



**COMPUTATIONAL EME COMPLIANCE ASSESSMENT OF THE DIGITAL
VEHICULAR REPEATER (DVR VHF), MOBEXCOM DVRS VHF (DQPM DVR3000P)
AND COMPANION APX SERIES MODEL M22KSS9PW1AN (MUD3222C) MOBILE
RADIO.**

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Introduction

This report summarizes the computational [numerical modeling] analysis performed to document compliance of the DVR VHF, model # MOBEXCOM DVRS VHF (DQPM DVR3000P) with FCC ID # LO6-DVRSVHF interfaced with, and transmitting simultaneously with Companion mobile radio, model # M22KSS9PW1AN (MUD3222C) and vehicle-mounted antennas with the US Federal Communications Commission (FCC) and Innovation, Science and Economic Development (ISED) Canada guidelines for human exposure to radio frequency (RF) emissions. The devices operate in the following frequency bands:

Regions	Device	Bands	Frequency Band (MHz)
US FCC	DVR	VHF Band	150.8 – 173.4
	Companion Mobile	VHF Band	150.8 – 173.4
ISED Canada	DVR	VHF Band	138-144, 148-174
	Companion Mobile	VHF Band	138-144, 148-174

This computational analysis supplements the measurements conducted to evaluate the compliance of the exposure from this DVR and Companion mobile radio with respect to applicable *maximum permissible exposure* (MPE) limits. All simultaneous test conditions (360

in total) that did not conform with applicable MPE limits were analyzed to determine whether those conditions complied with the *specific absorption rate* (SAR) limits for general public exposure (1.6 W/kg averaged over 1 gram of tissue and 0.08 W/kg averaged over the whole body) set forth in FCC guidelines, which are based on the IEEE C95.1-1999 standard [1]. With SAR simulation reduction consideration, total 33 test conditions (with 66 independent simulations) had been performed addressing exposure of back seat passenger to the DVR VHF repeater with trunk-mounted antennas and Companion mobile radio (VHF) with roof-mount antennas.

For all simulations a commercial code based on Finite-Difference-Time-Domain (FDTD) methodology was employed to carry out the computational analysis. It is well established and recognized within the scientific community that SAR is the primary dosimetric quantity used to evaluate the human body's absorption of RF energy and that MPE limits are in fact derived from SAR. Accordingly, the SAR computations provide a scientifically valid and more relevant estimate of human exposure to RF energy.

Method

The simulation code employed is XFDTD™ v7.6.0, by Remcom Inc., State College, PA. This computational suite provides means to simulate the heterogeneous full human body model defined according to the IEC/IEEE 62704-2-2017 standard and derived from the so-called Visible Human [2], discretized in 3 mm voxels. The IEC/IEEE 62704-2-2017 standard dielectric properties of 39 body tissues are automatically assigned by XFDTD™ at any specific frequency. The “seated” man model was obtained from the standing model by modifying the articulation angles at the hips and the knees. Details of the computational method and model are provided in the Appendix A to this report. The evaluation of the computational uncertainties and results of the benchmark validations are provided in the Appendix B attached to this report. The XFDTD code validation performed according to IEEE/IEC 62704-1:2017 standard by Remcom Inc., is provided in conjunction with this report.

The car model has been imported into XFDTD™ from the CAD file of a sedan car having dimensions 4.98 m (L) x 1.85 m (W) x 1.18 m (H), and discretized with the minimum resolution of 3 mm and the maximum resolution of 8 mm. The Figure 1 below show both the

CAD model and the photo of the actual car This CAD model has been incorporated into the IEC/IEEE 62704-2-2017 standard.

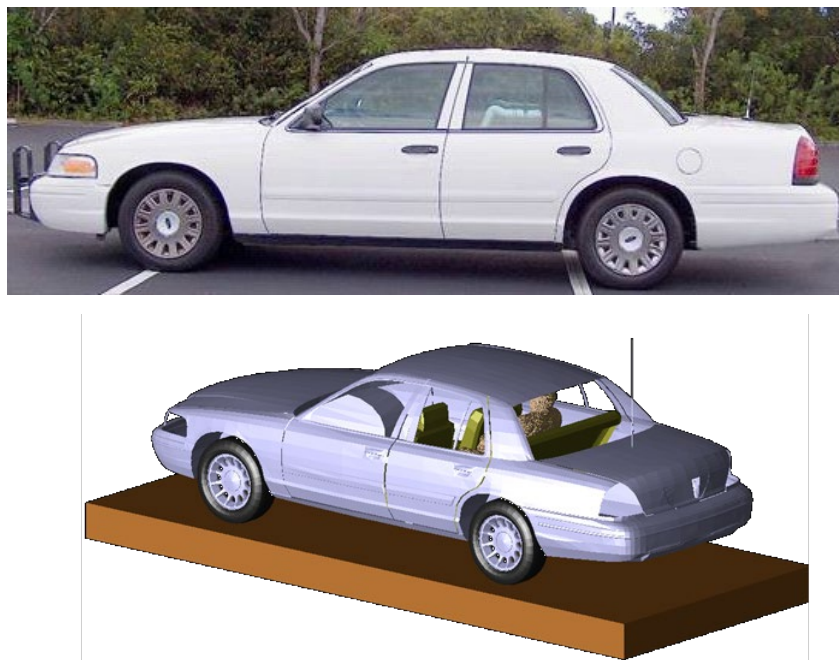


Figure 1: The photo picture of the car used in field measurements and the corresponding CAD model used in simulations

For passenger exposure, Companion mobile antenna position is on the roof and DVR VHF repeater antenna position is on the trunk. The distance of trunk mounted antenna from the passenger head when the passenger is located in the center of the back seat was set at 85 cm, to replicate the experimental conditions used in MPE measurements. Figure 2 shows some of the XFDTD™ computational models used for passenger (back seat) exposure to trunk mounted antennas.

According to the IEC/IEEE 62704-2-2017 standard for exposure simulations from vehicle mount antennas the lossy dielectric slab with 30 cm thickness, dielectric constant of 8 and conductivity of 0.01 S/m has been introduced in the computational model to properly account for the effect of the ground (pavement) on exposure.

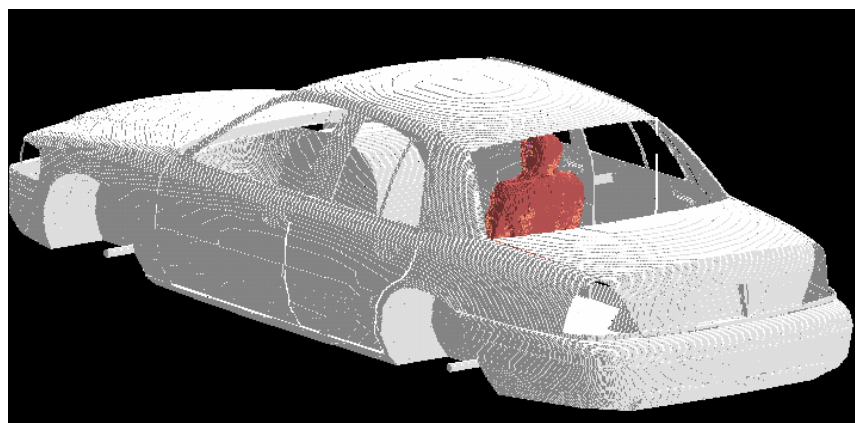


Figure 2: Passenger (back seat) model exposed to a trunk-mount antenna: XFDTD geometry. The antenna is mounted at 85 cm from the passenger located in the center of the back seat.

The computational code employs a time-harmonic excitation to produce a steady state electromagnetic field in the exposed body. Subsequently, the corresponding SAR distribution is automatically processed in order to determine the whole-body and 1-g average SAR. The maximum average output power from DVR VHF repeater is 6W and Companion mobile radio is 60W. Since the ohmic losses in the car materials, as well as the mismatch losses at the antenna feed-point are neglected, and source-based time averaging (100% talk time) for DVR VHF repeater and (50% talk time) for Companion mobile radio were employed, all computational results are normalized to full average net output power of DVR VHF repeater, i.e., 6 W and half the average net output power of Companion radio, i.e., 30W; less the corresponding minimum insertion loss in excess of 0.5 dB of the feed cables supplied with the antennas. This power normalization is in accordance with the IEC/IEEE 62704-2-2017 standard.

Results of SAR computations for car passengers

The test conditions requiring SAR computations are summarized in Table 1 (DVR VHF, 100% talk time) and Table 2 (Companion mobile, 50% talk time), together with the antenna data, the SAR results, and power density (P.D.) as obtained from the measurements in the corresponding test conditions. The conditions are for antennas mounted on the trunk (DVR VHF) and on the roof (Companion mobile). The antenna length in Table 1 & 2 includes the 1.8 cm magnetic mount base used in measurements to position the antenna on the vehicle. The same length was used in simulation model.

The passenger is located in the center or on the side of the rear seat corresponding to the respective configurations defined in the IEC/IEEE 62704-2-2017 standard.

All the transmit frequency, antenna length, and passenger location combinations reported in Table 1 & 2 have been simulated individually. These tables also include the interpolated adjustment factor and corresponding SAR scaled values following requirement of the IEC/IEEE 62704-2-2017 standard.

Table 1a (configurations exceed FCC MPE limits):
 Results of the Computations and Adjusted SAR for passenger (back seat) exposure of
 DVR VHF repeater (100% talk-time)

Mount Location	Antenna Kit#	Antenna Length (cm)	Freq (MHz)	P.D. (mW/cm ²)	Exposure Location	Computations SAR (W/kg)		Interpolated Adjustment Factors		Adjusted SAR Results (W/kg)	
						1 g	WB	1 g	WB	1 g	WB
Trunk	HAD4007A, 1/4 Wave (144-150.8MHz)	50.8	150.8000	0.10	Back Center	0.18	0.008	1.90	2.40	0.34	0.019
					Back Side	0.06	0.005	4.19	3.00	0.27	0.015
	HAD4008A, 1/4 Wave (150.8-162MHz)	47.3	150.8000	0.10	Back Center	0.18	0.008	1.90	2.40	0.34	0.019
					Back Side	0.06	0.005	4.19	3.00	0.27	0.015
			156.4000	0.14	Back Center	0.12	0.007	1.91	2.41	0.23	0.017
					Back Side	0.15	0.006	4.15	2.99	0.63	0.018
			162.0000	0.23	Back Center	0.16	0.007	1.92	2.42	0.31	0.018
					Back Side	0.16	0.006	4.11	2.98	0.67	0.019
	HAD4009A, 1/4 Wave (162-174MHz)	44.8	162.0000	0.17	Back Center	0.16	0.008	1.92	2.42	0.31	0.018
					Back Side	0.17	0.007	4.11	2.98	0.68	0.020
			167.7000	0.16	Back Center	0.13	0.006	1.93	2.42	0.25	0.015
					Back Side Fig. 3 & 4	0.17	0.005	4.07	2.98	0.70	0.016
			173.4000	0.19	Back Center	0.10	0.005	1.94	2.43	0.19	0.013
					Back Side	0.13	0.005	4.03	2.97	0.52	0.015

Note:
Bold Blue – the highest SAR results computed for the respective frequency bands

Table 1b (configurations exceed ISED Canada MPE limits):
 Results of the Computations and Adjusted SAR for passenger (back seat) exposure of
 DVR VHF repeater (100% talk-time)

Mount Location	Antenna Kit#	Antenna Length (cm)	Freq (MHz)	P.D. (mW/cm ²)	Exposure Location	Computations SAR (W/kg)		Interpolated Adjustment Factors		Adjusted SAR Results (W/kg)	
						1 g	WB	1 g	WB	1 g	WB
Trunk	HAD4006A, 1/4 Wave (136-144 MHz)	53.8	140.0000	0.20	Back Center	0.07	0.003	1.77	2.26	0.12	0.006
					Back Side	0.05	0.003	3.74	2.71	0.20	0.008
			144.0000	0.17	Back Center	0.18	0.008	1.82	2.31	0.34	0.018
					Back Side	0.07	0.005	3.93	2.83	0.27	0.014
	HAD4007A, 1/4 Wave (144-150.8MHz)	50.8	144.0000	0.15	Back Center	0.18	0.008	1.82	2.31	0.34	0.018
					Back Side	0.07	0.005	3.93	2.83	0.27	0.014
			#150.8000	0.10	Back Center	0.18	0.008	1.90	2.40	0.34	0.019
					Back Side	0.06	0.005	4.19	3.00	0.27	0.015
	HAD4008A, 1/4 Wave (150.8-162MHz)	47.3	#150.8000	0.10	Back Center	0.18	0.008	1.90	2.40	0.34	0.019
					Back Side	0.06	0.005	4.19	3.00	0.27	0.015
			#156.4000	0.14	Back Center	0.12	0.007	1.91	2.41	0.23	0.017
					Back Side	0.15	0.006	4.15	2.99	0.63	0.018
			#162.0000	0.23	Back Center	0.16	0.007	1.92	2.42	0.31	0.018
					Back Side	0.16	0.006	4.11	2.98	0.67	0.019
	HAD4009A, 1/4 Wave (162-174MHz)	44.8	#162.000	0.17	Back Center	0.16	0.008	1.92	2.42	0.31	0.018
					Back Side	0.17	0.007	4.11	2.98	0.68	0.020
			#167.7000	0.16	Back Center	0.13	0.006	1.93	2.42	0.25	0.015
					Back Side	0.17	0.005	4.07	2.98	0.70	0.016
			#173.4000	0.19	Back Center	0.10	0.005	1.94	2.43	0.19	0.013
					Back Side	0.13	0.005	4.03	2.97	0.52	0.015

Notes:
Bold Blue – the highest SAR results computed for the respective frequency bands
 # Same SAR simulation configuration as FCC US.

Table 2a (configurations exceed FCC MPE limits):
 Results of the Computations and Adjusted SAR for passenger (back seat) exposure of
 Companion mobile radio (50% talk-time) – VHF Band

Mount Location	Antenna Kit#	Antenna Length (cm)	Freq (MHz)	P.D. (mW/cm ²)	Exposure Location	Computations SAR (W/kg)		Interpolated Adjustment Factors		Adjusted SAR Results (W/kg)	
						1 g	WB	1 g	WB	1 g	WB
Roof	HAD4021A, 1/4 Wave (136-174MHz)	53.5	150.8000	0.16	Back Center	0.11	0.004	1.30	1.90	0.14	0.007
					Back Side	0.22	0.004	1.00	2.40	0.22	0.010
			158.3000	0.16	Back Center	0.07	0.003	1.34	1.90	0.09	0.005
					Back Side	0.10	0.002	1.02	2.41	0.10	0.005
	HAD4017A, 1/4 Wave (146-174 MHz)	48.0	165.9000	0.15	Back Center	0.02	0.001	1.37	1.89	0.03	0.002
					Back Side	0.06	0.001	1.04	2.43	0.06	0.004
	HAD4016A, 1/4 Wave (136-162 MHz)	53.1	150.8000	0.15	Back Center	0.11	0.004	1.30	1.90	0.14	0.007
					Back Side	0.22	0.004	1.00	2.40	0.22	0.010
			156.2000	0.15	Back Center	0.11	0.003	1.33	1.90	0.15	0.006
					Back Side	0.13	0.003	1.01	2.41	0.14	0.006
	HAD4007A, 1/4 Wave (144-150.8 MHz)	50.8	150.8000	0.17	Back Center	0.11	0.004	1.30	1.90	0.14	0.007
					Back Side	0.22	0.004	1.00	2.40	0.22	0.010
	HAD4008A, 1/4 Wave (150.8-162 MHz)	47.3	162.0000	0.20	Back Center	0.03	0.001	1.35	1.90	0.04	0.003
					Back Side	0.05	0.002	1.03	2.42	0.06	0.004
	HAD4009A, 1/4 Wave (162-174 MHz)	44.8	162.0000	0.20	Back Center	0.03	0.001	1.35	1.90	0.04	0.003
					Back Side	0.05	0.002	1.03	2.42	0.06	0.004
	RAD4010ARB, 1/2 wave (136-174 MHz)	128.6	150.8000	0.02	Back Center	0.06	0.002	1.30	1.90	0.07	0.003
					Back Side	0.09	0.002	1.00	2.40	0.09	0.004
		118.3	158.3000	0.03	Back Center	0.05	0.002	1.34	1.90	0.06	0.003
					Back Side	0.05	0.001	1.02	2.41	0.05	0.003
114.3		165.9000	0.03	Back Center	0.02	0.001	1.37	1.89	0.03	0.002	
				Back Side	0.03	0.001	1.04	2.43	0.03	0.002	
105.5		173.4000	0.02	Back Center	0.08	0.001	1.40	1.89	0.11	0.003	
				Back Side	0.12	0.003	1.05	2.44	0.12	0.007	

Table 2a continued (configurations exceed FCC MPE limits):
 Results of the Computations and Adjusted SAR for passenger (back seat) exposure of
 Companion mobile radio (50% talk-time) – VHF Band

Mount Location	Antenna Kit#	Antenna Length (cm)	Freq (MHz)	P.D. (mW/cm ²)	Exposure Location	Computations SAR (W/kg)		Interpolated Adjustment Factors		Adjusted SAR Results (W/kg)	
						1 g	WB	1 g	WB	1 g	WB
Roof	HAD4022A, 5/8 Wave (132-174MHz)	115.8	150.8000	0.06	Back Center	0.07	0.002	1.30	1.90	0.09	0.004
					Back Side	0.12	0.002	1.00	2.40	0.12	0.005
		104.5	158.3000	0.07	Back Center	0.06	0.002	1.34	1.90	0.07	0.004
					Back Side	0.07	0.002	1.02	2.41	0.08	0.004
		98.3	165.9000	0.08	Back Center	0.02	0.001	1.37	1.89	0.03	0.002
					Back Side	0.05	0.001	1.04	2.43	0.05	0.003
		91.7	173.4000	0.04	Back Center	0.14	0.002	1.40	1.89	0.19	0.004
					Back Side Fig. 5 & 6	0.21	0.005	1.05	2.44	0.22	0.011

Note:

Blue – the highest SAR results computed for the respective frequency bands

Table 2b (configurations exceed ISED Canada MPE limits):
 Results of the Computations and Adjusted SAR for passenger (back seat) exposure of
 Companion mobile radio (50% talk-time) – VHF Band

Mount Location	Antenna Kit#	Antenna Length (cm)	Freq (MHz)	P.D. (mW/cm ²)	Exposure Location	Computations SAR (W/kg)		Interpolated Adjustment Factors		Adjusted SAR Results (W/kg)	
						1 g	WB	1 g	WB	1 g	WB
Roof	HAD4021A, 1/4 Wave (136-174MHz)	53.5	#150.8000	0.16	Back Center	0.11	0.004	1.30	1.90	0.14	0.007
					Back Side	0.22	0.004	1.00	2.40	0.22	0.010
			#158.3000	0.16	Back Center	0.07	0.003	1.34	1.90	0.09	0.005
					Back Side	0.10	0.002	1.02	2.41	0.10	0.005
	HAD4017A, 1/4 Wave (146-174 MHz)	48.0	#165.9000	0.15	Back Center	0.02	0.001	1.37	1.89	0.03	0.002
					Back Side	0.06	0.001	1.04	2.43	0.06	0.004
	HAD4016A, 1/4 Wave (136-162 MHz)	53.1	#150.8000	0.15	Back Center	0.11	0.004	1.30	1.90	0.14	0.007
					Back Side	0.22	0.004	1.00	2.40	0.22	0.010
			#156.2000	0.15	Back Center	0.11	0.003	1.33	1.90	0.15	0.006
					Back Side	0.13	0.003	1.01	2.41	0.14	0.006
	HAD4006A, 1/4 Wave (136-144 MHz)	53.8	140.0000	0.14	Back Center Fig. 7 & 8	0.25	0.006	1.26	1.77	0.32	0.010
					Back Side	0.25	0.006	1.04	2.24	0.26	0.014
			144.0000	0.12	Back Center	0.15	0.006	1.27	1.82	0.20	0.011
					Back Side	0.25	0.006	1.03	2.31	0.26	0.014
	HAD4007A, 1/4 Wave (144-150.8 MHz)	50.8	148.0000	0.16	Back Center	0.11	0.004	1.29	1.87	0.14	0.008
					Back Side	0.23	0.005	1.01	2.37	0.24	0.011
			#150.8000	0.17	Back Center	0.11	0.004	1.30	1.90	0.14	0.007
					Back Side	0.22	0.004	1.00	2.40	0.22	0.010
	HAD4008A, 1/4 Wave (150.8-162 MHz)	47.3	#162.0000	0.20	Back Center	0.03	0.001	1.35	1.90	0.04	0.003
					Back Side	0.05	0.002	1.03	2.42	0.06	0.004
HAD4009A, 1/4 Wave (162-174 MHz)	44.8	#162.0000	0.20	Back Center	0.03	0.001	1.35	1.90	0.04	0.003	
				Back Side	0.05	0.002	1.03	2.42	0.06	0.004	

Notes:
Bold Blue – the highest SAR results computed for the respective frequency bands
 # Same SAR simulation configuration as FCC US.

Table 2b continued (configurations exceed ISED Canada MPE limits):
 Results of the Computations and Adjusted SAR for passenger (back seat) exposure of
 Companion mobile radio (50% talk-time) – VHF Band

Mount Location	Antenna Kit#	Antenna Length (cm)	Freq (MHz)	P.D. (mW/cm ²)	Exposure Location	Computations SAR (W/kg)		Interpolated Adjustment Factors		Adjusted SAR Results (W/kg)	
						1 g	WB	1 g	WB	1 g	WB
Roof	RAD4010ARB, 1/2 Wave (136-174MHz)	139.3	140.0000	0.02	Back Center	0.09	0.002	1.26	1.77	0.11	0.004
					Back Side	0.10	0.002	1.04	2.24	0.10	0.005
		132.2	144.0000	0.02	Back Center	0.06	0.002	1.27	1.82	0.08	0.004
					Back Side	0.09	0.002	1.03	2.31	0.09	0.005
		128.6	#150.8000	0.02	Back Center	0.06	0.002	1.30	1.90	0.07	0.003
					Back Side	0.09	0.002	1.00	2.40	0.09	0.004
		118.3	#158.3000	0.03	Back Center	0.05	0.002	1.34	1.90	0.06	0.003
					Back Side	0.05	0.001	1.02	2.41	0.05	0.003
	114.3	#165.9000	0.03	Back Center	0.02	0.001	1.37	1.89	0.03	0.002	
				Back Side	0.03	0.001	1.04	2.43	0.03	0.002	
	105.5	#173.4000	0.02	Back Center	0.08	0.001	1.40	1.89	0.11	0.003	
				Back Side	0.12	0.003	1.05	2.44	0.12	0.007	
	HAD4022A, 5/8 Wave (132-174MHz)	139.3	140.0000	0.02	Back Center	0.10	0.002	1.26	1.77	0.13	0.004
					Back Side	0.11	0.003	1.04	2.24	0.11	0.006
		132.2	144.0000	0.02	Back Center	0.08	0.003	1.27	1.82	0.11	0.006
					Back Side	0.12	0.003	1.03	2.31	0.12	0.007
115.8		#150.8000	0.06	Back Center	0.07	0.002	1.30	1.90	0.09	0.004	
				Back Side	0.12	0.002	1.00	2.40	0.12	0.005	
104.5		#158.3000	0.07	Back Center	0.06	0.002	1.34	1.90	0.07	0.004	
				Back Side	0.07	0.002	1.02	2.41	0.08	0.004	
98.3	#165.9000	0.08	Back Center	0.02	0.001	1.37	1.89	0.03	0.002		
			Back Side	0.05	0.001	1.04	2.43	0.05	0.003		
91.7	#173.4000	0.04	Back Center	0.14	0.002	1.40	1.89	0.19	0.004		
			Back Side	0.21	0.005	1.05	2.44	0.22	0.011		

Note:
 # Same SAR simulation configuration as FCC US.

The SAR distribution in the exposure condition that gave highest adjusted 1-g SAR for DVR VHF (FCC and ISED Canada) is reported in Figure 3. (167.7000 MHz, passenger on the side of the back seat, HAD4009A antenna).

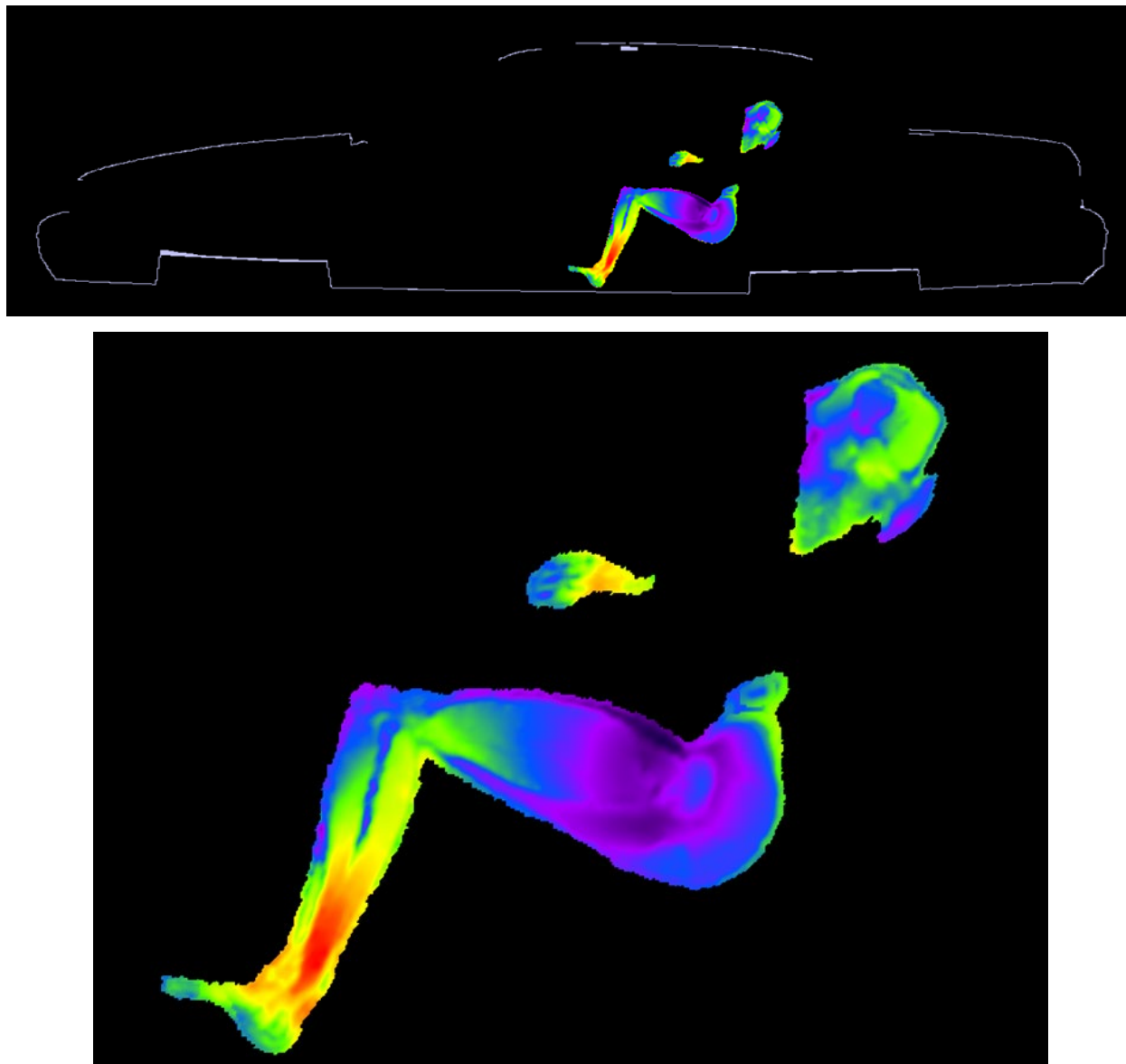
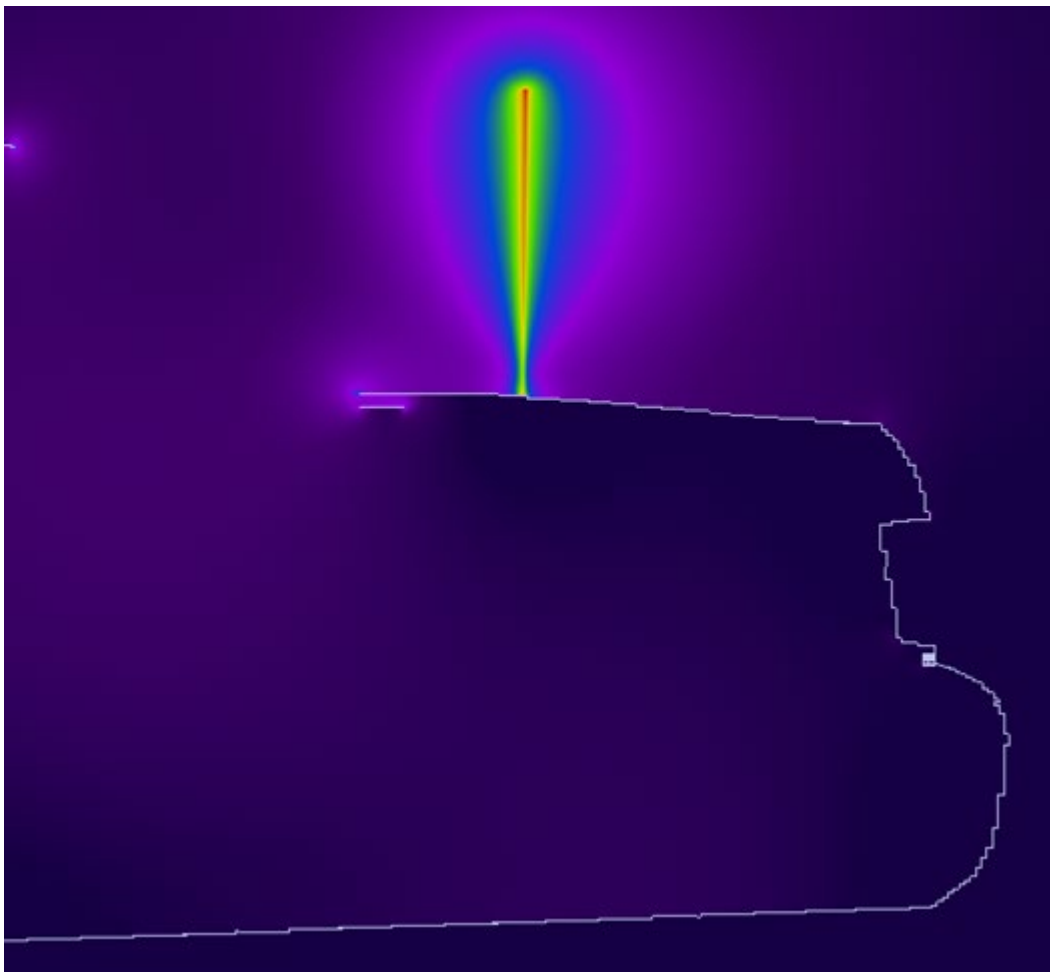
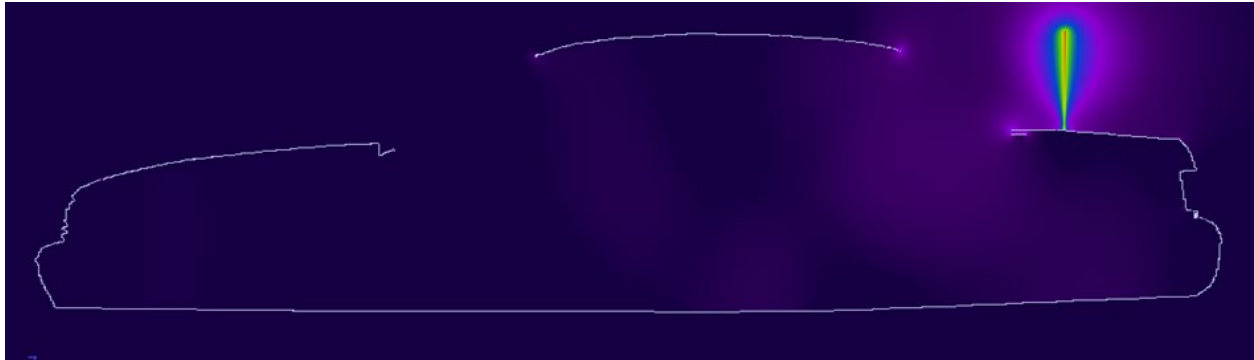
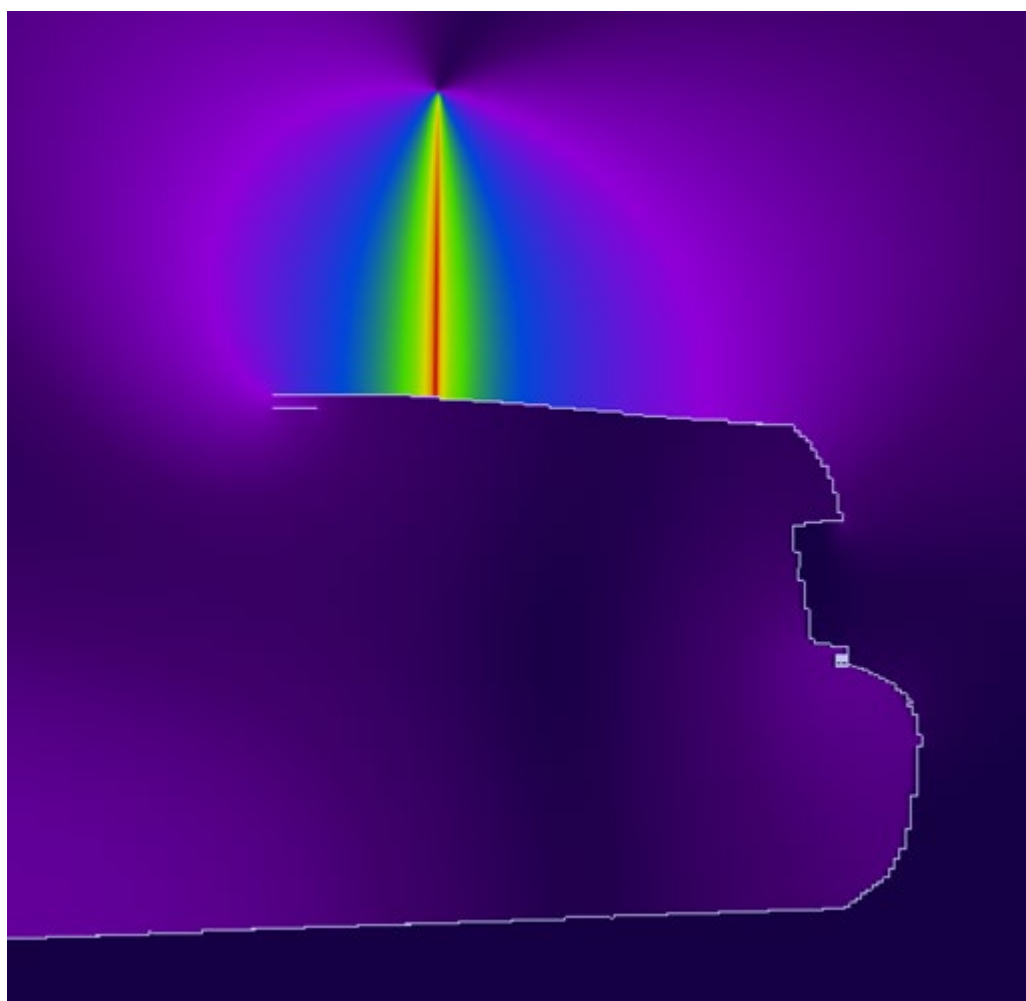
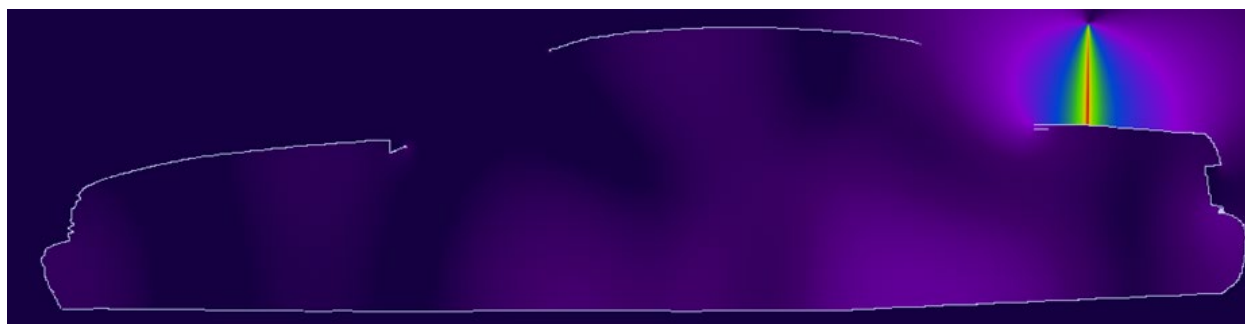


Figure 3. SAR distribution at 167.7000 MHz in the passenger model located on the side of the back seat, produced by the trunk-mount HAD4009A antenna. The contour plot is relative to the plane where the peak 1-g average SAR for this exposure condition occurs.

The two pictures below in Figure 4. show the E and H field distributions in the plane of the antenna corresponding to the condition in Figure 3.



a)



b)

Figure 4. (a) E-field magnitude distribution corresponding to exposure condition of Figure 3, and (b) H-field magnitude distribution corresponding to exposure condition of Figure 3.

The SAR distribution in the exposure condition that gave highest adjusted 1-g SAR for Companion mobile radio (FCC) is reported in Figure 5. (173.4000 MHz, passenger on the side of the back seat, HAD4022A antenna).

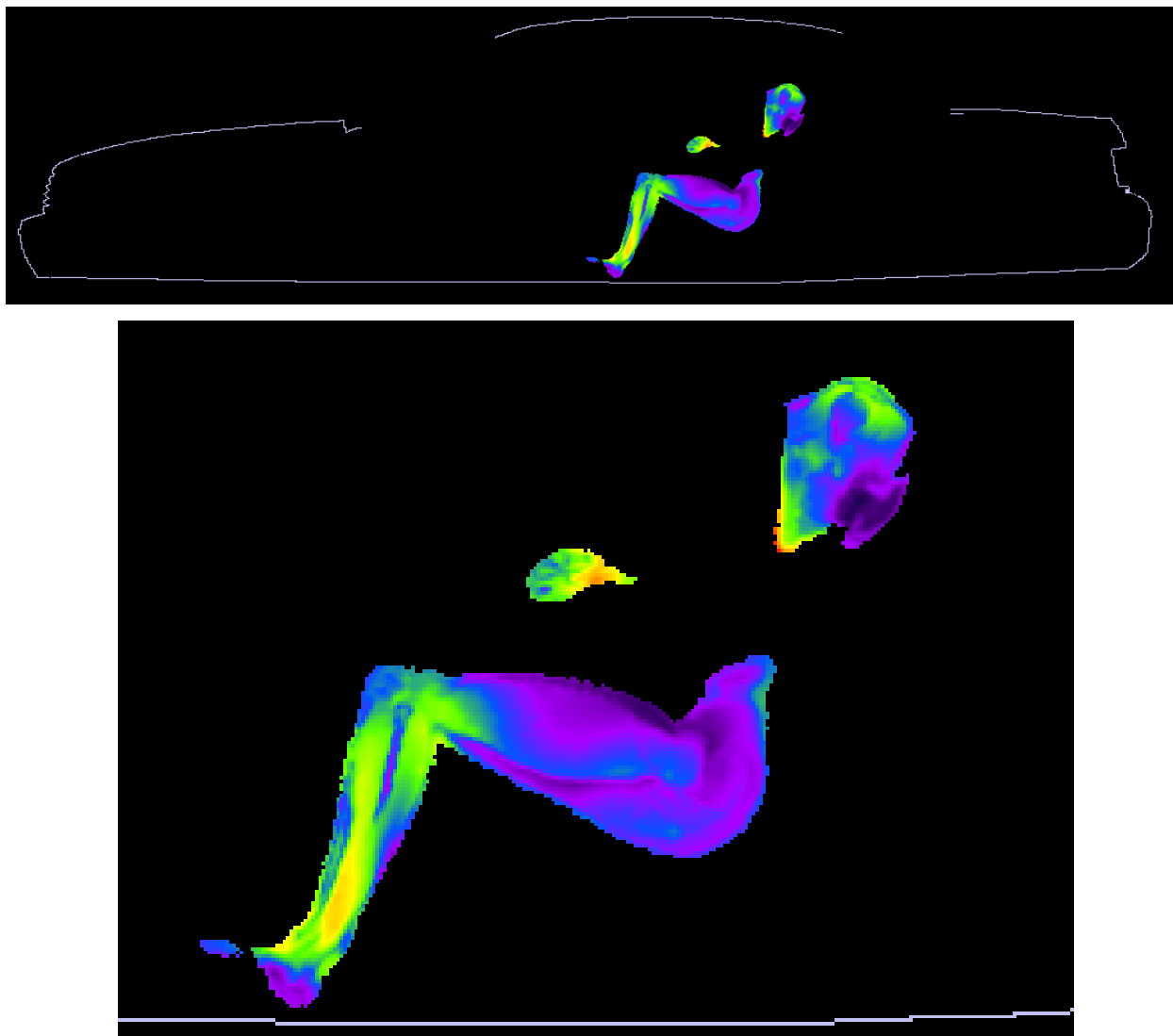
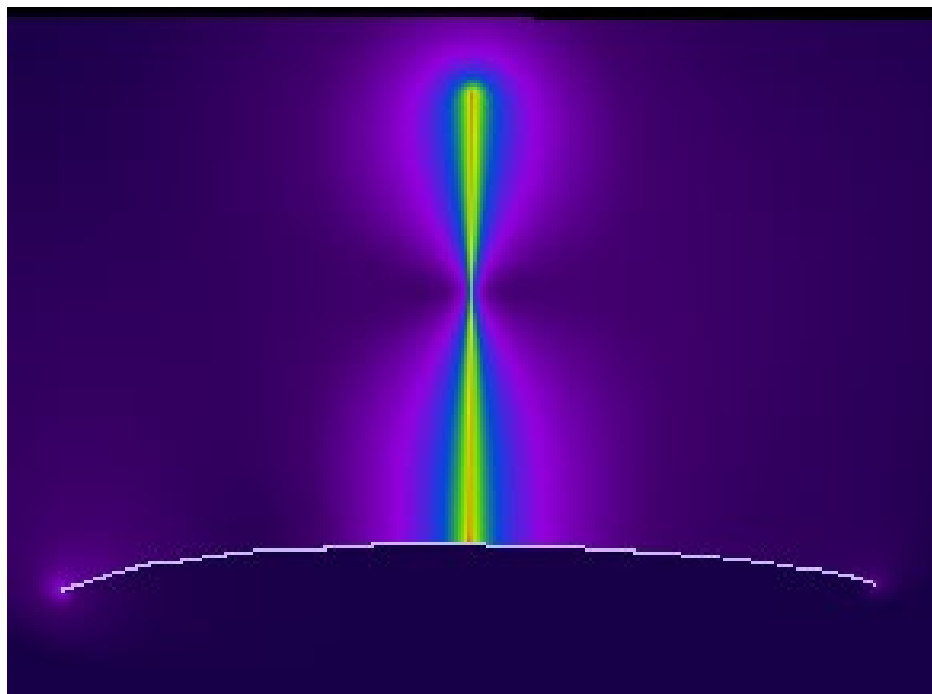
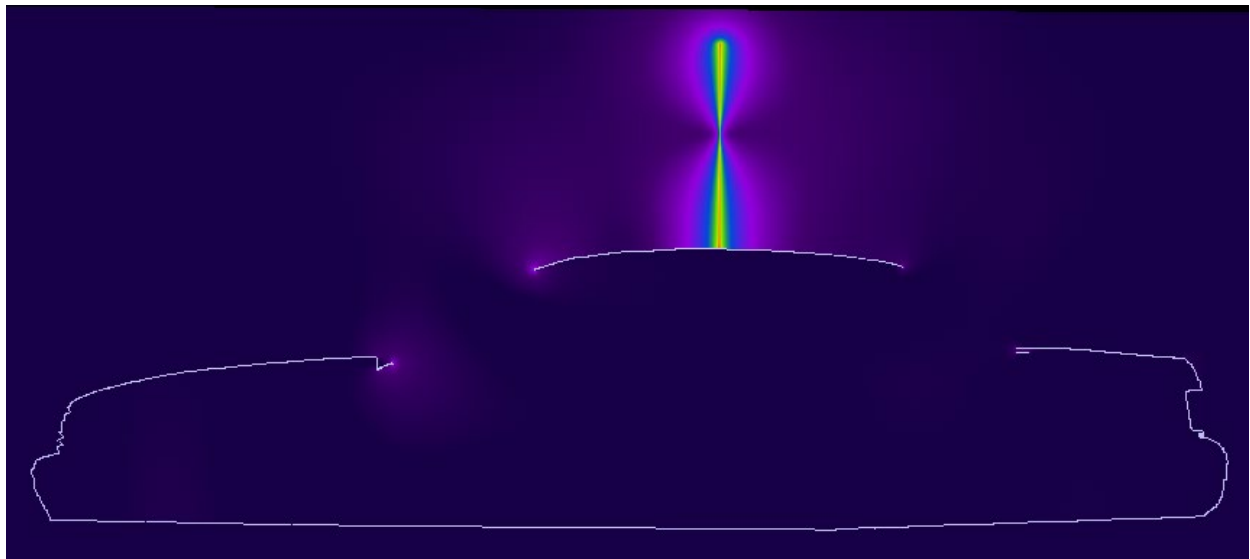
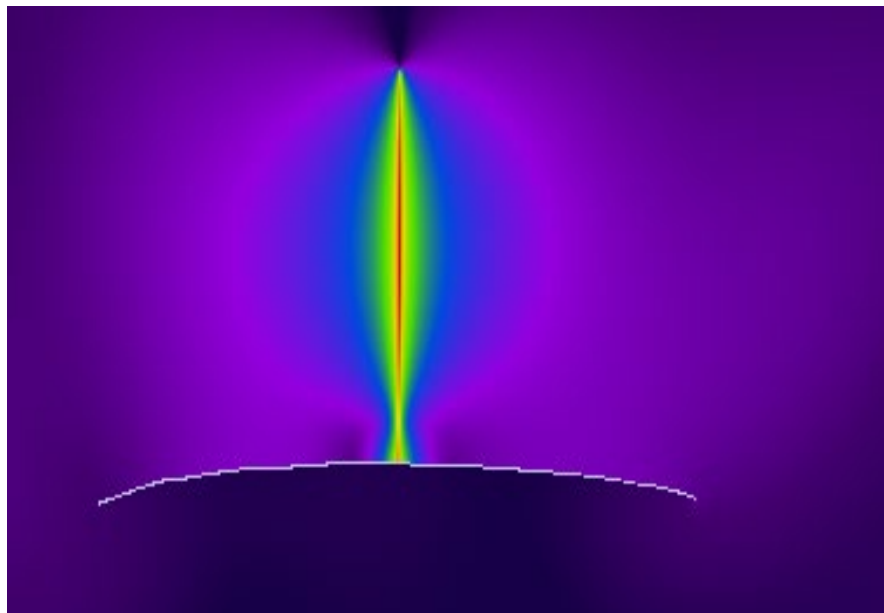
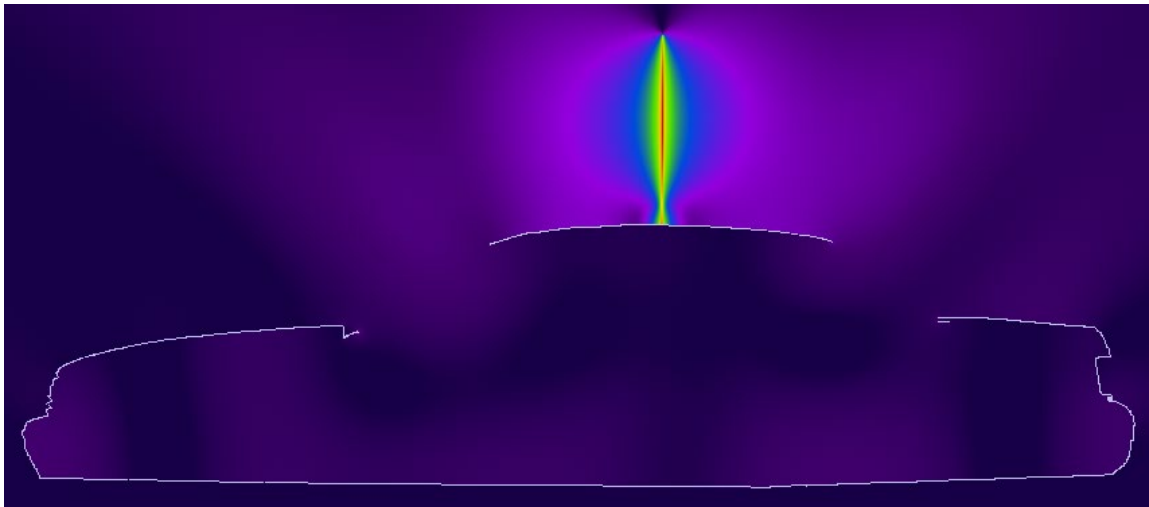


Figure 5. SAR distribution at 173.4000 MHz in the passenger model located on the side of the back seat, produced by the roof-mount HAD4022A antenna. The contour plot is relative to the plane where the peak 1-g average SAR for this exposure condition occurs.

The pictures below in Figure 6 show the E and H field distributions in the plane of the antenna corresponding to the condition in Figure 5.



a)



b)

Figure 6. (a) E-field magnitude distribution corresponding to exposure condition of Figure 5, and (b) H-field magnitude distribution corresponding to exposure condition of Figure 5.

The SAR distribution in the exposure condition that gave highest adjusted 1-g SAR for Companion mobile radio (ISED Canada) is reported in Figure 7. (140.0000 MHz, passenger on the center of the back seat, HAD4006A antenna).

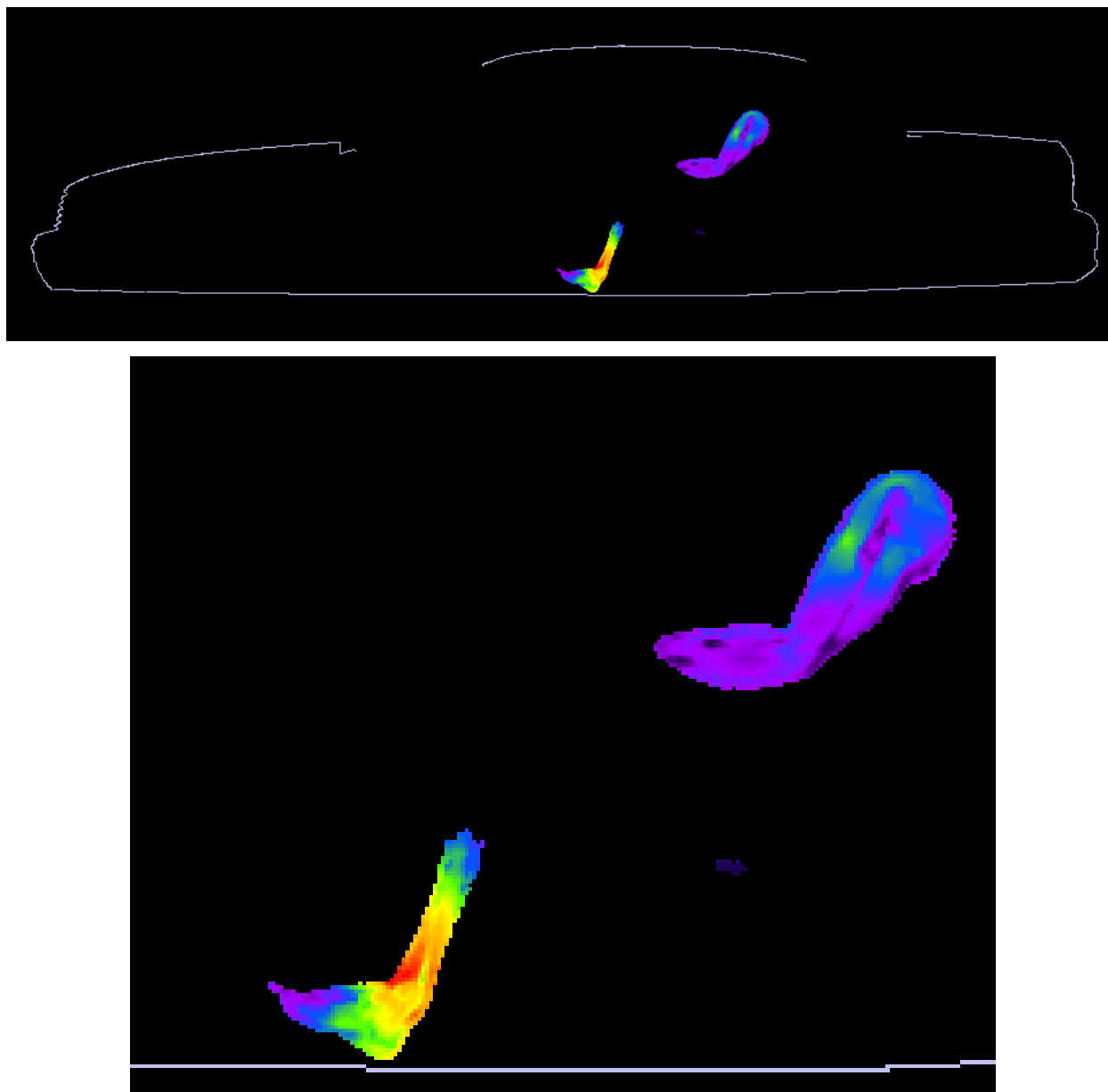
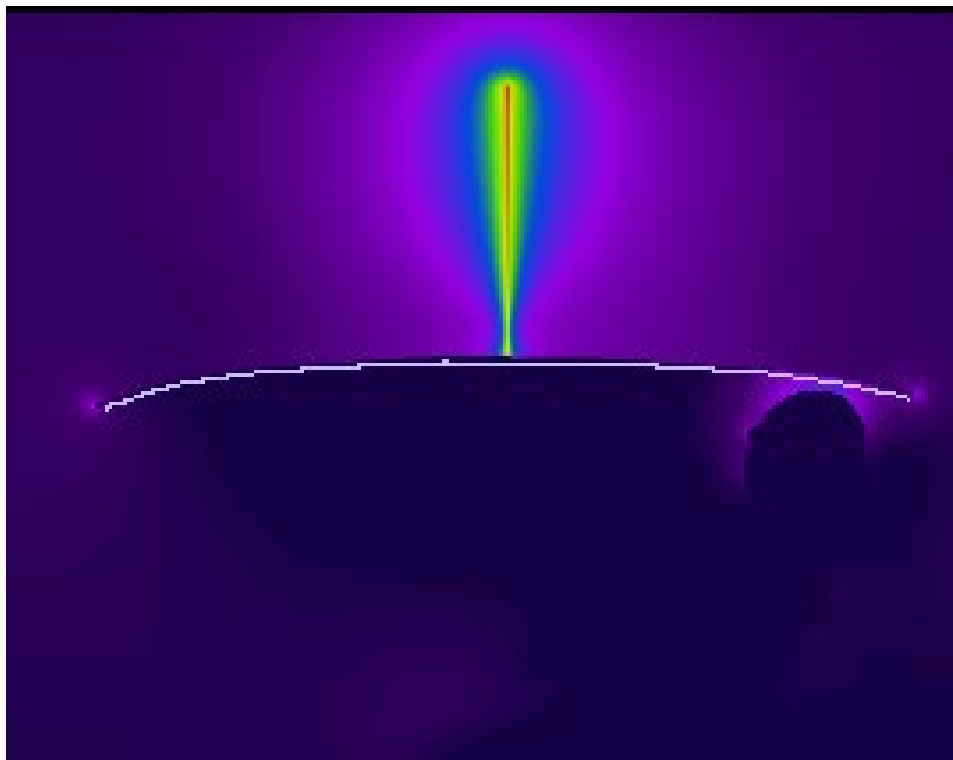
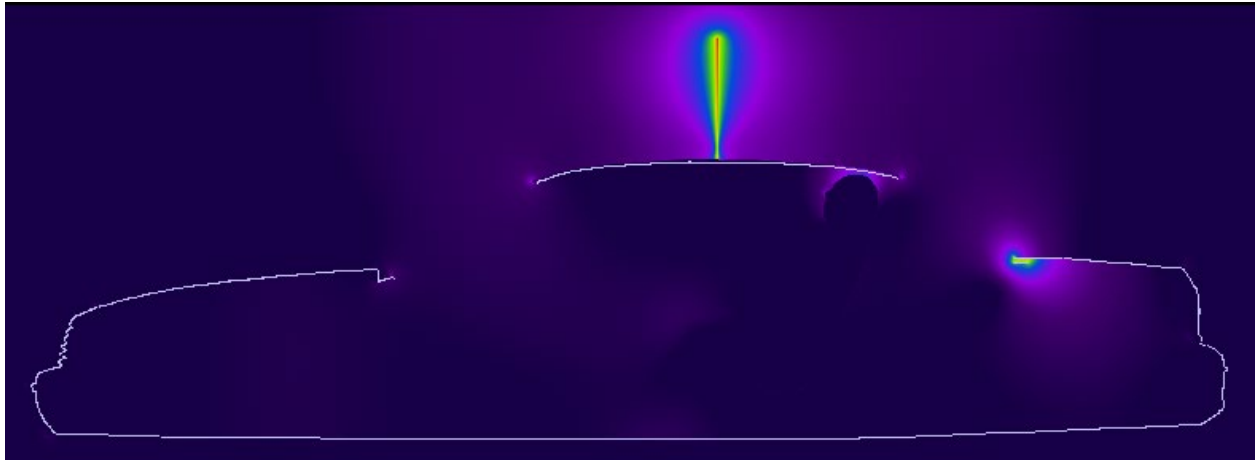
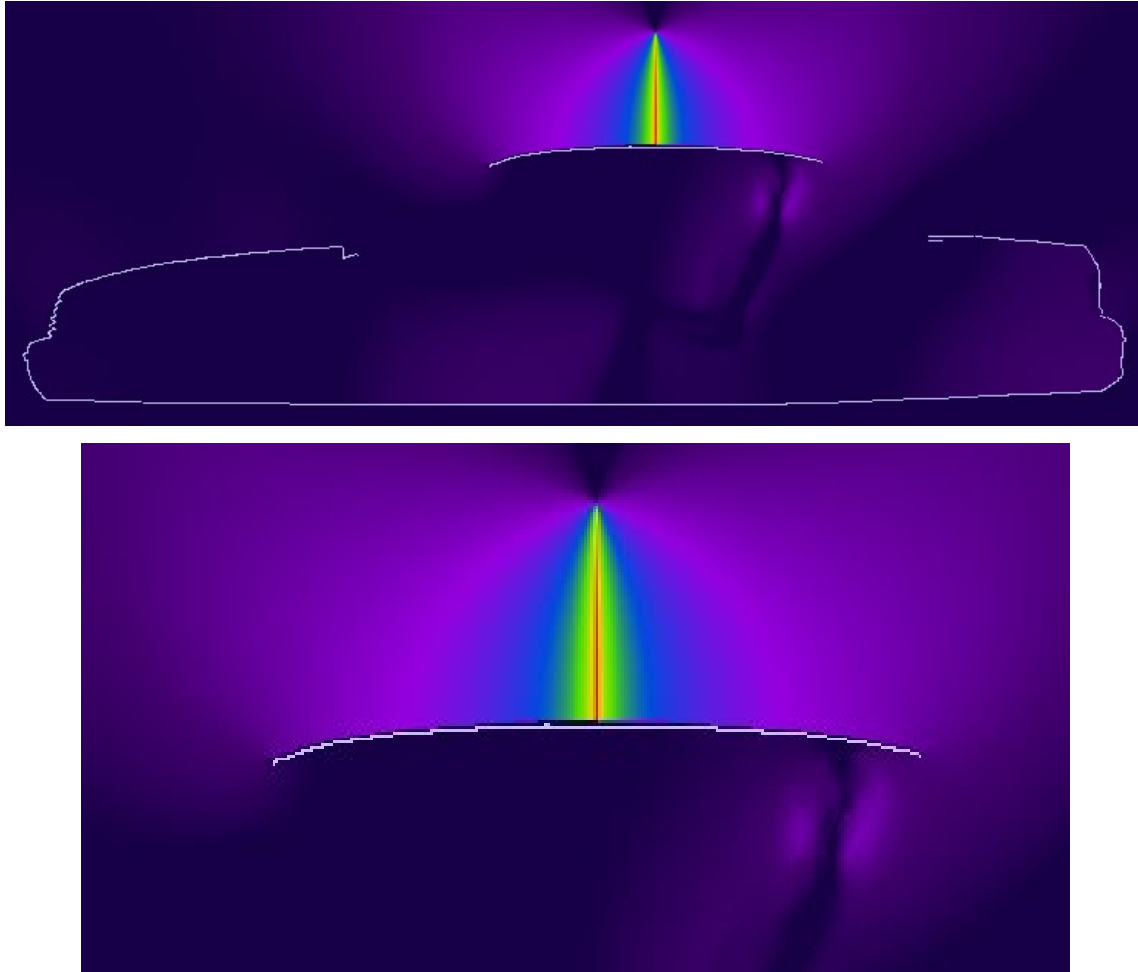


Figure 7. SAR distribution at 140.0000 MHz in the passenger model located on the center of the back seat, produced by the roof-mount HAD4006A antenna. The contour plot is relative to the plane where the peak 1-g average SAR for this exposure condition occurs.

The pictures below in Figure 8 show the E and H field distributions in the plane of the antenna corresponding to the condition in Figure 7.



a)



b)

Figure 8. (a) E-field magnitude distribution corresponding to exposure condition of Figure 7, and (b) H-field magnitude distribution corresponding to exposure condition of Figure 7.

SAR Simulation Reduction Considerations

Per Response to Inquiry to FCC (Tracking Number 528198), for a particular antenna that has more than one configuration which exceeds the MPE limit, SAR simulation shall begin with the worst case configuration (mount location and frequency channel). If the SAR value is less than 50% of the limit, no further SAR evaluation is needed for that antenna.

If the worst case configuration SAR value is above 50% of the limit, SAR simulation shall be done on the subsequent worse configuration (ranked in descending MPE percentage to limit). If the subsequent SAR value is below 75% of the limit, no further SAR evaluation is needed for that antenna, otherwise the SAR simulations for the remaining antenna configurations shall continue until the SAR value is below 75% of the limit.

Table 3 below list all the configurations that did not conform to applicable MPE limits (ranked in descending MPE percentage to limit) and apply SAR simulation reduction consideration as mentioned above.

**Table 3a: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (FCC)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4007A	150.8000	HAD4021A	150.8000	131.9	Back Center Back Side	0.34 0.27	0.019 0.015	0.14 0.22	0.007 0.010	0.48 0.49	0.03 0.03	
HAD4007A	150.8000	HAD4021A	158.3000	129.6								The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	150.8000	HAD4021A	165.9000	109.3								
HAD4007A	150.8000	HAD4017A	165.9000	127.6	Back Center Back Side	0.34 0.27	0.019 0.015	0.03 0.06	0.002 0.004	0.37 0.33	0.02 0.02	
HAD4007A	150.8000	HAD4017A	158.3000	127.3								The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	150.8000	HAD4017A	150.8000	110.7								
HAD4007A	150.8000	HAD4016A	156.2000	128.8	Back Center Back Side	0.34 0.27	0.019 0.015	0.15 0.14	0.006 0.006	0.49 0.41	0.03 0.02	
HAD4007A	150.8000	HAD4016A	150.8000	127.7								The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	150.8000	HAD4016A	162.0000	123.6								
HAD4007A	150.8000	HAD4007A	150.8000	136.8	Back Center Back Side	0.34 0.27	0.019 0.015	0.14 0.22	0.007 0.010	0.48 0.49	0.03 0.03	
HAD4007A	150.8000	HAD4008A	162.0000	150.3	Back Center Back Side	0.34 0.27	0.019 0.015	0.04 0.06	0.003 0.004	0.38 0.33	0.02 0.02	
HAD4007A	150.8000	HAD4008A	156.2000	141.7								The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	150.8000	HAD4008A	150.8000	117.0								
HAD4007A	150.8000	HAD4009A	162.0000	151.3	Back Center Back Side	0.34 0.27	0.019 0.015	0.04 0.06	0.003 0.004	0.38 0.33	0.02 0.02	
HAD4007A	150.8000	HAD4009A	167.7000	116.6								The highest MPE configuration has SAR below 50% of the limit.

**Table 3a continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (FCC)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4008A	162.0000	*HAD4022A	165.9000	153.2	Back Center Back Side	0.31 0.67	0.018 0.019	0.03 0.05	0.002 0.003	0.34 0.72	0.02 0.02	
HAD4008A	162.0000	*HAD4022A	158.3000	150.4	Back Center Back Side	0.31 0.67	0.018 0.019	0.07 0.08	0.004 0.004	0.38 0.75	0.02 0.02	
HAD4008A	162.0000	*HAD4022A	150.8000	142.5	Back Center Back Side	0.31 0.67	0.018 0.019	0.09 0.12	0.004 0.005	0.40 0.79	0.02 0.02	
HAD4008A	162.0000	*HAD4022A	173.4000	134.2	Back Center Back Side	0.31 0.67	0.018 0.019	0.19 0.22	0.004 0.011	0.50 0.89	0.02 0.03	
HAD4008A	156.4000	*HAD4022A	165.9000	106.8	Back Center Back Side	0.23 0.63	0.017 0.018	0.03 0.05	0.002 0.003	0.26 0.68	0.02 0.02	
HAD4008A	156.4000	*HAD4022A	158.3000	104.0	Back Center Back Side	0.23 0.63	0.017 0.018	0.07 0.08	0.004 0.004	0.30 0.71	0.02 0.02	
HAD4008A	162.0000	*RAD4010ARB	158.3000	130.2	Back Center Back Side	0.31 0.67	0.018 0.019	0.06 0.05	0.003 0.003	0.37 0.72	0.02 0.02	
HAD4008A	162.0000	*RAD4010ARB	165.9000	128.4	Back Center Back Side	0.31 0.67	0.018 0.019	0.03 0.03	0.002 0.002	0.34 0.70	0.02 0.02	
HAD4008A	162.0000	*RAD4010ARB	173.4000	126.4	Back Center Back Side	0.31 0.67	0.018 0.019	0.11 0.12	0.003 0.007	0.42 0.79	0.02 0.03	
HAD4008A	162.0000	*RAD4010ARB	150.8000	123.5	Back Center Back Side	0.31 0.67	0.018 0.019	0.07 0.09	0.003 0.004	0.38 0.76	0.02 0.02	
HAD4008A	162.0000	HAD4021A	150.8000	195.3	Back Center Back Side	0.31 0.67	0.018 0.019	0.14 0.22	0.007 0.010	0.45 0.89	0.03 0.03	
HAD4008A	162.0000	HAD4021A	158.3000	193.0	Back Center Back Side	0.31 0.67	0.018 0.019	0.09 0.10	0.005 0.005	0.40 0.77	0.02 0.02	
HAD4008A	162.0000	HAD4021A	165.9000	172.7								The 2nd highest MPE configuration has SAR below 75% of the limit
HAD4008A	156.4000	HAD4021A	150.8000	148.9								
HAD4008A	156.4000	HAD4021A	158.3000	146.6								
HAD4008A	162.0000	HAD4021A	173.4000	143.7								
HAD4008A	150.8000	HAD4021A	150.8000	129.5								
HAD4008A	150.8000	HAD4021A	158.3000	127.2								
HAD4008A	156.4000	HAD4021A	165.9000	126.3								
HAD4008A	150.8000	HAD4021A	165.9000	106.9								
HAD4008A	162.0000	HAD4017A	165.9000	191.0	Back Center Back Side	0.31 0.67	0.018 0.019	0.03 0.06	0.002 0.004	0.34 0.73	0.02 0.02	
HAD4008A	162.0000	HAD4017A	158.3000	190.7								The highest MPE configuration has SAR below 50% of the limit.
HAD4008A	162.0000	HAD4017A	150.8000	174.1								
HAD4008A	162.0000	HAD4017A	173.4000	146.4								
HAD4008A	156.4000	HAD4017A	165.9000	144.6								
HAD4008A	156.4000	HAD4017A	158.3000	144.3								
HAD4008A	156.4000	HAD4017A	150.8000	127.7								
HAD4008A	150.8000	HAD4017A	165.9000	125.2								
HAD4008A	150.8000	HAD4017A	158.3000	124.9								
HAD4008A	150.8000	HAD4017A	150.8000	108.3								
HAD4008A	156.4000	HAD4017A	173.4000	100.0								
HAD4008A	162.0000	HAD4016A	156.2000	192.2	Back Center Back Side	0.31 0.67	0.018 0.019	0.15 0.14	0.006 0.006	0.46 0.81	0.02 0.03	
HAD4008A	162.0000	HAD4016A	150.8000	191.1	Back Center Back Side	0.31 0.67	0.018 0.019	0.14 0.22	0.007 0.010	0.45 0.89	0.03 0.03	
HAD4008A	162.0000	HAD4016A	162.0000	187.0								The 2nd highest MPE configuration has SAR below 75% of the limit
HAD4008A	156.4000	HAD4016A	156.2000	145.8								
HAD4008A	156.4000	HAD4016A	150.8000	144.7								
HAD4008A	156.4000	HAD4016A	162.0000	140.6								
HAD4008A	150.8000	HAD4016A	156.2000	126.4								
HAD4008A	150.8000	HAD4016A	150.8000	125.3								
HAD4008A	150.8000	HAD4016A	162.0000	121.2								
HAD4008A	162.0000	HAD4007A	150.8000	200.2	Back Center Back Side	0.31 0.67	0.018 0.019	0.14 0.22	0.007 0.010	0.45 0.89	0.03 0.03	
HAD4008A	156.4000	HAD4007A	150.8000	153.8	Back Center Back Side	0.23 0.63	0.017 0.018	0.14 0.22	0.007 0.010	0.37 0.85	0.02 0.03	
HAD4008A	150.8000	HAD4007A	150.8000	134.4								The 2nd highest MPE configuration has SAR below 75% of the limit
HAD4008A	162.0000	HAD4008A	162.0000	213.7	Back Center Back Side	0.31 0.67	0.018 0.019	0.04 0.06	0.003 0.004	0.35 0.73	0.02 0.02	
HAD4008A	162.0000	HAD4008A	156.2000	205.1								The highest MPE configuration has SAR below 50% of the limit.
HAD4008A	162.0000	HAD4008A	150.8000	180.4								
HAD4008A	156.4000	HAD4008A	162.0000	167.3								
HAD4008A	156.4000	HAD4008A	156.2000	158.7								
HAD4008A	150.8000	HAD4008A	162.0000	147.9								
HAD4008A	150.8000	HAD4008A	156.2000	139.3								
HAD4008A	156.4000	HAD4008A	150.8000	134.0								
HAD4008A	150.8000	HAD4008A	150.8000	114.6								
HAD4008A	162.0000	HAD4009A	162.0000	214.7	Back Center Back Side	0.31 0.67	0.018 0.019	0.04 0.06	0.003 0.004	0.35 0.73	0.02 0.02	
HAD4008A	162.0000	HAD4009A	167.7000	180.0								The highest MPE configuration has SAR below 50% of the limit.
HAD4008A	156.4000	HAD4009A	162.0000	168.3								
HAD4008A	162.0000	HAD4009A	173.4000	159.7								
HAD4008A	150.8000	HAD4009A	162.0000	148.9								
HAD4008A	156.4000	HAD4009A	167.7000	133.6								
HAD4008A	150.8000	HAD4009A	167.7000	144.2								
HAD4008A	156.4000	HAD4009A	173.4000	113.3								

Note:

* Antenna length trimmed to frequency.

**Table 3a continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (FCC)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4009A	173.4000	*HAD4022A	165.9000	130.7	Back Center Back Side	0.19 0.52	0.013 0.015	0.03 0.05	0.002 0.003	0.22 0.57	0.02 0.02	
HAD4009A	173.4000	*HAD4022A	158.3000	127.9	Back Center Back Side	0.31 0.68	0.018 0.020	0.07 0.08	0.004 0.004	0.38 0.76	0.02 0.02	
HAD4009A	162.0000	*HAD4022A	165.9000	124.6	Back Center Back Side	0.19 0.52	0.013 0.015	0.03 0.05	0.002 0.003	0.22 0.57	0.02 0.02	
HAD4009A	162.0000	*HAD4022A	158.3000	121.8	Back Center Back Side	0.25 0.70	0.015 0.016	0.07 0.08	0.004 0.004	0.32 0.78	0.02 0.02	
HAD4009A	173.4000	*HAD4022A	150.8000	120.0	Back Center Back Side	0.31 0.68	0.018 0.020	0.09 0.12	0.004 0.005	0.40 0.80	0.02 0.03	
HAD4009A	167.7000	*HAD4022A	165.9000	118.7	Back Center Back Side	0.25 0.70	0.015 0.016	0.03 0.05	0.002 0.003	0.28 0.75	0.02 0.02	
HAD4009A	167.7000	*HAD4022A	158.3000	115.9	Back Center Back Side	0.19 0.52	0.013 0.015	0.07 0.08	0.004 0.004	0.26 0.60	0.02 0.02	
HAD4009A	162.0000	*HAD4022A	150.8000	113.9	Back Center Back Side	0.19 0.52	0.013 0.015	0.09 0.12	0.004 0.005	0.28 0.64	0.02 0.02	
HAD4009A	173.4000	*HAD4022A	173.4000	111.7	Back Center Back Side	0.25 0.70	0.015 0.016	0.19 0.22	0.004 0.011	0.44 0.92	0.02 0.03	
HAD4009A	167.7000	*HAD4022A	150.8000	108.0	Back Center Back Side	0.31 0.68	0.018 0.020	0.09 0.12	0.004 0.005	0.40 0.80	0.02 0.03	
HAD4009A	162.0000	*HAD4022A	173.4000	105.6	Back Center Back Side	0.25 0.70	0.015 0.016	0.19 0.22	0.004 0.011	0.44 0.92	0.02 0.03	
HAD4009A	173.4000	*RAD4010ARB	158.3000	107.7	Back Center Back Side	0.19 0.52	0.013 0.015	0.06 0.05	0.003 0.003	0.25 0.57	0.02 0.02	
HAD4009A	173.4000	*RAD4010ARB	165.9000	105.9	Back Center Back Side	0.31 0.68	0.018 0.020	0.03 0.03	0.002 0.002	0.34 0.71	0.02 0.02	
HAD4009A	173.4000	*RAD4010ARB	173.4000	103.9	Back Center Back Side	0.25 0.70	0.015 0.016	0.11 0.12	0.003 0.007	0.36 0.82	0.02 0.02	
HAD4009A	162.0000	*RAD4010ARB	158.3000	101.6	Back Center Back Side	0.25 0.70	0.015 0.016	0.06 0.05	0.003 0.003	0.31 0.75	0.02 0.02	
HAD4009A	173.4000	*RAD4010ARB	150.8000	101.0	Back Center Back Side	0.25 0.70	0.015 0.016	0.07 0.09	0.003 0.004	0.32 0.79	0.02 0.02	
HAD4009A	173.4000	HAD4021A	150.8000	172.8	Back Center Back Side	0.19 0.52	0.013 0.015	0.14 0.22	0.007 0.010	0.33 0.74	0.02 0.03	The highest MPE configuration has SAR below 50% of the limit.
HAD4009A	173.4000	HAD4021A	158.3000	170.5								
HAD4009A	162.0000	HAD4021A	150.8000	166.7								
HAD4009A	162.0000	HAD4021A	158.3000	164.4								
HAD4009A	167.7000	HAD4021A	150.8000	160.8								
HAD4009A	167.7000	HAD4021A	158.3000	158.5								
HAD4009A	173.4000	HAD4021A	165.9000	150.2								
HAD4009A	162.0000	HAD4021A	165.9000	144.1								
HAD4009A	167.7000	HAD4021A	165.9000	138.2								
HAD4009A	173.4000	HAD4021A	173.4000	121.2								
HAD4009A	115.1000	HAD4021A	173.4000	115.1								
HAD4009A	109.2000	HAD4021A	173.4000	109.2								
HAD4009A	173.4000	HAD4017A	165.9000	168.5	Back Center Back Side	0.19 0.52	0.013 0.015	0.03 0.06	0.002 0.004	0.22 0.58	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.
HAD4009A	173.4000	HAD4017A	158.3000	168.2								
HAD4009A	162.0000	HAD4017A	165.9000	162.4								
HAD4009A	162.0000	HAD4017A	158.3000	162.1								
HAD4009A	167.7000	HAD4017A	165.9000	156.5								
HAD4009A	167.7000	HAD4017A	158.3000	156.2								
HAD4009A	173.4000	HAD4017A	150.8000	151.6								
HAD4009A	162.0000	HAD4017A	150.8000	145.5								
HAD4009A	167.7000	HAD4017A	150.8000	139.6								
HAD4009A	173.4000	HAD4017A	173.4000	123.9								
HAD4009A	162.0000	HAD4017A	173.4000	117.8								
HAD4009A	167.7000	HAD4017A	173.4000	111.9								

Note:

* Antenna length trimmed to frequency.

**Table 3a continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (FCC)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4009A	173.4000	HAD4016A	156.2000	169.7	Back Center Back Side	0.19 0.52	0.013 0.015	0.15 0.14	0.006 0.006	0.34 0.66	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.
HAD4009A	173.4000	HAD4016A	150.8000	168.6								
HAD4009A	173.4000	HAD4016A	162.0000	164.5								
HAD4009A	162.0000	HAD4016A	156.2000	163.6								
HAD4009A	162.0000	HAD4016A	150.8000	162.5								
HAD4009A	162.0000	HAD4016A	162.0000	158.4								
HAD4009A	167.7000	HAD4016A	156.2000	157.7								
HAD4009A	167.7000	HAD4016A	150.8000	156.6								
HAD4009A	167.7000	HAD4016A	162.0000	152.5								
HAD4009A	173.4000	HAD4007A	150.8000	177.7	Back Center Back Side	0.19 0.52	0.013 0.015	0.14 0.22	0.007 0.010	0.33 0.74	0.02 0.03	The highest MPE configuration has SAR below 50% of the limit.
HAD4009A	162.0000	HAD4007A	150.8000	171.6								
HAD4009A	167.7000	HAD4007A	150.8000	165.7								
HAD4009A	173.4000	HAD4008A	162.0000	191.2	Back Center Back Side	0.19 0.52	0.013 0.015	0.04 0.06	0.003 0.004	0.23 0.58	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.
HAD4009A	162.0000	HAD4008A	162.0000	185.1								
HAD4009A	173.4000	HAD4008A	156.2000	182.6								
HAD4009A	167.7000	HAD4008A	162.0000	179.2								
HAD4009A	162.0000	HAD4008A	156.2000	176.5								
HAD4009A	167.7000	HAD4008A	156.2000	170.6								
HAD4009A	173.4000	HAD4008A	150.8000	157.9								
HAD4009A	162.0000	HAD4008A	150.8000	151.8								
HAD4009A	167.7000	HAD4008A	150.8000	145.9								
HAD4009A	173.4000	HAD4009A	162.0000	192.2	Back Center Back Side	0.19 0.52	0.013 0.015	0.04 0.06	0.003 0.004	0.23 0.58	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.
HAD4009A	162.0000	HAD4009A	162.0000	186.1								
HAD4009A	167.7000	HAD4009A	162.0000	180.2								
HAD4009A	173.4000	HAD4009A	167.7000	157.5								
HAD4009A	162.0000	HAD4009A	167.7000	151.4								
HAD4009A	167.7000	HAD4009A	167.7000	145.5								
HAD4009A	173.4000	HAD4009A	173.4000	137.2								
HAD4009A	162.0000	HAD4009A	173.4000	131.1								
HAD4009A	167.7000	HAD4009A	173.4000	125.2								

Table 3b: SAR Simulation Reduction Considerations for Passenger (back seat) VHF Band (ISED Canada)

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combine d Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4006A	140.0000	*HAD4022A	165.9000			211.0	Back Center Back Side	0.12 0.20	0.006 0.008	0.03 0.05	0.002 0.003	
HAD4006A	140.0000	*HAD4022A	158.3000	206.7	Back Center Back Side	0.12 0.20	0.006 0.008	0.07 0.08	0.004 0.004	0.19 0.28	0.01 0.01	
HAD4006A	140.0000	*HAD4022A	150.8000	194.4	Back Center Back Side	0.12 0.20	0.006 0.008	0.09 0.12	0.004 0.005	0.21 0.32	0.01 0.01	
HAD4006A	144.0000	*HAD4022A	165.9000	189.3	Back Center Back Side	0.12 0.20	0.006 0.008	0.03 0.05	0.002 0.003	0.15 0.25	0.01 0.01	
HAD4006A	144.0000	*HAD4022A	158.3000	185.0	Back Center Back Side	0.12 0.20	0.006 0.008	0.07 0.08	0.004 0.004	0.19 0.28	0.01 0.01	
HAD4006A	140.0000	*HAD4022A	144.0000	183.3	Back Center Back Side	0.12 0.20	0.006 0.008	0.20 0.26	0.011 0.014	0.32 0.46	0.02 0.02	
HAD4006A	140.0000	*HAD4022A	173.4000	181.5	Back Center Back Side	0.12 0.20	0.006 0.008	0.19 0.22	0.004 0.011	0.31 0.42	0.01 0.02	
HAD4006A	140.0000	*HAD4022A	140.0000	181.1	Back Center Back Side	0.12 0.20	0.006 0.008	0.32 0.26	0.010 0.014	0.44 0.46	0.02 0.02	
HAD4006A	144.0000	*HAD4022A	150.8000	172.7	Back Center Back Side	0.34 0.27	0.018 0.014	0.09 0.12	0.004 0.005	0.43 0.39	0.02 0.02	
HAD4006A	144.0000	*HAD4022A	144.0000	161.6	Back Center Back Side	0.34 0.27	0.018 0.014	0.20 0.26	0.011 0.014	0.54 0.53	0.03 0.03	
HAD4006A	144.0000	*HAD4022A	173.4000	159.8	Back Center Back Side	0.34 0.27	0.018 0.014	0.19 0.22	0.004 0.011	0.53 0.49	0.02 0.03	
HAD4006A	144.0000	*HAD4022A	140.0000	159.4	Back Center Back Side	0.34 0.27	0.018 0.014	0.32 0.26	0.010 0.014	0.66 0.53	0.03 0.03	
HAD4006A	140.0000	*RAD4010ARB	158.3000	175.3	Back Center Back Side	0.12 0.20	0.006 0.008	0.06 0.05	0.003 0.003	0.18 0.25	0.01 0.01	
HAD4006A	140.0000	*RAD4010ARB	144.0000	172.6	Back Center Back Side	0.12 0.20	0.006 0.008	0.08 0.09	0.004 0.005	0.20 0.29	0.01 0.01	
HAD4006A	140.0000	*RAD4010ARB	165.9000	172.5	Back Center Back Side	0.12 0.20	0.006 0.008	0.03 0.03	0.002 0.002	0.15 0.23	0.01 0.01	
HAD4006A	140.0000	*RAD4010ARB	140.0000	170.4	Back Center Back Side	0.12 0.20	0.006 0.008	0.11 0.10	0.004 0.005	0.23 0.30	0.01 0.01	
HAD4006A	140.0000	*RAD4010ARB	173.4000	169.4	Back Center Back Side	0.12 0.20	0.006 0.008	0.11 0.12	0.003 0.007	0.23 0.32	0.01 0.02	
HAD4006A	140.0000	*RAD4010ARB	150.8000	164.9	Back Center Back Side	0.12 0.20	0.006 0.008	0.07 0.09	0.003 0.004	0.19 0.29	0.01 0.01	
HAD4006A	144.0000	*RAD4010ARB	158.3000	153.6	Back Center Back Side	0.34 0.27	0.018 0.014	0.06 0.05	0.003 0.003	0.40 0.32	0.02 0.02	
HAD4006A	144.0000	*RAD4010ARB	144.0000	150.9	Back Center Back Side	0.34 0.27	0.018 0.014	0.08 0.09	0.004 0.005	0.42 0.36	0.02 0.02	
HAD4006A	144.0000	*RAD4010ARB	165.9000	150.8	Back Center Back Side	0.34 0.27	0.018 0.014	0.03 0.03	0.002 0.002	0.37 0.30	0.02 0.02	
HAD4006A	144.0000	*RAD4010ARB	140.0000	148.7	Back Center Back Side	0.34 0.27	0.018 0.014	0.11 0.10	0.004 0.005	0.45 0.37	0.02 0.02	
HAD4006A	144.0000	*RAD4010ARB	173.4000	147.7	Back Center Back Side	0.34 0.27	0.018 0.014	0.11 0.12	0.003 0.007	0.45 0.39	0.02 0.02	
HAD4006A	144.0000	*RAD4010ARB	150.8000	143.2	Back Center Back Side	0.34 0.27	0.018 0.014	0.07 0.09	0.003 0.004	0.41 0.36	0.02 0.02	
HAD4006A	140.0000	HAD4021A	150.8000	276.2	Back Center Back Side	0.12 0.20	0.006 0.008	0.14 0.22	0.007 0.010	0.26 0.42	0.01 0.02	
HAD4006A	140.0000	HAD4021A	158.3000	272.7								The highest MPE configuration has SAR below 50% of the limit.
HAD4006A	140.0000	HAD4021A	140.0000	271.9								
HAD4006A	140.0000	HAD4021A	144.0000	264.0								
HAD4006A	144.0000	HAD4021A	150.8000	254.5								
HAD4006A	144.0000	HAD4021A	158.3000	251.0								
HAD4006A	144.0000	HAD4021A	140.0000	250.2								
HAD4006A	144.0000	HAD4021A	144.0000	242.3								
HAD4006A	140.0000	HAD4021A	165.9000	241.1								
HAD4006A	144.0000	HAD4021A	165.9000	219.4								
HAD4006A	140.0000	HAD4021A	173.4000	196.2								
HAD4006A	144.0000	HAD4021A	173.4000	174.5								
HAD4006A	140.0000	HAD4017A	165.9000	269.5	Back Center Back Side	0.12 0.20	0.006 0.008	0.03 0.06	0.002 0.004	0.15 0.26	0.01 0.01	
HAD4006A	140.0000	HAD4017A	158.3000	269.1								The highest MPE configuration has SAR below 50% of the limit.
HAD4006A	144.0000	HAD4017A	165.9000	247.8								
HAD4006A	144.0000	HAD4017A	158.3000	247.4								
HAD4006A	140.0000	HAD4017A	150.8000	243.4								
HAD4006A	144.0000	HAD4017A	150.8000	221.7								
HAD4006A	140.0000	HAD4017A	173.4000	200.5								
HAD4006A	144.0000	HAD4017A	173.4000	178.8								

Note:

* Antenna length trimmed to frequency.

**Table 3b continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (ISED Canada)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4006A	140.0000	HAD4016A	156.2000	271.4	Back Center Back Side	0.12 0.20	0.006 0.008	0.15 0.14	0.006 0.006	0.27 0.34	0.01 0.01	
HAD4006A	140.0000	HAD4016A	150.8000	269.7								The highest MPE configuration has SAR below 50% of the limit.
HAD4006A	140.0000	HAD4016A	162.0000	263.3								
HAD4006A	144.0000	HAD4016A	156.2000	249.7								
HAD4006A	144.0000	HAD4016A	150.8000	248.0								
HAD4006A	140.0000	HAD4016A	144.0000	245.6								
HAD4006A	144.0000	HAD4016A	162.0000	241.6								
HAD4006A	144.0000	HAD4016A	144.0000	223.9								
HAD4006A	140.0000	HAD4006A	140.0000	259.8	Back Center Back Side	0.12 0.20	0.006 0.008	0.32 0.26	0.010 0.014	0.44 0.46	0.02 0.02	
HAD4006A	140.0000	HAD4006A	144.0000	243.3								The highest MPE configuration has SAR below 50% of the limit.
HAD4006A	144.0000	HAD4006A	140.0000	238.1								
HAD4006A	144.0000	HAD4006A	144.0000	221.6								
HAD4006A	140.0000	HAD4007A	150.8000	283.9	Back Center Back Side	0.12 0.20	0.006 0.008	0.14 0.22	0.007 0.010	0.26 0.42	0.01 0.02	
HAD4006A	140.0000	HAD4007A	148.0000	277.0								The highest MPE configuration has SAR below 50% of the limit.
HAD4006A	144.0000	HAD4007A	150.8000	262.2								
HAD4006A	144.0000	HAD4007A	148.0000	255.3								
HAD4006A	140.0000	HAD4007A	144.0000	236.2								
HAD4006A	144.0000	HAD4007A	144.0000	214.5								
HAD4006A	140.0000	HAD4008A	162.0000	304.7	Back Center Back Side	0.12 0.20	0.006 0.008	0.04 0.06	0.003 0.004	0.16 0.26	0.01 0.01	
HAD4006A	140.0000	HAD4008A	156.2000	291.4								The highest MPE configuration has SAR below 50% of the limit.
HAD4006A	144.0000	HAD4008A	162.0000	283.0								
HAD4006A	144.0000	HAD4008A	156.2000	269.7								
HAD4006A	140.0000	HAD4008A	150.8000	253.1								
HAD4006A	144.0000	HAD4008A	150.8000	231.4								
HAD4006A	140.0000	HAD4009A	162.0000	306.3	Back Center Back Side	0.12 0.20	0.006 0.008	0.04 0.06	0.003 0.004	0.16 0.26	0.01 0.01	
HAD4006A	144.0000	HAD4009A	162.0000	284.6								The highest MPE configuration has SAR below 50% of the limit.
HAD4006A	140.0000	HAD4009A	167.7000	252.4								
HAD4006A	144.0000	HAD4009A	167.7000	230.7								
HAD4006A	140.0000	HAD4009A	173.4000	221.0								
HAD4006A	144.0000	HAD4009A	173.4000	199.3								

**Table 3b continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (ISED Canada)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			Ig	WB	Ig	WB	Ig	WB	
HAD4007A	144.0000	*HAD4022A	165.9000	172.5	Back Center Back Side	0.34 0.27	0.018 0.014	0.03 0.05	0.002 0.003	0.37 0.32	0.02 0.02	
HAD4007A	144.0000	*HAD4022A	158.3000	168.2	Back Center Back Side	0.34 0.27	0.018 0.014	0.07 0.08	0.004 0.004	0.41 0.35	0.02 0.02	
HAD4007A	144.0000	*HAD4022A	150.8000	155.9	Back Center Back Side	0.34 0.27	0.018 0.014	0.09 0.12	0.004 0.005	0.43 0.39	0.02 0.02	
HAD4007A	144.0000	*HAD4022A	144.0000	144.8	Back Center Back Side	0.34 0.27	0.018 0.014	0.20 0.26	0.011 0.014	0.54 0.53	0.03 0.03	
HAD4007A	144.0000	*HAD4022A	173.4000	143.0	Back Center Back Side	0.34 0.27	0.018 0.014	0.19 0.22	0.004 0.011	0.53 0.49	0.02 0.03	
HAD4007A	144.0000	*HAD4022A	140.0000	142.6	Back Center Back Side	0.34 0.27	0.018 0.014	0.32 0.26	0.010 0.014	0.66 0.53	0.03 0.03	
HAD4007A	150.8000	*HAD4022A	165.9000	139.2	Back Center Back Side	0.34 0.27	0.019 0.015	0.03 0.05	0.002 0.003	0.37 0.32	0.02 0.02	
HAD4007A	150.8000	*HAD4022A	158.3000	134.9	Back Center Back Side	0.34 0.27	0.019 0.015	0.07 0.08	0.004 0.004	0.41 0.35	0.02 0.02	
HAD4007A	150.8000	*HAD4022A	150.8000	122.6	Back Center Back Side	0.34 0.27	0.019 0.015	0.09 0.12	0.004 0.005	0.43 0.39	0.02 0.02	
HAD4007A	150.8000	*HAD4022A	144.0000	111.5	Back Center Back Side	0.34 0.27	0.019 0.015	0.20 0.26	0.011 0.014	0.54 0.53	0.03 0.03	
HAD4007A	150.8000	*HAD4022A	173.4000	109.7	Back Center Back Side	0.34 0.27	0.019 0.015	0.19 0.22	0.004 0.011	0.53 0.49	0.02 0.03	
HAD4007A	150.8000	*HAD4022A	140.0000	109.3	Back Center Back Side	0.34 0.27	0.019 0.015	0.32 0.26	0.010 0.014	0.66 0.53	0.03 0.03	
HAD4007A	144.0000	*RAD4010ARB	158.3000	136.8	Back Center Back Side	0.34 0.27	0.018 0.014	0.06 0.05	0.003 0.003	0.40 0.32	0.02 0.02	
HAD4007A	144.0000	*RAD4010ARB	144.0000	144.0	Back Center Back Side	0.34 0.27	0.018 0.014	0.08 0.09	0.004 0.005	0.42 0.36	0.02 0.02	
HAD4007A	144.0000	*RAD4010ARB	165.9000	134.0	Back Center Back Side	0.34 0.27	0.018 0.014	0.03 0.03	0.002 0.002	0.37 0.30	0.02 0.02	
HAD4007A	144.0000	*RAD4010ARB	140.0000	131.9	Back Center Back Side	0.34 0.27	0.018 0.014	0.11 0.10	0.004 0.005	0.45 0.37	0.02 0.02	
HAD4007A	144.0000	*RAD4010ARB	173.4000	130.9	Back Center Back Side	0.34 0.27	0.018 0.014	0.11 0.12	0.003 0.007	0.45 0.39	0.02 0.02	
HAD4007A	144.0000	*RAD4010ARB	150.8000	126.4	Back Center Back Side	0.34 0.27	0.018 0.014	0.07 0.09	0.003 0.004	0.41 0.36	0.02 0.02	
HAD4007A	150.8000	*RAD4010ARB	158.3000	103.5	Back Center Back Side	0.34 0.27	0.019 0.015	0.06 0.05	0.003 0.003	0.40 0.32	0.02 0.02	
HAD4007A	150.8000	*RAD4010ARB	144.0000	100.8	Back Center Back Side	0.34 0.27	0.019 0.015	0.08 0.09	0.004 0.005	0.42 0.36	0.02 0.02	
HAD4007A	150.8000	*RAD4010ARB	165.9000	100.7	Back Center Back Side	0.34 0.27	0.019 0.015	0.03 0.03	0.002 0.002	0.37 0.30	0.02 0.02	
HAD4007A	144.0000	HAD4021A	150.8000	237.7	Back Center Back Side	0.34 0.27	0.018 0.014	0.14 0.22	0.007 0.010	0.48 0.49	0.03 0.02	
HAD4007A	144.0000	HAD4021A	158.3000	234.2								The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	144.0000	HAD4021A	140.0000	233.4								
HAD4007A	144.0000	HAD4021A	144.0000	225.5								
HAD4007A	150.8000	HAD4021A	150.8000	204.4								
HAD4007A	144.0000	HAD4021A	165.9000	202.6								
HAD4007A	150.8000	HAD4021A	158.3000	200.9								
HAD4007A	150.8000	HAD4021A	140.0000	200.1								
HAD4007A	150.8000	HAD4021A	144.0000	192.2								
HAD4007A	150.8000	HAD4021A	165.9000	169.3								
HAD4007A	144.0000	HAD4021A	173.4000	157.7								
HAD4007A	150.8000	HAD4021A	173.4000	124.4								
HAD4007A	144.0000	HAD4017A	165.9000	231.0	Back Center Back Side	0.34 0.27	0.018 0.014	0.03 0.06	0.002 0.004	0.37 0.33	0.02 0.02	
HAD4007A	144.0000	HAD4017A	158.3000	230.6								The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	144.0000	HAD4017A	150.8000	204.9								
HAD4007A	150.8000	HAD4017A	165.9000	197.7								
HAD4007A	150.8000	HAD4017A	158.3000	197.3								
HAD4007A	150.8000	HAD4017A	150.8000	171.6								
HAD4007A	144.0000	HAD4017A	173.4000	162.0								
HAD4007A	150.8000	HAD4017A	173.4000	128.7								

Note:

* Antenna length trimmed to frequency.

**Table 3b continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (ISED Canada)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4007A	144.0000	HAD4016A	156.2000	232.9	Back Center Back Side	0.34 0.27	0.018 0.014	0.15 0.14	0.006 0.006	0.49 0.41	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	144.0000	HAD4016A	150.8000	231.2								
HAD4007A	144.0000	HAD4016A	162.0000	224.8								
HAD4007A	144.0000	HAD4016A	144.0000	207.1								
HAD4007A	150.8000	HAD4016A	156.2000	199.6								
HAD4007A	150.8000	HAD4016A	150.8000	197.9								
HAD4007A	150.8000	HAD4016A	162.0000	191.5								
HAD4007A	150.8000	HAD4016A	144.0000	173.8								
HAD4007A	144.0000	HAD4006A	140.0000	221.3	Back Center Back Side	0.34 0.27	0.018 0.014	0.32 0.26	0.010 0.014	0.66 0.53	0.03 0.03	
HAD4007A	144.0000	HAD4006A	144.0000	204.8								
HAD4007A	150.8000	HAD4006A	140.0000	188.0								
HAD4007A	150.8000	HAD4006A	144.0000	171.5								
HAD4007A	144.0000	HAD4007A	150.8000	245.4	Back Center Back Side	0.34 0.27	0.018 0.014	0.14 0.22	0.007 0.010	0.48 0.49	0.03 0.02	
HAD4007A	144.0000	HAD4007A	148.0000	238.5								
HAD4007A	150.8000	HAD4007A	150.8000	212.1								
HAD4007A	150.8000	HAD4007A	148.0000	205.2								
HAD4007A	144.0000	HAD4007A	144.0000	197.7								
HAD4007A	150.8000	HAD4007A	144.0000	164.4								
HAD4007A	144.0000	HAD4008A	162.0000	266.2	Back Center Back Side	0.34 0.27	0.018 0.014	0.04 0.06	0.003 0.004	0.38 0.33	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	144.0000	HAD4008A	156.2000	252.9								
HAD4007A	150.8000	HAD4008A	162.0000	232.9								
HAD4007A	150.8000	HAD4008A	156.2000	219.6								
HAD4007A	144.0000	HAD4008A	150.8000	214.6								
HAD4007A	150.8000	HAD4008A	150.8000	181.3								
HAD4007A	144.0000	HAD4009A	162.0000	267.8	Back Center Back Side	0.34 0.27	0.018 0.014	0.04 0.06	0.003 0.004	0.38 0.33	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.
HAD4007A	150.8000	HAD4009A	162.0000	234.5								
HAD4007A	144.0000	HAD4009A	167.7000	213.9								
HAD4007A	144.0000	HAD4009A	173.4000	182.5								
HAD4007A	150.8000	HAD4009A	167.7000	180.6								
HAD4007A	149.2000	HAD4009A	173.4000	149.2								

**Table 3b continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (ISED Canada)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR		APX 4500 VHF Mobile		Combined Adjusted SAR		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4008A	162.0000	*HAD4022A	165.9000	237.4	Back Center Back Side	0.31 0.67	0.018 0.019	0.03 0.05	0.002 0.003	0.34 0.72	0.02 0.02	
HAD4008A	162.0000	*HAD4022A	158.3000	233.1	Back Center Back Side	0.31 0.67	0.018 0.019	0.07 0.08	0.004 0.004	0.38 0.75	0.02 0.02	
HAD4008A	162.0000	*HAD4022A	150.8000	220.8	Back Center Back Side	0.31 0.67	0.018 0.019	0.09 0.12	0.004 0.005	0.40 0.79	0.02 0.02	
HAD4008A	162.0000	*HAD4022A	144.0000	209.7	Back Center Back Side	0.31 0.67	0.018 0.019	0.20 0.26	0.011 0.014	0.51 0.93	0.03 0.03	
HAD4008A	162.0000	*HAD4022A	173.4000	207.9	Back Center Back Side	0.31 0.67	0.018 0.019	0.19 0.22	0.004 0.011	0.50 0.89	0.02 0.03	
HAD4008A	162.0000	*HAD4022A	140.0000	207.5	Back Center Back Side	0.31 0.67	0.018 0.019	0.32 0.26	0.010 0.014	0.63 0.93	0.03 0.03	
HAD4008A	156.4000	*HAD4022A	165.9000	165.5	Back Center Back Side	0.23 0.63	0.017 0.018	0.03 0.05	0.002 0.003	0.26 0.68	0.02 0.02	
HAD4008A	156.4000	*HAD4022A	158.3000	161.2	Back Center Back Side	0.23 0.63	0.017 0.018	0.07 0.08	0.004 0.004	0.30 0.71	0.02 0.02	
HAD4008A	156.4000	*HAD4022A	150.8000	148.9	Back Center Back Side	0.23 0.63	0.017 0.018	0.09 0.12	0.004 0.005	0.32 0.75	0.02 0.02	
HAD4008A	156.4000	*HAD4022A	144.0000	137.8	Back Center Back Side	0.23 0.63	0.017 0.018	0.20 0.26	0.011 0.014	0.43 0.89	0.03 0.03	
HAD4008A	156.4000	*HAD4022A	173.4000	136.0	Back Center Back Side	0.23 0.63	0.017 0.018	0.19 0.22	0.004 0.011	0.42 0.85	0.02 0.03	
HAD4008A	156.4000	*HAD4022A	140.0000	135.6	Back Center Back Side	0.23 0.63	0.017 0.018	0.32 0.26	0.010 0.014	0.55 0.89	0.03 0.03	
HAD4008A	150.8000	*HAD4022A	165.9000	135.4	Back Center Back Side	0.34 0.27	0.019 0.015	0.03 0.05	0.002 0.003	0.37 0.32	0.02 0.02	
HAD4008A	150.8000	*HAD4022A	158.3000	131.1	Back Center Back Side	0.34 0.27	0.019 0.015	0.07 0.08	0.004 0.004	0.41 0.35	0.02 0.02	
HAD4008A	150.8000	*HAD4022A	150.8000	118.8	Back Center Back Side	0.34 0.27	0.019 0.015	0.09 0.12	0.004 0.005	0.43 0.39	0.02 0.02	
HAD4008A	150.8000	*HAD4022A	144.0000	107.7	Back Center Back Side	0.34 0.27	0.019 0.015	0.20 0.26	0.011 0.014	0.54 0.53	0.03 0.03	
HAD4008A	150.8000	*HAD4022A	173.4000	105.9	Back Center Back Side	0.34 0.27	0.019 0.015	0.19 0.22	0.004 0.011	0.53 0.49	0.02 0.03	
HAD4008A	150.8000	*HAD4022A	140.0000	105.5	Back Center Back Side	0.34 0.27	0.019 0.015	0.32 0.26	0.010 0.014	0.66 0.53	0.03 0.03	
HAD4008A	162.0000	*RAD4010ARB	158.3000	201.7	Back Center Back Side	0.31 0.67	0.018 0.019	0.06 0.05	0.003 0.003	0.37 0.72	0.02 0.02	
HAD4008A	162.0000	*RAD4010ARB	144.0000	199.0	Back Center Back Side	0.31 0.67	0.018 0.019	0.08 0.09	0.004 0.005	0.39 0.76	0.02 0.02	
HAD4008A	162.0000	*RAD4010ARB	165.9000	198.9	Back Center Back Side	0.31 0.67	0.018 0.019	0.03 0.03	0.002 0.002	0.34 0.70	0.02 0.02	
HAD4008A	162.0000	*RAD4010ARB	140.0000	196.8	Back Center Back Side	0.31 0.67	0.018 0.019	0.11 0.10	0.004 0.005	0.42 0.77	0.02 0.02	
HAD4008A	162.0000	*RAD4010ARB	173.4000	195.8	Back Center Back Side	0.31 0.67	0.018 0.019	0.11 0.12	0.003 0.007	0.42 0.79	0.02 0.03	
HAD4008A	162.0000	*RAD4010ARB	150.8000	191.3	Back Center Back Side	0.31 0.67	0.018 0.019	0.07 0.09	0.003 0.004	0.38 0.76	0.02 0.02	
HAD4008A	156.4000	*RAD4010ARB	165.9000	131.8	Back Center Back Side	0.23 0.63	0.017 0.018	0.03 0.03	0.002 0.002	0.26 0.66	0.02 0.02	
HAD4008A	156.4000	*RAD4010ARB	158.3000	131.1	Back Center Back Side	0.23 0.63	0.017 0.018	0.06 0.05	0.003 0.003	0.29 0.68	0.02 0.02	
HAD4008A	156.4000	*RAD4010ARB	144.0000	129.5	Back Center Back Side	0.23 0.63	0.017 0.018	0.08 0.09	0.004 0.005	0.31 0.72	0.02 0.02	
HAD4008A	156.4000	*RAD4010ARB	140.0000	125.7	Back Center Back Side	0.23 0.63	0.017 0.018	0.11 0.10	0.004 0.005	0.34 0.73	0.02 0.02	
HAD4008A	156.4000	*RAD4010ARB	173.4000	125.5	Back Center Back Side	0.23 0.63	0.017 0.018	0.11 0.12	0.003 0.007	0.34 0.75	0.02 0.03	
HAD4008A	156.4000	*RAD4010ARB	150.8000	125.4	Back Center Back Side	0.23 0.63	0.017 0.018	0.07 0.09	0.003 0.004	0.30 0.72	0.02 0.02	
HAD4008A	162.0000	HAD4021A	150.8000	302.6	Back Center Back Side	0.31 0.67	0.018 0.019	0.14 0.22	0.007 0.010	0.45 0.89	0.03 0.03	
HAD4008A	162.0000	HAD4021A	158.3000	299.1	Back Center Back Side	0.31 0.67	0.018 0.019	0.09 0.1	0.005 0.005	0.40 0.77	0.02 0.02	
HAD4008A	162.0000	HAD4021A	140.0000	298.3								
HAD4008A	162.0000	HAD4021A	144.0000	290.4								
HAD4008A	162.0000	HAD4021A	165.9000	267.5								
HAD4008A	156.4000	HAD4021A	150.8000	230.7								
HAD4008A	156.4000	HAD4021A	158.3000	227.2								
HAD4008A	156.4000	HAD4021A	140.0000	226.4								
HAD4008A	162.0000	HAD4021A	173.4000	222.6								
HAD4008A	156.4000	HAD4021A	144.0000	218.5								
HAD4008A	150.8000	HAD4021A	150.8000	200.6								
HAD4008A	150.8000	HAD4021A	158.3000	197.1								
HAD4008A	150.8000	HAD4021A	140.0000	196.3								
HAD4008A	156.4000	HAD4021A	165.9000	195.6								
HAD4008A	150.8000	HAD4021A	144.0000	188.4								
HAD4008A	150.8000	HAD4021A	165.9000	165.5								
HAD4008A	156.4000	HAD4021A	173.4000	150.7								
HAD4008A	150.8000	HAD4021A	173.4000	120.6								

The 2nd highest MPE configuration has SAR below 75% of the limit

Note:

* Antenna length trimmed to frequency.

**Table 3b continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (ISED Canada)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4008A	162.0000	HAD4017A	165.9000	295.9	Back Center Back Side	0.31 0.67	0.018 0.019	0.03 0.06	0.002 0.004	0.34 0.73	0.02 0.02	
HAD4008A	162.0000	HAD4017A	158.3000	295.5								The highest MPE configuration has SAR below 50% of the limit.
HAD4008A	162.0000	HAD4017A	150.8000	269.8								
HAD4008A	162.0000	HAD4017A	173.4000	226.9								
HAD4008A	156.4000	HAD4017A	165.9000	224.0								
HAD4008A	156.4000	HAD4017A	158.3000	223.6								
HAD4008A	156.4000	HAD4017A	150.8000	197.9								
HAD4008A	150.8000	HAD4017A	165.9000	193.9								
HAD4008A	150.8000	HAD4017A	158.3000	193.5								
HAD4008A	150.8000	HAD4017A	150.8000	167.8								
HAD4008A	156.4000	HAD4017A	173.4000	155.0								
HAD4008A	150.8000	HAD4017A	173.4000	124.9								
HAD4008A	162.0000	HAD4016A	156.2000	297.8	Back Center Back Side	0.31 0.67	0.018 0.019	0.15 0.14	0.006 0.006	0.46 0.81	0.02 0.03	
HAD4008A	162.0000	HAD4016A	150.8000	296.1	Back Center Back Side	0.31 0.67	0.018 0.019	0.14 0.22	0.007 0.010	0.45 0.89	0.03 0.03	
HAD4008A	162.0000	HAD4016A	162.0000	289.7								The 2nd highest MPE configuration has SAR below 75% of the limit
HAD4008A	162.0000	HAD4016A	144.0000	272.0								
HAD4008A	156.4000	HAD4016A	156.2000	225.9								
HAD4008A	156.4000	HAD4016A	150.8000	224.2								
HAD4008A	156.4000	HAD4016A	162.0000	217.8								
HAD4008A	156.4000	HAD4016A	144.0000	200.1								
HAD4008A	150.8000	HAD4016A	156.2000	195.8								
HAD4008A	150.8000	HAD4016A	150.8000	194.1								
HAD4008A	150.8000	HAD4016A	162.0000	187.7								
HAD4008A	150.8000	HAD4016A	144.0000	170.0								
HAD4008A	162.0000	HAD4006A	140.0000	286.2	Back Center Back Side	0.31 0.67	0.018 0.019	0.32 0.26	0.010 0.014	0.63 0.93	0.03 0.03	
HAD4008A	162.0000	HAD4006A	144.0000	269.7	Back Center Back Side	0.31 0.67	0.018 0.019	0.2 0.26	0.011 0.014	0.51 0.93	0.03 0.03	
HAD4008A	156.4000	HAD4006A	140.0000	214.3								The 2nd highest MPE configuration has SAR below 75% of the limit
HAD4008A	156.4000	HAD4006A	144.0000	197.8								
HAD4008A	150.8000	HAD4006A	140.0000	184.2								
HAD4008A	150.8000	HAD4006A	144.0000	167.7								
HAD4008A	150.8000	HAD4006A	144.0000	167.7								
HAD4008A	162.0000	HAD4007A	150.8000	310.3	Back Center Back Side	0.31 0.67	0.018 0.019	0.14 0.22	0.007 0.010	0.45 0.89	0.03 0.03	
HAD4008A	162.0000	HAD4007A	148.0000	303.4	Back Center Back Side	0.31 0.67	0.018 0.019	0.14 0.24	0.008 0.011	0.45 0.91	0.03 0.03	
HAD4008A	162.0000	HAD4007A	144.0000	262.6								The 2nd highest MPE configuration has SAR below 75% of the limit
HAD4008A	156.4000	HAD4007A	150.8000	238.4								
HAD4008A	156.4000	HAD4007A	148.0000	231.5								
HAD4008A	150.8000	HAD4007A	150.8000	208.3								
HAD4008A	150.8000	HAD4007A	148.0000	201.4								
HAD4008A	156.4000	HAD4007A	144.0000	190.7								
HAD4008A	150.8000	HAD4007A	144.0000	160.6								
HAD4008A	162.0000	HAD4008A	162.0000	331.1	Back Center Back Side	0.31 0.67	0.018 0.019	0.04 0.06	0.003 0.004	0.35 0.73	0.02 0.02	
HAD4008A	162.0000	HAD4008A	156.2000	317.8								The highest MPE configuration has SAR below 50% of the limit.
HAD4008A	162.0000	HAD4008A	150.8000	279.5								
HAD4008A	156.4000	HAD4008A	162.0000	259.2								
HAD4008A	156.4000	HAD4008A	156.2000	245.9								
HAD4008A	150.8000	HAD4008A	162.0000	229.1								
HAD4008A	150.8000	HAD4008A	156.2000	215.8								
HAD4008A	156.4000	HAD4008A	150.8000	207.6								
HAD4008A	150.8000	HAD4008A	150.8000	177.5								
HAD4008A	162.0000	HAD4009A	162.0000	332.7	Back Center Back Side	0.31 0.67	0.018 0.019	0.04 0.06	0.003 0.004	0.35 0.73	0.02 0.02	
HAD4008A	162.0000	HAD4009A	167.7000	278.8								The highest MPE configuration has SAR below 50% of the limit.
HAD4008A	156.4000	HAD4009A	162.0000	260.8								
HAD4008A	162.0000	HAD4009A	173.4000	247.4								
HAD4008A	150.8000	HAD4009A	162.0000	230.7								
HAD4008A	156.4000	HAD4009A	167.7000	206.9								
HAD4008A	150.8000	HAD4009A	167.7000	176.8								
HAD4008A	156.4000	HAD4009A	150.8000	175.5								
HAD4008A	150.8000	HAD4009A	150.8000	145.4								

**Table 3b continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (ISED Canada)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB	
HAD4009A	173.4000	*HAD4022A	165.9000	202.50	Back Center Back Side	0.19 0.52	0.013 0.015	0.03 0.05	0.002 0.003	0.22 0.57	0.02 0.02	
HAD4009A	173.4000	*HAD4022A	158.3000	198.20	Back Center Back Side	0.19 0.52	0.013 0.015	0.07 0.08	0.004 0.004	0.26 0.60	0.02 0.02	
HAD4009A	162.0000	*HAD4022A	165.9000	193.10	Back Center Back Side	0.31 0.68	0.018 0.020	0.03 0.05	0.002 0.003	0.34 0.73	0.02 0.02	
HAD4009A	162.0000	*HAD4022A	158.3000	188.80	Back Center Back Side	0.31 0.68	0.018 0.02	0.07 0.08	0.004 0.004	0.38 0.76	0.02 0.02	
HAD4009A	173.4000	*HAD4022A	150.8000	185.90	Back Center Back Side	0.19 0.52	0.013 0.015	0.09 0.12	0.004 0.005	0.28 0.64	0.02 0.02	
HAD4009A	167.7000	*HAD4022A	165.9000	183.90	Back Center Back Side	0.25 0.70	0.015 0.016	0.03 0.05	0.002 0.003	0.28 0.75	0.02 0.02	
HAD4009A	167.7000	*HAD4022A	158.3000	179.60	Back Center Back Side	0.25 0.70	0.015 0.016	0.07 0.08	0.004 0.004	0.32 0.78	0.02 0.02	
HAD4009A	162.0000	*HAD4022A	150.8000	176.50	Back Center Back Side	0.31 0.68	0.018 0.020	0.09 0.12	0.004 0.005	0.40 0.80	0.02 0.03	
HAD4009A	173.4000	*HAD4022A	144.0000	174.80	Back Center Back Side	0.19 0.52	0.013 0.015	0.20 0.26	0.011 0.014	0.39 0.78	0.02 0.03	
HAD4009A	173.4000	*HAD4022A	173.4000	173.00	Back Center Back Side	0.19 0.52	0.013 0.015	0.19 0.22	0.004 0.011	0.38 0.74	0.02 0.03	
HAD4009A	173.4000	*HAD4022A	140.0000	172.60	Back Center Back Side	0.19 0.52	0.013 0.015	0.32 0.26	0.010 0.014	0.51 0.78	0.02 0.03	
HAD4009A	167.7000	*HAD4022A	150.8000	167.30	Back Center Back Side	0.25 0.70	0.015 0.016	0.09 0.12	0.004 0.005	0.34 0.82	0.02 0.02	
HAD4009A	162.0000	*HAD4022A	144.0000	165.40	Back Center Back Side	0.31 0.68	0.018 0.020	0.20 0.26	0.011 0.014	0.51 0.94	0.03 0.03	
HAD4009A	162.0000	*HAD4022A	173.4000	163.60	Back Center Back Side	0.31 0.68	0.018 0.020	0.19 0.22	0.004 0.011	0.50 0.90	0.02 0.03	
HAD4009A	162.0000	*HAD4022A	140.0000	163.20	Back Center Back Side	0.31 0.68	0.018 0.020	0.32 0.26	0.010 0.014	0.63 0.94	0.03 0.03	
HAD4009A	167.7000	*HAD4022A	144.0000	156.20	Back Center Back Side	0.25 0.70	0.015 0.016	0.20 0.26	0.011 0.014	0.45 0.96	0.03 0.03	
HAD4009A	167.7000	*HAD4022A	173.4000	154.40	Back Center Back Side	0.25 0.70	0.015 0.016	0.19 0.22	0.004 0.011	0.44 0.92	0.02 0.03	
HAD4009A	167.7000	*HAD4022A	140.0000	154.00	Back Center Back Side	0.25 0.70	0.015 0.016	0.32 0.26	0.010 0.014	0.57 0.96	0.03 0.03	
HAD4009A	173.4000	*RAD4010ARB	158.3000	166.80	Back Center Back Side	0.19 0.52	0.013 0.015	0.06 0.05	0.003 0.003	0.25 0.57	0.02 0.02	
HAD4009A	173.4000	*RAD4010ARB	144.0000	164.10	Back Center Back Side	0.19 0.52	0.013 0.015	0.08 0.09	0.004 0.005	0.27 0.61	0.02 0.02	
HAD4009A	173.4000	*RAD4010ARB	165.9000	164.00	Back Center Back Side	0.19 0.52	0.013 0.015	0.03 0.03	0.002 0.002	0.22 0.55	0.02 0.02	
HAD4009A	173.4000	*RAD4010ARB	140.0000	161.90	Back Center Back Side	0.19 0.52	0.013 0.015	0.11 0.10	0.004 0.005	0.30 0.62	0.02 0.02	
HAD4009A	173.4000	*RAD4010ARB	173.4000	160.90	Back Center Back Side	0.19 0.52	0.013 0.015	0.11 0.12	0.003 0.007	0.30 0.64	0.02 0.02	
HAD4009A	162.0000	*RAD4010ARB	158.3000	157.40	Back Center Back Side	0.31 0.68	0.018 0.020	0.06 0.05	0.003 0.003	0.37 0.73	0.02 0.02	
HAD4009A	173.4000	*RAD4010ARB	150.8000	156.40	Back Center Back Side	0.19 0.52	0.013 0.015	0.07 0.09	0.003 0.004	0.26 0.61	0.02 0.02	
HAD4009A	162.0000	*RAD4010ARB	144.0000	154.70	Back Center Back Side	0.31 0.68	0.018 0.020	0.08 0.09	0.004 0.005	0.39 0.77	0.02 0.03	
HAD4009A	162.0000	*RAD4010ARB	165.9000	154.60	Back Center Back Side	0.31 0.68	0.018 0.020	0.03 0.03	0.002 0.002	0.34 0.71	0.02 0.02	
HAD4009A	162.0000	*RAD4010ARB	140.0000	152.50	Back Center Back Side	0.31 0.68	0.018 0.020	0.11 0.10	0.004 0.005	0.42 0.78	0.02 0.03	
HAD4009A	162.0000	*RAD4010ARB	173.4000	151.50	Back Center Back Side	0.31 0.68	0.018 0.020	0.11 0.12	0.003 0.007	0.42 0.80	0.02 0.03	
HAD4009A	167.7000	*RAD4010ARB	158.3000	148.20	Back Center Back Side	0.25 0.70	0.015 0.016	0.06 0.05	0.003 0.003	0.31 0.75	0.02 0.02	
HAD4009A	162.0000	*RAD4010ARB	150.8000	147.00	Back Center Back Side	0.25 0.70	0.015 0.016	0.07 0.09	0.003 0.004	0.32 0.79	0.02 0.02	
HAD4009A	167.7000	*RAD4010ARB	144.0000	145.50	Back Center Back Side	0.25 0.70	0.015 0.016	0.08 0.09	0.004 0.005	0.33 0.79	0.02 0.02	
HAD4009A	167.7000	*RAD4010ARB	165.9000	145.40	Back Center Back Side	0.25 0.70	0.015 0.016	0.03 0.03	0.002 0.002	0.28 0.73	0.02 0.02	
HAD4009A	167.7000	*RAD4010ARB	140.0000	143.30	Back Center Back Side	0.25 0.70	0.015 0.016	0.11 0.10	0.004 0.005	0.36 0.80	0.02 0.02	
HAD4009A	167.7000	*RAD4010ARB	173.4000	142.30	Back Center Back Side	0.25 0.70	0.015 0.016	0.11 0.12	0.003 0.007	0.36 0.82	0.02 0.02	
HAD4009A	167.7000	*RAD4010ARB	150.8000	137.80	Back Center Back Side	0.25 0.70	0.015 0.016	0.07 0.09	0.003 0.004	0.32 0.79	0.02 0.02	

Note:

* Antenna length trimmed to frequency.

**Table 3b continued: SAR Simulation Reduction Considerations for Passenger (back seat)
VHF Band (ISED Canada)**

DVRS VHF		APX 4500 VHF Mobile		Combine MPE (%)	Exposure Location	DVRS VHF Adjusted SAR Results (W/kg)		APX 4500 VHF Mobile Adjusted SAR Results (W/kg)		Combined Adjusted SAR Results (W/kg)		SAR Simulation Reduction	
Antenna Kit#	Freq (MHz)	Antenna Kit#	Freq (MHz)			1g	WB	1g	WB	1g	WB		
HAD4009A	173.4000	HAD4021A	150.8000	267.70	Back Center Back Side	0.19 0.52	0.013 0.015	0.14 0.22	0.007 0.010	0.33 0.74	0.02 0.03	The highest MPE configuration has SAR below 50% of the limit.	
HAD4009A	173.4000	HAD4021A	158.3000	264.20									
HAD4009A	173.4000	HAD4021A	140.0000	263.40									
HAD4009A	162.0000	HAD4021A	150.8000	258.30									
HAD4009A	173.4000	HAD4021A	144.0000	255.50									
HAD4009A	162.0000	HAD4021A	158.3000	254.80									
HAD4009A	162.0000	HAD4021A	140.0000	254.00									
HAD4009A	167.7000	HAD4021A	150.8000	249.10									
HAD4009A	162.0000	HAD4021A	144.0000	246.10									
HAD4009A	167.7000	HAD4021A	158.3000	245.60									
HAD4009A	167.7000	HAD4021A	140.0000	244.80									
HAD4009A	167.7000	HAD4021A	144.0000	236.90									
HAD4009A	173.4000	HAD4021A	165.9000	232.60									
HAD4009A	162.0000	HAD4021A	165.9000	223.20									
HAD4009A	167.7000	HAD4021A	165.9000	214.00									
HAD4009A	173.4000	HAD4021A	173.4000	187.70									
HAD4009A	162.0000	HAD4021A	173.4000	178.30									
HAD4009A	167.7000	HAD4021A	173.4000	169.10									
HAD4009A	173.4000	HAD4017A	165.9000	261.00	Back Center Back Side	0.19 0.52	0.013 0.015	0.03 0.06	0.002 0.004	0.22 0.58	0.02 0.02		The highest MPE configuration has SAR below 50% of the limit.
HAD4009A	173.4000	HAD4017A	158.3000	260.60									
HAD4009A	162.0000	HAD4017A	165.9000	251.60									
HAD4009A	162.0000	HAD4017A	158.3000	251.20									
HAD4009A	167.7000	HAD4017A	165.9000	242.40									
HAD4009A	167.7000	HAD4017A	158.3000	242.00									
HAD4009A	173.4000	HAD4017A	150.8000	234.90									
HAD4009A	162.0000	HAD4017A	150.8000	225.50									
HAD4009A	167.7000	HAD4017A	150.8000	216.30									
HAD4009A	173.4000	HAD4017A	173.4000	192.00									
HAD4009A	162.0000	HAD4017A	173.4000	182.60									
HAD4009A	167.7000	HAD4017A											
HAD4009A	173.4000	HAD4016A	156.2000	262.90	Back Center Back Side	0.19 0.52	0.013 0.015	0.15 0.14	0.006 0.006	0.34 0.66	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.	
HAD4009A	173.4000	HAD4016A	150.8000	261.20									
HAD4009A	173.0000	HAD4016A	162.0000	254.80									
HAD4009A	162.0000	HAD4016A	156.2000	253.50									
HAD4009A	162.0000	HAD4016A	150.8000	251.80									
HAD4009A	162.0000	HAD4016A	162.0000	245.40									
HAD4009A	167.7000	HAD4016A	156.2000	244.30									
HAD4009A	167.7000	HAD4016A	150.8000	242.60									
HAD4009A	173.4000	HAD4016A	144.0000	237.10									
HAD4009A	167.7000	HAD4016A	162.0000	236.20									
HAD4009A	162.0000	HAD4016A	144.0000	227.70									
HAD4009A	167.7000	HAD4016A	144.0000	218.50									
HAD4009A	173.4000	HAD4006A	140.0000	251.30	Back Center Back Side	0.19 0.52	0.013 0.015	0.32 0.26	0.010 0.014	0.51 0.78	0.02 0.03	The highest MPE configuration has SAR below 50% of the limit.	
HAD4009A	162.0000	HAD4006A	140.0000	241.90									
HAD4009A	173.4000	HAD4006A	144.0000	234.80									
HAD4009A	167.7000	HAD4006A	140.0000	232.70									
HAD4009A	162.0000	HAD4006A	144.0000	225.40									
HAD4009A	167.7000	HAD4006A	144.0000	216.20									
HAD4009A	173.4000	HAD4007A	150.8000	275.40	Back Center Back Side	0.19 0.52	0.013 0.015	0.14 0.22	0.007 0.010	0.33 0.74	0.02 0.03	The highest MPE configuration has SAR below 50% of the limit.	
HAD4009A	173.4000	HAD4007A	148.0000	268.50									
HAD4009A	162.0000	HAD4007A	150.8000	266.00									
HAD4009A	162.0000	HAD4007A	148.0000	259.10									
HAD4009A	167.7000	HAD4007A	150.8000	256.80									
HAD4009A	167.7000	HAD4007A	148.0000	249.90									
HAD4009A	173.4000	HAD4007A	144.0000	227.70									
HAD4009A	162.0000	HAD4007A	144.0000	218.30									
HAD4009A	167.7000	HAD4007A	144.0000	209.10									
HAD4009A	173.4000	HAD4008A	162.0000	296.20	Back Center Back Side	0.19 0.52	0.013 0.015	0.04 0.06	0.003 0.004	0.23 0.58	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.	
HAD4009A	162.0000	HAD4008A	162.0000	286.80									
HAD4009A	173.4000	HAD4008A	156.2000	282.90									
HAD4009A	167.7000	HAD4008A	162.0000	277.60									
HAD4009A	162.0000	HAD4008A	156.2000	273.50									
HAD4009A	167.7000	HAD4008A	156.2000	264.30									
HAD4009A	173.4000	HAD4008A	150.8000	244.60									
HAD4009A	162.0000	HAD4008A	150.8000	235.20									
HAD4009A	167.7000	HAD4008A	150.8000	226.00									
HAD4009A	173.4000	HAD4009A	162.0000	297.80	Back Center Back Side	0.19 0.52	0.013 0.015	0.04 0.06	0.003 0.004	0.23 0.58	0.02 0.02	The highest MPE configuration has SAR below 50% of the limit.	
HAD4009A	162.0000	HAD4009A	162.0000	288.40									
HAD4009A	167.7000	HAD4009A	162.0000	279.20									
HAD4009A	173.4000	HAD4009A	167.7000	243.90									
HAD4009A	162.0000	HAD4009A	167.7000	234.50									
HAD4009A	167.7000	HAD4009A	167.7000	225.30									
HAD4009A	173.4000	HAD4009A	173.4000	212.50									
HAD4009A	162.0000	HAD4009A	173.4000	203.10									
HAD4009A	167.7000	HAD4009A	173.4000	193.90									

Results of SAR computations for combined exposure

From all simulated results the worst case peak SAR values were identified for both DVR VHF and Companion mobile radio exposure and then combined to produce the composite peak SAR value in corresponding locations of the human body model. Table 4 and Table 5 present the worst case composite peak SAR value.

Table 4: Worst case peak 1-g average SAR for passenger exposure conditions and combined 1-g average SAR from simultaneous exposure.

	Passenger location	DVR VHF [W/kg]	Companion mobile radio	Total [W/kg]
FCC US	Back Center	0.34	0.19	0.53
	Back Side	0.70	0.22	0.92
ISED Canada	Back Center	0.34	0.32	0.66
	Back Side	0.70	0.26	0.96

Table 5: Worst case peak whole body average SAR for passenger exposure conditions and combined whole body average SAR from simultaneous exposure.

	Passenger location	DVR VHF [W/kg]	Companion mobile radio	Total [W/kg]
FCC US	Back Center	0.019	0.007	0.026
	Back Side	0.020	0.011	0.031
ISED Canada	Back Center	0.019	0.011	0.030
	Back Side	0.020	0.014	0.034

From Table 4 and Table 5 the maximum combined peak 1-g SAR is 0.96 W/kg, less than the 1.6 W/kg limit, while the maximum combined whole-body average SAR is 0.034 W/kg, less than the 0.08 W/kg limit.

Conclusions

Under the test conditions described for evaluating passenger exposure to the RF electromagnetic fields emitted by vehicle-mounted antennas used in conjunction with these mobile radio products, the present analysis shows that the computed SAR values are compliant with the FCC US and ISED Canada exposure limits for the general public.

References

- [1] IEEE Standard C95.1-1999. *IEEE Standard for Safety Levels with Respect to Human Exposure to RF Electromagnetic Fields, 3 kHz to 300 GHz.*
- [2] http://www.nlm.nih.gov/research/visible/visible_human.html
- [3] Simon, W., Bit-Babik, G., “Effect of the variation in population on the whole-body average SAR of persons exposed to vehicle mounted antennas W. Simon”, ICEAA September 2-7, 2012, Cape 1380 Town.