

THRU Lab & Engineering.

477-6, Hager-Ri, Yoju-Up, Yoju-Gun

Kyunggi-Do, 469-803, Korea

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THRU

Test Report

Product Name: GMRS/FRS Combination

MODEL NO: LXT330

FCC ID: MMALXT314

Applicant:

**Midland Radio Corporation.
5900 Parretta Drive, Kansas City,
MO 64120**

Date Receipt: 12/01/2006

Date Tested: 12/06/2006

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GENERAL INFORMATION REQUIRED FOR CERTIFICATION

2.1033 (c) (1) (2) MidLand Radio Corporation. will manufacture
the FCCID: MMALXT314 GMRS/FRS COMBINATION TRANSCEIVER
in quantity, for use under FCC RULES PART 95A&B.
MidLand Radio Corporation.
5900 Parretta Drive,
Kansas City, MO 64120

2.1033 (c) TECHNICAL DESCRIPTION

2.1033 (c) (3) Instruction book. A draft copy of the instruction
manual is included as EXHIBIT 7.

2.1033 (c) (4) Type of Emission : 10K5F3E
95.631
 $B_n = 2M + 2DK$
 $M = 3000$
 $D = 2.25k$
 $B_n = 2(3000) + 2(2250) = 10.5k$
GMRS Frequency Range : 20.0kHz

2.1033 (c) (5) GMRS Frequency Range:
95.621

1. 462.5500	13. 462.7000
2. 462.5625	14. 462.7125
3. 462.5750	15. 462.7250
4. 462.5875	16. 467.5500
5. 462.6000	17. 467.5750
6. 462.6125	18. 467.6000
7. 462.6250	19. 467.6250
8. 462.6375	20. 467.6500
9. 462.6500	21. 467.6750
10. 462.6625	22. 467.7000
11. 462.6750	23. 467.7250
12. 462.6875	

FRS Authorized Bandwidth: 12.5kHz

2.1033(c)(5) FRS Frequency Range:
95.627

1. 462.5625	8. 467.5625
2. 462.5875	9. 467.5875
3. 462.6125	10. 467.6125
4. 462.6375	11. 467.6375
5. 462.6625	12. 467.6625
6. 462.6875	13. 467.6875
7. 462.7125	14. 467.7125 MHz

2.10311c)(6)(7)
2.1046(a) RF power is measured by the substitution method as
outlined in TIA/EIA - 603. With a nominal battery
voltage of 6 V, and the transmitter properly
adjusted the RF output measures:
power supply : Rocket batteries (1.5VDC) 4

GMRS (HIGH) - 0.838 Watts
GMRS (LOW) - 0.383 Watts
FRS - 0.471 Watts

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2.1033(c)(6)(7) FRS Power Output shall not exceed 0.50 Watts effective

95.639 radiated power. There can be no provisions for

95.649 Increasing the power or varying the power.

2.1033(c)(8) DC Voltages and Current into Final Amplifier:
FINAL AMPLIFIER ONLY

FOR GMRS HIGH POWER SETTING INPUT POWER: (6V)(0.490A)=2.94 Watts

FOR GMRS LOW POWER SETTING INPUT POWER: (6V)(0.240A)=1.44 Watts

FOR FRS POWER SETTING INPUT POWER: (6V)(0.230A)=1.38 Watts

2.1033(c)(9) Tune-up procedure. The tune-up procedure is included as EXHIBIT # 9.

2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT 6 of this report. The block diagrams are included as EXHIBIT 5 of this report.

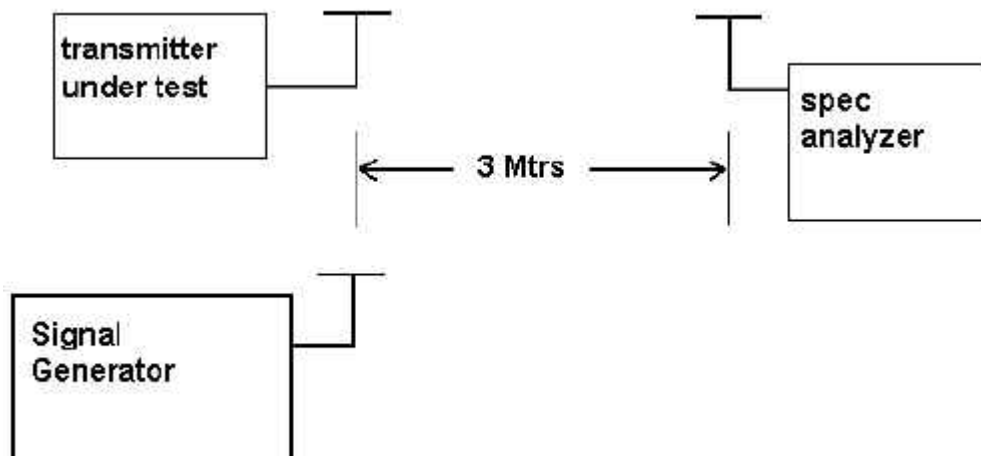
2.1033(c)(11) A photograph or a drawing of the equipment identification label is included as exhibit No. 1.

2.1033(c)(12) Photographs(8"x10") of the equipment of sufficient clarity to reveal equipment construction and layout, including meters, labels for controls, including any view under shields. See exhibits 3-4.

2.1033(c)(13) Digital modulation is not allowed.

2.1033(c)(14) The data required by 2.1046 through 2.1057 is submitted below.

2.1046(a) RF power output. The test procedure used was TIA/EIA-603.



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2.1053

UNWANTED RADIATION

95.635 (b) (7)

The tabulated Data shows the results of the radiated Field strength emissions test. The spectrum was Scanned from 30 MHz to at least the 10th harmonic of The fundamental.

REQUIREMENTS: GMRS (HIGH): $43 + 10\log(0.838) = 42.23\text{dB}$

(LOW) : $43 + 10\log(0.383) = 38.83\text{dB}$

GMRS-High				GMRS-Low			
frequency	dBc	Margin	dBm	frequency	dBc	Margin	dBm
462.5500	0	0		462.5500	0	0	
925.1000	51.61	9.38	-22.38	925.1000	45.21	6.38	-19.38
1387.6500	55.32	13.09	-26.09	1387.6500	58.02	19.19	-32.19
1850.2000	53.16	10.93	-23.93	1850.2000	44.46	5.63	-18.63
2312.7500	54.64	12.41	-25.41	2312.7500	41.64	2.81	-15.81
2775.3000	47.58	5.35	-18.35	2775.3000	46.38	7.55	-20.55
3237.8500	43.86	1.63	-14.63	3237.8500	40.96	2.13	-15.13
3700.4000	59.32	17.09	-30.09	3700.4000	55.52	16.69	-29.69
4162.9500	54.62	12.39	-25.39	4162.9500	49.52	10.69	-23.69
4625.5000	54.42	12.19	-25.19	4625.5000	48.82	9.99	-22.99

METHOD OF MEASUREMENT : The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of ThruLab & ENGINEERING. located at 477-6, Hager-Ri, Yaju-Up, Yaju-Gun, Kyunggi-Do, 469-803, Korea

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2.1053

UNWANTED RADIATION:

95.635 (b) (7)

The tabulated Data shows the results of the radiated Field strength emissions test. The spectrum was Scanned from 30 MHz to at least the 10th harmonic of The fundamental.

REQUIREMENTS: FRS: $43 + 10\log(0.471) = 39.73\text{dB}$

FRS			
frequency	dBc	Margin	dBm
467.5625	0	0	
935.1250	48.01	8.28	-21.28
1402.6875	53.95	14.22	-27.22
1870.2500	43.49	3.76	-16.76
2337.8125	47.17	7.44	-20.44
2805.3750	44.52	4.79	-17.79
3272.9375	41.88	2.15	-15.15
3740.5000	57.45	17.72	-30.72
4208.0625	51.28	11.55	-24.55
4675.6250	51.33	11.60	-24.60

METHOD OF MEASUREMENT : The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of ThruLab & ENGINEERING. located at 477-6, Hager-Ri, Yoju-Up, Yoju-Gun, Kyunggi-Do, 469-803, Korea

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TEST Equipment List

No	Description	Manufacturer	Model No.	Serial No.	Due Cal.
1	Test Receiver	Rohde & Schwarz	ESVS10	830489/001	2007.04.23
2	Test Receiver	Rohde & Schwarz	ESHS 10	825832/014	2007.08.25
3	Test Receiver	Rohde & Schwarz	ESVS 10	826008/014	2006.05.24
4	Spectrum Analyzer	Hewlett Packard	8566B	2311A02394	2007.06.17
5	Spectrum Display	Hewlett Packard	85662A	2542A12429	2007.06.17
6	Quasi-peak Adapter	Hewlett Packard	85650A	2521A00887	2007.06.17
7	RF Preselector	Hewlett Packard	85685A	2648A00504	2007.06.17
8	Preamplifier	Hewlett Packard	8449B	3008A00375	2007.04.23
9	Preamplifier	Hewlett Packard	8447F	3113A05367	2007.05.09
10	Preamplifier	Hewlett Packard	8447F	2805A02570	2005.12.12
11	Preamplifier	A.H. Systems	PAM-0118	164	2007.04.01
12	Biconical Antenna	Eaton Corp.	94455-1	0977	2007.04.01
13	Biconical Antenna	EMCO	3104C	9111-2468	2006.06.07
14	Log Periodic Antenna	EMCO	3146	2051	2007.05.11
15	Log Periodic Antenna	EMCO	3146	8901-2320	2006.03.28
16	Horn Antenna	A.H. Systems	SAS-571	414	2007.03.17
17	Horn Antenna	A.H. Systems	SAS-571	781	2006.01.07
18	Loop Antenna	Rohde & Schwarz	HFH2-Z2.335.4711.52	826532/006	2007.01.31
19	Dipole Antenna	Rohde & Schwarz	VHAP	574	2007.12.12
20	Dipole Antenna	Rohde & Schwarz	VHAP	575	2007.12.12
21	Dipole Antenna	Rohde & Schwarz	UHAP	546	2007.12.12
22	Dipole Antenna	Rohde & Schwarz	UHAP	547	2007.12.12

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23	Signal Generator	Rohde & Schwarz	SMS	872165/100	2006.04.23
24	Signal Generator	Rohde & Schwarz	SMX	825459/030	2007.06.15
25	Spectrum Monitor	Rohde & Schwarz	EZM	862304/007	None
26	Panorama Monitor	Rohde & Schwarz	EPN	883707/207	None
27	Spectrum Analyzer	Advantest Corp.	R3261C	61720208	2007.06.05
28	Spectrum Analyzer	Hewlett Packard	8591A	3205A02641	2007.12.12
29	LISN	EMCO	3825/2	9111-1912	2007.12.12
30	LISN	Solar	8012-50-R-24	8379121	2007.04.25
31	LISN	Kyoritsu	KNW-242	8-923-2	2007.05.28
32	Plotter	Hewlett Packard	7475A	2210A02802	None
33	Modulation Analyzer	Hewlett Packard	8901B	3438A05094	2007.05.19
34	Waveform Generator	Hewlett Packard	33120A	US34001190	2007.05.23
35	Audio analyzer	Hewlett Packard	8903B	3011A12915	2007.05.23
36	Universal counter	Hewlett Packard	5343A	3020A02978	2007.05.23
37	Frequency Counter	Tektronic	CMC251	TW52489	2007.04.23
38	Temperature & Humidity Chamber	TABAI EZPEC CORP.	MC711P	112000492	2006.08.27
39	Antenna Mast	EMCO	1070-3	9109-1617	None
40	Turn Table	EMCO	1080-1,2	9203-1762	None
41	Positioning Controller	EMCO	1090	9111-1054	
42	Antenna Power Supply	Rohde & Schwarz	HZ-9	920127	None
43	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	881052	None
44	Coaxial Take-up Reel	EMCO	100817	9109-1684	None

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