

# FCC CLASS B COMPLIANCE REPORT

For  
**Electromagnetic Emission**


Of  
**Uninterruptible Power System**


**Trade Name** : APC  
**Model Number** : BE550XXXXXXXXXX, BE450XXXXXXXXXX, BE650XXXXXXXXXX  
BE650MC, FL12Q6 ( " X " can be 0-9, A-Z, " - " or blank )  
**Report Number** : HA080002-SAFD  
**Receipt Date** : 30-JAN-2008 for BE550 and BE450 ; 07-JUL-2010 for BE650MC.  
**Issued Date** : 09-JUL-2010

Prepared for  
**American Power Conversion Holding Inc. Taiwan Branch**  
**3F, No. 205, Sec. 3, Beishin Rd., Shindian City,**  
**Taipei, Taiwan, 231, R.O.C.**

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**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



**HongAn TECHNOLOGY CO., LTD.**

**BSMI Registration No.:** SL2-IN-E-0023, SL2-A1-E-0023,  
SL2-IS-E-0023, SL2-R1-E-0023,  
SL2-R2-E-0023, SL2-L1-0023

**Nemko authorization No.:** ELA184

**TAF Accreditation NO.:** 1163

**VCCI Registration No.:** R-2156, C-2329, T-219

**FCC Designation Number:** TW1001



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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** : International Precision Assemblies, Inc.

**Address** : Lot 6 Blk 8, Phase II Peza 4106 Rosario Cavite Philippines

**Manufacturer** : International Precision Assemblies, Inc. Plant 2

**Address** : Lot 2 Blk 17, Phase IV Peza 4106 Rosario Cavite Philippines

**Manufacturer** : Danam Philippines Inc.

**Address** : Lot 1-A, Block 15, Phase III, PEZA 4106 Rosario, Cavite Philippines

**Description of EUT** : Uninterruptible Power System

**Trade Name** : APC

**Model Number** : BE550XXXXXXXXXX, BE450XXXXXXXXXX, BE650XXXXXXXXXX  
BE650MC, FL12Q6 ( “ X ” can be 0-9, A-Z , “ - ” or blank )

**Serial Number** : N/A

**Report Number** : HA080002-SAFD

**Receipt Date** : 30-JAN-2008 for BE550 and BE450 ; 07-JUL-2010 for BE650MC.

**Issued Date** : 09-JUL-2010

**Technical Standards** : FCC Part 15 Subpart B (10-1-07Edition), Class B



## 1.1 Product Information

### ➤ EUT Information

<b>Trade Name</b>	: APC
<b>Description of EUT</b>	: Uninterruptible Power System
<b>Model Number</b>	: BE550, BE450, BE650MC
<b>Serial Number</b>	: N/A
<b>AC Power during test</b>	: AC 120V/60Hz
<b>AC Power Cord Type</b>	: 3 Pins, Unshielded, 1.5m (Undetachable).

### ➤ I/O Port of EUT

<b>I/O Port Type</b>	<b>Q'TY</b>	<b>Tested With</b>	<b>Cable</b>
1.) AC Inlet	1	1	Unshielded, 1.5 m
2.) AC Outlet Port (Surge Protection)	4	4	Unshielded, 1.8m
3.) AC Outlet (Battery backup+ Surge Protection)	4	4	Unshielded, 1.8m
4.) DSL/Modem/Network/Fax Port	1	1	Unshielded, 2.0 m
5.) Wall Outlet	1	1	Unshielded, 2.0 m
6.) Data port	1	1	Shielded, 2.0m



➤ **Specifications**

Model		BE450	BE550	BE650MC/ FL12Q6
Input	Voltage	120 Vrms Nominal		
	Frequency	60 Hz ±3Hz		50/60Hz
	Brownout Transfer	92 Vrms, typical		
	Over-voltage Transfer	139 Vrms, typical		
Output	UPS Capacity (4 outlets)	450 VA / 257W	550 VA / 330 W	650VA/390W
	Total Amperage (8 outlets)	12 Amps (including UPS output)		
	Voltage- On Battery	115 Vrms ± 8% (step-approximated sine wave)		
	Frequency - On Battery	60 Hz ± 1 Hz		50/60Hz+/-1Hz
	Transfer Time	6 ms typical, 10 ms maximum		
Protection and Filter	AC Surge Protection	Full time, 340 joules		
	Phone/Fax/DSL Surge Protection	Single line (2-wire)		
	EMI/RFI Filter	Full time		
	AC Input	Resettable circuit breaker		
Battery	Type	Sealed, maintenance-free lead acid		
	Average Life	3 - 5 years depending on the number of discharge cycles and environmental temperature		2 -5 years
Physical	Net Weight	Back-UPS 450: 10 lb. (4.5 kg.)	Back-UPS 550: 12.4 lb. (5.6 kg.)	131b(5.9kg)
	Size	11.2in (H) x 7.1in (W) x 3.4in (D) (28.2cm x 18cm x 8.7cm)		11.1"x7.1"x3.5" (282x180x88 mm)
	Operating Temperature	+32°F to 104°F (0°C to 40°C)		
	Storage Temperature	+5°F to 113°F (-15°C to 45°C)		
	Operating Relative Humidity	0 to 95% non-condensing		
	Operating Elevation	0 to 10,000 ft (0 to 3,000m)		
<p>Note: Manufacture define the output power cord is less than 10m, and the cable for the data port is less than 3m. For more detail features, please refer to User's Manual.</p>				

➤ **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.

- BE550XXXXXXXXXX, BE450XXXXXXXXXX, BE650XXXXXXXXXX, BE650MC, FL12Q6 ( " X " can be 0-9, A-Z , " - " or blank )
- FL12Q6 is identical to BE650MC except for model name



## 1.2 Test Methodology

- a. The emission tests was performed according to the following methods and procedures:
  - **FCC PART 15 (47 CFR Ch.1; 10-1-07 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, SL2-A1-E-0023 And SL2-L1-E-0023.

**Nemko authorization #:** ELA 184

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

**TAF Accreditation Number:** 1163

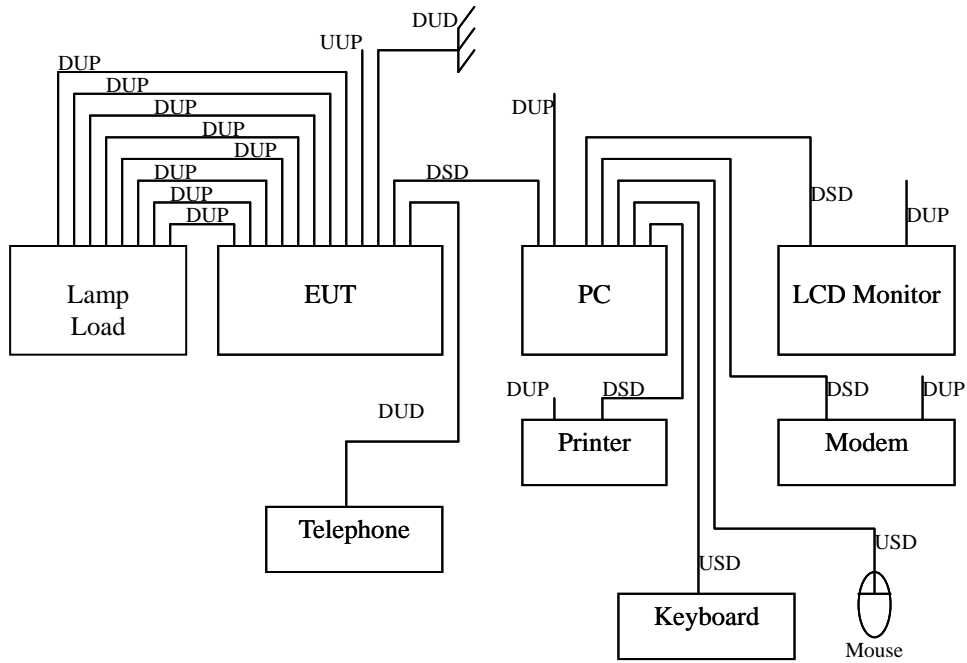
**FCC Designation Number:** TW1001



## 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.

USP : 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
Lamp Load	Lamp	N/A	N/A	N/A	N/A	AC Outlet Unshielded, 1.8m*8
Keyboard	SK-2506	C0008208115	FCC DoC, CE Mark	HP	Shielded(Foil), 1.5m	N/A
Modem	E210	109-02100258	FCC DoC, CE Mark	MITAC	Shielded (Braid),1.0m	Unshielded, 1.1m With core*1
Printer	C2642A	TH85M1M2J4	FCC ID: B940C2642X, CE Mark	HP	Shielded (Braid),1.7m	AC to adapter Unshielded, 0.9m Adapter to Printer Unshielded, 1.8m
PC	S5080AP	TWL33900S7	FCC DoC, CE Mark	COMPAQ	Shielded (Braid),2.0m	Unshielded, 1.8m
Mouse	M-CAA43	LZA20503183	FCC DoC, CE Mark	Logitsch	Shielded(Foil), 1.8m	N/A
LCD Monitor	SDM-X73	9273312	FCC DoC	SONY	Shielded (Braid),1.8m With core*2	Unshielded, 2m With core*1





#### 1.4.2 EUT Exercise Software

1. Turn on all support equipment.
2. The UPS was operated at full load.
3. An executive program, Power DLL Browser V5.exe under windows.
4. Run the software, which for exercising the EUT sent and received data between EUT and PC continuously.

#### 1.4.3 Justification

The system was configured for testing in a typical fashion, as a customer would normally use it.

The UPS was tested in the two basic operating modes, Normal mode and Battery mode.

The UPS was operated at full load in both modes.

Battery mode was forced during testing by disconnecting the utility at the disconnect device provided by the test facility.

Conducted emission measurements were performed in the frequency range from 150KHz to 30MHz; the worst emissions were reported.

Radiated emission measurements were performed in the frequency range from 30MHz to 1000MHz; the worst emissions were reported.

#### **For Model Number:BE550XXXXXXXXXX**

The worse case of the conducted disturbance at the mains port measurement occurred at 1.493 MHz (phase), **-4.150dB**(Average) at Line mode.

The worst case of the radiated measurements is **- 5.70dB**( Quasi Peak) occurred at 30.03MHz (Vertical), 100cm antenna height and 40degree turn table angle at Line mode.

**The BE450 , BE650MC test data of EMI is appended to the Appendix.**



## 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 MHz	Limit [dB (μV)]	
	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	02-JUL-2007	02-JUL-2008
LISN	EMCO	3810/2NM	9702-1819	15-NOV-2007	15-NOV-2008
LISN	Rolf Heine Hochfrequenztechnik	NNB-4/32T	00001	08-FEB-2007	08-FEB-2008

- ※ 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	: BE550XXXXXXXXXX	Humidity	: 59%
Description	: Phase (Line Mode)	Temperature	: 21°C

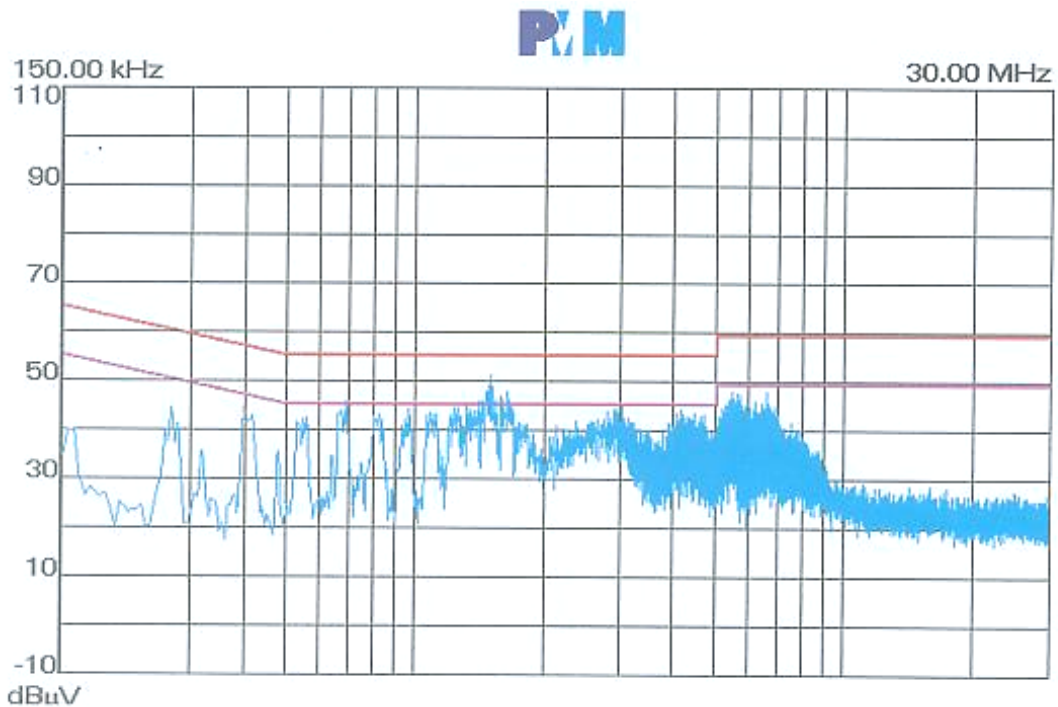
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.272	34.500	0.200	34.700	51.050	61.050	-16.350	P AV
0.272	43.400	0.200	43.600	51.050	61.050	-17.450	P QP
0.405	40.900	0.200	41.100	47.750	57.750	-16.650	P QP
0.405	33.600	0.200	33.800	47.750	57.750	-13.950	P AV
0.684	39.500	0.200	39.700	46.000	56.000	-6.300	P AV
0.684	42.900	0.200	43.100	46.000	56.000	-12.900	P QP
1.493	49.000	0.250	49.250	46.000	56.000	-6.750	P QP
1.493	41.600	0.250	41.850	46.000	56.000	-4.150	P AV
2.999	27.700	0.350	28.050	46.000	56.000	-17.950	P AV
2.999	39.100	0.350	39.450	46.000	56.000	-16.550	P QP
5.463	43.300	0.500	43.800	50.000	60.000	-16.200	P QP
5.463	27.200	0.500	27.700	50.000	60.000	-22.300	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: 2CE20107

Test Date: 01- FEB-2008

Tested By: K.C.LEE





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: 120V/60Hz
Model Name	: BE550XXXXXXXXXX	Humidity	: 59%
Description	: Neutral (Line Mode)	Temperature	: 21°C

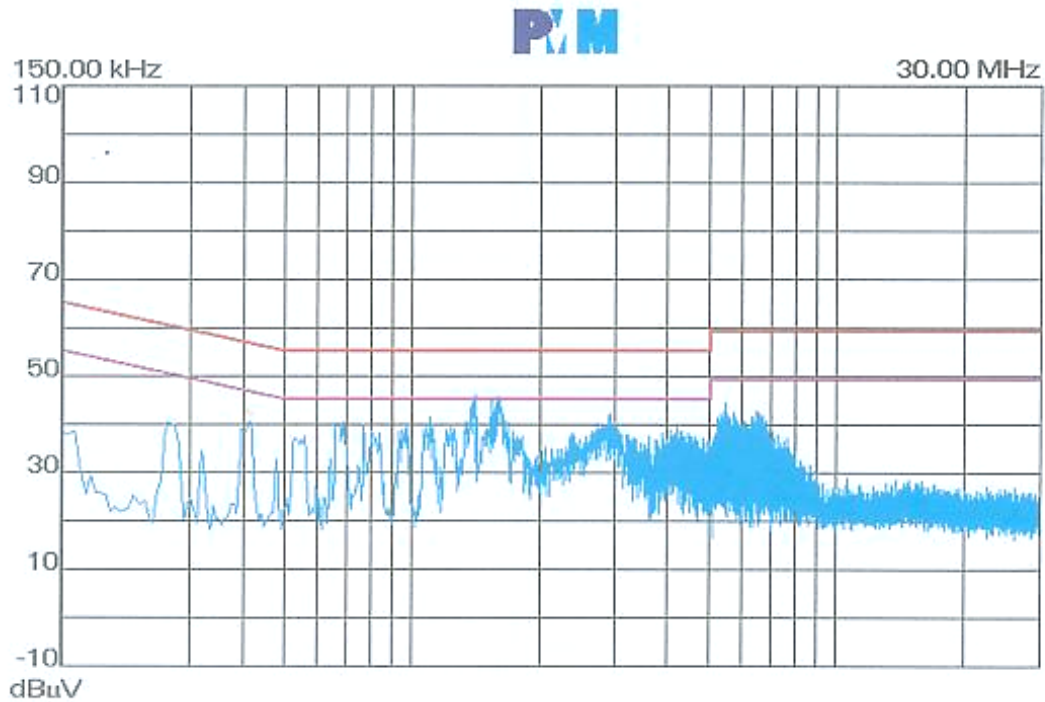
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.405	30.100	0.200	30.300	47.750	57.750	-17.450	N AV
0.405	37.700	0.200	37.900	47.750	57.750	-19.850	N QP
0.665	37.400	0.200	37.600	46.000	56.000	-18.400	N QP
0.665	33.300	0.200	33.500	46.000	56.000	-12.500	N AV
1.369	38.500	0.290	38.790	46.000	56.000	-17.210	N QP
1.369	28.600	0.290	28.890	46.000	56.000	-17.110	N AV
1.596	33.100	0.330	33.430	46.000	56.000	-12.570	N AV
1.596	40.100	0.330	40.430	46.000	56.000	-15.570	N QP
2.903	38.700	0.400	39.100	46.000	56.000	-16.900	N QP
2.903	30.500	0.400	30.900	46.000	56.000	-15.100	N AV
5.402	24.600	0.490	25.090	50.000	60.000	-24.910	N AV
5.402	38.100	0.490	38.590	50.000	60.000	-21.410	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:** 2CE20107

**Test Date:** 01-FEB-2008

**Tested By:** K.C.LEE





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: OV
Model Name	: BE550XXXXXXXXXX	Humidity	: 63%
Description	: Phase (Battery Mode )	Temperature	: 21°C

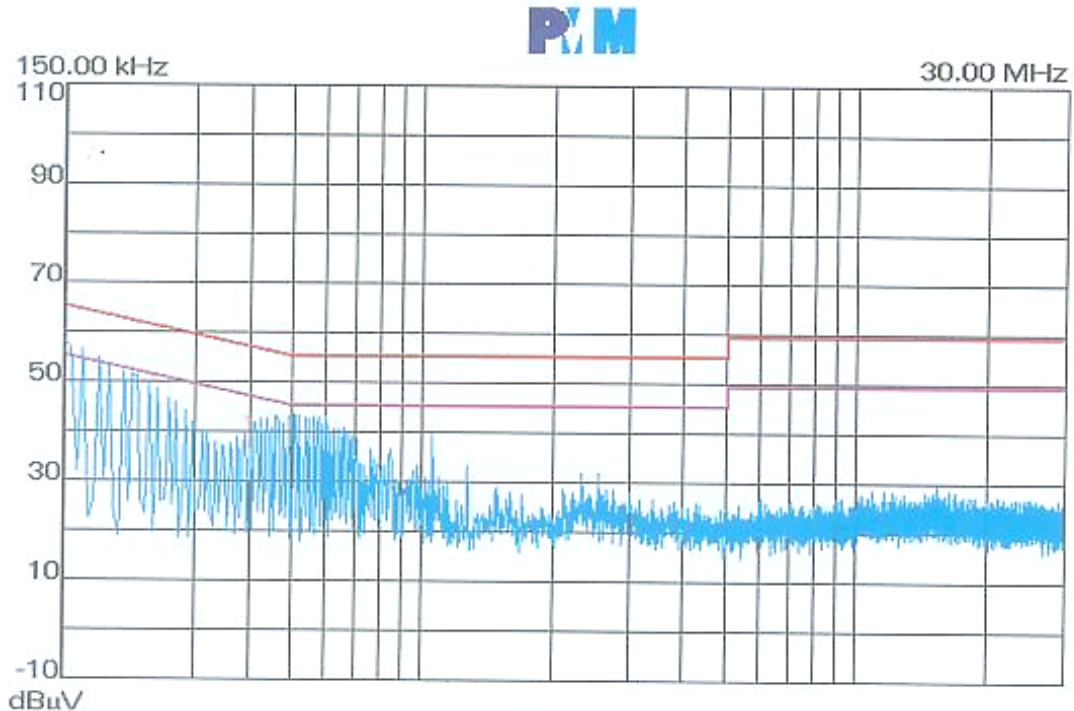
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin DB	Note
0.151	50.400	0.200	50.600	55.940	65.940	-15.340	P QP
0.151	21.900	0.200	22.100	55.940	65.940	-33.840	P AV
0.175	19.500	0.200	19.700	54.710	64.710	-35.010	P AV
0.175	46.600	0.200	46.800	54.710	64.710	-17.910	P QP
0.211	40.000	0.200	40.200	53.160	63.160	-22.960	P QP
0.211	14.000	0.200	14.200	53.160	63.160	-38.960	P AV
0.220	31.400	0.200	31.600	52.810	62.810	-31.210	P QP
0.220	25.100	0.200	25.300	52.810	62.810	-27.510	P AV
0.487	7.400	0.200	7.600	46.210	56.210	-38.610	P AV
0.487	36.600	0.200	36.800	46.210	56.210	-19.410	P QP
0.598	2.800	0.200	3.000	46.000	56.000	-43.000	P AV
0.598	31.000	0.200	31.200	46.000	56.000	-24.800	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: 2CE20108

Test Date: 01-FEB-2008

Tested By: K.C.LEE





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: OV
Model Name	: BE550XXXXXXXXXX	Humidity	: 63%
Description	: Neutral (Battery Mode)	Temperature	: 21°C

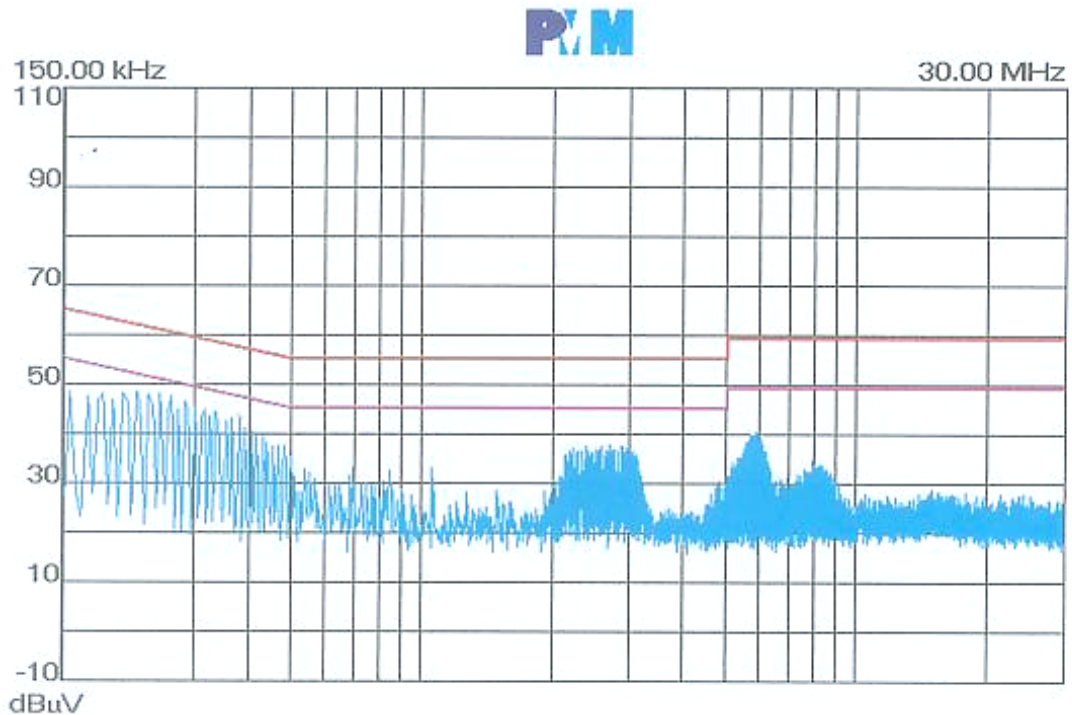
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.155	39.500	0.200	39.700	55.720	65.720	-26.020	N QP
0.155	21.600	0.200	21.800	55.720	65.720	-33.920	N AV
0.170	7.600	0.200	7.800	54.960	64.960	-47.160	N AV
0.170	38.100	0.200	38.300	54.960	64.960	-26.660	N QP
0.205	38.500	0.200	38.700	53.400	63.400	-24.700	N QP
0.205	8.500	0.200	8.700	53.400	63.400	-44.700	N AV
0.260	10.700	0.200	10.900	51.430	61.430	-40.530	N AV
0.260	39.500	0.200	39.700	51.430	61.430	-21.730	N QP
0.600	22.500	0.200	22.700	46.000	56.000	-33.300	N QP
0.600	2.200	0.200	2.400	46.000	56.000	-43.600	N AV
2.523	18.500	0.400	18.900	46.000	56.000	-27.100	N AV
2.523	27.900	0.400	28.300	46.000	56.000	-27.700	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:** 2CE20108

**Test Date:** 01-FEB-2008

**Tested By:** K.C.LEE





## 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	02-JUL-2007	02-JUL-2008
Spectrum Analyzer	ADVANTEST	R3172	101202158	06-JUL-2007	06-JUL-2008
Preamplifier	CHASE	CPA 9231A	3310	09-JUL-2007	09-JUL-2008
Bilog Antenna	CHASE	CBL 6112B	2860	03-AUG-2007	03-AUG-2008

- ※ 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 :  $y \text{ dB } \mu\text{V} \pm 5.03\text{dB}$   
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 : BE550XXXXXXXXXXXX Humidity : 59%  
 Description : Line Mode Temperature : 21°C

Frequency (MHz)	Receiver Reading dB(μV)	Correction Factor dB	Correction Reading dB(μV)	Limit dB(μV)	Margin limit dB(μV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.03	4.50	19.80	24.30	30.00	-5.70	V	100	40	QP
30.96	3.46	19.24	22.70	30.00	-7.30	H	400	22	
61.98	11.85	7.50	19.35	30.00	-10.65	V	100	312	
70.37	11.82	7.33	19.15	30.00	-10.85	H	350	300	
71.55	15.10	7.42	22.52	30.00	-7.48	V	100	233	
79.18	12.96	8.02	20.98	30.00	-9.02	H	340	333	
83.65	13.57	8.93	22.50	30.00	-7.50	V	100	35	
112.33	6.84	13.41	20.25	30.00	-9.75	V	111	9	
112.95	5.36	13.43	18.79	30.00	-11.21	H	400	211	
121.70	6.02	13.57	19.59	30.00	-10.41	V	100	101	
127.12	3.30	13.38	16.68	30.00	-13.32	H	366	266	
192.00	6.04	10.78	16.82	30.00	-13.18	H	327	232	
215.96	3.79	10.92	14.71	30.00	-15.29	V	100	112	

- 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:** 2RE20107**Test Date:** 01-FEB-2008**Tested By:** K.C.LEE





➤ **Radiated Test Data**

Location : HA2  
 Model Name : BE550XXXXXXXXXX Humidity : 59%  
 Description : Battery Mode Temperature : 21°C

Frequency (MHz)	Receiver Reading dB(µV)	Correction Factor dB	Correction Reading dB(µV)	Limit dB(µV)	Margin limit dB(µV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
31.27	2.32	19.05	21.37	30.00	-8.63	V	100	91	
31.74	2.09	18.78	20.87	30.00	-9.13	H	400	300	
50.99	6.84	8.68	15.52	30.00	-14.48	V	100	200	
52.33	5.00	8.50	13.50	30.00	-16.50	H	100	111	
75.00	9.53	7.70	17.23	30.00	-12.77	V	100	120	
79.47	6.82	8.05	14.87	30.00	-15.13	H	400	50	
111.32	2.35	13.38	15.73	30.00	-14.27	H	400	288	
112.16	4.43	13.41	17.84	30.00	-12.16	V	100	350	
175.96	4.22	11.00	15.22	30.00	-14.78	V	100	128	
176.01	4.77	11.00	15.77	30.00	-14.23	H	4338	30	
192.00	6.38	10.78	17.16	30.00	-12.84	H	337	21	
215.95	3.36	10.92	14.28	30.00	-15.72	V	100	111	

- 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:** 2RE20108

**Test Date:** 01-FEB-2008

**Tested By:** K.C.LEE



## 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( $\mu$ 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.

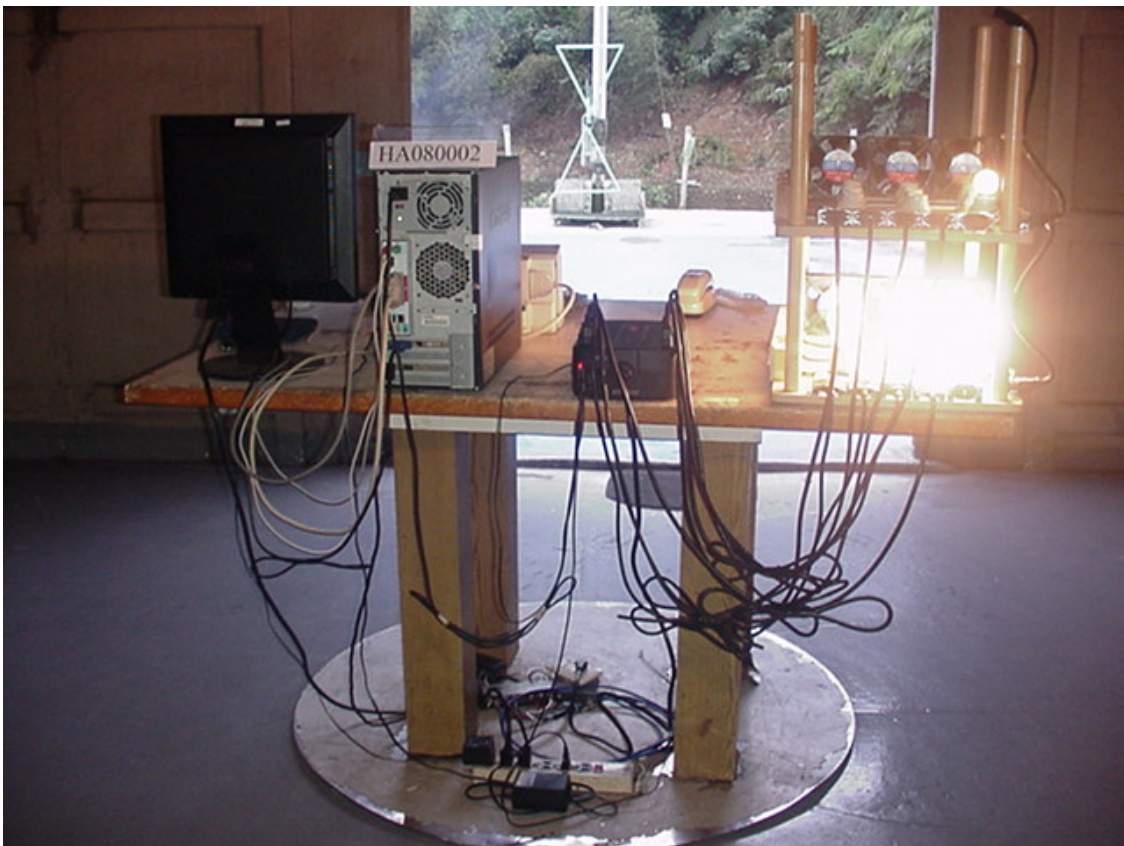
The Calculated Field Strength is the sum of  $22 + 8.5 = 30.5$  dB ( $\mu$ V/m).

All values are listed as dB, either referenced to 1 $\mu$ V or 1 $\mu$ 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 (BE550)



##### 4.2 EUT Rear Side (BE550)





#### 4.3 EUT Front Side (BE450)



#### 4.4 EUT Rear Side (BE450)





#### 4.5 EUT Front Side(BE650MC)



#### 4.6 EUT Rear Side(BE650MC)





**5. Attached Test Data..... Total Page 13**

- Conducted Test Data (BE450)..... 5-2
- Radiated Test Data (BE450)..... 5-6
- Conducted Test Data (BE650MC)..... 5-8
- Radiated Test Data (BE650MC)..... 5-12





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: 120V/60Hz
Model Name	: BE450XXXXXXXXXX	Humidity	: 45%
Description	: Phase (Line Mode)	Temperature	: 25°C

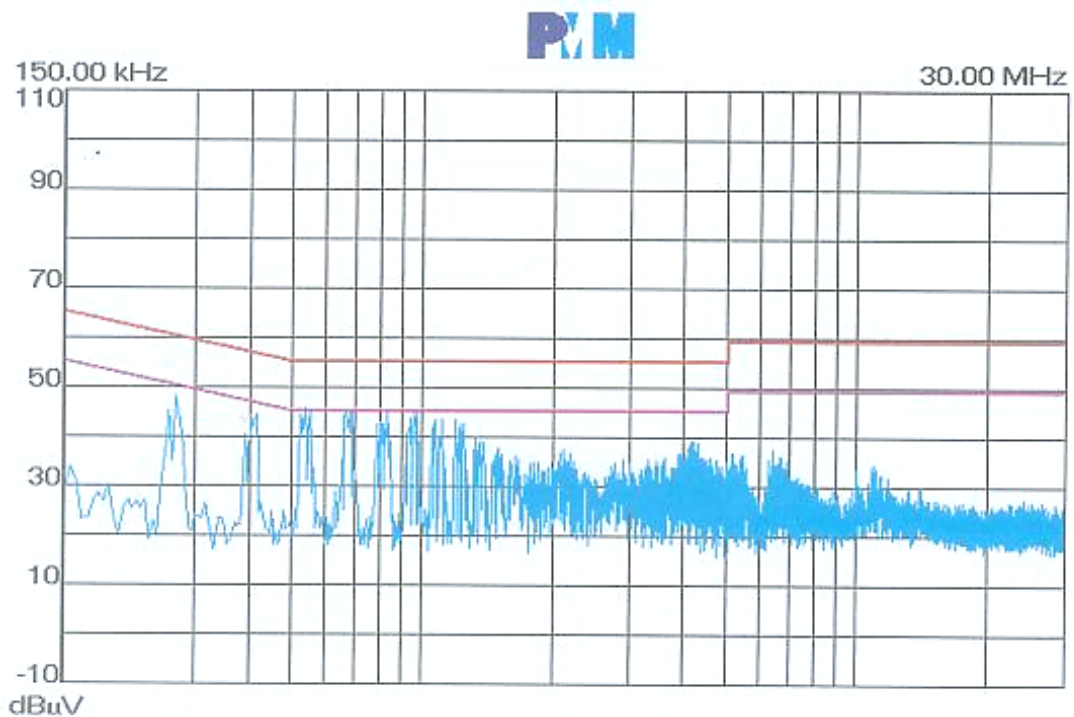
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.267	46.200	0.200	46.400	51.210	61.210	-14.810	P QP
0.267	36.200	0.200	36.400	51.210	61.210	-14.810	P AV
0.405	30.400	0.200	30.600	47.750	57.750	-17.150	P AV
0.405	43.300	0.200	43.500	47.750	57.750	-14.250	P QP
0.540	43.700	0.200	43.900	46.000	56.000	-12.100	P QP
0.540	30.200	0.200	30.400	46.000	56.000	-15.600	P AV
0.668	28.500	0.200	28.700	46.000	56.000	-17.300	P AV
0.668	43.400	0.200	43.600	46.000	56.000	-12.400	P QP
0.814	43.300	0.200	43.500	46.000	56.000	-12.500	P QP
0.814	28.200	0.200	28.400	46.000	56.000	-17.600	P AV
0.934	26.800	0.200	27.000	46.000	56.000	-19.000	P AV
0.934	44.000	0.200	44.200	46.000	56.000	-11.800	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:** 2CE20106

**Test Date:** 01- FEB-2008

**Tested By:** K.C.LEE





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: 120V/60Hz
Model Name	: BE450XXXXXXXXXX	Humidity	: 45%
Description	: Neutral (Line Mode)	Temperature	: 25°C

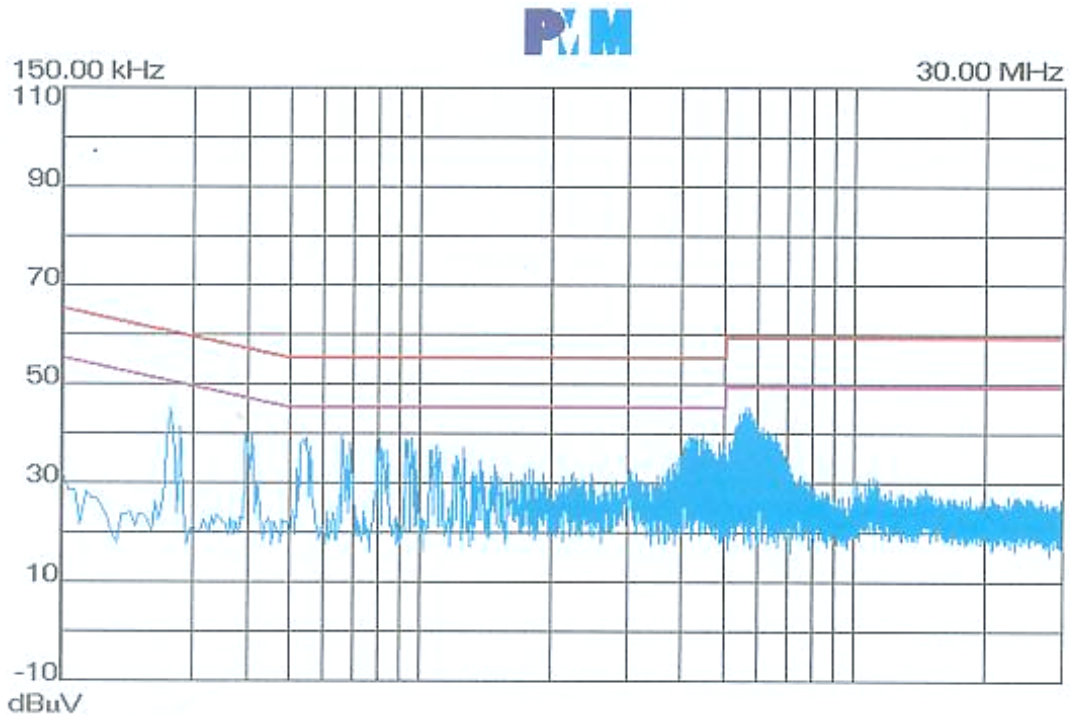
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.263	44.200	0.200	44.400	51.330	61.330	-16.930	N QP
0.263	28.300	0.200	28.500	51.330	61.330	-22.830	N AV
0.400	25.300	0.200	25.500	47.850	57.850	-22.350	N AV
0.400	38.400	0.200	38.600	47.850	57.850	-19.250	N QP
0.659	36.900	0.200	37.100	46.000	56.000	-18.900	N QP
0.659	21.400	0.200	21.600	46.000	56.000	-24.400	N AV
0.949	20.600	0.200	20.800	46.000	56.000	-25.200	N AV
0.949	36.900	0.200	37.100	46.000	56.000	-18.900	N QP
4.262	34.300	0.420	34.720	46.000	56.000	-21.280	N QP
4.262	19.500	0.420	19.920	46.000	56.000	-26.080	N AV
5.671	18.600	0.510	19.110	50.000	60.000	-30.890	N AV
5.671	36.100	0.510	36.610	50.000	60.000	-23.390	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:** 2CE20106

**Test Date:** 01-FEB-2008

**Tested By:** K.C.LEE





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: OV
Model Name	: BE450XXXXXXXXXX	Humidity	: 45%
Description	: Phase (Battery Mode )	Temperature	: 25°C

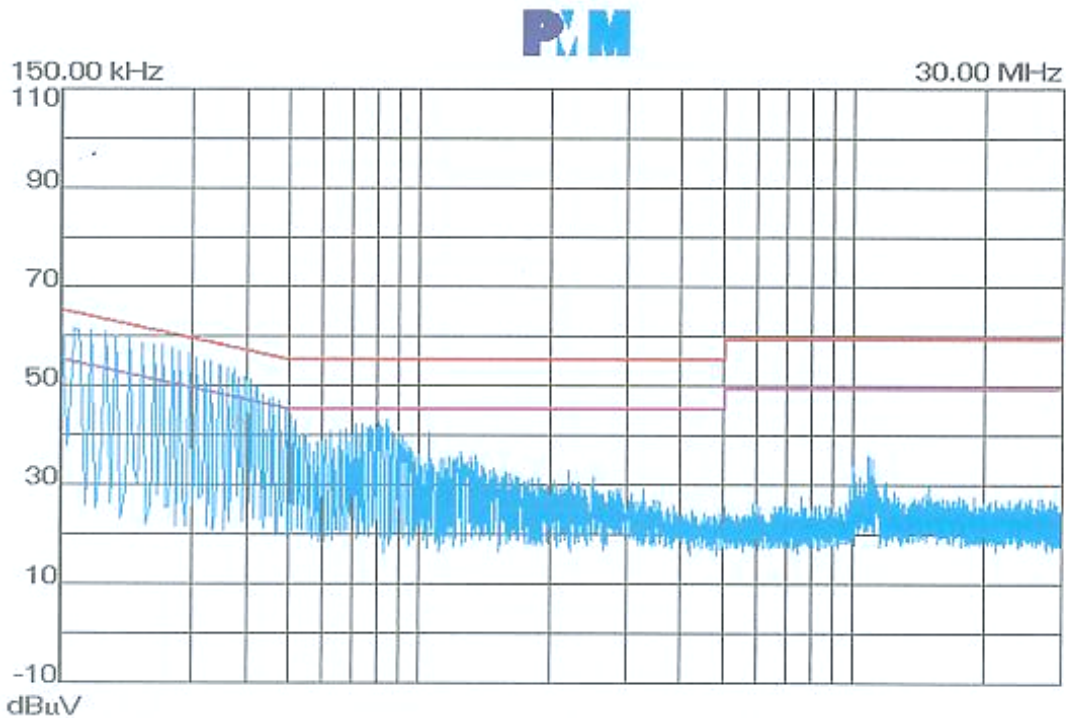
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin DB	Note
0.153	51.000	0.200	51.200	55.830	65.830	-14.630	P QP
0.153	33.500	0.200	33.700	55.830	65.830	-22.130	P AV
0.188	37.300	0.200	37.500	54.120	64.120	-16.620	P AV
0.188	47.600	0.200	47.800	54.120	64.120	-16.320	P QP
0.219	45.800	0.200	46.000	52.850	62.850	-16.850	P QP
0.219	30.900	0.200	31.100	52.850	62.850	-21.750	P AV
0.250	27.900	0.200	28.100	51.750	61.750	-23.650	P AV
0.250	44.300	0.200	44.500	51.750	61.750	-17.250	P QP
0.310	41.400	0.200	41.600	49.970	59.970	-18.370	P QP
0.310	24.200	0.200	24.400	49.970	59.970	-25.570	P AV
0.374	17.600	0.200	17.800	48.410	58.410	-30.610	P AV
0.374	38.400	0.200	38.600	48.410	58.410	-19.810	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: 2CE20105

Test Date: 01-FEB-2008

Tested By: K.C.LEE





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: OV
Model Name	: BE450XXXXXXXXXX	Humidity	: 45%
Description	: Neutral (Battery Mode )	Temperature	: 25°C

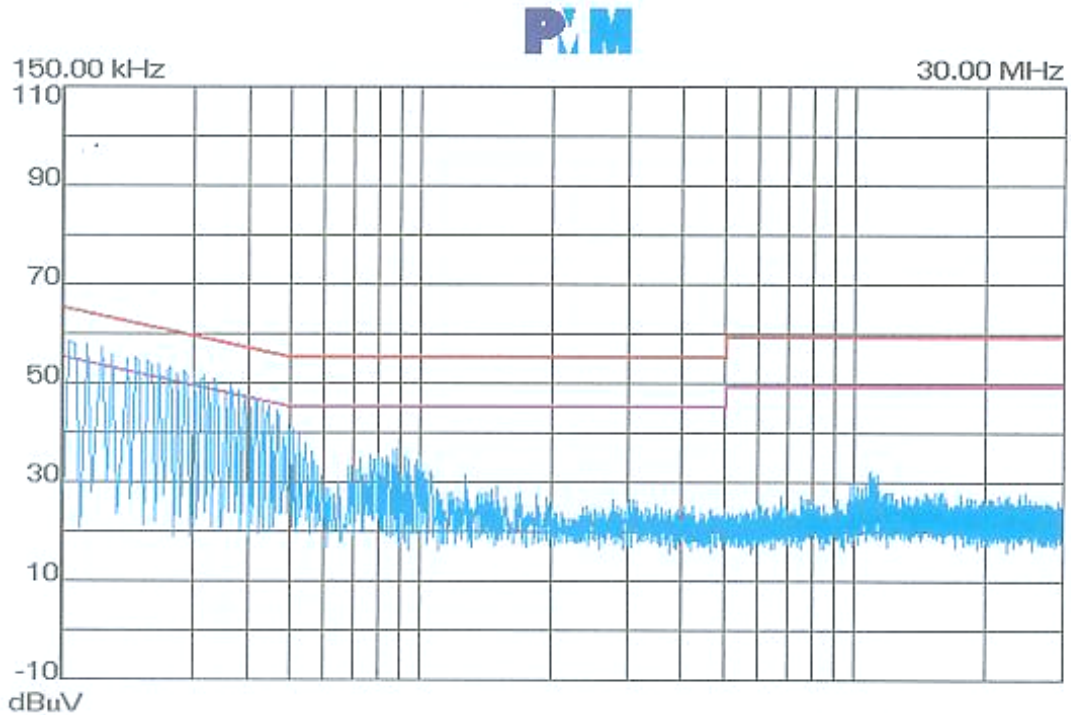
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.154	52.500	0.200	52.700	55.780	65.780	-13.080	N QP
0.154	30.300	0.200	30.500	55.780	65.780	-25.280	N AV
0.183	22.500	0.200	22.700	54.340	64.340	-31.640	N AV
0.183	47.500	0.200	47.700	54.340	64.340	-16.640	N QP
0.217	44.500	0.200	44.700	52.930	62.930	-18.230	N QP
0.217	25.800	0.200	26.000	52.930	62.930	-26.930	N AV
0.281	20.200	0.200	20.400	50.780	60.780	-30.380	N AV
0.281	40.100	0.200	40.300	50.780	60.780	-20.480	N QP
0.344	35.700	0.200	35.900	49.100	59.100	-23.200	N QP
0.344	16.300	0.200	16.500	49.100	59.100	-32.600	N AV
0.416	11.000	0.200	11.200	47.520	57.520	-36.320	N AV
0.416	31.200	0.200	31.400	47.520	57.520	-26.120	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:** 2CE20105

**Test Date:** 01-FEB-2008

**Tested By:** K.C.LEE





➤ **Radiated Test Data**

Location : HA2  
 Model Name : BE450XXXXXXXXXX Humidity : 59%  
 Description : Line Mode Temperature : 21°C

Frequency (MHz)	Receiver Reading dB(µV)	Correction Factor dB	Correction Reading dB(µV)	Limit dB(µV)	Margin limit dB(µV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.09	2.70	19.76	22.46	30.00	-7.54	V	100	263	QP
30.26	3.21	19.66	22.87	30.00	-7.13	H	400	222	
60.01	13.89	7.55	21.44	30.00	-8.56	V	100	10	
71.99	10.03	7.46	17.49	30.00	-12.51	H	400	330	
82.39	14.81	8.64	23.45	30.00	-6.55	H	100	300	
83.38	13.70	8.86	22.56	30.00	-7.44	V	100	177	
111.99	5.01	13.40	18.41	30.00	-11.59	V	100	50	
112.47	5.28	13.42	18.70	30.00	-11.30	H	333	210	
144.00	1.92	12.62	14.54	30.00	-15.46	H	320	300	
167.99	2.01	11.22	13.23	30.00	-16.77	H	345	80	
168.00	4.51	11.22	15.73	30.00	-14.27	V	100	360	
192.00	5.50	10.78	16.28	30.00	-13.72	V	100	10	
215.99	1.52	10.92	12.44	30.00	-17.56	H	290	331	
215.99	5.07	10.92	15.99	30.00	-14.01	V	100	200	

- 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:** 2RE20105

**Test Date:** 01-FEB-2008

**Tested By:** K.C.LEE



➤ **Radiated Test Data**

Location : HA2  
 Model Name : BE450XXXXXXXXXX Humidity : 59%  
 Description : Battery Mode Temperature : 21°C

Frequency (MHz)	Receiver Reading dB(µV)	Correction Factor dB	Correction Reading dB(µV)	Limit dB(µV)	Margin limit dB(µV)	Pol.	Antenna Height (cm)	Table Ang. (deg.)	Note
30.00	5.02	19.83	24.85	30.00	-5.15	V	100	70	QP
31.27	2.84	19.05	21.89	30.00	-8.11	H	400	30	
55.98	12.30	8.03	20.33	30.00	-9.67	V	100	111	
56.33	5.75	7.99	13.74	30.00	-16.26	H	350	30	
71.99	9.42	7.46	16.88	30.00	-13.12	V	100	323	
79.99	9.17	8.08	17.25	30.00	-12.75	H	400	55	
113.34	4.28	13.44	17.72	30.00	-12.28	H	333	290	
119.99	6.66	13.63	20.29	30.00	-9.71	V	100	210	
168.00	4.21	11.22	15.43	30.00	-14.57	V	100	99	
175.97	6.05	11.00	17.05	30.00	-12.95	H	278	166	
192.02	5.31	10.78	16.09	30.00	-13.91	V	100	205	
215.99	4.14	10.92	15.06	30.00	-14.94	H	288	300	

- 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:** 2RE20106

**Test Date:** 01-FEB-2008

**Tested By:** K.C.LEE



➤ **Conducted Test Data**

Location	: HA2	Power Mains	: 120V/60Hz
Model Name	: BE650MC	Humidity	: 40%
Description	: Phase (Line mode)	Temperature	: 26°C

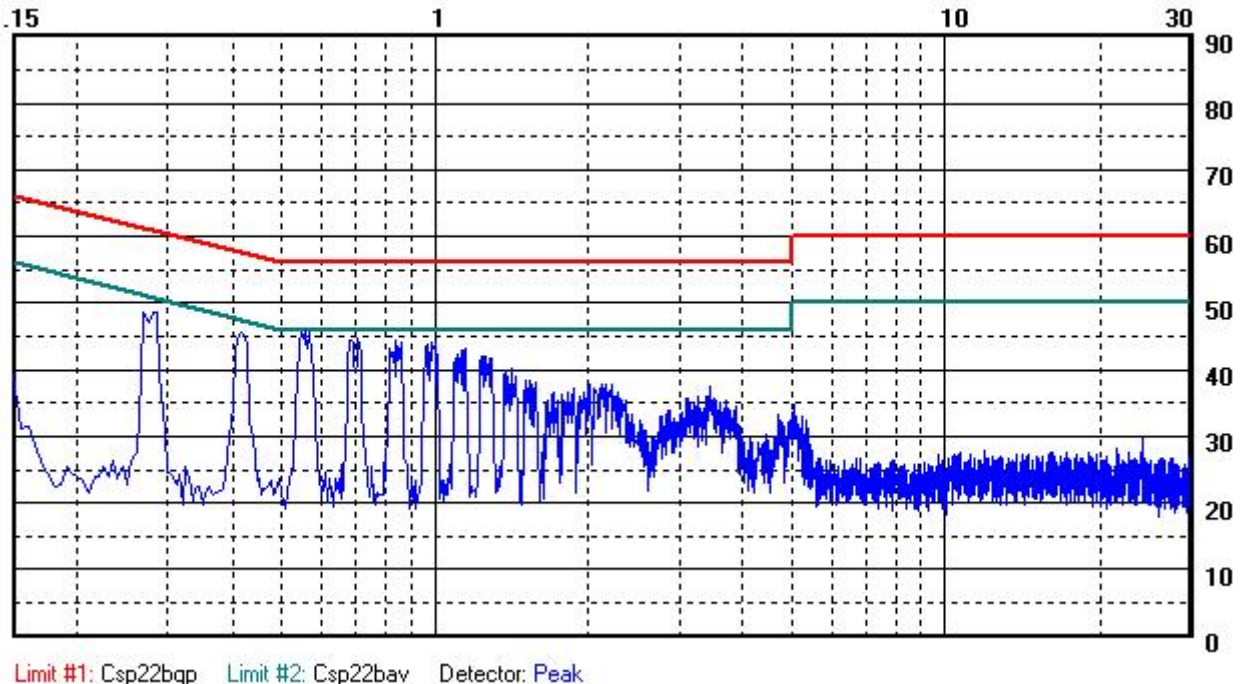
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.278	34.790	0.100	34.890	50.870	60.870	-15.980	P AV
0.278	45.900	0.100	46.000	50.870	60.870	-14.870	P QP
0.561	44.400	0.120	44.520	46.000	56.000	-11.480	P QP
0.561	28.700	0.120	28.820	46.000	56.000	-17.180	P AV
1.140	23.300	0.150	23.450	46.000	56.000	-22.550	P AV
1.140	40.000	0.150	40.150	46.000	56.000	-15.850	P QP
2.138	34.000	0.200	34.200	46.000	56.000	-21.800	P QP
2.138	18.300	0.200	18.500	46.000	56.000	-27.500	P AV
3.412	21.700	0.270	21.970	46.000	56.000	-24.030	P AV
3.412	33.290	0.270	33.560	46.000	56.000	-22.440	P QP
4.988	27.100	0.380	27.480	46.000	56.000	-28.520	P QP
4.988	11.700	0.380	12.080	46.000	56.000	-33.920	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: 2CE70803

Test Date: 08- JUL-2010

Tested By: H.B.LIANG





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: 120V/60Hz
Model Name	: BE650MC	Humidity	: 40%
Description	: Neutral (Line mode)	Temperature	: 26°C

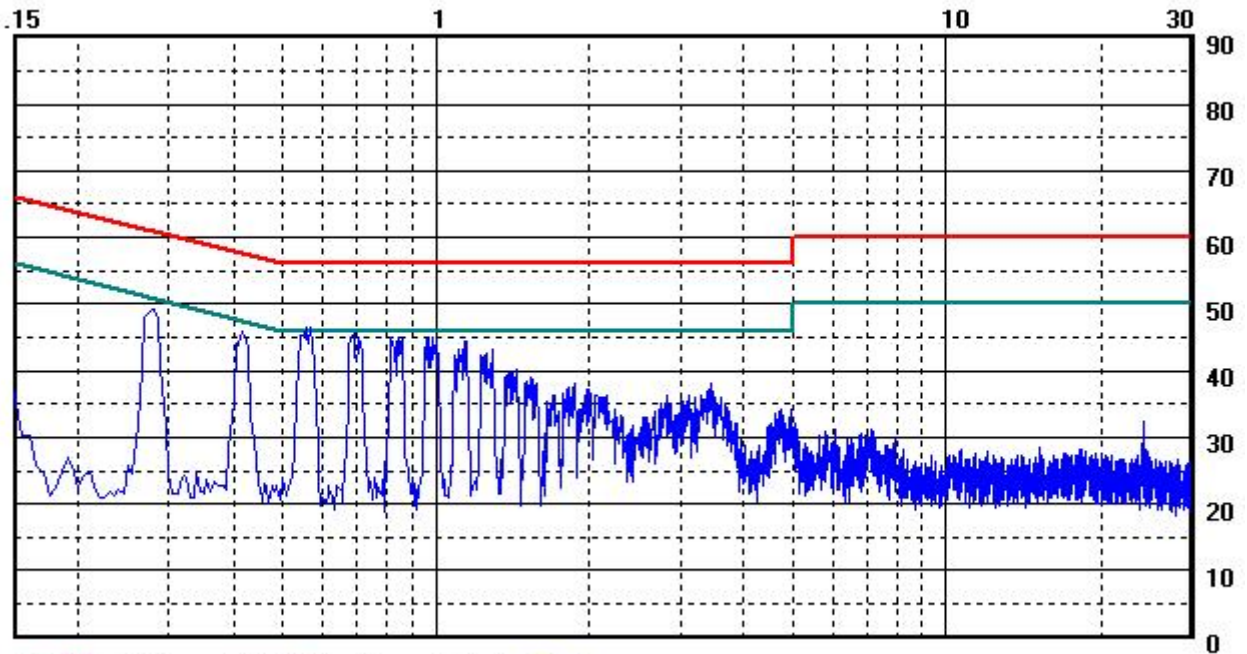
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.278	34.000	0.120	34.120	50.870	60.870	-16.750	N AV
0.278	46.500	0.120	46.620	50.870	60.870	-14.250	N QP
0.560	45.100	0.130	45.230	46.000	56.000	-10.770	N QP
0.560	29.200	0.130	29.330	46.000	56.000	-16.670	N AV
1.122	24.800	0.160	24.960	46.000	56.000	-21.040	N AV
1.122	41.500	0.160	41.660	46.000	56.000	-14.340	N QP
3.407	34.500	0.260	34.760	46.000	56.000	-21.240	N QP
3.407	20.390	0.260	20.650	46.000	56.000	-25.350	N AV
4.694	14.100	0.340	14.440	46.000	56.000	-31.560	N AV
4.694	29.100	0.340	29.440	46.000	56.000	-26.560	N QP
24.001	29.600	0.810	30.410	50.000	60.000	-29.590	N QP
24.001	28.800	0.810	29.610	50.000	60.000	-20.390	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: 2CE70804

Test Date: 08-JUL-2010

Tested By: H.B.LIANG



Limit #1: Csp22bqp Limit #2: Csp22bav Detector: Peak





➤ **Conducted Test Data**

Location	: HA2	Power Mains	: OV
Model Name	: BE650MC	Humidity	: 40%
Description	: Phase (Battery Mode)	Temperature	: 27°C

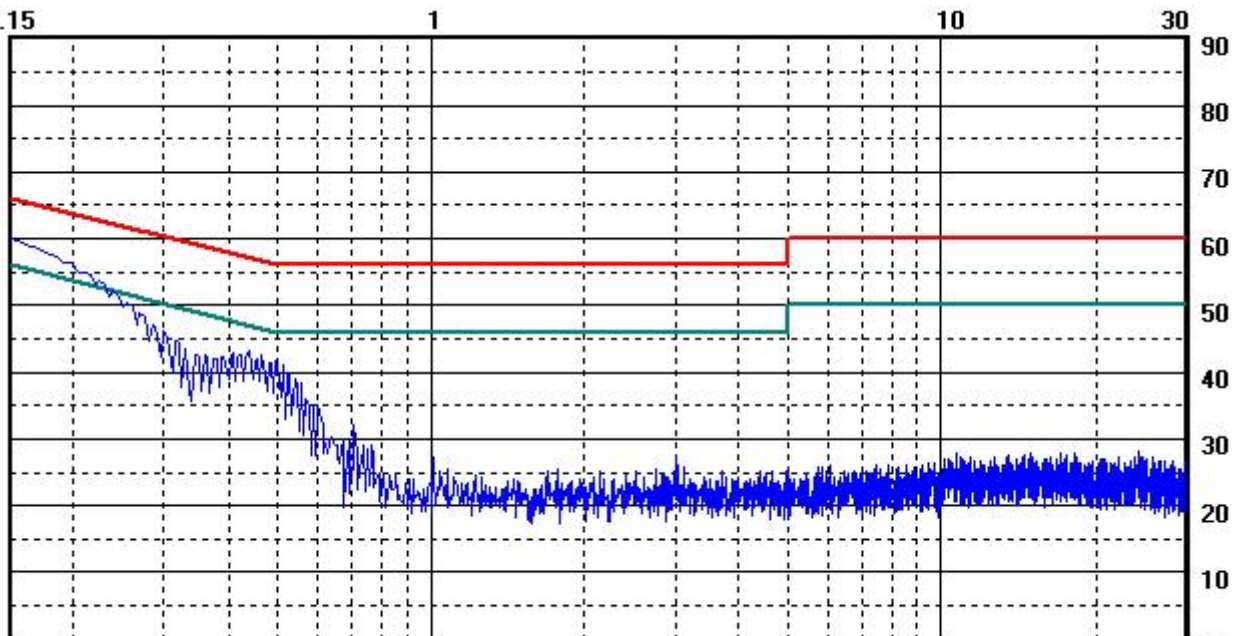
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin DB	Note
0.170	48.700	0.120	48.820	54.960	64.960	-16.140	P QP
0.170	17.000	0.120	17.120	54.960	64.960	-37.840	P AV
0.450	2.700	0.110	2.810	46.870	56.870	-44.060	P AV
0.450	33.400	0.110	33.510	46.870	56.870	-23.360	P QP
1.765	0.600	0.180	0.780	46.000	56.000	-45.220	P AV
1.765	4.500	0.180	4.680	46.000	56.000	-51.320	P QP
2.995	15.400	0.250	15.650	46.000	56.000	-40.350	P QP
2.995	1.900	0.250	2.150	46.000	56.000	-43.850	P AV
4.943	5.700	0.370	6.070	46.000	56.000	-49.930	P QP
4.943	0.900	0.370	1.270	46.000	56.000	-44.730	P AV
24.000	21.800	0.950	22.750	50.000	60.000	-27.250	P AV
24.000	22.200	0.950	23.150	50.000	60.000	-36.850	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: 2CE70802

Test Date: 08-JUL-2010

Tested By: H.B.LIANG



Limit #1: Csp22bqp    Limit #2: Csp22bav    Detector: Peak



➤ **Conducted Test Data**

Location	: HA2	Power Mains	: OV
Model Name	: BE650MC	Humidity	: 40%
Description	: Neutral (Battery Mode)	Temperature	: 27°C

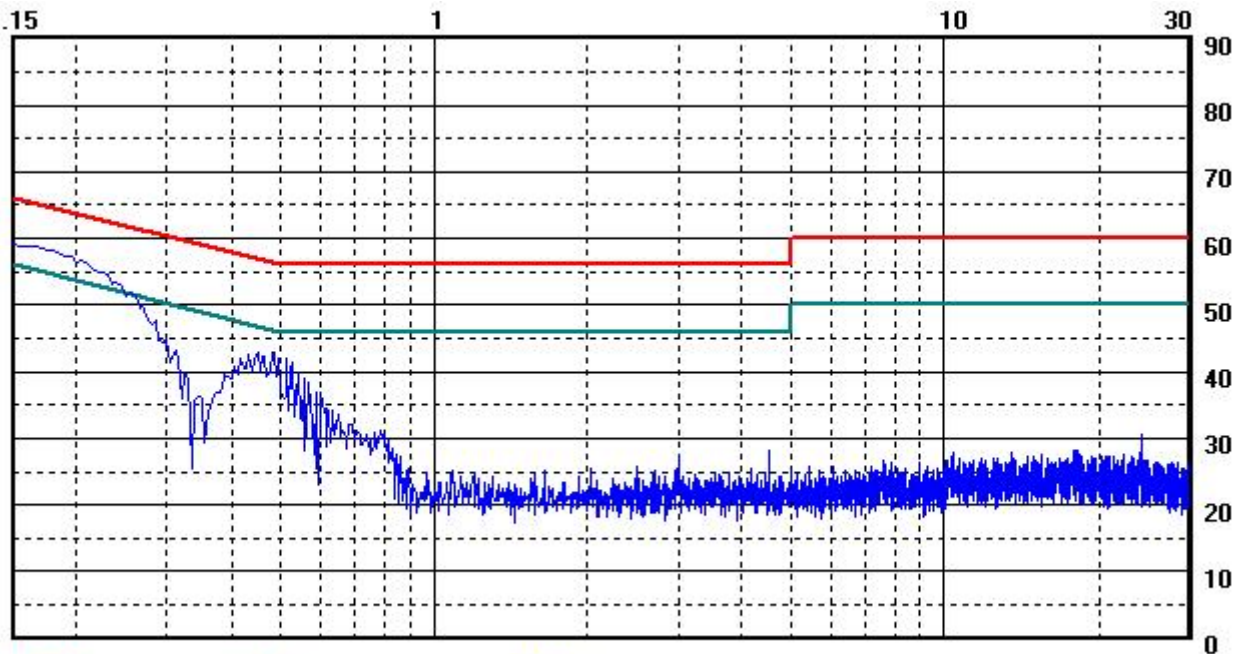
Frequency (MHz)	Measured dB(μV)	Corr. Factor dB	Total dB(μV)	Limit(AV) dB(μV)	Limit(QP) dB(μV)	Margin dB	Note
0.159	38.100	0.140	38.240	55.510	65.510	-27.270	N QP
0.159	10.700	0.140	10.840	55.510	65.510	-44.670	N AV
0.445	4.700	0.120	4.820	46.960	56.960	-42.140	N AV
0.445	34.600	0.120	34.720	46.960	56.960	-22.240	N QP
1.625	2.100	0.180	2.280	46.000	56.000	-53.720	N QP
1.625	0.300	0.180	0.480	46.000	56.000	-55.520	N QP
2.980	6.600	0.240	6.840	46.000	56.000	-49.160	N QP
2.980	0.800	0.240	1.040	46.000	56.000	-44.960	N AV
4.505	0.400	0.320	0.720	46.000	56.000	-45.280	N AV
4.505	6.200	0.320	6.520	46.000	56.000	-49.480	N QP
24.000	27.300	0.810	28.110	50.000	60.000	-31.890	N QP
24.000	26.900	0.810	27.710	50.000	60.000	-22.290	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: 2CE70801

Test Date: 08-JUL-2010

Tested By: H.B.LIANG

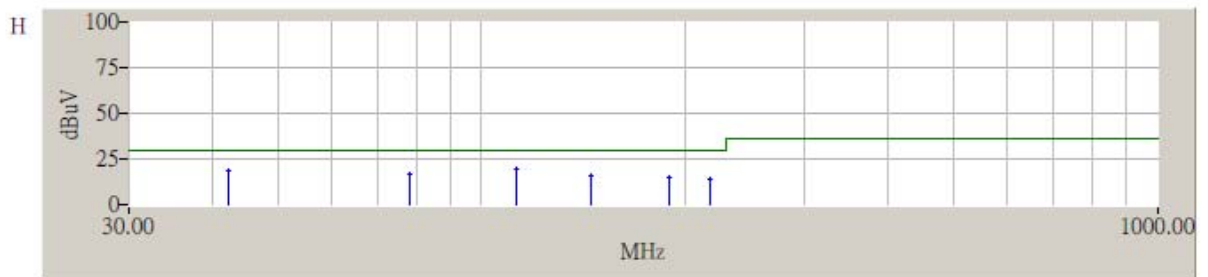
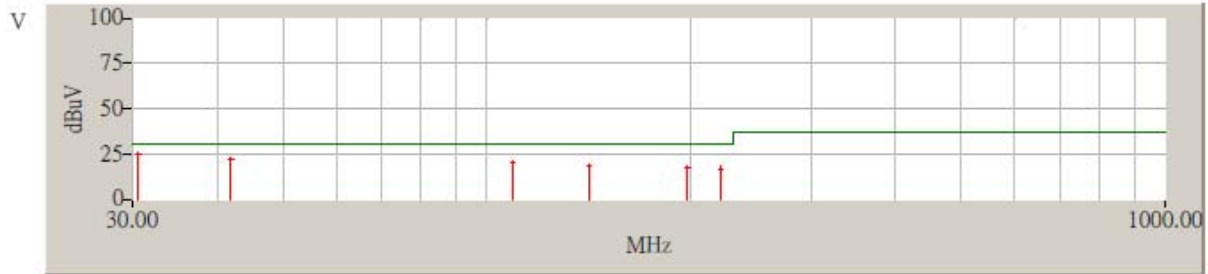


Limit #1: Csp22bqp Limit #2: Csp22bav Detector: Peak



➤ Radiated Test Data

Location : HA2  
 Model Name : BE650MC Humidity : 43%  
 Description : Line mode Temperature : 30°C



Frequency (MHz)	Reading (dBuV/m)	Corrected Factor (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin Limit (dB)	Table degree	Antenna Hight Pol. cm	Note
30.64	5.22	19.29	24.51	30.00	-5.49	16	100	V QP
41.95	9.16	12.77	21.93	30.00	-8.07	231	100	V PK
42.18	6.66	12.65	19.31	30.00	-10.69	68	400	H PK
78.26	8.75	8.04	16.79	30.00	-13.21	316	400	H PK
109.26	6.97	12.92	19.89	30.00	-10.11	127	100	V PK
112.47	6.39	13.08	19.47	30.00	-10.53	120	399	H PK
141.60	5.85	12.23	18.08	30.00	-11.92	119	102	V PK
145.18	4.39	12.00	16.39	30.00	-13.61	159	396	H PK
189.26	4.95	10.58	15.53	30.00	-14.47	107	394	H PK
197.66	6.61	10.79	17.40	30.00	-12.60	184	105	V PK
217.88	3.53	10.78	14.31	30.00	-15.69	264	391	H PK
221.12	5.95	10.91	16.86	30.00	-13.14	215	108	V PK

- 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: 2RE70801

Test Date: 08-JUL-2010

Tested By: H.B.LIANG



➤ Radiated Test Data

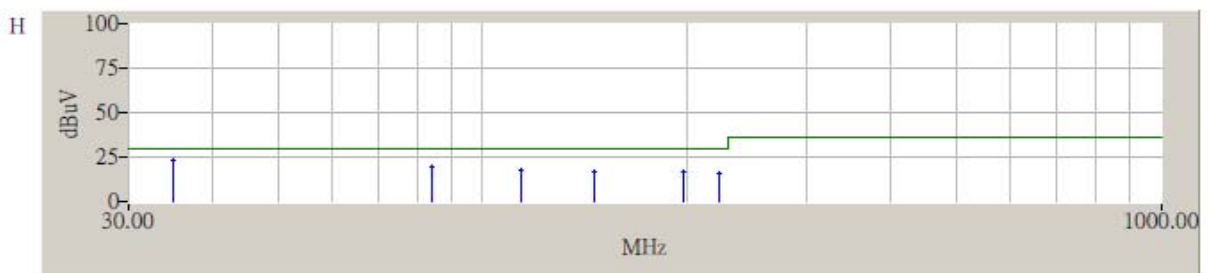
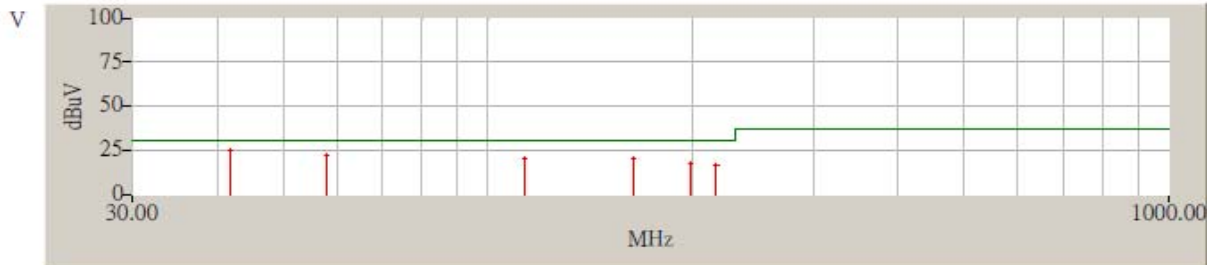
Location : HA2

Model Name : BE650MC

Description : Battery mode

Humidity : 44%

Temperature : 30°C



Frequency (MHz)	Reading (dBuV/m)	Corrected Factor (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin Limit (dB)	Table degree	Antenna Hight Pol. cm	Note
35.05	6.42	16.86	23.28	30.00	-6.72	30	400	H PK
41.83	11.89	12.84	24.73	30.00	-5.27	37	100	V PK
58.01	14.28	7.70	21.98	30.00	-8.02	153	100	V PK
84.00	10.89	9.00	19.89	30.00	-10.11	169	400	H PK
113.28	6.88	13.11	19.99	30.00	-10.01	198	101	V PK
113.72	4.56	13.12	17.68	30.00	-12.32	234	400	H PK
145.98	5.28	11.95	17.23	30.00	-12.77	218	397	H PK
163.79	8.96	11.24	20.20	30.00	-9.80	310	103	V PK
197.45	5.88	10.78	16.66	30.00	-13.34	49	395	H PK
198.26	6.53	10.81	17.34	30.00	-12.66	291	105	V PK
216.32	5.53	10.78	16.31	30.00	-13.69	206	109	V PK
223.15	4.71	11.15	15.86	30.00	-14.14	276	393	H PK

- 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: 2RE70802

Test Date: 08-JUL-2010

Tested By: H.B.LIANG