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|  <b>MOTOROLA SOLUTIONS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <br><b>CERTIFICATE 2518.01</b> |
| <b>DECLARATION OF COMPLIANCE: MPE ASSESSMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                   |
| <b>EME Test Laboratory</b><br>8000 West Sunrise Blvd<br>Fort Lauderdale, FL. 33322                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Date of Report:</b> November 24, 2015<br><b>Report Revision:</b> C                                             |
| <p> <b>Responsible Engineer:</b> William Elliott (EME Test Engineer)<br/> <b>Report author:</b> William Elliott (EME Test Engineer)<br/> <b>Date(s) Tested:</b> 8/29/2015<br/> <b>Manufacturer:</b> Motorola Solutions Inc.<br/> <b>Date submitted for test:</b> 08/24/2015<br/> <b>DUT Description:</b> UHF Vehicular Mobile Radio with internal Bluetooth, GPS and WLAN.<br/> <b>Test TX mode(s):</b> CW<br/> <b>Max. Power output:</b> 30 W (UHF), 7.1 mW (Bluetooth), 17.8 mW (WLAN 802.11b), 13.2 mW (WLAN 802.11g), 8.3 mW (WLAN 802.11n)<br/> <b>TX Frequency Bands:</b> 403 – 470 MHz; 2.402-2.480 GHz (Bluetooth), 2.412 – 2.462 GHz (WLAN)<br/> <b>Signaling type:</b> FM; 4FSK 2:1 TDMA (LMR) / FHSS; <math>\pi/4</math> DQPSK; 8DPSK; DSSS; GFSK (Bluetooth) / BPSK; QPSK; 16 QAM; 64 QAM (WLAN)<br/> <b>Model(s) Tested:</b> PMUE3645B<br/> <b>Model(s) Certified:</b> PMUE3645B; AAM28QNC9RA1AN; AAM28QNN9RA1AN<br/> <b>Serial Number(s):</b> 511TRMB904<br/> <b>Classification:</b> Occupational/Controlled Environment<br/> <b>FCC ID:</b> AZ492FT7080<br/>         406.1 – 470 MHz; 2.402-2.480 GHz (Bluetooth), 2.412 – 2.462 GHz (WLAN)<br/>         This report contains results that are immaterial for FCC equipment approval, which are clearly identified.<br/> <b>IC:</b> 109U-92FT7080<br/>         406 – 430 MHz; 450 – 470 MHz; 2.402-2.480 GHz (Bluetooth), 2.412 – 2.462 GHz (WLAN)<br/>         This report contains results that are immaterial for IC equipment approval, which are clearly identified.<br/>         The MPE results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits. FCC rules require compliance for Passengers and Bystanders to the FCC General Population/Uncontrolled limits. The test results clearly demonstrate compliance with ICNIRP Guidelines for limiting exposure in time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz).       </p> |                                                                                                                   |
| <p>         Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 4.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola Solutions Inc. EME Laboratory.<br/>         I attest to the accuracy of the data and assume full responsibility for the completeness of these measurements.<br/>         This reporting format is consistent with the suggested guidelines of the TIA TSB-159 April 2006<br/>         The results and statements contained in this report pertain only to the device(s) evaluated herein.       </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                   |
| <br><b>Deanna Zakharia</b><br>EME Lab Senior Resource Manager and<br>Laboratory Director<br><br>Approval Date: 11/24/2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |

**Document Revision History**

| <b>Date</b> | <b>Revision</b> | <b>Comments</b>                                |
|-------------|-----------------|------------------------------------------------|
| 09/15/2015  | A               | Initial Release                                |
| 10/12/2015  | B               | Revise WLAN and BT Powers                      |
| 11/24/2015  | C               | Revised WLAN Frequencies and BT Powers for FCC |

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## 1.0 Introduction

This report details the test setup, test equipment and test results of Maximum Permissible Exposure (MPE) performed at Motorola Solutions' outside test site for product model PMUE3645B.

## 2.0 FCC MPE Summary

**Table 1**

| Equipment Class       | Frequency band (MHz) | Passenger (mW/cm <sup>2</sup> ) | Bystander (mW/cm <sup>2</sup> ) |
|-----------------------|----------------------|---------------------------------|---------------------------------|
| TNB                   | 406.1 - 470          | 0.16                            | 0.14                            |
| *DSS                  | 2402 – 2480          | NA                              | NA                              |
| *DTS                  | 2412 – 2462          | NA                              | NA                              |
| *Simultaneous Results |                      | NA                              | NA                              |

\*Note Results not required per KDB 447498

## 3.0 Abbreviations / Definitions

$\pi/4$  DQPSK: Differential Quadrature Phase-Shift Keying with a  $\pi/4$  offset to phase changes

4FSK: Four Level Frequency Shift Keying

8 DPSK: 8-level Differential Phase-Shift Keying

16 QAM: 16 Quadrature Amplitude Modulation

64 QAM: 64 Quadrature Amplitude Modulation

APCO: Association of Public-Safety Communications Officials

BPSK: Binary Phase-Shift Keying

BS: Bystander

BT: Bluetooth

CNR: Calibration Not Required

CW: Continuous Wave

DUT: Device Under Test

EME: Electromagnetic Energy

FHSS: Frequency Hopping Spread Spectrum

FM: Frequency Modulation

FSK: Frequency Shift Keying

GFSK: Gaussian Frequency-Shift Keying

GPS: Global Positioning System

LMR: Land Mobile Radio

MPE: Maximum Permissible Exposure

NA: Not Applicable

PB: Passenger Backseat

PF: Passenger Front seat

PTT: Push to Talk

QPSK: Quadrature Phase-Shift Keying

TDMA: Time Division Multiple Access

WLAN: Wireless Local Area Network

#### 4.0 Referenced Standards and Guidelines

This product is designed to comply with the following applicable national and international standards and guidelines.

- United States Federal Communications Commission, Code of Federal Regulations; Rule Part 47CFR § 1.1310, § 2.1091 (d) and § 2.1093 for RF Exposure, where applicable.
- Federal Communications Commission, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”, OET Bulletin 65 (Edition 97-01), FCC, Washington, D.C.: August 1997.
- American National Standards Institute (ANSI) / Institute of Electrical and Electronics Engineers (IEEE) C95. 1-1999
- American National Standards Institute (ANSI) / Institute of Electrical and Electronics Engineers (IEEE) C95. 1-1992. Specific to FCC rules and regulations.
- Institute of Electrical and Electronics Engineers (IEEE) C95.3-2002
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6 (2015), Limits of Human Exposure to Radio frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz
- RSS-102 (Issue 5) – Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
- FCC KDB – 447498 D01 General RF Exposure Guidance v05r02 (02/07/2014)
- FCC KDB – 865664 D02 RF Exposure Reporting v01r01 (05/28/2013)

#### 5.0 Power Density Limits

**Table 2 – Occupational / Controlled Exposure Limits**

| Frequency Range (MHz) | FCC OET Bulletin 65<br>mW/cm <sup>2</sup> | ICNIRP<br>W/m <sup>2</sup> | IEEE C95.1 1992/1999<br>mW/cm <sup>2</sup> | IEEE C95.1 2005<br>W/m <sup>2</sup> | RSS-102 Issue 5 2015<br>W/m <sup>2</sup> |
|-----------------------|-------------------------------------------|----------------------------|--------------------------------------------|-------------------------------------|------------------------------------------|
| 10 - 20               |                                           |                            |                                            |                                     | 10.0                                     |
| 20 – 48               |                                           |                            |                                            |                                     | $44.72 / f^{0.5}$                        |
| 30 – 300              | 1.0                                       |                            |                                            |                                     |                                          |
| 48 – 100              |                                           |                            |                                            |                                     | 6.455                                    |
| 10 – 400              |                                           | 10.0                       |                                            |                                     |                                          |
| 100 – 300             |                                           |                            | 1.0                                        | 10.0                                |                                          |
| 100 – 6,000           |                                           |                            |                                            |                                     | $0.6455 f^{0.5}$                         |
| 300 – 1,500           | $f/300$                                   |                            |                                            |                                     |                                          |
| 300 - 3,000           |                                           |                            | $f/300$                                    | $f/30$                              |                                          |
| 400 – 2,000           |                                           | $f/40$                     |                                            |                                     |                                          |
| 1,500 – 15,000        |                                           |                            |                                            |                                     |                                          |

**Table 2 (Cont.) – Occupational / Controlled Exposure Limits**

| Frequency Range (MHz) | FCC OET Bulletin 65 | ICNIRP           | IEEE C95.1 1992/1999 | IEEE C95.1 2005  | RSS-102 Issue 5 2015    |
|-----------------------|---------------------|------------------|----------------------|------------------|-------------------------|
|                       | mW/cm <sup>2</sup>  | W/m <sup>2</sup> | mW/cm <sup>2</sup>   | W/m <sup>2</sup> | W/m <sup>2</sup>        |
| 1,500 – 100,000       | 5.0                 |                  |                      |                  |                         |
| 2,000 – 300,000       |                     | 50.0             |                      |                  |                         |
| 3,000 – 300,000       |                     |                  | 10.0                 | 100.0            |                         |
| 6,000 – 15,000        |                     |                  |                      |                  | 50.0                    |
| 15000 – 150,000       |                     |                  |                      |                  | 50.0                    |
| 150000 – 300,000      |                     |                  |                      |                  | $3.33 \times 10^{-4} f$ |

**Table 3 – General Population / Uncontrolled Exposure Limits**

| Frequency Range (MHz) | FCC OET Bulletin 65 | ICNIRP           | IEEE C95.1 1992/1999 | IEEE C95.1 2005  | RSS-102 Issue 5 2015    |
|-----------------------|---------------------|------------------|----------------------|------------------|-------------------------|
|                       | mW/cm <sup>2</sup>  | W/m <sup>2</sup> | mW/cm <sup>2</sup>   | W/m <sup>2</sup> | W/m <sup>2</sup>        |
| 10 - 20               |                     |                  |                      |                  | 2.0                     |
| 20 – 48               |                     |                  |                      |                  | $8.944 / f^{0.5}$       |
| 30 – 300              | 0.2                 |                  |                      |                  |                         |
| 48 – 300              |                     |                  |                      |                  | 1.291                   |
| 10 – 400              |                     | 2.0              |                      |                  |                         |
| 100 – 300             |                     |                  | 0.2                  |                  |                         |
| 100 – 400             |                     |                  |                      | 2.0              |                         |
| 300 – 1,500           | $f/1,500$           |                  |                      |                  |                         |
| 300 – 6000            |                     |                  |                      |                  | $0.02619 f^{0.6834}$    |
| 400 – 2,000           |                     | $f/200$          |                      | $f/200$          |                         |
| 300 – 15,000          |                     |                  | $f/1,500$            |                  |                         |
| 1,500 – 15,000        |                     |                  |                      |                  |                         |
| 1,500 – 100,000       | 1.0                 |                  |                      |                  |                         |
| 2,000 – 100,000       |                     |                  |                      | 10.0             |                         |
| 2,000 – 300,000       |                     | 10.0             |                      |                  |                         |
| 6,000 – 15,000        |                     |                  |                      |                  | 10.0                    |
| 15,000 – 150,000      |                     |                  |                      |                  | 10.0                    |
| 150,000 - 300,000     |                     |                  |                      |                  | $6.67 \times 10^{-5} f$ |

## 6.0 $N_c$ Test Channels

The number of test channels is determined by using Equation 1 below. This equation is available in FCC's KDB 447498. The test channels are appropriately spaced across the antenna's frequency range.

Equation 1 – Number of test channels

$$N_c = \text{Round} \{ [100(f_{\text{high}} - f_{\text{low}})/f_c]^{0.5} \times (f_c / 100)^{0.2} \}$$

where  $N_c$  is the number of test channels,  $f_{\text{high}}$  and  $f_{\text{low}}$  are the highest and lowest frequencies within the transmission band,  $f_c$  is the mid-band frequency, and frequencies are in MHz.

## 7.0 Measurement Equipment

**Table 4 - Equipment**

| Equipment Type                  | Model #                             | SN                    | Calibration Date | Calibration Due Date |
|---------------------------------|-------------------------------------|-----------------------|------------------|----------------------|
| Automobile                      | 2003 Ford Crown Victoria, 4-Door    | NA                    | NA               | NA                   |
| Survey Meter<br>Probe – E-Field | ETS Model HI-2200<br>ETS Model E100 | 00086316<br>000153632 | 12/10/2014       | 12/10/2015           |

E-field measurements are in mW/cm<sup>2</sup>.

## 8.0 Measurement System Uncertainty Levels

**Table 5 - Uncertainty Budget for Near Field Probe Measurements**

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

## 9.0 Product and System Description

Model PMUE3645B is a mobile transceiver that utilizes analog and digital two-way radio communications, WLAN, Bluetooth and GPS technologies. The analog modulation scheme uses narrowband Frequency Modulation (FM). The digital modulation scheme uses 4 Level Frequency Shift Keying (4FSK) and Time Division Multiple Access (TDMA). TDMA allocates portions of the RF signal by dividing time into two slots (2 slot TDMA). The system can accommodate 2-voice channels in a standard 12.5 kHz channel. Transmission from a unit or base station is accommodated in time-slot lengths of 30 milliseconds and frame lengths of 60 milliseconds. This product supports voice in analog mode, and both voice and data modes in digital mode.

This device operates in a half duplex system. A half duplex system only allows the user to transmit or receive. This device cannot transmit and receive simultaneously. The user must stop transmitting in order to receive a signal or listen for a response, regardless of PTT button or use of voice activated audio accessories. This type of operation, along with the RF safety booklet, which instructs the user to transmit no more than 50% of the time, justifies the use of 50% duty factor for this device.

The maximum duty cycle for TDMA is 1:2 (50%) and is controlled by software. The FM signal is continuous. However, because of hand shaking or Push-To-Talk (PTT) between users and/or base stations a conservative 50% duty cycle is applied. The TDMA mode was not tested because its duty cycle is inherently 50% and would include an additional 50% duty cycle for PTT.

This device incorporates a Bluetooth device which is Frequency Hopping Spread Spectrum (FHSS) technology. The Bluetooth radio modem is used to wirelessly link audio accessories. The maximum transmission duty cycle is imposed by the Bluetooth standard and for this product is 77%.

This device also incorporates a WLAN transmitter including 802.11b, 802.11g and 802.11n. 802.11b uses direct-sequence spread spectrum modulation (DSSS) and Complementary Code Keying (CCK). 802.11g and 802.11n use orthogonal frequency-division multiplexing (OFDM). 802.11g uses Binary Phase-Shift Keying (BPSK), Quadrature Phase-Shift Keying (QPSK), and Quadrature Amplitude Modulation (16QAM, 64QAM). 802.11n uses Modulation and Coding Schemes (MCS0, MCS1, MCS2, MCS3, MCS4, MCS5, MCS6 MCS7). The maximum duty cycle for 802.11b is 99.8%, for 802.11g is 99.2% and for 802.11n is 99.1%.

The intended use of the radio is PTT while the device is properly installed in a vehicle with an external antenna mounted at the roof or trunk (UHF only). The Bluetooth / WLAN transmitters use a combined antenna that is internal to the radio itself. It is located behind the control head on the left side of the radio. The Bluetooth / WLAN transmitters cannot transmit at the same time.

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

Accordingly this product is classified as Occupational/Controlled Exposure. However, in accordance with FCC requirements, the passengers inside the vehicle and the bystanders external to the vehicle are evaluated to the General Population/Uncontrolled Exposure Limits. (Note that “Bystanders” as used herein are people other than operator)

## **10.0 Additional Options and Accessories**

Refer to Table 6 for complete list of tested antennas.

PMAN4004A – Optional GPS Base

Below are additional antenna kits which include the tested antennas, mounting hardware, and optional GPS base:

PMAE4030A – Includes GPS base and tested antenna PMAE4039A.  
PMAE4031A - Includes GPS base and tested antenna PMAE4041A.  
PMAE4032A - Includes GPS base and tested antenna PMAE4040A.  
PMAE4033A - Includes GPS base and tested antenna PMAE4042A.  
PMAE4034A - Includes GPS base and tested antenna PMAE4043A.  
HAE6019A - Includes GPS base and tested antenna HAE6029A.

## **11.0 Test Set-Up Description**

Assessments were performed with mobile radio installed in the test vehicle while engine was at idle, at the specified distances and test locations indicated in sections 11.0, 12.0 and Appendix A.

All antennas described in Table 6 were considered in order to develop the test plan for this product. Antennas were installed and tested per their appropriate mount locations (Roof / Trunk) and defined test channels.

The system was tested using a 16’ Teflon RG58A/U cable attaching the radio to the transmit antenna. This cable is shorter than the 17’ ARG-58U cables supplied in the customer kits for connecting the radio to the transmit antenna. The cable used in the test setup also has lower attenuation over the test frequency range than the cable provided in the customer kits. The use of a shorter cable with lower attenuation in the test setup ensures that the test data is more conservative with regards to the actual installation. Cable losses are reported in Appendix A.

## **12.0 Method of Measurement with trunk mounted antenna(s)**

### **12.1 External/Bystander vehicle MPE measurements**

Antenna is located at the center of the trunk. Refer to Appendix A for antenna location and distance.

MPE measurements for bystander (BS) conditions are determined by taking the average of (10) measurements in a 2 m vertical line for each of the (3) bystander test locations indicated in Appendix A with 20 cm height increments, with antenna to probe sensor separation distance of 62 cm (for rated conducted power from 15 to 39 W), 104 cm (45 degree radial) and 110.5 cm (90 degree radial). The separation distance used for testing is

defined from the antenna whereas the RF safety booklet defines the same distance from the vehicle body to ensure that the assessment is applicable to other vehicles. The measurement probe is positioned orthogonal to antenna (typically parallel to ground with a vertically mounted antenna) and aimed directly at the antenna's axis. These measurements are representative of persons other than the operator standing next to the vehicle.

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

**Note: The distance from the centered trunk-mounted antenna to the rear edge of the vehicle is 42cm and the distance from the rear edge of the vehicle to the survey probe sensor is 20cm.**

## **12.2 Internal/Passenger vehicle MPE measurements**

Antenna is located toward the center of the trunk at a minimum 85cm from backseat passenger. Users are instructed, per installation manual, to mount antennas on the roof only if a minimum 85cm cannot be achieved. Refer to Appendix A for antenna location and distance.

MPE measurements for passenger front seat (PF) and backseat (PB) conditions are determined by taking the average of the (3) measurements (Head, Chest, and Lower Trunk) inside the vehicle for both the front and back seats.

The backseat is a bench seat and therefore each position (Head, Chest & Lower Trunk) were scanned across (horizontally) the seat starting from the middle of the seat to the edge of the seat stopping 20 cm from the vehicle door. Similar process was used in the front bucket seat.

The probe handle is oriented parallel (horizontal) to the ground and pointed towards the back of the vehicle. The probe handle is not oriented normal to the seat surface. The probe head (incorporating the field sensors) is scanned continuously (using the max-hold function available in the meter) along three test axes which are parallel to the seat angle (intended as the line determined by the intersection of the plane of the seat and the plane of the backrest) and are 20 cm from the seat surface. One test axis is at the Head height, another is at the Chest height, and another is at the Lower Trunk height. The maximum field level value recorded for each test axis is logged. The MPE is determined by averaging these three maximum values regardless of the geometrical location where they were observed. For instance, the locations of the three maxima may lie on different vertical (relative to ground) lines.

This approach leads to results that are representative of the exposure of vehicle occupants since it is based on an average across the body portions closest to the antenna for both trunk and roof mount positions, and is conservatively biased because the highest results for each test axis are combined, e.g. the highest head exposure could be in the middle of the seat while the highest lower trunk exposure

could be closer to the door.

### **13.0 Method of Measurement with roof mounted antenna(s)**

#### **13.1 External/Bystander vehicle MPE measurements**

Antenna is located at the center of the roof. Refer to Appendix A for antenna location and distance.

MPE measurements for bystander (BS) conditions are determined by taking the average of (10) measurements in a 2m vertical line for the test location indicated in Appendix A with 20cm increments at the test distance of 117cm from the antenna under test. The measurement probe is positioned orthogonal to antenna (typically parallel to ground with a vertically mounted antenna) and aimed directly at the antenna's axis. These measurements are representative of persons other than the operator standing next to the vehicle.

**Note: Actual test distance was approximately 117cm from centered roof-mounted antenna to the probe element (97cm from antenna to edge of car door and 20cm from the edge of the car door to the survey probe sensor); this is the closest distance that can be achieved to a centered roof-mounted antenna used for MPE compliance assessment herein.**

#### **13.2 Internal/Passenger vehicle MPE measurements**

Antenna is located at the center of the roof. Refer to Appendix A for antenna location and distance.

MPE measurements for passenger front seat (PF) and backseat (PB) conditions are determined by taking the average of the (3) measurements (Head, Chest, and Lower Trunk) inside the vehicle for both the front and back seats.

The backseat is a bench seat and therefore each position (Head, Chest & Lower Trunk) were scanned across (horizontally) the seat starting from the middle of the seat to the edge of the seat stopping 20 cm from the vehicle door. Similar process was used in the front bucket seat.

The probe handle is oriented parallel (horizontal) to the ground and pointed towards the back of the vehicle. The probe handle is not oriented normal to the seat surface. The probe head (incorporating the field sensors) is scanned continuously (using the max-hold function available in the meter) along three test axes which are parallel to the seat angle (intended as the line determined by the intersection of the plane of the seat and the plane of the backrest) and are 20 cm from the seat surface. One test axis is at the Head height, another is at the Chest height, and another is at the Lower Trunk height. The maximum field level value recorded for each test axis is logged. The MPE is determined by averaging these three maximum values regardless of the geometrical location where they were observed. For instance, the locations of the three maxima may lie on different vertical (relative to ground) lines.

This approach leads to results that are representative of the exposure of vehicle occupants since it is based on an average across the body portions closest to the antenna for both trunk and roof mount positions, and is conservatively biased because the highest results for

each test axis are combined, e.g. the highest head exposure could be in the middle of the seat while the highest lower trunk exposure could be closer to the door.

## 14.0 MPE Calculations

The final MPE results for this mobile radio are presented in section 15.0 Tables 7 - 10. These results are based on 50% duty cycle for PTT.

Below is an explanation of how the MPE results are calculated. Refer to Appendix D for MPE measurement results and calculations.

External to vehicle (Bystander) - 10 measurements are averaged over the body (*Avg\_over\_body*).  
Internal to vehicle (Passengers) - 3 measurements are averaged over the body (*Avg\_over\_body*).

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

Therefore;

Equation 2 – Power Density Calculation (*Calc.\_P.D.*)

$$\text{Calc.}_P.D. = (\text{Avg\_over\_body}) * (\text{probe\_frequency\_cal\_factor}) * (\text{duty\_cycle})$$

*Note1: The highest “average” cal factors from the calibration certificates were selected for the applicable frequency range. Linear interpretation was used to determine “probe\_frequency\_cal\_factor” for the specific test frequencies.*

*Note 2: The E-field probe calibration certificate’s frequency cal factors were determined by measuring V/m. The survey meter’s results were measured in power density (mW/cm<sup>2</sup>) and therefore the “probe\_frequency\_cal\_factor” was squared in equation 2 to account for these results.*

*Note 3: The H-field probe calibration certificate’s frequency cal factors were determined by measuring A/m. The survey meter’s results were measured in A/m and therefore the “Avg\_over\_body” A/m results were converted to power density (mW/cm<sup>2</sup>) using the equation 3. H-field measurements are only applicable to frequencies below 300MHz.*

Equation 3 – Converting A/m to mW/cm<sup>2</sup>

$$\text{mW} / \text{cm}^2 = (\text{A} / \text{m})^2 * 37.699$$

Equation 4 – Power Density Maximum Calculation

$$\text{Max\_Calc.}_P.D. = P.D._{\text{calc}} * \frac{\text{max\_output\_power}}{\text{initial\_output\_power}}$$

*Note 4: For initial output power > max\_output\_power; max\_output\_power / initial output power = 1*

## 15.0 Antenna Summary

Table 6 below summarizes the tested or evaluated antennas and their descriptions, mount location (roof/trunk/internal), overlap of FCC bands, number of test channels per FCC KDB 447498 (FCC N<sub>c</sub>) and actual number of tested channels (Actual N<sub>c</sub>). This information was used to determine the test configurations presented in this report.

**Table 6**

| #  | Antenna Model | Frequency Range (MHz) | Physical Length (cm) | Gain (dBi) | Remarks               | Mount Location (Roof/Trunk) | Overlap FCC Bands | N <sub>c</sub> Test Channels (KDB447498) |
|----|---------------|-----------------------|----------------------|------------|-----------------------|-----------------------------|-------------------|------------------------------------------|
| 1  | HAE4002A      | 403-430               | 17.5                 | 2.15       | 1/4 wave, wire        | R                           | 406-430           | 3                                        |
| 2  | HAE4003A      | 450-470               | 16.0                 | 2.15       | 1/4 wave, wire        | R                           | 450-470           | 3                                        |
| 3  | HAE4010A      | 406-420               | 84.3                 | 5.65       | 5/8 wave, trap-loaded | R/T                         | 406-420           | 2                                        |
| 4  | HAE4011A      | 450-470               | 73.2                 | 5.65       | 5/8 wave, trap-loaded | R/T                         | 450-470           | 3                                        |
| 5  | *RAE4004ARB   | 445-470               | 95.5<br>91.5<br>89.0 | 7.15       | 5/8 wave, trap-loaded | R/T                         | 445-470           | 3                                        |
| 6  | HAE6022A      | 403-527               | 27.8                 | 4.15       | 1/2 wave, wire        | R/T                         | 406-470           | 5                                        |
| 7  | PMAE4039A     | 403-430               | 14.9                 | 2.15       | 1/4 wave, wire        | R                           | 406-430           | 3                                        |
| 8  | PMAE4041A     | 450-470               | 12.5                 | 2.15       | 1/4 wave, wire        | R                           | 450-470           | 3                                        |
| 9  | PMAE4040A     | 406-420               | 36.0                 | 5.65       | 5/8 wave, wire        | R/T                         | 406-420           | 2                                        |
| 10 | PMAE4042A     | 450-470               | 31.0                 | 5.65       | 5/8 wave, wire        | R/T                         | 450-470           | 3                                        |
| 11 | PMAE4043A     | 450-470               | 76.8                 | 7.15       | 5/8 wave, trap-loaded | R/T                         | 450-470           | 3                                        |
| 12 | HAE6029A      | 403-527               | 28.0                 | 4.15       | 1/2 wave, wire        | R/T                         | 406-470           | 5                                        |

\*Trimmed to Frequency

All quarter-wave antennas are restricted to installation on the roof.

## 16.0 Test Results Summary

The following tables below summarize the MPE results for each test configuration: antenna location, test positions (BS-Bystander, PB-Passenger Backseat, PF-Passenger Front seat), E/H field measurements, angle, antenna model & freq. range, maximum output power, initial power, TX frequency, max calculated power density results, applicable FCC/IEEE/ICNIRP/IC specification limits and % of the applicable specification limits.

Data identified with “NA” are outside the permissible spectrum allowed by Industry Canada, therefore the IC limits are not applicable.

**Table 7****Bystander MPE assessment for trunk mounted antennas**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model           | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|-------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Trunk       | BS            | E         | NA             | HAE4010A, 406-420 MHz   | 30          | 29.6            | 406.0125      | 0.09                                  | 0.27      | 33                  | 0.20         | 44                     | 0.16     | 56            |
|             |               |           |                |                         |             | 29.4            | 413.0125      | 0.08                                  | 0.28      | 30                  | 0.21         | 39                     | 0.16     | 51            |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.05                                  | 0.28      | 17                  | 0.21         | 22                     | 0.16     | 29            |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Trunk       | BS            | E         | NA             | HAE4011A, 450-470 MHz   | 30          | 29.4            | 450.0125      | 0.10                                  | 0.30      | 32                  | 0.23         | 42                     | 0.17     | 56            |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.09                                  | 0.31      | 30                  | 0.23         | 40                     | 0.17     | 53            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.03                                  | 0.31      | 10                  | 0.23         | 13                     | 0.18     | 18            |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Trunk       | BS            | E         | NA             | RAE4004ARB, 445-470 MHz | 30          | 28.7            | 445.0125      | 0.02                                  | 0.30      | 6                   | 0.22         | 8                      | 0.17     | NA            |
|             |               |           |                |                         |             | 29.6            | 457.5         | 0.08                                  | 0.31      | 28                  | 0.23         | 37                     | 0.17     | 49            |
|             |               |           |                |                         |             | 28.6            | 469.9875      | 0.03                                  | 0.31      | 9                   | 0.23         | 11                     | 0.18     | 15            |
| Trunk       | BS            | E         | NA             | HAE6022A, 403-527MHz    | 30          | 29.4            | 403.0125      | 0.12                                  | 0.27      | 44                  | 0.20         | 58                     | 0.16     | 74            |
|             |               |           |                |                         |             | 29.6            | 406.0125      | 0.11                                  | 0.27      | 40                  | 0.20         | 53                     | 0.16     | 68            |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.13                                  | 0.28      | 47                  | 0.21         | 63                     | 0.16     | 81            |
|             |               |           |                |                         |             | 29.4            | 436.5         | 0.14                                  | 0.29      | 48                  | 0.22         | 63                     | 0.17     | NA            |
|             |               |           |                |                         |             | 29.1            | 453.0125      | 0.12                                  | 0.30      | 39                  | 0.23         | 52                     | 0.17     | 69            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.11                                  | 0.31      | 34                  | 0.23         | 45                     | 0.18     | 61            |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Trunk       | BS            | E         | NA             | PMAE4040A, 406-420 MHz  | 30          | 29.6            | 406.0125      | 0.10                                  | 0.27      | 37                  | 0.20         | 49                     | 0.16     | 63            |
|             |               |           |                |                         |             | 29.4            | 413.0125      | 0.11                                  | 0.28      | 40                  | 0.21         | 53                     | 0.16     | 68            |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.12                                  | 0.28      | 44                  | 0.21         | 59                     | 0.16     | 76            |
| Trunk       | BS            | E         | NA             | PMAE4042A, 450-470 MHz  | 30          | 29.4            | 450.0125      | 0.12                                  | 0.30      | 41                  | 0.23         | 54                     | 0.17     | 71            |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.13                                  | 0.31      | 42                  | 0.23         | 55                     | 0.17     | 74            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.11                                  | 0.31      | 36                  | 0.23         | 48                     | 0.18     | 64            |

**Table 7 (Cont.)**  
**Bystander MPE assessment for trunk mounted antennas**

| Trunk/ Roof | Test Position       | E/H Field | Angle (Degree) | Antenna Model          | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm^2) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------------|-----------|----------------|------------------------|-------------|-----------------|---------------|---------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Trunk       | BS                  | E         | NA             | PMAE4043A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.10                      | 0.30      | 33                  | 0.23         | 45                     | 0.17     | 59            |
|             |                     |           |                |                        |             | 29.2            | 460.0125      | 0.11                      | 0.31      | 37                  | 0.23         | 49                     | 0.17     | 65            |
|             |                     |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
|             |                     |           |                |                        |             | 29.0            | 469.9875      | 0.12                      | 0.31      | 39                  | 0.23         | 51                     | 0.18     | 69            |
|             |                     |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Trunk       | BS                  | E         | NA             | HAE6029A, 403-527MHz   | 30          | 29.4            | 403.0125      | 0.11                      | 0.27      | 42                  | 0.20         | 57                     | 0.16     | 72            |
|             |                     |           |                |                        |             | 29.6            | 406.0125      | 0.11                      | 0.27      | 42                  | 0.20         | 57                     | 0.16     | 72            |
|             |                     |           |                |                        |             | 29.5            | 419.9875      | 0.13                      | 0.28      | 47                  | 0.21         | 62                     | 0.16     | 80            |
|             |                     |           |                |                        |             | 29.4            | 436.5         | 0.14                      | 0.29      | 48                  | 0.22         | 63                     | 0.17     | NA            |
|             |                     |           |                |                        |             | 29.1            | 453.0125      | 0.13                      | 0.30      | 44                  | 0.23         | 59                     | 0.17     | 78            |
|             |                     |           |                |                        |             | 29.0            | 469.9875      | 0.12                      | 0.31      | 37                  | 0.23         | 49                     | 0.18     | 66            |
|             |                     |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
|             |                     |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| 45 Degrees  | Worst Case FCC Band |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Trunk       | BS                  | E         | NA             | HAE6029A, 403-527MHz   | 30          | 29.4            | 436.5         | 0.06                      | 0.29      | 21                  | 0.22         | 28                     | 0.17     | NA            |
|             |                     |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| 45 Degrees  | Worst Case IC Band  |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Trunk       | BS                  | E         | NA             | HAE6022A, 403-527MHz   | 30          | 29.5            | 419.9875      | 0.06                      | 0.28      | 21                  | 0.21         | 28                     | 0.16     | 37            |
|             |                     |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| 90 Degrees  | Worst Case FCC Band |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Trunk       | BS                  | E         | NA             | HAE6029A, 403-527MHz   | 30          | 29.4            | 436.5         | 0.07                      | 0.29      | 23                  | 0.22         | 30                     | 0.17     | NA            |
|             |                     |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| 90 Degrees  | Worst Case IC Band  |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Trunk       | BS                  | E         | NA             | HAE6022A, 403-527MHz   | 30          | 29.5            | 419.9875      | 0.09                      | 0.28      | 31                  | 0.21         | 41                     | 0.16     | 54            |

**Table 8**  
**Passenger MPE assessment for trunk mounted antennas**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model           | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm²) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|-------------------------|-------------|-----------------|---------------|--------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Trunk       | PB            | E         | NA             | HAE4010A, 406-420 MHz   | 30          | 29.6            | 406.0125      | 0.03                     | 0.27      | 13                  | 0.20         | 17                     | 0.16     | 22            |
|             |               |           |                |                         |             | 29.4            | 413.0125      | 0.03                     | 0.28      | 10                  | 0.21         | 13                     | 0.16     | 17            |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.03                     | 0.28      | 12                  | 0.21         | 15                     | 0.16     | 20            |
| Trunk       | PB            | E         | NA             | HAE4011A, 450-470 MHz   | 30          | 29.4            | 450.0125      | 0.09                     | 0.30      | 31                  | 0.23         | 41                     | 0.17     | 55            |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.09                     | 0.31      | 29                  | 0.23         | 39                     | 0.17     | 52            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.02                     | 0.31      | 8                   | 0.23         | 11                     | 0.18     | 14            |
| Trunk       | PB            | E         | NA             | RAE4004ARB, 445-470 MHz | 30          | 28.7            | 445.0125      | 0.01                     | 0.30      | 3                   | 0.22         | 4                      | 0.17     | NA            |
|             |               |           |                |                         |             | 29.6            | 457.5         | 0.06                     | 0.31      | 21                  | 0.23         | 28                     | 0.17     | 38            |
|             |               |           |                |                         |             | 28.6            | 469.9875      | 0.01                     | 0.31      | 3                   | 0.23         | 4                      | 0.18     | 6             |
| Trunk       | PB            | E         | NA             | HAE6022A, 403-527MHz    | 30          | 29.4            | 403.0125      | 0.12                     | 0.27      | NA                  | 0.20         | 62                     | 0.16     | NA            |
|             |               |           |                |                         |             | 29.6            | 406.0125      | 0.12                     | 0.27      | 44                  | 0.20         | 58                     | 0.16     | 75            |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.13                     | 0.28      | 45                  | 0.21         | 61                     | 0.16     | 78            |
|             |               |           |                |                         |             | 29.4            | 436.5         | 0.15                     | 0.29      | 52                  | 0.22         | 70                     | 0.17     | 91            |
|             |               |           |                |                         |             | 29.1            | 453.0125      | 0.14                     | 0.30      | 46                  | 0.23         | 61                     | 0.17     | 80            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.11                     | 0.31      | 35                  | 0.23         | 47                     | 0.18     | 63            |
|             |               |           |                |                         |             |                 |               |                          |           |                     |              |                        |          |               |
| Trunk       | PB            | E         | NA             | PMAE4040A, 406-420 MHz  | 30          | 29.6            | 406.0125      | 0.12                     | 0.27      | 43                  | 0.20         | 57                     | 0.16     | 73            |
|             |               |           |                |                         |             | 29.4            | 413.0125      | 0.12                     | 0.28      | 43                  | 0.21         | 57                     | 0.16     | 74            |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.13                     | 0.28      | 46                  | 0.21         | 62                     | 0.16     | 79            |
| Trunk       | PB            | E         | NA             | PMAE4042A, 450-470 MHz  | 30          | 29.4            | 450.0125      | 0.10                     | 0.30      | 35                  | 0.23         | 46                     | 0.17     | 61            |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.11                     | 0.31      | 35                  | 0.23         | 47                     | 0.17     | 63            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.11                     | 0.31      | 36                  | 0.23         | 47                     | 0.18     | 64            |

**Table 8 (Cont.)**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model           | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|-------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Trunk       | PB            | E         | NA             | PMAE4043A, 450-470 MHz  | 30          | 29.4            | 450.0125      | 0.10                                  | 0.30      | 35                  | 0.23         | 46                     | 0.17     | 61            |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.09                                  | 0.31      | 30                  | 0.23         | 39                     | 0.17     | 52            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.07                                  | 0.31      | 24                  | 0.23         | 32                     | 0.18     | 42            |
| Trunk       | PB            | E         | NA             | HAE6029A, 403-527MHz    | 30          | 29.4            | 403.0125      | 0.14                                  | 0.27      | 50                  | 0.20         | 67                     | 0.16     | NA            |
|             |               |           |                |                         |             | 29.6            | 406.0125      | 0.14                                  | 0.27      | 52                  | 0.20         | 70                     | 0.16     | 89            |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.12                                  | 0.28      | 43                  | 0.21         | 57                     | 0.16     | 73            |
|             |               |           |                |                         |             | 29.4            | 436.5         | 0.16                                  | 0.29      | 55                  | 0.22         | 74                     | 0.17     | NA            |
|             |               |           |                |                         |             | 29.1            | 453.0125      | 0.15                                  | 0.30      | 49                  | 0.23         | 65                     | 0.17     | 86            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.11                                  | 0.31      | 35                  | 0.23         | 47                     | 0.18     | 63            |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Trunk       | PF            | E         | NA             | HAE4010A, 406-420 MHz   | 30          | 29.6            | 406.0125      | 0.01                                  | 0.27      | 5                   | 0.20         | 7                      | 0.16     | 8             |
|             |               |           |                |                         |             | 29.4            | 413.0125      | 0.01                                  | 0.28      | 3                   | 0.21         | 4                      | 0.16     | 5             |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.00                                  | 0.28      | 1                   | 0.21         | 2                      | 0.16     | 2             |
| Trunk       | PF            | E         | NA             | HAE4011A, 450-470 MHz   | 30          | 29.4            | 450.0125      | 0.01                                  | 0.30      | 4                   | 0.23         | 6                      | 0.17     | 7             |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.02                                  | 0.31      | 6                   | 0.23         | 8                      | 0.17     | 10            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.01                                  | 0.31      | 2                   | 0.23         | 2                      | 0.18     | 3             |
| Trunk       | PF            | E         | NA             | RAE4004ARB, 445-470 MHz | 30          | 28.7            | 445.0125      | 0.03                                  | 0.30      | 9                   | 0.22         | 12                     | 0.17     | 15            |
|             |               |           |                |                         |             | 29.6            | 457.5         | 0.03                                  | 0.31      | 11                  | 0.23         | 14                     | 0.17     | 19            |
|             |               |           |                |                         |             | 28.6            | 469.9875      | 0.02                                  | 0.31      | 8                   | 0.23         | 10                     | 0.18     | 14            |

**Table 8 (Cont.)**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model          | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm^2) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|------------------------|-------------|-----------------|---------------|---------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Trunk       | PF            | E         | NA             | HAE6022A, 403-527MHz   | 30          | 29.4            | 403.0125      | 0.04                      | 0.27      | 16                  | 0.20         | 21                     | 0.16     | NA            |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.04                      | 0.27      | 14                  | 0.20         | 19                     | 0.16     | 25            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.02                      | 0.28      | 7                   | 0.21         | 10                     | 0.16     | 12            |
|             |               |           |                |                        |             | 29.4            | 436.5         | 0.02                      | 0.29      | 8                   | 0.22         | 10                     | 0.17     | NA            |
|             |               |           |                |                        |             | 29.1            | 453.0125      | 0.04                      | 0.30      | 12                  | 0.23         | 16                     | 0.17     | 21            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.03                      | 0.31      | 10                  | 0.23         | 14                     | 0.18     | 18            |
|             |               |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Trunk       | PF            | E         | NA             | PMAE4040A, 406-420 MHz | 30          | 29.6            | 406.0125      | 0.04                      | 0.27      | 15                  | 0.20         | 21                     | 0.16     | 26            |
|             |               |           |                |                        |             | 29.4            | 413.0125      | 0.02                      | 0.28      | 7                   | 0.21         | 9                      | 0.16     | 12            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.02                      | 0.28      | 7                   | 0.21         | 9                      | 0.16     | 12            |
| Trunk       | PF            | E         | NA             | PMAE4042A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.02                      | 0.30      | 8                   | 0.23         | 11                     | 0.17     | 14            |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.04                      | 0.31      | 12                  | 0.23         | 16                     | 0.17     | 21            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.04                      | 0.31      | 11                  | 0.23         | 15                     | 0.18     | 20            |
| Trunk       | PF            | E         | NA             | PMAE4043A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.02                      | 0.30      | 6                   | 0.23         | 9                      | 0.17     | 11            |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.03                      | 0.31      | 8                   | 0.23         | 11                     | 0.17     | 15            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.02                      | 0.31      | 7                   | 0.23         | 9                      | 0.18     | 12            |
| Trunk       | PF            | E         | NA             | HAE6029A, 403-527MHz   | 30          | 29.4            | 403.0125      | 0.05                      | 0.27      | 19                  | 0.20         | 25                     | 0.16     | NA            |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.04                      | 0.27      | 16                  | 0.20         | 21                     | 0.16     | 27            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.02                      | 0.28      | 9                   | 0.21         | 11                     | 0.16     | 15            |
|             |               |           |                |                        |             | 29.4            | 436.5         | 0.02                      | 0.29      | 8                   | 0.22         | 11                     | 0.17     | NA            |
|             |               |           |                |                        |             | 29.1            | 453.0125      | 0.04                      | 0.30      | 14                  | 0.23         | 18                     | 0.17     | 24            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.04                      | 0.31      | 12                  | 0.23         | 16                     | 0.18     | 21            |
|             |               |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |

**Table 9**  
**Bystander MPE assessment for roof mounted antennas**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model           | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|-------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Roof        | BS            | E         | NA             | HAE4002A, 403-430 MHz   | 30          | 29.4            | 403.0125      | 0.03                                  | 0.27      | 13                  | 0.20         | 17                     | 0.16     | 22            |
|             |               |           |                |                         |             | 29.6            | 406.0125      | 0.04                                  | 0.27      | 13                  | 0.20         | 18                     | 0.16     | 23            |
|             |               |           |                |                         |             | 29.6            | 416.5         | 0.04                                  | 0.28      | 13                  | 0.21         | 18                     | 0.16     | 23            |
|             |               |           |                |                         |             | 29.0            | 429.9875      | 0.03                                  | 0.29      | 11                  | 0.21         | 15                     | 0.17     | 19            |
| Roof        | BS            | E         | NA             | HAE4003A, 450-470 MHz   | 30          | 29.4            | 450.0125      | 0.04                                  | 0.30      | 14                  | 0.23         | 18                     | 0.17     | 24            |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.04                                  | 0.31      | 13                  | 0.23         | 18                     | 0.17     | 23            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.04                                  | 0.31      | 12                  | 0.23         | 16                     | 0.18     | 22            |
| Roof        | BS            | E         | NA             | HAE4010A, 406-420 MHz   | 30          | 29.6            | 406.0125      | 0.02                                  | 0.27      | 8                   | 0.20         | 11                     | 0.16     | 14            |
|             |               |           |                |                         |             | 29.4            | 413.0125      | 0.02                                  | 0.28      | 8                   | 0.21         | 11                     | 0.16     | 14            |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.01                                  | 0.28      | 4                   | 0.21         | 6                      | 0.16     | 8             |
| Roof        | BS            | E         | NA             | HAE4011A, 450-470 MHz   | 30          | 29.4            | 450.0125      | 0.03                                  | 0.30      | 10                  | 0.23         | 14                     | 0.17     | 18            |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.03                                  | 0.31      | 10                  | 0.23         | 14                     | 0.17     | 18            |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.01                                  | 0.31      | 3                   | 0.23         | 4                      | 0.18     | 6             |
| Roof        | BS            | E         | NA             | RAE4004ARB, 445-470 MHz | 30          | 28.7            | 445.0125      | 0.01                                  | 0.30      | 2                   | 0.22         | 2                      | 0.17     | 3             |
|             |               |           |                |                         |             | 29.6            | 457.5         | 0.04                                  | 0.31      | 12                  | 0.23         | 16                     | 0.17     | 21            |
|             |               |           |                |                         |             | 28.6            | 469.9875      | 0.01                                  | 0.31      | 2                   | 0.23         | 3                      | 0.18     | 4             |

Table 9 (Cont.)

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model          | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Roof        | BS            | E         | NA             | HAE6022A, 403-527MHz   | 30          | 29.4            | 403.0125      | 0.03                                  | 0.27      | 12                  | 0.20         | 16                     | 0.16     | NA            |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.03                                  | 0.27      | 13                  | 0.20         | 17                     | 0.16     | 22            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.03                                  | 0.28      | 12                  | 0.21         | 17                     | 0.16     | 21            |
|             |               |           |                |                        |             | 29.4            | 436.5         | 0.04                                  | 0.29      | 12                  | 0.22         | 16                     | 0.17     | NA            |
|             |               |           |                |                        |             | 29.1            | 453.0125      | 0.04                                  | 0.30      | 12                  | 0.23         | 17                     | 0.17     | 22            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.04                                  | 0.31      | 11                  | 0.23         | 15                     | 0.18     | 20            |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | BS            | E         | NA             | PMAE4039A, 403-430 MHz | 30          | 29.4            | 403.0125      | 0.01                                  | 0.27      | 2                   | 0.20         | 3                      | 0.16     | NA            |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.01                                  | 0.27      | 2                   | 0.20         | 3                      | 0.16     | 4             |
|             |               |           |                |                        |             | 29.6            | 416.5         | 0.01                                  | 0.28      | 5                   | 0.21         | 6                      | 0.16     | 8             |
|             |               |           |                |                        |             | 29.0            | 429.9875      | 0.02                                  | 0.29      | 8                   | 0.21         | 11                     | 0.17     | 14            |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | BS            | E         | NA             | PMAE4041A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.00                                  | 0.30      | 1                   | 0.23         | 2                      | 0.17     | 2             |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.01                                  | 0.31      | 2                   | 0.23         | 3                      | 0.17     | 4             |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.01                                  | 0.31      | 2                   | 0.23         | 3                      | 0.18     | 4             |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | BS            | E         | NA             | PMAE4040A, 406-420 MHz | 30          | 29.6            | 406.0125      | 0.03                                  | 0.27      | 11                  | 0.20         | 15                     | 0.16     | 19            |
|             |               |           |                |                        |             | 29.4            | 413.0125      | 0.03                                  | 0.28      | 12                  | 0.21         | 17                     | 0.16     | 21            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.03                                  | 0.28      | 12                  | 0.21         | 16                     | 0.16     | 20            |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | BS            | E         | NA             | PMAE4042A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.04                                  | 0.30      | 12                  | 0.23         | 16                     | 0.17     | 21            |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.04                                  | 0.31      | 15                  | 0.23         | 19                     | 0.17     | 26            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.04                                  | 0.31      | 13                  | 0.23         | 18                     | 0.18     | 24            |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |

**Table 9 (Cont.)**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model          | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Roof        | BS            | E         | NA             | PMAE4043A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.04                                  | 0.30      | 14                  | 0.23         | 18                     | 0.17     | 24            |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.04                                  | 0.31      | 13                  | 0.23         | 18                     | 0.17     | 24            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.04                                  | 0.31      | 12                  | 0.23         | 16                     | 0.18     | 22            |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | BS            | E         | NA             | HAE6029A, 403-527MHz   | 30          | 29.4            | 403.0125      | 0.04                                  | 0.27      | 13                  | 0.20         | 18                     | 0.16     | NA            |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.04                                  | 0.27      | 14                  | 0.20         | 18                     | 0.16     | 24            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.04                                  | 0.28      | 13                  | 0.21         | 18                     | 0.16     | 23            |
|             |               |           |                |                        |             | 29.4            | 436.5         | 0.04                                  | 0.29      | 13                  | 0.22         | 18                     | 0.17     | NA            |
|             |               |           |                |                        |             | 29.1            | 453.0125      | 0.04                                  | 0.30      | 14                  | 0.23         | 19                     | 0.17     | 25            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.04                                  | 0.31      | 13                  | 0.23         | 18                     | 0.18     | 24            |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |

**Table 10**  
**Passenger MPE assessment for roof mounted antennas**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model           | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|-------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Roof        | PB            | E         | NA             | HAE4002A, 403-430 MHz   | 30          | 29.4            | 403.0125      | 0.04                                  | 0.27      | 16                  | 0.20         | 21                     | 0.16     | 27            |
|             |               |           |                |                         |             | 29.6            | 406.0125      | 0.04                                  | 0.27      | 15                  | 0.20         | 20                     | 0.16     | 26            |
|             |               |           |                |                         |             | 29.6            | 416.5         | 0.04                                  | 0.28      | 13                  | 0.21         | 18                     | 0.16     | 23            |
|             |               |           |                |                         |             | 29.0            | 429.9875      | 0.03                                  | 0.29      | 12                  | 0.21         | 15                     | 0.17     | 20            |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PB            | E         | NA             | HAE4003A, 450-470 MHz   | 30          | 29.4            | 450.0125      | 0.02                                  | 0.30      | 7                   | 0.23         | 9                      | 0.17     | 12            |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.02                                  | 0.31      | 5                   | 0.23         | 7                      | 0.17     | 9             |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.01                                  | 0.31      | 3                   | 0.23         | 4                      | 0.18     | 6             |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PB            | E         | NA             | HAE4010A, 406-420 MHz   | 30          | 29.6            | 406.0125      | 0.00                                  | 0.27      | 1                   | 0.20         | 1                      | 0.16     | 1             |
|             |               |           |                |                         |             | 29.4            | 413.0125      | 0.00                                  | 0.28      | 1                   | 0.21         | 1                      | 0.16     | 2             |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.00                                  | 0.28      | 1                   | 0.21         | 1                      | 0.16     | 1             |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PB            | E         | NA             | HAE4011A, 450-470 MHz   | 30          | 29.4            | 450.0125      | 0.01                                  | 0.30      | 2                   | 0.23         | 2                      | 0.17     | 3             |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.00                                  | 0.31      | 2                   | 0.23         | 2                      | 0.17     | 3             |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.00                                  | 0.31      | 0                   | 0.23         | 1                      | 0.18     | 1             |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PB            | E         | NA             | RAE4004ARB, 445-470 MHz | 30          | 28.7            | 445.0125      | 0.00                                  | 0.30      | 0                   | 0.22         | 0                      | 0.17     | 0             |
|             |               |           |                |                         |             | 29.6            | 457.5         | 0.00                                  | 0.31      | 1                   | 0.23         | 2                      | 0.17     | 2             |
|             |               |           |                |                         |             | 28.6            | 469.9875      | 0.00                                  | 0.31      | 0                   | 0.23         | 0                      | 0.18     | 0             |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |

Table 10 (Cont.)

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model          | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Roof        | PB            | E         | NA             | HAE6022A, 403-527MHz   | 30          | 29.4            | 403.0125      | 0.04                                  | 0.27      | 16                  | 0.20         | 21                     | 0.16     | NA            |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.05                                  | 0.27      | 17                  | 0.20         | 23                     | 0.16     | 29            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.03                                  | 0.28      | 10                  | 0.21         | 13                     | 0.16     | 17            |
|             |               |           |                |                        |             | 29.4            | 436.5         | 0.03                                  | 0.29      | 10                  | 0.22         | 14                     | 0.17     | NA            |
|             |               |           |                |                        |             | 29.1            | 453.0125      | 0.02                                  | 0.30      | 8                   | 0.23         | 10                     | 0.17     | 13            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.01                                  | 0.31      | 5                   | 0.23         | 6                      | 0.18     | 8             |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PB            | E         | NA             | PMAE4039A, 403-430 MHz | 30          | 29.4            | 403.0125      | 0.01                                  | 0.27      | 3                   | 0.20         | 4                      | 0.16     | 4             |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.01                                  | 0.27      | 3                   | 0.20         | 5                      | 0.16     | 6             |
|             |               |           |                |                        |             | 29.6            | 416.5         | 0.01                                  | 0.28      | 5                   | 0.21         | 6                      | 0.16     | 8             |
|             |               |           |                |                        |             | 29.0            | 429.9875      | 0.02                                  | 0.29      | 7                   | 0.21         | 9                      | 0.17     | 12            |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PB            | E         | NA             | PMAE4041A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.00                                  | 0.30      | 1                   | 0.23         | 1                      | 0.17     | 1             |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.00                                  | 0.31      | 1                   | 0.23         | 1                      | 0.17     | 1             |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.00                                  | 0.31      | 1                   | 0.23         | 1                      | 0.18     | 1             |
| Roof        | PB            | E         | NA             | PMAE4040A, 406-420 MHz | 30          | 29.6            | 406.0125      | 0.04                                  | 0.27      | 14                  | 0.20         | 19                     | 0.16     | 24            |
|             |               |           |                |                        |             | 29.4            | 413.0125      | 0.04                                  | 0.28      | 13                  | 0.21         | 17                     | 0.16     | 22            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.02                                  | 0.28      | 7                   | 0.21         | 10                     | 0.16     | 13            |
| Roof        | PB            | E         | NA             | PMAE4042A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.02                                  | 0.30      | 8                   | 0.23         | 11                     | 0.17     | 14            |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.02                                  | 0.31      | 7                   | 0.23         | 9                      | 0.17     | 12            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.02                                  | 0.31      | 5                   | 0.23         | 7                      | 0.18     | 9             |

**Table 10 (Cont.)**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model          | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Roof        | PB            | E         | NA             | PMAE4043A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.01                                  | 0.30      | 3                   | 0.23         | 4                      | 0.17     | 5             |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.01                                  | 0.31      | 2                   | 0.23         | 3                      | 0.17     | 4             |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.01                                  | 0.31      | 3                   | 0.23         | 3                      | 0.18     | 5             |
| Roof        | PB            | E         | NA             | HAE6029A, 403-527MHz   | 30          | 29.4            | 403.0125      | 0.03                                  | 0.27      | 13                  | 0.20         | 17                     | 0.16     | NA            |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.04                                  | 0.27      | 13                  | 0.20         | 17                     | 0.16     | 22            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.02                                  | 0.28      | 8                   | 0.21         | 11                     | 0.16     | 14            |
|             |               |           |                |                        |             | 29.4            | 436.5         | 0.03                                  | 0.29      | 11                  | 0.22         | 14                     | 0.17     | NA            |
|             |               |           |                |                        |             | 29.1            | 453.0125      | 0.03                                  | 0.30      | 9                   | 0.23         | 12                     | 0.17     | 15            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.02                                  | 0.31      | 5                   | 0.23         | 7                      | 0.18     | 9             |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PF            | E         | NA             | HAE4002A, 403-430 MHz  | 30          | 29.4            | 403.0125      | 0.01                                  | 0.27      | 5                   | 0.20         | 7                      | 0.16     | 9             |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.01                                  | 0.27      | 5                   | 0.20         | 6                      | 0.16     | 8             |
|             |               |           |                |                        |             | 29.6            | 416.5         | 0.01                                  | 0.28      | 3                   | 0.21         | 4                      | 0.16     | 6             |
|             |               |           |                |                        |             | 29.0            | 429.9875      | 0.01                                  | 0.29      | 4                   | 0.21         | 6                      | 0.17     | 8             |
|             |               |           |                |                        |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PF            | E         | NA             | HAE4003A, 450-470 MHz  | 30          | 29.4            | 450.0125      | 0.02                                  | 0.30      | 6                   | 0.23         | 8                      | 0.17     | 10            |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.02                                  | 0.31      | 6                   | 0.23         | 8                      | 0.17     | 10            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.01                                  | 0.31      | 4                   | 0.23         | 5                      | 0.18     | 7             |
| Roof        | PF            | E         | NA             | HAE4010A, 406-420 MHz  | 30          | 29.6            | 406.0125      | 0.00                                  | 0.27      | 1                   | 0.20         | 1                      | 0.16     | 1             |
|             |               |           |                |                        |             | 29.4            | 413.0125      | 0.00                                  | 0.28      | 1                   | 0.21         | 1                      | 0.16     | 1             |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.00                                  | 0.28      | 0                   | 0.21         | 0                      | 0.16     | 1             |

Table 10 (Cont.)

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model           | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm <sup>2</sup> ) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|-------------------------|-------------|-----------------|---------------|---------------------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Roof        | PF            | E         | NA             | HAE4011A, 450-470 MHz   | 30          | 29.4            | 450.0125      | 0.01                                  | 0.30      | 2                   | 0.23         | 3                      | 0.17     | 3             |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.01                                  | 0.31      | 2                   | 0.23         | 3                      | 0.17     | 3             |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.00                                  | 0.31      | 0                   | 0.23         | 1                      | 0.18     | 1             |
| Roof        | PF            | E         | NA             | RAE4004ARB, 445-470 MHz | 30          | 28.7            | 445.0125      | 0.00                                  | 0.30      | 0                   | 0.22         | 0                      | 0.17     | 0             |
|             |               |           |                |                         |             | 29.6            | 457.5         | 0.00                                  | 0.31      | 1                   | 0.23         | 1                      | 0.17     | 2             |
|             |               |           |                |                         |             | 28.6            | 469.9875      | 0.00                                  | 0.31      | 0                   | 0.23         | 0                      | 0.18     | 0             |
| Roof        | PF            | E         | NA             | HAE6022A, 403-527MHz    | 30          | 29.4            | 403.0125      | 0.01                                  | 0.27      | 5                   | 0.20         | 6                      | 0.16     | NA            |
|             |               |           |                |                         |             | 29.6            | 406.0125      | 0.01                                  | 0.27      | 5                   | 0.20         | 7                      | 0.16     | 9             |
|             |               |           |                |                         |             | 29.5            | 419.9875      | 0.01                                  | 0.28      | 4                   | 0.21         | 5                      | 0.16     | 7             |
|             |               |           |                |                         |             | 29.4            | 436.5         | 0.01                                  | 0.29      | 3                   | 0.22         | 4                      | 0.17     | NA            |
|             |               |           |                |                         |             | 29.1            | 453.0125      | 0.02                                  | 0.30      | 5                   | 0.23         | 7                      | 0.17     | 9             |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.01                                  | 0.31      | 4                   | 0.23         | 5                      | 0.18     | 7             |
|             |               |           |                |                         |             |                 |               |                                       |           |                     |              |                        |          |               |
| Roof        | PF            | E         | NA             | PMAE4039A, 403-430 MHz  | 30          | 29.4            | 403.0125      | 0.00                                  | 0.27      | 1                   | 0.20         | 1                      | 0.16     | 1             |
|             |               |           |                |                         |             | 29.6            | 406.0125      | 0.01                                  | 0.27      | 4                   | 0.20         | 5                      | 0.16     | 7             |
|             |               |           |                |                         |             | 29.6            | 416.5         | 0.00                                  | 0.28      | 1                   | 0.21         | 2                      | 0.16     | 2             |
|             |               |           |                |                         |             | 29.0            | 429.9875      | 0.01                                  | 0.29      | 4                   | 0.21         | 5                      | 0.17     | 6             |
| Roof        | PF            | E         | NA             | PMAE4041A, 450-470 MHz  | 30          | 29.4            | 450.0125      | 0.00                                  | 0.30      | 1                   | 0.23         | 1                      | 0.17     | 1             |
|             |               |           |                |                         |             | 29.2            | 460.0125      | 0.00                                  | 0.31      | 1                   | 0.23         | 2                      | 0.17     | 2             |
|             |               |           |                |                         |             | 29.0            | 469.9875      | 0.00                                  | 0.31      | 1                   | 0.23         | 1                      | 0.18     | 1             |

**Table 10 (Cont.)**

| Trunk/ Roof | Test Position | E/H Field | Angle (Degree) | Antenna Model          | Max Pwr (W) | Initial Pwr (W) | Tx Freq (MHz) | Max Calc. P.D. (mW/ cm^2) | FCC Limit | % To FCC Spec Limit | ICNIRP Limit | % To ICNIRP Spec Limit | IC Limit | % To IC Limit |
|-------------|---------------|-----------|----------------|------------------------|-------------|-----------------|---------------|---------------------------|-----------|---------------------|--------------|------------------------|----------|---------------|
| Roof        | PF            | E         | NA             | PMAE4040A, 406-420 MHz | 30          | 29.6            | 406.0125      | 0.02                      | 0.27      | 6                   | 0.20         | 8                      | 0.16     | 10            |
|             |               |           |                |                        |             | 29.4            | 413.0125      | 0.01                      | 0.28      | 4                   | 0.21         | 5                      | 0.16     | 7             |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.01                      | 0.28      | 2                   | 0.21         | 3                      | 0.16     | 4             |
|             |               |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Roof        | PF            | E         | NA             | PMAE4042A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.01                      | 0.30      | 5                   | 0.23         | 6                      | 0.17     | 8             |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.02                      | 0.31      | 7                   | 0.23         | 10                     | 0.17     | 13            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.02                      | 0.31      | 6                   | 0.23         | 7                      | 0.18     | 10            |
|             |               |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Roof        | PF            | E         | NA             | PMAE4043A, 450-470 MHz | 30          | 29.4            | 450.0125      | 0.01                      | 0.30      | 2                   | 0.23         | 3                      | 0.17     | 4             |
|             |               |           |                |                        |             | 29.2            | 460.0125      | 0.01                      | 0.31      | 3                   | 0.23         | 4                      | 0.17     | 5             |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.01                      | 0.31      | 2                   | 0.23         | 3                      | 0.18     | 4             |
|             |               |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |
| Roof        | PF            | E         | NA             | HAE6029A, 403-527MHz   | 30          | 29.4            | 403.0125      | 0.01                      | 0.27      | 4                   | 0.20         | 5                      | 0.16     | NA            |
|             |               |           |                |                        |             | 29.6            | 406.0125      | 0.02                      | 0.27      | 6                   | 0.20         | 9                      | 0.16     | 11            |
|             |               |           |                |                        |             | 29.5            | 419.9875      | 0.01                      | 0.28      | 3                   | 0.21         | 4                      | 0.16     | 5             |
|             |               |           |                |                        |             | 29.4            | 436.5         | 0.01                      | 0.29      | 4                   | 0.22         | 6                      | 0.17     | NA            |
|             |               |           |                |                        |             | 29.1            | 453.0125      | 0.02                      | 0.30      | 7                   | 0.23         | 9                      | 0.17     | 12            |
|             |               |           |                |                        |             | 29.0            | 469.9875      | 0.01                      | 0.31      | 5                   | 0.23         | 6                      | 0.18     | 8             |
|             |               |           |                |                        |             |                 |               |                           |           |                     |              |                        |          |               |

**Assessment of Bluetooth / WLAN Radio and Simultaneous Transmission**

The combined Bluetooth / WLAN antenna is located in the control head therefore Basic Restriction SAR was used for exposure conditions less than 20cm.

Both the Bluetooth and WLAN transmitters qualify for the standalone SAR exclusion.

Per guidelines in KDB 447498, the following formula was used to determine the test exclusion for standalone Bluetooth and WLAN transmitter;

$$\left[ \frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} \right] * [\sqrt{F_{(\text{GHz})}}]$$

Where for Bluetooth:

Max. power = 5.5 mW (7.1mW\*77% duty cycle)

Min. test separation distance = 50mm

F(GHz) = 2.48 GHz

= 0.2, which is  $\leq 3$  for 1-g SAR therefore the standalone exclusion applies for Bluetooth.

For WLAN:

Max. power = 17.8 mW (17.8 mW\*99.8% duty cycle)

Min. test separation distance = 50mm

F(GHz) = 2.462 GHz

= 0.6, which is  $\leq 3$  for 1-g SAR therefore the standalone exclusion applies for WLAN.

Since WLAN source based average power is greater than Bluetooth and they both cannot transmit at the same time, the WLAN transmitter will be used to evaluate simultaneous transmission test exclusion.

Per guidelines in KDB 447498, the following formula was used to determine the estimated SAR of an antenna that transmits simultaneously with other antennas:

$$\left[ \frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} \right] * [\sqrt{F(\text{GHz})/X}]$$

= 0.07 which is  $< 0.4$  W/kg (1g)

Where:

X = 7.5 for 1g-SAR; 18.75 for 10g

Max. power = 17.8 mW (17.8 mW\*99.8% duty cycle)

Min. test separation distance = 50 mm

F(GHz) = 2.462 GHz

Pursuant to the guidance in KDB 447498 Section 7.2, the simultaneous transmission test exclusion applies if:

“The  $[\Sigma \text{ of (the highest measured or estimated SAR for each standalone antenna configuration, adjusted for maximum tune-up tolerance)} / 1.6 \text{ W/kg}] + [\Sigma \text{ of MPE ratios}]$  is  $\leq 1.0$ .”

For this device:

$$\Sigma \text{ Highest Estimated SAR (only WLAN)} / 1.6 = 0.07 / 1.6 = 0.04$$

The worst case power density measured for the operator front seat condition, where the simultaneous conditions would be the worst, when using the HAE6029A antenna mounted on the trunk is  $0.04 \text{ mW/cm}^2$  at 406.0125 MHz where the MPE limit is  $0.27 \text{ mW/cm}^2$ . Therefore,

$$\Sigma \text{ MPE Ratio (only one antenna transmitting)} \text{ is } 0.04/0.27 = 0.15$$

$$\text{Exclusion evaluation: } 0.04 + 0.15 = 0.31 \text{ which is } < 1$$

Therefore, the simultaneous transmission RF exposure test exclusion does apply in this case.

## 17.0 Conclusion

The assessments for this device were performed with an output power range as indicated in section 15.0 Tables 7 - 10. The maximum allowable output power is equal to the upper limit of the final test factory transmit power specification of 30W. The highest power density results (with regards to the applicable limits) for the mobile device scaled to the maximum allowable power output are indicated in the Table 11 for internal/passenger to the vehicle, and external/bystander to the vehicle.

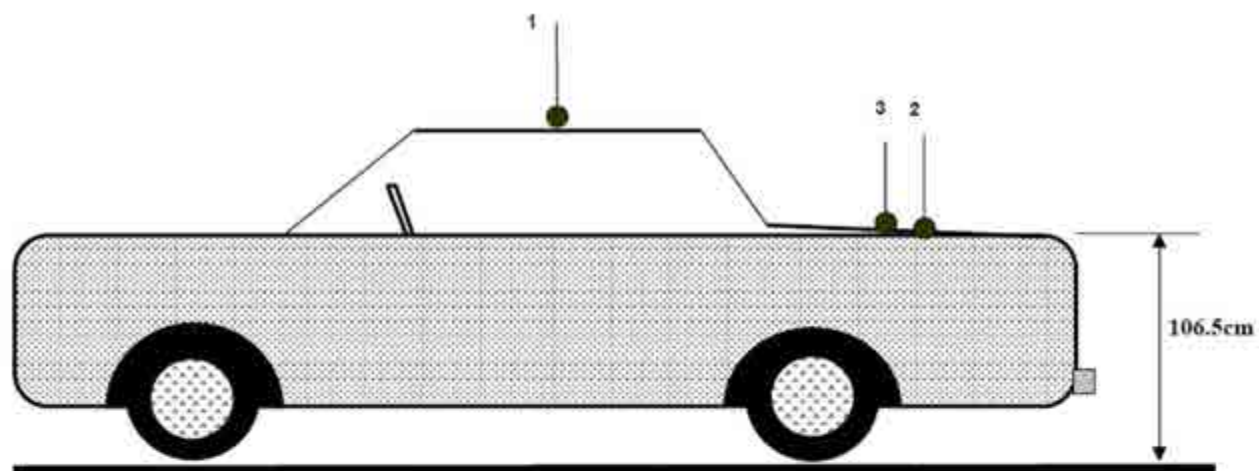
**Table 11: Maximum MPE RF Exposure Summary**

| Designator | Frequency (MHz)                 | Passenger (mW/cm <sup>2</sup> ) | Bystander (mW/cm <sup>2</sup> ) |
|------------|---------------------------------|---------------------------------|---------------------------------|
| Overall    | 403 – 470 MHz                   | 0.16                            | 0.14                            |
| FCC        | 406.1 – 470 MHz                 | 0.16                            | 0.14                            |
| IC         | 406 – 430 MHz,<br>450 – 470 MHz | 0.14                            | 0.13                            |

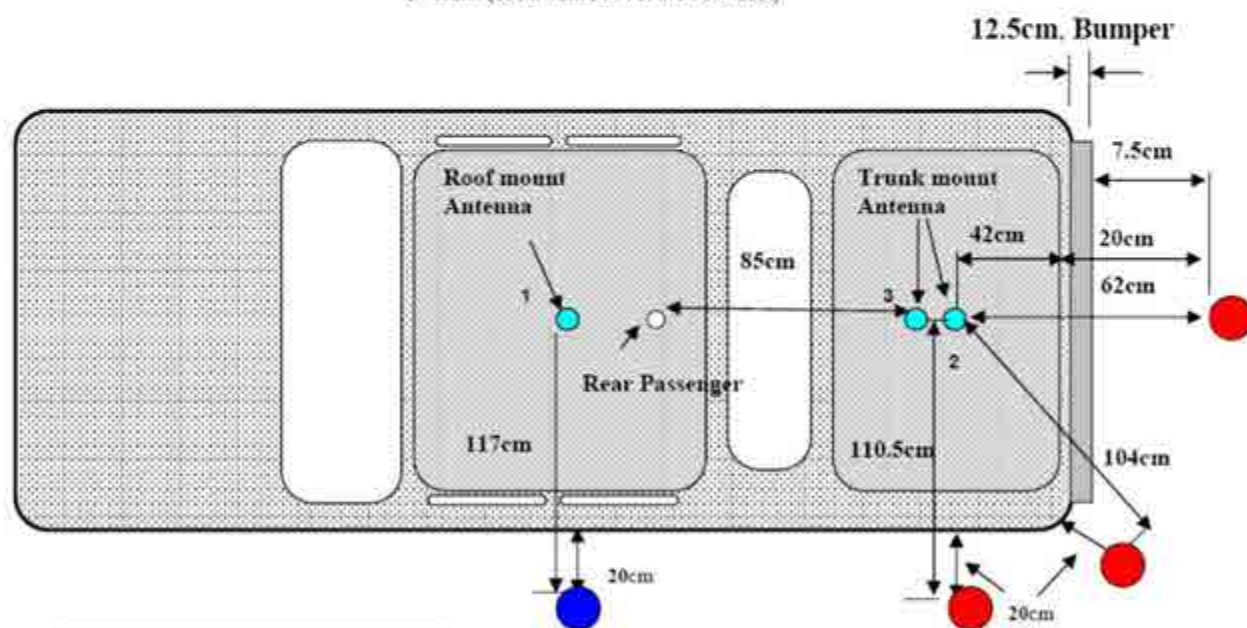
These MPE results herein demonstrate compliance to the FCC Occupational/Controlled Exposure limits. FCC rules require compliance for Passengers and Bystanders to the FCC General Population/Uncontrolled limits.

These MPE results demonstrate compliance to Industry Canada and ICNIRP Occupational / Controlled Exposure limits.

## **Appendix A - Antenna Locations, Test Distances, and Cable Losses**



- 1 - Roof (center)  
2 - Trunk (center)  
3 - Trunk (85cm from back of the back seat)



### By-Stander Test Locations

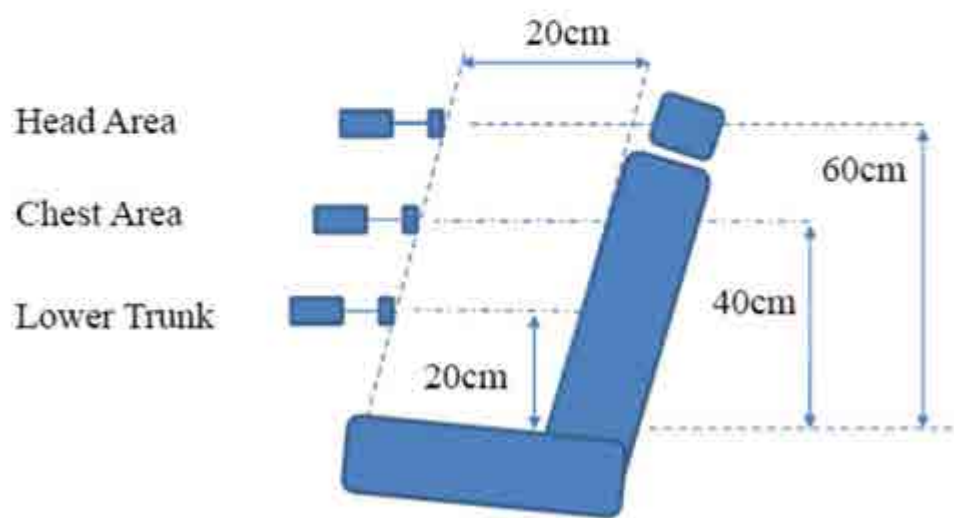
- Roof Mount
- Trunk Mount

**Note:** The distance from the centered trunk-mounted antenna to the edge of the vehicle is 42cm and the distance from the edge of the vehicle to the survey probe sensor is 20cm.

Seat scan areas  
(Applicable to both front and back seats)

Meter - Probe

 Probe diameter is 5.5cm



## Cable Losses

### Test Cable

#### Teflon RG58A/U Loss Per 100 Feet

160 MHz - 5 dB

450 MHz - 9 dB

1 GHz - 13.8 dB

### Customer Cable

#### ARG-58U Loss Per 100 Feet

200 MHz - 6.0 dB

400 MHz - 8.8 dB

1 GHz - 14.9 dB

## **Appendix B - Probe Calibration Certificates**









## **Appendix C - Photos of Assessed Antennas**

(Refer to Exhibit 7B)

## **Appendix D – MPE Measurement Results**

## MPE measurement data for Bystander

| D.U.T. Info. |                            |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | MPE Measurements |       |       |       |        |        |        |        |        |        | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|----------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.       | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max Pwr<br>(W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | 20 cm            | 40 cm | 60 cm | 80 cm | 100 cm | 120 cm | 140 cm | 160 cm | 180 cm | 200 cm |                          |                                   |                            |                                   |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | BS        | 0.013            | 0.005 | 0.011 | 0.032 | 0.087  | 0.472  | 0.475  | 0.422  | 0.226  | 0.278  | 0.5                      | 0.202                             | 0.088                      | 0.09                              |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | BS        | 0.012            | 0.005 | 0.012 | 0.042 | 0.11   | 0.430  | 0.440  | 0.357  | 0.184  | 0.227  | 0.5                      | 0.182                             | 0.080                      | 0.08                              |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | BS        | 0.010            | 0.005 | 0.010 | 0.037 | 0.085  | 0.258  | 0.259  | 0.191  | 0.081  | 0.110  | 0.5                      | 0.105                             | 0.046                      | 0.05                              |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | BS        | 0.003            | 0.003 | 0.006 | 0.028 | 0.167  | 0.558  | 0.560  | 0.337  | 0.157  | 0.236  | 0.5                      | 0.206                             | 0.094                      | 0.10                              |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | BS        | 0.006            | 0.005 | 0.011 | 0.043 | 0.165  | 0.536  | 0.545  | 0.315  | 0.121  | 0.203  | 0.5                      | 0.195                             | 0.090                      | 0.09                              |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS        | 0.003            | 0.003 | 0.005 | 0.016 | 0.05   | 0.174  | 0.179  | 0.105  | 0.041  | 0.067  | 0.5                      | 0.064                             | 0.030                      | 0.03                              |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 445.0125         | 30             | 28.7               | CW           | E           | 0.91                    | BS        | 0.005            | 0.002 | 0.003 | 0.018 | 0.026  | 0.076  | 0.088  | 0.068  | 0.037  | 0.048  | 0.5                      | 0.037                             | 0.017                      | 0.02                              |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 457.5            | 30             | 29.6               | CW           | E           | 0.92                    | BS        | 0.018            | 0.009 | 0.021 | 0.091 | 0.104  | 0.332  | 0.437  | 0.399  | 0.231  | 0.166  | 0.5                      | 0.181                             | 0.083                      | 0.08                              |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 469.9875         | 30             | 28.6               | CW           | E           | 0.93                    | BS        | 0.004            | 0.003 | 0.006 | 0.023 | 0.027  | 0.061  | 0.130  | 0.165  | 0.099  | 0.028  | 0.5                      | 0.055                             | 0.025                      | 0.03                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | BS        | 0.056            | 0.028 | 0.057 | 0.174 | 0.534  | 0.649  | 0.589  | 0.340  | 0.151  | 0.067  | 0.5                      | 0.265                             | 0.115                      | 0.12                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | BS        | 0.056            | 0.023 | 0.060 | 0.189 | 0.312  | 0.638  | 0.584  | 0.351  | 0.161  | 0.066  | 0.5                      | 0.244                             | 0.106                      | 0.11                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | BS        | 0.051            | 0.029 | 0.062 | 0.243 | 0.621  | 0.742  | 0.654  | 0.357  | 0.137  | 0.050  | 0.5                      | 0.295                             | 0.130                      | 0.13                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | BS        | 0.060            | 0.025 | 0.066 | 0.276 | 0.552  | 0.723  | 0.660  | 0.405  | 0.175  | 0.069  | 0.5                      | 0.301                             | 0.135                      | 0.14                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | BS        | 0.020            | 0.029 | 0.063 | 0.230 | 0.419  | 0.667  | 0.548  | 0.328  | 0.152  | 0.069  | 0.5                      | 0.253                             | 0.115                      | 0.12                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS        | 0.018            | 0.032 | 0.057 | 0.181 | 0.334  | 0.568  | 0.502  | 0.305  | 0.148  | 0.067  | 0.5                      | 0.221                             | 0.103                      | 0.11                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Bystander

| D.U.T. Info. |                           |                       |                  |                |                    |              | Probe Info. |                         |    | MPE Measurements |       |       |       |        |        |        |        |        |        | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|---------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|----|------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.      | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max Pwr<br>(W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |    | 20 cm            | 40 cm | 60 cm | 80 cm | 100 cm | 120 cm | 140 cm | 160 cm | 180 cm | 200 cm |                          |                                   |                            |                                   |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | BS | 0.048            | 0.022 | 0.056 | 0.155 | 0.478  | 0.532  | 0.495  | 0.295  | 0.128  | 0.057  | 0.5                      | 0.227                             | 0.098                      | 0.10                              |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | BS | 0.041            | 0.020 | 0.061 | 0.187 | 0.521  | 0.583  | 0.523  | 0.310  | 0.136  | 0.057  | 0.5                      | 0.244                             | 0.107                      | 0.11                              |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | BS | 0.044            | 0.028 | 0.061 | 0.222 | 0.534  | 0.643  | 0.613  | 0.378  | 0.173  | 0.072  | 0.5                      | 0.277                             | 0.122                      | 0.12                              |
|              |                           |                       |                  |                |                    |              |             |                         |    |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | BS | 0.034            | 0.030 | 0.053 | 0.230 | 0.468  | 0.667  | 0.587  | 0.341  | 0.145  | 0.059  | 0.5                      | 0.261                             | 0.119                      | 0.12                              |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | BS | 0.027            | 0.033 | 0.052 | 0.262 | 0.478  | 0.675  | 0.598  | 0.343  | 0.153  | 0.069  | 0.5                      | 0.269                             | 0.124                      | 0.13                              |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS | 0.021            | 0.037 | 0.056 | 0.232 | 0.377  | 0.603  | 0.537  | 0.297  | 0.126  | 0.053  | 0.5                      | 0.234                             | 0.109                      | 0.11                              |
|              |                           |                       |                  |                |                    |              |             |                         |    |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | BS | 0.010            | 0.011 | 0.017 | 0.083 | 0.193  | 0.570  | 0.632  | 0.380  | 0.113  | 0.149  | 0.5                      | 0.216                             | 0.098                      | 0.10                              |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | BS | 0.010            | 0.009 | 0.014 | 0.077 | 0.248  | 0.653  | 0.690  | 0.413  | 0.116  | 0.151  | 0.5                      | 0.238                             | 0.110                      | 0.11                              |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS | 0.010            | 0.012 | 0.021 | 0.077 | 0.261  | 0.701  | 0.741  | 0.449  | 0.103  | 0.131  | 0.5                      | 0.251                             | 0.117                      | 0.12                              |
|              |                           |                       |                  |                |                    |              |             |                         |    |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | BS | 0.049            | 0.024 | 0.064 | 0.179 | 0.522  | 0.607  | 0.556  | 0.341  | 0.157  | 0.070  | 0.5                      | 0.257                             | 0.112                      | 0.11                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | BS | 0.049            | 0.025 | 0.071 | 0.184 | 0.523  | 0.614  | 0.574  | 0.339  | 0.157  | 0.068  | 0.5                      | 0.260                             | 0.113                      | 0.11                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | BS | 0.055            | 0.038 | 0.082 | 0.251 | 0.609  | 0.724  | 0.639  | 0.341  | 0.134  | 0.045  | 0.5                      | 0.292                             | 0.128                      | 0.13                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | BS | 0.050            | 0.030 | 0.065 | 0.260 | 0.544  | 0.745  | 0.667  | 0.399  | 0.179  | 0.072  | 0.5                      | 0.301                             | 0.135                      | 0.14                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | BS | 0.035            | 0.033 | 0.059 | 0.236 | 0.479  | 0.706  | 0.642  | 0.395  | 0.187  | 0.081  | 0.5                      | 0.285                             | 0.130                      | 0.13                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS | 0.020            | 0.034 | 0.054 | 0.210 | 0.367  | 0.601  | 0.563  | 0.332  | 0.157  | 0.072  | 0.5                      | 0.241                             | 0.112                      | 0.12                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Bystander

| D.U.T. Info. |                          |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | MPE Measurements |       |       |       |        |        |        |        |        |        | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|--------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.     | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max Pwr<br>(W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | 20 cm            | 40 cm | 60 cm | 80 cm | 100 cm | 120 cm | 140 cm | 160 cm | 180 cm | 200 cm |                          |                                   |                            |                                   |
| 45 degree    | FCC Band                 |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Trunk        | HAE6029A,<br>403-527MHz  | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | BS        | 0.028            | 0.034 | 0.079 | 0.086 | 0.119  | 0.251  | 0.258  | 0.232  | 0.152  | 0.081  | 0.5                      | 0.132                             | 0.059                      | 0.06                              |
|              |                          |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| 45 degree    | IC Band                  |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Trunk        | HAE6022A,<br>403-527MHz  | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | BS        | 0.048            | 0.056 | 0.110 | 0.106 | 0.196  | 0.282  | 0.332  | 0.288  | 0.193  | 0.107  | 0.5                      | 0.172                             | 0.076                      | 0.08                              |
|              |                          |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| 90 degree    | FCC Band                 |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Trunk        | HAE6029A,<br>403-527MHz  | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | BS        | 0.049            | 0.045 | 0.088 | 0.066 | 0.129  | 0.226  | 0.301  | 0.259  | 0.175  | 0.094  | 0.5                      | 0.143                             | 0.064                      | 0.07                              |
|              |                          |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| 90 degree    | IC Band                  |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Trunk        | HAE6022A,<br>403-527MHz  | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | BS        | 0.052            | 0.046 | 0.101 | 0.107 | 0.23   | 0.362  | 0.415  | 0.318  | 0.200  | 0.098  | 0.5                      | 0.193                             | 0.085                      | 0.09                              |
|              |                          |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Roof         | HAE4002A,<br>403-430 MHz | 2.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | BS        | 0.007            | 0.004 | 0.007 | 0.010 | 0.036  | 0.070  | 0.112  | 0.151  | 0.190  | 0.197  | 0.5                      | 0.078                             | 0.034                      | 0.03                              |
| Roof         | HAE4002A,<br>403-430 MHz | 2.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | BS        | 0.006            | 0.003 | 0.006 | 0.013 | 0.039  | 0.073  | 0.117  | 0.160  | 0.200  | 0.202  | 0.5                      | 0.082                             | 0.036                      | 0.04                              |
| Roof         | HAE4002A,<br>403-430 MHz | 2.15                  | 416.5            | 30             | 29.6               | CW           | E           | 0.88                    | BS        | 0.005            | 0.003 | 0.012 | 0.027 | 0.054  | 0.089  | 0.122  | 0.153  | 0.182  | 0.190  | 0.5                      | 0.084                             | 0.037                      | 0.04                              |
| Roof         | HAE4002A,<br>403-430 MHz | 2.15                  | 429.9875         | 30             | 29                 | CW           | E           | 0.89                    | BS        | 0.006            | 0.005 | 0.010 | 0.022 | 0.039  | 0.060  | 0.080  | 0.117  | 0.170  | 0.189  | 0.5                      | 0.070                             | 0.031                      | 0.03                              |
|              |                          |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |        |                          |                                   |                            |                                   |
| Roof         | HAE4003A,<br>450-470 MHz | 2.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | BS        | 0.004            | 0.006 | 0.013 | 0.028 | 0.038  | 0.060  | 0.100  | 0.172  | 0.232  | 0.241  | 0.5                      | 0.089                             | 0.041                      | 0.04                              |
| Roof         | HAE4003A,<br>450-470 MHz | 2.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | BS        | 0.003            | 0.006 | 0.012 | 0.035 | 0.048  | 0.067  | 0.101  | 0.158  | 0.202  | 0.221  | 0.5                      | 0.085                             | 0.039                      | 0.04                              |
| Roof         | HAE4003A,<br>450-470 MHz | 2.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS        | 0.002            | 0.004 | 0.007 | 0.029 | 0.034  | 0.051  | 0.099  | 0.159  | 0.202  | 0.213  | 0.5                      | 0.080                             | 0.037                      | 0.04                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Bystander

| D.U.T. Info. |                           |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | MPE Measurements |       |       |       |        |        |        |        |        | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |        |
|--------------|---------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|--------|
| Ant Loc.     | Ant. Model/<br>Desc.      | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max Pwr<br>(W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           |                  |       |       |       |        |        |        |        |        |                          |                                   |                            |                                   |        |
|              |                           |                       |                  |                |                    |              |             |                         |           | 20 cm            | 40 cm | 60 cm | 80 cm | 100 cm | 120 cm | 140 cm | 160 cm | 180 cm |                          |                                   |                            |                                   | 200 cm |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | BS        | 0.001            | 0.001 | 0.001 | 0.004 | 0.006  | 0.006  | 0.010  | 0.017  | 0.022  | 0.023                    | 0.5                               | 0.009                      | 0.004                             | 0.00   |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | BS        | 0.001            | 0.001 | 0.001 | 0.004 | 0.006  | 0.009  | 0.016  | 0.025  | 0.032  | 0.035                    | 0.5                               | 0.013                      | 0.006                             | 0.01   |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS        | 0.001            | 0.001 | 0.001 | 0.004 | 0.006  | 0.011  | 0.017  | 0.025  | 0.032  | 0.035                    | 0.5                               | 0.013                      | 0.006                             | 0.01   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |                          |                                   |                            |                                   |        |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | BS        | 0.008            | 0.006 | 0.004 | 0.012 | 0.032  | 0.034  | 0.120  | 0.144  | 0.168  | 0.158                    | 0.5                               | 0.069                      | 0.030                             | 0.03   |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | BS        | 0.004            | 0.002 | 0.006 | 0.026 | 0.05   | 0.084  | 0.120  | 0.142  | 0.169  | 0.159                    | 0.5                               | 0.076                      | 0.033                             | 0.03   |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | BS        | 0.004            | 0.002 | 0.012 | 0.029 | 0.046  | 0.073  | 0.100  | 0.131  | 0.166  | 0.163                    | 0.5                               | 0.073                      | 0.032                             | 0.03   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |                          |                                   |                            |                                   |        |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | BS        | 0.005            | 0.006 | 0.013 | 0.025 | 0.033  | 0.053  | 0.098  | 0.163  | 0.203  | 0.187                    | 0.5                               | 0.079                      | 0.036                             | 0.04   |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | BS        | 0.005            | 0.005 | 0.014 | 0.031 | 0.047  | 0.073  | 0.131  | 0.195  | 0.231  | 0.214                    | 0.5                               | 0.095                      | 0.044                             | 0.04   |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS        | 0.006            | 0.006 | 0.010 | 0.025 | 0.041  | 0.078  | 0.131  | 0.184  | 0.209  | 0.180                    | 0.5                               | 0.087                      | 0.041                             | 0.04   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                  |       |       |       |        |        |        |        |        |                          |                                   |                            |                                   |        |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | BS        | 0.001            | 0.001 | 0.003 | 0.008 | 0.013  | 0.028  | 0.085  | 0.188  | 0.283  | 0.266                    | 0.5                               | 0.088                      | 0.040                             | 0.04   |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | BS        | 0.001            | 0.001 | 0.003 | 0.008 | 0.017  | 0.032  | 0.084  | 0.183  | 0.275  | 0.261                    | 0.5                               | 0.087                      | 0.040                             | 0.04   |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS        | 0.001            | 0.001 | 0.003 | 0.007 | 0.013  | 0.029  | 0.079  | 0.159  | 0.249  | 0.245                    | 0.5                               | 0.079                      | 0.037                             | 0.04   |

MPE calculations are defined in section 13.0.

## MPE measurement data for Bystander

| D.U.T. Info. |                         |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | MPE Measurements |       |       |       |        |        |        |        |        |        | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|-------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.    | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max Pwr<br>(W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | 20 cm            | 40 cm | 60 cm | 80 cm | 100 cm | 120 cm | 140 cm | 160 cm | 180 cm | 200 cm |                          |                                   |                            |                                   |
| Roof         | HAE6029A,<br>403-527MHz | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | BS        | 0.008            | 0.005 | 0.006 | 0.011 | 0.035  | 0.070  | 0.125  | 0.163  | 0.192  | 0.189  | 0.5                      | 0.080                             | 0.035                      | 0.04                              |
| Roof         | HAE6029A,<br>403-527MHz | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | BS        | 0.006            | 0.005 | 0.006 | 0.013 | 0.037  | 0.075  | 0.135  | 0.173  | 0.201  | 0.196  | 0.5                      | 0.085                             | 0.037                      | 0.04                              |
| Roof         | HAE6029A,<br>403-527MHz | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | BS        | 0.008            | 0.005 | 0.013 | 0.027 | 0.051  | 0.090  | 0.132  | 0.149  | 0.181  | 0.186  | 0.5                      | 0.084                             | 0.037                      | 0.04                              |
| Roof         | HAE6029A,<br>403-527MHz | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | BS        | 0.004            | 0.003 | 0.010 | 0.027 | 0.049  | 0.069  | 0.097  | 0.155  | 0.218  | 0.221  | 0.5                      | 0.085                             | 0.038                      | 0.04                              |
| Roof         | HAE6029A,<br>403-527MHz | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | BS        | 0.004            | 0.003 | 0.012 | 0.029 | 0.047  | 0.077  | 0.119  | 0.187  | 0.232  | 0.220  | 0.5                      | 0.093                             | 0.042                      | 0.04                              |
| Roof         | HAE6029A,<br>403-527MHz | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | BS        | 0.004            | 0.005 | 0.013 | 0.032 | 0.038  | 0.059  | 0.114  | 0.183  | 0.218  | 0.207  | 0.5                      | 0.087                             | 0.041                      | 0.04                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                            |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|----------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.       | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.113               | 0.053 | 0.069          | 0.5                      | 0.078                             | 0.034                      | 0.03                              |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | PB        | 0.083               | 0.040 | 0.057          | 0.5                      | 0.060                             | 0.026                      | 0.03                              |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PB        | 0.096               | 0.047 | 0.074          | 0.5                      | 0.072                             | 0.032                      | 0.03                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PB        | 0.185               | 0.260 | 0.157          | 0.5                      | 0.201                             | 0.092                      | 0.09                              |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PB        | 0.326               | 0.103 | 0.141          | 0.5                      | 0.190                             | 0.088                      | 0.09                              |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.088               | 0.036 | 0.031          | 0.5                      | 0.052                             | 0.024                      | 0.02                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 445.0125         | 30             | 28.7               | CW           | E           | 0.91                    | PB        | 0.030               | 0.025 | 0.008          | 0.5                      | 0.021                             | 0.010                      | 0.01                              |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 457.5            | 30             | 29.6               | CW           | E           | 0.92                    | PB        | 0.214               | 0.073 | 0.131          | 0.5                      | 0.139                             | 0.064                      | 0.06                              |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 469.9875         | 30             | 28.6               | CW           | E           | 0.93                    | PB        | 0.032               | 0.018 | 0.014          | 0.5                      | 0.021                             | 0.010                      | 0.01                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PB        | 0.302               | 0.187 | 0.352          | 0.5                      | 0.280                             | 0.122                      | 0.12                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.296               | 0.172 | 0.339          | 0.5                      | 0.269                             | 0.117                      | 0.12                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PB        | 0.463               | 0.206 | 0.183          | 0.5                      | 0.284                             | 0.125                      | 0.13                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | PB        | 0.448               | 0.305 | 0.241          | 0.5                      | 0.331                             | 0.149                      | 0.15                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | PB        | 0.339               | 0.313 | 0.227          | 0.5                      | 0.293                             | 0.133                      | 0.14                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.333               | 0.192 | 0.160          | 0.5                      | 0.228                             | 0.106                      | 0.11                              |

MPE calculations are defined in section 13.0.

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## MPE measurement data for Passenger

| D.U.T. Info. |                           |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|---------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.      | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.336               | 0.160 | 0.297          | 0.5                      | 0.264                             | 0.115                      | 0.12                              |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | PB        | 0.359               | 0.169 | 0.266          | 0.5                      | 0.265                             | 0.116                      | 0.12                              |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PB        | 0.340               | 0.199 | 0.324          | 0.5                      | 0.288                             | 0.127                      | 0.13                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PB        | 0.368               | 0.205 | 0.098          | 0.5                      | 0.224                             | 0.102                      | 0.10                              |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PB        | 0.459               | 0.103 | 0.124          | 0.5                      | 0.229                             | 0.105                      | 0.11                              |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.318               | 0.236 | 0.141          | 0.5                      | 0.232                             | 0.108                      | 0.11                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PB        | 0.371               | 0.211 | 0.086          | 0.5                      | 0.223                             | 0.102                      | 0.10                              |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PB        | 0.393               | 0.095 | 0.087          | 0.5                      | 0.192                             | 0.088                      | 0.09                              |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.239               | 0.168 | 0.055          | 0.5                      | 0.154                             | 0.072                      | 0.07                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PB        | 0.303               | 0.218 | 0.392          | 0.5                      | 0.304                             | 0.132                      | 0.14                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.433               | 0.197 | 0.331          | 0.5                      | 0.320                             | 0.139                      | 0.14                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PB        | 0.432               | 0.131 | 0.238          | 0.5                      | 0.267                             | 0.117                      | 0.12                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | PB        | 0.522               | 0.320 | 0.209          | 0.5                      | 0.350                             | 0.158                      | 0.16                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | PB        | 0.511               | 0.263 | 0.166          | 0.5                      | 0.313                             | 0.143                      | 0.15                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.328               | 0.223 | 0.135          | 0.5                      | 0.229                             | 0.106                      | 0.11                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                            |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|----------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.       | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.027               | 0.024 | 0.040          | 0.5                      | 0.030                             | 0.013                      | 0.01                              |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | PF        | 0.015               | 0.006 | 0.028          | 0.5                      | 0.016                             | 0.007                      | 0.01                              |
| Trunk        | HAE4010A,<br>406-420 MHz   | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PF        | 0.010               | 0.004 | 0.011          | 0.5                      | 0.008                             | 0.004                      | 0.00                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PF        | 0.019               | 0.040 | 0.021          | 0.5                      | 0.027                             | 0.012                      | 0.01                              |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PF        | 0.022               | 0.035 | 0.055          | 0.5                      | 0.037                             | 0.017                      | 0.02                              |
| Trunk        | HAE4011A,<br>450-470 MHz   | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.013               | 0.015 | 0.004          | 0.5                      | 0.011                             | 0.005                      | 0.01                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 445.0125         | 30             | 28.7               | CW           | E           | 0.91                    | PF        | 0.034               | 0.084 | 0.044          | 0.5                      | 0.054                             | 0.024                      | 0.03                              |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 457.5            | 30             | 29.6               | CW           | E           | 0.92                    | PF        | 0.044               | 0.071 | 0.094          | 0.5                      | 0.070                             | 0.032                      | 0.03                              |
| Trunk        | RAE4004ARB,<br>445-470 MHz | 7.15                  | 469.9875         | 30             | 28.6               | CW           | E           | 0.93                    | PF        | 0.071               | 0.054 | 0.021          | 0.5                      | 0.049                             | 0.023                      | 0.02                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PF        | 0.086               | 0.091 | 0.110          | 0.5                      | 0.096                             | 0.042                      | 0.04                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.095               | 0.067 | 0.103          | 0.5                      | 0.088                             | 0.038                      | 0.04                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PF        | 0.047               | 0.029 | 0.059          | 0.5                      | 0.045                             | 0.020                      | 0.02                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | PF        | 0.072               | 0.030 | 0.044          | 0.5                      | 0.049                             | 0.022                      | 0.02                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | PF        | 0.044               | 0.090 | 0.100          | 0.5                      | 0.078                             | 0.035                      | 0.04                              |
| Trunk        | HAE6022A,<br>403-527MHz    | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.078               | 0.073 | 0.049          | 0.5                      | 0.067                             | 0.031                      | 0.03                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                           |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|---------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.      | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.085               | 0.061 | 0.138          | 0.5                      | 0.095                             | 0.041                      | 0.04                              |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | PF        | 0.054               | 0.024 | 0.051          | 0.5                      | 0.043                             | 0.019                      | 0.02                              |
| Trunk        | PMAE4040A,<br>406-420 MHz | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PF        | 0.056               | 0.020 | 0.050          | 0.5                      | 0.042                             | 0.019                      | 0.02                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PF        | 0.047               | 0.060 | 0.050          | 0.5                      | 0.052                             | 0.024                      | 0.02                              |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PF        | 0.038               | 0.058 | 0.131          | 0.5                      | 0.076                             | 0.035                      | 0.04                              |
| Trunk        | PMAE4042A,<br>450-470 MHz | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.081               | 0.061 | 0.077          | 0.5                      | 0.073                             | 0.034                      | 0.04                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PF        | 0.026               | 0.068 | 0.031          | 0.5                      | 0.042                             | 0.019                      | 0.02                              |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PF        | 0.016               | 0.062 | 0.086          | 0.5                      | 0.055                             | 0.025                      | 0.03                              |
| Trunk        | PMAE4043A,<br>450-470 MHz | 7.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.071               | 0.042 | 0.020          | 0.5                      | 0.044                             | 0.021                      | 0.02                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PF        | 0.090               | 0.088 | 0.166          | 0.5                      | 0.115                             | 0.050                      | 0.05                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.096               | 0.044 | 0.154          | 0.5                      | 0.098                             | 0.043                      | 0.04                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PF        | 0.074               | 0.023 | 0.063          | 0.5                      | 0.053                             | 0.023                      | 0.02                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | PF        | 0.083               | 0.032 | 0.045          | 0.5                      | 0.053                             | 0.024                      | 0.02                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | PF        | 0.033               | 0.106 | 0.127          | 0.5                      | 0.089                             | 0.040                      | 0.04                              |
| Trunk        | HAE6029A,<br>403-527MHz   | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.101               | 0.074 | 0.052          | 0.5                      | 0.076                             | 0.035                      | 0.04                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                            |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|----------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.       | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4002A,<br>403-430 MHz   | 2.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PB        | 0.099               | 0.104 | 0.089          | 0.5                      | 0.097                             | 0.042                      | 0.04                              |
| Roof         | HAE4002A,<br>403-430 MHz   | 2.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.082               | 0.103 | 0.095          | 0.5                      | 0.093                             | 0.041                      | 0.04                              |
| Roof         | HAE4002A,<br>403-430 MHz   | 2.15                  | 416.5            | 30             | 29.6               | CW           | E           | 0.88                    | PB        | 0.077               | 0.092 | 0.079          | 0.5                      | 0.083                             | 0.036                      | 0.04                              |
| Roof         | HAE4002A,<br>403-430 MHz   | 2.15                  | 429.9875         | 30             | 29                 | CW           | E           | 0.89                    | PB        | 0.018               | 0.106 | 0.092          | 0.5                      | 0.072                             | 0.032                      | 0.03                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4003A,<br>450-470 MHz   | 2.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PB        | 0.031               | 0.062 | 0.042          | 0.5                      | 0.045                             | 0.021                      | 0.02                              |
| Roof         | HAE4003A,<br>450-470 MHz   | 2.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PB        | 0.044               | 0.036 | 0.023          | 0.5                      | 0.034                             | 0.016                      | 0.02                              |
| Roof         | HAE4003A,<br>450-470 MHz   | 2.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.019               | 0.035 | 0.011          | 0.5                      | 0.022                             | 0.010                      | 0.01                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4010A,<br>406-420 MHz   | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.006               | 0.003 | 0.003          | 0.5                      | 0.004                             | 0.002                      | 0.00                              |
| Roof         | HAE4010A,<br>406-420 MHz   | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | PB        | 0.007               | 0.005 | 0.005          | 0.5                      | 0.006                             | 0.002                      | 0.00                              |
| Roof         | HAE4010A,<br>406-420 MHz   | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PB        | 0.003               | 0.003 | 0.005          | 0.5                      | 0.004                             | 0.002                      | 0.00                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4011A,<br>450-470 MHz   | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PB        | 0.016               | 0.012 | 0.006          | 0.5                      | 0.011                             | 0.005                      | 0.01                              |
| Roof         | HAE4011A,<br>450-470 MHz   | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PB        | 0.013               | 0.013 | 0.004          | 0.5                      | 0.010                             | 0.005                      | 0.00                              |
| Roof         | HAE4011A,<br>450-470 MHz   | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.002               | 0.005 | 0.002          | 0.5                      | 0.003                             | 0.001                      | 0.00                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | RAE4004ARB,<br>445-470 MHz | 7.15                  | 445.0125         | 30             | 28.7               | CW           | E           | 0.91                    | PB        | 0.001               | 0.001 | 0.001          | 0.5                      | 0.001                             | 0.000                      | 0.00                              |
| Roof         | RAE4004ARB,<br>445-470 MHz | 7.15                  | 457.5            | 30             | 29.6               | CW           | E           | 0.92                    | PB        | 0.010               | 0.008 | 0.006          | 0.5                      | 0.008                             | 0.004                      | 0.00                              |
| Roof         | RAE4004ARB,<br>445-470 MHz | 7.15                  | 469.9875         | 30             | 28.6               | CW           | E           | 0.93                    | PB        | 0.001               | 0.002 | 0.002          | 0.5                      | 0.002                             | 0.001                      | 0.00                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                             |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|-----------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.        | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max Pwr<br>(W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                             |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
|              |                             |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4013A<br>(494 - 512 MHz) | 5.65                  | 494              | 48             | 47.1               | CW           | E           | 0.95                    | PB        | 0.010               | 0.034 | 0.026          | 0.5                      | 0.023                             | 0.011                      | 0.01                              |
| Roof         | HAE4013A<br>(494 - 512 MHz) | 5.65                  | 503              | 48             | 47.5               | CW           | E           | 0.96                    | PB        | 0.015               | 0.029 | 0.015          | 0.5                      | 0.020                             | 0.009                      | 0.01                              |
| Roof         | HAE4013A<br>(494 - 512 MHz) | 5.65                  | 512              | 48             | 47.6               | CW           | E           | 0.97                    | PB        | 0.013               | 0.026 | 0.015          | 0.5                      | 0.018                             | 0.009                      | 0.01                              |
|              |                             |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE6020A<br>(470 - 527 MHz) | 2.15                  | 470              | 48             | 47.3               | CW           | E           | 0.93                    | PB        | 0.009               | 0.026 | 0.011          | 0.5                      | 0.015                             | 0.007                      | 0.01                              |
| Roof         | HAE6020A<br>(470 - 527 MHz) | 2.15                  | 484              | 48             | 47.7               | CW           | E           | 0.94                    | PB        | 0.034               | 0.062 | 0.013          | 0.5                      | 0.036                             | 0.017                      | 0.02                              |
| Roof         | HAE6020A<br>(470 - 527 MHz) | 2.15                  | 498              | 48             | 47.6               | CW           | E           | 0.96                    | PB        | 0.025               | 0.058 | 0.047          | 0.5                      | 0.043                             | 0.021                      | 0.02                              |
| Roof         | HAE6020A<br>(470 - 527 MHz) | 2.15                  | 512              | 48             | 47.6               | CW           | E           | 0.97                    | PB        | 0.037               | 0.065 | 0.046          | 0.5                      | 0.049                             | 0.024                      | 0.02                              |
| Roof         | HAE6020A<br>(470 - 527 MHz) | 2.15                  | 527              | 48             | 47.5               | CW           | E           | 0.97                    | PB        | 0.035               | 0.066 | 0.048          | 0.5                      | 0.050                             | 0.024                      | 0.02                              |
|              |                             |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE6022A<br>(403-527 MHz)   | 4.15                  | 450              | 48             | 48                 | CW           | E           | 0.91                    | PB        | 0.037               | 0.077 | 0.071          | 0.5                      | 0.062                             | 0.028                      | 0.03                              |
| Roof         | HAE6022A<br>(403-527 MHz)   | 4.15                  | 465.5            | 48             | 48                 | CW           | E           | 0.93                    | PB        | 0.033               | 0.059 | 0.020          | 0.5                      | 0.037                             | 0.017                      | 0.02                              |
| Roof         | HAE6022A<br>(403-527 MHz)   | 4.15                  | 481              | 48             | 47.5               | CW           | E           | 0.94                    | PB        | 0.029               | 0.087 | 0.047          | 0.5                      | 0.054                             | 0.026                      | 0.03                              |
| Roof         | HAE6022A<br>(403-527 MHz)   | 4.15                  | 496.5            | 48             | 47.4               | CW           | E           | 0.96                    | PB        | 0.031               | 0.075 | 0.075          | 0.5                      | 0.060                             | 0.029                      | 0.03                              |
| Roof         | HAE6022A<br>(403-527 MHz)   | 4.15                  | 512              | 48             | 47.6               | CW           | E           | 0.97                    | PB        | 0.043               | 0.080 | 0.048          | 0.5                      | 0.057                             | 0.028                      | 0.03                              |
| Roof         | HAE6022A<br>(403-527 MHz)   | 4.15                  | 527              | 48             | 47.5               | CW           | E           | 0.97                    | PB        | 0.041               | 0.075 | 0.074          | 0.5                      | 0.063                             | 0.031                      | 0.03                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                           |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|---------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.      | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PB        | 0.103               | 0.106 | 0.078          | 0.5                      | 0.096                             | 0.042                      | 0.04                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.110               | 0.111 | 0.095          | 0.5                      | 0.105                             | 0.046                      | 0.05                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PB        | 0.038               | 0.081 | 0.069          | 0.5                      | 0.063                             | 0.028                      | 0.03                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | PB        | 0.022               | 0.096 | 0.075          | 0.5                      | 0.064                             | 0.029                      | 0.03                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | PB        | 0.047               | 0.051 | 0.047          | 0.5                      | 0.048                             | 0.022                      | 0.02                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.014               | 0.057 | 0.019          | 0.5                      | 0.030                             | 0.014                      | 0.01                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | PMAE4039A,<br>403-430 MHz | 2.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PB        | 0.013               | 0.019 | 0.016          | 0.5                      | 0.016                             | 0.007                      | 0.01                              |
| Roof         | PMAE4039A,<br>403-430 MHz | 2.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.021               | 0.022 | 0.021          | 0.5                      | 0.021                             | 0.009                      | 0.01                              |
| Roof         | PMAE4039A,<br>403-430 MHz | 2.15                  | 416.5            | 30             | 29.6               | CW           | E           | 0.88                    | PB        | 0.027               | 0.031 | 0.032          | 0.5                      | 0.030                             | 0.013                      | 0.01                              |
| Roof         | PMAE4039A,<br>403-430 MHz | 2.15                  | 429.9875         | 30             | 29                 | CW           | E           | 0.89                    | PB        | 0.010               | 0.070 | 0.050          | 0.5                      | 0.043                             | 0.019                      | 0.02                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PB        | 0.004               | 0.006 | 0.004          | 0.5                      | 0.005                             | 0.002                      | 0.00                              |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PB        | 0.008               | 0.005 | 0.003          | 0.5                      | 0.005                             | 0.002                      | 0.00                              |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.003               | 0.006 | 0.002          | 0.5                      | 0.004                             | 0.002                      | 0.00                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.080               | 0.105 | 0.075          | 0.5                      | 0.087                             | 0.038                      | 0.04                              |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | PB        | 0.069               | 0.087 | 0.081          | 0.5                      | 0.079                             | 0.035                      | 0.04                              |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PB        | 0.036               | 0.056 | 0.046          | 0.5                      | 0.046                             | 0.020                      | 0.02                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                           |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|---------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.      | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PB        | 0.044               | 0.059 | 0.051          | 0.5                      | 0.051                             | 0.023                      | 0.02                              |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PB        | 0.040               | 0.062 | 0.027          | 0.5                      | 0.043                             | 0.020                      | 0.02                              |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.015               | 0.068 | 0.017          | 0.5                      | 0.033                             | 0.016                      | 0.02                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PB        | 0.005               | 0.022 | 0.025          | 0.5                      | 0.017                             | 0.008                      | 0.01                              |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PB        | 0.014               | 0.025 | 0.007          | 0.5                      | 0.015                             | 0.007                      | 0.01                              |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.022               | 0.022 | 0.006          | 0.5                      | 0.017                             | 0.008                      | 0.01                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PB        | 0.090               | 0.098 | 0.048          | 0.5                      | 0.079                             | 0.034                      | 0.03                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PB        | 0.088               | 0.084 | 0.069          | 0.5                      | 0.080                             | 0.035                      | 0.04                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PB        | 0.044               | 0.052 | 0.056          | 0.5                      | 0.051                             | 0.022                      | 0.02                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | PB        | 0.022               | 0.105 | 0.075          | 0.5                      | 0.067                             | 0.030                      | 0.03                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | PB        | 0.043               | 0.066 | 0.058          | 0.5                      | 0.056                             | 0.025                      | 0.03                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PB        | 0.016               | 0.064 | 0.020          | 0.5                      | 0.033                             | 0.016                      | 0.02                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4002A,<br>403-430 MHz  | 2.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PF        | 0.025               | 0.030 | 0.036          | 0.5                      | 0.030                             | 0.013                      | 0.01                              |
| Roof         | HAE4002A,<br>403-430 MHz  | 2.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.020               | 0.030 | 0.038          | 0.5                      | 0.029                             | 0.013                      | 0.01                              |
| Roof         | HAE4002A,<br>403-430 MHz  | 2.15                  | 416.5            | 30             | 29.6               | CW           | E           | 0.88                    | PF        | 0.015               | 0.016 | 0.032          | 0.5                      | 0.021                             | 0.009                      | 0.01                              |
| Roof         | HAE4002A,<br>403-430 MHz  | 2.15                  | 429.9875         | 30             | 29                 | CW           | E           | 0.89                    | PF        | 0.037               | 0.009 | 0.036          | 0.5                      | 0.027                             | 0.012                      | 0.01                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                            |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|----------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.       | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4003A,<br>450-470 MHz   | 2.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PF        | 0.041               | 0.030 | 0.040          | 0.5                      | 0.037                             | 0.017                      | 0.02                              |
| Roof         | HAE4003A,<br>450-470 MHz   | 2.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PF        | 0.040               | 0.020 | 0.055          | 0.5                      | 0.038                             | 0.018                      | 0.02                              |
| Roof         | HAE4003A,<br>450-470 MHz   | 2.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.033               | 0.021 | 0.019          | 0.5                      | 0.024                             | 0.011                      | 0.01                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4010A,<br>406-420 MHz   | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.003               | 0.002 | 0.005          | 0.5                      | 0.003                             | 0.001                      | 0.00                              |
| Roof         | HAE4010A,<br>406-420 MHz   | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | PF        | 0.003               | 0.003 | 0.007          | 0.5                      | 0.004                             | 0.002                      | 0.00                              |
| Roof         | HAE4010A,<br>406-420 MHz   | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PF        | 0.002               | 0.001 | 0.003          | 0.5                      | 0.002                             | 0.001                      | 0.00                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE4011A,<br>450-470 MHz   | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PF        | 0.010               | 0.012 | 0.015          | 0.5                      | 0.012                             | 0.006                      | 0.01                              |
| Roof         | HAE4011A,<br>450-470 MHz   | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PF        | 0.009               | 0.007 | 0.021          | 0.5                      | 0.012                             | 0.006                      | 0.01                              |
| Roof         | HAE4011A,<br>450-470 MHz   | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.003               | 0.003 | 0.002          | 0.5                      | 0.003                             | 0.001                      | 0.00                              |
|              |                            |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | RAE4004ARB,<br>445-470 MHz | 7.15                  | 445.0125         | 30             | 28.7               | CW           | E           | 0.91                    | PF        | 0.001               | 0.001 | 0.001          | 0.5                      | 0.001                             | 0.000                      | 0.00                              |
| Roof         | RAE4004ARB,<br>445-470 MHz | 7.15                  | 457.5            | 30             | 29.6               | CW           | E           | 0.92                    | PF        | 0.008               | 0.006 | 0.008          | 0.5                      | 0.007                             | 0.003                      | 0.00                              |
| Roof         | RAE4004ARB,<br>445-470 MHz | 7.15                  | 469.9875         | 30             | 28.6               | CW           | E           | 0.93                    | PF        | 0.002               | 0.001 | 0.001          | 0.5                      | 0.001                             | 0.001                      | 0.00                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                           |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|---------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.      | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PF        | 0.024               | 0.030 | 0.031          | 0.5                      | 0.028                             | 0.012                      | 0.01                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.024               | 0.033 | 0.042          | 0.5                      | 0.033                             | 0.014                      | 0.01                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PF        | 0.019               | 0.020 | 0.032          | 0.5                      | 0.024                             | 0.010                      | 0.01                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | PF        | 0.032               | 0.005 | 0.017          | 0.5                      | 0.018                             | 0.008                      | 0.01                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | PF        | 0.033               | 0.025 | 0.038          | 0.5                      | 0.032                             | 0.015                      | 0.02                              |
| Roof         | HAE6022A,<br>403-527MHz   | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.030               | 0.020 | 0.024          | 0.5                      | 0.025                             | 0.011                      | 0.01                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | PMAE4039A,<br>403-430 MHz | 2.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PF        | 0.003               | 0.005 | 0.007          | 0.5                      | 0.005                             | 0.002                      | 0.00                              |
| Roof         | PMAE4039A,<br>403-430 MHz | 2.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.004               | 0.060 | 0.007          | 0.5                      | 0.024                             | 0.010                      | 0.01                              |
| Roof         | PMAE4039A,<br>403-430 MHz | 2.15                  | 416.5            | 30             | 29.6               | CW           | E           | 0.88                    | PF        | 0.006               | 0.003 | 0.013          | 0.5                      | 0.007                             | 0.003                      | 0.00                              |
| Roof         | PMAE4039A,<br>403-430 MHz | 2.15                  | 429.9875         | 30             | 29                 | CW           | E           | 0.89                    | PF        | 0.022               | 0.008 | 0.038          | 0.5                      | 0.023                             | 0.010                      | 0.01                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PF        | 0.005               | 0.004 | 0.006          | 0.5                      | 0.005                             | 0.002                      | 0.00                              |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PF        | 0.008               | 0.003 | 0.011          | 0.5                      | 0.007                             | 0.003                      | 0.00                              |
| Roof         | PMAE4041A,<br>450-470 MHz | 2.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.007               | 0.003 | 0.004          | 0.5                      | 0.005                             | 0.002                      | 0.00                              |
|              |                           |                       |                  |                |                    |              |             |                         |           |                     |       |                |                          |                                   |                            |                                   |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.039               | 0.024 | 0.044          | 0.5                      | 0.036                             | 0.015                      | 0.02                              |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 413.0125         | 30             | 29.4               | CW           | E           | 0.88                    | PF        | 0.037               | 0.012 | 0.026          | 0.5                      | 0.025                             | 0.011                      | 0.01                              |
| Roof         | PMAE4040A,<br>406-420 MHz | 5.65                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PF        | 0.016               | 0.011 | 0.018          | 0.5                      | 0.015                             | 0.007                      | 0.01                              |

MPE calculations are defined in section 13.0.

## MPE measurement data for Passenger

| D.U.T. Info. |                           |                       |                  |                |                    |              | Probe Info. |                         | Test Pos. | Passenger Positions |       |                | DUT<br>Max. TX<br>Factor | Avg. over<br>Body<br>(mW/<br>cm2) | Calc. P.D.<br>(mW/<br>cm2) | Max<br>Calc. P.D.<br>(mW/<br>cm2) |
|--------------|---------------------------|-----------------------|------------------|----------------|--------------------|--------------|-------------|-------------------------|-----------|---------------------|-------|----------------|--------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Ant Loc.     | Ant. Model/<br>Desc.      | Ant.<br>Gain<br>(dBi) | Tx Freq<br>(MHz) | Max<br>Pwr (W) | Initial<br>Pwr (W) | Test<br>Mode | E/H Field   | Probe<br>Cal.<br>Factor |           | Head                | Chest | Lower<br>Trunk |                          |                                   |                            |                                   |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PF        | 0.040               | 0.017 | 0.033          | 0.5                      | 0.030                             | 0.014                      | 0.01                              |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PF        | 0.042               | 0.018 | 0.083          | 0.5                      | 0.048                             | 0.022                      | 0.02                              |
| Roof         | PMAE4042A,<br>450-470 MHz | 5.65                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.050               | 0.025 | 0.034          | 0.5                      | 0.036                             | 0.017                      | 0.02                              |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 450.0125         | 30             | 29.4               | CW           | E           | 0.91                    | PF        | 0.021               | 0.012 | 0.009          | 0.5                      | 0.014                             | 0.006                      | 0.01                              |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 460.0125         | 30             | 29.2               | CW           | E           | 0.92                    | PF        | 0.017               | 0.010 | 0.033          | 0.5                      | 0.020                             | 0.009                      | 0.01                              |
| Roof         | PMAE4043A,<br>450-470 MHz | 7.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.021               | 0.009 | 0.013          | 0.5                      | 0.014                             | 0.007                      | 0.01                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 403.0125         | 30             | 29.4               | CW           | E           | 0.87                    | PF        | 0.013               | 0.032 | 0.021          | 0.5                      | 0.022                             | 0.010                      | 0.01                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 406.0125         | 30             | 29.6               | CW           | E           | 0.87                    | PF        | 0.029               | 0.054 | 0.035          | 0.5                      | 0.039                             | 0.017                      | 0.02                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 419.9875         | 30             | 29.5               | CW           | E           | 0.88                    | PF        | 0.028               | 0.009 | 0.022          | 0.5                      | 0.020                             | 0.009                      | 0.01                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 436.5            | 30             | 29.4               | CW           | E           | 0.90                    | PF        | 0.042               | 0.010 | 0.033          | 0.5                      | 0.028                             | 0.013                      | 0.01                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 453.0125         | 30             | 29.1               | CW           | E           | 0.91                    | PF        | 0.046               | 0.039 | 0.044          | 0.5                      | 0.043                             | 0.020                      | 0.02                              |
| Roof         | HAE6029A,<br>403-527MHz   | 4.15                  | 469.9875         | 30             | 29                 | CW           | E           | 0.93                    | PF        | 0.048               | 0.021 | 0.020          | 0.5                      | 0.030                             | 0.014                      | 0.01                              |

MPE calculations are defined in section 13.0.