



MOTOROLA



CGISS EME Test Laboratory
8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322

EME Compliance Test Report

Attention: Federal Communication Commission
Date of Report: December 4, 2002
Report Revision: Rev. A
Device Manufacturer: Motorola
Device Description: 25-40 Watts Conventional MINI UHF
1.5 PPM Mobile Transceiver 450-520 MHz
Classification: Occupational/Controlled Exposure
FCC ID: AZ492FT4859
Device Model: PMUE1874A

Test Period: 11/25/02 – 11/27/02

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Note: Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with all applicable national and international reference standards and guidelines.

Signature on File

12/05/02

Ken Enger

Date Approved

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REVISION HISTORY

Date	Revision	Comments
12/4/02	O	Production release (1.5 PPM)
12/4/02	A	FCC ID correction

1.0 Product Description



FCC ID: AZ492FT4859, model PMUE1874A is a conventional mini UHF mobile transceiver that operates using frequency modulation. This device is marketed to Commercial, Government, and Industrial Users and therefore is classified as Occupational/Controlled Exposure. The intended users of this device are informed and aware professionals operating this device in accordance with the User Manual instructions including maintaining a maximum operational transmit duty cycle of 50%. The intended use of the radio is Push-To-Talk (PTT) while the device is properly installed in a vehicle with an external antenna mounted at the center of the roof or trunk.

The transmit frequency band for FCC ID: AZ492FT4859 is 450-520 MHz. The rated power of the device is 25 to 40 watts with a maximum conducted power output of 48 watts.

2.0 Offered Options and Accessories

Antenna

HAE4003A	16cm ¼ wave UHF 450-470 MHz 0 dBi antenna
HAE4004A	14cm ¼ wave UHF 470-512 MHz 0 dBi antenna
HAE4011A	73cm 5/8 wave UHF 450-470 MHz 3.5dBi antenna
HAE4012A	68cm 5/8 wave UHF 470 – 494 MHz 3.5dBi antenna
HAE4013A	64cm 5/8 wave UHF 494 –512 MHz 3.5dBi antenna
HAE4019A	95cm ¼ wave UHF 450-470 MHz 5.0 dBi antenna

3.0 Measurement Standards

Measurements were performed according to FCC Limits Per 47 CFR 2.1091 (b) for General Population/Uncontrolled RF Exposure.

For frequencies ranging from 450-520 MHz the MPE (Maximum Permissible Exposure) limit to electromagnetic energy in equivalent plane wave free-space power density is 0.300 - 0.347 mW/cm².

4.0 Data Collection Consideration

Power density testing was performed with DUT installed in a 1991 Ford Taurus (4-door). Measurement data was taken with the vehicle running at idle and the vehicle battery measuring 14.0 volts.

5.0 Measurement System Uncertainty Levels

The information below presents an estimate of the possible errors that are associated with the measurement system.

<u>Description</u>	<u>Error</u>
NARDA Survey Meter	± 3%
Repeatability Accuracy	± 7%

6.0 Method of Measurement

6.1 EME measurements made on trunk-mounted antennas (for reference, see Antenna Location Layout drawings in Appendix)

6.1.1 External vehicle EME measurement (Antenna mounted at trunk center)

With the survey meter and probe, at the back of the vehicle in a vertical line, take ten (10) measurements 60 cm separation distance from the antenna then average the results. These measurements are taken and recorded at every twenty (20) centimeters over a range starting at twenty (20) centimeters above ground and ending at 2.0 meters; this would be representative of a person standing behind a vehicle during a mobile radio transmission.

The configuration that produced the highest power density result above was used to assess the MPE of this product at 76cm (2.5 ft.) separation distance. Assessment at 76cm (2.5 ft.) was performed to obtain adequate margin to the specification limits.

6.1.2 Internal vehicle EME measurement (Antenna mounted at trunk center)

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scan the inside of the vehicle, both front and back seating areas, for the highest level in each location. After the highest level is found, scan vertically making two (2) additional measurements within an area approximately 40 cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that will be averaged.

- a) Head area
- b) Chest area
- c) Lower Trunk area

6.2 EME measurements made on center roof-mounted antennas (for reference, see Antenna Location Layout drawings in Appendix)

6.2.1 External vehicle EME measurement

With the survey meter and probe, in a vertical line, take ten (10) measurements, at the standard test distance of 60 cm from the vehicle-mounted antenna then average the results. These measurements are taken and recorded at every twenty (20) centimeters over a range starting at twenty (20) centimeters above ground and ending at 2.0 meters; this would be representative of a person standing next to a vehicle during a mobile radio transmission.

Note: Actual test distance was 110cm; this is the closest distance that can be achieved to an antenna mounted to the center of the vehicle used for MPE compliance assessment.

6.2.2 Internal vehicle EME measurement

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scan the inside of the vehicle, both front and back seating areas, for the highest level in each location. After the highest level is found, scan vertically making two (2) additional measurements within an area approximately 40 cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that will be averaged.

- a) Head area
- b) Chest area
- c) Lower Trunk area

7.0 Test Site

The test site is the Motorola Commercial Government Industrial Solution Sector (CGISS) world wide electromagnetic exposure (EME) open area test site located at 8000 W. Sunrise Blvd., Plantation, FL. 33322.

8.0 Measurement System/Equipment

The minimum equipment required will mainly consist of a test vehicle, radio frequency radiation test set consisting of an Electromagnetic Radiation Survey Meter, E-Field Test Probe, and typical antenna configurations.

Below are the test equipment used to assess compliance:

- a) Automobile: 1991 Ford Taurus, 4-Door
- b) E-Field Survey Meter - NARDA Model 8718; Calibration date: 4/23/02
- c) E-Field (Electric Field) Probe - NARDA Model 8722B (300 kHz - 40 Ghz);
Calibration date: 3/28/02
- d) Antennas – see section 2.0

9.0 Test Unit Description

Power density measurements were performed on a 25-40 watt mobile radio; model number PMUE1874A serial number 103TCN9221. The frequency band is 450-520 MHz; the test frequencies were 450, 460, 470, 482, 491, 494, 503, 512 MHz. The mobile antennas listed in section 2.0 were used to assess MPE compliance.

10.0 Test Set-Up Description

The following is the mobile antenna test configurations used for this product.
(for reference, see Antenna Location Layout drawings in Appendix)

- a) Assessments with the antenna mounted at the center of the trunk were performed using antennas HAE4003A, HAE4004A, HAE4011A, HAE4012A, HAE4013A, and HAE4019A.
- b) Assessment with the antenna mounted at the center of the roof was performed using antenna HAE4003A. This antenna was selected because it exhibited the highest MPE results during the trunk assessment.

11.0 Test Results

Measurements were taken with the antenna located in two areas: the roof center, and trunk center. Below is the raw MPE data for all measured grid points. Results are based on a 50% duty cycle with the radio operating in accordance with the User Manual instructions. The bolded power density results represents the highest MPE results observed.

Raw MPE Data; Test Frequencies and measured Po:

450 MHz (Po=45.7W), 460 MHz (Po=46.3W), 470 MHz (Po=46.3), 482 MHz (Po = 45.6W), 491 MHz (Po=46.0W), 494 MHz (46.1W), 503 MHz (Po=47.1), 512MHz (46.8W)

Meter reads in % of controlled limit; controlled limit = 1.50 - 1.73 mW/cm² for 450-520 MHz

(Cal factors presented herein are automatically accounted for in the meter used for assessments)

Vehicle spec. limits = 0.300 - 0.347 mW/cm²

External Vehicle Power Density (Pwr. Den. (cal.)) = average over body/2

Internal Vehicle Power Density (Pwr. Den. (cal.)) = average over (head/chest/leg)/2

Note: The average over the body test methodology is consistent with IEEE/ANSI C95.1-1999 guidelines

External Vehicle MPE Assessment @ 450MHz						
Antenna Location	Antenna /gain	Meas. Distance	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4003A/0dB	60	E	1.06	.580	0.289
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	16.5	6	120	93.0	
2	40	9.3	7	140	60.0	
3	60	21.0	8	160	30.0	
4	80	44.0	9	180	16.0	
5	100	86.0	10	200	8.9	

External Vehicle MPE Assessment @460MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4003A/0dB	60	E	1.06	.471	0.235
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	11.0	6	120	74.0	
2	40	8.5	7	140	51.0	
3	60	16.0	8	160	25.0	
4	80	31.0	9	180	15.0	
5	100	65.0	10	200	10.5	

External Vehicle MPE Assessment @470 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4003A /0dB	60	E	1.05	0.458	0.229
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	9.9	6	120	74.0	
2	40	9.5	7	140	47.0	
3	60	15.0	8	160	22.0	
4	80	33.0	9	180	10.5	
5	100	64.0	10	200	7.5	

External Vehicle MPE Assessment @470MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4004A /0dB	60	E	1.05	0.510	0.255
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	8.6	6	120	87.0	
2	40	8.5	7	140	52.0	
3	60	16.0	8	160	23.0	
4	80	35.0	9	180	11.0	
5	100	76.0	10	200	8.3	

External Vehicle MPE Assessment @491MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4004A /0dB	60	E	1.03	0.498	0.249
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	11.5	6	120	83.0	
2	40	7.0	7	140	56.0	
3	60	14.5	8	160	23.0	
4	80	31.0	9	180	9.5	
5	100	65.0	10	200	4.0	

External Vehicle MPE Assessment @512MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4004A /0dB	60	E	1.01	0.529	0.264
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	6.5	6	120	81.0	
2	40	4.2	7	140	55.0	
3	60	13.0	8	160	28.0	
4	80	37.0	9	180	12.7	
5	100	66.0	10	200	6.3	

External Vehicle MPE Assessment @450MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4011A /3.5dB	60	E	1.06	0.403	0.202
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	2.9	6	120	69.0	
2	40	1.9	7	140	71.0	
3	60	4.5	8	160	30.0	
4	80	10.5	9	180	22.0	
5	100	29.0	10	200	28.0	

External Vehicle MPE Assessment @460MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4011A /3.5dB	60	E	1.06	0.331	0.166
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	3.5	6	120	52.0	
2	40	2.0	7	140	52.0	
3	60	4.5	8	160	25.0	
4	80	9.5	9	180	19.0	
5	100	24.5	10	200	24.0	

External Vehicle MPE Assessment @482MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4012A /3.5dB	60	E	1.04	0.370	0.185
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	4.3	6	120	67.0	
2	40	3.0	7	140	63.0	
3	60	4.8	8	160	23.0	
4	80	10.5	9	180	11.4	
5	100	28.0	10	200	15.5	

External Vehicle MPE Assessment @494MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4013A /3.5dB	60	E	1.03	0.462	0.231
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	3.3	6	120	102.0	
2	40	2.2	7	140	75.0	
3	60	4.7	8	160	22.0	
4	80	8.5	9	180	8.5	
5	100	45.0	10	200	9.5	

External Vehicle MPE Assessment @ 503MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4013A /3.5dB	60	E	1.02	0.456	0.228
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	2.3	6	120	96.0	
2	40	1.8	7	140	67.0	
3	60	5.4	8	160	16.0	
4	80	15.0	9	180	6.2	
5	100	53.0	10	200	9.0	

External Vehicle MPE Assessment @512MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4013A /3.5dB	60	E	1.01	0.332	0.166
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	2.6	6	120	65.0	
2	40	2.0	7	140	46.5	
3	60	5.3	8	160	13.0	
4	80	11.9	9	180	6.0	
5	100	35.0	10	200	7.5	

External Vehicle MPE Assessment @460MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4019A /5.0dB	60	E	1.06	0.308	0.154
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	4.2	6	120	23.0	
2	40	3.3	7	140	50.0	
3	60	5.4	8	160	49.0	
4	80	8.2	9	180	29.0	
5	100	9.7	10	200	19.0	

External Vehicle MPE Assessment @450MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Trunk	HAE4003A /0 dB	76	E	1.06	0.430	0.215
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	10.5	6	120	64.0	
2	40	9.0	7	140	51.0	
3	60	16.0	8	160	31.0	
4	80	29.0	9	180	17.5	
5	100	47.0	10	200	11.4	

External Vehicle MPE Assessment @450MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Body (mW/cm ²)	Pwr. Density (mW/cm ²)
Roof	HAE4003A /0dB	110	E	1.06	0.204	0.102
Measurement grid						
Test position	Height (cm)	% of control limit	Test position	Height (cm)	% of control limit	
1	20	1.0	6	120	9.0	
2	40	1.8	7	140	15.0	
3	60	4.5	8	160	27.0	
4	80	7.7	9	180	32.0	
5	100	8.5	10	200	29.5	

Internal Vehicle MPE Assessment @450 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4003A/0dB	Highest reading	E	1.06	0.865/0.690	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	98		45		30	
Front seat	60		28		50	

Internal Vehicle MPE Assessment @460 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4003A/0dB	Highest reading	E	1.06	0.678/0.530	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	61		52		20	
Front seat	55		27		22	

Internal Vehicle MPE Assessment @470 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4003A/0dB	Highest reading	E	1.05	0.884/0.586	0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	107		35		27	
Front seat	59		23		30	

Internal Vehicle MPE Assessment @ 470 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4004A/0dB	Highest reading	E	1.05	1.05/0.832	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	105		60		35	
Front seat	80		54		25	

Internal Vehicle MPE Assessment @491 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4004A /0dB	Highest reading	E	1.03	0.727/0.399	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	70		41		22	
Front seat	36		22		15	

Internal Vehicle MPE Assessment @ 512 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4004A /0dB	Highest reading	E	1.01	0.604/0.336	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	58		31		17	
Front seat	31		21		7	

Internal Vehicle MPE Assessment @ 450 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4011A /3.5dB	Highest reading	E	1.06	0.398/0.265	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	53		20		6.5	
Front seat	17		18		18	

Internal Vehicle MPE Assessment @ 460 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4011A /3.5dB	Highest reading	E	1.06	0.311/0.275	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	33		21		7	
Front seat	25		18		11	

Internal Vehicle MPE Assessment @ 482 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4012A /3.5dB	Highest reading	E	1.04	0.488/0.209	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	48		25		18	
Front seat	21		7		11	

Internal Vehicle MPE Assessment @ 494 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4013A /3.5dB	Highest reading	E	1.03	0.737/0.380	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	70		27		37	
Front seat	38		19		12	

Internal Vehicle MPE Assessment @ 503 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4013A /3.5dB	Highest reading	E	1.02	0.666/0.336	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	64		25		30	
Front seat	33		15		12	

Internal Vehicle MPE Assessment @ 512 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4013A /3.5dB	Highest reading	E	1.01	0.450/0.219	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	41		21		17	
Front seat	20		12		6.5	

Internal Vehicle MPE Assessment @ 460 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Trunk	HAE4019A /5dB	Highest reading	E	1.06	0.209/0.205	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	20		16		5	
Front seat	22		8.3		9.8	

Internal Vehicle MPE Assessment @ 450 MHz						
Antenna Location	Antenna /gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Leg Back/Front seats (mW/cm ²)	S.A.R. calculated Back/Front seats (mW/g)
Roof	HAE4003A /0dB	Highest reading	E	1.06	0.130/0.145	<= 0.427
Measurement grid						
Test position	% of control limit Head		% of control limit Chest		% of control limit Leg	
Back seat	5.5		16		4.5	
Front seat	7		6		16	

12.0 Conclusion

Depending on the test frequency, compliance assessments were performed with an output power range of 45.6W to 47.1W. The maximum RF power allowable will be equal to the upper limit of the final test factory transmit power specification of 48.0W. The highest power density result scaled to the maximum allowable power output with 76cm separation is 0.226mW/cm².

Note: EQUIVALENT SAR FOR FREQUENCIES OF 100-530 MHz

The final SAR (Specific Absorption Rate) values are evaluated through the following calculation based on measurements completed by MFRL (Motorola Florida Research Lab) on both VHF and UHF high power mobile radios feeding a quarter-wave length monopole antenna, trunk mounted, on a phantom located on the back seat of test vehicle: Reference: “Field Strengths and Specific Absorption Rates in Automotive Environments”, by D. McCoy, D. Zakharia, and Q. Balzano, IEEE Trans. Vehicular Tech. Vol. 48 (4): pp. 1287-1303, July, 1999

PTT (PUSH-TO-TALK) OPERATION

$$\text{SAR (mW/g)} = ((\text{measured RF power out}/130)*2.314 [50\% \text{ duty cycle}]$$

Formula definitions:

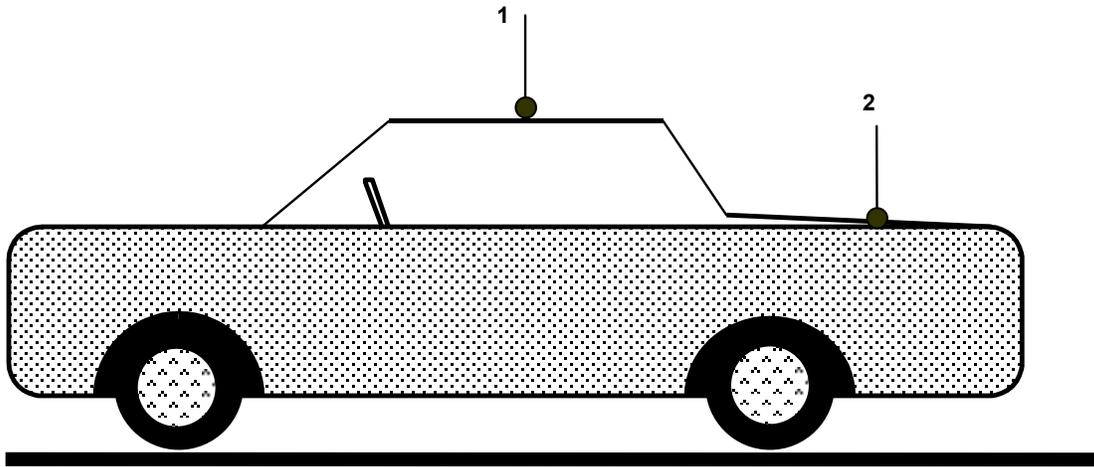
“130” = RF mobile power (W) feeding a quarter-wave length antenna in original research document.

“2.314 the SAR resulting from that 130 Watt mobile feeding a quarter-wave length antenna in original research document.

The measurement results clearly demonstrate compliance with the FCC Limits Per 47 CFR 2.1091 (d) for General Population/Uncontrolled RF Exposure.

APPENDIX

ANTENNA LOCATION DRAWING



- 1 - Roof (center)
- 2 - Trunk (center)

