

*FCC PART 15, SUBPART B
FCC 15.247 TEST REPORT*

For

900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT

Prepared for

LINX TECHNOLOGIES
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MERLIN, OREGON 97532

Prepared by: _____

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DATE: JANUARY 3, 2013

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
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GENERAL REPORT SUMMARY

This electromagnetic emission 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 except in full, without the written permission of Compatible Electronics.

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

Device Tested: 900 MHz FHSS RF Module
Model: TRM-900-TT

Product Description: Please see the expository statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: Linx Technologies
159 Ort Lane
Merlin, Oregon 97532

Test Dates: November 29, 2012; December 6, 7, and 14, 2012

Test Specifications: Emissions requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and
15.247
Test Procedure: ANSI C63.4: 2009.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz.	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207.
2	Radiated RF Emissions, 10 kHz – 9300 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15 Subpart C, 15.209 and 15.247 (d)
3	20 dB Bandwidth	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)
4	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(2)
5	RF Conducted Antenna Test	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (d)
6	Carrier Frequency Separation	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)
7	Average Time of Occupancy	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)
8	Peak Power Spectral Density from the International Radiator to the Antenna	This test was not performed because the EUT is a frequency hopper.

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the 900 MHz FHSS RF Module, Model: TRM-900-TT. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4: 2009. 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, 15.209, and 15.247.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions 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

Linx Technologies

Mark Matlin Director of Wireless Engineering

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 initial date of testing.

2.5 Disposition of the Test Sample

The test sample was returned to Mojix Inc. prior to the date of this test report.

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 test report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
DA 00-705: 2000	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – (Emissions)

The 900 MHz FHSS RF Module, Model: TRM-900-TT (EUT) was connected to an AC Adapter via its power port. The EUT was continuously transmitting. The low, middle, and high channels were tested via pushing a button on the PCB that allowed the EUT to transmit at the low, middle, or high channel.

The EUT was tested with six different antennas. A list of the antennas will be shown in section 5.1 of this test report.

The highest emissions were found when the EUT was running in the above configurations. The cables were moved to maximize the emissions. The final conducted and radiated data as well as the radiated data was taken in both configuration described above. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the photographs in Appendix D.

4.1.2 **Cable Construction and Termination**

Cable 1 This is a 2-meter cable connecting the EUT to the AC Adapter.

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

EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID
900 MHz FHSS RF MODULE	LINX TECHNOLOGIES	TRM-900-TT	0829402423-3E7C7E	OJMTRM900TTA
CHIP ANTENNA	LINX TECHNOLOGIES	ANT-916-CHP	N/A	N/A
PLANAR ANTENNA	LINX TECHNOLOGIES	ANT-916-SP	N/A	N/A
QUARTER WAVE HELICAL ANTENNA	LINX TECHNOLOGIES	ANT-916-PW-LP	N/A	N/A
WRT ANTENNA	LINX TECHNOLOGIES	ANT-916-WRT-RPS	N/A	N/A
QUARTER WAVE WHIP	LINX TECHNOLOGIES	ANT-916-CW-QW	N/A	N/A
HALF WAVE HELICAL ANTENNA	LINX TECHNOLOGIES	ANT-916-CW-HW	N/A	N/A
AC ADAPTER	TRACO POWER	TEX 120-124	09144024F1147	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8568B	2517A01563	May 30, 2012	May 30, 2013
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A15285	May 30, 2012	May 30, 2013
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 30, 2012	May 30, 2013
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2012	November 19, 2014
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Loop Antenna	Com-Power	AL-130	17089	January 21, 2011	January 21, 2013
Biconical Antenna	Com Power	AB-900	43028	May 24, 2012	May 24, 2013
Log Periodic Antenna	Com Power	AL-100	16252	May 24, 2012	May 24, 2013
CombiLog Antenna	Com-Power	AC-220	61060	May 29, 2012	May 29, 2013
Horn Antenna	Com-Power	AH-118	071175	February 29, 2012	March 1, 2014
Preamplifier	Com-Power	PA-102	1017	December 28, 2011	December 28, 2012
Preamplifier	Com-Power	PA-103	1582	December 28, 2011	December 28, 2012
Microwave Preamplifier	Com-Power	PA-118	181656	December 28, 2011	December 28, 2012
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
Transient Limiter	Seaward	252A910	K39-0220	November 7, 2012	November 7, 2013
LISN	Com Power	LI-215	12082	June 20, 2011	June 20, 2013
LISN	Com Power	LI-215	12090	June 20, 2011	June 20, 2013

6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

Please refer to section 2.1 and 7.1.2 of this report for 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 spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. 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 spectrum analyzer offset was adjusted accordingly to read the actual data measured. The LISN output was read by the spectrum analyzer. 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. 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 placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the spectrum analyzer span adjusted to 1 MHz.

The final data was collected under program control by the computer in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The six highest emissions are listed in Table 1.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Section 15.207 for conducted emissions.

7.1.2 Radiated Emissions Test

The spectrum analyzer and EMI Receiver were 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-118 was used for frequencies above 1 GHz. The spectrum analyzer and EMI Receiver were used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer or EMI Receiver records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The readings were averaged by a "duty cycle correction factor", derived from $20 \log(\text{dwell time} / 100 \text{ ms})$. This duty cycle correction factor was then subtracted from the peak reading.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 1 GHz	120 kHz	Combilog 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: 2009. 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 by the Radiated Emission Manual Test software. 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 Test (Continued)

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 10-meter test distance from 10 kHz to 30 MHz, and at a 3 meter test distance from 30 MHz to 9.3 GHz to obtain the final test data.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d) for radiated emissions. Please see Appendix E for the data sheets

7.1.3 RF Emissions Test Results

Table 1.0 CONDUCTED EMISSION RESULTS (120V)
900 MHZ FHSS RF MODULE, MODEL: TRM-900-TT

Frequency MHz	Emission Level* dBuV	Specification Limit dBuV	Delta dB
0.199	46.92	53.67	-6.75
0.486	39.26	46.23	-6.97
0.207	46.13	53.31	-7.18
0.203	46.27	53.49	-7.21
0.641	38.68	46.00	-7.32
0.324	42.23	49.62	-7.39

Table 2.0 RADIATED EMISSION RESULTS
900 MHZ FHSS RF MODULE, MODEL: TRM-900-TT

Frequency MHz	Emission Level* dBuV	Specification Limit dBuV	Delta dB
1829.24 (H) (Y-Axis) (ANT-916-PW-LP)	42.88 (A)	54.00	-11.12
1817.24 (H) (Y-Axis) (ANT-916-PW-LP)	41.74 (A)	54.00	-12.26
1829.24 (H) (X-Axis) (ANT-916-PW-LP)	41.68 (A)	54.00	-12.32
1829.24 (V) (Z-Axis) (ANT-916-PW-LP)	41.63 (A)	54.00	-12.37
1829.24 (V) (Y-Axis) (ANT-916-PW-LP)	41.31 (A)	54.00	-12.69
1829.4 (H) (Z-Axis) (ANT-916-PW-LP)	41.31 (A)	54.00	-12.69

Notes:

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

A Average Reading

7.2**20 dB Bandwidth**

The 20 dB Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 10 kHz and the video bandwidth was 30 kHz.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The 20 dB bandwidth is less than the separation between channels. Please see the data sheets located in Appendix E.

7.3 Peak Output Power

The Peak Output Power was measured using the EMI Receiver. The peak output power was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 3 MHz and the video bandwidth was 10 MHz. The cable loss was also added back into the reading using the reference level offset.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(2). The maximum peak output power is less than 250 mW. Please see the data sheets located in Appendix E.

7.4 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power that is produced by the intentional radiator is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power. Please see the radiated emission data sheets located in Appendix E.

7.5 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (902 MHz when the EUT was on the low channel and 928 MHz when the EUT was on the high channel) using the EMI Receiver. The RBW was set to 100 kHz and the VBW was set to 300 kHz. Plots of the fundamental were taken to ensure the amplitude at the band edges were at least 20 dB down from the peak of the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the band edges at 902 MHz and 928 MHz meet the requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). Please see the data sheets located in Appendix E.

7.6 Carrier Frequency Separation

The Channel Hopping Separation Test was measured using the EMI Receiver. The EUT was operating in its normal operating mode. The resolution bandwidth was 20 kHz, and the video bandwidth 100 kHz. The frequency span was wide enough to include the peaks of two adjacent channels.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1). The Channel Hopping Separation is greater than the 20 dB bandwidth. Please see the data sheets located in Appendix E.

7.7 Number of Hopping Frequencies

The Channel Hopping Separation Test was measured using the EMI Receiver. The EUT was operating in its normal operating mode. The resolution bandwidth was 30 kHz, and the video bandwidth was 100 kHz. The frequency span was wide enough to include all of the peaks in the frequency band of operation.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). The number of hopping frequencies is 25. Please see the data sheets located in Appendix E.

7.8**Average Time of Occupancy Test**

The Average Time of Occupancy Test was measured using the EMI Receiver. The EUT was operating in normal operating mode. The frequency span was taken to 0 Hz with a sweep time of 50 msec to determine the time for each transmission.

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 10 seconds.

The sweep time was then changed to 1 second and the number of pulses taken. The number of pulses was then multiplied by 10 to determine the number of pulses in a 10 second period. The number of pulses in a 10 second period was then multiplied by the time for each pulse to determine the average time of occupancy.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The EUT does not transmit for more than 400 msec in a 10 second period on any frequency. Please see the data sheets located in Appendix E.

7.9**Spectral Density Test**

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth 3 kHz, and the video bandwidth was 10 kHz. The highest 1.5 MHz of the signal was used as the frequency span with the sweep rate being 1 second for every 3 kHz of span.

Test Results:

This test was not performed because the EUT is a frequency hopper.

8. DEVIATIONS FROM THE TEST PROCEDURES

There were no deviations from the test procedures.

9. CONCLUSIONS

The 900 MHz FHSS RF Module, Model: TRM-900-TT, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.207, 15.209, and 15.247

APPENDIX A***LABORATORY ACCREDITATIONS AND RECOGNITIONS***

LABORATORY ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

NVLAP listing links

[Agoura Division](#) / [Brea Division](#) / [Silverado/Lake Forest Division](#)

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."



ANSI listing [CETCB](#)



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

US/EU MRA list [NIST MRA site](#)



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

APEC MRA list [NIST MRA site](#)

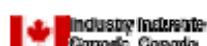
We are also listed for IT products by the following country/agency:



VCCI Support member: Please visit http://www.vcci.jp/vcci_e/



FCC Listing, from FCC OET site
[FCC test lab search](https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>



Compatible Electronics IC listing can be found at:
<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

APPENDIX B***MODIFICATIONS TO THE EUT***

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.247 and/or FCC **Class B** specifications.

No modifications were made to the EUT during the testing.

APPENDIX C***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

900 MHz FHSS RF Module
M/N: TRM-900-TT
S/N: NONE

There were no additional models covered under this report.

APPENDIX D***DIAGRAMS, CHARTS AND PHOTOS***

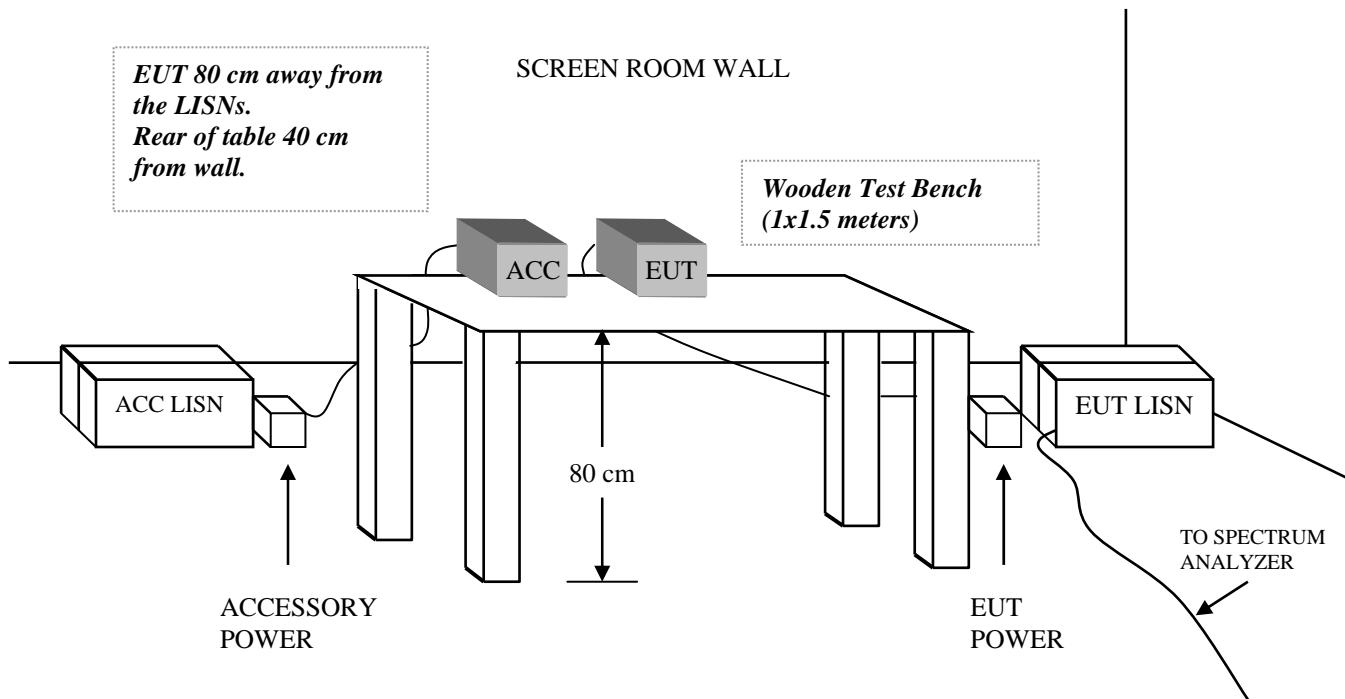
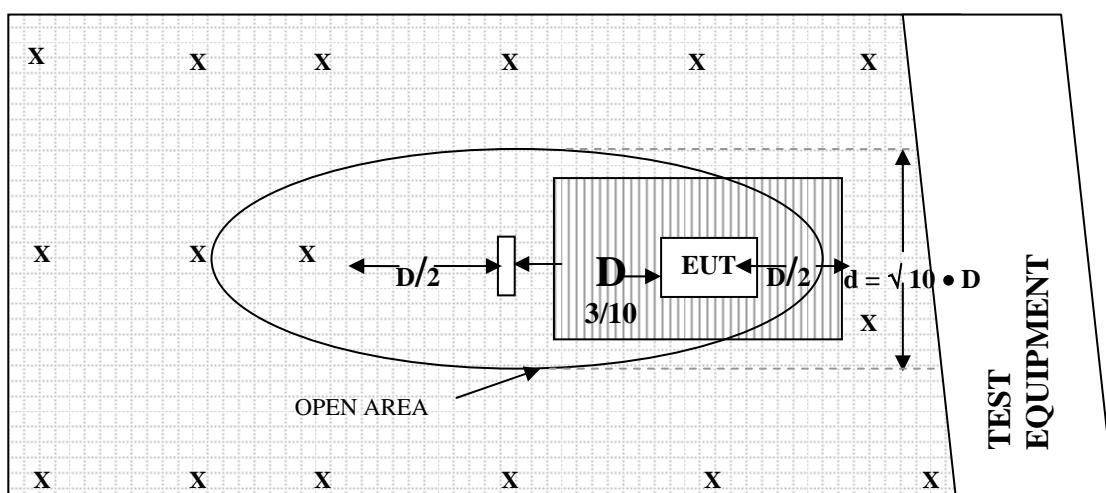
FIGURE 1: CONDUCTED EMISSIONS TEST SETUP


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

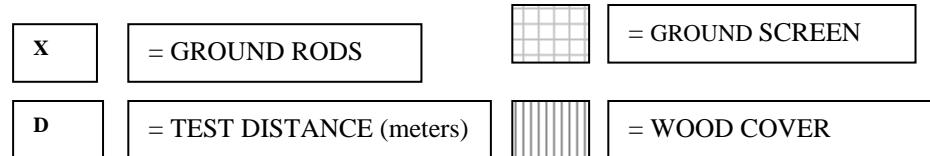
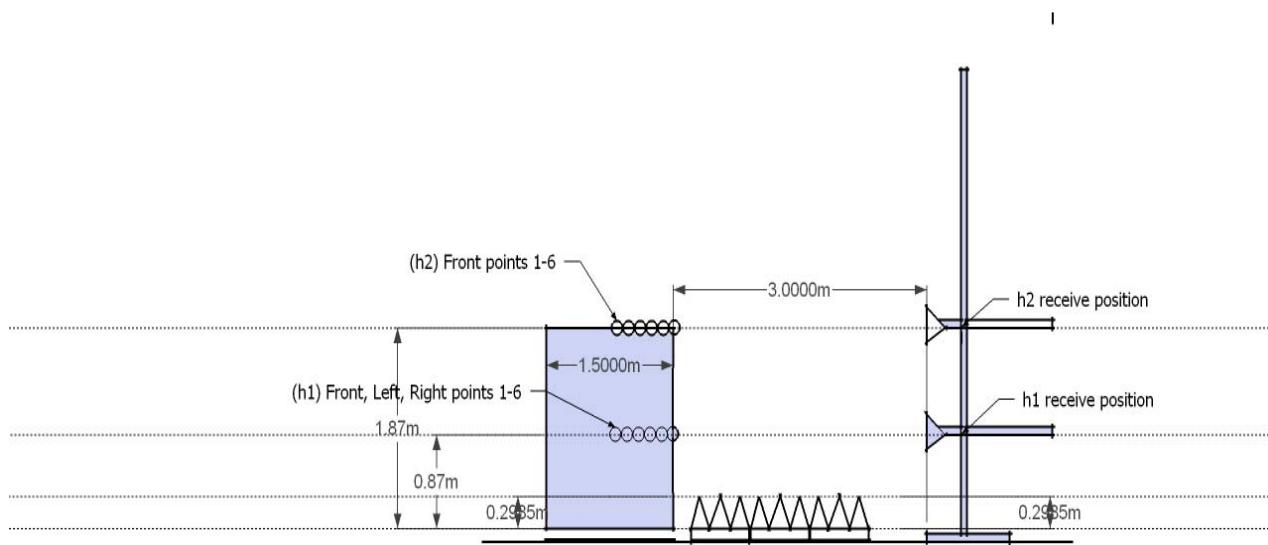


FIGURE 3: HIGH FREQUENCY TEST VOLUME

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61060

CALIBRATION DATE: MAY 29, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	19.10	200	8.80
35	18.60	250	11.70
40	19.80	300	13.50
45	17.40	350	13.80
50	17.40	400	15.00
60	12.50	450	15.70
70	8.30	500	17.40
80	5.40	550	17.20
90	7.10	600	18.10
100	8.30	650	18.40
120	9.70	700	20.40
125	9.70	750	20.80
140	8.10	800	21.10
150	10.80	850	21.80
160	8.30	900	22.60
175	8.80	950	22.90
180	8.90	1000	23.10

COM-POWER AL-130**LOOP ANTENNA****S/N: 17089****CALIBRATION DATE: JANUARY 21, 2011**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.9	9.6
0.01	-41.79	9.71
0.02	-41.43	10.07
0.05	-41.53	9.97
0.07	-41.47	10.03
0.1	-41.44	10.06
0.2	-41.61	9.89
0.3	-41.62	9.88
0.5	-41.66	9.84
0.7	-41.48	10.02
1	-41.13	10.37
2	-40.89	10.61
3	-41.00	10.50
4	-41.14	10.36
5	-41.02	10.48
10	-40.69	10.82
15	-40.41	11.09
20	-41.07	10.43
25	-42.10	9.40
30	-41.15	10.35

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 43028

CALIBRATION DATE: MAY 24, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	11.80	120	13.20
35	11.20	125	13.30
40	11.90	140	11.60
45	10.70	150	11.80
50	11.40	160	12.70
60	10.30	175	14.80
70	7.60	180	15.70
80	5.70	200	15.80
90	7.90	250	14.80
100	10.7	300	19.80

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16252

CALIBRATION DATE: MAY 24, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.00	700	20.30
350	13.20	750	20.80
400	14.50	800	21.00
450	15.40	850	23.70
500	15.80	900	21.70
550	16.60	950	24.20
600	18.90	1000	24.30
650	19.10		

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 29, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.6	10.0	37.7
1.5	22.0	10.5	38.4
2.0	28.7	11.0	38.0
2.5	29.3	11.5	38.2
3.0	30.6	12.0	39.0
3.5	30.4	12.5	42.4
4.0	31.1	13.0	40.8
4.5	33.4	13.5	40.0
5.0	35.3	14.0	39.7
5.5	35.1	14.5	43.5
6.0	36.9	15.0	42.7
6.5	37.4	15.5	39.7
7.0	37.6	16.0	39.2
7.5	36.2	16.5	39.7
8.0	38.4	17.0	42.2
8.5	39.3	17.5	47.6
9.0	37.4	18.0	51.2
9.5	38.0		

COM-POWER PA-102**PREAMPLIFIER****S/N: 1017****CALIBRATION DATE: DECEMBER 28, 2011**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.54	300	38.45
40	38.53	350	38.47
50	38.57	400	38.36
60	38.54	450	38.07
70	38.54	500	38.31
80	38.54	550	38.37
90	38.54	600	38.28
100	38.53	650	38.19
125	38.51	700	38.24
150	38.43	750	37.88
175	38.56	800	37.94
200	38.50	850	37.65
225	38.46	900	37.50
250	38.57	950	37.47
275	38.45	1000	36.86

COM-POWER PA-103**PREAMPLIFIER****S/N: 1582****CALIBRATION DATE: DECEMBER 28, 2011**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	32.98	300	32.79
40	32.99	350	32.69
50	32.91	400	32.64
60	32.94	450	32.48
70	32.90	500	32.55
80	32.90	550	32.44
90	32.92	600	32.34
100	32.84	650	32.23
125	32.83	700	32.24
150	32.83	750	32.22
175	32.84	800	32.20
200	32.71	850	32.15
225	32.80	900	31.96
250	32.81	950	32.23
275	32.80	1000	31.75

COM-POWER PA-118**PREAMPLIFIER****S/N: 181656****CALIBRATION DATE: DECEMBER 28, 2011**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.22	10.0	24.66
1.5	26.31	10.5	25.22
2.0	27.40	11.0	25.17
2.5	26.52	11.5	24.47
3.0	27.35	12.0	25.29
3.5	29.02	12.5	26.03
4.0	28.51	13.0	24.11
4.5	26.62	13.5	24.28
5.0	27.13	14.0	25.81
5.5	27.29	14.5	25.45
6.0	26.72	15.0	25.36
6.5	25.62	15.5	26.76
7.0	25.25	16.0	28.09
7.5	24.23	16.5	23.23
8.0	23.72	17.0	26.58
8.5	24.91	17.5	27.45
9.0	25.73	18.0	27.53
9.5	24.79		

**FRONT VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-CHP ANTENNA

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

**REAR VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-CHP ANTENNA

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

**FRONT VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-SP ANTENNA

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

**REAR VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-SP ANTENNA

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

**FRONT VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-PW-LP ANTENNA

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

**REAR VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-PW-LP ANTENNA

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

**FRONT VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-WRT-RPS ANTENNA

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

**REAR VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-WRT-RPS ANTENNA

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

**FRONT VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-CW-HW ANTENNA

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

**REAR VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-CW-HW ANTENNA

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
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**FRONT VIEW**

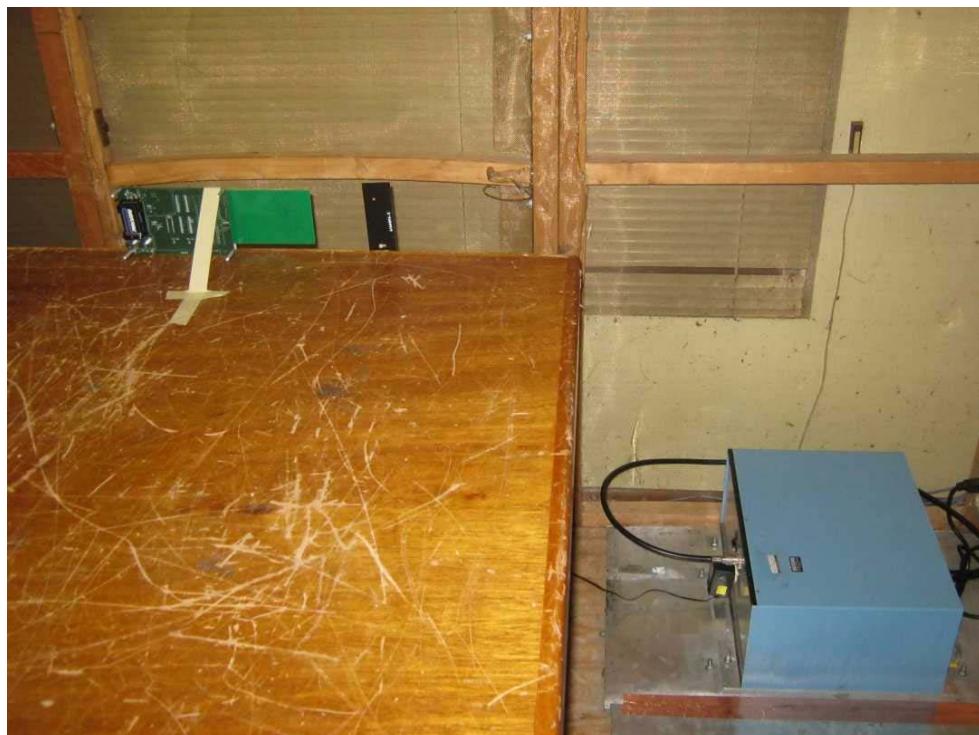
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900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-CW-QW ANTENNA

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900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
RADIATED EMISSIONS – ANT-916-CW-QW ANTENNA

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

**FRONT VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
CONDUCTED EMISSIONS – ANT-916-CHP ANTENNA

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



REAR VIEW

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
CONDUCTED EMISSIONS – ANT-916-CHP ANTENNA

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**FRONT VIEW**

LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
CONDUCTED EMISSIONS – ANT-916-SP ANTENNA

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

**REAR VIEW**

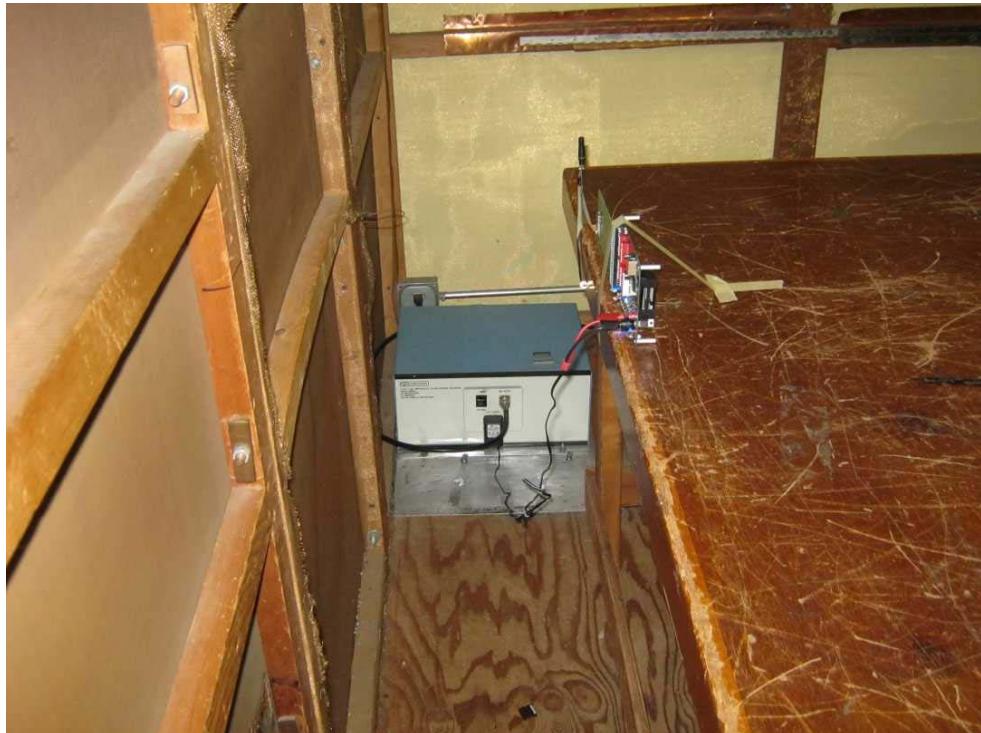
LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
CONDUCTED EMISSIONS – ANT-916-SP ANTENNA

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900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
CONDUCTED EMISSIONS – ANT-916-PW-LP ANTENNA

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REAR VIEW

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900 MHZ FHSS RF MODULE
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CONDUCTED EMISSIONS – ANT-916-CW-QW ANTENNA

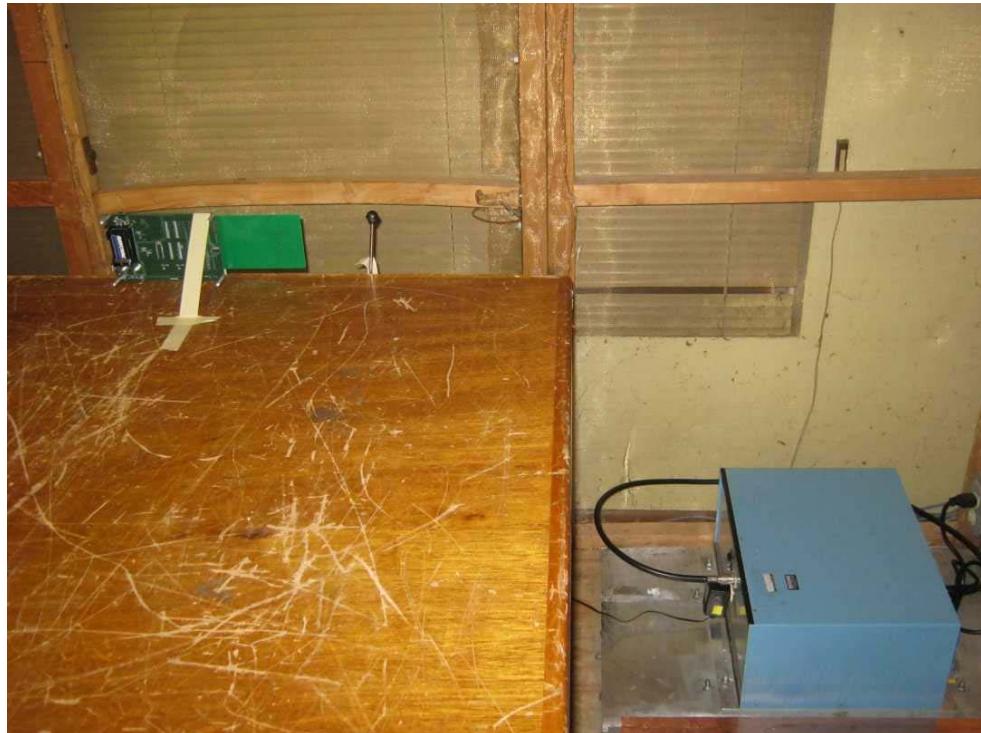
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REAR VIEW

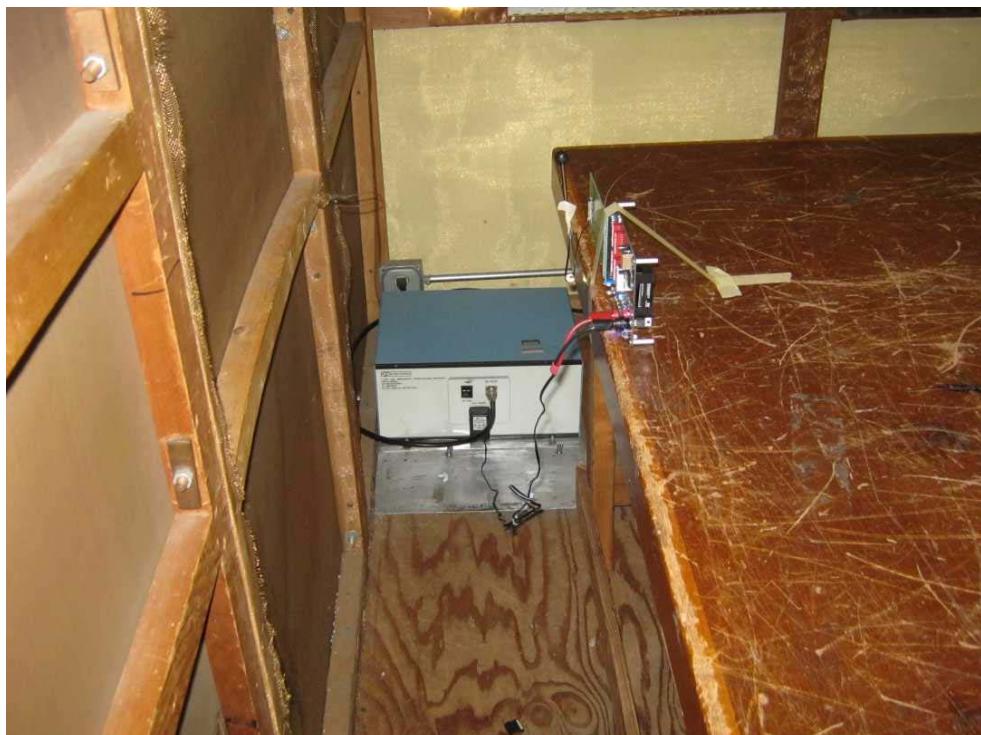
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LINX TECHNOLOGIES
900 MHZ FHSS RF MODULE
MODEL: TRM-900-TT
CONDUCTED EMISSIONS – ANT-916-WRT-RPS ANTENNA

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