

TEST NUMBER - 150-04

**TEST REPORT TO**

**INDUSTRY CANADA RSS 210 SECTION 6.2.2(m2)  
FEDERAL COMMUNICATIONS COMMISSION CFR47 PART 15.249**

**Low Power License-Exempt Data Radio communication Devices  
Intentional Radiators**

for

Virtual Ink  
Brighton landing East  
20 Guest Street- Suite 520  
Boston, MA 02135  
(617)987-0462

of

MimioXi Wireless Interactive Whiteboard Device

FCC ID: RWU-DMA0202M

IC: 4952A-DMA0202M

on

2/26/2004

Tested by

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Andrew Mertinooke

Reviewed by

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Clifton P. Brick

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## TEST DESCRIPTION

### 1. TEST OBJECTIVE

**To test the Mimio Xi Wireless Wand to RSS 210 / Part 15 Subpart C Rules and write a report.**

### 2. E.U.T. DESCRIPTION

#### GENERAL

The MimioXi Wireless Wand is a portable and low cost device that attaches to any whiteboard (up to 4'x8' in size), connects to your PC/Mac and when used with a projector, allows you control your desktop applications and documents directly from the board. Without a projector, mimio enables you to digitally capture notes or drawings that can be saved, shared, and/or integrated into other materials.

#### SERIAL NUMBERS:

ProductionPrototype.

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### TEST RESULTS AND CONCLUSIONS

PRODUCT TESTED - Mimio Xi wireless Interactive Whiteboard wand

MODEL NUMBER - DMA0202

#### RADIATED TEST RESULTS

The test results show that the emissions radiated from this equipment are in compliance with IC Rules RSS 210 / FCC Rules Part 15 Subpart C.

#### OCCUPIED BANDWIDTH & OUTPUT POWER

The test results show that the occupied bandwidth and output power of this equipment are in compliance with IC Rules RSS 210 / FCC Rules Part 15 Subpart C .

#### CONDUCTED TEST RESULTS

The test results show that the emissions conducted through the power line from this equipment are in compliance with IC Rules RSS 210 / FCC Rules Part 15 Subpart C.

#### ANALYSIS AND CONCLUSIONS

Based upon the radiated and conducted measurements we find that this equipment is within the limits of the IC Rules RSS 210 / FCC Rules Part 15 Subpart C. All results are based on a test of one sample, and represent other production units, only in as much as a sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

#### NOTES (Special conditions unique to this test)

None

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## TEST PROCEDURES

### 1. TEST EQUIPMENT

- A. HP 8546A (9 kHz - 6.5 GHz) EMI Receiver w/ RF Filter Section, S/N 3704A00323 / 3650A00360. Calibration Date 1-16-2004, calibrated annually.
- B. HP 8593E (9 kHz - 26.5 GHz) Spectrum Analyzer, S/N 3829A03887. Calibration Date 11-21-2004, calibrated annually.
- B. Com-Power Biconilog Antenna, Model AC220, S/N 25509. Calibration Date 3-11-2003, calibrated annually.
- C. Electro-Metrics Double Ridged Guide Antenna, Model EM-6961, S/N 6337. Calibration Date: 6-24-2003, calibrated annually.
- D. HP 1 - 26.5 GHz Preamplifier, Model 08449B, S/N 3008A01323. Calibration Date: 1-7-2004, calibrated annually.
- E. EMC0 LISN, Model EM 3825/2, S/N 9109-1860. Calibration Date: 3-9-2003, calibrated annually.
- F. Com-Power Double Ridged Wave guide Antenna, Model AH-840, S/N 3075. Calibration Date: 1-12-2004, calibrated annually.

### 2. FREQUENCY RANGE TO BE SCANNED.

- A. Radiated Test from 30 MHz to 40 GHz (or the 10<sup>th</sup> harmonic of the highest frequency whichever is lower).
- B. Conducted Test from 150 kHz to 30 MHz.

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### 3. TEST PROCEDURES.

#### **Radiated test procedure:**

The EUT, associated cables and peripheral devices are placed on the supporting table and any support equipment is placed off the site. The EUT is turned on and any necessary operating or test software installed and allowed to warm up. The EUT is pre-scanned in our ferrite tile lined chamber where it is rotated 360 degrees and examined in both horizontal and vertical polarization, all emission frequencies are identified and recorded. The EUT is then moved to the OATS and the frequency band from 30 MHz to 40 GHz is scanned, all frequencies identified in the chamber are investigated, as well as harmonic frequencies of the EUT. When an emission is found the emission is maximized by varying the bundle position of the connecting cables, the antenna height, the antenna polarization (vertical and horizontal) and the table orientation (360 degrees). The maximum reading is recorded and the next signal is searched for.

#### **Conducted test procedure:**

The power line of the EUT is connected to the LISN (Line Impedance Stabilization Network). A measurement of the emissions are made from the power line for both phase and neutral on the analyzer in the frequency range from 150 kHz to 30 MHz. The maximum readings are recorded for each phase.

All measurements are made according to the procedures defined in: "ANSI C63.4-1992 Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz, American National Standard for (ISBN 1-55937-215-5).

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### RSS 210 TEST LIMITS

1. RSS 210 Section 6.2.2, Table 3 Radiation Limits (Quasi-Peak):  
FCC Part 15.209, 15.235, 15.249 Radiation Limits (Quasi-Peak):

| Frequency<br>MHz | Distance<br>meters | Limit<br>dBμV/m | Limit<br>μV/m |
|------------------|--------------------|-----------------|---------------|
| 1.705 - 30       | 30                 | 29.5*           | 30*           |
| 30 - 88          | 3                  | 40.0            | 100           |
| 49.82 - 49.90    | 3                  | 80.0*           | 10,000*       |
| 88 - 216         | 3                  | 43.5            | 150           |
| 216 - 960        | 3                  | 46.0            | 200           |
| 902 - 928        | 3                  | 94.0*           | 50,000*       |
| 2400 - 2483.5    | 3                  | 94.0*           | 50,000*       |
| 960 - 1000       | 3                  | 54.0            | 500           |
| 1000 - 40000     | 3                  | 54.0*           | 500*          |

\*NOTE: Average Limits

2. RSS 210 Section 6.6a Conduction Limits (Quasi-Peak):  
FCC Part 15.207 Conduction Limits (Quasi-Peak)  
Combined Limits

| Frequency<br>MHz | Quasi-Peak Limit<br>dBμV | Average Limit<br>dBμV |
|------------------|--------------------------|-----------------------|
| 0.150 - 0.500    | 66 to 56                 | 56 to 46              |
| 0.500 - 5.0      | 56                       | 46                    |
| 5.0 - 30.0       | 60                       | 50                    |

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## TEST FACILITY DESCRIPTION

Compliance Worldwide is located on 357 Main Street in Sandown, New Hampshire. The conducted and radiated test sites, located at C.W. are used for Federal Communications Commission (FCC) testing and Industry Canada Testing. A site description is on file with the FCC in Columbia, MD USA. Site information is also on file with Industry Canada, anyone wishing to review this Test Facility Description is referred to file number **IC 3023**. This is currently on file at Industry Canada, 1241 Clyde Avenue, Ottawa, ON K2C 1Y3.

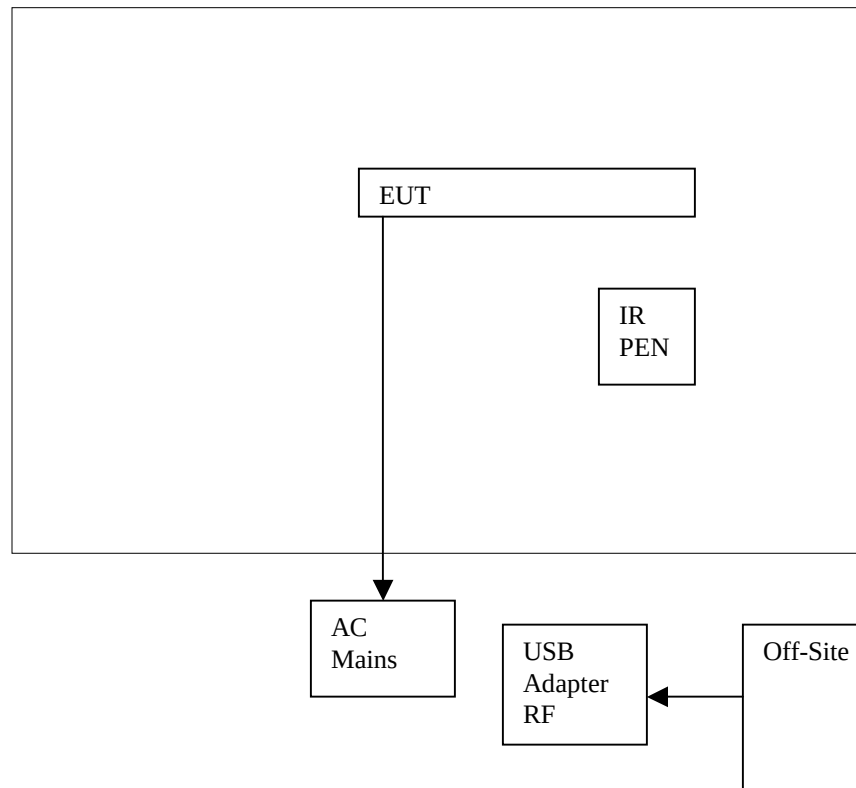
The radiated site is a 3/10 meter indoor site with an enclosure for the product and a basement for the personnel, support equipment and test equipment.

The conducted site is part of a 16' x 20' x 12' ferrite tile chamber and uses one of the walls for the vertical metal wall required by EN 55022.

Both sites are designed to test products or systems 1.5 meter x 1.0 meter, floor standing or table top.

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**TEST SET UP  
AND  
PERIPHERAL CONNECTION INFORMATION**



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PLEASE NOTE - EUT (equipment under test) is Mimio Xi wireless Interactive Whiteboard wand DMA0202.

The cables directly connected to this equipment are listed below.

### Connection Descriptions

1. Power Cable \_\_\_\_\_  
 (description)  
EUT \_\_\_\_\_  
 (from device)  
AC Mains via Class 2 transformer supply 9VDC300mA \_\_\_\_\_  
 (to device)  
 CABLE LENGTH 2m (S) SHIELDED or (U) UNSHIELDED U
  
2. N/A \_\_\_\_\_  
 (description)  
 \_\_\_\_\_  
 (from device)  
 \_\_\_\_\_  
 (to device)  
 CABLE LENGTH \_\_\_\_\_ (S) SHIELDED or (U) UNSHIELDED \_\_\_\_\_
  
3. N/A \_\_\_\_\_  
 (description)  
 \_\_\_\_\_  
 (from device)  
 \_\_\_\_\_  
 (to device)  
 CABLE LENGTH \_\_\_\_\_ (S) SHIELDED or (U) UNSHIELDED \_\_\_\_\_

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### **RADIATED TEST RESULTS**

Frequency Range: 30 - 24835 MHz.  
Measurement Distance: 3.0 Meters.  
Bandwidth: 120 kHz, Per ANSI C63.4-1992.\*  
Detector Functions: Peak, Quasi Peak, Average  
Video Filter: 300 kHz  
Table Height: 0.8 meters  
Antenna Height Variation: 1 - 4 Meters.  
Horizontal and Vertical Polarization Measurements Taken.

\*Measurement Bandwidth is 1 MHz above 1 GHz

### **PLEASE SEE NEXT PAGE FOR RADIATED TEST DATA**

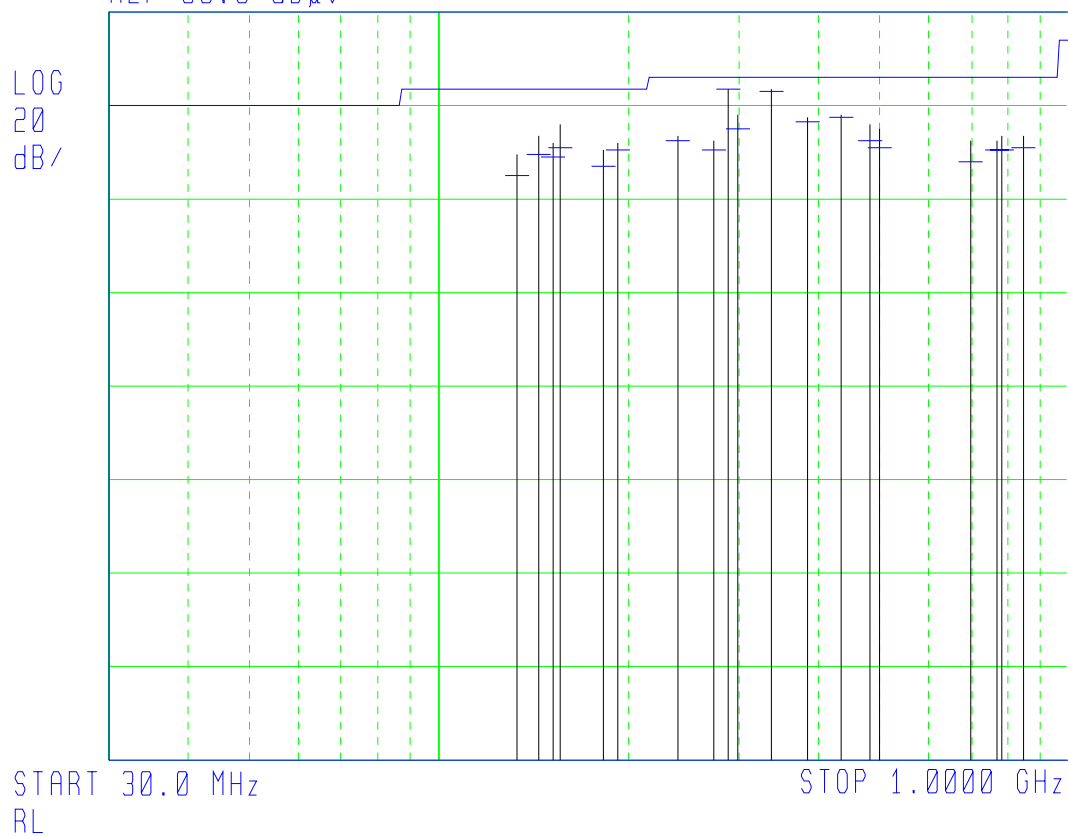
Emissions from 30MHz to 2GHz were examined with the Wand and USB unit both on the table and operating, see setup photos.

The reference to Channel in this section is 1,2,3 corresponding to lowest, middle and highest tune frequency.

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### Radiated Horizontal Data Log Plot

17:03:46 FEB 26, 2004 RADIATED HORIZONTAL  
150-04 VIRTUAL INK MIMIOXI WIRELESS  
REF 60.0 dB $\mu$ V



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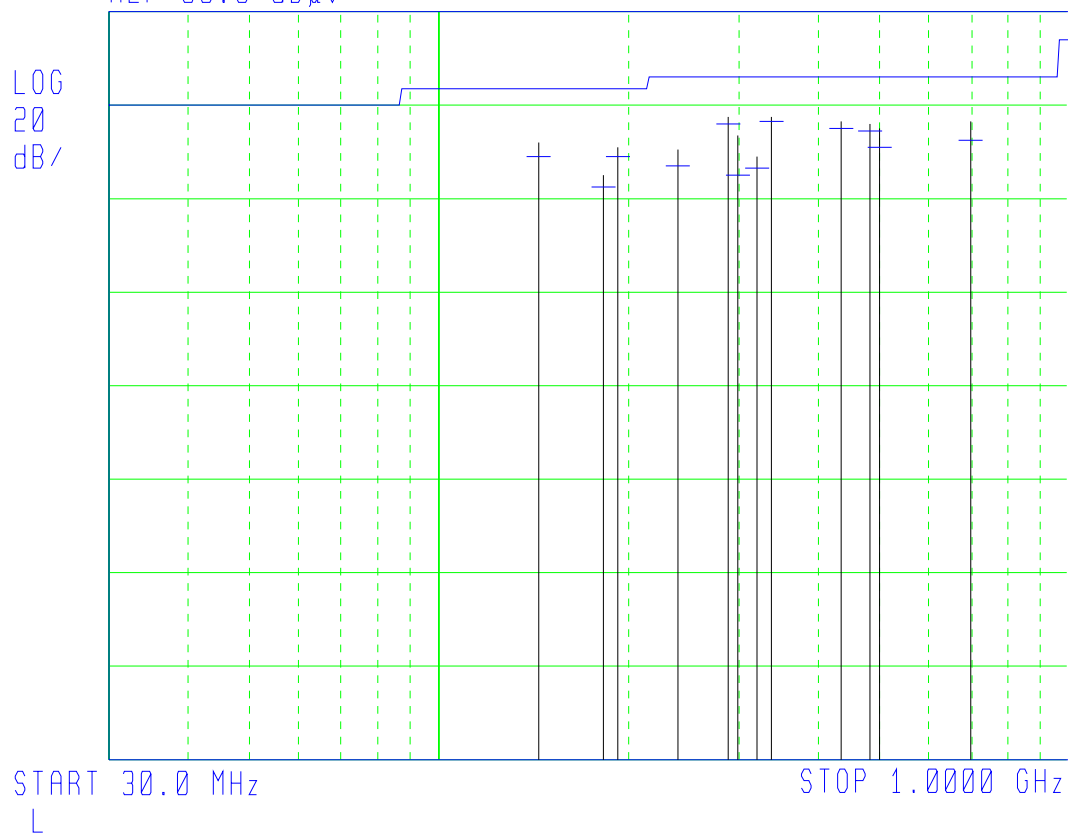
### Radiated Horizontal Tabular Data

| Freq (MHz) | Peak Amp (dBuV) | QP Amp (dBuV) | QP Limit (dBuV) | QP Margin (dB) |
|------------|-----------------|---------------|-----------------|----------------|
| 133.187750 | 30.20           | 25.56         | 43.50           | -17.94         |
| 144.036031 | 33.66           | 29.84         | 43.50           | -13.66         |
| 152.012263 | 32.22           | 29.48         | 43.50           | -14.02         |
| 156.007888 | 36.08           | 31.74         | 43.50           | -11.76         |
| 181.997319 | 30.52           | 27.33         | 43.50           | -16.17         |
| 192.016831 | 32.64           | 30.49         | 43.50           | -13.01         |
| 240.031763 | 33.83           | 33.26         | 46.00           | -12.74         |
| 272.021550 | 33.33           | 30.91         | 46.00           | -15.09         |
| 288.023138 | 43.69           | 43.67         | 46.00           | -2.33          |
| 298.200681 | 38.47           | 35.58         | 46.00           | -10.42         |
| 336.036700 | 43.68           | 43.05         | 46.00           | -2.95          |
| 384.034488 | 37.75           | 36.75         | 46.00           | -9.25          |
| 432.035581 | 38.29           | 37.48         | 46.00           | -8.52          |
| 480.045963 | 36.17           | 33.08         | 46.00           | -12.92         |
| 497.263931 | 35.64           | 31.88         | 46.00           | -14.12         |
| 696.055019 | 33.34           | 28.00         | 46.00           | -18.00         |
| 767.012663 | 33.22           | 30.78         | 46.00           | -15.22         |
| 780.028531 | 33.92           | 31.05         | 46.00           | -14.95         |
| 845.020577 | 34.07           | 31.44         | 46.00           | -14.56         |

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### Radiated Vertical Data Log Plot

18:08:26 FEB 26, 2004 RADIATED VERTICAL  
150-04 VIRTUAL INK MIMIOXI WIRELESS  
REF 60.0 dB $\mu$ V



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**Radiated Vertical Tabular Data**

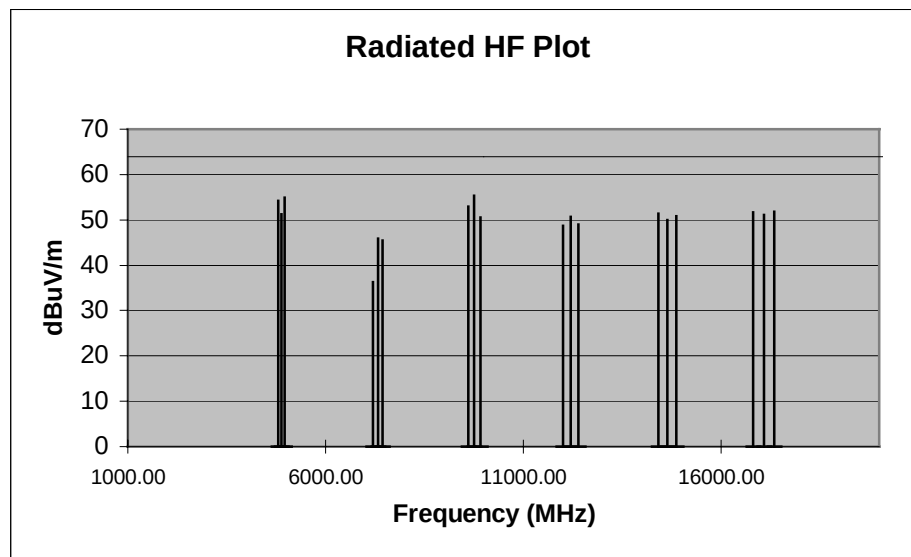
| Freq (MHz) | Peak<br>Amp<br>(dBuV) | QP Amp<br>(dBuV) | QP<br>Limit<br>(dBuV) | QP<br>Margin<br>(dB) |
|------------|-----------------------|------------------|-----------------------|----------------------|
| 144.036031 | 32.04                 | 28.96            | 43.50                 | -14.54               |
| 181.997319 | 25.64                 | 23.01            | 43.50                 | -20.49               |
| 192.016831 | 31.54                 | 28.91            | 43.50                 | -14.59               |
| 240.031763 | 30.60                 | 27.43            | 46.00                 | -18.57               |
| 288.004838 | 37.52                 | 36.24            | 46.00                 | -9.76                |
| 298.200681 | 34.08                 | 25.38            | 46.00                 | -20.62               |
| 320.026506 | 29.09                 | 26.43            | 46.00                 | -19.57               |
| 336.036700 | 38.03                 | 36.60            | 46.00                 | -9.40                |
| 432.035581 | 37.06                 | 35.28            | 46.00                 | -10.72               |
| 480.039238 | 36.50                 | 34.67            | 46.00                 | -11.33               |
| 497.263931 | 35.44                 | 31.62            | 46.00                 | -14.38               |
| 696.055019 | 37.06                 | 33.35            | 46.00                 | -12.65               |

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**Spurious Emissions**

| Channel | Frequency (MHz) | Polarization (H/V) | Peak (dBuV/m) | Avg. Limit (dBuV/m) | Margin (dB) |
|---------|-----------------|--------------------|---------------|---------------------|-------------|
| Lowest  | 4804.00         | V                  | 54.1          | 64                  | -9.9        |
| Lowest  | 7206.00         | V                  | 36.3          | 64                  | -27.8       |
| Lowest  | 9608.00         | V                  | 53.0          | 64                  | -11.0       |
| Lowest  | 12010.00        | V                  | 48.6          | 64                  | -15.4       |
| Lowest  | 14412.00        | V                  | 51.3          | 64                  | -12.7       |
| Lowest  | 16814.00        | V                  | 51.7          | 64                  | -12.4       |
| Mid     | 4880.00         | V                  | 51.2          | 64                  | -12.8       |
| Mid     | 7320.00         | V                  | 45.8          | 64                  | -18.2       |
| Mid     | 9760.00         | V                  | 55.3          | 64                  | -8.7        |
| Mid     | 12200.00        | V                  | 50.7          | 64                  | -13.3       |
| Mid     | 14640.00        | V                  | 50.0          | 64                  | -14.0       |
| Mid     | 17080.00        | V                  | 51.1          | 64                  | -12.9       |
| Upper   | 4958.00         | V                  | 54.9          | 64                  | -9.1        |
| Upper   | 7437.00         | V                  | 45.4          | 64                  | -18.6       |
| Upper   | 9916.00         | V                  | 50.6          | 64                  | -13.4       |
| Upper   | 12395.00        | V                  | 49.0          | 64                  | -15.0       |
| Upper   | 14874.00        | V                  | 50.8          | 64                  | -13.2       |
| Upper   | 17353.00        | V                  | 51.8          | 64                  | -12.2       |

Measurements were made using peak detector at a distance of 1 meter. No additional signals found within 15 dB of the limit up to the 10<sup>th</sup> harmonic.



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### **RADIATED OUTPUT POWER & OCCUPIED BANDWIDTH TEST RESULTS**

Frequency Range: 2400-2483.5 MHz.

Measurement Distance: 3.0 Meters.

Bandwidth: As Noted, Per ANSI C63.4-1992.

Detector Functions: Peak, Quasi Peak, Average.

Table Height: 0.8 meters

Antenna Height Variation: 1 - 4 Meters.

Horizontal and Vertical Polarization Measurements Taken, Worst Case Reported.

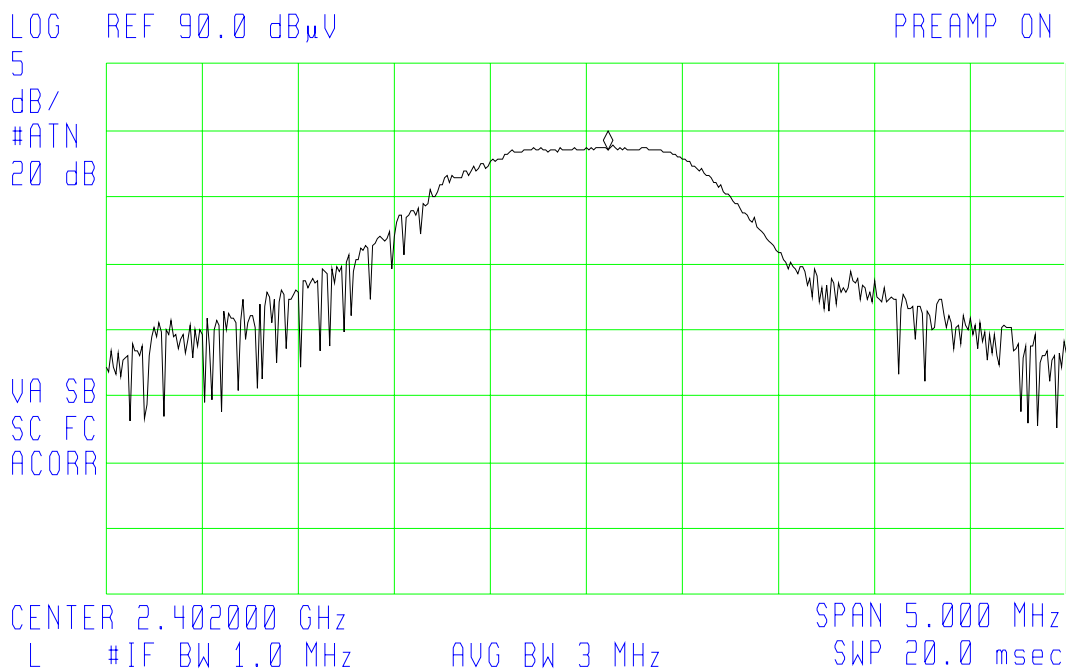
**PLEASE SEE NEXT PAGE(S) FOR OCCUPIED BANDWIDTH RADIATED TEST DATA**

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### Channel 1 Output Power Plot

14:31:17 FEB 26, 2004 CHANEL 1 FS  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 2.402113 GHz  
83.55 dB $\mu$ V



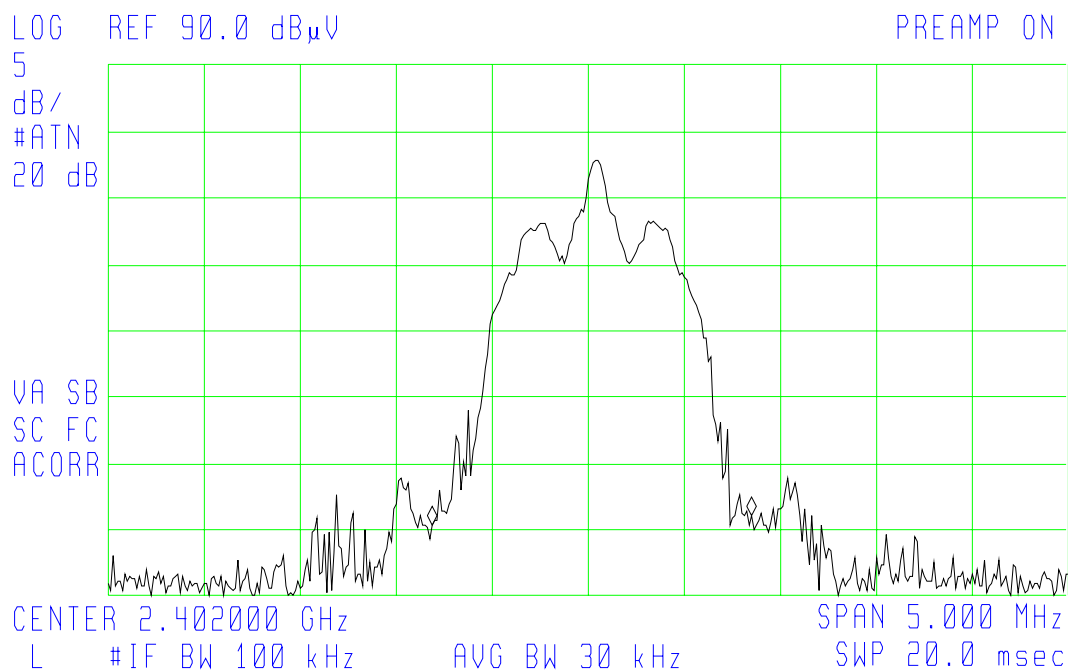
| Freq (MHz) | Polarization (H/V) | Peak Amp (dBuV/m) | Avg Amp (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) |
|------------|--------------------|-------------------|------------------|--------------------|-------------|
| 2402.000   | V                  | 83.55             |                  | 94.0               | -10.45      |

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**Channel 1 99% Power Bandwidth Plot**

14:33:36 FEB 26, 2004 CHANEL 1 BW 99%PWR  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKRΔ 1.663 MHz  
.81 dB



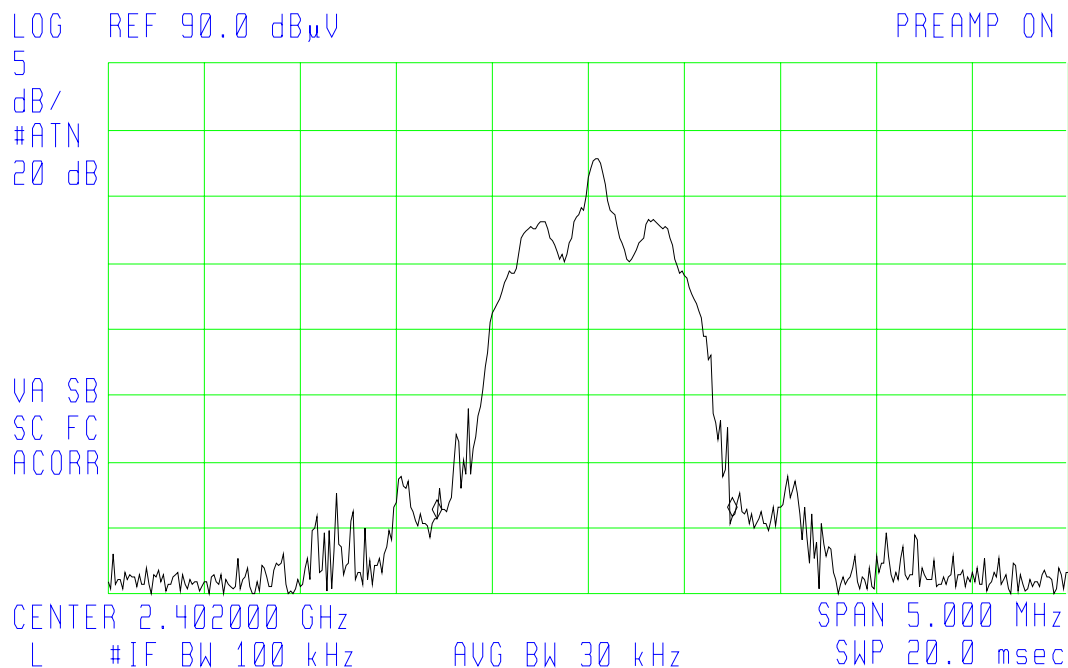
The 99% power Bandwidth was found to be 1.663 MHz on channel 3.

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**Channel 1 26dB Occupied Bandwidth Plot**

14:35:26 FEB 26, 2004 CHANEL 1 BW  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKRΔ 1.538 MHz  
.09 dB



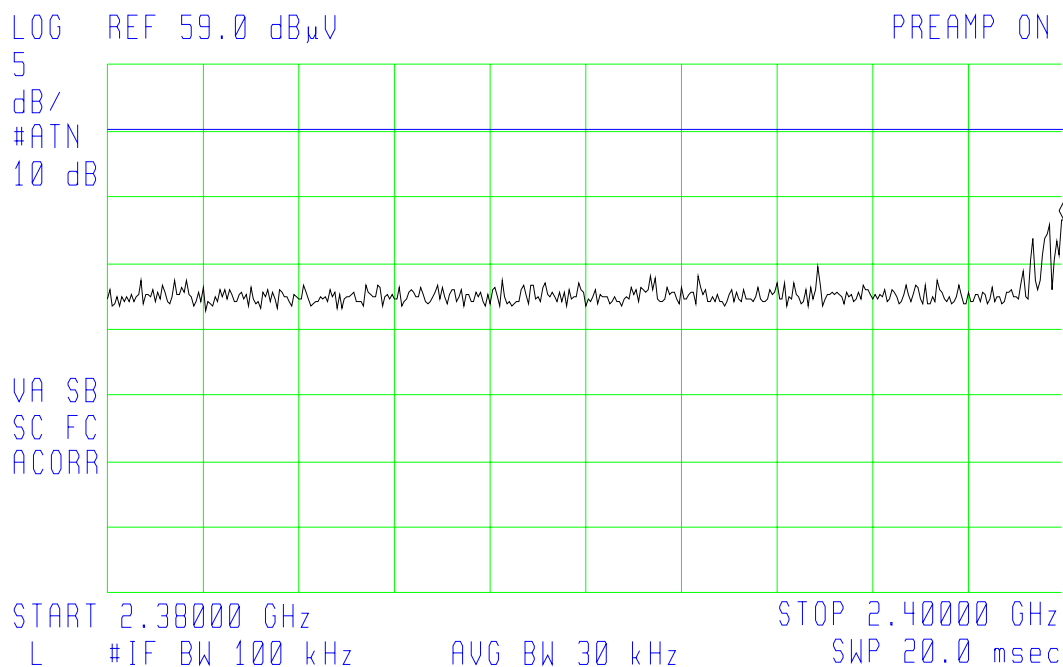
The occupied bandwidth at 26dB down from the peak was found to be 1.538 MHz on channel 1.

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### Channel 1 Lower Band Edge Plot

14:41:39 FEB 26, 2004 LOWER BAND EDGE  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 2.40000 GHz  
47.20 dB $\mu$ V

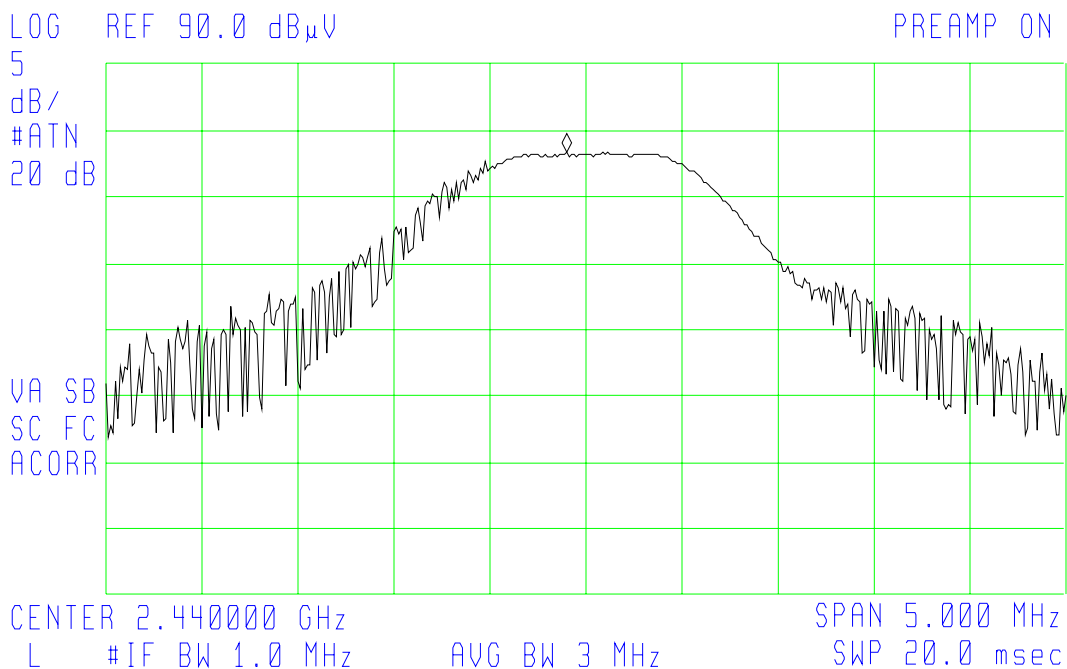


Plot shows lower band edge and 20 MHz below it, with the EUT tuned to it's lowest frequency.

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### Channel 2 Output Power Plot

15:06:50 FEB 26, 2004 CH 2 FS  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND  
ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 2.439900 GHz  
83.37 dB $\mu$ V



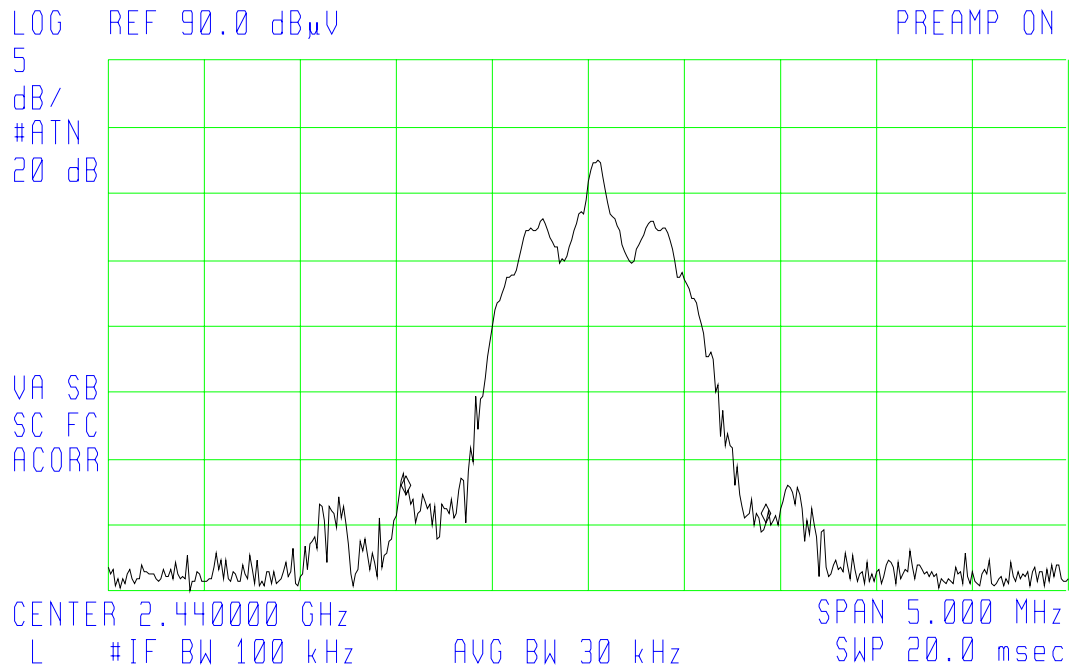
| Freq (MHz) | Polarization (H/V) | Peak Amp (dBuV/m) | Avg Amp (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) |
|------------|--------------------|-------------------|------------------|--------------------|-------------|
| 2440.000   | V                  | 83.37             |                  | 94.0               | -10.63      |

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**Channel 2 99% Power Occupied Bandwidth Plot**

15:09:36 FEB 26, 2004 CH 2 BW 99% PWR  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKRΔ 1.875 MHz  
-2.11 dB

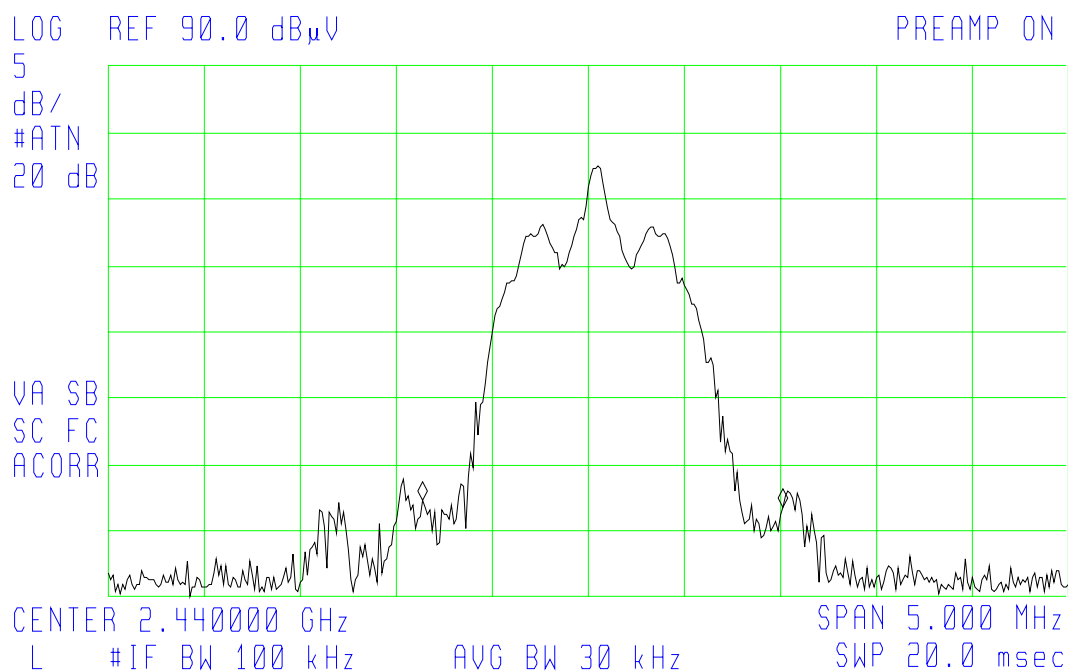


The 99% power Bandwidth was found to be 1.875 MHz on channel 3.

# **Channel 2 26 dB Occupied Bandwidth Plot**

15:11:42 FEB 26, 2004 CH 2 BW  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKRΔ 1.875 MHz  
- .60 dB



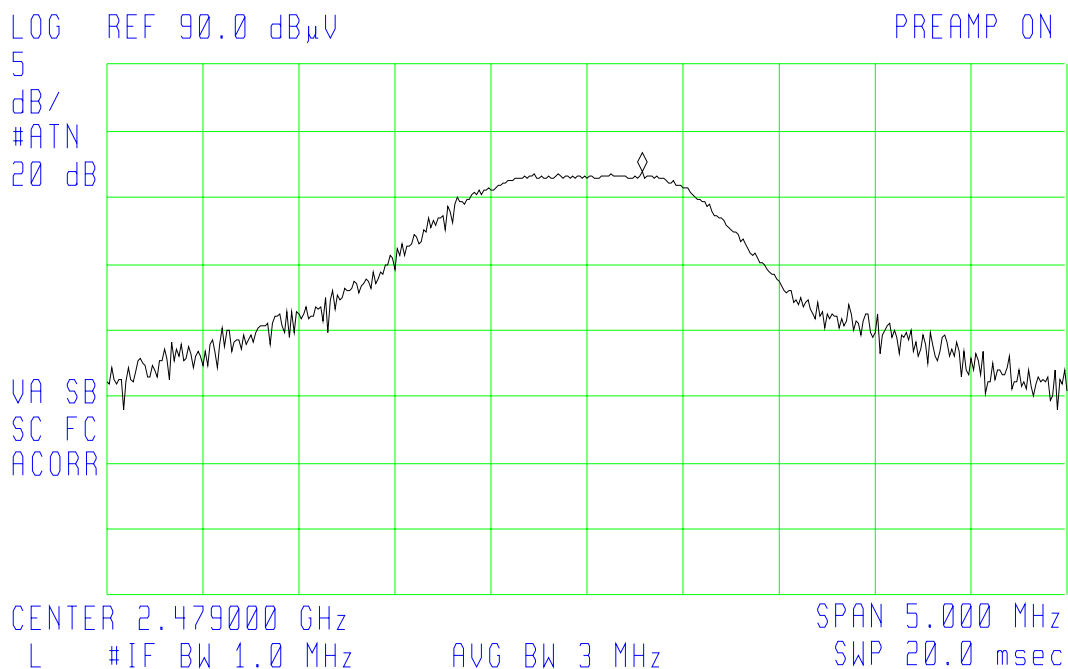
The occupied bandwidth at 26dB down from the peak was found to be 1.875 MHz on channel 2.

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### Channel 3 C Output Power Plot

15:20:25 FEB 26, 2004 CH 3 FS  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 2.479288 GHz  
81.82 dBμV



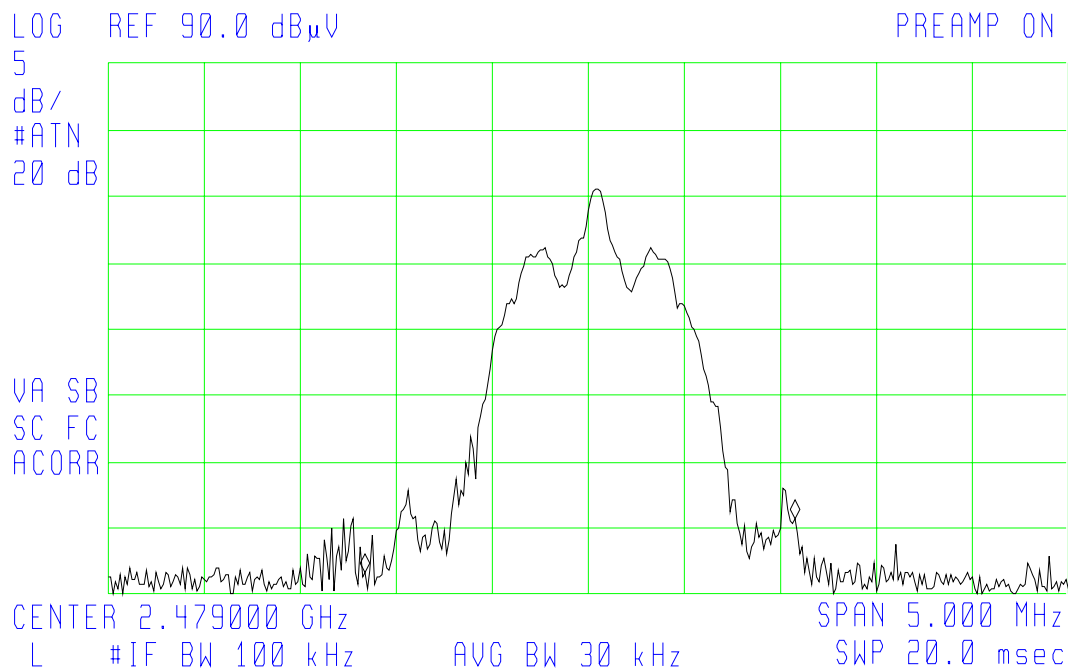
| Freq (MHz) | Polarization (H/V) | Peak Amp (dBuV/m) | Avg Amp (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) |
|------------|--------------------|-------------------|------------------|--------------------|-------------|
| 2479.000   | V                  | 81.82             |                  | 94.0               | -12.18      |

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**Channel 3 99% Power Occupied Bandwidth Plot**

15:23:35 FEB 26, 2004 CH 3 BW99%PWR  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR $\Delta$  2.238 MHz  
4.07 dB

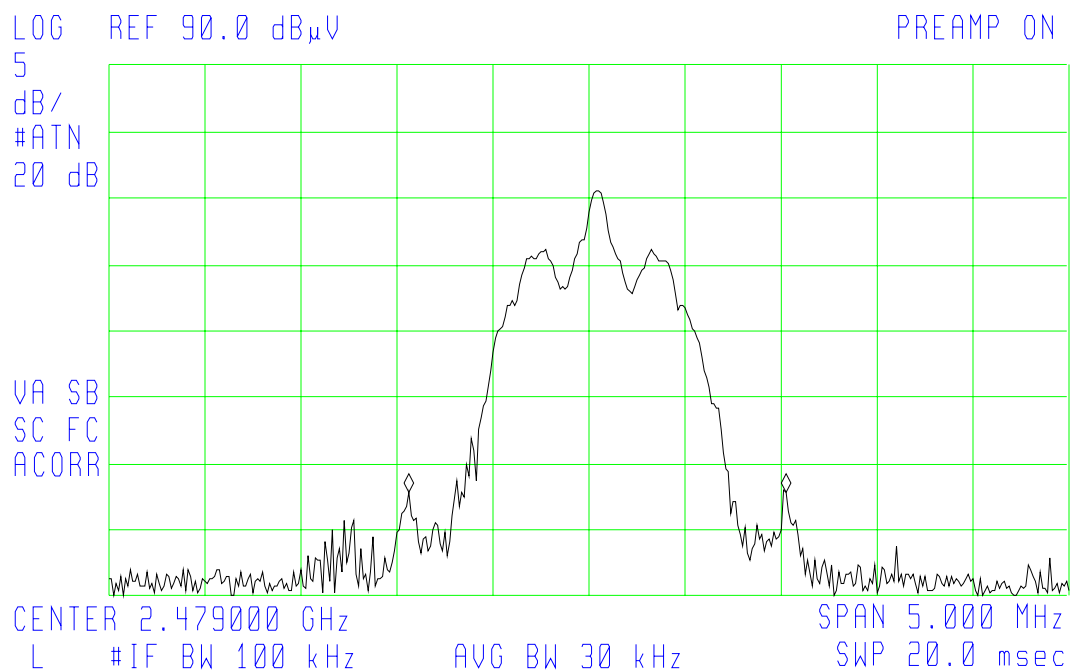


The 99% power Bandwidth was found to be 2.238 MHz on channel 3.

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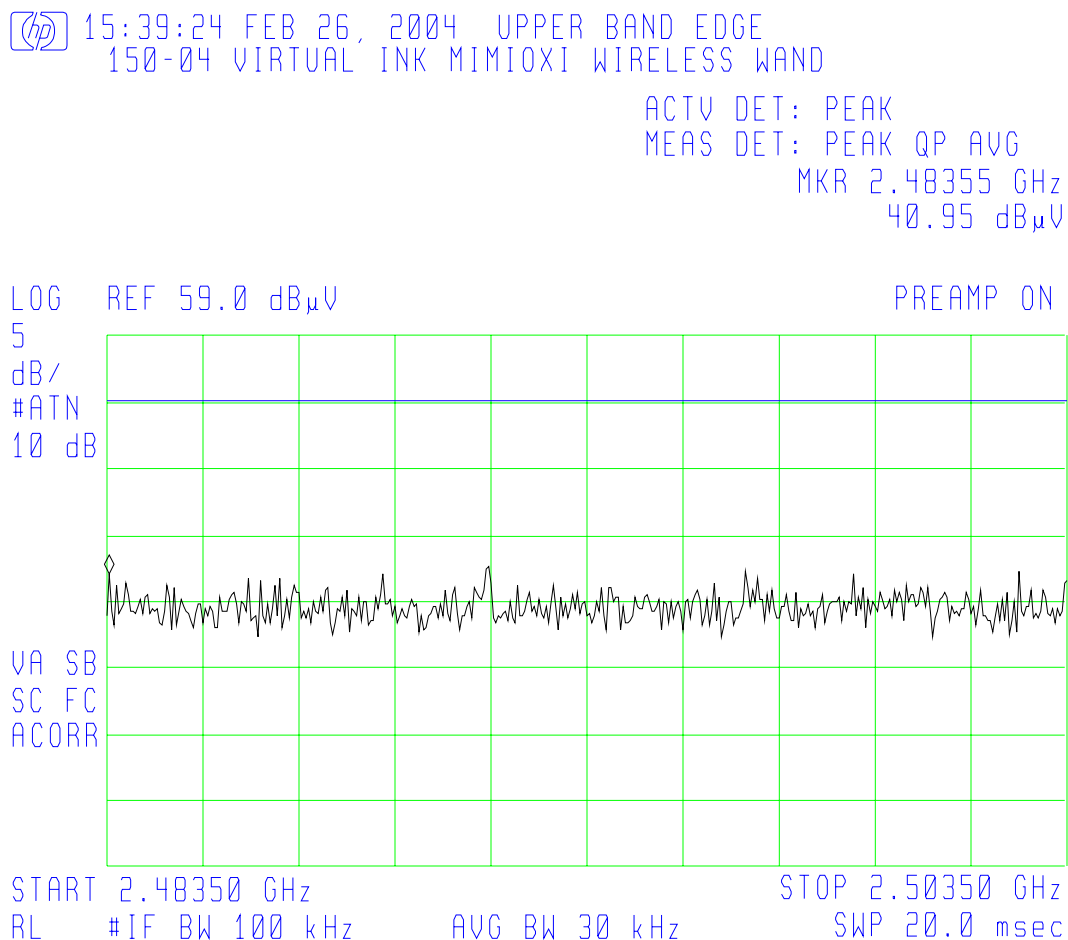
**Channel 3 26dB Occupied Bandwidth Plot**

15:26:05 FEB 26, 2004 CH 3 BW  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND  
ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR $\Delta$  1.963 MHz  
-.02 dB



The occupied bandwidth at 26dB down from the peak was found to be 1.963 MHz on channel 3.

### Channel 3 Upper Band Edge Plot



Plot shows upper band edge and 20 MHz above it, with the EUT tuned to it's highest frequency.

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### CONDUCTED TEST RESULTS

|                     |                            |
|---------------------|----------------------------|
| Frequency Range:    | 150 kHz to 30.0 MHz.       |
| Bandwidth:          | 9 kHz per ANSI C63.4-1992. |
| Detector Functions: | Peak, Quasi-Peak, Average  |
| Table Height:       | 0.8 meters                 |
| Video Bandwidth:    | 30 kHz.                    |

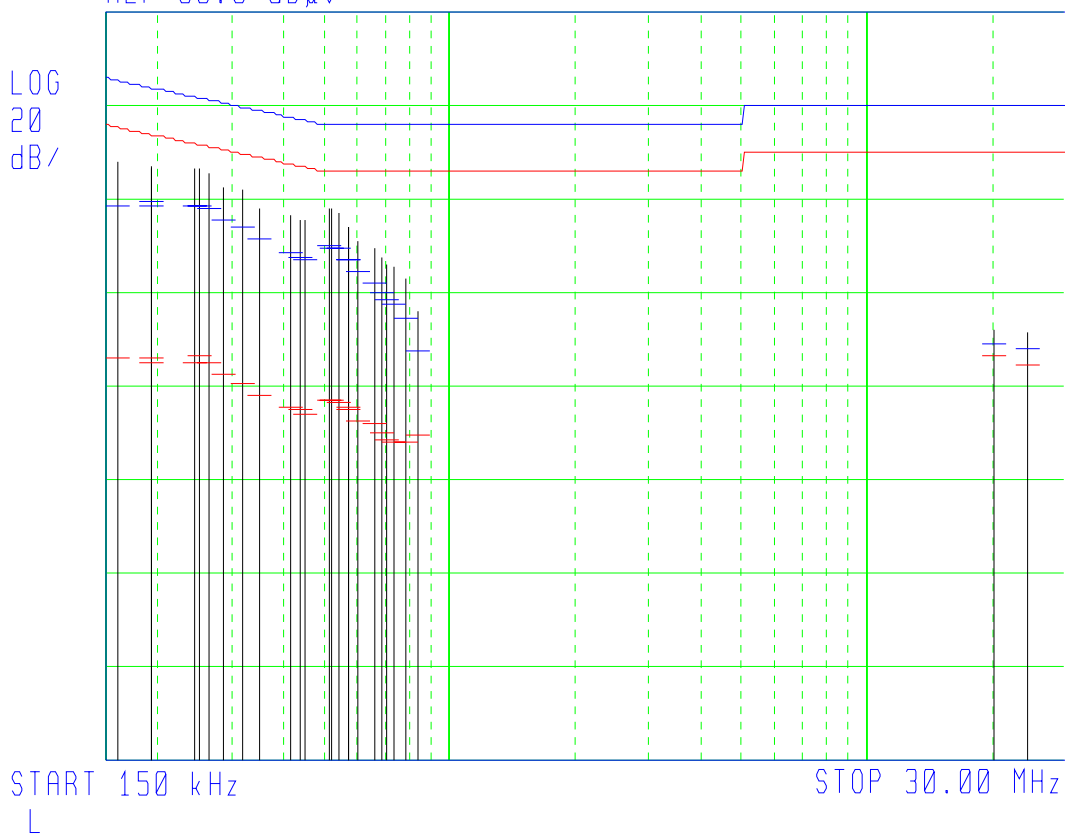
Phase and Neutral Measurements Taken.

**PLEASE SEE NEXT PAGE FOR CONDUCTED TEST DATA**

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**Conducted 120V 60Hz Neutral Data Log Plot**

10:42:26 FEB 24, 2004 120VAC 60 HZ CON NEUTRAL CH1  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND  
REF 80.0 dB $\mu$ V



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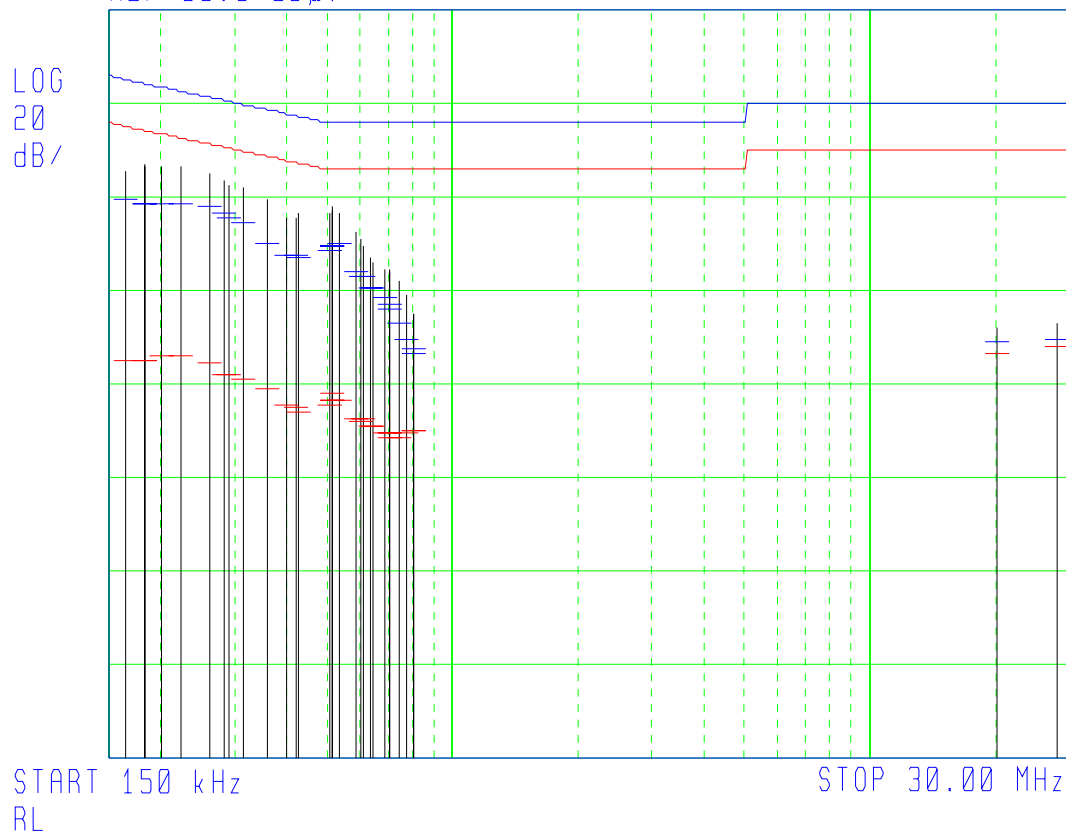
**Conducted 120V 60Hz Neutral Tabular Data**

| Freq (MHz) | Peak Amp (dBuV) | QP Amp (dBuV) | Avg Amp (dBuV) | QP Limit (dBuV) | Avg Limit (dBuV) | QP Margin (dB) | Avg Margin (dB) |
|------------|-----------------|---------------|----------------|-----------------|------------------|----------------|-----------------|
| 0.160991   | 48.44           | 38.98         | 5.91           | 65.46           | 55.46            | -26.48         | -49.55          |
| 0.193391   | 47.38           | 38.94         | 6.27           | 63.91           | 53.91            | -24.97         | -47.64          |
| 0.195205   | 47.14           | 39.41         | 5.29           | 63.84           | 53.84            | -24.43         | -48.55          |
| 0.245576   | 46.67           | 38.97         | 5.13           | 61.92           | 51.92            | -22.95         | -46.79          |
| 0.252964   | 46.70           | 39.24         | 7.12           | 61.70           | 51.70            | -22.46         | -44.58          |
| 0.265546   | 46.14           | 38.20         | 5.09           | 61.32           | 51.32            | -23.12         | -46.23          |
| 0.288655   | 42.65           | 35.65         | 2.91           | 60.62           | 50.62            | -24.97         | -47.71          |
| 0.322428   | 42.15           | 34.25         | 0.87           | 59.68           | 49.68            | -25.43         | -48.81          |
| 0.353129   | 38.46           | 32.04         | -1.65          | 58.95           | 48.95            | -26.91         | -50.60          |
| 0.417994   | 36.43           | 28.89         | -3.88          | 57.53           | 47.53            | -28.64         | -51.41          |
| 0.440799   | 36.20           | 27.79         | -4.41          | 57.11           | 47.11            | -29.32         | -51.52          |
| 0.453449   | 35.77           | 27.22         | -5.28          | 56.87           | 46.87            | -29.65         | -52.15          |
| 0.519139   | 38.16           | 30.38         | -2.50          | 56.00           | 46.00            | -25.62         | -48.50          |
| 0.524070   | 38.01           | 29.98         | -2.45          | 56.00           | 46.00            | -26.02         | -48.45          |
| 0.541780   | 37.26           | 29.48         | -2.88          | 56.00           | 46.00            | -26.52         | -48.88          |
| 0.573148   | 34.36           | 27.10         | -4.44          | 56.00           | 46.00            | -28.90         | -50.44          |
| 0.574808   | 34.19           | 27.00         | -4.21          | 56.00           | 46.00            | -29.00         | -50.21          |
| 0.608484   | 31.19           | 24.61         | -6.85          | 56.00           | 46.00            | -31.39         | -52.85          |
| 0.666956   | 29.59           | 22.27         | -8.01          | 56.00           | 46.00            | -33.73         | -54.01          |
| 0.688828   | 28.34           | 20.12         | -9.54          | 56.00           | 46.00            | -35.88         | -55.54          |
| 0.710944   | 26.79           | 19.12         | -10.92         | 56.00           | 46.00            | -36.88         | -56.92          |
| 0.740786   | 25.94           | 17.88         | -11.56         | 56.00           | 46.00            | -38.12         | -57.56          |
| 0.782988   | 23.20           | 14.45         | -11.59         | 56.00           | 46.00            | -41.55         | -57.59          |
| 0.841328   | 16.71           | 7.92          | -10.16         | 56.00           | 46.00            | -48.08         | -56.16          |
| 20.000664  | 12.61           | 9.64          | 6.78           | 60.00           | 50.00            | -50.36         | -43.22          |
| 24.001115  | 11.77           | 8.55          | 4.37           | 60.00           | 50.00            | -51.45         | -45.63          |

TEST NUMBER - 150-04

**Conducted 120V 60Hz Phase Data Log Plot**

10:31:51 FEB 24, 2004 120VAC 60 HZ CON PHASE CH1  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND  
REF 80.0 dB $\mu$ V



TEST NUMBER - 150-04

### Conducted 120V 60Hz Phase Tabular Data

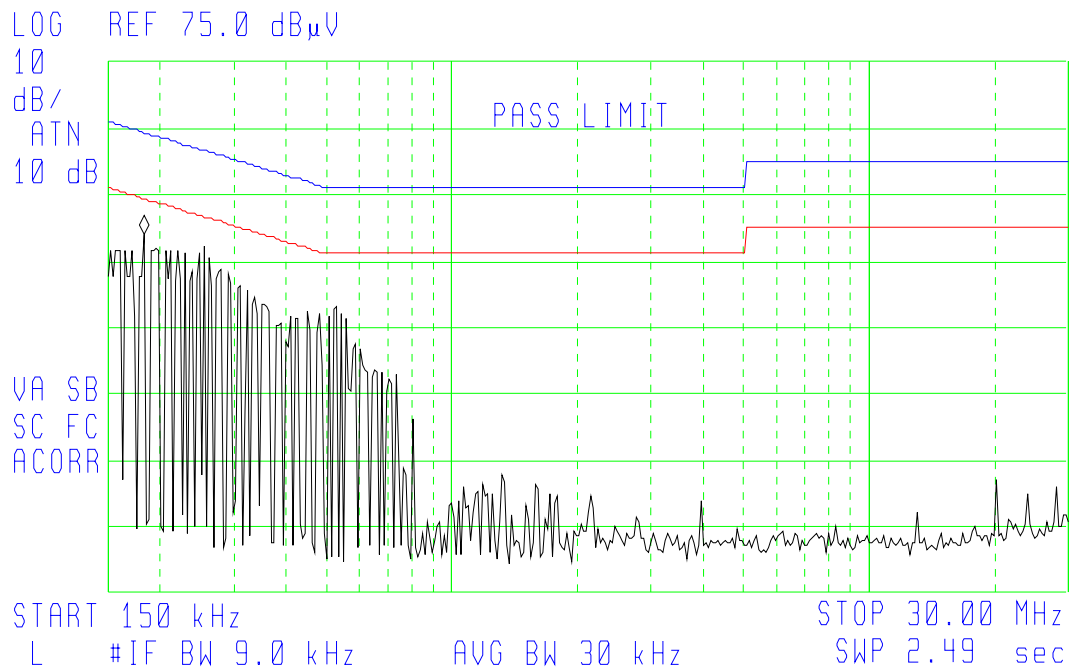
| Freq (MHz) | Peak Amp (dBuV) | QP Amp (dBuV) | Avg Amp (dBuV) | QP Limit (dBuV) | Avg Limit (dBuV) | QP Margin (dB) | Avg Margin (dB) |
|------------|-----------------|---------------|----------------|-----------------|------------------|----------------|-----------------|
| 0.166060   | 46.30           | 39.56         | 5.55           | 65.22           | 55.22            | -25.66         | -49.67          |
| 0.183015   | 47.45           | 39.28         | 5.54           | 64.39           | 54.39            | -25.11         | -48.85          |
| 0.184793   | 46.96           | 39.15         | 5.46           | 64.30           | 54.30            | -25.15         | -48.84          |
| 0.201319   | 46.43           | 38.92         | 5.94           | 63.60           | 53.60            | -24.68         | -47.66          |
| 0.223270   | 46.88           | 38.84         | 5.87           | 62.76           | 52.76            | -23.92         | -46.89          |
| 0.264628   | 45.44           | 38.10         | 4.74           | 61.34           | 51.34            | -23.24         | -46.60          |
| 0.282970   | 43.71           | 36.49         | 2.65           | 60.79           | 50.79            | -24.30         | -48.14          |
| 0.290996   | 42.53           | 35.90         | 2.26           | 60.55           | 50.55            | -24.65         | -48.29          |
| 0.316419   | 41.99           | 34.99         | 1.44           | 59.82           | 49.82            | -24.83         | -48.38          |
| 0.360390   | 39.46           | 30.79         | -1.07          | 58.78           | 48.78            | -27.99         | -49.85          |
| 0.400006   | 35.83           | 28.44         | -3.83          | 57.87           | 47.87            | -29.43         | -51.70          |
| 0.422641   | 35.97           | 28.03         | -4.99          | 57.45           | 47.45            | -29.42         | -52.44          |
| 0.426405   | 36.31           | 27.57         | -5.33          | 57.38           | 47.38            | -29.81         | -52.71          |
| 0.506463   | 36.70           | 28.74         | -4.14          | 56.00           | 46.00            | -27.26         | -50.14          |
| 0.516621   | 37.74           | 29.50         | -1.22          | 56.00           | 46.00            | -26.50         | -47.22          |
| 0.516644   | 36.91           | 29.36         | -3.43          | 56.00           | 46.00            | -26.64         | -49.43          |
| 0.518743   | 37.91           | 29.81         | -3.33          | 56.00           | 46.00            | -26.19         | -49.33          |
| 0.538233   | 36.67           | 30.21         | -2.92          | 56.00           | 46.00            | -25.79         | -48.92          |
| 0.591258   | 32.98           | 24.57         | -6.85          | 56.00           | 46.00            | -31.43         | -52.85          |
| 0.602981   | 30.91           | 23.66         | -7.67          | 56.00           | 46.00            | -32.34         | -53.67          |
| 0.609855   | 30.02           | 23.18         | -7.12          | 56.00           | 46.00            | -32.82         | -53.12          |
| 0.640368   | 27.62           | 21.05         | -8.46          | 56.00           | 46.00            | -34.95         | -54.46          |
| 0.649308   | 26.86           | 21.10         | -8.63          | 56.00           | 46.00            | -34.90         | -54.63          |
| 0.686290   | 25.36           | 19.07         | -10.22         | 56.00           | 46.00            | -36.93         | -56.22          |
| 0.706445   | 24.60           | 16.75         | -10.83         | 56.00           | 46.00            | -39.25         | -56.83          |
| 0.710383   | 24.26           | 17.37         | -9.94          | 56.00           | 46.00            | -38.63         | -55.94          |
| 0.749855   | 23.00           | 13.46         | -10.80         | 56.00           | 46.00            | -42.54         | -56.80          |
| 0.781544   | 19.35           | 10.43         | -10.11         | 56.00           | 46.00            | -45.57         | -56.11          |
| 0.804659   | 15.73           | 7.29          | -9.59          | 56.00           | 46.00            | -48.71         | -55.59          |
| 0.808005   | 15.60           | 7.50          | -9.57          | 56.00           | 46.00            | -48.50         | -55.57          |
| 19.999529  | 12.58           | 9.57          | 6.79           | 60.00           | 50.00            | -50.43         | -43.21          |
| 28.000681  | 13.10           | 10.22         | 8.57           | 60.00           | 50.00            | -49.78         | -41.43          |

TEST NUMBER - 150-04

**Conducted 120V 60Hz Ch2 Neutral Data Log Plot**

10:50:30 FEB 24, 2004 120VAC 60 HZ CON NEUTRAL CH2  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 180 kHz  
48.82 dB $\mu$ V

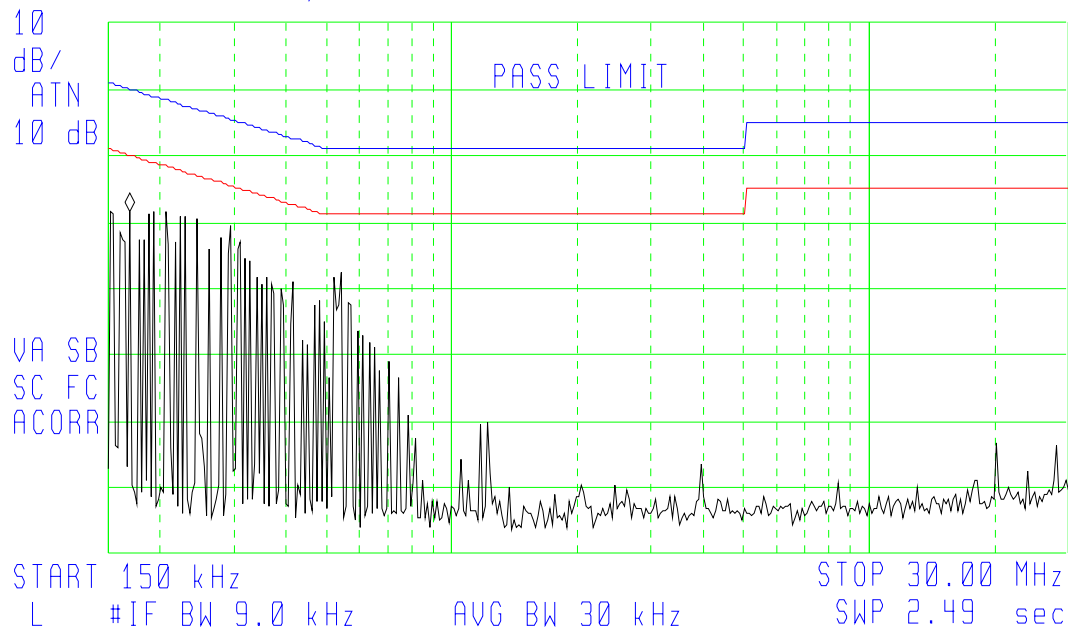


**Conducted 120V 60Hz Ch 2 Phase Data Log Plot**

10:47:15 FEB 24, 2004 100VAC 60 HZ CON PHASE CH2  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 170 kHz  
46.60 dB $\mu$ V

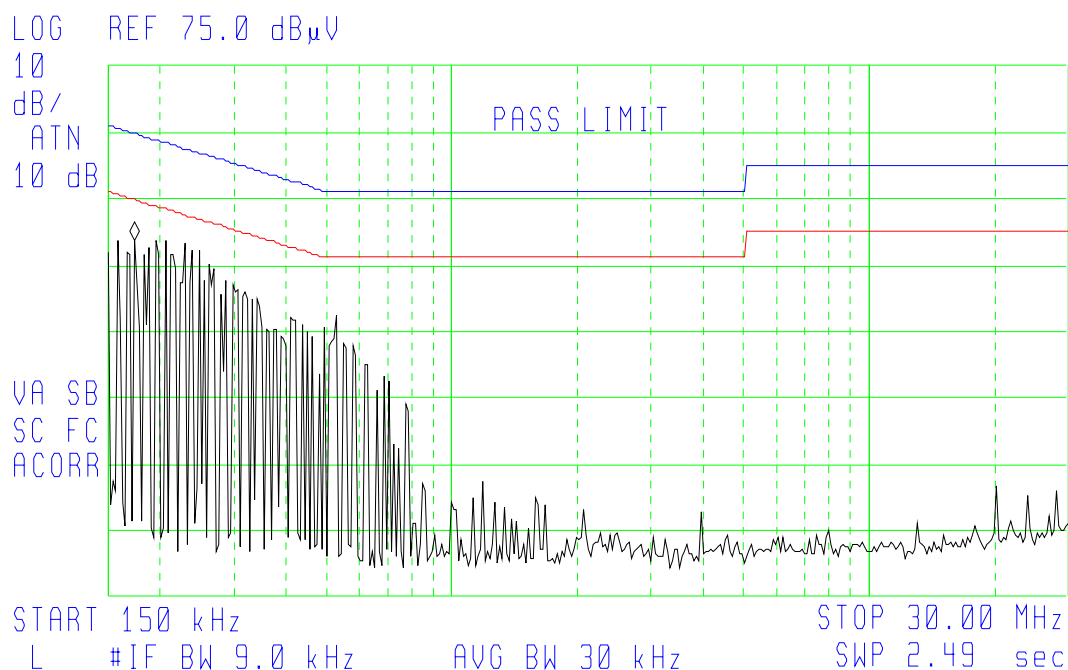
LOG REF 75.0 dB $\mu$ V



**Conducted 120V 60Hz Ch 3 Neutral Data Log Plot**

10:54:35 FEB 24, 2004 DVAC 60 HZ CON NEUTRAL CH3  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 170 kHz  
48.74 dB $\mu$ V

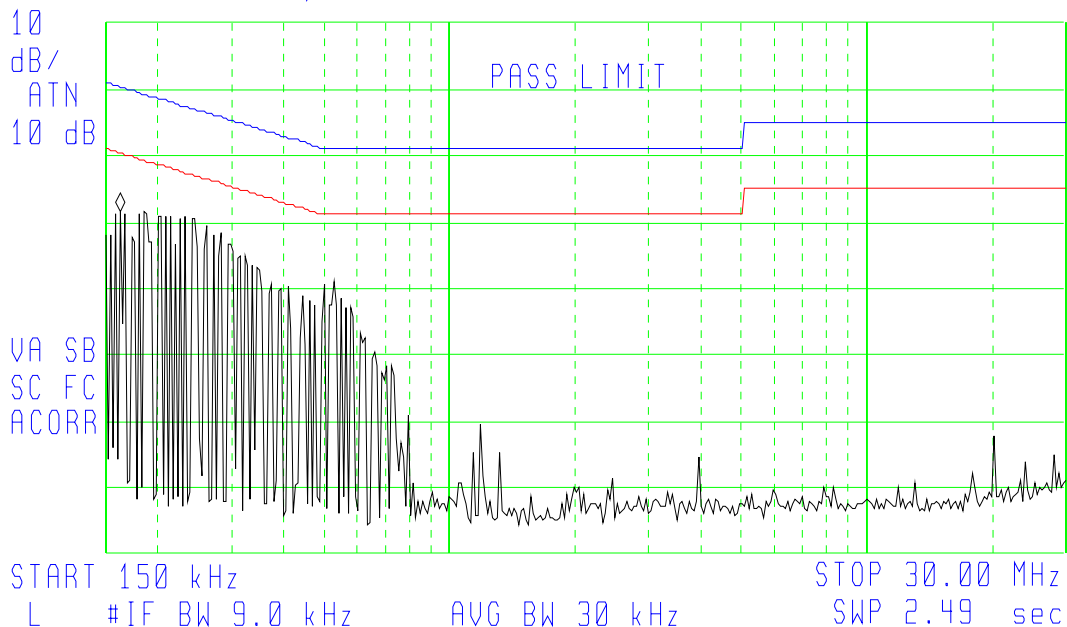


**Conducted 120V 60Hz Ch3 Phase Data Log Plot**

10:58:29 FEB 24, 2004 VAC 60 HZ CON PHASE CH3  
150-04 VIRTUAL INK MIMIOXI WIRELESS WAND

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 160 kHz  
46.57 dB $\mu$ V

LOG REF 75.0 dB $\mu$ V



TEST NUMBER - 150-04

### NOTES AND COMMENTS

(Special conditions unique to this test)

None