MOTOROLA SOLUTIONS

DECLARATION OF COMPLIANCE: MPE ASSESSMENT

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Date of Report: **12/15/2016**
Report Revision: **B**

Responsible Engineer:	Saw Sun Hock (EME Engineer)
Report author:	Saw Sun Hock (EME Engineer)
Date(s) Tested:	8/31/2016~9/2/2016 ; 9/25/2016
Manufacturer:	Motorola Solutions Inc.
Date submitted for test:	08/10/2016
DUT Description:	APX8500 mobile All Bands (VHF, UHF, 7/800)- Motorcycle Mount option
Test TX mode(s):	CW
Max. Power output:	18W (136-174MHz), 18W (380-520MHz), 18W (764-870MHz); 10mW (Bluetooth); 2.5mW (Bluetooth LE); 63.1mW (802.11b), 20 mW (802.11g/n)
TX Frequency Bands:	136-174MHz; 380-520MHz; 764-805MHz; 806-870MHz; WLAN 2400-2483.5 MHz; Bluetooth 2402-2480MHz
Signaling type:	FM, TDMA, FHSS (Bluetooth), 802.11b/g/n (WLAN)
Model(s) Tested:	M37TSS9PW1AN with G138 Motorcycle Option
Model(s) Certified:	M37TSS9PW1AN with G138 Motorcycle Option
Serial Number(s):	DFLTSG1SD1
Classification:	Occupational/Controlled Environment
FCC ID:	AZ492FT7089 150.8-173.4 MHz, 406.1-512 MHz, 769-775 MHz, 799-824 MHz, 851-869 MHz , 2402-2480 MHz, 2412-2462 MHz This report contains results that are immaterial for FCC equipment approval, which are clearly identified.
ISED Canada:	109U-92FT7089 This report contains results that are immaterial for ISED Canada equipment approval, which are clearly identified.

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).

Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 3.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola Solutions Inc. EME Laboratory.
I attest to the accuracy of the data and assume full responsibility for the completeness of these measurements.
This reporting format is consistent with the suggested guidelines of the TIA TSB-159 April 2006
The results and statements contained in this report pertain only to the device(s) evaluated herein.

Signature on file
Tiong Nguk Ing
Deputy Technical Manager
Approval Date: 12/15/2016

Certification Date: 10/25/2016

Certification No.: L1161005

Document Revision History

Date	Revision	Comments
10/27/2016	A	Initial release
12/15/2016	B	Several areas updated per FCC response

Table of Contents

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 M37TSS9PW1AN with G138 motorcycle option.

2.0 FCC MPE Summary

Table 1

Equipment Class	Frequency band (MHz)	Operator		Bystander	
		Power Density (mW/cm^2)	Percentage of Limit (%)	Power Density (mW/cm^2)	Percentage of Limit (%)
TNB	150.8 – 173.4 (LMR VHF)	0.66	65.8	0.11	56.5
	406.1 – 470 (LMR UHF1)	0.19	14.3	0.10	32.8
	450 – 512 (LMR UHF2)	0.24	14.7	0.11	33.0
	769-775; 799-824; 851-869 (LMR 7/800)	0.23	8.0	0.12	21.6
DTS	2412 – 2462 (WLAN 802.11 b/g/n)	0.0343	3.43	0.0038	0.38
DSS	2402-2480 (Bluetooth)	0.0041	0.41	0.0005	0.05
Simultaneous (Highest Combined Percentage of Limit)			69.23		56.88

3.0 Abbreviations / Definitions

CNR: Calibration Not Required
CW: Continuous Wave
DUT: Device Under Test
EME: Electromagnetic Energy
FHSS: Frequency Hopping Spread Spectrum
FM: Frequency Modulation
MPE: Maximum Permissible Exposure
GPS: Global Positioning System
LMR: Land Mobile Radio
SAR: Specific Absorption Rate
NA: Not Applicable
BS: Bystander
PTT: Push to Talk
WLAN: Wireless Local Area Network
TDMA: Time Division Multiple Access

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 Radio communication Apparatus (All Frequency Bands)
- FCC KDB – 447498 D01 General RF Exposure Guidance v06

  FCC KDB – 865664 D02 RF Exposure Reporting v01r02

5.0 Power Density Limits

Table 2 – Occupational / Controlled Exposure Limits

Frequency Range (MHz)	FCC OET Bulletin 65 mW/cm^2	ICNIRP W/m^2	IEEE C95.1 1992/1999 mW/cm^2	IEEE C95.1 2005 W/m^2	RSS-102 Issue 5 2015 W/m^2
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					
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					3.33×10-4 f

Table 3 – General Population / Uncontrolled Exposure Limits

Frequency Range (MHz)	FCC OET Bulletin 65 mW/cm^2	ICNIRP W/m^2	IEEE C95.1 1992/1999 mW/cm^2	IEEE C95.1 2005 W/m^2	RSS-102 Issue 5 2015 W/m^2
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					$6.67\times10^{-5} f$

6.0 N_c Test Channels

The number of test channels are 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

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

where N_c is the number of test channels, f_{high} and f_{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
Motorcycle	Honda CBX750-2003	NA	NA	NA
Survey Meter Probe – E-Field Probe – H-Field	ETS Model HI-2200 ETS Model E100 ETS Model H200	00086316 000153632 00206937	5/16/2016	5/16/2017

E-field measurements are in mW/cm^2.
H field measurements are in A/m.

8.0 Measurement System Uncertainty Levels

Table 5 - Uncertainty Budget for Near Field Probe Measurements

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

9.0 Product and System Description

This mobile device operate in the LMR bands using frequency modulation (FM) and TDMA signals incorporating traditional simplex two-way radio transmission protocol.
This device also contains WLAN technology for data capabilities over 802.11b/g/n wireless networks and Bluetooth technology for short range wireless devices.

Time Division Multiple Access (TDMA) is used to allocate portions of the RF signal by dividing time into two slots. Time allocation enables each unit to transmit its voice information without interference from other transmitting units. Transmission from a unit or base station is accommodated during two time-slot lengths of 30 milliseconds with frame length of 60 milliseconds. The TDMA technique requires sophisticated algorithms and a digital signal processor (DSP) to perform voice compressions/decompressions and RF modulation/demodulation. The maximum duty cycle for TDMA 1:2 is 50%.

The LMR bands in this device operate 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 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 also incorporates a Class 1 Bluetooth device which is a Frequency Hopping Spread Spectrum (FHSS) technology. The Bluetooth radio modem is used to wireless link audio accessories. The maximum actual transmission duty cycle is imposed by the Bluetooth standard. The maximum duty cycle for BT is 76.1%. Bluetooth Low Energy (BT LE) intended to reduce power consumption.

WLAN 802.11b/g/n operates using Direct Sequence Spread Spectrum (DSSS). This devices work in accordance with the IEEE 802.11b/g/n standard. The Bluetooth and WLAN transmitters cannot transmit at the same time.

Table 6 below summarizes the technologies, bands, maximum duty cycles and maximum output powers. Maximum output powers are defined as upper limit of the production line final test station.

Table 6

Radio Type	Band (MHz)	Transmission	Duty Cycle (%)	Max Power (W)
LMR	136-174	FM / TDMA	*50 / *25	18
LMR	380 – 520	FM / TDMA	*50 / *25	18
LMR	764-870	FM / TDMA	*50 / *25	18
BT	2402-2480	FHSS	76.1	0.010
BT LE	2402-2480	FHSS	100	0.0025
WLAN	2400-2483.5	802.11 b	99.87	0.0631

WLAN	2400-2483.5	802.11 g	99.20	0.020
WLAN	2400-2483.5	802.11 n	99.17	0.020

Note - * includes 50% PTT operation

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

Not available.

11.0 Test Set-Up Description

Assessments were performed with mobile radio installed on the test vehicle, at the specified distances and test locations indicated in section 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 defined test channels.

12.0 Method of Measurement for motorcycle mounted antenna(s)

12.1 Bystander vehicle MPE measurements

Antenna is located at the rear of the test vehicle. Refer to Appendix A for antenna location with respect to the bystander.

MPE measurements for bystander (BS) conditions are determined by taking the average of (10) measurements in a 2m vertical line for the bystander test location indicated in Appendix A with 20 cm height increments, with the distance between the antenna and the geometric center of the probe sensor equal to 60 cm, directly behind the motorcycle. Unlike a car, the motorcycle does not feature a large rectangular trunk and other features (e.g. windows) that may produce significantly distinct exposures depending on the location of a bystander relative to the trunk. For a motorcycle equipped with a wire antenna mounted on a small ground plane, the separation distance between the antenna and bystander is the main factor determining the exposure levels and for this reason the rear test location is employed.

The separation distance used for testing is defined from the antenna where as 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.

12.2 Operator vehicle MPE measurements

Antenna is located at the rear of the test vehicle. Refer to Appendix A for antenna location with respect to the operator.

MPE measurements for operator (OP) conditions are determined by taking the average of the (3) measurements (Head, Chest and Lower Trunk) at the test distance of 37.5cm (for VHF and UHF band) and 20cm (for 7/800 and BT/WLAN band) from the operators' seat area to antennas.

The measurement probe is oriented parallel (horizontal) to the ground and positioned above the motorcycle operator's seat. The probe head is pointed towards the back of the vehicle and aimed directly at the antenna's axis while maintaining a twenty (20) centimeter separation distance between the probe sensor and reradiating structures. These (3) measurements are representative of the operator.

13.0 MPE Calculations

The final MPE results for this mobile radio are presented in section 15.0. 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.

Bystander -10 measurements are averaged over the body (*Avg_over_body*).
Operator - 3 measurements are averaged over the top portion of body (*Avg_TopPortion_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.)*

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

$$Calc.\_P.D. = (Avg\_TopPortion\_body) * \frac{2}{3} * (probe\_frequency\_cal\_factor) * (duty\_cycle)$$

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^2) 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"/ "Avg_TopPortion_body" A/m results were converted to power density (mW/cm^2) using the equation 3. H-field measurements are only applicable to frequencies below 300MHz.

Note 4: For operator position, 2/3 factor is implying that exposure on top portion of the body is much closer to antenna than the leg.

Equation 3 – Converting A/m to mW/cm^2

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

Equation 4 – Power Density Maximum Calculation

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

Note 4: For initial output power> max_output_power; max_output_power / initial output power = 1

14.0 Antenna Summary

Table 7 below summarizes the tested antennas and their descriptions, overlap of FCC bands, number of test channels per FCC KDB 447498 (FCC N_c) and actual number of tested channels (Actual N_c). This information was used to determine the test configurations presented in this report.

Table 7

Antenna No.	Antenna Model	Frequency Range (MHz)	Physical Length (cm)	Gain (dBi)	Remarks	Overlap FCC Bands (MHz)	FCC N_c	Actual N_c
VHF (136-174 MHz)								
1	AN000197A01 (HAD4023A)	136-144	55.2	2.15	1/4 wave	NA	0	3
2	AN000197A02 (HAD4024A)	144-150.8	52	2.15	1/4 wave	150.8	1	3
3	AN000197A03 (HAD4025A)	150.8-162	48	2.15	1/4 wave	150.8-162	3	3
4	AN000197A04 (HAD4026A)	162-174	44.5	2.15	1/4 wave	162-173.4	3	3
UHF 1 (380-470 MHz)								
5	AN000197A05 (HAE6014A)	380-433	18.5	2.15	1/4 wave	406.1-433	3	5
6	AN000197A06 (1) (HAE6032A)	425-470	15.5	2.15	1/4 wave	425-470	4	4
7	AN000197A07 (1) (HAE6033A)	450-482	14.7	2.15	1/4 wave	450-470	3	3
8	AN000197A09 (1) (HAE6035A)	450-512	8.2	2.15	1/4 wave	450-470	3	3
UHF 2 (450-520 MHz)								
6	AN000197A06 (1) (HAE6032A)	425-470	15.5	2.15	1/4 wave	450-470	3	3
7	AN000197A07 (1) (HAE6033A)	450-482	14.7	2.15	1/4 wave	450-482	4	4
8	AN000197A09 (1) (HAE6035A)	450-512	8.2	2.15	1/4 wave	450-512	6	6
9	AN000197A08 (HAE6034A)	482-520	13.8	2.15	1/4 wave	482-512	3	4
7/800 (764-870 MHz)								
10	AN000197A10 (HAF4015A)	764-870	39.8	5.15	1/4 wave	769-775; 799-824; 851-869	7	9
11	AN000197A11 (HAF4018A)	764-870	4.5	5.15	1/4 wave	769-775; 799-824; 851-869	7	9
BT/WiFi / GPS								
12	AN000163A01	2400-2500	7	5.15	Monopole	2402-2480 (BT) ; 2412-2462 (WLAN)	N/A	N/A

Note (1): Antennas support UHF1 & UHF2 frequency range.

15.0 Test Results Summary

15.1 MPE Test Results Summary for LMR

The following tables below summarize the MPE results for each test configuration: test positions (BS-Bystander, OP-Operator), E/H field measurements, antenna model & freq. range, maximum output power, initial power, TX frequency, max calculated power density results, applicable FCC/ICNIRP/ISED Canada specification limits and % of the applicable specification limits.

Table 8
VHF Band Bystander MPE assessment to General Population / Uncontrolled Exposure Limits

Test Pos.	E/H field	Antenna No.	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	ISED Limit	% To ISED Spec Limit
BS	E	1	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	18	17.3	136.0125	0.08	0.20	38.0	0.20	38.0	NA	NA
				18	17.3	140.0000	0.06	0.20	29.1	0.20	29.1	0.13	45.0
				18	17.3	144.0000	0.04	0.20	21.3	0.20	21.3	0.13	32.9
BS	E	2	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	18	17.3	144.0000	0.05	0.20	23.7	0.20	23.7	0.13	36.7
				18	17.4	147.5000	0.05	0.20	25.0	0.20	25.0	0.13	38.7
				18	17.4	150.8000	0.09	0.20	46.0	0.20	46.0	0.13	71.2
BS	E	3	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	18	17.4	150.8000	0.06	0.20	32.5	0.20	32.5	0.13	50.3
				18	17.6	156.4000	0.11	0.20	**56.5**	0.20	**56.5**	0.13	**87.5**
				18	17.6	162.0000	0.10	0.20	49.0	0.20	49.0	0.13	76.0
BS	E	4	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	18	17.6	162.0000	0.07	0.20	36.2	0.20	36.2	0.13	56.1
				18	17.7	168.0000	0.07	0.20	33.4	0.20	33.4	0.13	51.8
				18	17.7	173.0125	0.05	0.20	27.0	0.20	27.0	0.13	41.8
BS	H	1	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	18	17.3	136.0125	0.09	0.20	42.7	0.20	42.7	NA	NA
				18	17.3	140.0000	0.07	0.20	34.6	0.20	34.6	0.13	53.6
				18	17.3	144.0000	0.05	0.20	25.4	0.20	25.4	0.13	39.4
BS	H	2	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	18	17.3	144.0000	0.05	0.20	26.7	0.20	26.7	0.13	41.4
				18	17.4	147.5000	0.04	0.20	18.3	0.20	18.3	0.13	28.4
				18	17.4	150.8000	0.06	0.20	31.0	0.20	31.0	0.13	48.0
BS	H	3	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	18	17.4	150.8000	0.04	0.20	19.7	0.20	19.7	0.13	30.6
				18	17.6	156.4000	0.08	0.20	38.8	0.20	38.8	0.13	60.2
				18	17.6	162.0000	0.07	0.20	33.7	0.20	33.7	0.13	52.3
BS	H	4	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	18	17.6	162.0000	0.05	0.20	27.5	0.20	27.5	0.13	42.6
				18	17.7	168.0000	0.05	0.20	24.6	0.20	24.6	0.13	38.1
				18	17.7	173.0125	0.04	0.20	20.8	0.20	20.8	0.13	32.2

Notes:
Results highlight in yellow are configurations with highest percentage of limits for bystander.
Blue fonts: Frequencies not regulated by FCC.

Table 9
UHF R1 Band Bystander MPE assessment to General Population / Uncontrolled Exposure Limits

Test Pos.	E/H field	Antenna No.	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	ISED Limit	% To ISED Spec Limit
BS	E	5	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	18	17.9	380.0000	0.08	0.25	31.3	0.20	39.6	NA	NA
				18	17.7	393.3000	0.09	0.26	33.9	0.20	**44.4**	NA	NA
				18	17.7	406.5000	0.07	0.27	27.6	0.20	36.8	0.16	47.1
				18	17.5	419.8000	0.07	0.28	24.2	0.21	32.3	0.16	41.7
				18	17.3	433.0000	0.09	0.29	29.5	0.22	39.3	NA	NA
BS	E	6	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	18	17.5	425.0125	0.09	0.28	31.2	0.21	41.6	0.16	54.0
				18	17.2	450.0125	0.10	0.30	32.1	0.23	42.8	0.17	56.5
				18	17.6	460.0000	0.07	0.31	22.1	0.23	29.5	0.17	39.2
				18	17.9	469.9875	0.08	0.31	24.2	0.23	32.2	0.18	43.1
BS	E	7	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	18	17.2	450.0125	0.07	0.30	21.9	0.23	29.2	0.17	38.6
				18	17.6	460.0000	0.07	0.31	22.7	0.23	30.3	0.17	40.3
				18	17.9	469.9875	0.07	0.31	23.9	0.23	31.8	0.18	42.6
BS	E	8	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	18	17.2	450.0125	0.06	0.30	20.2	0.23	26.9	0.17	35.6
				18	17.6	460.0000	0.07	0.31	24.0	0.23	32.0	0.17	42.5
				18	17.9	469.9875	0.10	0.31	**32.8**	0.23	43.7	0.18	**58.5**

Notes:
Results highlight in yellow are configurations with highest percentage of limits for bystander.
Blue fonts: Frequencies not regulated by FCC.

Table 10
UHF R2 Band Bystander MPE assessment to General Population / Uncontrolled Exposure Limits

Test Pos.	E/H field	Antenna No.	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	ISED Limit	% To ISED Spec Limit
BS	E	7	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	18	17.2	450.0125	0.07	0.30	21.9	0.23	29.2	0.17	38.6
				18	17.6	460.0000	0.07	0.31	22.7	0.23	30.3	0.17	40.3
				18	17.9	469.9875	0.07	0.31	23.9	0.23	31.8	0.18	42.6
				18	18.0	481.9875	0.09	0.32	29.1	0.24	38.8	NA	NA
BS	E	8	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	18	17.2	450.0125	0.06	0.30	20.2	0.23	26.9	0.17	35.6
				18	17.6	460.0000	0.07	0.31	24.0	0.23	32.0	0.17	42.5
				18	17.9	469.9875	0.10	0.31	32.8	0.23	43.7	0.18	**58.5**
				18	18.0	481.9875	0.11	0.32	**33.0**	0.24	**44.0**	NA	NA
				18	17.8	496.5000	0.10	0.33	30.1	0.25	40.1	NA	NA
				18	17.4	511.9875	0.11	0.34	31.4	0.26	41.9	NA	NA
BS	E	6	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	18	17.2	450.0125	0.10	0.30	32.1	0.23	42.8	0.17	56.5
				18	17.6	460.0000	0.07	0.31	22.1	0.23	29.5	0.17	39.2
				18	17.9	469.9875	0.08	0.31	24.2	0.23	32.2	0.18	43.1
BS	E	9	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	18	18.0	482.0125	0.10	0.32	30.3	0.24	40.4	NA	NA
				18	17.8	496.5000	0.08	0.33	24.1	0.25	32.1	NA	NA
				18	17.4	511.9875	0.07	0.34	20.9	0.26	27.9	NA	NA
				18	18.0	519.9875	0.07	0.35	20.5	0.26	27.3	NA	NA

Notes:
Results highlight in yellow are configurations with highest percentage of limits for bystander.
Blue fonts: Frequencies not regulated by FCC.

Table 11
7/800 Band Bystander MPE assessment to General Population / Uncontrolled Exposure Limits

Test Pos.	E/H field	Antenna No.	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	ISED Limit	% To ISED Spec Limit
BS	E	10	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	18	17.9	764.0875	0.05	0.51	9.6	0.38	12.8	NA	NA
				18	17.9	770.0125	0.05	0.51	9.4	0.39	12.5	0.25	19.6
				18	17.9	775.9125	0.05	0.52	9.3	0.39	12.4	0.25	19.5
				18	17.9	794.0875	0.05	0.53	9.0	0.40	12.0	NA	NA
				18	17.3	806.0125	0.05	0.54	9.1	0.40	12.1	0.25	19.2
				18	17.4	823.9875	0.06	0.55	11.3	0.41	15.1	0.26	24.1
				18	17.7	851.0125	0.04	0.57	7.3	0.43	9.8	0.26	15.8
				18	18.0	860.0125	0.06	0.57	10.3	0.43	13.7	0.27	22.2
				18	18.0	868.8875	0.06	0.58	10.2	0.43	13.6	0.27	22.1
BS	E	11	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	18	17.9	764.0875	0.11	0.51	21.6	0.38	28.7	NA	NA
				18	17.9	770.0125	0.09	0.51	17.8	0.39	23.7	0.25	37.1
				18	17.9	775.9125	0.09	0.52	17.0	0.39	22.7	0.25	35.6
				18	17.9	794.0875	0.09	0.53	17.2	0.40	22.9	NA	NA
				18	17.3	806.0125	0.08	0.54	14.8	0.40	19.8	0.25	31.4
				18	17.4	823.9875	0.10	0.55	17.8	0.41	23.8	0.26	38.0
				18	17.7	851.0125	0.11	0.57	20.2	0.43	27.0	0.26	43.6
				18	18.0	860.0125	0.12	0.57	**21.6**	0.43	**28.8**	0.27	**46.8**
				18	18.0	868.8875	0.12	0.58	20.9	0.43	27.8	0.27	45.3

Notes:
Results highlight in yellow are configurations with highest percentage of limits for bystander.
Blue fonts: Frequencies not regulated by FCC.

Table 12
VHF Band Operator MPE assessment to Occupational /Controlled Exposure Limits

Test Pos.	E/H field	Antenna No.	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	ISED Limit	% To ISED Spec Limit
OP	E	1	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	18	17.3	136.0125	0.23	1.00	22.8	1.00	22.8	NA	NA
				18	17.3	140.0000	0.23	1.00	22.7	1.00	22.7	0.76	29.8
				18	17.3	144.0000	0.18	1.00	18.3	1.00	18.3	0.77	23.7
OP	E	2	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	18	17.3	144.0000	0.22	1.00	21.7	1.00	21.7	0.77	28.0
				18	17.4	147.5000	0.32	1.00	31.6	1.00	31.6	0.78	40.3
				18	17.4	150.8000	0.46	1.00	46.1	1.00	46.1	0.79	58.1
OP	E	3	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	18	17.4	150.8000	0.36	1.00	36.3	1.00	36.3	0.79	45.8
				18	17.6	156.4000	0.49	1.00	49.2	1.00	49.2	0.81	60.9
				18	17.6	162.0000	0.63	1.00	62.6	1.00	62.6	0.82	76.2
OP	E	4	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	18	17.6	162.0000	0.51	1.00	50.9	1.00	50.9	0.82	61.9
				18	17.7	168.0000	0.55	1.00	54.6	1.00	54.6	0.84	65.2
				18	17.7	173.0125	0.66	1.00	**65.8**	1.00	**65.8**	0.85	**77.5**
OP	H	1	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	18	17.3	136.0125	0.14	1.00	13.7	1.00	13.7	NA	NA
				18	17.3	140.0000	0.13	1.00	13.5	1.00	13.5	0.76	17.7
				18	17.3	144.0000	0.12	1.00	11.6	1.00	11.6	0.77	15.0
OP	H	2	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	18	17.3	144.0000	0.13	1.00	13.2	1.00	13.2	0.77	17.0
				18	17.4	147.5000	0.11	1.00	10.9	1.00	10.9	0.78	13.9
				18	17.4	150.8000	0.13	1.00	12.9	1.00	12.9	0.79	16.2
OP	H	3	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	18	17.4	150.8000	0.08	1.00	8.4	1.00	8.4	0.79	10.6
				18	17.6	156.4000	0.15	1.00	15.2	1.00	15.2	0.81	18.9
				18	17.6	162.0000	0.20	1.00	19.6	1.00	19.6	0.82	23.8
OP	H	4	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	18	17.6	162.0000	0.14	1.00	14.1	1.00	14.1	0.82	17.1
				18	17.7	168.0000	0.19	1.00	18.7	1.00	18.7	0.84	22.4
				18	17.7	173.0125	0.23	1.00	23.5	1.00	23.5	0.85	27.7

Notes:
Results highlight in yellow are configurations with highest percentage of limits for operator.
Blue fonts: Frequencies not regulated by FCC.

Table 13
UHF R1 Band Operator MPE assessment to Occupational /Controlled Exposure Limits

Test Pos.	E/H field	Antenna No.	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	ISED Limit	% To ISED Spec Limit
OP	E	5	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	18	17.9	380.0000	0.25	1.27	19.5	1.00	**24.7**	NA	NA
				18	17.7	393.3000	0.25	1.31	18.7	1.00	24.5	NA	NA
				18	17.7	406.5000	0.19	1.36	**14.3**	1.02	19.1	1.30	**14.9**
				18	17.5	419.8000	0.16	1.40	11.1	1.05	14.8	1.32	11.7
				18	17.3	433.0000	0.17	1.44	12.1	1.08	16.1	NA	NA
OP	E	6	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	18	17.5	425.0125	0.19	1.42	13.3	1.06	17.7	1.33	14.2
				18	17.2	450.0125	0.16	1.50	10.4	1.13	13.9	1.37	11.4
				18	17.6	460.0000	0.13	1.53	8.7	1.15	11.6	1.38	9.6
				18	17.9	469.9875	0.14	1.57	8.8	1.17	11.8	1.40	9.9
OP	E	7	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	18	17.2	450.0125	0.16	1.50	10.7	1.13	14.3	1.37	11.8
				18	17.6	460.0000	0.14	1.53	9.0	1.15	12.0	1.38	10.0
				18	17.9	469.9875	0.15	1.57	9.3	1.17	12.4	1.40	10.4
OP	E	8	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	18	17.2	450.0125	0.16	1.50	10.5	1.13	14.0	1.37	11.5
				18	17.6	460.0000	0.16	1.53	10.7	1.15	14.3	1.38	11.8
				18	17.9	469.9875	0.19	1.57	12.2	1.17	16.2	1.40	13.6

Notes:
Results highlight in yellow are configurations with highest percentage of limits for operator.
Blue fonts: Frequencies not regulated by FCC.

Table 14
UHF R2 Band Operator MPE assessment to Occupational /Controlled Exposure Limits

Test Pos.	E/H field	Antenna No.	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	ISED Limit	% To ISED Spec Limit
OP	E	7	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	18	17.2	450.0125	0.16	1.50	10.7	1.13	14.3	1.37	11.8
				18	17.6	460.0000	0.14	1.53	9.0	1.15	12.0	1.38	10.0
				18	17.9	469.9875	0.15	1.57	9.3	1.17	12.4	1.40	10.4
				18	18.0	481.9875	0.20	1.61	12.2	1.20	16.3	NA	NA
OP	E	8	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	18	17.2	450.0125	0.16	1.50	10.5	1.13	14.0	1.37	11.5
				18	17.6	460.0000	0.16	1.53	10.7	1.15	14.3	1.38	11.8
				18	17.9	469.9875	0.19	1.57	12.2	1.17	16.2	1.40	**13.6**
				18	18.0	481.9875	0.24	1.61	**14.7**	1.20	**19.6**	NA	NA
				18	17.8	496.5000	0.23	1.66	14.1	1.24	18.9	NA	NA
				18	17.4	511.9875	0.20	1.71	11.9	1.28	15.8	NA	NA
OP	E	6	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	18	17.2	450.0125	0.16	1.50	10.4	1.13	13.9	1.37	11.4
				18	17.6	460.0000	0.13	1.53	8.7	1.15	11.6	1.38	9.6
				18	17.9	469.9875	0.14	1.57	8.8	1.17	11.8	1.40	9.9
OP	E	9	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	18	18.0	482.0125	0.23	1.61	14.1	1.21	18.9	NA	NA
				18	17.8	496.5000	0.18	1.66	11.1	1.24	14.8	NA	NA
				18	17.4	511.9875	0.14	1.71	8.5	1.28	11.3	NA	NA
				18	18.0	519.9875	0.19	1.73	11.2	1.30	14.9	NA	NA

Notes:
Results highlight in yellow are configurations with highest percentage of limits for operator.
Blue fonts: Frequencies not regulated by FCC.

Table 15
7/800 Band Operator MPE assessment to Occupational /Controlled Exposure Limits

Test Pos.	E/H field	Antenna No.	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	ISED Limit	% To ISED Spec Limit
OP	E	10	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	18	17.9	764.0875	0.17	2.55	6.8	1.91	9.0	NA	NA
				18	17.9	770.0125	0.17	2.57	6.4	1.93	8.6	1.79	9.2
				18	17.9	775.9125	0.19	2.59	7.3	1.94	9.8	1.80	10.6
				18	17.9	794.0875	0.25	2.65	9.3	1.99	**12.5**	NA	NA
				18	17.3	806.0125	0.13	2.69	5.0	2.02	6.7	1.83	7.3
				18	17.4	823.9875	0.15	2.75	5.4	2.06	7.2	1.85	8.1
				18	17.7	851.0125	0.14	2.84	4.8	2.13	6.5	1.88	7.3
				18	18.0	860.0125	0.19	2.87	6.6	2.15	8.7	1.89	9.9
				18	18.0	868.8875	0.23	2.90	**8.0**	2.17	10.6	1.90	**12.1**
OP	E	11	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	18	17.9	764.0875	0.12	2.55	4.6	1.91	6.2	NA	NA
				18	17.9	770.0125	0.09	2.57	3.4	1.93	4.5	1.79	4.9
				18	17.9	775.9125	0.10	2.59	3.9	1.94	5.2	1.80	5.7
				18	17.9	794.0875	0.13	2.65	4.9	1.99	6.6	NA	NA
				18	17.3	806.0125	0.10	2.69	3.8	2.02	5.1	1.83	5.6
				18	17.4	823.9875	0.11	2.75	3.9	2.06	5.2	1.85	5.8
				18	17.7	851.0125	0.16	2.84	5.8	2.13	7.7	1.88	8.7
				18	18.0	860.0125	0.15	2.87	5.3	2.15	7.1	1.89	8.1
				18	18.0	868.8875	0.15	2.90	5.2	2.17	6.9	1.90	7.9

Notes:
Results highlight in yellow are configurations with highest percentage of limits for operator.
Blue fonts: Frequencies not regulated by FCC.

15.2 MPE Test Results for Bluetooth and WLAN

Maximum power for Bluetooth = 7.6 mW (10 mW * 76.1% duty cycle)
Maximum power for Bluetooth LE = 2.5 mW (2.5 mW * 100% duty cycle)
Maximum power for WLAN = 63.02 mW (63.1 mW *99.87 % duty cycle)

Bluetooth has higher source-based-time-averaging output power compare to Bluetooth LE and will be used for the MPE assessment.

MPE calculation was use to determine power density for these transmitters due to lower power. According to FCC's OET Bulletin 65 Edition 97-01 Section 2, calculations can be made to predict RF field strength and power density levels around typical RF sources. Equation (5) is generally accurate in far-field of an antenna.

Equation 5 – Power Density Calculation

$$S = \frac{P_t G}{4\pi d^2 L} F$$

Equation (5) accounts for the maximum duty cycle of the signal, and the factor, F, to provide a worst-case prediction of power density per FCC OET Bulletin 65, Edition 97-01 1997.

Where: S = power density (mW/cm^2)
P_t = maximum output power scaled by the maximum duty cycle of the signal
G = power gain of the antenna in the direction of interest relative to an isotropic radiator (dBi)
d = distance from antenna (cm), *20 cm for operator and 60cm for bystander.*
L = cable loss (dB), *0.77 dB with 6' PFP240 cable (attenuation 12.9 dB/100ft)*
F = Enhancement factor

BT/WLAN was subject to the General Population/ Uncontrolled Exposure limits.

Table 16
BT/WLAN Bystander MPE assessment to General Population / Uncontrolled Exposure Limits

Antenna #	Max Power (W)	Duty Cycle (%)	Tx Frequency (MHz)	Antenna Gain (dBi)	Cable Loss, L (dB)	Dist., d (cm)	[4]Enhance Factor, F	Max Calc. MPE (mW/cm^2)	MPE Spec Limit (mW/cm^2)					
									FCC	% To FCC Spec Limit	ICNIRP	% To ICNIRP Spec Limit	ISED limit	% To ISED Spec Limit
Bystander														
Bluetooth														
AN000163A01	0.010	76.10%	2400.0	5.15	0.77	60	1.00	0.0005	1.00	0.05	1.00	0.05	0.53	0.09
WLAN														
AN000163A01	0.063	99.87%	2400.0	5.15	0.77	60	1.00	0.0038	1.00	0.38	1.00	0.38	0.53	0.71

Table 17
BT/WLAN Operator MPE assessment to General Population / Uncontrolled Exposure Limits

Antenna #	Max Power (W)	Duty Cycle (%)	Tx Frequency (MHz)	Antenna Gain (dBi)	Cable Loss, L (dB)	Dist., d (cm)	[4]Enhance Factor, F	Max Calc. MPE (mW/cm^2)	MPE Spec Limit (mW/cm^2)					
									FCC	% To FCC Spec Limit	ICNIRP	% To ICNIRP Spec Limit	ISED limit	% To ISED Spec Limit
Operator:														
Bluetooth														
AN000163A01	0.010	76.10%	2400.0	5.15	0.77	20	1.00	0.0041	1.00	0.41	1.00	0.41	0.53	0.78
WLAN														
AN000163A01	0.063	99.87%	2400.0	5.15	0.77	20	1.00	0.0343	1.00	3.43	1.00	3.43	0.53	6.42

15.3 Simultaneous Transmission

LMR bands can transmit simultaneously with Bluetooth or WLAN. Bluetooth and WLAN transmitters cannot transmit at the same time. Simultaneous LMR multi-channel and/or LMR multi-band simultaneous transmit operations are not supported.

The highest power density results for each standalone transmitters are indicated in Table 18.

Table 18

Transmitters	Frequency Band (MHz)	Operator (OP)		Bystander (BS)	
		Power Density (mW/cm^2)	Percentage of Limit (%)	Power Density (mW/cm^2)	Percentage of Limit (%)
FCC					
LMR VHF	150.8 - 173.4	0.66	65.8	0.11	56.5
LMR UHF1	406.1 - 470	0.19	14.3	0.10	32.8
LMR UHF2	450 - 512	0.24	14.7	0.11	33.0
LMR 7/800	769-775; 799-824; 851-869	0.23	8.0	0.12	21.6
Bluetooth	2402 - 2480	0.0041	0.41	0.0005	0.05
WLAN	2412 - 2462	0.0343	3.43	0.0038	0.38
ISED Canada					
LMR VHF	138 - 174	0.66	77.5	0.11	87.5
LMR UHF1	406.1 – 430; 450 -470	0.19	14.9	0.10	58.5
LMR UHF2	450 - 470	0.19	13.6	0.10	58.5
LMR 7/800	769-775; 799-824; 851-869	0.23	12.1	0.12	46.8
Bluetooth	2402 - 2480	0.0041	0.78	0.0005	0.09
WLAN	2412 - 2462	0.0343	6.42	0.0038	0.71
Overall					
LMR VHF	136 - 174	0.66	77.5	0.11	87.5
LMR UHF1	380 - 470	0.25	24.7	0.10	58.5
LMR UHF2	450 -520	0.24	19.6	0.10	58.5
LMR 7/800	764 – 805; 806 -870	0.25	12.5	0.12	46.8
Bluetooth	2402 - 2480	0.0041	0.78	0.0005	0.09
WLAN	2400 – 2483.5	0.0343	6.42	0.0038	0.71

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. The highest combined power density percentage for simultaneous transmission indicated in Table 19.

Per KDB 447498 D01, simultaneous transmission MPE test exclusion applies when the sum of MPE ratios for all simultaneous transmitting antennas incorporated in a host device is ≤ 1.0, according to calculated/estimated, numerically modeled, or measured field strengths or power density.

Table 19

Designator	Simultaneous Transmission Scenario	Highest Combined Percentage Of Limit (%)	
		Operator (OP)	Bystander (BS)
FCC	LMR VHF and WLAN	69.23	56.88
	LMR UHF1 and WLAN	17.73	33.18
	LMR UHF2 and WLAN	18.13	33.38
	LMR 7/800 and WLAN	11.43	21.98
ISED Canada	LMR VHF and WLAN	83.92	88.21
	LMR UHF1 and WLAN	21.32	59.21
	LMR UHF2 and WLAN	20.02	59.21
	LMR 7/800 and WLAN	18.52	47.51
Overall	LMR VHF and WLAN	83.92	88.21
	LMR UHF1 and WLAN	21.32	59.21
	LMR UHF2 and WLAN	20.02	59.21
	LMR 7/800 and WLAN	18.52	47.51

16.0 Conclusion

The assessments for this device were performed with an output power range as indicated in section 15.0. The maximum allowable output power is equal to the upper limit of the final test factory transmit power specification of 18W. The highest power density results for the mobile device scaled to the maximum allowable power output are indicated in Table 20 for operator and bystander to the vehicle.

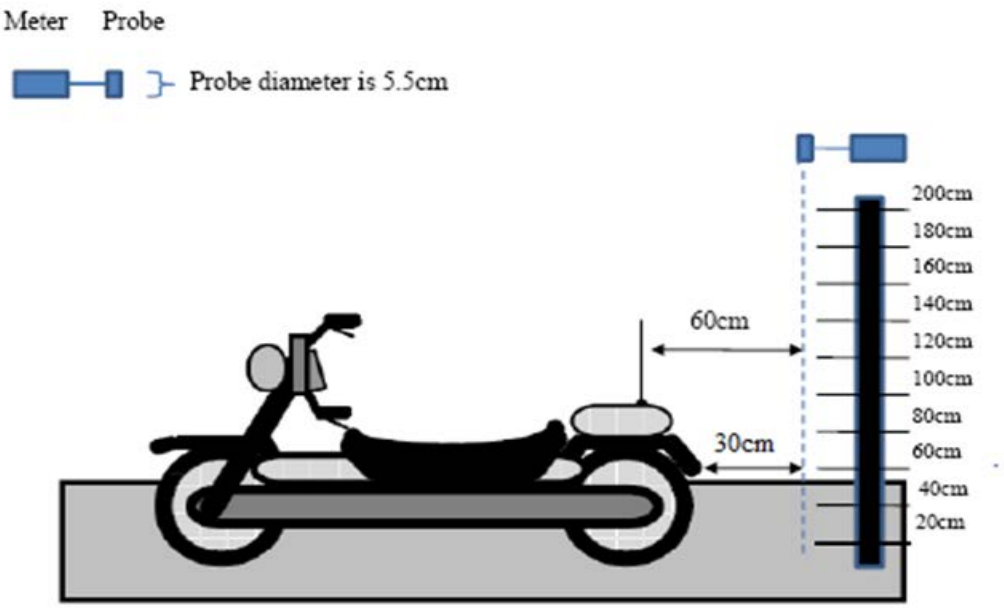
Table 20

Designator	Transmitters	Frequency Band (MHz)	Operator (mW/cm^2)	Bystander (mW/cm^2)
FCC	LMR VHF	150.8 - 173.4	0.66	0.11
	LMR UHF1	406.1 - 470	0.19	0.10
	LMR UHF2	450 - 512	0.24	0.11
	LMR 7/800	769-775; 799-824; 851-869	0.23	0.12
ISED Canada	LMR VHF	138 - 174	0.66	0.11
	LMR UHF1	406.1 – 430; 450 -470	0.19	0.10
	LMR UHF2	450 -470	0.19	0.10
	LMR 7/800	769-775; 799-824; 851-869	0.23	0.12
Overall	LMR VHF	136 - 174	0.66	0.11
	LMR UHF1	380 - 470	0.25	0.10
	LMR UHF2	450 -520	0.24	0.11
	LMR 7/800	764 – 805; 806 -870	0.25	0.12

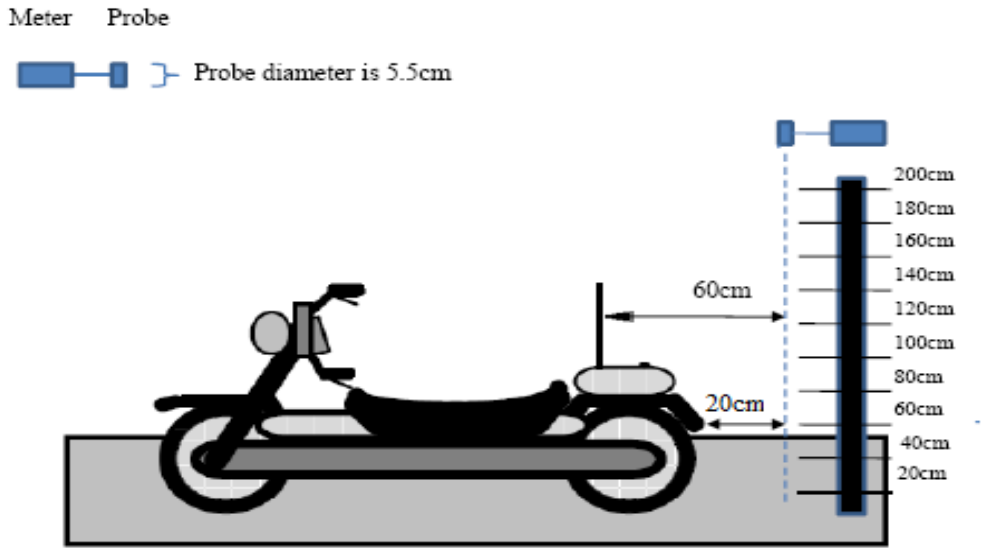
These MPE results herein demonstrate compliance to the FCC/ICNIRP/ISED Canada Occupational/Controlled Exposure limit. FCC rules require compliance for Bystanders to the FCC General Population/Uncontrolled limits.

Appendix A - Illustration of Antenna Location and Test Distances

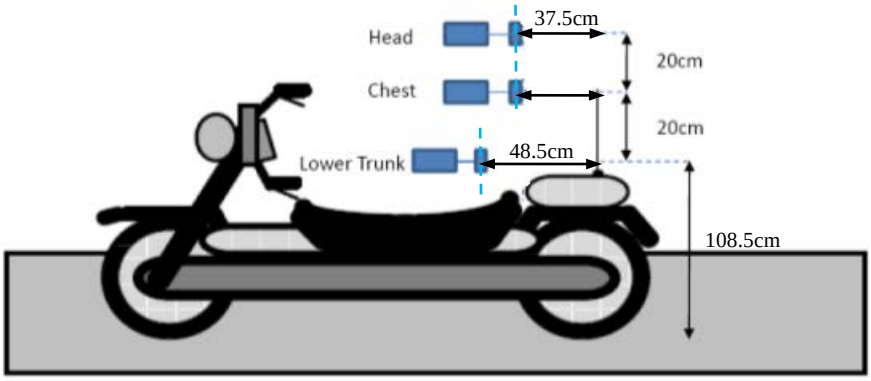
Bystander Illustration
(For VHF and UHF)



Bystander Illustration
(For 7/800 and BT/WLAN)

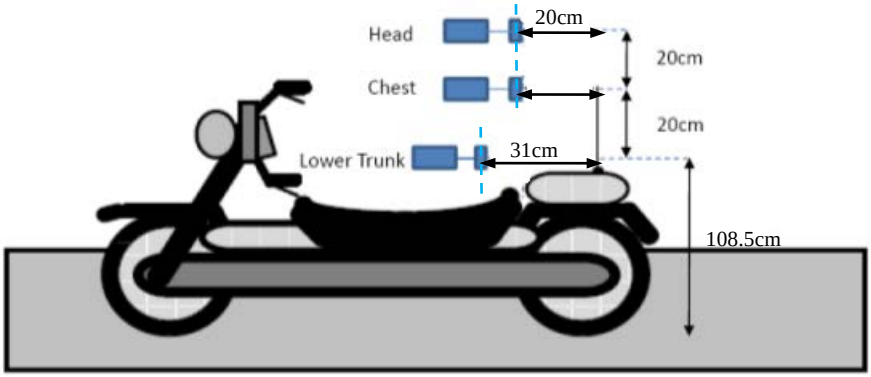


Operator Illustration
(For VHF and UHF)



Note: Lower Trunk measurement distance 48.5cm from the antenna is to maintain minimum 20cm separation distance between the probe sensor and reradiating objects (motorcycle's enclosure)

Operator Illustration
(For 7/800 and BT/WLAN)



Note: Lower Trunk measurement distance 31cm from the antenna is to maintain minimum 20cm separation distance between the probe sensor and reradiating objects (motorcycle's enclosure)

Appendix B - Probe Calibration Certificates

Service Test Report
QAF 1126, 03/11
Report ID: 114201

ETS·LINDGREN™
An ESCO Technologies Company
1301 Arrow Point Drive
Cedar Park, Texas 78613
(512) 531-6400

ETS·LINDGREN
An ESCO Technologies Company
Tracking # S000035042
Equipment Check
Attested by GC Date: 16-May-16
www.ets-lindgren.com

Certificate of Test Conformance

Page 1 of 1

Reference: S 000035042

Customer: Keysight Cal Lab C/O Motrola Solutions - 8000 West Sunrise Blvd. Plantation, FL. 33322

The instrument listed below has been tested and verified to Internal Quality Standards. Test data is Not Applicable. Equipment used during instrument testing is controlled by laboratory compliance with ISO/IEC 17025-2005 and ANSI/NCSL Z540-1-1994 using ETS-Lindgren Quality Management System internal procedures.

Manufacturer	ETS-Lindgren
Instrument Type	RF Survey Meter
Model	HI-2200
Serial Number/ID	00086316

Status In
In Tolerance
Date Completed
16-May-16
Status Out
Compliant with Internal Quality Standards

Remarks
Functional test performed with customer's probe S/N 00153632.

I would like to take this opportunity to express our appreciation for using ETS-Lindgren for your EMI test equipment services and I am looking forward to continued business with your organization. Please feel free to contact our offices at (512) 531-6400, if you have any questions regarding this report.

Sincerely,

George Cisneros
Calibration Supervisor

Date Attested: 16-May-16

ETS-LINDGREN
An ESCO Technologies Company
1301 Arrow Point Drive
Cedar Park, Texas 78613
(512) 531-6400

ETS-LINDGREN
An ESCO Technologies Company
Track# S000035042 Ltd Cal ☐
By FM Dat 16-May-16
Next Cal Due
www.ets-lindgren.com

Cert I.D.: 114197

Certificate of Calibration Conformance

The Instrument identified below has been individually calibrated in compliance with the following standard(s):
IEEE 1309 - 2013, Institute of Electrical and Electronics Engineers, Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas from 9 kHz to 40 GHz

Environment: Laboratory MTE is maintained in a temperature controlled environment with ambient conditions from 18 to 28 C, relative humidity less than 90%. The instrument under test has been calibrated in a suitable environment using an EMCO TEM Cell 5101C, GTEM! 5305 and an RF Shielded EMC Chamber which is conducive to maintaining accurate and reliable measurement quality.

Manufacturer:	ETS-Lindgren	**Operating Range:**	100kHz - 5GHz
Model Number:	E100	**Instrument Type:**	Isotropic Probe > 1 GHz
Serial Number/ ID:	*00153632*	**Date Code:**	
Tracking Number:	**S 000035042**	**Alternate ID:**	
Date Completed:	16-May-16	**Customer:**	Keysight Cal Lab C/O Motrola Solutions - 8000 West Sunrise Blvd. Plantation, FL. 33322
Test Type:	Standard Field, Field Strength		

Calibration Uncertainty: (k=2, (95% Confidence Level)) Std Field Method 100kHz - 6 GHz, +/-0.7 dB, Isotropicity +/- 0.86

Test Remarks: Probe received in tolerance thus before and after data are the same.

Calibration Traceability: All Measuring and Test Equipment (M/TE) identified below are traceable to the SI units through the National Institute for Standards and Technology (NIST) or other recognized National Metrology Institute. Calibration Laboratory and Quality System controls are compliant with ISO/IEC 17025-2005 and ANSI/NCSL Z540-1-1994.

Standards and Equipment Used:
Make / Model / Name / S/N / Recall Date

HP	8648C	Signal Generator	3836U02236	25-Feb-17
Marconi	2024	Signal Generator	112343/043	02-Feb-17
Hewlett Packard	E4422B	Signal Generator	US40050591	22-Jul-16
Rohde & Schwarz	SMB 100A	Signal Generator	101558	17-Aug-16
Keysight	E9304A	Power Sensor	MY56100005	18-Mar-17
Agilent	E9304A	Power Sensor	MY41499013	01-Mar-17
Agilent	E9304A	Power Sensor	MY41499012	17-Jun-16
Agilent	E4419B	Power Meter	MY40510693	22-Jan-17
Agilent	E4419B	Power Meter	GB40202754	22-Oct-16
Agilent	U2004A	USB Power Sensor	MY50000280	08-Oct-16
Rohde & Schwarz	857.8008.02	Power Meter NRVD	100451	17-Jul-16
Hewlett Packard	83650L	Synthesized Sweep Gen	3844A00422	21-Jan-17
Rohde & Schwarz	NRV-Z55	Thermal Power Sensor	100037	16-Jul-16
Rohde & Schwarz	NRV-Z55	Thermal Power Sensor	100362	14-Nov-16
Rohde & Schwarz	NRV-Z55	Thermal Power Sensor	100363	18-Aug-16
Rohde & Schwarz	NRP-Z91	Power Sensor	100733	16-Jul-16
Rohde & Schwarz	NRP-Z91	Power Sensor	100732	16-Jul-16

Condition of Instrument Upon Receipt:
In Tolerance to Internal Quality Standards

On Release:
In Tolerance to Internal Quality Standards

Calibration Completed By
Francisco D Maldonado, Calibration Technician

Attested and Issued on 16-May-16
George Cisneros, Calibration Supervisor

CALIBRATION REPORT

Electric Field Sensor

Model	*S/N*
E100	00153632
HI-2200	00086316

Date: 16 May 2016

New Instrument
_ Other
_ Out of Tolerance
X Within Tolerance

Frequency Response

Frequency Response		*Nominal Field*	*Cal Factor**	*Deviation*
	MHz	*V/m*	(Eapplied/Eindicated)	*dB*
1	0.1	20	1.30	-2.26
2	0.5	20	1.08	-0.64
3	1	20	1.08	-0.64
4	3	20	1.01	-0.12
5	15	20	1.00	-0.02
6	27.12	20	1.00	-0.04
7	100	20	1.02	-0.15
8	200	20	1.00	0.03
9	1	20	1.08	-0.64
10	15	20	1.00	-0.02
11	30	20	1.00	-0.04
12	75	20	1.01	-0.11
13	100	20	1.02	-0.15
14	150	20	1.01	-0.06
15	200	20	1.00	0.03
16	250	20	0.99	0.12
17	300	20	0.99	0.10
18	400	20	0.99	0.08
19	500	20	1.03	-0.25
20	600	20	1.04	-0.36
21	700	20	1.07	-0.55
22	800	20	1.08	-0.69
23	900	20	1.03	-0.24
24	1000	20	0.99	0.13
25	2000	20	1.05	-0.40
26	2450	20	1.08	-0.69
27	3000	20	1.06	-0.54
28	3500	20	1.01	-0.12
29	4000	20	1.03	-0.24
30	5000	20	1.32	-2.41
31	5500	20	1.45	-3.25
32	6000	20	1.41	-3.00

* Corrected electric field values (V/m) can be obtained by multiplying the Cal Factor with the indicated E field readings.

Linearity

maximum linearity deviation is 0.34 dB

(measurements taken from 0.3 V/m to 800 V/m at 27.12 MHz)

Test Conditions

Calibration performed at ambient room temperature: 23 ±3°C

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ETS·LINDGREN
An ESCO Technologies Company

PROBE ROTATIONAL RESPONSE

Model	E100
S/N	00153632
Report	S000035042
Date	Date of Calibration 16 May 2016
Time	01:40:27 PM
Isotropy *	+ 0.270 dB/ -0.270 dB

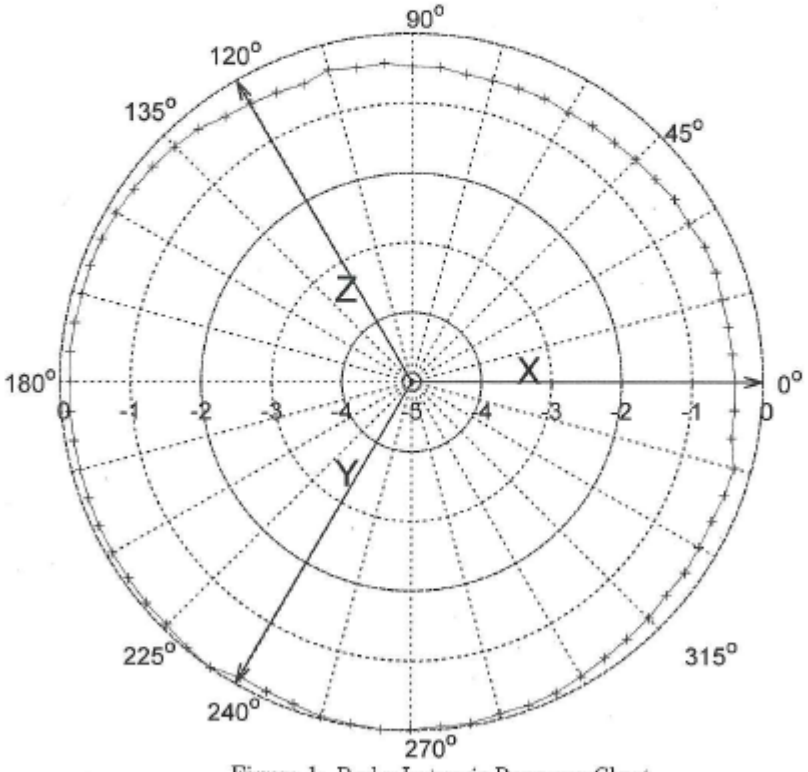

Figure 1: Probe Isotropic Response Chart.

Isotropic response is measured in a 20 V/m field at 400 MHz
*Isotropy is the maximum deviation from the geometric mean as defined by IEEE 1309-2013.

Page 3 of 3

ETS-LINDGREN
An ESCO Technologies Company
1301 Arrow Point Drive
Cedar Park, Texas 78613
(512) 531-6400

ETS-LINDGREN
An ESCO Technologies Company
Ltd Cal ☐
By FM Date 16-May-16
Next Cal Due
www.ets-lindgren.com

Cert I.D.: 114199

Certificate of Calibration Conformance

The instrument identified below has been individually calibrated in compliance with the following standard(s):
IEEE 1309 - 2013, Institute of Electrical and Electronics Engineers, Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas from 9 kHz to 40 GHz

Environment: Laboratory MTE is maintained in a temperature controlled environment with ambient conditions from 18 to 28 C, relative humidity less than 90%. The instrument under test has been calibrated in a suitable environment using an EMCO TEM Cell 5101C, GTEM! 5305 and an RF Shielded EMC Chamber which is conducive to maintaining accurate and reliable measurement quality.

Manufacturer:	ETS-Lindgren	**Operating Range:**	5-300MHz / 30mA/m-10A/m
Model Number:	H200	**Instrument Type:**	Isotropic Magnetic Field Probe (2)
Serial Number / ID:	00206937		
Date Completed:	16-May-16		
Test Type:	Standard Field, Field Strength		
Calibration Uncertainty:	Direct Field Method 1.15dB		
k=2, (95% Confidence Level)			

Test Remarks:

Calibration Traceability: All Measuring and Test Equipment (M/TE) identified below are traceable to the SI units through the National Institute for Standards and Technology (NIST) or other recognized National Metrology Institute. Calibration Laboratory and Quality System controls are compliant with ISO/IEC 17025-2005 and ANSI/NCSL Z540-1-1994.

Standards and Equipment Used: Make / Model / Name / S/N / Recall Date

HP	8648C	Signal Generator	3836U02236	25-Feb-17
Marconi	2024	Signal Generator	112343/043	02-Feb-17
Hewlett Packard	E4422B	Signal Generator	US40050591	22-Jul-16
Rohde & Schwarz	SMB 100A	Signal Generator	101558	17-Aug-16
Keysight	E9304A	Power Sensor	MY56100005	18-Mar-17
Agilent	E9304A	Power Sensor	MY41499013	01-Mar-17
Agilent	E9304A	Power Sensor	MY41499012	17-Jun-16
Agilent	E4419B	Power Meter	MY40510693	22-Jan-17
Agilent	E4419B	Power Meter	GB40202754	22-Oct-16
Agilent	U2004A	USB Power Sensor	MY50000280	08-Oct-16

Condition of Instrument On Release:
In Tolerance to Internal Quality Standards

Calibration Completed By
Francisco D Maldonado, Calibration Technician

Attested and Issued on 16-May-16
George Cisneros, Calibration Supervisor

CALIBRATION REPORT

Magnetic Field Sensor

Model	*S/N*
H200	00206937
HI-2200	00086316

Date: 16 May 2016

X New Instrument
_ Other
_ Out of Tolerance
Within Tolerance

Frequency Response

Frequency Response		*Nominal Field*	*Cal Factor**	*Deviation*
	MHz	*A/m*	(Eapplied/Eindicated)	*dB*
1	10	30	1.07	-0.58
2	15	30	1.05	-0.42
3	30	30	1.01	-0.09
4	50	30	0.99	0.05
5	75	30	0.96	0.33
6	100	30	0.90	0.94
7	150	30	0.87	1.18
8	175	30	0.84	1.53
9	200	30	0.80	1.94
10	250	30	0.70	3.12
11	300	30	0.56	5.09

* Corrected magnetic field values (A/m) can be obtained by multiplying the Cal Factor with the indicated H field readings.

Linearity

maximum linearity deviation is 0.06 dB

(measurements taken from 30 mA/m to 9 A/m at 27.12 MHz)

Test Conditions

Calibration performed at ambient room temperature: 23 ±3°C

The above sensor was calibrated to factory specifications. This calibration is performed per IEEE 1309 standard. All equipment used are traceable to US National Institute of Standards and Technology (NIST).

Page 2 of 2

Appendix C - Photos of Assessed Antennas

(Refer to Exhibit 7B)

Appendix D – MPE Measurement Results

VHF Band MPE measurement data for Bystander

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement Bystander (BS) Positions										DUT Max. TX Factor	Avg. over Body (mW/cm2)	Calc. P.D. (mW/cm2)	Max Calc. P.D. (mW/cm2)
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		20 cm	40 cm	60 cm	80 cm	100 cm	120 cm	140 cm	160 cm	180 cm	200 cm				
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	136.0125	18	17.3	CW	E	1.03	BS	0.057	0.091	0.134	0.158	0.14	0.175	0.213	0.206	0.15	0.095	0.5	0.142	0.07	0.08
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	140.0000	18	17.3	CW	E	1.02	BS	0.047	0.058	0.087	0.117	0.125	0.152	0.177	0.158	0.109	0.065	0.5	0.110	0.06	0.06
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	144.0000	18	17.3	CW	E	1.02	BS	0.036	0.028	0.064	0.093	0.108	0.116	0.129	0.12	0.061	0.046	0.5	0.080	0.04	0.04
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	144.0000	18	17.3	CW	E	1.02	BS	0.04	0.043	0.073	0.104	0.118	0.134	0.139	0.116	0.077	0.049	0.5	0.089	0.05	0.05
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	147.5000	18	17.4	CW	E	1.02	BS	0.043	0.074	0.131	0.158	0.141	0.117	0.112	0.083	0.052	0.037	0.5	0.095	0.05	0.05
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	150.8000	18	17.4	CW	E	1.02	BS	0.096	0.202	0.346	0.348	0.214	0.158	0.145	0.116	0.075	0.043	0.5	0.174	0.09	0.09
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	150.8000	18	17.4	CW	E	1.02	BS	0.082	0.19	0.285	0.236	0.135	0.098	0.087	0.054	0.039	0.025	0.5	0.123	0.06	0.06
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	156.4000	18	17.6	CW	E	1.02	BS	0.15	0.314	0.433	0.301	0.252	0.15	0.144	0.11	0.168	0.144	0.5	0.217	0.11	0.11
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	162.0000	18	17.6	CW	E	1.02	BS	0.165	0.343	0.421	0.263	0.176	0.153	0.15	0.105	0.061	0.043	0.5	0.188	0.10	0.10
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	162.0000	18	17.6	CW	E	1.02	BS	0.134	0.168	0.342	0.21	0.11	0.125	0.12	0.09	0.053	0.036	0.5	0.139	0.07	0.07
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	168.0000	18	17.7	CW	E	1.01	BS	0.127	0.25	0.272	0.132	0.096	0.14	0.122	0.072	0.047	0.043	0.5	0.130	0.07	0.07
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	173.0125	18	17.7	CW	E	1.01	BS	0.1	0.194	0.19	0.071	0.086	0.125	0.108	0.07	0.054	0.052	0.5	0.105	0.05	0.05

MPE calculations are defined in section 13.0.

VHF Band MPE measurement data for Bystander

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement										DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Bystander (BS) Positions													
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		20 cm	40 cm	60 cm	80 cm	100 cm	120 cm	140 cm	160 cm	180 cm	200 cm				
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	136.0125	18	17.3	CW	H	0.88	BS	0.044	0.051	0.059	0.075	0.094	0.109	0.098	0.093	0.072	0.055	0.5	0.075	0.08	0.09
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	140.0000	18	17.3	CW	H	0.88	BS	0.041	0.045	0.055	0.07	0.088	0.098	0.094	0.08	0.059	0.045	0.5	0.068	0.07	0.07
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	144.0000	18	17.3	CW	H	0.87	BS	0.039	0.043	0.053	0.065	0.079	0.084	0.079	0.064	0.046	0.033	0.5	0.059	0.05	0.05
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	144.0000	18	17.3	CW	H	0.87	BS	0.039	0.043	0.054	0.068	0.082	0.087	0.081	0.065	0.047	0.034	0.5	0.060	0.05	0.05
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	147.5000	18	17.4	CW	H	0.87	BS	0.043	0.048	0.056	0.06	0.064	0.06	0.057	0.046	0.036	0.028	0.5	0.050	0.04	0.04
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	150.8000	18	17.4	CW	H	0.87	BS	0.068	0.072	0.075	0.078	0.081	0.076	0.07	0.056	0.039	0.033	0.5	0.065	0.06	0.06
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	150.8000	18	17.4	CW	H	0.87	BS	0.055	0.061	0.058	0.052	0.058	0.063	0.058	0.047	0.035	0.03	0.5	0.052	0.04	0.04
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	156.4000	18	17.6	CW	H	0.86	BS	0.074	0.075	0.07	0.074	0.097	0.105	0.093	0.069	0.047	0.034	0.5	0.074	0.08	0.08
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	162.0000	18	17.6	CW	H	0.86	BS	0.072	0.069	0.065	0.076	0.10	0.101	0.084	0.056	0.035	0.03	0.5	0.069	0.07	0.07
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	162.0000	18	17.6	CW	H	0.86	BS	0.064	0.063	0.058	0.069	0.09	0.089	0.075	0.051	0.033	0.029	0.5	0.062	0.05	0.05
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	168.0000	18	17.7	CW	H	0.85	BS	0.061	0.054	0.054	0.073	0.09	0.086	0.065	0.042	0.034	0.037	0.5	0.060	0.05	0.05
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	173.0125	18	17.7	CW	H	0.84	BS	0.052	0.046	0.046	0.065	0.085	0.077	0.058	0.042	0.04	0.043	0.5	0.055	0.04	0.04

MPE calculations are defined in section 13.0.

UHF R1 Band MPE measurement data for Bystander

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement										DUT Max. TX Factor	Avg. over Body (mW/cm2)	Calc. P.D. (mW/cm2)	Max Calc. P.D. (mW/cm2)
										Bystander (BS) Positions													
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		20 cm	40 cm	60 cm	80 cm	100 cm	120 cm	140 cm	160 cm	180 cm	200 cm				
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	380.0000	18	17.9	CW	E	0.98	BS	0.052	0.061	0.124	0.218	0.278	0.282	0.227	0.156	0.128	0.082	0.5	0.161	0.08	0.08
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	393.3000	18	17.7	CW	E	0.98	BS	0.058	0.063	0.167	0.227	0.29	0.325	0.273	0.207	0.105	0.067	0.5	0.178	0.09	0.09
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	406.5000	18	17.7	CW	E	0.99	BS	0.063	0.116	0.124	0.18	0.232	0.292	0.153	0.164	0.104	0.058	0.5	0.149	0.07	0.07
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	419.8000	18	17.5	CW	E	1.00	BS	0.058	0.05	0.12	0.129	0.219	0.26	0.224	0.145	0.07	0.043	0.5	0.132	0.07	0.07
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	433.0000	18	17.3	CW	E	1.01	BS	0.077	0.079	0.128	0.14	0.281	0.358	0.275	0.154	0.086	0.04	0.5	0.162	0.08	0.09
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	425.0125	18	17.5	CW	E	1.00	BS	0.093	0.098	0.136	0.179	0.289	0.324	0.276	0.185	0.09	0.051	0.5	0.172	0.09	0.09
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	450.0125	18	17.2	CW	E	1.02	BS	0.095	0.1	0.155	0.189	0.305	0.371	0.293	0.176	0.082	0.038	0.5	0.180	0.09	0.10
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	460.0000	18	17.6	CW	E	1.03	BS	0.032	0.033	0.087	0.15	0.237	0.265	0.238	0.143	0.072	0.03	0.5	0.129	0.07	0.07
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	469.9875	18	17.9	CW	E	1.04	BS	0.038	0.052	0.095	0.156	0.266	0.298	0.29	0.147	0.07	0.036	0.5	0.145	0.08	0.08
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	450.0125	18	17.2	CW	E	1.02	BS	0.035	0.036	0.066	0.141	0.221	0.262	0.209	0.143	0.073	0.046	0.5	0.123	0.06	0.07
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	460.0000	18	17.6	CW	E	1.03	BS	0.033	0.05	0.094	0.158	0.245	0.28	0.232	0.127	0.074	0.029	0.5	0.132	0.07	0.07
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	469.9875	18	17.9	CW	E	1.04	BS	0.042	0.048	0.094	0.165	0.26	0.312	0.253	0.149	0.071	0.036	0.5	0.143	0.07	0.07

MPE calculations are defined in section 13.0.

UHF R1 Band MPE measurement data for Bystander

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement										DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Bystander (BS) Positions														
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		20 cm	40 cm	60 cm	80 cm	100 cm	120 cm	140 cm	160 cm	180 cm	200 cm				
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	450.0125	18	17.2	CW	E	1.02	BS	0.035	0.037	0.053	0.113	0.225	0.243	0.195	0.125	0.071	0.039	0.5	0.114	0.06	0.06
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	460.0000	18	17.6	CW	E	1.03	BS	0.042	0.053	0.111	0.165	0.253	0.278	0.234	0.153	0.074	0.033	0.5	0.140	0.07	0.07
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	469.9875	18	17.9	CW	E	1.04	BS	0.063	0.074	0.149	0.209	0.352	0.414	0.335	0.192	0.089	0.087	0.5	0.196	0.10	0.10

MPE calculations are defined in section 13.0.

UHF R2 Band MPE measurement data for Bystander

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement										DUT Max. TX Factor	Avg. over Body (mW/cm2)	Calc. P.D. (mW/cm2)	Max Calc. P.D. (mW/cm2)
										Bystander (BS) Positions													
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		20 cm	40 cm	60 cm	80 cm	100 cm	120 cm	140 cm	160 cm	180 cm	200 cm				
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	450.0125	18	17.2	CW	E	1.02	BS	0.035	0.036	0.066	0.141	0.221	0.262	0.209	0.143	0.073	0.046	0.5	0.123	0.06	0.07
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	460.0000	18	17.6	CW	E	1.03	BS	0.033	0.05	0.094	0.158	0.245	0.28	0.232	0.127	0.074	0.029	0.5	0.132	0.07	0.07
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	469.9875	18	17.9	CW	E	1.04	BS	0.042	0.048	0.094	0.165	0.26	0.312	0.253	0.149	0.071	0.036	0.5	0.143	0.07	0.07
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	481.9875	18	18.0	CW	E	1.05	BS	0.048	0.05	0.097	0.185	0.341	0.415	0.324	0.182	0.081	0.056	0.5	0.178	0.09	0.09
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	450.0125	18	17.2	CW	E	1.02	BS	0.035	0.037	0.053	0.113	0.225	0.243	0.195	0.125	0.071	0.039	0.5	0.114	0.06	0.06
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	460.0000	18	17.6	CW	E	1.03	BS	0.042	0.053	0.111	0.165	0.253	0.278	0.234	0.153	0.074	0.033	0.5	0.140	0.07	0.07
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	469.9875	18	17.9	CW	E	1.04	BS	0.063	0.074	0.149	0.209	0.352	0.414	0.335	0.192	0.089	0.087	0.5	0.196	0.10	0.10
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	481.9875	18	18.0	CW	E	1.05	BS	0.06	0.064	0.088	0.198	0.378	0.47	0.379	0.2	0.113	0.072	0.5	0.202	0.11	0.11
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	496.5000	18	17.8	CW	E	1.06	BS	0.057	0.064	0.071	0.202	0.301	0.461	0.305	0.218	0.109	0.07	0.5	0.186	0.10	0.10
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	511.9875	18	17.4	CW	E	1.06	BS	0.024	0.044	0.075	0.201	0.43	0.475	0.326	0.217	0.104	0.061	0.5	0.196	0.10	0.11
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	450.0125	18	17.2	CW	E	1.02	BS	0.095	0.1	0.155	0.189	0.305	0.371	0.293	0.176	0.082	0.038	0.5	0.180	0.09	0.10
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	460.0000	18	17.6	CW	E	1.03	BS	0.032	0.033	0.087	0.15	0.237	0.265	0.238	0.143	0.072	0.03	0.5	0.129	0.07	0.07
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	469.9875	18	17.9	CW	E	1.04	BS	0.038	0.052	0.095	0.156	0.266	0.298	0.29	0.147	0.07	0.036	0.5	0.145	0.08	0.08

MPE calculations are defined in section 13.0.

UHF R2 Band measurement data for Bystander

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement										DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Bystander (BS) Positions													
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		20 cm	40 cm	60 cm	80 cm	100 cm	120 cm	140 cm	160 cm	180 cm	200 cm				
MC	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	2.15	482.0125	18	18.0	CW	E	1.05	BS	0.045	0.055	0.097	0.234	0.344	0.408	0.343	0.18	0.093	0.057	0.5	0.186	0.10	0.10
MC	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	2.15	496.5000	18	17.8	CW	E	1.06	BS	0.02	0.037	0.063	0.158	0.311	0.386	0.243	0.155	0.071	0.045	0.5	0.149	0.08	0.08
MC	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	2.15	511.9875	18	17.4	CW	E	1.06	BS	0.025	0.043	0.07	0.202	0.324	0.329	0.168	0.076	0.042	0.023	0.5	0.130	0.07	0.07
MC	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	2.15	519.9875	18	18.0	CW	E	1.07	BS	0.03	0.061	0.099	0.226	0.347	0.264	0.163	0.083	0.032	0.021	0.5	0.133	0.07	0.07

MPE calculations are defined in section 13.0.

7/800 Band MPE measurement data for Bystander

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement										DUT Max. TX Factor	Avg. over Body (mW/cm2)	Calc. P.D. (mW/cm2)	Max Calc. P.D. (mW/cm2)
										Bystander (BS) Positions													
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		20 cm	40 cm	60 cm	80 cm	100 cm	120 cm	140 cm	160 cm	180 cm	200 cm				
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	764.0875	18	17.9	CW	E	1.16	BS	0.001	0.008	0.036	0.047	0.04	0.065	0.259	0.236	0.101	0.046	0.5	0.084	0.05	0.05
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	770.0125	18	17.9	CW	E	1.16	BS	0.003	0.01	0.035	0.046	0.042	0.063	0.248	0.234	0.099	0.047	0.5	0.083	0.05	0.05
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	775.9125	18	17.9	CW	E	1.16	BS	0.002	0.009	0.035	0.044	0.038	0.067	0.254	0.23	0.099	0.047	0.5	0.083	0.05	0.05
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	794.0875	18	17.9	CW	E	1.17	BS	0.002	0.003	0.034	0.045	0.043	0.063	0.239	0.238	0.095	0.048	0.5	0.081	0.05	0.05
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	806.0125	18	17.3	CW	E	1.16	BS	0.002	0.007	0.033	0.045	0.043	0.067	0.245	0.227	0.093	0.045	0.5	0.081	0.05	0.05
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	823.9875	18	17.4	CW	E	1.14	BS	0.002	0.004	0.02	0.055	0.149	0.337	0.348	0.109	0.017	0.011	0.5	0.105	0.06	0.06
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	851.0125	18	17.7	CW	E	1.11	BS	0.002	0.005	0.012	0.028	0.079	0.246	0.238	0.097	0.024	0.006	0.5	0.074	0.04	0.04
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	860.0125	18	18.0	CW	E	1.10	BS	0.002	0.012	0.02	0.021	0.103	0.327	0.347	0.176	0.047	0.016	0.5	0.107	0.06	0.06
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	868.8875	18	18.0	CW	E	1.09	BS	0.002	0.004	0.018	0.019	0.099	0.335	0.358	0.22	0.008	0.018	0.5	0.108	0.06	0.06
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	764.0875	18	17.9	CW	E	1.16	BS	0.021	0.037	0.06	0.257	0.251	0.37	0.386	0.25	0.168	0.083	0.5	0.188	0.11	0.11
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	770.0125	18	17.9	CW	E	1.16	BS	0.017	0.031	0.043	0.25	0.205	0.268	0.313	0.21	0.138	0.09	0.5	0.157	0.09	0.09
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	775.9125	18	17.9	CW	E	1.16	BS	0.024	0.033	0.058	0.256	0.231	0.28	0.253	0.189	0.123	0.063	0.5	0.151	0.09	0.09
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	794.0875	18	17.9	CW	E	1.17	BS	0.032	0.028	0.085	0.263	0.211	0.287	0.299	0.195	0.087	0.059	0.5	0.155	0.09	0.09

MPE calculations are defined in section 13.0.

7/800 Band MPE measurement data for Bystander

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement										DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Bystander (BS) Positions													
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		20 cm	40 cm	60 cm	80 cm	100 cm	120 cm	140 cm	160 cm	180 cm	200 cm				
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	806.0125	18	17.3	CW	E	1.16	BS	0.02	0.032	0.016	0.184	0.185	0.283	0.284	0.188	0.085	0.045	0.5	0.132	0.08	0.08
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	823.9875	18	17.4	CW	E	1.14	BS	0.018	0.029	0.084	0.238	0.266	0.291	0.33	0.242	0.109	0.054	0.5	0.166	0.09	0.10
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	851.0125	18	17.7	CW	E	1.11	BS	0.012	0.038	0.103	0.317	0.192	0.295	0.433	0.378	0.182	0.082	0.5	0.203	0.11	0.11
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	860.0125	18	18.0	CW	E	1.10	BS	0.015	0.04	0.131	0.32	0.18	0.433	0.502	0.356	0.176	0.102	0.5	0.226	0.12	0.12
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	868.8875	18	18.0	CW	E	1.09	BS	0.019	0.031	0.113	0.273	0.232	0.435	0.49	0.345	0.18	0.101	0.5	0.222	0.12	0.12

MPE calculations are defined in section 13.0.

VHF Band MPE measurement data for Operator

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement			DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Operator (OP) Positions						
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		Head/ Top	Chest/ Middle	Lower Trunk/ Bottom				
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	136.0125	18	17.3	CW	E	1.03	OP	0.502	0.696	0.714	0.5	0.425	0.22	0.23
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	140.0000	18	17.3	CW	E	1.02	OP	0.437	0.674	0.816	0.5	0.428	0.22	0.23
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	144.0000	18	17.3	CW	E	1.02	OP	0.353	0.672	0.530	0.5	0.346	0.18	0.18
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	144.0000	18	17.3	CW	E	1.02	OP	0.385	0.752	0.704	0.5	0.409	0.21	0.22
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	147.5000	18	17.4	CW	E	1.02	OP	0.357	0.958	1.38	0.5	0.599	0.31	0.32
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	150.8000	18	17.4	CW	E	1.02	OP	0.373	1.342	2.214	0.5	0.873	0.45	0.46
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	150.8000	18	17.4	CW	E	1.02	OP	0.292	1.078	1.729	0.5	0.689	0.35	0.36
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	156.4000	18	17.6	CW	E	1.02	OP	0.318	1.341	2.582	0.5	0.942	0.48	0.49
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	162.0000	18	17.6	CW	E	1.02	OP	0.382	1.65	3.372	0.5	1.201	0.61	0.63
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	162.0000	18	17.6	CW	E	1.02	OP	0.278	1.336	2.775	0.5	0.975	0.50	0.51
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	168.0000	18	17.7	CW	E	1.01	OP	0.33	1.457	2.996	0.5	1.063	0.54	0.55
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	173.0125	18	17.7	CW	E	1.01	OP	0.452	1.491	3.826	0.5	1.282	0.65	0.66

MPE calculations are defined in section 13.0.

VHF Band MPE measurement data for Operator

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement			DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Operator (OP) Positions						
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Head/ Top	Chest/ Middle	Lower Trunk/ Bottom	Test Mode	E/H Field	Probe Cal. Factor		Head/ Top	Chest/ Middle	Lower Trunk/ Bottom				
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	136.0125	18	17.3	CW	H	0.88	OP	0.121	0.145	0.161	0.5	0.095	0.13	0.14
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	140.0000	18	17.3	CW	H	0.88	OP	0.114	0.143	0.167	0.5	0.094	0.13	0.13
MC	AN000197A01 (HAD4023A), 1/4 wave, 136-144 MHz	2.15	144.0000	18	17.3	CW	H	0.87	OP	0.094	0.132	0.172	0.5	0.088	0.11	0.12
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	144.0000	18	17.3	CW	H	0.87	OP	0.101	0.141	0.182	0.5	0.094	0.13	0.13
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	147.5000	18	17.4	CW	H	0.87	OP	0.064	0.123	0.20	0.5	0.086	0.11	0.11
MC	AN000197A02 (HAD4024A), 1/4 wave, 144-150.8 MHz	2.15	150.8000	18	17.4	CW	H	0.87	OP	0.06	0.103	0.257	0.5	0.093	0.12	0.13
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	150.8000	18	17.4	CW	H	0.87	OP	0.044	0.079	0.217	0.5	0.076	0.08	0.08
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	156.4000	18	17.6	CW	H	0.86	OP	0.089	0.11	0.266	0.5	0.103	0.15	0.15
MC	AN000197A03 (HAD4025A), 1/4 wave, 150.8-162 MHz	2.15	162.0000	18	17.6	CW	H	0.86	OP	0.116	0.114	0.297	0.5	0.117	0.19	0.20
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	162.0000	18	17.6	CW	H	0.86	OP	0.077	0.096	0.274	0.5	0.099	0.14	0.14
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	168.0000	18	17.7	CW	H	0.85	OP	0.135	0.108	0.28	0.5	0.116	0.18	0.19
MC	AN000197A04 (HAD4026A), 1/4 wave, 162-174 MHz	2.15	173.0125	18	17.7	CW	H	0.84	OP	0.16	0.126	0.307	0.5	0.132	0.23	0.23

MPE calculations are defined in section 13.0.

UHF R1 Band MPE measurement data for Operator

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement			DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Operator (OP) Positions						
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		Head/ Top	Chest/ Middle	Lower Trunk/ Bottom				
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	380.0000	18	17.9	CW	E	0.98	OP	0.629	0.941	0.690	0.5	0.502	0.25	0.25
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	393.3000	18	17.7	CW	E	0.98	OP	0.578	0.946	0.689	0.5	0.492	0.24	0.25
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	406.5000	18	17.7	CW	E	0.99	OP	0.415	0.752	0.568	0.5	0.386	0.19	0.19
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	419.8000	18	17.5	CW	E	1.00	OP	0.356	0.564	0.439	0.5	0.302	0.15	0.16
MC	AN000197A05 (HAE6014A), 1/4 wave, 380-433 MHz	2.15	433.0000	18	17.3	CW	E	1.01	OP	0.415	0.651	0.429	0.5	0.332	0.17	0.17
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	425.0125	18	17.5	CW	E	1.00	OP	0.417	0.725	0.506	0.5	0.366	0.18	0.19
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	450.0125	18	17.2	CW	E	1.02	OP	0.279	0.625	0.416	0.5	0.293	0.15	0.16
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	460.0000	18	17.6	CW	E	1.03	OP	0.218	0.551	0.368	0.5	0.253	0.13	0.13
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	469.9875	18	17.9	CW	E	1.04	OP	0.254	0.542	0.396	0.5	0.265	0.14	0.14
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	450.0125	18	17.2	CW	E	1.02	OP	0.277	0.65	0.43	0.5	0.302	0.15	0.16
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	460.0000	18	17.6	CW	E	1.03	OP	0.241	0.575	0.363	0.5	0.262	0.13	0.14
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	469.9875	18	17.9	CW	E	1.04	OP	0.269	0.577	0.403	0.5	0.278	0.14	0.15

MPE calculations are defined in section 13.0.

UHF R1 Band MPE measurement data for Operator

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement			DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Operator (OP) Positions						
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		Head/ Top	Chest/ Middle	Lower Trunk/ Bottom				
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	450.0125	18	17.2	CW	E	1.02	OP	0.316	0.608	0.408	0.5	0.296	0.15	0.16
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	460.0000	18	17.6	CW	E	1.03	OP	0.316	0.630	0.455	0.5	0.311	0.16	0.16
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	469.9875	18	17.9	CW	E	1.04	OP	0.375	0.724	0.541	0.5	0.364	0.19	0.19

MPE calculations are defined in section 13.0.

UHF R2 Band MPE measurement data for Operator

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement			DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Operator (OP) Positions						
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		Head/ Top	Chest/ Middle	Lower Trunk/ Bottom				
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	450.0125	18	17.2	CW	E	1.02	OP	0.277	0.65	0.43	0.5	0.302	0.15	0.16
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	460.0000	18	17.6	CW	E	1.03	OP	0.241	0.575	0.363	0.5	0.262	0.13	0.14
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	469.9875	18	17.9	CW	E	1.04	OP	0.269	0.577	0.403	0.5	0.278	0.14	0.15
MC	AN000197A07 (HAE6033A), 1/4 wave, 450-482 MHz	2.15	481.9875	18	18.0	CW	E	1.05	OP	0.4	0.718	0.563	0.5	0.374	0.20	0.20
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	450.0125	18	17.2	CW	E	1.02	OP	0.316	0.608	0.408	0.5	0.296	0.15	0.16
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	460.0000	18	17.6	CW	E	1.03	OP	0.316	0.630	0.455	0.5	0.311	0.16	0.16
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	469.9875	18	17.9	CW	E	1.04	OP	0.375	0.724	0.541	0.5	0.364	0.19	0.19
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	481.9875	18	18.0	CW	E	1.05	OP	0.476	0.884	0.662	0.5	0.449	0.24	0.24
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	496.5000	18	17.8	CW	E	1.06	OP	0.377	0.858	0.730	0.5	0.437	0.23	0.23
MC	AN000197A09 (HAE6035A), 1/4 wave, 450-512 MHz	2.15	511.9875	18	17.4	CW	E	1.06	OP	0.344	0.708	0.613	0.5	0.370	0.20	0.20
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	450.0125	18	17.2	CW	E	1.02	OP	0.279	0.625	0.416	0.5	0.293	0.15	0.16
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	460.0000	18	17.6	CW	E	1.03	OP	0.218	0.551	0.368	0.5	0.253	0.13	0.13
MC	AN000197A06 (HAE6032A), 1/4 wave, 425-470 MHz	2.15	469.9875	18	17.9	CW	E	1.04	OP	0.254	0.542	0.396	0.5	0.265	0.14	0.14

MPE calculations are defined in section 13.0.

UHF R2 Band MPE measurement data for Operator

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement			DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Operator (OP) Positions						
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		Head/ Top	Chest/ Middle	Lower Trunk/ Bottom				
MC	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	2.15	482.0125	18	18.0	CW	E	1.05	OP	0.431	0.886	0.63	0.5	0.433	0.23	0.23
MC	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	2.15	496.5000	18	17.8	CW	E	1.06	OP	0.26	0.691	0.59	0.5	0.342	0.18	0.18
MC	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	2.15	511.9875	18	17.4	CW	E	1.06	OP	0.218	0.514	0.454	0.5	0.264	0.14	0.14
MC	AN000197A08 (HAE6034A), 1/4 wave, 482-520 MHz	2.15	519.9875	18	18.0	CW	E	1.07	OP	0.325	0.688	0.620	0.5	0.363	0.19	0.19

MPE calculations are defined in section 13.0.

7/800 Band MPE measurement data for Operator

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement			DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Operator (OP) Positions						
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		Head/ Top	Chest/ Middle	Lower Trunk/ Bottom				
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	764.0875	18	17.9	CW	E	1.16	OP	0.089	0.648	0.591	0.5	0.295	0.17	0.17
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	770.0125	18	17.9	CW	E	1.16	OP	0.131	0.519	0.625	0.5	0.283	0.16	0.17
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	775.9125	18	17.9	CW	E	1.16	OP	0.162	0.636	0.666	0.5	0.325	0.19	0.19
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	794.0875	18	17.9	CW	E	1.17	OP	0.24	0.938	0.715	0.5	0.421	0.25	0.25
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	806.0125	18	17.3	CW	E	1.16	OP	0.086	0.474	0.440	0.5	0.222	0.13	0.13
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	823.9875	18	17.4	CW	E	1.14	OP	0.130	0.602	0.407	0.5	0.253	0.14	0.15
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	851.0125	18	17.7	CW	E	1.11	OP	0.227	0.648	0.220	0.5	0.243	0.14	0.14
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	860.0125	18	18.0	CW	E	1.10	OP	0.414	0.914	0.211	0.5	0.342	0.19	0.19
MC	AN000197A10 (HAF4015A), 1/4 wave, 764-870 MHz	5.15	868.8875	18	18.0	CW	E	1.09	OP	0.522	1.100	0.286	0.5	0.424	0.23	0.23
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	764.0875	18	17.9	CW	E	1.16	OP	0.130	0.711	0.069	0.5	0.202	0.12	0.12
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	770.0125	18	17.9	CW	E	1.16	OP	0.079	0.527	0.066	0.5	0.149	0.09	0.09
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	775.9125	18	17.9	CW	E	1.16	OP	0.087	0.630	0.068	0.5	0.174	0.10	0.10
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	794.0875	18	17.9	CW	E	1.17	OP	0.233	0.701	0.067	0.5	0.222	0.13	0.13

MPE calculations are defined in section 13.0.

7/800 Band MPE measurement data for Operator

D.U.T. Info.							Probe Info.		Test Pos.	MPE Measurement			DUT Max. TX Factor	Avg. over Body (mW/ cm2)	Calc. P.D. (mW/ cm2)	Max Calc. P.D. (mW/ cm2)
										Operator (OP) Positions						
Ant Loc.	Ant. Model/ Desc.	Ant. Gain (dBi)	Tx Freq (MHz)	Max Pwr (W)	Initial Pwr (W)	Test Mode	E/H Field	Probe Cal. Factor		Head/ Top	Chest/ Middle	Lower Trunk/ Bottom				
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	806.0125	18	17.3	CW	E	1.16	OP	0.122	0.572	0.067	0.5	0.169	0.10	0.10
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	823.9875	18	17.4	CW	E	1.14	OP	0.206	0.542	0.066	0.5	0.181	0.10	0.11
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	851.0125	18	17.7	CW	E	1.11	OP	0.328	0.842	0.134	0.5	0.290	0.16	0.16
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	860.0125	18	18.0	CW	E	1.10	OP	0.269	0.865	0.117	0.5	0.278	0.15	0.15
MC	AN000197A11 (HAF4018A), 1/4 wave, 764-870 MHz	5.15	868.8875	18	18.0	CW	E	1.09	OP	0.282	0.848	0.107	0.5	0.275	0.15	0.15

MPE calculations are defined in section 13.0.