

FCC PART 15, SUBPART C
TEST REPORT

for

REMOTE TRANSMITTER

Model: OL900

Prepared for

C.E. ELECTRONICS, INC.
614 EAST EDGERTON STREET
BRYAN, OHIO 43506

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500

DATE: JULY 24, 2000

| REPORT BODY | APPENDICES | | | | | TOTAL | |
|----------------|------------|---|---|---|----|-------|-----------|
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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: Remote Transmitter
 Model: OL900
 P/N: OL900-2

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: C.E. Electronics, Inc.
 614 East Edgerton Street
 Bryan, Ohio 43506

Test Date: July 24, 2000

Test Specifications: EMI requirements
 CFR Title 47, Part 15 Subpart C, Sections 15.205 and 15.249

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, 450 kHz - 30 MHz | The EUT runs off a battery only and cannot be plugged into the AC public mains. Therefore, this test was not performed. |
| 2 | Radiated RF Emissions, 10 kHz - 9300 MHz | Complies with the limits of CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249 |



1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Remote Transmitter Model: OL900. 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 by CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

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

C.E. Electronics, Inc.

Garry L. Courtney President
Tony Casterline Engineer

Compatible Electronics Inc.

Kyle Fujimoto Test Engineer
Scott McCutchan Lab Manager

2.4 Date Test Sample was Received

The test sample was received on July 20, 2000.

2.5 Disposition of the Test Sample

The test sample has not been returned to C.E. Electronics, Inc. as of July 24, 2000.

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 |
|--------------------------|---|
| CFR Title 47, Subpart C. | FCC Rules – Radio frequency devices – 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

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The Remote Transmitter Model: OL900 (EUT) was tested as a stand alone unit. The EUT was transmitting on a continuous basis. The antenna connector on the EUT has a reverse polarity SMA connector.

Note: The EUT is usually mounted vertically to either a wall or the side of the lift structure. Therefore, the EUT was tested in its Y axis. The EUT is NOT a hand held device.

The final radiated data was taken in the mode above. Please see Appendix D for the data sheets.



4.1.1 **Cable Construction and Termination**

There are no external cables connected to the EUT.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

| EQUIPMENT | MANUFACTURER | MODEL NUMBER | SERIAL NUMBER | FCC ID |
|-----------------------------|---------------------------|--------------|---------------|--------------------|
| REMOTE TRANSMITTER (EUT) | C.E. ELECTRONICS, INC. | OL900 | P/N: OL900-2 | O4O-OL900-2 |



5.2 EMI Test Equipment

| EQUIPMENT TYPE | MANUFACTURER | MODEL NUMBER | SERIAL NUMBER | CAL. DATE | CAL. DUE DATE |
|------------------------|------------------|--------------|---------------|---------------|---------------|
| Spectrum Analyzer | Hewlett Packard | 8566B | 3701A22262 | June 24, 2000 | June 24, 2001 |
| Preamplifier | Com Power | PA-102 | 1017 | Jan. 11, 2000 | Jan. 11, 2001 |
| Quasi-Peak Adapter | Hewlett Packard | 85650A | 2811A01363 | June 24, 2000 | June 24, 2001 |
| RF Attenuator | Sertek | 412-10 | N/A | Nov. 22, 1999 | Nov. 22, 2000 |
| LISN | Com Power | LI-215 | 12075 | Nov. 13, 1999 | Nov. 13, 2000 |
| LISN | Com Power | LI-215 | 12078 | Nov. 13, 1999 | Nov. 13, 2000 |
| Biconical Antenna | Com Power | AB-100 | 1548 | Oct. 14, 1999 | Oct. 14, 2000 |
| Log Periodic Antenna | Com Power | AL-100 | 16039 | Oct. 14, 1999 | Oct. 14, 2000 |
| Antenna Mast | Com Power | AM-100 | N/A | N/A | N/A |
| Turntable | Com Power | TT-100 | N/A | N/A | N/A |
| Computer | Hewlett Packard | D5251A 888 | US74458128 | N/A | N/A |
| Microwave Preamplifier | Com-Power | PA-122 | 25195 | Jan. 13, 2000 | Jan. 13, 2001 |
| Horn Antenna | Antenna Research | DRG-118/A | 1053 | Dec. 8, 1995 | N/A |
| Loop Antenna | Com-Power | AL-130 | 25309 | May 25, 2000 | May 25, 2001 |



6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 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

Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

For the peak readings below 1000 MHz that were within 3 dB of the spec limit or higher, the quasi-peak adapter was used.

For the peak readings above 1000 MHz that were within 3dB of the spec limit or higher, the readings were averaged manually by narrowing the video filter down to 10 Hz and slowing the sweep time to keep the amplitude reading calibrated.

The measurement bandwidths and transducers used for the radiated emissions test were:

| FREQUENCY RANGE | EFFECTIVE MEASUREMENT BANDWIDTH | TRANSDUCER |
|-------------------|---------------------------------|----------------------|
| 9 kHz to 150 kHz | 200 Hz | Active Loop Antenna |
| 150 kHz to 30 MHz | 9 kHz | Active Loop Antenna |
| 30 MHz to 300 MHz | 120 kHz | Biconical Antenna |
| 300 MHz to 1 GHz | 120 kHz | Log Periodic Antenna |
| 1 GHz to 9.3 GHz | 1 MHz | Horn Antenna |

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). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.



Radiated Emissions (Spurious and Harmonics) Test (con't)

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 final qualification data sheets are located in Appendix D.



7.2

Band Edge Plots of the Low and High Channels

Spectral plots of both the low and high channels were taken of the EUT to show that the emissions at the band edges (902 and 928 MHz) were attenuated by at least 50 dB below the level of the fundamental or to the general radiated emissions limits in FCC Title 47, Subpart C, section 15.209, whichever is the lesser attenuation. Please see Appendix D for the spectral plots and data sheets.

The spectral plots were taken at a distance of 3 meters, using the PA-102 Preamplifier to boost the signal level of any potential emissions outside the band edges.



8. CONCLUSIONS

The Remote Transmitter Model: OL900 meets all of the specification limits defined in CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249.



APPENDIX A

MODIFICATIONS TO THE EUT



MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.



APPENDIX B

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***



ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Remote Transmitter
Model: OL900
P/N: OL900-2

There were no additional models covered under this report.



APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS



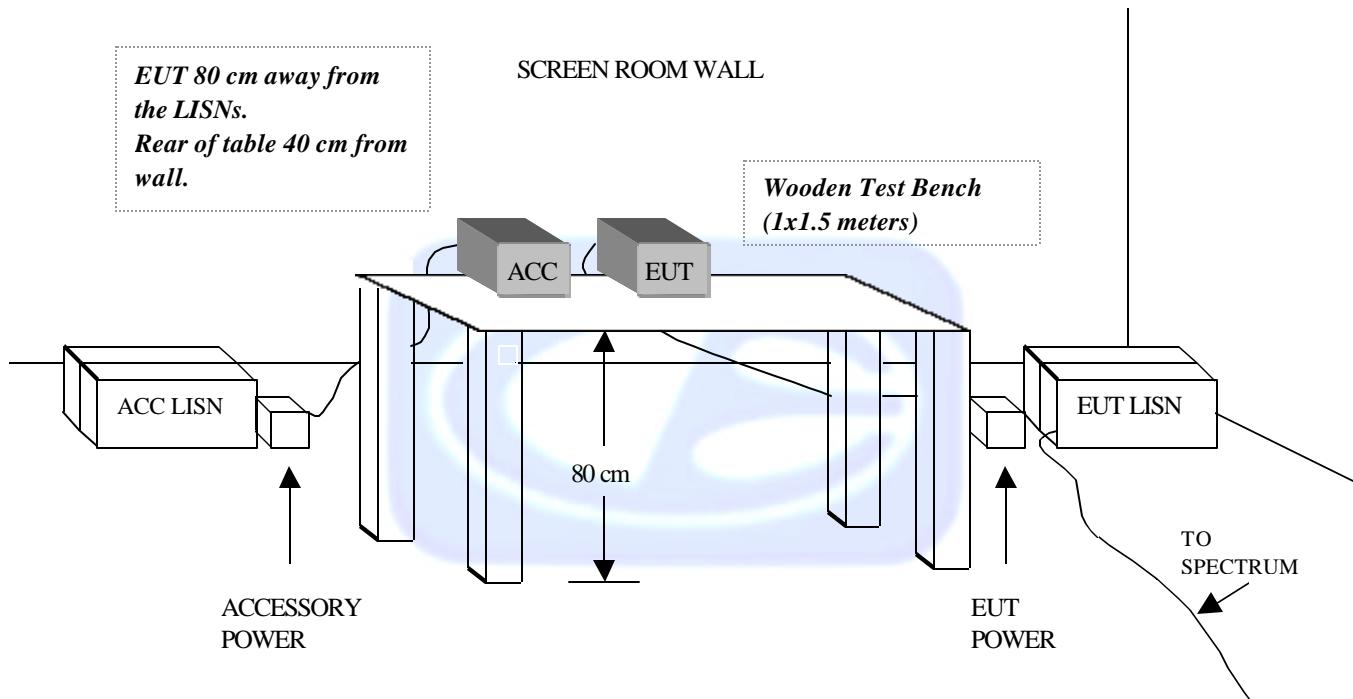
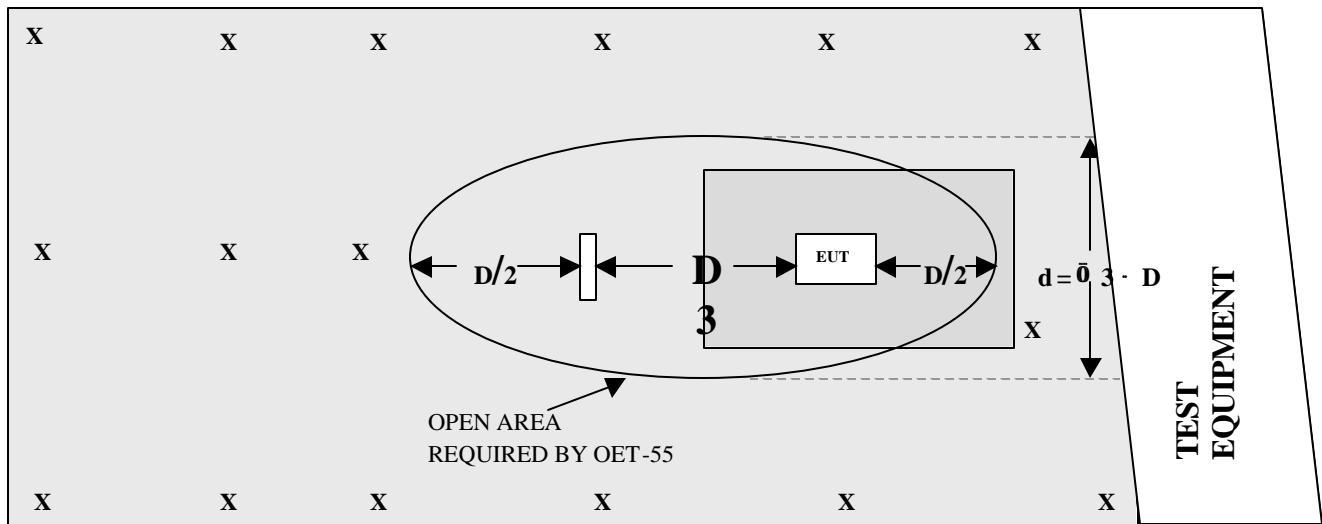
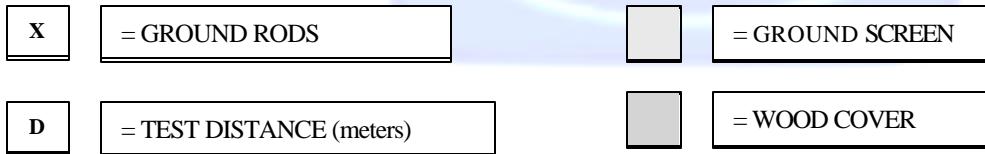
FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE**OPEN LAND > 15 METERS****OPEN LAND > 15 METERS****OPEN LAND > 15 METERS**

**FRONT VIEW**

C.E. ELECTRONICS, INC.
REMOTE TRANSMITTER
MODEL: OL900
FCC SUBPART C - RADIATED EMISSIONS – 7-24-00

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



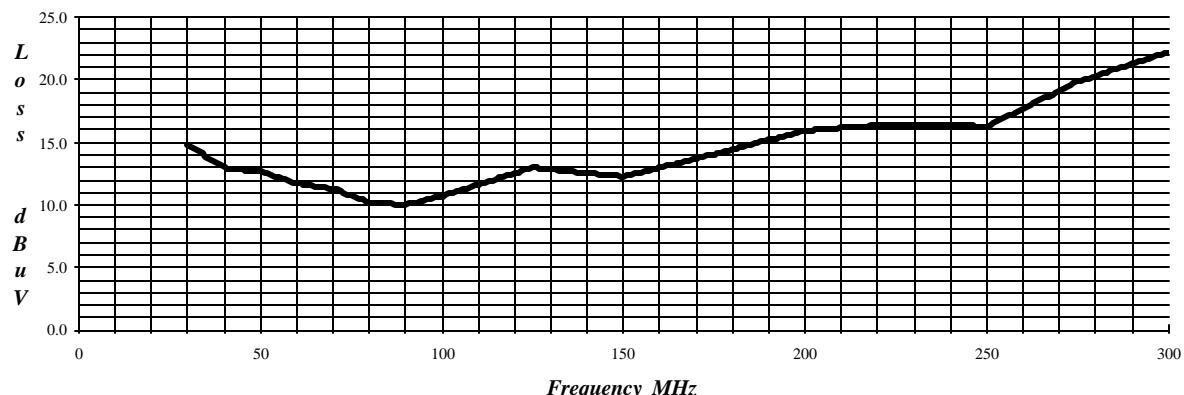
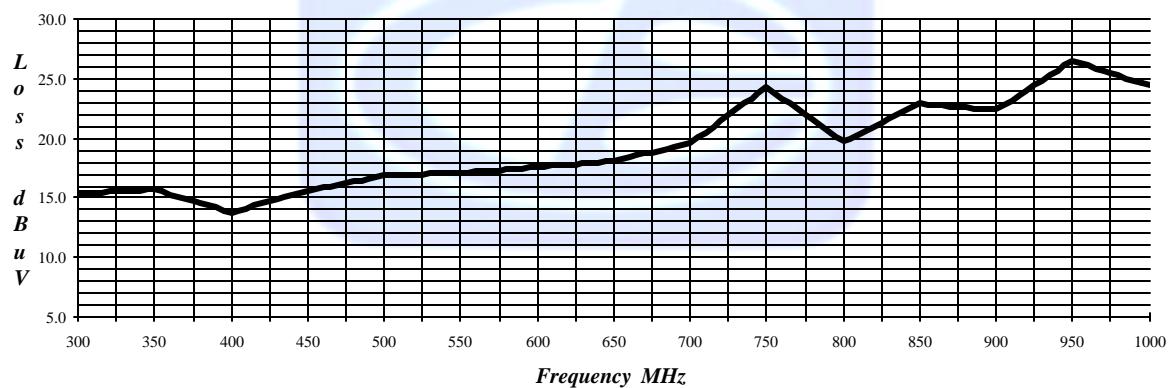
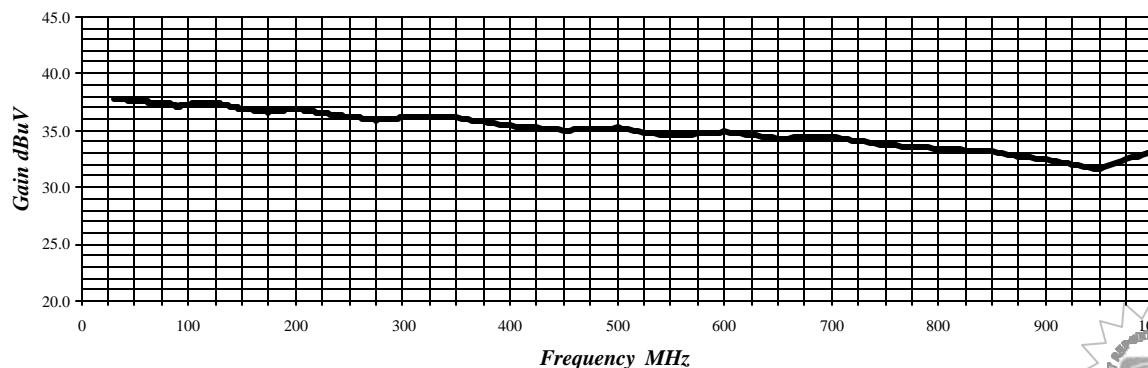


REAR VIEW

C.E. ELECTRONICS, INC.
REMOTE TRANSMITTER
MODEL: OL900
FCC SUBPART C - RADIATED EMISSIONS – 7-24-00

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



LAB "D" BICONICAL ANTENNA AB-100 S/N 01548 Cal: 10-14-99**LAB "D" LOG PERIODIC ANTENNA AL-100 S/N 16039 Cal: 10-14-99****PREAMPLIFIER EFFECTIVE GAIN AT 3 METERS PA-102 S/N: 1017 Lab "D"
Effective 1-16-99**

COM-POWER PA-122
MICROWAVE PREAMPLIFIER
S/N: 25195

CALIBRATION DATE: JANUARY 13, 2000

| FREQUENCY (GHz) | FACTOR (dB) | FREQUENCY (GHz) | FACTOR (dB) |
|--------------------|----------------|--------------------|----------------|
| 1.0 | 34.4 | 9.0 | 30.7 |
| 1.1 | 34.1 | 9.5 | 31.5 |
| 1.2 | 34.2 | 10.0 | 31.0 |
| 1.3 | 34.1 | 10.5 | 31.4 |
| 1.4 | 33.9 | 11.0 | 30.7 |
| 1.5 | 33.8 | 11.5 | 29.5 |
| 1.6 | 33.0 | 12.0 | 27.8 |
| 1.7 | 33.3 | 12.5 | 31.4 |
| 1.8 | 33.3 | 13.0 | 31.0 |
| 1.9 | 31.9 | 13.5 | 31.0 |
| 2.0 | 32.7 | 14.0 | 31.5 |
| 2.5 | 31.8 | 14.5 | 30.2 |
| 3.0 | 31.7 | 15.0 | 29.2 |
| 3.5 | 31.9 | 15.5 | 30.1 |
| 4.0 | 31.0 | 16.0 | 29.0 |
| 4.5 | 31.4 | 16.5 | 27.8 |
| 5.0 | 31.1 | 17.0 | 30.8 |
| 5.5 | 31.0 | 17.5 | 31.5 |
| 6.0 | 32.0 | 18.0 | 30.8 |
| 6.5 | 31.6 | | |
| 7.0 | 32.3 | | |
| 7.5 | 32.9 | | |
| 8.0 | 32.1 | | |
| 8.5 | 31.6 | | |



E-FIELD ANTENNA FACTOR CALIBRATION

$$E(\text{dB V/m}) = V_o(\text{dB V}) + AFE(\text{dB/m})$$

Model number : DRG-118/A

| Frequency GHz | AFE dB/m | Gain dBi |
|------------------|-------------|-------------|
| 1 | 22.3 | 8.0 |
| 2 | 26.7 | 9.5 |
| 3 | 29.7 | 10.1 |
| 4 | 29.5 | 12.8 |
| 5 | 32.3 | 12.0 |
| 6 | 32.4 | 13.4 |
| 7 | 36.1 | 11.0 |
| 8 | 37.4 | 10.9 |
| 9 | 36.8 | 12.5 |
| 10 | 39.5 | 10.7 |
| 11 | 39.6 | 11.5 |
| 12 | 39.8 | 12.0 |
| 13 | 39.7 | 12.8 |
| 14 | 41.8 | 11.3 |
| 15 | 41.9 | 11.9 |
| 16 | 38.1 | 16.3 |
| 17 | 41.0 | 13.9 |
| 18 | 46.5 | 8.9 |

Serial number : 1053
Job number : 96-092
Remarks : 3 meter calibration
Standards : LPD-118/A, TE-1000

Temperature : 72° F
Humidity : 56 %
Traceability : A01887
Date : December 08, 1995

Calibrated By

Com-Power Corporation

(949) 587-9800

Antenna Calibration

| Antenna Type: | | | Loop Antenna |
|--------------------------|--------------------|------------------|--------------|
| Model: | | | AL-130 |
| Serial Number: | | | 25309 |
| Calibration Date: | | | 05/25/00 |
| Frequency MHz | Magnetic (dB/m) | Electric dB/m | |
| 0.009 | -41.0 | 10.5 | |
| 0.01 | -41.0 | 10.5 | |
| 0.02 | -41.9 | 9.6 | |
| 0.05 | -41.9 | 9.6 | |
| 0.075 | -41.8 | 9.7 | |
| 0.1 | -42.2 | 9.3 | |
| 0.15 | -42.2 | 9.3 | |
| 0.25 | -40.7 | 10.8 | |
| 0.5 | -42.1 | 9.4 | |
| 0.75 | -40.9 | 10.6 | |
| 1 | -41.3 | 10.2 | |
| 2 | -40.8 | 10.7 | |
| 3 | -41.1 | 10.4 | |
| 4 | -41.2 | 10.3 | |
| 5 | -40.7 | 10.8 | |
| 10 | -40.6 | 10.9 | |
| 15 | -42.0 | 9.5 | |
| 20 | -42.0 | 9.5 | |
| 25 | -42.9 | 8.6 | |
| 30 | -42.3 | 9.2 | |
| Trans. Antenna Height | 2 meter | | |
| Receiving Antenna Height | 2 meter | | |

APPENDIX D

DATA SHEETS



RADIATED EMISSIONS

DATA SHEETS



RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

| | | | | | | | | | | | | |
|---------------|------------------------|--|--|--|--|--|--|--|--|--|-------------|----------|
| COMPANY | C.E. ELECTRONICS, INC. | | | | | | | | | | DATE | 7/24/00 |
| EUT | REMOTE TRANSMITTER | | | | | | | | | | DUTY CYCLE | 0.00 % |
| MODEL | OL900 | | | | | | | | | | PEAK TO AVG | 0 dB |
| S/N | N/A | | | | | | | | | | TEST DIST. | 3 METERS |
| TEST ENGINEER | KYLE FUJIMOTO | | | | | | | | | | LAB | D |

| Frequency MHz | Peak Reading (dBuV) | Average (A) or Quasi- Peak (QP) | Antenna Polar. (V or H) | Antenna Height (meters) | EUT Azimuth (degrees) | EUT Axis (X,Y,Z) | EUT Tx Channel | Antenna Factor (dB) | Cable Loss (dB) | Amplifier Gain (dB) | *Correcte Reading (dBuV/m) | Delta ** (dB) | Spec Limit (dBuV/m) | Comments |
|------------------|---------------------------|---------------------------------------|-------------------------------|-------------------------------|-----------------------------|------------------------|----------------------|---------------------------|-----------------------|---------------------------|----------------------------------|---------------------|---------------------------|----------|
| 903.3000 | 51.8 | 51.7 QP | H | 1.0 | 180 | Y | LOW | 22.7 | 4.6 | 0.0 | 79.0 | -15.0 | 94.0 | |
| 903.3000 | 64.0 | 63.9 QP | V | 1.0 | 270 | Y | LOW | 22.7 | 4.6 | 0.0 | 91.2 | -2.8 | 94.0 | |
| 912.3000 | 53.1 | 53.0 QP | H | 1.0 | 90 | Y | MID | 23.4 | 4.6 | 0.0 | 81.0 | -13.0 | 94.0 | |
| 912.3000 | 65.3 | 65.2 QP | V | 1.0 | 90 | Y | MID | 23.4 | 4.6 | 0.0 | 93.2 | -0.8 | 94.0 | |
| 921.3000 | 54.8 | 54.7 QP | H | 1.0 | 180 | Y | HIGH | 24.2 | 4.6 | 0.0 | 83.5 | -10.5 | 94.0 | |
| 921.3000 | 63.4 | 63.3 QP | V | 1.0 | 225 | Y | HIGH | 24.2 | 4.6 | 0.0 | 92.1 | -1.9 | 94.0 | |

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

| | | | | | | | | | | | | | |
|---------------|------------------------|--|--|--|--|--|--|--|--|--|-------------|----------|----|
| COMPANY | C.E. ELECTRONICS, INC. | | | | | | | | | | DATE | 7/24/00 | |
| EUT | REMOTE TRANSMITTER | | | | | | | | | | DUTY CYCLE | 0.00 | % |
| MODEL | OL900 | | | | | | | | | | PEAK TO AVG | 0 | dB |
| S/N | N/A | | | | | | | | | | TEST DIST. | 3 METERS | |
| TEST ENGINEER | KYLE FUJIMOTO | | | | | | | | | | LAB | D | |

| Frequency MHz | Peak Reading (dBuV) | Average (A) or Quasi- Peak (QP) | Antenna Polar. (V or H) | Antenna Height (meters) | EUT Azimuth (degrees) | EUT Axis (X,Y,Z) | EUT Tx Channel | Antenna Factor (dB) | Cable Loss (dB) | Amplifier Gain (dB) | *Correcte Reading (dBuV/m) | Delta ** (dB) | Spec Limit (dBuV/m) | Comments |
|------------------|---------------------------|---------------------------------------|-------------------------------|-------------------------------|-----------------------------|------------------------|----------------------|---------------------------|-----------------------|---------------------------|----------------------------------|---------------------|---------------------------|----------|
| 1806.6000 | 43.4 | A | H | 1.0 | 0 | Y | LOW | 24.5 | 3.5 | 33.3 | 38.1 | -15.9 | 54.0 | |
| 1806.6000 | 47.0 | A | V | 1.0 | 0 | Y | LOW | 24.5 | 3.5 | 33.3 | 41.7 | -12.3 | 54.0 | |
| 1824.6000 | 41.9 | A | H | 2.0 | 270 | Y | MID | 24.5 | 3.5 | 33.3 | 36.6 | -17.4 | 54.0 | |
| 1824.6000 | 47.5 | A | V | 1.0 | 90 | Y | MID | 24.5 | 3.5 | 33.3 | 42.2 | -11.8 | 54.0 | |
| 1842.6000 | 37.5 | A | H | 1.0 | 0 | Y | HIGH | 24.5 | 3.5 | 33.3 | 32.2 | -21.8 | 54.0 | |
| 1842.6000 | 54.6 | A | V | 1.0 | 270 | Y | HIGH | 24.5 | 3.5 | 33.3 | 49.3 | -4.7 | 54.0 | |

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

| | | | | | | | | | | | | | |
|---------------|------------------------|--|--|--|--|--|--|--|--|--|-------------|----------|----|
| COMPANY | C.E. ELECTRONICS, INC. | | | | | | | | | | DATE | 7/24/00 | |
| EUT | REMOTE TRANSMITTER | | | | | | | | | | DUTY CYCLE | 0.00 | % |
| MODEL | OL900 | | | | | | | | | | PEAK TO AVG | 0 | dB |
| S/N | N/A | | | | | | | | | | TEST DIST. | 3 METERS | |
| TEST ENGINEER | KYLE FUJIMOTO | | | | | | | | | | LAB | D | |

| Frequency MHz | Peak Reading (dBuV) | Average (A) or Quasi- Peak (QP) | Antenna Polar. (V or H) | Antenna Height (meters) | EUT Azimuth (degrees) | EUT Axis (X,Y,Z) | EUT Tx Channel | Antenna Factor (dB) | Cable Loss (dB) | Amplifier Gain (dB) | *Corrected Reading (dBuV/m) | Delta ** (dB) | Spec Limit (dBuV/m) | Comments | |
|------------------|---------------------------|---------------------------------------|-------------------------------|-------------------------------|-----------------------------|------------------------|----------------------|---------------------------|-----------------------|---------------------------|-----------------------------------|---------------------|---------------------------|----------|--|
| 2709.9000 | 44.2 | A | H | 1.0 | 0 | Y | LOW | 28.2 | 4.5 | 31.8 | 45.1 | -8.9 | 54.0 | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 2709.9000 | 47.7 | A | V | 1.0 | 0 | Y | LOW | 28.2 | 4.5 | 31.8 | 48.6 | -5.4 | 54.0 | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 2736.9000 | 41.2 | A | H | 1.0 | 180 | Y | MID | 28.2 | 4.5 | 31.8 | 42.1 | -11.9 | 54.0 | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 2736.9000 | 51.3 | 50.2 | A | V | 1.0 | 0 | Y | MID | 28.2 | 4.5 | 31.8 | 51.1 | -2.9 | 54.0 | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 2763.9000 | 40.8 | A | H | 1.0 | 0 | Y | HIGH | 29.7 | 4.6 | 31.7 | 43.4 | -10.6 | 54.0 | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 2763.9000 | 40.5 | A | V | 1.0 | 0 | Y | HIGH | 29.7 | 4.6 | 31.7 | 43.1 | -10.9 | 54.0 | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)



COMPATIBLE
ELECTRONICS

| | | | | | | | | | | | | | |
|---------------|------------------------|--|--|--|--|--|--|--|--|--|-------------|----------|----|
| COMPANY | C.E. ELECTRONICS, INC. | | | | | | | | | | DATE | 7/24/00 | |
| EUT | REMOTE TRANSMITTER | | | | | | | | | | DUTY CYCLE | 0.00 | % |
| MODEL | OL900 | | | | | | | | | | PEAK TO AVG | 0 | dB |
| S/N | N/A | | | | | | | | | | TEST DIST. | 3 METERS | |
| TEST ENGINEER | KYLE FUJIMOTO | | | | | | | | | | LAB | D | |

| Frequency MHz | Peak Reading (dBuV) | Average (A) or Quasi- Peak (QP) | Antenna Polar. (V or H) | Antenna Height (meters) | EUT Azimuth (degrees) | EUT Axis (X,Y,Z) | EUT Tx Channel | Antenna Factor (dB) | Cable Loss (dB) | Amplifier Gain (dB) | *Corrected Reading (dBuV/m) | Delta ** (dB) | Spec Limit (dBuV/m) | Comments |
|------------------|---------------------------|---------------------------------------|-------------------------------|-------------------------------|-----------------------------|------------------------|----------------------|---------------------------|-----------------------|---------------------------|-----------------------------------|---------------------|---------------------------|----------|
| 3613.2000 | 37.5 | A | H | 1.0 | 90 | Y | LOW | 29.6 | 5.0 | 31.9 | 40.2 | -13.8 | 54.0 | |
| 3613.2000 | 36.8 | A | V | 1.0 | 180 | Y | LOW | 29.6 | 5.0 | 31.9 | 39.5 | -14.5 | 54.0 | |
| 3649.2000 | 38.6 | A | H | 1.0 | 90 | Y | MID | 29.6 | 5.0 | 31.9 | 41.3 | -12.7 | 54.0 | |
| 3649.2000 | 40.7 | A | V | 1.0 | 0 | Y | MID | 29.6 | 5.0 | 31.9 | 43.4 | -10.6 | 54.0 | |
| 3685.2000 | 36.9 | A | H | 1.0 | 90 | Y | HIGH | 29.6 | 6.0 | 42.9 | 29.6 | -24.4 | 54.0 | |
| 3685.2000 | 41.0 | A | V | 1.0 | 0 | Y | HIGH | 29.6 | 6.0 | 42.9 | 33.7 | -20.3 | 54.0 | |

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

| | | | | | | | | | | | | |
|---------------|------------------------|--|--|--|--|--|--|--|--|--|-------------|----------|
| COMPANY | C.E. ELECTRONICS, INC. | | | | | | | | | | DATE | 7/24/00 |
| EUT | REMOTE TRANSMITTER | | | | | | | | | | DUTY CYCLE | 0.00 % |
| MODEL | OL900 | | | | | | | | | | PEAK TO AVG | 0 dB |
| S/N | N/A | | | | | | | | | | TEST DIST. | 3 METERS |
| TEST ENGINEER | KYLE FUJIMOTO | | | | | | | | | | LAB | D |

| Frequency MHz | Peak Reading (dBuV) | Average (A) or Quasi- Peak (QP) | Antenna Polar. (V or H) | Antenna Height (meters) | EUT Azimuth (degrees) | EUT Axis (X,Y,Z) | EUT Tx Channel | Antenna Factor (dB) | Cable Loss (dB) | Amplifier Gain (dB) | *Corrected Reading (dBuV/m) | Delta ** (dB) | Spec Limit (dBuV/m) | Comments |
|------------------|---------------------------|---------------------------------------|-------------------------------|-------------------------------|-----------------------------|------------------------|----------------------|---------------------------|-----------------------|---------------------------|-----------------------------------|---------------------|---------------------------|----------|
| 4516.5000 | 38.9 | A | H | 1.0 | 270 | Y | LOW | 30.9 | 5.6 | 31.4 | 44.0 | -10.0 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 4516.5000 | 39.7 | A | V | 1.0 | 90 | Y | LOW | 30.9 | 5.6 | 31.4 | 44.8 | -9.2 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 4561.5000 | 38.5 | A | H | 1.0 | 90 | Y | MID | 30.9 | 5.6 | 31.4 | 43.6 | -10.4 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 4561.5000 | 41.3 | A | V | 1.0 | 0 | Y | MID | 30.9 | 5.6 | 31.4 | 46.4 | -7.6 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 4606.5000 | 40.0 | A | H | 1.0 | 90 | Y | HIGH | 30.9 | 5.6 | 31.4 | 45.1 | -8.9 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 4606.5000 | 40.2 | A | V | 1.0 | 0 | Y | HIGH | 30.9 | 5.6 | 31.4 | 45.3 | -8.7 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)



COMPATIBLE
ELECTRONICS

| | | | | | | | | | | | | | |
|---------------|------------------------|--|--|--|--|--|--|--|--|--|-------------|----------|----|
| COMPANY | C.E. ELECTRONICS, INC. | | | | | | | | | | DATE | 7/24/00 | |
| EUT | REMOTE TRANSMITTER | | | | | | | | | | DUTY CYCLE | 0.00 | % |
| MODEL | OL900 | | | | | | | | | | PEAK TO AVG | 0 | dB |
| S/N | N/A | | | | | | | | | | TEST DIST. | 3 METERS | |
| TEST ENGINEER | KYLE FUJIMOTO | | | | | | | | | | LAB | D | |

| Frequency MHz | Peak Reading (dBuV) | Average (A) or Quasi- Peak (QP) | Antenna Polar. (V or H) | Antenna Height (meters) | EUT Azimuth (degrees) | EUT Axis (X,Y,Z) | EUT Tx Channel | Antenna Factor (dB) | Cable Loss (dB) | Amplifier Gain (dB) | *Corrected Reading (dBuV/m) | Delta ** (dB) | Spec Limit (dBuV/m) | Comments |
|------------------|---------------------------|---------------------------------------|-------------------------------|-------------------------------|-----------------------------|------------------------|----------------------|---------------------------|-----------------------|---------------------------|-----------------------------------|---------------------|---------------------------|----------|
| 5419.8000 | 38.3 | A | H | 1.0 | 90 | Y | LOW | 32.4 | 6.0 | 31.0 | 45.7 | -8.3 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 5419.8000 | 38.5 | A | V | 1.0 | 0 | Y | LOW | 32.4 | 6.0 | 31.0 | 45.9 | -8.1 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 5473.8000 | 40.0 | A | H | 1.0 | 90 | Y | MID | 32.4 | 6.0 | 31.0 | 47.4 | -6.6 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 5473.8000 | 40.2 | A | V | 1.0 | 180 | Y | MID | 32.4 | 6.0 | 31.0 | 47.6 | -6.4 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 5527.8000 | 35.8 | A | H | 1.0 | 180 | Y | HIGH | 32.4 | 6.0 | 31.0 | 43.2 | -10.8 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 5527.8000 | 40.5 | A | V | 1.0 | 0 | Y | HIGH | 32.4 | 6.0 | 31.0 | 47.9 | -6.1 | 54.0 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

| | | | | | | | | | | | | | |
|---------------|------------------------|--|--|--|--|--|--|--|--|--|-------------|----------|----|
| COMPANY | C.E. ELECTRONICS, INC. | | | | | | | | | | DATE | 7/24/00 | |
| EUT | REMOTE TRANSMITTER | | | | | | | | | | DUTY CYCLE | 0.00 | % |
| MODEL | OL900 | | | | | | | | | | PEAK TO AVG | 0 | dB |
| S/N | N/A | | | | | | | | | | TEST DIST. | 3 METERS | |
| TEST ENGINEER | KYLE FUJIMOTO | | | | | | | | | | LAB | D | |

| Frequency MHz | Peak Reading (dBuV) | Average (A) or Quasi- Peak (QP) | Antenna Polar. (V or H) | Antenna Height (meters) | EUT Azimuth (degrees) | EUT Axis (X,Y,Z) | EUT Tx Channel | Antenna Factor (dB) | Cable Loss (dB) | Amplifier Gain (dB) | *Corrected Reading (dBuV/m) | Delta ** (dB) | Spec Limit (dBuV/m) | Comments |
|------------------|---------------------------|---------------------------------------|-------------------------------|-------------------------------|-----------------------------|------------------------|----------------------|---------------------------|-----------------------|---------------------------|-----------------------------------|---------------------|---------------------------|----------|
| 6323.1000 | 38.7 | A | H | 1.0 | 180 | Y | LOW | 34.3 | 6.9 | 31.6 | 48.3 | -5.7 | 54.0 | |
| 6323.1000 | 40.4 | A | V | 1.0 | 90 | Y | LOW | 34.3 | 6.9 | 31.6 | 50.0 | -4.0 | 54.0 | |
| 6386.1000 | 38.0 | A | H | 1.0 | 0 | Y | MID | 34.3 | 6.9 | 31.6 | 47.6 | -6.4 | 54.0 | |
| 6386.1000 | 40.0 | A | V | 1.0 | 180 | Y | MID | 34.3 | 6.9 | 31.6 | 49.6 | -4.4 | 54.0 | |
| 6449.1000 | 37.5 | A | H | 1.0 | 90 | Y | HIGH | 34.3 | 6.9 | 31.6 | 47.1 | -6.9 | 54.0 | |
| 6449.1000 | 40.1 | A | V | 1.0 | 0 | Y | HIGH | 34.3 | 6.9 | 31.6 | 49.7 | -4.3 | 54.0 | |

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

No Harmonics Nor Emissions found
After the 7th Harmonic for all channels



**COMPATIBLE
ELECTRONICS**

Page: 1 of 1

Test location: Compatible Electronics
Customer : C.E. ELECTRONICS, INC. Date : 7/24/2000
Manufacturer : C.E. ELECTRONICS, INC. Time : 15.24
EUT name : REMOTE TRANSMITTER Model: OL900
Specification: FCC_B Test distance: 3.0 mtrs Lab: D
Distance correction factor($20 \cdot \log(\text{test/spec})$) : 0.00
Test Mode : SPURIOUS EMISSIONS
TEMPERATURE 77 DEGREES F.
RELATIVE HUMIDITY 45%
TESTED BY: Kyle Fujimoto
KYLE FUJIMOTO

NO SPURIOUS EMISSIONS FOUND FOR THE EUT
FROM 10 kHz TO 9300 MHz IN EITHER POLARIZATION

BAND EDGE

DATA SHEETS



BAND EDGE OF LOW CHANNEL

REF 110.0 dB μ V ATTEN 20 dB

MKR 902.01 MHz

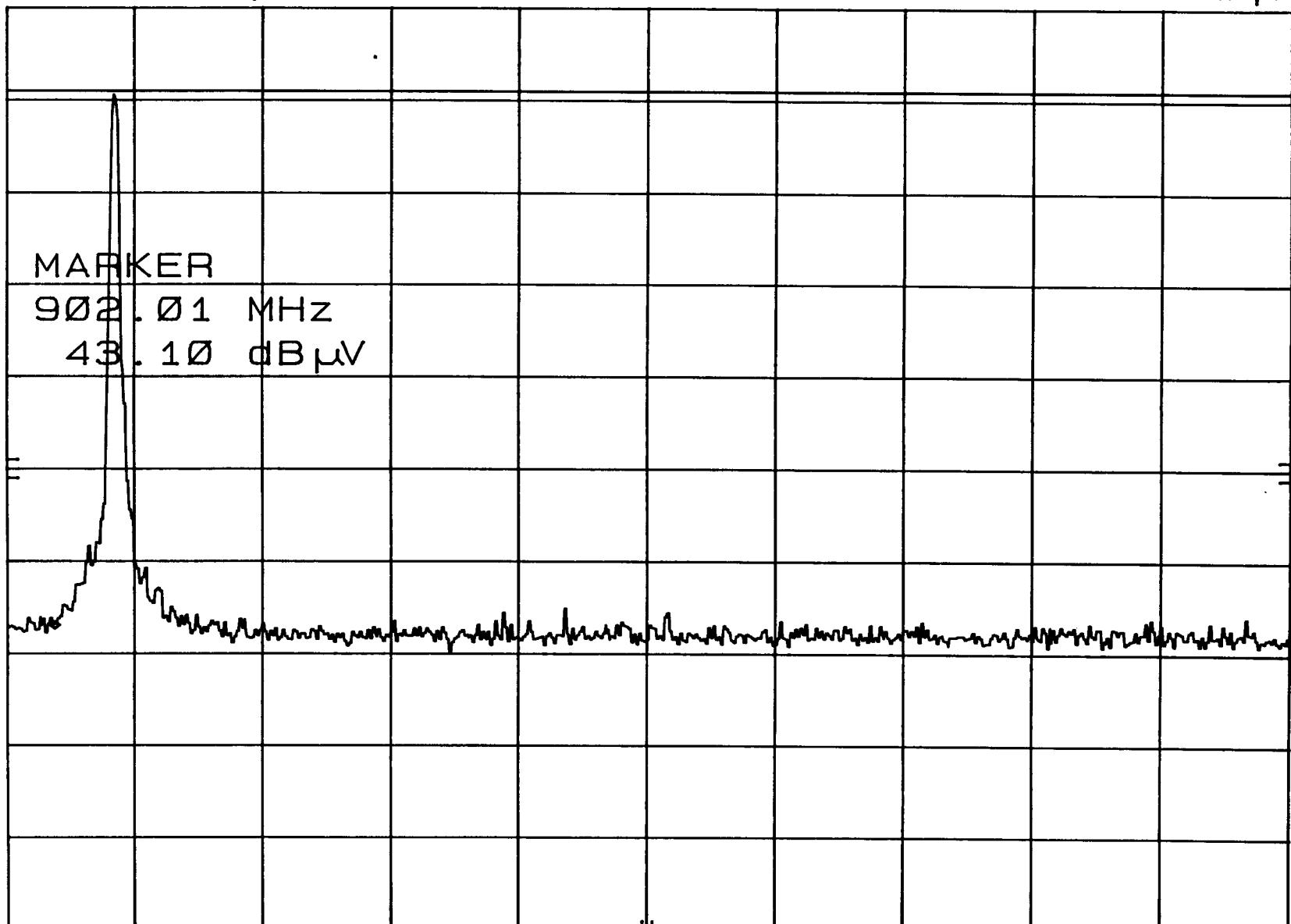
43.10 dB μ V

hp

10 dB/

DL
101.0
dB μ V

CORR'D



START 901.0 MHz

RES BW 1 MHz

VBW 1 MHz

STOP 929.0 MHz

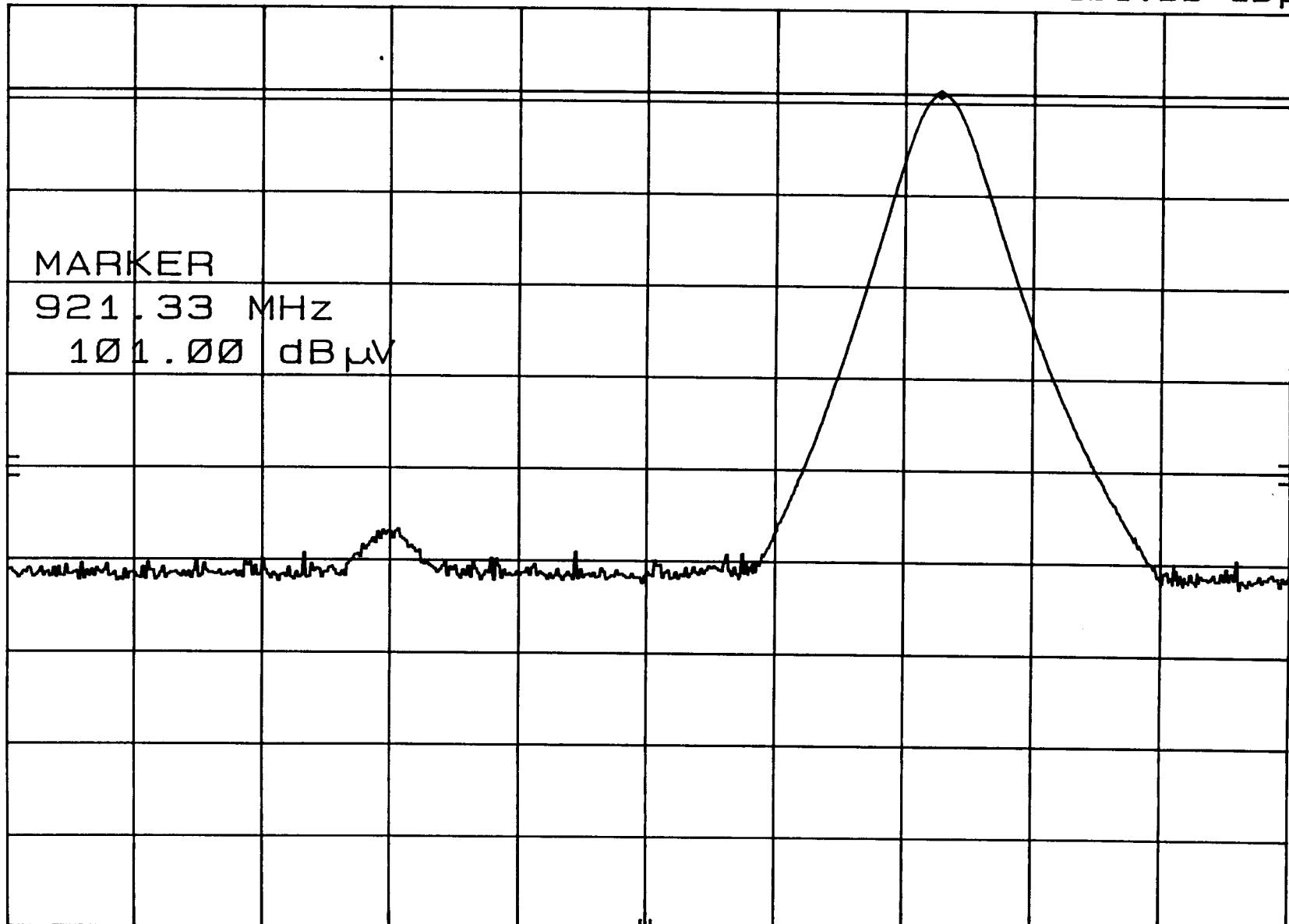
SWP 20.0 msec

BAND EDGE OF HIGH CHANNEL

hp REF 110.0 dB μ V ATTEN 20 dB

MKR 921.33 MHz
101.00 dB μ V

10 dB/



START 901.0 MHz

RES BW 1 MHz

VBW 1 MHz

STOP 929.0 MHz

SWP 20.0 msec

APPENDIX E

LAB RECOGNITIONS



LAB RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200063-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

Technology International (Europe) Ltd.

