APPENDIX A MULTIBAND EVALUATION CONSIDERATIONS

According to the SAR standards, when the sum of SAR results (simultaneously transmitting antennas WLAN and WWAN) is > 1.6mW/g and the distance between the antennas is 5cm or less, or the ratio of above sum to the distance between peak SAR locations > 0.3, simultaneous transmission SAR evaluation is required.

Host System #1:
Multiband evaluation was conducted for UMTS/GSM WWAN (MC8781) and WIFI (533AN_HMW) because the ratio of the sum of highest SAR results for the WWAN and WiFi (in 5GHz band) to the distance between WWAN and WIFI Tx1 antennas (which was less than the distance between peak SAR locations) is - 2.62/8cm = 0.3275 > 0.3.

Summary of the highest SAR results (worst case) considered for multiband evaluation:

1) Worst case SAR in UMTS/GSM, Tablet Ant. OUT, Channel 190 (836.6MHz) GPRS Class 10 mode: 1.55 mW/g
2) Worst case SAR 5.6GHz band, Tablet Ant. A Channel 64 (5320MHz), OFDM mode: 1.07 mW/g

Host System #2:
Multiband evaluation was not required for UMTS/GSM WWAN (MC8781) and WIFI (AR5BHB92) because the ratio of the sum of highest SAR results for the WWAN and WiFi (in 5GHz band) to the distance between peak SAR locations of WWAN and WIFI Tx1 antennas is – 1.89/10.3cm = 0.18 < 0.3. The Average output power of the AR5BHB92 module is 2.5dB lower than that of the Intel 533AN_HMW module and hence the difference in multiband SAR considerations

Summary of the highest SAR results considered for multiband evaluation:

3) Worst case SAR in UMTS/GSM, Tablet Ant. OUT, Channel 190 (836.6MHz) GPRS Class 10 mode: 1.55 mW/g
4) Worst case SAR 5.2GHz band, Tablet Ant. A Channel 52 (5260MHz), OFDM mode: 0.34 mW/g

NOTE: Throughout this report, Antenna A, B and C refer to Tx1, Tx2 and Tx3 in the host respectively.

Diagram Showing Antenna Positions
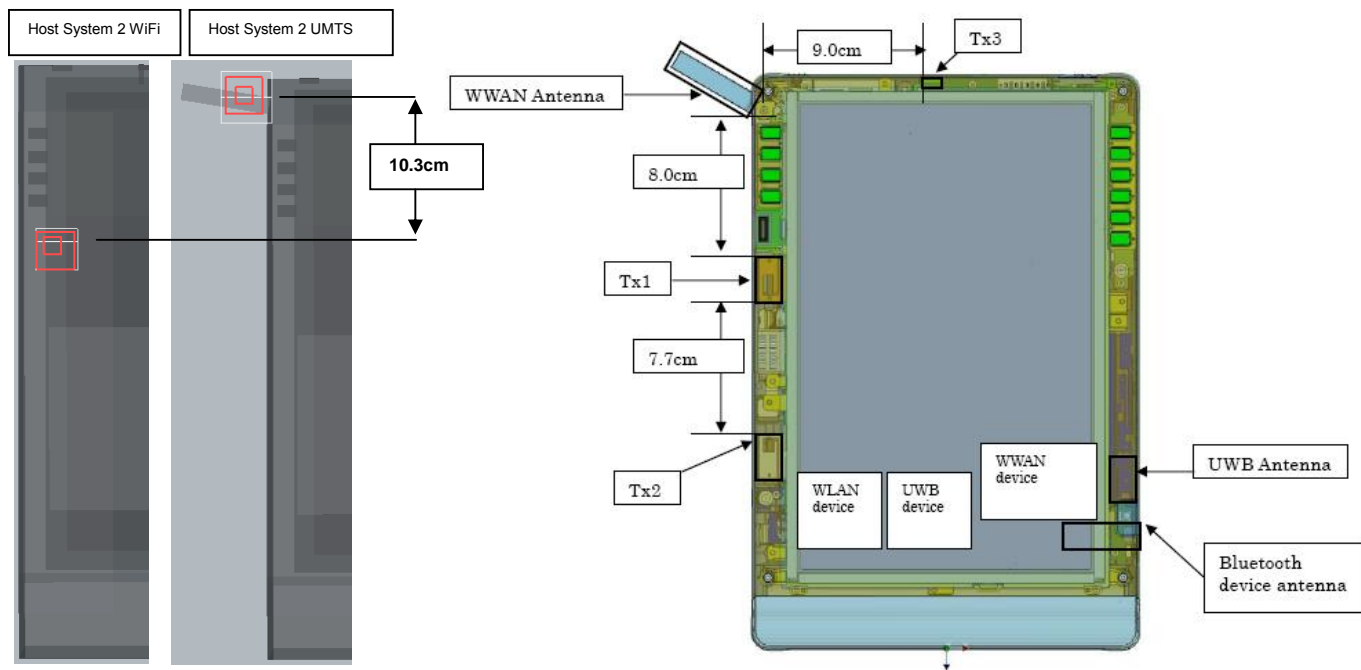
Additional information: Multiband evaluation separate WiFi and WWAN components SAR results and setup details for plot 19

Test Date: 11 September 2008

File Name: Tablet 850 MHz GPRS Class 10 Antenna Out Multiband 11-09-08.da4 File Name: Tablet OFDM 5.2 GHz Antenna A Multiband 11-09-08.da4

DUT: Fujitsu Tablet Oneya with SP 3x3 abgn; Type: HMW_533AN; Serial: MAC: 0016EA16277E

 * Communication System: 850MHz 1900 MHz GPRS Class 10Communication System: OFDM 5250 MHz; Frequency: 836.6 MHzFrequency: 5320 MHz; Duty Cycle: 1:4.15Duty Cycle: 1:1

 * Medium parameters used: f = 836 MHz; σ = 0.988 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3 Medium parameters used: f = 5318 MHz; σ = 5.33 mho/m; ε_r = 44.3; ρ = 1000 kg/m^3

- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(8.38, 8.38, 8.38)ConvF(3.72, 3.72, 3.72)

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

Channel 190 Test/Zoom Scan (20x36x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 31.8 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 2.02 W/kg

SAR(1 g) = 1.37 mW/g; SAR(10 g) = 0.899 mW/g

Maximum value of SAR (measured) = 1.73 mW/g

Channel 64 Test/Zoom Scan (20x36x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 13.4 V/m; Power Drift = -0.187 dB

Peak SAR (extrapolated) = 1.94 W/kg

SAR(1 g) = 0.616 mW/g; SAR(10 g) = 0.226 mW/g

Maximum value of SAR (measured) = 1.13 mW/g
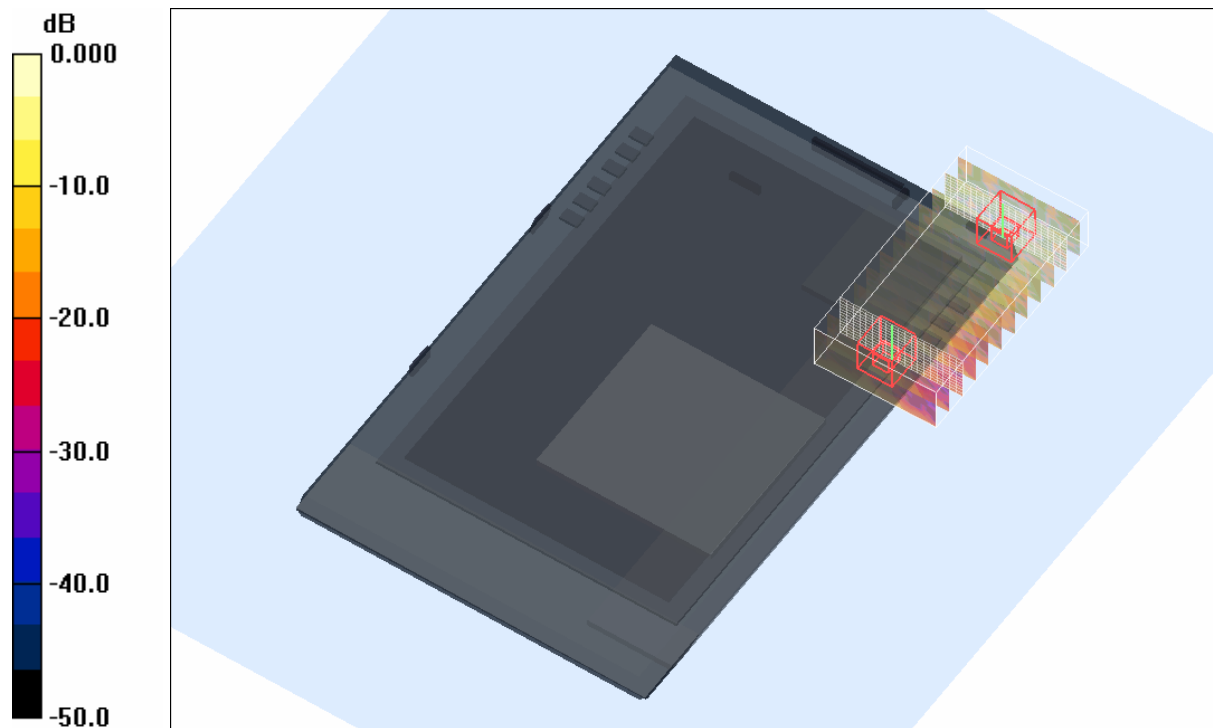
0 dB = 1.13mW/g

SAR MEASUREMENT PLOT 19

Ambient Temperature   **20.6 Degrees Celsius**
Liquid Temperature   **20.2 Degrees Celsius**
Humidity   **35.0 %**

APPENDIX B TEST SETUP PHOTOGRAPHS

Tablet Position Ant. IN

Tablet Position Ant. OUT

APPENDIX C PLOTS OF THE SAR MEASUREMENTS

Plots of the measured SAR distributions inside the phantom are given in this Appendix for all tested configurations. The spatial peak SAR values were assessed with the procedure described in this report.

Table: SAR MEASUREMENT RESULTS – 850MHz GPRS

Test Position	Plot No.	Test Channel	Test Freq (MHz)
Tablet Ant. OUT GPRS Class 10	1	128	824.2
	2	190	836.6
	3	251	848.8
Tablet Ant. OUT GPRS Class 11	4	190	836.6
Z-Axis graphs for Plots 1 to 4			
Tablet Ant. OUT GPRS Class 12	5	190	836.6
Tablet Ant. IN GPRS Class 10	6	190	836.6
Z-Axis graphs for Plots 5 to 6			

Table: SAR MEASUREMENT RESULTS – 1900MHz GPRS

Test Position	Plot No.	Test Channel	Test Freq (MHz)
Tablet Ant. OUT GPRS Class 12	7	512	1850.2
	8	661	1880.0
	9	810	1909.8
Tablet Ant. OUT GPRS Class 10	10	810	1880.0
Z-Axis graphs for Plots 7 to 10			
Tablet Ant. OUT GPRS Class 11	11	810	1880.0
Tablet Ant. IN GPRS Class 12	12	810	1880.0
Z-Axis graphs for Plots 11 to 12			

Table: SAR MEASUREMENT RESULTS – 850MHz UMTS

Test Position	Plot No.	Test Channel	Test Freq (MHz)
Tablet Ant. IN	-	4183	836.6
Tablet Ant. OUT	13	4132	826.4
	14	4183	836.6
	15	4233	846.6
Z-Axis graphs for Plots 13 to 15			

Table: SAR MEASUREMENT RESULTS – 1900MHz UMTS

Test Position	Plot No.	Test Channel	Test Freq (MHz)
Tablet Ant. IN	-	9400	1880.0
Tablet Ant. OUT	16	9262	1852.4
	17	9400	1880.0
	18	9538	1907.6
Z-Axis graphs for Plots 16 to 18			

Table: MULTIBAND SAR MEASUREMENT RESULTS – 900MHz GPRS and 5.2GHz OFDM (533AN_HMW**)**

Test Position	Plot No.	Test Channels	Test Freq (MHz)
Tablet	19	190/64	836.6/5320

Table: Validation Plots

Plot 20	Validation 900 MHz 31st August 2008
Plot 21	Validation 900 MHz 1st September 2008
Plot 22	Validation 900 MHz 11th September 2008
Z-Axis graphs for Plots 19 to 22	
Plot 23	Validation 1950 MHz 27th August 2008
Plot 24	Validation 5200 MHz 11th September 2008
Z-Axis graphs for Plots 23 to 24	

Test Date: 31 August 2008

File Name: Tablet 850 MHz GPRS Class 10 Antenna Out 31-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

 * Communication System: 850MHz 1900 MHz GPRS Class 10; Frequency: 824.2 MHz; Duty Cycle: 1:4.15
 * Medium parameters used: f = 824 MHz; σ = 0.975 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(6.03, 6.03, 6.03)
- Phantom: Flat Phantom 9.1; Serial: P 9.1; Phantom section: Flat 2.2 Section

Channel 128 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.59 mW/g

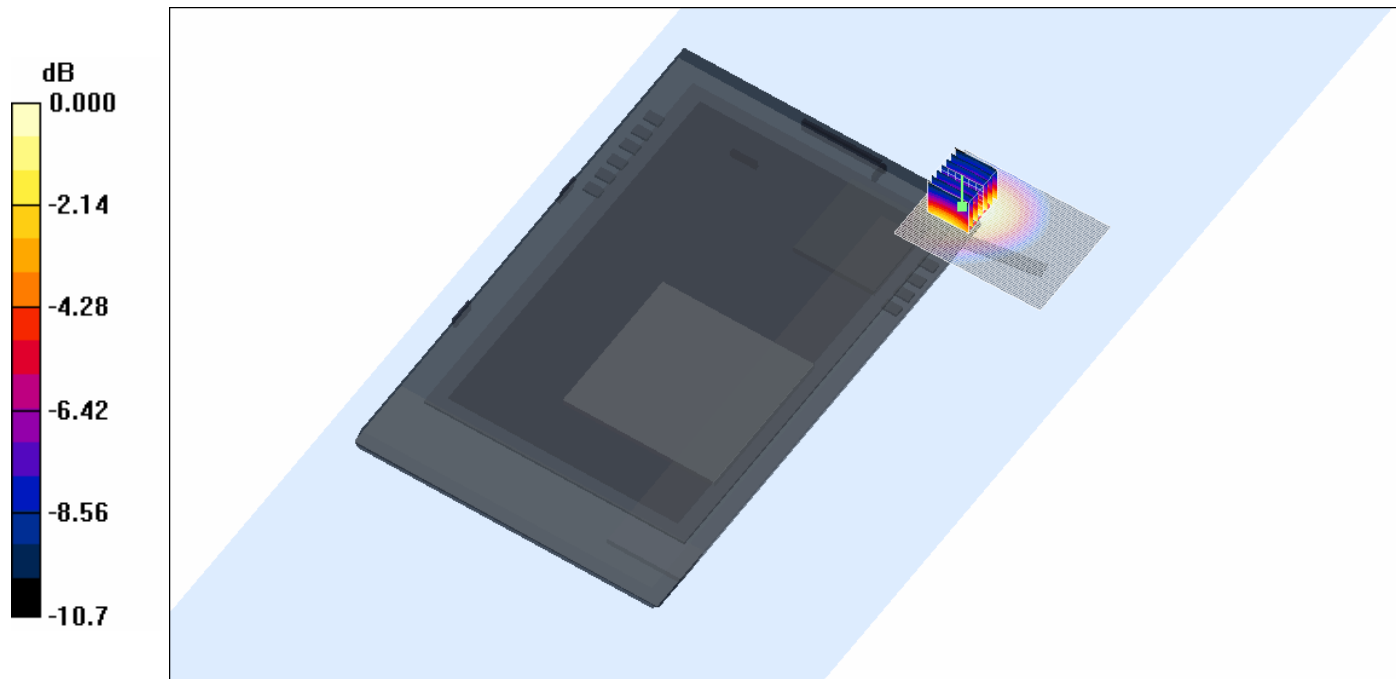## Channel 128 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.1 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 2.01 W/kg
SAR(1 g) = 1.44 mW/g; SAR(10 g) = 0.954 mW/g
Maximum value of SAR (measured) = 1.57 mW/g

0 dB = 1.57mW/g

SAR MEASUREMENT PLOT 1

Ambient Temperature   **20.5 Degrees Celsius**
Liquid Temperature   **20.3 Degrees Celsius**
Humidity   **51.0 %**

Test Date: 31 August 2008

File Name: Tablet 850 MHz GPRS Class 10 Antenna Out 31-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

* Communication System: 850MHz 1900 MHz GPRS Class 10; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
* Medium parameters used: f = 836 MHz; σ = 0.987 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(6.03, 6.03, 6.03)
- Phantom: Flat Phantom 9.1; Serial: P 9.1; Phantom section: Flat 2.2 Section

Channel 190 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.70 mW/g

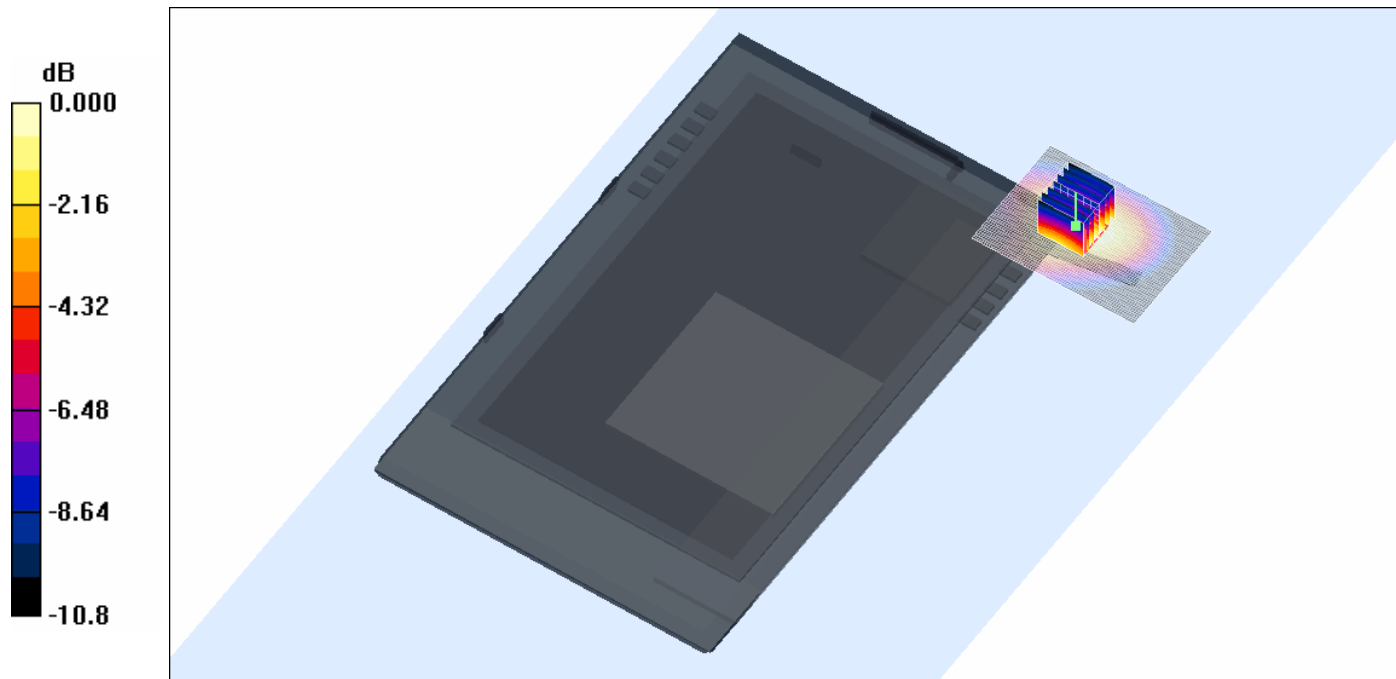## Channel 190 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 41.4 V/m; Power Drift = -0.192 dB
Peak SAR (extrapolated) = 2.12 W/kg
SAR(1 g) = 1.55 mW/g; SAR(10 g) = 1.02 mW/g
Maximum value of SAR (measured) = 1.69 mW/g

0 dB = 1.69mW/g

SAR MEASUREMENT PLOT 2

Ambient Temperature   **20.5 Degrees Celsius**
Liquid Temperature   **20.3 Degrees Celsius**
Humidity   **51.0 %**

Test Date: 31 August 2008

File Name: Tablet 850 MHz GPRS Class 10 Antenna Out 31-08-08.da4

DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

 * Communication System: 850MHz 1900 MHz GPRS Class 10; Frequency: 848.8 MHz; Duty Cycle: 1:4.15

 * Medium parameters used: f = 848 MHz; σ = 1 mho/m; $ε_r$ = 53.6; ρ = 1000 kg/m³

- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(6.03, 6.03, 6.03)

- Phantom: Flat Phantom 9.1; Serial: P 9.1; Phantom section: Flat 2.2 Section

Channel 251 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.65 mW/g

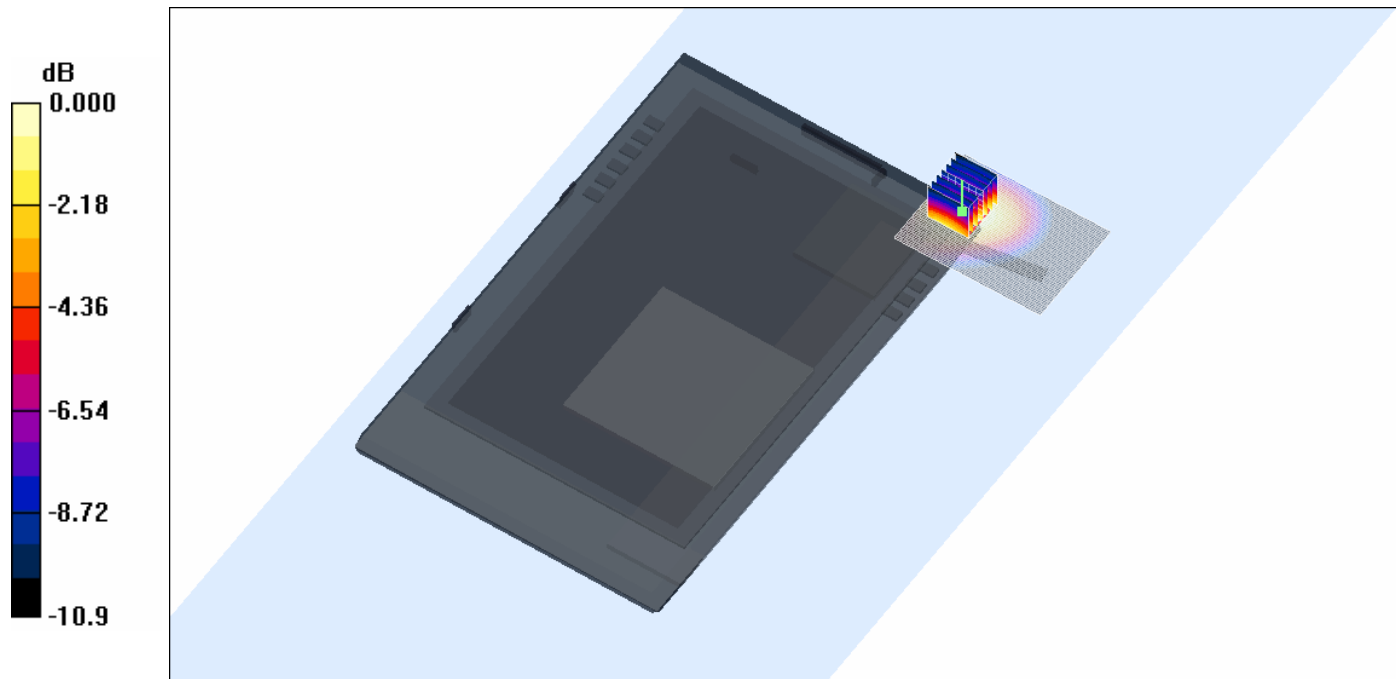## Channel 251 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.4 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 2.07 W/kg

SAR(1 g) = 1.49 mW/g; SAR(10 g) = 0.981 mW/g

Maximum value of SAR (measured) = 1.63 mW/g

0 dB = 1.63mW/g

SAR MEASUREMENT PLOT 3

Ambient Temperature	**20.5 Degrees Celsius**
Liquid Temperature	**20.3 Degrees Celsius**
Humidity	**51.0 %**

Test Date: 31 August 2008

File Name: Tablet 850 MHz GPRS Class 11 Antenna Out 31-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

* Communication System: 850MHz 1900 MHz GPRS Class 11; Frequency: 836.6 MHz; Duty Cycle: 1:3.1125
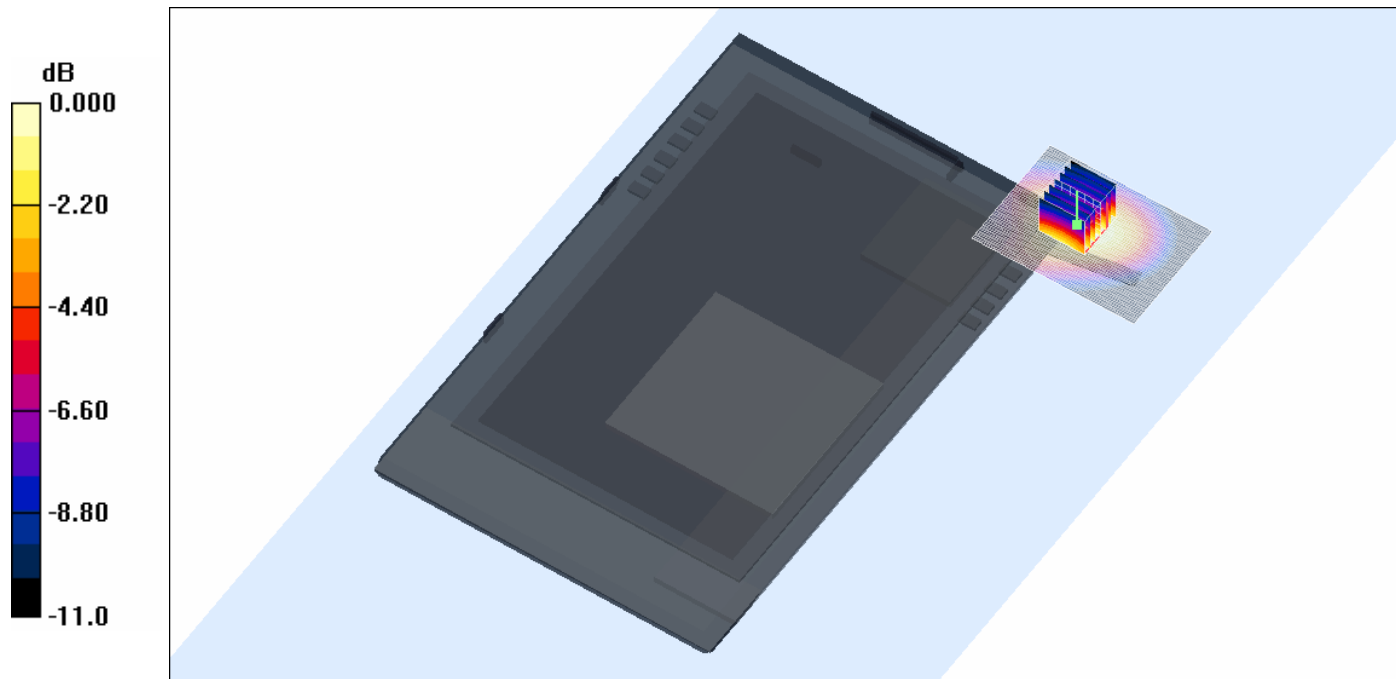* Medium parameters used: f = 836 MHz; σ = 0.987 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(6.03, 6.03, 6.03)
- Phantom: Flat Phantom 9.1; Serial: P 9.1; Phantom section: Flat 2.2 Section

Channel 190 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.30 mW/g

Channel 190 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 35.5 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.772 mW/g
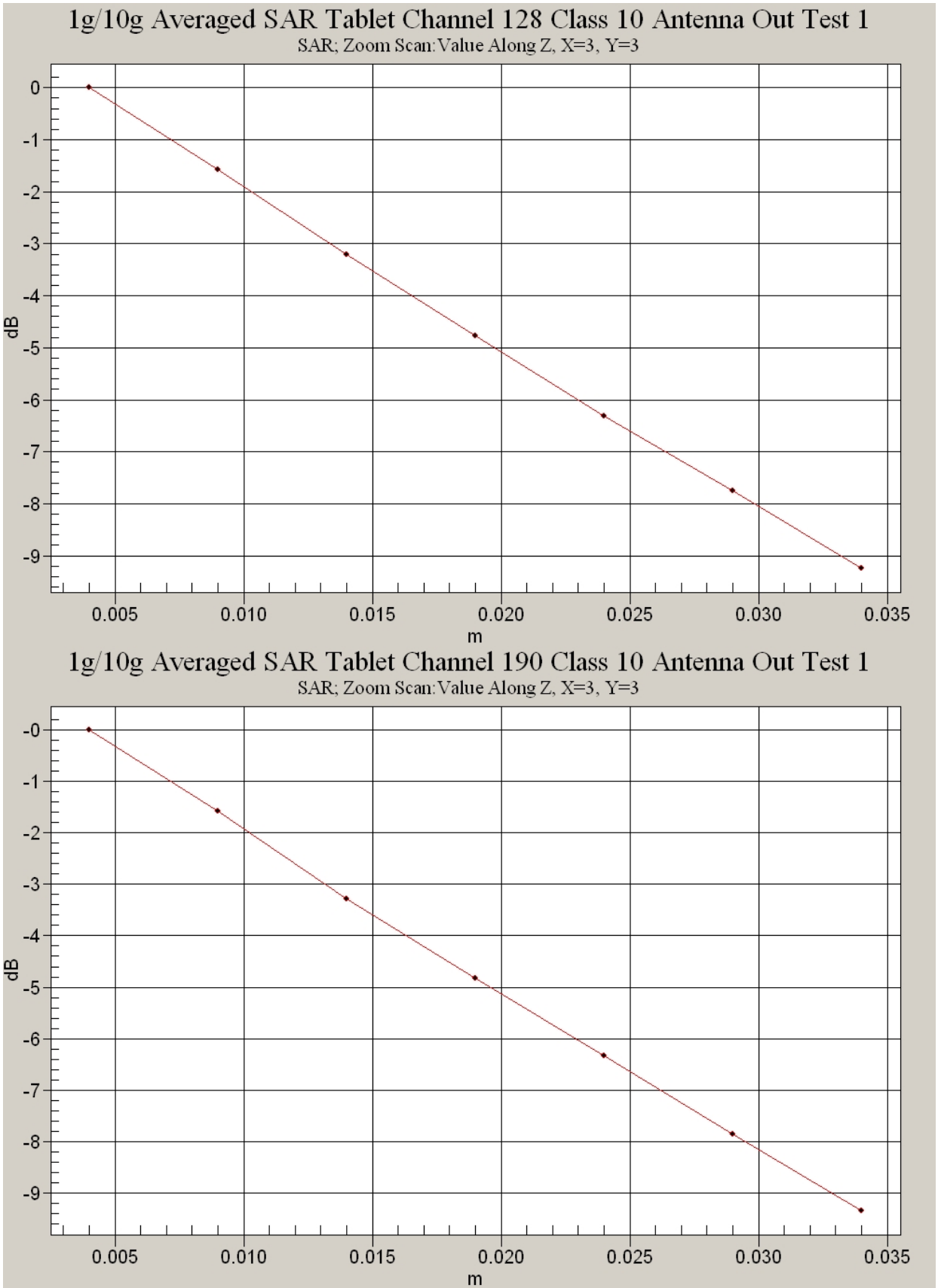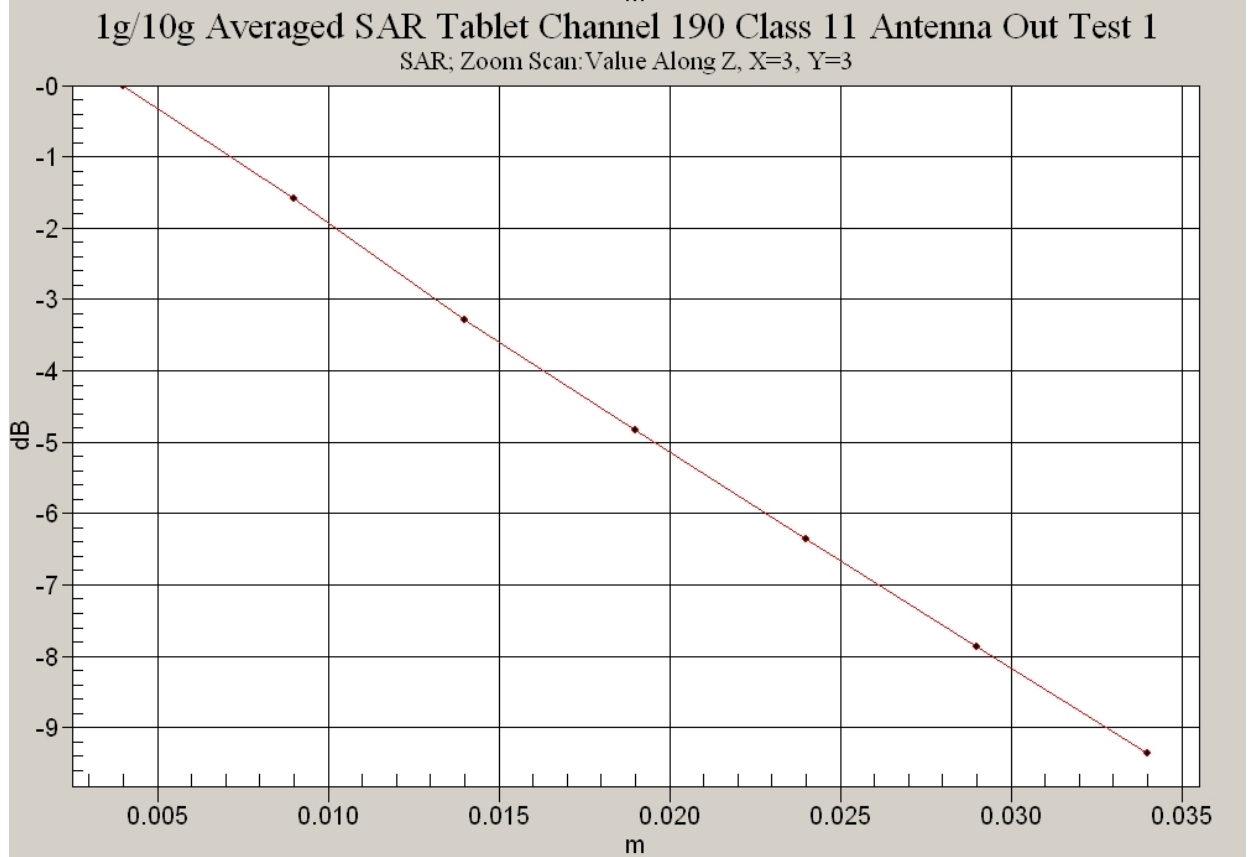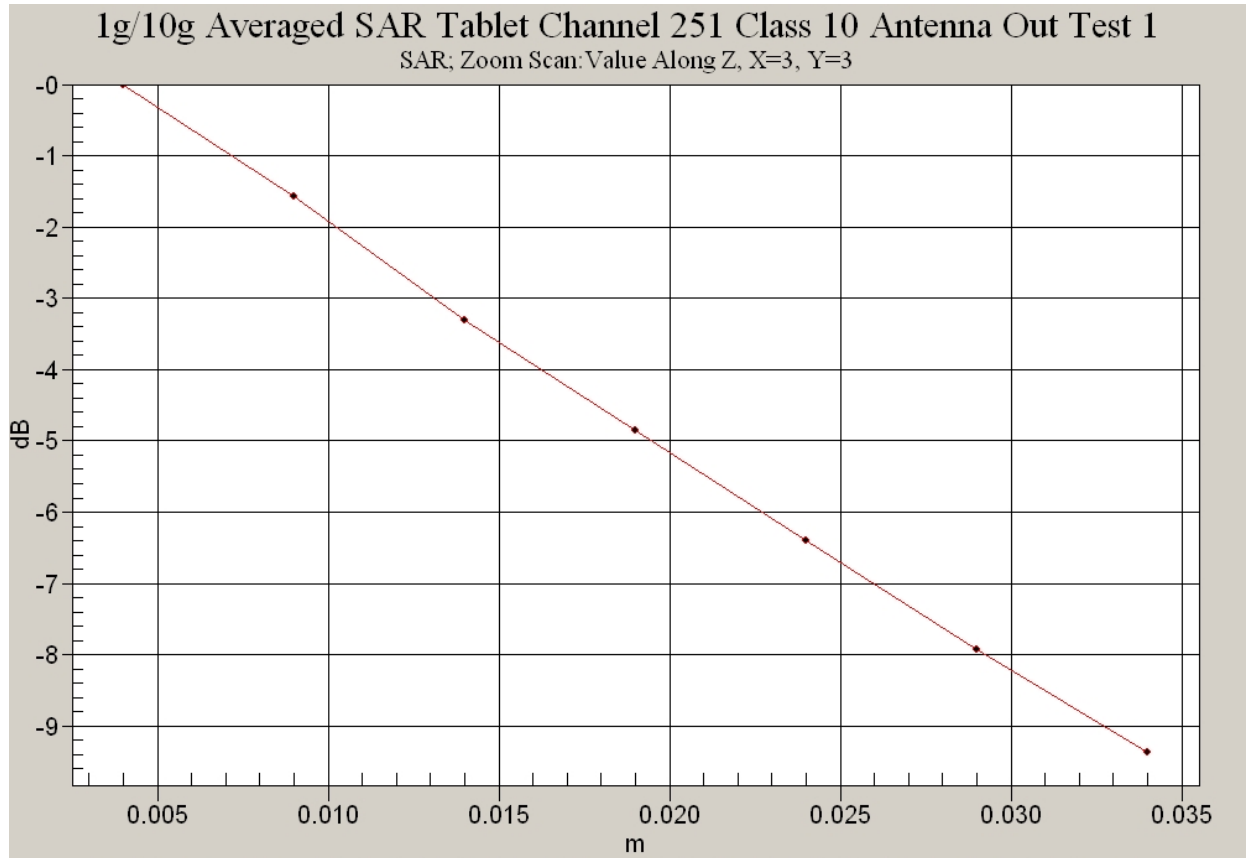Maximum value of SAR (measured) = 1.28 mW/g

0 dB = 1.28mW/g

SAR MEASUREMENT PLOT 4

Ambient Temperature   **20.5 Degrees Celsius**
Liquid Temperature   **20.3 Degrees Celsius**
Humidity   **51.0 %**

1g/10g Averaged SAR Tablet Channel 128 Class 10 Antenna Out Test 1
SAR; Zoom Scan:Value Along Z, X=3, Y=3

1g/10g Averaged SAR Tablet Channel 190 Class 10 Antenna Out Test 1
SAR; Zoom Scan:Value Along Z, X=3, Y=3

1g/10g Averaged SAR Tablet Channel 251 Class 10 Antenna Out Test 1
SAR; Zoom Scan:Value Along Z, X=3, Y=3

1g/10g Averaged SAR Tablet Channel 190 Class 11 Antenna Out Test 1
SAR; Zoom Scan:Value Along Z, X=3, Y=3

Test Date: 31 August 2008

File Name: Tablet 850 MHz GPRS Class 12 Antenna Out 31-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

 * Communication System: 850MHz 1900 MHz GPRS Class 12; Frequency: 836.6 MHz; Duty Cycle: 1:2.075
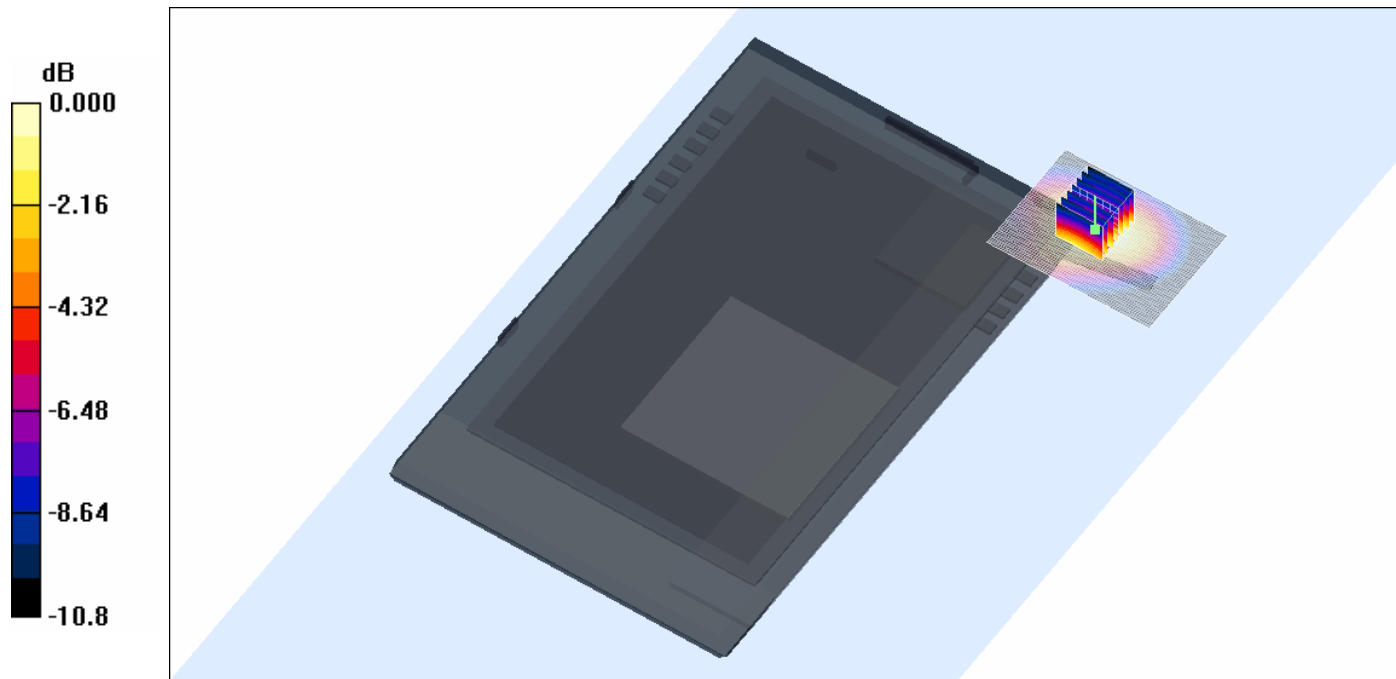 * Medium parameters used: f = 836 MHz; σ = 0.987 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(6.03, 6.03, 6.03)
- Phantom: Flat Phantom 9.1; Serial: P 9.1; Phantom section: Flat 2.2 Section

Channel 190 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.857 mW/g

Channel 190 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.8 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.773 mW/g; SAR(10 g) = 0.513 mW/g
Maximum value of SAR (measured) = 0.839 mW/g

0 dB = 0.839mW/g

SAR MEASUREMENT PLOT 5

Ambient Temperature   **20.5 Degrees Celsius**
Liquid Temperature   **20.3 Degrees Celsius**
Humidity   **51.0 %**

Test Date: 31 August 2008
File Name: Tablet 850 MHz GPRS Class 10 Antenna In 31-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

 * Communication System: 850MHz 1900 MHz GPRS Class 10; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
 * Medium parameters used: f = 836 MHz; σ = 0.987 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(6.03, 6.03, 6.03)
- Phantom: Flat Phantom 9.1; Serial: P 9.1; Phantom section: Flat 2.2 Section

Channel 190 Test/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.012 mW/g

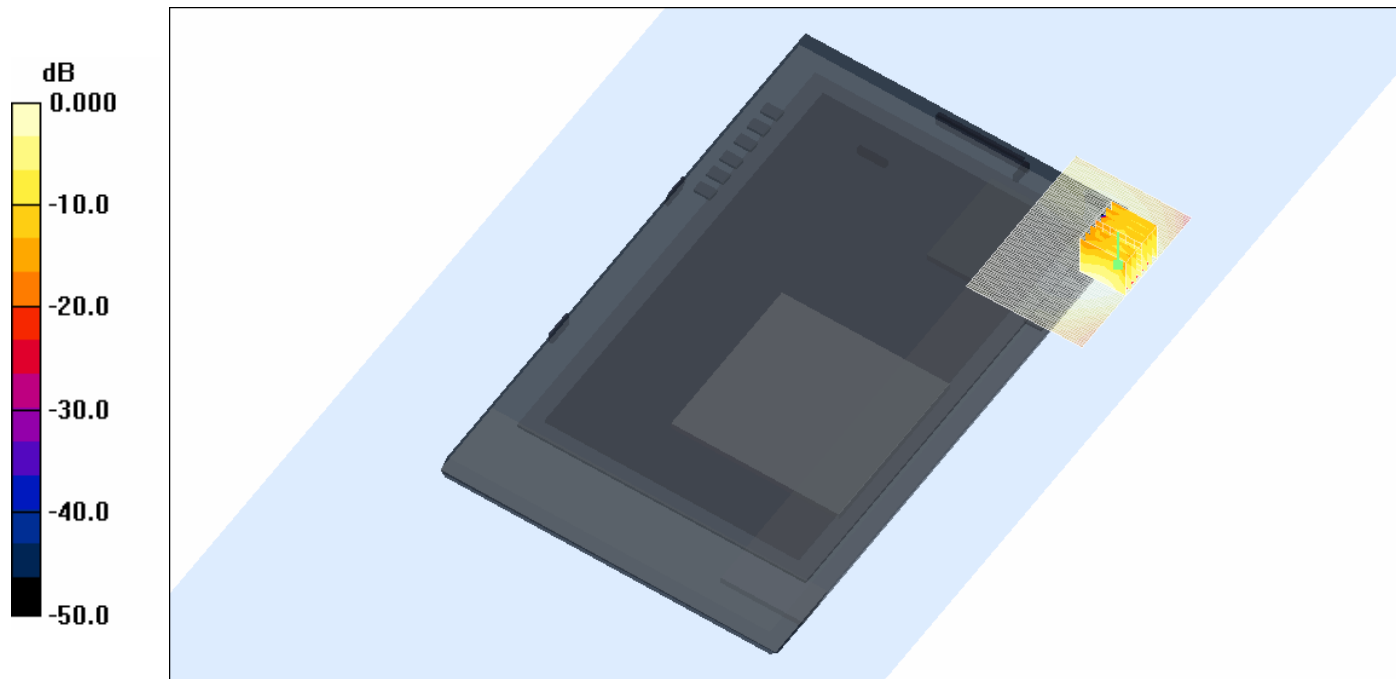## Channel 190 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.25 V/m; Power Drift = 0.201 dB
Peak SAR (extrapolated) = 0.019 W/kg
SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.0059 mW/g
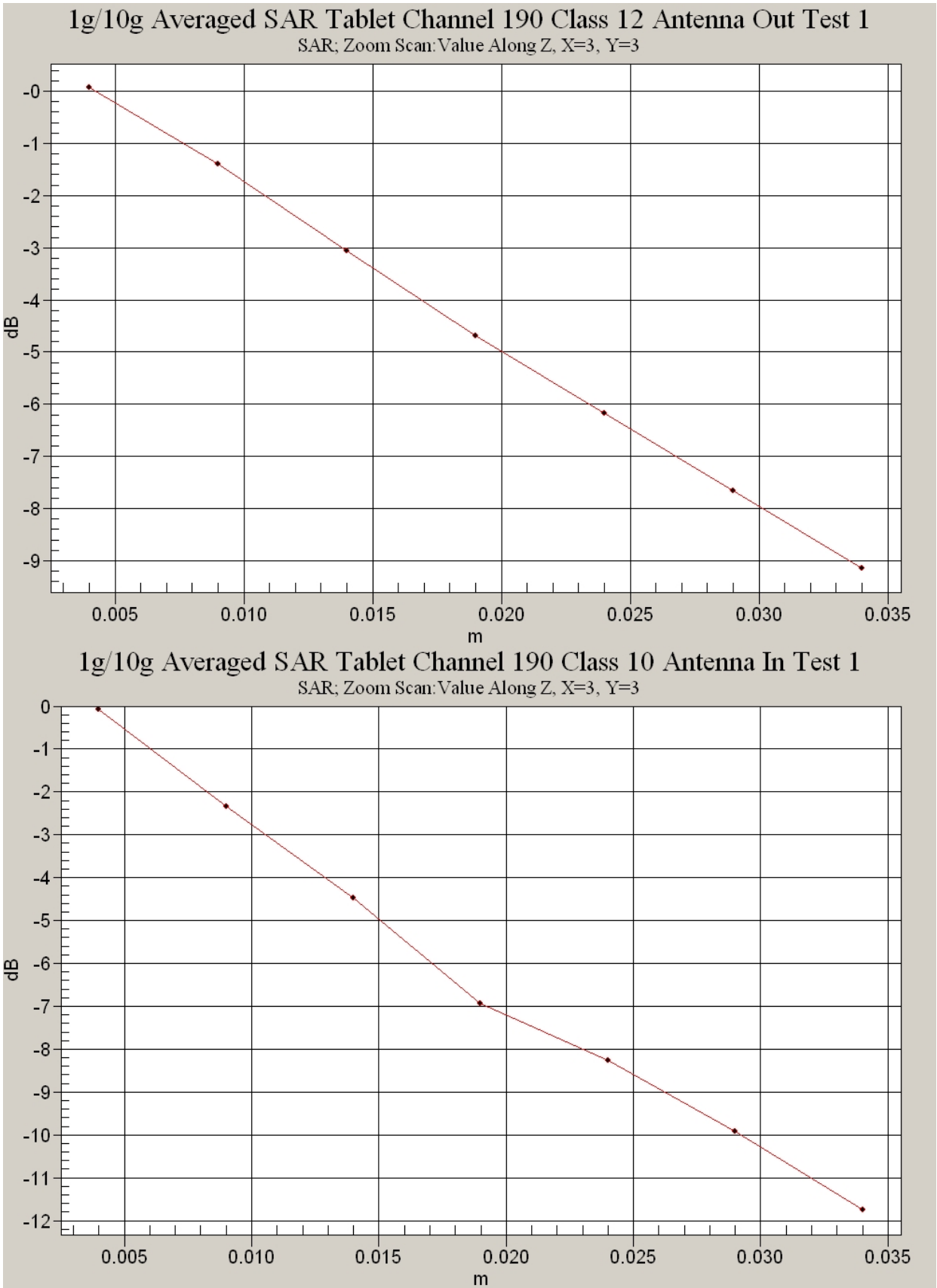Maximum value of SAR (measured) = 0.012 mW/g

0 dB = 0.012mW/g

SAR MEASUREMENT PLOT 6

Ambient Temperature   **20.5 Degrees Celsius**
Liquid Temperature   **20.3 Degrees Celsius**
Humidity   **51.0 %**

1g/10g Averaged SAR Tablet Channel 190 Class 12 Antenna Out Test 1
SAR; Zoom Scan: Value Along Z, X=3, Y=3

1g/10g Averaged SAR Tablet Channel 190 Class 10 Antenna In Test 1
SAR; Zoom Scan: Value Along Z, X=3, Y=3

Test Date: 27 August 2008

File Name: Tablet 1900 MHz GPRS Class 12 Antenna Out 27-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

 * Communication System: 850MHz 1900 MHz GPRS Class 12; Frequency: 1850.2 MHz; Duty Cycle: 1:2.075
 * Medium parameters used: f = 1849.8 MHz; σ = 1.47 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(4.79, 4.79, 4.79)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 512 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.66 mW/g

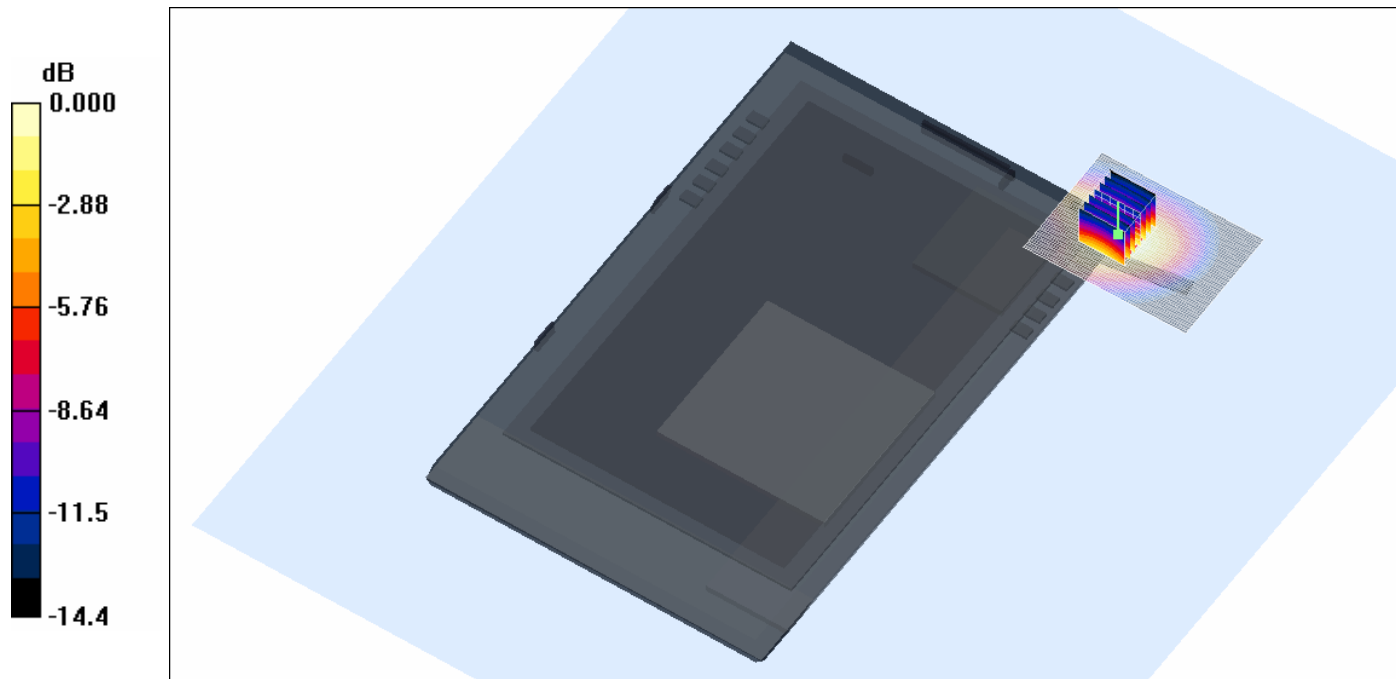## Channel 512 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.3 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 2.53 W/kg
SAR(1 g) = 1.51 mW/g; SAR(10 g) = 0.895 mW/g
Maximum value of SAR (measured) = 1.65 mW/g

0 dB = 1.65mW/g

SAR MEASUREMENT PLOT 7

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**45.0 %**

Test Date: 27 August 2008

File Name: Tablet 1900 MHz GPRS Class 12 Antenna Out 27-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

 * Communication System: 850MHz 1900 MHz GPRS Class 12; Frequency: 1880 MHz; Duty Cycle: 1:2.075
 * Medium parameters used: f = 1881 MHz; σ = 1.49 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(4.79, 4.79, 4.79)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 661 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm

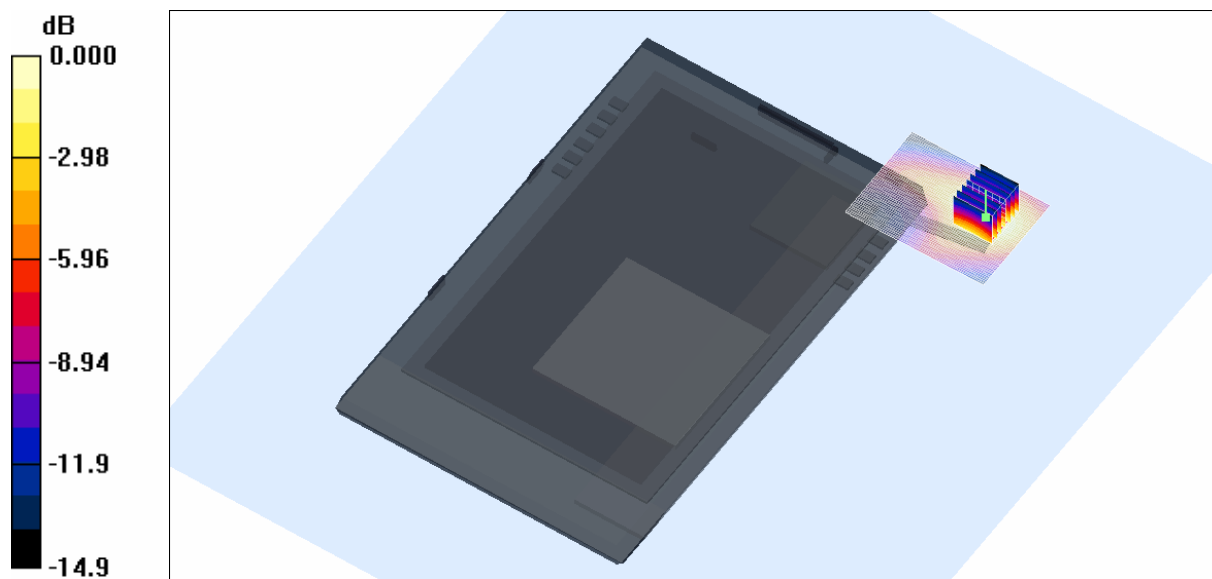Maximum value of SAR (interpolated) = 1.65 mW/g

Channel 661 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.8 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 2.59 W/kg
SAR(1 g) = 1.51 mW/g; SAR(10 g) = 0.890 mW/g
Maximum value of SAR (measured) = 1.65 mW/g

0 dB = 1.65mW/g

SAR MEASUREMENT PLOT 8

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**45.0 %**

Test Date: 27 August 2008

File Name: Tablet 1900 MHz GPRS Class 12 Antenna Out 27-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

 * Communication System: 850MHz 1900 MHz GPRS Class 12; Frequency: 1909.8 MHz; Duty Cycle: 1:2.075
 * Medium parameters used: f = 1909.6 MHz; σ = 1.51 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(4.79, 4.79, 4.79)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 810 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.62 mW/g

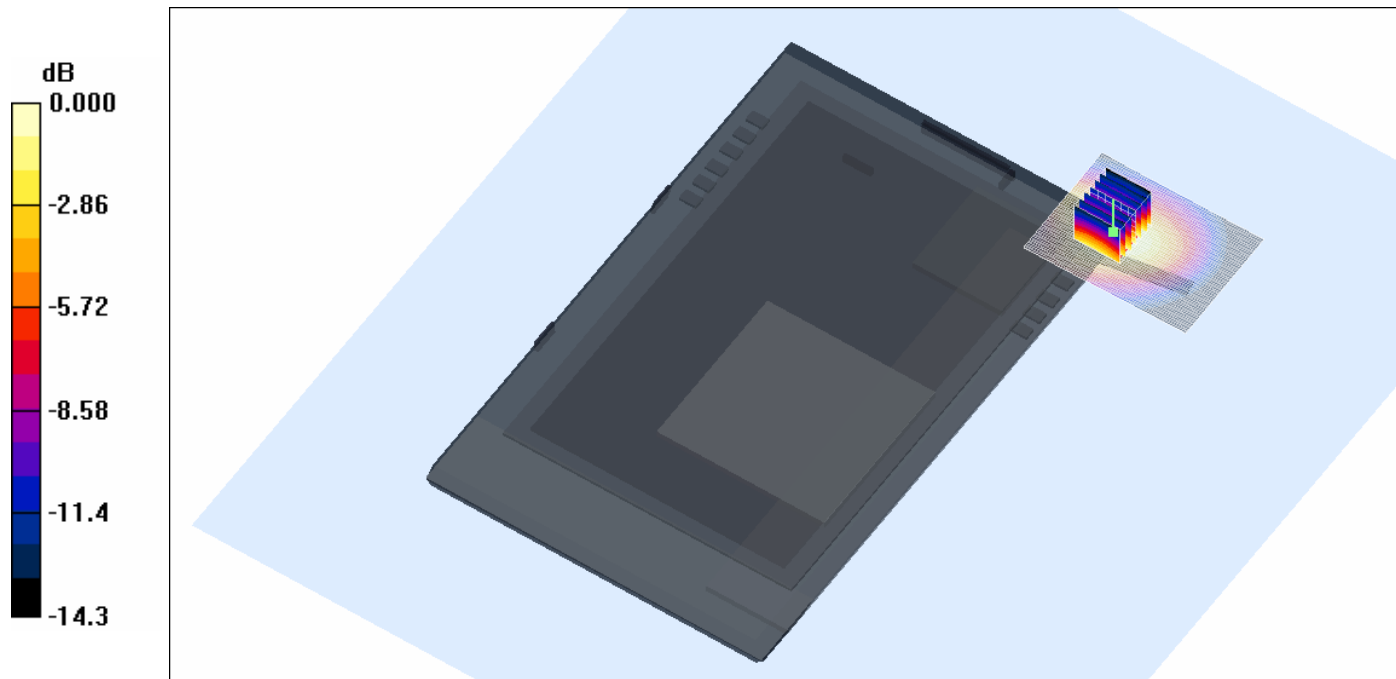## Channel 810 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.8 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 2.46 W/kg
SAR(1 g) = 1.46 mW/g; SAR(10 g) = 0.882 mW/g
Maximum value of SAR (measured) = 1.57 mW/g

0 dB = 1.57mW/g

SAR MEASUREMENT PLOT 9

Ambient Temperature   **20.1 Degrees Celsius**
Liquid Temperature   **19.8 Degrees Celsius**
Humidity   **45.0 %**

Test Date: 27 August 2008

File Name: Tablet 1900 MHz GPRS Class 10 Antenna Out 27-08-08.da4
DUT: Fujitsu Tablet Oneya with Sierra GSM/UMTS Module; Type: MC8781; Serial: IMEI: 354220010021398

* Communication System: 850MHz 1900 MHz GPRS Class 10; Frequency: 1880 MHz; Duty Cycle: 1:4.15
* Medium parameters used: f = 1881 MHz; σ = 1.49 mho/m; $ε_r$ = 50.8; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1380; ConvF(4.79, 4.79, 4.79)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 661 Test/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.990 mW/g

Channel 661 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.3 V/m; Power Drift = -0.119 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.895 mW/g; SAR(10 g) = 0.527 mW/g
Maximum value of SAR (measured) = 0.976 mW/g
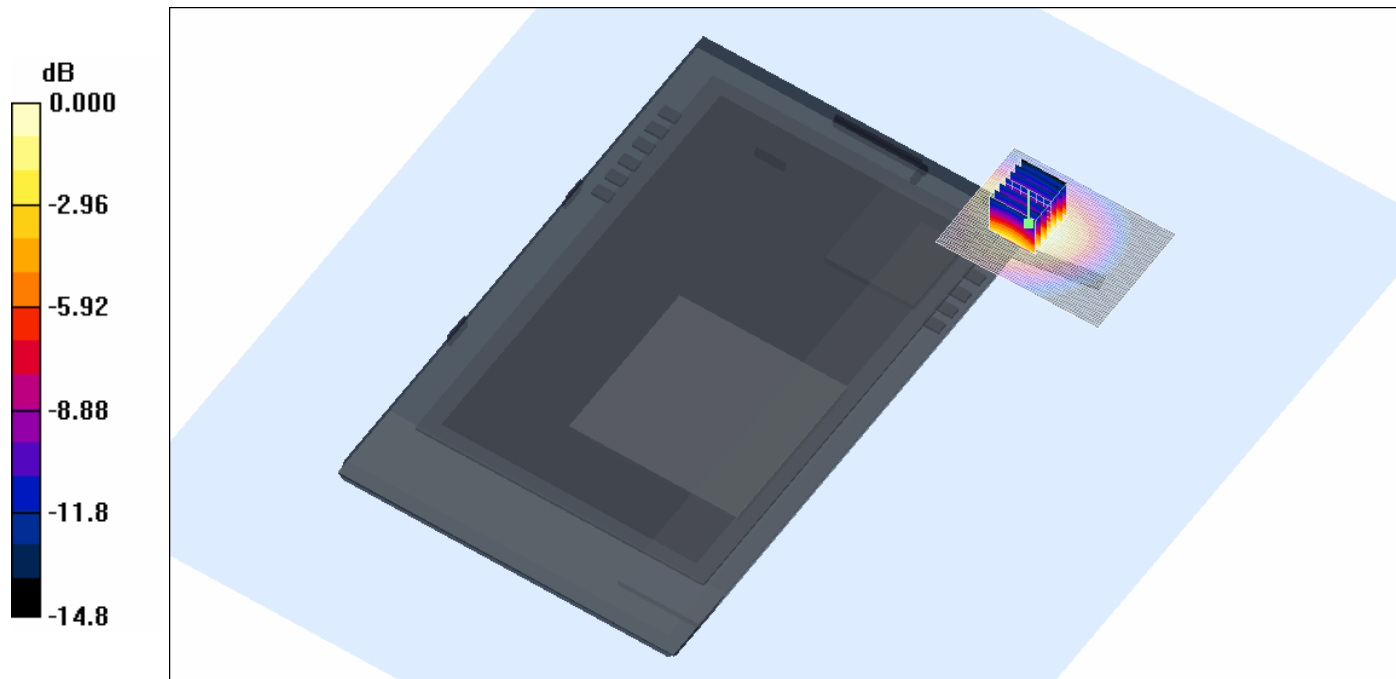
0 dB = 0.976mW/g

SAR MEASUREMENT PLOT 10

Ambient Temperature   **20.1 Degrees Celsius**
Liquid Temperature   **19.8 Degrees Celsius**
Humidity   **45.0 %**

1g/10g Averaged SAR Tablet Channel 512 GPRS Class 12 Ant Out Test 1

SAR; Zoom Scan:Value Along Z, X=3, Y=3

1g/10g Averaged SAR Tablet Channel 661 GPRS Class 12 Ant Out Test 1

SAR; Zoom Scan:Value Along Z, X=3, Y=3

1g/10g Averaged SAR Tablet Channel 810 GPRS Class 12 Ant Out Test 1
SAR; Zoom Scan: Value Along Z, X=3, Y=3

1g/10g Averaged SAR Tablet Channel 661 GPRS Class 10 Ant Out Test 1
SAR; Zoom Scan: Value Along Z, X=3, Y=3