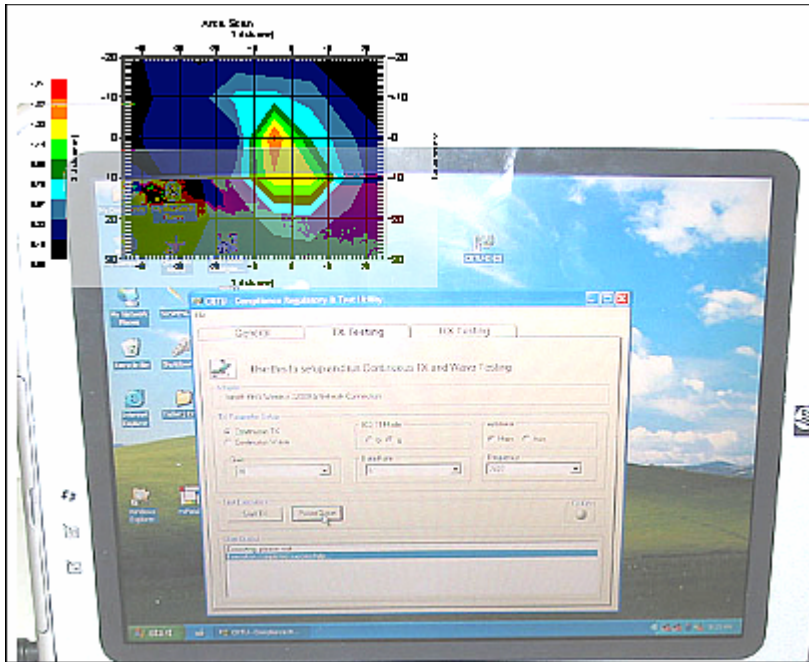


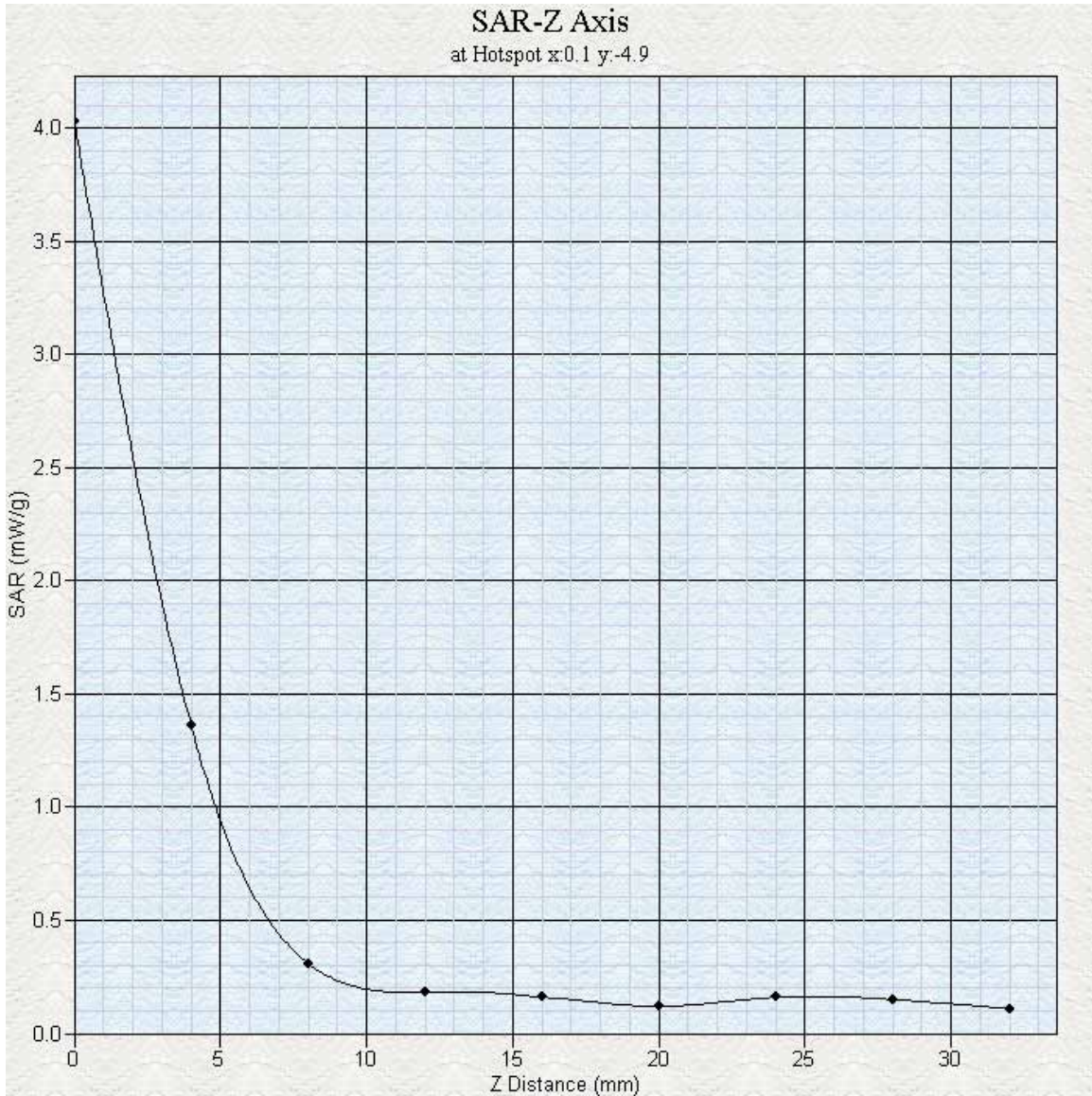
Other Data
DUT Position : Touch
Separation : 0
Channel : Mid - 5260



1 gram SAR value : 1.21 W/kg
Zoom Scan Peak SAR : 4.03

Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^1 (1-g)	c_i^1 (10-g)	Standard Uncertainty (1-g)	Standard Uncertainty (10-g)
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	•3	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	•3	•cp	•cp	4.4	4.4
Boundary Effect	1.0	rectangular	•3	1	1	0.6	0.6
Linearity	4.7	rectangular	•3	1	1	2.7	2.7
Detection Limit	1.0	rectangular	•3	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	•3	1	1	0.5	0.5
Integration Time	1.7	rectangular	•3	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	•3	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	•3	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	•3	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	•3	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	0.2	rectangular	•3	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty (shape & thickness tolerance)	3.4	rectangular	•3	1	1	2.0	2.0
Liquid Conductivity (target)	5.0	rectangular	•3	0.7	0.5	2.0	1.4
Liquid Conductivity (meas.)	0.5	rectangular	•3	0.7	0.5	0.2	0.2
Liquid Permittivity (target)	2.0	rectangular	•3	0.6	0.5	0.7	0.6
Liquid Permittivity (meas.)	2.7	rectangular	•3	0.6	0.5	0.9	0.8
Combined Uncertainty		RSS				9.1	9.0
Combined Uncertainty (coverage factor=2)		Normal (k=2)				18.3	18.0



SAR Test Report

Operator : Chen
 Validation Date : 26-Aug-2004
 Measurement Date : 26-Aug-2004
 Starting Time : 26-Aug-2004 01:55:00 PM
 End Time : 26-Aug-2004 02:09:32 PM
 Scanning Time : 872 secs

Product Data
 Device Name : HP-Raptor
 Serial No. : Raptor
 Type : Other
 Model : Raptor
 Frequency : 5200.00 MHz
 Max. Transmit Pwr : 0.1 W
 Drift Time : 0 min(s)
 Length : 150
 Width : 200
 Depth : 0
 Power Drift-Start : 0.00
 Power Drift-Finish : 0.00
 Power Drift : 0.00

Phantom Data
 Name : APREL-Uni
 Type : Uni-Phantom
 Size : 280 x 280 x 200
 Serial No. : User Define
 Location : Center
 Description : Uni

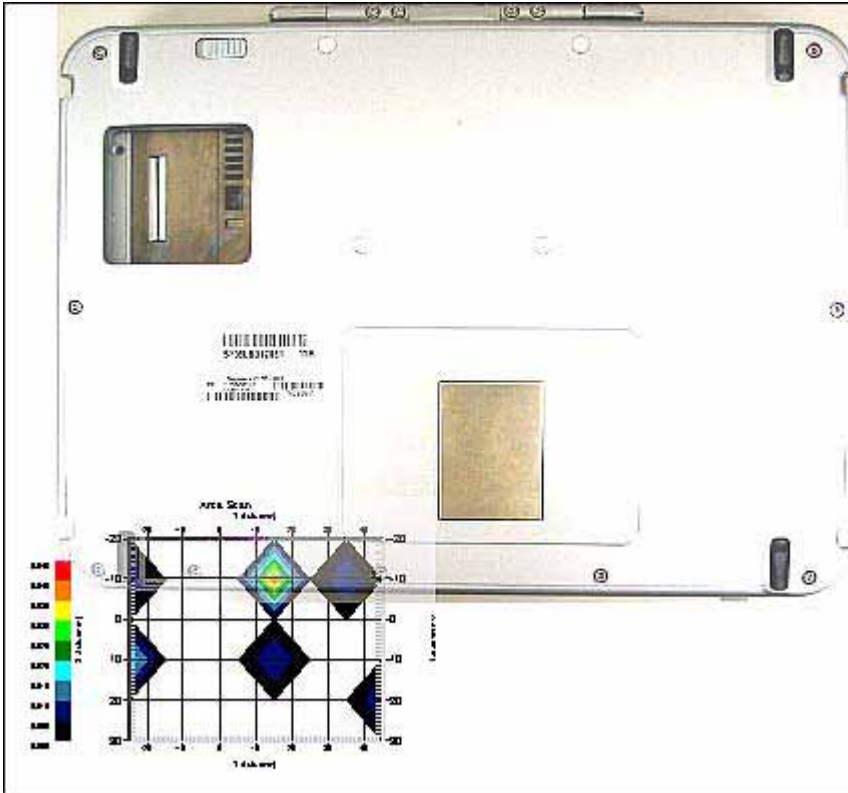
Tissue Data
 Type : Body
 Serial No. : 5245
 Frequency : 5245 MHz
 Calibration Date : 26-Aug-2004
 Temperature : 23 °C
 Ambient Temp. : 23 °C
 Humidity : 50 RH%
 Epsilon : 35.9 F/m
 Sigma : 5.4 S/m
 Density : 1000 kg/cu. m

Probe Data
 Name : APREL Probe 212
 Model : E020
 Type : E-Field Triangle
 Serial No. : 212
 Calibration Date : 04-Jun-2004
 Frequency : 5245 MHz
 Duty Cycle Factor: 1
 Conversion Factor: 7.8
 Probe Sensitivity: 0.61 0.61 0.61 $\mu\text{V}/(\text{V}/\text{sq. m})$
 Compression Point: 95
 Offset : 1.56

Measurement Data
 Crest Factor : 1
 Scan Type : Complete
 Set-up Date : 26-Aug-2004
 Set-up Time : 2:33:15 PM



Other Data
DUT Position : Touch
Separation : 0
Channel : Mid - 5260



1 gram SAR value : 0.04 W/kg
Zoom Scan Peak SAR : 0.13

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FCC ID: ID: CNTWM3B2915ABG

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AL-065



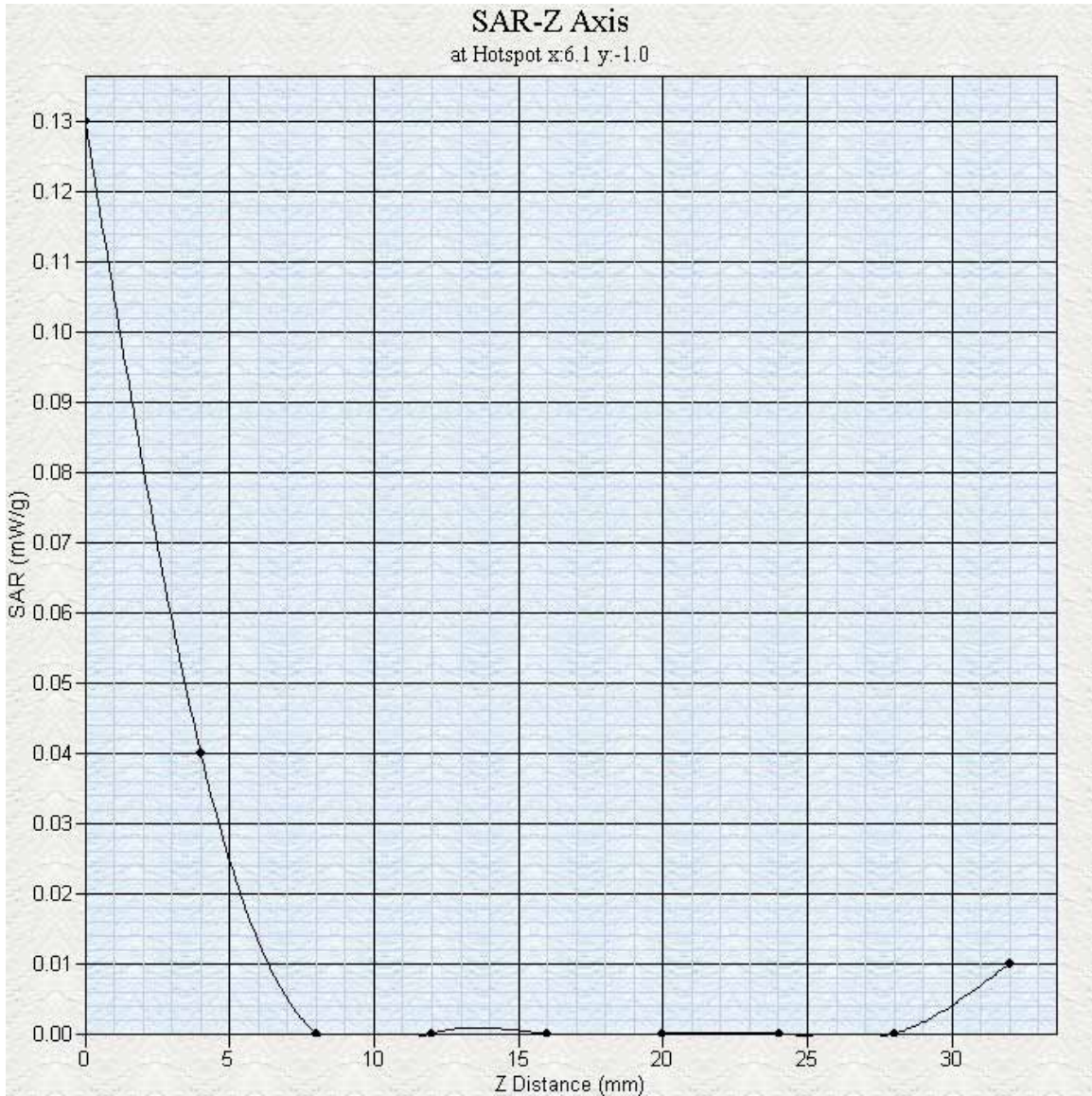
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Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^1 (1-g)	c_i^1 (10-g)	Standard Uncertainty (1-g)	Standard Uncertainty (10-g)
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	•3	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	•3	•cp	•cp	4.4	4.4
Boundary Effect	1.0	rectangular	•3	1	1	0.6	0.6
Linearity	4.7	rectangular	•3	1	1	2.7	2.7
Detection Limit	1.0	rectangular	•3	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	•3	1	1	0.5	0.5
Integration Time	1.7	rectangular	•3	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	•3	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	•3	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	•3	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	•3	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	0.0	rectangular	•3	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty (shape & thickness tolerance)	3.4	rectangular	•3	1	1	2.0	2.0
Liquid Conductivity (target)	5.0	rectangular	•3	0.7	0.5	2.0	1.4
Liquid Conductivity (meas.)	0.5	rectangular	•3	0.7	0.5	0.2	0.2
Liquid Permittivity (target)	2.0	rectangular	•3	0.6	0.5	0.7	0.6
Liquid Permittivity (meas.)	2.7	rectangular	•3	0.6	0.5	0.9	0.8
Combined Uncertainty		RSS				9.1	9.0
Combined Uncertainty (coverage factor=2)		Normal (k=2)				18.3	18.0





Project number: ITLB-HP-5044
FCC ID: ID: CNTWM3B2915ABG

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SAR Test Report

Operator : Chen
Validation Date : 24-Aug-2004
Measurement Date : 24-Aug-2004
Starting Time : 24-Aug-2004 03:17:54 PM
End Time : 24-Aug-2004 03:32:34 PM
Scanning Time : 880 secs

Product Data
Device Name : HP-Raptor
Serial No. : Raptor
Type : Other
Model : Raptor
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 150
Width : 200
Depth : 0
Power Drift-Start : 0.34
Power Drift-Finish : 0.33
Power Drift : 0.01

Phantom Data
Name : APREL-Uni
Type : Uni-Phantom
Size : 280 x 280 x 200
Serial No. : User Define
Location : Center
Description : Uni

Tissue Data
Type : Body
Serial No. : 5800
Frequency : 5800 MHz
Calibration Date : 24-Aug-2004
Temperature : 23 °C
Ambient Temp. : 23 °C
Humidity : 50 RH%
Epsilon : 41.2 F/m
Sigma : 6.3 S/m
Density : 1000 kg/cu. m

Probe Data
Name : APREL Probe 212
Model : E020
Type : E-Field Triangle
Serial No. : 212
Calibration Date : 04-Jun-2004
Frequency : 5800 MHz
Duty Cycle Factor: 1
Conversion Factor: 7.1
Probe Sensitivity: 0.61 0.61 0.61 $\mu\text{V}/(\text{V}/\text{sq. m})$
Compression Point: 95
Offset : 1.56

Measurement Data
Crest Factor : 1
Scan Type : Complete
Set-up Date : 24-Aug-2004
Set-up Time : 2:44:38 PM

Project number: ITLB-HP-5044
FCC ID: ID: CNTWM3B2915ABG

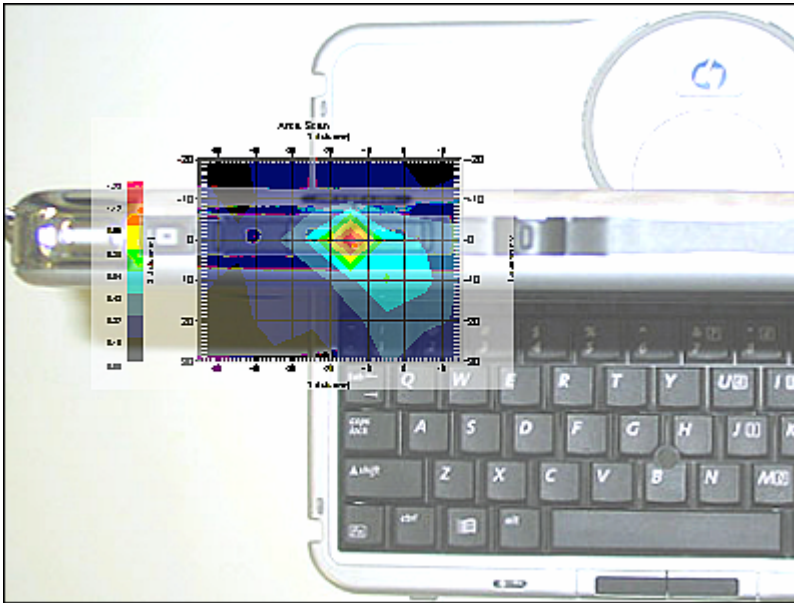
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Other Data
DUT Position : Touch
Separation : 0
Channel : Mid - 5785

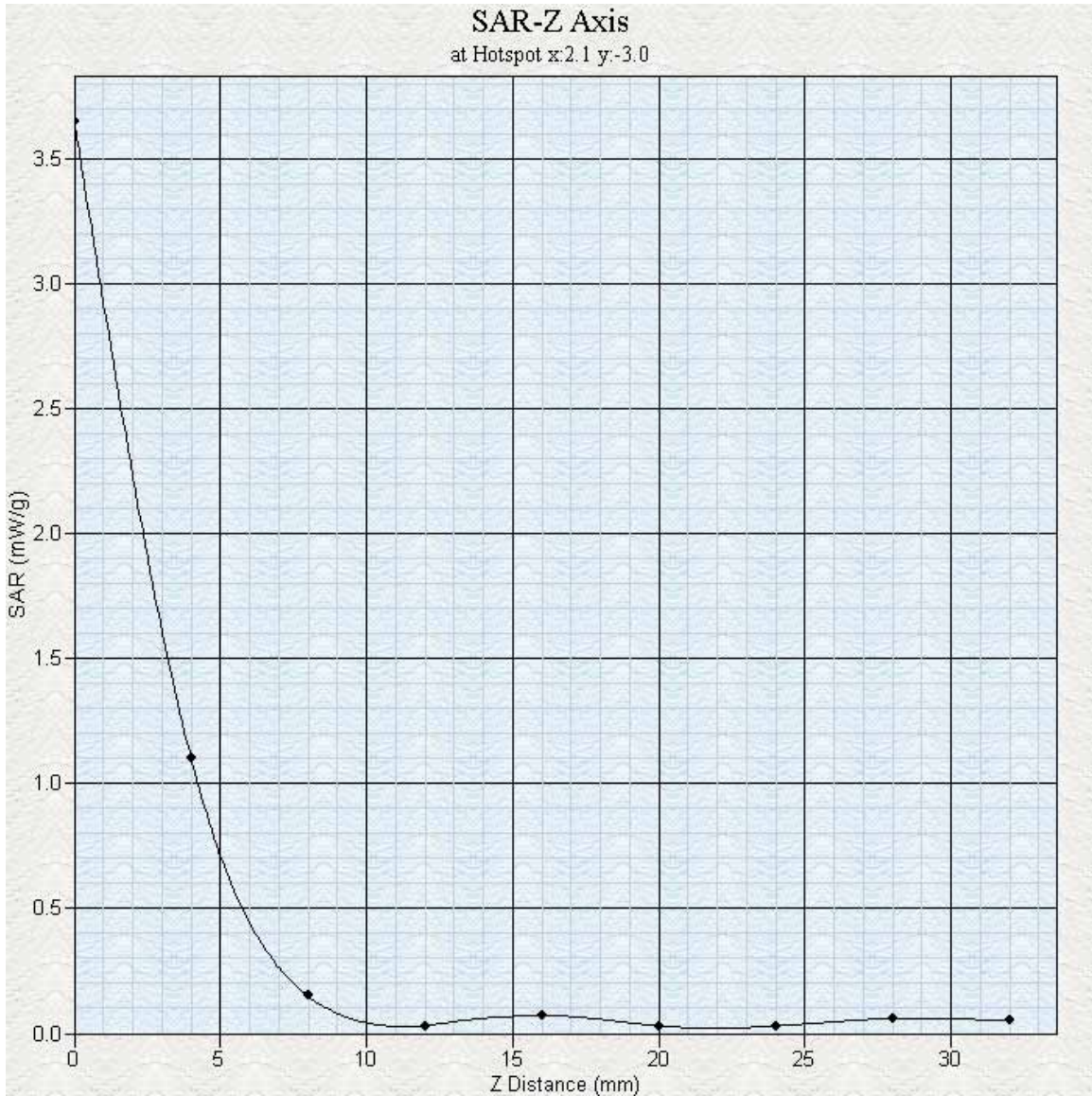


1 gram SAR value : 0.96 W/kg
Zoom Scan Peak SAR : 3.86

Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^1 (1-g)	c_i^1 (10-g)	Standard Uncertainty (1-g)	Standard Uncertainty (10-g)
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	•3	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	•3	•cp	•cp	4.4	4.4
Boundary Effect	1.0	rectangular	•3	1	1	0.6	0.6
Linearity	4.7	rectangular	•3	1	1	2.7	2.7
Detection Limit	1.0	rectangular	•3	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	•3	1	1	0.5	0.5
Integration Time	1.7	rectangular	•3	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	•3	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	•3	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	•3	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	•3	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	0.0	rectangular	•3	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty (shape & thickness tolerance)	3.4	rectangular	•3	1	1	2.0	2.0
Liquid Conductivity (target)	5.0	rectangular	•3	0.7	0.5	2.0	1.4
Liquid Conductivity (meas.)	0.7	rectangular	•3	0.7	0.5	0.3	0.2
Liquid Permittivity (target)	2.0	rectangular	•3	0.6	0.5	0.7	0.6
Liquid Permittivity (meas.)	3.3	rectangular	•3	0.6	0.5	1.1	0.9
Combined Uncertainty		RSS				9.2	9.0
Combined Uncertainty (coverage factor=2)		Normal (k=2)				18.3	18.1





Project number: ITLB-HP-5044
FCC ID: ID: CNTWM3B2915ABG

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SAR Test Report

Operator : Chen
 Validation Date : 24-Aug-2004
 Measurement Date : 24-Aug-2004
 Starting Time : 24-Aug-2004 10:38:17 AM
 End Time : 24-Aug-2004 10:52:54 AM
 Scanning Time : 877 secs

Product Data
 Device Name : HP-Raptor
 Serial No. : Raptor
 Type : Other
 Model : Raptor
 Frequency : 5800.00 MHz
 Max. Transmit Pwr : 0.1 W
 Drift Time : 0 min(s)
 Length : 150
 Width : 200
 Depth : 0
 Power Drift-Start : 0.98
 Power Drift-Finish : 1.00
 Power Drift : 0.02

Phantom Data
 Name : APREL-Uni
 Type : Uni-Phantom
 Size : 280 x 280 x 200
 Serial No. : User Define
 Location : Center
 Description : Uni

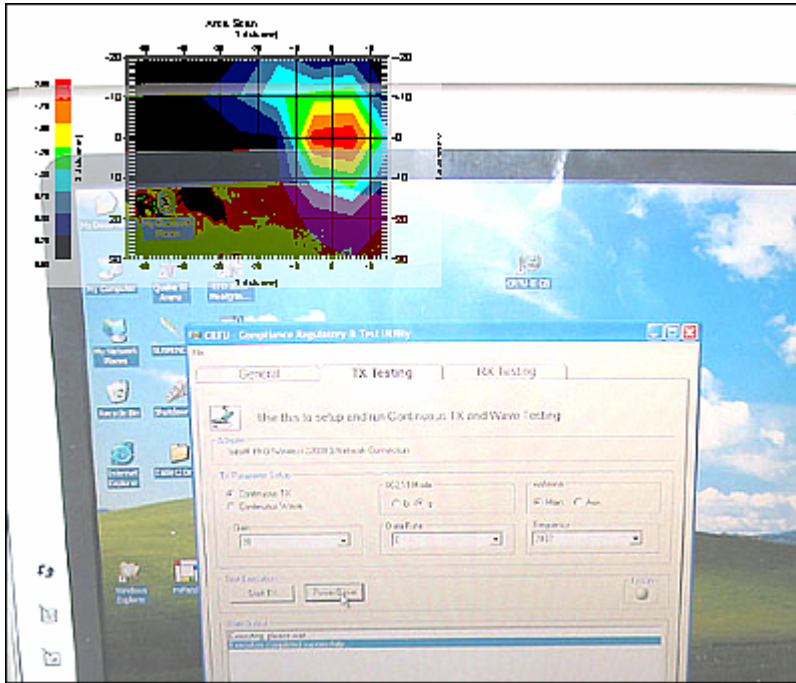
Tissue Data
 Type : Body
 Serial No. : 5800
 Frequency : 5800 MHz
 Calibration Date : 24-Aug-2004
 Temperature : 23 °C
 Ambient Temp. : 23 °C
 Humidity : 50 RH%
 Epsilon : 41.2 F/m
 Sigma : 6.3 S/m
 Density : 1000 kg/cu. m

Probe Data
 Name : APREL Probe 212
 Model : E020
 Type : E-Field Triangle
 Serial No. : 212
 Calibration Date : 04-Jun-2004
 Frequency : 5800 MHz
 Duty Cycle Factor : 1
 Conversion Factor : 7.1
 Probe Sensitivity : 0.61 0.61 0.61 $\mu\text{V}/(\text{V}/\text{sq. m})$
 Compression Point : 95
 Offset : 1.56

Measurement Data
 Crest Factor : 1
 Scan Type : Complete
 Set-up Date : 24-Aug-2004
 Set-up Time : 10:38:11 AM



Other Data
DUT Position : Touch
Separation : 0
Channel : Mid - 5785

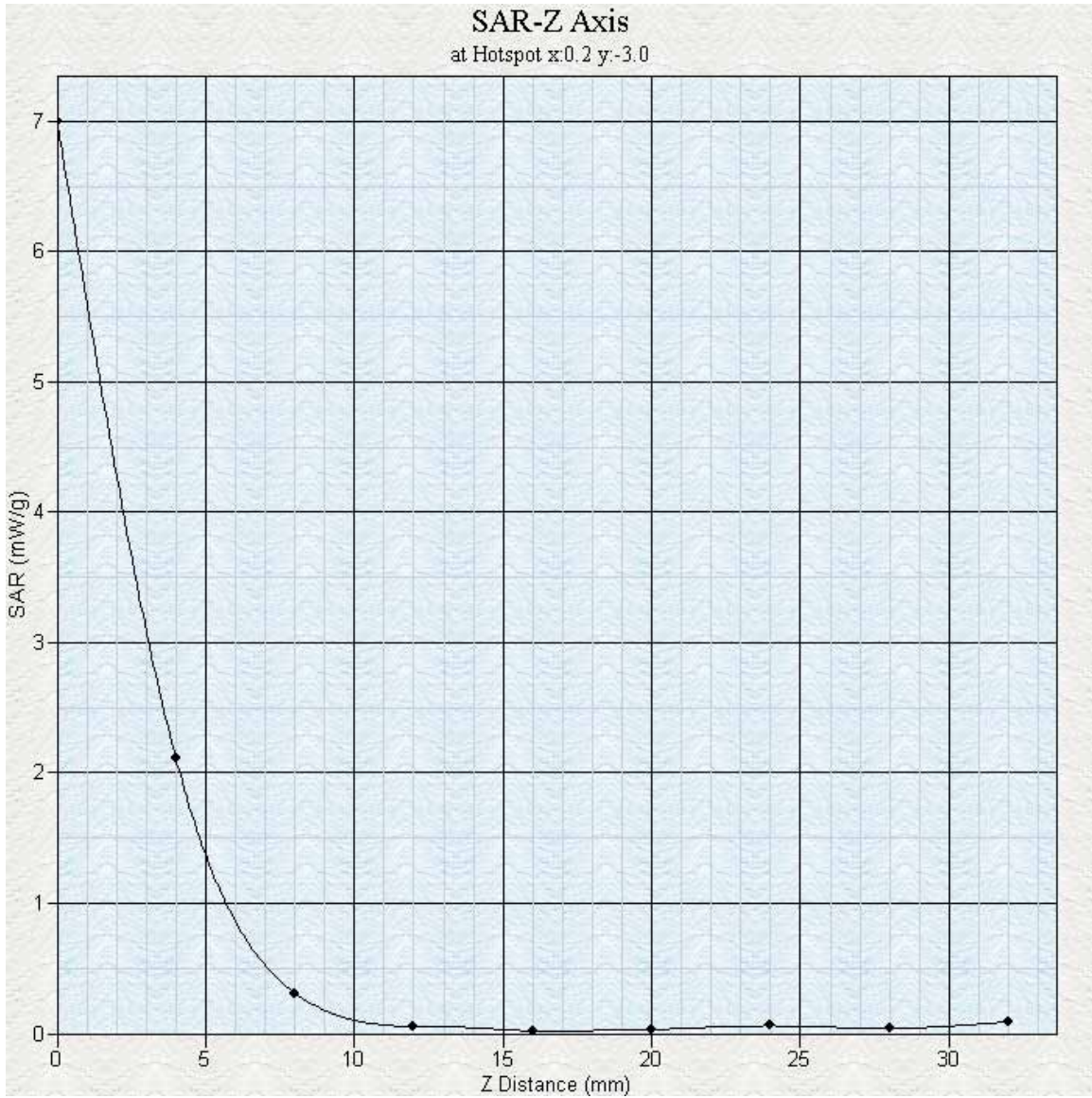


1 gram SAR value : 1.34 W/kg
Zoom Scan Peak SAR : 7.00

Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^1 (1-g)	c_i^1 (10-g)	Standard Uncertainty (1-g)	Standard Uncertainty (10-g)
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	•3	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	•3	•cp	•cp	4.4	4.4
Boundary Effect	1.0	rectangular	•3	1	1	0.6	0.6
Linearity	4.7	rectangular	•3	1	1	2.7	2.7
Detection Limit	1.0	rectangular	•3	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	•3	1	1	0.5	0.5
Integration Time	1.7	rectangular	•3	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	•3	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	•3	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	•3	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	•3	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	1.0	rectangular	•3	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty (shape & thickness tolerance)	3.4	rectangular	•3	1	1	2.0	2.0
Liquid Conductivity (target)	5.0	rectangular	•3	0.7	0.5	2.0	1.4
Liquid Conductivity (meas.)	0.7	rectangular	•3	0.7	0.5	0.3	0.2
Liquid Permittivity (target)	2.0	rectangular	•3	0.6	0.5	0.7	0.6
Liquid Permittivity (meas.)	3.3	rectangular	•3	0.6	0.5	1.1	0.9
Combined Uncertainty		RSS				9.2	9.0
Combined Uncertainty (coverage factor=2)		Normal (k=2)				18.3	18.1





Project number: ITLB-HP-5044
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SAR Test Report

Operator : Chen
 Validation Date : 24-Aug-2004
 Measurement Date : 24-Aug-2004
 Starting Time : 24-Aug-2004 10:38:17 AM
 End Time : 24-Aug-2004 10:52:54 AM
 Scanning Time : 877 secs

Product Data
 Device Name : HP-Raptor
 Serial No. : Raptor
 Type : Other
 Model : Raptor
 Frequency : 5800.00 MHz
 Max. Transmit Pwr : 0.1 W
 Drift Time : 0 min(s)
 Length : 150
 Width : 200
 Depth : 0
 Power Drift-Start : 0.98
 Power Drift-Finish : 1.00
 Power Drift : 0.02

Phantom Data
 Name : APREL-Uni
 Type : Uni-Phantom
 Size : 280 x 280 x 200
 Serial No. : User Define
 Location : Center
 Description : Uni

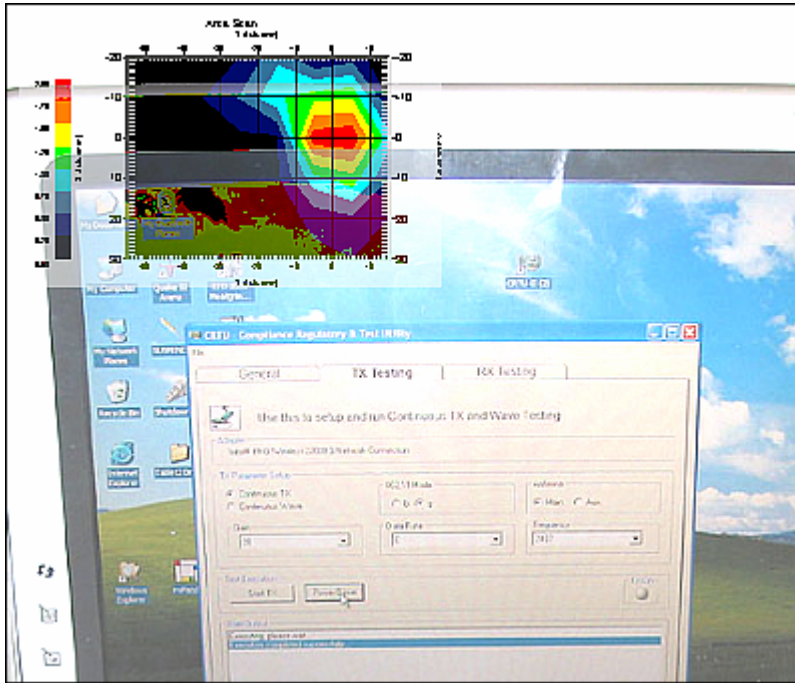
Tissue Data
 Type : Body
 Serial No. : 5800
 Frequency : 5800 MHz
 Calibration Date : 24-Aug-2004
 Temperature : 23 °C
 Ambient Temp. : 23 °C
 Humidity : 50 RH%
 Epsilon : 41.2 F/m
 Sigma : 6.3 S/m
 Density : 1000 kg/cu. m

Probe Data
 Name : APREL Probe 212
 Model : E020
 Type : E-Field Triangle
 Serial No. : 212
 Calibration Date : 04-Jun-2004
 Frequency : 5800 MHz
 Duty Cycle Factor: 1
 Conversion Factor: 7.1
 Probe Sensitivity: 0.61 0.61 0.61 $\mu\text{V}/(\text{V}/\text{sq. m})$
 Compression Point: 95
 Offset : 1.56

Measurement Data
 Crest Factor : 1
 Scan Type : Complete
 Set-up Date : 24-Aug-2004
 Set-up Time : 10:38:11 AM



Other Data
DUT Position : Touch
Separation : 0
Channel : Mid - 5785

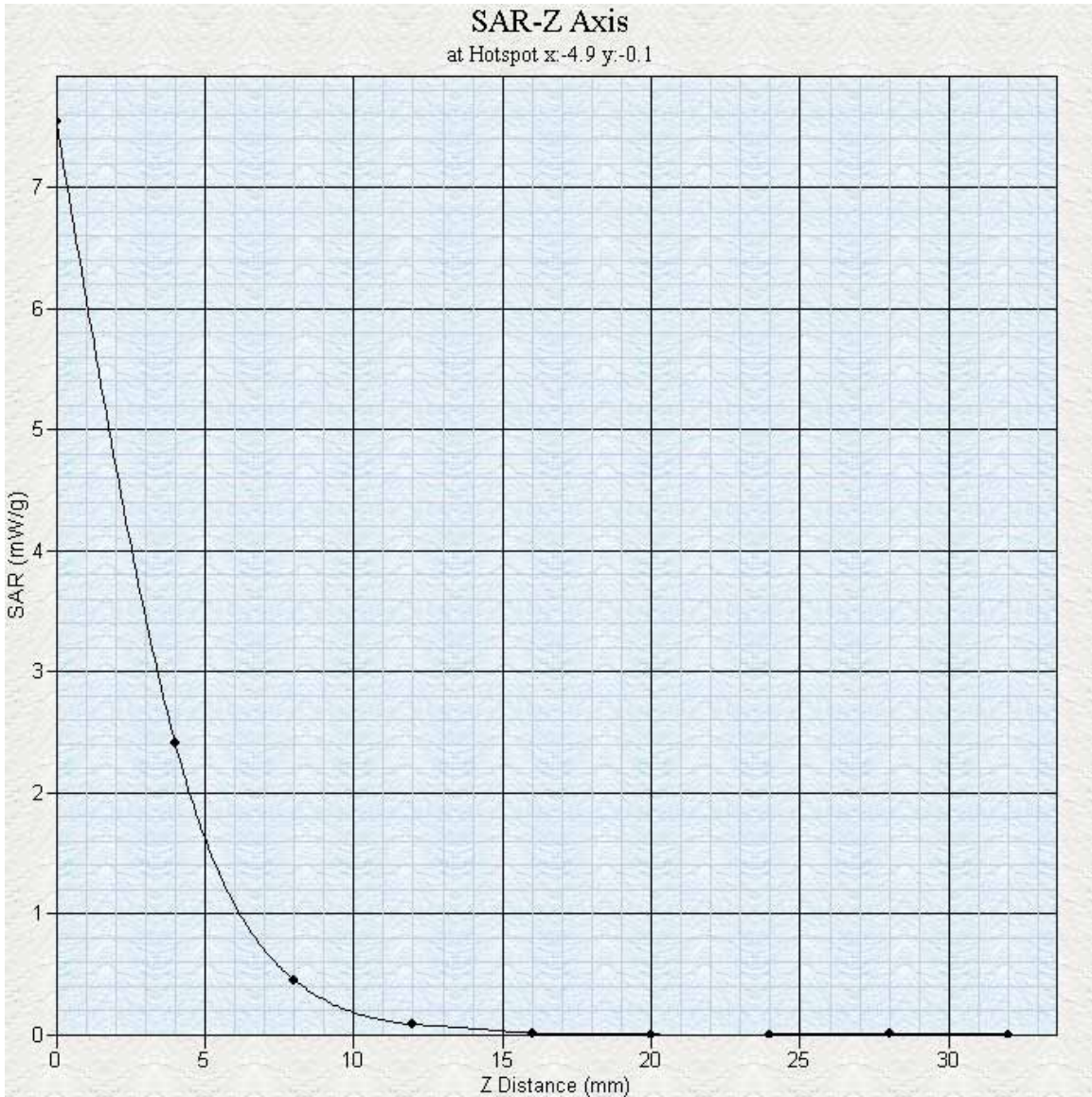


1 gram SAR value : 1.41 W/kg
Zoom Scan Peak SAR : 7.28

Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^1 (1-g)	c_i^1 (10-g)	Standard Uncertainty (1-g)	Standard Uncertainty (10-g)
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	•3	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	•3	•cp	•cp	4.4	4.4
Boundary Effect	1.0	rectangular	•3	1	1	0.6	0.6
Linearity	4.7	rectangular	•3	1	1	2.7	2.7
Detection Limit	1.0	rectangular	•3	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	•3	1	1	0.5	0.5
Integration Time	1.7	rectangular	•3	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	•3	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	•3	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	•3	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	•3	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	1.0	rectangular	•3	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty (shape & thickness tolerance)	3.4	rectangular	•3	1	1	2.0	2.0
Liquid Conductivity (target)	5.0	rectangular	•3	0.7	0.5	2.0	1.4
Liquid Conductivity (meas.)	0.7	rectangular	•3	0.7	0.5	0.3	0.2
Liquid Permittivity (target)	2.0	rectangular	•3	0.6	0.5	0.7	0.6
Liquid Permittivity (meas.)	3.3	rectangular	•3	0.6	0.5	1.1	0.9
Combined Uncertainty		RSS				9.2	9.0
Combined Uncertainty (coverage factor=2)		Normal (k=2)				18.3	18.1





Project number: ITLB-HP-5044
FCC ID: ID: CNTWM3B2915ABG

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SAR Test Report

Operator : Chen
 Validation Date : 24-Aug-2004
 Measurement Date : 24-Aug-2004
 Starting Time : 24-Aug-2004 12:52:04 PM
 End Time : 24-Aug-2004 01:06:34 PM
 Scanning Time : 870 secs

Product Data
 Device Name : HP-Raptor
 Serial No. : Raptor
 Type : Other
 Model : Raptor
 Frequency : 5800.00 MHz
 Max. Transmit Pwr : 0.1 W
 Drift Time : 0 min(s)
 Length : 150
 Width : 200
 Depth : 0
 Power Drift-Start : 0.00
 Power Drift-Finish : 0.00
 Power Drift : 0.00

Phantom Data
 Name : APREL-Uni
 Type : Uni-Phantom
 Size : 280 x 280 x 200
 Serial No. : User Define
 Location : Center
 Description : Uni

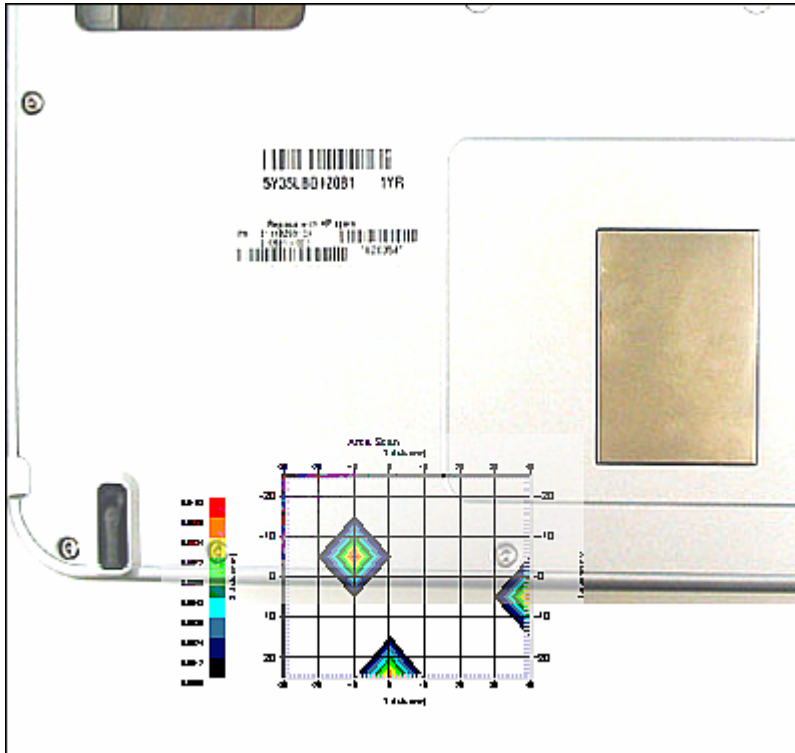
Tissue Data
 Type : Body
 Serial No. : 5800
 Frequency : 5800 MHz
 Calibration Date : 24-Aug-2004
 Temperature : 23 °C
 Ambient Temp. : 23 °C
 Humidity : 50 RH%
 Epsilon : 41.2 F/m
 Sigma : 6.3 S/m
 Density : 1000 kg/cu. m

Probe Data
 Name : APREL Probe 212
 Model : E020
 Type : E-Field Triangle
 Serial No. : 212
 Calibration Date : 04-Jun-2004
 Frequency : 5800 MHz
 Duty Cycle Factor: 1
 Conversion Factor: 7.1
 Probe Sensitivity: 0.61 0.61 0.61 $\mu\text{V}/(\text{V}/\text{sq. m})$
 Compression Point: 95
 Offset : 1.56

Measurement Data
 Crest Factor : 1
 Scan Type : Complete
 Set-up Date : 24-Aug-2004
 Set-up Time : 12:36:05 PM



Other Data
DUT Position : Touch
Separation : 0
Channel : Mid - 5785

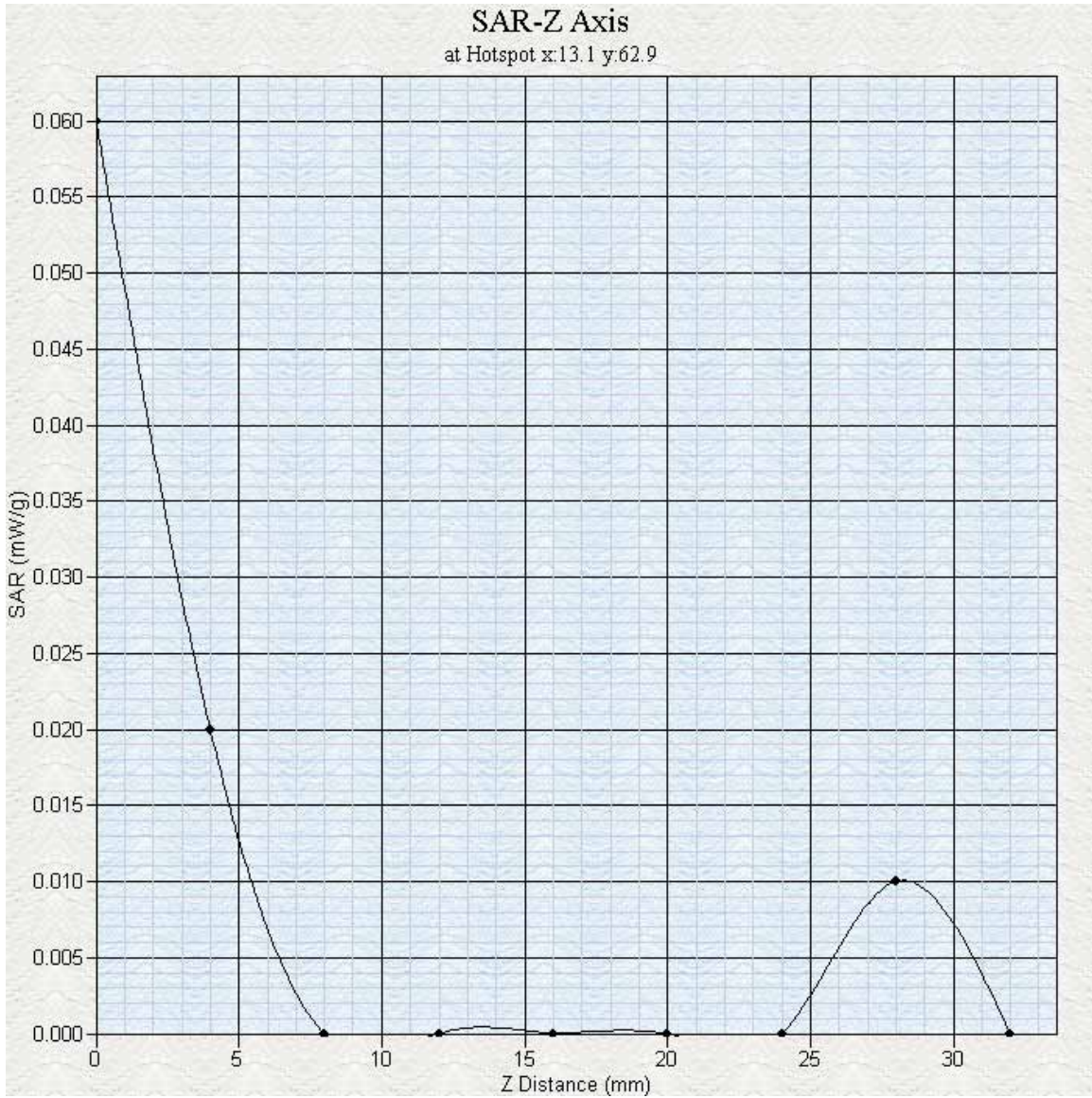


1 gram SAR value : 0.01 W/kg
Zoom Scan Peak SAR : 0.03

Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^1 (1-g)	c_i^1 (10-g)	Standard Uncertainty (1-g)	Standard Uncertainty (10-g)
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	•3	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	•3	•cp	•cp	4.4	4.4
Boundary Effect	1.0	rectangular	•3	1	1	0.6	0.6
Linearity	4.7	rectangular	•3	1	1	2.7	2.7
Detection Limit	1.0	rectangular	•3	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	•3	1	1	0.5	0.5
Integration Time	1.7	rectangular	•3	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	•3	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	•3	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	•3	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	•3	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	0.0	rectangular	•3	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty (shape & thickness tolerance)	3.4	rectangular	•3	1	1	2.0	2.0
Liquid Conductivity (target)	5.0	rectangular	•3	0.7	0.5	2.0	1.4
Liquid Conductivity (meas.)	0.7	rectangular	•3	0.7	0.5	0.3	0.2
Liquid Permittivity (target)	2.0	rectangular	•3	0.6	0.5	0.7	0.6
Liquid Permittivity (meas.)	3.3	rectangular	•3	0.6	0.5	1.1	0.9
Combined Uncertainty		RSS				9.2	9.0
Combined Uncertainty (coverage factor=2)		Normal (k=2)				18.3	18.1





Project number: ITLB-HP-5044
FCC ID: ID: CNTWM3B2915ABG

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Appendix B
Probe Calibration Certificate

Project number: ITLB-HP-5044
FCC ID: ID: CNTWM3B2915ABG

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NCL CALIBRATION LABORATORIES

Calibration File No.: CP-339

Client.: APREL

CERTIFICATE OF CALIBRATION

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

Equipment: Miniature Isotropic RF Probe 2450 MHz

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: 212

BODY Calibration

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

Project No: Internal

Calibrated: 4th June 2004
Released on: 4th June 2004

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

Released By: _____

NCL CALIBRATION LABORATORIES

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Project number: ITLB-HP-5044
FCC ID: ID: CNTWM3B2915ABG

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Introduction

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E-020 212.

References

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

Conditions

Probe 212 was a new probe taken from stock prior to calibration.

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



Calibration Results Summary

Probe Type: E-Field Probe E-020
Serial Number: 212
Frequency: 2450 MHz
Sensor Offset: 1.56 mm
Sensor Length: 2.5 mm
Tip Enclosure: Ertalyte*
Tip Diameter: 5 mm
Tip Length: 60 mm
Total Length: 290 mm

*Resistive to recommended tissue recipes per IEEE-1528

Sensitivity in Air

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



Sensitivity in Body Tissue

Frequency: 2450 MHz

Epsilon: 50.6 (+/-5%) **Sigma:** 1.98 S/m (+/-10%)

ConvF

Channel X: 3.3

Channel Y: 3.3

Channel Z: 3.3

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

Boundary Effect:

Uncertainty resulting from the boundary effect is less than 2% for the distance between the tip of the probe and the tissue boundary, when less than 2.4mm.

Spatial Resolution:

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

