







ISO/IEC17025Accredited Lab.

Report No: FCC 1408164-04 File reference No: 2014-09-05

Applicant: Supper sonic INC

Product: Mobile

Model No: SC-155, SC-150, SV-6, SV-7, SC-151, SC-152, SC-153,

SC-145, SC-140, SC-159, SC-160, SC-166

Trademark: OBO

Test Standards: FCC Part 15 Subpart C, Paragraph 15.247

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4,FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: Sep 05, 2014

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

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Report No: FCC1408164-04 Page 2 of 53

Date: 2014-09-05



Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 899988.

IC-Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-02.

Date: 2014-09-05



Test Report Conclusion

Content

1.0	General Details	4
1.1	Test Lab Details.	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	4
1.5	Test Duration.	4
1.6	Test Uncertainty.	5
1.7	Test By	5
2.0	List of Measurement Equipment	6
3.0	Technical Details	7
3.1	Summary of Test Results	7
3.2	Test Standards.	7
4.0	EUT Modification.	7
5.0	Power Line Conducted Emission Test.	8
5.1	Schematics of the Test.	8
5.2	Test Method and Test Procedure.	8
5.3	Configuration of the EUT.	8
5.4	EUT Operating Condition.	9
5.5	Conducted Emission Limit.	9
5.6	Test Result.	9
6.0	Radiated Emission test.	12
5.1	Test Method and Test Procedure.	12
6.2	Configuration of the EUT.	12
6.3	EUT Operation Condition.	12
6.4	Radiated Emission Limit.	13
7.0	6dB Bandwidth Measurement Bandwidth	22
8.0	Maximum Peak Output Power	27
9.0	Power Spectral Density Measurement.	29
10.0	Out of Band Measurement.	34
11.0	Antenna Requirement.	37
12.0	FCC ID Label	38
13.0	Photo of Test Setup and EUT View.	39

Date: 2014-09-05



1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F, Block 4, Anhua Industrial Zone., No.8 TaiRan Rd. CheGongMiao, FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-02

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: Supper sonic INC

Address: 6555 Bandini Blvd. Commerce CA 90400

Telephone: 323-201-5060 Fax: 323-201-5069

1.3 Description of EUT

Product: Mobile

Manufacturer: ShenZhen Jingwah-Kaoge Communication Technology Co., Ltd.

Address: Floor5th, Bldg 4, Jingwah Square, NO1, Huafa Road, Futian District,

Shenzhen, China

Brand Name: OBO
Additional Brand Name: N/A
Model Number: SC-155

Additional Model Number: SC-150, SV-6, SV-7, SC-151, SC-152, SC-153, SC-145, SC-140, SC-159,

SC-160, SC-166

Type of Modulation GFSK (Bluetooth BLE)

Frequency range 2402-2480MHz Frequency Selection By software

Channel Number 40

Input Voltage: DC3.7V powered by Lion-Battery

Power Adapter Model No.: S050-100-US

Input: 100-240V, 50/60Hz, 0.2A; Output: 5.0V, 1.0A

1.4 Submitted Sample: 2 Samples

The report refers only to the sample tested and does not apply to the bulk.

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Report No: FCC1408164-04 Page 5 of 53

Date: 2014-09-05



1.5 Test Duration 2014-08-28 to 2014-09-04

1.6 Test Uncertainty
Conducted Emissions Uncertainty =3.6dB
Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer Terry Tang
The sample tested by

Print Name: Terry Tang

Date: 2014-09-05



2.0 Test Equipments					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2014-08-21	2015-08-20
TWO Line-V-NETW	R&S	EZH3-Z5	100294	2014-08-22	2015-08-21
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2014-08-22	2015-08-21
Ultra Broadband ANT	R&S	HL562	100157	2014-08-23	2015-08-22
ESDV Test Receiver	R&S	ESDV	100008	2014-08-22	2015-08-21
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2014-08-21	2015-08-20
System Controller	CT	SC100	-		
Printer	EPSON	РНОТО ЕХЗ	CFNH234850		
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-
Loop Antenna	EMCO	6502	00042960	2014-08-22	2015-08-21
ESPI Test Receiver	R&S	ESI26	838786/013	2014-08-22	2015-08-21
3m OATS			N/A	2014-08-21	2015-08-20
Horn Antenna	R&S	BBHA 9170	BBHA9170265	2014-08-23	2015-08-22
Horn Antenna	R&S	BBHA 9120D	9120D-631	2014-08-23	2015-08-22
Power meter	Anritsu	ML2487A	6K00003613	2014-08-22	2015-08-21
Power sensor	Anritsu	MA2491A	32263	2014-08-22	2015-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2014-08-23	2015-08-22
LISN	AFJ	LS16C	10010947251	2014-08-21	2015-08-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2014-08-22	2015-08-21
9*6*6 Anechoic			N/A	2014-08-21	2015-08-20
EMI Test Receiver	RS	ESCS30	100139	2014-08-22	2015-08-21

2.1 **Auxiliary Equipment**

Name	Model No.	Rating	Manufacturer	FCC ID/DOC
Passive				
Earphone				

Date: 2014-09-05



3.0 Technical Details

3.1 Summary of test results

Standard	Test Type	Result	Notes
CCC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247 & RSS-210 Issue 8

4.0 EUT Modification

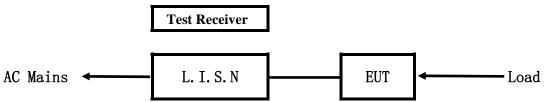
No modification by Shenzhen Timeway Technology Consulting Co., Ltd

Date: 2014-09-05



5. Power Line Conducted Emission Test

5.1 Schematics of the test

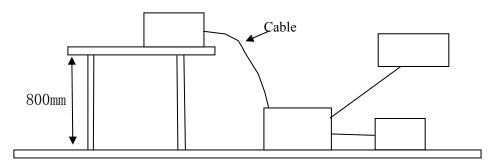


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4-2003.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Mobile	ShenZhen Jingwah-Kaoge Communication Technology Co., Ltd.	SC-155, SC-150, SV-6, SV-7, SC-151, SC-152, SC-153, SC-145, SC-140, SC-159, SC-160, SC-166	2AC5R-SC155

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Report No: FCC1408164-04 Page 9 of 53

Date: 2014-09-05



B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	Rating

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107

Frequency	Frequency Class A Lim		Class B Limits (dB µ V)		
(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level	
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*	
$0.50 \sim 5.00$	73.0	60.0	56.0	46.0	
5.00 ~ 30.00	73.0	60.0	60.0	50.0	

Notes:

- 1. *Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Date: 2014-09-05



A: Conducted Emission on Live Terminal (150kHz to 30MHz)

EUT Operating Environment

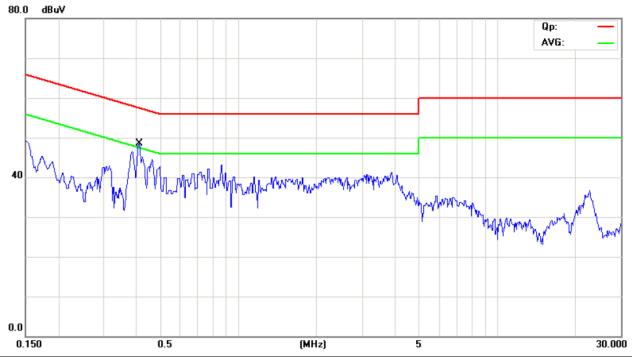
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Charging and Keep Bluetooth Transmitting

Equipment Level: Class B

Results: PASS

Please refer to following diagram for individual



No. Mk.	Freq.	_		Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBu∀	dB	Detector	Comment
1 *	0.4101	31.70	11.28	42.98	57.65	-14.67	QP	
2	0.4101	0.20	11.28	11.48	47.65	-36.17	AVG	

Date: 2014-09-05



B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

EUT Operating Environment

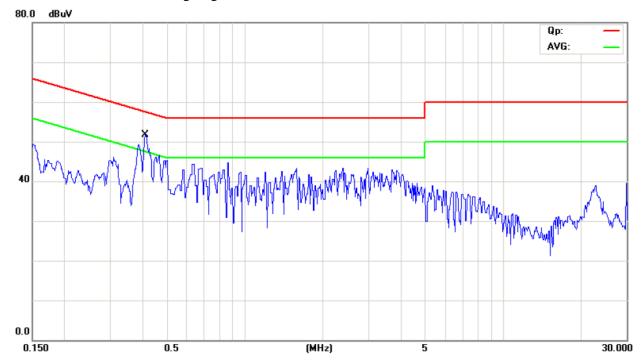
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Charging and Keep Bluetooth Transmitting

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No. Mk.	Freq.	Reading Level		Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBu∀	dBuV	dB	Detector	Comment
1 *	0.4098	38.20	11.28	49.48	57.65	-8.17	QP	
2	0.4098	4.20	11.28	15.48	47.65	-32.17	AVG	

Report No: FCC1408164-04 Page 12 of 53

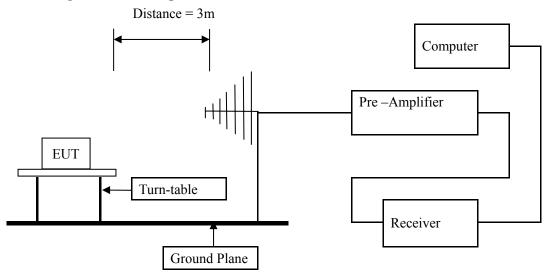
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6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz, VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup



- 6.2 Configuration of The EUT

 Same as section 5.3 of this report
- 6.3 EUT Operating Condition
 Same as section 5.4 of this report.

The report refers only to the sample tested and does not apply to the bulk.

Report No: FCC1408164-04 Page 13 of 53

Date: 2014-09-05



6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109 and RSS-210

Frequency Range (MHz)	Distance (m)	Field strength (dB µ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

Report No: FCC1408164-04 Page 14 of 53

Date: 2014-09-05



Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Charging and Keep Bluetooth Transmitting

Results: Pass

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
31.920	28.47	Н	40.00
386.000	39.61	Н	46.00
124.720	22.70	V	43.50
383.280	41.06	V	46.00

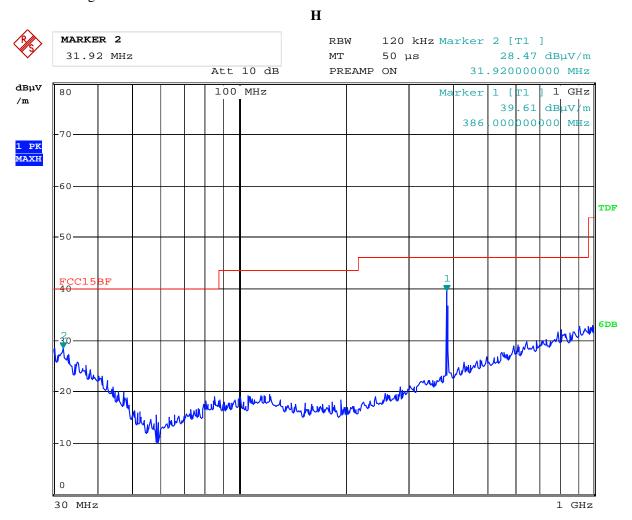
Page 15 of 53

Report No: FCC1408164-04

Date: 2014-09-05



Test Figure:



Date: 29.AUG.2014 15:55:15

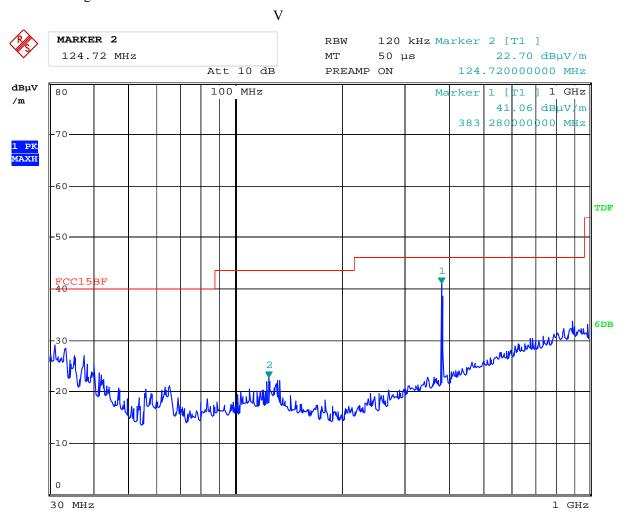
Page 16 of 53

Report No: FCC1408164-04

Date: 2014-09-05



Test Figure:



Date: 29.AUG.2014 15:52:19

Report No: FCC1408164-04 Page 17 of 53

Date: 2014-09-05



Operation Mode: Transmitting under Low Channel (2402MHz)

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4804	1	H/V	74(Peak)/ 54(AV)
7206		H/V	74(Peak)/ 54(AV)
9608		H/V	74(Peak)/ 54(AV)
12010		H/V	74(Peak)/ 54(AV)
14412		H/V	74(Peak)/ 54(AV)
16814		H/V	74(Peak)/ 54(AV)
19216	-	H/V	74(Peak)/ 54(AV)
21618	-	H/V	74(Peak)/ 54(AV)
24020	-	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

Operation Mode: Transmitting g under Middle Channel (2441MHz)

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
4880	-	H/V	74(Peak)/ 54(AV)
7320		H/V	74(Peak)/ 54(AV)
9760		H/V	74(Peak)/ 54(AV)
12200		H/V	74(Peak)/ 54(AV)
14640		H/V	74(Peak)/ 54(AV)
17080		H/V	74(Peak)/ 54(AV)
19520		H/V	74(Peak)/ 54(AV)
21960		H/V	74(Peak)/ 54(AV)
24400		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

Report No: FCC1408164-04 Page 18 of 53

Date: 2014-09-05



Operation Mode: Transmitting under High Channel (2480MHz)

Frequency (MHz)	Level@3m (dB \u03bc V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
4960		H/V	74(Peak)/ 54(AV)
7440		H/V	74(Peak)/ 54(AV)
9920		H/V	74(Peak)/ 54(AV)
12400		H/V	74(Peak)/ 54(AV)
14880		H/V	74(Peak)/ 54(AV)
17360		H/V	74(Peak)/ 54(AV)
19840		H/V	74(Peak)/ 54(AV)
22320		H/V	74(Peak)/ 54(AV)
24800		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

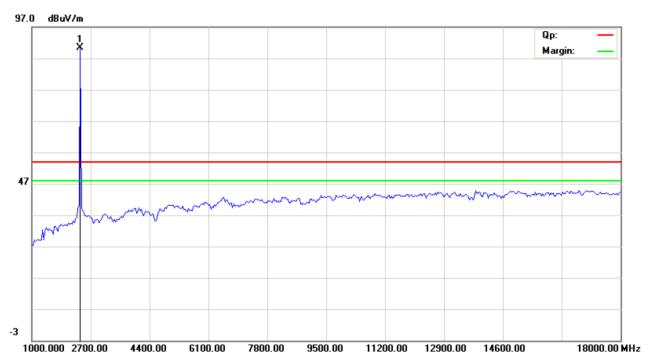
^{2.} Remark "---" means that the emissions level is too low to be measured

Date: 2014-09-05

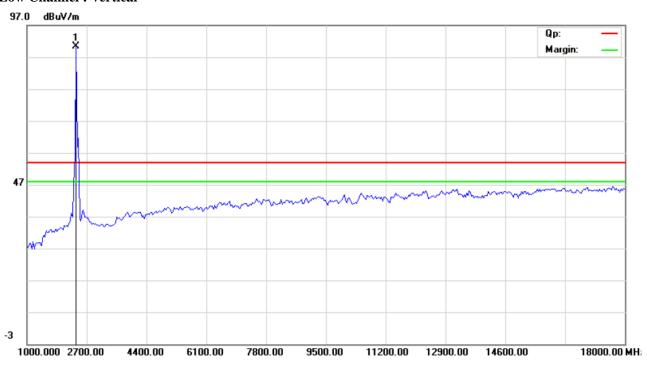


Please refer to the following test plots for details:

Low Channel: Horizontal



Low Channel: Vertical



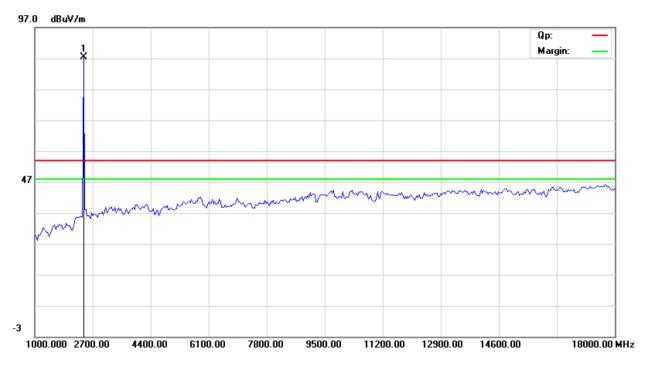
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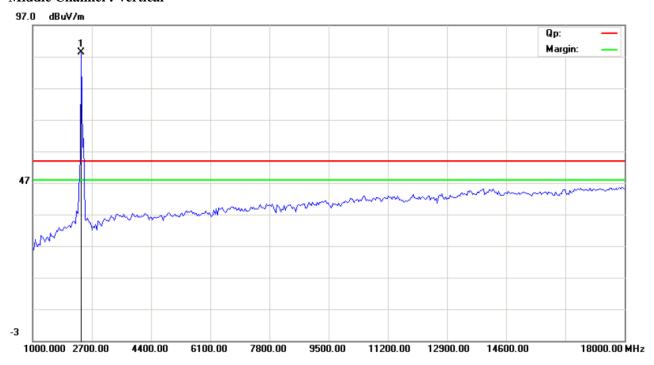
Date: 2014-09-05



Middle Channel: Horizontal



Middle Channel: Vertical



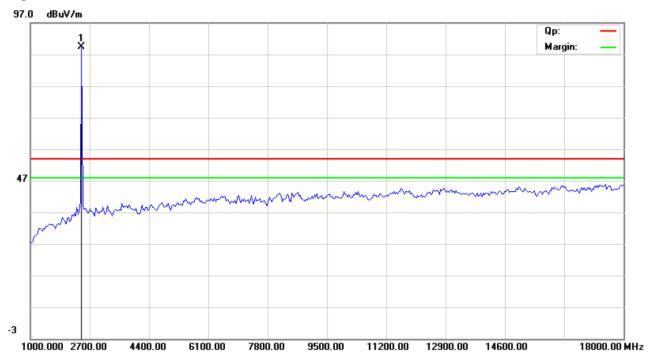
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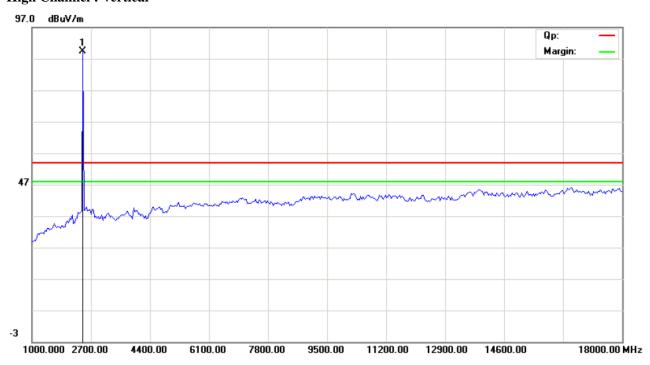
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High Channel: Horizontal



High Channel: Vertical



Note: for the radiated emissions above 18G, it is the floor noise.

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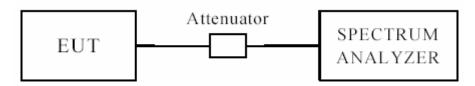
Report No: FCC1408164-04 Page 22 of 53

Date: 2014-09-05



7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

7.3 Test Procedure

- 1. Set resolution bandwidth (RBW) = 100 kHz
- 2. Set the video bandwidth (VBW) \geq 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Result

Report No: FCC1408164-04 Page 23 of 53

Date: 2014-09-05



EUT		Mobile		Model		SC-155	
Mode		Keep Transmitting		Input Voltage		DC3.7V	
Temperati	ure	24 d	24 deg. C, Humidity 56% F		g. C, Humidity 56% RH		56% RH
Channel	Ch	Channel Frequency 6 dB Bandwidth (MHz) (kHz)		dth	Maximum Limit (kHz)		Pass/ Fail
Low		2402	696		0.5		Pass
Middle		2440	696		0.5		Pass
High		2480	690	· ·		0.5	Pass

Page 24 of 53

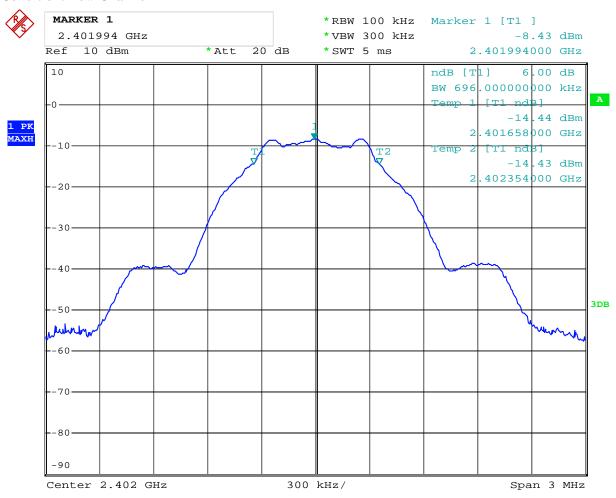
Report No: FCC1408164-04

Date: 2014-09-05



Test Figure:

1. Condition: Low Channel



Date: 1.SEP.2014 15:48:26

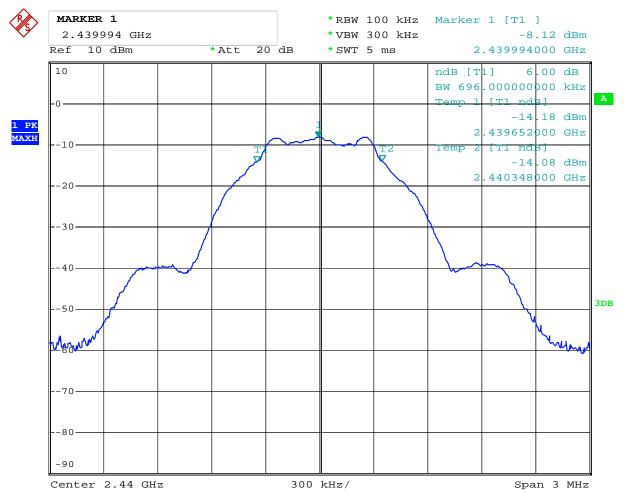
Page 25 of 53

Report No: FCC1408164-04

Date: 2014-09-05



2. Condition: Middle Channel



Date: 1.SEP.2014 15:53:06

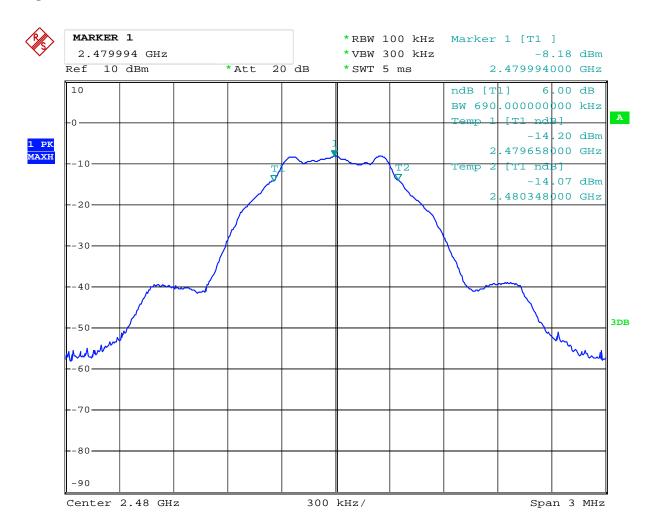
Page 26 of 53

Report No: FCC1408164-04

Date: 2014-09-05



3. High Channel



Date: 1.SEP.2014 15:54:07

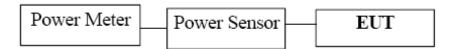
Date: 2014-09-05



Page 27 of 53

8. Maximum Peak Output Power

8.1 Test Setup



8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the peak power was measured

Report No: FCC1408164-04 Page 28 of 53

Date: 2014-09-05



8.4Test Results

EUT	M	Mobile			SC-155
Mode	Keep Tr	Keep Transmitting		DC3.7V	
Temperatur	re 24	24 deg. C, Humidity		56% RH	
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)		Peak Power Limit (dBm)	Pass/ Fail
Low	2402	-5.5	57	30	Pass
Middle	2440	-5.2	27	30	Pass
High	2480	-5.2	28	30	Pass

Note: 1. the result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

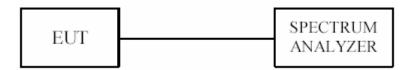
Report No: FCC1408164-04 Page 29 of 53

Date: 2014-09-05



9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

9.3 Test Procedure

- 1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
- 2. Set the RBW = 10 kHz.
- 3. Set the VBW \geq 30 kHz.
- 4. Set the span to 1.5 times the DTS channel bandwidth.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11. The resulting peak PSD level must be ≤ 8 dBm.

Report No: FCC1408164-04 Page 30 of 53

Date: 2014-09-05



9.4Test Result

EUT		Mobile		Model	SC	SC-155		
Mode		Keep	Keep Transmitting		Input Voltage	DC	DC3.7V	
Temperat	ure	2	24 deg. C, Humidity		24 deg. C, Humidity 56% RI		% RH	
Channel	Re	a Power rading	Cable Loss (dB)	Final Power Spectral Density (dBm)		Maximum Limit (dBm)	Pass/ Fail	
Low	-1	7.81	0.2		-17.61	8	Pass	
Middle	-1	7.47	0.2		-17.27	8	Pass	
High	-1	7.54	0.2		-17.34	8	Pass	

Note: The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss

Page 31 of 53

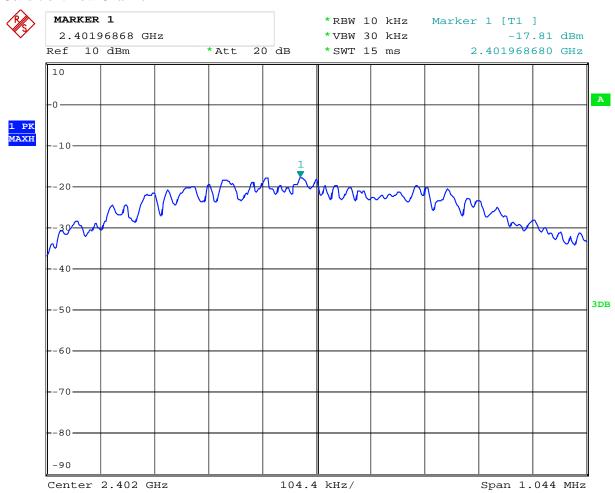
Report No: FCC1408164-04

Date: 2014-09-05



Test Figure:

1. Condition: Low Channel



Date: 1.SEP.2014 16:00:47

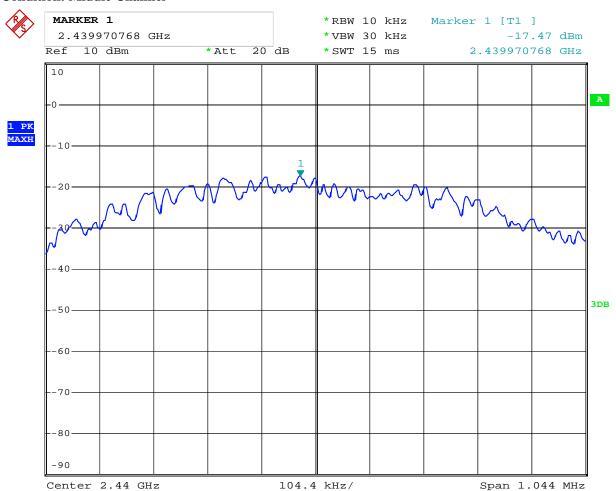
Page 32 of 53

Report No: FCC1408164-04

Date: 2014-09-05



2. Condition: Middle Channel



Date: 1.SEP.2014 16:01:39

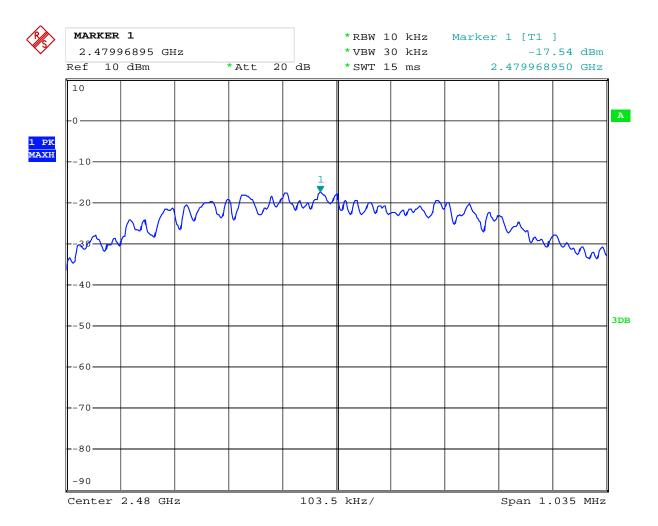
Page 33 of 53

Report No: FCC1408164-04

Date: 2014-09-05



3. High Channel



Date: 1.SEP.2014 16:02:21

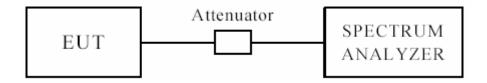
Report No: FCC1408164-04 Page 34 of 53

Date: 2014-09-05



10 Out of Band Measurement

10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test.(Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector)

For bandage test, the spectrum set as follows: RBW=VBW=100 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

Note: 1. For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

2. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

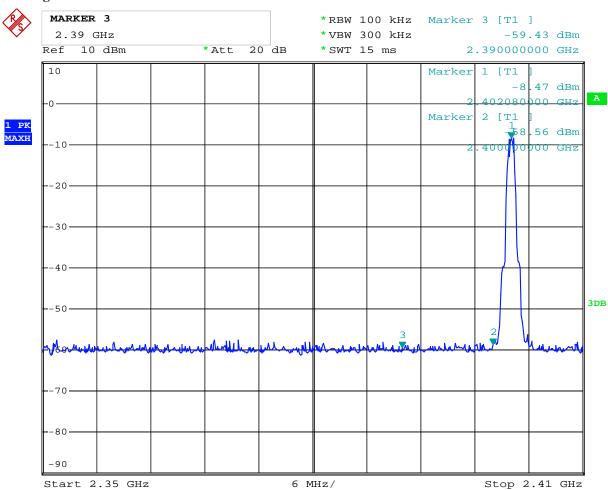
Date: 2014-09-05



10.4 Band-edge and Restricted band Measurement

EUT	Mobile		Model	SC-155
Mode	Keeping Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400	PK (dBµV/m)	39.5	Limit	74(dBμV/m)
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$
2390	PK (dBµV/m)	35.2	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)		LIIIII	54(dBμV/m)

Test Figure:



Date: 1.SEP.2014 16:04:42

Note: The Max. FS in Restrict Band are measured in conventional method.

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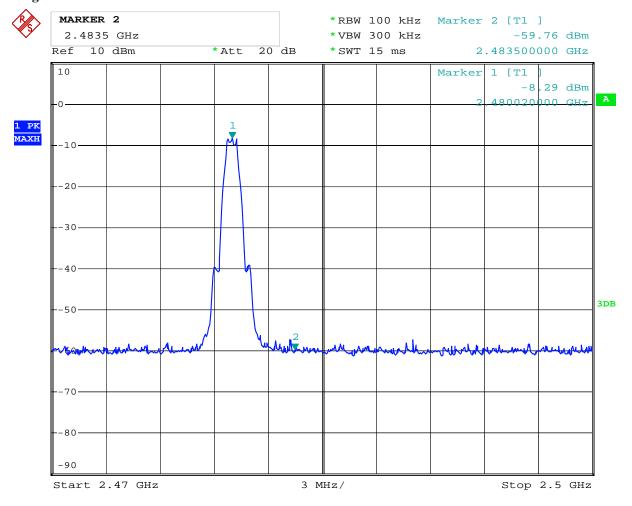
Date: 2014-09-05



10.4 Band-edge and Restricted band Measurement

EUT	Mobile		Model	SC-155
Mode	Keepin	g Transmitting	Input Voltage	DC3.7V
Temperature	24	4 deg. C,	Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	3.5 PK ($dB\mu V/m$) 40.2	T ::4	$74(dB\mu V/m)$	
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$

Test Figure:



Date: 1.SEP.2014 16:03:46

Note: The Max. FS in Restrict Band are measured in conventional method.

Date: 2014-09-05



Page 37 of 53

11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

Integral antenna used. The maximum Gain of the antennas is 1.0 dBi.

Page 38 of 53

Report No: FCC1408164-04

Date: 2014-09-05

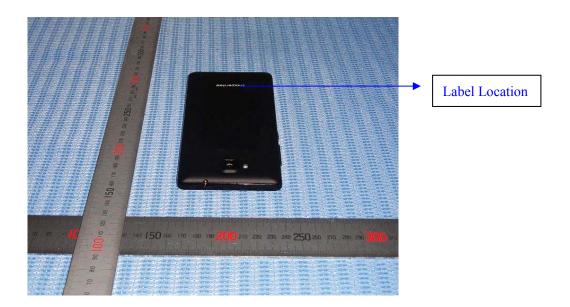


12.0 FCC Label

FCC ID: 2AC5R-SC155

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



Page 39 of 53

Report No: FCC1408164-04

Date: 2014-09-05



13.0 Photo of testing

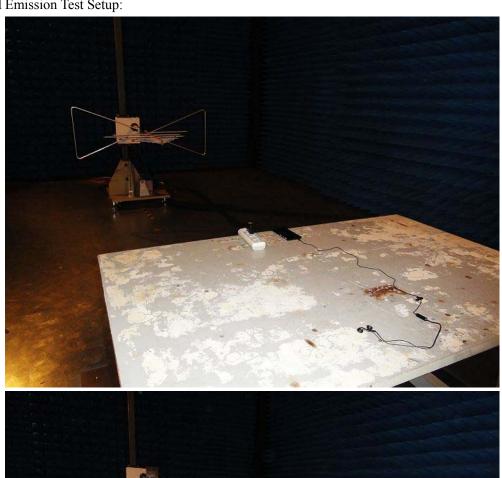
Conducted Emission Test Setup:



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Radiated Emission Test Setup:





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Photographs - EUT

Outside view





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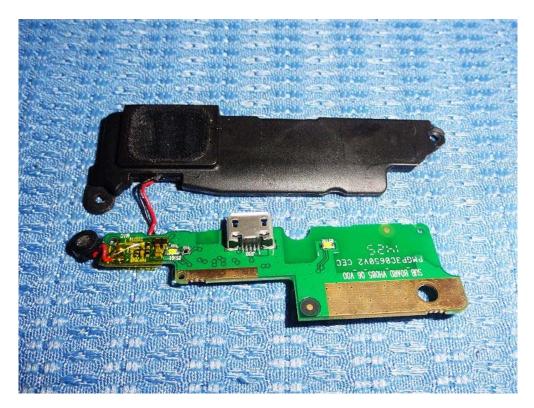
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