FCC Test Report

APPLICANT : Lenovo(Shanghai) Electronics Technology

Co., Ltd.

EQUIPMENT: Portable Tablet Computer

BRAND NAME : Lenovo

MODEL NAME : Lenovo TB-J616F

FCC ID : O57TBJ616F

STANDARD : 47 CFR Part 15 Subpart B

CLASSIFICATION: Certification

TEST DATE(S) : May 07, 2021 ~ May 09, 2021

We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.

Reviewed by: Jason Jia / Supervisor

JasonJia

Approved by: Alex Wang / Manager

Sporton International (Kunshan) Inc.

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

ACCREDITED
Cert #5145.02

Report No.: FC141907

TABLE OF CONTENTS

RE	EVISION HISTORY3			
en		RY OF TEST RESULT	,	
		ERAL DESCRIPTION		
••	1.1.	Applicant		
	1.1.	Manufacturer		
	1.3.	Product Feature of Equipment Under Test		
	1.4.	Product Specification of Equipment Under Test		
	1.5.	Modification of EUT		
	1.6.	Test Location		
	1.7.	Test Software		
	1.8.	Applicable Standards	7	
2.	TEST	CONFIGURATION OF EQUIPMENT UNDER TEST	8	
	2.1.	Test Mode	Ε	
	2.2.	Connection Diagram of Test System	10	
	2.3.	Support Unit used in test configuration and system	11	
	2.4.	EUT Operation Test Setup	11	
3.	TEST	RESULT	12	
	3.1.	Test of AC Conducted Emission Measurement	12	
	3.2.	Test of Radiated Emission Measurement	16	
4.	LIST	OF MEASURING EQUIPMENT	20	
5.	UNCE	ERTAINTY OF EVALUATION	21	

APPENDIX A. SETUP PHOTOGRAPHS

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 2 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC141907	Rev. 01	Initial issue of report	May 28, 2021

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 3 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report No.: FC141907

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
					Under limit
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	7.69 dB at
					0.162 MHz
					Under limit
2.0	15.109 Radiated Emission	45.400	< 15.109 limits	PASS	3.28 dB at
3.2		Radiated Emission			73.650 MHz
					for Quasi-Peak

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Sporton International (Kunshan) Inc.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 4 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report No.: FC141907

1. General Description

1.1. Applicant

Lenovo(Shanghai) Electronics Technology Co., Ltd.

Section 304-305, Building No. 4, # 222, Meiyue Road, China (Shanghai) Pilot Free Trade Zone

Report No. : FC141907

1.2. Manufacturer

Lenovo PC HK Limited

23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong, P.R.China

1.3. Product Feature of Equipment Under Test

	Product Feature
Equipment	Portable Tablet Computer
Brand Name	Lenovo
Model Name	Lenovo TB-J616F
FCC ID	O57TBJ616F
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE FM Receiver and GNSS
HW Version	Lenovo Tablet TB-J616F
SW Version	Lenovo Tablet TB-J616F_RF01_210429
EUT Stage	Identical Prototype

Remark:

- 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
- 2. There are five types of EUT. The difference could be referred to the Product Equality Declaration exhibit submitted. According to the differences, we choose sample 1 to perform full test and sample 2/3/4/5 to verify the difference.

 Sporton International (Kunshan) Inc.
 Page Number
 : 5 of 21

 TEL: +86-512-57900158
 Report Issued Date
 : May 28, 2021

 FAX: +86-512-57900958
 Report Version
 : Rev. 01

FCC ID : O57TBJ616F Report Template No.: BU5-FC15B Version 3.0

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification			
	802.11b/g/n: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac: 5150 MHz ~ 5250 MHz;		
Tx Frequency	5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz		
	Bluetooth: 2400 MHz ~ 2483.5 MHz		
Rx Frequency	802.11b/g/n: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac: 5150 MHz ~ 5250 MHz; 5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz GNSS: 1559 MHz ~ 1610 MHz FM: 88 MHz ~ 108 MHz		
Antenna Type	WLAN: IFA Antenna Bluetooth: IFA Antenna GNSS: IFA Antenna FM: External Earphone Antenna		
Type of Modulation	802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) Bluetooth LE: GFSK Bluetooth (1Mbps): GFSK Bluetooth (2Mbps): π/4-DQPSK Bluetooth (3Mbps): 8-DPSK GNSS: BPSK FM		

1.5. Modification of EUT

No modifications are made to the EUT during all test items.

Sporton International (Kunshan) Inc. TEL: +86-512-57900158

FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 6 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

1.6. Test Location

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.				
	No. 1098, Pengxi North Road, Kunshan Economic Development Zone				
Toot Site Leastion	Jiangsu Province 215300 People's Republic of China				
Test Site Location	TEL: +86-512-57900158				
	FAX: +86-512-57900958	}			
	0	500 Davis votice Na	FCC Test Firm		
Test Site No.	Sporton Site No.	FCC Designation No.	Registration No.		
	CO01-KS 03CH02-KS	CN1257	314309		

1.7. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH02-KS	AUDIX	E3	6.2009-8-24a
2.	CO01-KS	AUDIX	E3	6.2009-8-24

1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart B
- ANSI C63.4-2014

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

Sporton International (Kunshan) Inc.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 7 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
	Mode 1: Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + USB Cable 1(Charging from Adapter 1) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
	Mode 2: Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + USB Cable 2(Charging from Adapter 2) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
	Mode 3: Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + USB Cable 2(Charging from Adapter 3) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
	Mode 4: Bluetooth Idle + WLAN (5G) Idle + FM Rx(98MHz) + USB Cable 2(Charging from Adapter 2) With Cradle + Battery 1 + Pen 1 + Pen 2 for Sample 1
AC Conducted	Mode 5: Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 1(Data Link with Notebook) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
Emission	Mode 6: Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
	Mode 7: Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 1(Data Link with Notebook) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 2
	Mode 8: Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 1(Data Link with Notebook) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 3
	Mode 9: Bluetooth Idle + WLAN (2.4G) Idle + Camera(Front) + USB Cable 2(Charging from Adapter 3) + Battery 2 + Keyboard + Pen 1 + Pen 2 for Sample 4
	Mode 10 : Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 2 + Keyboard + Pen 1 + Pen 2 for Sample 4
	Mode 11 : Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 2 + Keyboard + Pen 1 + Pen 2 for Sample 5

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 8 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

Mode 1:	Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + USB Cable 1(Charging from Adapter 1) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
	Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + USB Cable 2(Charging from Adapter 2) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1

Report No.: FC141907

- Mode 3: Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + USB Cable 1(Charging from Adapter 3) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
- Mode 4: Bluetooth Idle + WLAN (5G) Idle + FM Rx(98MHz) + Battery 1 + Earphone + Keyboard + Pen 1 + Pen 2 for Sample 1
- Mode 5: Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 1(Charging from Adapter 3)With Cradle + Battery 1 + Earphone + Pen 1 + Pen 2 for Sample 1

Radiated Emissions

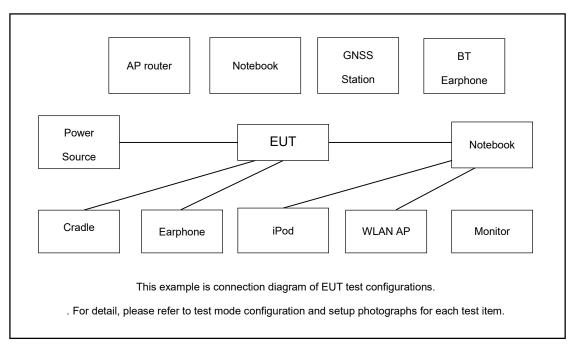
- Mode 6: Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + USB Cable 1(Data Link with Notebook) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
- Mode 7: Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 1
- Mode 8: Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + PAD Charging to Pen 1 + Keyboard + Pen 2 for Sample 1
- Mode 9: Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 2
- Mode 10 : Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 1 + Keyboard + Pen 1 + Pen 2 for Sample 3
- Mode 11 : Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + PAD Charging to Pen 1 + Keyboard + Pen 2 for Sample 4
- Mode 12 : Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 2 + Keyboard + Pen 1 + Pen 2 for Sample 4
- Mode 13 : Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + USB Cable 2(Data Link with Notebook) + Battery 2 + Keyboard + Pen 1 + Pen 2 for Sample 5

Remark:

- 1. The worst case of AC is mode 3; only the test data of this mode is reported.
- 2. The worst case of RE is mode 8; only the test data of this mode is reported.
- Data Link with Notebook means data application transferred mode between EUT and Notebook.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 9 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

2.2. Connection Diagram of Test System



The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application

Sporton International (Kunshan) Inc.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 10 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Vector Signal Generator	R&S	SMBV100A	258305	N/A	N/A
2.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
3.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
5.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
6.	Notebook	Dell	Latitude3440	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
7.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
8.	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A
9.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
10.	Hard disk	KINGSHARE	KSP6120G	Fcc DoC	Shielded, 1.2m	N/A
11.	Earphone	Lenovo	SH100	N/A	Unshielded, 1.2m	N/A
12.	SD Card	Kingston	8GB	N/A	N/A	N/A

2.4. EUT Operation Test Setup

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

- 1. Data application is transferred between notebook and EUT via USB cable.
- 2. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.
- 3. Turn on MPEG4 function.
- 4. Turn on camera to capture images.
- 5. Turn on FM function to make the EUT receive continuous signals from FM station.

Sporton International (Kunshan) Inc. TEL: +86-512-57900158

FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 11 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report No.: FC141907

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

<Class B Limit>

Frequency of emission	Conducted	limit (dBuV)
(MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

^{*}Decreases with the logarithm of the frequency.

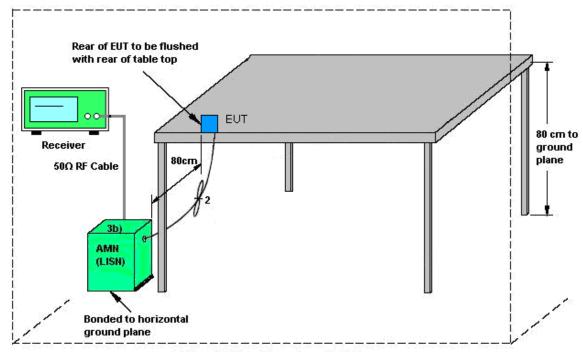
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedure

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.1.4 Test Setup



AMN = Artificial mains network (LISN)

AE = Associated equipment

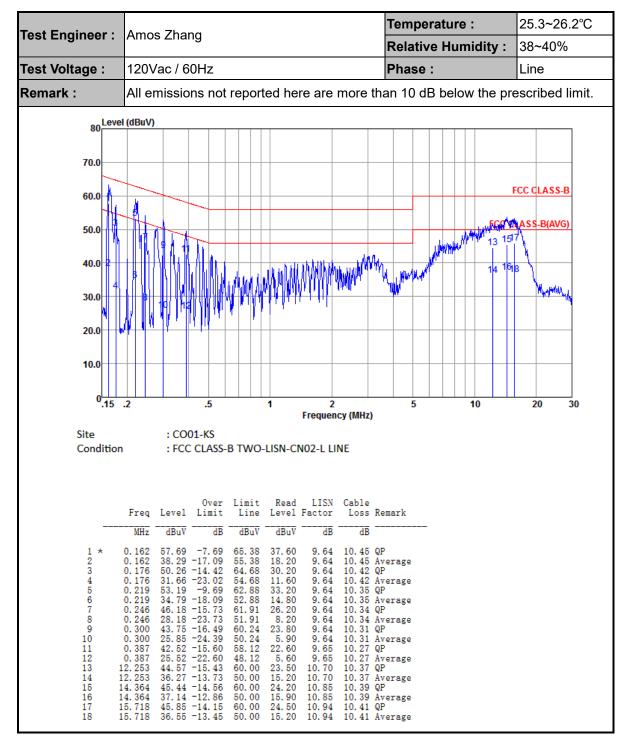
EUT = Equipment under test

ISN = Impedance stabilization network

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 13 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

3.1.5 Test Result of AC Conducted Emission



TEL: +86-512-57900158 FAX: +86-512-57900958 FCCID: O57TBJ616F Page Number : 14 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

Temperature: 25.3~26.2°C Test Engineer: Amos Zhang **Relative Humidity:** 38~40% Test Voltage: 120Vac / 60Hz Phase: Neutral Remark: All emissions not reported here are more than 10 dB below the prescribed limit. 80 Level (dBuV) 70.0 FCC CLASS-B 60.0 50.0 40.0 30.0 20.0 10.0 5 10 30 Frequency (MHz) Site : CO01-KS Condition : FCC CLASS-B TWO-LISN-CN02-N NEUTRAL 0ver Limit Read LISN Cable Freq Level Level Factor Loss Remark dBuV dBuV MHz dBuV dB 0.162 -8.2165, 38 36, 90 9.82 10.45 QP 57, 17 0. 162 0. 187 0. 187 9. 82 9. 87 9. 87 55. 38 18. 50 10.45 23456789 Average 64. 15 54. 15 28.90 13.60 10.39 QP Average 63. 27 53. 27 62. 39 52. 39 61. 38 0. 208 0. 208 31. 50 12. 20 27. 60 9. 88 9. 88 9. 86 10. 36 QP 10. 36 Av Average 0. 232 0. 232 0. 262 10. 60 24. 59 8. 19 25. 50 9.86 9.83 9.83 9.78 10.34 10.33 Average QP 0.262 0.317 51.38 59.80 10.33 Average 10.30 QP 10 11 12 13 14 15 16 0. 317 12. 253 12. 253 49. 80 60. 00 50. 00 6. 60 22. 20 9. 78 10. 80 10.30 10.37 QP 13.60 10.80 10.37 Average 23. 30 14. 50 23. 30 14. 20 13. 337 13. 337 60. 00 50. 00 10.90 10.90 10.38 QP 10.38 Av Average 15.066 60.00 10.40 QP 15,066 50,00 11.05 10.40 Average

Note:

- 1. Level($dB\mu V$) = Read Level($dB\mu V$) + LISN Factor(dB) + Cable Loss(dB)
- 2. Over Limit(dB) = Level(dB μ V) Limit Line(dB μ V)

Sporton International (Kunshan) Inc.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 15 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<Class B Limit>

Frequency	Field Strength	Measurement Distance	
(MHz)	(microvolts/meter)	(meters)	
30 – 88	100	3	
88 – 216	150	3	
216 - 960	200	3	
Above 960	500	3	

3.2.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter above ground.
- 2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest radiation.
- 4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
- 7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
- 8. Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
- 9. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level

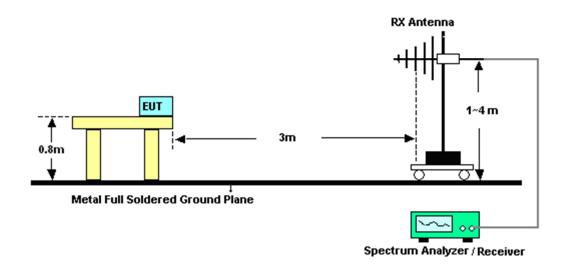
Sporton International (Kunshan) Inc.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 16 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

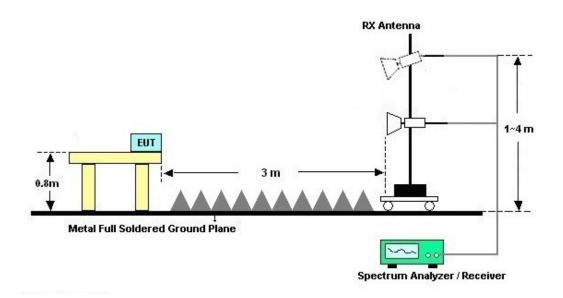
Report Template No.: BU5-FC15B Version 3.0

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

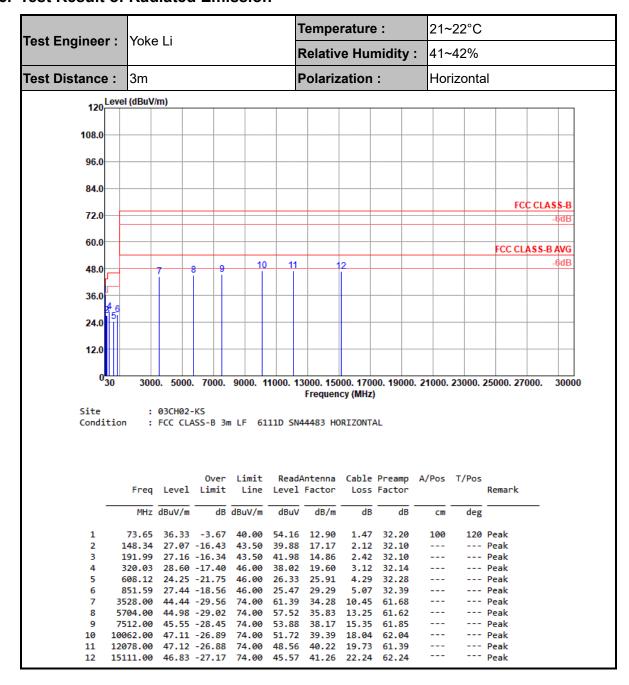


Sporton International (Kunshan) Inc.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 17 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

3.2.5. Test Result of Radiated Emission



TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 18 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

Temperature: 21~22°C Test Engineer: Yoke Li **Relative Humidity:** 41~42% Test Distance: Polarization: Vertical 120 Level (dBuV/m) 108.0 96.0 84.0 FCC CLASS-B 72.0 60.0 FCC CLASS-B (AVG) 10 48.0 36.0 24.0 12.0 7000. 9000. 11000. 13000. 15000. 17000. 19000. 21000. 23000. 25000. 27000. Frequency (MHz) Site : 03CH02-KS Condition : FCC CLASS-B 3m LF 6111D SN44483 VERTICAL Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Freq Level Limit Line Level Factor Loss Factor Remark dB MHz dBuV/m dB dBuV/m dBuV dB/m dB deg 73.65 36.72 -3.28 40.00 54.55 12.90 1.47 32.20 280 QP 224.00 23.98 -22.02 46.00 37.78 15.74 2.61 32.15 --- Peak 352.04 23.71 -22.29 46.00 32.08 20.56 3.27 32.20 --- Peak 607.15 24.78 -21.22 46.00 26.89 25.90 4.28 32.29 --- Peak 741.01 26.18 -19.82 46.00 25.79 27.94 4.73 32.28 --- Peak 861.29 27.33 -18.67 46.00 25.34 29.25 5.10 32.36 --- Peak --- Peak 2888.00 40.92 -33.08 74.00 59.64 33.42 9.44 61.58 --- Peak 5552.00 44.99 -29.01 74.00 57.92 35.58 13.11 61.62 --- Peak 8792.00 46.15 -27.85 74.00 53.38 38.29 16.81 62.33 --- Peak 10 11430.00 47.59 -26.41 74.00 50.68 39.59 19.14 61.82 --- Peak 11 14049.00 47.75 -26.25 74.00 47.05 41.05 21.28 61.63

Note:

1. Level(dB μ V/m) = Read Level(dB μ V) + Antenna Factor(dB/m) + Cable Loss(dB) - Preamp Factor(dB)

42.02

22.89

62.37

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

15822.00 47.33 -26.67 74.00 44.79

Sporton International (Kunshan) Inc.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 19 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

--- Peak

Report Template No.: BU5-FC15B Version 3.0

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 21, 2021	May 07, 2021	Apr. 20, 2022	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 17, 2020	May 07, 2021	Oct. 16, 2021	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Oct. 27, 2020	May 07, 2021	Oct. 26, 2021	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 17, 2020	May 07, 2021	Oct. 16, 2021	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Ma x 30dBm	Oct. 17, 2020	May 09, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz-44G,MAX 30dB	Oct. 17, 2020	May 09, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz-1GHz	Dec. 29, 2020	May 09, 2021	Dec. 28, 2021	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 09, 2020	May 09, 2021	Nov. 08, 2021	Radiation (03CH02-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 09, 2020	May 09, 2021	Nov. 08, 2021	Radiation (03CH02-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 06, 2021	May 09, 2021	Jan. 05, 2022	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 06, 2021	May 09, 2021	Jan. 05, 2022	Radiation (03CH02-KS)
Amplifier	Keysight	83017A	MY53270316	500MHz~26.5G Hz	Oct. 17, 2020	May 09, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	May 09, 2021	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	May 09, 2021	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	May 09, 2021	NCR	Radiation (03CH02-KS)

NCR: No Calibration Required

Sporton International (Kunshan) Inc.

TEL: +86-512-57900158 FAX: +86-512-57900958 FCC ID: O57TBJ616F Page Number : 20 of 21
Report Issued Date : May 28, 2021
Report Version : Rev. 01

Report Template No.: BU5-FC15B Version 3.0

5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence	2.9dB	
of 95% (U = 2Uc(y))		

Report No.: FC141907

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	4.9dB	
of 95% (U = 2Uc(y))	4.9ub	

<u>Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)</u>

Measuring Uncertainty for a Level of Confidence	5.0dB
of 95% (U = 2Uc(y))	5.000

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence	5.1 dB
of 95% (U = 2Uc(y))	5.1 QB

 Sporton International (Kunshan) Inc.
 Page Number
 : 21 of 21

 TEL: +86-512-57900158
 Report Issued Date
 : May 28, 2021

 FAX: +86-512-57900958
 Report Version
 : Rev. 01

FCC ID: 057TBJ616F Report Template No.: BU5-FC15B Version 3.0