

FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME		Motorola
MODEL NAME	:	10647
FCC ID	:	IHDT56WK1
STANDARD	:	FCC 47 CFR Part 2, and 90(S)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jun. 17, 2017 and testing was completed on Jul. 04, 2017. We, Sporton International (KunShan) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-D-2010 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.

Joimes Muang

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Approved by: Jones Tsai / Manager

Sporton International (KunShan) INC. No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China



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APPENDIX A. SETUP PHOTOGRAPHS



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FW761702-01A	Rev. 01	Initial issue of report	Jul. 31, 2017



Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting only	PASS	-
3.2	§2.1049 §90.209	99% Occupied Bandwidth and 26dB Bandwidth		PASS	-
3.3	§2.1051 §90.691	Emission masks – In-band emissions	< 50+10log ₁₀ (P[Watts])	PASS	-
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 36.87 dB at 2460.000 MHz
3.6	§2.1055 §90.213	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-

SUMMARY OF TEST RESULT



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	10647				
FCC ID	IHDT56WK1				
	CDMA/EV-DO/GSM/GPRS/EGPRS/WCDMA/HSPA/				
	DC-HSDPA/HSPA+(16QAM uplink is not supported)/LTE/NFC				
	WLAN 2.4GHz 802.11b/g/n HT20/HT40/				
EUT supports Radios application	WLAN 5GHz 802.11a/n HT20/HT40/				
	WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/				
	Bluetooth v3.0+EDR/ Bluetooth v4.0 LE /				
	Bluetooth v4.1LE/ Bluetooth v4.2LE /Bluetooth v5.0LE				
	Conducted: 356484080019637				
	Radiation: 356484080026954				
HW Version	DVT2				
SW Version	NPW26.75				
EUT Stage	Identical Prototype				



1.4. Product Specification of Equipment Under Test

Product Specification subjective to this standard					
Tx Frequency	CDMA2000 BC10 : 817.9 MHz ~ 823.1 MHz				
Rx Frequency	CDMA2000 BC10 : 862.9 MHz ~ 868.1 MHz				
Maximum Output Power to Antenna	CDMA2000 BC10 : 23.28 dBm				
Antenna Type	Fixed Internal Antenna				
Type of Modulation	CDMA2000 1xRTT : QPSK				
	CDMA2000 1xEV-DO : QPSK/8PSK				

Remark: This test report recorded only product characteristics and test results of PCS Licensed Transmitter Held to Ear (PCE).

1.5. Modification of EUT

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

1.6. Maximum Frequency Tolerance, Emission Designator and Conducted Power

FCC Rule	System	Type of Modulation	Frequency Tolerance (ppm)	Emission Designator	Maximum Conducted power(W)
Part 90S	CDMA2000 BC10 1xRTT	QPSK	0.0427 ppm	1M27F9W	0.2128



1.7. Testing Site

Test Site	Sporton International (KunShan) INC.				
	No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China				
Test Site Location	TEL: +86-0512-5790-0158				
	FAX: +86-0512-5790-0958				
Toot Site No	Sportor	FCC Registration No.			
Test Site No.	TH01-KS	306251			

Note: The test site complies with ANSI C63.4 2014 requirement.

1.8. Applied Standards

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

- FCC 47 CFR Part 2, 90
- ANSI / TIA / EIA-603-D-2010

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.



1.9. Specification of Accessory

Specification of Accessory					
AC Adapter 1 (US)	Brand Name	Motorola (Salom)	Model Name	SC-22	
	Power Rating	I/P: 100 - 240 Vac, 500	mA, O/P: 5/9/1	2 Vdc, 3000/1600/1200 mA	
AC Adaptor 2 (US)	Brand Name	Motorola (Chenyang)	Model Name	SC-22	
AC Adapter 2 (03)	Power Rating	I/P: 100 - 240 Vac, 500	mA, O/P: 5/9/1	2 Vdc, 3000/1600/1200 mA	
AC Adapter 3 (US)	Brand Name	Motorola (LiteOn)	Model Name	SC-22	
	Power Rating	I/P: 100 - 240 Vac, 500	mA, O/P: 5/9/1	2 Vdc, 3000/1600/1200 mA	
Pottom/	Brand Name	Motorola (Sunwoda)	Model Name	HX40	
Dallery	Power Rating	3.8Vdc, 2810mAh	Туре	Li-ion	
Earphone	Brand Name	Motorola (Cosonic)	Model Name	SH38C16617	
Larphone	Signal Line Type	1.10 meter, non-shielde	d cable, withou	ut ferrite core	
LISE Cable 1	Brand Name	Motorola (Saibao)	Model Name	SKN6473A	
	Signal Line Type	1.10 meter, shielded cable, without ferri		rite core	
LISP Cable 2	Brand Name	Motorola (Foxlink)	Model Name	SKN6473A	
USD Cable 2	Signal Line Type	1.10 meter, shielded cable, without fer		rite core	
USB Cable 3	Brand Name	Motorola (Cabletech)	Model Name	SKN6473A	
USB Cable 3	Signal Line Type	1.10 meter, shielded ca	ble, without fer	rite core	



CDMA2000 BC10

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.

Test Modes					
Band Radiated TCs Conducted TCs					

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

■ 1xRTT Link

Note: The maximum RF output power levels are 1xRTT RC3 SO32 (+SCH) mode for CDMA2000 BC10 on QPSK Link; only these modes were used for all tests.

1xRTT Link

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
2.	DC Power Supply	GW INSTEK	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 and attenuator factor 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 and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.5 dB and 10dB attenuator.

Offset (dB) = RF cable loss (dB) + attenuator factor (dB).

= 4.5 + 10 = 14.5 (dB)



3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. 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 base station.
- 2. Set EUT at maximum power through base station.
- 3. Select lowest, middle, and highest channels for each band and different modulation.

3.1.4 Test Setup





3.1.5 Test Result of Conducted Output Power

Conducted Power (*Unit: dBm)					
Band		CDMA2000 BC10			
Channel	476	580	684		
Frequency	817.9	820.5	823.1		
1xRTT RC1+SO55	23.02	23.00	22.96		
1xRTT RC3+SO55	23.27	23.24	23.21		
1xRTT RC3 SO32(+ F-SCH)	23.26	23.26	23.19		
1xRTT RC3 SO32 (+SCH)	<mark>23.28</mark>	23.23	23.21		
1xEVDO RTAP 153.6Kbps	23.27	23.25	23.22		
1xEVDO RETAP 4096Bits	23.07	23.01	23.01		

Note: Maximum burst average power for CDMA.



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 Base Station via power divider.
- 2. The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers were measured.

3.2.4 Test Setup





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

CDMA2000 BC10					
Test Mode		CDMA 2000 1xRTT			
Test Status	RC3 SO32 (+SCH)				
Channel	476 (Low) 580 (Mid) 684 (High)				
Frequency (MHz)	817.9	820.5	823.1		
99% OBW (MHz)	1.27	1.27	1.27		
26dB BW (MHz)	1.42	1.42	1.42		



3.2.6 Test Result (Plots) of 99% Occupied Bandwidth and 26dB Bandwidth

Band :	CDMA2000 BC 10	Test Mode :	1xRTT RC3 SO32

99% Occupied Bandwidth Plot on Channel 476 (817.9MHz)



Date: 3.JUL.2017 20:45:42

26dB Bandwidth Plot on Channel 476 (817.9MHz)



Date: 3.JUL.2017 20:38:14





99% Occupied Bandwidth Plot on Channel 580 (820.5MHz)

Date: 3.JUL.2017 20:46:32

26dB Bandwidth Plot on Channel 580 (820.5MHz)



Date: 3.JUL.2017 20:38:48





99% Occupied Bandwidth Plot on Channel 684 (823.1MHz)

Date: 3.JUL.2017 20:47:29

26dB Bandwidth Plot on Channel 684 (823.1MHz)



Date: 3.JUL.2017 20:39:42



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)(1)

- (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.

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.
- 3. The RBW was set 1% of 99% Occupied Bandwidth, and VBW was set 3 times of RBW.
- 4. The final 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

Band :	CDMA2000 BC10	Test Mode :	1xRTT_RC3 SO32

Lower Band Edge Plot on Channel 476 (817.9MHz)



Date: 3.JUL.2017 21:13:35

Higher Band Edge Plot on Channel 684 (823.1MHz)



Date: 3.JUL.2017 21:17:44

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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 more than 250 percent of the authorized bandwidth at least $43 + 10 \log (P) dB$. It is measured by means of a calibrated spectrum analyzer and scanned from 30MHz 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 base station via power divider.
- 2. The middle channel for the highest RF power within the transmitting frequency was measured.
- 3. The conducted spurious emission for the whole frequency range was taken.
- 4. The final test results were shown below plots with a correction offset factor including cable loss, insertion loss of power divider.

3.4.4 Test Setup





3.4.5 Test Result (Plots) of Conducted Emission

Band : CDMA2000 BC10	Test Mode :	1xRTT_RC3 SO32
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Conducted Emission Plot between on Channel 476 (817.9MHz)

Spectrum					E □
Ref Level 24.50 dB SGL Count 10/10	m Offset 14.50	dB Mode	Auto Sweep		
1 Max					
on abimit Check		PASS			
Line _SPURIOU	S_LINE_ABS_	PASS			
10 dBm					
D dBm					
-10 dBm					
SPURIOUS_LINE_ABS	-				
-30 dBm					
-40 dBm	ing ben his constructions and a second s Company second	an is for a factor of the providence of the second s	n bei nei an tean an te	and the state of t	anteres anteres attaction
-70 dBm					
Start 30.0 MHz		2800)5 pts		Stop 9.0 GHz
purious Emissions	Damas Un. 1		F	Demonstra 1	
20,000 MH-	P16 400 MP3	100.000 485	Prequency	-29 71 dpm	
824 600 MHz	1 000 GHz	100.000 kHz	878 37706 MHz	-45.42 dBm	-32 42 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.60655 GHz	-35.92 dBm	-22.92 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.88476 GHz	-31.93 dBm	-18.93 dE
7.000 GHz	9.000 GHz	1.000 MHz	7.07237 GHz	-33.84 dBm	-20.84 dB
			Rea	dy (MANANANA)	444

Date: 3.JUL.2017 20:50:07

₽ Spectrum Ref Level 24.50 dBm SGL Count 10/10 Mode Auto Sweep Offset 14.50 dB 1 Max 20 deimit Check Line __SPURIOUS_ PASS LINE ABS PASS 10 dBm-0 dBm SPURIOUS_LINE_ABS_ -10 dBm--30 dBm -40 dBm -60 dBm--70 dBm-Start 30.0 MHz 28005 pts Stop 9.0 GHz Spurious Emissions Range Up 816.400 MHz 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz Frequency 816.20350 MHz 825.34508 MHz 2.85039 GHz 6.75328 GHz 8.93688 GHz Power Abs -44.90 dBm -43.19 dBm -35.58 dBm -31.85 dBm -34.15 dBm ΔLimit -31.90 dB -30.19 dB -22.58 dB -18.85 dB -21.15 dB Range Low 30.000 MHz 824.600 MHz RBW 100.000 kHz 100.000 kHz 1.000 GHz 3.000 GHz 7.000 GHz 1.000 MHz 1.000 MHz 1.000 MHz Ready

Conducted Emission Plot between on Channel 580 (820.5MHz)

Date: 3.JUL.2017 20:50:40

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₽ Spectrum Ref Level 24.50 dBm Offset 14.50 dB Mode Auto Sweep SGL Count 10/10 1 Max 20 demit Check Line_SPURIOUS_LINE_ABS PASS 10 dBm-0 dBm -10 dBm-SPURIOUS LINE_ABS -30 dBm-40 dBm--60 dBm--70 dBm-Stop 9.0 GHz 28005 pts Start 30.0 MHz Spurious Emissions ALimit -35.37 dB -13.42 dB -22.62 dB -19.06 dB -21.73 dB Range Low 30.000 MHz Range Up 816.400 MHz RBW 100.000 kHz -48.37 dBm Frequency 814.23848 MHz 30.000 MH2 824.600 MHz 1.000 GHz 3.000 GHz 7.000 GHz 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz 814.23848 MH2 824.81914 MHz 2.92038 GHz 6.70779 GHz 7.77253 GHz -26.42 dBm -35.62 dBm -32.06 dBm -34.73 dBm Ready

Conducted Emission Plot between on Channel 684 (823.1MHz)

Date: 3.JUL.2017 20:51:04





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 / TIA / EIA-603-D-2010. 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.

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43+10\log_{10}(P[Watts])$ 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

- The EUT was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the 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.
- The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
 = P(W) [43 + 10log(P)] (dB)

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

= -13dBm.



3.5.4 Test Setup





3.5.5 Test Result of Field Strength of Spurious Radiated

Band :		CDMA2000 BC10 Temperature :						21~	23°C
Test Mode		1xRTT_RC	3 SO32				Relative Humid	ity: 41~	43%
Test Engine	er:	Dream Lee	Polarization :					Hor	izontal
Remark :		Spurious e	missions	within 30-	-1000MHz v	vere fou	nd more than 20	dB below	limit line.
Frequency	ERP	Limit	Over	SPA	S.G.	TX Ca	ble TX Antenna	Polarizat	ion Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm	n) (dBm)	(dB)	(dBm)	(dBm)	(dB) (dBi)	(H/V)	
1640	-52.9	5 -13	-39.95	-57.47	-55.27	1.33	5.80	Н	Pass
2460	-49.8	7 -13	-36.87	-60.02	-53.04	1.58	6.90	Н	Pass
3282	-67.6	0 -13	-54.60	-76.81	-71.10	1.85	7.50	Н	Pass

Band :		CDMA2000	CDMA2000 BC10 Temperature :					21~2	3°C
Test Mode	:	1xRTT_RC	3 SO32				Relative Humidi	i ty : 41~4	3%
Test Engine	eer :	Dream Lee	ream Lee Polarization :					Verti	cal
Remark :		Spurious e	missions	within 30-	1000MHz \	were fou	ind more than 20	dB below li	mit line.
Frequency	ERF	P Limit	Over	SPA	S.G.	TX Ca	ble TX Antenna	Polarizatio	on Result
			Limit	Reading	Power	loss	s Gain		
(MHz)	(dBm	n) (dBm)	(dB)	(dBm)	(dBm)	(dB) (dBi)	(H/V)	
1640	-52.6	60 -13	-39.60	-57.21	-54.92	1.33	5.80	V	Pass
2462	-56.7	'1 -13	-43.71	-64.68	-59.88	1.58	6.90	V	Pass
3282	-68.7	'1 -13	-55.71	-77.73	-72.21	1.85	5 7.50	V	Pass



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.
- 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 25±5° C and connected with the base station.
- 2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
- 3. The variation in frequency was measured for the worst case.



3.6.5 Test Setup



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3.6.6 Test Result of Temperature Variation

Test Conditions	Middle Channel	CDMA BC10	Limit
Tomporatura (°C)	Voltago (Volt)	(1XRTT)	2.5ppm
remperature (C)	voltage (volt)	Deviation (ppin)	Result
50	Normal Voltage	0.0073	
40	Normal Voltage	0.0024	
30	Normal Voltage	0.0134	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0049	
0	Normal Voltage	0.0049	
-10	Normal Voltage	0.0037	PASS
-20	Normal Voltage	0.0366	
-30	Normal Voltage	0.0427	
20	Maximum Voltage	0.0256	
20	Normal Voltage	0.0073	
20	Battery End Point	0.0317	

Note: Normal Voltage = 3.82V. ; Battery End Point (BEP) = 3.65 V. ; Maximum Voltage =4.4 V



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	Aug. 09, 2016	Jul. 03, 2017	Aug. 08, 2017	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 13, 2016	Jul. 03, 2017	Oct. 12, 2017	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Apr. 18, 2017	Jul. 04, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz-2GHz	Apr. 22, 2017	Jul. 04, 2017	Apr. 21, 2018	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 22, 2017	Jul. 04, 2017	Apr. 21, 2018	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz ~1000MHz / 32 dB	Apr. 18, 2017	Jul. 04, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 13, 2016	Jul. 04, 2017	Oct. 12, 2017	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jul. 04, 2017	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jul. 04, 2017	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jul. 04, 2017	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	2 8 d B
Confidence of 95% (U = 2Uc(y))	2.000

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

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