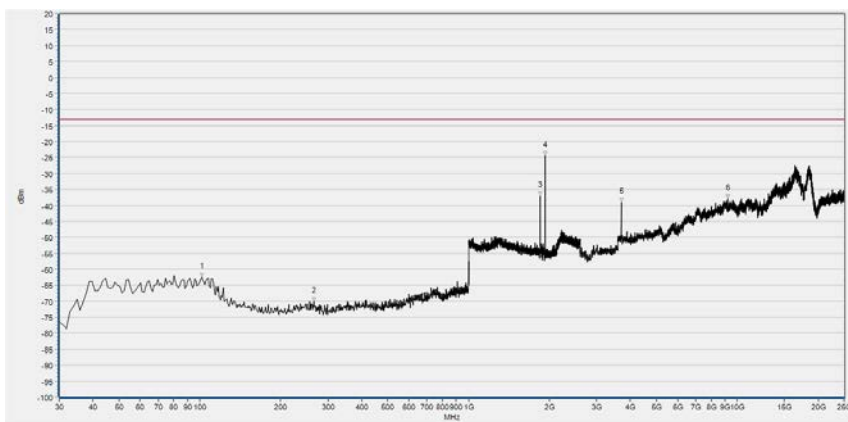
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	105.660	-62.45	-13.00	Horizontal	PASS
2	381.140	-70.02	-13.00	Horizontal	PASS
3	847.710	-60.84	-13.00	Horizontal	N.A
4	893.300	-50.66	-13.00	Horizontal	N.A
5	2272.189	-48.00	-13.00	Horizontal	PASS
6	7122.186	-41.13	-13.00	Horizontal	PASS

(CDMA BC0, Channel = 777,)



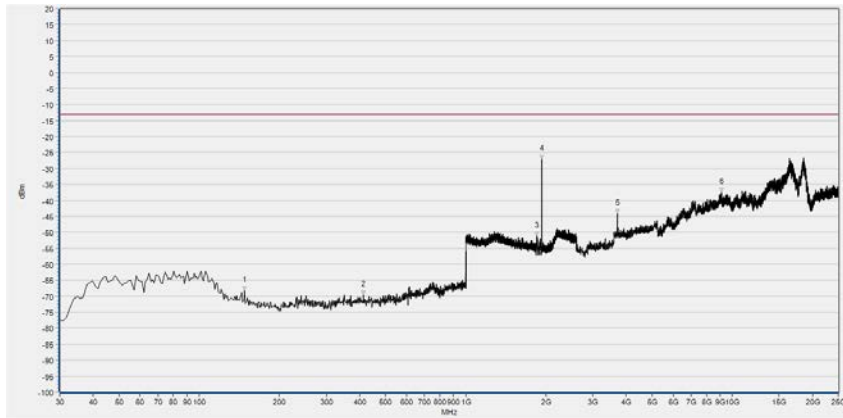
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	86.260	-62.32	-13.00	Vertical	PASS
2	292.870	-69.80	-13.00	Vertical	PASS
3	848.680	-46.31	-13.00	Vertical	N.A
4	893.300	-50.43	-13.00	Vertical	N.A
5	2204.962	-48.70	-13.00	Vertical	PASS
6	3676.096	-48.87	-13.00	Vertical	PASS

(CDMA BC0, Channel = 777)



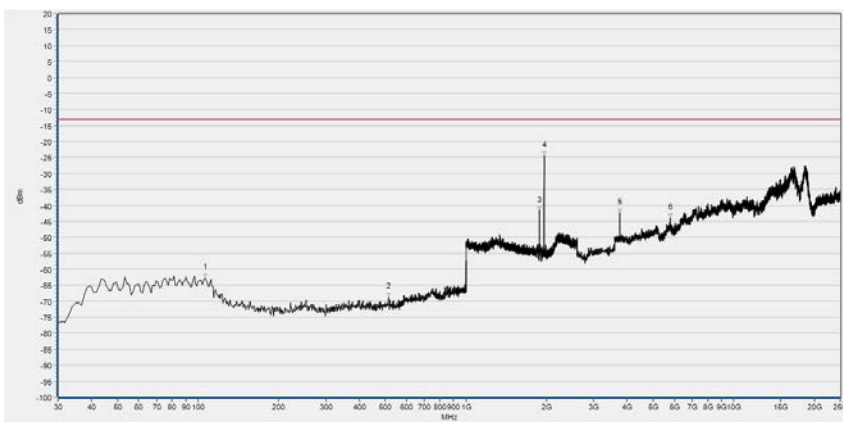
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	101.780	-62.53	-13.00	Horizontal	PASS
2	265.710	-70.11	-13.00	Horizontal	PASS
3	1851.541	-36.89	-13.00	Horizontal	N.A
4	1931.573	-24.44	-13.00	Horizontal	N.A
5	3699.836	-39.05	-13.00	Horizontal	PASS
6	9207.165	-37.97	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 25)



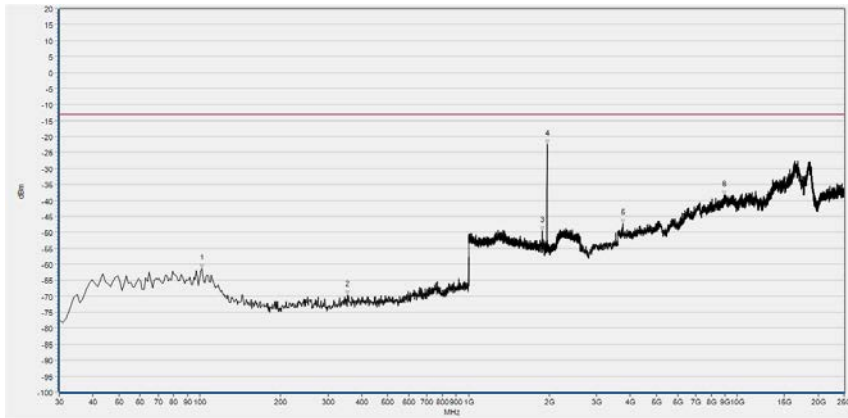
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	148.340	-68.28	-13.00	Vertical	PASS
2	413.150	-69.54	-13.00	Vertical	PASS
3	1850.260	-51.19	-13.00	Vertical	N.A
4	1930.932	-27.21	-13.00	Vertical	N.A
5	3699.836	-44.24	-13.00	Vertical	PASS
6	9141.989	-37.35	-13.00	Vertical	PASS

(CDMA BC1, Channel = 25)



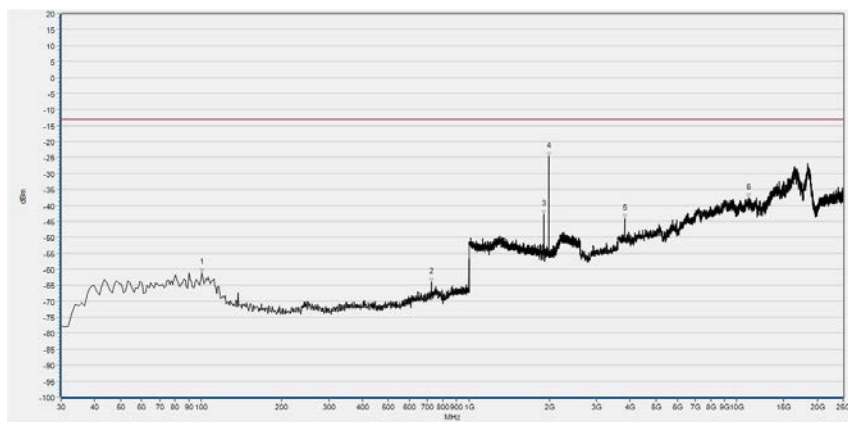
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	106.630	-62.74	-13.00	Horizontal	PASS
2	514.030	-68.67	-13.00	Horizontal	PASS
3	1879.072	-41.74	-13.00	Horizontal	N.A
4	1959.744	-24.54	-13.00	Horizontal	N.A
5	3760.938	-42.42	-13.00	Horizontal	PASS
6	5809.893	-43.96	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 600)



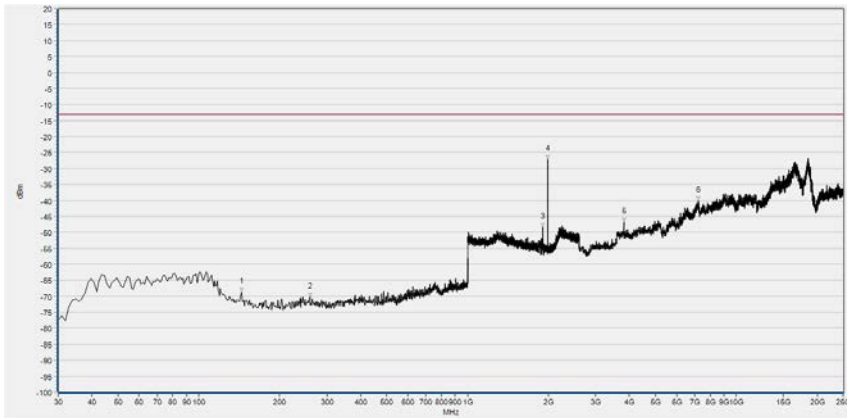
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	101.780	-61.33	-13.00	Vertical	PASS
2	354.950	-69.68	-13.00	Vertical	PASS
3	1879.712	-49.51	-13.00	Vertical	N.A
4	1959.744	-22.51	-13.00	Vertical	N.A
5	3760.938	-47.22	-13.00	Vertical	PASS
6	8942.390	-38.42	-13.00	Vertical	PASS

(CDMA BC1, Channel = 600)



Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	100.810	-61.06	-13.00	Horizontal	PASS
2	725.490	-64.02	-13.00	Horizontal	PASS
3	1908.523	-42.84	-13.00	Horizontal	N.A
4	1988.555	-24.76	-13.00	Horizontal	N.A
5	3817.967	-44.17	-13.00	Horizontal	PASS
6	11068.740	-37.58	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 1175)



Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	144.460	-68.76	-13.00	Vertical	PASS
2	258.920	-70.35	-13.00	Vertical	PASS
3	1908.523	-48.41	-13.00	Vertical	N.A
4	1988.555	-27.05	-13.00	Vertical	N.A
5	3817.967	-46.86	-13.00	Vertical	PASS
6	7223.386	-40.21	-13.00	Vertical	PASS

(CDMA BC1, Channel = 1175)



## Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test items	Uncertainty
Output Power	$\pm 2.22$ dB
Bandwidth	$\pm 5\%$
Conducted Spurious Emission	$\pm 2.77$ dB
Band Edge	$\pm 2.77$ dB
Equivalent Isotropic Radiated Power	$\pm 2.22$ dB
Radiated Spurious Emissions	$\pm 6$ dB

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$





## Annex B Testing Laboratory Information

### 1. Identification of the Responsible Testing Laboratory

<b>Company Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd.
<b>Department:</b>	Morlab Laboratory
<b>Address:</b>	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China
<b>Responsible Test Lab Manager:</b>	Mr. Su Feng
<b>Telephone:</b>	+86 755 36698555
<b>Facsimile:</b>	+86 755 36698525

### 2. Identification of the Responsible Testing Location

<b>Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
<b>Address:</b>	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China

### 3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.



#### 4. Test Equipments Utilized

##### 4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Power Splitter	NW521	1506A	Weinschel	2019.04.17	2020.04.16
Attenuator 1	(N/A.)	10dB	Resnet	2019.04.17	2020.04.16
Attenuator 2	(N/A.)	3dB	Resnet	2019.04.17	2020.04.16
EXA Signal Analyzer	MY53470836	N9010A	Agilent	2018.11.06	2019.11.05
Wireless synthesizer	MY48364176	8960 -E5515C	Agilent	2019.04.17	2020.04.16
RF cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial cable	CB02	RF02	Morlab	N/A	N/A
SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Temperature Chamber	(N/A)	HUT705P	CHONGQING HANBA EXPERIMENTAL EQUIPMENT CO.,LTD	2019.04.17	2020.04.16
Computer	T430i	Think Pad	Lenovo	N/A	N/A

**4.3 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
System Simulator	152038	CMW500	R&S	2019.08.04	2020.08.03
Receiver	MY54130016	N9038A	Agilent	2019.05.18	2020.05.17
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.03.03	2020.03.02
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2019.08.06	2020.08.05
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2019.08.02	2020.08.01
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2019.05.08	2020.05.07
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2019.05.08	2020.05.07
Notch Filter	N/A	WRCG-GSM 850	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCG-GSM 1900	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCGV-W Band V	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCGV-W Band II	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCGV-W Band IV	Wainwright	2018.12.01	2019.11.30
Anechoic Chamber	N/A	9m*6m*6m	CRT	2017.11.19	2020.11.18

END OF REPORT