

FCC Test Report

APPLICANT	:	BlackBerry Limited
EQUIPMENT	:	Smart Phone
BRAND NAME	:	BlackBerry
MODEL NAME	:	STJ100-2
MARKETING NAME	:	Z3
FCC ID	:	L6ARHJ80UW
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Nov. 18, 2014 and testing was completed on Nov. 28, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2009 and has been in 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 INC., the test report shall not be reproduced except in full.

Louis Wu

Reviewed by: Louis Wu / Manager

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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SPORTON INTERNATIONAL INC. TEL : 886-3-327-3456 FAX : 886-3-328-4978 FCC ID : L6ARHJ80UW Page Number: 1 of 21Report Issued Date: Dec. 24, 2014Report Version: Rev. 01Report Template No.: BU5-FD15B Version 1.0



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC431831-04	Rev. 01	Initial issue of report	Dec. 24, 2014



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
					Under limit
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	7.00 dB at
					0.182 MHz
					Under limit
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	7.02 dB at
					30.000 MHz



1. General Description

1.1. Applicant

BlackBerry Limited

2300 University Ave E., Waterloo, ON, CAN. N2K0A2

1.2. Manufacturer

FIH Mobile Limited

538 Castle Peak Rd. 8F, Cheung Sha Wan, Kowloon, Hong Kong

1.3. Product Feature of Equipment Under Test

	Product Feature
Equipment	Smart Phone
Brand Name	BlackBerry
Model Name	STJ100-2
Marketing Name	Z3
FCC ID	L6ARHJ80UW
	GSM/EGPRS/WCDMA/HSPA
EUT supports Radios application	WLAN 11b/g/n HT20
	Bluetooth v4.0 EDR/LE
HW Version	MP
SW Version	10.2.1.3430
EUT Stage	Production Unit

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 subjective to this standard
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Product Specification subjective to this standard				
Tx Frequency	GSM850 : 824.2 MHz ~ 848.8 MHz GSM1900 : 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz			
	Bluetooth: 2402 MHz ~ 2480 MHz GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz			
Rx Frequency	WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz			
Antenna Type	GSM / WCDMA : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GPS : PIFA Antenna			
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : π /4-DQPSK Bluetooth (3Mbps) : 8-DPSK GPS : BPSK			

1.5. Modification of EUT

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



1.6. Test Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	PORTON INTERNATIONAL INC.		
	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park,			
Test Site Leastion	Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.			
Test Site Location	TEL: +886-3-327-3456			
	FAX: +886-3-328-4978			
Toot Site No	Sporton Site No.			
Test Site No.	CO05-HY	03CH06-HY		

1.7. Applicable Standards

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

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2009

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.



2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

			Test Condition				
Item	EUT Configuration	EMI AC	EMI RE<1G	EMI RE≥1G			
1.	Charging Mode (EUT with adapter)	\boxtimes	\boxtimes	\boxtimes			
2.	Data application transferred mode (EUT connected with notebook)		\boxtimes	Note 1			

The following tables are showing the test modes as the worst cases and recorded in this report.

Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE \geq 1G: EUT radiated emissions \geq 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

Note 1: Testing for this mode is not required or not the worst case.

Remark: For signal above 1GHz, the worst case was test item 1.

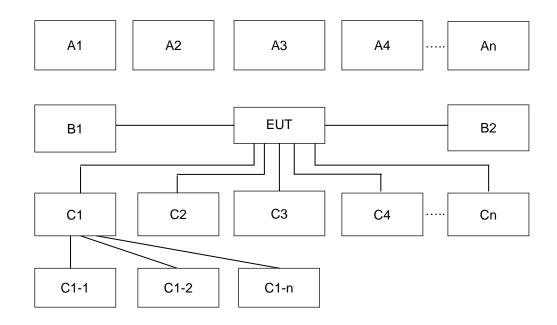


Test Items	EUT Configure Mode	Function Type
		Mode 1: GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + FM Rx + USB Cable 1 (Charging from Adapter 1)
AC Conducted	1/2	Mode 2: WCDMA Band II Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + MPEG4 + USB Cable 2 (Charging from Adapter 2)
Emission	1/2	Mode 3: GSM1900 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + Camera + USB Cable 1 (Charging from Adapter 1)
		Mode 4: GSM850 Idle + Bluetooth Idle + WLAN(2.4GHz) Idle + Earphone + GPS Rx + USB Cable 2 (Data Link with Notebook)
		Mode 1: GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + FM Rx + USB Cable 1 (Charging from Adapter 1)
Radiated	4/0	Mode 2: WCDMA Band II Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + MPEG4 + USB Cable 2 (Charging from Adapter 2)
Emissions < 1GHz	1/2	Mode 3: GSM1900 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + Camera + USB Cable 1 (Charging from Adapter 1)
		Mode 4: GSM850 Idle + Bluetooth Idle + WLAN(2.4GHz) Idle + Earphone + GPS Rx + USB Cable 2 (Data Link with Notebook)
Radiated Emissions \ge 1GHz	1	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + FM Rx + USB Cable 1 (Charging from Adapter 1)
Remark:	1	

- 1. The worst case of AC is mode 4; only the test data of this mode was reported.
- 2. The worst case of RE < 1G is mode 1; only the test data of this mode was reported.
- **3.** Data Link with Notebook means data application transferred mode between EUT and Notebook.



2.2. Connection Diagram of Test System



Conduction and Radiation Test Setup										
Ne	Wireless Station	Connection Tree		Test Mode						
No.	wireless Station	Connection Type		2	3	4	-	-	-	
A1	BT Earphone	Bluetooth	X	Х	х	Х				
A2	System Simulator	GSM / WCDMA	X	Х	х	Х				
A3	GPS Station	GPS				Х				
A4 AP router		WiFi	X	Х	х	Х				
No.	Power Source	Connection Type	1	2	3	4	-	-	-	
B1	AC : 120V/60Hz	AC Power Cable	Х	X	X	х				
No. Setup Peripherals		Connection Type	1	2	3	4	-	-	-	
C1	Notebook	USB cable				х				
C1-1 IPod		USB Cable to C1				Х				
C1-2	AP router	RJ-45 Cable to C1				Х				
C2	Earphone	Earphone jack	X	Х	Х	Х				
C3	SD card	SD I/O interface	x	x	x	x				
03	SD Caru	without cable	^							



2.3. Support Unit used in test configuration and system	m
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ltem	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
3.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
4.	WLAN AP	D-Link	DIR-865L	KA2IR865LA1	N/A	Unshielded, 1.8 m
5.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
6.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
7.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
8.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
9.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	N/A
10.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA idle mode during the testing. The EUT was synchronized to the BCCH, and was in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

- 1. Data application is transferred between Laptop and EUT via USB cable.
- 2. Execute "GPS Test" to make the EUT receive continuous signals from GPS station.
- 3. Execute "Video Player" to play MPEG4 files.
- 4. Turn on camera to capture images.



3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission	Conducted limit (dBuV)						
(MHz)	Quasi-peak	Average					
0.15-0.5	66 to 56*	56 to 46*					
0.5-5	56	46					
5-30	60	50					

*Decreases with the logarithm of the frequency.

3.1.2 Measuring Instruments

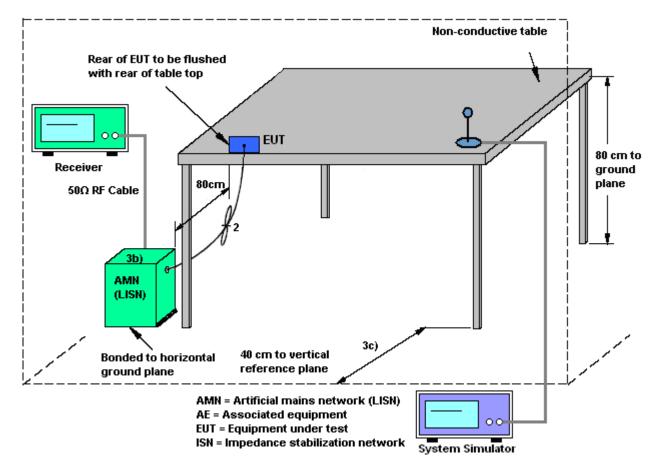
The measuring equipment is listed in the section 4 of this test report.

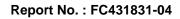
3.1.3 Test Procedure

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.



3.1.4 Test Setup







3.1.5 Test Result of AC Conducted Emission

Test Mode :		Mode 4	Temp	erature :		21~23 ℃						
Test Engine	er:	Eric Jeng			Relative Humidity :			46~48%				
Test Voltage	e :	120Vac / 60Hz	Phase	:		Line						
Function T		GSM850 Idle + Bluetooth Idle + WLAN(2.4GHz) Idle + Earphone + GPS Rx + USB										
Function Ty	/pe :	Cable 2 (Data I	Cable 2 (Data Link with Notebook)									
	100											
	100	+										
	90	İ										
	80											
		+										
	70											
	60						CISP	R <u>22-QP Limit at Main P</u> orts				
	dB/V						CISPE	22-Ave Limit at Main Ports				
	Vida in dBJV	▶ 	•									
	آ 40		N .				بايعار					
	30		VW.			Man	ΥÂ.					
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	20						•					
	10											
	0 15	i i i X0k 300 4005	+ + + + 00 80	00 1M	2 M	3M 4N	1 5M 6	8 10M 20M 30M				
						ncy in Hz						
Final	Resu	lt : Quasi-Peak										
	quency				Corr.	Margin	Limit					
	инz)	(dBµV)	Filter	Line	(dB)	(dB)	(dBµV)					
	50000	44.6	Off	L1	19.4	21.4	66.0					
	82000	57.4	Off	L1	19.4	7.0	64.4	_				
	06000	54.2	Off	L1	19.4	9.2	63.4	_				
	46000 26000	47.9 39.7	Off Off	L1 L1	19.5 19.5	14.0 19.9	61.9 59.6	-				
	26000 66000	35.4	Off	L1	19.5	23.2	59.6	-				
	66000	26.0	Off	L1	19.6	30.0	56.0	_				
		It : Average										
Free	quency	Average	Eller	Line	Corr.	Margin	Limit					
()	/Hz)	(dBµV)	Filter	Line	(dB)	(dB)	(dBµV)					
	50000	24.8	Off	L1	19.4	31.2	56.0	_				
	82000	35.1	Off	L1	19.4	19.3	54.4	_				
	06000	32.1	Off	L1	19.4	21.3	53.4	_				
	46000	29.2	Off	L1	19.5	22.7	51.9	-				
	26000 66000	24.6 17.3	Off Off	L1 L1	19.5 19.5	25.0 31.3	49.6 48.6	-				
	66000	17.0	Off	L1	19.5	29.0	46.0	-				



Test Mode :	Mode 4	Temp	erature :		21~23 ℃		
Test Engineer :	Eric Jeng			Relative Humidity :			46~48%
Test Voltage :	120Vac / 60Hz	120Vac / 60Hz			:		Neutral
	GSM850 Idle +	Blueto	oth Id	le + WI	_AN(2.40	GHz) Id	e + Earphone + GPS Rx + USB
Function Type :	Cable 2 (Data	Link wit	th Note	ebook)			
10							
90) +						
	+						
80	-						
70	, -						
	1					CISPI	R22-QP Limit at Main Ports
60 2	1						
Level in dBJV)+ M					CISPR	22-Ave Limit at Main Ports
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1	50k 300 400 5	00 80	00 1M	2M		15M 6	8 10M 20M 30M
				Frequer	ncy in Hz		
							
Final Resu	ılt : Quasi-Peak	[1		_
Frequenc	y Quasi-Peak	Filter	Line	Corr.	Margin	Limit	1
Frequenc (MHz)	y Quasi-Peak (dBµV)	Filter		(dB)	(dB)	(dBµV)	
Frequenc (MHz) 0.150000	y Quasi-Peak (dBµV) 40.8	Filter Off	N	(dB) 19.5	(dB) 25.2	(dBµV) 66.0	
Frequenc (MHz)	y Quasi-Peak (dBµV) 40.8 54.6	Filter		(dB)	(dB)	(dBµV)	
Frequenc (MHz) 0.150000 0.190000	y Quasi-Peak (dBµV) 40.8 54.6 48.0	Filter Off Off	N N	(dB) 19.5 19.5	(dB) 25.2 9.4	(dBµV) 66.0 64.0	
Frequenc (MHz) 0.150000 0.190000 0.246000	y Quasi-Peak (dBµV) 40.8 54.6 48.0 40.0	Filter Off Off Off	N N N	(dB) 19.5 19.5 19.5	(dB) 25.2 9.4 13.9	(dBµV) 66.0 64.0 61.9	
Frequenc (MHz) 0.150000 0.190000 0.246000 0.326000 0.382000 0.494000	y Quasi-Peak (dBµV) 40.8 54.6 48.0 40.0 35.2 25.1	Filter Off Off Off Off Off Off	N N N N N	(dB) 19.5 19.5 19.5 19.5 19.5 19.5	(dB) 25.2 9.4 13.9 19.6 23.0 31.0	(dBµV) 66.0 64.0 61.9 59.6	
Frequence (MHz) 0.150000 0.190000 0.2460000 0.326000 0.3820000 0.494000 5.270000	y Quasi-Peak (dBµV) 40.8 54.6 48.0 40.0 35.2 25.1 20.7	Filter Off Off Off Off Off	N N N N	(dB) 19.5 19.5 19.5 19.5 19.5	(dB) 25.2 9.4 13.9 19.6 23.0	(dBµV) 66.0 64.0 61.9 59.6 58.2	
Frequence (MHz) 0.150000 0.190000 0.2460000 0.326000 0.3820000 0.494000 5.270000	y Quasi-Peak (dBµV) 40.8 54.6 48.0 40.0 35.2 25.1	Filter Off Off Off Off Off Off	N N N N N	(dB) 19.5 19.5 19.5 19.5 19.5 19.5	(dB) 25.2 9.4 13.9 19.6 23.0 31.0	(dBµV) 66.0 64.0 61.9 59.6 58.2 56.1	
Frequence (MHz) 0.150000 0.190000 0.2460000 0.326000 0.3820000 0.494000 5.270000 Final Resu	y Quasi-Peak (dBµV) 40.8 54.6 48.0 40.0 35.2 25.1 20.7 Ilt : Average y Average	Filter Off Off Off Off Off Off	N N N N N	(dB) 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.6 Corr .	(dB) 25.2 9.4 13.9 19.6 23.0 31.0 39.3 Margin	(dBµV) 66.0 64.0 61.9 59.6 58.2 56.1 60.0	
Frequenc (MHz) 0.150000 0.190000 0.246000 0.326000 0.382000 0.494000 5.270000 Final Resu Frequenc (MHz)	y Quasi-Peak (dBµV) 40.8 54.6 48.0 40.0 35.2 25.1 20.7 Ilt : Average (dBµV)	Filter Off Off Off Off Off Off Off	N N N N N Line	(dB) 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.6 Corr. (dB)	(dB) 25.2 9.4 13.9 19.6 23.0 31.0 39.3 Margin (dB)	(dBμV) 66.0 64.0 61.9 59.6 58.2 56.1 60.0 Limit (dBμV)	
Frequenc (MHz) 0.150000 0.246000 0.326000 0.326000 0.382000 0.494000 5.270000 Final Resu Frequenc (MHz) 0.150000	y Quasi-Peak (dBµV) 40.8 54.6 48.0 40.0 35.2 25.1 20.7 Ilt : Average (dBµV) 22.0	Filter Off Off Off Off Off Off Off Filter	N N N N N N Line	(dB) 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.6 Corr. (dB) 19.5	(dB) 25.2 9.4 13.9 19.6 23.0 31.0 39.3 Margin (dB) 34.0	(dBμV) 66.0 64.0 61.9 59.6 58.2 56.1 60.0 Limit (dBμV) 56.0	
Frequenc (MHz) 0.150000 0.246000 0.326000 0.382000 0.494000 5.270000 Final Resu Frequenc (MHz) 0.150000 0.190000	y Quasi-Peak (dBµV) 40.8 54.6 48.0 40.0 35.2 25.1 20.7 Ilt : Average (dBµV) 22.0 36.0	Filter Off Off Off Off Off Off Off Filter	N N N N N N Line	(dB) 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.6 Corr. (dB) 19.5 19.5	(dB) 25.2 9.4 13.9 19.6 23.0 31.0 39.3 Margin (dB) 34.0 18.0	(dBμV) 66.0 64.0 61.9 59.6 58.2 56.1 60.0 Limit (dBμV) 56.0 54.0	
Frequenc (MHz) 0.150000 0.190000 0.246000 0.326000 0.382000 0.494000 5.270000 Final Resu Frequenc (MHz) 0.150000 0.246000	y Quasi-Peak (dBμV) 40.8 54.6 48.0 40.0 35.2 25.1 20.7 Ilt : Average (dBμV) 22.0 36.0 32.3	Filter Off Off Off Off Off Off Filter Off Off Off	N N N N N N Line N N N	(dB) 19.5 19.5 19.5 19.5 19.5 19.5 19.6 Corr. (dB) 19.5 19.5 19.5	(dB) 25.2 9.4 13.9 19.6 23.0 31.0 39.3 Margin (dB) 34.0 18.0 19.6	(dBμV) 66.0 64.0 61.9 59.6 58.2 56.1 60.0 Limit (dBμV) 56.0 54.0 51.9	
Frequenc (MHz) 0.150000 0.190000 0.246000 0.326000 0.382000 0.494000 5.270000 Final Resu Frequenc (MHz) 0.150000 0.190000 0.326000	y Quasi-Peak (dBμV) 40.8 54.6 48.0 40.0 35.2 25.1 20.7 Ilt : Average (dBμV) 22.0 36.0 32.3 26.1	Filter Off Off Off Off Off Off Off Filter	N N N N N N Line	(dB) 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.6 Corr. (dB) 19.5 19.5 19.5 19.5	(dB) 25.2 9.4 13.9 19.6 23.0 31.0 39.3 Margin (dB) 34.0 18.0 19.6 23.5	(dBμV) 66.0 64.0 61.9 59.6 58.2 56.1 60.0 Limit (dBμV) 56.0 54.0	
Frequenc (MHz) 0.150000 0.190000 0.246000 0.326000 0.382000 0.494000 5.270000 Final Resu Frequenc (MHz) 0.150000 0.246000	y Quasi-Peak (dBμV) 40.8 54.6 48.0 40.0 35.2 25.1 20.7 Ilt : Average (dBμV) 22.0 36.0 32.3 26.1 21.4	Filter Off Off Off Off Off Off Filter Off Off Off Off	N N N N N N Line N N N N	(dB) 19.5 19.5 19.5 19.5 19.5 19.5 19.6 Corr. (dB) 19.5 19.5 19.5	(dB) 25.2 9.4 13.9 19.6 23.0 31.0 39.3 Margin (dB) 34.0 18.0 19.6	(dBμV) 66.0 64.0 61.9 59.6 58.2 56.1 60.0 Limit (dBμV) 56.0 54.0 51.9 49.6	

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3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency	Field Strength	Measurement Distance		
(MHz)	(microvolts/meter)	(meters)		
30 – 88	100	3		
88 – 216	150	3		
216 - 960	200	3		
Above 960	500	3		

3.2.2. Measuring Instruments

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

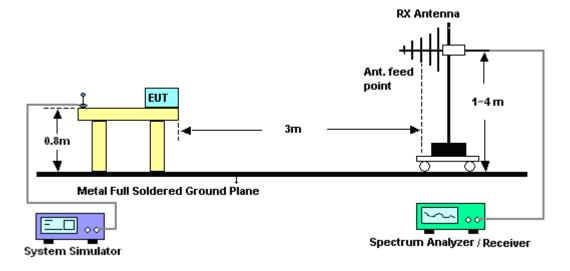
3.2.3. Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter above ground.
- 2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest radiation.
- 4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
- 7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
- 8. Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
- 9. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level

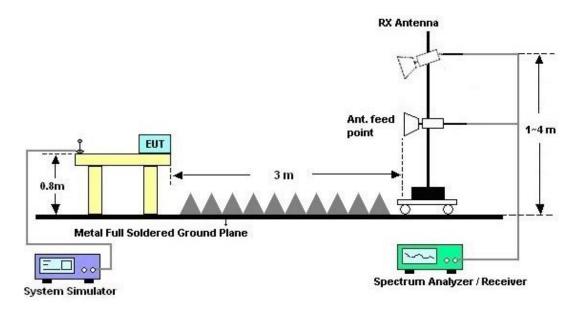


3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode : Mode 1					Temp	erature	:	20~2	20~23°C			
est Engineer : Daniel Lee					Relati	ve Hun	nidity :	50~5	50~53%			
Test Distance :	3m				Polari	zation	:	Horiz	ontal			
Function Type :		GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + FM Rx + U Cable 1 (Charging from Adapter 1)										
Remark :	#7 is system simulator signal which can be ignored.											
97 Leve	el (dBuV/m))								Date: 201	14-11-27	
84.9												
72.8										FCC CI	-6dB	
60.6	7								FCC	CLASS-		
48.5		9		10		11	12	13			<u>-641B</u>	
36.4	8											
24.3 ⁸ 514 4 12.1	5											
030												
-30		2624		52		ncy (MHz)	7812.		10406.		13000	
Site Conditio Project Power Mode	n : :	03CH00 FCC CL/ 431831 120Vac Mode 1	ASS-B 3 -04 /60Hz	m HF-AN	NT_583_	_140731	HORIZ	ONTAL				
mode		Level	0 ve r	Limit Line	Read <i>A</i> Level	ntenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	
	MHz	dBu∀/m	dB	<u>dBuV/m</u>	dBu∀	dB/m	dB	dB	Cm	deg		-
10 11 12 13	31.35 88.32 114.24 192.00 349.00 553.40 881.70 896.40 2576.00 4860.00 5682.00 5682.00 9422.00 2582.00	31.96 22.18 16.16 20.66 21.16 53.42 24.05 39.52 42.44 43.01 44.34 45.12	-22.90 -11.54 -21.32 -27.34 -25.34 -24.84 -21.95 -34.48 -31.56 -30.99 -29.66 -28.88 -25.51	40.00 43.50 43.50 43.00 46.00 46.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00	$\begin{array}{c} 30.22\\ 54.30\\ 40.90\\ 37.42\\ 36.03\\ 31.80\\ 61.26\\ 31.66\\ 61.54\\ 60.09\\ 57.81\\ 56.30\\ 56.10\\ 53.38 \end{array}$	18.02 8.38 11.85 9.00 14.35 18.80 20.45 20.58 32.13 34.39 35.80 35.79 36.41 39.33	0.65 1.04 1.18 2.05 2.56 3.32 3.36 6.43 8.69 9.87 12.04 13.59 15.65	31.79 31.76 31.75 31.77 32.00 31.61 31.55 60.58 60.73 60.47 59.79 60.98 59.87	100	123	Peak Peak Peak Peak Peak Peak Peak Peak	



Test Mode :	Mode 1			Temp	Temperature :			20~23°C				
Test Engineer :	Daniel Lee				Relati	Relative Humidity :			50~53%			
Test Distance :	3m	3m			Polari	zation	:	Verti	cal			
Function Type :				tooth Id			.4GHz)) Idle +	Earpho	ne + F	M Rx + l	
Remark :	#7 is s	ystem	simulat	or signa	al whicł	n can b	e ignor	ed.				
97	el (dBuV/m)								Date: 20	14-11-27	
84.9												
72.8										FCC C	LASS-B -6dB	
60.6	_								FCC	CLASS-	B (AVG)	
48.5		9		10	11		12		13		146dB	
36.4												
24.3 - 5	6											
12.1												
030		2624	l.	52	18. Freque	ncy (MHz)	7812.		10406.		13000	
Site Conditio Project Power Mode	on : :	03CH00 FCC CL/ 431831 120Vac Mode 1 Level	ASS-B3 -04 /60Hz ^{0ver}	m HF-AN Limit Line	Read <i>I</i>	_ 140731 intenna Factor	Cable		A/Pos	T/Pos	Remark	
	MHz	<u>dBu∀7m</u>	dB	<u>dBu∀7m</u>	dBu∀	<u> </u>	dB	dB	Cm	deg		
1 2 3 4 5 6 7 * 8 9	30.00 43.50 88.32 153.66 357.40 692.70 881.70 937.00 2498.00	31.30 27.46 22.04 21.33 51.89 24.28 39.34	-7.02 -12.41 -12.20 -16.04 -23.96 -24.67 -21.72 -34.66 -32.25	40.00 40.00 43.50 46.00 46.00 46.00 74.00 74.00	45.74 47.92 53.64 47.35 37.17 31.64 59.73 31.44 61.50 58.99	18.40 10.70 8.38 10.48 14.56 18.83 20.45 20.67 32.00 34.43	0.64 0.76 1.04 1.38 2.09 2.88 3.32 3.36 6.34 8.94	31.80 31.79 31.76 31.75 31.78 32.02 31.61 31.19 60.50 60.61	100	 	Peak Peak Peak Peak Peak Peak Peak Peak	



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 12, 2014	Nov. 28, 2014	Nov. 11, 2015	Conduction (CO05-HY)
LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2013	Nov. 28, 2014	Dec. 11, 2014	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 04, 2013	Nov. 28, 2014	Dec. 03, 2014	Conduction (CO05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 28, 2014	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP30	101067	9kHz ~ 30GHz	Nov. 21, 2014	Nov. 27, 2014	Nov. 20, 2015	Radiation (03CH06-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9kHz ~ 26.5GHz	Dec. 02, 2013	Nov. 27, 2014	Dec. 01, 2014	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/0003	20MHz ~ 1000MHz	May 06, 2014	Nov. 27, 2014	May 05, 2015	Radiation (03CH06-HY)
Bilog Antenna	Schaffner	CBL6112B	2885	30MHz ~ 2GHz	Sep. 27, 2014	Nov. 27, 2014	Sep. 26, 2015	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Jul. 24, 2014	Nov. 27, 2014	Jul. 23, 2015	Radiation (03CH06-HY)
Amplifier	SONOMA	310N	186713	9kHz ~ 1GHz	Apr. 16, 2014	Nov. 27, 2014	Apr. 15, 2015	Radiation (03CH06-HY)
Preamplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 17, 2014	Nov. 27, 2014	Jul. 16, 2015	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 ~ 360 degree	N/A	Nov. 27, 2014	N/A	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF78020821 2	1 m ~ 4 m	N/A	Nov. 27, 2014	N/A	Radiation (03CH06-HY)



5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of	2.26
Confidence of 95% (U = 2Uc(y))	2.20

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

Measuring Uncertainty for a Level of	4.50
Confidence of 95% (U = 2Uc(y))	4.50