



REPORT No. : XM19100052W01

TEST REPORT

APPLICANT : Great Talent Technology Limited

PRODUCT NAME : SC3218

MODEL NAME : SC3218

BRAND NAME : SCHOK

FCC ID : 2ALZM-SC3218

STANDARD(S) : 47 CFR Part 22, Subpart H
47 CFR Part 24 Subpart E
47 CFR Part 90 Subpart S

RECEIPT DATE : 2019-10-08

TEST DATE : 2019-10-13 to 2019-10-23

ISSUE DATE : 2019-10-31

Edited by:

Lai Huihuang

Lai Huihuang (Test Engineer)

Approved by:

Anne Liu

Anne Liu(Supervisor)

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Change History		
Version	Date	Reason for change
1.0	2019-10-31	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Great Talent Technology Limited
Applicant Address:	RM602,T3 Software Park,Nanshan,Shenzhen,China
Manufacturer:	Great Talent Technology Limited
Manufacturer Address:	RM602,T3 Software Park,Nanshan,Shenzhen,China

1.2. Equipment Under Test (EUT) Description

Product Name:	SC3218	
Hardware Version:	SC3218-V1.1	
Software Version:	SC3218_V1.0.4	
Modulation Type:	CDMA2000 1X:QPSK,OQPSK; EVDO 0:QPSK,OQPSK;	
Operation Band:	CDMA 800MHz: (BC0);CDMA 1900Mhz:(BC1);CDMA 800MHz: (BC10)	
Frequency Range:	CDMA 800MHz(BC0)	Tx: 824.025 - 848.985 MHz;
		Rx: 869.025 - 893.985MHz;
	CDMA1900MHz(BC1)	Tx: 1850 MHz - 1894.95MHz;
		Rx: 1930 MHz - 1974.95 MHz
	CDMA 800MHz(BC10)	Tx: 816 - 823.975 MHz;
		Rx: 902.9 - 915.075MHz;
Emission Designator:	CDMA 800MHzBC0:1M28F9W, CDMA 1900MHzBC1:1M29F9W, CDMA 800MHzBC10:1M28F9W	
Antenna Type:	PIFA Antenna	
Antenna Gain:	CDMA 800MHz, BC0:	-2.03 dBi
	CDMA 1900MHz, BC1:	-0.01 dBi
	CDMA 800MHz, BC10:	-1.50 dBi
Accessory Information:	Battery	
	Brand Name:	SCHOK
	Model No.:	SB165
	Capacity:	1650mAh



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	Rated Voltage:	3.8V
	Charge Limit:	4.35V
Accessory Information:	AC Adapter	
	Brand Name:	SCHOK
	Model No.:	KFL-C050100
	Rated Input:	100-240V ~ 50/60Hz 0.2A
	Rated Output:	5V $\pm$ 1.0A
	Charging base	
	Brand Name:	SCHOK
	Model No.:	SC3218
	Rated Input:	5V $\pm$ 1.0A
	Rated Output:	5V $\pm$ 1.0A

Note 1: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Test Standards and Results

The objective of the report is to perform testing according to Part 2 ,Part 22,Part 24 and Part 90 for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS
2	47 CFR Part 22	PUBLIC MOBILE SERVICES
3	47 CFR Part 24	PERSONAL COMMUNICATIONS SERVICES
4	47 CFR Part 90	PRIVATE LAND MOBILE RADIO SERVICES

Test detailed items/section required by FCC rules and results are as below:

Section	Description	Test Date	Test Engineer	Result
2.1046	Transmitter Conducted Output Power	Oct 13, 2019	Lai Huihuang	PASS
2.1049,22.917, 24.238,90.209	Occupied Bandwidth	Oct 13, 2019	Lai Huihuang	PASS
24.232(d)	Peak -Average Ratio	Oct 13, 2019	Lai Huihuang	PASS
2.1055,22.355, 24.235,90.213	Frequency Stability	Oct 13, 2019	Lai Huihuang	PASS
2.1051,22.917(a), 24.238(a),90.691	Conducted Spurious Emissions	Oct 13, 2019	Lai Huihuang	PASS
2.1051,22.917(a), 24.238(a),90.691	Band Edge	Oct 13, 2019	Lai Huihuang	PASS
2.1046,22.913(a), 24.232(a),90.635(b)	Equivalent Isotropic Radiated Power	Oct 23, 2019	Hui Li	PASS
2.1053,22.917(a), 24.238(a),90.691	Radiated Spurious Emissions	Oct 13, 2019	Hui Li	PASS

Note: The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03 (Oct 27, 2017)and ANSI/TIA-603-E-2016.



1.4. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 - 60
Atmospheric Pressure (kPa):	86 - 106

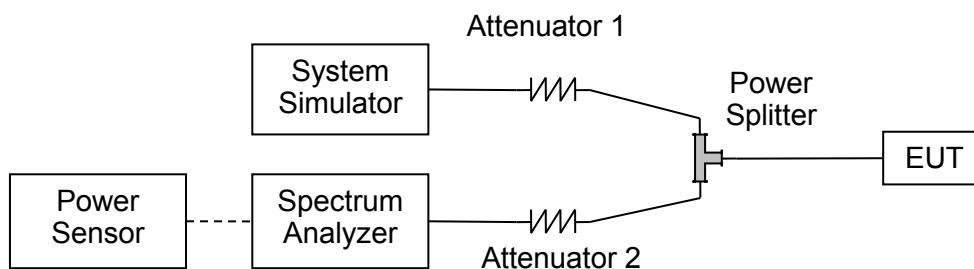
2.47 CFR Part 2,Part 22H,Part 24E and Part 90S Requirements

2.1.Transmitter Conducted Output Power

2.1.1. Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

2.1.2. Test Description



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. A call is established between the EUT and the SS.

2.1.3. Test procedure

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

2.1.4. Result

Band	CDMA2000 BC0					
	1013		384		777	
TX Channel	824.7		836.52		848.31	
Frequency (MHz)	824.7		836.52		848.31	
	dBm	W	dBm	W	dBm	W
RC1 SO55	23.25	0.211	23.28	0.213	23.17	0.207
RC3 SO55	23.26	0.212	23.33	0.215	23.13	0.206



RC3 SO32 (F+SCH)	23.22	0.210	23.29	0.213	23.11	0.205
RC3 SO32 (+SCH)	23.27	0.212	23.27	0.212	23.15	0.207
1XEVD0 Rev 0	23.32	0.215	23.37	0.217	23.37	0.217

Band	CDMA2000 BC1					
TX Channel	25		600		1175	
Frequency (MHz)	1851.25		1880		1908.75	
	dBm	W	dBm	W	dBm	W
RC1 SO55	21.50	0.141	21.47	0.140	21.51	0.142
RC3 SO55	21.54	0.143	21.56	0.143	21.52	0.142
RC3 SO32 (F+SCH)	21.51	0.142	21.55	0.143	21.54	0.143
RC3 SO32 (+SCH)	21.52	0.142	21.50	0.141	21.52	0.142
1XEVD0 Rev 0	21.29	0.135	21.31	0.135	21.28	0.134

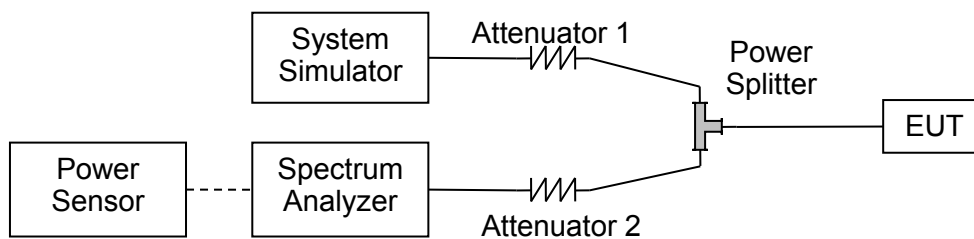
Band	CDMA2000 BC10					
TX Channel	476		526		684	
Frequency (MHz)	817.9		819.15		824.1	
	dBm	W	dBm	W	dBm	W
RC1 SO55	21.88	0.154	21.93	0.156	22.19	0.166
RC3 SO55	21.90	0.155	21.91	0.155	22.18	0.165
RC3 SO32 (F+SCH)	21.86	0.153	21.90	0.155	22.15	0.164
RC3 SO32 (+SCH)	21.79	0.151	21.87	0.154	22.14	0.164
1XEVD0 Rev 0	22.06	0.161	22.10	0.162	22.22	0.167

2.2. Occupied Bandwidth

2.2.1. Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

2.2.2. Test Description



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 50 Ohm; 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. A call is established between the EUT and the SS.

2.2.3. Test procedure

KDB 971168 D01v03 Section 4.1 and ANSI/TIA-603-E-2016.



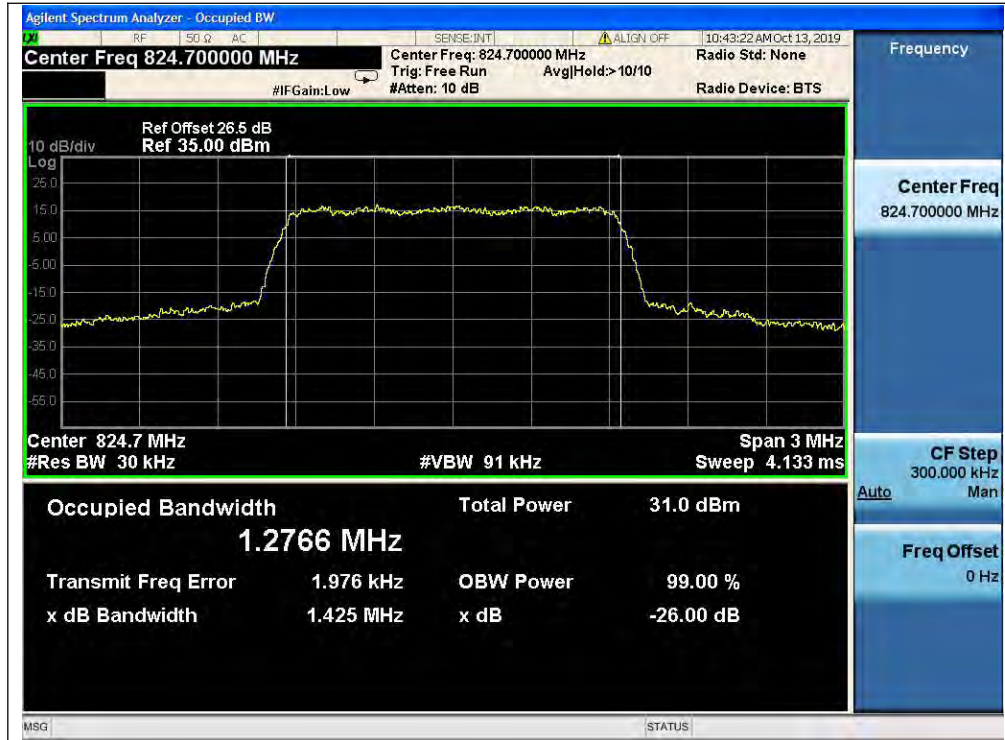
Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB bandwidth (MHz)	Refer to Plot
CDMA (BC0)	1013	824.7	1.277	1.425	Plot A1 to A3
	384	836.52	1.273	1.420	
	777	848.31	1.278	1.430	
1XEVD0 Rev 0 (BC0)	1013	824.7	1.269	1.419	Plot B1 to B3
	384	836.52	1.268	1.429	
	777	848.31	1.270	1.431	
Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB bandwidth (MHz)	Refer to Plot
CDMA (BC1)	25	1851.25	1.278	1.431	Plot C1 to C3
	600	1880	1.278	1.430	
	1175	1908.75	1.288	1.449	
1XEVD0 Rev 0 (BC1)	25	1851.25	1.277	1.429	Plot D1 to D3
	600	1880	1.270	1.430	
	1175	1908.75	1.280	1.431	

Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB bandwidth (MHz)	Refer to Plot
CDMA (BC10)	476	817.9	1.277	1.421	Plot E1 to E3
	526	819.15	1.276	1.425	
	684	824.1	1.271	1.419	
1XEVD0 Rev 0 (BC10)	476	817.9	1.270	1.426	Plot F1 to F3
	526	819.15	1.274	1.428	
	684	824.1	1.269	1.422	



2.2.4. Test Result

Test Plots:



(Plot A1, CDMABC0, Channel = 1013)





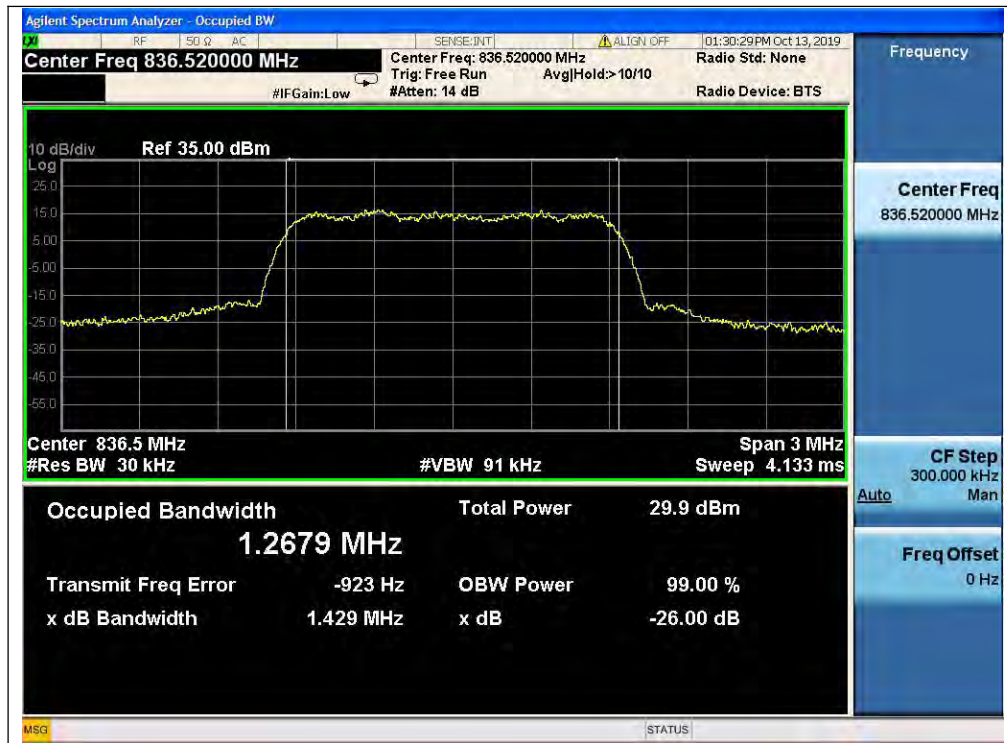
(Plot A2, CDMABC0, Channel = 384)



(Plot A3, CDMABC0, Channel = 777)



(Plot B1, 1XEVD0 Rev 0 BC0, Channel = 1013)



(Plot B2, 1XEVD0 Rev 0 BC0, Channel = 384)



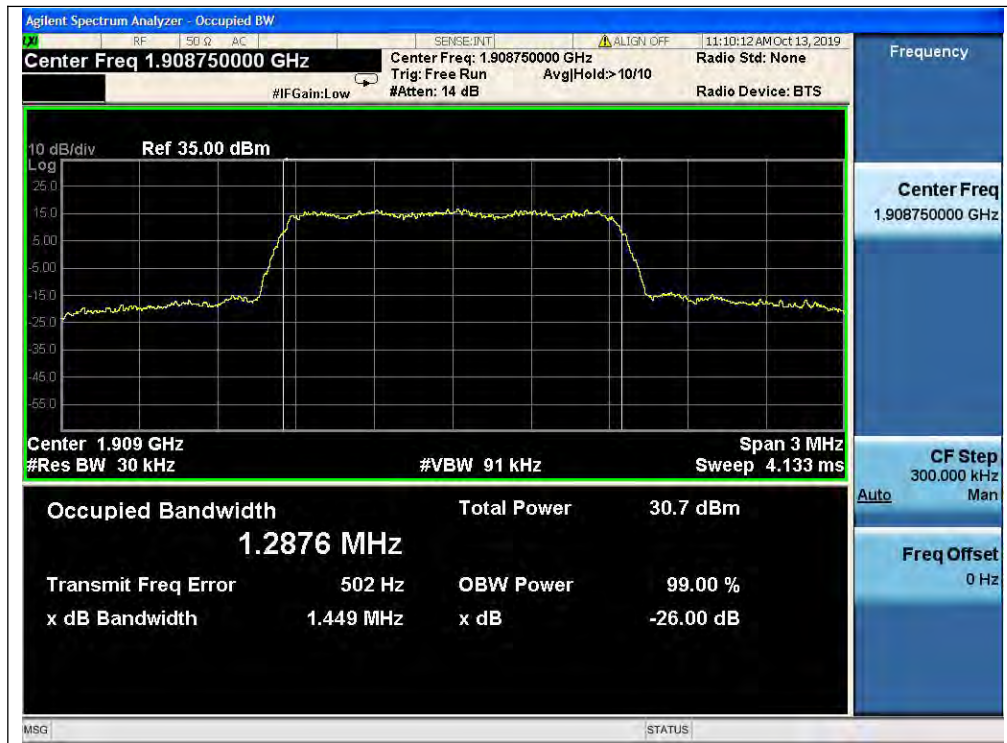
(Plot B3, 1XEVD0 Rev 0 BC0, Channel = 777)



(Plot C1, CDMABC1, Channel = 25)



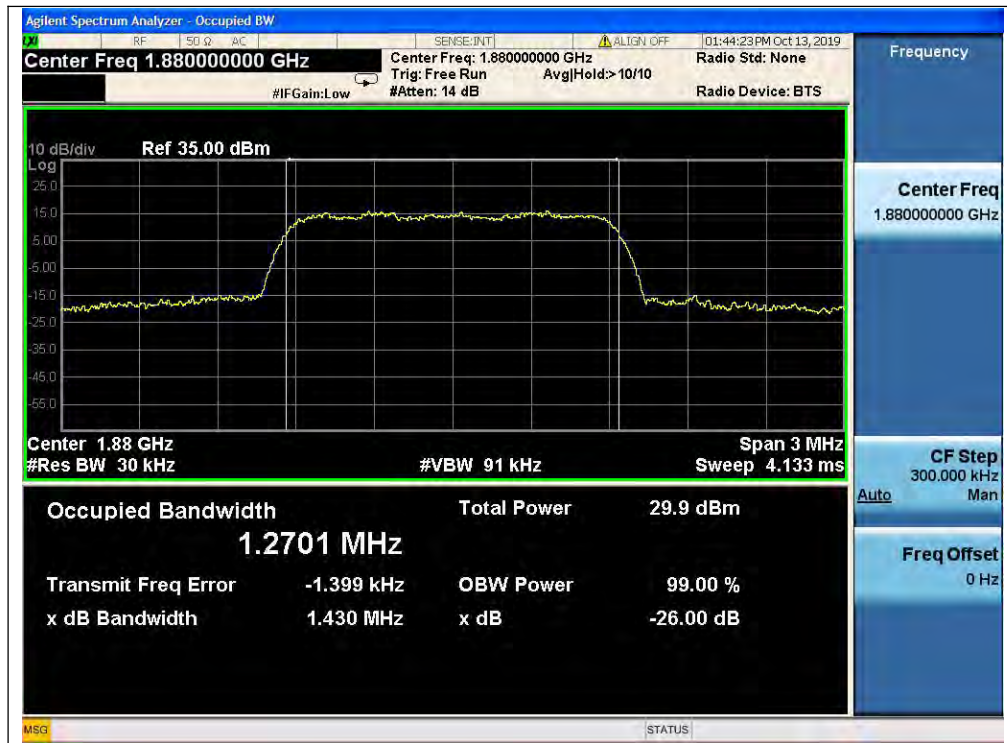
(Plot C2, CDMABC1, Channel = 600)



(Plot C3, CDMABC1, Channel = 1175)



(Plot D1, 1XEVD0 Rev 0 BC1, Channel = 25)



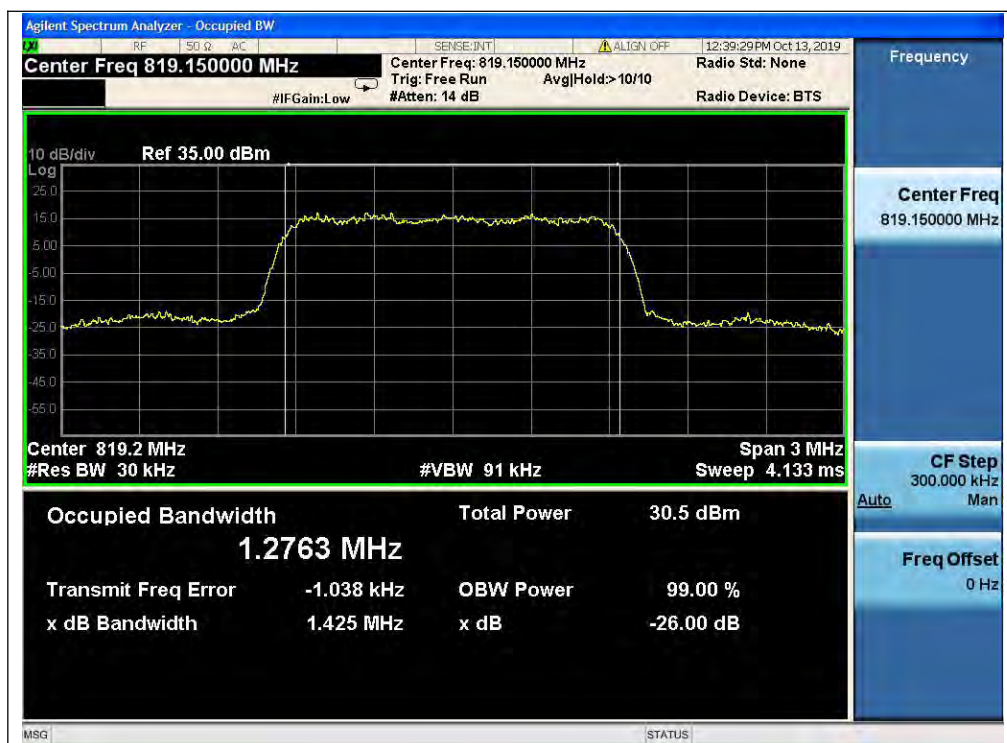
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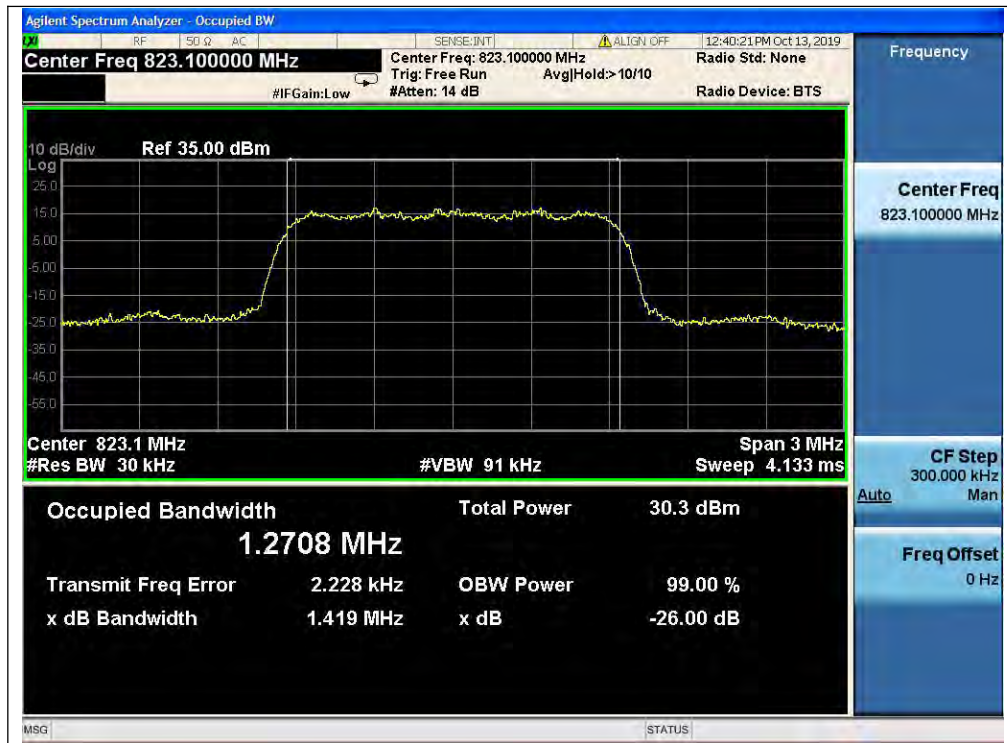
(Plot D3, 1XEVD0 Rev 0 BC1, Channel = 1175)



(Plot E1, CDMA BC10, Channel = 476)



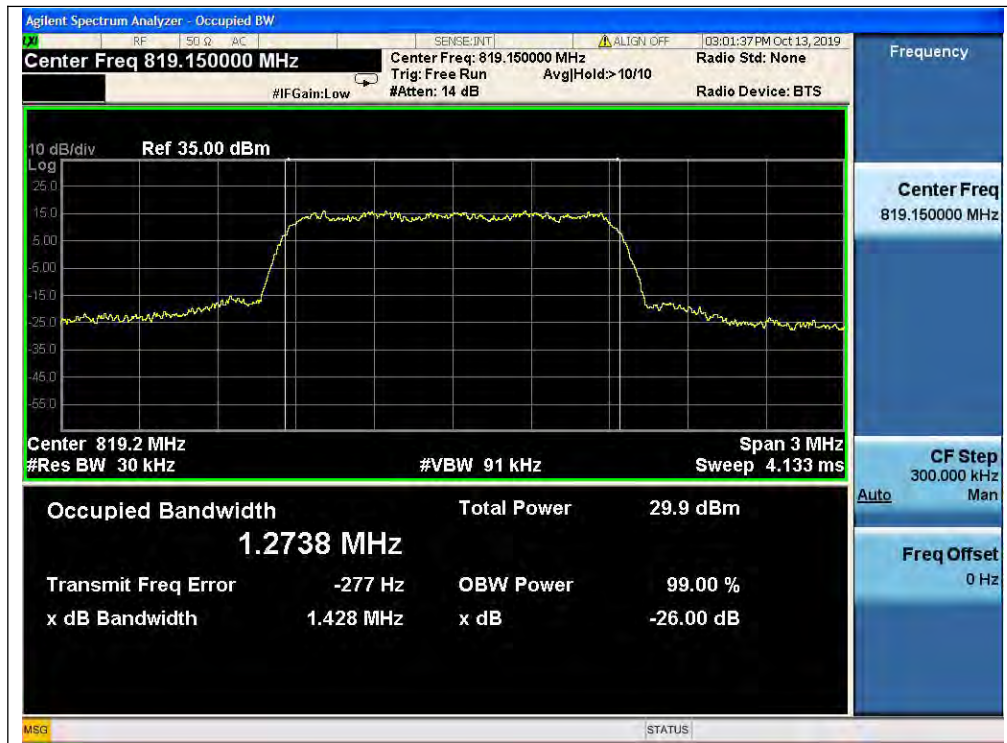
(Plot E1, CDMA BC10, Channel = 526)



(Plot E1, CDMA BC10, Channel = 684)



(Plot F1, 1xEVDO Rev 0 BC10, Channel = 476)



((Plot F2, 1XEVD0 Rev 0 BC10, Channel = 526)



((Plot F3, 1XEVD0 Rev 0 BC10, Channel = 684)

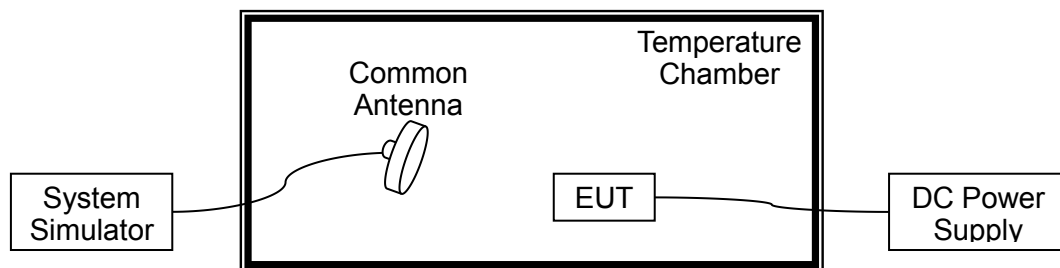
2.3. Frequency Stability

2.3.1. Requirement

According to FCC section 2.1055 & 22.355&24.235, 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.

2.3.2. Test Description



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. A call is established between the EUT and the SS via a Common Antenna.

2.3.3. Test procedure

KDB 971168 D01v03 Section 9.0 and ANSI/TIA-603-E-2016.

2.3.4. Test Result

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.35VDC and 3.5VDC, which are specified by the applicant; the normal temperature here used is 20°C.



CDMA 800MHz BC0, Channel 384, Frequency 836.52MHz Limit = $\pm$ 2.5ppm					
Voltage(%)	Power(V DC)	Temp($^{\circ}$ C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.85	+20(Ref)	42	0.050	PASS
100		-10	-85	-0.102	
100		0	-17	-0.020	
100		+10	-46	-0.055	
100		+20	-58	-0.069	
100		+30	27	0.032	
100		+40	35	0.042	
100		+50	74	0.088	
100		+55	23	0.027	
115	4.20	+20	82	0.098	
85	3.60	+20	-86	-0.103	

1XEVD0 Rev0 BC0, Channel 384, Frequency 836.52MHz Limit = $\pm$ 2.5ppm					
Voltage(%)	Power(V DC)	Temp($^{\circ}$ C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.85	+20(Ref)	50	0.060	PASS
100		-10	85	0.102	
100		0	-57	-0.068	
100		+10	-53	-0.063	
100		+20	48	0.057	
100		+30	-39	-0.047	
100		+40	41	0.049	
100		+50	21	0.025	
100		+55	67	0.080	
115	4.20	+20	43	0.051	
85	3.60	+20	-47	-0.056	



CDMA 1900MHz BC1, Channel 600, Frequency 1880MHz					
Limit ± 1 ppm					
Voltage(%)	Power(V DC)	Temp($^{\circ}$ C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.85	+20(Ref)	41	0.022	PASS
100		-10	25	0.013	
100		0	-37	-0.020	
100		+10	24	0.013	
100		+20	-26	-0.014	
100		+30	-48	-0.026	
100		+40	31	0.016	
100		+50	64	0.034	
100		+55	42	0.022	
115	4.20	+20	16	0.009	
85	3.60	+20	-66	-0.035	

1XEVD0 Rev0 BC1, Channel 600, Frequency 1800MHz					
Limit ± 1 ppm					
Voltage(%)	Power(V DC)	Temp($^{\circ}$ C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.85	+20(Ref)	25	0.013	PASS
100		-10	57	0.030	
100		0	-73	-0.039	
100		+10	35	0.019	
100		+20	-26	-0.014	
100		+30	-54	-0.029	
100		+40	31	0.016	
100		+50	73	0.039	
100		+55	42	0.022	
115	4.20	+20	16	0.009	
85	3.60	+20	-75	-0.040	



CDMA 800MHz BC10, Channel 526, Frequency 819.15MHz Limit =±2.5ppm					
Voltage(%)	Power(V DC)	Temp(°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.85	+20(Ref)	15	0.018	PASS
100		-10	-26	-0.032	
100		0	-55	-0.067	
100		+10	-69	-0.084	
100		+20	-36	-0.044	
100		+30	32	0.039	
100		+40	25	0.031	
100		+50	23	0.028	
100		+55	52	0.063	
115	4.20	+20	46	0.056	
85	3.60	+20	-59	-0.072	

1XEVD0 Rev0 BC10, Channel 526, Frequency 819.15MHz Limit =±2.5ppm					
Voltage(%)	Power(V DC)	Temp(°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.85	+20(Ref)	42	0.051	PASS
100		-10	-49	-0.060	
100		0	-75	-0.092	
100		+10	-34	-0.042	
100		+20	-43	-0.052	
100		+30	32	0.039	
100		+40	41	0.050	
100		+50	23	0.028	
100		+55	82	0.100	
115	4.20	+20	33	0.040	
85	3.60	+20	-75	-0.092	

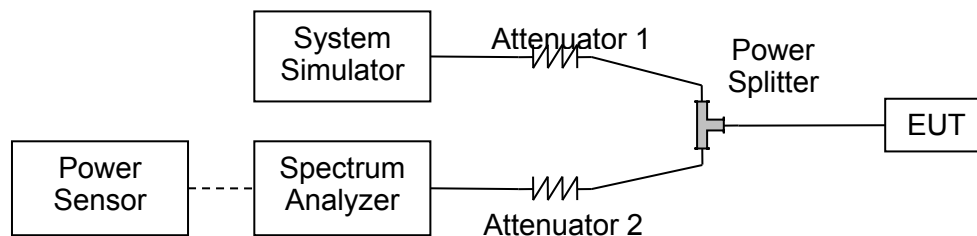
2.4. Peak to Average Ratio

2.4.1. Requirement

According to FCC section 27.50(d)(5), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2. Test Description

A. Test Set:



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 50 Ohm; 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. A call is established between the EUT and the SS.

2.4.3. Test procedure

KDB 971168 D01v03 Section 5.7 and ANSI/TIA-603-E-2016.

2.4.4. Test Result

Record the maximum PAPR level associated with a probability of 0.1%.

Note: This test case only supports CDMA BC 1 band, not CDMA BC 0 band.

**Test Result**

The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

A. Test Verdict:

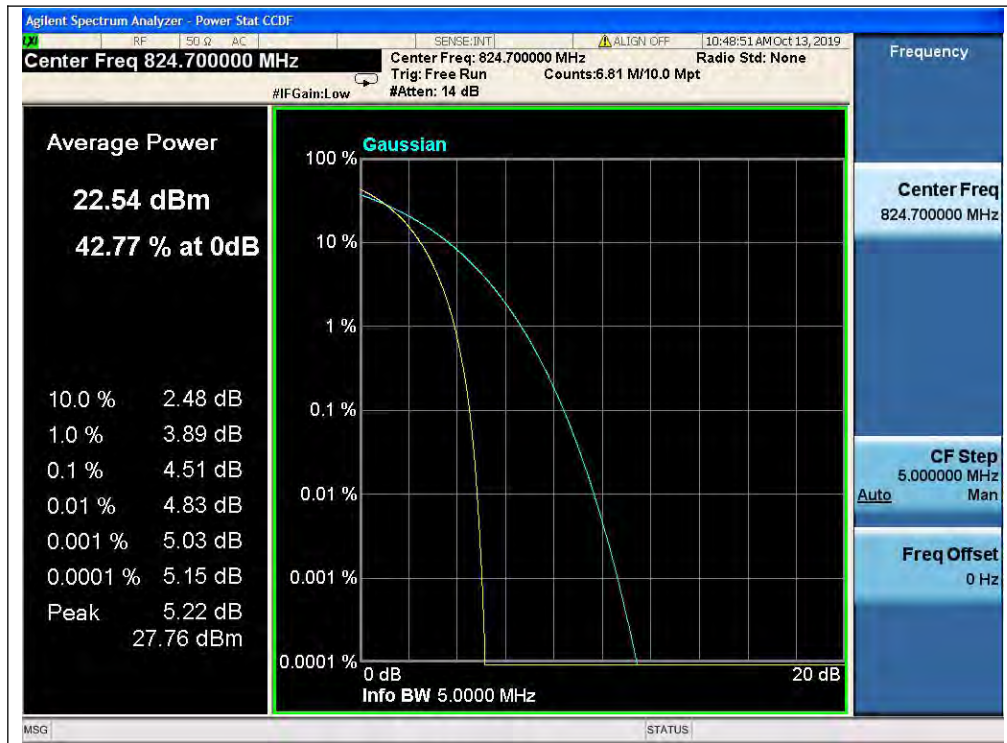
Band	Channel	Frequency (MHz)	Peak to Average ratio		Limit	Verdict
			dB	Refer to Plot	dB	
CDMA (BC0)	1013	824.7	4.51	Plot A1 to A3	13	PASS
	384	836.52	4.58			PASS
	777	848.31	4.22			PASS
1XEVD0 Rev 0 (BC0)	1013	824.7	5.00	Plot A4 to A6		PASS
	384	836.52	5.49			PASS
	777	848.31	4.15			PASS

Band	Channel	Frequency (MHz)	Peak to Average ratio		Limit	Verdict
			dB	Refer to Plot	dB	
CDMA (BC1)	25	1851.25	3.59	Plot B1 to B3	13	PASS
	600	1880	3.68			PASS
	1175	1908.75	3.43			PASS
1XEVD0 Rev 0 (BC1)	25	1851.25	3.86	Plot B4 to B6		PASS
	600	1880	3.94			PASS
	1175	1908.75	3.71			PASS

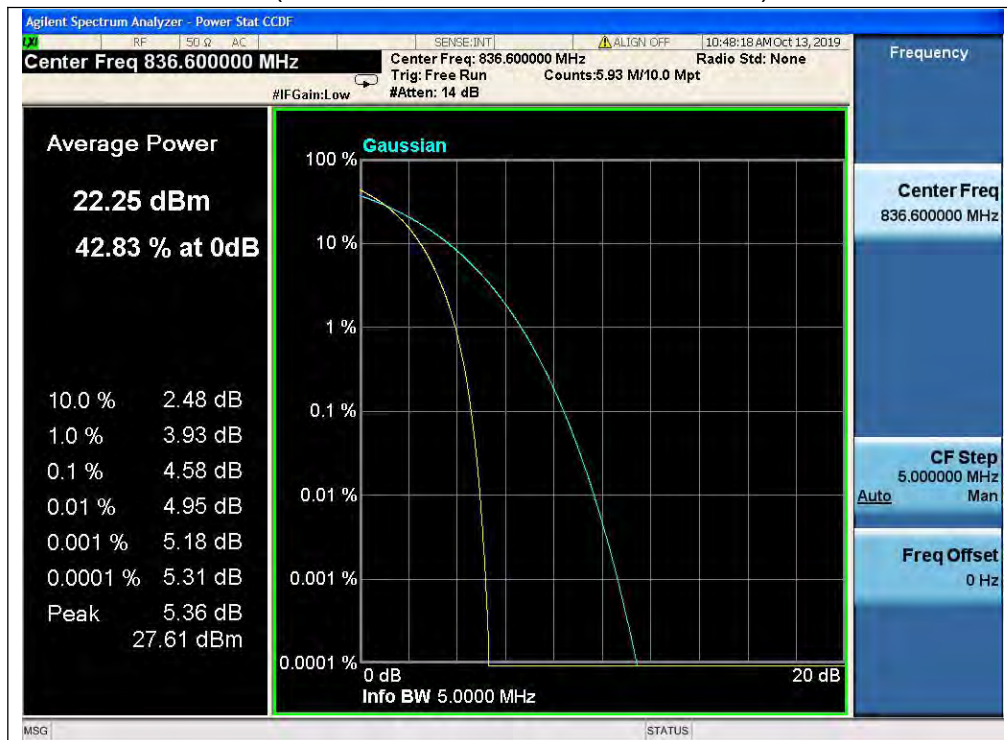
Band	Channel	Frequency (MHz)	Peak to Average ratio		Limit	Verdict
			dB	Refer to Plot	dB	
CDMA (BC10)	476	817.9	4.03	Plot C1 to C3	13	PASS
	526	819.15	4.10			PASS
	684	824.1	4.10			PASS
1XEVD0 Rev 0 (BC10)	476	817.9	5.03	Plot C4 to C6		PASS
	526	819.15	5.34			PASS
	684	824.1	5.00			PASS



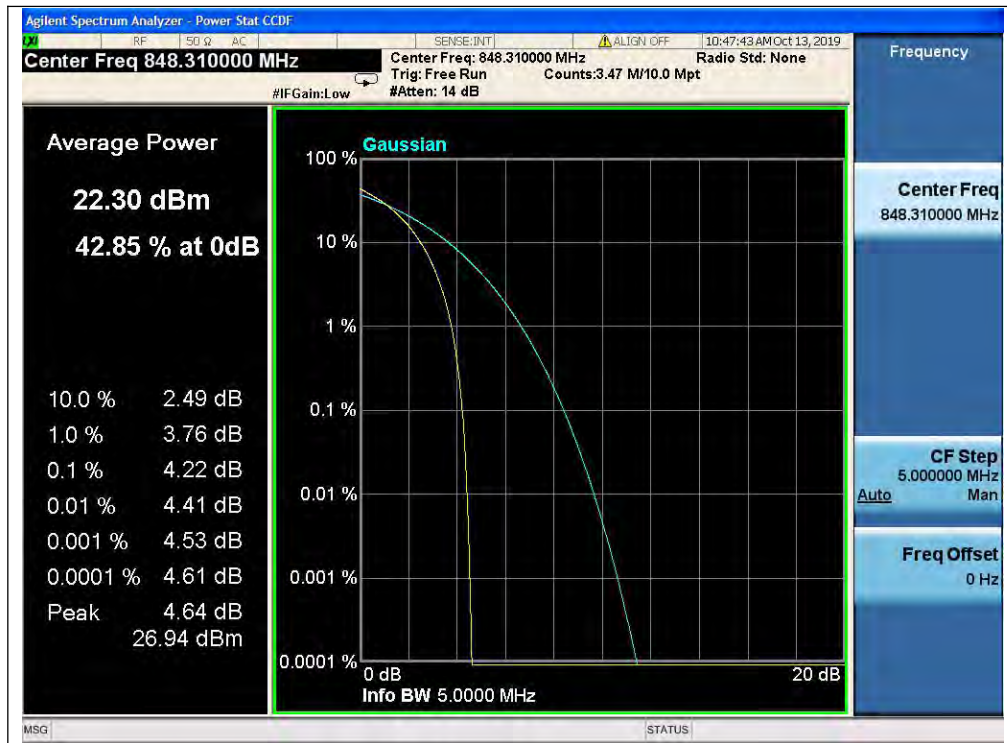
Test Plots:



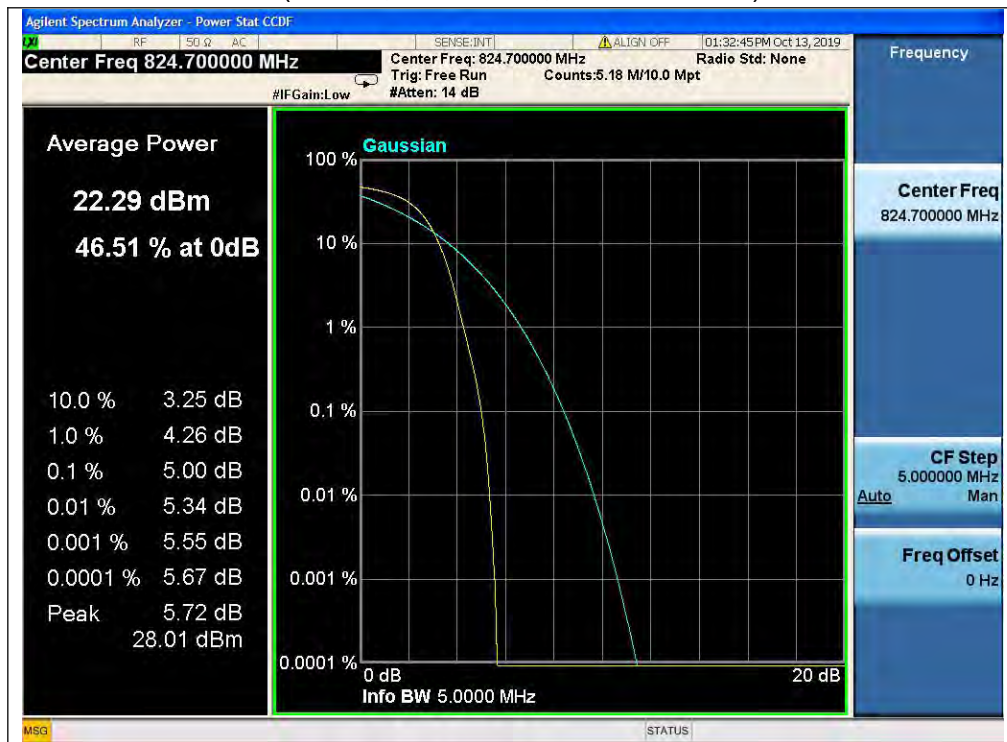
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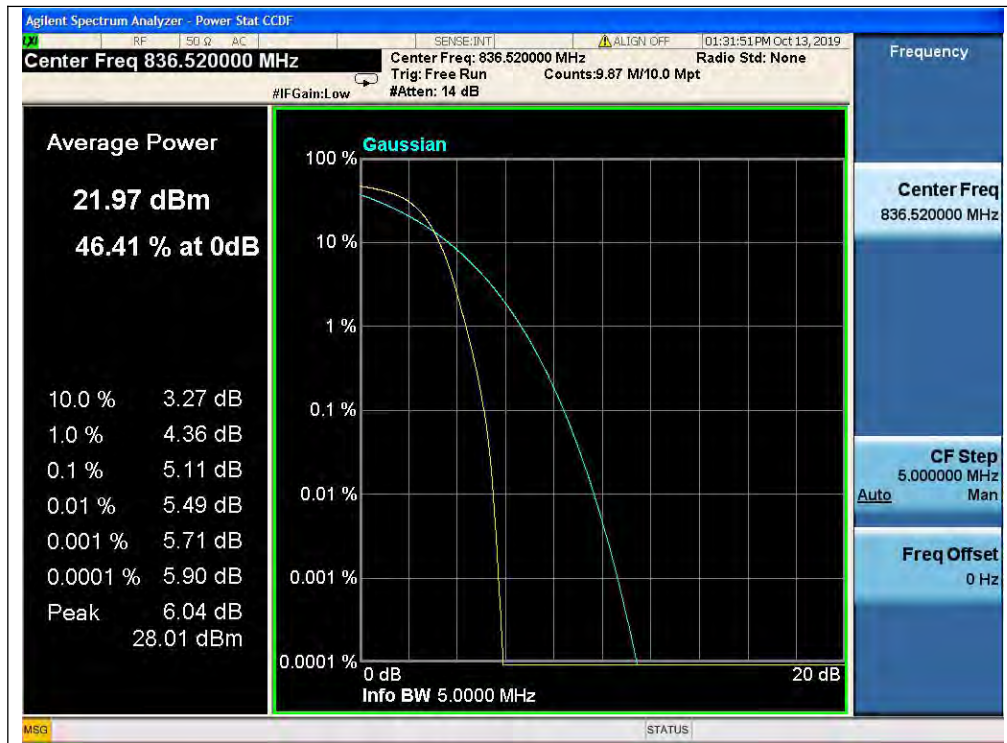
(Plot A2, CDMABC0, Channel = 384)



(Plot A3, CDMABC0, Channel = 777)



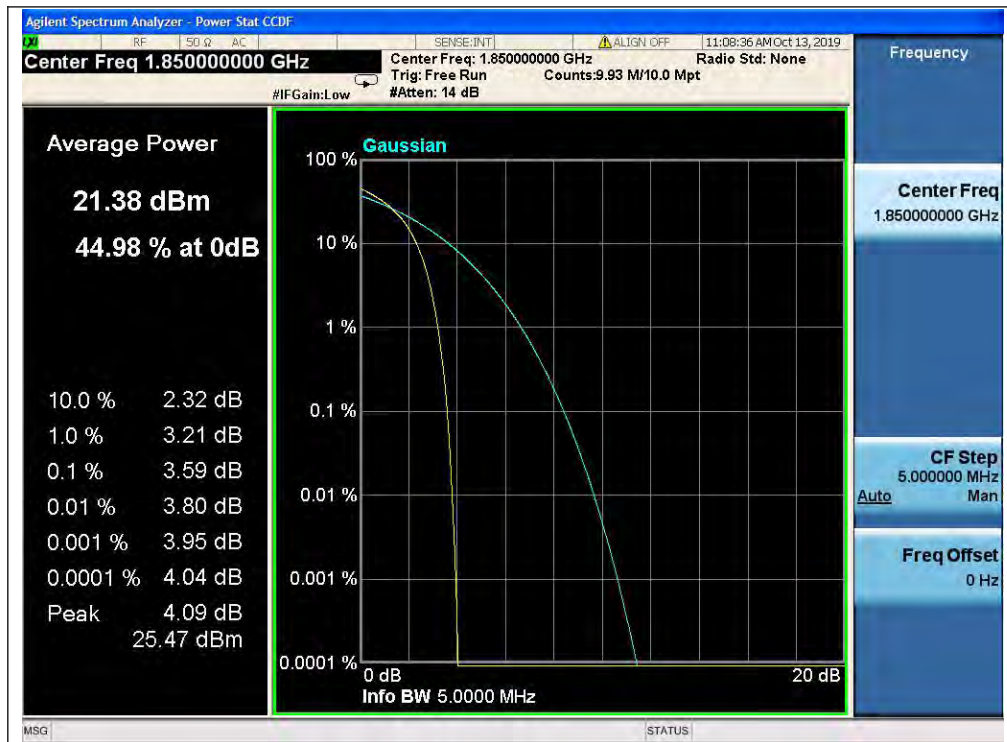
(Plot A4, EVDO Rev 0 BC0, Channel = 1013)



(Plot A5, EVDO Rev 0 BC0, Channel = 384)



(Plot A6, EVDO Rev 0 BC0, Channel = 777)



(Plot B1, CDMA BC1, Channel = 25)



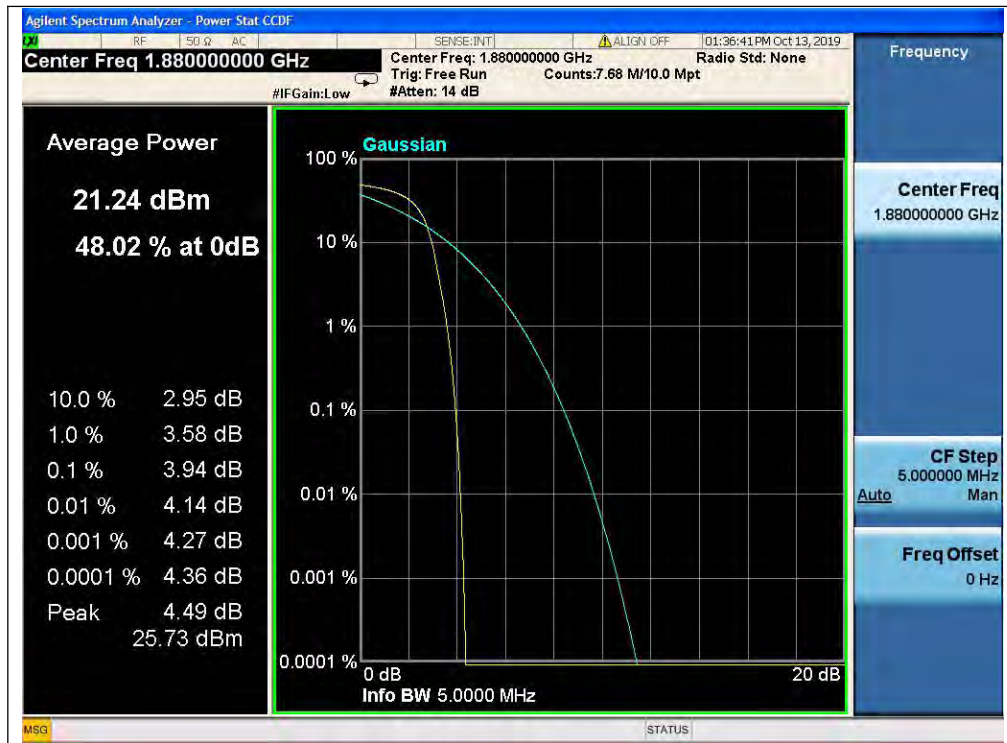
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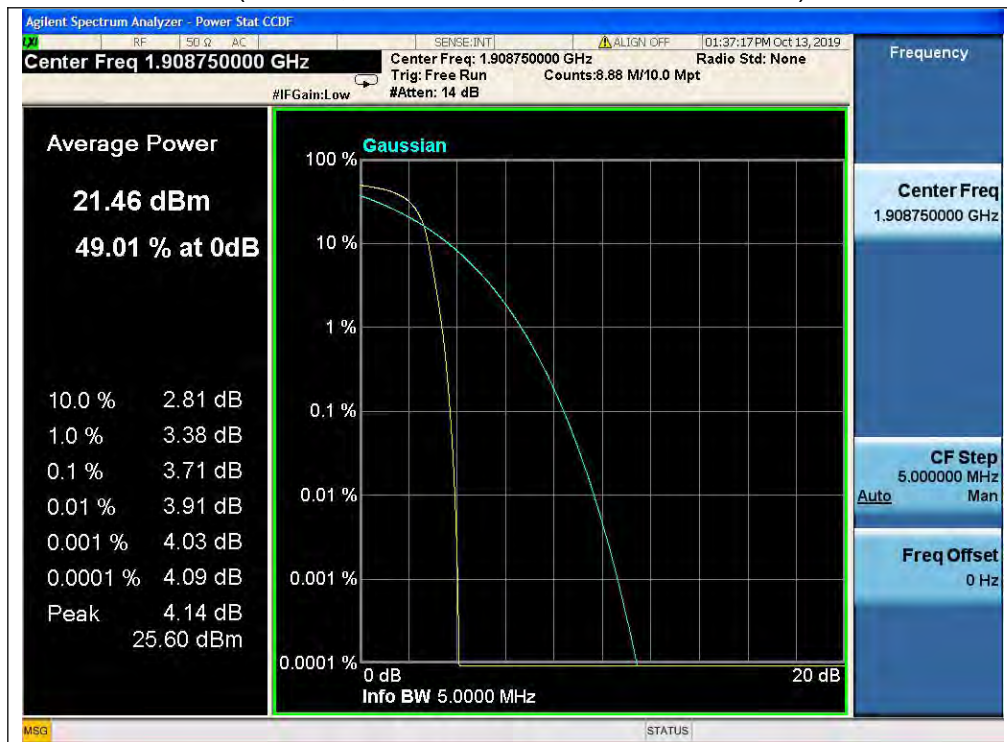
(Plot B3, CDMA BC1, Channel = 1175)



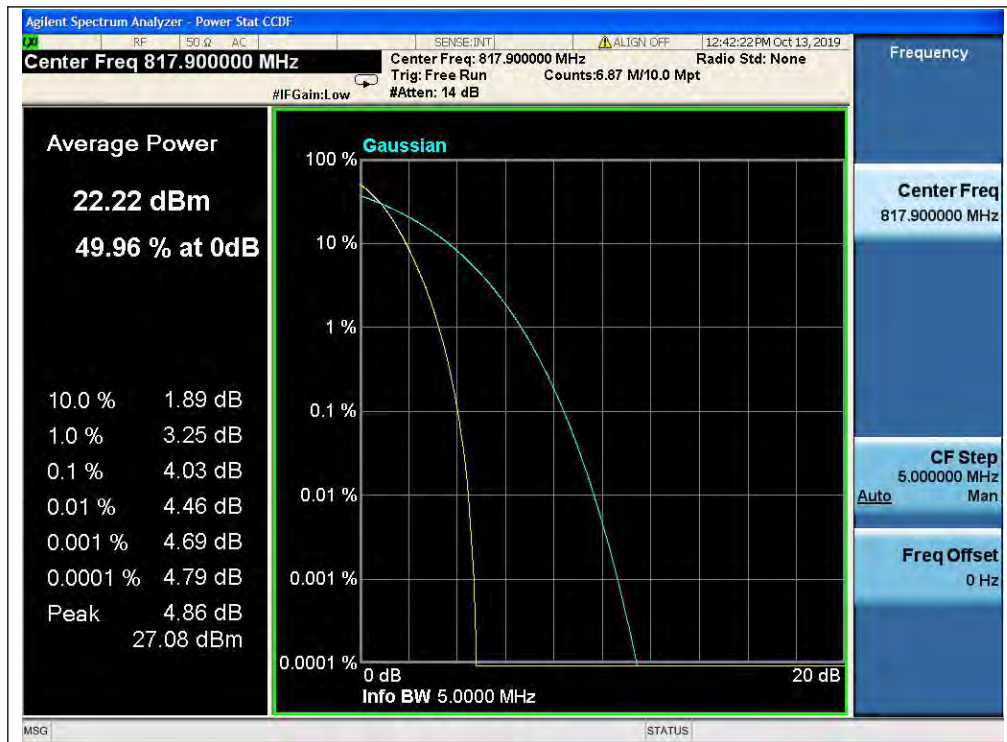
(Plot B4, EVDO Rev 0 BC1, Channel = 25)



(Plot B5, EVDO Rev 0 BC1, Channel = 600)



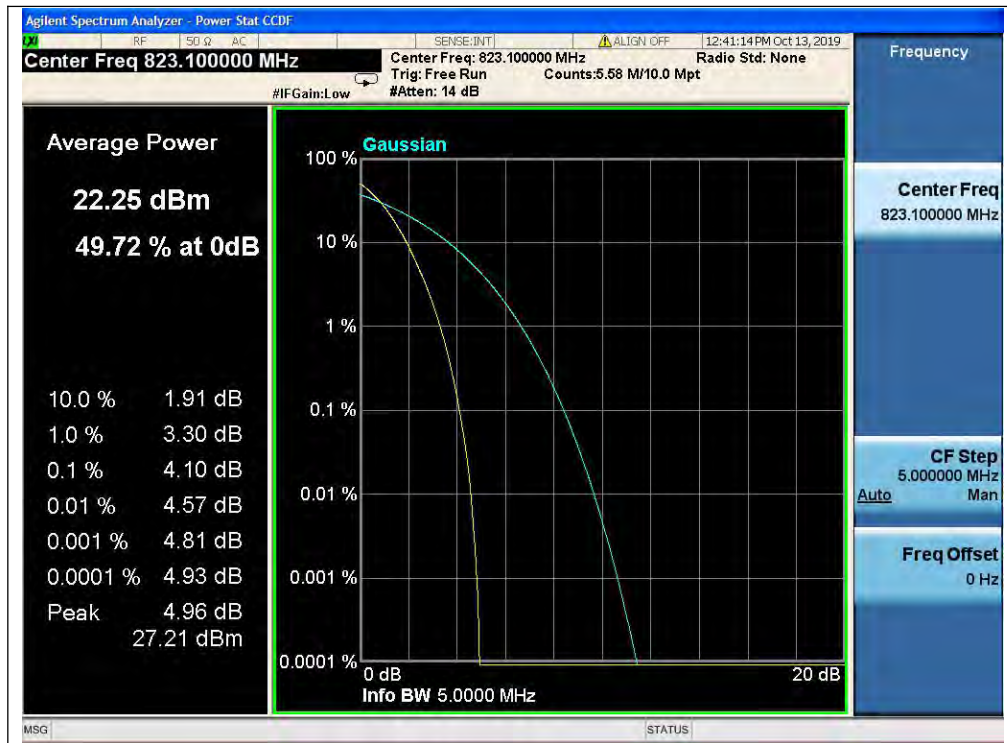
(Plot B6, EVDO Rev 0 BC1, Channel = 1175)



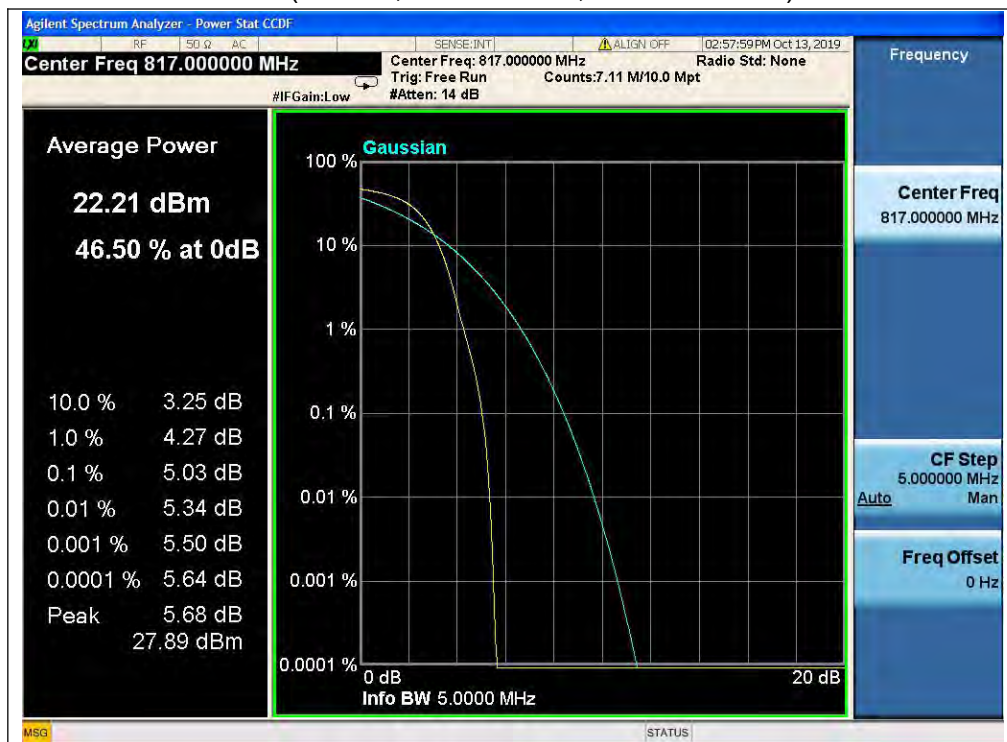
(Plot C1, CDMA BC10, Channel = 476)



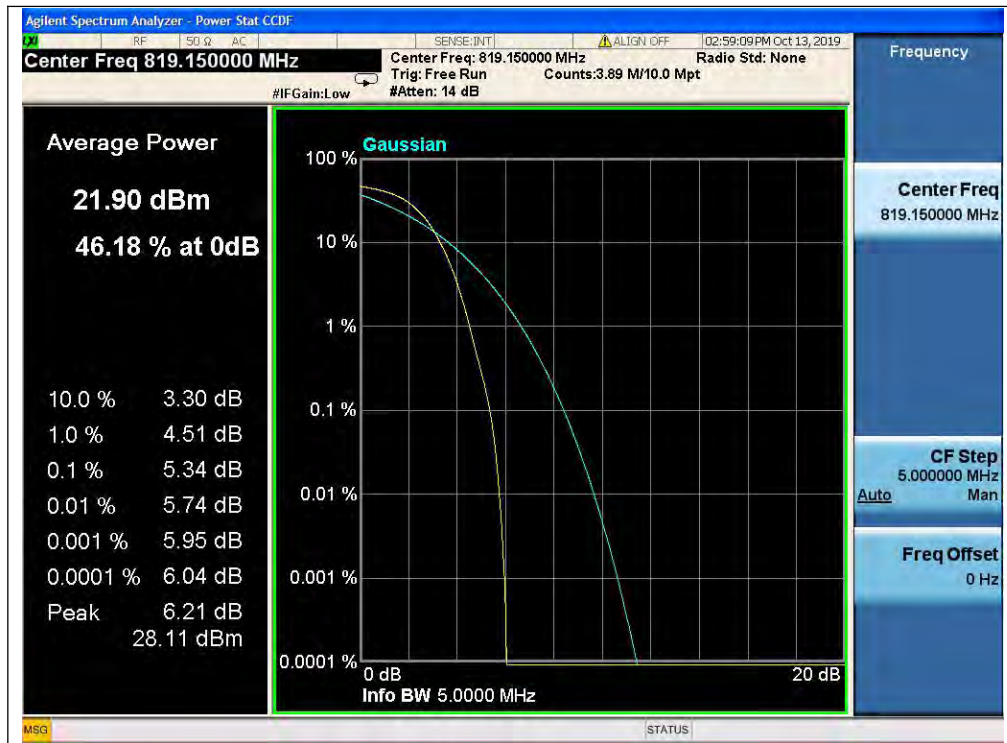
(Plot C2, CDMA BC1, Channel = 526)



(Plot C3, CDMA BC10, Channel = 684)



(Plot C4, EVDO Rev 0 BC10, Channel = 476)



(Plot C5, EVDO Rev 0 BC10, Channel = 526)



(Plot C6, EVDO Rev 0 BC10, Channel = 684)

2.5. Conducted Spurious Emissions

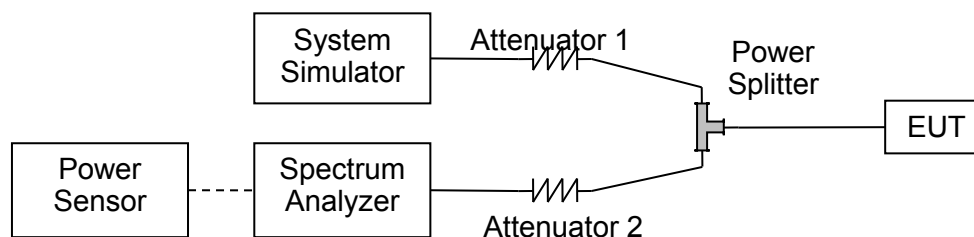
2.5.1. Requirement

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.

Additional requirement for LTE Band 7:

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 $55 + 10 \log(P)$ dB. This calculated to be -25dBm.

2.5.2. Test Description



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 50 Ohm; 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. A call is established between the EUT and the SS.

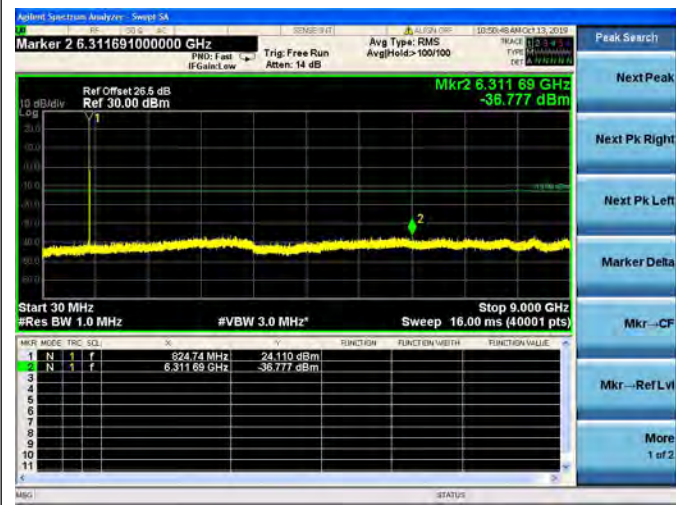
2.5.3. Test procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.

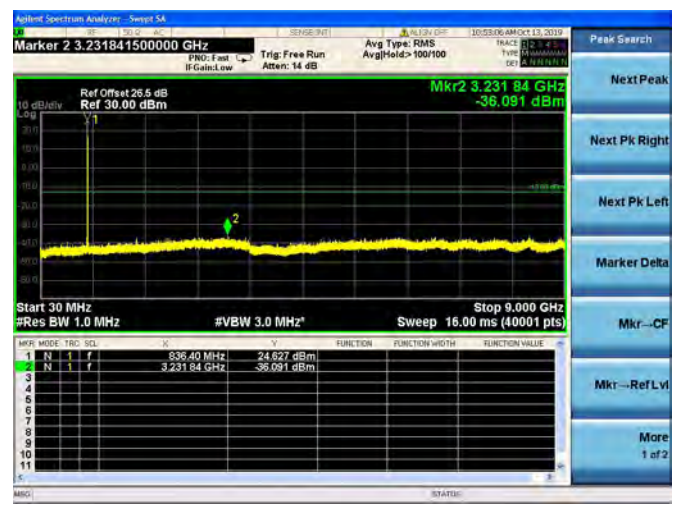
2.5.4. Test Result



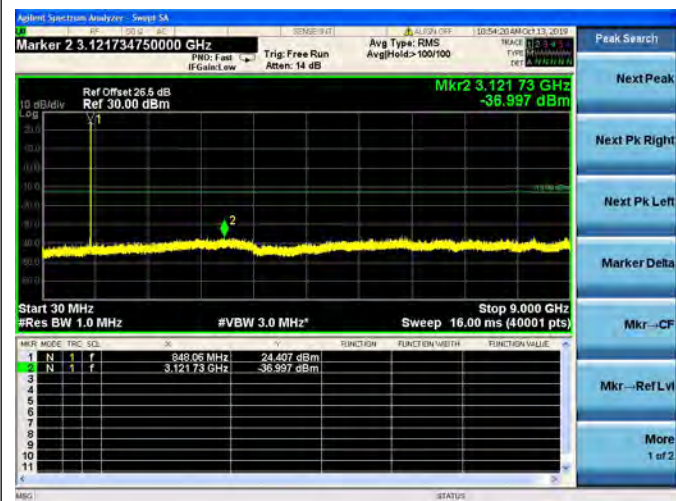
CDMA BC0, Channel=1013



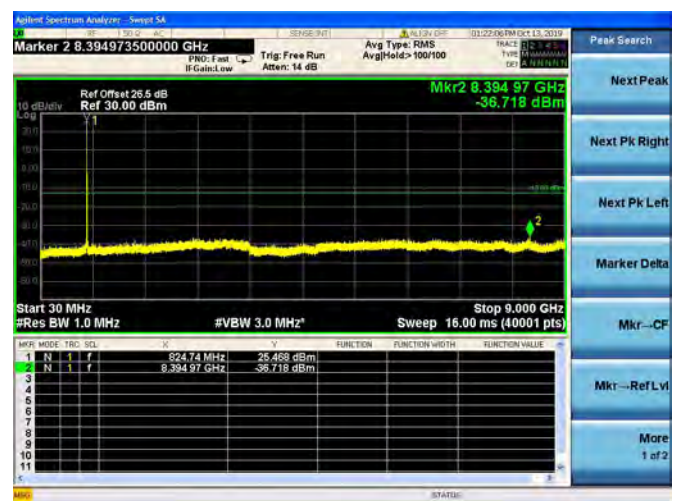
CDMA BC0, Channel=384



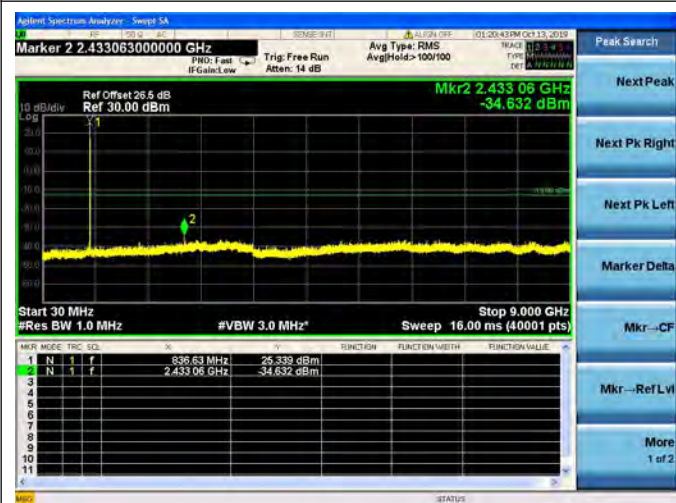
CDMA BC0, Channel=777



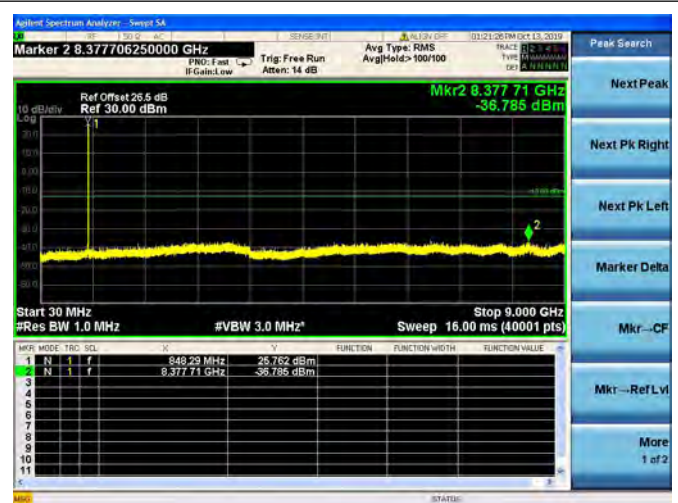
1xEVDO Rev 0 BC0, Channel=1013



1xEVDO Rev 0 BC0, Channel=384

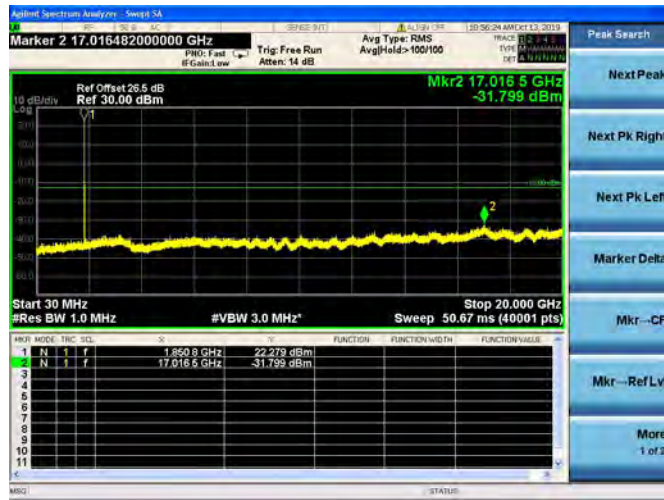


1xEVDO Rev 0 BC0, Channel=777

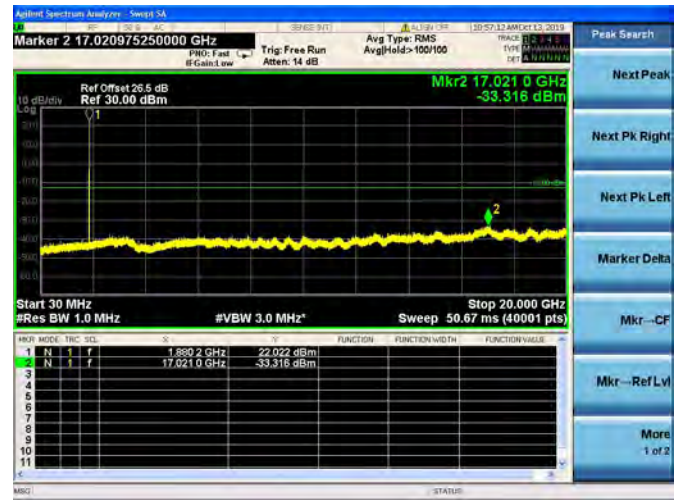




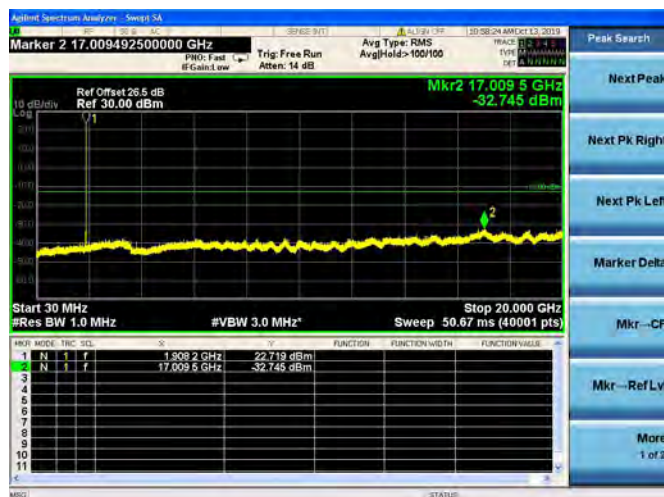
CDMA BC1, Channel=25



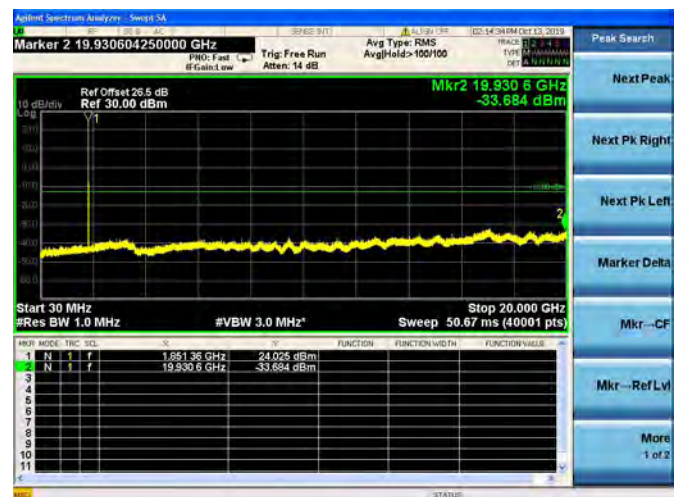
CDMA BC1, Channel=600



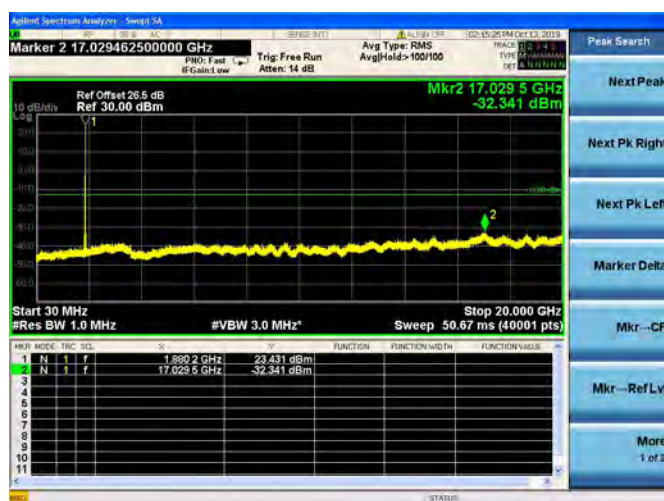
CDMA BC1, Channel=1175



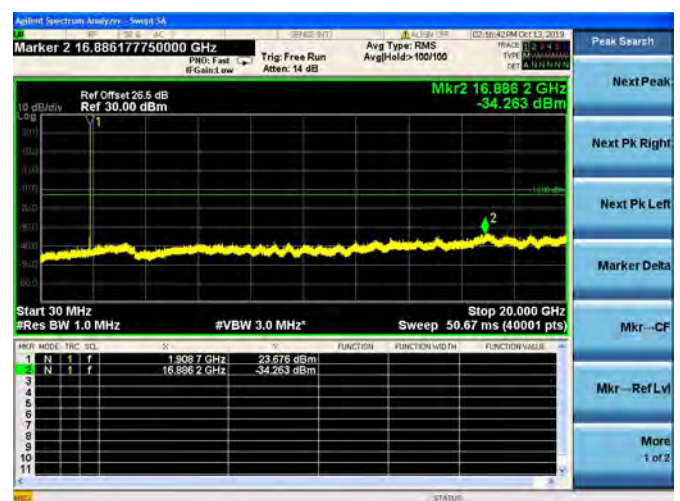
1XEVD0 Rev 0 BC1, Channel=25



1XEVD0 Rev 0 BC1, Channel=600

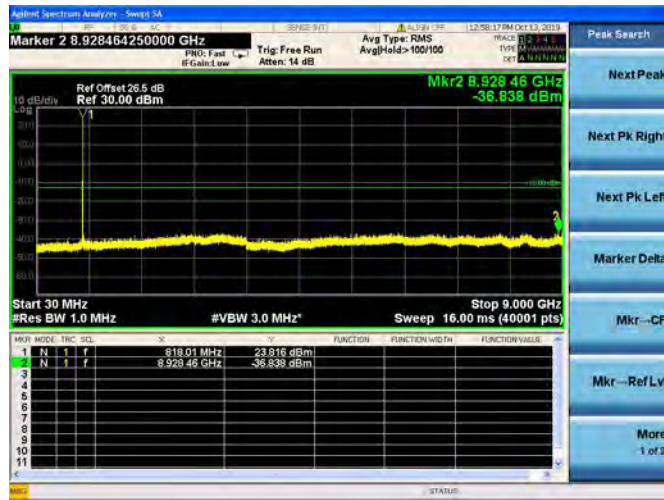


1XEVD0 Rev 0 BC0, Channel=1175

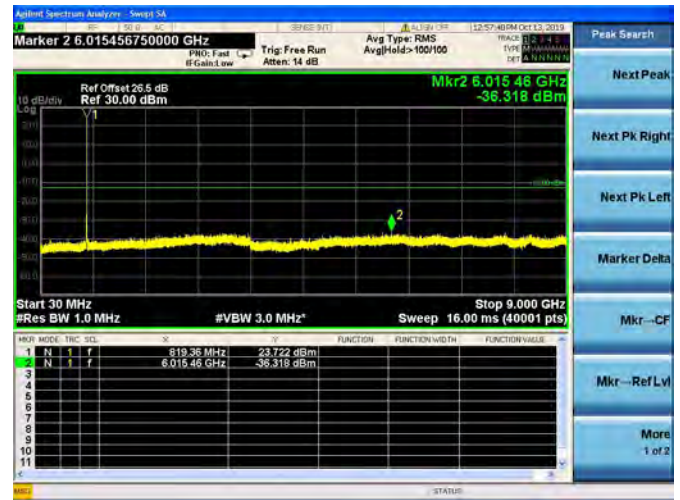




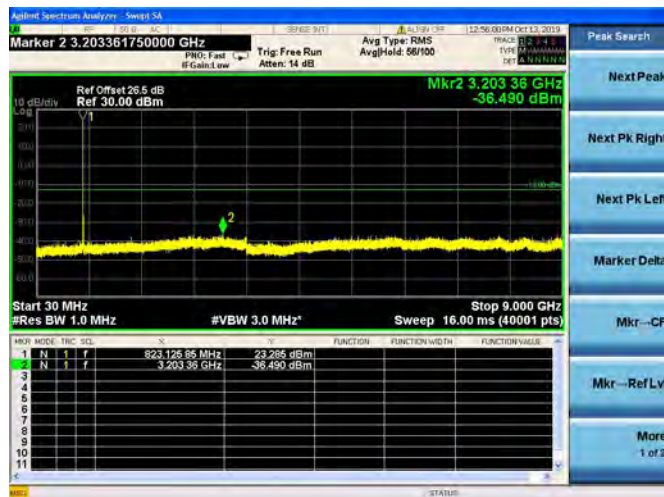
CDMA BC10, Channel=476



CDMA BC10, Channel=526



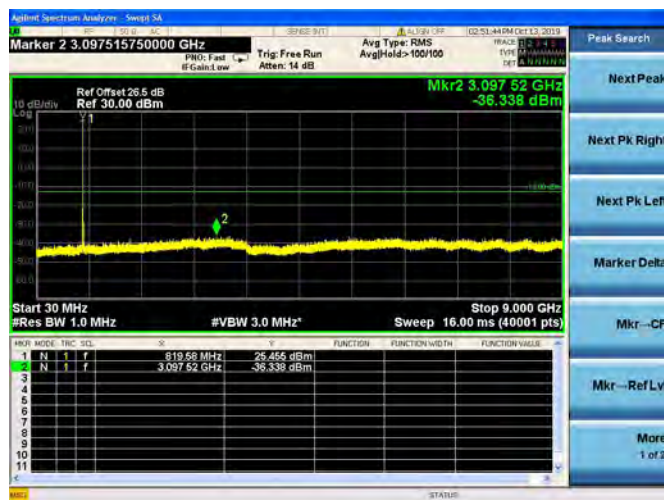
CDMA BC10, Channel=684



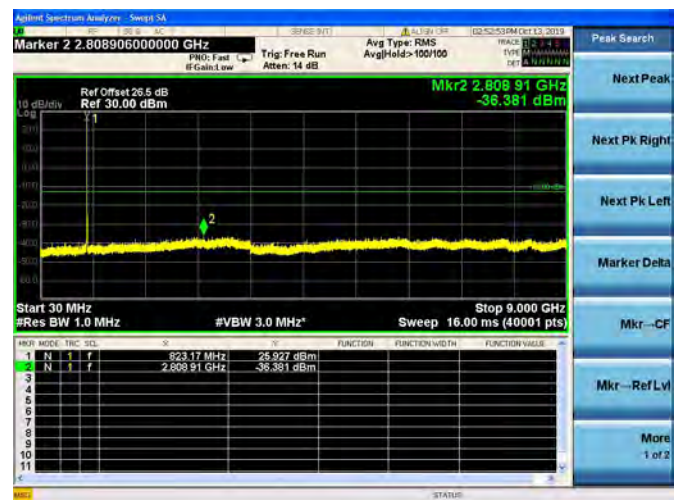
1XEVD0 Rev 0 BC10, Channel=476



1XEVD0 Rev 0 BC10, Channel=526



1XEVD0 Rev 0 BC10, Channel=684



2.6. Band Edge

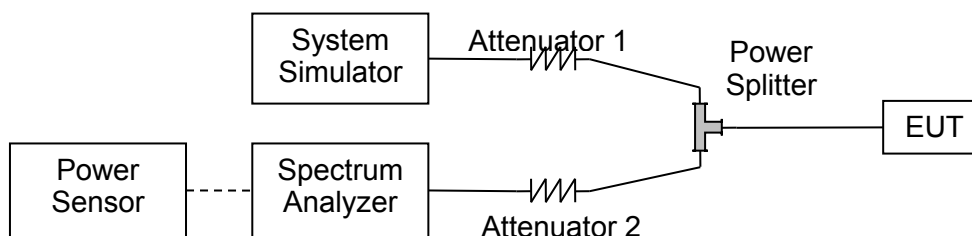
2.6.1. Requirement

According to FCC section 22.917(a), 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.

According to FCC section 24.238(a), 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.

According to FCC section 90.691, For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

2.6.2. Test Description



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 50 Ohm; 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. A call is established between the EUT and the SS.

2.6.3. Test procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.



2.6.4. Test Result

The center frequency of spectrum is the band edge frequency and span is 2MHz, Record the max trace into the test report.

CDMA BC0, Channel=1013**CDMA BC0, Channel=777****EVDO 0 BC0, Channel=1013****EVDO 0 BC0, Channel=777**



CDMA BC1, Channel=25



CDMA BC1, Channel=1175



EVDO 0 BC1, Channel=25



EVDO 0 BC1, Channel=1175





CDMA BC10, Channel=476



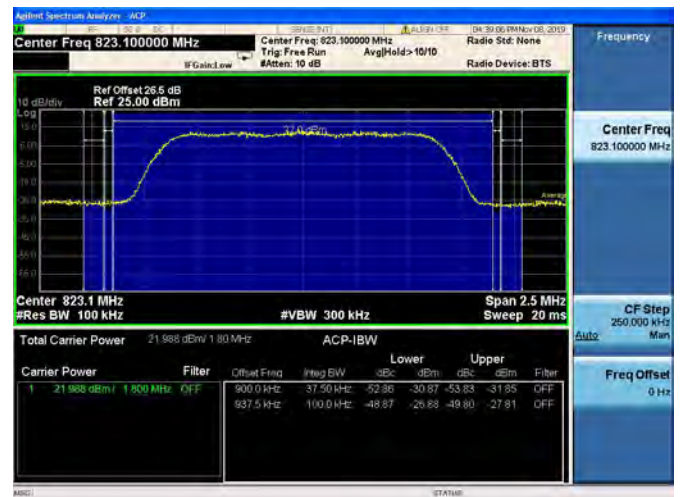
CDMA BC10, Channel=684



EVDO 0 BC10, Channel=476



EVDO 0 BC10, Channel=684



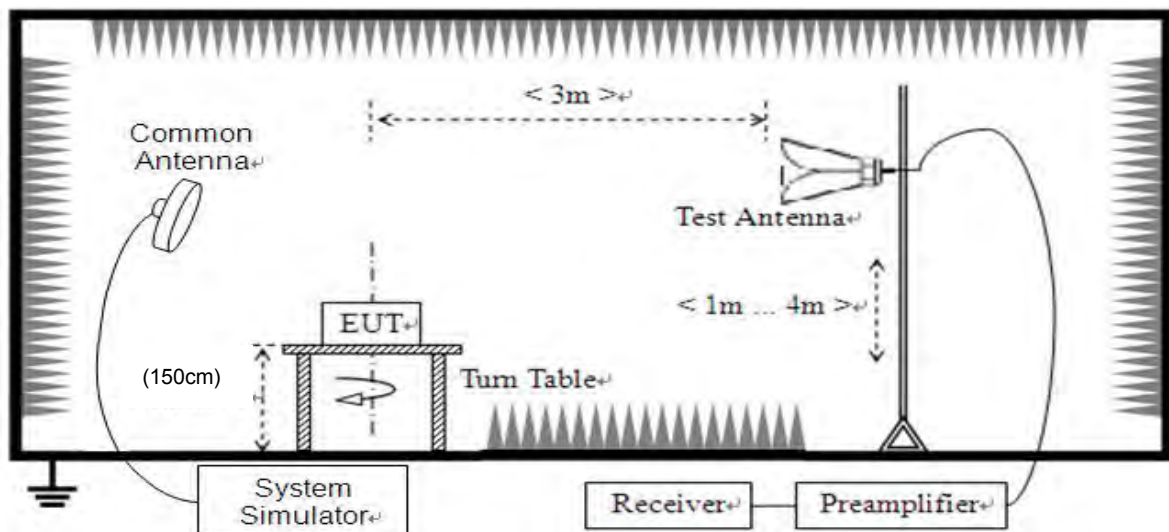
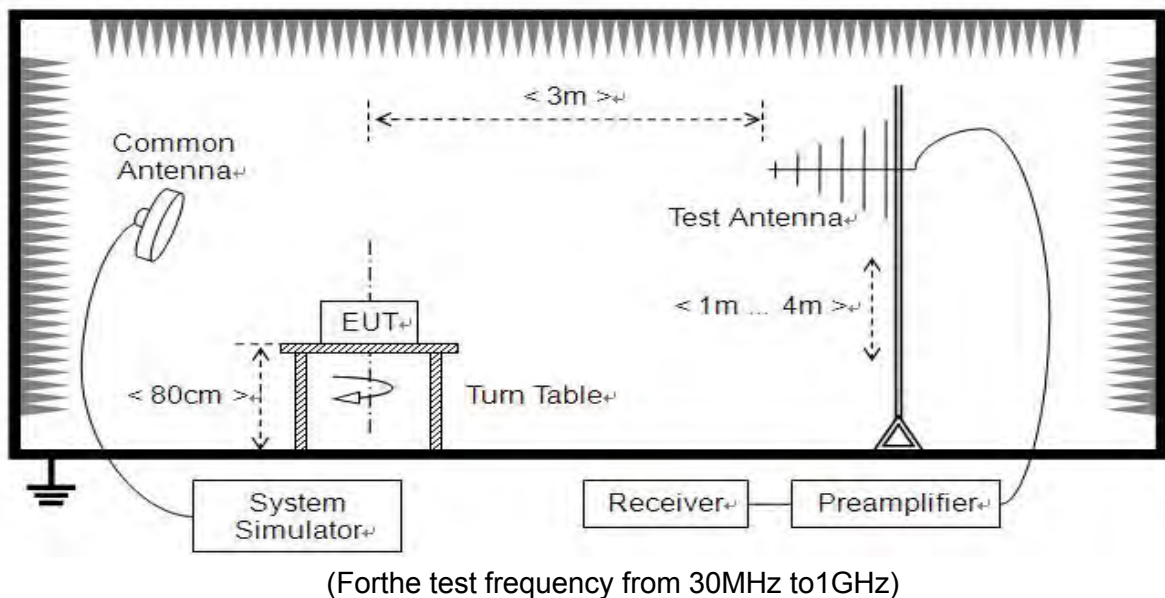
2.7. Transmitter Radiated Power (EIRP/ERP)

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_{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_{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} .

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

Test Plots:

Band	CDMA2000 BC0					
TX Channel	1013		384		777	
Frequency (MHz)	824.7		836.52		848.31	
	dBm	W	dBm	W	dBm	W
RC1 SO55	19.07	0.081	19.10	0.081	18.99	0.079
RC3 SO55	19.08	0.081	19.15	0.082	18.95	0.079
RC3 SO32 (F+SCH)	19.04	0.080	19.11	0.081	18.93	0.078
RC3 SO32 (+SCH)	19.09	0.081	19.09	0.081	18.97	0.079
1xEVDO Rev 0	18.85	0.077	18.94	0.078	18.93	0.078

Band	CDMA2000 BC1					
TX Channel	25		600		1175	
Frequency (MHz)	1851.25		1880		1908.75	
	dBm	W	dBm	W	dBm	W
RC1 SO55	21.49	0.141	21.46	0.140	21.50	0.141
RC3 SO55	21.53	0.142	21.55	0.143	21.51	0.142
RC3 SO32 (F+SCH)	21.50	0.141	21.54	0.143	21.53	0.142
RC3 SO32 (+SCH)	21.51	0.142	21.49	0.141	21.51	0.142
1xEVDO Rev 0	21.28	0.134	21.30	0.135	21.27	0.134

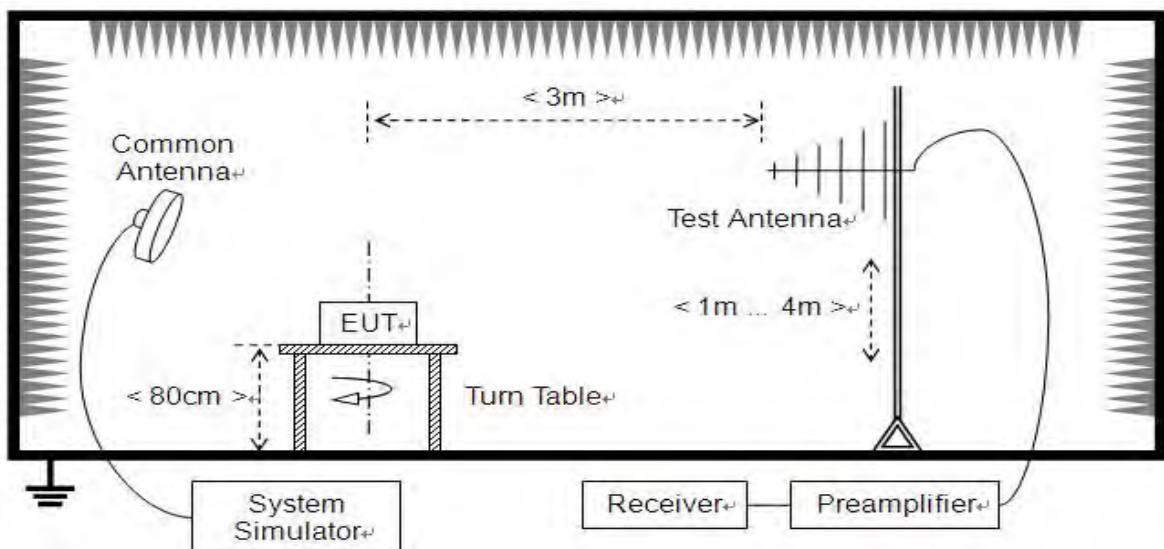
Band	CDMA2000 BC10					
TX Channel	476		526		684	
Frequency (MHz)	817.9		819.15		824.1	
	dBm	W	dBm	W	dBm	W
RC1 SO55	18.23	0.067	18.28	0.067	18.54	0.071
RC3 SO55	18.25	0.067	18.26	0.067	18.53	0.071
RC3 SO32 (F+SCH)	18.21	0.066	18.25	0.067	18.50	0.071
RC3 SO32 (+SCH)	18.14	0.065	18.22	0.066	18.49	0.071
1xEVDO Rev 0	18.41	0.069	18.45	0.070	18.57	0.072

2.8. Radiated Spurious Emissions

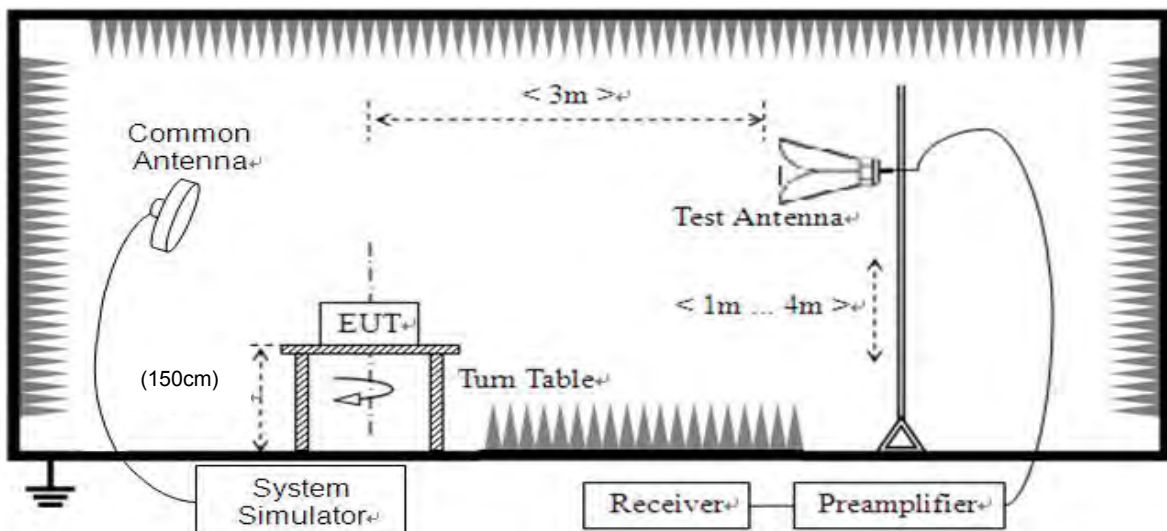
2.8.1. Requirement

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



(For the test frequency from 30MHz to 1GHz)



(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 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.

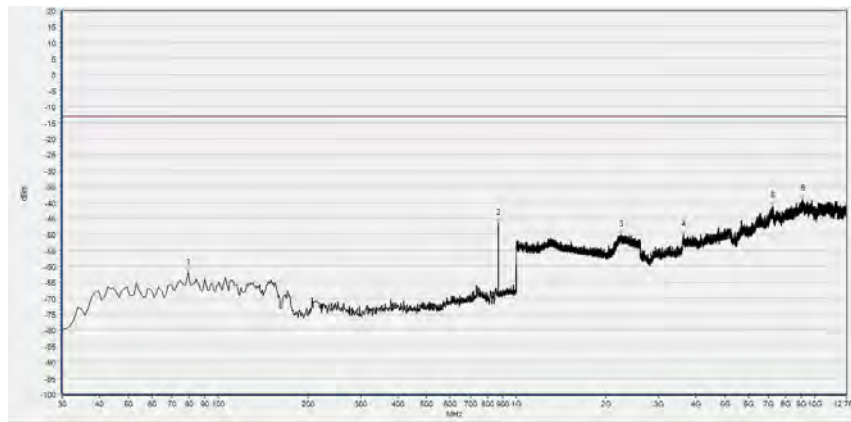
Note2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

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:**

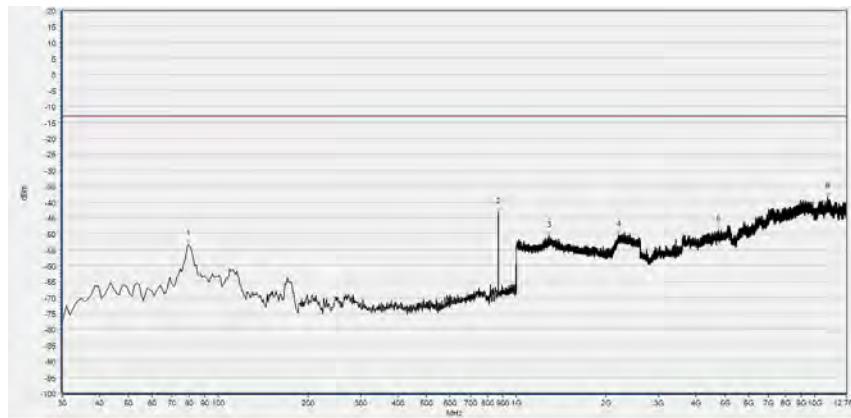
Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical		
CDMA (BC0)	1013	824.7	< -25	< -25	-13	PASS
	384	836.52	< -25	< -25		PASS
	777	848.31	< -25	< -25		PASS
CDMA (BC1)	25	1851.25	< -25	< -25	-13	PASS
	600	1880	< -25	< -25		PASS
	1175	1908.75	< -25	< -25		PASS
CDMA (BC10)	476	817.9	< -25	< -25	-13	PASS
	526	819.15	< -25	< -25		PASS
	684	824.1	< -25	< -25		PASS

B. Test Plots



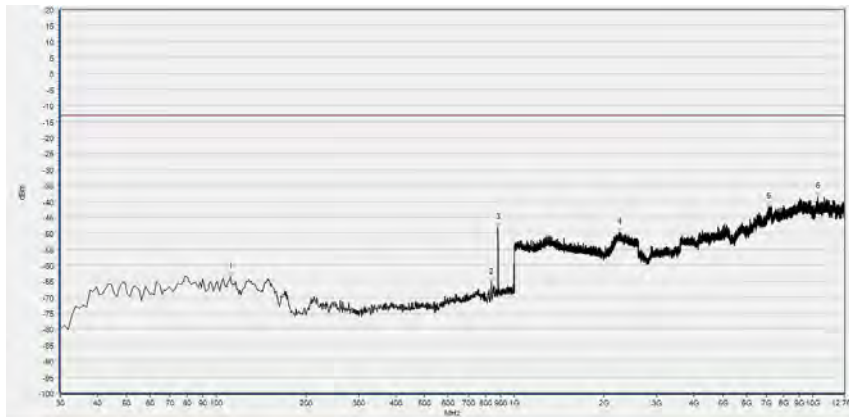
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	79.470	-61.98	-13.00	Horizontal	PASS
2	870.020	-46.55	-13.00	Horizontal	N/A
3	2238.255	-50.18	-13.00	Horizontal	PASS
4	3635.488	-50.17	-13.00	Horizontal	PASS
5	7218.167	-41.20	-13.00	Horizontal	PASS
6	9091.644	-39.09	-13.00	Horizontal	PASS

(CDMA BC0, Channel = 1013)



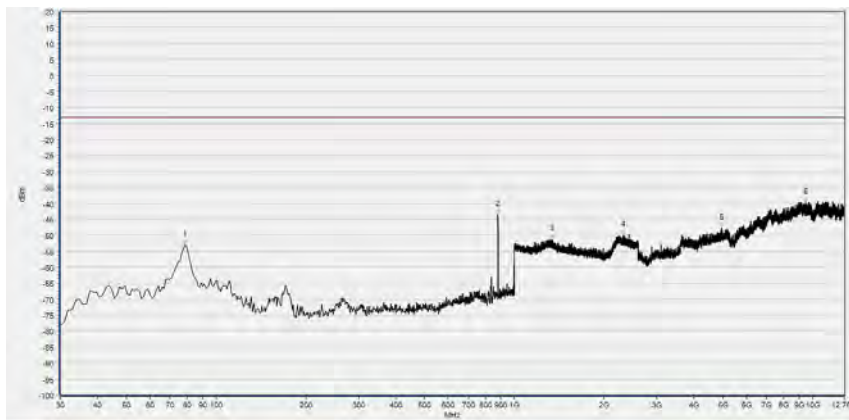
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	79.470	-53.20	-13.00	Vertical	PASS
2	869.050	-43.28	-13.00	Vertical	N/A
3	1282.993	-50.60	-13.00	Vertical	PASS
4	2210.084	-50.39	-13.00	Vertical	PASS
5	4757.729	-48.82	-13.00	Vertical	PASS
6	11061.102	-38.37	-13.00	Vertical	PASS

(CDMA BC0, Channel = 1013)



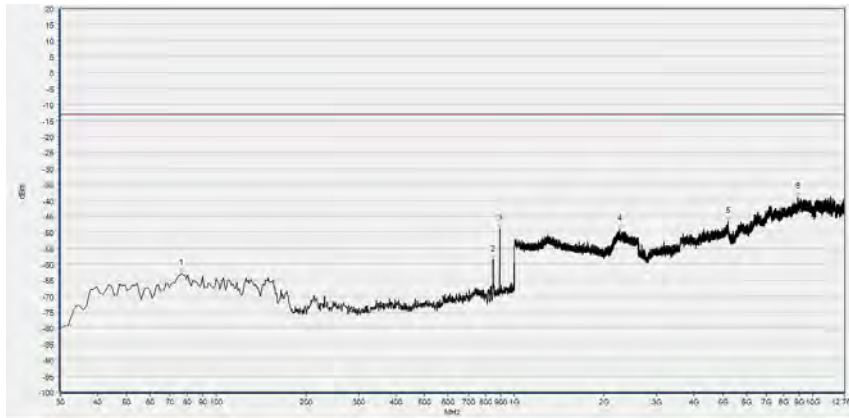
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	111.480	-63.60	-13.00	Horizontal	PASS
2	836.070	-65.36	-13.00	Horizontal	N/A
3	881.660	-48.22	-13.00	Horizontal	N/A
4	2249.140	-49.72	-13.00	Horizontal	PASS
5	7122.186	-41.70	-13.00	Horizontal	PASS
6	10378.160	-38.48	-13.00	Horizontal	PASS

(CDMA BC0, Channel = 384)



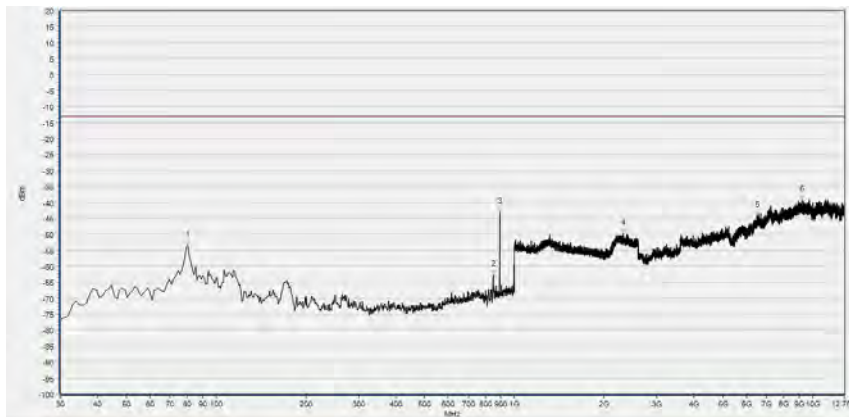
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	78.500	-53.18	-13.00	Vertical	PASS
2	881.660	-43.47	-13.00	Vertical	N/A
3	1339.336	-51.35	-13.00	Vertical	PASS
4	2315.726	-50.03	-13.00	Vertical	PASS
5	4955.228	-47.72	-13.00	Vertical	PASS
6	9482.951	-39.67	-13.00	Vertical	PASS

(CDMA BC0, Channel = 384)



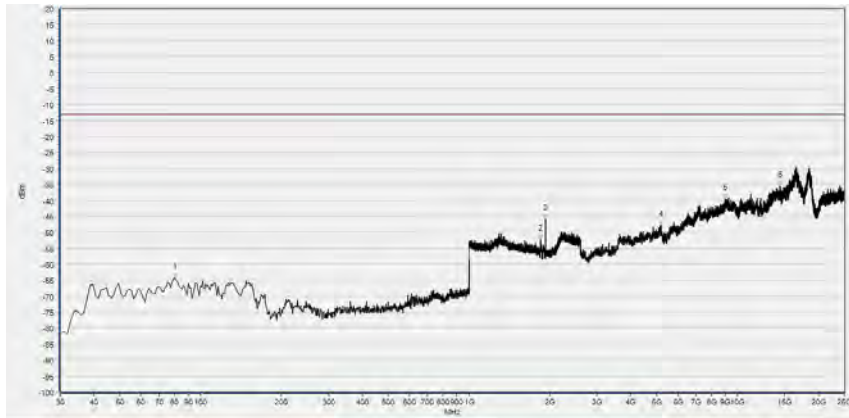
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	76.560	-63.00	-13.00	Horizontal	PASS
2	847.710	-58.74	-13.00	Horizontal	N/A
3	893.300	-48.89	-13.00	Horizontal	N/A
4	2255.542	-49.06	-13.00	Horizontal	PASS
5	5195.181	-46.60	-13.00	Horizontal	PASS
6	8914.448	-39.07	-13.00	Horizontal	PASS

(CDMA BC0, Channel = 777)



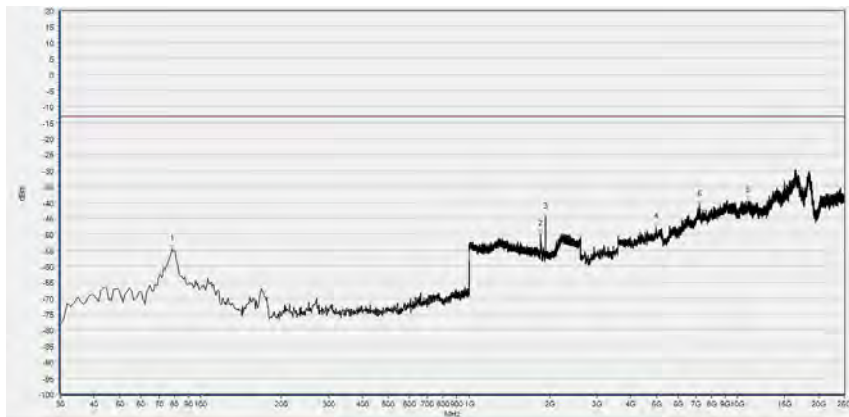
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	80.440	-53.47	-13.00	Vertical	PASS
2	848.680	-62.70	-13.00	Vertical	N/A
3	893.300	-43.11	-13.00	Vertical	N/A
4	2315.086	-49.64	-13.00	Vertical	PASS
5	6518.612	-44.20	-13.00	Vertical	PASS
6	9198.700	-39.31	-13.00	Vertical	PASS

(CDMA BC0, Channel = 777)



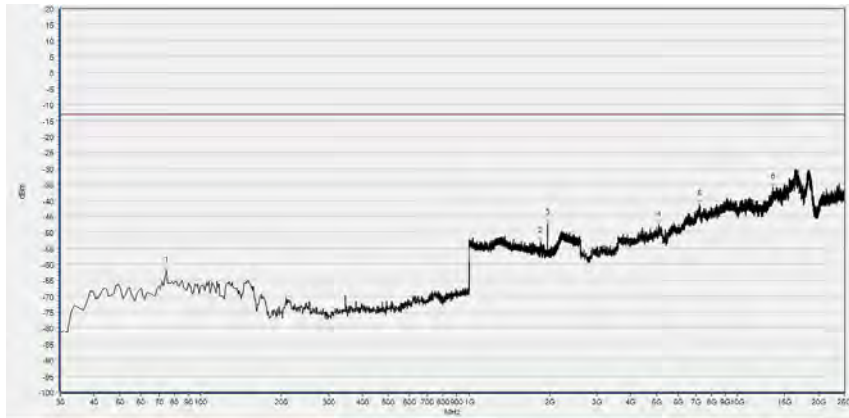
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	80.440	-64.31	-13.00	Horizontal	PASS
2	1850.900	-52.25	-13.00	Horizontal	N/A
3	1931.573	-45.62	-13.00	Horizontal	N/A
4	5194.799	-47.71	-13.00	Horizontal	PASS
5	9019.785	-39.46	-13.00	Horizontal	PASS
6	14400.837	-35.39	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 25)



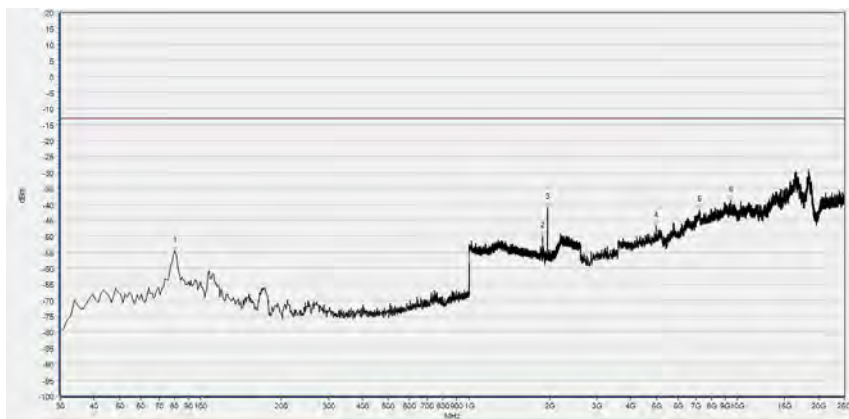
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	78.500	-54.67	-13.00	Vertical	PASS
2	1851.541	-49.91	-13.00	Vertical	N/A
3	1931.573	-44.51	-13.00	Vertical	N/A
4	4987.052	-47.60	-13.00	Vertical	PASS
5	7243.753	-40.77	-13.00	Vertical	PASS
6	10966.903	-39.40	-13.00	Vertical	PASS

(CDMA BC1, Channel = 25)



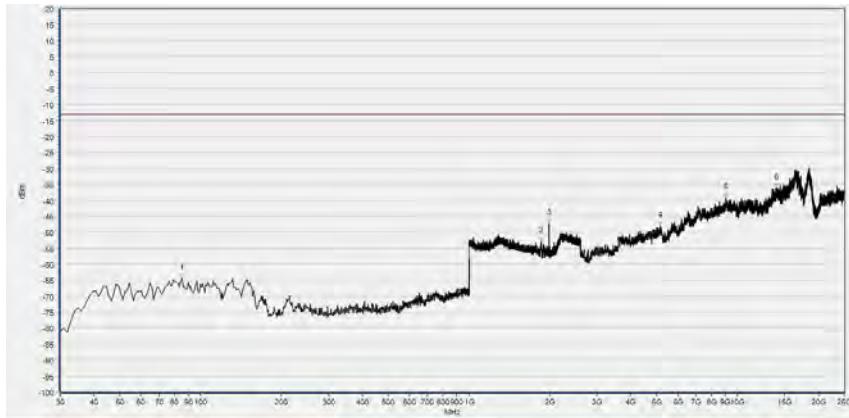
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	74.620	-62.05	-13.00	Horizontal	PASS
2	1853.461	-52.94	-13.00	Horizontal	N/A
3	1960.384	-47.27	-13.00	Horizontal	N/A
4	5109.256	-47.76	-13.00	Horizontal	PASS
5	7223.386	-41.30	-13.00	Horizontal	PASS
6	13590.216	-35.83	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 600)



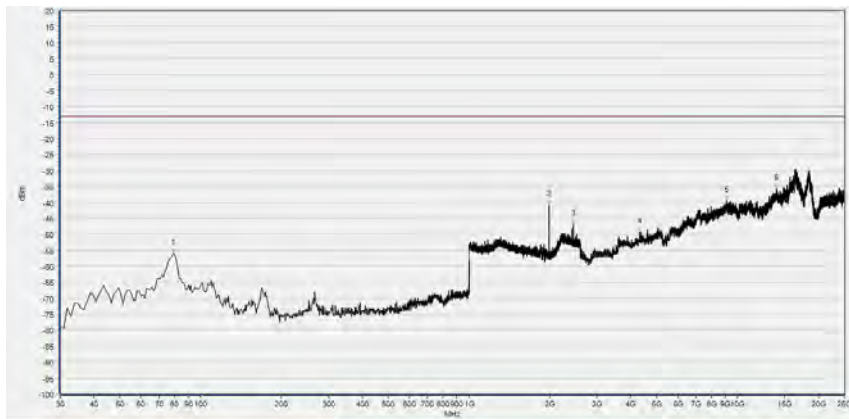
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	80.440	-54.66	-13.00	Vertical	PASS
2	1880.352	-50.03	-13.00	Vertical	N/A
3	1959.744	-41.11	-13.00	Vertical	N/A
4	4991.126	-46.91	-13.00	Vertical	PASS
5	7243.753	-41.65	-13.00	Vertical	PASS
6	9463.793	-38.88	-13.00	Vertical	PASS

(CDMA BC1, Channel = 600)



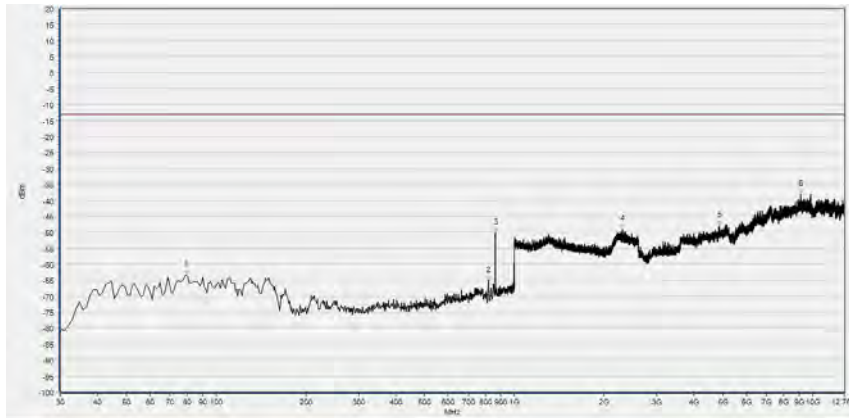
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	85.290	-64.47	-13.00	Horizontal	PASS
2	1856.022	-52.90	-13.00	Horizontal	N/A
3	1988.555	-47.28	-13.00	Horizontal	N/A
4	5154.064	-47.97	-13.00	Horizontal	PASS
5	9076.814	-39.22	-13.00	Horizontal	PASS
6	13944.608	-36.11	-13.00	Horizontal	PASS

(CDMA BC1, Channel = 1175)



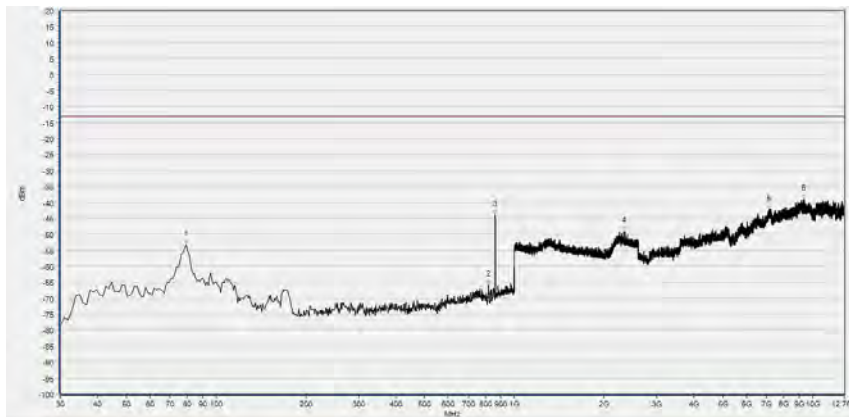
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	79.470	-55.99	-13.00	Vertical	PASS
2	1988.555	-40.83	-13.00	Vertical	N/A
3	2450.820	-46.91	-13.00	Vertical	PASS
4	4327.150	-49.37	-13.00	Vertical	PASS
5	9097.181	-39.45	-13.00	Vertical	PASS
6	14026.077	-35.75	-13.00	Vertical	PASS

(CDMA BC1, Channel = 1175)



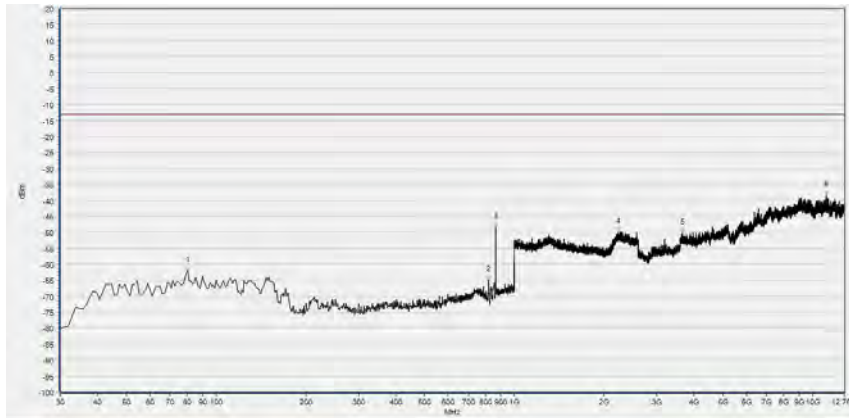
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	79.470	-63.41	-13.00	Horizontal	PASS
2	816.670	-65.18	-13.00	Horizontal	N/A
3	863.230	-50.20	-13.00	Horizontal	N/A
4	2302.281	-49.13	-13.00	Horizontal	PASS
5	4875.859	-47.93	-13.00	Horizontal	PASS
6	9130.406	-38.14	-13.00	Horizontal	PASS

(CDMA BC10, Channel = 476)



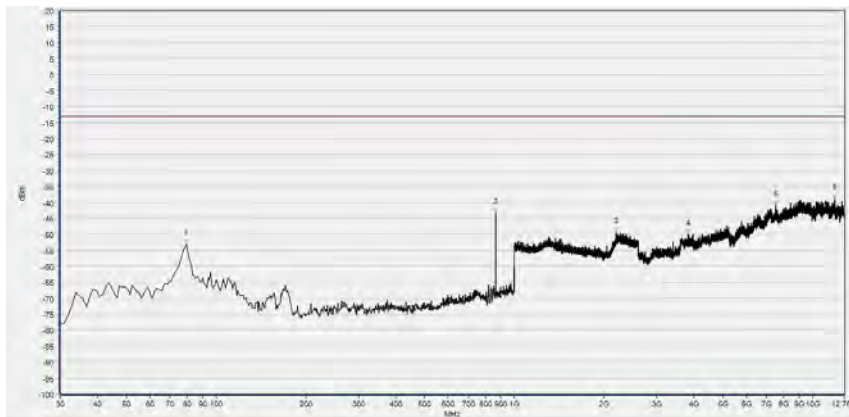
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	79.470	-53.35	-13.00	Vertical	PASS
2	816.670	-65.80	-13.00	Vertical	N/A
3	862.260	-43.86	-13.00	Vertical	N/A
4	2327.891	-49.09	-13.00	Vertical	PASS
5	7098.191	-42.43	-13.00	Vertical	PASS
6	9313.139	-38.93	-13.00	Vertical	PASS

(CDMA BC10, Channel = 476)



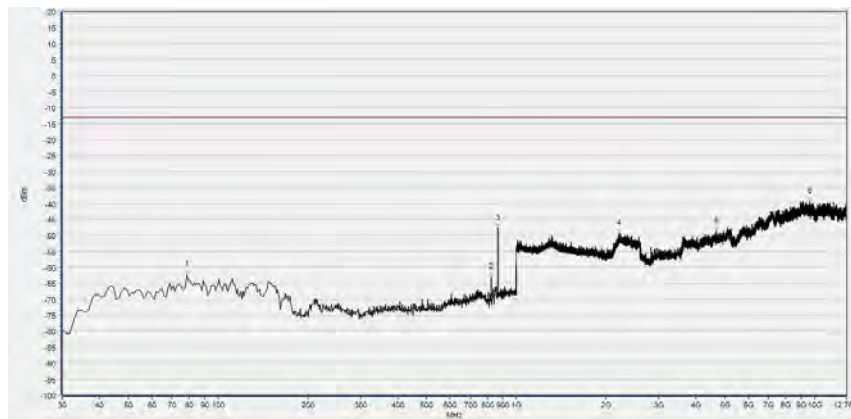
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	80.440	-62.09	-13.00	Horizontal	PASS
2	820.550	-64.81	-13.00	Horizontal	N/A
3	865.170	-48.28	-13.00	Horizontal	N/A
4	2232.493	-50.06	-13.00	Horizontal	PASS
5	3648.409	-50.26	-13.00	Horizontal	PASS
6	11127.550	-38.32	-13.00	Horizontal	PASS

(CDMA BC10, Channel = 526)



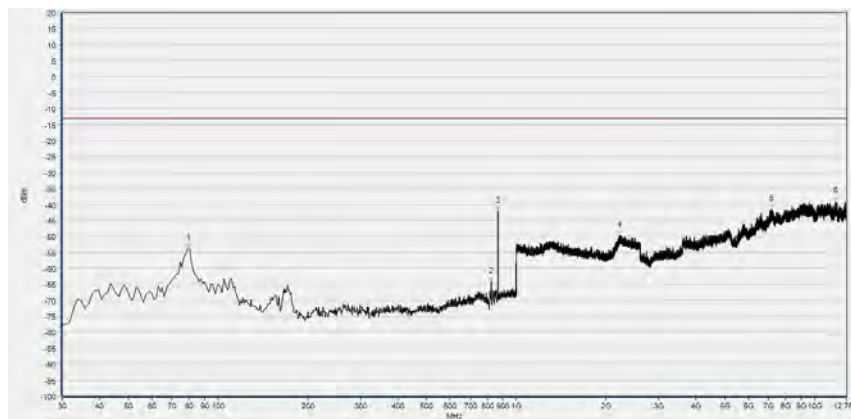
Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	79.470	-53.01	-13.00	Vertical	PASS
2	865.170	-43.15	-13.00	Vertical	N/A
3	2197.279	-49.32	-13.00	Vertical	PASS
4	3823.759	-49.93	-13.00	Vertical	PASS
5	7498.727	-40.75	-13.00	Vertical	PASS
6	11847.409	-38.68	-13.00	Vertical	PASS

(CDMA BC10, Channel = 526)



Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	78.500	-62.38	-13.00	Horizontal	PASS
2	822.490	-63.10	-13.00	Horizontal	N/A
3	867.110	-47.97	-13.00	Horizontal	N/A
4	2205.602	-49.54	-13.00	Horizontal	PASS
5	4683.897	-48.76	-13.00	Horizontal	PASS
6	9656.456	-39.39	-13.00	Horizontal	PASS

(CDMA BC10, Channel = 684)



Num	Freq(MHz)	PK	limit PK	Antenna	Verdict
1	79.470	-53.85	-13.00	Vertical	PASS
2	822.490	-64.31	-13.00	Vertical	N/A
3	867.110	-42.17	-13.00	Vertical	N/A
4	2214.566	-49.76	-13.00	Vertical	PASS
5	7168.331	-41.45	-13.00	Vertical	PASS
6	11725.586	-39.33	-13.00	Vertical	PASS

(CDMA BC10, Channel = 684)



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	± 2.22 dB
Bandwidth	$\pm 5\%$
Conducted Spurious Emission	± 2.77 dB
Band Edge	± 2.77 dB
Equivalent Isotropic Radiated Power	± 2.22 dB
Radiated Spurious Emissions	± 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

Laboratory Name:	XIAMEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd. Kehu-Morlab Test Laboratory
Laboratory Address:	Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian) China
Telephone:	+86 592 5612050
Facsimile:	+86 592 5612095

2. Identification of the Responsible Testing Location

Name:	XIAMEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd. Kehu-Morlab Test Laboratory
Address:	Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian) China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian) 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 CN1249, the test firm registration number is 586030.



4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Power Splitter	1723	U2021XA	Agilent	2019.01.08	2020.01.07
Attenuator 1	(N/A.)	10dB	Resnet	2019.04.17	2020.04.16
Attenuator 2	(N/A.)	3dB	Resnet	2019.04.17	2020.04.16
PXA Signal Analyzer	MY57150136	N9030A	KEYSIGHT	2019.01.05	2020.01.04
USB Power Sensor	MY54210011	U2021XA	Agilent	2019.04.17	2020.04.16
System Simulator	100915	CMW500	R&S	2019.01.07	2020.01.06
SMA connector	RF03	N/A	Xingbo	N/A	N/A
Temperature Chamber	(N/A)	HTC-1	(N/A)	2019.01.11	2020.01.10
Software Version: 2.0.0.0					

4.3 Radiated Test Equipments

RSE Test System						
No.	Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal.Due Date
1	Anechoic Chamber	KH-B-0004	9m*6m*6m	ETS-Lindgren	2017.07.21	2020.07.20
2	Signal Analyzer	101294	FSV40	R&S	2019.01.04	2020.01.03
3	Wideband Radio Communication Tester	100915	CMW500	R&S	2019.01.08	2020.01.07
4	Linear Log Periodic Broad Band Antenna	949	VULB 9163	Schwarzbeck	2018.09.25	2021.09.24
5	Ultra-Wideband Horn Antenna	102615	HF907	R&S	2019.01.19	2022.01.18
6	RF Switch and Control Platform	N/A	RSC	CDSI	N/A	N/A

_____ END OF REPORT _____