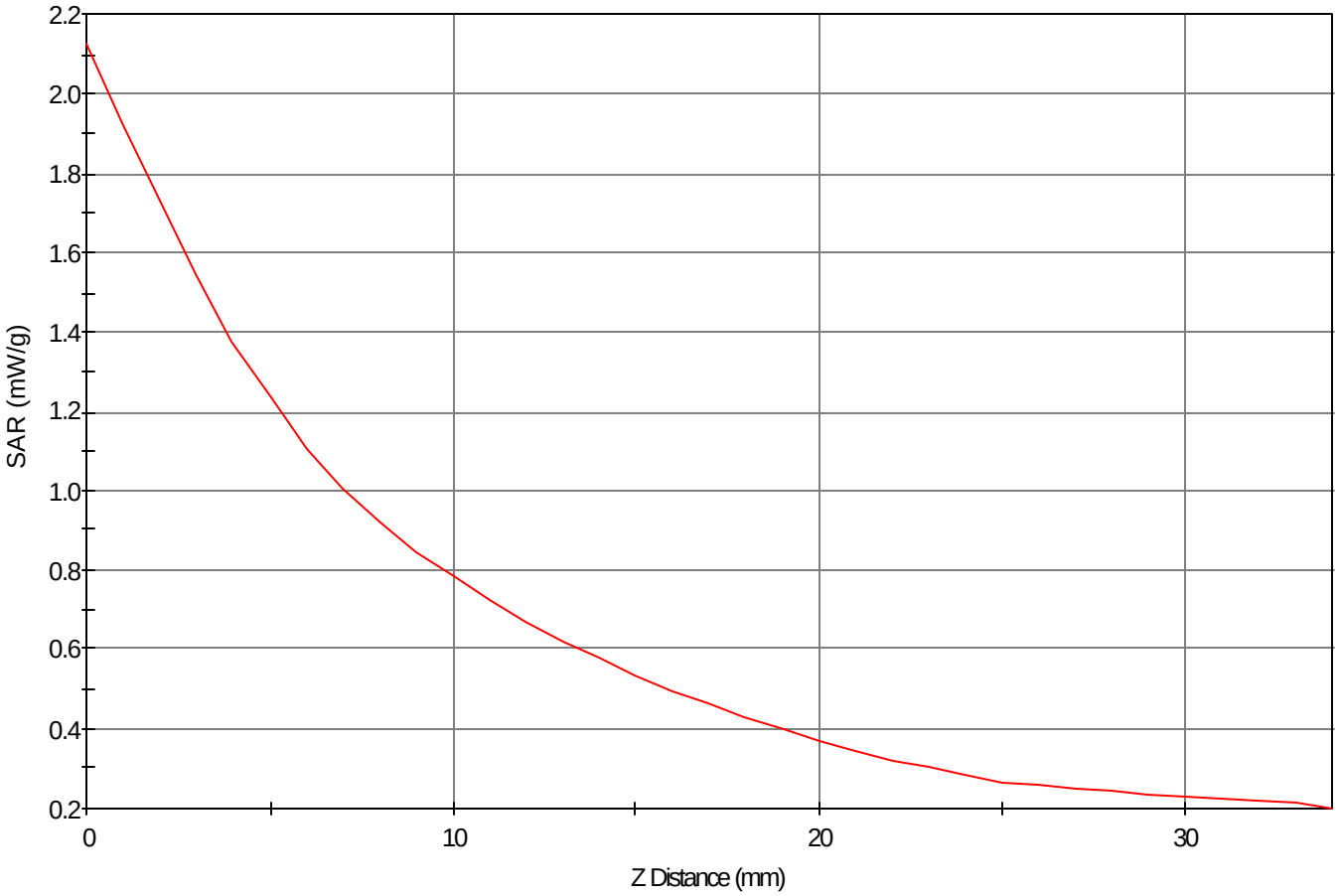
APPENDIX A: SAR TEST DATA

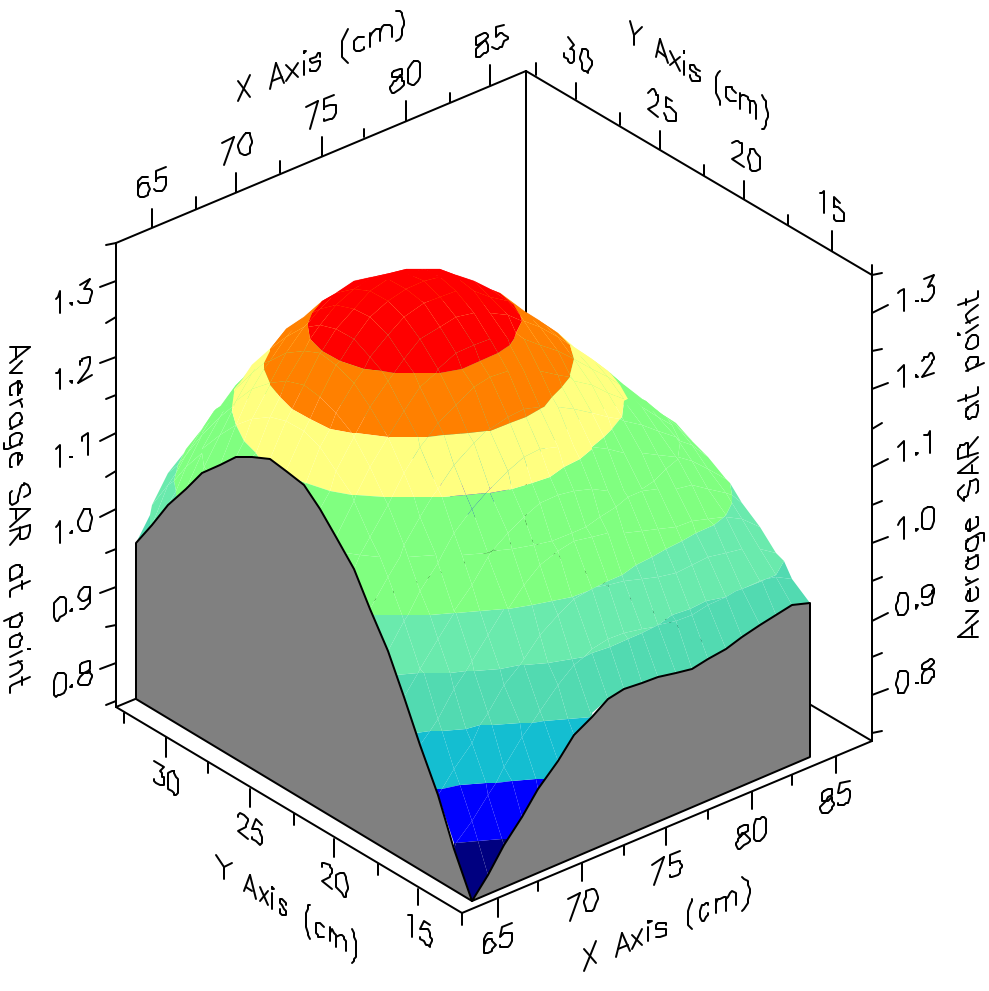
SAR Data Report 03102921

```
  Start        : 29-Oct-03 01:44:03 pm
  End          : 29-Oct-03 01:53:52 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 836.49 MHz
  Transmit Pwr     : 0.400 W
  Antenna Type     : Helical
  Antenna Posn.    : Out

Measurement Data:
  Phantom Name        : SAM-RIGHT
  Phantom Type        : Right Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  AMPS Mode CH-383
  CHEEK
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=74.0 y=23.0 = 1.23 W/kg

Zoom Scan - Max Peak SAR Value at x=68.0 y=24.0 z=0.0 = 2.13 W/kg

Max 1g SAR at x=72.0 y=24.0 z=0.0 = 1.33 W/kg

Max 10g SAR at x=73.0 y=25.0 z=0.0 = 0.78 W/kg
```

SAR - Z Axis
at Hotspot x:68.0 y:24.0



1g SAR Values

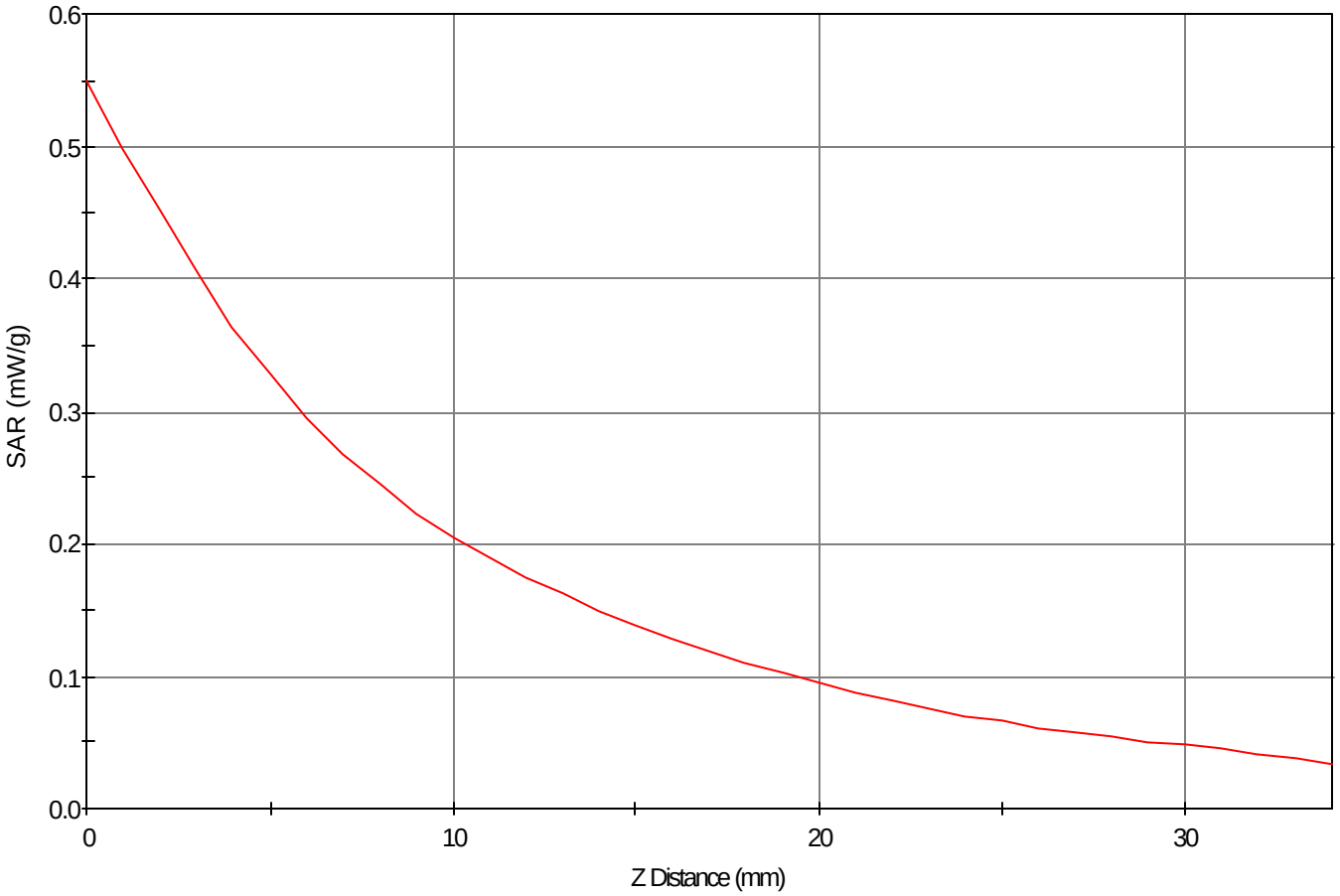



SAMSUNG
SEND
END
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0

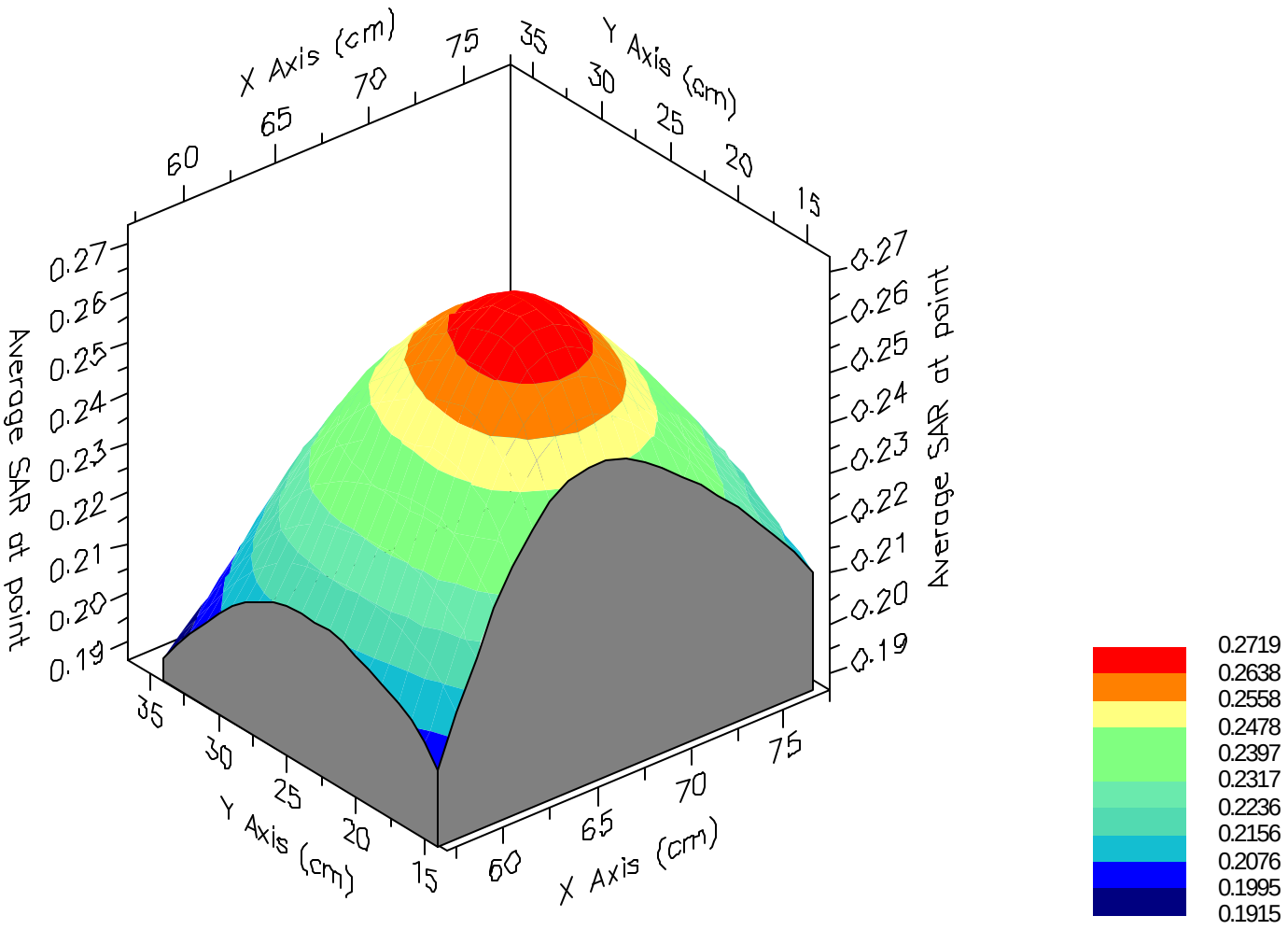
SAR Data Report 03102926

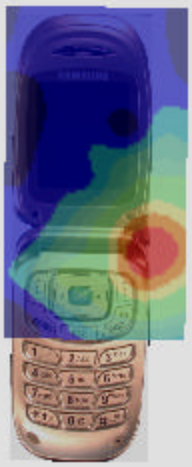
```
  Start        : 29-Oct-03 02:48:15 pm
  End          : 29-Oct-03 02:57:57 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 836.49 MHz
  Transmit Pwr     : 0.400 W
  Antenna Type     : Helical
  Antenna Posn.    : In

Measurement Data:
  Phantom Name        : SAM-RIGHT
  Phantom Type        : Right Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  AMPS Mode CH-383
  TILT
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=67.0 y=24.0 = 0.24 W/kg

Zoom Scan - Max Peak SAR Value at x=63.0 y=17.0 z=0.0 = 0.55 W/kg

Max 1g SAR at x=66.0 y=20.0 z=0.0 = 0.27 W/kg

Max 10g SAR at x=68.0 y=23.0 z=0.0 = 0.18 W/kg
```

SAR - Z Axis
at Hotspot x:63.0 y:17.0



1g SAR Values

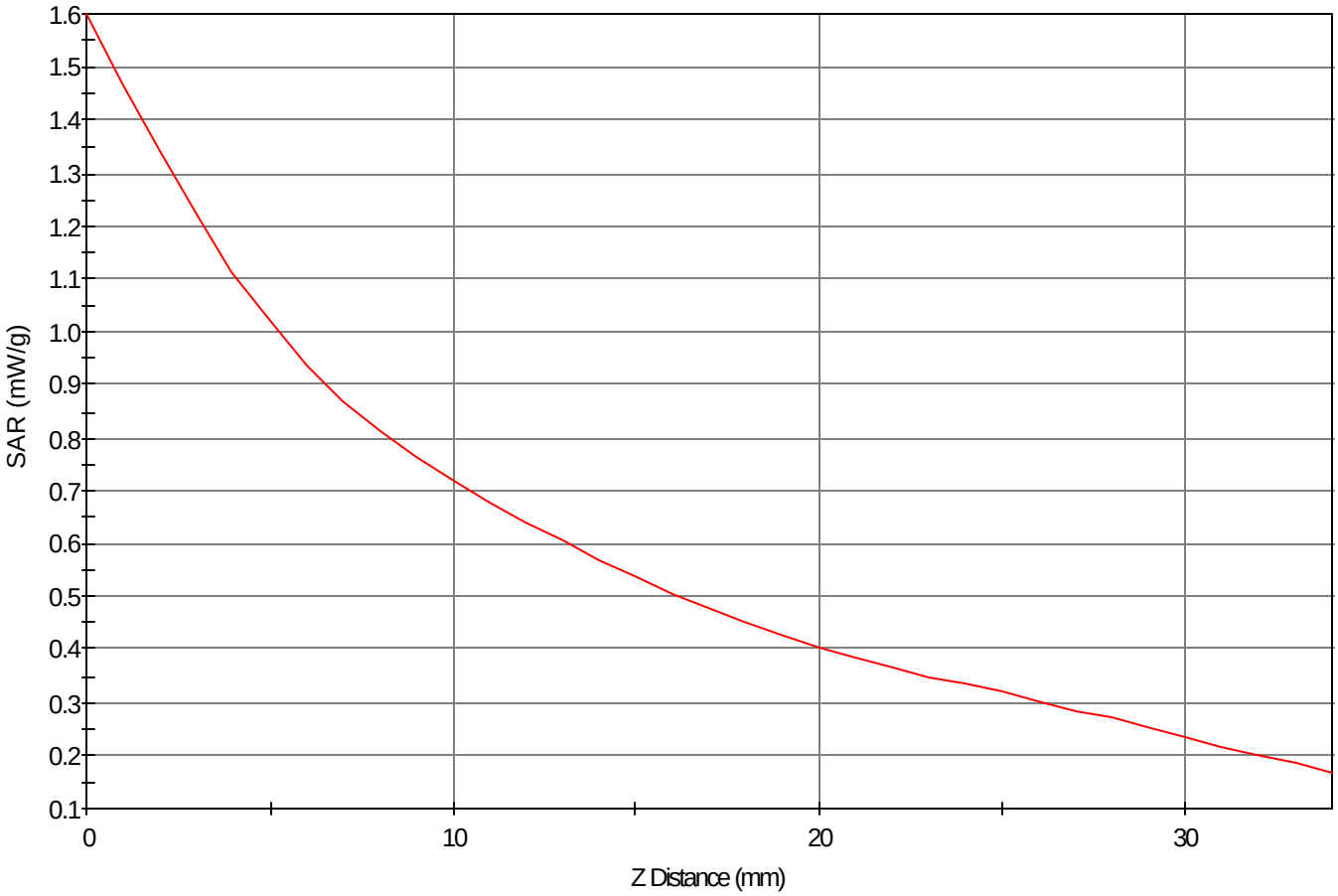




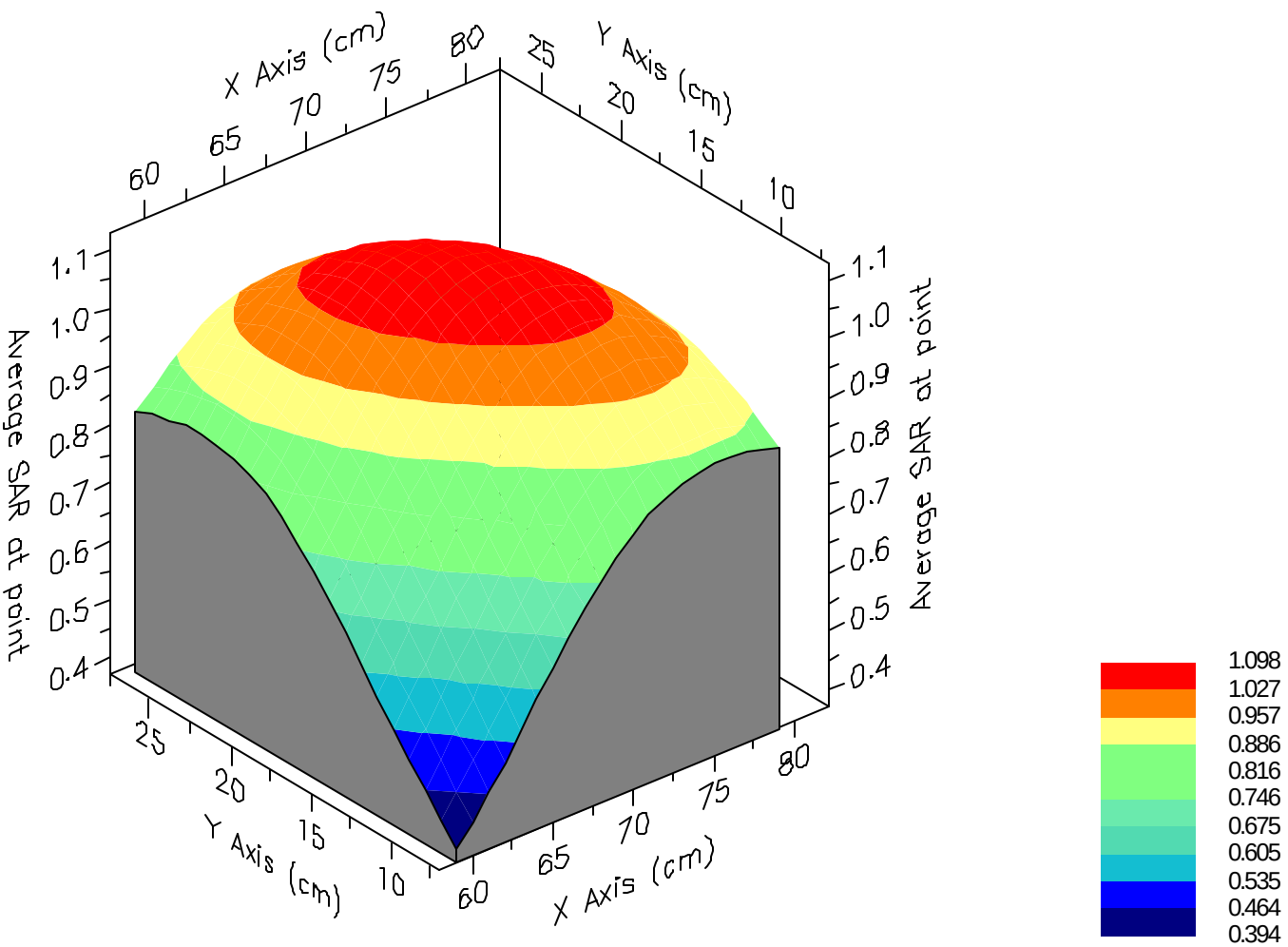
SAR Data Report 03102919

```
  Start        : 29-Oct-03 01:07:12 pm
  End          : 29-Oct-03 01:23:47 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 836.49 MHz
  Transmit Pwr     : 0.400 W
  Antenna Type     : Helical
  Antenna Posn.    : Out

Measurement Data:
  Phantom Name        : SAM-LEFT
  Phantom Type        : Left Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  AMPS Mode CH-383
  CHEEK
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=69.0 y=17.0 = 1.08 W/kg

Zoom Scan - Max Peak SAR Value at x=65.0 y=18.0 z=0.0 = 1.60 W/kg

Max 1g SAR at x=70.0 y=19.0 z=0.0 = 1.10 W/kg

Max 10g SAR at x=72.0 y=18.0 z=0.0 = 0.69 W/kg
```

SAR - Z Axis
at Hotspot x:65.0 y:18.0



1g SAR Values

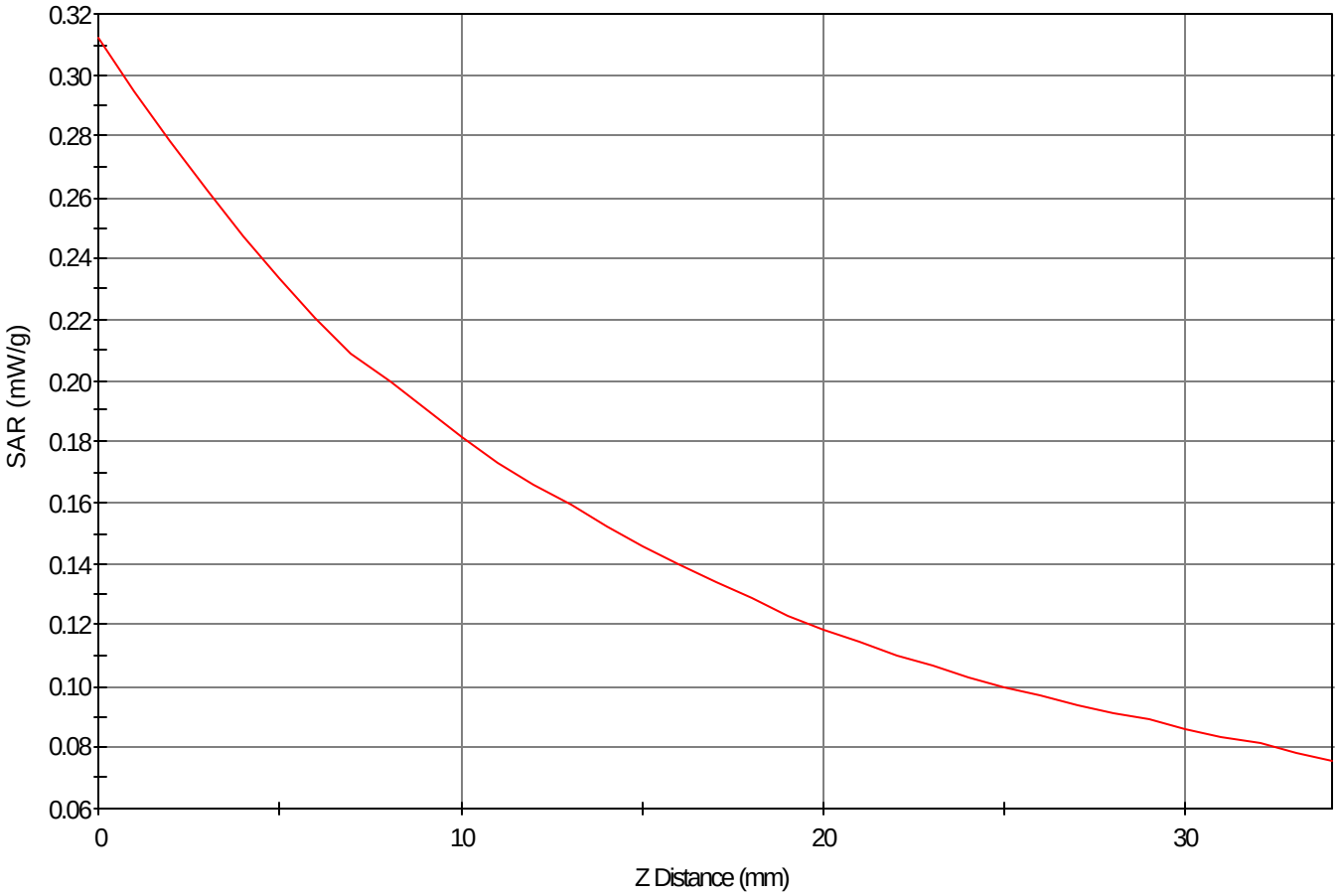



SAMSUNG
MENU
CLR
END

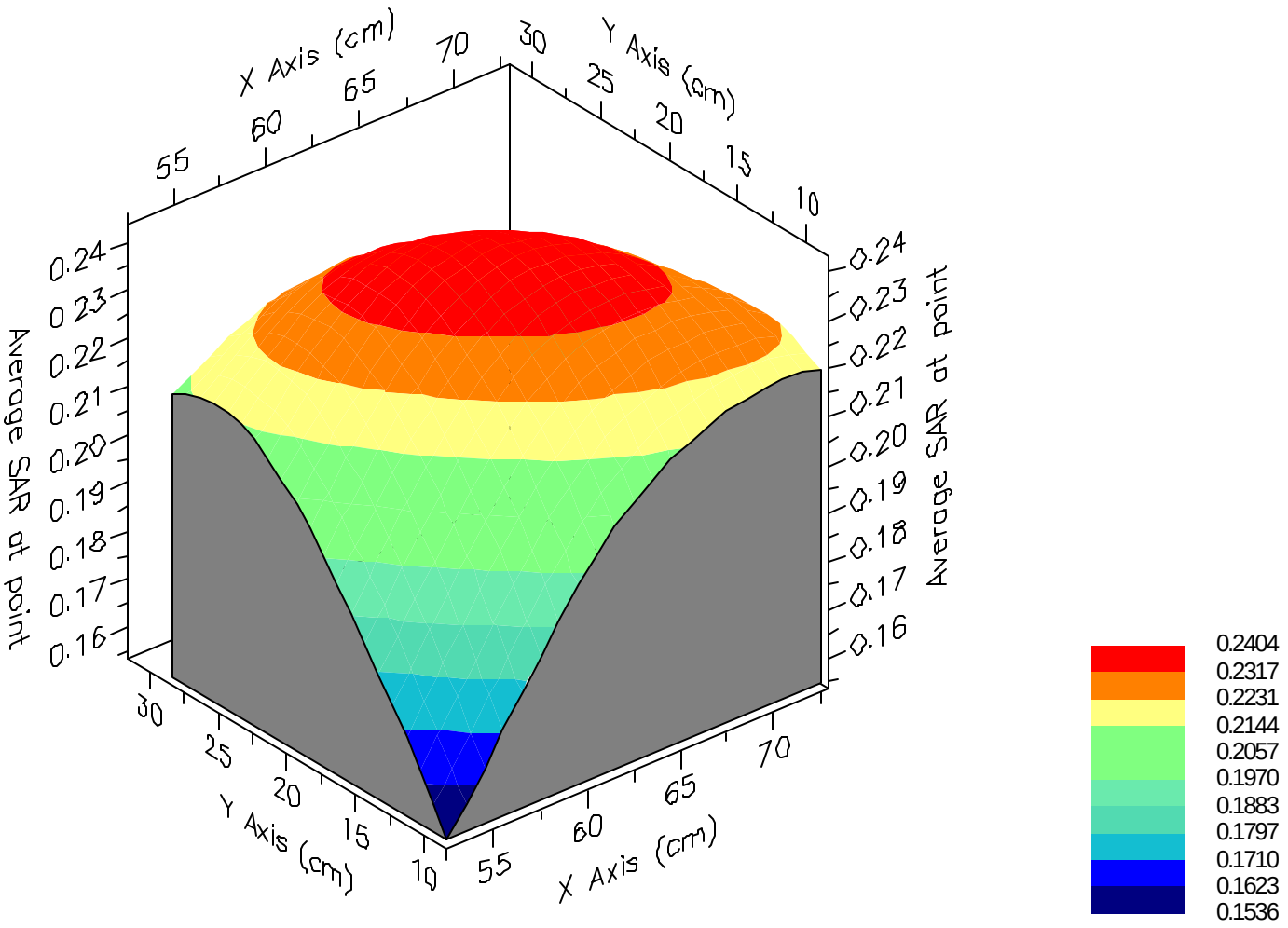
SAR Data Report 03102927

```
  Start        : 29-Oct-03 03:00:04 pm
  End          : 29-Oct-03 03:12:48 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 836.49 MHz
  Transmit Pwr     : 0.400 W
  Antenna Type     : Helical
  Antenna Posn.    : In

Measurement Data:
  Phantom Name        : SAM-LEFT
  Phantom Type        : Left Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  AMPS Mode CH-383
  TILT
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=63.0 y=19.0 = 0.24 W/kg

Zoom Scan - Max Peak SAR Value at x=65.0 y=21.0 z=0.0 = 0.31 W/kg

Max 1g SAR at x=63.0 y=21.0 z=0.0 = 0.24 W/kg

Max 10g SAR at x=64.0 y=19.0 z=0.0 = 0.18 W/kg
```

SAR - Z Axis
at Hotspot x:65.0 y:21.0



1g SAR Values

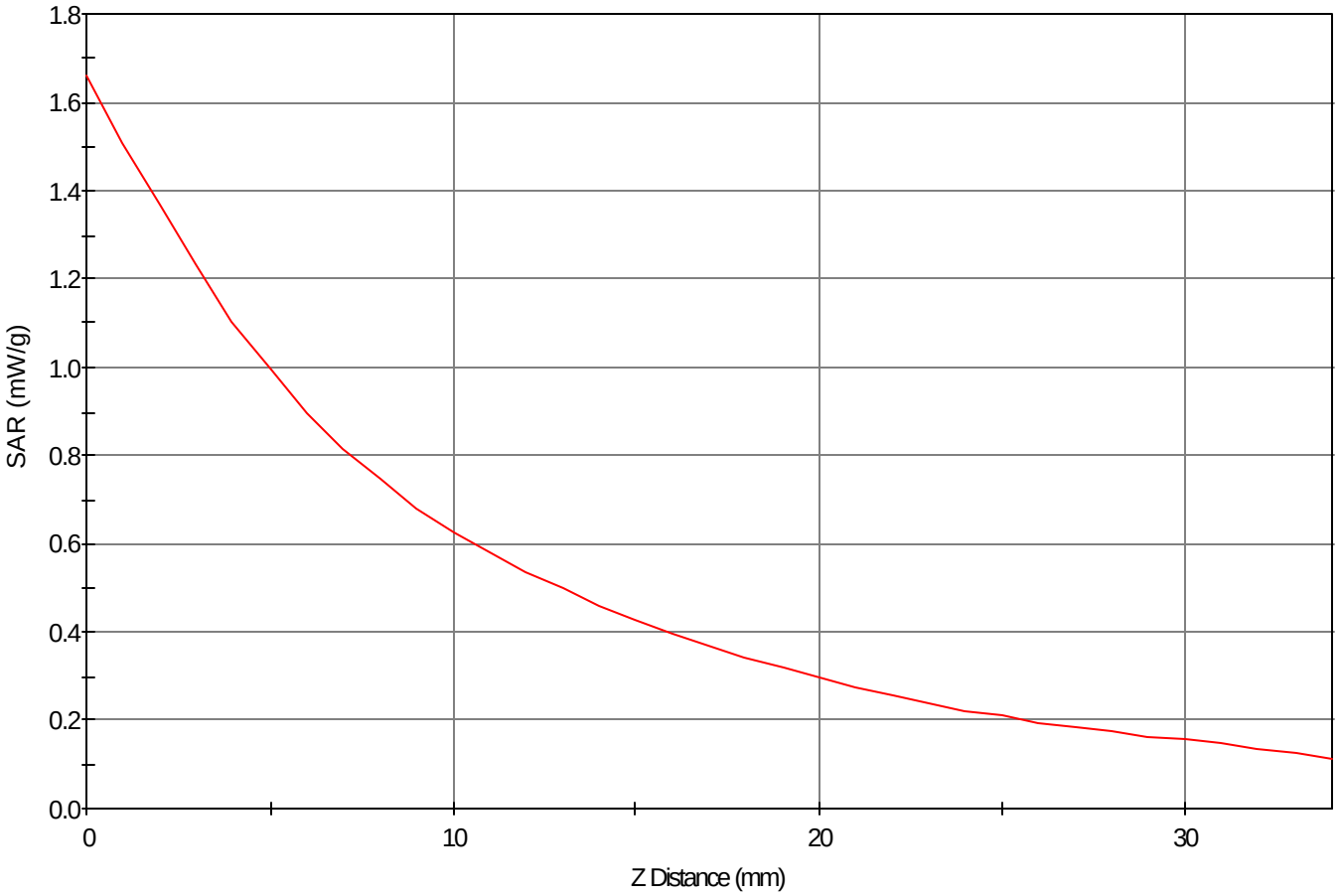



SAMSUNG
OK
SEND
CLR
END
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0

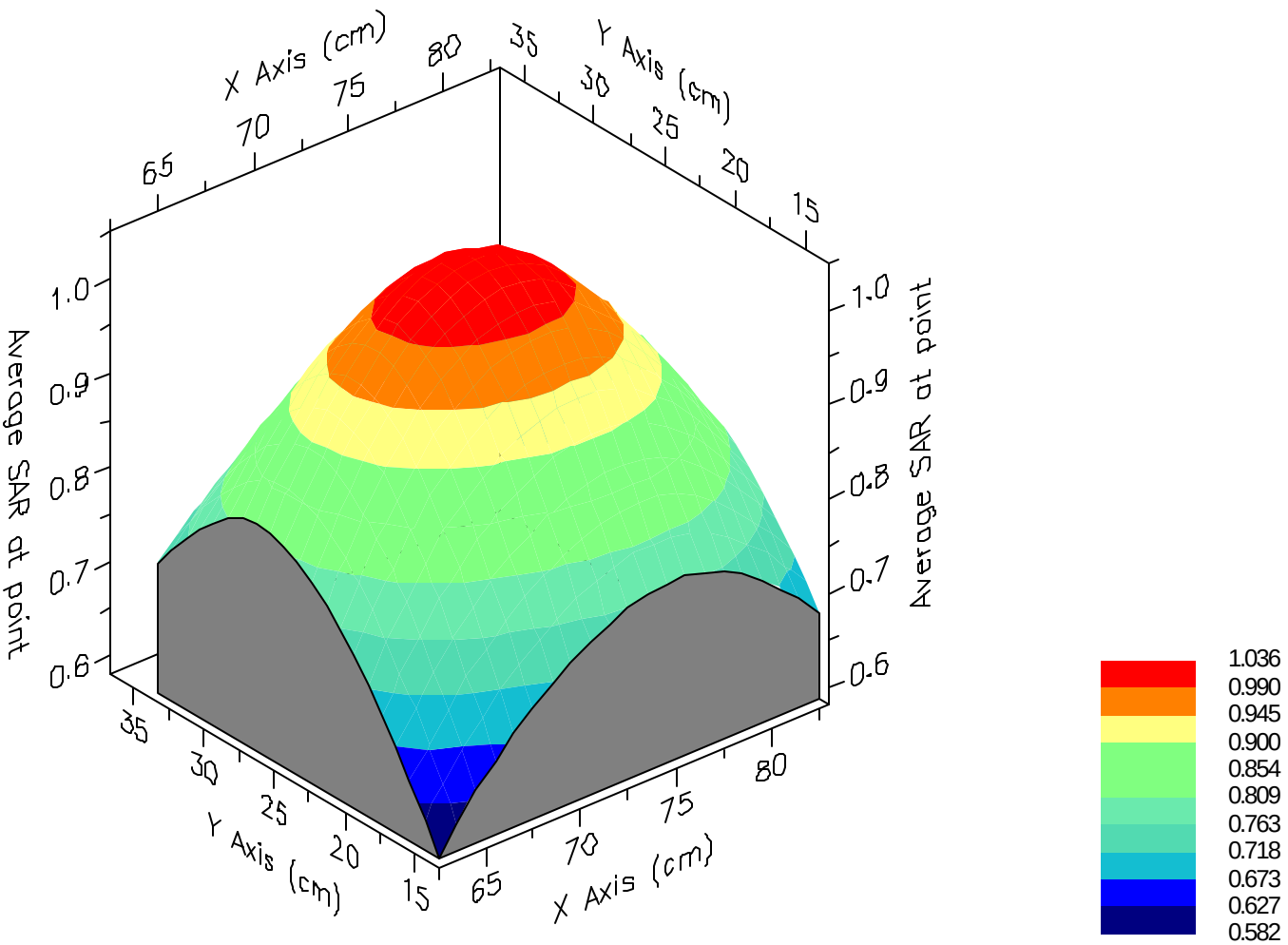
SAR Data Report 03103003

```
  Start        : 30-Oct-03 09:26:14 am
  End          : 30-Oct-03 09:35:51 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 835.89 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : Out

Measurement Data:
  Phantom Name        : SAM-RIGHT
  Phantom Type        : Right Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  CDMA Mode CH-363
  CHEEK
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=73.0 y=24.0 = 0.98 W/kg

Zoom Scan - Max Peak SAR Value at x=73.0 y=25.0 z=0.0 = 1.66 W/kg

Max 1g SAR at x=73.0 y=25.0 z=0.0 = 1.04 W/kg

Max 10g SAR at x=73.0 y=25.0 z=0.0 = 0.61 W/kg
```

SAR - Z Axis
at Hotspot x:73.0 y:25.0



1g SAR Values

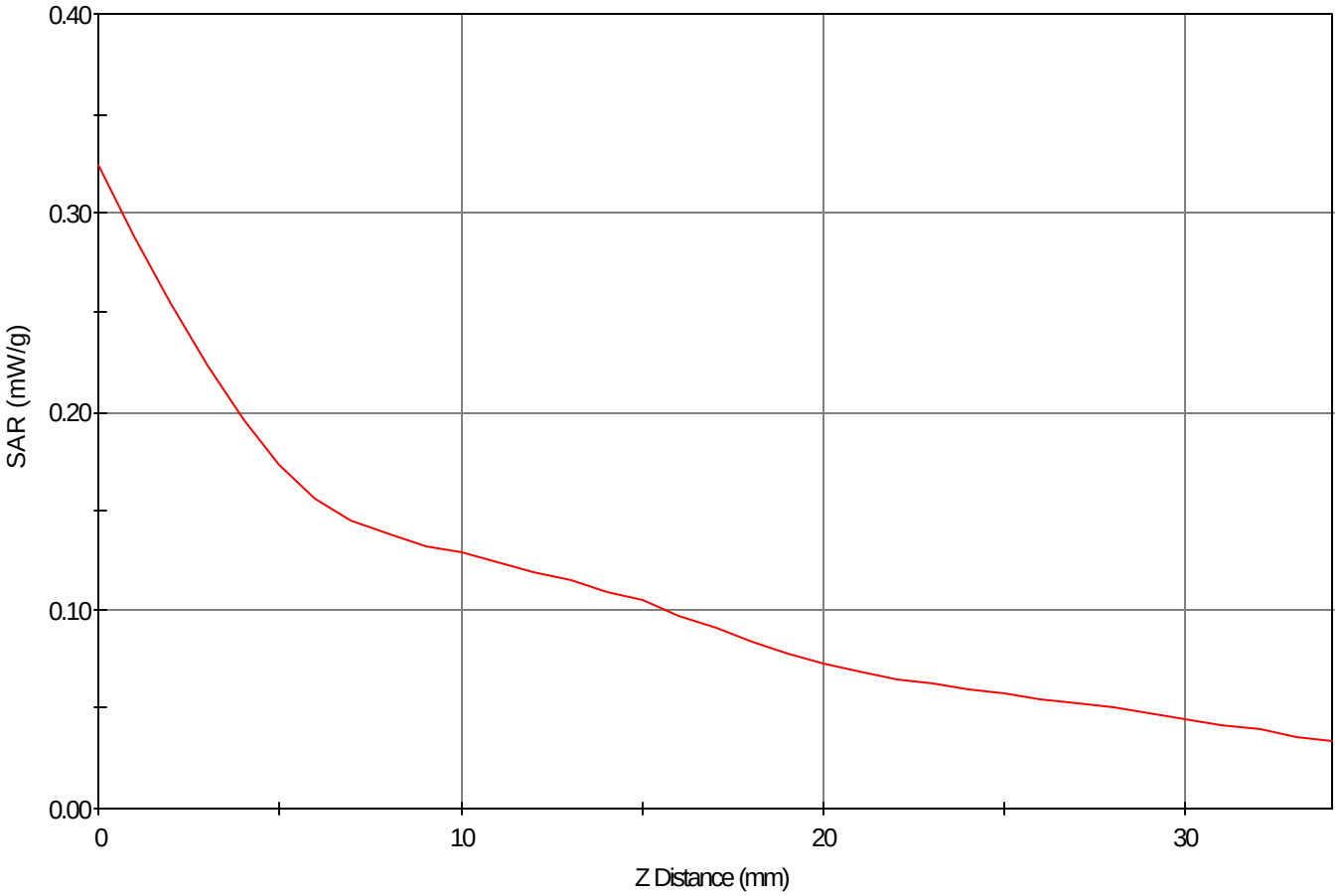



SAMSUNG
SEND
END
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0

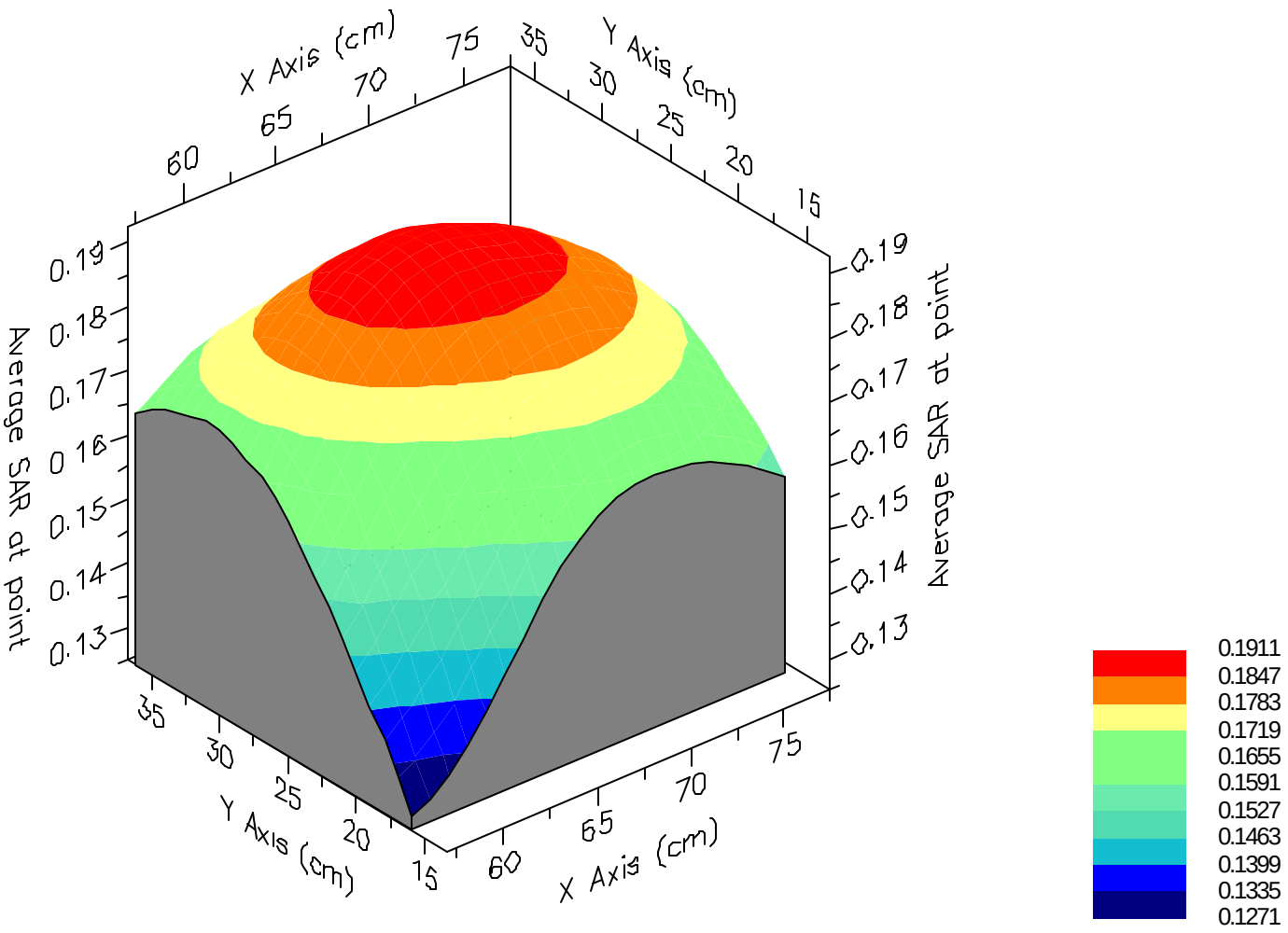
SAR Data Report 03103004

```
  Start        : 30-Oct-03 09:37:50 am
  End          : 30-Oct-03 09:47:32 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 835.89 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : Out

Measurement Data:
  Phantom Name        : SAM-RIGHT
  Phantom Type        : Right Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  CDMA Mode CH-363
  TILT
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=67.0 y=26.0 = 0.18 W/kg

Zoom Scan - Max Peak SAR Value at x=62.0 y=26.0 z=0.0 = 0.32 W/kg

Max 1g SAR at x=66.0 y=28.0 z=0.0 = 0.19 W/kg

Max 10g SAR at x=67.0 y=29.0 z=0.0 = 0.13 W/kg
```

SAR - Z Axis
at Hotspot x:62.0 y:26.0



1g SAR Values

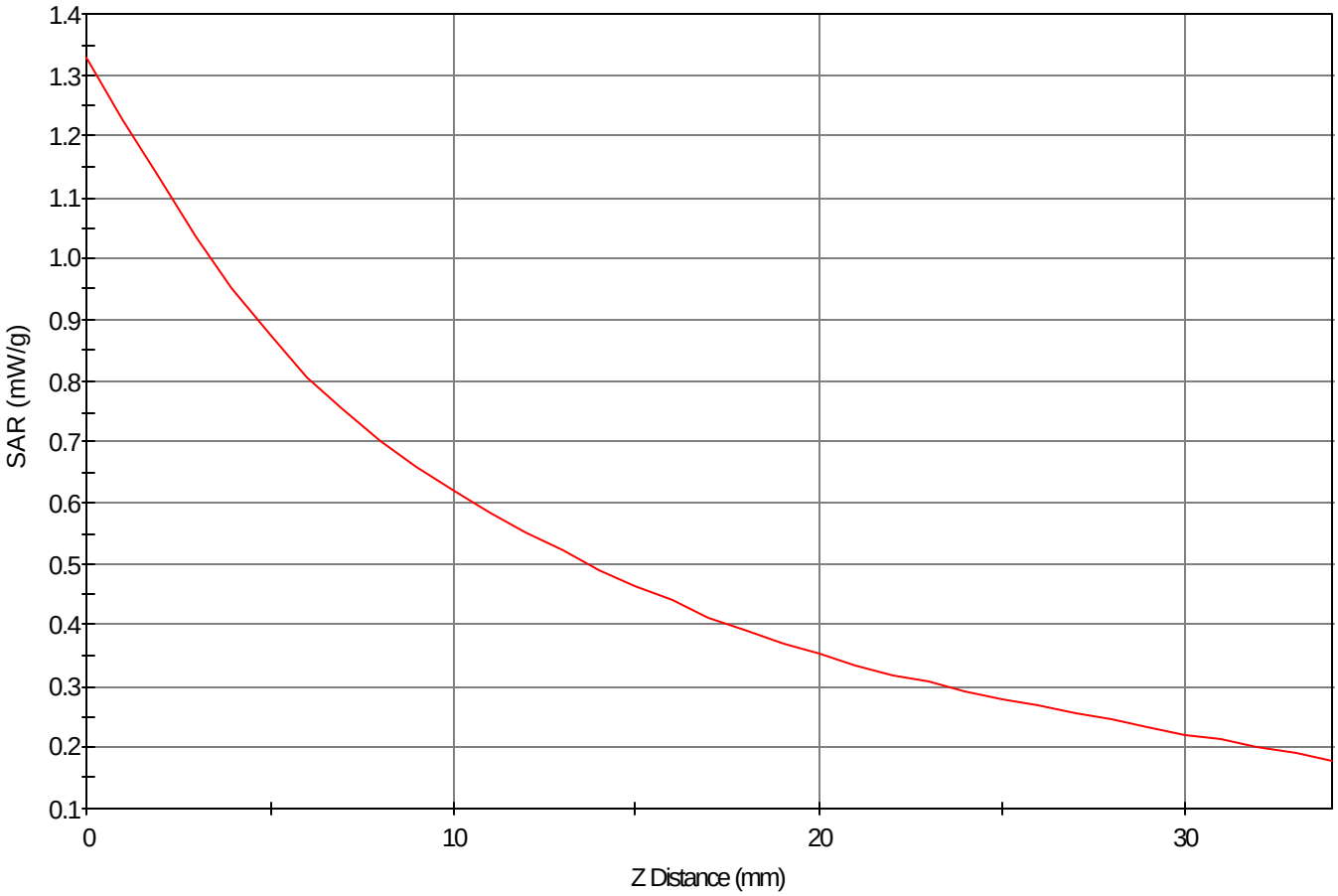



SAMSUNG
OK
CLR
END
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0

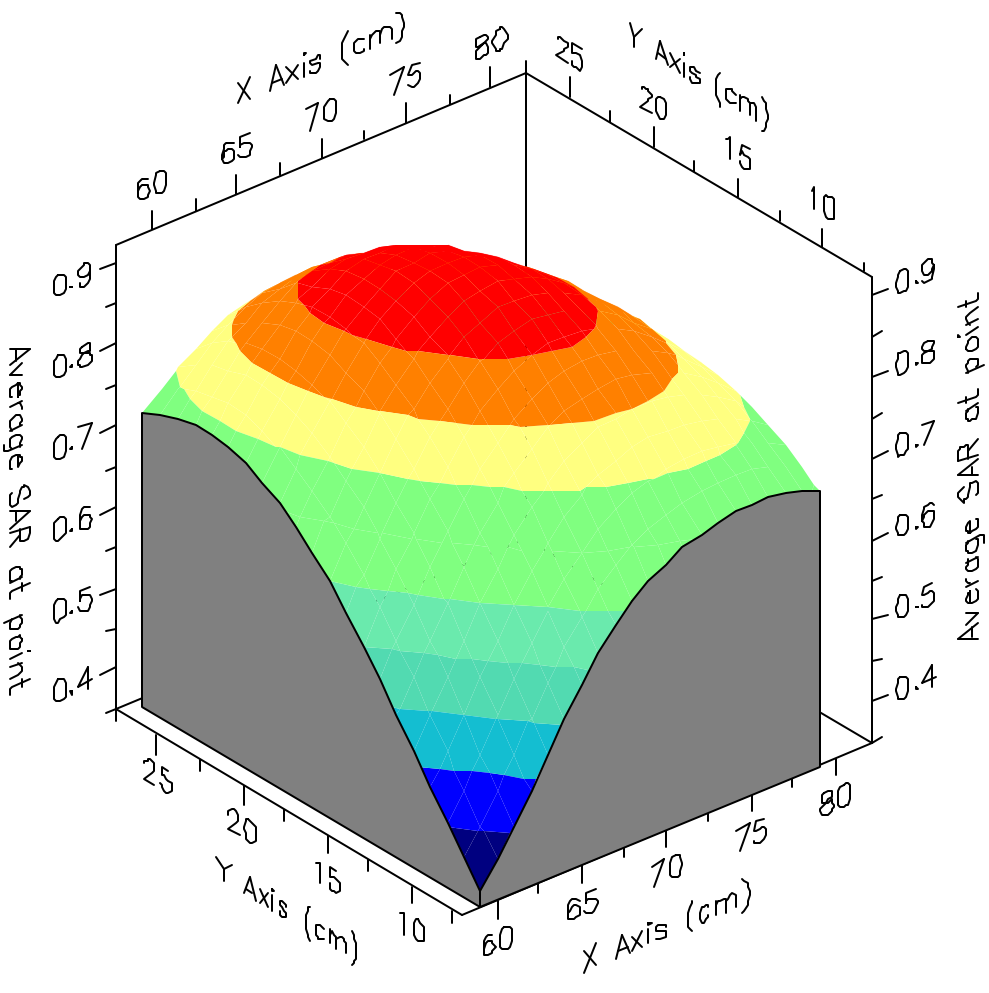
SAR Data Report 03102933

```
  Start        : 29-Oct-03 05:03:58 pm
  End          : 29-Oct-03 05:20:33 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 835.89 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : In

Measurement Data:
  Phantom Name        : SAM-LEFT
  Phantom Type        : Left Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  CDMA Mode CH-363
  CHEEK
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=69.0 y=17.0 = 0.86 W/kg

Zoom Scan - Max Peak SAR Value at x=68.0 y=18.0 z=0.0 = 1.33 W/kg

Max 1g SAR at x=69.0 y=19.0 z=0.0 = 0.91 W/kg

Max 10g SAR at x=71.0 y=18.0 z=0.0 = 0.58 W/kg
```

SAR - Z Axis
at Hotspot x:68.0 y:18.0



1g SAR Values

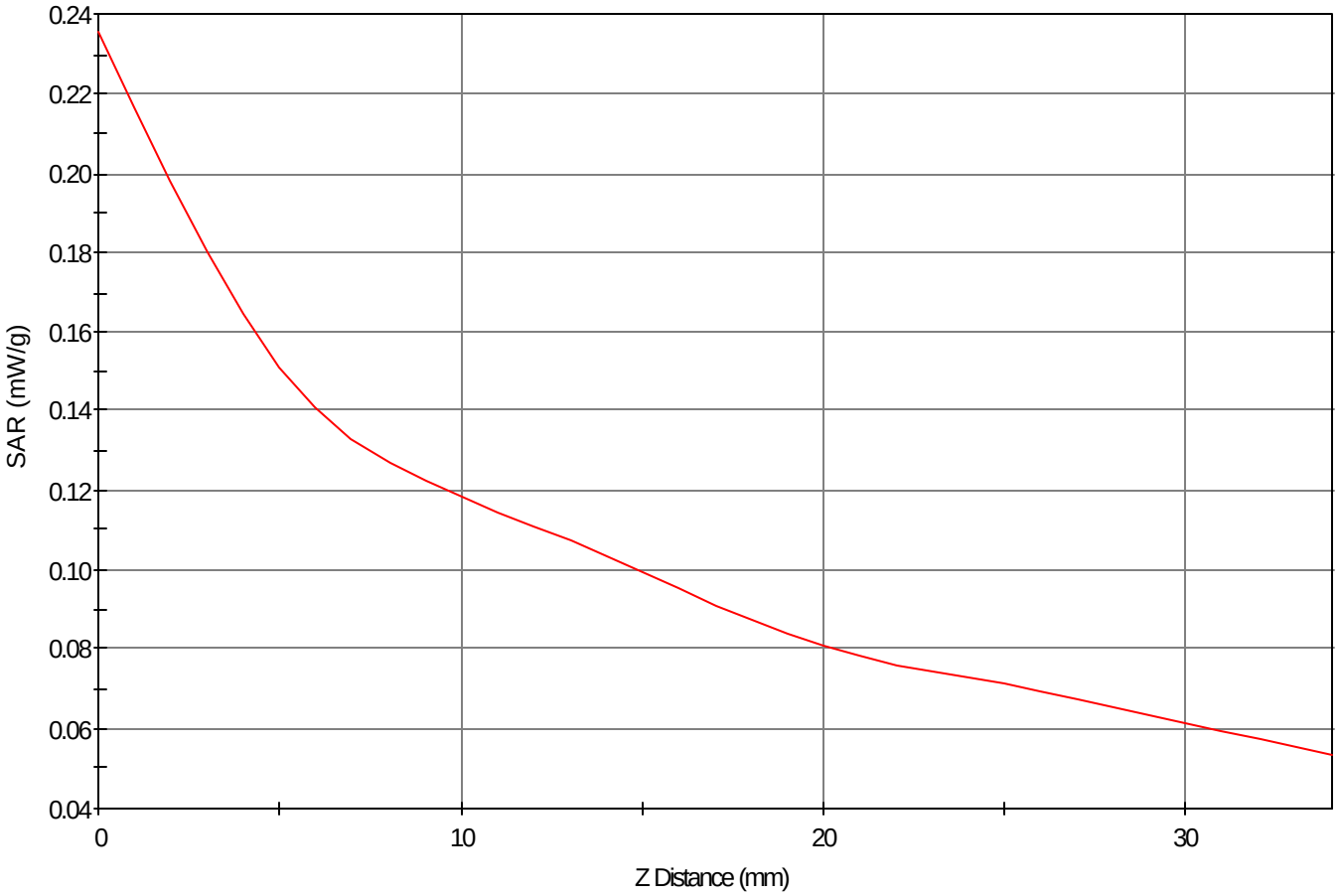



SAMSUNG
OK
SEND
CLR
END
1
2 ABC
3
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0

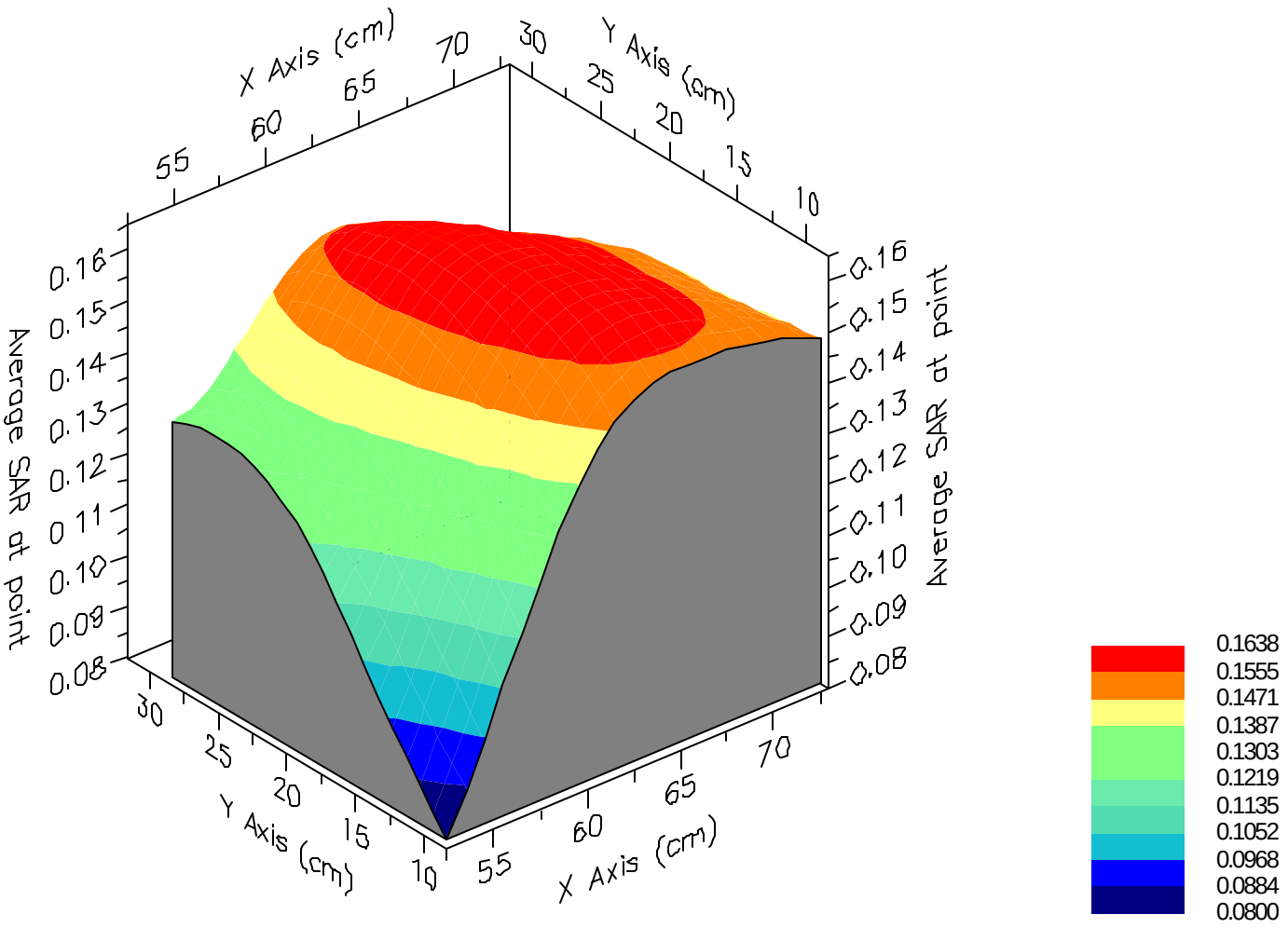
SAR Data Report 03103006

```
  Start        : 30-Oct-03 10:00:47 am
  End          : 30-Oct-03 10:13:18 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 835.89 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : In

Measurement Data:
  Phantom Name        : SAM-LEFT
  Phantom Type        : Left Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  CDMA Mode CH-363
  TILT
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=63.0 y=19.0 = 0.16 W/kg

Zoom Scan - Max Peak SAR Value at x=60.0 y=28.0 z=0.0 = 0.24 W/kg

Max 1g SAR at x=63.0 y=20.0 z=0.0 = 0.16 W/kg

Max 10g SAR at x=66.0 y=17.0 z=0.0 = 0.12 W/kg
```

SAR - Z Axis
at Hotspot x:60.0 y:28.0



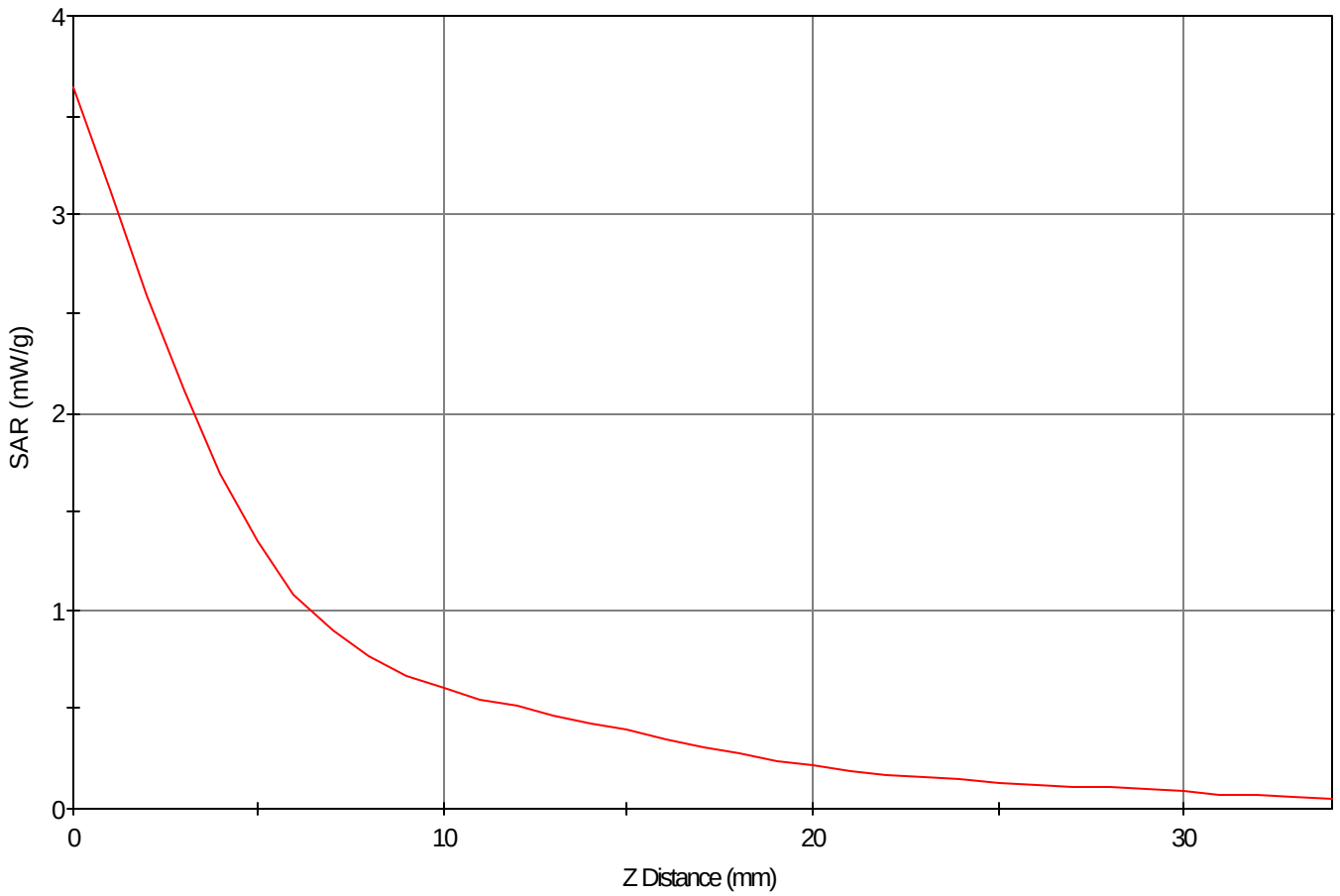
1g SAR Values



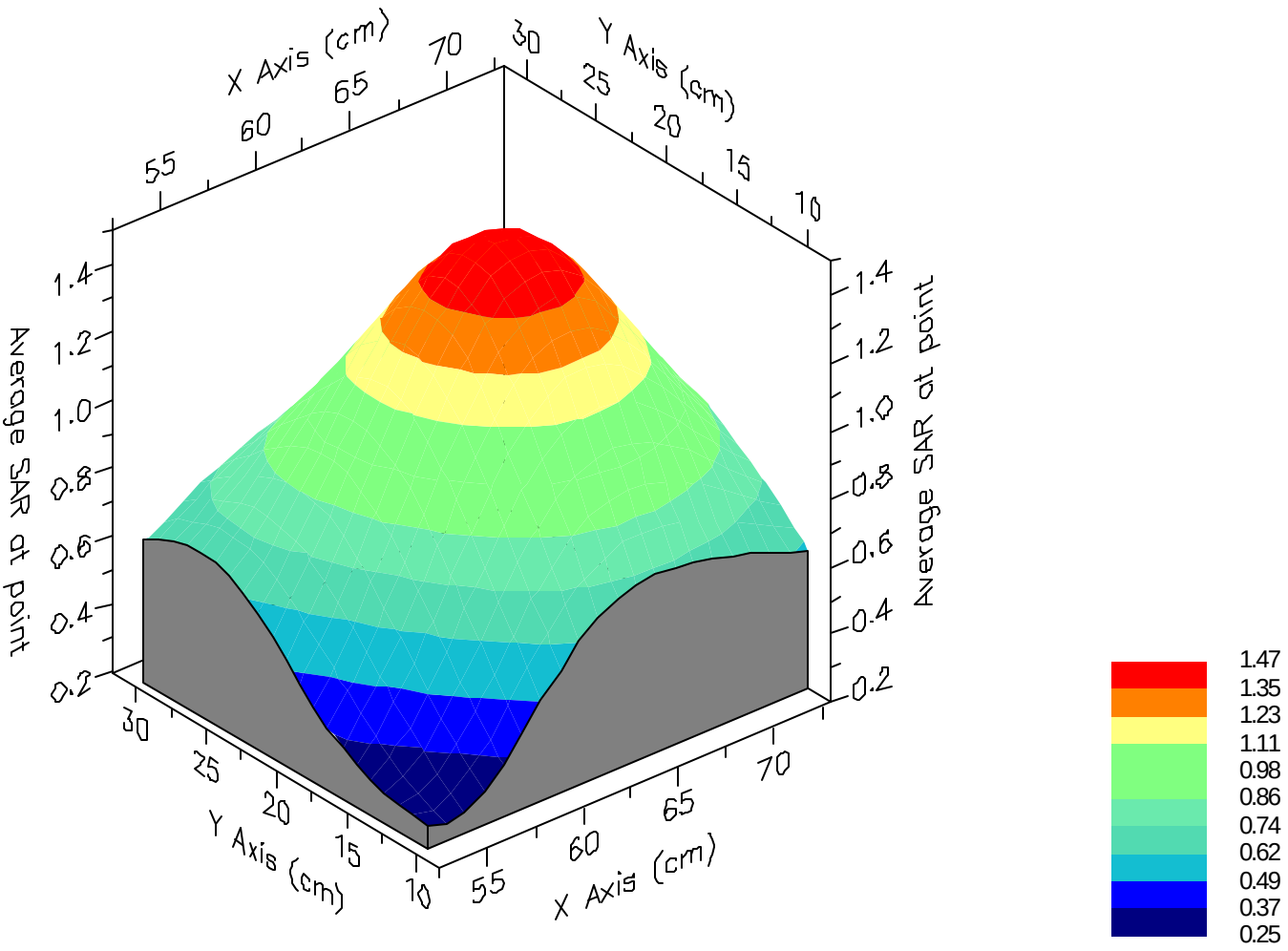
SAR Data Report 03102910

```
  Start        : 29-Oct-03 10:45:59 am
  End          : 29-Oct-03 10:55:44 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 2
  Frequency        : 1880.00 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : In

Measurement Data:
  Phantom Name        : SAM-RIGHT
  Phantom Type        : Right Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 40.510
  Tissue Conductivity : 1.400
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 1880 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.200
  Calibrated Conductivity :  1.410
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  4.050
  Probe Sensitivity :  4.794   5.895   5.327   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  PCS Mode CH-600
  CHEEK
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=63.0 y=20.0 = 1.08 W/kg

Zoom Scan - Max Peak SAR Value at x=63.0 y=20.0 z=0.0 = 3.64 W/kg

Max 1g SAR at x=65.0 y=20.0 z=0.0 = 1.47 W/kg

Max 10g SAR at x=66.0 y=22.0 z=0.0 = 0.61 W/kg
```

SAR - Z Axis
at Hotspot x:63.0 y:20.0



1g SAR Values

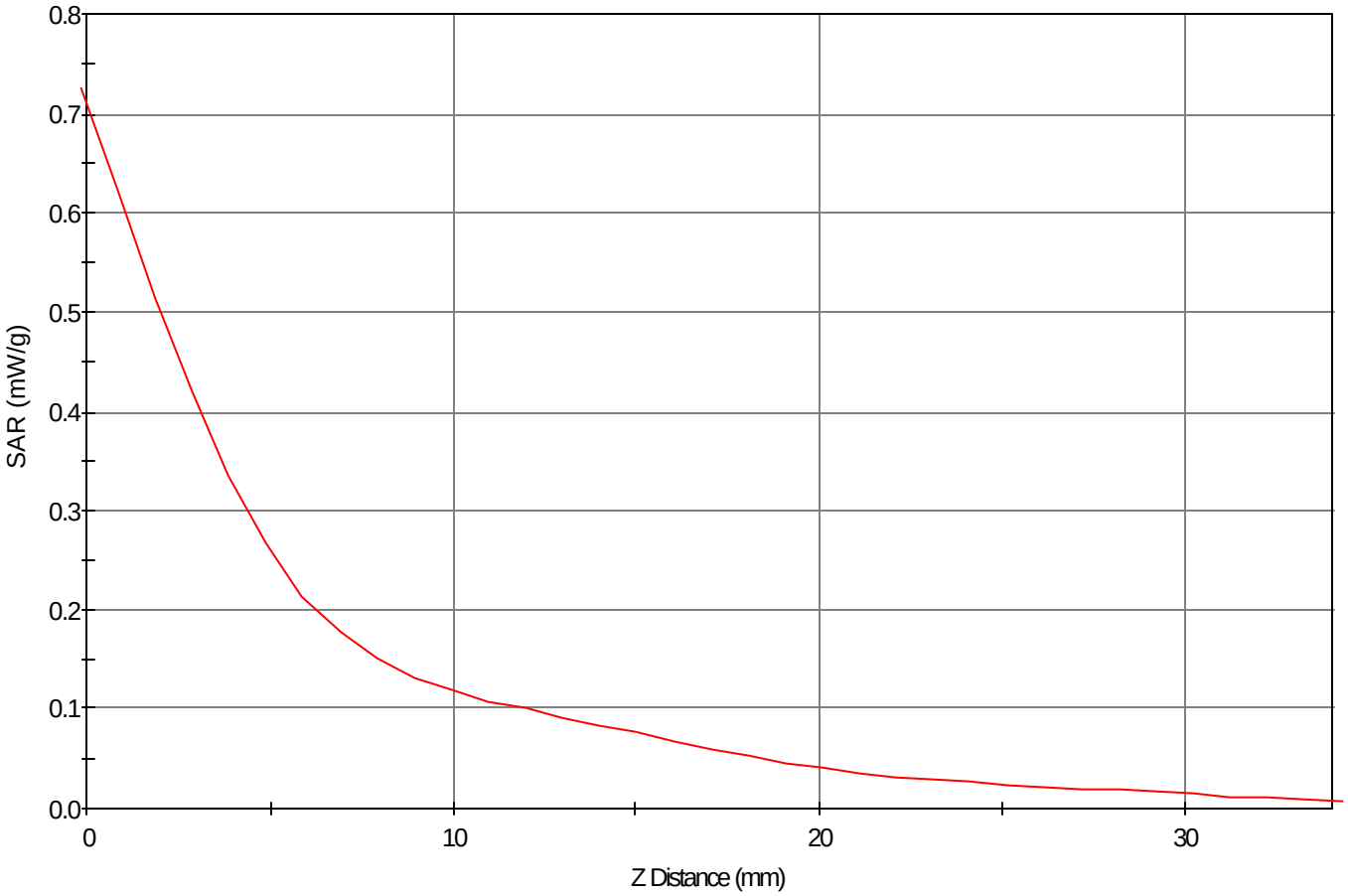



SAMSUNG
OK
SEND
CLR
END
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0

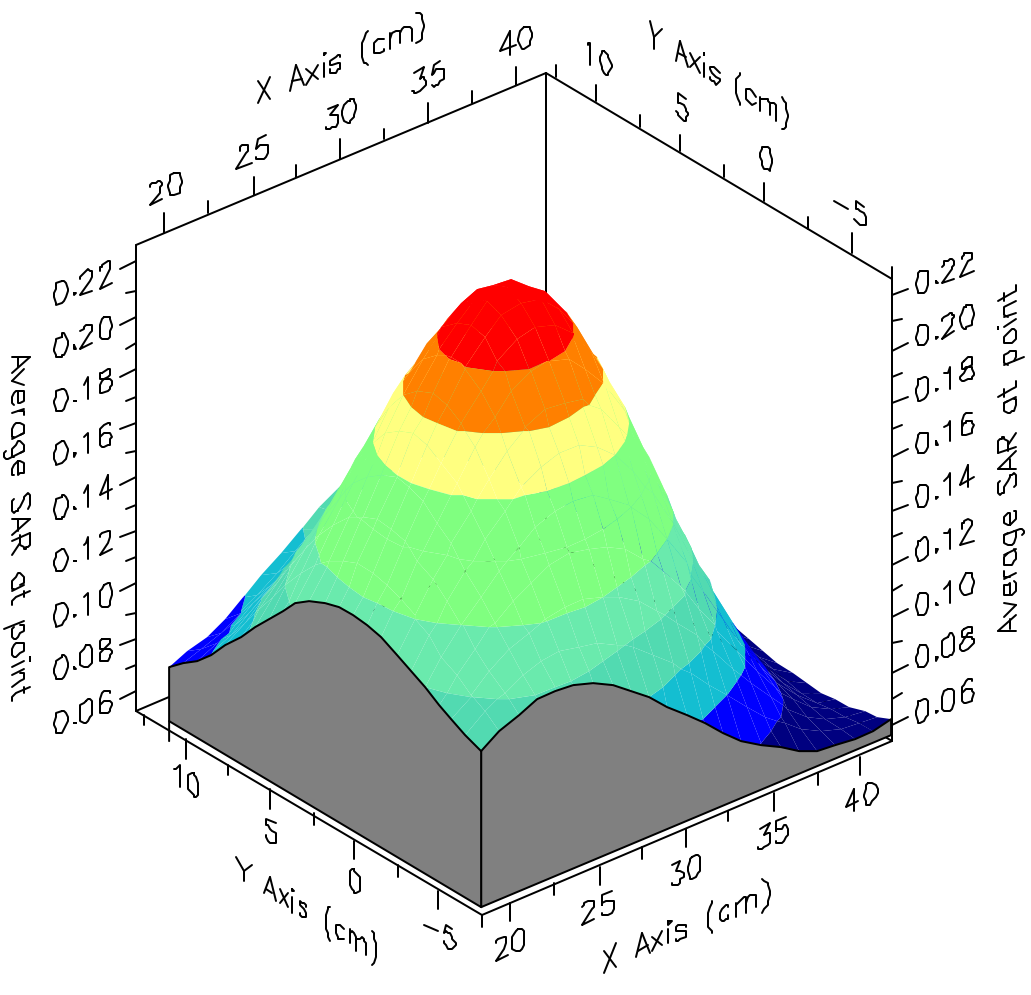
SAR Data Report 03102915

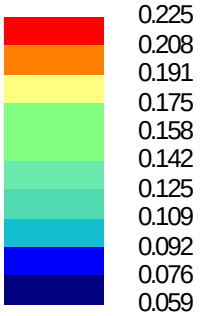
```
  Start        : 29-Oct-03 11:54:58 am
  End          : 29-Oct-03 12:04:53 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 1880.00 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : In

Measurement Data:
  Phantom Name        : SAM-RIGHT
  Phantom Type        : Right Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 40.510
  Tissue Conductivity : 1.400
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 1880 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.200
  Calibrated Conductivity :  1.410
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  4.050
  Probe Sensitivity :  4.794   5.895   5.327   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  PCS Mode CH-600
  TILT
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=31.0 y=3.0 = 0.17 W/kg

Zoom Scan - Max Peak SAR Value at x=27.0 y=18.0 z=0.0 = 0.72 W/kg

Max 1g SAR at x=28.0 y=13.0 z=0.0 = 0.22 W/kg

Max 10g SAR at x=27.0 y=7.0 z=0.0 = 0.10 W/kg
```

SAR - Z Axis
at Hotspot x:27.0 y:18.0



1g SAR Values

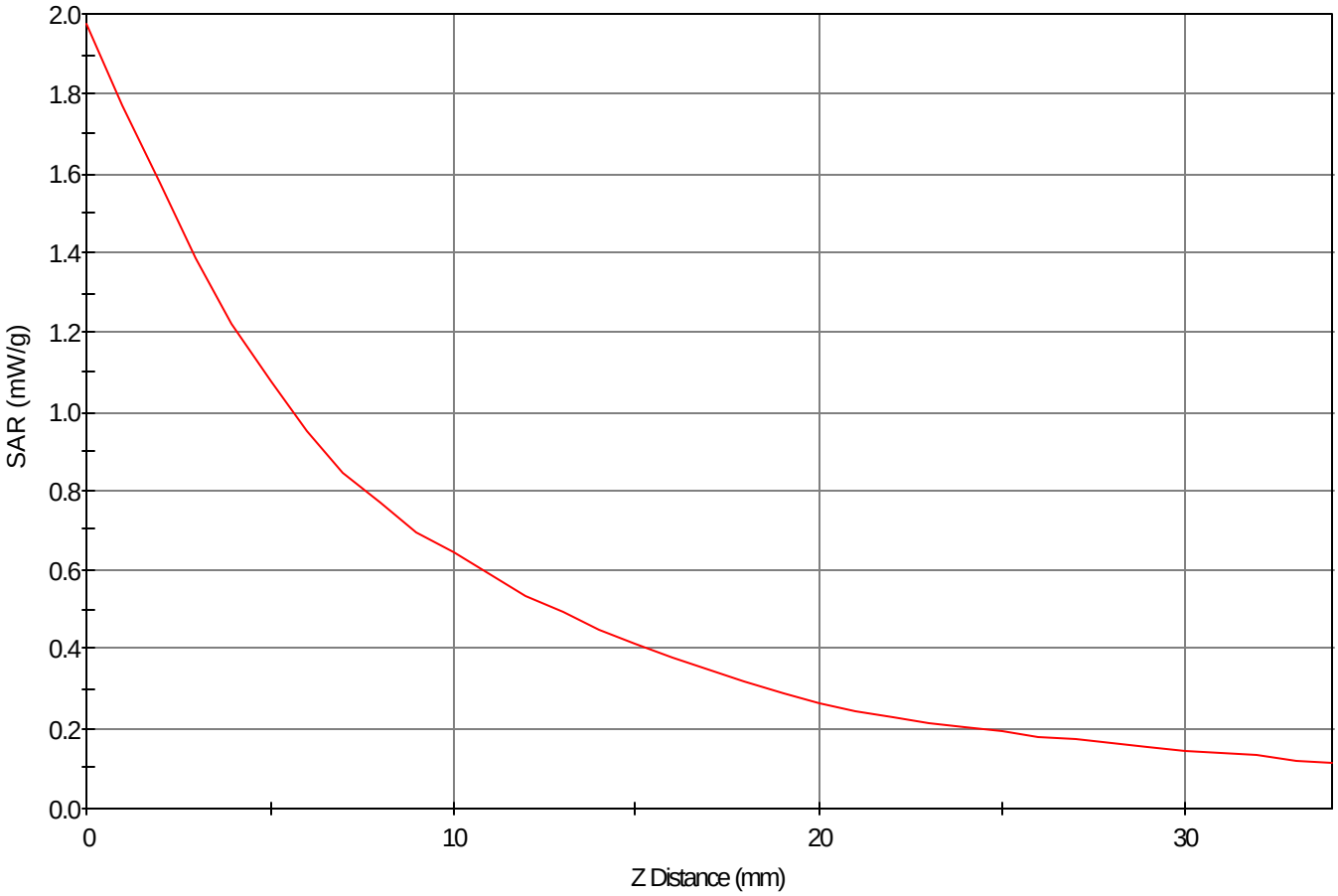




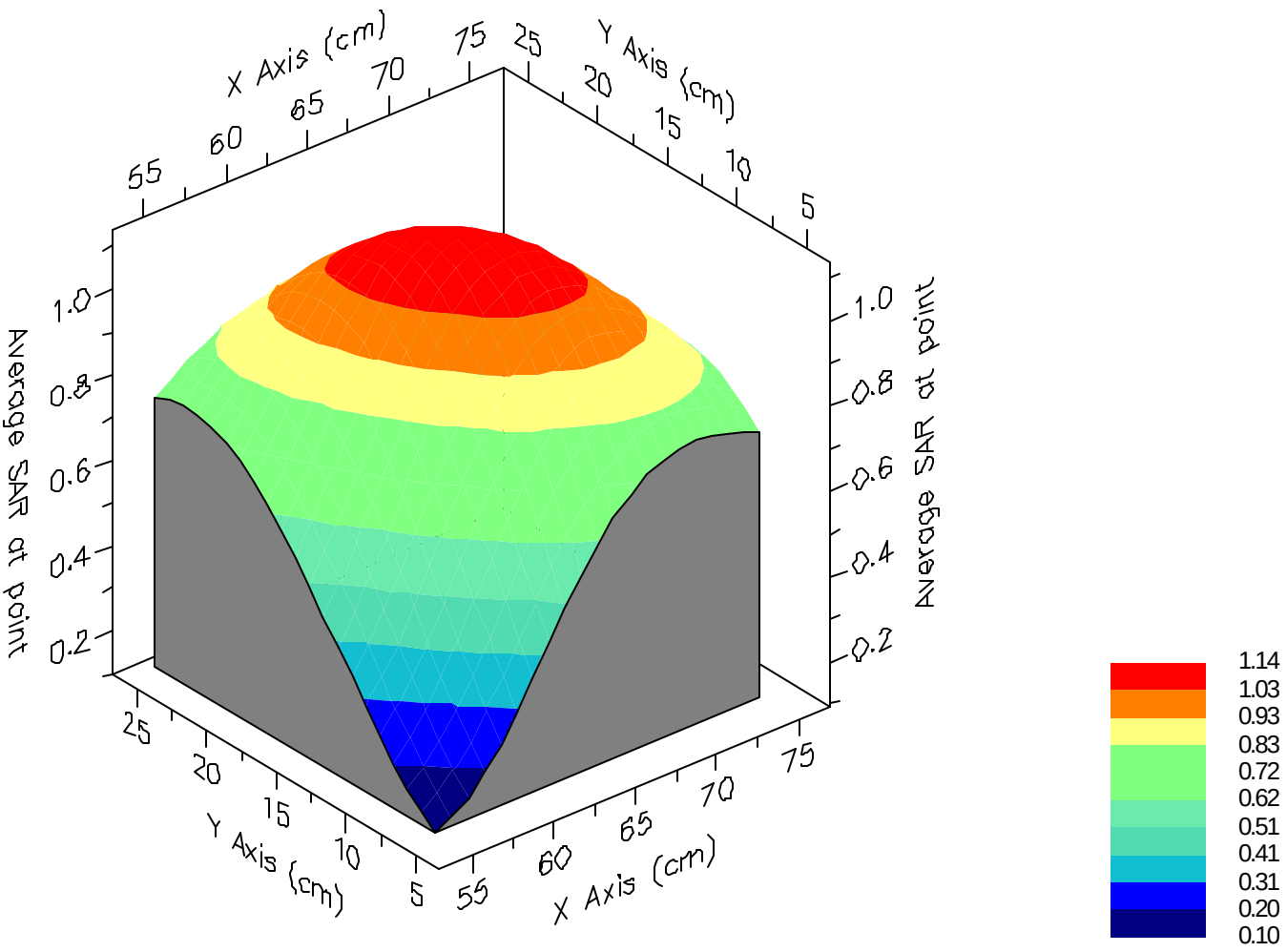
SAR Data Report 03103009

```
  Start        : 30-Oct-03 11:36:38 am
  End          : 30-Oct-03 11:53:22 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 1880.00 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : In

Measurement Data:
  Phantom Name        : SAM-LEFT
  Phantom Type        : Left Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 40.510
  Tissue Conductivity : 1.400
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 1880 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.200
  Calibrated Conductivity :  1.410
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  4.050
  Probe Sensitivity :  4.794   5.895   5.327   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  PCS Mode CH-600
  CHEEK
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=65.0 y=16.0 = 1.08 W/kg

Zoom Scan - Max Peak SAR Value at x=65.0 y=14.0 z=0.0 = 1.97 W/kg

Max 1g SAR at x=65.0 y=17.0 z=0.0 = 1.14 W/kg

Max 10g SAR at x=67.0 y=16.0 z=0.0 = 0.56 W/kg
```

SAR - Z Axis
at Hotspot x:65.0 y:14.0



1g SAR Values

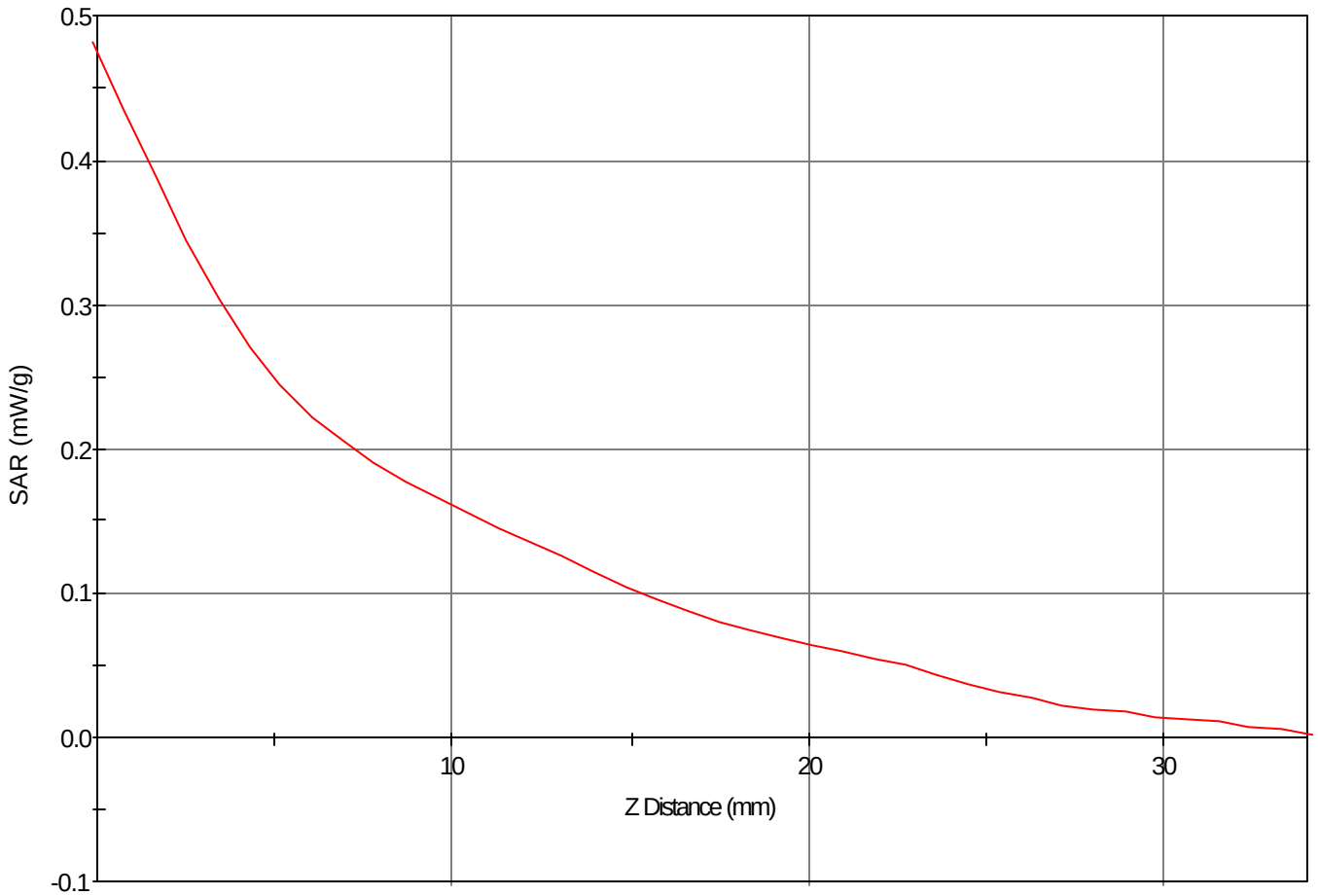



SAMSUNG
SEND
CLR
END
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0

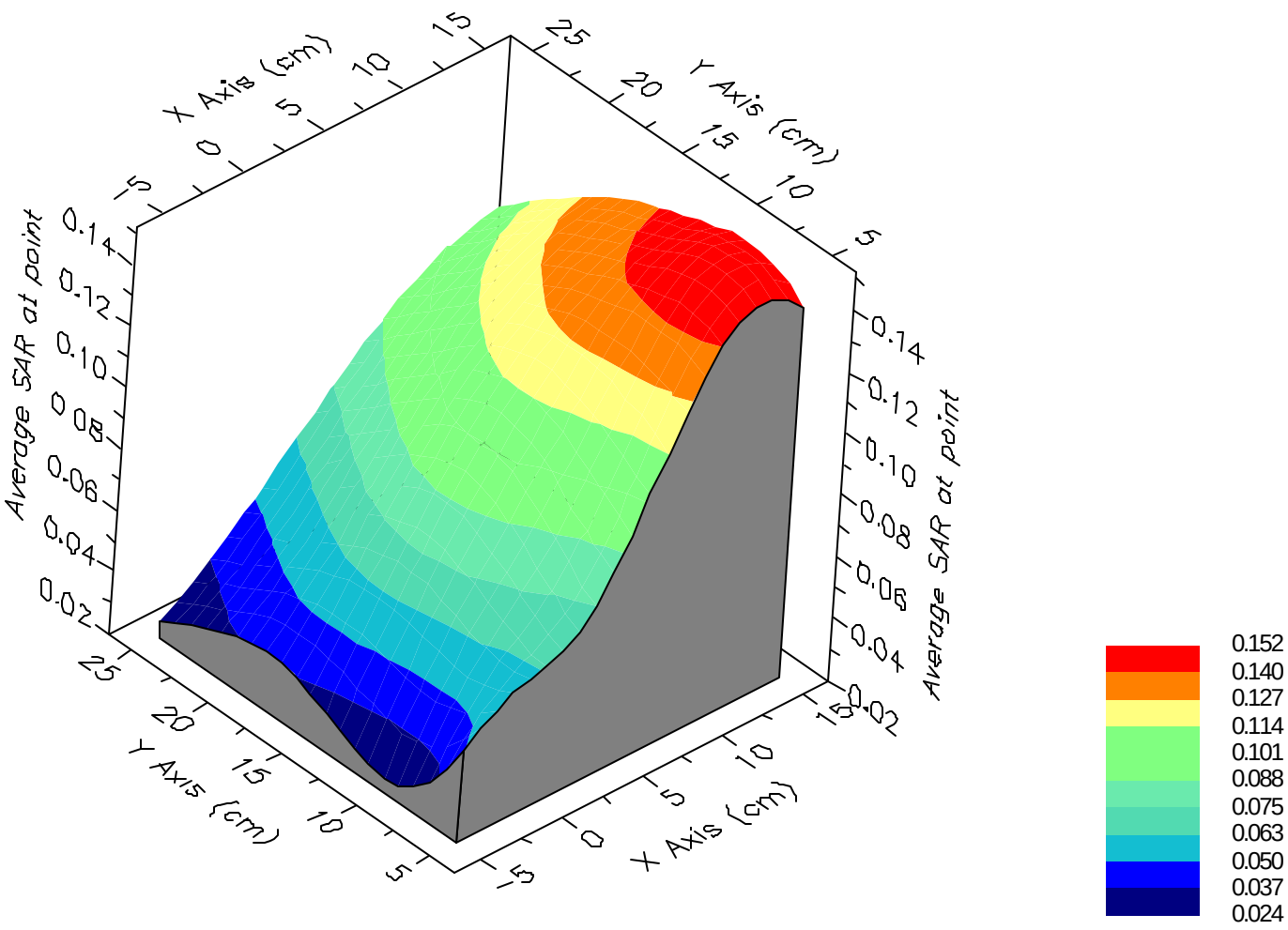
SAR Data Report 03103015

```
  Start        : 30-Oct-03 01:36:44 pm
  End          : 30-Oct-03 01:46:48 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 1880.00 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : In

Measurement Data:
  Phantom Name        : SAM-LEFT
  Phantom Type        : Left Ear
  Tissue Type         : Brain
  Tissue Dielectric   : 40.510
  Tissue Conductivity : 1.400
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 1880 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.200
  Calibrated Conductivity :  1.410
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  4.050
  Probe Sensitivity :  4.794   5.895   5.327   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  PCS Mode CH-600
  TILT
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=5.0 y=15.0 = 0.27 W/kg

Zoom Scan - Max Peak SAR Value at x=11.0 y=5.0 z=0.0 = 0.47 W/kg

Max 1g SAR at x=13.0 y=8.0 z=0.0 = 0.15 W/kg

Max 10g SAR at x=9.0 y=11.0 z=0.0 = 0.08 W/kg
```

SAR - Z Axis
at Hotspot x:11.0 y:5.0



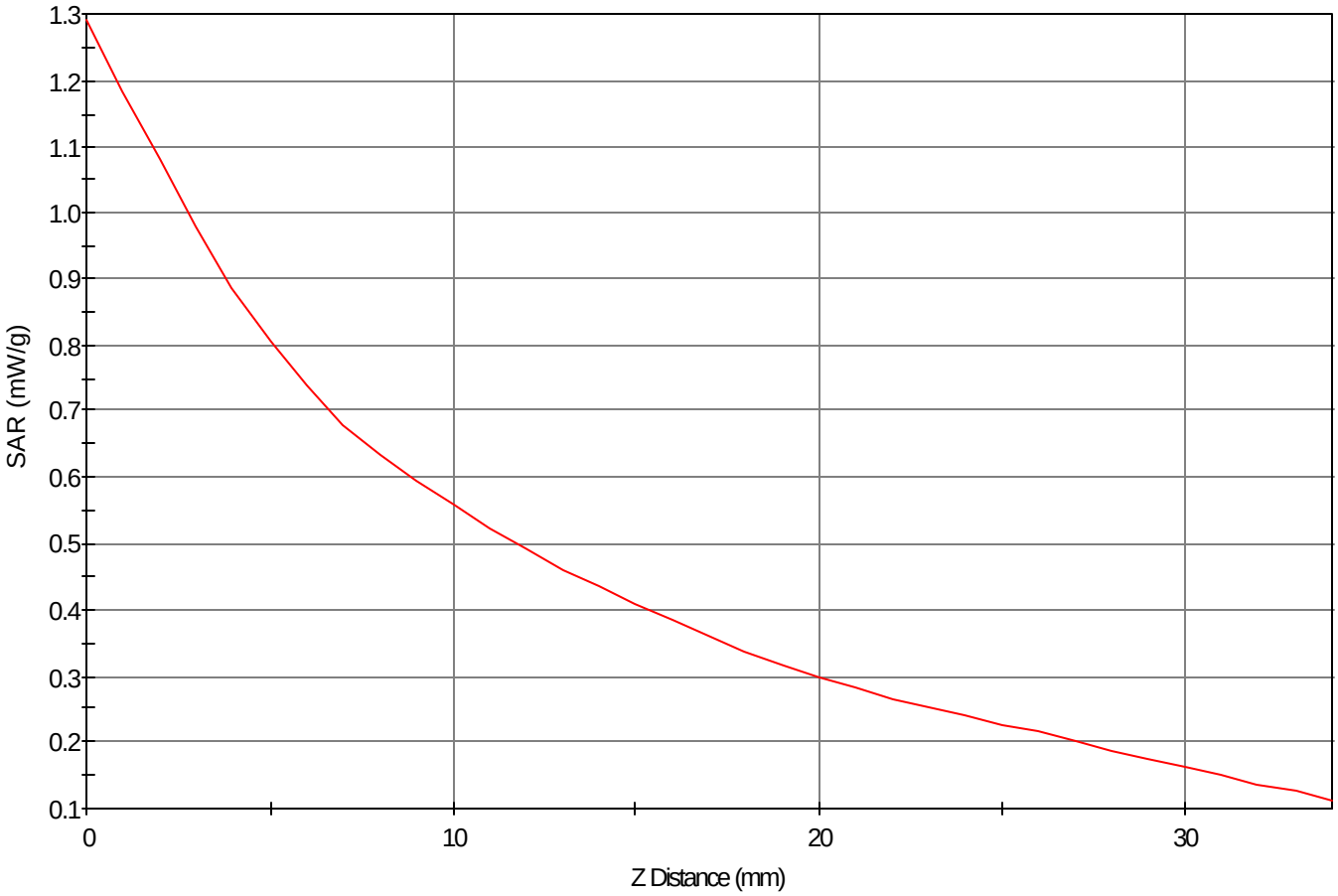
1g SAR Values



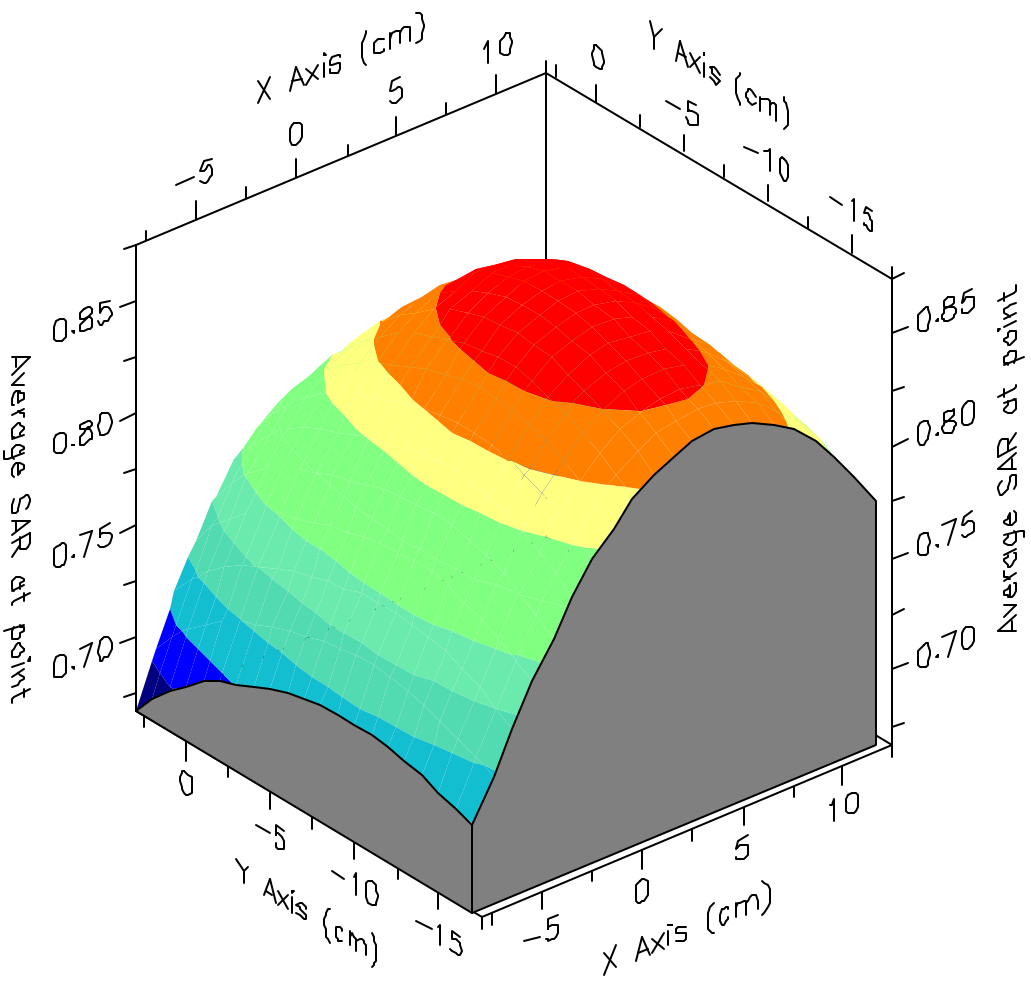
SAR Data Report 03103019

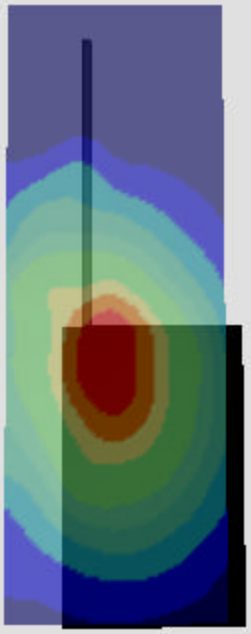
```
  Start        : 30-Oct-03 02:18:19 pm
  End          : 30-Oct-03 02:29:15 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 836.49 MHz
  Transmit Pwr     : 0.400 W
  Antenna Type     : Helical
  Antenna Posn.    : Out

Measurement Data:
  Phantom Name        : SAM FLAT
  Phantom Type        : Uniphantom
  Tissue Type         : Muscle
  Tissue Dielectric   : 53.080
  Tissue Conductivity : 0.990
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Muscle
  Calibrated Dielectric   : 55.700
  Calibrated Conductivity :  0.980
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.700
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  AMPS Mode CH-383
  BODY
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=2.0 y=-7.0 = 0.83 W/kg

Zoom Scan - Max Peak SAR Value at x=3.0 y=-6.0 z=0.0 = 1.29 W/kg

Max 1g SAR at x=4.0 y=-8.0 z=0.0 = 0.86 W/kg

Max 10g SAR at x=4.0 y=-11.0 z=0.0 = 0.58 W/kg
```

SAR - Z Axis
at Hotspot x:3.0 y:-6.0



1g SAR Values

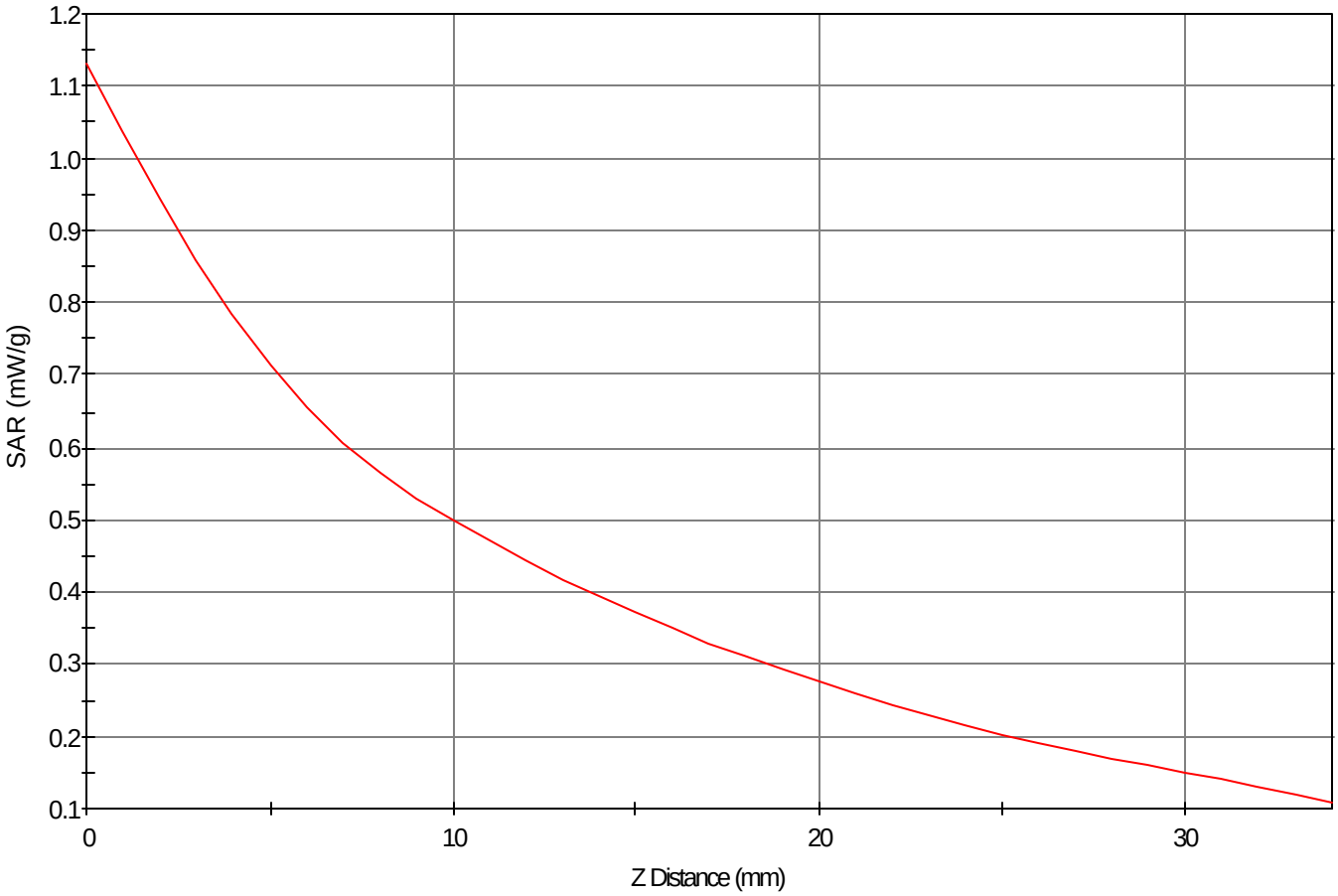




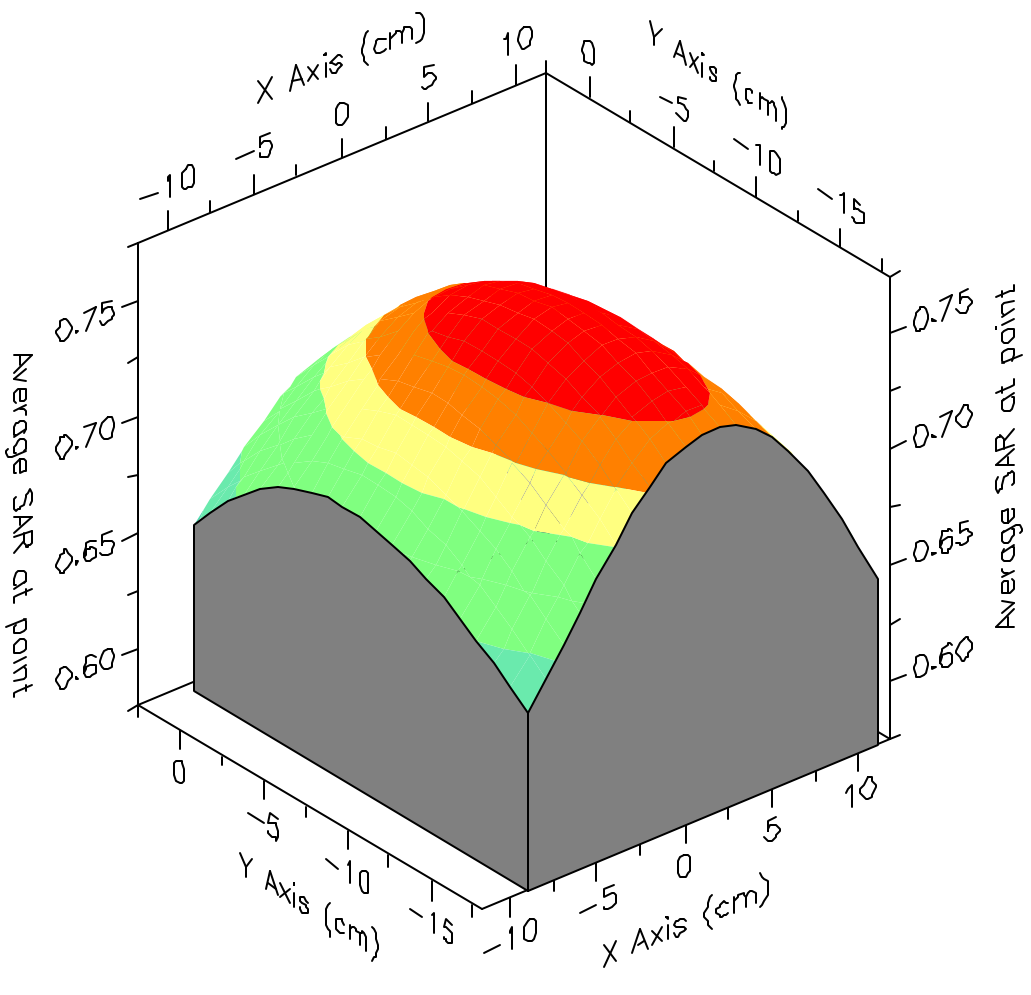
SAR Data Report 03103024

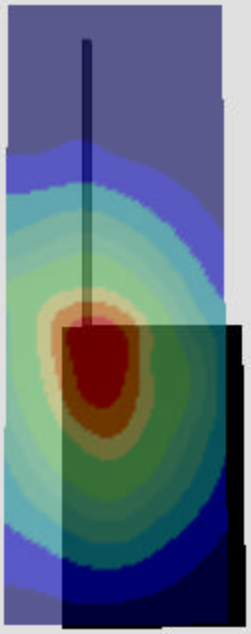
```
  Start        : 30-Oct-03 03:32:50 pm
  End          : 30-Oct-03 03:43:48 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 835.89 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : Out

Measurement Data:
  Phantom Name        : SAM FLAT
  Phantom Type        : Uniphantom
  Tissue Type         : Muscle
  Tissue Dielectric   : 53.080
  Tissue Conductivity : 0.990
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Muscle
  Calibrated Dielectric   : 55.700
  Calibrated Conductivity :  0.980
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.700
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  CDMA Mode CH-363
  BODY
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=1.0 y=-8.0 = 0.75 W/kg

Zoom Scan - Max Peak SAR Value at x=0.0 y=-12.0 z=0.0 = 1.13 W/kg

Max 1g SAR at x=0.0 y=-10.0 z=0.0 = 0.76 W/kg

Max 10g SAR at x=0.0 y=-11.0 z=0.0 = 0.51 W/kg
```

SAR - Z Axis
at Hotspot x:0.0 y:-12.0



1g SAR Values

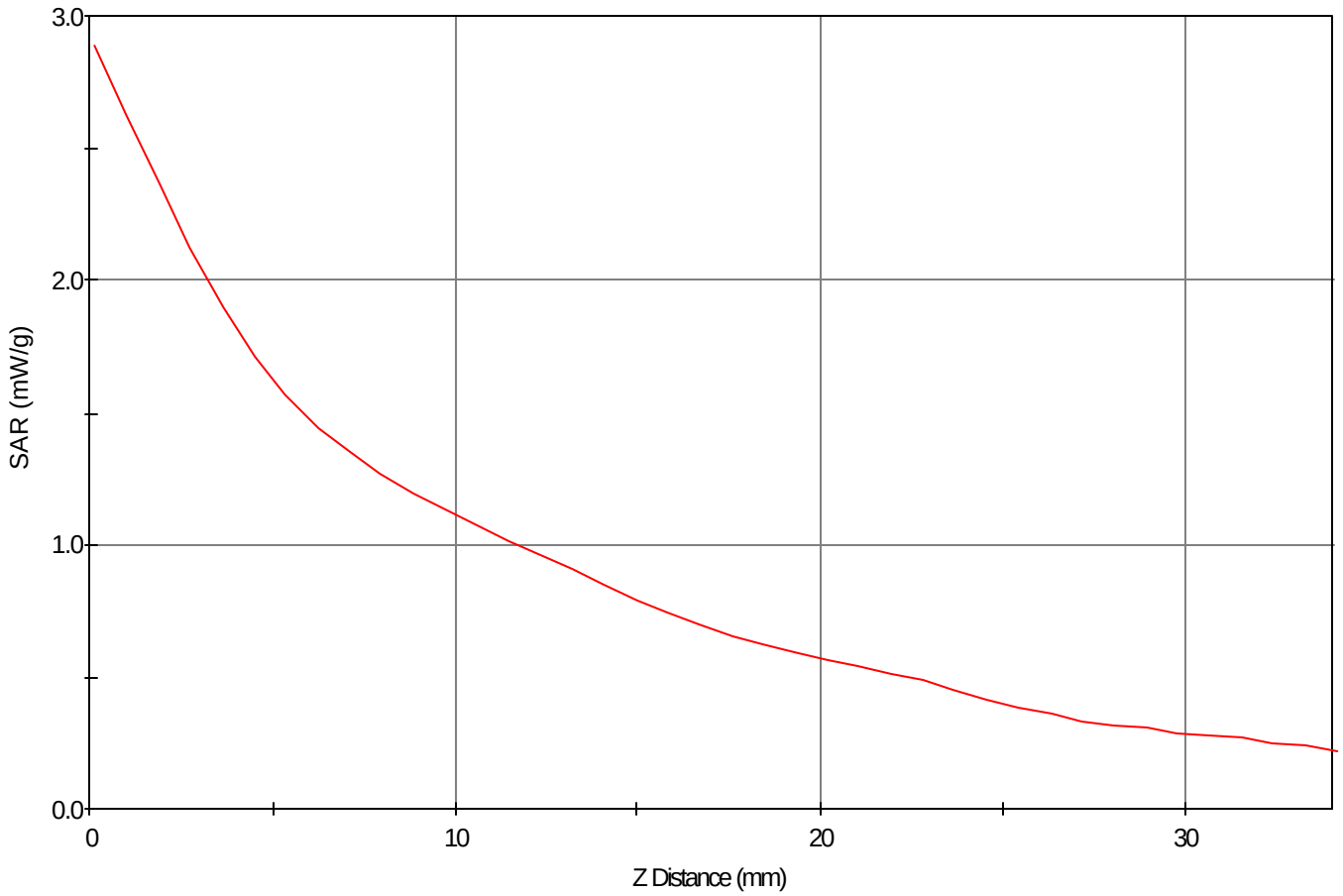




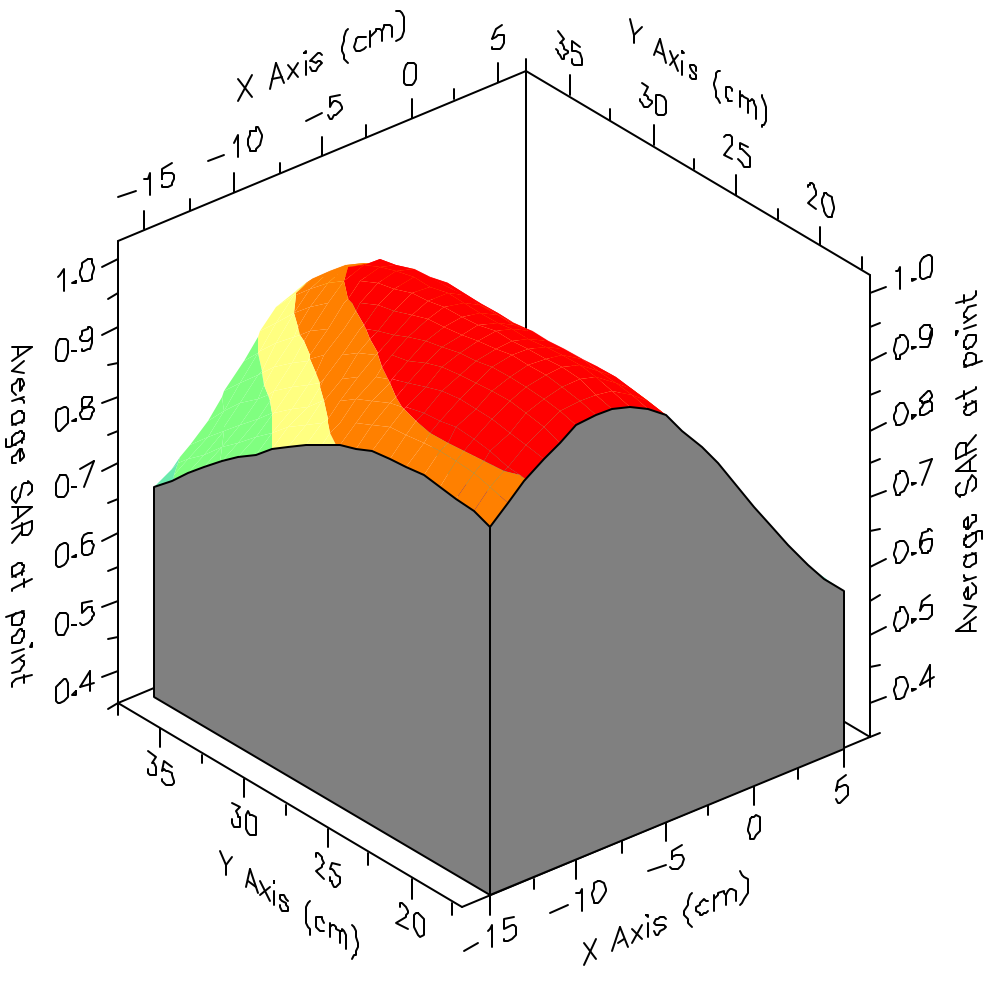
SAR Data Report 03103031

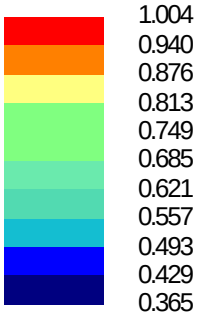
```
  Start        : 30-Oct-03 05:29:08 pm
  End          : 30-Oct-03 05:40:09 pm
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : SAMSUNG
  Model Number     : SCH-A650
  Serial Number    : 3
  Frequency        : 1908.75 MHz
  Transmit Pwr     : 0.320 W
  Antenna Type     : Helical
  Antenna Posn.    : Out

Measurement Data:
  Phantom Name        : SAM FLAT
  Phantom Type        : Uniphantom
  Tissue Type         : Muscle
  Tissue Dielectric   : 51.620
  Tissue Conductivity : 1.580
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 1880 MHz
  Tissue Type             : Muscle
  Calibrated Dielectric   : 53.900
  Calibrated Conductivity :  1.480
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  4.400
  Probe Sensitivity :  4.794   5.895   5.327   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  PCS Mode CH-1175
  BODY
  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=-5.0 y=27.0 = 0.71 W/kg

Zoom Scan - Max Peak SAR Value at x=-6.0 y=32.0 z=0.0 = 2.93 W/kg

Max 1g SAR at x=-9.0 y=21.0 z=0.0 = 1.00 W/kg

Max 10g SAR at x=-9.0 y=23.0 z=0.0 = 0.54 W/kg
```

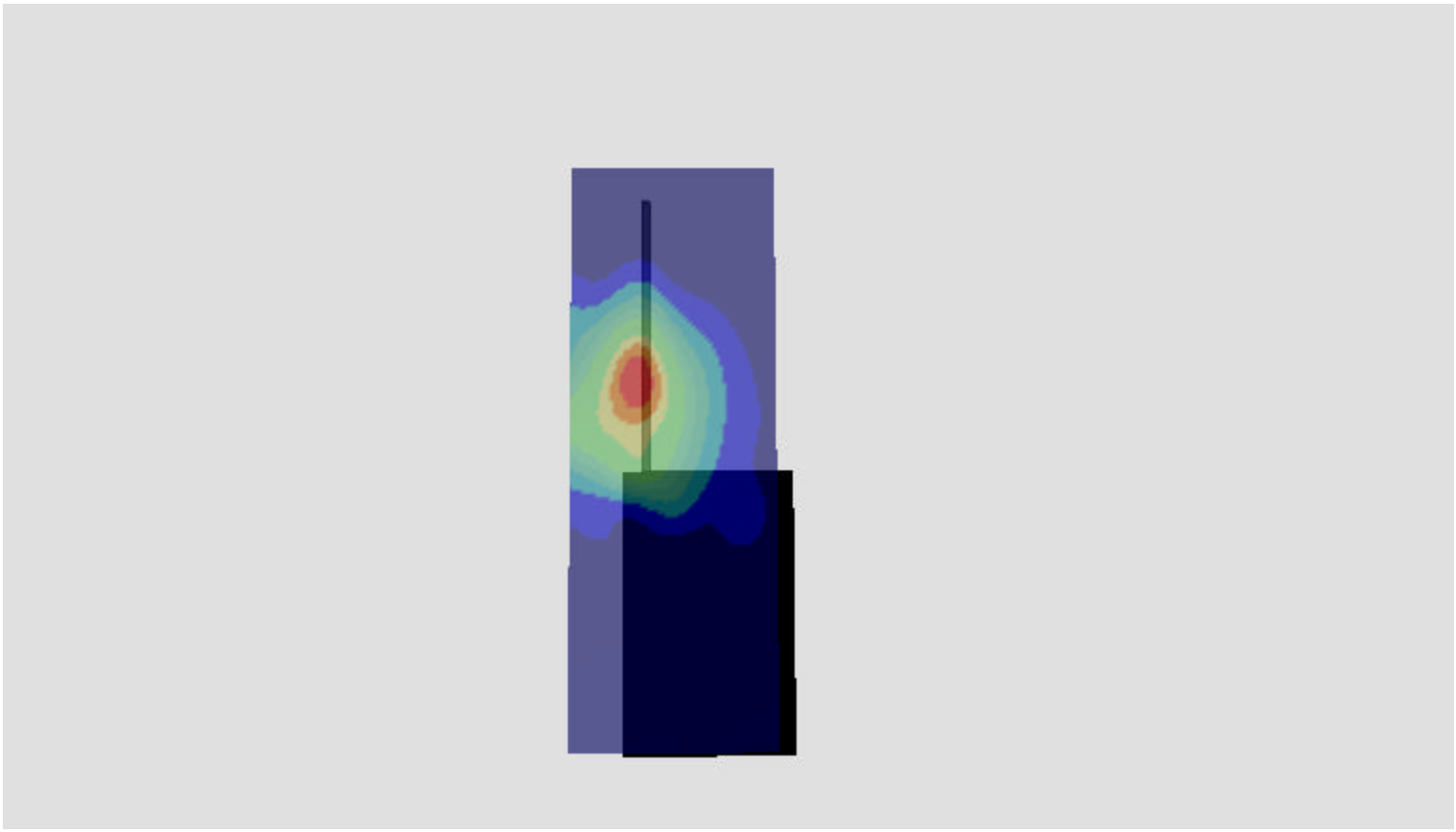
SAR - Z Axis
at Hotspot x:-6.0 y:32.0



1g SAR Values





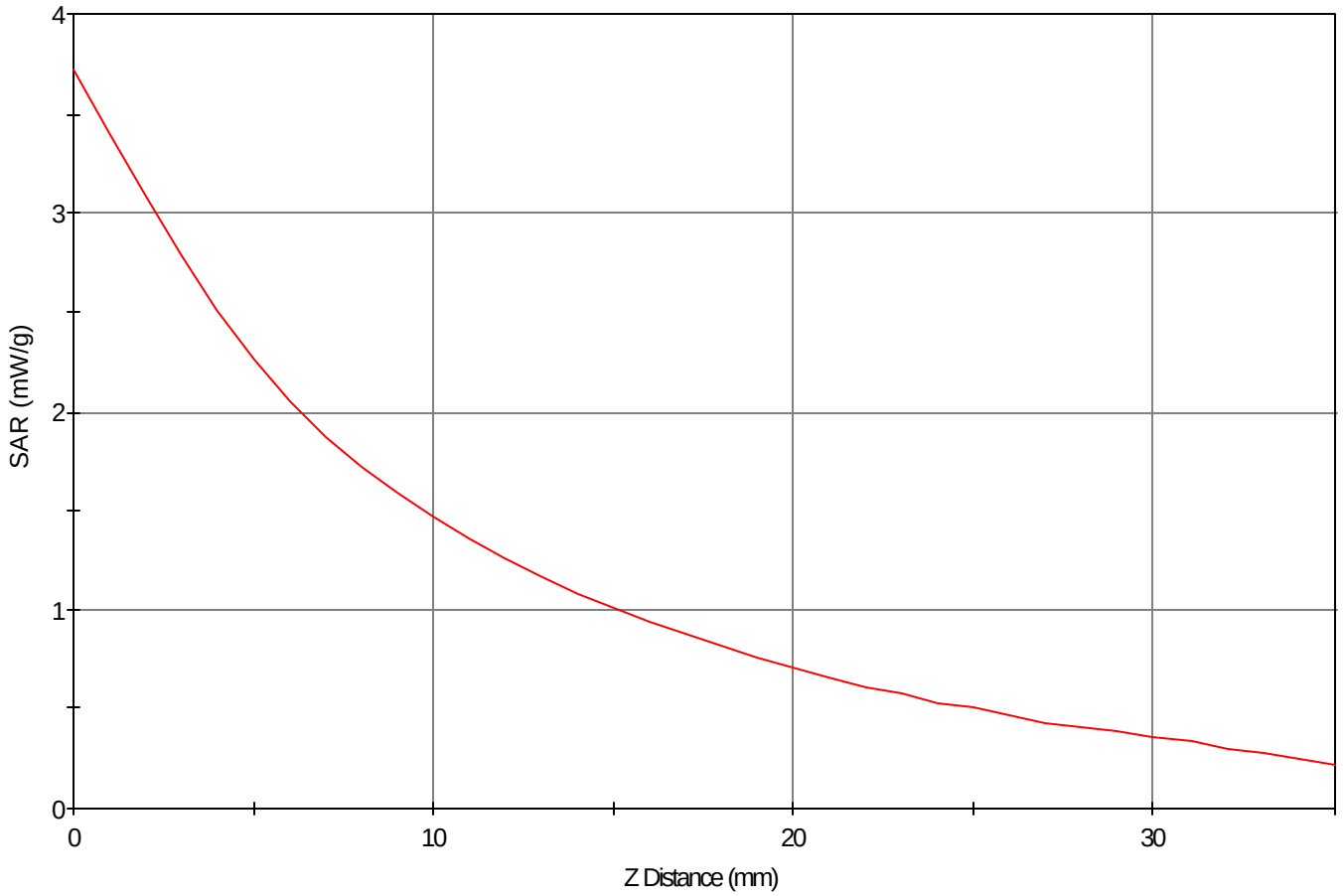


APPENDIX B: DIPOLE VALIDATION

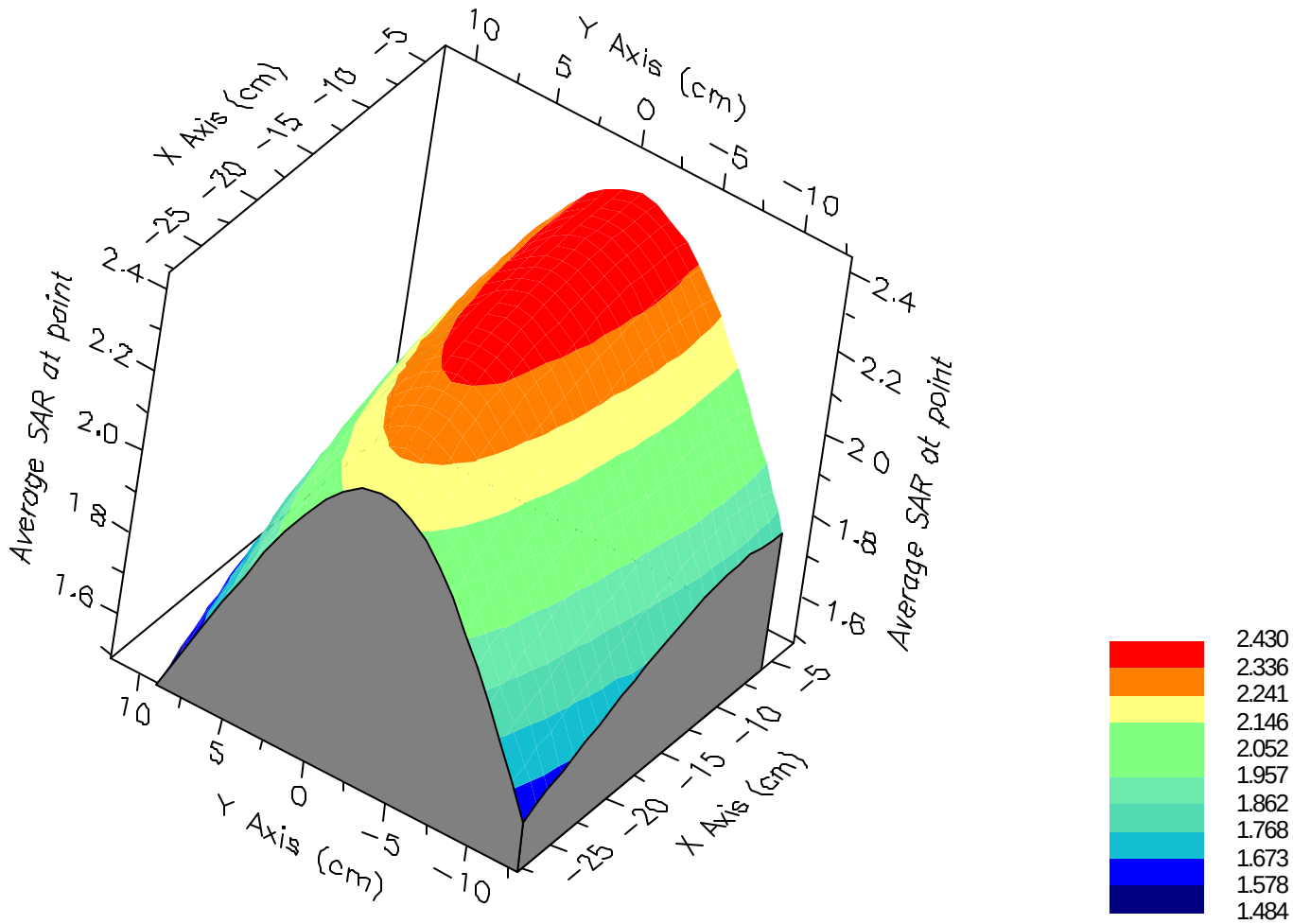
SAR Data Report 03102901

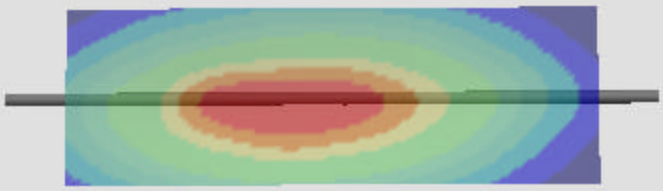
```
  Start        : 29-Oct-03 09:02:37 am
  End          : 29-Oct-03 09:08:11 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : Verification
  Model Number     : E-010
  Serial Number    : PCT003
  Frequency        : 835 MHz
  Transmit Pwr     : 0.250 W
  Antenna Type     : Dipole

Measurement Data:
  Phantom Name        : SAM-FLAT-B
  Phantom Type        : Uniphantom
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  System Verification

  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=-17.0 y=-2.0 = 2.24 W/kg

Zoom Scan - Max Peak SAR Value at x=-9.0 y=-3.0 z=0.0 = 3.72 W/kg

Max 1g SAR at x=-9.0 y=-2.0 z=0.0 = 2.43 W/kg

Max 10g SAR at x=-12.0 y=-2.0 z=0.0 = 1.51 W/kg

Validation Results at 0.25 W:
Peak Nominal = 3.5, Error:  5.62 %
1g Nominal   = 2.4, Error:  2.33 %
10g Nominal  = 1.6, Error:  -2.73 %
```

SAR - Z Axis
at Hotspot x:-9.0 y:-3.0



1g SAR Values

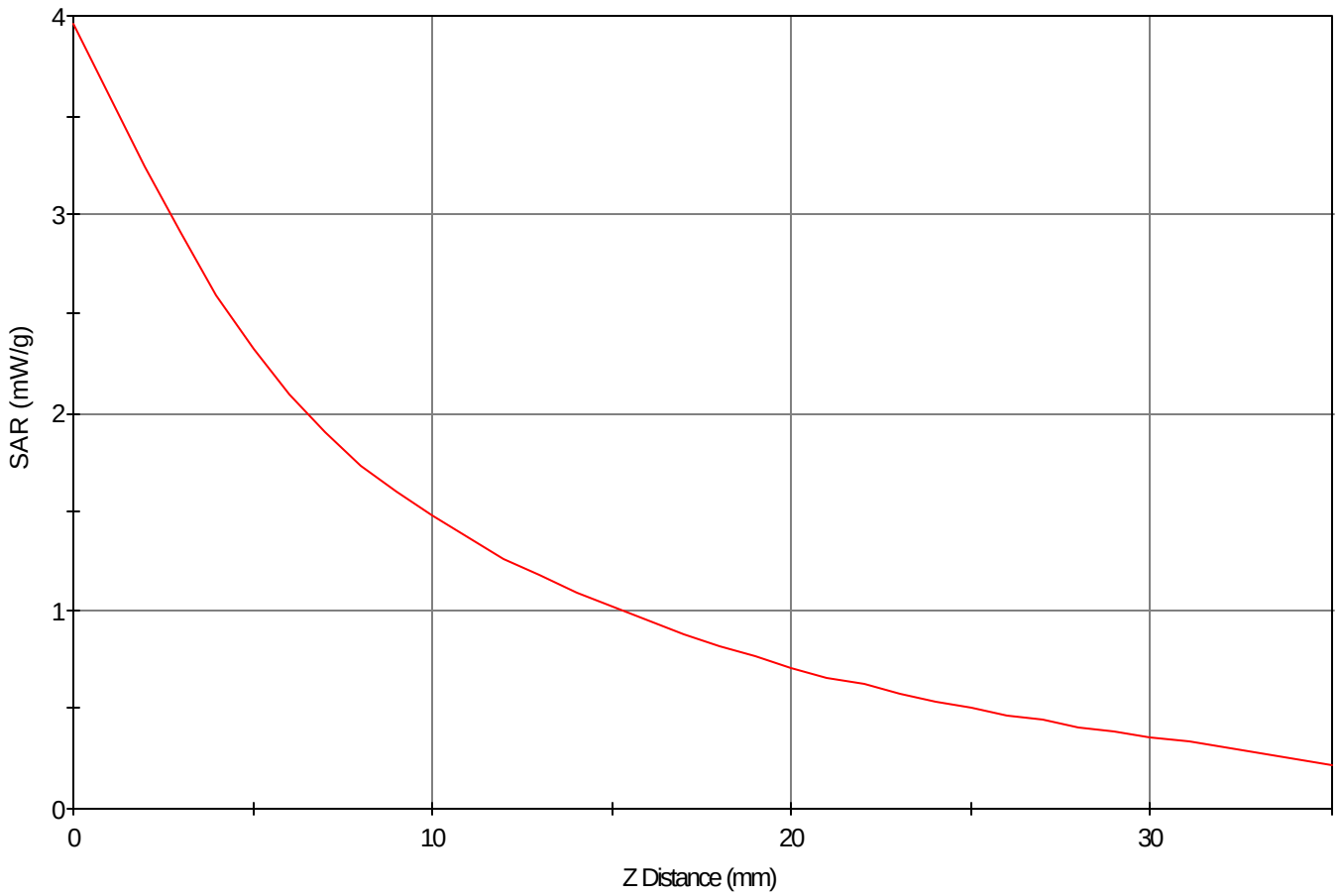




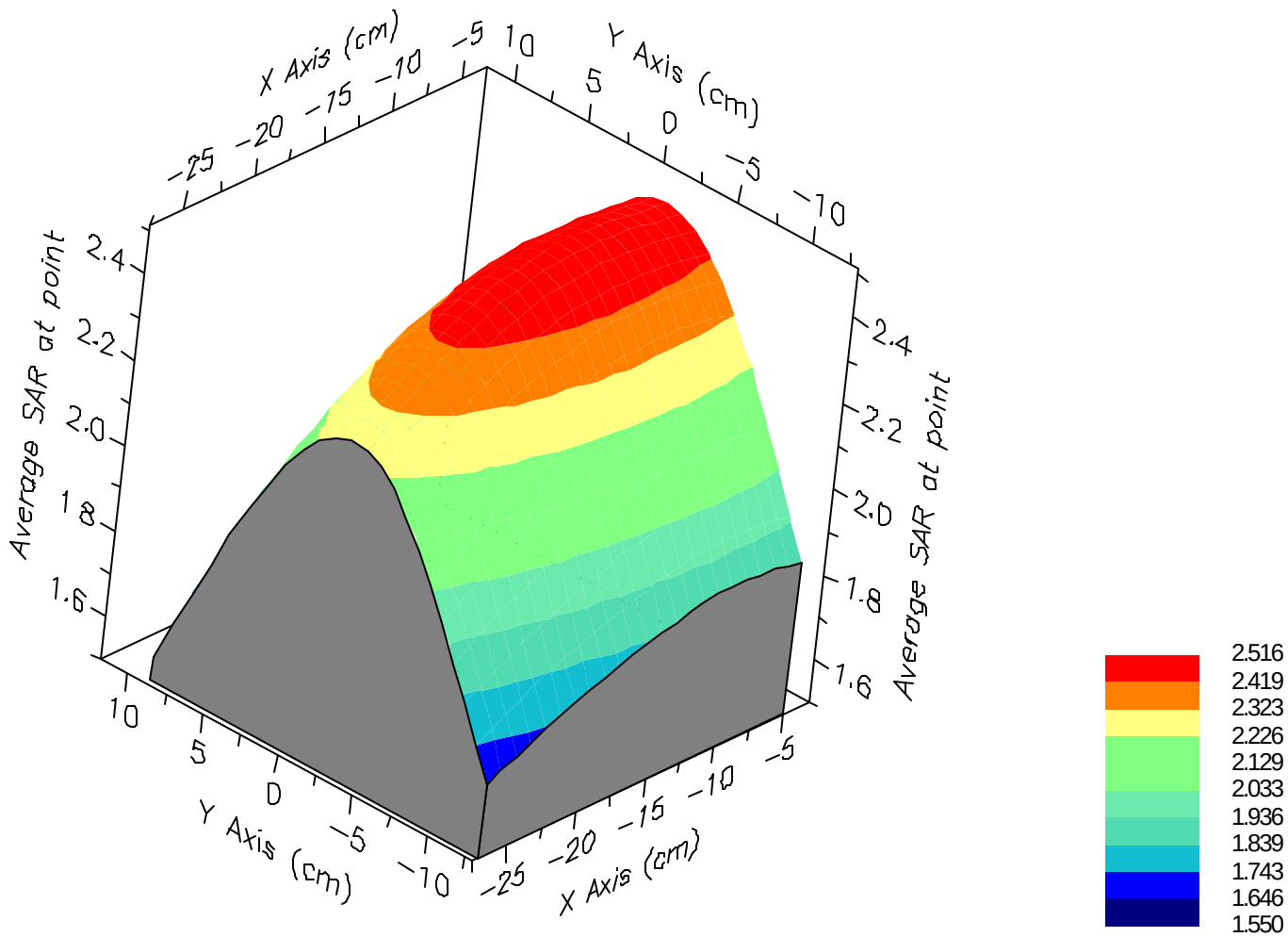
SAR Data Report 03103001

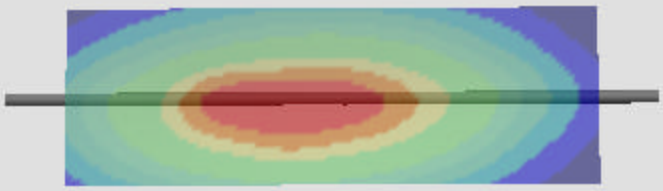
```
  Start        : 30-Oct-03 08:52:52 am
  End          : 30-Oct-03 08:58:28 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : Verification
  Model Number     : E-010
  Serial Number    : PCT003
  Frequency        : 835 MHz
  Transmit Pwr     : 0.250 W
  Antenna Type     : Dipole

Measurement Data:
  Phantom Name        : SAM-FLAT-B
  Phantom Type        : Uniphantom
  Tissue Type         : Brain
  Tissue Dielectric   : 41.820
  Tissue Conductivity : 0.890
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 835 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.000
  Calibrated Conductivity :  0.910
  Calibrated Density      :  1.300
  Probe Offset            :  2.400 mm
  Conversion Factor       :  7.200
  Probe Sensitivity :  2.439   2.706   2.822   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  System Verification

  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=-16.0 y=-2.0 = 2.30 W/kg

Zoom Scan - Max Peak SAR Value at x=-16.0 y=-3.0 z=0.0 = 3.97 W/kg

Max 1g SAR at x=-12.0 y=-2.0 z=0.0 = 2.52 W/kg

Max 10g SAR at x=-11.0 y=-2.0 z=0.0 = 1.55 W/kg

Validation Results at 0.25 W:
Peak Nominal = 3.5, Error:  12.54 %
1g Nominal   = 2.4, Error:  5.93 %
10g Nominal  = 1.6, Error:  0.23 %
```

SAR - Z Axis
at Hotspot x:-16.0 y:-3.0



1g SAR Values

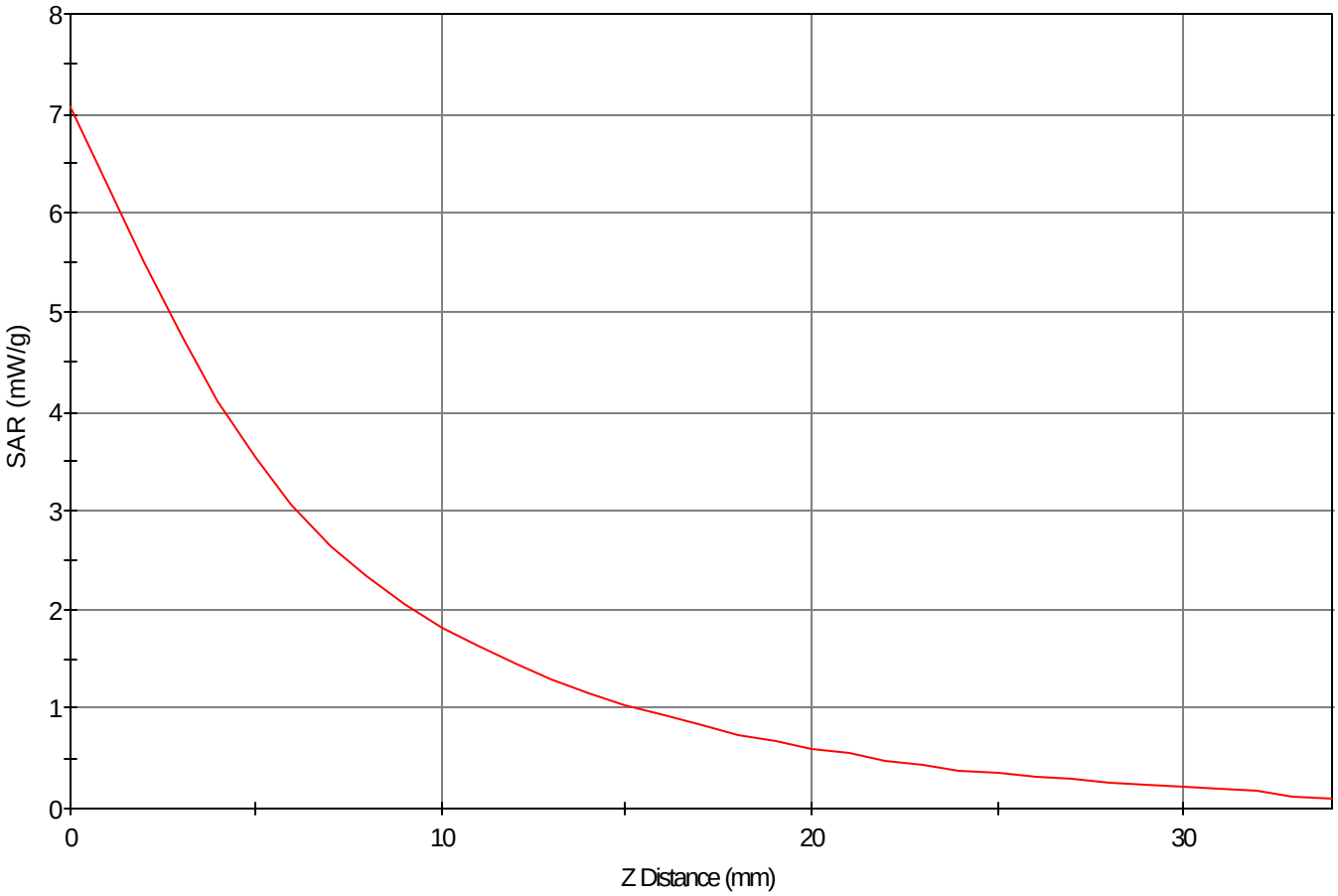




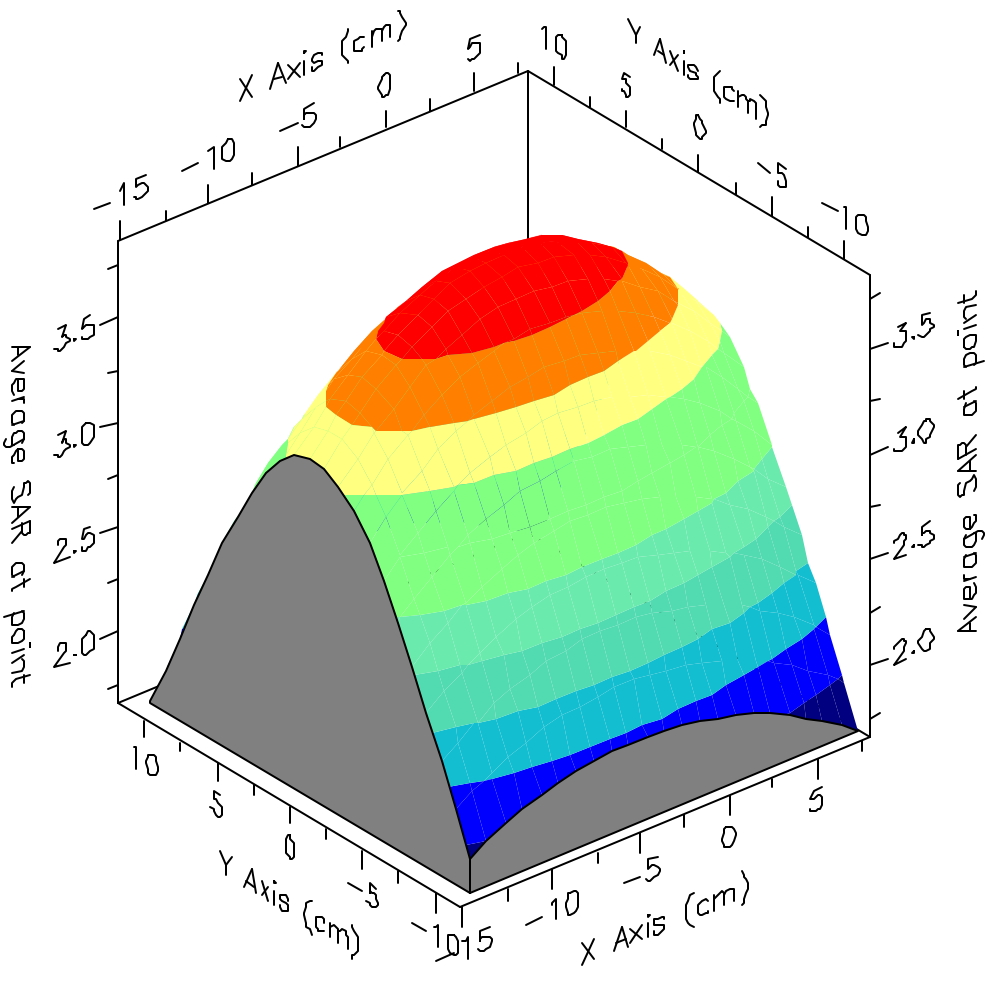
SAR Data Report 03102902

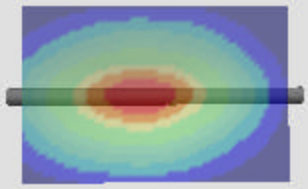
```
  Start        : 29-Oct-03 09:16:39 am
  End          : 29-Oct-03 09:21:25 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : Verification
  Model Number     : E-010
  Serial Number    : PCT003
  Frequency        : 1900 MHz
  Transmit Pwr     : 0.100 W
  Antenna Type     : Dipole

Measurement Data:
  Phantom Name        : SAM-FLAT-B
  Phantom Type        : Uniphantom
  Tissue Type         : Brain
  Tissue Dielectric   : 40.510
  Tissue Conductivity : 1.400
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 1880 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.200
  Calibrated Conductivity :  1.410
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  4.050
  Probe Sensitivity :  4.794   5.895   5.327   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  System Verification

  CF=1; Amb. Temp= 21.1 'C; Liq. Temp=19.5 'C




Area Scan - Max Peak SAR Value at x=-3.0 y=0.0 = 3.54 W/kg

Zoom Scan - Max Peak SAR Value at x=-3.0 y=0.0 z=0.0 = 7.05 W/kg

Max 1g SAR at x=-3.0 y=0.0 z=0.0 = 3.86 W/kg

Max 10g SAR at x=-3.0 y=0.0 z=0.0 = 1.89 W/kg

Validation Results at 0.10 W:
Peak Nominal = 7.2, Error:  -2.16 %
1g Nominal   = 4.0, Error:  -2.80 %
10g Nominal  = 2.1, Error:  -7.83 %
```

SAR - Z Axis
at Hotspot x:-3.0 y:0.0



1g SAR Values

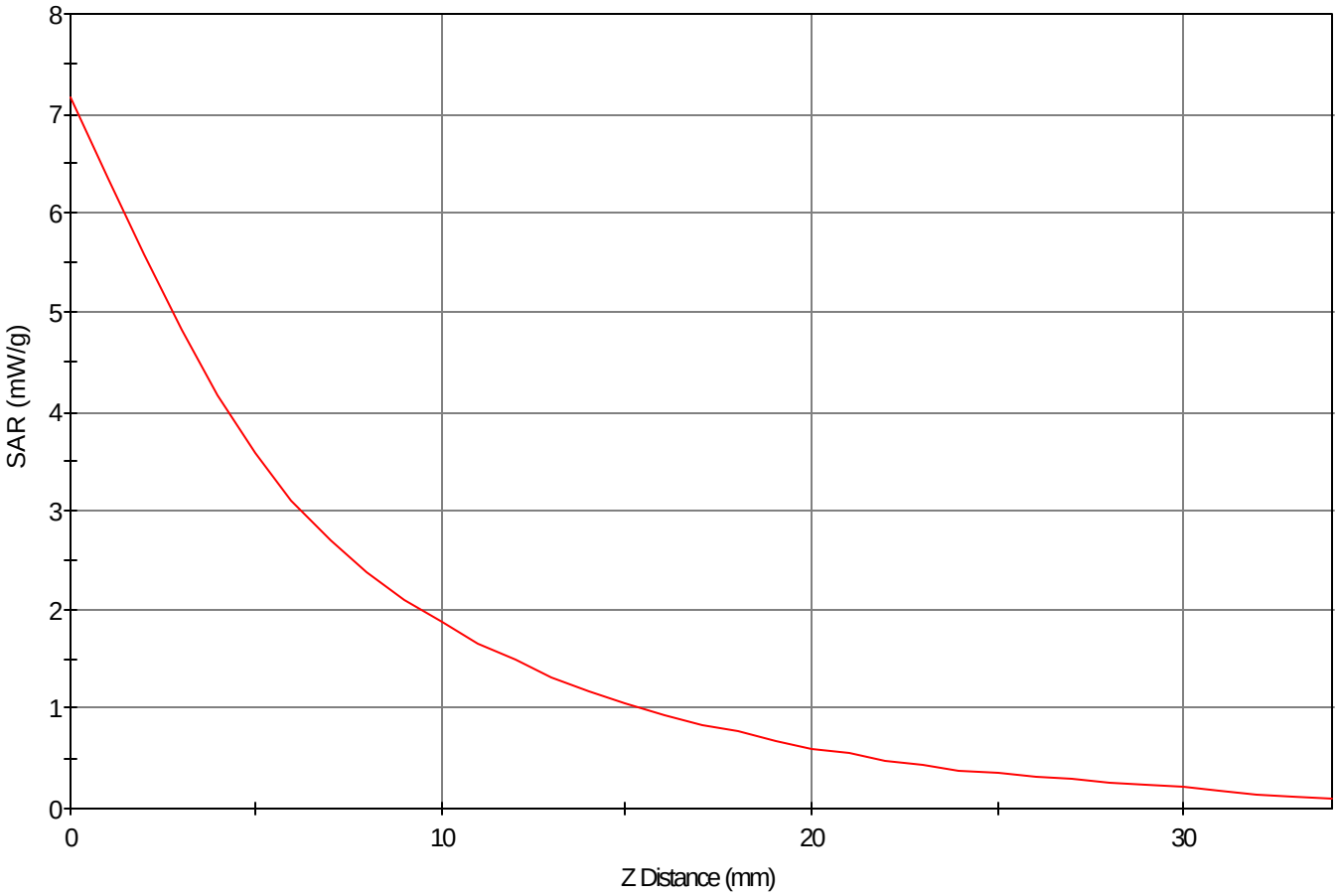




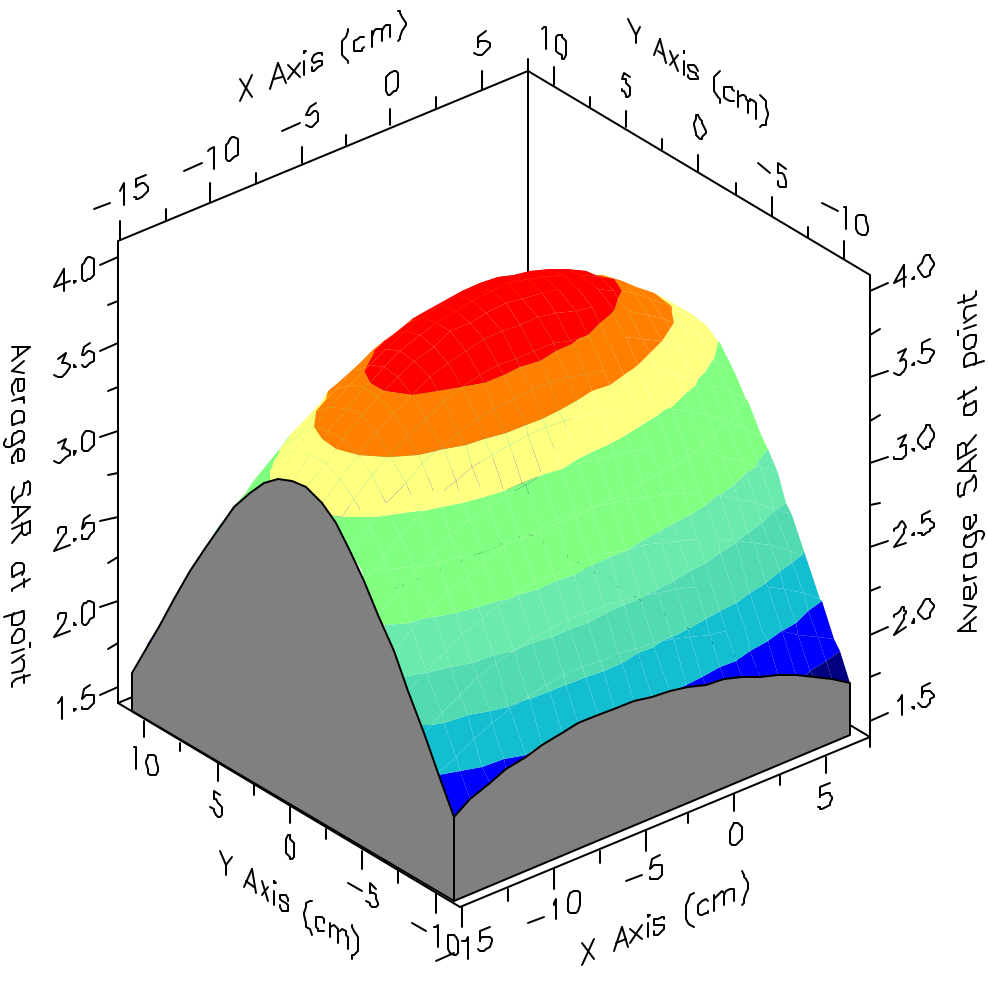
SAR Data Report 03103002

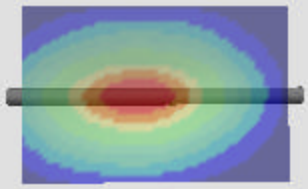
```
  Start        : 30-Oct-03 09:08:41 am
  End          : 30-Oct-03 09:13:28 am
  Code Version : 4.08
  Robot Version: 4.08

Product Data:
  Type             : Verification
  Model Number     : E-010
  Serial Number    : PCT003
  Frequency        : 1900 MHz
  Transmit Pwr     : 0.100 W
  Antenna Type     : Dipole

Measurement Data:
  Phantom Name        : SAM-FLAT-B
  Phantom Type        : Uniphantom
  Tissue Type         : Brain
  Tissue Dielectric   : 40.510
  Tissue Conductivity : 1.400
  Tissue Density      : 1.000
  Robot Name          : CRS

Probe Data:
  Probe Name              : PCT003
  Probe Type              : E Fld Triangle
  Frequency               : 1880 MHz
  Tissue Type             : Brain
  Calibrated Dielectric   : 40.200
  Calibrated Conductivity :  1.410
  Calibrated Density      :  1.000
  Probe Offset            :  2.400 mm
  Conversion Factor       :  4.050
  Probe Sensitivity :  4.794   5.895   5.327   mV/(mW/cm^2)
  Amplifier Gains   :  20.00   20.00   20.00

Sample:
  Rate:         6000 Samples/Sec
  Count:        1000 Samples
  NIDAQ Gain:   5

Comments:
  System Verification

  CF=1; Amb. Temp= 21.2 'C; Liq. Temp=19.5 'C



Area Scan - Max Peak SAR Value at x=-4.0 y=0.0 = 3.60 W/kg

Zoom Scan - Max Peak SAR Value at x=-4.0 y=0.0 z=0.0 = 7.15 W/kg

Max 1g SAR at x=-4.0 y=0.0 z=0.0 = 3.91 W/kg

Max 10g SAR at x=-4.0 y=0.0 z=0.0 = 1.92 W/kg

Validation Results at 0.10 W:
Peak Nominal = 7.2, Error:  -0.81 %
1g Nominal   = 4.0, Error:  -1.42 %
10g Nominal  = 2.1, Error:  -6.57 %
```

SAR - Z Axis
at Hotspot x:-4.0 y:0.0



1g SAR Values





APPENDIX C: PROBE CALIBRATION

Probe E-010

SN: PCT003

Manufactured: November 4, 2002
Calibrated: January 3, 2003

Calibrated for the IDX System

PCTEST Calibration Laboratory

Approved By:

Alfred Cirwithian
Vice President Engineering

Calibration is performed according to IEEE Std. P1528-200X, Sec. 7 Draft 6.5 (2001) and all test equipment used are traceable to U.S. NIST.

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA

Calibration Summary

Model: E-010
S/N: PCT003

OFFSET (cm)	ANGLE (deg)
0.24	54.73

Tissue Type	Frequency (MHz)	Dielectric Constant ε_r	Conductivity (S/m) σ	Conversion Factor $\gamma_x, \gamma_y, \gamma_z$
Brain	835	40.00	0.91	7.20
Brain	1880	40.20	1.41	4.05
Brain	2440	39.34	1.77	8.80
Brain	5300	37.10	4.84	3.20
Brain	5800	36.00	5.28	2.30
Muscle	835	55.70	0.98	7.70
Muscle	1900	53.90	1.48	4.40
Muscle	2440	52.30	1.99	9.90
Muscle	5300	48.80	5.43	3.45
Muscle	5800	48.50	6.05	2.50

Frequency (MHz)	Isotropy	
	%	dB
835	3.49	0.15
1880	5.35	0.23
2440	4.02	0.17
5300	4.85	0.21
5800	4.93	0.21

Boundary Effect < 2%, 2.6 mm from probe tip to phantom

Diode Compression Point: 76 mV

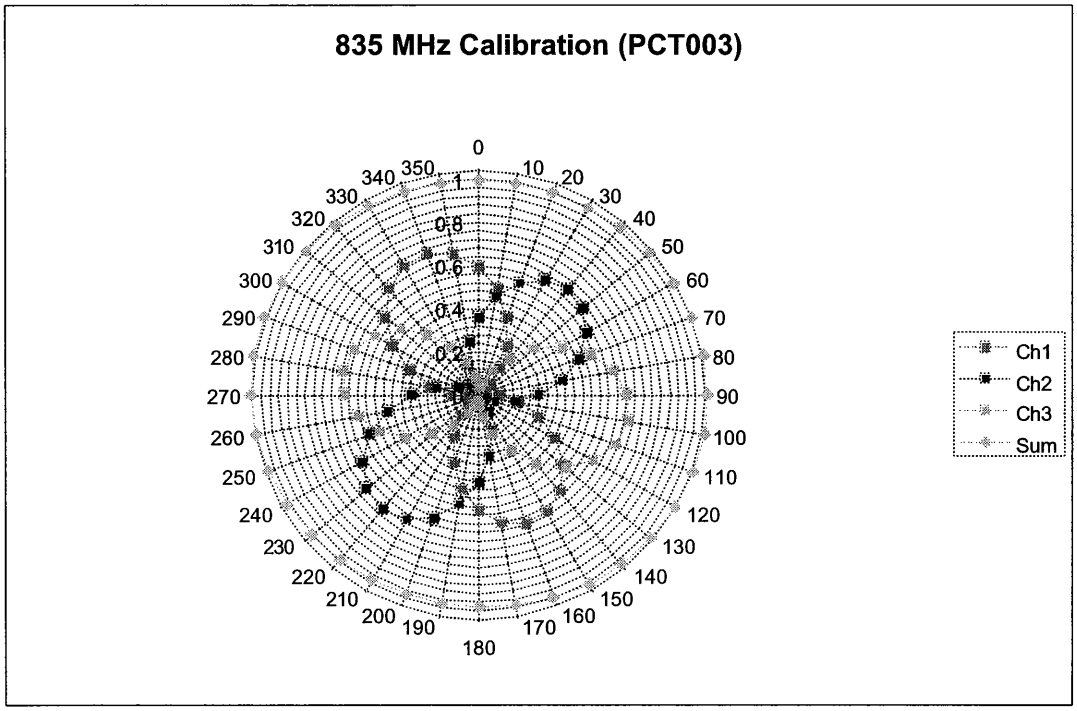
Environmental Conditons:

Temperature: 23.34 °C
Relative Humidity: 34%
Barometer: 100.1 kPa

This probe was calibrated under the IEEE Std 1309-1966, *IEEE Standard for Calibration of Electromagnetic Field Sensors and Probes, Exluding Antennas, from 9 kHz to 40 GHz.*

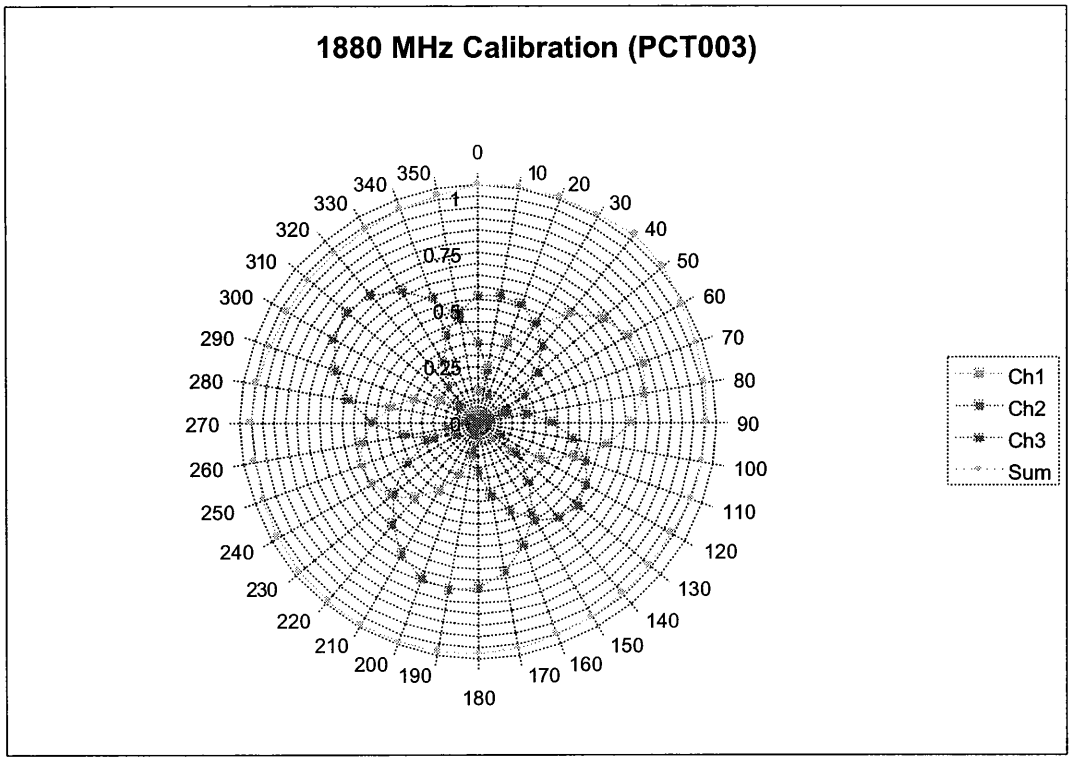
CALIBRATED BY: _____ **DATE:** 01/15/03

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA



CALIBRATED BY: _____ DATE: 01/15/03

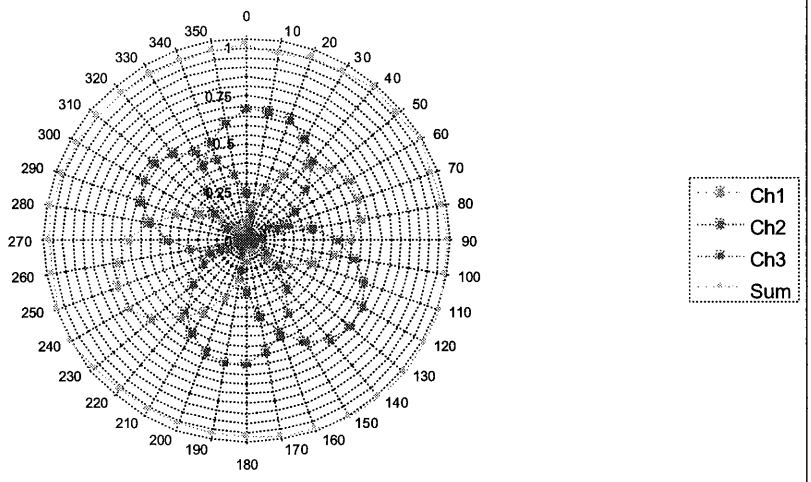
Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA



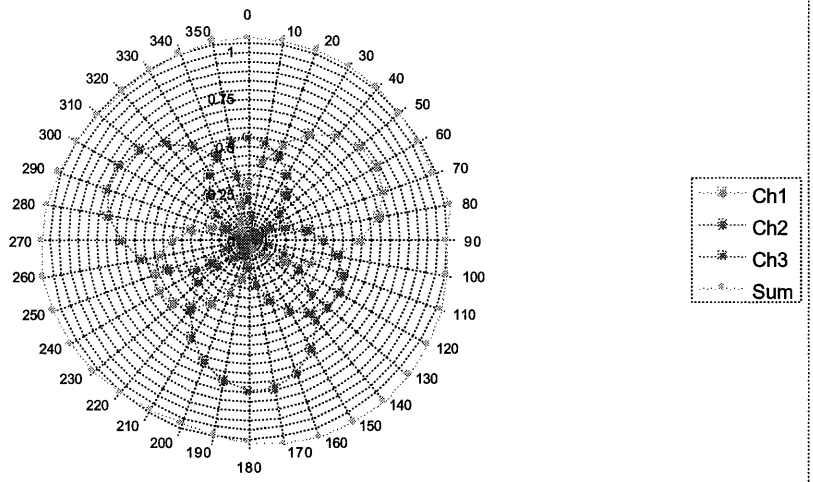
CALIBRATED BY: _____ DATE: 01/15/03

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA

2440 MHz Calibration (PCT003)



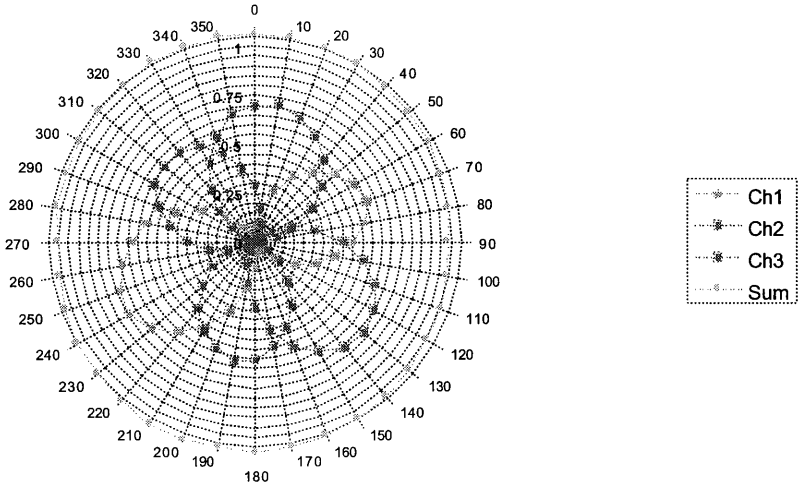
5300 MHz Calibration (PCT003)



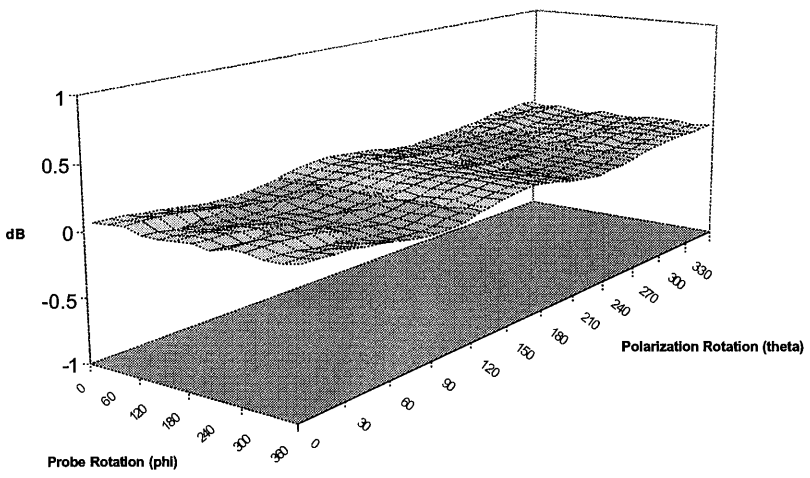
CALIBRATED BY: _____ DATE: 01/15/03

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA

5800 MHz Calibration (PCT003)

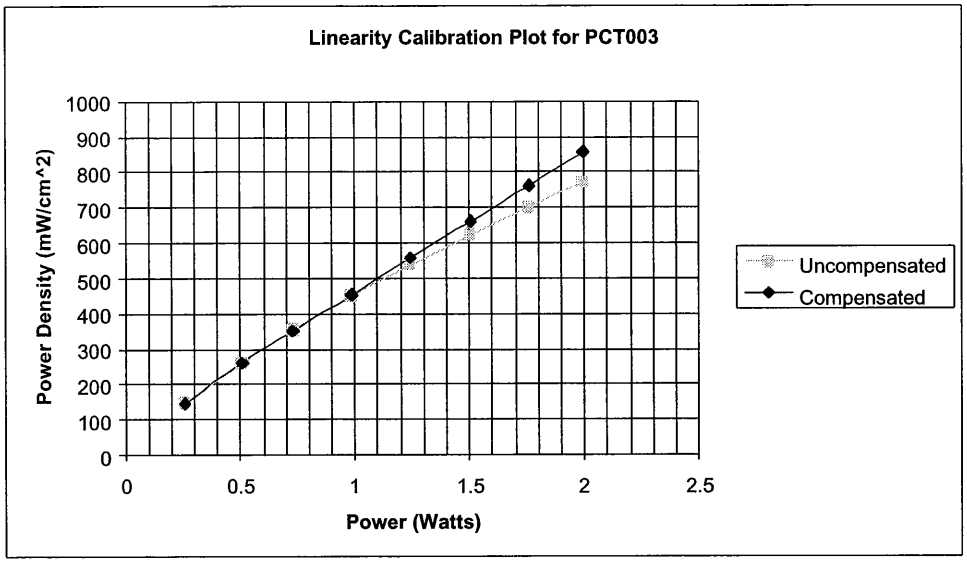


Verification of Isotropy for PCT003



CALIBRATED BY: _____ DATE: 01/15/03

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA



Probe Physical Characteristics

Serial Number:	PCT003
Sensor Offset:	2.4 mm
Sensor Length:	2.5 mm
Tip Enclosure:	Glass
Tip Diameter:	7 mm
Tip Length:	40 mm
Total Length:	290 mm

CALIBRATED BY: _____ DATE: 01/15/03

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA

Test Equipment

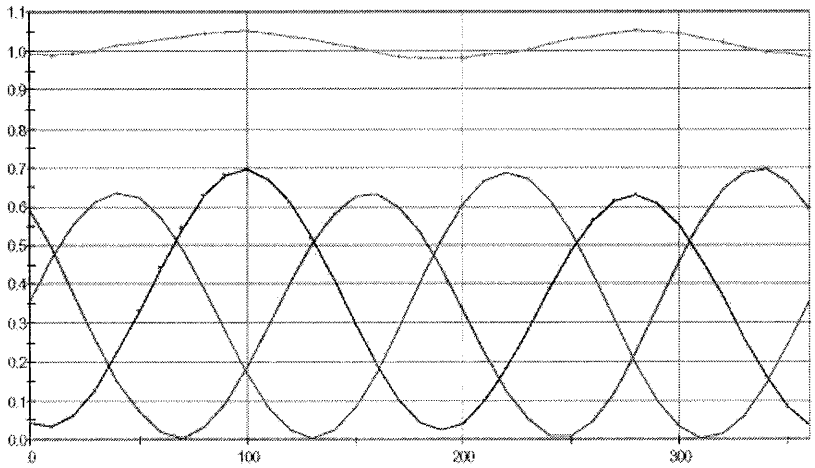
The test equipment used during the probe calibration are listed as follows:

EQUIPMENT SPECIFICATIONS		
Type	Calibration Date	Asset Number/ Serial Number
CRS Robot F3	February 2002	RAF0134133
CRS C500C Motion Controller	February 2002	RCB0003303
CRS Teach Pendant (Joystick)	February 2002	STP0132231
DELL Computer, Pentium 4 1.6 GHz, Windows 2000™	February 2002	4PJZ111
E-Field Probe E-010	January 2003	PCT003
Flat SAM Phantom (P-SAM-FLAT)	February 2002	94X-097
IDX Robot End Effector (EE-103-C)	February 2002	07111223
IDX Probe Amplifier	February 2002	07111113
Validation Dipole D-835S	October 2002	PCT441
Validation Dipole D-1900S	October 2002	PCT541
Validation Dipole D-2450S	October 2002	PCT641
Validation Dipole D-5000S	November 2002	PCT741
HP-778D Dual-Directional Coupler (0.1 ~ 2.0 GHz)	November 2002	PCT664
MicroCircuits Directional Coupler (4.0 ~ 8.0 GHz)	November 2002	PE2204-6
Amplifier Research 5S1G4 Power Amp	January 2003	PCT540
IFI T184-10 Power Amplifier (4.0 ~ 18.0 GHz)	December 2002	5957
Agilent E8241A (250kHz ~ 20GHz) Signal Generator	November 2002	US42110432
HP-8648D (9kHz ~ 4 GHz) Signal Generator	January 2003	PCT526
HP-8753E (30kHz ~ 6GHz) Network Analyzer	January 2003	PCT552
HP85070B Dielectric Probe Kit	January 2003	PCT501
IFI CC110EXX TEM Cell (DC to 2000 MHz)	January 2003	PCT498
EMCO 3115 Horn Antenna (2.0 ~ 18.0 GHz)	August 2002	PCT496
Guidline 5150 Precision Dual-Thermometer	November 2002	66145

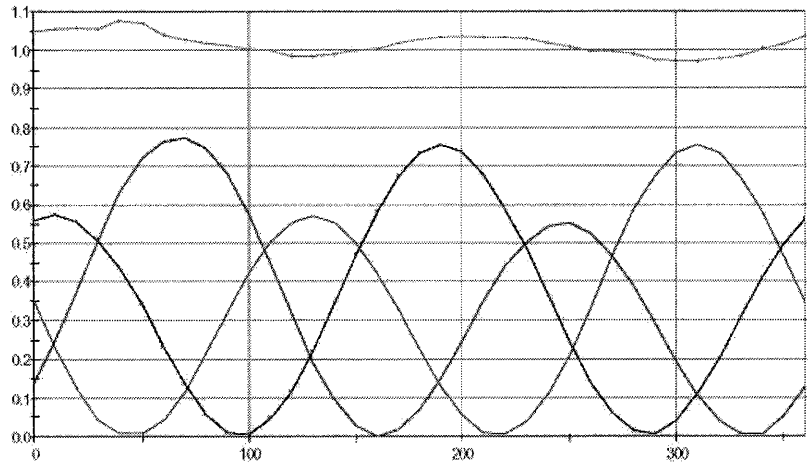
CALIBRATED BY: _____ DATE: 01/15/03

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA

TEM Calibration Plot
Date: 3-Jan-03 05:19:17 pm
Probe Name: PCT003
Frequency: 835
Sensitivity: Ch1: 2.439 Ch2: 2.706 Ch3: 2.822 mV/(mW/cm^2)
Isotropicity: 3.49% 0.15 db Min=0.981 Max=1.051



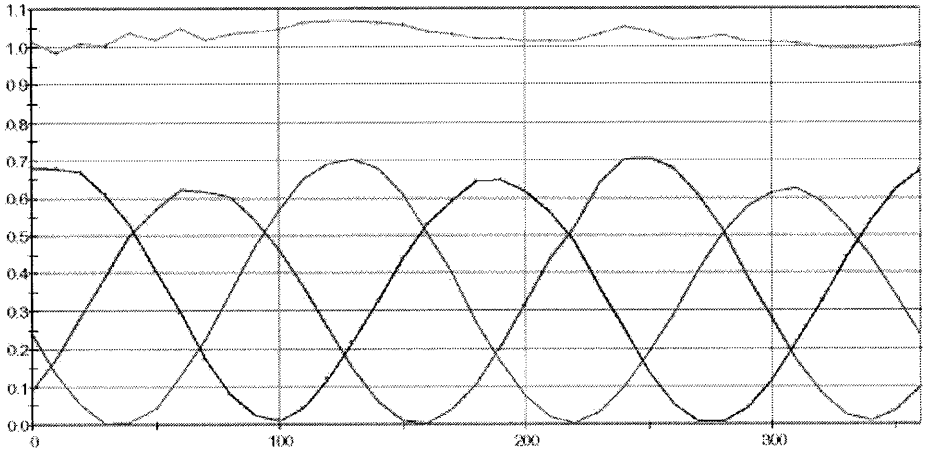
TEM Calibration Plot
Date: 3-Jan-03 05:52:39 pm
Probe Name: PCT003
Frequency: 1880
Sensitivity: Ch1: 4.794 Ch2: 5.895 Ch3: 5.327 mV/(mW/cm^2)
Isotropicity: 5.35% 0.23 db Min=0.971 Max=1.078



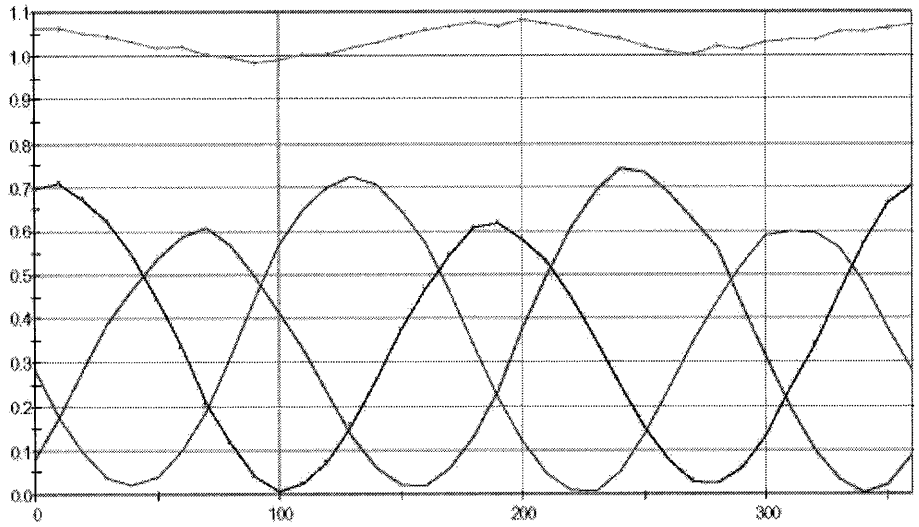
CALIBRATED BY: _____ **DATE:** 01/15/03

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA

TEM Calibration Plot
Date: 3-Jan-03 10:10:11 am
Probe Name: PCT003
Frequency: 2440
Sensitivity: Ch1: 2.075 Ch2: 2.820 Ch3: 2.456 mV/(mW/cm^2)
Isotropicity: 4.02% 0.17 db Min=0.985 Max=1.066



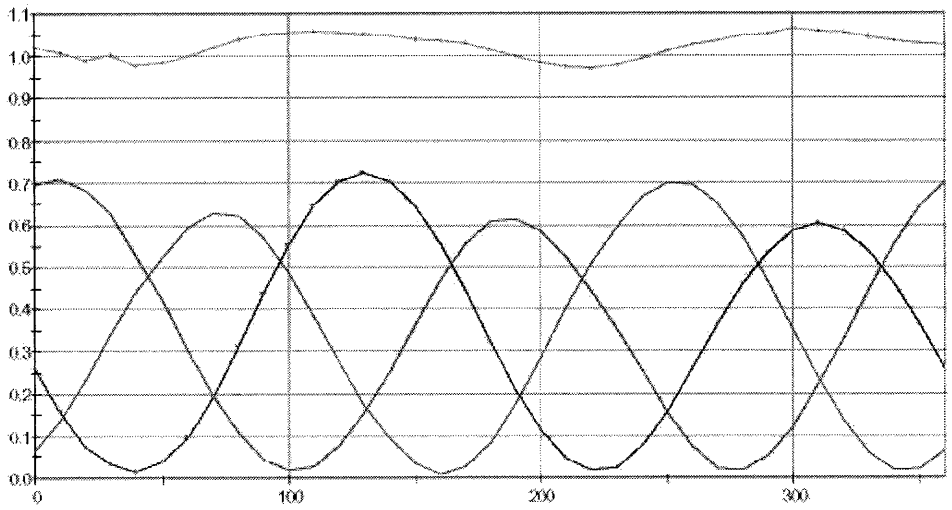
TEM Calibration Plot
Date: 3-Jan-03 10:31:24 am
Probe Name: PCT003
Frequency: 5300
Sensitivity: Ch1: 1.939 Ch2: 2.177 Ch3: 2.062 mV/(mW/cm^2)
Isotropicity: 4.85% 0.21 db Min=0.984 Max=1.081



CALIBRATED BY: _____ **DATE:** 01/15/03

Calibration Laboratory
6660-B Dobbin Road
Columbia, Maryland 21045 USA

TEM Calibration Plot
Date: 3-Jan-02 12:06:18 pm
Probe Name: PCT003
Frequency: 5800
Sensitivity: Ch1: 0.6759 Ch2: 0.8082 Ch3: 0.7596 mV/(mW/cm^2)
Isotropicity: 4.93% 0.21 db Min=0.973 Max=1.082



CALIBRATED BY: _____ DATE: 01/15/03