



PCTEST ENGINEERING LABORATORY, INC.

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CERTIFICATE OF COMPLIANCE (SAR EVALUATION)



APPLICANT NAME & ADDRESS:

Samsung Electronics Co., Ltd.
416 Maetan-3 Dong, Paldal-Ku
Suwon City Kyungki-Do
441-742, KOREA
Attn: Wallace Oh

DATE & LOCATION OF TESTING:

Dates of Tests: Feb. 20 - Mar.1, 2002
Test Report S/N: SAR.220219075.A3L
Test Site: PCTEST Lab, Columbia, MD USA

FCC ID:

A3LSCHA310

APPLICANT:

Samsung Electronics Co., Ltd.

EUT Type:

Tri-Mode Dual-Band Analog/PCS Phone (AMPS/CDMA)

Tx Frequency:

**824.04 – 848.97 MHz (AMPS) / 824.70 – 848.31 MHz (CDMA)
1851.25 – 1908.75 MHz (PCS CDMA)**

Rx Frequency:

**869.04 – 893.97 MHz (AMPS) / 869.70 – 893.31 MHz (CDMA)
1931.25 – 1988.75 MHz (PCS CDMA)**

Max. RF Output Power:

**0.400W ERP AMPS (26.023dBm);
0.315W ERP Cellular CDMA (24.983dBm);
0.285W EIRP PCS CDMA (24.551dBm)**

Max. SAR Measurement:

**1.361mW/g AMPS Head SAR; 0.731mW/g AMPS Body SAR;
0.989mW/g Cell. CDMA Head SAR; 0.35mW/g Cell. CDMA Body SAR;
1.357mW/g PCS CDMA Head SAR; 1.030mW/g PCS CDMA Body SAR**

Trade Name/Model(s):

SCH-A310

FCC Classification:

Licensed Portable Transmitter Held to Ear (PCE)

FCC Rule Part(s):

§2.1093; FCC/OET Bulletin 65 Supplement C [July 2001]

Application Type:

Certification

Test Device Serial No.:

Identical prototype

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE Std. C95.1-1992 and had been tested in accordance with the measurement procedures specified in ANSI/IEEE Std. C95.3-1992 and IEEE Std. 1528-200X (Draft 6.4, July 2001).

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Randy Ortanez
President



PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT		Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310

12. SYSTEM VERIFICATION

Tissue Verification

Table 12.1 Simulated Tissue Verification

MEASURED TISSUE PARAMETERS									
Date(s)	02/18/02	835MHz Brain		835MHz Muscle		1900MHz Brain		1900MHz Muscle	
Liquid Temperature (°C)	23.5	Target	Measured	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ϵ		41.50	43.44	55.20	55.54	40.00	40.29	53.30	53.95
Conductivity: σ		0.900	0.87	0.970	0.990	1.400	1.44	1.520	1.56

Test System Validation

Prior to assessment, the system is verified to the $\pm 10\%$ of the specifications at 835MHz and 1900MHz by using the system validation kit(s). (Graphic Plots Attached)

Table 12.2 System Validation

Date(s)	02/20/02	SYSTEM DIPOLE VALIDATION TARGET & MEASURED			
Liquid Temperature (°C)	23.0				
System Validation Kit: D-835S, S/N: 103		835MHz Brain	Targeted SAR _{1g} (mW/g) 2.375	Measured SAR _{1g} (mW/g) 2.56	Deviation (%) + 7.2
System Validation Kit: D-1900S, S/N: 104		1900MHz Brain	Targeted SAR _{1g} (mW/g) 9.925	Measured SAR _{1g} (mW/g) 10.72	Deviation (%) + 7.4

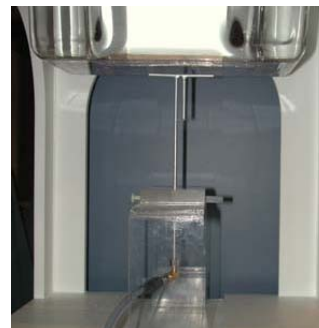
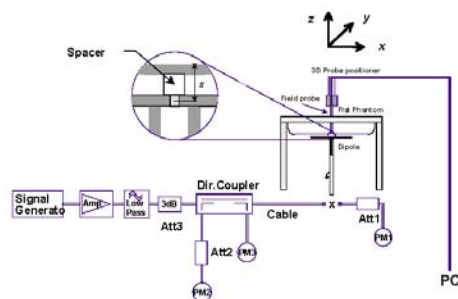


Figure 12.1 Dipole Validation Test Setup

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT	SAMSUNG	Reviewed by: Quality Manager
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13. SAR TEST DATA SUMMARY

[See Measurement Result Data Pages](#)

Procedures Used To Establish Test Signal

The handset was placed into simulated call mode (AMPS, Cellular CDMA & PCS CDMA modes) using manufacturers test codes. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR [4]. When test modes are not available or inappropriate for testing a handset, the actual transmission is activated through a base station simulator or similar equipment. See data pages for actual procedure used in measurement.

Device Test Conditions

The handset is battery operated. Each SAR measurement was taken with a fully charged battery. In order to verify that the device was tested at full power, conducted output power measurements were performed before and after each SAR measurement to confirm the output power. If a conducted power deviation of more than 5% occurred, the test was repeated.

EUT Handset Reference Points

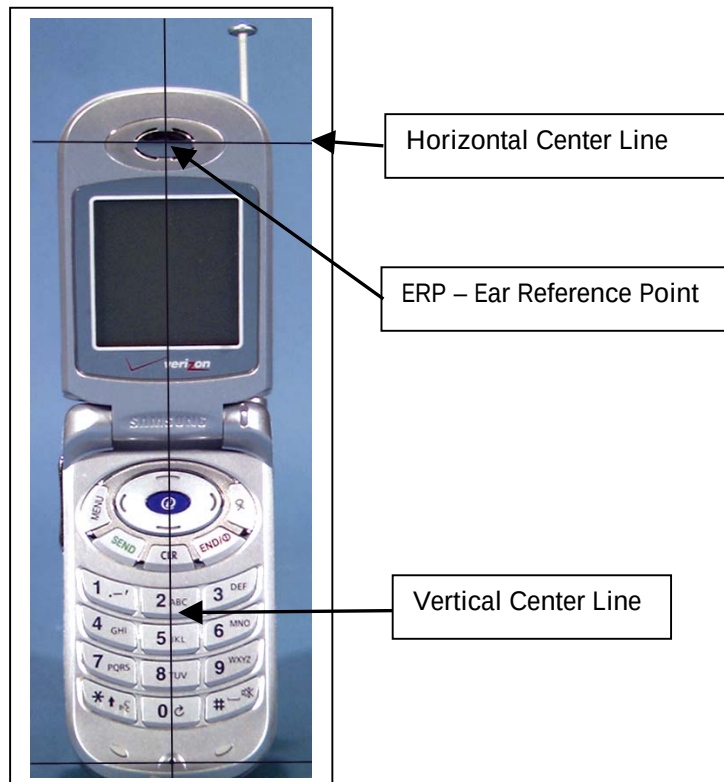


Figure 13.1 Handset Reference Points

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT	SAMSUNG	Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310
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SAR DATA SUMMARY

Mixture Type: 835MHz Brain

Dielectric Constant: 43.44

Conductivity: 0.87

14.1 MEASUREMENT RESULTS (AMPS Right Head SAR – Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	27.0	27.0	Extended	Cheek / Touch	In	1.3378
824.04	0991	AMPS	27.0	27.0	Extended	Cheek / Touch	Out	1.0746
836.49	0383	AMPS	27.0	27.0	Extended	Cheek / Touch	In	0.9055
836.49	0383	AMPS	27.0	27.0	Extended	Cheek / Touch	Out	0.7923
848.97	0799	AMPS	27.0	27.0	Extended	Cheek / Touch	In	0.9325
848.97	0799	AMPS	27.0	27.0	Extended	Cheek / Touch	Out	0.8065
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].

2. All modes of operation were investigated, and worst-case results are reported.

3. Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

*Power Measured

☒ Conducted

☐ ERP

☐ EIRP

4. SAR Measurement System

☐ DASY3

☒ IDX

☐

Phantom Configuration

☐ Left Head

☐ Flat Phantom

☒ Right Head

5. SAR Configuration

☒ Head

☐ Body

☐ Hand

6. Test Signal Call Mode

☒ Manu. Test Codes

☐ Base Station Simulator


Randy Ortanez
President



**Figure 14.1 Right Head SAR Test Setup
-- Cheek / Touch Position --**

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310	Page 18 of 33

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

Dielectric Constant: 43.44

Conductivity: 0.87

14.2 MEASUREMENT RESULTS (AMPS Right Head SAR – Tilt)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	27.0	27.0	Extended	Ear / 15° Tilt	In	0.4513
824.04	0991	AMPS	27.0	27.0	Extended	Ear / 15° Tilt	Out	0.2924
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

- *Power Measured
- | | | |
|--|---|--|
| ☒ Conducted | ☐ ERP | ☐ EIRP |
| ☐ DASY3 | ☒ IDX | ☐ |
| ☐ Left Head | ☐ Flat Phantom | ☒ Right Head |
| ☒ Head | ☐ Body | ☐ Hand |
| ☒ Manu. Test Codes | ☐ Base Station Simulator | |
4. SAR Measurement System
- Phantom Configuration
5. SAR Configuration
6. Test Signal Call Mode


Randy Ortanez
President



Figure 14.2 Right Head SAR Test Setup
-- Ear / 15° Tilt Position --

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
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SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

Dielectric Constant: 43.44

Conductivity: 0.87

14.3 MEASUREMENT RESULTS (AMPS Left Head SAR - Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	27.0	27.0	Extended	Cheek / Touch	In	1.3615
824.04	0991	AMPS	27.0	27.0	Extended	Cheek / Touch	Out	1.1698
836.49	0383	AMPS	27.0	27.0	Extended	Cheek / Touch	In	0.8810
836.49	0383	AMPS	27.0	27.0	Extended	Cheek / Touch	Out	0.9482
848.97	0799	AMPS	27.0	27.0	Extended	Cheek / Touch	In	1.0542
848.97	0799	AMPS	27.0	27.0	Extended	Cheek / Touch	Out	1.1915
824.04	0991	AMPS	27.0	27.0	Standard	Cheek / Touch	In	1.3416
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Brain		
Spatial Peak						1.6 W/kg (mW/g)		
Uncontrolled Exposure/General Population						averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☒ Left Head ☐ Flat Phantom ☐ Right Head
5. SAR Configuration ☒ Head ☐ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator

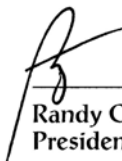

Randy Ortanez
President



Figure 14.3 Left Head SAR Test Setup
-- Cheek / Touch Position --

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310	Page 20 of 33

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

Dielectric Constant: 43.44

Conductivity: 0.87

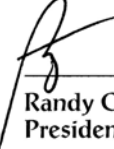
14.4 MEASUREMENT RESULTS (AMPS Left Head SAR – Tilt)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	27.0	27.0	Extended	Ear / 15° Tilt	In	0.4030
824.04	0991	AMPS	27.0	27.0	Extended	Ear / 15° Tilt	Out	0.2915
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

- | | | | |
|---------------------------|--|---|-------------------------------------|
| *Power Measured | ☒ Conducted | ☐ ERP | ☐ EIRP |
| 4. SAR Measurement System | ☐ DASY3 | ☒ IDX | ☐ |
| Phantom Configuration | ☒ Left Head | ☐ Flat Phantom | ☐ Right Head |
| 5. SAR Configuration | ☒ Head | ☐ Body | ☐ Hand |
| 6. Test Signal Call Mode | ☒ Manu. Test Codes | ☐ Base Station Simulator | |


Randy Ortanez
President



**Figure 14.4 Left Head SAR Test Setup
-- Ear / 15° Tilt Position --**

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
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SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

Dielectric Constant: 43.44

Conductivity: 0.87

14.5 MEASUREMENT RESULTS (CELLULAR CDMA Left Head SAR – Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.70	1013	CDMA	26.0	26.0	Extended	Cheek / Touch	In	0.9887
824.70	1013	CDMA	26.0	26.0	Extended	Cheek / Touch	Out	0.8502
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

- | | | | |
|---------------------------|--|---|-------------------------------------|
| *Power Measured | ☒ Conducted | ☐ ERP | ☐ EIRP |
| 4. SAR Measurement System | ☐ DASY3 | ☒ IDX | ☐ |
| Phantom Configuration | ☒ Left Head | ☐ Flat Phantom | ☐ Right Head |
| 5. SAR Configuration | ☒ Head | ☐ Body | ☐ Hand |
| 6. Test Signal Call Mode | ☒ Manu. Test Codes | ☐ Base Station Simulator | |


Randy Ortanez
President



**Figure 14.5 Left Head SAR Test Setup
-- Cheek / Touch Position --**

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
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SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

Dielectric Constant: 43.44

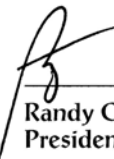
Conductivity: 0.87

14.6 MEASUREMENT RESULTS (CELLULAR CDMA Left Head SAR – Tilt)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.70	1013	CDMA	26.0	26.0	Extended	Ear / 15° Tilt	In	0.3041
824.70	1013	CDMA	26.0	26.0	Extended	Ear / 15° Tilt	Out	0.2106
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Brain		
Spatial Peak						1.6 W/kg (mW/g)		
Uncontrolled Exposure/General Population						averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☒ Left Head ☐ Flat Phantom ☐ Right Head
5. SAR Configuration ☒ Head ☐ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator


Randy Ortanez
President



**Figure 14.6 Left Head SAR Test Setup
-- Ear / 15° Tilt Position --**

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
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SAR DATA SUMMARY (Continued)

Mixture Type: 1900MHz Brain
Dielectric Constant: 40.29
Conductivity: 1.44

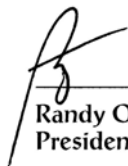
14.7 MEASUREMENT RESULTS (PCS CDMA Right Head SAR – Touch)

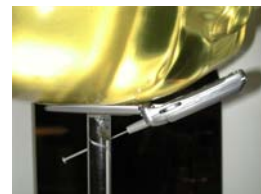
FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
0025	1851.25	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	In	1.1355
0025	1851.25	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	Out	0.1807
0600	1880.00	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	In	1.2745
0600	1880.00	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	Out	0.2595
1175	1908.75	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	In	0.7117
1175	1908.75	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	Out	0.1354
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☐ Left Head ☐ Flat Phantom ☒ Right Head
5. SAR Configuration ☒ Head ☐ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator


Randy Ortanez
President



**Figure 14.7 Right Head SAR Test Setup
-- Cheek / Touch Position --**

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT		SAMSUNG	Reviewed by: Quality Manager
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SAR DATA SUMMARY (Continued)

Mixture Type: 1900MHz Brain

Dielectric Constant: 40.29

Conductivity: 1.44

14.8 MEASUREMENT RESULTS (PCS CDMA Right Head SAR – Tilt)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
0600	1880.00	PCS CDMA	26.0	26.0	Extended	Ear / 15° Tilt	In	0.07
0600	1880.00	PCS CDMA	26.0	26.0	Extended	Ear / 15° Tilt	Out	0.09
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Brain		
Spatial Peak						1.6 W/kg (mW/g)		
Uncontrolled Exposure/General Population						averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

- | | | | |
|---------------------------|--|---|--|
| *Power Measured | ☒ Conducted | ☐ ERP | ☐ EIRP |
| 4. SAR Measurement System | ☐ DASY3 | ☒ IDX | ☐ |
| Phantom Configuration | ☐ Left Head | ☐ Flat Phantom | ☒ Right Head |
| 5. SAR Configuration | ☒ Head | ☐ Body | ☐ Hand |
| 6. Test Signal Call Mode | ☒ Manu. Test Codes | ☐ Base Station Simulator | |


Randy Ortanez
President



**Figure 14.8 Right Head SAR Test Setup
-- Ear / Tilt Position --**

PCTEST™ SAR TEST REPORT	SAR EVALUATION REPORT			Reviewed by: Quality Manager
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SAR DATA SUMMARY (Continued)

Mixture Type: 1900MHz Brain

Dielectric Constant: 40.29

Conductivity: 1.44

14.9 MEASUREMENT RESULTS (PCS CDMA Left Head SAR – Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
0025	1851.25	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	In	1.2116
0025	1851.25	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	Out	0.2921
0600	1880.00	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	In	1.1195
0600	1880.00	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	Out	0.2006
1175	1908.75	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	In	1.3572
1175	1908.75	PCS CDMA	26.0	26.0	Extended	Cheek / Touch	Out	0.2126
1175	1908.75	PCS CDMA	26.0	26.0	Standard	Cheek / Touch	In	1.3540
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

- | | | | |
|---------------------------|--|---|-------------------------------------|
| *Power Measured | ☒ Conducted | ☐ ERP | ☐ EIRP |
| 4. SAR Measurement System | ☐ DASY3 | ☒ IDX | ☐ |
| Phantom Configuration | ☒ Left Head | ☐ Flat Phantom | ☐ Right Head |
| 5. SAR Configuration | ☒ Head | ☐ Body | ☐ Hand |
| 6. Test Signal Call Mode | ☒ Manu. Test Codes | ☐ Base Station Simulator | |

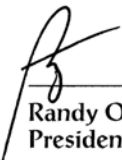

Randy Ortanez
President



Figure 14.9 Left Head SAR Test Setup
-- Cheek / Touch Position --

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310	Page 26 of 33

SAR DATA SUMMARY (Continued)

Mixture Type: 1900MHz Brain

Dielectric Constant: 40.29

Conductivity: 1.44

14.10 MEASUREMENT RESULTS (PCS CDMA Left Head SAR – Tilt)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
1175	1908.75	PCS CDMA	26.0	26.0	Extended	Ear / 15° Tilt	In	0.18
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

- | | | | |
|---------------------------|--|---|-------------------------------------|
| *Power Measured | ☒ Conducted | ☐ ERP | ☐ EIRP |
| 4. SAR Measurement System | ☐ DASY3 | ☒ IDX | ☐ |
| Phantom Configuration | ☒ Left Head | ☐ Flat Phantom | ☐ Right Head |
| 5. SAR Configuration | ☒ Head | ☐ Body | ☐ Hand |
| 6. Test Signal Call Mode | ☒ Manu. Test Codes | ☐ Base Station Simulator | |


Randy Ortanez
President



**Figure 14.10 Left Head SAR Test Setup
-- Ear / Tilt Position --**

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310	Page 27 of 33

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Muscle

Dielectric Constant: 55.54

Conductivity: 0.9955

14.11 MEASUREMENT RESULTS (AMPS Body SAR w/o Holster)

FREQUENCY		Modulation	Begin / End POWER [†]			Separation Distance (cm) ^{††}	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	27.0	27.0	Standard	1.5 [w/o Holster]	In	0.6483
824.04	0991	AMPS	27.0	27.0	Standard	1.5 [w/o Holster]	Out	0.4929
836.49	0383	AMPS	27.0	27.0	Standard	1.5 [w/o Holster]	In	0.5392
836.49	0383	AMPS	27.0	27.0	Standard	1.5 [w/o Holster]	Out	0.5103
848.97	0799	AMPS	27.0	27.0	Standard	1.5 [w/o Holster]	In	0.6270
848.97	0799	AMPS	27.0	27.0	Standard	1.5 [w/o Holster]	Out	0.7312
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Muscle 1.6 W/kg (mW/g) averaged over 1 gram		
Spatial Peak								
Uncontrolled Exposure/General Population								

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in atypical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☐ Left Head ☒ Flat Phantom ☐ Right Head
5. SAR Configuration ☐ Head ☒ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
7. **Test Configuration ☐ With Holster ☒ Without Holster
8. Both sides of the phone were tested and the worst-case side is reported.


Randy Ortañez
President



Figure 14.11 Body SAR Test Setup
-- w/o Holster --

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310	Page 28 of 33

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Muscle

Dielectric Constant: 55.54

Conductivity: 0.9955

14.12 MEASUREMENT RESULTS (CELLULAR CDMA Body SAR w/o Holster)

FREQUENCY		Modulation	Begin / End POWER [†]			Separation Distance (cm) ^{††}	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
848.31	0777	CDMA	26.0	26.0	Standard	1.5 [w/o Holster]	In	0.35
848.31	0777	CDMA	26.0	26.0	Standard	1.5 [w/o Holster]	Out	0.31
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Muscle 1.6 W/kg (mW/g) averaged over 1 gram		
Spatial Peak								
Uncontrolled Exposure/General Population								

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in atypical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☐ Left Head ☒ Flat Phantom ☐ Right Head
5. SAR Configuration ☐ Head ☒ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
7. ^{††}Test Configuration ☐ With Holster ☒ Without Holster
8. Both sides of the phone were tested and the worst-case side is reported.


Randy Ortanez
President



Figure 14.12 Body SAR Test Setup
-- w/o Holster --

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310	Page 29 of 33

SAR DATA SUMMARY (Continued)

Mixture Type: 1900MHz Muscle

Dielectric Constant: 53.95

Conductivity: 1.56

14.13 MEASUREMENT RESULTS (PCS CDMA Body SAR w/o Holster)

FREQUENCY		Modulation	Begin / End POWER [‡]			Separation Distance (cm) ^{‡‡}	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
0025	1851.25	PCS CDMA	26.0	26.0	Standard	1.5 [w/o Holster]	In	0.86
0025	1851.25	PCS CDMA	26.0	26.0	Standard	1.5 [w/o Holster]	Out	0.88
0600	1880.00	PCS CDMA	26.0	26.0	Standard	1.5 [w/o Holster]	In	1.03
0600	1880.00	PCS CDMA	26.0	26.0	Standard	1.5 [w/o Holster]	Out	0.83
1175	1908.75	PCS CDMA	26.0	26.0	Standard	1.5 [w/o Holster]	In	0.80
1175	1908.75	PCS CDMA	26.0	26.0	Standard	1.5 [w/o Holster]	Out	0.88
0600	1880.00	PCS CDMA	26.0	26.0	Extended	1.5 [w/o Holster]	Out	1.01
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Muscle 1.6 W/kg (mW/g) averaged over 1 gram		
Spatial Peak								
Uncontrolled Exposure/General Population								

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in atypical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☐ Left Head ☒ Flat Phantom ☐ Right Head
5. SAR Configuration ☐ Head ☒ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
7. ^{‡‡}Test Configuration ☐ With Holster ☒ Without Holster
8. Both sides of the phone were tested and the worst-case side is reported.


Randy Ortanez
President



Figure 14.13 Body SAR Test Setup
-- w/o Holster --

PCTEST™ SAR TEST REPORT	PCTEST SAR EVALUATION REPORT			Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310	Page 30 of 33

15. SAR TEST EQUIPMENT

Equipment Calibration

Table 15.1 Test Equipment Calibration

EQUIPMENT SPECIFICATIONS		
Type	Calibration Date	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	
E-Field Probe E-010	February 2002	PCT001
Right Ear SAM Phantom (P-SAM-R)	February 2002	
Left Ear SAM Phantom (P-SAM-L)	February 2002	
IDX Robot End Effector (EE-103-C)	February 2002	07111223
IDX Probe Amplifier	February 2002	07111113
Validation Dipole D-835S	February 2002	PCT640
Validation Dipole D-1900S	February 2002	PCT639
Brain Equivalent Matter (835MHz)	February 2002	PCTBEM101
Brain Equivalent Matter (1900MHz)	February 2002	PCTBEM301
Muscle Equivalent Matter (835MHz)	February 2002	PCTMEM201
Muscle Equivalent Matter (1900MHz)	February 2002	PCTMEM401
Microwave Amp. Model: 5S1G4, (800MHz - 4.2GHz)	January 2002	22332
Gigatronics 8651A Power Meter	January 2002	1835299
HP-8648D (9kHz ~ 4GHz) Signal Generator	January 2002	PCT530
Amplifier Research 5S1G4 Power Amp	January 2002	PCT540
HP-8753E (30kHz ~ 3GHz) Network Analyzer	January 2002	PCT552
HP85070B Dielectric Probe Kit	January 2002	PCT501
Ambient Noise/Reflection, etc.	<12mW/kg/<3%of SAR	January 2002

NOTE:

The E-field probe was calibrated by IDX, by temperature measurement procedure. Dipole Validation measurement is performed by PCTEST Lab. before each test. The brain simulating material is calibrated by PCTEST using the dielectric probe system and network analyzer to determine the conductivity and permittivity (dielectric constant) of the brain-equivalent material.

PCTEST™ SAR TEST REPORT	SAR EVALUATION REPORT			Reviewed by: Quality Manager
SAR Filename: SAR.220219075.A3L	Test Dates: Feb. 20 - Mar.1, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSCHA310	Page 31 of 33

SAR Data Report 02022005

Start : 20-Feb-02 12:30:23 pm
End : 20-Feb-02 12:45:15 pm
Code Version : 4.03
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 824.04
Peak Trans. Pwr : 0.500 W
Start Trans. Pwr : 0.500 W
Antenna Type : Helical
Antenna Posn. : In

Scan Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Mixture Type : Brain
Mixture Dielectric : 43.440
Mixture Conductivity : 0.870
Mixture Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 835
Mixture Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS Mode CH-991
Touch
CF=1; Amb. Temp.= 22.3'C; Liq. Temp.= 22.0'C

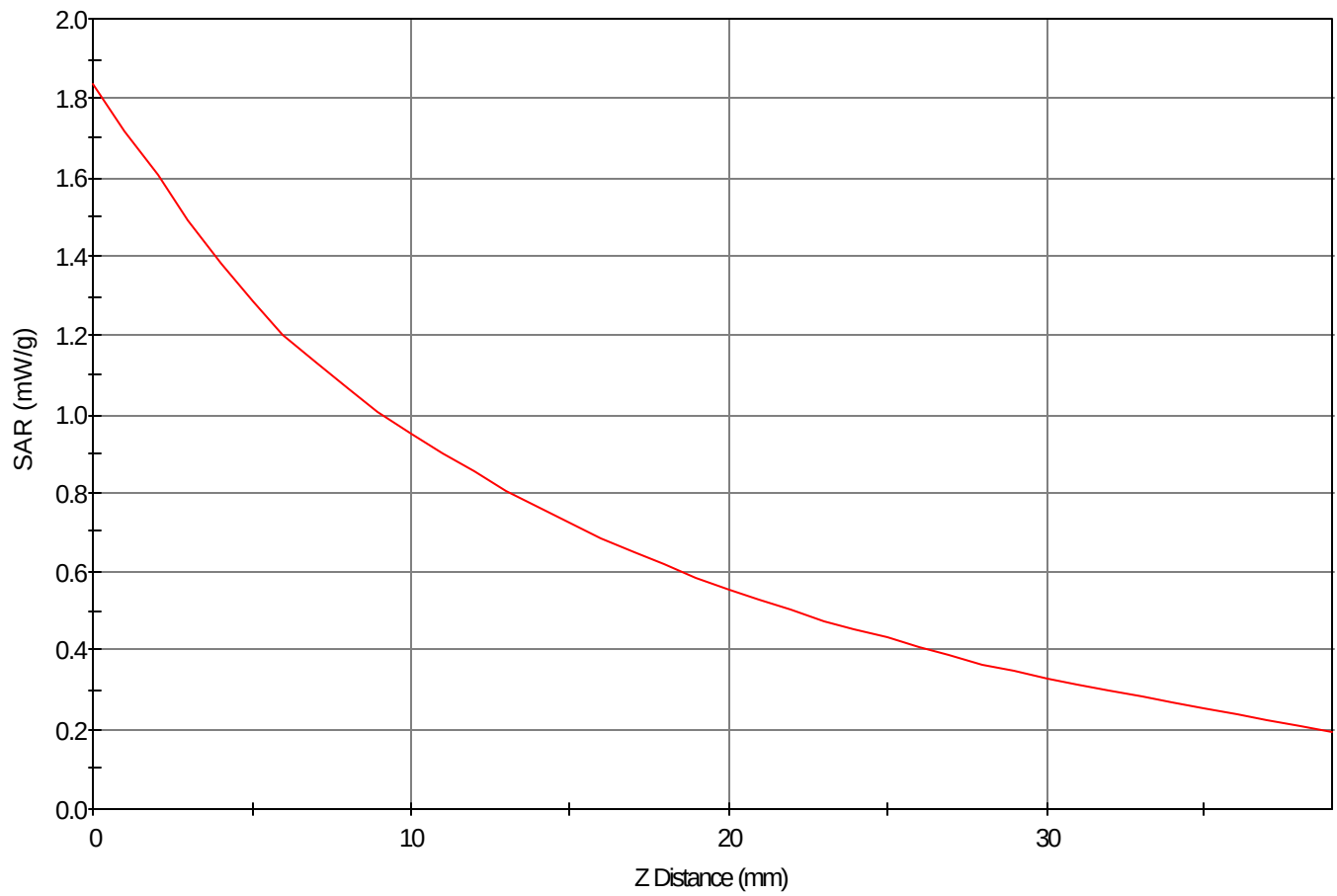
Area Scan - Max Peak SAR Value at 76.0 12.0 = 1.296928

Zoom Scan - Max Peak SAR Value at 75.0 12.0 0.0 = 1.839945

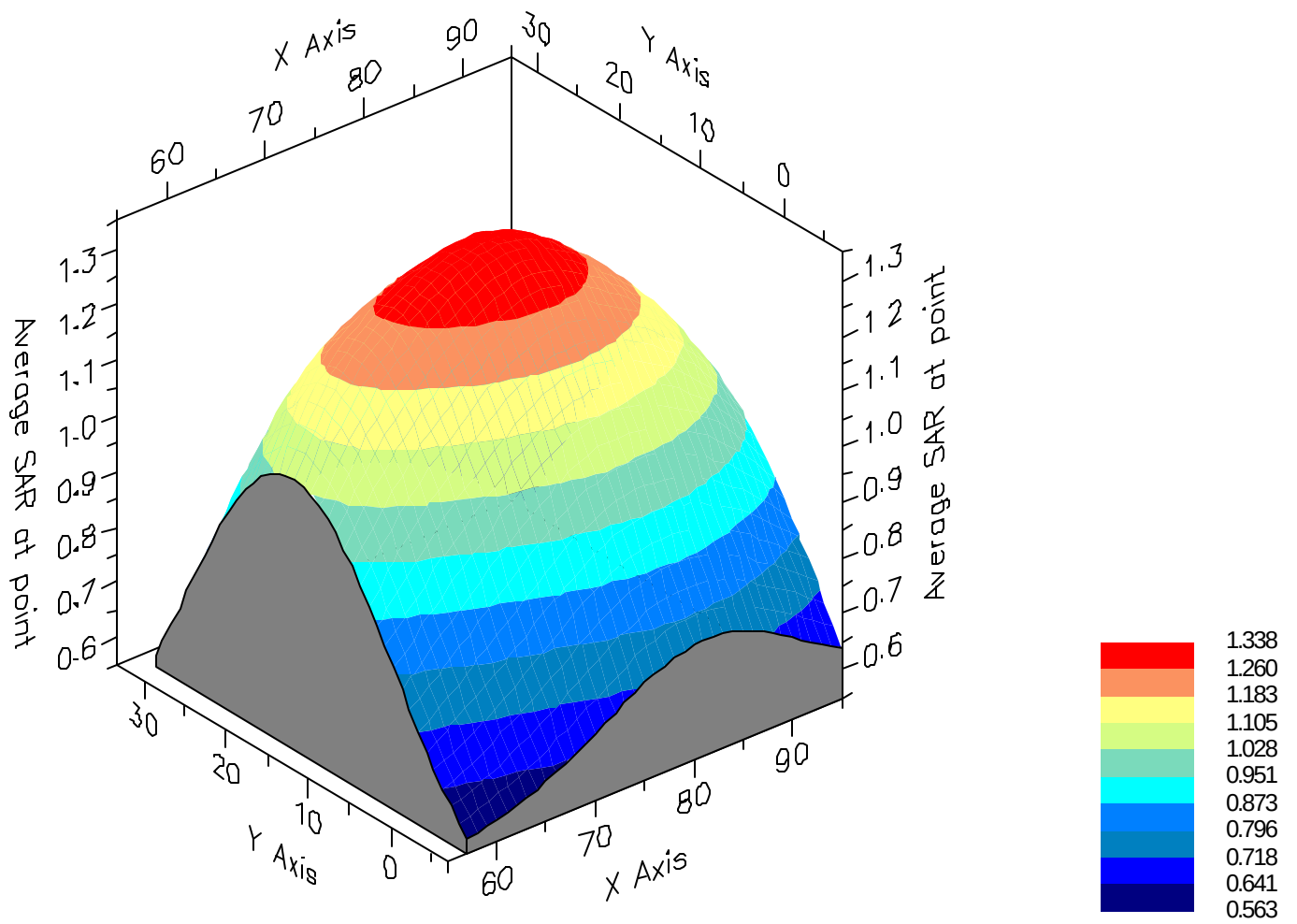
Max 1g SAR at 76.0 13.0 0.0 = 1.337845

Max 10g SAR at 76.0 13.0 0.0 = 0.918980

SAR - Z Axis
at Hotspot x:75.0 y:12.0



1g SAR Values





SAR Data Report 02022118

Start : 21-Feb-02 02:12:22 pm
End : 21-Feb-02 02:24:45 pm
Code Version : 4.03
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 824.04
Peak Trans. Pwr : 0.500 W
Start Trans. Pwr : 0.500 W
Antenna Type : Helical
Antenna Posn. : In

Scan Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Mixture Type : Brain
Mixture Dielectric : 43.440
Mixture Conductivity : 0.870
Mixture Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 835
Mixture Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS Mode CH-991
Tilt
CF=1; Amb. Temp.= 22.2'C; Liq. Temp.= 22.0'C

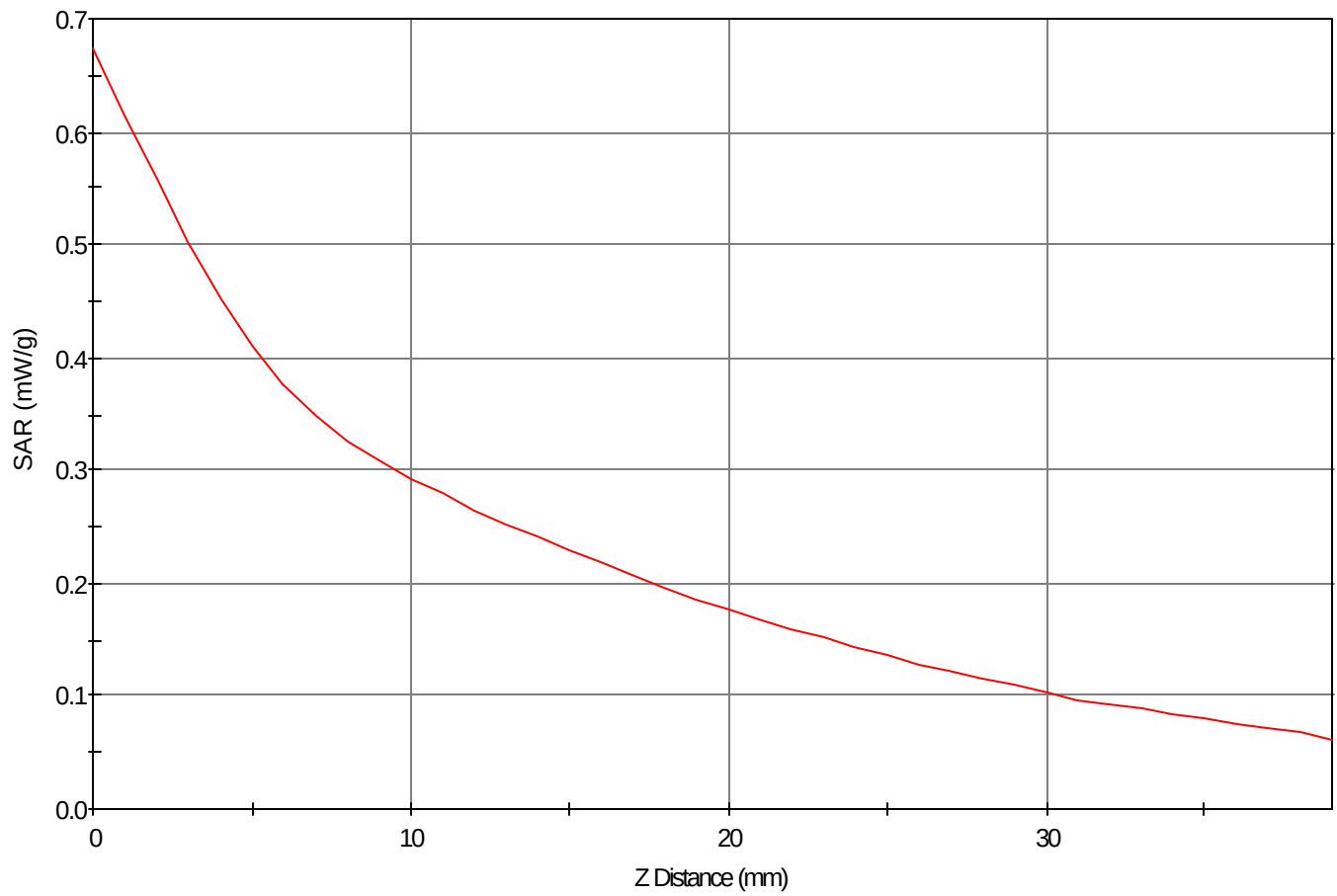
Area Scan - Max Peak SAR Value at 36.0 1.0 = 0.424214

Zoom Scan - Max Peak SAR Value at 27.0 2.0 0.0 = 0.674316

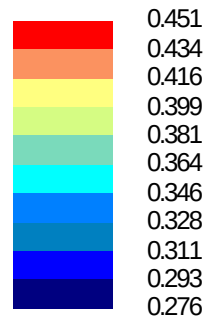
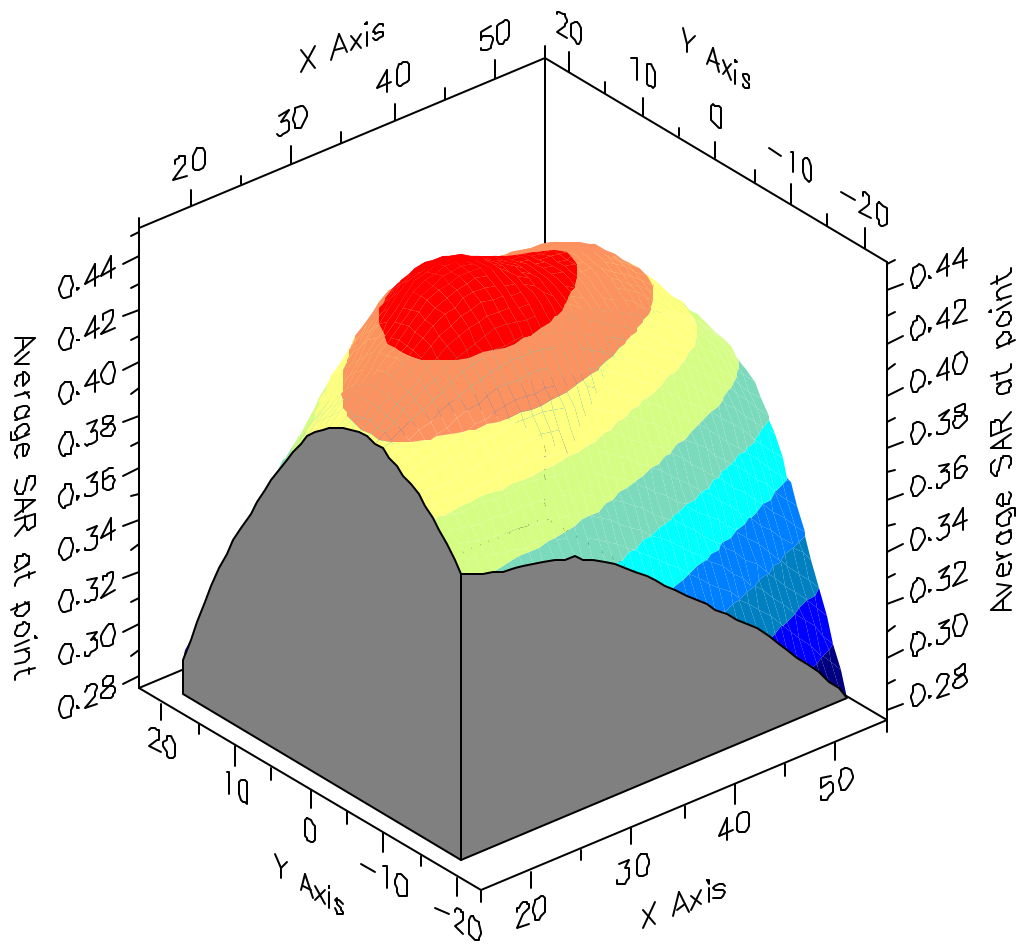
Max 1g SAR at 29.0 0.0 0.0 = 0.451274

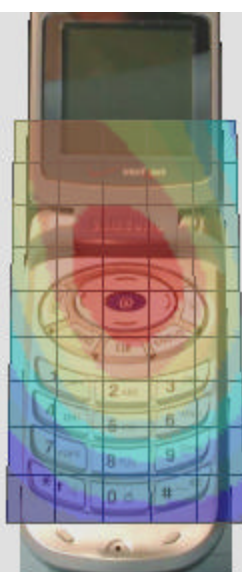
Max 10g SAR at 35.0 0.0 0.0 = 0.322812

SAR - Z Axis
at Hotspot x:27.0 y:2.0



1g SAR Values





SAR Data Report 02022001

Start : 20-Feb-02 09:20:56 am
End : 20-Feb-02 09:40:04 am
Code Version : 4.03
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 824.04
Peak Trans. Pwr : 0.500 W
Start Trans. Pwr : 0.500 W
Antenna Type : Helical
Antenna Posn. : In

Scan Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Mixture Type : Brain
Mixture Dielectric : 43.440
Mixture Conductivity : 0.870
Mixture Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 835
Mixture Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS Mode CH-991
Touch
CF=1; Amb. Temp.= 22.3'C; Liq. Temp.= 22.0'C

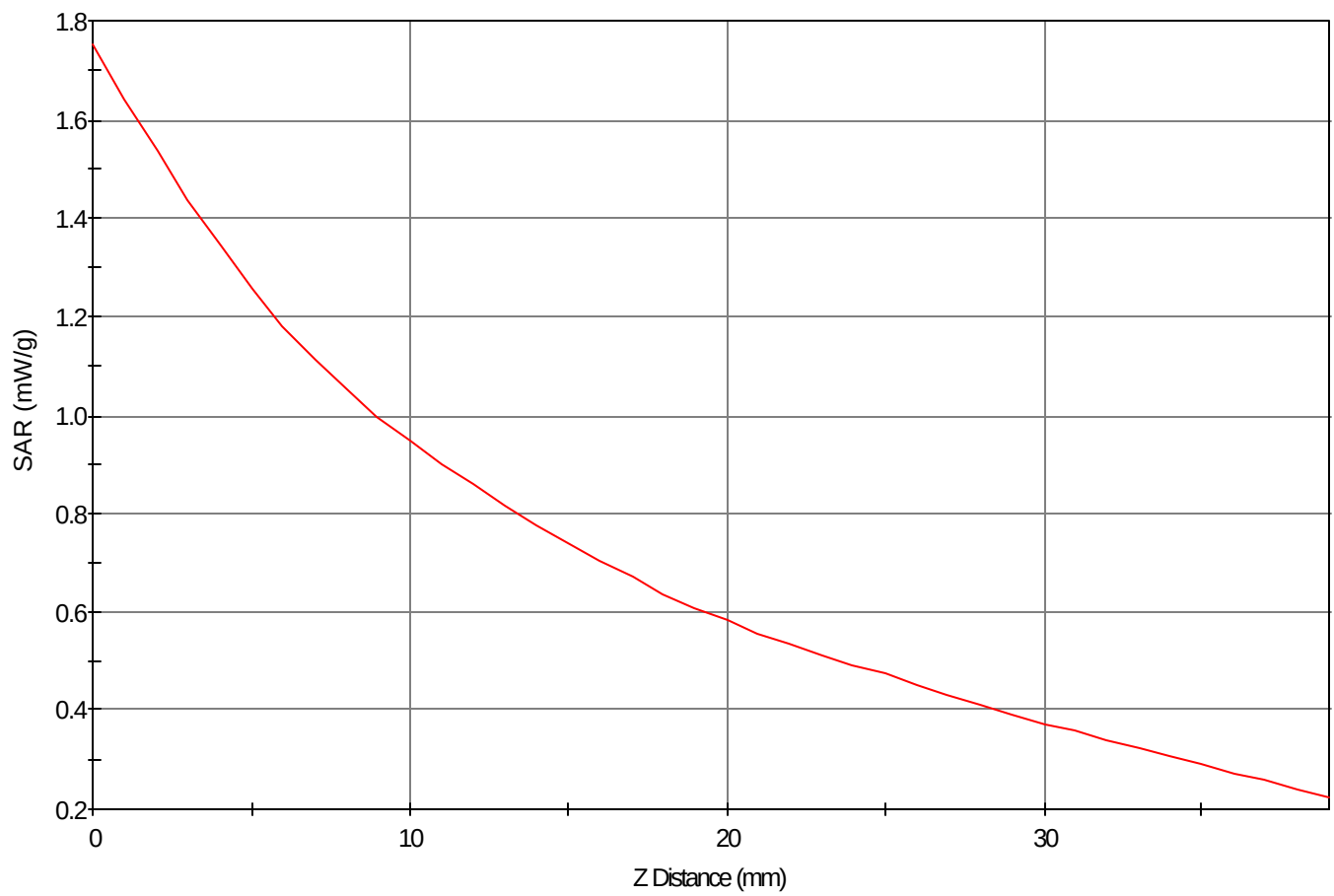
Area Scan - Max Peak SAR Value at 74.0 7.0 = 1.348322

Zoom Scan - Max Peak SAR Value at 66.0 12.0 0.0 = 1.751287

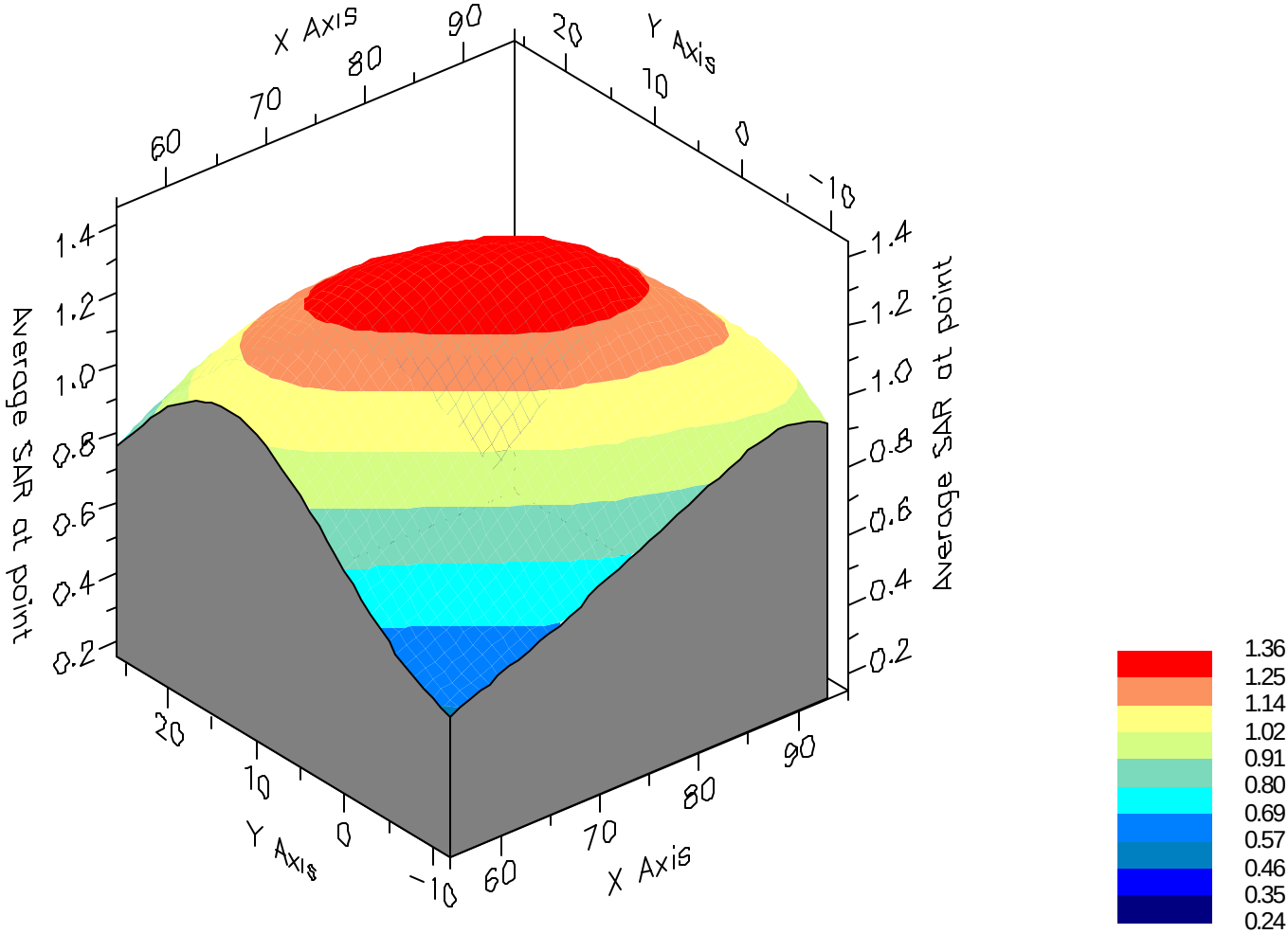
Max 1g SAR at 77.0 6.0 0.0 = 1.361516

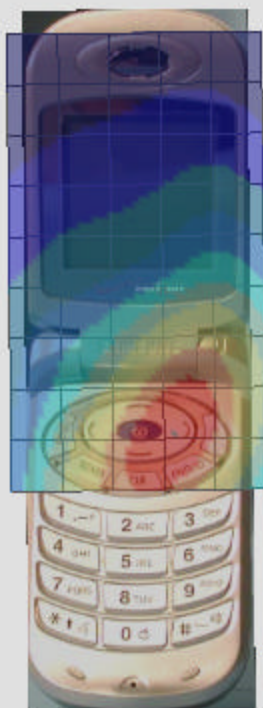
Max 10g SAR at 76.0 6.0 0.0 = 0.975719

SAR - Z Axis
at Hotspot x:66.0 y:12.0



1g SAR Values





SAR Data Report 02022112

Start : 21-Feb-02 12:49:51 pm
End : 21-Feb-02 01:07:46 pm
Code Version : 4.03
Robot Version: 4.07

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 2
Frequency : 824.04
Peak Trans. Pwr : 0.500 W
Start Trans. Pwr : 0.500 W
Antenna Type : Helical
Antenna Posn. : In

Scan Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Mixture Type : Brain
Mixture Dielectric : 43.440
Mixture Conductivity : 0.870
Mixture Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 835
Mixture Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS Mode CH-991
Touch
CF=1; Amb. Temp.= 22.2'C; Liq. Temp.= 22.0'C

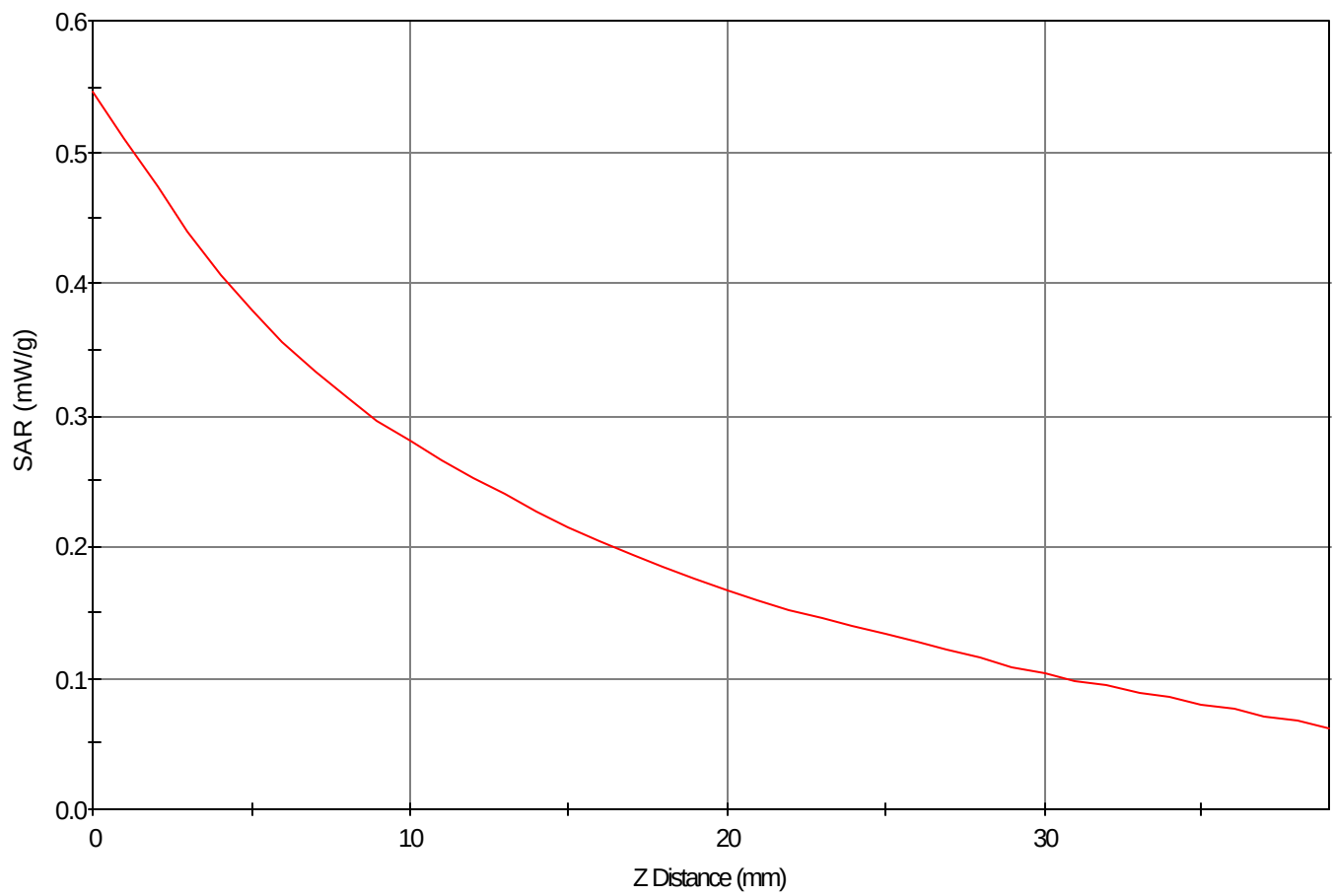
Area Scan - Max Peak SAR Value at 73.0 4.0 = 1.330328

Zoom Scan - Max Peak SAR Value at 66.0 6.0 0.0 = 1.862162

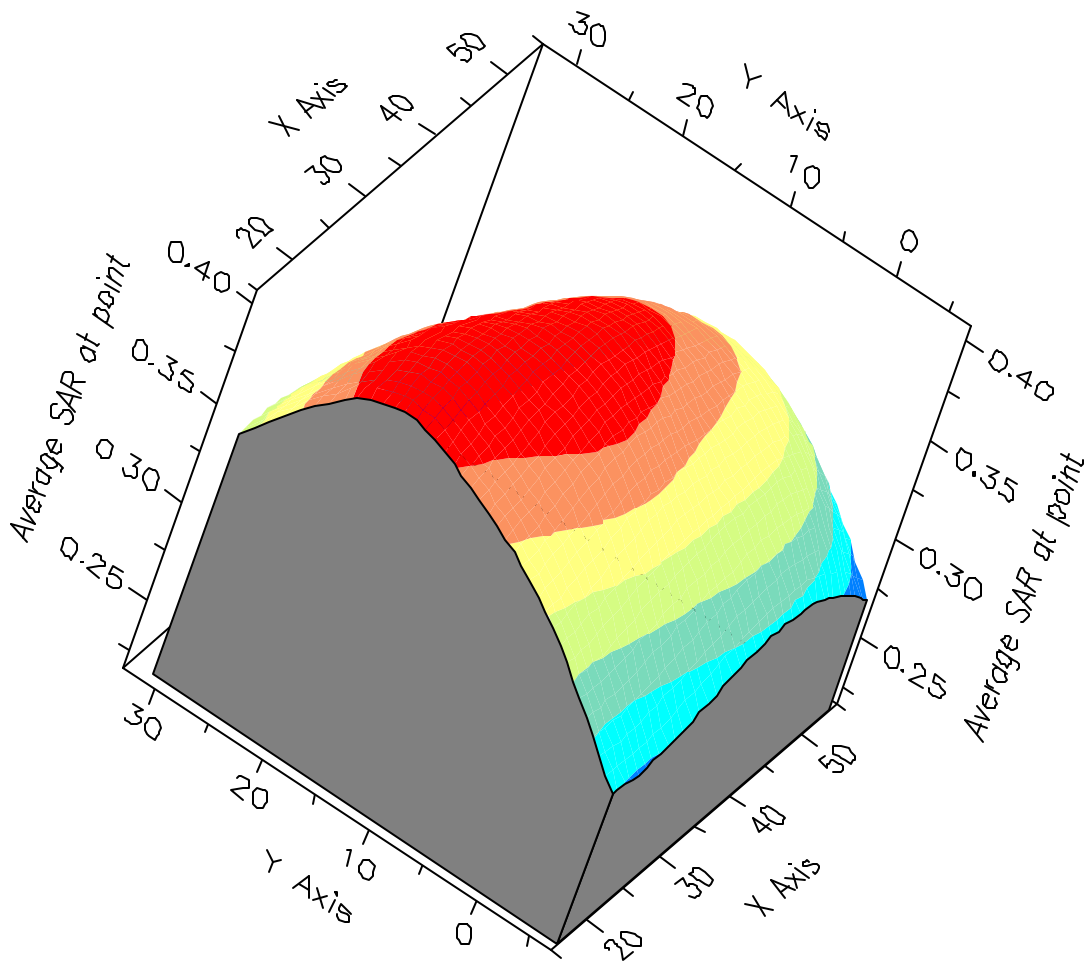
Max 1g SAR at 72.0 5.0 0.0 = 1.341596

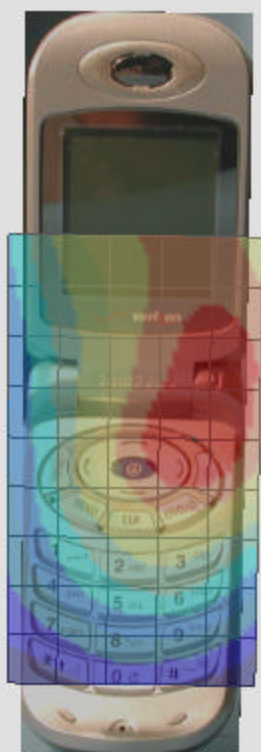
Max 10g SAR at 73.0 4.0 0.0 = 0.949407

SAR - Z Axis
at Hotspot x:20.0 y:21.0



1g SAR Values





SAR Data Report 02022102

Start : 21-Feb-02 09:31:51 am
End : 21-Feb-02 09:50:53 am
Code Version : 4.03
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 824.70
Peak Trans. Pwr : 0.400 W
Start Trans. Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : In

Scan Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Mixture Type : Brain
Mixture Dielectric : 43.440
Mixture Conductivity : 0.870
Mixture Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 835
Mixture Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

CDMA Mode CH-1013
Touch
CF=1; Amb. Temp.=22.4'C; Liq. Temp.=22.1'C

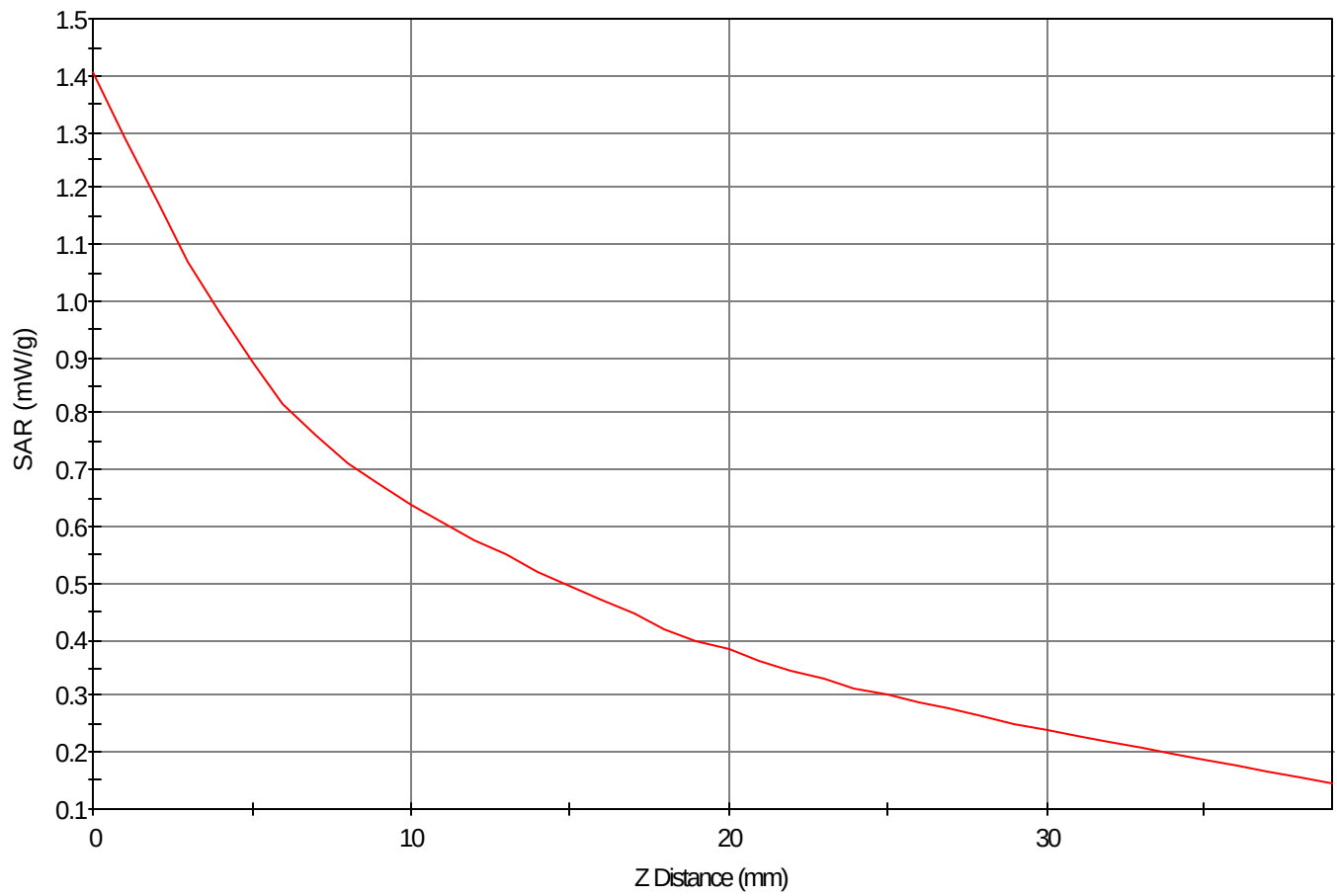
Area Scan - Max Peak SAR Value at 74.0 5.0 = 0.986132

Zoom Scan - Max Peak SAR Value at 65.0 11.0 0.0 = 1.407363

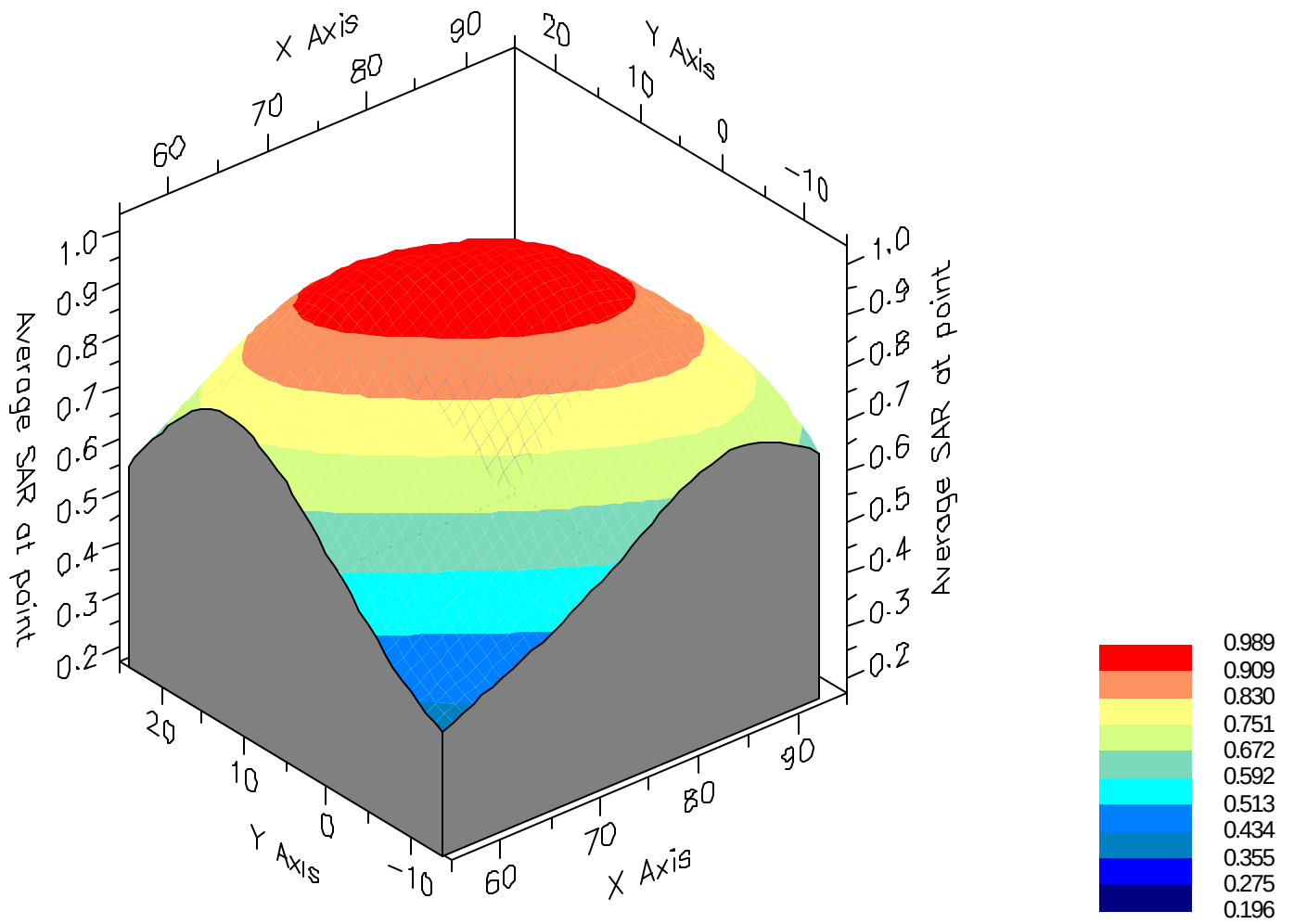
Max 1g SAR at 75.0 5.0 0.0 = 0.988741

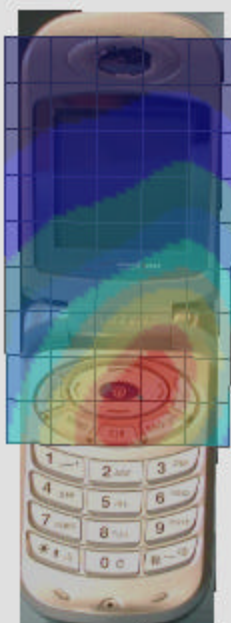
Max 10g SAR at 75.0 4.0 0.0 = 0.692466

SAR - Z Axis
at Hotspot x:65.0 y:11.0



1g SAR Values





SAR Data Report 02022110

Start : 21-Feb-02 12:17:58 pm
End : 21-Feb-02 12:30:33 pm
Code Version : 4.03
Robot Version: 4.07

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 824.70
Peak Trans. Pwr : 0.400 W
Start Trans. Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : In

Scan Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Mixture Type : Brain
Mixture Dielectric : 43.440
Mixture Conductivity : 0.870
Mixture Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 835
Mixture Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

CDMA Mode CH-1013
Tilt
CF=1; Amb. Temp.=22.4'C; Liq. Temp.=22.1'C

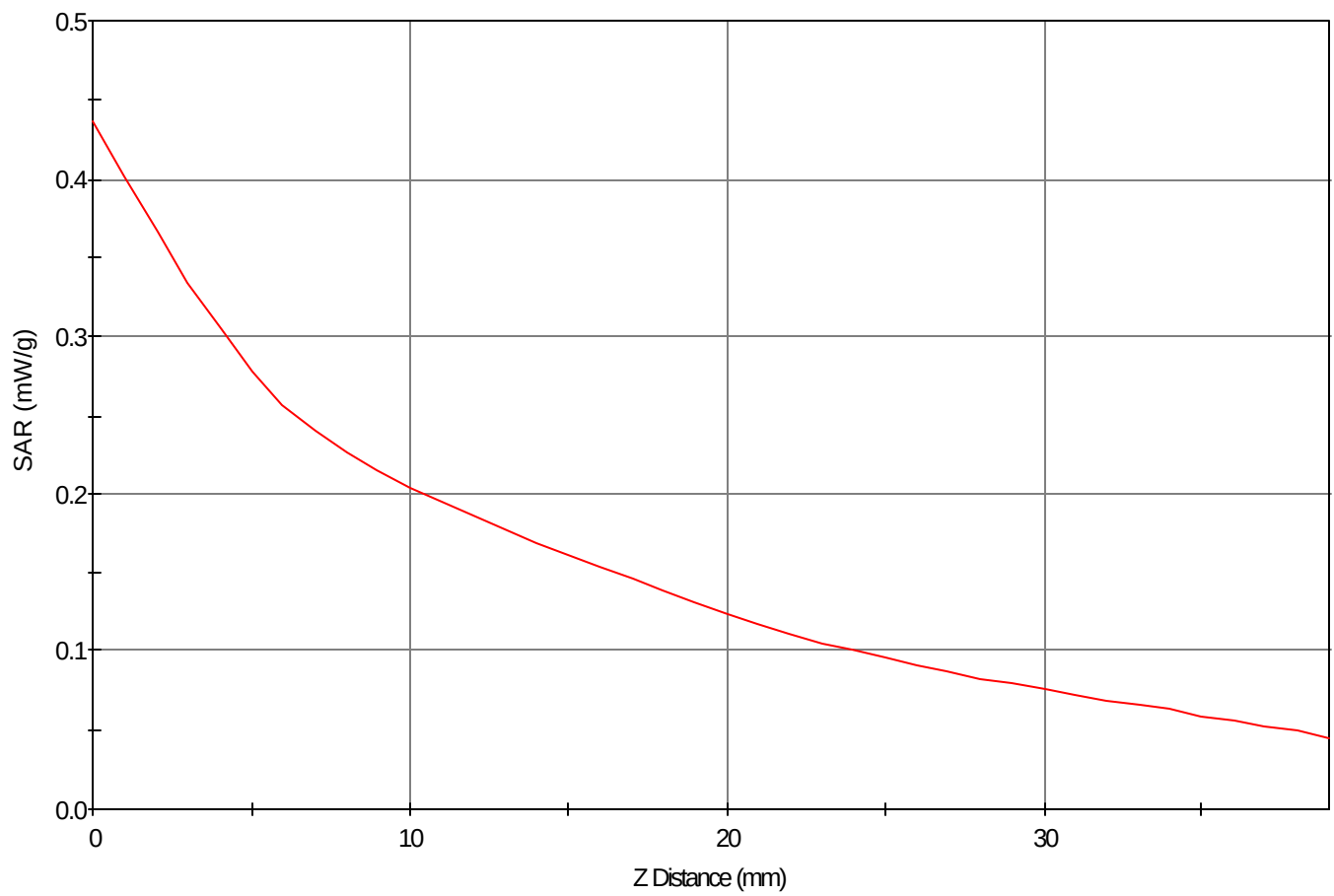
Area Scan - Max Peak SAR Value at 32.0 11.0 = 0.300548

Zoom Scan - Max Peak SAR Value at 33.0 5.0 0.0 = 0.436993

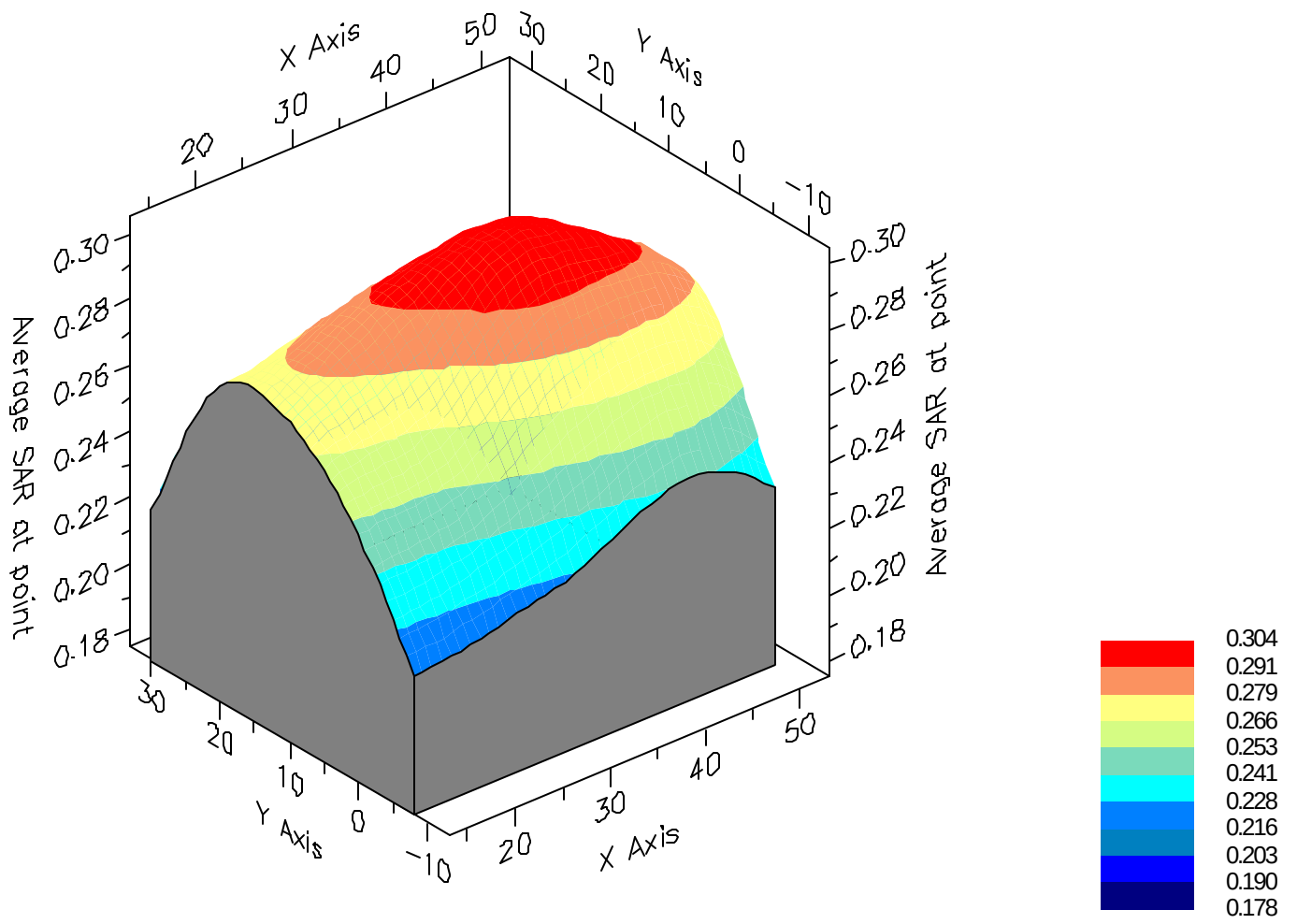
Max 1g SAR at 36.0 9.0 0.0 = 0.304101

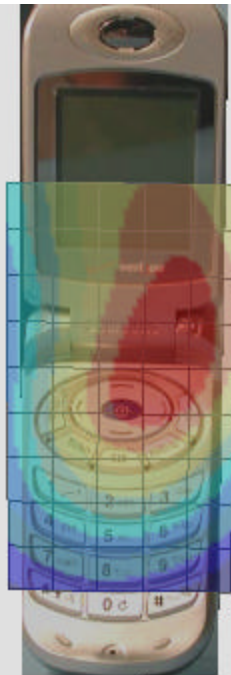
Max 10g SAR at 34.0 10.0 0.0 = 0.215689

SAR - Z Axis
at Hotspot x:33.0 y:5.0



1g SAR Values





SAR Data Report 02022207

Start : 22-Feb-02 10:28:53 am
End : 22-Feb-02 10:47:21 am
Code Version : 4.03
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 1880.00
Peak Trans. Pwr : 0.400 W
Start Trans. Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : In

Scan Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Mixture Type : Brain
Mixture Dielectric : 40.290
Mixture Conductivity : 1.440
Mixture Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 1900
Mixture Type : Brain
Calibrated Dielectric : 40.200
Calibrated Conductivity : 1.410
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.700
Probe Sensitivity : 3.000 2.995 2.653
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

PCS Mode CH-600
Touch
CF=1; Amb. Temp.=22.3'C; Liq. Temp.=21.8'C

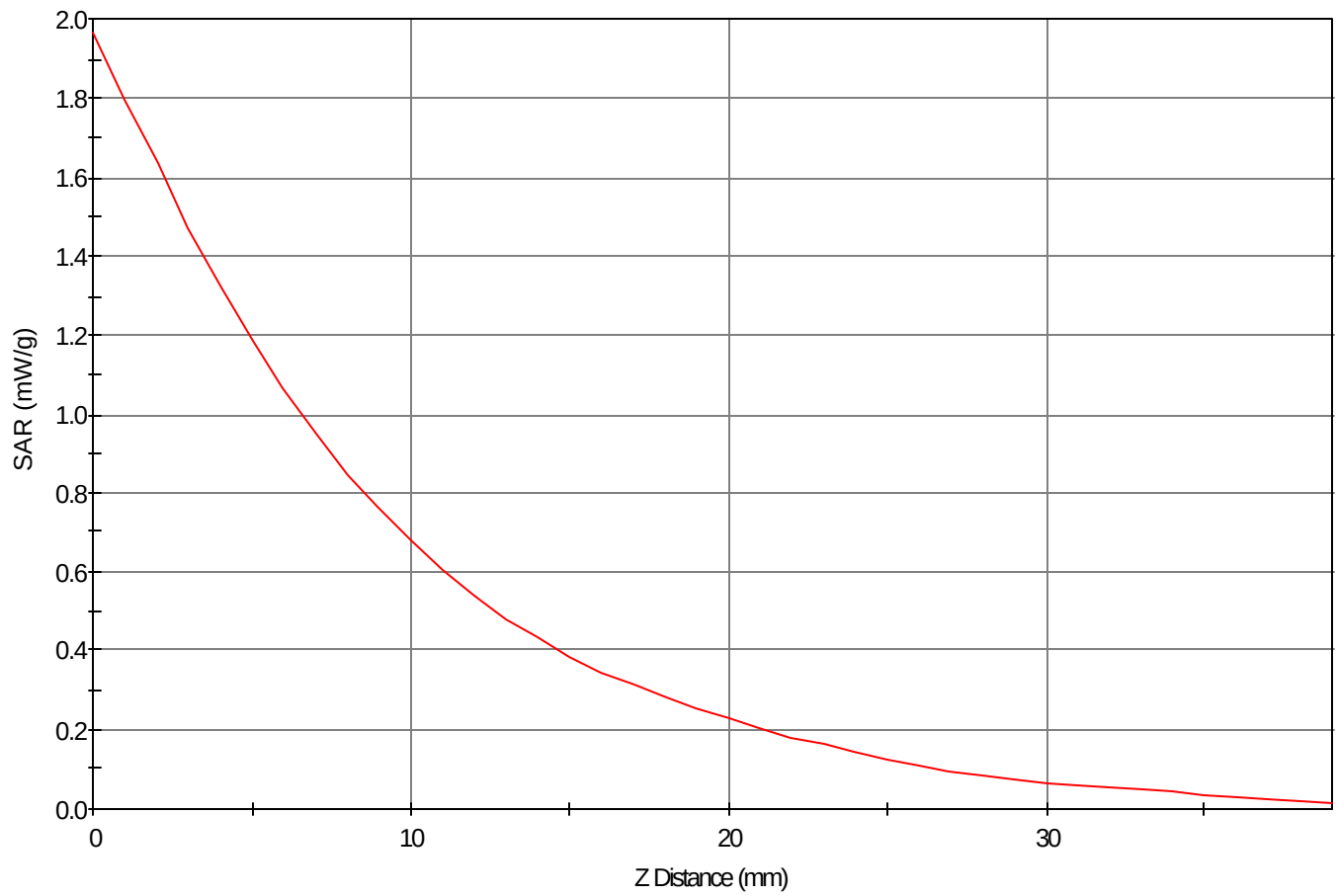
Area Scan - Max Peak SAR Value at 95.0 7.0 = 0.913148

Zoom Scan - Max Peak SAR Value at 111.0 7.0 0.0 = 1.962922

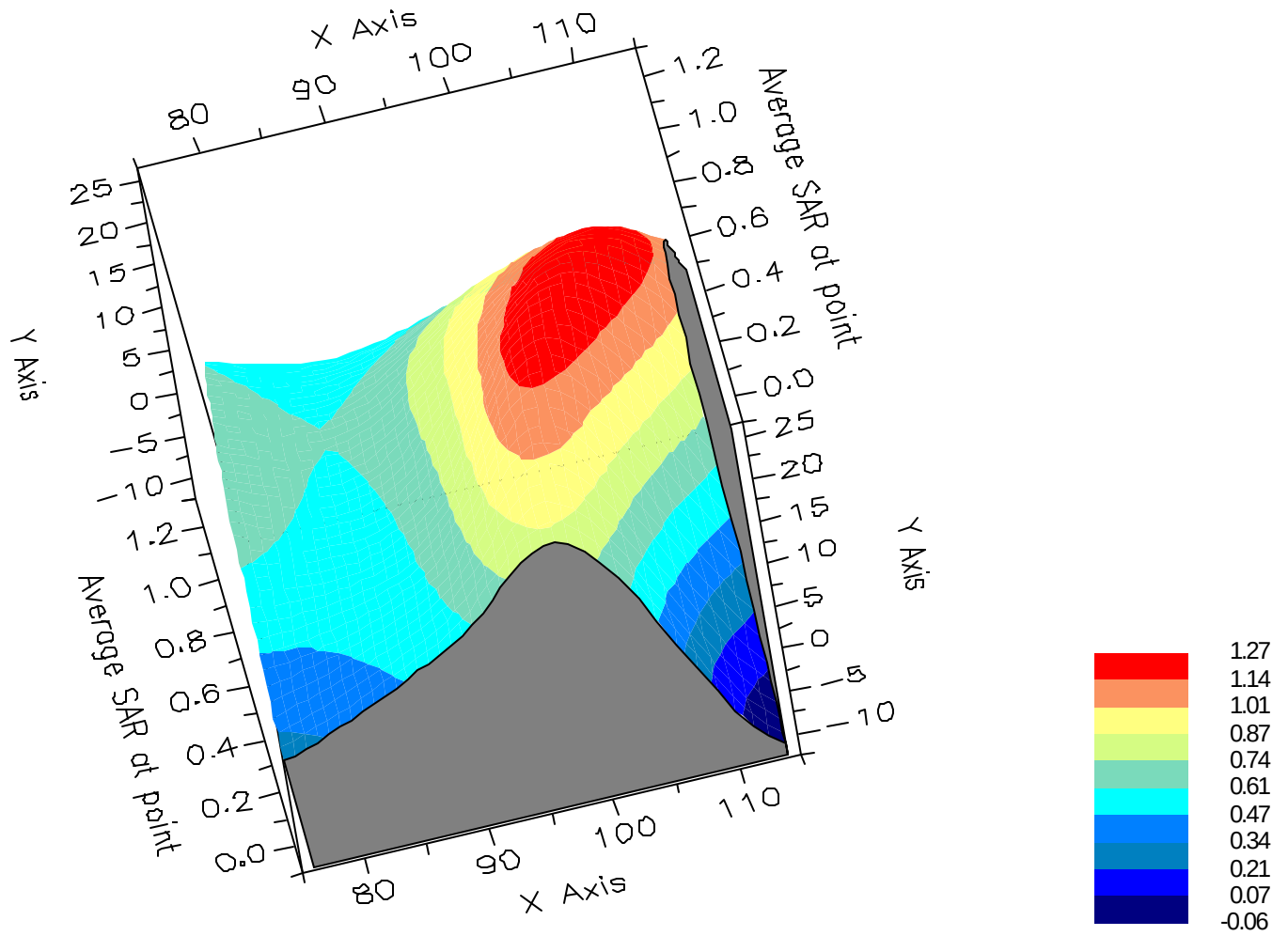
Max 1g SAR at 106.0 4.0 0.0 = 1.274482

Max 10g SAR at 103.0 7.0 0.0 = 0.743071

SAR - Z Axis
at Hotspot x:111.0 y:7.0



1g SAR Values





SAR Data Report 02031416

Start : 14-Mar-02 02:52:26 pm
End : 14-Mar-02 03:04:34 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 1880.00 MHz
Transmit Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Tissue Type : Brain
Tissue Dielectric : 40.290
Tissue Conductivity : 1.440
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 1900 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.200
Calibrated Conductivity : 1.410
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.700
Probe Sensitivity : 3.000 2.995 2.653 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

PCS Mode CH-600
Tilt
CF=1; Amb. Temp.=23.1'C; Liq. Temp.=22.8'C

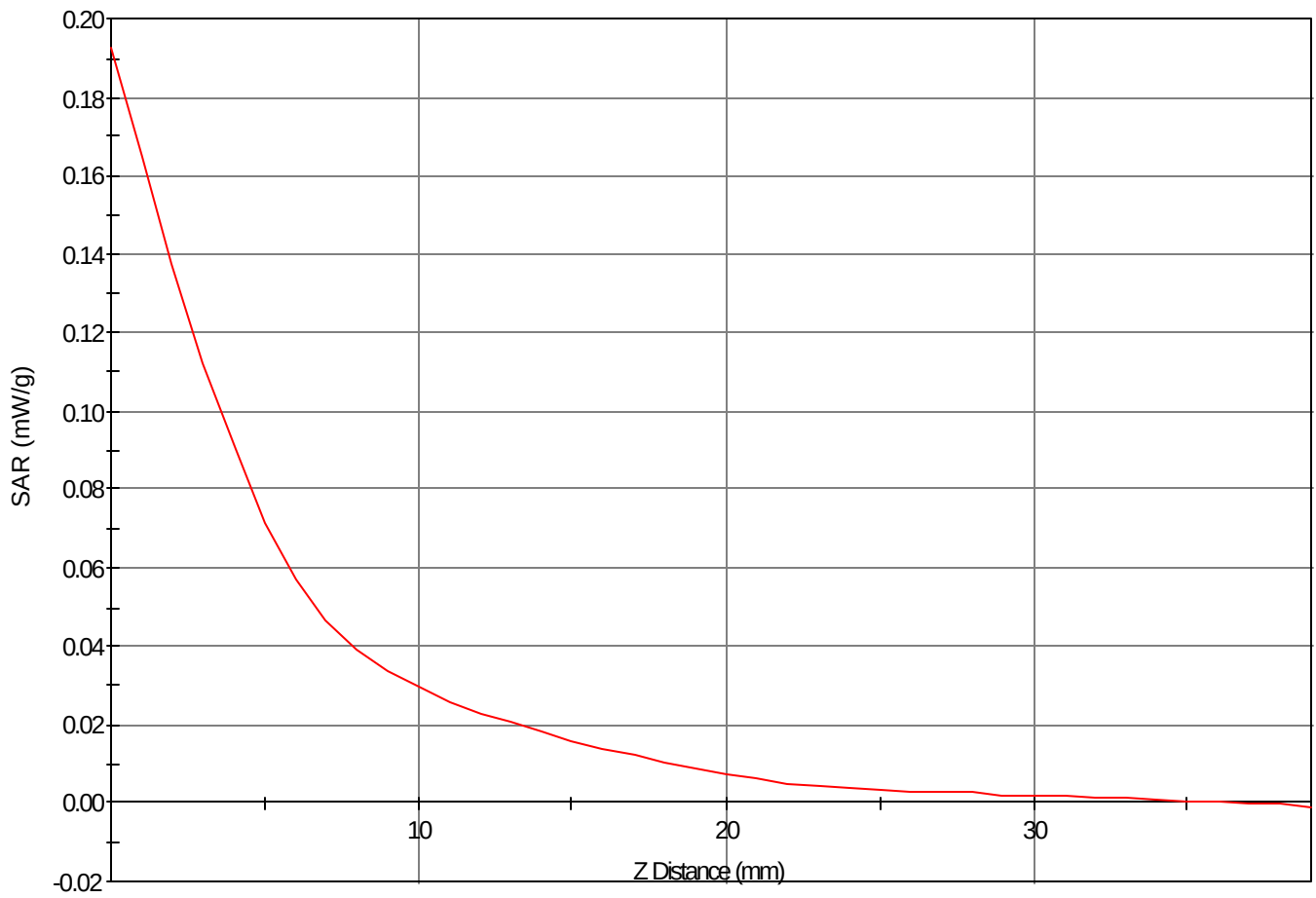
Area Scan - Max Peak SAR Value at x=-15.0 y=5.0 = 0.08 W/kg

Zoom Scan - Max Peak SAR Value at x=-21.0 y=2.0 z=0.0 = 0.19 W/kg

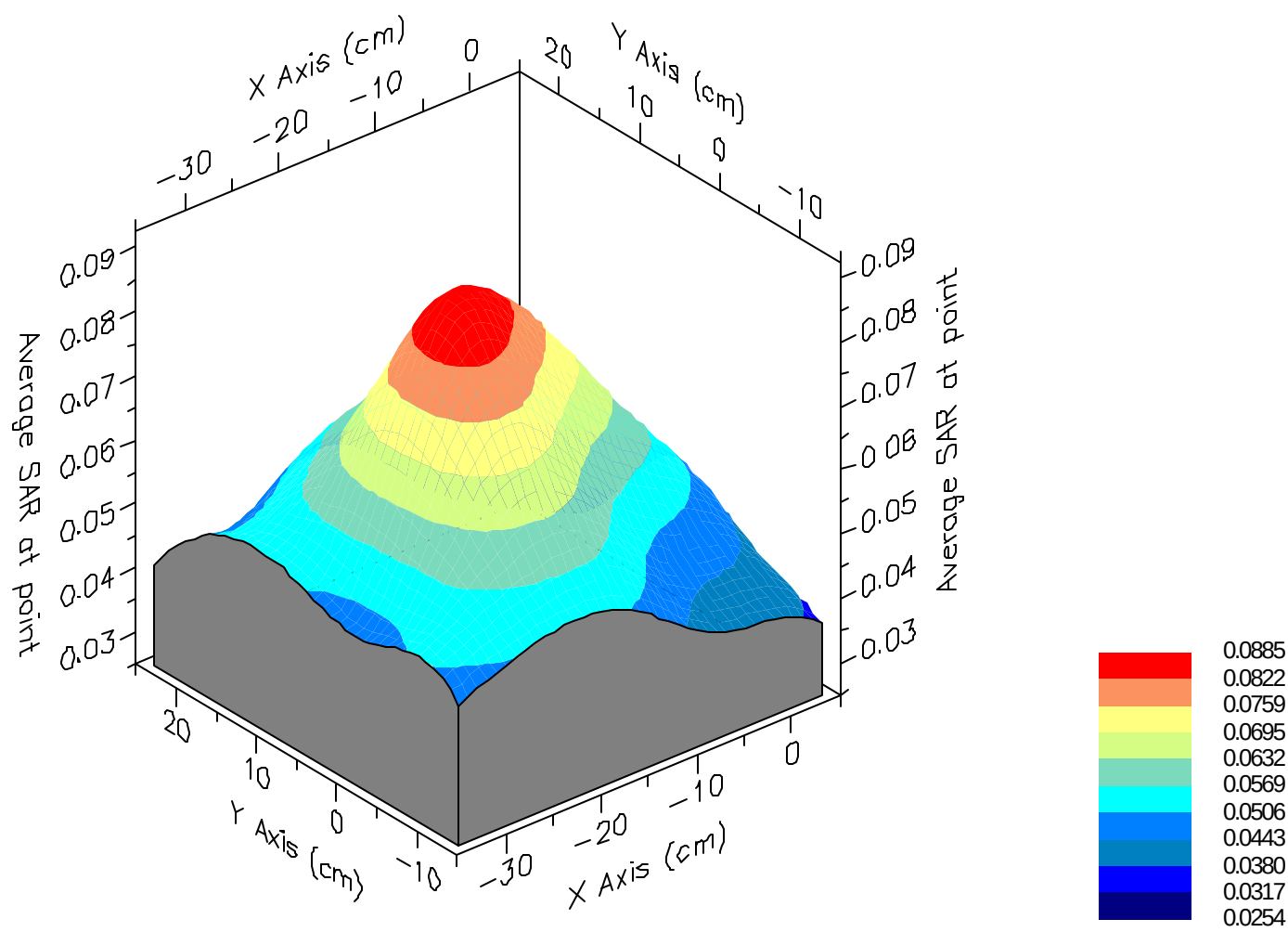
Max 1g SAR at x=-19.0 y=4.0 z=0.0 = 0.09 W/kg

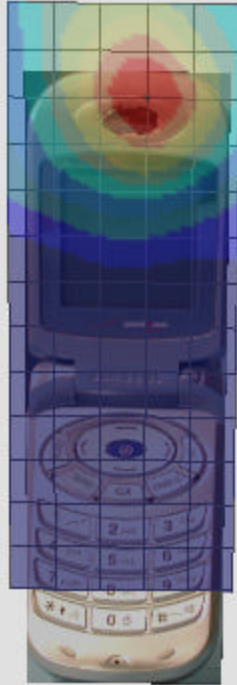
Max 10g SAR at x=-15.0 y=5.0 z=0.0 = 0.04 W/kg

SAR - Z Axis
at Hotspot x:-21.0 y:2.0



1g SAR Values





SAR Data Report 02022226

Start : 22-Feb-02 03:00:34 pm
End : 22-Feb-02 03:13:55 pm
Code Version : 4.03
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 1908.75
Peak Trans. Pwr : 0.400 W
Start Trans. Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : In

Scan Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Mixture Type : Brain
Mixture Dielectric : 40.290
Mixture Conductivity : 1.440
Mixture Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 1900
Mixture Type : Brain
Calibrated Dielectric : 40.200
Calibrated Conductivity : 1.410
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.700
Probe Sensitivity : 3.000 2.995 2.653
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

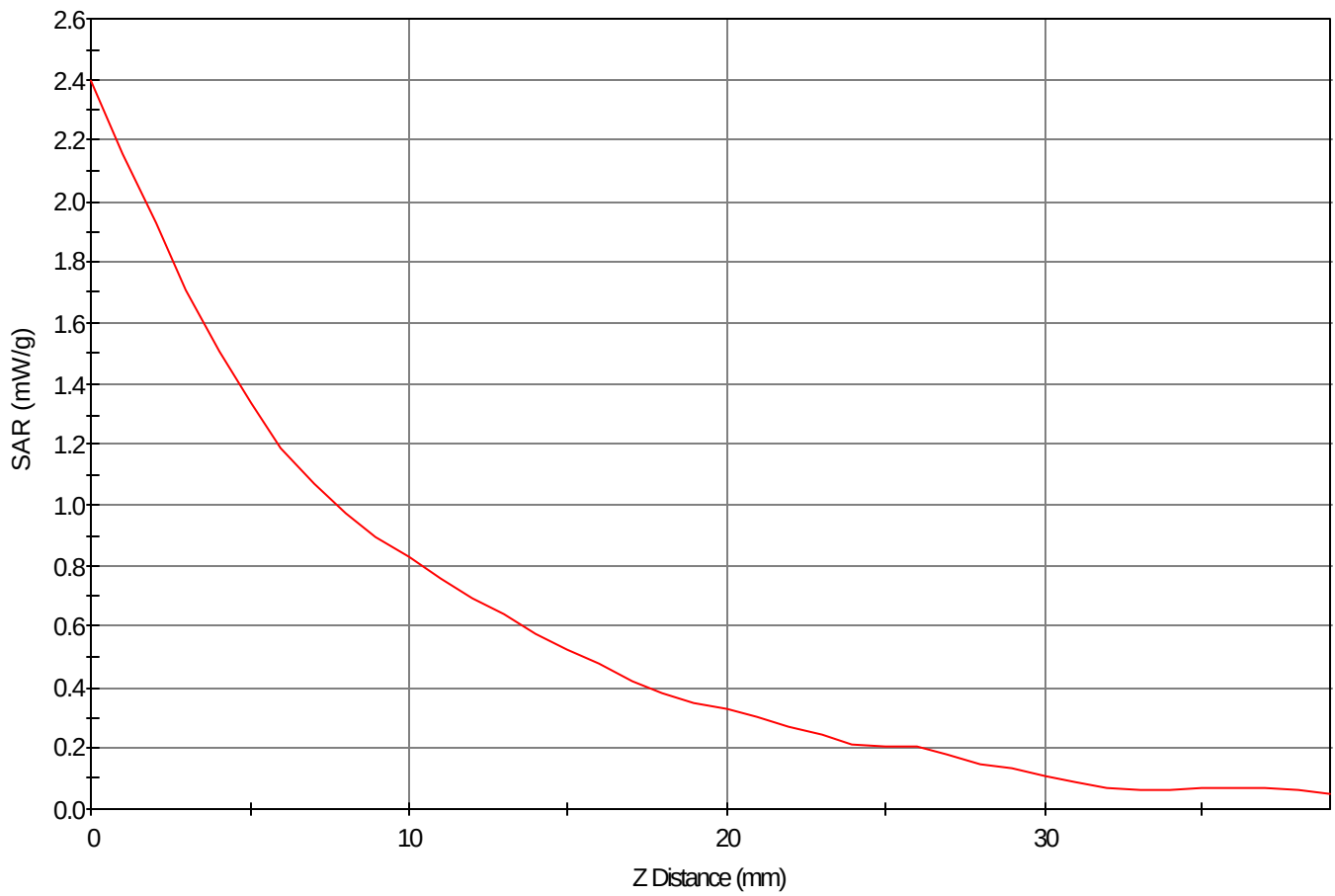
PCS Mode CH-1175
Touch
CF=1; Amb. Temp.=22.3'C; Liq. Temp.=21.8'C

Zoom Scan - Max Peak SAR Value at 88.0 -15.0 0.0 = 2.385864

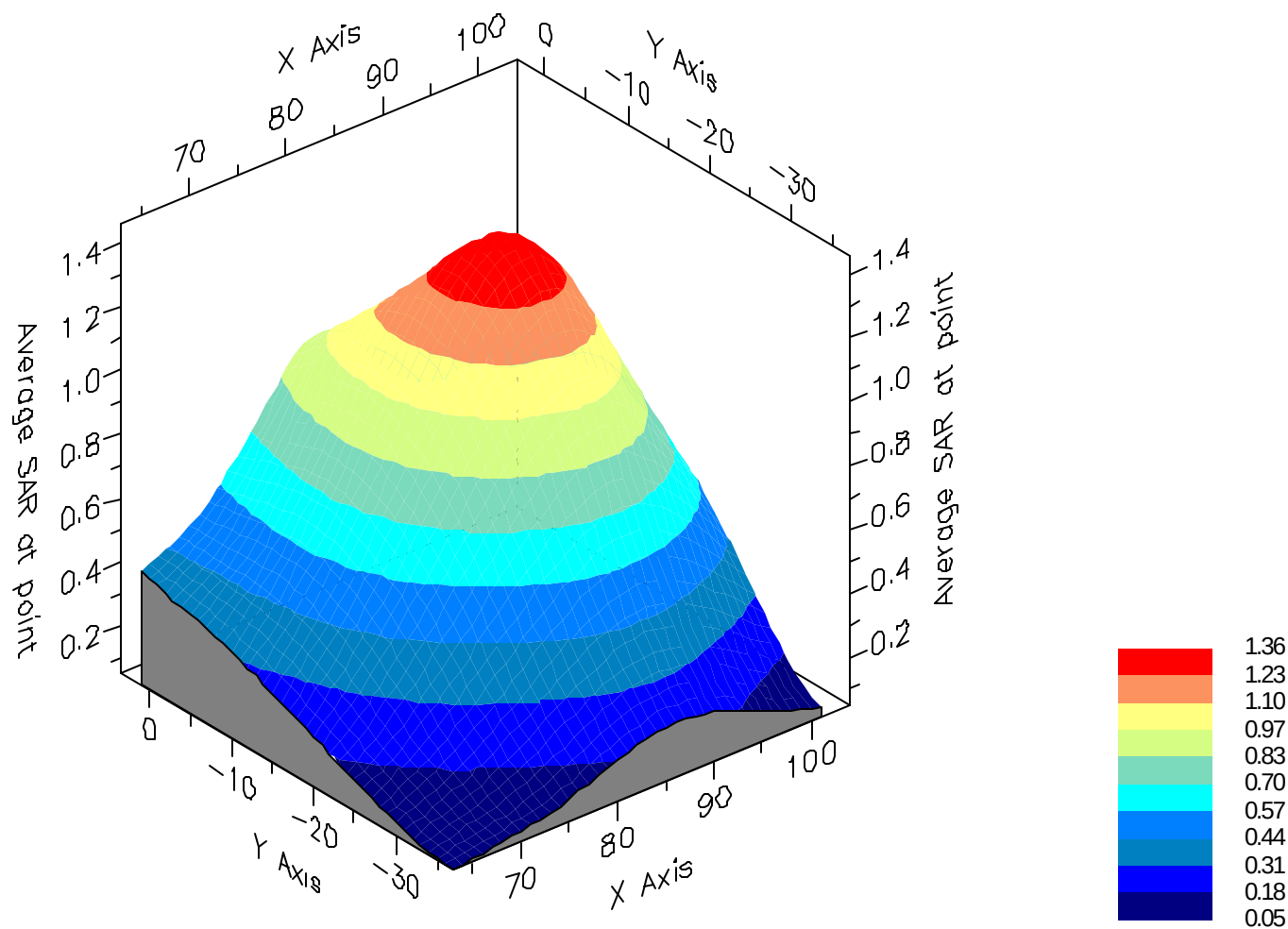
Max 1g SAR at 88.0 -14.0 0.0 = 1.357163

Max 10g SAR at 86.0 -12.0 0.0 = 0.628033

SAR - Z Axis
at Hotspot x:88.0 y:-15.0



1g SAR Values





SAR Data Report 02031405

Start : 14-Mar-02 01:11:07 pm
End : 14-Mar-02 01:28:04 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 1908.75 MHz
Transmit Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : In

Measurement Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Tissue Type : Brain
Tissue Dielectric : 40.290
Tissue Conductivity : 1.440
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 1900 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.200
Calibrated Conductivity : 1.410
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.700
Probe Sensitivity : 3.000 2.995 2.653 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

PCS Mode CH-1175
Tilt
CF=1; Amb. Temp.=23.1'C; Liq. Temp.=22.8'C

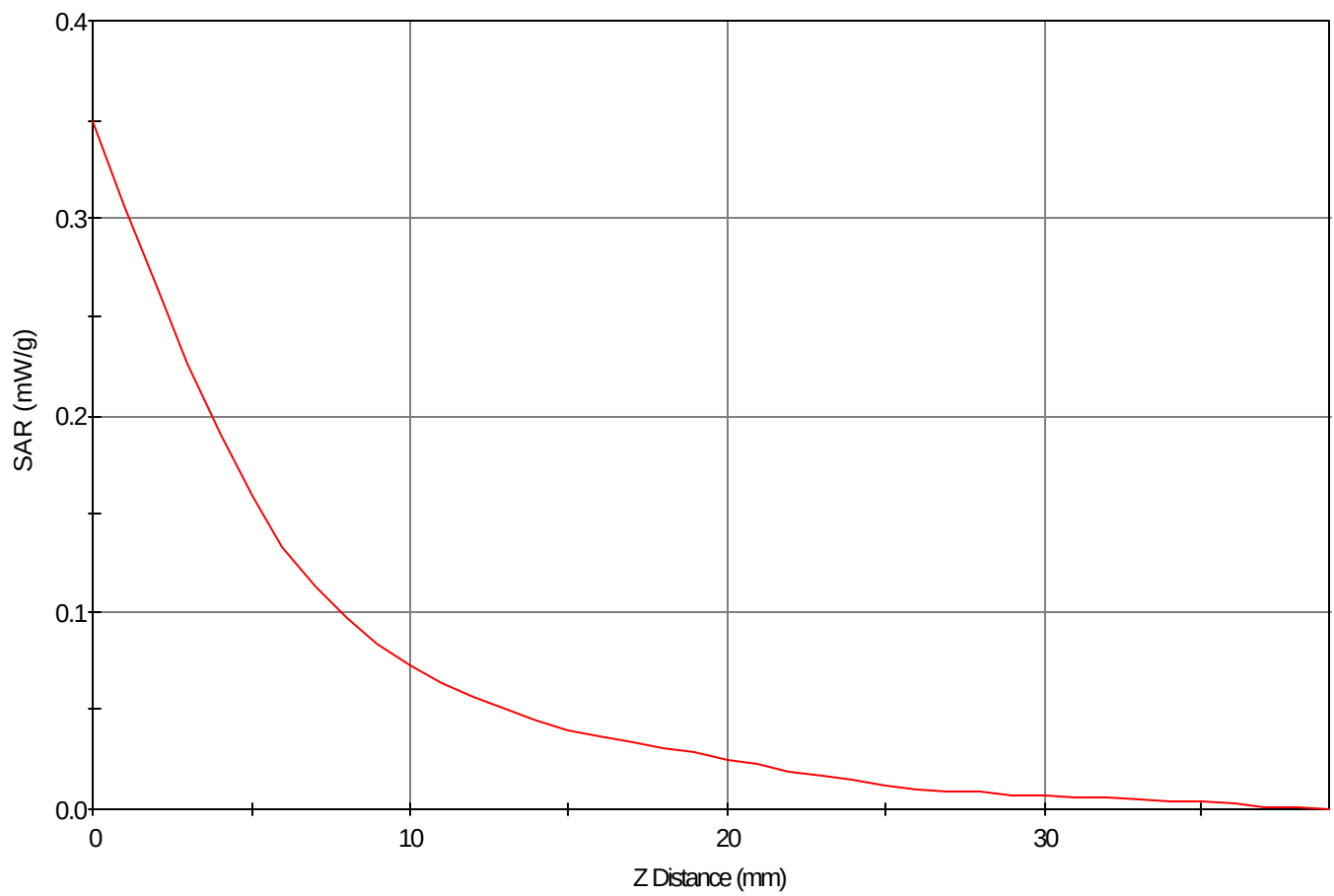
Area Scan - Max Peak SAR Value at x=70.0 y=-3.0 = 0.16 W/kg

Zoom Scan - Max Peak SAR Value at x=70.0 y=11.0 z=0.0 = 0.35 W/kg

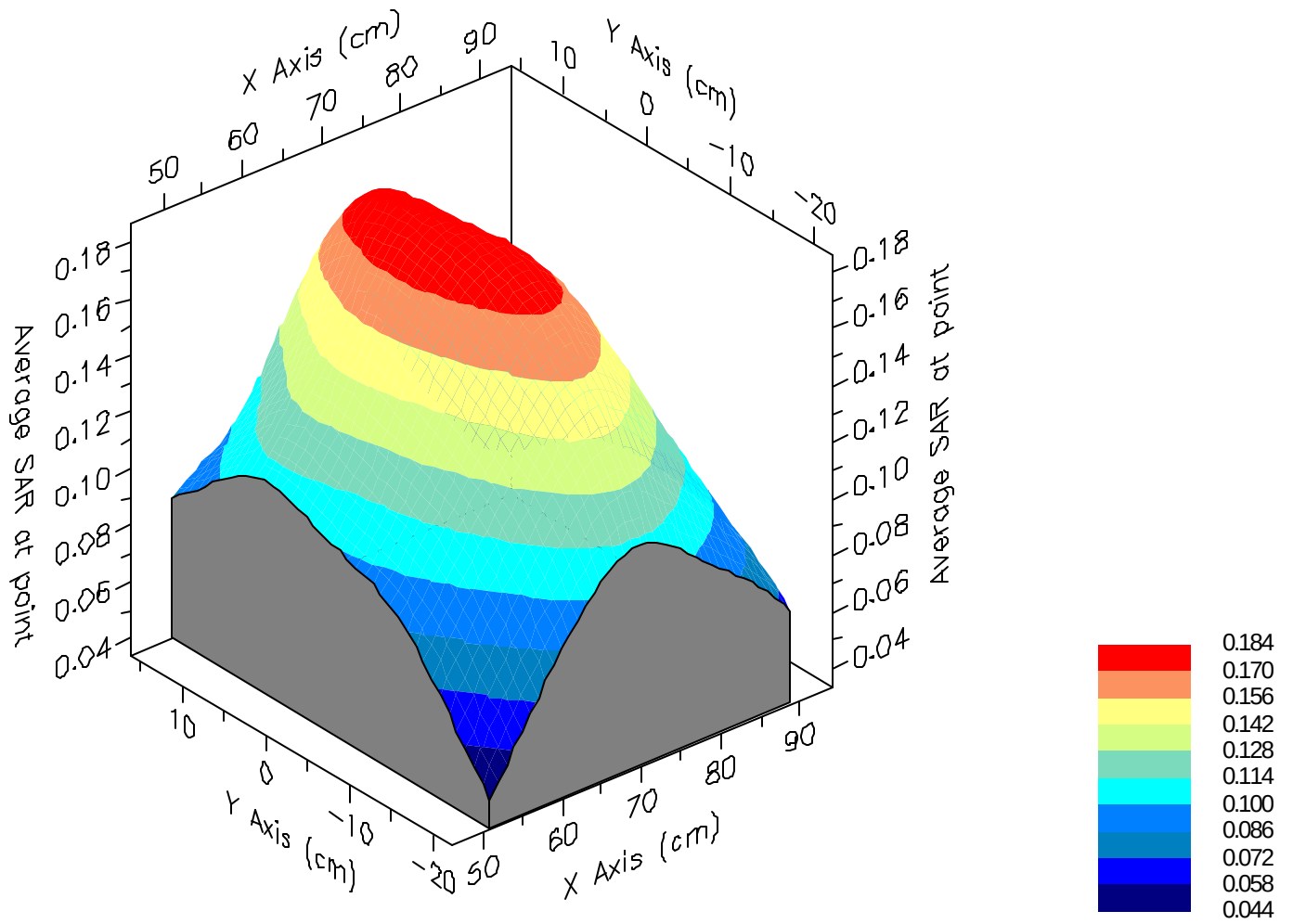
Max 1g SAR at x=70.0 y=6.0 z=0.0 = 0.18 W/kg

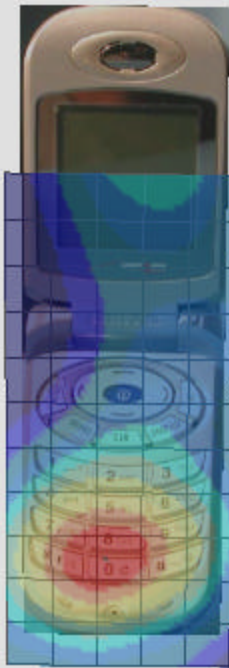
Max 10g SAR at x=70.0 y=0.0 z=0.0 = 0.10 W/kg

SAR - Z Axis
at Hotspot x:70.0 y:11.0



1g SAR Values





SAR Data Report 02022616

Start : 26-Feb-02 05:13:07 pm
End : 26-Feb-02 05:25:52 pm
Code Version : 4.07
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 836.49 MHz
Peak Trans. Pwr : 0.500 W
Start Trans. Pwr : 0.500 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-FLAT
Phantom Type : Uniphantom
Tissue Type : Muscle
Tissue Dielectric : 55.540
Tissue Conductivity : 0.990
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Muscle
Calibrated Dielectric : 55.700
Calibrated Conductivity : 0.990
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.900
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS Mode CH-383
Body
CF=1; Amb. Temp.=23.0'C; Liq. Temp.=22.9'C

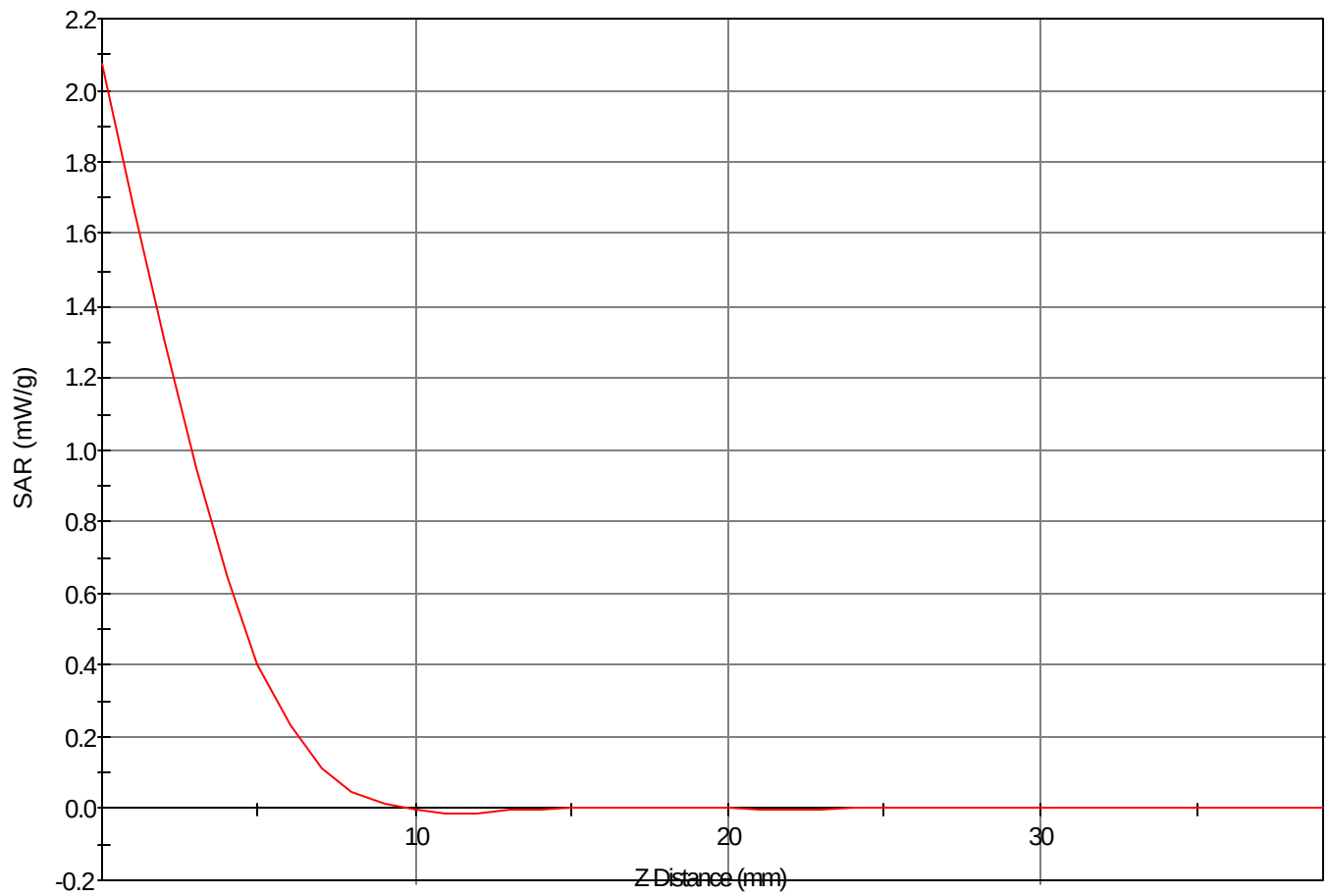
Area Scan - Max Peak SAR Value at x=-1.0 y=-9.0 = 0.47 W/kg

Zoom Scan - Max Peak SAR Value at x=-2.0 y=-10.0 z=0.0 = 0.75 W/kg

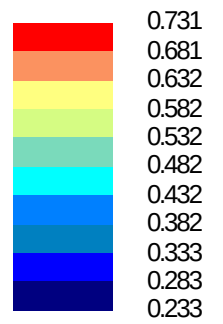
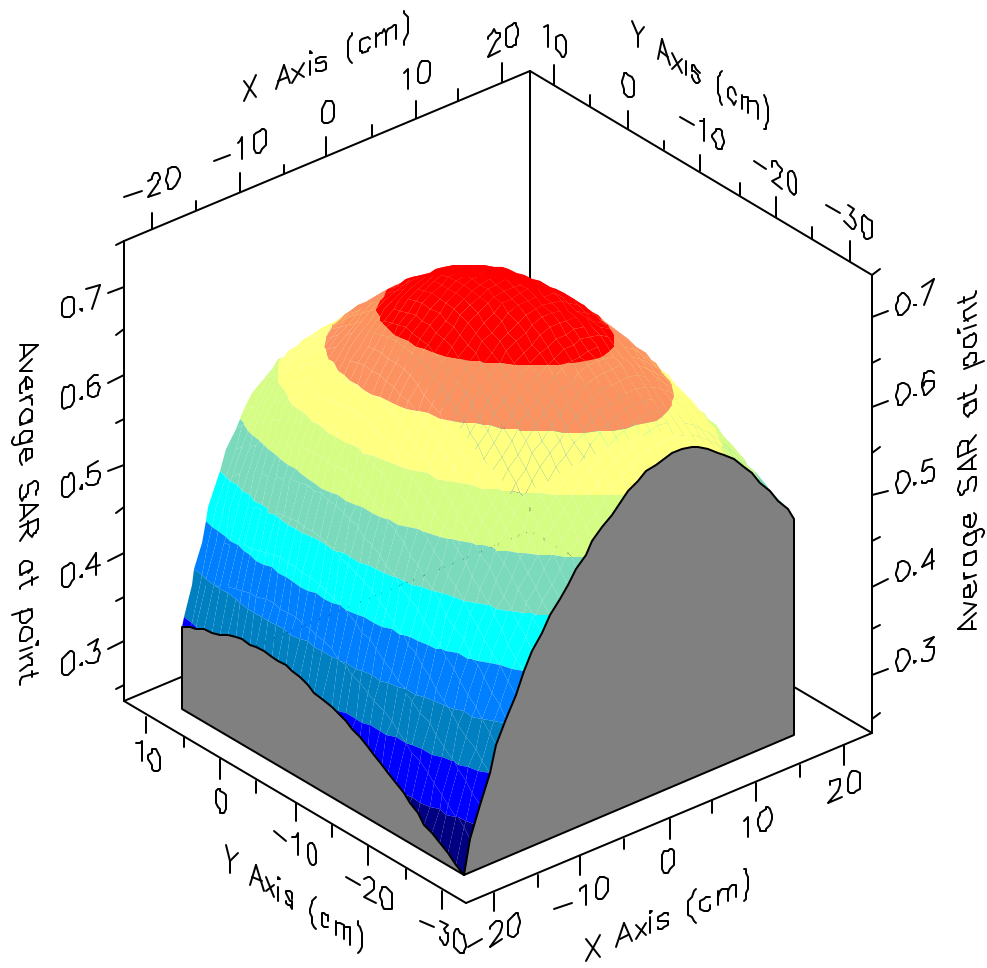
Max 1g SAR at x=-1.0 y=-9.0 z=0.0 = 0.5102663.2 W/kg

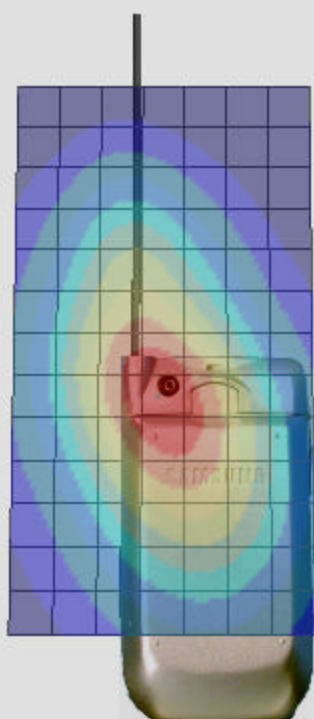
Max 10g SAR at x=1.0 y=-10.0 z=0.0 = 0.34 W/kg

SAR - Z Axis
at Hotspot x:-1.0 y:-10.0



1g SAR Values





SAR Data Report 02030404

Start : 4-Mar-02 09:41:25 am
End : 4-Mar-02 09:54:10 am
Code Version : 4.08
Robot Version: 0.00

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 848.31 MHz
Transmit Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : In

Measurement Data:

Phantom Name : SAM-FLAT
Phantom Type : Uniphantom
Tissue Type : Muscle
Tissue Dielectric : 55.540
Tissue Conductivity : 0.990
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Muscle
Calibrated Dielectric : 55.700
Calibrated Conductivity : 0.990
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.900
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

CDMA Mode CH-1013
Body
CF=1; Amb. Temp.= 22.9'C; Liq. Temp.=22.5'C

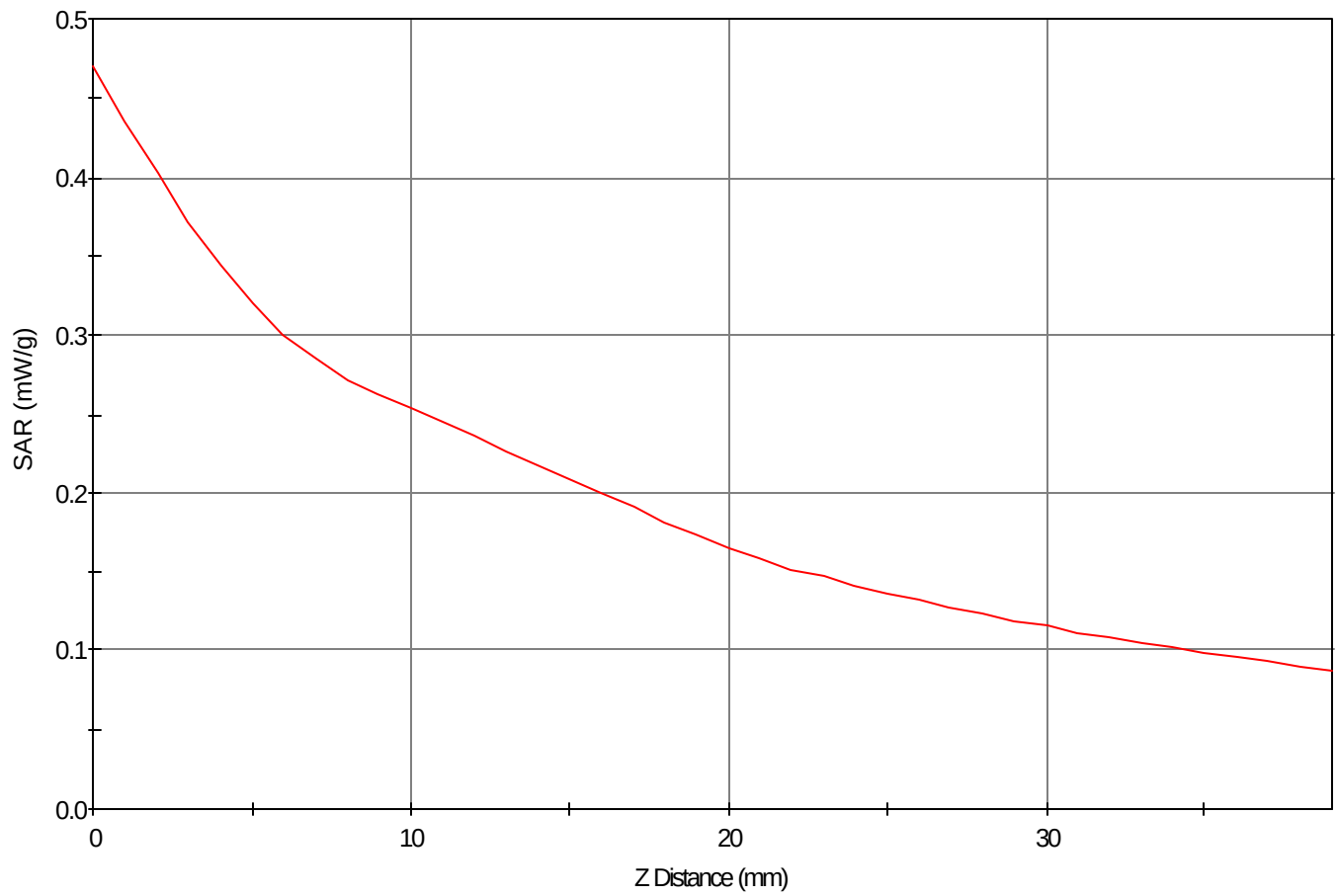
Area Scan - Max Peak SAR Value at x=-1.0 y=-12.0 = 0.34 W/kg

Zoom Scan - Max Peak SAR Value at x=-2.0 y=-6.0 z=0.0 = 0.47 W/kg

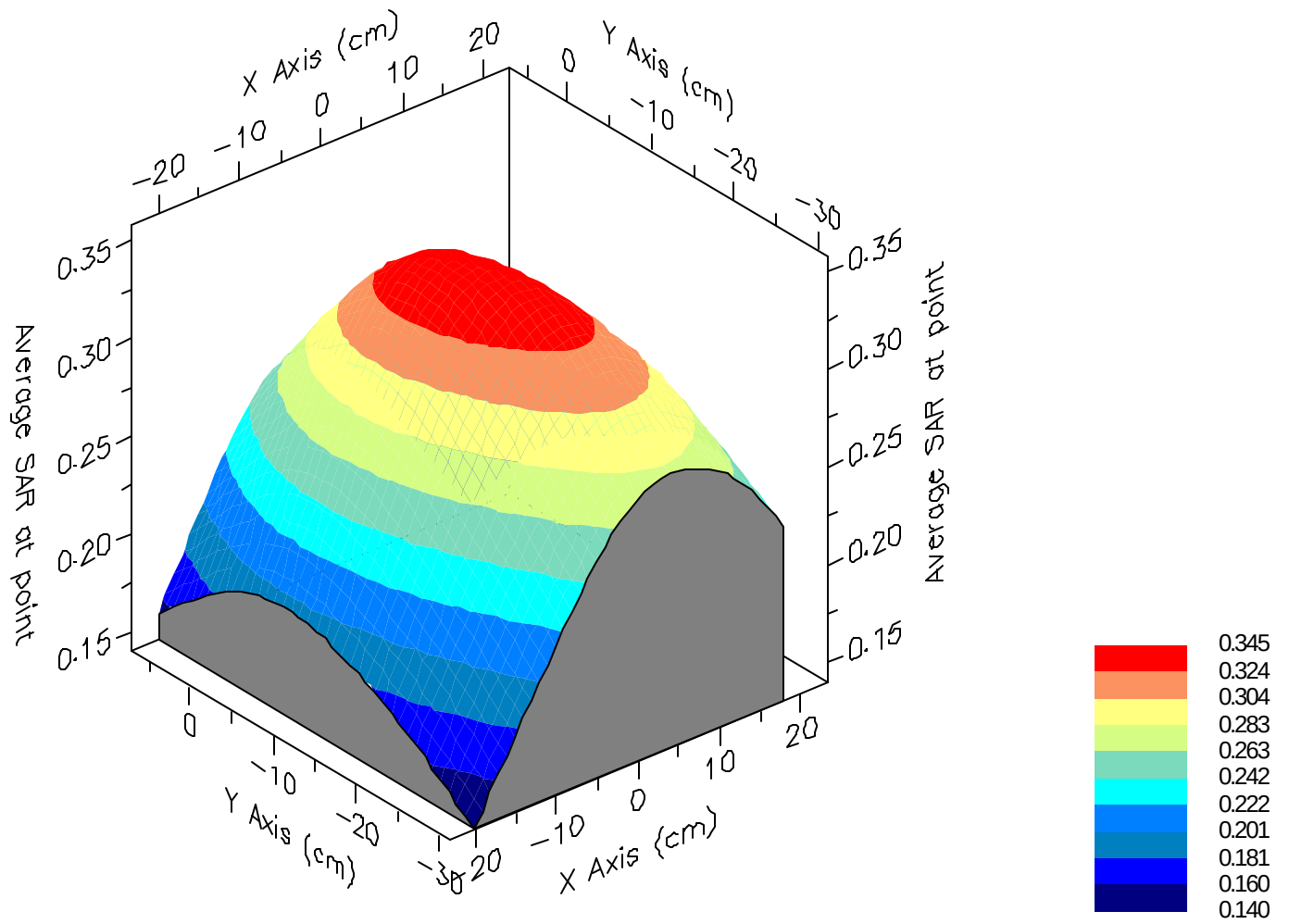
Max 1g SAR at x=0.0 y=-11.0 z=0.0 = 0.35 W/kg

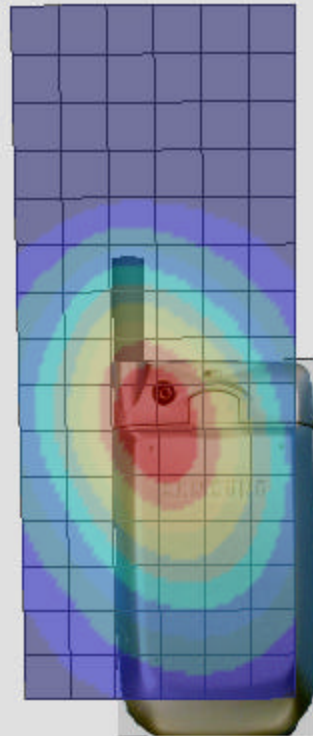
Max 10g SAR at x=1.0 y=-14.0 z=0.0 = 0.26 W/kg

SAR - Z Axis
at Hotspot x:-2.0 y:-6.0



1g SAR Values





SAR Data Report 02030124

Start : 1-Mar-02 03:57:29 pm
End : 1-Mar-02 04:10:13 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SCH-A310
Serial Number : 1
Frequency : 1880.00 MHz
Transmit Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : In

Measurement Data:

Phantom Name : SAM-FLAT
Phantom Type : Uniphantom
Tissue Type : Muscle
Tissue Dielectric : 53.950
Tissue Conductivity : 1.560
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT001
Probe Type : E Fld Triangle
Frequency : 1900 MHz
Tissue Type : Muscle
Calibrated Dielectric : 53.900
Calibrated Conductivity : 1.480
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.000
Probe Sensitivity : 3.000 2.995 2.653 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

PCS Mode CH-600
Body
CF=1; Amb. Temp.= 22.4'C; Liq. Temp.= 22.1'C

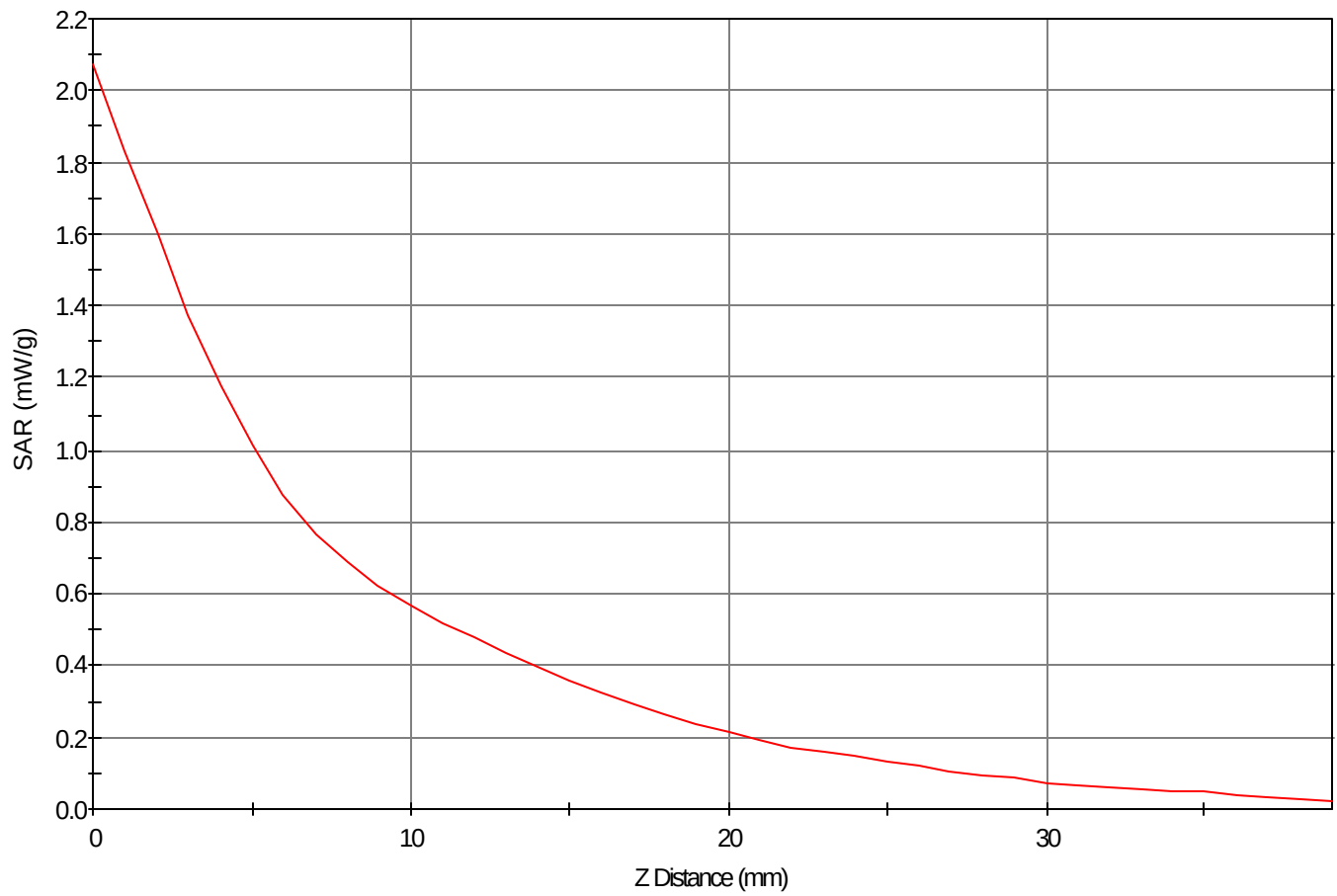
Area Scan - Max Peak SAR Value at x=0.0 y=0.0 = 1.04 W/kg

Zoom Scan - Max Peak SAR Value at x=-1.0 y=0.0 z=0.0 = 2.07 W/kg

Max 1g SAR at x=0.0 y=0.0 z=0.0 = 1.16 W/kg

Max 10g SAR at x=3.0 y=-2.0 z=0.0 = 0.64 W/kg

SAR - Z Axis
at Hotspot x:-1.0 y:0.0



1g SAR Values

