



One Viper Way Vista, California 92083-7853

760 598 6200 **3**760 598 6400

AMERICA'S LARGEST AUTO SECURITY COMPANY

Thursday, September 12, 2002

TUV Product Services 10040 Mesa Rim Road San Diego, CA 92121

RE: FCC ID EZSDEI474P

Dear Sir or Madam:

The parts list, operating description, schematics, block diagram, etc. are the same as the unit tested in March 2002. Additionally, if the unit was retested today, the results would be the same as data in the report dated March 2002.

Sincerely,

Mark Rutledge Vice President of Engineering



MEASUREMENT AND TECHNICAL REPORT

DIRECTED ELECTRONICS, INC. One Viper Way Vista, CA 92083

DATE: 26 March 2002

This Report Concerns: Original Grant: X	Class II Change:
Equipment Type: 434 MHz Security Remote Con	ntrol Transmitter, Model 474P
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes: No: X Defer until:
Company Name agrees to notify the Commission by: of the intended date of announcement of the produc	N/A et so that the grant can be issued on that date.
Transition Rules Request per 15.37? Yes:	*No: X
(*) FCC Part 15, Paragraphs 15.231(a)(1); (b); (c)	
Report Prepared by: Ti 10 Sa Pt Fa	ÜV PRODUCT SERVICE 040 Mesa Rim Road an Diego, CA 92121-2912 aone: 858 546 3999 ax: 858 546 0364

Page 1 of 15 Rev.No 1.0



TEST SUMMARY

TEST	FCC CFR 47	PASS/FAIL
Radiated	15.231(b)	Pass
Deactivation	15.231(a)(1)	Pass
Duty Cycle Measurements	15.231(b); ANSI C63.4, Appendix 14, Para. 10	Pass
Conducted Emissions	N/A	N/A
Occupied Bandwidth	15.231(c)	Pass

TABLE OF CONTENTS

		Pages
1	GENERAL INFORMATION	3
1.1	Product Description	3
1.2	Related Submittal Grant	4
1.3	Tested System Details	4
1.4	Test Methodology	4
1.5	Test Facility	4
2	SYSTEM TEST CONFIGURATION	5
	2.1 Justification	5
	2.2 EUT Exercise Software	5
	2.3 Special Accessories	5
	2.4 Equipment Modifications	5
	2.5 Configuration of Tested System	5
3	RADIATED EMISSION EQUIPMENT/DATA	6
	Deactivation	8
	Radiated Spurious	9
	Duty Cycle	10
	Occupied Bandwidth	12
	Field Strength Calculation	13
4	CONDUCTED EMISSION EQUIPMENT/DATA	14
5	Attestation Statement	15



1 GENERAL INFORMATION

1.1 Product Description EUT DESCRIPTION: , 474P, Model 474P Power Requirements: Voltage: 3V Typical Installation and/or Operating Environment: Consumer Electronics EUT Power Cable: Not applicable Support Equipment: N/A Oscillator Frequencies: N/A Power Supply: N/A Power Line Filters: N/A Power Line Filters: N/A Critical EMI Components (Capacitors, ferrites, etc.): N/A EMC Critical Detail: N/A



1 GENERAL INFORMATION (continued)

1.2 Related Submittal/Grant

None

1.3 Tested System Details

The FCC IDs for all equipment, plus descriptions of all cables used in the tested system are:

None

1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the ANSI C63.4 setup.

Both Conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8 - M1983. Radiated testing was performed at an antenna-to-EUT distance of 3 meters (1 - 25 GHz).

1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 546 3999 Fax: 858 546 0364

The Test Site Data and performance comply with ANSI 63.4 and are registered with the FCC, 7435 Oakland Mills Rd, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.



2. SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emission in the following configuration:

See Block Diagram.

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Modification

None

2.5 Configuration of Tested System

See Block Diagram.



3 RADIATED EMISSION EQUIPMENT/DATA

The following data lists the significant emission frequencies, measured levels, correction factor (which includes cable and antenna corrections), the corrected reading, and the limit.

See following page(s).

See test setup photos for radiated emissions test setup.



3/25/02 SC201387			SR5 AAL		
Model Number	<u>Prop. #</u>	Description	Manufacturer	Serial No.	<u>Cal. Date</u>
hp8586B 3146	721 244	Spectrum Analyzer Antenna	Hewlett Packard Electro Mechanics	2542A12099 1063	8/21/02 N.C.R.
Used for:	Duty Cycle Occupied I Periodic O	Bandwidth Bandwidth peration/Deactivation	ANTENNA		
		(UT)		S per	ctrum lyzer

Radiated

EMCO, LP Antenna, Model 3146, S/N 1063, Property No. 244, Cal: 03/21/02 EMCO, Double Ridge Antenna, Model 3115, S/N 2494, Property No. 251, Cal: 10/20/02

> Page 7 of 15 Rev.No 1.0



PRODUCT SERVICE





Page 8 of 15 Rev.No 1.0

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10040 Mesa Rim Road

CUSTOMER	: Directe	d Electr	onics,	Inc.			TES	T DIST:		3 Meter	rs			
EUT:	474	4P					TES	T SITE:		Roof				
EUT MODE:	Continu	ious Tra	ansmit				BICC	BICONICAL: N/A						
DATE:	Mar	ch 21, 2	2002					LOG: 2		244				
NOTES:	Duty Cycle= 50%							OTHER: 251						
	above	GHz: F	RBW &	VBW 1	MHz for Pk	; RBW	1MHz	and VB	W 10H	z for A	/Ģ	-		
	below 1	GHz: F	8BM % .	VBW 10	0 kHz for P	Pk; RBV	V 100k	κHz				•		
	CF = A	ntenna	Factor	+ Cable	Loss - Pre	amplifie	er Gair	ı + Pres	elector	Loss				
												v.beta	a	
FREQ (MHz)	VER1 (dB pk	riCAL uv) av	HORIZ (di pk	CONTAL Buv) av	CF (dB/m)	MAX L (dBu pk	.EVEL V/m) av	SPEC (dBu pk	LIMIT V/m) av	MAI (d pk	RGIN 18) av	EUT Rotation	Antenna Height	Notes
434	47.5	41.48	66.9	60.88	16.4	83.3	77.3	100.8	80.8	-17.5	-3.54	0	1.0	
868	27.8	21.78	30.5	24.48	22.7	53.2	47.2	80.8	60.8	-27.6	-13.6	0	1.0	
1302	56.5	50.48	65	58.98	-10.8	54.2	48.1	74	54	-19.8	-5.86	0	1.2	
1736	60.5	54.48	67	60.98	-7.6	59.4	53.4	80.8	60.8	-21.4	-7.37	60	1.0	
2170	57.7	51.68	60	53.98	-4.8	55.3	49.2	80.8	60.8	-25.6	-11.6	50	1.3	
2604	58.2	52.18	55.2	49.18	-2.7	55.5	49.5	80.8	60.8	-25.3	-11.3	100	1.0	
3038	53.8	47.78	53.6	47.58	-1.1	52.7	46.6	80.8	60.8	-28.1	-14.2	90	1.2	
3472	50.5	44.48	49.1	43.08	0.6	51.1	45.1	80.8	60.8	-29.7	-15.7	80	1.4	
3906	48.2	42.18	48.8	42.78	1.9	50.7	44.7	/4	54	-23.3	-9.3			noise floor
4340	49.7	43.68	49.1	43.08	1.6	51.3	45.3	74	54	-22.7	-8.73			noise floor
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Page 9 of 15 Rev.No 1.0

PRODUCT SERVICE



Page 10 of 15

TÜV PRODUCT SERVICE

10040 Mesa Rim Road

San Diego, CA 92121-2912



Rev.No

Page 11 of 15 Rev.No 1.0 Report No. 201387-03

PRODUCT SERVICE



Report No. 201387-03

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Rev.No 1.0

Page 12 of 15

Report No. 201387-03



Field Strength Calculation

If a preamplifier was used during the Radiated Emission Testing, it is required that the amplifier gain must be subtracted from the Spectrum Analyzer (Meter) Reading. In addition, a correction factor for the antenna, cable used and a distance factor, if any, must be applied to the Meter Reading before a true field strength reading can be obtained. In the automatic measurement, these considerations are automatically presented as a part of the print out. In the case of manual measurements and for greater efficiency and convenience, instead of using these correlation factors for each meter reading, the specification limit was modified to reflect these correlation factors at each frequency value so that the meter readings can be compared directly to the modified specification limit. This modified specification limit is referred to as the "Corrected Meter Reading Limit" or simply the CMRL, which is the actual field strength present at the antenna. The quantity can be derived in the following manner:

Corrected Meter Reading Limit (CMRL) = SAR + AF + CL - AG - DC

Where, SAR = Spectrum Analyzer Reading

- AF = Antenna Factor
- CL = Cable Loss
- AG = Amplifier Gain (if any)
- DC = Distance Correction (if any)

Assume the following situation: A meter reading of 29.4 dBuV was obtained from a Class A computing device measured at 83 MHz. Assume an antenna factor of 9.2 dB, a cable loss of 1.4 dB and amplifier gain of 20.0 dB at 83 MHz. The final field strength would be determined as follows:

CMRL = 29.4 dBuV + 9.2dB = 1.4 dB - 20 dB/M - 0.0 dB

CMRL = 20.0 dBuV/M

This result is well below the FCC and CSA Class A limit of 29.5 dbuV/m at 83 MHz.

For the manual mode of measurement, a table of corrected meter reading limit was used to permit immediate comparison of the meter reading to determine if the measure emission amplitude exceeded the specification limit at that specific frequency.



4 CONDUCTED EMISSION EQUIPMENT/DATA

Not Applicable

See following page(s).

Page 14 of 15 Rev.No 1.0



ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per CFR 47, Part 15, Paragraphs 15.231(a)(1); (b); (c).

Performed

The Equipment Under Test

■ - Fulfills the requirements of CFR 47, Part 15, Paragraphs 15.231(a)(1); (b); (c).

- TÜV PRODUCT SERVICE, INC. -

Responsible Engineer:

Jim Own

Jim Owen EMC Chief Engineer Responsible Engineer:

J. Saudani

Alan Laudani EMC Engineer

> Page 15 of 15 Rev.No 1.0