

RADIO TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations shown in this report were made in accordance with the procedures in ANSI C63.10(2013).

Applicant / Manufacturer : Dongguan Fulun Electronics Co., Limited
Address : 4-8/F, Building B, Xinbosheng Industrial Park, No.5 Xinyuan S Rd, Tangxia, Dongguan, China
Factory : Dongguan Fulun Electronics Co., Limited
Address : 4-8/F, Building B, Xinbosheng Industrial Park, No.5 Xinyuan S Rd, Tangxia, Dongguan, China
E.U.T. : Jack Bluetooth Speaker and Wireless Charging Pad
Brand Name : N/A
Model No. : B96
FCC ID : 2ATOY-B96
Measurement Standard : FCC PART 15 Subpart C
Date of Receiver : August 04, 2020
Date of Test : August 04, 2020 to August 10, 2020
Date of Report : August 10, 2020

This Test Report is Issued Under the Authority of :

Prepared by



Rose Hu / Engineer

Approved / Authorized Signer



Iori Fan / Authorized Signatory

This test report is for the customer shown above and their specific product only. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.



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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

Product name	: Jack Bluetooth Speaker and Wireless Charging Pad
Main model	: B96
Additional model	: N/A
Model difference	: N/A
Power Supply	: Input: DC 5V come from USB port or DC 3.7V li-ion battery Output: DC 5V 1A, 5W Max
Test voltage	: AC 120V 60Hz adapter input, D 3.7V li-ion battery Only the worst case was recorded in the report.
Adapter	: N/A
Cable	: USB Line: 0.53m unshielded
Software version	: V1.0
Hardware version	: V1.0
Serial number	: 100000
Note	: N/A
Remark	: N/A
Frequency Range	: 110.5-205KHz
Test frequency	: 117.6KHz
Test output	: DC 5V 1A, 5W Max

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2ATOY-B96** filing to comply with FCC Part 15, Subpart C Rule.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters.

1.4 Equipment Modifications

Not available for this EUT intended for grant.

1.5 Support Device

Adapter	:	Manufacturer: HUWEI Model No.: HW-050200C01 Input: AC100-240V 50/60Hz, 0.5A Output: DC5V 2A
Simulated Load	:	Provided by NTC Lab.

1.6 Test Facility and Location

Site Description

EMC Lab : Listed by CNAS, August 13, 2018
 The certificate is valid until August 13, 2024
 The Laboratory has been assessed and proved to be in compliance with CNAS/CL01
 The Certificate Registration Number is L5795.

Listed by A2LA, November 01, 2017
 The certificate is valid until December 31, 2021
 The Laboratory has been assessed and proved to be in compliance with ISO17025
 The Certificate Registration Number is 4429.01

Listed by FCC, November 06, 2017
 The Designation Number is CN1214
 Test Firm Registration Number: 907417

Listed by Industry Canada, June 08, 2017
 The Certificate Registration Number. Is 46405-9743

Name of Firm : Dongguan Nore Testing Center Co., Ltd.
 (Dongguan NTC Co., Ltd.)

Site Location : Building D, Gaosheng Science and Technology park, Hongtu road, Nancheng district, Dongguan city, Guangdong province, China

1.7 Summary of Test Results

FCC Rules	Description Of Test	Uncertainty	Result
§15.35	20dB Bandwidth	$\pm 1.42 \times 10^{-4}\%$	Compliant
§15.207 (a)	AC Power Conducted Emission	$\pm 1.06\text{dB}$	Compliant
§15.209	Radiated Emission	$\pm 3.70\text{dB}$	Compliant

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 Special Accessories

Not available for this EUT intended for grant.

2.3 Description of test modes

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and normal mode is programmed. The Lowest, middle and highest channel were chosen for testing.

2.4 EUT Exercise

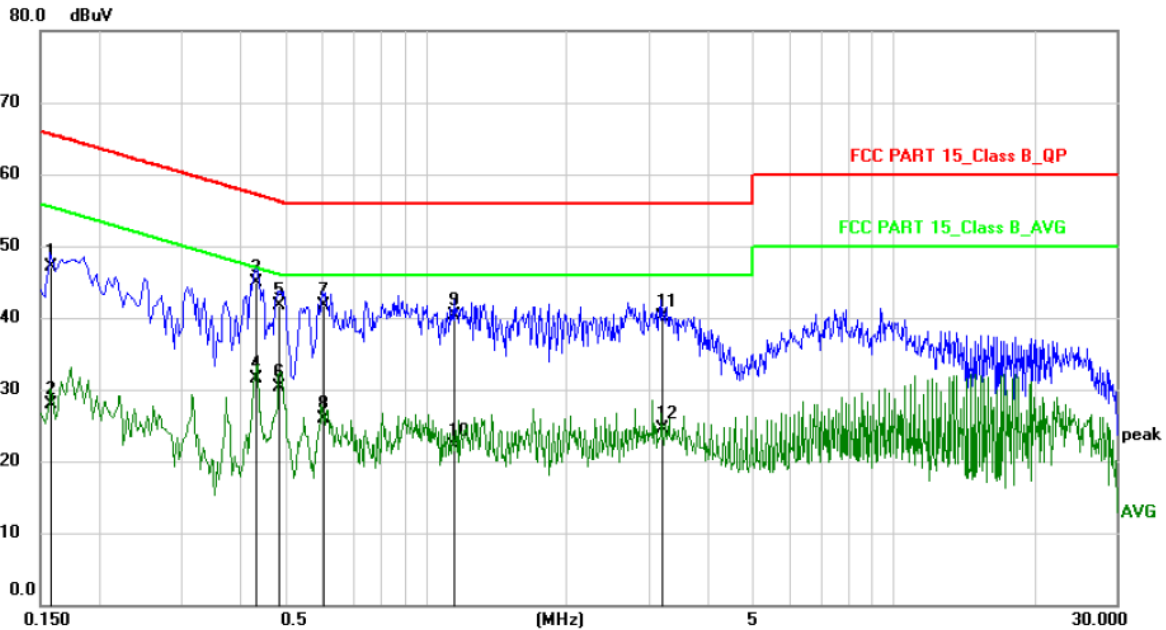
The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.



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Conducted Emission Measurement

File :B96 Data :#4 Date: 2020/8/7 Time: 14:00:40



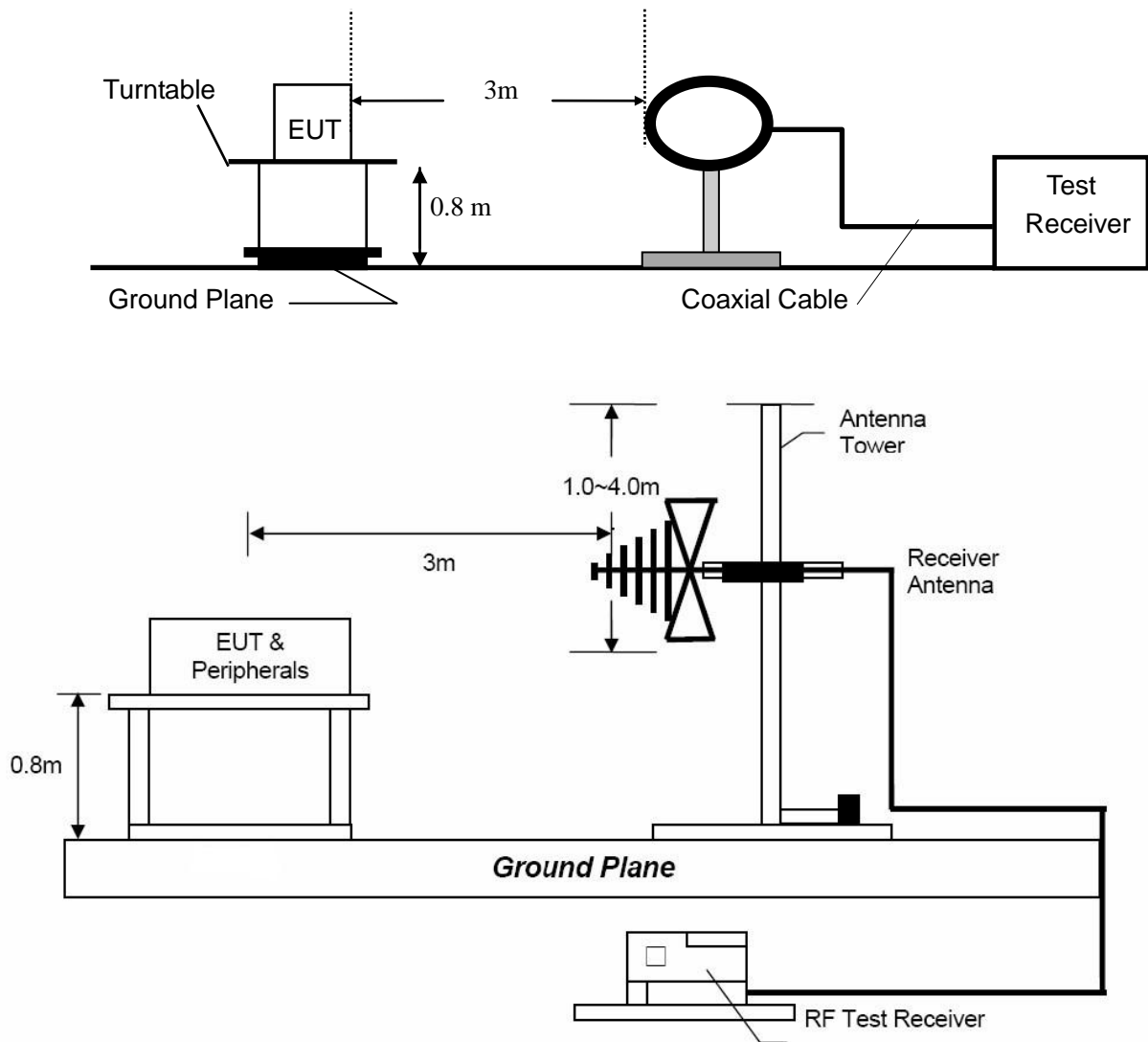
Site Phase: **N** Temperature: 26
 Limit: FCC PART 15_Class B_QP Power: AC120V/60Hz Humidity: 50 %
 EUT: Jack Bluetooth Speaker and Wireless Charging Pad
 M/N: B96
 Mode: TX
 Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1580	36.50	10.60	47.10	65.57	-18.47	QP	
2	0.1580	17.40	10.60	28.00	55.57	-27.57	AVG	
3 *	0.4340	34.28	10.62	44.90	57.18	-12.28	QP	
4	0.4340	20.98	10.62	31.60	47.18	-15.58	AVG	
5	0.4860	31.17	10.63	41.80	56.24	-14.44	QP	
6	0.4860	19.77	10.63	30.40	46.24	-15.84	AVG	
7	0.6020	31.06	10.64	41.70	56.00	-14.30	QP	
8	0.6020	15.26	10.64	25.90	46.00	-20.10	AVG	
9	1.1500	29.70	10.70	40.40	56.00	-15.60	QP	
10	1.1500	11.50	10.70	22.20	46.00	-23.80	AVG	
11	3.1900	29.49	10.71	40.20	56.00	-15.80	QP	
12	3.1900	13.89	10.71	24.60	46.00	-21.40	AVG	

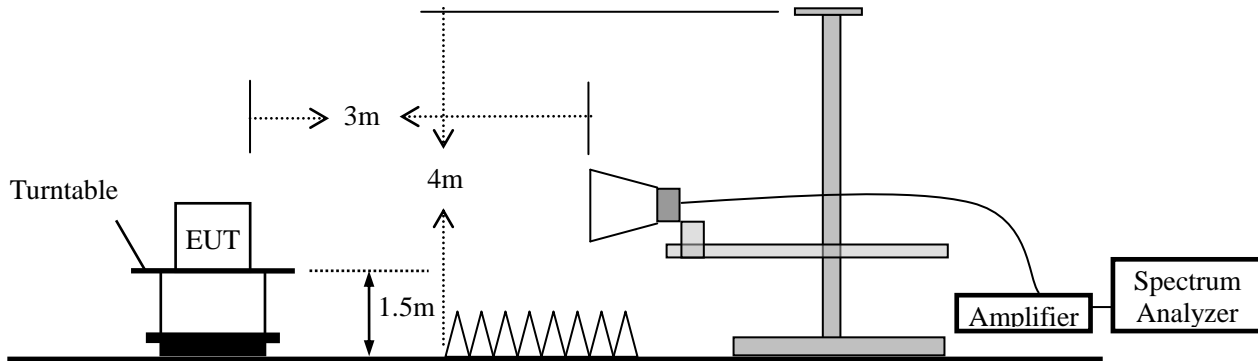
4. Radiated Emission Test

4.1 Test SET-UP (Block Diagram of Configuration)

4.1.1 Radiated Emission Test Set-Up, Frequency Below 30MHz



4.1.2 Radiated Emission Test Set-Up, Frequency above 1GHz



4.2 Measurement Procedure

- a. Blow 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room.
- b. For the radiated emission test above 1GHz:
The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.
- f. A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Band (MHz)	Level	Resolution Bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	3 MHz
	Average	1 MHz	10 Hz

4.3 Limit

Frequency range MHz	Distance Meters	Field Strengths Limit (15.209)
		$\mu\text{V}/\text{m}$
0.009 ~ 0.490	300	$2400/F(\text{kHz})$
0.490 ~ 1.705	30	$24000/F(\text{kHz})$
1.705 ~ 30	30	30
30 ~ 88	3	100
88 ~ 216	3	150
216 ~ 960	3	200
Above 960	3	500

- Remark:
- (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V}/\text{m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
 - (4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9KHz~90KHz/ RB 200Hz for AV
	90KHz~110KHz/ RB 200Hz for QP
	110KHz~490KHz/ RB 200Hz for AV
	490KHz~30MHz/ RB 9KHz for QP
	30MHz~1000MHz/ RB 120KHz for QP

FCC 15.209 (d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90KHz, 110-490KHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

4.4 Measurement Results

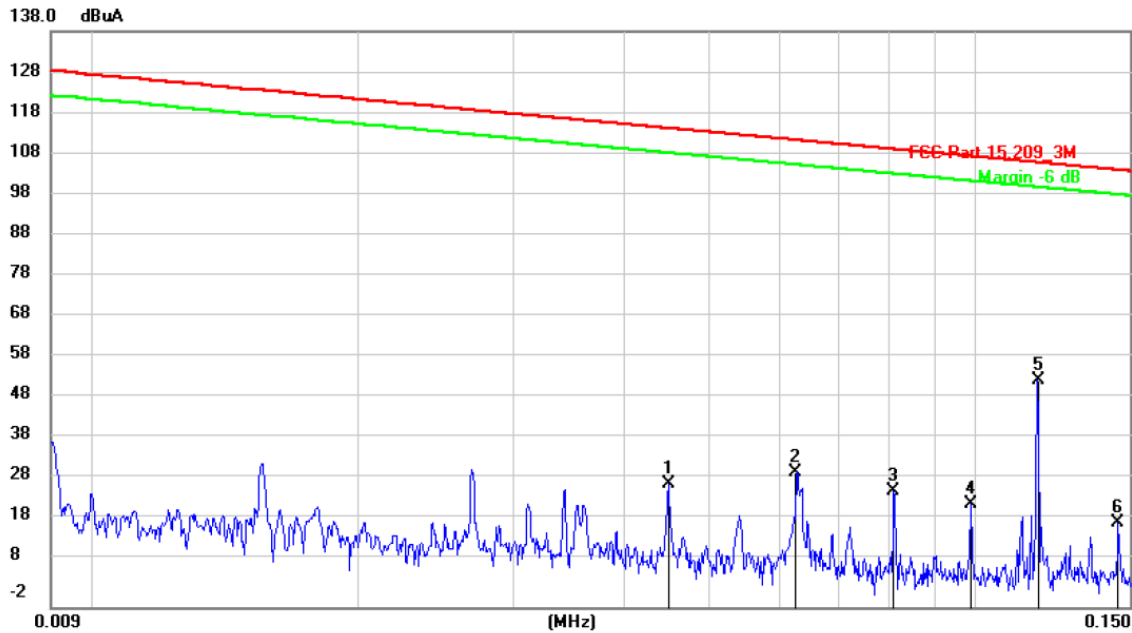
Please refer to following plots of the worst case: Full Load.



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Radiated Emission Measurement

File :B96 Data :#16 Date: 2020/8/7 Time: 8:56:39



Site: Polarization: **Vertical** Temperature: 26
 Limit: FCC Part 15.209_3M Power: AC120V/60Hz Humidity: 60 %
 EUT: Distance:
 M/N: B96
 Mode: TX
 Note: EUT: Jack Bluetooth Speaker and Wireless Charging Pad

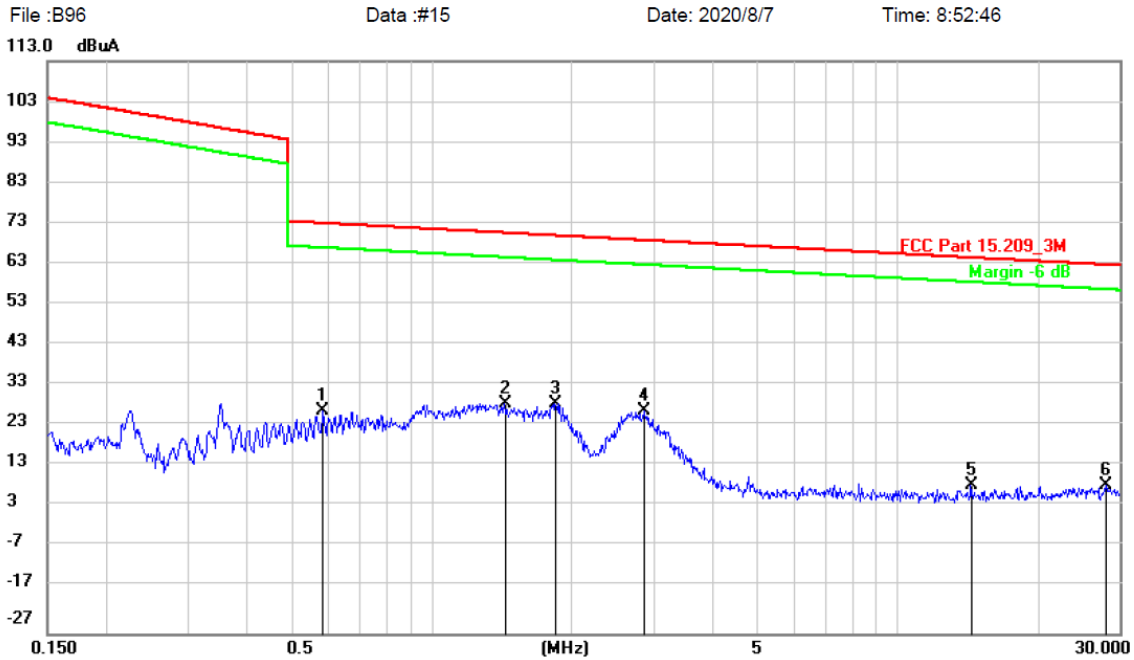
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuA	dBuA	dB	
1		0.0449	-4.60	32.36	27.76	114.44	-86.68	peak
2		0.0627	-1.71	32.30	30.59	111.56	-80.97	peak
3		0.0810	-6.23	32.30	26.07	109.35	-83.28	peak
4		0.0990	-9.12	32.31	23.19	107.61	-84.42	peak
5	*	0.1178	20.81	32.30	53.11	106.11	-53.00	peak
6		0.1454	-13.84	32.30	18.46	104.29	-85.83	peak

Note: When the PEAK level was below the limit of AV level, the AV levels were considered to meet the requirements.



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Radiated Emission Measurement



Site Polarization: **Vertical** Temperature: 26
 Limit: FCC Part 15.209_3M Power: AC120V/60Hz Humidity: 60 %
 EUT: Distance:
 M/N: B96
 Mode: TX
 Note: EUT:Jack Bluetooth Speaker and Wireless Charging Pad:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuA	Limit dBuA	Over dB	Detector
1		0.5854	-4.72	32.21	27.49	73.33	-45.84	peak
2		1.4333	-2.97	32.17	29.20	70.97	-41.77	peak
3	*	1.8386	-2.99	32.17	29.18	70.32	-41.14	peak
4		2.8540	-4.78	32.17	27.39	69.16	-41.77	peak
5		14.3641	-22.95	32.33	9.38	64.91	-55.53	peak
6		28.0031	-23.12	32.35	9.23	63.15	-53.92	peak

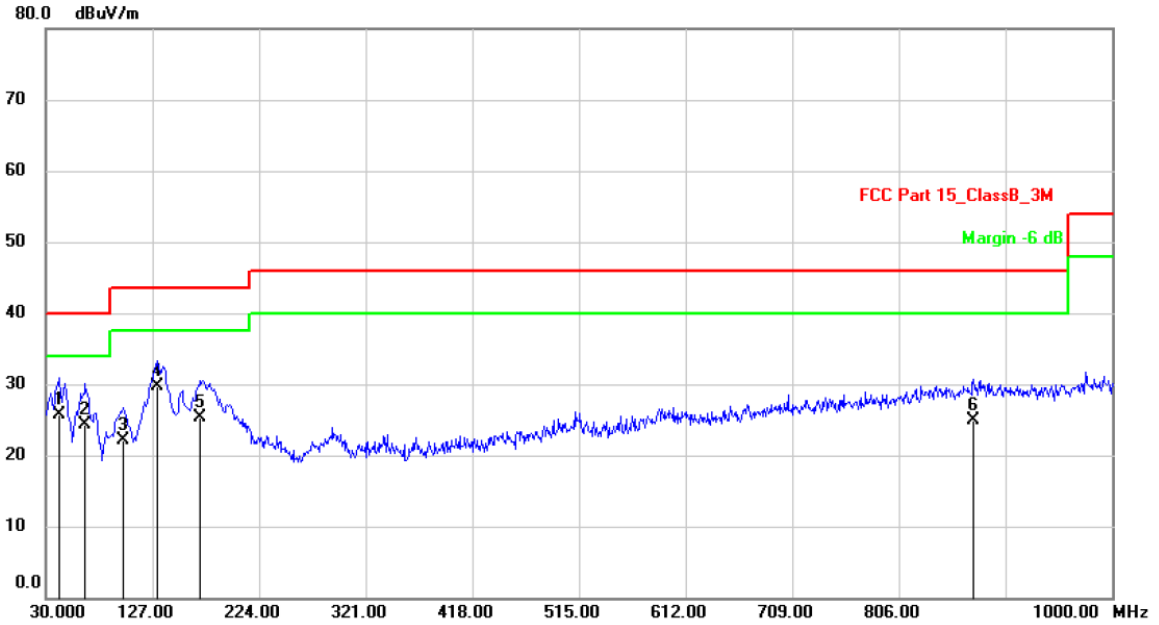
Note: When the PEAK level was below the limit of AV level, the AV levels were considered to meet the requirements.



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Radiated Emission Measurement

File :B96 Data :#12 Date: 2020/8/6 Time: 23:25:07



Site Polarization: *Vertical* Temperature: 26
 Limit: FCC Part 15_ClassB_3M Power: AC120V/60Hz Humidity: 47 %
 EUT: Distance: 3m
 M/N: B96
 Mode: TX
 Note: EUT: Jack Bluetooth Speaker and Wireless Charging Pad

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		41.6400	33.42	-7.78	25.64	40.00	-14.36	QP
2		65.8900	33.95	-9.63	24.32	40.00	-15.68	QP
3		100.8100	30.63	-8.54	22.09	43.50	-21.41	QP
4	*	130.8800	40.97	-11.29	29.68	43.50	-13.82	QP
5		170.6500	35.63	-10.23	25.40	43.50	-18.10	QP
6		873.9000	19.96	4.92	24.88	46.00	-21.12	QP

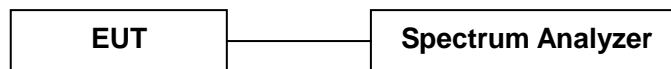
5. 20dB Bandwidth

5.1 Measurement Procedure

Maximum 20dB RF Bandwidth, FCC Rule 15.35:

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was chosen so that the display was a result of the hopping channel modulation. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. Use the spectrum 20dB down delta function to measure the bandwidth.

5.2 Test SET-UP (Block Diagram of Configuration)



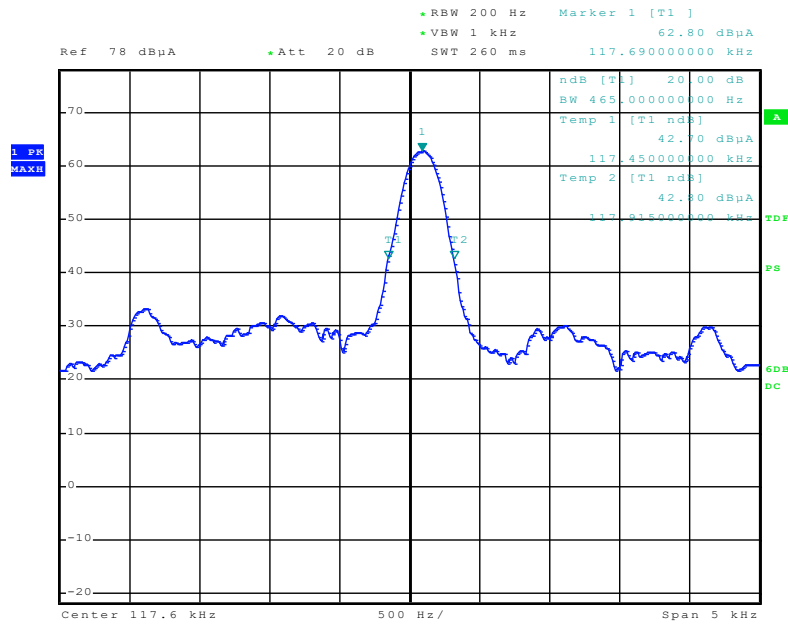
5.3 Measurement Results

Refer to attached data chart.

RBW:	200Hz	VBW:	1KHz
Test By:	Sance	Spectrum Detector:	PK
Temperature :	24 °C	Test Date :	August 07, 2020
Test Result:	PASS	Humidity :	50 %

Channel frequency (KHz)	20dB Down BW(Hz)
117.6	465

Test Channel



Date: 7.AUG.2020 08:32:54

6. Antenna Application

6.1 Antenna requirement

According to of FCC part 15C section 15.203 and 15.240:

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, 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.

6.2 Measurement Results

The antenna is coil antenna that no antenna other than furnished by the responsible party shall be used with the device, and the best case gain of the antenna is 0dBi, So, the antenna is consider meet the requirement.

7. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESC17	100837	Mar. 13, 2020	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 23, 2020	1 Year
3.	Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	Mar. 13, 2020	1 Year
4.	Spectrum Analyzer	Keysight	N9020A	MY54200831	Mar. 13, 2020	1 Year
5.	Spectrum Analyzer	Rohde & Schwarz	FSV40	101094	Mar. 13, 2020	1 Year
6.	Horn Antenna	Schwarzbeck	BBHA9170	9170-172	Mar. 22, 2019	2 Year
7.	Power Sensor	DARE	RPR3006W	15100041SNO 64	Mar. 13, 2020	1 Year
8.	Power Sensor	DARE	RPR3006W	15100041SNO 88	Mar. 13, 2020	1 Year
9.	Communication Tester	Rohde & Schwarz	CMW500	149004	Mar. 13, 2020	1 Year
10.	Horn Antenna	COM-Power	AH-118	071078	Mar. 23, 2020	1 Year
11.	Pre-Amplifier	HP	HP 8449B	3008A00964	Mar. 13, 2020	1 Year
12.	Pre-Amplifier	HP	HP 8447D	1145A00203	Mar. 13, 2020	1 Year
13.	Loop Antenna	Schwarzbeck	FMZB 1513	1513-272	Mar. 23, 2020	1 Year
14.	Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 14, 2020	1 Year
15.	L.I.S.N	Rohde & Schwarz	ENV 216	101317	Mar. 13, 2020	1 Year
16.	L.I.S.N	Rohde & Schwarz	ESH2-Z5	893606/014	Mar. 13, 2020	1 Year
17.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar.13, 2020	1 Year
18.	Temperature & Humidity Chamber	REMAFEE	SYHR225L	N/A	Mar. 13, 2020	1 Year
19.	DC Source	Maynuo	MY8811	N/A	Mar. 13, 2020	1 Year
20.	Temporary antenna connector	TESCOM	SS402	N/A	N/A	N/A
21.	Chamber	SAEMC	9*7*7m	N/A	Jun. 20, 2019	2 Year
22.	Test Software	EZ	EZ_EMCC	N/A	N/A	N/A

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

---End---