

**FCC PART 15 SUBPART C  
CERTIFICATION REPORT**

**FOR**

**319 MHz WIRELESS REMOTE CONTROL DEVICE (TX)**

**MODEL NAME: EV-F319**

**FCC ID: QNPEV-F319**

**REPORT NO.: 02T1599-1**

**DATE ISSUED: OCTOBER 25, 2002**

*Prepared for*

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

*Prepared by*

**COMPLIANCE CERTIFICATION SERVICES  
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#### TEST DATA

- Maximum Modulation Percentage Plot
- Emission Bandwidth Plot
- Radiated Emission Worksheet for Peak Measurement
- Radiated Emission Worksheet for Average Measurement

#### ATTACHMENT

- EUT Photographs
- Proposed FCC ID Label
- Schematics & Block Diagram
- User Manual

## 1. VERIFICATION OF COMPLIANCE

COMPANY NAME: Secure Wireless inc.  
1185 Park Center Drive  
Vista, CA 92083  
United States

MODEL NAME/NUMBER: EV-F319

DATE TESTED: 10-25-2002

REPORT NUMBER: 02T1599-1

|                       |                        |
|-----------------------|------------------------|
| TYPE OF EQUIPMENT     | HANDS FREE CAR KIT     |
| EQUIPMENT TYPE        | 319 MHz Remote Control |
| MEASUREMENT PROCEDURE | ANSI C63.4 / 1992      |
| 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 TECNICIAN  
COMPLIANCE CERTIFICATION SERVICES

Approved & Released By:



THU CHAN  
SENIOR EMC ENGINEER  
COMPLIANCE CERTIFICATION SERVICES

## 2. PRODUCT DESCRIPTION

|                       |                           |
|-----------------------|---------------------------|
| Fundamental Frequency | 319 MHz                   |
| Power Source          | CR2025 3V (X2)            |
| Transmitting Time     | Periodic $\leq$ 5 seconds |
| Associated Receiver   | NA                        |

## 3. TEST FACILITY

The 3/10/30 meter open area test site 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 C63.4/1992.

## 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 EQUIPMENTS LIST                |                   |            |            |          |
|-------------------------------------|-------------------|------------|------------|----------|
| Name of Equipment                   | Manufacturer      | Model No.  | Serial No. | Due Date |
| Spectrum Analyzer                   | HP100Hz - 1.5GHz  | 8568A      | 101236     | 4/16/03  |
| Spectrum Analyzer                   | HP100Hz - 1.5GHz  | 8568B      | 2841A04227 | 4/16/03  |
| Quasi-Peak Detector                 | HP9K - 1GHz       | 85650A     | 2521A01038 | 4/16/03  |
| Pre-Amplifier,25 dB                 | HP0.1 - 1300MHz   | 8447D (P5) | 2944A06550 | 8/22/03  |
| Antenna, LP                         | EMCO200 - 2000MHz | 3146       | 9107-3163  | 3/30/03  |
| Antenna, Bicon                      | Eaton30 - 200MHz  | 94455-1    | 1197       | 3/30/03  |
| Pre-amplifier,35.5 dB (1 - 26.5GHz) | HP                | 8449B      | 3008A00369 | 6/30/03  |
| Horn Antenna(1 - 18GHz)             | EMCO              | 3115       | 6717       | 3/30/03  |
| Spectrum Analyzer(9KHz-40GHz)       | HP                | 8564E      | 3943A01643 | 7/22/03  |

## 7. POWERLINE RFI LIMIT

|                                                                    |                                                                                      |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| CONNECTED TO AC POWER LINE                                         | SECTION 15.207                                                                       |
| CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 450 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 |

## 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.



Y-Axis



X-Axis

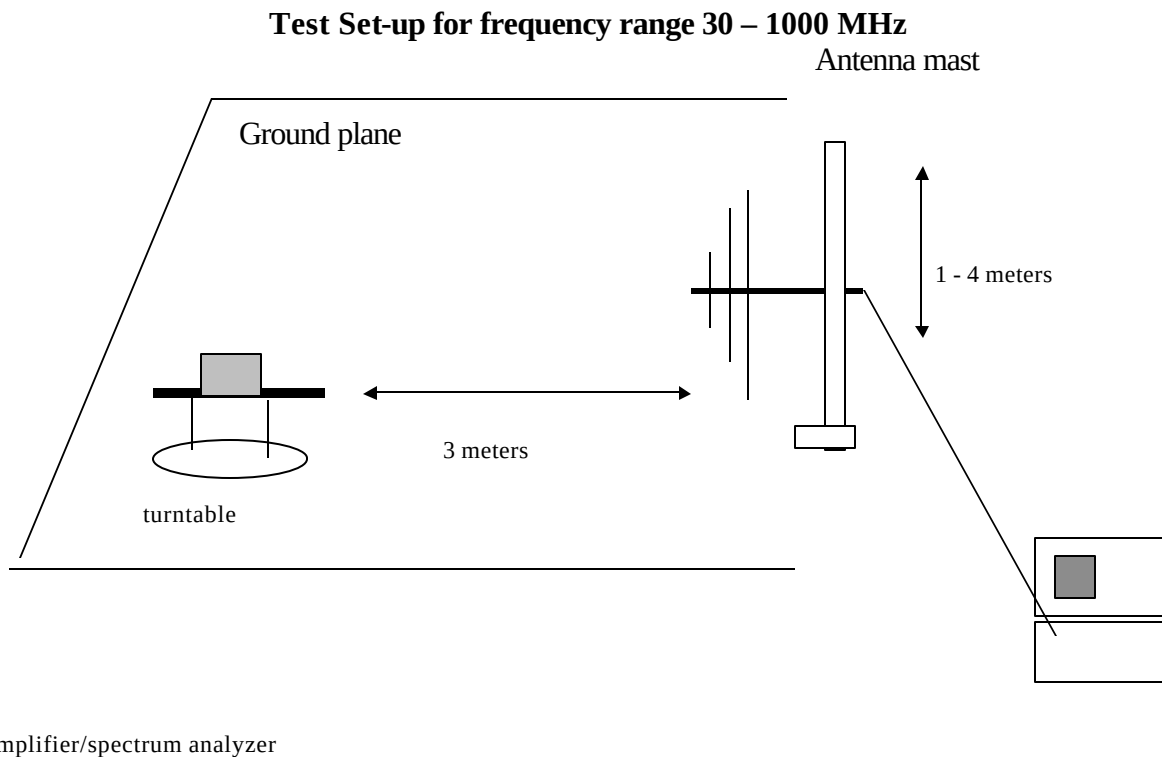


Z-Axis

Radiated Open Site Test Set-up

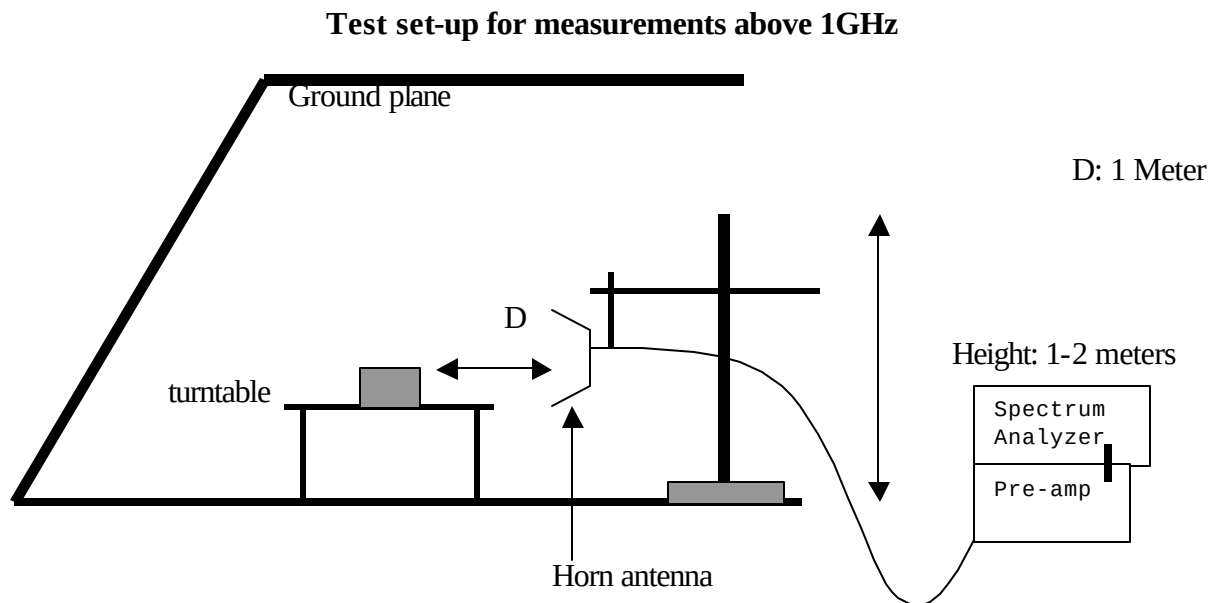
## 10. TEST PROCEDURE

### Radiated Emissions, 15.231(4)(b)



**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.



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. EQUIPMENT MODIFICATIONS

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

No changes were required in order to achieve compliance to Section 15.231 levels.



## 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,<br>15.223, x 15.225 OR<br>15.227 |     | SECTION 15.205           | X   |
| BATTERY POWER                                                    | X   | SECTION 15.231 (b)       | X   |
|                                                                  |     | SECTION 15.231 (e)       |     |

### 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                         | = 141.2 mS |
| 1st Long pulse                   | = 0.900 mS |
| 2nd Long pulse                   | = 0.44 mS  |
| Short pulse                      | = 0.08 mS  |
| No of 1st Long pulse             | = 1        |
| No of 2 <sup>nd</sup> Long pulse | = 1        |
| No of Short pulse                | = 58       |

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

Duty Cycle = ( (1x0.900+(1x0.44)+(58x0.08))/100=5.98%

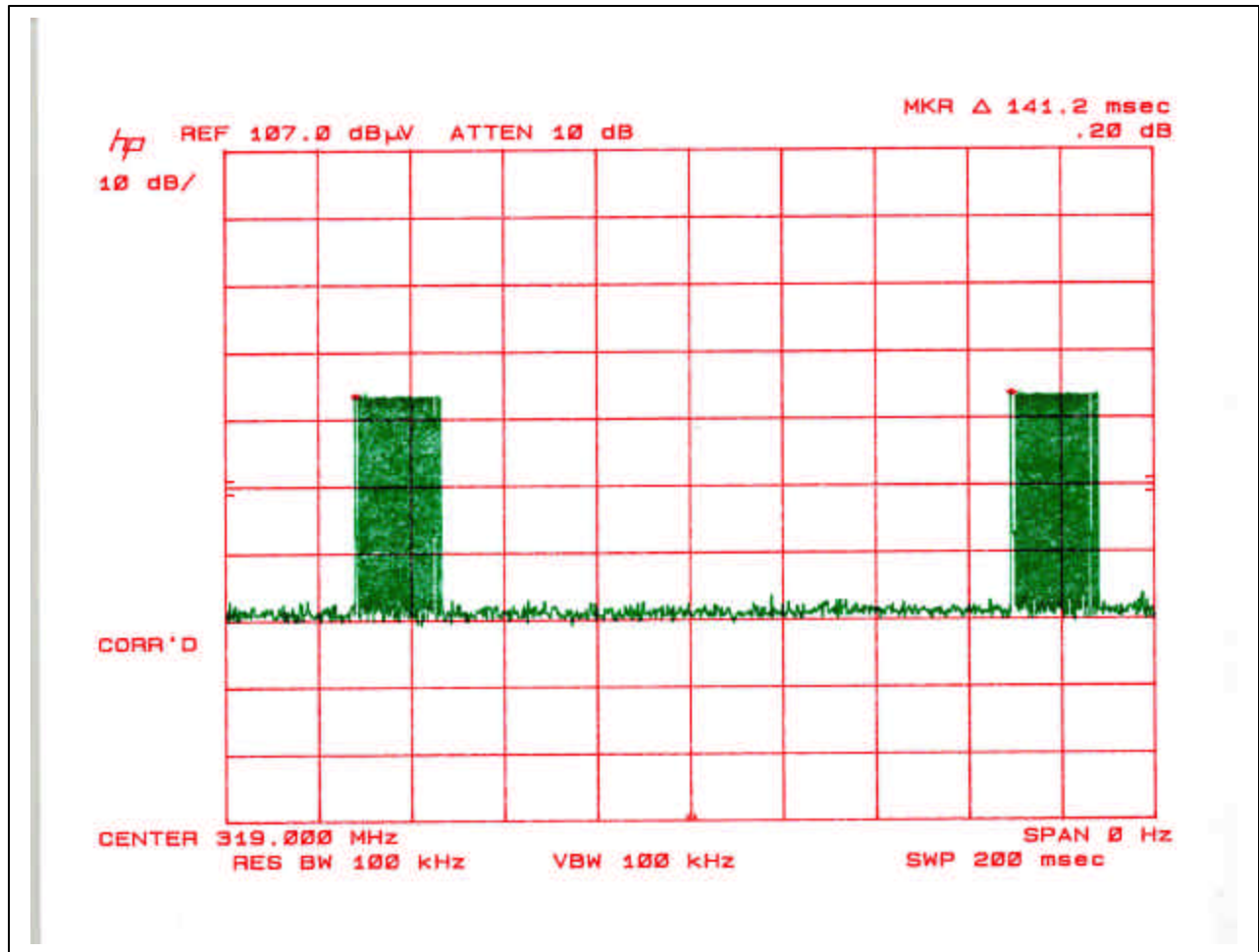
For duty cycle refer to plot #1, 2, 3, 4, 5, 6.

### 12.2 EMISSION BANDWIDTH

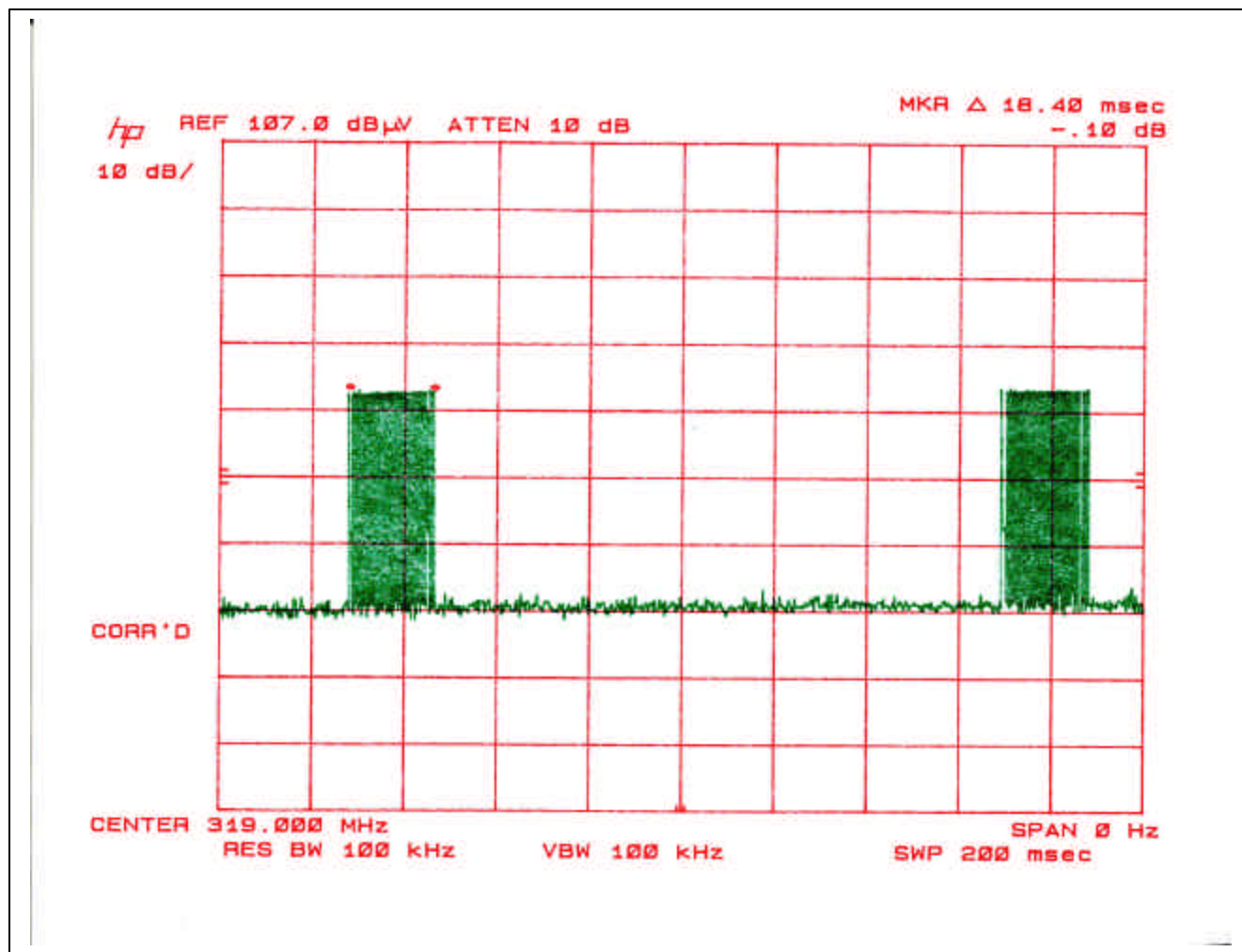
The bandwidth of the emissions were investigated per 15.231(c)

| Center Frequency | Measured                          | Limits                        |
|------------------|-----------------------------------|-------------------------------|
| 319 MHz          | <b>584 KHz</b><br>(refer to plot) | <b>319 x 0.25%= 0.798 MHz</b> |

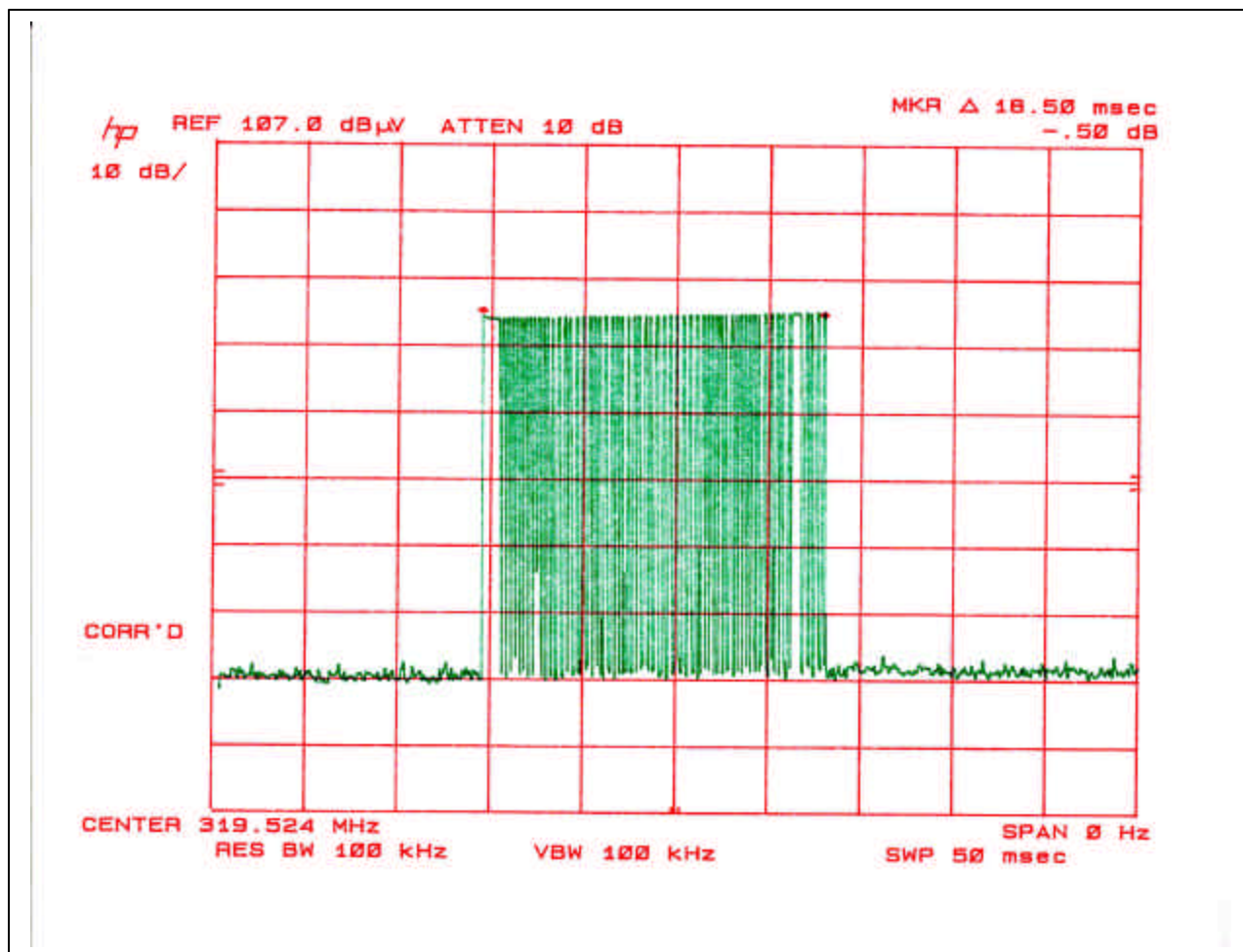
### DUTY CYCLE 1



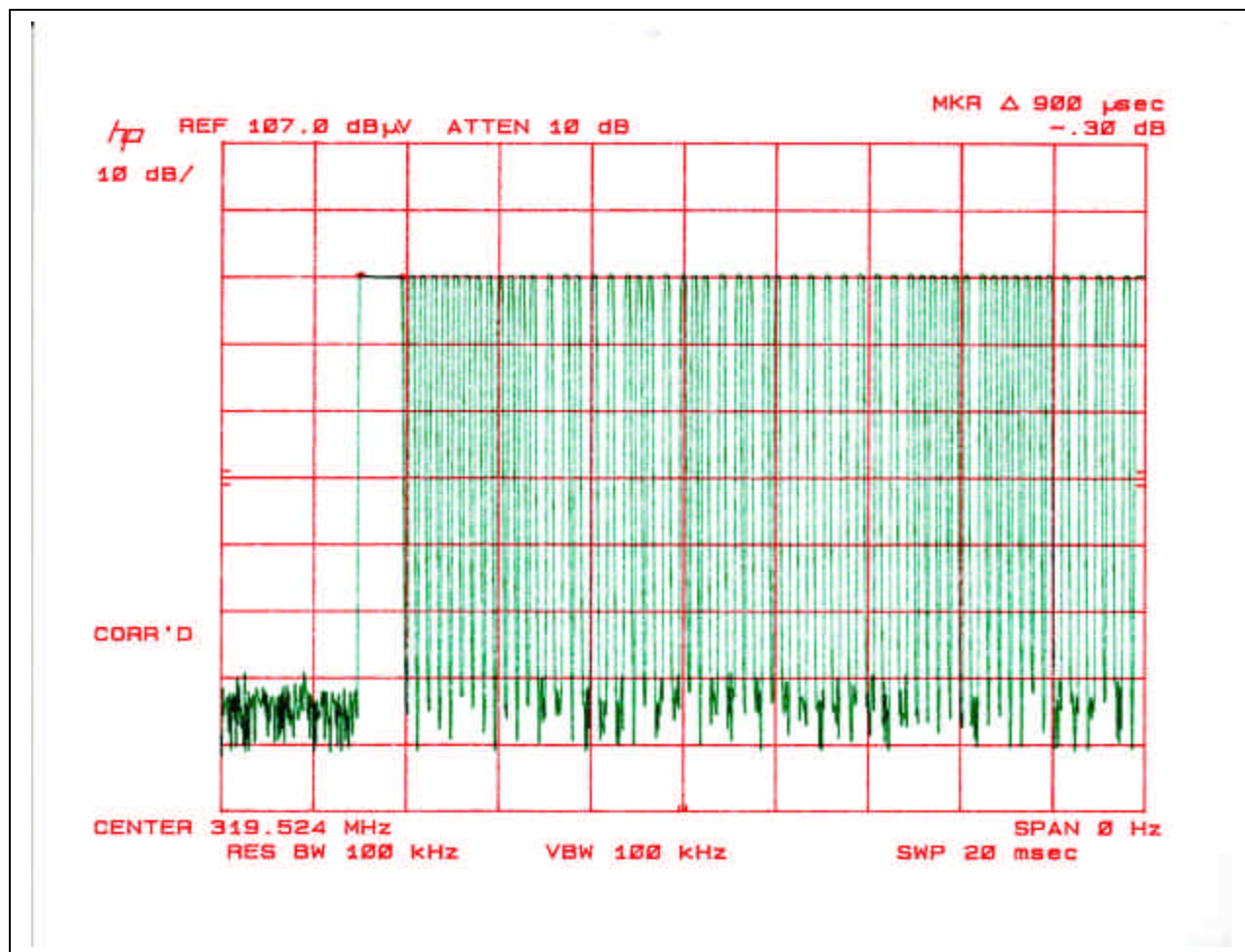
## DUTY CYCLE 2



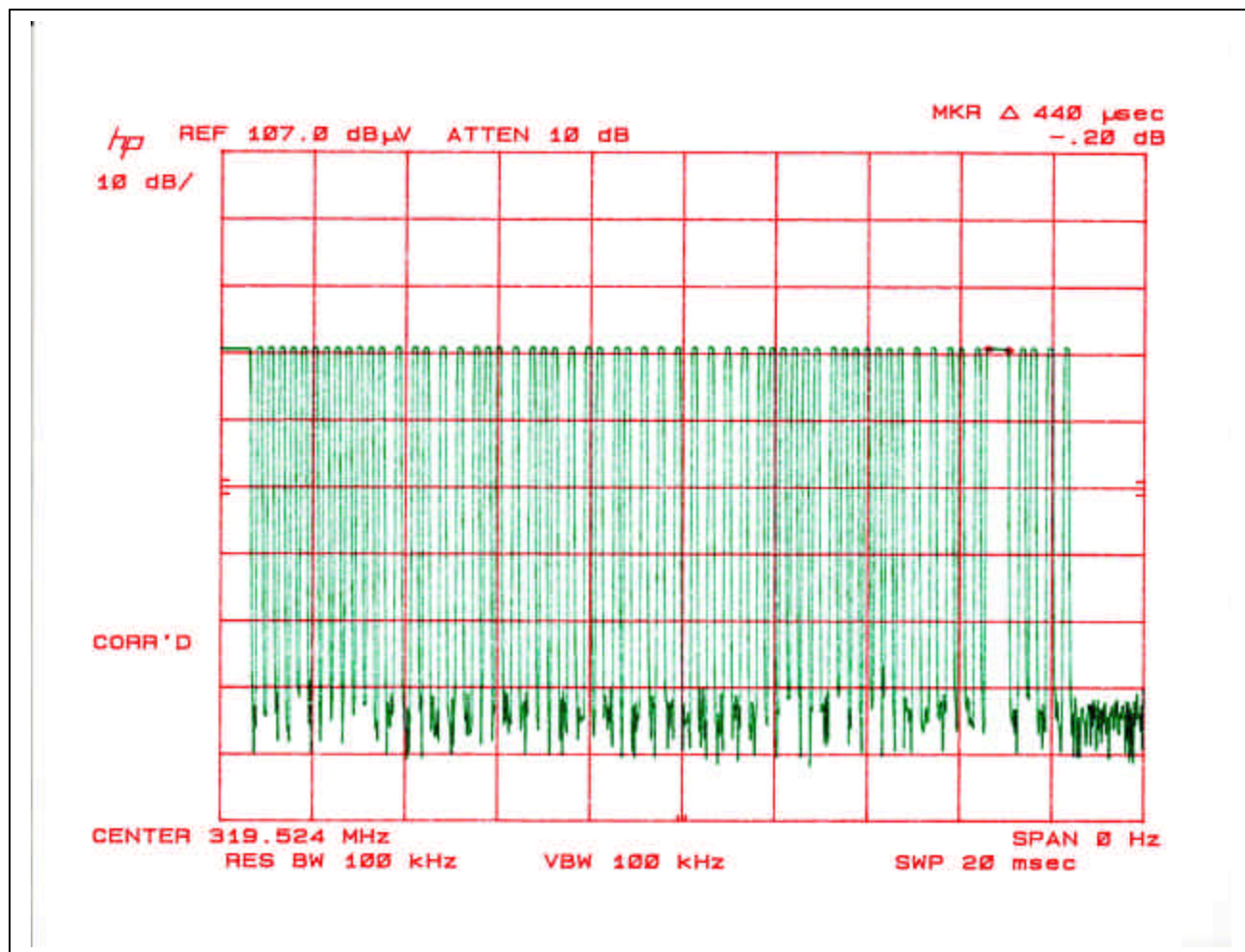
### DUTY CYCLE 3



#### DUTY CYCLE 4

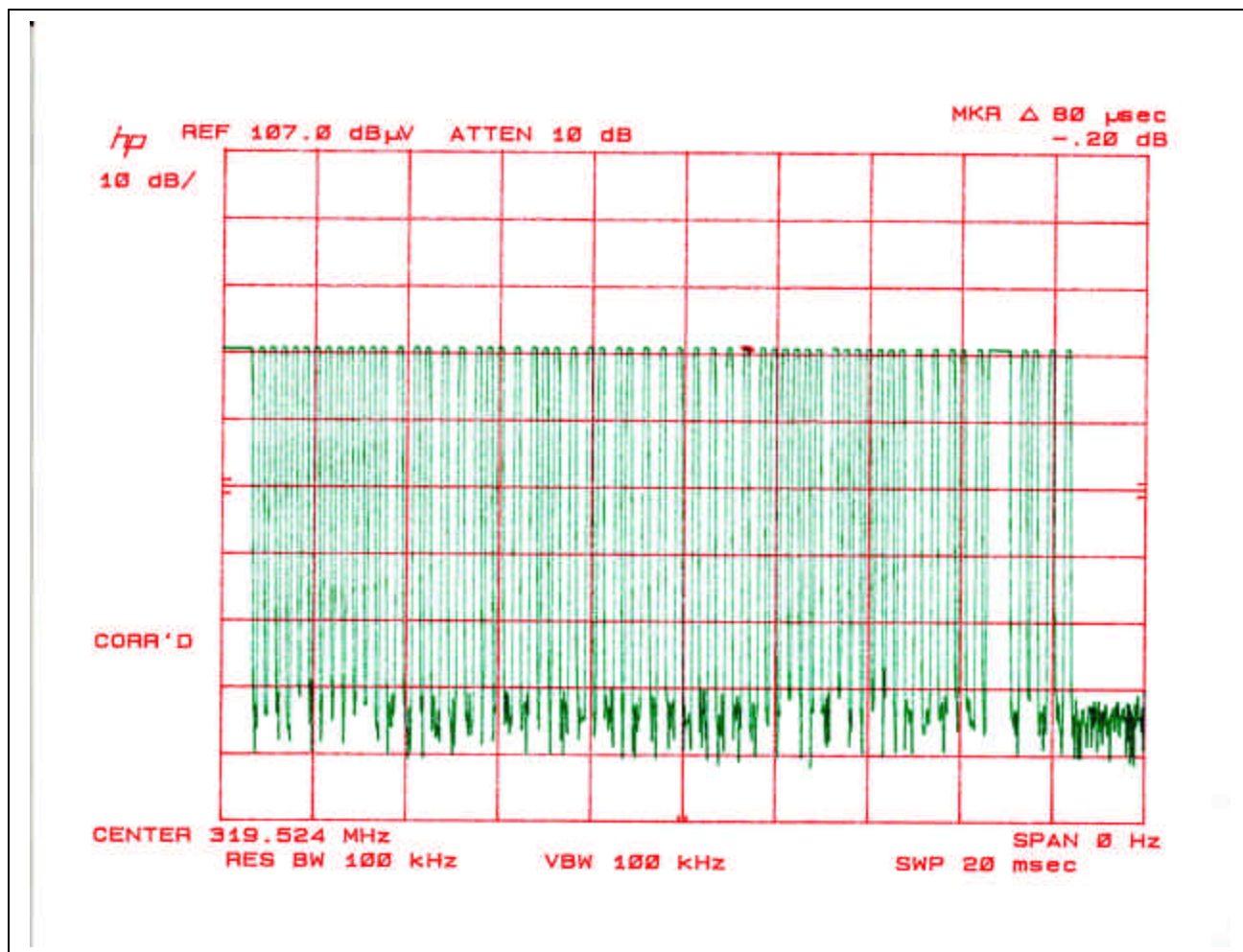


## DUTY CYCLE 5

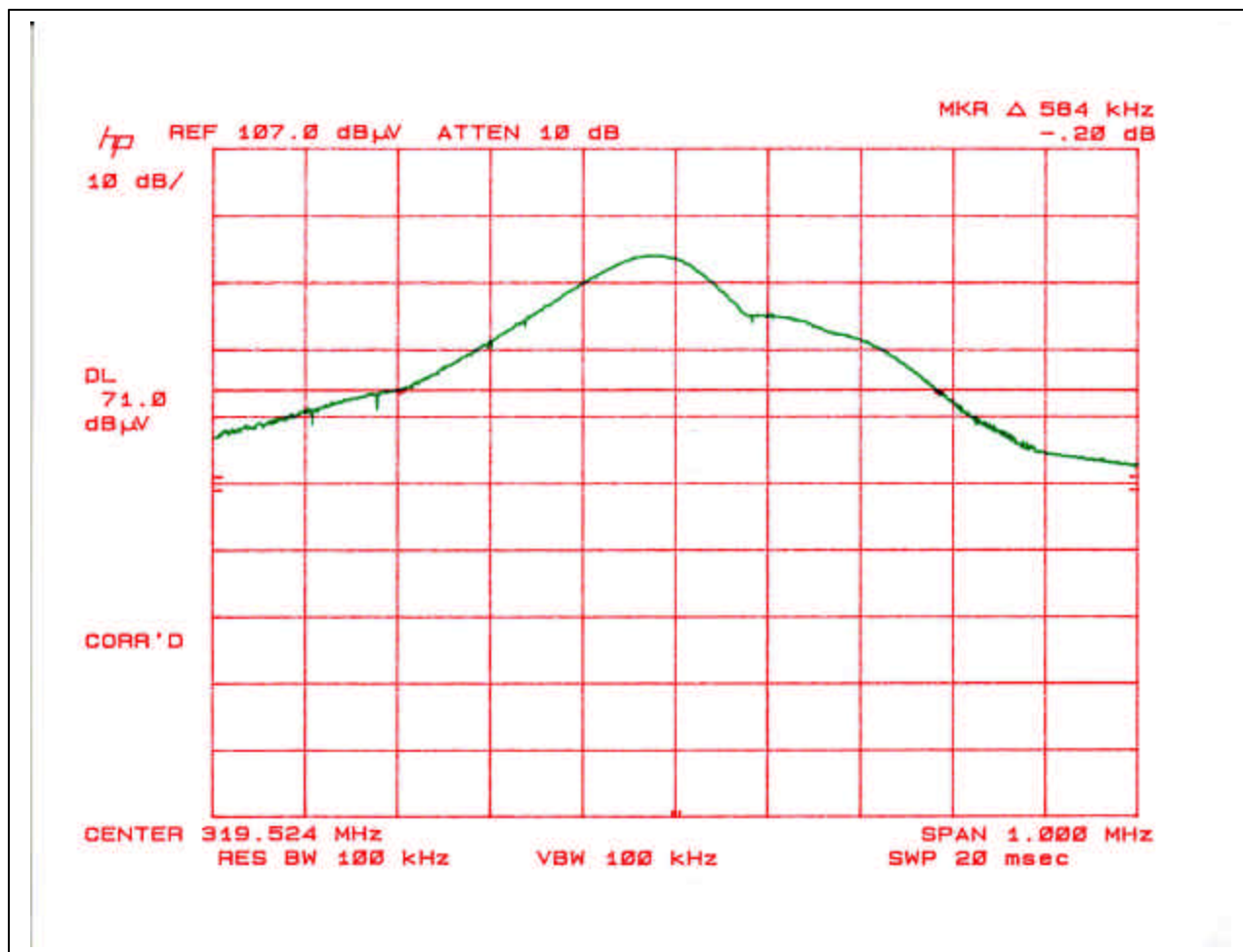




## DUTY CYCLE 6



## EMISSION BANDWIDTH





## RADIATED DATA

|                                                                                                                                                                                                                              |        |        |       | <b>Project #:</b><br><b>Report #:</b><br><b>Date &amp; Time:</b><br><b>Test Engr:</b>                                                                                    |         | <u>02T1599-1</u><br><u>021025C1</u><br><u>10/25/02</u><br><u>Chin Pang</u> |       |        |       |       |         |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------|-------|--------|-------|-------|---------|---------|
|                                                                                                                                                                                                                                                                                                               |        |        |       | FCC, VCCI, CISPR, CE, AUSTEL, NZ<br>UL, CSA, TUV, BSMI, DHHS, NVLAP<br><br>561F MONTEREY ROAD, SAN JOSE, CA 95037-9001<br>PHONE: (408) 463-0885      FAX: (408) 463-0888 |         |                                                                            |       |        |       |       |         |         |
| <b>Company:</b><br><b>EUT Description:</b><br><b>Test Configuration:</b><br><b>Type of Test:</b><br><b>Mode of Operation:</b>                                                                                                                                                                                 |        |        |       | <u>Secure Wireless Inc.</u><br><u>319.5MHz Remote Control</u><br><u>EUT only</u><br><u>FCC 15.231</u><br><u>Continuously Transmitting</u>                                |         |                                                                            |       |        |       |       |         |         |
| <div style="display: flex; justify-content: space-between;"> <div> <math>M\% = ((t1+t2+t3+...)/T)*100\% = 5.98\%</math> </div> <div style="border: 1px solid black; padding: 2px;"> <math>Av \text{ Reading} = Pk \text{ Reading} + 20*\log(M\%)</math><br/> <math>20*\log(M\%) = -24.46</math> </div> </div> |        |        |       |                                                                                                                                                                          |         |                                                                            |       |        |       |       |         |         |
| Freq.                                                                                                                                                                                                                                                                                                         | Pk Rdg | Av Rdg | AF    | Closs                                                                                                                                                                    | Pre-amp | Level                                                                      | Limit | Margin | Pol   | Az    | Height  | Mark    |
| (MHz)                                                                                                                                                                                                                                                                                                         | (dBuV) | (dBuV) | (dB)  | (dB)                                                                                                                                                                     | (dB)    | (dBuV/m)                                                                   | FCC B | (dB)   | (H/V) | (Deg) | (Meter) | (P/Q/A) |
| 319.5Mhz Fundamental frequency                                                                                                                                                                                                                                                                                |        |        |       |                                                                                                                                                                          |         |                                                                            |       |        |       |       |         |         |
| X-Position ( EUT Lay Down Position )                                                                                                                                                                                                                                                                          |        |        |       |                                                                                                                                                                          |         |                                                                            |       |        |       |       |         |         |
| 319.50                                                                                                                                                                                                                                                                                                        | 51.80  | 31.80  | 14.82 | 3.11                                                                                                                                                                     | 0.00    | 46.62                                                                      | 75.86 | -29.24 | 3mV   | 0.00  | 1.00    | P       |
| 319.50                                                                                                                                                                                                                                                                                                        | 64.70  | 44.70  | 14.82 | 3.11                                                                                                                                                                     | 0.00    | 62.63                                                                      | 75.86 | -13.23 | 3mH   | 0.00  | 1.00    | P       |
| Y-Position ( EUT is Standing )                                                                                                                                                                                                                                                                                |        |        |       |                                                                                                                                                                          |         |                                                                            |       |        |       |       |         |         |
| 319.50                                                                                                                                                                                                                                                                                                        | 63.00  | 52.86  | 14.82 | 3.11                                                                                                                                                                     | 0.00    | 67.68                                                                      | 75.86 | -8.18  | 3mV   | 0.00  | 1.00    | P       |
| 319.50                                                                                                                                                                                                                                                                                                        | 56.40  | 46.26  | 14.82 | 3.11                                                                                                                                                                     | 0.00    | 64.19                                                                      | 75.86 | -11.67 | 3mH   | 0.00  | 1.00    | P       |
| Z-Position (EUT Lay Side Way)                                                                                                                                                                                                                                                                                 |        |        |       |                                                                                                                                                                          |         |                                                                            |       |        |       |       |         |         |
| 319.50                                                                                                                                                                                                                                                                                                        | 63.20  | 43.20  | 14.82 | 3.11                                                                                                                                                                     | 0.00    | 58.02                                                                      | 75.86 | -17.84 | 3mV   | 0.00  | 1.00    | P       |
| 319.50                                                                                                                                                                                                                                                                                                        | 60.00  | 40.00  | 14.82 | 3.11                                                                                                                                                                     | 0.00    | 57.93                                                                      | 75.86 | -17.93 | 3mH   | 0.00  | 1.00    | P       |
| The Data show Y-Position is the worst case                                                                                                                                                                                                                                                                    |        |        |       |                                                                                                                                                                          |         |                                                                            |       |        |       |       |         |         |
| 638.67                                                                                                                                                                                                                                                                                                        | 52.00  | 32.00  | 19.85 | 4.72                                                                                                                                                                     | 27.84   | 24.01                                                                      | 55.86 | -31.85 | 3mV   | 0.00  | 1.00    | P       |
| 638.97                                                                                                                                                                                                                                                                                                        | 63.80  | 43.80  | 19.85 | 4.72                                                                                                                                                                     | 27.84   | 40.53                                                                      | 55.86 | -15.33 | 3mH   | 0.00  | 1.00    | P       |
| 958.46                                                                                                                                                                                                                                                                                                        | 49.50  | 29.50  | 23.39 | 5.96                                                                                                                                                                     | 27.15   | 30.46                                                                      | 55.86 | -25.40 | 3mH   | 0.00  | 1.00    | P       |
| 958.46                                                                                                                                                                                                                                                                                                        | 45.50  | 25.50  | 23.39 | 5.96                                                                                                                                                                     | 27.15   | 27.70                                                                      | 55.86 | -8.17  | 3mV   | 0.00  | 1.00    | P       |

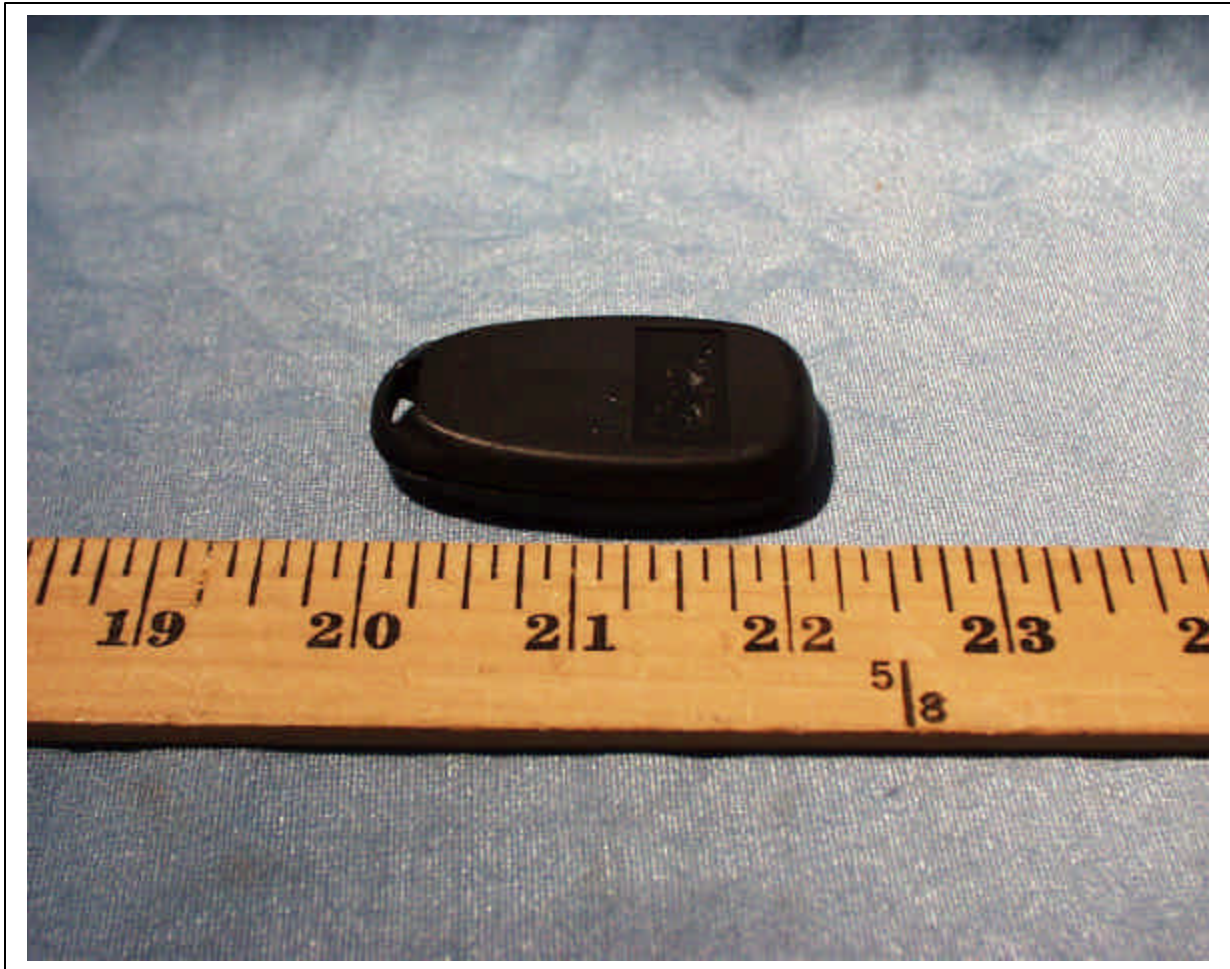
### RADIATED EMISSIONS (HARMONIC)

|                                                                        |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
|------------------------------------------------------------------------|---------------------------|-------|------|-----|---------------------------|--------|---------|-----------------------------------|--------|--------|---------|----------|---------|-------|
| FCC Measurement                                                        |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| <b>Compliance Certification Services</b> , Morgan Hill Open Field Site |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| Customer: Secure Wireless                                              |                           |       |      |     | 10/25/02                  |        |         |                                   |        |        |         |          |         |       |
| Project No: 02T1599-1                                                  |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| EUT: Remote Control                                                    |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| Tested By: Chin Pang                                                   |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| Cable length                                                           |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| 16.0 feet                                                              |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| Distance to Antenna                                                    |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| 3.3 feet                                                               |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| Average Measurements:                                                  |                           |       |      |     | Peak Measurements:        |        |         |                                   |        |        |         |          |         |       |
| 1 MHz Resolution Bandwidth                                             |                           |       |      |     | 1MHz Resolution Bandwidth |        |         |                                   |        |        |         |          |         |       |
| 10Hz Video Bandwidth                                                   |                           |       |      |     | 1MHz Video Bandwidth      |        |         |                                   |        |        |         |          |         |       |
| f                                                                      | Peak R                    | Avg R | AF   | CL  | Amp                       | D Corr | HPF     | Peak                              | Avg    | Pk Lim | Avg Lim | Peak Mar | Avg Mar | Notes |
| GHz                                                                    | dBuV                      | dBuV  | dB/m | dB  | dB                        | dB     | dB      | dBuV/m                            | dBuV/m | dBuV/m | dBuV/m  | dB       | dB      |       |
| 1.278                                                                  | 77.1                      | 57.1  | 23.9 | 2.9 | -33.0                     | -9.5   | 0.0     | 61.4                              | 41.4   | 74.0   | 54.0    | -12.6    | -12.6   | V     |
| 1.597                                                                  | 69.5                      | 49.5  | 25.0 | 3.3 | -33.0                     | -9.5   | 0.0     | 55.4                              | 35.4   | 74.0   | 54.0    | -18.6    | -18.6   | V     |
| 1.917                                                                  | 66.8                      | 46.8  | 26.8 | 3.7 | -33.0                     | -9.5   | 0.0     | 54.8                              | 34.8   | 74.0   | 54.0    | -19.2    | -19.2   | V     |
| 2.236                                                                  | 64.8                      | 44.8  | 32.5 | 4.0 | -33.0                     | -9.5   | 0.0     | 58.8                              | 38.8   | 74.0   | 54.0    | -15.2    | -15.2   | V     |
| 2.556                                                                  | 55.1                      | 35.1  | 28.2 | 4.2 | -33.0                     | -9.5   | 0.0     | 45.0                              | 25.0   | 74.0   | 54.0    | -29.0    | -29.0   | V     |
| 2.875                                                                  | 52.7                      | 32.7  | 32.5 | 4.4 | -33.0                     | -9.5   | 0.0     | 47.1                              | 27.1   | 74.0   | 54.0    | -26.9    | -26.9   | V     |
| 3.195                                                                  | 53.4                      | 33.4  | 30.7 | 4.7 | -33.0                     | -9.5   | 0.0     | 46.3                              | 26.3   | 74.0   | 54.0    | -27.7    | -27.7   | V     |
| 1.278                                                                  | 75.7                      | 55.7  | 23.9 | 2.9 | -33.0                     | -9.5   | 0.0     | 60.0                              | 40.0   | 74.0   | 54.0    | -14.0    | -14.0   | H     |
| 1.597                                                                  | 68.4                      | 48.4  | 25.0 | 3.3 | -33.0                     | -9.5   | 0.0     | 54.3                              | 34.3   | 74.0   | 54.0    | -19.7    | -19.7   | H     |
| 1.917                                                                  | 68.0                      | 48.0  | 26.8 | 3.7 | -33.0                     | -9.5   | 0.0     | 56.0                              | 36.0   | 74.0   | 54.0    | -18.0    | -18.0   | H     |
| 2.236                                                                  | 67.5                      | 47.5  | 27.6 | 4.0 | -33.0                     | -9.5   | 0.0     | 56.6                              | 36.6   | 74.0   | 54.0    | -17.4    | -17.4   | H     |
| 2.556                                                                  | 62.4                      | 42.4  | 32.5 | 4.2 | -33.0                     | -9.5   | 0.0     | 56.6                              | 36.6   | 74.0   | 54.0    | -17.4    | -17.4   | H     |
| 2.875                                                                  | 56.8                      | 36.8  | 32.5 | 4.4 | -33.0                     | -9.5   | 0.0     | 51.2                              | 31.2   | 74.0   | 54.0    | -22.8    | -22.8   | H     |
| 3.195                                                                  | 55.2                      | 35.2  | 32.5 | 4.7 | -33.0                     | -9.5   | 0.0     | 49.9                              | 29.9   | 74.0   | 54.0    | -24.1    | -24.1   | H     |
| Note: Replaced C3 with 10PF                                            |                           |       |      |     |                           |        |         |                                   |        |        |         |          |         |       |
| f                                                                      | Measurement Frequency     |       |      |     |                           |        | HPF     | High Pass filter                  |        |        |         |          |         |       |
| Peak R                                                                 | Analyzer Peak Reading     |       |      |     |                           |        | Peak    | Calculated peak field Strength    |        |        |         |          |         |       |
| Avg. R                                                                 | Analyzer Avg. Reading     |       |      |     |                           |        | Avg     | Calculated average field Strength |        |        |         |          |         |       |
| AF                                                                     | Antenna Factor            |       |      |     |                           |        | Pk Lim  | Peak Field Strength Limit         |        |        |         |          |         |       |
| CL                                                                     | Cable Loss                |       |      |     |                           |        | Avg Lim | Average Field Strength Limit      |        |        |         |          |         |       |
| Amp                                                                    | Pre amp gain              |       |      |     |                           |        | Pk Mar  | Margin vs. Peak Limit             |        |        |         |          |         |       |
| D Corr                                                                 | Discorrections to 3 meter |       |      |     |                           |        | Avg Mar | Margin vs. Average Limit          |        |        |         |          |         |       |

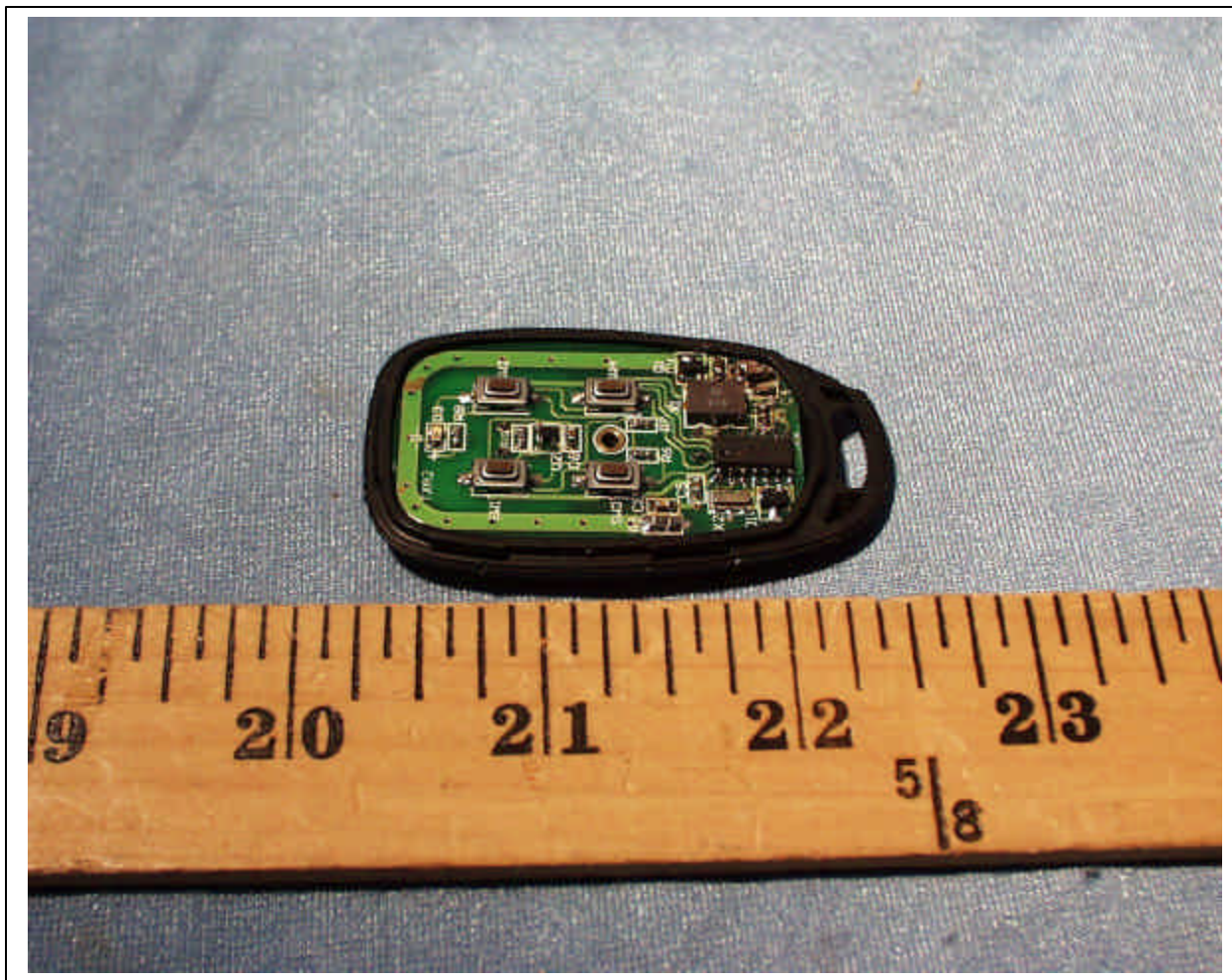
## ATTACHMENT

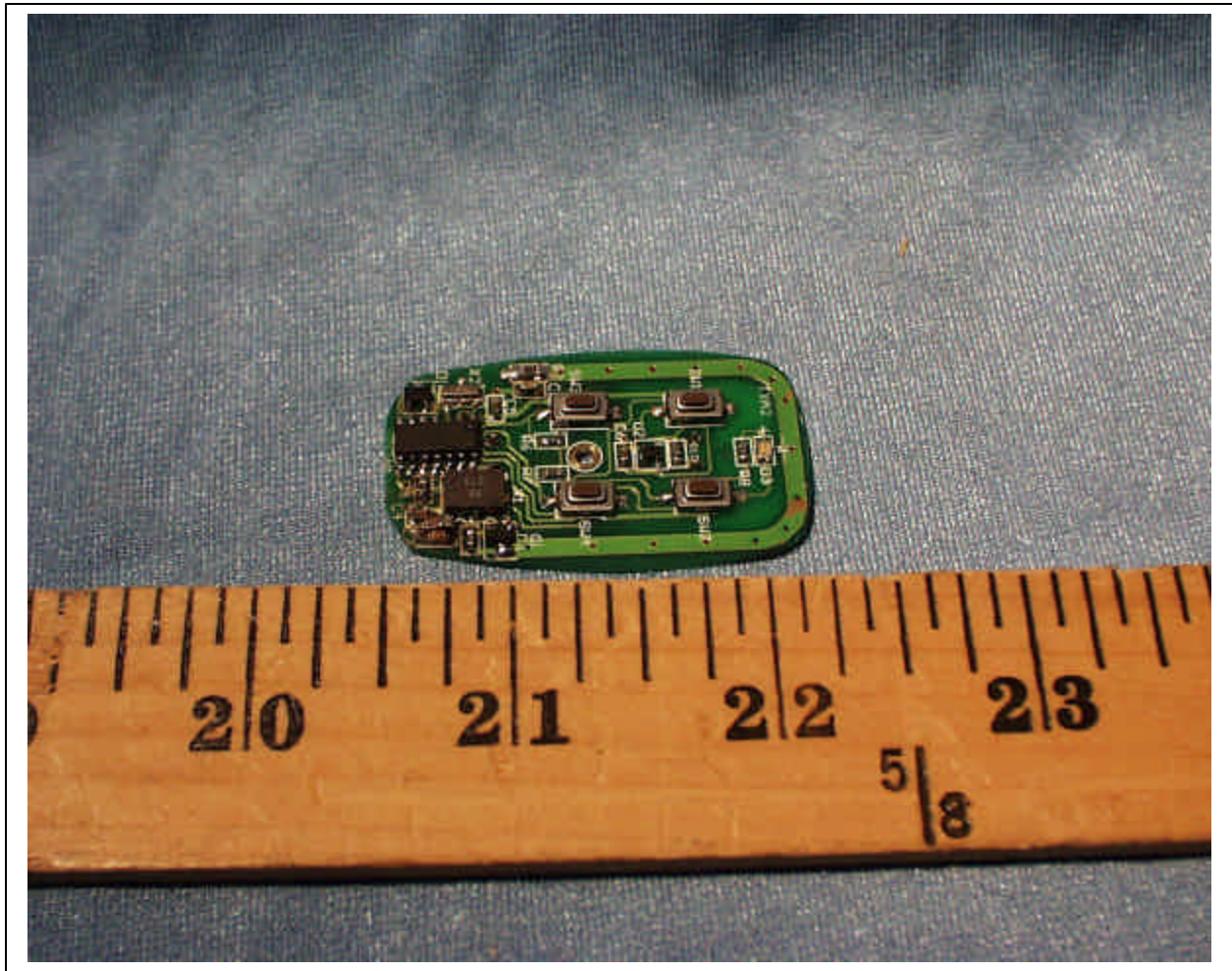
### EUT PHOTOGRAPHS



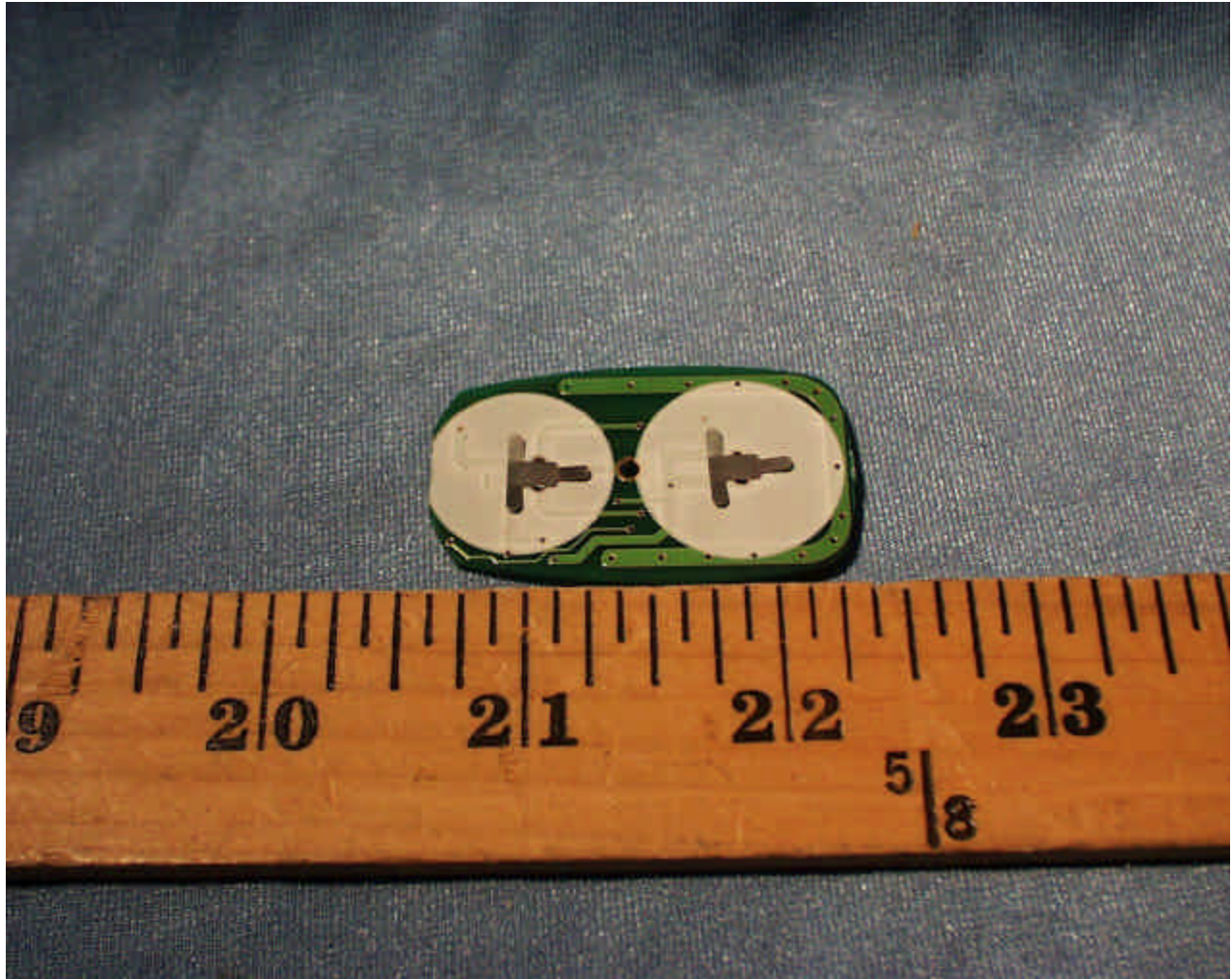












**END OF REPORT**