FCC PART 15 SUBPART C
CERTIFICATION REPORT

FOR

345 MHz WIRELESS REMOTE CONTROL DEVICE (TX)

MODEL NAME: EV-F345

FCC ID: QNPEV-F345

REPORT NO: 02I1526-1

DATE ISSUED: SEPTEMBER 26, 2002

Prepared for

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

Prepared by

COMPLIANCE CERTIFICATION SERVICES
561F MONTEREY ROAD
MORGAN HILL, CA 95037, USA
TEL: (408) 463-0885
FAX: (408) 463-0888

TABLE OF CONTENTS **PAGE**

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 USA
MODEL NAME/NUMBER:	EV-F345
FCC ID:	QNPEV-F345
DATE TESTED:	9-9-2002

TYPE OF EQUIPMENT	345 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	**345 MHz**
Power Source	**CR2025 3V (X2)**
Transmitting Time	**Periodic ≤ 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
Pre-Amplifier	MITEQ1-26GHz	NSP2600-44	646456	4/26/03
Quasi-Peak Detector	HP9K - 1GHz	85650A	3145A01654	6/1/03
Spectrum Display	HP	85662A	2152A03066	6/1/03
Spectrum Analyzer	HP100Hz - 22GHz	8566B	3014A06685	6/1/03
Horn	EMCO	3115	6717	1/31/03
Antenna, LP	EMCO200 - 2000MHz	3146	9107-3163	3/30/03
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1197	3/30/03
Pre-Amplifier,25 dB	HP0.1 - 1300MHz	8447D (P8)	2944A06589	8/23/03

7. POWERLINE RFI LIMIT

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

Test Set-up for frequency range 30 – 1000 MHz

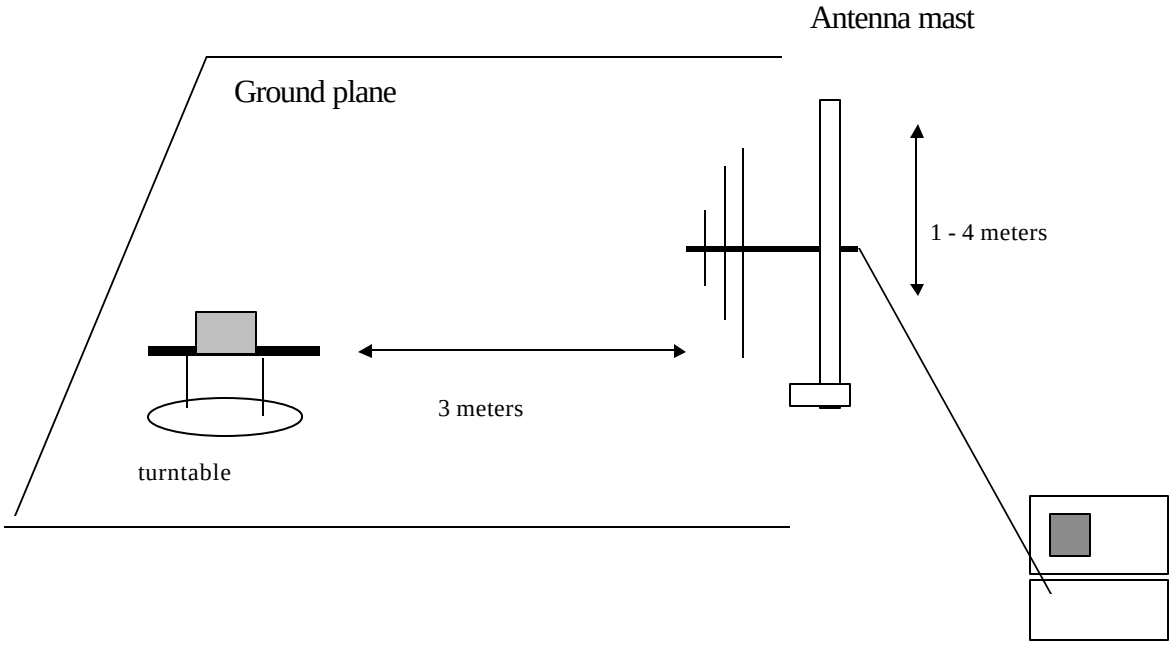


Fig. 1

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

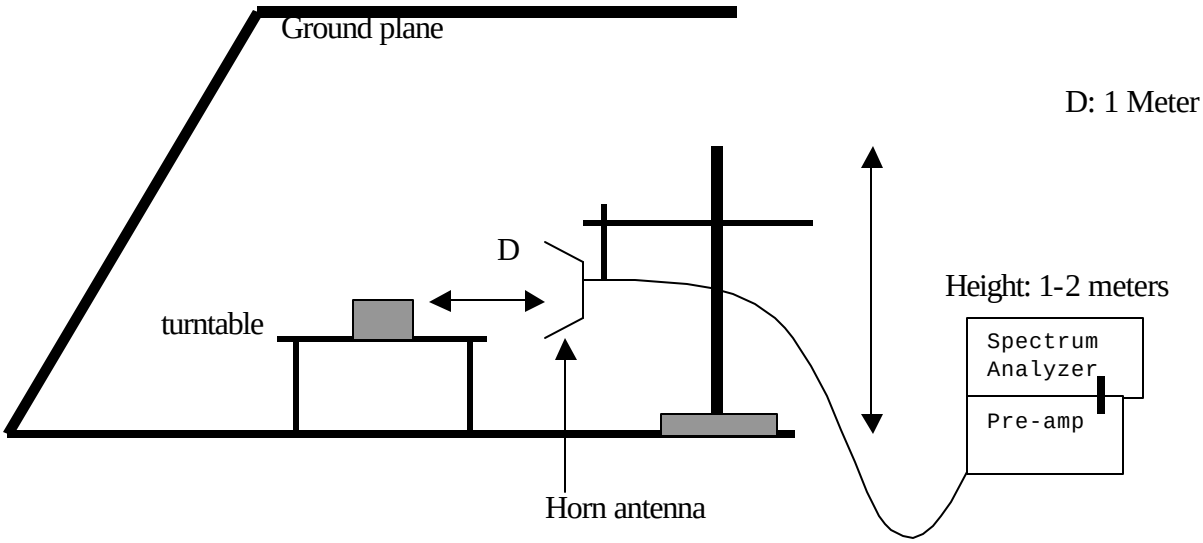


FIG. 2

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. 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 = 100 mS
Long pulse = 0.28 mS
Short pulse = 0.1 mS
No of Long pulse = 7
No of Short pulse = 49

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

Duty Cycle = ((7x 0.28)+(49x0.1))/100=0.0686=6.86%

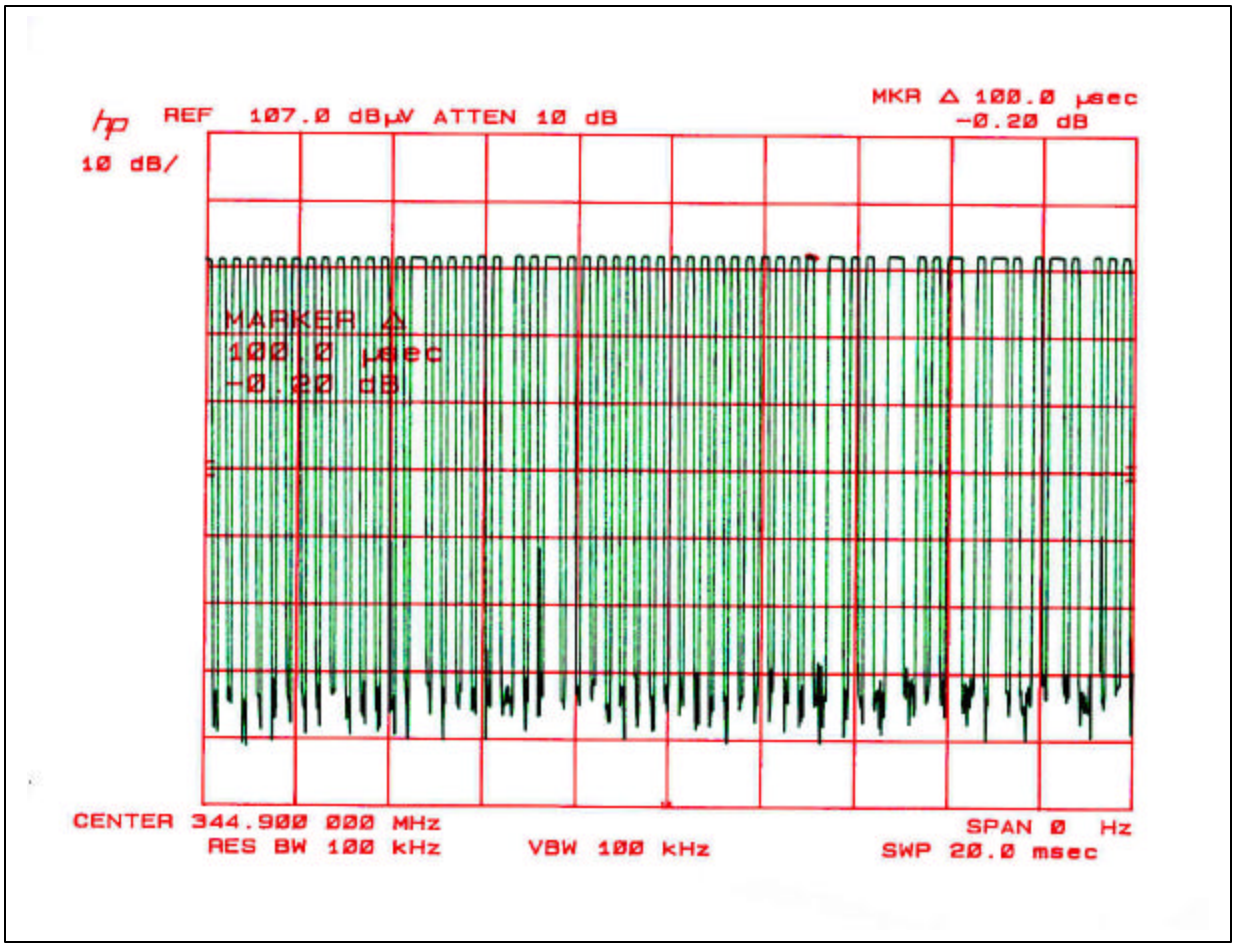
For duty cycle refer to plot #1, 2, 3,4.

12.2 EMISSION BANDWIDTH

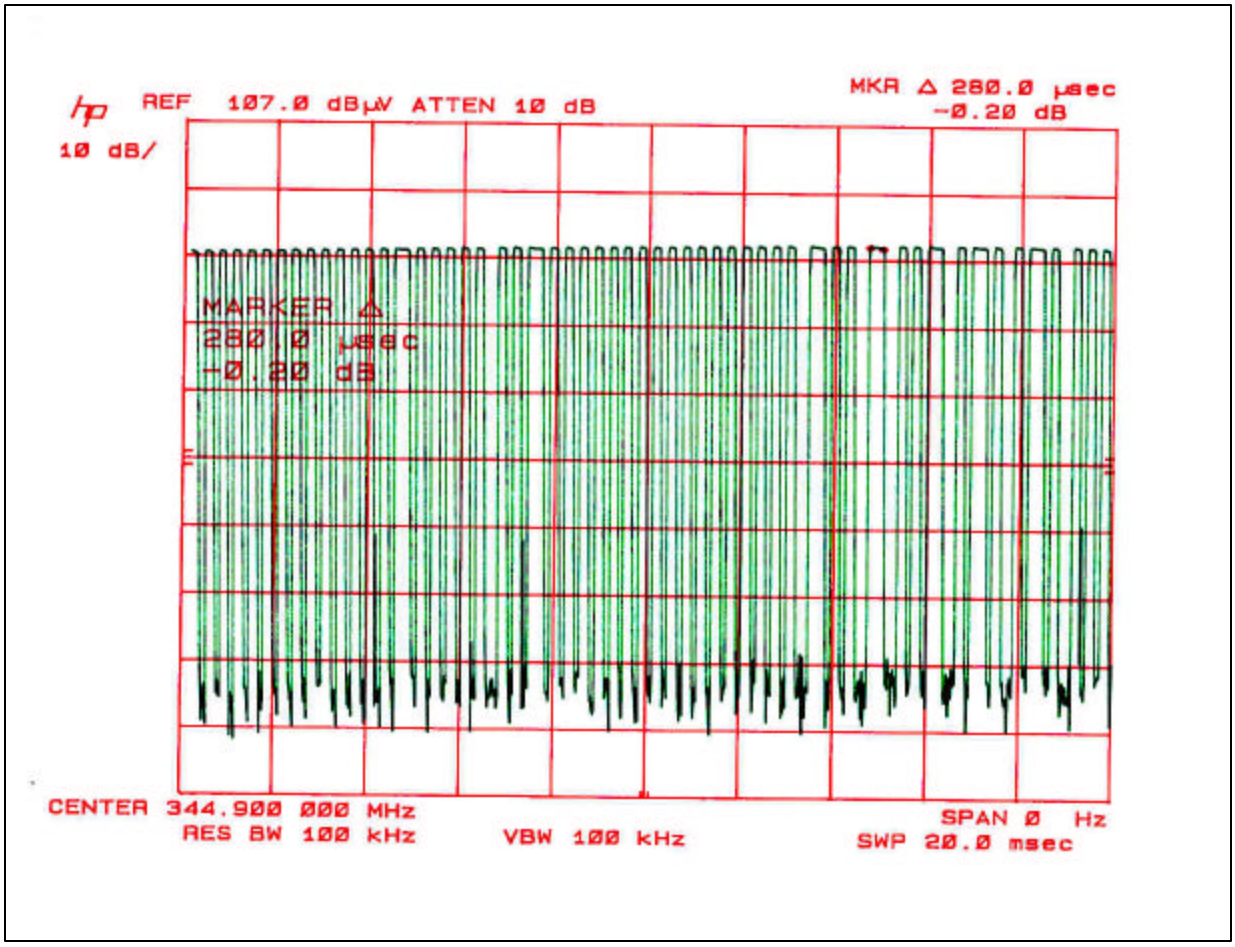
The bandwidth of the emissions were investigated per 15.231(c)

Center Frequency	Measured	Limits
345 MHz	**397 KHz (refer to plot)**	**345 x 0.25%= 0..8625 MHz**

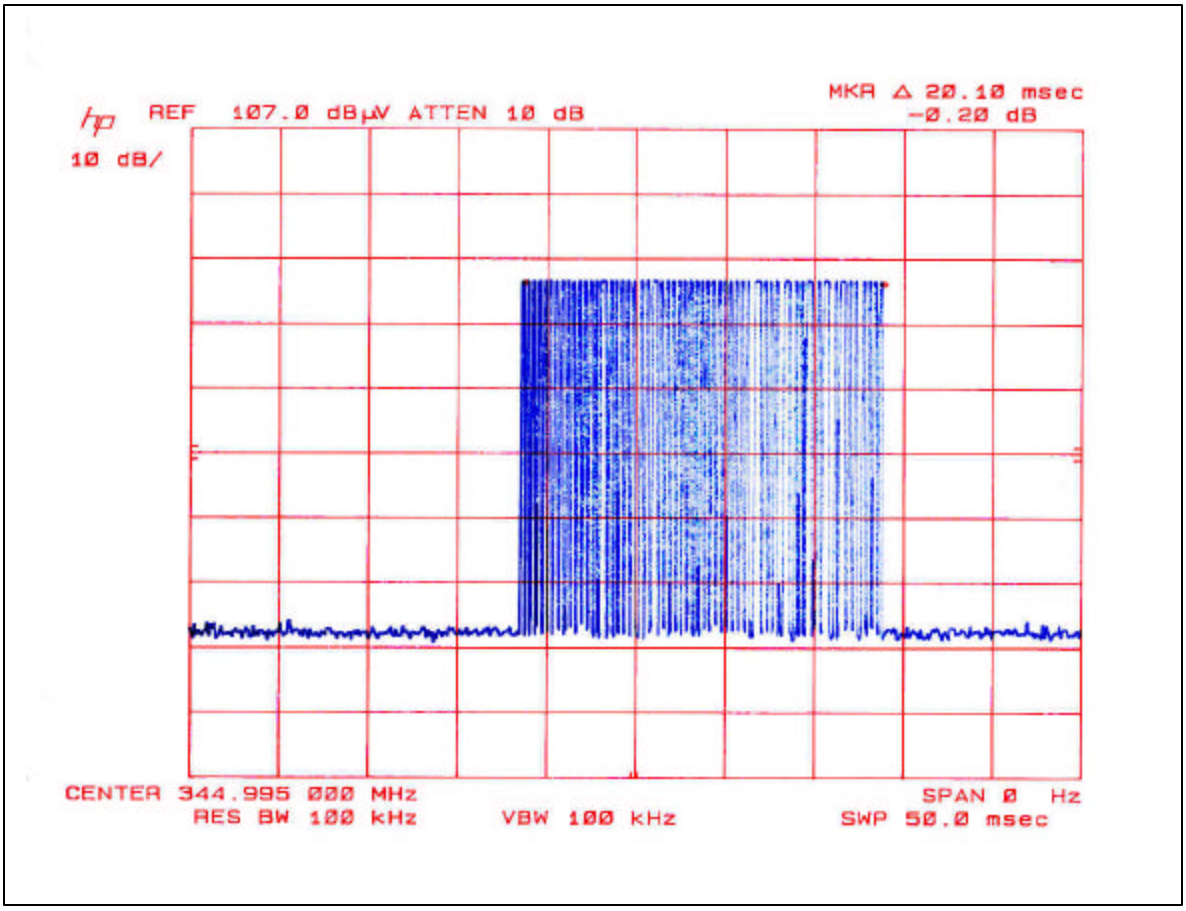
DUTY CYCLE 1



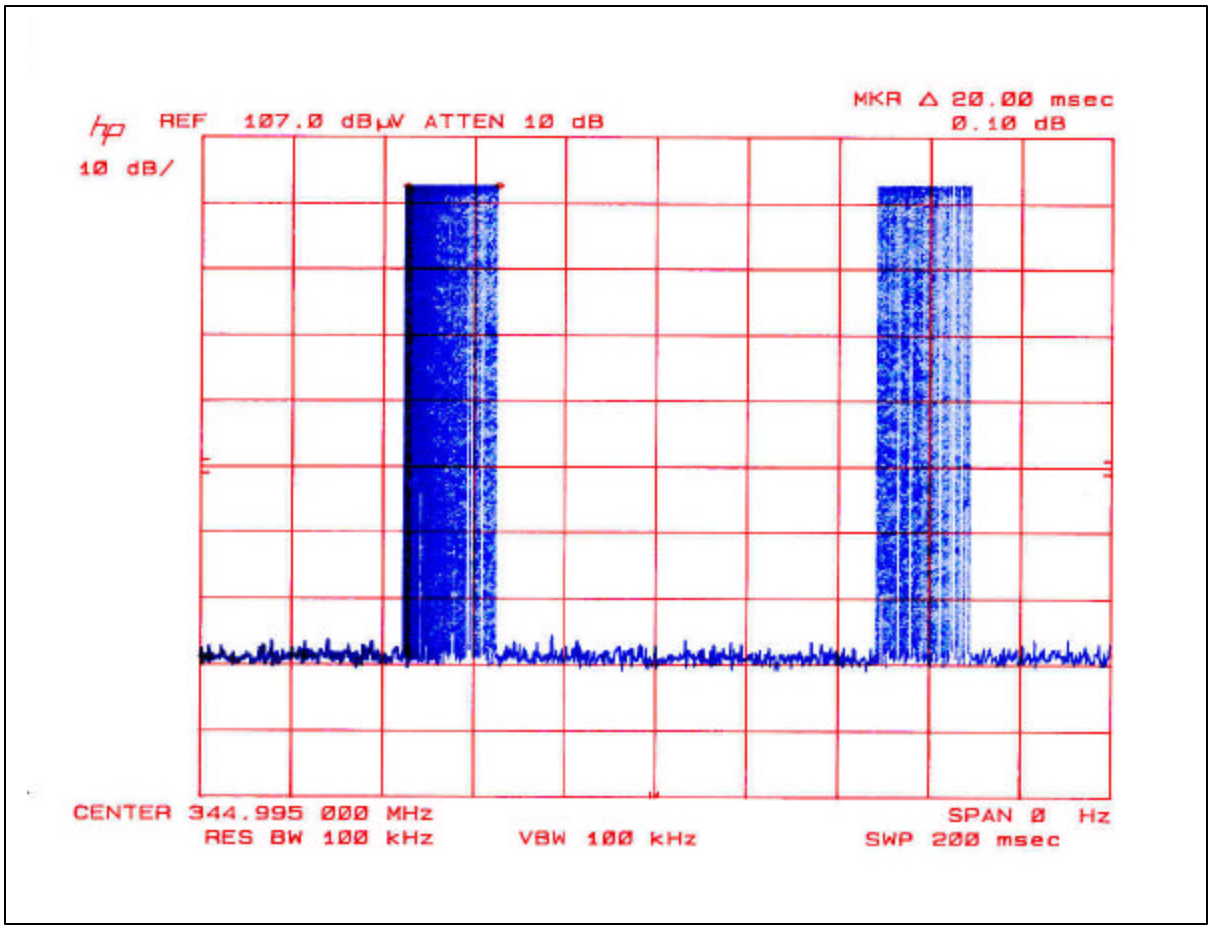
DUTY CYCLE 2



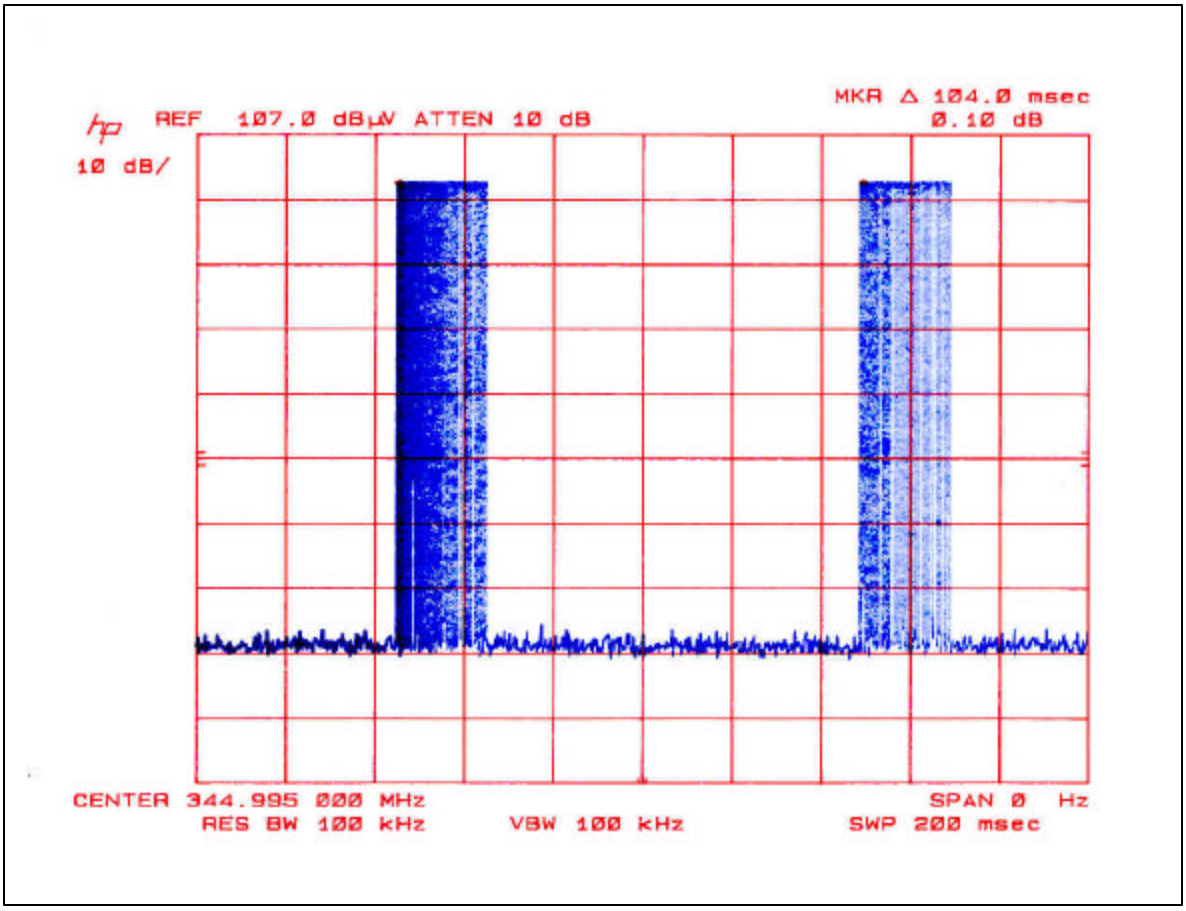
DUTY CYCLE 3



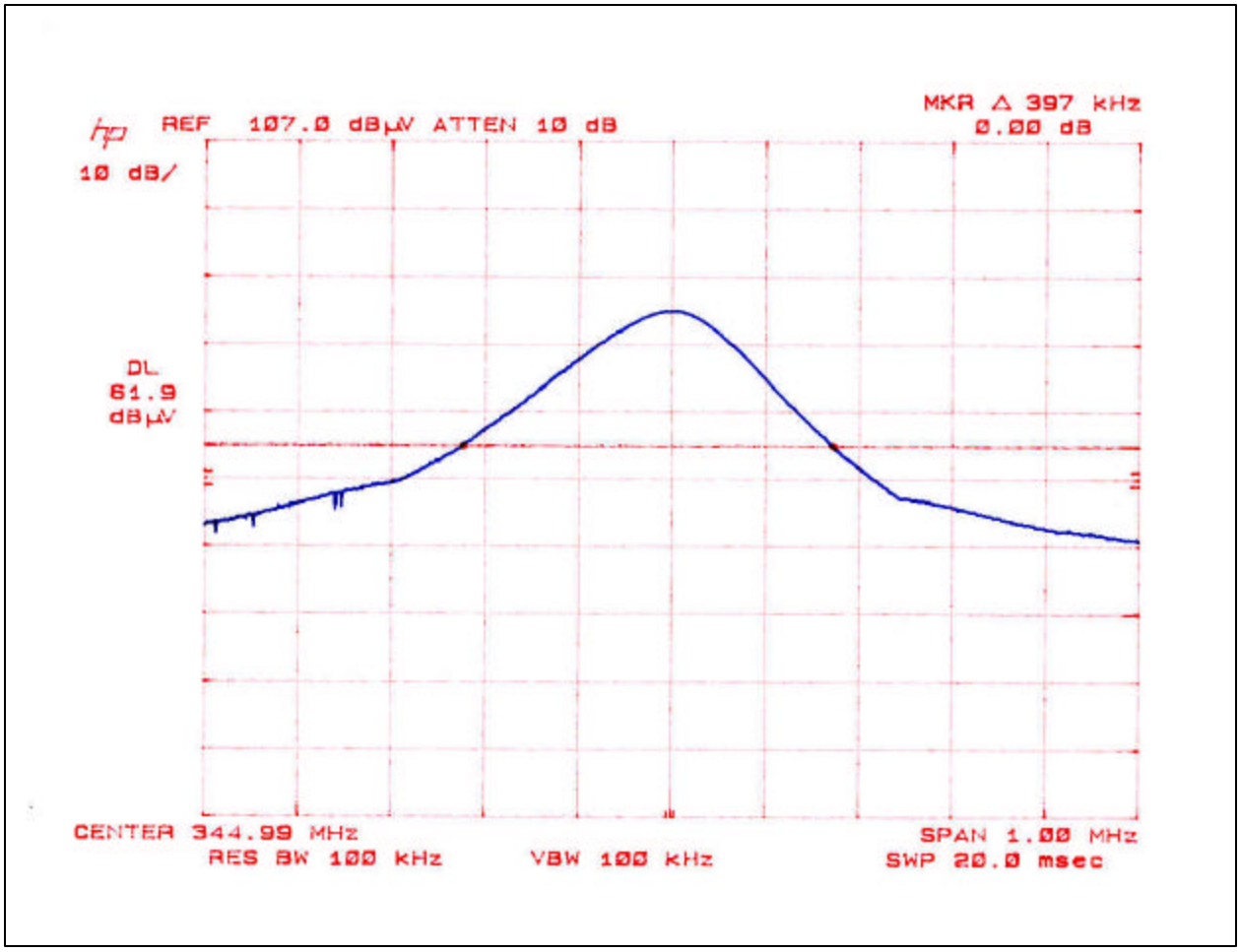
DUTY CYCLE 4



DUTY CYCLE 5



EMISSION BANDWIDTH



RADIATED DATA

COMPLIANCE Certification Services
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

Project #:	02I1526-1
Report #:	020909A1
Date& Time:	09/09/02 3:54:08 PM
Test Engr:	Chin Pang
Company:	Secure Wireless Inc.
EUT Description:	Remote Control
Test Configuration :	EUT only
Type of Test:	FCC 15.231
Mode of Operation:	Transmitting

M% = ((t1+t2+t3+...)/T)*100% =0.0686=6.86%

Av Reading = Pk Reading + 20*log(M%)
20*log(M%) = -23.27

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												
Y-Position (stand Up)												
344.90	91.60	71.60	16.61	3.15	27.56	63.81	77.25	-13.44	3mV	0.00	1.00	P
344.90	89.10	69.10	16.53	3.15	27.56	61.22	77.25	-16.03	3mH	0.00	1.00	P
Z-Position (EUT Side Way)												
344.90	89.50	69.50	16.61	3.15	27.56	61.71	77.25	-15.54	3mV	0.00	1.00	P
344.90	92.30	72.30	16.53	3.15	27.56	64.42	77.25	-12.83	3mH	0.00	1.00	P
X-Position (EUT Lay Down)												
344.90	75.60	55.60	16.61	3.15	27.56	47.81	77.25	-29.44	3mV	0.00	1.00	P
344.90	95.50	75.50	16.53	3.15	27.56	67.62	77.25	-9.63	3mH	0.00	1.00	P
The Data show Y-Position is the worst case												
689.98	60.30	40.30	21.33	4.83	27.63	38.83	57.25	-18.42	3mV	0.00	1.00	P
689.98	68.20	48.20	22.08	4.83	27.63	47.49	57.25	-9.76	3mH	0.00	2.00	P

Note: Average Reading=Peak Reading-Max Duty Cycle (20dB)

RADIATED EMISSIONS (HARMONIC)

FCC Measurement

Compliance Certification Services, Morgan Hill Open Field Site

Customer: Secure Wireless 09/09/02

Project No: 02I1526-1

EUT: Remote Control

Tested By: Chin Pang

Cable length

16.0 feet

Distance to Antenna

3.3 feet

Average Measurements:

1 MHz Resolution Bandwidth

10Hz Video Bandwidth

Peak Measurements:

1MHz Resolution 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	
1.084	75.8	55.8	23.3	2.7	-36.5	-9.5	0.0	55.8	35.8	74.0	54.0	-18.2	-18.2	V
1.370	71.3	51.3	24.1	3.0	-36.5	-9.5	0.0	52.5	32.5	74.0	54.0	-21.5	-21.5	V
1.724	61.7	41.7	25.7	3.5	-36.4	-9.5	0.0	45.0	25.0	74.0	54.0	-29.0	-29.0	V
2.069	56.6	36.6	32.5	3.9	-36.4	-9.5	0.0	47.1	27.1	74.0	54.0	-26.9	-26.9	V
2.414	68.4	48.4	27.9	4.1	-36.4	-9.5	0.0	54.5	34.5	74.0	54.0	-19.5	-19.5	V
2.760	62.2	42.2	32.5	4.3	-36.3	-9.5	0.0	53.2	33.2	74.0	54.0	-20.8	-20.8	V
3.104	67.0	47.0	30.4	4.6	-36.3	-9.5	0.0	56.2	36.2	74.0	54.0	-17.8	-17.8	V
3.440	66.7	46.7	31.4	4.9	-36.3	-9.5	0.0	57.2	37.2	74.0	54.0	-16.8	-16.8	V
1.084	79.8	59.8	23.3	2.7	-36.5	-9.5	0.0	59.8	39.8	74.0	54.0	-14.2	-14.2	H
1.370	76.4	56.4	24.1	3.0	-36.5	-9.5	0.0	57.6	37.6	74.0	54.0	-16.4	-16.4	H
1.724	66.7	46.7	25.7	3.5	-36.5	-9.5	0.0	49.9	29.9	74.0	54.0	-24.1	-24.1	H
2.069	49.6	29.6	32.5	3.9	-36.5	-9.5	0.0	40.0	20.0	74.0	54.0	-34.0	-34.0	H
2.414	67.1	47.1	32.5	4.1	-36.5	-9.5	0.0	57.7	37.7	74.0	54.0	-16.3	-16.3	H
2.760	65.3	45.3	32.5	4.3	-36.4	-9.5	0.0	56.2	36.2	74.0	54.0	-17.8	-17.8	H
3.104	66.0	46.0	32.5	4.6	-36.4	-9.5	0.0	57.2	37.2	74.0	54.0	-16.8	-16.8	H
3.440	62.2	42.2	32.5	4.9	-36.3	-9.5	0.0	53.8	33.8	74.0	54.0	-20.2	-20.2	H

NOTE: Average Reading=Peak Reading-Max Duty Cycle (20dB)

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