


MOTOROLA

CGISS EME Test Laboratory

 8000 West Sunrise Blvd
 Fort Lauderdale, FL. 33322

MPE/SAR Compliance Test Report

Date of Report: October 7, 2004
Report Revision(s): Rev. B
Device Manufacturer: Motorola
Device Description: XTL5000; VHF 136-174 MHz automobile mobile transceiver;
 25-100watts
Classification: Occupational/Controlled Exposure
FCC ID: AZ492FT3808
Device Model: M20KTS9PW1AN

Test Period: 6/14/04 – 6/16/04, 6/18/04, 6/30/04

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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

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 10/07/04

Date Approved

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12.0 Conclusion

- APPENDIX A: Antenna Location Drawing
- APPENDIX B: Meter/Probe Calibration Certificates
- APPENDIX C: Photos and Descriptive Details of Assessed Antennas
- APPENDIX D: Computational EME SAR Compliance Assessment

REVISION HISTORY

Date	Revision	Comments
8/23/04	O	Release of Prototype Results
8/31/04	A	Added MPE and applicable SAR computational results for additional offered antennas to sections 11.0, 11.1, and Appendix D. Corrected incorrect results presented in row 2 of Table 1 page 4 of Appendix D. Revised language in sections 6.1.1, 6.1.2, 6.2, 6.2.1, 6.2.2.
9/7/04	B	Appendix D pages 20 and 23 were revised to address FCC correspondence 27689

1.0 Product Description



FCC ID: AZ492FT3808, model M20KTS9PW1AN is a mobile transceiver that utilizes frequency modulation (FM) half duplex transmission technology. The modulation could be conventional analog voice, trunked analog voice, tone PL or C4FM modulation. The control data rates are 3600 and 9600 baud on the C4FM constant envelope carrier. The maximum duty cycle varies dependent on the loading of the system. The data mode characteristic of the device is packet based with a maximum packet size of 1500 bytes. The actual duty cycle performance will always be less than 10% due to the system's design restrictions and normal operating parameters of the device. Note that the device and the systems in which it operates do not allow streaming data as an intended functionality. Furthermore, the transmission signal in data mode uses standard APCO signaling as specified in TIA/EIA 102.CAAA paragraph 1.3.3.5 with C4FM modulation.

The intended use of the radio is Push-To-Talk (PTT) while the device is properly installed in a vehicle with the offered external antennas 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. Motorola also makes available to its customers training classes on the proper use of two-way radios and wireless data devices. This device 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. The transmit frequency band is 136-174 MHz. The nominal power of the device is 25-100 watts with a maximum conducted power output of 120 watts.

(Note that "By-standers" as used herein mean people other than operator)

2.0 Offered Options and Accessories

Antenna

HAD4006A	136.0-144.0 MHz ¼ wave 2.15dBi antenna; 52.0cm
HAD4007A	144.0-150.8 MHz ¼ wave 2.15dBi antenna; 49.0cm
HAD4008A	150.8-162.0 MHz ¼ wave 2.15dBi antenna; 45.6cm
HAD4009A	162.0-174.0 MHz ¼ wave 2.15dBi antenna; 43.0cm
HAD4014AR	140.0-174.0 MHz ½ wave 5.15dBi antenna; 116.8cm
RAD4000A	136.0-174.0 MHz ½ wave 5.15dBi antenna; 138.0cm
RAD4010ARB	136.0-174.0 MHz ½ wave 5.15dBi antenna; 143.5cm
HAD4016A	136.0-162.0 MHz ¼ wave 2.15dBi antenna; 50.5cm
HAD4017A	146.0-174.0 MHz ¼ wave 2.15dBi antenna; 47.5cm

3.0 Measurement Standards

Measurements were performed according to FCC Limits Per 47 CFR 2.1091 (d) for General Population/Uncontrolled RF Exposure as well as with the recommended guidelines in IEEE/ANSI C95.1-1999.

For frequencies ranging from 136-174 MHz the MPE (Maximum Permissible Exposure) limit to electromagnetic energy in equivalent plane wave free-space power density is $0.20\text{mW}/\text{cm}^2$ for the frequency range of 30-300MHz.

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)

MPE measurements for by-stander conditions are determined by taking the average of (10) measurements in a 2m vertical line directly behind the vehicle with 20cm increments at the standard test distance of 90cm from each of the ½ wave antennas. The measurement probe sensor is rotated 180° at each of the ten incremental measurements to ensure the highest result is captured. 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 for the following (3) by-stander conditions while maintaining a twenty (20) centimeter separation distance between the probe sensor and vehicle body: (1) directly behind the vehicle, (2) 45° radial at the corner of the vehicle, and (3) 90° radial at the side of the trunk. The worst case test condition from above was then assessed at the transmit band edges.

For the current test vehicle, the antenna to probe sensor separation distance is 99.5 cm (45 degree radial) and 104 cm (90 degree radial)

Note: the distance from the trunk-mounted antenna to the edge of the vehicle is 26cm and the distance from the edge of the vehicle's trunk to the MPE vertical line assessment is 64cm (trunk to edge of bumper is 10cm). The radial distance measured at 45° from corner of trunk to vertical test line is 99.5cm. The radial distance measured at 90° from the side of the trunk is 104cm.

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, scans were performed inside of the vehicle, both front and back seating areas, using each of the antennas tested herein at the trunk, to ascertain the highest level in each location. After the highest level is found, scans were performed 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, indicated below, that are 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

(Antenna mounted at roof center)

MPE measurements for by-stander conditions are determined by taking the average of (10) measurements in a 2m vertical line directly beside the vehicle with 20cm increments at the standard test distance of 90cm from each of the applicable antennas. The measurement probe sensor is rotated 180° at each of the ten incremental measurements to ensure the highest result is captured. These

measurements are representative of persons other than the operator standing next to the vehicle.

Note: Actual test distance was 110cm (60cm from antenna to roof edge; 30cm from roof edge 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.

6.2.2 Internal vehicle EME measurement (Antenna mounted at roof center)

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scans were performed inside of the vehicle, both at the front and back seating areas, using each of the antennas tested herein at the roof, to ascertain the highest level in each location. After the highest level is found, scans were performed 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 are 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/H-Field Test Probes, and typical antenna configurations.

Below are the test equipment used to assess compliance:

- a) Automobile: 1991 Ford Taurus, 4-Door
- b) Survey Meter - NARDA Model 8718 (01108); Cal. date: 4/7/04
- c) E-Field (Electric Field) Probe - NARDA Model 8722B (12023); Cal. date: 11/5/03
- d) H-Field (Magnetic Field) Probe – NARDA Model 8371 (03006); Cal date: 4/7/04
- d) Antennas – (¼ wave 2.15dBi, and ½ wave 5.15dBi gain antennas)

9.0 Test Unit Description

Power density measurements were performed on a representative sample of model number M20KTS9PW1AN. The serial number of the tested radio was VHF P1 EME#46. The frequency band of the DUT is 136-174 MHz; the tested frequencies were 136.0125, 146.00, 149.00, 155.00, 160.00, 162.00, 173.9875 MHz. The ¼ wave 2.15dBi antennas, and ½ wave 5.15dBi gain antennas listed in section 2.0 were used to assess compliance to the applicable MPE limits.

10.0 Test Set-Up Description

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

a) The ¼ wave 2.15dBi antenna models HAD4006A, HAD4007A, and HAD4008A, HAD4009A, HAD4016A, HAD4017A, and ½ wave 5.15dBi gain antenna models HAD4014AR, RAD4000A, and RAD4010ARB were mounted at the center of the roof of the test vehicle.

b) The ½ wave 5.15dBi gain antenna models HAD4014AR, RAD4000A, RAD4010ARB were assessed while mounted at the trunk.

Assessments were made internal and external to the test vehicle at the specified distances and locations stated in sections 6.0, 11.0, and the APPENDIX A. Note that the ¼ wave antennas are restricted to roof mount operations for this filing.

11.0 Test Results Summary

Table A

Tables	Antenna Model	Antenna Location	Test Frequency (MHz)	E/H Field	Int./Ext.	Max Calc Pwr Density	% of Uncontrolled limit
Table 1	HAD4006A	Roof	136.0125	E	Ext	0.20	100.00
Table 2*	HAD4006A	Roof	136.0125	E	Int.	0.25	125.00
Table 3	HAD4006A	Roof	136.0125	H	Ext	0.17	85.00
Table 4*	HAD4006A	Roof	136.0125	H	Int.	0.37	185.00
Table 5*	HAD4007A	Roof	146.00	E	Ext	0.21	105.00
Table 6*	HAD4007A	Roof	146.00	E	Int.	0.45	225.00
Table 7	HAD4007A	Roof	146.00	H	Ext	0.12	60.00
Table 8	HAD4007A	Roof	146.00	H	Int.	0.13	65.00
Table 9*	HAD4008A	Roof	155.00	E	Ext	0.21	105.00
Table 10*	HAD4008A	Roof	155.00	E	Int.	0.27	135.00

Table A (continued)

Tables	Antenna Model	Antenna Location	Test Frequency (MHz)	E/H Field	Int./Ext.	Max Calc Pwr Density	% of Uncontrolled limit
Table 11	HAD4008A	Roof	155.00	H	Ext	0.13	65.00
Table 12	HAD4008A	Roof	155.00	H	Int.	0.16	80.00
Table 13	HAD4009A	Roof	173.9875	E	Ext	0.17	85.00
Table 14	HAD4009A	Roof	173.9875	E	Int.	0.17	85.00
Table 15	HAD4009A	Roof	173.9875	H	Ext	0.15	75.00
Table 16	HAD4009A	Roof	173.9875	H	Int.	0.10	50.00
Table 17	HAD4014AR	Roof	155.00	E	Ext	0.13	65.00
Table 18	HAD4014AR	Roof	155.00	E	Int.	0.06	30.00
Table 19	HAD4014AR	Roof	155.00	H	Ext	0.11	55.00
Table 20	HAD4014AR	Roof	155.00	H	Int.	0.05	25.00
Table 21	RAD4000A	Roof	155.00	E	Ext	0.11	55.00
Table 22	RAD4000A	Roof	155.00	E	Int.	0.05	25.00
Table 23	RAD4000A	Roof	155.00	H	Ext	0.10	50.00
Table 24	RAD4000A	Roof	155.00	H	Int.	0.04	20.00
Table 25	RAD4010ARB	Roof	155.00	E	Ext	0.13	65.00
Table 26	RAD4010ARB	Roof	155.00	E	Int.	0.07	35.00
Table 27	RAD4010ARB	Roof	155.00	H	Ext	0.12	60.00
Table 28	RAD4010ARB	Roof	155.00	H	Int.	0.17	85.00
Table 29	RAD4010ARB	Roof	136.0125	E	Ext	0.05	25.00
Table 30	RAD4010ARB	Roof	136.0125	E	Int.	0.04	20.00
Table 31	RAD4010ARB	Roof	136.0125	H	Ext	0.05	25.00
Table 32	RAD4010ARB	Roof	136.0125	H	Int.	0.04	20.00
Table 33	RAD4010ARB	Roof	173.9875	E	Ext	0.02	10.00
Table 34	RAD4010ARB	Roof	173.9875	E	Int.	0.02	10.00
Table 35	RAD4010ARB	Roof	173.9875	H	Ext	0.05	25.00
Table 36	RAD4010ARB	Roof	173.9875	H	Int.	0.03	15.00
Table 37*	HAD4016A	Roof	149.00	E	Ext	0.21	105.00

Table A (continued)

Tables	Antenna Model	Antenna Location	Test Frequency (MHz)	E/H Field	Int./Ext.	Max Calc Pwr Density	% of Uncontrolled limit
Table 38*	HAD4016A	Roof	149.00	E	Int.	0.30	150.00
Table 39	HAD4016A	Roof	149.00	H	Ext	0.14	70.00
Table 40	HAD4016A	Roof	149.00	H	Int.	0.12	60.00
Table 41	HAD4016A	Roof	136.0125	E	Ext	0.11	55.00
Table 42	HAD4016A	Roof	136.0125	E	Int.	0.19	95.00
Table 43*	HAD4016A	Roof	136.0125	H	Ext	0.21	105.00
Table 44*	HAD4016A	Roof	136.0125	H	Int.	0.28	140.00
Table 45	HAD4016A	Roof	162.00	E	Ext	0.165	0.17
Table 46	HAD4016A	Roof	162.00	E	Int.	0.247	0.25
Table 47	HAD4016A	Roof	162.00	H	Ext	0.119	0.12
Table 48	HAD4016A	Roof	162.00	H	Int.	0.083	0.08
Table 49	HAD4017A	Roof	160.00	E	Ext	0.17	85.00
Table 50*	HAD4017A	Roof	160.00	E	Int.	0.22	110.00
Table 51	HAD4017A	Roof	160.00	H	Ext	0.12	60.00
Table 52	HAD4017A	Roof	160.00	H	Int.	0.15	75.00
Table 53	HAD4017A	Roof	146.00	E	Ext	0.14	70.00
Table 54*	HAD4017A	Roof	146.00	E	Int.	0.30	150.00
Table 55*	HAD4017A	Roof	146.00	H	Ext	0.22	110.00
Table 56*	HAD4017A	Roof	146.00	H	Int.	0.25	125.00
Table 57	HAD4017A	Roof	173.9875	E	Ext	0.10	50.00
Table 58	HAD4017A	Roof	173.9875	E	Int.	0.07	35.00
Table 59	HAD4017A	Roof	173.9875	H	Ext	0.11	55.00
Table 60	HAD4017A	Roof	173.9875	H	Int.	0.13	65.00
Table 61*	HAD4014AR	Trunk	155.00	E	Ext	0.32	160.00
Table 62	HAD4014AR	Trunk	155.00	E	Int.	0.16	80.00
Table 63*	HAD4014AR	Trunk	155.00	H	Ext	0.30	150.00
Table 64	HAD4014AR	Trunk	155.00	H	Int.	0.07	35.00

Table A (continued)

Tables	Antenna Model	Antenna Location	Test Frequency (MHz)	E/H Field	Int./Ext.	Max Calc Pwr Density	% of Uncontrolled limit
Table 65*	RAD4000A	Trunk	155.00	E	Ext	0.26	130.00
Table 66	RAD4000A	Trunk	155.00	E	Int.	0.17	85.00
Table 67*	RAD4000A	Trunk	155.00	H	Ext	0.23	115.00
Table 68	RAD4000A	Trunk	155.00	H	Int.	0.07	35.00
Table 69*	RAD4010ARB	Trunk	155.00	E	Ext	0.37	185.00
Table 70	RAD4010ARB	Trunk	155.00	E	Int.	0.16	80.00
Table 71**	RAD4010ARB	Trunk	155.00	H	Ext	0.39	195.00
Table 72	RAD4010ARB	Trunk	155.00	H	Int.	0.10	50.00
Band edge assessment using worst case configuration at the trunk from above							
Table 73	RAD4010ARB	Trunk	136.0125	E	Ext	0.09	45.00
Table 74*	RAD4010ARB	Trunk	136.0125	E	Int.	0.24	120.00
Table 75	RAD4010ARB	Trunk	136.0125	H	Ext	0.15	75.00
Table 76*	RAD4010ARB	Trunk	136.0125	H	Int.	0.24	120.00
Table 77	RAD4010ARB	Trunk	136.0125	E	Ext	0.03	15.00
Table 78	RAD4010ARB	Trunk	173.9875	E	Int.	0.05	25.00
Table 79	RAD4010ARB	Trunk	173.9875	H	Ext	0.05	25.00
Table 80	RAD4010ARB	Trunk	173.9875	H	Int.	0.09	45.00
90° radial assessment using worst case antenna and frequency							
Table 81*	RAD4010ARB	Trunk	155.00	E	Ext	0.21	105.00
Table 82*	RAD4010ARB	Trunk	155.00	H	Ext	0.27	135.00
45° radial assessment using worst case antenna and frequency							
Table 83*	RAD4010ARB	Trunk	155.00	E	Ext	0.22	110.00
Table 84*	RAD4010ARB	Trunk	155.00	H	Ext	0.26	130.00

Note: * = Results exceeding applicable limits; ** = Worst case configuration external to vehicle

11.1 Test Results

Presented below is a summary of the tested frequencies and associated power outputs, measurement probe parameters and exposure conditions, results calculation methodology, applicable reference standards, as well as tables of the raw MPE data for all measured grid points.

The maximum calculated final results presented in the tables are based on a 50% duty cycle with the radio operating in accordance with the User Manual instructions. The bolded power density results represent the highest MPE results observed.

Raw MPE Data test frequencies and measured Po (W):

136.0125 MHz (Po=121.0), 146.00 MHz (Po=120.0), 149.00 MHz (Po=120.0), 155.00 MHz (Po=120.0), 160.00 MHz (Po=120.0), 162.00 MHz (Po=120.0), 173.9875 MHz (Po=120.0)

Meter reads in % of controlled limit; controlled limit = 1.0mW/cm² for 30-300 MHz (Cal factors presented herein are automatically accounted for in the meter used for assessments) General Population MPE limits = 0.20 mW/cm²

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

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

If initial power < RF Po max then Pwr Density Max Calc. = (RF Po Max/Initial Power)*Pwr Density Calc.

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

Table 1

External Vehicle MPE Assessment @ 136.0125 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4006 A	2.15	90	E	0.78	0.394	121.0	0.197	0.20
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	15.5%		6	120	47.3%		1	0.200
2	40	20.6%		7	140	70.2%			
3	60	23.5%		8	160	74.6%			
4	80	13.7%		9	180	62.4%			
5	100	25.3%		10	200	40.8%			
								RF Po (*Max)	120

Table 2

Internal Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4006 A	2.15	Highest Reading	E	0.78	0.505	0.291	121.0	0.252	0.25
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		78.4%	37.6%	35.4%		IEEE Uncontrolled Limit:		0.2		
Front Seat		48.6%	22.2%	16.4%		RF Po (*Max):		120		

Table 3

External Vehicle MPE Assessment @ 136.0125 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4006 A	2.15	90	H	1.01	0.339	121.0	0.170	0.17
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	0.063		6	120	0.456		1.0	0.2
2	40	0.056		7	140	0.551			
3	60	0.074		8	160	0.693			
4	80	0.059		9	180	0.725			
5	100	0.112		10	200	0.602			
									120

Table 4

Internal Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4006 A	2.15	Highest Reading	H	1.01	0.733	0.390	121.0	0.367	0.37
Measurement Grid										
Test Position		Magnetic Field Strength Head		Magnetic Field Strength Chest		Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0
Back Seat		0.853		0.712		0.634		IEEE Uncontrolled Limit:		0.2
Front Seat		0.512		0.457		0.201		RF Po (*Max):		120

Table 5

External Vehicle MPE Assessment @ 146 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4007 A	2.15	90 (actual 110)	E	0.79	0.415	120.0	0.207	0.21
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	11.2%		6	120	47.5%		1	0.200
2	40	14.3%		7	140	71.9%			
3	60	20.3%		8	160	76.8%			
4	80	15.6%		9	180	74.2%			
5	100	28.3%		10	200	54.7%			
									120

Table 6

Internal Vehicle MPE Assessment @ 146 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4007 A	2.15	Highest Reading	E	0.79	0.901	0.240	120.0	0.451	0.45
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		158.7%	83.4%	28.3%		IEEE Uncontrolled Limit:		0.2		
Front Seat		18.9%	32.4%	20.7%				RF Po (*Max):	120	

Table 7

External Vehicle MPE Assessment @ 146 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4007 A	2.15	90	H	1	0.245	120.0	0.123	0.12
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	0.000		6	120	0.234		1.0	0.2
2	40	0.000		7	140	0.391			
3	60	0.010		8	160	0.493			
4	80	0.052		9	180	0.605			
5	100	0.132		10	200	0.533			
									120

Table 8

Internal Vehicle MPE Assessment @ 146 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4007 A	2.15	Highest Reading	H	1	0.242	0.254	120.0	0.127	0.13
Measurement Grid										
Test Position		Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		0.335	0.184	0.206		IEEE Uncontrolled Limit:		0.2		
Front Seat		0.243	0.331	0.187		RF Po (*Max):		120		

Table 9

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4008 A	2.15	90	E	0.8	0.412	120.0	0.206	0.21
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	6.7%		6	120	55.3%		1	0.200
2	40	8.1%		7	140	78.1%			
3	60	13.4%		8	160	71.6%			
4	80	16.7%		9	180	72.4%			
5	100	29.8%		10	200	60.3%			
									120

Table 10

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4008 A	2.15	Highest Reading	E	0.8	0.540	0.205	120.0	0.270	0.27
Measurement Grid										
Test Position		% of Control Limit Head		% of Control Limit Chest		% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0
Back Seat		73.4%		52.3%		36.4%		IEEE Uncontrolled Limit:		0.2
Front Seat		21.3%		19.4%		20.7%		RF Po (*Max):		120

Table 11

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4008 A	2.15	90	H	1	0.261	120.0	0.130	0.13
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	0.000		6	120	0.272		1.0	0.2
2	40	0.000		7	140	0.453			
3	60	0.000		8	160	0.596			
4	80	0.071		9	180	0.573			
5	100	0.143		10	200	0.501			
									120

Table 12

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4008 A	2.15	Highest Reading	H	1	0.191	0.315	120.0	0.157	0.16
Measurement Grid										
Test Position		Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		0.342	0.183	0.049		IEEE Uncontrolled Limit:		0.2		
Front Seat		0.401	0.386	0.157				RF Po (*Max):	120	

Table 13

External Vehicle MPE Assessment @ 173.9875 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4009 A	2.15	90 (actual 110)	E	0.82	0.335	120.0	0.167	0.17
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	4.8%		6	120	42.5%		1	0.200
2	40	5.0%		7	140	54.8%			
3	60	4.8%		8	160	63.6%			
4	80	10.7%		9	180	65.3%			
5	100	27.6%		10	200	55.7%			
								120	

Table 14

Internal Vehicle MPE Assessment @ 173.9875 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4009 A	2.15	Highest Reading	E	0.82	0.212	0.331	120.0	0.165	0.17
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:			1.0	
Back Seat		25.7%	18.7%	19.3%		IEEE Uncontrolled Limit:			0.2	
Front Seat		37.6%	34.3%	27.3%		RF Po (*Max):			120	

Table 15

External Vehicle MPE Assessment @ 173.9875 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4009 A	2.15	90 (actual 110)	H	0.98	0.306	120.0	0.153	0.15
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	0.000		6	120	0.301		1.0	0.2
2	40	0.000		7	140	0.612			
3	60	0.031		8	160	0.720			
4	80	0.049		9	180	0.620			
5	100	0.150		10	200	0.580			
									120

Table 16

Internal Vehicle MPE Assessment @ 173.9875 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4009 A	2.15	Highest Reading	H	0.98	0.167	0.200	120.0	0.100	0.10
Measurement Grid										
Test Position		Magnetic Field Strength Head		Magnetic Field Strength Chest		Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0
Back Seat		0.170		0.190		0.140		IEEE Uncontrolled Limit:		0.2
Front Seat		0.180		0.210		0.209		RF Po (*Max):		120

Table 17

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4014A R	5.15	90 (actual 110)	E	0.8	0.252	120.0	0.126	0.13
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	4.8%		6	120	15.3%		1	0.200
2	40	5.0%		7	140	25.6%			
3	60	7.5%		8	160	40.7%			
4	80	5.8%		9	180	61.5%			
5	100	8.9%		10	200	76.8%			
									120

Table 18

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4014A R	5.15	Highest Reading	E	0.8	0.121	0.047	120.0	0.061	0.06
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		14.5%	12.3%	9.5%		IEEE Uncontrolled Limit:		0.2		
Front Seat		5.7%	4.9%	3.4%				RF Po (*Max):	120	

Table 19

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4014A R	5.15	90	H	1	0.228	120.0	0.114	0.11
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.000	6	120	0.080	1.0	0.2		
2	40	0.000	7	140	0.190				
3	60	0.030	8	160	0.401				
4	80	0.050	9	180	0.660				
5	100	0.040	10	200	0.831				
								RF Po (*Max)	120

Table 20

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4014A R	5.15	Highest Reading	H	1	0.106	0.100	120.0	0.053	0.05
Measurement Grid										
Test Position	Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:	IEEE Uncontrolled Limit:					
Back Seat	0.131	0.106	0.081	1.0	0.2					
Front Seat	0.111	0.101	0.089			RF Po (*Max):	120			

Table 21

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	RAD4000 A	5.15	90	E	0.8	0.210	120.0	0.105	0.11
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	3.8%		6	120	13.2%		1	0.200
2	40	4.1%		7	140	23.3%			
3	60	5.6%		8	160	34.6%			
4	80	4.9%		9	180	49.9%			
5	100	7.9%		10	200	62.3%			
									120

Table 22

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	RAD4000 A	5.15	Highest Reading	E	0.8	0.095	0.042	120.0	0.048	0.05
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:			1.0	
Back Seat		11.7%	9.7%	7.1%		IEEE Uncontrolled Limit:			0.2	
Front Seat		4.6%	4.1%	3.8%		RF Po (*Max):			120	

Table 23

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	RAD4000 A	5.15	90	H	1	0.208	120.0	0.104	0.10
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	0.031		6	120	0.133		1.0	0.2
2	40	0.027		7	140	0.180			
3	60	0.081		8	160	0.320			
4	80	0.110		9	180	0.450			
5	100	0.120		10	200	0.630			
									120

Table 24

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	RAD4000 A	5.15	Highest Reading	H	1	0.071	0.064	120.0	0.036	0.04
Measurement Grid										
Test Position		Magnetic Field Strength Head		Magnetic Field Strength Chest		Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0
Back Seat		0.080		0.072		0.061		IEEE Uncontrolled Limit:		0.2
Front Seat		0.071		0.064		0.058		RF Po (*Max):		120

Table 25

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	RAD4010AR B	5.15	90	E	0.8	0.261	120.0	0.131	0.13
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	5.1%		6	120	15.4%		1	0.200
2	40	5.8%		7	140	23.1%			
3	60	7.9%		8	160	39.5%			
4	80	6.4%		9	180	65.7%			
5	100	9.8%		10	200	82.6%			

Table 26

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	RAD4010AR B	5.15	Highest Reading	E	0.8	0.142	0.056	120.0	0.071	0.07
Measurement Grid										
Test Position		% of Control Limit Head		% of Control Limit Chest		% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0
Back Seat		16.9%		15.3%		10.3%		IEEE Uncontrolled Limit:		0.2
Front Seat		7.6%		4.9%		4.3%		RF Po (*Max):		120

Table 27

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	RAD4010AR B	5.15	90	H	1	0.233	120.0	0.116	0.12
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.051	6	120	0.140	1.0	0.2		
2	40	0.083	7	140	0.221				
3	60	0.111	8	160	0.384				
4	80	0.130	9	180	0.449				
5	100	0.138	10	200	0.619				
								RF Po (*Max)	120

Table 28

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	RAD4010AR B	5.15	Highest Reading	H	1	0.322	0.335	120.0	0.167	0.17
Measurement Grid										
Test Position		Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		0.143	0.092	0.730		IEEE Uncontrolled Limit:		0.2		
Front Seat		0.145	0.109	0.750		RF Po (*Max):		120		

Table 29

External Vehicle MPE Assessment @ 136.0125 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	RAD4010ARB	5.15	90	E	0.78	0.097	121.0	0.049	0.05
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	3.5%		6	120	7.8%		1	0.200
2	40	3.8%		7	140	11.7%			
3	60	4.2%		8	160	16.8%			
4	80	3.1%		9	180	20.1%			
5	100	3.6%		10	200	22.6%			
								RF Po (*Max)	120

Table 30

Internal Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	RAD4010ARB	5.15	Highest Reading	E	0.78	0.071	0.036	121.0	0.036	0.04
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		IEEE Uncontrolled Limit:		
Back Seat		11.3%	5.7%	4.3%		1.0		0.2		
Front Seat		5.6%	2.7%	2.4%		RF Po (*Max):		120		

Table 31

External Vehicle MPE Assessment @ 136.0125 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	RAD4010ARB	5.15	90	H	1.01	0.089	121.0	0.045	0.05
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.000	6	120	0.051	1.0	0.2		
2	40	0.000	7	140	0.092				
3	60	0.000	8	160	0.160				
4	80	0.000	9	180	0.260				
5	100	0.000	10	200	0.330				
								RF Po (*Max)	120

Table 32

Internal Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	RAD4010ARB	5.15	Highest Reading	H	1.01	0.063	0.086	121.0	0.043	0.04
Measurement Grid										
Test Position	Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:	1.0					
Back Seat	0.053	0.074	0.062	IEEE Uncontrolled Limit:	0.2					
Front Seat	0.109	0.077	0.071	RF Po (*Max):	120					

Table 33

External Vehicle MPE Assessment @ 173.9875 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	RAD4010ARB	5.15	90	E	0.82	0.030	120.0	0.015	0.02
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	1.7%		6	120	3.7%		1	0.200
2	40	1.6%		7	140	4.4%			
3	60	1.7%		8	160	3.4%			
4	80	1.8%		9	180	3.7%			
5	100	2.8%		10	200	4.8%			
								RF Po (*Max)	120

Table 34

Internal Vehicle MPE Assessment @ 173.9875 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	RAD4010ARB	5.15	Highest Reading	E	0.82	0.030	0.032	120.0	0.016	0.02
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		3.6%	2.8%	2.6%		IEEE Uncontrolled Limit:		0.2		
Front Seat		3.3%	3.6%	2.8%		RF Po (*Max):		120		

Table 35

External Vehicle MPE Assessment @ 173.9875 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	RAD4010ARB	5.15	90	H	0.98	0.096	120.0	0.048	0.05
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.000	6	120	0.111	1.0	0.2		
2	40	0.000	7	140	0.128				
3	60	0.033	8	160	0.130				
4	80	0.042	9	180	0.190				
5	100	0.071	10	200	0.250				
								RF Po (*Max)	120

Table 36

Internal Vehicle MPE Assessment @ 173.9875 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	RAD4010ARB	5.15	Highest Reading	H	0.98	0.056	0.066	120.0	0.033	0.03
Measurement Grid										
Test Position	Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:	1.0					
Back Seat	0.061	0.055	0.051	IEEE Uncontrolled Limit:	0.2					
Front Seat	0.071	0.062	0.065	RF Po (*Max):	120					

Table 37

External Vehicle MPE Assessment @ 149 MHz										
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4016 A	2.15	90	E	0.8	0.419		120.0	0.209	0.21
Measurement Grid										
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit	
1	20	9.6%		6	120	44.8%		1	0.200	
2	40	11.5%		7	140	73.3%				
3	60	13.9%		8	160	86.5%				
4	80	14.4%		9	180	79.7%				
5	100	26.5%		10	200	58.6%				
								RF Po (*Max)		120

Table 38

Internal Vehicle MPE Assessment @ 149 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4016 A	2.15	Highest Reading	E	0.8	0.595	0.190	120.0	0.297	0.30
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		89.4%	58.9%	30.1%		IEEE Uncontrolled Limit:		0.2		
Front Seat		15.9%	20.1%	21.0%		RF Po (*Max):		120		

Table 39

External Vehicle MPE Assessment @ 149 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4016 A	2.15	90	H	1	0.280	120.0	0.140	0.14
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.000	6	120	0.253	1.0	0.2		
2	40	0.000	7	140	0.435				
3	60	0.032	8	160	0.604				
4	80	0.071	9	180	0.676				
5	100	0.126	10	200	0.601				
								RF Po (*Max)	120

Table 40

Internal Vehicle MPE Assessment @ 149 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4016A	2.15	Highest Reading	H	1	0.228	0.244	120.0	0.122	0.12
Measurement Grid										
Test Position	Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:	1.0					
Back Seat	0.321	0.250	0.113	IEEE Uncontrolled Limit:	0.2					
Front Seat	0.342	0.285	0.104	RF Po (*Max):	120					

Table 41

External Vehicle MPE Assessment @ 136.0125 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4016 A	2.15	90	E	0.78	0.222	121.0	0.111	0.11
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	7.8%		6	120	26.4%		1	0.200
2	40	9.4%		7	140	39.3%			
3	60	11.1%		8	160	42.7%			
4	80	8.7%		9	180	33.6%			
5	100	15.3%		10	200	27.4%			
								RF Po (*Max)	
								120	

Table 42

Internal Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4016 A	2.15	Highest Reading	E	0.78	0.375	0.176	121.0	0.188	0.19
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		49.7%	37.1%	25.8%		IEEE Uncontrolled Limit:		0.2		
Front Seat		32.1%	12.1%	8.7%				RF Po (*Max):		120

Table 43

External Vehicle MPE Assessment @ 136.0125 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4016 A	2.15	90	H	1.01	0.422	121.0	0.211	0.21
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.177	6	120	0.480	1.0	0.2		
2	40	0.180	7	140	0.596				
3	60	0.240	8	160	0.680				
4	80	0.261	9	180	0.690				
5	100	0.290	10	200	0.630				
									RF Po (*Max)
								120	

Table 44

Internal Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4016A	2.15	Highest Reading	H	1.01	0.555	0.533	121.0	0.278	0.28
Measurement Grid										
Test Position	Magnetic Field Strength Head		Magnetic Field Strength Chest		Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0	
Back Seat	0.555		0.531		0.580		IEEE Uncontrolled Limit:		0.2	
Front Seat	0.600		0.620		0.380				RF Po (*Max):	120

Table 45

External Vehicle MPE Assessment @ 162 MHz										
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4016 A	2.15	90 (actual 110)	E	0.81	0.331		120.0	0.165	0.17
Measurement Grid										
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit	
1	20	7.3%		6	120	42.7%		1	0.200	
2	40	5.5%		7	140	58.5%				
3	60	6.5%		8	160	63.5%				
4	80	8.1%		9	180	63.3%			RF Po (*Max)	
5	100	24.3%		10	200	51.1%			120	

Table 46

Internal Vehicle MPE Assessment @ 162 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4016 A	2.15	Highest Reading	E	0.81	0.493	0.169	120.0	0.247	0.25
Measurement Grid										
Test Position		% of Control Limit Head		% of Control Limit Chest		% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0
Back Seat		62.5%		50.1%		35.4%		IEEE Uncontrolled Limit:		0.2
Front Seat		18.3%		20.1%		12.4%		RF Po (*Max):		120

Table 47

External Vehicle MPE Assessment @ 162 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4016 A	2.15	90 (actual 110)	H	0.99	0.238	120.0	0.119	0.12
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.000	6	120	0.192	1.0	0.2		
2	40	0.000	7	140	0.363				
3	60	0.021	8	160	0.485				
4	80	0.053	9	180	0.591				
5	100	0.101	10	200	0.573				
								RF Po (*Max)	120

Table 48

Internal Vehicle MPE Assessment @ 162 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4016A	2.15	Highest Reading	H	0.99	0.118	0.166	120.0	0.083	0.08
Measurement Grid										
Test Position	Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:	1.0					
Back Seat	0.190	0.120	0.045	IEEE Uncontrolled Limit:	0.2					
Front Seat	0.208	0.210	0.081	RF Po (*Max):	120					

Table 49

External Vehicle MPE Assessment @						160 MHz			
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4017A	2.15	90	E	0.81	0.337	120.0	0.168	0.17
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	6.0%		6	120	38.4%		1	0.200
2	40	6.2%		7	140	53.3%			
3	60	9.8%		8	160	59.6%			
4	80	9.1%		9	180	72.1%			
5	100	23.3%		10	200	58.8%			
								RF Po (*Max)	
								120	

Table 50

Internal Vehicle MPE Assessment @						160 MHz				
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4017A	2.15	Highest Reading	E	0.81	0.435	0.193	120.0	0.218	0.22
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:			1.0	
Back Seat		50.6%	43.1%	36.9%		IEEE Uncontrolled Limit:			0.2	
Front Seat		18.7%	21.5%	17.8%		RF Po (*Max):			120	

Table 51

External Vehicle MPE Assessment @ 160 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4017A	2.15	90	H	0.99	0.232	120.0	0.116	0.12
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.000	6	120	0.183	1.0	0.2		
2	40	0.000	7	140	0.423				
3	60	0.000	8	160	0.512				
4	80	0.000	9	180	0.624				
5	100	0.091	10	200	0.491				
								RF Po (*Max)	120

Table 52

Internal Vehicle MPE Assessment @ 160 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4017A	2.15	Highest Reading	H	0.99	0.248	0.294	120.0	0.147	0.15
Measurement Grid										
Test Position	Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:	1.0					
Back Seat	0.301	0.290	0.154	IEEE Uncontrolled Limit:	0.2					
Front Seat	0.384	0.319	0.180	RF Po (*Max):	120					

Table 53

External Vehicle MPE Assessment @ 146 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4017A	2.15	90	E	0.79	0.279	120.0	0.140	0.14
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	7.4%		6	120	31.3%		1	0.200
2	40	8.0%		7	140	47.5%			
3	60	10.5%		8	160	49.9%			
4	80	8.9%		9	180	53.4%			
5	100	19.8%		10	200	42.6%			
								RF Po (*Max)	120

Table 54

Internal Vehicle MPE Assessment @ 146 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4017A	2.15	Highest Reading	E	0.79	0.589	0.165	120.0	0.295	0.30
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		91.1%	59.0%	26.7%		IEEE Uncontrolled Limit:		0.2		
Front Seat		11.3%	20.4%	17.8%		RF Po (*Max):		120		

Table 55

External Vehicle MPE Assessment @ 146 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4017A	2.15	90	H	1	0.445	120.0	0.223	0.22
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.221	6	120	0.470	1.0	0.2		
2	40	0.220	7	140	0.541				
3	60	0.280	8	160	0.690				
4	80	0.260	9	180	0.800				
5	100	0.330	10	200	0.642				
									RF Po (*Max)

Table 56

Internal Vehicle MPE Assessment @ 146 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4017A	2.15	Highest Reading	H	1	0.417	0.505	120.0	0.252	0.25
Measurement Grid										
Test Position		Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:		1.0			
Back Seat		0.540	0.330	0.380	IEEE Uncontrolled Limit:		0.2			
Front Seat		0.673	0.561	0.280			RF Po (*Max):	120		

Table 57

External Vehicle MPE Assessment @ 173.9875 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4017 A	2.15	90	E	0.82	0.205	120.0	0.103	0.10
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	2.9%		6	120	23.6%		1	0.200
2	40	3.2%		7	140	34.4%			
3	60	3.3%		8	160	38.5%			
4	80	6.9%		9	180	40.3%			
5	100	15.5%		10	200	36.5%			
								RF Po (*Max)	120

Table 58

Internal Vehicle MPE Assessment @ 173.9875 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4017 A	2.15	Highest Reading	E	0.82	0.125	0.137	120.0	0.069	0.07
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		15.9%	11.1%	10.4%		IEEE Uncontrolled Limit:		0.2		
Front Seat		16.1%	12.3%	12.8%				RF Po (*Max):	120	

Table 59

External Vehicle MPE Assessment @ 173.9875 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Roof (cnt)	HAD4017A	2.15	90	H	0.98	0.222	120.0	0.111	0.11
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.041	6	120	0.268	1.0	0.2		
2	40	0.043	7	140	0.376				
3	60	0.083	8	160	0.450				
4	80	0.055	9	180	0.429				
5	100	0.140	10	200	0.330				
								RF Po (*Max)	120

Table 60

Internal Vehicle MPE Assessment @ 173.9875 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Roof (cnt)	HAD4017 A	2.15	Highest Reading	H	0.98	0.251	0.250	120.0	0.126	0.13
Measurement Grid										
Test Position	Magnetic Field Strength Head		Magnetic Field Strength Chest		Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0	
Back Seat	0.256		0.278		0.220		IEEE Uncontrolled Limit:		0.2	
Front Seat	0.260		0.300		0.190		RF Po (*Max):		120	

Table 61

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	HAD4014AR	5.15	90	E	0.8	0.630	120.0	0.315	0.32
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	5.8%		6	120	72.8%		1	0.200
2	40	6.5%		7	140	116.3%			
3	60	14.6%		8	160	126.7%			
4	80	24.7%		9	180	128.5%			
5	100	35.4%		10	200	98.9%			
								RF Po (*Max)	120

Table 62

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	HAD4014AR	5.15	Highest Reading	E	0.8	0.324	0.055	120.0	0.162	0.16
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		45.6%	31.5%	20.1%		IEEE Uncontrolled Limit:		0.2		
Front Seat		6.1%	5.5%	4.8%				RF Po (*Max):	120	

Table 63

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	HAD4014AR	5.15	90	H	1	0.601	120.0	0.300	0.30
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.101	6	120	0.300	1.0	0.2		
2	40	0.090	7	140	0.804				
3	60	0.220	8	160	1.325				
4	80	0.290	9	180	1.513				
5	100	0.245	10	200	1.121				
									RF Po (*Max)
									120

Table 64

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	HAD4014AR	5.15	Highest Reading	H	1	0.137	0.000	120.0	0.069	0.07
Measurement Grid										
Test Position		Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:		1.0			
Back Seat		0.140	0.131	0.141	IEEE Uncontrolled Limit:		0.2			
Front Seat		0.000	0.000	0.000			RF Po (*Max):		120	

Table 65

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4000A	5.15	90	E	0.8	0.527	120.0	0.264	0.26
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	4.8%		6	120	60.3%		1	0.200
2	40	5.5%		7	140	93.9%			
3	60	8.3%		8	160	111.5%			
4	80	14.2%		9	180	113.4%			
5	100	29.8%		10	200	85.7%			
								RF Po (*Max)	120

Table 66

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	RAD4000A	5.15	Highest Reading	E	0.8	0.340	0.046	120.0	0.170	0.17
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:			1.0	
Back Seat		49.1%	32.5%	20.3%		IEEE Uncontrolled Limit:			0.2	
Front Seat		5.9%	4.8%	3.2%		RF Po (*Max):			120	

Table 67

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4000A	5.15	90	H	1	0.462	120.0	0.231	0.23
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	0.051		6	120	0.224		1.0	0.2
2	40	0.023		7	140	0.560			
3	60	0.113		8	160	1.081			
4	80	0.084		9	180	1.223			RF Po (*Max)
5	100	0.098		10	200	1.161			120

Table 68

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	RAD4000A	5.15	Highest Reading	H	1	0.131	0.000	120.0	0.066	0.07
Measurement Grid										
Test Position		Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		0.170	0.114	0.110		IEEE Uncontrolled Limit:		0.2		
Front Seat		0.000	0.000	0.000		RF Po (*Max):		120		

Table 69

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4010ARB	5.15	90	E	0.8	0.743	120.0	0.372	0.37
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	7.1%		6	120	82.3%		1	0.200
2	40	6.7%		7	140	138.7%			
3	60	14.6%		8	160	160.5%			
4	80	21.5%		9	180	148.7%			
5	100	34.7%		10	200	128.3%			
								RF Po (*Max)	120

Table 70

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	RAD4010ARB	5.15	Highest Reading	E	0.8	0.325	0.056	120.0	0.163	0.16
Measurement Grid										
Test Position		% of Control Limit Head		% of Control Limit Chest		% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0
Back Seat		49.5%		30.3%		17.8%		IEEE Uncontrolled Limit:		0.2
Front Seat		6.6%		5.3%		4.8%				RF Po (*Max):
										120

Table71

External Vehicle MPE Assessment @ 155 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4010AR B	5.15	90	H	1	0.785	120.0	0.392	0.39
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.118	6	120	0.280	1.0	0.2		
2	40	0.140	7	140	0.860				
3	60	0.220	8	160	1.473				
4	80	0.310	9	180	2.261				
5	100	0.330	10	200	1.853				
								RF Po (*Max)	120

Table 72

Internal Vehicle MPE Assessment @ 155 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	RAD4010AR B	5.15	Highest Reading	H	1	0.196	0.060	120.0	0.098	0.10
Measurement Grid										
Test Position		Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:		1.0			
Back Seat		0.220	0.180	0.187	IEEE Uncontrolled Limit:		0.2			
Front Seat		0.030	0.140	0.010	RF Po (*Max):		120			

Table 73

External Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)	
Trunk (cnt)	RAD4010AR B	5.15	90	E	0.78	0.171	121.0	0.085	0.09	
Measurement Grid										
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit	
1	20	2.2%		6	120	19.5%		1	0.200	
2	40	2.4%		7	140	33.8%				
3	60	5.6%		8	160	36.7%				
4	80	6.8%		9	180	32.3%				RF Po (*Max)
5	100	11.3%		10	200	20.2%				120

Table 74

Internal Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	RAD4010AR B	5.15	Highest Reading	E	0.78	0.486	0.074	121.0	0.243	0.24
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:			1.0	
Back Seat		97.1%	34.8%	13.8%		IEEE Uncontrolled Limit:			0.2	
Front Seat		10.6%	6.9%	4.8%		RF Po (*Max):			120	

Table 75

External Vehicle MPE Assessment @ 136.0125 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4010ARB	5.15	90	H	1.01	0.296	121.0	0.148	0.15
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.039	6	120	0.233	1.0	0.2		
2	40	0.041	7	140	0.413				
3	60	0.112	8	160	0.546				
4	80	0.103	9	180	0.731				
5	100	0.125	10	200	0.620				
									RF Po (*Max)
									120

Table 76

Internal Vehicle MPE Assessment @ 136.0125 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	RAD4010ARB	5.15	Highest Reading	H	1.01	0.483	0.150	121.0	0.242	0.24
Measurement Grid										
Test Position	Magnetic Field Strength Head		Magnetic Field Strength Chest		Magnetic Field Strength Lower Trunk		IEEE Controlled Limit:		1.0	
Back Seat	0.630		0.390		0.430		IEEE Uncontrolled Limit:		0.2	
Front Seat	0.163		0.141		0.145				RF Po (*Max):	120

Table 77

External Vehicle MPE Assessment @ 173.9875 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4010AR B	5.15	90	E	0.82	0.051	120.0	0.025	0.03
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	1.8%		6	120	4.4%		1	0.200
2	40	2.0%		7	140	6.2%			
3	60	2.2%		8	160	8.3%			
4	80	2.3%		9	180	9.7%			
5	100	3.8%		10	200	10.1%			
								RF Po (*Max)	120

Table 78

Internal Vehicle MPE Assessment @ 173.9875 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	RAD4010AR B	5.15	Highest Reading	E	0.82	0.092	0.025	120.0	0.046	0.05
Measurement Grid										
Test Position		% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk		IEEE Controlled Limit:		1.0		
Back Seat		8.9%	10.1%	8.6%		IEEE Uncontrolled Limit:		0.2		
Front Seat		2.1%	2.7%	2.8%				RF Po (*Max):	120	

Table 79

External Vehicle MPE Assessment @ 173.9875 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4010AR B	5.15	90	H	0.98	0.104	120.0	0.052	0.05
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)	IEEE Controlled Limit	IEEE Uncontrolled Limit		
1	20	0.000	6	120	0.100	1.0	0.2		
2	40	0.000	7	140	0.113				
3	60	0.000	8	160	0.121				
4	80	0.000	9	180	0.280				
5	100	0.111	10	200	0.310				
								RF Po (*Max)	120

Table 80

Internal Vehicle MPE Assessment @ 173.9875 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm ²)		Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
						Back	Front			
Trunk (cnt)	RAD4010AR B	5.15	Highest Reading	H	0.98	0.178	0.000	120.0	0.089	0.09
Measurement Grid										
Test Position		Magnetic Field Strength Head	Magnetic Field Strength Chest	Magnetic Field Strength Lower Trunk	IEEE Controlled Limit:	1.0				
Back Seat		0.180	0.173	0.182	IEEE Uncontrolled Limit:	0.2				
Front Seat		0.000	0.000	0.000	RF Po (*Max):	120				

Table 81

External Vehicle MPE Assessment @ 155 MHz							(90 degree assessment)		
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4010ARB	5.15	104	E	0.8	0.419	120.0	0.209	0.21
Measurement Grid									
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	13.3%		6	120	29.8%		1	0.200
2	40	17.2%		7	140	63.5%			RF Po (*Max)
3	60	29.5%		8	160	77.6%			
4	80	12.7%		9	180	86.5%			
5	100	14.3%		10	200	74.4%			

Table 82

External Vehicle MPE Assessment @ 155 MHz							(90 degree assessment)		
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)
Trunk (cnt)	RAD4010ARB	5.15	104	H	1	0.539	120.0	0.269	0.27
Measurement Grid									
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	0.191		6	120	0.320		1.0	0.2
2	40	0.207		7	140	0.610			RF Po (*Max)
3	60	0.220		8	160	1.000			
4	80	0.240		9	180	1.203			
5	100	0.272		10	200	1.124			

Table 83

External Vehicle MPE Assessment @ 155 MHz (45 degree assessment)										
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)	
Trunk (cnt)	RAD4010AR B	5.15	99.5	E	0.8	0.434	120.0	0.217	0.22	
Measurement Grid										
Test Position	Height (cm)	% of Control Limit		Test Position	Height (cm)	% of Control Limit		IEEE Controlled Limit	IEEE Uncontrolled Limit	
1	20	12.3%		6	120	27.3%		1	0.200	
2	40	17.4%		7	140	63.5%				
3	60	24.3%		8	160	85.4%				
4	80	9.6%		9	180	100.1%				RF Po (*Max)
5	100	11.1%		10	200	82.8%				120

Table 84

External Vehicle MPE Assessment @ 155 MHz (45 degree assessment)										
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Cal. Factor	Average over Body (mW/cm ²)	Initial Power (W)	Pwr. Density Calc. (mW/cm ²)	Pwr. Density Max Calc. (mW/cm ²)	
Trunk (cnt)	RAD4010AR B	5.15	99.5	H	1	0.510	120.0	0.255	0.26	
Measurement Grid										
Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		Test Position	Height (cm)	Meas. Pwr. Density (mW/cm ²)		IEEE Controlled Limit	IEEE Uncontrolled Limit	
1	20	0.150		6	120	0.203		1.0	0.2	
2	40	0.130		7	140	0.480				
3	60	0.171		8	160	1.013				
4	80	0.230		9	180	1.245				RF Po (*Max)
5	100	0.200		10	200	1.278				120

12.0 Conclusion

Depending on the test frequency, compliance assessments were performed with an output power range of 120.0W to 121.0W. The maximum RF power allowable will be equal to the upper limit of the final test factory transmit power specification of 120.0W. The highest power density result scaled to the maximum allowable power output is 0.45mW/cm² internal to the vehicle and 0.39mW/cm² external to the vehicle.

The MPE results presented herein demonstrate compliance to the applicable Occupational/Controlled exposure limit of 1.0mW/cm² for the frequency range of 30-300MHz

Compliance to the General population/Uncontrolled limits is demonstrated by S.A.R. computational assessments of specific MPE non-compliant passenger and by-stander test conditions* (see section 11.0). APPENDIX D presents computational S.A.R. results demonstrating compliance to the applicable General Population/Uncontrolled S.A.R. exposure limit of 1.6mW/g and therefore also demonstrates compliance to the MPE General Population/Uncontrolled limits.

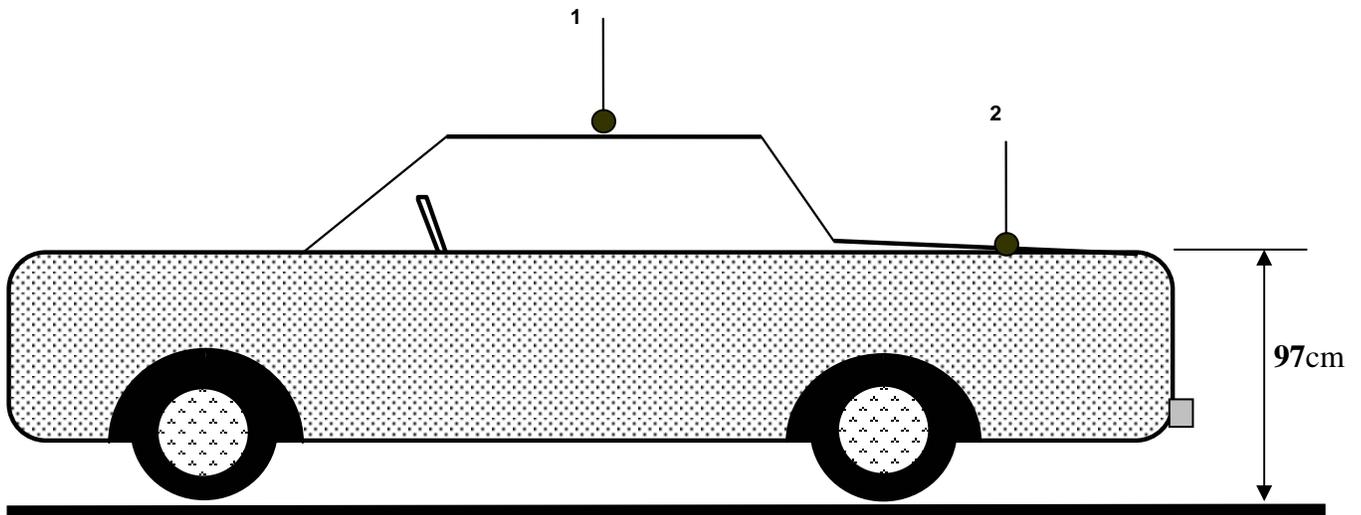
The computational results show that this device, when used with the offered antennas in accordance with the user manual instructions, exhibits a maximum peak 1-g average S.A.R. of 0.50mW/g for passengers internal to the vehicle and a maximum peak 1-g average S.A.R. of 1.14mW/g for by-standers external to the vehicle.

Notes:

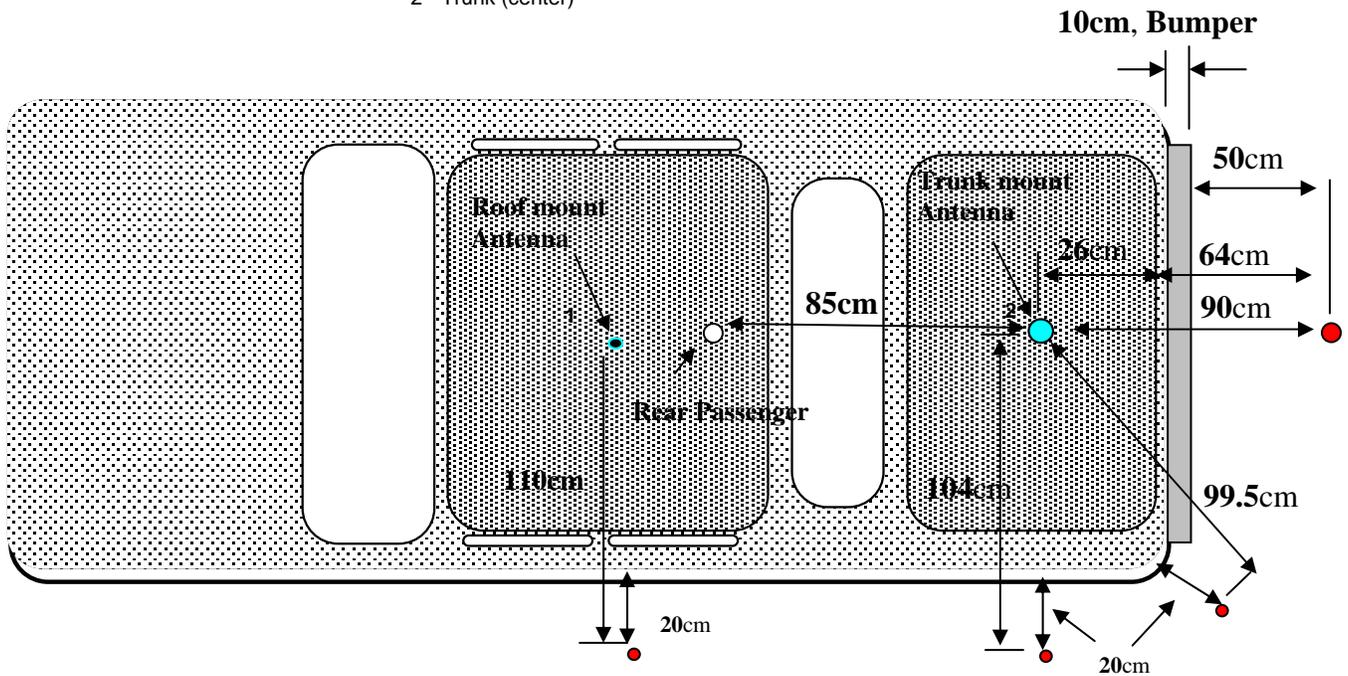
1) Tables 2, 4, 5, 6, 9, 10, 37, 38, 43, 44, 46, 50, 54, 55, 56, 61, 63, 65, 67, 69, 71, 74, 76, 81, 82, 83, and 84 reflect the worst-case passenger and by-stander test configuration conditions that exceed the applicable MPE power density specification limits. The test conditions were analyzed computationally to assess performance to the applicable S.A.R. exposure specification limit. APPENDIX D of this report presents computational EME compliance assessment results for FCC ID: AZ492FT3808 performed by the Motorola Corporate Research Lab located in Plantation Florida using a commercial code based on FDTD (Finite Difference Time Domain) methodology. The computational results are provided herein in order to demonstrate the EME compliance of this device with respect to the IEEE Std C95.1-1999 specific absorption rate (S.A.R.) exposure limit.

APPENDIX A

Antenna Location Drawing with Test Locations Identified



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



Note: • Test Locations

APPENDIX B

Meter/Probe Calibration Certificates



RFNR A002

Certificate of Calibration

L-3 Communications, Narda Microwave-East, hereby certifies that the referenced RF Radiation Hazard monitoring equipment has been calibrated in accordance with MIL-STD-45662A, ANSI Z540, ISO 10012 and ISO 9001: 2000.

The measured values were determined by comparison with our standards, which are traceable to the National Institute of Standards and Technology to the extent allowed by NIST's calibration facilities.

Customer: MOTOROLA INC
FORT LAUDERDALE, FL 33322

Certificate #: 44172 1

Model #: 8718-10

Serial #: 01108

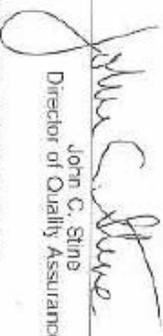
Description: METER W/CABLE

PO #: NP1160429-V3

Date Calibrated: 04/07/2004

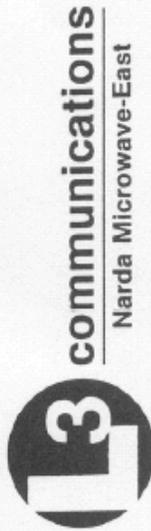
R.O. #: 44172


Vince Donovan
Manager of Instruments Assembly and Test


John C. Stine
Director of Quality Assurance

This certificate shall not be reproduced, except in full, without written approval from L-3 Communications, Narda Microwave-East

DR 11/A 002



NARDA MICROWAVE EAST
CALIBRATED IN ACCORDANCE
WITH ANSI Z540
CAL. DATE 11-5-03 BY [Signature]
MOD. P 7248 S/N. 13023

Certificate of Calibration

L-3 Communications, Narda Microwave-East, hereby certifies that the referenced RF Radiation Hazard monitoring equipment has been calibrated in accordance with MIL-STD-45662A, ANSI Z540, ISO 10012 and ISO 9001. The measured values were determined by comparison with our standards, which are traceable to the National Institute of Standards and Technology to the extent allowed by NIST's calibration facilities.

Customer: MOTOROLA
SCHAUMBURG, IL 60168-0429

Certificate #: 40348 2

Model #: 8722B
Description: RAD MONITOR 8722B
Date Calibrated: 11/05/2003
Serial #: 12023
PO #: NP984832
R.O. #: 40348

Vince Donovan
Manager of Instruments Assembly and Test

John C. Stine
Director of Quality Assurance

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communications
Narda Microwave-East

PRNRH003

Certificate of Calibration

L-3 Communications, Narda Microwave-East, hereby certifies that the referenced RF Radiation Hazard monitoring equipment has been calibrated in accordance with MIL-STD-45662A, ANSI Z540, ISO 10012 and ISO 9001: 2000.

The measured values were determined by comparison with our standards, which are traceable to the National Institute of Standards and Technology to the extent allowed by NIST's calibration facilities.

Customer: MOTOROLA INC
FORT LAUDERDALE, FL 33322

Certificate #: 44172 2

Model #: 8731

Serial #: 03006

Description: RAD MONITOR

PO #: NP1160429-V3

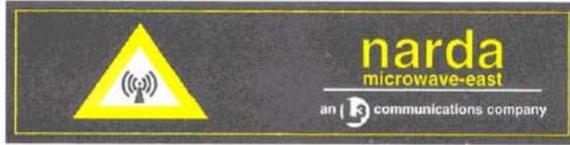
Date Calibrated: 04/07/2004

R.O. #: 44172


Vince Donovan
Manager of Instruments Assembly and Test


John C. Stine
Director of Quality Assurance

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DATE 06-May-2003
REL HUMIDITY 26%

RELEASE # R35740
TEMP 25 DEG. C

NARDA MICROWAVE - EAST

MODEL # 8722B
SERIAL # 13001

Recal Probe - Date of Previous Probe Data = 03/28/2002

FREQ MHZ	PRE-CAL DATA	FINAL CAL DATA	ELLIPSE RATIO, dB	FINAL CORR. FACTOR	DEVIATION DELTA DB	PREVIOUS FINAL CORR
.30	0.72	0.77	+/- 0.40	1.30	-2.58	* 0.77
3.00	1.24	1.33	+/- 0.21	0.75	-0.43	0.73
10.00	0.86	0.92	+/- 0.20	1.08	-0.04	1.15
30.00	0.70	0.75	+/- 0.09	1.34	+0.06	1.46
100.00	1.23	1.32	+/- 0.14	0.76	-0.04	0.80
300.00	0.91	0.98	+/- 0.14	1.02	+0.38	1.20
750.00	1.16	1.24	+/- 0.19	0.80	-0.35	0.80
1000.00	1.25	1.34	+/- 0.24	0.75	-0.67	0.69
1700.00	0.97	1.04	+/- 0.45	0.96	+1.09	1.33
2450.00	1.09	0.99	+/- 0.40	1.01	+1.16	1.20
4000.00	1.03	0.93	+/- 0.21	1.07	+1.35	1.33
8200.00	1.21	1.09	+/- 0.69	0.91	+1.08	1.06
10000.00	1.16	1.05	+/- 0.63	0.96	+0.90	1.07
18000.00	1.38	1.25	+/- 0.83	0.80	+0.18	0.75
26500.00	1.25	1.13	+/- 0.98	0.89	+0.45	0.89
40000.00	0.89	0.80	+/- 0.92	1.25	+0.06	1.15

LOW FREQUENCY MULTIPLIER = 1.073 HIGH FREQUENCY MULTIPLIER = 0.905

FREQ. DEV. (3-40000 MHZ) = 2.549 DB

FREQ. DEV. (0.3-40000 MHZ) = 2.55 DB

MAX. ELLIPSE RATIO (0.3-40000 MHZ) = +/- 0.98 DB

PRE-CAL DATA REFLECTS THE MEAN ELLIPSE RATIO OF PROBE AS RECEIVED BY

NARDA CALIBRATION DEPARTMENT, OR IS THE INITIAL, UN-ADJUSTED RATIO.

(PRE-CAL x OLD CORR. FACTOR) - 1 = DEVIATION FROM PREVIOUS (OLD)

CALIBRATION DATA. NOTE: NOT APPLICABLE FOR NEW PROBES.

FINAL CAL DATA IS THE RATIO OF THE DISPLAYED TO THE APPLIED FIELD STRENGTH.

FINAL CORR. FACTOR IS THE RECIPROCAL OF FINAL CAL DATA.

FINAL CORR. FACTOR MULTIPLIED BY THE DISPLAYED FIELD STRENGTH READING

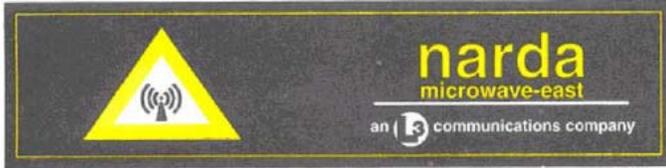
GIVES THE ACTUAL ("CORRECTED") FIELD STRENGTH.

ELLIPSE RATIO IS EXPRESSED IN dB DEVIATION FROM THE MEAN DATA

RMS Uncertainty = +/- 0.5db. ATP # = 502120 REV J

TESTER W. M.

Q.A. APPROVAL



DATE 21-Mar-2003
REL HUMIDITY 37%

RELEASE # R33484
TEMP 24 DEG. C

NARDA MICROWAVE - EAST

MODEL # 8731
SERIAL # 03006

FREQ MHZ	PRE-CAL DATA	FINAL CAL DATA	ELLIPSE RATIO, dB	FINAL CORR FACTOR
10.00	0.97	0.92	+/- 0.02	1.09
13.56	1.01	0.96	+/- 0.02	1.05
27.12	1.03	0.97	+/- 0.02	1.03
40.68	1.02	0.97	+/- 0.02	1.04
50.00	1.02	0.97	+/- 0.04	1.03
75.00	1.02	0.97	+/- 0.02	1.04
100.00	1.02	0.97	+/- 0.04	1.03
150.00	1.08	1.02	+/- 0.02	0.98
200.00	1.10	1.05	+/- 0.08	0.96
250.00	1.10	1.04	+/- 0.06	0.96
300.00	1.12	1.06	+/- 0.18	0.94

MULTIPLIER = 0.951
 FREQ. DEV. (13-200 MHZ) = 0.392 DB
 FREQ. DEV. (10-300 MHZ) = 0.63 DB
 MAX. ELLIPSE RATIO (10-300 MHZ) = +/- 0.18 DB
 ORIGINAL RESISTANCE = 619 OHMS
 FINAL RESISTANCE = 589 OHMS
 THERMOCOUPLE OUTPUT AT FULL SCALE POWER DENSITY = V = 105.09 mV

PRE-CAL DATA REFLECTS THE MEAN ELLIPSE RATIO OF PROBE AS RECEIVED BY NARDA CALIBRATION DEPARTMENT, OR IS THE INITIAL, UN-ADJUSTED RATIO. (PRE-CAL x OLD CORR. FACTOR) - 1 = DEVIATION FROM PREVIOUS (OLD) CALIBRATION DATA. NOTE: NOT APPLICABLE FOR NEW PROBES. FINAL CAL DATA IS THE RATIO OF THE DISPLAYED TO THE APPLIED FIELD STRENGTH. FINAL CORR. FACTOR IS THE RECIPROCAL OF FINAL CAL DATA. FINAL CORR. FACTOR MULTIPLIED BY THE DISPLAYED FIELD STRENGTH READING GIVES THE ACTUAL ("CORRECTED") FIELD STRENGTH.

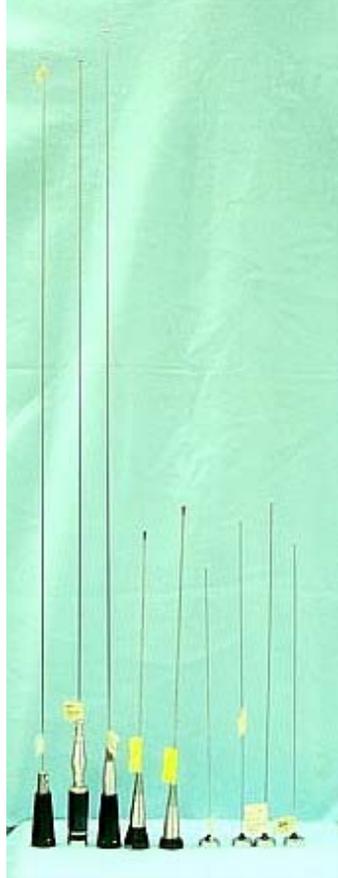
ELLIPSE RATIO IS EXPRESSED IN dB DEVIATION FROM THE MEAN DATA
 RMS Uncertainty = +/- 0.5db. ATP # = 503195 REV D

TESTER LV

Q.A. APPROVAL [Signature]



APPENDIX C
Photos of Assessed Antennas



Antenna kit numbers, from left to right; RAD4000A, HAD4014AR, RAD4010ARB, HAD4017A, HAD4006A, HAD4009A, HAD4007A, HAD4016A, HAD4008A,

APPENDIX D
Computational EME SAR Compliance Assessment