

CERTIFICATION

Applicant : American Power Conversion Holding Inc. Taiwan Branch
Address : 3F, No. 205, Sec. 3, Beishin Rd., Shindian City, Taipei, Taiwan, 231, R.O.C.
Manufacturer : American Power Conversion Holding Inc. Taiwan Branch
Address : 3F, No. 205, Sec. 3, Beishin Rd., Shindian City, Taipei, Taiwan, 231, R.O.C.
Description of EUT : Uninterruptible Power System
Trade Name : APC
Model Number : BX1500G; BX1300G; BN1250G; BR1500G; BR1300G ;BX1500XXXXXXXXXX;
BX1300XXXXXXXXXX;BN1250XXXXXXXXXX;BR1500XXXXXXXXXX;
BR1300XXXXXXXXXX (" X" can be 0-9, A-Z , " - " or blank)
Type of Test : FCC PART 15 Subpart B (10-1-08 Edition), Class B
Report Number : HA090046-SAFD
Receipt Date : 24-MAR-2009
Issued Date : 28-OCT-2009
Test Result : Compliance

The above equipment was tested by *HongAn* TECHNOLOGY CO., LTD., for compliance with the requirement set forth in the FCC Rules and Regulation Part 15, Subpart B This said equipment in the configuration described in above report, shows the maximum emission levels emanating from equipment within compliance requirement.

Note:

1. The results of the testing report relate only to the sample tested.
2. The testing report shall not be reproduced except in full, without the written approval of *HongAn* TECHNOLOGY CO., LTD.
3. The test result is also compliance with standard ICES-003

Tested by :

H. B. Liang
H.B.LIANG Test Engineer

Approved by :

L. A. HSU
L. A. HSU Laboratory Manager



HongAn TECHNOLOGY CO., LTD.

NO.15-1, CWEISHUH KENG, CWEIPIN VILLAGE,
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BSMI Registration No.: SL2-IN-E-0023, SL2-A1-E-0023,
SL2-IS-E-0023, SL2-R1-E-0023,
SL2-R2-E-0023

Nemko authorization No.: ELA184
TAF Accreditation No.: 1163
VCCI Registration No.: R-2156, C-2329, T-219

FCC Designation Number: TW1001

FCC CLASS B COMPLIANCE REPORT

For
Electromagnetic Emission
Of
Uninterruptible Power System

Trade Name : APC
Model Number : BX1500G; BX1300G; BN1250G; BR1500G; BR1300G
BX1500XXXXXXXXXX; BX1300XXXXXXXXXX;
BN1250XXXXXXXXXX; BR1500XXXXXXXXXX;
BR1300XXXXXXXXXX
(" X " can be 0-9, A-Z, " - " or blank)

Report Number : HA090046-SAFD
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Prepared for
American Power Conversion Holding Inc. Taiwan Branch
3F, No. 205, Sec. 3, Beishin Rd., Shindian City,
Taipei, Taiwan, 231, R.O.C.

Prepared by
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HongAn TECHNOLOGY CO., LTD.

BSMI Registration No.: SL2-IN-E-0023, SL2-A1-E-0023,
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1. General Information

Applicant : American Power Conversion Holding Inc. Taiwan Branch

Address : 3F, No. 205, Sec. 3, Beishin Rd., Shindian City, Taipei, Taiwan, 231, R.O.C.

Manufacturer : American Power Conversion Holding Inc. Taiwan Branch

Address : 3F, No. 205, Sec. 3, Beishin Rd., Shindian City, Taipei, Taiwan, 231, R.O.C.

Description of EUT : Uninterruptible Power System

Trade Name : APC

Model Number : BX1500G; BX1300G; BN1250G; BR1500G;BR1300G
BX1500XXXXXXXXXX;BX1300XXXXXXXXXX;
BN1250XXXXXXXXXX;BR1500 XXXXXXXXXXXX;
BR1300XXXXXXXXXX.
(“ X ” can be 0-9, A-Z , “ - ” or blank)

Report Number : HA090046-SAFD

Receipt Date : 24-MAR-2009

Issued Date : 28-OCT-2009



1.1 Product Information

➤ EUT Information

Trade Name : APC

Description of EUT : Uninterruptible Power System

Model Number : BX1500G

Serial Number : N/A

AC Power during test : AC 120V/60Hz.

AC Power Cord Type : 3 Pins, Unshielded, 2m (Undetachable).

➤ I/O Port of EUT

I/O Port Type	Q'TY	Tested With	Cable
1. AC Inlet	1	1	Unshielded, 2.0m
2. Coaxial Port	2	2	Shielded, 1.0m
3. Network Port	2	2	Unshielded, 1.8m
4. Data Port	1	1	Unshielded, 2.0m With core*1
5. AC Outlet (Back + Surge)	8	8	Unshielded, 1.8m
6. AC Outlet (Surge only)	2	2	Unshielded, 1.8m



➤ **Description of EUT:**

Model Number		BX1500G	BR1500G	BX1300G	BR1300G	BN1250G
Tested		Yes	Yes	Yes	Yes	No
Inputs	Nominal Voltage	120 Vac				
	Rated Voltage	120Vac				
	Frequency	45 ~ 65 Hz				
	Rated Current	12A				
	I/p voltage window for utlity operation	88 - 139 Vac	88-141 Vac	88 - 139 Vac	88-141 Vac	88 - 139 Vac
	Input Over Current Protection	15A Circuit Breaker				
Outlet	O/P voltage on mains mode	98.5 to 139 Vac	98.5 to 126 Vac	98.5 to 139 Vac	98.5 to 126 Vac	98.5 to 139 Vac
	O/P voltage on Battery mode	115 Vac +/- 8%				
	Battery Outlet Ratings:					
	Rated VA	1500 VA		1300 VA		1250 VA
	Rated Watts	865 Watts		780 Watts		750 Watts
	Rated Current	12.5A		10.8A		10.4A
	Rated Xcap Load Capacitance	12.5uF		10.5 uF		10.4uF
	Monitor Size Supported (typical)	2 x 21"				
	Frequency (on battery):					
	Following transfer from ac line	50 or 60 Hz +/- 1Hz auto sensing				
Note:1.Manufacture define the output power cord is less than 10m, and the cable for the data port is less than 3m. 2.For more detail features, please refer to User’s Manual.						

➤ **Additional Model Number:**

The model number as listed had been investigated which compliance with the requirement standard, there are the same appearance, function and schematic but the model number is difference.

Model Number:

BX1500G; BX1300G; BN1250G; BR1500G;BR1300G; BX1500XXXXXXXXXX;BX1300XXXXXXXXXX;
BN1250XXXXXXXXXX;BR1500XXXXXXXXXX;BR1300XXXXXXXXXX

(“ X ” can be 0-9, A-Z , “ - ” or blank)



1.2 Test Methodology

a. The emission tests was performed according to the following methods and procedures:

➤ **FCC PART 15 (47 CFR Ch.1; 10-1-08 Edition)**
Radio Frequency Devices

b. Description of departing from standard test method & any other specific: NONE

1.3 Test Facility

The *HongAn* TECHNOLOGY CO., LTD. test site located at: No 15-1, Cweishuh Keng, Cweipin Village, Linkou, Taipei County, Taiwan, R. O. C.

It is an open field test site, capable of measuring ITE products with the product on turntable (dimension of 1.2 meters) to antenna at distance of 3 and 10 meters.

Anechoic chamber 9m (H) X 6m (W) X 6m (L) is compliance with the sixteen point uniform field requirement as stated in **EN61000-4-3/IEC 61000-4-3**.

It is an EMS test site, Capable of measuring Industrial, Scientific and Medical Instrument, Information Technology Equipment, broadcast receivers and related equipments and household appliances/tools.

It is owned and operated by *HongAn* TECHNOLOGY CO., LTD.

A site description and calibration report to **ANSI C 63.4** is available upon request.

A site description and calibration report to **EN61000-6-3 & EN55024** is available upon request.

The test site is authorized for testing Industrial, Scientific and Medical Instrument, Information Technology Equipment, broadcast receivers and related equipments and household Appliances / tools ,
BSMI.Nemko authorizes the test site for testing Uninterruptible Power System and Automatic Voltage Regulator.

BSMI certification #: SL2-IS-E-0023, SL2-IN-E-0023, SL2-R1-E-0023, SL2-R2-E-0023, And
SL2-A1-E-0023.

Nemko authorization #: ELA 184

VCCI Certificate #: R-2156,C-2329,T-219

TAF Accreditation Number: 1163

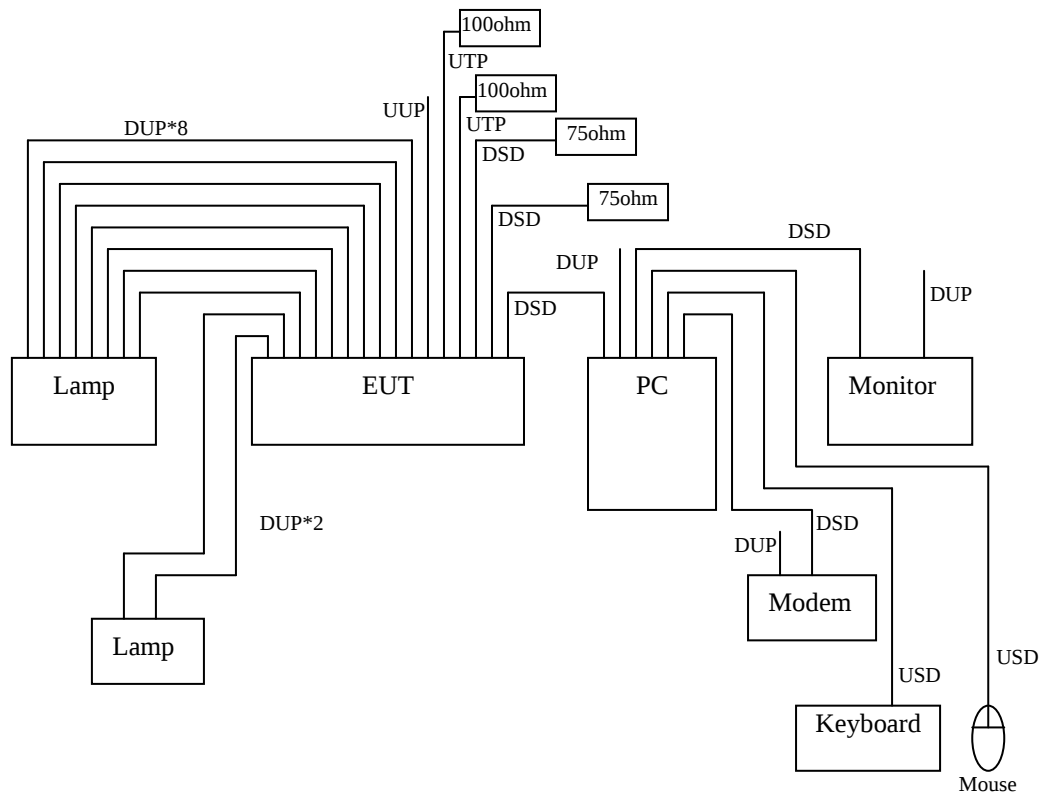
FCC Designation Number: TW1001



1.4 System Test Configuration

1.4.1 Tested of Setup System

1.4.1.1 Configuration of Test System



Legend:

UTP: Unshielded Data Twisted Pair Cable.
DUP: Detachable Unshielded Power Cord.
UUP: Undetachable Unshielded Power Cord.
USD: Undetachable Shielded Power Cord.
USD: Undetachable Shielded Data Cable.
DSD: Detachable Shielded Data Cable
UUD: Undetachable Unshielded Data Cable
DUD: Detachable Unshielded Data Cable

**1.4.1.2 Support Equipment List**

Equipment	Model Number	Serial Number	EMC Approved	Manufacturer	Description	
					Data Cable	Power Cable
Monitor (LCD)	SDM-X73	9273312	FCC Doc	SONY	Shielded(Braid) 1.8m, with core*2	Unshielded, 2.0m with core*2
PC	DCTA	5MCGJ1S	FCC Doc, CE Mark	DELL	(RJ45 – USB) Shielded(Braid) 2.0m with core*1	Unshielded, 1.8m
Modem	E210	106-02100258	FCC Doc, CE Mark	MITAC	Shielded(Braid) 1.0m	Unshielded 1.0m with core*1
Keyboard (USB)	Y-UR83	868017-0121	FCC Doc, CE Mark	Logitech	Shielded(Foil), 1.8m	N/A
Mouse (USB)	M-BT83	810-000361	FCC Doc	Logitech	Shielded(Foil), 1.8m	N/A
LAMP	LIGHT	N/A	N/A	HongAn	N/A	(EUT AC Outlet) Unshielded , 1.8m*8
LAMP	LIGHT	N/A	N/A	HongAn	N/A	(EUT AC Outlet) Unshielded , 1.8m*2
R	75 ohm	N/A	N/A	HongAn	(Coaxial) Shielded (Braid), 1.0m*2	N/A
R	100 ohm	N/A	N/A	APC	(UTP) Unshielded, 1.8m*2	N/A



1.4.2 EUT Exercise Software

1. Turn on the power of all support equipment.
2. Turn on the power of EUT.
3. PC read messages by EUT connect cable when Execution software of EUT.

1.4.3 Justification

The worse case of the conducted disturbance at the mains port measurement occurred at 3.815MHz (Phase), **-4.030dB**(Average) at Battery mode.

The worst case of the radiated measurements is - **4.10dB**(Vertical) occurred at 192.01MHz (Quasi Peak) ,100cm antenna height and 173degree turn table angle at Battery mode.

- ※ The EUT Model Number BX1300 test data shown as attachment (Page5-2~5-7).
- ※ The Model Number BR1500G and BR1300G test data shown as attachment (Page5-8~5-19).



2. EMI Test

2.1. Conducted Emission

All conducted emission testing was performed in accordance with ANSI C63.4 and CISPR Publication 22 inside a shielded room.

2.1.1 Conducted Emission Limit

➤ CISPR 22 /FCC Part 15

Limits for conducted disturbance at the main ports of class B ITE.

Frequency Range	Limit [dB (μV)]	
MHz	Quasi-Peak	Average
0.15~0.50	66~56	56~46
0.50~5.0	56	46
5.0~30	60	50
Notes 1-The lower limit shall apply at the transition frequencies. Notes 2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

2.1.2 Conducted Test Equipment

Instrument Name	Manufacture	Model	Serial Number	Last Cal. Date	Next Cal. Date
EMI Test Signal Analyzer	PMM	PMM 9000	4410J10302	13-JUL-2009	13-JUL-2010
LISN	EMCO	3810/2NM	9702-1820	21-JUL-2009	21-JUL-2010
LISN	Rolf Heine Hochfrequenztechnik	NNB-4/32T	00001	06-FEB-2009	06-FEB-2010

- ※ The test equipment used is calibrated and can be traced to National ITRI and International Standards
- ※ The result of the measurement, after all appropriate corrections have been made, is y and may typically be reported as follows:
The measured result is : y dB μV ±3.95dB
for a level of confidence of approximately 95%, (K=2).



2.1.3 Conducted Emission Test

2.1.3.1 Conducted Test Data

Location	: HA2	Power Mains	: 120V/60Hz
Model Name	: BX1500G	Humidity	: 53%
Description	: Phase (Line Mode)	Temperature	: 20°C

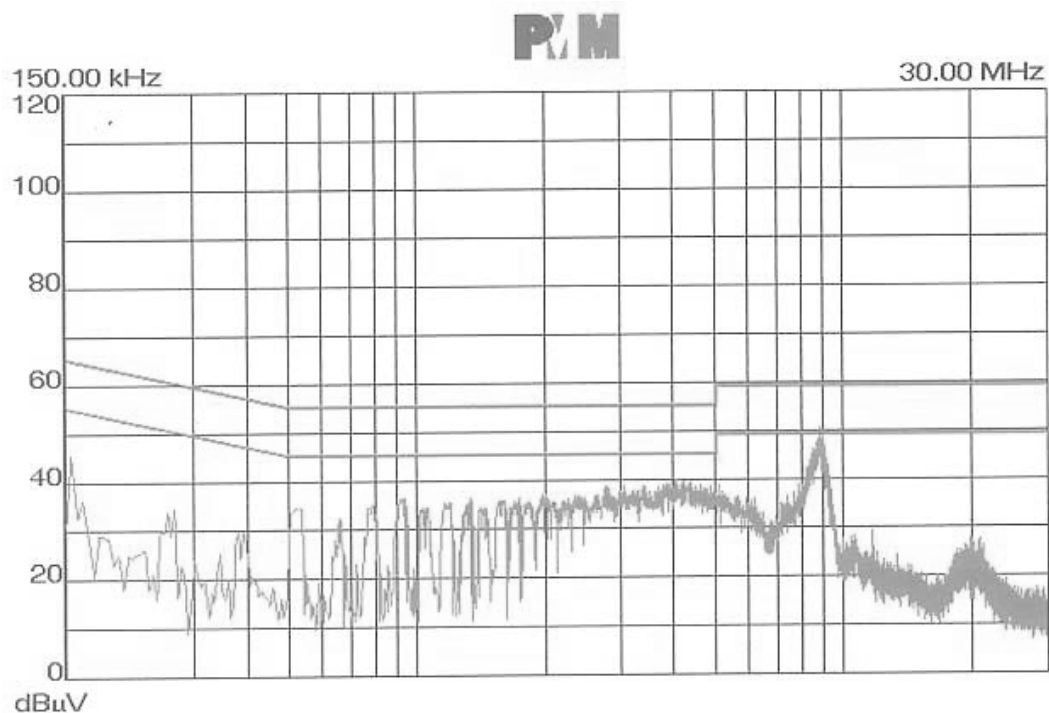
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	23.600	0.140	23.740	56.000	66.000	-32.260	P AV
0.150	47.100	0.140	47.240	56.000	66.000	-18.760	P QP
0.919	21.100	0.210	21.310	46.000	56.000	-24.690	P AV
0.919	34.500	0.210	34.710	46.000	56.000	-21.290	P QP
1.325	32.800	0.240	33.040	46.000	56.000	-22.960	P QP
1.325	15.100	0.240	15.340	46.000	56.000	-30.660	P AV
2.755	33.300	0.320	33.620	46.000	56.000	-22.380	P QP
2.755	19.800	0.320	20.120	46.000	56.000	-25.880	P AV
4.035	23.300	0.380	23.680	46.000	56.000	-22.320	P AV
4.035	34.100	0.380	34.480	46.000	56.000	-21.520	P QP
8.726	43.100	0.620	43.720	50.000	60.000	-16.280	P QP
8.726	36.300	0.620	36.920	50.000	60.000	-13.080	P AV

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CE33006

Test Date: 30- MAR-2009

Tested By: H.B.LIANG



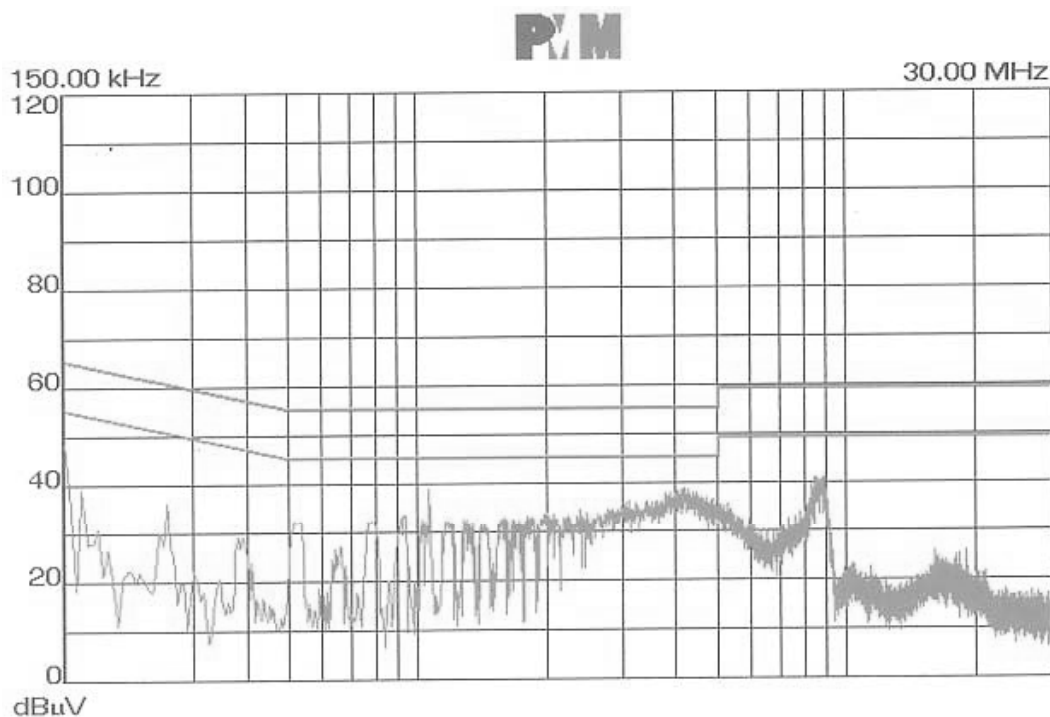
**➤ Conducted Test Data**

Location : HA2
Model Name : BX1500G
Description : Neutral (Line Mode)

Power Mains : 120V/60Hz
Humidity : 53%
Temperature : 20°C

Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	26.200	0.140	26.340	56.000	66.000	-29.660	N AV
0.150	48.300	0.140	48.440	56.000	66.000	-17.560	N QP
0.263	33.100	0.150	33.250	51.330	61.330	-28.080	N QP
0.263	22.600	0.150	22.750	51.330	61.330	-28.580	N AV
0.511	30.700	0.180	30.880	46.000	56.000	-25.120	N QP
0.511	21.600	0.180	21.780	46.000	56.000	-24.220	N AV
2.101	14.300	0.270	14.570	46.000	56.000	-31.430	N AV
2.101	28.600	0.270	28.870	46.000	56.000	-27.130	N QP
4.115	33.300	0.380	33.680	46.000	56.000	-22.320	N QP
4.115	22.600	0.380	22.980	46.000	56.000	-23.020	N AV
8.490	27.300	0.610	27.910	50.000	60.000	-22.090	N AV
8.490	34.200	0.610	34.810	50.000	60.000	-25.190	N QP

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CE33006**Test Date:** 30-MAR-2009**Tested By:** H.B.LIANG

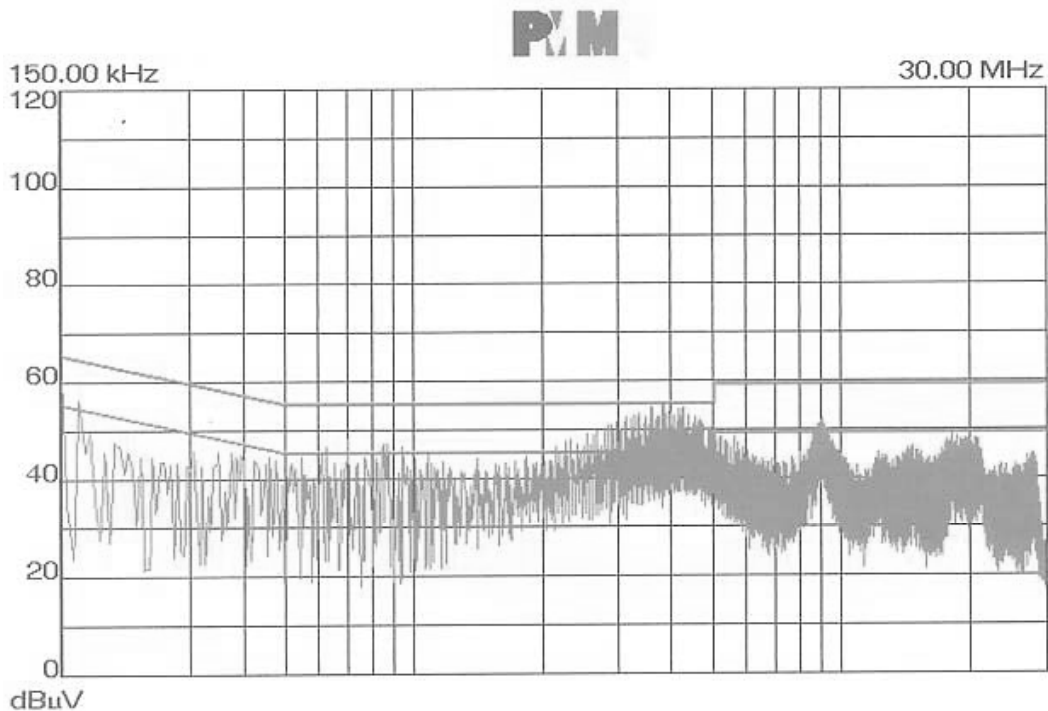


➤ **Conducted Test Data**

Location	: HA2	Power Mains	: OV
Model Name	: BX1500G	Humidity	: 53%
Description	: Phase (Battery Mode)	Temperature	: 20°C

Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin DB	Note
0.157	27.100	0.140	27.240	55.620	65.620	-28.380	P AV
0.157	54.400	0.140	54.540	55.620	65.620	-11.080	P QP
0.693	33.800	0.190	33.990	46.000	56.000	-12.010	P AV
0.693	39.000	0.190	39.190	46.000	56.000	-16.810	P QP
0.935	34.200	0.210	34.410	46.000	56.000	-11.590	P AV
0.935	39.900	0.210	40.110	46.000	56.000	-15.890	P QP
3.565	49.500	0.360	49.860	46.000	56.000	-6.140	P QP
3.565	39.700	0.360	40.060	46.000	56.000	-5.940	P AV
3.815	41.600	0.370	41.970	46.000	56.000	-4.030	P AV
3.815	50.300	0.370	50.670	46.000	56.000	-5.330	P QP
8.958	46.900	0.630	47.530	50.000	60.000	-12.470	P QP
8.958	42.500	0.630	43.130	50.000	60.000	-6.870	P AV

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CE33005**Test Date:** 30-MAR-2009**Tested By:** H.B.LIANG



➤ **Conducted Test Data**

Location : HA2
Model Name : BX1500G
Description : Neutral (Battery Mode)

Power Mains : OV
Humidity : 53%
Temperature : 20°C

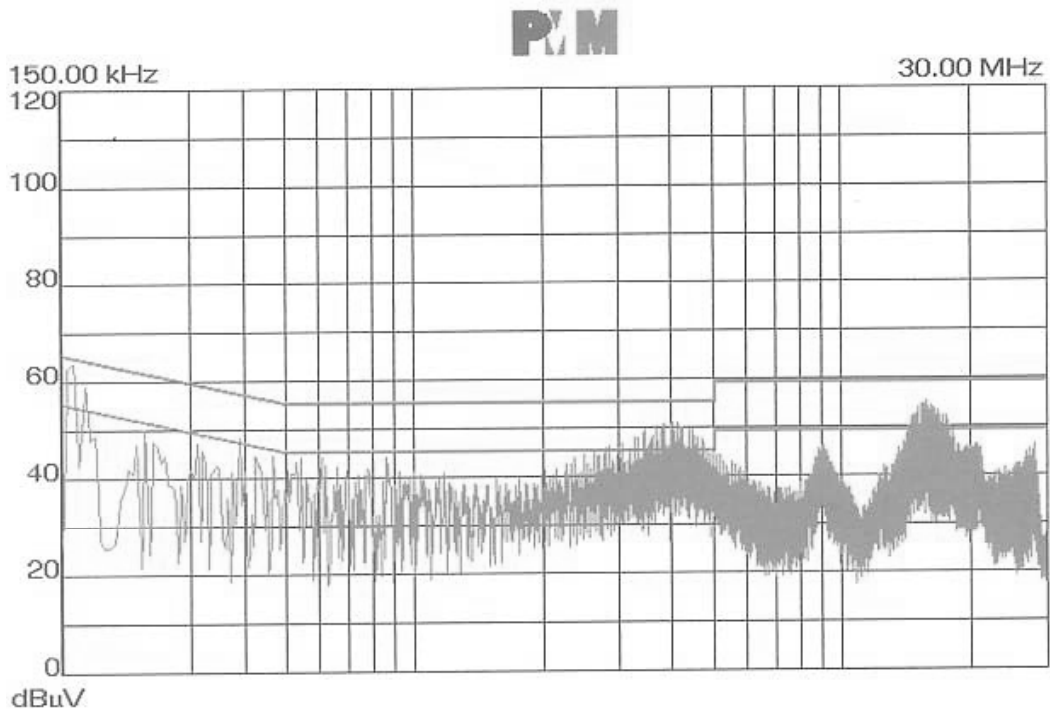
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	26.100	0.110	26.210	56.000	66.000	-29.790	N AV
0.150	52.300	0.110	52.410	56.000	66.000	-13.590	N QP
0.157	57.000	0.110	57.110	55.620	65.620	-8.510	N QP
0.157	29.500	0.110	29.610	55.620	65.620	-26.010	N AV
0.391	42.300	0.130	42.430	48.040	58.040	-15.610	N QP
0.391	34.000	0.130	34.130	48.040	58.040	-13.910	N AV
3.451	39.500	0.300	39.800	46.000	56.000	-6.200	N AV
3.451	44.600	0.300	44.900	46.000	56.000	-11.100	N QP
3.956	41.000	0.320	41.320	46.000	56.000	-4.680	N AV
3.956	48.200	0.320	48.520	46.000	56.000	-7.480	N QP
15.349	50.900	0.730	51.630	50.000	60.000	-8.370	N QP
15.349	39.300	0.730	40.030	50.000	60.000	-9.970	N AV

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CE33005

Test Date: 30-MAR-2009

Tested By: H.B.LIANG





2.2 Radiated Emission

All radiated testing was performed on the site referenced in accordance with ANSIC 63.4 and CISPR22

2.2.1 Radiated Emission Limit

➤ CISPR 22

Frequency range (MHz)	Test distance (meter)	Quasi-Peak limits [dB (μV)]
30~230	10	30
230~1000	10	37
Notes1-The lower limit shall apply at the transition frequencies. Notes2-Additional provisions may be required for cases where interference occurs.		

➤ FCC Part 15

Frequency range (MHz)	Test distance (meter)	Limits [dB (μV)]
30~88	3	40
88~216	3	43.5
216~960	3	46
960Above	3	54
Notes1- On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function and related measurement band widths, unless otherwise specified. Notes2- On any frequency or frequencies above 1000 MHz, unless otherwise stated, the radiated limits shown based on the use of measurement instrumentation employing an average detector function.		

2.2.2 Radiated Test Equipment

Instrument Name	Manufacture	Model Number	Serial Number	Last Cal. Date	Next Cal. Date
EMI Test Signal Analyzer	PMM	PMM 9000	4410J10302	13-JUL-2009	13-JUL-2010
Spectrum Analyzer	ADVANTEST	R3172	101202158	24-JUN-2009	24-JUN-2010
Preamplifier	CHASE	CPA 9231A	3310	09-JUL-2009	09-JUL-2010
Bilog Antenna	CHASE	CBL 6112B	2860	12-AUG-2009	12-AUG-2010

- ※ The test equipment used is calibrated and can be traced to National ITRI and International Standards.
- ※ The result of the measurement, after all appropriate corrections have been made, is y and may typically be reported as follows:
The measured result is : y dB μV ± 5.04dB
for a level of confidence of approximately 95%, (K=2).



2.2.3 Radiated Emission Test

2.2.3.1 Radiated Test Data

The following data lists the significant emission frequencies measured levels, correction factor (includes cable and antenna corrections) plus the limit. Explanation of the correction factor is given in

paragraph 2.2.4

Location : HA2
Model Name : BX1500G
Description : Line Mode

Humidity : 40%
Temperature : 22°C

Frequency (MHz)	Receiver Reading dB(μV)	Corr. Factor dB	Corr. Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.46	2.22	19.19	21.41	30.00	-8.59	H	400	0	QP
30.63	5.29	19.12	24.41	30.00	-5.59	V	100	175	QP
36.09	4.67	16.65	21.32	30.00	-8.68	H	400	176	
40.26	8.43	13.70	22.13	30.00	-7.87	V	100	57	
49.72	7.57	8.84	16.41	30.00	-13.59	H	400	196	
59.87	12.94	7.40	20.34	30.00	-9.66	V	100	43	
113.13	7.25	13.44	20.69	30.00	-9.31	V	100	182	
144.52	3.39	12.04	15.43	30.00	-14.57	H	400	97	
157.80	4.30	11.70	16.00	30.00	-14.00	V	100	149	
192.00	14.32	10.54	24.86	30.00	-5.14	H	400	241	
192.00	13.97	10.54	24.51	30.00	-5.49	V	100	43	
288.01	8.76	15.14	23.90	37.00	-13.10	H	400	82	

- Negative number in the margin column indicates the amount (in dB) that the recorded emission is Below the limit.
- V means in Vertical Antenna Polarization, H means in Horizontal, QP means in Quasi-Peak, and AV means in average.
- Unless stated otherwise, all readings are measured peak with an IF bandwidth not less than 120KHz.
- Above 1 GHz test used a receiver bandwidth of 1 MHz.
- If a spectrum analyzer is used, the sweep time and video filter settings will not affect the readings.
- Radiated emissions for this type of product do not change with the AC power operating voltage.
- This mast was positioned such that the distance from the antenna to the system under test was 10 meter, except required testing above 1 GHz which is performed at a distance of 3 meter.
- The measurement in the margin limit column indicates the amount in (dB) that the recorded emission 0~6 dB is acceptable for open case.

Test Number: 2RE40207

Test Date: 02-APR-2009

Tested By: H.B.LIANG



➤ **Radiated Test Data**

Location : HA2

Model Name : BX1500G

Description : Battery Mode

Humidity : 40%

Temperature : 22°C

Frequency (MHz)	Receiver Reading dB(μV)	Corr. Factor dB	Corr. Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.70	0.00	19.09	19.09	30.00	-10.91	H	400	0	QP
31.16	6.61	18.91	25.52	30.00	-4.48	V	100	0	QP
33.13	3.57	18.16	21.73	30.00	-8.27	H	400	21	
41.07	8.25	13.31	21.56	30.00	-8.44	V	100	284	
55.34	13.94	7.96	21.90	30.00	-8.10	V	100	96	
60.74	10.09	7.35	17.44	30.00	-12.56	H	400	276	
70.65	14.13	7.05	21.18	30.00	-8.82	V	100	241	
84.98	6.57	9.04	15.61	30.00	-14.39	H	400	184	
153.93	4.32	11.70	16.02	30.00	-13.98	H	400	136	
192.00	15.10	10.54	25.64	30.00	-4.36	H	400	231	QP
192.01	15.35	10.55	25.90	30.00	-4.10	V	100	173	QP
209.78	8.91	10.98	19.89	30.00	-10.11	V	100	186	

- Negative number in the margin column indicates the amount (in dB) that the recorded emission is Below the limit.
- V means in Vertical Antenna Polarization, H means in Horizontal, QP means in Quasi-Peak, and AV means in average.
- Unless stated otherwise, all readings are measured peak with an IF bandwidth not less than 120KHz.
- Above 1 GHz test used a receiver bandwidth of 1 MHz.
- If a spectrum analyzer is used, the sweep time and video filter settings will not affect the readings.
- Radiated emissions for this type of product do not change with the AC power operating voltage.
- This mast was positioned such that the distance from the antenna to the system under test was 10 meter, except required testing above 1 GHz which is performed at a distance of 3 meter.
- The measurement in the margin limit column indicates the amount in (dB) that the recorded emission 0~6 dB is acceptable for open case

Test Number: 2RE40206

Test Date: 02-APR-2009

Tested By: H.B.LIANG



2.2.4 Field Strength Calculation

The field strength is calculated by adding the Correction factor to the receiver or analyzer reading to determine the resultant field strength.

The correction factor is determined by adding the antenna factor and the loss of the cables connection the antenna to the receiver.

Front-end amplifier gain – if any – is accounted for in the receiver reading.

The basic equation with a sample calculation is as follows:

$$FS = RA + CF$$

Where the Correction factor CF is the sum of the Antenna Factor AF and the Cable loss factor CL;

$$CF = AF + CL$$

FS = Field Strength

AF = Antenna Factor

CL = Cable Loss factor

RA = Receiver Amplitude

Assume a receiver reading of 22dB(μ V/m) is obtained. The Antenna factor of 7.4 dB and a cable loss factor of 1.1 dB are added to yield 8.5 dB Correction Factor.

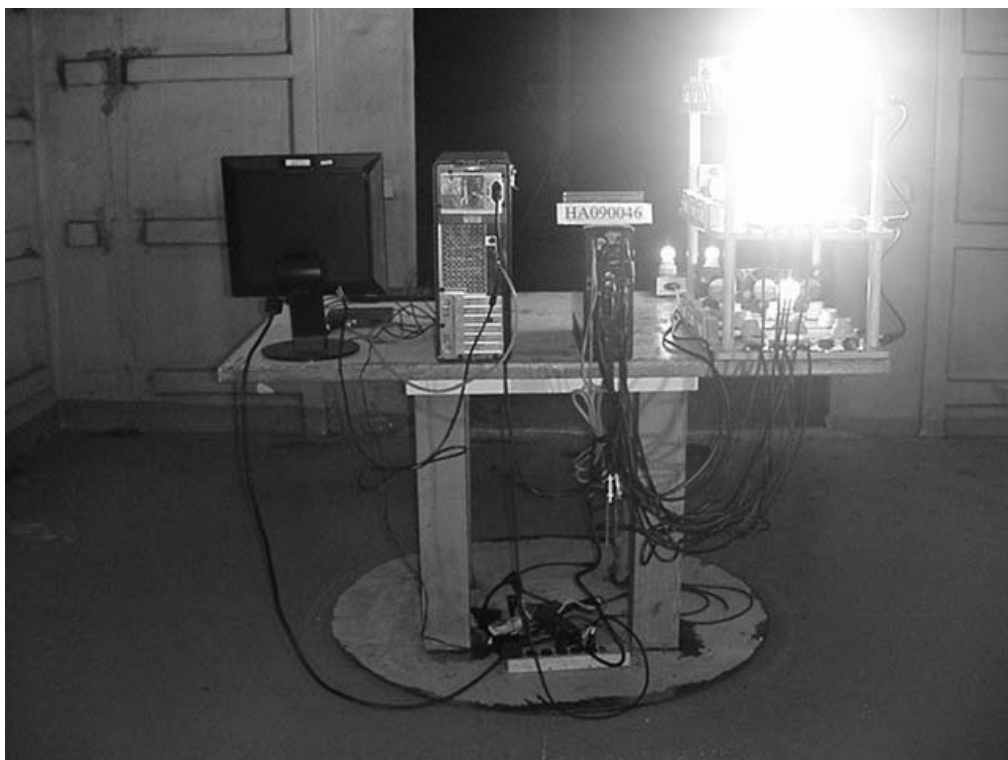
The Calculated Field Strength is the sum of $22 + 8.5 = 30.5$ dB (μ V/m).

All values are listed as dB, either referenced to 1 μ V or 1 μ V/m.



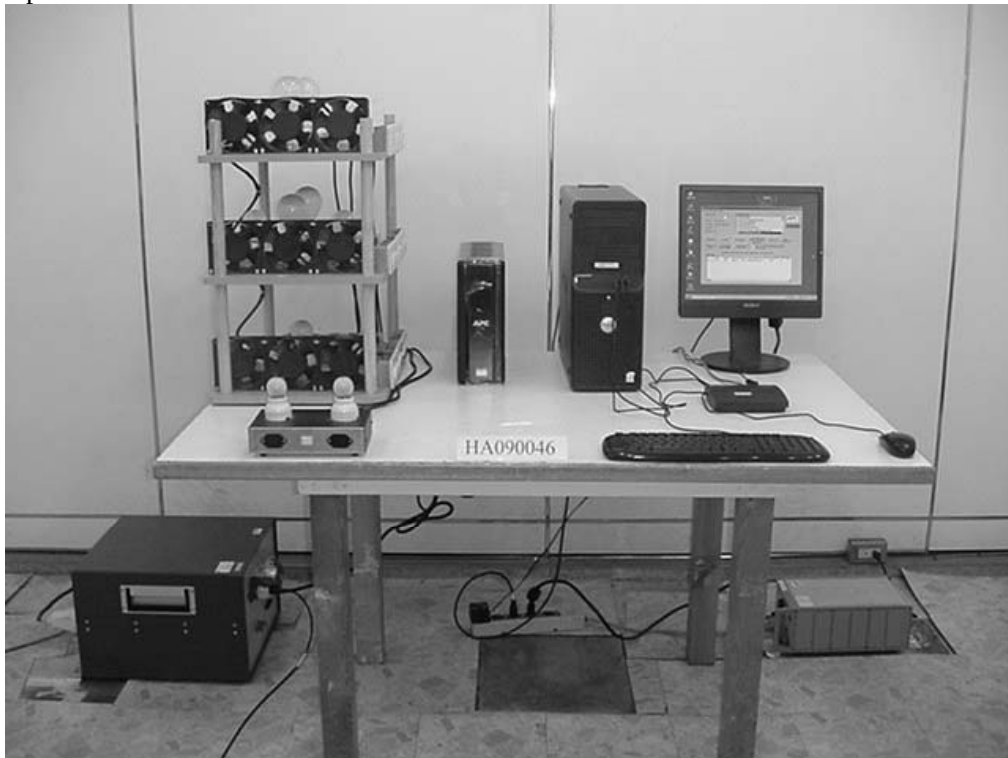
3. Photographs of Test Setup

3.1 Test Setup of Radiated Emission Test





3.2 Test Setup of Conducted Emission Test





4. Photographs of EUT

4.1 EUT Front Side (BX1500G)



4.2 EUT Rear Side (BX1500G)





4.3 EUT Front Side (BX1300G)



4.4 EUT Rear Side (BX1300G)





4.3 EUT Front Side (BR1500G)



4.3 EUT Rear Side (BR1500G)

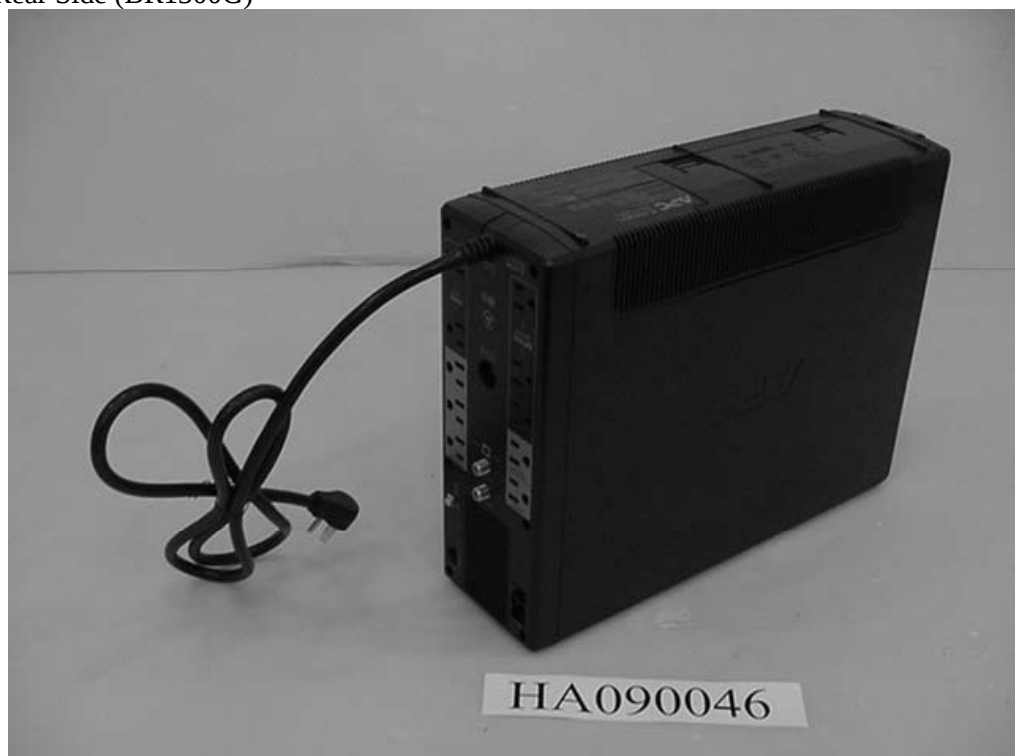




4.3 EUT Front Side (BR1300G)



4.3 EUT Rear Side (BR1300G)





5. Attached Test Data

➤	Model Name: BX1300G	Page
✧	Conducted Test Data	5-2
✧	Radiated Test Data	5-6
➤	Model Name: BR1500G&BR1300G	
✧	Conducted Test Data	5-8
✧	Radiated Test Data	

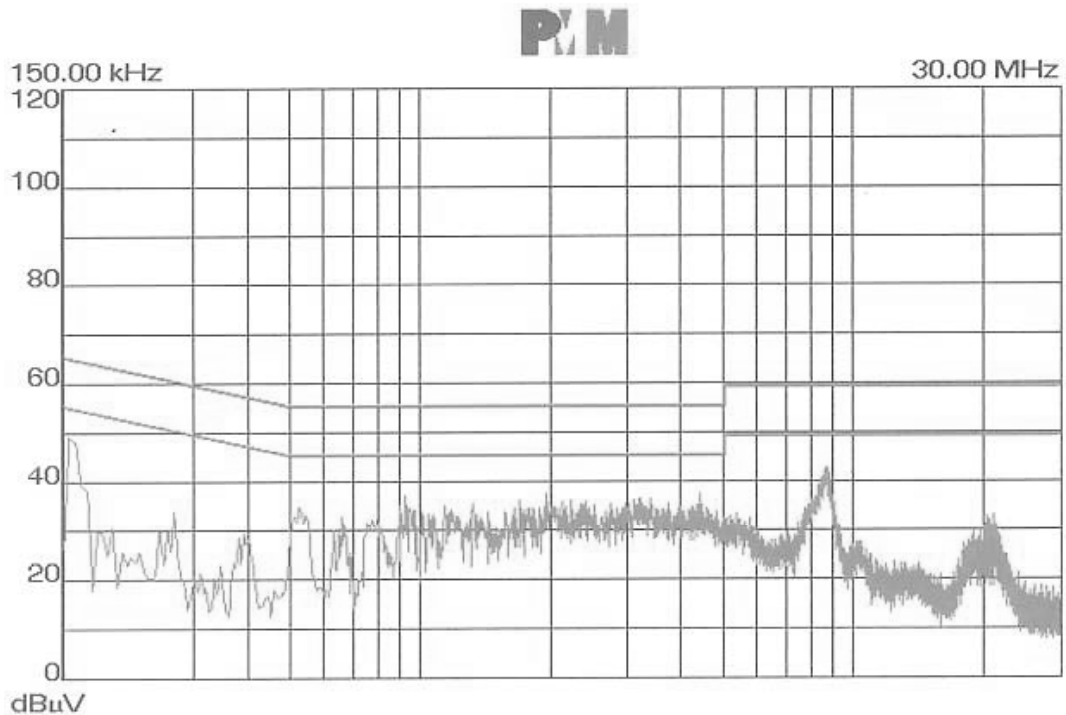


➤ **Conducted Test Data**

Location	: HA2	Power Mains	: 120V/60Hz
Model Name	: BX1300G	Humidity	: 54%
Description	: Phase (Line Mode)	Temperature	: 20°C

Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	50.100	0.140	50.240	56.000	66.000	-15.760	P QP
0.150	34.400	0.140	34.540	56.000	66.000	-21.460	P AV
0.525	26.200	0.180	26.380	46.000	56.000	-19.620	P AV
0.525	33.100	0.180	33.280	46.000	56.000	-22.720	P QP
0.920	32.600	0.210	32.810	46.000	56.000	-23.190	P QP
0.920	22.800	0.210	23.010	46.000	56.000	-22.990	P AV
1.935	21.200	0.260	21.460	46.000	56.000	-24.540	P AV
1.935	29.100	0.260	29.360	46.000	56.000	-26.640	P QP
4.395	29.300	0.400	29.700	46.000	56.000	-26.300	P QP
4.395	21.900	0.400	22.300	46.000	56.000	-23.700	P AV
8.610	31.400	0.620	32.020	50.000	60.000	-17.980	P AV
8.610	36.200	0.620	36.820	50.000	60.000	-23.180	P QP

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CE33004**Test Date:** 30- MAR-2009**Tested By:** H.B.LIANG



➤ **Conducted Test Data**

Location : HA2
Model Name : BX1300G
Description : Neutral (Line Mode)

Power Mains : 120V/60Hz
Humidity : 54%
Temperature : 20°C

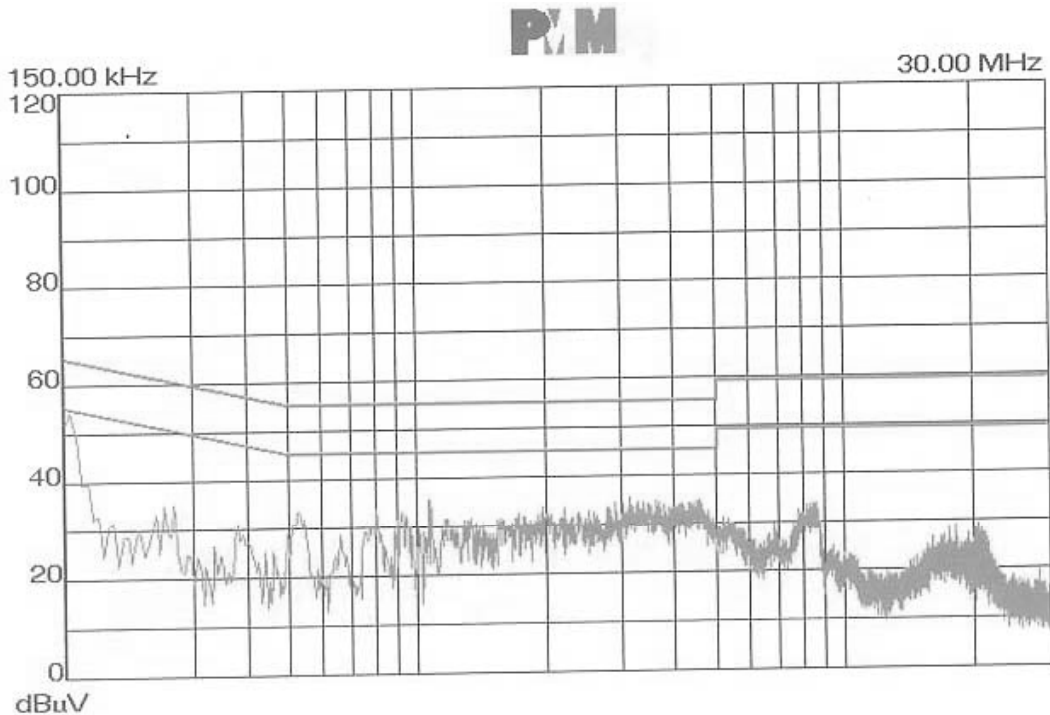
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	51.100	0.110	51.210	56.000	66.000	-14.790	N QP
0.150	34.500	0.110	34.610	56.000	66.000	-21.390	N AV
0.165	26.700	0.110	26.810	55.200	65.200	-28.390	N AV
0.165	39.100	0.110	39.210	55.200	65.200	-25.990	N QP
0.523	24.700	0.150	24.850	46.000	56.000	-21.150	N AV
0.523	32.200	0.150	32.350	46.000	56.000	-23.650	N QP
0.928	31.600	0.180	31.780	46.000	56.000	-24.220	N QP
0.928	19.300	0.180	19.480	46.000	56.000	-26.520	N AV
1.990	27.800	0.220	28.020	46.000	56.000	-27.980	N QP
1.990	19.300	0.220	19.520	46.000	56.000	-26.480	N AV
4.025	23.400	0.330	23.730	46.000	56.000	-22.270	N AV
4.025	29.100	0.330	29.430	46.000	56.000	-26.570	N QP

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CE33004

Test Date: 30-MAR-2009

Tested By: H.B.LIANG



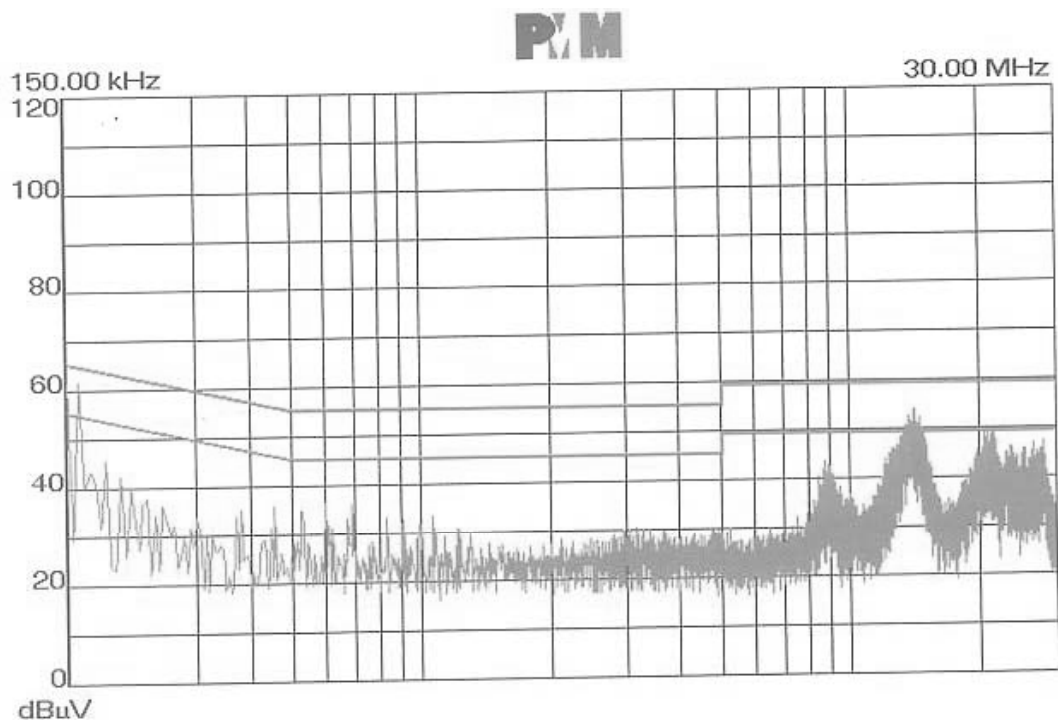


➤ **Conducted Test Data**

Location	: HA2	Power Mains	: OV
Model Name	: BX1300G	Humidity	: 54%
Description	: Phase (Battery Mode)	Temperature	: 20°C

Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin DB	Note
0.150	55.700	0.110	55.810	56.000	66.000	-10.190	P QP
0.150	29.500	0.110	29.610	56.000	66.000	-26.390	P AV
0.159	26.500	0.110	26.610	55.510	65.510	-28.900	P AV
0.159	55.900	0.110	56.010	55.510	65.510	-9.500	P QP
0.684	16.900	0.160	17.060	46.000	56.000	-28.940	P AV
0.684	28.600	0.160	28.760	46.000	56.000	-27.240	P QP
13.978	35.500	0.690	36.190	50.000	60.000	-13.810	P AV
13.978	43.500	0.690	44.190	50.000	60.000	-15.810	P QP
20.614	43.000	0.850	43.850	50.000	60.000	-16.150	P QP
20.614	31.900	0.850	32.750	50.000	60.000	-17.250	P AV
27.915	37.700	0.960	38.660	50.000	60.000	-21.340	P QP
27.915	25.600	0.960	26.560	50.000	60.000	-23.440	P AV

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CE33003**Test Date:** 30-MAR-2009**Tested By:** H.B.LIANG

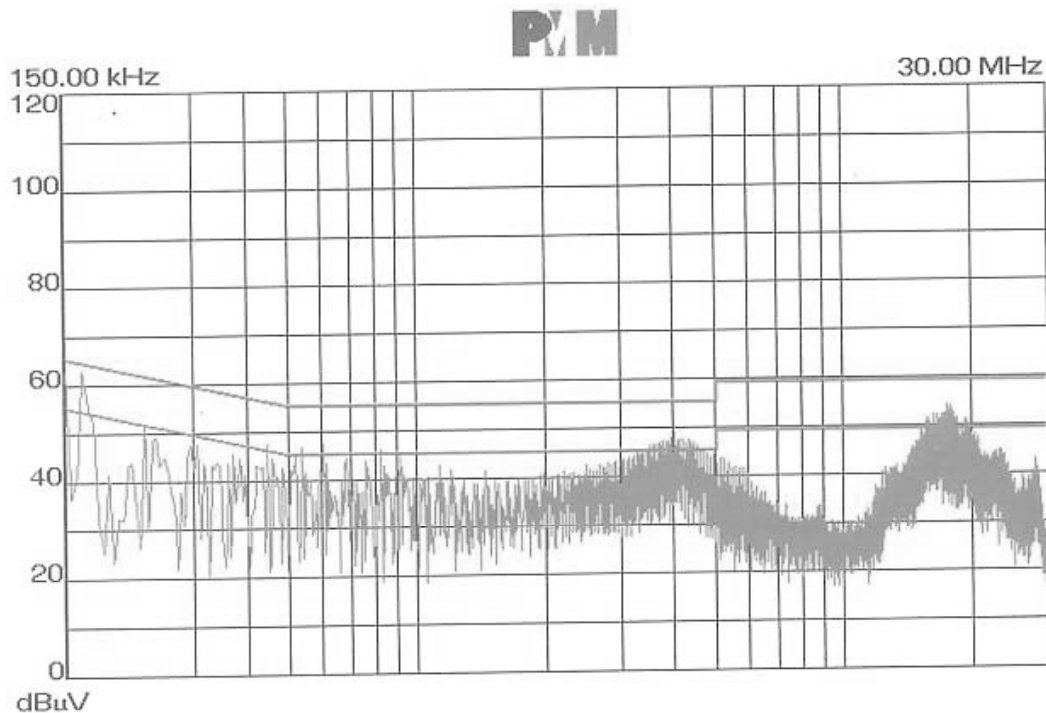
**➤ Conducted Test Data**

Location : HA2
Model Name : BX1300G
Description : Neutral (Battery Mode)

Power Mains : OV
Humidity : 54%
Temperature : 20°C

Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	30.000	0.110	30.110	56.000	66.000	-25.890	N AV
0.150	56.800	0.110	56.910	56.000	66.000	-9.090	N QP
0.161	58.400	0.110	58.510	55.410	65.410	-6.900	N QP
0.161	31.100	0.110	31.210	55.410	65.410	-24.200	N AV
0.299	37.200	0.120	37.320	50.270	60.270	-12.950	N AV
0.299	42.500	0.120	42.620	50.270	60.270	-17.650	N QP
0.599	34.700	0.160	34.860	46.000	56.000	-11.140	N AV
0.599	39.000	0.160	39.160	46.000	56.000	-16.840	N QP
4.008	35.700	0.330	36.030	46.000	56.000	-19.970	N QP
4.008	27.600	0.330	27.930	46.000	56.000	-18.070	N AV
17.459	31.600	0.780	32.380	50.000	60.000	-17.620	N AV
17.459	49.700	0.780	50.480	50.000	60.000	-9.520	N QP

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CE33003**Test Date:** 30-MAR-2009**Tested By:** H.B.LIANG



➤ **Radiated Test Data**

Location : HA2

Model Name : BX1300G

Description : Line Mode

Humidity : 40%

Temperature : 21℃

Frequency (MHz)	Receiver Reading dB(μV)	Corr. Factor dB	Corr. Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.70	4.40	19.09	23.49	30.00	-6.51	V	100	105	QP
31.16	0.37	18.91	19.28	30.00	-10.72	H	100	0	
39.68	10.80	14.05	24.85	30.00	-5.15	V	100	172	
50.30	12.25	8.64	20.89	30.00	-9.11	V	100	194	
61.37	14.41	7.32	21.73	30.00	-8.27	V	100	0	
61.49	9.78	7.32	17.10	30.00	-12.90	H	400	76	
83.94	5.82	8.85	14.67	30.00	-15.33	H	400	36	
149.41	3.28	11.74	15.02	30.00	-14.98	H	400	231	
192.00	15.40	10.54	25.94	30.00	-4.06	V	100	98	QP
192.00	14.60	10.54	25.14	30.00	-4.86	H	400	218	QP
203.20	8.53	10.90	19.43	30.00	-10.57	H	400	173	
288.01	9.14	15.14	24.28	37.00	-12.72	V	100	184	

- Negative number in the margin column indicates the amount (in dB) that the recorded emission is Below the limit.
- V means in Vertical Antenna Polarization, H means in Horizontal, QP means in Quasi-Peak, and AV means in average.
- Unless stated otherwise, all readings are measured peak with an IF bandwidth not less than 120KHz.
- Above 1 GHz test used a receiver bandwidth of 1 MHz.
- If a spectrum analyzer is used, the sweep time and video filter settings will not affect the readings.
- Radiated emissions for this type of product do not change with the AC power operating voltage.
- This mast was positioned such that the distance from the antenna to the system under test was 10 meter, except required testing above 1 GHz which is performed at a distance of 3 meter.
- The measurement in the margin limit column indicates the amount (in dB) that the recorded emission 0~6 dB is acceptable for open case.

Test Number: 2RE40202

Test Date: 02-APR-2009

Tested By: H.B.LIANG

**➤ Radiated Test Data**

Location : HA2

Model Name : BX1300G

Description : Battery Mode

Humidity : 40%

Temperature : 20°C

Frequency (MHz)	Receiver Reading dB(μV)	Corr. Factor dB	Corr. Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.40	2.66	19.21	21.87	30.00	-8.13	H	400	339	
30.70	4.60	19.09	23.69	30.00	-6.31	V	100	179	QP
40.84	11.62	13.42	25.04	30.00	-4.96	V	100	0	
49.72	9.21	8.84	18.05	30.00	-11.95	H	400	249	
53.78	17.32	8.17	25.49	30.00	-4.51	V	100	186	
61.55	9.50	7.32	16.82	30.00	-13.18	H	400	259	
66.83	9.49	7.10	16.59	30.00	-13.41	H	400	312	
85.85	15.49	9.20	24.69	30.00	-5.31	V	100	173	
112.32	4.37	13.43	17.80	30.00	-12.20	H	400	69	
192.00	13.82	10.54	24.36	30.00	-5.64	H	400	270	QP
192.01	15.05	10.55	25.60	30.00	-4.40	V	100	182	QP
206.48	12.55	10.94	23.49	30.00	-6.51	V	100	205	

- Negative number in the margin column indicates the amount (in dB) that the recorded emission is Below the limit.
- V means in Vertical Antenna Polarization, H means in Horizontal, QP means in Quasi-Peak, and AV means in average.
- Unless stated otherwise, all readings are measured peak with an IF bandwidth not less than 120KHz.
- Above 1 GHz test used a receiver bandwidth of 1 MHz.
- If a spectrum analyzer is used, the sweep time and video filter settings will not affect the readings.
- Radiated emissions for this type of product do not change with the AC power operating voltage.
- This mast was positioned such that the distance from the antenna to the system under test was 10 meter, except required testing above 1 GHz which is performed at a distance of 3 meter.
- The measurement in the margin limit column indicates the amount in (dB) that the recorded emission 0~6 dB is acceptable for open case

Test Number: 2RE40201**Test Date:** 02-APR-2009**Tested By:** H.B.LIANG



➤ **Conducted Test Data**

Location : HA2
Model Name : BR1500G
Description : Phase

Power Mains : 120V/60Hz
Humidity : 60%
Temperature : 23°C

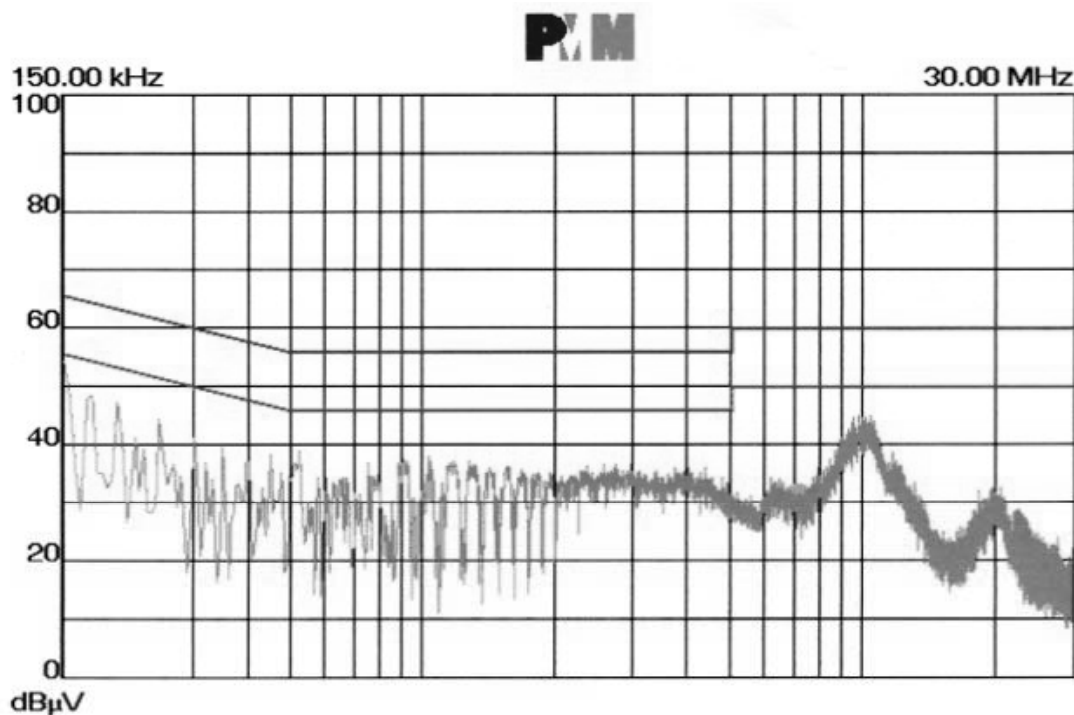
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	48.900	0.240	49.140	56.000	66.000	-6.860	P AV
0.150	54.600	0.240	54.840	56.000	66.000	-11.160	P QP
0.524	37.000	0.190	37.190	46.000	56.000	-18.810	P QP
0.524	30.200	0.190	30.390	46.000	56.000	-15.610	P AV
1.301	32.300	0.240	32.540	46.000	56.000	-23.460	P QP
1.301	22.100	0.240	22.340	46.000	56.000	-23.660	P AV
2.767	19.700	0.310	20.010	46.000	56.000	-25.990	P AV
2.767	32.200	0.310	32.510	46.000	56.000	-23.490	P QP
4.071	21.300	0.360	21.660	46.000	56.000	-24.340	P AV
4.071	31.800	0.360	32.160	46.000	56.000	-23.840	P QP
10.028	39.300	0.670	39.970	50.000	60.000	-20.030	P QP
10.028	34.900	0.670	35.570	50.000	60.000	-14.430	P AV

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CEA1906

Test Date: 19- OCT-2009

Tested By: H.B.LIANG





➤ **Conducted Test Data**

Location : HA2
Model Name : BR1500G
Description : Neutral

Power Mains : 120V/60Hz
Humidity : 60%
Temperature : 23°C

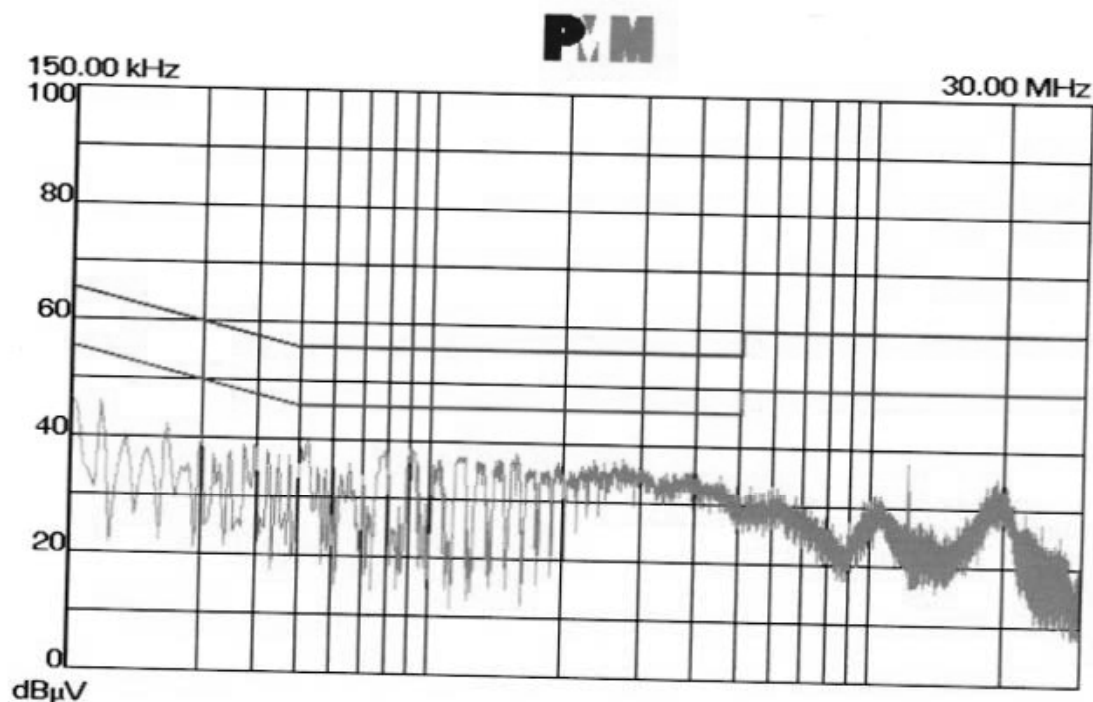
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.174	44.200	0.170	44.370	54.760	64.760	-20.390	N QP
0.174	36.300	0.170	36.470	54.760	64.760	-18.290	N AV
0.524	30.900	0.160	31.060	46.000	56.000	-14.940	N AV
0.524	37.700	0.160	37.860	46.000	56.000	-18.140	N QP
1.550	33.700	0.220	33.920	46.000	56.000	-22.080	N QP
1.550	22.000	0.220	22.220	46.000	56.000	-23.780	N AV
2.326	18.300	0.250	18.550	46.000	56.000	-27.450	N AV
2.326	31.100	0.250	31.350	46.000	56.000	-24.650	N QP
3.898	29.500	0.300	29.800	46.000	56.000	-26.200	N QP
3.898	20.100	0.300	20.400	46.000	56.000	-25.600	N AV
19.275	23.300	0.780	24.080	50.000	60.000	-25.920	N AV
19.275	28.100	0.780	28.880	50.000	60.000	-31.120	N QP

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CEA1906

Test Date: 19-OCT-2009

Tested By: H.B.LIANG



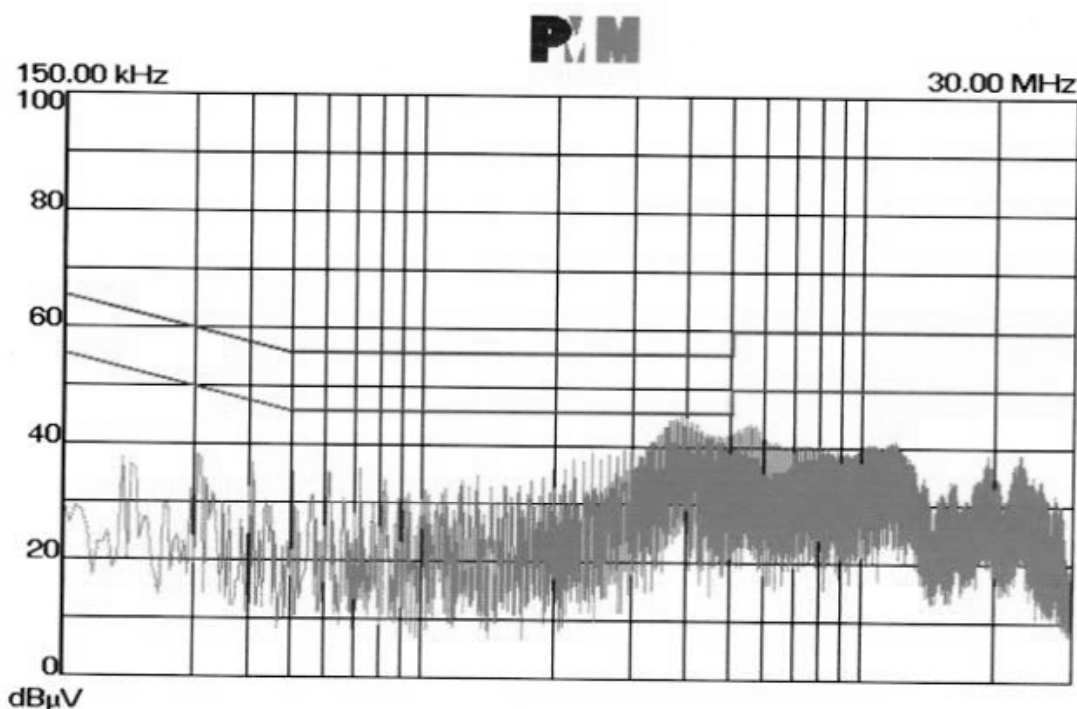
**➤ Conducted Test Data**

Location : HA2
Model Name : BR1500G
Description : Phase

Power Mains : Battery Mode
Humidity : 60%
Temperature : 23°C

Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin DB	Note
0.552	25.400	0.190	25.590	46.000	56.000	-20.410	P AV
0.552	30.300	0.190	30.490	46.000	56.000	-25.510	P QP
1.325	30.900	0.240	31.140	46.000	56.000	-24.860	P QP
1.325	26.500	0.240	26.740	46.000	56.000	-19.260	P AV
2.428	32.000	0.300	32.300	46.000	56.000	-13.700	P AV
2.428	37.200	0.300	37.500	46.000	56.000	-18.500	P QP
3.811	40.300	0.350	40.650	46.000	56.000	-5.350	P AV
3.811	46.100	0.350	46.450	46.000	56.000	-9.550	P QP
5.578	42.700	0.470	43.170	50.000	60.000	-16.830	P QP
5.578	36.500	0.470	36.970	50.000	60.000	-13.030	P AV
10.378	29.500	0.680	30.180	50.000	60.000	-19.820	P AV
10.378	39.300	0.680	39.980	50.000	60.000	-20.020	P QP

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CEA1905**Test Date:** 19-OCT-2009**Tested By:** H.B.LIANG



➤ **Conducted Test Data**

Location : HA2
Model Name : BR1500G
Description : Neutral

Power Mains : Battery Mode
Humidity : 60%
Temperature : 23°C

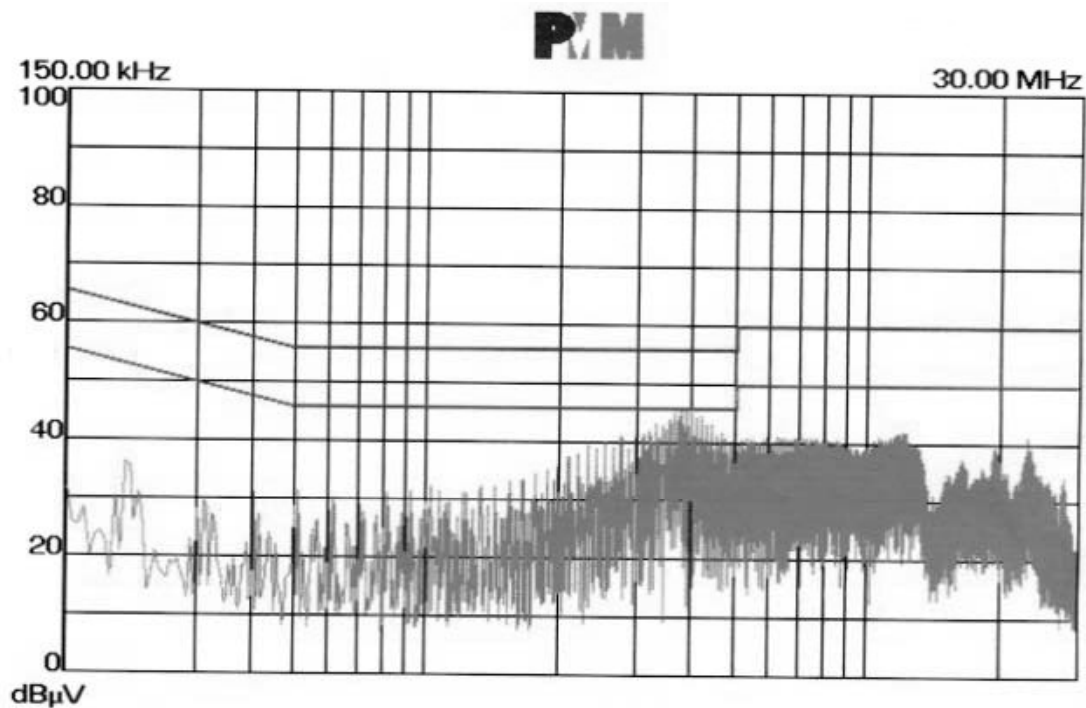
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.551	24.400	0.160	24.560	46.000	56.000	-31.440	N QP
0.551	19.300	0.160	19.460	46.000	56.000	-26.540	N AV
0.993	24.000	0.180	24.180	46.000	56.000	-21.820	N AV
0.993	29.000	0.180	29.180	46.000	56.000	-26.820	N QP
1.876	35.200	0.230	35.430	46.000	56.000	-20.570	N QP
1.876	29.600	0.230	29.830	46.000	56.000	-16.170	N AV
2.758	33.100	0.270	33.370	46.000	56.000	-12.630	N AV
2.758	38.600	0.270	38.870	46.000	56.000	-17.130	N QP
3.856	44.000	0.300	44.300	46.000	56.000	-11.700	N QP
3.856	36.100	0.300	36.400	46.000	56.000	-9.600	N AV
11.722	27.700	0.620	28.320	50.000	60.000	-21.680	N AV
11.722	35.900	0.620	36.520	50.000	60.000	-23.480	N QP

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CEA1905

Test Date: 19-OCT-2009

Tested By: H.B.LIANG





➤ **Conducted Test Data**

Location : HA2
Model Name : BR1300G
Description : Phase

Power Mains : 120V/60Hz
Humidity : 48%
Temperature : 23°C

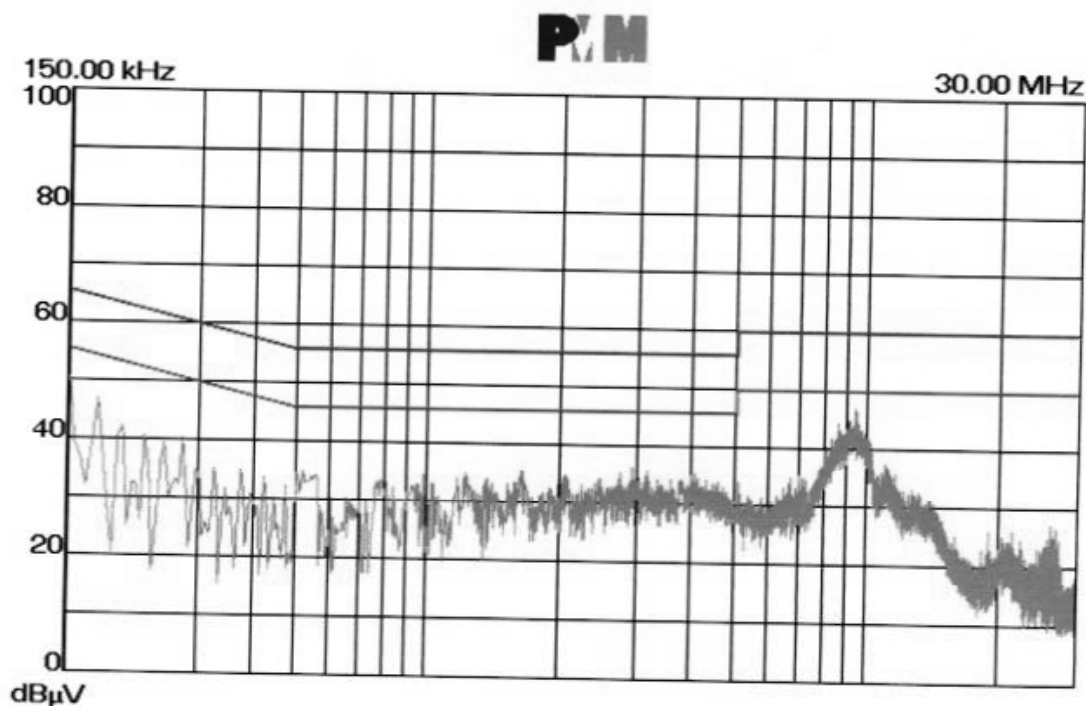
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	44.600	0.240	44.840	56.000	66.000	-11.160	P AV
0.150	50.300	0.240	50.540	56.000	66.000	-15.460	P QP
0.526	33.200	0.190	33.390	46.000	56.000	-22.610	P QP
0.526	26.900	0.190	27.090	46.000	56.000	-18.910	P AV
1.601	19.800	0.260	20.060	46.000	56.000	-25.940	P AV
1.601	28.200	0.260	28.460	46.000	56.000	-27.540	P QP
2.727	29.100	0.310	29.410	46.000	56.000	-26.590	P QP
2.727	20.400	0.310	20.710	46.000	56.000	-25.290	P AV
3.954	22.000	0.350	22.350	46.000	56.000	-23.650	P AV
3.954	29.500	0.350	29.850	46.000	56.000	-26.150	P QP
9.260	37.500	0.640	38.140	50.000	60.000	-21.860	P QP
9.260	32.700	0.640	33.340	50.000	60.000	-16.660	P AV

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CEA1902

Test Date: 19- OCT -2009

Tested By: H.B.LIANG





➤ **Conducted Test Data**

Location : HA2
Model Name : BR1300G
Description : Neutral

Power Mains : 120V/60Hz
Humidity : 48%
Temperature : 23°C

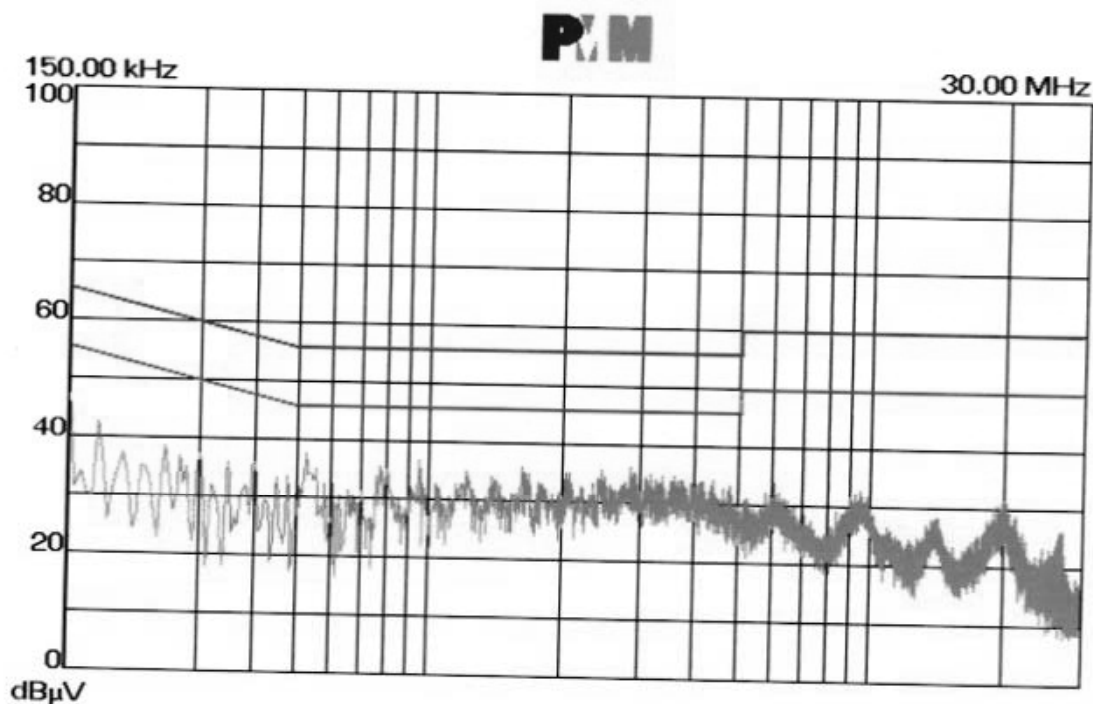
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.150	41.300	0.210	41.510	56.000	66.000	-14.490	N AV
0.150	47.600	0.210	47.810	56.000	66.000	-18.190	N QP
0.525	34.300	0.160	34.460	46.000	56.000	-21.540	N QP
0.525	27.800	0.160	27.960	46.000	56.000	-18.040	N AV
0.947	23.200	0.180	23.380	46.000	56.000	-22.620	N AV
0.947	30.300	0.180	30.480	46.000	56.000	-25.520	N QP
1.614	20.500	0.220	20.720	46.000	56.000	-25.280	N AV
1.614	30.100	0.220	30.320	46.000	56.000	-25.680	N QP
2.434	29.100	0.250	29.350	46.000	56.000	-26.650	N QP
2.434	20.300	0.250	20.550	46.000	56.000	-25.450	N AV
4.100	27.400	0.310	27.710	46.000	56.000	-28.290	N QP
4.100	20.800	0.310	21.110	46.000	56.000	-24.890	N AV

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CEA1902

Test Date: 19-OCT-2009

Tested By: H.B.LIANG





➤ **Conducted Test Data**

Location : HA2
Model Name : BR1300G
Description : Phase

Power Mains : Battery Mode
Humidity : 48%
Temperature : 23°C

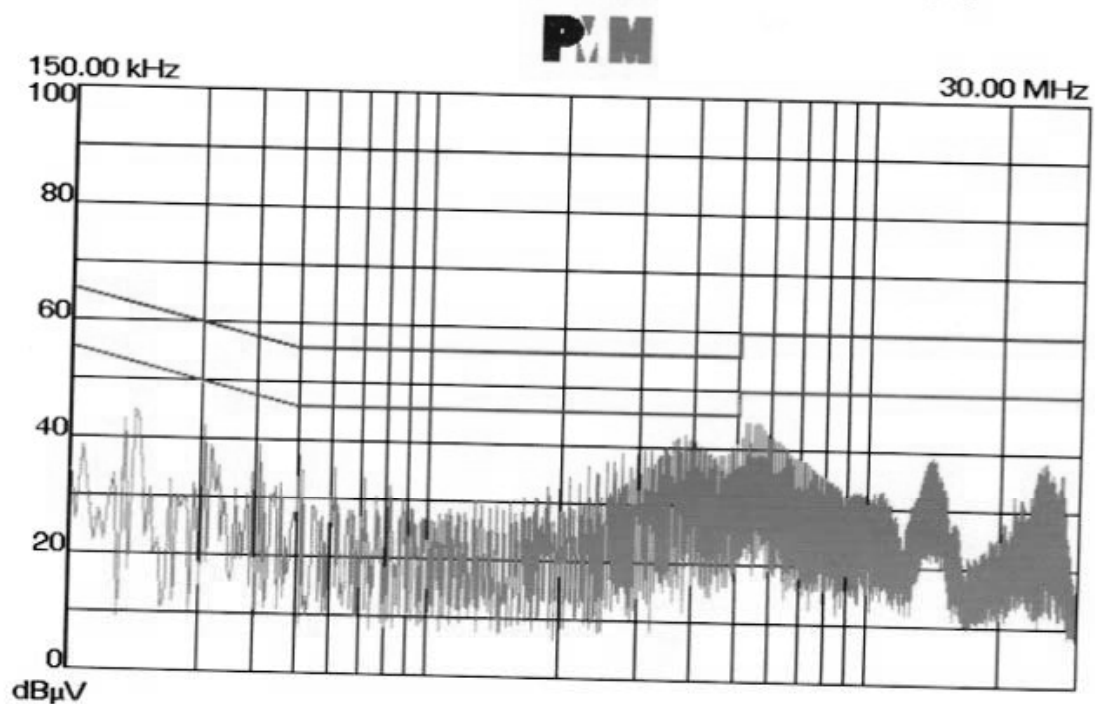
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin DB	Note
0.219	36.600	0.170	36.770	52.850	62.850	-26.080	P QP
0.219	31.100	0.170	31.270	52.850	62.850	-21.580	P AV
0.550	24.900	0.190	25.090	46.000	56.000	-20.910	P AV
0.550	25.800	0.190	25.990	46.000	56.000	-30.010	P QP
1.319	26.300	0.240	26.540	46.000	56.000	-19.460	P AV
1.319	28.400	0.240	28.640	46.000	56.000	-27.360	P QP
2.308	35.700	0.290	35.990	46.000	56.000	-20.010	P QP
2.308	32.300	0.290	32.590	46.000	56.000	-13.410	P AV
3.786	38.600	0.350	38.950	46.000	56.000	-7.050	P AV
3.786	43.000	0.350	43.350	46.000	56.000	-12.650	P QP
5.208	44.100	0.440	44.540	50.000	60.000	-15.460	P QP
5.208	35.400	0.440	35.840	50.000	60.000	-14.160	P AV

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CEA1901

Test Date: 19-OCT-2009

Tested By: H.B.LIANG



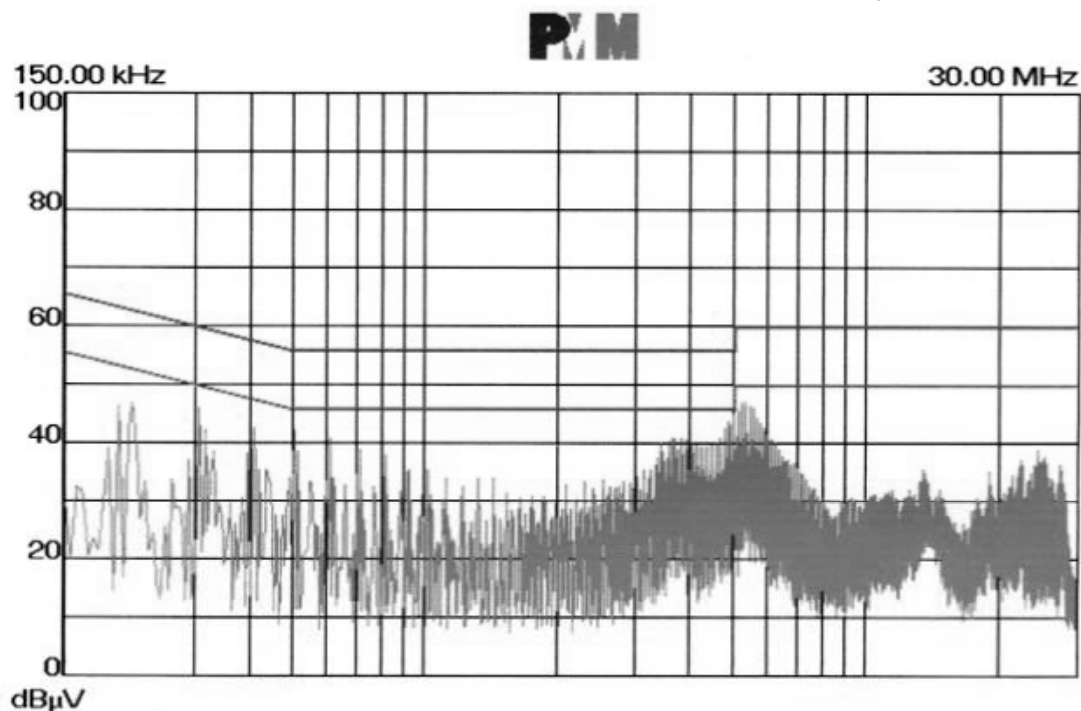
**➤ Conducted Test Data**

Location : HA2
Model Name : BR1300G
Description : Neutral

Power Mains : Battery Mode
Humidity : 48%
Temperature : 23°C

Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.217	39.800	0.140	39.940	52.930	62.930	-22.990	N QP
0.217	34.400	0.140	34.540	52.930	62.930	-18.390	N AV
0.508	8.200	0.160	8.360	46.000	56.000	-37.640	N AV
0.508	36.700	0.160	36.860	46.000	56.000	-19.140	N QP
1.023	30.400	0.190	30.590	46.000	56.000	-25.410	N QP
1.023	2.100	0.190	2.290	46.000	56.000	-43.710	N AV
3.681	38.800	0.300	39.100	46.000	56.000	-6.900	N AV
3.681	42.000	0.300	42.300	46.000	56.000	-13.700	N QP
4.998	43.100	0.370	43.470	46.000	56.000	-12.530	N QP
4.998	37.500	0.370	37.870	46.000	56.000	-8.130	N AV
5.333	40.900	0.390	41.290	50.000	60.000	-8.710	N AV
5.333	44.300	0.390	44.690	50.000	60.000	-15.310	N QP

- Peak, Average and QP signifies the measurement detector used for performing measurements.
- Negative number in the margin column indicates the amount (in dB) that the recorded emission is below the limit.
- P denotes Phase, N denotes Neutral, AV denotes Average, QP denotes Quasi-Peak.
- For the same frequency only the highest reading of Phase or Neutral conductor is reported.
- Correction Factor = Insertion loss + Cable loss.
- Margin value = (Measured + Correction Factor) – limit value.
- All tested equipment is within calibration and are operated in accordance with the instructions of the manufacturers.

Test Number: 2CEA1901**Test Date:** 19-OCT-2009**Tested By:** H.B.LIANG



➤ **Radiated Test Data**

Location : HA2

Model Name : BR1500G

Description : 120V/60Hz

Humidity : 60%

Temperature : 25°C

Frequency (MHz)	Receiver Reading dB(μV)	Corr. Factor dB	Corr. Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.40	3.46	19.25	22.71	30.00	-7.29	H	112	196	QP
30.90	6.80	18.97	25.77	30.00	-4.23	V	400	342	QP
58.07	8.72	8.32	17.04	30.00	-12.96	H	394	107	
58.48	13.20	8.25	21.45	30.00	-8.55	V	104	219	QP
68.04	16.73	7.87	24.60	30.00	-5.40	V	108	265	
70.71	10.34	7.90	18.24	30.00	-11.76	H	391	275	
112.04	7.77	13.60	21.37	30.00	-8.63	V	110	308	
113.39	4.45	13.63	18.08	30.00	-11.92	H	400	94	
144.51	2.20	12.54	14.74	30.00	-15.26	H	106	37	
145.13	8.58	12.49	21.07	30.00	-8.93	V	100	123	
192.00	9.85	10.73	20.58	30.00	-9.42	V	114	193	
192.01	9.90	10.73	20.63	30.00	-9.37	H	384	213	

- Negative number in the margin column indicates the amount (in dB) that the recorded emission is Below the limit.
- V means in Vertical Antenna Polarization, H means in Horizontal, QP means in Quasi-Peak, and AV means in average.
- Unless stated otherwise, all readings are measured peak with an IF bandwidth not less than 120KHz.
- Above 1 GHz test used a receiver bandwidth of 1 MHz.
- If a spectrum analyzer is used, the sweep time and video filter settings will not affect the readings.
- Radiated emissions for this type of product do not change with the AC power operating voltage.
- This mast was positioned such that the distance from the antenna to the system under test was 10 meter, except required testing above 1 GHz which is performed at a distance of 3 meter.
- The measurement in the margin limit column indicates the amount (in dB) that the recorded emission 0~6 dB is acceptable for open case.

Test Number: 2REA2206

Test Date: 22-OCT-2009

Tested By: H.B.LIANG



➤ **Radiated Test Data**

Location : HA2

Model Name : BR1500G

Description : Battery Mode

Humidity : 60%

Temperature : 25°C

Frequency (MHz)	Receiver Reading dB(μV)	Corr. Factor dB	Corr. Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.58	3.86	19.15	23.01	30.00	-6.99	H	400	342	QP
30.77	5.80	19.05	24.85	30.00	-5.15	V	100	172	QP
43.05	8.38	12.93	21.31	30.00	-8.69	V	104	31	QP
45.71	7.81	11.55	19.36	30.00	-10.64	H	398	12	
58.88	14.67	8.18	22.85	30.00	-7.15	V	107	310	
84.17	6.82	9.35	16.17	30.00	-13.83	H	386	213	
114.81	7.45	13.66	21.11	30.00	-8.89	V	100	163	QP
142.55	8.72	12.72	21.44	30.00	-8.56	H	400	215	
145.47	11.00	12.45	23.45	30.00	-6.55	V	105	177	
160.21	6.12	11.53	17.65	30.00	-12.35	H	391	190	
192.01	13.34	10.73	24.07	30.00	-5.93	H	385	193	
192.01	14.03	10.73	24.76	30.00	-5.24	V	112	196	

- Negative number in the margin column indicates the amount (in dB) that the recorded emission is Below the limit.
- V means in Vertical Antenna Polarization, H means in Horizontal, QP means in Quasi-Peak, and AV means in average.
- Unless stated otherwise, all readings are measured peak with an IF bandwidth not less than 120KHz.
- Above 1 GHz test used a receiver bandwidth of 1 MHz.
- If a spectrum analyzer is used, the sweep time and video filter settings will not affect the readings.
- Radiated emissions for this type of product do not change with the AC power operating voltage.
- This mast was positioned such that the distance from the antenna to the system under test was 10 meter, except required testing above 1 GHz which is performed at a distance of 3 meter.
- The measurement in the margin limit column indicates the amount in (dB) that the recorded emission 0~6 dB is acceptable for open case

Test Number: 2REA2205

Test Date: 22-OCT-2009

Tested By: H.B.LIANG



➤ **Radiated Test Data**

Location : HA2

Model Name : BR1300G

Description : 120V/60Hz

Humidity : 60%

Temperature : 25°C

Frequency (MHz)	Receiver Reading dB(μV)	Corr. Factor dB	Corr. Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.54	2.90	19.17	22.07	30.00	-7.93	H	400	154	QP
30.71	5.50	19.08	24.58	30.00	-5.42	V	100	186	QP
43.05	10.64	12.93	23.57	30.00	-6.43	V	104	332	
58.71	14.89	8.21	23.10	30.00	-6.90	V	100	19	
62.77	10.60	7.95	18.55	30.00	-11.45	H	393	267	
83.36	8.67	9.19	17.86	30.00	-12.14	H	400	21	
112.69	3.88	13.62	17.50	30.00	-12.50	V	103	186	
122.03	3.35	13.74	17.09	30.00	-12.91	H	389	325	
143.20	4.51	12.66	17.17	30.00	-12.83	V	107	318	
151.09	4.43	12.00	16.43	30.00	-13.57	H	395	163	
192.00	10.11	10.73	20.84	30.00	-9.16	V	114	163	
192.00	9.28	10.73	20.01	30.00	-9.99	H	388	240	

- Negative number in the margin column indicates the amount (in dB) that the recorded emission is Below the limit.
- V means in Vertical Antenna Polarization, H means in Horizontal, QP means in Quasi-Peak, and AV means in average.
- Unless stated otherwise, all readings are measured peak with an IF bandwidth not less than 120KHz.
- Above 1 GHz test used a receiver bandwidth of 1 MHz.
- If a spectrum analyzer is used, the sweep time and video filter settings will not affect the readings.
- Radiated emissions for this type of product do not change with the AC power operating voltage.
- This mast was positioned such that the distance from the antenna to the system under test was 10 meter, except required testing above 1 GHz which is performed at a distance of 3 meter.
- The measurement in the margin limit column indicates the amount (in dB) that the recorded emission 0~6 dB is acceptable for open case.

Test Number: 2REA2204

Test Date: 22-OCT-2009

Tested By: H.B.LIANG

**➤ Radiated Test Data**

Location : HA2

Model Name : BR1300G

Description : Battery Mode

Humidity : 60%

Temperature : 25°C

Frequency (MHz)	Receiver Reading dB(μV)	Corr. Factor dB	Corr. Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.62	4.10	19.13	23.23	30.00	-6.77	H	400	37	
30.80	6.50	19.03	25.53	30.00	-4.47	V	100	74	QP
49.89	10.87	9.84	20.71	30.00	-9.29	H	396	341	
53.60	13.94	9.11	23.05	30.00	-6.95	V	103	218	
83.82	5.39	9.28	14.67	30.00	-15.33	H	397	115	
85.33	8.30	9.57	17.87	30.00	-12.13	V	109	176	
112.65	3.72	13.62	17.34	30.00	-12.66	H	391	338	
136.52	6.99	13.17	20.16	30.00	-9.84	V	102	185	
146.85	6.32	12.33	18.65	30.00	-11.35	H	390	312	
164.56	6.39	11.35	17.74	30.00	-12.26	V	100	174	
191.99	13.89	10.72	24.61	30.00	-5.39	V	113	261	QP
192.00	12.53	10.72	23.25	30.00	-6.75	H	382	294	

- Negative number in the margin column indicates the amount (in dB) that the recorded emission is Below the limit.
- V means in Vertical Antenna Polarization, H means in Horizontal, QP means in Quasi-Peak, and AV means in average.
- Unless stated otherwise, all readings are measured peak with an IF bandwidth not less than 120KHz.
- Above 1 GHz test used a receiver bandwidth of 1 MHz.
- If a spectrum analyzer is used, the sweep time and video filter settings will not affect the readings.
- Radiated emissions for this type of product do not change with the AC power operating voltage.
- This mast was positioned such that the distance from the antenna to the system under test was 10 meter, except required testing above 1 GHz which is performed at a distance of 3 meter.
- The measurement in the margin limit column indicates the amount in (dB) that the recorded emission 0~6 dB is acceptable for open case

Test Number: 2REA2203**Test Date:** 22-OCT-2009**Tested By:** H.B.LIANG



➤ **Attached Photographs of BR1500G**

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1. EUT Front Side



2. EUT Rear Side





3. EUT Inner View Front Side



4. EUT Inner View Rear Side

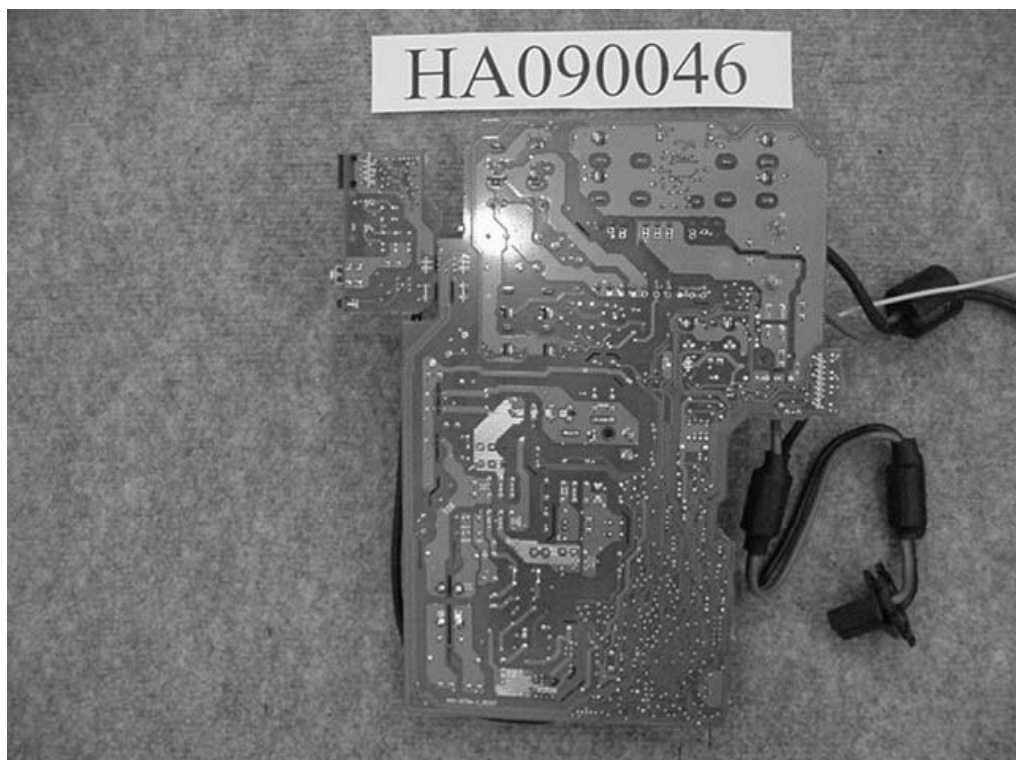




5. EUT Main Board Front View



6. EUT Main Board Rear View

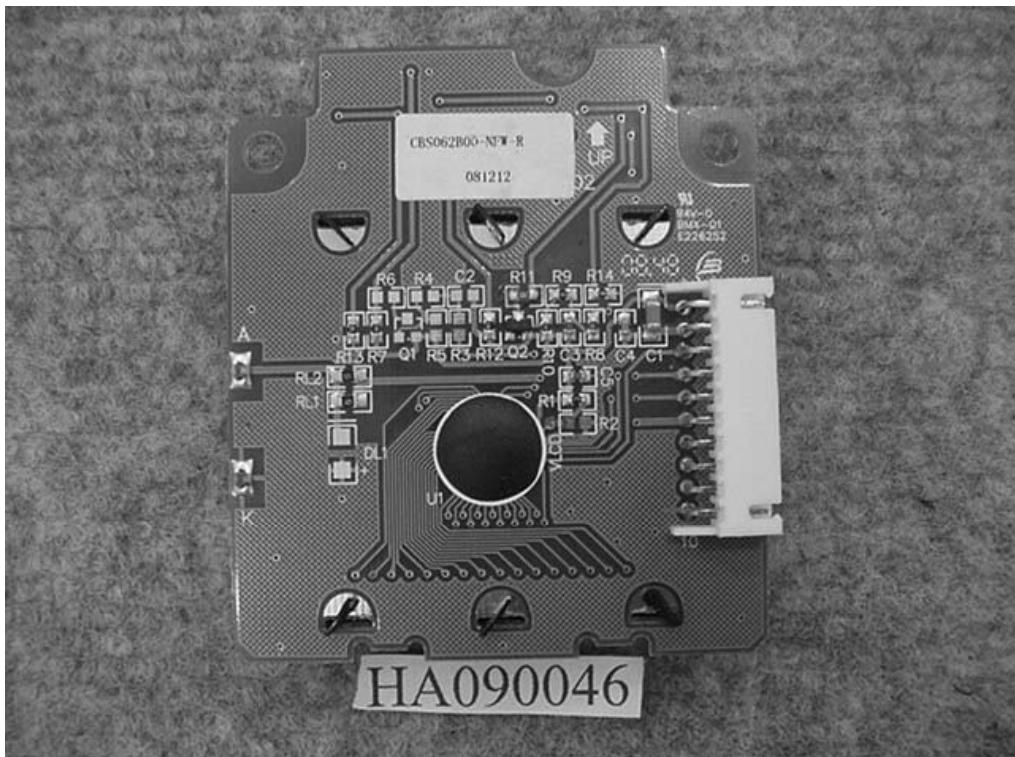




7. EUT Panel Board Front View

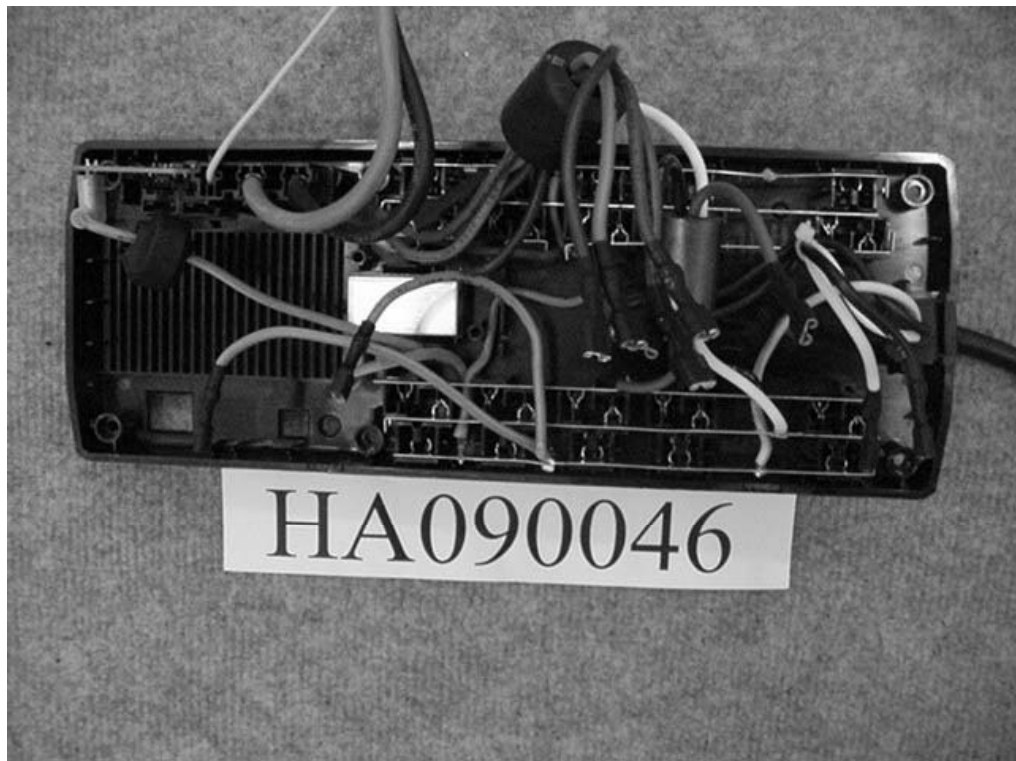


8. EUT Panel Board Rear View





9. EUT AC Socket View Front Side



10. EUT AC Socket View Rear Side





11. EUT Transformer Front Side

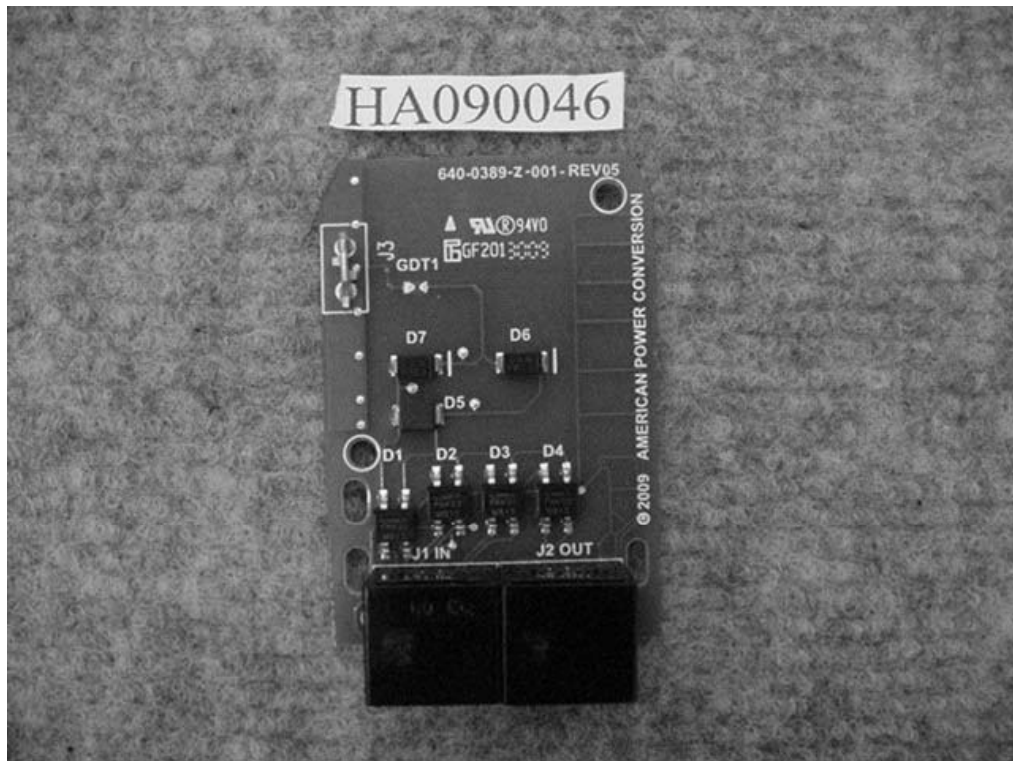


12. EUT Transformer Rear Side

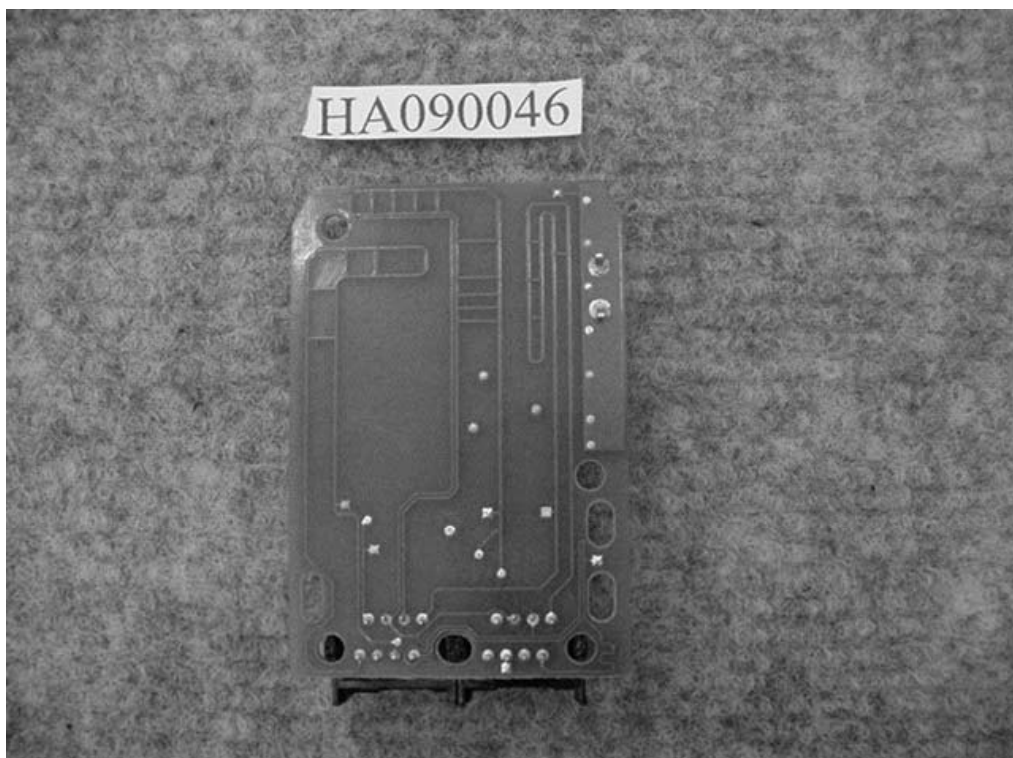




13. EUT Tel-Network Board Front Side



14. EUT Tel-Network Board Rear Side





15. EUT TVBS Board Front Side



16. EUT TVBS Board Rear Side

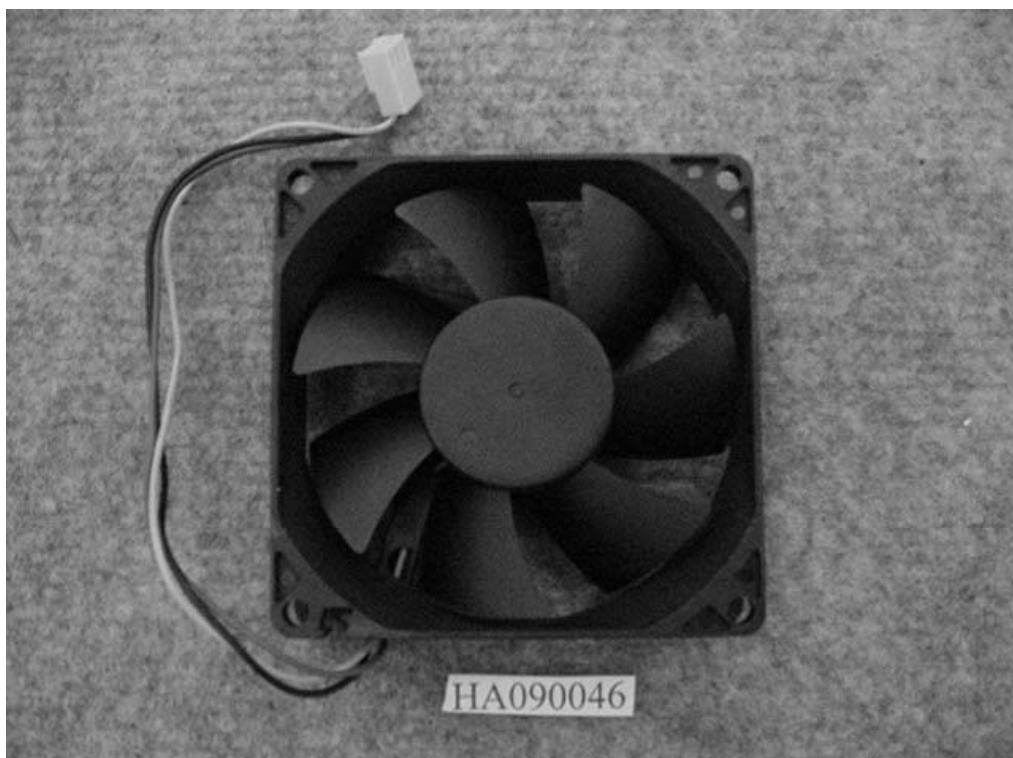




17. EUT Fan Front Side



18. EUT Fan Rear Side





19. EUT Battery Front Side



20. EUT Battery Rear Side





21. EUT Sensor Front Side



22. EUT Sensor Rear Side





23. EUT Battery Box Front Side



24. EUT Battery Box Rear Side





25. EUT Battery Box Inner View Front Side



26. EUT Battery Box Inner View Rear Side





27. EUT Battery Front Side For Battery Box



28. EUT Battery Rear Side For Battery Box

