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APPLICANT: UNIMO TECHNOLOGY CO., LTD.

FCC ID: O25KGMR-401A

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GENERAL INFORMATION REQUIRED
FOR TYPE ACCEPTANCE

2.1033(c)(1)(2) UNIMO TECHNOLOGY CO., LTD. will manufacture the
FCCID: O25KGMR-401A GMRS CHANNELS
TRANSCEIVER in quantity, for use under FCC RULES
PART 95.

UNIMO TECHNOLOGY CO., LTD.
626 DANGJEONG-DONG,
GUNPO-S, GYEONGGI-DO 435-030
KOREA

2.1033 (c) TECHNICAL DESCRIPTION

2.1033(c)(3) Instruction book. A draft copy of the instruction
manual is included as EXHIBIT 6.

2.1033(c) (4) Type of Emission: 10K5F3E
95.629

$B_n = 2M + 2DK$

$M = 3000$

$D = 2.25K$

$B_n = 2(3.0) + 2(2.25) = 10.5K$

	Authorized Bandwidth	20.0KHz		
2.1033(c)(5)	Frequency Range:	462.5500	462.5625	462.5750
95.627		462.5875	462.6000	462.6125
		462.6250	462.6375	462.6500
		462.6625	462.6750	462.6875
		462.7000	462.7125	462.7250
		467.5500	467.5750	467.6000
		467.6250	467.6500	MHz

2.10311c)(6)(7) Power Output shall not exceed 50.0Watts effective
95.637 radiated power. There can be no provisions for
95.647 increasing the power or varying the power. The Maximum
Output Power Rating: 2.5 Watts
effective radiated power.

95.645 The antenna is an integral part to the unit, it cannot
be removed without rendering the unit inoperative. In
order to remove the antenna the case must be unscrewed,
then the PCB assemblies must be removed then the
antenna can be removed.

2.1033(c)(8) DC Voltages and Current into Final Amplifier:
FINAL AMPLIFIER ONLY
 $V_{ce} = 7.5$ Volts DC $I_{ce} = 0.92A$.
 $P_{in} = 6.90$ Watts

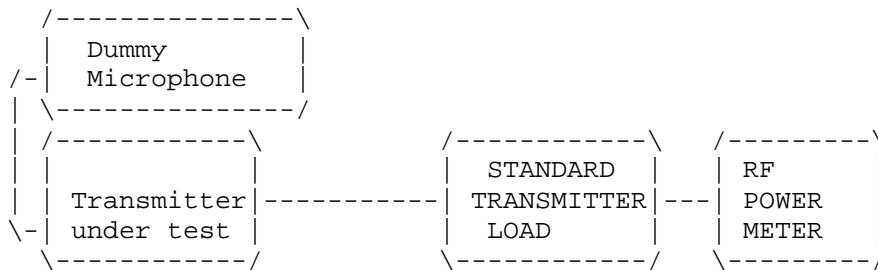
2.1033(c)(9) Tune-up procedure. The tune-up procedure is included
7A-7F.

- 2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT 5A-5B of this report. The block diagrams are included as EXHIBIT 4 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 exhibit 3A-3F.
- 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 S2.2.1. RF power is measured by connecting a 50 ohm, resistive watt meter to the RF output connector. With a nominal battery voltage of 4.5V, and the transmitter properly adjusted the RF output measures:

INPUT POWER: (7.5V)(0.9A) = 6.9 Watts
 OUTPUT POWER: 2.6 Watts Efficiency: 37%

2.1046(a) RF power output. The test procedure used was TIA/EIA-603 S2.2.1.



2.1047(a)(b) Modulation characteristics:

AUDIO FREQUENCY RESPONSE

The audio frequency response was measured in accordance with TIA/EIA Specification 603. The audio frequency response curve is shown on the next page. The audio signal was fed into a dummy microphone circuit and into the microphone connector. The input required to produce 30 percent modulation level was measured.

2.1047(b) Audio input versus modulation

The audio input level needed for a particular percentage of modulation was measured in accordance with TIA/EIA Specification 603. The audio input curves versus modulation are on the following pages. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz.

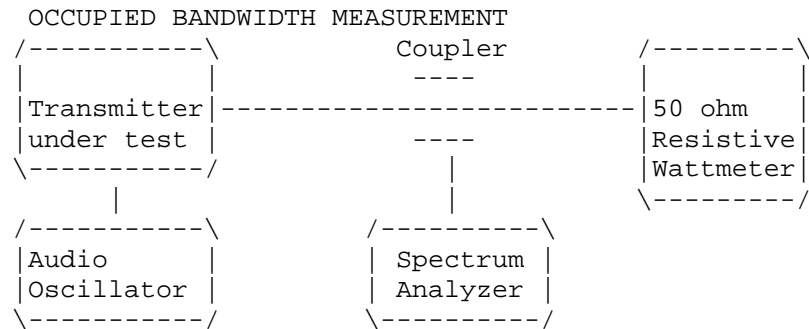
95.637 Post Limiter Filter Each GMRS transmitter, except a mobile station transmitter with a power of 2.5Watts or less, must be equipped with an audio low pass filter. At any frequency between 3 & 20KHz the filter must have an attenuation of $60 \log (f/3)$ greater than the attenuation at 1KHz.

2.1049 Occupied bandwidth:

95.635(b)(1)(3)(7)

At least $83 \log(fd/5)$ dB on any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz), of more than 5kHz up to 10kHz. At least $116 \log(fd/6.1)$, or if less, $50 + \log(T)$ dB on any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz), of more than 10kHz up to and including 250% of the authorized bandwidth. At least $43 + \log_{10}(T)$ on any frequency removed from the center of the authorized bandwidth by more than 250%.

Radiotelephone transmitter with modulation limiter.
Test procedure diagram



2.1053
95.635(b)(7)

UNWANTED RADIATION:

The tabulated Data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 to at least the 10th harmonic of the fundamental. This test was conducted per ANSI C63.4-1992.

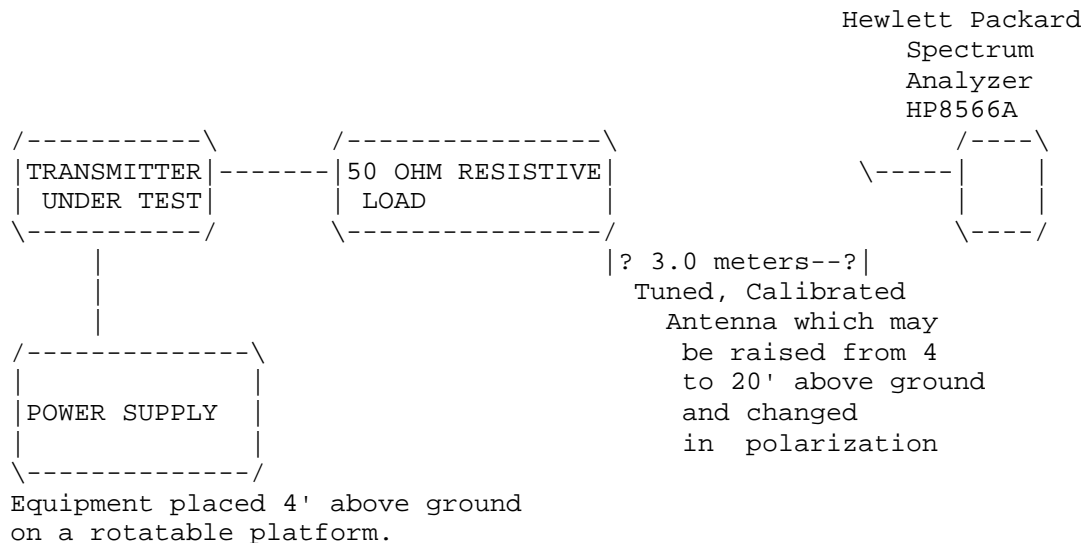
REQUIREMENTS: POWER $43 + 10\log(2.5) = 47.0\text{dB}$

TEST DATA:

EMISSION FREQUENCY MHz	ATT. LEVEL dB	MARGIN dB
462.70	0.0	0.0
925.40	49.5	2.5
1388.10	53.05	6.05
1850.80	54.59	7.59
2313.60	50.34	3.34
2776.30	55.21	8.21
3239.00	62.39	15.39
3701.80	61.96	14.96
4164.50	53.96	6.96
4627.20	55.97	8.97

METHOD OF MEASUREMENT: The procedure used was TIA/EIA 603, THE measurements were made at the test site located at TIMCO ENGINEERING INC. 849 NW State Road 45 Newberry, Florida 32669.

Method of Measuring Radiated Spurious Emissions



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2.1055
95.621(b)

Frequency stability:

Temperature and voltage tests were performed to verify that the frequency remains within the 0.00025%, 2.5 ppm specification limit. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15 second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15 second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C.

Readings were also taken at plus and minus 15% of the battery voltage of 4.5 VDC.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 462.725 000

TEMPERATURE C	FREQUENCY MHz	PPM
REFERENCE_____	462.725 000	00.00
-30_____	462.724 153	-1.83
-20_____	462.724 782	-0.47
-10_____	462.724 641	-0.78
0_____	462.725 200	+0.43
+10_____	462.725 281	+0.61
+20_____	462.725 066	+0.14
+30_____	462.724 709	-0.63
+40_____	462.724 472	-1.14
+50_____	462.724 435	-1.22

20c BATT. End-Point 6.3V/dc 462.724 776 -0.48

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was -1.83 to +0.61 ppm. The maximum frequency variation with voltage was -0.48ppm.

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TEST EQUIPMENT LIST

1. X Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/
preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter
HP 85650A, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02,
S/N 3008A00372 Cal. 10/17/99
2. ___ Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
3. ___ Signal Generator: HP 8614A, S/N 2015A07428 Cal. 5/29/99
4. ___ Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N
9706-1211 Cal. 6/23/97
5. X Biconnical Antenna: Eaton Model 94455-1, S/N 1057
6. X Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
7. ___ Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153
Cal. 11/24/99
8. X Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,
1-18 GHz, S/N 2319 Cal. 4/27/99
9. ___ Horn 40-60GHz: ATM Part #19-443-6R
10. ___ Line Impedance Stabilization Network: Electro-Metrics Model
ANS-25/2, S/N 2604 Cal. 11/30/99
11. ___ Line Impedance Stabilization Network: Electro-Metrics Model
EM-7820, S/N 2682 Cal. 12/1/99
12. X Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
13. ___ AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
14. ___ Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
15. ___ Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
16. ___ Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99
17. X Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99

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