TEST REPORT

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) ℃, 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.
This Test Report cannot be reproduced, except in full.

Affirmation	Test by Name : Jinho Seo (Signature)	Technical Manager 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

Remarks :

Contents

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

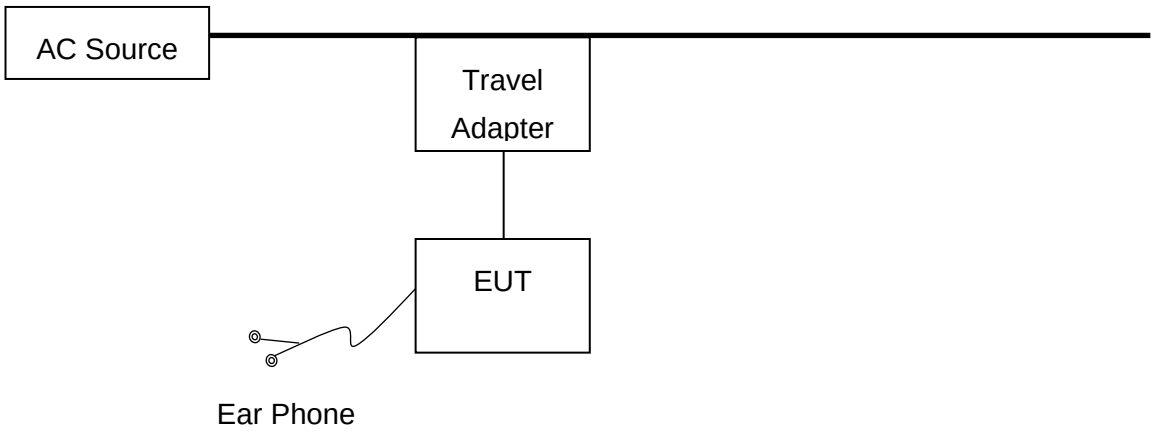
1.6 Cable List

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	**Complied**
Radiated Emission	ANSI C63.4 : 2009	**Complied**

2.2 Test Method and Limits

2.2.1 Test Method

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

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

2.2.2 Test Limits

-Conducted Emission Limits

Frequency Range	Limits(dB(μV))		Class
	Quasi-peak	Average	
0.15 ㎒ ~ 0.5 ㎒	79	66	**Class A**
0.5 ㎒ ~ 30 ㎒	73	60	
0.15 ㎒ ~ 0.5 ㎒	66 to 56	56 to 46	**Class B**
0.5 ㎒ ~ 5 ㎒	56	46	
5 ㎒ ~ 30 ㎒	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 ㎒ to 0.5 ㎒.

-Radiated Emission Limits below 1 ㎓

Frequency Range	Limits(dB(μV/m))	Class
	Quasi-peak	
30 ㎒ ~ 230 ㎒	40	**Class A (10m method)**
230 ㎒ ~ 1 ㎓	47	
30 ㎒ ~ 230 ㎒	40.5	**Class B (3m method)**
230 ㎒ ~ 1 ㎓	47.5	

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

Frequency Range	Limits(dB(μV/m))		Class
	Average	Peak	
Above 1 ㎓	59.5	79.5	**Class A**
Above 1 ㎓	54	74	**Class 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 ㎒ to 30 ㎒) 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 (dBμV)		CL	LISN	Result (dBμV)		Limit (dBμV)		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 : ± 2.69 dB (The confidential level is about 95%, K=2)

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

See Appendix A (Conducted Emission)

2.4 Radiated Emission

The initial preliminary exploratory scans were performed at 3 ㎜ distance over the measuring frequency range(30 ㎒ to 1 ㎓) 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 ㎓ 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	SCHWARZBECK 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 ㎓ (3 m method)

Temperature : 25.2 ℃ ~ 25.5 ℃
Humidity : 43.0 %R.H. ~ 44.0 %R.H.
Atmospheric Pressure : 100.6 ㎪

Test Date : May 28, 2013

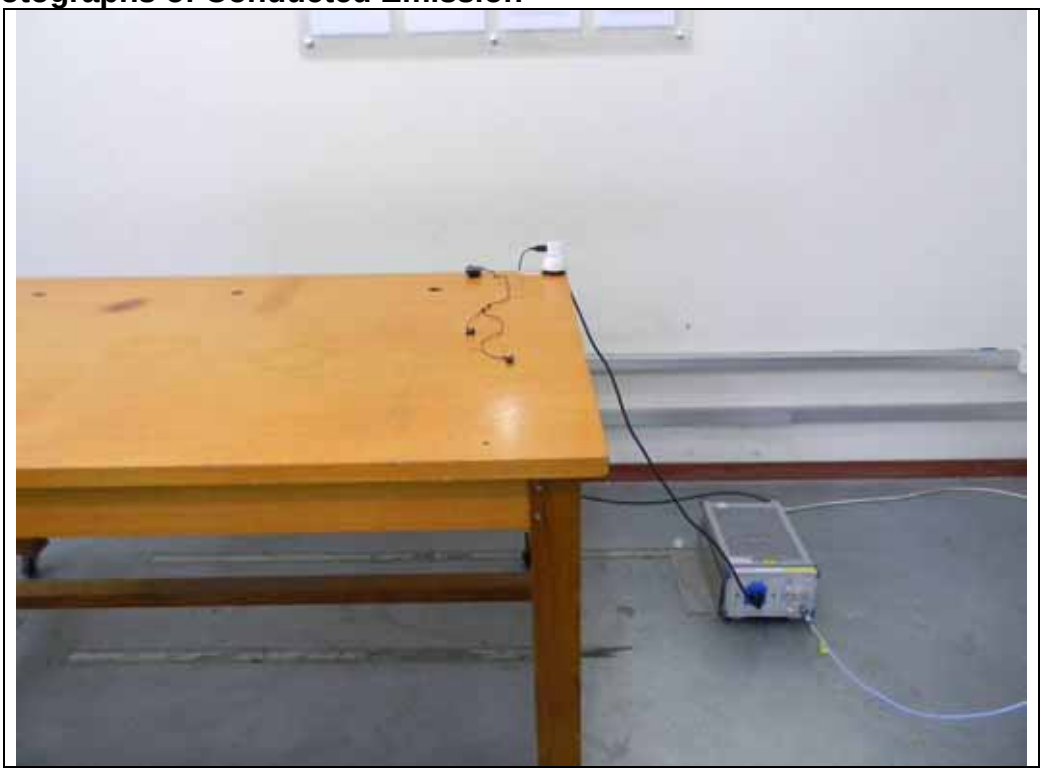
Freq. (㎒)	Level (dBμV)	Pol. (H/V)	A (°)	H (m)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dBμV/m)	Limit (dBμV/m)	Margin (dB)
30.12	37.8	H	243.1	2.00	10.46	0.76	27.60	21.42	40.50	19.08
39.22	37.5	V	31.1	1.00	12.63	0.87	27.60	23.40	40.50	17.10
95.84	35.1	V	182.0	1.00	10.47	1.36	27.51	19.42	40.50	21.08
421.88	42.6	H	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) : ± 4.34 dB (The confidential level is about 95%, K=2)
Measurement Uncertainty (Vertical) : ± 4.87 dB (The confidential level is about 95%, K=2)

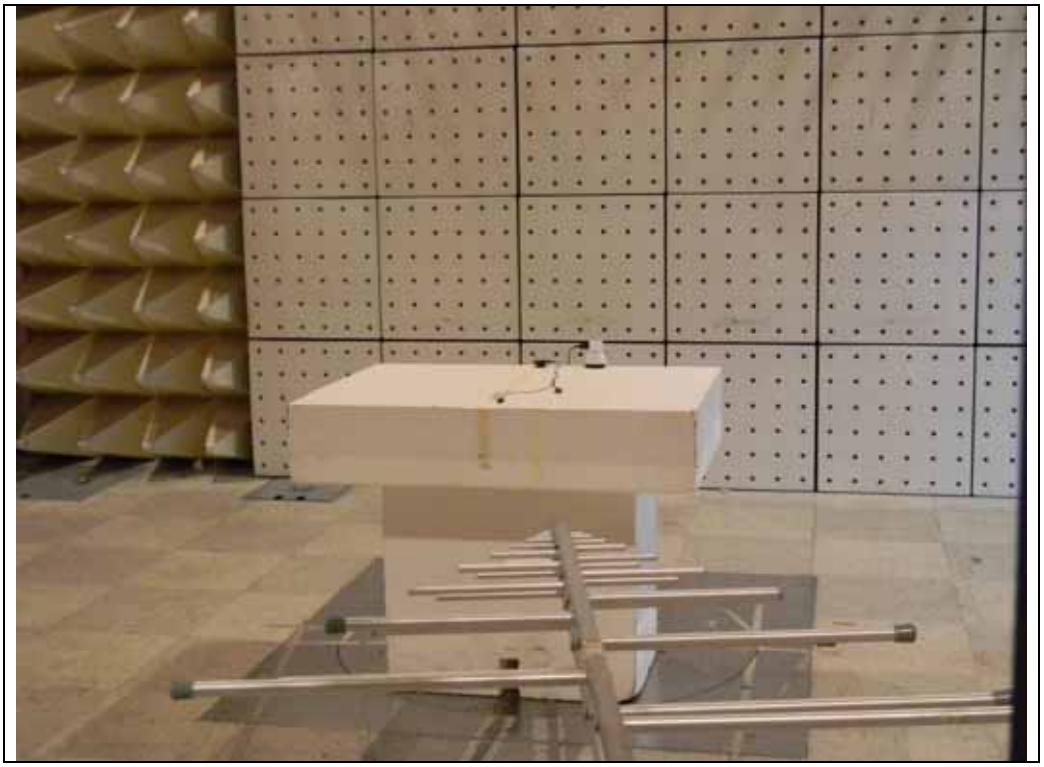
Note: • AF = Antenna Factor • CL = Cable Loss • F/S = Field Strength
• Pol.(H) = Horizontal • Pol.(V) = Vertical • Amp. = Amplifier Gain
• Margin = Limit – F/S • F/S = Level + AF + CL – Amp.
• A : Angle • H : Height

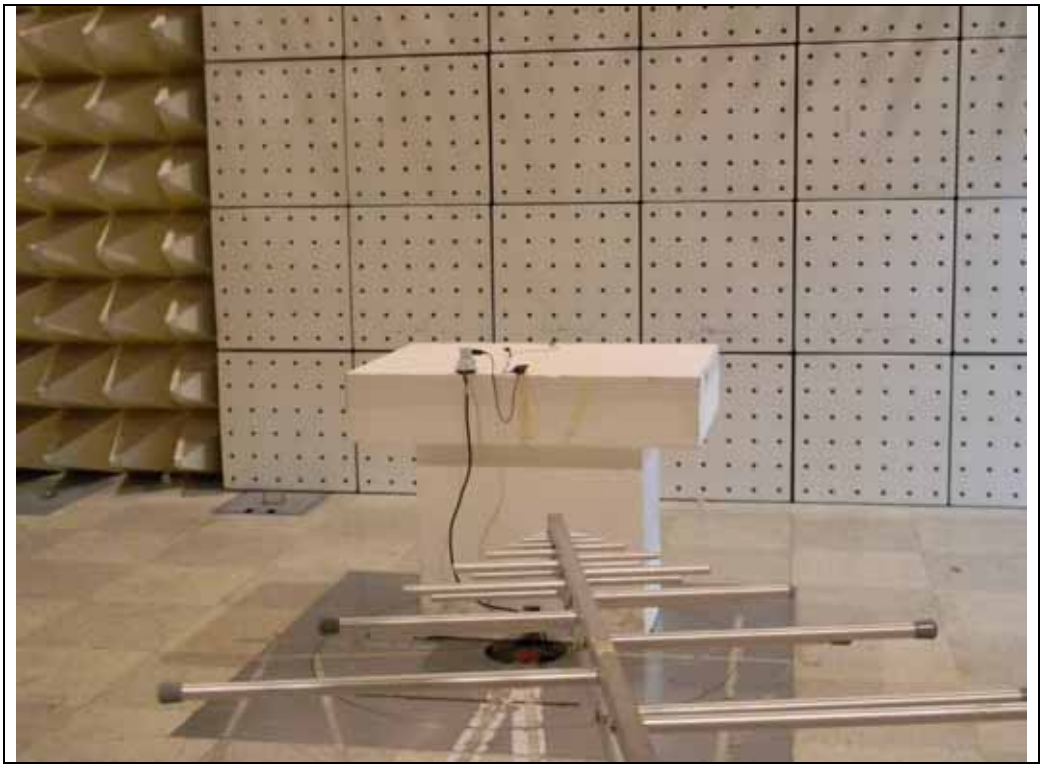
See Appendix B (Radiated Emission)

2.5 Photographs of Conducted Emission



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





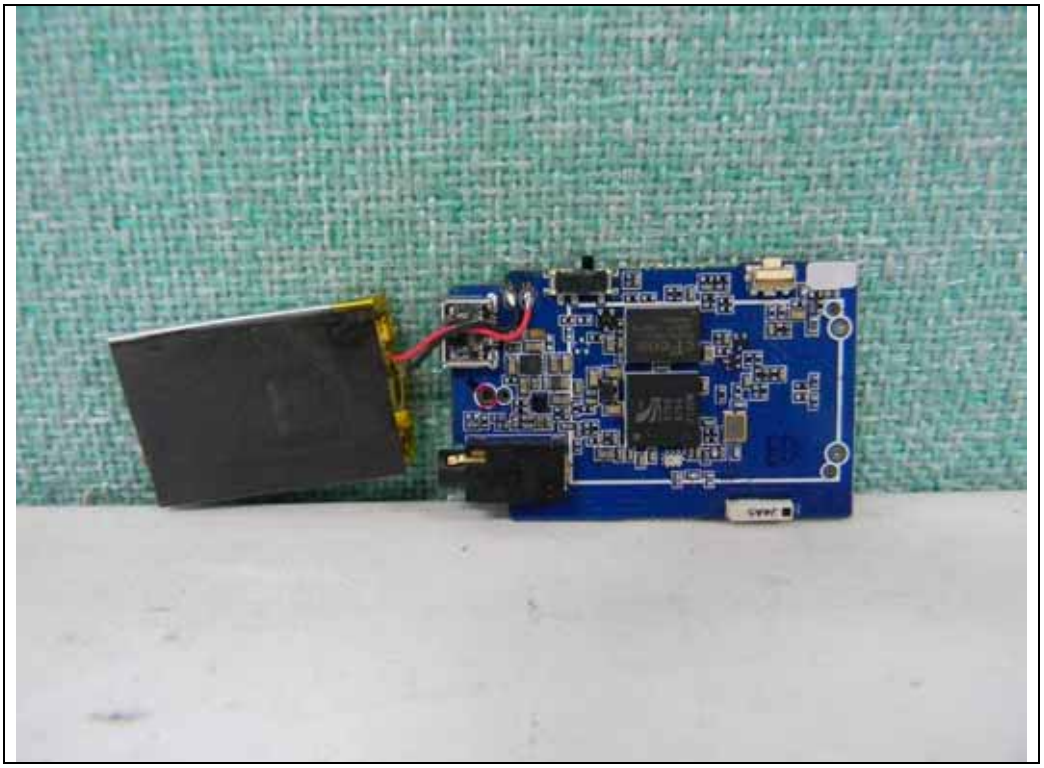
3. Photographs of EUT

- **Top View**

- **Bottom View**

- **Top View of Main Board**

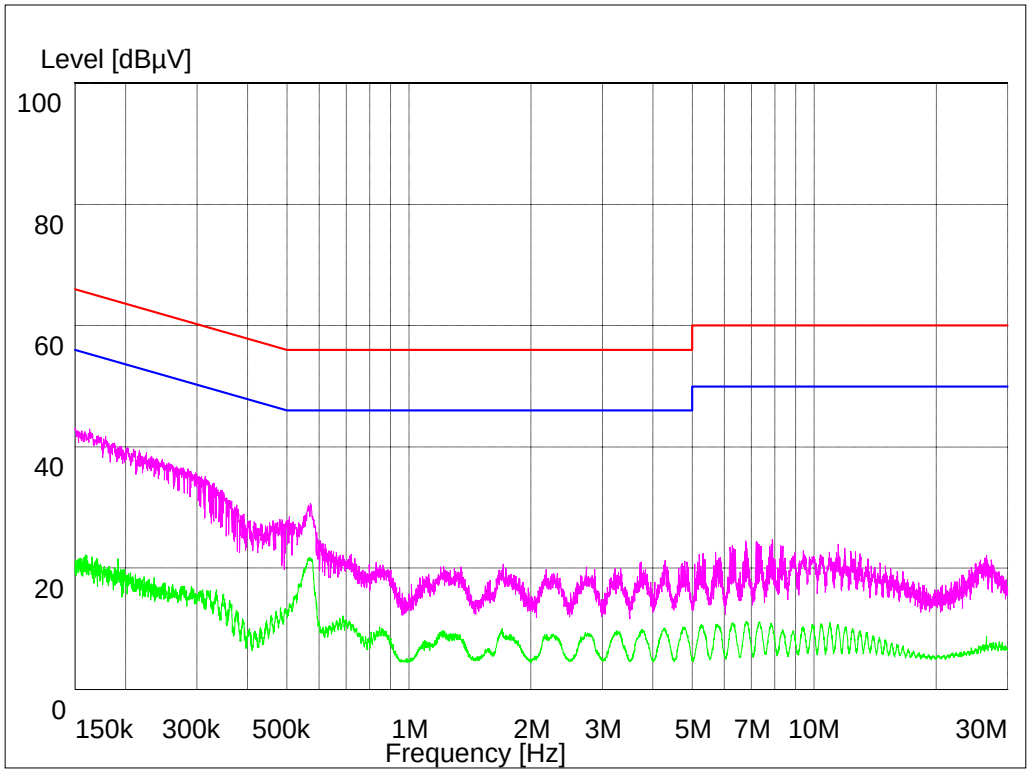
- **Bottom View of Main Board**



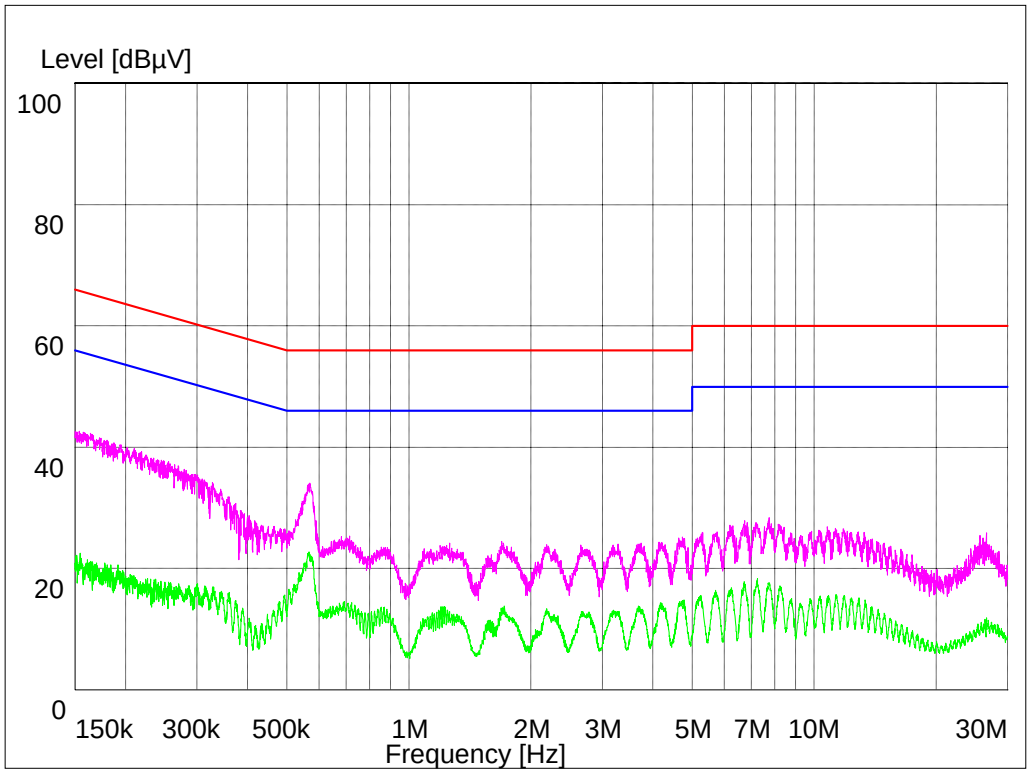
- **Inside**

Appendix A : Conducted Emission

Neutral



HOT



Appendix B : Radiated Emission (3 ㎙ Scan Data)

Below 1 ㎓