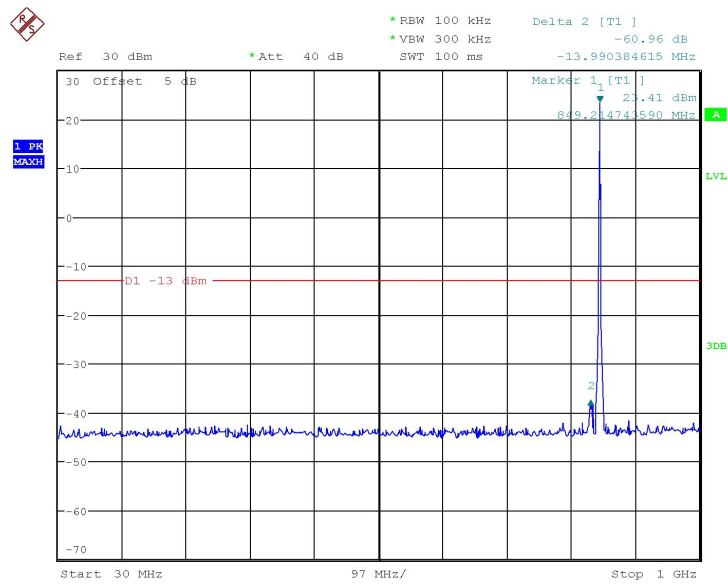


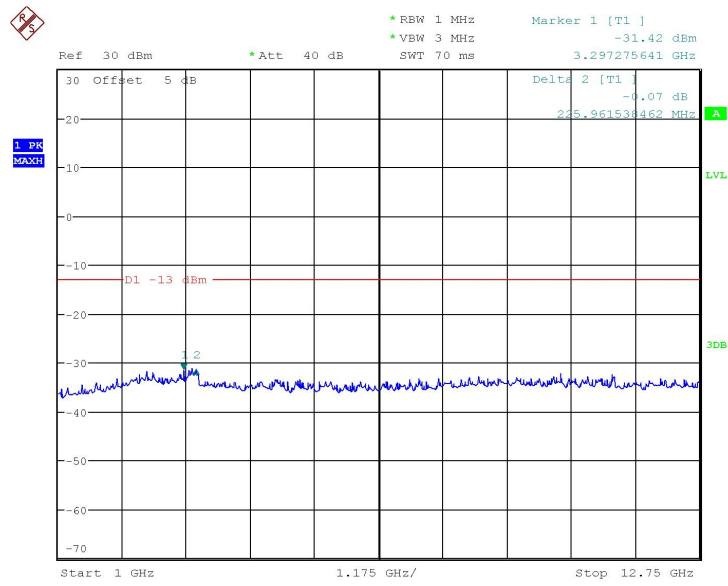
Date: 17.SEP.2018 11:36:53

## Channel 777: 150kHz~30MHz



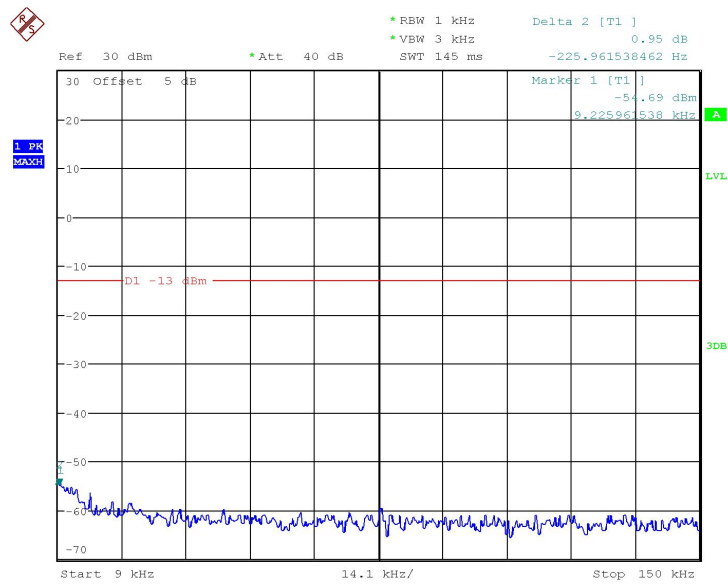
Date: 17.SEP.2018 11:37:38

## Channel 777: 30MHz~1GHz



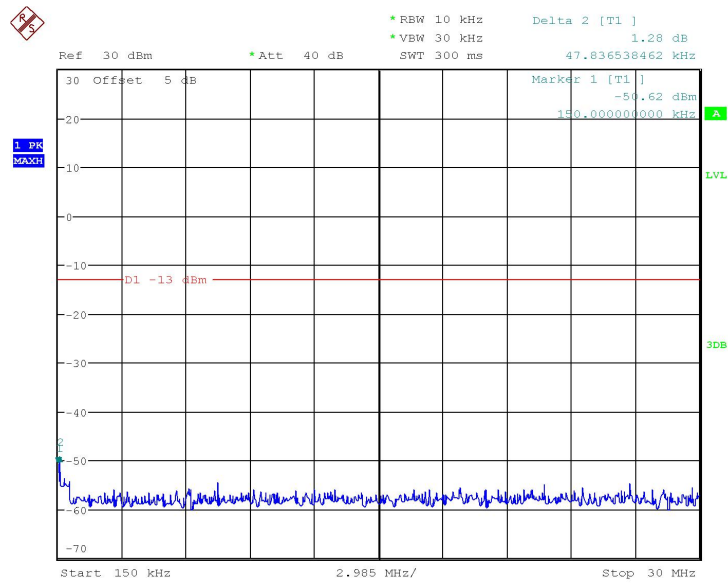
Date: 17.SEP.2018 11:38:18

## Channel 777: 1GHz~12.75GHz



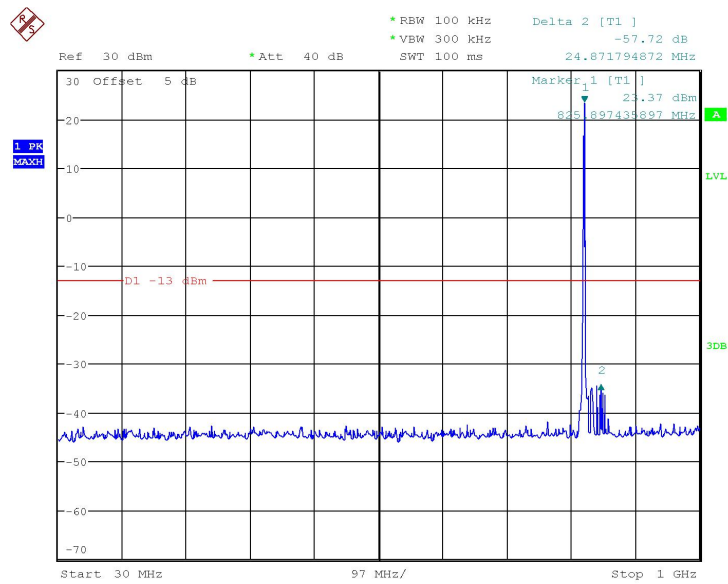
Date: 17.SEP.2018 11:39:00

## Channel 1013: 9KHz~150KHz



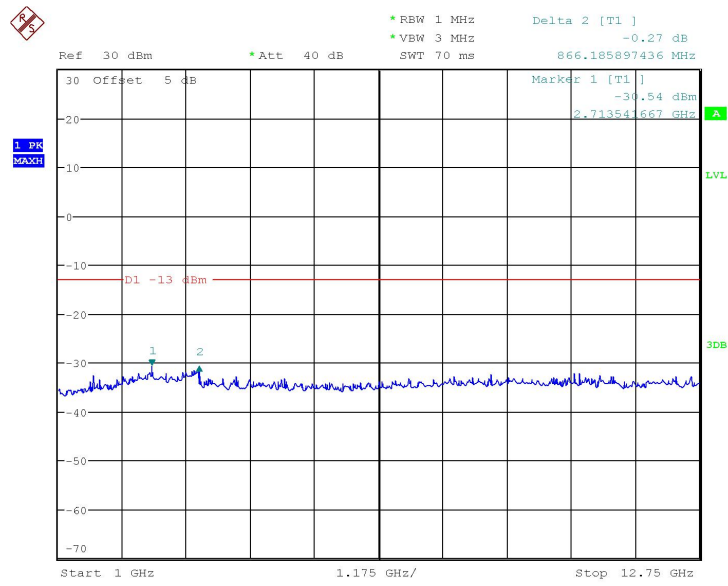
Date: 17.SEP.2018 11:39:31

## Channel 1013: 150KHz~30MHz



Date: 17.SEP.2018 11:40:06

## Channel 1013: 30MHz~1GHz

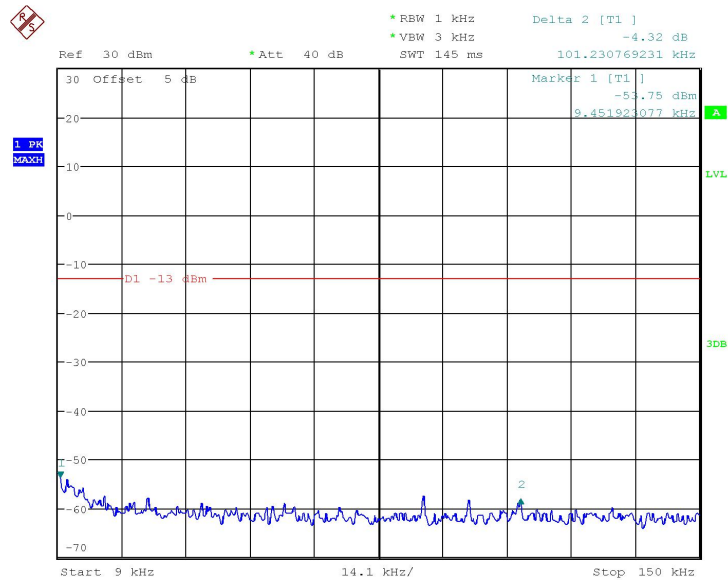


Date: 17.SEP.2018 11:40:45

## Channel 1013: 1GHz~12.75GHz

**Conclusion: PASS**

### A7.1.2.6. 1xEV-DO PCS Transmitter BC0 Release A



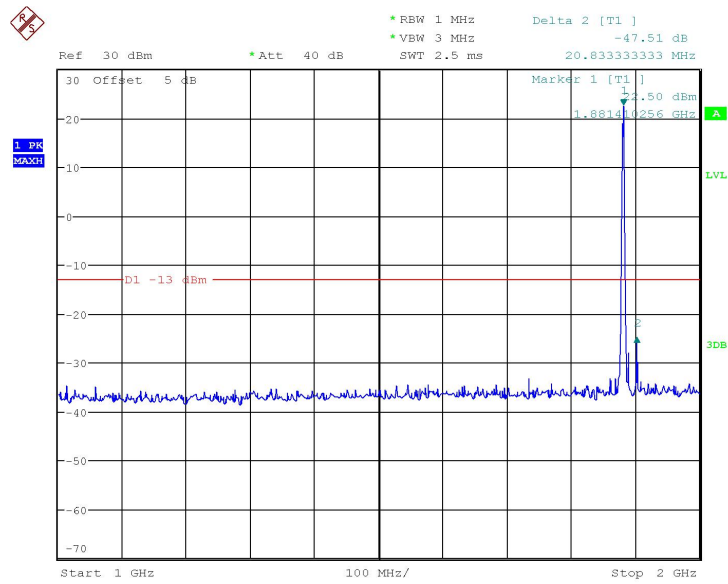
Date: 17.SEP.2018 11:14:37

## Channel 25: 9KHz~150KHz



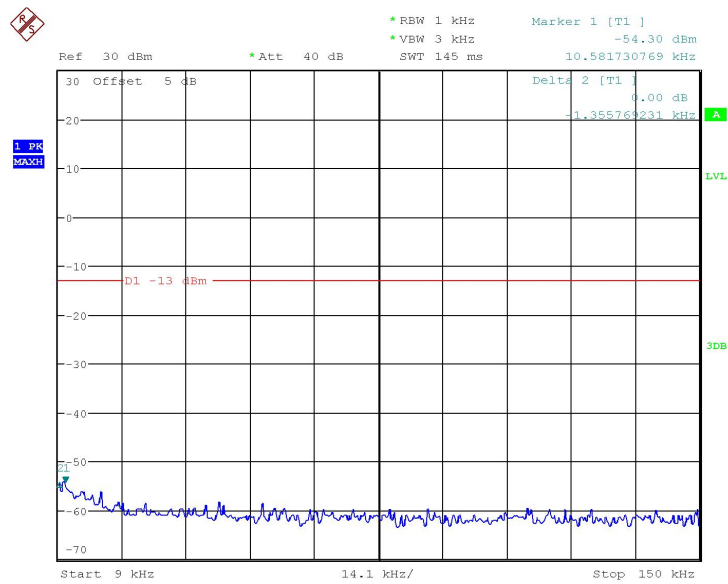






Date: 17.SEP.2018 11:21:02

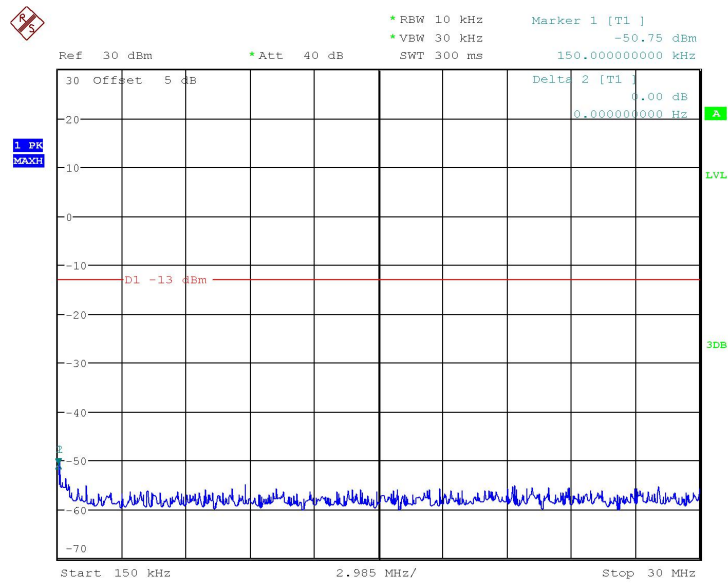
## Channel 600: 1GHz~2GHz



Date: 17.SEP.2018 11:22:06

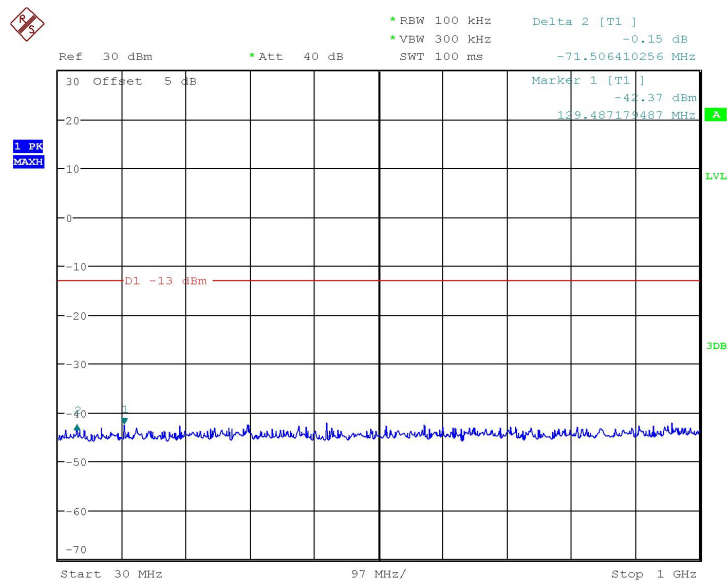
## Channel 1175: 9KHz~150KHz





Date: 17.SEP.2018 11:22:37

## Channel 1175: 150KHz~30MHz

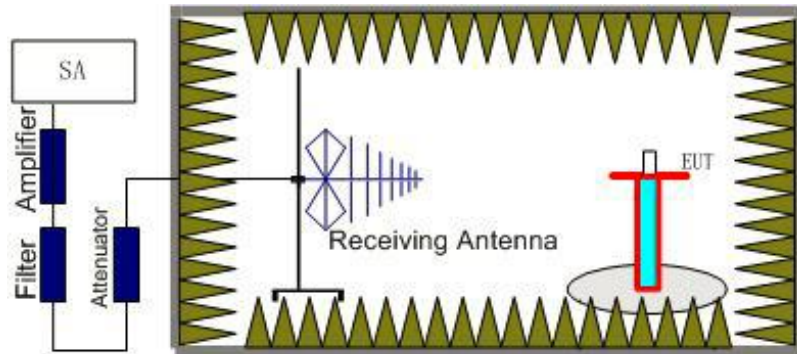


Date: 17.SEP.2018 11:23:10

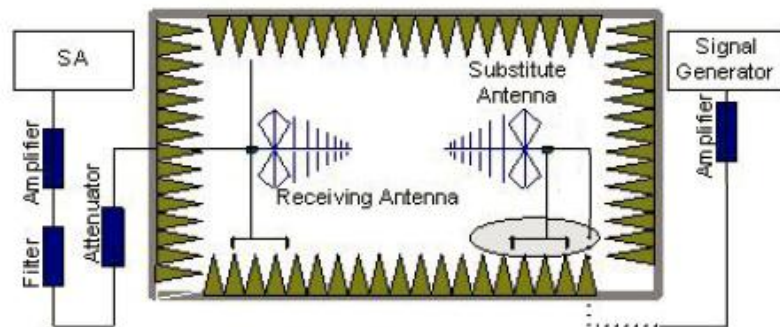
## Channel 1175: 30MHz~1GHz



360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at thereference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of thereceiver reach the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna.

The cable loss ( $P_{cl}$ ), the Substitution Antenna Gain ( $G_a$ ) and the Amplifier Gain ( $P_{Ag}$ ) should be recorded after test.

The measurement results are obtained as described below:

$$\text{Power(EIRP)} = P_{Mea} + P_{Ag} - P_{cl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dBi) and known input power.

6. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dBi}$ .

### **A.8.1.1.3 CDMA2000 Cellular -ERP 22.913(a)**

#### **A.8.1.1.3.1 Measurement result**

#### **CDMA2000 Cellular BC0**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dBd)	PeakERP(dBm)	Polarization
836.52	-14.51	3.1	37	3.11	22.50	H
848.31	-14.51	3.1	37	3.11	22.50	H
824.7	-14.47	3.1	37	3.11	22.54	H

**Frequency: 824.2MHz**

$$\text{Peak ERP(dBm)} = P_{\text{Mea}}(-14.47\text{dBm}) - P_{\text{cl}}(3.1\text{dB}) + P_{\text{Ag}}(37\text{dB}) + G_{\text{a}}(3.11\text{dBd}) = 22.54\text{dBm}$$

**Note: ANALYZER SETTINGS: RBW = VBW = 3MHz**

### A.8.1.1.4 CDMA2000 PCS-EIRP 24.232(c)

#### A.8.1.1.4.1 Measurement result

##### CDMA2000 PCS BC1

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dBi)	PeakEIRP(dBm)	Polarization
1851.25	-11.11	4.6	36	2.8	23.09	V
1880.0	-10.29	4.6	35.6	2.8	23.51	V
1908.75	-11.1	4.7	36	2.8	23.00	H

**Frequency: 1880MHz**

$$\text{Peak EIRP(dBm)} = P_{\text{Mea}}(-11.1\text{dBm}) - P_{\text{cl}}(4.7\text{dB}) + P_{\text{Ag}}(36\text{dB}) + G_{\text{a}}(2.8\text{dB}) = 23.00\text{dBm}$$

**ANALYZER SETTINGS: RBW = VBW = 3MHz**

### A.8.1.1.5 1xEV-DO PCS-EIRP 24.232(c)

#### A.8.1.1.5.1 Measurement result

##### 1xEV-DO Cellular BC0 Release 0

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dBd)	PeakERP(dBm)	Polarization
836.52	-15.05	3.1	37	3.11	21.96	H
848.31	-15.07	3.1	37	3.11	21.94	H
824.7	-14.86	3.1	37	3.11	22.15	H

**Frequency: 824.2MHz**

$$\text{Peak ERP(dBm)} = P_{\text{Mea}}(-14.86\text{dBm}) - P_{\text{cl}}(3.1\text{dB}) + P_{\text{Ag}}(37\text{dB}) + G_{\text{a}}(3.11\text{dBd}) = 22.15\text{dBm}$$

**Note: ANALYZER SETTINGS: RBW = VBW = 3MHz**

### A.8.1.1.6 1xEV-DO PCS-EIRP 24.232(c)

#### A.8.1.1.6.1 Measurement result

##### 1xEV-DO PCS BC1 Release 0

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dBi)	PeakEIRP(dBm)	Polarization
1851.25	-9.65	4.6	36	2.8	24.55	H
1880.0	-9.68	4.6	35.6	2.8	24.12	H
1908.75	-11.15	4.7	36	2.8	22.95	H

**Frequency: 1880MHz**

**Peak EIRP(dBm)= P<sub>Mea</sub>(-11.15dBm) - P<sub>cl</sub>(4.7dB)+ P<sub>Ag</sub>(36dB) +G<sub>a</sub>(2.8dB)=22.95dBm**

**ANALYZER SETTINGS: RBW = VBW = 3MHz**

### A.8.1.1.5 1xEV-DO PCS-EIRP 24.232(c)

#### A.8.1.1.5.1 Measurement result

##### 1xEV-DO Cellular BC0 Release A

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dBd)	PeakERP(dBm)	Polarization
836.52	-15.49	3.1	37	3.11	21.52	H
848.31	-14.82	3.1	37	3.11	22.19	H
824.7	-14.58	3.1	37	3.11	22.43	H

**Frequency: 824.2MHz**

**Peak ERP(dBm)= P<sub>Mea</sub>(-14.58dBm) - P<sub>cl</sub>(3.1dB) +P<sub>Ag</sub>(37dB) + G<sub>a</sub>(3.11dBd)  
= 22.43dBm**

**Note: ANALYZER SETTINGS: RBW = VBW = 3MHz**

### A.8.1.1.6 1xEV-DO PCS-EIRP 24.232(c)

#### A.8.1.1.6.1 Measurement result

##### 1xEV-DO PCS BC1 Release A

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	P <sub>Ag</sub> (dB)	G <sub>a</sub> Antenna Gain(dBi)	PeakEIRP(dBm)	Polarization
1851.25	-9.86	4.6	36	2.8	24.34	H
1880.0	-9.89	4.6	35.6	2.8	23.91	H
1908.75	-10.32	4.7	36	2.8	23.78	H

**Frequency: 1880MHz**

**Peak EIRP(dBm)=  $P_{Mea}(-10.32dBm) - P_{cl}(4.7dB) + P_{Ag}(36dB) + G_a(2.8dB)=23.78dBm$**

**ANALYZER SETTINGS: RBW = VBW = 3MHz**

**A.8.2 EMISSION LIMIT (§2.1051/§22.917§24.238)**

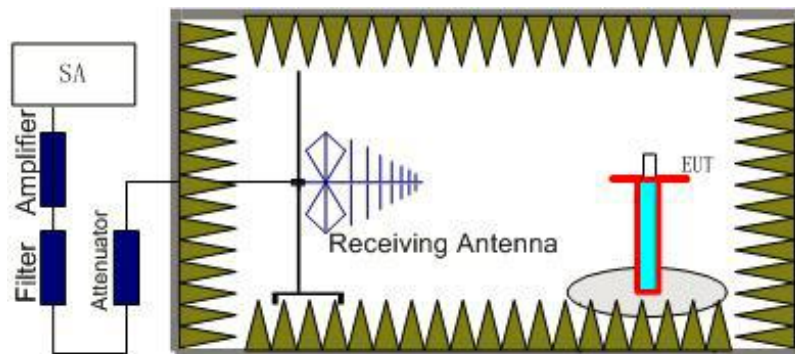
**A.8.2.1 CDMA/1xEV-DO Measurement Method**

The measurement procedures in TIA-603E-2016 are used.

The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz. The resolution bandwidth is set as outlined in Part 24.238 and Part 22.917. The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of PCS1900 and GSM850.

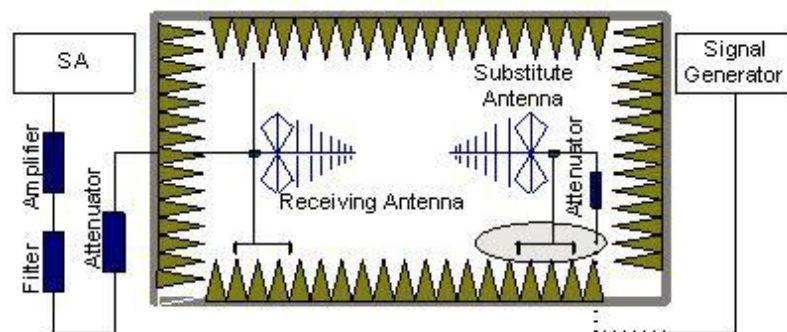
**A.8.2.2 The procedure of radiated spurious emissions is as follows:**

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10<sup>th</sup> harmonic were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).

3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the

reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss ( $P_{pl}$ ) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain ( $G_a$ ) should be recorded after test.

A amplifier should be connected in for the test.

The Path loss ( $P_{pl}$ ) is the summation of the cable loss .

The measurement results are obtained as described below:

$$\text{Power(EIRP)} = P_{Mea} - P_{pl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

6. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dBi}$

**A.8.2.3 Measurement Limit**

Part 24.238 and Part 22.917 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

The specification that emissions shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

**A.8.2.4 Measurement Results**

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS1900 band (1850.2 MHz, 1880 MHz and 1909.8 MHz) and GSM850 band (824.2MHz, 836.6MHz, 848.8MHz) . It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the PCS1900 ,GSM850 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

**A.8.2.5 Measurement Results**

**Measurements results:**

Frequency	Channel	Frequency Range	Result
<b>CDMA2000 Cellular BC0</b>	Low	30MHz~10GHz	P
	Middle	30MHz~10GHz	P

	High	30MHz~10GHz	P
<b>CDMA2000 PCS BC1</b>	Low	30MHz~20GHz	P
	Middle	30MHz~20GHz	P
	High	30MHz~20GHz	P
	Low	30MHz~10GHz	P
<b>1xEV-DO Cellular BC0</b>	Middle	30MHz~10GHz	P
	High	30MHz~10GHz	P
	Low	30MHz~20GHz	P
<b>1xEV-DO Cellular BC0</b>	Middle	30MHz~20GHz	P
	High	30MHz~20GHz	P

**CDMA2000 Cellular  
BC0 Channel 384**

**Final result:**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
2633.6	-35.73	5.5	4.1	-37.13	-13	H
3579.2	-47.03	6.5	4.7	-48.83	-13	H
4566.9	-48.16	7.4	7.3	-48.26	-13	V
5417.3	-49.46	8.1	9.5	-48.06	-13	V
6012.3	-50.07	8.6	10.4	-48.27	-13	V
7367.7	-50.41	9.6	13.7	-46.31	-13	V

**Note:**

**BC0, CH384**

**Power(ERP)= Pmea-Pcl+Ga=-50.41-9.6+13.7=-46.31dbm**

**This method Applicable to the following table.**

**BC0 Channel 777**

**Final result:**



Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1870.7	-41.1	4.6	2.9	-42.8	-13	V
3346.2	-47.47	6.2	4.7	-48.97	-13	H
4549.6	-47.34	7.4	7.3	-47.44	-13	V
5371.2	-48.64	8.1	8.7	-48.04	-13	H
6349.2	-48.95	8.8	10.8	-46.95	-13	V
7221.5	-51.34	9.5	13.7	-47.14	-13	H

**BC0 Cellular Mode Channel 1013**

**Final result:**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1850.4	-40.75	4.6	2.9	-42.45	-13	H
2622.9	-35.94	5.5	3.7	-37.74	-13	H
3572.3	-47.17	6.4	4.7	-48.87	-13	V
4080.0	-50.06	7.0	7.7	-49.36	-13	V
4562.3	-48.6	7.4	7.3	-48.7	-13	H
5425.4	-49.74	8.1	9.5	-48.34	-13	V

**CDMA2000 PCS**

**BC1 Mode Channel 25**

**Final result:**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3574.8	-50.66	6.4	4.7	-52.36	-13	H
5557.2	-52.95	8.2	9.5	-51.65	-13	V
7569.6	-54.33	9.7	14.6	-49.43	-13	H
9868.8	-53.89	11.0	18.3	-46.59	-13	V
12932.4	-46.52	13.0	20.2	-39.32	-13	H
15998.4	-42.38	15.0	20.4	-36.98	-13	V

**BC1 Mode Channel 600**
**Final result:**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3582.6	-50.31	6.5	4.7	-52.11	-13	V
5506.2	-52.81	8.2	9.5	-51.51	-13	V
7521.6	-53.11	9.7	14.6	-48.21	-13	V
9963.6	-52.74	11.2	17.6	-46.34	-13	V
11905.2	-47.2	12.5	17.1	-42.6	-13	H
14293.2	-48.46	13.6	23.5	-38.56	-13	H

**BC1 Mode Channel 1175**
**Final result:**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
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3562.2	-50.38	6.4	4.7	-52.08	-13	H
5635.2	-54.32	8.3	10.5	-52.12	-13	H
7596.0	-53.89	9.7	14.6	-48.99	-13	V
9830.4	-53.59	11.0	18.3	-46.29	-13	H
12313.2	-46.98	12.7	17.5	-42.18	-13	V
14307.6	-48.83	13.6	23.5	-38.93	-13	H

**BC0, CH1175**

**Power(ERP)= P<sub>mea</sub>-P<sub>cl</sub>+G<sub>a</sub>=-48.83-13.6+23.5=-38.93dbm**

**This method Applicable to the following table.**

**Conclusion: PASS**

**Note: the EUT was displayed in several different direction, the worst cases were shown.**

**1xEV-DO Cellular**

**BC0 Channel 384**

**Final result:**

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dBm)	G <sub>a</sub> (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1648.9	-38.88	4.3	2.9	-40.28	-13	H
2623.9	-35.51	5.5	3.7	-37.31	-13	H
3300.0	-46.17	6.2	4.7	-47.67	-13	H
4066.2	-50.56	6.9	7.7	-49.76	-13	H
4845.0	-48.66	7.6	7.9	-48.36	-13	V
5588.1	-49.52	8.3	9.5	-48.32	-13	V

**Note:**

**BC0, CH384**

**Power(ERP)= P<sub>mea</sub>-P<sub>cl</sub>+G<sub>a</sub>=-49.52-8.3+9.5=-48.32dbm**

**This method Applicable to the following table.**

**BC0 Channel 777**

**Final result:**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1671.4	-36.9	4.3	2.9	-38.3	-13	V
2537.1	-36.59	5.4	3.7	-38.29	-13	V
3346.2	-46.59	6.2	4.7	-48.09	-13	V
4251.9	-50.66	7.1	7.7	-50.06	-13	V
4917.7	-49.8	7.7	9.0	-48.5	-13	V
5514.2	-49.69	8.2	9.5	-48.39	-13	V

### BC0 Cellular Mode Channel 1013

#### Final result:

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1697.1	-37.54	4.4	2.9	-39.04	-13	V
2469.6	-36.52	5.3	3.7	-38.12	-13	H
3393.5	-44.87	6.3	4.7	-46.47	-13	V
4241.5	-50.74	7.1	7.7	-50.14	-13	H
4960.4	-49.92	7.7	9.0	-48.62	-13	H
5790.0	-51.29	8.4	10.5	-49.19	-13	H

### 1xEV-DO PCS

### BC1 Mode Channel 25

#### Final result:

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3816.6	-50.57	6.7	7.7	-49.57	-13	V

5676.6	-53.78	8.5	10.5	-51.78	-13	V
7879.2	-54.96	9.9	16.6	-48.26	-13	V
9703.2	-53.63	10.9	18.3	-46.23	-13	V
11914.8	-46.91	12.5	17.1	-42.31	-13	H
14301.6	-48.33	13.6	23.5	-38.43	-13	H

**BC1 Mode Channel 600**
**Final result:**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3759.0	-49.46	6.6	7.7	-48.36	-13	V
5639.4	-53.27	8.3	10.5	-51.07	-13	V
7867.2	-54.36	9.9	15.3	-48.96	-13	V
9973.2	-52.26	11.2	17.6	-45.86	-13	V
12157.2	-47.35	12.6	17.5	-42.45	-13	H
14304.0	-48.19	13.6	23.5	-38.29	-13	H

**BC1 Mode Channel 1175**
**Final result:**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3701.4	-49.48	6.6	7.7	-48.38	-13	V
5812.2	-53.98	8.4	10.5	-51.88	-13	H
7830.0	-53.81	9.9	15.3	-48.41	-13	H

9981.6	-52.46	11.2	17.6	-46.06	-13	H
12882.0	-47.65	13.0	20.2	-40.45	-13	V
15416.4	-47.12	14.4	24.2	-37.32	-13	V

**BC0, CH1175**

**Power(ERP)= Pmea-Pcl+Ga=-47.12-14.4+24.2=-37.32dbm**

**This method Applicable to the following table.**

**Conclusion: PASS**

**Note: the EUT was displayed in several different direction, the worst cases were shown.**

## **ANNEX B. Deviations from Prescribed Test Methods**

No deviation from Prescribed Test Methods.

**\*\*\*\*\*End Of Report\*\*\*\*\***