Test Report:	6W58614 Issue 2
Applicant:	Exavera Technologies, Inc. 195 New Hampshire Avenue Suite 155 Portsmouth, NH 03801
Equipment Under Test:	VeraRelay VR-320 &VR-310
FCC ID:	T2R-VR310
In Accordance With:	**FCC Part 15, Subpart C, 15.249**
Tested By:	Nemko Canada Inc. 303 River Road, R.R. 5 Ottawa, Ontario K1V 1H2
Authorized By:	 Jason Nixon, Telecom Specialist
Date:	March 19, 2007
Total Number of Pages:	18

Table Of Contents

Section 1. Summary Of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15.249. All tests were conducted using measurement procedure ANSI C63.4-2003. Radiated Emissions were made on an open area test site. A description of the test facility is on file with the FCC.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.
See " Summary of Test Data".

TESTED BY: _____ _____
Xu Jin, Wireless Specialist

Section 2. Summary Of Test Data

Summary Of Test Data

Name Of Test	Para. No.	Result
Power line Conducted Emissions	15.207(a)	Complies
Radiated Emissions	15.249	Complies

Test Conditions:

Indoor	Temperature:	21°C
	Humidity:	50%
Outdoor	Temperature:	-3°C
	Humidity:	60%

Section 3. General Equipment Specification

Manufacturer:	Exavera Technologies
Model No.:	VeraRelay VR-320 & VeraRelay VR-310
Date Received In Laboratory:	Jan 4, 2006
Frequency Range:	Tx 907.8---922.8MHz Rx: 905.3---925.3MHz
Modulation:	FSK
Power Source:	120VAC
Antenna Information	Integral Antenna

Note: Customer declared that Model VeraRelay VR-310 and Model VeraRelay VR-320 have identical RF circuit and antenna. Therefore only Model VeraRelay VR-320 was tested.

Section 4. Powerline Conducted Emissions

Para. No.: 15.207 (a)

Test Performed By: Xu Jin	**Date of Test: Jan. 10, 2006**

Test Results: Complies.

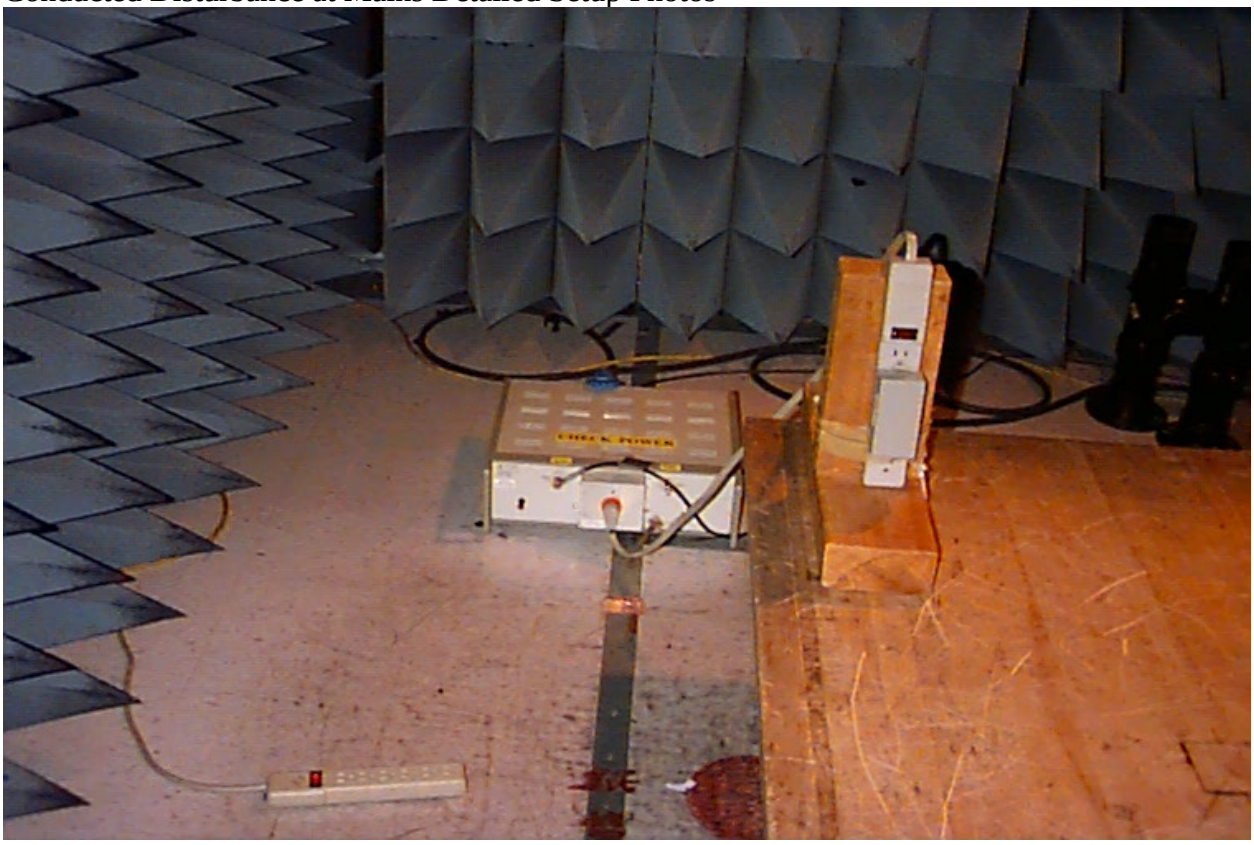
Measurement Data: See attached graph(s).

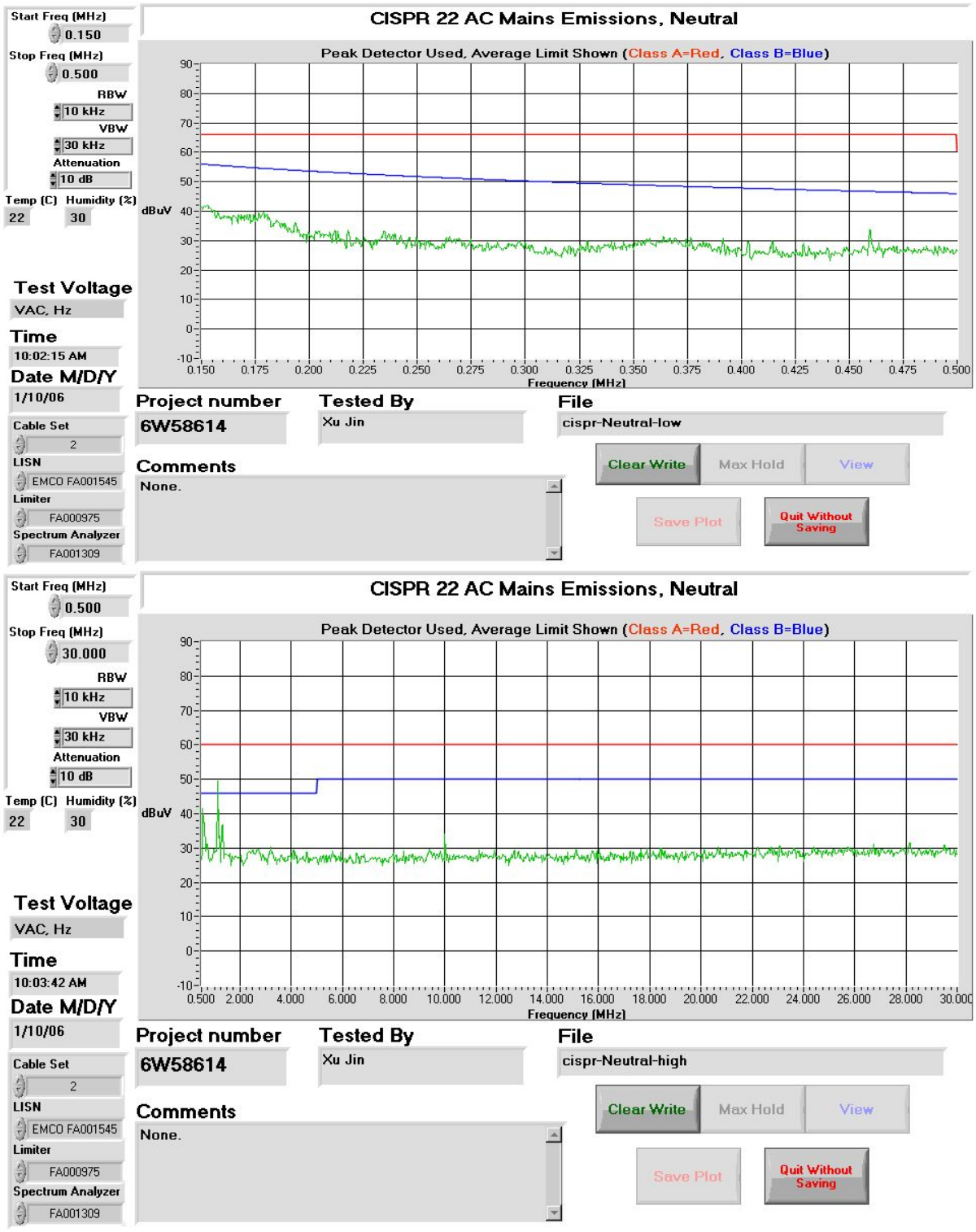
Limits For Conducted Disturbance At The Mains Ports Of Class B

Frequency Range MHz	Limits dB(μV)		Result
	Quasi-Peak	Average	
0.15 to 0.50	66 to 56	56 to 46	Complies.
0.5 to 5	56	46	
5 to 30	60	50	

Note:
1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50MHz.
3. The test was performed using a peak detector.

Conducted Disturbance at Mains Detailed Setup Photos




Start Freq (MHz)
0.150
Stop Freq (MHz)
0.500
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
22
Humidity (%)
30
CISPR 22 AC Mains Emissions, Neutral
Peak Detector Used, Average Limit Shown (Class A=Red, Class B=Blue)
dBuV
Frequency (MHz)
Test Voltage
VAC, Hz
Time
10:02:15 AM
Date M/D/Y
1/10/06
Project number
6W58614
Tested By
Xu Jin
File
cispr-Neutral-low
Cable Set
2
LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
Comments
None.
Clear Write
Max Hold
View
Save Plot
Quit Without Saving
Start Freq (MHz)
0.500
Stop Freq (MHz)
30.000
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
22
Humidity (%)
30
CISPR 22 AC Mains Emissions, Neutral
Peak Detector Used, Average Limit Shown (Class A=Red, Class B=Blue)
dBuV
Frequency (MHz)
Test Voltage
VAC, Hz
Time
10:03:42 AM
Date M/D/Y
1/10/06
Project number
6W58614
Tested By
Xu Jin
File
cispr-Neutral-high
Cable Set
2
LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
Comments
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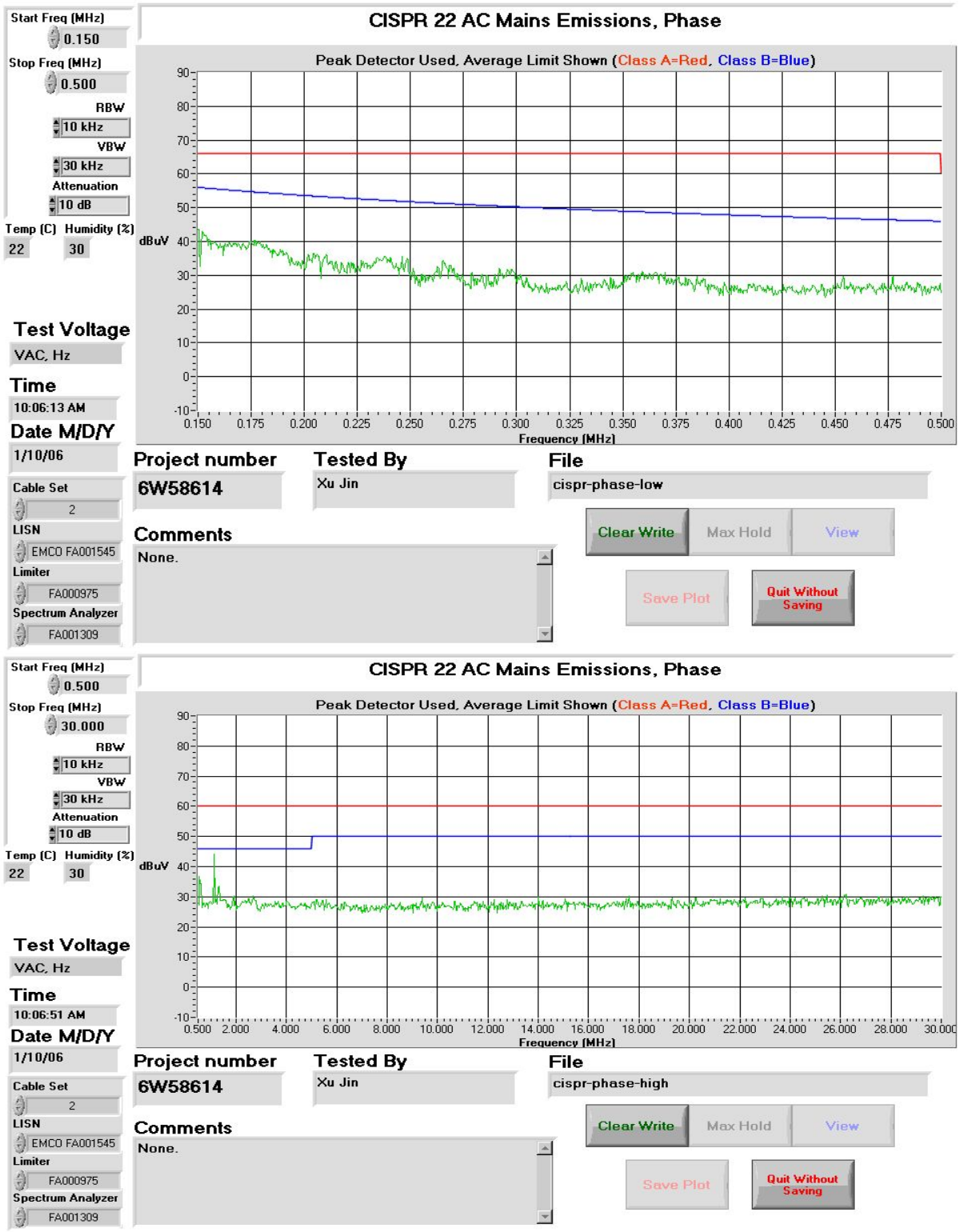
Clear Write
Max Hold
View
Save Plot
Quit Without Saving


Start Freq (MHz)
0.150
Stop Freq (MHz)
0.500
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
Humidity (%)
22
30
CISPR 22 AC Mains Emissions, Phase
Peak Detector Used, Average Limit Shown (Class A=Red, Class B=Blue)
dBuV
Frequency (MHz)
Test Voltage
VAC, Hz
Time
10:06:13 AM
Date M/D/Y
1/10/06
Project number
6W58614
Tested By
Xu Jin
File
cispr-phase-low
Cable Set
2
LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
Comments
None.
Clear Write
Max Hold
View
Save Plot
Quit Without Saving
Start Freq (MHz)
0.500
Stop Freq (MHz)
30.000
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
Humidity (%)
22
30
CISPR 22 AC Mains Emissions, Phase
Peak Detector Used, Average Limit Shown (Class A=Red, Class B=Blue)
dBuV
Frequency (MHz)
Test Voltage
VAC, Hz
Time
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Date M/D/Y
1/10/06
Project number
6W58614
Tested By
Xu Jin
File
cispr-phase-high
Cable Set
2
LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
Comments
None.
Clear Write
Max Hold
View
Save Plot
Quit Without Saving

Test Date: Jan 10, 2006								
Engineer's Name: Xu Jin								
Tested as per: Table Top								
Mains Input Voltage: 120VAC				**Mains Input Frequency:** 60Hz				
Port Investigation Data								
Port under test: AC Mains Input								
Conductor	Frequency (MHz)	Detector	Emission Level (dBuV)	LISN Loss (dB)	Cable Loss (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
Neutral	1.1502	Quasi Peak	20.6	0.00	0.20	20.80	56.0	35.2
		Average	15.5	0.00	0.20	15.74	46.0	30.3
Phase	1.1482	Quasi Peak	19.8	0.00	0.19	19.99	56.0	36.0
		Average	15.0	0.00	0.19	15.19	46.0	30.8
Notes								
None								
Test Result								
Final Test Result: Pass								

Section 5. Radiated Emissions

Para. No.: 15.249

Test Performed By: Xu Jin	**Date of Test: Jan 10, 2006**

Minimum Standard: 15.209&15.249
Band edge check should comply with 50dBc requirement.
Radiated Emission should comply with 15.209 general requirement

Frequency (MHz)	**Field Strength (mV/m)**	**Field Strength (dBμV/m)**
Fundamental		
902-928	50	94
Spurious out side the frequency band		
33-88	0.1	40.0
88-216	0.15	43.5
216-960	0.2	46.0
960 above	0.5	54.0

Test Results: See graphic and data of this section.

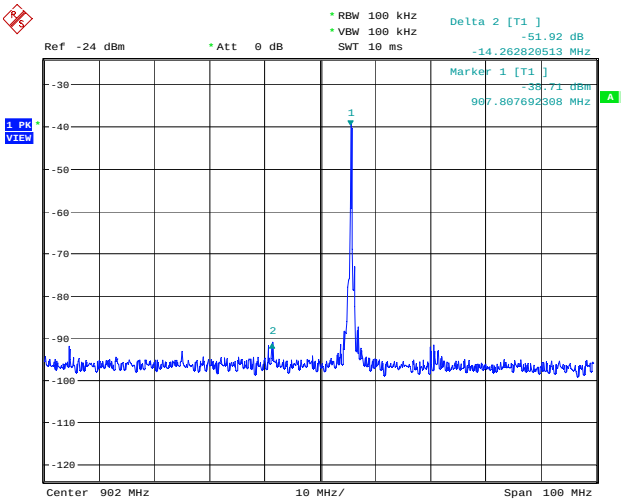
. Radiated emission test was conducted at 3 meter at open area test site. The EUT was searched from 30MHz to 10th harmonics, and for low, medium and high frequencies at the frequency band.

The EUT was searched for 3 orthogonal axis to determine the worst case emissions.

Only worst cases have been reported.

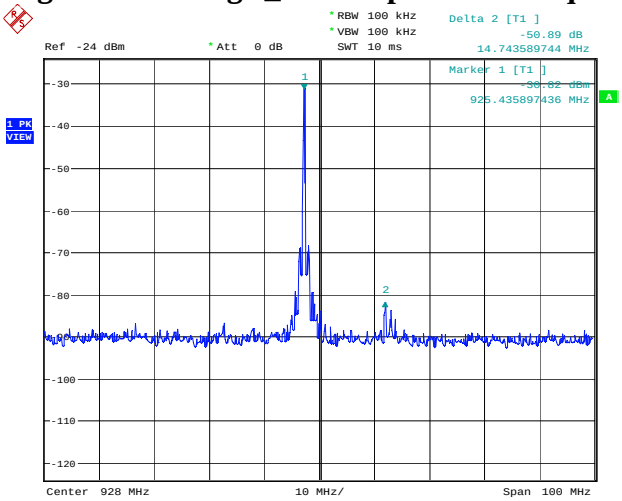
50dBc Band Edge Check

Lower Band Edge_ EUT Operation Frequency 907.8MHz



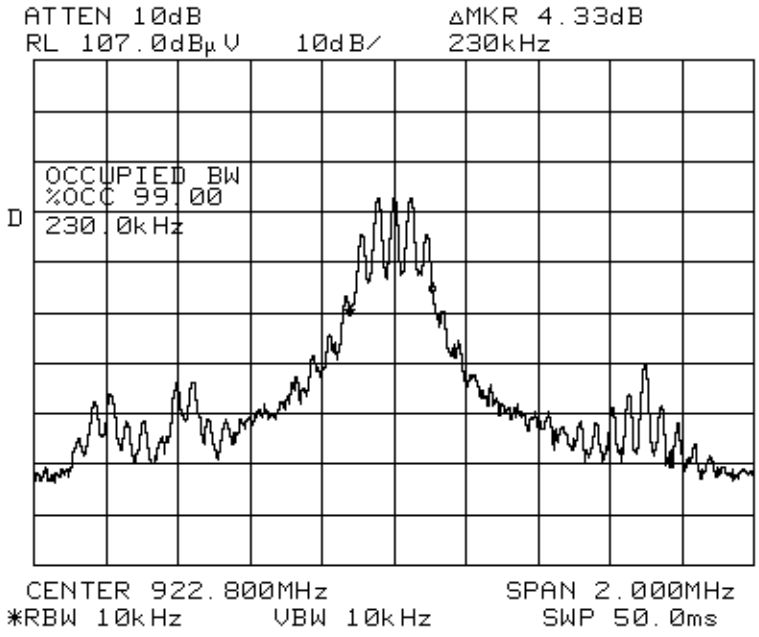
Date: 10.JAN.2006 11:15:33

Higher Band Edge _ EUT Operation Frequency 922.8MHz



Date: 10.JAN.2006 11:09:08

99%Channel Bandwidth _EUT Operation Frequency 922.8MHz



Radiated Emissions Test Data

Test Date: Jan 13, 2006										
Engineer's Name: Xu Jin										
Tested as per: Table Top										
Temperature (C°): Indoor: 21, Outdoor: -3							Humidity %: Indoor: 50 , Outdoor: 60			
Test Distance (meters): 3							Dome: 1			
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBμV)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
907.8000	LP1	H	51.8	23.8	N/A	5.9	81.4	94.0	12.6	Peak
907.8000	LP1	V	53.4	23.0	N/A	5.9	82.2	94.0	11.8	Peak
1815.6000	Horn1	H	62.4	26.8	47.9	6.3	47.5	54.0	6.5	Peak
1815.6000	Horn1	V	58.7	26.7	47.9	6.3	43.8	54.0	10.2	Peak
2723.4000	Horn1	H	71.4	29.5	59.1	6.3	48.1	54.0	5.9	Peak
2723.4000	Horn1	V	68.7	29.5	59.1	6.3	45.4	54.0	8.6	Peak
917.8000	LP1	H	61.4	23.8	N/A	6.4	91.6	94.0	2.4	Peak
917.8000	LP1	V	60.4	23.1	N/A	6.4	89.8	94.0	4.2	Peak
1835.6000	Horn1	H	64.1	26.9	47.9	6.3	49.4	54.0	4.6	Peak
1835.6000	Horn1	V	59.7	26.8	47.9	6.3	44.8	54.0	9.2	Peak
2753.4000	Horn1	H	73.4	29.6	59.2	6.3	50.1	54.0	3.9	Peak
2753.4000	Horn1	V	67.3	29.6	59.2	6.3	44.0	54.0	10	Peak
922.8000	LP1	V	55.6	23.1	N/A	3.2	81.9	94.0	12.1	Peak
922.8000	LP1	H	51.1	24.1	N/A	3.2	78.4	94.0	15.6	Peak
1845.6000	Horn1	V	65.7	27.4	49.1	4.7	48.7	54.0	5.3	Peak
1845.6000	Horn1	H	66.5	27.5	49.1	4.7	49.6	54.0	4.4	Peak
2768.4000	Horn1	V	74.8	30.3	59.7	5.9	51.3	54.0	2.7	Peak
2768.4000	Horn1	H	74.3	30.3	59.7	5.9	50.8	54.0	3.2	Peak
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole Note 2: Detector Legend: Below 1GHz, Peak detector with 100 kHz RBW, 100KHz VBW Above 1GHz, Peak detector with 1.0MHz RBW, 1.0MHz VBW										

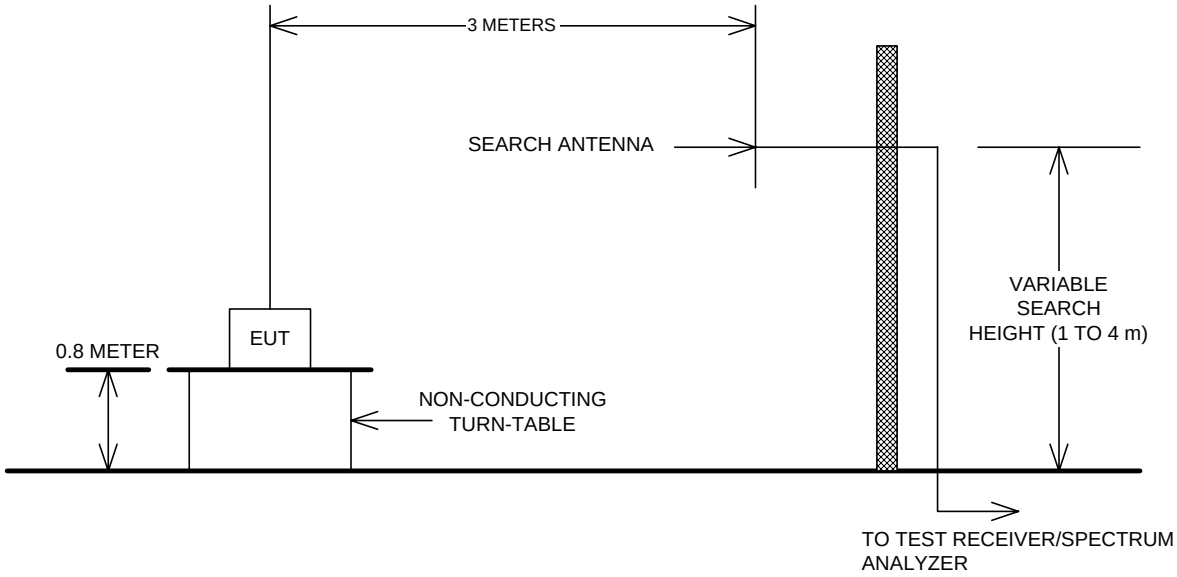
Radiated Emissions Photos

Output Power Measurement Under Extreme Voltage Conditions

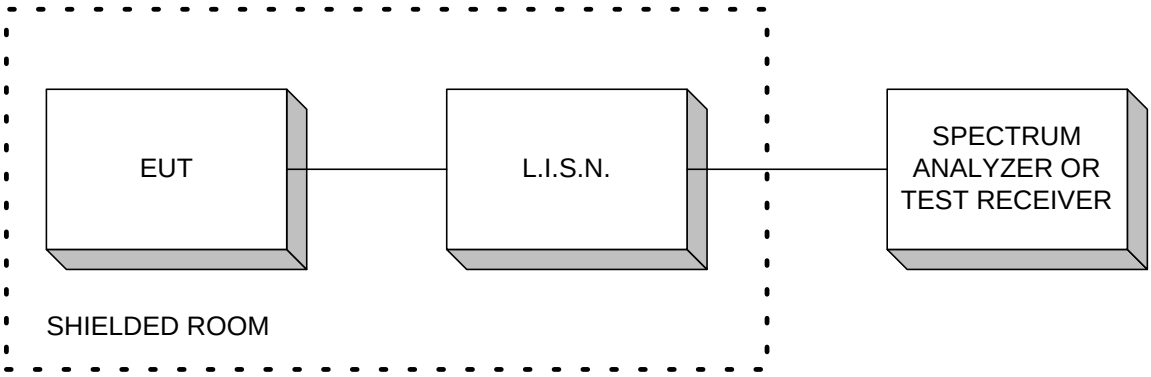
Test Method:	Radiated power was verified under voltage extreme conditions at the operation frequency of 917.8MHz.
Extreme Voltage:	±15% of AC Mains.
Test Result:	No change in fundamental power level was observed during the test.

Section 6. Block Diagrams

Test Site For Radiated Emissions



Conducted Emissions



Section 7. Test Equipment List

Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Rohde & Schwarz	FSU	FA001877	May 17/05	May 17/06
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 18/05	May 18/06
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 18/05	May 18/06
Biconical (1) Antenna	EMCO	3109	FA000805	April 22/05	April 22/06
Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 29/05	Aug. 29/06
Horn Antenna #1	EMCO	3115	FA000649	Dec. 16/05	Dec. 16/06
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	July 14/05	July 14/06
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	July 14/05	July 14/06
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	July 14/05	July 14/06
5.0 - 18GHz Amplifier	Narda	DWT-186N23U40	FA001409	COU	COU
18.0 – 26.0 GHz Amplifier	NARDA	BBS-1826N612	FA001550	COU	COU
Signal Generator	Rhode & Schwarz	SMR 40	FA001879	July 13/05	July 13/06
LISN	EMCO	4825/2	FA001545	Jan 13/05	Jan 13/06
Transient Limiter	Hewlett-Packard	1194 7A	FA000975	May 25/05	May 25/06

* COU (Calibrate on Use)