

**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
561F MONTEREY ROAD
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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)

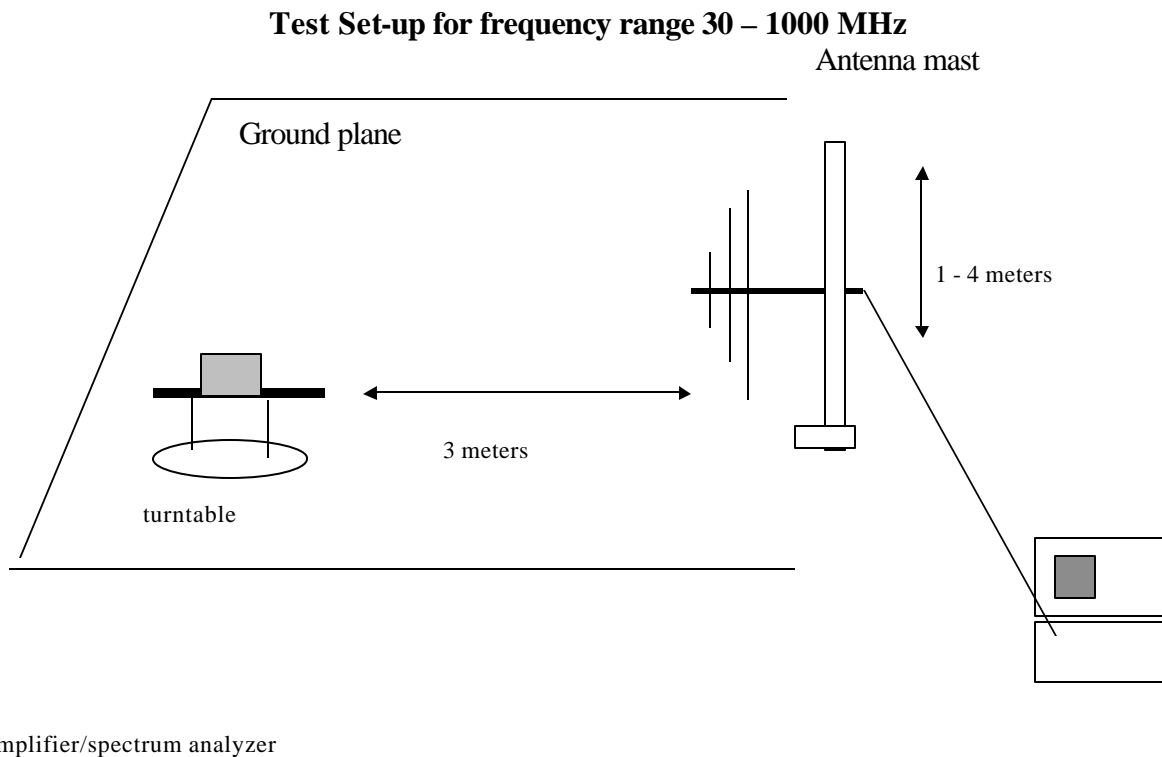
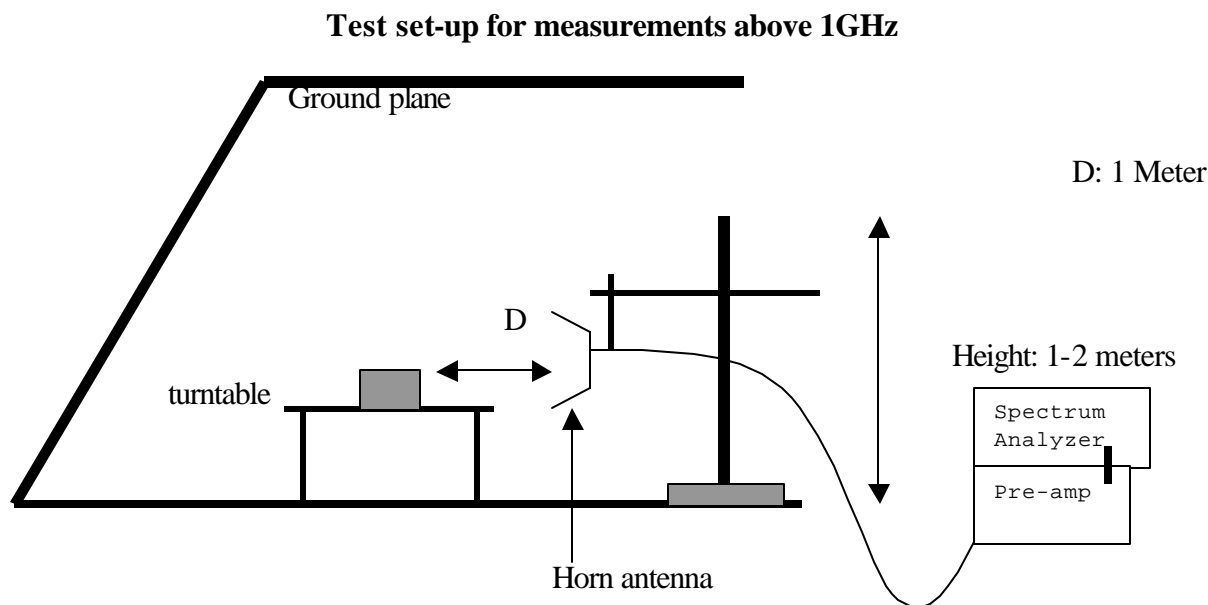


Fig. 1

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, 15.223, x 15.225 OR 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 nd 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%

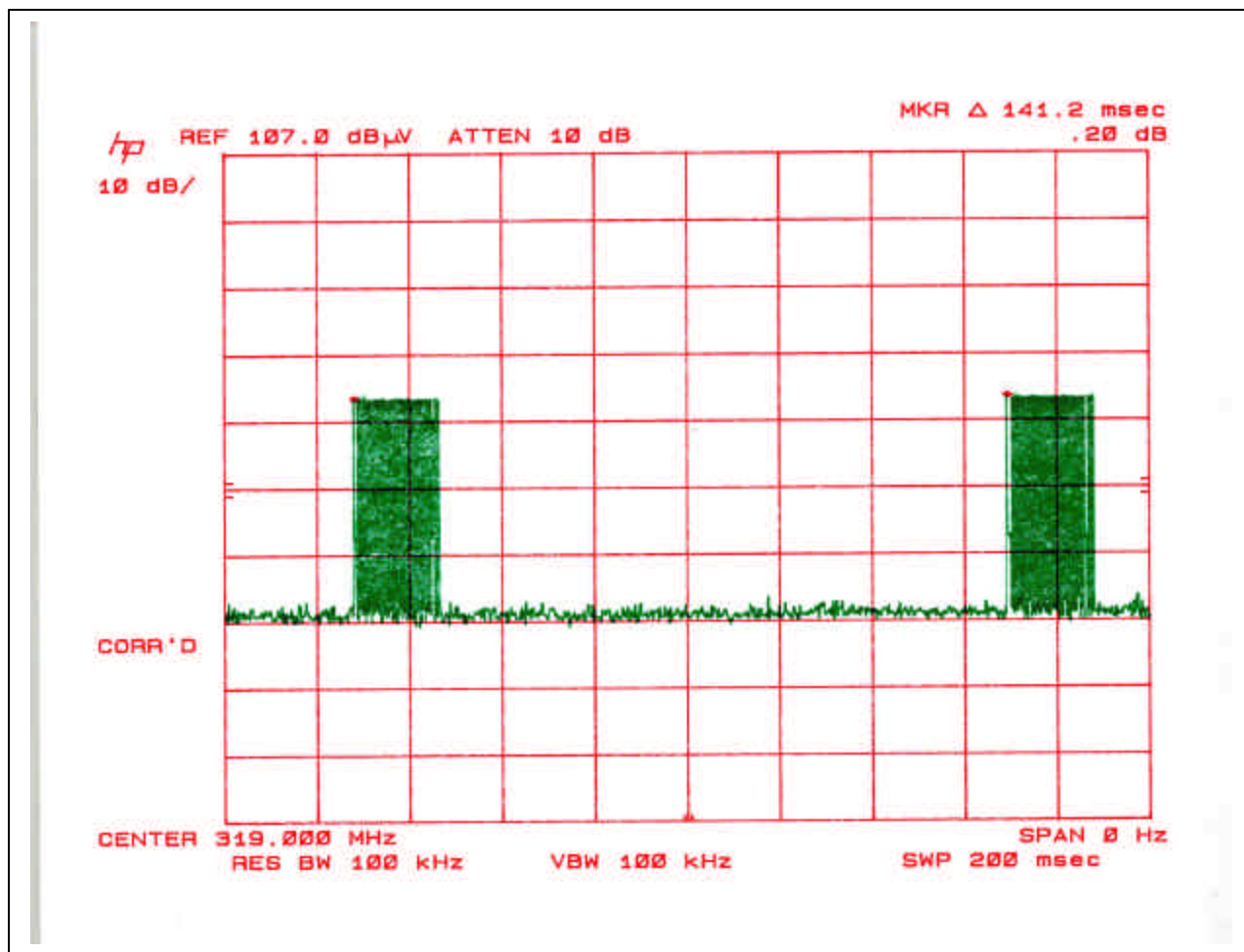
For duty cycle refer to plot #1, 2, 3, 4, 5, 6.

12.2 EMISSION BANDWIDTH

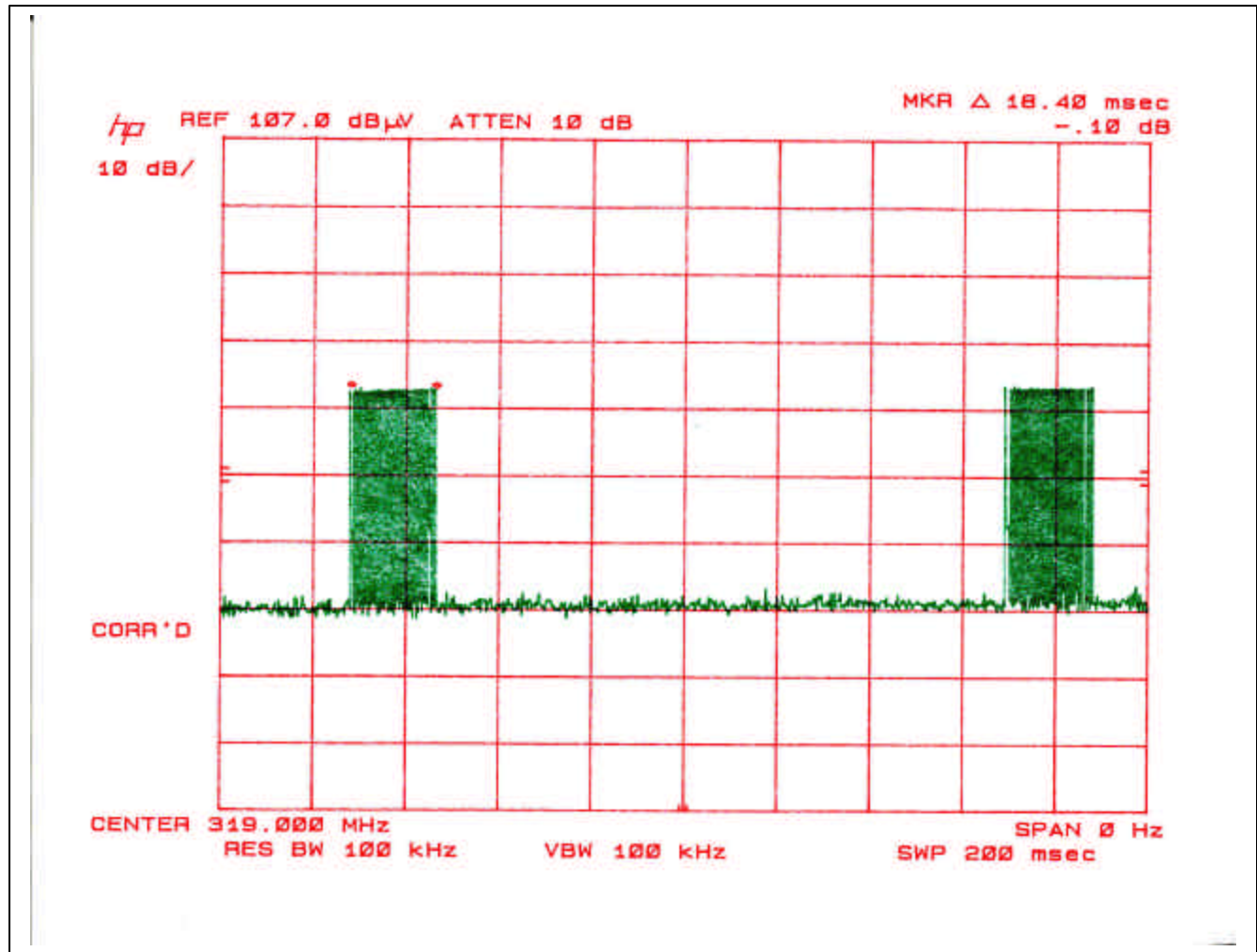
The bandwidth of the emissions were investigated per 15.231(c)

Center Frequency	Measured	Limits
319 MHz	584 KHz (refer to plot)	319 x 0.25%= 0.798 MHz

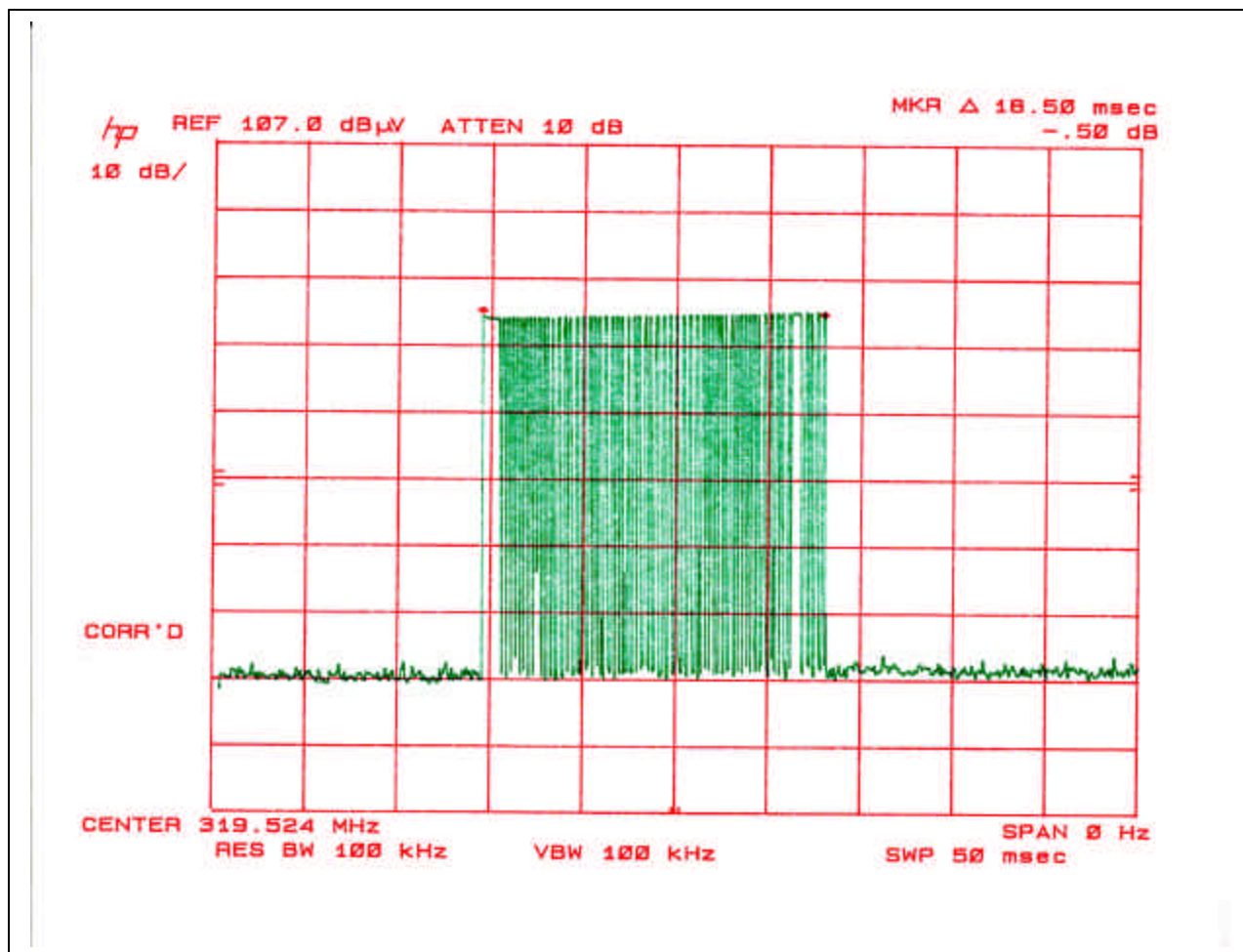
DUTY CYCLE 1



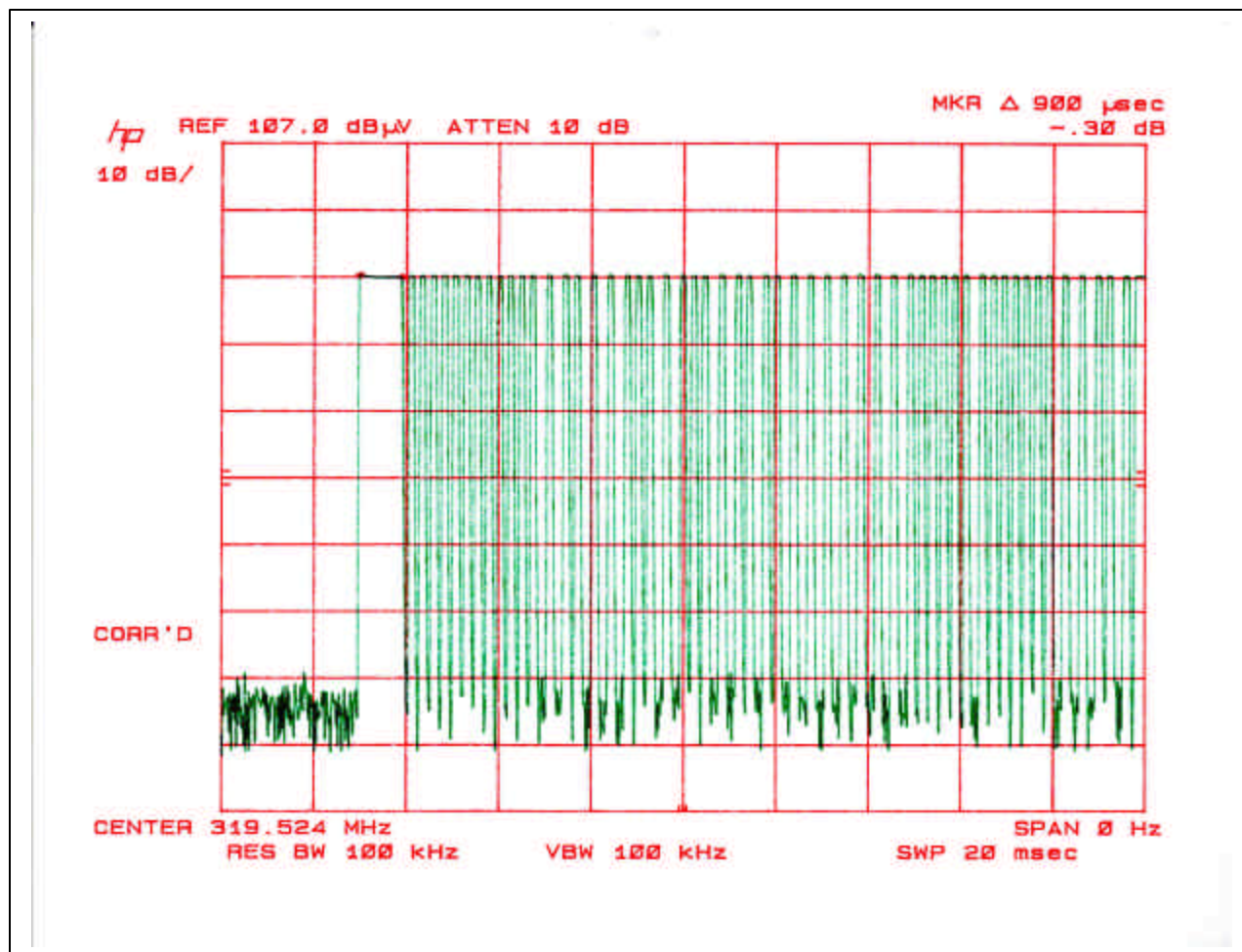
DUTY CYCLE 2



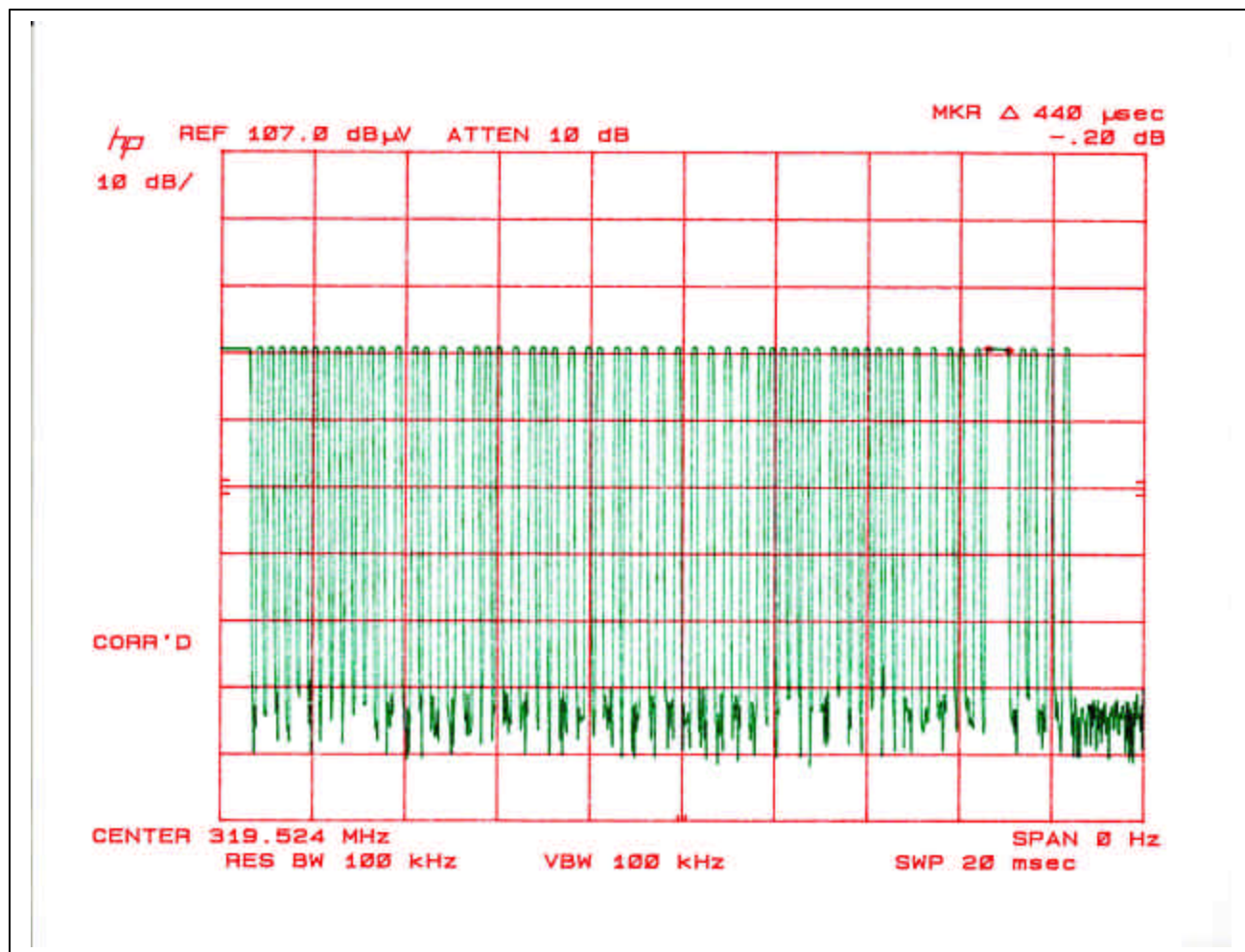
DUTY CYCLE 3



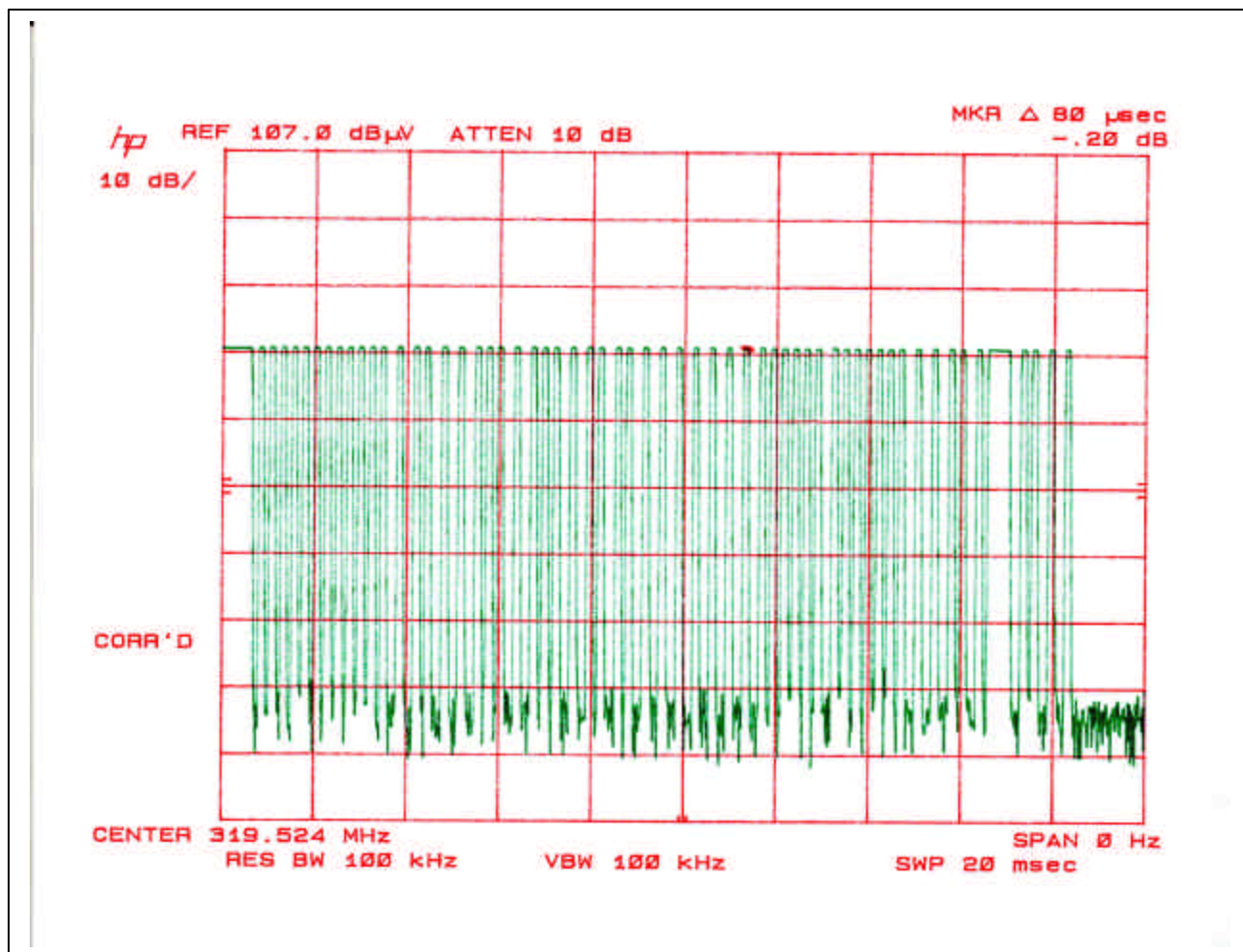
DUTY CYCLE 4



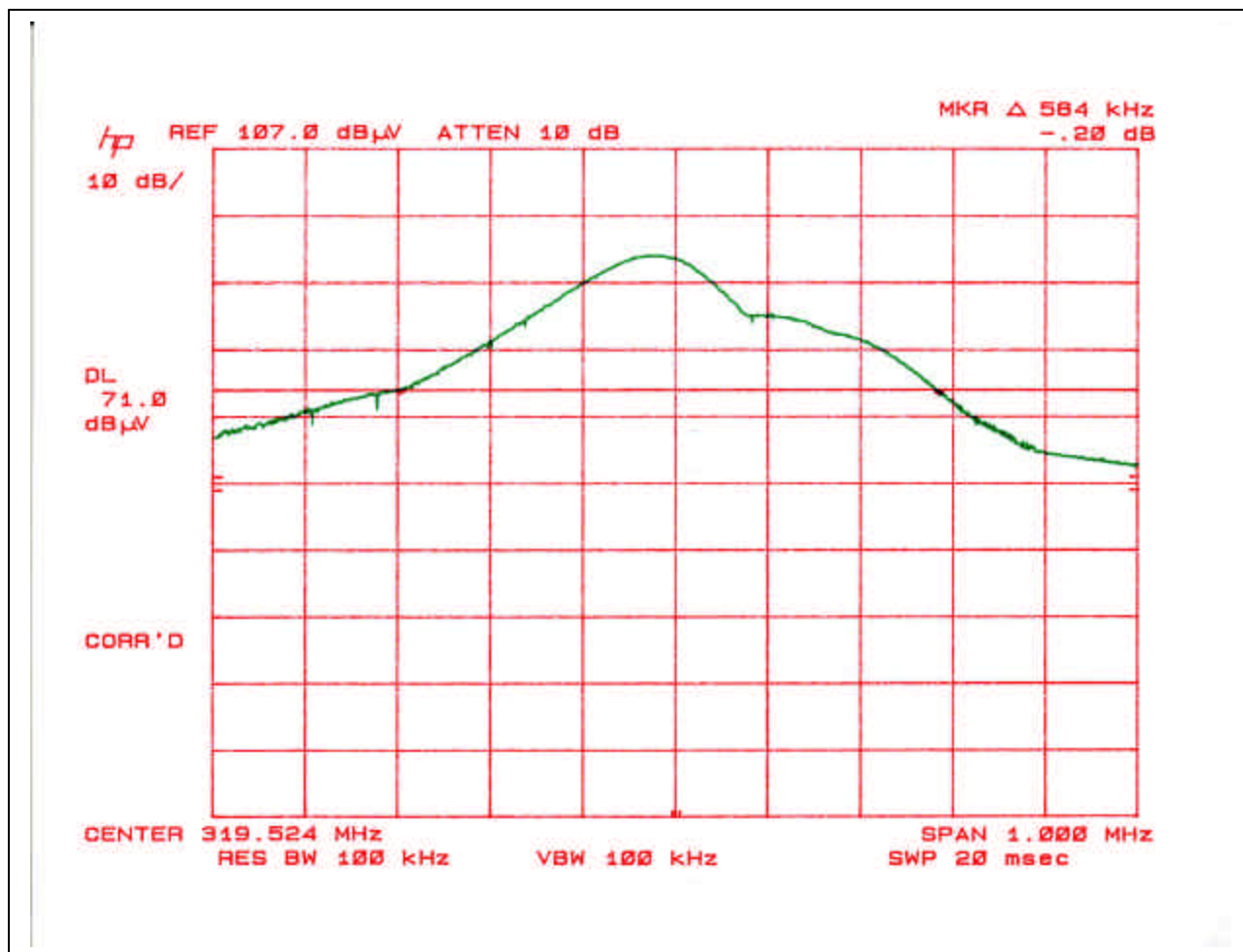
DUTY CYCLE 5




DUTY CYCLE 6



EMISSION BANDWIDTH



RADIATED DATA

		Project #: Report #: Date & Time: Test Engr:	02T1599-1 021025C1 10/25/02 Chin Pang
		FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSMI, DHHS, NVLAP 561F MONTEREY ROAD, SAN JOSE, CA 95037-9001 PHONE: (408) 463-0885 FAX: (408) 463-0888	
Company: EUT Description: Test Configuration: Type of Test: Mode of Operation:		Secure Wireless Inc. 319.5MHz Remote Control EUT only FCC 15.231 Continuously Transmitting	

$M\% = ((t1+t2+t3+...)/T)*100\% = 5.98\%$

$Av \text{ Reading} = Pk \text{ Reading} + 20*\log(M\%)$

$20*\log(M\%) = -24.46$

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

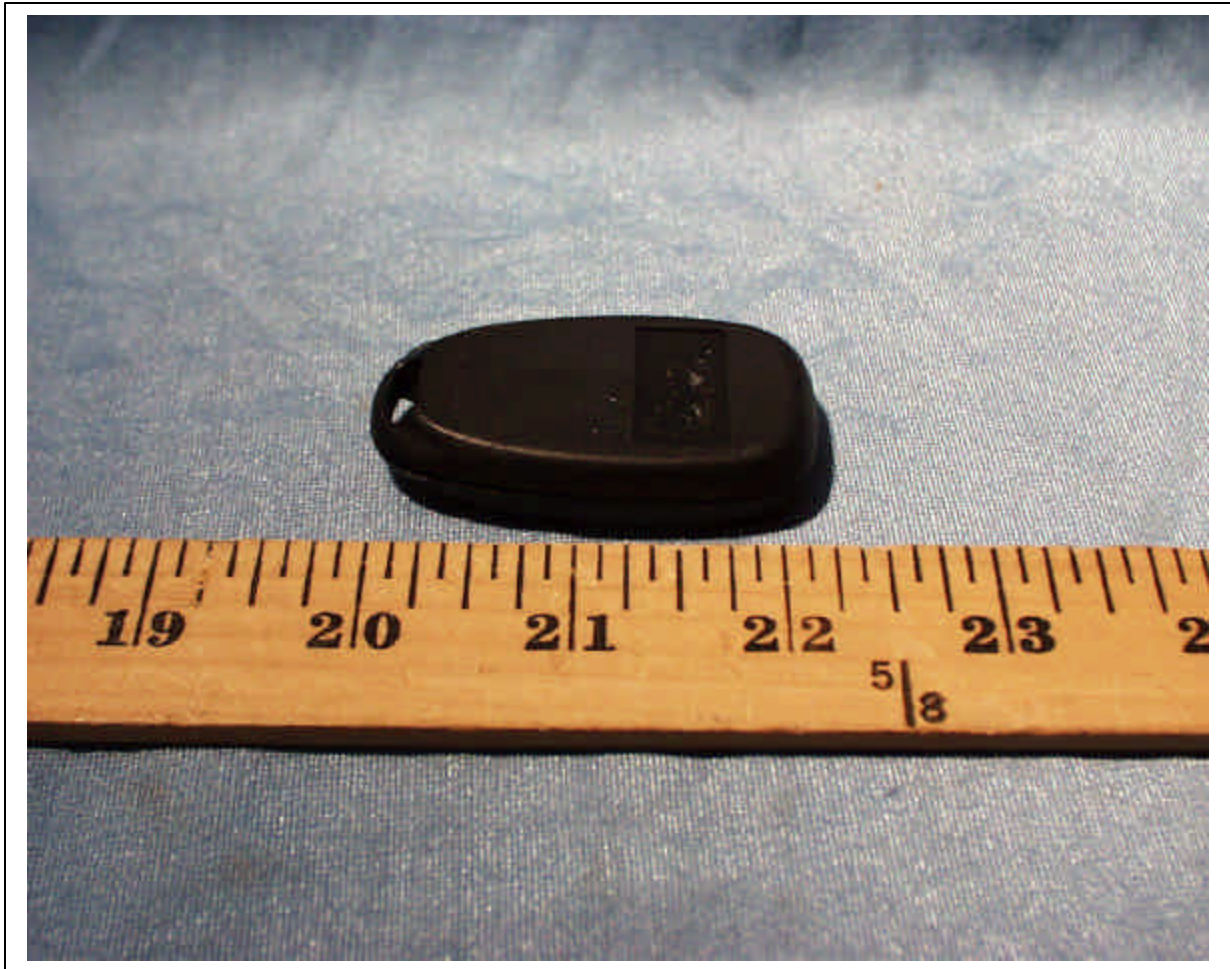
RADIATED EMISSIONS (HARMONIC)

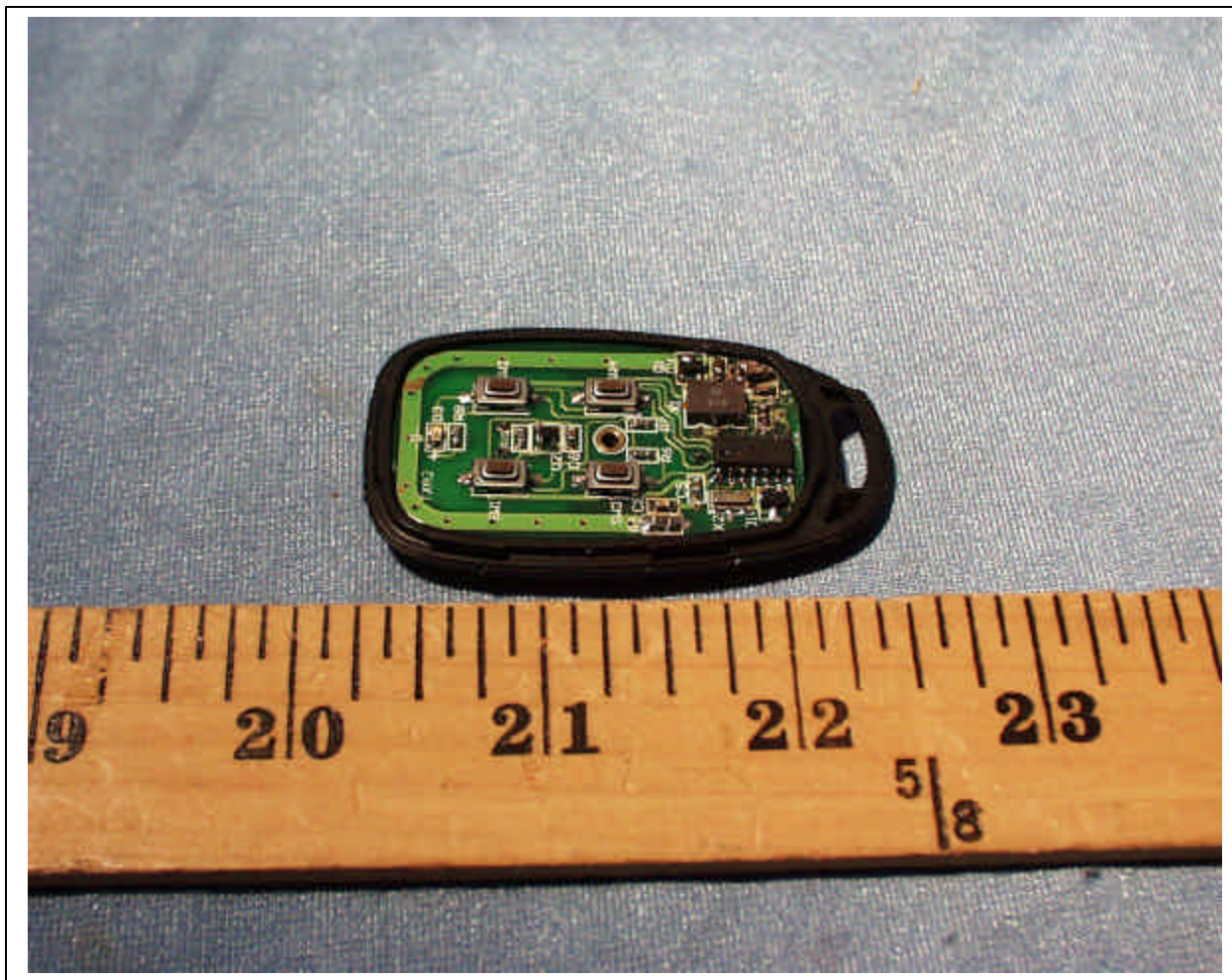
FCC Measurement														
Compliance Certification Services , Morgan Hill Open Field Site														
Customer: Secure Wireless					10/25/02									
Project No: 02T1599-1														
EUT: Remote Control														
Tested By: Chin Pang														
Cable length														
16.0 feet														
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						

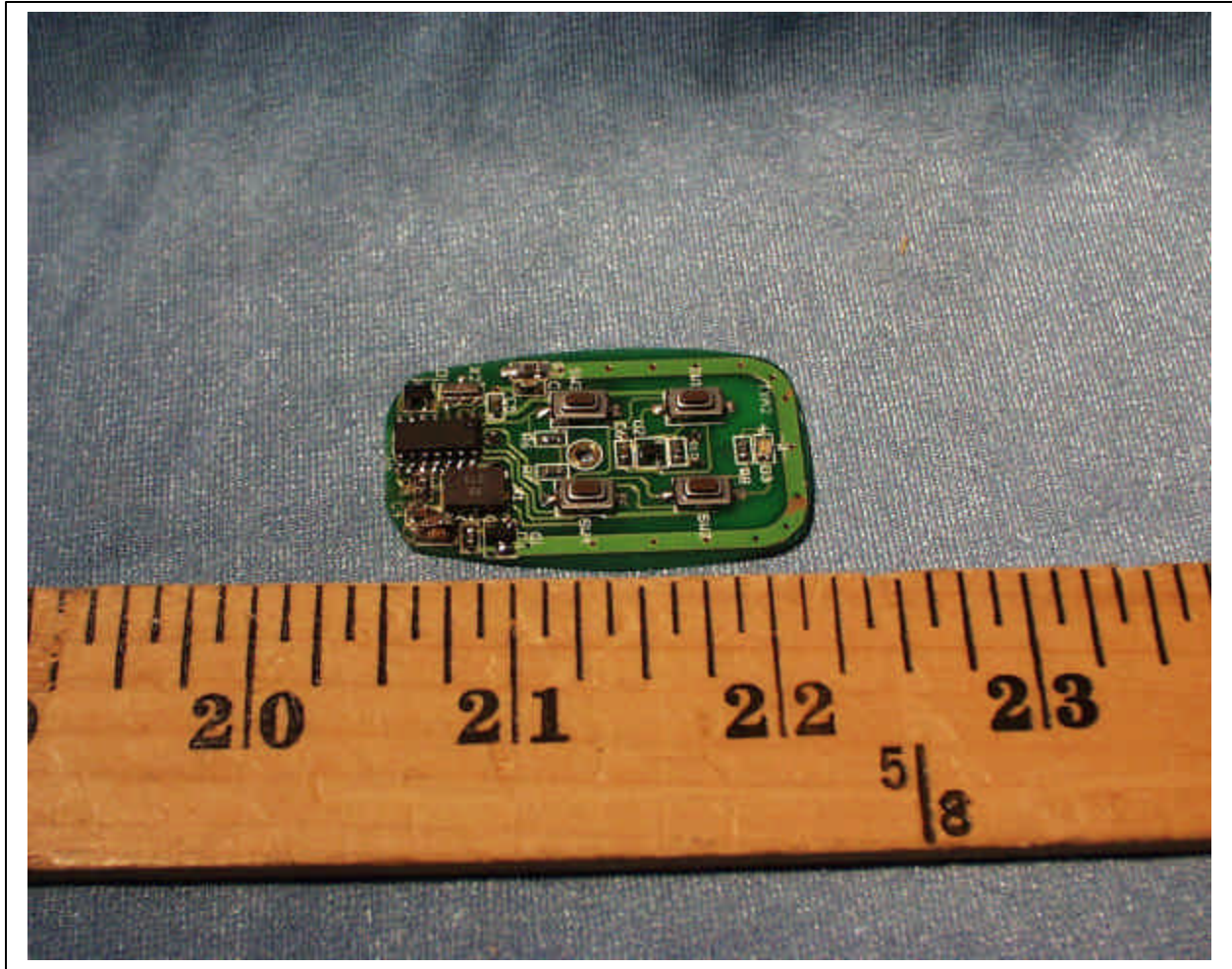
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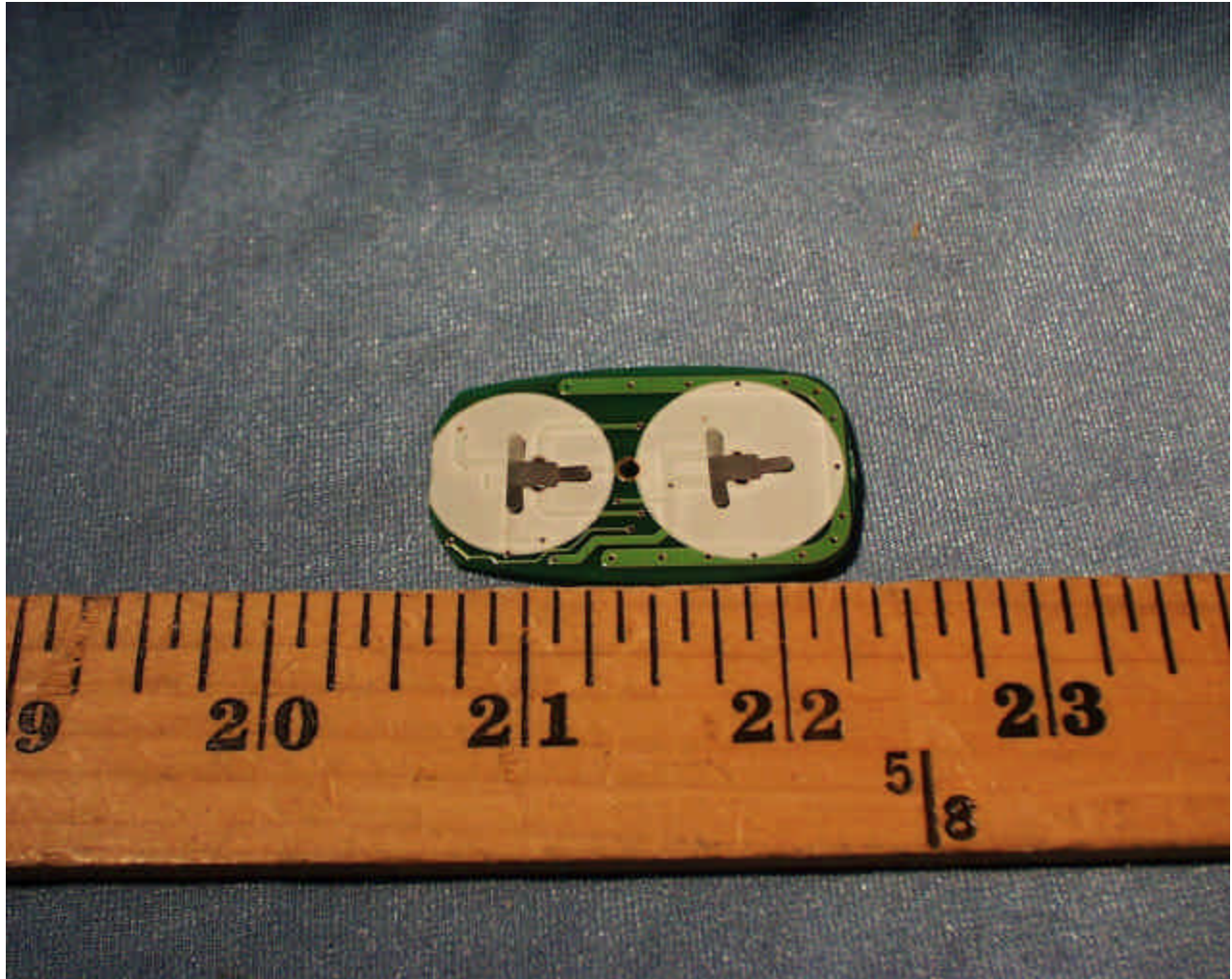
EUT PHOTOGRAPHS











END OF REPORT