

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

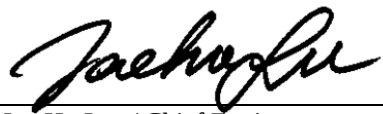
Test Report No. : W176R-D072
AGR No : A173A-135
Applicant : LG Electronics USA
Address : 1000 Sylvan Avenue, Englewood Cliffs, New Jersey, United States, 07632
Manufacturer : LG Electronics Inc.
Address : 222 LG-ro, Jinwi-Myeon, Pyeongtaek -Si, Gyeonggi-Do, 451-713, Korea
Type of Equipment : PORTABLE BLUETOOTH SPEAKER
FCC ID. : BEJ-PJS9W
Model Name : PJS9W
Multiple Model Name : PJS9WB
Serial number : N/A
Total page of Report : 22 pages (including this page)
Date of Incoming : June 09, 2017
Date of issue : June 23, 2017

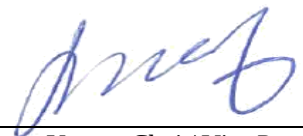
SUMMARY

The equipment complies with the regulation; **FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

Reviewed by: 
 Jae-Ho Lee / Chief Engineer
 ONETECH Corp.

Approved by: 
 Keun-Young, Choi / Vice President
 ONETECH Corp.

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Revision History

Issue Report No.	Issued Date	Revisions	Effect Section
W176R-D072	June 23, 2017	Initial Release	All

1. VERIFICATION OF COMPLIANCE

APPLICANT : LG Electronics USA
 ADDRESS : 1000 Sylvan Avenue, Englewood Cliffs, New Jersey, United States, 07632
 CONTACT PERSON : Kyung-Su Han / Director
 TELEPHONE NO : +82-10-8009-0340
 FCC ID : BEJ-PJS9W
 MODEL NAME : PJS9W
 BRAND NAME : 
 SERIAL NUMBER : N/A
 DATE : June 23, 2017

EQUIPMENT CLASS	DCD – Part 15 Low Power Transmitter Below 1 705 kHz
KIND OF EQUIPMENT	PORTABLE BLUETOOTH SPEAKER
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC&IC RULES PART(S)	FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209, 2.1049
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. The equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.209, 15.209(a)	Radiated emission, Spurious Emission and Field Strength of Fundamental	Met the Limit / PASS
2.1049	20 dB Bandwidth	Met the Limit / PASS
15.207	Transmitter AC Power Line Conducted Emission	Met the Limit / PASS

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC CFR47 Part 15 Subpart C Section 15.207 and 15.209, 2.1049.

2.5 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.10: 2013 at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-4112/ C-4617/ G-10666 / T-1842

IC (Industry Canada) – Registration No. Site# 3736A-3

-. Site Accreditation:

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

3. GENERAL INFORMATION

3.1 Product Description

The LG Electronics USA, Model: PJS9W (referred to as the EUT in this report) is a PORTABLE BLUETOOTH SPEAKER. Product specification information described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	PORTABLE BLUETOOTH SPEAKER
OPERATING FREQUENCY	137 kHz ~ 145 kHz
RATED RF OUTPUT POWER	80.30 dBμV/m
ANTENNA TYPE	Coil Antenna
MODULATION	ASK
RATED SUPPLY VOLTAGE	DC 19.0 V

3.2 Alternative type(s)/model(s); also covered by this test report.

-. The following lists consist of the added model and their differences.

Model Name	Differences	Tested
PJS9W	Basic Model	☒
PJS9WB	This model is identical to basic model except for the color.	☐

Note: 1. Applicant consigns only basic model to test. Therefore this test report just guarantees the units, which have been tested.

2. The Applicant/manufacture is responsible for the compliance of all variants.

4. EUT MODIFICATIONS

-. None

5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	N/A	EAX67254301 Ver1.6	N/A
E-Magnetic Board	N/A	EAX67280201 Ver1.6	N/A
LED Board	N/A	EAX67200501 Ver1.7	N/A
Levitaion Board	N/A	EAX67219901 Ver 1.5	N/A
Switch Lever Board	N/A	EAX67423401 Ver1.2	N/A
Switch Board	N/A	EAX67274401 Ver1.6	N/A
Battery	Donghwa Tocad Electronics Energy Yantai Co.,Ltd.	TD-Bb11LG	N/A
Speaker	N/A	N/A	N/A
BT Module	LG Electronics Inc.	WB1NP7	BEJ-WB1NP7

5.2 Peripheral equipment

Model	Manufacturer	Description	Connected to
LCAP45	N/A	Adapter	EUT

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing, the EUT was set at Max. load (137 kHz), Mid. load (141 kHz), and Min. load (144 kHz). To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes and the worst case is “XY” axis.

Mode	Charging current	Description
Charging Mode With load	700 mA	Using Max. load
	400 mA	Using Mid. load
	100 mA	Using Min. load

5.4 Configuration of Test System

Line Conducted Test : The EUT was tested in a charging mode. The EUT was connected to USB and the power of USB was connected to Adapter. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2009 7.3.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary radiated emissions test was conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

According to 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.

Antenna Construction:

The antenna of the EUT is a Coil Antenna on the main board in the EUT, so no consideration of replacement by the user.

6. PRELIMINARY TEST

6.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Charging & Transmitting Mode	X

6.2 General Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
Charging & Transmitting Mode	X

7. 20 dB BANDWIDTH

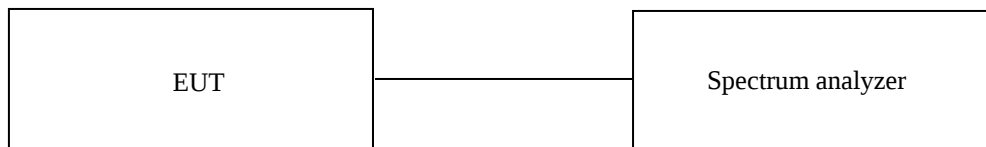
7.1 Operating environment

Temperature : 23.5 °C
Relative humidity : 46.4 % R.H.

7.2 Test set-up

- Span = approximately 2 to 3 times the 20 dB bandwidth, RBW = greater than 1 % of the 20 dB bandwidth, VBW = RBW, Sweep = auto, Detector = peak, Trace = max hold.
- The marker-to-peak function to set the mark to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level.

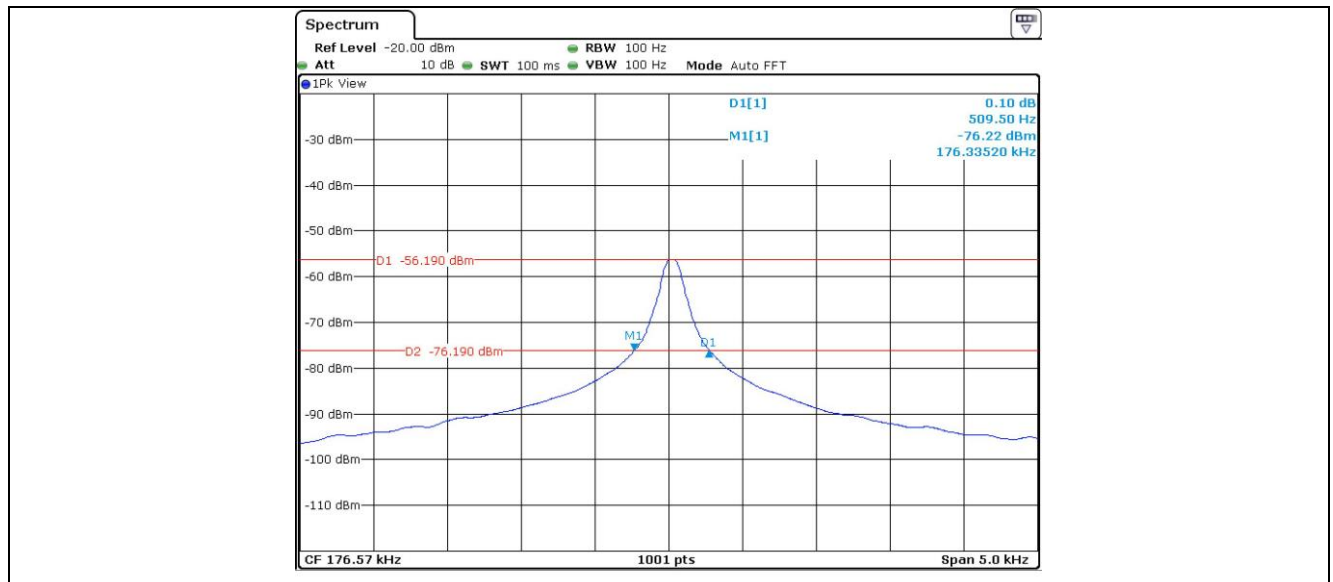
The marker-delta reading at this point is 20 dB bandwidth of the emission.



7.3 Test data

-. Test Date : June 22, 2017

20 dB Bandwidth : 509.5 Hz



Tested by: Ha-Ram, Lee / Assistant Manager

8. Spurious Emission Test

8.1 Regulation

According to §15.209(a), for an intentional device, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency [MHz]	Field strength [μ V/m]	Field strength [dBμ V/m]	Measurement distance [m]
0.009 ~ 0.490	2 400 / F (kHz)		300
0.490 ~ 1.705	24 000 / F (kHz)		30
1.705 ~ 30	30	29.50	30
30 ~ 88	*100	40.00	3
88 ~ 216	*150	43.52	3
216 ~ 960	*200	46.02	3
Above 960	500	53.98	3

*Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 ~ 72 MHz, 76 ~ 88 MHz, 174 ~ 216 MHz or 470 ~ 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

8.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 kHz to 1 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 ms in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

8.3 Software used

Software name	Software version	Manufacturer
Radiated Emission Measurement Software	2.00.0197	Techno Science Japan Co.,Ltd

8.4 Test data for Using Max load (700 mA)

8.4.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 46.4 % R.H.

Temperature: 23.5 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : PORTABLE BLUETOOTH SPEAKER

Date: June 22, 2017

Operating Condition : Charging & Transmitting Mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
0.033	39.2	H	20.10	0.0	59.30	117.23	-57.93
*0.137	60.0	H	20.20	0.1	80.30	104.87	-24.57
0.411	32.5	H	20.00	0.1	52.60	95.33	-42.73
0.686	20.4	H	20.00	0.1	40.50	70.88	-30.38
1.008	18.7	H	20.00	0.1	38.80	67.54	-28.74
3.064	11.6	H	20.00	0.3	31.90	69.50	-37.60

-. Remark: "H" Horizontal, "V" Vertical

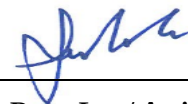
-. "*" Means Fundamental frequency

-. Emission Level [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level [dBμV/m] – Limit [dBμV/m]

-. Limit calculation: Limit at specified distance + 40log (300/3) = Limit + 80 dB for up to 0.49 MHz

Limit at specified distance + 40log (30/3) = Limit + 40 dB for above 0.49 MHz, Below 30 MHz



Tested by: Ha-Ram, Lee / Assistant Manager

8.4.2 Spurious Radiated Emission below 1 GHz

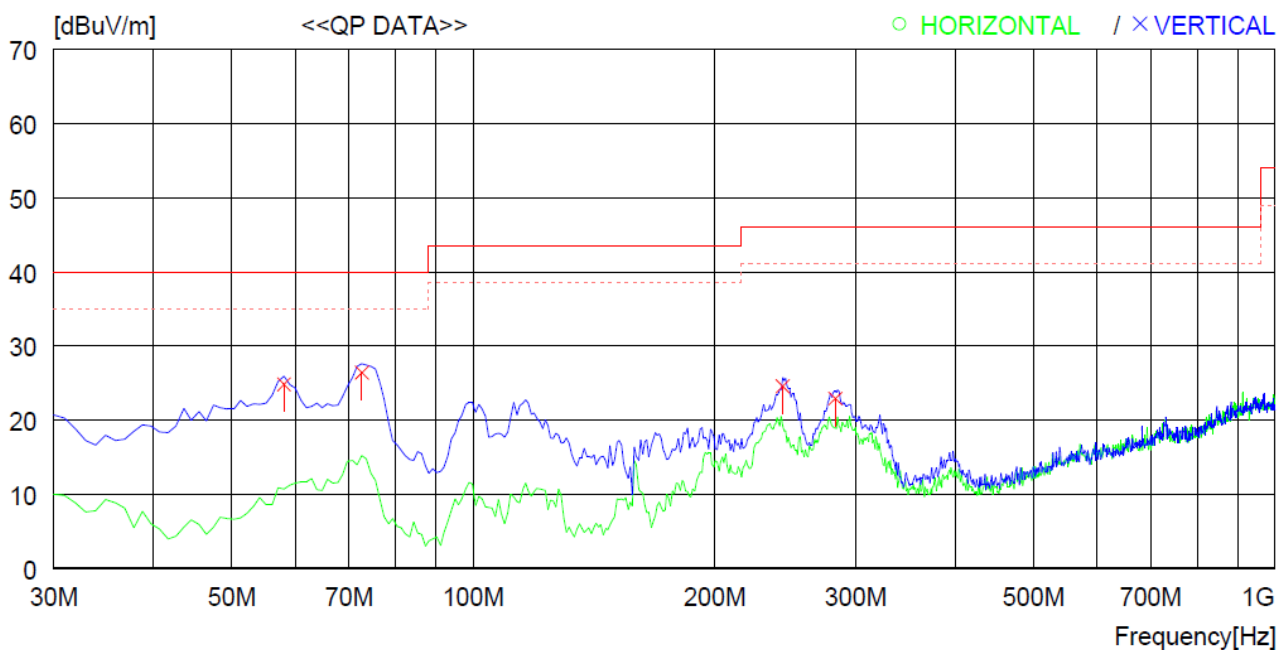
The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 46.4 % R.H. Temperature: 23.5 °C
 Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209
 Frequency range : 30 MHz ~ 1 000 MHz
 Result : PASSED

EUT : PORTABLE BLUETOOTH SPEAKER

Date: June 22, 2017

Operating Condition : Charging & Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Vertical -----										
1	58.130	42.6	13.4	1.9	33.1	24.8	40.0	15.2	100	293
2	72.680	48.6	8.8	2.1	33.1	26.4	40.0	13.6	200	0
3	243.400	41.8	12.2	3.6	33.1	24.5	46.0	21.5	100	359
4	283.170	38.9	13.1	3.9	33.0	22.9	46.0	23.1	100	359

Tested by: Ha-Ram, Lee / Assistant Manager

8.5 Test data for Using Mid. load (400 mA)

8.5.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 46.4 % R.H.

Temperature: 23.5 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : PORTABLE BLUETOOTH SPEAKER

Date: June 22, 2017

Operating Condition : Charging & Transmitting Mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
0.021	44.0	H	19.80	0.0	63.80	121.16	-57.36
*0.141	58.1	H	20.20	0.1	78.40	104.62	-26.22
0.425	32.2	H	20.00	0.1	52.30	95.04	-42.74
0.708	24.1	H	20.00	0.1	44.20	70.60	-26.40
0.995	18.8	H	20.00	0.1	38.90	67.65	-28.75
2.924	12.6	H	20.00	0.3	32.90	69.50	-36.60

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level [dBμV/m] – Limit [dBμV/m]

-. Limit calculation: Limit at specified distance + 40log (300/3) = Limit + 80 dB for up to 0.49 MHz

Limit at specified distance + 40log (30/3) = Limit + 40 dB for above 0.49 MHz, Below 30 MHz



Tested by: Ha-Ram, Lee / Assistant Manager

8.5.2 Spurious Radiated Emission below 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 46.4 % R.H. Temperature: 23.5 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

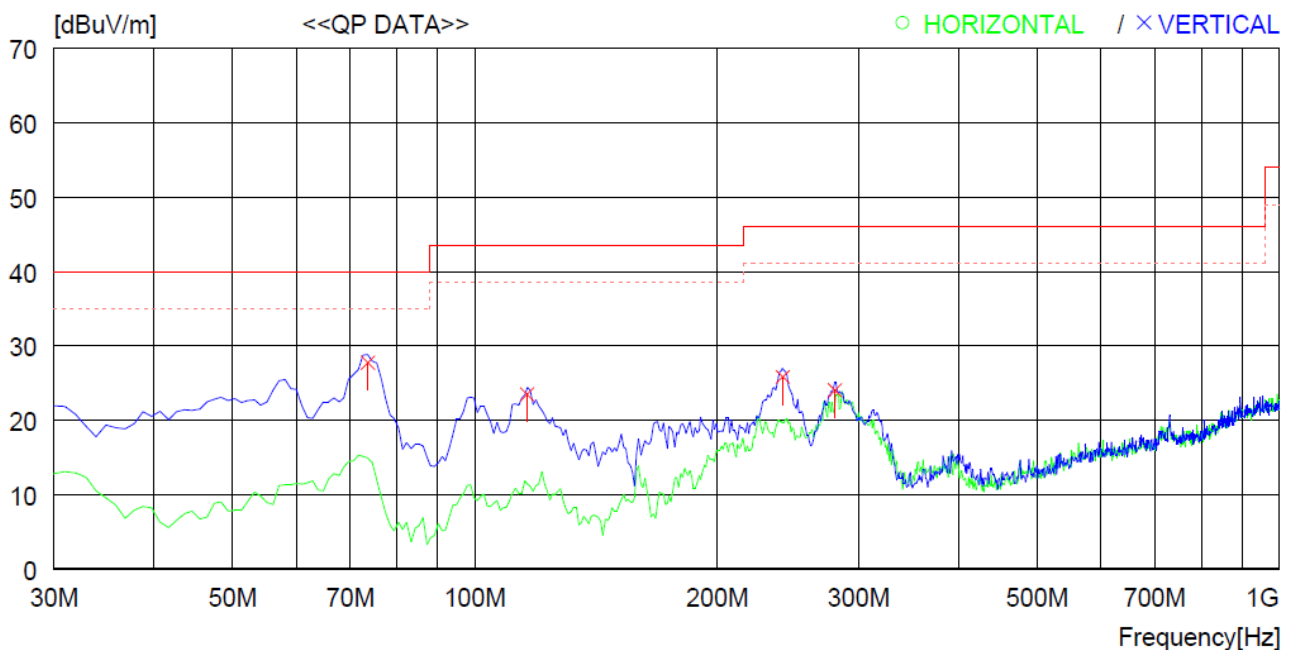
Frequency range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : PORTABLE BLUETOOTH SPEAKER

Date: June 22, 2017

Operating Condition : Charging & Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
		[dBuV]	[dB]							
----- Vertical -----										
1	73.650	50.0	8.7	2.1	33.1	27.7	40.0	12.3	300	200
2	116.330	43.1	10.8	2.6	33.0	23.5	43.5	20.0	100	261
3	241.460	43.2	12.1	3.6	33.1	25.8	46.0	20.2	100	359
4	280.260	40.1	13.0	3.9	33.0	24.0	46.0	22.0	100	359

Tested by: Ha-Ram, Lee / Assistant Manager

8.6 Test data for Using Min. load (100 mA)

8.6.1 Spurious Radiated Emission Below 30 MHz

Humidity Level : 46.4 % R.H. Temperature: 23.5 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Frequency Range : 9 kHz ~ 30 MHz

Result : PASSED

EUT : PORTABLE BLUETOOTH SPEAKER

Date: June 22, 2017

Operating Condition : Charging & Transmitting Mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
0.033	40.4	H	20.10	0.0	60.50	117.23	-56.73
*0.144	57.3	H	20.20	0.1	77.60	104.44	-26.84
0.431	32.7	H	20.00	0.1	52.80	94.91	-42.11
0.720	24.2	H	20.00	0.1	44.30	70.46	-26.16
1.008	21.0	H	20.00	0.1	41.10	67.54	-26.44
1.295	18.9	H	20.00	0.2	39.10	65.36	-26.26

-. Remark: "H" Horizontal, "V" Vertical

-. "*" Means Fundamental frequency

-. Emission Level [dB μ V/m] = Reading [dBμV] + Ant. Factor [dB/m] + Cable Loss [dB]

-. Margin [dB] = Emission Level [dBμV/m] – Limit [dBμV/m]

-. Limit calculation: Limit at specified distance + 40log (300/3) = Limit + 80 dB for up to 0.49 MHz

Limit at specified distance + 40log (30/3) = Limit + 40 dB for above 0.49 MHz, Below 30 MHz



Tested by: Ha-Ram, Lee / Assistant Manager

8.6.2 Spurious Radiated Emission below 1 GHz

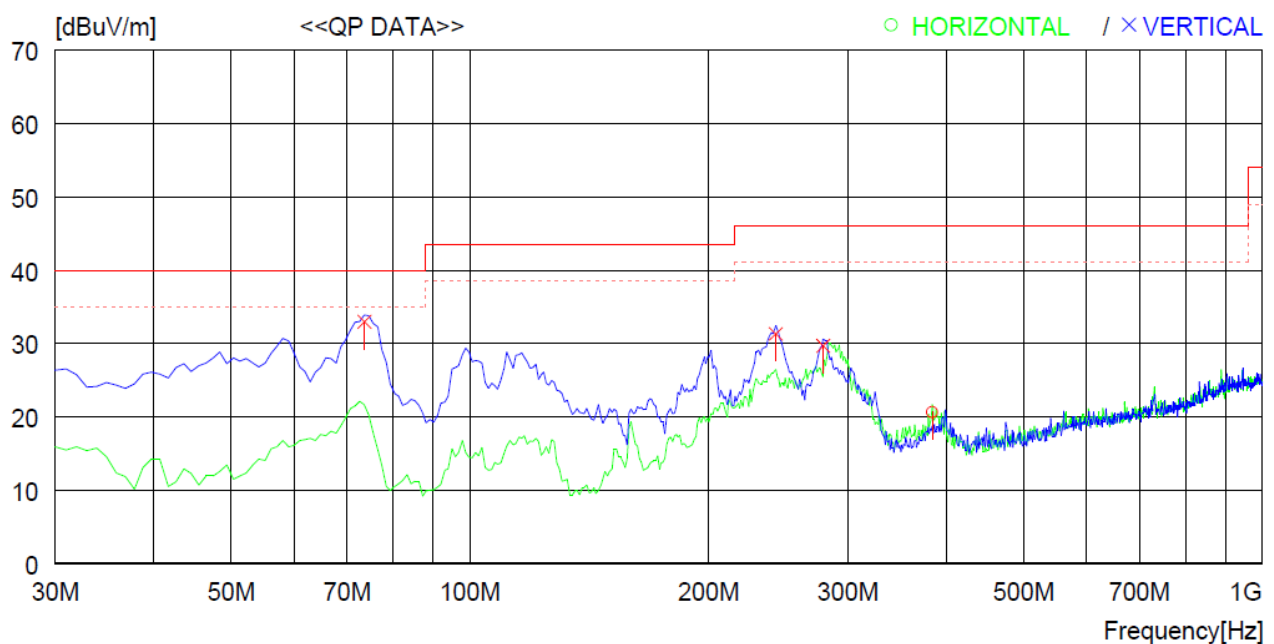
The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level	: 46.4 % R.H.	Temperature: 23.5 °C
Limits apply to	: <u>FCC CFR 47, PART 15, SUBPART C, SECTION 15.209</u>	
Frequency range	: 30 MHz ~ 1 000 MHz	
Result	: <u>PASSED</u>	

EUT : PORTABLE BLUETOOTH SPEAKER

Date: June 22, 2017

Operating Condition : Charging & Transmitting Mode



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	383.080	33.8	15.5	4.5	33.2	20.6	46.0	25.4	100	276
----- Vertical -----										
2	73.650	55.2	8.7	2.1	33.1	32.9	40.0	7.1	200	0
3	243.400	48.6	12.2	3.6	33.1	31.3	46.0	14.7	100	359
4	279.290	45.8	13.0	3.9	33.0	29.7	46.0	16.3	100	359

Tested by: Ha-Ram, Lee / Assistant Manager

9. CONDUCTED EMISSION TEST

9.1 Operating environment

Temperature : 23.5 °C
Relative humidity : 46.4 % R.H.

9.2 Test set-up

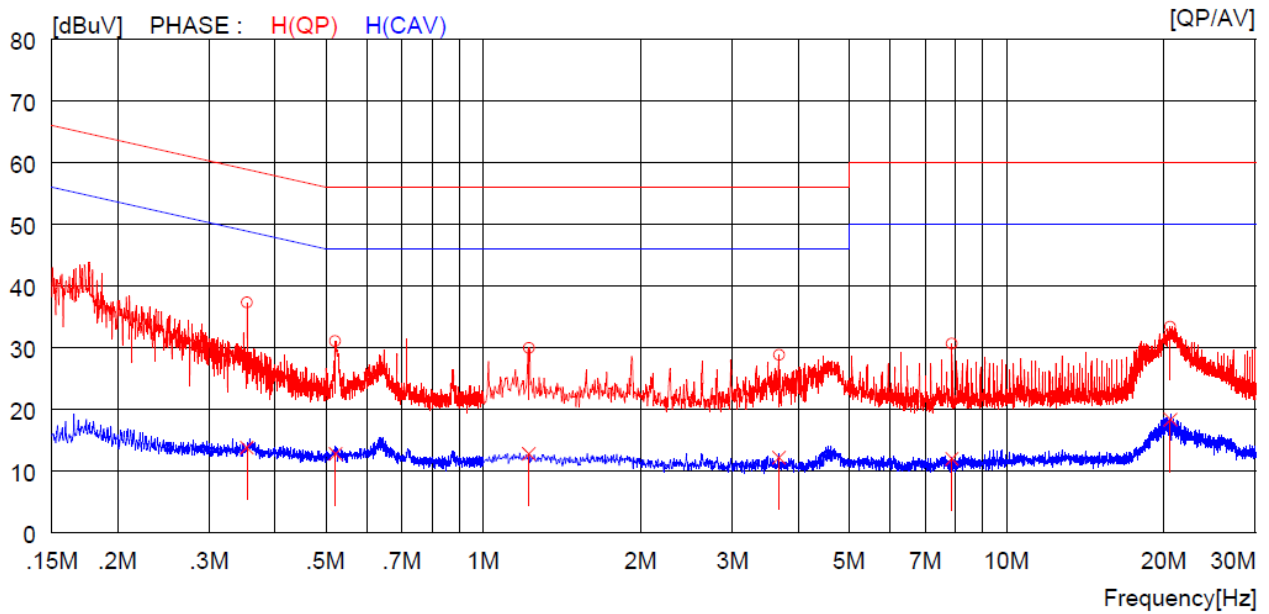
The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μ H + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

9.3 Software used

Software name	Software version	Manufacturer
Noise Terminal Voltage Measurement Software	2.00.0180	Techno Science Japan Co.,Ltd

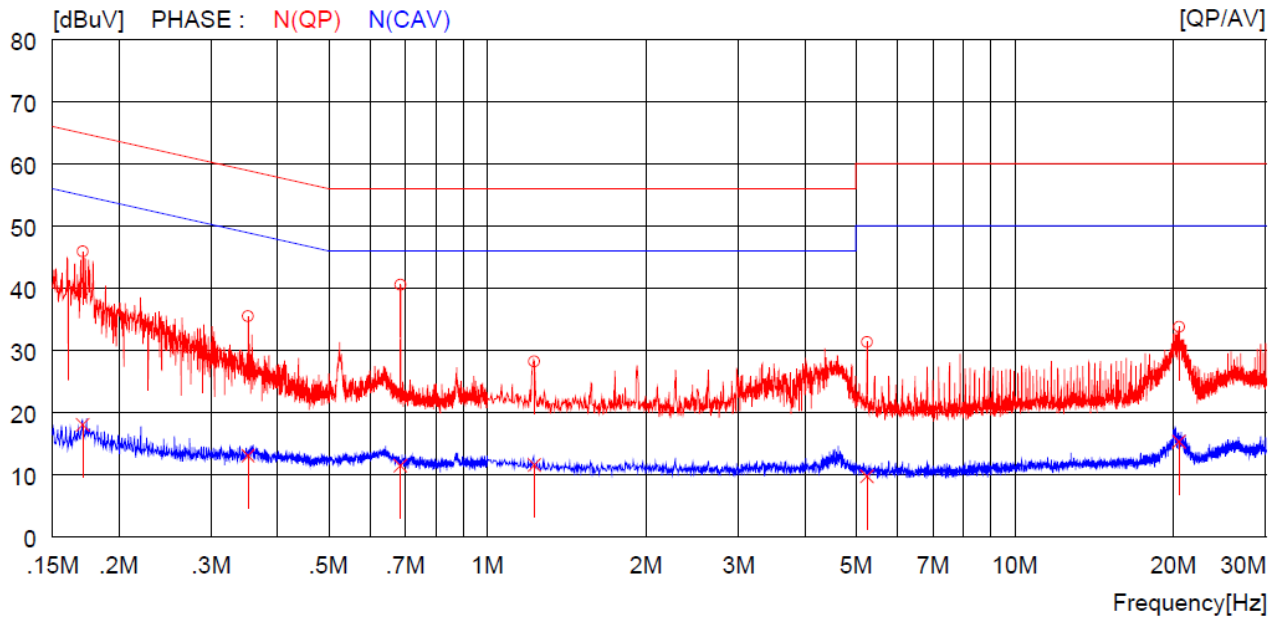
9.4 Test data

- Test Date : June 22, 2017
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Tested Line : HOT



NO	FREQ		READING		C.FACTOR		RESULT		LIMIT		MARGIN		PHASE
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV	
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.35400	27.3	----	10.0	37.3	----	58.9	----	21.6	----	H(QP)		
2	0.52200	21.0	----	10.0	31.0	----	56.0	----	25.0	----	H(QP)		
3	1.22400	19.8	----	10.1	29.9	----	56.0	----	26.1	----	H(QP)		
4	3.68000	18.6	----	10.2	28.8	----	56.0	----	27.2	----	H(QP)		
5	7.87500	20.3	----	10.3	30.6	----	60.0	----	29.4	----	H(QP)		
6	20.58000	22.5	----	10.8	33.3	----	60.0	----	26.7	----	H(QP)		
7	0.35400	----	3.8	10.0	----	13.8	----	48.9	----	35.1	H(CAV)		
8	0.52200	----	2.8	10.0	----	12.8	----	46.0	----	33.2	H(CAV)		
9	1.22400	----	2.7	10.1	----	12.8	----	46.0	----	33.2	H(CAV)		
10	3.68000	----	2.0	10.2	----	12.2	----	46.0	----	33.8	H(CAV)		
11	7.87500	----	1.7	10.3	----	12.0	----	50.0	----	38.0	H(CAV)		
12	20.58000	----	7.5	10.8	----	18.3	----	50.0	----	31.7	H(CAV)		

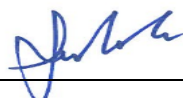
-. Tested Line : NEUTRAL



NO	FREQ		READING		C.FACTOR		RESULT		LIMIT		MARGIN		PHASE
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV	
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.17100	35.9	----	10.0	45.9	----	64.9	----	19.0	----	N(QP)		
2	0.35200	25.5	----	10.0	35.5	----	58.9	----	23.4	----	N(QP)		
3	0.68500	30.4	----	10.1	40.5	----	56.0	----	15.5	----	N(QP)		
4	1.22800	18.1	----	10.1	28.2	----	56.0	----	27.8	----	N(QP)		
5	5.25000	21.1	----	10.2	31.3	----	60.0	----	28.7	----	N(QP)		
6	20.50000	22.9	----	10.8	33.7	----	60.0	----	26.3	----	N(QP)		
7	0.17100	----	8.0	10.0	----	18.0	----	54.9	----	36.9	N(CAV)		
8	0.35200	----	3.1	10.0	----	13.1	----	48.9	----	35.8	N(CAV)		
9	0.68500	----	1.4	10.1	----	11.5	----	46.0	----	34.5	N(CAV)		
10	1.22800	----	1.5	10.1	----	11.6	----	46.0	----	34.4	N(CAV)		
11	5.25000	----	-0.5	10.2	----	9.7	----	50.0	----	40.3	N(CAV)		
12	20.50000	----	4.5	10.8	----	15.3	----	50.0	----	34.7	N(CAV)		

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.


Tested by: Ha-Ram, Lee / Assistant Manager

10. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESCI	101012	Nov. 01, 2016	One Year	■
2.		R/S	ESR	101470	Feb. 08, 2017	One Year	■
3.		R/S	ESPI	101278	Nov. 01, 2016	One Year	■
4.		R/S	ESHS10	834467/007	Apr. 03, 2017	One Year	■
4.	Spectrum analyzer	R/S	FSV30	101372	Nov. 10, 2016	One Year	■
5.	Amplifier	Sonoma Instrument	310N	312544	Apr. 04, 2017	One Year	■
6.	Amplifier	Sonoma Instrument	310N	312545	Apr. 04, 2017	One Year	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-255	May 20, 2016	Two Year	■
8.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-421	Apr. 15, 2016	Two Year	■
9.	Controller	Innco System	CO2000	619/27030611/L	N/A	N/A	■
10.	LISN	EMCO	3825/2	9109-1867	Apr. 04, 2017	One Year	■
				9109-1869	Apr. 06, 2017	One Year	-
		Schwarzbeck	NSLK8126	8126-404	Apr. 03, 2017	One Year	■
		Schwarzbeck	NSLK8128	8128216	Apr. 05, 2017	One Year	■
11.	Turn Table	Innco System	DT3000	930611	N/A	N/A	■
12.	Antenna Master	Innco System	MA4000-EP	MA4000/332	N/A	N/A	■
13.	Antenna Master	Innco System	MA4000-EP	MA4000/335	N/A	N/A	■
14.	Loop Antenna	Schwarzbeck	FMZB 1513	1513-235	Jun. 10, 2016	Two Year	■
15.	Triple Loop Antenna	Schwarzbeck	HXYZ 9170	HFCD 9171-207	Sep. 25, 2015	Two Year	-
15.	Frequency Counter	HP	53152A	US39270295	Sep. 29, 2016	One Year	■
16.	ENVIRONMENTAL TEST CHAMBER	ESPEC	PSL-2KP	14009407	Feb. 02, 2017	One Year	■
17.	DC Power Supply	Digital Electronics	DRP-305DN	4030195	Sep. 02, 2016	One Year	■