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## APPENDIX A - SAR MEASUREMENT DATA

<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	 Vertex Standard
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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## Face SAR Plot #1 (F1)

Date Tested: 08/30/2010

### Face-held SAR - 2400mAh Ext. Battery FNB-V113LI (b) - Whip Antenna ATU-16D (A) - 470.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 22.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 470$  MHz;  $\sigma = 0.86$  mho/m;  $\epsilon_r = 43.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: ET3DV6 - SN1590; ConvF(7.25, 7.25, 7.25); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x19x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 6.01 mW/g

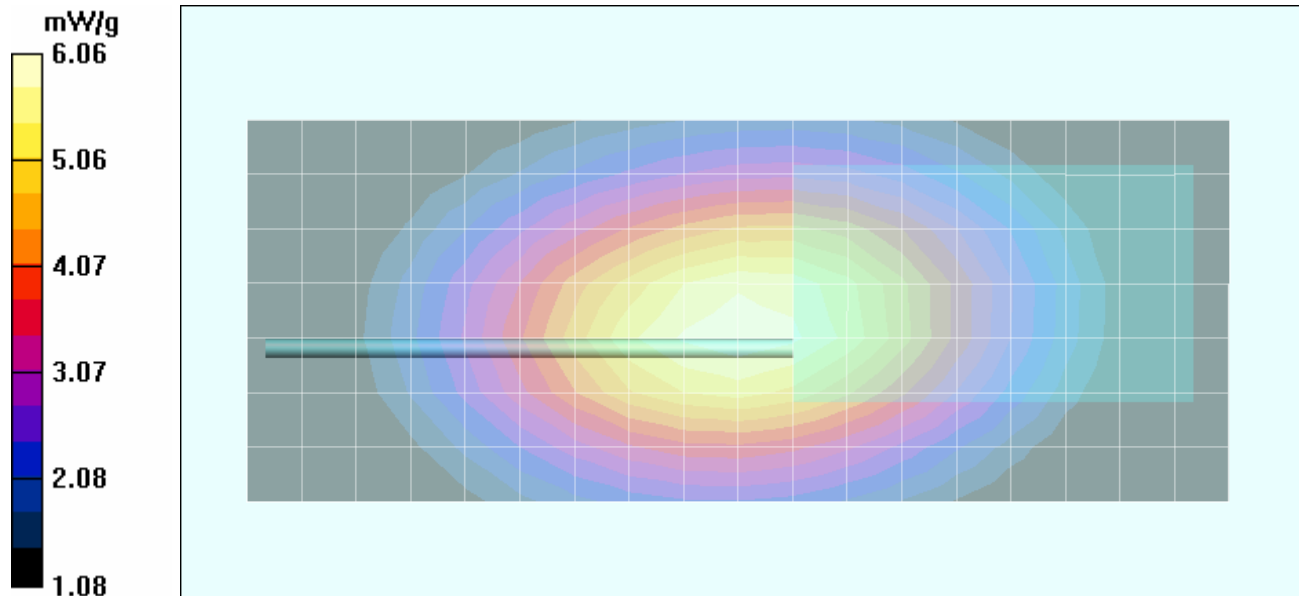
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm


Reference Value = 81.5 V/m; Power Drift = -0.104 dB



Peak SAR (extrapolated) = 7.96 W/kg

**SAR(1 g) = 5.81 mW/g; SAR(10 g) = 4.31 mW/g**

Maximum value of SAR (measured) = 6.06 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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## Face SAR Plot #2 (F2)

Date Tested: 09/10/2010

### Face-held SAR - 2400mAh Ext. Battery FNB-V113LI (b) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 22.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.87 \text{ mho/m}$ ;  $\epsilon_r = 43.7$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.25, 7.25, 7.25); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 7.84 mW/g

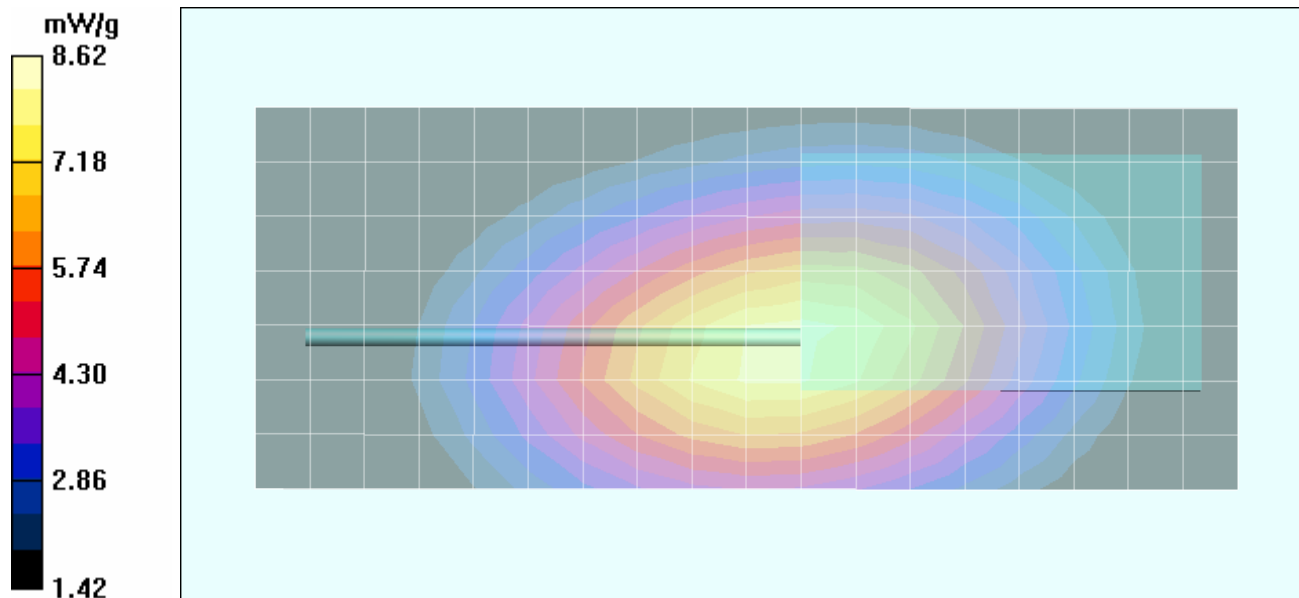
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 90.9 V/m; Power Drift = -0.274 dB

Peak SAR (extrapolated) = 11.2 W/kg

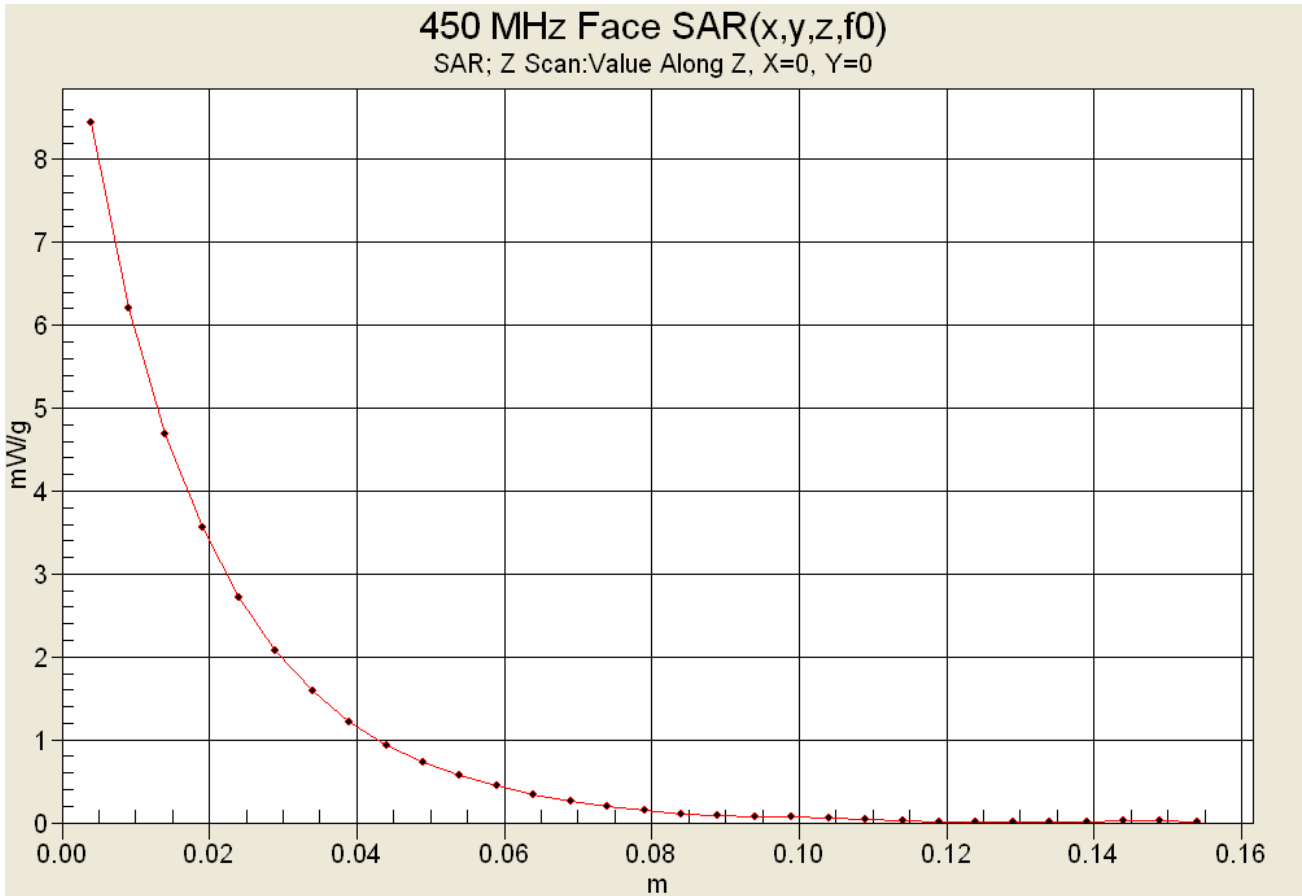
**SAR(1 g) = 8.23 mW/g; SAR(10 g) = 6.08 mW/g**



Maximum value of SAR (measured) = 8.62 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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## Z-Axis Scan



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### Face SAR Plot #3 (F3)

Date Tested: 08/30/2010

### Face-held SAR - 2400mAh Ext. Battery FNB-V113LI (b) - Whip Antenna ATU-16F (B) - 484.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 22.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 484 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used (interpolated):  $f = 484$  MHz;  $\sigma = 0.854$  mho/m;  $\epsilon_r = 43.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: ET3DV6 - SN1590; ConvF(7.25, 7.25, 7.25); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x19x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 6.09 mW/g

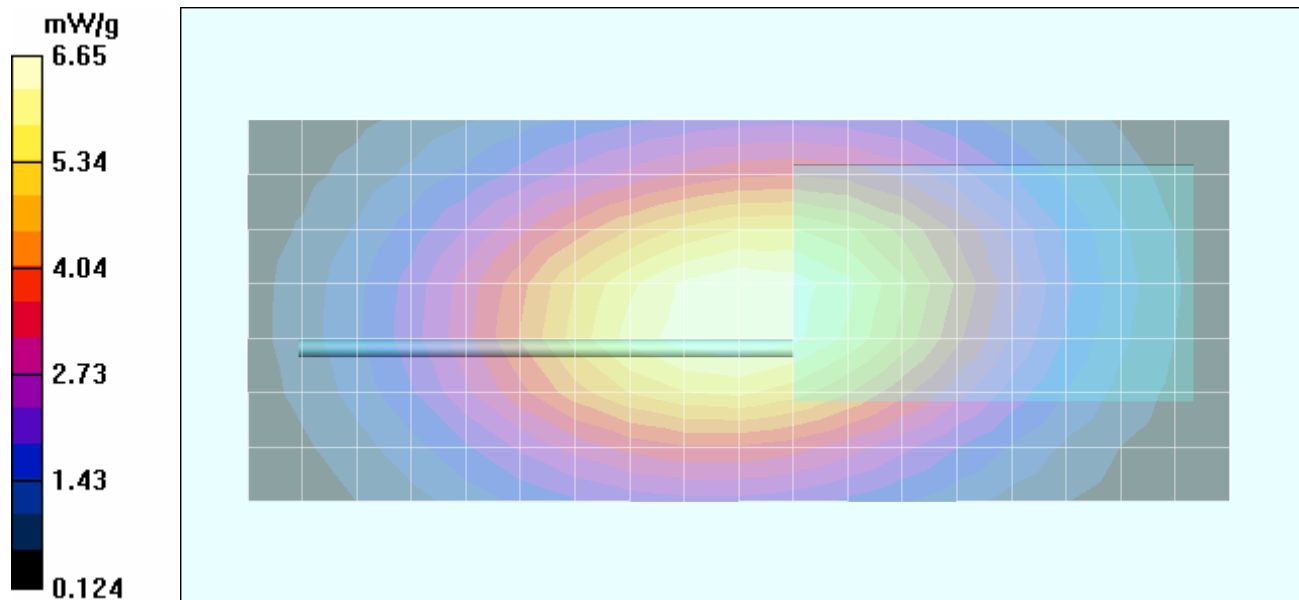
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm


Reference Value = 82.4 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 8.02 W/kg

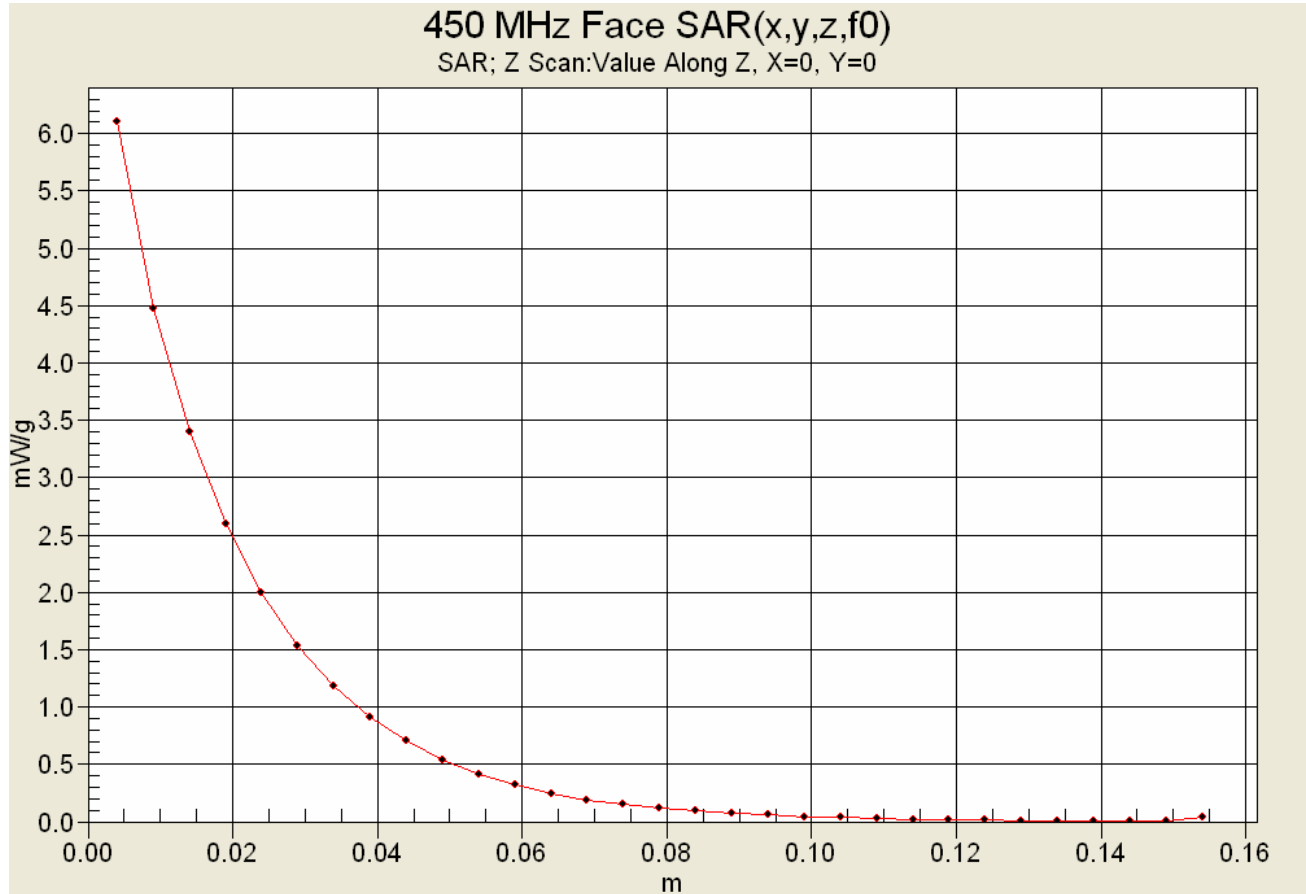
**SAR(1 g) = 5.82 mW/g; SAR(10 g) = 4.29 mW/g**



Maximum value of SAR (measured) = 6.65 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5		
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## Z-Axis Scan



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## Face SAR Plot #4 (F4)

Date Tested: 09/10/2010

### Face-held SAR - 2400mAh Ext. Battery FNB-V113LI (b) - Whip Antenna ATU-16F (B) - 512.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 22.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 512 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used (interpolated):  $f = 512$  MHz;  $\sigma = 0.902$  mho/m;  $\epsilon_r = 43.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: ET3DV6 - SN1590; ConvF(7.25, 7.25, 7.25); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x19x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 6.06 mW/g

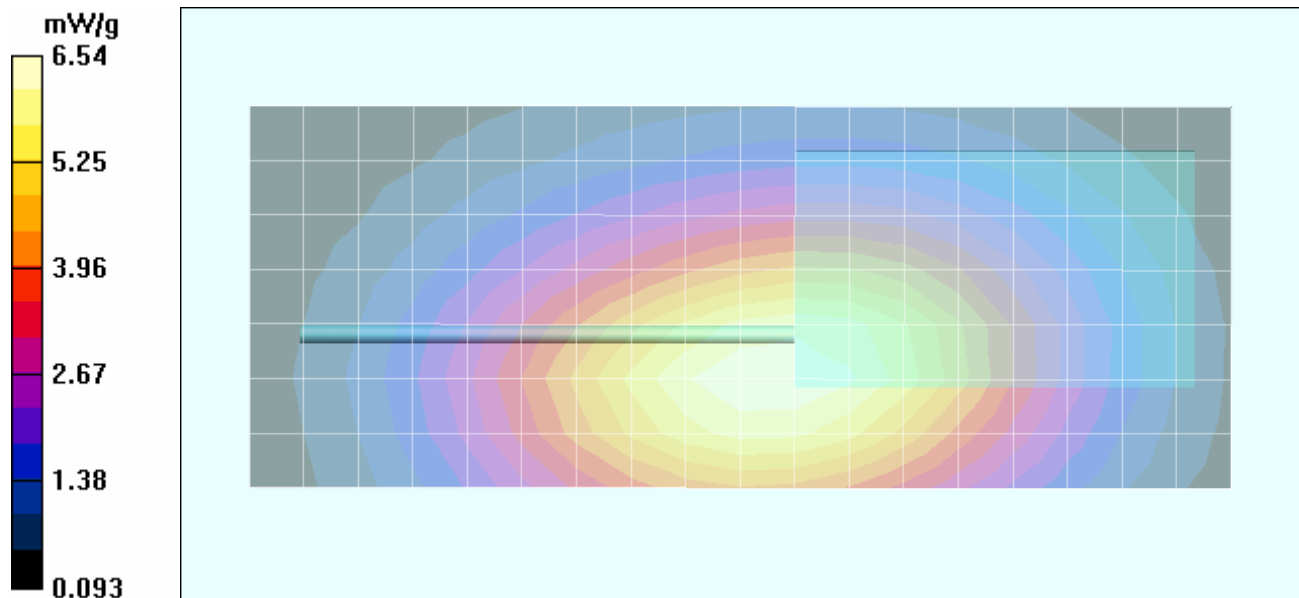
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm


Reference Value = 68.8 V/m; Power Drift = -0.395 dB



Peak SAR (extrapolated) = 7.93 W/kg

**SAR(1 g) = 5.79 mW/g; SAR(10 g) = 4.28 mW/g**

Maximum value of SAR (measured) = 6.54 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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## Face SAR Plot #5 (F5)

Date Tested: 09/10/2010

### Face-held SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 22.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used (interpolated):  $f = 498$  MHz;  $\sigma = 0.87$  mho/m;  $\epsilon_r = 43.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: ET3DV6 - SN1590; ConvF(7.25, 7.25, 7.25); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x19x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 8.09 mW/g

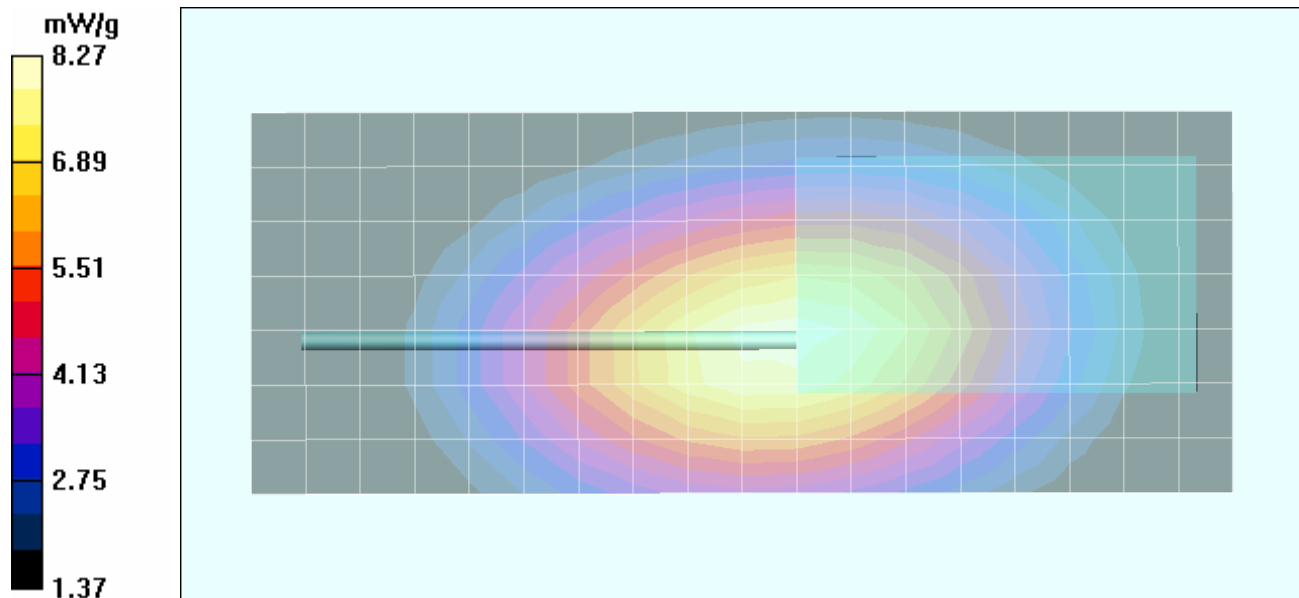
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm


Reference Value = 92.5 V/m; Power Drift = -0.330 dB

Peak SAR (extrapolated) = 10.9 W/kg



**SAR(1 g) = 7.92 mW/g; SAR(10 g) = 5.85 mW/g**

Maximum value of SAR (measured) = 8.27 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5		
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## Body SAR Plot #1 (B1)

Date Tested: 08/30/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16D (A) - 470.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 22.0°C; Fluid Temp: 22.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.9 \text{ mho/m}$ ;  $\epsilon_r = 54.9$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 9.35 mW/g

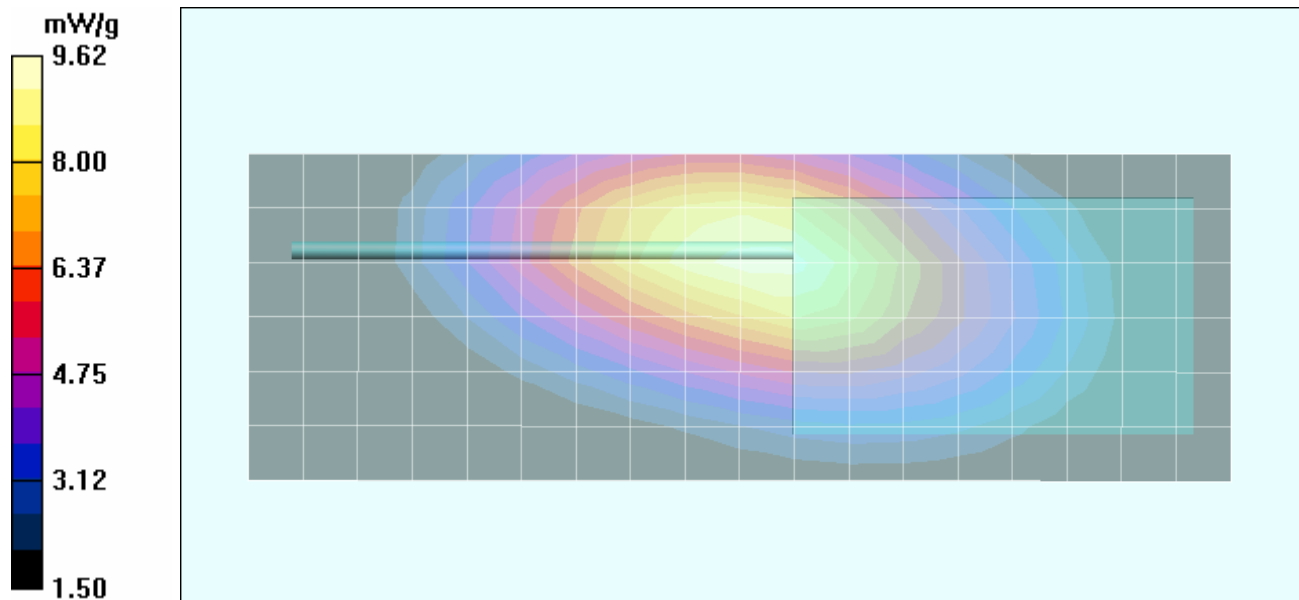
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 96.8 V/m; Power Drift = -0.241 dB



Peak SAR (extrapolated) = 13.2 W/kg

**SAR(1 g) = 9.19 mW/g; SAR(10 g) 6.66 mW/g**

Maximum value of SAR (measured) = 9.62 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Body SAR Plot #2 (B2)

Date Tested: 08/30/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16D (A) - 460.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 22.0°C; Fluid Temp: 22.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 460 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used:  $f = 460 \text{ MHz}$ ;  $\sigma = 0.9 \text{ mho/m}$ ;  $\epsilon_r = 55.6$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DAS4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 8.63 mW/g

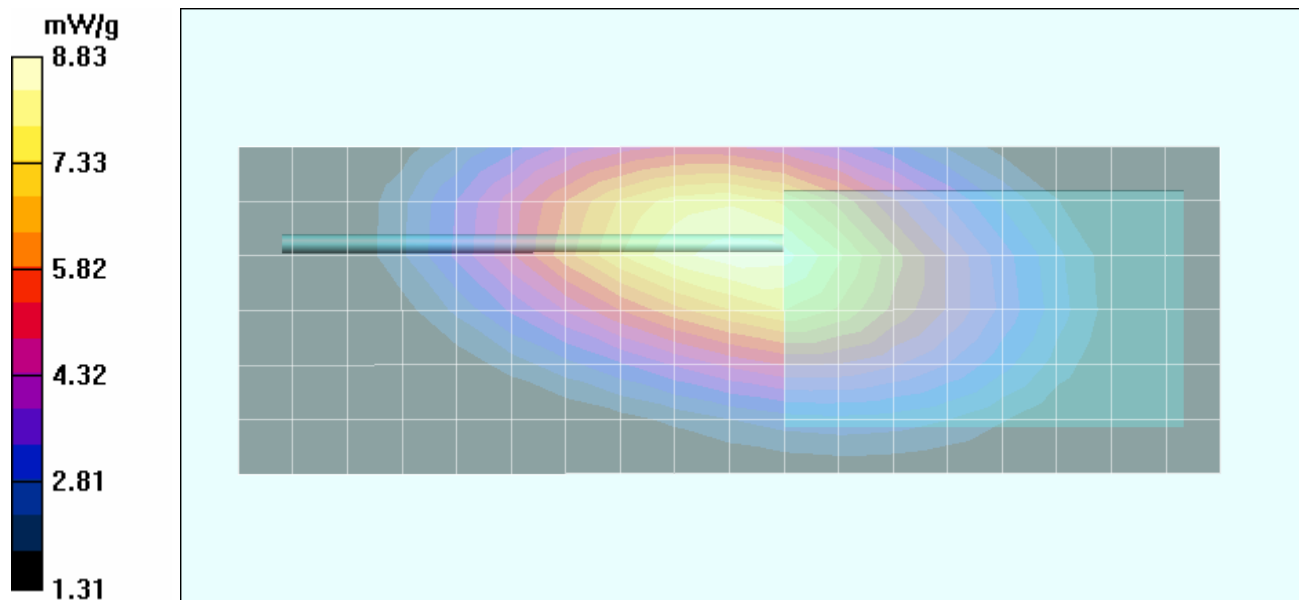
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 96.6 V/m; Power Drift = -0.336 dB



Peak SAR (extrapolated) = 12.2 W/kg

**SAR(1 g) = 8.47 mW/g; SAR(10 g) 6.15 mW/g**

Maximum value of SAR (measured) = 8.83 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5		
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### Body SAR Plot #3 (B3)

Date Tested: 08/31/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16D (A) - 450.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 23.0°C; Fluid Temp: 22.5°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used:  $f = 450 \text{ MHz}$ ;  $\sigma = 0.9 \text{ mho/m}$ ;  $\epsilon_r = 55.5$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 8.53 mW/g

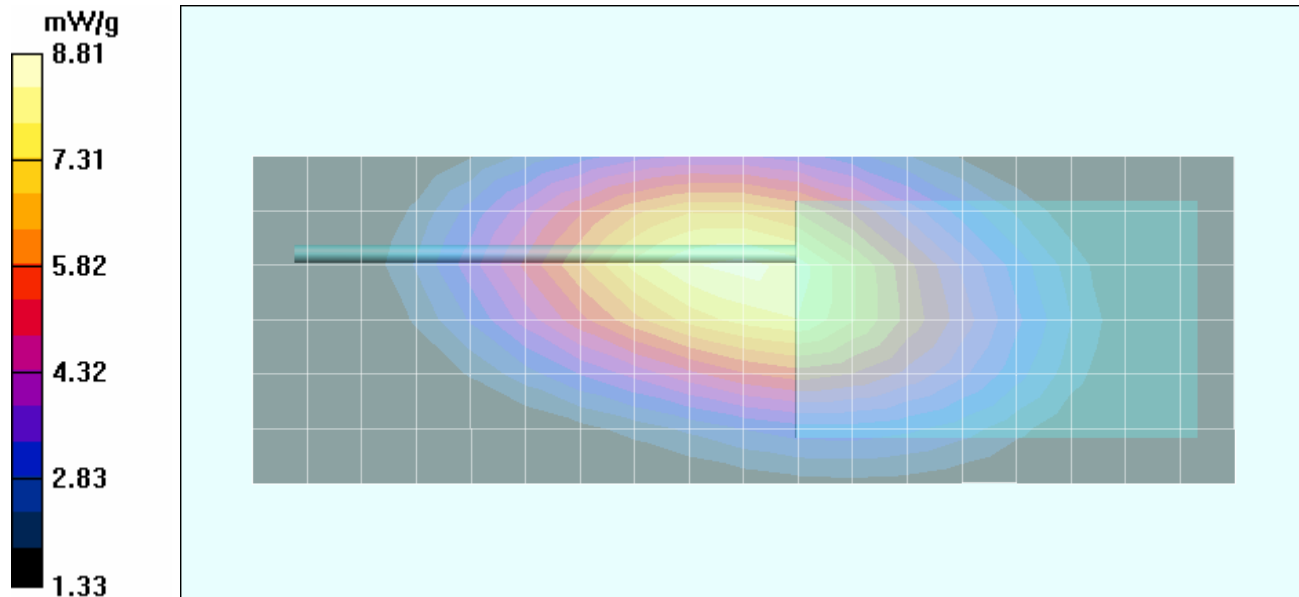
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 98.1 V/m; Power Drift = -0.354 dB



Peak SAR (extrapolated) = 12.2 W/kg

**SAR(1 g) = 8.44 mW/g; SAR(10 g) 6.12 mW/g**

Maximum value of SAR (measured) = 8.81 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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## Body SAR Plot #4 (B4)

Date Tested: 09/09/2010

### Body-worn SAR - 2400mAh Ext. Battery FNB-V113LI (b) - Whip Antenna ATU-16D (A) - 470.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 23.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 56.6$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DAS4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.2 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 9.32 mW/g

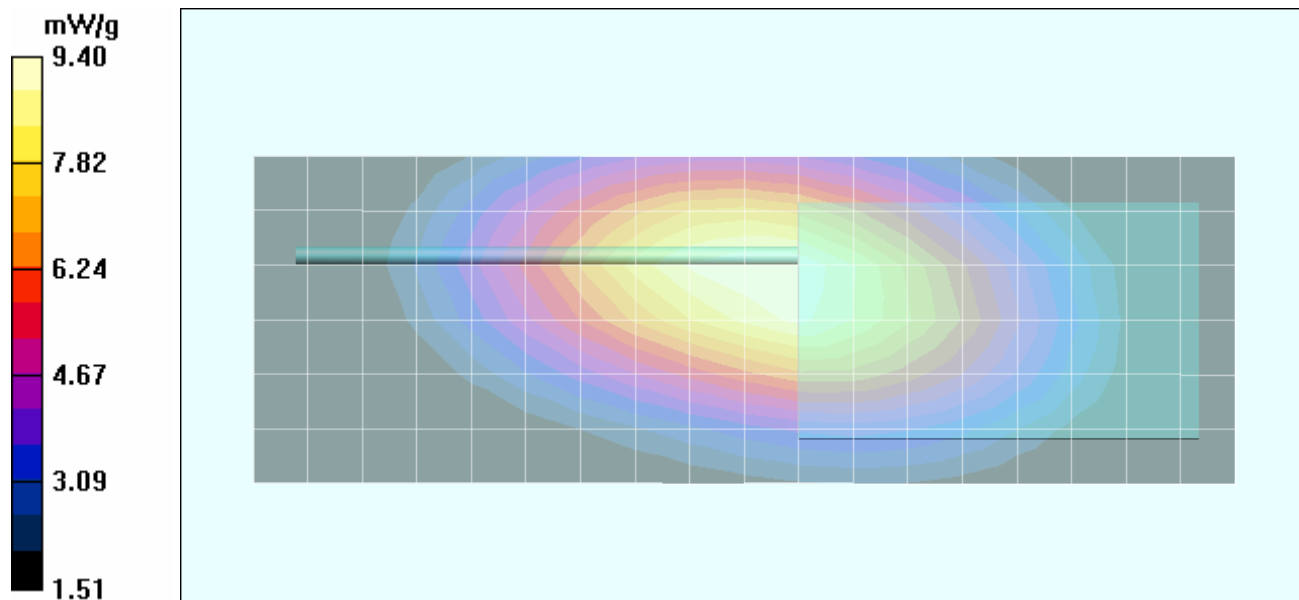
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 99.5 V/m; Power Drift = -0.041 dB



Peak SAR (extrapolated) = 12.8 W/kg

**SAR(1 g) = 8.97 mW/g; SAR(10 g) 6.52 mW/g**

Maximum value of SAR (measured) = 9.40 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5		
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Body SAR Plot #5 (B5)

Date Tested: 08/31/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 23.0°C; Fluid Temp: 22.5°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.948 \text{ mho/m}$ ;  $\epsilon_r = 55.6$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.0 mW/g

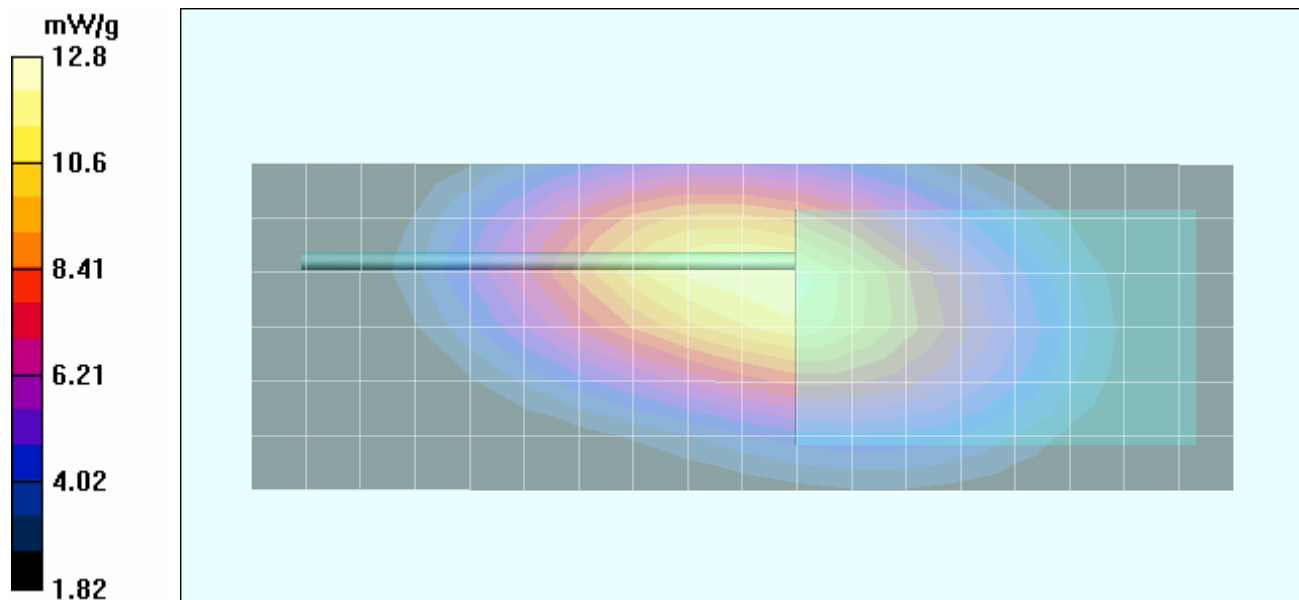
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 116.1 V/m; Power Drift = -0.396 dB

Peak SAR (extrapolated) = 17.5 W/kg

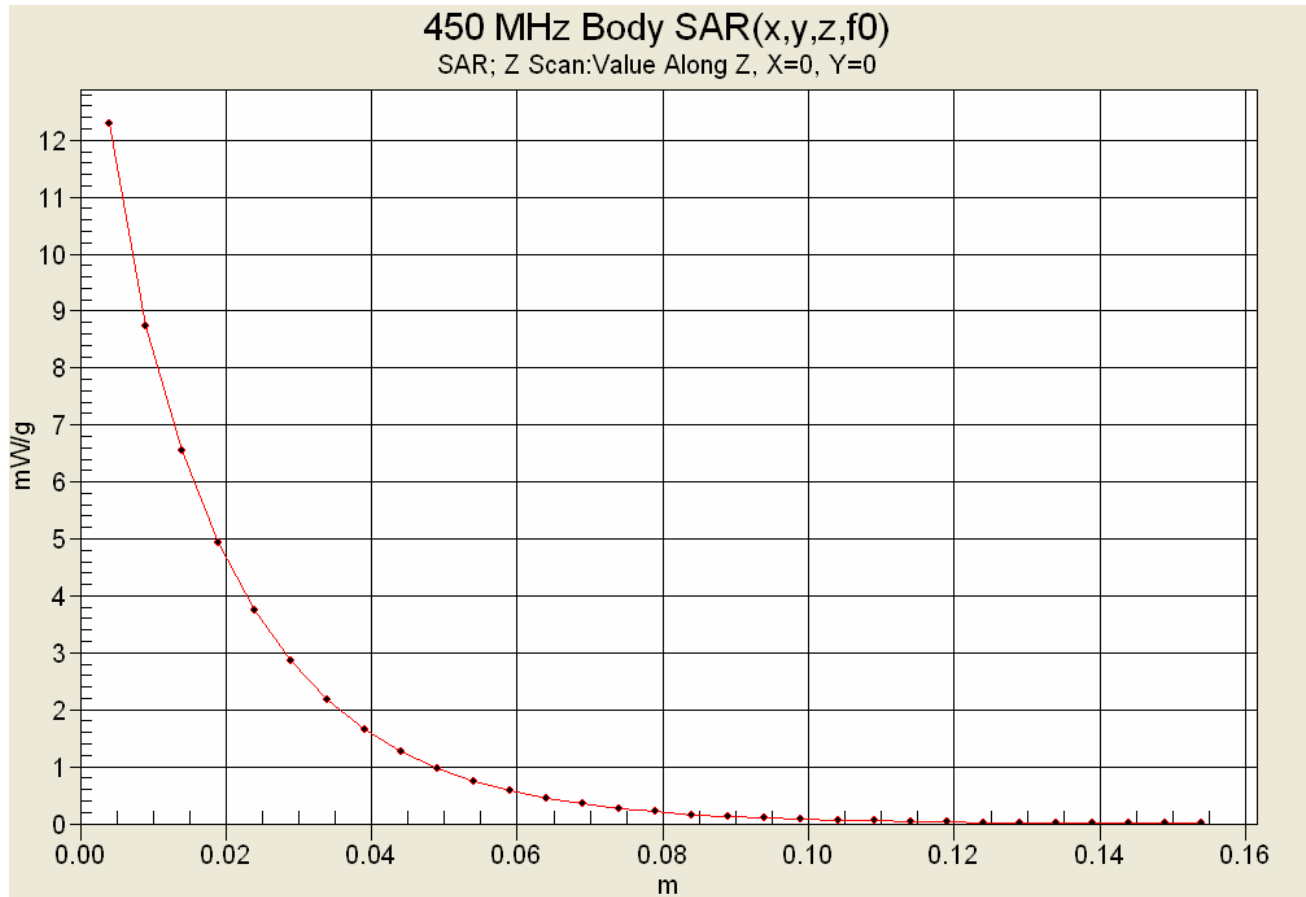
**SAR(1 g) = 12.1 mW/g; SAR(10 g) 8.77 mW/g**

Maximum value of SAR (measured) = 12.8 mW/g

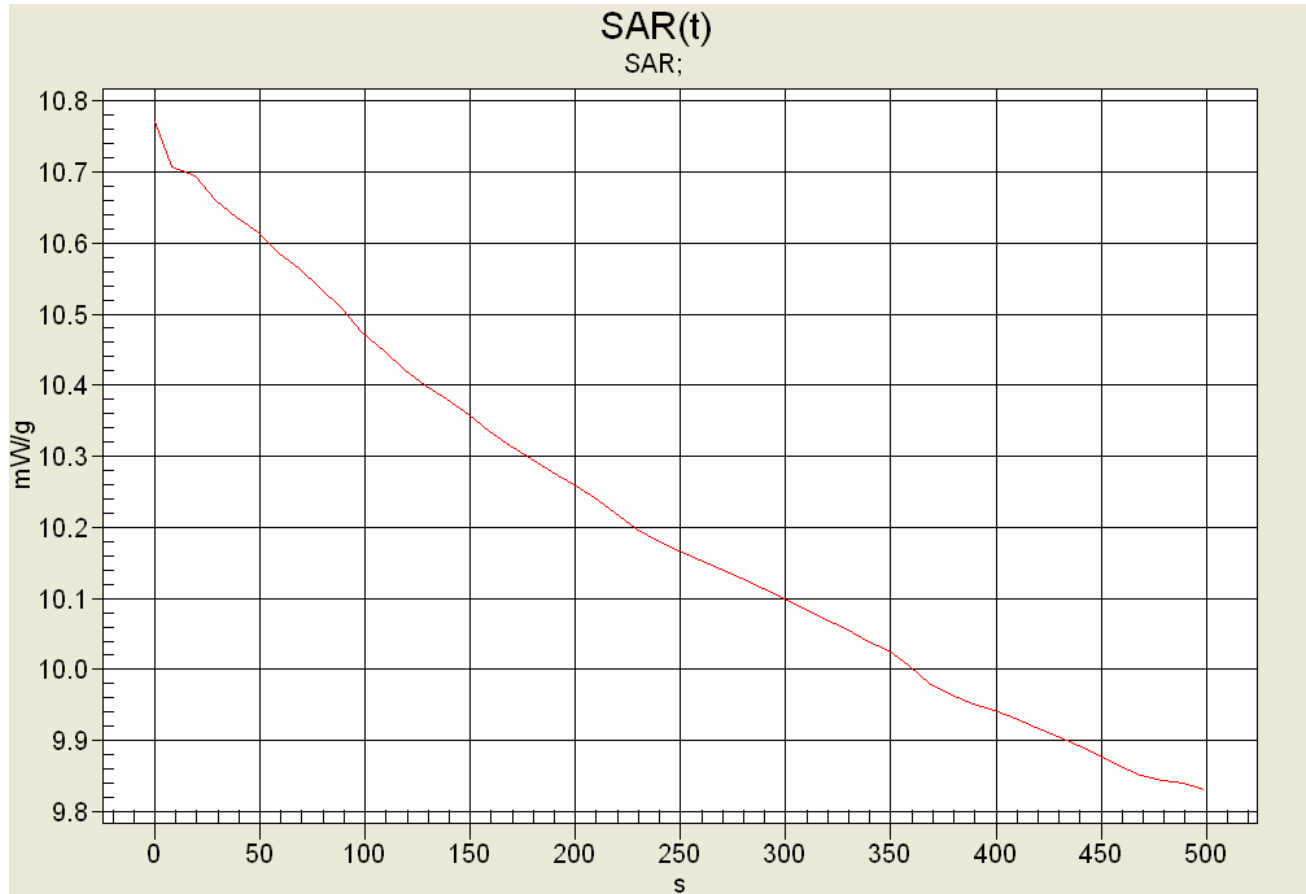


<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Z-Axis Scan



### SAR Droop Evaluation (SAR-versus-Time)



**SAR - 0s – 10.771 mW/g**  
**SAR - 340s – 10.039 mW/g (-0.306 dB)**  
**SAR - 500s – 9.831 mW/g (-0.397 dB)**

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## Body SAR Plot #6 (B6)

Date Tested: 08/31/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 512.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 23.0°C; Fluid Temp: 22.5°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 512 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 512 \text{ MHz}$ ;  $\sigma = 0.948 \text{ mho/m}$ ;  $\epsilon_r = 55.7$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 9.28 mW/g

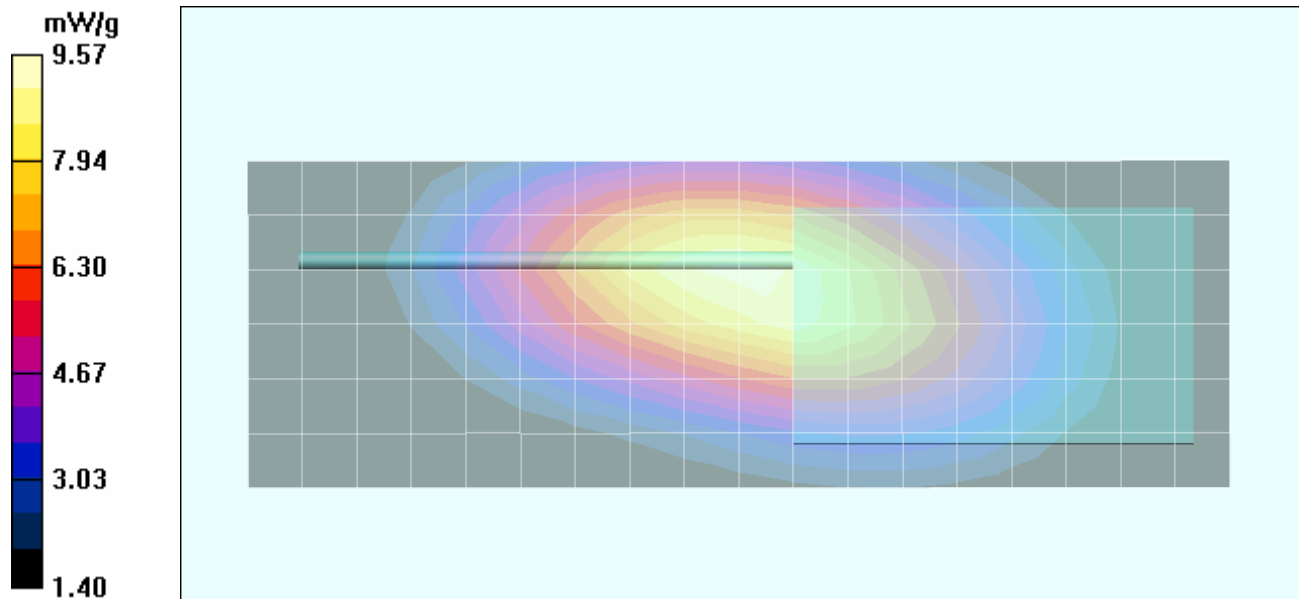
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 100.5 V/m; Power Drift = -0.405 dB

Peak SAR (extrapolated) = 13.1 W/kg



**SAR(1 g) = 9.11 mW/g; SAR(10 g) 6.57 mW/g**

Maximum value of SAR (measured) = 9.57 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Body SAR Plot #7 (B7)

Date Tested: 08/30/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 484.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 22.0°C; Fluid Temp: 22.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 484 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 484 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 54.7$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 10.1 mW/g

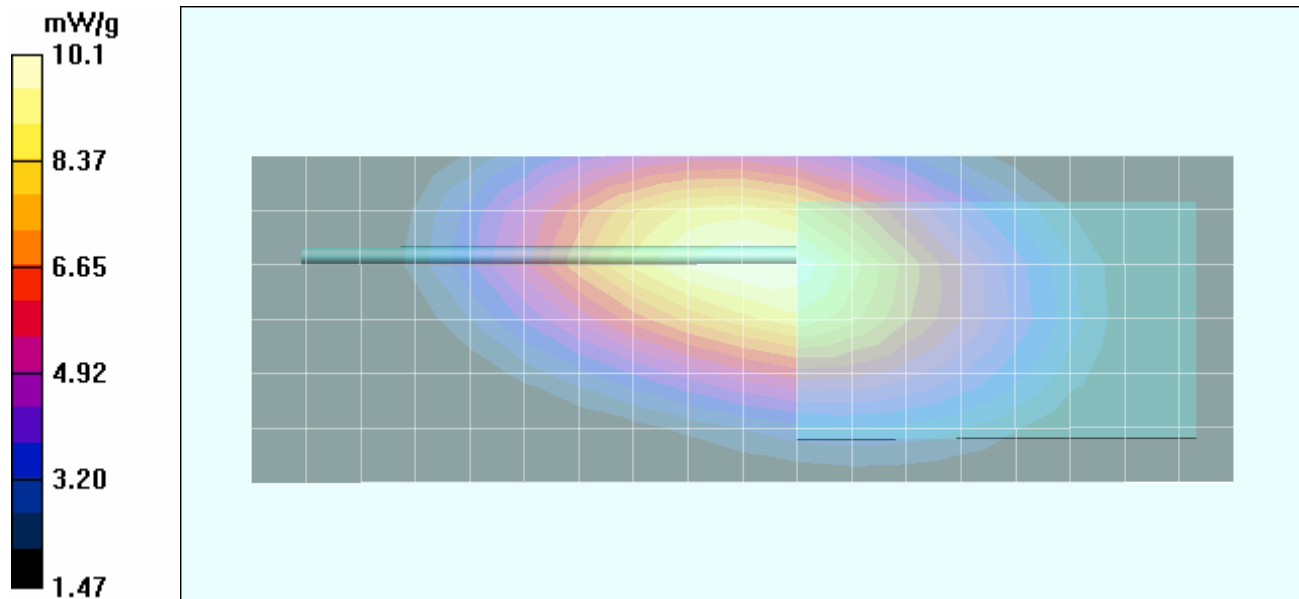
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 100.6 V/m; Power Drift = -0.324 dB

Peak SAR (extrapolated) = 13.9 W/kg

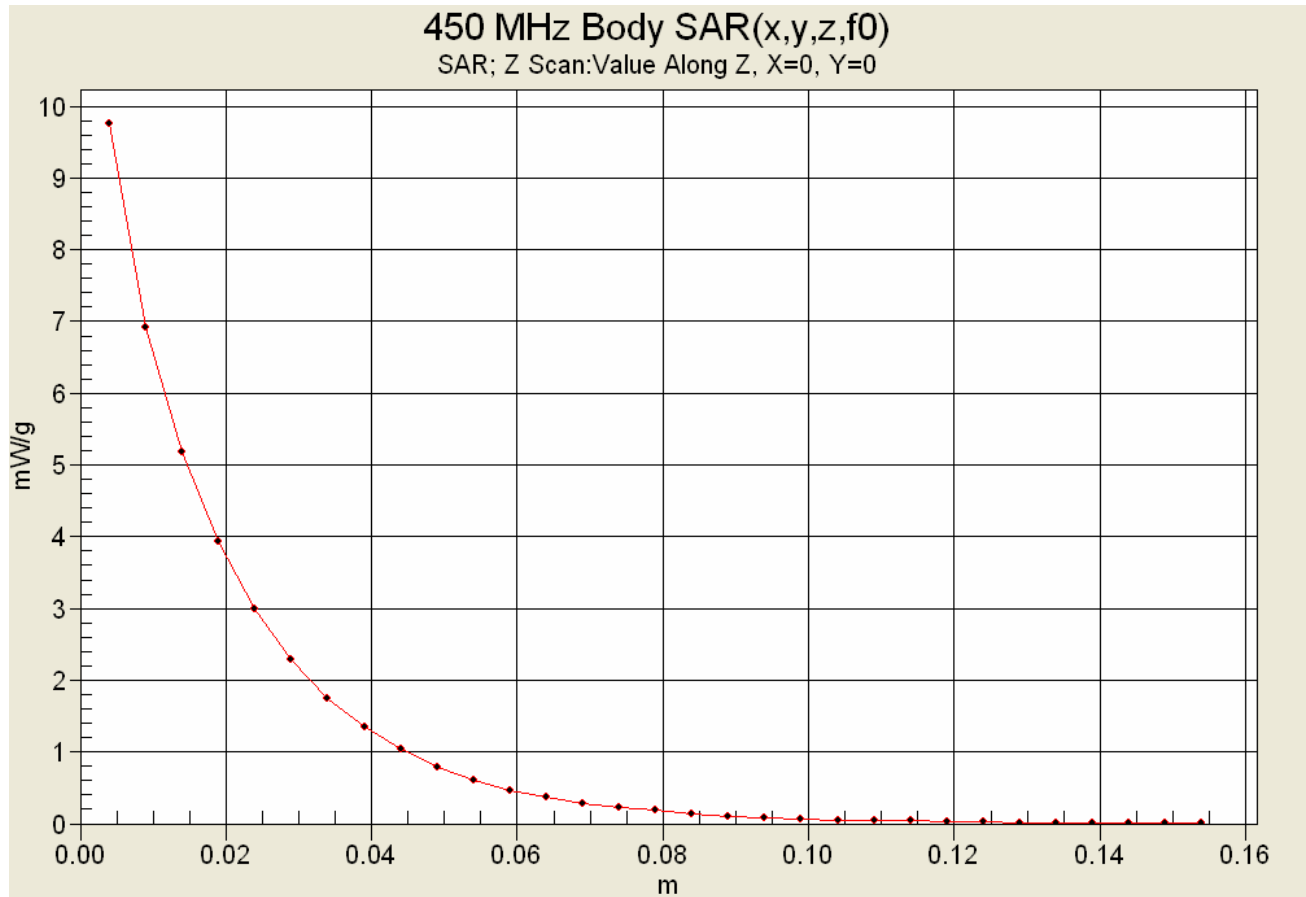
**SAR(1 g) = 9.56 mW/g; SAR(10 g) 6.91 mW/g**



Maximum value of SAR (measured) = 10.1 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Z-Axis Scan



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## Body SAR Plot #8 (B8)

Date Tested: 08/31/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 470.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 23.0°C; Fluid Temp: 22.5°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 55.9$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 7.89 mW/g

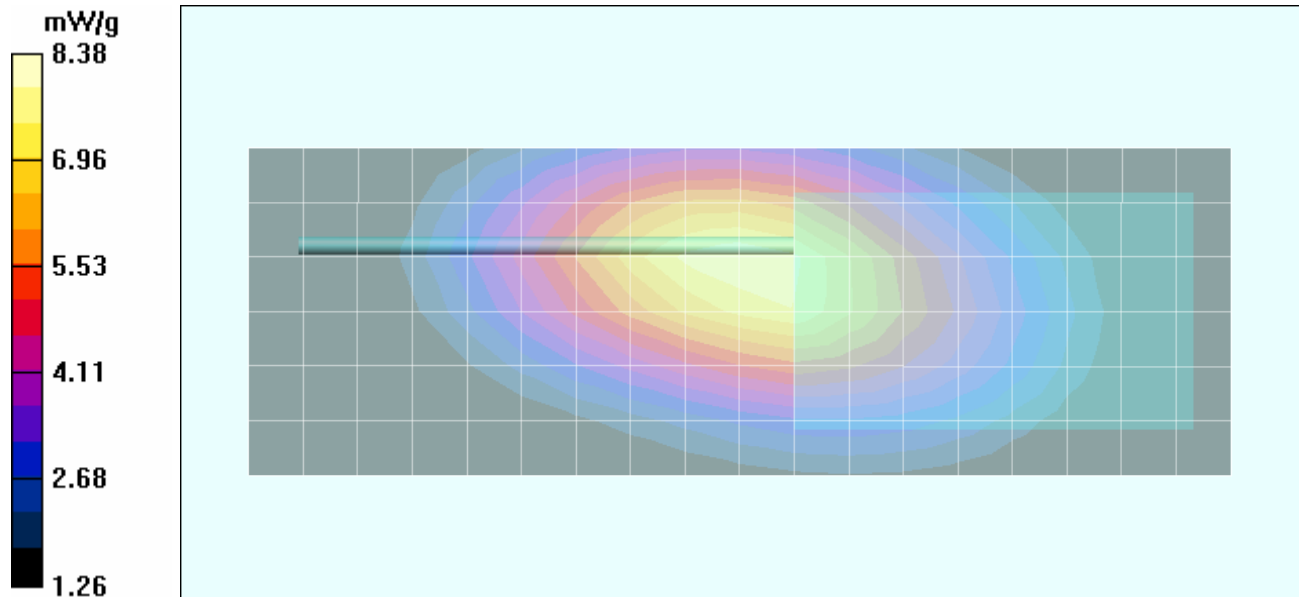
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 95.1 V/m; Power Drift = -0.267 dB



Peak SAR (extrapolated) = 11.5 W/kg

**SAR(1 g) = 8 mW/g; SAR(10 g) 5.79 mW/g**

Maximum value of SAR (measured) = 8.38 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5		
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Body SAR Plot #9 (B9)

Date Tested: 08/31/2010

### Body-Worn SAR - 2400mAh Ext. Battery FNB-V113LI (b) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 23.0°C; Fluid Temp: 22.5°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498$  MHz;  $\sigma = 0.948$  mho/m;  $\epsilon_r = 55.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DAS4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.2 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 8.97 mW/g

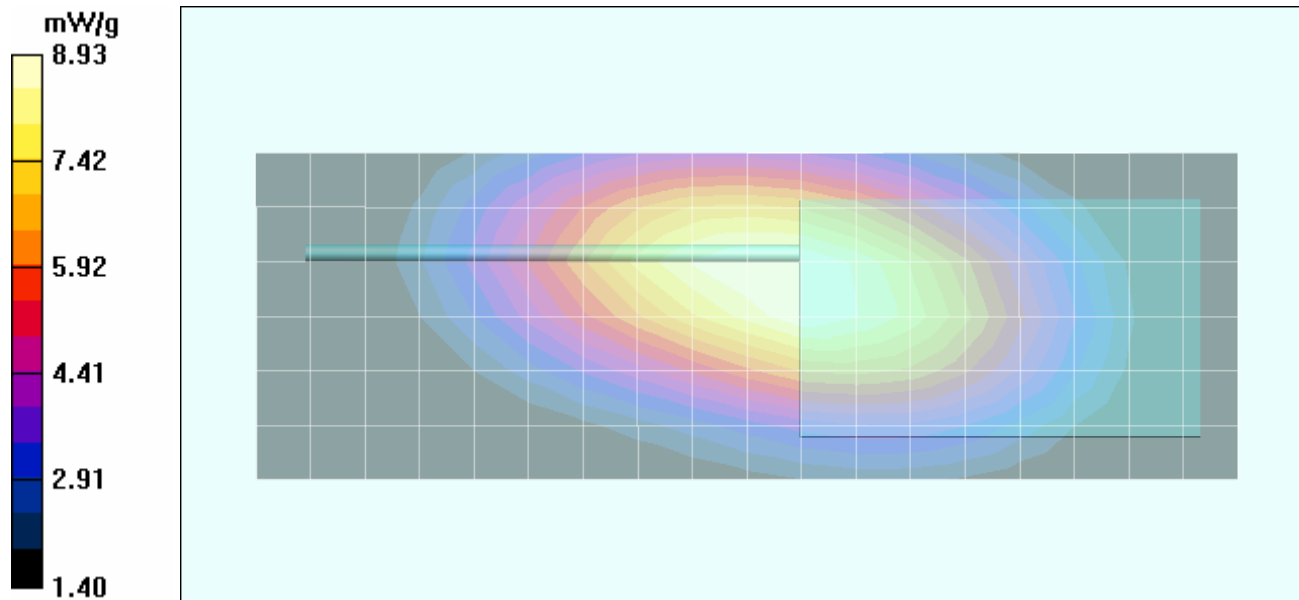
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm


Reference Value = 98.5 V/m; Power Drift = -0.256 dB



Peak SAR (extrapolated) = 12.1 W/kg

**SAR(1 g) = 8.51 mW/g; SAR(10 g) 6.16 mW/g**

Maximum value of SAR (measured) = 8.93 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5		
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Audio Accessory SAR Plot #1 (A1)

Date Tested: 09/09/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16D (A) - 470.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Headset P/N: VH-215S**

Ambient Temp: 23.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 56.6$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 9.48 mW/g

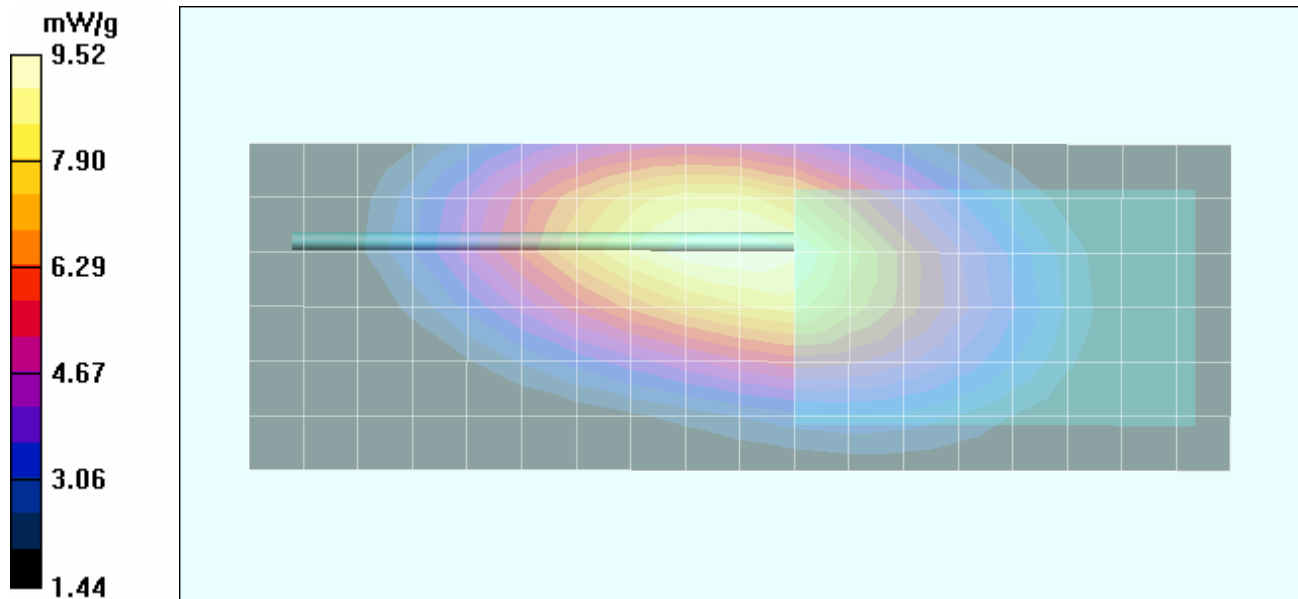
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 97.3 V/m; Power Drift = -0.206 dB



Peak SAR (extrapolated) = 13.1 W/kg

**SAR(1 g) = 9.12 mW/g; SAR(10 g) 6.61 mW/g**

Maximum value of SAR (measured) = 9.52 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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## Audio Accessory SAR Plot #2 (A2)

Date Tested: 09/09/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16D (A) - 470.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Earpiece P/N: VH-120S**

Ambient Temp: 23.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 56.6$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 8.75 mW/g

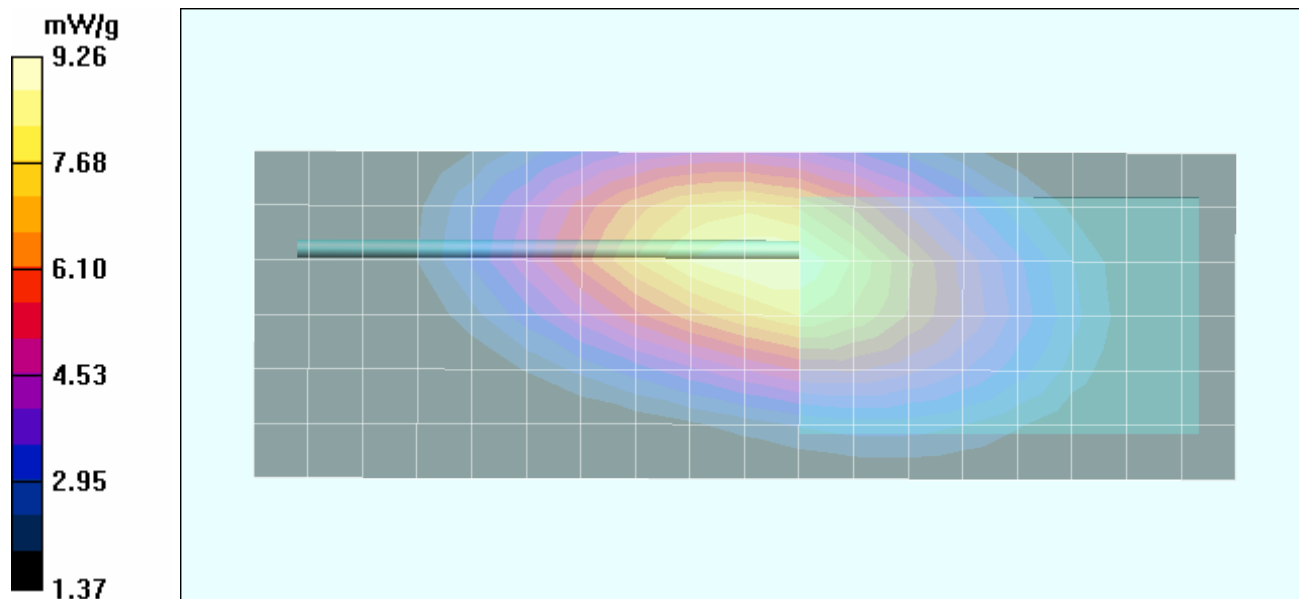
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 91.9 V/m; Power Drift = 0.232 dB



Peak SAR (extrapolated) = 12.8 W/kg

**SAR(1 g) = 8.85 mW/g; SAR(10 g) 6.35 mW/g**

Maximum value of SAR (measured) = 9.26 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

### Audio Accessory SAR Plot #3 (A3)

Date Tested: 09/09/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16D (A) - 470.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Speaker-Microphone P/N: MH-45B4B**

Ambient Temp: 23.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 56.6$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 8.64 mW/g

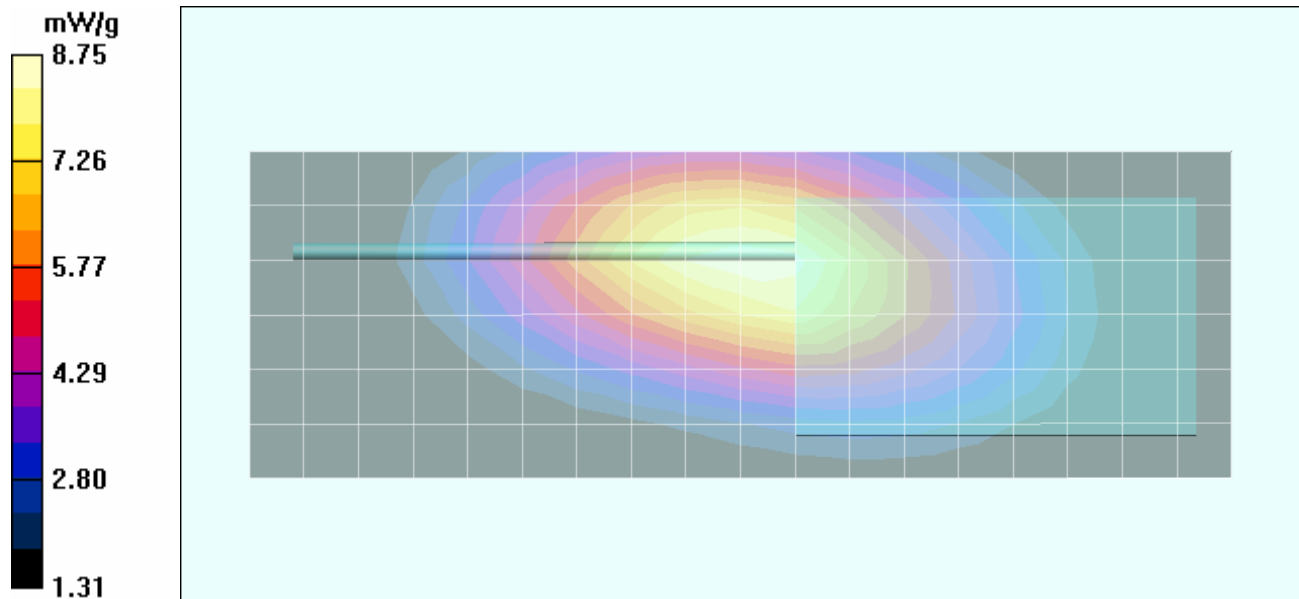
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 94.4 V/m; Power Drift = -0.207 dB



Peak SAR (extrapolated) = 12.0 W/kg

**SAR(1 g) = 8.33 mW/g; SAR(10 g) 6 mW/g**

Maximum value of SAR (measured) = 8.75 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Audio Accessory SAR Plot #4 (A4)

Date Tested: 09/10/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Headset P/N: VH-215S**

Ambient Temp: 24.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.966 \text{ mho/m}$ ;  $\epsilon_r = 56.5$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 11.0 mW/g

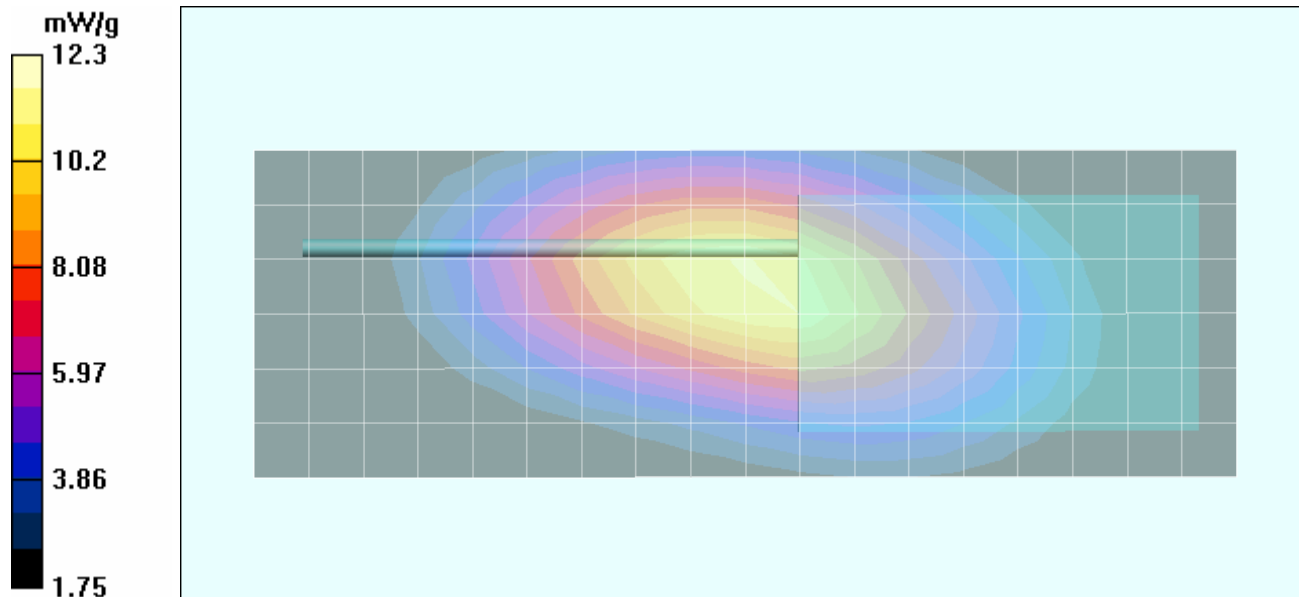
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 115.3 V/m; Power Drift = -0.409 dB

Peak SAR (extrapolated) = 16.9 W/kg

**SAR(1 g) = 11.7 mW/g; SAR(10 g) 8.45 mW/g**

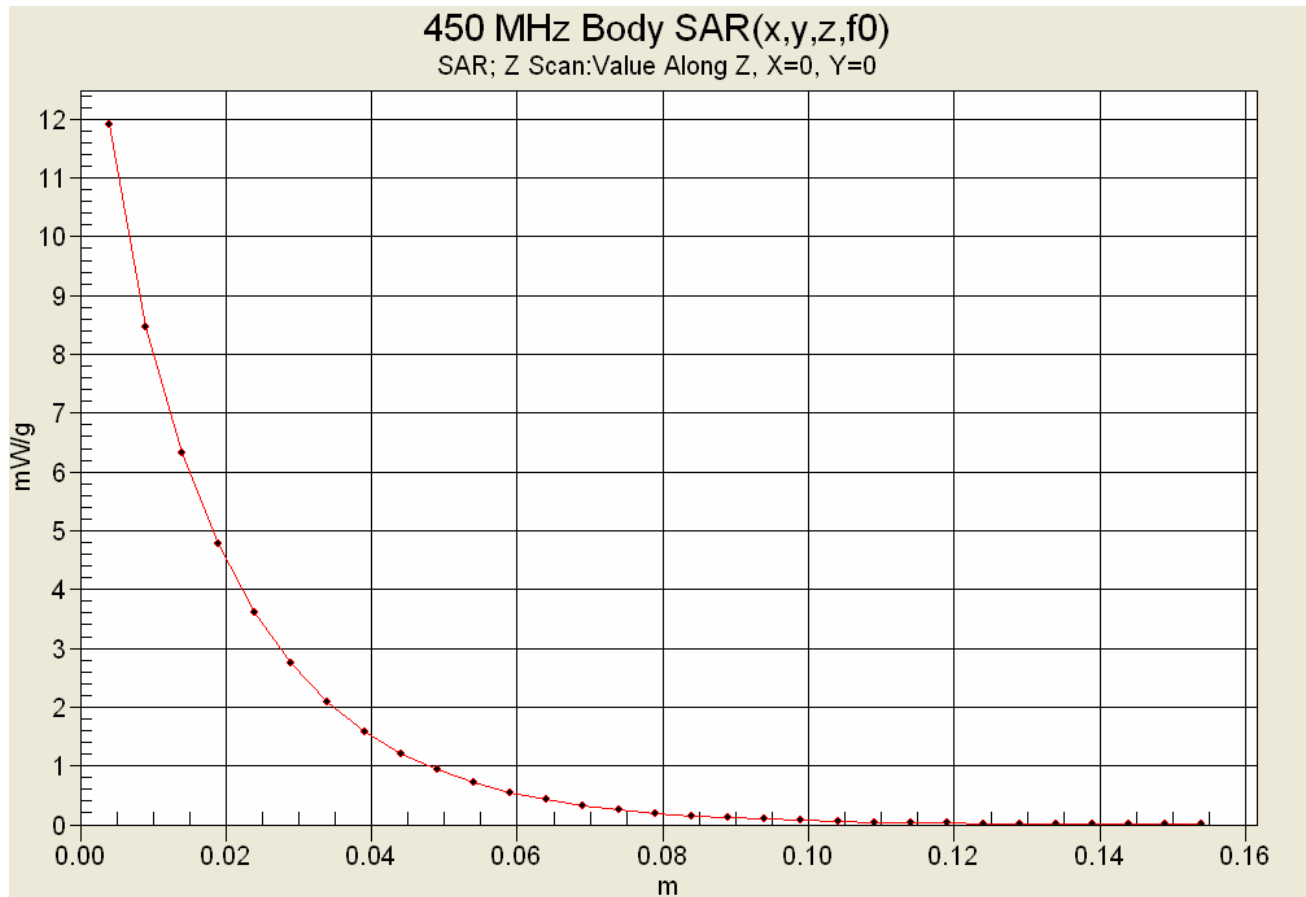
Maximum value of SAR (measured) = 12.3 mW/g





<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Z-Axis Scan



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## Audio Accessory SAR Plot #5 (A5)

Date Tested: 09/09/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 484.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Headset P/N: VH-215S**

Ambient Temp: 23.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 484 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 484 \text{ MHz}$ ;  $\sigma = 0.938 \text{ mho/m}$ ;  $\epsilon_r = 57$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 9.81 mW/g

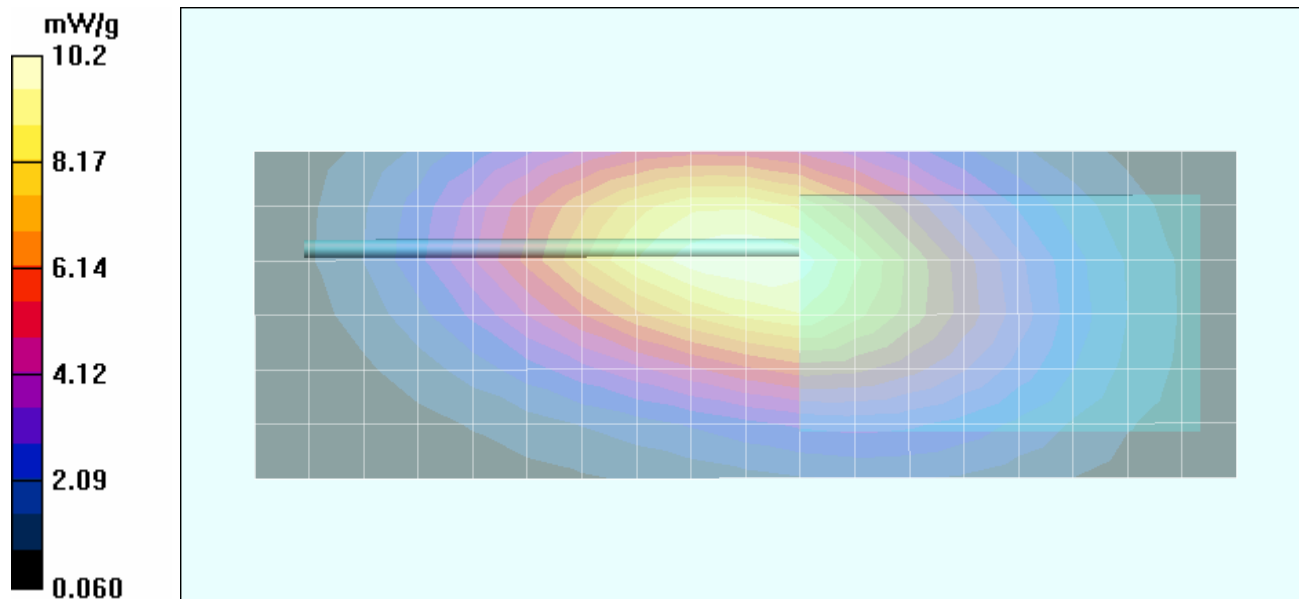
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 97.2 V/m; Power Drift = -0.153 dB



Peak SAR (extrapolated) = 13.5 W/kg

**SAR(1 g) = 9.35 mW/g; SAR(10 g) 6.73 mW/g**

Maximum value of SAR (measured) = 10.2 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Audio Accessory SAR Plot #6 (A6)

Date Tested: 09/10/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 512.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Headset P/N: VH-215S**

Ambient Temp: 24.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 512 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 512 \text{ MHz}$ ;  $\sigma = 0.978 \text{ mho/m}$ ;  $\epsilon_r = 56.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 7.91 mW/g

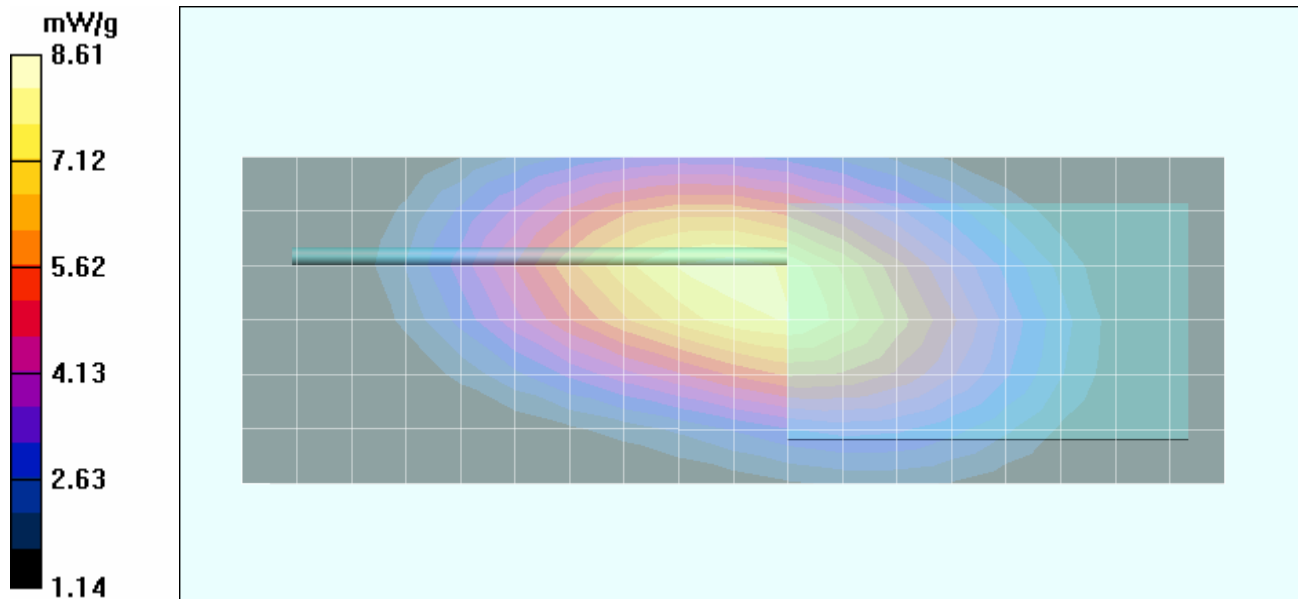
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 95.6 V/m; Power Drift = -0.407 dB



Peak SAR (extrapolated) = 11.9 W/kg

**SAR(1 g) = 8.22 mW/g; SAR(10 g) 5.89 mW/g**

Maximum value of SAR (measured) = 8.61 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Audio Accessory SAR Plot #7 (A7)

Date Tested: 09/10/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Earpiece P/N: VH-120S**

Ambient Temp: 24.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.966 \text{ mho/m}$ ;  $\epsilon_r = 56.5$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 11.1 mW/g

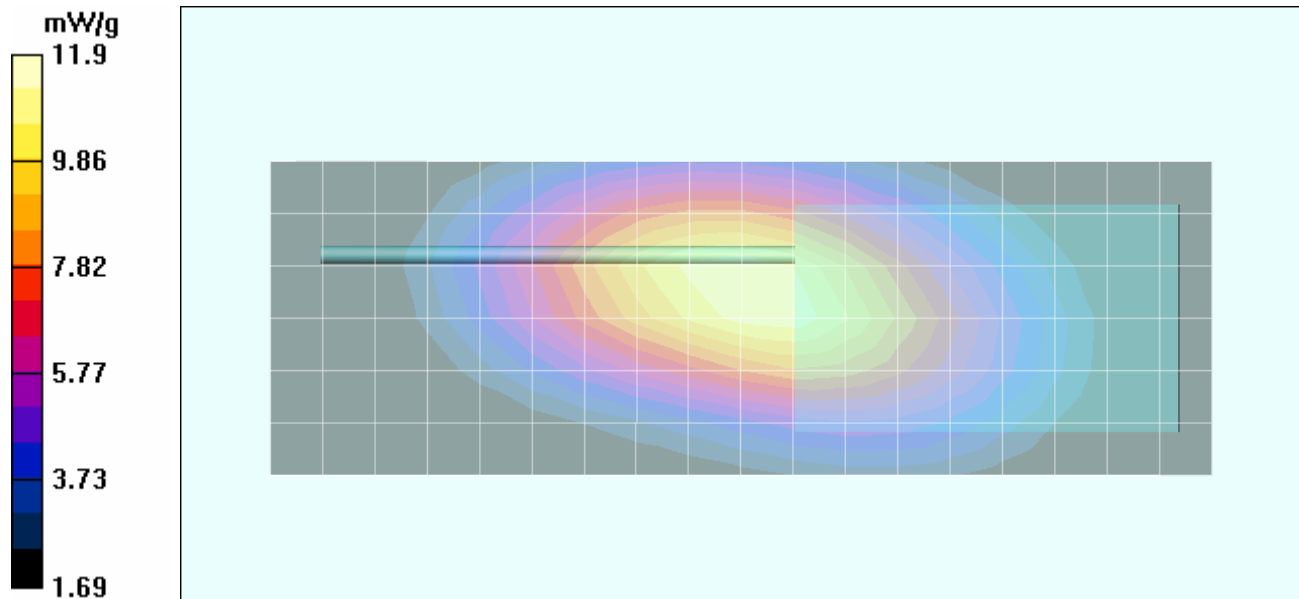
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 113.1 V/m; Power Drift = -0.436 dB



Peak SAR (extrapolated) = 16.4 W/kg

**SAR(1 g) = 11.3 mW/g; SAR(10 g) 8.13 mW/g**

Maximum value of SAR (measured) = 11.9 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Audio Accessory SAR Plot #8 (A8)

Date Tested: 09/09/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 484.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Earpiece P/N: VH-120S**

Ambient Temp: 23.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 484 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 484 \text{ MHz}$ ;  $\sigma = 0.938 \text{ mho/m}$ ;  $\epsilon_r = 57$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 9.87 mW/g

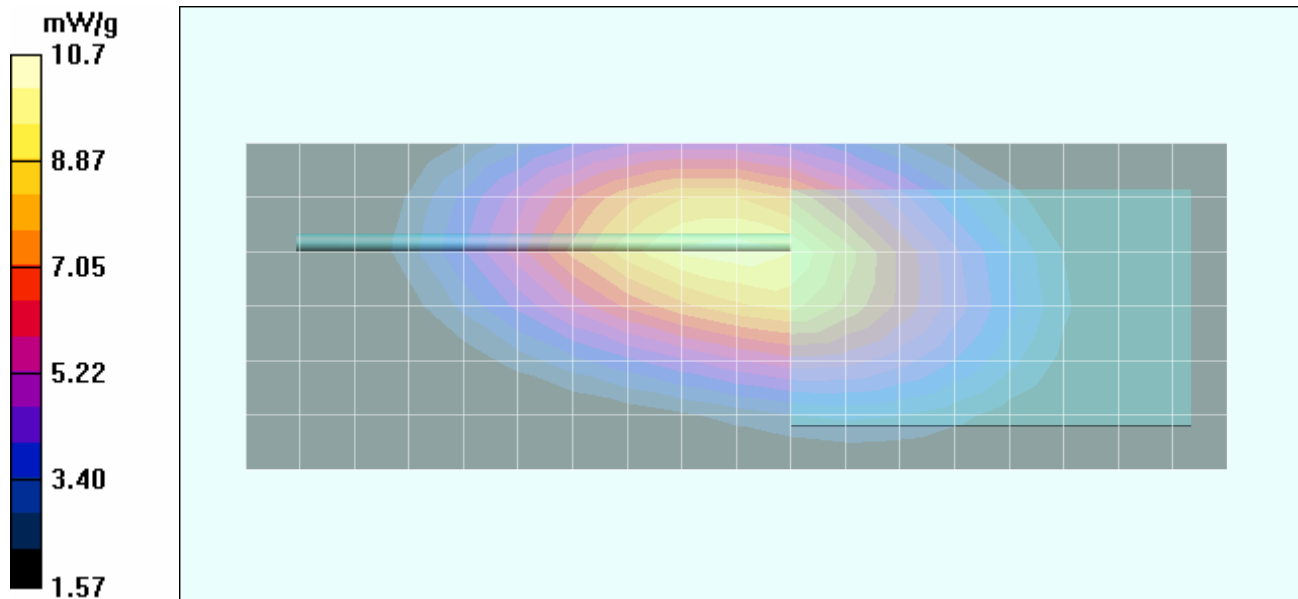
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 100.7 V/m; Power Drift = -0.180 dB

Peak SAR (extrapolated) = 14.6 W/kg

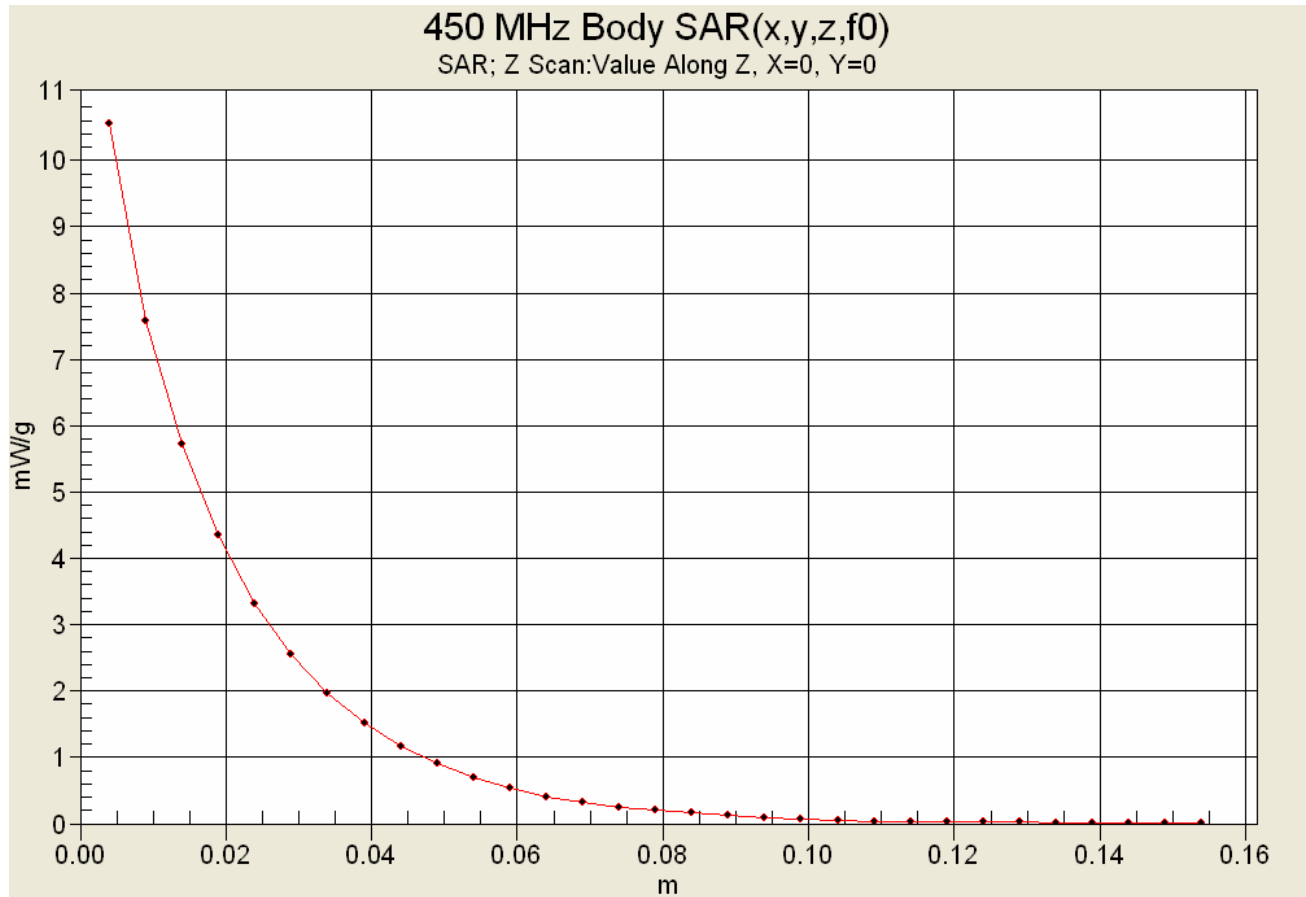
**SAR(1 g) = 10.1 mW/g; SAR(10 g) 7.24 mW/g**



Maximum value of SAR (measured) = 10.7 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Z-Axis Scan



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## Audio Accessory SAR Plot #9 (A9)

Date Tested: 09/10/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 512.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Earpiece P/N: VH-120S**

Ambient Temp: 24.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 512 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 512 \text{ MHz}$ ;  $\sigma = 0.978 \text{ mho/m}$ ;  $\epsilon_r = 56.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 8.28 mW/g

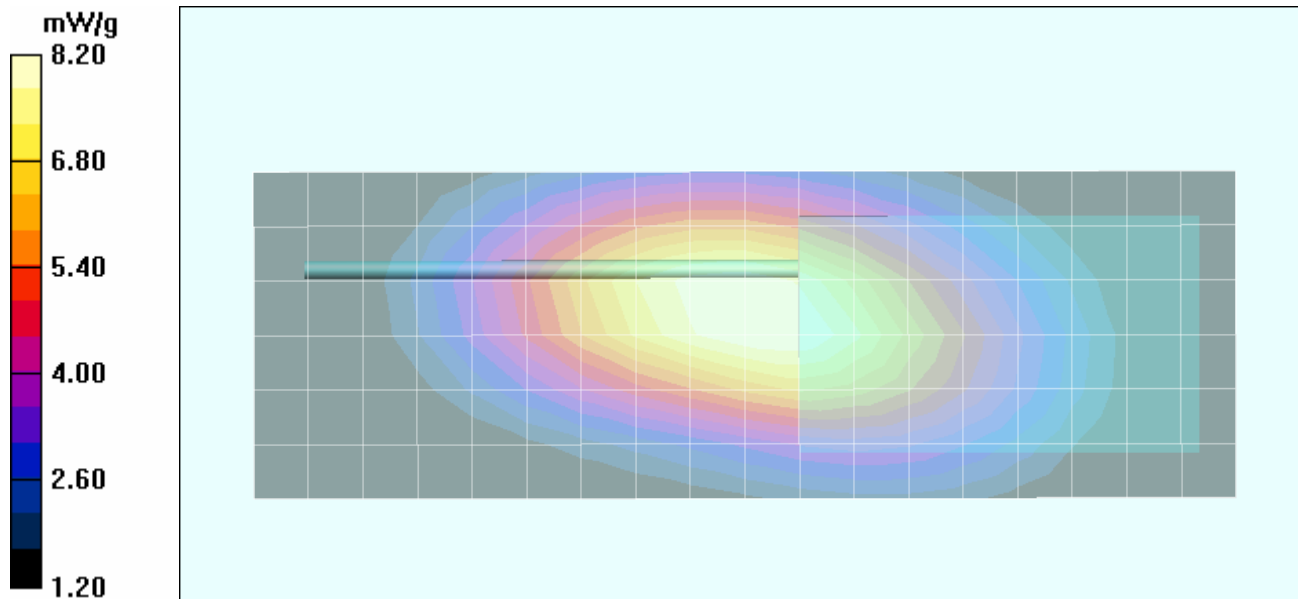
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 93.4 V/m; Power Drift = -0.347 dB



Peak SAR (extrapolated) = 11.3 W/kg

**SAR(1 g) = 7.81 mW/g; SAR(10 g) 5.6 mW/g**

Maximum value of SAR (measured) = 8.20 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Audio Accessory SAR Plot #10 (A10)

Date Tested: 09/10/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-459-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 01000005 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Speaker-Microphone P/N: MH-45B4B**

Ambient Temp: 24.0°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.966 \text{ mho/m}$ ;  $\epsilon_r = 56.5$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (8x14x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 10.6 mW/g

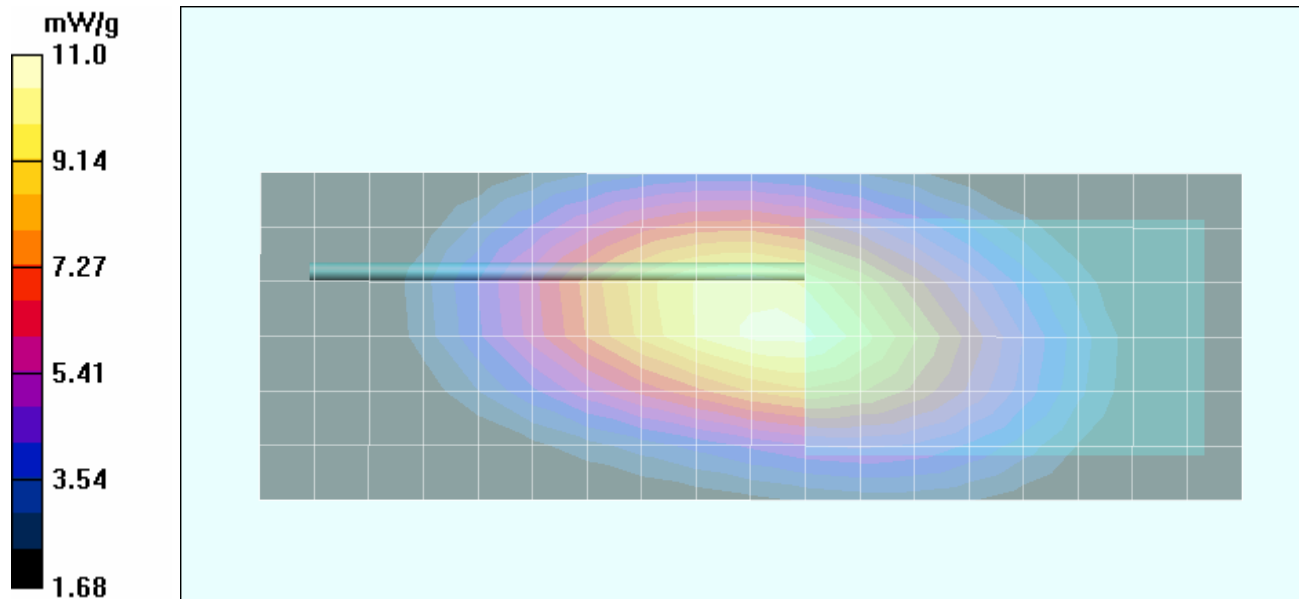
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 108.5 V/m; Power Drift = -0.343 dB

Peak SAR (extrapolated) = 15.1 W/kg



**SAR(1 g) = 10.5 mW/g; SAR(10 g) 7.54 mW/g**

Maximum value of SAR (measured) = 11.0 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5		
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Face SAR Plot #6 (F6)

Date Tested: 11/23/2010

### Face-held SAR - 2400mAh Ext. Battery FNB-V113LI (b) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-451-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0L000008 (Pre-production)**

Ambient Temp: 20.0°C; Fluid Temp: 20.4°C; Barometric Pressure: 101.1 kPa; Humidity: 40%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used (interpolated):  $f = 498$  MHz;  $\sigma = 0.87$  mho/m;  $\epsilon_r = 44$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: ET3DV6 - SN1590; ConvF(7.25, 7.25, 7.25); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x19x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 10.5 mW/g

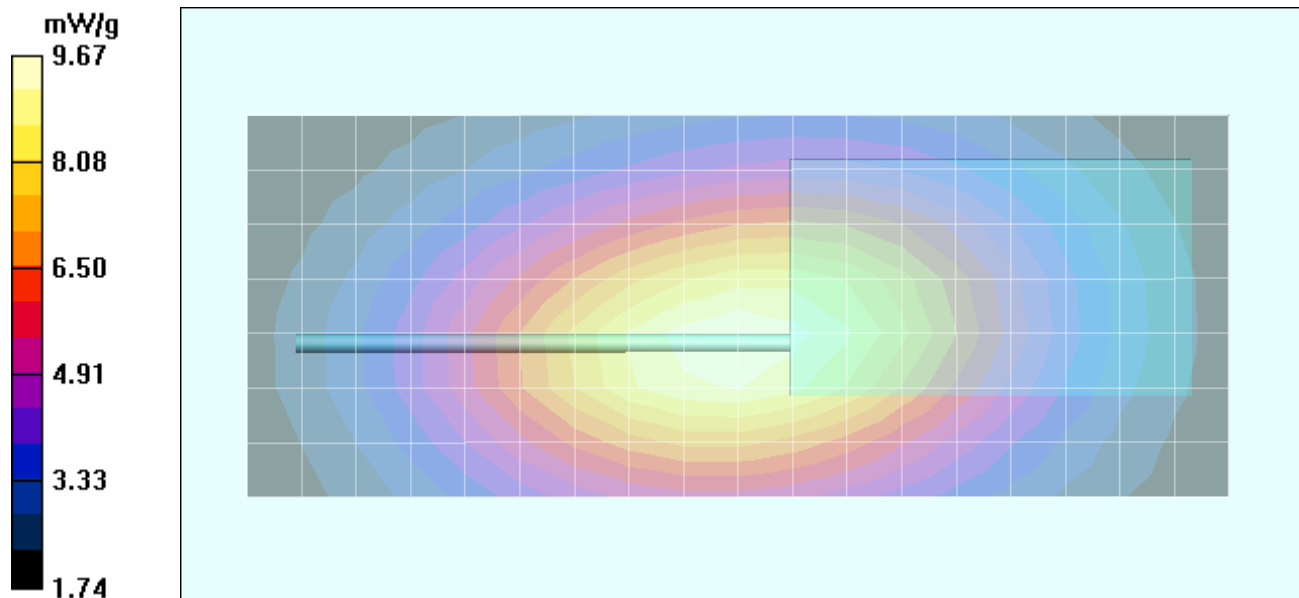
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm


Reference Value = 99.2 V/m; Power Drift = -0.217 dB



Peak SAR (extrapolated) = 12.5 W/kg

**SAR(1 g) = 9.24 mW/g; SAR(10 g) = 6.9 mW/g**

Maximum value of SAR (measured) = 9.67 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Face SAR Plot #7 (F7)

Date Tested: 11/23/2010

### Face-held SAR - 2400mAh Ext. Battery FNB-V113LI (b) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-454-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0L000009 (Pre-production)**

Ambient Temp: 20.0°C; Fluid Temp: 20.4°C; Barometric Pressure: 101.1 kPa; Humidity: 40%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used (interpolated):  $f = 498$  MHz;  $\sigma = 0.87$  mho/m;  $\epsilon_r = 44$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: ET3DV6 - SN1590; ConvF(7.25, 7.25, 7.25); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x19x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 10.3 mW/g

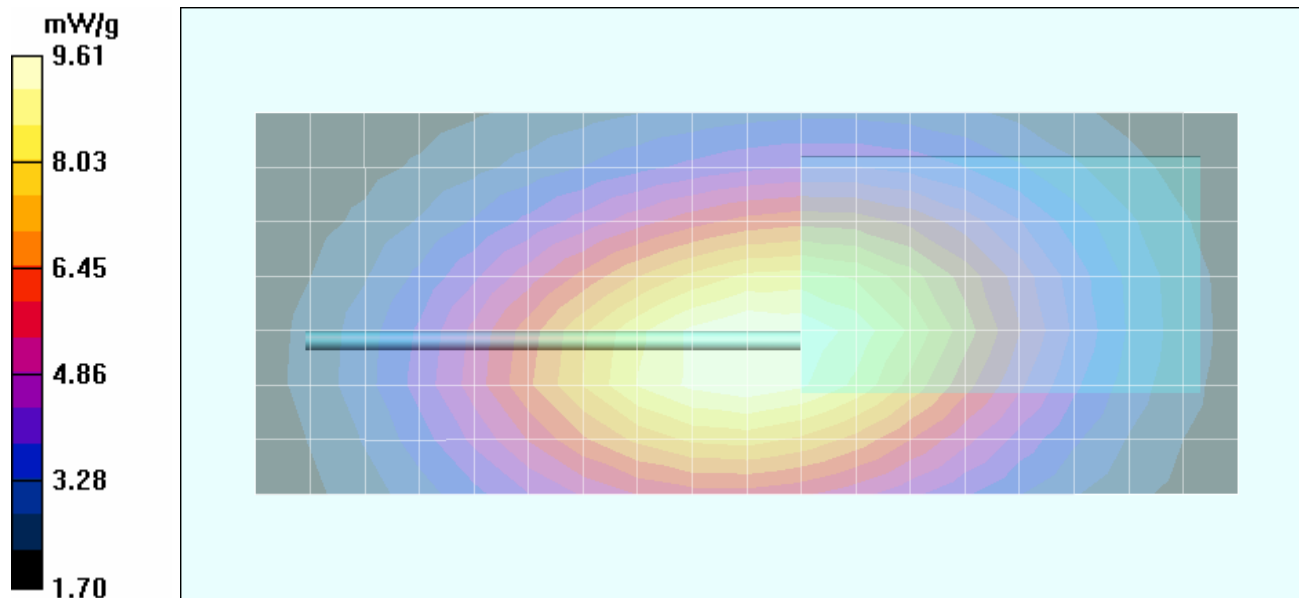
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm


Reference Value = 100.5 V/m; Power Drift = -0.307 dB

Peak SAR (extrapolated) = 12.4 W/kg

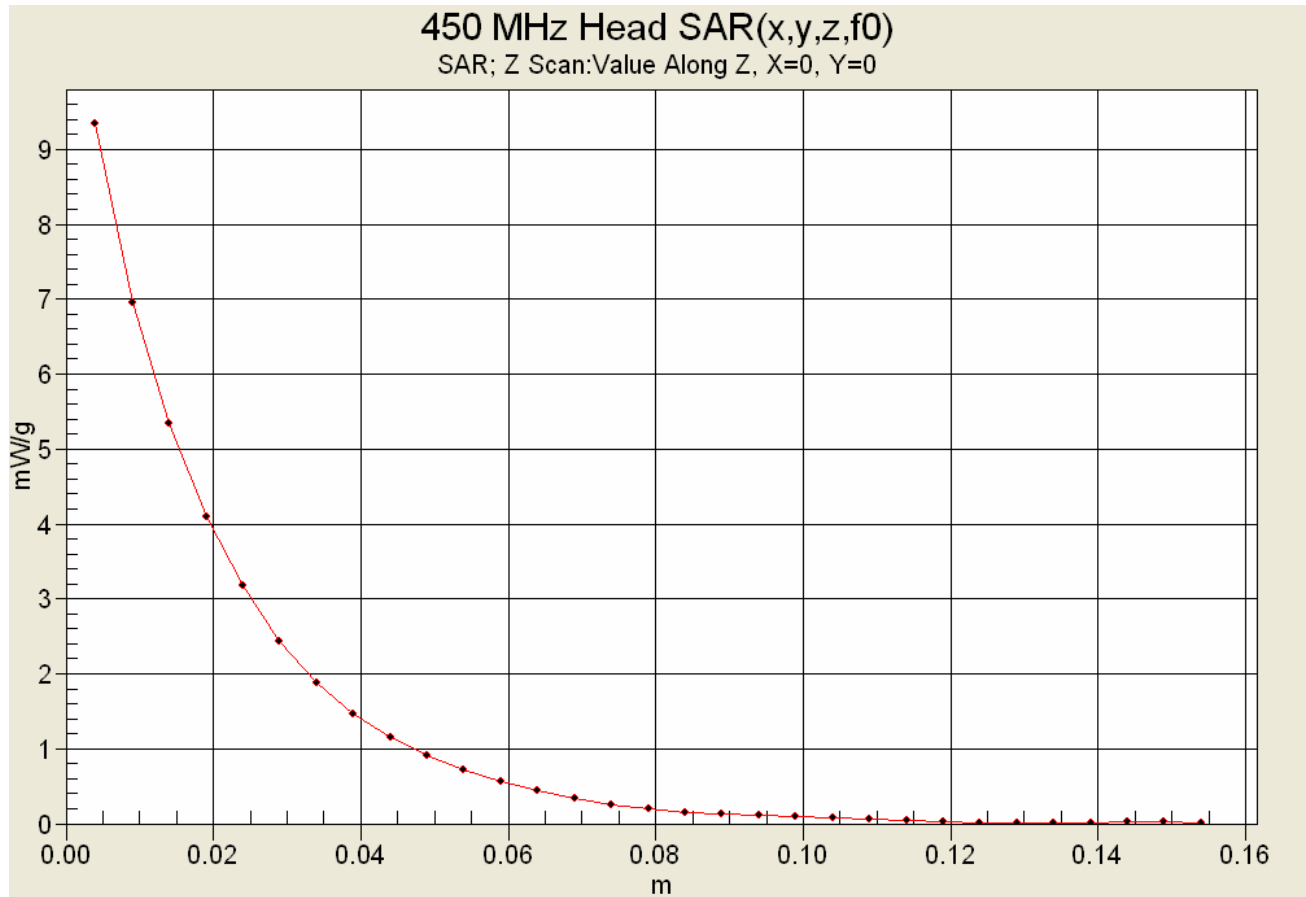
**SAR(1 g) = 9.19 mW/g; SAR(10 g) = 6.86 mW/g**



Maximum value of SAR (measured) = 9.61 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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## Z-Axis Scan



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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Body SAR Plot #10 (B10)

Date Tested: 11/23/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-451-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0L000008 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 20.0°C; Fluid Temp: 20.2°C; Barometric Pressure: 101.1 kPa; Humidity: 40%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 58.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.2 mW/g

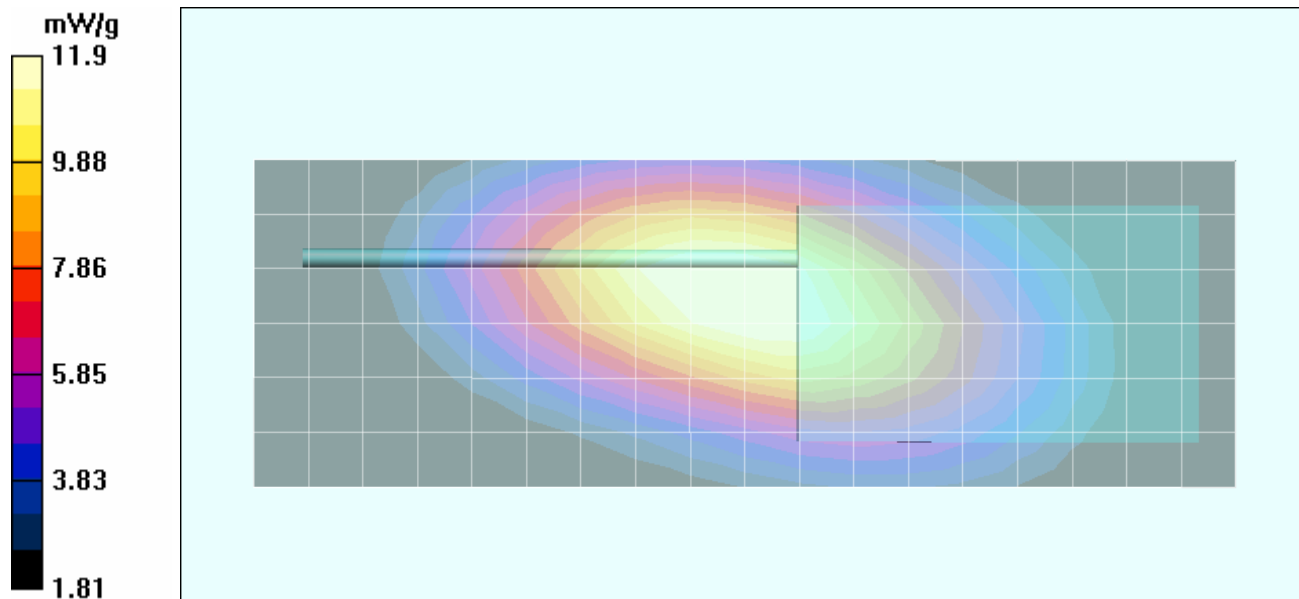
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 116.2 V/m; Power Drift = -0.247 dB



Peak SAR (extrapolated) = 16.3 W/kg

**SAR(1 g) = 11.5 mW/g; SAR(10 g) 8.38 mW/g**

Maximum value of SAR (measured) = 11.9 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Body SAR Plot #11 (B11)

Date Tested: 11/23/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-454-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0L000009 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: None**

Ambient Temp: 20.0°C; Fluid Temp: 20.2°C; Barometric Pressure: 101.1 kPa; Humidity: 40%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 58.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.0 mW/g

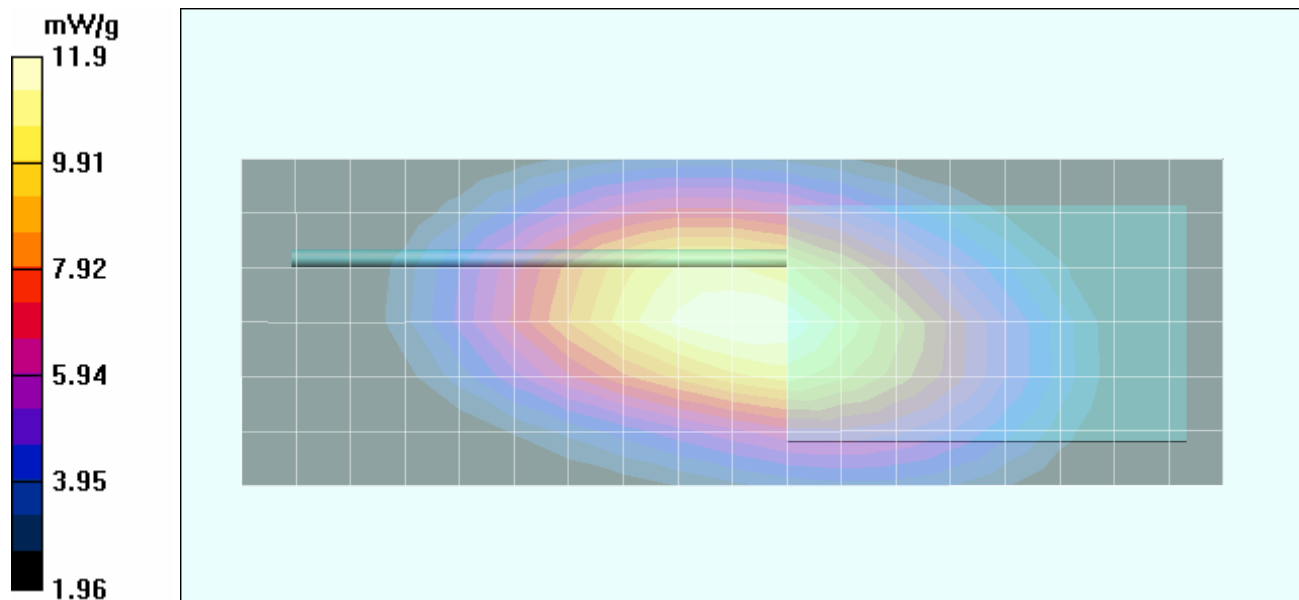
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 118.1 V/m; Power Drift = -0.413 dB

Peak SAR (extrapolated) = 16.3 W/kg

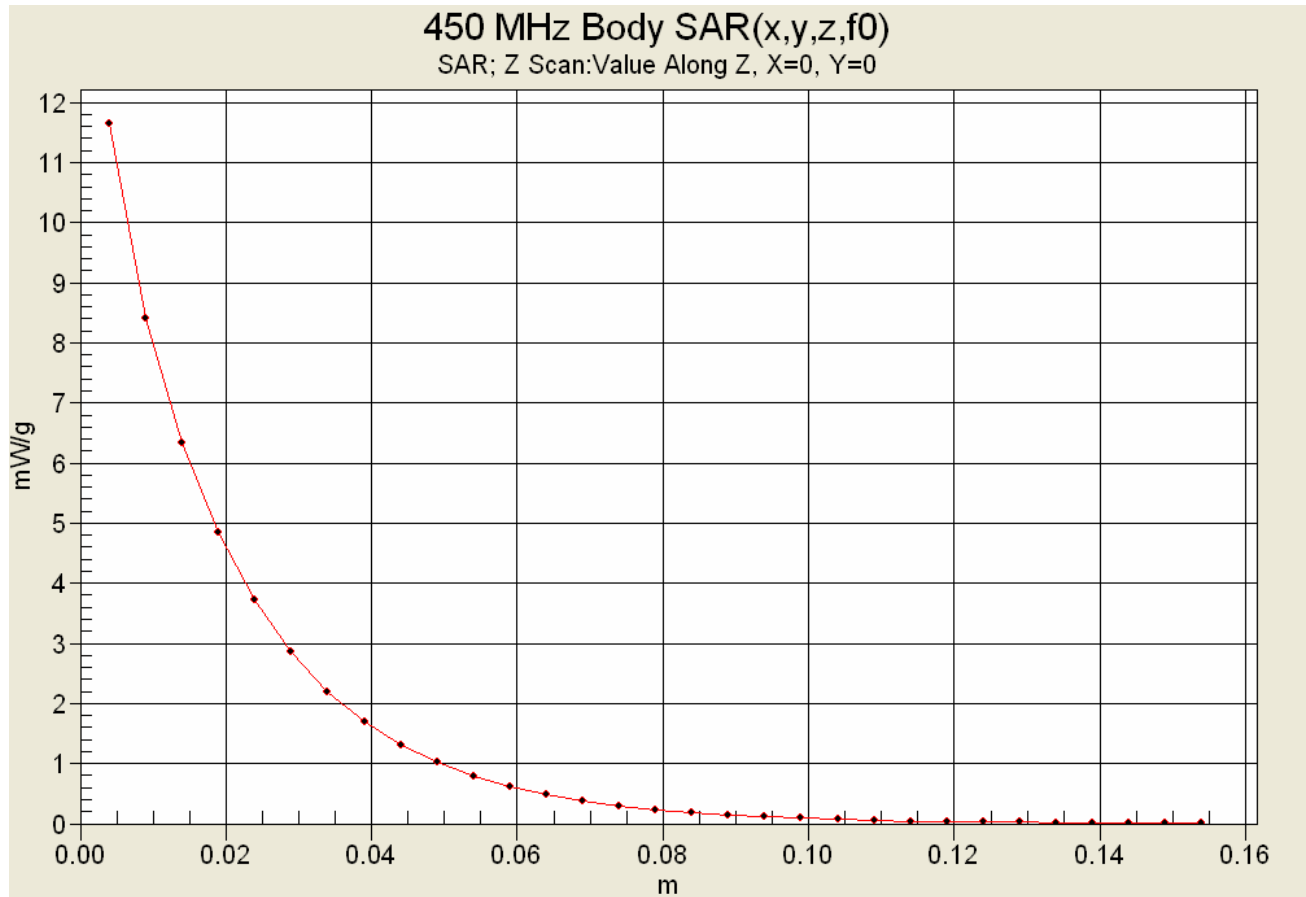
**SAR(1 g) = 11.4 mW/g; SAR(10 g) 8.31 mW/g**

Maximum value of SAR (measured) = 11.9 mW/g

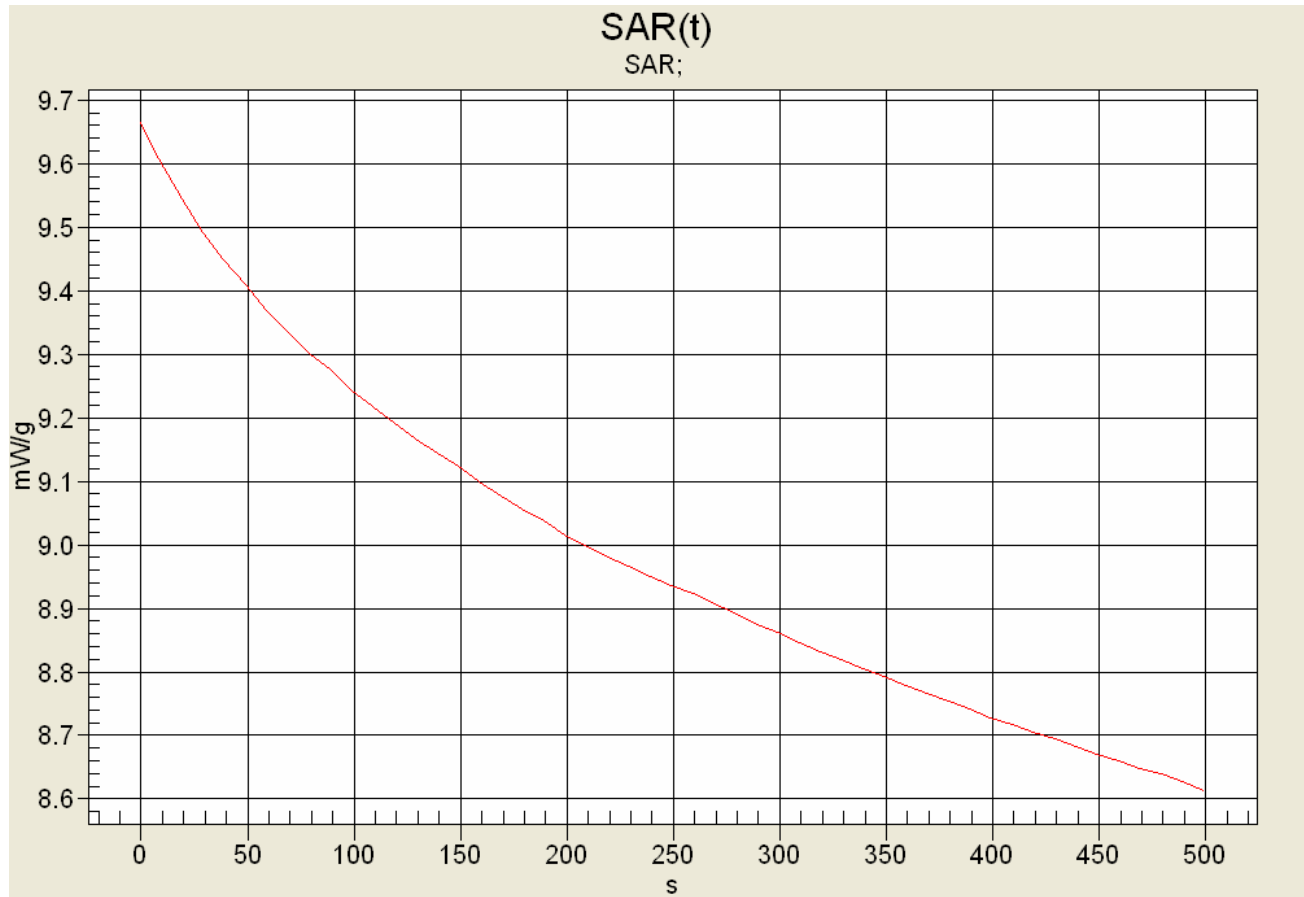


<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Z-Axis Scan



### SAR Droop Evaluation (SAR-versus-Time)



**SAR 0s = 9.664 mW/g**  
**SAR 340s = 8.804 mW/g (-0.405 dB)**  
**SAR 500s = 8.614 mW/g (-0.500 dB)**

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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Audio Accessory SAR Plot #11 (A11)

Date Tested: 11/23/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-451-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0L000008 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Headset P/N: VH-215S**

Ambient Temp: 20.0°C; Fluid Temp: 20.2°C; Barometric Pressure: 101.1 kPa; Humidity: 40%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 58.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.1 mW/g

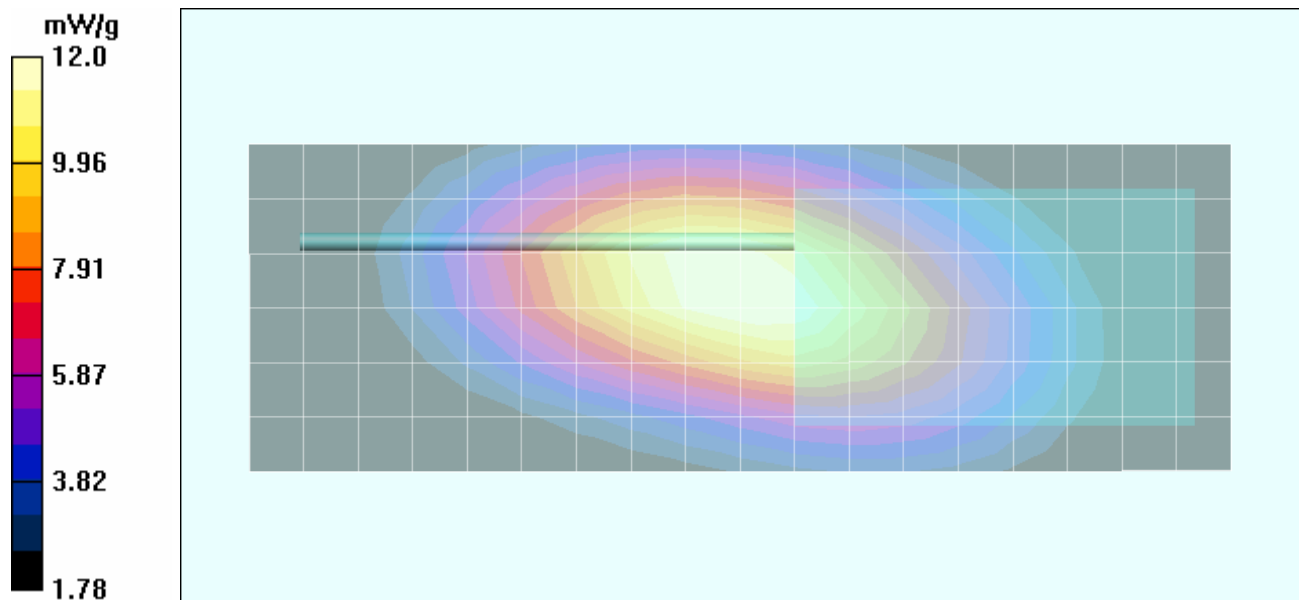
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 116.2 V/m; Power Drift = -0.367 dB

Peak SAR (extrapolated) = 16.4 W/kg



**SAR(1 g) = 11.5 mW/g; SAR(10 g) 8.39 mW/g**

Maximum value of SAR (measured) = 12.0 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Audio Accessory SAR Plot #12 (A12)

Date Tested: 11/23/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-454-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0L000009 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Headset P/N: VH-215S**

Ambient Temp: 20.0°C; Fluid Temp: 20.2°C; Barometric Pressure: 101.1 kPa; Humidity: 40%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 58.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DAS4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.0 mW/g

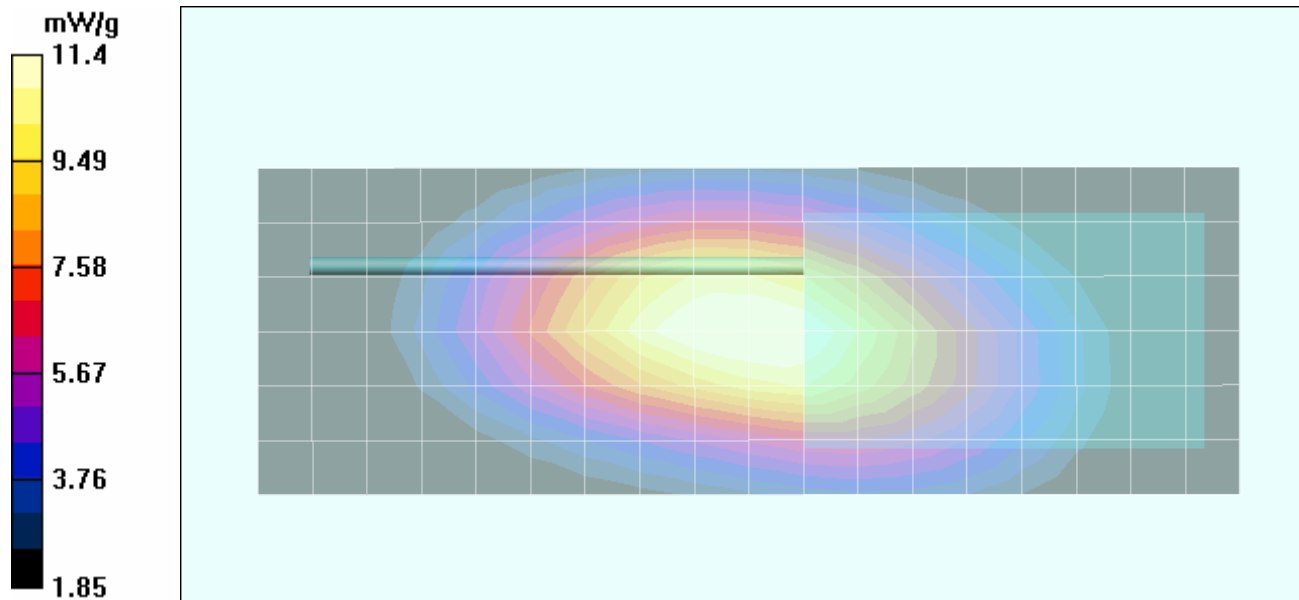
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 114.3 V/m; Power Drift = -0.375 dB



Peak SAR (extrapolated) = 15.6 W/kg

**SAR(1 g) = 10.9 mW/g; SAR(10 g) 7.89 mW/g**

Maximum value of SAR (measured) = 11.4 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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	<u>Test Report Issue Date</u> November 24, 2010	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Audio Accessory SAR Plot #13 (A13)

Date Tested: 11/23/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-451-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0L000008 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Earpiece P/N: VH-120S**

Ambient Temp: 20.0°C; Fluid Temp: 20.2°C; Barometric Pressure: 101.1 kPa; Humidity: 40%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 58.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DAS4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.0 mW/g

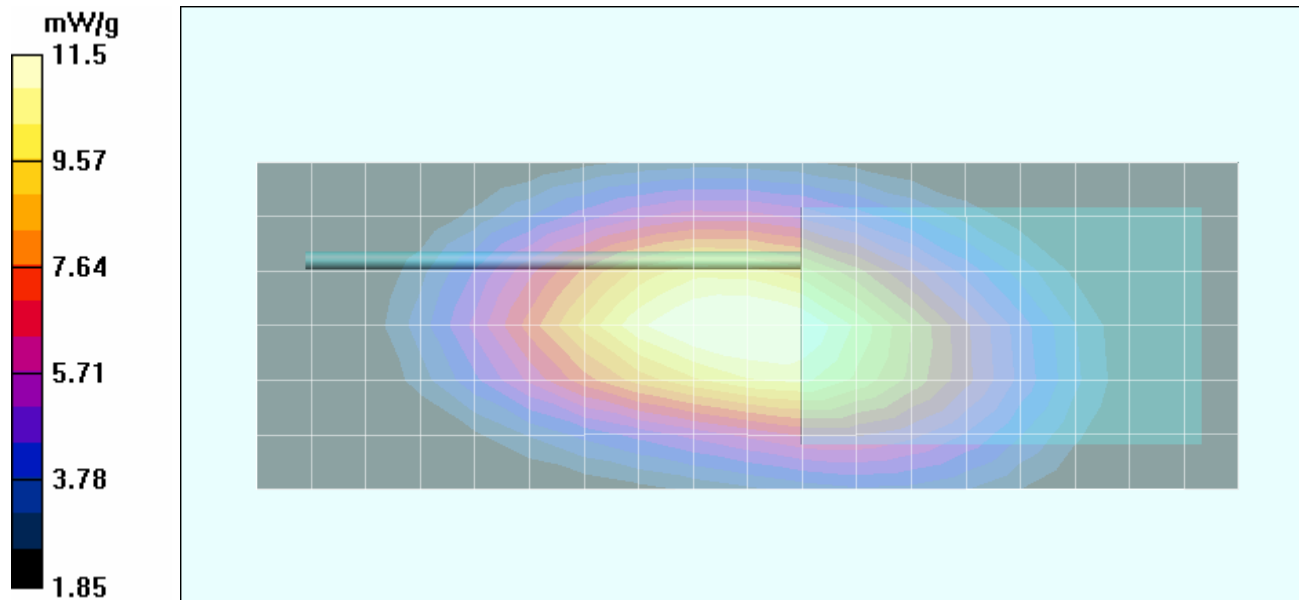
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 114.1 V/m; Power Drift = -0.359 dB



Peak SAR (extrapolated) = 15.7 W/kg

**SAR(1 g) = 11 mW/g; SAR(10 g) 7.94 mW/g**

Maximum value of SAR (measured) = 11.5 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720		<b>IC:</b>	511B-10944720		
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5			
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## Audio Accessory SAR Plot #14 (A14)

Date Tested: 11/23/2010

### Body-worn SAR - 1170mAh Std. Battery FNB-V112LI (a) - Whip Antenna ATU-16F (B) - 498.0 MHz

**DUT: Vertex VX-454-G7-5; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0L000009 (Pre-production)**

**Body-worn Accessory: Belt-Clip P/N: CLIP-20; Audio Accessory: Earpiece P/N: VH-120S**

Ambient Temp: 20.0°C; Fluid Temp: 20.2°C; Barometric Pressure: 101.1 kPa; Humidity: 40%

Communication System: CW

Frequency: 498 MHz; Duty Cycle: 1:1

Medium: MSL450 Medium parameters used (interpolated):  $f = 498 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 58.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.73, 7.73, 7.73); Calibrated: 15/07/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DAS4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Body-worn SAR - 2.0 cm Belt-Clip/Batt. Spacing from Back of Radio to Planar Phantom

**Area Scan (7x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 11.8 mW/g

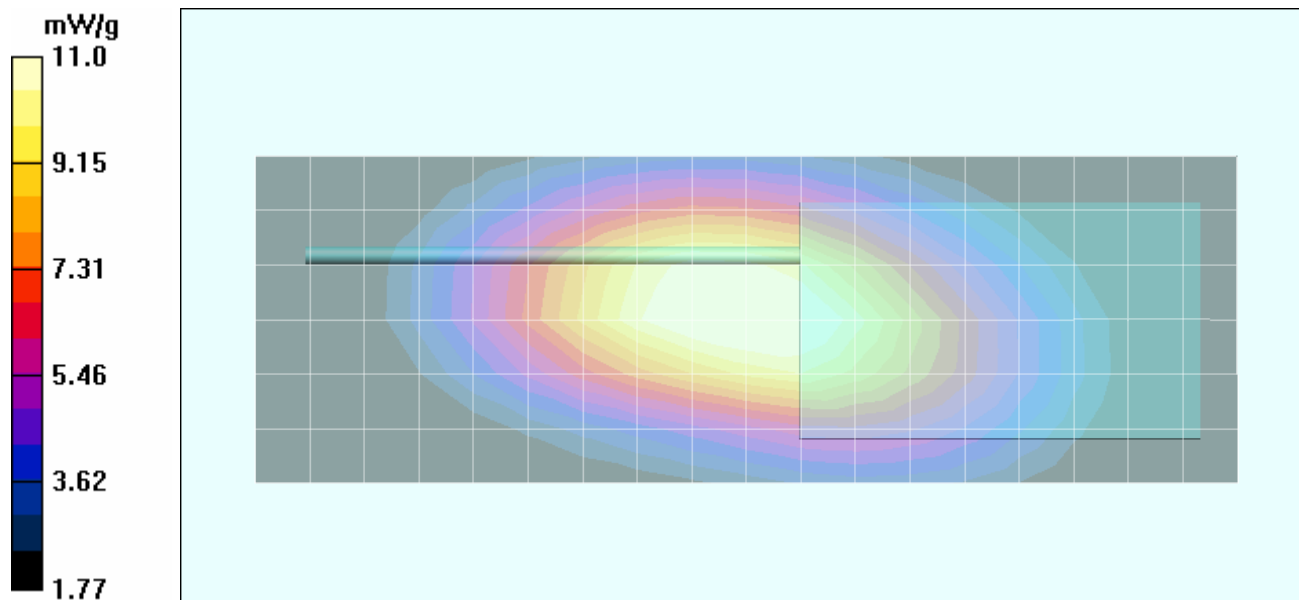
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 112.5 V/m; Power Drift = -0.370 dB

Peak SAR (extrapolated) = 15.0 W/kg

**SAR(1 g) = 10.5 mW/g; SAR(10 g) 7.6 mW/g**

Maximum value of SAR (measured) = 11.0 mW/g



<b>Applicant:</b>	Vertex Standard Co., Ltd.	<b>FCC ID:</b>	K6610944720	<b>IC:</b>	511B-10944720	
<b>DUT Type:</b>	Portable UHF PTT Radio Transceiver	<b>Models:</b>	VX-451-G7-5	VX-454-G7-5	VX-459-G7-5	
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