**Report No.:** DDT-R21121302-1E02

**Issued Date:** Jan. 19, 2022

# FCC AND ISED CERTIFICATION TEST REPORT

## FOR

| | | |
|---|---|---|
| **Applicant** | : | Harman International Industries, Inc. |
| **Address** | : | 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES |
| **Equipment under Test** | : | Wireless Subwoofer |
| **Model No.** | : | Bar 2.1 Deep Bass SUB |
| **HVIN** | : | JBL Bar 2.1 Deep Bass SUB |
| **Trade Mark** | : | JBL |
| **FCC ID** | : | APIBAR300SUB |
| **IC** | : | 6132A-BAR300SUB |
| **Manufacturer** | : | Harman International Industries, Inc. |
| **Address** | : | 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES |


**Issued By: Dongguan Dongdian Testing Service Co., Ltd.**

**Add.:** No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

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REPORT

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# Test Report Declare

| | | |
|---|---|---|
| **Applicant** | : | Harman International Industries, Inc. |
| **Address** | : | 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES |
| **Equipment under Test** | : | Wireless Subwoofer |
| **Model No.** | : | Bar 2.1 Deep Bass SUB |
| **Trade mark** | : | JBL |
| **Manufacturer** | : | Harman International Industries, Inc. |
| **Address** | : | 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES |

**Test Standard Used:**

FCC Rules and Regulations Part 15 Subpart C, RSS-210 Issue 10 December 2019, Amendment (April 2020).

## Test procedure used:

ANSI C63.10:2013, RSS-Gen Issue 5, Apr. 2018, Amendment 2 (February 2021).

**We Declare:**

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

**After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC&ISED standards.**

| | | | |
|---|---|---|---|
| **Report No:** | DDT-R21121302-1E02 | | |
| **Date of Receipt:** | Dec. 13, 2021 | **Date of Test:** | Dec. 21, 2021 ~ Jan. 19, 2022 |

***Prepared By:*** ***Approved By:***

Sam Li Damon Hu

***Sam Li/Engineer*** ***Damon Hu/EMC Manager***

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

# Revision History

| Rev. | Revisions | Issue Date | Revised By |
|---|---|---|---|
| --- | Initial issue | Jan. 19, 2022 | |
| | | | |

# 1. Summary of Test Results

| The EUT have been tested according to the applicable standards as referenced below. | | |
|---|---|---|
| **Description of Test Item** | **Standard** | **Results** |
| 20 dB Bandwidth and 99% Bandwidth | FCC Part 15: 15.215<br>ANSI C63.10:2013<br>RSS-210 Issue 10<br>RSS-Gen Issue 5 | Pass |
| Radiated Emission | FCC Part 15: 15.209<br>FCC Part 15: 15.249<br>ANSI C63.10:2013<br>RSS-210 Issue 10<br>RSS-Gen Issue 5 | Pass |
| Band Edge Compliance | FCC Part 15: 15.205<br>FCC Part 15: 15.249<br>ANSI C63.10:2013<br>RSS-210 Issue 10<br>RSS-Gen Issue 5 | Pass |
| Power Line Conducted Emission | FCC Part 15: 15.207<br>ANSI C63.10:2013<br>RSS-Gen Issue 5 | Pass |
| Antenna Requirement | FCC Part 15: 15.203<br>RSS-Gen Issue 5 | Pass |

# 2. General Test Information

## 2.1. Description of EUT

| | | |
|---|---|---|
| EUT* Name | : | Wireless Subwoofer |
| Model Number | : | Bar 2.1 Deep Bass SUB |
| EUT function description | : | Please reference user manual of this device |
| Power Supply | : | AC 100-240V, 50/60Hz |
| Operation frequency | : | 5743 MHz - 5832 MHz |
| Modulation | : | FSK |
| Antenna Type | : | Antenna 1: Integral PCB antenna, maximum PK gain: 1.57 dBi<br>Antenna 2: Integral PCB antenna, maximum PK gain: 1.57 dBi<br>The EUT supports the antenna with TX and RX diversity functions. Both Ant. 1 and Ant. 2 support transmit and receive functions, but only one of them will be used at one time, and Ant. 1 generated the worst case, so it was selected to test and record in the report. |
| Serial Number | : | RS0072-JL0000174 for conducted test<br>RS0072-JL0000156 for radiation test |

Note: EUT is the abbreviation of equipment under test.

EUT channels and frequencies list:

| Channel information | | | | | |
|---|---|---|---|---|---|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 1 | 5743 | 17 | 5775 | 33 | 5807 |
| 2 | 5745 | 18 | 5777 | 34 | 5809 |
| 3 | 5747 | 19 | 5779 | 35 | 5811 |
| 4 | 5749 | 20 | 5781 | 36 | 5813 |
| 5 | 5751 | 21 | 5783 | 37 | 5815 |
| 6 | 5753 | 22 | 5785 | 38 | 5817 |
| 7 | 5755 | 23 | 5787 | 39 | 5819 |
| 8 | 5757 | 24 | 5789 | 40 | 5821 |
| 9 | 5759 | 25 | 5791 | 41 | 5823 |
| 10 | 5761 | 26 | 5793 | 42 | 5825 |
| 11 | 5763 | 27 | 5795 | 43 | 5827 |
| 12 | 5765 | 28 | 5797 | 44 | 5829 |
| 13 | 5767 | 29 | 5799 | 45 | 5831 |
| 14 | 5769 | 30 | 5801 | 46 | 5832 |
| 15 | 5771 | 31 | 5803 | / | / |
| 16 | 5773 | 32 | 5805 | | |

## 2.2. Accessories of EUT

| Description of Accessories | Manufacturer | Model number | Serial No. | Other |
|---|---|---|---|---|
| AC cable | Harman | N/A | N/A | Length: 1.5m, unshielded |
| HDMI cable | Harman | N/A | N/A | Length: 1.5m, shielded, two core |

## 2.3. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | EMC Compliance | SN |
|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A |

## 2.4. Block diagram of EUT configuration for test

AC mains —— EUT

Test software: EMI_Tool
The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.

| Tested mode, channel, information | | | |
|---|---|---|---|
| Mode | Setting Tx Power | Channel | Frequency (MHz) |
| FSK Tx mode | 5 | CH1 | 5743 |
| | 5 | CH23 | 5787 |
| | 5 | CH46 | 5832 |

## 2.5. Test environment conditions

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

| | |
|---|---|
| Temperature range: | 21-25 ℃ |
| Humidity range: | 40-75% |
| Pressure range: | 86-106 kPa |

## 2.6. Deviations of test standard

No deviation.

## 2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

## 2.8. Measurement uncertainty

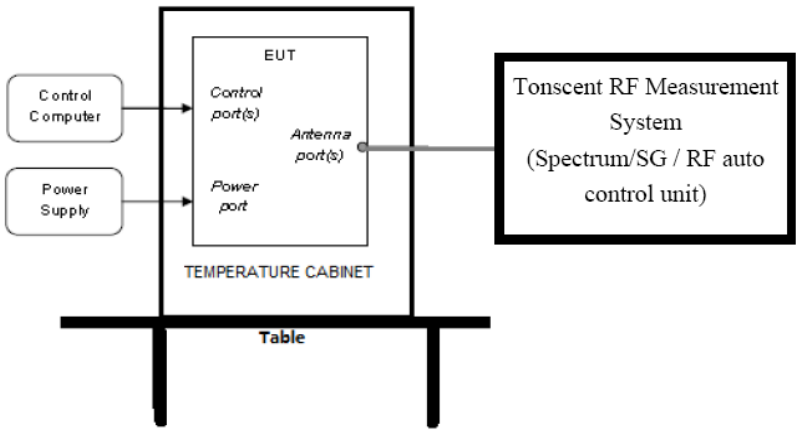
| Test Item | Uncertainty |
|---|---|
| Bandwidth | 1.1% |
| Peak Output Power (Conducted) (Spectrum Analyzer) | 0.86 dB (10 MHz ≤ f < 3.6 GHz); |
| | 1.38 dB (3.6 GHz ≤ f < 8 GHz) |
| Peak Output Power (Conducted) (Power Sensor) | 0.74 dB |
| Power Spectral Density | 0.74 dB (10 MHz ≤ f < 3.6 GHz); |
| | 1.38 dB (3.6 GHz ≤ f < 8 GHz) |
| Frequencies Stability | 6.7 x $10^{-8}$ (Antenna couple method) |
| | 5.5 x $10^{-8}$ (Conducted method) |
| Conducted Spurious Emissions | 0.86 dB (10 MHz ≤ f < 3.6 GHz); |
| | 1.40 dB (3.6 GHz ≤ f < 8 GHz) |
| | 1.66 dB (8 GHz ≤ f < 22 GHz) |
| Uncertainty for Radio Frequency (RBW < 20 kHz) | $3\times10^{-8}$ |
| Temperature | 0.4 ℃ |
| Humidity | 2 % |
| Uncertainty for Radiation Emission Test (9 kHz – 30 MHz) | 3.44 dB |
| Uncertainty for Radiation Emission Test (30 MHz - 1 GHz) | 4.70 dB (Antenna Polarize: V) |
| | 4.84 dB (Antenna Polarize: H) |
| Uncertainty for Radiation Emission Test (1 GHz - 40 GHz) | 4.10 dB (1 - 6 GHz) |
| | 4.40 dB (6 GHz - 18 GHz) |
| | 3.54 dB (18 GHz - 26 GHz) |
| | 4.30 dB (26 GHz - 40 GHz) |
| Uncertainty for Power Line Conduction Emission Test | 3.32 dB (150 kHz - 30 MHz) |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. | |

# 3. Equipment Used During Test

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|
| ☒**RF Connected Test (Tonscend RF Measurement System 1#)** | | | | | |
| Spectrum analyzer | R&S | FSU26 | 200071 | Sep. 02, 2021 | 1 Year |
| Wideband Radio Communication tester | R&S | CMW500 | 120259 | Sep. 02, 2021 | 1 Year |
| Vector Signal Generator | Agilent | E8267D | US49060192 | Sep. 18, 2021 | 1 Year |
| Vector Signal Generator | Agilent | N5182A | MY48180737 | Jun. 01, 2021 | 1 Year |
| RF Control Unit | Tonsend | JS0806-2 | 158060010 | Jun. 01, 2021 | 1 Year |
| Temp&Humi Programmable | ZHIXIANG | ZXGDJS-150L | ZX170110-A | Jun. 01, 2021 | 1 Year |
| Test Software | JS Tonscend | JS1120-3 | Ver.2.6.77.0518 | N/A | N/A |
| ☒**Radiation 3#chamber** | | | | | |
| EMI Test Receiver | R&S | ESU | 100472 | Jun. 01, 2021 | 1 Year |
| Spectrum analyzer | Agilent | E4447A | MY50180031 | Jun. 01, 2021 | 1 Year |
| Active Loop antenna | Schwarzbeck | FMZB-1519 | 1519-038 | Sep. 19, 2021 | 1 Year |
| Trilog Broadband Antenna | Schwarzbeck | VULB 9163 | 01429 | Aug. 07, 2021 | 1 Year |
| Double Ridged Horn Antenna | Schwarzbeck | BBHA9120 | 02108 | Jul. 17, 2021 | 1 Year |
| Broad Band Horn Antenna | Schwarzbeck | BBHA 9170 | 790 | May 08, 2021 | 1 Year |
| Pre-amplifier | COM-POWER | PAM-118A | 18040084 | Sep. 02, 2021 | 1 Year |
| Pre-amplifier | COM-POWER | PAM-840A | 461369 | Mar. 15, 2021 | 1 Year |
| Test software | Audix | E3 | V 6.1.1.1 | N/A | N/A |
| ☐**Power Line Conducted Emissions Test 1#** | | | | | |
| Test Receiver | R&S | ESCI | 100551 | Sep. 02, 2021 | 1 Year |
| LISN 1 | R&S | ENV216 | 101109 | Sep. 02, 2021 | 1 Year |
| LISN 2 | R&S | ESH2-Z5 | 100309 | Sep. 02, 2021 | 1 Year |
| Pulse Limiter | R&S | ESH3-Z2 | 101242 | Sep. 02, 2021 | 1 Year |
| CE Cable 1 | HUBSER | N/A | W10.01 | Sep. 02, 2021 | 1 Year |
| LISN 3 | SCHWARZBECK | NSLK 8163 | 00017 | Sep. 02, 2021 | 1 Year |
| Test software | Audix | E3 | V 6.11111b | N/A | N/A |
| ☒**Power Line Conducted Emissions Test 2#** | | | | | |
| Test Receiver | R&S | ESCI | 101028 | Sep. 02, 2021 | 1 Year |
| LISN 1 | R&S | ENV216 | 101170 | Sep. 02, 2021 | 1 Year |
| Pulse Limiter | R&S | KH43101 | 431011801568-12# | Jun. 01, 2021 | 1 Year |
| CE Cable 2 | HUBSER | RG214-5 | N/A | Jun. 01, 2021 | 1 Year |
| Test software | Audix | E3 | V 6.11111b | N/A | N/A |

# 4 Duty Cycle

## 4.1. Block diagram of test setup




## 4.2. Limits

None: for reporting purposes only.

## 4.3. Test procedure

Set the Centre frequency of the spectrum analyzer to the transmitting frequency;

Set the span = 0, RBW = 3 MHz, VBW = 3 MHz, Sweep time = 100 ms;

Trace mode = Single hold.

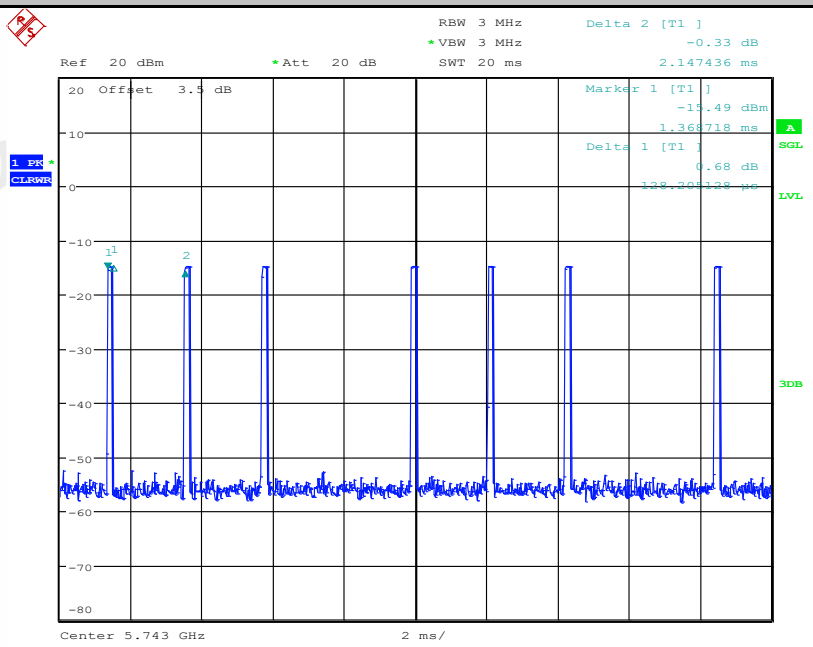
## 4.4. Test result

| Test Channel [MHz] | Duty Cycle [%] | 20log(Δ) Factor[dB] |
|---|---|---|
| 5743 | 4.61 | -26.73 |

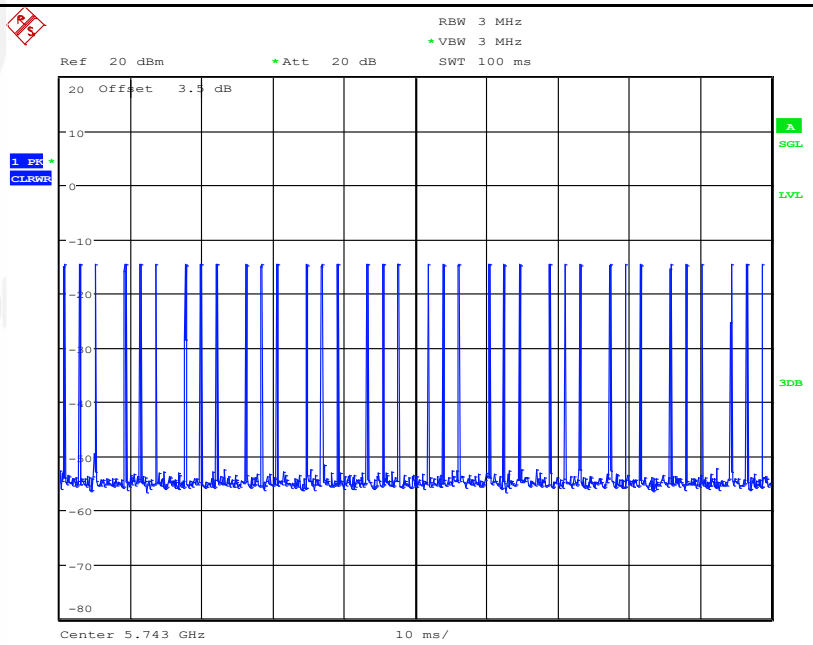
| **Average value:** | |
|---|---|
| Calculate Formula: | Average value = Peak value + PDCF |
| | PDCF = 20 log(Duty cycle) |
| | Duty cycle = $T_{on\ time}$ / $T_{period}$ |
| Test data: | $T_{on\ time}$ = (0.128*36) ms = 4.61 ms |
| | $T_{period}$ = 100 ms |
| | PDCF = 20 log(Duty cycle) = 20 log(4.61/100) = -26.73 dB |

## 4.5. Original test data

Duty Cycle



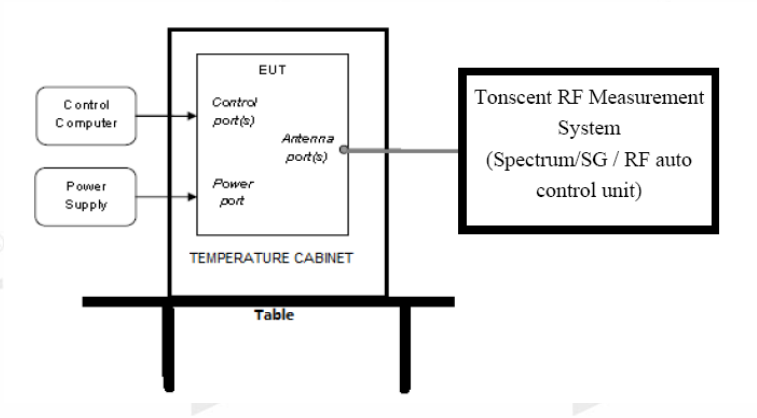

Date: 28.DEC.2021 22:17:05




Date: 28.DEC.2021 22:15:32

# 5. 20 dB Bandwidth and 99% Bandwidth

## 5.1. Block diagram of test setup




## 5.2. Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

## 5.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

| | |
|---|---|
| RBW: | 100 kHz |
| VBW: | 300 kHz |
| Detector Mode: | Peak/RMS |
| Sweep time: | auto |
| Trace mode | Max hold |

(3) Allow the trace to stabilize, measure the 20 dB and 99% bandwidth of signal.

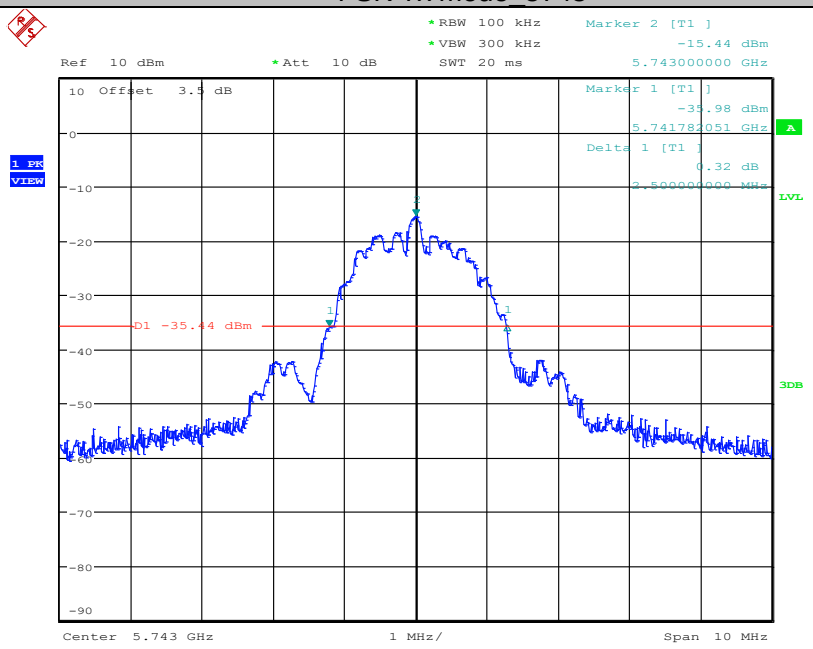
## 5.4. Test result

| Test Mode | Freq. (MHz) | 20 dB bandwidth Result (MHz) | 99% bandwidth Result (MHz) | Verdict |
|---|---|---|---|---|
| FSK Tx mode | 5743 | 2.500 | 2.290 | Pass |
| | 5787 | 2.484 | 2.310 | Pass |
| | 5832 | 2.470 | 2.300 | Pass |

## 5.5. Original test data

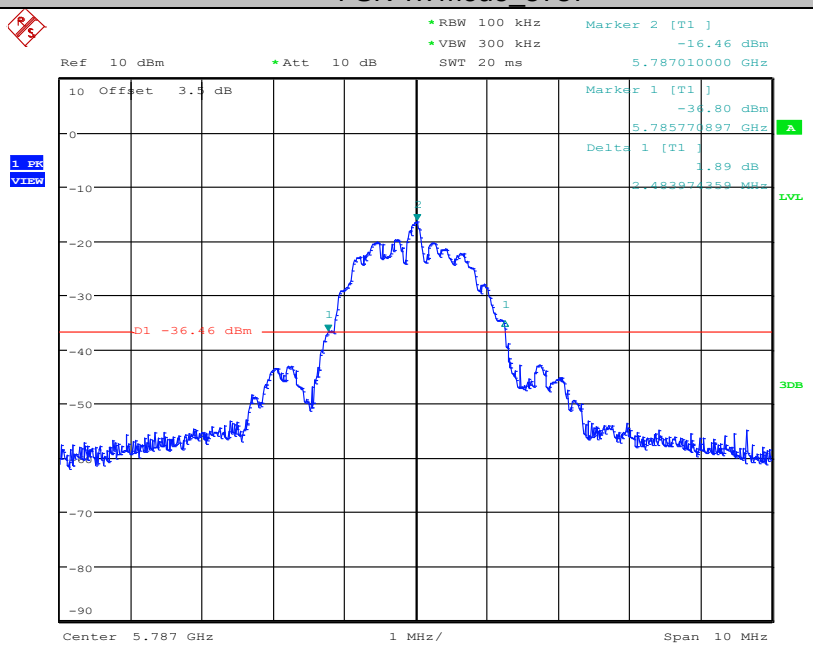
20 dB bandwidth:

FSK Tx mode_5743



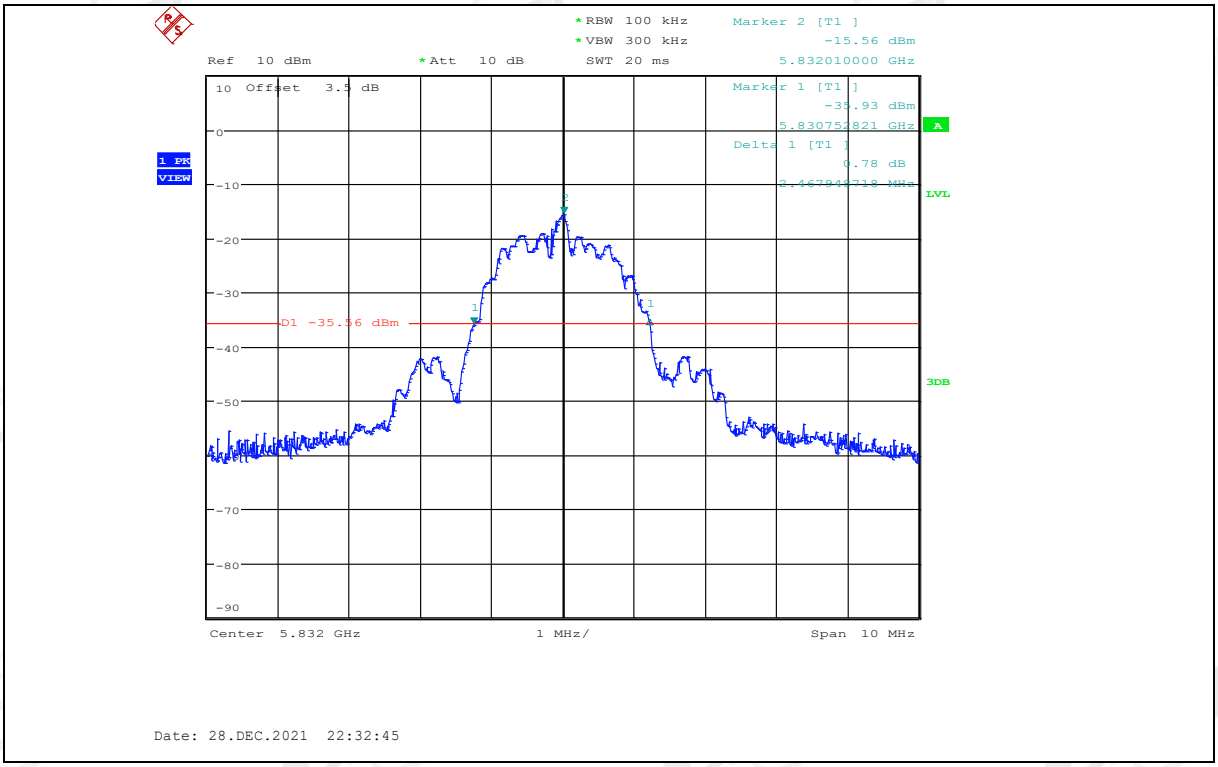

Date: 28.DEC.2021 22:34:54

FSK Tx mode_5787



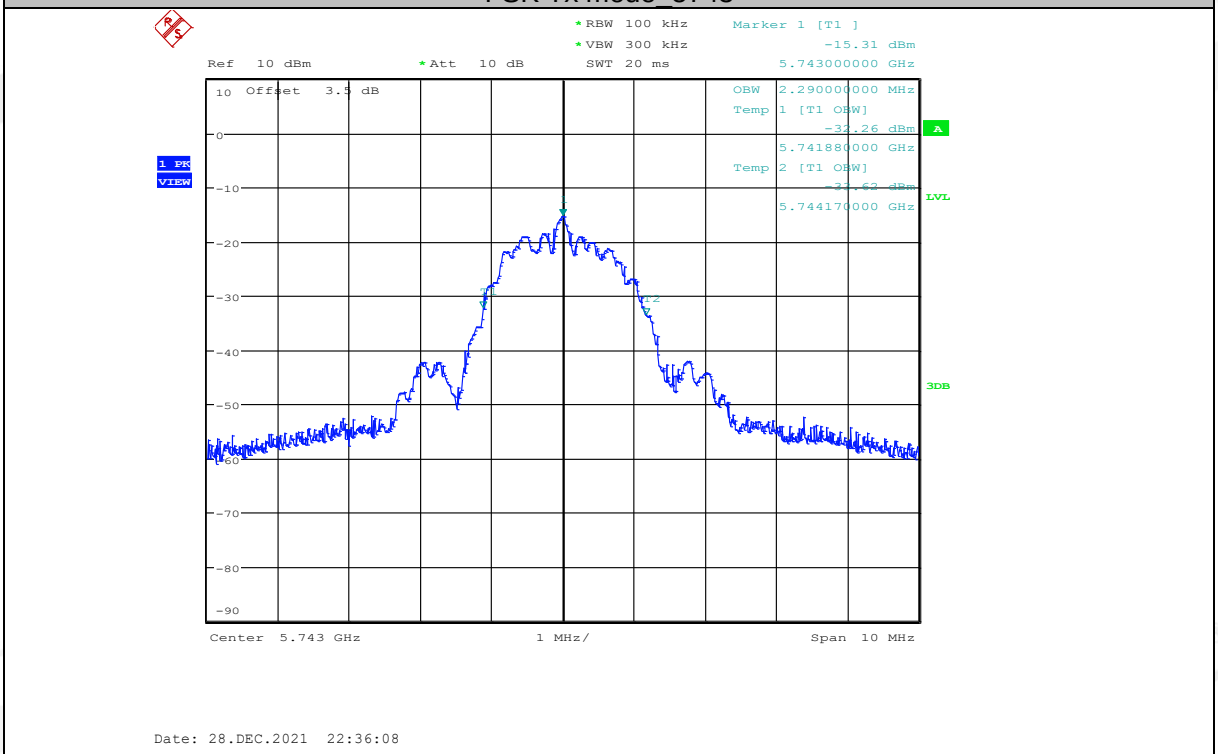

Date: 28.DEC.2021 22:27:47

FSK Tx mode_5832

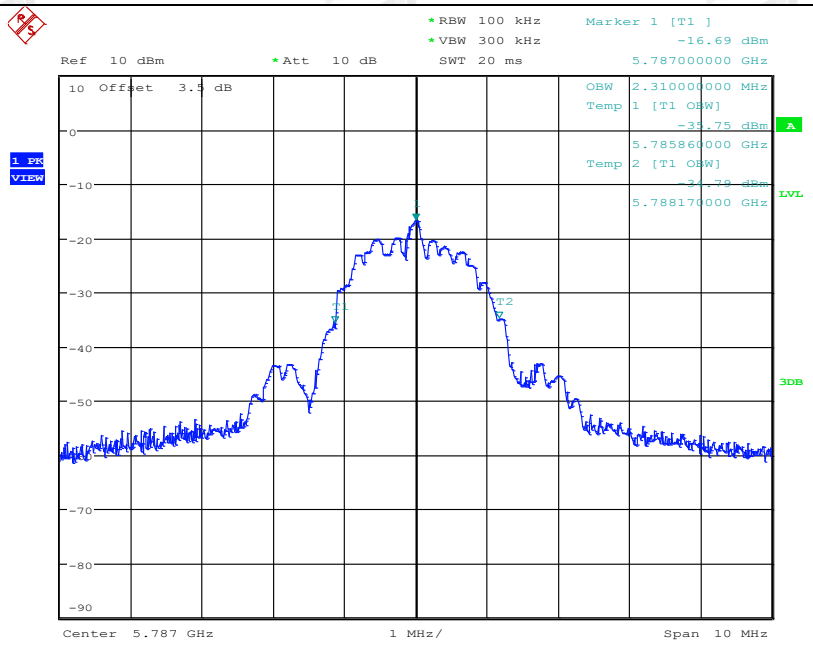



99% bandwidth

FSK Tx mode_5743

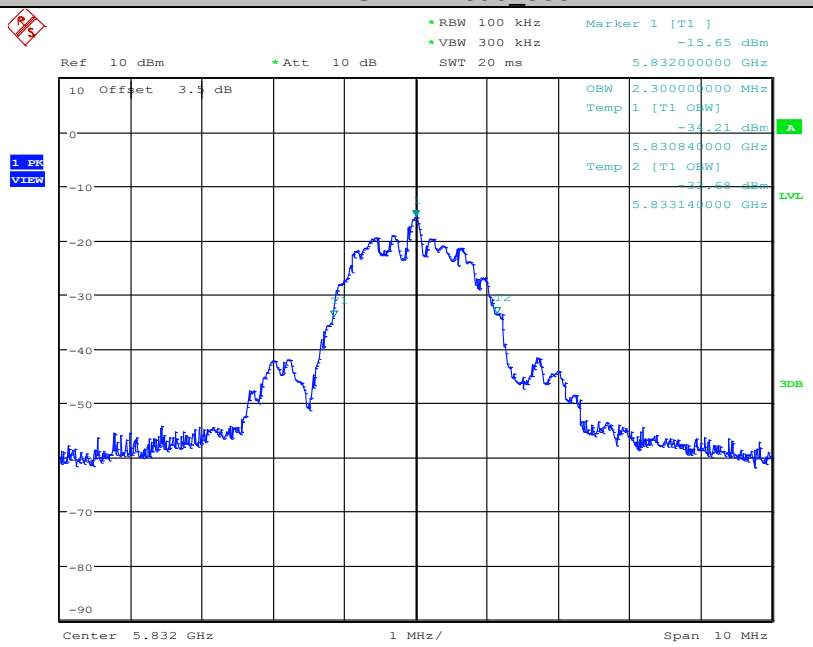



FSK Tx mode_5787




Date: 28.DEC.2021 22:29:26

FSK Tx mode_5832

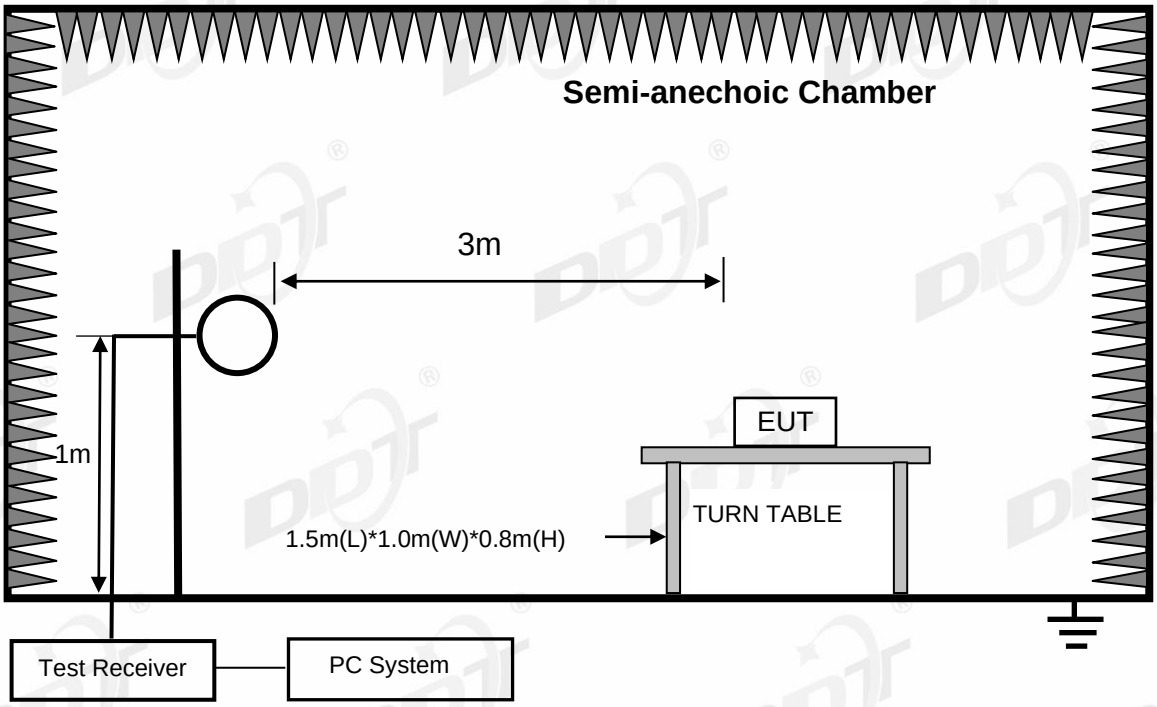



Date: 28.DEC.2021 22:30:41

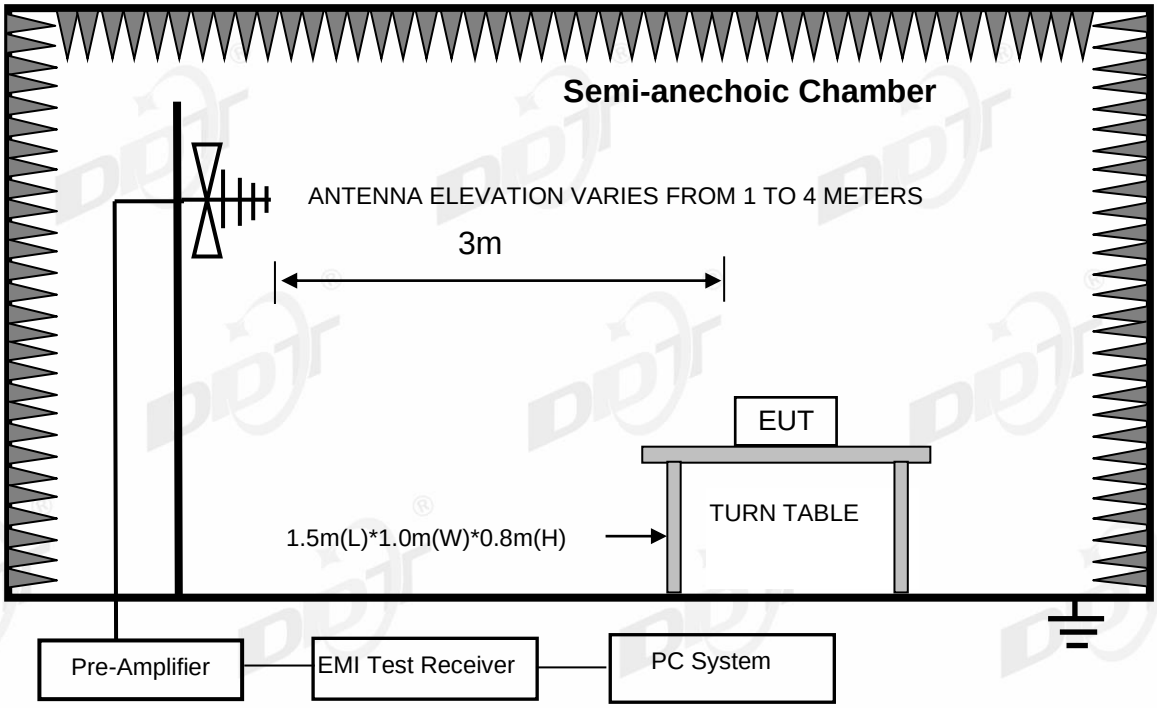
# 6. Radiated Emission

## 6.1. Block diagram of test setup

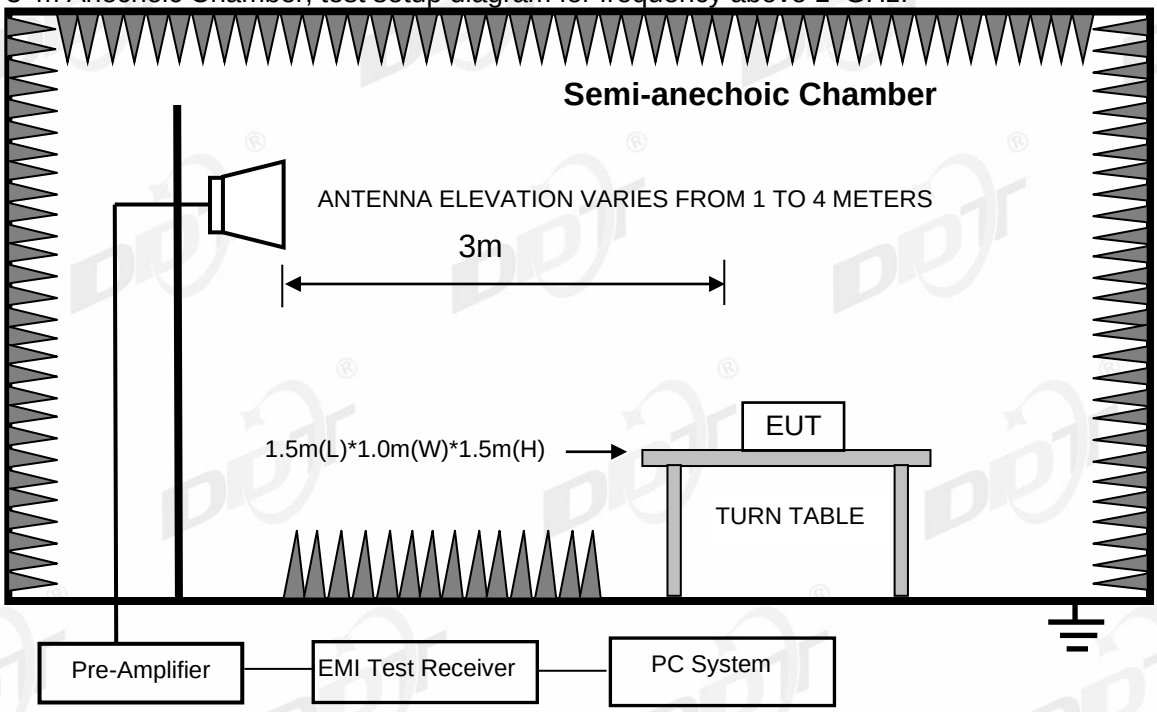
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:




In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:




Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

## 6.2. Limit

| FREQUENCY MHz | DISTANCE Meters | FIELD STRENGTHS LIMIT | |
|---|---|---|---|
| | | μV/m | dB(μV)/m |
| 30 ~ 88 | 3 | 100 | 40.0 |
| 88 ~ 216 | 3 | 150 | 43.5 |
| 216 ~ 960 | 3 | 200 | 46.0 |
| 960 ~ 1000 | 3 | 500 | 54.0 |
| Above 1000 MHz | 3 | 74.0 dB(μV)/m (Peak)<br>54.0 dB(μV)/m (Average) | |
| Field Strength of Fundamental emission for 5725 MHz - 5875 MHz | 3 | 94.0 dB(μV)/m (Average)<br>114.0 dB(μV)/m (Peak) | |
| Field Strength of Harmonics | 3 | 74.0 dB(μV)/m (Peak)<br>54.0 dB(μV)/m (Average) | |

Remark:

(1) Emission level dBμV = 20 log Emission level μV/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

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

## 6.3. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Setup EUT and assistant system according clause 2.3

(3) Test antenna was located 3 m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.

(a) Change work frequency or channel of device if practicable.

(b) Change modulation type of device if practicable.

(c) Change power supply range from 85% to 115% of the rated supply voltage

(d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions

(4) Spectrum frequency from 9 kHz to 40 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9 kHz to 30 MHz and 18 GHz to 40 GHz, so below final test was performed with frequency range from 30 MHz to 18 GHz.

(5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(6) For emissions from 30 MHz to 1 GHz, Quasi-Peak values were measured with EMI Receiver and the bandwidth of Receiver is 120 kHz.

(7) For emissions above 1 GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; according ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.

(8) For fundamental frequency test, set spectrum analyzer’s RBW = 3 MHz, VBW = 10 MHz. Peak detector for PK, according ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.

## 6.4. Test result

**Pass. (See below detailed test result)**

All the emissions except fundamental emission from 9 kHz to 40 GHz were comply with 15.209 limit.

Note1: According exploratory test no any obvious emission was detected from 9 kHz to 30 MHz and 18 GHz to 40 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in FSK, Tx 5743 MHz mode.

Note3: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

## Field Strength of the Fundamental Signal

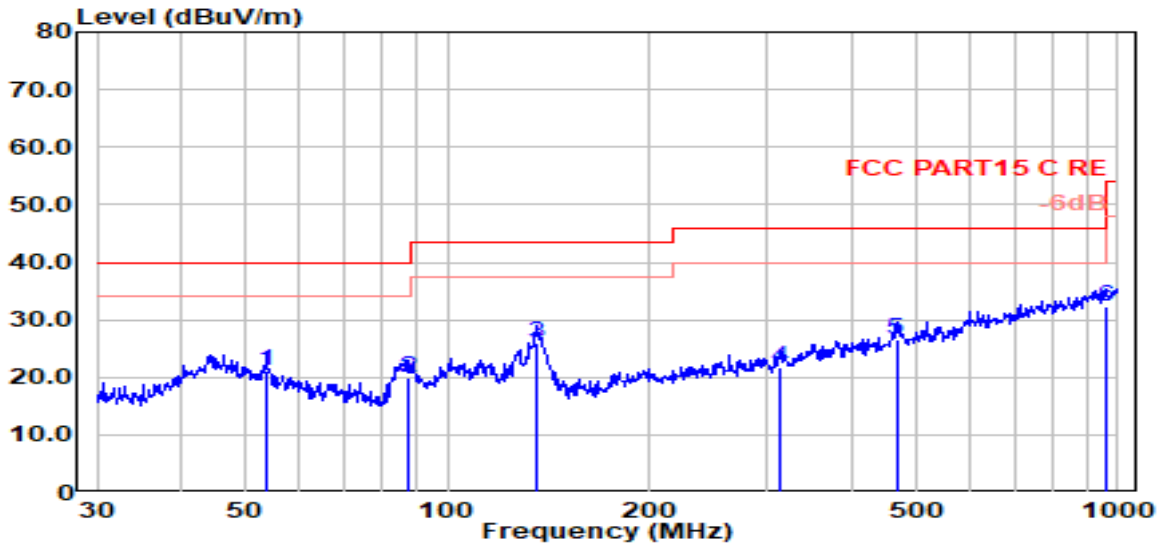
| Frequency (MHz) | PK Level (dBuV/m) | PK Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 5743 | 97.81 | 114.00 | -16.19 | Horizontal |
| 5787 | 99.72 | 114.00 | -14.28 | Horizontal |
| 5832 | 94.09 | 114.00 | -19.91 | Horizontal |
| 5743 | 96.28 | 114.00 | -17.72 | Vertical |
| 5787 | 96.33 | 114.00 | -17.67 | Vertical |
| 5832 | 93.21 | 114.00 | -20.79 | Vertical |

| Frequency (MHz) | AV Level (dBuV/m) | AV Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|
| 5743 | 71.08 | 94.00 | -22.92 | Horizontal |
| 5787 | 72.99 | 94.00 | -21.01 | Horizontal |
| 5832 | 67.36 | 94.00 | -26.64 | Horizontal |
| 5743 | 69.55 | 94.00 | -24.45 | Vertical |
| 5787 | 69.60 | 94.00 | -24.40 | Vertical |
| 5832 | 66.48 | 94.00 | -27.52 | Vertical |
| Note: AV Level = PK Level + PDCF, PDCF = -26.73 dB | | | | |

## Radiated Emission test (below 1 GHz)

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC BELOW 1G\FCC BELOW 1G_00001.EMI | |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.6%,Press:100.6kPa | **Antenna/Distance** | : VLUB 9163 3#/3m/Horizontal |
| **Memo** | : | | |



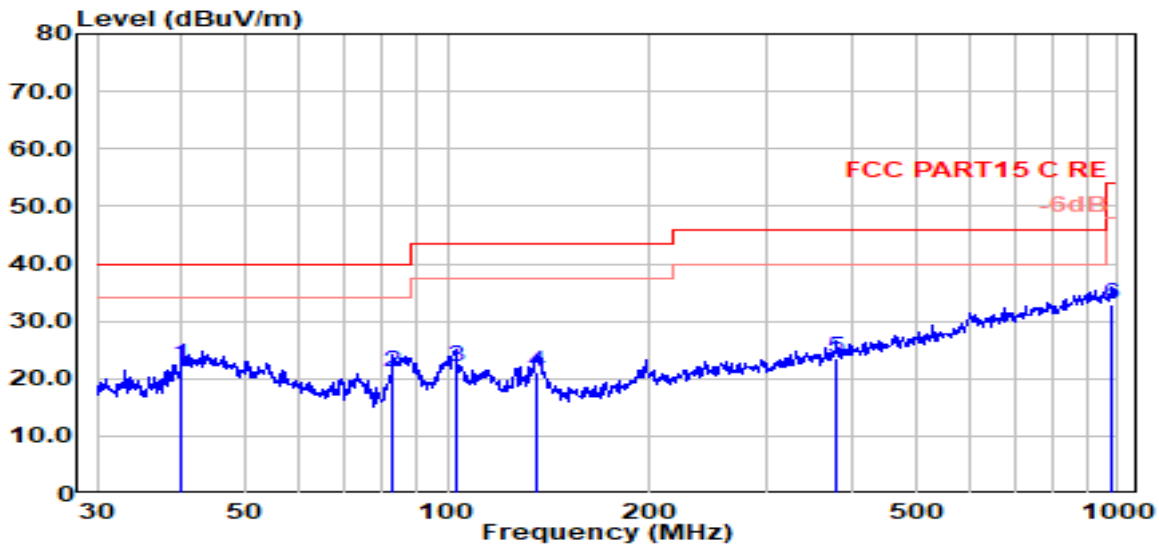

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 53.69 | 5.19 | 12.13 | 3.69 | 21.01 | 40.00 | -18.99 | QP | Horizontal |
| 2 | 87.72 | 6.78 | 9.30 | 3.90 | 19.98 | 40.00 | -20.02 | QP | Horizontal |
| 3 | 135.51 | 13.26 | 8.55 | 4.15 | 25.96 | 43.50 | -17.54 | QP | Horizontal |
| 4 | 313.28 | 3.47 | 13.53 | 4.86 | 21.86 | 46.00 | -24.14 | QP | Horizontal |
| 5 | 467.24 | 5.03 | 16.04 | 5.37 | 26.44 | 46.00 | -19.56 | QP | Horizontal |
| 6 | 958.79 | 3.63 | 22.12 | 6.62 | 32.37 | 46.00 | -13.63 | QP | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC BELOW 1G\FCC BELOW 1G_00002.EMI |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.6%,Press:100.6kPa | **Antenna/Distance** | : VLUB 9163 3#/3m/Vertical |
| **Memo** | : | | |




| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 40.13 | 5.99 | 12.68 | 3.57 | 22.24 | 40.00 | -17.76 | QP | Vertical |
| 2 | 82.94 | 8.14 | 9.08 | 3.87 | 21.09 | 40.00 | -18.91 | QP | Vertical |
| 3 | 102.72 | 6.50 | 11.53 | 3.99 | 22.02 | 43.50 | -21.48 | QP | Vertical |
| 4 | 135.51 | 8.49 | 8.55 | 4.15 | 21.19 | 43.50 | -22.31 | QP | Vertical |
| 5 | 381.25 | 3.40 | 14.95 | 5.09 | 23.44 | 46.00 | -22.56 | QP | Vertical |
| 6 | 975.75 | 3.84 | 22.30 | 6.71 | 32.85 | 54.00 | -21.15 | QP | Vertical |

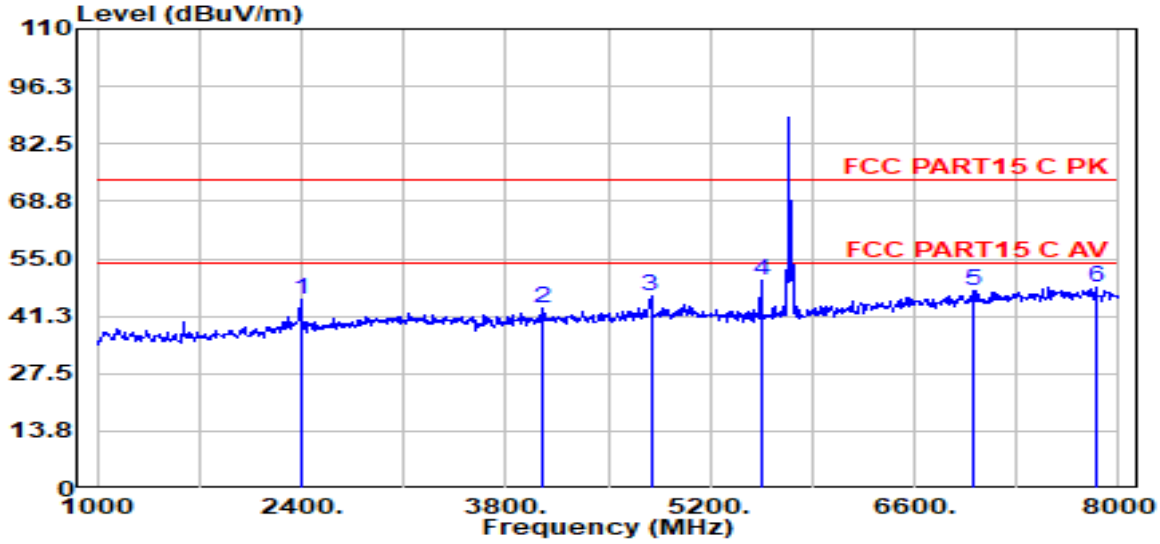
Note:

1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

## Radiated Emission test (above 1 GHz)

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00005.EMI | |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Vertical |
| **Memo** | : SDR 5743 | | |



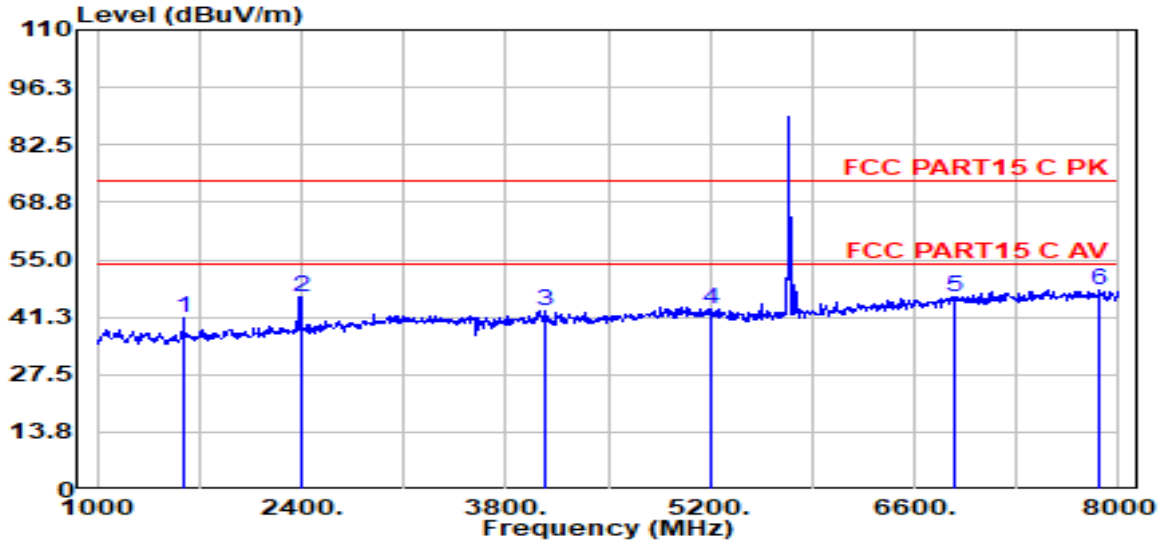

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2393.00 | 53.69 | 27.41 | 3.73 | 39.60 | 45.23 | 74.00 | -28.77 | Peak | Vertical |
| 2 | 4052.00 | 47.33 | 31.14 | 4.88 | 40.21 | 43.14 | 74.00 | -30.86 | Peak | Vertical |
| 3 | 4794.00 | 48.77 | 32.44 | 5.36 | 40.36 | 46.21 | 74.00 | -27.79 | Peak | Vertical |
| 4 | 5550.00 | 51.42 | 32.92 | 5.74 | 40.46 | 49.63 | 74.00 | -24.37 | Peak | Vertical |
| 5 | 6999.00 | 44.84 | 36.00 | 6.37 | 39.70 | 47.51 | 74.00 | -26.49 | Peak | Vertical |
| 6 | 7846.00 | 44.28 | 36.82 | 6.76 | 39.78 | 48.07 | 74.00 | -25.93 | Peak | Vertical |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00006.EMI | |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Horizontal |
| **Memo** | : SDR 5743 | | |



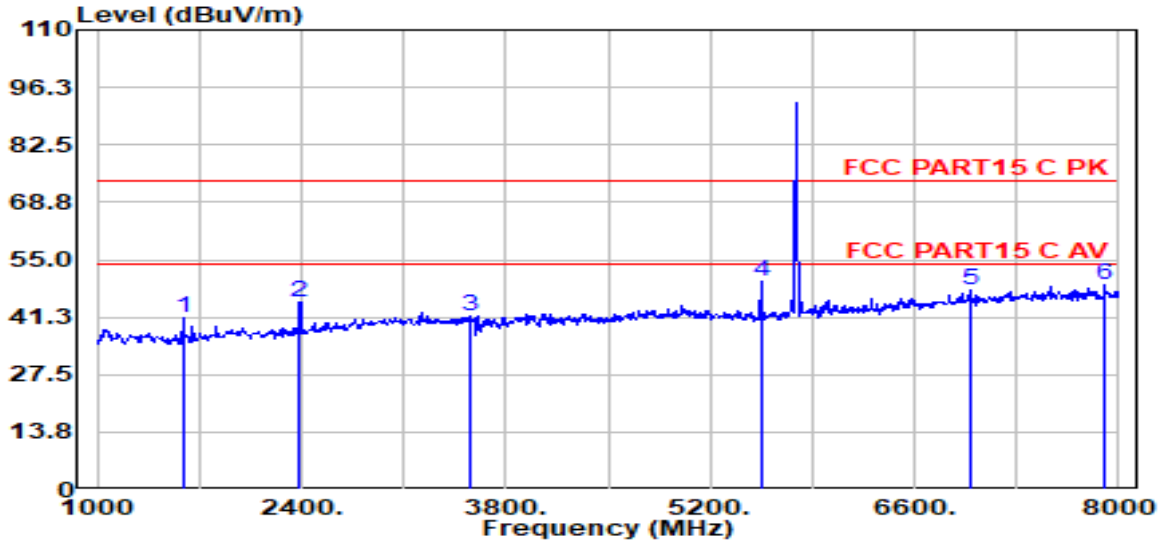

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1595.00 | 51.28 | 25.65 | 2.96 | 38.79 | 41.10 | 74.00 | -32.90 | Peak | Horizontal |
| 2 | 2393.00 | 54.60 | 27.41 | 3.73 | 39.60 | 46.14 | 74.00 | -27.86 | Peak | Horizontal |
| 3 | 4066.00 | 46.72 | 31.15 | 4.89 | 40.21 | 42.55 | 74.00 | -31.45 | Peak | Horizontal |
| 4 | 5207.00 | 45.23 | 32.98 | 5.59 | 40.42 | 43.37 | 74.00 | -30.63 | Peak | Horizontal |
| 5 | 6873.00 | 43.85 | 35.80 | 6.32 | 39.80 | 46.17 | 74.00 | -27.83 | Peak | Horizontal |
| 6 | 7874.00 | 43.75 | 36.85 | 6.77 | 39.79 | 47.58 | 74.00 | -26.42 | Peak | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00009.EMI |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Vertical |
| **Memo** | : SRD 5787 | | |



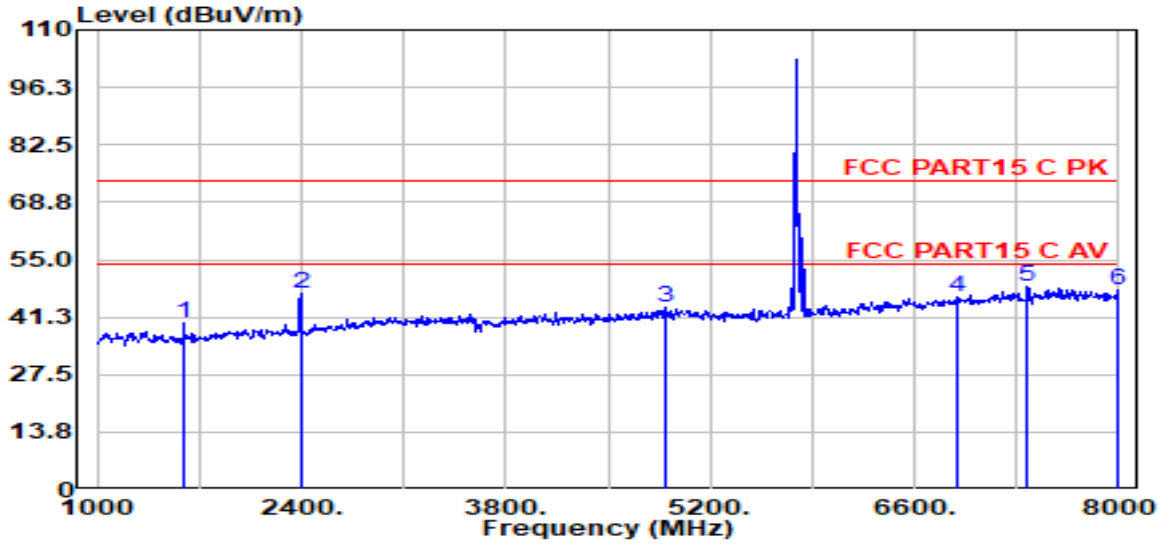

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1595.00 | 51.34 | 25.65 | 2.96 | 38.79 | 41.15 | 74.00 | -32.85 | Peak | Vertical |
| 2 | 2386.00 | 53.44 | 27.39 | 3.72 | 39.59 | 44.97 | 74.00 | -29.03 | Peak | Vertical |
| 3 | 3548.00 | 47.63 | 29.56 | 4.57 | 40.06 | 41.71 | 74.00 | -32.29 | Peak | Vertical |
| 4 | 5550.00 | 51.64 | 32.92 | 5.74 | 40.46 | 49.85 | 74.00 | -24.15 | Peak | Vertical |
| 5 | 6985.00 | 45.27 | 35.98 | 6.36 | 39.71 | 47.89 | 74.00 | -26.11 | Peak | Vertical |
| 6 | 7902.00 | 45.09 | 36.88 | 6.78 | 39.79 | 48.97 | 74.00 | -25.03 | Peak | Vertical |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00010.EMI | |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Horizontal |
| **Memo** | : SRD 5787 | | |



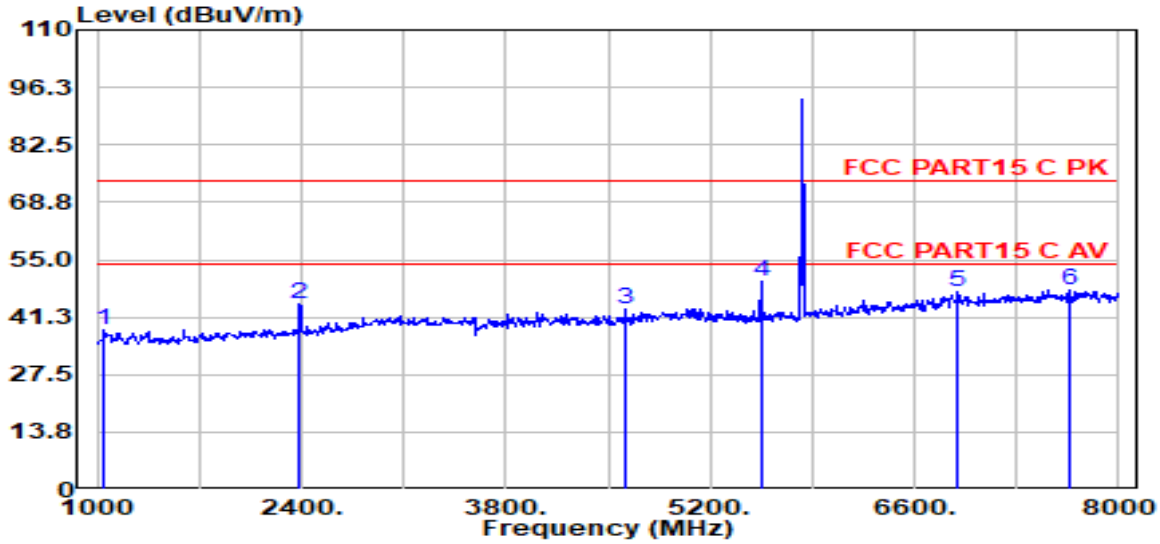

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1595.00 | 49.89 | 25.65 | 2.96 | 38.79 | 39.70 | 74.00 | -34.30 | Peak | Horizontal |
| 2 | 2393.00 | 55.20 | 27.41 | 3.73 | 39.60 | 46.74 | 74.00 | -27.26 | Peak | Horizontal |
| 3 | 4892.00 | 45.83 | 32.75 | 5.42 | 40.38 | 43.63 | 74.00 | -30.37 | Peak | Horizontal |
| 4 | 6887.00 | 43.93 | 35.82 | 6.32 | 39.79 | 46.28 | 74.00 | -27.72 | Peak | Horizontal |
| 5 | 7377.00 | 45.33 | 36.30 | 6.54 | 39.74 | 48.44 | 74.00 | -25.56 | Peak | Horizontal |
| 6 | 7986.00 | 43.65 | 36.98 | 6.82 | 39.80 | 47.65 | 74.00 | -26.35 | Peak | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00013.EMI |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Vertical |
| **Memo** | : SRD 5832 | | |



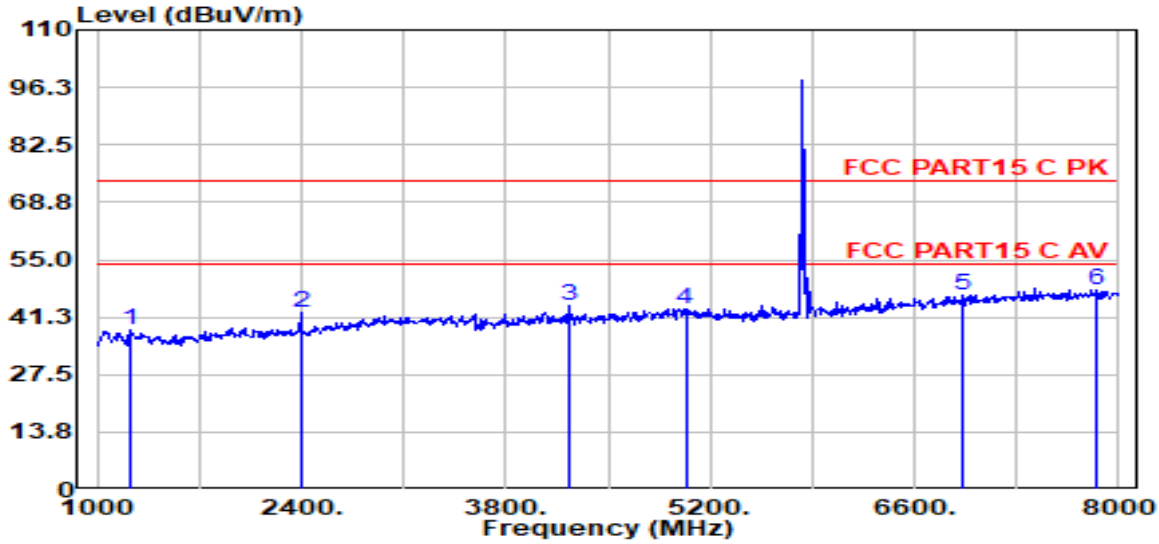

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1049.00 | 48.14 | 25.49 | 2.36 | 37.97 | 38.02 | 74.00 | -35.98 | Peak | Vertical |
| 2 | 2386.00 | 52.80 | 27.39 | 3.72 | 39.59 | 44.32 | 74.00 | -29.68 | Peak | Vertical |
| 3 | 4619.00 | 46.48 | 31.88 | 5.25 | 40.32 | 43.28 | 74.00 | -30.72 | Peak | Vertical |
| 4 | 5550.00 | 51.79 | 32.92 | 5.74 | 40.46 | 50.00 | 74.00 | -24.00 | Peak | Vertical |
| 5 | 6901.00 | 44.96 | 35.84 | 6.33 | 39.78 | 47.35 | 74.00 | -26.65 | Peak | Vertical |
| 6 | 7671.00 | 44.32 | 36.61 | 6.68 | 39.77 | 47.84 | 74.00 | -26.16 | Peak | Vertical |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00014.EMI |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Horizontal |
| **Memo** | : SRD 5832 | | |



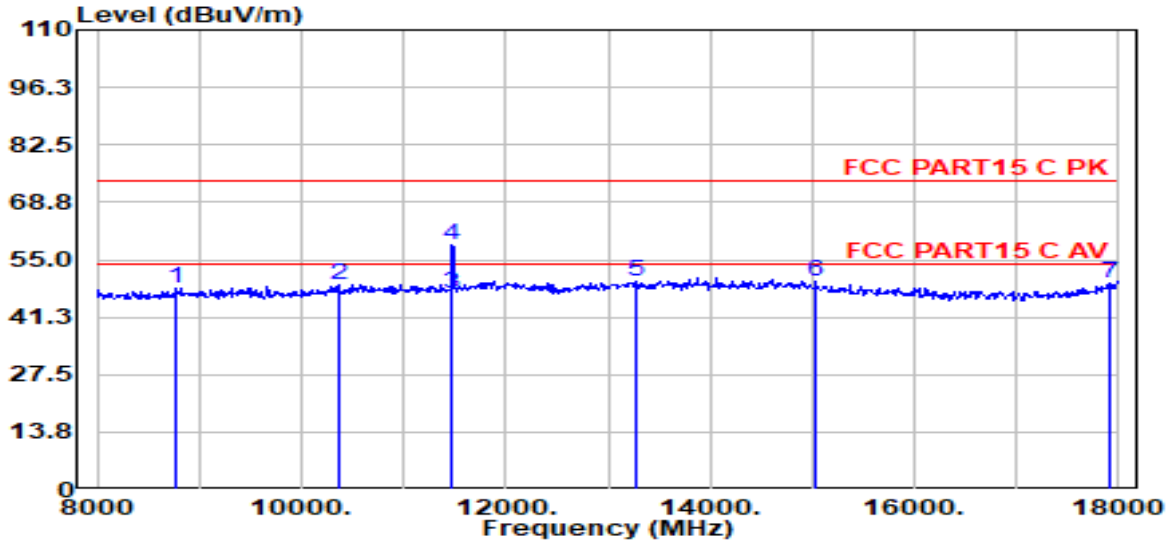

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1231.00 | 48.38 | 25.45 | 2.56 | 38.25 | 38.15 | 74.00 | -35.85 | Peak | Horizontal |
| 2 | 2393.00 | 50.65 | 27.41 | 3.73 | 39.60 | 42.19 | 74.00 | -31.81 | Peak | Horizontal |
| 3 | 4227.00 | 47.90 | 31.28 | 5.00 | 40.25 | 43.93 | 74.00 | -30.07 | Peak | Horizontal |
| 4 | 5032.00 | 45.17 | 33.08 | 5.50 | 40.40 | 43.35 | 74.00 | -30.65 | Peak | Horizontal |
| 5 | 6936.00 | 44.19 | 35.90 | 6.34 | 39.75 | 46.68 | 74.00 | -27.32 | Peak | Horizontal |
| 6 | 7839.00 | 44.14 | 36.81 | 6.76 | 39.78 | 47.91 | 74.00 | -26.09 | Peak | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00017.EMI |
| **Test Date** | : 2022-01-05 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Vertical |
| **Memo** | : SRD 5743 | | |



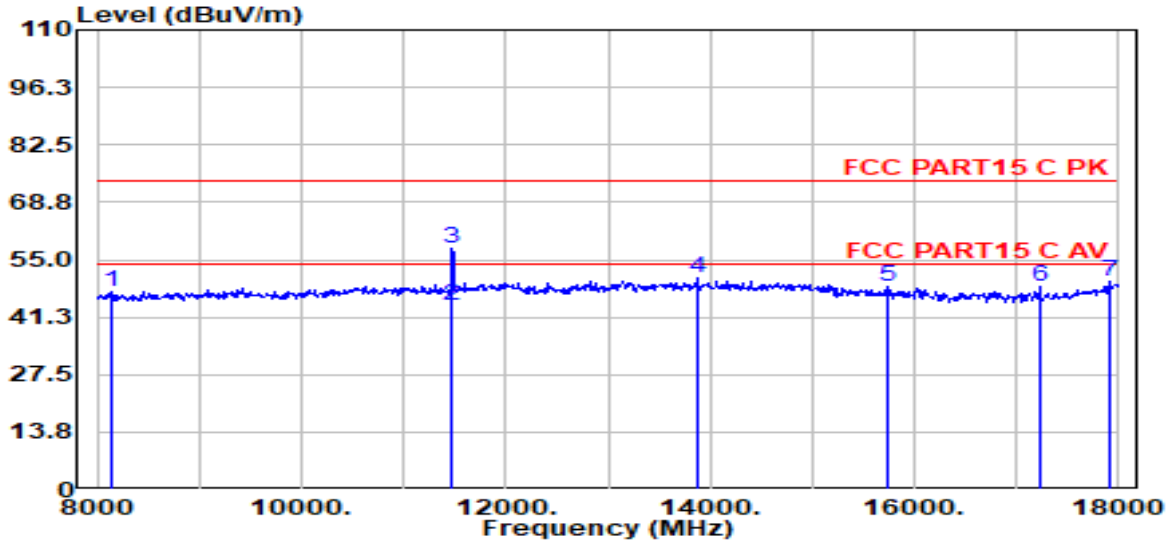

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8780.00 | 46.54 | 38.08 | 3.28 | 39.88 | 48.03 | 74.00 | -25.97 | Peak | Vertical |
| 2 | 10360.00 | 46.93 | 38.83 | 3.67 | 40.46 | 48.97 | 74.00 | -25.03 | Peak | Vertical |
| 3 | 11480.00 | 58.62-26.73=31.89 | | | | | 54.00 | -22.11 | Average | Vertical |
| 4 | 11480.00 | 55.80 | 39.01 | 3.96 | 40.15 | 58.62 | 74.00 | -15.38 | Peak | Vertical |
| 5 | 13280.00 | 45.86 | 39.82 | 4.17 | 40.20 | 49.66 | 74.00 | -24.34 | Peak | Vertical |
| 6 | 15040.00 | 45.41 | 39.44 | 4.48 | 39.61 | 49.71 | 74.00 | -24.29 | Peak | Vertical |
| 7 | 17900.00 | 43.29 | 41.88 | 4.93 | 40.64 | 49.47 | 74.00 | -24.53 | Peak | Vertical |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00018.EMI | |
| **Test Date** | : 2022-01-05 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Horizontal |
| **Memo** | : SRD 5743 | | |



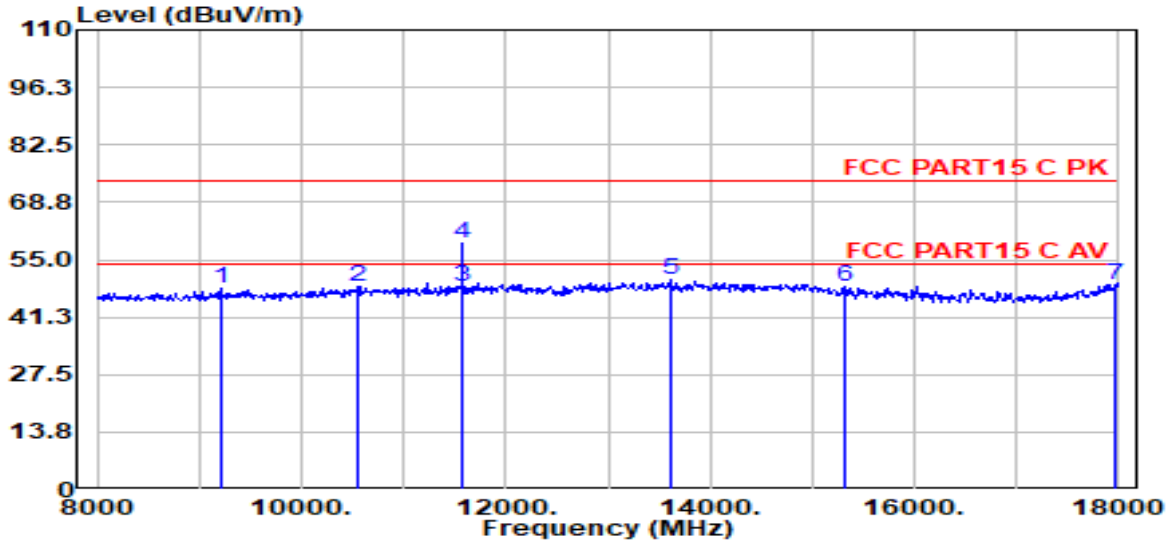

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8130.00 | 46.61 | 37.21 | 3.20 | 39.81 | 47.20 | 74.00 | -26.80 | Peak | Horizontal |
| 2 | 11480.00 | 57.80-26.73=31.07 | | | | | 54.00 | -22.93 | Average | Horizontal |
| 3 | 11480.00 | 54.98 | 39.01 | 3.96 | 40.15 | 57.80 | 74.00 | -16.20 | Peak | Horizontal |
| 4 | 13880.00 | 46.14 | 39.92 | 4.40 | 39.78 | 50.68 | 74.00 | -23.32 | Peak | Horizontal |
| 5 | 15750.00 | 45.67 | 38.35 | 4.58 | 39.83 | 48.77 | 74.00 | -25.23 | Peak | Horizontal |
| 6 | 17230.00 | 45.16 | 38.91 | 4.76 | 40.24 | 48.60 | 74.00 | -25.40 | Peak | Horizontal |
| 7 | 17910.00 | 43.42 | 41.94 | 4.93 | 40.65 | 49.65 | 74.00 | -24.35 | Peak | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00019.EMI |
| **Test Date** | : 2022-01-05 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Horizontal |
| **Memo** | : SRD 5787 | | |



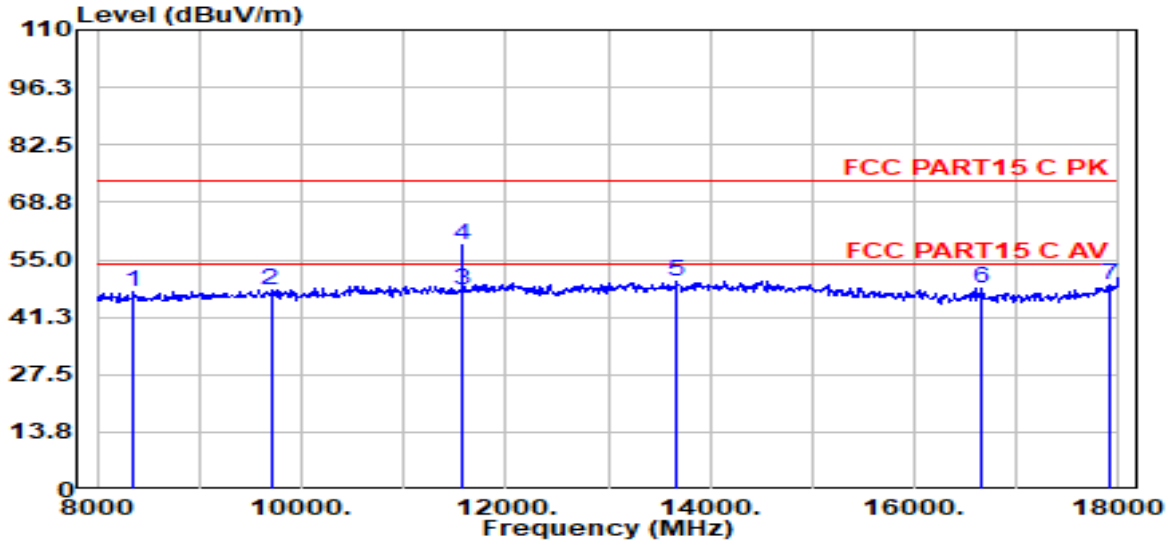

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9210.00 | 46.15 | 38.47 | 3.45 | 40.05 | 48.02 | 74.00 | -25.98 | Peak | Horizontal |
| 2 | 10550.00 | 46.03 | 39.03 | 3.68 | 40.38 | 48.36 | 74.00 | -25.64 | Peak | Horizontal |
| 3 | 11574.00 | 59.07-26.73=32.34 | | | | | 54.00 | -21.66 | Average | Horizontal |
| 4 | 11574.00 | 56.20 | 39.03 | 3.98 | 40.14 | 59.07 | 74.00 | -14.93 | Peak | Horizontal |
| 5 | 13610.00 | 46.07 | 39.98 | 4.11 | 39.97 | 50.18 | 74.00 | -23.82 | Peak | Horizontal |
| 6 | 15310.00 | 44.62 | 39.07 | 4.53 | 39.69 | 48.51 | 74.00 | -25.49 | Peak | Horizontal |
| 7 | 17960.00 | 42.63 | 42.25 | 4.95 | 40.68 | 49.16 | 74.00 | -24.84 | Peak | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00020.EMI | |
| **Test Date** | : 2022-01-05 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Vertical |
| **Memo** | : SRD 5787 | | |



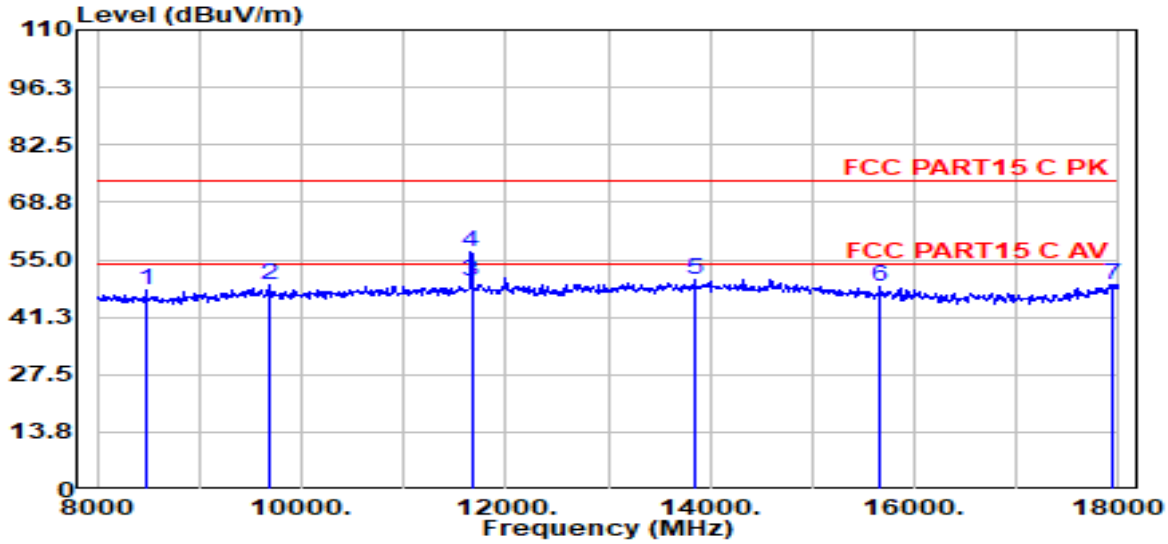

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8360.00 | 46.37 | 37.58 | 3.21 | 39.84 | 47.32 | 74.00 | -26.68 | Peak | Vertical |
| 2 | 9700.00 | 46.02 | 38.58 | 3.64 | 40.39 | 47.85 | 74.00 | -26.15 | Peak | Vertical |
| 3 | 11574.00 | 58.38-26.73=31.65 | | | | | 54.00 | -22.35 | Average | Vertical |
| 4 | 11574.00 | 55.51 | 39.03 | 3.98 | 40.14 | 58.38 | 74.00 | -15.62 | Peak | Vertical |
| 5 | 13670.00 | 45.42 | 39.97 | 4.17 | 39.93 | 49.63 | 74.00 | -24.37 | Peak | Vertical |
| 6 | 16650.00 | 45.24 | 38.08 | 4.72 | 40.03 | 48.02 | 74.00 | -25.98 | Peak | Vertical |
| 7 | 17920.00 | 42.79 | 42.00 | 4.94 | 40.65 | 49.08 | 74.00 | -24.92 | Peak | Vertical |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00021.EMI | |
| **Test Date** | : 2022-01-05 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Vertical |
| **Memo** | : SRD 5832 | | |



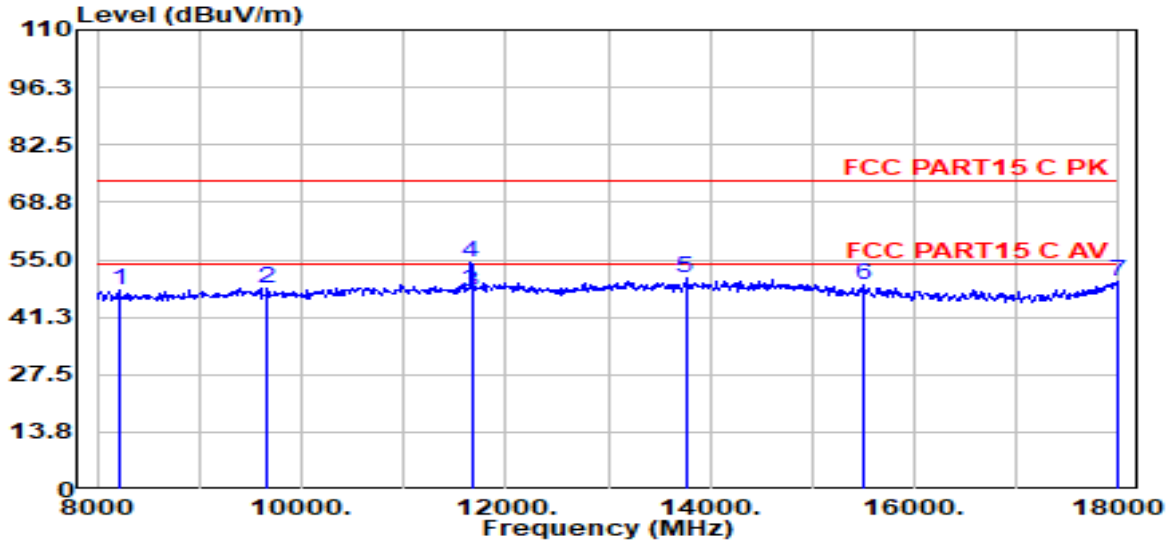

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8470.00 | 46.55 | 37.75 | 3.22 | 39.85 | 47.67 | 74.00 | -26.33 | Peak | Vertical |
| 2 | 9690.00 | 47.05 | 38.59 | 3.64 | 40.38 | 48.89 | 74.00 | -25.11 | Peak | Vertical |
| 3 | 11664.00 | 56.73-26.73=30.00 | | | | | 54.00 | -24.00 | Average | Vertical |
| 4 | 11664.00 | 53.81 | 39.07 | 4.00 | 40.13 | 56.73 | 74.00 | -17.27 | Peak | Vertical |
| 5 | 13840.00 | 45.86 | 39.93 | 4.36 | 39.81 | 50.34 | 74.00 | -23.66 | Peak | Vertical |
| 6 | 15670.00 | 45.34 | 38.49 | 4.57 | 39.80 | 48.61 | 74.00 | -25.39 | Peak | Vertical |
| 7 | 17940.00 | 42.67 | 42.13 | 4.94 | 40.66 | 49.08 | 74.00 | -24.92 | Peak | Vertical |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00022.EMI |
| **Test Date** | : 2022-01-05 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Horizontal |
| **Memo** | : SRD 5832 | | |



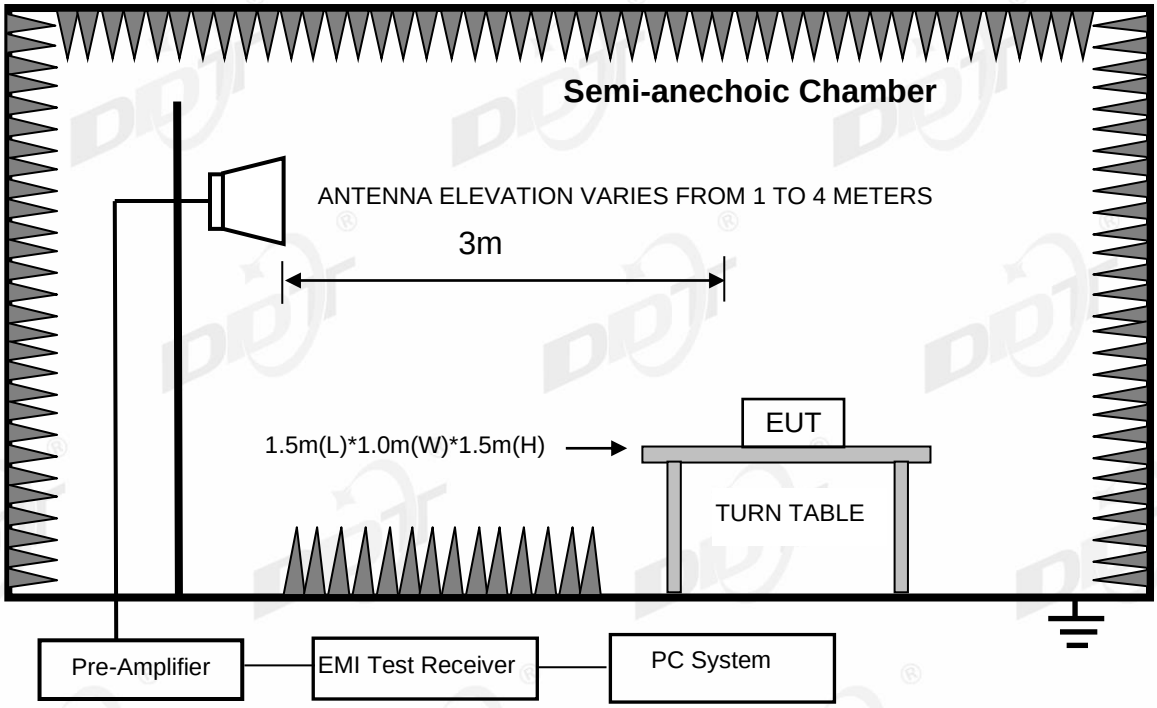

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8220.00 | 47.14 | 37.35 | 3.20 | 39.82 | 47.87 | 74.00 | -26.13 | Peak | Horizontal |
| 2 | 9670.00 | 46.37 | 38.60 | 3.64 | 40.37 | 48.23 | 74.00 | -25.77 | Peak | Horizontal |
| 3 | 11664.00 | 54.53-26.73=27.80 | | | | | 54.00 | -26.20 | Average | Horizontal |
| 4 | 11664.00 | 51.61 | 39.07 | 4.00 | 40.13 | 54.53 | 74.00 | -19.47 | Peak | Horizontal |
| 5 | 13760.00 | 46.25 | 39.95 | 4.27 | 39.87 | 50.60 | 74.00 | -23.40 | Peak | Horizontal |
| 6 | 15490.00 | 45.43 | 38.81 | 4.56 | 39.75 | 49.05 | 74.00 | -24.95 | Peak | Horizontal |
| 7 | 17980.00 | 43.14 | 42.38 | 4.95 | 40.69 | 49.78 | 74.00 | -24.22 | Peak | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# 7. Band Edge Compliance

## 7.1. Block diagram of test setup




## 7.2. Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

## 7.3. Test procedure

Same with clause 5.3 except change investigated frequency range from 5710 MHz to 5750 MHz and 5822 MHz to 5885 MHz.

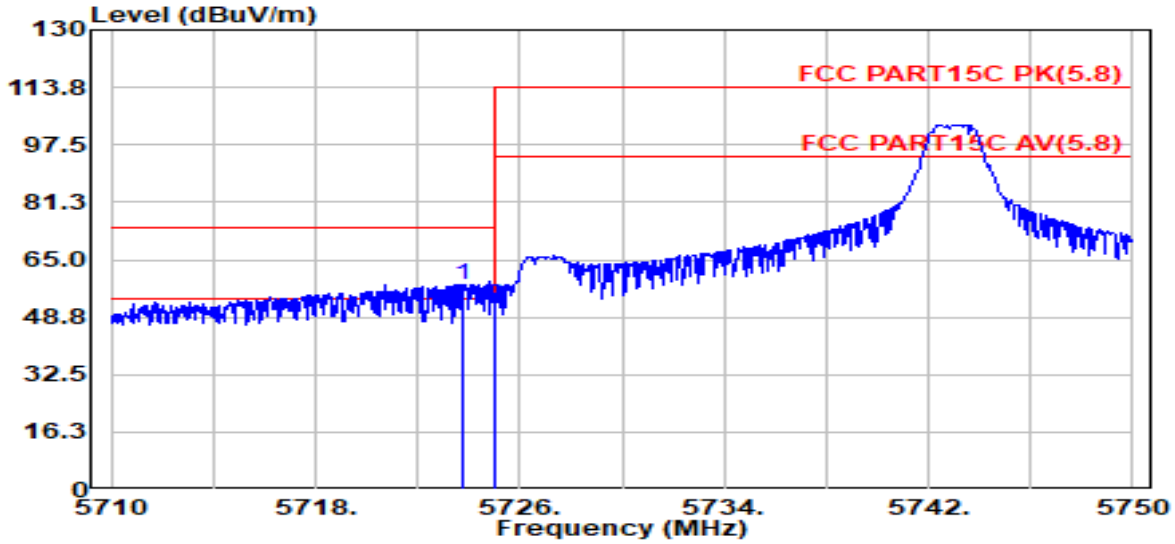
Remark: All restriction band have been tested, and only the worst case is shown in report.

## 7.4. Test result

**Pass. (See below detailed test result)**

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00003.EMI |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Horizontal |
| **Memo** | : SDR 5743 | | |



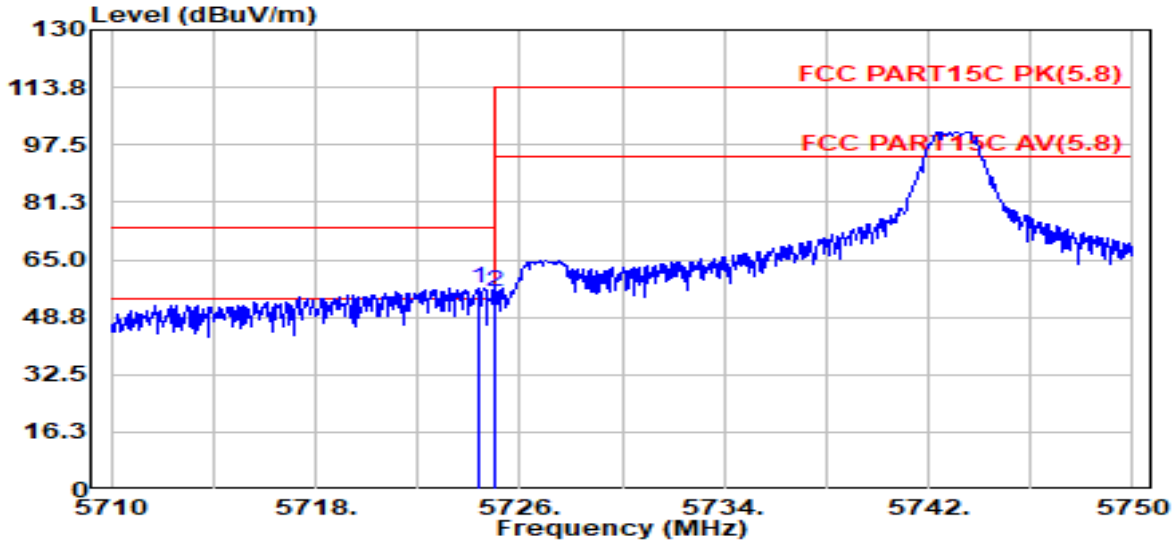

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5723.72 | 59.38 | 33.34 | 5.82 | 40.47 | 58.07 | 74.00 | -15.93 | Peak | Horizontal |
| 1 | 5723.72 | 58.07-26.73=31.34 | | | | | 54.00 | -22.66 | Average | Horizontal |
| 2 | 5725.00 | 53.43 | 33.34 | 5.82 | 40.47 | 52.12 | 74.00 | -21.88 | Peak | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00004.EMI |
| **Test Date** | : 2022-01-06 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Vertical |
| **Memo** | : SDR 5743 | | |



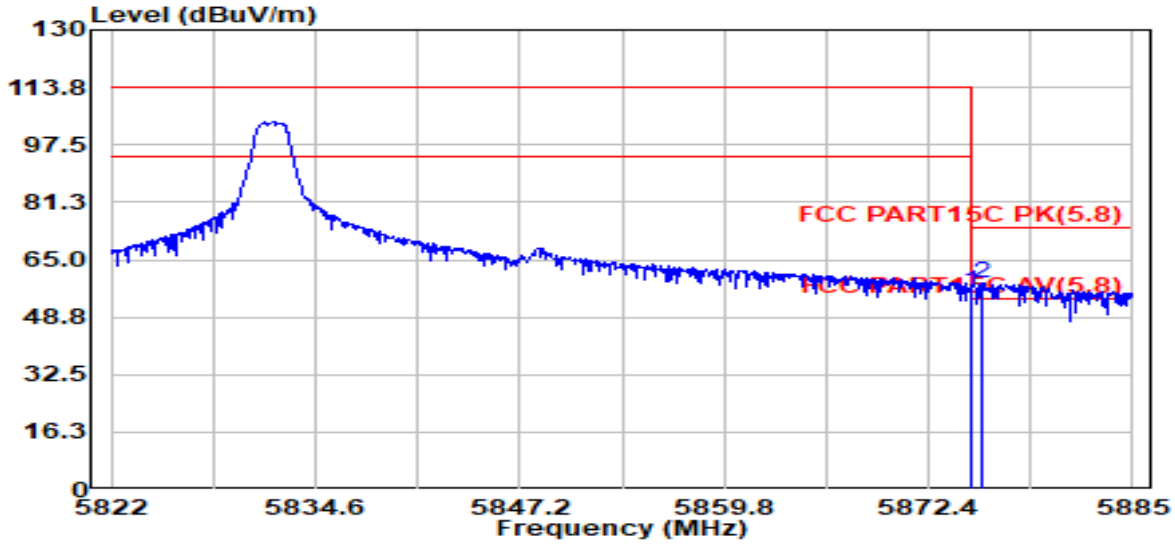

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5724.40 | 58.19 | 33.34 | 5.82 | 40.47 | 56.88 | 74.00 | -17.12 | Peak | Vertical |
| 1 | 5724.40 | 56.88-26.73=30.15 | | | | | 54.00 | -23.85 | Average | Vertical |
| 2 | 5725.00 | 57.15 | 33.34 | 5.82 | 40.47 | 55.84 | 74.00 | -18.16 | Peak | Vertical |
| 2 | 5725.00 | 55.84-26.73=29.11 | | | | | 54.00 | -24.89 | Average | Vertical |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00015.EMI |
| **Test Date** | : 2022-01-05 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Horizontal |
| **Memo** | : SRD 5832 | | |



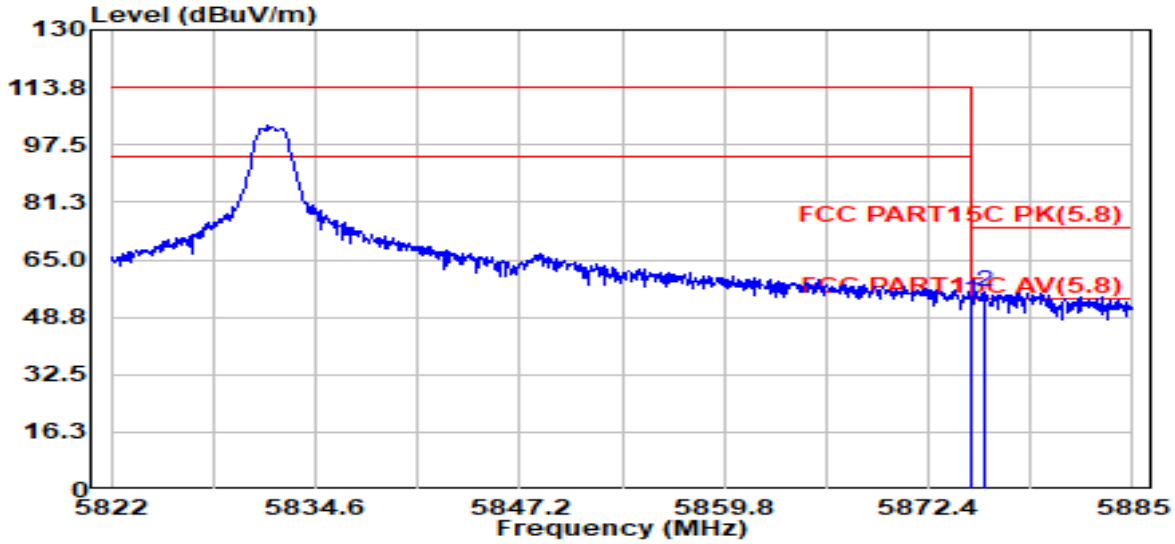

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5875.00 | 56.96 | 33.70 | 5.89 | 40.49 | 56.06 | 74.00 | -17.94 | Peak | Horizontal |
| 1 | 5875.00 | 56.06-26.73=29.33 | | | | | 54.00 | -24.67 | Average | Horizontal |
| 2 | 5875.74 | 59.24 | 33.70 | 5.89 | 40.49 | 58.35 | 74.00 | -15.65 | Peak | Horizontal |
| 2 | 5875.74 | 58.35-26.73=31.62 | | | | | 54.00 | -22.38 | Average | Horizontal |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# TR-4-E-009 Radiated Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 3m Chamber 3# | D:\2021 report data\Q21121302-1E JBL Bar 2.1\sub\FCC ABOVE 1G\FCC ABOVE 1G_00016.EMI | |
| **Test Date** | : 2022-01-05 | **Tested By** | : James Gan |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:22.6°,Humi:52.5%,Press:100.6kPa | **Antenna/Distance** | : 2021 BBHA 9120D 3# NEW/3m/Vertical |
| **Memo** | : SRD 5832 | | |



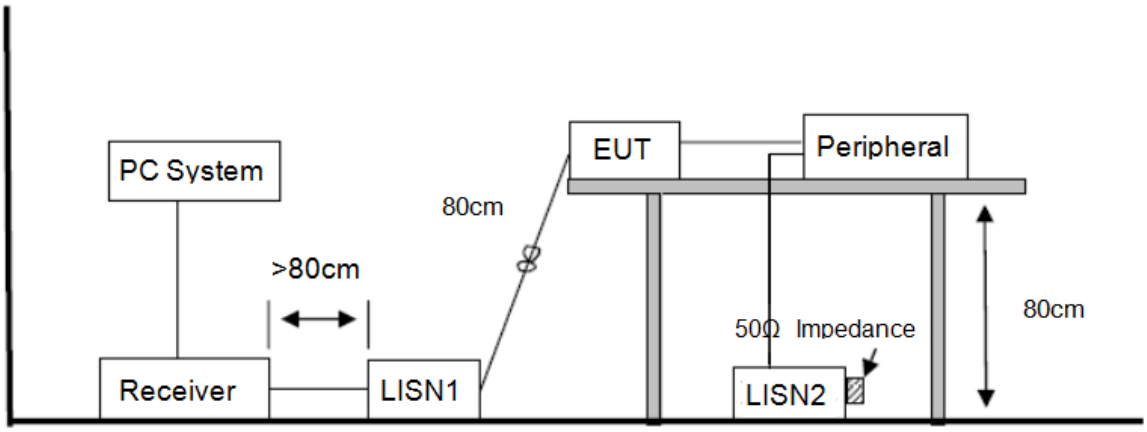

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | Cable Loss dB | PRM Factor (dB) | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5875.00 | 54.52 | 33.70 | 5.89 | 40.49 | 53.62 | 74.00 | -20.38 | Peak | Vertical |
| 2 | 5875.87 | 56.74 | 33.70 | 5.89 | 40.49 | 55.84 | 74.00 | -18.16 | Peak | Vertical |
| 2 | 5875.87 | 55.84-26.73=29.11 | | | | | 54.00 | -24.89 | Average | Vertical |

Note:

1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.
4. AV Level = PK Level + PDCF, PDCF= -26.73

# 8. Power Line Conducted Emission

## 8.1. Block diagram of test setup




## 8.2. Power line conducted emission limits

| Frequency | Quasi-Peak Level dB(μV) | Average Level dB(μV) |
|---|---|---|
| 150 kHz ~ 500 kHz | 66 ~ 56* | 56 ~ 46* |
| 500 kHz ~ 5 MHz | 56 | 46 |
| 5 MHz ~ 30 MHz | 60 | 50 |

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

## 8.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 7.1 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.
The EUT configuration and worse cable configuration of the above highest emission levels were

recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

## 8.4. Test result

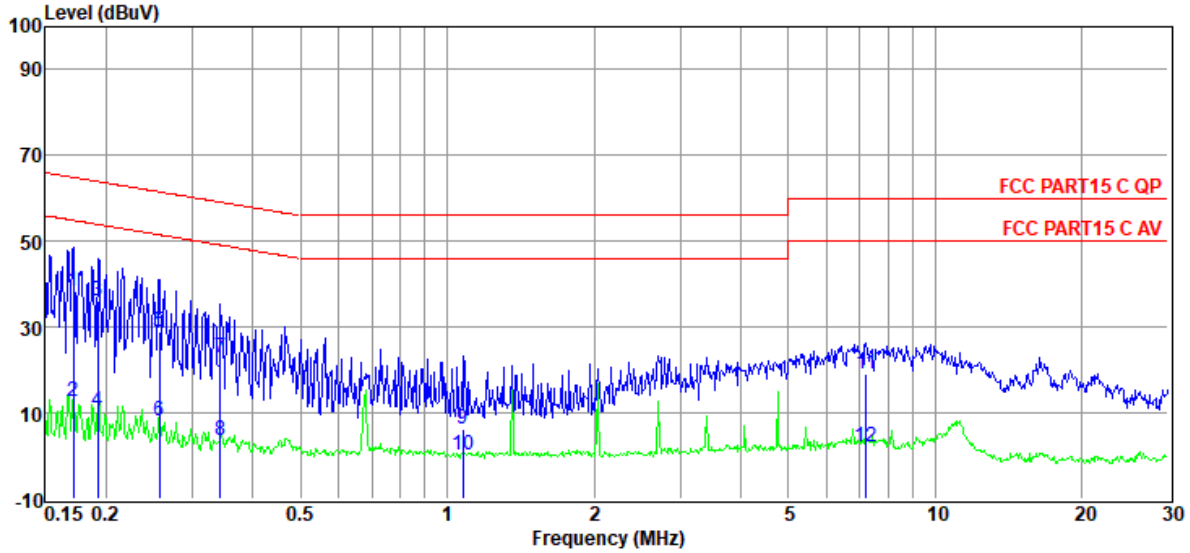
**Pass. (See below detailed test result)**

Note1: All emissions not reported below are too low against the prescribed limits.
Note2: "-----" means Peak detection; "-----" means Average detection.
Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/60Hz, recorded worst case.

# TR-4-E-010 Conducted Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 5# Shield Room | D:\2021 report data\Q21121302-2E\FCC-CE.EM6 | |
| **Test Date** | : 2022-01-07 | **Tested By** | : Kennys Zhang |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:23.0°C,Humi:45.8%,Press:101.4kPa | **LISN** | : 2021 ENV 216 3#/LINE |
| **Memo** | : | | |

Data: 2



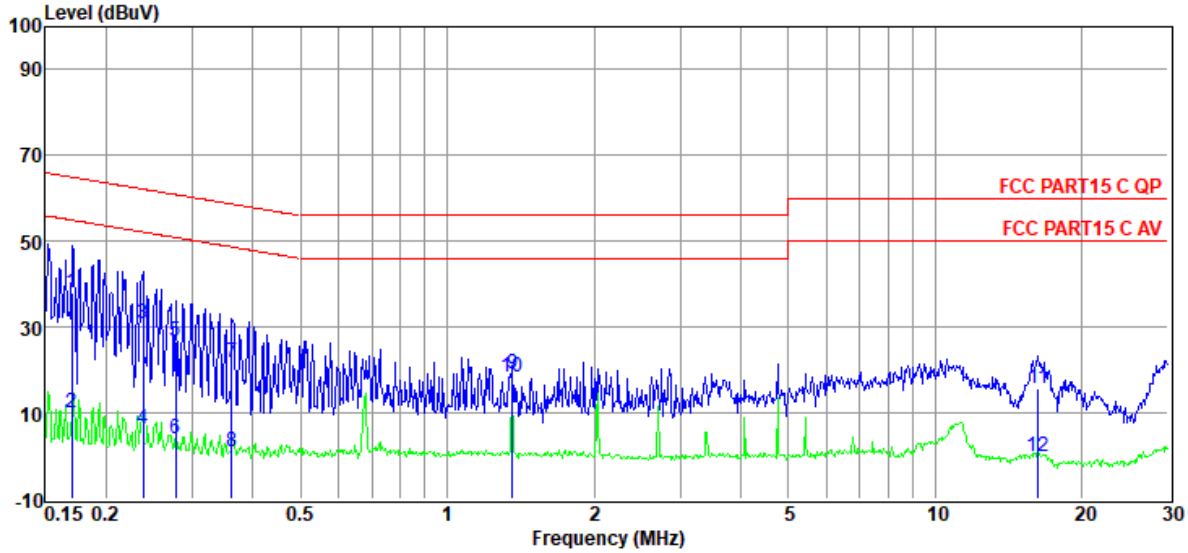

| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | LISN Factor (dB) | Cable Loss (dB) | Result Level (dBµV) | Limit Line (dBµV) | Over Limit (dB) | Detector | Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.17 | 19.13 | 9.50 | 9.84 | 38.47 | 64.90 | -26.43 | QP | LINE |
| 2 | 0.17 | -6.67 | 9.50 | 9.84 | 12.67 | 54.90 | -42.23 | Average | LINE |
| 3 | 0.19 | 16.88 | 9.50 | 9.83 | 36.21 | 63.93 | -27.72 | QP | LINE |
| 4 | 0.19 | -9.07 | 9.50 | 9.83 | 10.26 | 53.93 | -43.67 | Average | LINE |
| 5 | 0.26 | 9.78 | 9.50 | 9.83 | 29.11 | 61.51 | -32.40 | QP | LINE |
| 6 | 0.26 | -11.21 | 9.50 | 9.83 | 8.12 | 51.51 | -43.39 | Average | LINE |
| 7 | 0.34 | 3.70 | 9.50 | 9.84 | 23.04 | 59.13 | -36.09 | QP | LINE |
| 8 | 0.34 | -15.83 | 9.50 | 9.84 | 3.51 | 49.13 | -45.62 | Average | LINE |
| 9 | 1.08 | -13.18 | 9.41 | 9.86 | 6.09 | 56.00 | -49.91 | QP | LINE |
| 10 | 1.08 | -19.21 | 9.41 | 9.86 | 0.06 | 46.00 | -45.94 | Average | LINE |
| 11 | 7.21 | -0.33 | 9.58 | 9.94 | 19.19 | 60.00 | -40.81 | QP | LINE |
| 12 | 7.21 | -17.26 | 9.58 | 9.94 | 2.26 | 50.00 | -47.74 | Average | LINE |

Note: 1. Result Level = Read Level +LISN Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

# TR-4-E-010 Conducted Emission Test Result

| | | | |
|---|---|---|---|
| **Test Site** | : DDT 5# Shield Room | D:\2021 report data\Q21121302-2E\FCC-CE.EM6 | |
| **Test Date** | : 2022-01-07 | **Tested By** | : Kennys Zhang |
| **EUT** | : Wireless Subwoofer | **Model Number** | : Bar 2.1 Deep Bass SUB |
| **Power Supply** | : AC 120V/60Hz | **Test Mode** | : Tx Mode |
| **Condition** | : Temp:23.0°C,Humi:45.8%,Press:101.4kPa | **LISN** | : 2021 ENV 216 3#/NEUTRAL |
| **Memo** | : | | |

Data: 4




| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | LISN Factor (dB) | Cable Loss (dB) | Result Level (dBµV) | Limit Line (dBµV) | Over Limit (dB) | Detector | Phase |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.17 | 18.68 | 9.34 | 9.84 | 37.86 | 64.94 | -27.08 | QP | NEUTRAL |
| 2 | 0.17 | -9.23 | 9.34 | 9.84 | 9.95 | 54.94 | -44.99 | Average | NEUTRAL |
| 3 | 0.24 | 11.68 | 9.36 | 9.83 | 30.87 | 62.17 | -31.30 | QP | NEUTRAL |
| 4 | 0.24 | -12.79 | 9.36 | 9.83 | 6.40 | 52.17 | -45.77 | Average | NEUTRAL |
| 5 | 0.28 | 7.65 | 9.33 | 9.83 | 26.81 | 60.90 | -34.09 | QP | NEUTRAL |
| 6 | 0.28 | -15.01 | 9.33 | 9.83 | 4.15 | 50.90 | -46.75 | Average | NEUTRAL |
| 7 | 0.36 | 2.70 | 9.27 | 9.84 | 21.81 | 58.69 | -36.88 | QP | NEUTRAL |
| 8 | 0.36 | -18.19 | 9.27 | 9.84 | 0.92 | 48.69 | -47.77 | Average | NEUTRAL |
| 9 | 1.36 | -0.10 | 9.37 | 9.88 | 19.15 | 56.00 | -36.85 | QP | NEUTRAL |
| 10 | 1.36 | -0.95 | 9.37 | 9.88 | 18.30 | 46.00 | -27.70 | Average | NEUTRAL |
| 11 | 16.23 | -3.68 | 9.27 | 9.97 | 15.56 | 60.00 | -44.44 | QP | NEUTRAL |
| 12 | 16.23 | -19.26 | 9.27 | 9.97 | -0.02 | 50.00 | -50.02 | Average | NEUTRAL |

Note: 1. Result Level = Read Level +LISN Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

# 9. Antenna Requirements

## 9.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, 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.

## 9.2. Result

The antennas used for this product are integral PCB antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 1.57 dBi.