Test Report:	3W07096.2
Applicant:	BelAir Networks 603 March Road, Ottawa Ont. K2K 2M5
Equipment Under Test: (EUT)	BA200 Wireless LAN Access Radio Module (ARM) 2.4GHz Band
In Accordance With:	**FCC Part 15, Subpart C** Digitally Modulated Transmitters, 2400-2483.5MHz
Tested By:	Nemko Canada Inc. 303 River Road, R.R. 5 Ottawa, Ontario K1V 1H2
Authorized By:	Kevin Carr, EMC Specialist
Date:	26 August 2003
Total Number of Pages:	32

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, Subpart C, Paragraph 15.247 for Digitally Modulated Transmitters.

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: _____ DATE: 26 August 2003
Glen Westwell, Wireless Technologist

TESTED BY: _____ DATE: 26 August 2003
Daniel Hynes, EMC Specialist

Summary Of Test Data

Name Of Test	Para. No.	Result
Powerline Conducted Emissions	15.207 (a)	Complies
Occupied Bandwidth	15.247 (a)(2)	Complies
Peak Power Output	15.247 (b)(3)	Complies
Spurious Emissions (Antenna Conducted)	15.247 (c)	Complies
Spurious Emissions (Radiated)	15.247 (c)	Complies
Transmitter Power Density	15.247 (d)	Complies

Test Conditions:

Indoor Temperature: 22°C
Humidity: 42%

Outdoor Temperature: 27°C
Humidity: 65%

Section 2. General Equipment Specification

Manufacturer:	BelAir Networks
Model No.:	BA200 ARM
Serial No.:	K000188360
Date Received In Laboratory:	28 July 2003
Nemko Identification No.:	#7
Modulation:	**802.11b** 1Mb/s: DSSS,DBPSK, Barker 2 Mb/s: DSSS,DBPSK, Barker 5.5Mb/s: DSSS,DQPSK,CCK 11Mb/s: DSSS,DQPSK,CCK
Transmitter Output Power (rated):	27dBm
Transmit Frequency:	2400-2483.5MHz (Band) 2412-2462MHz (DUT)
Antenna Gain:	8.5dBi

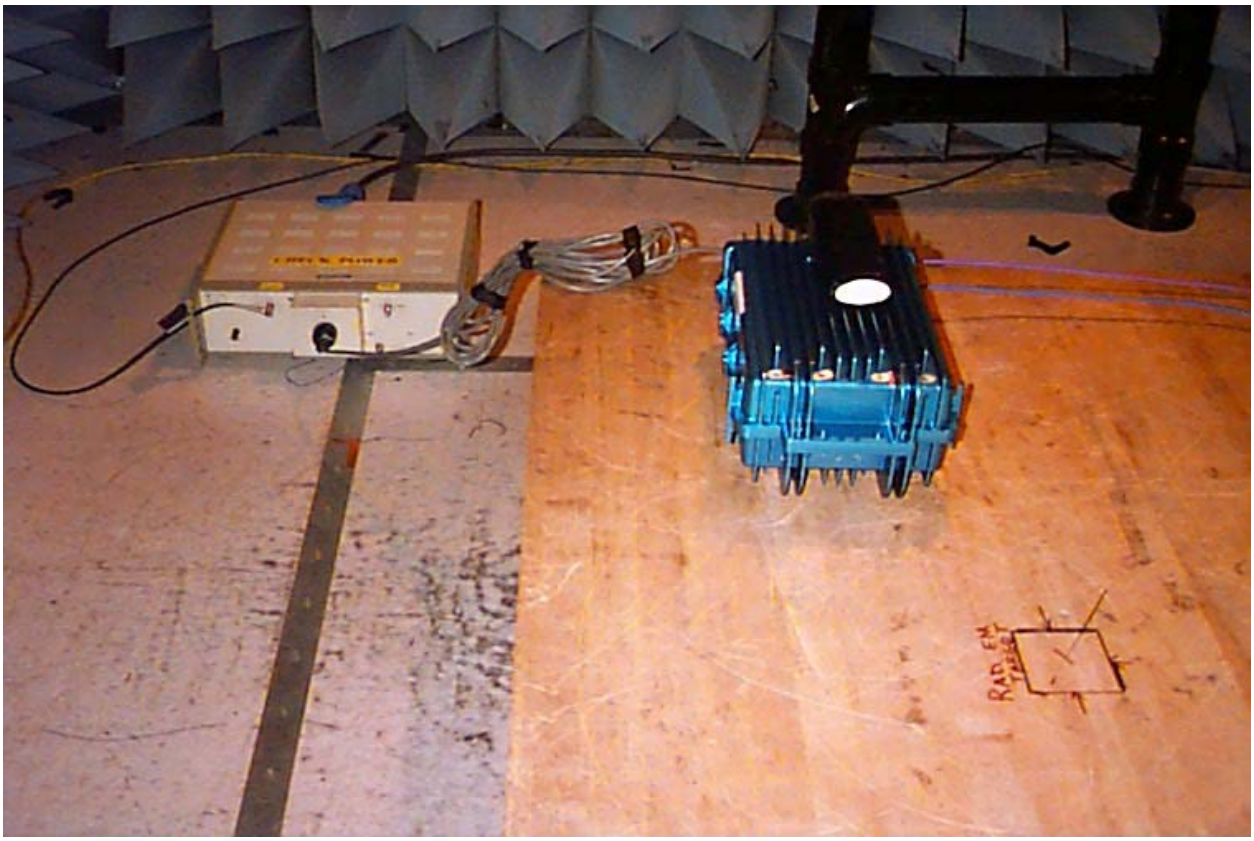
Section 3. Powerline Conducted Emissions

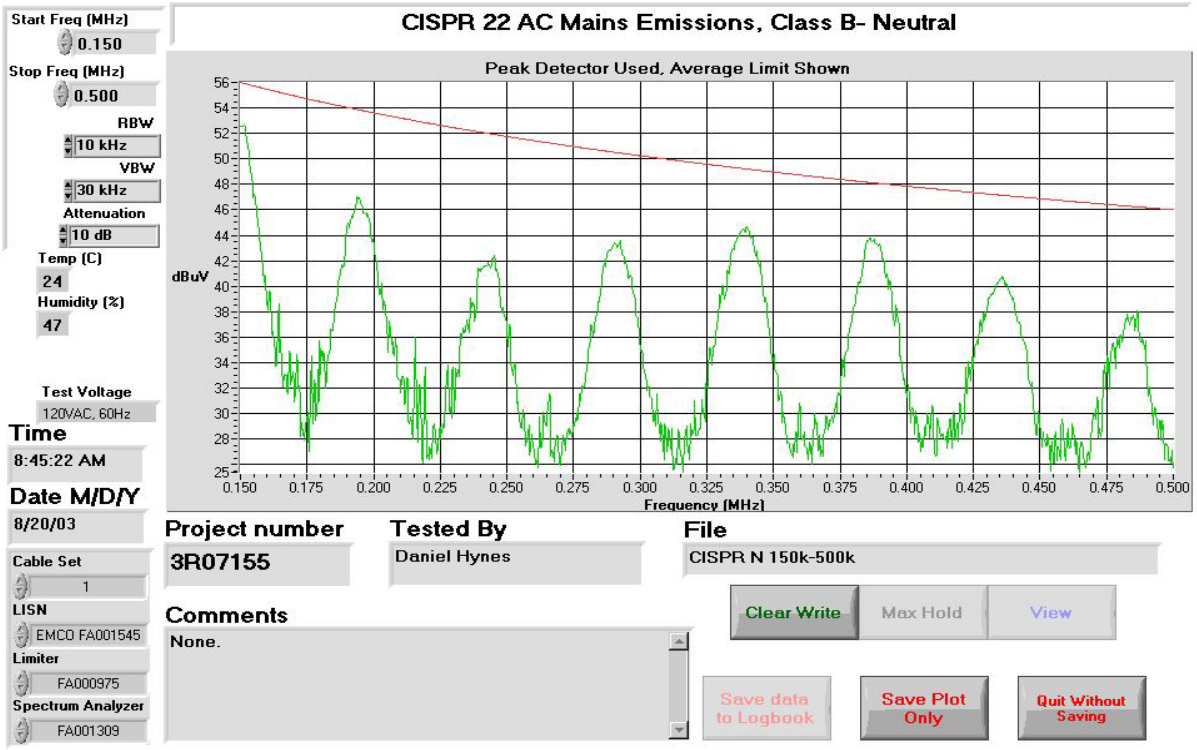
Para. No.: 15.207(a)

Test Performed By: Daniel Hynes	**Date of Test: 20 Aug. 2003**

Test Results: Comply.

Measurement Data: See Atached Graphs.

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10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
24
Humidity (%)
47
Test Voltage
120VAC, 60Hz
Time
8:45:22 AM
Date M/D/Y
8/20/03
Cable Set
1
LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
CISPR 22 AC Mains Emissions, Class B- Neutral
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Project number
3R07155
Tested By
Daniel Hynes
File
CISPR N 150k-500k
Comments
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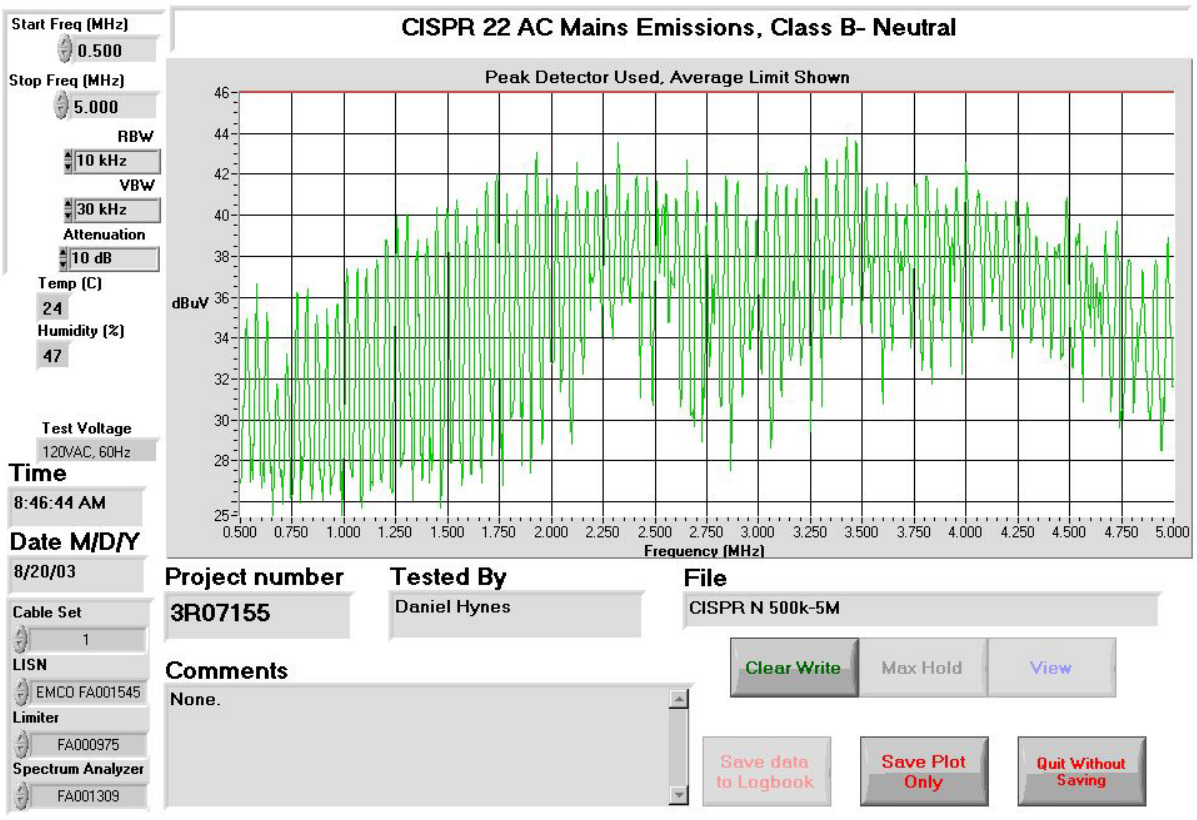
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving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RBW
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VBW
30 kHz
Attenuation
10 dB
Temp (C)
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120VAC, 60Hz
Time
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8/20/03
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LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
CISPR 22 AC Mains Emissions, Class B- Neutral
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Project number
3R07155
Tested By
Daniel Hynes
File
CISPR N 500k-5M
Comments
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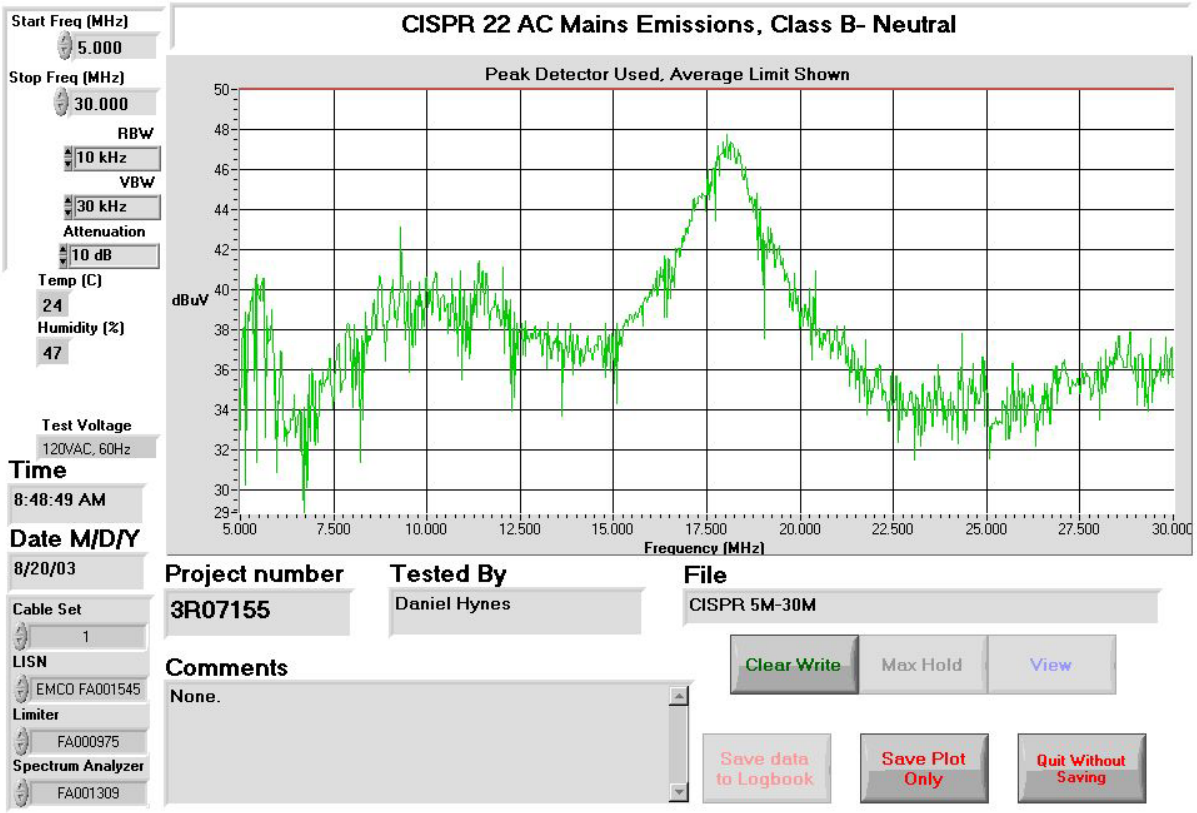
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving


CISPR 22 AC Mains Emissions, Class B- Neutral
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Start Freq (MHz)
5.000
Stop Freq (MHz)
30.000
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
24
Humidity (%)
47
Test Voltage
120VAC, 60Hz
Time
8:48:49 AM
Date M/D/Y
8/20/03
Cable Set
1
LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
Project number
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Tested By
Daniel Hynes
File
CISPR 5M-30M
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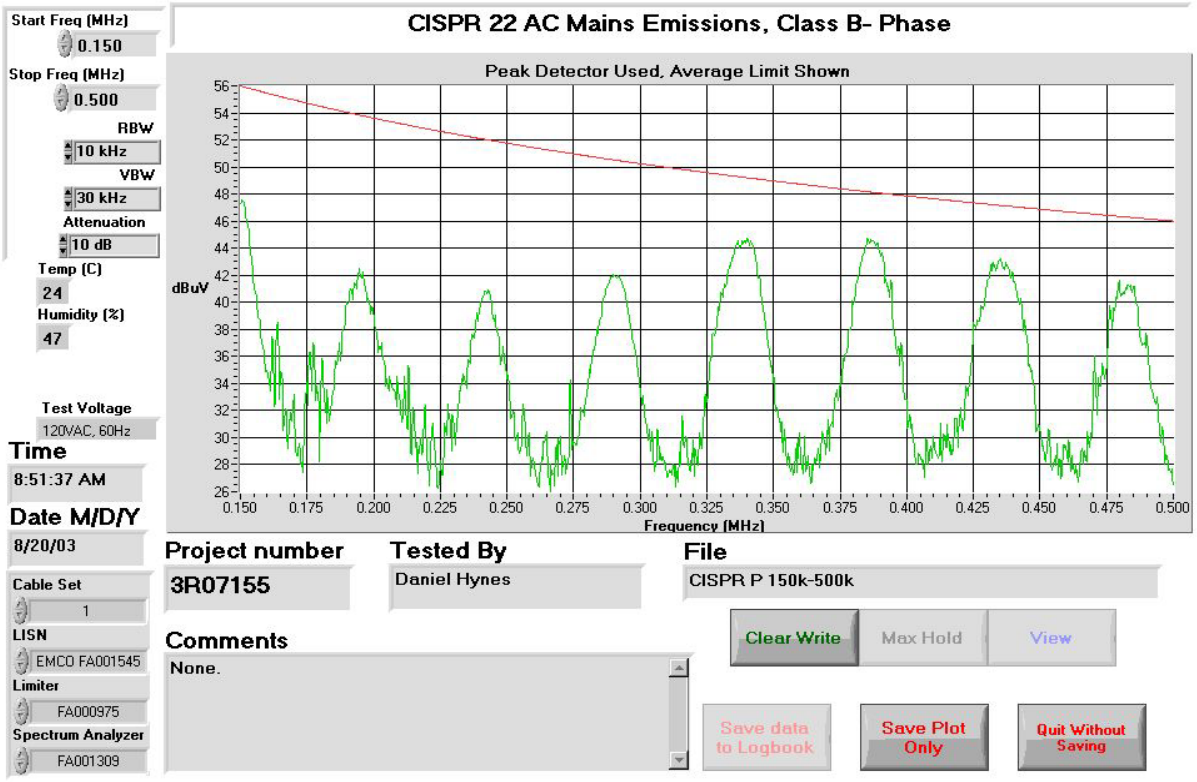
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving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VBW
30 kHz
Attenuation
10 dB
Temp (C)
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Humidity (%)
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Test Voltage
120VAC, 60Hz
Time
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Date M/D/Y
8/20/03
Cable Set
1
LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
CISPR 22 AC Mains Emissions, Class B- Phase
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Project number
3R07155
Tested By
Daniel Hynes
File
CISPR P 150k-500k
Comments
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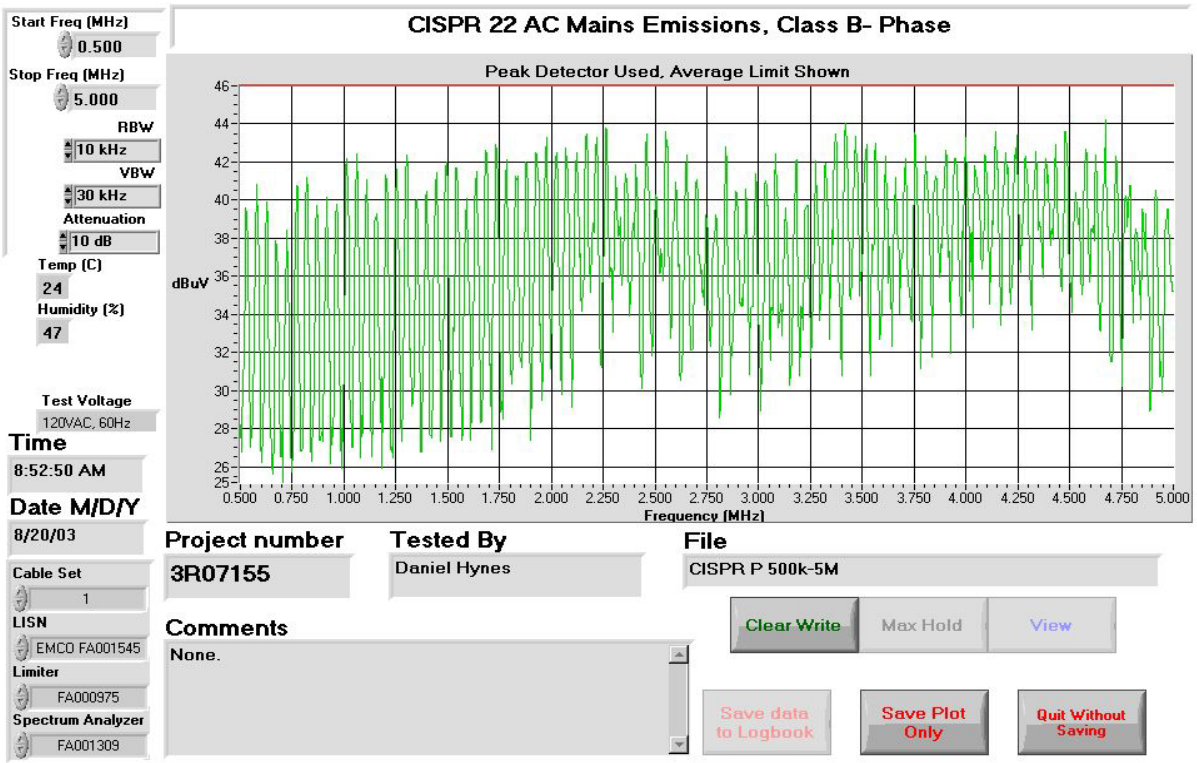
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving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0.500
Stop Freq (MHz)
5.000
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
24
Humidity (%)
47
Test Voltage
120VAC, 60Hz
Time
8:52:50 AM
Date M/D/Y
8/20/03
Cable Set
1
LISN
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
CISPR 22 AC Mains Emissions, Class B- Phase
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Project number
3R07155
Tested By
Daniel Hynes
File
CISPR P 500k-5M
Comments
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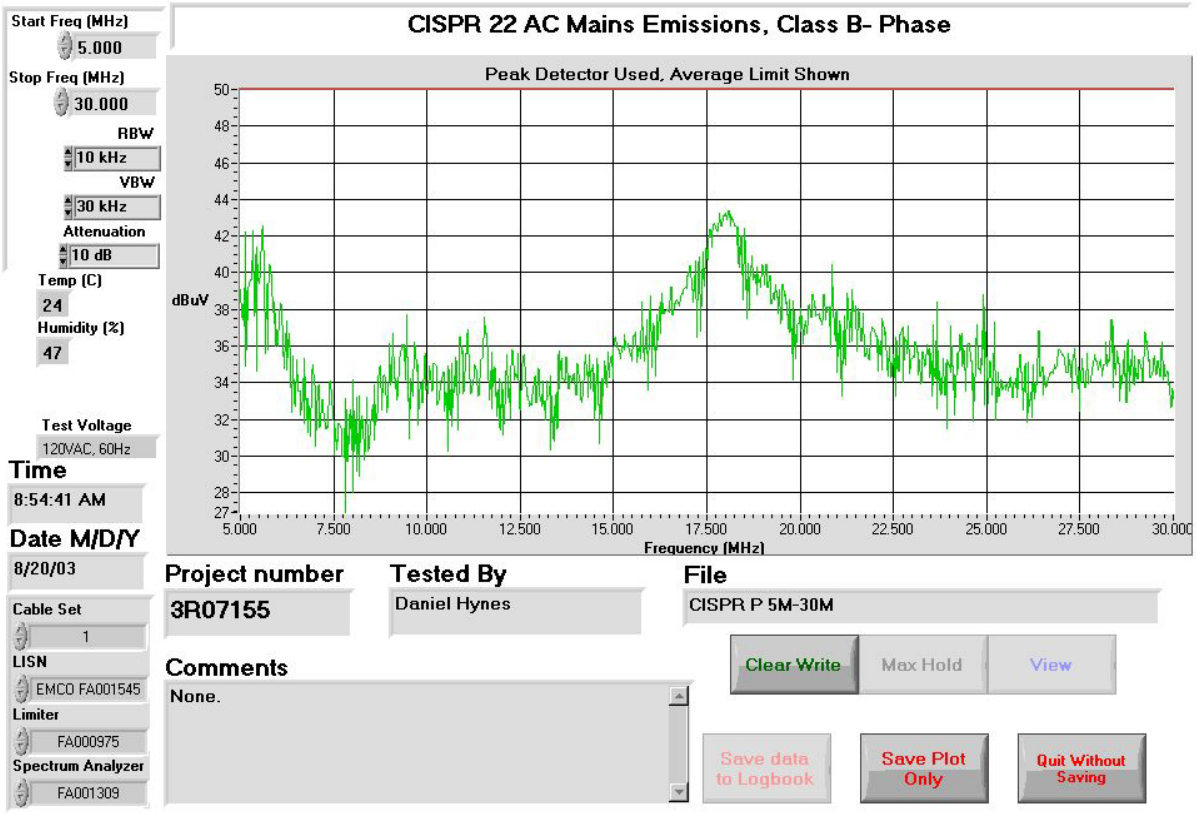
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving


CISPR 22 AC Mains Emissions, Class B- Phase
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Start Freq (MHz)
5.000
Stop Freq (MHz)
30.000
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
24
Humidity (%)
47
Test Voltage
120VAC, 60Hz
Time
8:54:41 AM
Date M/D/Y
8/20/03
Cable Set
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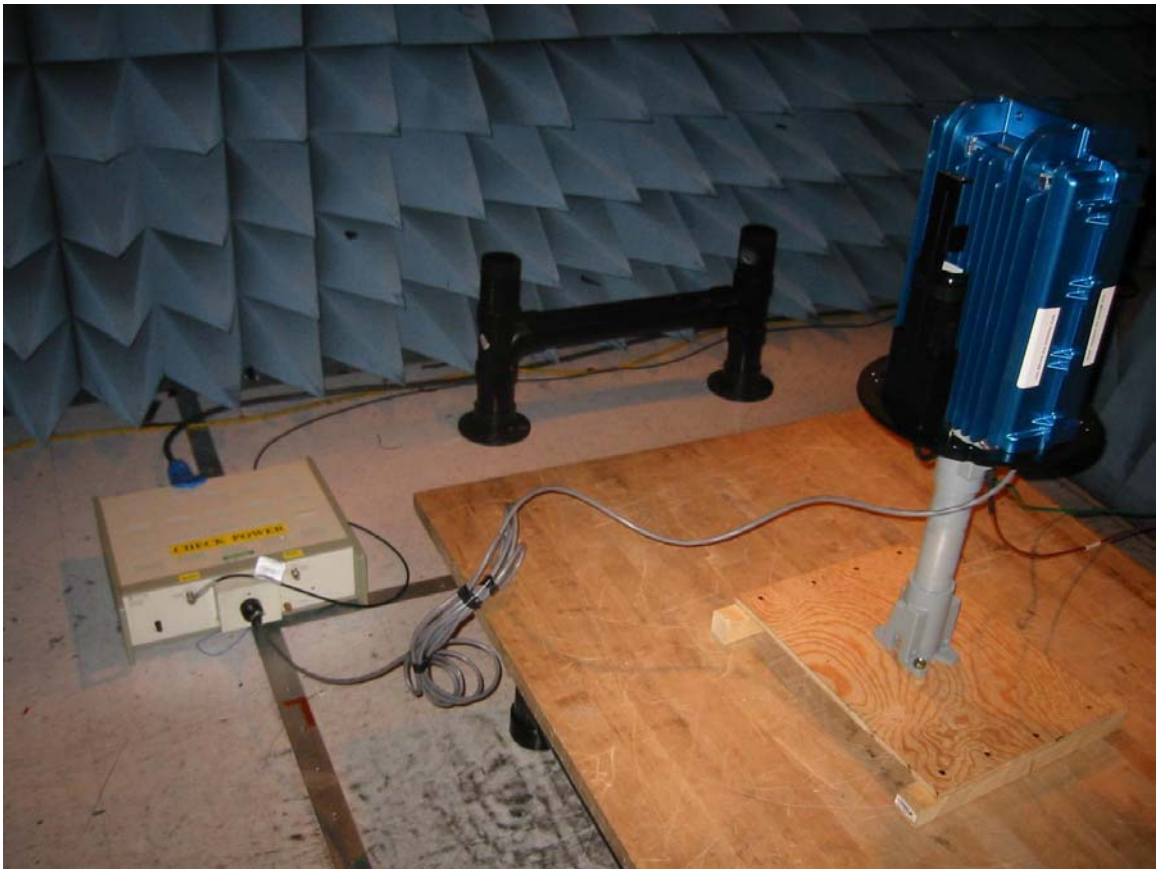
EMCO FA001545
Limiter
FA000975
Spectrum Analyzer
FA001309
Project number
3R07155
Tested By
Daniel Hynes
File
CISPR P 5M-30M
Comments
None.
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving



Section 4. Occupied Bandwidth

Para. No.: 15.247(a)(2)

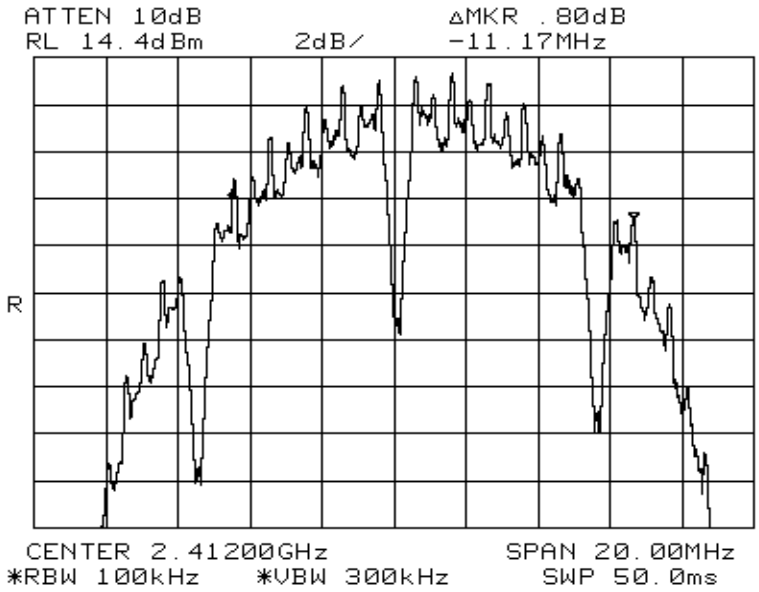
Test Performed By: Glen Westwell	**Date of Test:28 July 2003**

Test Results: Complies.

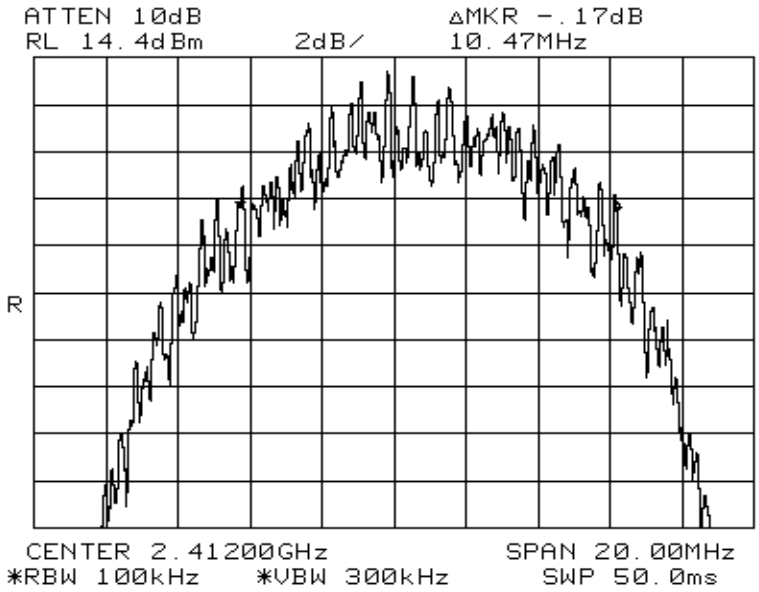
Limit: Minimun 6dB BW > 500kHz

Measurement Data: See attached plot(s).

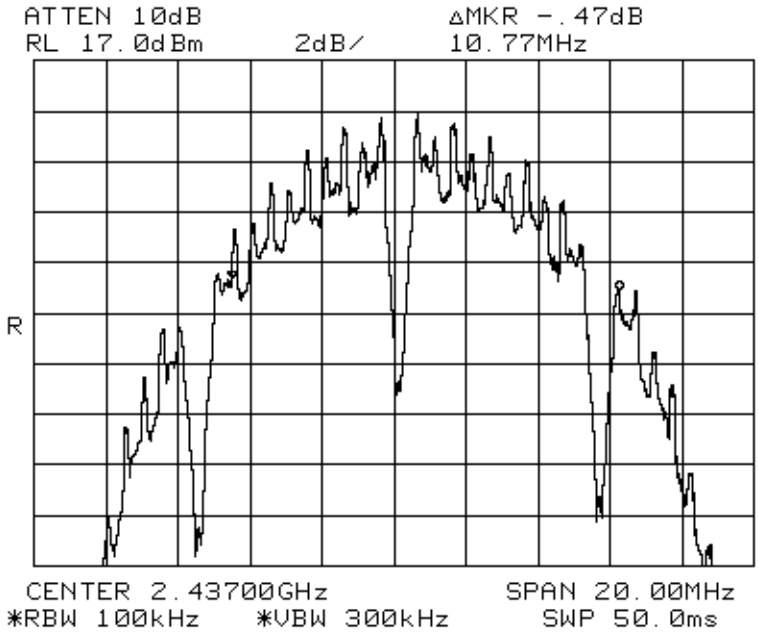
Channel	6dB Occupied BW (MHz)
Ch1, 1Mb/s	11.2
11Mb/s	10.5
Ch.6, 1Mb/s	10.8
11Mb/s	10.8
Ch.11, 1Mb/s	11.2
11Mb/s	10.5



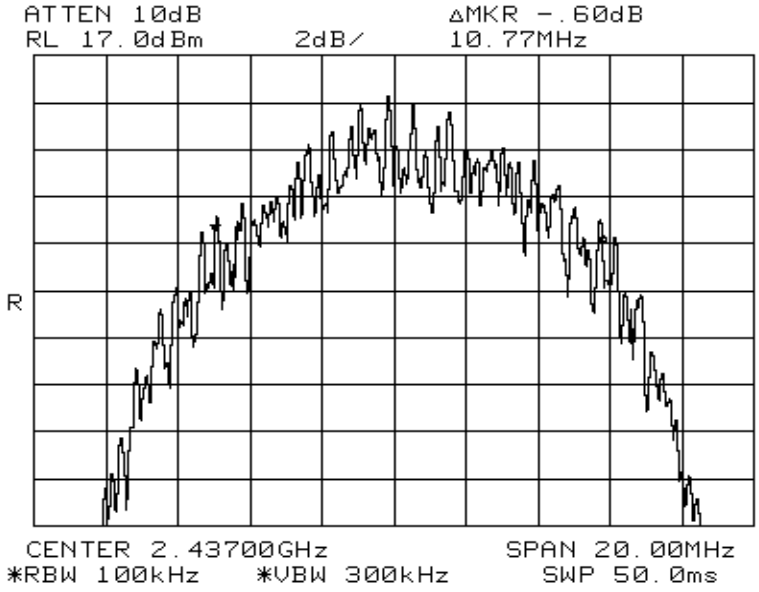
6dB Occ. Bw.= 11.2MHz
Ch.1, 1Mb/s
(Minimum Data Rate)



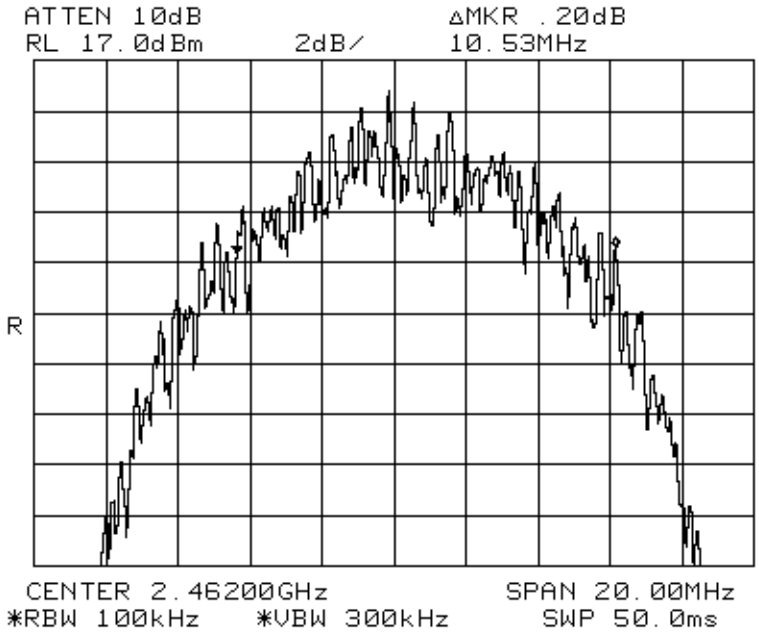
6dB Occ. BW. = 10.5MHz
Ch1, 11Mb/s
(Maximum Data Rate)



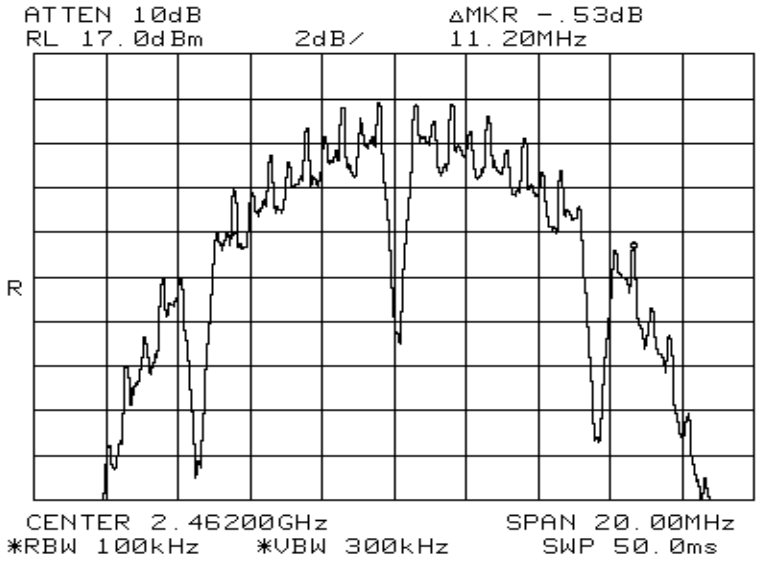
6dB Occ.Bw. = 10.77MHz
Ch.6, 1Mb/s
(Minimum Data Rate)



6dB Occ. BW. = 10.5MHz
Ch6, 11Mb/s
(Maximum Data Rate)



6dB Occ. BW. = 10.5MHz
Ch11, 11Mb/s
(Maximum Data Rate)



6dB Occ. BW. = 11.2MHz
Ch11, 1Mb/s
(Minimum Data Rate)

Section 5. Peak Power Output

Para. No.: 15.247(b)(3)

Test Performed By: Glen Westwell	**Date of Test: 28 July 2003**

Test Results:

The maximum peak power output of the transmitter is 0.447W.

Limit: 1W, (30dBm)

Measurement Data: Detachable antenna? ☒ Yes, 8.5dBi

Conducted Output Power

Data Rate	Ch.1 (dBm)	Ch.6 (dBm)	Ch.11 (dBm)
1Mb/s	24.4	25.5	26.5
2Mb/s	24.4	25.4	26.4
5.5Mb/s	22.8	23.8	24.7
11Mb/s	23.4	24.6	25.4

Section 6. Spurious Emissions (Antenna Conducted)

Para. No.: 15.247 (c)

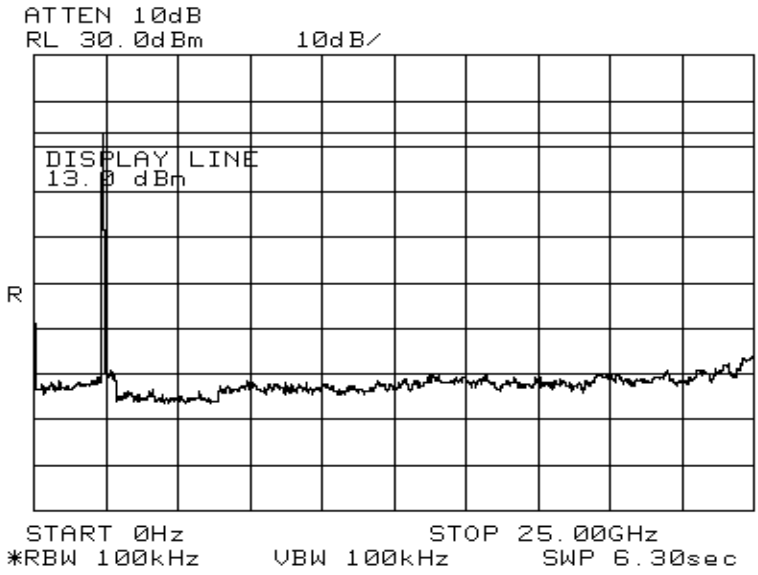
Test Performed By: Glen Westwell	**Date of Test: 28 July 2003**

Test Results: Complies.

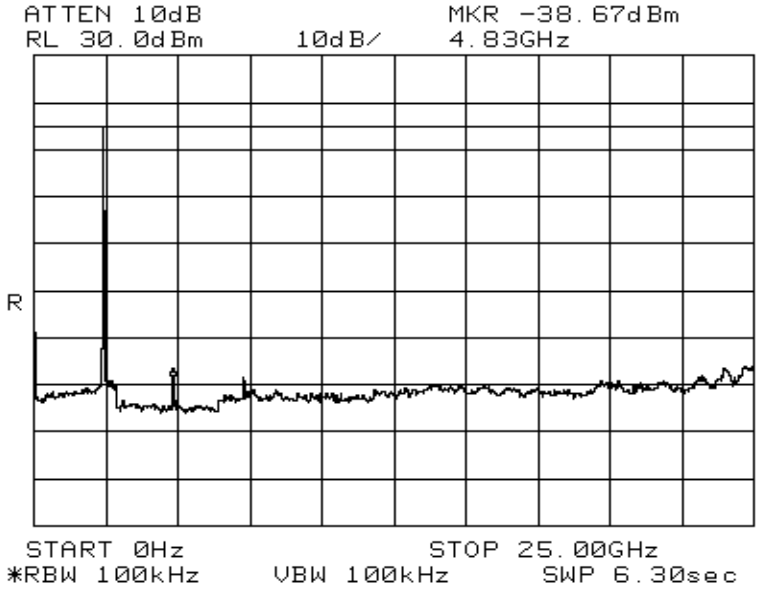
Limit: 20dBc

Measurement Data: See attached plots.

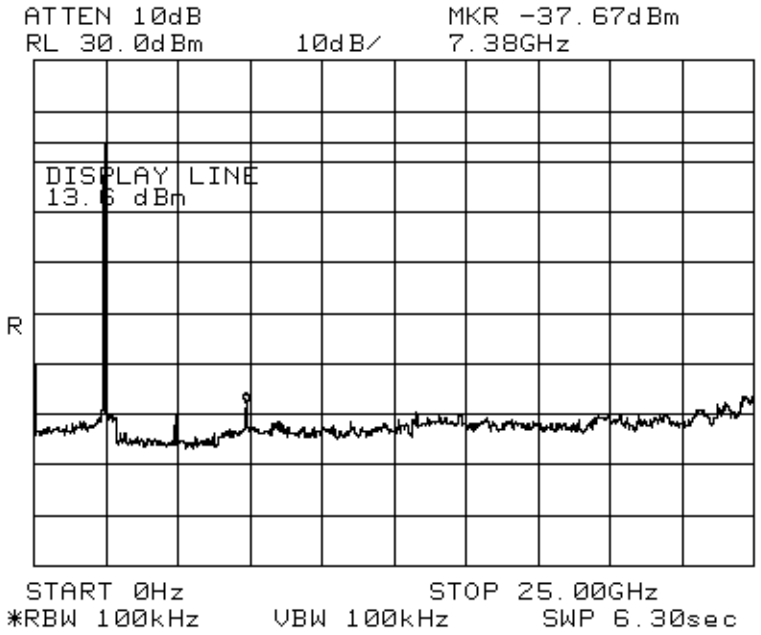
Worst case = 41.5dBc



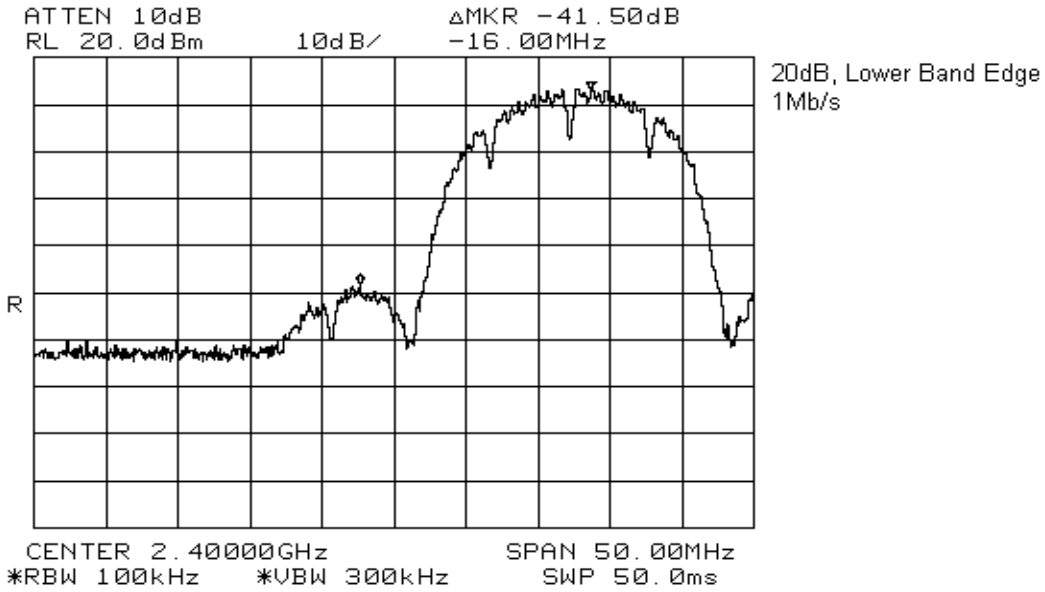
Conducted Spurious Emissions
Ch.1, Low Band



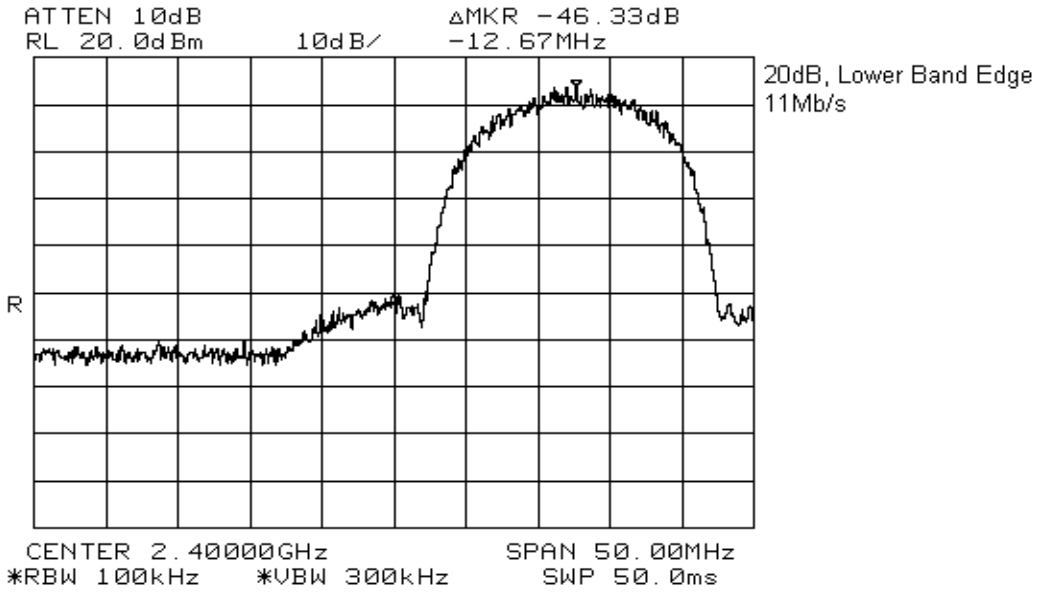
Conducted Spurious Emissions
Ch.6, Mid Band



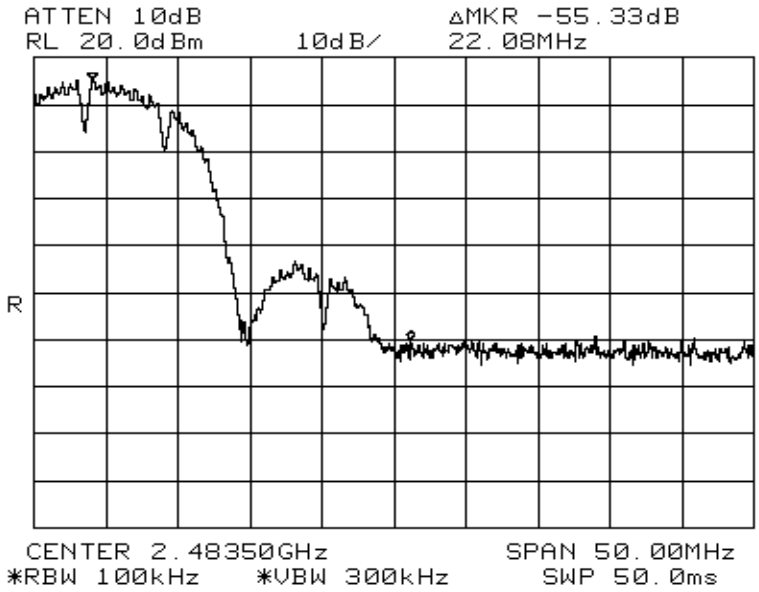
Conducted Spurious Emissions
Ch.11, High Band



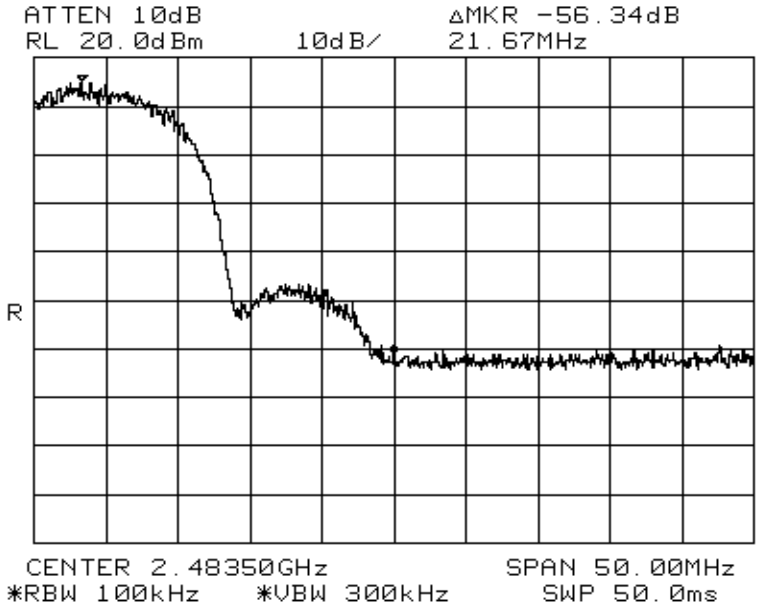
20dB, Lower Band Edge
1Mb/s



20dB, Lower Band Edge
11Mb/s



20dB, Upper Band Edge
1Mb/s



20dB, Upper Band Edge
11Mb/s

Section 7. Spurious Emissions (Radiated)

Para. No.: 15.247(c)

Test Performed By:Glen Westwell	**Date of Test: 31 July 2003**

Test Results: Complies.

Measurement Data: See attached plots and table.

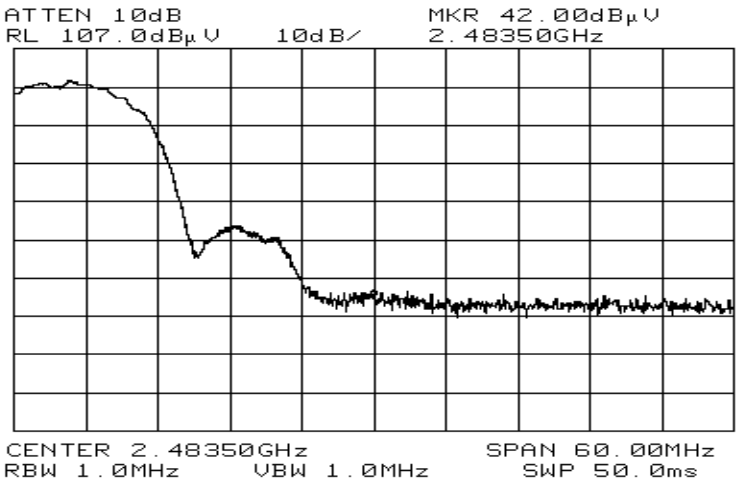
In order to achieve the required measurement receiver sensitivity at the restricted band edge, the measurements at the band edge were maximized at 1m and corrected to 3m.

The DUT was searched to the 10^{th} harmonic, only those emissions within 20dB of the limit were reported.

The power supply source was varied +/-15% to verify worst case emissions.

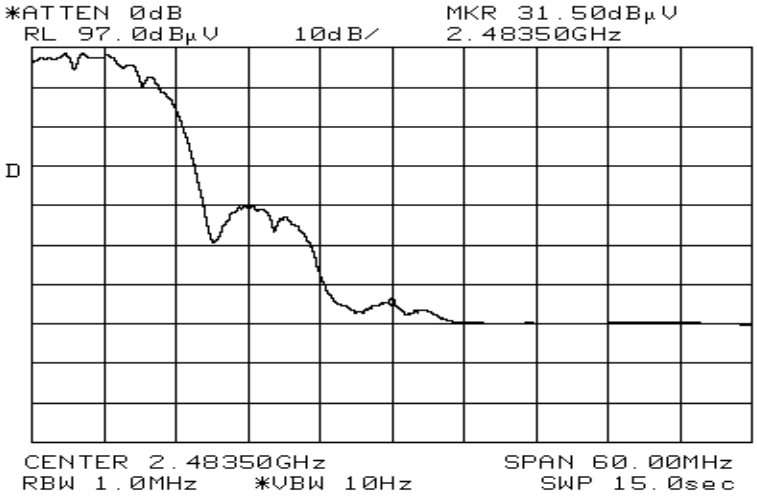
Worst case emissions were verified on 3 orthogonal axis.

Band Edge Level (PK)	Af	1m to 3m correction	Level	Limit
42dBuV	30.4dB	-9.5dB	62.9dBuV	74dBuV



Band Edge at 1m.

Band Edge Level (Avg)	Af	1m to 3m correction	Level	Limit
31.5dBuV	30.4dB	-9.5dB	52.4dBuV	54dBuV



Band Edge at 1m.

Tested as per (Table Top/Floor Standing): Table Top

Test Distance (meters): 3 | Range: A

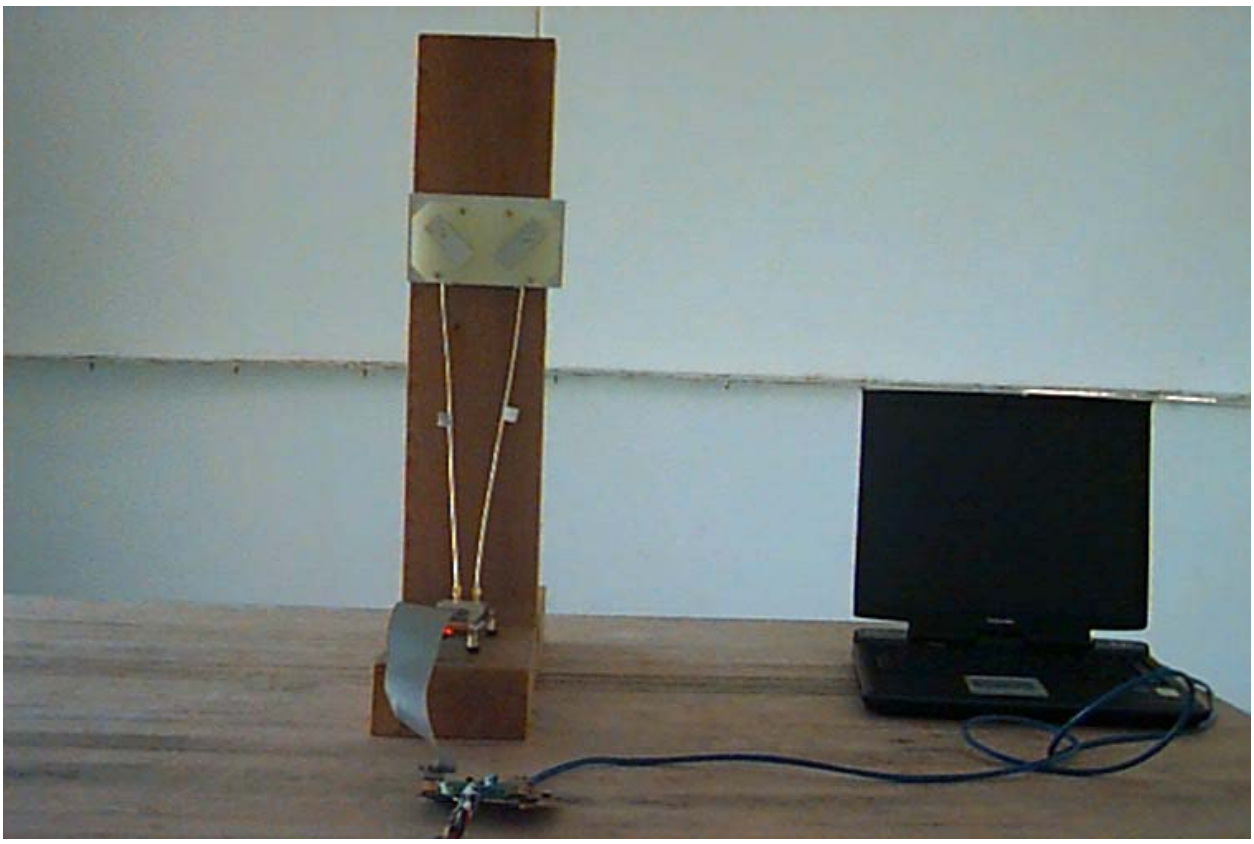
Emissions within 20 dB of the limit have been recorded.

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	Amp.
Ch.1											
4823.9000	Horn2	V	66.2	34.1	53.0	8.3	55.6	74.0	18.4	Peak	4-8GHz
4823.9000	Horn2	H	64.8	34.4	53.0	8.3	54.5	74.0	19.5	Peak	4-8GHz
4823.9000	Horn2	V	62.2	34.1	53.0	8.3	51.6	54.0	2.4	Avg.	4-8GHz
4823.9000	Horn2	H	60.8	34.4	53.0	8.3	50.5	54.0	4.5	Avg.	4-8GHz
7236.0000	Horn2	V	63.7	36.8	53.7	11.3	58.1	74.0	15.9	Peak	4-8GHz
7236.0000	Horn2	H	62.0	37.0	53.7	11.3	56.6	74.0	17.4	Peak	4-8GHz
7236.0000	Horn2	V	51.3	36.8	53.7	11.3	45.7	54.0	8.3	Avg.	4-8GHz
7236.0000	Horn2	H	50.3	37.0	53.7	11.3	44.9	54.0	9.1	Avg.	4-8GHz
Ch.6											
4874.0000	Horn2	V	65.8	34.2	52.7	8.8	56.1	74.0	17.9	Peak	4-8GHz
4874.0000	Horn2	H	64.0	34.4	52.7	8.8	54.5	74.0	19.5	Peak	4-8GHz
4874.0000	Horn2	V	61.0	34.2	52.7	8.8	51.3	54.0	2.7	Avg.	4-8GHz
4874.0000	Horn2	H	59.8	34.4	52.7	8.8	50.3	54.0	3.7	Avg.	4-8GHz
Ch.11											
4924.0000	Horn2	V	68.3	34.2	52.4	8.8	58.9	74.0	15.1	Peak	4-8GHz
4924.0000	Horn2	H	67.4	34.4	52.4	8.8	58.2	74.0	15.8	Peak	4-8GHz
4924.0000	Horn2	V	63.0	34.2	52.4	8.8	53.6	54.0	0.4	Avg.	4-8GHz
4924.0000	Horn2	H	61.2	34.4	52.4	8.8	52.0	54.0	2.0	Avg.	4-8GHz

Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole
Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW, 10Hz VBW, Peak =1.0MHz RBW, 1.0MHz VBW

Notes:	Measurement data presented is for Ch. 1,6 & 11 respectively

Radiated Set Up Photo



Section 8. Transmitter Power Density

Para. No.: 15.247(d)

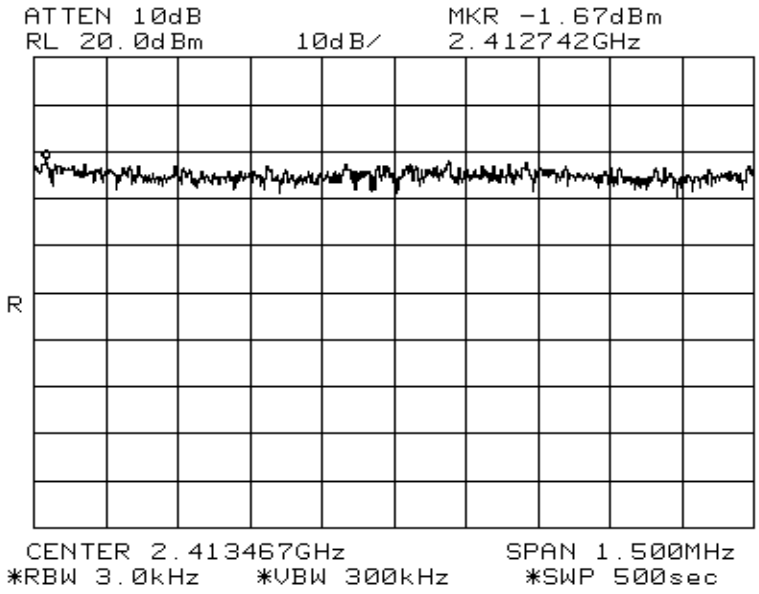
Test Performed By: Glen Westwell	**Date of Test: 28 July 2003**

Test Results: Complies

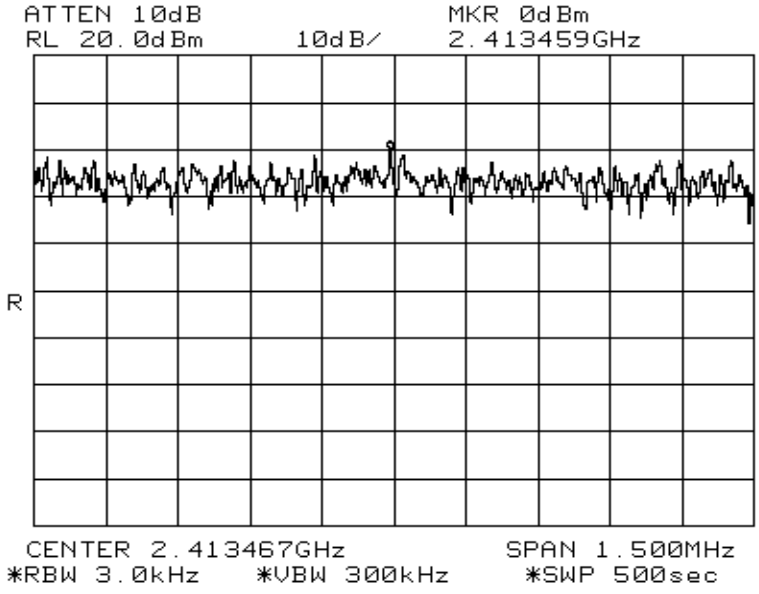
Limit: +8dBm

Measurement Data: See attached graphs.

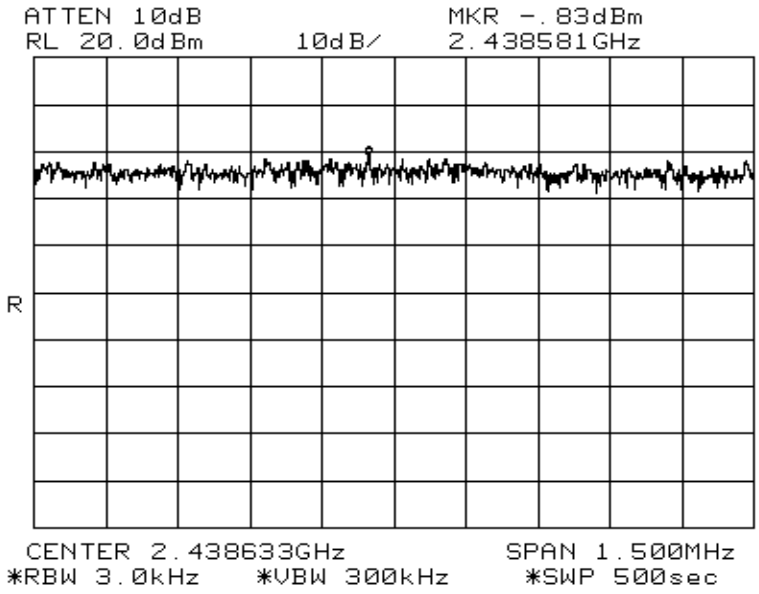
Channel	Power Spectral Density (dBm)
Ch1, 1Mb/s	-1.7
11Mb/s	0.0
Ch.6, 1Mb/s	-0.8
11Mb/s	1.2
Ch.11, 1Mb/s	-0.3
11Mb/s	1.2



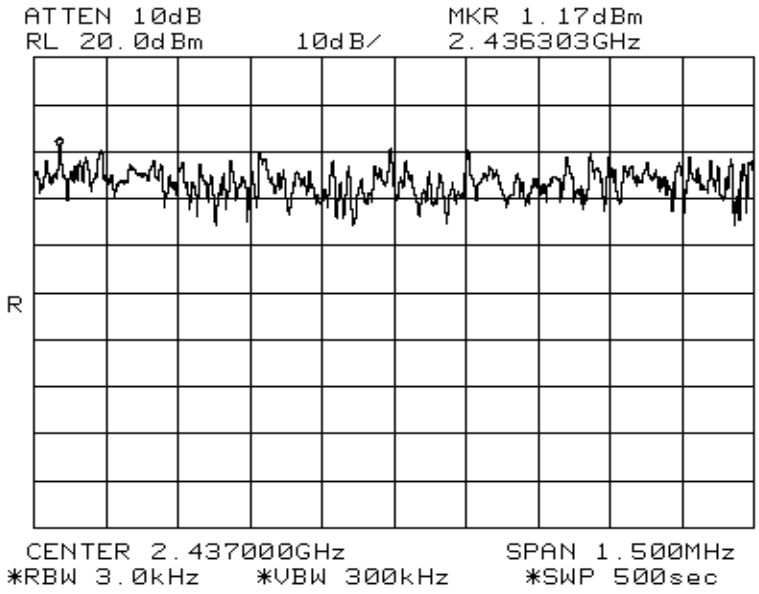
Power Spectral Density
Low Band, Ch. 1
1Mb/s



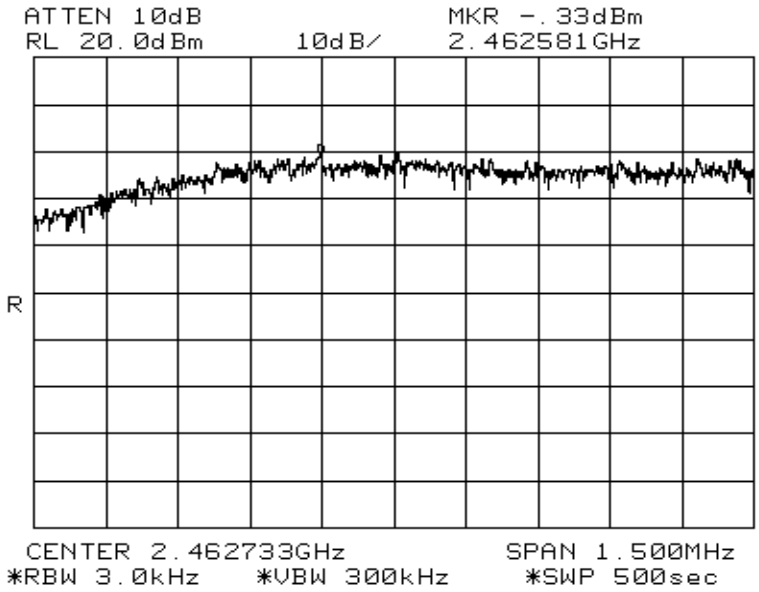
Power Spectral Density
Low Band, Ch. 1
11Mb/s



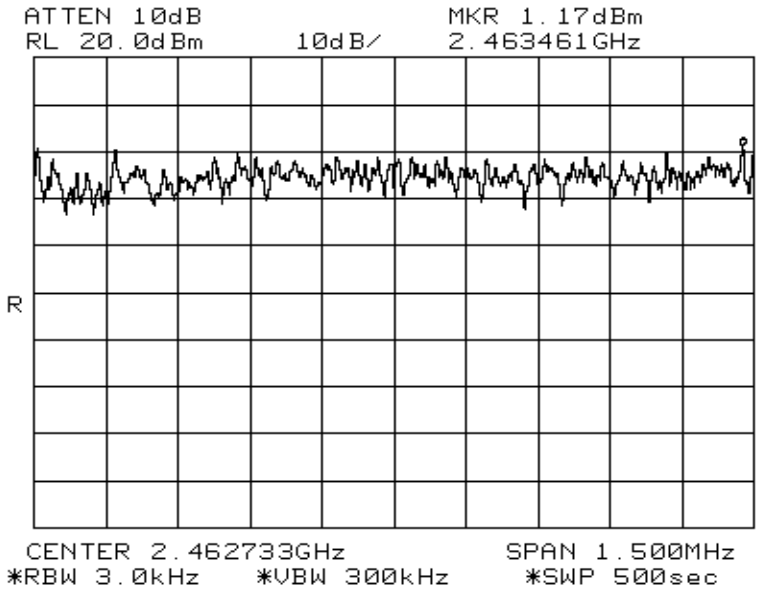
Power Spectral Density
Mid Band, Ch. 6
1Mb/s



Power Spectral Density
Mid Band, Ch. 6
11Mb/s



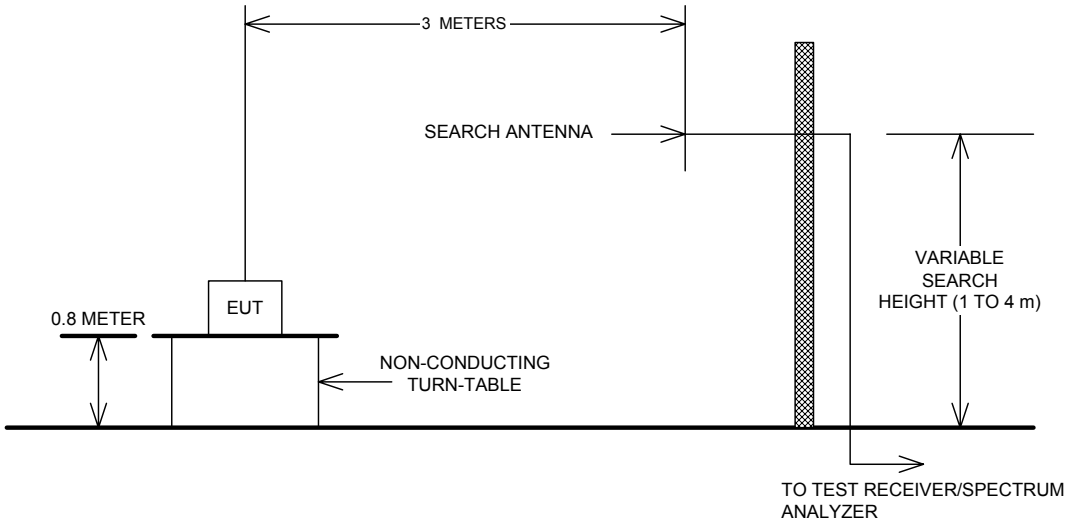
Power Spectral Density
High Band, Ch.11
1Mb/s



Power Spectral Density
High Band, Ch. 11
11Mb/s

Section 9. Block Diagrams

Test Site For Radiated Emissions

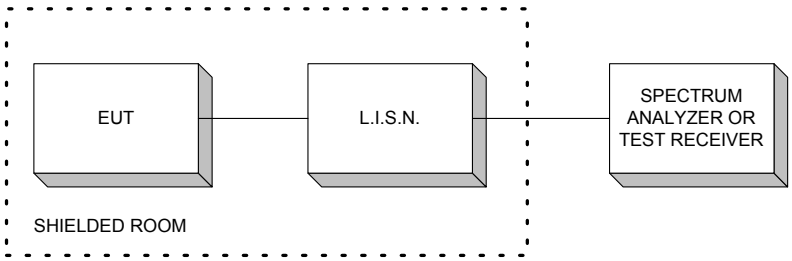


Below 1 GHz
Peak detector.
RBW = 100 kHz

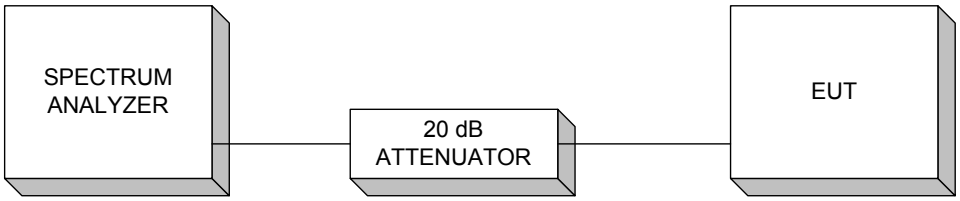
Above 1 GHz For Peak Emission Levels
Peak detector
RBW = 1 MHz
VBW = >RBW

Above 1 GHz For Average Emission Levels
Peak detector
RBW = 1 MHz
VBW = 10 Hz

Conducted Emissions



Transmitter Power Density & Peak Power At Antenna Terminals



Section 10. Test Equipment List

Equipment List

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	03 Jul 03	03 Jul 04
1 Year	Signal Generator	Rhode & Schwarz	SM1Q03E	FA001269	06 Dec 02	06 Dec 03
1 Year	Power Meter	Hewlett Packard	E4418B	FA001413	08 May 03	08 May 04
1 Year	Power Sensor	Hewlett Packard	8487A	FA001419	15 May 03	15 May 04
1 Year	RF AMP	JCA	4-8 GHz	FA001497	18 June 03	18 June 04
1 Year	Horn Antenna	EMCO #2	3115	FA000825	09 Dec 02	09 Dec 03
1 Year	High Pass Filter (3.9GHz)	K&L	11SH10-4000	FA001340	COU	COU
1 Year	LISN	EMCO	4825/2	FA001545	Oct. 25/02	Oct. 25/03
1 Year	Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	June. 05/03	June. 05/04
1 Year	Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	June. 05/03	June. 05/04

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use.