VISTA CONTROLS
A Curtiss-Wright Company

Date: November 4, 2003

Subject: Response to Correspondence # 25914

From: David Masucci

To: Joe Dichoso

FCC ID: Q5ZQUPID2003

This memorandum is in response to FCC Correspondence Letter, Reference # 25914.

We have retaken the 3 meter RMS average data using the rented Agilent PSA E4446A. The Serial Number is: US42510271. The unit was calibrated on 7/25/03. The changes for this test are sweep time and trace averaging. The sweep time was set to 601mS (with 601 points) for all 1 MHz RBW sweeps, and trace averaging was turned off. All previous scans were repeated.

Detector mode = average
Avg/VBW Type = Pwr Avg (RMS)

The correction factors were entered into the analyzer based on the following table. These corrections were turned on for all sweeps.

Frequency	Antenna Gain	Cable Loss	3 Meter Path Loss	Correction Value
1000 MHz	-5.8 dB	1.5 dB	42.0 dB	37.7 dB
1500 MHz	-8.1 dB	1.9 dB	45.5 dB	39.3 dB
2000 MHz	-7.9 dB	2.2 dB	48.0 dB	42.3 dB
2500 MHz	-8.7 dB	2.5 dB	49.9 dB	43.7 dB
3000 MHz	-8.8 dB	2.8 dB	51.5 dB	45.5 dB
3500 MHz	-8.9 dB	3.2 dB	52.8 dB	47.1 dB
4000 MHz	-8.5 dB	3.4 dB	54.0 dB	48.9 dB

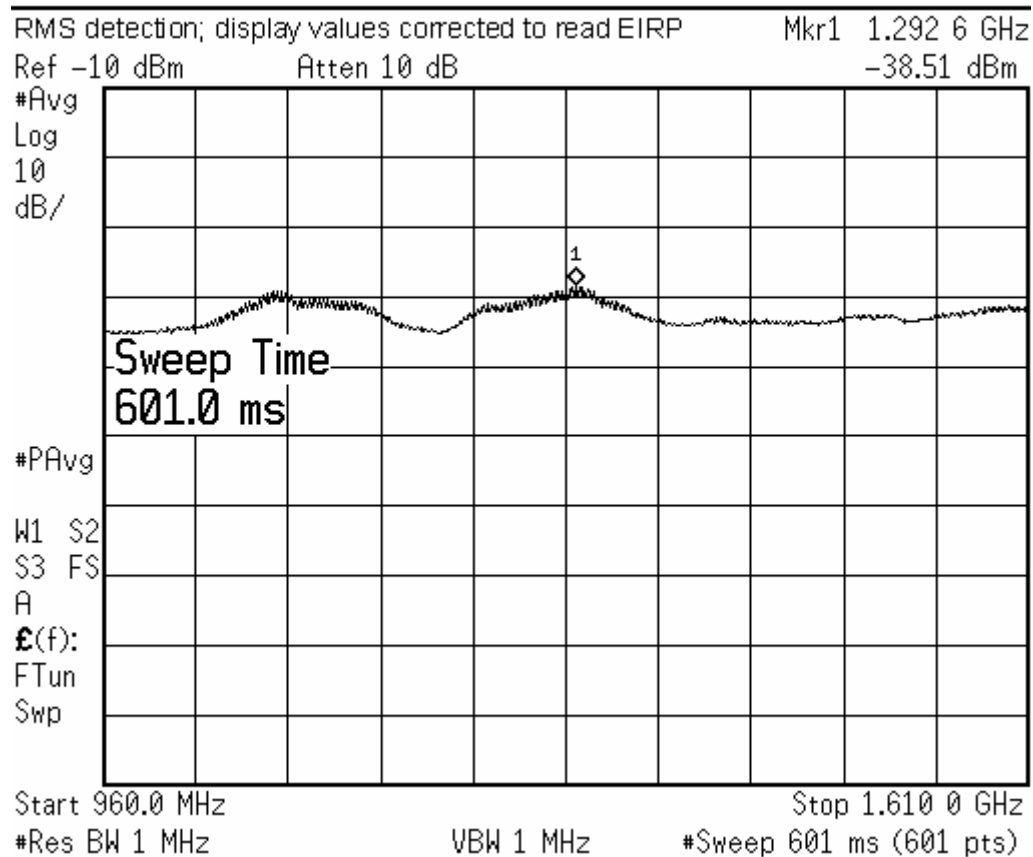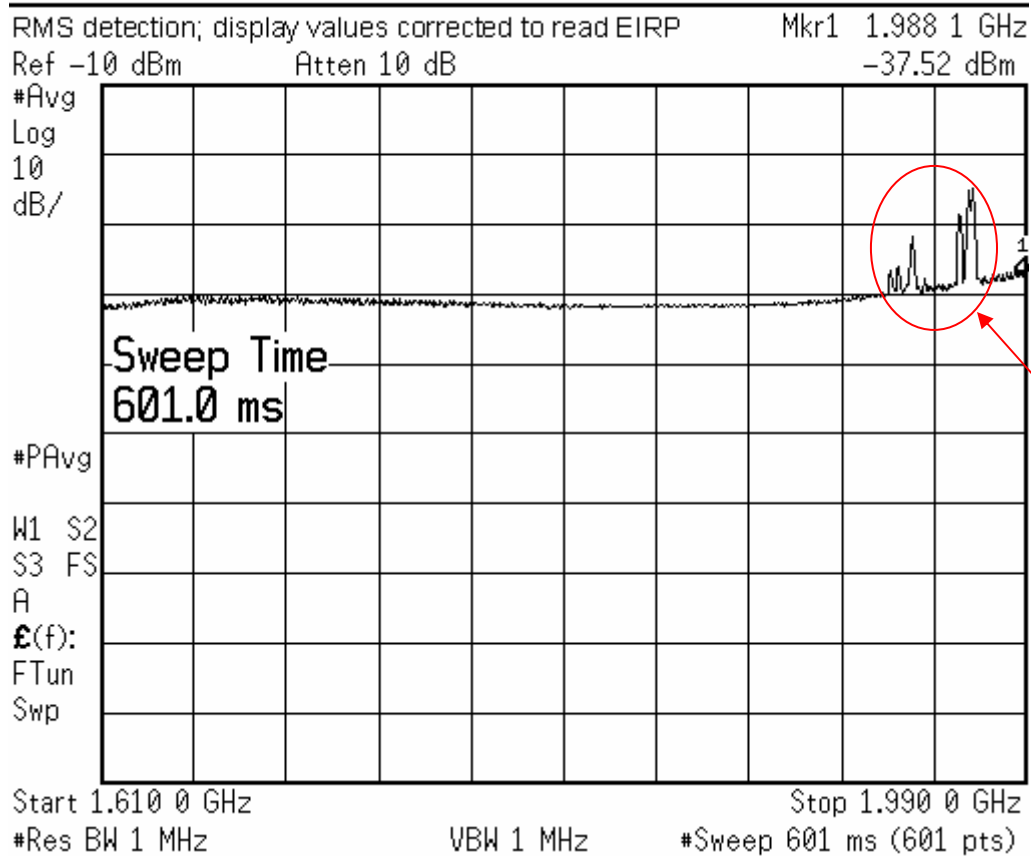**FIGURE 1. 960 MHz to 1610 MHz – 1 MHz RBW – RMS AVERAGE**

FCC Limit = -53.3 dBm
Actual = -38.51 dBm

FIGURE 2. 1610 MHz to 1990 MHz – 1 MHz RBW – RMS AVERAGE

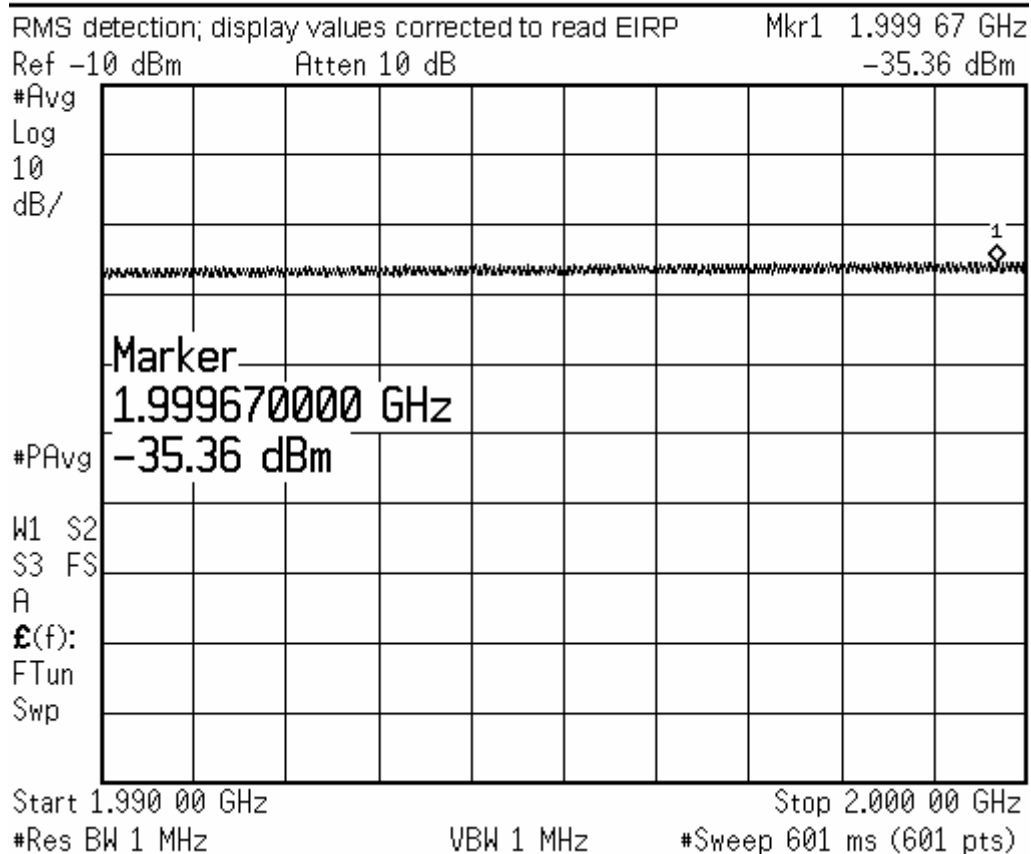FCC Limit = -51.3 dBm
Actual = -37.5 dBm

FIGURE 3. 1990 MHz to 2000 MHz – 1 MHz RBW – RMS AVERAGE

FCC Limit = -41.3 dBm
Actual = -35.36 dBm
Note: Noise floor only. No QUPID signal detected at these levels.

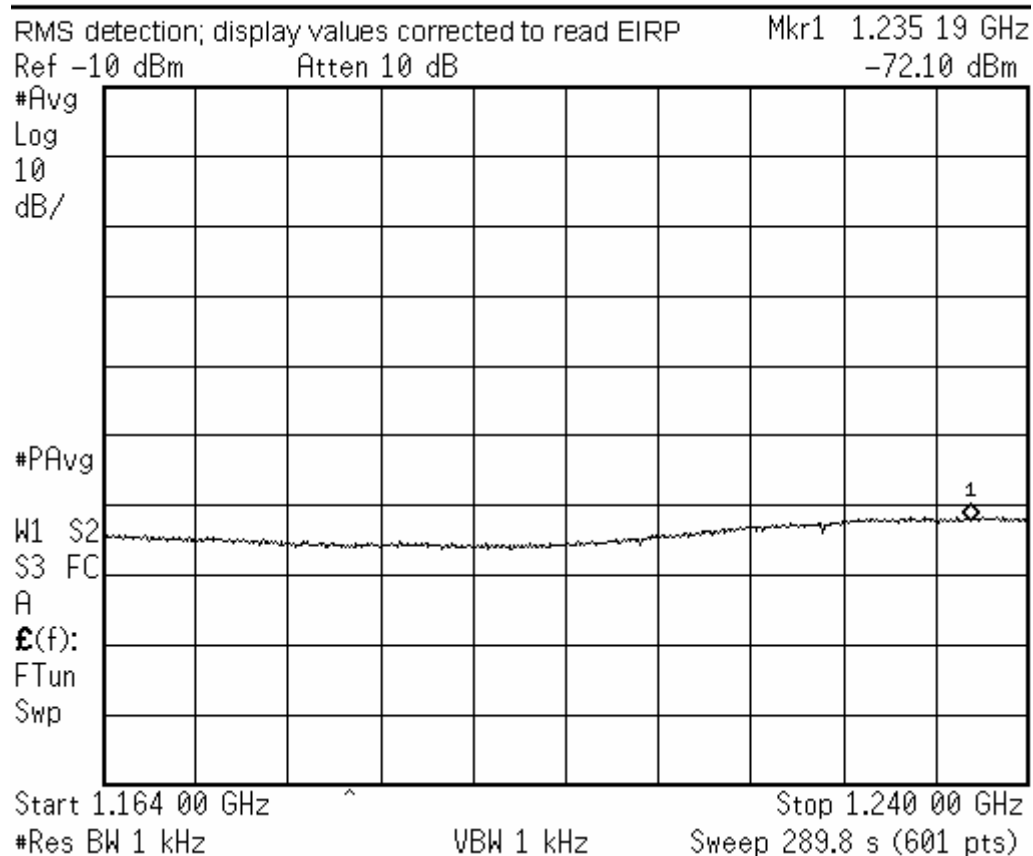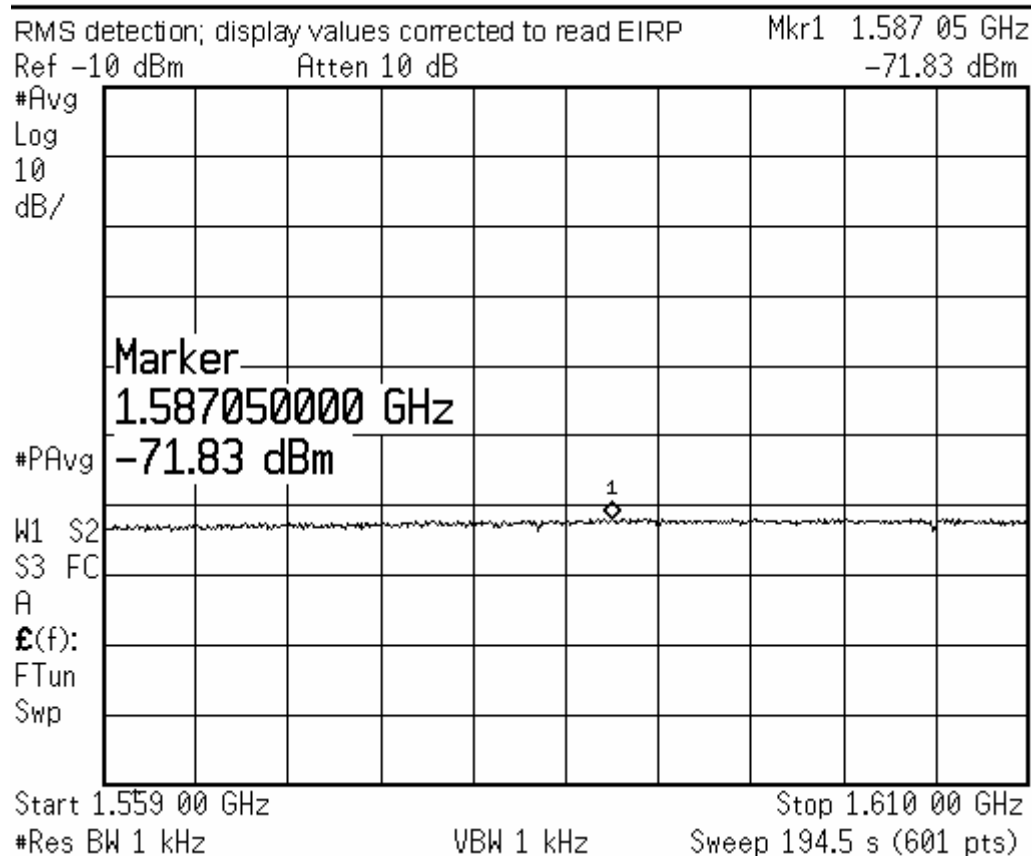**FIGURE 4. 1164 MHz to 1240 MHz – 1 KHz RBW – RMS AVERAGE**

FCC Limit = -63.3 dBm
Actual = -72.1 dBm

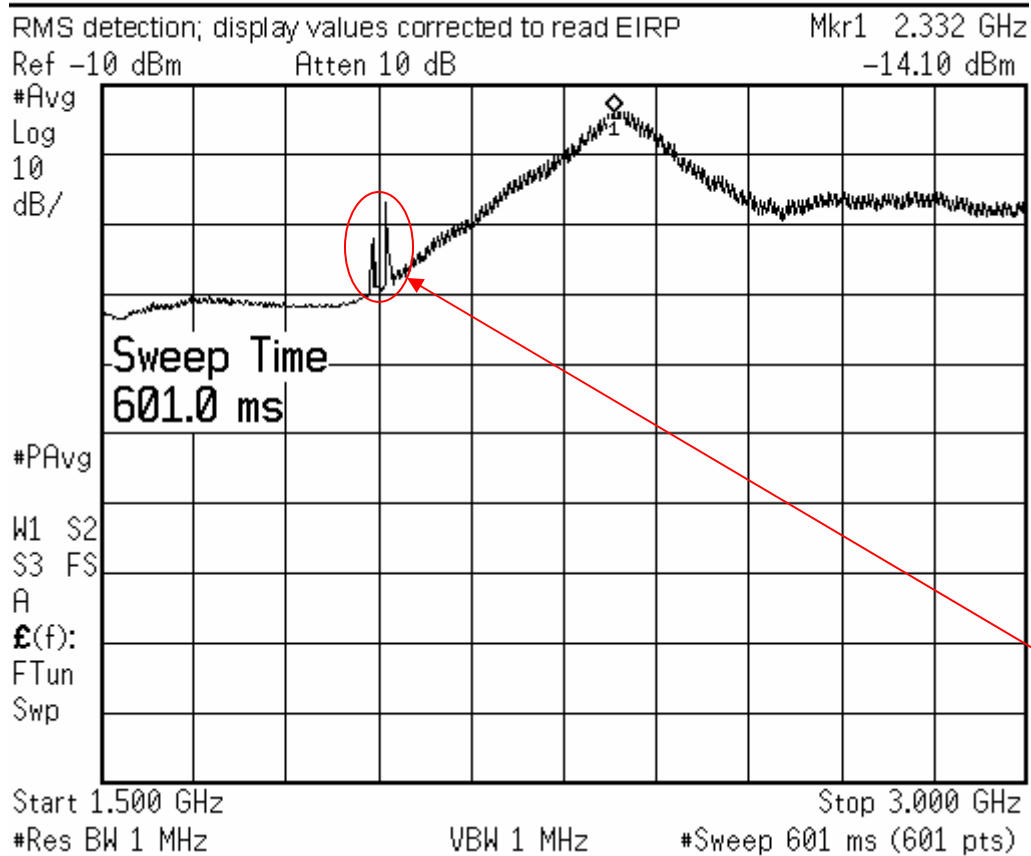FIGURE 5. 1559 MHz to 1610 MHz – 1 KHz RBW – RMS AVERAGE

FCC Limit = -63.3 dBm
Actual = -71.8 dBm

FIGURE 6. 1500 MHz to 3000 MHz – 1 MHz RBW – RMS AVERAGE

FCC Limit = -41.3 dBm
Actual = -14.1 dBm

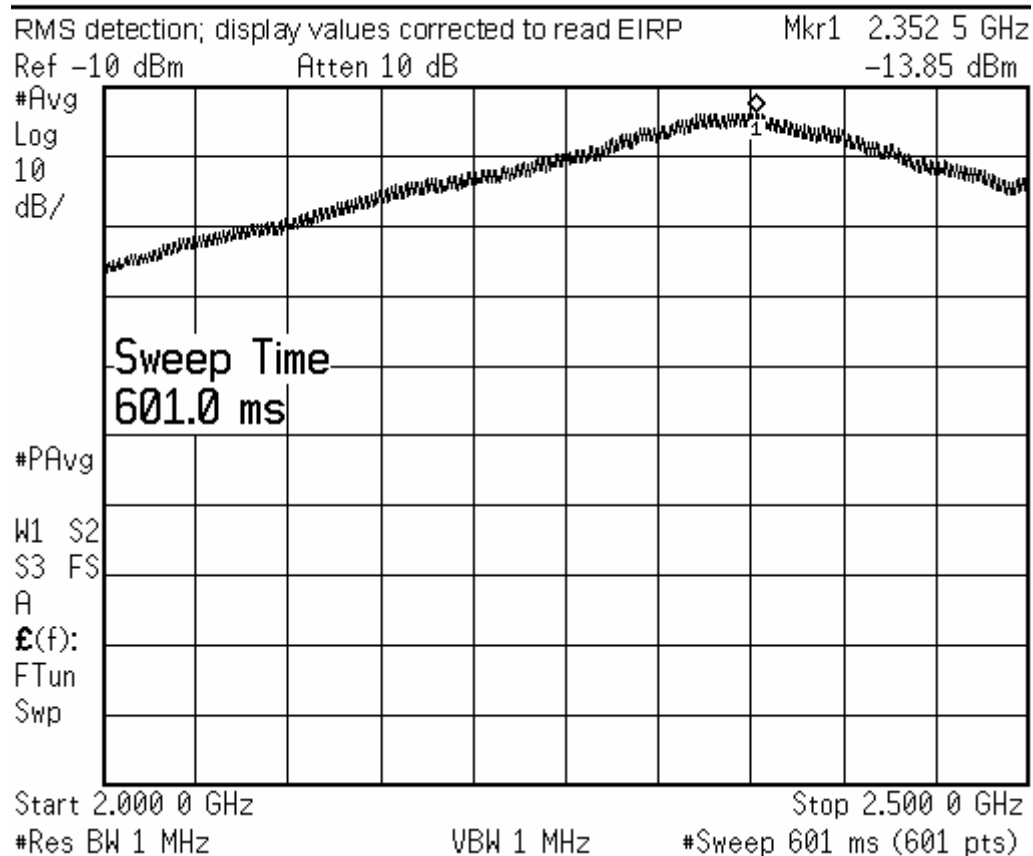**FIGURE 7. 2000 MHz to 2500 MHz – 1 MHz RBW – RMS AVERAGE**

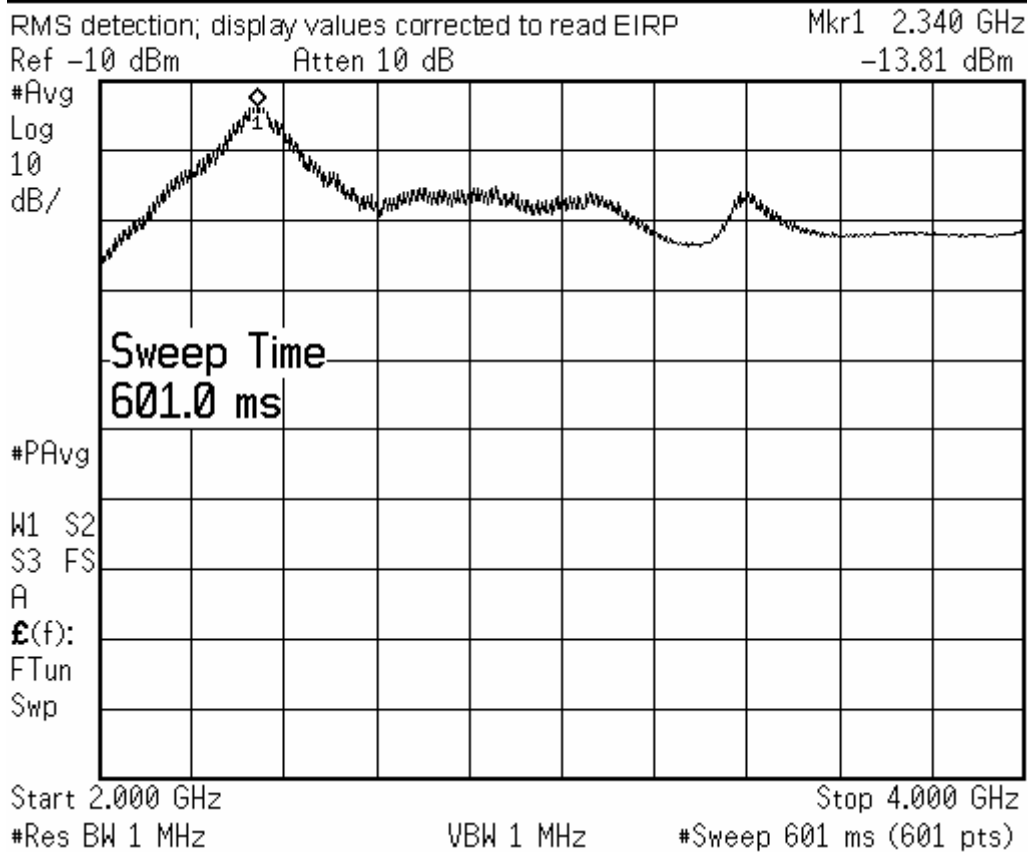FCC Limit = -41.3 dBm
Actual = -13.85 dBm

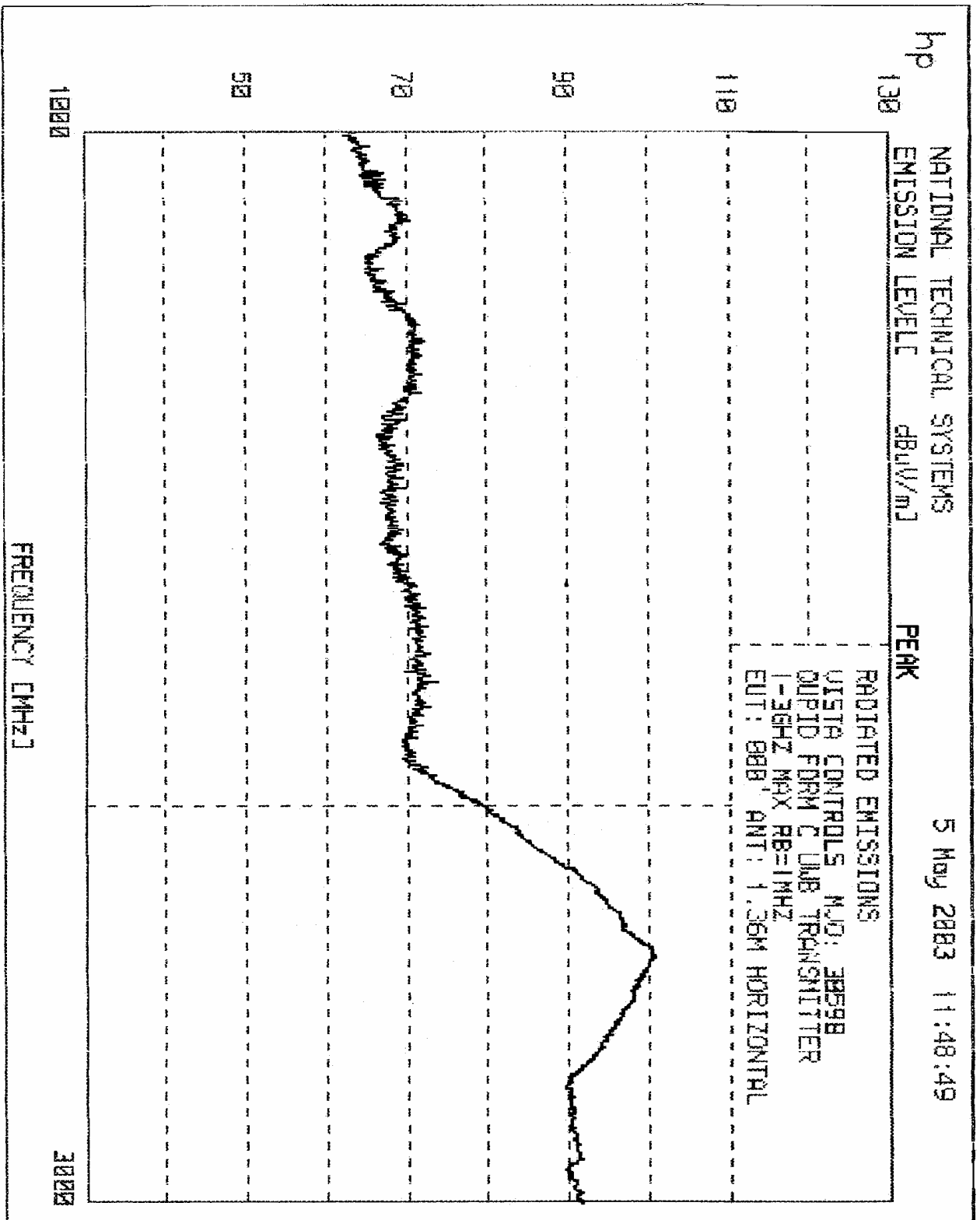**FIGURE 8. 2000 MHz to 4000 MHz – 1 MHz RBW – RMS AVERAGE**

FCC Limit = -41.3 dBm
Actual = -13.8 dBm

Note: No signals of any kind or level detected beyond 4 GHz.

In response to question number 2.

The QUPID transmitter waveform is generated by an impulse excitation of a (tuned) passive linear network. The network is tuned to a nominal frequency of 2.35 GHz and is part of the antenna structure of the transmitter. The excitation is a continuous series of impulses that have a nominal period of 409.6 µs (Pulse Repetition Rate [PRF] of 2.441 KHz), with approximately a 6% time dithering by a PN sequence. At each impulse, the linear network rings at a center frequency of 2.35 GHz for a period of approximately 3 ns, giving the appearance of a 2.35 GHz carrier modulated by a 3 ns pulse.

There is no carrier oscillator, no gating or bursting of the transmitter PRF, no hopping, and no sweeping. The modulation is defined as P0 (P zero) indicating that it is a pulsed carrier without any modulation intended to carry information (e.g. radar). The transmitter cannot be modified for a continuous wave operation as there is no oscillator or transmitter amplifiers.

In-Band PEAK sweep