

FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2117-1, XT2117-2, XT2117-3, XT2117-4,
		XT2117DL
FCC ID	:	IHDT56ZH1
STANDARD	:	47 CFR Part 2, and 90(S)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jul. 31, 2020 and completely tested on Sep. 16, 2020. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.

JasonJia

Reviewed by: Jason Jia / Supervisor

Journes, Huang

Approved by: James Huang / Manager



Sporton International (Kunshan) Inc. No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China



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APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FW073102A	Rev. 01	Initial issue of report	Sep. 29, 2020
<u> </u>			



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting only	PASS	-
3.2	§2.1049 §90.209	Occupied Bandwidth and 26dB Bandwidth	Reporting only	PASS	-
3.3	§2.1051 §90.691	Emission masks – In-band emissions	< 50+10log ₁₀ (P[Watts])		-
3.4	§2.1051 §90.691	Emission masks – Out of band emissions	< 43+10log ₁₀ (P[Watts])	PASS	-
3.5	§2.1053 §90.691	Field Strength of Spurious Radiation	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 39.15 dB at 2462.000 MHz
3.6	§2.1055 §90.213	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



1 General Description

1.1 Applicant

Motorola Mobility LLC

222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC

222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Feature of Equipment Under Test

Product Feature & Specification				
Equipment	Mobile Cellular Phone			
Brand Name	Motorola			
Model Name	XT2117-1, XT2117-2, XT2117-3, XT2117-4, XT2117DL			
FCC ID	IHDT56ZH1			
EUT supports Radios application	CDMA/GSM/WCDMA/LTE, WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE FM Receiver and GNSS			
IMEI Code	Conducted: 351505880002624 Radiation: 356891110021609/356891110021601			
HW Version	DVT2			
SW Version	QZB30.Q4-16			
EUT Stage	Identical Prototype			

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard				
Tx Frequency	BC10 : 817.9 ~ 823.1 MHz			
Rx Frequency	BC10 : 862.9 ~ 868.1 MHz			
Maximum Output Power to Antenna	24.28 dBm			
Antenna Type	Fixed Internal Antenna			
Turne of Medulation	CDMA2000 1xRTT: QPSK			
Type of Modulation	CDMA2000 1xEV-DO: QPSK/8PSK			



1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Specification of Accessory

	Specification of Accessory						
AC Adapter 1	Brand Name	Motorola (Chenyang)	Model Name	MC-101			
AC Adapter 2	Brand Name	Motorola (Salcomp)	Model Name	MC-101			
Battery	Brand Name	Motorola (ATL)	Model Name	JK50			
USB Cable 1	Brand Name	Motorola (Saibao)	Model Name	SC18C24367			
USB Cable 2	Brand Name	Motorola (Luxshare)	Model Name	SC18C24368			
USB Cable 3	Brand Name	Motorola (Cabletech)	Model Name	SC18C49697			



1.7 Maximum Conducted Power, Frequency Tolerance and Emission Designator

FCC Rule	System	Type of Modulation	Frequency Tolerance (ppm)	Emission Designator	Maximum Conducted power(W)
Part 90S	CDMA2000 BC10 1xRTT	QPSK	0.0157 ppm	1M27F9W	0.2679

1.8 Testing Site

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.				
	No. 1098, Pengxi North Road, Kunshan Economic Development Zone				
Test Site Location	Jiangsu Province 2153	00 People's Republic of C	hina		
Test Sile Location	TEL : +86-512-57900158				
	FAX : +86-512-57900958				
	Sporton Site No.	FCC Designation No.	FCC Test Firm		
Test Site No.	Sporton Site No.	FCC Designation No.	Registration No.		
	03CH04-KS TH01-KS	CN1257	314309		



1.9 Test Software

Item Site		Manufacture	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24a

1.10 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 90(S)
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 971168 D02 Misc Rev Approv License Devices v02r01

Remark:

- 1. All test items were verified and recorded according to the standards and without any deviation during the test.
- 2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



2 Test Configuration of Equipment Under Test

2.1 Test Mode

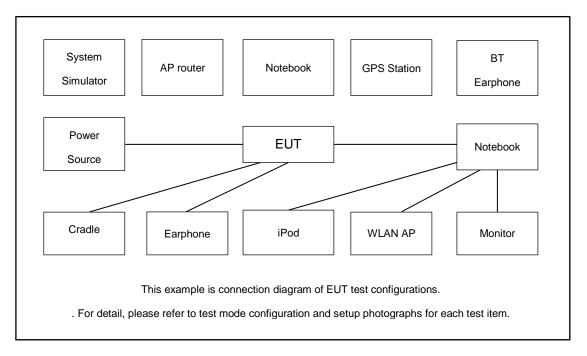
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission is 30 MHz to 10th harmonic.

Test Modes					
Band Radiated TCs Conducted TCs					
CDMA2000 BC10	■ 1xRTT Link	■ 1xRTT Link			

Note: The maximum RF output power levels are 1xRTT RC3 SO55 mode for CDMA2000 BC10 on QPSK Link; only these modes were used for all tests.

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

	ltem	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
	1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
I	2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m



2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 4.80dB.

Offset (dB) = RF cable loss (dB).

= 4.80 (dB)

2.5 Frequency List of Low/Middle/High Channels

Frequency List							
Band	Channel/Frequency(MHz)	Lowest	Middle	Highest			
CDMA200	Channel	476	580	684			
BC10	Frequency	817.9	820.5	823.1			



3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

- 1. The transmitter output port was connected to the system simulator.
- 2. Set EUT at maximum power through system simulator.
- 3. Select lowest, middle, and highest channels for each band and different modulation.
- 4. Measure and record the power level from the system simulator.

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

Please refer to Appendix A.



3.2 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.2.1 Description of (Occupied) Bandwidth Limitations Measurement

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

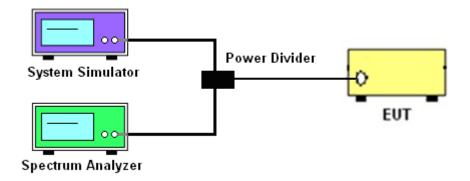
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

- 1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
- The 26dB and 99% occupied bandwidth (BW) of the middle channel for the highest RF power with full RB sizes were measured.

3.2.4 Test Setup



3.2.5 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

Please refer to Appendix A.



3.3 Emissions Mask Measurement

3.3.1 Description of Emissions Mask Measurement

Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of FCC Part 90.691.(a):

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log₁₀(f/6.1) decibels or 50 + 10 Log₁₀(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 12.5 kHz.

(2) 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 + 10Log₁₀(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.

3.3.2 Measuring Instruments

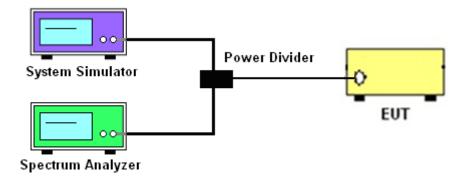
The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

- 1. The EUT was connected to spectrum analyzer and base station via power divider.
- 2. The emissions mask of low and high channels for the highest RF powers were measured.
- The measured RBW and the VBW set 3 times of RBW are then set in spectrum analyzer, and the RBW correction factor 10log (1% of OBW/measured RBW)(dB) was compensated, if required.
- 4. The test results were shown below plots with a correction offset factor including cable loss, insertion loss of power divider.



3.3.4 Test Setup



3.3.5 Test Result (Plots) of Conducted Emissions Mask

Please refer to Appendix A.



3.4 Emissions Mask – Out Of Band Emissions Measurement

3.4.1 Description of Conducted Emissions Out of band emissions measurement

The power of any emission FCC Part 90.691 (a)(2) on any frequency removed from the assigned frequency by out of the authorized bandwidth at least $43 + 10 \log (P) dB$. It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10^{th} harmonic.

3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

- 1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. The middle channel for the highest RF power within the transmitting frequency was measured.
- 4. The conducted spurious emission for the whole frequency range was taken.
- 5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
- 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 7. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

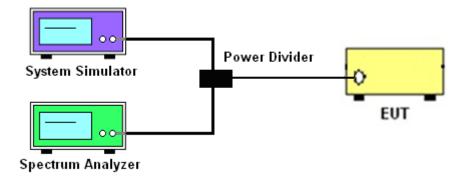
= P(W)- [43 + 10log(P)] (dB)

 $= [30 + 10\log(P)] (dBm) - [43 + 10\log(P)] (dB)$

= -13dBm.



3.4.4 Test Setup



3.4.5 Test Result (Plots) of Conducted Emission

Please refer to Appendix A.

3.5 Field Strength of Spurious Radiation Measurement

3.5.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI C632.6. The power of any emission FCC Part 90.691 on any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

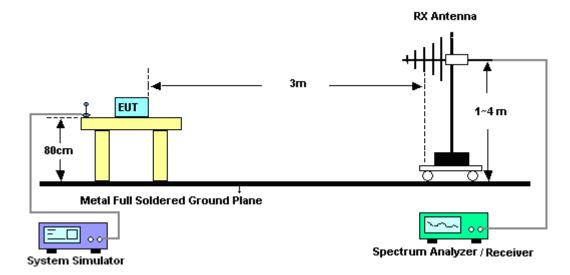
3.5.3 Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- 2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
- 4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
- 5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
- 6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- 7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- 8. Taking the record of output power at antenna port.
- 9. Repeat step 7 to step 8 for another polarization.
- 10. EIRP (dBm) = S.G. Power Tx Cable Loss + Tx Antenna Gain
- 11. ERP (dBm) = EIRP 2.15
- 12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 13. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

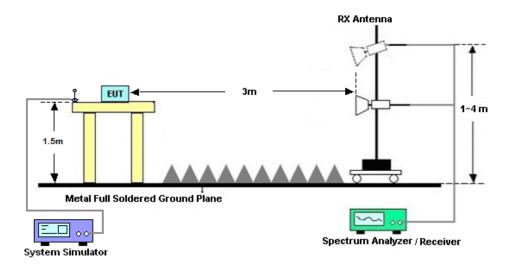


3.5.4 Test Setup

For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



3.5.5 Test Result of Field Strength of Spurious Radiated

Please refer to Appendix B.



3.6 Frequency Stability Measurement

3.6.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency according to FCC Part 90.213.

3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures for Temperature Variation

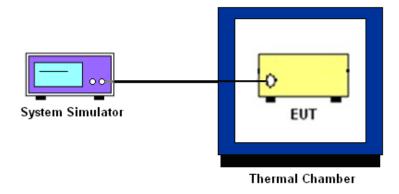
- 1. The EUT was set up in the thermal chamber and connected with the base station.
- 2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
- 3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.6.4 Test Procedures for Voltage Variation

- 1. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
- 2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
- 3. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the
- 4. battery operating end point, which shall be specified by the manufacturer.
- 5. The variation in frequency was measured for the worst case.



3.6.5 Test Setup



3.6.6 Test Result of Temperature Variation

Please refer to Appendix A.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Nov. 02, 2019	Sep. 15, 2020~ Sep. 16, 2020	Nov. 01, 2020	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Nov. 18, 2019	Sep. 15, 2020~ Sep. 16, 2020	Nov. 17, 2020	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 15, 2020	Sep. 10, 2020	Apr. 14, 2021	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jan. 03, 2020	Sep. 10, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1356	1GHz~18GHz	Apr. 20, 2020	Sep. 10, 2020	Apr. 19, 2021	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 10, 2019	Sep. 10, 2020	Nov. 09, 2020	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 03, 2020	Sep. 10, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 08, 2020	Sep. 10, 2020	Jan. 07, 2021	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-1 0P	2025788	1Ghz-18Ghz	Jan. 03, 2020	Sep. 10, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 15, 2019	Sep. 10, 2020	Oct. 14, 2020	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Sep. 10, 2020	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Sep. 10, 2020	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Sep. 10, 2020	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required



5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of	3.3dB
Confidence of 95% (U = 2Uc(y))	3.30B

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.8dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of	2.8dB
Confidence of 95% (U = 2Uc(y))	2.008



Appendix A. Test Results of Conducted Test

Conducted Output Power (Average power)

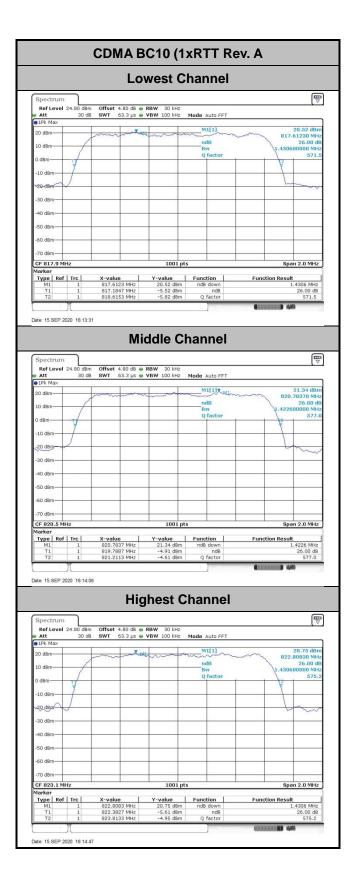
Conducted Power (*Unit: dBm)					
Band	CDMA2000 BC10				
Channel	476	684			
Frequency	817.9	820.5	823.1		
1xRTT RC1 SO55	23.90	24.28	24.22		
1xRTT RC3 SO55	23.65	24.11	24.02		
1xRTT RC3 SO32 (+ F-SCH)	24.25	24.27	24.18		
1xRTT RC3 SO32 (+SCH)	24.01	24.24	24.11		
1xEVDO RTAP 153.6Kbps	24.12	24.14	24.08		
1xEVDO RETAP 4096Bits	24.01	24.11	24.07		



26dB Bandwidth

Mode	CDMA BC10
Mod.	1xRTT Rev. A
Lowest CH	1.4306
Middle CH	1.4226
Highest CH	1.4306



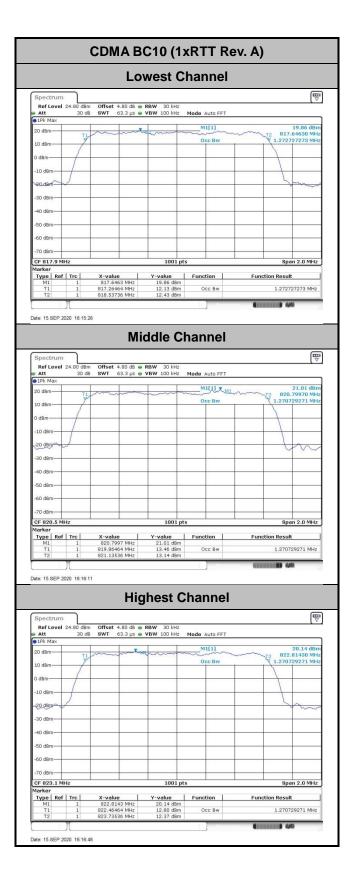




Occupied Bandwidth

Mode	CDMA BC10
Mod.	1xRTT Rev. A
Lowest CH	1.2727
Middle CH	1.2707
Highest CH	1.2707



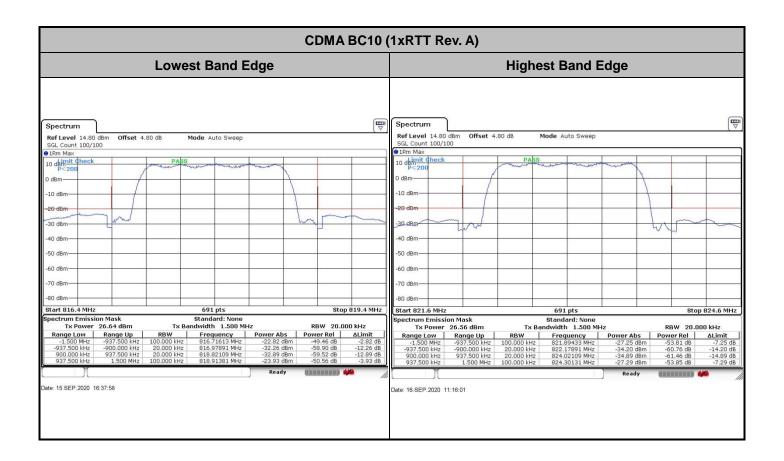




Conducted Band Edge









Conducted Spurious Emission



	1	owest	Channel		
	L	.Sweat	Channel		(7)
Ref Level 14.80 dBr	m Offset 4.80 de	Mode Au	to Sweep		
SGL Count 10/10		- he			
10 deimit Check Line _SPURIOUS	LINE_ABS_	PASS PASS			
0 dBm					
SPURIOUS_LINE_ABS	-				
-30 dBm		_			
-40 dBm		a seale constance attents	and the second second	a constant and a state of the	the state of the state
	ond in the first of the first o	and the second second second	and the second sec	and a start of the second	
-60 dBm					
-70 dBm-					
Start 30.0 MHz		3600	5 pts	St	op 12.75 GHz
Spurious Emissions Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz 827.750 MHz 1.000 GHz	813.250 MHz 1.000 GHz 3.000 GHz	1.000 MHz 1.000 MHz 1.000 MHz	813.05429 MHz 837.26206 MHz 1.63480 GHz	-32.60 dBm -39.05 dBm -39.63 dBm	-19.60 dB -26.05 dB -26.63 dB
3.000 GHz 7.000 GHz	7.000 GHz 10.000 GHz	1.000 MHz 1.000 MHz 1.000 MHz	6.94576 GHz 9.94469 GHz	-42.08 dBm -44.44 dBm	-29.08 dB -31.44 dB
10.000 GHz	12.750 GHz	1.000 MHz	12.30267 GHz	-42.48 dBm	-29.48 dB
	1.00		Ree		-
ate: 15.SEP.2020 16:18					
	ľ	Middle (Channel		
Spectrum					Ē
Ref Level 14.80 dBr	m Offset 4.80 de	Mode Au	to Sweep		
SGL Count 10/10 1 Max					
10 demit Check Line _SPURIOUS	B_LINE_ABS_	PASS PASS			
0 dBm					
-10 dBm					
-20 dBm					
-30 dBm		المراجع المراجع المراجع المراجع		a sa siya siya a siya a siya siya siya s	la La La di manda da la
-30 dBm	na a da a sua stata a la contra a a supera por por contra da successi	انىشىغارىدى. 19 مەنبەرىغان بارمىلى 19 مەنبەرىغان بارمىلىر		a san jalan ji jina pita (Shiring) A san jidan ji jina pita (Shiring) A san jina pita (Shiring)	ta parte presidente faltras Aparte fanti i manimist
-30 dBm -40 dBm -70 dBm -60 dBm -70 dBm	and the second	المالية و معامل الأروبي م المالية بين معر ومعامل الأروبي المالية بين معر ومعامل الأروبي		n na sida a fan a fan de sida a si Sida a sida a Sida a sida a	
-30 dBm -40 dBm -50 dBm -60 dBm		3600	s pts	s a de tier de libred andre ser de libred st	op 12.75 GHz
-30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm -80 dBm -81	Range Up				
-30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80	Range Up 1.000 GHz	RBW 1.000 MHz	Frequency 812.66286 MHz	Power Abs -46.09 dBm	∆Limit -33.09 dB
-30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm -80 dBm Start 30.0 MHz Spurious Emissions Range Low	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz	RBW	Frequency	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm	ΔLimit -33.09 dB -25.70 dB -26.94 dB -29.42 dB
-30 dBm -40 dBm -50 dBm -70 dBm -70 dBm -80 dBm Start 30.0 MHz Spurious Emissions Range Low 30.00 MHz 82.7.50 MHz 1.000 GHz	813.250 MHz 1.000 GHz 3.000 GHz	RBW 1.000 MHz 1.000 MHz 1.000 MHz	Erequency 812.66286 MHz 839.93060 MHz 1.64054 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm	∆Limit -33.09 dB -25.70 dB -26.94 dB
-30 dBm -40	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz 10.000 GHz	RBW 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	Frequency 812.66286 MHz 839.93060 MHz 1.64054 GHz 6.91676 GHz 7.78834 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB
-30 dBm -40	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz 10.000 GHz 12.750 GHz	RBW 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	Frequency 812.66286 MHz 839.93060 MHz 1.64054 GHz 6.91676 GHz 7.78834 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB
-30 dBm -40 dBm -60 dBm -60 dBm -80	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz 10.000 GHz 12.750 GHz 2.02	RBW 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	Frequency 812.66286 MHz 839.93060 MHz 1.64054 GHz 6.91676 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB
-30 dBm -40 dBm -60 dBm -60 dBm -80	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz 10.000 GHz 12.750 GHz 2.02	RBW 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	Frequency 812.66286 MHz 839.93060 MHz 1.64054 GHz 6.91676 GHz 7.78834 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB ·29.04 dB
-30 dBm -40 dBm -60 dBm -60 dBm -80	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz 10.000 GHz 12.750 GHz 2.02	RBW 1.000 MHz	Frequency B12.66286 MHz 839.93000 MHz 1.64054 GHz 7.78834 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB
-30 dBm	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz 10.000 GHz 12.750 GHz 0.02	RBW 1.000 MHz	Frequency B12.66286 MHz 839.93000 MHz 1.64054 GHz 7.78834 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB ·29.04 dB
-30 dBm -40	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.02	RBw I	Frequency B12.66286 MHz 839.93000 MHz 1.64054 GHz 7.78834 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB ·29.04 dB
-30 dBm -40 dBa -60 dBm -60 dBm -80	813.250 MHz 1.000 GHz 3.000 GHz 7.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.02	RBW I 1.000 MHz 1.000 MHz	Frequency B12.66286 MHz 839.93000 MHz 1.64054 GHz 7.78834 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB ·29.04 dB
-30 dBm -40 dBm -40 dBm -60 dBm -60 dBm -80 dBm -80 dBm -80 dBm -90	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.000 GHz 12.750 GHz 10.000 GHZ 10.0000	RBw I	Frequency B12.66286 MHz 839.93000 MHz 1.64054 GHz 7.78834 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB ·29.04 dB
-30 dBm -40 dBn -60 dBm -60 dBm -80	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.000 GHz 12.750 GHz 10.000 GHZ 10.0000	RBw I	Frequency B12.66286 MHz 839.93000 MHz 1.64054 GHz 7.78834 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB ·29.04 dB
-30 dBm -40	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.000 GHz 12.750 GHz 10.000 GHZ 10.0000	RBw I	Frequency B12.66286 MHz 839.93000 MHz 1.64054 GHz 7.78834 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB ·29.04 dB
	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.000 GHz 12.750 GHz 10.000 GHZ 10.0000	RBW I.000 MHz 1.000 MHz I.000 MHz IIIghest IIIghest PABS IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Frequency B12.66286 MHz 839.93000 MHz 1.64054 GHz 7.78834 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB ·29.04 dB
30 dBm 40	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.000 GHz 12.750 GHz 10.000 GHZ 10.0000	RBW I.000 MHz 1.000 MHz I.000 MHz IIIghest IIIghest PABS IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Frequency File.do280 MHz 839.9300 MHz 1.64054 GHz 6.9167 66 GHz 7.76834 GHz 10.8021 GHz 9.8107 GHz Channel to Sweep	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB /29.04 dB
-30 dBm -40	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.000 GHz 12.750 GHz 10.000 GHZ 10.0000	RBW I.000 MHz 1.000 MHz I.000 MHz IIIghest IIIghest PABS IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Frequency File.do280 MHz 839.9300 MHz 1.64054 GHz 6.9167 66 GHz 7.76834 GHz 10.8021 GHz 9.8107 GHz Channel to Sweep	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB /29.04 dB
-30 dBm -40 dBn -40 dBn -60 dBm -60 dBm -80 dBm -10	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.000 GHz 12.750 GHz 10.000 GHZ 10.0000	RBW I.000 MHz 1.000 MHz I.000 MHz IIIghest IIIghest PABS IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Frequency File.do280 MHz 839.9300 MHz 1.64054 GHz 6.9167 66 GHz 7.76834 GHz 10.8021 GHz 9.8107 GHz Channel to Sweep	Power Abs -46.09 dBm -38.70 dBm -39.94 dBm -42.42 dBm -43.42 dBm	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB /29.04 dB
30 dBm 40	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 12.750 GHz 10.000 GHz 12.750 GHz 10.000 GHZ 10.0000	RBW I.000 MHz 1.000 MHz I.000 MHz IIIghest IIIghest PABS IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Frequency El2.60280 MHz 839,93006 MHz 1.64054 GHz 6.91276 GHz 6.91276 GHz 7.78934 GHz 11.0221 GHz The second sec	Power Abs -46,09 dbm -39,70 dbm -39,70 dbm -49,24 dbm -42,42 dbm -42,42 dbm -42,04	<u>ALimit</u> -33.09 dB -25.70 dB -26.94 dB -29.42 dB -30.42 dB -29.04 dB /29.04 dB
30 dBm 40	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 10.000 GHz 12.750 GHz 13.750 GHz 13.750 GHz 14.750 G	RBW I.000 MHz 1.000 MHz 1.000 MHz 1.000 MLz 1.000 MHz <t< td=""><td>Frequency File.do280 MHz 819.93060 MHz 839.93060 MHz 839.93060 MHz 6.94076 AHz 1.04054 AHz 6.94076 AHz 1.108216 GHz 7.78834 AHz 1.108216 GHz 9.94076 AHz</td><td>Power Abs -46.09 dbm -39.70 dbm -39.70 dbm -42.42 dbm -42.42 dbm -42.44 dbm -42.04 dbm -42.04</td><td>ALImit -33.09 dB -25.70 dB -25.70 dB -29.42 dB -30.42 dB -29.04 dB -29.04 dB -30.042 dB -29.04 dB -</td></t<>	Frequency File.do280 MHz 819.93060 MHz 839.93060 MHz 839.93060 MHz 6.94076 AHz 1.04054 AHz 6.94076 AHz 1.108216 GHz 7.78834 AHz 1.108216 GHz 9.94076 AHz	Power Abs -46.09 dbm -39.70 dbm -39.70 dbm -42.42 dbm -42.42 dbm -42.44 dbm -42.04	ALImit -33.09 dB -25.70 dB -25.70 dB -29.42 dB -30.42 dB -29.04 dB -29.04 dB -30.042 dB -29.04 dB -
-30 dBm	813.320 MHz 1.000 GHz 3.000 GHz 3.000 GHz 10.000 GHz	RBW I.000 MHz 1.000 MHz I.000 MHz 1.000 MHz I.000 MHz 1.000 MHz I.000 MHz I.000 MHz I.000 MHz	Frequency Frequency 812,66280 MHz 839,93060 MHz 839,93060 MHz 6,94076 AHz 6,94076 AHz 6,94076 AHz 11,08216 GHz 11,08216 GHz Channel Listen and an and an and an an and an	Power Abs -46.09 dbm -39.70 dbm -39.70 dbm -42.42 dbm -42.42 dbm -42.04	ALImit -33.09 dB -25.70 dB -25.70 dB -29.42 dB -30.42 dB -29.42 dB -2
-30 dBm -40 dBm -40 dBm -70 dBm -80 dBm -80 dBm -80 dBm -80 dBm -80 dBm -80 dBm -80 dBm -80 dBm -82 dBm -82 dBm -92	813.250 MHz 1.000 GHz 3.000 GHz 1.000 GHz 1.000 GHz 12.750 GHz 12.750 GHz 12.750 GHz 12.750 GHz 10.001 GH	RBW I 1.000 MHz 1.000 MHz	Frequency Frequency 812.66280 MHz 839.93060 MHz 839.93060 MHz 6.9475 GHz 6.9475 GHz 6.9475 GHz 11.08216 GHz 11.08216 GHz	Power Abs -46.09 dbm -38.70 dbm -39.70 dbm -39.70 dbm -39.94 dbm -42.42 dbm -42.42 dbm -42.04 dbm -	ALImit -33.09 d8 -32.50 d8 -25.94 d8 -26.94 d8 -30.42 d8

Frequency Stability

Test Conditions	Middle Channel	CDMA BC10 (1xRTT Rev. A)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0122	
40	Normal Voltage	0.0157	
30	Normal Voltage	0.0049	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0012	
0	Normal Voltage	0.0024	
-10	Normal Voltage	0.0038	PASS
-20	Normal Voltage	0.0073	
-30	Normal Voltage	0.0012	
20	Maximum Voltage	0.0134	
20	Normal Voltage	0.0036	
20	Battery End Point	0.0061	

Note:

1. Normal Voltage = 3.8V ; Battery End Point (BEP) = 3V ; Maximum Voltage =4.4V

2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Appendix B. Test Results of Radiated Test

	CDMA BC10 (1xRTT)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)		
	1636	-68.61	-13	-55.61	-75.58	1.58	10.70	Н		
	2454	-58.62	-13	-45.62	-66.87	2.102	12.50	Н		
Lowoot	3270	-64.46	-13	-51.46	-73.35	2.856	13.90	Н		
Lowest	1636	-68.57	-13	-55.57	-75.54	1.58	10.70	V		
	2454	-63.45	-13	-50.45	-71.70	2.10	12.50	V		
	3270	-64.53	-13	-51.53	-73.42	2.86	13.90	V		
	1640	-68.19	-13	-55.19	-75.16	1.58	10.70	Н		
	2462	-56.87	-13	-43.87	-65.12	2.102	12.50	Н		
Middle	3282	-64.42	-13	-51.42	-73.31	2.856	13.90	Н		
Middle	1640	-67.71	-13	-54.71	-74.68	1.58	10.70	V		
	2462	-52.15	-13	-39.15	-60.40	2.10	12.50	V		
	3282	-64.44	-13	-51.44	-73.33	2.86	13.90	V		
	1646	-69.03	-13	-56.03	-76.00	1.58	10.70	Н		
	2470	-64.80	-13	-51.80	-73.05	2.102	12.50	Н		
Llinkert	3294	-64.57	-13	-51.57	-73.46	2.856	13.90	Н		
Highest	1646	-68.68	-13	-55.68	-75.65	1.58	10.70	V		
	2470	-64.46	-13	-51.46	-72.71	2.10	12.50	V		
	3294	-64.43	-13	-51.43	-73.32	2.86	13.90	V		

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.