FCC PART 15, SUBPART B and C
TEST REPORT

for

WIRELESS RAIN-CLIK TRANSMITTER

MODEL: WRFC-TR

Prepared for
HUNTER INDUSTRIES INCORPORATED
1940 DIAMOND STREET
SAN MARCOS, CA 92069

Prepared by:_____

MICHAEL CHRISTENSEN

Approved by:_____

KYLE FUJIMOTO

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

DATE: JANUARY 6, 2004

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
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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 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:	Wireless Rain-Clik Transmitter Model: WRFC-TR S/N: N/A
Product Description:	See Expository Statement
Modifications:	The EUT was not modified in order to meet the specifications.
Manufacturer:	Hunter Industries Incorporated 1940 Diamond Street San Marcos, CA 92069
Test Dates:	December 22 and 23, 2003
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.209 and 15.231
Test Procedure:	ANSI C63.4: 2001
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 test was not performed because the EUT operates on DC power only and cannot be plugged into the AC public mains.
2	Radiated RF Emissions, 10 kHz - 3150 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Wireless Rain-Clik Transmitter Model: WRFC-TR. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 2001. 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, 15.209, and 15.231.

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

Hunter Industries Incorporated

Peter Woytowitz Engineering Manager

Compatible Electronics, Inc.

Kyle Fujimoto Test Engineer
Michael Christensen Sr. Test Engineer

2.4 Date Test Sample was Received

The test sample was received on December 21, 2003.

2.5 Disposition of the Test Sample

The sample has yet to be returned to Hunter Industries Incorporated as of January 6, 2004.

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, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2001	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 Wireless Rain-Clik Transmitter Model: WRFC-TR (EUT) was tested as a stand alone device. The EUT was tested while it was continuously transmitting and in two orthogonal axis. The EUT has a non-removable antenna which is soldered on the PCB. During normal operation, the EUT will be programmed to not transmit longer than 5 seconds.

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

4.1.1 Cable Construction and Termination

The EUT has no external cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
WIRELESS RAIN-CLIK TRANSMITTER (EUT)	HUNTER INDUSTRIES INCORPORATED	WRFC-TR	N/A	M3UWSSTX

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Radiate Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	June 20, 2003	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22279	June 20, 2003	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	June 20, 2003	1 Year
Preamplifier	Com Power	PA-103	1582	March 6, 2003	1 Year
Biconical Antenna	Com Power	AB-900	15226	April 21, 2003	1 Year
Log Periodic Antenna	Com Power	AL-100	16202	February 3, 2003	1 Year
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	4530	US91912319	N/A	N/A
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Loop Antenna	Com-Power	AL-130	25310	June 4, 2003	1 Year
Horn Antenna	Com-Power	AH-118	10073	January 21, 2002	2 Year
Microwave Preamplifier	Com-Power	PA-122	181917	October 31, 2003	1 Year

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-103 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.

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 3.15 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: 2001. 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. 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 final test data. The final qualification data sheets are located in Appendix E.

7.2 Bandwidth of the Fundamental

The -20 dB bandwidth was checked to see that it was within 0.25% of the fundamental frequency for the EUT. Photographs of the –20 dB bandwidth are located in Appendix E.

8. CONCLUSIONS

The Wireless Rain-Clik Transmitter Model: WRFC-TR meets all of the Class B specification limits defined in CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.

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

Radio-Frequency Technologies (Competent Body)

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.231 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 during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

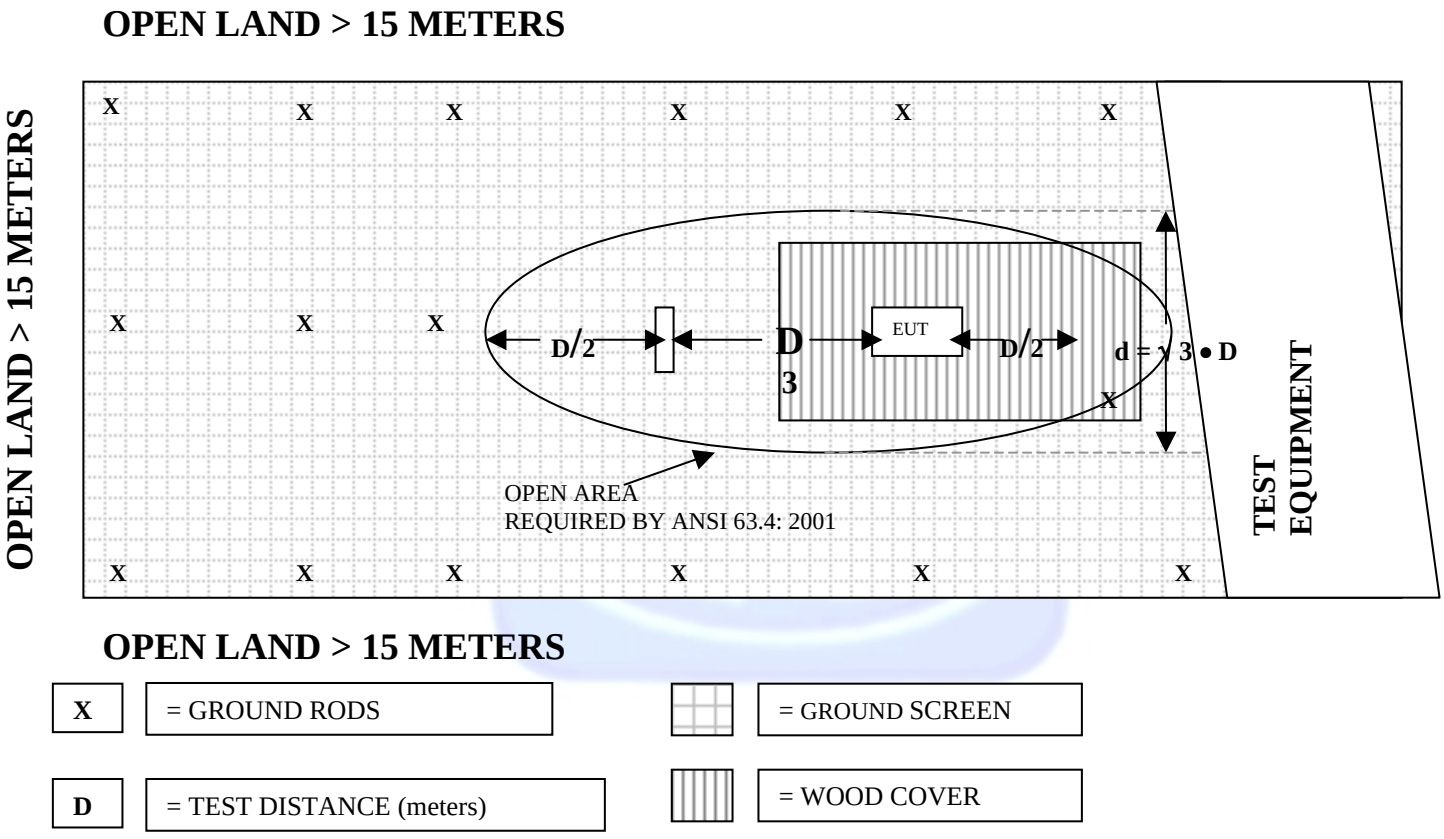
USED FOR THE PRIMARY TEST	Wireless Rain-Clik Transmitter Model: WRFC-TR S/N: N/A
ADDITIONAL MODEL:	Wireless Rain-Clik Transmitter Model: WRC-TR S/N: N/A

The difference between the two models is that the WRFC-TR has a thermistor that is used to detect freezing conditions and the WRC-TR has a short instead. The RF section is identical in both models.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE



COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15226

CALIBRATION DATE: APRIL 21, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	11.20	120	13.80
35	10.40	125	12.50
40	10.20	140	12.50
45	11.00	150	10.90
50	11.30	160	11.50
60	9.60	175	14.90
70	7.40	180	15.50
80	6.10	200	16.90
90	7.70	250	15.50
100	10.50	300	23.80

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16202

CALIBRATION DATE: FEBRUARY 3, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.70	700	20.60
400	15.40	800	21.80
500	16.50	900	21.00
600	17.20	1000	21.50

COM-POWER PA-103

PREAMPLIFIER

S/N: 1582

CALIBRATION DATE: MARCH 6, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	33.6	300	33.3
40	33.6	350	33.3
50	33.6	400	33.1
60	33.6	450	33.0
70	33.5	500	32.9
80	33.5	550	33.0
90	33.5	600	32.8
100	33.6	650	32.6
125	33.6	700	32.7
150	33.4	750	32.4
175	33.5	800	32.4
200	33.4	850	32.7
225	33.3	900	31.9
250	33.2	950	31.8
275	33.3	1000	32.5

COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 181917

CALIBRATION DATE: OCTOBER 31, 2003

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	33.5	6.0	34.5
1.1	33.6	6.5	34.6
1.2	33.6	7.0	33.1
1.3	33.3	7.5	32.5
1.4	33.1	8.0	33.5
1.5	32.7	8.5	35.1
1.6	32.6	9.0	35.5
1.7	32.5	9.5	36.8
1.8	31.5	10.0	35.7
1.9	31.4	11.0	31.8
2.0	30.0	12.0	29.5
2.5	33.2	13.0	31.2
3.0	32.0	14.0	31.7
3.5	33.0	15.0	31.1
4.0	33.4	16.0	32.9
4.5	34.7	17.0	33.6
5.0	34.2	18.0	31.0
5.5	33.2		

COM-POWER AH-118

HORN ANTENNA

S/N: 10073

CALIBRATION DATE: JANUARY 21, 2002

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	26.6	10.0	41.8
1.5	29.2	10.5	40.4
2.0	32.4	11.0	37.5
2.5	32.3	11.5	42.2
3.0	31.4	12.0	40.4
3.5	31.8	12.5	43.6
4.0	31.1	13.0	44.2
4.5	32.0	13.5	41.8
5.0	33.9	14.0	43.3
5.5	32.0	14.5	47.0
6.0	37.8	15.0	49.4
6.5	36.8	15.5	49.9
7.0	42.4	16.0	49.9
7.5	39.5	16.5	48.2
8.0	41.3	17.0	44.0
8.5	40.3	17.5	44.8
9.0	39.5	18.0	44.7
9.5	41.4		

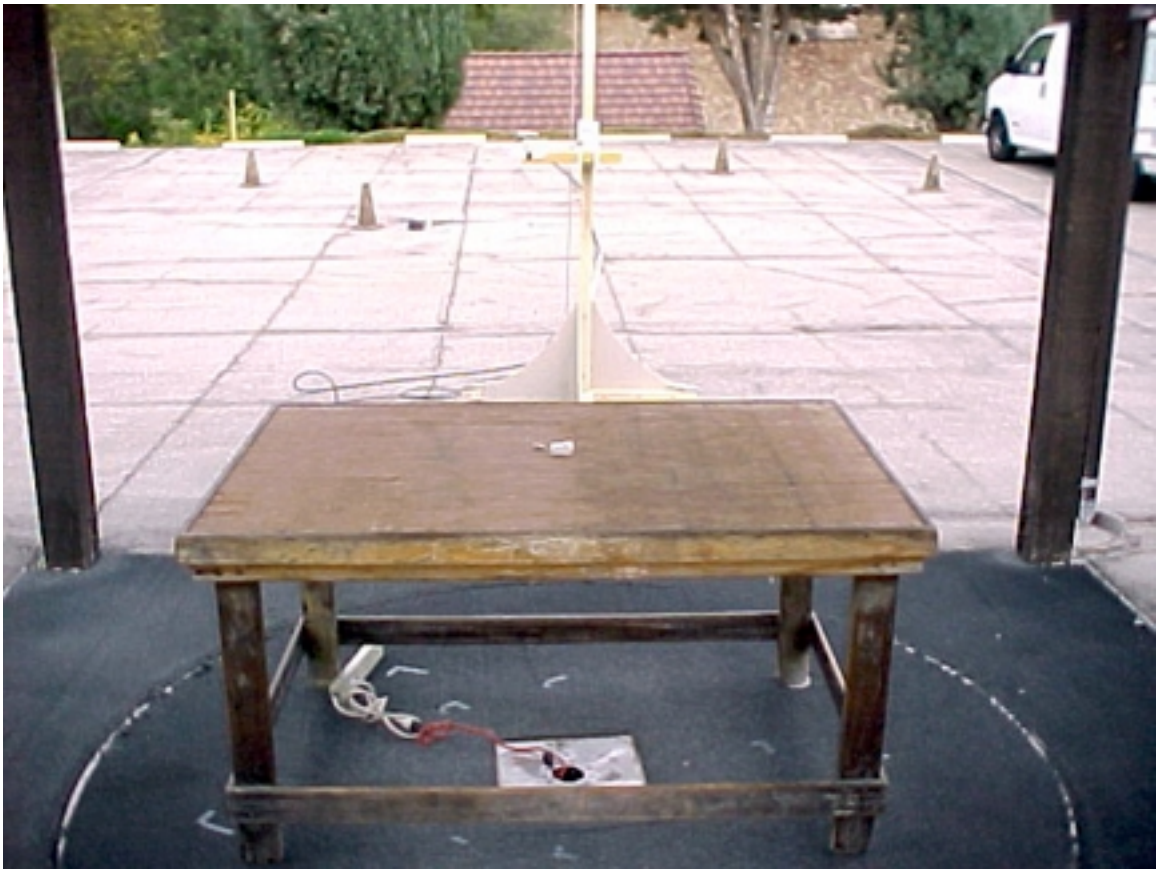
COM-POWER AL-130

LOOP ANTENNA

S/N: 25310

CALIBRATION DATE: JUNE 4, 2003

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.2	10.3
0.01	-41.3	10.2
0.02	-42.3	9.2
0.05	-42.5	9.0
0.07	-42.3	9.2
0.1	-42.5	9.0
0.2	-44.6	6.9
0.3	-42.1	9.4
0.5	-42.4	9.1
0.7	-42.1	9.4
1	-41.5	10.0
2	-41.0	10.5
3	-41.3	10.2
4	-41.3	10.2
5	-40.9	10.6
10	-41.6	9.9
15	-42.1	9.4
20	-42.2	9.3
25	-42.7	8.8
30	-44.3	7.2



FRONT VIEW

HUNTER INDUSTRIES INCORPORATED
WIRELESS RAIN-CLIK TRANSMITTER
MODEL: WRFC-TR
FCC SUBPART B AND C - RADIATED EMISSIONS – 12-22-03 and 12-23-03

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

HUNTER INDUSTRIES INCORPORATED
WIRELESS RAIN-CLIK TRANSMITTER
MODEL: WRFC-TR
FCC SUBPART B AND C - RADIATED EMISSIONS – 12-22-03 and 12-23-03

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**Hunter Industries Incorporated**	**DATE**	**12/22/03**
EUT	**Wireless Rain-Clik Transmitter**	**DUTY CYCLE**	**10.65 %**
MODEL	**WRFC-TR**	**PEAK TO AVG**	**-19.4530078 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Michael Christensen**	**LAB**	**A**

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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
315.1000	78.2	58.7 A	H	1.0	270	X	LOW	13.1	3.0		0.0	0.0	**74.8**	**-0.8**	**75.6**	
315.1000	70.0	50.5 A	H	1.0	90	Y	LOW	13.1	3.0		0.0	0.0	**66.6**	**-9.0**	**75.6**	
315.1000	64.7	45.2 A	V	1.0	0	X	LOW	13.1	3.0		0.0	0.0	**61.3**	**-14.3**	**75.6**	
315.1000	71.4	51.9 A	V	1.5	0	Y	LOW	13.1	3.0		0.0	0.0	**68.0**	**-7.6**	**75.6**	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**Hunter Industries Incorporated**	**DATE**	**12/22/03**
EUT	**Wireless Rain-Clik Transmitter**	**DUTY CYCLE**	**10.65 %**
MODEL	**WRFC-TR**	**PEAK TO AVG**	**-19.4530078 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Michael Christensen**	**LAB**	**A**

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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
630.2000	61.5	42.0 A	H	1.0	90	X	LOW	18.2	4.4	32.7	0.0	0.0	**32.0**	**-23.6**	**55.6**	
630.2000	58.0	38.5 A	H	1.0	180	Y	LOW	18.2	4.4	32.7	0.0	0.0	**28.5**	**-27.1**	**55.6**	
630.2000	46.3	26.8 A	V	1.0	180	X	LOW	18.2	4.4	32.7	0.0	0.0	**16.8**	**-38.8**	**55.6**	
630.2000	61.4	41.9 A	V	1.0	270	Y	LOW	18.2	4.4	32.7	0.0	0.0	**31.9**	**-23.7**	**55.6**	

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

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RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**Hunter Industries Incorporated**	**DATE**	**12/22/03**
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MODEL	**WRFC-TR**	**PEAK TO AVG**	**-19.4530078 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Michael Christensen**	**LAB**	**A**

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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
945.3000	62.9	43.4 A	H	1.0	270	X	LOW	21.2	5.3	31.8	0.0	0.0	**38.1**	**-17.5**	**55.6**	
945.3000	64.2	44.7 A	H	1.0	270	Y	LOW	21.2	5.3	31.8	0.0	0.0	**39.4**	**-16.2**	**55.6**	
945.3000	48.7	29.2 A	V	1.0	180	X	LOW	21.2	5.3	31.8	0.0	0.0	**23.9**	**-31.7**	**55.6**	
945.3000	59.7	40.2 A	V	1.0	180	Y	LOW	21.2	5.3	31.8	0.0	0.0	**34.9**	**-20.7**	**55.6**	

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

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RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

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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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1260.4000	63.5	44.0 A	H	1.0	180	X	LOW	28.0	3.0	33.4	0.0	0.0	**41.6**	**-14.0**	**55.6**	
1260.4000	62.8	43.3 A	H	1.0	90	Y	LOW	28.0	3.0	33.4	0.0	0.0	**40.9**	**-14.7**	**55.6**	
1260.4000	64.7	45.2 A	V	2.0	0	X	LOW	28.0	3.0	33.4	0.0	0.0	**42.8**	**-12.8**	**55.6**	
1260.4000	63.6	44.1 A	V	2.0	180	Y	LOW	28.0	3.0	33.4	0.0	0.0	**41.7**	**-13.9**	**55.6**	

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

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RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

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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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1575.5000		A	H			X	LOW	29.7	3.9	32.6	0.0				**54.0**	**NO EMISSION FOUND**
1575.5000		A	H			Y	LOW	29.7	3.9	32.6	0.0				**54.0**	**NO EMISSION FOUND**
1575.5000		A	V			X	LOW	29.7	3.9	32.6	0.0				**54.0**	**NO EMISSION FOUND**
1575.5000		A	V			Y	LOW	29.7	3.9	32.6	0.0				**54.0**	**NO EMISSION FOUND**

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**Hunter Industries Incorporated**	**DATE**	**12/22/03**
EUT	**Wireless Rain-Clik Transmitter**	**DUTY CYCLE**	**10.65 %**
MODEL	**WRFC-TR**	**PEAK TO AVG**	**-19.4530078 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Michael Christensen**	**LAB**	**A**

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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1890.6000		A	H			X	LOW	31.7	4.8	31.4	0.0				**55.6**	**NO EMISSION FOUND**
1890.6000		A	H			Y	LOW	31.7	4.8	31.4	0.0				**55.6**	**NO EMISSION FOUND**
1890.6000		A	V			X	LOW	31.7	4.8	31.4	0.0				**55.6**	**NO EMISSION FOUND**
1890.6000		A	V			Y	LOW	31.7	4.8	31.4	0.0				**55.6**	**NO EMISSION FOUND**

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**Hunter Industries Incorporated**	**DATE**	**12/22/03**
EUT	**Wireless Rain-Clik Transmitter**	**DUTY CYCLE**	**10.65 %**
MODEL	**WRFC-TR**	**PEAK TO AVG**	**-19.4530078 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Michael Christensen**	**LAB**	**A**

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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2205.7000		A	H			X	LOW	32.4	4.3	31.3	0.0				**54.0**	**NO EMISSION FOUND**
2205.7000		A	H			Y	LOW	32.4	4.3	31.3	0.0				**54.0**	**NO EMISSION FOUND**
2205.7000		A	V			X	LOW	32.4	4.3	31.3	0.0				**54.0**	**NO EMISSION FOUND**
2205.7000		A	V			Y	LOW	32.4	4.3	31.3	0.0				**54.0**	**NO EMISSION FOUND**

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**Hunter Industries Incorporated**	**DATE**	**12/22/03**
EUT	**Wireless Rain-Clik Transmitter**	**DUTY CYCLE**	**10.65 %**
MODEL	**WRFC-TR**	**PEAK TO AVG**	**-19.4530078 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Michael Christensen**	**LAB**	**A**

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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2520.8000		A	H			X	LOW	32.3	4.7	33.2	0.0				**55.6**	**NO EMISSION FOUND**
2520.8000		A	H			Y	LOW	32.3	4.7	33.2	0.0				**55.6**	**NO EMISSION FOUND**
2520.8000		A	V			X	LOW	32.3	4.7	33.2	0.0				**55.6**	**NO EMISSION FOUND**
2520.8000		A	V			Y	LOW	32.3	4.7	33.2	0.0				**55.6**	**NO EMISSION FOUND**

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**Hunter Industries Incorporated**	**DATE**	**12/22/03**
EUT	**Wireless Rain-Clik Transmitter**	**DUTY CYCLE**	**10.65 %**
MODEL	**WRFC-TR**	**PEAK TO AVG**	**-19.4530078 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Michael Christensen**	**LAB**	**A**

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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2835.9000		A	H			X	LOW	31.7	5.3	32.4	0.0				**54.0**	**NO EMISSION FOUND**
2835.9000		A	H			Y	LOW	31.7	5.3	32.4	0.0				**54.0**	**NO EMISSION FOUND**
2835.9000		A	V			X	LOW	31.7	5.3	32.4	0.0				**54.0**	**NO EMISSION FOUND**
2835.9000		A	V			Y	LOW	31.7	5.3	32.4	0.0				**54.0**	**NO EMISSION FOUND**

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**Hunter Industries Incorporated**	**DATE**	**12/22/03**
EUT	**Wireless Rain-Clik Transmitter**	**DUTY CYCLE**	**10.65 %**
MODEL	**WRFC-TR**	**PEAK TO AVG**	**-19.4530078 dB**
S/N	**N/A**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Michael Christensen**	**LAB**	**A**

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)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
3151.0000		A	H			X	LOW	31.5	5.7	32.3	0.0				**55.6**	**NO EMISSION FOUND**
3151.0000		A	H			Y	LOW	31.5	5.7	32.3	0.0				**55.6**	**NO EMISSION FOUND**
3151.0000		A	V			X	LOW	31.5	5.7	32.3	0.0				**55.6**	**NO EMISSION FOUND**
3151.0000		A	V			Y	LOW	31.5	5.7	32.3	0.0				**55.6**	**NO EMISSION FOUND**

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

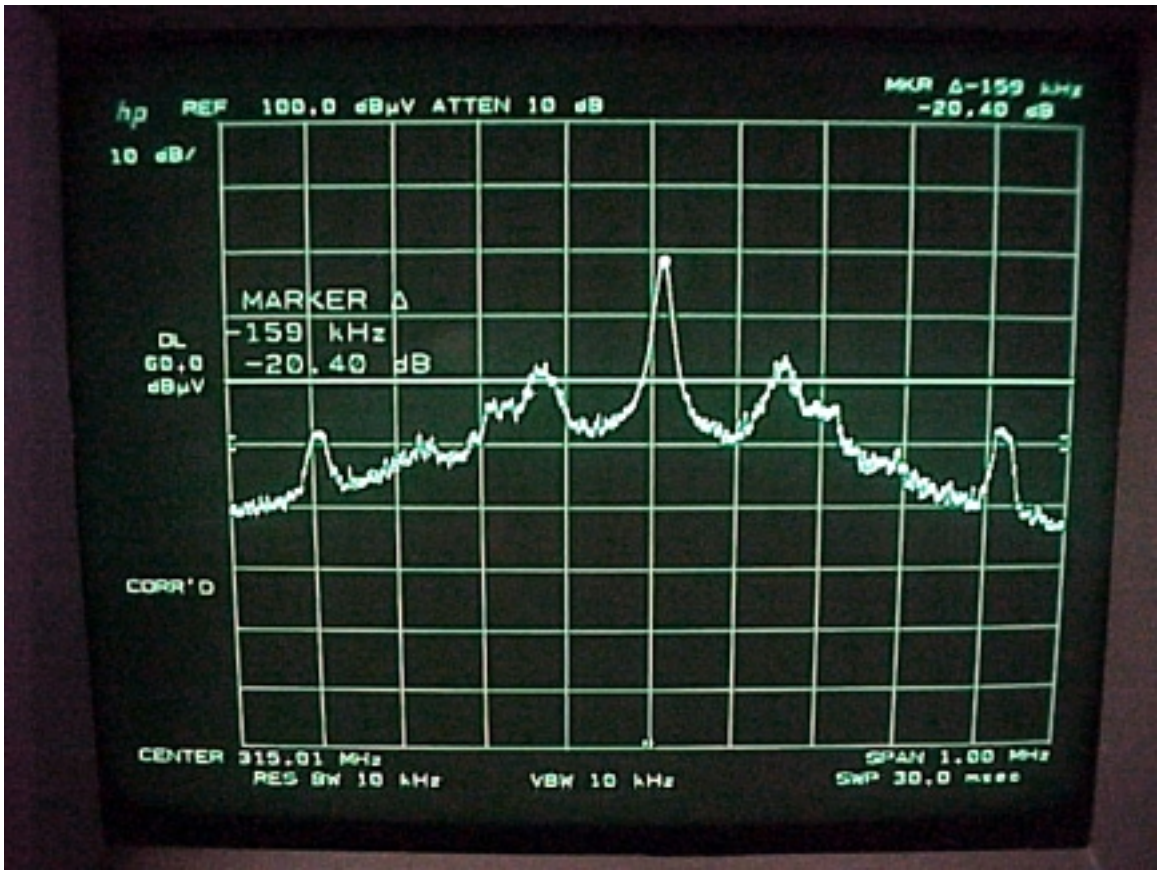
** DELTA = SPEC LIMIT - CORRECTED READING

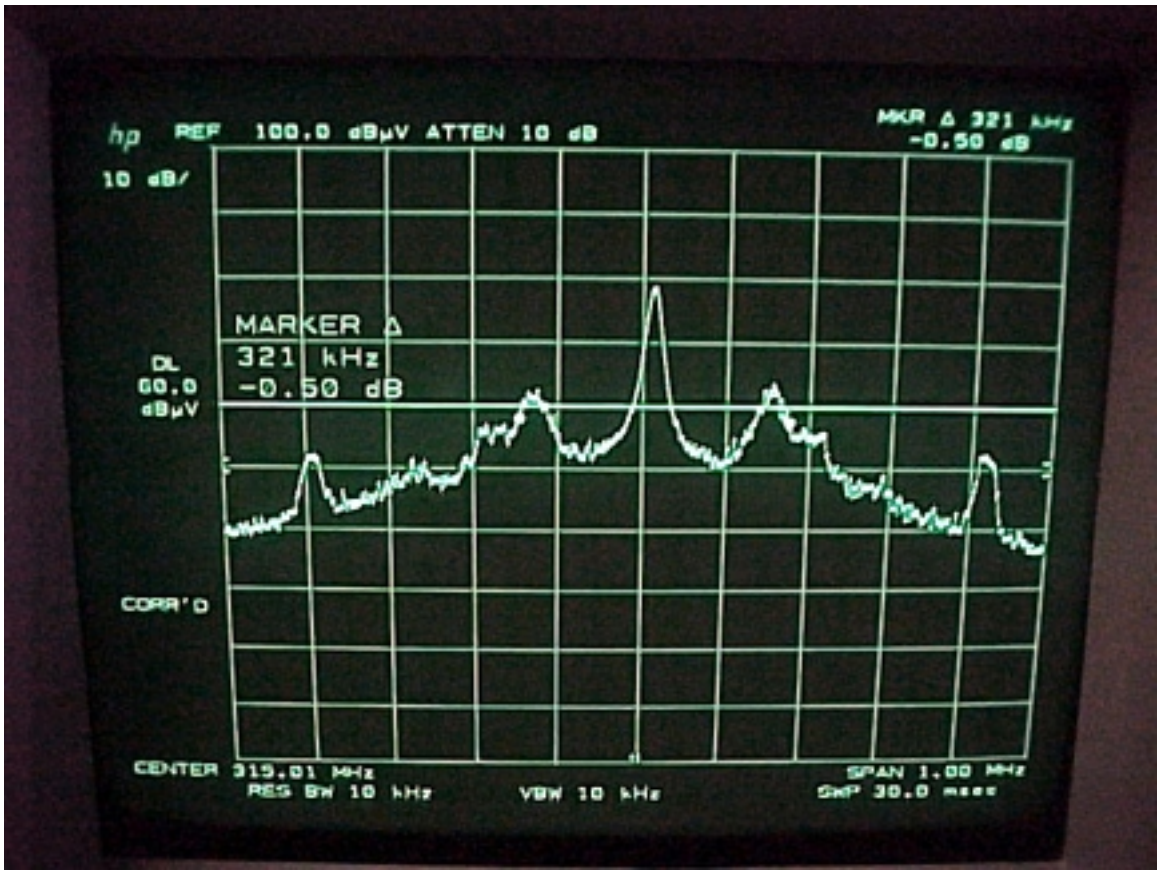
Test Location : Compatible Electronics **Page** : 1/1
Customer : HUNTER INDUSTRIES INCORPORATED **Date** : 12/22/2003
Manufacturer : HUNTER INDUSTRIES INCORPORATED **Time** : 15:55:01
Eut name : WIRELESS RAIN-CLIK TRANSMITTER **Lab** : A
Model : WRFC-TR **Test Distance** : 3
Serial # :
Specification : FCC Class B
Distance correction factor (20 * log(test/spec) : 0.00
Test Mode : TESTED BY MICHAEL CHRISTENSEN

Pol	Freq	Rdng	Cable loss	Ant factor	Amp gain	Cor'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV	dBuV/m	dB
1H	299.018	48.70	2.90	23.25	33.30	41.55	46.00	-4.45
2H	278.926	46.30	2.82	19.00	33.30	34.82	46.00	-11.18
3H	282.976	48.30	2.83	19.72	33.30	37.55	46.00	-8.45
4H	286.978	47.90	2.85	20.41	33.30	37.86	46.00	-8.14
5H	290.971	53.00	2.86	20.73	33.30	43.30	46.00	-2.70
6H	290.972Qp	49.96	2.86	20.73	33.30	40.26	46.00	-5.74
7H	294.997	51.20	2.88	21.00	33.30	41.78	46.00	-4.22
8H	299.019	49.50	2.90	23.25	33.30	42.35	46.00	-3.65
9H	339.233	52.40	3.14	13.85	33.30	36.09	46.00	-9.91
10H	343.220	51.60	3.16	13.96	33.30	35.43	46.00	-10.57
11H	335.205	53.50	3.12	13.74	33.30	37.06	46.00	-8.94
12H	331.160	52.20	3.09	13.63	33.30	35.62	46.00	-10.38
13H	347.243	48.40	3.18	14.07	33.30	32.36	46.00	-13.64
14H	351.274	47.30	3.21	14.18	33.29	31.39	46.00	-14.61
15H	307.085	60.20	2.95	12.92	33.30	42.76	46.00	-3.24
16H	303.057	59.70	2.92	12.80	33.30	42.11	46.00	-3.89

-20 dB BANDWIDTH

PHOTOGRAPHS


hp
REF 100.0 dBµV ATTEN 10 dB
MKR Δ-159 kHz
-20.40 dB
10 dB/
MARKER Δ
-159 kHz
-20.40 dB
DL
60.0
dBµV
CORR'D
CENTER 315.01 MHz
RES BW 10 kHz
VBW 10 kHz
SPAN 1.00 MHz
SWP 30.0 msec


hp
REF 100.0 dBµV ATTEN 10 dB
MKR Δ 321 kHz
-0.50 dB
10 dB/
MARKER Δ
321 kHz
-0.50 dB
DL
60.0
dBµV
CORR'D
CENTER 919.01 MHz
RES BW 10 kHz
VBW 10 kHz
SPAN 1.00 MHz
SWP 30.0 msec