



STC Test Report

Date : 2015-12-18

No. : HM170061

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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: II62297A


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

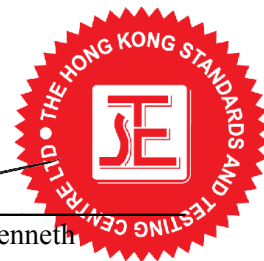
Date Tested: 2015-11-17 to 2015-12-15

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.



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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

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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	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.209	ANSI C63.10:2013	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

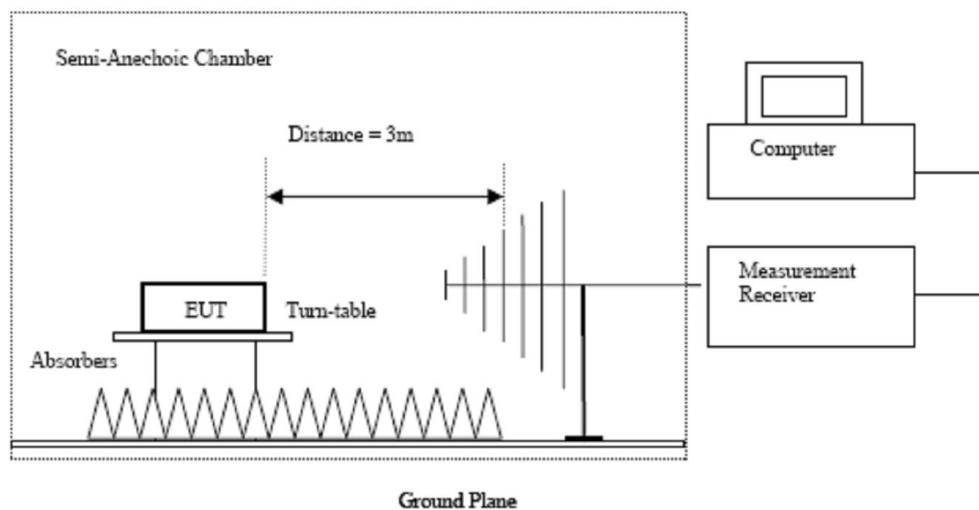
Test Requirement: FCC 47CFR 15.235
Test Method: ANSI C63.10: 2013
Test Date: 2015-12-15
Mode of Operation: Tx mode

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:



- 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.

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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.

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Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
30-88	100
88-216	150
216-960	200
Above 960	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	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	$\text{dB}\mu\text{V}$	dB/m	$\text{dB}\mu\text{V/m}$	$\mu\text{V/m}$	$\mu\text{V/m}$	
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

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Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
30-88	100
88-216	150
216-960	200
Above 960	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	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	dB μ V	dB/m	dB μ V/m	μ V/m	μ V/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

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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.

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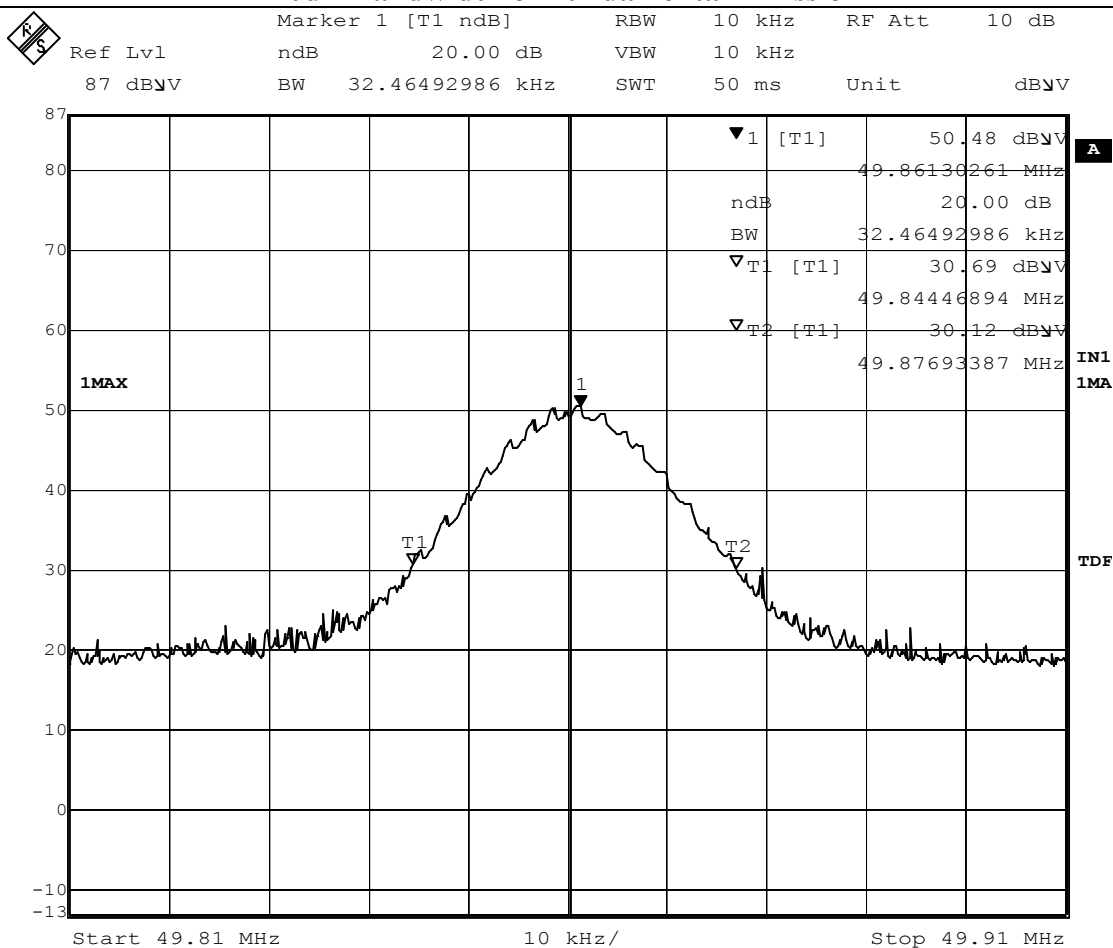
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Limits for 20dB Bandwidth of Fundamental Emission:

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

20dB Bandwidth of Fundamental Emission



Date: 15.DEC.2015 15:45:01

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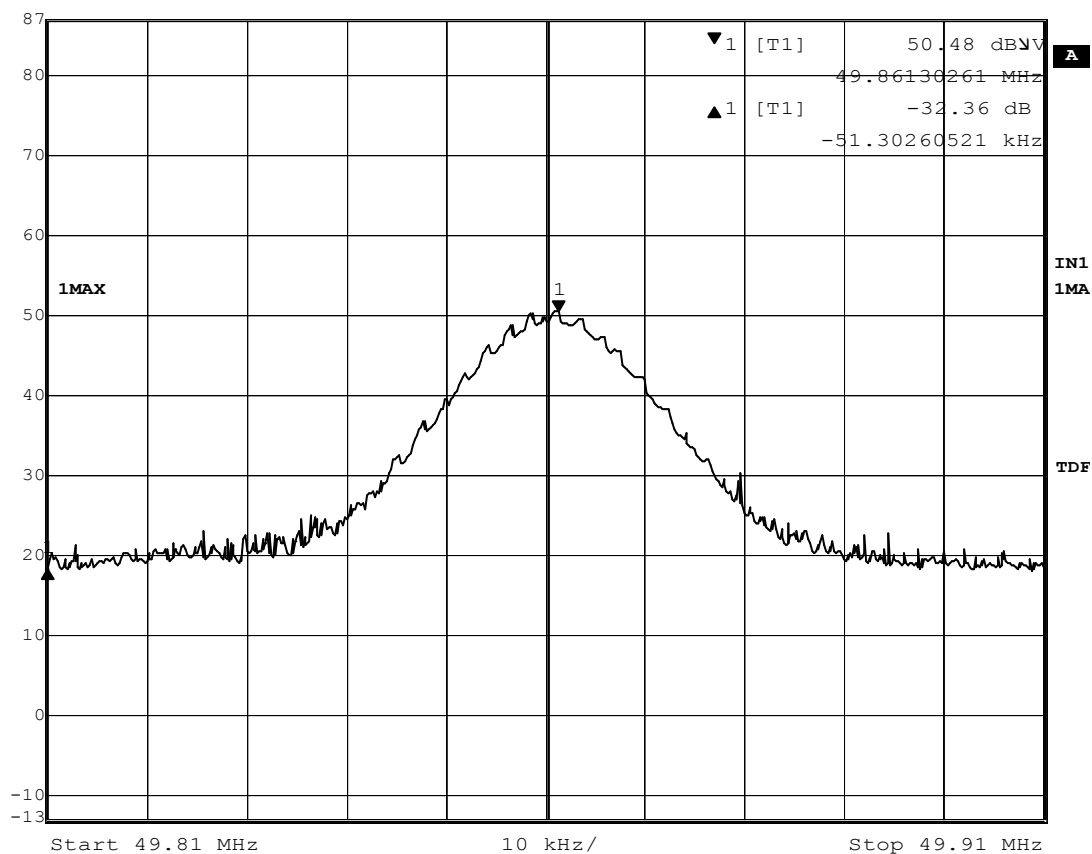
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Band Edge

32.36dB reduction at band edge



Ref Lvl	Delta 1 [T1]	RBW	10 kHz	RF Att	10 dB
87 dBV	-32.36 dB	VBW	10 kHz		
	-51.30260521 kHz	SWT	50 ms	Unit	dBV



Date: 15.DEC.2015 15:46:43

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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

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Appendix B

Photographs of EUT

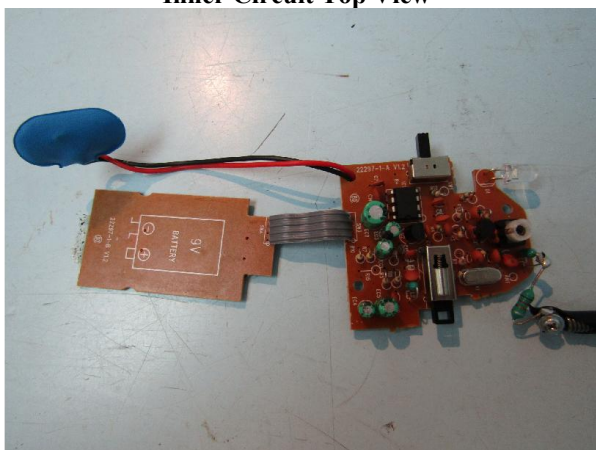
Front View of the product



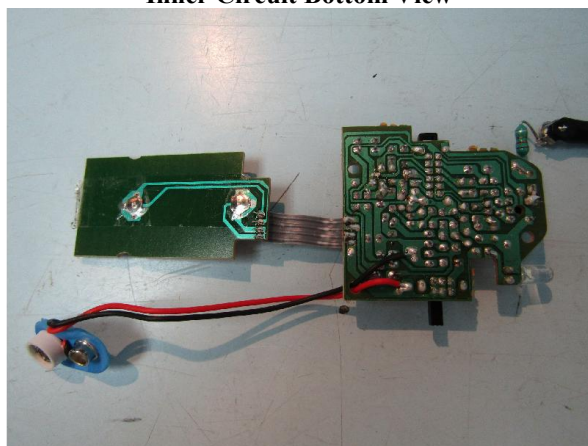
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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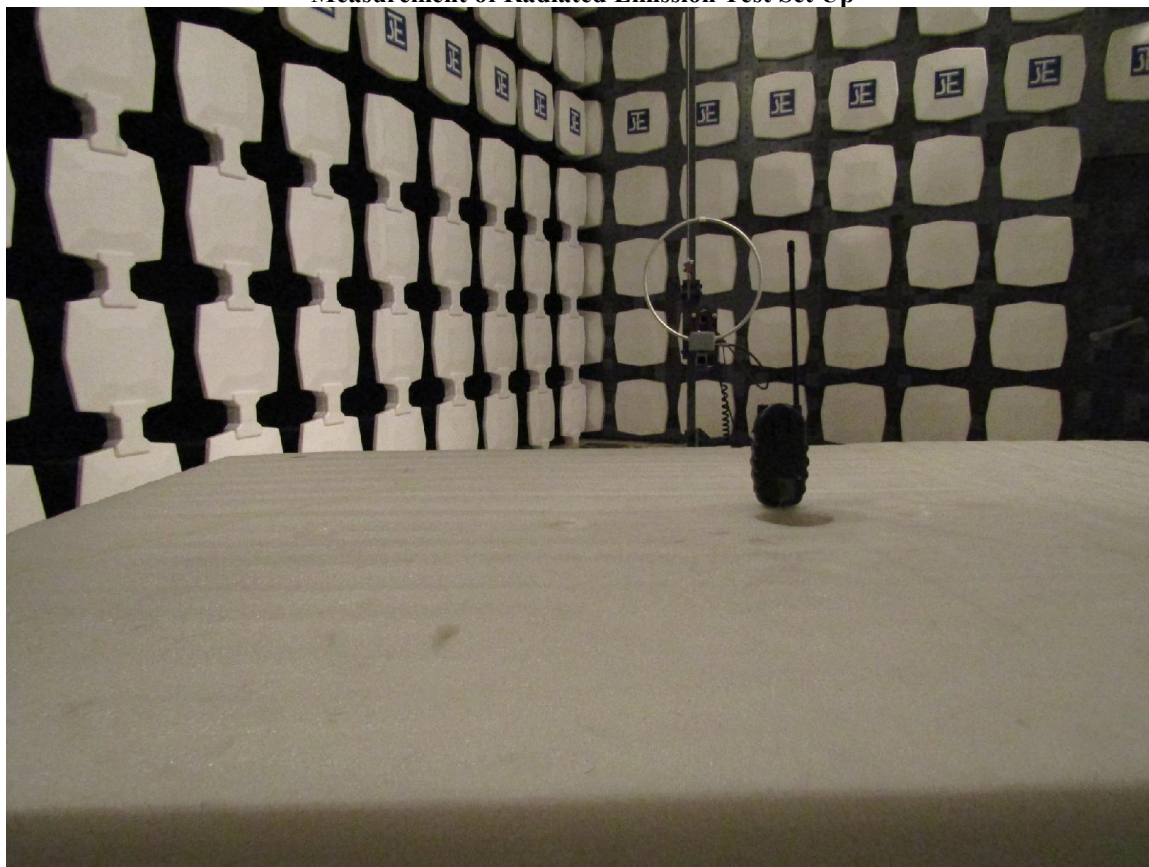
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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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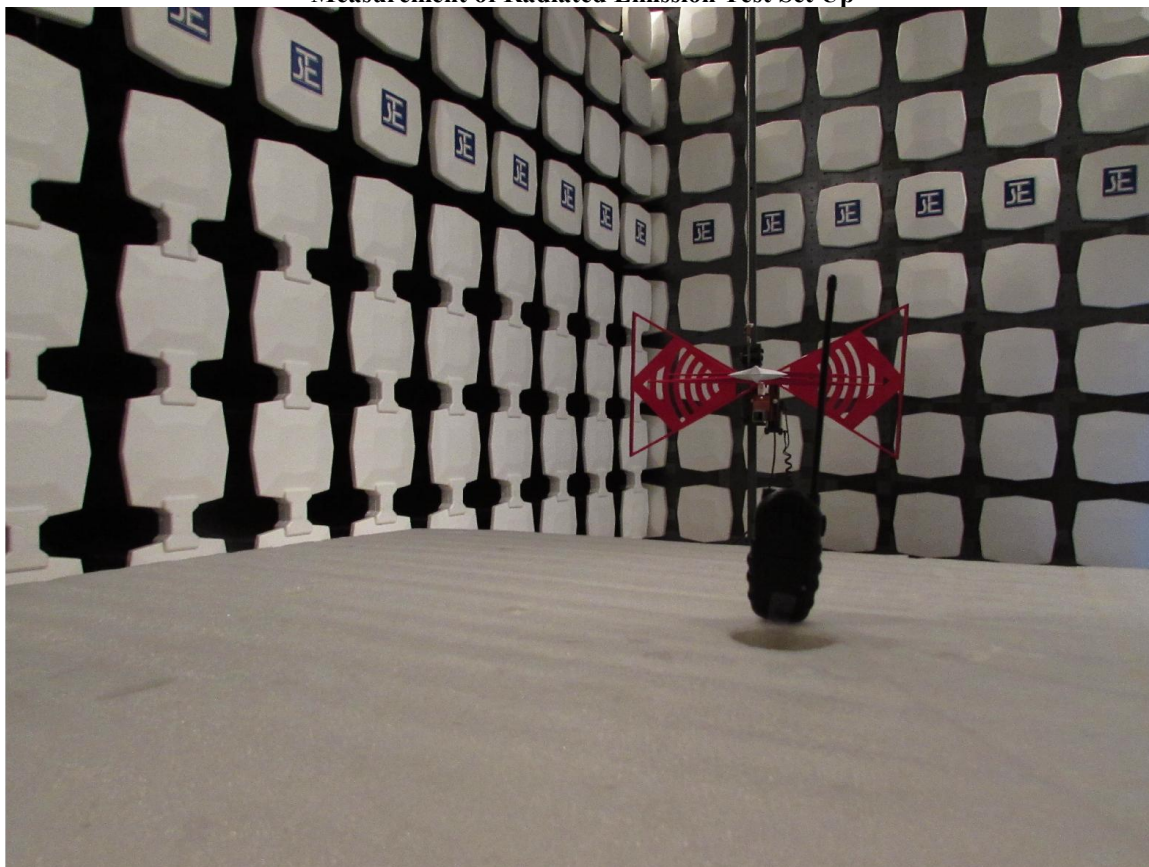
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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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