

FCC Test Report

APPLICANT	:	Brightstar Corporation
EQUIPMENT	:	Mobile phone
BRAND NAME	:	mint
MODEL NAME	:	Mint 150
MARKETING NAME	:	Mint 150
FCC ID	:	WVB150M
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Sep. 28, 2015 and testing was completed on Oct. 24, 2015. We, SPORTON INTERNATIONAL (SHENZHEN) 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

James Juang

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (SHENZHEN) INC. 1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China



TABLE OF CONTENTS

RE	VISIO	N HISTORY	3
SU	MMAR	Y OF TEST RESULT	4
1.	GENE	RAL DESCRIPTION	5
	1.1.	Applicant	5
	1.2.	Manufacturer	
	1.3.	Product Feature of Equipment Under Test	5
	1.4.	Product Specification subjective to this standard	
	1.5.	Modification of EUT	
	1.6.	Test Location	
	1.7.	Applicable Standards	7
2.	TEST	CONFIGURATION OF EQUIPMENT UNDER TEST	8
	2.1.	Test Mode	8
	2.2.	Connection Diagram of Test System	10
	2.3.	Support Unit used in test configuration and system	
	2.4.	EUT Operation Test Setup	12
3.	TEST	RESULT	13
	3.1.	Test of AC Conducted Emission Measurement	13
	3.2.	Test of Radiated Emission Measurement	
4.	LIST	OF MEASURING EQUIPMENT	23
5.	UNCE	RTAINTY OF EVALUATION	24
AP	PEND	X A. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC592802	Rev. 01	Initial issue of report	Oct. 28, 2015

149.880 MHz



Report Section	FCC Rule	Description	Limit	Result	Remark
					Under limit
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	0.56 dB at
					24.000 MHz
					Under limit
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	3.15 dB at

SUMMARY OF TEST RESULT



1. General Description

1.1. Applicant

Brightstar Corporation

9725 NW 117th Ave., Miami, Florida, FL 33178, United States

1.2. Manufacturer

SpeedMobile Technology Co., Ltd.

Room701-703, East Block, Skyworth Semiconductor Building Nanshan District, Shenzhen, China

1.3. Product Feature of Equipment Under Test

Product Feature				
Equipment	Mobile phone			
Brand Name	mint			
Model Name	Mint 150			
Marketing Name	Mint 150			
FCC ID	WVB150M			
	GSM/GPRS/EGPRS/			
EUT supports Radios application	WCDMA/HSPA/HSPA+(16QAM uplink is not supported)			
Eor supports Radios application	WLAN 2.4GHz 802.11b/g/n HT20/HT40/			
	Bluetooth v3.0 + EDR/Bluetooth v4.0 LE			
IMEI Code	Conduction: 358518020001425/358518020001433			
IMELCODE	Radiation: 358518020001425/358518020001433			
HW Version	MOLY.WR8.W1315.MD.WG.MP.V47			
SW Version	Mint_150_OM.CO.W25.V01.05			
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
--

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			
Rx Frequency	GSM850 : 869.2 MHz ~ 893.8 MHz GSM1900 : 1930.2 MHz ~ 1989.8 MHz WCDMA Band V : 871.4 MHz ~ 891.6 MHz 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	WWAN : FPC Antenna WLAN : FPC Antenna Bluetooth : FPC Antenna GPS : FPC Antenna			
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM uplink is not supported 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (1Mbps) : 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

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.		
	1F & 2F,Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili		
Test Site Location	Town, Nanshan District, Shenzhen, Guangdong, P. R. China		
	TEL: +86-755-8637-9589		
	FAX: +86-755-8637-9595		
Test Site No.	Sporton Site No.		
	CO01-SZ		

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.			
	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan			
Test Site Location	warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China			
	TEL: +86-755- 3320-2398			
Teet Site No	Sporton Site No.	FCC Registration No.		
Test Site No.	03CH01-SZ	831040		

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

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 ≥ 1G: EUT radiated emissions ≥ 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 2.

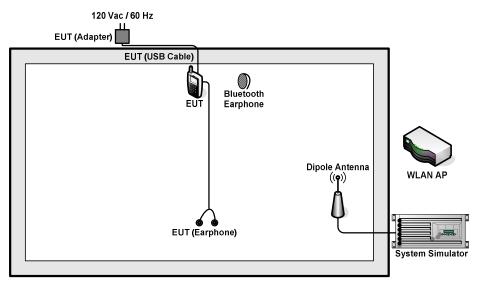


EUT Configure Mode	Function Type
1/2	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + MPEG4 + Battery + SIM1 <fig.1></fig.1>
	Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + Camera (Back) + Battery + SIM2 <fig.1></fig.1>
	Mode 3: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + Earphone + USB Cable (Data Link with Notebook) + GPS Rx + Battery + SIM1 <fig.2></fig.2>
	Mode 4: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + Camera (Front) + Battery + SIM2 <fig.1></fig.1>
	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + MPEG4 + Battery + SIM1 <fig.1></fig.1>
1/2	Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + Camera (Back) + Battery + SIM2 <fig.1></fig.1>
	Mode 3: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + Earphone + USB Cable (Data Link with Notebook) + GPS Rx + Battery + SIM1 <fig.2></fig.2>
	Mode 4: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + Camera (Front) + Battery + SIM2 <fig.1></fig.1>
2	Mode 1: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + Earphone + USB Cable (Data Link with Notebook) + GPS Rx + Battery + SIM1 <fig.2></fig.2>
	Configure Mode

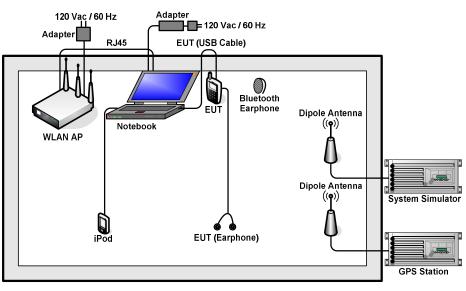
- - 1. The worst case of AC is mode 2; and the USB Link mode of AC is mode 3; the test data of these modes were reported.
 - 2. The worst case of RE < 1G is mode 3; only the test data of this mode was reported.
 - 3. Link with Notebook means data application transferred mode between EUT and Notebook.



2.2. Connection Diagram of Test System







<Fig.2>



2.3. Support Unit used in test configuration and system

Item	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	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
4.	WLAN AP	ASUSTek	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 2.7 m with Core
5.	WLAN AP	D-Link	DIR-815	KA2IR815A1	N/A	Unshielded, 1.8 m
6.	Bluetooth Earphone	Nokia	BH-108	PYAHS-107W	N/A	N/A
7.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
8.	iPod	Apple	MC525ZP/A	FCC DoC	Shielded, 1.0 m	N/A
9.	SD Card	SanDisk	4G class 4	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 Notebook 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

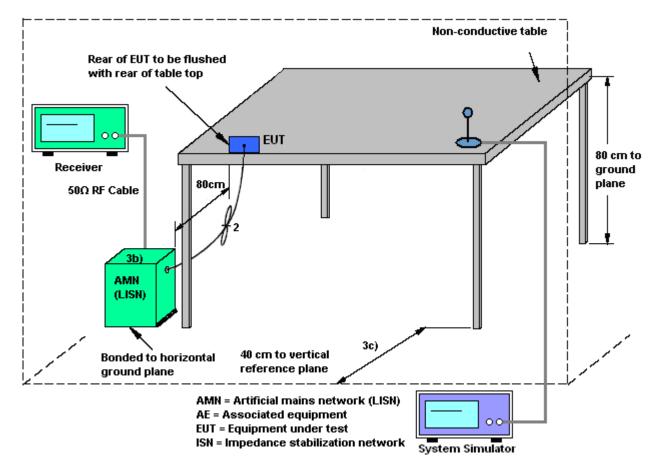
The measuring equipment is listed in the section 4 of this test report.

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

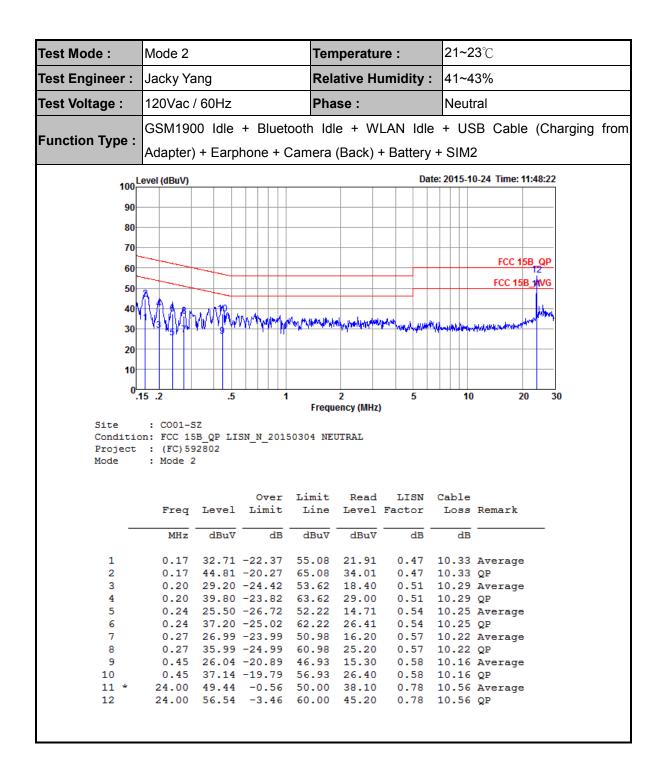




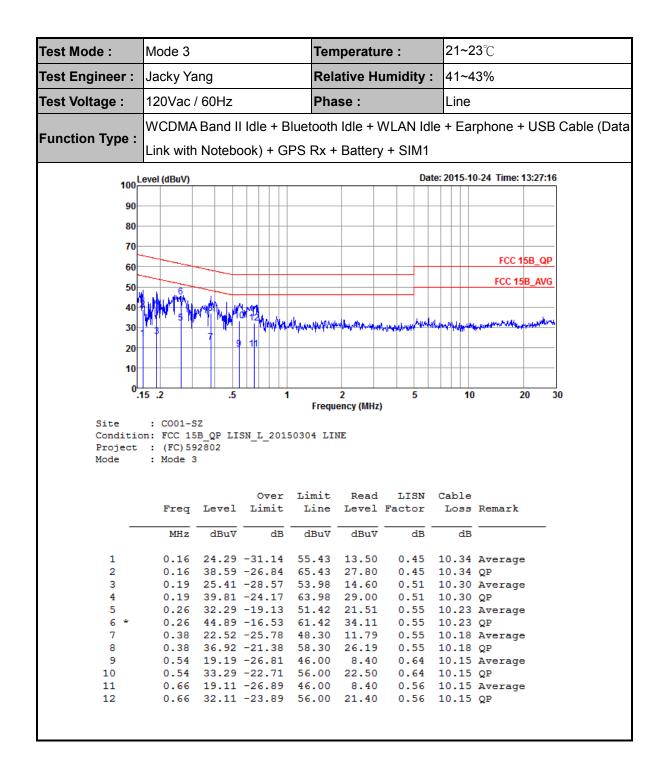
3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 2				nperatu	re :	21~2	21~23 ℃			
Test Engineer :	Jacky Yang				ative H	umidity :	41~4	41~43%			
Test Voltage :	120Vac /	60Hz		Pha	se :		Line				
Function Type :	GSM190 Adapter)							+ USB Cable (Charging from			
100	evel (dBuV)					Dat	e: 2015-1	0-24 Time: 11:41	1:46		
90											
80											
70								FOC AFR			
60								FCC 15B_0 12			
50								FCC 15B_1	VG		
40	TANU	15 B.L.									
	6	u w kwi k	NM WARM	the potentia	Anna	within a mark			atum.		
30		9		1. A.	N			No. Acts			
20											
10											
0											
č.1	15 .2	.5	1		2 ency (MHz)	5	10	20	30		
	: CO01-S on: FCC 15 : (FC)59 : Mode 2	B_QP LI: 2802	SN_L_2015	0304 LI	NE						
	Over Lin		Limit	Read	LISN	Cable					
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark			
—	MHz	dBuV	dB	dBuV	dBuV	dB	dB		_		
1	0.17	30.60	-24.52	55.12	19.80	0.46	10.34	Average			
2			-21.32		33.00		10.34	-			
3	0.19		-26.58		16.50			Average			
4	0.19	40.21	-23.68	63.89	29.40	0.51	10.30	QP			
5	0.22	19.20	-33.68	52.88	8.40	0.53	10.27	Average			
6			-32.68				10.27				
7			-24.83					Average			
8						0.55					
9								Average			
10 11 *						0.58		QP Average			
11 -						0.82		-			
						_		~-			

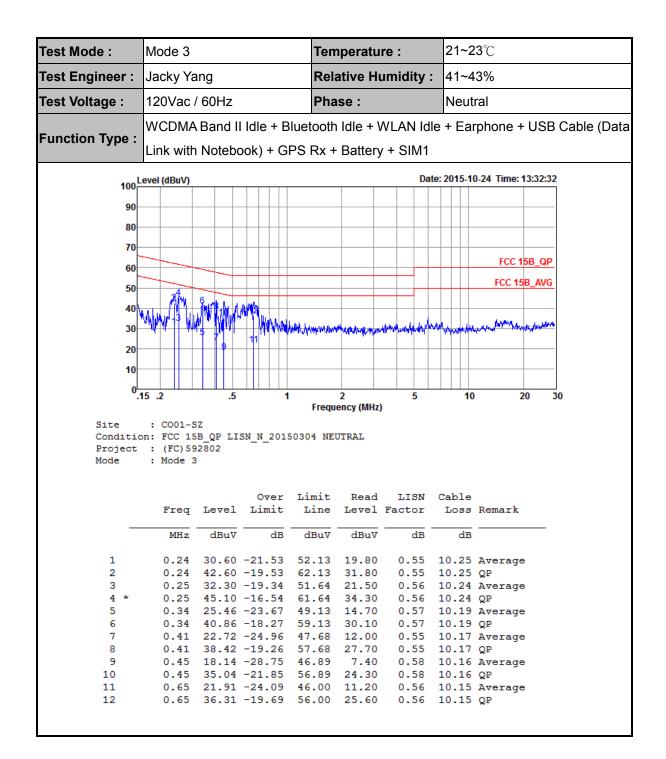














3.2. Test of Radiated Emission Measurement

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.

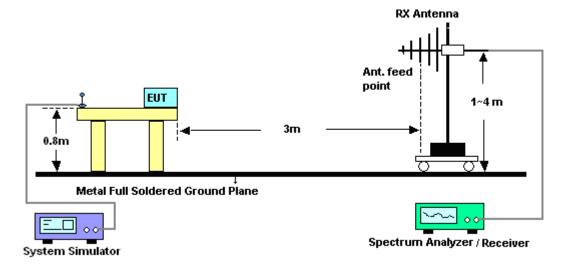
3.2.3. Test Procedures

- 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

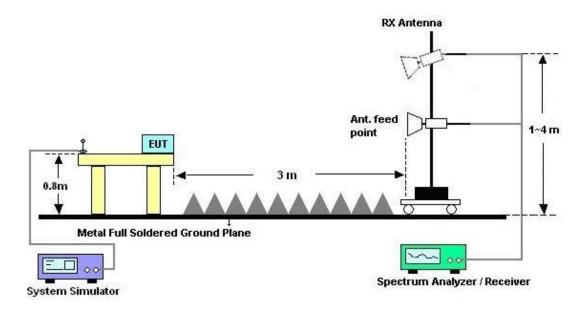


3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



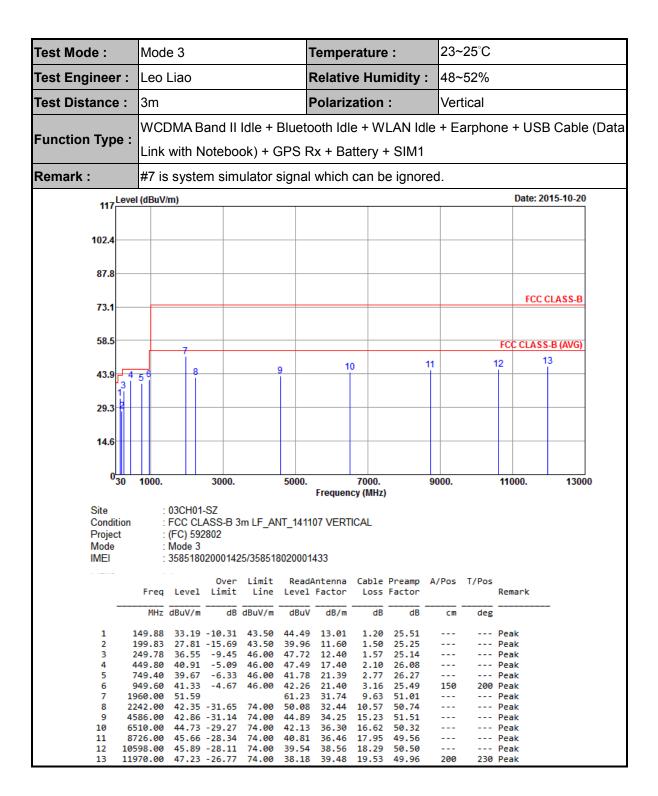
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 3				-	Temperature :				23~25°C			
Test Engineer :	Leo	Leo Liao				Relative Humidity :				48~52%			
Test Distance :	3m	3m				Polarization :			Hor	izonta	al		
Function Type :	WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + Earphone + USB Cable									3 Cable (Da			
	Link	with N	otebo	ok) + (GPS F	Rx + Ba	ttery -	+ SIM1					
Remark :	#7 is	syste	m sim	ulator	signal	which	can b	e igno	red.				
117	el (dBuV/	m)									Date: 2	015-10-20	
102.4													
0.7.0													
87.8													
73.1											FCC	CLASS-B	
58.5													
0010		-7								FCC CLASS-B (AVG			
43.9	6		8	9		10		11		12			
29.3						_							
14.6													
0 <mark></mark> 0	1000.		3000.		5000.		7000.		9000.		11000.	13000	
Site		020404	07			Frequen	cy (MHz)						
Condition	:		ASS-B 3	m LF_A	NT_1411	07 HORI	ZONTAL						
Project Mode		(FC) 592 Mode 3	802										
IMEI		3585180	2000142	5/35851	8020001	433							
	Freq	Level	Over Limit	Limit Line		Antenna Factor		Preamp Factor	A/Pos	T/Pos	Remark		
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		-	
1	149.88	40.35	-3.15	43.50	51.65	13.01	1.20	25.51	100	150	Peak		
	240.06	40.50 40.27		46.00 46.00			1.57 1.57				Peak Peak		
4	349.70	40.88	-5.12	46.00	49.60	14.76	1.95	25.43			Peak		
	449.80 749.40		-5.07 -9.02	46.00 46.00		17.40 21.39	2.10				Peak Peak		
7 1	960.00	51.52			61.16	31.74	9.63	51.01			Peak		
		42.79 42.05				32.91 34.04	12.16 14.67				Peak Peak		
10 5	820.00	44.33	-29.67	74.00	42.27	35.56	16.04	49.54			Peak		
		45.57 46.10						49.64 50.04			Peak Peak		
11 10						39.09			100		Peak		





4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESCI7	100724	9kHz~3GHz;	Jan. 28, 2015	Oct. 24, 2015	Jan. 27, 2016	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	103892	9kHz~30MHz	Feb. 02, 2015	Oct. 24, 2015	Feb. 01, 2016	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	AN3016	16850	9kHz~30MHz	Feb. 02, 2015	Oct. 24, 2015	Feb. 01, 2016	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	61602000089 1	100Vac~250Vac	Aug. 07, 2015	Oct. 24, 2015	Aug. 06, 2016	Conduction (CO01-SZ)
Pulse Limiter	COM-POWER	LIT-153 Transient Limiter	53139	150kHz~30MHz	Oct. 20, 2015	Oct. 24, 2015	Oct. 19, 2016	Conduction (CO01-SZ)
EMI Test Receiver&SA	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2015	Oct. 20, 2015	May 25, 2016	Radiation (03CH01-SZ)
Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz; Max 30dBm	Jun. 07, 2015	Oct. 20, 2015	Jun. 06, 2016	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	23188	30MHz~2GHz	Nov. 07, 2014	Oct. 20, 2015	Nov. 06, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 17, 2015	Oct. 20, 2015	Oct. 16, 2016	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz / 30 dB	Jan. 28, 2015	Oct. 20, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5G Hz	Jan. 28, 2015	Oct. 20, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	61601000198 5	N/A	NCR	Oct. 20, 2015	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Oct. 20, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Oct. 20, 2015	NCR	Radiation (03CH01-SZ)



5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	2.3dB		
Confidence of 95% (U = 2Uc(y))	2.308		

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.5dB