

 <b style="font-size: 24pt; margin-left: 10px;">MOTOROLA	 TESTING CERT # 2518.01		
<b style="color: blue;">FCC ID: AZ492FT5858 <b style="color: blue;">DECLARATION OF COMPLIANCE: MPE ASSESSMENT			
Government & Public Safety EME Test Laboratory 8000 West Sunrise Blvd Fort Lauderdale, FL. 33322	Date of Report: May 2, 2008 Report Revision: O Report ID: SR6250_MPE rpt_APX7500_700/800MHz_ Mobile_Rev O_080502		
<table style="width: 100%; border: none;"> <tr> <td style="width: 60%; border: none;"> <p>Responsible Engineer: Kim Uong (Principle Staff EME Eng.)</p> <p>Date/s Tested: 4/4/2008 - 4/11/2008; 4/21/08</p> <p>Manufacturer/Location: Motorola Schaumburg, IL</p> <p>Date submitted for test: 4/14/08</p> <p>DUT Description: 700/800 MHz mid-power for vehicular mounting</p> <p>Test TX mode(s): CW</p> <p>Max. Power output: 36W (764-806MHz); 42W (806-870MHz)</p> <p>TX Frequency Bands: Talkaround: 764-776MHz, 851-870MHz Trunked: 794-806MHz, 806-824MHz</p> <p>Signaling type: Analog, APCO 25, and TDMA (F2)</p> <p>Model(s) Tested: M30URS9PW1AN</p> <p>Model(s) Certified: M30URS9PW1AN</p> <p>Serial Number(s): 174</p> <p>Classification: Occupational/Controlled Environment</p> <p>Rule Part(s): 22 and 90</p> <p>Approved Accessories:</p> <p>Antenna(s): HAF4016A (764-870MHz, 1/4 wave, 2.15dBi) HAF4014A (764-870 MHz, 1/4 wave, 5.15dBi) HAF4013A (764-870 MHz, 1/4 wave, 5.15dBi) HAF4017A (764-870 MHz, 1/4 wave, 5.15dBi) RRA4914B (806 - 900 MHz, 1/4 wave, 5.15dBi) HAF4002A (806 - 900 MHz, 1/4 wave, 2.15dBi)</p> <p style="text-align: center;">Final RF Exposure Results:</p> <p style="text-align: center;">Passenger - Max Calculated Power Density = 0.53 mW/cm²</p> <p style="text-align: center;">Bystander - Max Calculated Power Density = 0.27 mW/cm²</p> </td> <td style="width: 40%; border: none; text-align: center; vertical-align: middle;"> <div style="border: 1px solid black; padding: 20px; transform: rotate(-45deg); width: 150px; margin: 0 auto;"> <b style="color: blue;">DUT Photo (Refer to Exhibit 7B) </div> </td> </tr> </table>		<p>Responsible Engineer: Kim Uong (Principle Staff EME Eng.)</p> <p>Date/s Tested: 4/4/2008 - 4/11/2008; 4/21/08</p> <p>Manufacturer/Location: Motorola Schaumburg, IL</p> <p>Date submitted for test: 4/14/08</p> <p>DUT Description: 700/800 MHz mid-power for vehicular mounting</p> <p>Test TX mode(s): CW</p> <p>Max. Power output: 36W (764-806MHz); 42W (806-870MHz)</p> <p>TX Frequency Bands: Talkaround: 764-776MHz, 851-870MHz Trunked: 794-806MHz, 806-824MHz</p> <p>Signaling type: Analog, APCO 25, and TDMA (F2)</p> <p>Model(s) Tested: M30URS9PW1AN</p> <p>Model(s) Certified: M30URS9PW1AN</p> <p>Serial Number(s): 174</p> <p>Classification: Occupational/Controlled Environment</p> <p>Rule Part(s): 22 and 90</p> <p>Approved Accessories:</p> <p>Antenna(s): HAF4016A (764-870MHz, 1/4 wave, 2.15dBi) HAF4014A (764-870 MHz, 1/4 wave, 5.15dBi) HAF4013A (764-870 MHz, 1/4 wave, 5.15dBi) HAF4017A (764-870 MHz, 1/4 wave, 5.15dBi) RRA4914B (806 - 900 MHz, 1/4 wave, 5.15dBi) HAF4002A (806 - 900 MHz, 1/4 wave, 2.15dBi)</p> <p style="text-align: center;">Final RF Exposure Results:</p> <p style="text-align: center;">Passenger - Max Calculated Power Density = 0.53 mW/cm²</p> <p style="text-align: center;">Bystander - Max Calculated Power Density = 0.27 mW/cm²</p>	<div style="border: 1px solid black; padding: 20px; transform: rotate(-45deg); width: 150px; margin: 0 auto;"> <b style="color: blue;">DUT Photo (Refer to Exhibit 7B) </div>
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<p>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 the national and international reference standards and guidelines listed in section 3.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola EME Laboratory.</p> <p>I attest to the accuracy of the data and assume full responsibility for the completeness of these measurements.</p> <p>This reporting format is consistent with the suggested guidelines of the TIA TSB-159 April 2006</p> <p>The results and statements contained in this report pertain only to the device(s) evaluated herein.</p>			
<p style="text-align: center;"><i>Signature on file – Stephen Whalen for Deanna Zakharia</i></p> <p style="text-align: center;">Deanna Zakharia G&PS EME Lab Senior Resource Manager, Laboratory Director,</p> <p style="text-align: center;">Approval Date: 5/2/08</p>	<p style="text-align: center;">Certification Date: 5/14/08</p> <p style="text-align: center;">Certification No.: L1080429P</p>		

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REVISION HISTORY

Date	Revision	Comments
5/2/2008	O	Initial release

1.0 Product and System Description

FCC ID: AZ492FT5858, model M30URS9PW1AN is a mobile transceiver that utilizes analog, APCO 25 & F2 digital two-way radio communications. The analog modulation scheme uses Frequency Modulation (FM). APCO 25 & F2 digital modes use C4FM of CQPSK family of modulation (Compatible 4-Level Frequency Modulation of Compatible Quadrature Phase Shift Keying). F2 is a TDMA protocol that allocates portions of the RF signal by dividing time into two slots (2 slots TDMA). Transmission from a unit or base station is accommodated in time-slot lengths of 30 milliseconds and frame lengths of 60 milliseconds. This product supports voice in analog mode, and both voice and data modes in digital mode.

The maximum duty cycle for analog mode is 50%. The APCO mode is based on simplex hand-shaking operation between the user and base station. The maximum duty cycle for F2 protocol is 50% which controlled by the software as defined in the protocol.

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.

This device will be marketed to and used by employees solely for work-related operations, such as public safety agencies, e.g. police, fire and emergency medical. User training is the responsibility of these agencies which can be expected to employ the usage instructions, safety information and operational cautions set forth in the user's manual, instructional sessions or other means.

Accordingly this product is classified as Occupational/Controlled Exposure. However, in accordance with FCC requirements, the passengers inside the vehicle and the bystanders external to the vehicle are evaluated to the General Population/Uncontrolled Exposure Limits.

(Note that "Bystanders" as used herein mean people other than operator)

2.0 Additional Options and Accessories

NA

3.0 Measurement and Limit Standards

Measurements were performed according to the recommended guidelines in IEEE/ANSI C95.3-2002 and compared to FCC Limits Per 47 CFR 2.1091 (d) for General Population/ Uncontrolled RF Exposure.

For test frequencies ranging from 764-870MHz the MPE (Maximum Permissible Exposure) limit to electromagnetic energy in equivalent plane wave free-space power density is $0.51 - 0.58\text{mW}/\text{cm}^2$ and calculated using the formula $f/1500$.

4.0 Measurement System Uncertainty Levels

Uncertainty Budget for Near Field Probe Measurements

	Tol. (± %)	Prob. Dist.	Divisor	u_i (±%)	v_i
Measurement System					
Probe Calibration	6.0	N	1.00	6.0	∞
Survey Meter Calibration	3.0	N	1.00	3.0	∞
Hemispherical Isotropy	8.0	R	1.73	4.6	∞
Linearity	5.0	R	1.73	2.9	∞
Pulse Response	1.0	R	1.73	0.6	∞
RF Ambient Noise	3.0	R	1.73	1.7	∞
RF Reflections	8.0	R	1.73	4.6	∞
Probe Positioning	10.0	R	1.73	5.8	∞
Test sample Related					
Antenna Positioning	3.0	N	1.00	3.0	∞
Power drift	5.0	R	1.73	2.9	∞
Combined Standard Uncertainty		RSS		12.2	∞
Expanded Uncertainty (95% CONFIDENCE LEVEL)		$k=2$		24	

5.0 Method of Measurement

5.1 EME measurements made with trunk mounted antenna(s)
(Refer to APPENDIX A for antenna location and test distances)

5.1.1 External/Bystander vehicle EME measurement
(Antenna mounted at trunk center)

MPE measurements for bystander conditions are determined by taking the average of (10) measurements in a 2m vertical line for each of the (3) test locations indicated in appendix A with 20cm increments at the test distance of 60cm from the antenna under test. The measurement probe is positioned orthogonal to antenna (typically parallel to ground with a vertically mounted antenna) and aimed directly at the antenna’s axis. These measurements are representative of persons other than the operator standing next to the vehicle.

Each of the offered antennas mounted at the center of the trunk were assessed at the rear of the vehicle while maintaining a twenty (20) centimeter separation distance between the probe sensor and vehicle body. The worst case antenna was then tested at a 45° radial at the corner of the trunk, and 90° radial at the side of the trunk.

For the current test vehicle, the antenna to probe sensor separation distance is 62cm (directly behind vehicle), 104 cm (45 degree radial) and 110.5 cm (90 degree radial).

Note: The distance from the trunk-mounted antenna to the edge of the vehicle is 42cm and the distance from the edge of the vehicle's trunk to the Survey Probe Sensor is 20cm.

5.1.2 Internal/Passenger vehicle EME measurement (Antenna mounted at trunk center)

MPE measurements for passenger conditions are determined by taking the average of the (3) measurements (Head, Chest, and Lower Trunk) inside the vehicle for both the front and back seats. The measurement probe is positioned orthogonal to antenna (typically parallel to ground with a vertically mounted antenna), and aimed directly at the antenna's axis while the antenna is at 85cm from the back of the backseat passenger's head. These measurements are representative of operator and passengers sitting in the front and back seat of the vehicle.

5.2 EME measurements made with roof mounted antenna(s) (Refer to APPENDIX A for antenna location and test distances)

5.2.1 External/Bystander vehicle EME measurement (Antenna mounted at roof center)

MPE measurements for bystander conditions are determined by taking the average of (10) measurements in a 2m vertical line for the test location indicated in APPENDIX A with 20cm increments at the test distance of 60cm from the antenna under test. The measurement probe is positioned orthogonal to antenna (typically parallel to ground with a vertically mounted antenna) and aimed directly at the antenna's axis. These measurements are representative of persons other than the operator standing next to the vehicle.

Note: Actual test distance was approximately 117cm from antenna to probe element (97cm from antenna to edge of car door; 20cm vertical test line to car door); this is the closest distance that can be achieved to an antenna mounted to the center of the vehicle used for MPE compliance assessment.

5.2.2 Internal/Passenger vehicle EME measurement
 (Antenna mounted at roof center)

MPE measurements for passenger conditions are determined by taking the average of the (3) measurements (Head, Chest, and Lower Trunk) inside the vehicle for both the front and back seats. The measurement probe is positioned orthogonal to antenna (typically parallel to ground with a vertically mounted antenna) and aimed directly at the antenna’s axis. These measurements are representative of operator and passengers sitting in the front and back seat of the vehicle.

6.0 Test Site

The test site is the Motorola open area test site located at 8000 W. Sunrise Blvd., Plantation, FL. 33322.

7.0 Measurement System/Equipment

Equipment Type	Model #	SN	Calibration Date
Automobile	2003 Ford Crown Victoria, 4-Door		
Survey Meter	ETS Model HI-2200	00086316	2/20/2008
Probe: E-Field (Electric Field)	ETS Model E100	00084254	2/20/2008
Probe: H-Field (Magnetic Field)	NA		

ETS equipments measured Power Density in mW/cm2.

8.0 DUT Output Power

Power density measurements were performed with the test frequencies and associated power levels presented in the table below.

Test Frequencies (MHz)	Measured Initial Power (W)
764.0875	36.2
770.0125	36.6
775.9125	36.3
794.0875	36.9
806.0125	42.9
815.0125	42.9
823.9875	42.7
851.0125	42.6
860.0125	42.4
868.8875	42.3

9.0 Test Set-Up Description

All antennas listed on the cover page of this report were considered in order to develop the test plan for this product.

Assessments were performed with DUT (Device Under Test) installed on a test vehicle, while engine was at idle, at the specified distances and test locations indicated in sections 5.0, 10.0, and the APPENDIX A.

10.0 Test Results Summary

The tables below summarized the MPE measurement results for each test configuration: antenna (model and description), antenna gain, TX frequency, maximum output power, initial power, E/H field measurements, probe frequency cal factor, test positions (BS-Bystander, PB-Passenger Back, PF-Passenger Front), average over body results, calculated power density results, max calculated power density results, % of the applicable specification limit, and applicable IEEE/FCC specification limits.

MPE results for this mobile radio are based on 50% duty cycle which is in accordance with the User Manual instructions.

Below is an explanation of how the MPE results are calculated.

External to vehicle (Bystander) - 10 measurements are averaged over the body (*body_avg*).

Internal to vehicle (Passengers) - 3 measurements are averaged over the body (*body_avg*).

The Average over Body test methodology is consistent with IEEE/ANSI C95.3-2002 guidelines.

Therefore;

$$Pwr_density_calc = body_avg * (probe_frequency_cal_factor)^2 * duty_cycle$$

$$Pwr_density_max_calc = pwr_density_calc * \frac{max_output_power}{initial_output_power}$$

Note1; For initial output power > max_output_power; max_output_power / initial output power = 1

Note2: The probe frequency cal factors used for MPE evaluation of this product are based on the worse case.

Note 3: The calibration certificate's frequency cal factors were determined by measuring V/m for E-field probe and A/m for H-field probe. The results presented herein are power density (mW/cm²) and therefore the cal factors were squared as indicated in the formula above.

Table 1: MPE assessment data with antennas mounted on the roof

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4016A (764-870MHz, 1/4W)	2.15	764.0875	36	36.2	E	1.43	BS	0.08	0.06	0.06	12	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	764.0875	36	36.2	E	1.43	PB	0.05	0.04	0.04	7	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	764.0875	36	36.2	E	1.43	PF	0.02	0.01	0.01	2	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	770.0125	36	36.6	E	1.44	BS	0.08	0.06	0.06	11	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	770.0125	36	36.6	E	1.44	PB	0.05	0.03	0.03	7	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	770.0125	36	36.6	E	1.44	PF	0.01	0.00	0.00	1	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	775.9125	36	36.3	E	1.44	BS	0.07	0.05	0.05	10	0.52
HAF4016A (764-870MHz, 1/4W)	2.15	775.9125	36	36.3	E	1.44	PB	0.03	0.02	0.02	5	0.52
HAF4016A (764-870MHz, 1/4W)	2.15	775.9125	36	36.3	E	1.44	PF	0.01	0.01	0.01	1	0.52
HAF4016A (764-870MHz, 1/4W)	2.15	794.0875	36	36.9	E	1.46	BS	0.08	0.06	0.06	12	0.53
HAF4016A (764-870MHz, 1/4W)	2.15	794.0875	36	36.9	E	1.46	PB	0.03	0.02	0.02	4	0.53
HAF4016A (764-870MHz, 1/4W)	2.15	794.0875	36	36.9	E	1.46	PF	0.00	0.00	0.00	0	0.53
HAF4016A (764-870MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	BS	0.08	0.06	0.06	11	0.54
HAF4016A (764-870MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	PB	0.03	0.02	0.02	5	0.54
HAF4016A (764-870MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	PF	0.02	0.02	0.02	3	0.54
HAF4016A (764-870MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	BS	0.10	0.07	0.07	12	0.55
HAF4016A (764-870MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	PB	0.03	0.02	0.02	4	0.55
HAF4016A (764-870MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	PF	0.01	0.01	0.01	2	0.55
HAF4016A (764-870MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	BS	0.08	0.06	0.06	11	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	PB	0.03	0.02	0.02	4	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	PF	0.00	0.00	0.00	0	0.57

Table 1(cont): MPE assessment data with antennas mounted on the roof

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4016A (764-870MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	BS	0.07	0.05	0.05	8	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	PB	0.03	0.02	0.02	3	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	PF	0.01	0.00	0.00	1	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	BS	0.07	0.05	0.05	8	0.58
HAF4016A (764-870MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	PB	0.04	0.03	0.03	5	0.58
HAF4016A (764-870MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	PF	0.01	0.01	0.01	1	0.58
HAF4002A (806-900MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	BS	0.08	0.06	0.06	11	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	PB	0.03	0.02	0.02	5	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	PF	0.02	0.02	0.02	3	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	815.0125	42	42.9	E	1.45	BS	0.10	0.07	0.07	13	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	815.0125	42	42.9	E	1.45	PB	0.05	0.03	0.03	6	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	815.0125	42	42.9	E	1.45	PF	0.03	0.02	0.02	4	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	BS	0.10	0.07	0.07	13	0.55
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HAF4002A (806-900MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	BS	0.09	0.06	0.06	11	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	PB	0.03	0.02	0.02	4	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	PF	0.00	0.00	0.00	0	0.57

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HAF4002A (806-900MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	PF	0.01	0.00	0.00	1	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	BS	0.06	0.04	0.04	8	0.58
HAF4002A (806-900MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	PB	0.03	0.02	0.02	4	0.58
HAF4002A (806-900MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	PF	0.01	0.01	0.01	1	0.58
HAF4014A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	BS	0.10	0.07	0.07	14	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PB	0.07	0.05	0.05	10	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PF	0.02	0.01	0.01	3	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	BS	0.10	0.07	0.07	14	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PB	0.08	0.06	0.06	12	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PF	0.02	0.02	0.02	3	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	BS	0.10	0.07	0.07	13	0.52
HAF4014A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PB	0.08	0.06	0.06	11	0.52
HAF4014A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PF	0.02	0.01	0.01	3	0.52
HAF4014A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	BS	0.11	0.08	0.08	15	0.53
HAF4014A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PB	0.06	0.04	0.04	8	0.53
HAF4014A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PF	0.05	0.03	0.03	6	0.53

Table 1(cont): MPE assessment data with antennas mounted on the roof

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4014A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	BS	0.10	0.07	0.07	14	0.54
HAF4014A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PB	0.05	0.04	0.04	7	0.54
HAF4014A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PF	0.03	0.02	0.02	5	0.54
HAF4014A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	BS	0.12	0.09	0.09	16	0.55
HAF4014A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PB	0.05	0.04	0.04	7	0.55
HAF4014A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PF	0.03	0.02	0.02	4	0.55
HAF4014A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	BS	0.10	0.07	0.07	12	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PB	0.05	0.04	0.04	7	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PF	0.02	0.01	0.01	2	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	BS	0.08	0.05	0.05	9	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PB	0.04	0.03	0.03	5	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PF	0.00	0.00	0.00	0	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	BS	0.07	0.05	0.05	9	0.58
HAF4014A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PB	0.04	0.03	0.03	5	0.58
HAF4014A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PF	0.01	0.00	0.00	1	0.58
HAF4013A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	BS	0.08	0.06	0.06	11	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PB	0.04	0.03	0.03	6	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PF	0.01	0.01	0.01	2	0.51

Table 1(cont): MPE assessment data with antennas mounted on the roof

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4013A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	BS	0.08	0.06	0.06	11	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PB	0.04	0.03	0.03	6	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PF	0.01	0.01	0.01	1	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	BS	0.07	0.05	0.05	10	0.52
HAF4013A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PB	0.04	0.03	0.03	6	0.52
HAF4013A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PF	0.01	0.01	0.01	2	0.52
HAF4013A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	BS	0.08	0.06	0.06	11	0.53
HAF4013A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PB	0.03	0.02	0.02	4	0.53
HAF4013A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PF	0.03	0.02	0.02	4	0.53
HAF4013A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	BS	0.08	0.06	0.06	10	0.54
HAF4013A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PB	0.03	0.02	0.02	4	0.54
HAF4013A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PF	0.02	0.01	0.01	3	0.54
HAF4013A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	BS	0.09	0.07	0.07	12	0.55
HAF4013A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PB	0.04	0.03	0.03	5	0.55
HAF4013A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PF	0.02	0.01	0.01	2	0.55
HAF4013A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	BS	0.09	0.06	0.06	11	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PB	0.04	0.03	0.03	5	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PF	0.00	0.00	0.00	0	0.57

Table 1(cont): MPE assessment data with antennas mounted on the roof

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4013A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	BS	0.07	0.05	0.05	8	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PB	0.04	0.03	0.03	5	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PF	0.01	0.00	0.00	1	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	BS	0.07	0.05	0.05	8	0.58
HAF4013A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PB	0.05	0.03	0.03	6	0.58
HAF4013A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PF	0.01	0.01	0.01	1	0.58
HAF4017A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	BS	0.05	0.03	0.03	6	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PB	0.00	0.00	0.00	0	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PF	0.00	0.00	0.00	0	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	BS	0.04	0.03	0.03	6	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PB	0.00	0.00	0.00	0	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PF	0.00	0.00	0.00	0	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	BS	0.05	0.04	0.04	7	0.52
HAF4017A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PB	0.00	0.00	0.00	0	0.52
HAF4017A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PF	0.00	0.00	0.00	0	0.52
HAF4017A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	BS	0.07	0.05	0.05	10	0.53
HAF4017A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PB	0.00	0.00	0.00	0	0.53
HAF4017A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PF	0.00	0.00	0.00	0	0.53

Table 1(cont): MPE assessment data with antennas mounted on the roof

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4017A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	BS	0.07	0.05	0.05	10	0.54
HAF4017A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PB	0.01	0.01	0.01	1	0.54
HAF4017A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PF	0.01	0.01	0.01	1	0.54
HAF4017A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	BS	0.10	0.07	0.07	12	0.55
HAF4017A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PB	0.02	0.01	0.01	3	0.55
HAF4017A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PF	0.01	0.00	0.00	1	0.55
HAF4017A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	BS	0.08	0.06	0.06	10	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PB	0.03	0.02	0.02	3	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PF	0.01	0.00	0.00	1	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	BS	0.08	0.06	0.06	10	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PB	0.04	0.03	0.03	4	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PF	0.01	0.01	0.01	1	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	BS	0.07	0.05	0.05	9	0.58
HAF4017A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PB	0.03	0.02	0.02	4	0.58
HAF4017A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PF	0.01	0.00	0.00	1	0.58
RRA4914B (806-900MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	BS	0.12	0.09	0.09	16	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PB	0.04	0.03	0.03	5	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PF	0.04	0.03	0.03	5	0.54

Table 1(cont): MPE assessment data with antennas mounted on the roof

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
RRA4914B (806-900MHz, 1/4W)	5.15	815.0125	42	42.9	E	1.45	BS	0.12	0.08	0.08	15	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	815.0125	42	42.9	E	1.45	PB	0.05	0.04	0.04	7	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	815.0125	42	42.9	E	1.45	PF	0.05	0.04	0.04	7	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	BS	0.13	0.09	0.09	17	0.55
RRA4914B (806-900MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PB	0.05	0.04	0.04	7	0.55
RRA4914B (806-900MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PF	0.02	0.02	0.02	3	0.55
RRA4914B (806-900MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	BS	0.13	0.09	0.09	16	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PB	0.06	0.04	0.04	8	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PF	0.02	0.01	0.01	3	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	BS	0.10	0.07	0.07	13	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PB	0.06	0.04	0.04	7	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PF	0.01	0.01	0.01	1	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	BS	0.10	0.07	0.07	11	0.58
RRA4914B (806-900MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PB	0.06	0.04	0.04	7	0.58
RRA4914B (806-900MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PF	0.01	0.00	0.00	1	0.58

Table 2: MPE assessment data with antennas mounted on the trunk

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4016A (764-870MHz, 1/4W)	2.15	764.0875	36	36.2	E	1.43	BS	0.28	0.20	0.20	40	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	764.0875	36	36.2	E	1.43	PB	0.28	0.20	0.20	39	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	764.0875	36	36.2	E	1.43	PF	0.10	0.07	0.07	14	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	770.0125	36	36.6	E	1.44	BS	0.30	0.21	0.21	42	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	770.0125	36	36.6	E	1.44	PB	0.25	0.18	0.18	35	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	770.0125	36	36.6	E	1.44	PF	0.10	0.07	0.07	14	0.51
HAF4016A (764-870MHz, 1/4W)	2.15	775.9125	36	36.3	E	1.44	BS	0.29	0.21	0.21	41	0.52
HAF4016A (764-870MHz, 1/4W)	2.15	775.9125	36	36.3	E	1.44	PB	0.25	0.18	0.18	34	0.52
HAF4016A (764-870MHz, 1/4W)	2.15	775.9125	36	36.3	E	1.44	PF	0.10	0.07	0.07	13	0.52
HAF4016A (764-870MHz, 1/4W)	2.15	794.0875	36	36.9	E	1.46	BS	0.31	0.22	0.22	42	0.53
HAF4016A (764-870MHz, 1/4W)	2.15	794.0875	36	36.9	E	1.46	PB	0.33	0.24	0.24	46	0.53
HAF4016A (764-870MHz, 1/4W)	2.15	794.0875	36	36.9	E	1.46	PF	0.11	0.08	0.08	16	0.53
HAF4016A (764-870MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	BS	0.28	0.21	0.21	38	0.54
HAF4016A (764-870MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	PB	0.33	0.24	0.24	45	0.54
HAF4016A (764-870MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	PF	0.08	0.06	0.06	11	0.54
HAF4016A (764-870MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	BS	0.30	0.21	0.21	39	0.55
HAF4016A (764-870MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	PB	0.44	0.32	0.32	58	0.55
HAF4016A (764-870MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	PF	0.10	0.07	0.07	13	0.55

Table 2 (cont): MPE assessment data with antennas mounted on the trunk

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4016A (764-870MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	BS	0.25	0.18	0.18	31	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	PB	0.25	0.18	0.18	31	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	PF	0.07	0.05	0.05	9	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	BS	0.21	0.15	0.15	25	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	PB	0.22	0.15	0.15	27	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	PF	0.07	0.05	0.05	9	0.57
HAF4016A (764-870MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	BS	0.22	0.15	0.15	26	0.58
HAF4016A (764-870MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	PB	0.24	0.17	0.17	29	0.58
HAF4016A (764-870MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	PF	0.07	0.05	0.05	9	0.58
HAF4002A (806-900MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	BS	0.29	0.21	0.21	39	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	PB	0.31	0.23	0.23	43	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	806.0125	42	42.9	E	1.46	PF	0.07	0.05	0.05	10	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	815.0125	42	42.9	E	1.45	BS	0.33	0.24	0.24	44	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	815.0125	42	42.9	E	1.45	PB	0.30	0.22	0.22	40	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	815.0125	42	42.9	E	1.45	PF	0.10	0.07	0.07	13	0.54
HAF4002A (806-900MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	BS	0.31	0.22	0.22	41	0.55
HAF4002A (806-900MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	PB	0.50	0.36	0.36	65	0.55
HAF4002A (806-900MHz, 1/4W)	2.15	823.9875	42	42.7	E	1.44	PF	0.10	0.07	0.07	13	0.55

Table 2 (cont): MPE assessment data with antennas mounted on the trunk

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4002A (806-900MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	BS	0.28	0.20	0.20	34	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	PB	0.28	0.20	0.20	35	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	851.0125	42	42.6	E	1.42	PF	0.09	0.06	0.06	11	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	BS	0.23	0.16	0.16	28	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	PB	0.26	0.18	0.18	32	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	862.0125	42	42.4	E	1.41	PF	0.08	0.06	0.06	10	0.57
HAF4002A (806-900MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	BS	0.23	0.16	0.16	28	0.58
HAF4002A (806-900MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	PB	0.22	0.15	0.15	27	0.58
HAF4002A (806-900MHz, 1/4W)	2.15	868.8875	42	42.3	E	1.40	PF	0.08	0.06	0.06	10	0.58
HAF4014A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	BS	0.29	0.21	0.21	40	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PB	0.33	0.24	0.24	47	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PF	0.13	0.09	0.09	18	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	BS	0.31	0.23	0.23	44	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PB	0.40	0.29	0.29	56	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PF	0.16	0.11	0.11	22	0.51
HAF4014A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	BS	0.30	0.22	0.22	42	0.52
HAF4014A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PB	0.44	0.32	0.32	61	0.52
HAF4014A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PF	0.16	0.12	0.12	22	0.52

Table 2 (cont): MPE assessment data with antennas mounted on the trunk

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4014A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	BS	0.30	0.22	0.22	42	0.53
HAF4014A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PB	0.49	0.36	0.36	67	0.53
HAF4014A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PF	0.17	0.12	0.12	23	0.53
HAF4014A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	BS	0.21	0.16	0.16	29	0.54
HAF4014A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PB	0.63	0.46	0.46	86	0.54
HAF4014A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PF	0.13	0.09	0.09	17	0.54
HAF4014A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	BS	0.24	0.17	0.17	31	0.55
HAF4014A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PB	0.74	0.53	0.53	97	0.55
HAF4014A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PF	0.17	0.12	0.12	22	0.55
HAF4014A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	BS	0.23	0.16	0.16	28	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PB	0.30	0.21	0.21	38	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PF	0.13	0.09	0.09	16	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	BS	0.19	0.14	0.14	24	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PB	0.29	0.20	0.20	35	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PF	0.09	0.06	0.06	11	0.57
HAF4014A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	BS	0.20	0.14	0.14	24	0.58
HAF4014A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PB	0.22	0.15	0.15	27	0.58
HAF4014A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PF	0.08	0.06	0.06	10	0.58

Table 2 (cont): MPE assessment data with antennas mounted on the trunk

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4013A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	BS	0.33	0.24	0.24	46	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PB	0.26	0.19	0.19	36	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PF	0.09	0.06	0.06	13	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	BS	0.34	0.24	0.24	47	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PB	0.27	0.19	0.19	38	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PF	0.10	0.07	0.07	14	0.51
HAF4013A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	BS	0.33	0.23	0.23	45	0.52
HAF4013A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PB	0.25	0.18	0.18	34	0.52
HAF4013A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PF	0.10	0.07	0.07	14	0.52
HAF4013A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	BS	0.37	0.27	0.27	51	0.53
HAF4013A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PB	0.37	0.27	0.27	51	0.53
HAF4013A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PF	0.11	0.08	0.08	15	0.53
HAF4013A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	BS	0.30	0.22	0.22	40	0.54
HAF4013A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PB	0.37	0.27	0.27	50	0.54
HAF4013A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PF	0.08	0.06	0.06	11	0.54
HAF4013A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	BS	0.31	0.22	0.22	41	0.55
HAF4013A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PB	0.43	0.31	0.31	56	0.55
HAF4013A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PF	0.10	0.07	0.07	13	0.55

Table 2 (cont): MPE assessment data with antennas mounted on the trunk

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4013A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	BS	0.28	0.20	0.20	35	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PB	0.22	0.15	0.15	27	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PF	0.07	0.05	0.05	9	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	BS	0.23	0.16	0.16	28	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PB	0.21	0.15	0.15	26	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PF	0.06	0.04	0.04	7	0.57
HAF4013A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	BS	0.25	0.17	0.17	30	0.58
HAF4013A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PB	0.19	0.14	0.14	23	0.58
HAF4013A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PF	0.05	0.04	0.04	6	0.58
HAF4017A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	BS	0.20	0.14	0.14	28	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PB	0.09	0.07	0.07	13	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	764.0875	36	36.2	E	1.43	PF	0.03	0.02	0.02	4	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	BS	0.19	0.13	0.13	26	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PB	0.11	0.08	0.08	16	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	770.0125	36	36.6	E	1.44	PF	0.04	0.03	0.03	5	0.51
HAF4017A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	BS	0.20	0.14	0.14	27	0.52
HAF4017A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PB	0.13	0.09	0.09	18	0.52
HAF4017A (764-870MHz, 1/4W)	5.15	775.9125	36	36.3	E	1.44	PF	0.05	0.03	0.03	6	0.52

Table 2 (cont): MPE assessment data with antennas mounted on the trunk

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
HAF4017A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	BS	0.22	0.16	0.16	30	0.53
HAF4017A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PB	0.23	0.17	0.17	32	0.53
HAF4017A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	PF	0.09	0.07	0.07	12	0.53
HAF4017A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	BS	0.17	0.13	0.13	24	0.54
HAF4017A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PB	0.32	0.24	0.24	44	0.54
HAF4017A (764-870MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PF	0.07	0.05	0.05	10	0.54
HAF4017A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	BS	0.25	0.18	0.18	33	0.55
HAF4017A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PB	0.54	0.39	0.39	71	0.55
HAF4017A (764-870MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PF	0.12	0.08	0.08	15	0.55
HAF4017A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	BS	0.32	0.23	0.23	40	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PB	0.24	0.17	0.17	30	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PF	0.10	0.07	0.07	13	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	BS	0.33	0.23	0.23	41	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PB	0.25	0.18	0.18	31	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PF	0.08	0.05	0.05	9	0.57
HAF4017A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	BS	0.31	0.22	0.22	38	0.58
HAF4017A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PB	0.23	0.16	0.16	28	0.58
HAF4017A (764-870MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PF	0.09	0.06	0.06	10	0.58

Table 2 (cont): MPE assessment data with antennas mounted on the trunk

Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	E/H Field	Probe Freq. Cal Factor	Test Pos.	Avg. over Body (mW/cm ²)	Calc. (mW/cm ²)	Max Calc. (mW/cm ²)	% of Spec Limit	FCC Spec Limit (mW/cm ²)
RRA4914B (806-900MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	BS	0.22	0.16	0.16	29	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PB	0.45	0.33	0.33	62	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	806.0125	42	42.9	E	1.46	PF	0.15	0.11	0.11	20	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	815.0125	42	42.9	E	1.45	BS	0.22	0.16	0.16	29	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	815.0125	42	42.9	E	1.45	PB	0.54	0.39	0.39	72	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	815.0125	42	42.9	E	1.45	PF	0.13	0.09	0.09	17	0.54
RRA4914B (806-900MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	BS	0.25	0.18	0.18	33	0.55
RRA4914B (806-900MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PB	0.70	0.50	0.50	92	0.55
RRA4914B (806-900MHz, 1/4W)	5.15	823.9875	42	42.7	E	1.44	PF	0.16	0.12	0.12	21	0.55
RRA4914B (806-900MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	BS	0.26	0.19	0.19	33	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PB	0.36	0.26	0.26	45	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	851.0125	42	42.6	E	1.42	PF	0.19	0.13	0.13	24	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	BS	0.24	0.17	0.17	30	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PB	0.37	0.26	0.26	45	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	862.0125	42	42.4	E	1.41	PF	0.17	0.12	0.12	21	0.57
RRA4914B (806-900MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	BS	0.23	0.16	0.16	28	0.58
RRA4914B (806-900MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PB	0.34	0.24	0.24	41	0.58
RRA4914B (806-900MHz, 1/4W)	5.15	868.8875	42	42.3	E	1.40	PF	0.12	0.08	0.08	14	0.58
----- 45 Degree -----												
HAF4013A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	BS	0.17	0.13	0.13	24	0.53
----- 90 Degree -----												
HAF4013A (764-870MHz, 1/4W)	5.15	794.0875	36	36.9	E	1.46	BS	0.12	0.09	0.09	16	0.53

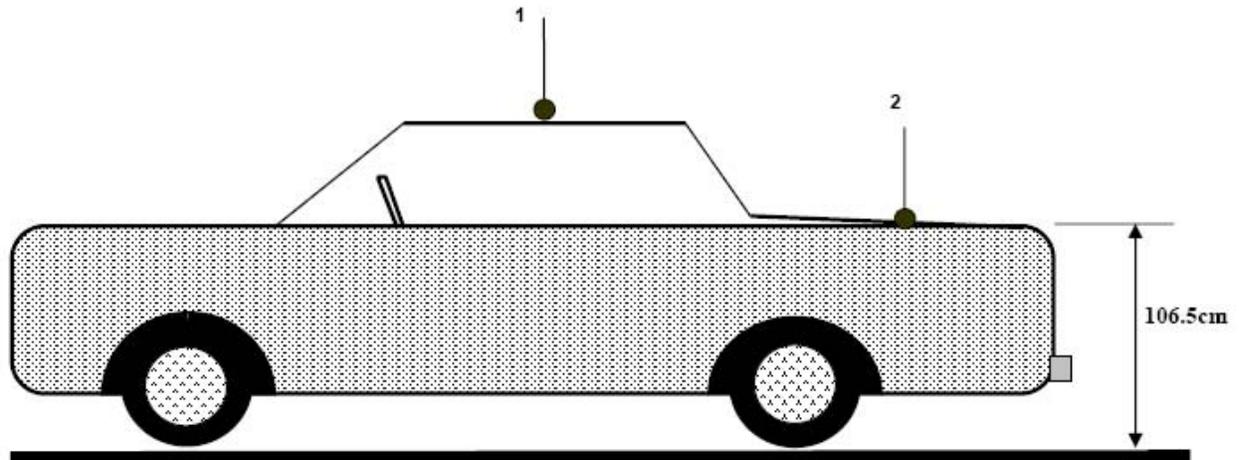
11.0 Conclusion

Depending on the test frequency, the assessments for this device were performed with an output power range as indicated in section 8. The maximum allowable output power is equal to the upper limit of the final test factory transmit power specification of 36W for frequency range of 764-806MHz, and 42W for frequency range of 806-870MHz. The highest power density results for the mobile device scaled to the maximum allowable power output is 0.53mW/cm² for internal/passenger to the vehicle, and 0.27mW/cm² for external/bystander to the vehicle.

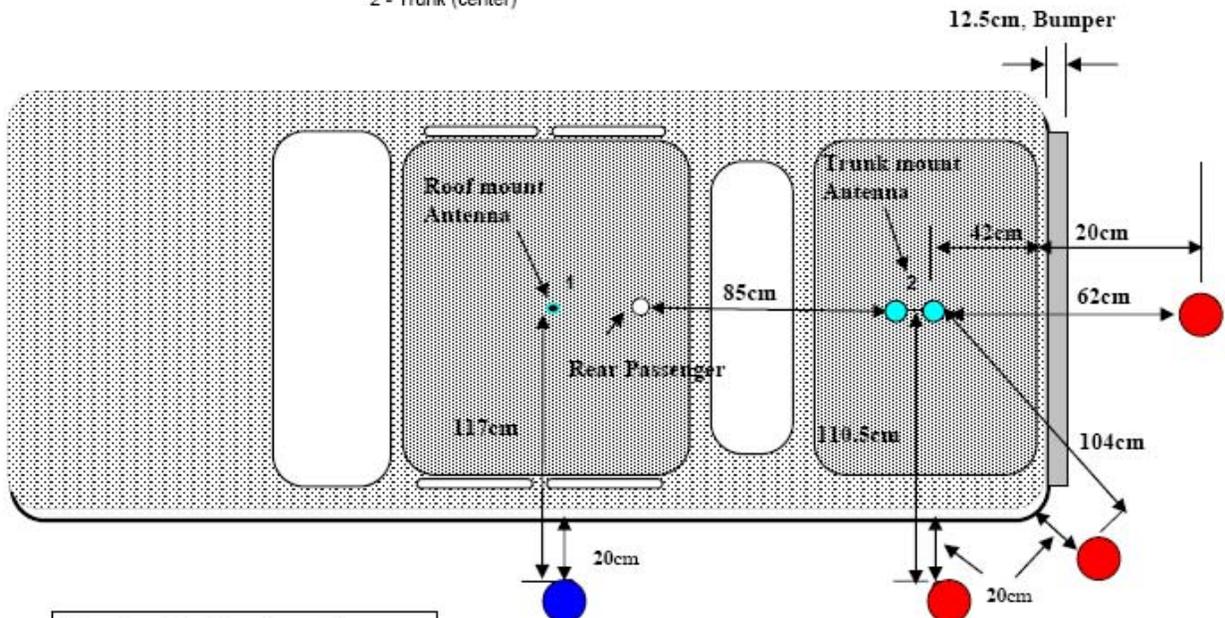
The MPE results presented herein demonstrate compliance to the applicable FCC/IEEE General population/Uncontrolled exposure limits for both passengers and bystanders.

APPENDIX A Illustration of Antenna Locations and Test Distances

Antenna Location Drawing with Test Locations Identified



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



By-Stander Test Locations

- Roof Mount
- Trunk Mount

APPENDIX B
Meter/Probe Calibration Certificates

LOCKHEED MARTIN
MISSION SERVICES



**Stennis Integrated Metrology Center
Certificate of Calibration**



Certificate No: AGIL700384/2240985

Mfr: ETS-LINDGREN	Description: ELECTRICAL FIELD PROBE
Model: E100	LMTO No: AGIL700384
Serial No: 00084254	Asset No: 1-1215598145B
	Cycle: 12 Months

Customer: AGILENT TECHNOLOGIES INC. AGIL, MOTOROLA 8000 WEST SUNRISE BLVD PLANTATION, FL 33322	PO No:
---	--------

As Found: IN TOLERANCE	Performed By: SP9597
As Shipped: IN TOLERANCE	
Date Calibrated: 20-FEB-2008	Temperature: 24C
Date Cal Due: 20-FEB-2009	Humidity: 17%

Procedure: VEN PRO - VENDOR CALIBRATION PROCEDURE

Comments: REFER TO LIBERTY LABS INC CERT # 2008021504 DATED 2.20.08. CERT INCLUDES SNs 00084254 & 00086316

STANDARDS USED

TRACEABILITY

All measurements were performed using standards traceable to the National Institute of Standards and Technology, an internationally recognized standard, an intrinsic standard or ratio method. Calibration was performed in compliance with our Laboratory Quality System that is based upon conformance to ISO/IEC 17025:1999. Unless otherwise noted, the accuracy ratios are equal or greater than 4:1 in accordance with ANSI/NCSL Z540-1-1994, paragraph 10.2.b.

This certificate may not be reproduced, except in full, without written permission from this laboratory.

MAIL: Stennis Integrated Metrology Center
Building 5100
Stennis Space Center, MS 39529
PHONE: (228) 813-2069
EMAIL: JOHN.A.BOYEA@LMCO.COM

SHIP: Stennis Integrated Metrology Center
Building 5100
Stennis Space Center, MS 39529
FAX: (228) 813-2073

CERTIFICATION OF CALIBRATION CONFORMANCE

LIBERTY LABS, INC. 1346 Yellowwood Road Kimballton, IA 51543
EMAIL: mhoward@liberty-labs.com TEL: (712) 773-2199 FAX: (712)773-2299

This probe has been individually calibrated using IEEE Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9 kHz to 40 GHz; IEEE Std. 1309(1996 and/or 2005). All results of this calibration relate only to the items that were calibrated.

ACCREDITATION NOTES:

A complete copy of the scope of our A2LA accreditation is available upon request.

Instrumentation Environment: TEMP: 24°C RH: 17%
Calibration Environment: TEMP: 24°C RH: 17%

Barometric Pressure (inches): 30.58

CERTIFICATE NO.: 2008021504

CLIENT: Lockheed Martin IMC, Bldg. 5100, Stennis Space Center, MS, 39529, USA

MANUFACTURER: ETS

MODEL NUMBER: E100 & HI-2200

SERIAL NUMBER: 00084254 & 00086316

ASSET NUMBER: BBBBD051 & BBBBD050

DATE OF CALIBRATION: Wednesday, February 20, 2008

NAME OF CALIBRATING ORGANIZATION Liberty Labs, Inc.

CALIBRATED BY: DGB *D5G*

RE-CALIBRATION DATE: Re-calibration interval is at customer discretion.

RECEIVED STATUS

Received in tolerance:

RETURNED STATUS

Returned in tolerance:

Returned limited cal.:

NOTES: Below 1 GHz Liberty Labs uses a transfer standard calibrated to IEEE1309 Standards. Liberty Labs uses this transfer standard via the substitute method outlined in IEEE 1309 in a triplate test cell to calibrate probes. The uncertainty between the TEM and Triplate is minimal in this application. Client declined isotropic response testing. In/Out of tolerance based on alignment/mounting position and not on manufacturer's specifications. A probe position document is included with this certificate. Data above 5GHz is for reference only per manufacturer's specifications of 100kHz-5GHz.



This report is not to be reproduced, except in full, without written approval of Liberty Labs, Inc.

Michael W. Howard

ENGINEER IN CHARGE
MICHAEL W. HOWARD
NARTE CERTIFIED EMC ENGINEER, NO. EM C-000102-NE



Certificate Number: 2123.01

ispb-position

Page 1 of 4

Rev. D: Issue Date 12/12/03

CERTIFICATE NO: 2008021504

IN TOLERANCE/OUT OF TOLERANCE EXPLANATION:

The In Tolerance/Out of Tolerance criteria are based on one of the following conditions, of judgement of this laboratory:

1. If the manufacturer has a specified tolerance for the antenna or item under test, then the calibration results, with our uncertainty value added, are compared to this tolerance, and the combined value must fall within the manufacturer's tolerance. The tolerance may be obtained from the manufacturer's web site, catalogs specification sheets, manuals, etc.
2. In the case where the manufacturer does not have any specified tolerances, the calibration results, with our uncertainty value added, are compared to typical curves provided by the manufacturer or historical in-house data with a +/- 3 dB tolerance.
3. Where results are compared to published specifications from a standard, the calibration results, with our uncertainty value added, are compared to this tolerance, and the combined value must fall within the standard's tolerance.
4. In the situation that this laboratory's uncertainty of measurement is larger than the manufacturer's specified tolerance, the comparison criteria will be based on historical in-house data as defined above. This judgement will only be made using accredited calibration methods.

INTERPRETATION TO THE GUIDANCE AND USE OF CALIBRATION DATA:

The calibration values supplied with this certificate apply to measurements made under the physical (geometric) arrangements with respect to the distances to reference points on the probe. Use of these probes under other conditions will result in additional sources of error of which is the responsibility of the user.

CALIBRATION TRACEABILITY:

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. Measurement procedure per Military Handbook 52A as guidance for Military Standard (MIL-STD) 45662A, ANSI/NCSL Z540-1-1994, ISO/IEC 17025, and Liberty Labs, Inc. procedure CP-10.

ALIGNMENT/MOUNTING POSITION:

This calibration is valid only for the alignment/mounting position specified in this report. Any other alignment/mounting position of this probe will invalidate the correction factors given in this report. We have found the manufacturer's tolerances are only applicable to a very specific alignment/mounting position at the manufacturer's test frequencies. Alignment/mounting position of this probe is critical and deviation from alignment/mounting position indicated in this report can produce errors in excess of 6 dB.

CERTIFICATE NO: 2008021504

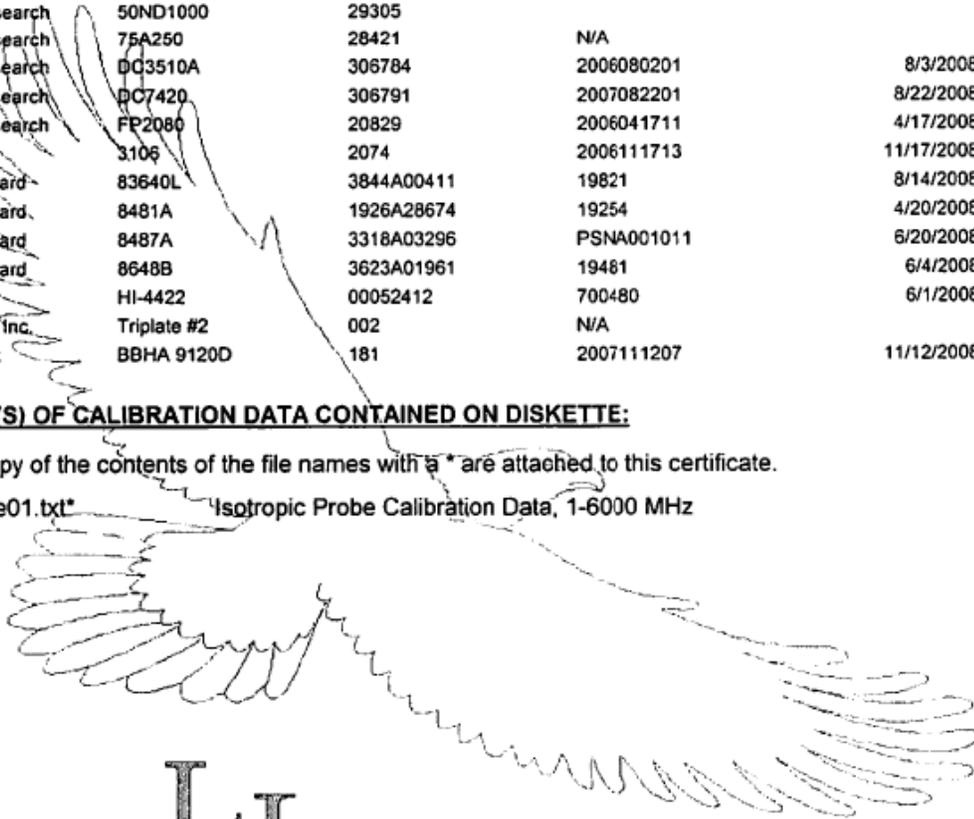
CALIBRATION EQUIPMENT USED

<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Trace Number</u>	<u>Cal Due Date</u>
Agilent	E4419B	GB39511080	19256	4/17/2008
Agilent Technologies	E4419B	GB40202746	19802	8/2/2008
Agilent Technologies	E9304A	MY41495576	20015	8/27/2008
Agilent Technologies	E9304A	MY41495575	20016	8/27/2008
Amplifier Research	10ST1G18	306136	N/A	
Amplifier Research	50ND1000	29305		
Amplifier Research	75A250	28421	N/A	
Amplifier Research	DC3510A	306784	2006080201	8/3/2008
Amplifier Research	DC7420	306791	2007082201	8/22/2008
Amplifier Research	FP2080	20829	2006041711	4/17/2008
Emco	3106	2074	2006111713	11/17/2008
Hewlett Packard	83640L	3844A00411	19821	8/14/2008
Hewlett Packard	8481A	1926A28674	19254	4/20/2008
Hewlett Packard	8487A	3318A03296	PSNA001011	6/20/2008
Hewlett Packard	8648B	3623A01961	19481	6/4/2008
Holiday	HI-4422	00052412	700480	6/1/2008
Liberty Labs, Inc.	Triplate #2	002	N/A	
Schwarzbeck	BBHA 9120D	181	2007111207	11/12/2008

FILENAME(S) OF CALIBRATION DATA CONTAINED ON DISKETTE:

A printed copy of the contents of the file names with a * are attached to this certificate.

Probe01.txt* Isotropic Probe Calibration Data, 1-6000 MHz



LL, Inc.

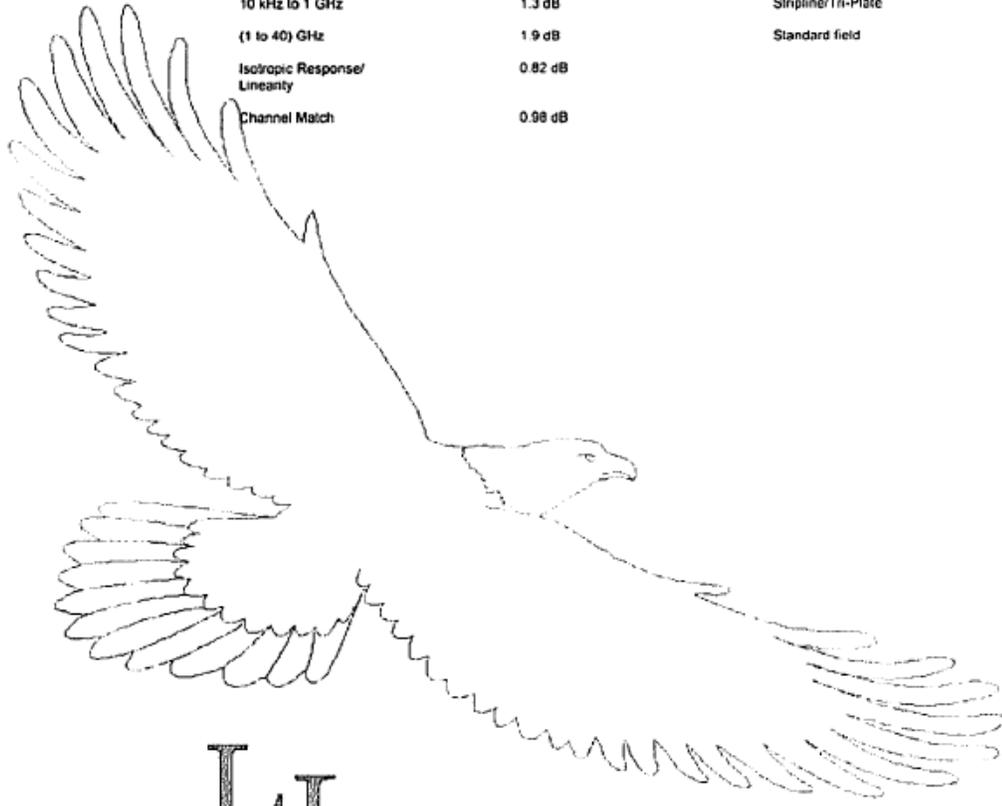
CERTIFICATE NO: 2008021504

Calibration Uncertainty:

Actual uncertainty (Expanded)

Typical uncertainties are shown below and checked for those that apply to this calibration. Best uncertainty equals our typical Muc in most cases. Best uncertainty is based on type A evaluations of at least 10 data sets or more.

<u>Parameter/Equipment:</u>	<u>Range:</u>	<u>Best Uncertainty*** (+/-):</u>	<u>Comments:</u>
RF Isotropic Probes*****	10 kHz to 1 GHz	0.71 dB	GTEM/TEM coil
	(0.1 to 18) GHz	0.76 dB	GTEM/Open Ended Wave Guide
	10 kHz to 1 GHz	1.3 dB	Sipline/Tri-Plate
	(1 to 40) GHz	1.9 dB	Standard field
	Isotropic Response/Linearity	0.82 dB	
	Channel Match	0.98 dB	



LL, Inc.

* This laboratory offers commercial calibration service.

** Best Uncertainties represents an expanded uncertainty corresponding to a 95.45 % level of confidence using a coverage factor, k. Values of k other than 2 were approximated by a t-distribution with the effective degrees of freedom, $veff$, obtained from the Welch-Satterthwaite formula

*** "Best Uncertainty" is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards of nearly ideal measuring equipment. Best uncertainties represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The best uncertainty of a specific calibration performed by the laboratory may be greater than the best uncertainty due to the behavior of the customer's device, to the environment (if the calibration is performed in the field) and to influences from the circumstances of the specific calibration.

**** In the statement of best uncertainty, M is the Mismatch error due to connections of device to other devices in actual use.

***** On-site calibration service is available for this calibration. The uncertainties achievable on a customer's site can normally be expected to be larger than the Best Measurement Capabilities (BMC) that the accredited laboratory has been assigned as Best Uncertainty on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the calibration uncertainty being larger than the BMC.

Probe01.txt

Date of Calibration: 20-February-2008
 Date Printed: Wednesday, February 20, 2008
 Customer Name: Lockheed Martin IMC
 Probe Manufacturer: ETS
 Probe Model: E100 & HI-2200
 Probe Serial No.: 00084254 & 00086316
 Temperature (Deg C): 24
 Humidity (%): 17
 Notes:
 CAL CERT #: 2008021504

Correction Factors

Frequency in MHz	15V/m Applied Field		125V/m Applied Field	
	Multiplier	dB	Multiplier	dB
1	1.15	1.22	1.17	1.36
15	1.06	0.52	1.09	0.79
30	1.08	0.69	1.10	0.81
75	1.09	0.77	1.13	1.07
100	1.12	0.98	1.13	1.03
150	1.12	1.00	1.17	1.33
200	1.11	0.89	1.15	1.18
250	1.13	1.03	1.19	1.48
300	1.05	0.42	1.14	1.15
400	1.07	0.59	1.10	0.79
500	1.05	0.44	1.09	0.74
600	1.07	0.63	1.14	1.18
700	1.14	1.16	1.17	1.36
800	1.15	1.24	1.21	1.66
900	1.13	1.06	1.17	1.37
1000	1.01	0.05	1.00	0.04

Frequency in MHz	15V/m Applied Field		50V/m Applied Field	
	Multiplier	dB	Multiplier	dB
2000	0.82	-1.72	0.86	-1.33
2450	0.93	-0.64	0.95	-0.44
3000	0.93	-0.60	0.95	-0.40
3500	1.02	0.16	1.02	0.13
4000	1.20	1.57	1.22	1.73
5000	0.86	-1.32	0.88	-1.14
5500	1.31	2.34	1.34	2.53
6000	5.83	15.31	5.62	15.00

APPENDIX C
DUT Photos
(Refer to Exhibit 7B)