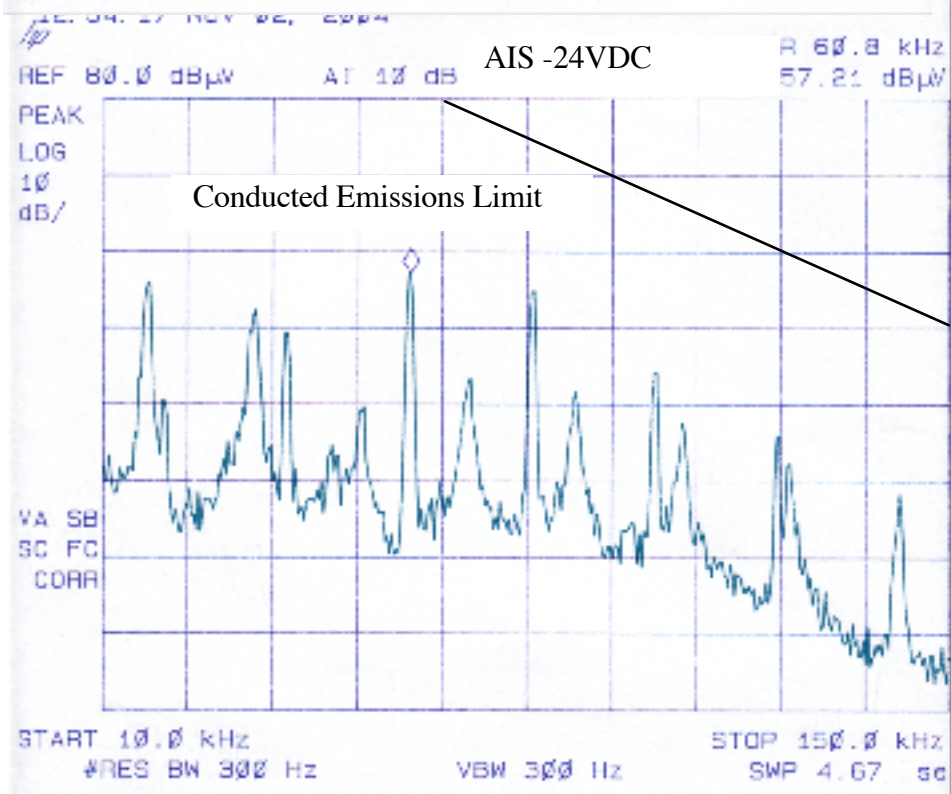
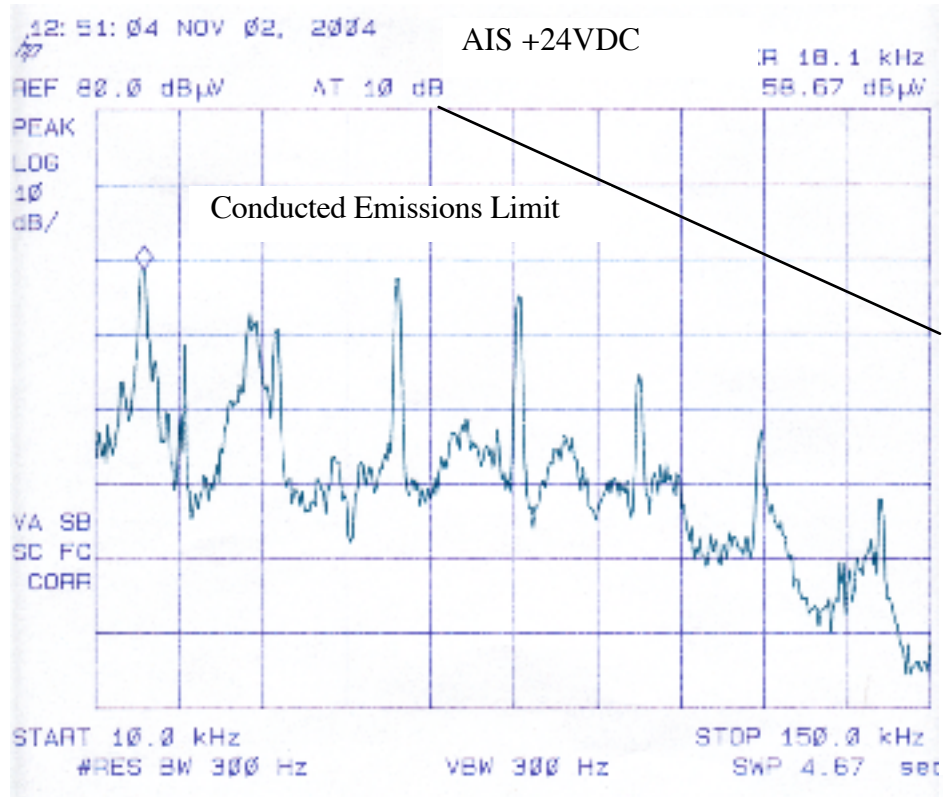


**IX. EMC Measurement Results:****1. Conducted Emissions – Data.**

Frequency range: 10 kHz to 150 kHz

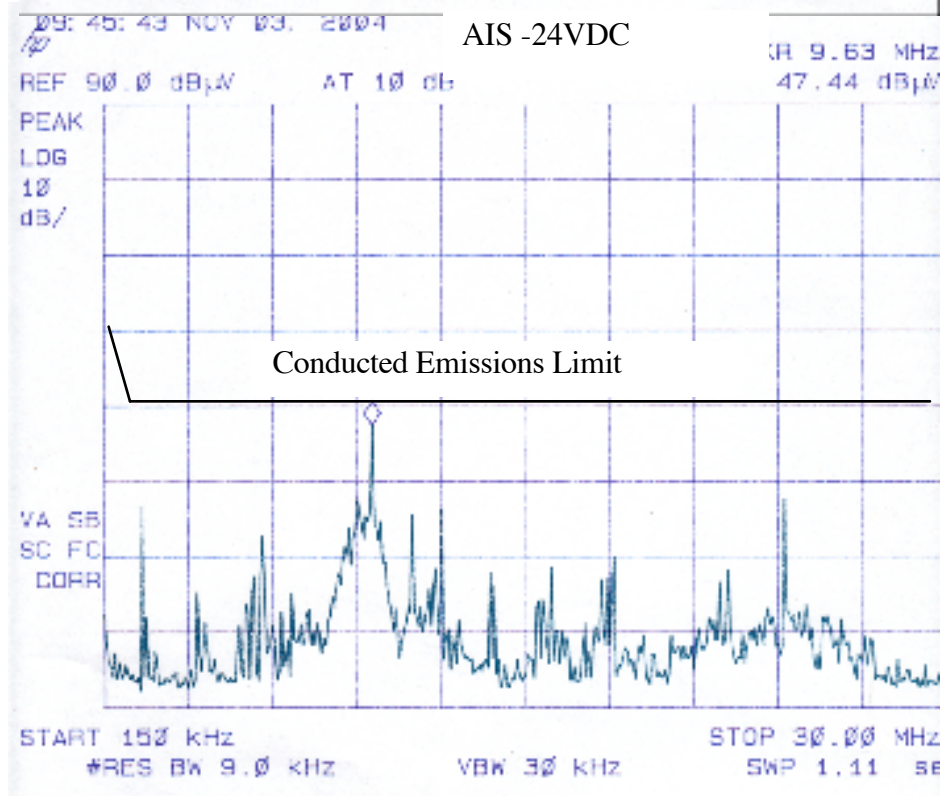
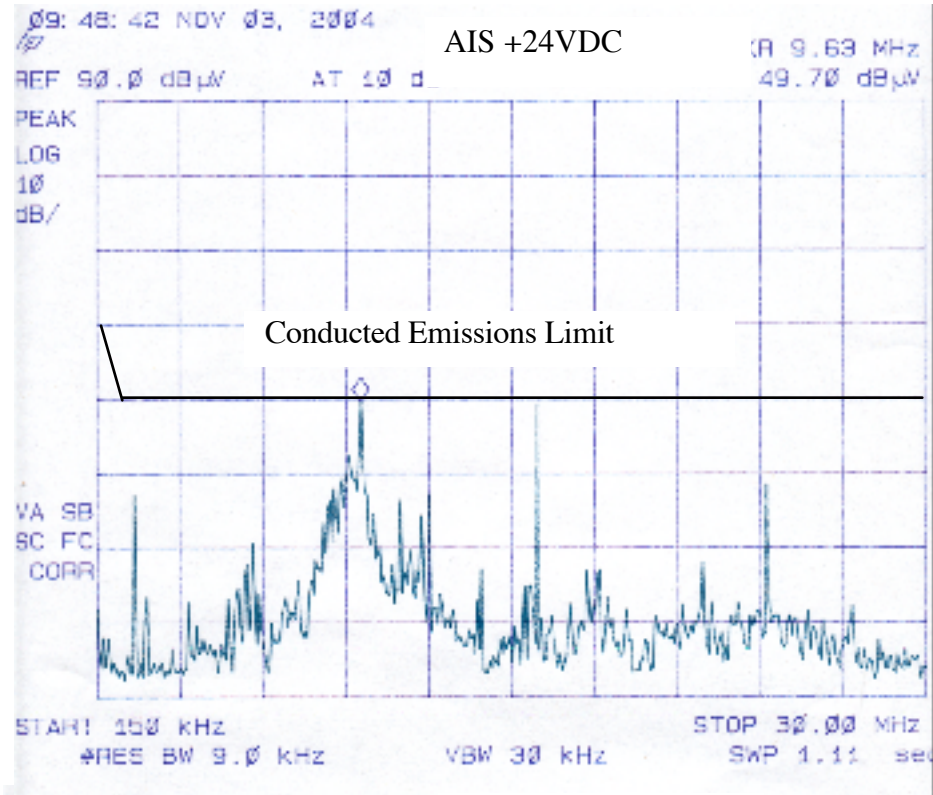
Limit: 96 dBuV decreasing to 50 dBuV



**IX. EMC Measurement Results Cont'd:****1. Conducted Emissions – Data.**

Frequency range: 150 kHz to 350 kHz: Limit: 60 dBuV decreasing to 50 dBuV

Frequency range: 0.35 MHz to 30 MHz: Limit: 50 dBuV



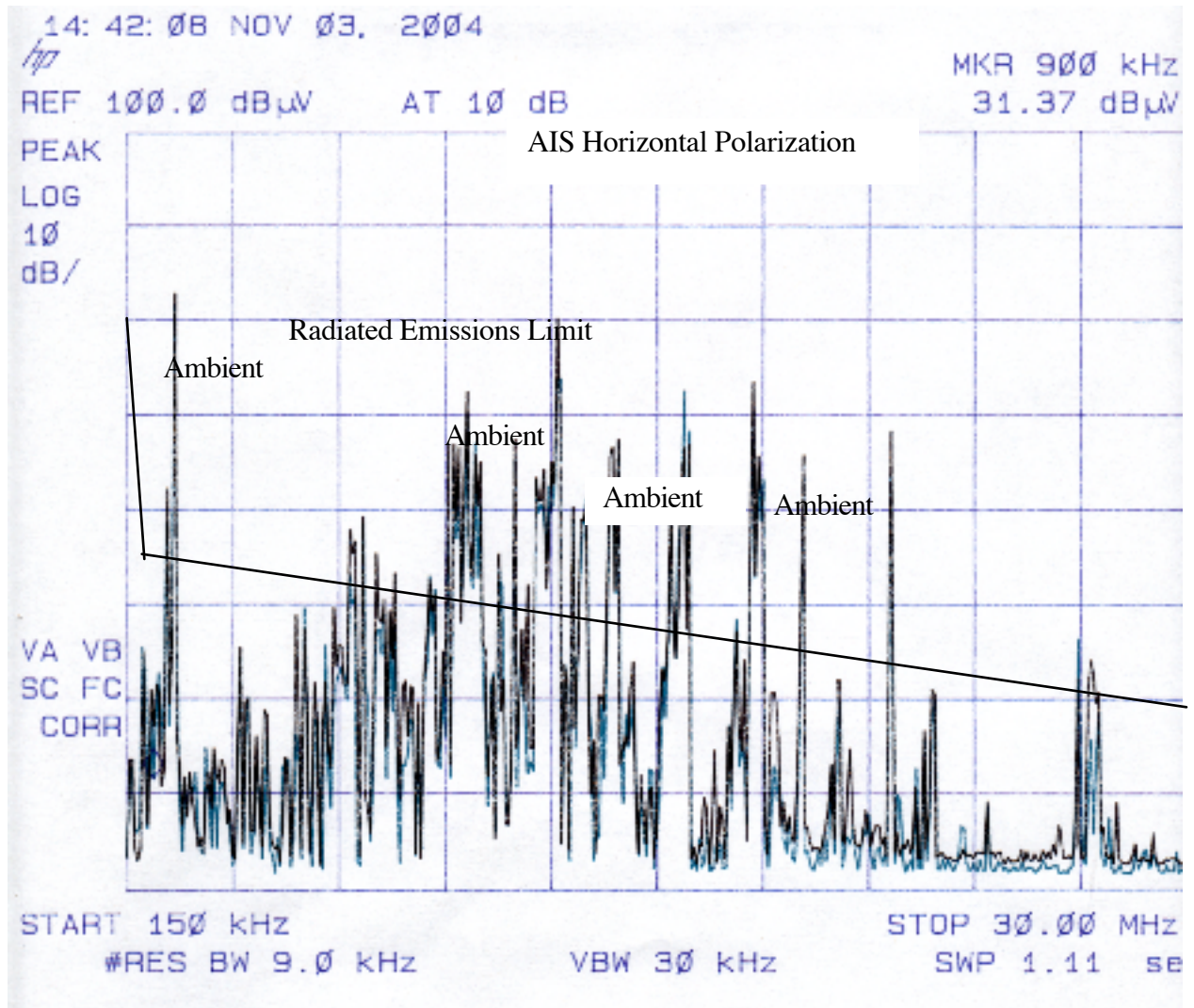
**IX. EMC Measurement Results Cont'd:****2. Radiated Emissions – Correction Factors.**

The table below describes the correction factors necessary to apply the limit to the spectrum analyzer output. The following pages contain the spectrum analyzer output with the corrected specification limits superimposed. The black pen is the ambient condition, and the other color identifies EUT emissions.

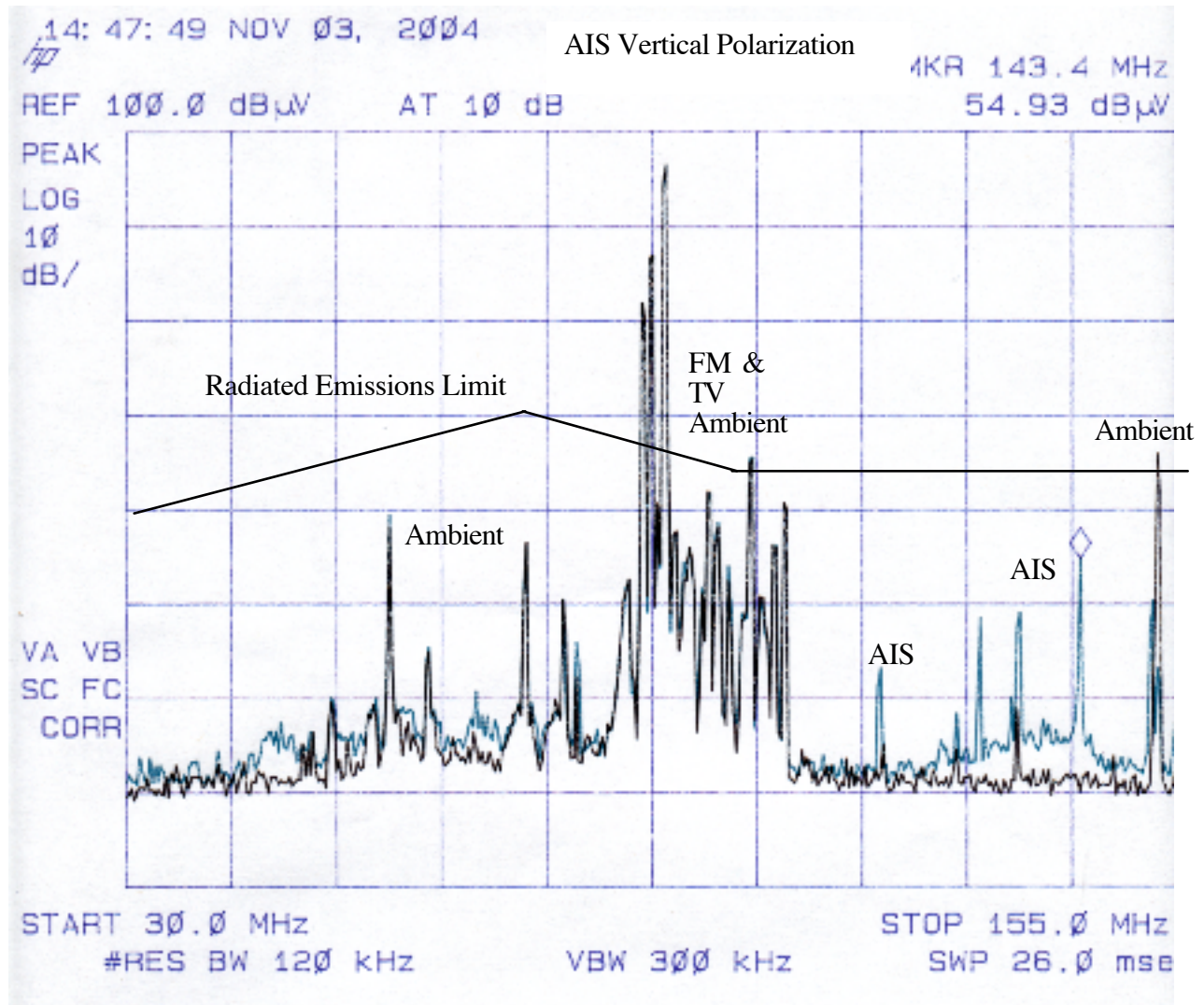
| Frequency<br>kHz                                                           | Limit @ 3m<br>dBuV/m | Antenna<br>dB | Correction *<br>dB | Delta<br>dB | Corrected Limit<br>dBuV/m |
|----------------------------------------------------------------------------|----------------------|---------------|--------------------|-------------|---------------------------|
| 150                                                                        | 80                   | 41            | 51.5               | 10.5        | 90.5                      |
| 300                                                                        | 52                   | 39            | 51.5               | 12.5        | 64.5                      |
| 30000                                                                      | 34                   | 37            | 51.5               | 14.5        | 48.5                      |
| * 51.5 dB, H- to E-field correction in free space -> $20 \log (377\Omega)$ |                      |               |                    |             |                           |

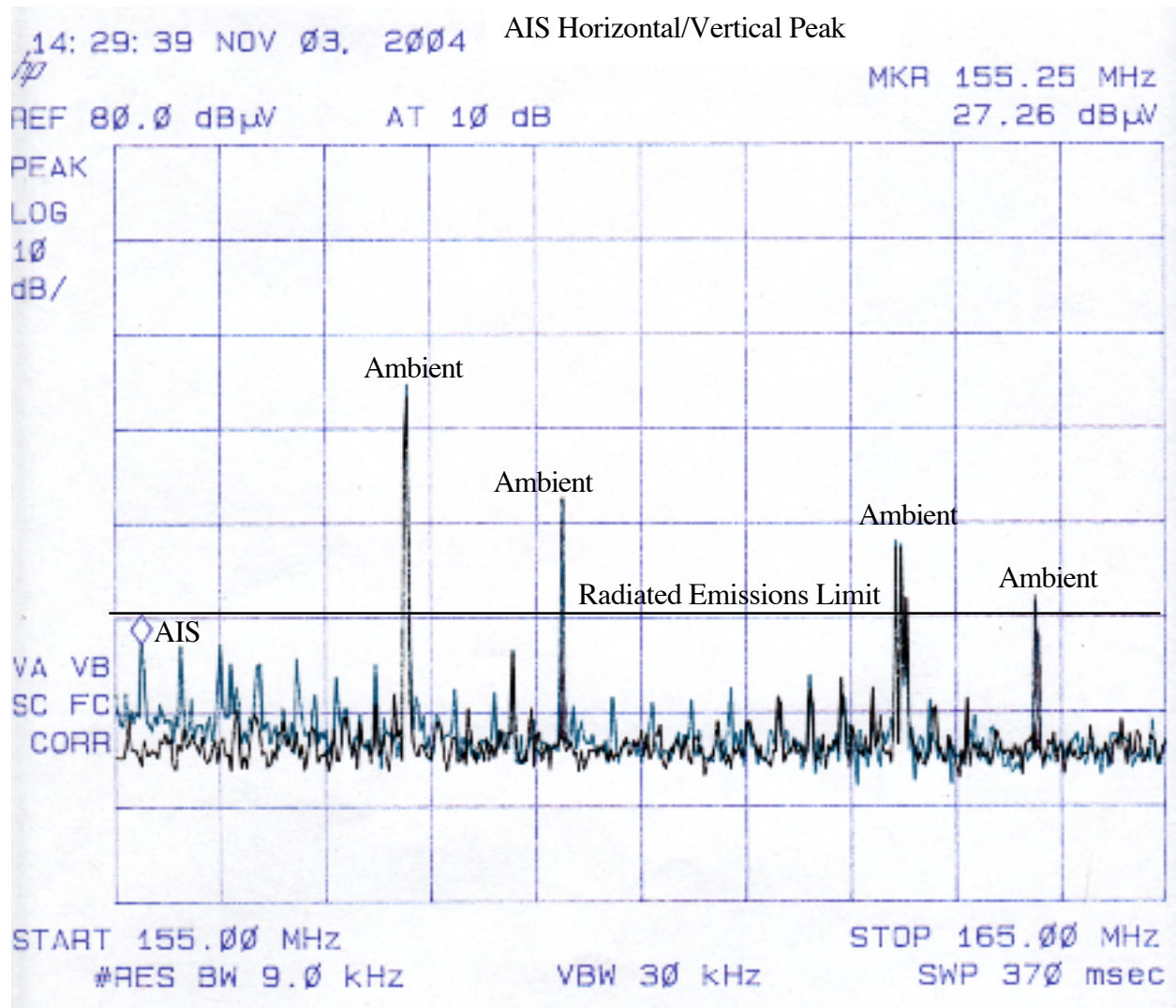
| Frequency<br>MHz | 3m limit<br>dBuV/m | Antenna<br>dB | Amp<br>dB | Cable<br>dB | Delta<br>dB | Corrected Limit<br>dBuV/m |
|------------------|--------------------|---------------|-----------|-------------|-------------|---------------------------|
| 30               | 54                 | 18.6          | 29.0      | 5.0         | 5.4         | 59.4                      |
| 50               | 54                 | 15.1          | 29.0      | 5.0         | 8.9         | 62.9                      |
| 75               | 54                 | 8.1           | 29.0      | 5.0         | 15.9        | 69.9                      |
| 100              | 54                 | 12.2          | 28.0      | 6.0         | 9.8         | 63.8                      |
| 125              | 54                 | 12.9          | 28.0      | 6.0         | 9.1         | 63.1                      |
| 155              | 54                 | 11.1          | 28.0      | 6.0         | 10.9        | 64.9                      |
| 156              | 24                 | 13.2          | 27.0      | 7.0         | 6.8         | 30.8                      |
| 165              | 24                 | 13.2          | 27.0      | 7.0         | 6.8         | 30.8                      |
| 166              | 54                 | 13.2          | 27.0      | 7.0         | 6.8         | 60.8                      |
| 300              | 54                 | 14.9          | 28.0      | 7.0         | 6.1         | 60.1                      |
| 500              | 54                 | 18.6          | 28.0      | 7.0         | 2.4         | 56.4                      |
| 1000             | 54                 | 24.2          | 27.0      | 7.0         | -4.2        | 49.8                      |
| 1500             | 54                 | 26.1          | 27.0      | 8.0         | -7.1        | 46.9                      |
| 2000             | 54                 | 26.8          | 22.0      | 8.0         | -15.8       | 41.2                      |

Tables 1 &amp; 2 – Corrected CE Limit

**IX. EMC Measurement Results Cont'd:****2. Radiated Emissions – Data.**

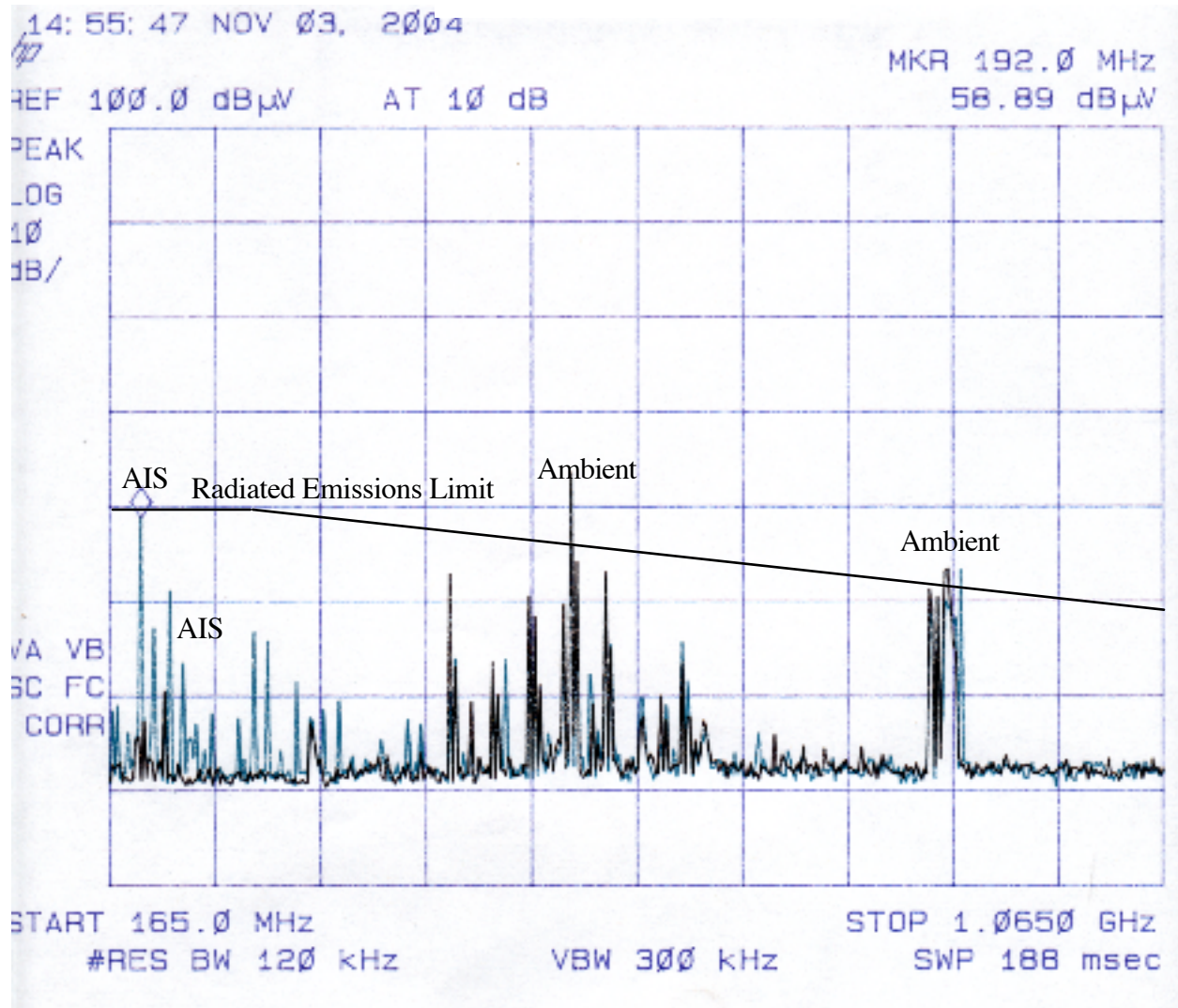


**IX. EMC Measurement Results Cont'd:****2. Radiated Emissions – Data.**

**IX. EMC Measurement Results Cont'd:****2. Radiated Emissions – Data.**

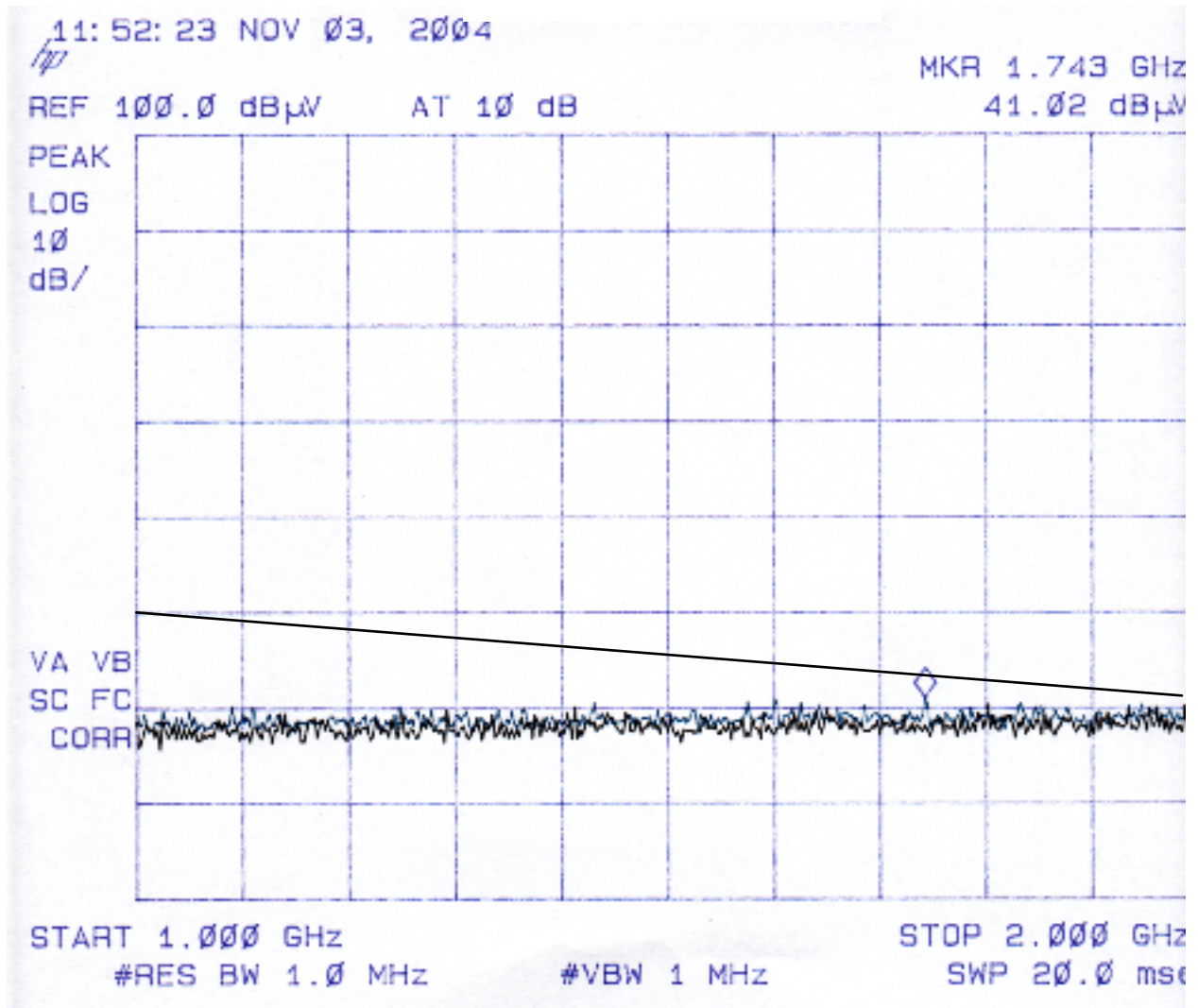
**IX. EMC Measurement Results Cont'd:****2. Radiated Emissions – Data.**

AIS Horizontal/Vertical Peak



**IX. EMC Measurement Results Cont'd:****2. Radiated Emissions – Data.**

AIS Horizontal/Vertical Peak

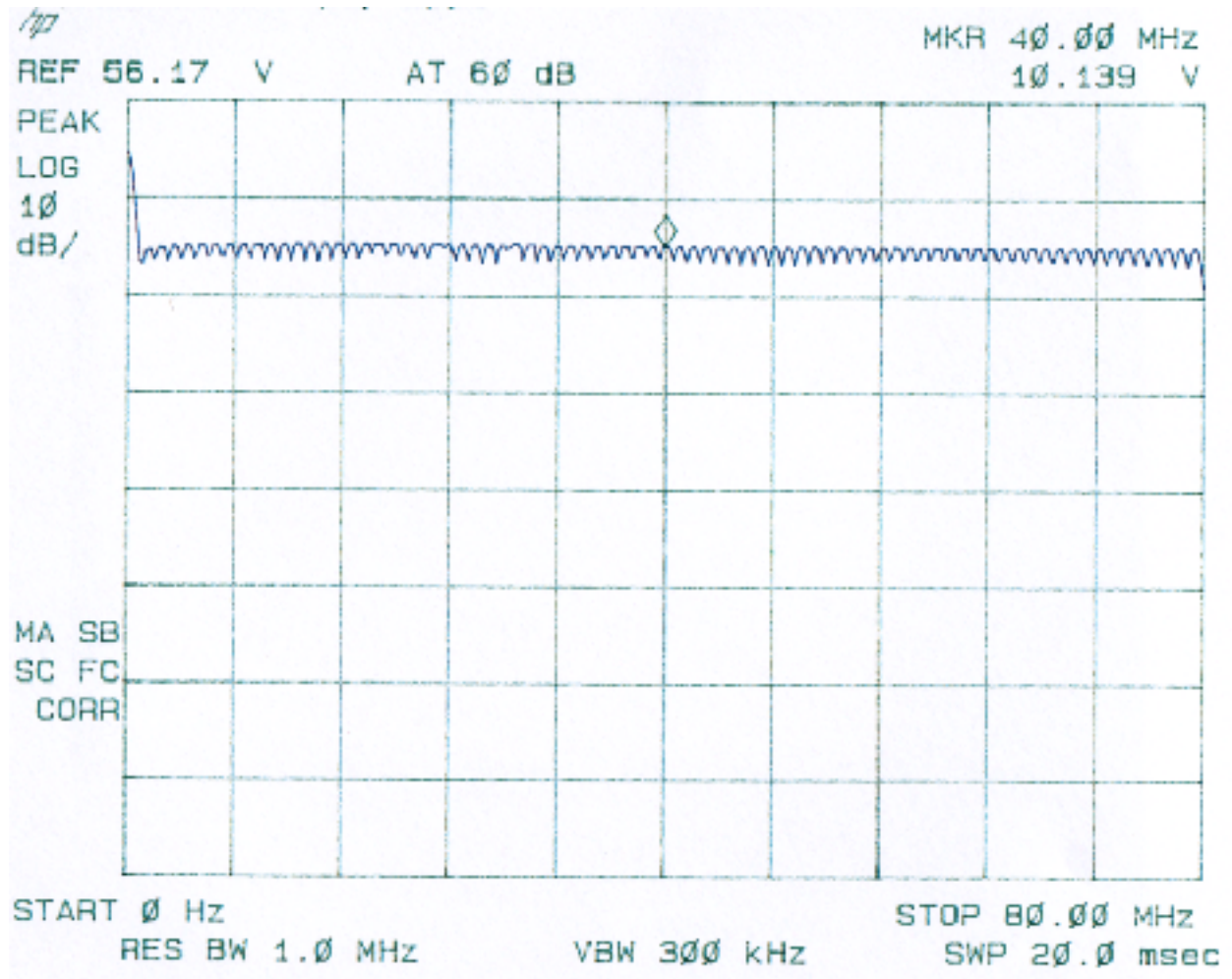




**IX. EMC Measurement Results Cont'd:****3. Conducted Immunity – Data.**

The system exhibits no susceptibility to 10-V conducted signals amplitude modulated at 400 Hz, 80%, applied directly to the power lines from 150 kHz to 80 MHz. Frequencies listed are samples; sweep rate is < 1.5 decade/s and dwell > EUT response time. The following page contains the spectrum analyzer output from device calibration.

| Frequency<br>(MHz) | Voltage | Evaluation | Criteria          | Spec. | Result |
|--------------------|---------|------------|-------------------|-------|--------|
| 0.150              | 10      | PC Display | Disrupt Operation | A     | A      |
| 0.500              | 10      | PC Display | Disrupt Operation | A     | A      |
| 0.750              | 10      | PC Display | Disrupt Operation | A     | A      |
| 1                  | 10      | PC Display | Disrupt Operation | A     | A      |
| 2                  | 10      | PC Display | Disrupt Operation | A     | A      |
| 3                  | 10      | PC Display | Disrupt Operation | A     | A      |
| 5                  | 10      | PC Display | Disrupt Operation | A     | A      |
| 10                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 15                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 20                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 25                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 30                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 35                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 40                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 45                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 50                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 55                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 60                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 65                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 70                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 75                 | 10      | PC Display | Disrupt Operation | A     | A      |
| 80                 | 10      | PC Display | Disrupt Operation | A     | A      |

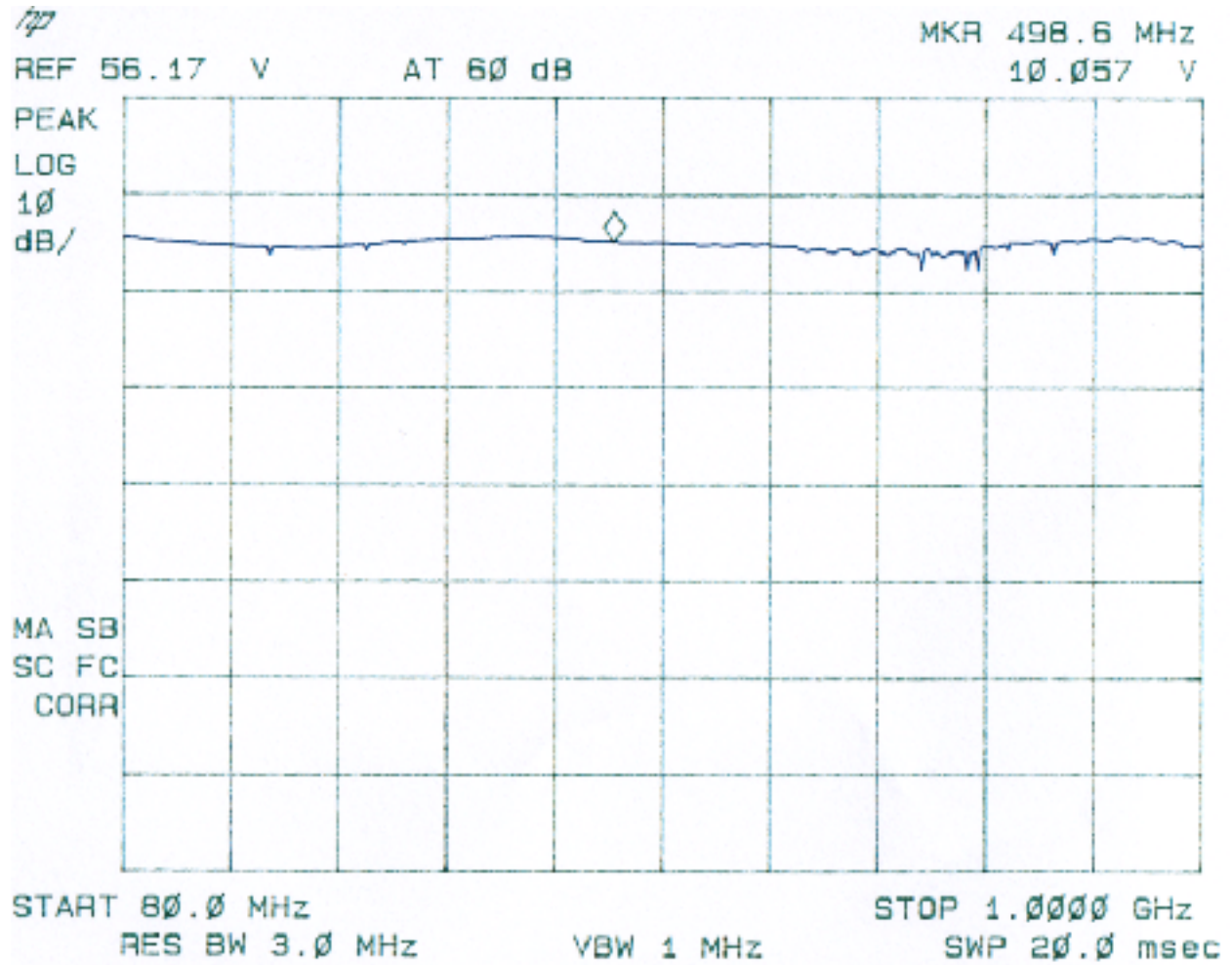
**IX. EMC Measurement Results Cont'd:****3. Conducted Immunity – Calibration.**

Applied High-Frequency Conducted Immunity Voltage

**IX. EMC Measurement Results Cont'd:****4. Radiated Immunity – Data.**

The system exhibits no susceptibility to 10-V/m radiated electric fields, amplitude modulated at 400 Hz, 80%, from 80 MHz to 2 GHz. Frequencies listed are samples; sweep rate is < 1.5 decade/s and dwell > EUT response time. The following page contains the spectrum analyzer output from device calibration.

| Frequency<br>(MHz) | Voltage<br>(V) | Evaluation | Criteria          | Spec. | Result |
|--------------------|----------------|------------|-------------------|-------|--------|
| 80                 | 10             | PC Display | Disrupt Operation | A     | A      |
| 100                | 10             | PC Display | Disrupt Operation | A     | A      |
| 120                | 10             | PC Display | Disrupt Operation | A     | A      |
| 140                | 10             | PC Display | Disrupt Operation | A     | A      |
| 160                | 10             | PC Display | Disrupt Operation | A     | A      |
| 180                | 10             | PC Display | Disrupt Operation | A     | A      |
| 200                | 10             | PC Display | Disrupt Operation | A     | A      |
| 250                | 10             | PC Display | Disrupt Operation | A     | A      |
| 300                | 10             | PC Display | Disrupt Operation | A     | A      |
| 350                | 10             | PC Display | Disrupt Operation | A     | A      |
| 400                | 10             | PC Display | Disrupt Operation | A     | A      |
| 450                | 10             | PC Display | Disrupt Operation | A     | A      |
| 500                | 10             | PC Display | Disrupt Operation | A     | A      |
| 600                | 10             | PC Display | Disrupt Operation | A     | A      |
| 700                | 10             | PC Display | Disrupt Operation | A     | A      |
| 800                | 10             | PC Display | Disrupt Operation | A     | A      |
| 900                | 10             | PC Display | Disrupt Operation | A     | A      |
| 1000               | 10             | PC Display | Disrupt Operation | A     | A      |
| 1200               | 10             | PC Display | Disrupt Operation | A     | A      |
| 1400               | 10             | PC Display | Disrupt Operation | A     | A      |
| 1600               | 10             | PC Display | Disrupt Operation | A     | A      |
| 1800               | 10             | PC Display | Disrupt Operation | A     | A      |
| 2000               | 10             | PC Display | Disrupt Operation | A     | A      |

**IX. EMC Measurement Results Cont'd:****4. Radiated Immunity – Calibration.**

Applied Radiated Immunity Voltage

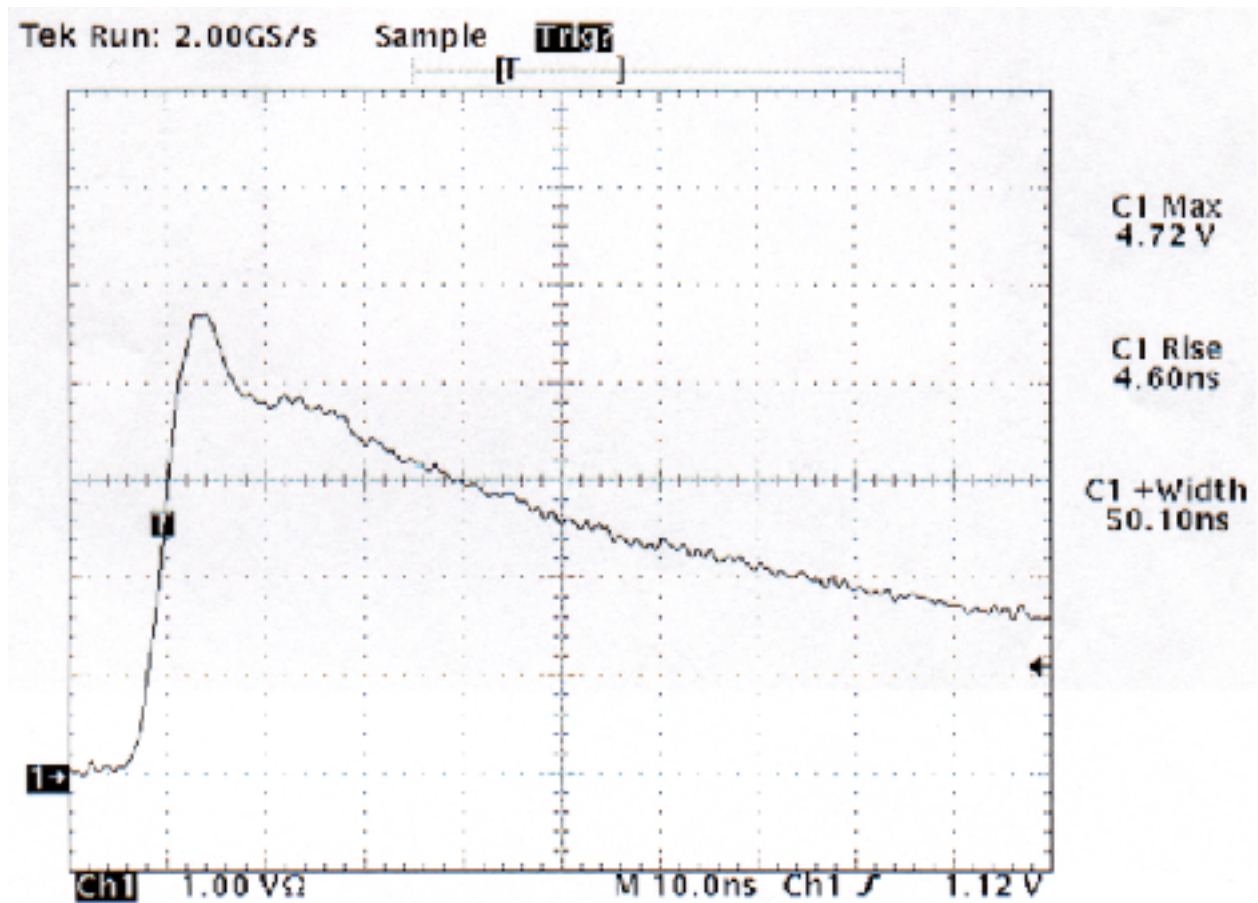


**IX. EMC Measurement Results Cont'd:****5. Transient Immunity – Data.**

The system exhibits acceptable susceptibility to 0.5/1-kV transients applied capacitively to the signal, power and control lines. One-kV transients are 15 ms in duration, delivered in 5-kHz bursts every 300 ms.

The following page contains the applied waveform output from device calibration.

| Level | Voltage | Application Port  | Polarity<br>and Duration | Spec. | Result |
|-------|---------|-------------------|--------------------------|-------|--------|
| 1     | 500     | Clamp Power Lines | Plus/3 Minutes           | B     | B      |
| 2     | 1000    | Clamp Power Lines | Plus/3 Minutes           | B     | B      |
| 1     | 500     | Clamp Power Lines | Minus/3 Minutes          | B     | B      |
| 2     | 1000    | Clamp Power Lines | Minus/3 Minutes          | B     | B      |
| 1     | 500     | Clamp Data Lines  | Plus/3 Minutes           | B     | B      |
| 2     | 1000    | Clamp Data Lines  | Plus/3 Minutes           | B     | B      |
| 1     | 500     | Clamp Data Lines  | Minus/3 Minutes          | B     | B      |
| 2     | 1000    | Clamp Data Lines  | Minus/3 Minutes          | B     | B      |

**IX. EMC Measurement Results Cont'd:****5. Transient Immunity – Calibration.**

Applied Electrical Fast Transient Waveform

**IX. EMC Measurement Results Cont'd:****6. Supply Failure – Data.**

The system exhibits acceptable susceptibility to voltage interruptions of 60 s for 3 repetitions.

| Interrupt<br>Voltage | Duration<br>(s) | Application Port | Phase Angle | Spec. | Result |
|----------------------|-----------------|------------------|-------------|-------|--------|
| 0                    | 60              | Power Entry      | 0°          | C     | C      |
| 0                    | 60              | Power Entry      | 0°          | C     | C      |
| 0                    | 60              | Power Entry      | 0°          | C     | C      |

**IX. EMC Measurement Results Cont'd:****7. ESD – Data.**

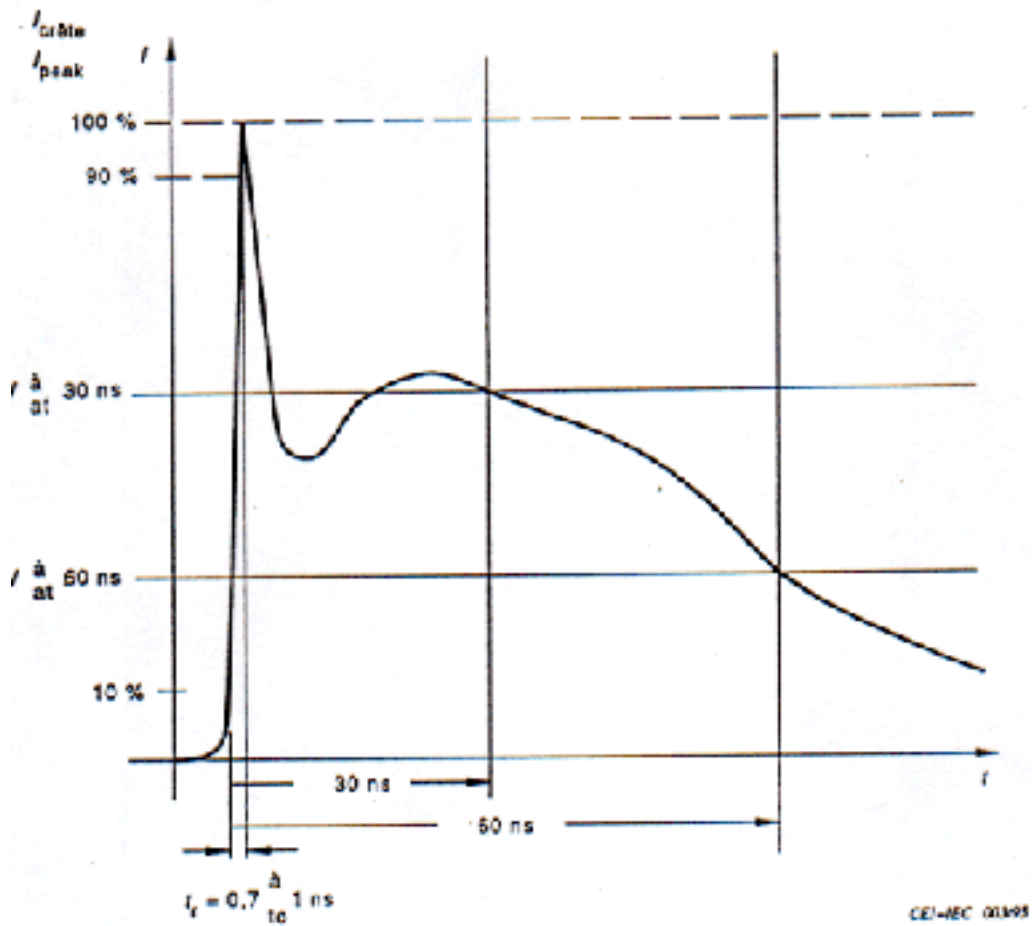
The unit exhibits acceptable susceptibility to 6 kV-contact/ 8 kV-air discharges, applied singly or repetitively, and directly or indirectly. The unit resets automatically upon application of the discharge.

The following page contains the applied waveform output from device calibration.

| Level | Voltage | Application<br>Point | Contact/Air | Spec. | Result |
|-------|---------|----------------------|-------------|-------|--------|
| 1     | 2       | Enclosure            | Contact     | B     | A      |
| 2     | 4       | Enclosure            | Contact     | B     | A      |
| x     | 6       | Enclosure            | Contact     | B     | B      |
| 1     | 2       | Enclosure            | Air         | B     | A      |
| 2     | 4       | Enclosure            | Air         | B     | A      |
| 3     | 8       | Enclosure            | Air         | B     | B      |
| 1     | 2       | Coupling Plane       | Contact     | B     | A      |
| 2     | 4       | Coupling Plane       | Contact     | B     | A      |
| x     | 6       | Coupling Plane       | Contact     | B     | B      |
| 1     | 2       | Coupling Plane       | Air         | B     | A      |
| 2     | 4       | Coupling Plane       | Air         | B     | A      |
| 3     | 8       | Coupling Plane       | Air         | B     | B      |
| 1     | 2       | Connector            | Contact     | B     | A      |
| 2     | 4       | Connector            | Contact     | B     | A      |
| x     | 6       | Connector            | Contact     | B     | B      |
| 1     | 2       | Connector            | Air         | B     | A      |
| 2     | 4       | Connector            | Air         | B     | A      |
| 3     | 8       | Connector            | Air         | B     | B      |

## IX. EMC Measurement Results Cont'd:

### 7. ESD – Waveform.



Applied ESD Event