# FCC PART 15 SUBPART C
## CERTIFICATION REPORT

**FOR**

## WIRELESS PET IMMUNE PIR

## MODEL: PIR-REC3

## FCC ID NO: QNP-PIRREC3

## REPORT NO: 04U2955-1

## ISSUE DATE: NOVEMBER 15, 2004

*Prepared for*

**SECURE WIRELESS, INC.**
**1185 PARK CENTER DRIVE**
**VISTA, CA. 92083**
**U.S.A**

*Prepared by*

**COMPLIANCE ENGINEERING SERVICES, INC.**
*d.b.a.*
**COMPLIANCE CERTIFICATION SERVICES**
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**FAX: (408) 463-0888**

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## 1. VERIFICATION OF COMPLIANCE

| | | |
|---|---|---|
| COMPANY NAME | : | SECURE WIRELES SYSTEMS INC.<br>1185 PARK CENTER DRIVE<br>VISTA, CA. 92083<br>U.S.A. |
| EUT DESCRIPTION | : | Wireless Pet Immune PIR |
| MODEL NO | : | PIR-REC3 |
| FCC ID | : | QNP-PIRREC3 |
| DATE TESTED | : | SEPTEMBER 03-NOVEMBER 13, 2004 |
| REPORT NUMBER | : | 04U2955-1 |

| | |
|---|---|
| TYPE OF EQUIPMENT | WIRELESS REMOTE CONTRL DEVICE |
| EQUIPMENT TYPE | 433.92MHz TRANSMITTER |
| MEASUREMENT PROCEDURE | ANSI C63.4 / 2003 |
| LIMIT TYPE | CERTIFICATION |
| FCC RULE | CFR 47, PART 15 |

The above equipment was tested by Compliance Certification Services for compliance with the requirements set forth in the FCC CFR 47, PART 15. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties. **Warning** : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification will constitute fraud and shall nullify the document.

Tested By:

CHIN PANG
EMC TECHNICIAN
COMPLIANCE CERTIFICATION SERVICES

Approved & Released By:

THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

## 2. PRODUCT DESCRIPTION

| | |
|---|---|
| Fundamental Frequency | **433.92 MHz** |
| Power Source | **3V Battery** |
| Transmitting Time | **Periodic ≤ 5 seconds** |
| Associated Receiver | **N/A** |
| Manufacturer | **Secure Wireless, Inc.** |

## 3. TEST FACILITY

The 3 meter open area test site/anechoic chamber and conducted measurement facility used to collect the radiated data is located at 561F Monterey Road, Morgan Hill, California, U.S.A. A detailed description of the test facility was submitted to the Commission on May 27,1994.

## 4. MEASUREMENT STANDARD

The site is constructed and calibrated in conformance with the requirements of ANSI C63.4/2001.

## 5. TEST METHODOLOGY

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 KHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. (CFR 47 Section 15.33)

## 6. MEASUREMENT EQUIPMENT USED

**TEST EQUIPMENT LIST**

| Name of Equipment | Manufacturer | Model No. | Serial No. | Due Date |
|---|---|---|---|---|
| Quasi-Peak Adaptor | HP | 85650A | 2521A01038 | 7/16/2005 |
| SA Display Section 3 | HP | 85662A | 2314A04793 | 7/16/2005 |
| SA RF Section, 1.5 GHz | HP | 85680A | 2314A02604 | 7/16/2005 |
| Site C Preamplifier, 1300MHz | HP | 8447D | 2944A06550 | 8/15/2005 |
| Spectrum Analyzer 20 Hz ~ 44 GHz | Agilent | E4446A | US42070220 | 1/13/2005 |
| Antenna, Horn 1 ~ 18 GHz | EMCO | 3115 | 6717 | 2/4/2005 |
| Amplifier 1-26GHz | MITEQ | NSP2600-SP | 924341 | 4/25/2005 |
| Site C Antenna, Log Periodic | EMCO | 3146 | 9107-3163 | 3/6/2005 |

## 7. POWERLINE RFI LIMIT

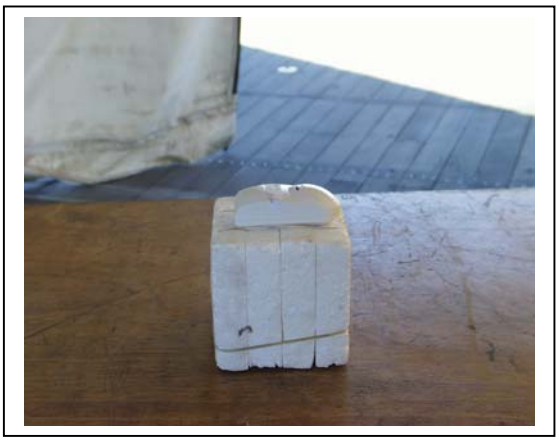
| | |
|---|---|
| CONNECTED TO AC POWER LINE | SECTION 15.207 |
| CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 150 KHz TO 30 MHz | SECTION 15.205 AND SECTION 15.209, 15.221, 15.223, 15.225 OR 15.227, AS APPROPRIATE. |
| BATTERY POWER | NOT REQUIRED |

## 8. RADIATED EMISSION LIMITS

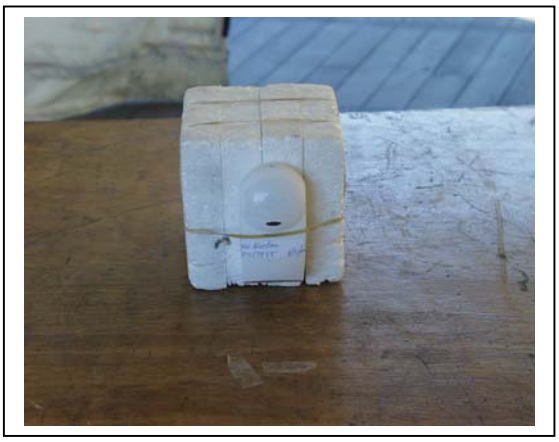
| | |
|---|---|
| GENERAL REQUIREMENTS | SECTION 15.209 |
| RESTRICTED BANDS OF OPERATION | SECTION 15.205 |
| PERIODIC OPERATION IN THE BAND 40.66 - 40.70 MHz AND ABOVE 70 MHz. | SECTION 15.231(b) |

## 9. SYSTEM TEST CONFIGURATION

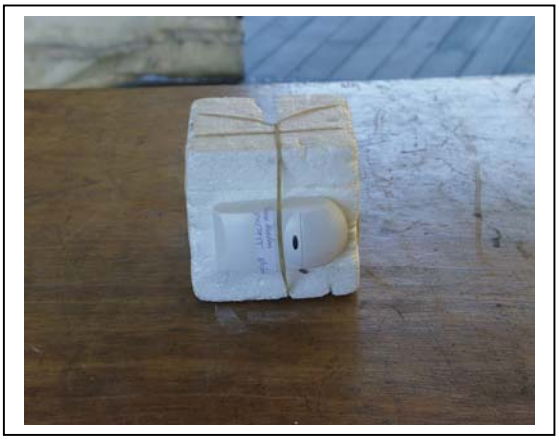
Use a block of foam and combined it with EUT wrapping rubber band around it. This way it can test X, Y, and Z axis. To activate continuous transmission, place a small plastic block between rubber band and EUT push button.



X-Axis



Y-Axis



Z-Axis

Radiated Open Site Test Set-up

## 10. TEST PROCEDURE
## Radiated Emissions, 15.231(4)(b)

**Test Set-up for frequency range 30 – 1000 MHz**

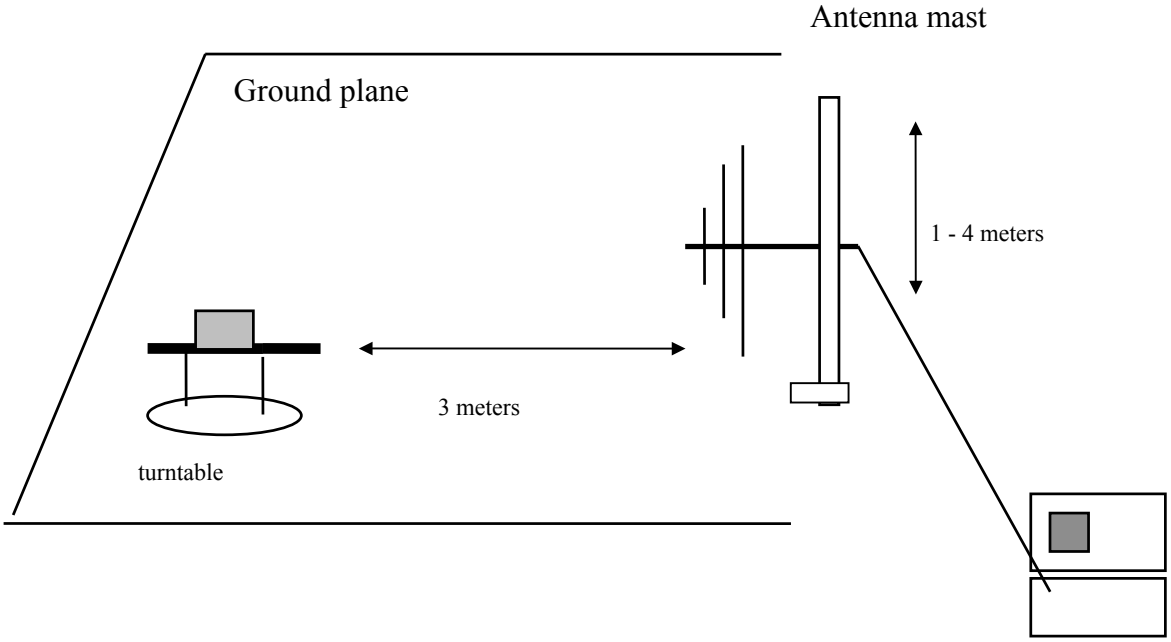



**Fig. 1**

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3-meters from the EUT.

2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205. The EUT was moved throughout the XY, XZ, and YZ planes to maximize emissions received by the search antenna.

3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

**Test set-up for measurements above 1GHz**

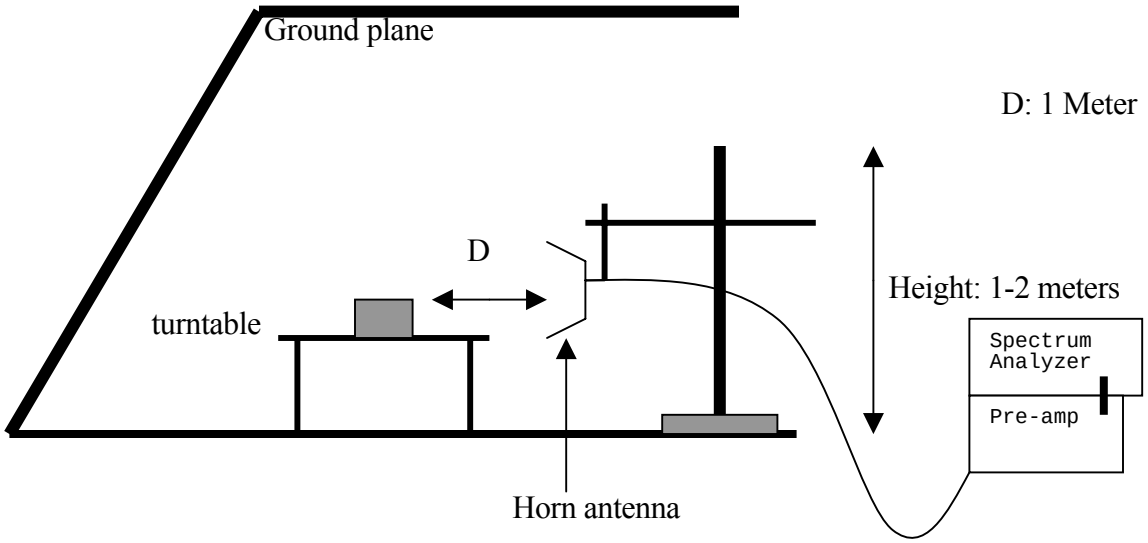



**FIG. 2**

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 1-meters from the EUT. The EUT antenna was mounted vertically as per normal installation.

2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205. The EUT was moved throughout the XY, XZ, and YZ planes to maximize emissions received by the search antenna.

3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

## 11. EUT MODIFICATION

To achieve compliance to FCC Section 15.231 technical limits, the following change(s) were made during compliance testing:

**Changed R15 value from 330K Ohm to 56 K Ohm.**

## 12. TEST RESULT

| Powerline RFI Class B | EUT | Radiated Emission Limits | EUT |
|---|---|---|---|
| SECTION 15.207 | | SECTION 15.209 | X |
| SECTION 15.205, 15.209, 15.221, 15.223, x 15.225 OR 15.227 | | SECTION 15.205 | X |
| BATTERY POWER | X | SECTION 15.231 (b) | X |
| | | | |

### 12.1 MAXIMUM MODULATION PERCENTAGE (M%)

CALCULATION:

Average Reading = Peak Reading (dBuV/m)+ 20log (Duty Cycle)

In order to determine possible Maximum Modulation percentage, alternations are made to the EUT. We measured:

WHERE 1 Period = 177ms
Long pulse = 1 ms
Short pulse =0.500 ms
No of Long pulse = 7
No of Short pulse =33

Duty Cycle = ( N1L1+N2L2+…+Nn-1Ln-1+NnLn)/100 or T

Duty Cycle = ( (7x1)+(33x0.5))/100=0.235=23.5%

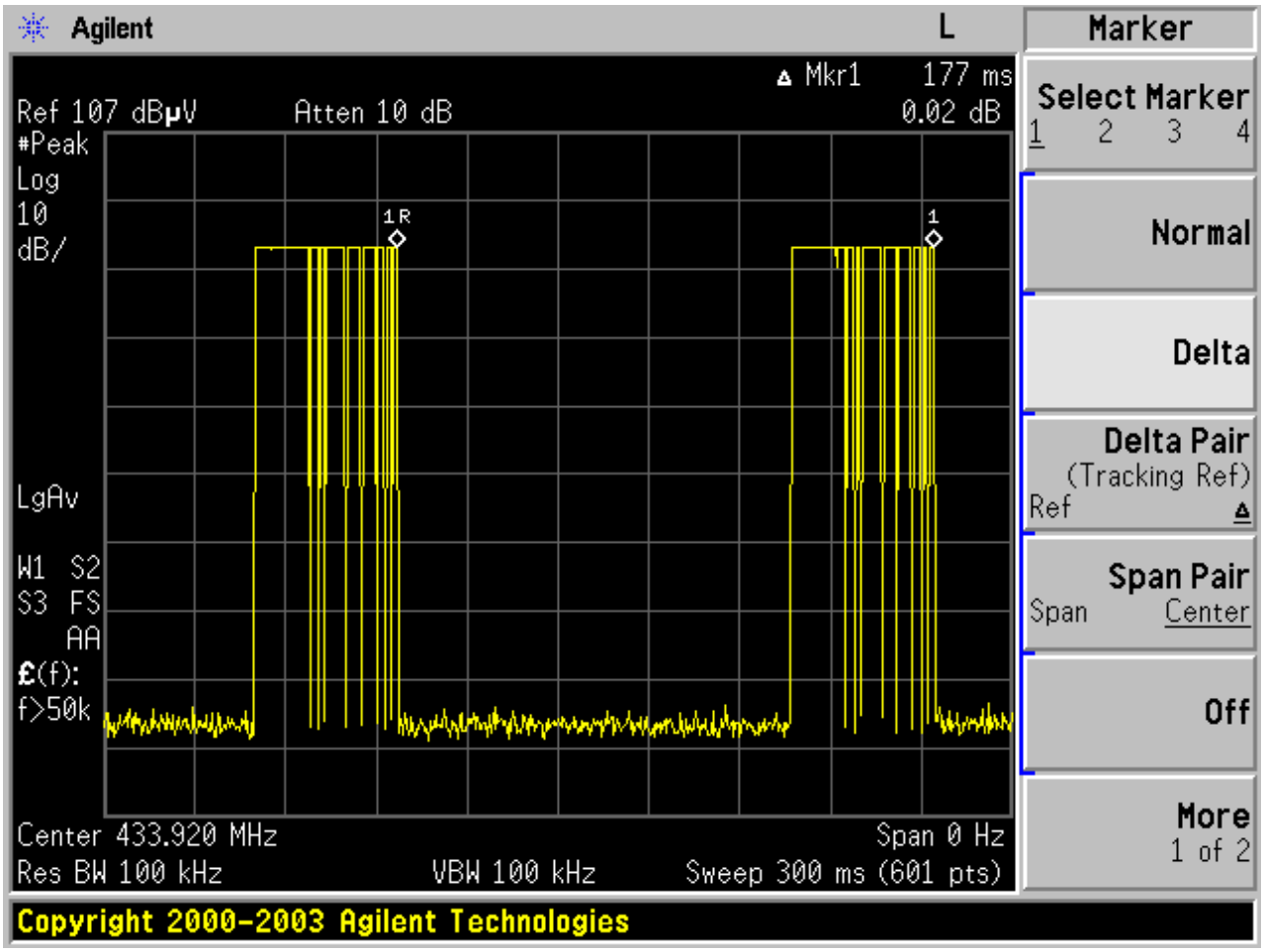
For duty cycle refer to plot #1, 2, 3,4

### 12.2 EMISSION BANDWIDTH

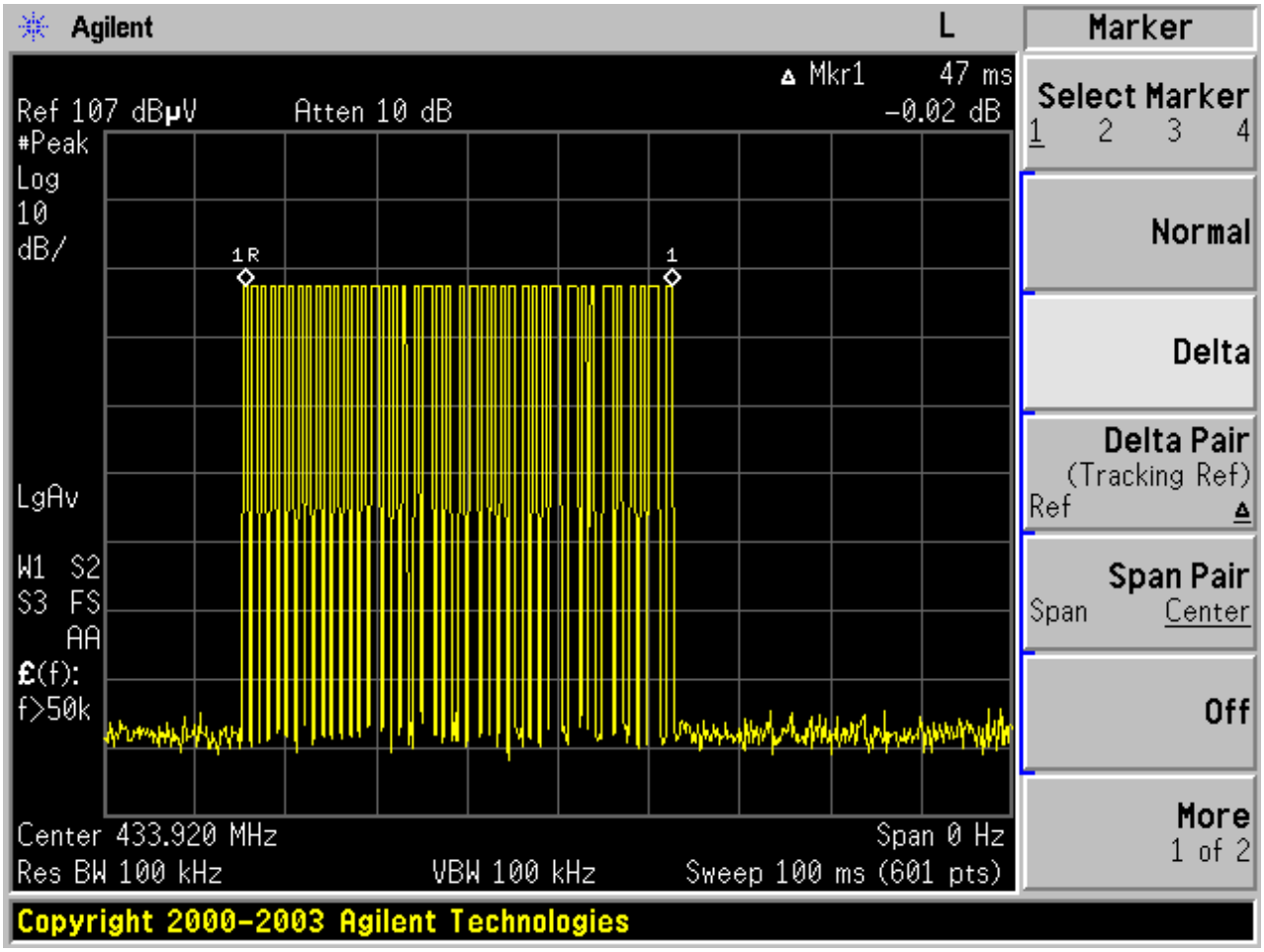
The bandwidth of the emissions were investigated per 15.231(c)

| Center Frequency | Measured | Limits |
|---|---|---|
| 433.92 MHz | **466 KHz (refer to plot)** | **433.92 x 0.25%= 1.0848MHz** |

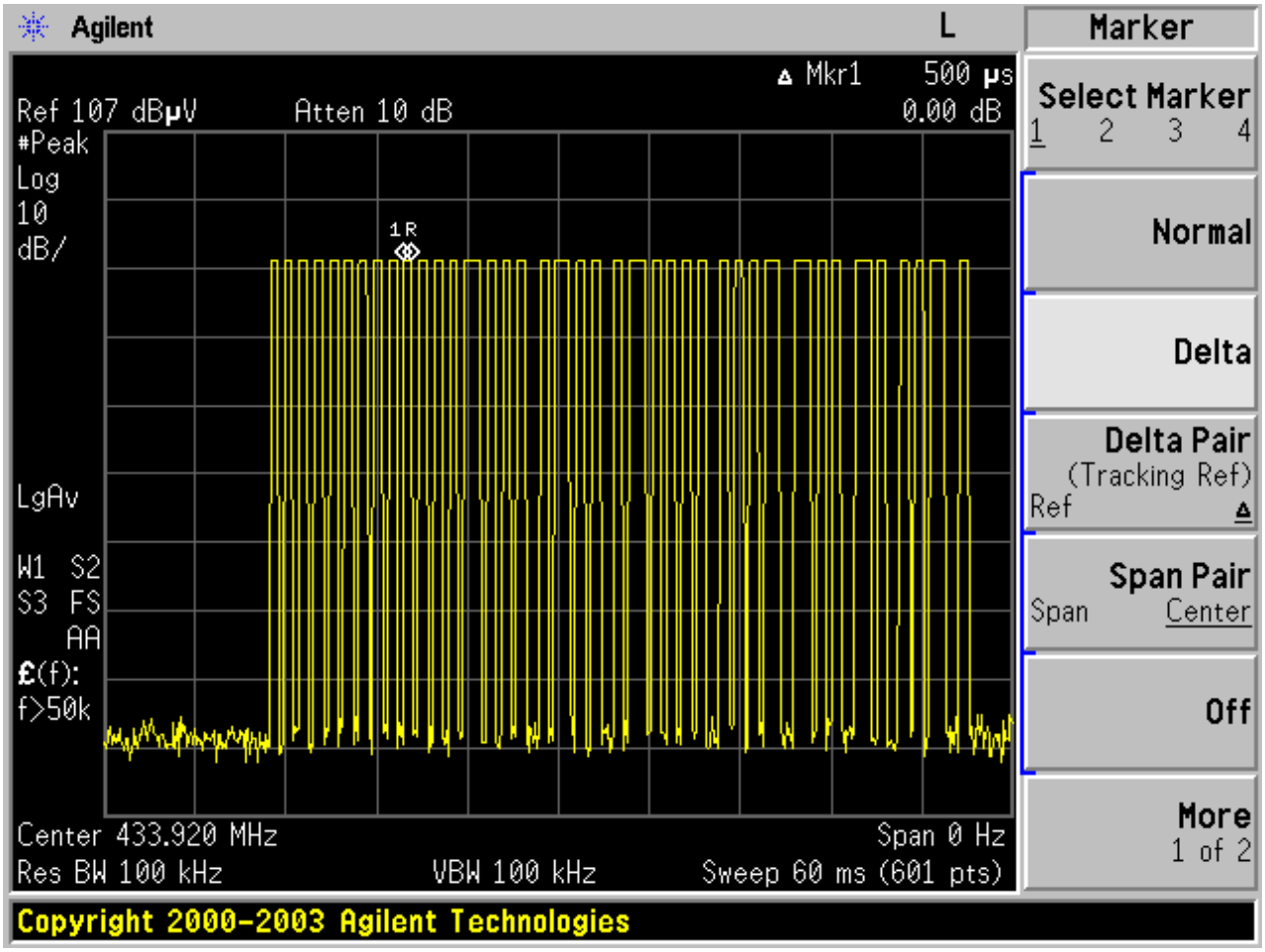
DUTY CYCLE 1



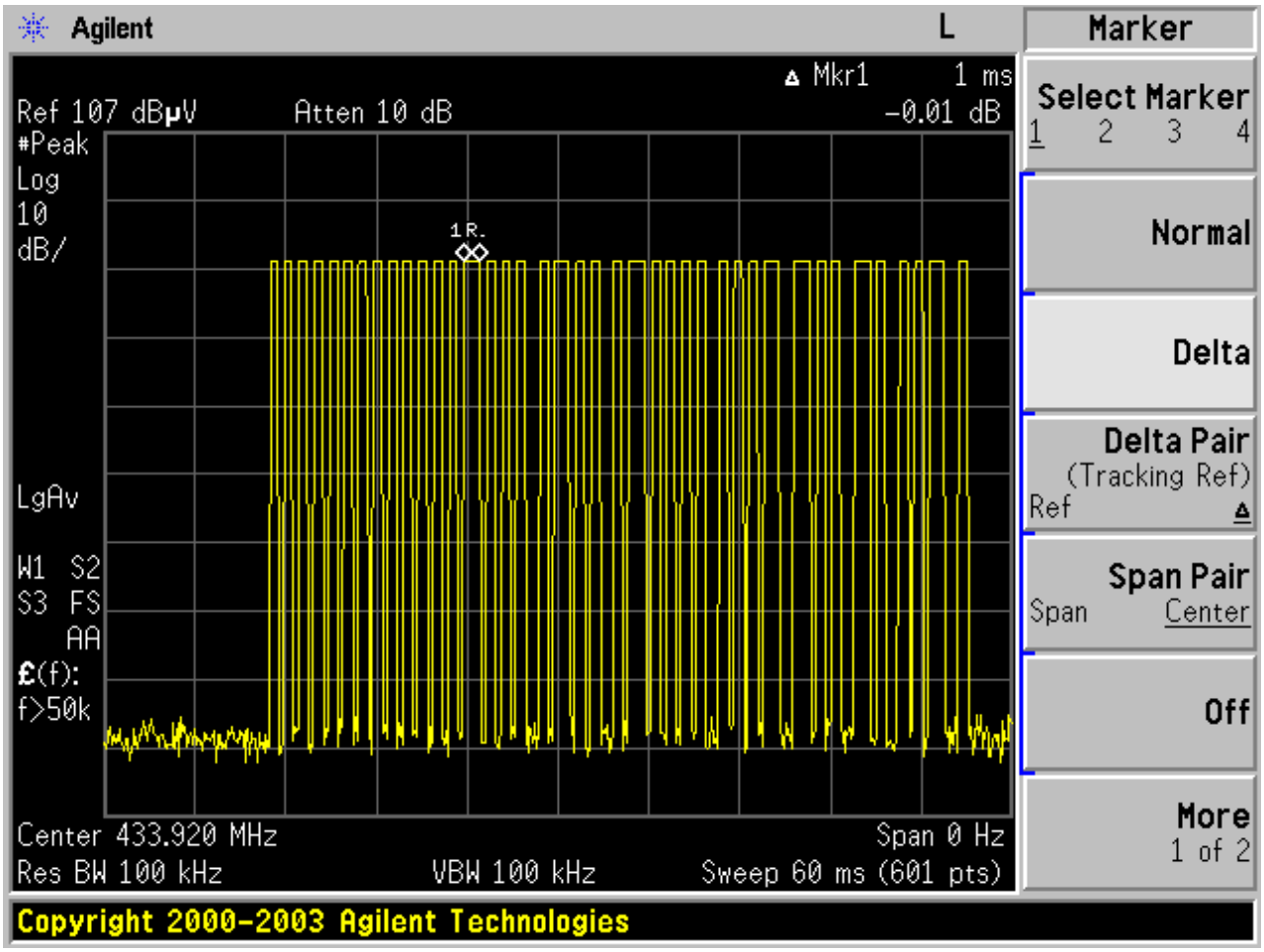
DUTY CYCLE 2



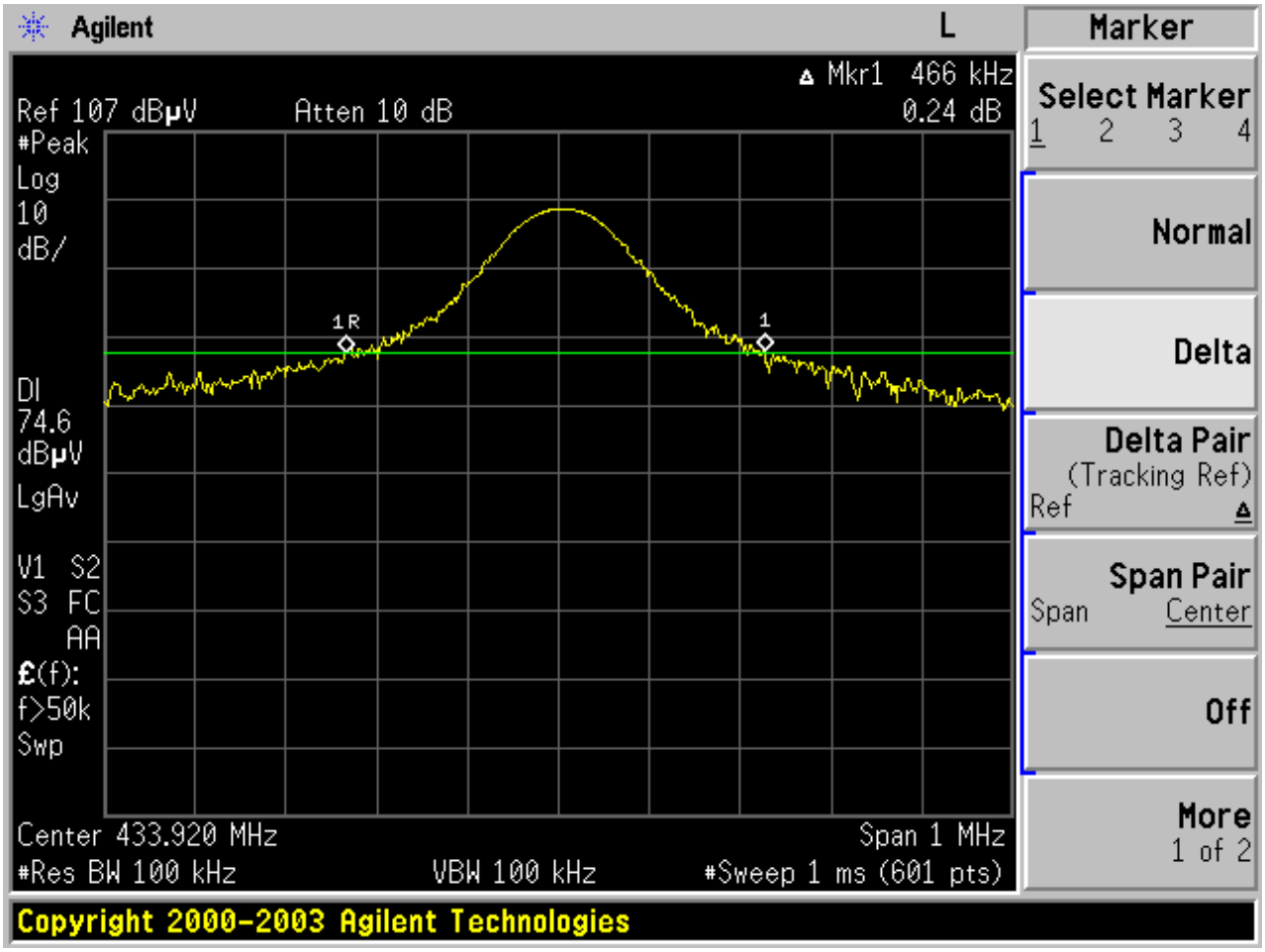
DUTY CYCLE 3



DUTY CYCLE 4



EMISSION BANDWIDTH



# RADIATED DATA

COMPLIANCE Certification Services
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UL, CSA, TUV, BSMI, DHHS, NVLAP
561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
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| | |
|---|---|
| *Project #:* | 04U2955-1 |
| *Report #:* | 040903C1 |
| *Date& Time:* | 11/13/04 |
| *Test Engr:* | Chin Pang |

| | |
|---|---|
| *Company:* | Secure Wireless Inc. |
| *EUT Description:* | 433.92MHz Wireless Pet Immune PIR |
| *Test Configuration :* | EUT only |
| *Type of Test:* | FCC 15.231 |
| *Mode of Operation:* | Transmitting |

M% = ((t1+t2+t3+…)/T)*100% = 23.5%

Av Reading = Pk Reading + 20*log(M%)
20*log(M%) = -12.58

| Freq. (MHz) | Pk Rdg (dBuV) | Av Rdg (dBuV) | AF (dB) | Closs (dB) | Pre-amp (dB) | Level (dBuV/m) | Limit FCC_B | Margin (dB) | Pol (H/V) | Az (Deg) | Height (Meter) | Mark (P/Q/A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 433.92Mhz Fundamental frequency | | | | | | | | | | | | |
| X-Position (Laydown ) | | | | | | | | | | | | |
| 433.92 | 59.37 | 46.79 | 15.42 | 3.31 | 0.00 | 65.52 | 80.80 | -15.28 | 3mV | 0.00 | 1.00 | P |
| 433.92 | 70.13 | 57.55 | 15.42 | 3.31 | 0.00 | 76.28 | 80.80 | -4.52 | 3mH | 0.00 | 1.20 | P |
| Y-Position ( standup ) | | | | | | | | | | | | |
| 433.92 | 70.98 | 58.40 | 15.42 | 3.31 | 0.00 | 77.13 | 80.80 | -3.67 | 3mV | 0.00 | 1.00 | P |
| 433.92 | 56.81 | 44.23 | 15.42 | 3.31 | 0.00 | 62.96 | 80.80 | -17.84 | 3mH | 0.00 | 1.50 | P |
| Z-Position (Sideway ) | | | | | | | | | | | | |
| 433.92 | 62.82 | 50.24 | 15.42 | 3.31 | 0.00 | 68.97 | 80.80 | -11.83 | 3mV | 0.00 | 1.00 | P |
| 433.92 | 69.20 | 56.62 | 15.42 | 3.31 | 0.00 | 75.35 | 80.80 | -5.45 | 3mH | 0.00 | 1.50 | P |
| The Data show Y-Position is the worst case | | | | | | | | | | | | |
| 867.80 | 33.40 | 20.82 | 22.66 | 4.97 | 0.00 | 48.45 | 60.80 | -12.35 | 3mV | 0.00 | 1.00 | P |
| 867.80 | 31.00 | 18.42 | 22.66 | 4.97 | 0.00 | 46.05 | 60.80 | -14.75 | 3mH | 0.00 | 2.00 | P |

# RADIATED EMISSIONS (HARMONIC)

10/11/04 **High Frequency Measurement**

**Compliance Certification Services, Morgan Hill Open Field Site**

**Test Engr:Chin Pang**
**Project #:04U2955-1**
**Company:Secure Wireless Inc.**
**EUT Descrip.:Wireless Pet Immune PIR**
**EUT M/N:PIR-REC3**
**Test Target:FCC 15.231**
**Mode Oper:TX**

**Test Equipment:**

| EMCO Horn 1-18GHz | Spectrum Analyzer | Pre-amplifer 1-26GHz | Pre-amplifer 26-40GHz | Horn > 18GHz |
|---|---|---|---|---|
| T60; S/N: 2238 @3m | Agilent E4446A Analyzer | T86 Miteq 924341 | | |

Hi Frequency Cables

☐ (2 ft) ☑ (2 ~ 3 ft) ☐ (4 ~ 6 ft) ☑ (12 ft)

**Peak Measurements:**
1 MHz Resolution Bandwidth
1MHz Video Bandwidth

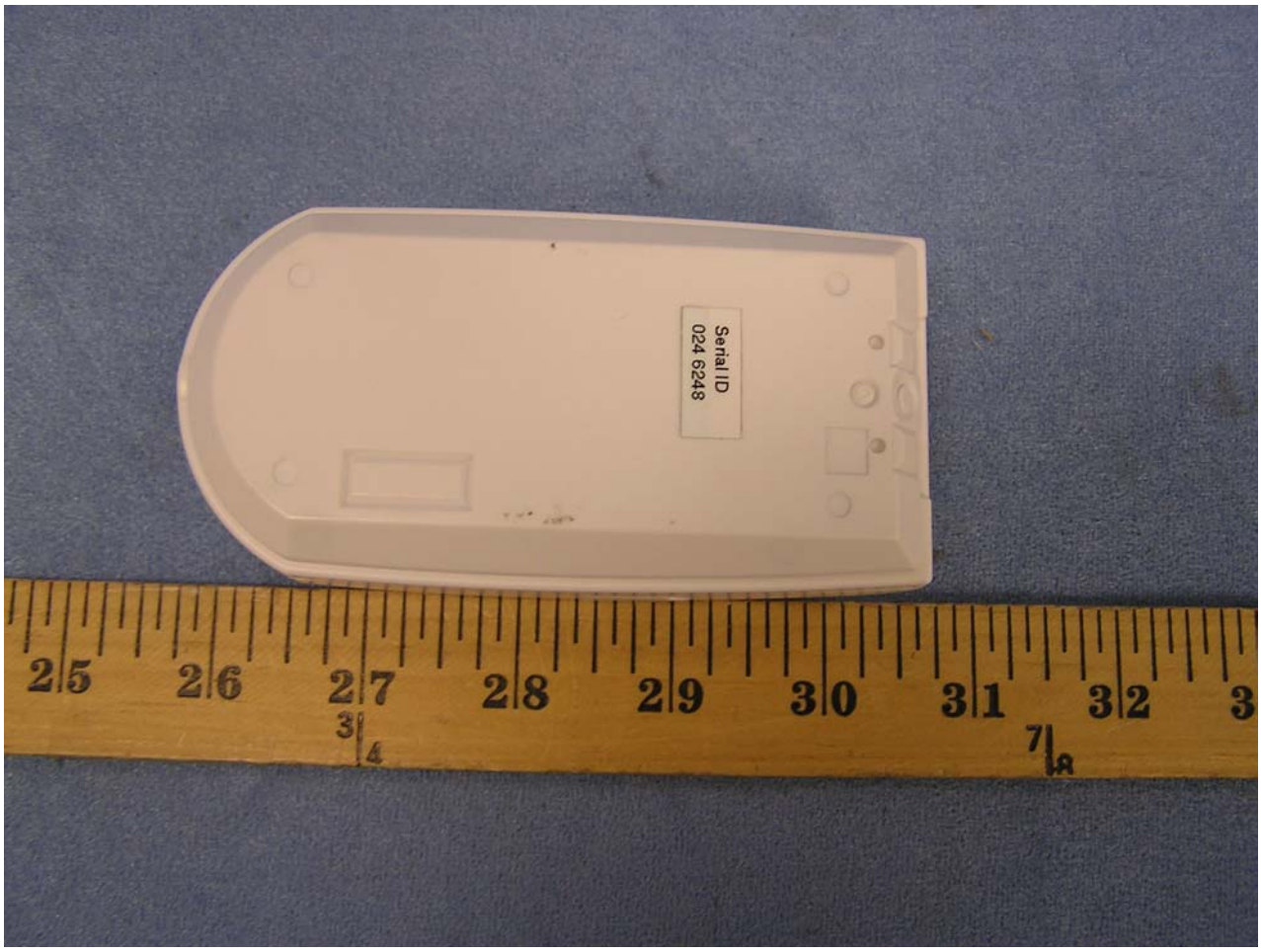
**Average Measurements:**
1 MHz Resolution Bandwidth
10Hz Video Bandwidth

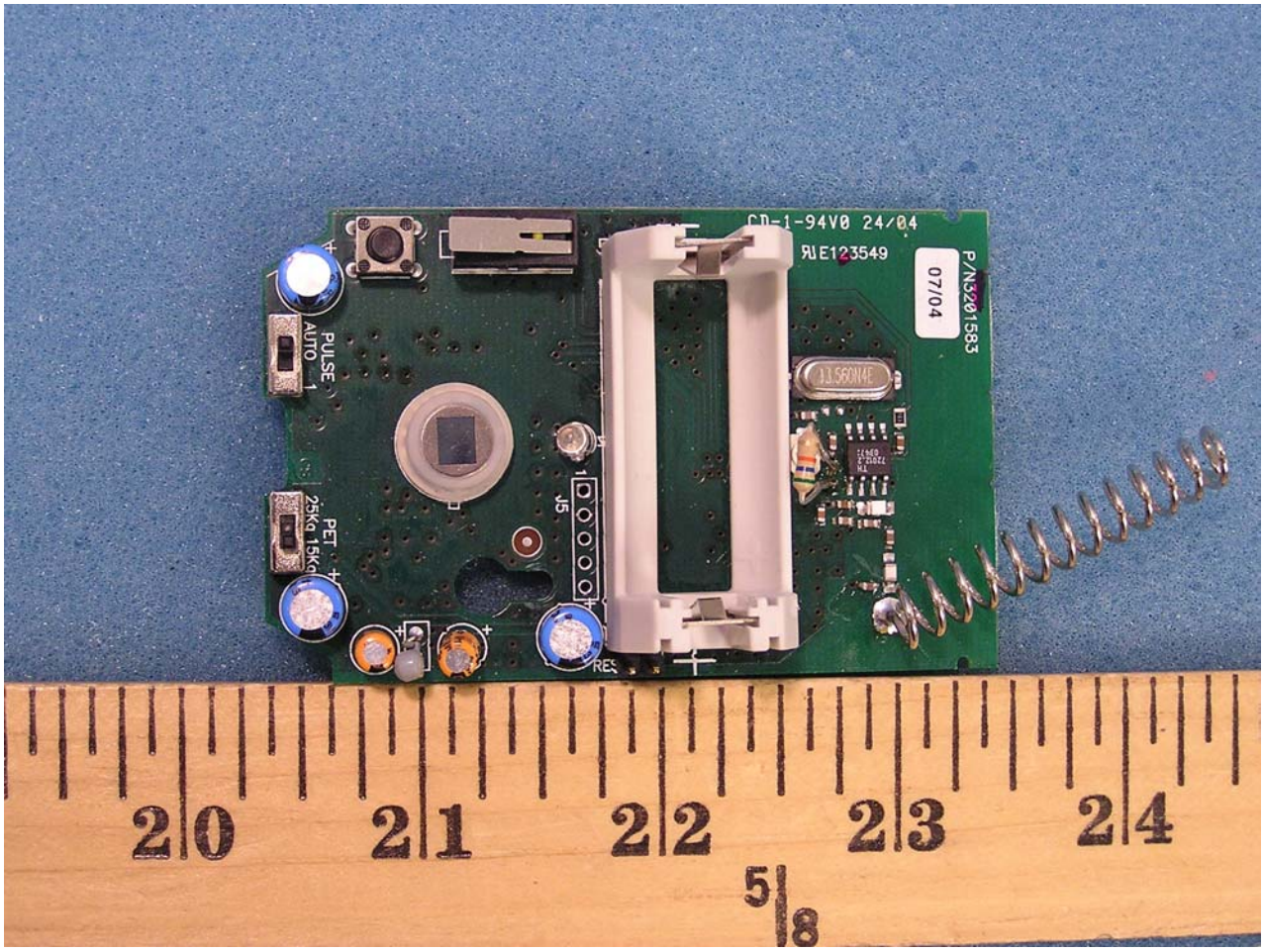
Average=Peak-Duty Cycle

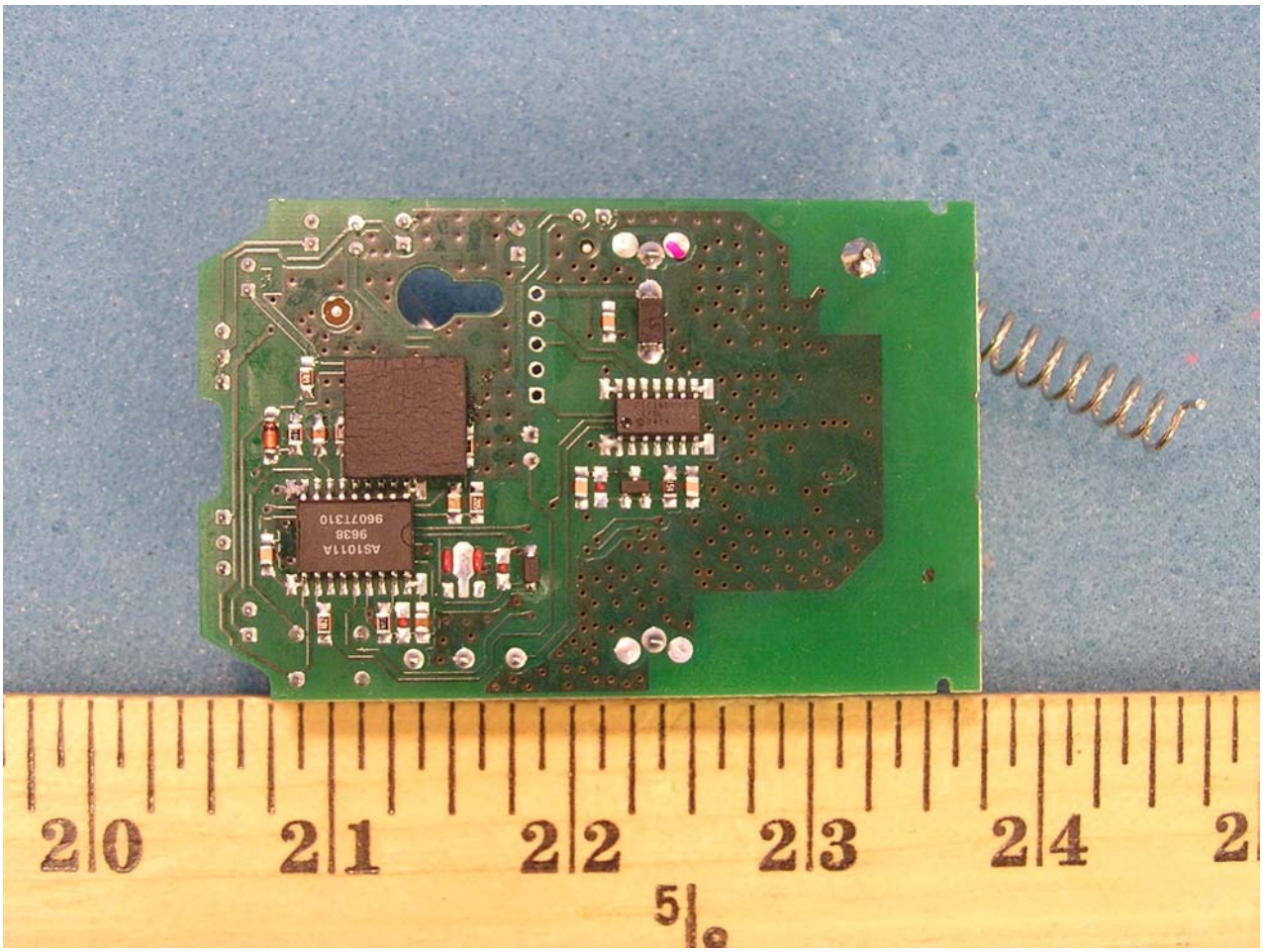
| f GHz | Dist feet | Read Pk dBuV | Read Avg. dBuV | AF dB/m | CL dB | Amp dB | D Corr dB | HPF | Peak dBuV/m | Avg dBuV/m | Pk Lim dBuV/m | Avg Lim dBuV/m | Pk Mar dB | Avg Mar dB | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.301 | 9.8 | 68.5 | 55.9 | 25.4 | 1.5 | -43.9 | 0.0 | 0.0 | 51.4 | 38.8 | 74.0 | 54.0 | -22.6 | -15.2 | V |
| 1.736 | 9.8 | 65.2 | 52.6 | 27.6 | 1.6 | -43.9 | 0.0 | 1.0 | 51.5 | 38.9 | 74.0 | 54.0 | -22.5 | -15.1 | V |
| 2.169 | 9.8 | 54.6 | 42.0 | 29.2 | 1.8 | -43.9 | 0.0 | 1.0 | 42.7 | 30.1 | 74.0 | 54.0 | -31.3 | -23.9 | V |
| 2.603 | 9.8 | 59.6 | 47.0 | 29.9 | 2.0 | -43.8 | 0.0 | 1.0 | 48.6 | 36.1 | 74.0 | 54.0 | -25.4 | -17.9 | V |
| 3.307 | 9.8 | 50.6 | 38.0 | 31.2 | 2.3 | -43.9 | 0.0 | 1.0 | 41.1 | 28.6 | 74.0 | 54.0 | -32.9 | -25.4 | V |
| 3.471 | 9.8 | 48.9 | 36.3 | 31.6 | 2.3 | -44.0 | 0.0 | 1.0 | 39.8 | 27.2 | 74.0 | 54.0 | -34.2 | -26.8 | V |
| 3.905 | 9.8 | 52.9 | 40.3 | 32.4 | 2.5 | -44.2 | 0.0 | 1.0 | 44.6 | 32.1 | 74.0 | 54.0 | -29.4 | -21.9 | V |
| 4.339 | 9.8 | 41.0 | 28.4 | 32.8 | 2.7 | -44.6 | 0.0 | 1.0 | 33.0 | 20.4 | 74.0 | 54.0 | -41.0 | -33.6 | V |
| 1.301 | 9.8 | 66.8 | 54.2 | 25.4 | 1.5 | -43.9 | 0.0 | 0.0 | 49.7 | 37.1 | 74.0 | 54.0 | -24.3 | -16.9 | H |
| 1.736 | 9.8 | 63.8 | 51.2 | 27.6 | 1.6 | -43.9 | 0.0 | 1.0 | 50.1 | 37.5 | 74.0 | 54.0 | -23.9 | -16.5 | H |
| 2.169 | 9.8 | 50.0 | 37.4 | 29.2 | 1.8 | -43.9 | 0.0 | 1.0 | 38.1 | 25.5 | 74.0 | 54.0 | -35.9 | -28.5 | H |
| 2.603 | 9.8 | 56.5 | 43.9 | 29.9 | 2.0 | -43.8 | 0.0 | 1.0 | 45.5 | 33.0 | 74.0 | 54.0 | -28.5 | -21.0 | H |
| 3.307 | 9.8 | 59.5 | 46.9 | 31.2 | 2.3 | -43.9 | 0.0 | 1.0 | 50.0 | 37.5 | 74.0 | 54.0 | -24.0 | -16.5 | H |
| 3.471 | 9.8 | 47.5 | 34.9 | 31.6 | 2.3 | -44.0 | 0.0 | 1.0 | 38.4 | 25.8 | 74.0 | 54.0 | -35.6 | -28.2 | H |
| 3.905 | 9.8 | 49.9 | 37.3 | 32.4 | 2.5 | -44.2 | 0.0 | 1.0 | 41.6 | 29.0 | 74.0 | 54.0 | -32.4 | -25.0 | H |
| 4.339 | 9.8 | 40.2 | 27.6 | 32.8 | 2.7 | -44.6 | 0.0 | 1.0 | 32.2 | 19.6 | 74.0 | 54.0 | -41.8 | -34.4 | H |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| f | Measurement Frequency | Amp | Preamp Gain | Avg Lim | Average Field Strength Limit |
| Dist | Distance to Antenna | D Corr | Distance Correct to 3 meters | Pk Lim | Peak Field Strength Limit |
| Read | Analyzer Reading | Avg | Average Field Strength @ 3 m | Avg Mar | Margin vs. Average Limit |
| AF | Antenna Factor | Peak | Calculated Peak Field Strength | Pk Mar | Margin vs. Peak Limit |
| CL | Cable Loss | HPF | High Pass Filter | | |

# EUT PHOTOGRAPHS





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