



**FCC CFR47 PART 15 SUBPART B  
CERTIFICATION TEST REPORT  
FOR  
RECEIVER**

**MODEL NUMBER: Base500-2B**

**REPORT NUMBER: 1001446422**

**FCC ID: U5Z-BASE5001B2B**

**ISSUE DATE: 2011-12-01  
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*Prepared for*  
**JCM TECHNOLOGIES S A  
BISBE MORGADES, 46 BAIXOS  
VIC  
08500, SPAIN**

*Prepared by*  
**UNDERWRITERS LABORATORIES INC.  
1285 WALT WHITMAN RD.  
MELVILLE, NY 11747, U.S.A.  
TEL: (631) 271-6200  
FAX: (877) 854-3577**



**NVLAP LAB CODE 100255-0**

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	2011-12-01	Initial Issue	B. DeLisi
--	2011-12-12	Change from DoC Report to Certification Report	B. DeLisi

## TABLE OF CONTENTS

<b>1. ATTESTATION OF TEST RESULTS .....</b>	<b>4</b>
<b>2. TEST METHODOLOGY .....</b>	<b>5</b>
<b>3. FACILITIES AND ACCREDITATION .....</b>	<b>5</b>
<b>4. CALIBRATION AND UNCERTAINTY .....</b>	<b>5</b>
4.1. <i>MEASURING INSTRUMENT CALIBRATION .....</i>	<i>5</i>
4.2. <i>SAMPLE CALCULATION .....</i>	<i>5</i>
4.3. <i>MEASUREMENT UNCERTAINTY .....</i>	<i>5</i>
<b>5. EQUIPMENT UNDER TEST .....</b>	<b>6</b>
5.1. <i>DESCRIPTION OF EUT .....</i>	<i>6</i>
5.2. <i>MANUFACTURER'S DESCRIPTION OF MODEL DIFFERENCES .....</i>	<i>6</i>
5.3. <i>MODE(S) OF OPERATION .....</i>	<i>6</i>
5.4. <i>MODIFICATIONS .....</i>	<i>6</i>
5.5. <i>DETAILS OF TESTED SYSTEM .....</i>	<i>7</i>
<b>6. TEST AND MEASUREMENT EQUIPMENT .....</b>	<b>9</b>
<b>7. APPLICABLE LIMITS AND TEST RESULTS .....</b>	<b>11</b>
7.1. <i>RADIATED EMISSIONS .....</i>	<i>11</i>
7.2. <i>AC MAINS LINE CONDUCTED EMISSIONS .....</i>	<i>16</i>
<b>8. SETUP PHOTOS.....</b>	<b>20</b>

# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** JCM TECHNOLOGIES S A  
BISBE MORGADES, 46 BAIXOS  
VIC 08500, SPAIN

**EUT DESCRIPTION:** Receiver

**MODEL:** Base500-2B

**SERIAL NUMBER:** Non-serialized Production Unit

**DATE TESTED:** 2011-11-30

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART B	Pass

Underwriters Laboratories Inc. tested the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Inc. based on interpretations of these calculations. The results show that the equipment is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation, as described by the referenced documents. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL By:



Joseph Danisi  
Lead Engineering Associate  
UL

Tested By:



Bob DeLisi  
Sr. Staff Engineer  
UL

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 1285 Walt Whitman Rd. Melville, NY 11747, USA.

UL Melville is accredited by NVLAP, Laboratory Code 100255-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/1002550.htm>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	± 3.3 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.00 dB

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a receiver intended for security gate operation in a wireless environment.

#### GENERAL INFORMATION

Power Requirements	120Vac, 60Hz
List of frequencies generated or used by the EUT	4MHz, 13.56MHz

### 5.2. MANUFACTURER'S DESCRIPTION OF MODEL DIFFERENCES

The particular device that was tested is a sample of one version within the Base500 model series. The following table shows the model differences.

Model Name	Model Number	Model Differences
Base500-1B	Base500-1B	Single contact I/O connection where the Base500-2B has 2 contact I/O connections.

### 5.3. MODE(S) OF OPERATION

Mode	Description
1	Continuous Receive

### 5.4. MODIFICATIONS

No modifications were made during testing.

## 5.5. DETAILS OF TESTED SYSTEM

### SUPPORT EQUIPMENT & PERIPHERALS

None

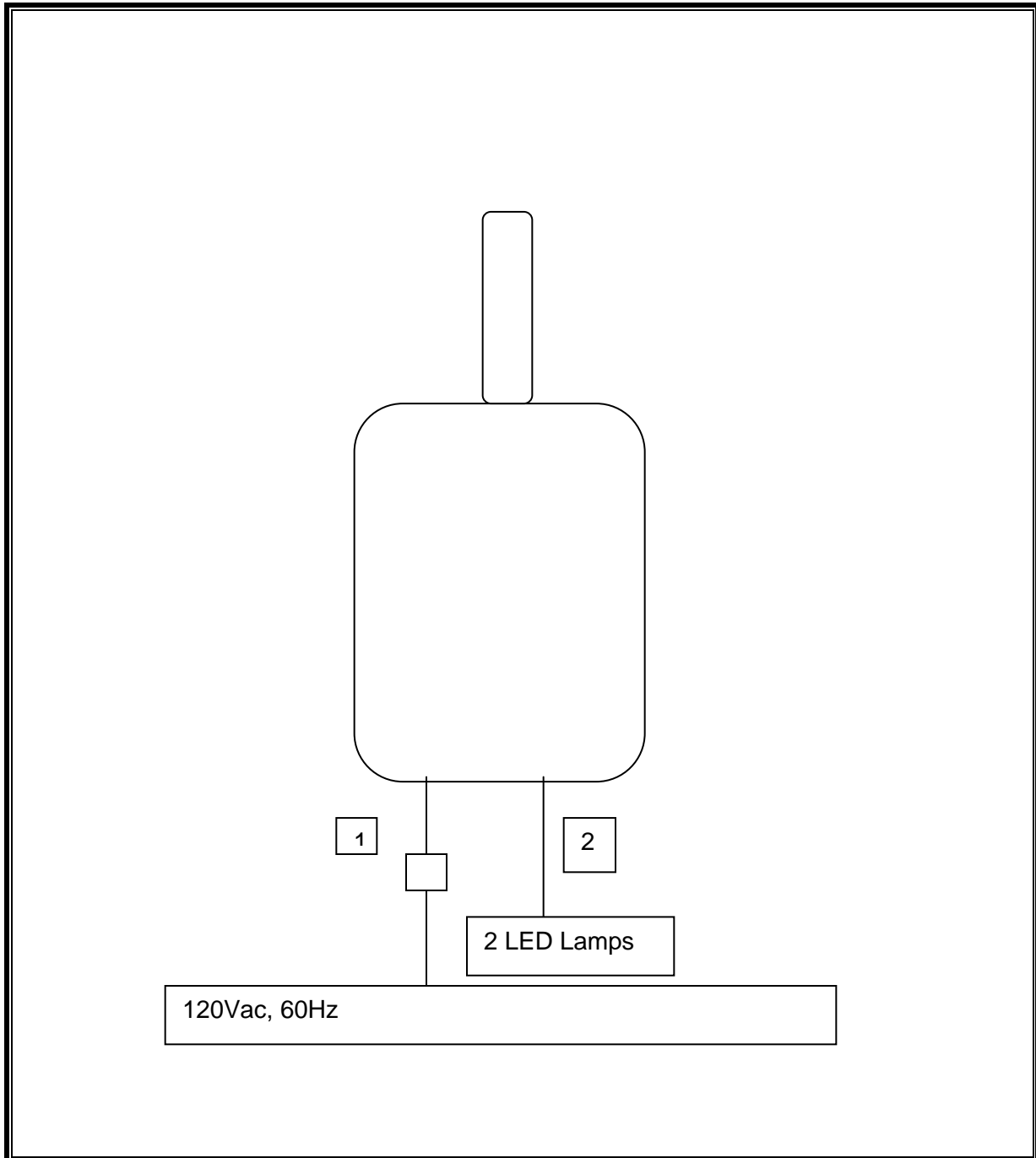
### I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	Terminal Block	Unshielded	1.8 m	AC/DC Converter
2	DC Output	2	Terminal Block	Unshielded	1 m	None

### TEST SETUP

The EUT is installed in a typical configuration.

**TEST SETUP DIAGRAM**





## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

### Radiated Emissions - 10 Meter Chamber

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due
30-1000MHz					
EMI Receiver	Rohde & Schwarz	ESIB40	34968	2011-03-01	2012-03-01
Bicon Antenna	Schaffner	VBA6106A	43441	2011-10-11	2012-10-11
Log-P Antenna	Schaffner	UPA6109	44067	2011-04-29	2012-04-29
Switch Driver	HP	11713A	ME7A-627	N/A	N/A
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A
RF Switch Box	UL	1	44398	N/A	N/A
Measurement Software	UL	Version 9.3	44740	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07
Multimeter	Fluke	83III	ME5B-305	2011-02-01	2012-02-29
Above 1GHz (Band Optimized System)					
Spectrum Analyzer	Agilent	E4446A	72823	2011-07-26	2012-07-26
Horn Antenna (1-2GHz)	ETS	3161-01	51442	2008-03-28	See * below
Horn Antenna (2-4 GHz)	ETS	3161-02	48107	2007-09-27	See * below
Horn Antenna (4-8 GHz)	ETS	3161-03	48106	2007-09-27	See * below
Signal Path Controller	HP	11713A	50250	N/A	N/A
Gain Controller	HP	11713A	50251	N/A	N/A
RF Switch / Preamp Fixture	UL	BOMS1	50249	N/A	N/A
System Controller	UL	BOMS2	50252	N/A	N/A
Measurement Software	UL	Version 9.3	44740	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07
Multimeter	Fluke	83III	ME5B-305	2011-02-01	2012-02-29

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due
* - Note: As allowed by the calibration standard ANSI C63.4 Section 4.4.2, standard gain horns need only a one-time calibration. Only if physical damage occurs will the horn antenna require re-calibration. * Gain standard horn antennas (sometimes called standard gain horn antennas) need not be calibrated beyond that which is provided by the manufacturer unless they are damaged or deterioration is suspected, or they are used at a distance closer than $2D^2/\lambda$ . Gain standard horn antennas have gains that are fixed by their dimensions and dimensional tolerances.					

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
Conducted Emissions – GP 1					
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2011-01-27	2012-01-31
LISN	Solar	9252-50-R-24-BNC	ME5A-636	2011-02-04	2012-02-28
Switch Driver	HP	11713A	44397	N/A	N/A
RF Switch Box	UL	4	44404	N/A	N/A
Measurement Software	UL	Version 9.3	44736	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2010-03-08	2012-03-08
Multimeter	Fluke	83V	43443	2011-02-01	2012-02-29

## 7. APPLICABLE LIMITS AND TEST RESULTS

### 7.1. RADIATED EMISSIONS

#### TEST PROCEDURE

ANSI C63.4

The highest clock frequency generated or used in the EUT is 868 MHz, therefore the frequency range was investigated from 30 MHz to 5000 MHz.

#### LIMIT

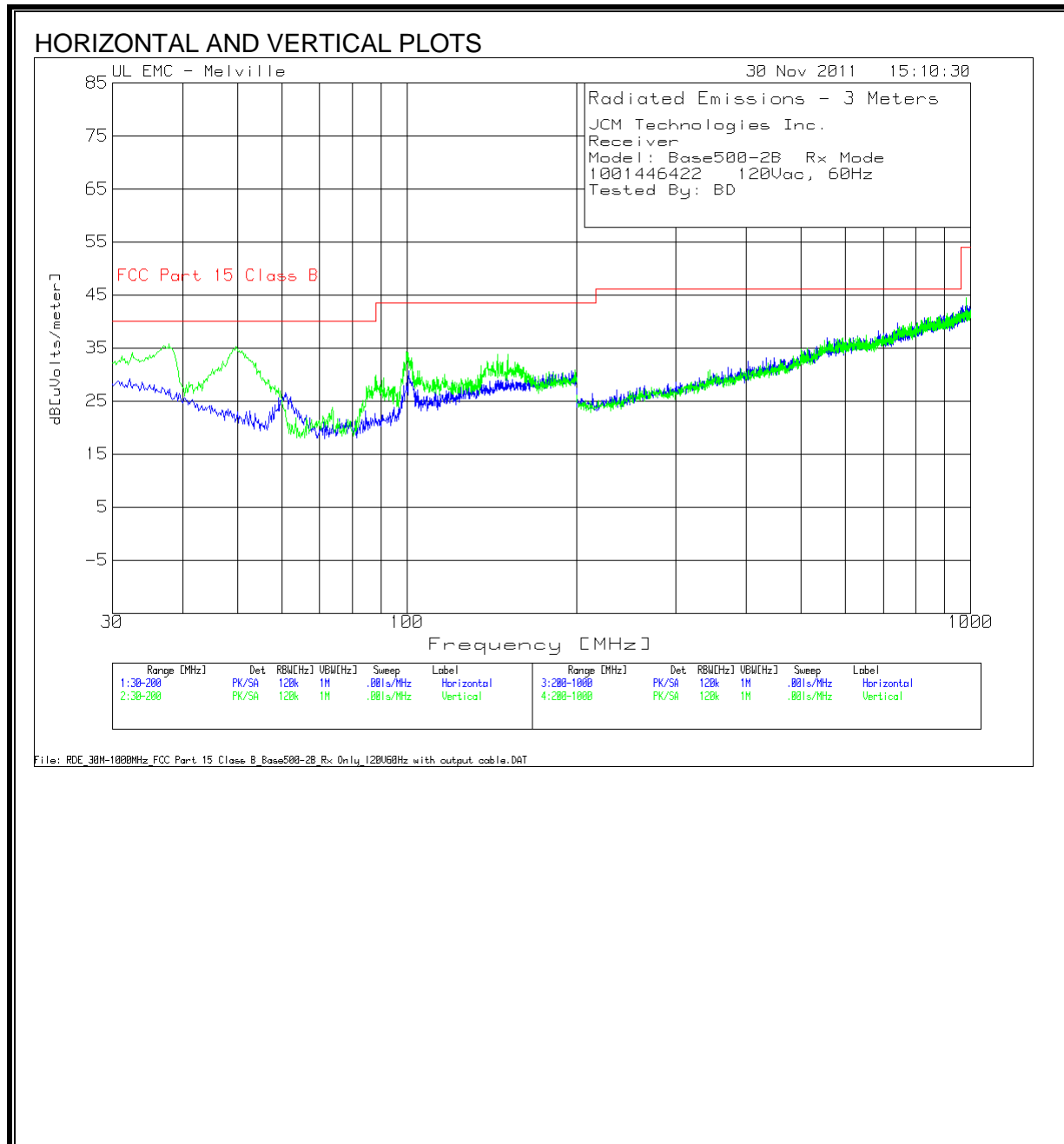
§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB $\mu$ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54

Note: The lower limit shall apply at the transition frequency.

**RESULTS**

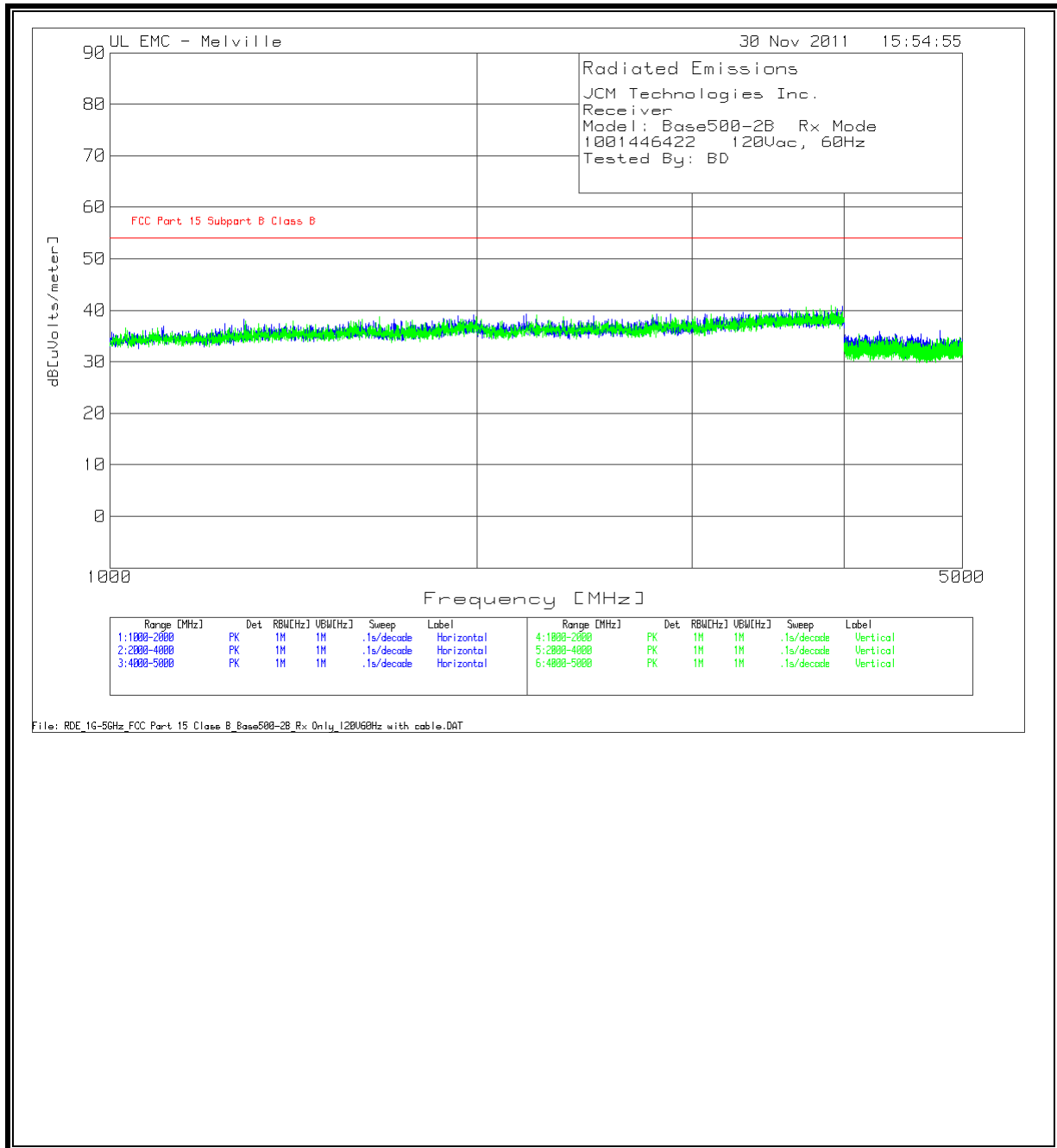
**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL AND VERTICAL)**



### HORIZONTAL AND VERTICAL DATA

JCM Technologies Inc.										
Receiver										
Model: Base500-2B Rx Mode										
1001446422 120Vac, 60Hz										
Tested By: BD										
Test Frequency	Meter Reading	Detector	AF-43441 [dB]	GL-3M [dB]	dB[uVolts/meter]	FCC Part 15 Class B	Margin	Azimuth [Degs]	Height [cm]	Polarity
Horizontal 30 - 200MHz										
101.0519	13.28	QP	11	1	25.28	43.5	-18.22	236	177	Horz
Vertical 30 - 200MHz										
37.6995	16.12	QP	15.1	0.6	31.82	40	-8.18	123	111	Vert
49.8655	21.14	QP	10	0.7	31.84	40	-8.16	23	100	Vert
99.8164	19.63	QP	10.8	1	31.43	43.5	-12.07	258	122	Vert
144.902	10.63	QP	14.6	1.3	26.53	43.5	-16.97	40	108	Vert
151.2902	9.3	QP	14.9	1.3	25.5	43.5	-18	50	140	Vert
PK - Peak detector										
QP - Quasi-Peak detector										
LnAv - Linear Average detector										
LgAv - Log Average detector										
Av - Average detector										
CAV - CISPR Average detector										
RMS - RMS detection										
CRMS - CISPR RMS detection										

**SPURIOUS EMISSIONS ABOVE 1 GHz (WORST-CASE CONFIGURATION)**



JCM Technologies Inc.										
Receiver										
Model: Base500-2B Rx Mode										
1001446422 120Vac, 60Hz										
Tested By: BD										
						FCC Part 15				
Test	Meter		AF-51442	BOMS	dB[uVolts	Subpart B		Azimuth	Height	
Frequency	Reading	Detector	[dB]	[dB]	/meter]	Class B	Margin	[Degs]	[cm]	Polarity
Horizontal 1000 - 2000MHz										
1285.357	59.53	PK	20.4	-44.35	35.58	54	-18.42	308	98	Horz
1732.634	59.73	PK	20.8	-44.1	36.43	54	-17.57	180	98	Horz
Horizontal 2000 - 4000MHz										
2804.598	58.34	PK	21.8	-42.47	37.67	54	-16.33	306	250	Horz
Vertical 1000 - 2000MHz										
1664.668	62.03	PK	20.9	-44.22	38.71	54	-15.29	358	249	Vert
Vertical 2000 - 4000MHz										
2240.88	58.8	PK	21.3	-43.03	37.07	54	-16.93	227	250	Vert
3027.486	57.27	PK	21.7	-41.88	37.09	54	-16.91	332	250	Vert
PK - Peak detector										
QP - Quasi-Peak detector										
LnAv - Linear Average detector										
LgAv - Log Average detector										
Av - Average detector										
CAV - CISPR Average detector										
RMS - RMS detection										
CRMS - CISPR RMS detection										

## 7.2. AC MAINS LINE CONDUCTED EMISSIONS

### TEST PROCEDURE

ANSI C63.4:2009

### LIMIT

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

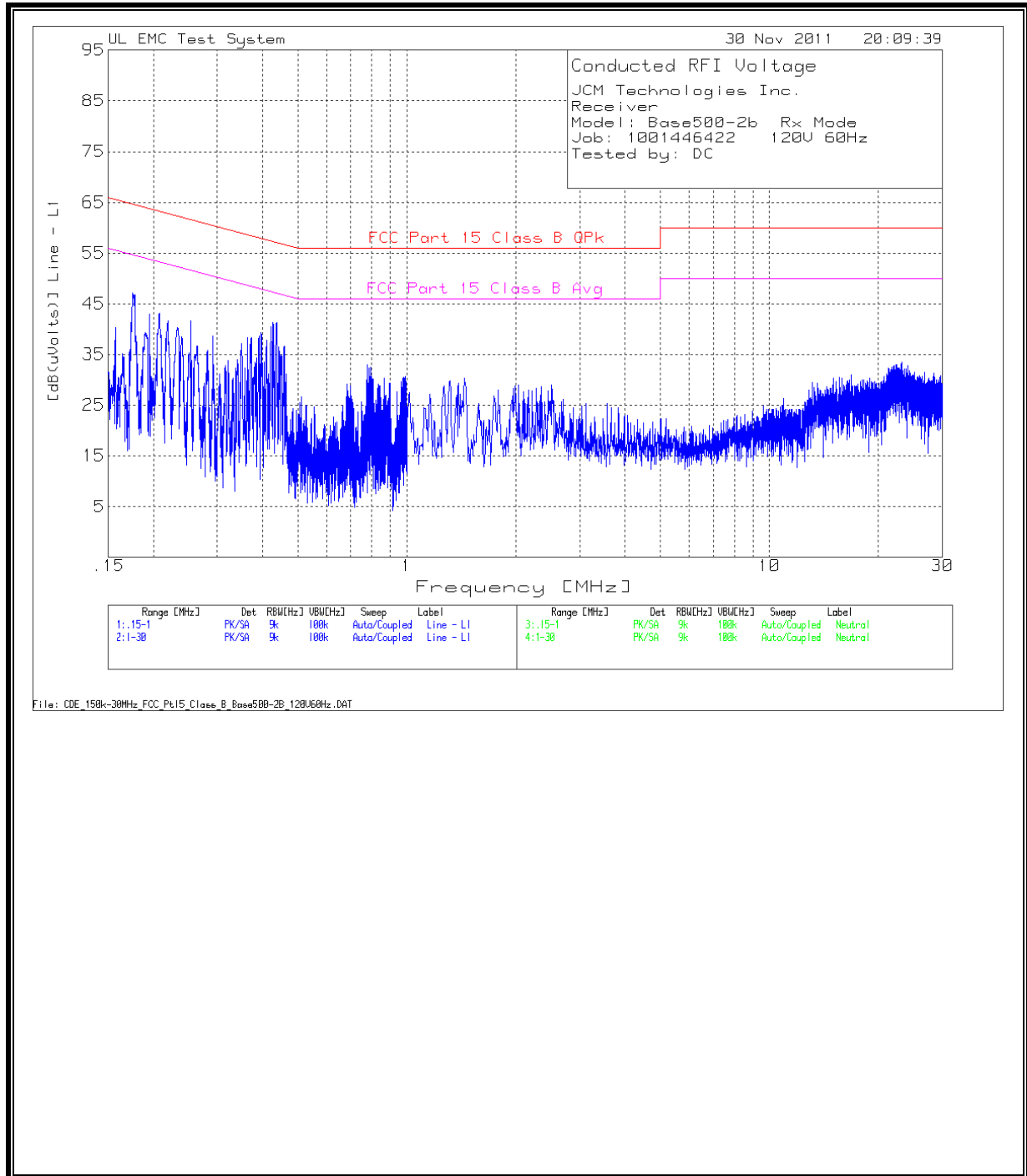
Notes:  
1. The lower limit shall apply at the transition frequencies  
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.



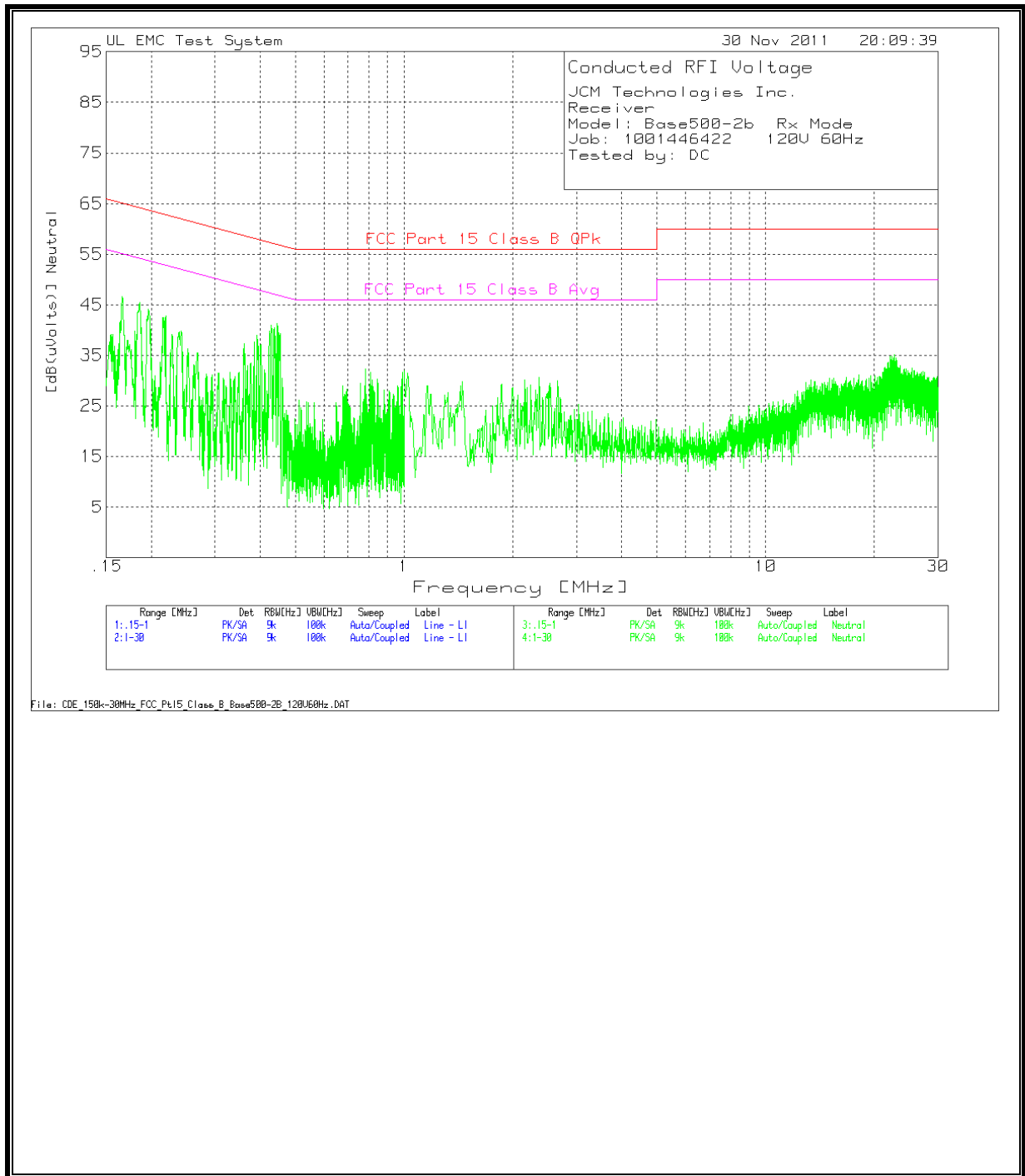
**RESULTS**

JCM Technologies Inc.									
Receiver									
Model: Base500-2b Rx Mode									
Job: 1001446422 120V 60Hz									
Tested by: DC									
Test Frequency	Meter Reading	Detector	5A636 with TI and Sw Line 1 [dB]	[dB(uVolts)]	FCC Part 15 Class B QPk	Margin	FCC Part 15 Class B Avg	Margin	
Line - L1 .15 - 1MHz									
0.17534	35.74	PK	11.3	47.04	64.7	-17.66	54.7	-7.66	
0.25355	30.73	PK	10.9	41.63	61.6	-19.97	51.6	-9.97	
0.39638	28.72	PK	10.6	39.32	57.9	-18.58	47.9	-8.58	
0.42222	29.92	PK	10.6	40.52	57.4	-16.88	47.4	-6.88	
0.42631	30.62	PK	10.6	41.22	57.3	-16.08	47.3	-6.08	
0.43736	30.82	PK	10.5	41.32	57.1	-15.78	47.1	-5.78	
Line - L1 1 - 30MHz									
23.13143	22.67	PK	10.8	33.47	60	-26.53	50	-16.53	
Neutral .15 - 1MHz									
0.16615	35.21	PK	11.4	46.61	65.2	-18.59	55.2	-8.59	
0.42435	29.2	PK	10.6	39.8	57.4	-17.6	47.4	-7.6	
0.42869	30.26	PK	10.6	40.86	57.3	-16.44	47.3	-6.44	
0.43719	29.69	PK	10.5	40.19	57.1	-16.91	47.1	-6.91	
0.44552	30.76	PK	10.5	41.26	57	-15.74	47	-5.74	
0.45062	28.13	PK	10.5	38.63	56.9	-18.27	46.9	-8.27	
0.45351	28.81	PK	10.5	39.31	56.8	-17.49	46.8	-7.49	
Neutral 1 - 30MHz									
22.30186	23.67	PK	11.1	34.77	60	-25.23	50	-15.23	
Line - L1 .15 - 1MHz									
0.1756	24.43	Av	11.3	35.73	64.69	-28.96	54.69	-18.96	
0.25309	17.52	Av	10.9	28.42	61.66	-33.24	51.66	-23.24	
0.3969	18.49	Av	10.6	29.09	57.92	-28.83	47.92	-18.83	
0.42281	21.13	Av	10.6	31.73	57.39	-25.66	47.39	-15.66	
0.42675	22.25	Av	10.6	32.85	57.32	-24.47	47.32	-14.47	
0.43695	21.74	Av	10.5	32.24	57.12	-24.88	47.12	-14.88	
Line - L1 1 - 30MHz									
23.1315	14.05	Av	10.8	24.85	60	-35.15	50	-25.15	
Neutral .15 - 1MHz									
0.16678	24.62	Av	11.4	36.02	65.12	-29.1	55.12	-19.1	
0.42491	21.28	Av	10.6	31.88	57.35	-25.47	47.35	-15.47	
0.42868	22.01	Av	10.6	32.61	57.28	-24.67	47.28	-14.67	
0.43648	21	Av	10.5	31.5	57.13	-25.63	47.13	-15.63	
0.44571	20.64	Av	10.5	31.14	56.95	-25.81	46.95	-15.81	
0.45027	20.37	Av	10.5	30.87	56.87	-26	46.87	-16	
0.45272	19.84	Av	10.5	30.34	56.83	-26.49	46.83	-16.49	
Neutral 1 - 30MHz									
22.3017	15.35	Av	11.1	26.45	60	-33.55	50	-23.55	
PK - Peak detector									
QP - Quasi-Peak detector									
LnAv - Linear Average detector									
LgAv - Log Average detector									
Av - Average detector									
CAV - CISPR Average detector									
RMS - RMS detection									
CRMS - CISPR RMS detection									

**LINE 1 RESULTS**

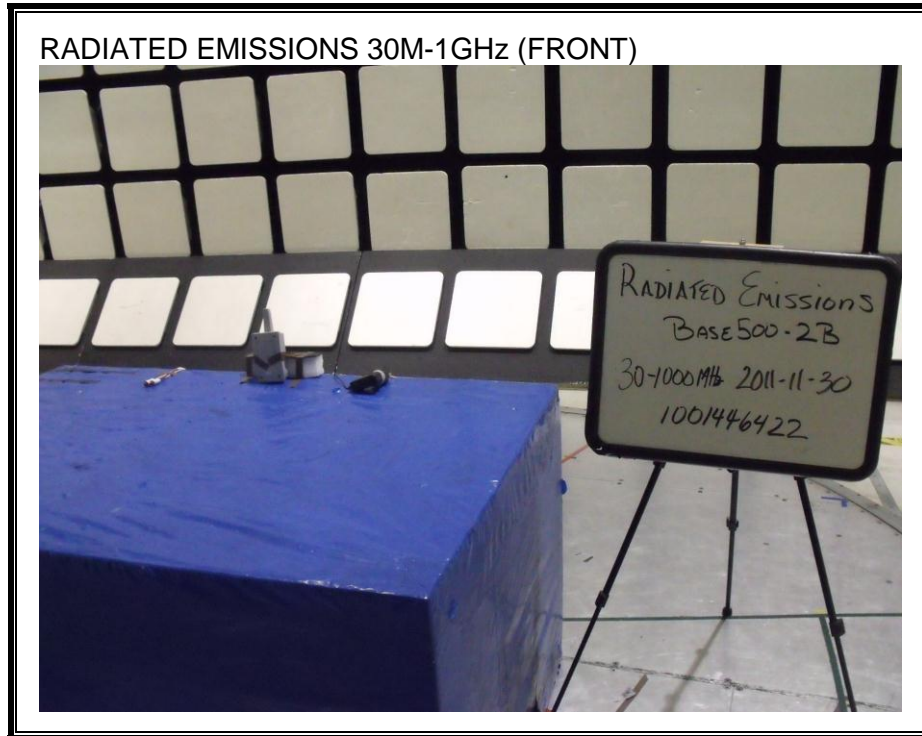


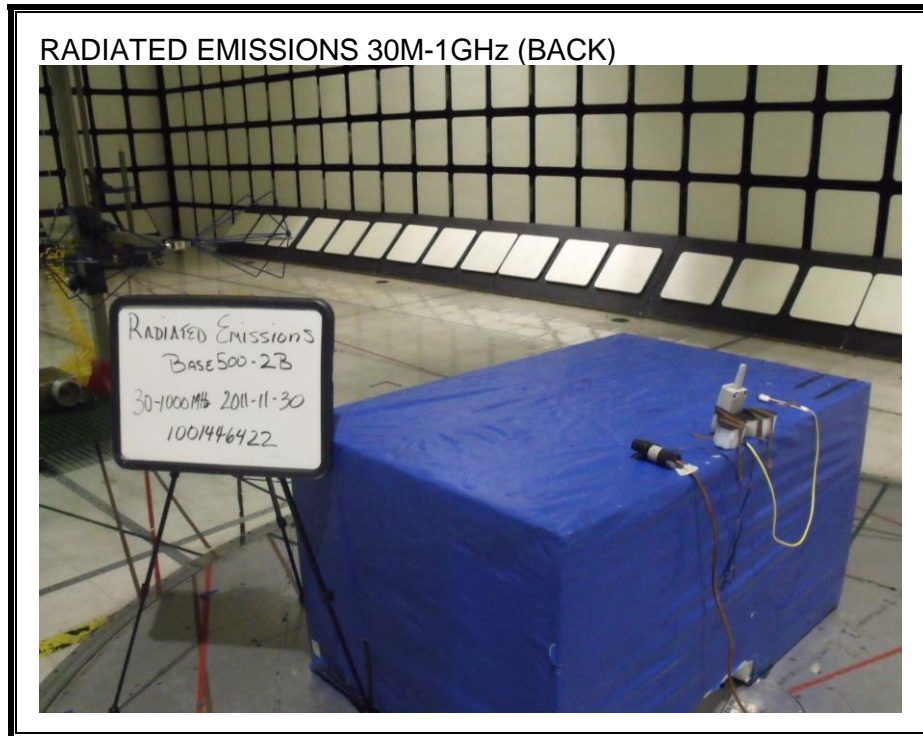
**LINE 2 RESULTS**

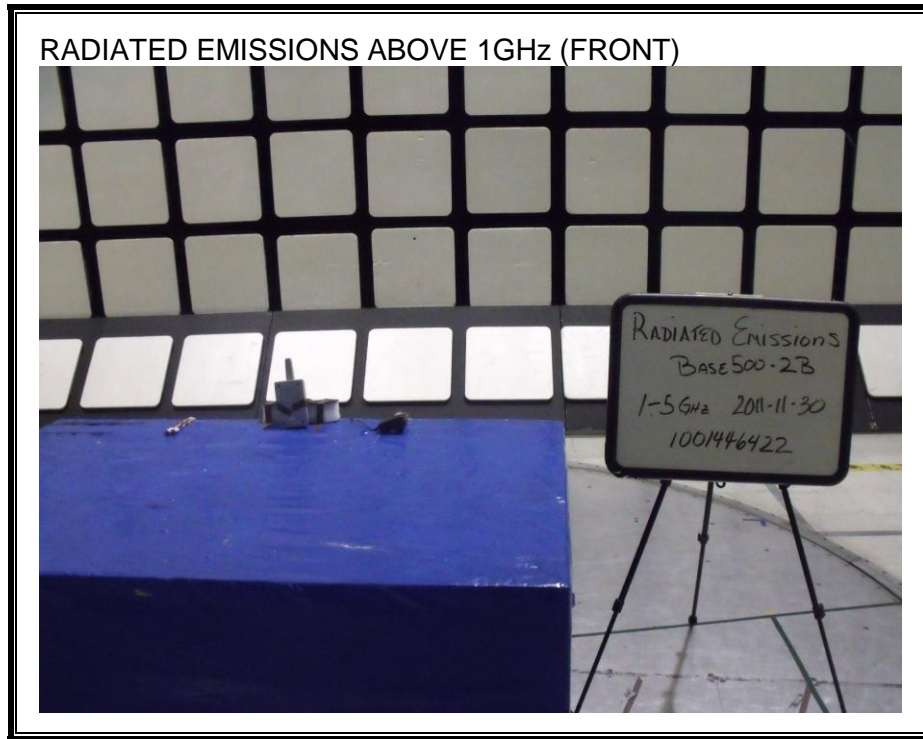


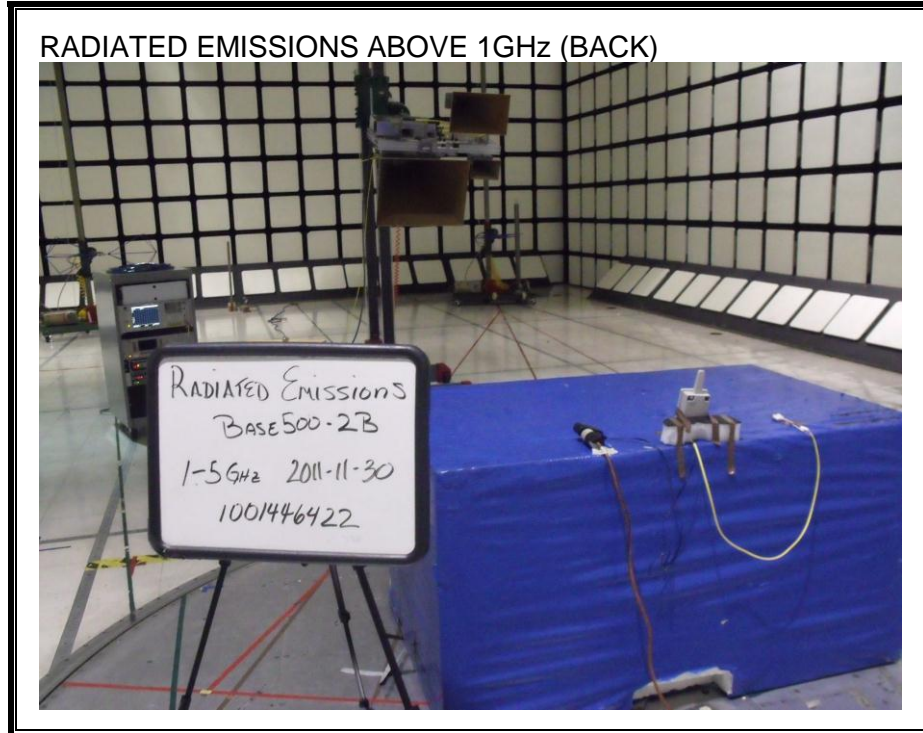
## 8. SETUP PHOTOS

### RADIATED EMISSION



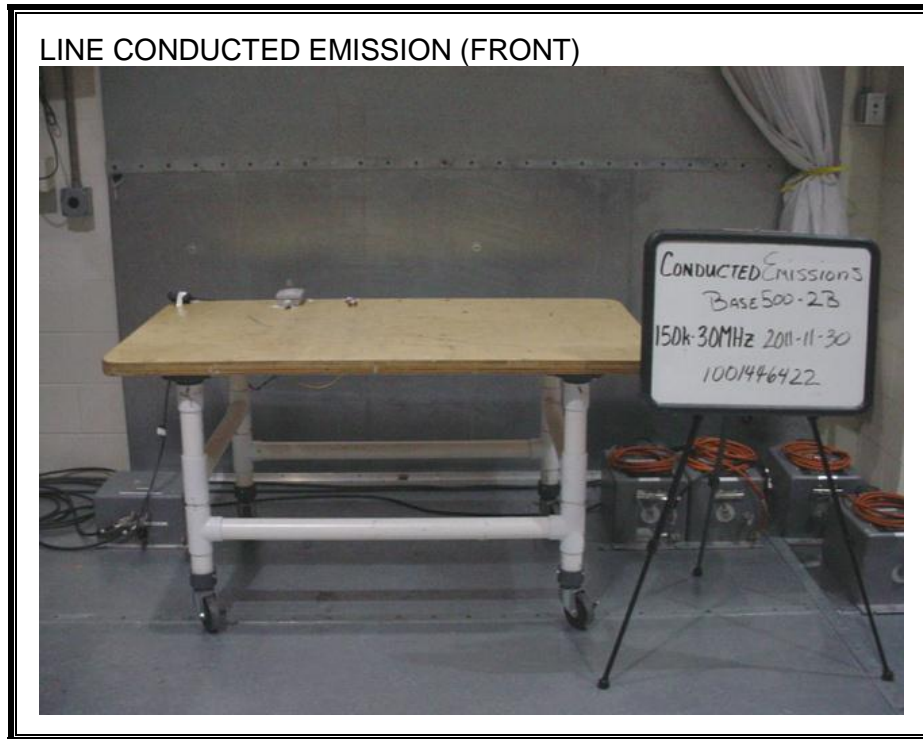




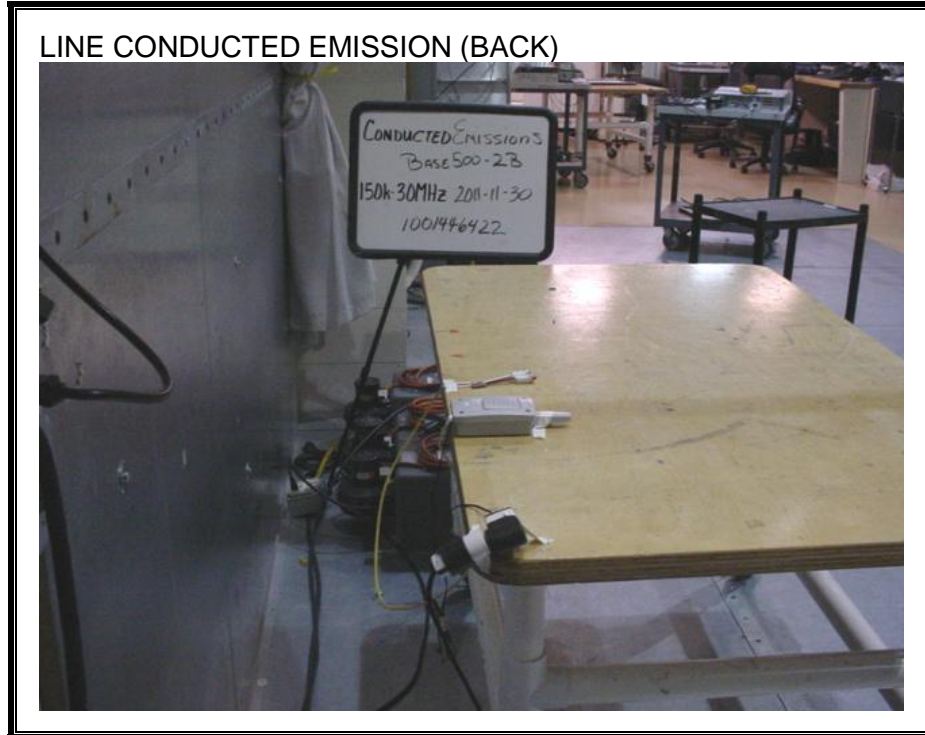




**AC MAINS LINE CONDUCTED EMISSION**







**END OF REPORT**