



# EMI Test Report

On Model Name: Guard Tour Reader  
Model Number: BP-2002F / BP-2002S  
Trade Mark: Bluecard

Prepared for Bluecard Software Technology Co. Ltd.

According to FCC Part 15 Subpart C

*Test Report #:* BLU-0703-6134-FCC  
*Prepared by:* Sensia Zhai  
*Reviewed by:* Victor Geng  
*QC Manager:* Paul Chen

*Test Report Released by:*

*Paul J. Chen*

*Paul Chen*

*2007, April 13*

*Date*

### **Test Location**

*Tests performed at EMC Compliance Management Group (China) in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.*

**Test Site Location:** Chinese Electronics Standardization Institute  
1 An Ding Men East Street,  
100007, P.R. China

Tel: 86-10-84029067  
Fax: 86-10-64063595  
Registration Number: 96792

### **Accreditation Bodies**

*EMC Compliance Management Group is a fully accredited Test Laboratory for ITE, ISM, MIL-STD and Telecommunications Products.*



*In compliance with the site registration requirements of Section 2.948 of the FCC Rules to perform EMI measurements for the general public. FCC Registration #: 894293.*



*Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code # 200068-0.*

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## **Administrative Data**

*Test Sample : Guard Tour Reader*

*Model Number : BP-2002F / BP-2002S*

*Model Tested : BP-2002F*

*Trade Mark : Bluecard*

*Date Tested : 2007, April 13<sup>th</sup>*

*Applicant : Bluecard Software Technology Co. Ltd.  
D-801 Shangdi Science Building, No.8 Shangdi  
West Road, Haidian District, Beijing, China*

*Telephone : 86-10-62606666*

*Fax : 86-10-82607775*

*Manufacturer : Bluecard Software Technology Co. Ltd.  
D-801 Shangdi Science Building, No.8 Shangdi  
West Road, Haidian District, Beijing, China*

## **EUT Description**

*Bluecard Software Technology Co. Ltd., model BP-2002F/BP-2002S (referred to as the EUT in this report) is Guard Tour Reader.*

*The two modes were chosen during test.*

- 1) *Communication Mode*
- 2) *Reading Mode*

### ***Derive of EUT***

*The main different between BP-2002S and BP-2002F is the BP-2002F has a LCD display window.*

*So BP-2002F was choose during tests.*

## Test Summary

The Electromagnetic Compatibility requirements on model BP-2002F for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests				
Specifications	Description	Test Results	Test Point	Remark
FCC Part 15, Section 15.207	Conducted Emission	The EUT is powered by two AAA batteries, Test not required		
FCC Part 15, Section 15.209	Radiated Emission	9kHz to 1,000MHz <b>Communication Mode</b> Passed by 2.78 dB of QP <b>Reading Mode</b> Passed by 1.94 dB of QP	Enclosure	Attachment 1

### ***Test Mode Justification***

*This device complies with Part 15 of the FCC rules. Operations is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.*

### ***EUT Exercise Software***

*On Reading Mode, the software was supplied by the manufacturer.*

### ***Equipment Modification***

*Any modifications installed previous to testing by Bluecard Software Technology Co. Ltd. will be incorporated in each production model sold or leased in United States.*

*There were no modifications installed by EMC Compliance Management Group (China) test personnel.*

**EUT Photos**



**Front View**



**Top View**



***Bottom View***



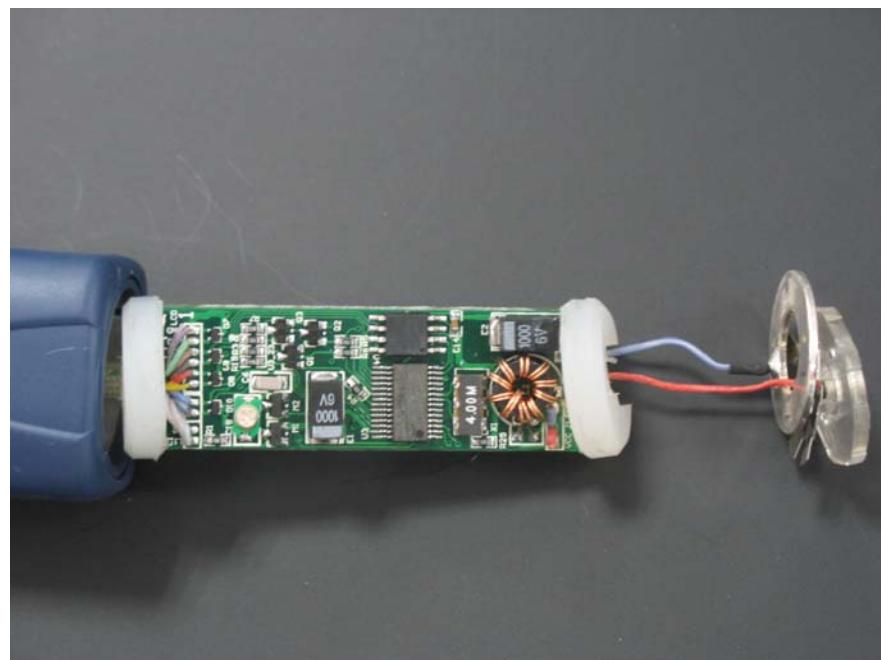
*Left View*



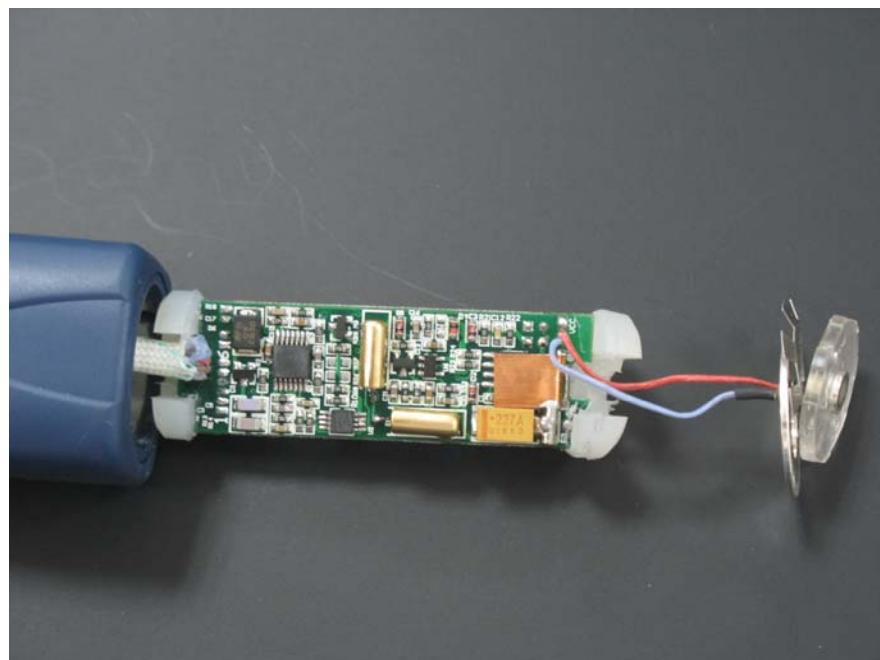
*Right View*



*Battery View*



*Inside View #1*

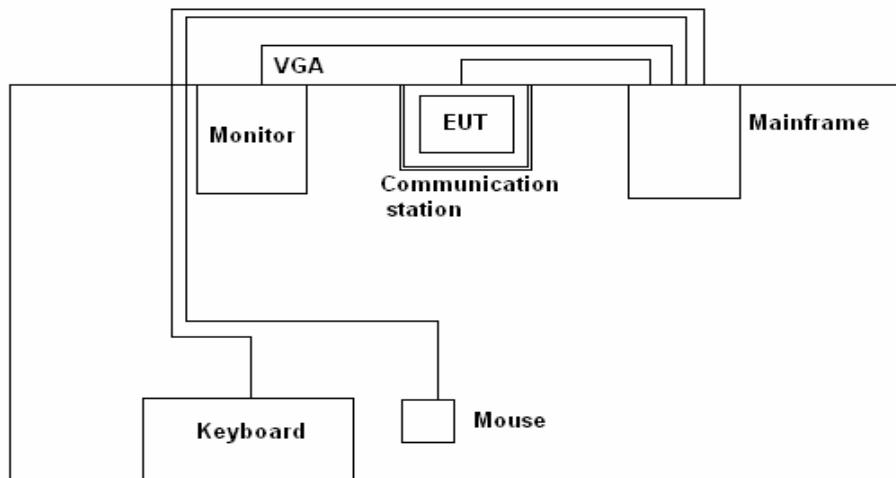


*Inside View #2*

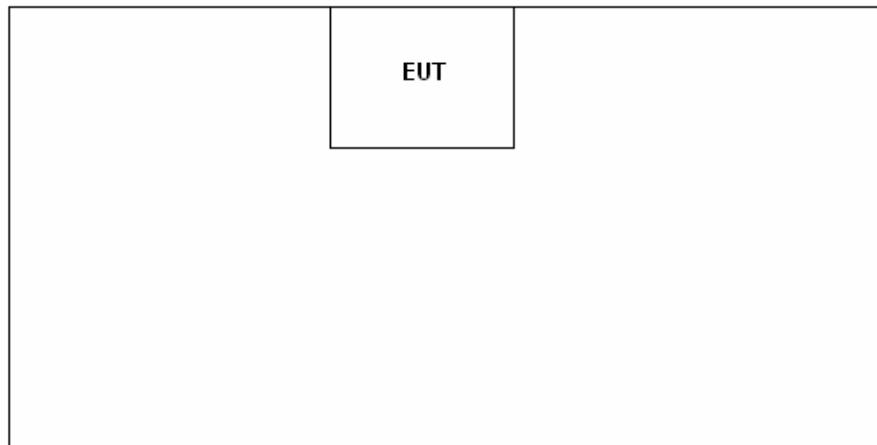
## Test System Details

<b>EUT</b>					
<b>Model Number:</b>	<b>BP-2002F/BP-2002S</b>				
<b>Model Tested:</b>	<b>BP-2002F</b>				
<b>Trademark:</b>	<b>Bluecard</b>				
<b>Description:</b>	<b>Guard Tour Reader</b>				
<b>Manufacturer:</b>	<b>Bluecard Software Technology Co. Ltd.</b>				
<b>Power Supply</b>					
<b>Description</b>	<b>Model Number</b>	<b>Serial Number</b>	<b>Manufacturer</b>		
<b>N/A</b>					
<b>Support Equipment</b>					
<b>Description</b>	<b>Model Number</b>	<b>Serial Number</b>	<b>Manufacturer</b>		
<b>Monitor</b>	<b>F1523</b>	<b>N/A</b>	<b>HP</b>		
<b>Keyboard</b>	<b>SK-8110</b>	<b>N/A</b>	<b>Dell</b>		
<b>mouse</b>	<b>Mo71kc</b>	<b>501098067</b>	<b>Dell</b>		
<b>Communication station</b>	<b>bs-1000</b>	<b>N/A</b>	<b>BLUECARD</b>		
<b>Cable Description</b>					
<b>Description</b>	<b>From</b>	<b>To</b>	<b>Length (Meters)</b>	<b>Shielded (Y/N)</b>	<b>Ferrite (Y/N)</b>
<b>Power cable</b>	<b>Mainframe</b>	<b>AC power</b>	<b>1.5</b>	<b>N</b>	<b>N</b>
<b>Power cable</b>	<b>Monitor</b>	<b>AC power</b>	<b>1.5</b>	<b>N</b>	<b>Y</b>
<b>VGA cable</b>	<b>Mainframe</b>	<b>Monitor</b>	<b>0.8</b>	<b>N</b>	<b>Y</b>
<b>USB cable</b>	<b>Mainframe</b>	<b>Communication station</b>	<b>1.8</b>	<b>N</b>	<b>Y</b>

## ***Configuration of Tested System***



***Communication mode***



***Reading Mode***

## ATTACHMENT 1 - RADIATED EMISSION TEST RESULTS

<b>CLIENT:</b>	Bluecard Software Technology Co. Ltd.	<b>TEST STANDARD:</b>	FCC Part 15 (2006), ANSI C63.4: 2003
<b>EUT MODELS:</b>	BP-2002F	<b>PRODUCT:</b>	Guard Tour Reader
<b>MODEL TESTED:</b>	Engineering Sample	<b>EUT DESIGNATION:</b>	I.T. Equipment
<b>TEMPERATURE:</b>	29.1 ° C	<b>HUMIDITY:</b>	40%
<b>ATM PRESSURE:</b>	101kPa	<b>GROUNDING:</b>	NO Grounding
<b>TESTED BY:</b>	Cary Hu	<b>DATE OF TEST:</b>	2007,April 13
<b>TEST REFERENCE:</b>	FCC Part 15, section 15.209, ANSI C63.4: 2003, CISPR 16-1:2003		
<b>TEST PROCEDURE:</b>	<p>The EUT was set up according to the guidelines of ANSI C63.4: 2003 for radiated emissions. An EMI receiver peak scan was made at the frequency measurement range (pre-scan) in an Anechoic chamber. Signal discrimination was then performed and the significant peaks marked. These peaks were then quasi-peaked in the frequency range of 9kHz to 1GHz at an Anechoic chamber.</p> <p>The following data lists the significant emission frequencies, measured levels, correction factors (including cable and antenna correction factors), and the corrected readings against the limits. Explanation of the Correction Factor are given as follows:</p> <p>FS= RA + AF + CF - AG</p> <p>Where: FS = Field Strength</p> <p>RA = Receiver Amplitude</p> <p>AF = Antenna Factor</p> <p>CF = Cable Attenuation Factor</p> <p>AG = Amplifier Gain</p>		
<b>TESTED RANGE:</b>	9kHz to 1,000MHz		
<b>TEST VOLTAGE:</b>	120VAC / 60Hz		
<b>RESULTS:</b>	<p><b>Communication Mode:</b> The EUT meets the requirements of Test Reference for Radiated Emissions on vertical polarization by 2.78dB at 30.54 MHz.</p> <p><b>Reading Mode:</b> The EUT meets the requirements of Test Reference for Radiated Emissions on Horizontal polarization by 1.94 dB at 180.015 MHz.</p> <p><b>Note:</b> the test from 9 kHz to 30 MHz, the test distance is 10m the test from 30MHz to 1GHz, the test distance is 3m The test results relate only to the equipment under test provided by client.</p>		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by EMC Compliance Management Group (China) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm$ 2x10-7 x Center Freq., Amp $\pm$ 2.6 dB		

**EMC Test Report #:** BLU-0703-6134-FCC

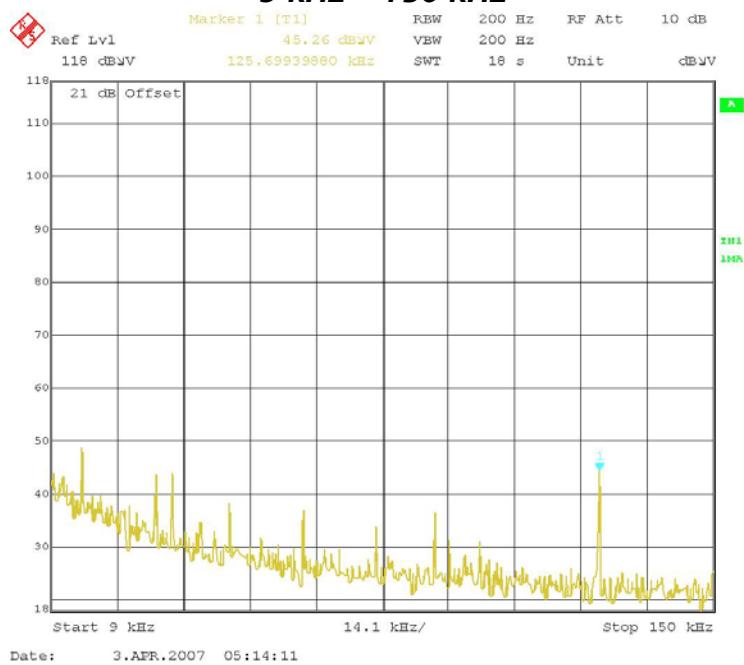
**Prepared for Bluecard Software Technology Co. Ltd.**

**Prepared by EMC Compliance Management Group**

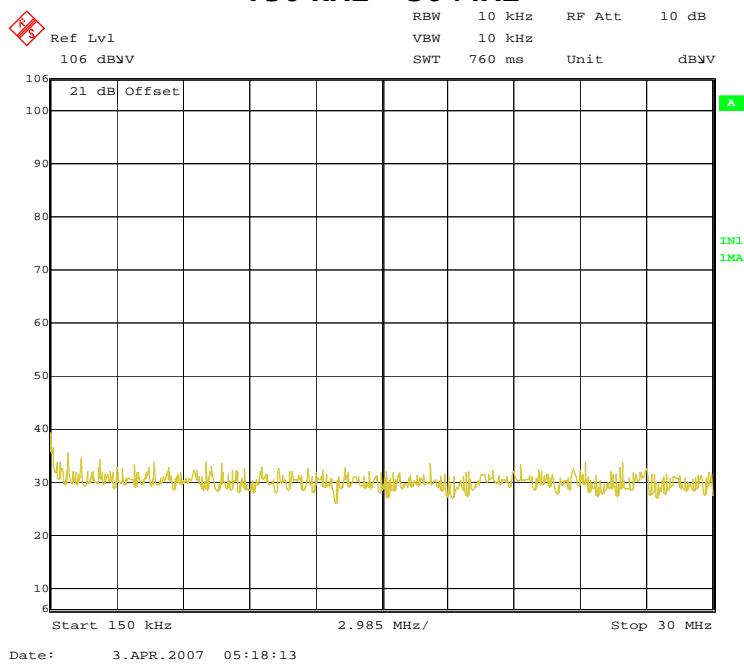
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## Communication Mode

### 9 kHz ~ 150 kHz



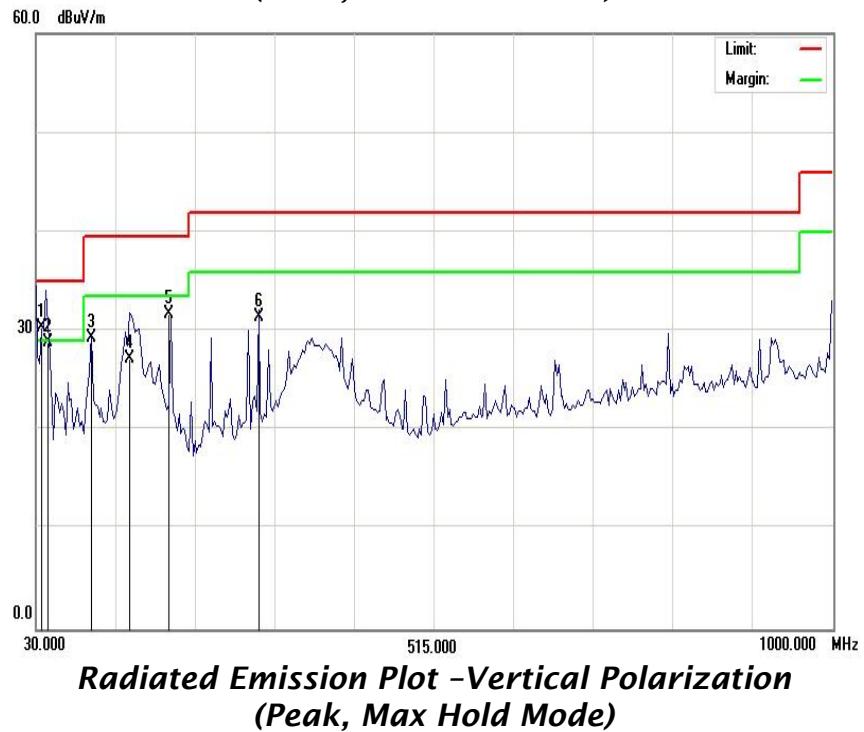
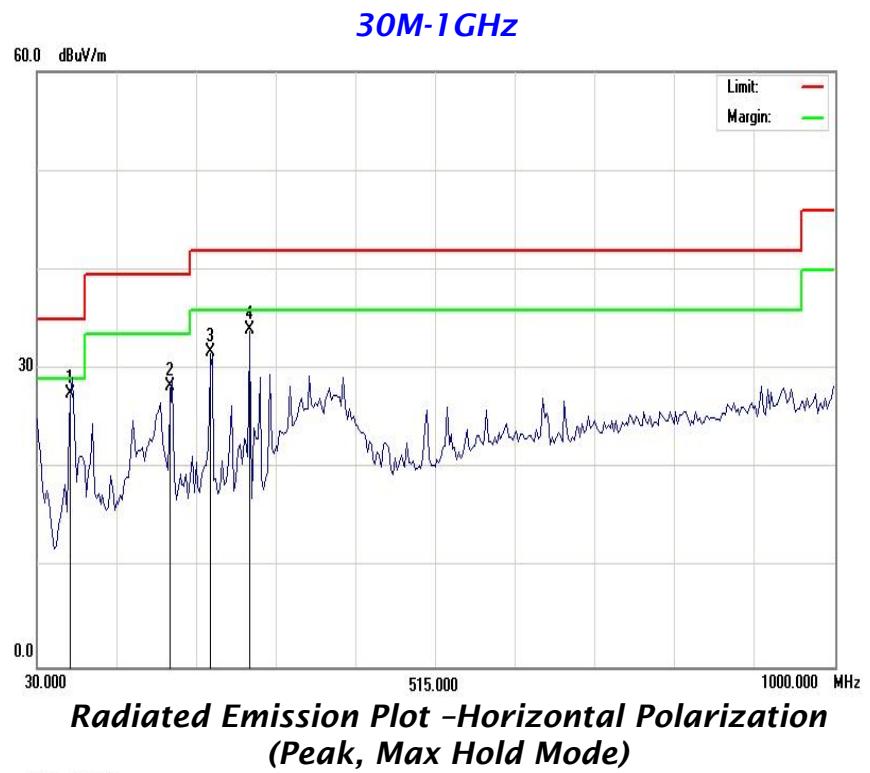
### 150 kHz ~ 30 MHz



*For 125.57 kHz*  
*Test Results (9 kHz~30 MHz)*

Maximum Frequency (kHz)	Spurious Emission Level (dB $\mu$ A/m)	10 Meters Limit (dB $\mu$ A/m)	Margin (dB)
Note: There is no spurious emissions during the test, so need not mark and read the data.			
Note: For 0.009 MHz~0.15 MHz, the readings are using a bandwidth of 200Hz and for 0.15 MHz~30 MHz, the readings are using a bandwidth of 10kHz, with a 30 ms sweep time. A video filter was not used.			

***Note: For measuring equipment calibrated in dB  $\mu$  V/m, the reading should be reduced by 51.5 dB to be converted to in dB  $\mu$  A/m.***



Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dB $\mu$ V/m]	Delta, QP [dB]	5 Meters Limits [dB $\mu$ V/m]	Correction Factors [dB/m]	Angle of Turner (degree)	Height of Tower (cm)
70.2	H	-12.75	27.48	35	-7.52	400	110
192.1475	H	-10.12	28.34	39.5	-11.16	260	130
240.1775	H	-7.82	31.79	42	-10.21	180	10
288.23	H	-6.74	33.97	42	-8.03	140	300
35.605	V	-4.1	30.32	35	-4.68	100	330
43.235	V	-9.42	28.9	35	-6.1	100	290
96.0775	V	-14.26	29.35	39.5	-10.15	140	150
143.235	V	-10.56	27.3	39.5	-12.2	100	225
192.2	V	-9.98	31.77	39.5	-7.73	100	185
299.89	V	-6.03	31.37	42	-10.63	100	235
Comments: None							
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.							

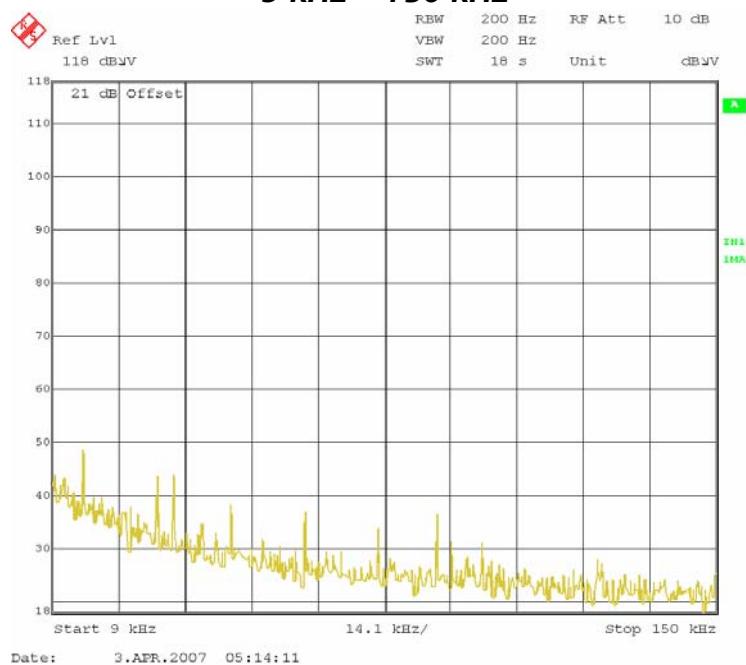
Test Equipment	/Model	Manufacturer	Serial No.	Last Cal.	Cal. Due
EMI receiver	ESCS30	RS	847793/028	05/07/07	06/05/08
Antenna	3115	EMCO	9202-3790	09/08/06	09/07/07

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).

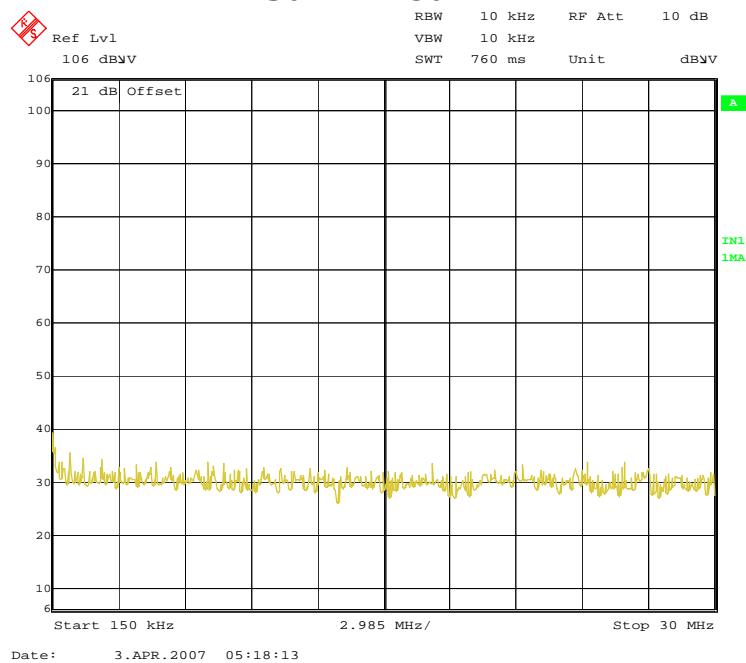
SIGNED BY: Carry Hu  
ENGINEER

REVIEWED BY: Ciit Grey  
SENIOR ENGINEER

**Reading Mode**  
**9 kHz ~ 150 kHz**



**150 kHz ~ 30 MHz**



*For 125.57 kHz*

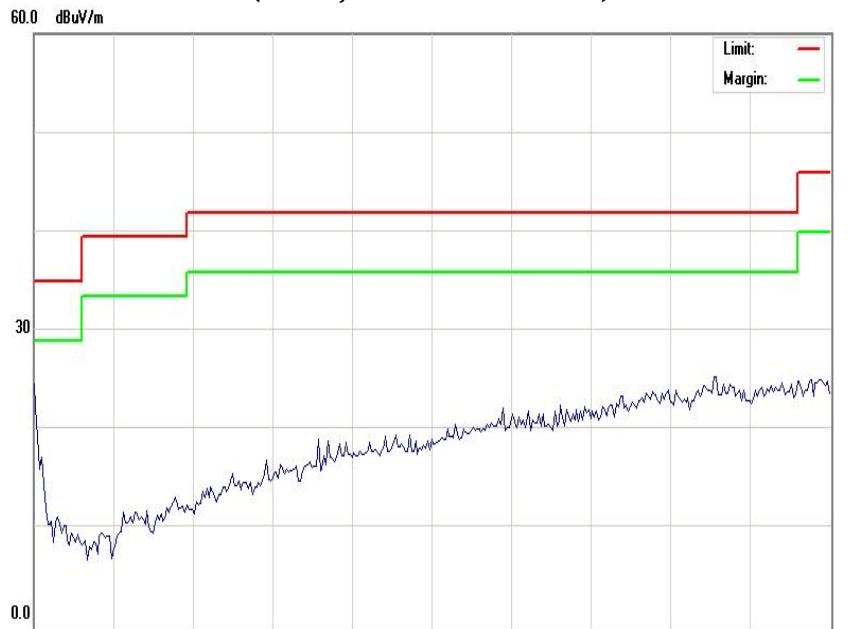
*Test Results (9 kHz~30 MHz)*

Maximum Frequency (MHz)	Spurious Emission Level ( dB $\mu$ A/m )	10 Meters Limit (dB $\mu$ A/m)	Margin (dB)
<b>Note:</b> There is no spurious emissions during the test, so need not mark and read the data.			
Note: For 0.009 MHz~0.15 MHz, the readings are using a bandwidth of 200Hz and for 0.15 MHz~30 MHz, the readings are using a bandwidth of 10kHz, with a 30 ms sweep time. A video filter was not used.			

***Note: For measuring equipment calibrated in dB $\mu$ V/m, the reading should be reduced by 51.5 dB to be converted to in dB $\mu$ A/m.***



**Radiated Emission Plot -Horizontal Polarization  
(Peak, Max Hold Mode)**



**Radiated Emission Plot -Vertical Polarization  
(Peak, Max Hold Mode)**

Frequency [MHz]	Antenna Polarizati on [V/H]	Corrected Reading [dB $\mu$ V/m]	Delta, QP [dB]	5 Meters Limits [dB $\mu$ V/m]	Correction Factors [dB/m]	Angle of Turner (degree)	Height of Tower (cm)
--	--	--	--	--	--	--	--
Comments: There is no Radiated Emission during the test, so need not mark and read the data.							
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.							

Test Equipment	/Model	Manufacturer	Serial No.	Last Cal.	Cal. Due
EMI receiver	ESCS30	RS	847793/028	05/07/07	06/05/08
Antenna	3115	EMCO	9202-3790	09/08/06	09/07/07
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).					

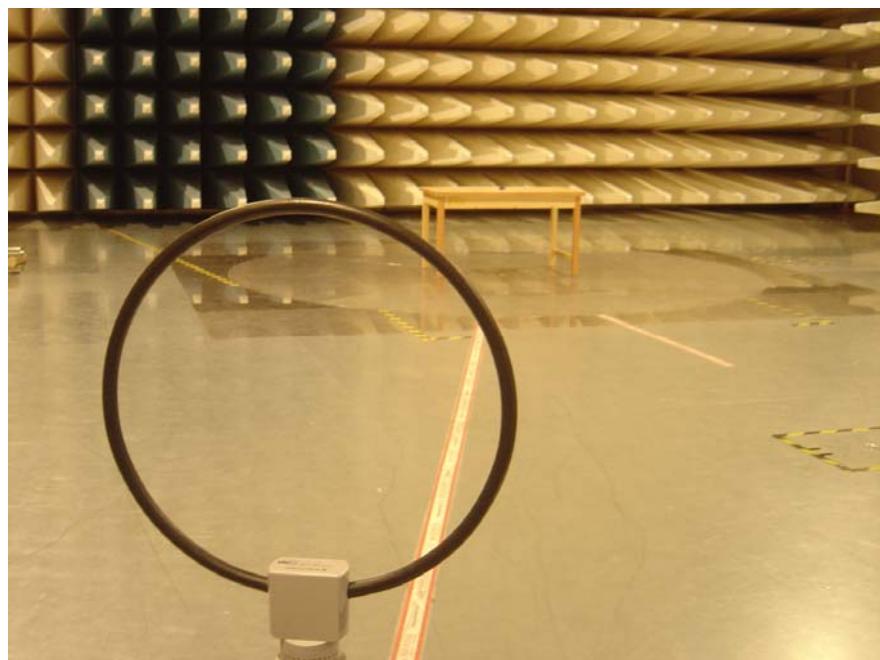
SIGNED BY: Carry Hu

ENGINEER

REVIEWED BY: Victor Greng

SENIOR ENGINEER

**Model Number: BP-2002F**



**Maximized Radiated Emission Test Set-up(9KHz-30MHz)**



**Maximized Radiated Emission Test Set-up - Communication Mode**



***Maximized Radiated Emission Test Set-up- Reading Mode***