STC Test Report

Date : 2015-12-18
No. : HM170061

Applicant: SUPERSONICS ELECTRONICS COMPANY
Phase II, Block C 4th Floor, Gee Chang Industrial Bldg.., 108 Lok Shan Rd., Tokwawan, Kln., Hong Kong

Manufacturer: Supersonics Electronics Toys (Shenzhen) Co., Ltd.
Block 1 & 2, Xin Tian Village, Xin Feng Ind. Area, Guan Lan, Bao an, Shenzhen, China

Description of Sample(s): Submitted samples(s) said to be

Product:	WALKIE TALKIES
Brand Name:	KAWASAKI
Model Number:	22297A
FCC ID:	II622297A

Date Sample(s) Received: 2015-11-11

Date Tested: 2015-11-17 to 2015-12-15

Investigation Requested: Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 and ANSI C63.10: 2013 for FCC Certification.

Conclusion(s): The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remark(s): For additional model(s) details, see page 3.

CHEUNG Chi, Kenneth
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

CONTENT:

	Cover	Page 1 of 15
	Content	Page 2 of 15
1.0	**General Details**	
1.1	Equipment Under Test [EUT] Description of EUT operation	Page 3 of 15
1.2	Date of Order	Page 3 of 15
1.3	Submitted Sample(s)	Page 3 of 15
1.4	Test Duration	Page 3 of 15
1.5	Country of Origin	Page 3 of 15
2.0	**Technical Details**	
2.1	Investigations Requested	Page 4 of 15
2.2	Test Standards and Results Summary	Page 4 of 15
3.0	**Test Results**	
3.1	Emission	Page 5-8 of 15
3.2	Bandwidth Measurement	Page 9-11 of 15
	Appendix A	
	List of Measurement Equipment	Page 12 of 15
	Appendix B	
	Photographs	Page 13-15 of 15

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

1.0 General Details

1.1 Equipment Under Test [EUT]
Description of Sample(s)

Product:	WALKIE TALKIES
Manufacturer:	Supersonics Electronics Toys (Shenzhen) Co., Ltd. Block 1 & 2, Xin Tian Village, Xin Feng Ind. Area, Guan Lan, Bao an, Shenzhen, China
Brand Name(s):	KAWASAKI
Additional Brand Name(s):	AT & T
Model Number:	22297A
Additional Model Number(s):	15197
Input Voltage:	9Vd.c("6F22" size battery x 1)

1.1.1 Description of EUT Operation

The Equipment Under Test (EUT) is a SUPERSONICS ELECTRONICS COMPANY., WALKIE TALKIES. The EUT is an audio transceiver. The transceiver was operating with 1 button; the EUT continues to transmit while the button is pressed; and continues to receive while the button is released. The RF signal is modulated by an IC, and the type of modulation is Amplitude Modulation.

1.2 Date of Order

2015-11-11

1.3 Submitted Sample(s):

4 Samples

1.4 Test Duration

2015-11-17 to 2015-12-15

1.5 Country of Origin

China

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to "Conditions of Issuance of Test Reports" section or Website.

2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 and ANSI C63.10:2013 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary					
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result	
				Pass	Failed
Field Strength of Fundamental Emissions & Spurious Emissions	FCC 47CFR 15.235	ANSI C63.10:2013	N/A	☒	☐
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.209	ANSI C63.10:2013	N/A	☒	☐

Note: N/A - Not Applicable

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

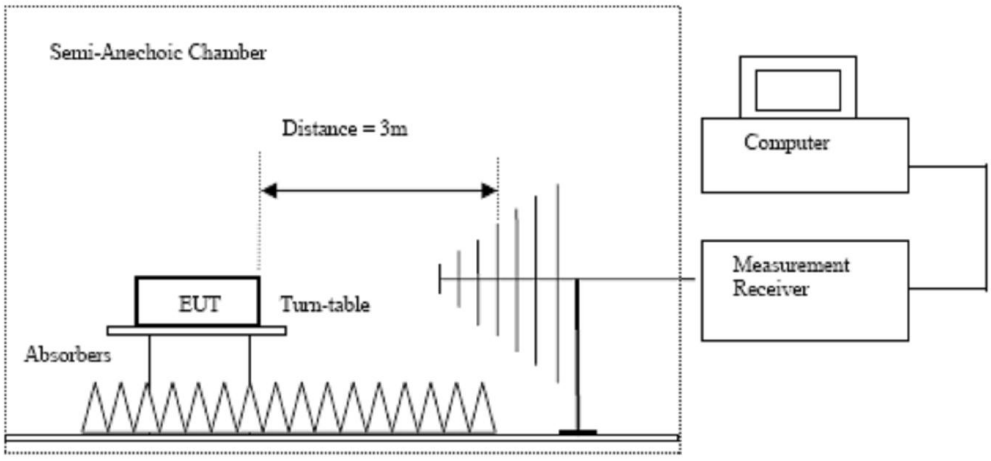
Test Requirement:	FCC 47CFR 15.235
Test Method:	ANSI C63.10: 2013
Test Date:	2015-12-15
Mode of Operation:	Tx mode

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

*: Semi-anechoic chamber located on the G/F of "The Hong Kong Standards and Testing Centre Ltd." with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:



Ground Plane

- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antenna, above 1000MHz horn antenna is used.

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to "Conditions of Issuance of Test Reports" section or Website.

Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.235]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [μV/m]	Field Strength of Fundamental Emission [Average] [μV/m]
49.82-49.90	100,000	10,000

Results of Tx mode: PASS

Field Strength of Fundamental Emissions Peak Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dBμV	dB/m	dBμV/m	μV/m	μV/m	
49.86	49.9	9.7	59.6	955.0	100,000	Vertical

Field Strength of Fundamental Emissions Average Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dBμV	dB/m	dBμV/m	μV/m	μV/m	
49.86	49.7	9.7	59.4	933.3	10,000	Vertical

According to FCC 47CFR15.35, the limit on the radio frequency emissions as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation.

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Tx mode (9kHz – 30MHz): PASS
Emissions detected are more than 20 dB below the limit line(s).

Results of Tx mode (30MHz – 1GHz): PASS

Radiated Emissions						
Quasi-Peak						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dBμV	dB/m	dBμV/m	μV/m	μV/m	
99.72	16.0	10.3	26.3	20.7	150	Vertical
149.60	20.5	9.6	30.1	32.0	150	Vertical
199.44	18.9	13.6	32.5	42.2	150	Vertical

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Rx mode (9kHz-30MHz): PASS
Emissions detected are more than 20 dB below the limit line(s).

Results of Rx mode (30MHz – 1GHz): PASS

Radiated Emissions						
Quasi-Peak						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dBμV	dB/m	dBμV/m	μV/m	μV/m	
46.20	23.4	10.9	34.3	51.9	100	Vertical
89.50	7.1	10.2	17.3	7.3	150	Vertical
132.00	4.4	8.8	13.2	4.6	150	Vertical
144.90	3.8	9.2	13.0	4.5	150	Vertical
185.00	5.4	11.6	17.0	7.1	150	Vertical
217.90	2.2	14.5	16.7	6.8	200	Vertical

Remarks:
No further spurious emissions found between lowest internal frequency and 30MHz.
Correction Factor includes Antenna Factor and Cable Attenuation.
Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

Calculated measurement uncertainty : 30MHz to 1GHz 4.9dB
1GHz to 6GHz 4.02dB
6GHz to 18GHz 4.03dB

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

3.2 20dB Bandwidth of Fundamental Emission

Test Requirement:	FCC 47 CFR 15.235
Test Method:	ANSI C63.10: 2013
Test Date:	2015-12-15
Mode of Operation:	Tx mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:

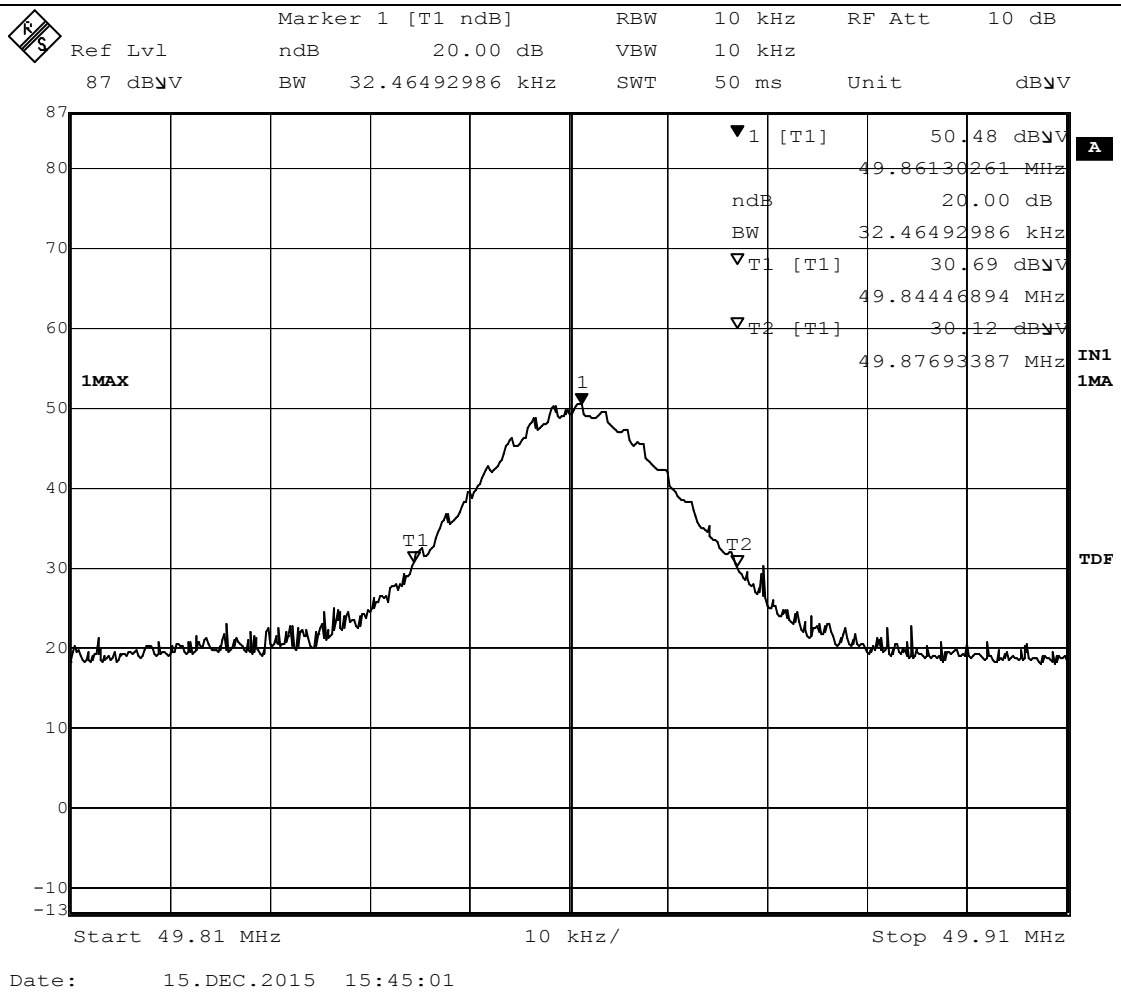
As Test Setup of clause 3.1.1 in this test report.

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [kHz]	FCC Limits [MHz]
49.86	32.46	within 49.82-49.90

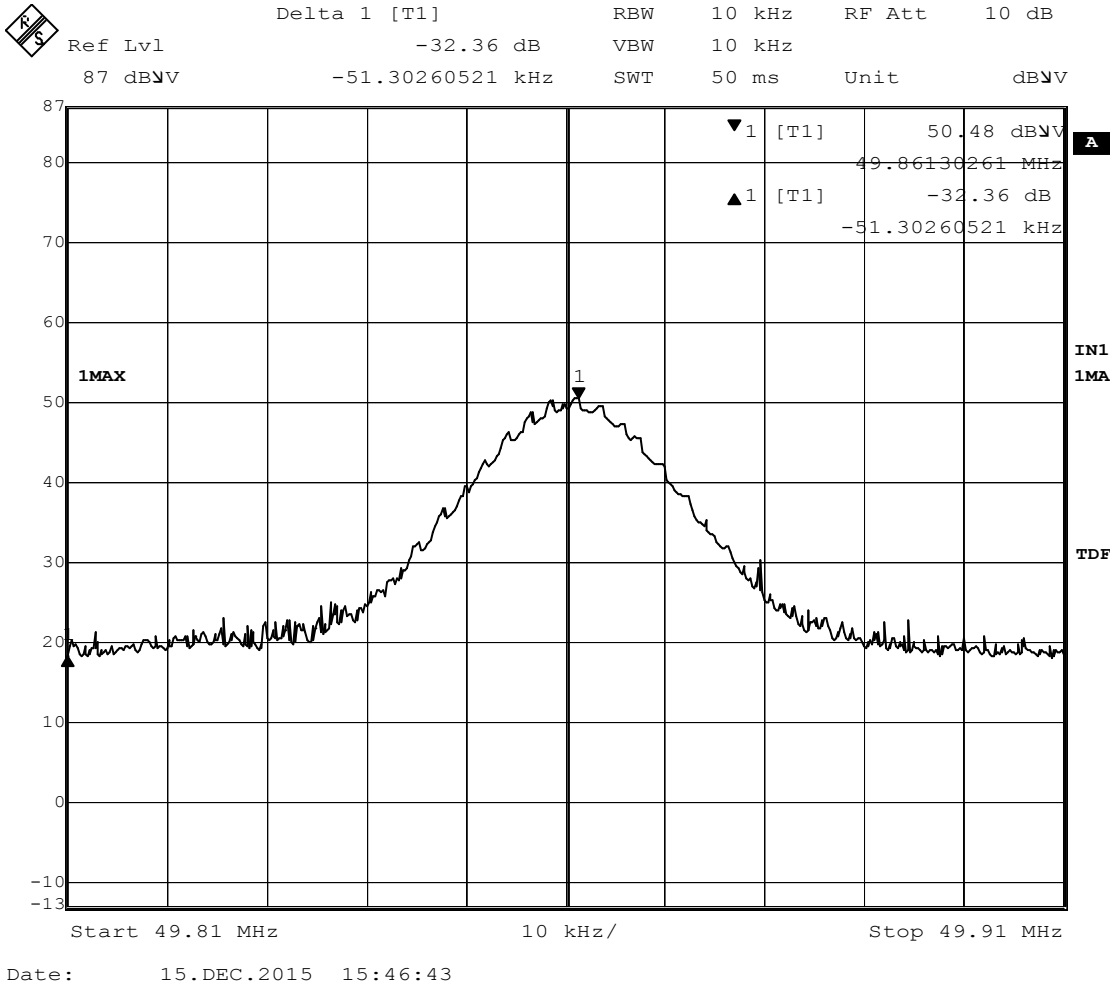
20dB Bandwidth of Fundamental Emission



This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

Band Edge

32.36dB reduction at band edge



This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM299	DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA	ETS-LINDGREN	3115	00114120	2014/01/15	2016/01/25
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2015/04/20	2016/04/20
EM320	BICONILOG ANTENNA	ETS-LINDGREN	3142D	00094856	2014/08/06	2016/08/06
EM229	EMI TEST RECEIVER	R&S	ESIB40	100248	2015/06/01	2016/06/01
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2014/01/15	2016/01/15
EM527	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 102	24514	2013/08/26	2016/08/26
EM528	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 102	24515	2013/08/26	2016/08/26
EM529	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 104	238296	2014/07/24	2016/07/24
EM530	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 102	24970	2013/08/26	2016/08/26

Remarks:-
CM Corrective Maintenance
N/A Not Applicable
TBD To Be Determined

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

Appendix B

Photographs of EUT

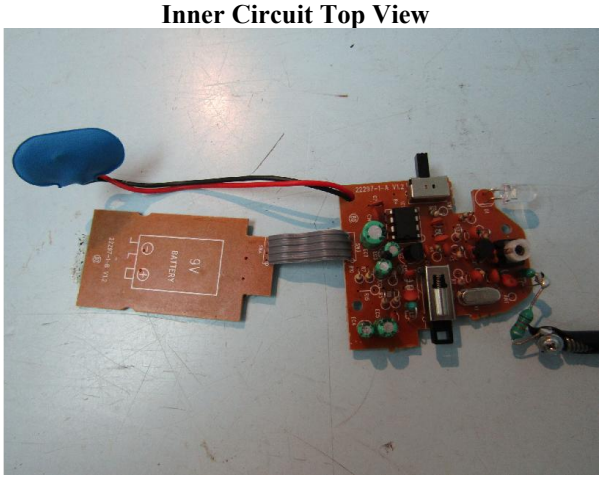
Front View of the product



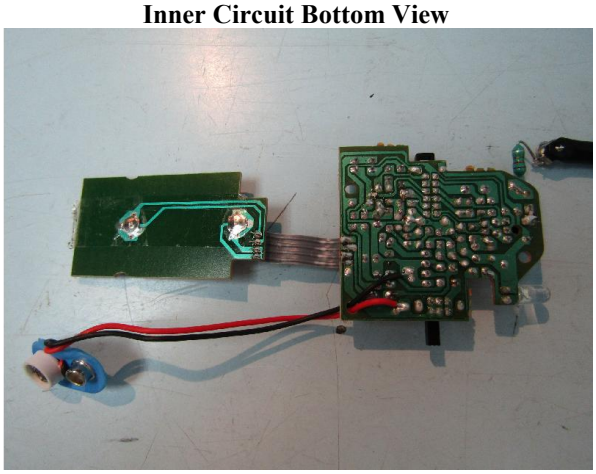
Rear View of the product



Inner Circuit Top View



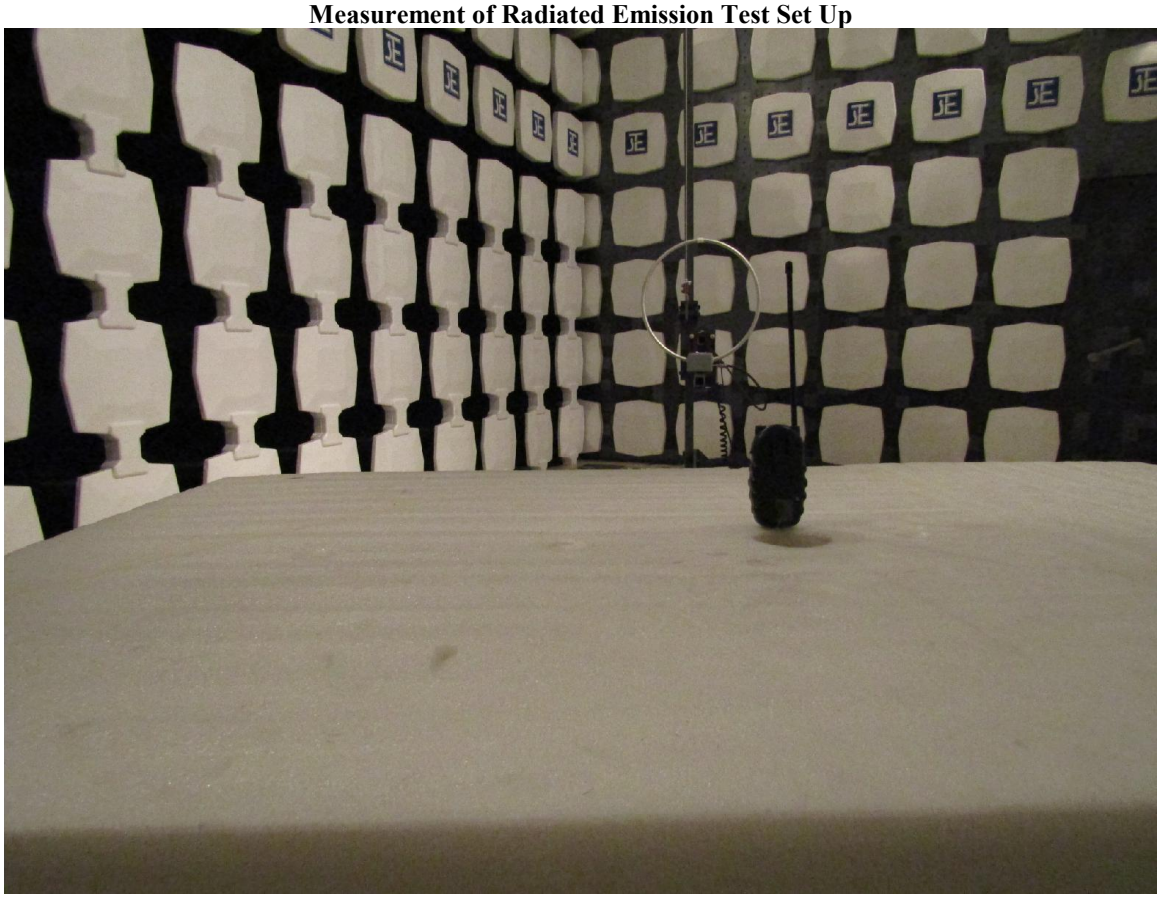
Inner Circuit Bottom View



This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

Photographs of EUT

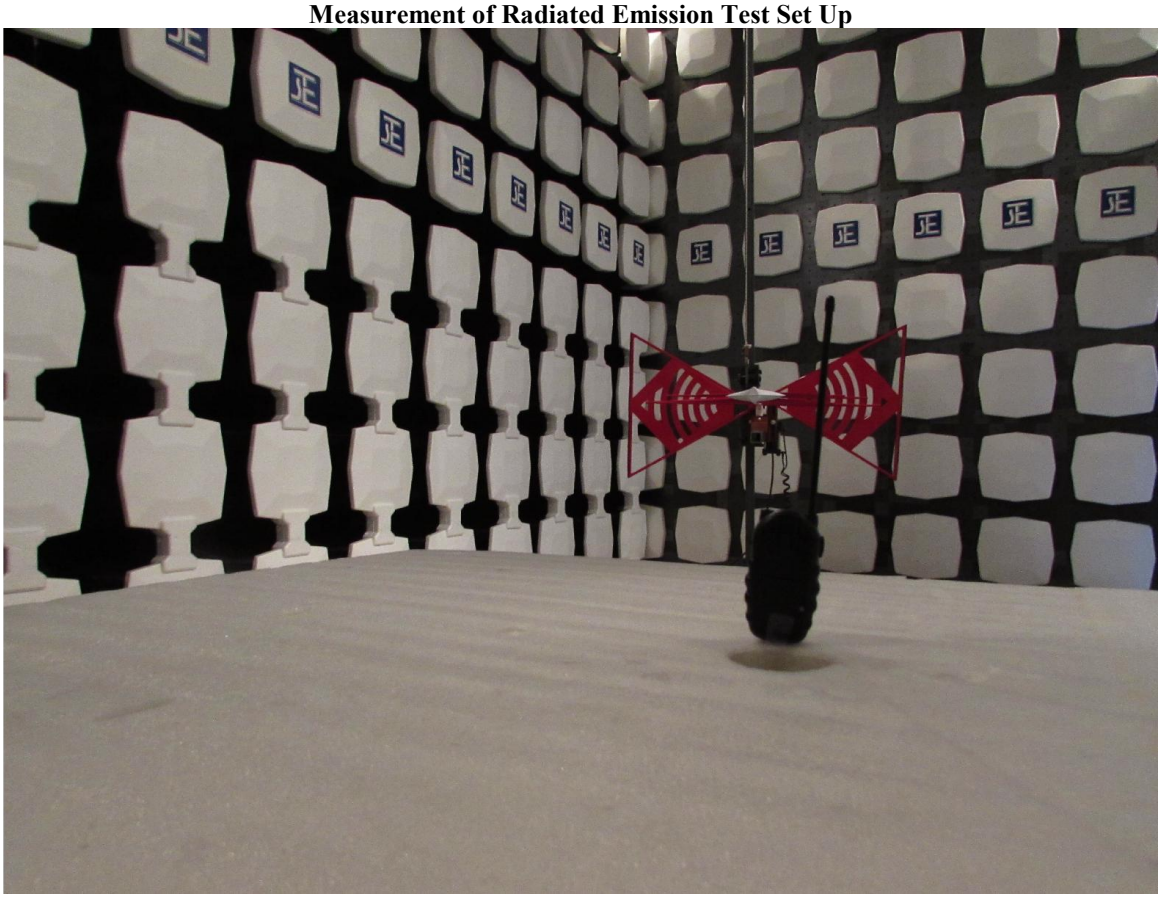
Measurement of Radiated Emission Test Set Up



This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

Photographs of EUT

Measurement of Radiated Emission Test Set Up



******* End of Test Report *******

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Limited.
For Conditions of Issuance of this test report, please refer to “Conditions of Issuance of Test Reports” section or Website.

STC Test Report

Conditions of Issuance of Test Reports

1. All samples and goods are accepted by The Hong Kong Standards & Testing Centre Limited (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The Company provides its services on the basis that such terms and conditions constitute express agreement between the Company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by the Company as a result of this application for testing service (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to his customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. The Report refers only to the sample tested and does not apply to the bulk, unless the sampling has been carried out by the Company and is stated as such in the Report.

5. In the event of the improper use the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

6. Sample submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

7. The Company will not be liable for or accept responsibility for any loss or damage howsoever arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

8. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

9. Subject to the variable length of retention time for test data and report stored hereinto as to otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of this test report for a period of three years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after the retention period. Under no circumstances shall we be liable for damages of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

10. Issuance records of the Report are available on the internet at www.stc-group.org. Further enquiry of validity or verification of the Reports should be addressed to the Company.