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Environmental Assessment

for

Mobiles/Fixed Base Station

for

FCC ID: FRWRT-5000A
Model: XTS-5000A UHF/FM FM Transceiver Section

to

Federal Communications Commission

47 CFR 1.1310 (MPE)
Radiofrequency Radiation Exposure Limits

Date Of Report: May 21, 2006

On the Behalf of the Applicant:

Wulfsberg Electronics Division

At the Request of:

Wulfsberg Electronics Division
6400 Wilkinson Drive
Prescott, AZ 86301-6164

Attention of: Main: (928) 708-1550; Fax: (928) 541-7627
Dave Auer, Project Manager
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Report Prepared By: David E. Lee, FCC/IC Compliance Manager

Approved by: Sam Baum, Technical Manager

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) **Test Report (Supplemental)**

b) Laboratory: (FCC: 31040/SIT) (Canada: IC 2044)	M. Flom Associates, Inc. 3356 N. San Marcos Place, Suite 107 Chandler, AZ 85225
c) Report Number:	d0650022
d) Client:	Wulfsberg Electronics Division 6400 Wilkinson Drive Prescott, AZ 86301-6164
e) Identification: Description:	XTS-5000A UHF/FM (Hi Split) Radio FCC ID: FRWRT-5000A Mobile FM
f) EUT Condition:	Not required unless specified in individual tests.
g) Report Date: EUT Received:	May 21, 2006 Apr 8, 2006
h, j, k):	As indicated in individual tests.
i) Sampling method:	No sampling procedure used.
l) Uncertainty:	In accordance with MFA internal quality manual.
m) Supervised by:	 David E. Lee, FCC/IC Compliance Manager
n) Results:	The results presented in this report relate only to the item tested.
o) Reproduction:	This report must not be reproduced, except in full, without written permission from this laboratory.

Identification of the Equipment Under Test (EUT)

Name and Address of Applicant:

Wulfsberg Electronics Division
6400 Wilkinson Drive
Prescott, AZ 86301-6164

Manufacturer:

Wulfsberg Electronics Division
6400 Wilkinson Drive
Prescott, AZ 86301-6164

FCC ID:	FRWRT-5000A
Model Number:	XTS-5000A UHF/FM (Hi Split) Radio
Description:	Mobile FM Transceiver
Type of Emission:	16K0F3E, 11K0F3E, 20K0F1E, 8K10F1E, 8K10F1D
Frequency Range, MHz:	450.00 to 520.00
Power Rating, Watts:	1 / 4

_X_ Switchable ____ Variable ____ N/A

Modulation:

____ AMPS
____ TDMA
____ CDMA
_X_ OTHER

Antenna:

____ Helical
____ Monopole
_X_ Whip
_X_ Other

Note: For RF Safety test antenna gain taken at the upper range of expected gain (i.e. 0 dBd) and RF Power set to highest nominal power across all channels.

Standard Test Conditions
and
Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2003, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.

Name of Test: Environmental Assessment

Specification: FCC: 47 CFR 1.1310

Measurement Guide: ANSI/IEEE C95.1 1992

Test Equipment: Maximum Permissible Exposure (MPE) measurement system, consisting of:
AR FP6001 Field Monitor Kit
Probe Monitor Software Suite running on a PC

Measurement Procedure:

1. The following measurements were performed with a FP6001 probe using ANSI/IEEE C95.1 as a guide.

2. Prior to making any measurements, the measurements system was calibrated in accordance with the manufacturer's procedures.

3. The EUT's radiating element (antenna) was placed on a 1 m tall table for ease of testing. For equipment normally operated on a metal surface, a ground plane was used.

4. The remaining equipment necessary to operate the EUT was maintained at a distance from the measurement arrangement suitable to minimize interference with the measurements.

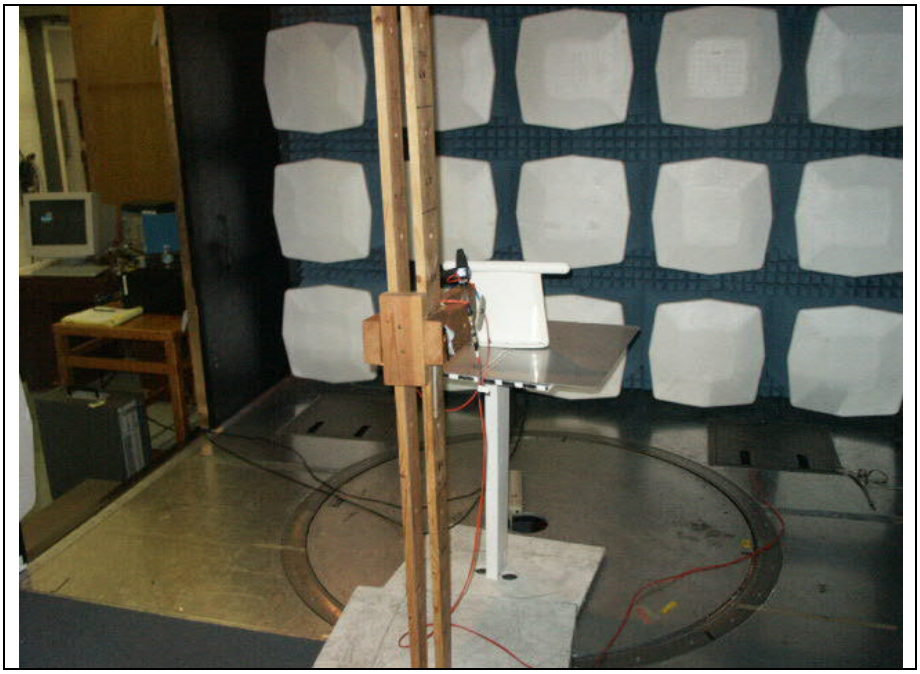
5. The minimum safe distance was calculated from the formula Power Density = EIRP / $4\pi R^2$ (Peak Watts/m^2). The calculation is shown with the measurement data.

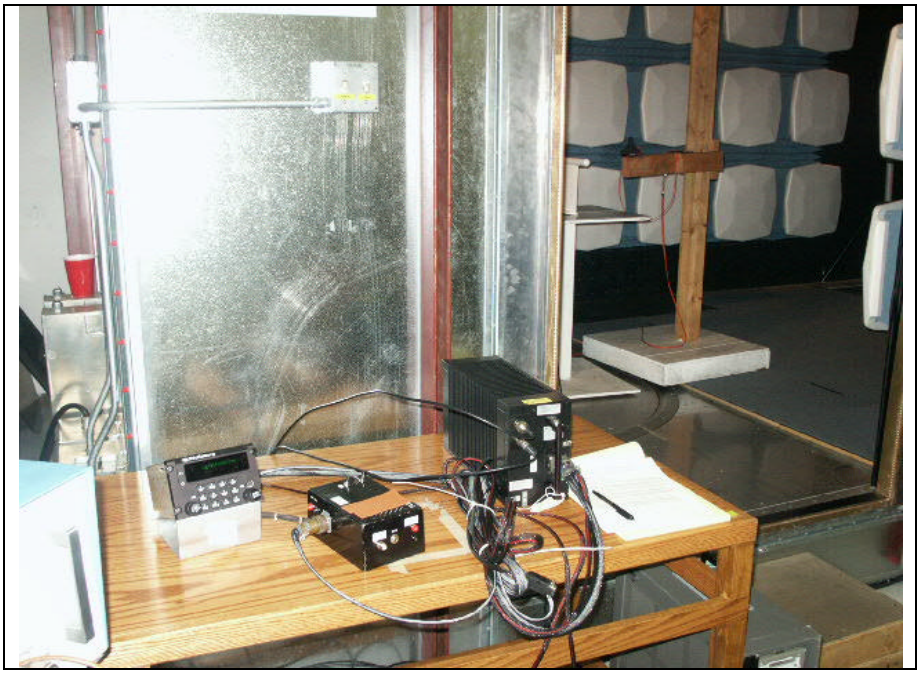
6. With the EUT operating at maximum power, a search was initiated for worst case emissions with the probe raised and lowered over a range of 0.2 to 2 meters in height and over a horizontal plane of 0^o to 360^o.

7. Average values were calculated for the whole body (0.2-2.0m), lower body (0.2-0.8m) and upper body (1.0-2.0m).

Results: Attached.

Test Setup: Maximum Permissible Exposure (MPE)





Name of Test: R.F. Radiation Exposure

FCC Rules: 1.1307, 1.1310, 1.1311, 2.1091
Description, EUT: See page 2 of Test Report

Limits: Uncontrolled Exposure 47 CFR 1.1310 Table 1, (B)	0.3-1.234 MHz:	Limit [mW/cm^2] = 100
	1.34-30 MHz:	Limit [mW/cm^2] = ($180/f^2$)
	30-300 MHz:	Limit [mW/cm^2] = 0.2
	300-1500 MHz	Limit [mW/cm^2] = f/1500
	1500-100,000 MHz:	Limit [mW/cm^2] = 1.0

Test Frequencies, MHz	450.025	494.025	519.975
Power, Conducted, W	= 4.0		
Antenna Gain	= 3 dBi (0.85dBd)		
Antenna Model	AT-5000 (Manufactured by Comant)		

Pre-test Calculations	$Power_{[W\ EIRP]} = P_{[conducted]} \times G_{[antenna]}$	=	4.0 x 2 (x 50% Duty Cycle)
	$Limit_{[mW/cm2]}$	=	0.300, 0.330, 0.347
	$Limit_{[W/m2]} = 10 \times Limit_{[mW/cm2]}$	=	3.00, 3.30, 3.47
	$R_{[m]} = [P_{[W\ EIRP]} / (4\pi \times Limit_{[W/m2]})]^{1/2}$	=	0.51, 0.49, 0,48

Results at tested distances

Probe Height, m	Power Density, mW/cm^2 Freq. 450 MHz Distance 50 cm	Freq. 494 MHz Distance 50 cm	Freq. 520 MHz Distance 50 cm
2.0	0.057	0.053	0.054
1.8	0.143	0.142	0.135
1.6	0.148	0.145	0.143
1.4	0.212	0.214	0.206
1.2	0.213	0.213	0.217
1.0	0.185	0.177	0.190
0.8	0.116	0.114	0.111
0.6	0.081	0.080	0.082
0.4	0.065	0.060	0.063
0.2	0.057	0.058	0.059

Power Density Calculations: The measured power density readings were summed and the results divided by the number of readings to calculate the average.

	450 MHz	494 MHz	520 MHz
Whole body average (0.2 - 0.8 m, mW/cm^2) =	0.128	0.126	0.126
Lower body average (0.2 - 0.8 m, mW/cm^2) =	0.080	0.078	0.079
Upper body average (1.0 - 2.0 m, mW/cm^2) =	0.160	0.157	0.158

(The following will be placed in the Instruction Manual)

Mandatory Safety Instructions to Installers & Users

Use only manufacturer or dealer supplied antenna.

As the unit is a composite device using a multi-band antenna the safety distances are stated in the Main RT-5000A documentation.

Testimonial
and
Statement of Certification

This is to certify:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.

2. **That** the technical data supplied with the application was taken under my direction and supervision.

3. **That** the data was obtained on representative units, randomly selected.

4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certifying Engineer: Sam Baum, Technical Manager