

EMI Test Report

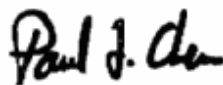
On Model Name: Guard Tour Reader
Model Number: BP-2002F / BP-2002S
Trade Mark: Bluecard

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 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.

Table of Contents

<i>GOVERNMENT DISCLAIMER NOTICE</i>	<i>1</i>
<i>REPRODUCTION CLAUSE</i>	<i>1</i>
<i>ADMINISTRATIVE DATA</i>	<i>2</i>
<i>EUT DESCRIPTION</i>	<i>2</i>
<i>DERIVE OF EUT</i>	<i>3</i>
<i>TEST SUMMARY</i>	<i>4</i>
<i>TEST MODE JUSTIFICATION</i>	<i>5</i>
<i>EUT EXERCISE SOFTWARE</i>	<i>5</i>
<i>EQUIPMENT MODIFICATION</i>	<i>5</i>
<i>TEST SYSTEM DETAILS</i>	<i>11</i>
<i>CONFIGURATION OF TESTED SYSTEM</i>	<i>12</i>
<i>ATTACHMENT 1 - RADIATED EMISSION TEST RESULTS</i>	<i>13-23</i>

Government Disclaimer Notice

When government drawing, specification, or other data are used for any purpose other than in connection with a definitely related government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawing, specifications, or other data, is not to be regarded by implication or otherwise in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell patented invention that may in any way be related thereto. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

Reproduction Clause

Any reproduction of this document must be done in full. No single part of this document may be reproduced without permission from EMC Compliance Management Group, 670 National Ave., Mountain View, CA 94043.

Administrative Data

Test Sample : Guard Tour Reader

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

Model Tested : BP-2002F

Trade Mark : Bluecard

Date Tested : 2007, April 13th

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

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



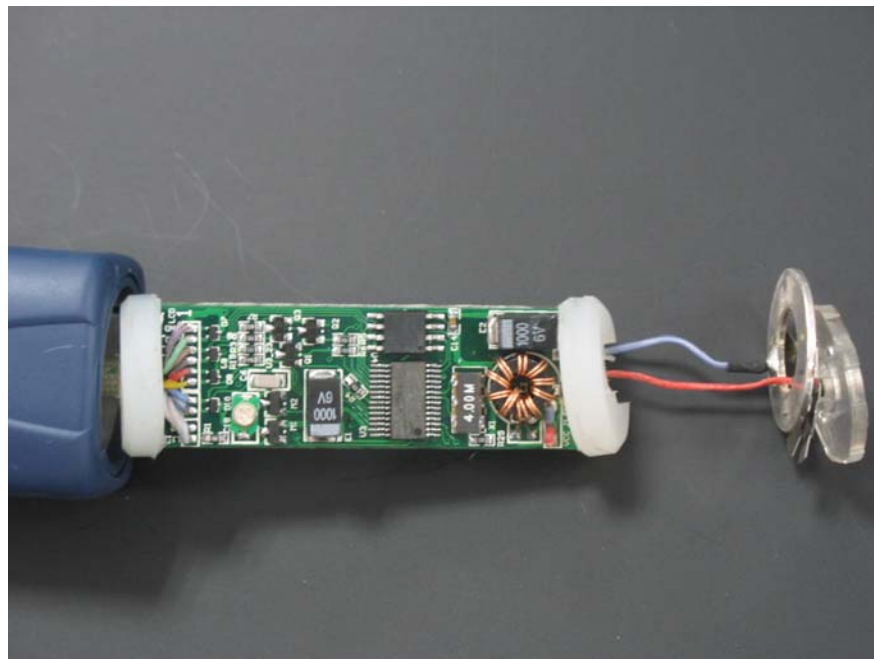
Left View



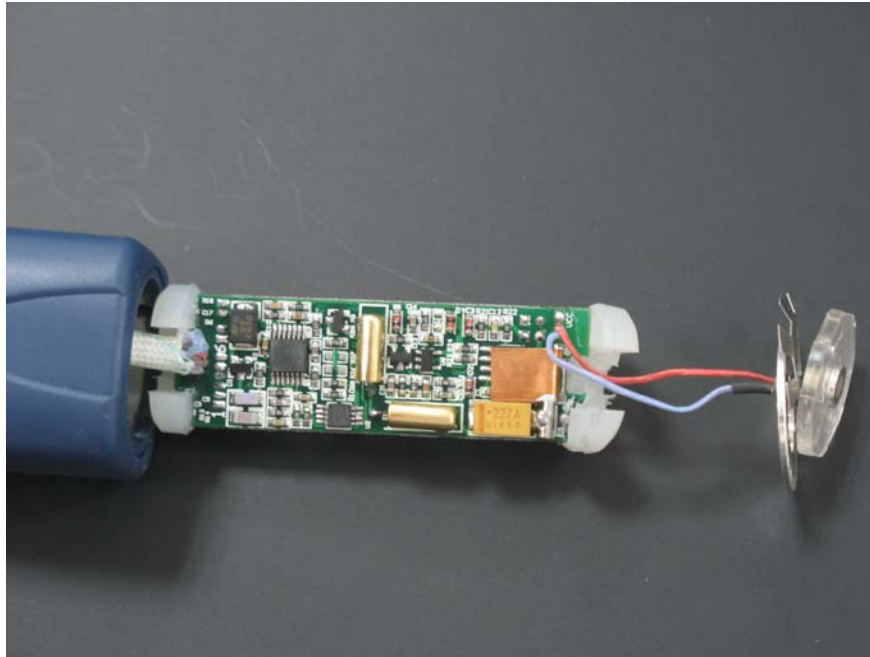
Right View



Battery View



Inside View #1

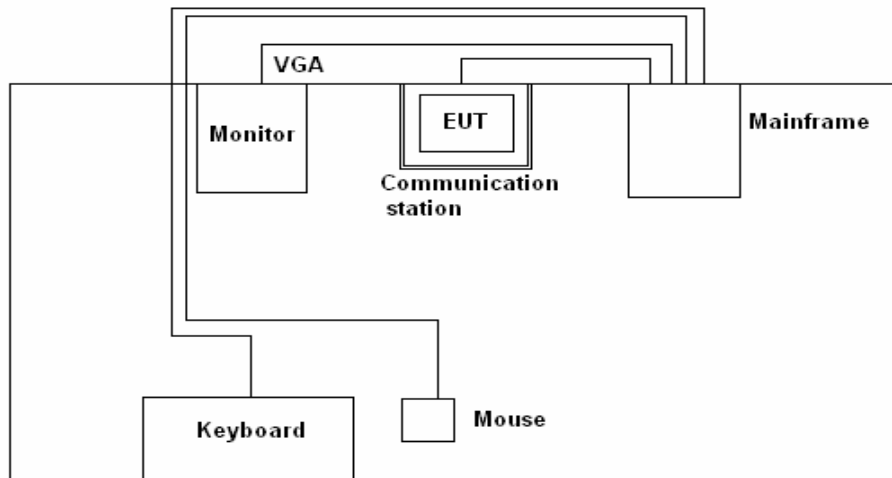


Inside View #2

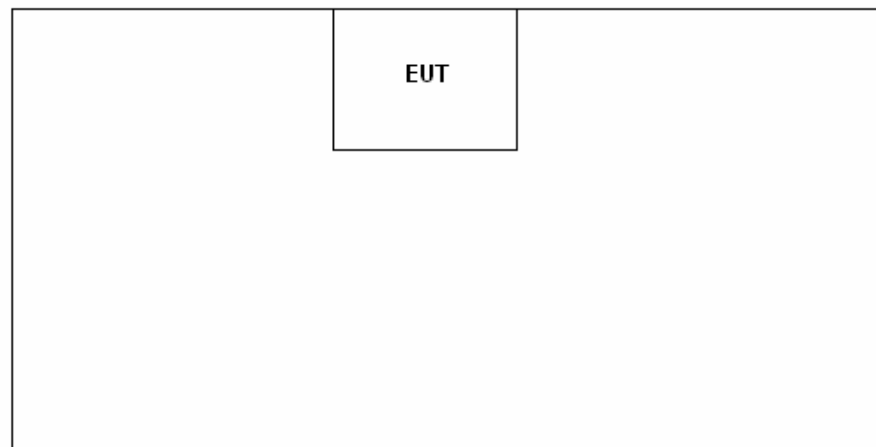
Test System Details

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

Configuration of Tested System



Communication mode



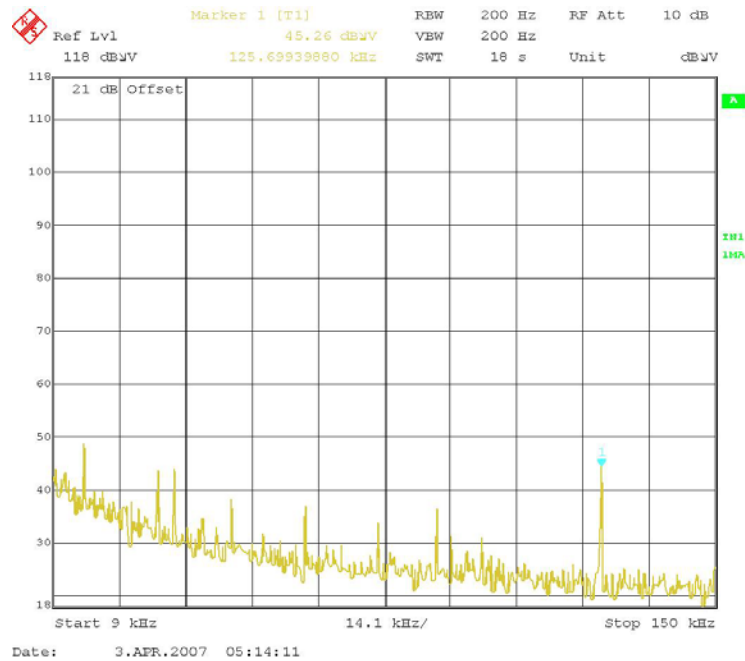
Reading Mode

ATTACHMENT 1 - RADIATED EMISSION TEST RESULTS

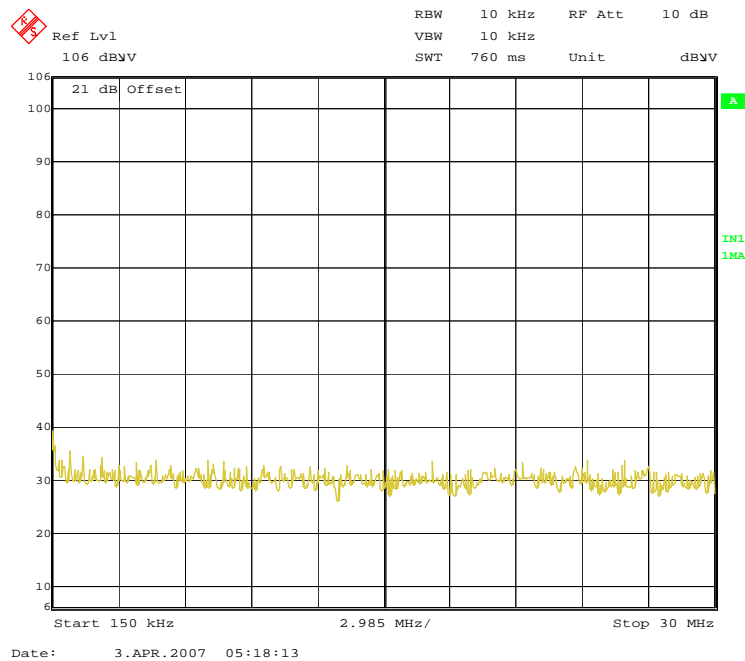
CLIENT:	Bluecard Software Technology Co. Ltd.	TEST STANDARD:	FCC Part 15 (2006), ANSI C63.4: 2003
EUT MODELS:	BP-2002F	PRODUCT:	Guard Tour Reader
MODEL TESTED:	Engineering Sample	EUT DESIGNATION:	I.T. Equipment
TEMPERATURE:	29.1° C	HUMIDITY:	40%
ATM PRESSURE:	101kPa	GROUNDING:	NO Grounding
TESTED BY:	Cary Hu	DATE OF TEST:	2007, April 13
TEST REFERENCE:	FCC Part 15, section 15.209, ANSI C63.4: 2003, CISPR 16-1:2003		
TEST PROCEDURE:	<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>		
TESTED RANGE:	9kHz to 1,000MHz		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	<p>Communication Mode: The EUT meets the requirements of Test Reference for Radiated Emissions on vertical polarization by 2.78dB at 30.54 MHz.</p> <p>Reading Mode: The EUT meets the requirements of Test Reference for Radiated Emissions on Horizontal polarization by 1.94 dB at 180.015 MHz.</p> <p>Note: 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>		
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

Communication Mode

9 kHz ~ 150 kHz



150 kHz ~ 30 MHz

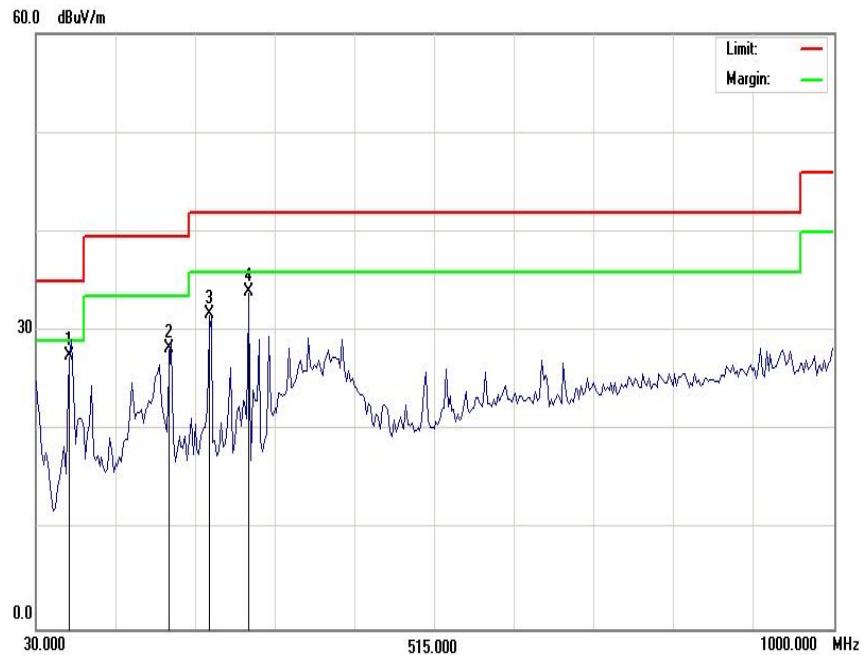


For 125.57 kHz
Test Results (9 kHz~30 MHz)

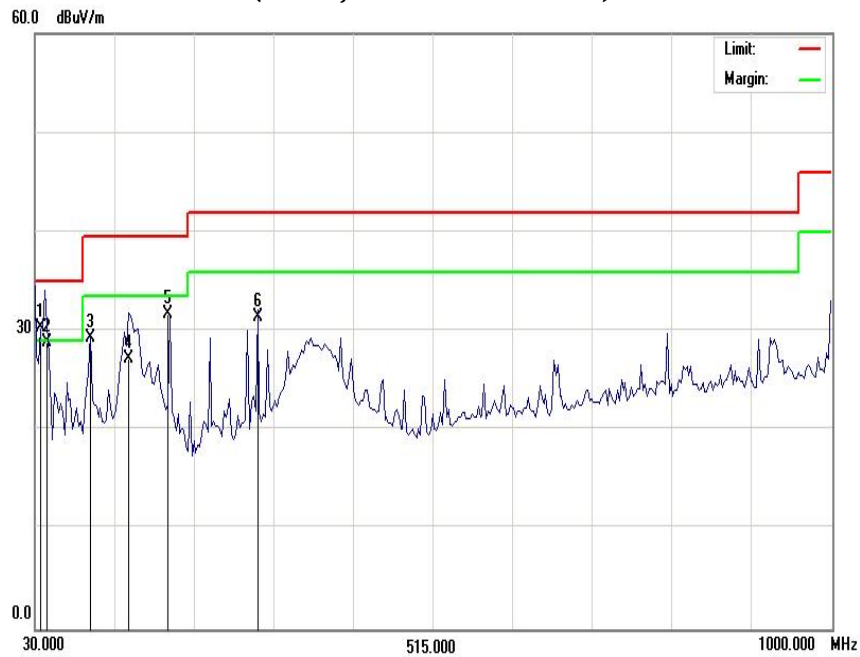
Maximum Frequency (kHz)	Spurious Emission Level (dB μ A/m)	10 Meters Limit (dB μ A/m)	Margin (dB)
Note: There is no spurious emissions during the test, so need not mark and read the data.			
Note: For 0.009 MHz~0.15 MHz, the readings are using a bandwidth of 200Hz and for 0.15 MHz~30 MHz, the readings 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 μ V/m, the reading should be reduced by 51.5 dB to be converted to in dB μ A/m.

30M-1GHz



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



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

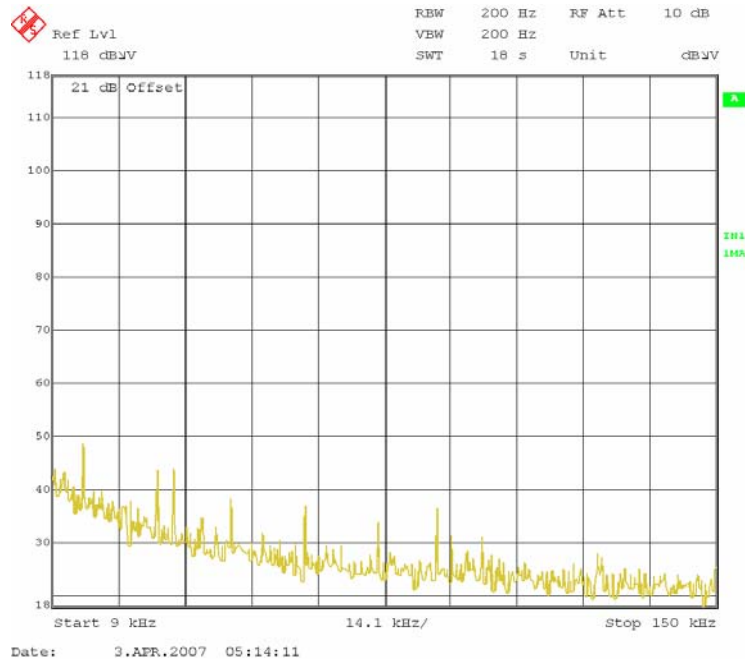
Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dB μ V/m]	Delta, QP [dB]	5 Meters Limits [dB μ V/m]	Correction Factors [dB/m]	Angle of Turner (degree)	Height of Tower (cm)
70.2	H	-12.75	27.48	35	-7.52	400	110
192.1475	H	-10.12	28.34	39.5	-11.16	260	130
240.1775	H	-7.82	31.79	42	-10.21	180	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).					

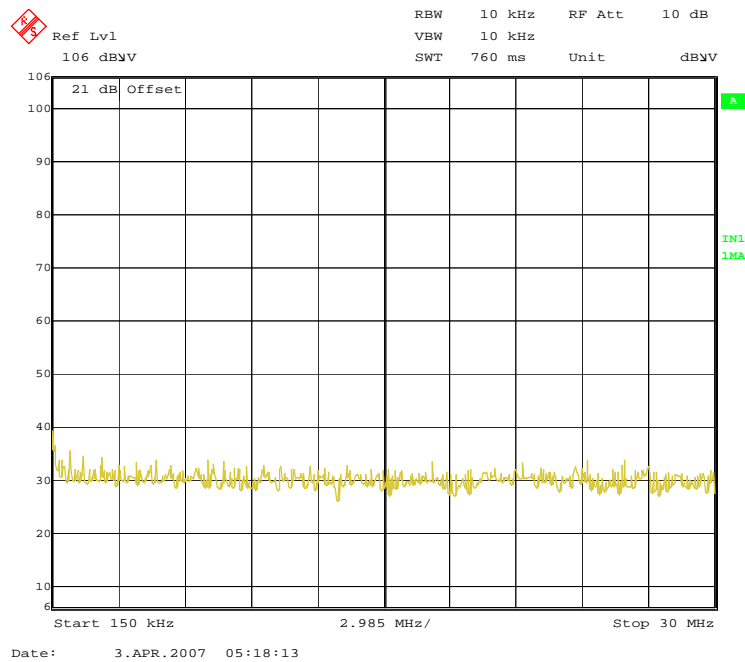
SIGNED BY: Cory Hu
ENGINEER

REVIEWED BY: Victor Gray
SENIOR ENGINEER

Reading Mode 9 kHz ~ 150 kHz



150 kHz ~ 30 MHz



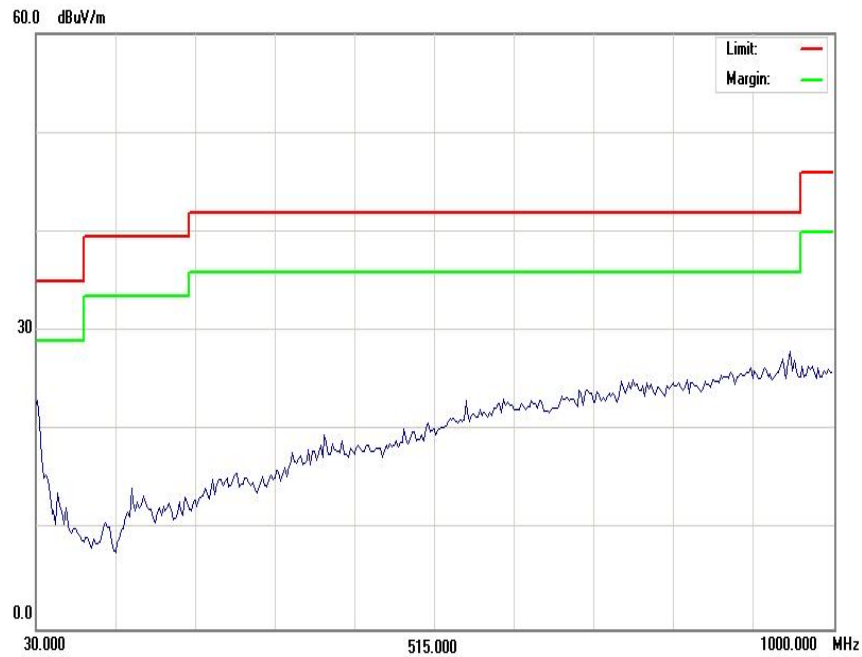
For 125.57 kHz

Test Results (9 kHz~30 MHz)

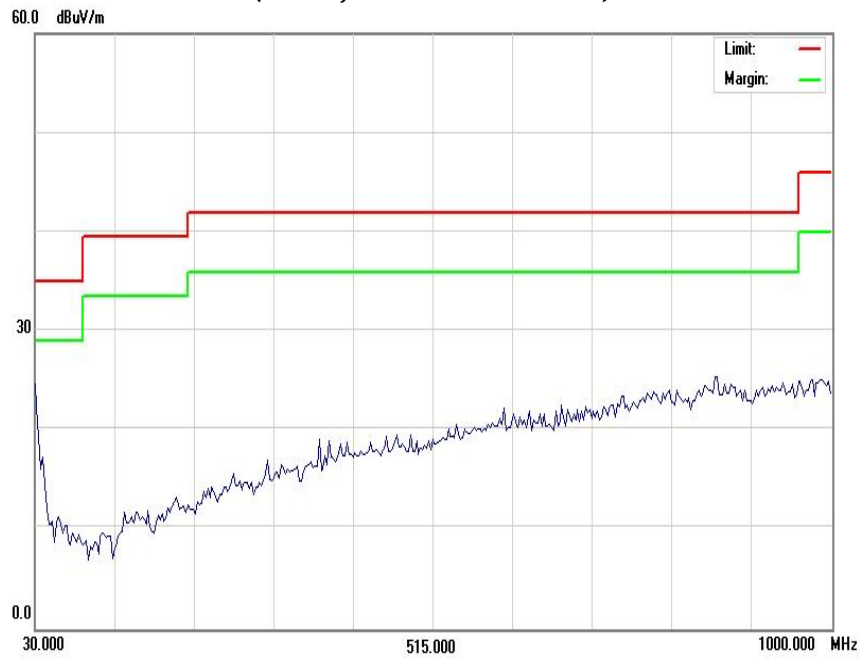
Maximum Frequency (MHz)	Spurious Emission Level (dB μ A/m)	10 Meters Limit (dB μ A/m)	Margin (dB)
Note: There is no spurious emissions during the test, so need not mark and read the data.			
Note: For 0.009 MHz~0.15 MHz, the readings are using a bandwidth of 200Hz and for 0.15 MHz~30 MHz, the readings 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 μ V/m, the reading should be reduced by 51.5 dB to be converted to in dB μ A/m.

30M-1GHz



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



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

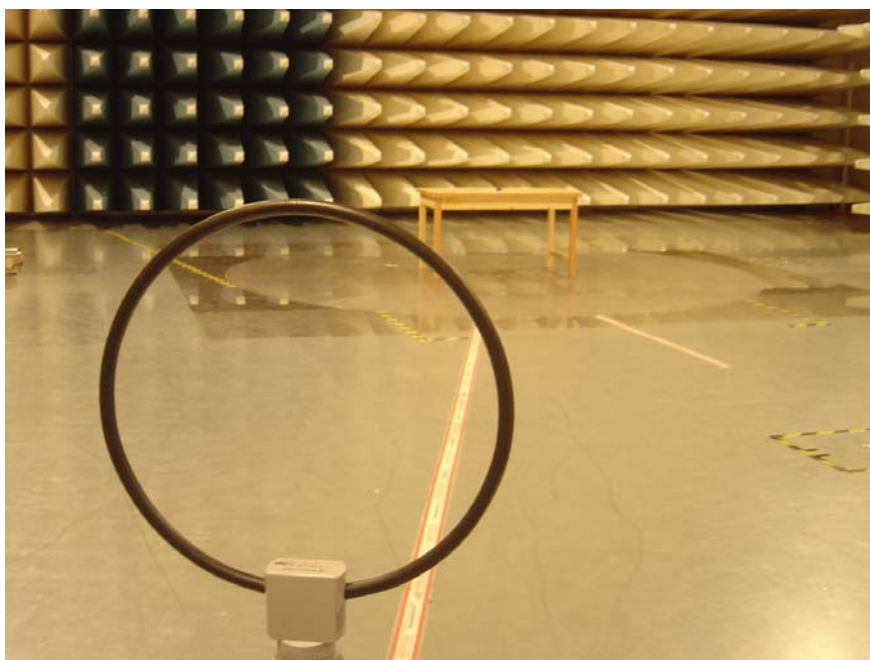
Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dB μ V/m]	Delta, QP [dB]	5 Meters Limits [dB μ V/m]	Correction Factors [dB/m]	Angle of Turner (degree)	Height of Tower (cm)
--	--	--	--	--	--	--	--
Comments: There is no Radiated Emission during the test, so need not mark and read the data.							
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: 
ENGINEER

REVIEWED BY: 
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