

# FCC AND IC CERTIFICATION TEST REPORT

## FOR

<b>Applicant</b>	:	Harman International Industries, Inc.
<b>Address</b>	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
<b>Equipment under Test</b>	:	JBL Bar 5.1 Surround with wireless subwoofer
<b>Model No.</b>	:	BAR 5.1 CNTR
<b>Trade Mark</b>	:	JBL
<b>FCC ID</b>	:	APIBAR51CNTR
<b>IC</b>	:	6132A-BAR51CNTR
<b>Manufacturer</b>	:	Harman International Industries, Inc.
<b>Address</b>	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

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

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# REPORT

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## TEST REPORT DECLARE

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<b>Address</b>	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

**Test Standard Used:** FCC Rules and Regulations Part 15 Subpart C, RSS-247 Issue 2 February 2017.

**Test procedure used:** ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01, RSS-Gen Issue 5, Apr. 2018

**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&IC standards.**

<b>Report No:</b>	DDT-R18112315-1E8		
<b>Date of Receipt:</b>	Apr. 23, 2019	<b>Date of Test:</b>	Apr. 23, 2019 ~ May 24, 2019

**Prepared By:**

*Sam Li*  
Sam Li/Engineer

**Approved By:**

  
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	May 24, 2019	

## 1. Summary of test results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Results
6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e) RSS-247 Clause 6.2	N/A
Maximum Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	N/A
Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	N/A
Frequency Stability Measurement	FCC 15.407 (g)	N/A
Emissions in restricted frequency bands	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	PASS
Band Edge Compliance	FCC 15.407 (a) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	N/A
Power Line Conducted Emission	FCC 15.207 RSS-GEN Clause 8.8	PASS
Antenna requirement	FCC 15.203 RSS-GEN Clause 8.3	PASS
Dynamic Frequency Selection	FCC 15.407 (h) RSS-247 Clause 6.3	N/A

Note 1: N/A is an abbreviation for Not Applicable.

Note 2: The equipment adopts transmitter module FCC ID: NKR-SWA51, IC: 4441A-SWA51 so only radiated emission(below 1GHz) and Power Line Conducted Emissions were tested and recorded in this report, and other data can be found in report " 4038608-FCC report".

## 2. General test information

### 2.1. Description of EUT

EUT* Name	: JBL Bar 5.1 Surround with wireless subwoofer
Model Number	: BAR 5.1 CNTR
EUT function description	: Please reference user manual of this device
Power supply	: 100-240V~, 50/60Hz, 175W
Radio Technology	: SRD
FCC Operation frequency	: 5150-5250 MHz, 5725-5850 MHz
Modulation	: $\pi/4$ -DQPSK
Antenna Type	: Antenna 0: Integral PCB antenna, maximum PK gain: 4.12 dBi : Antenna 1: Integral PCB antenna, maximum PK gain: 3.65 dBi
Sample Type	: Series production

Note 1: EUT is the ab. of equipment under test.

Note 2: The EUT supports the antenna with TX and RX diversity functions.

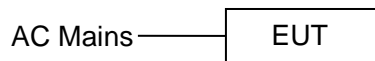
### 2.2. Accessories of EUT

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: 1.2m, shielded, two core

### 2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Notebook	DELL	Latitude D610	FCC DOC	00045-534-136-300

### 2.4. Block diagram of EUT configuration for test



EUT was connected to control to provide by manufacturer which has a standard LAN port connector to connect to Notebook, and the Notebook will run a special test software “adb. EXE” provided by manufacturer to control EUT work in Continuous Tx mode (>98% duty cycle), and select test channel, wireless mode.

Mode	Setting Tx Power	Channel	Frequency (MHz)
$\pi/4$ -DQPSK, 2M	0x06	Low	5161.35
	0x06	Middle	5203.35
	0x06	High	5245.35
	0x06	Low	5736.35
	0x06	Middle	5778.35
	0x06	High	5820.35
$\pi/4$ -DQPSK, 4M	0x06	Low	5162.35
	0x06	Middle	5204.35
	0x06	High	5246.35
	0x06	Low	5737.35
	0x06	Middle	5779.35
	0x06	High	5821.35

## 2.5. Deviations of test standard

No Deviation.

## 2.6. Test environment conditions

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

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106kPa

## 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](mailto:ddt@dgddt.com)

CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

Designation Number: CN1182; Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1

## 2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86dB (10 MHz ≤ f < 3.6GHz); 1.38dB (3.6GHz ≤ f < 8GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74dB
Power Spectral Density	0.74dB (10 MHz ≤ f < 3.6GHz); 1.38dB (3.6GHz ≤ f < 8GHz)
Frequencies Stability	6.7 x 10 <sup>-8</sup> (Antenna couple method) 5.5 x 10 <sup>-8</sup> (Conducted method)
Conducted spurious emissions	0.86dB (10 MHz ≤ f < 3.6GHz); 1.40dB (3.6GHz ≤ f < 8GHz) 1.66dB (8GHz ≤ f < 22GHz)
Uncertainty for radio frequency (RBW<20kHz)	3x10 <sup>-8</sup>
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70dB (Antenna Polarize: V) 4.84dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-40GHz)	4.10dB (1-6GHz) 4.40dB (6GHz-18GHz) 3.54dB (18GHz-26GHz) 4.30dB (26GHz-40GHz)
Uncertainty for Power line conduction emission test	3.32dB (150kHz-30MHz)

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



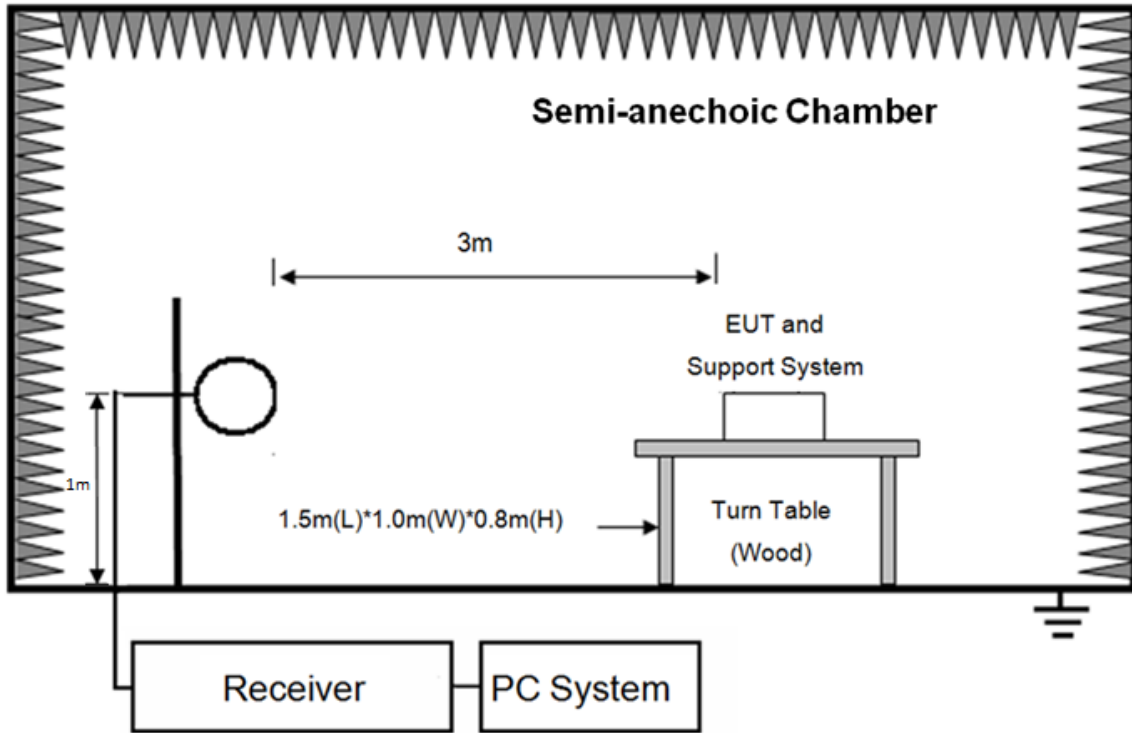
### 3. Equipment used during test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<b>RF Connected Test (Tonscend RF Measurement System)</b>					
Spectrum analyzer	R&S	FSU26	200071	Oct. 12, 2018	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jun. 29, 2018	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Oct. 12, 2018	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jun. 29, 2018	1 Year
Power Sensor	Agilent	U2021XA	MY55150010	Oct. 21, 2018	1 Year
Power Sensor	Agilent	U2021XA	MY55150011	Oct. 23, 2018	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Aug. 18, 2018	1 Year
Attenuator	Mini-Circuits	BW-S10W2	101109	Aug. 18, 2018	1 Year
RF Cable	Micable	C10-01-01-1	100309	Oct. 21, 2018	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Oct. 21, 2018	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
<b>Radiation 1#chamber</b>					
EMI Test Receiver	R&S	ESU8	100316	Oct. 12, 2018	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jun. 29, 2018	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 09, 2018	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Oct. 20, 2018	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 16, 2018	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Oct. 25, 2018	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Oct. 12, 2018	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	101303	Oct. 12, 2018	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Oct. 21, 2018	1 Year
RF Cable	N/A	SMAJ-SMA J-1M+ 11M	17070133+17070131	Nov. 08, 2018	1 Year
MI Cable	HUBSER	C10-01-01-1 M	1091629	Oct. 21, 2018	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
<b>Power Line Conducted Emissions Test</b>					
EMI Test Receiver	R&S	ESU8	100316	Oct. 21, 2018	1 Year
LISN 1	R&S	ENV216	101109	Oct. 21, 2018	1 Year
LISN 2	R&S	ESH2-Z5	100309	Oct. 21, 2018	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Oct. 21, 2018	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Oct. 21, 2018	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

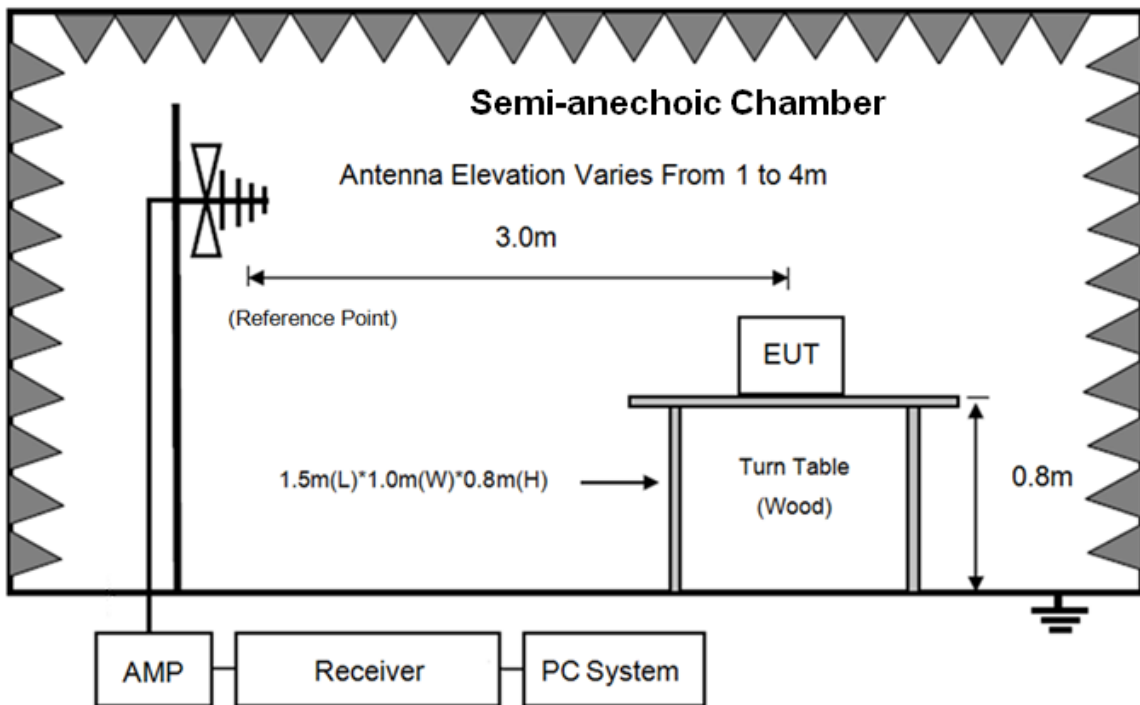
### 4. Emissions in restricted frequency bands

#### 4.1. Block diagram of test setup

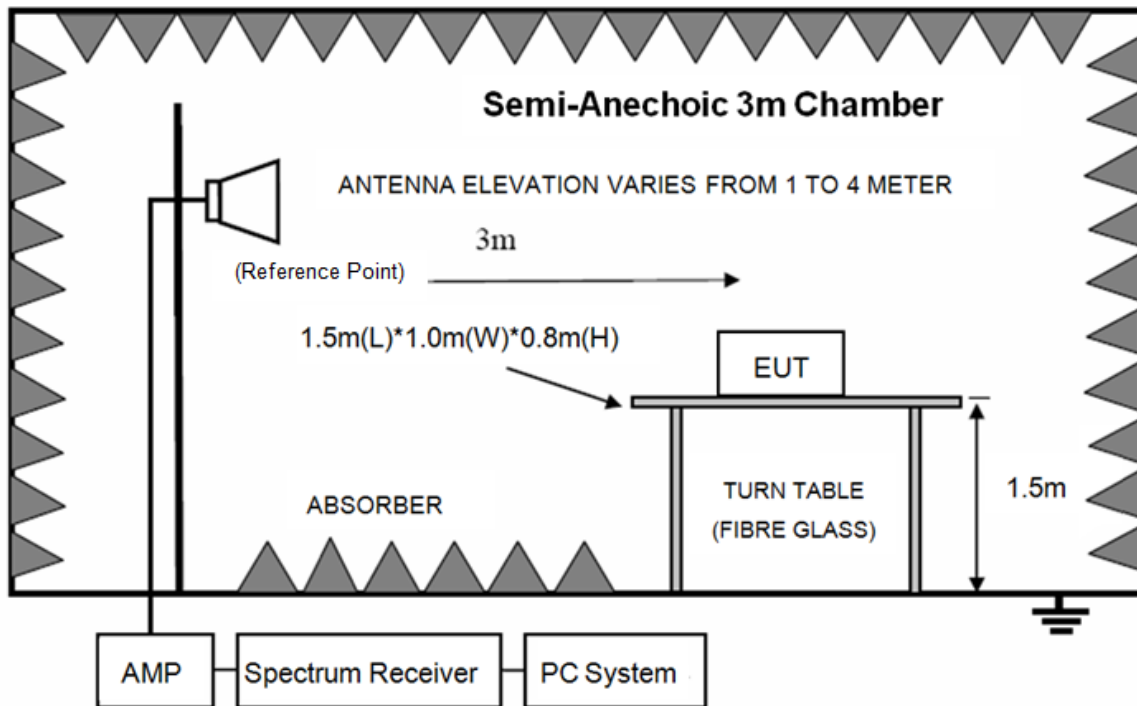
In 3m Anechoic Chamber Test Setup Diagram for 9kHz-30MHz



In 3m Anechoic Chamber Test Setup Diagram for 30MHz-1GHz



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



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

**4.2. Limit**

8.3.1 FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )
13.36-13.41			

## 8.3.2 FCC 15.209 Limit.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
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	3	74.0 dB( $\mu\text{V}$ )/m (Peak) 54.0 dB( $\mu\text{V}$ )/m (Average)	

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3\text{m}}(\text{dB}\mu\text{V}/\text{m}) = \text{Limit}_{30\text{m}}(\text{dB}\mu\text{V}/\text{m}) + 40\text{Log}(30\text{m}/3\text{m})$$

## 8.3.3 Limit for this EUT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions or comply with 15.209 limits.

## 4.3. Test Procedure

- (1) EUT height should be 0.8m for below 1GHz at a semi - anechoic chamber while EUT height should be 1.5m for above 1GHz at full chamber or semi - anechoic chamber ground with absorbers
- (2) Setup EUT and assistant system according clause 2.3 and 8.2
- (3) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test distance
9kHz-30MHz	Active Loop antenna	3m
30MHz-1GHz	Trilog Broadband Antenna	3m
1GHz-18GHz	Double Ridged Horn Antenna(1GHz-18GHz)	3m
18GHz-40GHz	Horn Antenna(18GHz-40GHz)	1m

According ANSI C63.10:2013 clause 6.4.4.2 and 6.5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also be positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the

ground. for measurement above 30MHz, the Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(4) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9kHz to 40GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1m to 4m (Except loop antenna, it's fixed 1m above ground.)

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

(c) Change modulation type of device if practicable.

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

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

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

(5) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1m and 4m 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 equipment and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(6) The emissions from 9kHz to 1GHz were measured based on CISPR QP detector except for the frequency bands 9-90kHz, 110-490kHz, for emissions from 9kHz-90kHz,110kHz-490kHz and above 1GHz were measured based on average detector, for emissions above 1GHz, peak emissions also be measured and need comply with Peak limit.

(7) The emissions from 9kHz to 1GHz, QP or average values were measured with EMI receiver with below RBW

Frequency band	RBW
9kHz-150kHz	200Hz
150kHz-30MHz	9kHz
30MHz-1GHz	120kHz

(8) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz, Peak detector for Peak measure, RMS detector for AV value

#### 4.4. Test result

##### **PASS. (See below detailed test result)**

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

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

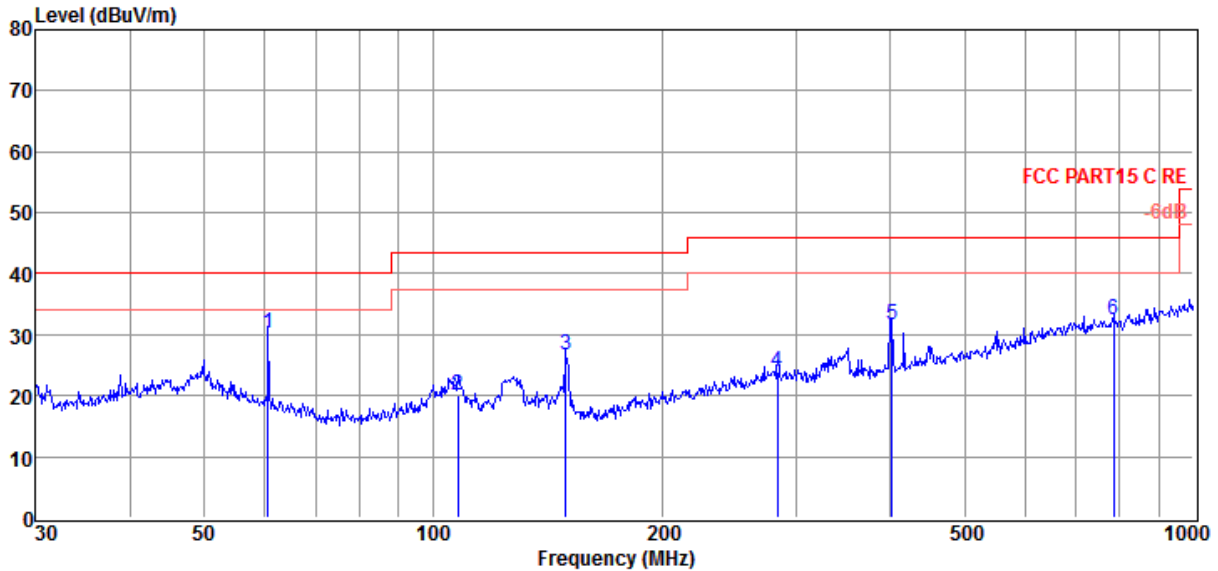
Note2: For emissions below 1GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1GHz, the final test was only performed with EUT working in Ant1  $\pi/4$  -DQPSK, 2M, 5736.35MHz.

Radiated Emission test (below 1GHz)

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

**Test Site** : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112315-1EE\RE-1.EM6**  
**Test Date** : 2019-05-20 **Tested By** : Elosky  
**EUT** : JBL Bar 5.1 Surround with wireless subwoofer **Model Number** : BAR 5.1 CNTR  
**Power Supply** : AC 120V/60Hz **Test Mode** : Tx mode  
**Condition** : Temp:24.5°C, Humi:55%, Press:100.1kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/VERTICAL  
**Memo** :

Data: 151



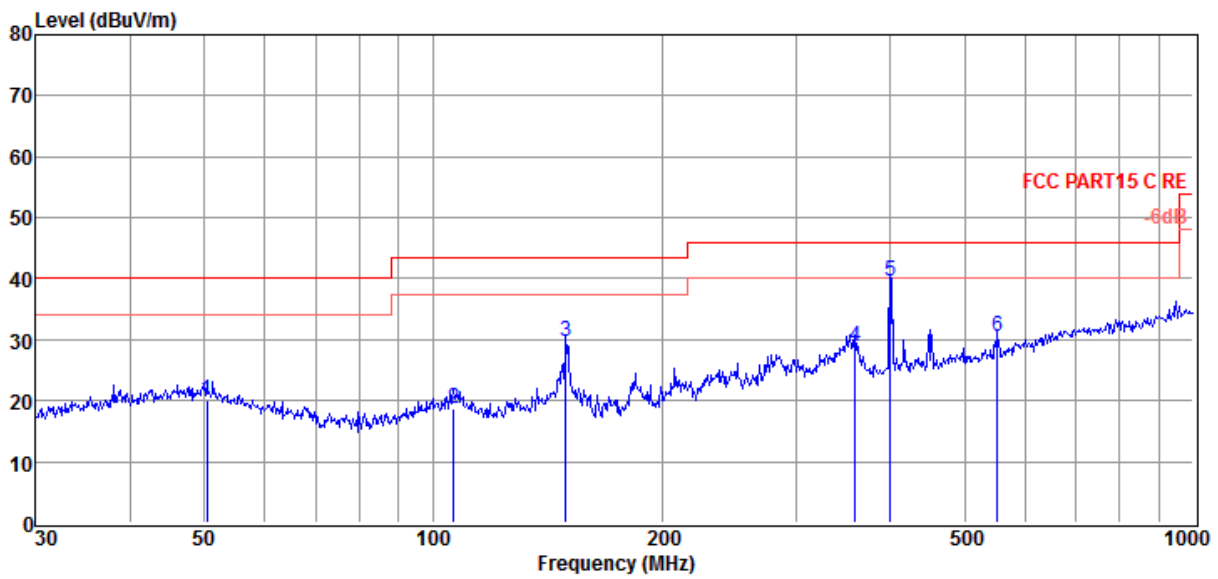
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Result Level (dBUV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	60.70	15.09	11.26	3.96	30.31	40.00	-9.69	QP	VERTICAL
2	107.89	4.07	11.78	4.25	20.10	43.50	-23.40	QP	VERTICAL
3	149.49	13.64	8.41	4.51	26.56	43.50	-16.94	QP	VERTICAL
4	283.98	5.19	13.65	5.13	23.97	46.00	-22.03	QP	VERTICAL
5	401.84	10.55	15.63	5.52	31.70	46.00	-14.30	QP	VERTICAL
6	785.09	5.19	20.62	6.57	32.38	46.00	-13.62	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.

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

**Test Site** : DDT 3m Chamber 1# D:\2018 RE1# Report Data\Q18112315-1EE\RE-1.EM6  
**Test Date** : 2019-05-20 **Tested By** : Elosky  
**EUT** : JBL Bar 5.1 Surround with wireless subwoofer **Model Number** : BAR 5.1 CNTR  
**Power Supply** : AC 120V/60Hz **Test Mode** : Tx mode  
**Condition** : Temp:24.5°C, Humi:55%, Press:100.1kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/HORIZONTAL  
**Memo** :

Data: 152



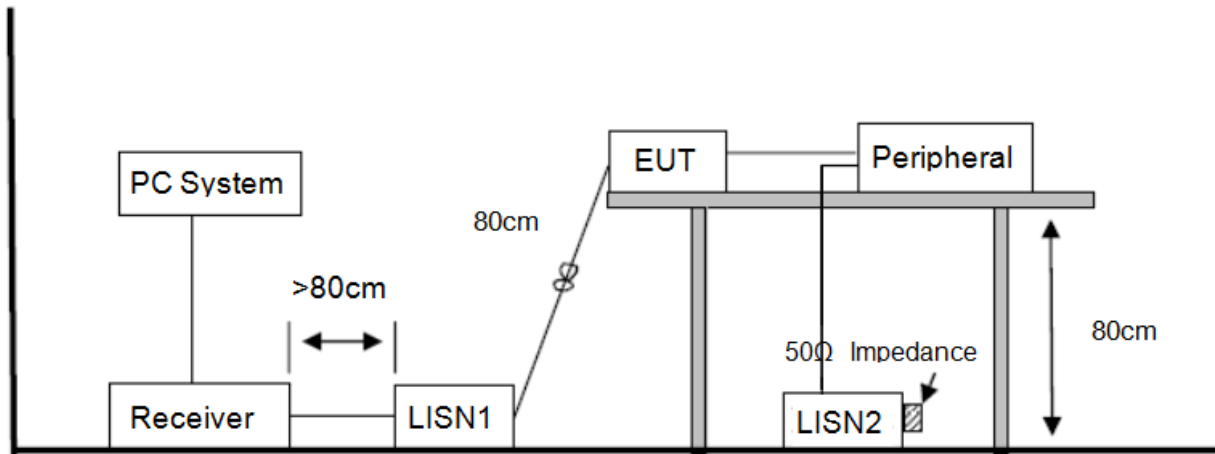
Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	50.41	1.78	14.46	3.87	20.11	40.00	-19.89	QP	HORIZONTAL
2	106.39	2.73	11.76	4.24	18.73	43.50	-24.77	QP	HORIZONTAL
3	149.49	16.86	8.41	4.51	29.78	43.50	-13.72	QP	HORIZONTAL
4	359.19	8.42	15.00	5.38	28.80	46.00	-17.20	QP	HORIZONTAL
5	399.03	18.59	15.59	5.51	39.69	46.00	-6.31	QP	HORIZONTAL
6	552.88	6.65	17.87	5.97	30.49	46.00	-15.51	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.



## 5. Power Line Conducted Emission

### 5.1. Block diagram of test setup



### 5.2. Power Line Conducted Emission Limits (Class B)

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

Note 1: \* Decreasing linearly with logarithm of frequency.

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

### 5.3. 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 2.3 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

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 30MHz 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 2.3 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worst 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.

#### 5.4. 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

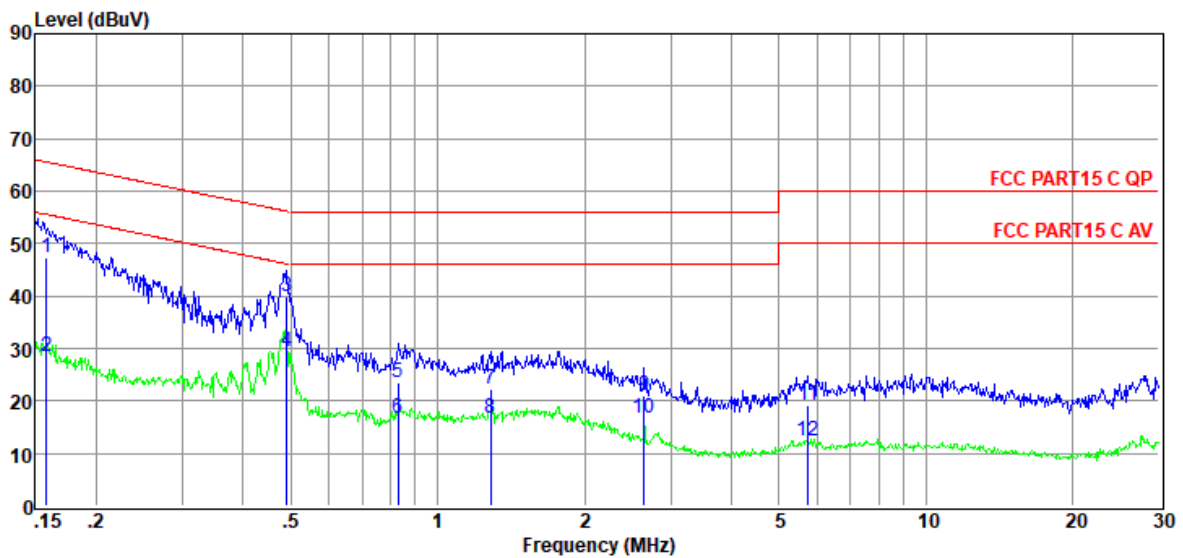
Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/50Hz, recorded worse case.

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

**Test Site** : DDT 1# Shield Room D:\2018 CE report data\Q18112315-1E\CE.EM6  
**Test Date** : 2019-05-20 **Tested By** : Aaron  
**EUT** : JBL Bar 5.1 Surround with wireless subwoofer **Model Number** : BAR 5.1 CNTR  
**Power Supply** : AC 120V/60Hz **Test Mode** : Tx mode  
**Condition** : Temp:24.5°C, Humi:55%, Press:100.1KPa **LISN** : 2018 ENV216/LINE

**Memo** :

Data: 90



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.16	27.72	9.63	0.02	9.86	47.23	65.56	-18.33	QP	LINE
2	0.16	8.85	9.63	0.02	9.86	28.36	55.56	-27.20	Average	LINE
3	0.49	20.46	9.64	0.02	9.86	39.98	56.14	-16.16	QP	LINE
4	0.49	10.01	9.64	0.02	9.86	29.53	46.14	-16.61	Average	LINE
5	0.83	4.00	9.64	0.06	9.86	23.56	56.00	-32.44	QP	LINE
6	0.83	-2.79	9.64	0.06	9.86	16.77	46.00	-29.23	Average	LINE
7	1.28	2.66	9.64	0.08	9.87	22.25	56.00	-33.75	QP	LINE
8	1.28	-2.79	9.64	0.08	9.87	16.80	46.00	-29.20	Average	LINE
9	2.65	1.54	9.66	0.04	9.87	21.11	56.00	-34.89	QP	LINE
10	2.65	-2.96	9.66	0.04	9.87	16.61	46.00	-29.39	Average	LINE
11	5.74	-0.55	9.70	0.07	9.88	19.10	60.00	-40.90	QP	LINE
12	5.74	-7.25	9.70	0.07	9.88	12.40	50.00	-37.60	Average	LINE

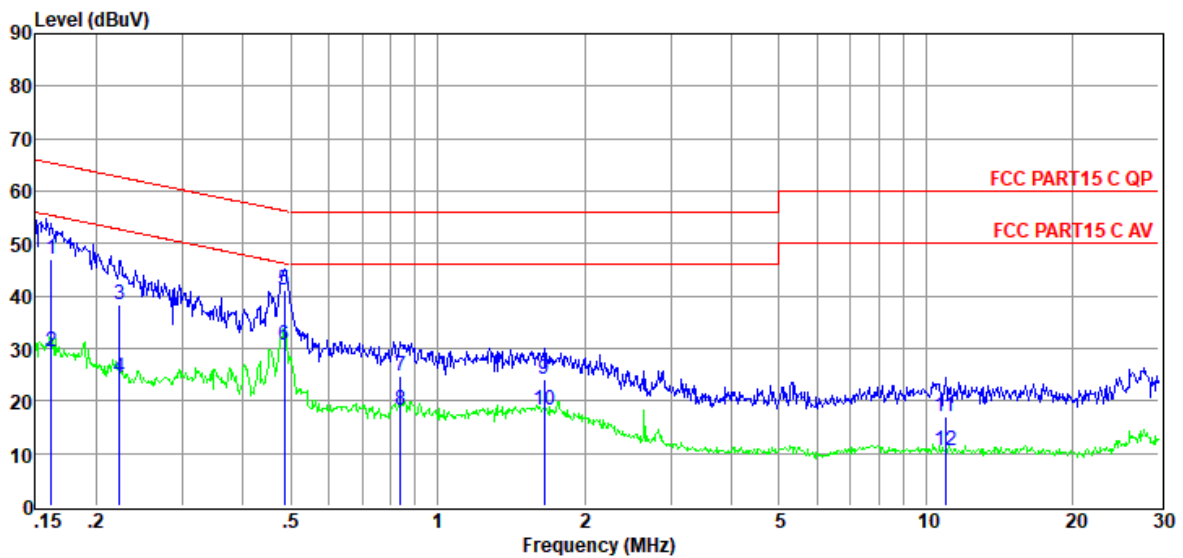
- Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.  
 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).  
 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz),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

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

**Test Site** : DDT 1# Shield Room D:\2018 CE report data\Q18112315-1E\CE.EM6  
**Test Date** : 2019-05-20 **Tested By** : Aaron  
**EUT** : JBL Bar 5.1 Surround with wireless subwoofer **Model Number** : BAR 5.1 CNTR  
**Power Supply** : AC 120V/60Hz **Test Mode** : Tx mode  
**Condition** : Temp:24.5°C, Humi:55%, Press:100.1KPa **LISN** : 2018 ENV216/NEUTRAL

**Memo** :

Data: 92



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.16	27.42	9.64	0.02	9.86	46.94	65.38	-18.44	QP	NEUTRAL
2	0.16	9.91	9.64	0.02	9.86	29.43	55.38	-25.95	Average	NEUTRAL
3	0.22	18.83	9.64	0.02	9.86	38.35	62.70	-24.35	QP	NEUTRAL
4	0.22	5.00	9.64	0.02	9.86	24.52	52.70	-28.18	Average	NEUTRAL
5	0.49	21.65	9.64	0.02	9.86	41.17	56.23	-15.06	QP	NEUTRAL
6	0.49	11.06	9.64	0.02	9.86	30.58	46.23	-15.65	Average	NEUTRAL
7	0.84	5.21	9.64	0.06	9.87	24.78	56.00	-31.22	QP	NEUTRAL
8	0.84	-1.27	9.64	0.06	9.87	18.30	46.00	-27.70	Average	NEUTRAL
9	1.65	4.54	9.66	0.07	9.87	24.14	56.00	-31.86	QP	NEUTRAL
10	1.65	-1.23	9.66	0.07	9.87	18.37	46.00	-27.63	Average	NEUTRAL
11	10.96	-3.08	9.93	0.12	9.91	16.88	60.00	-43.12	QP	NEUTRAL
12	10.96	-9.46	9.93	0.12	9.91	10.50	50.00	-39.50	Average	NEUTRAL

- Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter 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.

## 6. Antenna Requirements

### 6.1. 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### 6.2. Result

The antennas used for this product are integrated antenna and other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 4.12 dBi

**END OF REPORT**