

**Order No.** : G-45-2013-01499

**Applicant** : LG Electronics Inc.

**Address** : 50, Hyangjeong-dong, Heungdeok-gu, Cheongju-si,  
Chungcheongbuk-do, 361-480 Korea

**Product** : Bluetooth Stereo Headset

**Model** : BTS1

**Environment** : Temp. (25.2 ~ 26.3) °C, Humidity (43.0 ~ 48.0) %R.H.  
Atmospheric Pressure (100.6) kPa

**Receipt Date** : May 21, 2013



**Test Date** : May 28, 2013

**Standard** : FCC Part 15 Subpart B, Class B  
ANSI C63.4 : 2009  
CISPR 22 : 2008

**Test Result** : Refer to the attached document

**Use of report** : Validation

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
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Affirmation	Test by 	Technical Manager 
	Name : Jinho Seo (Signature)	Name : Forest Lee (Signature)

The above test report is the accredited test results by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

2013. 06. 10.

**Accredited by KOLAS Republic of KOREA**  
**SGS Korea Co., Ltd. Gunpo Laboratory**  
#18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea, 435-040

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FORM5101-01B(2010.10.05)(4)

SGS Korea Co., Ltd.

18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea 435-040 t+82 31 428 5700 f+82 31 427 2370 www.sgsgroup.kr

A4(210mm\*297mm)

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## 1. General Information

### 1.1 Client Information

Applicant : LG Electronics Inc.  
Address of Applicant : 50, Hyangjeong-dong, Heungdeok-gu, Cheongju-si,  
Chungcheongbuk-do, 361-480 Korea

Manufacturer : LG Electronics Inc.  
Address of Manufacturer : 50, Hyangjeong-dong, Heungdeok-gu, Cheongju-si,  
Chungcheongbuk-do, 361-480 Korea

### 1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd. (Gunpo Laboratory)  
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea  
435-040  
FCC Registration No. : 367021  
IC Company No. : 4620F  
Phone : + 82 31 428 5700  
Fax : + 82 31 427 2370  
e-mail : forest.lee@sgs.com

### 1.3 General Information of E.U.T.

Product Name	Bluetooth Stereo Headset
Model Name	BTS1
Serial No.	-
EMI Classification	Class B
FCC ID	SSNBTS1
Rated Voltage (Travel Adapter)	Input : (100 ~ 240) Va.c., (50 ~ 60) Hz Output : 5.0 Vd.c., 2.0 A
Test Voltage	120 Va.c., 60 Hz (Travel Adapter)
Battery	3.7 Vd.c., 200 mA
Operating Frequency	(2 402 ~ 2 480) MHz
Internal Highest Frequency	26 MHz

### 1.4 Operating Modes and Conditions

Operating mode	Operating condition
Charging Mode	Charging

**1.5 Auxiliary Equipments**

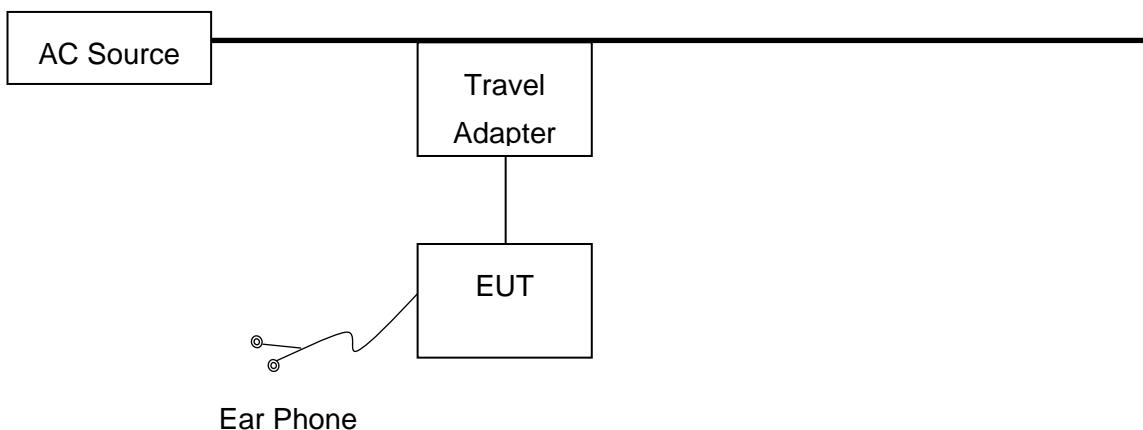
Description	Model	Serial No.	Manufacturer
Travel Adapter	ETA-U90KWK	RT2D201DV/B-E	RF Tech
Ear Phone	-	-	LG

**1.6 Cable List**

Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	USB Port	Travel Adapter	USB	0.6	Shield
	Ear Phone Port	Ear Phone	-	0.8	Shield
Travel Adapter	AC IN	AC Source	-	-	-

**1.7 System Configurations**

Description	Model	Serial No.	Manufacturer
Main Board	BTP-LGE01BTGMB Ver 1.0C	130411	-
Battery	-	3212	BATTRONIX

**1.8 Test System Layout****1.9 Modifications**

There was no modified item during the test.

**1.10 Applicable Standards for Testing**

Standards	Status	Deviation
FCC Part 15 Subpart B, Class B	Applicable	No Deviation

**1.11 Summary of Test Results**

Test Item	Basic Standards	Results
Conducted Emission	ANSI C63.4 : 2009	Complied
Radiated Emission	ANSI C63.4 : 2009	Complied

Note : Test methods of all test items are performed according to the basic standards in this table.

## EMISSION

### 2.1 Test Results

Test Items	Basic Standards	Test Results
Conducted Emission	ANSI C63.4 : 2009	<b>Complied</b>
Radiated Emission	ANSI C63.4 : 2009	<b>Complied</b>

### 2.2 Test Method and Limits

#### 2.2.1 Test Method

Test Items	Measuring Frequency Range	RBW	Measuring Distance
Conducted Emission	0.15 MHz ~ 30 MHz	9 kHz	N/A
Radiated Emission	30 MHz ~ 1 GHz	120 kHz	10 m & 3 m
	Above 1 GHz	1 MHz	3 m

Note : 10 m method of radiated emission measurement is only applied to Class A equipment over the frequency range of 30 MHz ~ 1 GHz. Except this, 3 m method is applied to Class B equipment over the frequency range of 30 MHz ~ 1 GHz and Class A and Class B equipment above 1 GHz.

#### 2.2.2 Test Limits

##### -Conducted Emission Limits

Frequency Range	Limits( dB( $\mu$ V) )		Class
	Quasi-peak	Average	
0.15 MHz ~ 0.5 MHz	79	66	<b>Class A</b>
0.5 MHz ~ 30 MHz	73	60	
0.15 MHz ~ 0.5 MHz	66 to 56	56 to 46	<b>Class B</b>
0.5 MHz ~ 5 MHz	56	46	
5 MHz ~ 30 MHz	60	50	

Note : The lower limit shall apply at the transition frequencies. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

## -Radiated Emission Limits below 1 GHz

Frequency Range	Limits( dB( $\mu$ V/m) )	Class
	Quasi-peak	
30 MHz ~ 230 MHz	40	<b>Class A</b> (10m method)
230 MHz ~ 1 GHz	47	
30 MHz ~ 230 MHz	40.5	<b>Class B</b> (3m method)
230 MHz ~ 1 GHz	47.5	

## -Radiated Emission Limits above 1 GHz (3m method)

Frequency Range	Limits( dB( $\mu$ V/m) )		Class
	Average	Peak	
Above 1 GHz	59.5	79.5	<b>Class A</b>
Above 1 GHz	54	74	<b>Class B</b>

Note : The limits of class A equipment is extrapolated using an extrapolation factor of 20 dB/decade because it was measured at 3m distance not 10m distance.

## 2.3 Conducted Emission

The initial preliminary exploratory scans were performed over the measuring frequency range(0.15 MHz to 30 MHz) using a max hold mode incorporating a Peak detector and Average detector and using the software of ES-K1(Version V1.71 from R&S). The final test data was measured using a Quasi-Peak detector and Average detector.

### 2.3.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Last Cal. Date
Two-Line V-Network	ENV216	R & S	100190	2013.01.04
Test Receiver	ESHS10	R & S	863365/018	2012.05.31

Note : The calibration period of every equipment is 1 year.

### 2.3.2 Test Site

Shield Room in Gunpo Laboratory



## 2.3.3 Environment Conditions

Temperature : 26.2 ~ 26.3

Humidity : 47.8 %R.H. ~ 48.0 %R.H.

Atmospheric Pressure : 100.6 kPa

Test Date : May 28, 2013

Freq.	Line	Level ( dB $\mu$ V )		CL	LISN	Result ( dB $\mu$ V )		Limit ( dB $\mu$ V )		Margin ( dB )	
( MHz )	( H/N )	Q/P	A/V	( dB )	( dB )	Q/P	A/V	Q/P	A/V	Q/P	A/V
0.15	N	25.20	9.10	0.03	9.65	34.88	18.78	66.00	56.00	31.12	37.22
0.56	H	16.80	10.00	0.04	9.57	26.41	19.61	56.00	46.00	29.59	26.39
0.57	N	18.50	11.20	0.04	9.65	28.19	20.89	56.00	46.00	27.81	25.11
4.26	H	9.60	2.50	0.09	9.66	19.35	12.25	56.00	46.00	36.65	33.75
7.73	N	13.60	5.90	0.12	9.64	23.36	15.66	60.00	50.00	36.64	34.34
7.87	H	13.50	3.60	0.12	9.70	23.32	13.42	60.00	50.00	36.68	36.58

Measurement Uncertainty :  $\pm 2.69$  dB (The confidential level is about 95%, K=2)

Note : • Line ( H ) : Hot  
 • CL: Cable Loss  
 • Result = Level + CL + LISN  
 • Line ( N ) : Neutral  
 • LISN : LISN Factor  
 • Margin = Limit – Result

**See Appendix A (Conducted Emission)**



## 2.4 Radiated Emission

The initial preliminary exploratory scans were performed at 3 m distance over the measuring frequency range(30 MHz to 1 GHz) using a max hold mode incorporating a Peak detector and using the software of EP5RE(Version Ver3.10.20 from TOYO). The final test data was measured using a Quasi-Peak detector below 1 GHz at 3 m distance. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

### 2.4.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Last Cal. Date
Test Receiver	ESU26	R & S	100109	2012.05.31
Amplifier	8447F	HP	2944A03909	2012.07.03
Bilog Antenna	VULB9163	SCHWARZBEC K MESS- ELEKTRONIK	390	2013.04.19

Note : Only the calibration period of Antennas is 2 years but the period of every equipment is 1 year.

### 2.4.2 Test Site

3 m Semi-Anechoic Chamber in Gunpo Laboratory

**2.4.3 Environment Conditions****Below 1 GHz (3 m method)**

Temperature : 25.2 ~ 25.5

Humidity : 43.0 %R.H. ~ 44.0 %R.H.

Atmospheric Pressure : 100.6 kPa

**Test Date** : May 28, 2013

Freq. ( MHz )	Level ( dB $\mu$ V )	Pol. ( H/V )	A ( ° )	H ( m )	AF ( dB )	CL ( dB )	Amp. ( dB )	F/S ( dB $\mu$ V/m )	Limit ( dB $\mu$ V/m )	Margin ( dB )
30.12	37.8	H	243.1	2.00	10.46	0.76	27.60	21.42	40.50	19.08
39.22	37.5	V	31.1	1.00	12.63	0.87	27.60	23.40	40.50	17.10
95.84	35.1	V	182.0	1.00	10.47	1.36	27.51	19.42	40.50	21.08
421.88	42.6	H	115.2	1.00	16.66	2.84	27.83	34.27	47.50	13.23
523.57	46.4	H	268.7	2.00	18.62	3.15	28.35	39.82	47.50	7.68
986.58	34.5	H	157.6	1.00	23.87	4.34	27.45	35.26	47.50	12.24

Measurement Uncertainty (Horizontal) :  $\pm$  4.34 dB (The confidential level is about 95%, K=2)Measurement Uncertainty (Vertical) :  $\pm$  4.87 dB (The confidential level is about 95%, K=2)

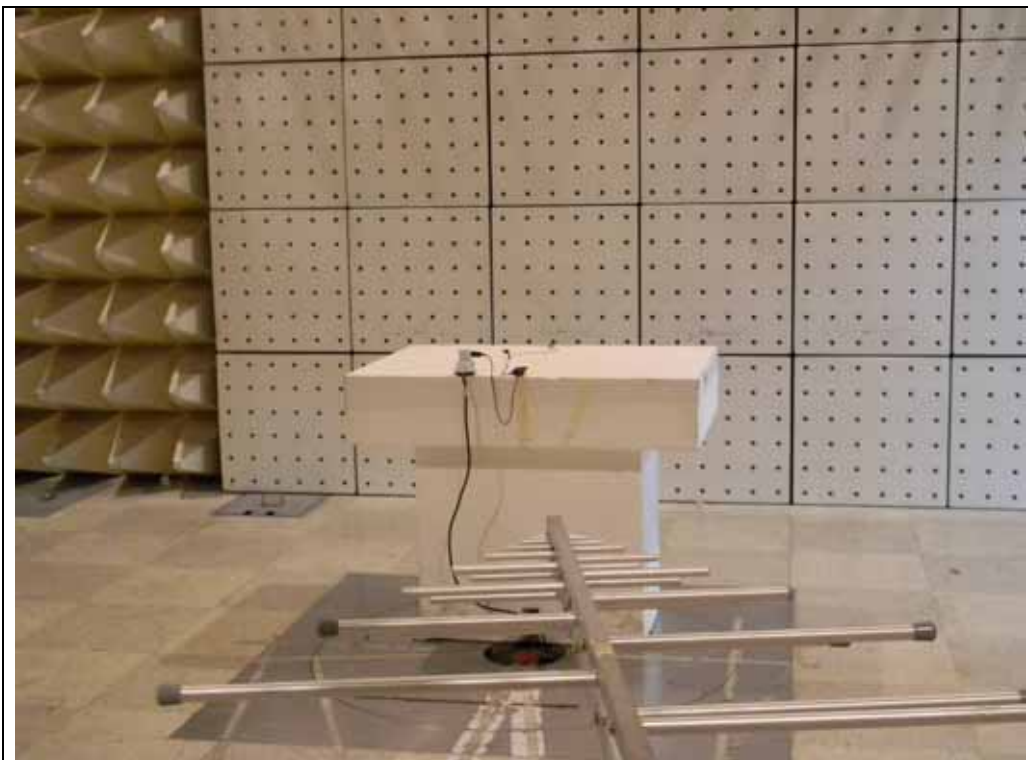
Note: • AF = Antenna Factor • CL = Cable Loss • F/S = Field Strength  
 • Pol.(H) = Horizontal • Pol.(V) = Vertical • Amp. = Amplifier Gain  
 • Margin = Limit – F/S • F/S = Level + AF + CL – Amp.  
 • A : Angle • H : Height

**See Appendix B (Radiated Emission)**

## 2.5 Photographs of Conducted Emission



## 2.6 Photographs of Radiated Emission (3m method below 1 GHz)



### 3. Photographs of EUT

- Top View



- Bottom View

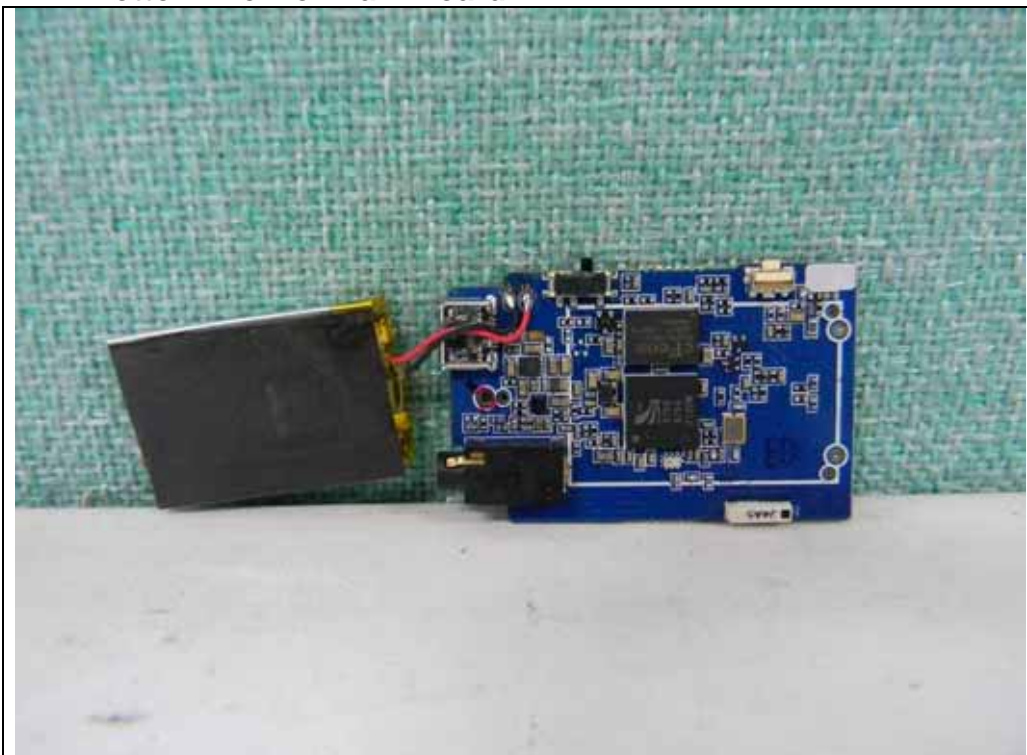




- Top View of Main Board



- Bottom View of Main Board



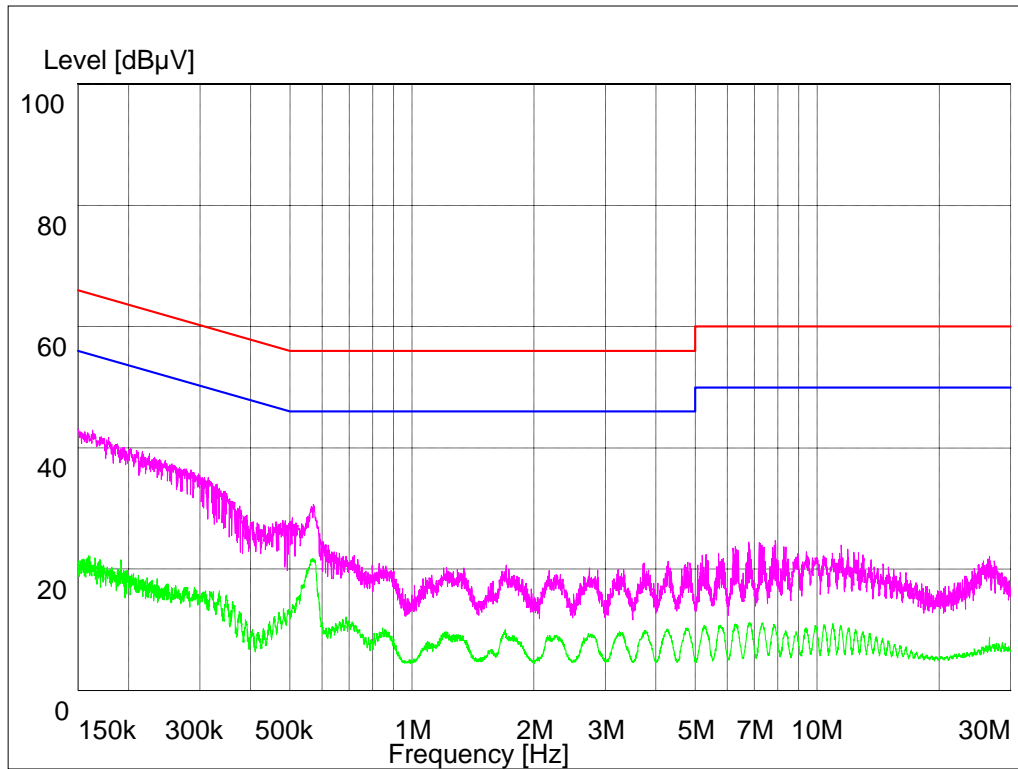
- Inside



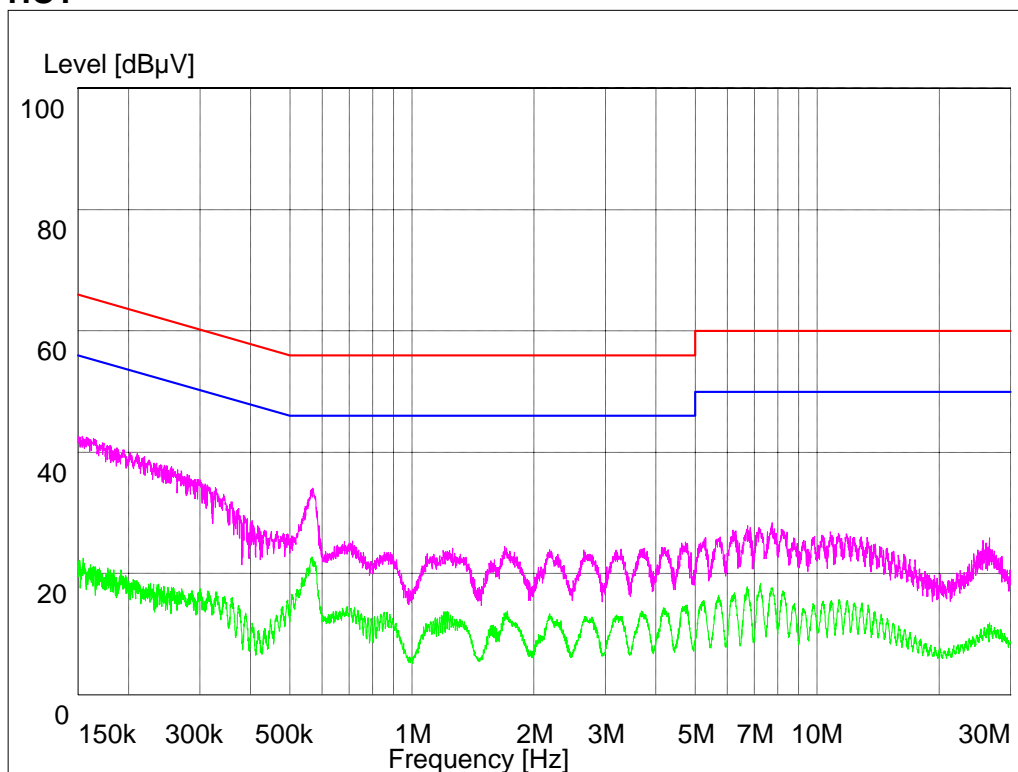


## Appendix A : Conducted Emission

### Neutral



### HOT



**Appendix B : Radiated Emission (3 m Scan Data)****Below 1 GHz**