



Shenzhen CTL Testing Technology Co., Ltd.
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TEST REPORT

FCC PART 15.247

Report Reference No.: CTL2101053111-WF

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Product Name : Portable Bluetooth Music System with CD Player / FM Radio
Model/Type reference : BT-168
List Model(s) : CD-555, CD-555A, CD-555B, CD-555C, CD-555BG, CD-555BK, CD-555BL, CD-555PS, CD-555RS, CD-555XXXXX (where XXXXX denote any printable characters in the ASCII Standard Character Table to represent variances in cosmetics or buyers)
Trade Mark : PANASHIBA, JENSEN
FCC ID : 2AB4RBT-16801

Applicant's name : SHIBA GADGETS LIMITED
Address of applicant : Room 701, 7/F, Winful Centre, 30 Shing Yip Street, Kwun Tong, Kowloon, H.K.

Test Firm : Shenzhen CTL Testing Technology Co., Ltd.
Address of Test Firm : Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

Test specification :
Standard : FCC Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.
TRF Originator : Shenzhen CTL Testing Technology Co., Ltd.
Master TRF : Dated 2011-01

Date of receipt of test item : Jan. 15, 2021
Date of sampling : Jan. 15, 2021
Date of Test Date : Jan. 15, 2021–Mar. 23, 2021
Date of Issue : Mar. 24, 2021
Result : Pass

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TEST REPORT

Test Report No. : CTL2101053111-WF	Mar. 24, 2021 ----- Date of issue
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Equipment under Test : Portable Bluetooth Music system with CD Player / FM Radio

Model /Type : BT-168

Listed Models : CD-555, CD-555A, CD-555B, CD-555C, CD-555BG, CD-555BK, CD-555BL, CD-555PS, CD-555RS, CD-555XXXXX (where XXXXX denote any printable characters in the ASCII Standard Character Table to represent variances in cosmetics or buyers)

Applicant : **SHIBA GADGETS LIMITED**

Address : Room 701, 7/F, Winful Centre, 30 Shing Yip Street, Kwun Tong, Kowloon, H.K.

Manufacturer : **KengFuJia Electronics (Shenzhen) Co Ltd.**

Address : 1A & 2-5/F Building B, #175 Huasheng Road, Langkou Community, Dalang Street, Bao'an District, Shenzhen, China

Test result	Pass *
--------------------	---------------

*In the configuration tested, the EUT complied with the standards specified page 5.

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Only the AC-DC adapter sales with the Speaker is replaced and add 3 models(CD-555A, CD-555B, CD-555C).

There is only change of non-transmitter portions, Conducted Emissions &Radiated Emissions testing was performed to demonstrate RF compliance, the other test item refer to test report "CTL1805147021-WF".

**** Modified History ****

[illegible]

Table of Contents**Page**

1. SUMMARY	5
1.1. TEST STANDARDS	5
1.2. TEST DESCRIPTION	5
1.3. TEST FACILITY	6
1.4. STATEMENT OF THE MEASUREMENT UNCERTAINTY	6
2. GENERAL INFORMATION	7
2.1. ENVIRONMENTAL CONDITIONS	7
2.2. GENERAL DESCRIPTION OF EUT	7
2.3. DESCRIPTION OF TEST MODES AND TEST FREQUENCY	7
2.4. EQUIPMENTS USED DURING THE TEST	8
2.5. RELATED SUBMITTAL(s) / GRANT (s)	8
2.6. MODIFICATIONS	8
3. TEST CONDITIONS AND RESULTS	9
3.1. CONDUCTED EMISSIONS TEST	9
3.2. RADIATED EMISSIONS	12
4. TEST SETUP PHOTOS OF THE EUT	16
5. PHOTOS OF THE EUT	17

1. SUMMARY

1.1. TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

[ANSI C63.10: 2013](#): American National Standard for Testing Unlicensed Wireless Devices

[ANSI C63.4: 2014](#): –American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz
Range of 9 kHz to 40GHz

[KDB 558074 D01 15.247 Meas Guidance v05r02](#): Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

1.2. Test Description

FCC PART 15.247		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.205/15.209	Radiated Emissions	PASS

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 399832

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832, December 08, 2017.

1.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Measurement Uncertainty	Notes
Transmitter power conducted	± 0.57 dB	(1)
Transmitter power Radiated	± 2.20 dB	(1)
Conducted spurious emission 9KHz-40 GHz	± 2.20 dB	(1)
Occupied Bandwidth	± 0.01 ppm	(1)
Radiated Emission 30~1000MHz	± 4.10 dB	(1)
Radiated Emission Above 1GHz	± 4.32 dB	(1)
Conducted Disturbance 0.15~30MHz	± 3.20 dB	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2. General Description of EUT

Product Name:	Portable Bluetooth Music system with CD Player / FM Radio
Model/Type reference:	BT-168
Power supply:	DC 9.0V from adapter
Adapter information:	Model: JDA010900800U Input: 100-240V~ 50/60Hz 0.8A Output: 9.0V---0.80A
Bluetooth :	
Supported type:	Bluetooth BR/EDR
Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Operation frequency:	2402MHz~2480MHz
Channel number:	79
Channel separation:	1MHz
Antenna type:	PCB antenna
Antenna gain:	0dBi

Note: For more details, please refer to the user's manual of the EUT.

2.3. Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing .There are 79 channels provided to the EUT and Channel 00/39/78 were selected to test.

Operation Frequency :

Channel	Frequency (MHz)
00	2402
01	2403
:	:
38	2440
39	2441
40	2442
:	:
77	2479
78	2480

Preliminary tests were performed in each mode and packet length of BT, and found worst case as below, finally test were conducted at those mode and recorded in this report.

Test Items	Worst case
Conducted Emissions	DH5 Middle channel
Radiated Emissions	DH5

2.4. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	R&S	ESH2-Z5	860014/010	2020/05/15	2021/05/14
Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2020/04/08	2021/04/07
EMI Test Receiver	R&S	ESCI	1166.5950.03	2020/05/18	2021/05/17
Spectrum Analyzer	Agilent	E4407B	MY41440676	2020/05/14	2021/05/13
Spectrum Analyzer	Agilent	N9020A	US46220290	2020/05/14	2021/05/13
Spectrum Analyzer	Keysight	N9020A	MY53420874	2020/05/14	2021/05/13
Controller	EM Electronics	EM 1000	060859	2020/05/20	2021/05/19
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2020/05/20	2021/05/19
Active Loop Antenna	Da Ze	ZN30900A	/	2020/05/20	2021/05/19
Amplifier	Agilent	8449B	3008A02306	2020/05/15	2021/05/14
Amplifier	Agilent	8447D	2944A10176	2020/05/15	2021/05/14
Temperature/Humidity Meter	Gangxing	CTH-608	02	2020/05/16	2021/05/15
Power Sensor	Agilent	U2021XA	MY55130004	2020/05/14	2021/05/13
Power Sensor	Agilent	U2021XA	MY55130006	2020/05/14	2021/05/13
Spectrum Analyzer	RS	FSP	1164.4391.38	2020/05/15	2021/05/14
Test Software					
Name of Software			Version		
TST-PASS			1.1.0		
ES-K1(Below 1GHz)			V1.71		
e3(Above 1GHz)			6.111221a		

The calibration interval was one year

2.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

3. TEST CONDITIONS AND RESULTS

3.1. Conducted Emissions Test

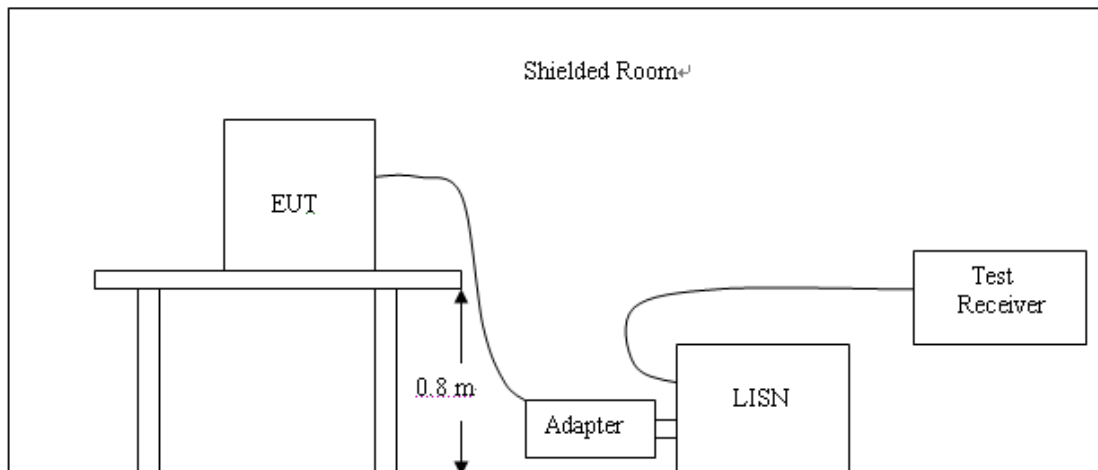
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency range (MHz)	Limit (dBuV)	
	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.

TEST CONFIGURATION



TEST PROCEDURE

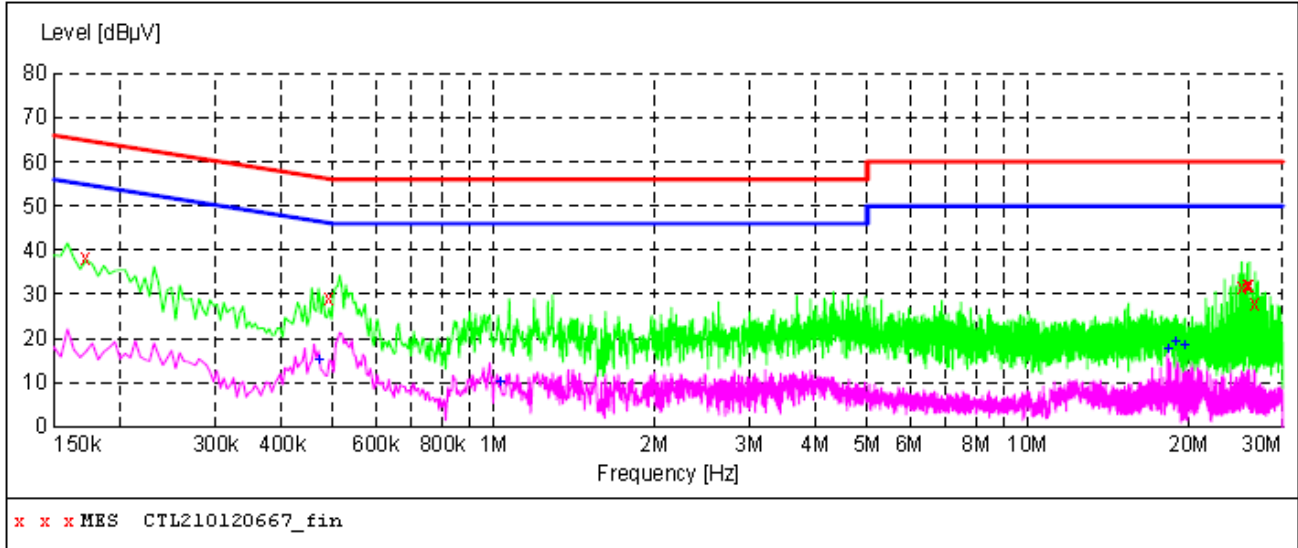
1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Remark: All modes of GFSK, Pi/4 DQPSK, and 8DPSK were test at Low, Middle, and High channel; only the worst result of GFSK Middle Channel was reported as below:

SCAN TABLE: "Voltage (9K-30M) FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "CTL210120667_fin"**

1/20/2021 7:45PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	FE
0.172500	38.10	11.2	65	26.7	QP	L1	GND
0.492000	29.10	11.2	56	27.0	QP	L1	GND
25.129500	31.80	11.4	60	28.2	QP	L1	GND
25.728000	32.20	11.4	60	27.8	QP	L1	GND
26.025000	32.00	11.4	60	28.0	QP	L1	GND
26.619000	28.00	11.4	60	32.0	QP	L1	GND

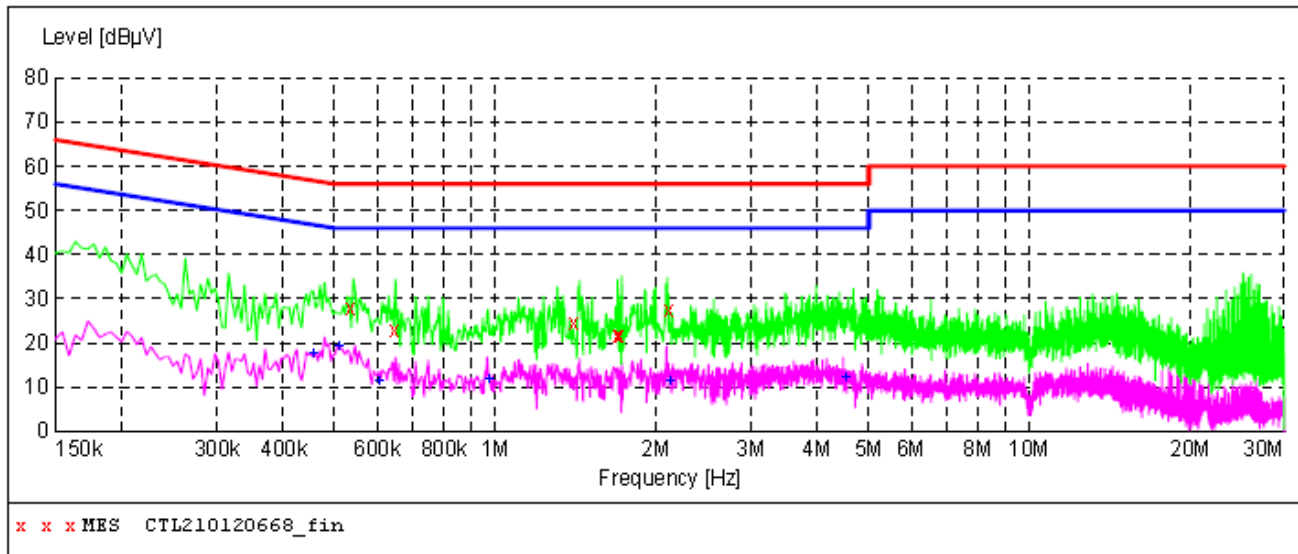
MEASUREMENT RESULT: "CTL210120667_fin2"

1/20/2021 7:45PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	FE
0.469500	15.10	11.2	47	31.4	AV	L1	GND
1.027500	9.90	11.2	46	36.1	AV	L1	GND
18.244500	17.40	11.2	50	32.6	AV	L1	GND
18.915000	19.00	11.2	50	31.0	AV	L1	GND
19.711500	18.50	11.2	50	31.5	AV	L1	GND

SCAN TABLE: "Voltage (9K-30M) FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "CTL210120668_fin"**

1/20/2021 7:50PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.537000	27.90	11.2	56	28.1	QP	N	GND
0.645000	23.10	11.2	56	32.9	QP	N	GND
1.401000	24.50	11.2	56	31.5	QP	N	GND
1.689000	21.60	11.2	56	34.4	QP	N	GND
1.711500	21.80	11.2	56	34.2	QP	N	GND
2.121000	27.50	11.3	56	28.5	QP	N	GND

MEASUREMENT RESULT: "CTL210120668_fin2"

1/20/2021 7:50PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.456000	17.50	11.2	47	29.3	AV	N	GND
0.510000	19.30	11.2	46	26.7	AV	N	GND
0.604500	11.50	11.2	46	34.5	AV	N	GND
0.969000	11.60	11.2	46	34.4	AV	N	GND
2.116500	11.30	11.3	46	34.7	AV	N	GND
4.524000	12.10	11.3	46	33.9	AV	N	GND

3.2. Radiated Emissions

Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

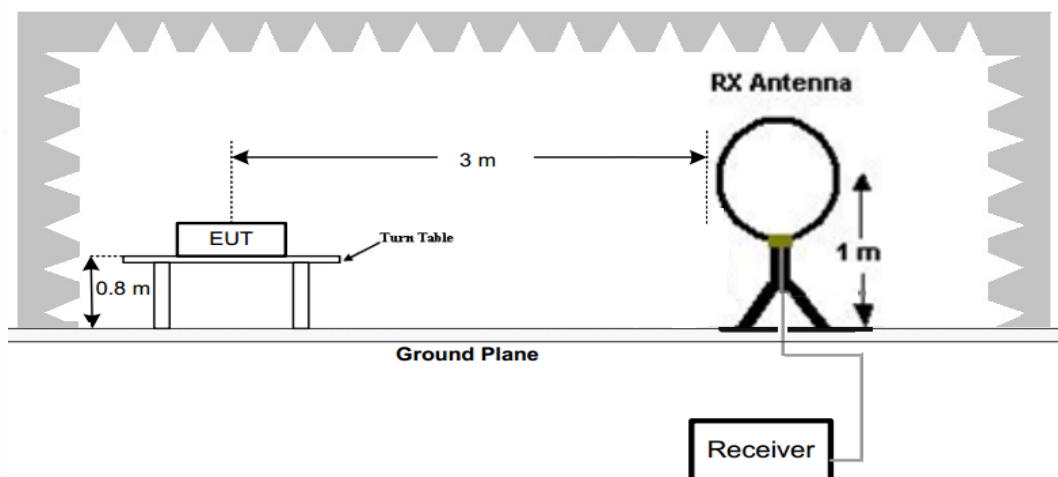
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

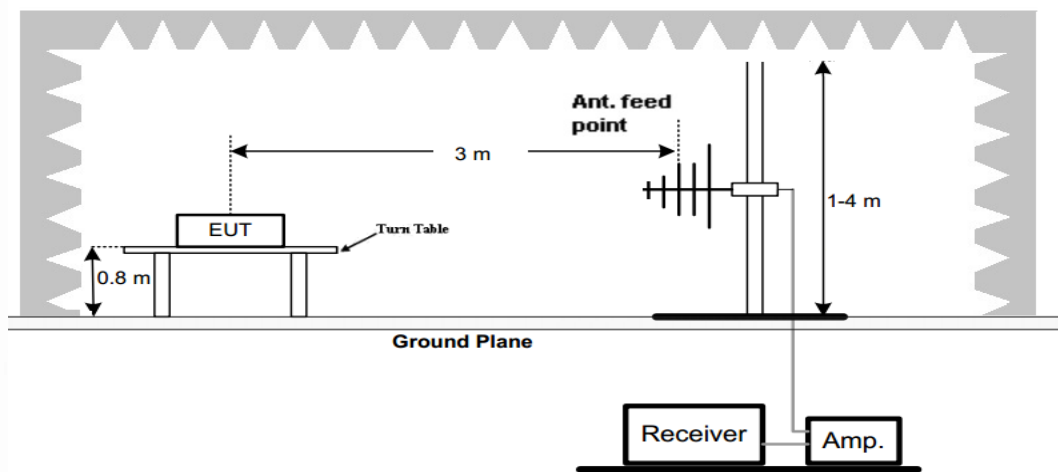
Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

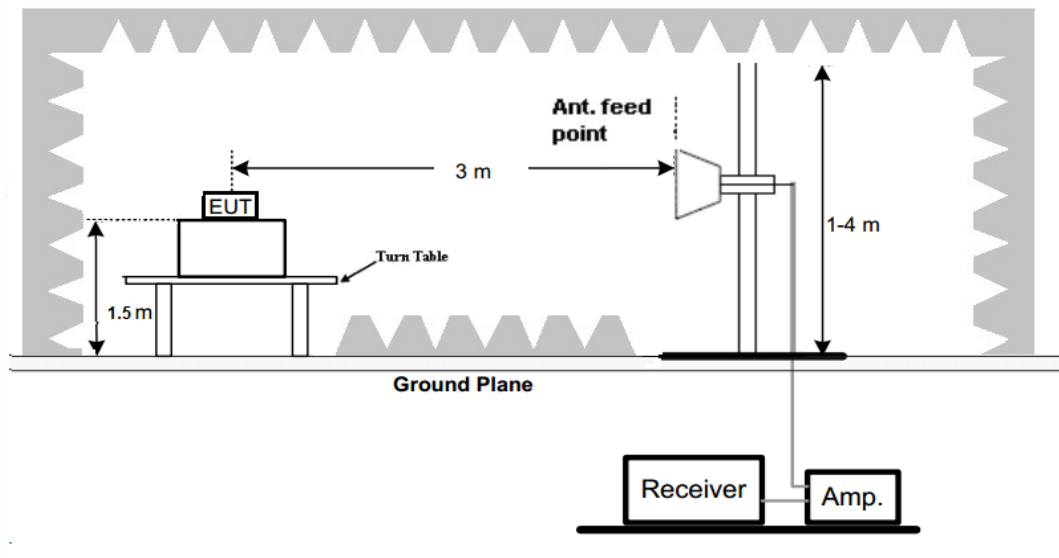
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



Test Procedure

1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.

TEST RESULTS

Remark:

1. We measured Radiated Emission at GFSK, $\pi/4$ DQPSK and 8DPSK mode from 9 KHz to 25GHz and recorded worst case at GFSK DH5 mode.
2. For below 1GHz testing recorded worst at GFSK DH5 low channel.
3. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.

For 30MHz-1GHz

Horizontal



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Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, She

Radiated Emission Measurement

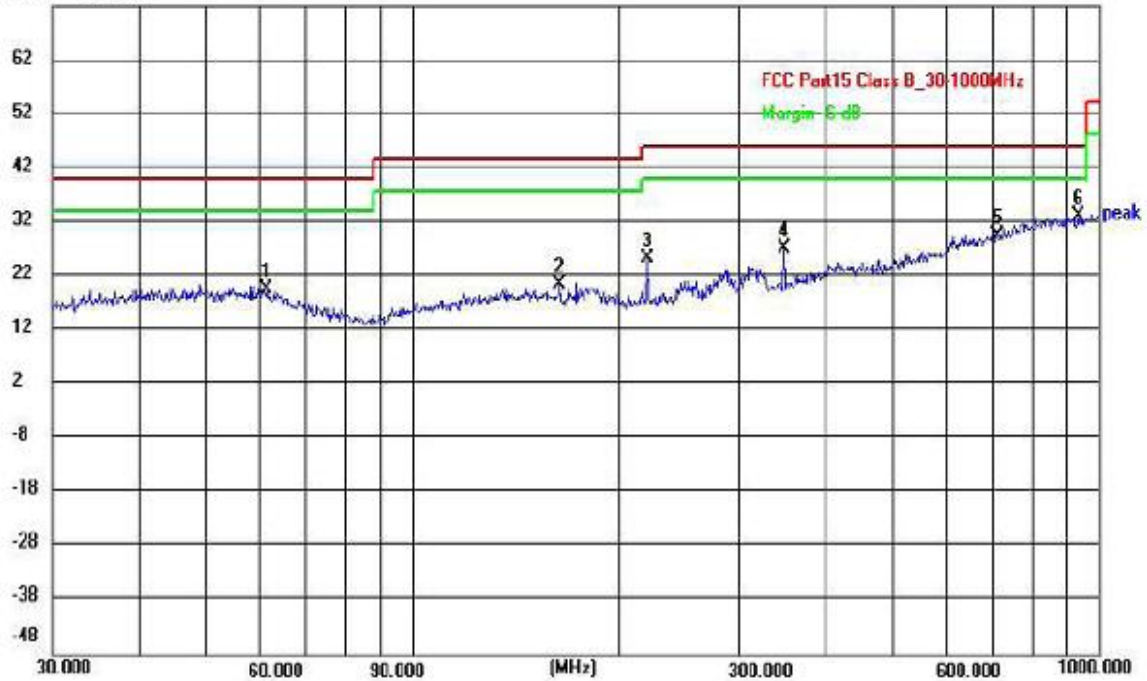
File :guangfeng

Data :#332

Date: 2021-03-22

Time: 19:22:43

72.0 dBuV/m



Site LAB

Polarization: **Horizontal**

Temperature: 25(C)

Limit: FCC Part15 Class B_30-1000MHz

Power: AC120/60Hz

Humidity: 50 %

EUT: /

Distance: 3m

M/N: BT-168

Mode:

Note:

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	61.5618	5.38	14.36	19.74	40.00	-20.26	peak	100	30	P	
2	164.3302	6.85	13.77	20.62	43.50	-22.88	peak	100	206	P	
3	220.6171	12.10	13.25	25.35	46.00	-20.65	peak	100	291	P	
4	348.0274	11.08	16.07	27.15	46.00	-18.85	peak	100	125	P	
5	709.1823	6.44	23.16	29.60	46.00	-16.40	peak	100	291	P	
6	932.2715	6.38	26.82	33.20	46.00	-12.80	peak	100	146	P	

Vertical



Shenzhen CTL Testing Technology Co., Ltd

Tel: +86-755-89486194

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, She

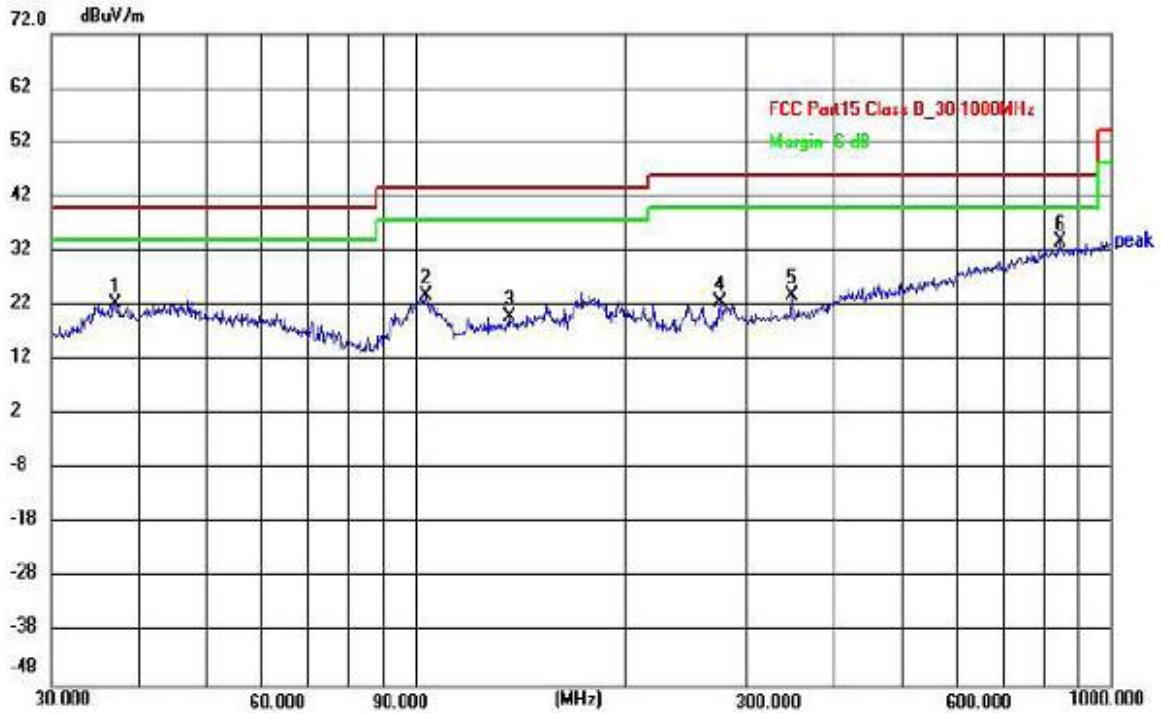
Radiated Emission Measurement

File :guangfeng

Data :#333

Date: 2021-03-22

Time: 19:24:36



Site LAB

Polarization: **Vertical**

Temperature: 25(C)

Limit: FCC Part15 Class B_30-1000MHz

Power: AC120/60Hz

Humidity: 50 %

EUT: /

Distance: 3m

M/N: BT-168

Mode:

Note:

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	37.0248	8.14	14.26	22.40	40.00	-17.60	peak	100	181	P	
2	103.8054	11.53	12.20	23.73	43.50	-19.77	peak	100	358	P	
3	136.4598	5.74	14.22	19.96	43.50	-23.54	peak	100	201	P	
4	274.1938	8.63	14.06	22.69	46.00	-23.31	peak	100	332	P	
5	348.0274	7.86	16.07	23.93	46.00	-22.07	peak	100	15	P	
6	842.1296	7.48	26.28	33.76	46.00	-12.24	peak	100	70	P	

4. Test Setup Photos of the EUT

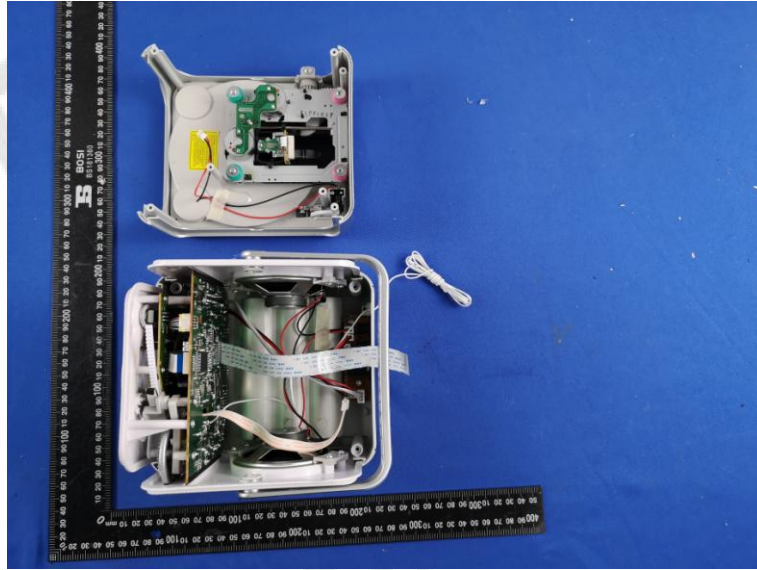


5. Photos of the EUT

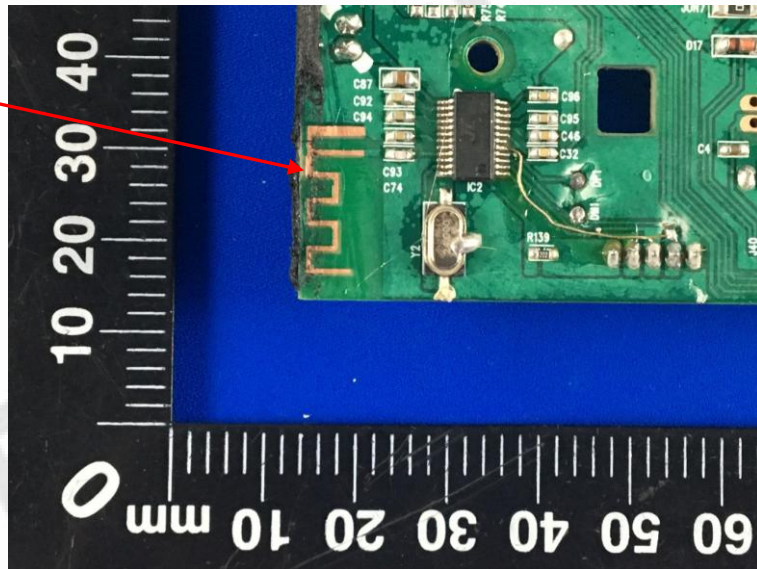
External Photos of EUT

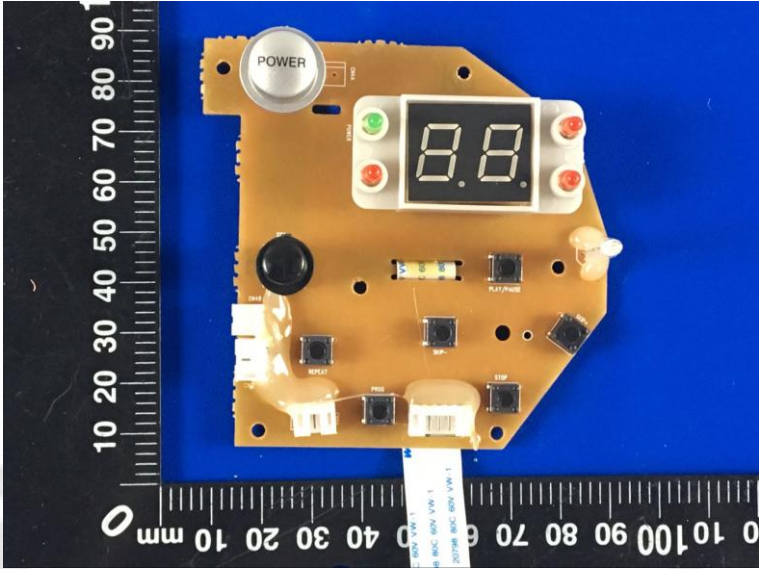
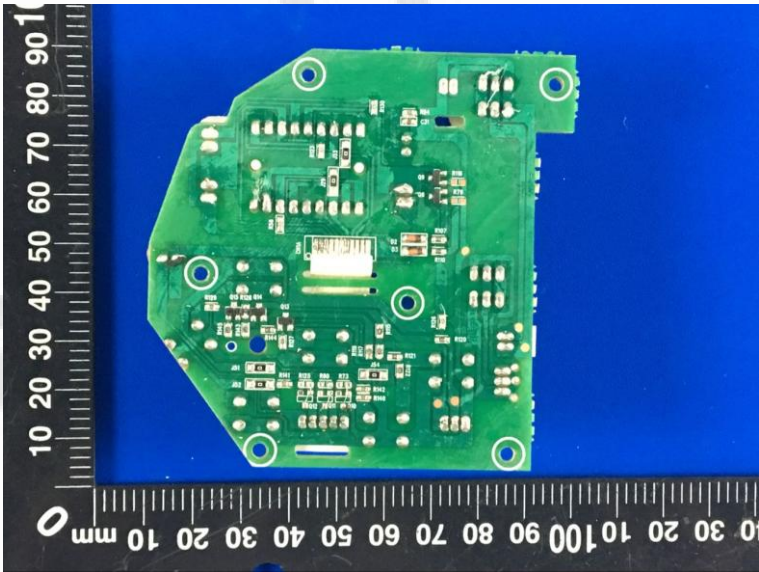
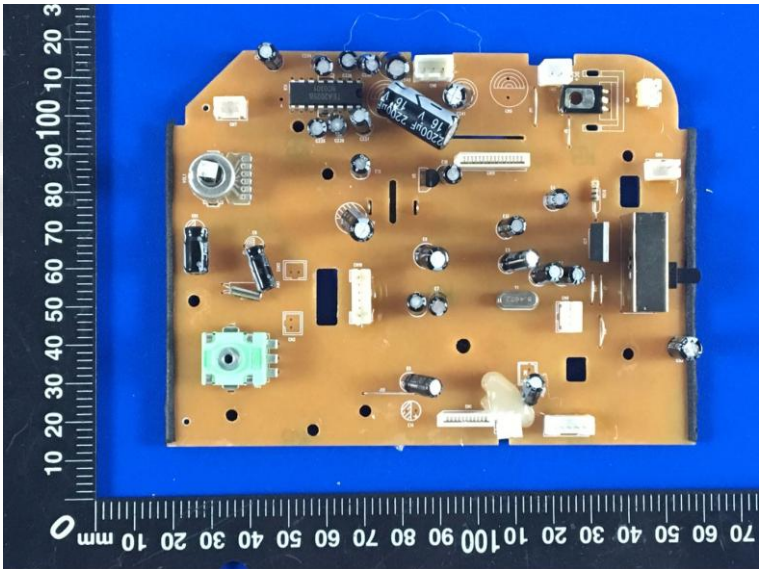


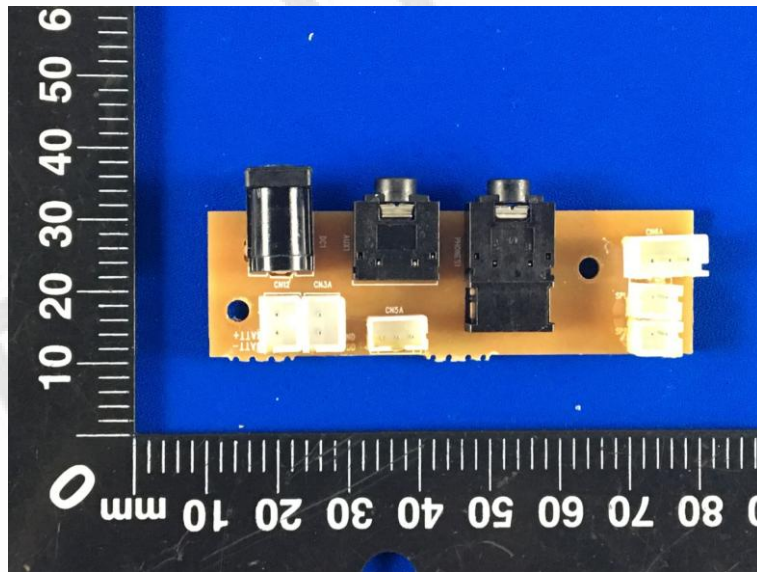
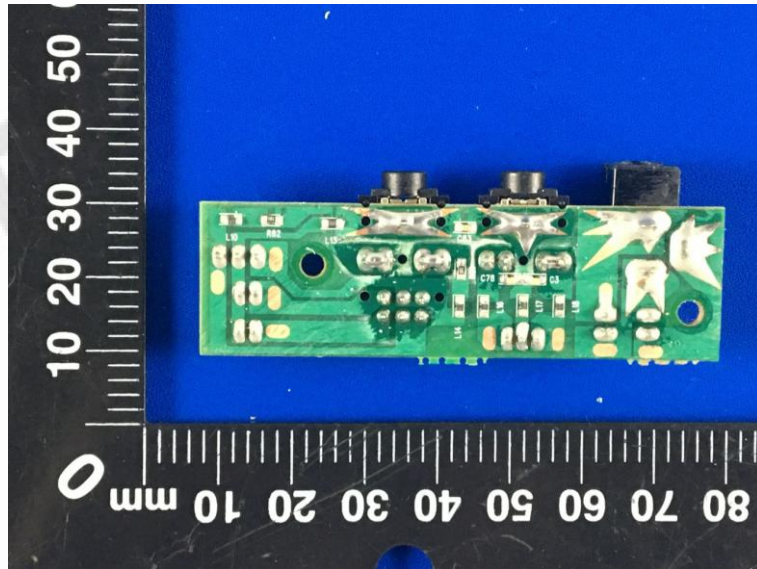


Internal Photos of EUT

BT Antenna







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