



TEST REPORT

APPLICANT : Jiangsu SEUIC Technology Co.,Ltd.
PRODUCT NAME : Portable Data Collection Terminal
MODEL NAME : CRUISE 1
BRAND NAME : CRUISE/SEUIC
FCC ID : 2AC68-CRUISE1S
STANDARD(S) : 47 CFR Part 22, Subpart H
: 47 CFR Part 24 Subpart E
RECEIPT DATE : 2019-12-13
TEST DATE : 2019-12-13 to 2020-01-13
ISSUE DATE : 2020-01-16

Edited by: He Dekuan
He Dekuan (Rapporteur)

Approved by: Peng Huarui
Peng Huarui (Supervisor)

NOTE: This document is issued by MORLAB, the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.





DIRECTORY

1. Technical Information	4
1.1. Applicant and Manufacturer Information	4
1.2. Equipment Under Test (EUT) Description	4
1.3. Test Standards and Results	6
1.4. Environmental Conditions	8
1.5. Maximum ERP/EIRP and Emission Designator	8
2. 47 CFR Part 2, Part 22H and Part 24E Requirements	9
2.1. Transmitter Conducted Output Power	9
2.2. Occupied Bandwidth	11
2.3. Frequency Stability	19
2.4. Peak to Average Ratio	22
2.5. Conducted Spurious Emissions	30
2.6. Band Edge	35
2.7. Transmitter Radiated Power (EIRP/ERP)	39
2.8. Radiated Spurious Emissions	43
Annex A Test Uncertainty	49
Annex B Testing Laboratory Information	50



Change History		
Version	Date	Reason for change
1.0	2020-01-16	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Jiangsu SEUIC Technology Co.,Ltd.
Applicant Address:	NO.15 Xinghuo Road, Nanjing New & High Technology Industry Development Zone, 210061, Nanjing City, Jiangsu Province, China
Manufacturer:	Jiangsu SEUIC Technology Co.,Ltd.
ManufacturerAddress:	NO.15 Xinghuo Road, Nanjing New & High Technology Industry Development Zone, 210061, Nanjing City, Jiangsu Province, China

1.2. Equipment Under Test (EUT) Description

Product Name:	Portable Data Collection Terminal	
Hardware Version:	SLB761X_MB_V1.00_PCB	
Software Version:	D700S_G_V0.3.0	
Modulation Type:	CDMA2000 1X:QPSK,OQPSK; EVDO 0:QPSK,OQPSK; EVDO A:QPSK,OQPSK; EVDO B:QPSK,OQPSK	
Operation Band:	CDMA 800MHz: (BC0)	
Frequency Range:	CDMA 800MHz(BC0)	Tx: 824.70 – 848.31 MHz;
		Rx: 869.70--893.31MHz
Antenna Type:	Fixed Internal	
Antenna Gain:	CDMA 800MHz, BC0:	-4.03 dBi
Accessory Information::	Battery	
	Brand Name:	N/A
	Model No.:	BT01700CRUISE
	Capacity:	4500mAh
	Rated Voltage:	3.80V
	Charge Limit:	4.35V



Accessory Information:	AC Adapter	
	Brand Name:	N/A
	Model No.:	TPA-23A050200UU01
	Rated Input:	100-240V~50/60Hz 0.3A
	Rated Output:	5V=2A

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 and Part 27 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



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

Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
2.1046	Transmitter Conducted Output Power	Dec 29, 2019	Gao Mingzhou Peng Xuwei	PASS	No deviation
2.1049	Occupied Bandwidth	Dec 26, 2019 and Jan 11, 2020	Gao Mingzhou	PASS	No deviation
24.232(d), 27.50(d)	Peak to Average Ratio	Dec 13 to 28, 2019	Gao Mingzhou	PASS	No deviation
2.1055, 22.355, 24.235	Frequency Stability	Dec 26, 2019 and Jan 11, 2020	Gao Mingzhou	PASS	No deviation
2.1051, 22.917(a), 24.238(a)	Conducted Spurious Emissions	Dec 11 to 13, 2019	Gao Mingzhou	PASS	No deviation
2.1051, 22.917(a), 24.238(a)	Band Edge	Dec 11, and 16, 2019	Gao Mingzhou	PASS	No deviation
2.1046, 22.913(a), 24.232(a)	Equivalent Isotropic Radiated Power	Dec 29, 2019	Peng Xuwei	PASS	No deviation
2.1053, 22.917(a), 24.238(a)	Radiated Spurious Emissions	Dec 29, 2019	Gao Mingzhou Peng Xuwei	PASS	No deviation

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

1.5. Maximum ERP/EIRP and Emission Designator

CDMA 800MHz	Maximum ERP/EIRP (W)		Emission Designator (99%OBW)
	dBm	W	
BC 0	17.27	0.053	1M28F9W

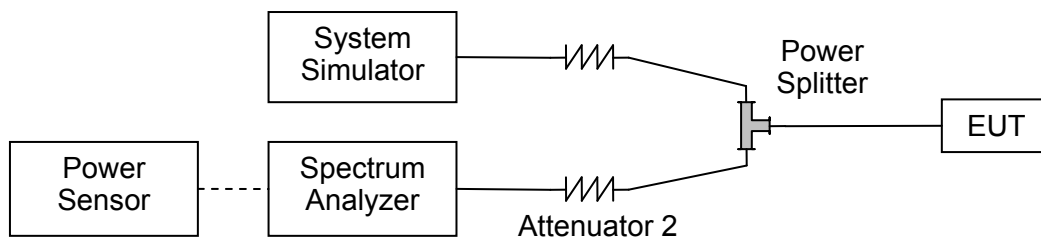
2.47 CFR Part 2, Part 22H and Part 24E Requirements

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 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.

2.1.3. Test procedure

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

2.1.4. Result



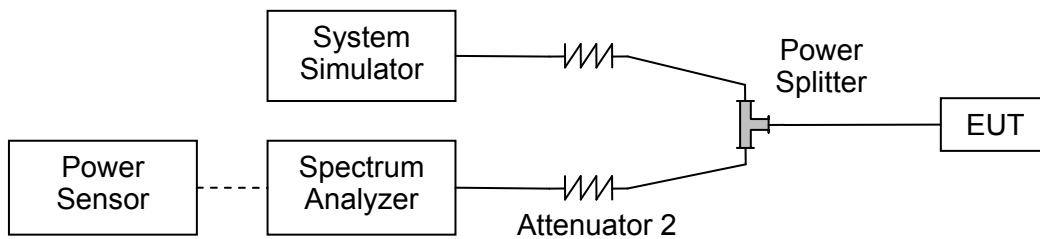
Band	CDMA2000 BC0		
TX Channel	1013	384	777
Frequency (MHz)	824.7	836.52	848.31
RC1 SO55	23.44	23.35	23.45
RC3 SO55	23.48	23.30	23.50
RC3 SO32 (F+SCH)	23.46	23.28	23.43
RC3 SO32 (+SCH)	23.43	23.13	23.34
1XEVD0 Rev 0	23.44	23.35	23.45
1XEVD0 Rev A	23.48	23.30	23.50
1XEVD0 Rev B	23.41	23.09	23.28

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.

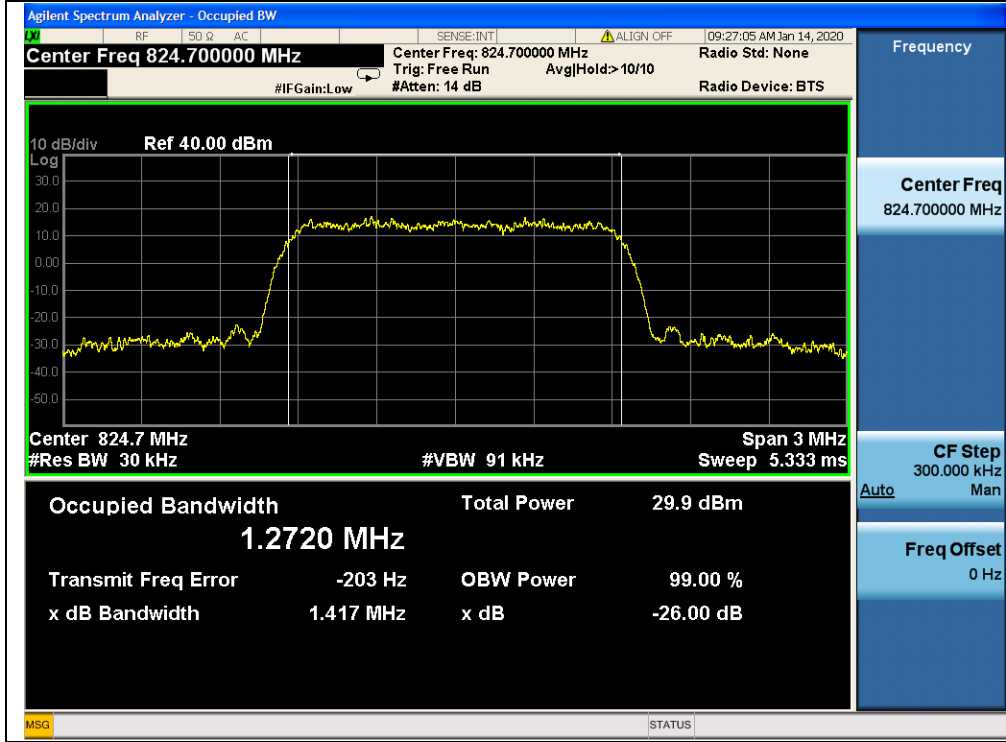


Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26dB bandwidth (kHz)	Refer to Plot
CDMA (BC0)	1013	824.7	1.272	1.417	Plot A1 to A3
	384	836.52	1.271	1.425	
	777	848.31	1.276	1.425	
1xEVDO Rev 0 (BC0)	1013	824.7	1.277	1.425	Plot B1 to B3
	384	836.52	1.268	1.412	
	777	848.31	1.272	1.415	
1xEVDO Rev A (BC0)	1013	824.7	1.277	1.427	Plot C1 to C3
	384	836.52	1.274	1.410	
	777	848.31	1.272	1.422	
1xEVDO Rev B (BC0)	1013	824.7	1.275	1.427	Plot D1 to D3
	384	836.52	1.273	1.416	
	777	848.31	1.270	1.422	

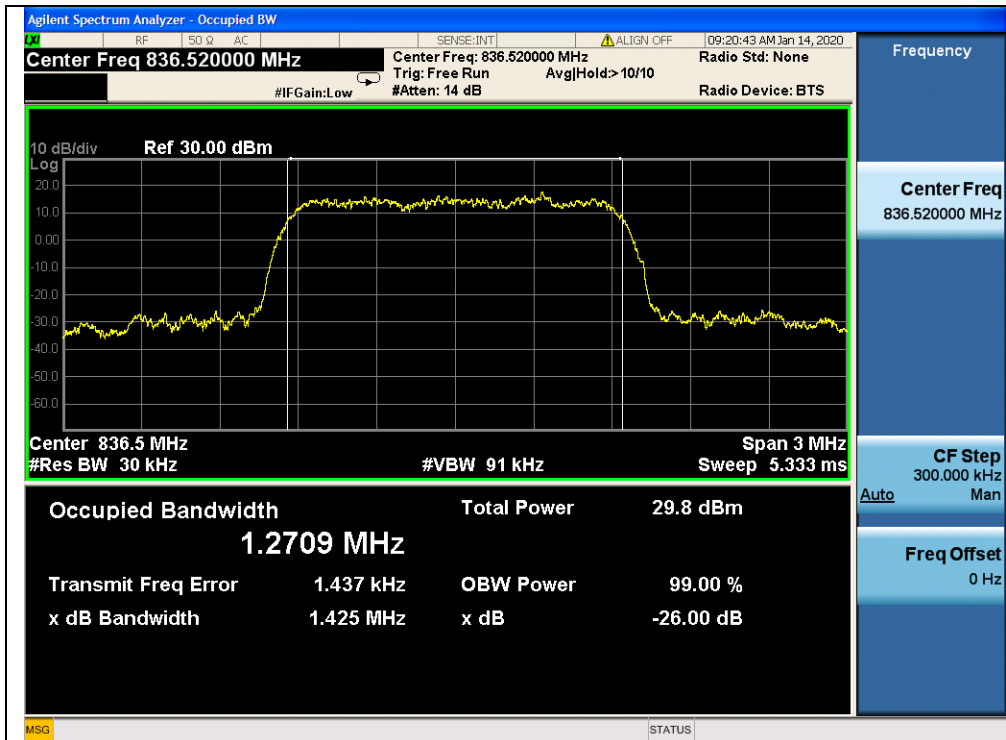


2.2.4. Test Result

Test Plots:

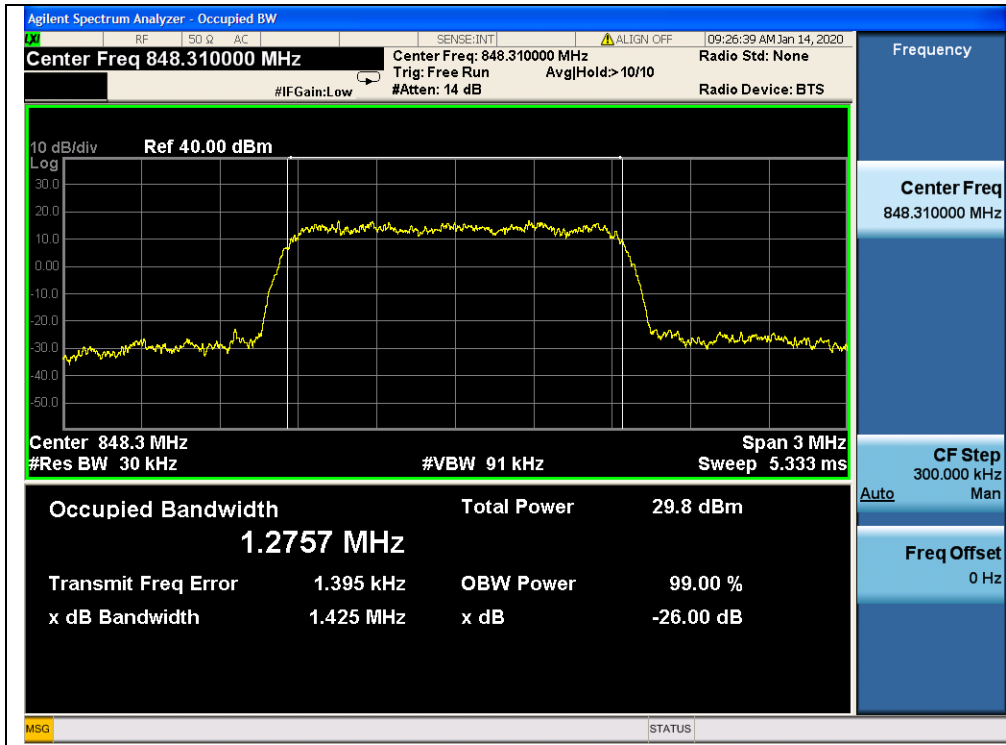


(Plot A1, CDMABC0, Channel = 1013)

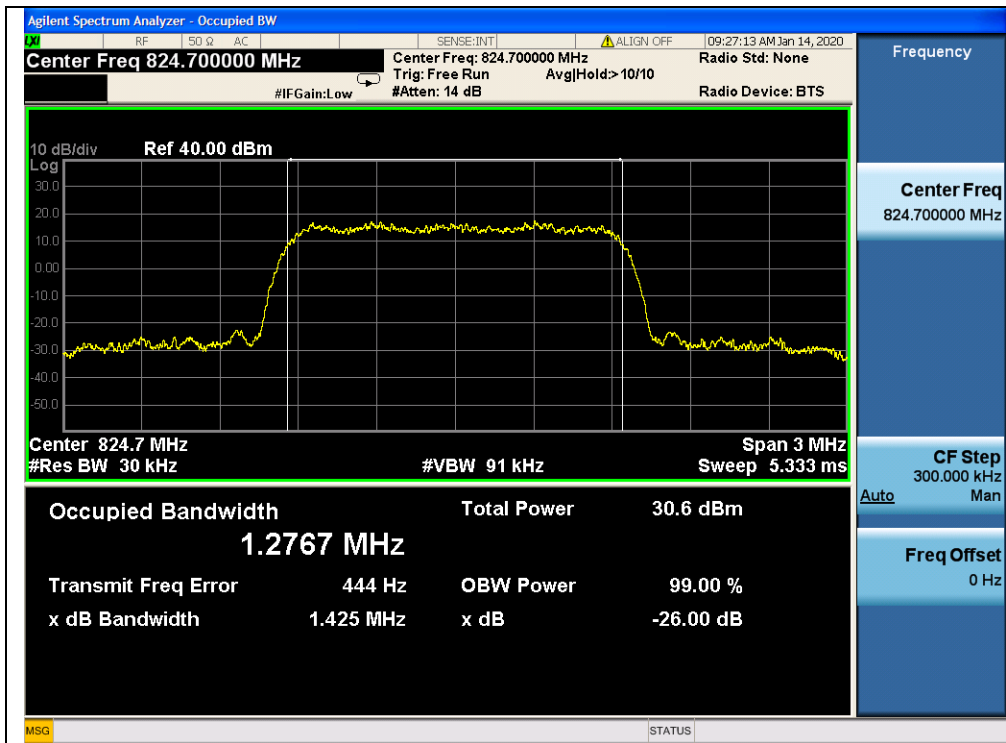




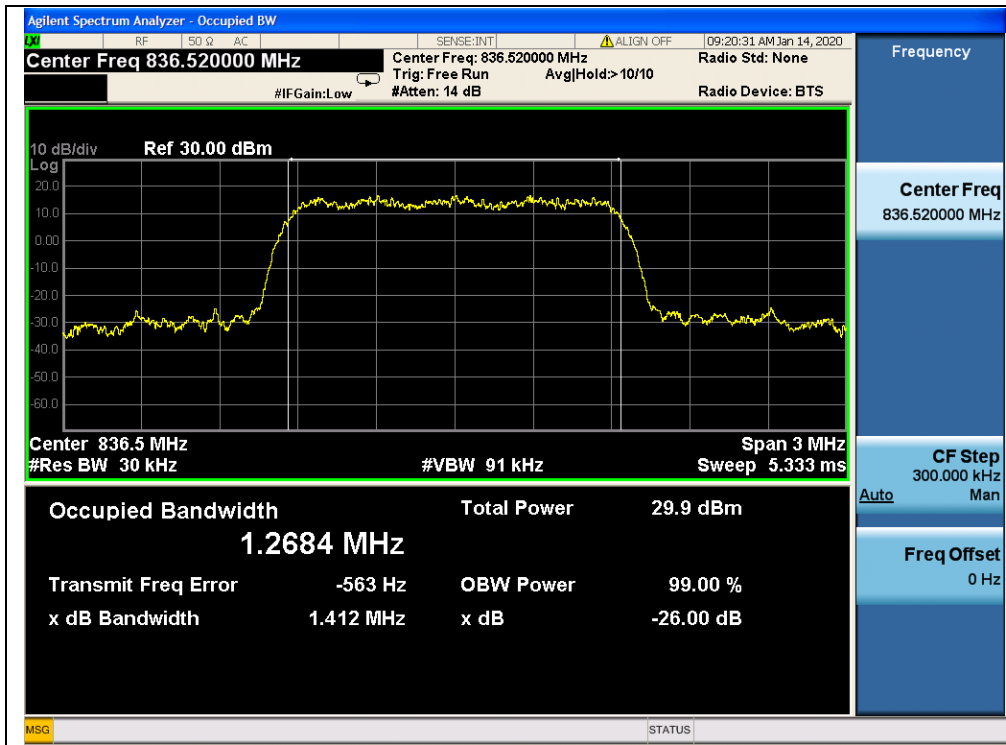
(Plot A2, CDMABC0, Channel = 384)



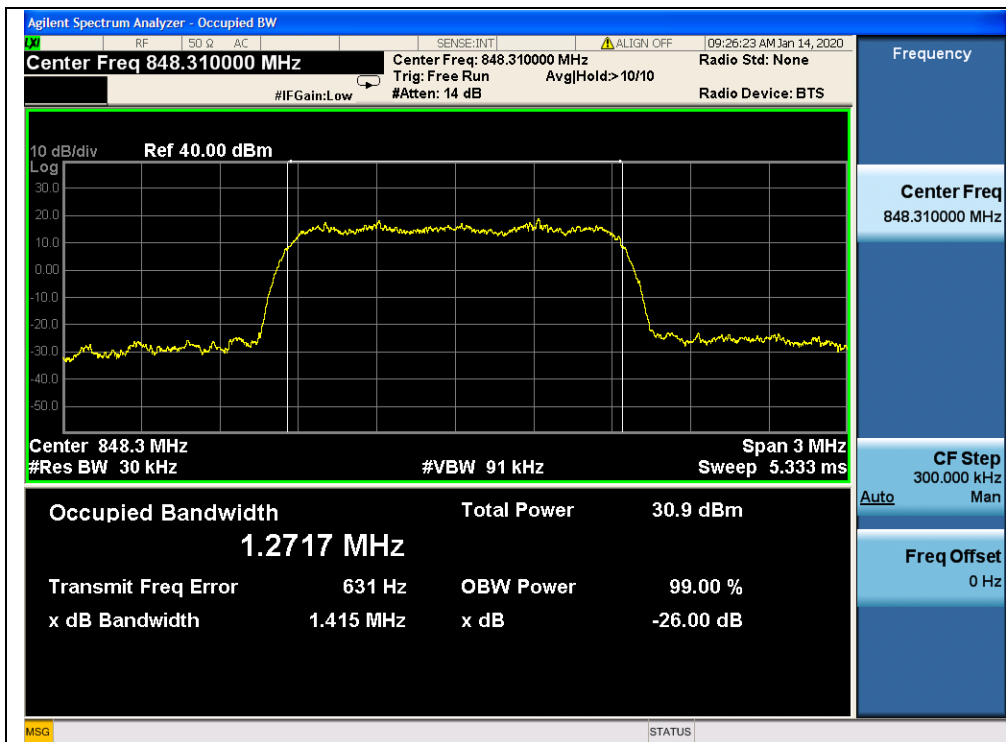
(Plot A3, CDMABC0, Channel = 777)



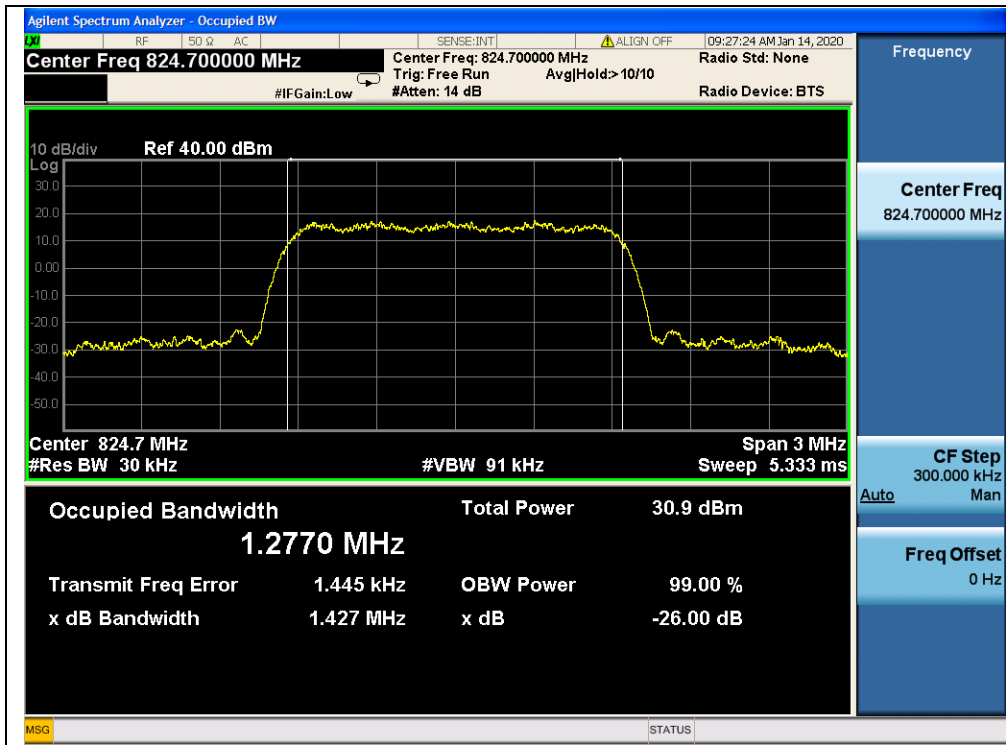
(Plot B1, 1XEVD0 Rev 0 BC0, Channel = 1013)



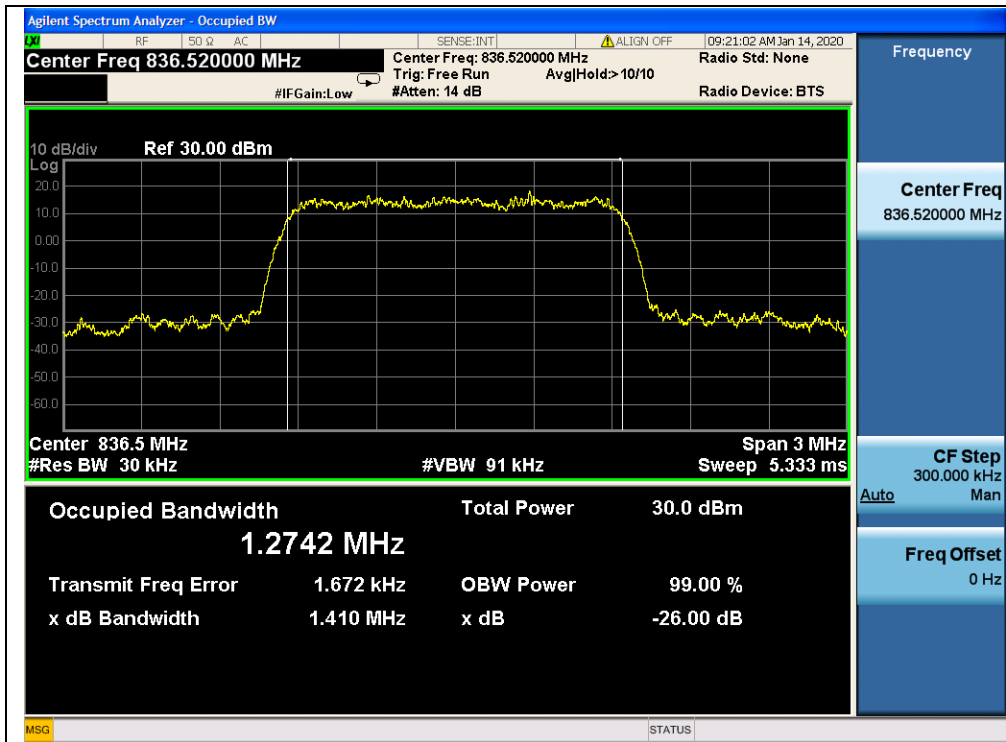
(Plot B2, 1XEVD0 Rev 0 BC0, Channel = 384)



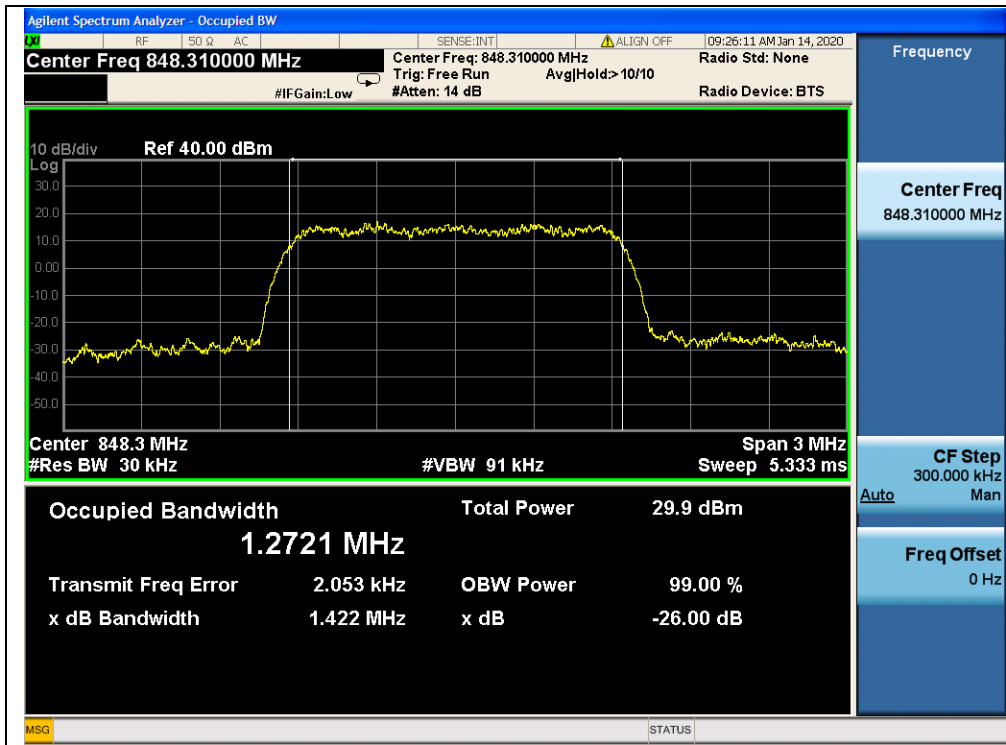
(Plot B3, 1XEVD0 Rev 0 BC0, Channel = 777)



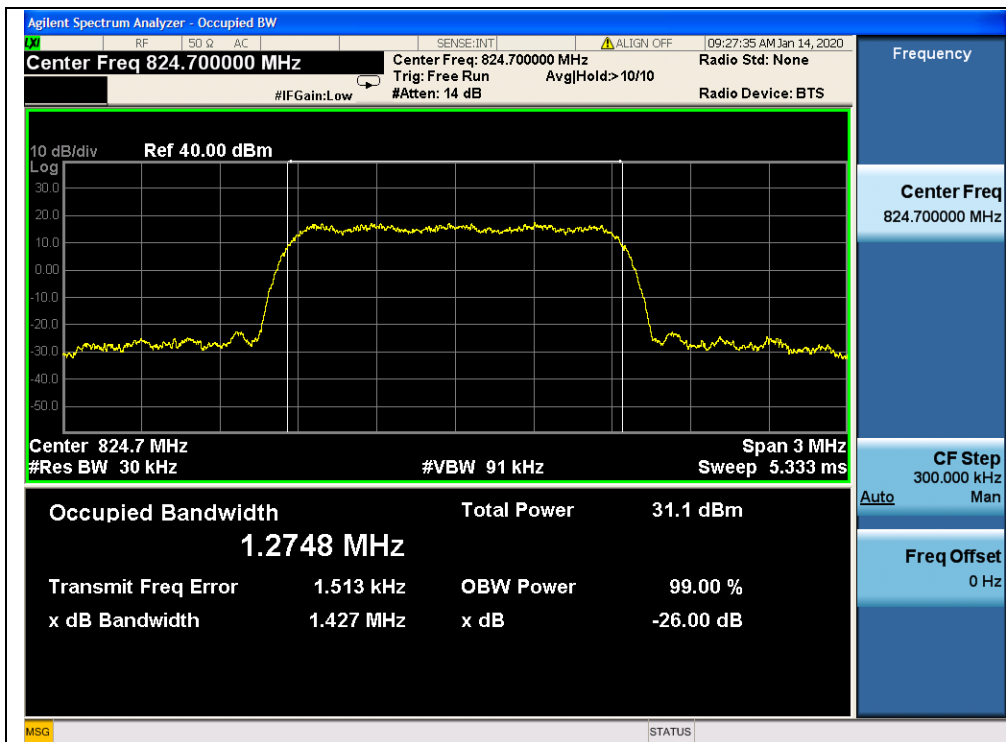
(Plot C1, 1XEVD0 Rev A BC0, Channel = 1013)



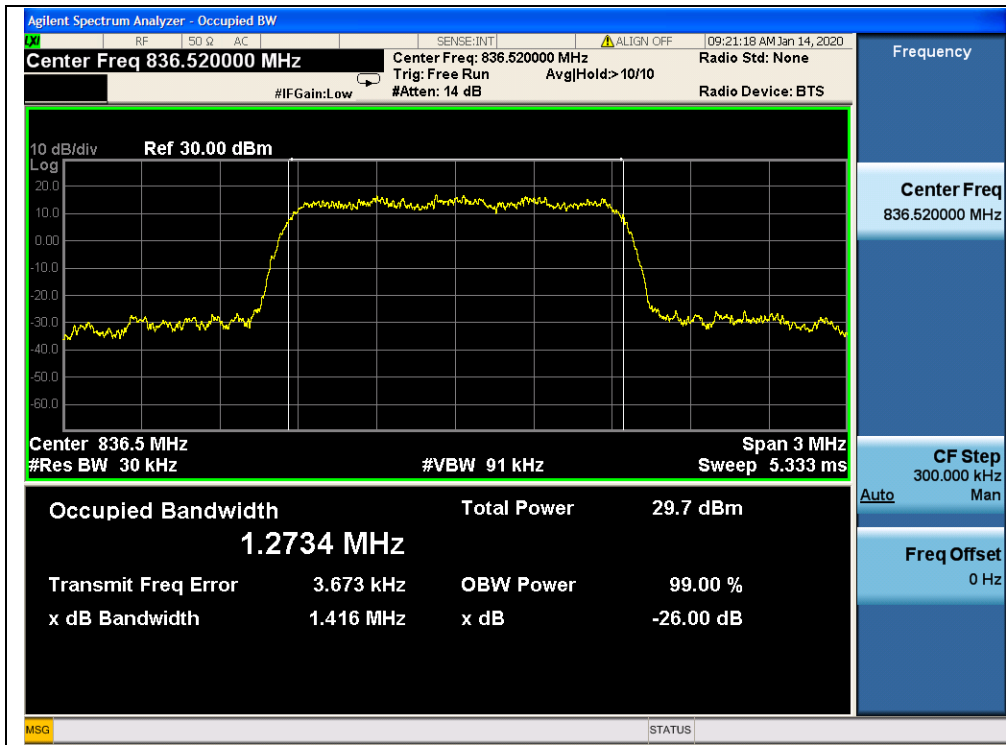
(Plot C2, 1XEVD0 Rev A BC0, Channel = 384)



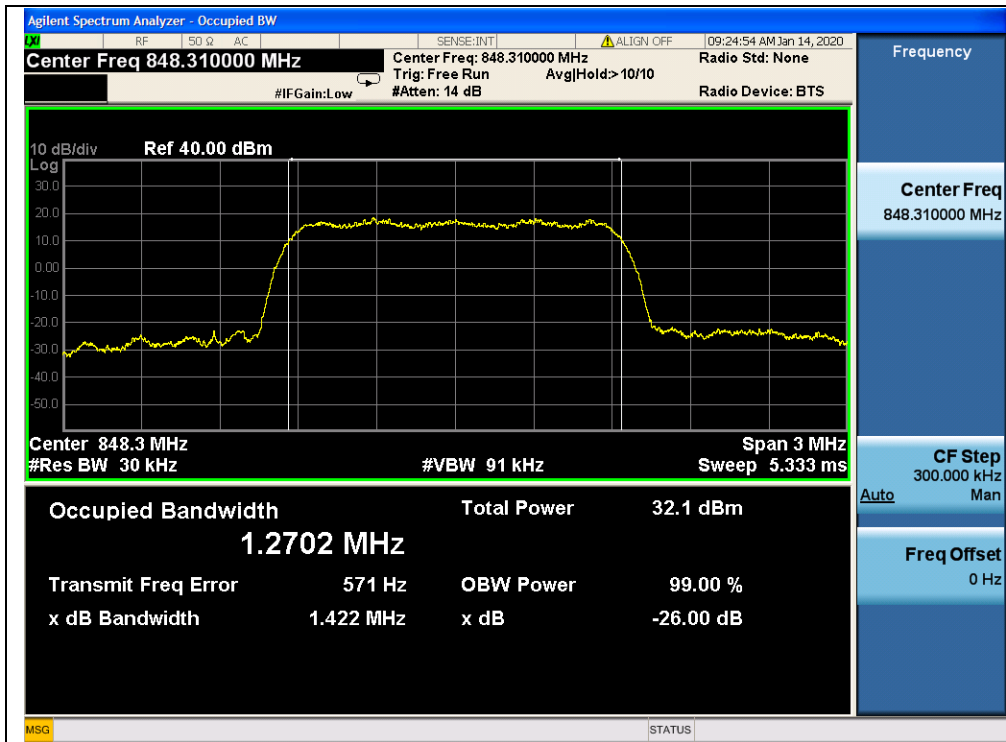
(Plot C3, 1XEVD0 Rev A BC0, Channel = 777)



(Plot D1, 1XEVD0 Rev B BC0, Channel = 1013)



(Plot D2, 1XEVD0 Rev B BC0, Channel = 384)



(Plot D3, 1XEVD0 Rev B BC0, Channel = 777)

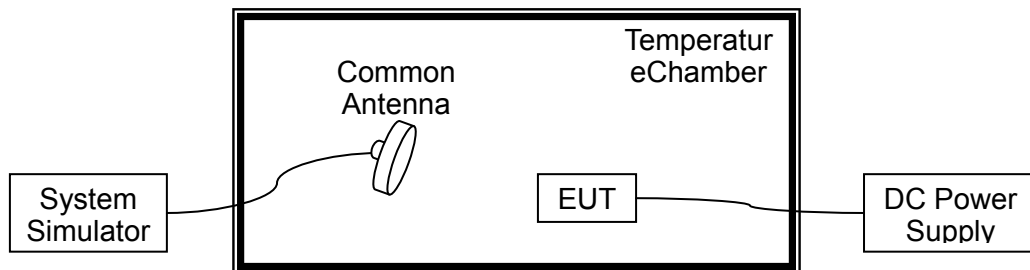
2.3. Frequency Stability

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 -30°C to $+50^{\circ}\text{C}$ 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 =±2.5ppm					
Voltage(%)	Power(V DC)	Temp(°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.80	+20(Ref)	57	0.068	PASS
100		-20	35	0.042	
100		-10	-34	-0.041	
100		0	35	0.042	
100		+10	35	0.042	
100		+20	41	0.049	
100		+30	21	0.025	
100		+40	32	0.038	
100		+50	35	0.042	
115		4.35	+20	29	
85	3.50	+20	-23	-0.027	

1XEVD0 Rev0 BC0, Channel 384, Frequency 836.52MHz					
Limit =±2.5ppm					
Voltage(%)	Power(V DC)	Temp(°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.80	+20(Ref)	50	0.060	PASS
100		-20	-57	-0.068	
100		-10	-53	-0.063	
100		0	48	0.057	
100		+10	-39	-0.047	
100		+20	41	0.049	
100		+30	21	0.025	
100		+40	67	0.080	
100		+50	43	0.051	
115		4.35	+20	-47	
85	3.50	+20	-49	-0.059	



1XEVD0 RevA BC0, Channel 384, Frequency 836.52MHz					
Limit =±2.5ppm					
Voltage(%)	Power(V DC)	Temp(°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.80	+20(Ref)	33	0.039	PASS
100		-20	48	0.057	
100		-10	-35	-0.042	
100		0	-41	-0.049	
100		+10	-46	-0.055	
100		+20	-56	-0.067	
100		+30	-66	-0.079	
100		+40	53	0.063	
100		+50	43	0.051	
115		4.35	+20	65	
85	3.50	+20	45	0.054	

1XEVD0 RevB BC0, Channel 384, Frequency 836.52MHz					
Limit =±2.5ppm					
Voltage(%)	Power(V DC)	Temp(°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.80	+20(Ref)	-46	-0.055	PASS
100		-20	34	0.041	
100		-10	-32	-0.038	
100		0	-47	-0.056	
100		+10	-41	-0.049	
100		+20	-64	-0.077	
100		+30	-53	-0.063	
100		+40	67	0.080	
100		+50	55	0.066	
115		4.35	+20	23	
85	3.50	+20	75	0.090	

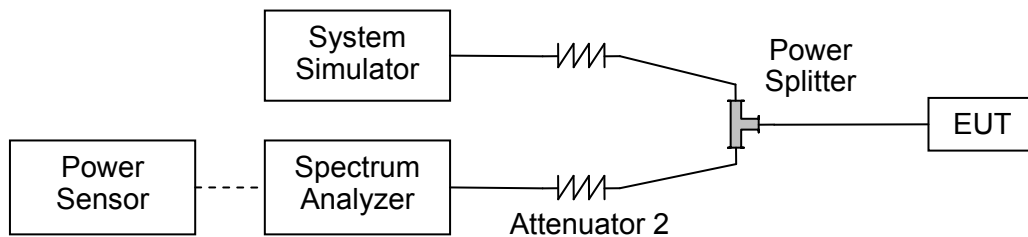
2.4. Peak to Average Ratio

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.



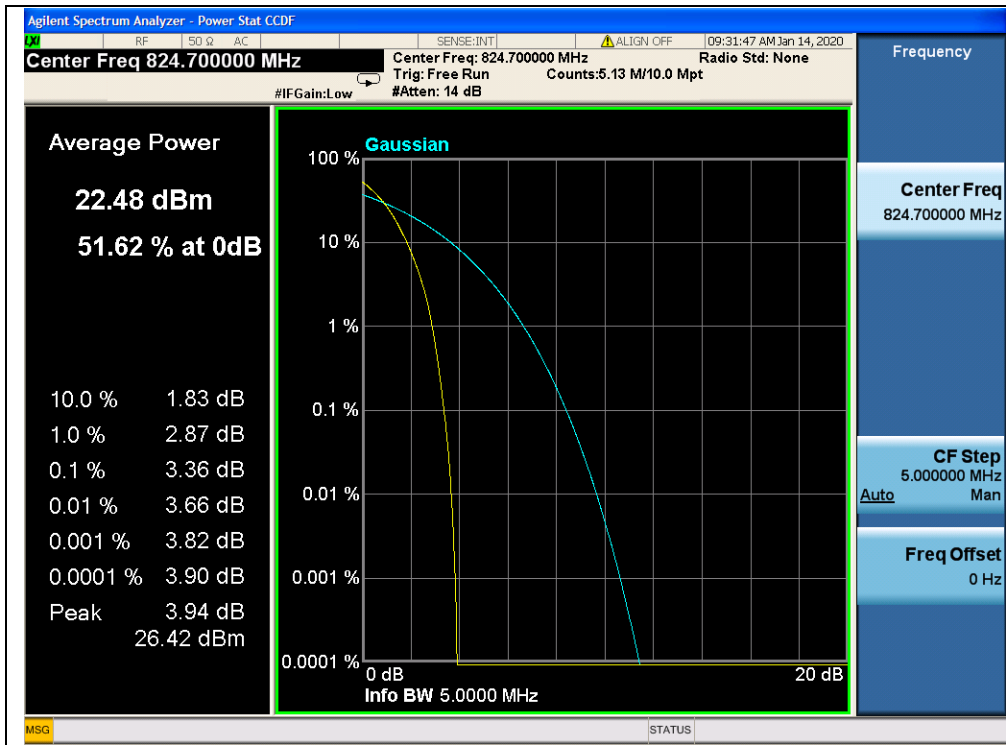
The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

A. Test Verdict:

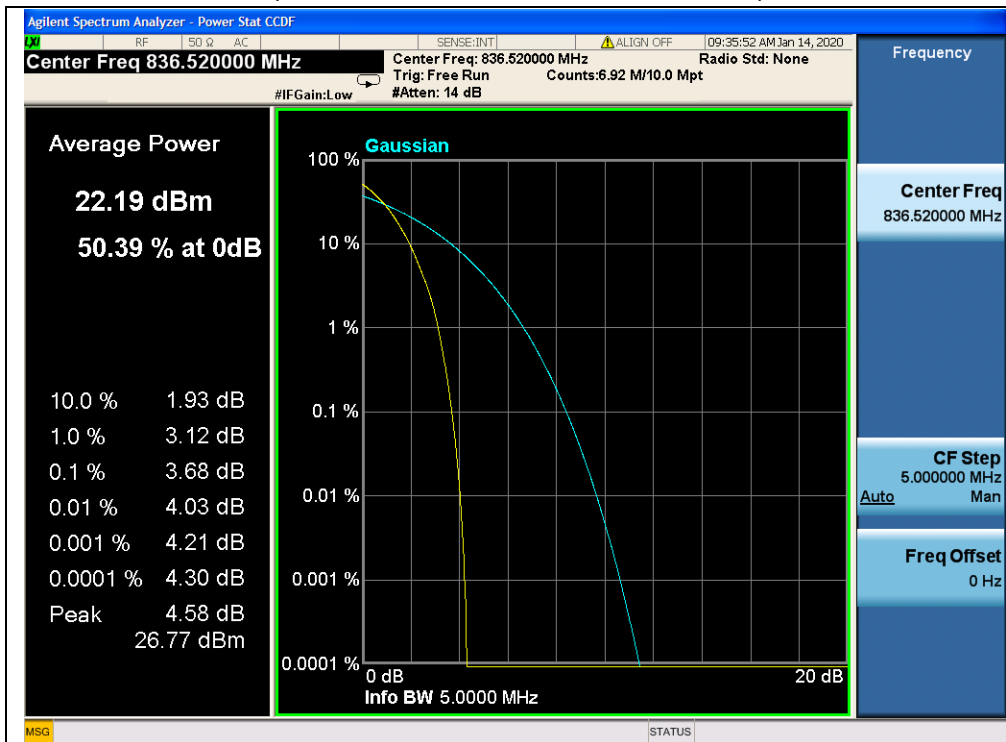
Band	Channel	Frequency (MHz)	Peak to Average ratio		Limit dB	Verdict
			dB	Refer to Plot		
CDMA (BC0)	1013	824.7	3.36	Plot A1 to A3	13	PASS
	384	836.52	3.68			PASS
	777	848.31	3.54			PASS
1XEVD0 Rev 0 (BC0)	1013	824.7	3.37	Plot A4 to A6		PASS
	384	836.52	3.67			PASS
	777	848.31	3.55			PASS
1XEVD0 Rev A (BC0)	1013	824.7	3.37	Plot A7 to A9		PASS
	384	836.52	3.69			PASS
	777	848.31	3.56			PASS
1XEVD0 Rev B (BC0)	1013	824.7	3.36	Plot A10 to A12		PASS
	384	836.52	3.68			PASS
	777	848.31	3.54			PASS



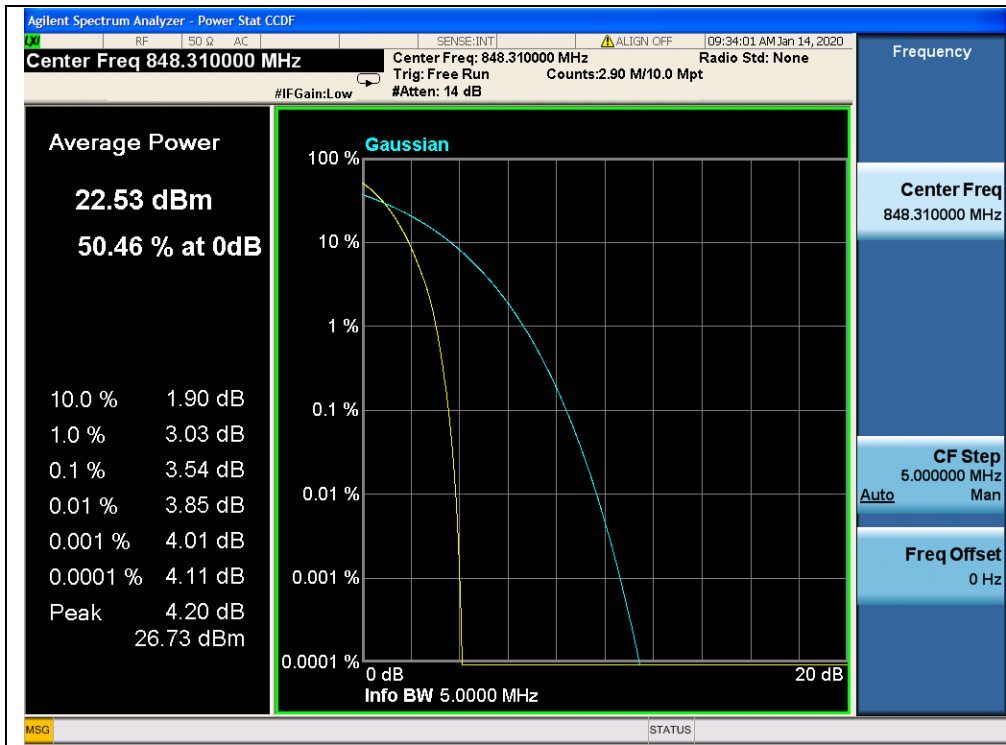
Test Plots:



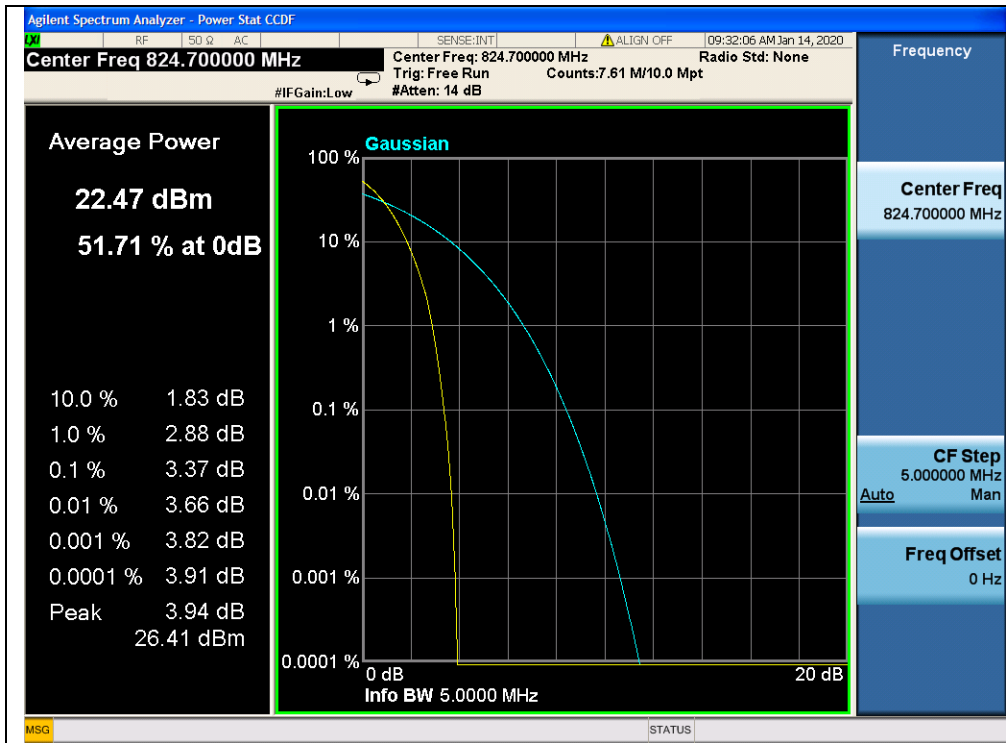
(Plot A1, CDMABC0, Channel = 1013)



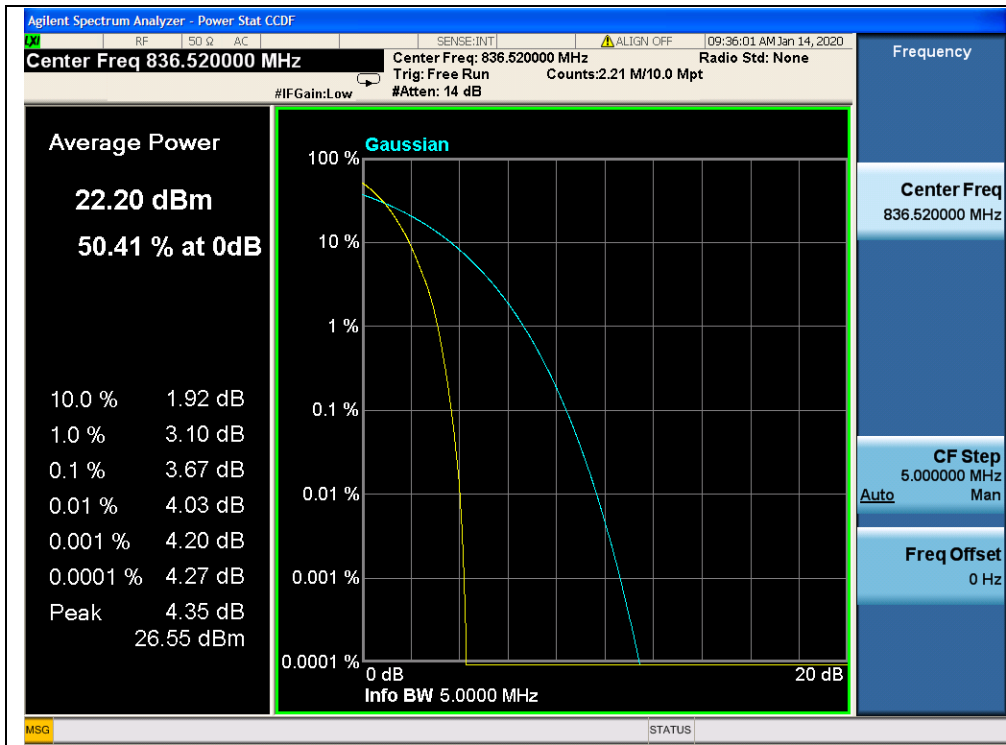
(Plot A2, CDMABC0, Channel = 384)



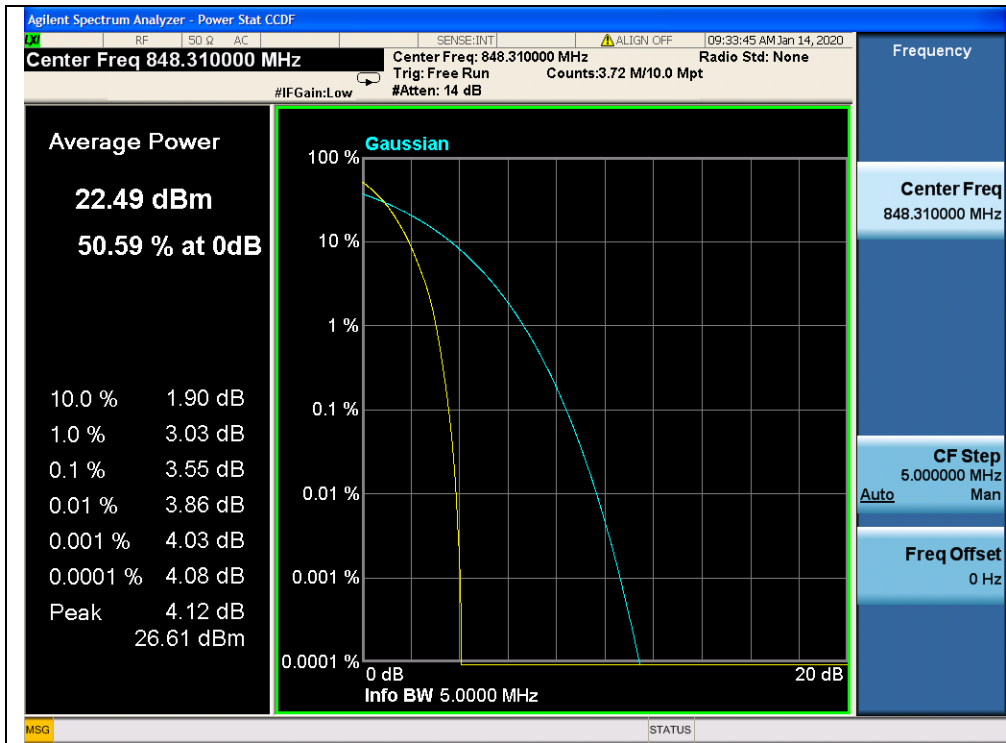
(Plot A3, CDMABC0, Channel = 777)



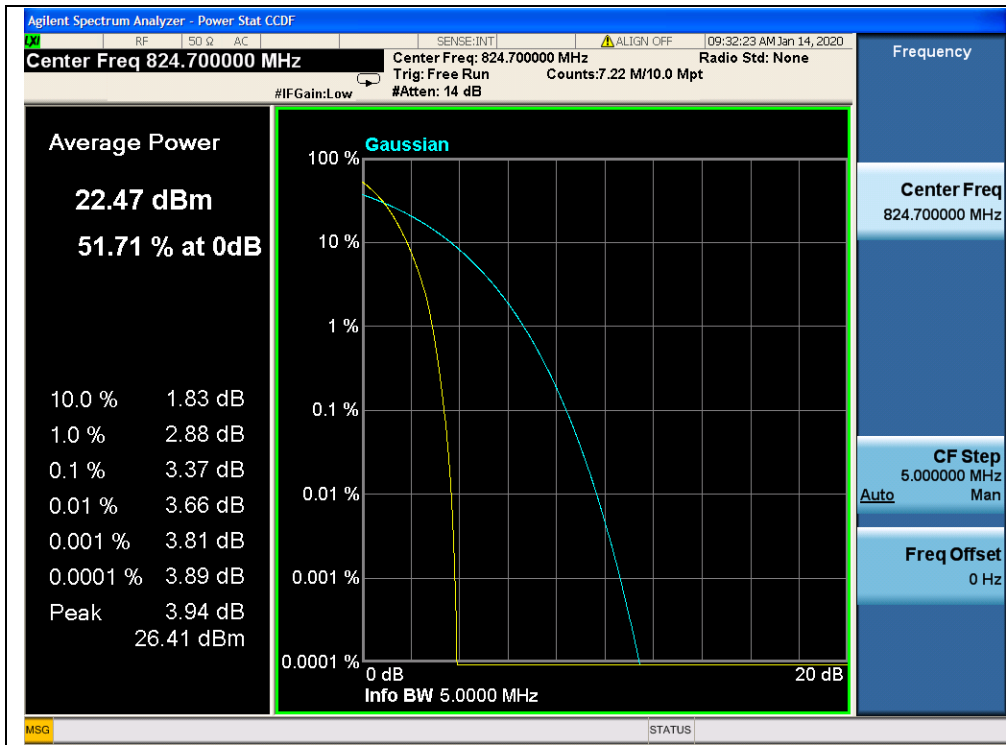
(Plot A4, EVDO Rev 0 BC0, Channel = 1013)



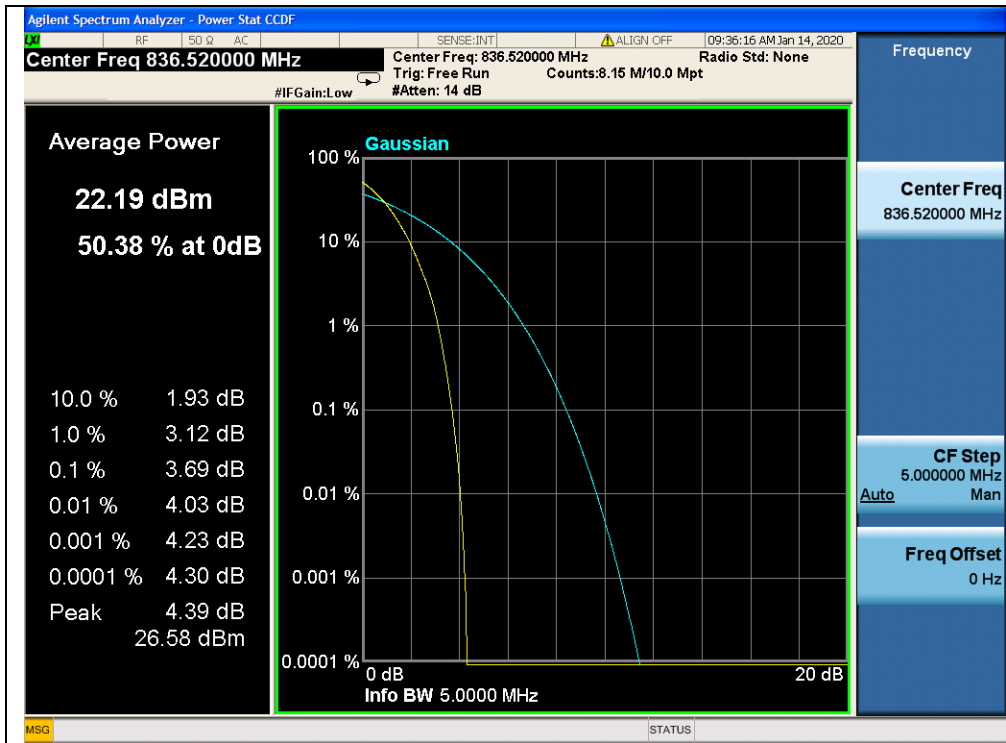
(Plot A5, EVDO Rev 0 BC0, Channel = 384)



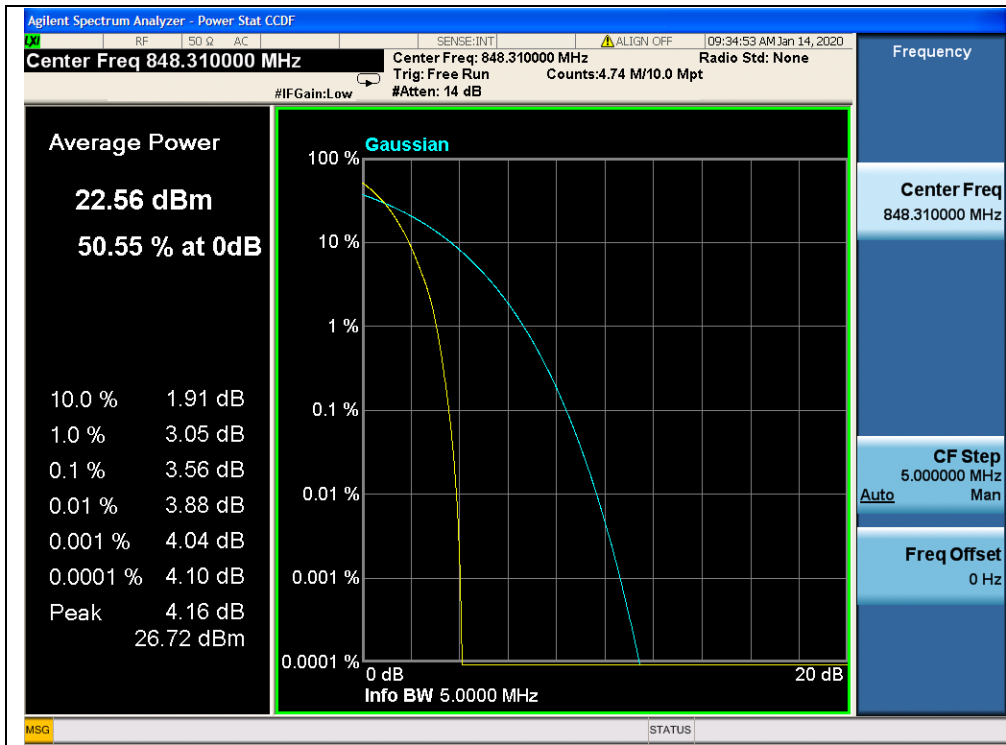
(Plot A6, EVDO Rev 0 BC0, Channel = 777)



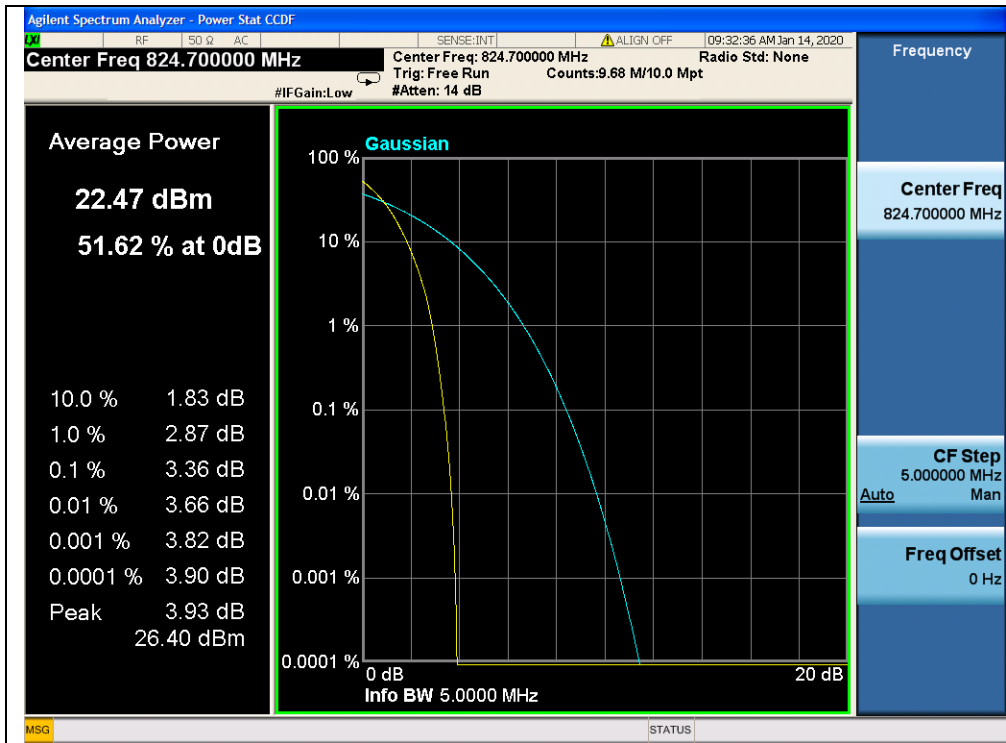
(Plot A7, EVDO Rev A BC0, Channel = 1013)



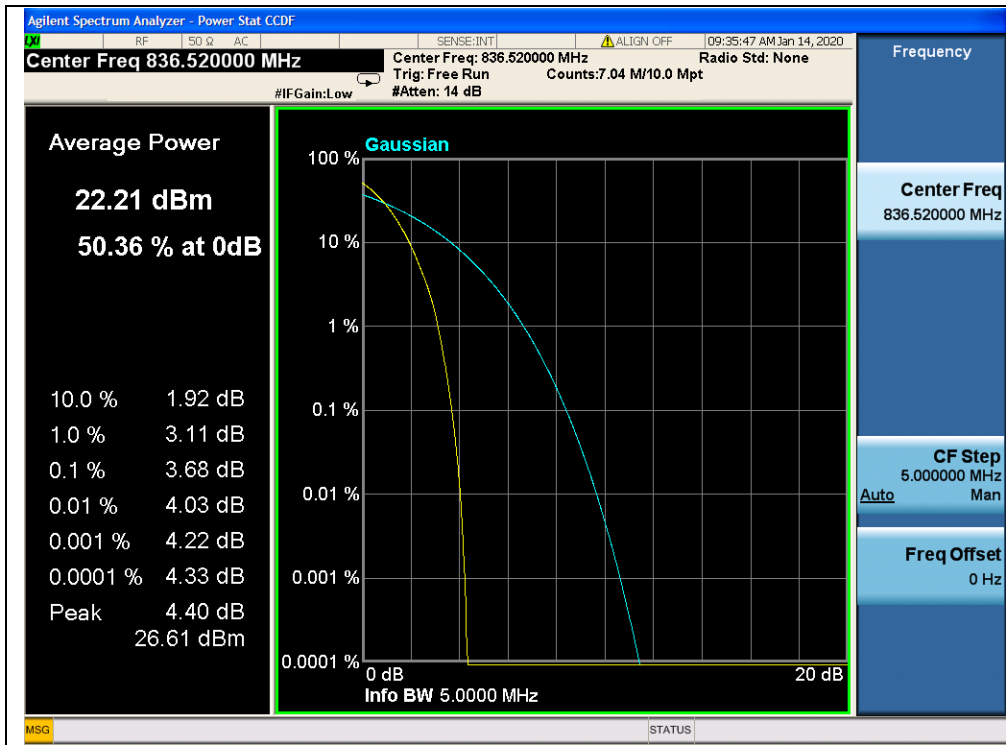
(Plot A8, EVDO Rev A BC0, Channel = 384)



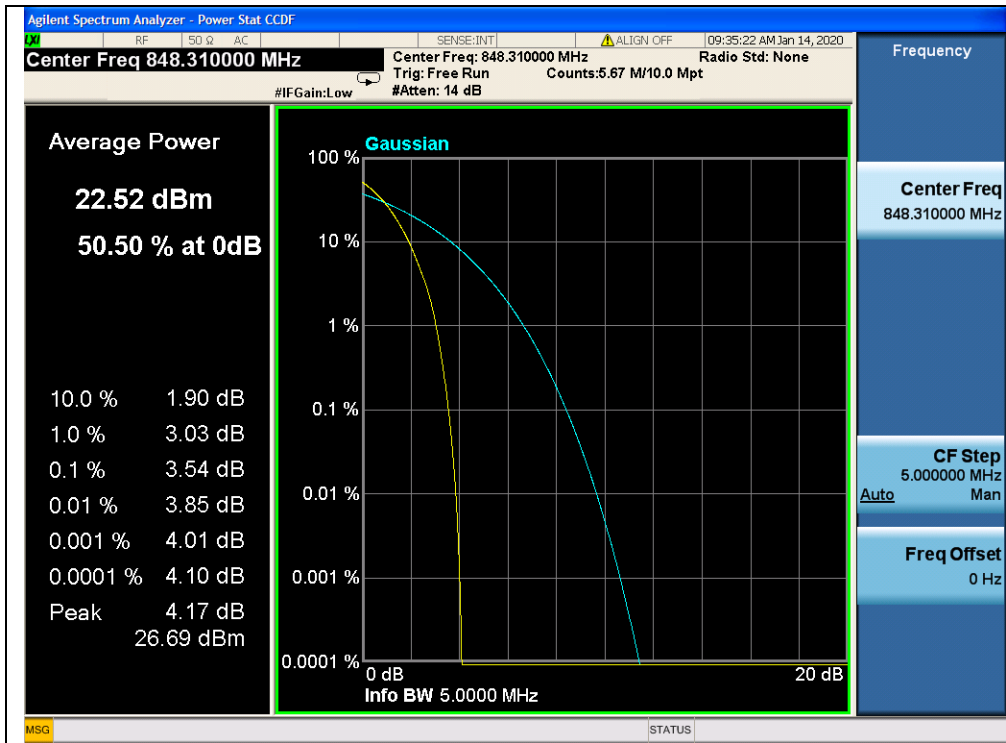
(Plot A9, EVDO Rev A BC0, Channel = 777)



(Plot A10, EVDO Rev B BC0, Channel = 1013)



(Plot A11, EVDO Rev B BC0, Channel = 384)



(Plot A12, EVDO Rev B BC0, Channel = 777)

2.5. Conducted Spurious Emissions

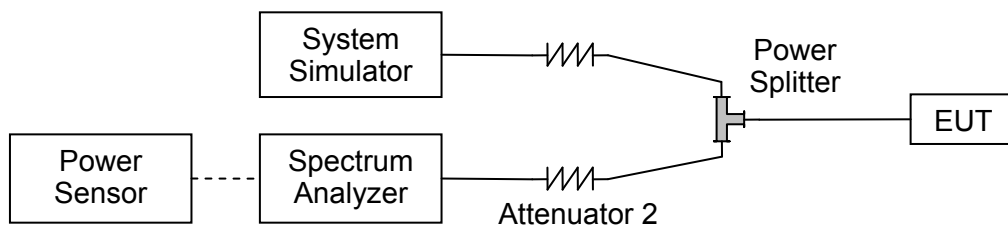
2.5.1. Requirement

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

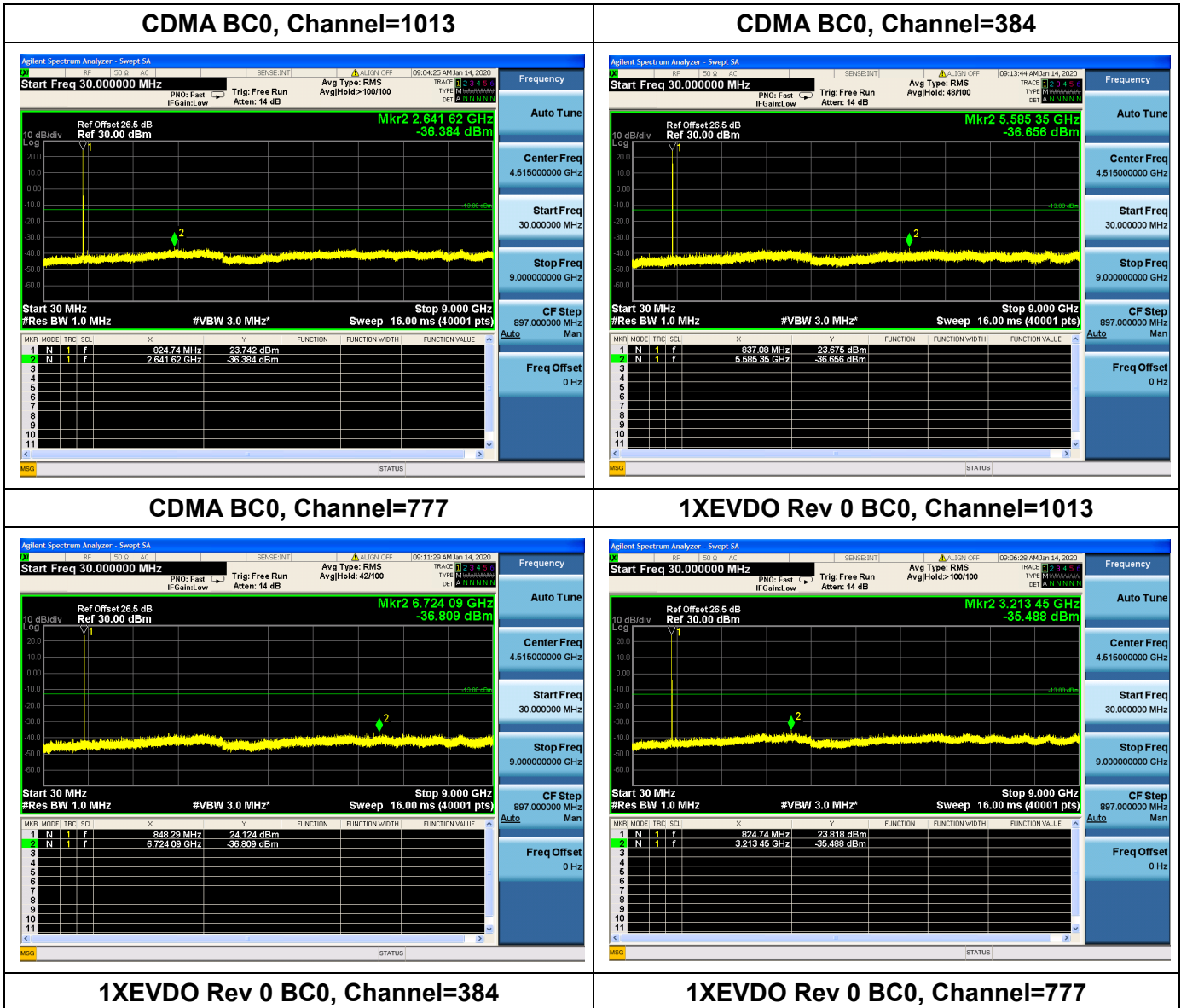


The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum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

2.5.3. Test procedure

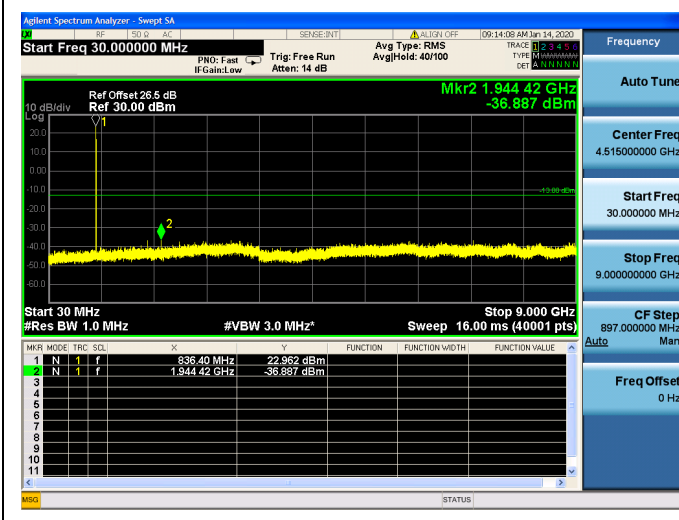
KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.

2.5.4. Test Result

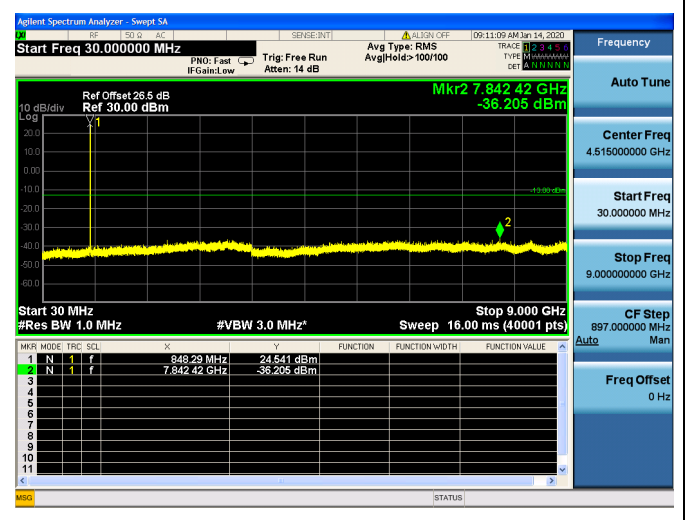




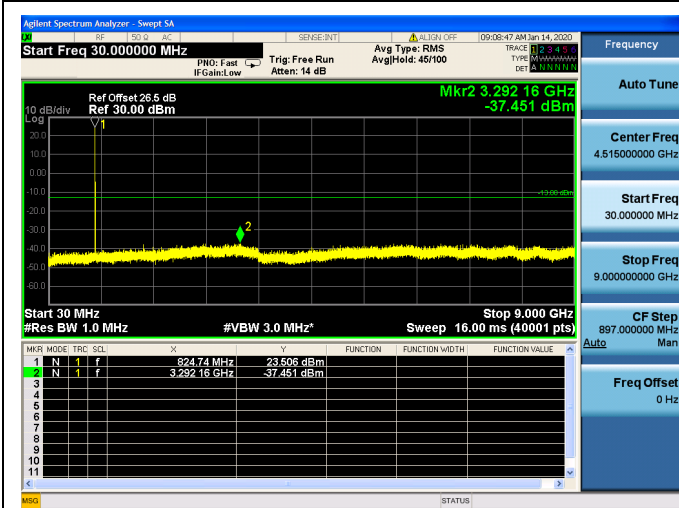
CDMA BC0, Channel=1013



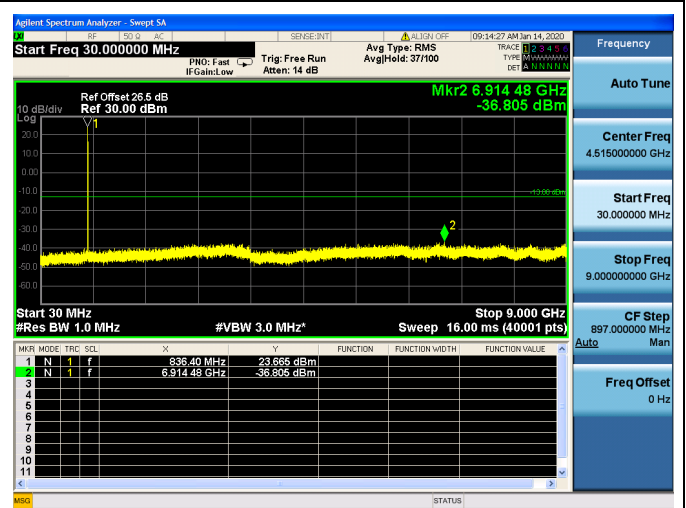
CDMA BC0, Channel=384



1XEVD0 Rev A BC0, Channel=1013

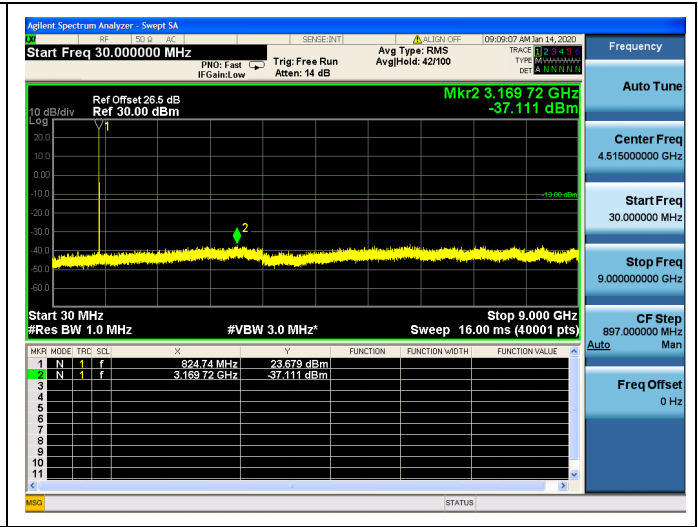
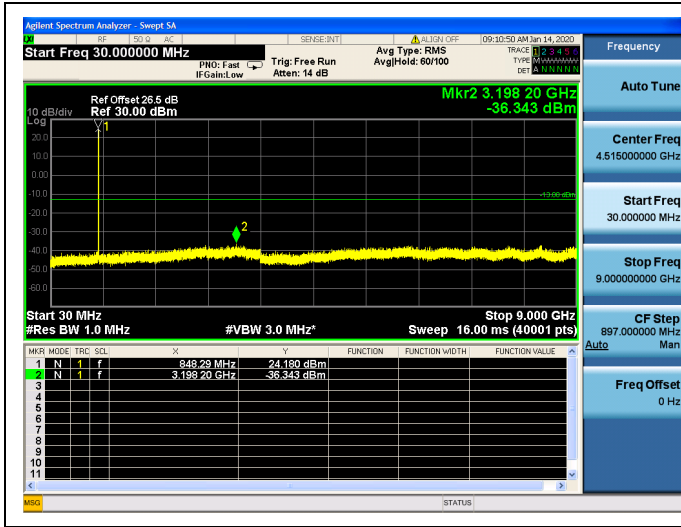


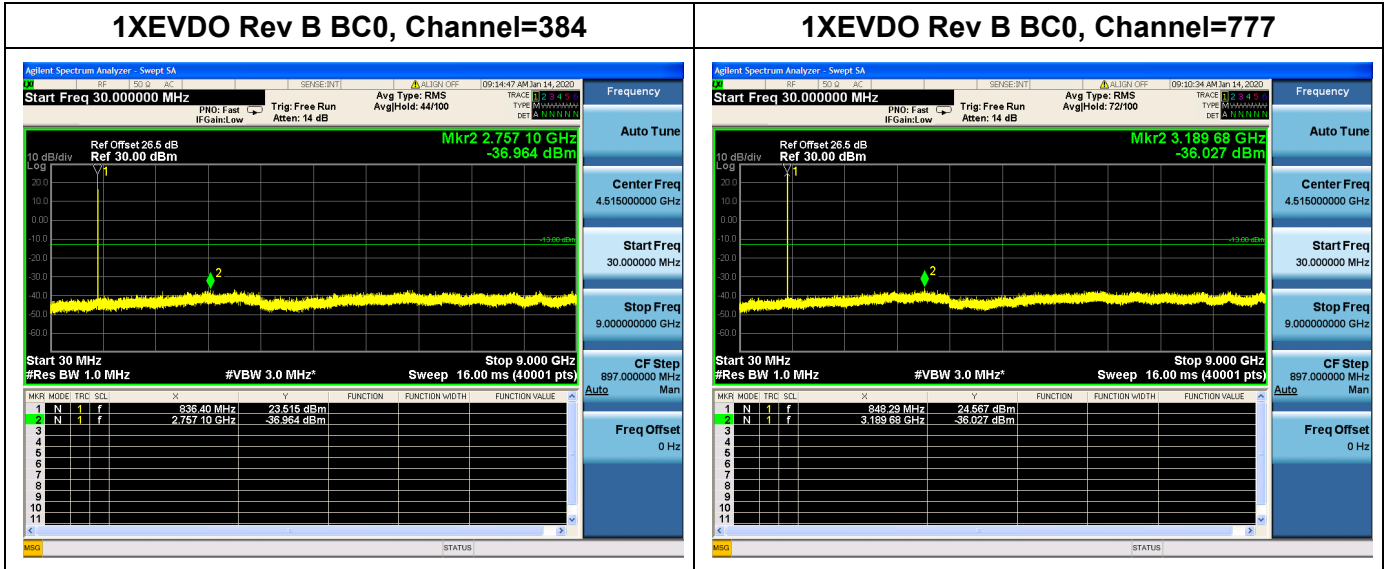
1XEVD0 Rev A BC0, Channel=384



1XEVD0 Rev A BC0, Channel=777

1XEVD0 Rev B BC0, Channel=1013







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.

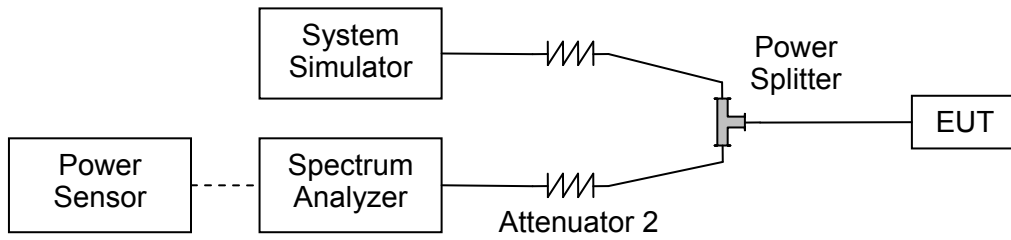
According to FCC section 24.238(a), The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC section 27.53(g), For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to FCC section 27.53(h), For operations in the 1710–1755MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

According to FCC section 27.53(m) (4), For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

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.

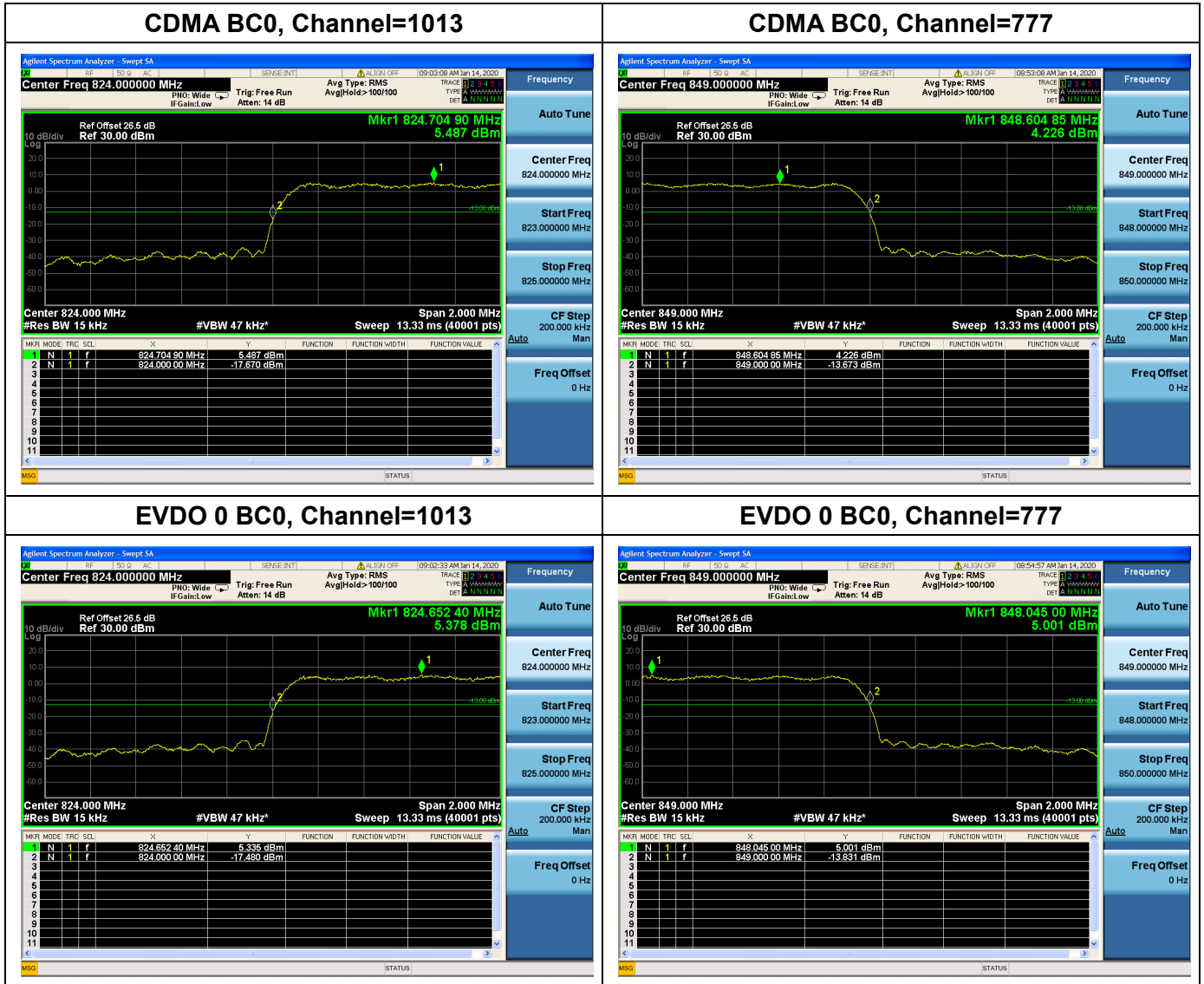
2.6.3. Test procedure

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



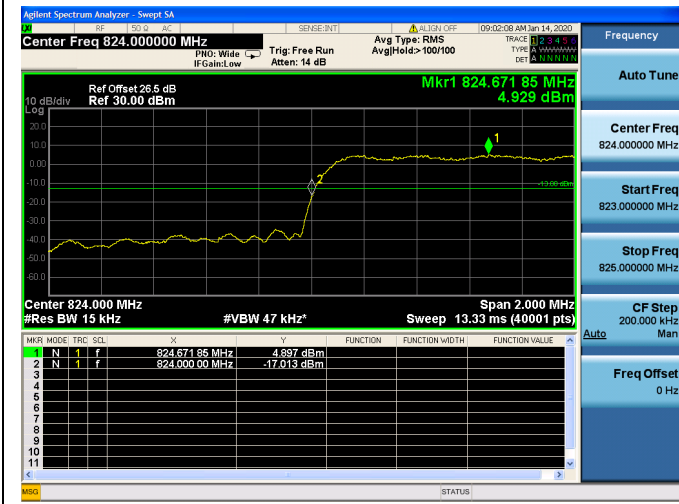
2.6.4. Test Result

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

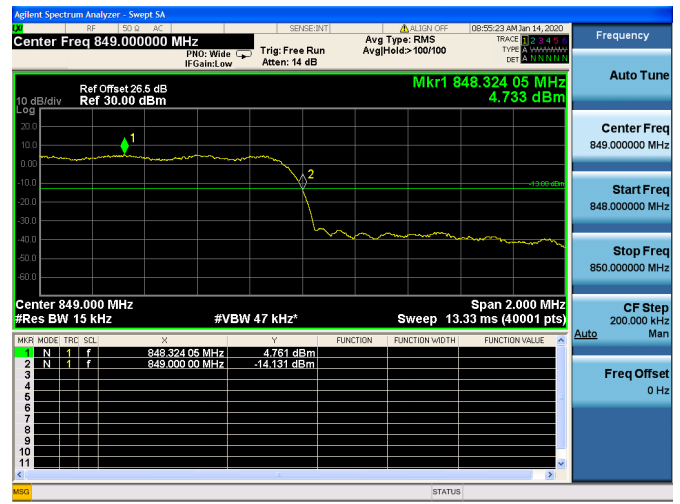




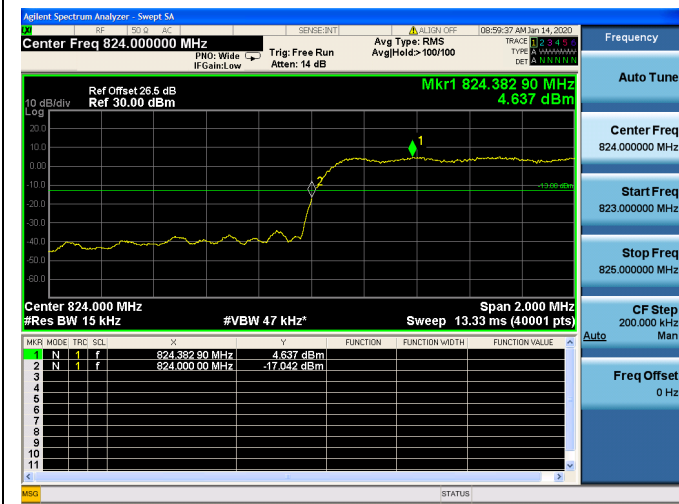
EVDO A BC0, Channel=1013



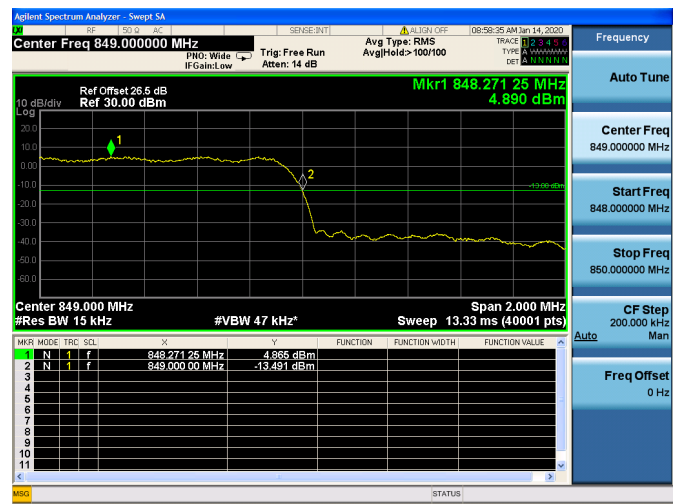
EVDO A BC0, Channel=777



EVDO B BC0, Channel=1013



EVDO B BC0, Channel=777



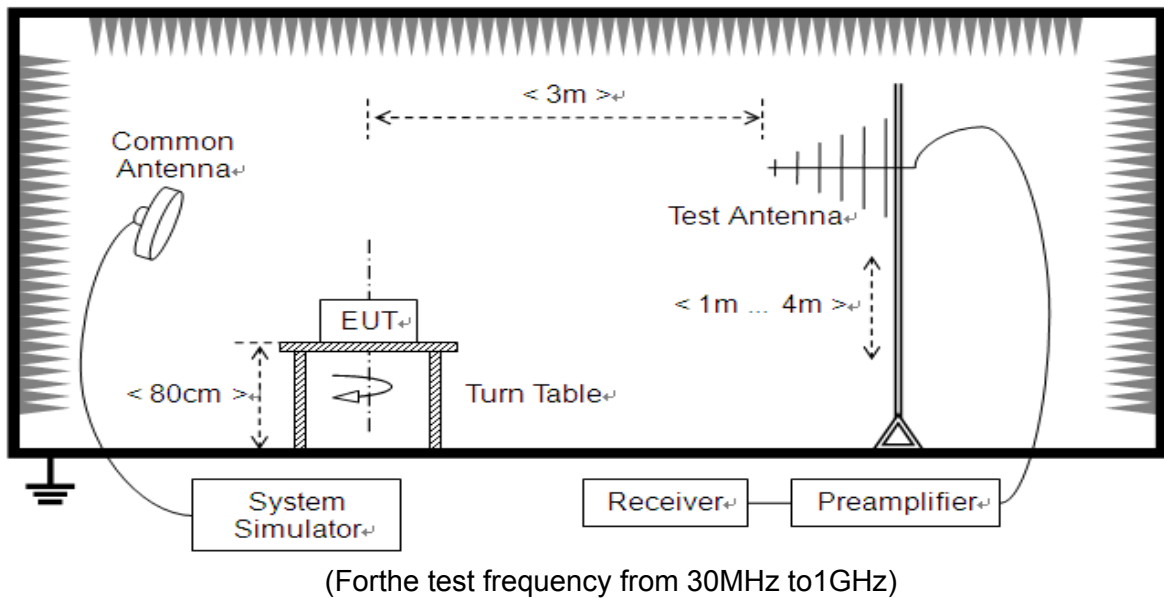
2.7. Transmitter Radiated Power (EIRP/ERP)

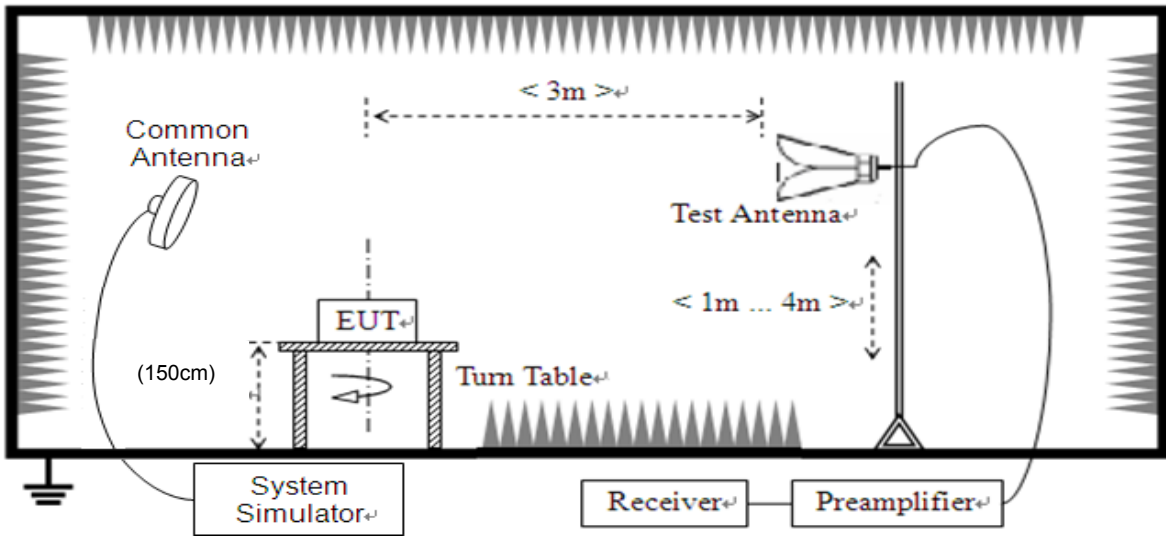
2.7.1. Requirement

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 consists 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.



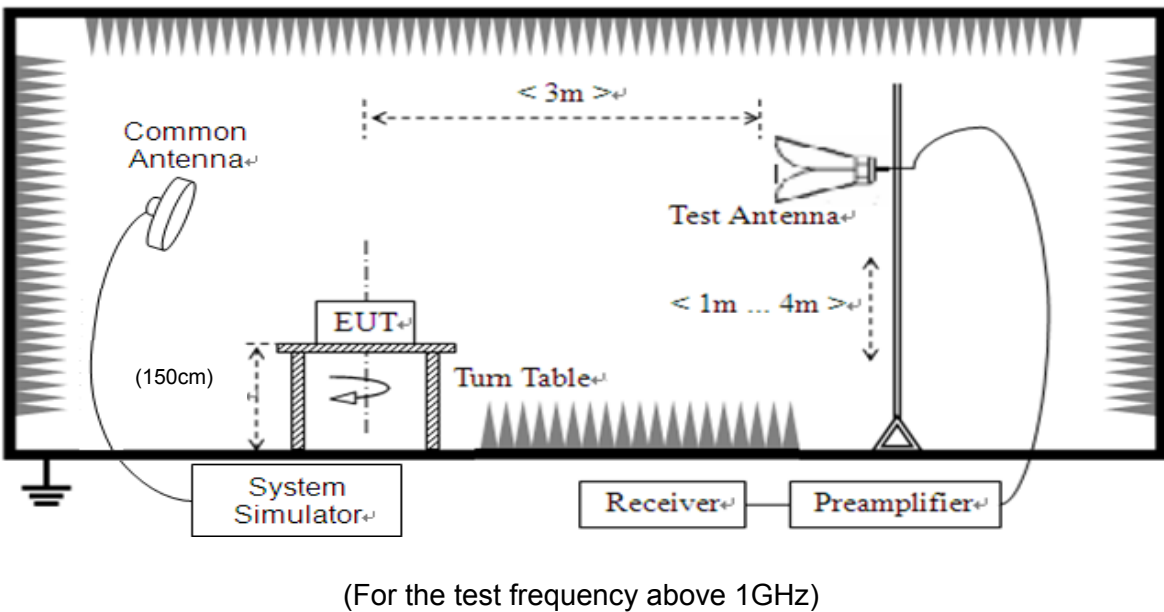
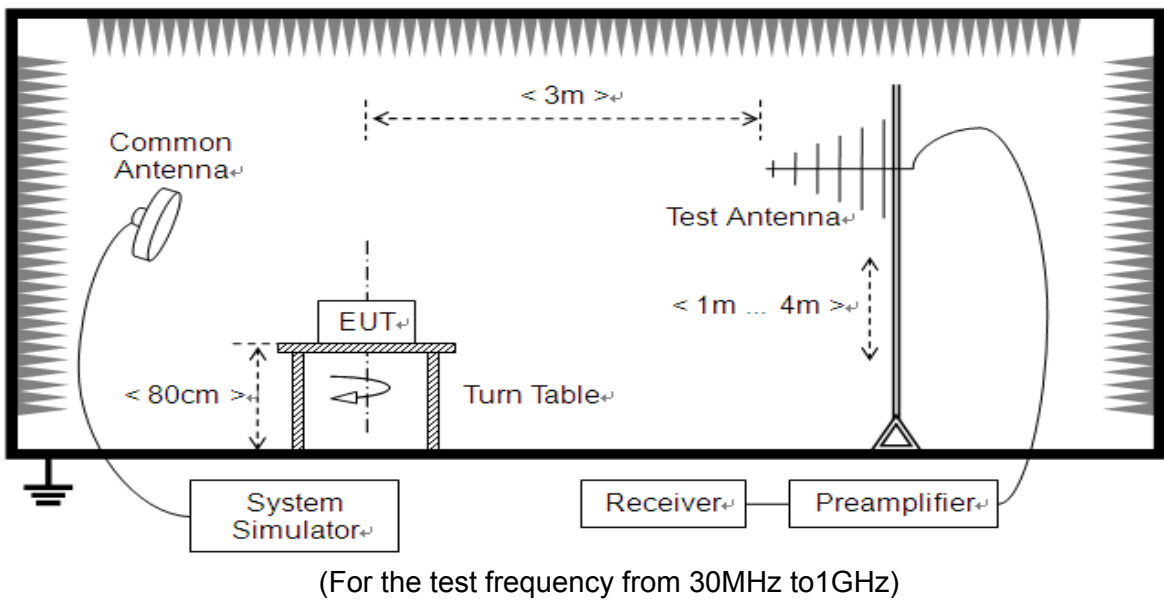
Band	Channel	Frequency (MHz)	Measured ERP		Limit		Verdict
			dBm	W	dBm	W	
CDMA (BC0)	1013	824.70	17.26	0.053	38.5	7	PASS
	384	836.52	17.17	0.052			PASS
	777	848.31	17.27	0.053			PASS
EVDO 0 (BC0)	1013	824.70	17.30	0.054	38.5	7	PASS
	384	836.52	17.12	0.052			PASS
	777	848.31	17.32	0.054			PASS
EVDO A (BC0)	1013	824.70	17.28	0.053	38.5	7	PASS
	384	836.52	17.10	0.051			PASS
	777	848.31	17.25	0.053			PASS
EVDO B (BC0)	1013	824.70	17.26	0.053	38.5	7	PASS
	384	836.52	17.17	0.052			PASS
	777	848.31	17.27	0.053			PASS

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.

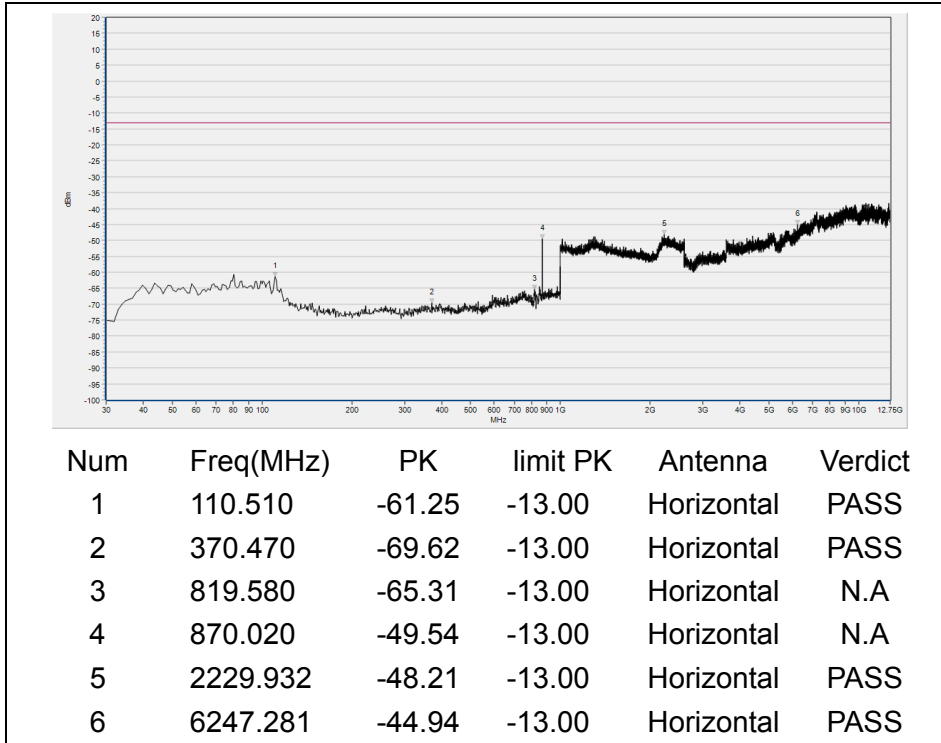
Note3: All bandwidth and test channel were considered and evaluated respectively by performing full test for each band, only the worst cases were recorded in this test report.



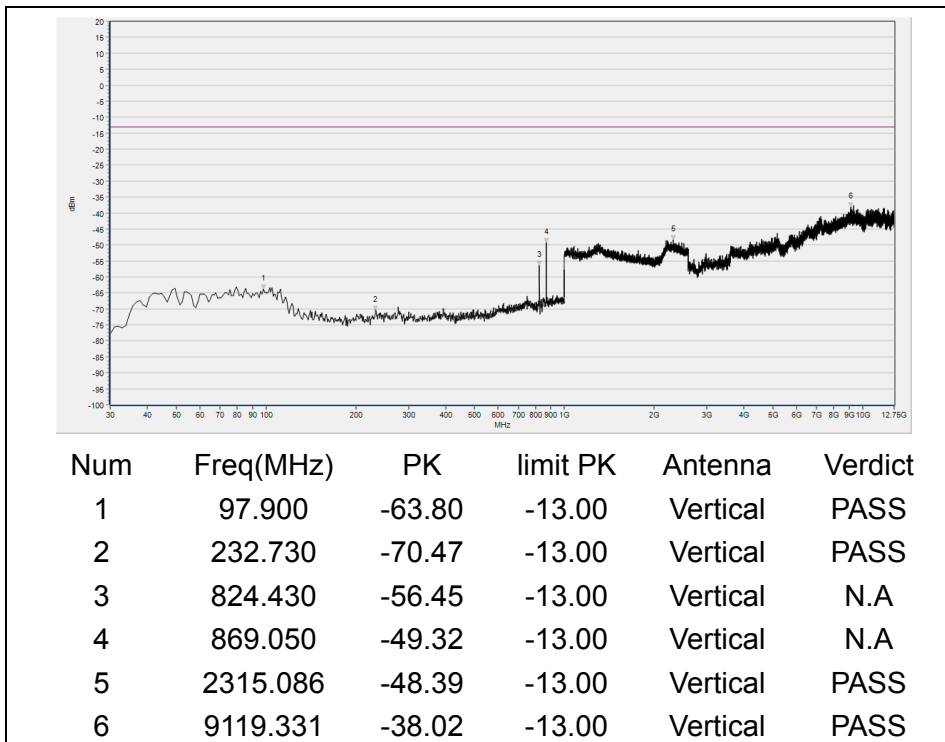
A. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Refer to Plot	Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical			
CDMA (BC0)	1013	824.7	< -25	< -25	Plot A1/A2	-13	PASS
	384	836.52	< -25	< -25	Plot A3/A4		PASS
	777	848.31	< -25	< -25	Plot A5/A6		PASS

B. Test Plots



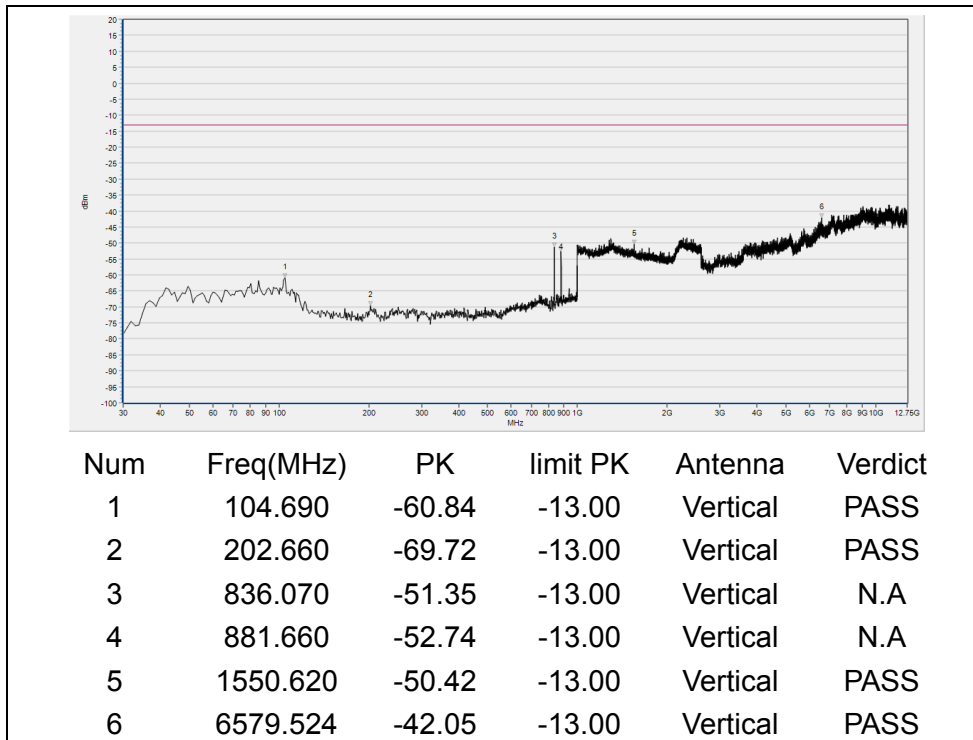
(Plot A1, CDMA BC0, Channel = 1013, Horizontal)



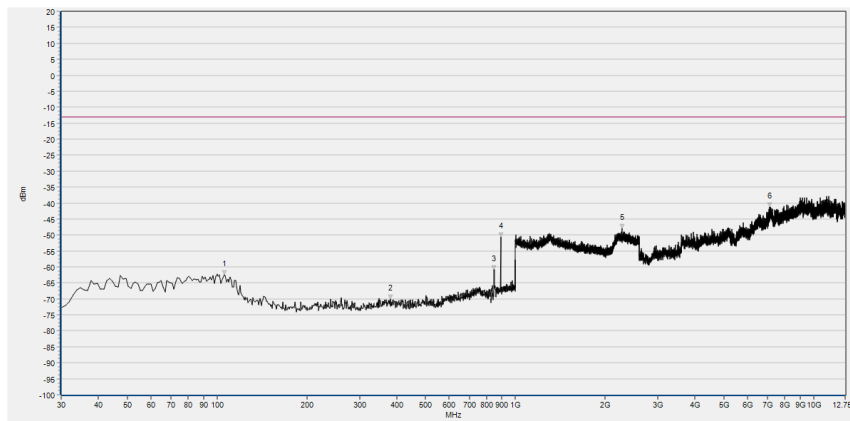
(Plot A2, CDMA BC0, Channel = 1013, Vertical)



(Plot A3, CDMA BC0, Channel = 384, Horizontal)

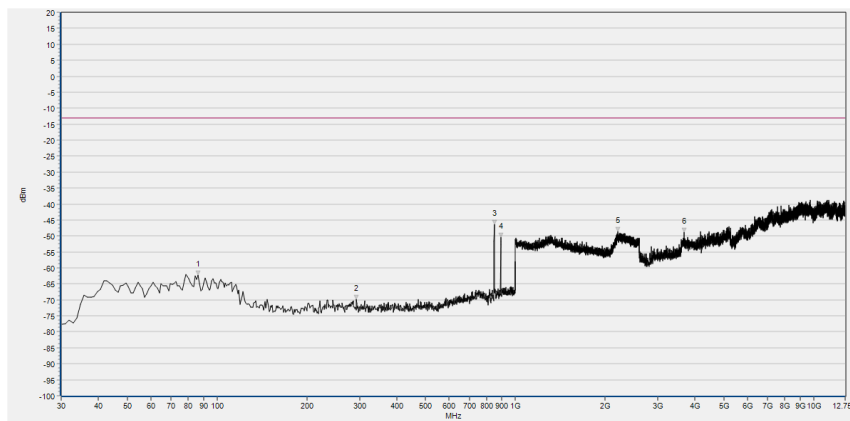


(Plot A4, CDMA BC0, Channel = 384, Vertical)



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

(Plot A5, CDMA BC0, Channel = 777,Horizontal)



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

(Plot A6, CDMA BC0, Channel = 777, Vertical)



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

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

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	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	2019.04.16	2020.04.15
Attenuator 1	(N/A.)	10dB	Resnet	2019.04.16	2020.04.15
Attenuator 2	(N/A.)	3dB	Resnet	2019.04.16	2020.04.15
EXA Signal Analyzer	MY53470836	N9010A	Agilent	2019.11.06	2020.11.05
USB Power Sensor	MY54210011	U2021XA	Agilent	2019.04.16	2020.04.15
System Simulator	152038	CMW500	R&S	2019.05.08	2020.05.07
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	2019.04.16	2020.04.15
Computer	T430i	Think Pad	Lenovo	N/A	N/A

**4.2 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
System Simulator	152038	CMW500	R&S	2019.05.08	2020.05.07
Receiver	MY54130016	N9038A	Agilent	2019.05.18	2020.05.17
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.05.18	2020.05.17
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
Anechoic Chamber	N/A	9m*6m*6m	CRT	2017.11.19	2020.11.18

————— END OF REPORT —————