



REPORT No. : SZ21100063W09

TEST REPORT

APPLICANT : SEUIC Technologies Co., Ltd.

PRODUCT NAME : Handheld RFID Reader

MODEL NAME : AUTOID UTouch

BRAND NAME : Seuic

FCC ID : 2AC68-AUTOIDUTOUCH

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

RECEIPT DATE : 2021-11-01

TEST DATE : 2021-11-01 to 2021-12-02

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Edited by:

Peng Mi

Peng Mi (Rapporteur)

Approved by:

Shen Junsheng

Shen Junsheng (Supervisor)

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MORLAB

Shenzhen Morlab Communications Technology Co., Ltd.
FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen, Guangdong Province, P. R. China

Tel: 86-755-36698555

Http://www.morlab.cn

Fax: 86-755-36698525

E-mail: service@morlab.cn





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Change History		
Version	Date	Reason for change
1.0	2021-12-20	First edition





1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	SEUIC Technologies Co., Ltd.
Applicant Address:	NO.15 Xinghuo Road, Nanjing New & High Technology Industry Development Zone, 210061, Nanjing City, Jiangsu Province, China
Manufacturer:	SEUIC Technologies Co., Ltd.
Manufacturer Address:	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:	Handheld RFID Reader	
Sample No.:	4#	
Hardware Version:	SLB761XC-64B_MB_PCBA_V1.00	
Software Version:	V0.2.6.1	
Modulation Type:	1xRTT: QPSK, 16QAM, 8PSK, 1xEV-DO Rev 0: QPSK, 16QAM, 8PSK 1xEV-DO Rev A: QPSK, 16QAM, 8PSK 1xEV-DO Rev B: QPSK, 16QAM, 8PSK	
Operating Frequency Range:	CDMA 2000 BC0	Tx: 824MHz-849MHz
		Rx: 869MHz-894MHz
Antenna Type:	Fixed Internal Antenna	
Antenna Gain:	CDMA 2000 BC0	0.80dBi



Accessory Information:	Battery 1	
	Brand Name:	N/A
	Model No.:	D500HB-V1(1S2P)
	Serial No.:	N/A
	Capacity:	6200mAh
	Rated Voltage:	3.6V
	Charge Limit:	4.2V
	Manufacturer:	Suzhou Xinfeibo Electronic Technology Co.,Ltd.
	Battery 2	
	Brand Name:	N/A
	Model No.:	BOB320724
	Serial No.:	N/A
	Capacity:	57mAh
	Rated Voltage:	3.8V
	Charge Limit:	4.35V
	Manufacturer:	DONGGUAN BOB ELECTRONICS CO.,LTD
	AC Adapter	
	Brand Name:	Tianyin
	Model No.:	TPA-23A050200UU01
	Serial No.:	N/A
	Rated Output:	5V=2A
	Rated Input:	100-240V~50/60Hz, 0.3A
	Manufacturer:	Shenzhen Tianyin Electronics Co.,Ltd
	USB Cable	
	Model No.:	2305018-2

Note 1: All test modes and data rates were considered and evaluated respectively by performing full test. Test modes are chosen to be reported as the worst case below:

EVDO Rev 0 mode for EVDO.

Note 2: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.





1.3. Maximum E.R.P./E.I.R.P. and Emission Designator

Test Mode	Maximum E.R.P./E.I.R.P. (W)	Emission Designator
CDMA2000 BC0	0.179	1M28F9W





1.4. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22 and Part 24 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2 (10-1-12 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-12 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-12 Edition)	Personal Communications Services
4	47 CFR Part 90	Miscellaneous Wireless Communications Services

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

No.	Section	Description	Test Date	Test Engineer	Result	Method determination/ Remark
1	2.1046, 90.635(b)	Conducted RF Output Power	Dec 02, 2021	Chen Hao	PASS	No deviation
2	24.232(d)	Peak -Average Ratio	N/A	N/A	N/A	N/A
3	2.1049, 90.209	Occupied Bandwidth	Nov 02, 2021	Li Huaijie	PASS	No deviation
4	2.1055, 22.355, 24.235, 90.213	Frequency Stability	Nov 08, 2021	Li Huaijie	PASS	No deviation
5	2.1051, 22.917(a), 24.238(a), 90.691	Conducted Out of Band Emissions	Nov 02, 2021	Li Huaijie	PASS	No deviation
6	2.1051, 22.917(a), 24.238(a), 90.691	Band Edge	Nov 02, 2021	Li Huaijie	PASS	No deviation
7	22.913(a), 24.232(c), 90.635(b)	Transmitter Radiated Power (EIPR/E.R.P.)	Dec 02, 2021	Huang Zhiye	PASS	No deviation
8	2.1051,	Radiated Out	Nov 15, 2021	Huang Zhiye	PASS	No deviation





	22.917(a), 24.238(a), 90.691	of Band Emissions				
Note 1: The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03r01 and ANSI/TIA-603-E-2016. Note 2: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 24.5dB contains two parts that cable loss 14.5dB and Attenuator 10dB. Note 3: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table. Note 4: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.						

1.5. 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, Part24E, Part90S Requirements

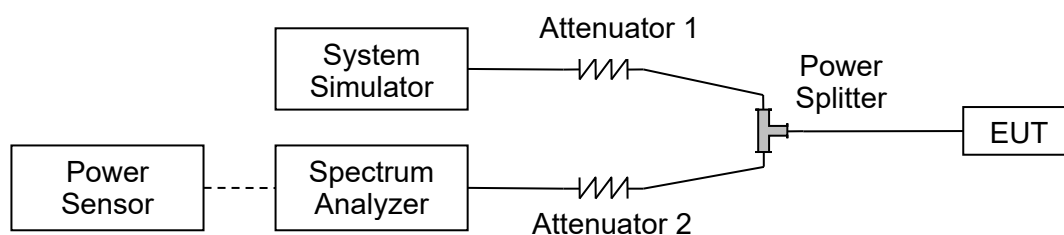
2.1. Conducted RF Output Power

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

Test Setup:



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



**2.1.3. Test Result**

CDMA2000 BC0	Average Power (dBm)		
TX Channel	1013	384	777
Frequency (MHz)	824.7	836.52	848.31
1xRTT RC1 SO55	23.51	23.72	23.76
1xRTT RC3 SO55	23.66	23.71	23.63
1xRTT RC3 SO32 (F+SCH)	23.33	23.41	23.46
1xRTT RC3 SO32 (+SCH)	23.39	23.47	23.33
1xEVDO RTAP 153.6Kbps	23.71	23.89	23.74
1xEVDO RETAP 4096Bits	23.66	23.69	23.78
RMCTAP 307.2 Kbps	23.54	23.57	23.69



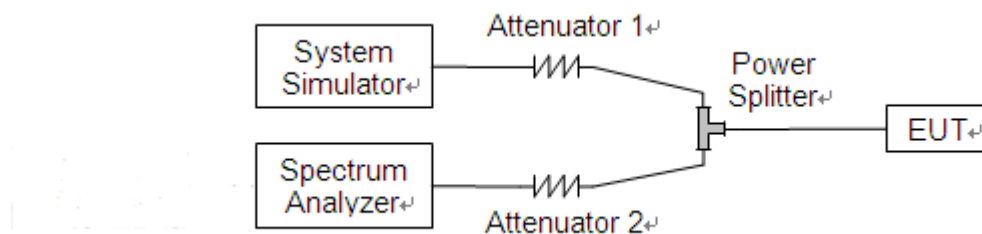
2.2. Peak to Average Ratio

2.2.1. Requirement

According to FCC 24.232(d) the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

2.2.2. Test Description

Test Setup:



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

2.2.3. Test Procedure

1. For GSM/EDGE operating mode:
 - a. Set RBW=1MHz, VBW=3MHz, peak detector in spectrum analyzer.
 - b. Set EUT in maximum output power, and triggered the bust signal.
 - c. Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average ratio.
2. For UMTS operating mode:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.

2.2.4. Test Result

This test case does not apply this kind of EUT.



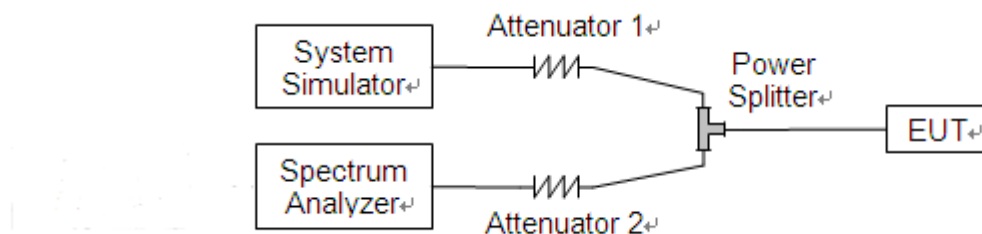
2.3. Occupied Bandwidth

2.3.1. 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.

2.3.2. Test Description

Test Setup:



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

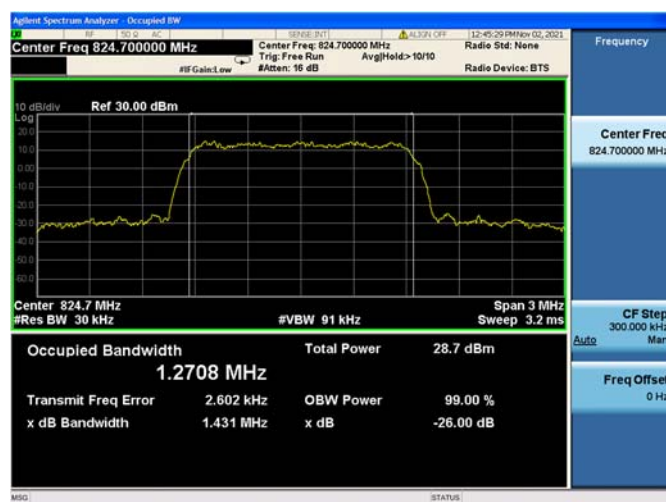




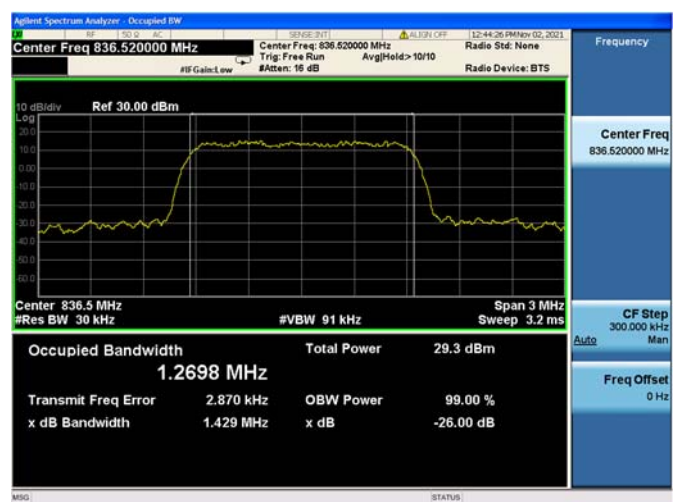
2.3.3. Test Result

CDMA2000 BC0				
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
1xRTT	1013	824.70	1.271	1.431
	384	836.52	1.270	1.429
	777	848.31	1.277	1.430
1xEVDO Rev 0	1013	824.70	1.281	1.423
	384	836.52	1.272	1.424
	777	848.31	1.270	1.430

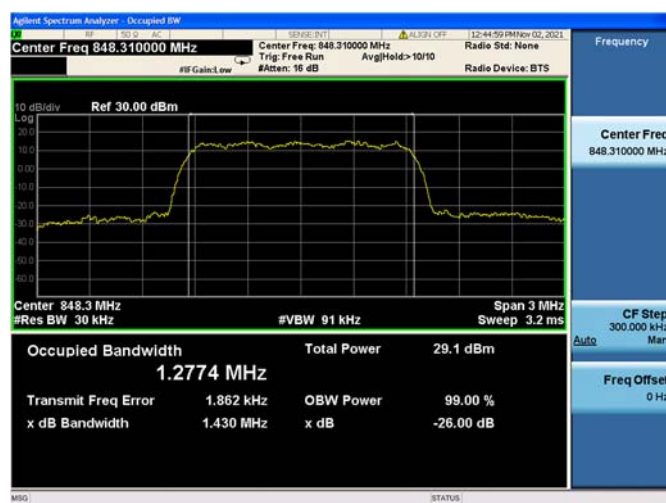
CDMA BC0 (1xRTT), CH1013, 824.70MHz

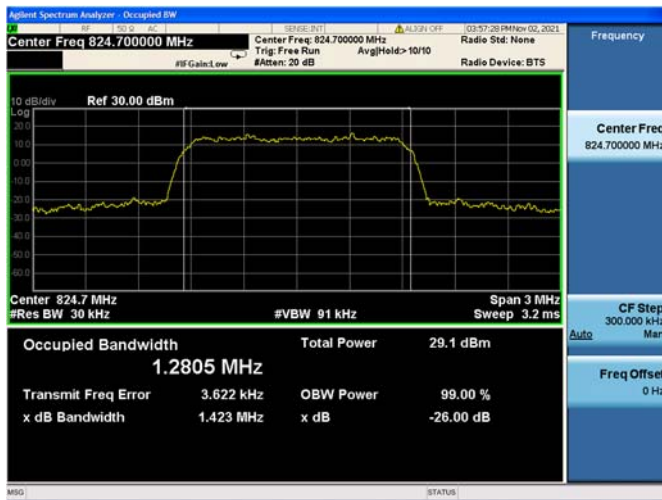


CDMA BC0 (1xRTT), CH384, 836.52MHz



CDMA BC0 (1xRTT), CH777, 848.31MHz



**CDMA BC0 (1xEVDO Rev 0), CH1013, 824.70MHz****CDMA BC0 (1xEVDO Rev 0), CH384, 836.52MHz****CDMA BC0 (1xEVDO Rev 0), CH777, 848.31MHz**

2.4. Frequency Stability

2.4.1. Requirement

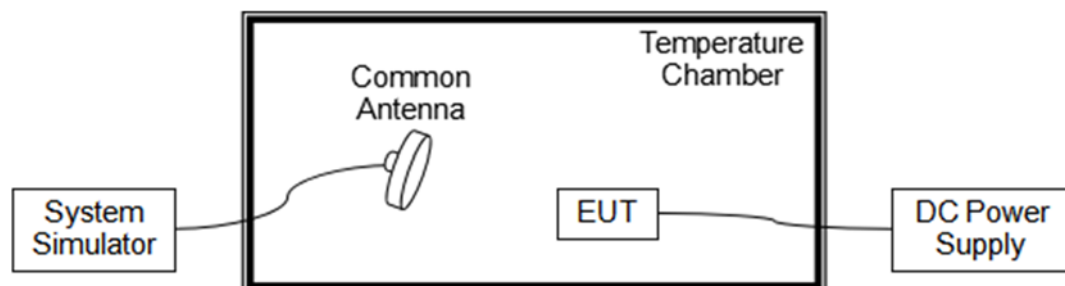
According to FCC section 22.355 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (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.

Note: The operating temperature of EUT is from -20°C to 50°C , which are specified by the applicant.

2.4.2. Test Description

Test Setup:



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





2.4.3. Test Result

The nominal, highest and lowest extreme voltages are separately 3.60V, 4.20V and 3.00V, which are specified by the applicant; the normal temperature here used is 20°C.

CDMA2000 BC0 (1xRTT), CH384, 836.52MHz					
Limit =±2.5ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.60	+20(Ref)	48	0.057	PASS
100		-20	44	0.053	
100		-10	36	0.043	
100		0	30	0.036	
100		+10	15	0.018	
100		+20	13	0.016	
100		+30	40	0.048	
100		+40	-56	-0.067	
100		+50	-24	-0.029	
115	4.20	+20	-22	-0.026	
85	3.00	+20	43	0.051	

CDMA2000 BC0 (1xEVDO), CH384, 836.52MHz					
Limit =±2.5ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.60	+20(Ref)	48	0.057	PASS
100		-20	44	0.053	
100		-10	36	0.043	
100		0	30	0.036	
100		+10	15	0.018	
100		+20	13	0.016	
100		+30	40	0.048	
100		+40	-56	-0.067	
100		+50	-24	-0.029	
115	4.20	+20	-22	-0.026	
85	3.00	+20	43	0.051	



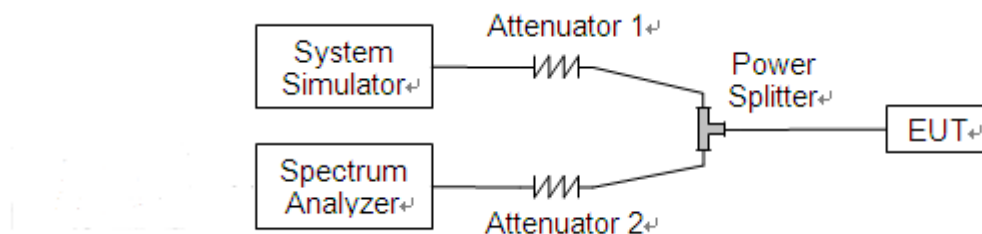
2.5. Conducted Out of Band Emissions

2.5.1. Requirement

According to FCC section 2.1051, 22.917(a) and 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 $43 + 10 \cdot \log(P)$ dB. This calculated to be -13dBm. The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency.

2.5.2. Test Description

Test Setup:



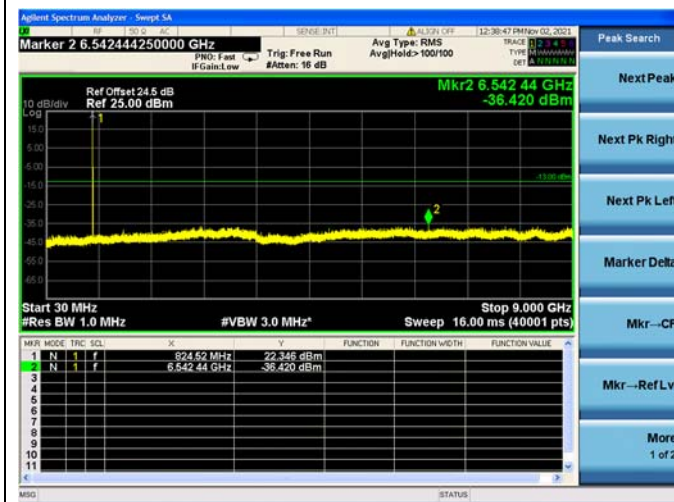
The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum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



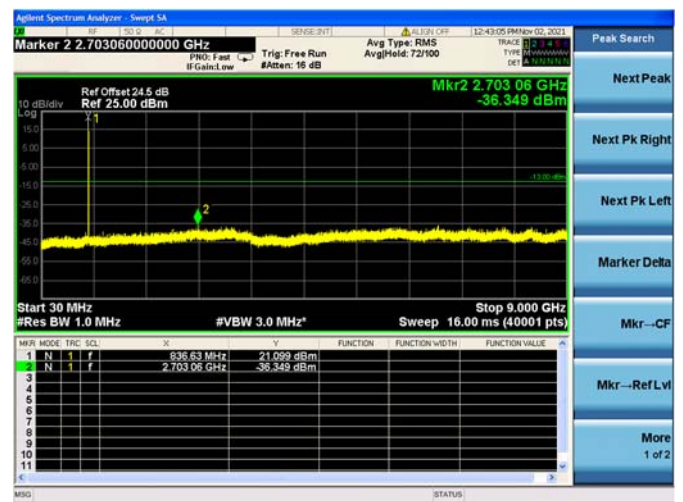


2.5.3. Test Result

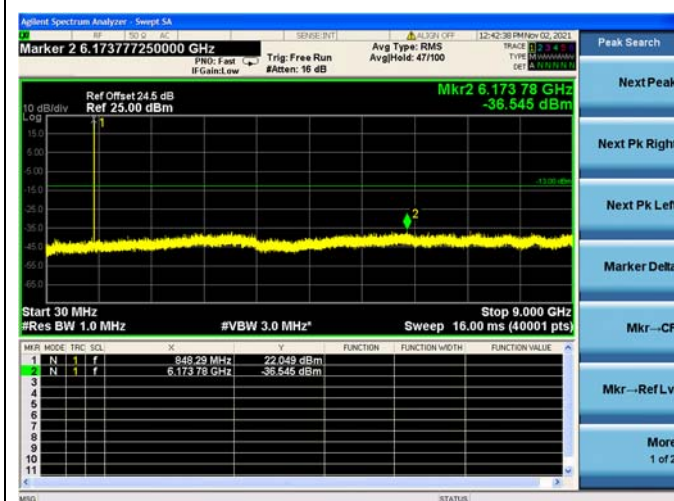
CDMA BC0 (1xRTT), CH1013, 824.70MHz



CDMA BC0 (1xRTT), CH384, 836.52MHz

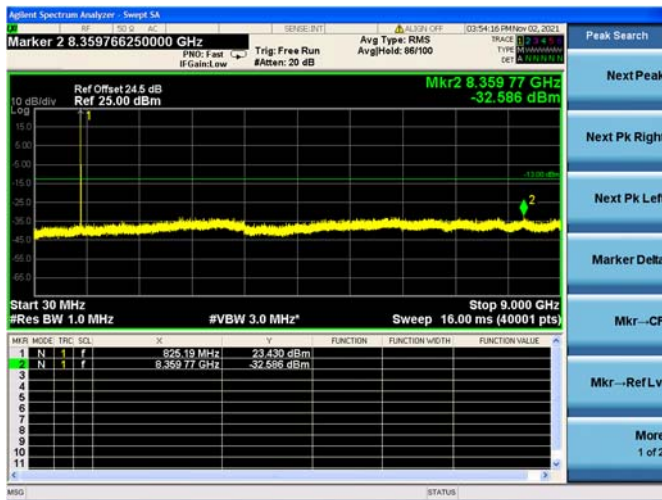


CDMA BC0 (1xRTT), CH777, 848.31MHz

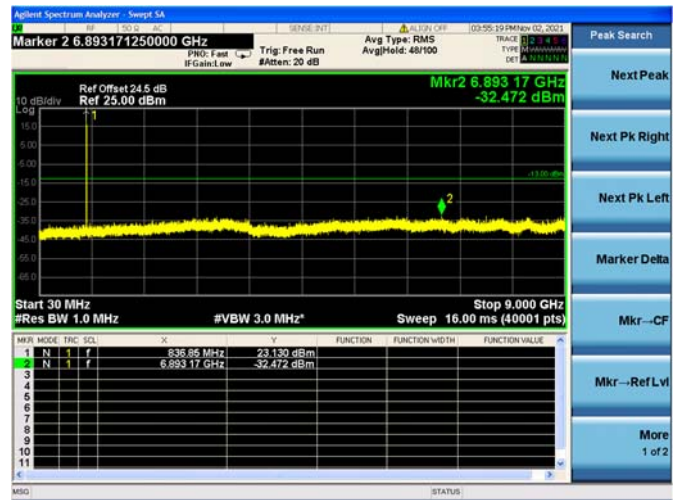




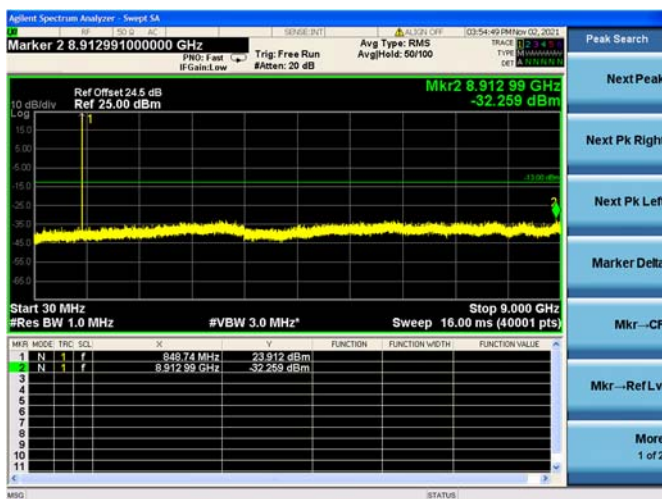
CDMA BC0 (1xEVDO Rev 0), CH1013, 824.70MHz



CDMA BC0 (1xEVDO Rev 0), CH384, 836.52MHz



CDMA BC0 (1xEVDO Rev 0), CH777, 848.31MHz



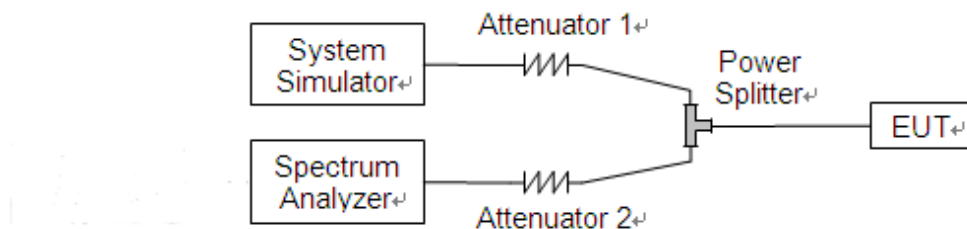
2.6. Band Edge

2.6.1. Requirement

According to FCC section 22.917(a), 24.238(a) and 90.961 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 $43 + 10 \cdot \log(P)$ dB. This calculated to be -13dBm. The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency.

2.6.2. Test Description

Test Setup:



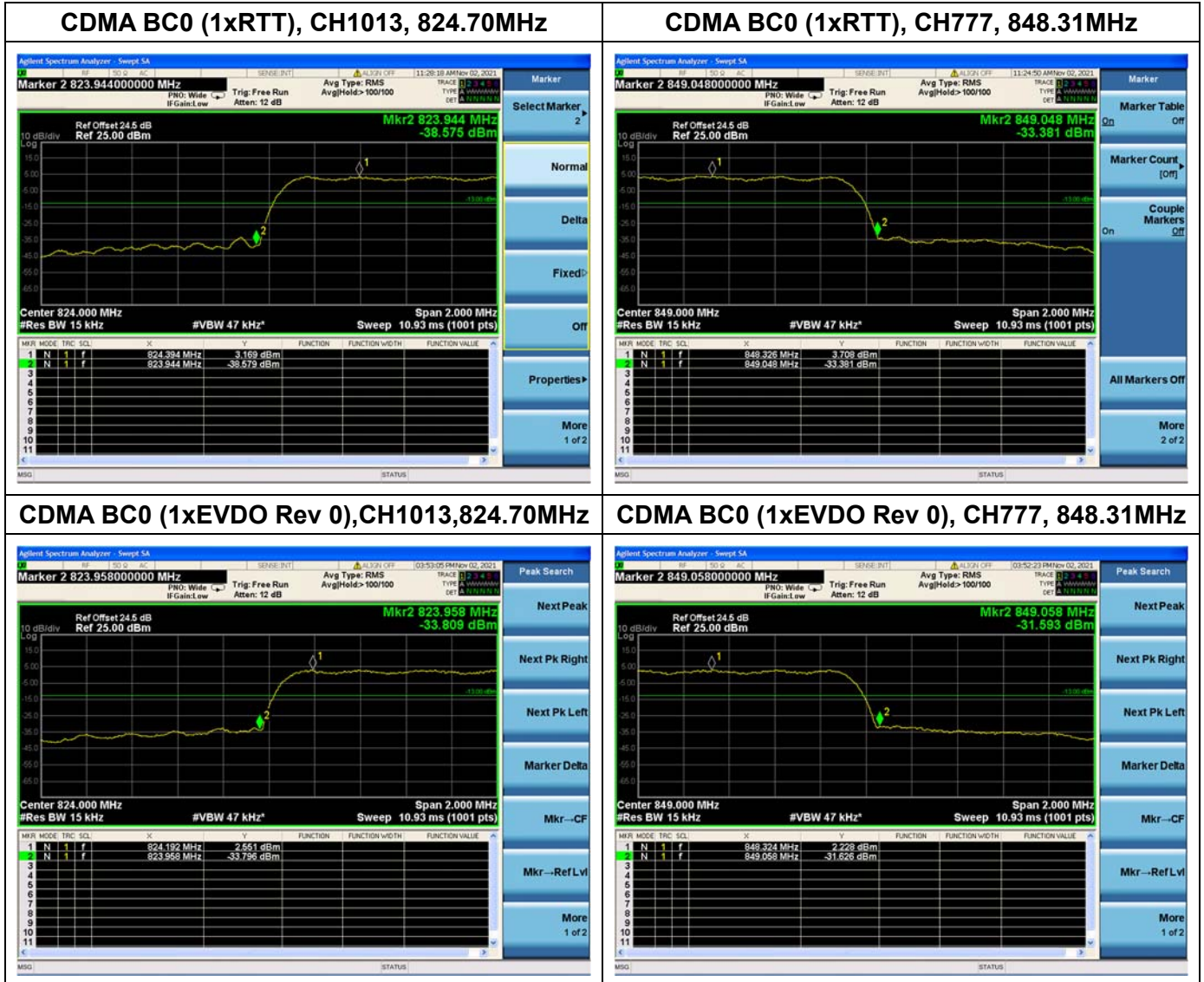
The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum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





2.6.3. Test Result

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



2.7. Determining E.R.P. and/or E.I.R.P. from conducted RF output power measurements

2.7.1. Requirement

According to FCC section 22.913, the Effective Radiated Power (E.R.P.) of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

According to FCC section 24.232, the broadband PCS mobile station is limited to 2 Watts e.i.r.p. peak power.

2.7.2. Test Description

The test setups refer to section 2.1.3

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

The relevant equation for determining the maximum E.R.P. or E.I.R.P. from the measured RF output power is given in Equation (1) as follows:

$$\text{E.R.P. or E.I.R.P.} = P_{\text{Meas}} + G_T$$

Where:

E.R.P. or E.I.R.P. effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (E.R.P.) or dBi (E.I.R.P.)

For devices utilizing multiple antennas, see ANSI C63.25-2015 6.4 for guidance with respect to determining the effective array transmit antenna gain term to be used in the above equation.

The following equations demonstrate the mathematical relationship between E.R.P. and E.I.R.P.:

a) $\text{E.R.P.} = \text{E.I.R.P.} - 2.15$, where E.R.P. and E.I.R.P. are expressed in consistent units.

b) $\text{E.I.R.P.} = \text{E.R.P.} + 2.15$, where E.R.P. and E.I.R.P. are expressed in consistent units.



**2.7.3. Test Result**

CDMA2000 BC0								
Band	Channel	Frequency (MHz)	PCL	Measured E.R.P.		Limit		Verdict
				dBm	W	dBm	W	
1xRTT	1013	824.70	5	22.31	0.170	38.5	7	PASS
	384	836.52	5	22.37	0.173			PASS
	777	848.31	5	22.41	0.174			PASS
1xEVDO Rev 0	1013	824.70	5	22.36	0.172	38.5	7	PASS
	384	836.52	5	22.54	0.179			PASS
	777	848.31	5	22.39	0.173			PASS
1xEVDO Rev A	1013	824.70	5	22.31	0.170	38.5	7	PASS
	384	836.52	5	22.34	0.171			PASS
	777	848.31	5	22.43	0.175			PASS
1xEVDO Rev B	1013	824.70	5	22.19	0.166	38.5	7	PASS
	384	836.52	5	22.22	0.167			PASS
	777	848.31	5	22.34	0.171			PASS
Note 1: Only the worst data were recorded in this report.								

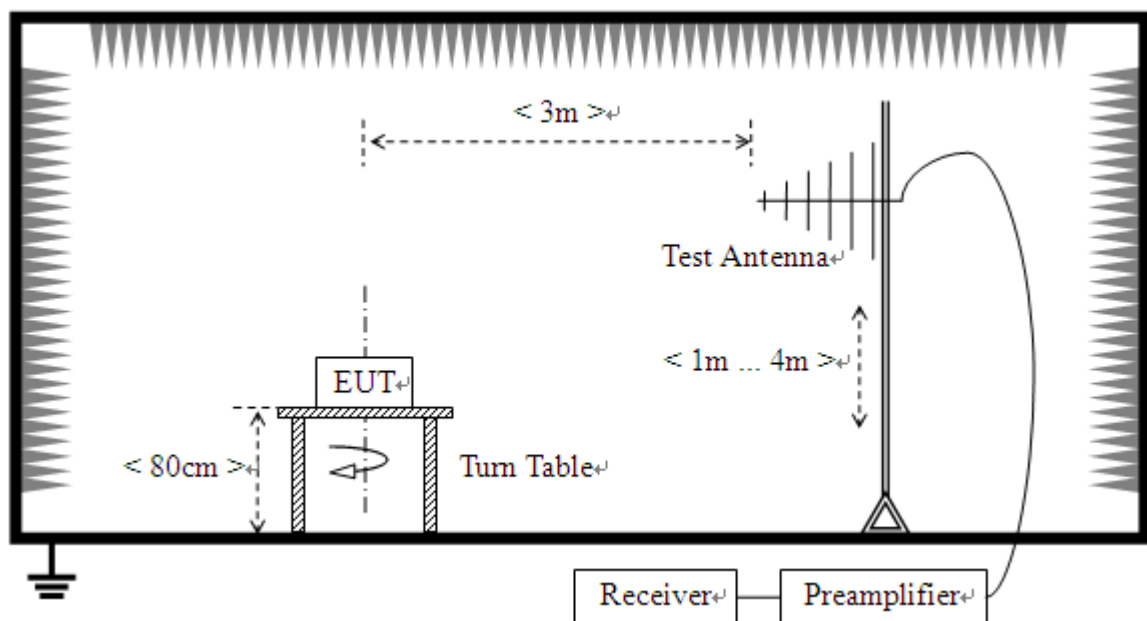


2.8. Radiated Out of Band Emissions

2.8.1. Requirement

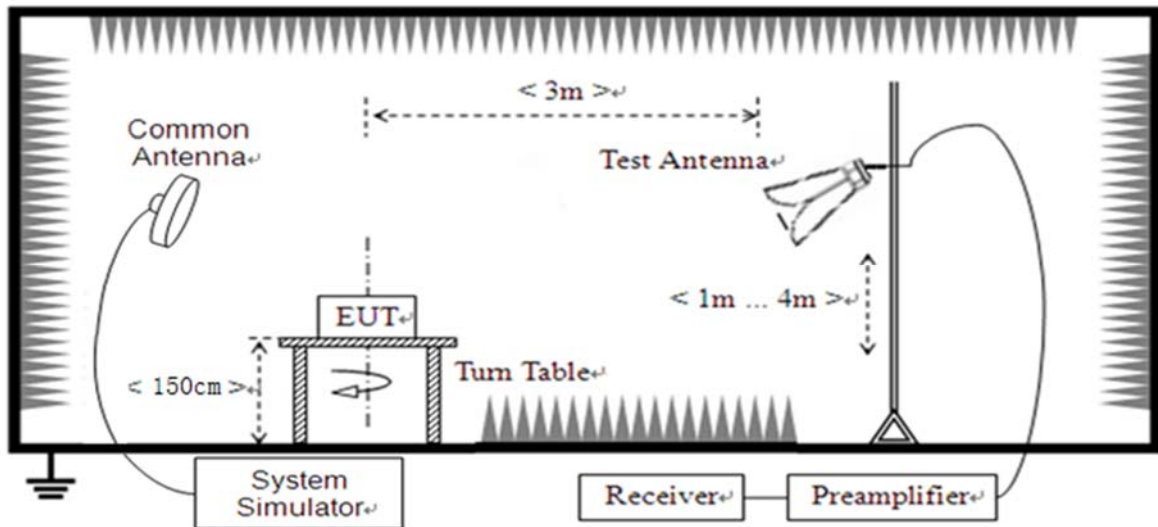
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \cdot \log(P)$ dB. This calculated to be -13dBm. The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency.

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

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements.

For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements.





2.8.4. Test Result

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

The 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} .

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

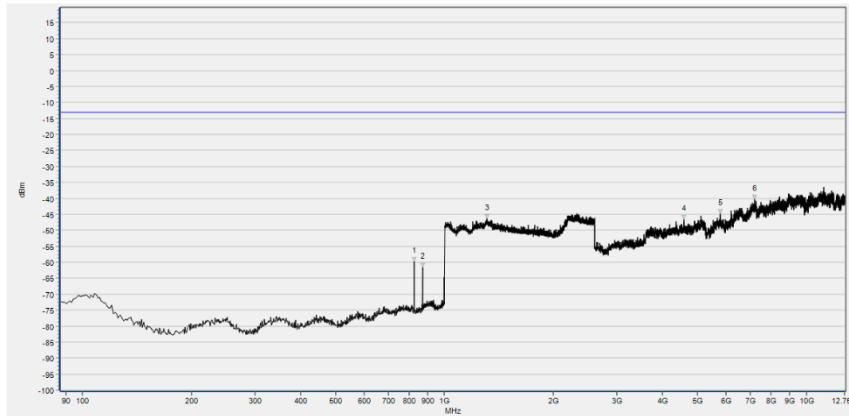
Note2: All test mode and condition mentioned were considered and evaluated respectively by performing full test, only the worst data were recorded and reported.

Note3: 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.

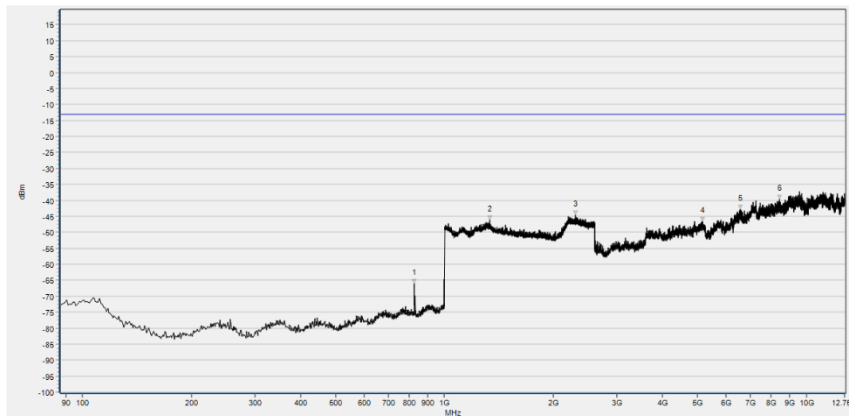
Note 4: N/A means the frequency is the basic frequency or the base station frequency, they are no need to verdict.



CDMA2000 BC0 (1xRTT), Low Channel



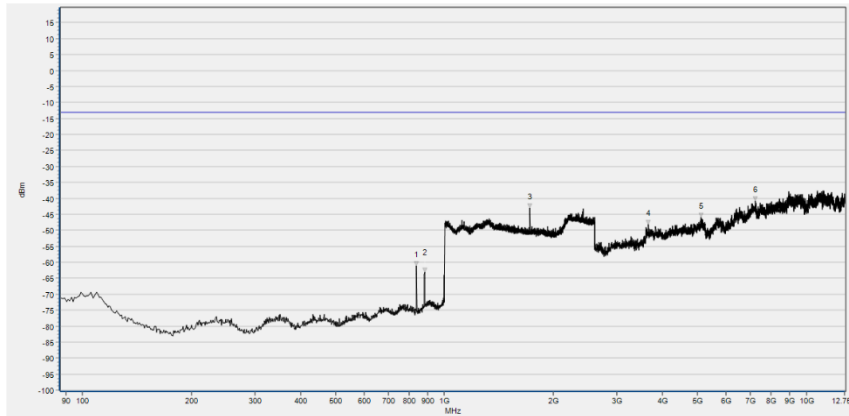
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	825.400	-59.69	-13.00	Horizontal	PASS
2	870.020	-61.64	-13.00	Horizontal	PASS
3	1309.884	-46.28	-13.00	Horizontal	PASS
4	4597.145	-46.49	-13.00	Horizontal	PASS
5	5780.296	-44.72	-13.00	Horizontal	PASS
6	7199.709	-40.34	-13.00	Horizontal	PASS



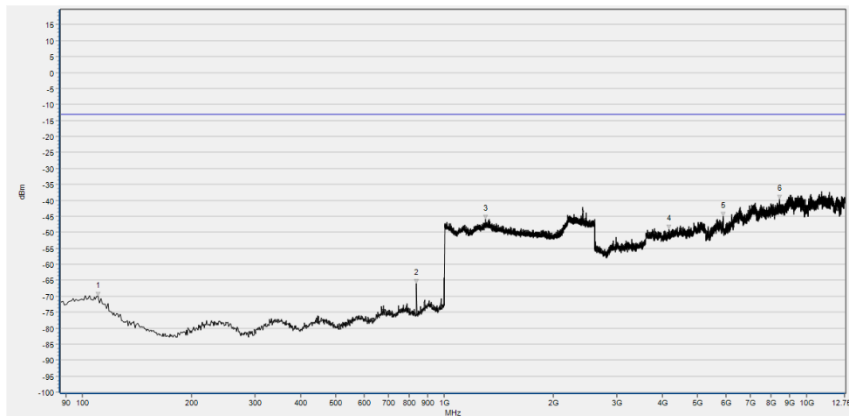
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	825.400	-66.06	-13.00	Vertical	PASS
2	1335.494	-46.19	-13.00	Vertical	PASS
3	2303.561	-44.53	-13.00	Vertical	PASS
4	7249.545	-40.19	-13.00	Vertical	PASS
5	6581.369	-42.86	-13.00	Vertical	PASS
6	8417.931	-39.74	-13.00	Vertical	PASS



CDMA2000 BC0 (1xRTT), Mid Channel



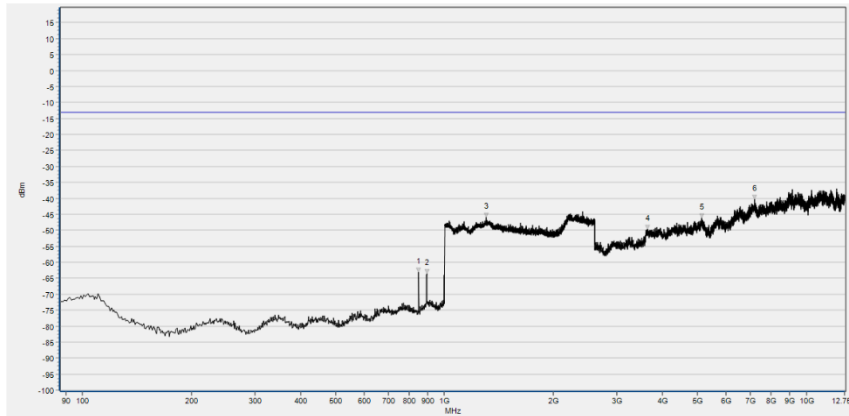
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	837.040	-61.01	-13.00	Horizontal	PASS
2	881.660	-63.05	-13.00	Horizontal	PASS
3	1724.130	-43.03	-13.00	Horizontal	PASS
4	3665.021	-48.22	-13.00	Horizontal	PASS
5	5117.658	-45.88	-13.00	Horizontal	PASS
6	7242.162	-40.77	-13.00	Horizontal	PASS



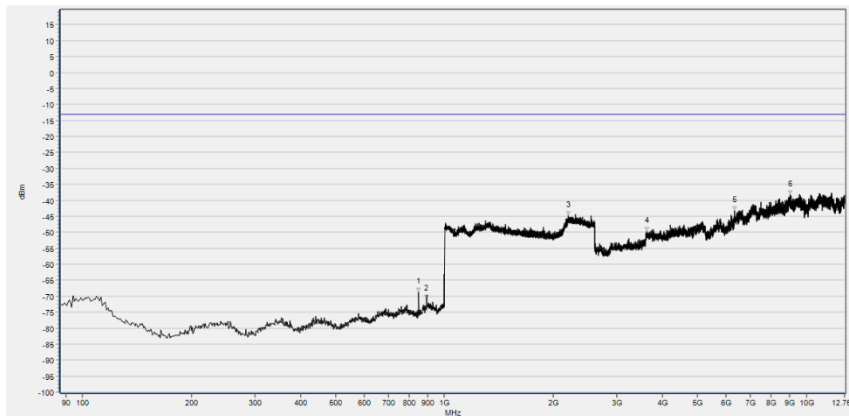
No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	110.510	-70.13	-13.00	Vertical	PASS
2	836.070	-66.09	-13.00	Vertical	N/A
3	1301.561	-45.88	-13.00	Vertical	PASS
4	4178.151	-49.12	-13.00	Vertical	PASS
5	5892.890	-45.01	-13.00	Vertical	PASS
6	8430.851	-39.68	-13.00	Vertical	PASS



CDMA2000 BC0 (1xRTT), High Channel



No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	847.710	-63.21	-13.00	Horizontal	PASS
2	893.300	-63.52	-13.00	Horizontal	PASS
3	1302.841	-45.99	-13.00	Horizontal	PASS
4	3637.334	-49.64	-13.00	Horizontal	PASS
5	5139.807	-46.18	-13.00	Horizontal	PASS
6	7205.246	-40.27	-13.00	Horizontal	PASS



No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	848.680	-68.71	-13.00	Vertical	N/A
2	892.330	-71.05	-13.00	Vertical	N/A
3	2203.681	-44.85	-13.00	Vertical	PASS
4	3629.951	-49.72	-13.00	Vertical	PASS
5	6343.262	-43.24	-13.00	Vertical	PASS
6	9039.962	-38.40	-13.00	Vertical	PASS





Annex A Test Uncertainty

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

Test Items	Uncertainty
Output Power	$\pm 2.22\text{dB}$
Bandwidth	$\pm 5\%$
Conducted Spurious Emission	$\pm 2.77\text{dB}$
Radiated Emission	$\pm 2.95\text{dB}$

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:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
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	N/A	N/A
Attenuator 1	(N/A.)	10dB	Resnet	N/A	N/A
Attenuator 2	(N/A.)	3dB	Resnet	N/A	N/A
EXA Signal Analyzer	MY51511149	N9020A	Agilent	2021.07.26	2022.07.25
System Simulator	6200995016	MT8820C	Anritsu	2021.10.21	2022.10.20
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	20171112102	HZ-2019	Dongguan Lixian Instrument Technology Co., Ltd	2021.10.20	2022.10.19
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	2021.10.21	2022.10.20
Receiver	MY54130016	N9038A	Agilent	2021.07.16	2022.07.15
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.05.24	2022.05.23
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2019.07.26	2022.07.25
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2019.07.26	2022.07.25
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
Coaxial cable (N male) (30MHz-40GHz)	CB05	EMC05	Morlab	N/A	N/A
1-18GHz pre-Amplifier	61171/61172	S020180L3203	Tonscend	2021.07.16	2022.07.15
18-26.5GHz pre-Amplifier	46732	S10M100L3802	Tonscend	2021.07.16	2022.07.15
26-40GHz pre-Amplifier	56774	S40M400L4002	Tonscend	2021.07.16	2022.07.15
Notch Filter	N/A	WRCG-CDM A2000 BC0	Wainwright	2021.07.16	2022.07.15
Anechoic Chamber	N/A	9m*6m*6m	CRT	2019.07.13	2022.07.12

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