

## SAR Test Report

By Operator : Jay  
Measurement Date : 14-Mar-2006  
Starting Time : 14-Mar-2006 01:15:33 PM  
End Time : 14-Mar-2006 01:38:38 PM  
Scanning Time : 1385 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5200.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Aux  
Orientation : Touch  
Power Drift-Start : 0.380 W/kg  
Power Drift-Finish: 0.376 W/kg  
Power Drift (%) : -1.162

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5200  
Frequency : 5200.00 MHz  
Last Calib. Date : 14-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 42.00 RH%  
Epsilon : 48.00 F/m  
Sigma : 5.43 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

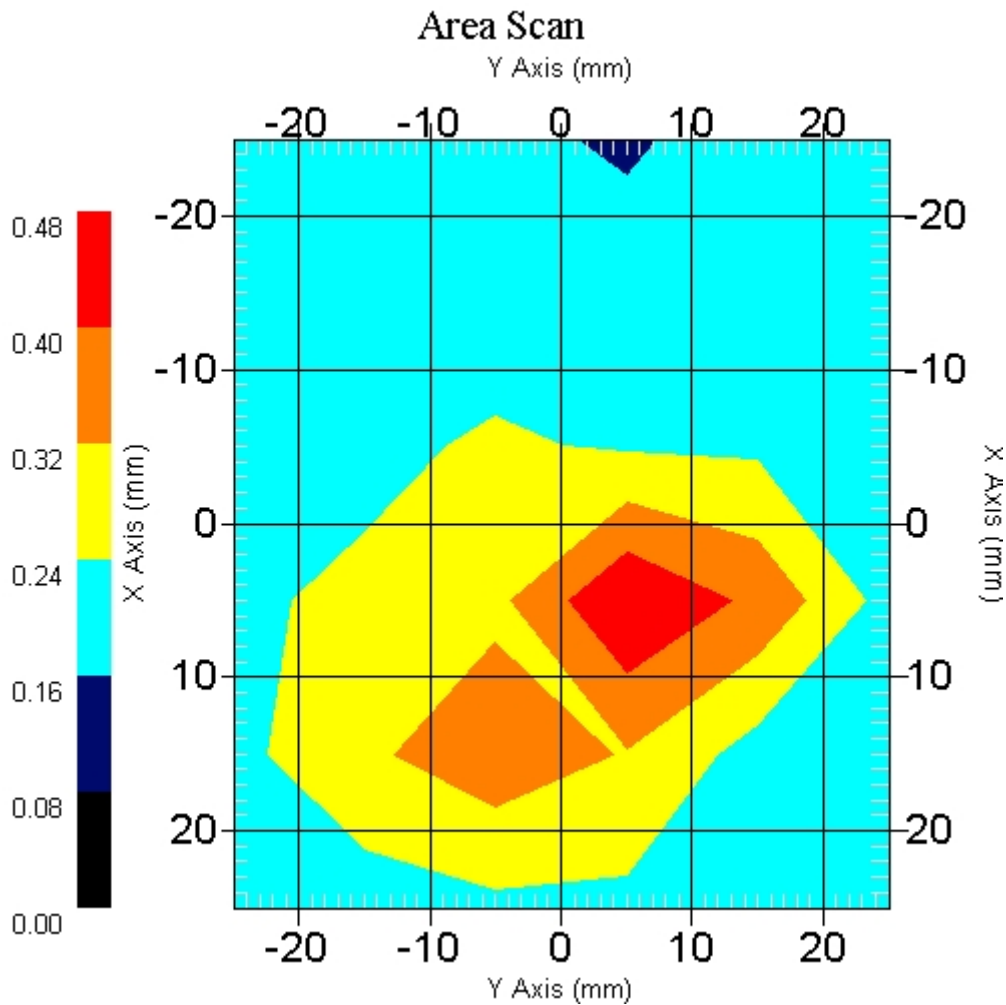
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5200.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.8  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 14-Mar-2006  
 Set-up Time : 12:29:43 PM  
 Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Front  
 Separation : 0  
 Channel : Mid - 58



1 gram SAR value : 0.443 W/kg  
 10 gram SAR value : 0.287 W/kg  
 Area Scan Peak SAR : 0.478 W/kg  
 Zoom Scan Peak SAR : 0.870 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 14-Mar-2006  
Starting Time : 14-Mar-2006 10:33:49 AM  
End Time : 14-Mar-2006 10:46:45 AM  
Scanning Time : 776 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5200.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Main  
Orientation : End  
Power Drift-Start : 0.632 W/kg  
Power Drift-Finish: 0.644 W/kg  
Power Drift (%) : 1.802

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5200  
Frequency : 5200.00 MHz  
Last Calib. Date : 14-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 42.00 RH%  
Epsilon : 48.00 F/m  
Sigma : 5.43 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

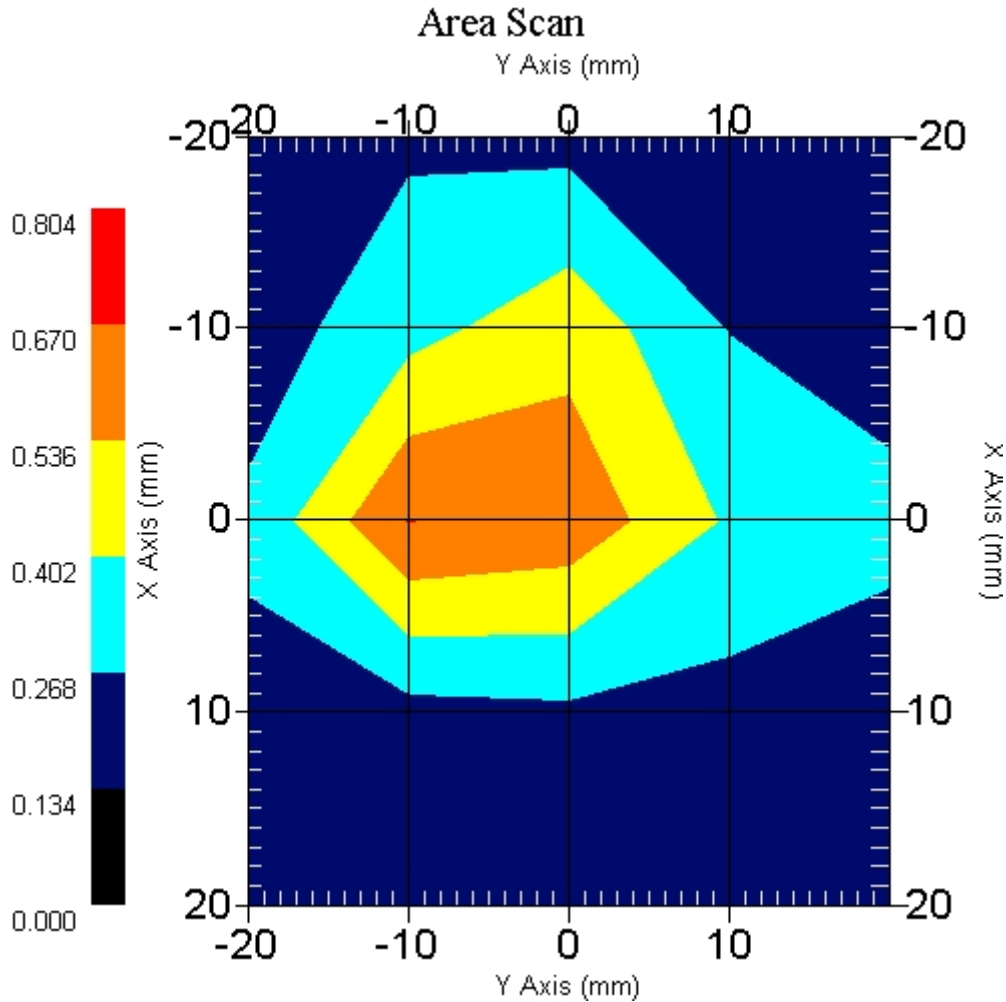
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5200.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.8  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 14-Mar-2006  
 Set-up Time : 5:06:13 PM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : Low - 52



1 gram SAR value : 0.521 W/kg  
 10 gram SAR value : 0.290 W/kg  
 Area Scan Peak SAR : 0.672 W/kg  
 Zoom Scan Peak SAR : 1.281 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 14-Mar-2006  
Starting Time : 14-Mar-2006 10:18:58 AM  
End Time : 14-Mar-2006 10:31:49 AM  
Scanning Time : 771 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5200.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Aux  
Orientation : End  
Power Drift-Start : 0.605 W/kg  
Power Drift-Finish: 0.624 W/kg  
Power Drift (%) : 3.141

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Un-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5200  
Frequency : 5200.00 MHz  
Last Calib. Date : 14-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 42.00 RH%  
Epsilon : 48.00 F/m  
Sigma : 5.43 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

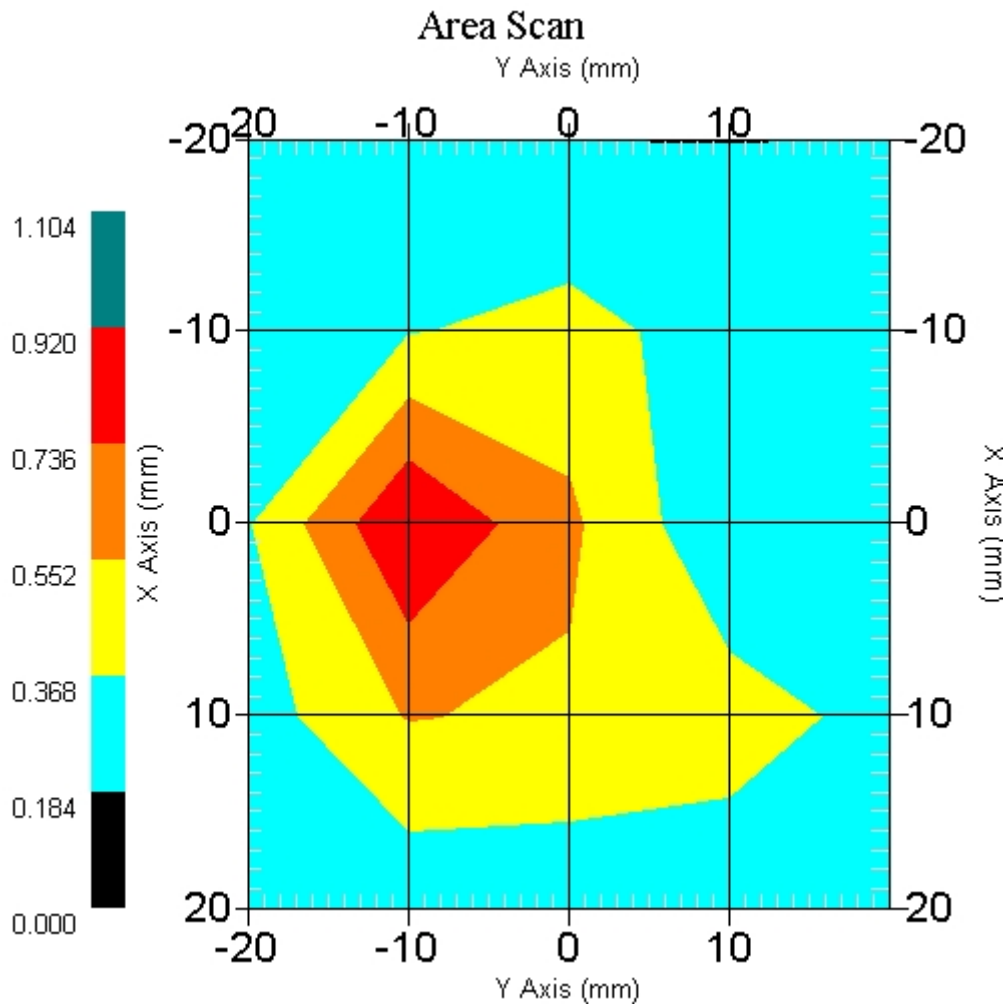
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5200.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.8  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 14-Mar-2006  
 Set-up Time : 5:06:13 PM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : Mid - 58



1 gram SAR value : 0.833 W/kg  
 10 gram SAR value : 0.408 W/kg  
 Area Scan Peak SAR : 0.920 W/kg  
 Zoom Scan Peak SAR : 2.211 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 11:07:21 AM  
End Time : 13-Mar-2006 11:20:12 AM  
Scanning Time : 771 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Main  
Orientation : End  
Power Drift-Start : 0.656 W/kg  
Power Drift-Finish: 0.659 W/kg  
Power Drift (%) : 0.457

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

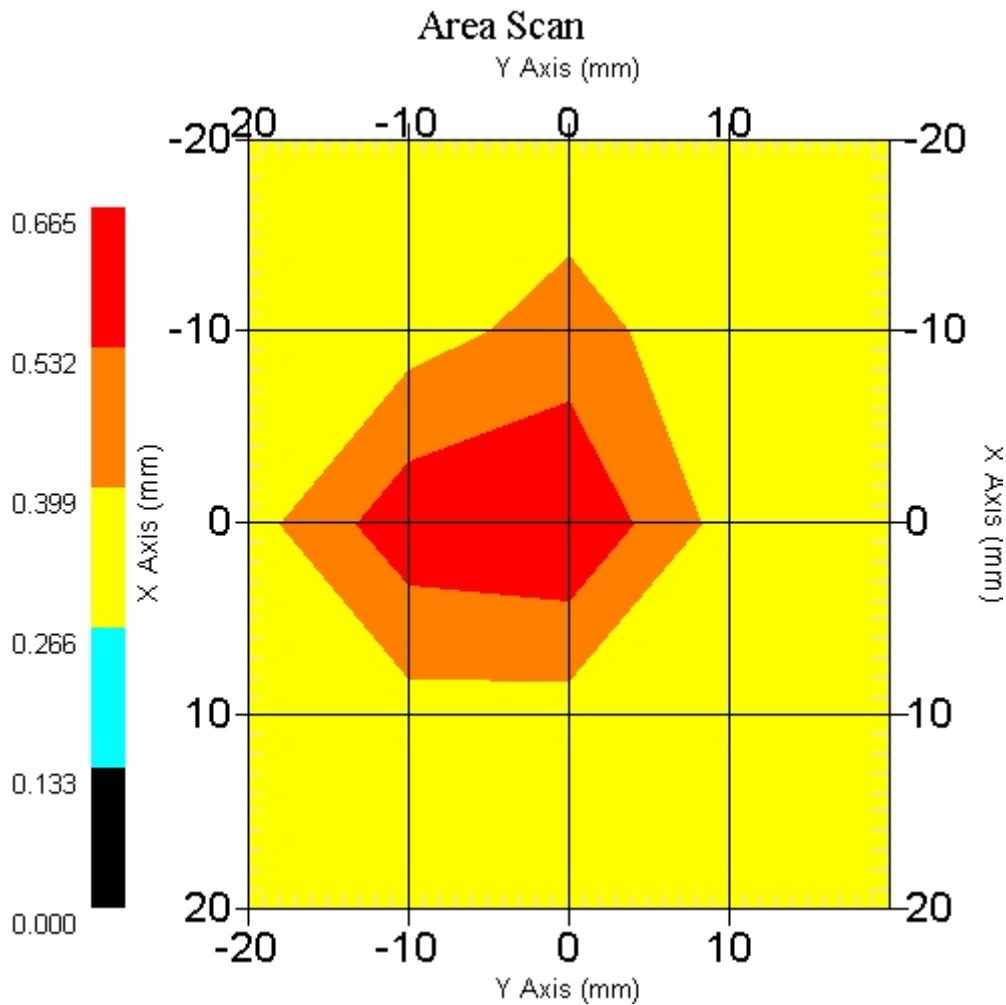
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : Low - 149



1 gram SAR value : 0.574 W/kg  
 10 gram SAR value : 0.377 W/kg  
 Area Scan Peak SAR : 0.663 W/kg  
 Zoom Scan Peak SAR : 1.221 W/kg



## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 10:45:14 AM  
End Time : 13-Mar-2006 10:58:26 AM  
Scanning Time : 792 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Main  
Orientation : End  
Power Drift-Start : 1.012 W/kg  
Power Drift-Finish: 0.971 W/kg  
Power Drift (%) : -4.040

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

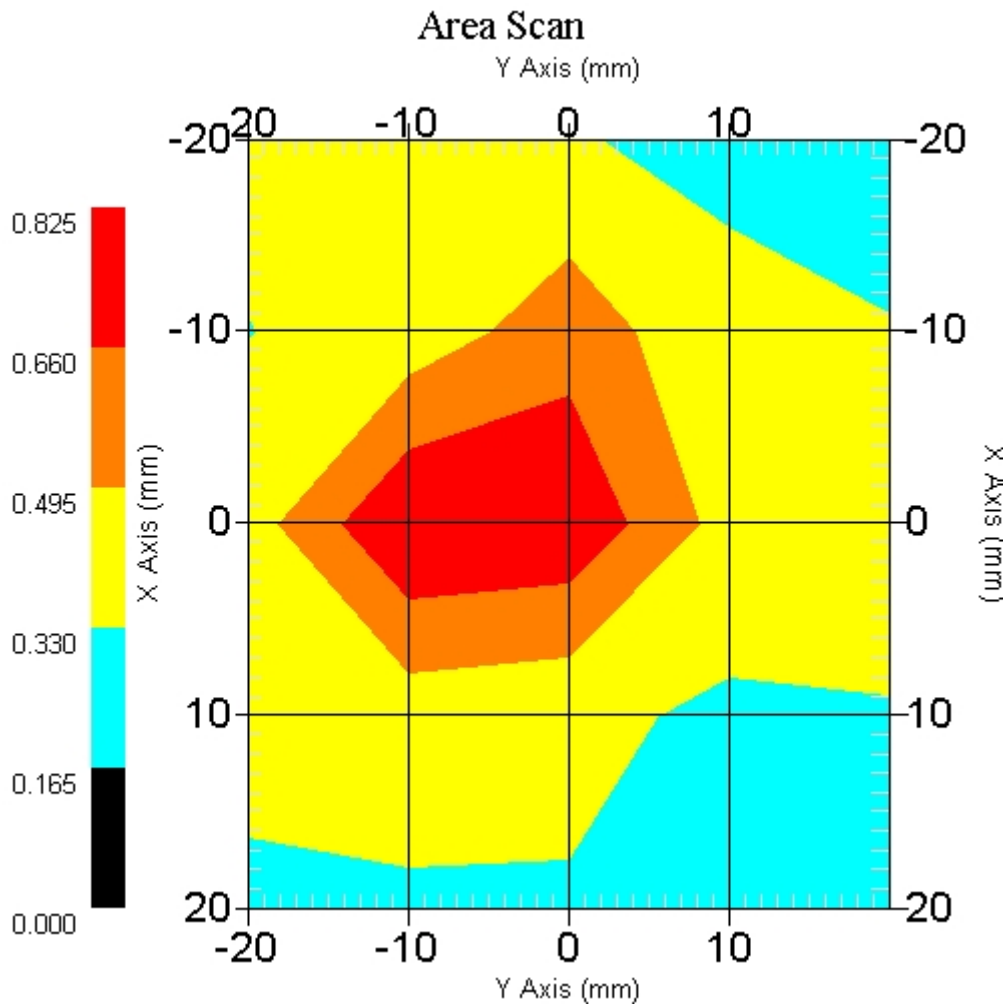
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

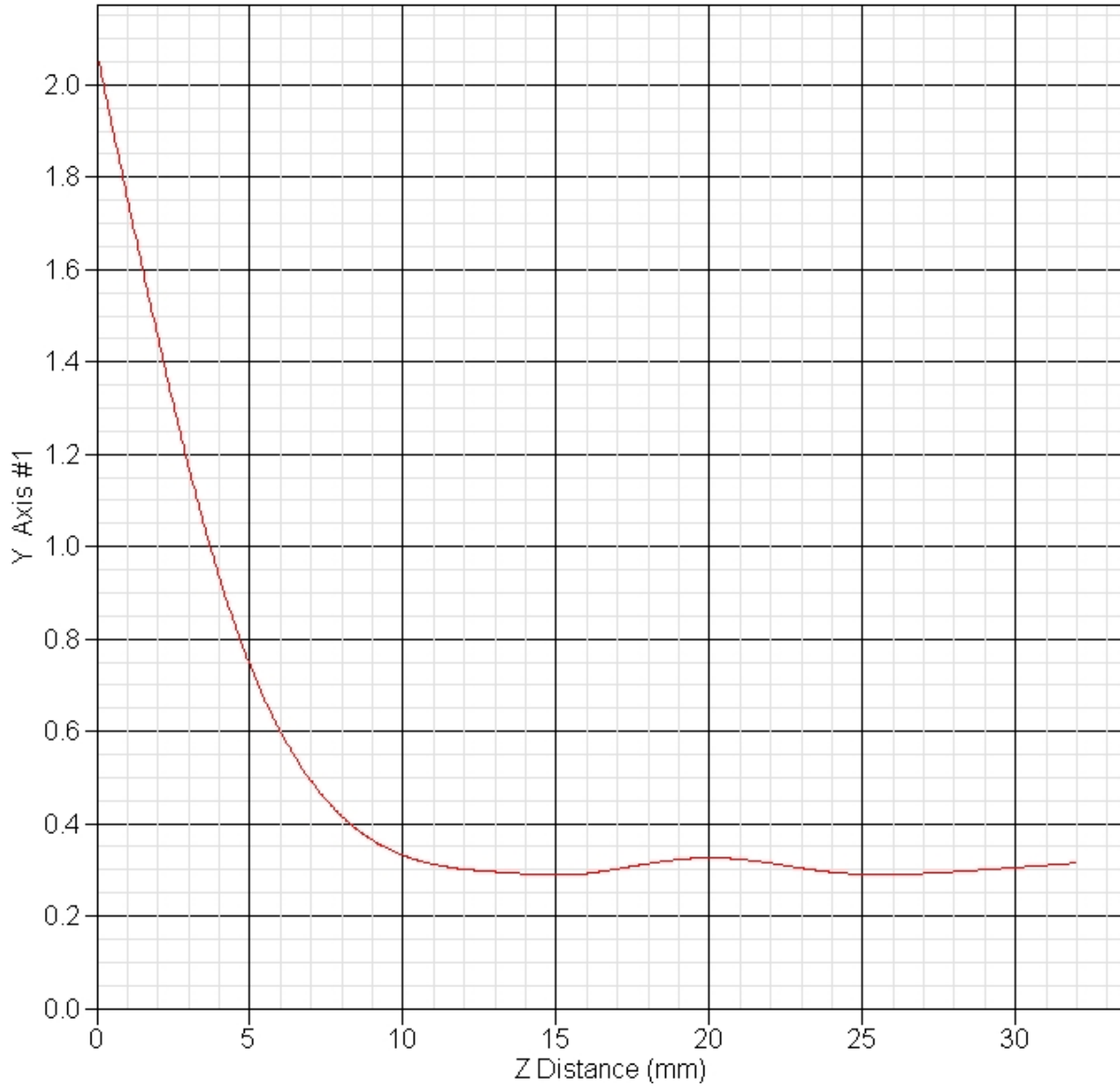
Other Data

DUT Position : End  
 Separation : 0  
 Channel : Mid - 153



1 gram SAR value : 0.822 W/kg  
 10 gram SAR value : 0.449 W/kg  
 Area Scan Peak SAR : 0.824 W/kg  
 Zoom Scan Peak SAR : 2.071 W/kg

### SAR-Z Axis at Hotspot x:0.40 y:-2.30



## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 11:21:27 AM  
End Time : 13-Mar-2006 11:34:16 AM  
Scanning Time : 769 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Main  
Orientation : End  
Power Drift-Start : 0.778 W/kg  
Power Drift-Finish: 0.765 W/kg  
Power Drift (%) : -1.591

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

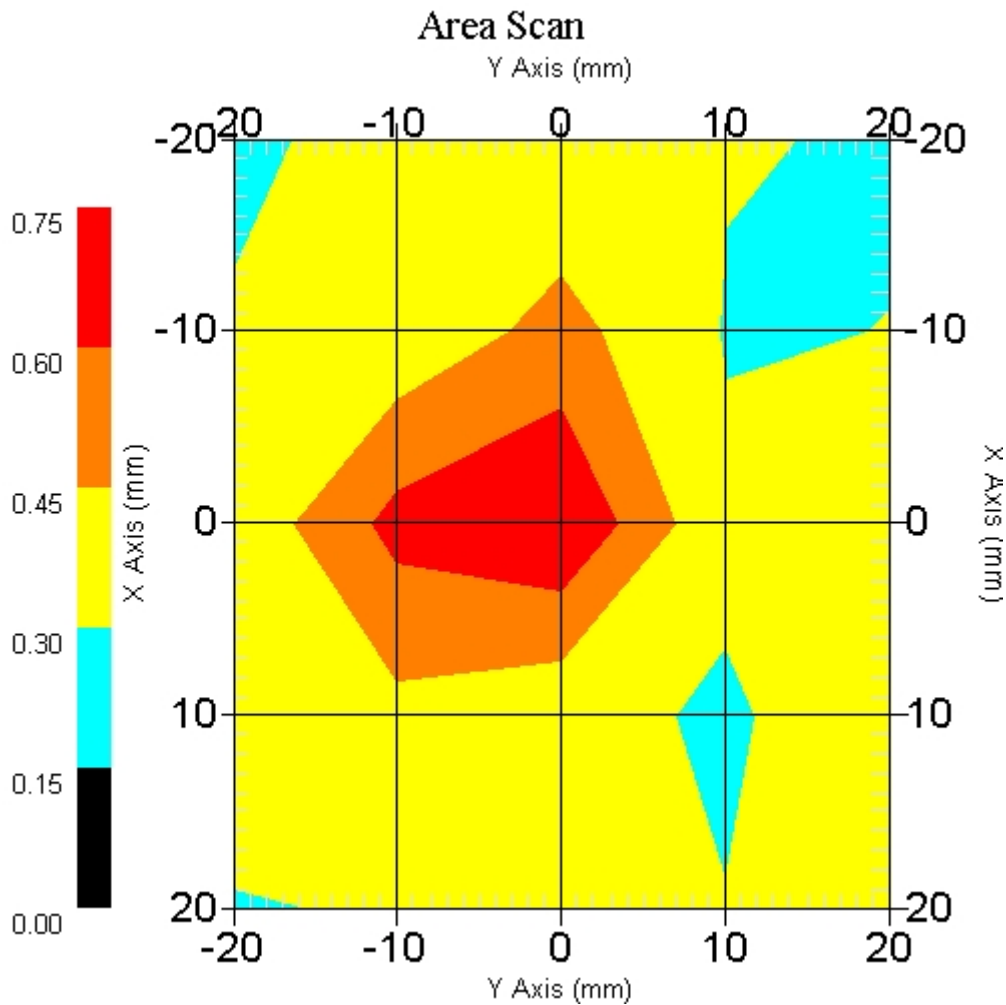
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : High - 161



1 gram SAR value : 0.669 W/kg  
 10 gram SAR value : 0.405 W/kg  
 Area Scan Peak SAR : 0.748 W/kg  
 Zoom Scan Peak SAR : 1.571 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 12:18:28 PM  
End Time : 13-Mar-2006 12:39:01 PM  
Scanning Time : 1233 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Aux  
Orientation : End  
Power Drift-Start : 1.229 W/kg  
Power Drift-Finish: 1.172 W/kg  
Power Drift (%) : -4.638

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

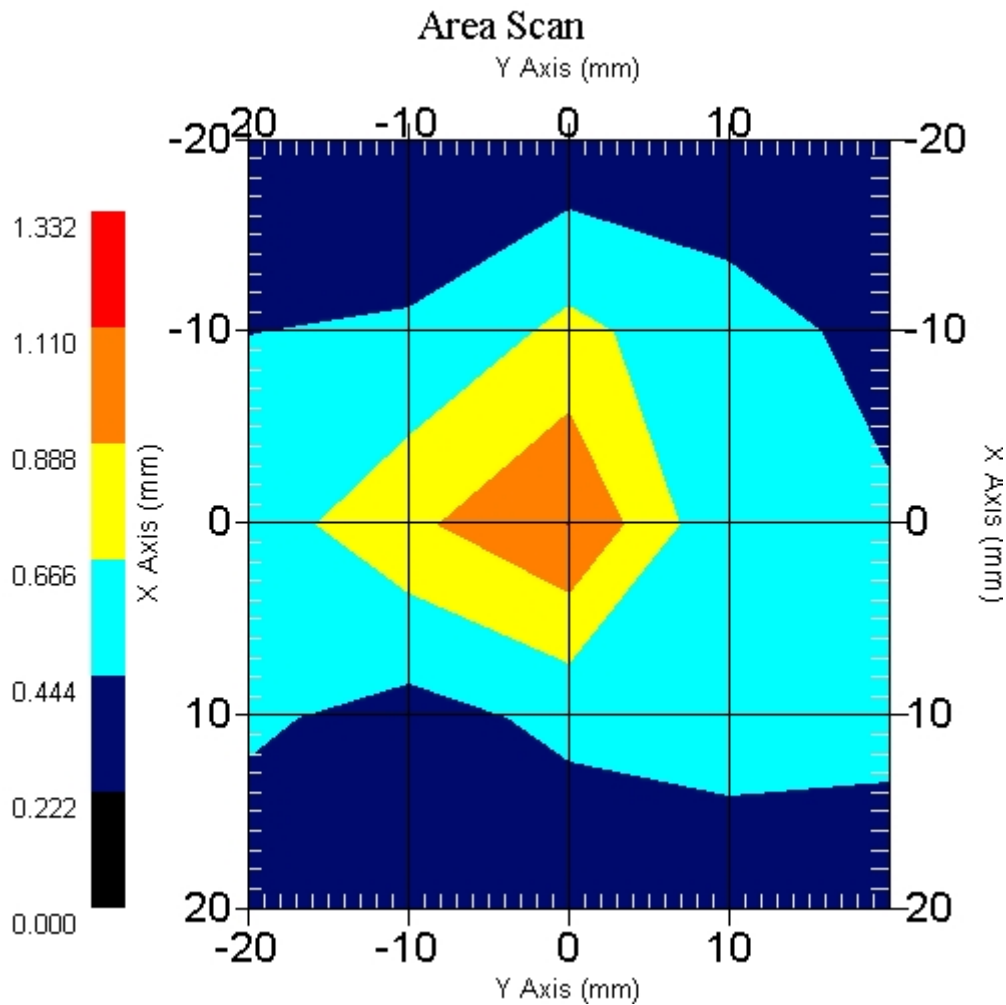
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : Low - 149



1 gram SAR value : 1.122 W/kg  
 10 gram SAR value : 0.606 W/kg  
 Area Scan Peak SAR : 1.111 W/kg  
 Zoom Scan Peak SAR : 2.782 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 12:04:02 PM  
End Time : 13-Mar-2006 12:16:57 PM  
Scanning Time : 775 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Aux  
Orientation : End  
Power Drift-Start : 0.542 W/kg  
Power Drift-Finish: 0.552 W/kg  
Power Drift (%) : 1.933

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

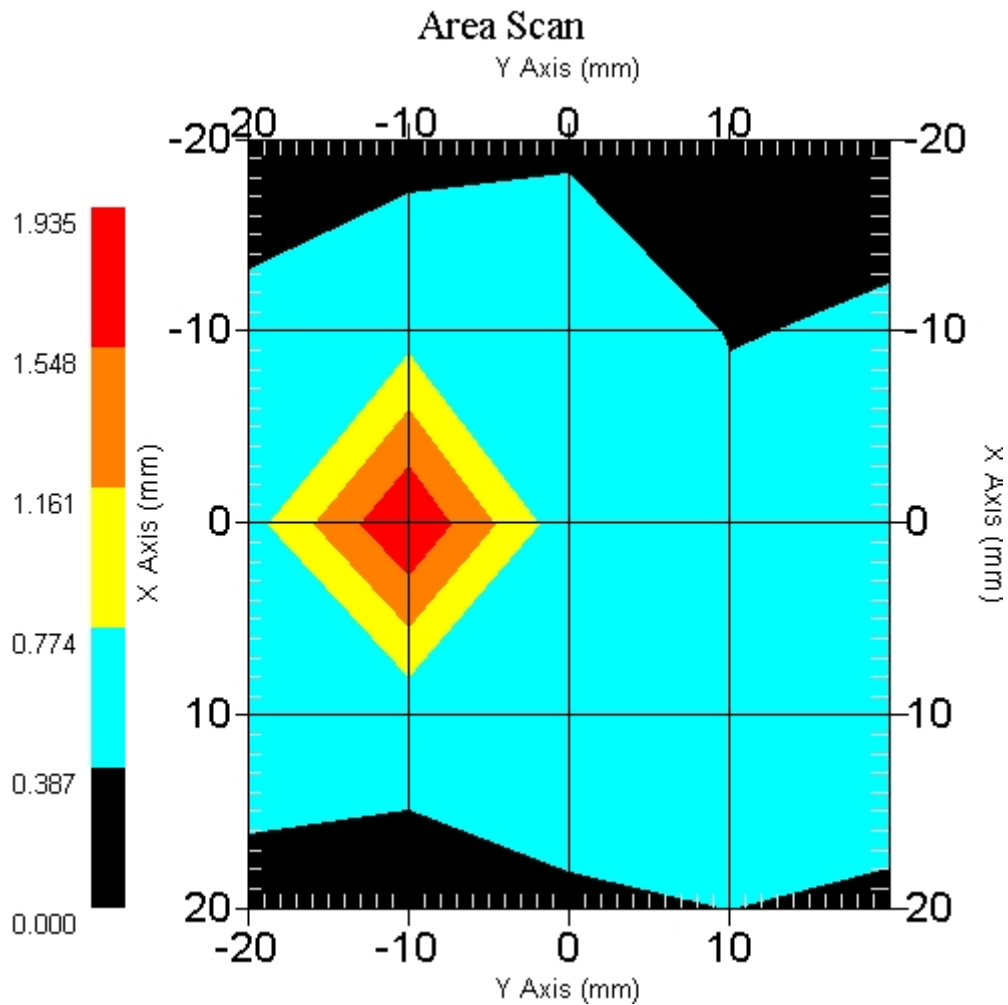


Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : Mid - 153



1 gram SAR value : 1.378 W/kg  
 10 gram SAR value : 0.585 W/kg  
 Area Scan Peak SAR : 1.933 W/kg  
 Zoom Scan Peak SAR : 4.603 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 11:37:43 AM  
End Time : 13-Mar-2006 11:58:45 AM  
Scanning Time : 1262 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Aux  
Orientation : End  
Power Drift-Start : 0.430 W/kg  
Power Drift-Finish: 0.453 W/kg  
Power Drift (%) : 5.540

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

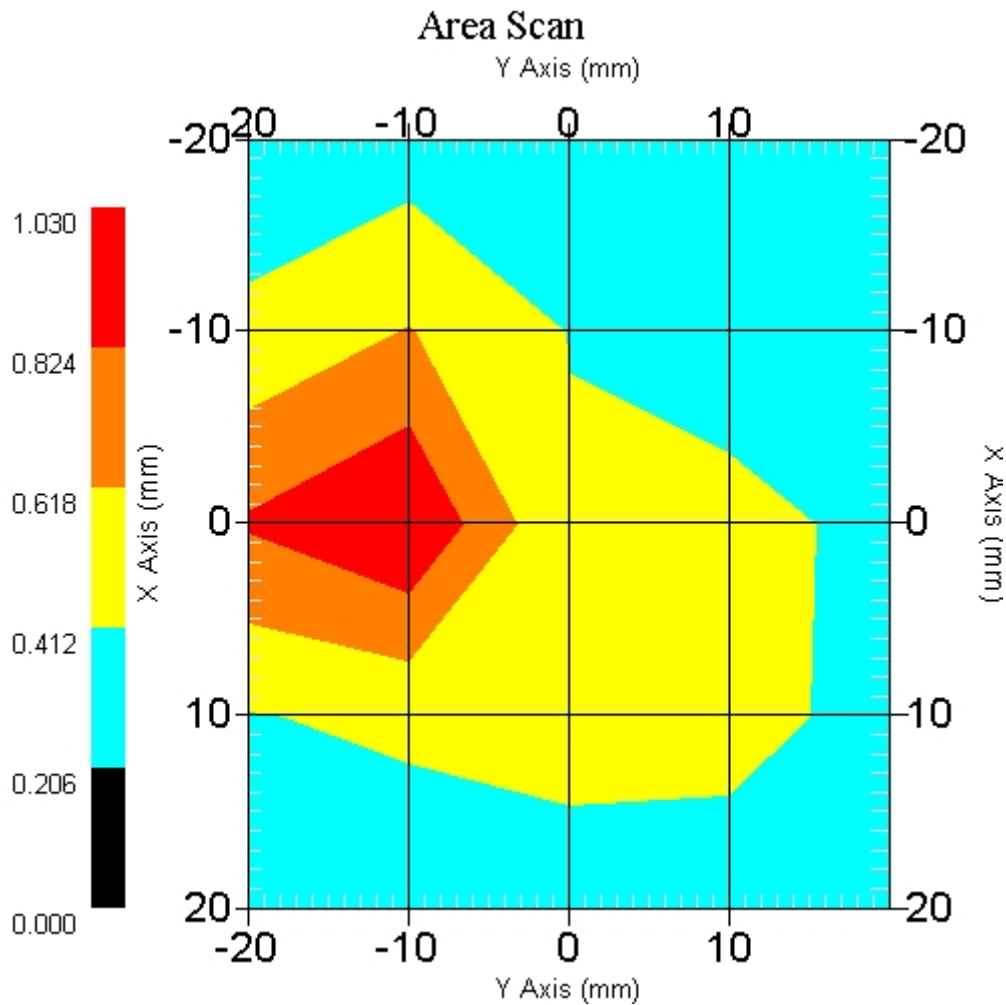
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : High - 161



1 gram SAR value : 1.165 W/kg  
 10 gram SAR value : 0.618 W/kg  
 Area Scan Peak SAR : 1.029 W/kg  
 Zoom Scan Peak SAR : 2.952 W/kg

## SAR Test Report

Operator : Jay  
Measurement Date : 16-Jun-2005  
Starting Time : 16-Jun-2005 12:19:22 PM  
End Time : 16-Jun-2005 12:32:14 PM  
Scanning Time : 772 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Main  
Power Drift-Start : 0.255 W/kg  
Power Drift-Finish: 0.242 W/kg  
Power Drift (%) : -5.098

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5800 MHz  
Last Calib. Date : 16-Jun-2005  
Temperature : 21 °C  
Ambient Temp. : 24 °C  
Humidity : 61 RH%  
Epsilon : 48.52 F/m  
Sigma : 6.16 S/m  
Density : 1000 kg/cu. m

### Probe Data

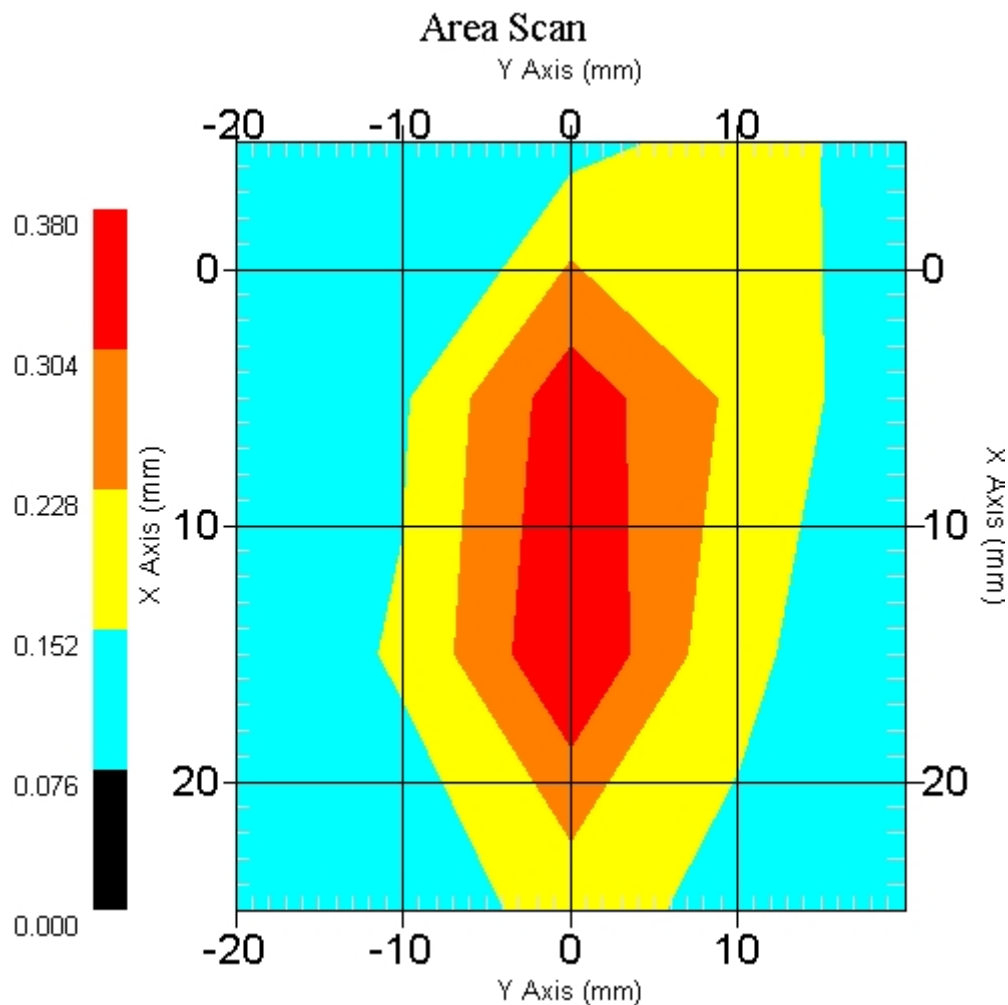
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 21°C  
 Ambient Temp. : 24°C  
 Set-up Date : 16-Jun-2005  
 Set-up Time : 12:17:25 PM  
 Area Scan : 4x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : Mid - 153



1 gram SAR value : 0.343 W/kg  
 10 gram SAR value : 0.163 W/kg  
 Area Scan Peak SAR : 0.375 W/kg  
 Zoom Scan Peak SAR : 0.980 W/kg

## SAR Test Report

Operator : Jay  
Measurement Date : 16-Jun-2005  
Starting Time : 16-Jun-2005 11:42:45 AM  
End Time : 16-Jun-2005 11:55:50 AM  
Scanning Time : 785 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Aux  
Power Drift-Start : 0.127 W/kg  
Power Drift-Finish: 0.130 W/kg  
Power Drift (%) : 2.362

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5800 MHz  
Last Calib. Date : 16-Jun-2005  
Temperature : 21 °C  
Ambient Temp. : 24 °C  
Humidity : 61 RH%  
Epsilon : 48.52 F/m  
Sigma : 6.16 S/m  
Density : 1000 kg/cu. m

### Probe Data

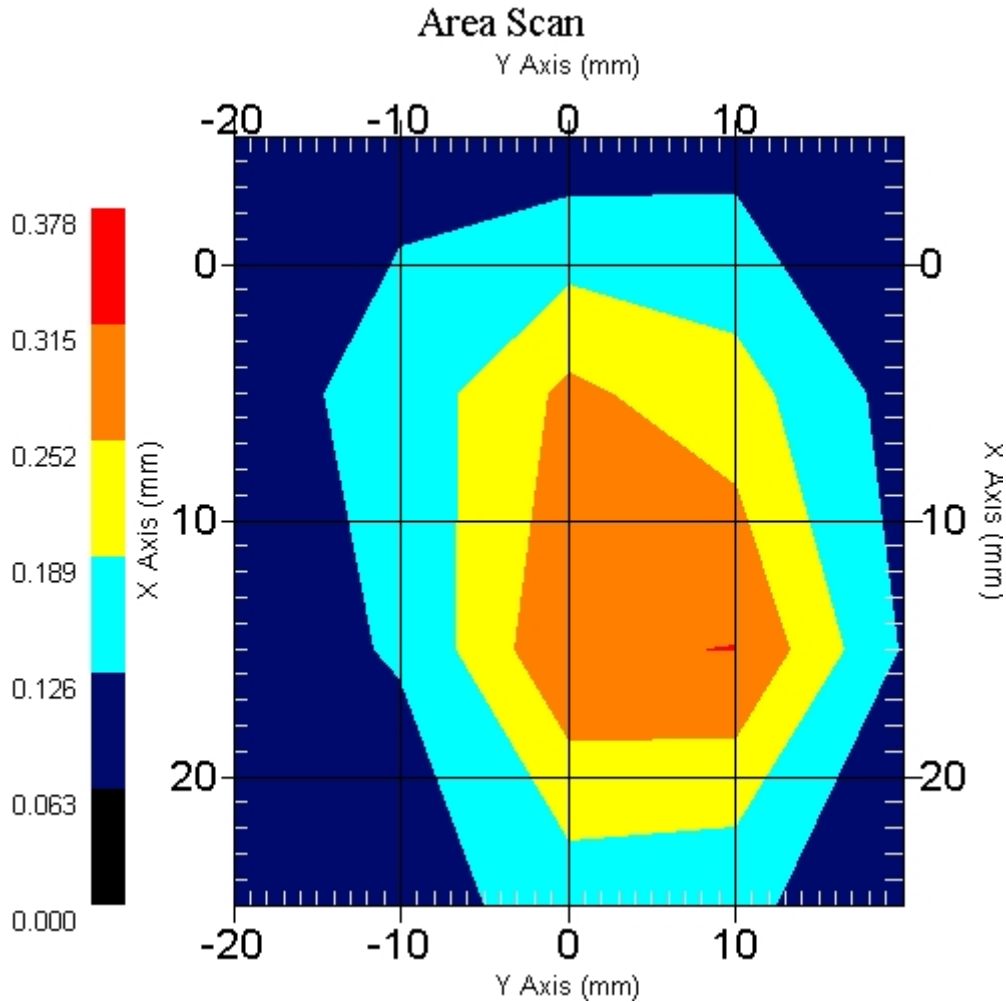
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 21°C  
 Ambient Temp. : 24°C  
 Set-up Date : 16-Jun-2005  
 Set-up Time : 11:37:19 AM  
 Area Scan : 4x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Back  
 Separation : 0  
 Channel : Mid - 153



1 gram SAR value : 0.252 W/kg  
 10 gram SAR value : 0.135 W/kg  
 Area Scan Peak SAR : 0.316 W/kg  
 Zoom Scan Peak SAR : 0.700 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 12:59:54 PM  
End Time : 13-Mar-2006 01:12:45 PM  
Scanning Time : 771 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Main  
Orientation : Front  
Power Drift-Start : 0.293 W/kg  
Power Drift-Finish: 0.301 W/kg  
Power Drift (%) : 2.788

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

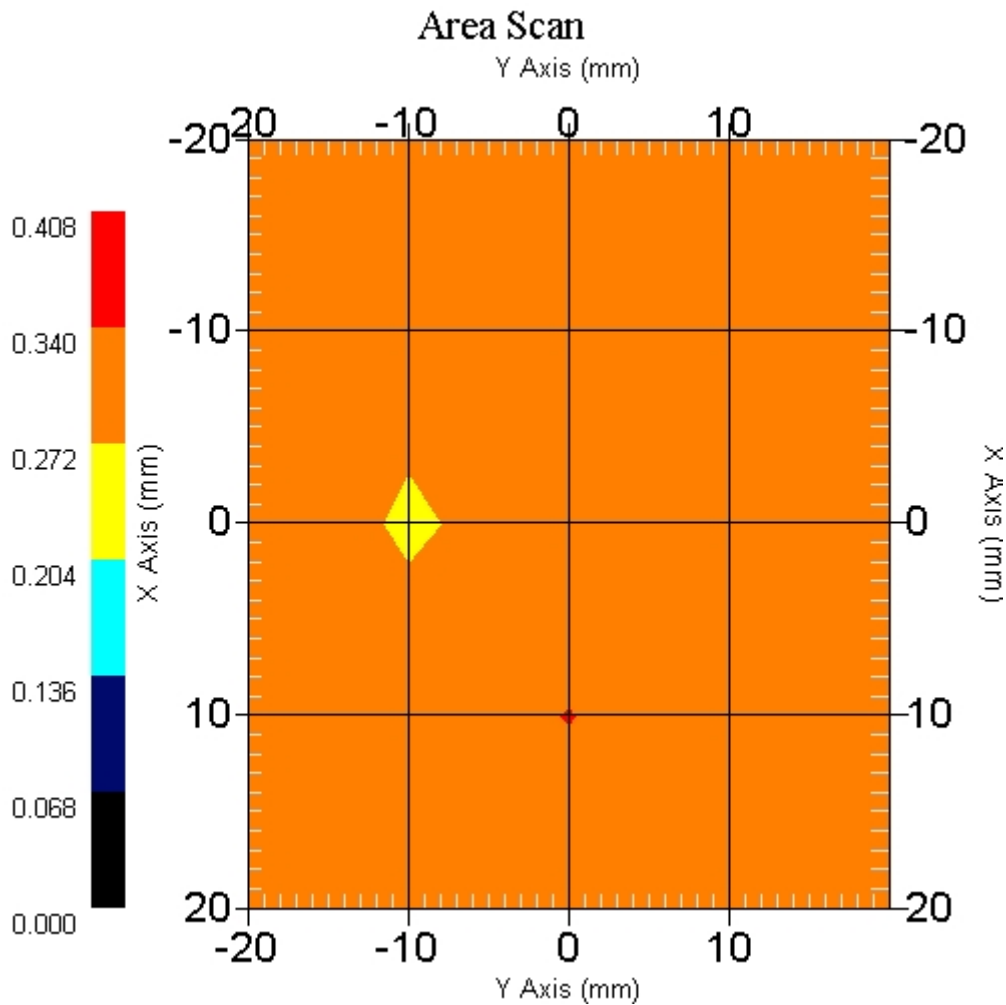


Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Front  
 Separation : 0  
 Channel : Mid - 153



1 gram SAR value : 0.328 W/kg  
 10 gram SAR value : 0.291 W/kg  
 Area Scan Peak SAR : 0.342 W/kg  
 Zoom Scan Peak SAR : 0.410 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 12:44:58 PM  
End Time : 13-Mar-2006 12:57:53 PM  
Scanning Time : 775 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Aux  
Orientation : Front  
Power Drift-Start : 0.831 W/kg  
Power Drift-Finish: 0.821 W/kg  
Power Drift (%) : -1.203

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

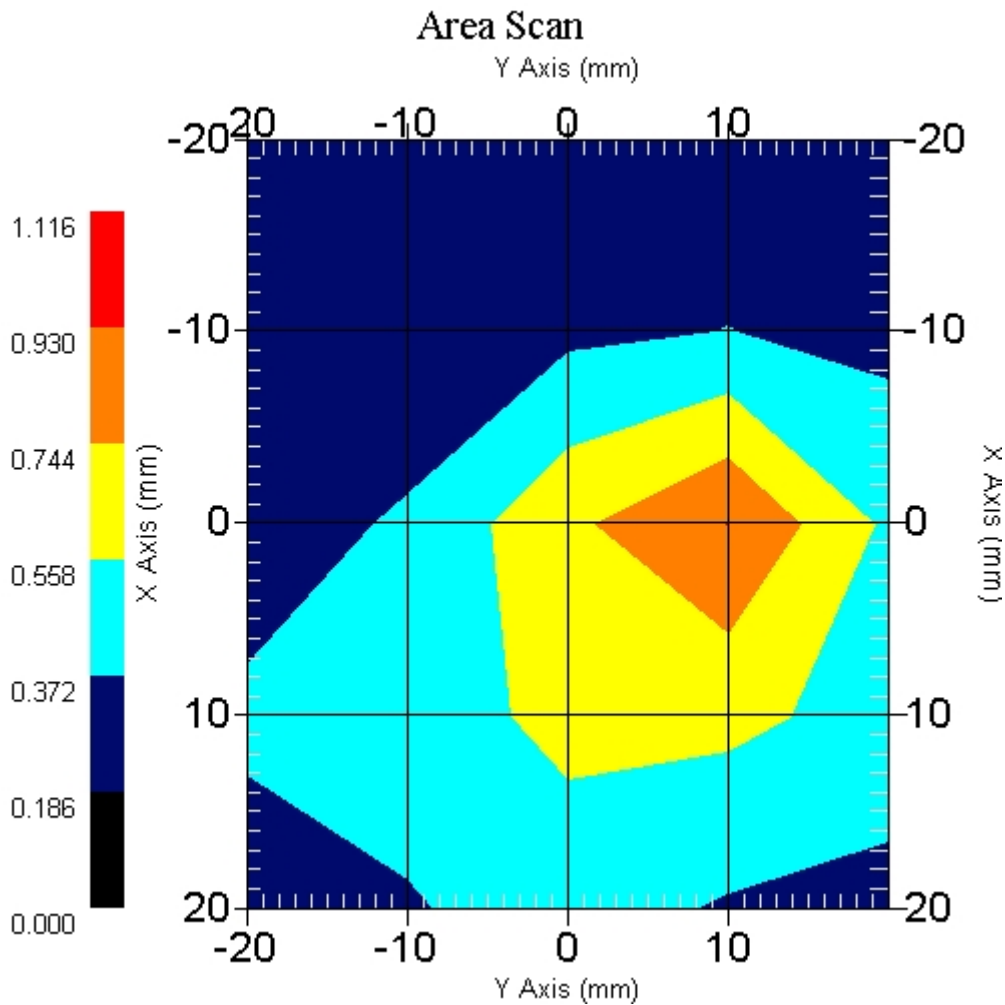
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Front  
 Separation : 0  
 Channel : Mid - 153



1 gram SAR value : 0.867 W/kg  
 10 gram SAR value : 0.465 W/kg  
 Area Scan Peak SAR : 0.931 W/kg  
 Zoom Scan Peak SAR : 2.311 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 01:19:04 PM  
End Time : 13-Mar-2006 01:32:10 PM  
Scanning Time : 786 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Main  
Orientation : End  
Power Drift-Start : 0.673 W/kg  
Power Drift-Finish: 0.711 W/kg  
Power Drift (%) : 5.662

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

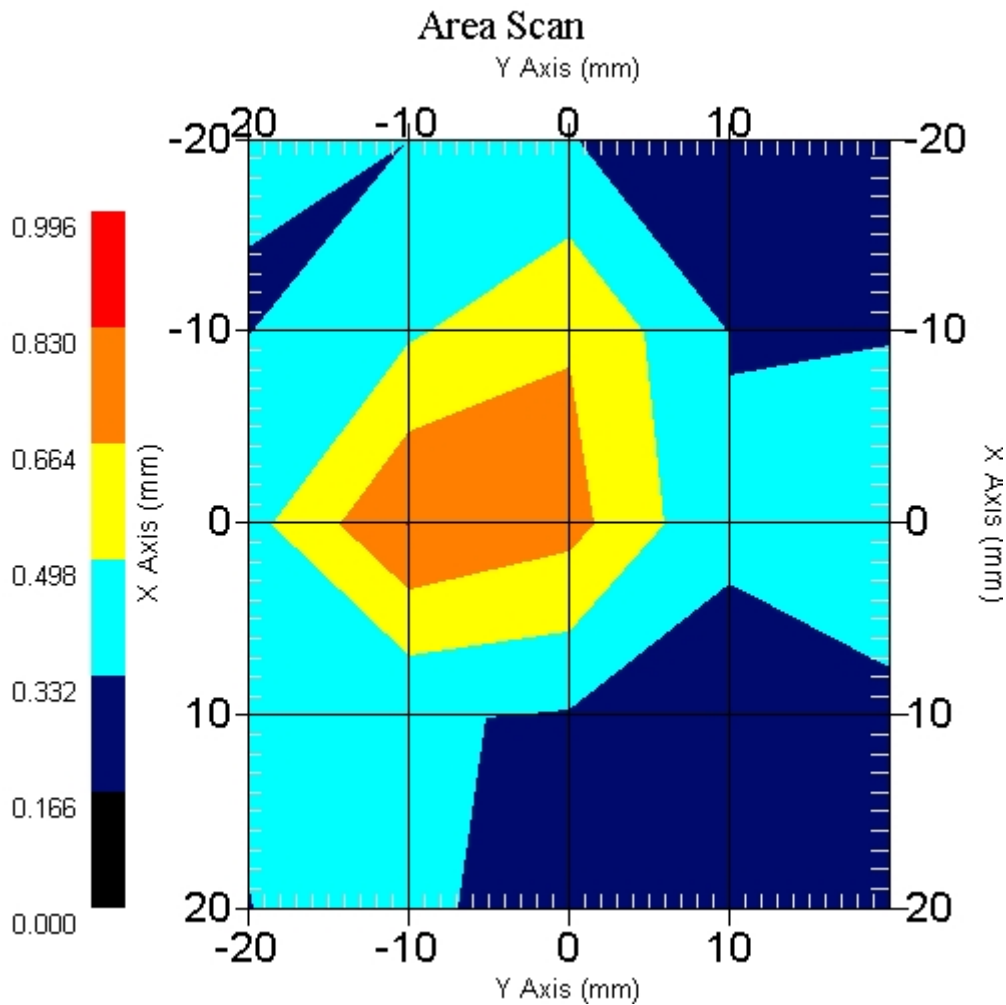
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : End  
 Separation : 0  
 Channel : Mid - 153



1 gram SAR value : 0.711 W/kg  
 10 gram SAR value : 0.417 W/kg  
 Area Scan Peak SAR : 0.831 W/kg  
 Zoom Scan Peak SAR : 1.651 W/kg

## SAR Test Report

By Operator : Jay  
Measurement Date : 13-Mar-2006  
Starting Time : 13-Mar-2006 01:50:02 PM  
End Time : 13-Mar-2006 02:10:34 PM  
Scanning Time : 1232 secs

### Product Data

Device Name : Motion Computing  
Serial No. : 20302464  
Type : Other  
Model : TS01  
Frequency : 5800.00 MHz  
Max. Transmit Pwr : 0.025 W  
Drift Time : 0 min(s)  
Length : 228 mm  
Width : 170 mm  
Depth : 23 mm  
Antenna Type : Internal - Aux  
Orientation : End  
Power Drift-Start : 1.110 W/kg  
Power Drift-Finish: 1.076 W/kg  
Power Drift (%) : -3.106

### Phantom Data

Name : APREL-Uni  
Type : Uni-Phantom  
Size (mm) : 280 x 280 x 200  
Serial No. : System Default  
Location : Center  
Description : Uni-Phantom

### Tissue Data

Type : BODY  
Serial No. : 5800  
Frequency : 5765.00 MHz  
Last Calib. Date : 13-Mar-2006  
Temperature : 20.00 °C  
Ambient Temp. : 22.00 °C  
Humidity : 43.00 RH%  
Epsilon : 46.12 F/m  
Sigma : 6.12 S/m  
Density : 1000.00 kg/cu. m

### Probe Data

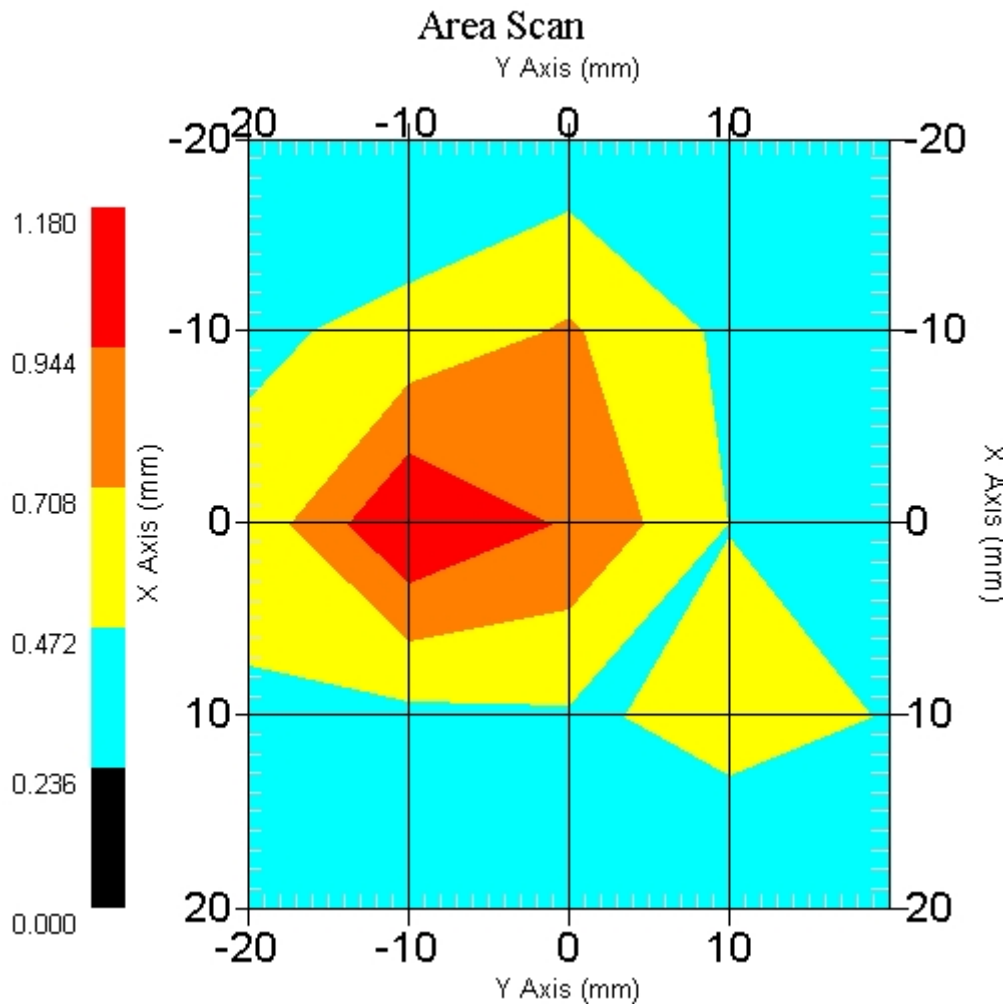
Name : Probe 215 - RFEL  
Model : E020  
Type : E-Field Triangle  
Serial No. : 215  
Last Calib. Date : 10-Jun-2005  
Frequency : 5800.00 MHz  
Duty Cycle Factor: 1  
Conversion Factor: 2.1  
Probe Sensitivity: 1.20 1.20 1.20  $\mu\text{V}/(\text{V}/\text{m})^2$   
Compression Point: 95.00 mV  
Offset : 1.56 mm

Measurement Data

Crest Factor : 1  
 Scan Type : Complete  
 Tissue Temp. : 20.00 °C  
 Ambient Temp. : 22.00 °C  
 Set-up Date : 13-Mar-2006  
 Set-up Time : 11:37:19 AM  
 Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm  
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

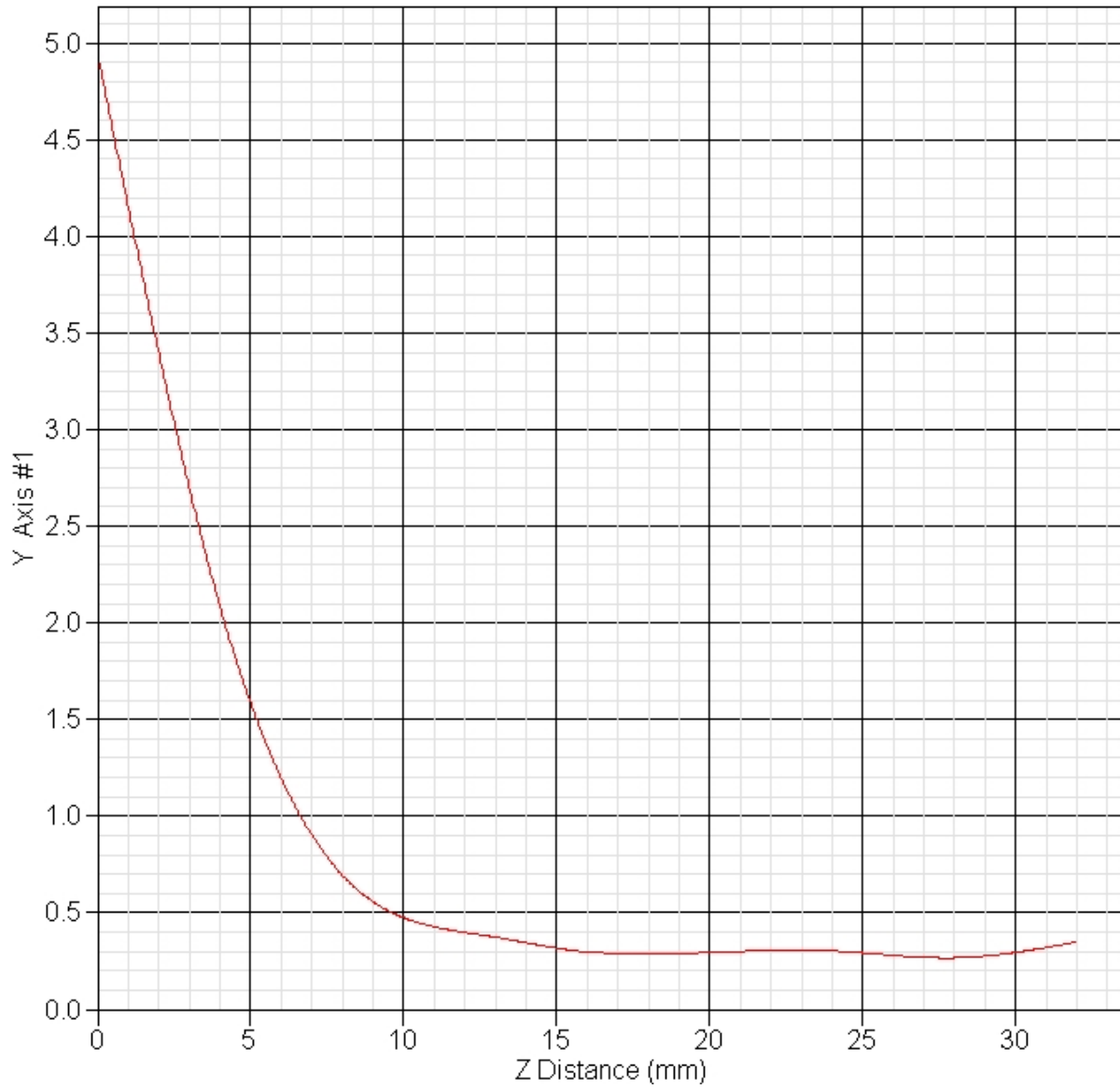
Other Data

DUT Position : End  
 Separation : 0  
 Channel : Mid - 153



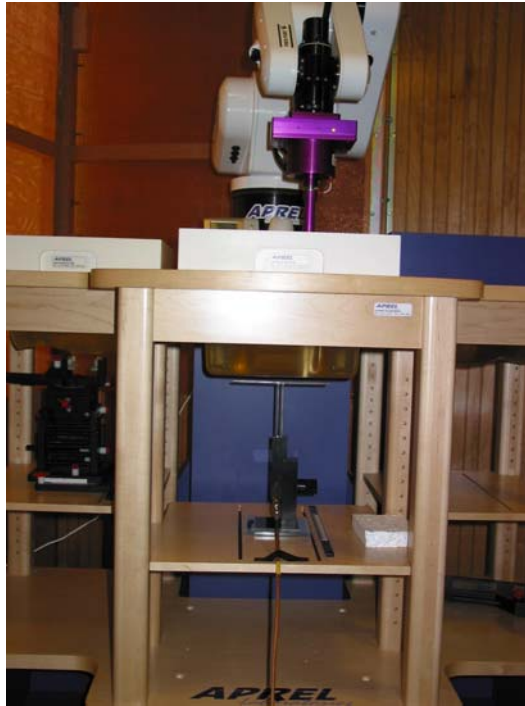
1 gram SAR value : 1.535 W/kg  
 10 gram SAR value : 0.755 W/kg  
 Area Scan Peak SAR : 1.180 W/kg  
 Zoom Scan Peak SAR : 4.053 W/kg

### SAR-Z Axis at Hotspot x:-7.60 y:-6.30

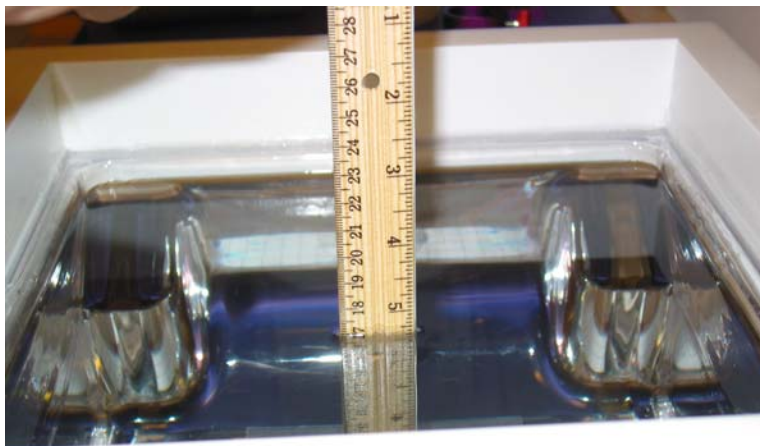




## Appendix C – SAR Test Setup Photos



**System Body Configuration**



**Glycol Body Tissue Depth**



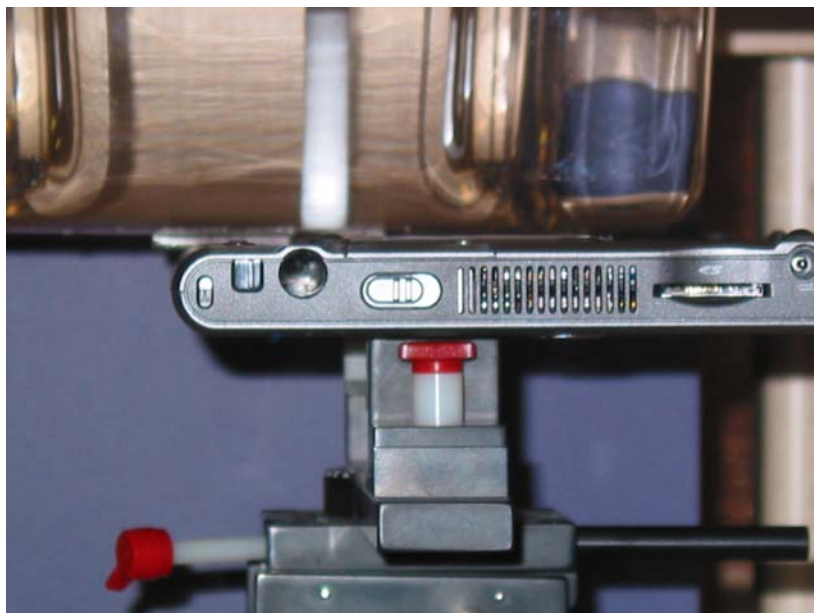
**Sugar Body Tissue Depth**



**Main Antenna Back Test Position Front View**



**Main Antenna Back Test Position Side View**



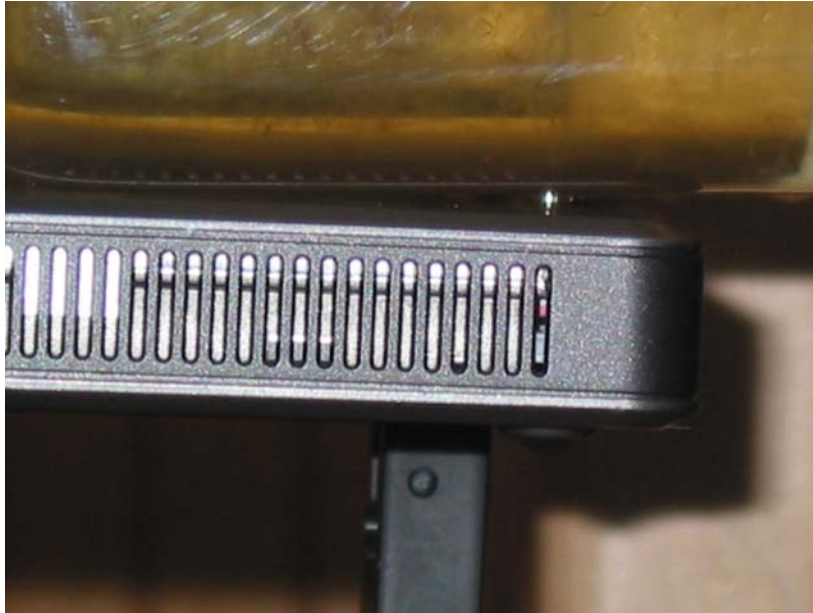
**Aux Antenna Back Test Position Front View**



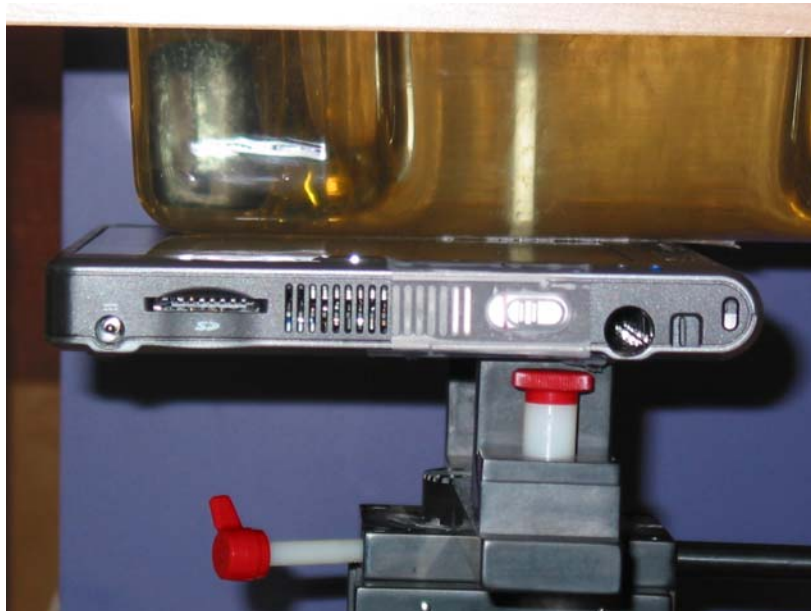
**Aux Antenna Back Test Position Side View**



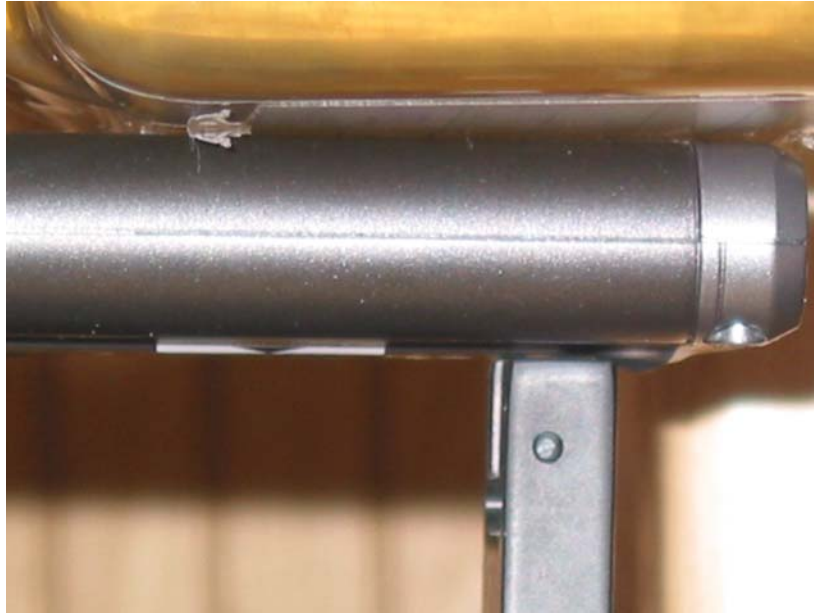
**Main Antenna Front Test Position Front View**



**Main Antenna Front Test Position Side View**



**Aux Antenna Front Test Position Front View**



**Aux Antenna Front Test Position Side View**



**Main Antenna End Test Position Front View**



**Main Antenna End Test Position Close-up View**



**Aux Antenna End Test Position Front View**

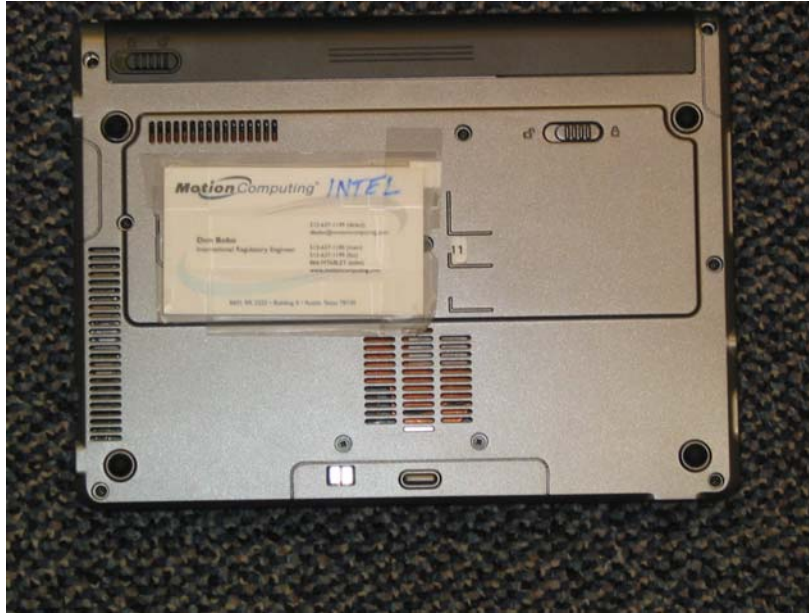


**Aux Antenna End Test Position Close-up View**



**Device Front View**





**Device Back View**



**Radio Card**



**Battery Top View**



**Battery Inside View**

## Appendix D – Probe Calibration Data Sheets

# NCL CALIBRATION LABORATORIES

Calibration File No.: CP-606

Client.: RFEL

## CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the  
**NCL CALIBRATION LABORATORIES** by qualified personnel following recognized  
procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 2450 MHz

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: 215

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2

Project No: RFEL-Probe-215-Calibration-5166

BODY Calibration

Calibrated: 10<sup>th</sup> June 2005  
Released on: 10<sup>th</sup> June 2005

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary

Released By: \_\_\_\_\_ Signature On File

**NCL** CALIBRATION LABORATORIES

51 SPECTRUM WAY  
NEPEAN, ONTARIO  
CANADA K2R 1E6

Division of APREL Lab.  
TEL: (613) 820-4988  
FAX: (613) 820-4161

## **Introduction**

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E-020 215.

## **References**

SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure  
IEEE 1528 “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques”  
SSI-TP-011 Tissue Calibration Procedure

## **Conditions**

Probe 215 was a new probe taken from stock prior to calibration.

**Ambient Temperature of the Laboratory:** 22 °C +/- 0.5°C  
**Temperature of the Tissue:** 21 °C +/- 0.5°C

**We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.**

-----  
**Stuart Nicol**  
**Director Product Development**

-----  
**Janusz Lokaj**  
**Member of Engineering Staff**  
**(Calibration Engineer)**

## Calibration Results Summary

<b>Probe Type:</b>	E-Field Probe E-020
<b>Serial Number:</b>	215
<b>Frequency:</b>	2450 MHz
<b>Sensor Offset:</b>	1.56 mm
<b>Sensor Length:</b>	2.5 mm
<b>Tip Enclosure:</b>	Ertalyte*
<b>Tip Diameter:</b>	<5 mm
<b>Tip Length:</b>	60 mm
<b>Total Length:</b>	290 mm

\*Resistive to recommended tissue recipes per IEEE-1528

## Sensitivity in Air

<b>Channel X:</b>	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
<b>Channel Y:</b>	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
<b>Channel Z:</b>	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
<b>Diode Compression Point:</b>	95 mV

## **Sensitivity in Body Tissue**

**Frequency:** 2450 MHz

**Epsilon:** 39.2 (+/-5%)                      **Sigma:** 1.80 S/m (+/-10%)

### **ConvF**

**Channel X:** 4.6

**Channel Y:** 4.6

**Channel Z:** 4.6

Tissue sensitivity values were calculated using the load impedance of the APREL Laboratories Daq-Paq.

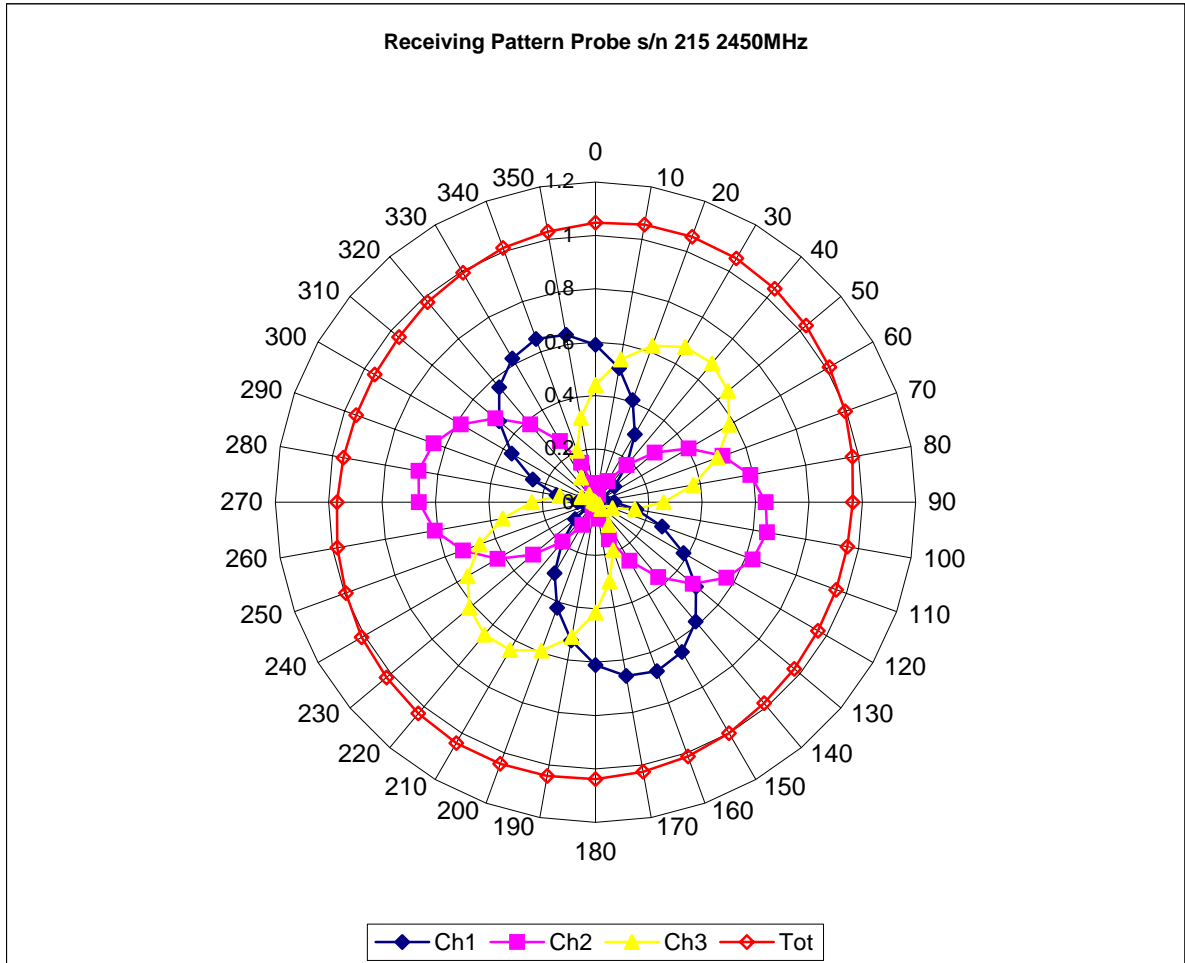
### **Boundary Effect:**

Uncertainty resulting from the boundary effect is less than 2% for the distance between the tip of the probe and the tissue boundary, when less than 2.44mm.

### **Spatial Resolution:**

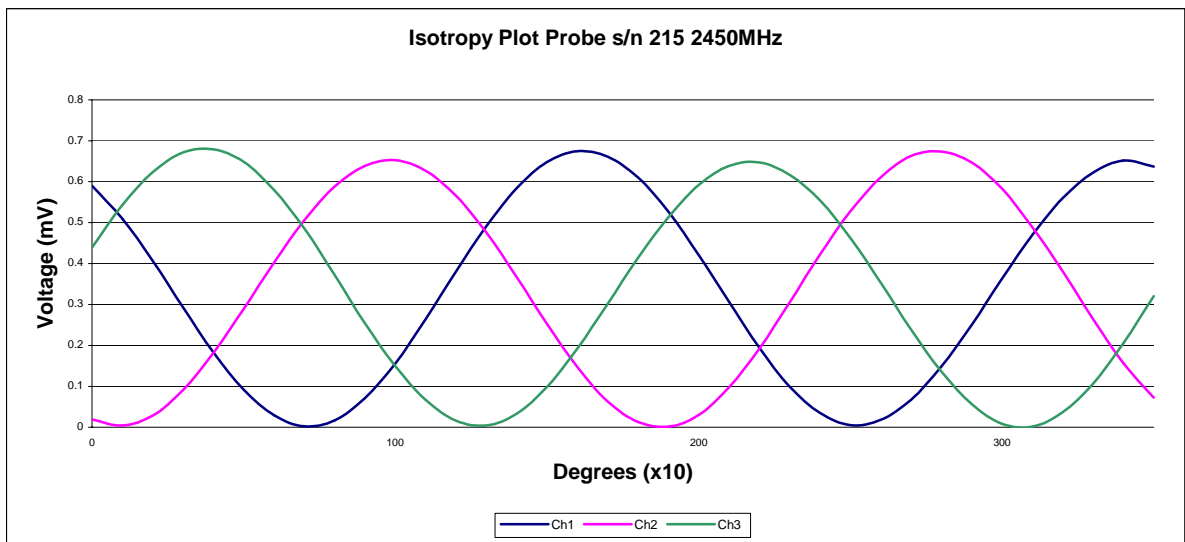
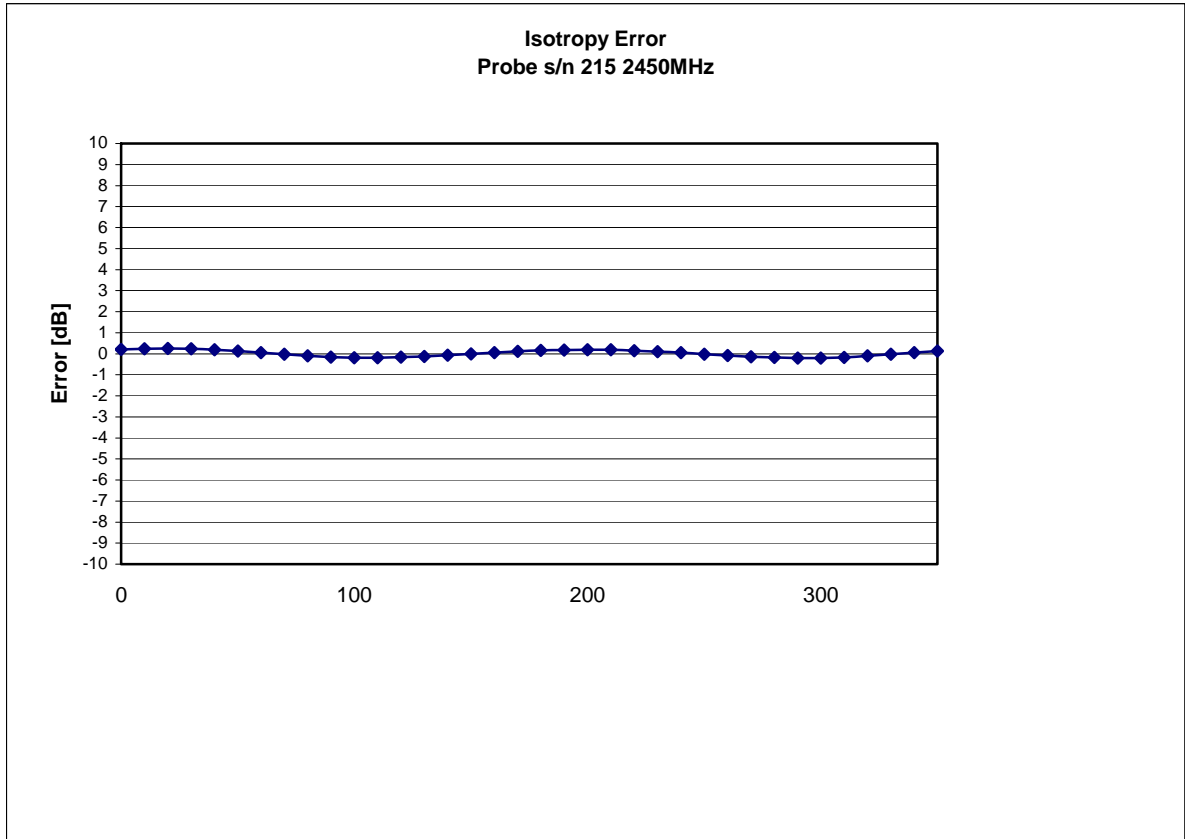
The measured probe tip diameter is 5 mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

## Receiving Pattern 2450 MHz (Air)





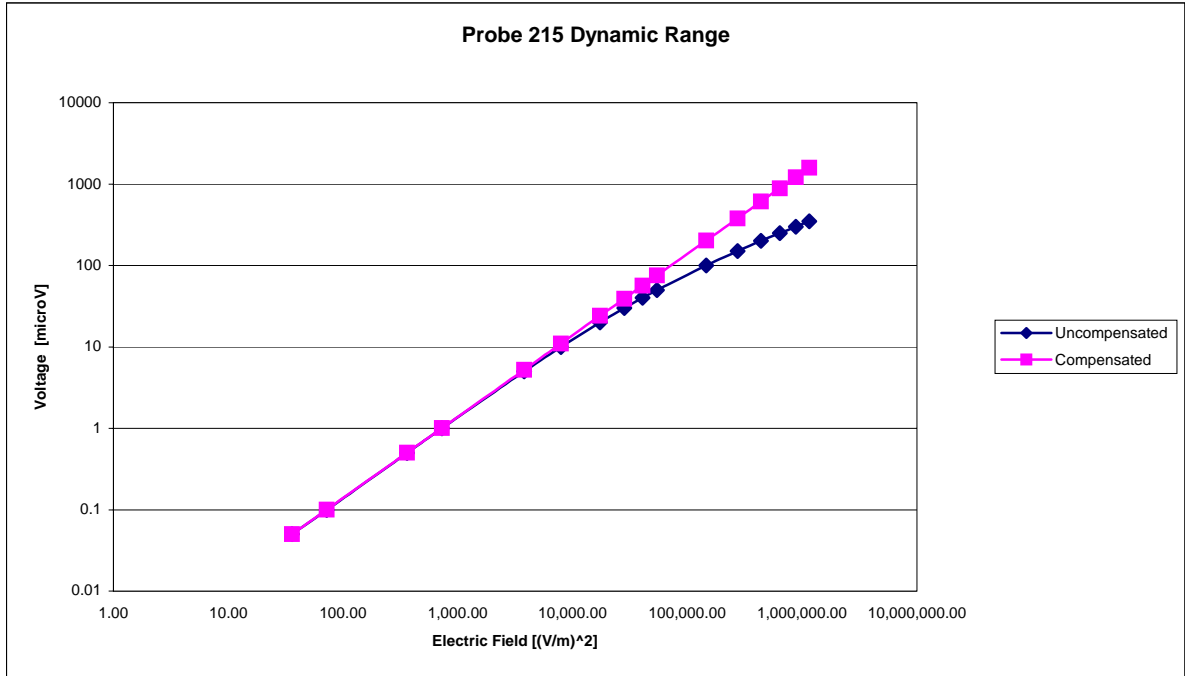
### Isotropy Error 2450 MHz (Air)



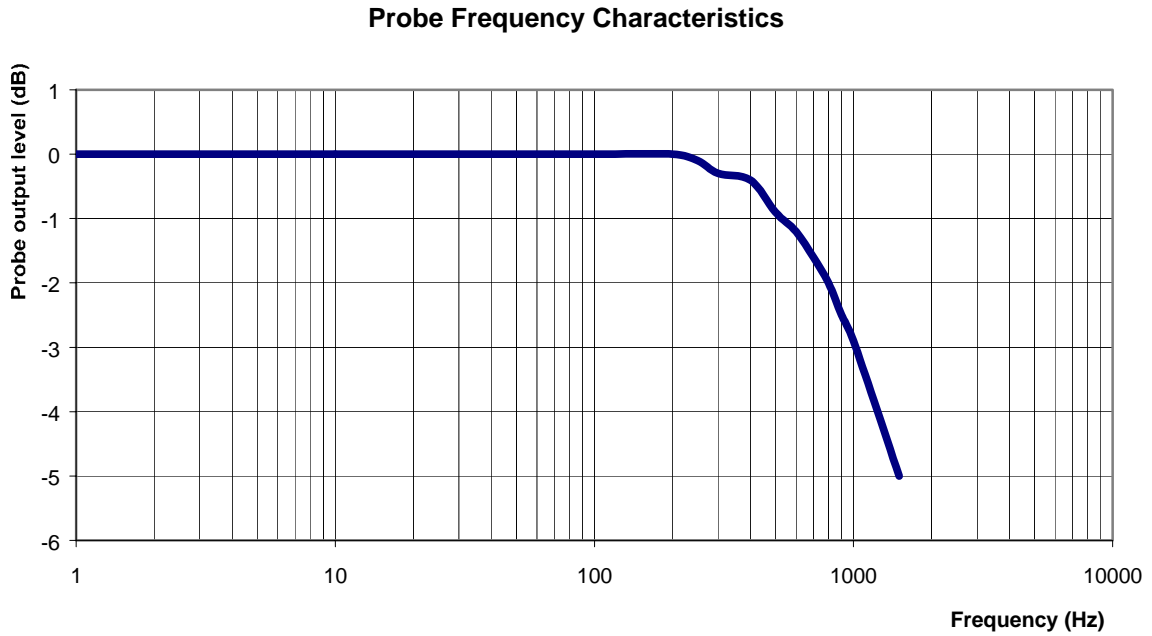
Isotropicity in Tissue:

0.10 dB

## Dynamic Range



## Video Bandwidth



**Video Bandwidth at 500 Hz**                      1 dB  
**Video Bandwidth at 1.02 KHz:**                3 dB

## **Conversion Factor Uncertainty Assessment**

**Frequency:** 2450MHz  
**Epsilon:** 39.2 (+/-5%)      **Sigma:** 1.80 S/m (+/-10%)

### **ConvF**

**Channel X:** 4.6      7%(K=2)  
**Channel Y:** 4.6      7%(K=2)  
**Channel Z:** 4.6      7%(K=2)

To minimize the uncertainty calculation all tissue sensitivity values were calculated using a load impedance of 5 MΩ.

### **Boundary Effect:**

For a distance of 2.4mm the evaluated uncertainty (increase in the probe sensitivity) is less than 2%.

## **Test Equipment**

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2005.

# NCL CALIBRATION LABORATORIES

Calibration File No.: CP-607

Client.: RFEL

## CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the  
**NCL CALIBRATION LABORATORIES** by qualified personnel following recognized  
procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 5200 MHz

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: 215

BODY Calibration

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2

Project No: RFEL-Probe-215-Calibration-5166

Calibrated: 10<sup>th</sup> June 2005  
Released on: 10<sup>th</sup> June 2005

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary

Released By: \_\_\_\_\_ Signature On File

**NCL CALIBRATION LABORATORIES**

51 SPECTRUM WAY  
NEPEAN, ONTARIO  
CANADA K2R 1E6

Division of APREL Lab.  
TEL: (613) 820-4988  
FAX: (613) 820-4161

## **Introduction**

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E-020 215.

## **References**

SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure  
IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"  
SSI-TP-011 Tissue Calibration Procedure

## **Conditions**

Probe 215 was a new probe taken from stock prior to calibration.

**Ambient Temperature of the Laboratory:** 22 °C +/- 0.5°C  
**Temperature of the Tissue:** 21 °C +/- 0.5°C

**We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.**

---

**Stuart Nicol**  
**Director Product Development**

---

**Janusz Lokaj**  
**Member of Engineering Staff**  
**(Calibration Engineer)**

## Calibration Results Summary

<b>Probe Type:</b>	E-Field Probe E-020
<b>Serial Number:</b>	215
<b>Frequency:</b>	5200 MHz
<b>Sensor Offset:</b>	1.56 mm
<b>Sensor Length:</b>	2.5 mm
<b>Tip Enclosure:</b>	Ertalyte*
<b>Tip Diameter:</b>	<5 mm
<b>Tip Length:</b>	60 mm
<b>Total Length:</b>	290 mm

\*Resistive to recommended tissue recipes per IEEE-1528

## Sensitivity in Air

<b>Channel X:</b>	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
<b>Channel Y:</b>	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
<b>Channel Z:</b>	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
<b>Diode Compression Point:</b>	95 mV



## **Sensitivity in Body Tissue**

**Frequency:** 5200 MHz

**Epsilon:** 43.4 (+/-5%)      **Sigma:** 5.7 S/m (+/-10%)

### **ConvF**

**Channel X:** 2.8

**Channel Y:** 2.8

**Channel Z:** 2.8

Tissue sensitivity values were calculated using the load impedance of the APREL Laboratories Daq-Paq.

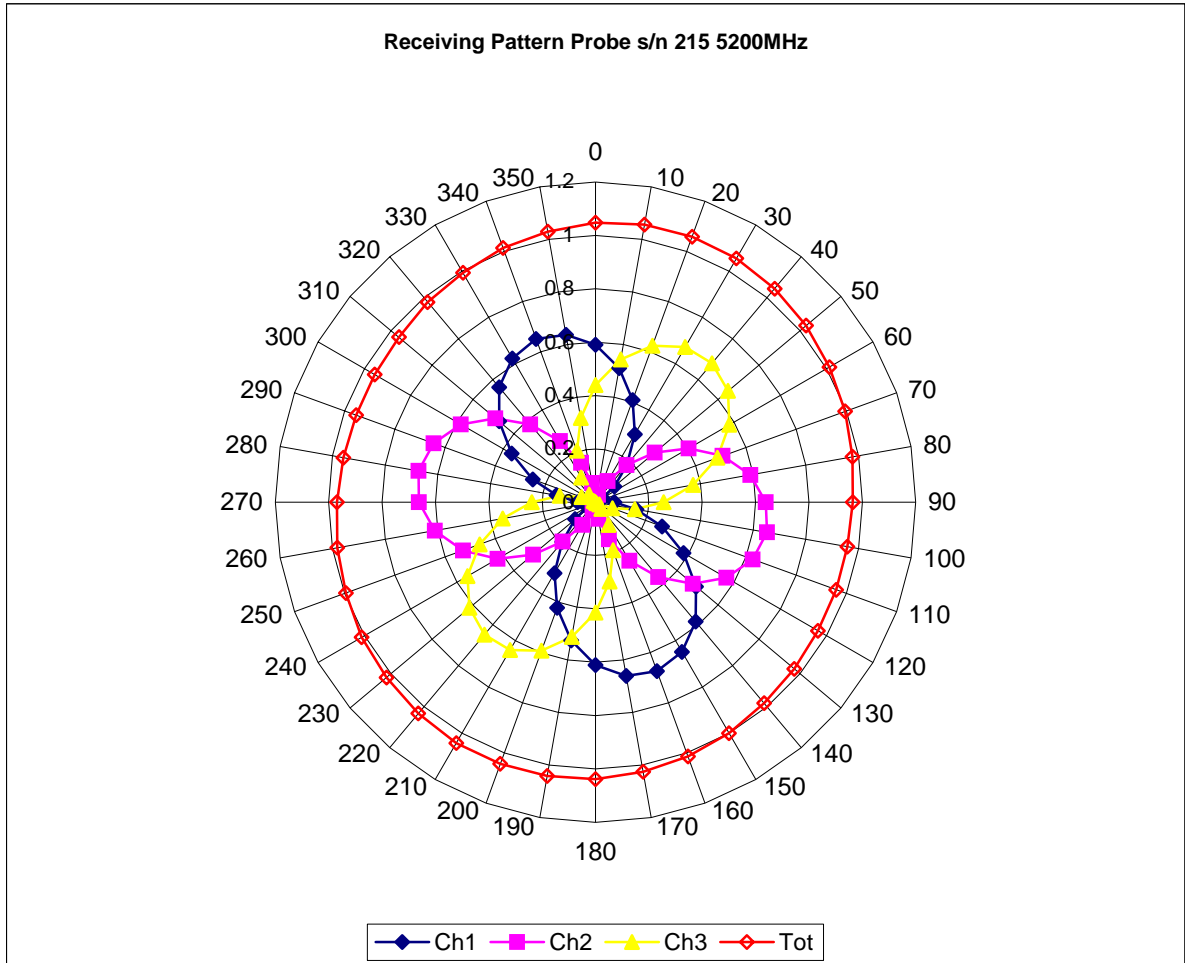
### **Boundary Effect:**

Uncertainty resulting from the boundary effect is less than 2% for the distance between the tip of the probe and the tissue boundary, when less than 2.44mm.

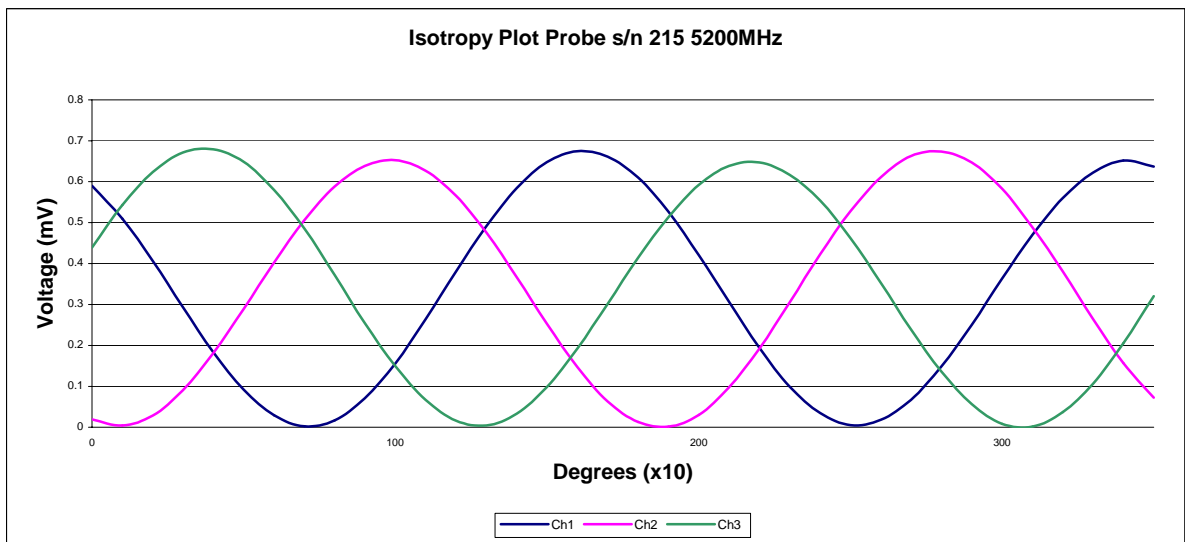
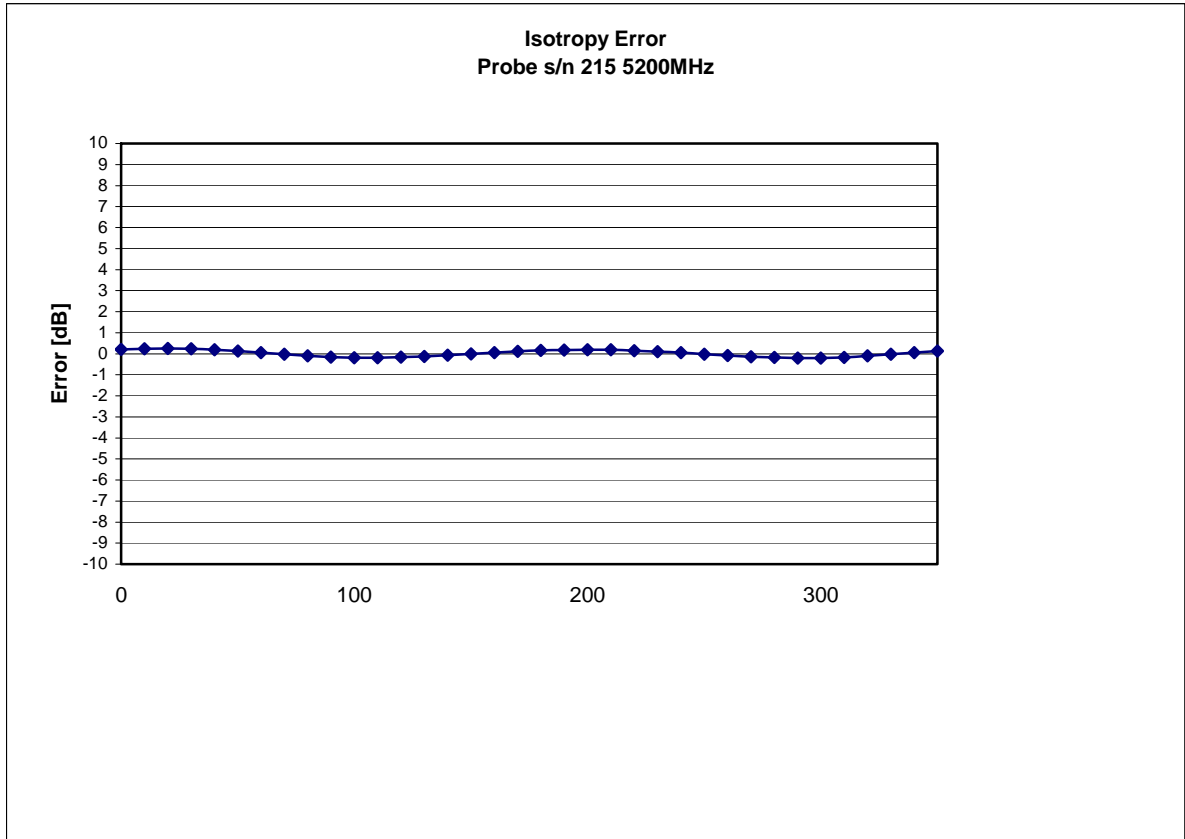
### **Spatial Resolution:**

The measured probe tip diameter is 5 mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

## Receiving Pattern 5200 MHz (Air)



### Isotropy Error 5200 MHz (Air)



Isotropicity in Tissue:

0.10 dB

