



STC Test Report

Date: 2015-04-15

Page 1 of 30

No.: DM119016

Applicant: Spin Master Toys Far East Ltd.
Room 1113, 11/F., Chinachem Golden Plaza, 77 Mody Road,
Tsim Sha Tsui East, Kowloon, Hong Kong

Manufacturer: Spin Master Toys Far East Ltd.
Room 1113, 11/F., Chinachem Golden Plaza, 77 Mody Road,
Tsim Sha Tsui East, Kowloon, Hong Kong

Description of Sample(s): Submitted sample(s) said to be
Product: SPG SGC Video Walkie Talkies
Brand Name: N/A
Model Number: 15215
FCC ID: PQN15215M012G4

Date Sample(s) Received: 2015-04-03

Date Tested: 2015-04-04

Investigation Requested: Perform ElectroMagnetic Interference measurement in
accordance with FCC 47CFR [Codes of Federal Regulations]
Part 15: 2014 and ANSI C63.4: 2009 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): ---



LONG Yun Jian, Along
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
STC (Dongguan) Company Limited

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 2 of 30

No.: DM119016

CONTENT:

Cover
Content

Page 1 of 30
Page 2 of 30

1.0 General Details

- 1.1 Equipment Under Test [EUT]
- 1.2 Description of EUT Operation
- 1.3 Date of Order
- 1.4 Submitted Sample
- 1.5 Test Duration
- 1.6 Country of Origin

Page 3 of 30
Page 3 of 30
Page 3 of 30
Page 3 of 30
Page 3 of 30
Page 3 of 30

2.0 Technical Details

- 2.1 Investigations Requested
- 2.2 Test Standards and Results Summary

Page 4 of 30
Page 4 of 30

3.0 Test Results

- 3.1 Emission
- 3.2 Bandwidth Measurement

Page 5-18 of 30
Page 19-25 of 30

Appendix A

List of Measurement Equipment

Page 26 of 30

Appendix B

Photographs

Page 27-30 of 30

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 3 of 30

No.: DM119016

1.0 General Details

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

Product:	SPG SGC Video Walkie Talkies
Manufacturer:	Spin Master Toys Far East Ltd.
Brand Name:	N/A
Model Number:	15215
Rating:	4.5Vd.c. ("AA" size battery x 3)

1.2 Description of EUT Operation

The Equipment Under Test (EUT) is a Video Walkie Talkies of Spin Master Toys Far East Ltd. The transceiver operating in the 2.4GHz ISM frequency band. The RF signal was modulated by IC, the type of modulation used is GFSK.

1.3 Date of Order

2015-04-03

1.4 Submitted Sample(s):

1 Sample

1.5 Test Duration

2015-04-04

1.6 Country of Origin

China

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 4 of 30

No.: DM119016

2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 Regulations and ANSI C63.4:2009 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	Fail	N/A
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.4:2009	N/A	☒	☐	☐
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2009	N/A	☒	☐	☐
AC Mains Conducted Emissions	FCC 47CFR 15.207	ANSI C63.4:2009	N/A	☒	☐	☐

Note: N/A - Not Applicable

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 5 of 30

No.: DM119016

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

Test Requirement:	FCC 47CFR 15.249 & FCC 47CFR 15.209
Test Method:	ANSI C63.4:2009
Test Date:	2015-04-04
Mode of Operation:	Communication 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, 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 STC (Dongguan) Company Ltd. 68 Fumin Nan Road, Dalang, Dongguan, Guangdong, PRC with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 629686.

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 6 of 30

No.: DM119016

Spectrum Analyzer Setting:

9KHz – 30MHz (Pk & Av)

RBW: 10kHz
VBW: 30kHz
Sweep: Auto
Span: Fully capture the emissions being measured
Trace: Max. hold

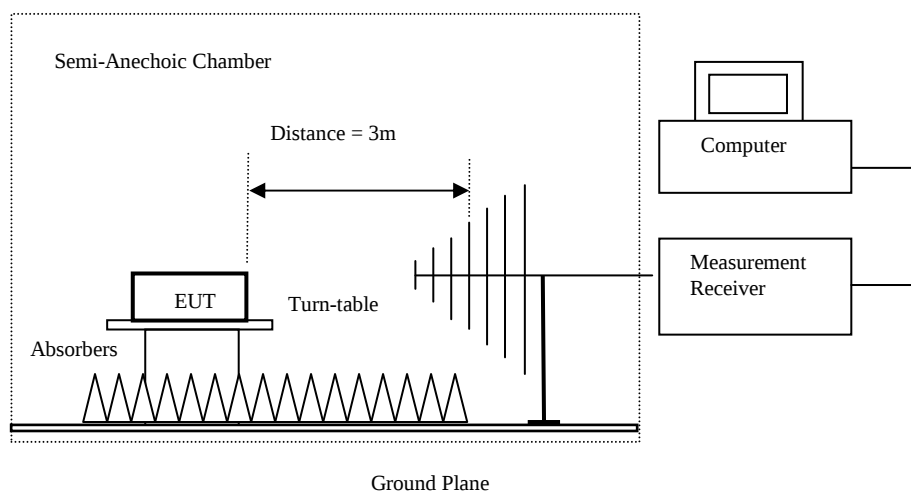
30MHz – 1GHz (QP)

RBW: 120kHz
VBW: 120kHz
Sweep: Auto
Span: Fully capture the emissions being measured
Trace: Max. hold

Above 1GHz (Pk & Av)

RBW: 3MHz
VBW: 3MHz
Sweep: Auto
Span: Fully capture the emissions being measured
Trace: Max. hold

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 antennas, above 1000MHz horn antennas are used, 9kHz to 30MHz loop antennas are used.

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 7 of 30

No.: DM119016

Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	500,000 [Quasi-Peak]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Tx mode (Lowest Frequency Channel-2405 MHz): Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
2405.00	66.3	36.8	103.1	142,889.4	500,000	Vertical
2405.00	65.0	36.4	101.4	117,489.8	500,000	Horizontal

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
2405.00	54.2	36.8	91.0	35,481.3	50,000	Vertical
2405.00	52.6	36.4	89.0	28,183.8	50,000	Horizontal

Field Strength of Harmonics Emission Peak Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
4810.0	14.4	41.5	55.9	623.7	5,000	Vertical
4810.0	12.4	42.4	54.8	549.5	5,000	Horizontal
7215.0	9.9	45.1	55.0	562.3	5,000	Vertical
7215.0	8.9	46.2	55.1	568.9	5,000	Horizontal
9620.0	7.1	48.0	55.1	568.9	5,000	Vertical
9620.0	6.5	48.8	55.3	582.1	5,000	Horizontal
12025.0	4.3	51.5	55.8	616.6	5,000	Vertical
12025.0	3.9	52.4	56.3	653.1	5,000	Horizontal

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 8 of 30

No.: DM119016

Field Strength of Harmonics Emission						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4810.0	0.5	41.5	42.0	125.9	500	Vertical
4810.0	-1.3	42.4	41.1	113.5	500	Horizontal
7215.0	-5.4	45.1	39.7	96.6	500	Vertical
7215.0	-5.7	46.2	40.5	105.9	500	Horizontal
9620.0	-7.6	48.0	40.4	104.7	500	Vertical
9620.0	-6.6	48.8	42.2	128.8	500	Horizontal
12025.0	-10.8	51.5	40.7	108.4	500	Vertical
12025.0	-10.0	52.4	42.4	131.8	500	Horizontal

Results of Tx mode (Middle Frequency Channel- 2439.5MHz): Pass

Field Strength of Fundamental Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2439.50	66.2	36.8	103.0	141,253.8	500,000	Vertical
2439.50	64.3	36.4	100.7	108,392.7	500,000	Horizontal

Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2439.50	54.0	36.8	90.8	34,673.7	50,000	Vertical
2439.50	52.2	36.4	88.6	26,915.3	50,000	Horizontal

Field Strength of Harmonics Emission						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4879.0	13.3	41.6	54.9	555.9	5,000	Vertical
4879.0	13.1	42.5	55.6	602.6	5,000	Horizontal
7318.5	10.3	45.2	55.5	595.7	5,000	Vertical
7318.5	8.8	46.3	55.1	568.9	5,000	Horizontal
9758.0	7.6	48.1	55.7	609.5	5,000	Vertical
9758.0	6.4	48.9	55.3	582.1	5,000	Horizontal
12197.5	4.4	51.6	56.0	631.0	5,000	Vertical
12197.5	3.8	52.5	56.3	653.1	5,000	Horizontal

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 9 of 30

No.: DM119016

Field Strength of Harmonics Emission						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4879.0	-1.1	41.6	40.5	105.9	500	Vertical
4879.0	-1.5	42.5	41.0	112.2	500	Horizontal
7318.5	-4.8	45.2	40.4	104.7	500	Vertical
7318.5	-6.5	46.3	39.8	97.7	500	Horizontal
9758.0	-6.9	48.1	41.2	114.8	500	Vertical
9758.0	-8.8	48.9	40.1	101.2	500	Horizontal
12197.5	-10.3	51.6	41.3	116.1	500	Vertical
12197.5	-11.0	52.5	41.5	118.9	500	Horizontal

Results of Tx mode (Highest Frequency Channel – 2474MHz): Pass

Field Strength of Fundamental Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2474.00	66.0	36.8	102.8	138,038.4	500,000	Vertical
2474.00	63.8	36.4	100.2	102,329.3	500,000	Horizontal

Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2474.00	53.7	36.8	90.5	33,496.5	50,000	Vertical
2474.00	51.9	36.4	88.3	26,001.6	50,000	Horizontal

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 10 of 30

No.: DM119016

Field Strength of Harmonics Emission Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4948.0	14.6	41.4	56.0	631.0	5,000	Vertical
4948.0	12.6	42.7	55.3	582.1	5,000	Horizontal
7422.0	9.3	45.6	54.9	555.9	5,000	Vertical
7422.0	9.0	46.5	55.5	595.7	5,000	Horizontal
9896.0	6.5	48.6	55.1	568.9	5,000	Vertical
9896.0	5.3	49.7	55.0	562.3	5,000	Horizontal
12370.0	4.3	51.7	56.0	631.0	5,000	Vertical
12370.0	3.1	52.7	55.8	616.6	5,000	Horizontal

Field Strength of Harmonics Emission Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4948.0	-0.3	41.4	41.1	113.5	500	Vertical
4948.0	-1.5	42.7	41.2	114.8	500	Horizontal
7422.0	-5.1	45.6	40.5	105.9	500	Vertical
7422.0	-5.5	46.5	41.0	112.2	500	Horizontal
9896.0	-8.9	48.6	39.7	96.6	500	Vertical
9896.0	-10.1	49.7	39.6	95.5	500	Horizontal
12370.0	-9.9	51.7	41.8	123.0	500	Vertical
12370.0	-12.1	52.7	40.6	107.2	500	Horizontal

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Calculated measurement uncertainty (9kHz - 30MHz): 3.3dB
 (30MHz – 1GHz): 4.6dB
 (1GHz - 26GHz): 4.4dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 11 of 30

No.: DM119016

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

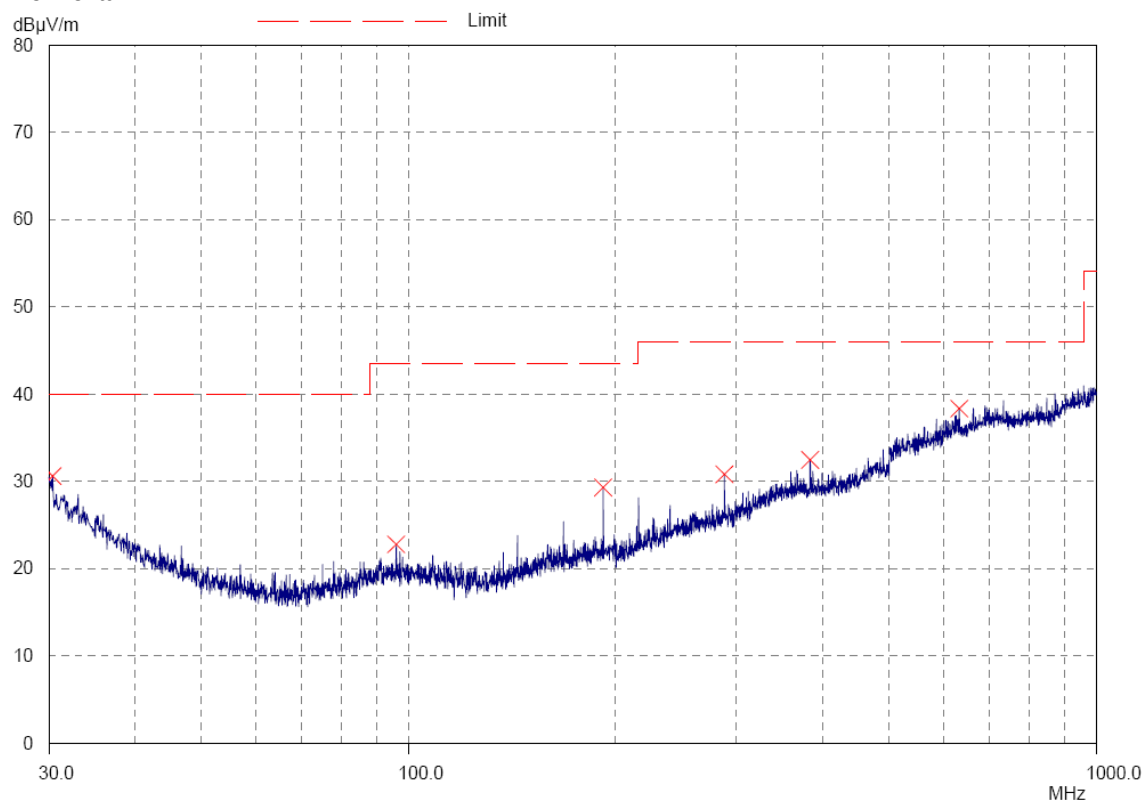
The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Communication mode (without earphone) (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Results of Communication mode (without earphone) (30MHz – 1GHz): PASS

Horizontal



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 12 of 30

No.: DM119016

Results of Communication mode (without earphone) (30MHz – 1GHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dB μ V/m	Limit @3m dB μ V/m	Level @3m μ V/m	Limit @3m μ V/m
30.4	Horizontal	30.6	40.0	33.9	100
96.0	Horizontal	22.8	43.5	13.8	150
192.0	Horizontal	29.3	43.5	29.2	150
288.0	Horizontal	30.8	46.0	34.7	200
384.0	Horizontal	32.4	46.0	41.7	200
632.8	Horizontal	38.3	46.0	82.2	200

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 13 of 30

No.: DM119016

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

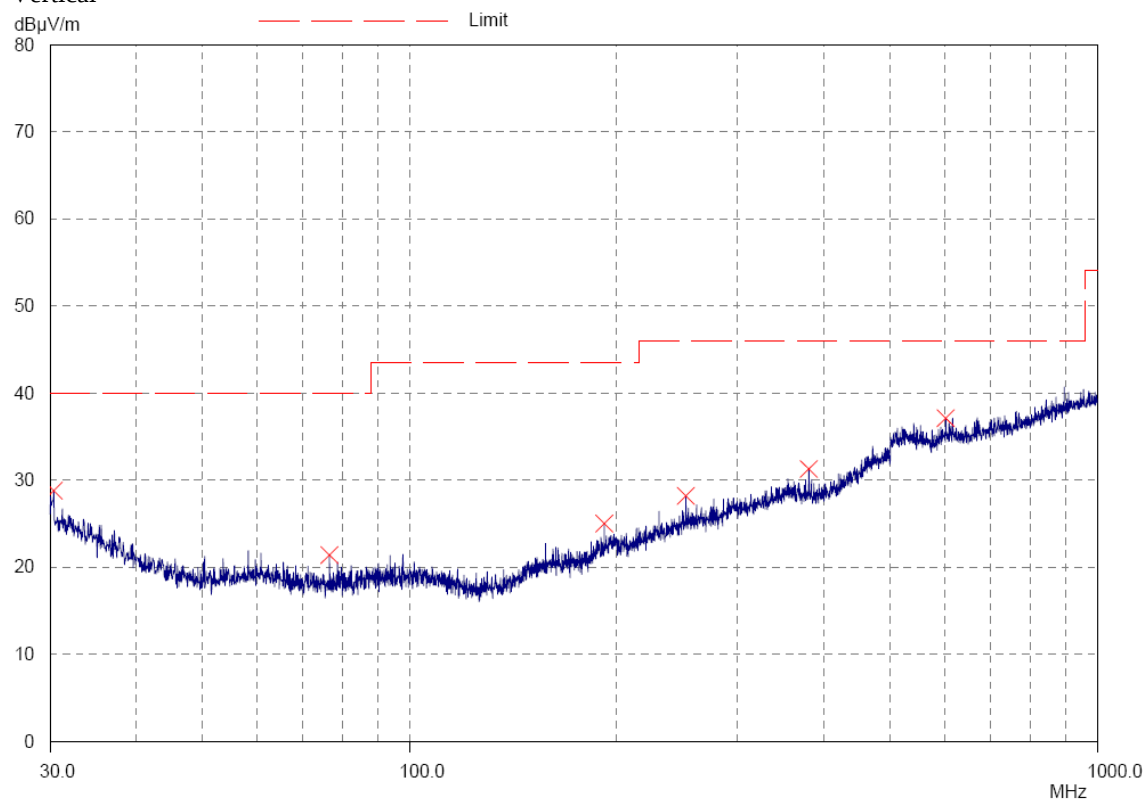
The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Communication mode (without earphone) (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Results of Communication mode (without earphone) (30MHz – 1GHz): PASS

Vertical



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 14 of 30

No.: DM119016

Results of Communication mode (without earphone) (30MHz – 1GHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dB μ V/m	Limit @3m dB μ V/m	Level @3m μ V/m	Limit @3m μ V/m
30.4	Horizontal	28.8	40.0	27.5	100
76.4	Horizontal	21.4	40.0	11.7	100
192.0	Horizontal	25.0	43.5	17.8	150
252.2	Horizontal	28.2	46.0	25.7	200
380.8	Horizontal	31.3	46.0	36.7	200
602.3	Horizontal	37.1	46.0	71.6	200

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 15 of 30

No.: DM119016

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

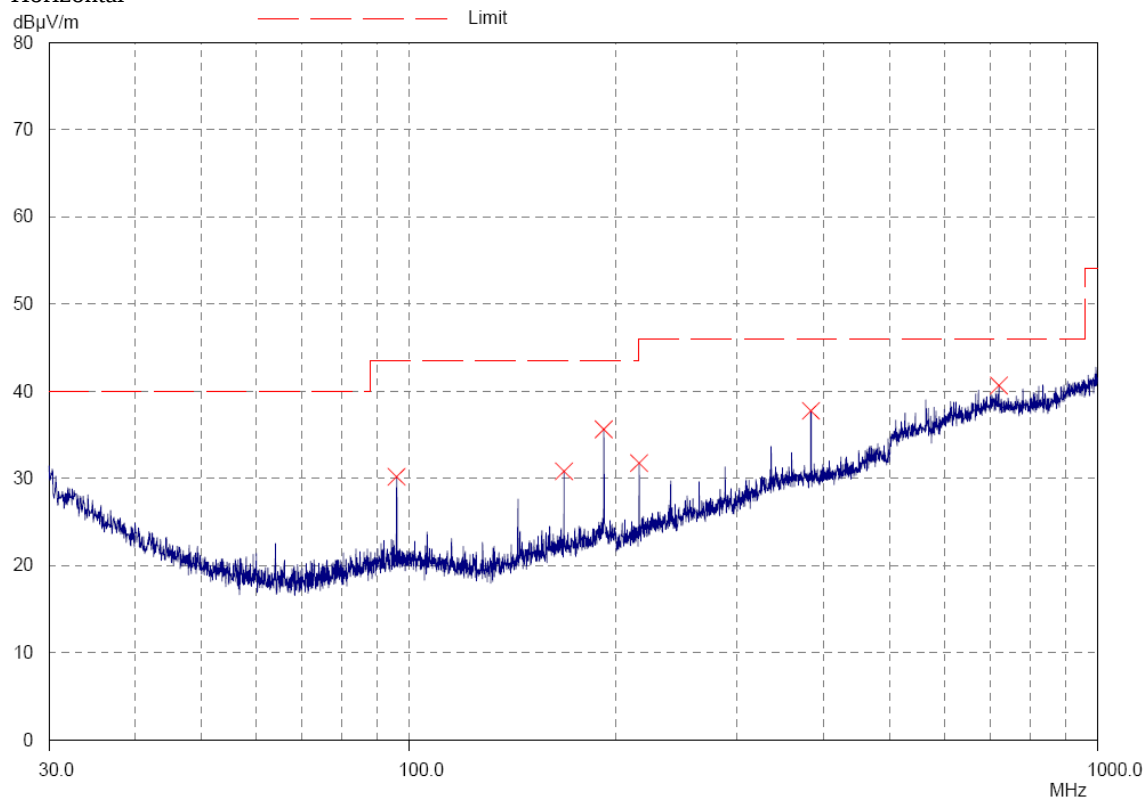
The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Communication mode (with earphone) (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Results of Communication mode (with earphone) (30MHz – 1GHz): PASS

Horizontal



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 16 of 30

No.: DM119016

Results of Communication mode (with earphone) (30MHz – 1GHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dB μ V/m	Limit @3m dB μ V/m	Level @3m μ V/m	Limit @3m μ V/m
96.0	Horizontal	30.2	43.5	32.4	150
168.0	Horizontal	30.8	43.5	34.7	150
192.0	Horizontal	37.0	43.5	70.8	150
216.0	Horizontal	31.7	46.0	38.5	200
384.0	Horizontal	37.7	46.0	76.7	200
720.0	Horizontal	40.6	46.0	107.2	200

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 17 of 30

No.: DM119016

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

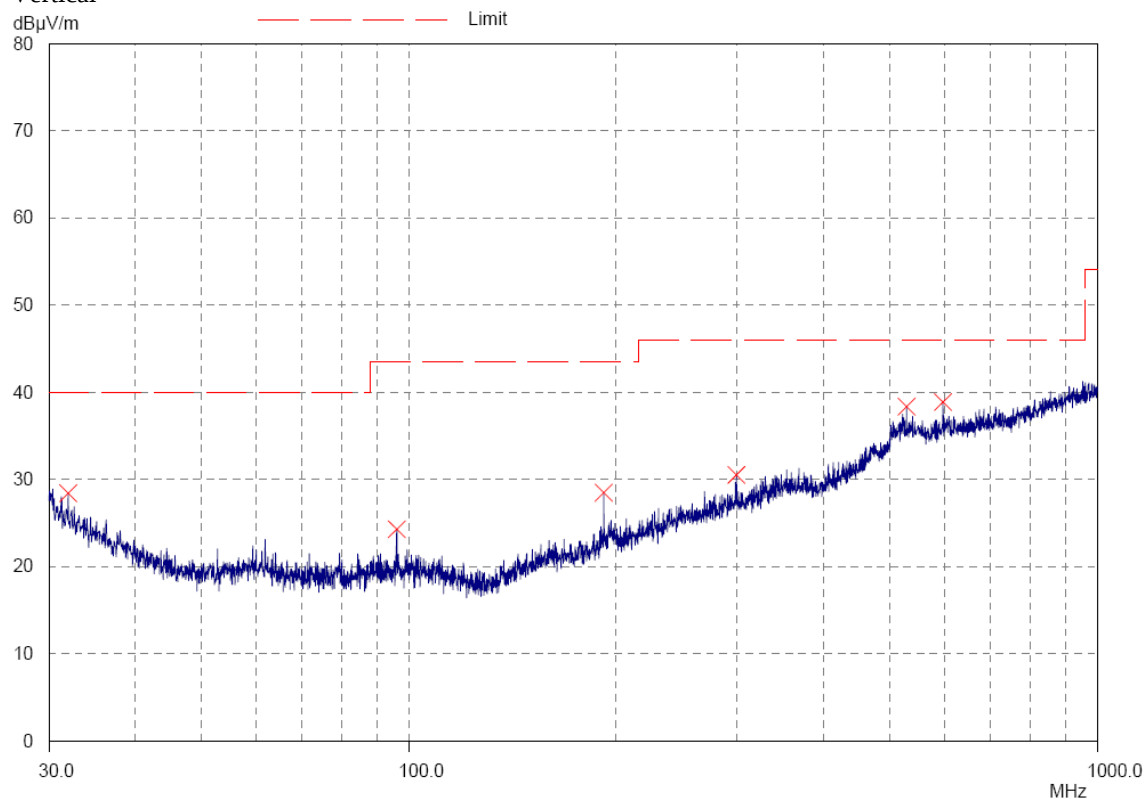
The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Communication mode (with earphone) (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Results of Communication mode (with earphone) (30MHz – 1GHz): PASS

Vertical



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



Page 18 of 30

No.: DM119016

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBμV/m	Limit @3m dBμV/m	Level @3m μV/m	Limit @3m μV/m
32.0	Horizontal	28.4	40.0	26.3	100
96.1	Horizontal	24.3	43.5	16.4	150
192.0	Horizontal	28.4	43.5	26.3	150
299.0	Horizontal	30.5	46.0	33.5	200
528.8	Horizontal	38.3	46.0	82.2	200
597.3	Horizontal	38.8	46.0	87.1	200

Calculated measurement uncertainty	(9kHz - 30MHz): 3.3dB
	(30MHz – 1GHz): 4.6dB
	(1GHz - 26GHz): 4.4dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 19 of 30

No.: DM119016

3.2 20dB Bandwidth of Fundamental Emission

Test Requirement:	FCC 47 CFR 15.215 (c)
Test Method:	ANSI C63.4:2009
Test Date:	2015-04-04
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.

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

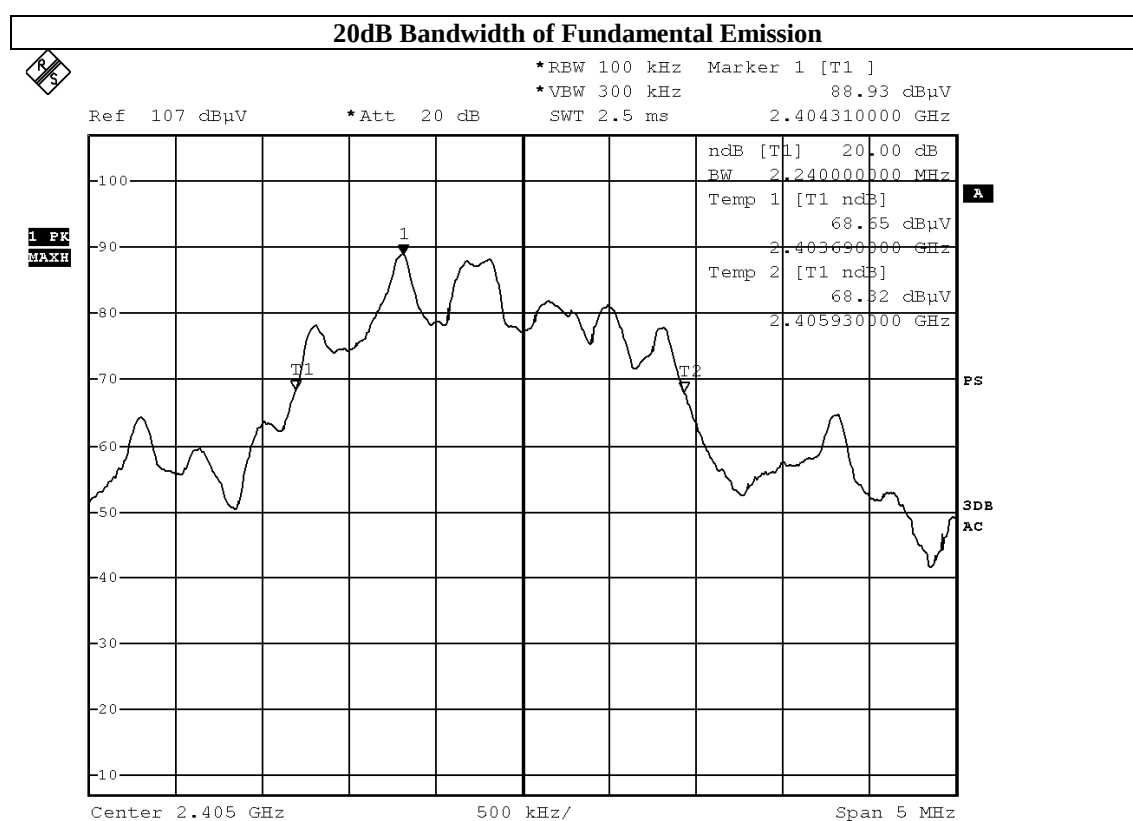
Date: 2015-04-15

Page 20 of 30

No.: DM119016

Limits for 20dB Bandwidth of Fundamental Emission (Low Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2405	2.24



BMP

Date: 4.APR.2015 16:35:57

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

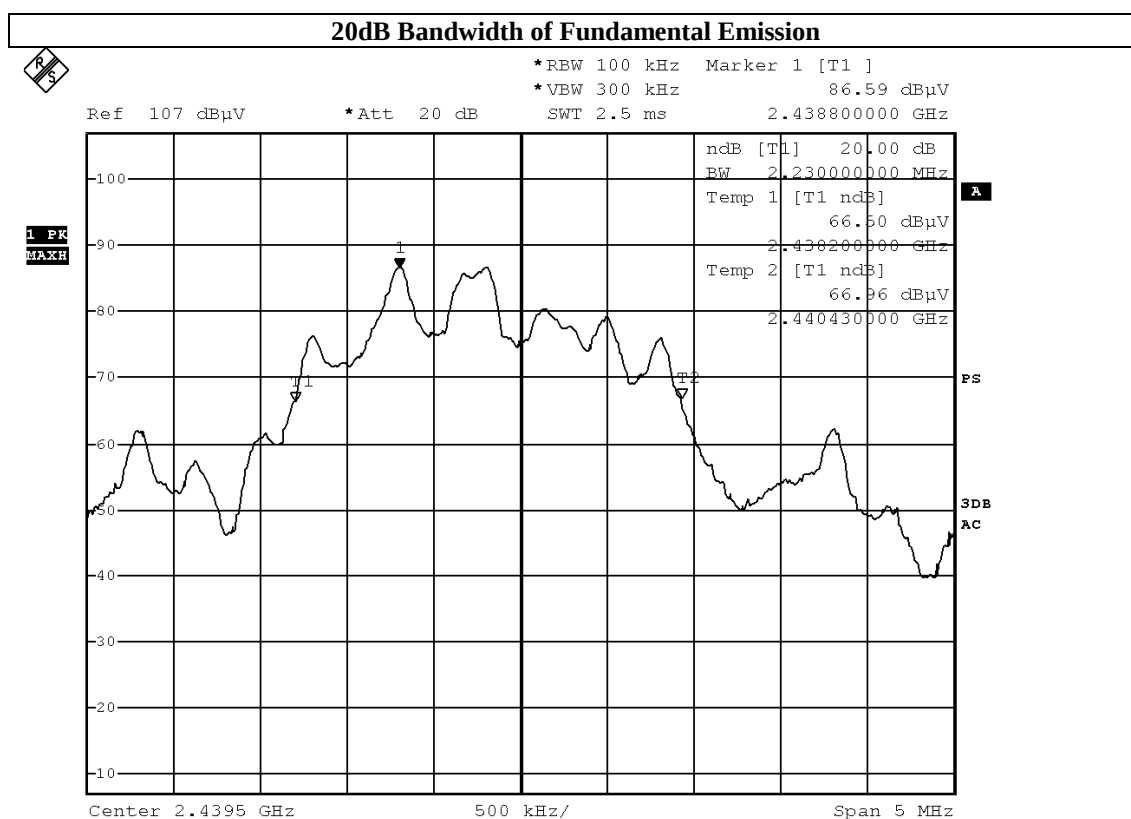
Date: 2015-04-15

Page 21 of 30

No.: DM119016

Limits for 20dB Bandwidth of Fundamental Emission (Middle Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2439.5	2.23



BMP

Date: 4.APR.2015 16:39:40

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

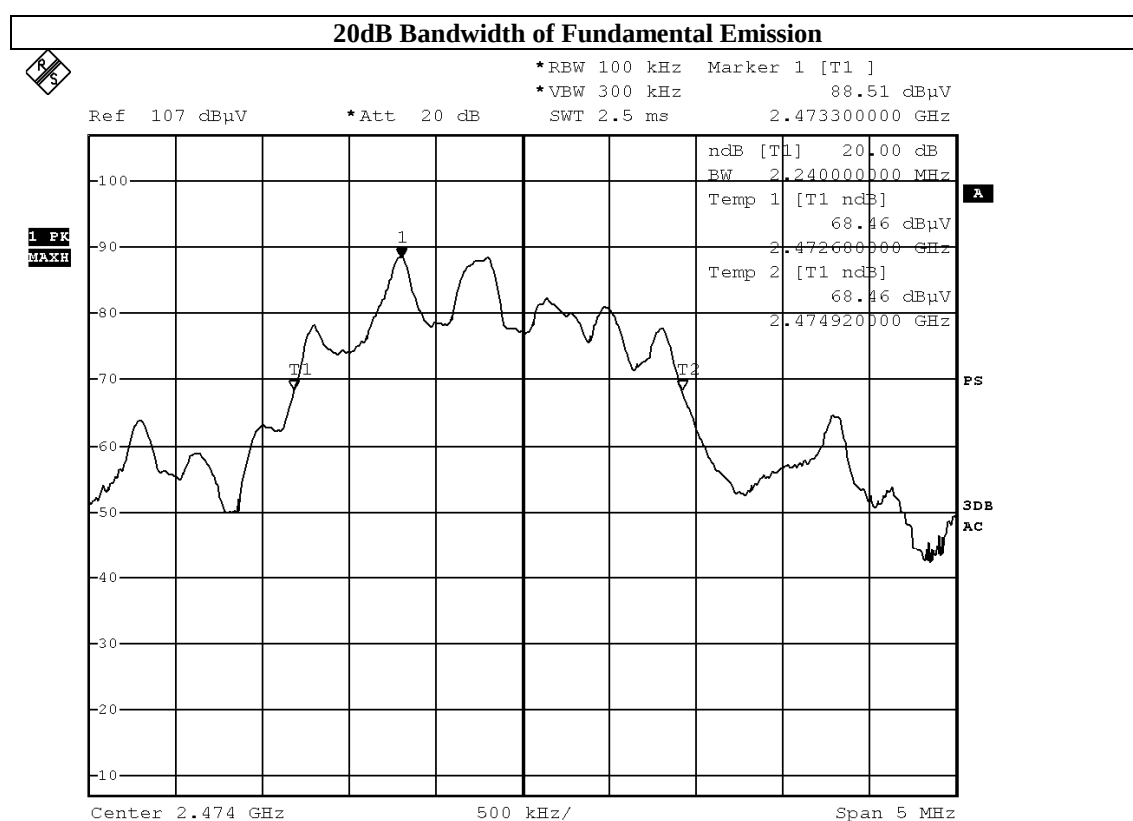
Date: 2015-04-15

Page 22 of 30

No.: DM119016

Limits for 20dB Bandwidth of Fundamental Emission (High Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2474	2.24



BMP

Date: 4.APR.2015 16:41:16

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 23 of 30

No.: DM119016

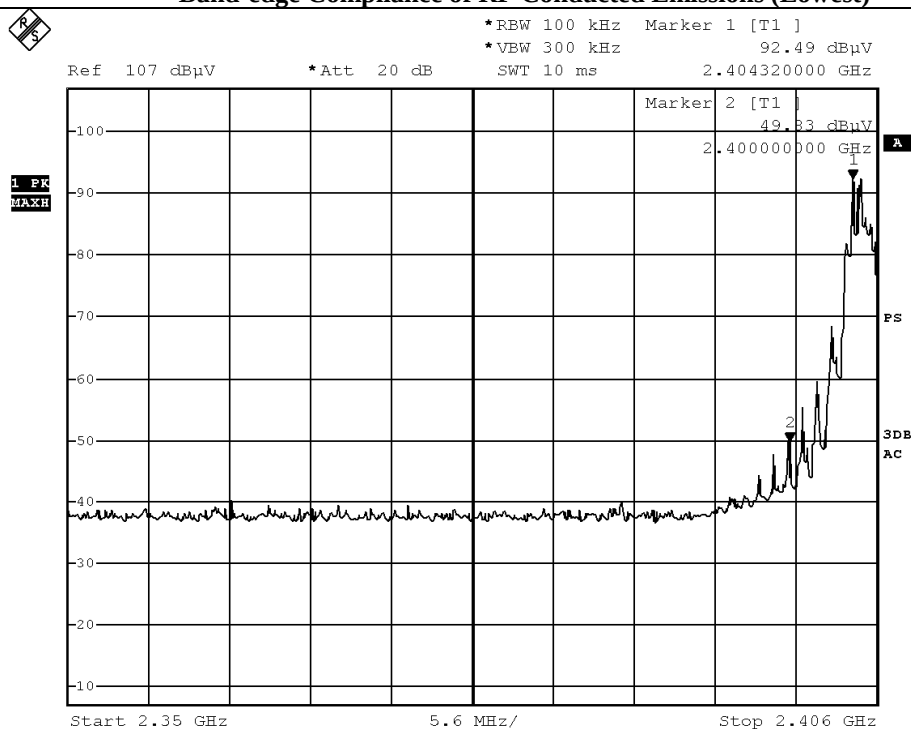
Band-edge Compliance of RF Conducted Emissions Measurement:

Limit :

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required.

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2400 – Lowest Fundamental (2405)	43.16

Band-edge Compliance of RF Conducted Emissions (Lowest)



BMP

Date: 4.APR.2015 16:50:13

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

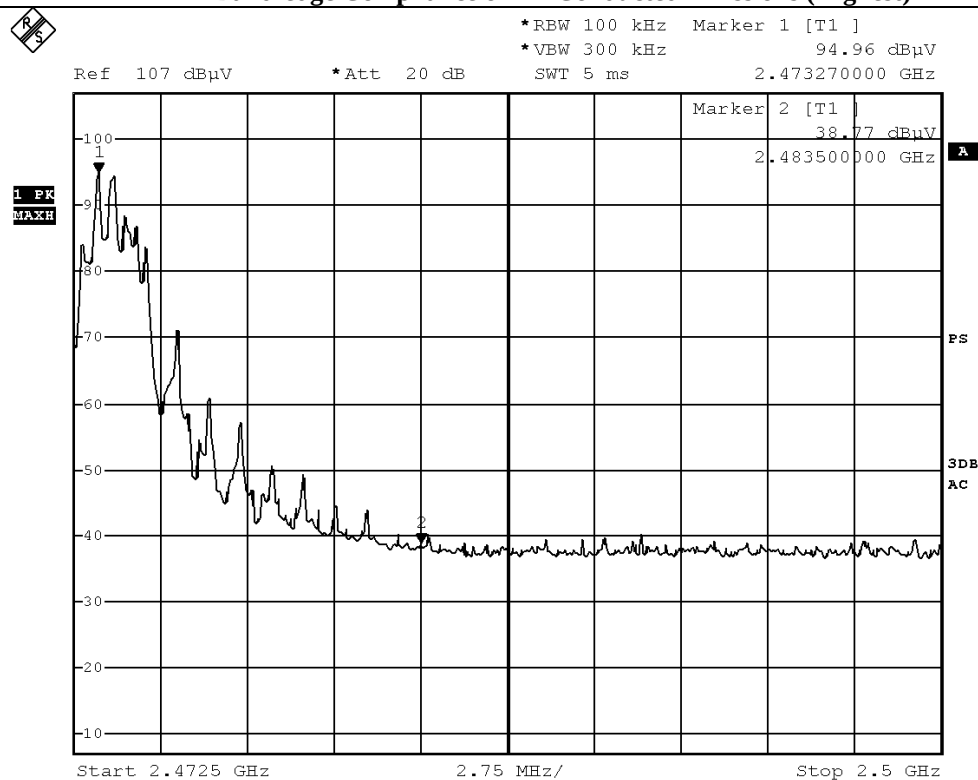
Page 24 of 30

No.: DM119016

Band-edge Compliance of RF Conducted Emissions Measurement:

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
Highest Fundamental (2474) - 2483.5	56.19

Band-edge Compliance of RF Conducted Emissions (Highest)



BMP

Date: 4.APR.2015 16:54:52

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 25 of 30

No.: DM119016

Band-edge Compliance of RF Radiated Emissions Measurement:

Limit :

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).

Result: Band-edge Compliance of RF Radiated Emissions (Lowest)

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2400.0	29.9	36.8	66.7	74.0	7.3	Vertical

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2400.0	11.1	36.8	47.9	54.0	6.1	Vertical

Result: Band-edge Compliance of RF Radiated Emissions (Highest)

Field Strength of Band-edge Compliance Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2483.5	18.8	36.4	55.2	74.0	18.8	Horizontal

Field Strength of Band-edge Compliance Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
2483.5	3.6	36.4	40.0	54.0	14.0	Horizontal

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 26 of 30

No.: DM119016

Appendix A

List of Measurement Equipment

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EMD004	LISN	ROHDE & SCHWARZ	ESH3-Z5	100102	2015.3.24	2016.3.24
EMD022	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100314	2015.3.24	2016.3.24
EMD035	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100441	2014.06.10	2015.06.10
EMD036	EMI Test Receiver	ROHDE & SCHWARZ	ESIB 26	100388	2014.06.10	2015.06.10
EMD041	TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	100261	2015.3.24	2016.3.24
EMD061	Biconilog Antenna	ETS.LINDGREN	3142C	00060439	2014.11.29	2016.11.29
EMD062	Double-Ridged Waveguide (1GHz – 18GHz)	ETS.LINDGREN	3117	00075933	2014.11.15	2015.11.15
EMD084	MULTI-DVICE CONTROLLER	ETS.LINDGREN	2090	00060107	N/A	N/A
EMD088	Video Contol Unit	ETS.LINDGREN	Y21953A	2601073	N/A	N/A
EMD093	Monitor	ViewSonic	VA9036	Q8X064201876	N/A	N/A
EMD102	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707454	N/A	N/A
EMD103	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707455	N/A	N/A
EMD105	FACT-3 EMC Chamber	ETS.LINDGREN	FACT-3	3803	N/A	N/A
EMD106	Shielding Room #1	ETS.LINDGREN	RFD-100	3802	N/A	N/A
	100V Insertion Unit	ROHDE & SCHWARZ	URV5-Z4	100464	2015.3.24	2016.3.24
EMD113	Pre-Amplifier	ROHDE & SCHWARZ	N/A	1129588	2015.3.24	2016.3.24
EMD124	Loop Antenna	ETS-Lindgren	6502	00104905	2014.04.28	2016.04.28
EMD131	Standard Gain Horn Antenna (18GHz – 26.5GHz)	Chengdu AINFO Inc.	JTXSLB-42-15-C-KF	J2021100721001	2013.04.09	2015.04.09

Remarks:-

N/A Not Applicable or Not Available

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 27 of 30

No.: DM119016

Appendix B

Photographs of EUT

Front View of the product



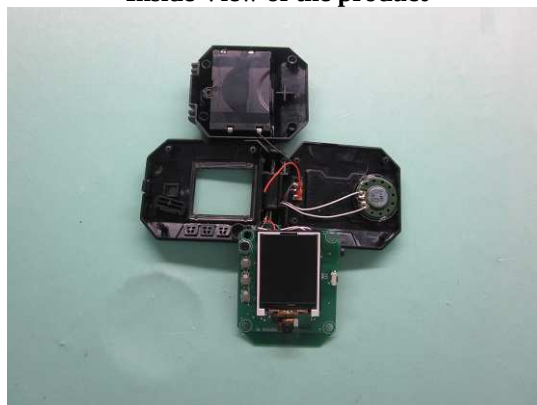
Rear View of the product



Inside View of the product



Inside View of the product



Inner Circuit Top View



Inner Circuit Bottom View



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

Date: 2015-04-15

Page 28 of 30

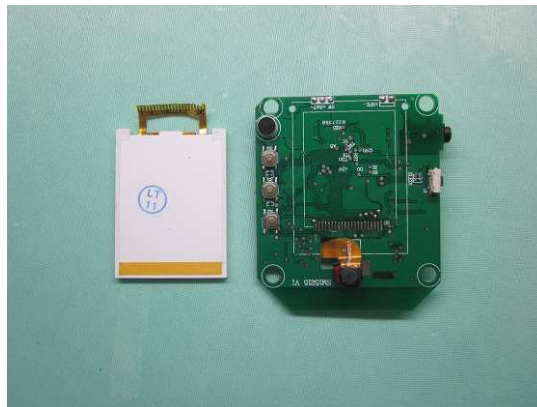
No.: DM119016

Photographs of EUT

Inner Circuit Bottom View



Inner Circuit Bottom View



Inner Circuit Top View



Inner Circuit Top View



Inner Circuit Bottom View



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.

For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

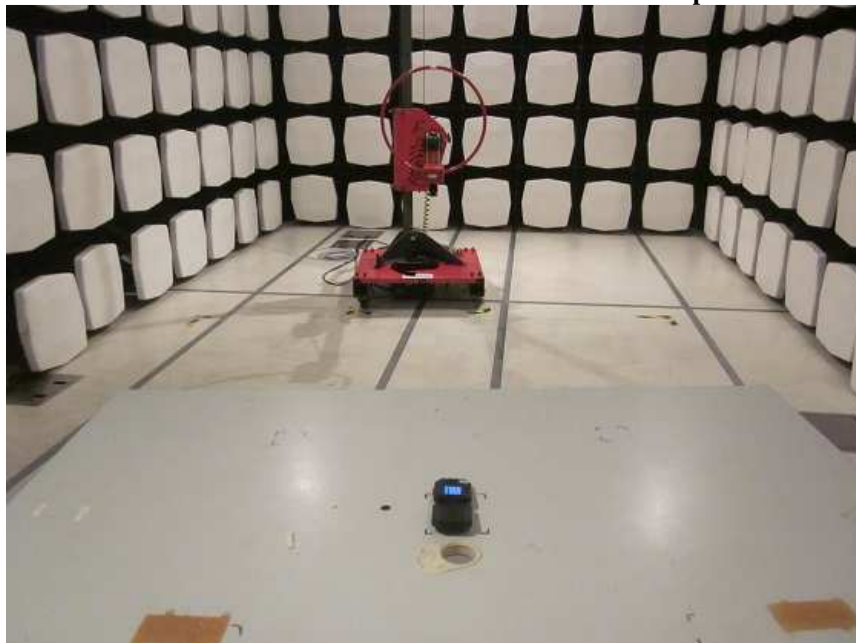
Date: 2015-04-15

Page 29 of 30

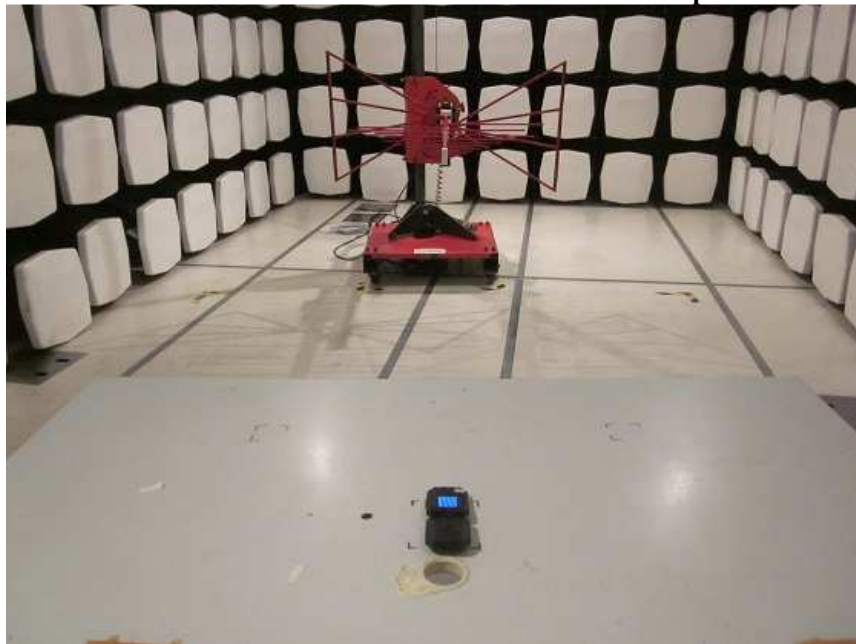
No.: DM119016

Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Radiated Emission Test Set Up



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.



STC Test Report

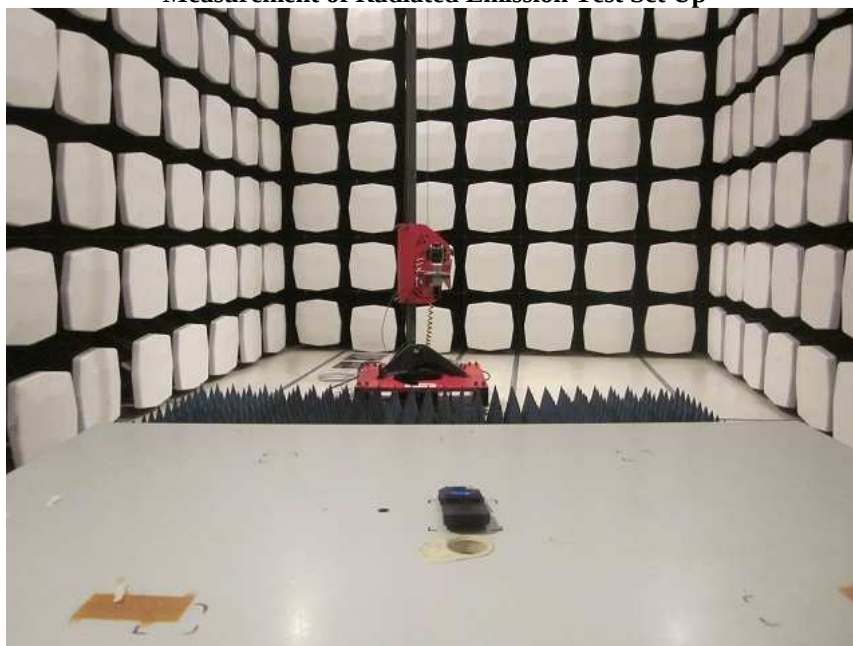
Date: 2015-04-15

Page 30 of 30

No.: DM119016

Photographs of EUT

Measurement of Radiated Emission Test Set Up



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

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org

This report shall not be reproduced unless with prior written approval from STC (Dongguan) Company Limited.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage.