

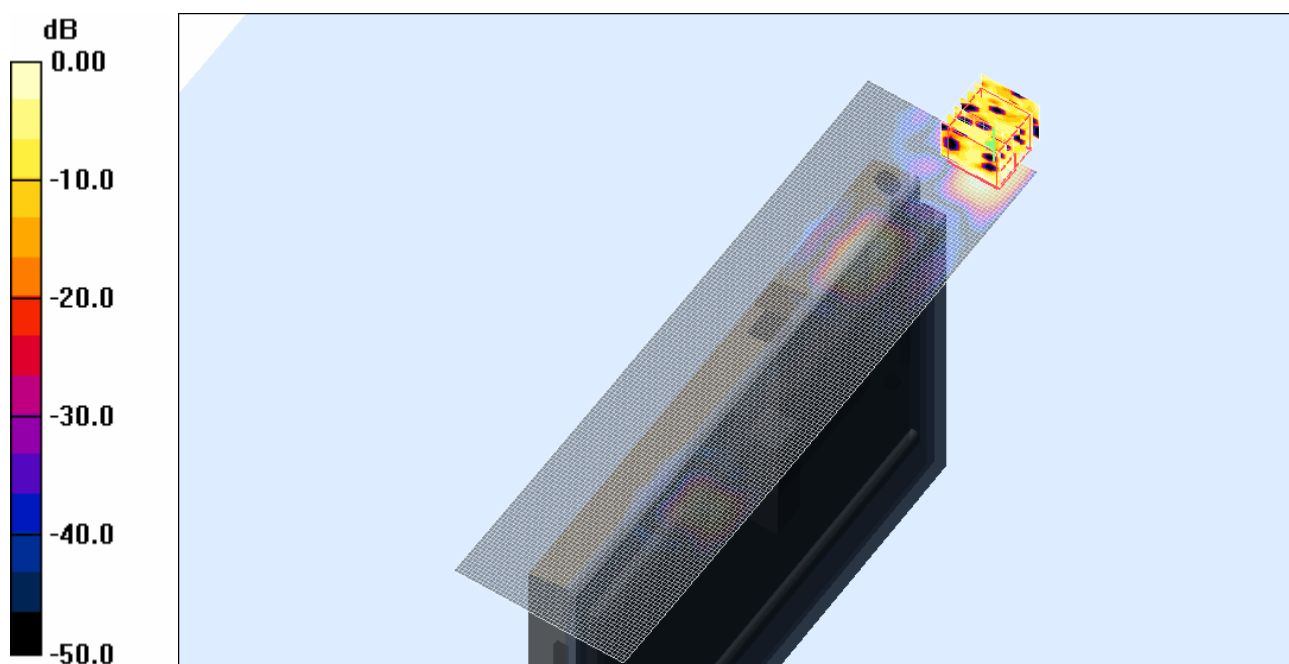
Test Date: 08 January 2008

File Name: Edge On OFDM 5.77 GHz Antenna B Far Side Bluetooth Off Prescan 08-01-08.da4

DUT: Fujitsu Tablet Ryuga with Kedron 11abg and Bluetooth; Type: 4965 AG; Serial: MAC: 0013E805C841

- * Communication System: OFDM 5770 MHz; Frequency: 5785 MHz; Duty Cycle: 1:1
- * Medium parameters used: $\sigma = 6.50586$ mho/m, $\epsilon_r = 46.4323$; $\rho = 1000$ kg/m³
- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(3.72, 3.72, 3.72)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 157 Test/Area Scan (51x181x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.062 mW/g



0 dB = 0.027mW/g

SAR MEASUREMENT PLOT 12

Ambient Temperature
Liquid Temperature
Humidity

21.4 Degrees Celsius
21.0 Degrees Celsius
58.0 %



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Test Date: 08 January 2008

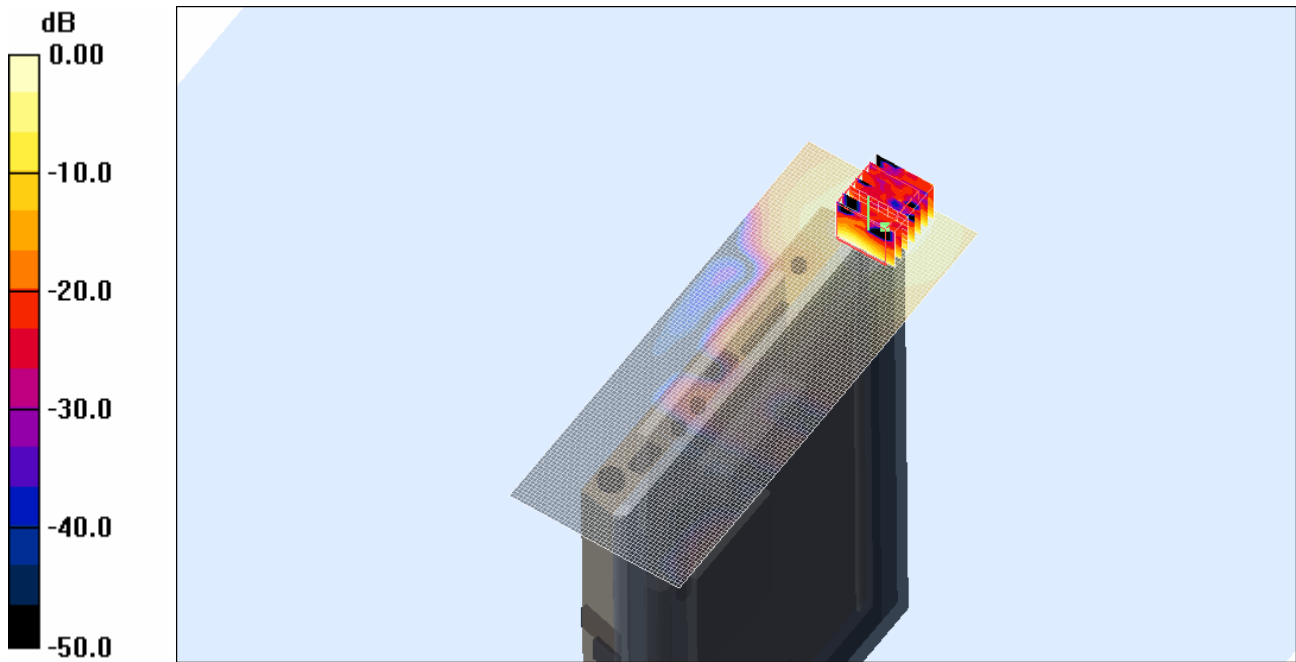
File Name: Edge On OFDM 5.77 GHz Antenna B Side Bluetooth Off 08-01-08.da4

DUT: Fujitsu Tablet Ryuga with Kedron 11abg and Bluetooth; Type: 4965 AG; Serial: MAC: 0013E805C841

- * Communication System: OFDM 5770 MHz; Frequency: 5745 MHz; Duty Cycle: 1:1
- * Medium parameters used: $\sigma = 6.41122$ mho/m, $\epsilon_r = 46.5847$; $\rho = 1000$ kg/m³
- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(3.72, 3.72, 3.72)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 149 Test/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.880 mW/g

Channel 149 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
 Reference Value = 11.5 V/m; Power Drift = -0.448 dB
 Peak SAR (extrapolated) = 2.71 W/kg
SAR(1 g) = 0.580 mW/g; SAR(10 g) = 0.184 mW/g
 Maximum value of SAR (measured) = 1.25 mW/g



0 dB = 1.25mW/g

SAR MEASUREMENT PLOT 13

Ambient Temperature	21.4 Degrees Celsius
Liquid Temperature	21.0 Degrees Celsius
Humidity	58.0 %



Test Date: 08 January 2008

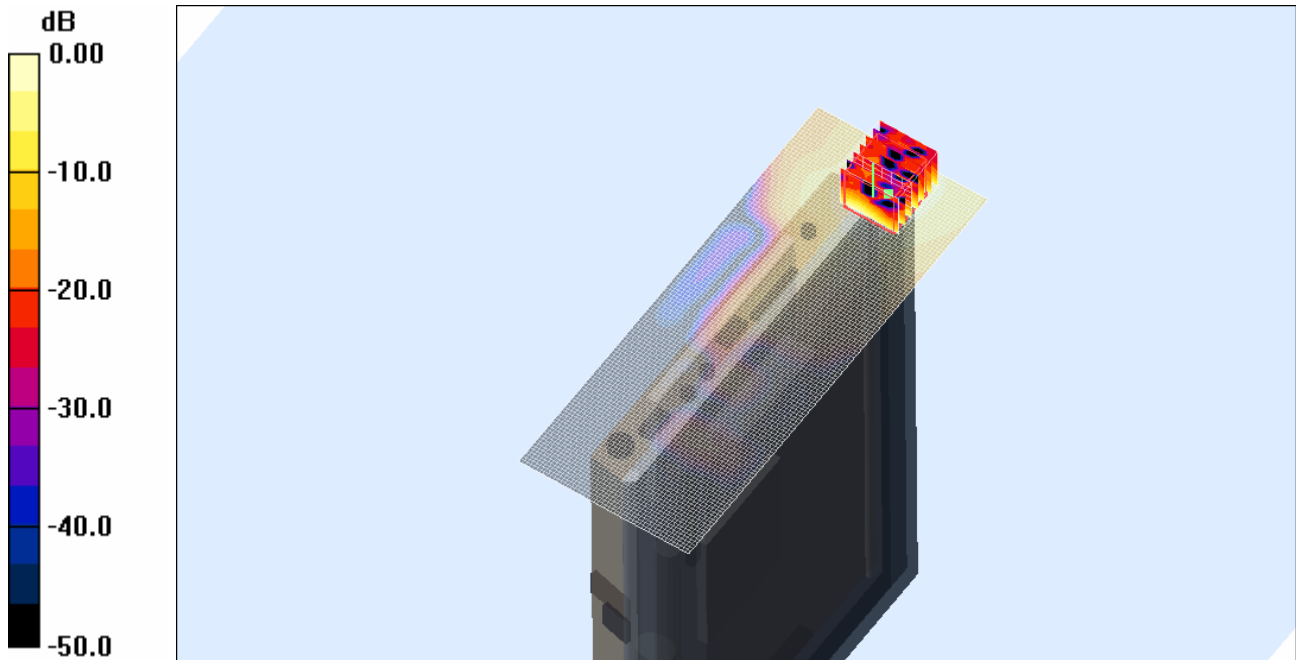
File Name: Edge On OFDM 5.77 GHz Antenna B Side Bluetooth Off 08-01-08.da4

DUT: **Fujitsu Tablet Ryuga with Kedron 11abg and Bluetooth; Type: 4965 AG; Serial: MAC: 0013E805C841**

- * Communication System: OFDM 5770 MHz; Frequency: 5785 MHz; Duty Cycle: 1:1
- * Medium parameters used: $\sigma = 6.50586$ mho/m, $\epsilon_r = 46.4323$; $\rho = 1000$ kg/m³
- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(3.72, 3.72, 3.72)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 157 Test/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.856 mW/g

Channel 157 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
 Reference Value = 10.6 V/m; Power Drift = -0.226 dB
 Peak SAR (extrapolated) = 2.42 W/kg
SAR(1 g) = 0.557 mW/g; SAR(10 g) = 0.176 mW/g
 Maximum value of SAR (measured) = 1.20 mW/g



0 dB = 1.20mW/g

SAR MEASUREMENT PLOT 14

Ambient Temperature
 Liquid Temperature
 Humidity

21.4 Degrees Celsius
 21.0 Degrees Celsius
 58.0 %



Test Date: 08 January 2008

File Name: Edge On OFDM 5.77 GHz Antenna B Side Bluetooth Off 08-01-08.da4

DUT: Fujitsu Tablet Ryuga with Kedron 11abg and Bluetooth; Type: 4965 AG; Serial: MAC: 0013E805C841

* Communication System: OFDM 5770 MHz; Frequency: 5825 MHz; Duty Cycle: 1:1

* Medium parameters used: $\sigma = 6.5627$ mho/m, $\epsilon_r = 46.2704$; $\rho = 1000$ kg/m³

- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(3.72, 3.72, 3.72)

- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 165 Test/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.44 mW/g

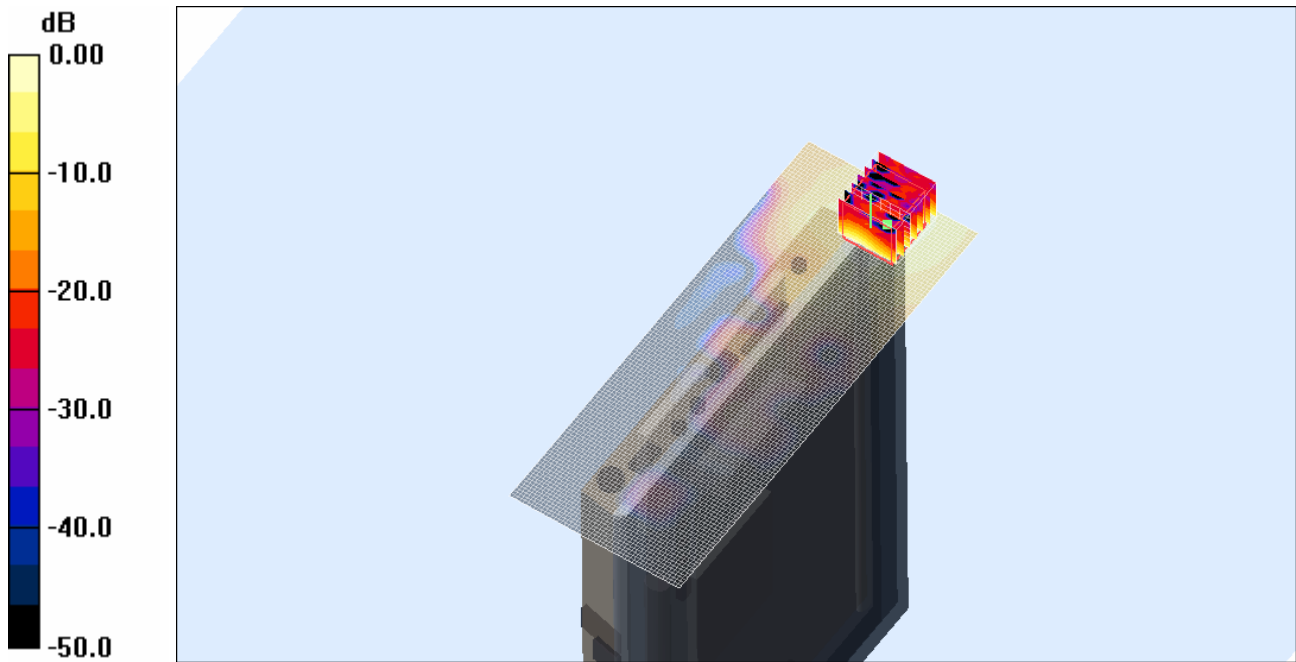
Channel 165 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 12.5 V/m; Power Drift = -0.498 dB

Peak SAR (extrapolated) = 3.84 W/kg

SAR(1 g) = 0.787 mW/g; SAR(10 g) = 0.242 mW/g

Maximum value of SAR (measured) = 1.71 mW/g



0 dB = 1.71mW/g

SAR MEASUREMENT PLOT 15

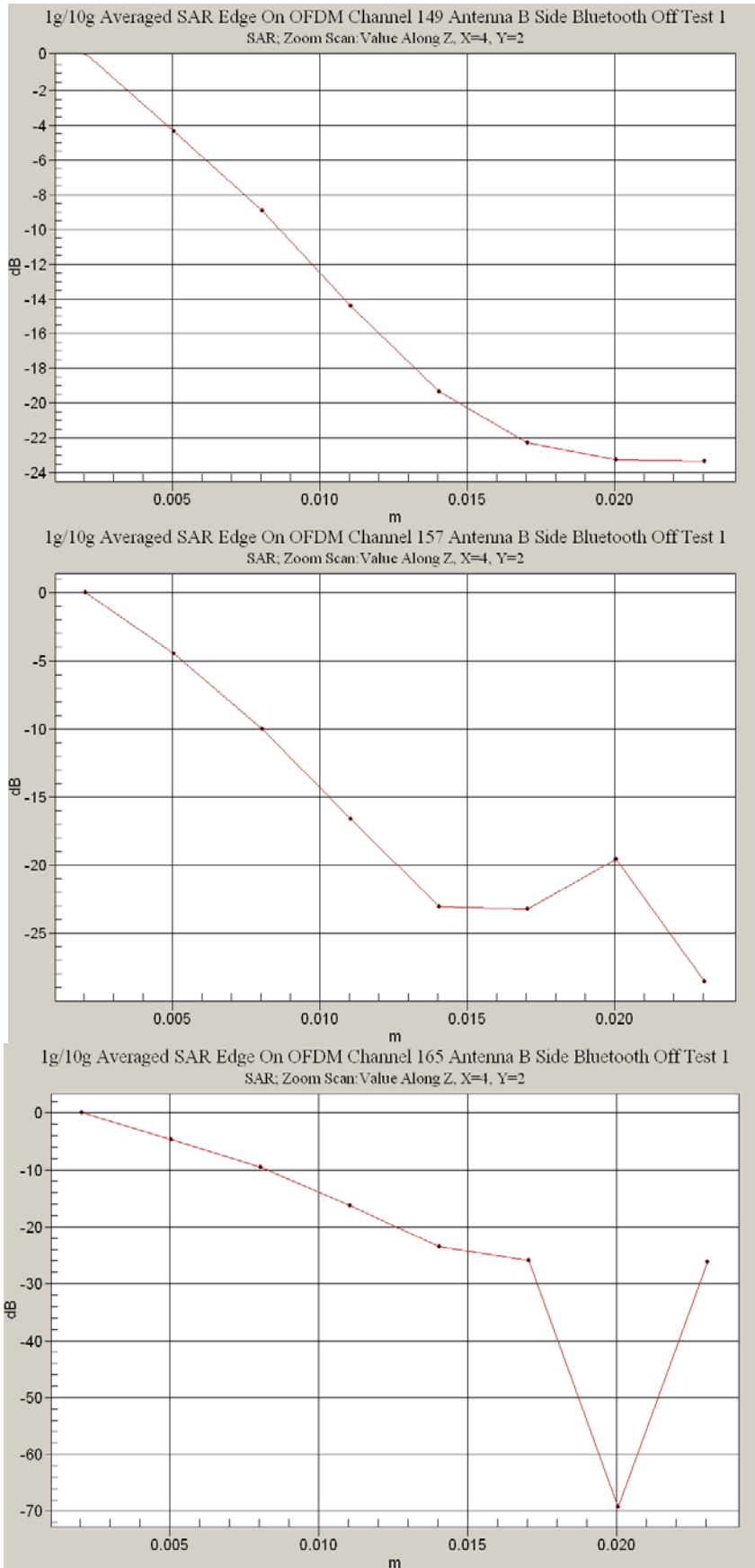
Ambient Temperature
Liquid Temperature
Humidity

21.4 Degrees Celsius
21.0 Degrees Celsius
58.0 %



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Test Date: 08 January 2008

File Name: Edge On OFDM 5.77 GHz Antenna A Side Bluetooth Off 08-01-08.da4

DUT: **Fujitsu Tablet Ryuga with Kedron 11abg and Bluetooth; Type: 4965 AG; Serial: MAC: 0013E805C841**

* Communication System: OFDM 5770 MHz; Frequency: 5785 MHz; Duty Cycle: 1:1

* Medium parameters used: $\sigma = 6.50586$ mho/m, $\epsilon_r = 46.4323$; $\rho = 1000$ kg/m³

- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(3.72, 3.72, 3.72)

- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 157 Test/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.416 mW/g

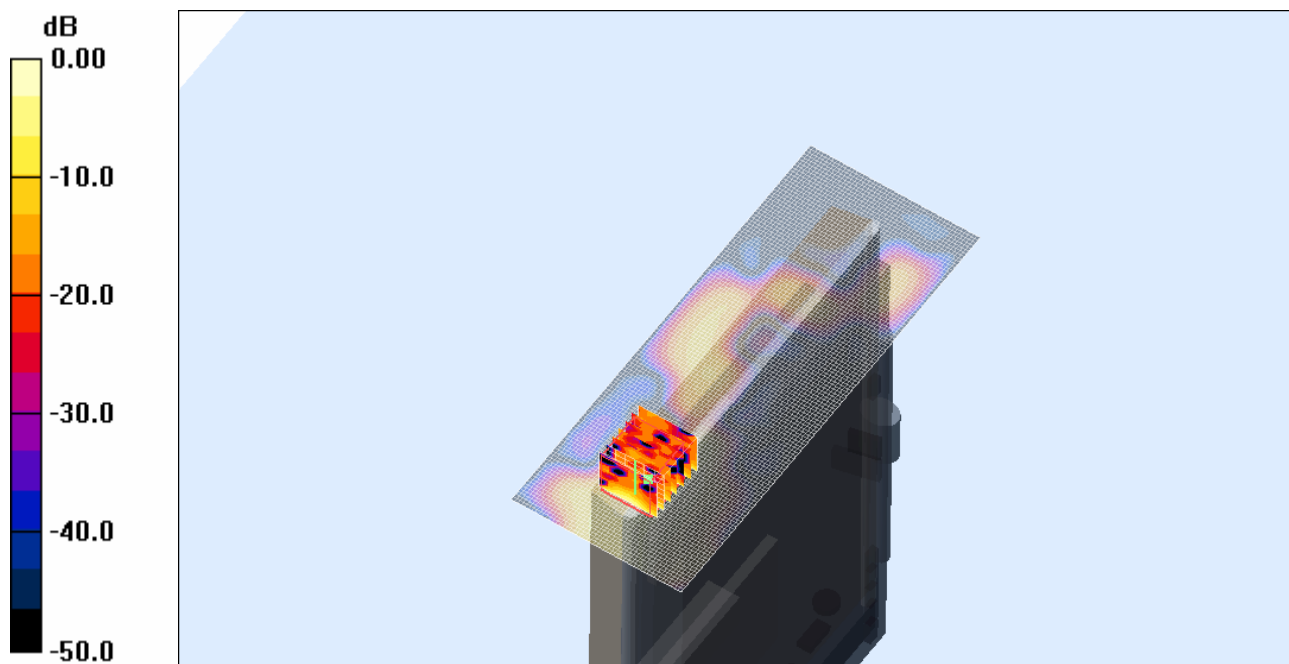
Channel 157 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 3.56 V/m; Power Drift = -0.033 dB

Peak SAR (extrapolated) = 0.772 W/kg

SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.055 mW/g

Maximum value of SAR (measured) = 0.451 mW/g



0 dB = 0.451mW/g

SAR MEASUREMENT PLOT 16

Ambient Temperature
Liquid Temperature
Humidity

21.4 Degrees Celsius
21.0 Degrees Celsius
58.0 %



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Test Date: 08 January 2008

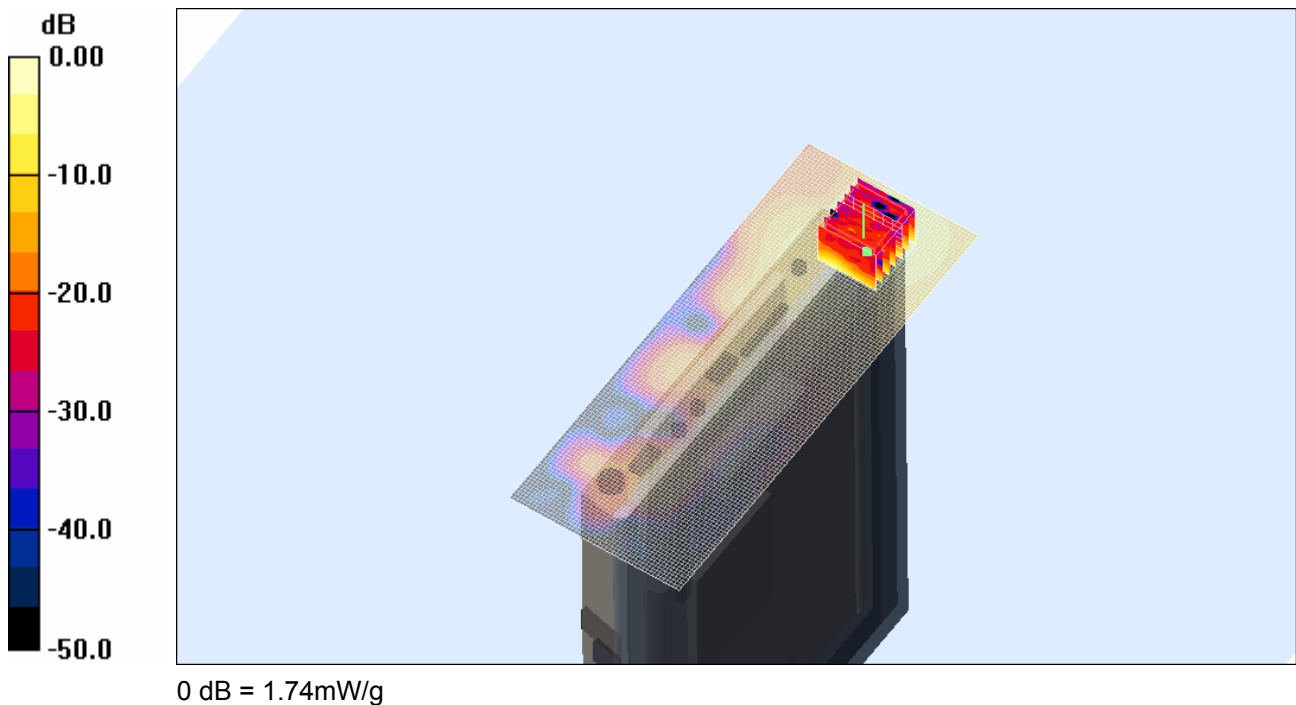
File Name: Edge On OFDM 5.77 GHz Antenna B Side Bluetooth On Extended Battery 08-01-08.da4

DUT: **Fujitsu Tablet Ryuga with Kedron 11abg and Bluetooth; Type: 4965 AG; Serial: MAC: 0013E805C841**

- * Communication System: OFDM 5770 MHz; Frequency: 5825 MHz; Duty Cycle: 1:1
- * Medium parameters used: $\sigma = 6.5627$ mho/m, $\epsilon_r = 46.2704$; $\rho = 1000$ kg/m³
- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(3.72, 3.72, 3.72)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 165 Test/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 1.18 mW/g

Channel 165 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
 Reference Value = 12.7 V/m; Power Drift = -0.495 dB
 Peak SAR (extrapolated) = 3.90 W/kg
SAR(1 g) = 0.782 mW/g; SAR(10 g) = 0.233 mW/g
 Maximum value of SAR (measured) = 1.74 mW/g



SAR MEASUREMENT PLOT 17

Ambient Temperature
 Liquid Temperature
 Humidity

21.4 Degrees Celsius
 21.0 Degrees Celsius
 58.0 %



Test Date: 08 January 2008

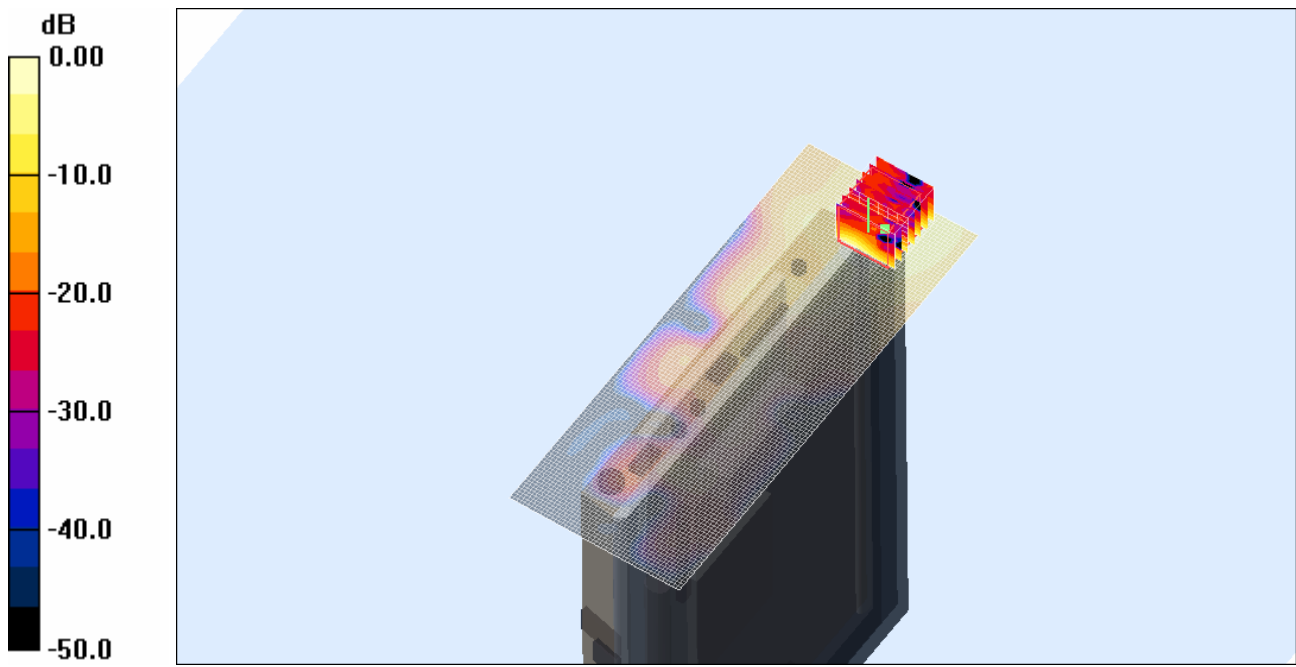
File Name: Edge On OFDM 5.77 GHz Antenna B Side Bluetooth On 08-01-08.da4

DUT: **Fujitsu Tablet Ryuga with Kedron 11abg and Bluetooth; Type: 4965 AG; Serial: MAC: 0013E805C841**

- * Communication System: OFDM 5770 MHz; Frequency: 5825 MHz; Duty Cycle: 1:1
- * Medium parameters used: $\sigma = 6.5627$ mho/m, $\epsilon_r = 46.2704$; $\rho = 1000$ kg/m³
- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(3.72, 3.72, 3.72)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 165 Test/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 1.25 mW/g

Channel 165 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
 Reference Value = 11.9 V/m; Power Drift = -0.157 dB
 Peak SAR (extrapolated) = 4.25 W/kg
SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.256 mW/g
 Maximum value of SAR (measured) = 1.94 mW/g



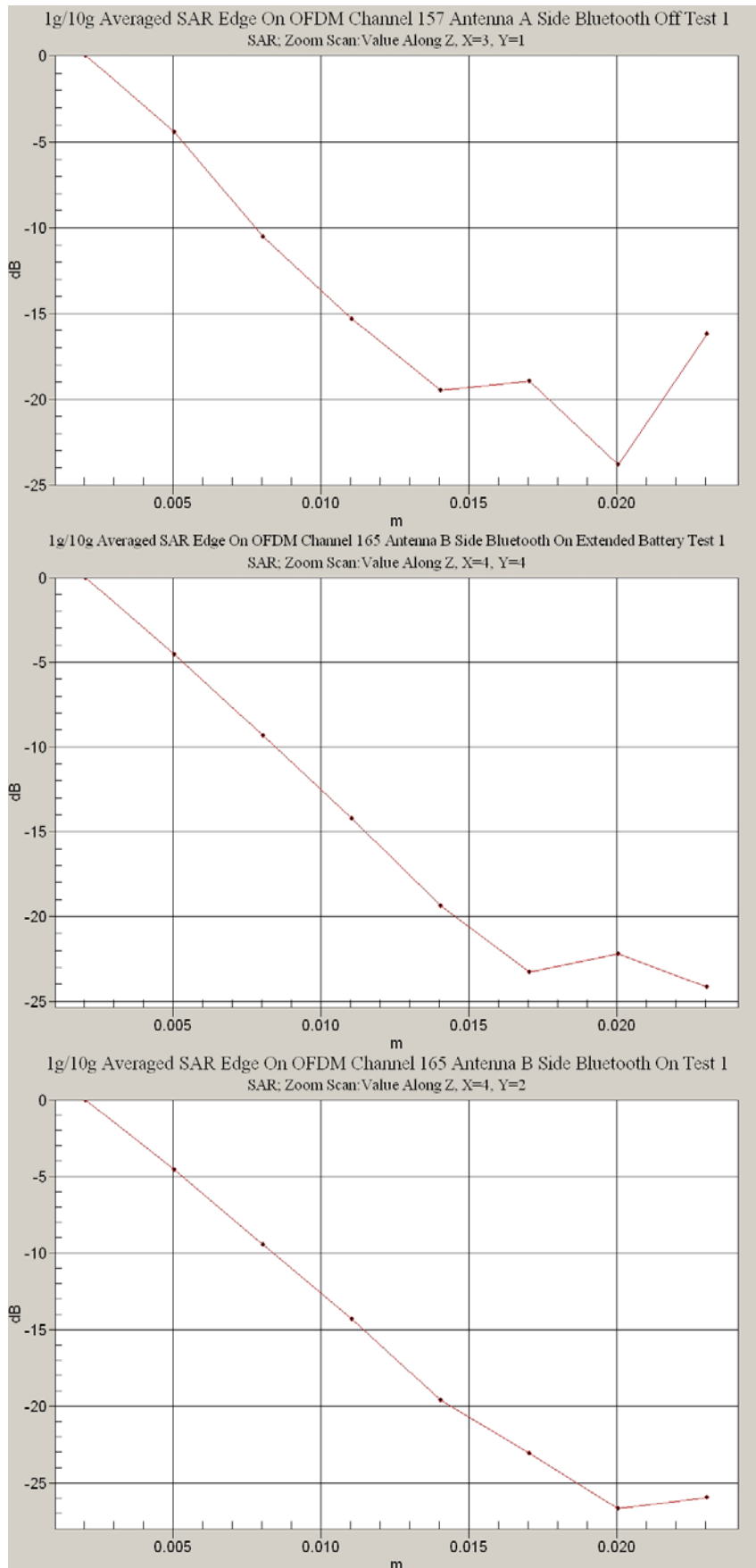
0 dB = 1.94mW/g

SAR MEASUREMENT PLOT 18

Ambient Temperature
 Liquid Temperature
 Humidity

21.4 Degrees Celsius
 21.0 Degrees Celsius
 58.0 %





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Test Date: 08 January 2008

File Name: Validation 5800MHz (DAE 359 Probe EX3DV4) 08-01-08.da4

DUT: Dipole 5200_5800 MHz; Type: D5GHzV2; Serial: 1008

* Communication System: CW 5800 MHz; Frequency: 5800 MHz; Duty Cycle: 1:1

* Medium parameters used: $\sigma = 5.49675$ mho/m, $\epsilon_r = 34.5876$; $\rho = 1000$ kg/m³

- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(3.65, 3.65, 3.65)

- Phantom: SAM 22; Serial: 1260; Phantom section: Flat Section

Channel 1 Test 2/Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 38.1 mW/g

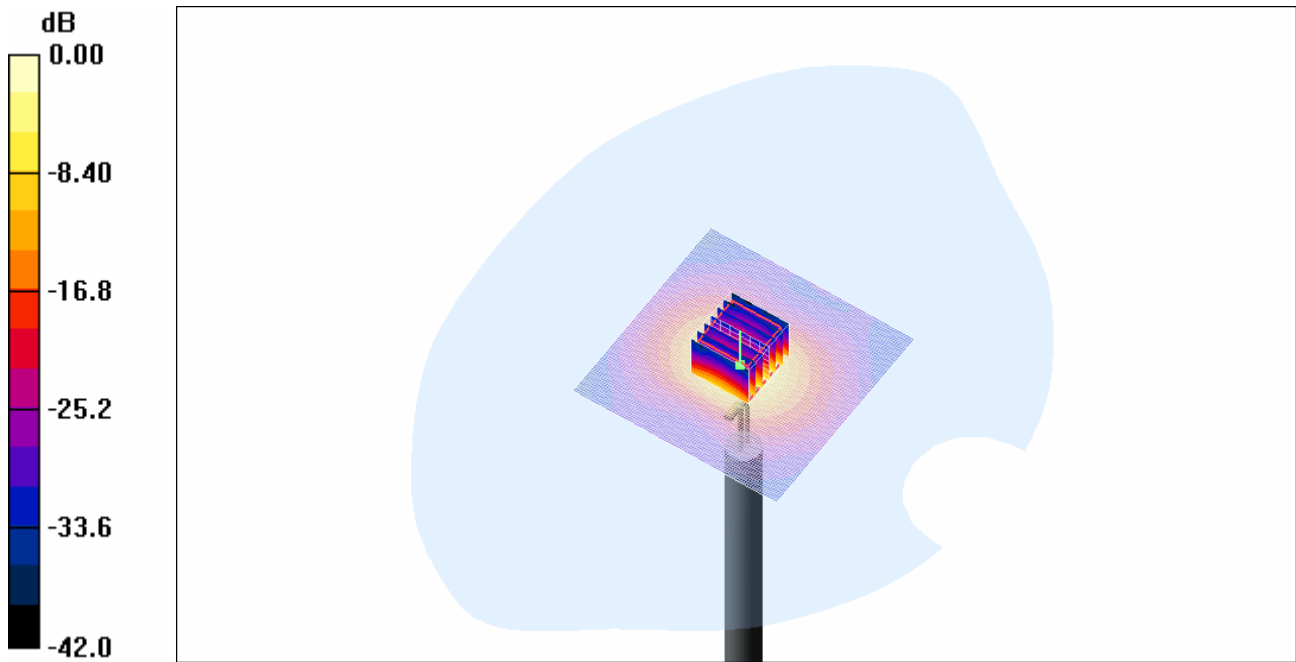
Channel 1 Test 2/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 87.3 V/m; Power Drift = 0.128 dB

Peak SAR (extrapolated) = 79.0 W/kg

SAR(1 g) = 17.8 mW/g; SAR(10 g) = 5.05 mW/g

Maximum value of SAR (measured) = 38.0 mW/g



0 dB = 38.0mW/g

SAR MEASUREMENT PLOT 19

Ambient Temperature
Liquid Temperature
Humidity

21.4 Degrees Celsius
21.0 Degrees Celsius
58.0 %



Test Date: 09 January 2008

File Name: Validation 5200MHz (DAE 359 Probe EX3DV4) 09-01-08.da4

DUT: Dipole 5200_5800 MHz; Type: D5GHzV2; Serial: 1008

* Communication System: CW 5200 MHz; Frequency: 5200 MHz; Duty Cycle: 1:1

* Medium parameters used: $\sigma = 4.85828$ mho/m, $\epsilon_r = 36.4527$; $\rho = 1000$ kg/m³

- Electronics: DAE3 Sn359; Probe: EX3DV4 - SN3563; ConvF(4.25, 4.25, 4.25)

- Phantom: SAM 22; Serial: 1260; Phantom section: Flat Section

Channel 1 Test 2/Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 42.0 mW/g

Channel 1 Test 2/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm,

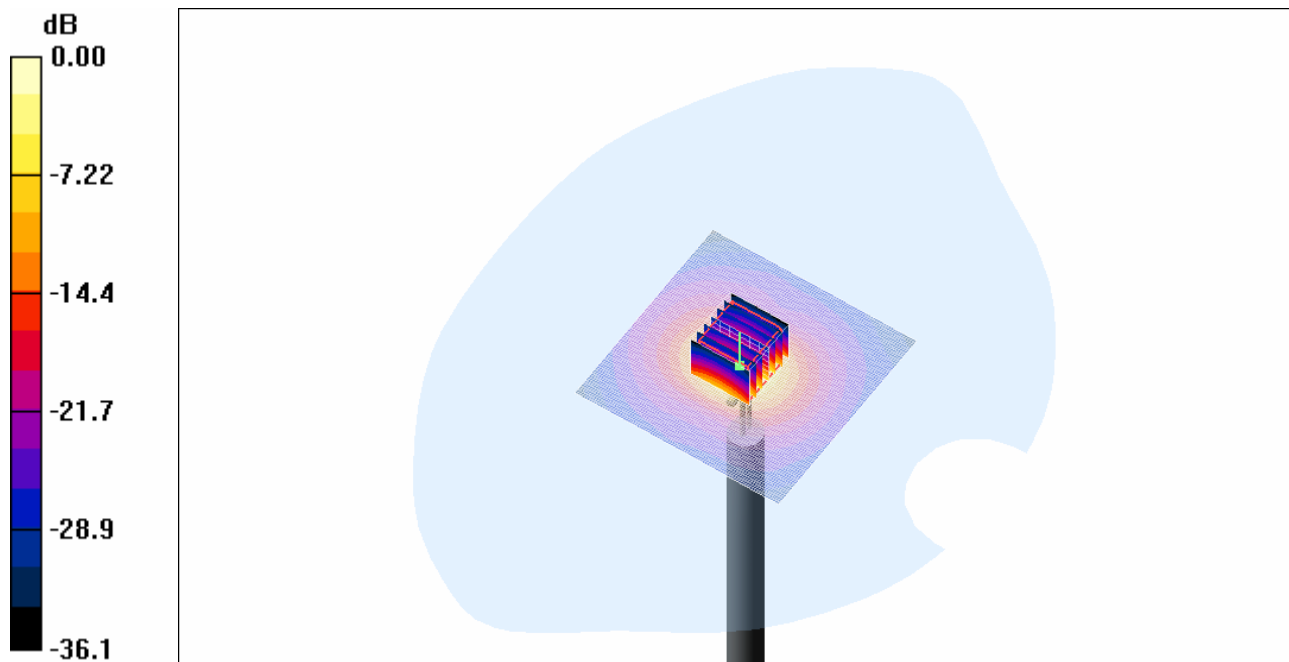
dz=3mm

Reference Value = 95.3 V/m; Power Drift = 0.161 dB

Peak SAR (extrapolated) = 77.7 W/kg

SAR(1 g) = 20.1 mW/g; SAR(10 g) = 5.69 mW/g

Maximum value of SAR (measured) = 42.0 mW/g



0 dB = 42.0mW/g

SAR MEASUREMENT PLOT 20

Ambient Temperature

21.6 Degrees Celsius

Liquid Temperature

21.3 Degrees Celsius

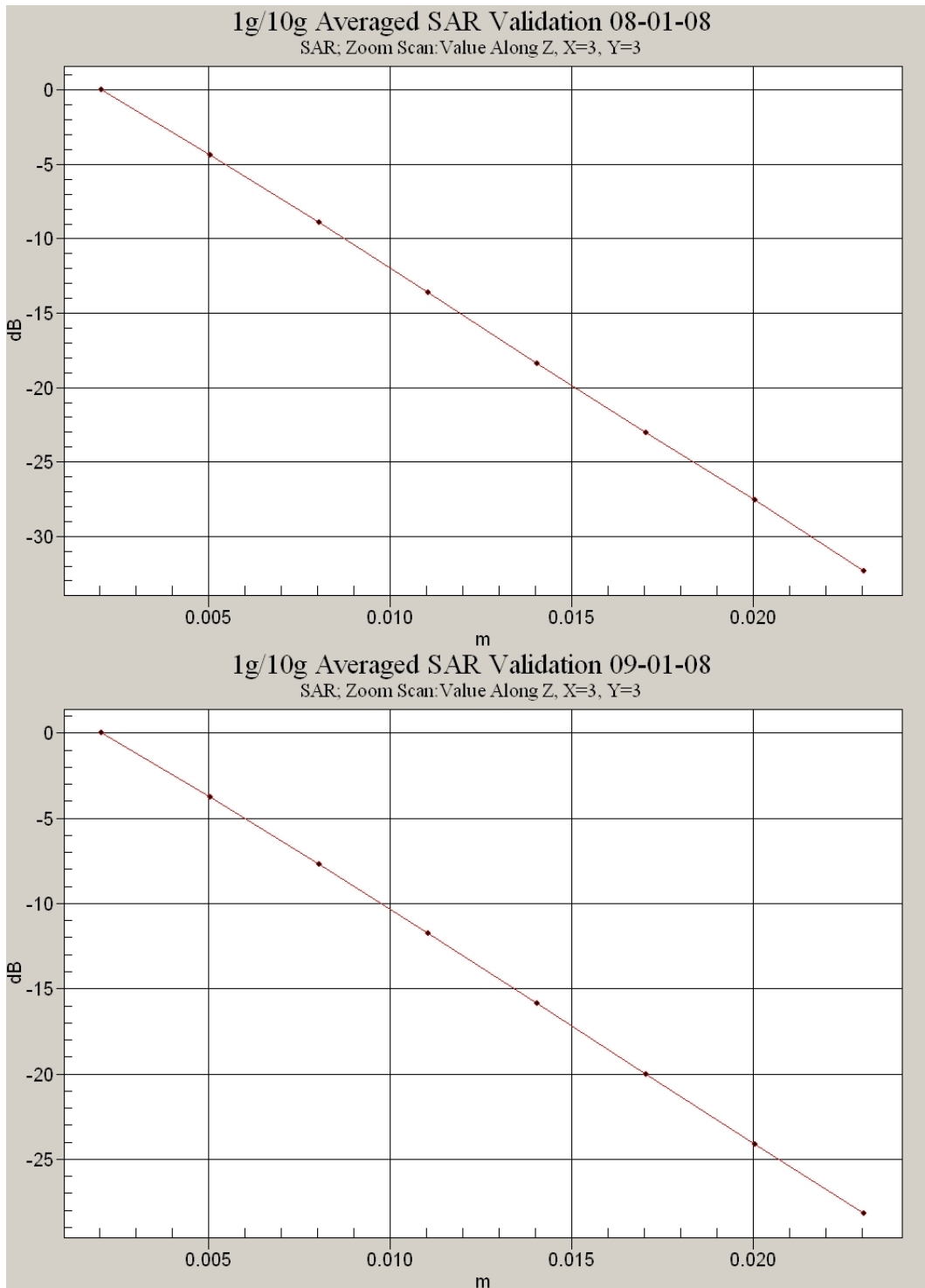
Humidity

60.0 %



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APPENDIX C CALIBRATION DOCUMENTS

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **EMC Technologies**

Certificate No: **EX3-3563_Jul07**

CALIBRATION CERTIFICATE

Object: **EX3DV4 - SN:3563**

Calibration procedure(s): **QA CAL-01.v6 and QA CAL-14.v3
Calibration procedure for dosimetric E-field probes**

Calibration date: **July 13, 2007**

Condition of the calibrated item: **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 13, 2007

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**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below *ConvF*).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.



EX3DV4 SN:3563

July 13, 2007

Probe EX3DV4

SN:3563

Manufactured:	February 14, 2005
Last calibrated:	July 14, 2006
Recalibrated:	July 13, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

