

**FCC PART 15 SUBPART B and C
TEST REPORT**

for

2-STATION DUAL DECODER

Model: DUAL-2

Prepared for

HUNTER INDUSTRIES
1940 DIAMOND STREET
SAN MARCOS, CALIFORNIA 92078

Prepared by: *Kyle Fujimoto*

KYLE FUJIMOTO

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JAMES ROSS

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114 OLINDA DRIVE
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DATE: JULY 30, 2010

	REPORT	APPENDICES					TOTAL
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GENERAL REPORT SUMMARY

Compatible Electronics Inc. generates this electromagnetic emission test report, 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 without the written permission of Compatible Electronics, unless done so in full.

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

Device Tested: Hunter Industries
Model: DUAL-2
S/N: N/A

Product Description: The EUT is a dual station decoder.

Modifications: The EUT was not modified during the testing.

Customer: Hunter Industries
1940 Diamond Street
San Marcos, California 92078

Test Date(s): June 4, 7, and 9, 2010

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.207, and 15.209

Test Procedure: ANSI C63.4

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 to 30 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and Subpart C Section 15.207. Highest reading in relation to spec limit: 43.10 dBuV/m @ 3.987 MHz (*U _c = 1.00 dB)
2	Radiated RF Emissions 9 kHz – 1000 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and Subpart C Sections 15.205, 15.207, and 15.209. Highest reading in relation to spec limit: 37.01 dBuV/m @ 49.87 MHz (*U _c = 3.18 dB)

*U_c = combined standard uncertainty

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the 2-Station Dual Decoder, Model: DUAL-2. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. 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 **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, and 15.209.



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.

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

Hunter Industries

Pete Woytowitz Engineering Manager, Controllers

Compatible Electronics Inc.

Kyle Fujimoto Test Engineer

James Ross Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

2.5 Disposition of the Test Sample

The test sample has not yet been returned as of the date of this report.

2.6 Abbreviations and Acronyms

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

FCC	Federal Communications Commission
RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
ITE	Information Technology Equipment
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
N/A	Not Applicable
Ltd.	Limited
Inc.	Incorporated
IR	Infrared

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4: 2003	American National Standard for 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

During the test, the 2-Station Dual Decoder, Model: DUAL-2 (EUT) was directly connected to a connecting cup. The EUT was also connected to an I-core Sprinkler Controller and had a 100 ohm resistor connected between the EUT's Station 1 (black) and Station 2 (yellow) ports. The connecting cup was also connected to a field programmer. The EUT was in continuous hand-shake communication with the field programmer. The EUT receives its power of 34 VAC (at 1.2 Hz) from the I-core sprinkler controller.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in this mode of operation and any cables were maximized. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

4.1.1 Cable Construction and Termination

- Cable 1** This is a 1-meter unshielded cable connecting the EUT to the I-core sprinkler controller. The cable is hard wired at each end.
- Cable 2** This is a 50-centimeter unshielded cable connecting the EUT's station 1 port (black) to a 100 ohm resistor. The cable is hard wired at each end. The cable was bundled to a length of 40-centimeters.
- Cable 3** This is a 50-centimeter unshielded cable connecting the EUT's station 2 port (yellow) to a 100 ohm resistor. The cable is hard wired at each end. The cable was bundled to a length of 40-centimeters.
- Cable 4** This is a 30-centimeter braid and foil shielded cable connecting the connecting cup to the field programmer. The cable has BNC connectors at each end. The shield of the cable was grounded to the chassis via the connectors.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
2-STATION DUAL DECODER (EUT)	HUNTER INDUSTRIES	DUAL-2	N/A	M3UDUALDEC
FIELD PROGRAMMER	HUNTER INDUSTRIES	ICD-HP	N/A	M3UICDHP
CONNECTING CUP	HUNTER INDUSTRIES	N/A	N/A	N/A
I-CORE SPRINKLER CONTROLLER	HUNTER INDUSTRIES	IC-600-PL	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08768	September 16, 2009	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22262	September 16, 2009	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	September 17, 2009	1 Year
Radiated Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Biconical Antenna	Com Power	AB-900	15250	February 16, 2010	1 Year
Log Periodic Antenna	Com Power	AL-100	16060	June 15, 2009	1 Year
Preamplifier	Com-Power	PA-102	1017	January 6, 2010	1 Year
Loop Antenna	Com-Power	AL-130	17089	September 29, 2008	2 Year
Turntable	Com Power	TT-100	N/A	N/A	N/A
Antenna-Mast	Com Power	AM-100	N/A	N/A	N/A
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08768	September 16, 2009	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22262	September 16, 2009	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	September 17, 2009	1 Year
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
LISN	Com Power	LI-215	12078	September 28, 2009	1 Year
LISN	Com Power	LI-215	12082	September 28, 2009	1 Year
Transient Limiter	Com Power	252A910	1	September 28, 2009	1 Year

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.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

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 Radiated Emissions (Spurious, Fundamental, and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. A preamplifier was used to increase the sensitivity of the instrument. 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.

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

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. 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 loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

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 the final test data for the spurious emissions. The EUT was tested at a 10 meter test distance to obtain the final test data for the fundamental and the harmonic emissions. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B; and Subpart C Sections 15.205 and 15.209.

7.1.2 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this 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. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and Subpart C section 15.207 for conducted emissions. The testing was performed on the I-core Sprinkler Controller because this device provided the power for the EUT.

8. CONCLUSIONS

The 2-Station Dual Decoder, Model: DUAL-2, as tested, meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital portion; and the limits defined in Subpart C, sections 15.205, 15.207, and 15.209 for the transmitter portion.



APPENDIX A

LABORATORY RECOGNITIONS

LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

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

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

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

Federal Communications Commission

Industry Canada



APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.207, 15.209 and/or FCC **Class B** 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 C***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500**Agoura Division**
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600**Silverado Division**
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

ADDITIONAL MODELS COVERED UNDER THIS REPORT

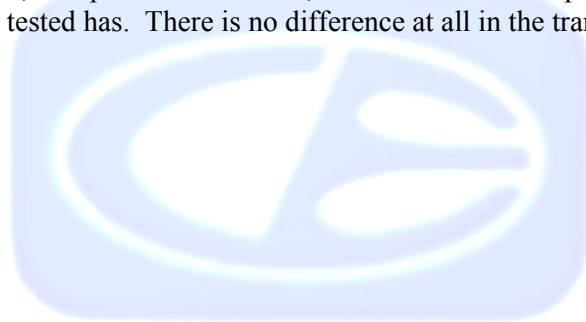
USED FOR THE PRIMARY TEST

2-Station Dual Decoder
Model: DUAL-2
S/N: N/A

ADDITIONAL MODEL COVERED UNDER THIS REPORT:

1-Station Dual Decoder
Model: DUAL-1
S/N: N/A

The DUAL-1 is similar to the EUT, except on the DUAL-1, the PCB has been depopulated to provide only 1 output instead of 2 outputs that the EUT tested has. There is no difference at all in the transceiver sections of both units.



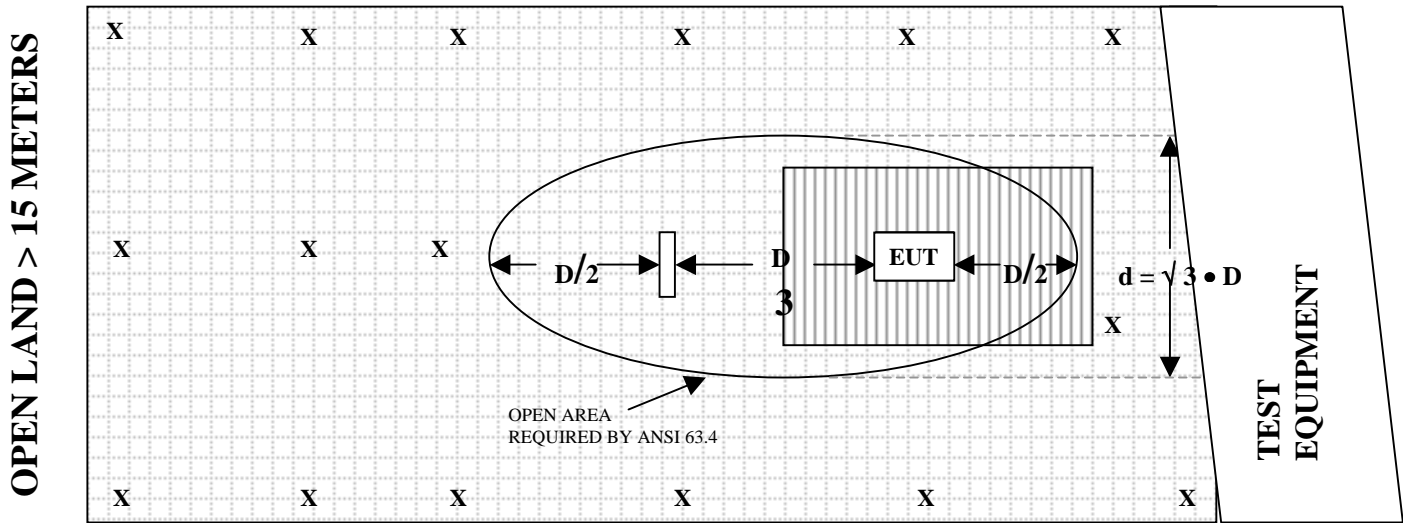


APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF 3 METER RADIATED TEST SITE

OPEN LAND > 15 METERS

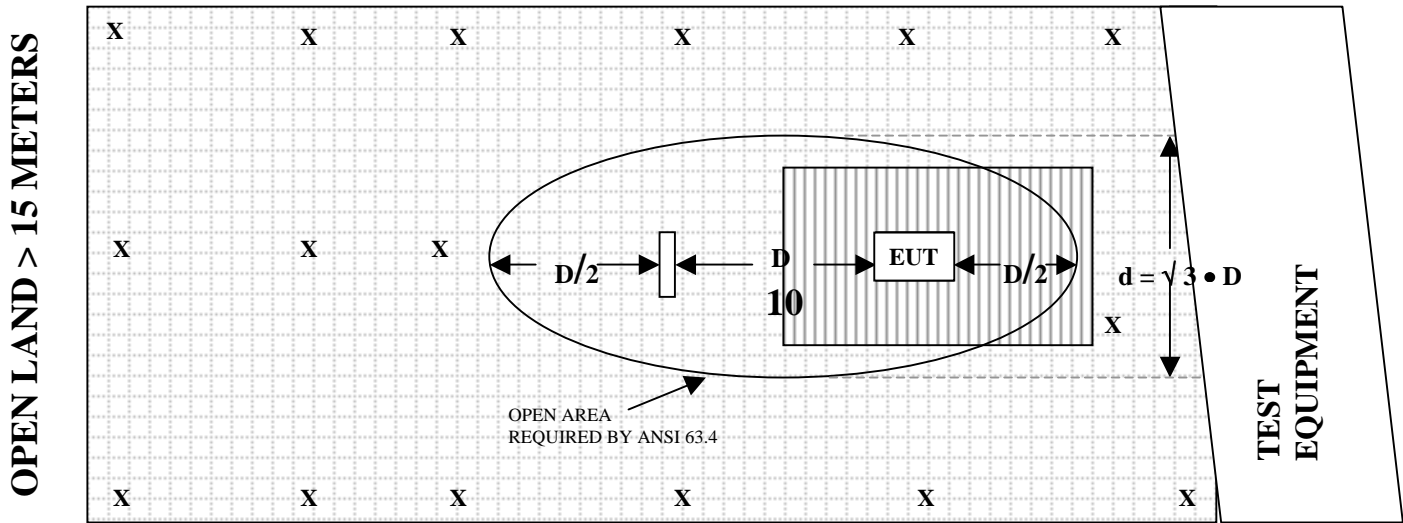


OPEN LAND > 15 METERS

- X = GROUND RODS
- D = TEST DISTANCE (meters)
- [Grid Pattern] = GROUND SCREEN
- [Wood Cover Pattern] = WOOD COVER

FIGURE 2: PLOT MAP AND LAYOUT OF 10 METER RADIATED TEST SITE

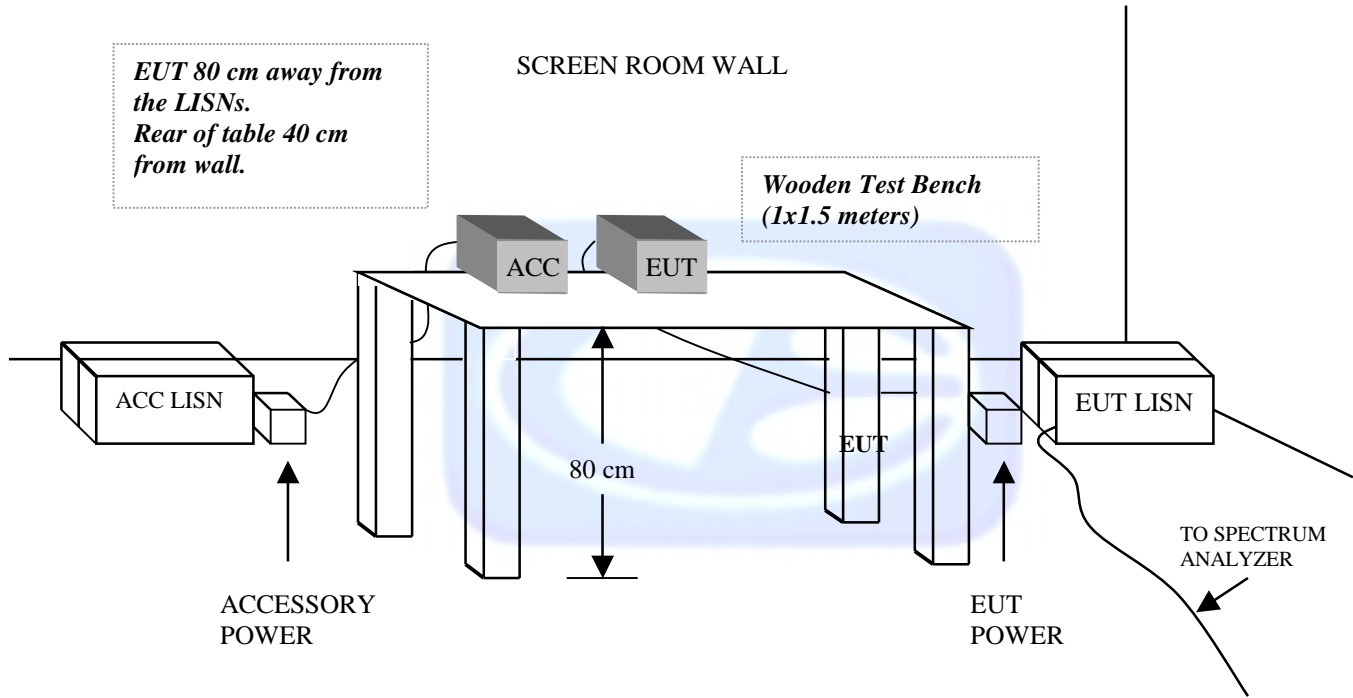
OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

- | | | | |
|---|--------------------------|--|-----------------|
| X | = GROUND RODS | | = GROUND SCREEN |
| D | = TEST DISTANCE (meters) | | = WOOD COVER |

FIGURE 3: CONDUCTED EMISSIONS TEST SETUP



COM-POWER AB-900**BICONICAL ANTENNA**

S/N: 15250

CALIBRATION DATE: FEBRUARY 16, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	13.5	100	11.1
35	10.4	120	13.1
40	10.3	140	12.2
45	9.8	160	13.6
50	10.6	180	15.9
60	9.5	200	16.4
70	8.4	250	15.1
80	5.5	275	17.7
90	7.3	300	19.5

COM-POWER AL-100**LOG PERIODIC ANTENNA**

S/N: 16060

CALIBRATION DATE: JUNE 15, 2009

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	14.2	700	20.1
400	15.9	800	21.2
500	17.1	900	21.3
600	18.8	1000	22.3

COM-POWER PA-102**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: JANUARY 6, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
20	38.0	300	38.2
30	38.3	350	38.1
40	38.4	400	38.5
50	38.2	450	38.0
60	38.2	500	37.9
70	38.3	550	38.2
80	38.1	600	38.2
90	38.2	650	37.7
100	38.3	700	38.3
125	38.2	750	38.3
150	38.3	800	37.4
175	38.3	850	37.5
200	38.1	900	37.6
225	38.2	950	37.4
250	38.3	1000	37.3
275	38.2		

COM-POWER AL-130**LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: SEPTEMBER 29, 2008

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.57	9.93
0.01	-42.06	9.44
0.02	-42.43	9.07
0.05	-42.50	9.00
0.07	-42.10	9.40
0.1	-42.03	9.47
0.2	-44.50	7.00
0.3	-41.93	9.57
0.5	-41.90	9.60
0.7	-41.73	9.77
1	-41.23	10.27
2	-40.90	10.60
3	-41.20	10.30
4	-41.30	10.20
5	-40.70	10.80
10	-41.10	10.40
15	-42.17	9.33
20	-42.00	9.50
25	-42.20	9.30
30	-43.10	8.40



FRONT VIEW

HUNTER INDUSTRIES
2-STATION DUAL DECODER
MODEL: DUAL-2

FCC SUBPART B AND C – RADIATED EMISSIONS – 3 METERS

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



REAR VIEW

HUNTER INDUSTRIES
2-STATION DUAL DECODER
MODEL: DUAL-2

FCC SUBPART B AND C – RADIATED EMISSIONS – 3 METERS

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



FRONT VIEW

HUNTER INDUSTRIES
2-STATION DUAL DECODER
MODEL: DUAL-2

FCC SUBPART B AND C – RADIATED EMISSIONS – 10 METERS

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



REAR VIEW

HUNTER INDUSTRIES
2-STATION DUAL DECODER
MODEL: DUAL-2

FCC SUBPART B AND C – RADIATED EMISSIONS – 10 METERS

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



FRONT VIEW

**HUNTER INDUSTRIES
2-STATION DUAL DECODER
MODEL: DUAL-2
FCC SUBPART B AND C – CONDUCTED EMISSIONS**

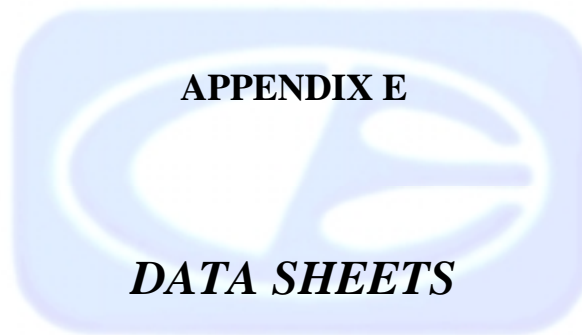
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

HUNTER INDUSTRIES
2-STATION DUAL DECODER
MODEL: DUAL-2
FCC SUBPART B AND C – CONDUCTED EMISSIONS

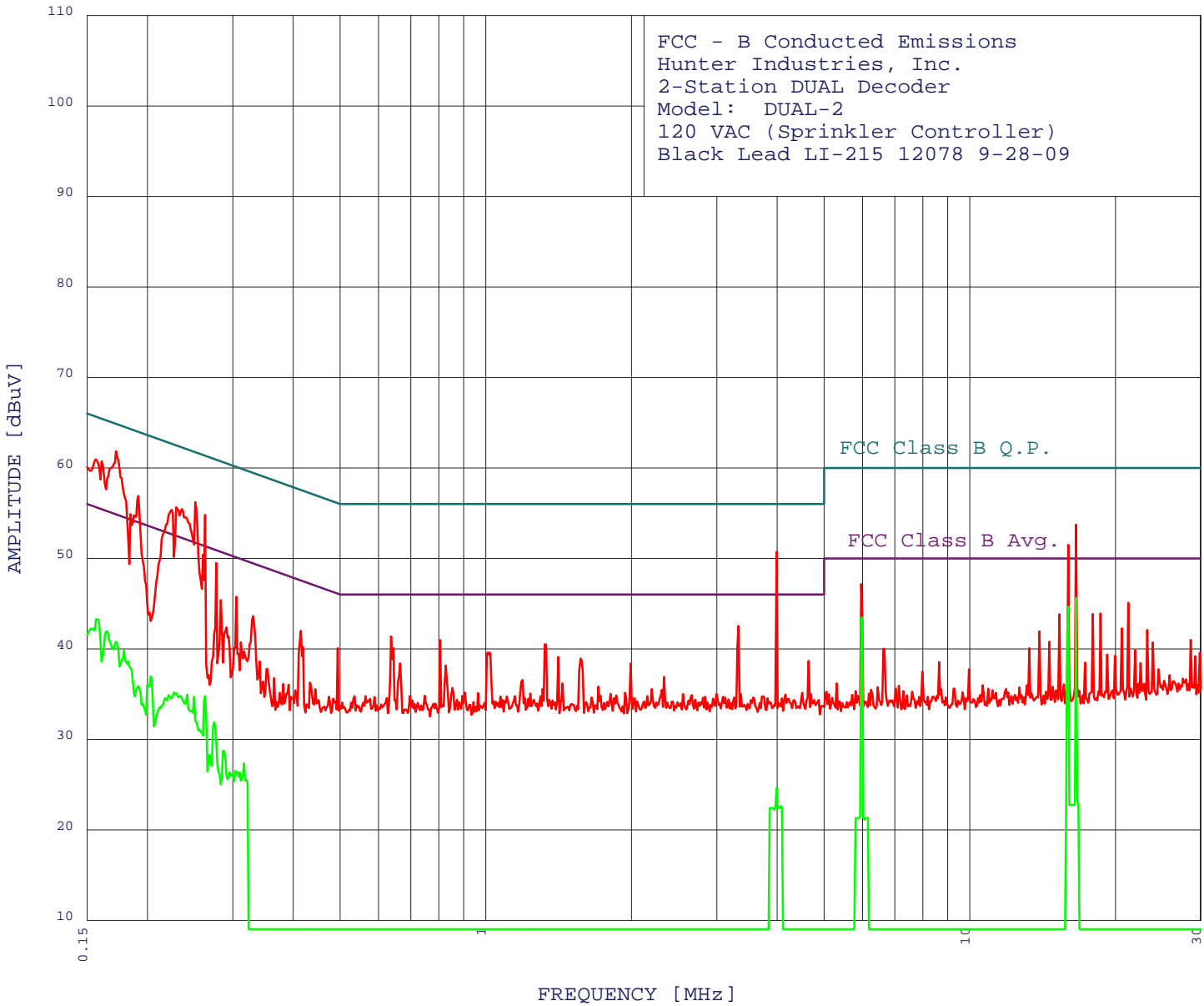
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





6/04/2010 14:46:54

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average



FCC - B Conducted Emissions
Hunter Industries, Inc.
2-Station DUAL Decoder
Model: DUAL-2
120 VAC (Sprinkler Controller)
Black Lead LI-215 12078 9-28-09

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

FCC - B Conducted Emissions

6/04/2010

14:46:54

Hunter Industries, Inc.

2-Station DUAL Decoder

Model: DUAL-2

120 VAC (Sprinkler Controller)

Black Lead LI-215 12078 9-28-09

Test Engineer: James Ross

49 highest peaks above -50.00 dB of FCC Class B Avg. limit line

Peak criteria : 3.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.172	61.85	54.86	6.99**
2	3.987	50.73	46.00	4.73**
3	0.251	56.22	51.73	4.49**
4	16.582	53.72	50.00	3.72**
5	0.263	54.80	51.33	3.47**
6	0.229	55.65	52.48	3.17**
7	0.192	56.88	53.97	2.91**
8	0.224	55.36	52.65	2.71**
9	15.976	51.48	50.00	1.48**
10	0.277	49.48	50.89	-1.41**
11	5.964	47.14	50.00	-2.86**
12	3.328	42.51	46.00	-3.49
13	0.305	45.74	50.10	-4.36**
14	0.637	41.38	46.00	-4.62
15	21.263	45.09	50.00	-4.91
16	0.805	40.95	46.00	-5.05
17	0.283	45.37	50.72	-5.34**
18	1.331	40.48	46.00	-5.52
19	0.415	41.99	47.55	-5.56
20	0.331	43.61	49.44	-5.83
21	0.494	40.07	46.09	-6.02
22	18.622	43.92	50.00	-6.08
23	17.955	43.86	50.00	-6.14
24	15.312	43.83	50.00	-6.17
25	1.011	39.63	46.00	-6.37
26	1.412	39.09	46.00	-6.91
27	1.569	38.91	46.00	-7.09
28	4.648	38.66	46.00	-7.34
29	0.665	38.39	46.00	-7.61
30	1.992	38.37	46.00	-7.63
31	20.607	42.26	50.00	-7.74
32	0.826	38.16	46.00	-7.84
33	23.273	42.08	50.00	-7.92
34	13.920	41.92	50.00	-8.08
35	0.291	42.36	50.49	-8.13**
36	28.615	41.00	50.00	-9.00
37	2.334	36.88	46.00	-9.12
38	14.603	40.77	50.00	-9.23
39	23.901	40.71	50.00	-9.29
40	1.191	36.56	46.00	-9.44
41	1.441	36.19	46.00	-9.81
42	13.269	40.08	50.00	-9.92
43	6.664	39.99	50.00	-10.01
44	21.959	39.82	50.00	-10.18
45	29.851	39.56	50.00	-10.44
46	19.235	39.37	50.00	-10.63
47	19.950	39.23	50.00	-10.77
48	29.233	39.18	50.00	-10.82
49	0.433	36.26	47.19	-10.93

FCC - B Conducted Emissions

6/04/2010

14:46:54

Hunter Industries, Inc.

2-Station DUAL Decoder

Model: DUAL-2

120 VAC (Sprinkler Controller)

Black Lead LI-215 12078 9-28-09

Test Engineer: James Ross

18 highest peaks above -50.00 dB of FCC Class B Avg. limit line

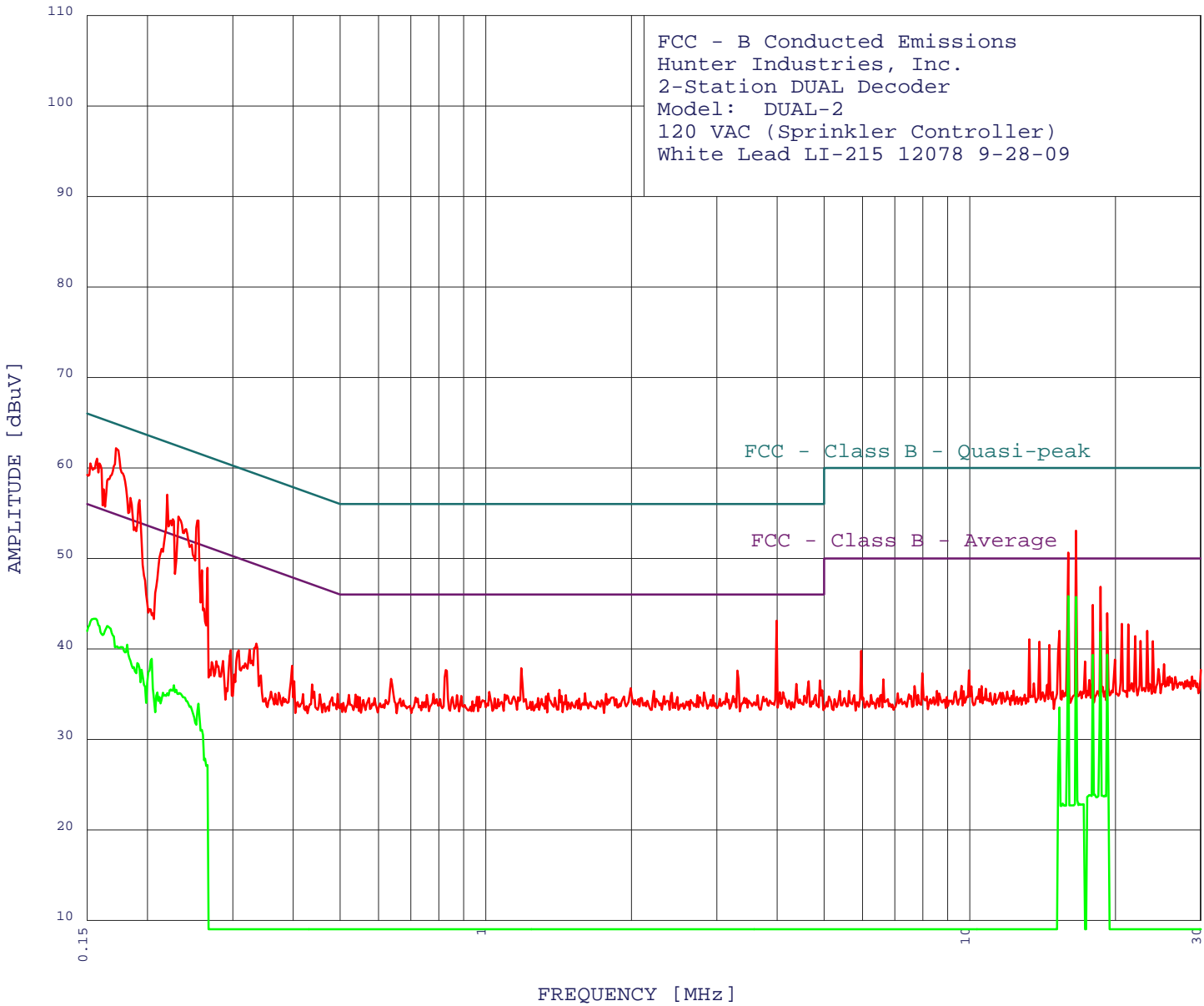
Peak criteria : 1.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	16.582	45.61	50.00	-4.39
2	15.976	44.65	50.00	-5.35
3	5.964	43.43	50.00	-6.57
4	0.157	43.27	55.64	-12.37
5	0.165	41.94	55.20	-13.27
6	0.179	39.84	54.54	-14.70
7	0.203	36.94	53.49	-16.55
8	0.263	34.75	51.33	-16.58
9	0.250	34.69	51.77	-17.08
10	0.242	34.94	52.04	-17.09
11	0.227	35.19	52.57	-17.38
12	0.192	35.89	53.97	-18.08
13	0.275	31.92	50.98	-19.06
14	3.987	24.62	46.00	-21.38
15	0.286	28.72	50.63	-21.91
16	0.317	27.33	49.79	-22.47
17	0.269	28.29	51.15	-22.87
18	0.304	26.50	50.14	-23.65



6/04/2010 14:38:28

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average



FCC - B Conducted Emissions
Hunter Industries, Inc.
2-Station DUAL Decoder
Model: DUAL-2
120 VAC (Sprinkler Controller)
White Lead LI-215 12078 9-28-09

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

FCC - B Conducted Emissions

6/04/2010

14:38:28

Hunter Industries, Inc.

2-Station DUAL Decoder

Model: DUAL-2

120 VAC (Sprinkler Controller)

White Lead LI-215 12078 9-28-09

Test Engineer: James Ross

39 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 3.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.172	62.17	54.86	7.32**
2	0.220	57.04	52.83	4.21**
3	16.582	53.06	50.00	3.06**
4	0.254	54.19	51.64	2.55**
5	0.193	56.44	53.93	2.51**
6	0.232	54.61	52.39	2.22**
7	15.976	50.62	50.00	0.62**
8	0.266	48.95	51.24	-2.30**
9	0.259	48.68	51.47	-2.78**
10	3.987	43.10	46.00	-2.90
11	18.622	46.87	50.00	-3.13**
12	17.955	44.84	50.00	-5.16**
13	19.235	43.93	50.00	-6.07**
14	20.607	42.76	50.00	-7.24
15	21.263	42.71	50.00	-7.29
16	23.273	42.00	50.00	-8.00
17	15.312	41.98	50.00	-8.02**
18	1.184	37.85	46.00	-8.15
19	0.826	37.65	46.00	-8.35
20	3.311	37.58	46.00	-8.42
21	21.959	41.39	50.00	-8.61
22	0.336	40.57	49.31	-8.73
23	13.269	41.05	50.00	-8.95
24	22.545	40.86	50.00	-9.14
25	23.901	40.84	50.00	-9.16
26	13.920	40.79	50.00	-9.21
27	0.637	36.67	46.00	-9.33
28	4.902	36.52	46.00	-9.48
29	14.603	40.43	50.00	-9.57
30	0.398	38.11	47.90	-9.79
31	5.964	39.78	50.00	-10.22
32	0.297	39.85	50.32	-10.48
33	0.438	36.08	47.11	-11.03
34	19.950	38.80	50.00	-11.20
35	17.294	38.59	50.00	-11.41
36	25.202	38.31	50.00	-11.69
37	9.967	37.64	50.00	-12.36
38	7.981	37.31	50.00	-12.69
39	6.627	36.63	50.00	-13.37

FCC - B Conducted Emissions

6/04/2010

14:38:28

Hunter Industries, Inc.

2-Station DUAL Decoder

Model: DUAL-2

120 VAC (Sprinkler Controller)

White Lead LI-215 12078 9-28-09

Test Engineer: James Ross

14 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	15.976	45.81	50.00	-4.19
2	16.582	45.75	50.00	-4.25
3	18.622	41.88	50.00	-8.12
4	19.235	39.38	50.00	-10.62
5	17.955	39.32	50.00	-10.68
6	0.157	43.32	55.64	-12.32
7	0.165	42.53	55.20	-12.68
8	0.204	38.89	53.44	-14.55
9	0.190	38.43	54.01	-15.58
10	0.195	37.69	53.84	-16.15
11	15.312	33.54	50.00	-16.46
12	0.227	35.98	52.57	-16.59
13	0.255	33.93	51.60	-17.67
14	0.210	35.18	53.23	-18.05
