



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 1 of 27

Applicant : SecureData Inc
3255 Cahuenga Blvd. West #111, Los Angeles, CA 90068, USA

Supplier / Manufacturer : Chase Glory Industrial Limited
Flat B-D, 15/F., Haribest Ind. Bldg., 45-47 Au Pui Wan St., Fotan,
Shating, N.T., Hong Kong

Description of Sample(s) : Submitted sample(s) said to be
Product: Secure USB BT
Brand Name: Secure Data
Model No.: SU-BT-BU-64
FCC ID: 2AOXICAUSB

Date Samples Received : 2018-07-30

Date Tested : 2018-09-13 to 2018-09-17

Investigation Requested : Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2017 and ANSI C63.10: 2013 for FCC Certification.

Conclusions : 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.

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


CHEUNG Chi, Kenneth
Authorized Signatory

A red circular stamp with a serrated edge. Inside the circle is the STC logo. The text around the logo reads "THE HONG KONG STANDARDS AND TESTING CENTRE LIMITED".



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 2 of 27

CONTENT:

Cover	Page 1 of 27
Content	Page 2 of 27
<u>1.0 General Details</u>	
1.1 Test Laboratory	Page 3 of 27
1.2 Equipment Under Test [EUT]	Page 3 of 27
1.3 Description of EUT operation	Page 3 of 27
1.4 Date of Order	Page 3 of 27
1.5 Submitted Sample(s)	Page 3 of 27
1.6 Test Duration	Page 3 of 27
1.7 Country of Origin	Page 3 of 27
<u>2.0 Technical Details</u>	
2.1 Investigations Requested	Page 4 of 27
2.2 Test Standards and Results Summary	Page 4 of 27
<u>3.0 Test Results</u>	
3.1 Emission	Page 5-23 of 27
<u>Appendix A</u>	
List of Measurement Equipment	Page 24 of 27
<u>Appendix B</u>	
Photograph(s) of Product	Page 25-27 of 27

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 3 of 27

1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate, New Territories, Hong Kong
Telephone: 852 2666 1888
Fax: 852 2664 4353

1.2 Equipment Under Test [EUT]

Description of Sample(s)

Product:	Secure USB BT
Manufacturer:	Chase Glory Industrial Limited Flat B-D, 15/F., Haribest Ind. Bldg., 45-47 Au Pui Wan St., Fotan, Shating, N.T., Hong Kong
Brand Name:	Secure Data
Model Number:	SU-BT-BU-64
Additional Model Number:	SU-BT-BU-XX (XX is the capacity of the drives)
Rating:	5Vd.c. (power by USB port)

1.3 Description of EUT Operation

The Equipment Under Test (EUT) is a Secure USB BT. It is a transceiver operating at 2402MHz~2480MHz and the RF signal was modulated by IC.

1.4 Date of Order

2018-07-30

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2018-09-13 to 2018-09-17

1.7 Country of Origin

China

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 4 of 27

2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2017 Regulations and ANSI C63.10: 2013 for FCC Certification.
The device was realized by test software.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.10: 2013	N/A	☒	☐	☐
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.10: 2013	N/A	☒	☐	☐
AC Mains Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10: 2013	N/A	☒	☐	☐
Antenna requirement	FCC 47CFR 15.203	N/A	N/A	☒	☐	☐

Note: N/A - Not Applicable

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 5 of 27

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

Ambient temperature 25°C

Relative humidity 57%

Test Requirement:	FCC 47CFR 15.249 & FCC 47CFR 15.209
Test Method:	ANSI C63.10:2013
Test Date:	2018-09-17
Mode of Operation:	Tx mode

Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. For emission measurements above 1 GHz, the sample was placed 1.5m 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.

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.

Test Report

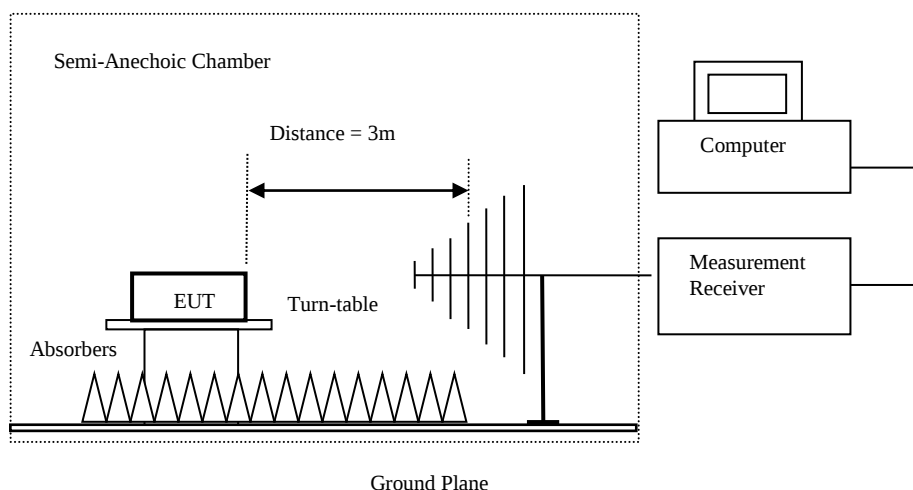
Date : 2018-09-18
No. : HMD18080001

Page 6 of 27

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)	RBW: 1MHz VBW: 1MHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold
Above 1GHz (Av)	RBW: 1MHz VBW: 10Hz 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.

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18

Page 7 of 27

No. : HMD18080001

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	50,000 [Quasi-Peak]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Tx mode (Lowest Frequency Channel-2402 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
2402.00	51.0	36.8	87.8	24,547.1	500,000	Vertical
2402.00	51.8	36.4	88.2	25,704.0	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
2402.00	42.7	36.8	79.5	9,440.6	50,000	Vertical
2402.00	41.7	36.4	78.1	8,035.3	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
4804.0	14.7	41.5	56.2	645.7	5,000	Vertical
4804.0	13.0	42.4	55.4	590.9	5,000	Horizontal
7206.0	9.8	45.1	54.9	552.7	5,000	Vertical
7206.0	8.8	46.2	55.0	559.8	5,000	Horizontal
9608.0	7.2	48.0	55.2	578.1	5,000	Vertical
9608.0	6.4	48.8	55.2	574.1	5,000	Horizontal
12010.0	4.01	51.8	55.8	617.3	5,000	Vertical
12010.0	3.6	52.4	56.0	632.4	5,000	Horizontal

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 8 of 27

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
4804.0	0.8	41.5	42.3	130.8	500	Vertical
4804.0	-1.7	42.4	40.7	108.6	500	Horizontal
7206.0	-5.3	45.1	39.8	97.3	500	Vertical
7206.0	-5.7	46.2	40.5	105.7	500	Horizontal
9608.0	-8.7	48.0	39.3	92.6	500	Vertical
9608.0	-9.1	48.8	39.8	97.2	500	Horizontal
12010.0	-11.4	51.8	40.5	105.3	500	Vertical
12010.0	-12.3	52.4	40.1	101.5	500	Horizontal

Results of Tx mode (Middle Frequency Channel- 2440MHz): 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
2440.00	50.6	36.8	87.4	23,442.3	500,000	Vertical
2440.00	51.8	36.4	88.2	25,704.0	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
2440.00	42.5	36.8	79.3	9,225.7	50,000	Vertical
2440.00	42.3	36.4	78.7	8,609.9	50,000	Horizontal

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 9 of 27

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
4880.0	14.1	41.6	55.7	608.1	5,000	Vertical
4880.0	12.4	42.5	54.9	555.3	5,000	Horizontal
7320.0	1.9	53.2	55.1	570.8	5,000	Vertical
7320.0	8.9	46.3	55.2	574.8	5,000	Horizontal
9760.0	7.1	48.1	55.2	574.8	5,000	Vertical
9760.0	6.4	48.9	55.3	579.4	5,000	Horizontal
12200.0	3.71	51.6	55.3	582.8	5,000	Vertical
12200.0	3.5	52.5	56.0	631.0	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
4880.0	-1.0	41.6	40.6	107.5	500	Vertical
4880.0	-2.8	42.5	39.7	97.1	500	Horizontal
7320.0	-5.1	45.2	40.1	100.9	500	Vertical
7320.0	-7.0	46.3	39.3	91.9	500	Horizontal
9760.0	-8.7	48.1	39.5	93.9	500	Vertical
9760.0	-8.1	48.9	40.8	109.3	500	Horizontal
12200.0	-11.1	51.6	40.5	106.2	500	Vertical
12200.0	-11.3	52.5	41.2	114.4	500	Horizontal

Results of Tx mode (Highest Frequency Channel – 2480MHz): 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
2480.00	50.6	36.8	87.4	23,442.3	500,000	Vertical
2480.00	51.9	36.4	88.3	26,001.6	500,000	Horizontal

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 10 of 27

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
2480.00	41.8	36.8	78.6	8,511.4	50,000	Vertical
2480.00	43.1	36.4	79.5	9,440.6	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
4960.0	14.7	41.4	56.1	634.6	5,000	Vertical
4960.0	12.5	42.7	55.2	576.8	5,000	Horizontal
7440.0	9.6	45.6	55.2	576.1	5,000	Vertical
7440.0	8.7	46.5	55.2	572.8	5,000	Horizontal
9920.0	7.3	48.6	55.9	623.0	5,000	Vertical
9920.0	6.1	49.7	55.8	618.0	5,000	Horizontal
12400.0	3.5	51.7	55.2	572.8	5,000	Vertical
12400.0	2.7	52.7	55.4	590.2	5,000	Horizontal

Field Strength of Harmonics Emission						
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
4960.0	0.0	41.4	41.4	117.9	500	Vertical
4960.0	-2.8	42.7	39.9	99.0	500	Horizontal
7440.0	-6.4	45.6	39.3	91.7	500	Vertical
7440.0	-6.2	46.5	40.3	103.2	500	Horizontal
9920.0	-9.2	48.6	39.4	93.8	500	Vertical
9920.0	-9.6	49.7	40.1	100.9	500	Horizontal
12400.0	-11.4	51.7	40.3	103.9	500	Vertical
12400.0	-12.5	52.7	40.2	102.2	500	Horizontal

Remarks:

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

Calculated measurement uncertainty (9kHz-30MHz): 2.0dB

(30MHz -1GHz): 4.9dB

(1GHz -6GHz): 4.02dB

(6GHz -26.5GHz): 4.03dB

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

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 11 of 27

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: RF Radiated Emissions (1GHz-26GHz) (Lowest)-GFSK

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	23.5	36.8	60.3	74.0	13.7	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	9.3	36.8	46.1	54.0	7.9	Vertical

Result: RF Radiated Emissions (1GHz-26GHz) (Highest) -GFSK

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	18.1	36.8	54.9	74.0	19.1	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
2483.5	2.5	36.8	39.3	54.0	14.7	Vertical

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18

Page 12 of 27

No. : HMD18080001

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

Frequency Range [MHz]	Quasi-Peak Limits [μ 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
Above 960	500

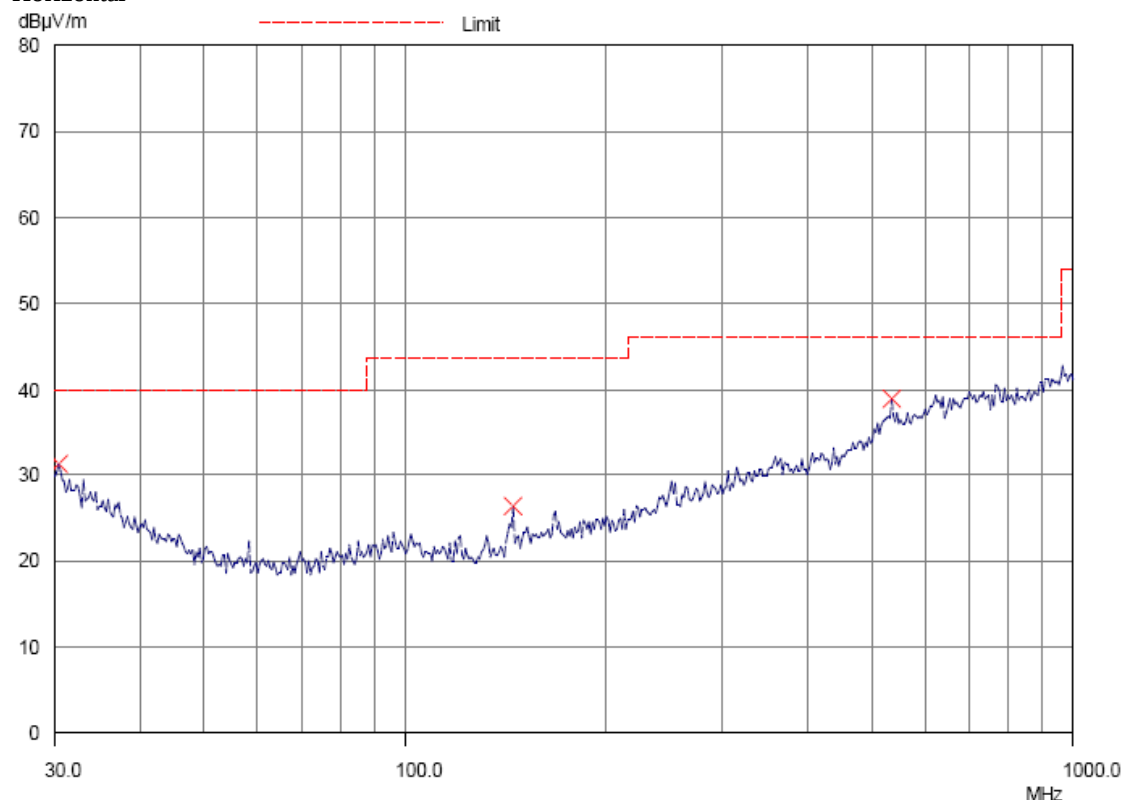
The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of TX mode (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Results of TX mode (30MHz – 1GHz)(2402MHz worst case): PASS

Horizontal



The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18

Page 13 of 27

No. : HMD18080001

Results of TX mode (30MHz – 1GHz) (2402MHz worst case): 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
30.2	Horizontal	31.3	40.0	36.7	100
145.2	Horizontal	26.3	43.5	20.7	150
532.7	Horizontal	39.0	46.0	88.9	200

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18

Page 14 of 27

No. : HMD18080001

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

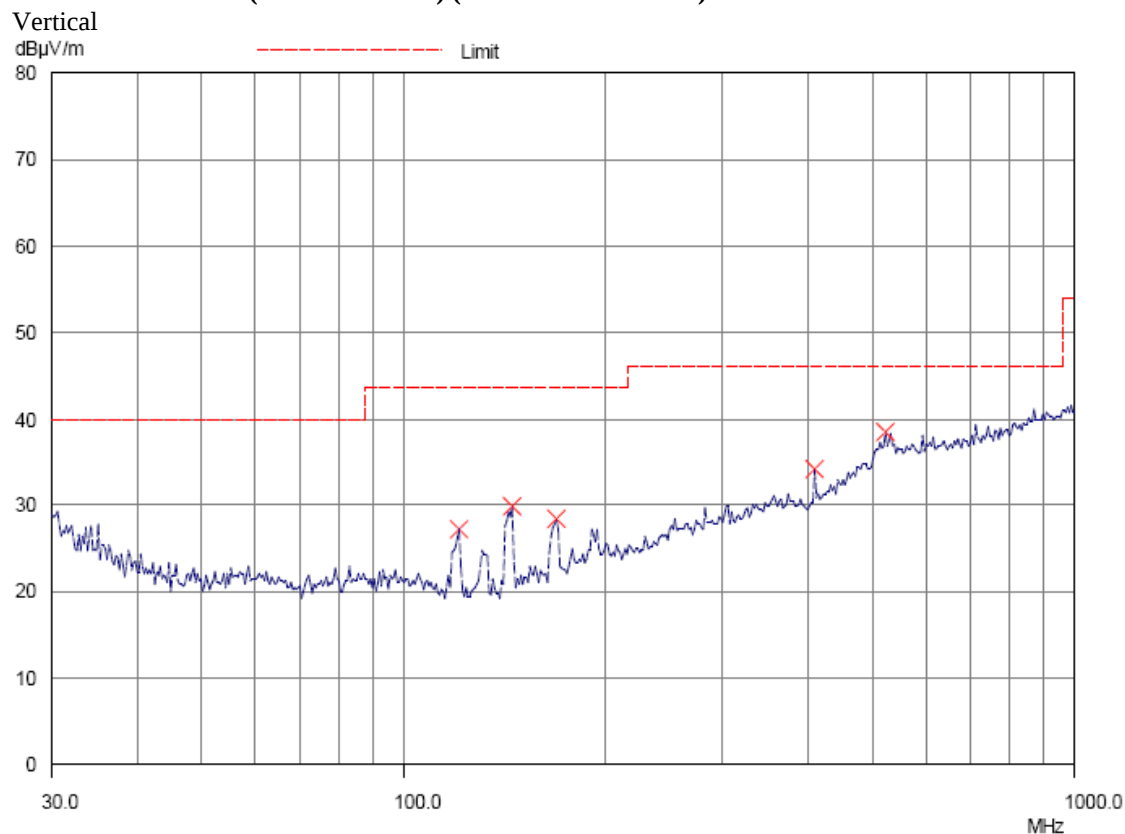
Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above 960	500

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 FCC Limits

Results of TX mode (30MHz – 1GHz) (2402MHz worst case): PASS



The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 15 of 27

Results of TX mode (30MHz – 1GHz) (2402MHz worst case): 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
121.2	Vertical	27.2	43.5	22.9	150
145.1	Vertical	29.9	43.5	31.2	150
169.3	Vertical	28.4	43.5	26.3	150
408.0	Vertical	34.2	46.0	51.3	200
520.1	Vertical	38.4	46.0	83.2	200

Remarks:

Calculated measurement uncertainty (30MHz – 1GHz): 4.9dB

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

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.

Test Report

Date : 2018-09-18
No. : HMD18080001

Page 16 of 27

3.1.2 AC Mains Conducted Emissions (0.15MHz to 30MHz)

Ambient temperature 25°C

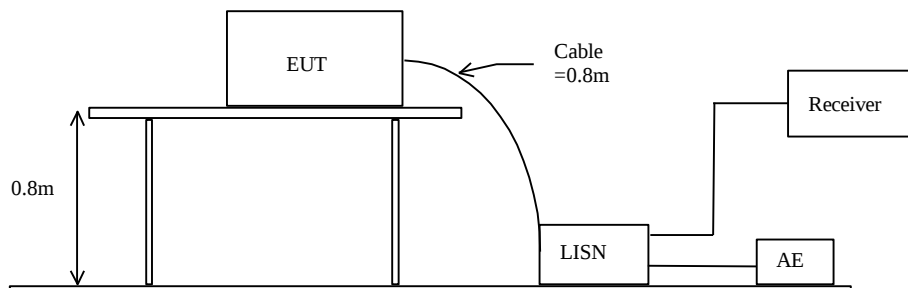
Relative humidity 57%

Test Requirement:	FCC 47CFR 15.249 & FCC 47CFR 15.207
Test Method:	ANSI C63.10:2013
Test Date:	2018-09-14
Mode of Operation:	TX mode
Test Voltage:	120Va.c. 60Hz

Test Method:

The test was performed in accordance with ANSI C63.10:2013, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 17 of 27

Limits for Conducted Emissions (FCC 47 CFR 15.207):

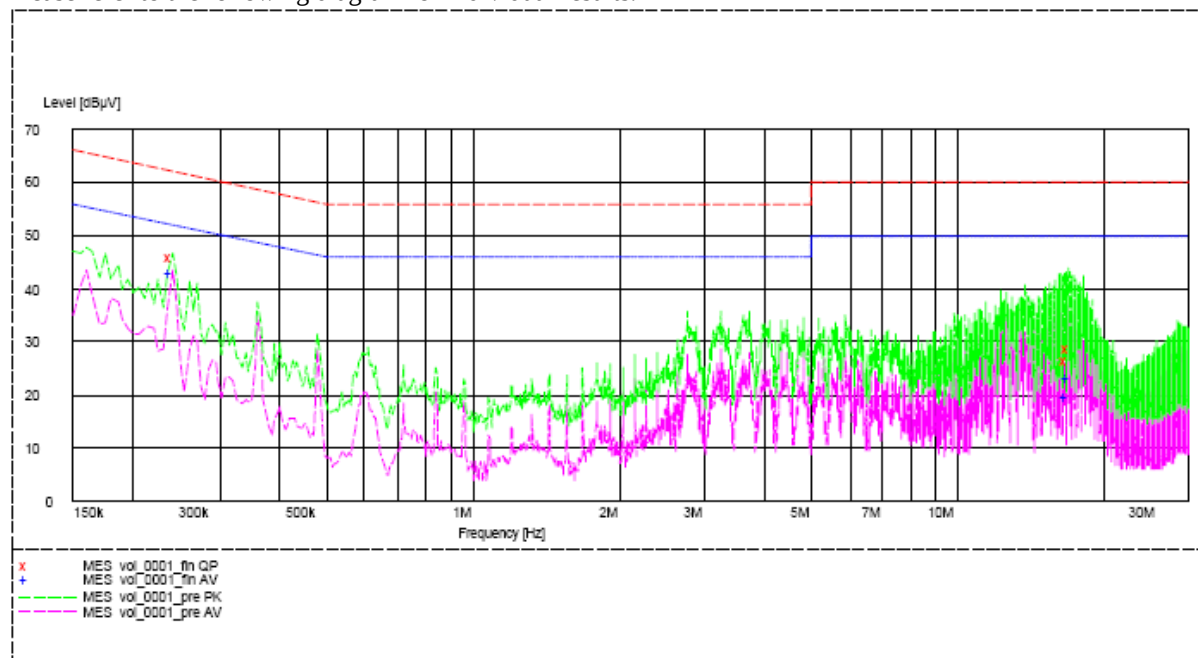
Frequency Range [MHz]	Quasi-Peak Limits [dB μ V]	Average [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of TX mode (L): PASS

Please refer to the following diagram for individual results.



Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB μ V	Limit dB μ V	Level dB μ V	Limit dB μ V
Live	0.240	45.9	62.0	-*-	-*-
Live	16.735	26.5	60.0	-*-	-*-
Live	16.975	28.5	60.0	-*-	-*-
Live	0.240	-*-	-*-	43.0	52.0
Live	16.735	-*-	-*-	19.8	50.0
Live	16.975	-*-	-*-	23.4	50.0

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.

Test Report

Date : 2018-09-18
No. : HMD18080001

Page 18 of 27

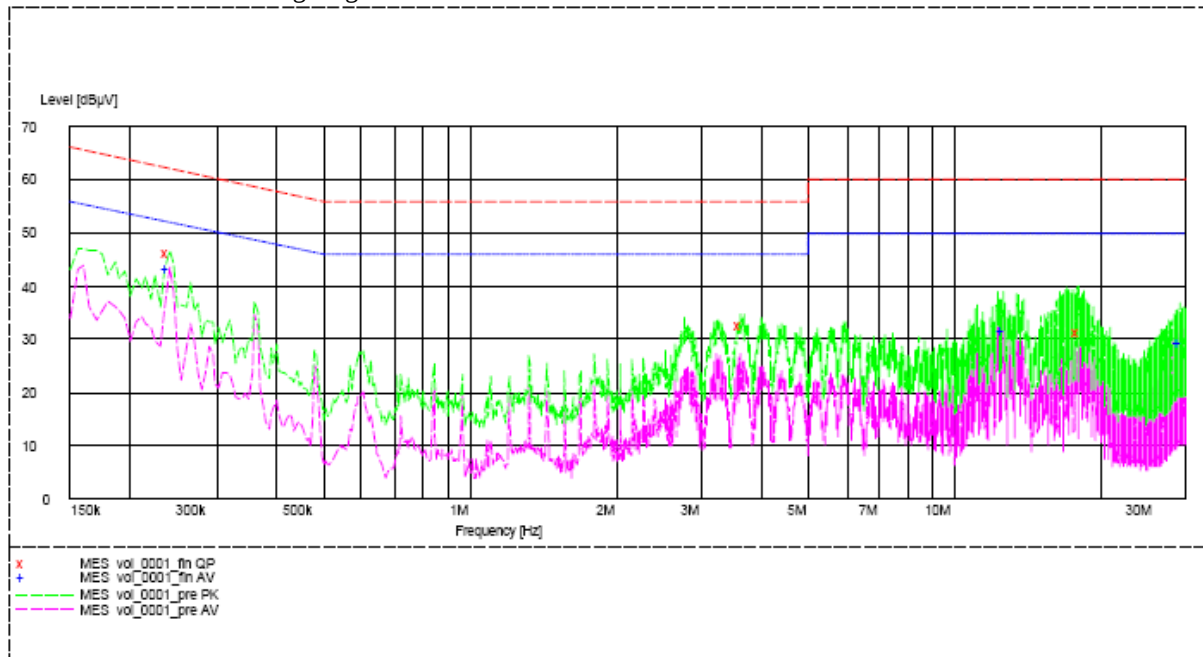
Frequency Range [MHz]	Quasi-Peak Limits [dB μ V]	Average [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of TX mode (N): PASS

Please refer to the following diagram for individual results.



Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB μ V	Limit dB μ V	Level dB μ V	Limit dB μ V
Neutral	0.240	46.1	62.0	-*-	-*-
Neutral	3.620	32.5	56.0	-*-	-*-
Neutral	18.095	31.3	60.0	-*-	-*-
Neutral	0.240	-*-	-*-	43.4	52.0
Neutral	12.650	-*-	-*-	31.8	50.0
Neutral	29.080	-*-	-*-	29.3	50.0

Remarks:

Calculated measurement uncertainty (0.15MHz – 30MHz): 3.2dB

-*- Emission(s) that is far below the corresponding limit line.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 19 of 27

3.1.3 Antenna Requirement

Ambient temperature 25°C

Relative humidity 57%

Test Requirements: § 15.203

Test Specification:

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Test Results:

This is small SMD chip antenna. There is no external antenna, the antenna gain =0dBi. User is unable to remove or changed the Antenna.

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 20 of 27

3.1.4 20dB Bandwidth of Fundamental Emission

Ambient temperature 25°C

Relative humidity 57%

Test Requirement: FCC 47 CFR 15.249
Test Method: ANSI C63.10:2013
Test Date: 2018-09-13
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.

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taiipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

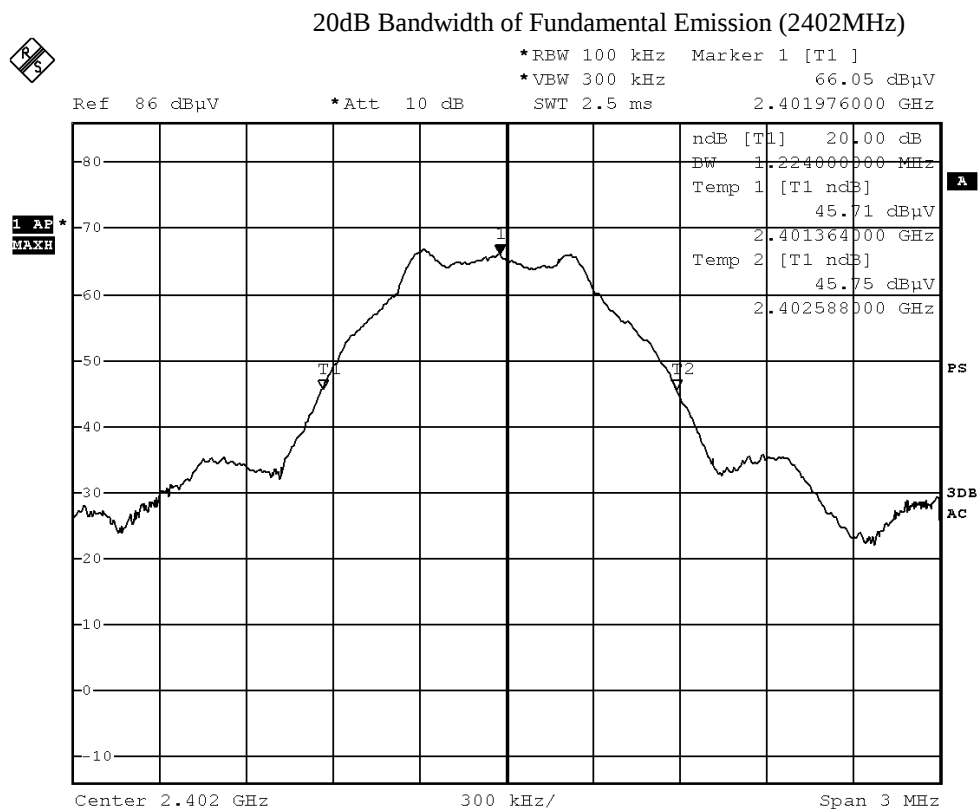
Date : 2018-09-18

Page 21 of 27

No. : HMD18080001

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

Frequency Range [MHz]	20dB Bandwidth [MHz]
2402.0	1.224



The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18

Page 22 of 27

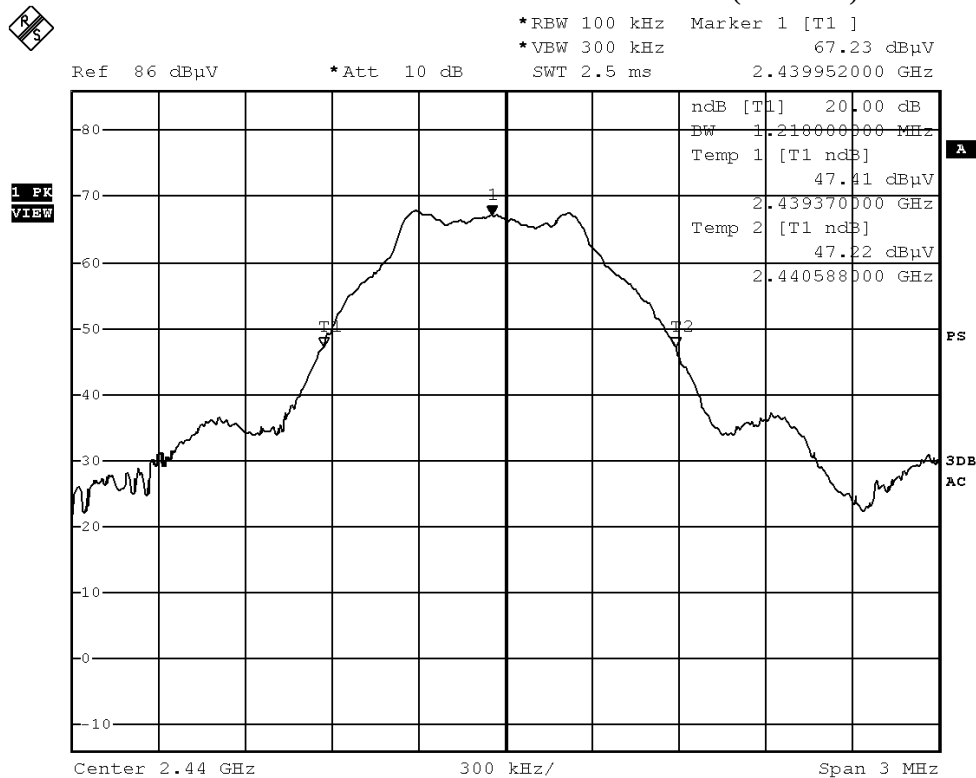
No. : HMD18080001

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

Frequency Range [MHz]	20dB Bandwidth [MHz]
2440.0	1.210



20dB Bandwidth of Fundamental Emission (2440MHz)



The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18

Page 23 of 27

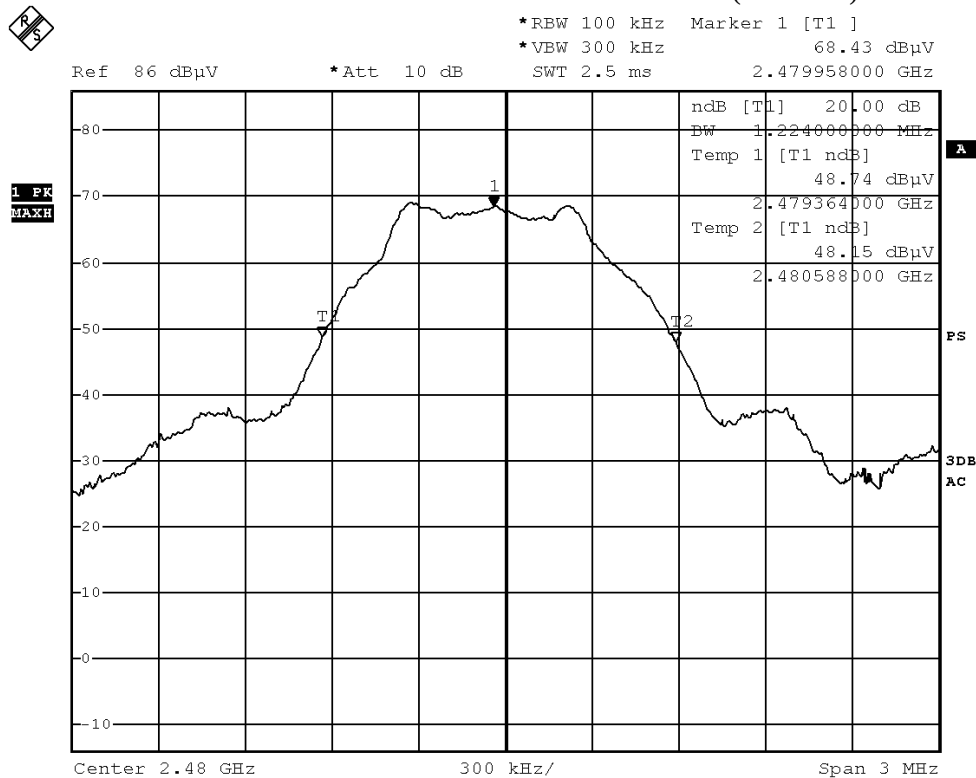
No. : HMD18080001

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

Frequency Range [MHz]	20dB Bandwidth [MHz]
2480.0	1.224



20dB Bandwidth of Fundamental Emission (2480MHz)



The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 24 of 27

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECCHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2018/01/24	2019/01/24
EM356	ANTENNA POSITIONING TOWER	ETS-LINDGREN	2171B	00150346	N/A	N/A
EM354	BICONILOG ANTENNA	ETS-LINDGREN	3143B	00142073	2018/03/29	2020/03/29
EM229	EMI TEST RECEIVER	R&S	ESIB40	100248	2018/06/01	2019/06/01
EM276	BROADBAND HORN ANTENNA	A-INFOMW	JXTXLB-10180-SF	J2031090903007	2018/04/27	2020/04/27
EM300	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-09	00130130	2018/05/13	2019/05/13
EM301	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-10	00130988	2018/05/13	2019/05/13
EM302	PRECISION OMNIDIRECTIONAL DIPOLE (1 – 6GHZ)	SEIBERSDORF LABORATORIES	POD 16	161806/L	2018/05/11	2020/05/11
EM303	PRECISION OMNIDIRECTIONAL DIPOLE (6 – 18GHZ)	SEIBERSDORF LABORATORIES	POD 618	6181908/L	2018/05/11	2020/05/11
EM353	LOOP ANTENNA	ETS LINDGREN	6502	00206533	2018/04/16	2020/04/16
EM045	POWER METER	ROHDE & SCHWARZ	NRVD	843246/028	2017/10/14	2018/10/14

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM119	LISN	R & S	ESH3-Z5	0831.5518.52	2017/11/29	2018/11/29
EM145	EMI TEST RECEIVER	R & S	ESCS 30	830245/021	2018/06/01	2019/06/01
EM179	IMPULSE LIMITER	ROHDE & SCHWARZ	ESH3-Z2	357-8810.52/54	2018/01/11	2019/01/11
EM154	SHIELDING ROOM	SIEMENS MATSUSHITA COMPONENTS	N/A	803-740-057-99A	2017/02/02	2022/02/02
N/A	MEASUREMENT AND EVALUATION SOFTWARE	ROHDE & SCHWARZ	BSIB-K1	V1.20	N/A	N/A

Remarks:-

N/A Not Applicable or Not Available

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.

Test Report

Date : 2018-09-18

No. : HMD18080001

Page 25 of 27

Appendix B

Photographs of EUT

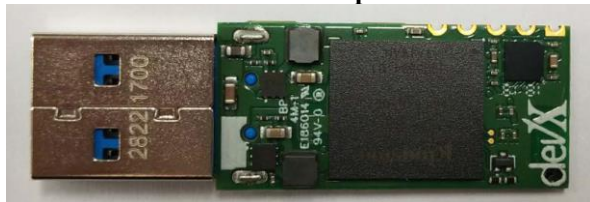
View of the product



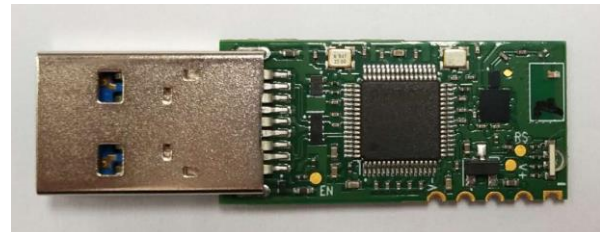
View of the product



Inner Circuit Top View



Inner Circuit Bottom View



Test Report

Date : 2018-09-18
No. : HMD18080001

Page 26 of 27

Photographs of EUT

Measurement of Radiated Emission Test Set Up (9kHz to 30MHz)



Measurement of Radiated Emission Test Set Up (30MHz to 1000MHz)



The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.

Test Report

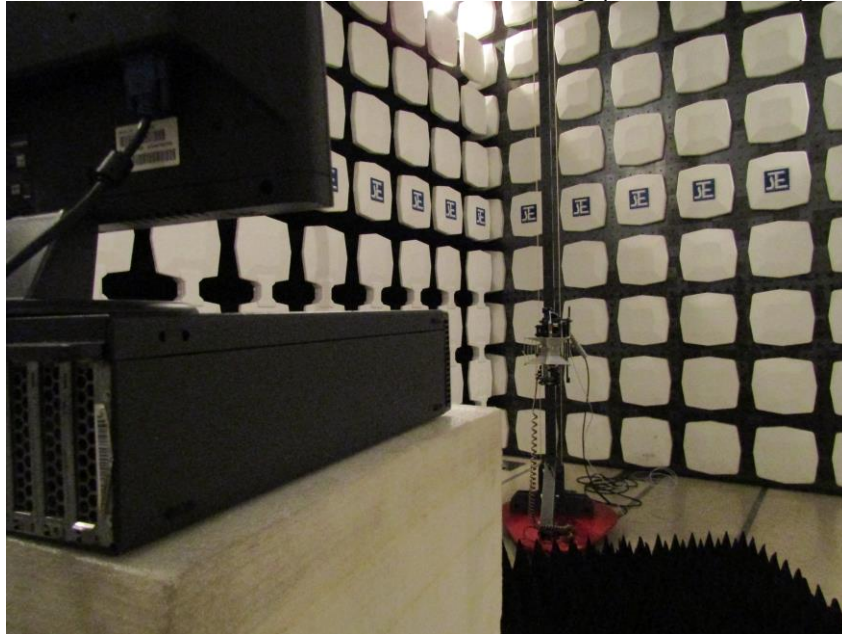
Date : 2018-09-18

No. : HMD18080001

Page 27 of 27

Photographs of EUT

Measurement of Radiated Emission Test Set Up (Above 1000MHz)



Measurement of Conducted Emission Test Set Up



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

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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.

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.