FCC PART 15 SUBPART C CERTIFICATION REPORT

FOR

433 MHz WIRELESS REMOTE CONTROL DEVICE (TX)

MODEL NAME: EV-F433

FCC ID: QNPEV-F433

REPORT NO: 02I1527-1

DATE ISSUED: SEPTEMBER 26, 2002

Prepared for

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

Prepared by

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TABLE OF CONTENTS **PAGE** 4. MEASUREMENT STANDARDS4 5. TEST METHODOLOGY4 6. MEASUREMENT EQUIPMENT USED......4 7. POWERLINE RFI LIMIT5 8. RADIATED EMISSION LIMITS5 9. SYSTEM TEST CONFIGURATION6 11. EOUIPMENT MODIFICATIONS......8 12. TEST RESULT......9 12.1 MAXIMUM MODULATION PERCENTAGE (M%)9 12.2 THE EMISSIONS BANDWIDTH9

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

DATE: SEPTEMBET 26, 2002

FCC ID: QNPEV-F433

VISTA, CA 92083

USA

MODEL NAME/NUMBER: EV-F433

FCC ID: QNPEV-F433

DATE TESTED: 9-9-2002

TYPE OF EQUIPMENT	434 MHz Remote Control (TX)
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:

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COMPLIANCE CERTIFICATION SERVICES

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Chin Pany

THU CHAN

SENIOR EMC ENGINEER

COMPLIANCE CERTIFICATION SERVICES

Page 3 of 22

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2. PRODUCT DESCRIPTION

Fundamental Frequency	434 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

Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Pre-Amplifier	MITEQ1-26GHz	NSP2600-44	646456	4/26/03
Quasi-Peak Detector	HP9K - 1 GHz	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



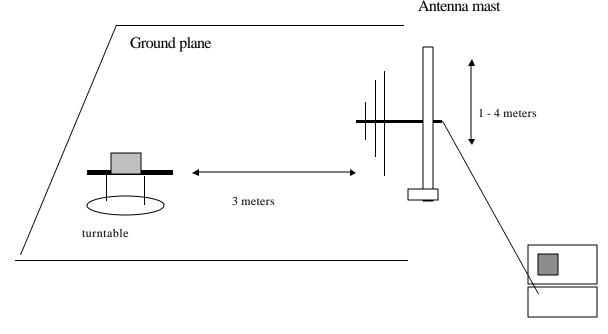
Z-AXIS

Radiated Open Site Test Set-up

10. TEST PROCEDURE

Radiated Emissions, 15.231(4)(b)

Test Set-up for frequency range 30 – 1000 MHz

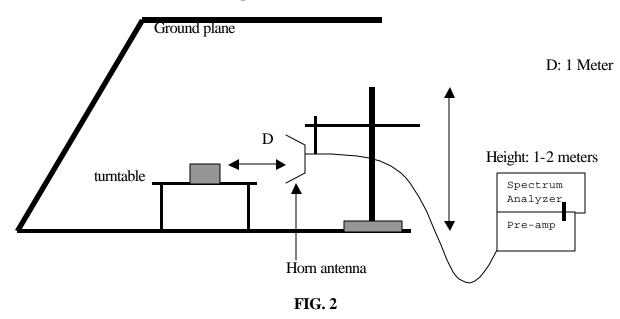


preamplifier/spectrum analyzer

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



- 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 = 2.44 mSShort pulse = 0.180 mS

No of Long pulse = 1No of Short pulse = 16

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

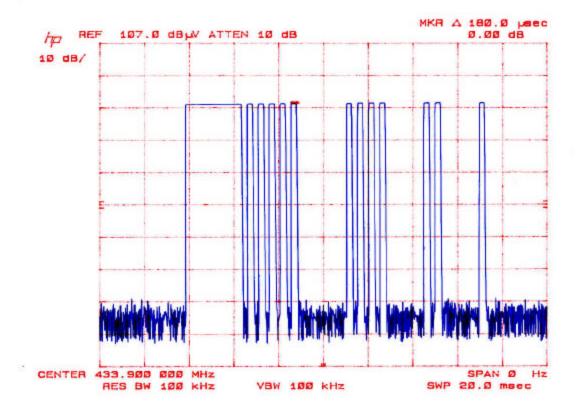
Duty Cycle = ((1x 2.44)+(16x0.18))/100=0.0532=5.32%

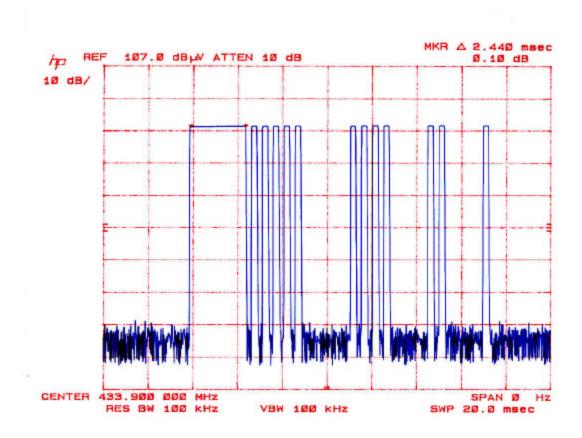
For duty cycle refer to plot #1, 2, 3,4.

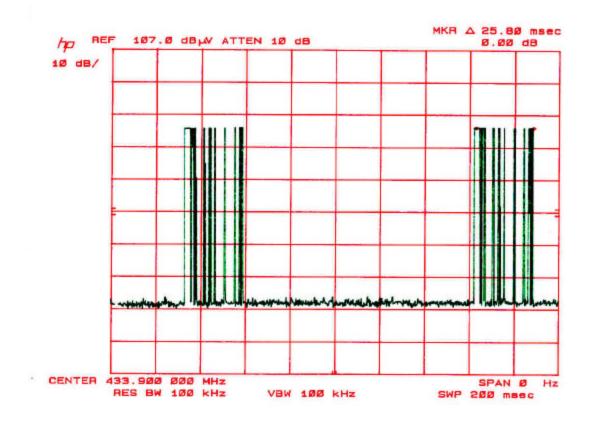
12.2 EMISSION BANDWIDTH

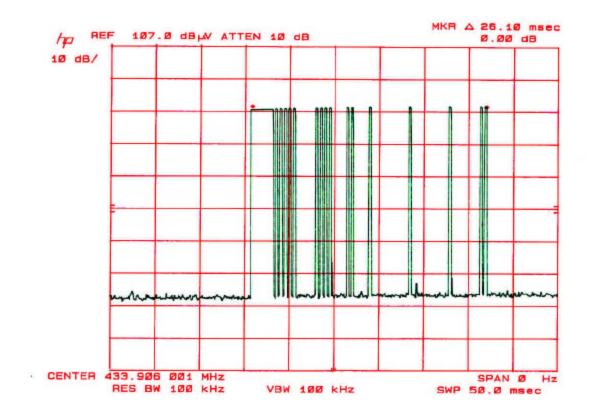
The bandwidth of the emissions were investigated per 15.231(c)

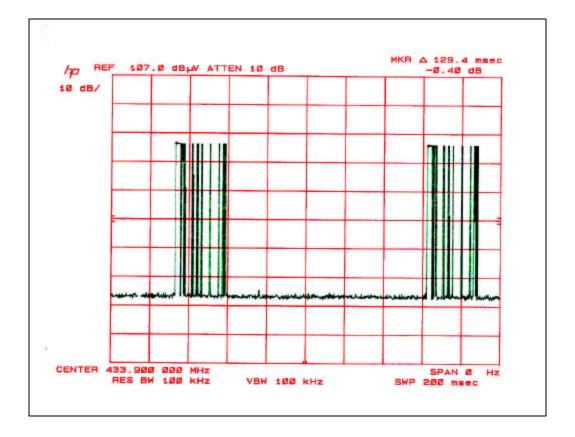
Center Frequency	Measured	Limits
434 MHz	380 KHz	434 x 0.25%= 1.085 MHz
	(refer to plot)	



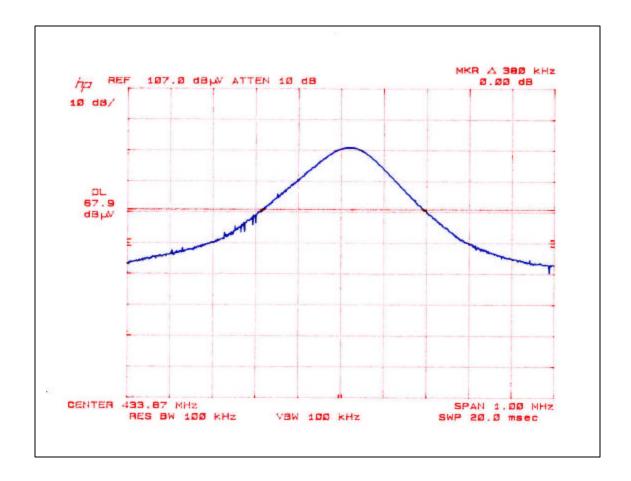








Emission Bandwidth



02|1527-1

020909A1

Chin Pang

09/09/02 5:46 PM

RADIATED DATA



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.

Remote Control EUT only

FCC 15.231 Transmitting

M% = ((t1+t2+t3+...)/T)*100% =5.32% Av Reading = Pk Reading + 20*log(M%)

Project #:

Report #:

Date & Time:

Test Engr:

20*log(M%) = -25.48

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/√)	(Deg)	(Meter)	(P/Q/A)
433.92Mhz	Fundamer	tal frequen	су								100	
Y-Position	(stand Up)	0.70									
433.90	95.90	75.90	16.61	3.15	27.56	68.11	80.80	-12.69	3mV	0.00	1.00	Р
433.90	90.40	70.40	16.53	3.15	27.56	62.52	80.80	-18.28	3mH	0.00	1.00	Р
X-Position	(Lay Dowi	n)	2700.000.000	A1170A170A70A70A						ACT 100 ACT	A 100 A 100 A 100 A	79750
433.90	80.10	60.10	16.61	3.15	27.56	52.31	80.80	-28.49	3mV	0.00	1.00	Р
433.90	96.20	76.20	16.53	3.15	27.56	68.32	80.80	-12.48	3mH	0.00	1.00	Р
Z-Position	(EUT Place	d Side Wa	y))	1050m0100	0.00000000	20.905000		150,000,000,00	0.050488	105010504	55483550	136
433.90	95.50	75.50	16.61	3.15	27.56	67.71	80.80	-13.09	3mV	0.00	1.00	Р
433.90	91.20	71.20	16.53	3.15	27.56	63.32	80.80	-17.48	3mH	0.00	1.00	Р
The Data s	how Y-Pos	ition is the	worst case									
867.90	72.80	52.80	21.33	4.83	27.63	51.33	60.80	-9.47	3mV	0.00	1.00	Р
867.90	63.30	43.30	22.08	4.83	27.63	42.59	60.80	-18.21	3mH	0.00	2.00	Р
	20	20	20	20	200							
Note: Aver	age Readin	g=Peak Re	ading-Max	Duty Cycle	(20dB)							
				\$\$	ST.	N.		88	32	56	55	35
		U_										

RADIATED EMISSIONS (HARMONIC)

DATE: SEPTEMBET 26, 2002

FCC ID: QNPEV-F433

				rement											
Complia	nce C	ertifica	tion S	ervice	s, Mor	gan Hil	Орег	Field Site							
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GHz		dBu∀			dB	dB	dB				dBuV/m		dB		
1.302					-36.5										
1.735	72.2	52.2	25.8	3.5	-36.5	-9.5	0.0	55.5	35.5	74.0	54.0	-18.5	-18.5		
2.169	67.7	47.7	27.5	3.9	-36.5	-9.5	0.0	53.1	33.1	74.0	54.0	-20.9	-20.9	٧	
2.603	64.6	44.6	32.5	4.2	-36.4	-9.5	0.0	55.4	35.4	74.0	54.0	-18.6	-18.6	٧	
3.037	58.8	38.8	30.2	4.5	-36.4	-9.5	0.0	47.6	27.6	74.0	54.0	-26.4	-26.4	٧	
3.471	61.0	41.0	32.5	4.9	-36.3	-9.5	0.0	52.6	32.6	74.0	54.0	-21.4	-21.4	٧	
3.905	69.6	49.6	32.4	5.3	-36.3	-9.5	0.0	61.6	41.6	74.0	54.0	-12.4	-12.4	٧	
4.338	63.9	43.9	32.2	5.7	-36.3	-9.5	0.0	56.0	36.0	74.0	54.0	-18.0	-18.0	٧	
1.302	83.4	63.4	23.9	2.9	-36.5	-9.5	0.0	64.3	44.3	74.0	54.0	-9.7	-9.7	Н	
1.735	71.2				-36.5	4	0.0	54.5	34.5	٥			-19.5		
2.169					-36.5	\$		58.4	38.4			-15.6	-15.6		
2.603	·····	42.4			-36.4	·····		53.2	33.2	ļ	54.0	-20.8	-20.8		
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3.471		43.4			-36.3					_					
	62.2					-9.5				74.0				_	
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4.338	66.3	46.3	32.5	5./	-36.3	-9.5	0.0	58.7	38.7	74.0	54.0	-15.3	-15.3	п	
	V.18.20.1			_								-			
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D Corr	DISCOR	rection:	s to 3 r	neter				Avg Mar		Margin vs. Average Limit					

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ATTACHMENT

EUT PHOTOS

EUT PHOTOGRAPHS







