FCC PART 15, SUBPART C
TEST REPORT

for

TRANSMITTER
Model: OEM
FCC ID: CZ57RRKO

Prepared for

CLIFFORD ELECTRONICS
20750 LASSEN ST.
CHATSWORTH, CA 91311

Prepared by: ____________
JEREMY D. WILLIAMSON

Approved by: ____________
JEFF S. KLINGER

COMPATIBLE ELECTRONICS INC.
2337 TROUTDALE DRIVE
AGOURA, CALIFORNIA 91301
(818) 597-0600

DATE: AUGUST 17, 1998

	REPORT BODY	APPENDICES				TOTAL
		A	***B***	***C***	***D***	
PAGES	18	2	2	7	10	**39**

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full with the written permission of Compatible Electronics.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested: Transmitter
Model: OEM
P/N: 50-798

Product Description: This is a low power RF Car Alarm Transmitter.

Modifications: The EUT was not modified during the testing.

Manufacturer: Clifford Electronics
20750 Lassen St.
Chatsworth, CA 91311

Test Date: July 23, 1998

Test Specifications:
EMI requirements
FCC Title 47, Part 15 Subpart C
Test Procedure: ANSI C63.4: 1992.

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz.	This device is battery operated and does not draw power from public mains hence no conducted test was required.
2	Radiated RF Emissions, 30 MHz – 4.5 GHz.	Complies with the limits of FCC Title 47, Part 15 Subpart C.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Transmitter Model: OEM. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the specification limits defined in FCC Title 47, Part 15, Subpart C.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 2337 Troutdale Drive, Agoura, California 91301.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Clifford Electronics

Michael Newman	Engineer

Compatible Electronics, Inc.

Jeremy D. Williamson	Test Technician
Jeff S. Klinger	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on July 21, 1998.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC Title 47, Subpart C.	FCC Rules - Intentional Radiators
ANSI C63.4 1992	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

The EUT was set up in a tabletop configuration. The EUT was tested in each of three positions (X axis, Y axis and Z axis). The EUT was tested while continuously transmitting.

It was determined that the highest emission levels were found in the above configuration. The final radiated data was taken in this mode of operation. All initial investigations were performed with the EMI Receiver in manual mode scanning the frequency range continuously. Photographs, duty cycle calculations and data sheets are included in Appendices C and D.

4.1.1 Cable Construction and Termination

The EUT has no cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER
TRANSMITTER (EUT)	CLIFFORD ELECTRONICS	OEM	P/N: 50-798

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
EMI Receiver	Hewlett Packard	8546A	3325A00140	Mar. 08, 1998	Mar. 08, 1999
Preamplifier	Com Power	PA-102	01249	Apr. 20, 1998	Apr. 20, 1999
Preamplifier over 1GHz	Com Power	PA-122	25137	Jul. 15, 1998	Jul. 15, 1999
Biconical Antenna	Com Power	AB-100	01535	Apr. 17, 1998	Apr. 17, 1999
Log Periodic Antenna	Com Power	AL-100	A101	Apr. 16, 1998	Apr. 16, 1999
Horn Antenna	Antenna Research Assoc.	DRG-118/A	1015	Dec. 02, 1993	N.C.R.
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TT-106A	N/A	N/A	N/A
Plotter	Hewlett Packard	7470A	2644V 00493	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. The data was collected with the EMI Receiver in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the spectrum analyzer input stage, and the EMI Receiver offset was adjusted accordingly to read the actual data measured. The LISN output was read by the EMI Receiver. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for the conducted emissions test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 1992. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The initial test data was taken in manual mode while scanning the frequency ranges of 0.15 MHz to 1.6 MHz, 1.6 MHz to 5 MHz and 5 MHz to 30 MHz. The conducted emissions from the EUT were maximized for operating mode as well as cable and peripheral placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the EMI Receiver span adjusted to 1 MHz.

The EUT is a battery powered device which does not connect to the public mains, therefore no conducted test was required.

7.1.2 Radiated Emissions Test

The EMI Receiver was used as a measuring meter. The Preamplifier was used to increase the sensitivity of the instrument. The EMI Receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. The quasi-peak was used only for those readings which are marked accordingly on the data sheets. The effective measurement bandwidth used for the radiated emissions test was 120 kHz for readings under 1GHz and 1MHz for readings over 1GHz.

Broadband antennas were used as transducers during the measurement. The biconical antenna was used from 30 MHz to 300 MHz, the log periodic antenna was used from 300 MHz to 1 GHz and the horn antenna was used above 1 GHz. The frequency spans were wide (300 MHz to 1 GHz and 1 GHz to 5 GHz) during preliminary investigations. The final data was taken with a frequency span of 1 MHz. Furthermore, the frequency span was reduced during the preliminary investigations as deemed necessary.

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 1992. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength).

Preliminary testing was done at a distance of 1 meter instead of 3 meters to determine the predominant harmonics and spurious emission frequencies. An open field test site was used for the preliminary investigations. Broadband antennas were used to scan large frequency bands while manipulating the X, Y, and Z azimuth of the unit. If and when any frequency was found to be above 30 microvolts/meter level (at 1 meter distance), this frequency was recorded as a significant frequency. All significant frequencies are further examined carefully at a reduced frequency span on the spectrum analyzer while changing the antenna height and EUT orientation. The EUT was tested again at a 3 meter test distance to obtain the final test data. The bandwidth of the spectrum analyzer was varied to ensure that pulse desensitization did not occur.

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain final test data. The test results are listed in table 1.

7.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS (Fundamental & Harmonics)
TRANSMITTER Model: OEM

Frequency MHz	Meter* Reading dBuV/m	Effective Gain ** dB	Antenna Factor ** dB/m	Distance Factor dB	Corrected Reading dBuV/m	Spec. Limit dBuV/m	Delta dB
433.82	87.4	32.5	19.0	0	73.9	80.8	-6.9
867.69	52.4	29.5	22.9	0	45.8	61.9	-16.1
1301.55	49.3	28.9	25.6	0	46.0	54.0	-8.0
1735.54	38.9	27.8	27.9	0	39.0	61.9	-22.9
2169.26	40.7	26.2	29.8	0	44.3	61.9	-17.6
2603.24	37.2	26.0	30.1	0	41.3	61.9	-20.6

Notes:

* The complete emissions data is given in Appendix A of this report.

** The effective factor includes the cable loss. The correction factors for the antenna and effective gain are attached in Appendix C of this report.

A Average Reading

Table 2.0 RADIATED EMISSIONS - SPURIOUS
RF LOW POWER TRANSMITTER

The following bands were specifically scanned.

Frequency Band in MHz	RF Energy From Transmitter at 3 meters (uV/m)
25.5 to 25.67	< 100
37.5 to 38.25	< 100
73 to 74.6	< 100
74.8 to 75.2	< 100
108 to 121.94	< 150
123 to 138	< 150
149.9 to 150.05	< 150
156.7 to 156.9	< 150
162.0125 to 167.17	< 150
167.72 to 173.2	< 150
240 to 285	< 200
322 to 335.4	< 200
399.9 to 410	< 200
608 to 614	< 200
960 to 1240	< 500
1300 to 1427	< 500
1435 to 1626.5	< 500
1660 to 1710	< 500
1718.8 to 1722.2	< 500
2200 to 2300	< 500
2310 to 2390	< 500
2483.5 to 2500	< 500
2655 to 2900	< 500
3260 to 3267	< 500
3332 to 3339	< 500
3345.8 to 3358	< 500
3600 to 4400	< 500

The bandwidth of the emission was less than 0.25% of the center frequency when measured at the points 20dB down from the modulated carrier.

Frequency in MHz	Bandwidth in MHz	Maximum Bandwidth in MHz
433.82	0.464	<1.085

7.1.4 Sample Calculations

The Preamplifier was used to increase the sensitivity of the EMI Receiver. A correction factor for the antenna, preamplifier, cable loss and a distance factor (if any), must be applied to the meter reading before a true field strength reading can be obtained. For greater efficiency and convenience, instead of using these correction factors for each meter reading, the specification limit was modified to reflect these correction factors at each frequency, so that the meter readings can be compared directly to the modified specification limit, referred to henceforth as the corrected meter reading limit (CML).

The equation can be derived in the following manner:

Corrected Meter Reading = meter reading + F - G

where: F = antenna factor
G = effective gain (amplifier gain - cable loss)

Therefore, the equation for determining the corrected meter reading limit is:

CML = spec. limit - F + G

A table of corrected meter reading limits was used to permit immediate comparison of the meter reading and determine if the emission level exceeded the specification limit at that frequency. The correction factors for the antenna and the effective gain are attached in Appendix C of this report. The data sheets are attached in Appendix D.

The distance factor D is 0 when the test is performed at a distance of 3 meters.

8. CONCLUSIONS

The Transmitter Model: OEM meets all of the requirements of the FCC Title 47, Part 15, Subpart C.

APPENDIX A

MODIFICATIONS TO THE EUT

2337 TROUTDALE DRIVE, AGOURA, CALIFORNIA 91301 PHONE: (818) 597-0600 FAX: (818) 597-1187

MODIFICATIONS TO THE EUT

There were no modifications made to the EUT during the test.

APPENDIX B

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	TRANSMITTER Model: OEM P/N: 50-798

There were no additional models covered under this report.

APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

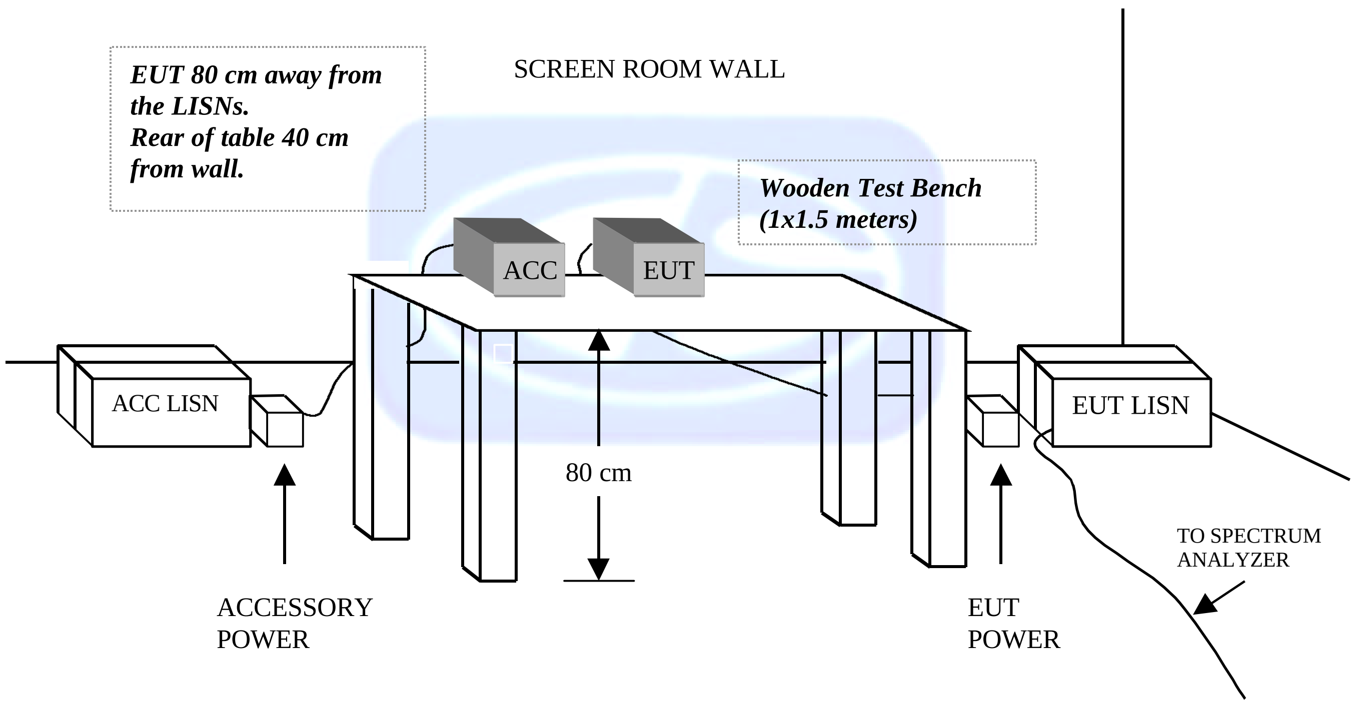
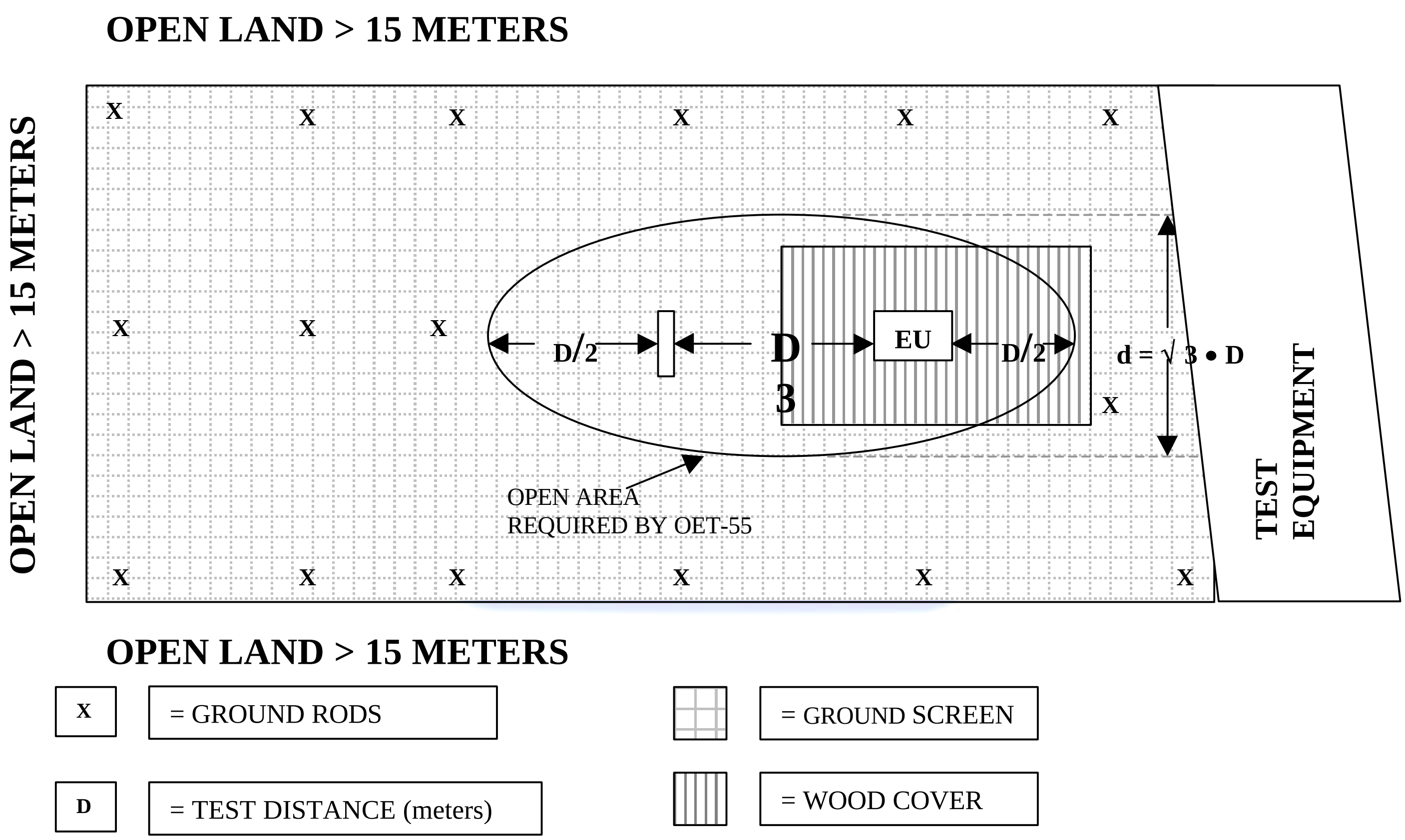
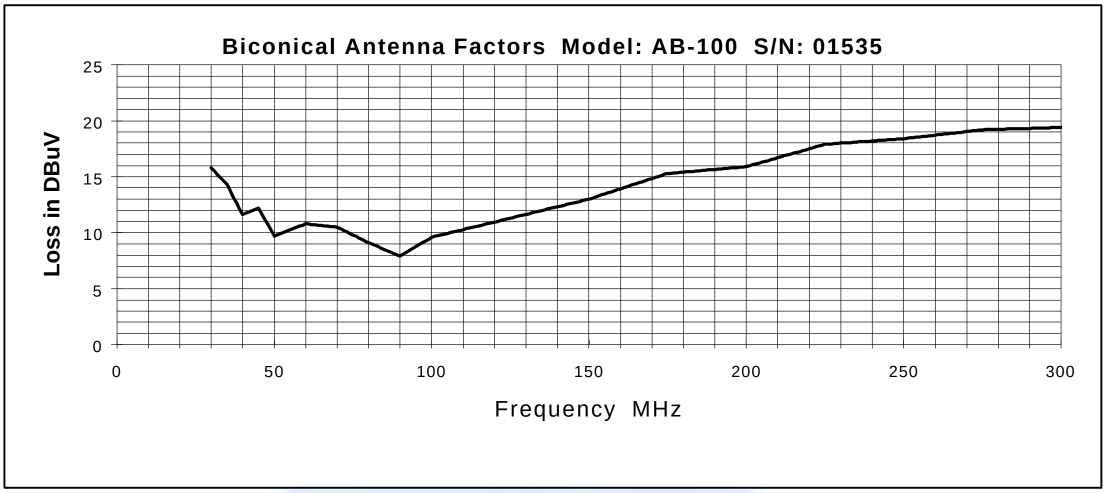
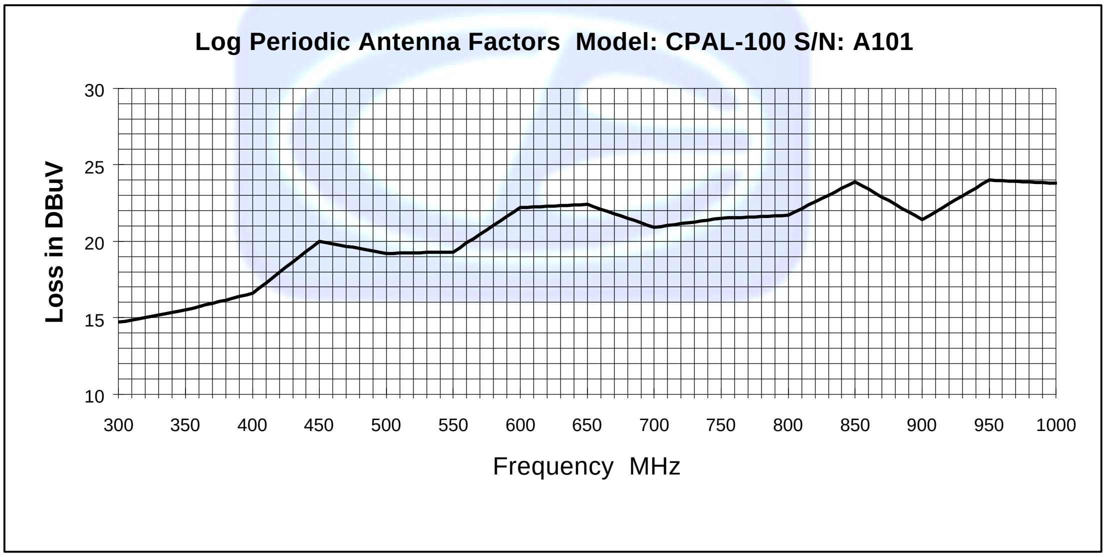
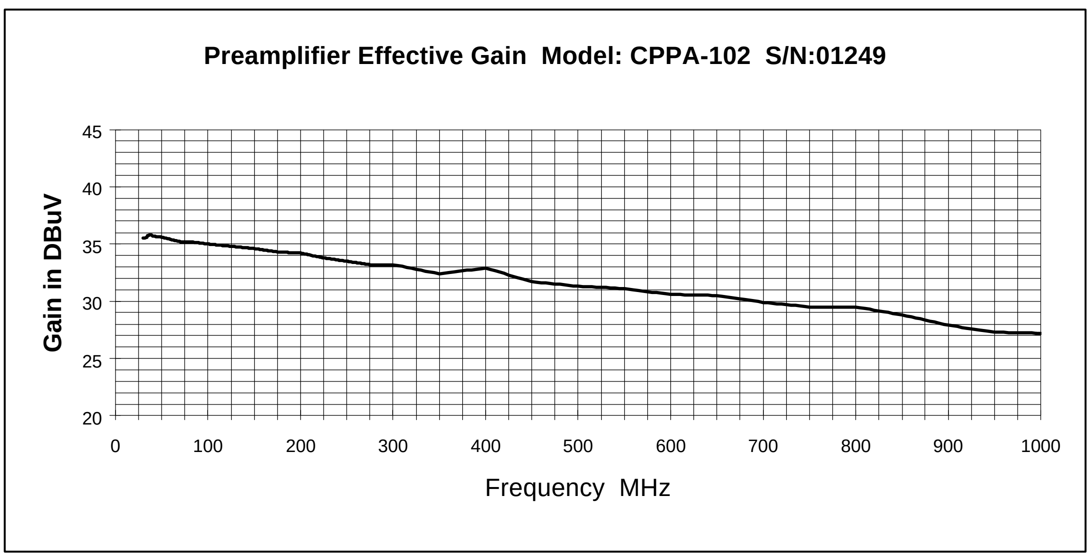


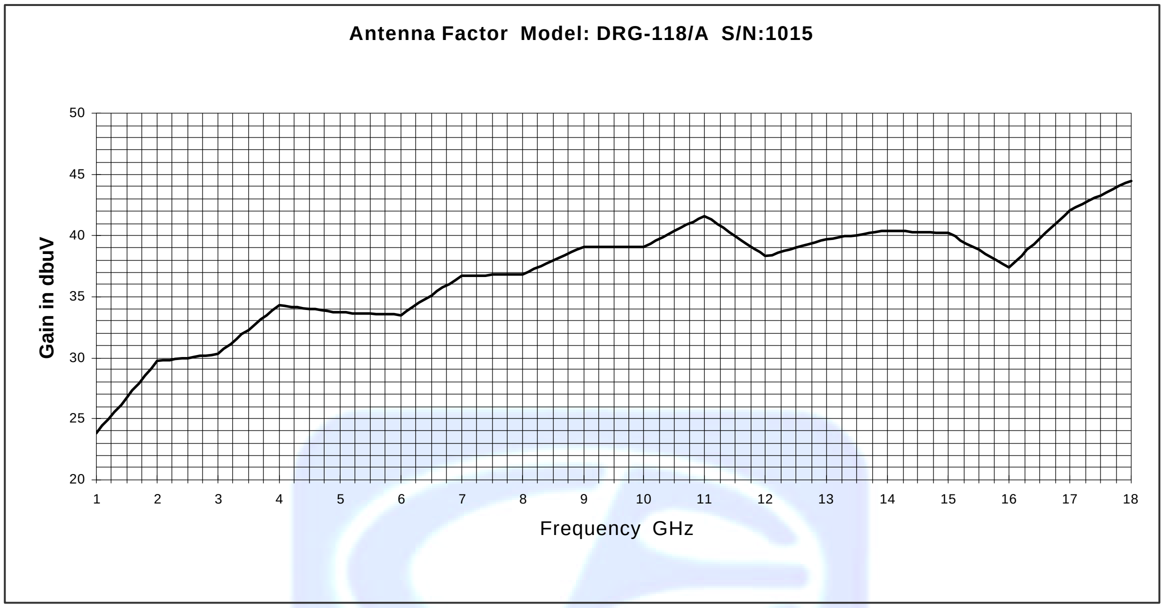
FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE



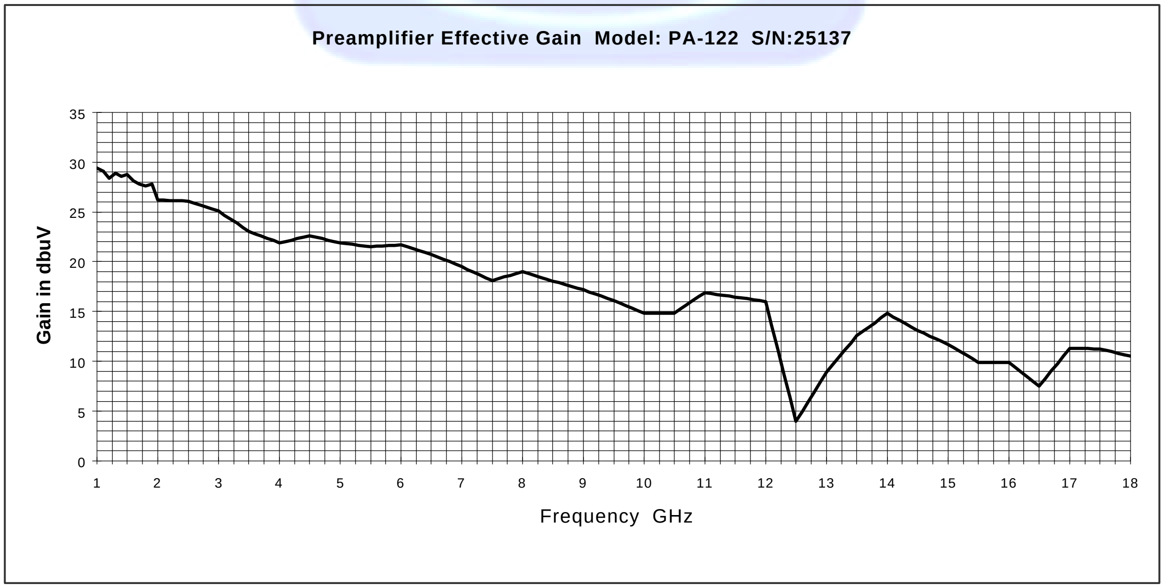

Biconical Antenna Factors Model: AB-100 S/N: 01535
Loss in DBuV
25
20
15
10
5
0
0
50
100
150
200
250
300
Frequency MHz


Log Periodic Antenna Factors Model: CPAL-100 S/N: A101
Loss in DBuV
30
25
20
15
10
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
Frequency MHz

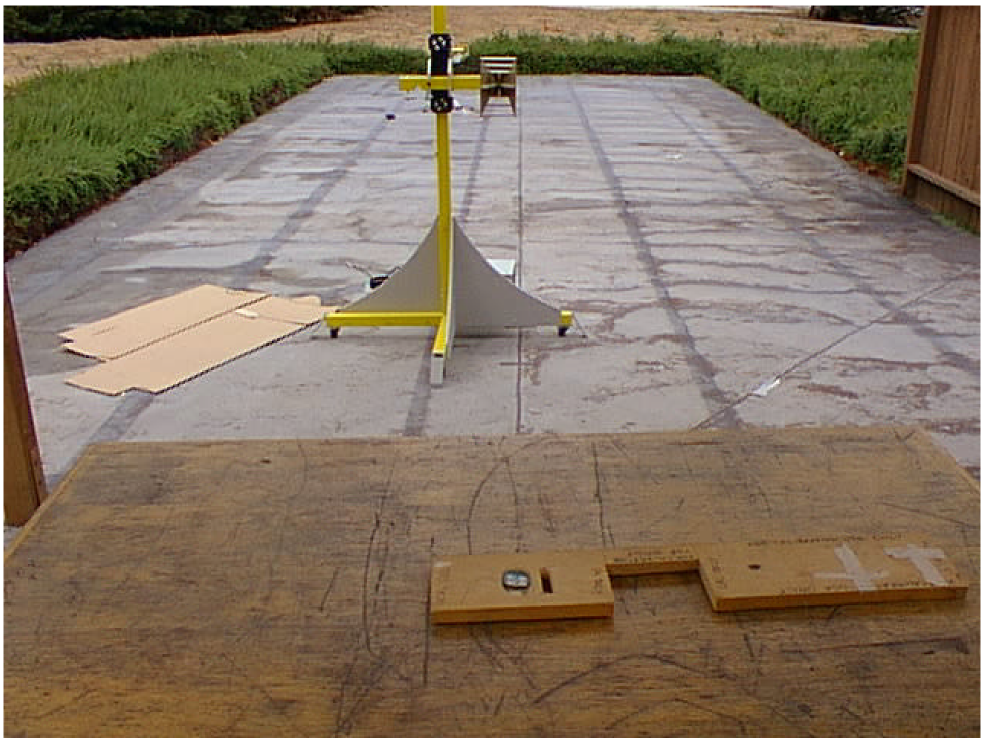

Preamplifier Effective Gain Model: CPPA-102 S/N:01249
Gain in DBuV
45
40
35
30
25
20
0
100
200
300
400
500
600
700
800
900
1000
Frequency MHz



Antenna Factor Model: DRG-118/A S/N:1015
Gain in dbuV
50
45
40
35
30
25
20
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Frequency GHz



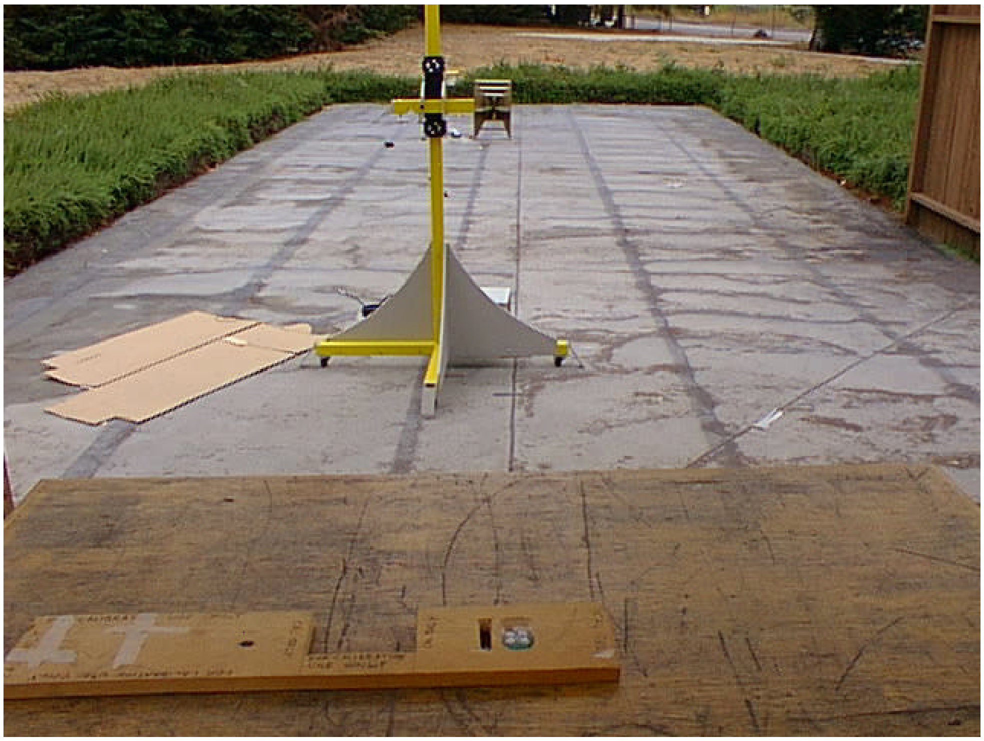
Preamplifier Effective Gain Model: PA-122 S/N:25137
Gain in dbuV
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Frequency GHz



FRONT VIEW

CLIFFORD ELECTRONICS, INC.
TRANSMITTER
Model: OEM
FCC PART 15 SUBPART C - RADIATED EMISSIONS – 7-23-98

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

CLIFFORD ELECTRONICS, INC.
TRANSMITTER
Model: OEM
FCC PART 15 SUBPART C - RADIATED EMISSIONS – 7-23-98

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX D

DUTY CYCLE PLOTS & DATA SHEETS

DUTY CYCLE PLOTS and CALCULATIONS

1. Duty Cycle Factor for Clifford m/n: OEM Car Alarm Transmitter

The signal modulating the 433 MHz RF carrier is a low frequency, digitally coded stream. It has two waveforms within its total cycle. Each waveform is separated by a dead period with an effective duty cycle of zero. Figure **A**

Table 3.0 Duty Cycle Calculations

Figure	**A**	**B**	**C**	**D**	**Totals**
Ttot	9.45mS	4.05mS	79.5mS	80.5mS	173.5mS
Ton	4.725mS	0mS	39.75mS	0mS	44.475mS
Duty Cycle (Ton/**T**tot**)**	50%	0%	50%	0%	25.6%

The total on time is calculated from adding the **T**on from figures **A** through **D.** The total cycle time is calculated from adding the **T**tot from figures **A** through **D**. The total duty cycle is then calculated by dividing the total on time by the total cycle time. The duty cycle was found to be **25.6%**. The duty cycle was rounded to 30% and was used for performing average calculations, giving a factor of 10.5dB.

Figure A

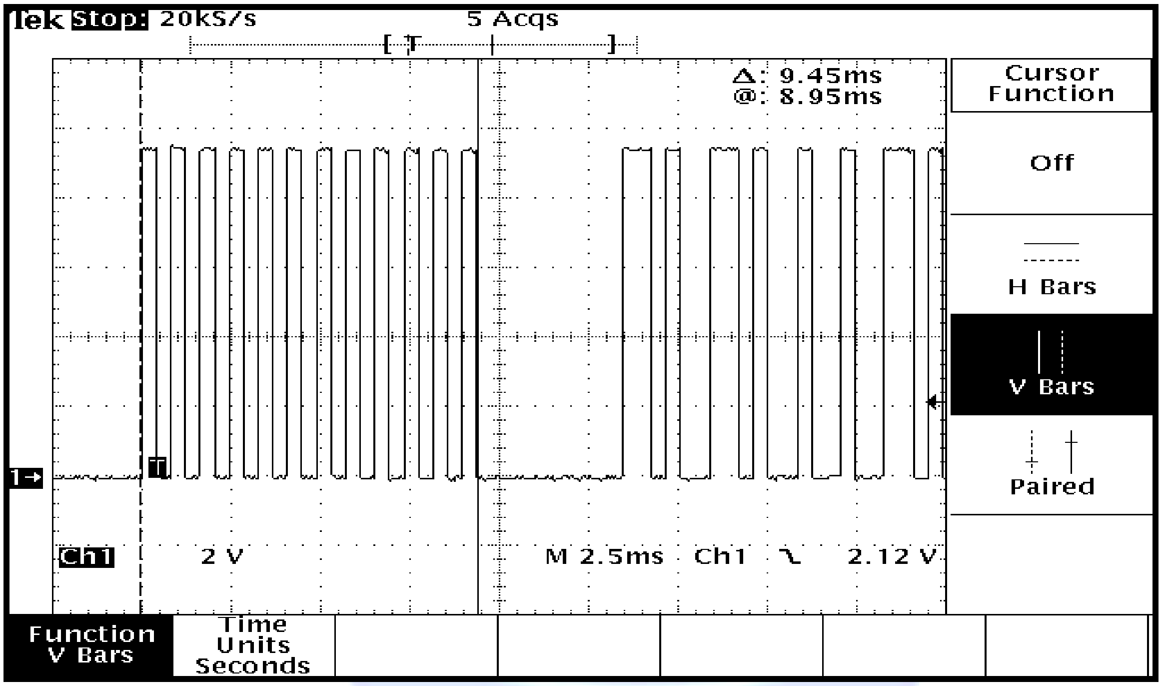


Figure B

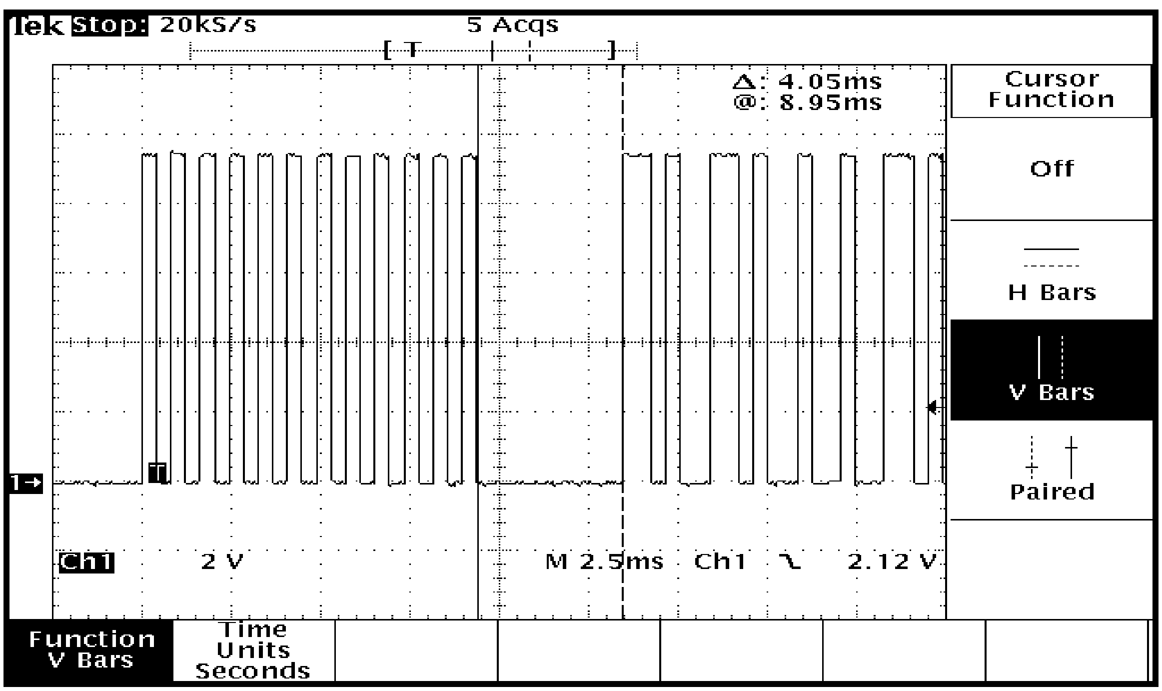


Figure C

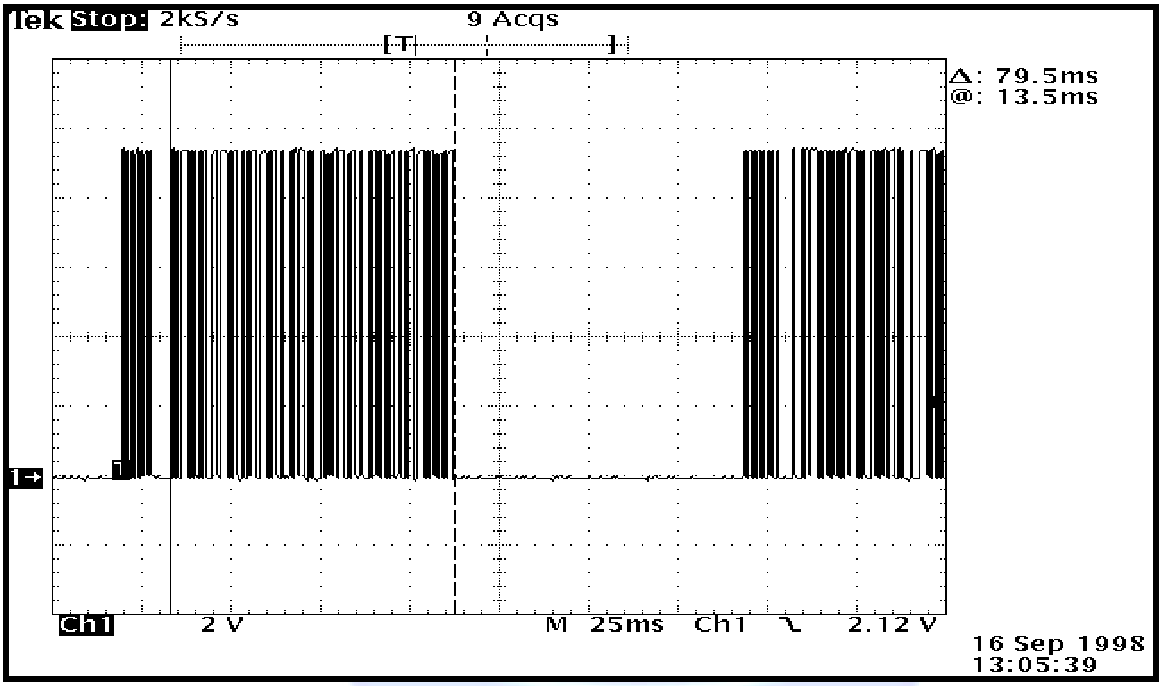
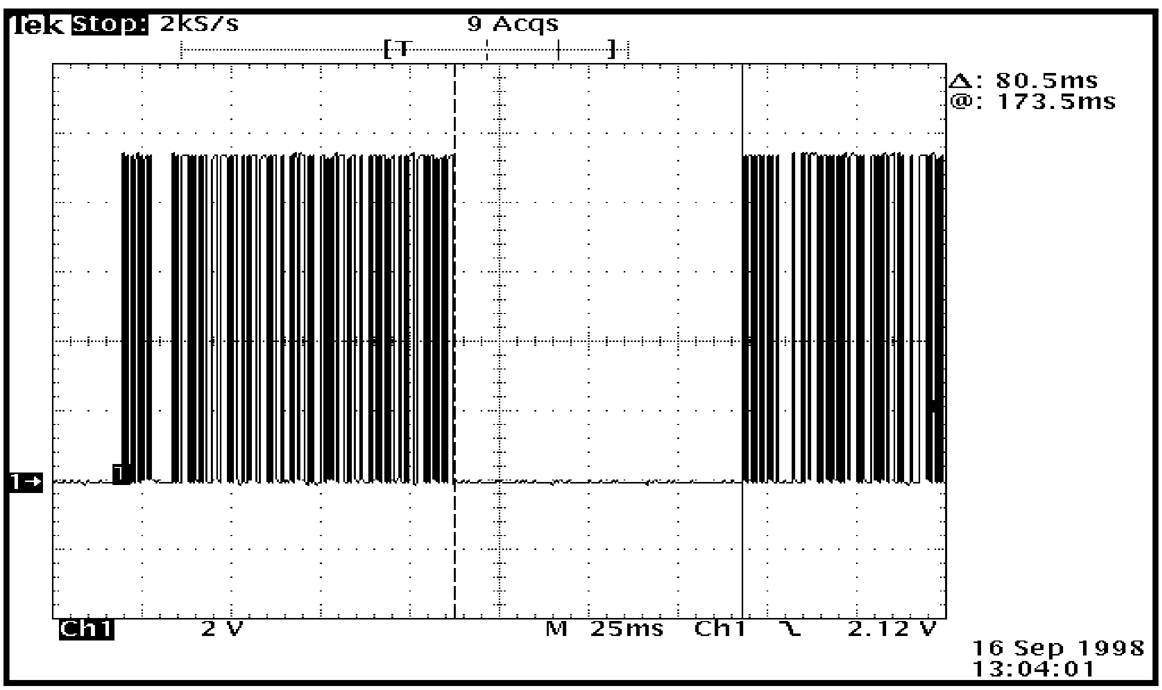


Figure D



RADIATED EMISSIONS

COMPANY NAME: CLIFFORD ELECTRONICS DATE: 7-23-98

EUT: CAR ALARM TRANSMITTER EUT S/N: NONE

EUT MODEL: OEM LOCATION: [ ] BREA [ ] SILVERADO [X] AGOURA

SPECIFICATION: FCC pt. 15 sub. C CLASS: N/A TEST DISTANCE: 3m LAB: F

ANTENNA: [ ] LOOP [ ] BICONICAL [X] LOG [X] HORN POLARIZATION: [X] VERT [ ] HORIZ

[X] QUALIFICATION [ ] ENGINEERING [ ] MFG. AUDIT ENGINEER: J. WILLIAMSON

NOTES: FUNDAMENTAL LIMIT = 10993 μV/m = 80.8 dBμV
HARMONICS LIMIT = 1250 μV/m = 61.9 dBμV } UNCORRECTED
DUTY CYCLE = 30% ∴ AVG = -10.5dB
TEMP: 78°F
HUM: 58%
AXIS DESCRIPTION:
X = FLAT Y = ON EDGE Z = STANDING

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
433.82	86.7		1.0	0°	-7.6	94.3	Z
433.82	87.4		1.0	0°	-6.9	94.3	Y
433.82	76.1		1.0	180°	-18.2	94.3	X
867.72	44.8		1.5	270°	-23.7	68.5	X
867.69	45.2		1.0	0°	-23.3	68.5	Y
867.69	45.2		1.0	180°	-23.3	68.5	Z
R 1301.55	46.0		1.0	90°	-19.2	65.2	X
R 1301.55	43.7		1.0	90°	-21.5	65.2	Y
R 1301.53	37.7		1.0	90°	-27.5	65.2	Z
1735.45	38.9		1.0	0°	-22.9	61.8	X
1735.54	36.0		1.0	90°	-25.8	61.8	Y
1735.54	35.9		1.0	90°	-25.9	61.8	Z

R = RESTRICTED BAND, SEE NEXT PAGE FOR LIMITS.

* DELTA = METER READING - CORRECTED LIMIT

COMPATIBLE ELECTRONICS

RADIATED EMISSIONS - CONTINUATION SHEET

COMPANY NAME: CLIFFORD ELECTRONICS DATE: 7-23-98

EUT: CAR ALARM TRANSMITTER EUT S/N: NONE

EUT MODEL: OEM ENGINEER: J. WILLIAMSON

ANTENNA: ☐ LOOP ☐ BICONICAL ☐ LOG ☒ HORN POLARIZATION: ☒ VERT ☐ HORIZ

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
2169.36	38.6		1.0	180°	-19.7	58.3	X
2169.26	37.1		1.0	180°	-21.2	58.3	Y
2169.21	37.1		1.0	270°	-21.2	58.3	Z
NO READINGS FOUND OVER 5th HARMONIC							
RESTRICTED BAND READINGS:							
1301.55	46.0		1.0	90°	-11.3	57.3	X
1301.55	43.7		1.0	90°	-13.6	57.3	Y
1301.55	37.7		1.0	90°	-19.6	57.3	Z

* DELTA = METER READING - CORRECTED LIMIT

RADIATED EMISSIONS

COMPANY NAME: CLIFFORD ELECTRONICS DATE: 7·23·98

EUT: CAR ALARM TRANSMITTER EUT S/N: NONE

EUT MODEL: OEM LOCATION: ☐ BREA ☐ SILVERADO ☒ AGOURA

SPECIFICATION: FCC pt.15 sub C CLASS: N/A TEST DISTANCE: 3m LAB: F

ANTENNA: ☐ LOOP ☐ BICONICAL ☒ LOG ☒ HORN POLARIZATION: ☐ VERT ☒ HORIZ

☒ QUALIFICATION ☐ ENGINEERING ☐ MFG. AUDIT ENGINEER: J. WILLIAMSON

NOTES:

	Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments AXIS
	433.84	94.1	83.6	1.0	90°	-10.7	94.3	X
	433.84	84.5		1.0	90°	-9.8	94.3	Y
	433.84	79.9		1.0	180°	-14.4	94.3	Z
	867.72	52.4		1.0	45°	-16.1	68.5	X
	867.69	45.1		1.0	270°	-23.4	68.5	Y
	867.69	41.4		1.0	0°	-27.1	68.5	Z
R	1301.56	49.3		1.0	0°	-15.9	65.2	X
R	1301.55	38.9		1.0	90°	-26.3	65.2	Y
R	1301.57	42.7		1.0	90°	-22.5	65.2	Z
	1735.47	37.2		1.0	0°	-24.6	61.8	X
	1735.47	NRF				N/A	61.8	Y
	1735.40	36.5		1.0	0°	-25.3	61.8	Z

NRF = NO READING FOUND AT 9kHz IF BW

R = RESTRICTED BAND, SEE NEXT PAGE FOR LIMITS

* DELTA = METER READING - CORRECTED LIMIT

COMPATIBLE ELECTRONICS

RADIATED EMISSIONS - CONTINUATION SHEET

COMPANY NAME: CLIFFORD ELECTRONICS DATE: 7·23·98

EUT: CAR ALARM TRANSMITTER EUT S/N: NONE

EUT MODEL: OEM ENGINEER: J. WILLIAMSON

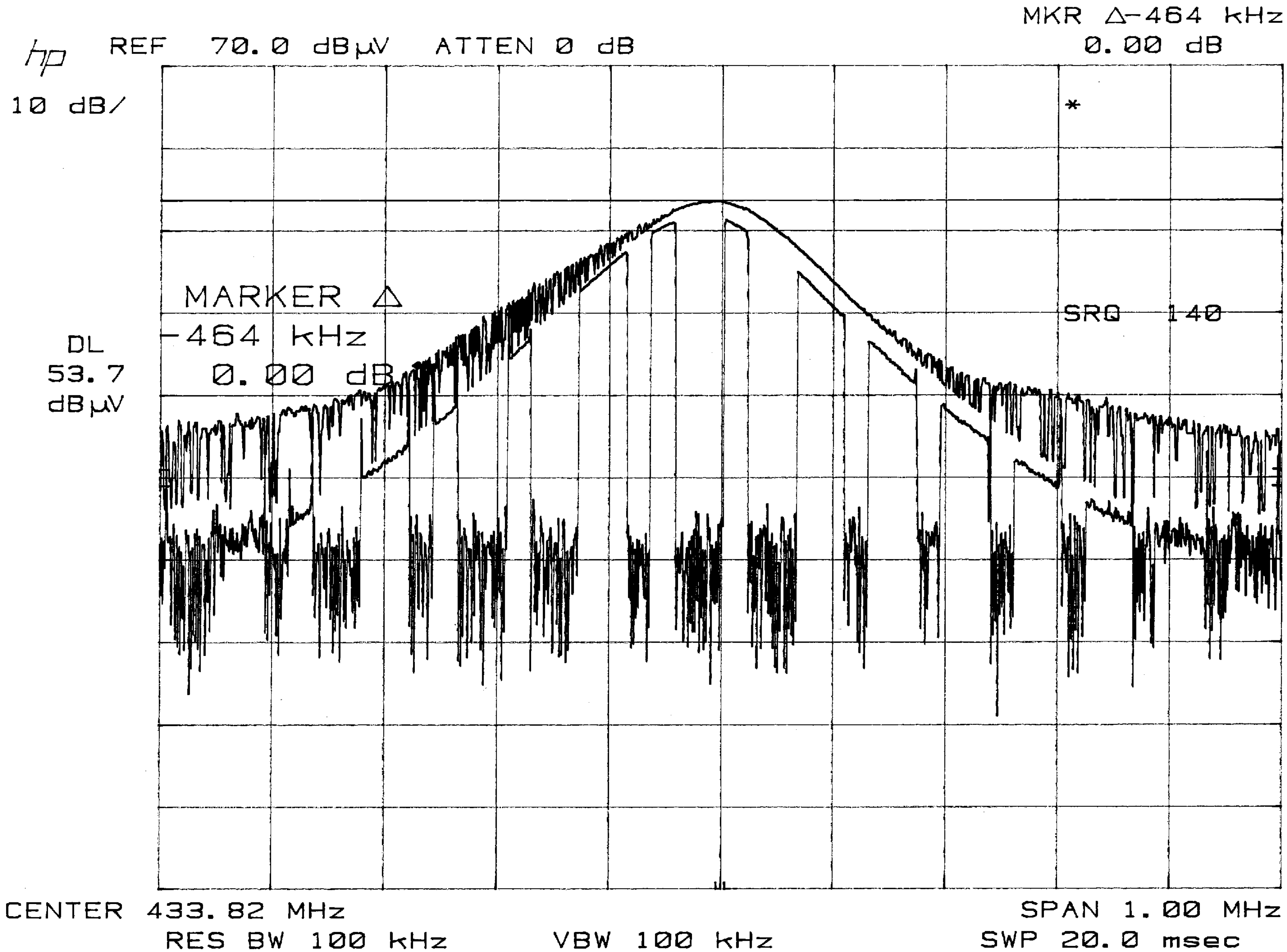
ANTENNA: ☐ LOOP ☐ BICONICAL ☐ LOG ☒ HORN POLARIZATION: ☐ VERT ☒ HORIZ

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
2169.42	40.7		1.0	90°	-17.6	58.3	X
2169.42	38.3		1.0	270°	-20.0	58.3	Y
2169.42	NRF				N/A	58.3	Z
2603.24	37.2		1.5	0°	-20.6	57.8	X
2603.24	NRF				N/A	57.8	Y
2603.24	NRF				N/A	57.8	Z
NO READINGS FOUND OVER 6th HARMONIC							
RESTRICTED BAND READINGS:							
1301.56	49.3		1.0	0°	-8.0	57.3	X
1301.55	38.9		1.0	90°	-18.4	57.3	Y
1301.57	42.7		1.0	90°	-14.6	57.3	Z

NRF = NO READINGS FOUND AT 9kHz IF BW

* DELTA = METER READING - CORRECTED LIMIT

CLIFFORD ELECTRONICS - 7·23·98
MODEL: OEM
LIMIT : .25% × F_c = 1085 kHz



COMPATIBLE ELECTRONICS

RADIATED EMISSIONS

COMPANY NAME: CLIFFORD ELECTRONICS DATE: 7-23-98

EUT: TRANSMITTER EUT S/N: NONE

EUT MODEL: OEM LOCATION: ☐ BREA ☐ SILVERADO ☒ AGOURA

SPECIFICATION: FCC pt.15 CLASS: B TEST DISTANCE: 3m LAB: F

ANTENNA: ☐ LOOP ☒ BICONICAL ☒ LOG ☐ HORN POLARIZATION: ☒ VERT ☐ HORIZ

☒ QUALIFICATION ☐ ENGINEERING ☐ MFG. AUDIT ENGINEER: J. WILLIAMSON

NOTES: SPURIOUS EMISSIONS

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
43.43	37.4		1.0	0°	-25.6	63.0	
86.74	40.8		1.0	0°	-26.2	67.0	
201.84	30.4		1.0	0°	-31.4	61.8	
385.71	31.2		1.0	0°	-31.4	62.6	
539.68	27.4		1.0	0°	-31.2	58.6	
823.30	26.6		1.0	0°	-26.8	53.4	

* DELTA = METER READING - CORRECTED LIMIT