MOTOROLA

ACCREDITED

TESTING CERT #2518.01

FCC ID: AZ492FT1629
DECLARATION OF COMPLIANCE MPE ASSESSMENT

Networks & Enterprise
EME Test Laboratory
8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322

Date of Report: 7/16/07
Report Revision: Rev. O
Report ID: MPE rpt_PM1200_ 29-37MHz _ Rev O_070716_SR5222

Responsible Engineer: Stephen C. Whalen (Principle Staff EME Eng.)
Date/s Tested: 7/9/07 - 7/10/07
Manufacturer/Location: Vertex, Japan
Date submitted for test: 7/3/07
DUT Description: PM1200 29.7-37.0MHz 120W
Test TX mode(s): CW
Max. Power output: 132W, 50% Duty Cycle (PTT)
TX Frequency Bands: 29.7-37.0 MHz
Signaling type: FM
Model(s) Tested: AAM32BMD9PW5AN
Model(s) Certified: AAM32BMD9PW5AN
Serial Number(s): 1591HE0010
Classification: Occupational Controlled (Operator); General Population/Uncontrolled (Passengers/Bystanders)
Rule Part(s): 2.1091 (d)

Approved Accessories:
Antenna(s):
RAB4002ARB (29.7-36.0MHz ¼ Wave 0dBd)
RAB4003ARB (36-42MHz ¼ Wave 0dBd)

Final RF Exposure Results:
Mobile Max Calculated Magnetic Field Strength = 0.069A/m

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.

Signature on file
Deanna Zakharia – N&E EME Lab Senior Resource Manager,
Laboratory Director,

Approval Date: 7/16/2007

Certification Date: 7/16/2007

Certification No.: L1070708

TABLE OF CONTENTS

REVISION HISTORY

Date	Revision	Comments
7/16/07	O	Initial release

1.0 Product and System Description

FCC ID: AZ492FT1629, model AAM32BMD9PW5AN is a mobile transceiver that utilizes frequency modulation (FM) half duplex transmission technology. The modulation could be conventional analog voice, tone PL and DPL. This device uses the external 1/4λ antennas that are capable of transmitting within their respective ranges in the 29.7-37.0MHz bands and with transmit powers up to 132 watts maximum.

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 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 “By-standers” 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 29.7-37.0 MHz the MPE (Maximum Permissible Exposure) limit to electromagnetic energy in equivalent plane wave free-space power density is $0.2mW/cm^2$, and 0.073 – 0.074A/m for the magnetic field strength.

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 vehicles’ electrical system powered by an equivalent source equal to the car running at idle and the vehicle battery measuring 13.8 volts.

5.0 Measurement System Uncertainty Levels

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

Uncertainty Budget for Near Field Probe Measurements

	Tol. (± %)	Prob. Dist.	Divisor	u_i (±%)
Measurement System				
Survey Meter Calibration	3.0	N	1.00	3.0
Repeatability Accuracy	7.0	N	1.00	7.0
Combined Standard Uncertainty		RSS		7.6
Expanded Uncertainty		*k*=2		15

6.0 Method of Measurement

6.1 EME measurements made with trunk mounted antenna(s)

(For reference, see Illustration of antenna location and test distances in appendix A)

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 for each of the (3) test locations indicated in appendix A with 20cm increments at the test distance of 150cm from the vehicle's body, as stated in the user manual. The measurement probe sensor is rotated 180º 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.

The offered antenna mounted at the center of the trunk was 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 (Power Density) antenna/frequency was then tested at a 45º radial at the corner of the trunk, and 90º radial at the side of the trunk.

For the current test vehicle, the antenna to probe sensor separation distance is 180cm (directly behind vehicle), 226.5cm (45 degree radial) and 233cm (90 degree radial).

6.2.2 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, at both front and back seating areas, across the TX band to ascertain the highest level at the head. After the highest level is found, scans were performed vertically making two (2) additional measurements within an area approximately 40cm 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

7.0 Test Site

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

8.0 Measurement System/Equipment

Equipment Type	Model #	SN	Calibration Due Date
Automobile	1991 Ford Taurus, 4-Door		
Survey Meter	NARDA Model 8718	01122	4/30/08
Probe - E-Field (Electric Field)	NARDA Model 8722B	12023	4/30/08
Probe - H-Field (Magnetic Field)	NARDA Model 8731	03006	4/30/08

9.0 Test Unit Description

Measurements were performed on AAM32BMD9PW5AN with serial numbers 1591HE0010. The tested frequencies and associated power outputs are presented below.

Frequency (MHz)	Po (W)
29.7	120
32.0	123
35.1	130
36.5	132

10.0 Test Set-Up Description

The following is the mobile antenna test configuration used for this product.
(for reference, see Illustration of antenna location and test distances in the appendix A)

The ¼ Wave antennas RAB4002ARB (0dBd gain) and RAB4003ARB (0dBd gain) were assessed while mounted at the center of the trunk of the test vehicle.

Assessments were made internal and external to the test vehicle at the specified distances and test locations indicated in sections 6.0, 11.0, and appendix A.

11.0 Test Results Summary

Appendix D presents detailed MPE measurement information for each test configuration; person external or internal to the vehicle, TX frequency, antenna (location, model and gain), distance from antenna to probe sensor, E/H field measurements, calibration factor, MPE average over body, initial power, power density calc, power density max calc, IEEE/FCC controlled and uncontrolled limits, and maximum output power.

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

The MPE test measurements were done at 100% duty cycle test mode, then the final calculated results are based on a 50% actual duty cycle which is in accordance with the User Manual instructions.

External to vehicle - 10 measurements are averaged over the body (*Body_Avg*).
Internal to vehicle - 3 measurements are averaged over the body (*Body_Avg*).
Narda Survey Meter measures in percent of the controlled limit. Therefore the averages over the body used in the calculations below reflect percentages.

MPE results are based on a Push-To-Talk (PTT) 50% duty cycle in CW mode.

Therefore;

$$Average\_over\_Body = Body\_Avg * Controlled\_Limit$$

$$Pwr\_Density\_Calc = Average\_over\_Body * \_Duty\_Cycle$$

$$Pwr\_Density\_Max\_Calc = Pwr\_Density\_Calc * \frac{Max\_Output\_Power}{Initial\_Output\_Power}$$

Note; For *Initial Output Power*> *Max_Output_Power*, *Max_Output_Power* / *Initial Output Power* = 1

The tables below summarizes the MPE results of the E/H field test configurations for the AAM32BMD9PW5AN mobile radio. See appendices A and D respectively for test positions and detailed MPE measurement data.

TABLE 1: E-Field

Tables	Antenna Model	Antenna Location	Test Frequency (MHz)	E/H Field	Passenger / By-stander	Max Calc Pwr Density (mW/cm^2)	% of Uncontrolled Limit
Trunk Mount							
1	RAB4002ARB	Trunk	29.7	E	By-stander	0.09	45%
2	RAB4002ARB	Trunk	29.7	E	Passenger	0.04	20%
3	RAB4002ARB	Trunk	32.0	E	By-stander	0.09	45%
4	RAB4002ARB	Trunk	32.0	E	Passenger	0.06	30%
5	RAB4002ARB	Trunk	35.1	E	By-stander	0.15	75%
6	RAB4002ARB	Trunk	35.1	E	Passenger	0.04	20%
7	RAB4003ARB	Trunk	36.5	E	By-stander	0.11	55%
8	RAB4003ARB	Trunk	36.5	E	Passenger	0.01	5%
45 Degree From Trunk							
9	RAB4002ARB	Trunk	35.1	E	By-stander	0.05	25%
90 Degree From Trunk							
10	RAB4002ARB	Trunk	35.1	E	By-stander	0.04	20%

TABLE 2: H-Field

Tables	Antenna Model	Antenna Location	Test Frequency (MHz)	E/H Field	Passenger / By-stander	Max Calc Pwr Density (mW/cm^2)	**Max Calc Magnetic Field Strength (A/m)	% of Uncontrolled Limit (A/m)
Trunk Mount								
11	RAB4002ARB	Trunk	29.7	H	By-stander	0.12	0.056	76.5%
12	RAB4002ARB	Trunk	29.7	H	Passenger	0.18	0.069	93.7%
13	RAB4002ARB	Trunk	32.0	H	By-stander	0.11	0.054	74.0%
14	RAB4002ARB	Trunk	32.0	H	Passenger	0.14	0.061	83.5%
15	RAB4002ARB	Trunk	35.1	H	By-stander	0.12	0.056	77.3%
16	RAB4002ARB	Trunk	35.1	H	Passenger	0.14	0.061	83.5%
17	RAB4003ARB	Trunk	36.5	H	By-stander	0.11	0.054	74.0%
18	RAB4003ARB	Trunk	36.5	H	Passenger	0.11	0.054	74.0%
45 Degree From Trunk								
19	RAB4002ARB	Trunk	35.1	H	By-stander	0.11	0.054	74.0%
90 Degree From Trunk								
20	RAB4002ARB	Trunk	35.1	H	By-stander	0.13	0.059	80.4%

(**)All Electromagnetic field measurements were done using the Power Density H-field probe (mW/cm^2), then the results are converted to Magnetic field strength (A/m) using the following formula:

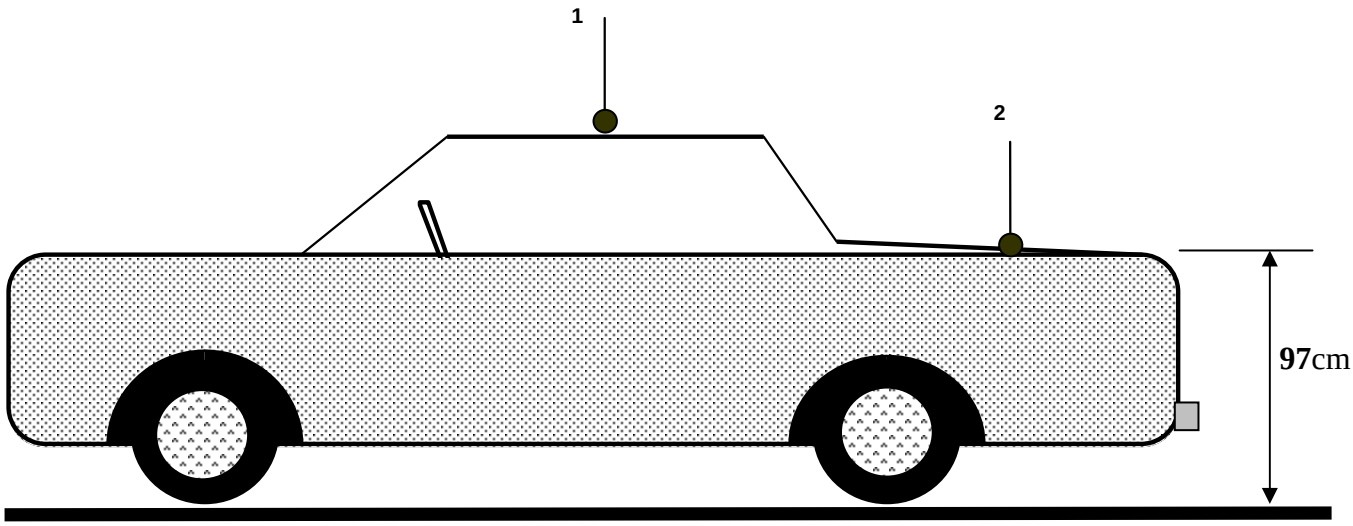
SQRT(((H*10^{-3})/377)*10^{4}), where H is H-field Power Density (mW/cm^2).

12.0 Conclusion

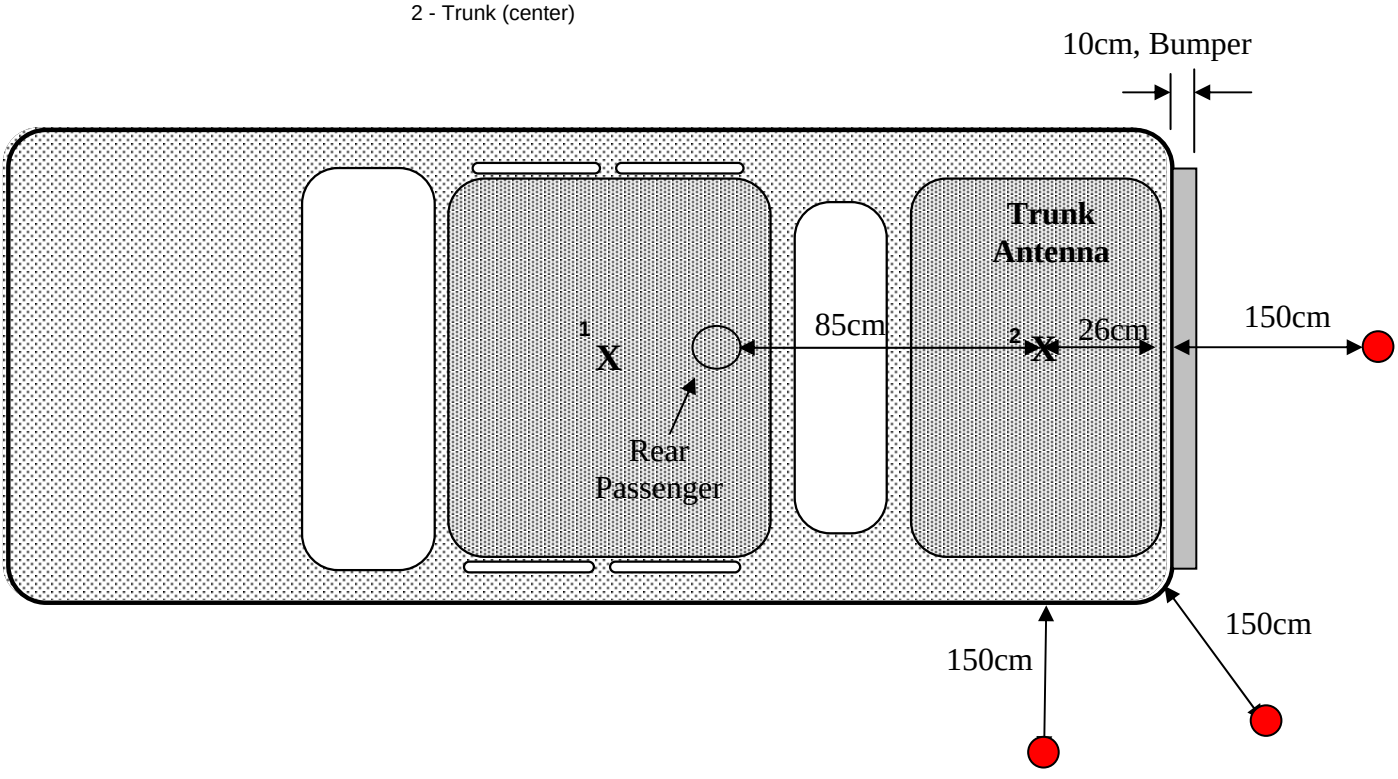
Depending on the test frequency, the AAM32BMD9PW5AN mobile assessments were performed with an output power range of 120-132W for 29.7-37.0 MHz. The highest magnetic Field strength results for the AAM32BMD9PW5AN mobile device scaled to the maximum allowable power output is 0.069A/m internal to the vehicle, and 0.059A/m external to the vehicle.
These MPE results demonstrate compliance to the FCC/IEEE General Population/Uncontrolled Exposure limit.

APPENDIX A

Illustration of Antenna Locations and Test Distances



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



APPENDIX B

Meter/Probe Calibration Certificates

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. 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: 23°C RH: 35%
Calibration Environment: TEMP: 23°C RH: 35%
Barometric Pressure (inches): 29.85
CERTIFICATE NO.: 2007041704
CLIENT: Lockheed Martin IMC, Bldg. 5100, Stennis Space Center, MS, 39529, USA
MANUFACTURER: Narda
MODEL NUMBER: 8722B & 8718
SERIAL NUMBER: 12023 & 01122
ASSET NUMBER: PRNRA002 & RFNRA001
DATE OF CALIBRATION: Monday, April 30, 2007
NAME OF CALIBRATING ORGANIZATION Liberty Labs, Inc.
CALIBRATED BY: DSG DSG
RE-CERTIFICATION DATE: 1 year from calibration date. This is a recommended recalibration interval but there are any number of factors that may cause the calibration item to drift out of calibration before the recommended interval has expired. Customer has been contacted concerning re-certification interval and documentation has been received and is on-file.

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.

LL, Inc.

Michael W. Howard

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

ACCREDITED
Certificate Number: 2123.01

ispb-position

Page 1 of 4

Rev. D: Issue Date 12/12/03

Probe01.txt

Date of Calibration: 30-April-2007
Date Printed: Monday, April 30, 2007
Customer Name: Lockheed Martin IMC
Probe Manufacturer: Narda
Probe Model: 8722B & 8718
Probe Serial No.: 12023 & 01122
Temperature (Deg C): 23
Humidity (%): 35
Notes: Calibrated with 8718 Monitor, s/n 01122.
CAL CERT #: 2007041704

	Correction Factors	
Frequency in MHz	Mutiplier	dB
1	3.15	9.96
15	1.11	0.87
30	0.74	-2.66
75	0.60	-4.44
100	0.62	-4.15
150	0.47	-6.56
200	0.57	-4.85
250	0.67	-3.45
300	0.66	-3.57
400	0.68	-3.40
500	0.62	-4.16
600	0.42	-7.62
700	0.40	-8.05
800	0.44	-7.12
900	1.14	1.10
1000	0.64	-3.85
2000	0.65	-3.71
2450	0.76	-2.40
3000	0.83	-1.57
3500	1.18	1.41
4000	1.08	0.67
5000	0.76	-2.37
5500	0.88	-1.07
6000	0.99	-0.08
7000	0.72	-2.83
10000	0.93	-0.64
10500	0.72	-2.80
11000	0.70	-3.07

Page 1

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. 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: 23°C RH: 35%
Calibration Environment: TEMP: 23°C RH: 35%
Barometric Pressure (inches): 29.85
CERTIFICATE NO.: 2007041703
CLIENT: Lockheed Martin IMC, Bldg. 5100, Stennis Space Center, MS, 39529, USA
MANUFACTURER: Narda
MODEL NUMBER: 8731 & 8718
SERIAL NUMBER: 03006 & 01122
ASSET NUMBER: PRNRH003 & RFNRA001
DATE OF CALIBRATION: Monday, April 30, 2007
NAME OF CALIBRATING ORGANIZATION Liberty Labs, Inc.
CALIBRATED BY: DSG DSG
RE-CERTIFICATION DATE: 1 year from calibration date. This is a recommended recalibration interval but there are any number of factors that may cause the calibration item to drift out of calibration before the recommended interval has expired. Customer has been contacted concerning re-certification interval and documentation has been received and is on file.

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.

LL, Inc.

Michael W. Howard

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

ACCREDITED
Certificate Number: 2123.01

ispb-position

Page 1 of 4

Rev. D: Issue Date 12/12/03

Probe01.txt

Date of Calibration: 30-April-2007
Date Printed: Monday, April 30, 2007
Customer Name: Lockheed Martin IMC
Probe Manufacturer: Narda
Probe Model: 8731 & 8718
Probe Serial No.: 03006 & 01122
Temperature (Deg C): 23
Humidity (%): 35
Notes:
CAL CERT #: 2007041703

Correction Factors for mW/cm^2

Frequency in MHz	Multiplier	in dB
10	0.54	-5.32
15	0.63	-4.05
30	1.46	3.27
50	1.34	2.54
75	0.51	-5.92
100	0.67	-3.42
150	1.29	2.23
200	0.87	-1.25
250	0.91	-0.86
300	1.70	4.62

Page 1

APPENDIX C

Photos of Assessed Antenna

Antenna kit numbers: RAB4002ARB, RAB4003ARB

APPENDIX D

Detailed MPE Measurement Data

Table 1

External Vehicle MPE Assessment @ 29.7 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	E	0.75	0.167	120.0	0.084	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	8.0%		6	120	22.4%		1.00	0.20
2	40	8.0%		7	140	23.5%			
3	60	9.4%		8	160	23.8%			
4	80	11.3%		9	180	21.9%			**RF Po (*Max)**
5	100	21.0%		10	200	17.7%			132.0

Table 2

Internal Vehicle MPE Assessment @ 29.7 MHz										
Antenna Location	**Antenna**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	Highest Reading	E	0.75	0.068	0.061	120.0	0.034	0.04
Measurement Grid										
Test Position		**% of Control Limit Head**		**% of Control Limit Chest**		**% of Control Limit Lower Trunk**		IEEE Controlled Limit:		1.00
Back Seat		10.5%		5.7%		4.3%		IEEE Uncontrolled Limit:		0.20
Front Seat		9.1%		4.6%		4.5%			**RF Po (*Max):**	132.0

Table 3

External Vehicle MPE Assessment @ 32 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	E	0.73	0.159	123.0	0.080	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	5.5%		6	120	20.5%		1.00	0.20
2	40	5.1%		7	140	21.9%			
3	60	6.7%		8	160	24.7%			
4	80	10.3%		9	180	25.0%			**RF Po (*Max)**
5	100	16.3%		10	200	23.4%			132.0

Table 4

Internal Vehicle MPE Assessment @ 32 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	Highest Reading	E	0.73	0.054	0.107	123.0	0.054	0.06

Measurement Grid					
Test Position	% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk	IEEE Controlled Limit:	1.00
Back Seat	6.4%	5.6%	4.2%	IEEE Uncontrolled Limit:	0.20
Front Seat	13.4%	8.1%	10.7%	RF Po (*Max):	132.0

Table 5

External Vehicle MPE Assessment @ 35.1 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	E	0.72	0.291	130.0	0.146	0.15

Measurement Grid							
Test Position	Height (cm)	% of Control Limit	Test Position	Height (cm)	% of Control Limit	IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	7.9%	6	120	36.8%	1.00	0.20
2	40	12.3%	7	140	40.5%		
3	60	18.0%	8	160	42.4%		
4	80	25.1%	9	180	41.5%		RF Po (*Max)
5	100	28.7%	10	200	38.1%		132.0

Table 6

Internal Vehicle MPE Assessment @ 35.1 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	Highest Reading	E	0.72	0.024	0.087	130.0	0.044	0.04

Measurement Grid					
Test Position	% of Control Limit Head	% of Control Limit Chest	% of Control Limit Lower Trunk	IEEE Controlled Limit:	1.00
Back Seat	2.6%	2.3%	2.2%	IEEE Uncontrolled Limit:	0.20
Front Seat	7.0%	8.9%	10.2%	RF Po (*Max):	132.0

Table 7

External Vehicle MPE Assessment @ 36.5 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4003ARB (36-42MHz)	2.15	150	E	0.72	0.222	132.0	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	14.7%		6	120	27.2%		1.00	0.20
2	40	15.9%		7	140	26.8%			
3	60	17.8%		8	160	26.8%			
4	80	20.2%		9	180	27.0%			**RF Po (*Max)**
5	100	25.7%		10	200	20.2%			132.0

Table 8

Internal Vehicle MPE Assessment @ 36.5 MHz										
Antenna Location	**Antenna**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4003ARB (36-42MHz)	2.15	Highest Reading	E	0.72	0.025	0.028	132.0	0.014	0.01
Measurement Grid										
Test Position		**% of Control Limit Head**		**% of Control Limit Chest**		**% of Control Limit Lower Trunk**			IEEE Controlled Limit:	1.00
Back Seat		3.4%		2.2%		1.9%			IEEE Uncontrolled Limit:	0.20
Front Seat		3.0%		3.0%		2.3%			**RF Po (*Max):**	132.0

Table 9 -- 45 Degree

External Vehicle MPE Assessment @ 35.1 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	E	0.72	0.094	130.0	0.047	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	9.2%		6	120	10.6%		1.00	0.20
2	40	7.7%		7	140	10.1%			
3	60	7.9%		8	160	10.9%			
4	80	8.6%		9	180	8.7%			**RF Po (*Max)**
5	100	12.5%		10	200	7.3%			132.0

Table 10 -- 90 Degree

External Vehicle MPE Assessment @ 35.1 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	E	0.72	0.084	130.0	0.042	0.04
Measurement Grid									
Test Position	**Height (cm)**	**% of Control Limit**		**Test Position**	**Height (cm)**	**% of Control Limit**		IEEE Controlled Limit	IEEE Uncontrolled Limit
1	20	5.2%		6	120	10.2%		1.00	0.20
2	40	5.4%		7	140	10.7%			
3	60	5.5%		8	160	10.3%			
4	80	7.2%		9	180	10.7%			**RF Po (*Max)**
5	100	9.6%		10	200	9.6%			132.0

Table 11

External Vehicle MPE Assessment @ 29.7 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	H	1.44	0.218	120.0	0.109	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	0.27		6	120	0.17		1.02	0.20
2	40	0.24		7	140	0.17			
3	60	0.24		8	160	0.19			
4	80	0.26		9	180	0.23			**RF Po (*Max)**
5	100	0.18		10	200	0.19			132.0

Table 12

Internal Vehicle MPE Assessment @ 29.7 MHz										
Antenna Location	**Antenna**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	Highest Reading	H	1.44	0.330	0.093	120.0	0.17	0.18
Measurement Grid										
Test Position		**Meas. Pwr. Density (mW/cm^2) Head**		**Meas. Pwr. Density (mW/cm^2) Chest**		**Meas. Pwr. Density (mW/cm^2) Lower Trunk**		IEEE Controlled Limit:		1.02
Back Seat		0.39		0.39		0.21		IEEE Uncontrolled Limit:		0.20
Front Seat		0.09		0.09		0.10			**RF Po (*Max):**	132.0

Table 13

External Vehicle MPE Assessment @ 32 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	H	1.45	0.212	123.0	0.106	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	0.19	6	120	0.24			1.00	0.20
2	40	0.28	7	140	0.19				
3	60	0.30	8	160	0.15				
4	80	0.29	9	180	0.12				**RF Po (*Max)**
5	100	0.27	10	200	0.09				132.0

Table 14

Internal Vehicle MPE Assessment @ 32 MHz										
Antenna Location	**Antenna**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	Highest Reading	H	1.45	0.260	0.163	123	0.130	0.14
Measurement Grid										
Test Position		**Meas. Pwr. Density (mW/cm^2) Head**		**Meas. Pwr. Density (mW/cm^2) Chest**		**Meas. Pwr. Density (mW/cm^2) Lower Trunk**		IEEE Controlled Limit:		1.00
Back Seat		0.34		0.20		0.24		IEEE Uncontrolled Limit:		0.20
Front Seat		0.10		0.15		0.24			**RF Po (*Max):**	132.0

Table 15

External Vehicle MPE Assessment @ 35.1 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	H	1.43	0.237	130.0	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	0.26	6	120	0.18			1.00	0.20
2	40	0.26	7	140	0.30				
3	60	0.25	8	160	0.25				
4	80	0.25	9	180	0.20				**RF Po (*Max)**
5	100	0.26	10	200	0.16				132.0

Table 16

Internal Vehicle MPE Assessment @ 35.1 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm^2) Back	Front	Initial Power (W)	Pwr. Density Calc. (mW/cm^2)	Pwr. Density Max Calc. (mW/cm^2)
Trunk (cnt)	RAB4003ARB (36-42MHz)	2.15	Highest Reading	H	1.43	0.270	0.117	130.0	0.135	0.14
Measurement Grid										
Test Position		Meas. Pwr. Density (mW/cm^2) Head		Meas. Pwr. Density (mW/cm^2) Chest		Meas. Pwr. Density (mW/cm^2) Lower Trunk			IEEE Controlled Limit:	1.00
Back Seat		0.36		0.22		0.23			IEEE Uncontrolled Limit:	0.20
Front Seat		0.13		0.13		0.09			RF Po (*Max):	132.0

Table 17

External Vehicle MPE Assessment @ 36.5 MHz									
Antenna Location	Antenna Model	Gain (dBi)	Meas. Distance (cm)	E/H Field	Calibration 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)	RAB4003ARB (36-42MHz)	2.15	150	H	1.42	0.225	132.0	0.113	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	0.25	6	120	0.30			1.00	0.20
2	40	0.23	7	140	0.21				
3	60	0.23	8	160	0.19				
4	80	0.27	9	180	0.17				RF Po (*Max)
5	100	0.28	10	200	0.12				132.0

Table 18

Internal Vehicle MPE Assessment @ 36.5 MHz										
Antenna Location	Antenna	Gain (dBi)	Meas. Distance (cm)	E/H Field	Calibration Factor	Average over Head, Chest, Lower Trunk Back/Front seats (mW/cm^2) Back	Front	Initial Power (W)	Pwr. Density Calc. (mW/cm^2)	Pwr. Density Max Calc. (mW/cm^2)
Trunk (cnt)	RAB4003ARB (36-42MHz)	2.15	Highest Reading	H	1.42	0.217	0.107	132	0.108	0.11
Measurement Grid										
Test Position		Meas. Pwr. Density (mW/cm^2) Head		Meas. Pwr. Density (mW/cm^2) Chest		Meas. Pwr. Density (mW/cm^2) Lower Trunk			IEEE Controlled Limit:	1.00
Back Seat		0.31		0.17		0.17			IEEE Uncontrolled Limit:	0.20
Front Seat		0.10		0.11		0.11			RF Po (*Max):	132.0

Table 19 -- 45 Degree

External Vehicle MPE Assessment @ 35.1 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	H	1.43	0.218	130.0	0.109	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	0.46	6	120	0.24		1.00	0.20	
2	40	0.25	7	140	0.16				
3	60	0.22	8	160	0.17				
4	80	0.24	9	180	0.10			**RF Po (*Max)**	
5	100	0.23	10	200	0.11			132.0	

Table 20 -- 90 Degree

External Vehicle MPE Assessment @ 35.1 MHz									
Antenna Location	**Antenna Model**	**Gain (dBi)**	**Meas. Distance (cm)**	**E/H Field**	**Calibration 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)	RAB4002ARB (30-36 MHz)	2.15	150	H	1.43	0.250	130.0	0.125	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	0.27	6	120	0.24		1.00	0.20	
2	40	0.24	7	140	0.24				
3	60	0.25	8	160	0.23				
4	80	0.26	9	180	0.23			**RF Po (*Max)**	
5	100	0.25	10	200	0.29			132.0	