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SAR TEST REPORT

Report Number: M070238_Cert_4965AGN_SAR_5.6

Test Sample:	Portable Tablet Convertible Notebook PC
Model Number:	T4220
Radio Modules:	WLAN 4965AGN & Bluetooth EYTF3CSFT
FCC ID:	EJE-WB0047
IC:	337J-WB0047
Tested for:	Fujitsu Australia Ltd
Date of Issue:	4th May 2007

NATA Accredited Laboratory Number: 5292

CONTENTS

SAR TEST REPORT

Report Number: M070238_CERT_4965AGN_SAR_5.6
FCC ID: EJE-WB0047
IC: 337J-WB0047

Test Sample:	Portable Tablet Convertible Notebook PC
Model Number:	T4220
Radio Modules:	WLAN 4965AGN and Bluetooth EYTF3CSFT
Interface type:	Mini-PCI module
Device Category:	Portable Transmitter
Test Device:	Sample B type Pre-Production Unit
FCC ID:	EJE-WB0047
IC:	337J-WB0047
RF exposure Category:	General Population/Uncontrolled
Manufacturer:	Fujitsu Limited, Japan
Test Standard/s:	**1.** Evaluating Compliance with FCC Guidelines For Human Exposure to Radiofrequency Electromagnetic Fields Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01) **2.** Evaluation Procedure for Mobile and Portable Radio Transmitters with respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields. RSS-102 Issue 1 (Provisional) September 25, 1999
Statement Of Compliance:	The Fujitsu Portable Tablet Computer T4220 with Wireless LAN model 4965AGN and Bluetooth module EYTF3CS FT complied* with the FCC General public/uncontrolled RF exposure limits of 1.6mW/g per requirements of 47CFR2.1093(d). It also complied with IC RSS-102 requirements. *. Refer to compliance statement section 9.
Test Date:	18th April to 1st May 2007
Tested for:	Fujitsu Australia Pty Ltd
Test Officer:	**Peter Jakubiec**
Authorised Signature:	**Chris Zombolas** **Technical Director** **EMC Technologies Pty Ltd**

SAR TEST REPORT
Portable Tablet Computer Wireless LAN
Model: 4965AGN
Report Number: M070238_CERT_4965AGN_SAR_5.6

1.0 INTRODUCTION

Testing was performed on the Fujitsu notebook PC, Model: T4220 with INTEL Mini-PCI Wireless LAN Module (Kedron 802.11a/b/g/n), Model: 4965AGN & TAIYO YUDEN Bluetooth Module, Model: EYTF3CSFT. The KEDRON module is an OEM product. The Mini-PCI Wireless LAN (WLAN) was tested in the dedicated host – LifeBook T Series, Model T4220.

The measurement test results mentioned herein only apply to the 5 GHz frequency band. An additional report titled M070238_Cert_4965AGN_SAR_2.4 applies to the 2450 MHz range.

2.0 GENERAL INFORMATION

(Information supplied by the client)

2.1 EUT (WLAN) Details

Transmitter:	Mini-Card Wireless LAN Module
Wireless Module:	Kedron (802.11a/b/g/n)
Model Number:	4965AGN
Manufacturer:	Intel Corporation
Modulation Type:	Direct Sequence Spread Spectrum (DSSS for 802.11b) Orthogonal Frequency Division Multiplexing (OFDM for 802.11g) Orthogonal Frequency Division Multiplexing (OFDM for 802.11a) Orthogonal Frequency Division Multiplexing (OFDM for 802.11n)
2.4 GHz (802.11b/g/n):	DBPSK, DQPSK, CCK, 16QAM and 64QAM
5 GHz (802.11a/n):	BPSK, QPSK, 16QAM and 64QAM
Maximum Data Rate:	802.11b = 11Mbps, 802.11g and 802.11a = 54Mbps 802.11n = 300 Mbps
Frequency Ranges:	2.412 –2.462 GHz for 11b/g/n 5.18 - 5.32 GHz and 5.745 - 5.825 GHz for 11a/n
Number of Channels:	11 channels for 11b/g/n 13 channels for 11a/n with 20 MHz bandwidth 6 channels for 11n with 40 MHz bandwidth
Antenna Types:	Tx: Yokowo Monopole Antenna - Model: CP335166 Location: Top edge of LCD screen Rx: Yokowo Monopole Antenna - Model: CP335176-02
Antenna gain:	Max antenna gain is less than 6 dBi. Refer antenna data provided separately
Power Supply:	3.3 VDC from PCI bus

Channels and Output power setting:

Channel and Mode	Frequency MHz	Average Output Power dBm
802.11b/g/n mode		
Channels 1, 6 and 11	2412, 2437 and 2462	15.5
802.11a/n mode with 20MHz Bandwidth		
Channels 36	5180	16.5
Channels 48	5240	16.5
Channels 64	5320	16.5
Channels 149	5745	17.5
Channels 157	5785	17.5
Channels 165	5825	17.5
802.11n mode with 40MHz Bandwidth		
Channels 38	5190	14.5
Channels 46	5230	16.5
Channels 62	5310	15.5
Channels 151	5755	17.5
Channels 159	5795	17.5

NOTE: For 2450 MHz SAR results refer to report titled “M070238_CERT_4965AGN_SAR_2.4”.

2.2 EUT (Bluetooth) Details

Transmitter: Bluetooth
Model Number: EYTF3CS FT
Manufacturer: TAIYO YUDEN
Network Standard: Bluetooth™ RF Test Specification
Modulation Type: Frequency Hopping Spread Spectrum (FHSS)
Frequency Range: 2402 MHz to 2480 MHz
Number of Channels: 79
Carrier Spacing: 1.0 MHz
Antenna Types: Yokowo Monopole Antenna, Model: CP335171
Location: Mid. Of top edge of LCD screen
Antenna gain: Max antenna gain is less than 6 dBi.
Refer antenna data provided separately
Max. Output Power: 4 dBm
Reference Oscillator: 16 MHz (Built-in)
Power Supply: 3.3 VDC from host.

Frequency allocation:

Channel Number	Frequency (MHz)	Bluetooth Utility power setting
1	**2402**	Power (Ext, Int) = 0, 96
2	2403	
-	-	
39	2440	
40	**2441**	
41	2442	
-	-	
78	2479	
79	**2480**	

2.3 EUT (Notebook PC) Details

EUT:	LifeBook T series
Model Name:	T4220
Serial Number:	Pre-production Sample
Manufacturer:	FUJITSU LIMITED
CPU Type and Speed:	Core2 Duo T7700 2.4GHz
LCD	12”SXGA+ / 12”XGA
Wired LAN:	Marvell 88E8055 : 10 Base-T/100 Base-TX/1000Base-T
Modem:	Agere MDC1.5 modem Model: D40
Port Replicator Model:	FPCPR65
AC Adapter Model:	SEC100P2-19.0(Sanken) / SEC100P3-19.0(Sanken, 3pin) / ADP-80NB A(Delta)
Voltage:	19 V
Current Specs:	4.22A
Watts:	80W

2.4 Test sample Accessories

One type of Fujitsu Lithium Ion Battery was used. SAR measurements were performed with the battery as shown below.

Standard Battery

Model	FPCBP155
V/mAh	10.8V/5200mAh
Cell No.	6

2.5 Test Signal, Frequency and Output Power

The Portable Tablet Computer Wireless LAN had a total of 11 channels (USA model) within the 2412 to 2462 MHz frequency band and 17 channels within the frequency range 5180 – 5825 MHz. In The frequency range 2412 MHz to 2462 MHz the device operates in 2 modes, OFDM and DSSS. Within the 5180 – 5825 MHz frequency range the device operates in OFDM mode only. For the SAR measurements the device was operating in continuous transmit mode using programming codes supplied by Fujitsu. The fixed frequency channels used in the testing are shown in Table Below.

The Bluetooth module operates over 79 channels within the frequency range 2402 to 2480 MHz. It is possible for the Bluetooth module to operate simultaneously with the WLAN module (co-transmission). For the SAR measurements the device was operating in continuous transmit mode using programming codes supplied by Fujitsu. The tests were conducted with only the WLAN operating and also with the WLAN and Bluetooth module operating in co-transmission. The fixed frequency channels used in the testing are shown in the table below. The Bluetooth interface utilizes dedicated antenna, for the purpose of this report labelled antenna “D”.

The test results mentioned in this report only apply to the 5200/5800MHz frequency range. An additional report titled “M070238_CERT_4965AGN_SAR_2.4” is specific to the 2450MHz range.

The WLAN modules can be configured in a number of different data rates. It was found that the highest source based time averaged power was measured when using the lowest data rates available in each mode. This lowest data rate corresponds to 6Mbps in OFDM mode and 1Mbps in DSSS mode.

The frequency span of the 2450 MHz range and 5600MHz Bands was more than 10MHz consequently; the SAR levels of the test sample were measured for lowest, centre and highest channels in the applicable modes.

There were no wires or other connections to the Portable Tablet Computer during the SAR measurements.

At the beginning and at the completion of the SAR tests, the conducted power of the device was measured after temporary modification of antenna connector inside the device's TX RX compartment. Measurements were performed with a calibrated Power Meter. The results of this measurement are listed in the following table.

Frequency and Conducted Power Results WLAN

Channel	Channel Frequency MHz	Data Rates	Maximum Conducted Output Power – Peak Measured (dBm)
Channel 36	5180	6	16.9
Channel 52	5260	6	16.7
Channel 64	5320	6	17.1
Channel 36	5180	HT0/20 MHz	16.8
Channel 52	5260	HT0/20 MHz	17.0
Channel 64	5320	HT0/20 MHz	17.3
Channel 36	5180	HT8/20 MHz	14.0
Channel 52	5260	HT8/20 MHz	14.3
Channel 64	5320	HT8/20 MHz	14.2
Channel 38	5190	HT0/40 MHz	15.1
Channel 46	5230	HT0/40 MHz	17.0
Channel 62	5310	HT0/40 MHz	16.5
Channel 38	5190	HT8/40 MHz	12.2
Channel 46	5230	HT8/40 MHz	14.5
Channel 62	5310	HT8/40 MHz	13.3
Channel 149	5745	6	17.9
Channel 157	5785	6	18.2
Channel 165	5825	6	18.6
Channel 149	5745	HT0/20 MHz	18.0
Channel 157	5785	HT0/20 MHz	18.3
Channel 165	5825	HT0/20 MHz	18.5
Channel 149	5745	HT8/20 MHz	15.4
Channel 157	5785	HT8/20 MHz	15.0
Channel 165	5825	HT8/20 MHz	15.1
Channel 151	5755	HT0/40 MHz	18.7
Channel 159	5795	HT0/40 MHz	18.9
Channel 151	5755	HT8/40 MHz	15.8
Channel 159	5795	HT8/40 MHz	16.2

Frequency and Conducted Power Results Bluetooth

Channel	Channel Frequency MHz	*Data Rate (Mbps)	Maximum Conducted Output Power - Peak Measured (dBm)
Channel 40	2441	N/A	3.9

2.6 Battery Status

The device battery was fully charged prior to commencement of measurement. Each SAR test was completed within 30 minutes. The battery condition was monitored by measuring the RF field at a defined position inside the phantom before the commencement of each test and again after the completion of the test. The uncertainty associated with the power drift was less than 12% and was assessed in the uncertainty budget.

2.7 Details of Test Laboratory

2.7.1 Location

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2.7.2 Accreditations

EMC Technologies Pty. Ltd. is accredited by the National Association of Testing Authorities, Australia (NATA). **NATA Accredited Laboratory Number: 5292**

EMC Technologies Pty Ltd is NATA accredited for the following standards:

AS/NZS 2772.1:	RF and microwave radiation hazard measurement
ACA:	Radio communications (Electromagnetic Radiation - Human Exposure) Standard 2003
FCC:	Guidelines for Human Exposure to RF Electromagnetic Field OET65C 01/01
CENELEC:	ES59005: 1998
EN 50360: 2001	Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz – 3 GHz)
EN 50361: 2001	Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300MHz – 3GHz)
IEEE 1528: 2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head Due to Wireless Communications Devices: Measurement Techniques.

Refer to NATA website www.nata.asn.au for the full scope of accreditation.

2.7.3 Environmental Factors

The measurements were performed in a shielded room with no background RF signals. The temperature in the laboratory was controlled to within 21±1°C, the humidity was in the range 52% to 63%. The liquid parameters were measured daily prior to the commencement of each test. Tests were performed to check that reflections within the environment did not influence the SAR measurements. The noise floor of the DASY4 SAR measurement system using the SN3563 probe was less than 5μV in both air and liquid mediums.

3.0 DESCRIPTION OF SAR MEASUREMENT SYSTEM

Applicable Head Configurations	: None
Applicable Body Configurations	: Tablet Position
	: Edge On Position

3.1 Probe Positioning System

The measurements were performed with the state-of-the-art automated near-field scanning system **DASY4 V4.7 Build 53** from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision 6-axis robot (working range greater that 1.1m), which positions the SAR measurement probes with a positional repeatability of better than ±0.02 mm. The DASY4 fully complies with the OET65 C (01-01), IEEE 1528 and EN50361 SAR measurement requirements.

3.2 E-Field Probe Type and Performance

The SAR measurements were conducted with SPEAG dosimetric probe EX3DV4 Serial: 3563 (5 GHz) designed in the classical triangular configuration and optimised for dosimetric evaluation. The probes have been calibrated and found to be accurate to better than ±0.25 dB. The probe is suitable for measurements close to material discontinuity at the surface of the phantom. The sensors of the probe are directly loaded with Schottky diodes and connected via highly resistive lines (length = 300 mm) to the data acquisition unit.

3.3 Data Acquisition Electronics

The data acquisition electronics (DAE3) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. The input impedance of the DAE3 box is 200 MΩ; the inputs are symmetrical and floating. Common mode rejection is above 80dB.Transmission to the PC-card is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The mechanical probe-mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

3.4.1 Validation Results @ 5GHz

The following table lists the dielectric properties of the tissue simulating liquid measured prior to SAR validation. The results of the validation are listed in columns 4 and 5. The forward power into the reference dipole for SAR validation was adjusted to 250 mW.

Validation Results (Dipole: SPEAG D5GHzV2 SN: 1008)

1. Validation Date	2. ∈r (measured)	3. σ (mho/m) (measured)	4. Measured SAR 1g (mW/g)	5. Measured SAR 10g (mW/g)
18th April 07	34.6	5.36	19.1	5.35
19th April 07	34.8	5.52	19.7	5.58
20th April 07	35.6	4.81	18.8	5.33
23rd April 07	35.6	4.88	20.4	5.75

3.4.2 Deviation from reference validation values

Currently no IEEE Std 1528-2003 SAR reference values are available in 5.6 GHz band, as a consequence all validation results were compared against the SPEAG calibration reference SAR values.

The SPEAG calibration reference SAR value is the SAR validation result obtained in a specific dielectric liquid using the validation dipole (D5GHzV2) during calibration. The measured one-gram SAR should be within 10% of the expected target reference values shown in below.

Deviation from reference validation values in 5.6 GHz band.

Frequency and Date	Measured SAR 1g (mW/g)	Measured SAR 1g (Normalized to 1W)	SPEAG Calibration reference SAR Value 1g (mW/g)	Deviation From SPEAG Reference (1g)
5200MHz 20th April 07	18.8	75.2	78.1	-3.6%
5200MHz 23th April 07	20.4	81.6	78.1	4.48%
5800MHz 18th April 07	19.1	76.4	78.2	-2.30%
5800MHz 19th April 07	19.7	78.8	78.2	0.77%

NOTE: All reference validation values are referenced to 1W input power.

3.4.3 Liquid Depth 15cm

During the SAR measurement process the liquid level was maintained to a level of a least 15cm with a tolerance of 0.5cm.

Photo of liquid Depth in Flat Phantom

3.5 Phantom Properties (Size, Shape, Shell Thickness)

The phantom used during the validations was the SAM Phantom model: TP - 1060 from SPEAG. It is a phantom with a single thickness of 2 mm and was filled with the required tissue simulating liquid. The SAM phantom support structures were all non-metallic and spaced more than one device width away in transverse directions.

For SAR testing in the body worn positions an AndreT Flat phantom P 10.1 was used. The phantom thickness is 2.0mm+/-0.2 mm and was filled with the required tissue simulating liquid. Table below provides a summary of the measured phantom properties. *Refer to Appendix C Part 4, for details of P 10.1 phantom dielectric properties and loss tangent*.

Phantom Properties

Phantom Properties	Required	Measured
Thickness of flat section	2.0mm ± 0.2mm (bottom section)	2.12-2.20mm
Dielectric Constant	<5.0	4.603 @ 300MHz
Loss Tangent	<0.05	0.0379 @ 2500MHz

Depth of Phantom	200mm
Length of Flat Section	620mm
Width of Flat Section	540mm

P 10.1 Flat Phantom

P 10.1 Flat Phantom

3.6 Tissue Material Properties

The dielectric parameters of the brain simulating liquid were measured prior to SAR assessment using the HP85070A dielectric probe kit and HP8753ES Network Analyser. The actual dielectric parameters are shown in the following table.

Measured Brain Simulating Liquid Dielectric Values for Validations

Frequency Band	∈r (measured range)	∈r (target)	σ (mho/m) (measured range)	σ (target)	ρ kg/m^3
5200 MHz Brain	35.6	36.0 ±5% (34.2 to 37.8)	4.81 to 4.88	4.76 ±5% (4.43 to 4.90)	1000
5800 MHz Brain	34.6 to 34.8	35.3 ±5% (33.5 to 37.1)	5.36 to 5.52	5.27 ±5% (5.01 to 5.53)	1000

NOTE: The brain liquid parameters were within the required tolerances of ±5%.

Measured Body Simulating Liquid Dielectric Values for 5200MHz range

Frequency Band	∈r (measured range)	∈r (target)	σ (mho/m) (measured range)	σ (target)	ρ kg/m^3
5180 MHz Muscle	49.1	49.0 ±10% (44.1 to 53.9)	5.53	5.3 ±10% (4.77 to 5.83)	1000
5260 MHz Muscle	49.0	48.9 ±10% (44.01 to 53.8)	5.65	5.4 ±10% (4.86 to 5.94)	1000
5320 MHz Muscle	48.7	48.8 ±10% (43.9 to 55.3)	5.81	5.4 ±10% (4.86 to 5.94)	1000

Measured Body Simulating Liquid Dielectric Values for 5800MHz range

Frequency Band	∈r (measured range)	∈r (target)	σ (mho/m) (measured range)	σ (target)	ρ kg/m^3
5745 MHz Muscle	48.2	48.3 ±10% (43.47 to 53.13)	6.23	5.9 ±10% (5.31 to 6.49)	1000
5785 MHz Muscle	48.0	48.2 ±10% (43.38 to 53.02)	6.32	6.0 ±10% (5.4 to 6.60)	1000
5825 MHz Muscle	47.9	48.2 ±10% (43.38 to 53.02)	6.41	6.0 ±10% (5.4 to 6.60)	1000

NOTE: The muscle liquid parameters were within the required tolerances of ±10%.

3.6.1 Liquid Temperature and Humidity

The humidity and dielectric/ambient temperatures were recorded during the assessment of the tissue material dielectric parameters. The difference between the ambient temperature of the liquid during the dielectric measurement and the temperature during tests was less than |2|°C.

Temperature and Humidity recorded for each day

Date	Ambient Temperature (°C)	Liquid Temperature (°C)	Humidity (%)
18th April 07	20.5	20.3	52
19th April 07	20.6	20.2	60
20th April 07	20.8	20.4	50
23rd April 07	20.1	19.6	61

3.7 Simulated Tissue Composition Used for SAR Test

A low loss clamp was used to position the Tablet underneath the phantom surface. Small pieces of foam were then used to press the Tablet flush against the phantom surface.
Refer to Appendix A for photographs of device positioning

Tissue Type: Muscle @ 5600MHz

Volume of Liquid: 60 Litres

EMCT Liquid

Composition
Distilled Water
Salt
Triton X-100

4.0 SAR MEASUREMENT PROCEDURE USING DASY4

The SAR evaluation was performed with the SPEAG DASY4 system. A summary of the procedure follows:

a) A measurement of the SAR value at a fixed location is used as a reference value for assessing the power drop of the EUT. The SAR at this point is measured at the start of the test, and then again at the end of the test.

b) The SAR distribution at the exposed flat section of the flat phantom is measured at a distance of 2.0 mm from the inner surface of the shell. The area covers the entire dimension of the EUT and the horizontal grid spacing is 15 mm x 15 mm. The actual Area Scan has dimensions of 81mm x 101mm surrounding the test device. Based on this data, the area of the maximum absorption is determined by Spline interpolation. The first “pre-scans” covered an area of 141 mm x 161 mm to ensure that the hotspot was correctly identified.

c) Around this point, a volume of 30 mm x 30 mm x 24 mm is assessed by measuring 7 x 7 x 8 points. On the basis of this data set, the spatial peak SAR value is evaluated with the following procedure:

(i) The data at the surface are extrapolated, since the centre of the dipoles is 1.0 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 2.0 mm. The extrapolation is based on a least square algorithm. A polynomial of the fourth order is calculated through the points in z-axes. This polynomial is then used to evaluate the points between the surface and the probe tip.

(ii) The maximum interpolated value is searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g and 10 g) are computed using the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the “Not a knot”- condition (in x, y and z-direction). The volume is integrated with the trapezoidal – algorithm. One thousand points (10 x 10 x 10) are interpolated to calculate the averages.

(iii) All neighbouring volumes are evaluated until no neighbouring volume with a higher average value is found.

(iv) The SAR value at the same location as in Step (a) is again measured to evaluate the actual power drift.

5.0 MEASUREMENT UNCERTAINTY

The uncertainty analysis is based on the template listed in the IEEE Std 1528-2003 for both Handset SAR tests and Validation uncertainty. The measurement uncertainty of a specific device is evaluated independently.

Uncertainty Budget for DASY4 Version V4.7 Build 53 – EUT SAR test 5GHz

a	b	c	d	e= f(d,k)	f	g	h=cxf/e	i=cxg/e	k
Uncertainty Component	Sec.	Tol. (%)	Prob. Dist.	Div.	C_i (1g)	C_i (10g)	1g u_i (%)	10g u_i (%)	v_i
Measurement System									
Probe Calibration (k=1) (numerical calibration)	E.2.1	6.8	N	1	1	1	6.8	6.8	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	2	R	1.73	1	1	1.2	1.2	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	1	N	1	1	1	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1	1	1.5	1.5	∞
RF Ambient Conditions	E.6.1	0.075	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.73	1	1	0.5	0.5	∞
Probe Positioning with respect to Phantom Shell	E.6.3	5.7	R	1.73	1	1	3.3	3.3	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	4	R	1.73	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E.4.2	2.9	N	1	1	1	2.9	2.9	11
Device Holder Uncertainty	E.4.1	3.6	N	1	1	1	3.6	3.6	7
Output Power Variation – SAR Drift Measurement	6.6.2	12.18	R	1.73	1	1	7.0	7.0	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity – Deviation from target values	E.3.2	10	R	1.73	0.64	0.43	3.7	2.5	∞
Liquid Conductivity – Measurement uncertainty	E.3.3	2.5	N	1	0.64	0.43	1.6	1.1	5
Liquid Permittivity – Deviation from target values	E.3.2	10	R	1.73	0.6	0.49	3.5	2.8	∞
Liquid Permittivity – Measurement uncertainty	E.3.3	2.5	N	1	0.6	0.49	1.5	1.2	5
Combined standard Uncertainty			RSS				14.2	13.7	154
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				28.3	27.36	

Estimated total measurement uncertainty for the DASY4 measurement system was ±14.2%. The extended uncertainty (K = 2) was assessed to be ±28.3% based on 95% confidence level. The uncertainty is not added to the measurement result.

Uncertainty Budget for DASY4 Version V4.7 Build 53 – Validation 5GHz

a	b	c	d	e= f(d,k)	f	g	h=cxf/e	i=cxg/e	k
Uncertainty Component	Sec.	Tol. (%)	Prob. Dist.	Div.	C_i (1g)	C_i (10g)	1g u_i (%)	10g u_i (%)	v_i
Measurement System									
Probe Calibration (k=1) (standard calibration)	E.2.1	6.6	N	1	1	1	6.6	6.6	∞
Axial Isotropy	E.2.2	4.7	R	1.73	1	1	2.7	2.7	∞
Hemispherical Isotropy	E.2.2	0	R	1.73	1	1	0.0	0.0	∞
Boundary Effect	E.2.3	2	R	1.73	1	1	1.2	1.2	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	1	N	1	1	1	1.0	1.0	∞
Response Time	E.2.7	0	R	1.73	1	1	0.0	0.0	∞
Integration Time	E.2.8	0	R	1.73	1	1	0.0	0.0	∞
RF Ambient Conditions	E.6.1	0.075	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.73	1	1	0.5	0.5	∞
Probe Positioning with respect to Phantom Shell	E.6.3	5.7	R	1.73	1	1	3.3	3.3	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	4	R	1.73	1	1	2.3	2.3	∞
Test Sample Related									
Dipole Axis to Liquid distance	E.4.2	2	N	1	1	1	2.0	2.0	11
Output Power Variation – SAR Drift Measurement	6.6.2	4.7	R	1.73	1	1	2.7	2.7	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity – Deviation from target values	E.3.2	5	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity – Measurement uncertainty	E.3.3	2.5	N	1	0.64	0.43	1.6	1.1	5
Liquid Permittivity – Deviation from target values	E.3.2	5	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity – Measurement uncertainty	E.3.3	2.5	N	1	0.6	0.49	1.5	1.2	5
Combined standard Uncertainty			RSS				10.3	10.0	154
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				20.5	20.02	

Estimated total measurement uncertainty for the DASY4 measurement system was ±10.3%. The extended uncertainty (K = 2) was assessed to be ±20.5% based on 95% confidence level. The uncertainty is not added to the measurement result.

6.0 QUIPMENT LIST AND CALIBRATION DETAILS

SPEAG DASY4 Version V4.7 Build 53

Equipment Type	Manufacturer	Model Number	Serial Number	Calibration Due	Used For this Test?
Robot - Six Axes	Staubli	RX90BL	N/A	Not applicable	Yes
Robot Remote Control	SPEAG	CS7MB	RX90B	Not applicable	Yes
SAM Phantom	SPEAG	N/A	1260	Not applicable	Yes
SAM Phantom	SPEAG	N/A	1060	Not applicable	No
Flat Phantom	AndreT	10.1	P 10.1	Not Applicable	Yes
Flat Phantom	AndreT	9.1	P 9.1	Not Applicable	No
Flat Phantom	SPEAG	PO1A 6mm	1003	Not Applicable	No
Data Acquisition Electronics	SPEAG	DAE3 V1	359	12-July-2007	No
Data Acquisition Electronics	SPEAG	DAE3 V1	442	13-October-2007	Yes
Probe E-Field - Dummy	SPEAG	DP1	N/A	Not applicable	No
Probe E-Field	SPEAG	ET3DV6	1380	12-Dec-2007	No
Probe E-Field	SPEAG	ET3DV6	1377	14-July-2007	No
Probe E-Field	SPEAG	ES3DV6	3029	Not Used	No
Probe E-Field	SPEAG	EX3DV4	3563	14-July-2007	Yes
Antenna Dipole 300 MHz	SPEAG	D300V2	1005	26-Oct-2007	No
Antenna Dipole 450 MHz	SPEAG	D450V2	1009	14-Dec-2008	No
Antenna Dipole 900 MHz	SPEAG	D900V2	047	6-July-2008	No
Antenna Dipole 1640 MHz	SPEAG	D1640V2	314	30-June-2008	No
Antenna Dipole 1800 MHz	SPEAG	D1800V2	242	3-July-2008	No
Antenna Dipole 1950 MHz	SPEAG	D1950V3	1113	5-March-2007	No
Antenna Dipole 3500 MHz	SPEAG	D3500V2	1002	1-July-2007	No
Antenna Dipole 2450 MHz	SPEAG	D2450V2	724	13-Dec-2008	Yes
Antenna Dipole 5600 MHz	SPEAG	D5GHzV2	1008	27-Oct-2007	No
RF Amplifier	EIN	603L	N/A	*In test	No
RF Amplifier	Mini-Circuits	ZHL-42	N/A	*In test	No
RF Amplifier	Mini-Circuits	ZVE-8G	N/A	*In test	Yes
Synthesized signal generator	Hewlett Packard	ESG-D3000A	GB37420238	*In test	Yes
RF Power Meter Dual	Hewlett Packard	437B	3125012786	*In test	Yes
RF Power Sensor	Hewlett Packard	8481H	1545A01634	*In test	Yes
RF Power Meter Dual	Gigatronics	8542B	1830125	30-May-2007	Yes
RF Power Sensor	Gigatronics	80301A	1828805	30-May-2007	Yes
RF Power Meter Dual	Hewlett Packard	435A	1733A05847	18-April-2007	Yes
RF Power Sensor	Hewlett Packard	8482A	2349A10114	18-April-2007	Yes
Network Analyser	Hewlett Packard	8714B	GB3510035	31-Aug-2007	No
Network Analyser	Hewlett Packard	8753ES	JP39240130	30-Sept-2007	Yes
Dual Directional Coupler	Hewlett Packard	778D	1144 04700	*In test	No
Dual Directional Coupler	NARDA	3022	75453	*In test	Yes

* Calibrated during the test for the relevant parameters.

7.0 OET BULLETIN 65 – SUPPLEMENT C TEST METHOD

Notebooks should be evaluated in normal use positions, typical for lap-held bottom-face only. However the number of positions will depend on the number of configurations the laptop can be operated in. The "LifeBook T series" can be used in either a conventional laptop position (see Appendix A1) or a Tablet configuration. The antenna location in the "LifeBook T series" is closest to the top of the screen when used in a conventional laptop configuration and due to the separation distances involved between the phantom and the laptop antenna, testing is not required in this position.

7.1.1 "Tablet" Position Definition (0mm spacing)

The device was tested in the 2.00 mm flat section of the AndreT Flat phantom P 10.1 for the "Tablet" position. The Transceiver was placed at the bottom of the phantom and suspended in such way that the back of the device was touching the phantom. This device orientation simulates the PC's normal use – being held on the lap of the user. A spacing of 0mm ensures that the SAR results represent a worst-case position.

7.1.2 "Edge On" Position

The device was tested in the (2.00 mm) flat section of the AndreT phantom for the "Edge On" position. The Antenna edge of the Transceiver was placed underneath the flat section of the phantom and suspended until the edge touched the phantom. *Refer to Appendix A for photos of measurement positions.*

7.2 List of All Test Cases (Antenna In/Out, Test Frequencies, User Modes)

The device has a fixed antenna. Depending on the measured SAR level up to three test channels with the test sample operating at maximum power, were recorded. The following table represents the matrix used to determine what testing was required. The worst case result was verified with the Bluetooth transmitting at full power while co-transmitting with the WLAN.

Testing configurations

Phantom Configuration	*Device Mode	Antenna	Test Configurations		
			Channel (Low)	Channel (Middle)	Channel (High)
Tablet	OFDM 5GHz All Bands	A		X	
		B		X	
Edge On	OFDM 5GHz All Bands	A		X	
		B		X	

Legend

X	Testing Required in this configuration
	Testing required in this configuration only if SAR of middle channel is more than 3dB below the SAR limit or it is the worst case.

7.3 FCC/IC RF Exposure Limits for Occupational/ Controlled Exposure

Spatial Peak SAR Limits For:	
Partial-Body:	8.0 mW/g (averaged over any 1g cube of tissue)
Hands, Wrists, Feet and Ankles:	20.0 mW/g (averaged over 10g cube of tissue)

7.4 FCC/IC RF Exposure Limits for Un-controlled/Non–occupational

Spatial Peak SAR Limits For:	
Partial-Body:	1.6 mW/g (averaged over any 1g cube of tissue)
Hands, Wrists, Feet and Ankles:	4.0 mW/g (averaged over 10g cube of tissue)

8.0 SAR MEASUREMENT RESULTS

The SAR values averaged over 1g tissue masses were determined for the sample device for all test configurations listed in section 7.2.

8.1 5.6 GHz Band SAR Results

SAR MEASUREMENT RESULTS Lower Band – OFDM Mode

Test Position	Plot No.	Ant	Bit rate Mode (Mbps)	Channel Bandwidth (MHz)	Test Channel	Test Freq (MHz)	Measured 1g SAR Results (mW/g)	Measured Drift (dB)
*Tablet Bluetooth ON	1	A	6	-	52	5240	Pre-scan Only	-
*Edge On Bluetooth ON	2	A	6	-	52	5240	Pre-scan Only	-
Edge On	3	A	HT0	20	52	5240	0.686	0.055
Edge On	4	B	HT0	20	52	5240	0.689	-0.331
Edge On	5	A	HT8	20	52	5240	0.439	0.084
Edge On	6	B	HT8	20	52	5240	0.430	-0.370
Edge On	7	A	HT0	40	46	5230	0.687	-0.223
Edge On	8	B	HT0	40	46	5230	0.623	-0.133
Edge On	9	A	HT8	40	46	5230	0.247	-0.468
Edge On	10	B	HT8	40	46	5230	0.229	-0.181
Edge On	11	B	6	-	52	5240	0.641	-0.254
Edge On	12	A	6	-	36	5180	0.699	-0.149
	13	A	6	-	52	5240	0.696	0.098
	14	A	6	-	64	5320	0.632	-0.291
Edge On with Bluetooth On	15	A	6	-	36	2441	0.719	-0.274

NOTE: The measurement uncertainty of 28.3% testing is not added to the result.
*This plot was used for identifying the "hotspot" only.

The highest SAR level recorded in the 5.2 GHz band was 0.719 mW/g as evaluated in a 1g cube of averaging mass. This value was obtained in Edge On position in 6 Mbps OFDM mode, utilizing channel 52 (5240MHz) and antenna A. The Bluetooth was ON at the Frequency of 2441 MHz.

SAR MEASUREMENT RESULTS Upper Band – OFDM Mode

Test Position	Plot No.	Ant	Bit rate Mode (Mbps)	Channel Bandwidth (MHz)	Test Channel	Test Freq (MHz)	Measured 1g SAR Results (mW/g)	Measured Drift (dB)
**Tablet Bluetooth ON	-	A	6	-	157	5785	Pre-scan Only	-
*Edge On Bluetooth ON	16	A	6	-	157	5785	Pre-scan Only	-
Edge On	17	A	HT8	20	157	5785	0.190	0.217
Edge On	18	B	HT8	20	157	5785	0.297	-0.241
Edge On	19	A	HT0	40	151	5755	0.589	-0.270
Edge On	20	A	HT0	40	159	5795	0.647	-0.103
Edge On	21	B	HT0	40	151	5755	0.705	0.089
Edge On	22	B	HT0	40	159	5795	0.482	-0.431
Edge On	23	A	HT8	40	151	5755	0.244	0.180
Edge On	24	A	HT8	40	159	5795	0.248	-0.309
Edge On	25	B	HT8	40	151	5755	0.382	0.023
Edge On	26	B	HT8	40	159	5795	0.375	0.380
Edge On	27	A	6	-	157	5785	0.598	-0.155
Edge On	28	B	6	-	149	5745	0.880	-0.394
	29	B	6	-	157	5785	0.926	-0.229
	30	B	6	-	165	5805	0.813	-0.160
Edge On	31	A	HT0	20	157	5785	0.578	0.098
Edge On	32	B	HT0	20	149	5745	0.909	-0.387
	33	B	HT0	20	157	5785	0.811	-0.095
	34	B	HT0	20	165	5805	0.773	-0.297
Edge On with Bluetooth On	35	B	6	-	157	5785	1.11	0.072

NOTE: The measurement uncertainty of 28.3% is not added to the result.
*This plot was used for identifying the “hotspot” only.
**The evaluation was not possible because the SAR levels were below the sensitivity of the measurement system.

The highest SAR level recorded in the 5.8 GHz band was 1.11 mW/g as evaluated in a 1g cube of averaging mass. This value was obtained in Edge On with Bluetooth On position in OFDM mode, utilizing channel 157 (5785MHz) and antenna B. The Bluetooth was ON at the Frequency of 2441 MHz.

9.0 COMPLIANCE STATEMENT

The Fujitsu notebook PC, Model: T4220 with INTEL Mini-PCI Wireless LAN Module (Kedron 802.11a/b/g/n), Model: 4965AGN & TAIYO YUDEN Bluetooth Module, Model: EYTF3CSF was found to comply with the FCC and RSS-102 SAR requirements.

The highest SAR level recorded was 1.11 mW/g for a 1g cube. This value was measured at 5785MHz (channel 157) in the “Edge On with Bluetooth On ” position in OFDM modulation mode at the antenna B. The Bluetooth was ON at the Frequency of 2441 MHz. This was below the limit of 1.6 mW/g for uncontrolled exposure, even taking into account the measurement uncertainty of 28.3 %.

APPENDIX A1 TEST SAMPLE PHOTOGRAPHS

T4220 Host - Conventional Laptop Configuration

T4220 Host - Tablet Configuration

APPENDIX A2 TEST SAMPLE PHOTOGRAPHS

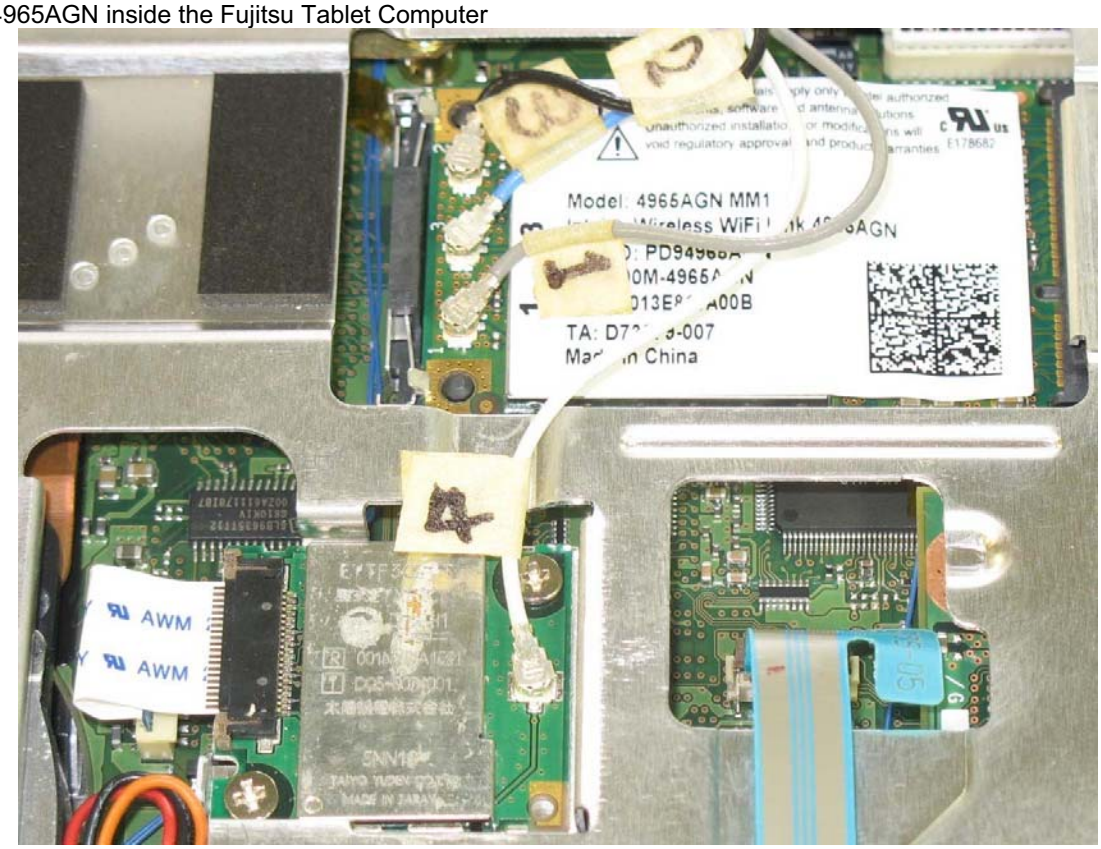
Model: 4965AGN – WLAN Module
Front

Back

APPENDIX A3 TEST SAMPLE PHOTOGRAPHS

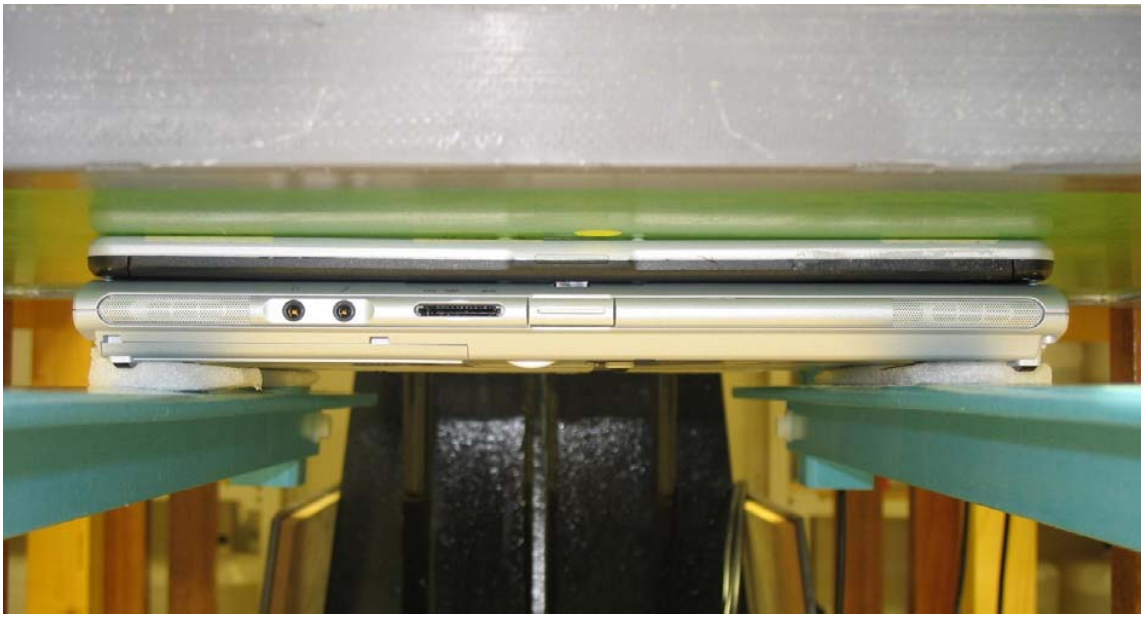
Battery 1

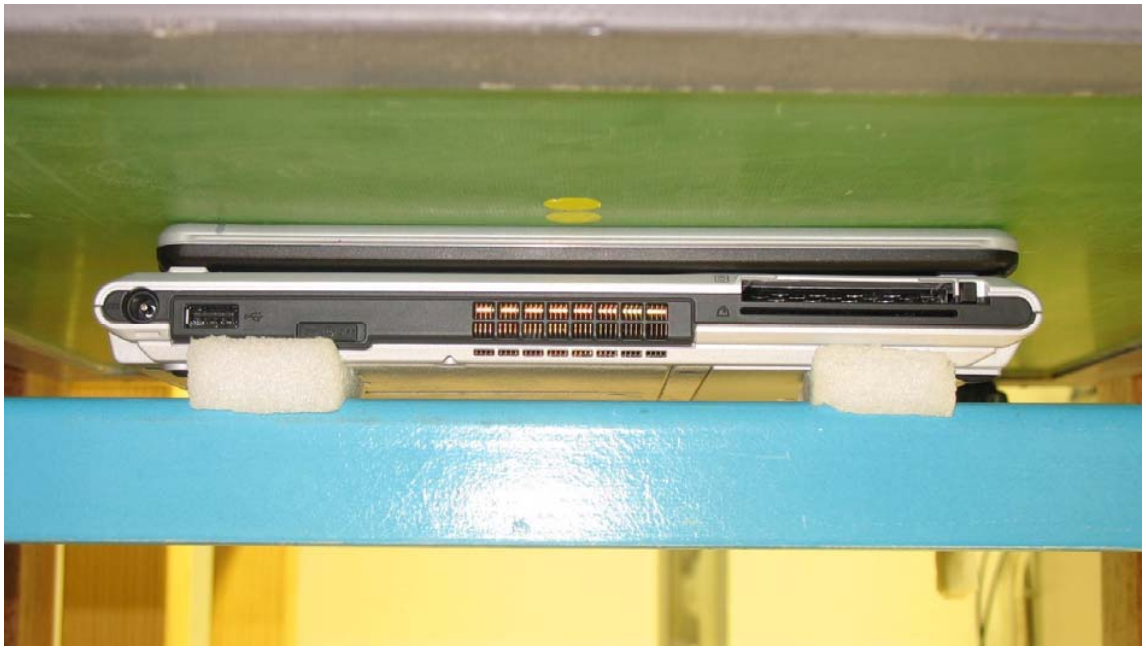
4965AGN inside the Fujitsu Tablet Computer



APPENDIX A4 TEST SETUP PHOTOGRAPHS

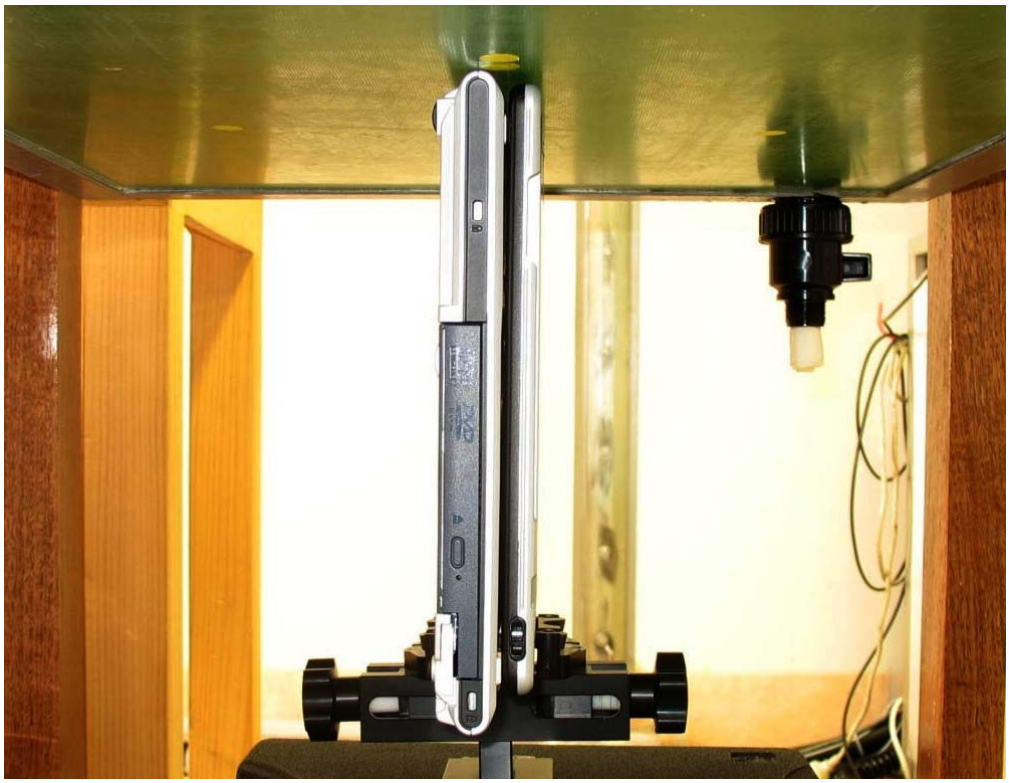
Tablet Position





APPENDIX A5 TEST SETUP PHOTOGRAPHS

Edge On Position



APPENDIX B 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: 5200 MHz Band SAR Measurement Plot Numbers

Test Position	Plot No.	Ant	Bit rate Mode (Mbps)	Channel Bandwidth (MHz)	Test Channel
*Tablet Bluetooth ON	1	A	6	-	52
Edge On Bluetooth ON	2	A	6	-	52
Edge On	3	A	HT0	20	52
Edge On	4	B	HT0	20	52
Edge On	5	A	HT8	20	52
Edge On	6	B	HT8	20	52
Z-Axis graphs for Plots 3 to 6					
Edge On	7	A	HT0	40	46
Edge On	8	B	HT0	40	46
Edge On	9	A	HT8	40	46
Edge On	10	B	HT8	40	46
Z-Axis graphs for Plots 7 to 10					
Edge On	11	B	6	-	52
Edge On	12	A	6	-	36
	13	A	6	-	52
	14	A	6	-	64
Z-Axis graphs for Plots 11 to 14					
Edge On with Bluetooth On	15	A	6	-	36
Z-Axis graph for Plot 15					

Table: 5600 MHz Band SAR Measurement Plot Numbers

Test Position	Plot No.	Ant	Bit rate Mode (Mbps)	Channel Bandwidth (MHz)	Test Channel
Edge On Bluetooth ON	16	A	6	-	157
Edge On	17	A	HT8	20	157
Edge On	18	B	HT8	20	157
Edge On	19	A	HT0	40	151
Edge On	20	A	HT0	40	159
Z-Axis graphs for Plots 17 to 20					
Edge On	21	B	HT0	40	151
Edge On	22	B	HT0	40	159
Edge On	23	A	HT8	40	151
Edge On	24	A	HT8	40	159
Z-Axis graphs for Plots 21 to 24					
Edge On	25	B	HT8	40	151
Edge On	26	B	HT8	40	159
Z-Axis graphs for Plots 25 to 26					
Edge On	27	A	6	-	157
Edge On	28	B	6	-	149
	29	B	6	-	157
	30	B	6	-	165
Z-Axis graphs for Plots 27 to 30					
Edge On	31	A	HT0	20	157
Edge On	32	B	HT0	20	149
	33	B	HT0	20	157
	34	B	HT0	20	165
Z-Axis graphs for Plots 31 to 34					
Edge On with Bluetooth On	35	B	6	-	157
Z-Axis graph for Plot 35					

Table: Validation Plots

Plot 36	Validation 5200 MHz 20th April 07
Plot 37	Validation 5200 MHz 23th April 07
Plot 38	Validation 5800 MHz 18th April 07
Plot 39	Validation 5800 MHz 19th April 07
Z-Axis graphs for Plots 36 to 39	

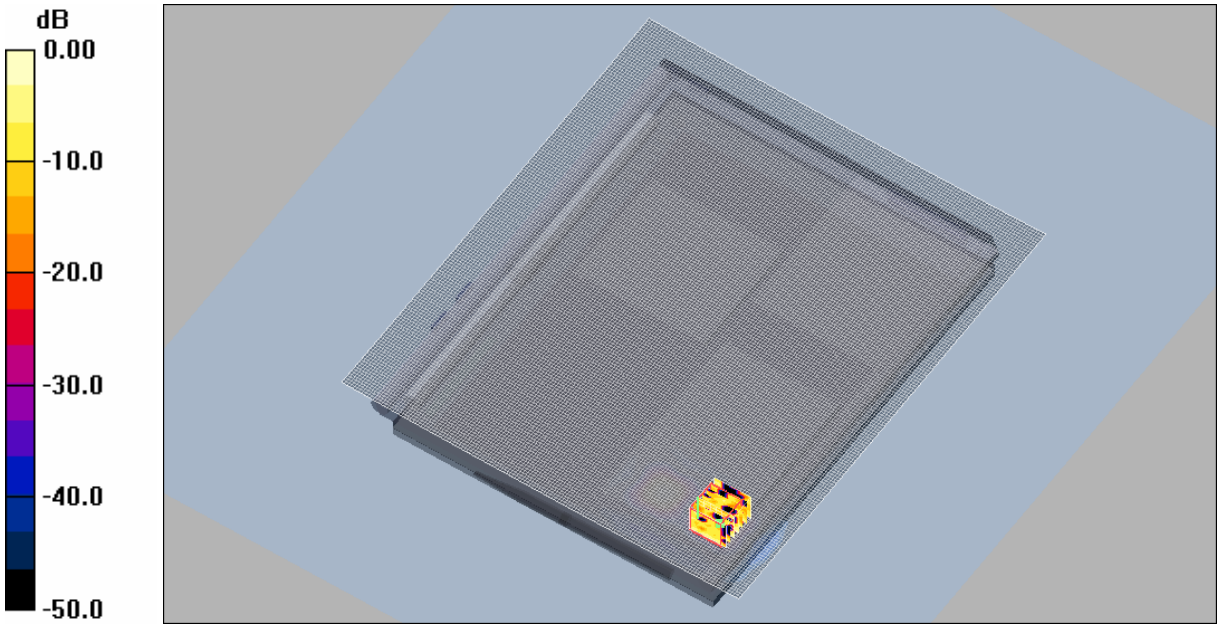
Test Date: 20 April 2007

File Name: Tablet OFDM 5.2 Saratoga Antenna A Bluetooth On Prescan 20-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5260 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.65264 mho/m, ε_r = 48.9651; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 52 Test/Area Scan (141x161x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.014 mW/g



0 dB = 0.039mW/g

SAR MEASUREMENT PLOT 1

Ambient Temperature	**20.8 Degrees Celsius**
Liquid Temperature	**20.4 Degrees Celsius**
Humidity	**60.0 %**

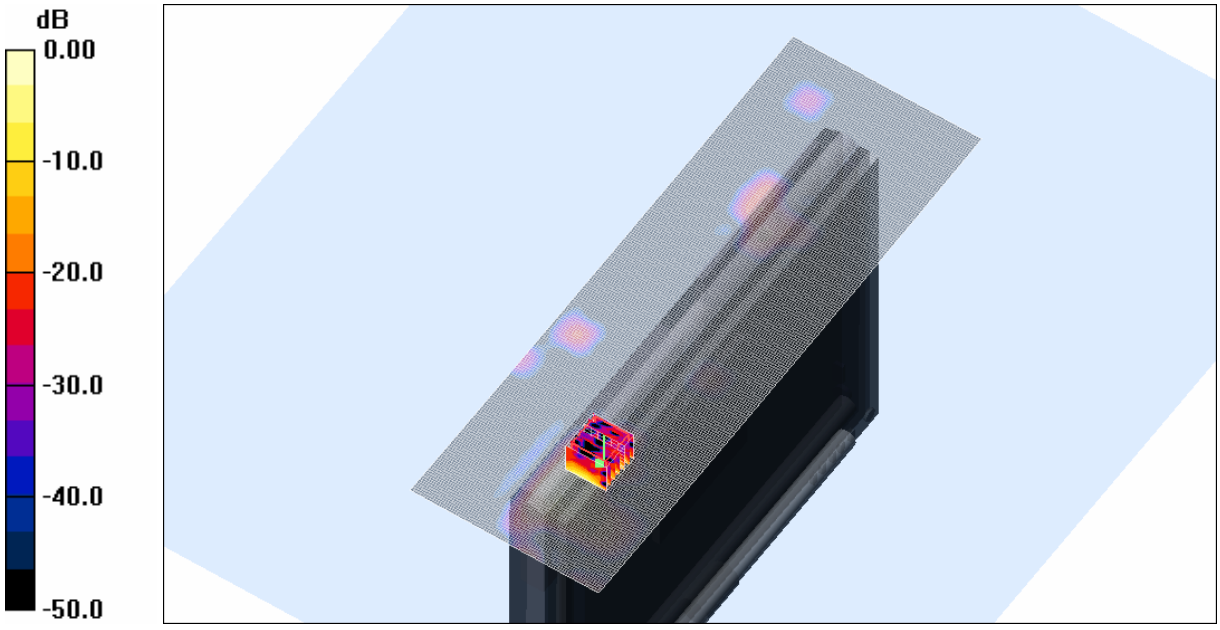
Test Date: 20 April 2007

File Name: Edge On OFDM 5.2 GHz Saratoga Antenna A Bluetooth On Prescan 20-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5260 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.65264 mho/m, ε_r = 48.9651; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 52 Test/Area Scan (81x241x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.744 mW/g



0 dB = 1.43mW/g

SAR MEASUREMENT PLOT 2

Ambient Temperature	**20.8 Degrees Celsius**
Liquid Temperature	**20.4 Degrees Celsius**
Humidity	**60.0 %**

Test Date: 20 April 2007

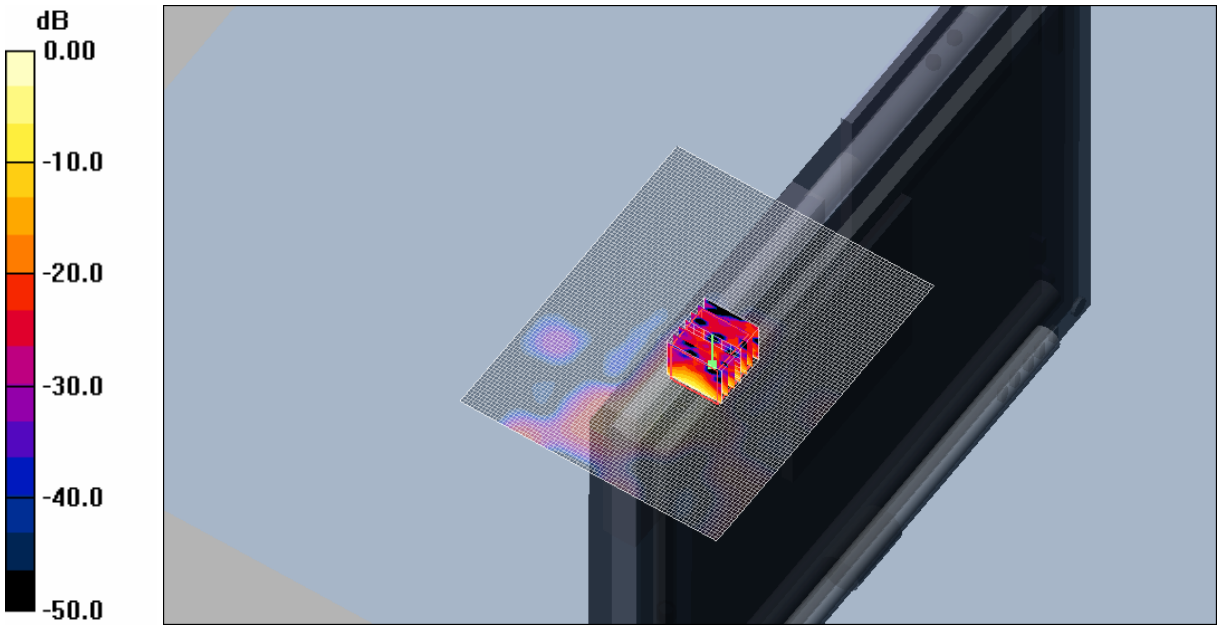
File Name: Edge On OFDM (HT0 Mbps 20 MHz) 5.2 GHz Saratoga Antenna A Bluetooth Off 20-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5260 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.65264 mho/m, ε_r = 48.9651; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 52 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.736 mW/g

Channel 52 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 12.7 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 2.84 W/kg
SAR(1 g) = 0.686 mW/g; SAR(10 g) = 0.177 mW/g
Maximum value of SAR (measured) = 1.52 mW/g



0 dB = 1.52mW/g

SAR MEASUREMENT PLOT 3

Ambient Temperature	**20.8 Degrees Celsius**
Liquid Temperature	**20.4 Degrees Celsius**
Humidity	**60.0 %**

Test Date: 20 April 2007

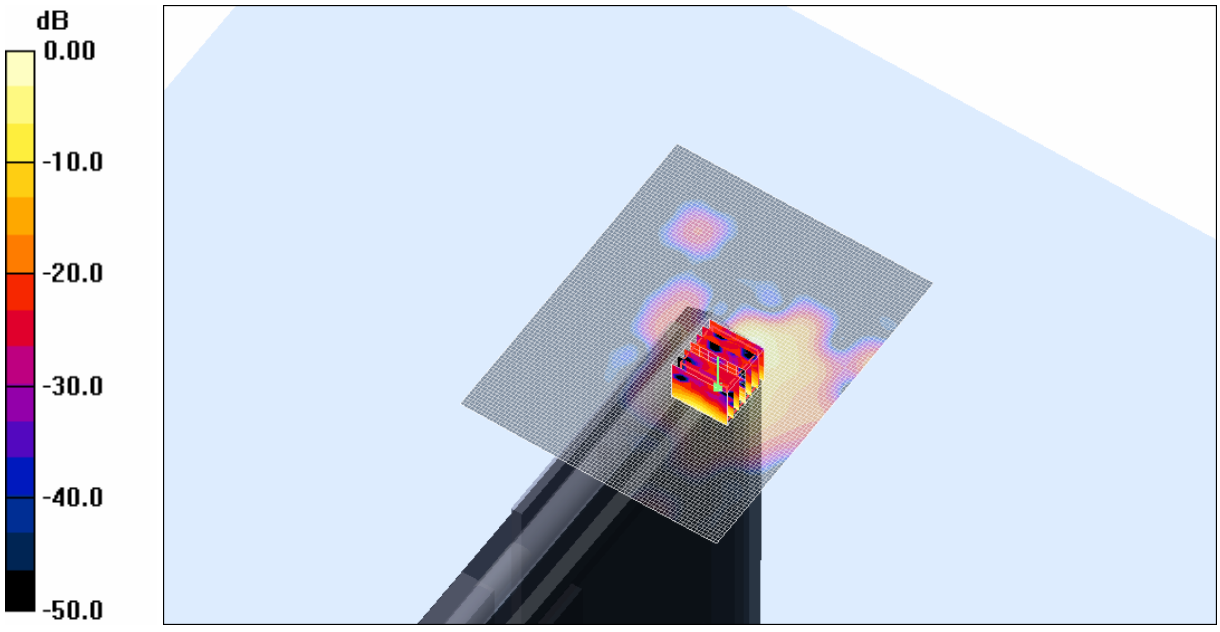
File Name: Edge On OFDM (HT0 Mbps 20 MHz) 5.2 GHz Saratoga Antenna B Bluetooth Off 20-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5260 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.65264 mho/m, ε_r = 48.9651; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 52 Test 2/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.806 mW/g

Channel 52 Test 2/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 14.7 V/m; Power Drift = -0.331 dB
Peak SAR (extrapolated) = 2.65 W/kg
SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.221 mW/g
Maximum value of SAR (measured) = 1.37 mW/g



0 dB = 1.37mW/g

SAR MEASUREMENT PLOT 4

Ambient Temperature	**20.8 Degrees Celsius**
Liquid Temperature	**20.4 Degrees Celsius**
Humidity	**60.0 %**

Test Date: 20 April 2007

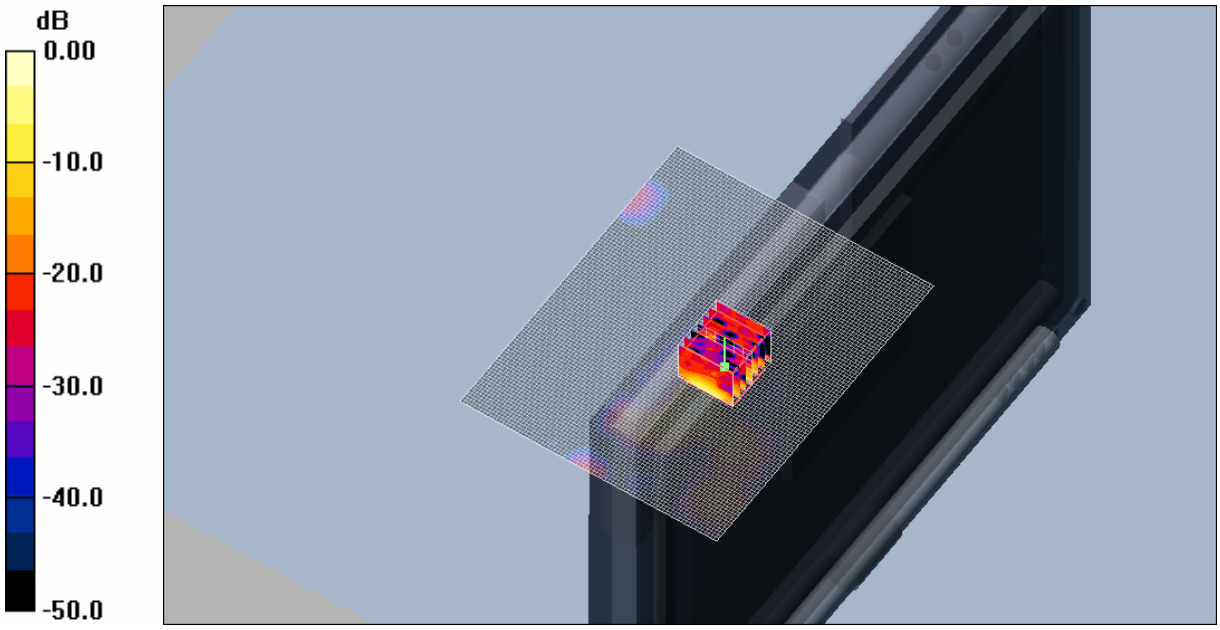
File Name: Edge On OFDM (HT8 Mbps 20 MHz) 5.2 GHz Saratoga Antenna A Bluetooth Off 20-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5260 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.65264 mho/m, ε_r = 48.9651; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 52 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.574 mW/g

Channel 52 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.62 V/m; Power Drift = 0.084 dB
Peak SAR (extrapolated) = 1.74 W/kg
SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.974 mW/g



0 dB = 0.974mW/g

SAR MEASUREMENT PLOT 5

Ambient Temperature	**20.8 Degrees Celsius**
Liquid Temperature	**20.4 Degrees Celsius**
Humidity	**60.0 %**

Test Date: 20 April 2007

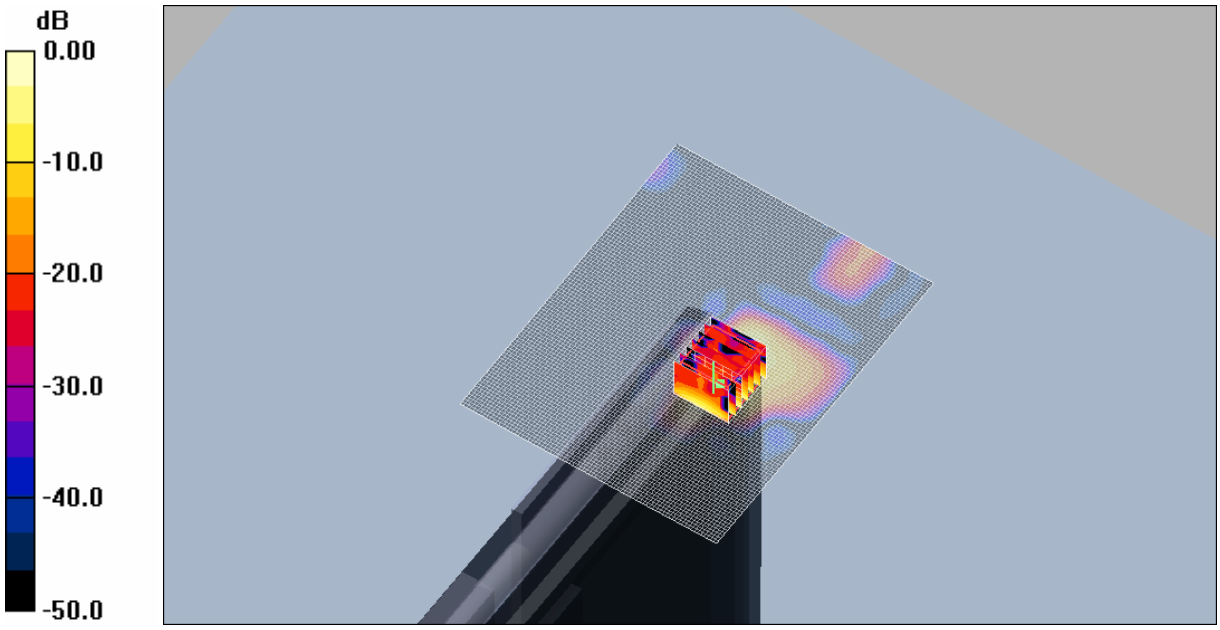
File Name: Edge On OFDM (HT8 Mbps 20 MHz) 5.2 GHz Saratoga Antenna B Bluetooth Off 20-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5260 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.65264 mho/m, ε_r = 48.9651; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 52 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.740 mW/g

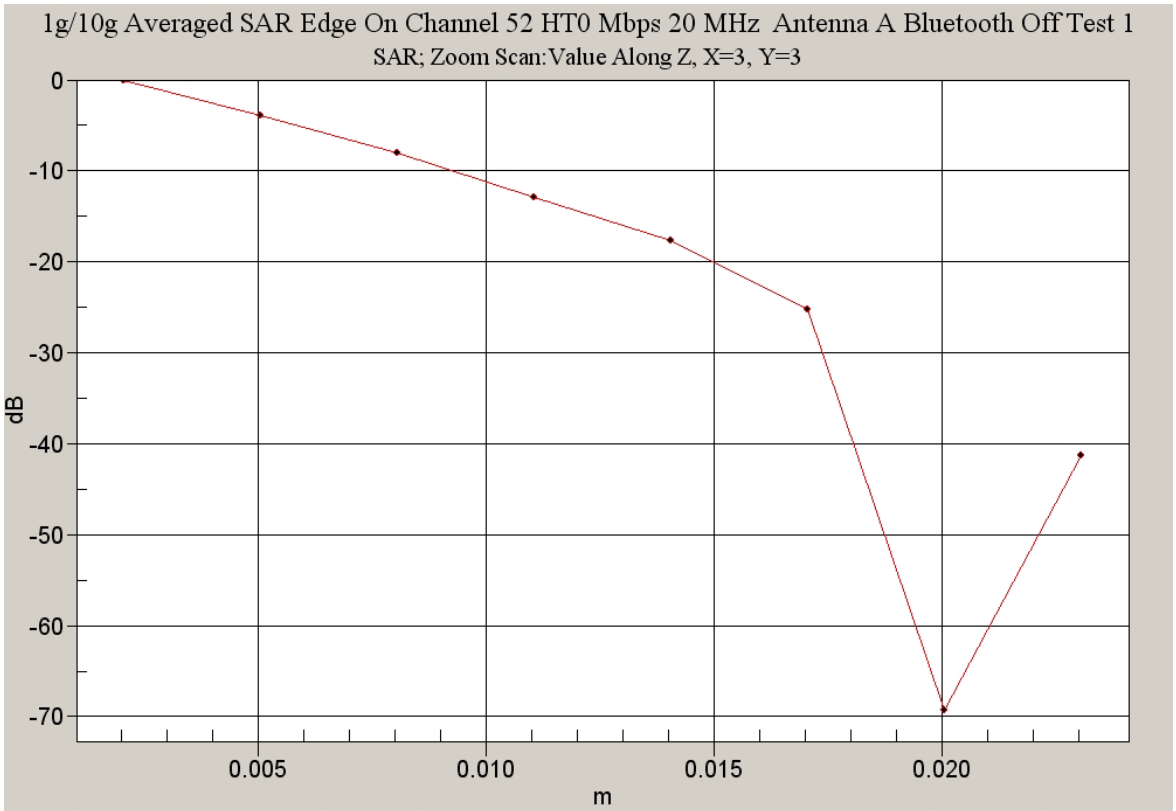
Channel 52 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 11.6 V/m; Power Drift = -0.655 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.430 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.848 mW/g

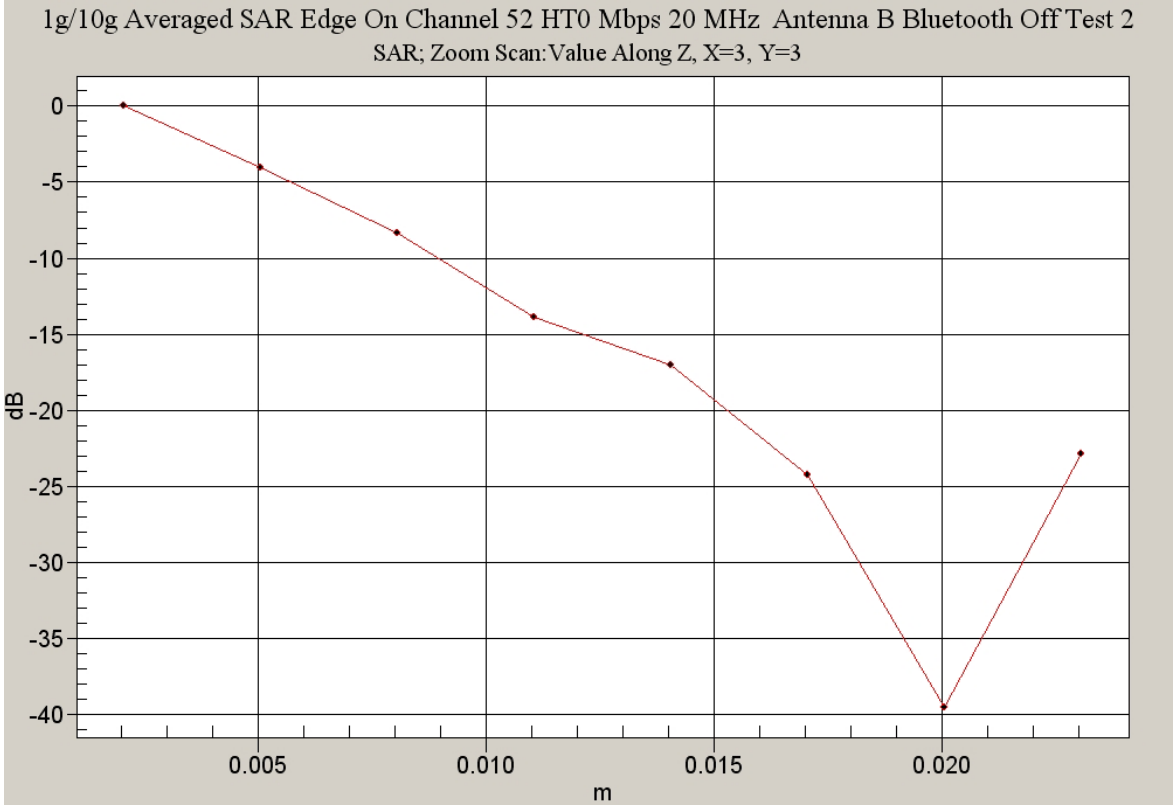


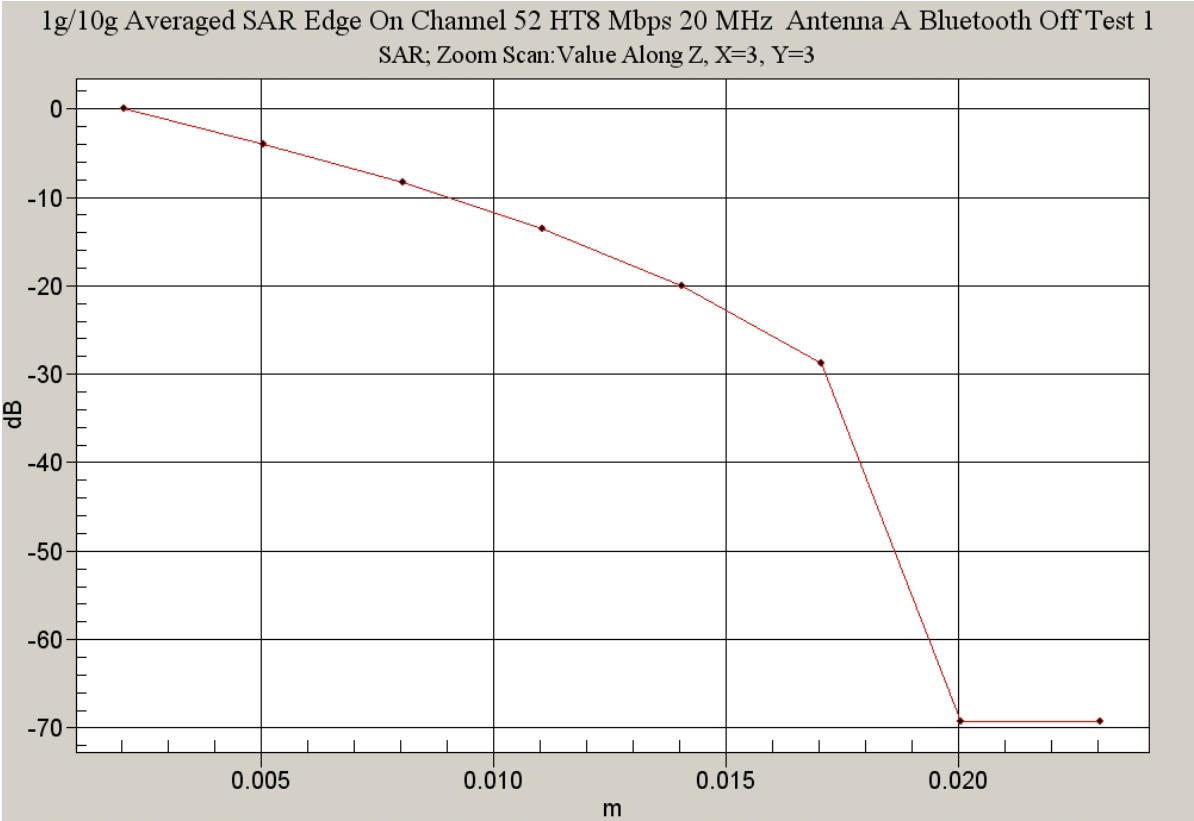
0 dB = 0.848mW/g

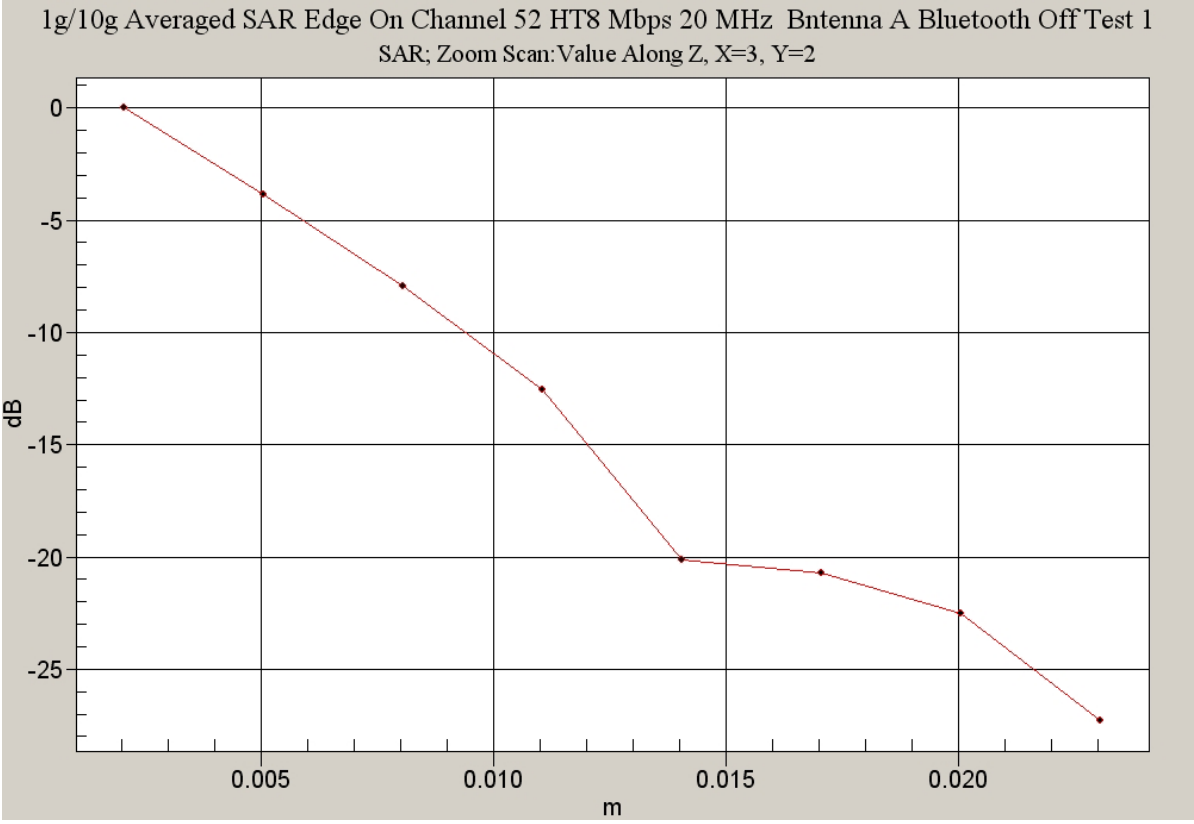
SAR MEASUREMENT PLOT 6

Ambient Temperature	**20.8 Degrees Celsius**
Liquid Temperature	**20.4 Degrees Celsius**
Humidity	**60.0 %**









Test Date: 23 April 2007

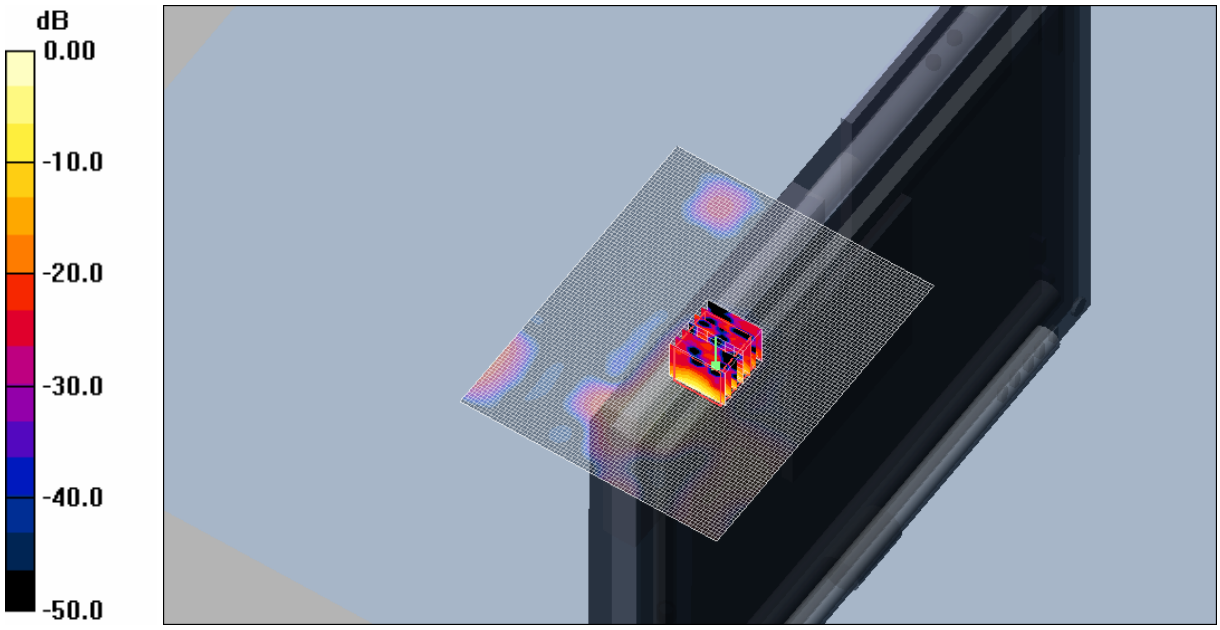
File Name: Edge On OFDM (HT0 Mbps 40 MHz Wide) 5.2 GHz Saratoga Antenna A Bluetooth Off 23-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5770 MHz; Frequency: 5230 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.63954 mho/m, ε_r = 49.0232; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 46 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.963 mW/g

Channel 46 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 13.7 V/m; Power Drift = -0.223 dB
Peak SAR (extrapolated) = 2.86 W/kg
SAR(1 g) = 0.687 mW/g; SAR(10 g) = 0.181 mW/g
Maximum value of SAR (measured) = 1.49 mW/g



0 dB = 1.49mW/g

SAR MEASUREMENT PLOT 7

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.6 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 23 April 2007

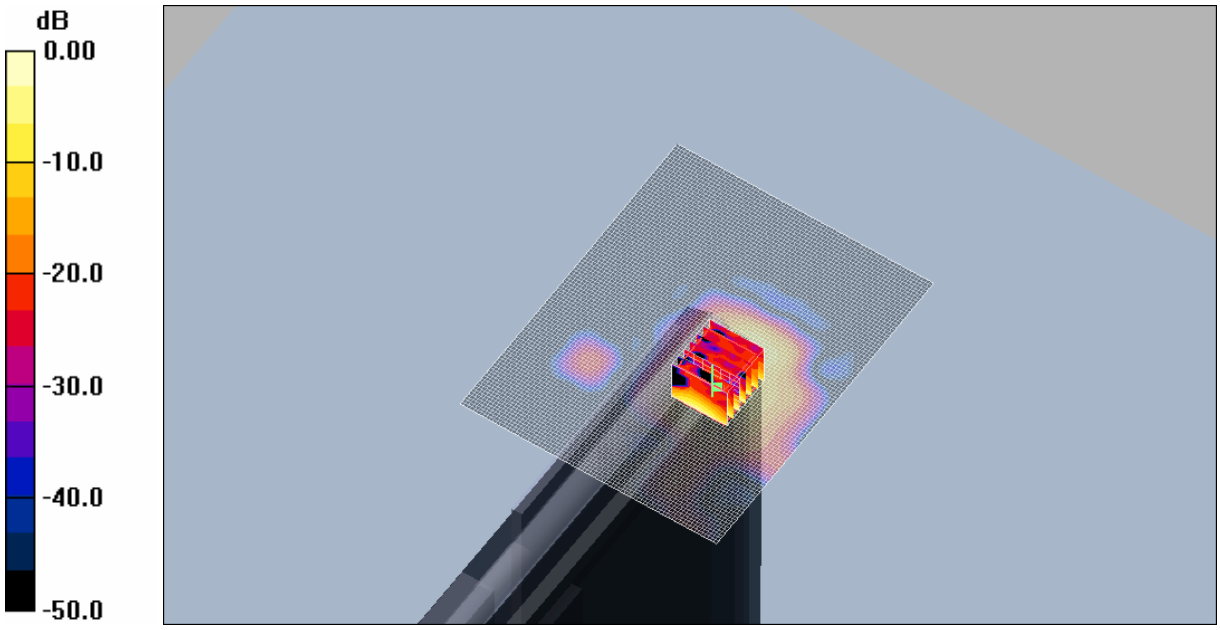
File Name: Edge On OFDM (HT0 Mbps 40 MHz Wide) 5.2 GHz Saratoga Antenna B Bluetooth Off 23-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5770 MHz; Frequency: 5230 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.63954 mho/m, ε_r = 49.0232; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 46 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.728 mW/g

Channel 46 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 12.9 V/m; Power Drift = -0.133 dB
Peak SAR (extrapolated) = 2.30 W/kg
SAR(1 g) = 0.623 mW/g; SAR(10 g) = 0.193 mW/g
Maximum value of SAR (measured) = 1.26 mW/g



0 dB = 1.26mW/g

SAR MEASUREMENT PLOT 8

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.6 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 23 April 2007

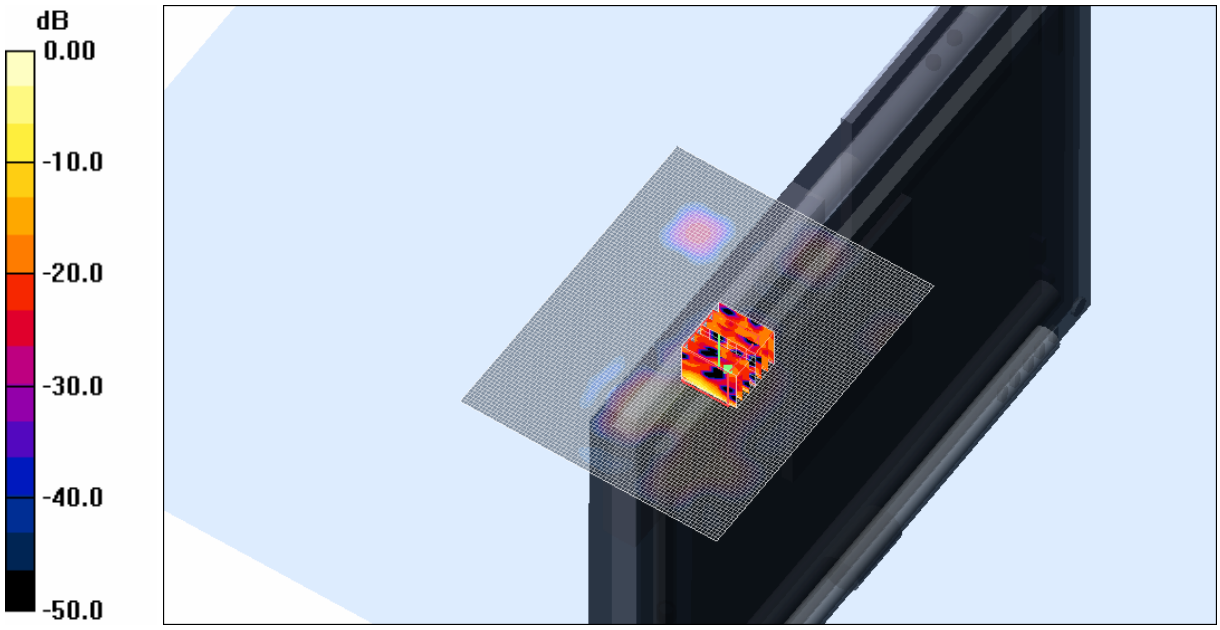
File Name: Edge On OFDM (HT8 Mbps 40 MHz Wide) 5.2 GHz Saratoga Antenna A Bluetooth Off 23-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5770 MHz; Frequency: 5230 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.63954 mho/m, ε_r = 49.0232; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 46 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.292 mW/g

Channel 46 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.25 V/m; Power Drift = -0.468 dB
Peak SAR (extrapolated) = 2.16 W/kg
SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.063 mW/g
Maximum value of SAR (measured) = 0.573 mW/g



0 dB = 0.573mW/g

SAR MEASUREMENT PLOT 9

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.6 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 23 April 2007

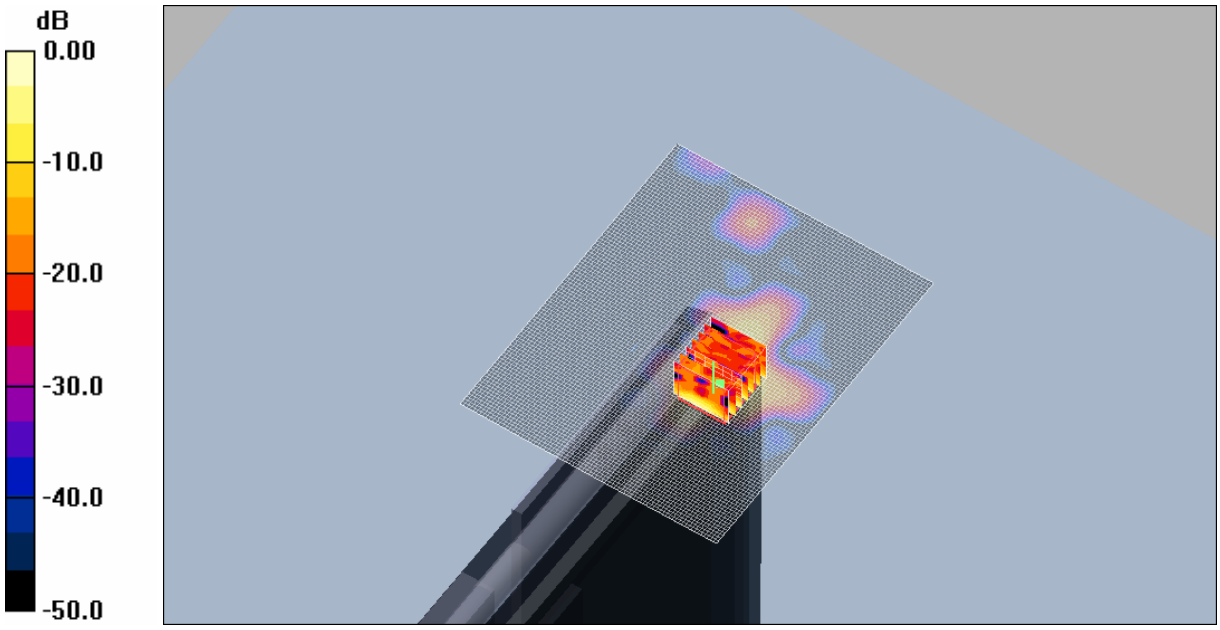
File Name: Edge On OFDM (HT8 Mbps 40 MHz Wide) 5.2 GHz Saratoga Antenna B Bluetooth Off 23-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5770 MHz; Frequency: 5230 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.63954 mho/m, ε_r = 49.0232; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 46 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.351 mW/g

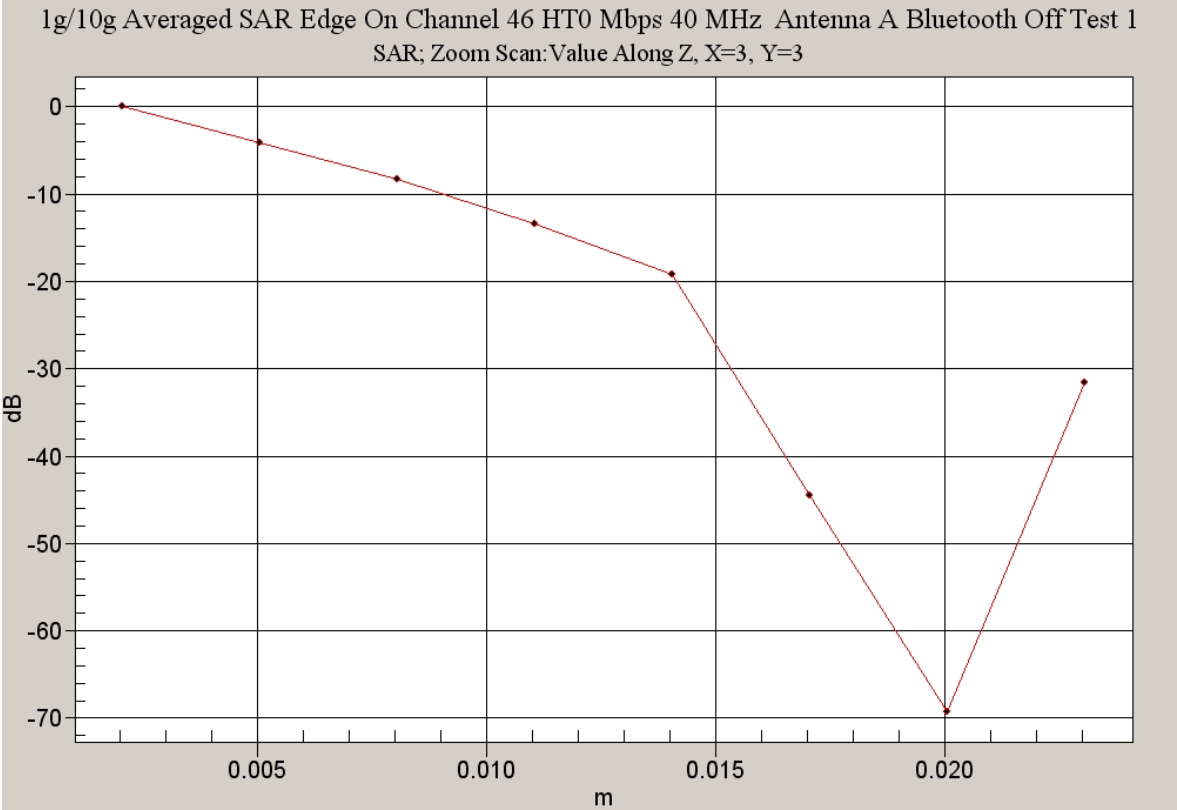
Channel 46 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.89 V/m; Power Drift = -0.181 dB
Peak SAR (extrapolated) = 0.763 W/kg
SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.070 mW/g
Maximum value of SAR (measured) = 0.491 mW/g

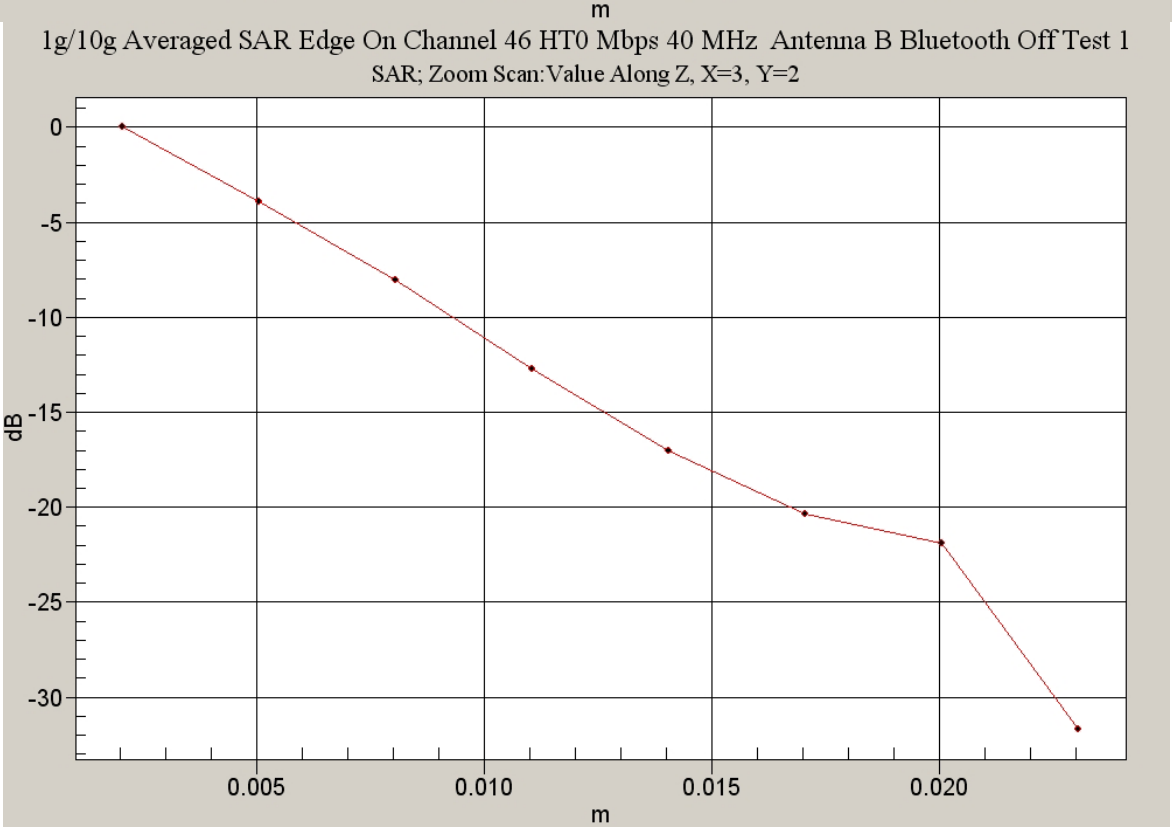


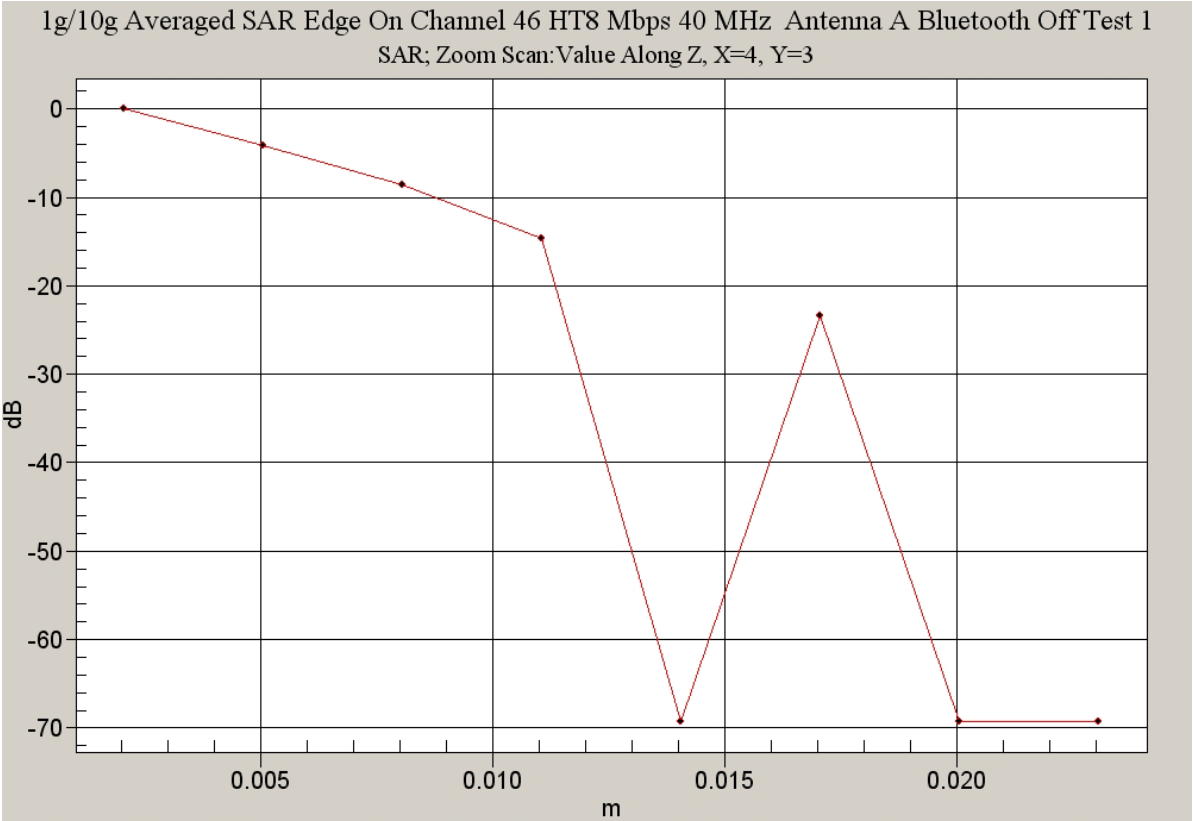
0 dB = 0.491mW/g

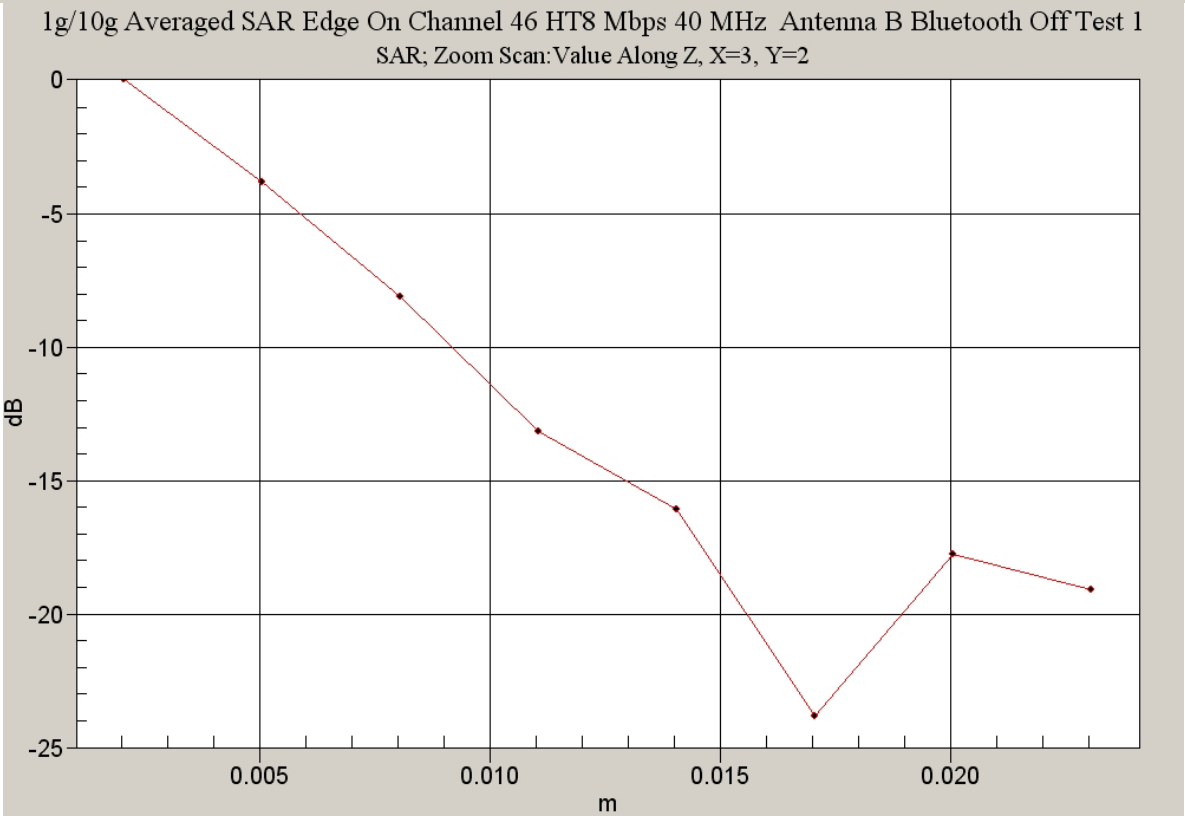
SAR MEASUREMENT PLOT 10

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.6 Degrees Celsius**
Humidity	**61.0 %**









Test Date: 20 April 2007

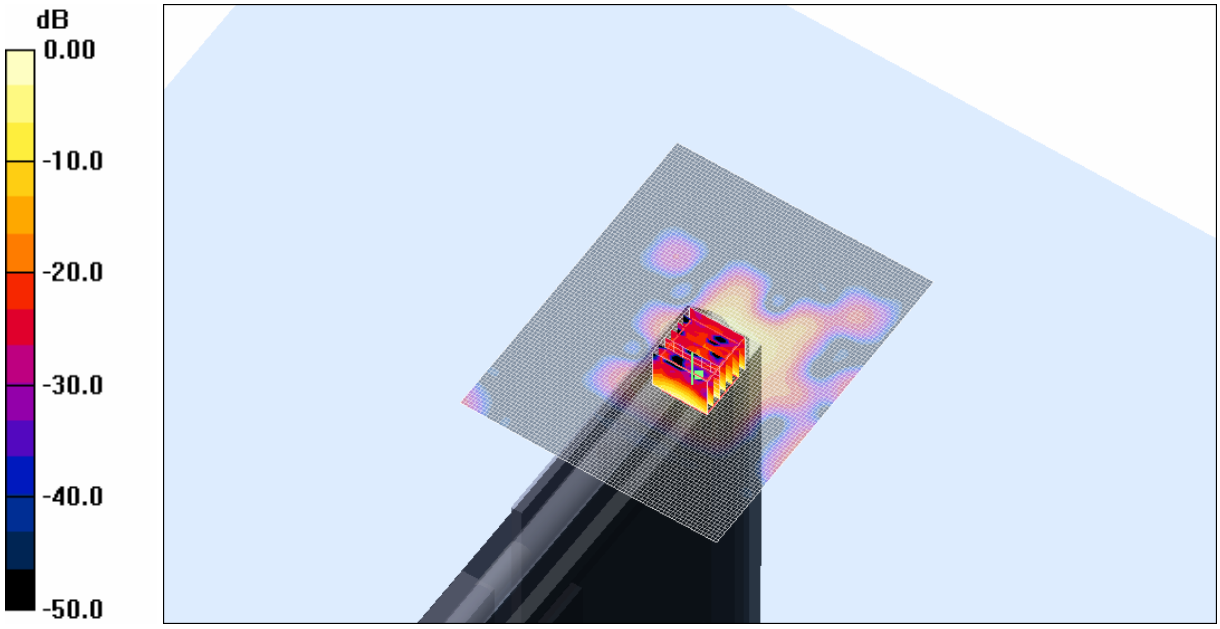
File Name: Edge On OFDM 5.2 GHz Saratoga Antenna B Bluetooth Off 20-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5260 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.65264 mho/m, ε_r = 48.9651; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 52 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.645 mW/g

Channel 52 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 14.6 V/m; Power Drift = -0.254 dB
Peak SAR (extrapolated) = 2.37 W/kg
SAR(1 g) = 0.641 mW/g; SAR(10 g) = 0.203 mW/g
Maximum value of SAR (measured) = 1.29 mW/g



0 dB = 1.29mW/g

SAR MEASUREMENT PLOT 11

Ambient Temperature	**20.8 Degrees Celsius**
Liquid Temperature	**20.4 Degrees Celsius**
Humidity	**60.0 %**

Test Date: 23 April 2007

File Name: Edge On OFDM 5.2 GHz Saratoga Antenna A Bluetooth Off 23-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

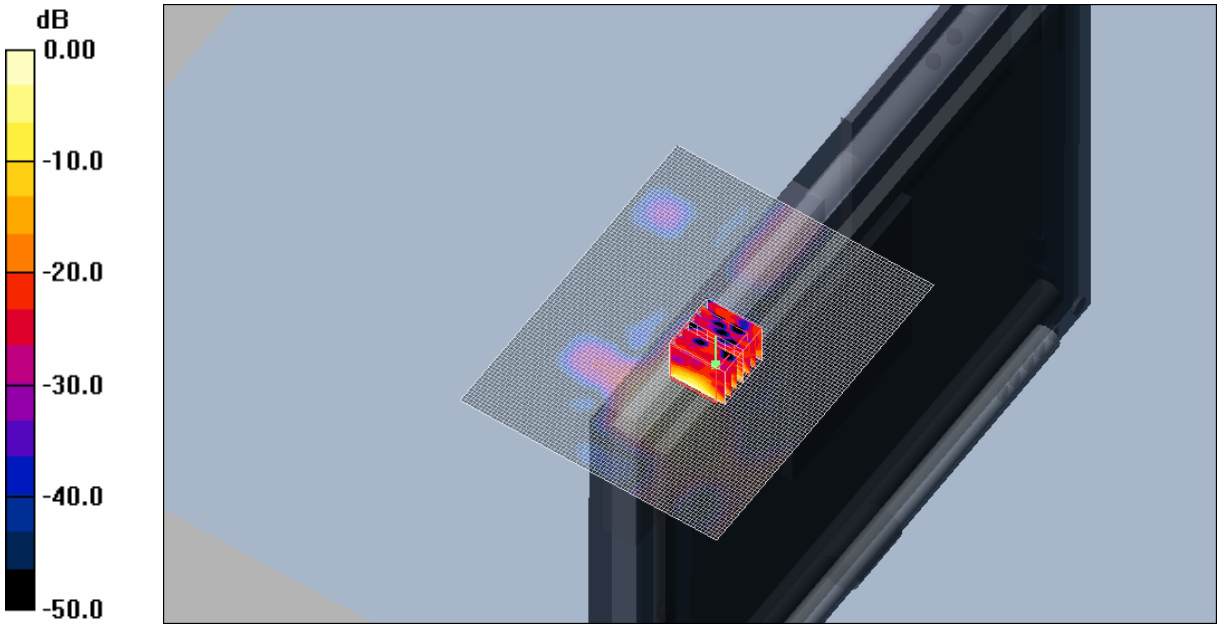
* Communication System: OFDM 5250 MHz; Frequency: 5180 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.52686 mho/m, ε_r = 49.1475; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 36 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.921 mW/g

Channel 36 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 13.9 V/m; Power Drift = 0.149 dB
Peak SAR (extrapolated) = 2.79 W/kg
SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.185 mW/g
Maximum value of SAR (measured) = 1.43 mW/g



0 dB = 1.43mW/g

SAR MEASUREMENT PLOT 12

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.6 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 20 April 2007

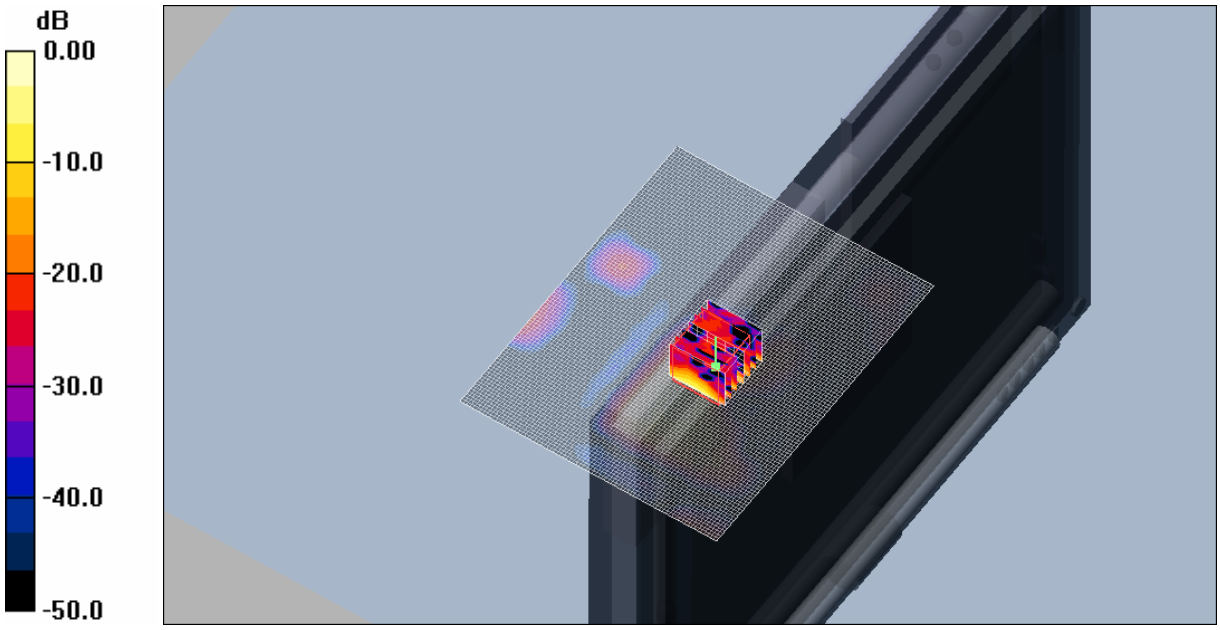
File Name: Edge On OFDM 5.2 GHz Saratoga Antenna A Bluetooth Off 20-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5260 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.65264 mho/m, ε_r = 48.9651; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 52 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.791 mW/g

Channel 52 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 12.8 V/m; Power Drift = 0.098 dB
Peak SAR (extrapolated) = 2.91 W/kg
SAR(1 g) = 0.696 mW/g; SAR(10 g) = 0.181 mW/g
Maximum value of SAR (measured) = 1.51 mW/g



0 dB = 1.51mW/g

SAR MEASUREMENT PLOT 13

Ambient Temperature	**20.8 Degrees Celsius**
Liquid Temperature	**20.4 Degrees Celsius**
Humidity	**60.0 %**

Test Date: 23 April 2007

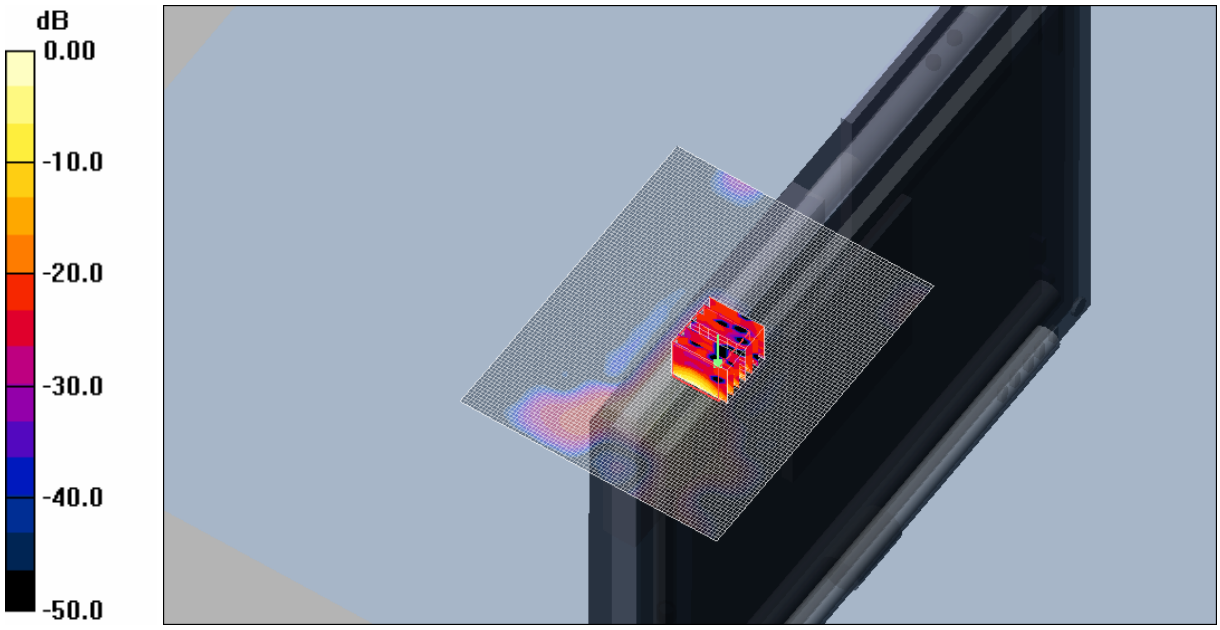
File Name: Edge On OFDM 5.2 GHz Saratoga Antenna A Bluetooth Off 23-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5320 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.80926 mho/m, ε_r = 48.7628; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 64 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.723 mW/g

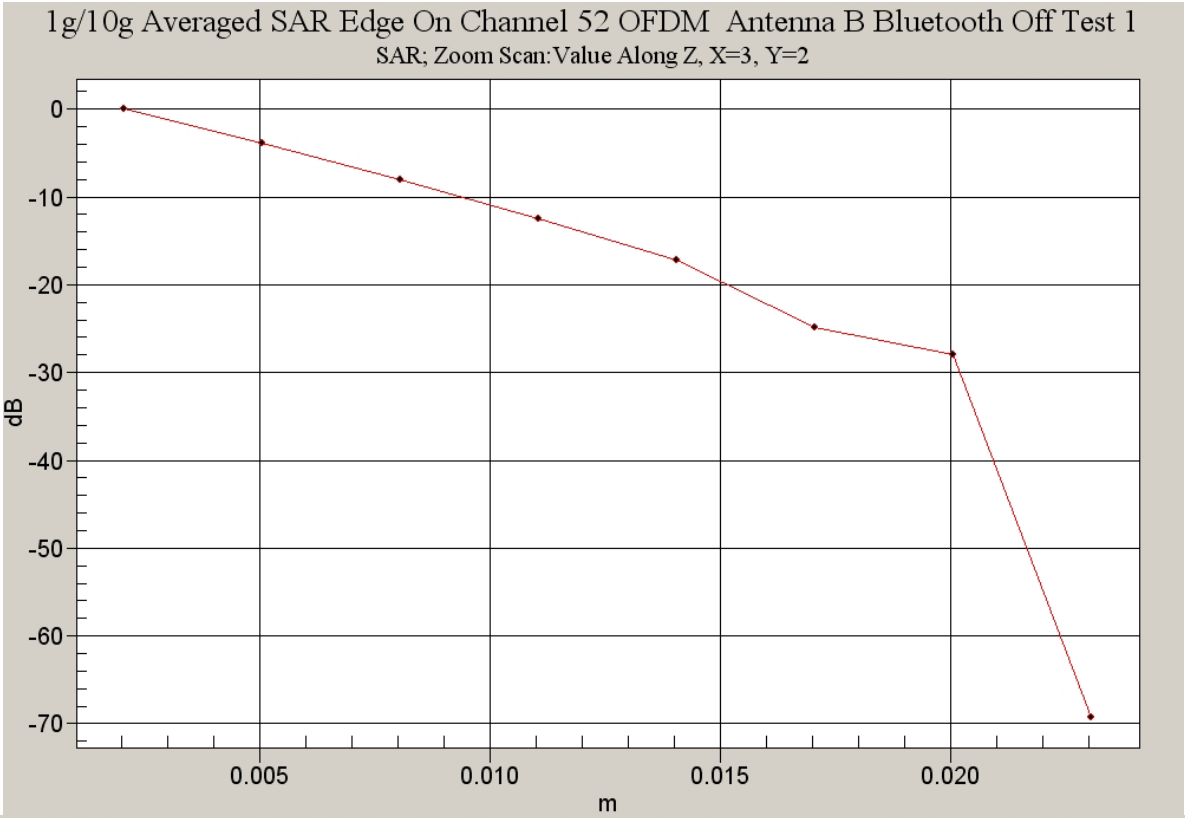
Channel 64 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 12.4 V/m; Power Drift = -0.291 dB
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 0.632 mW/g; SAR(10 g) = 0.157 mW/g
Maximum value of SAR (measured) = 1.27 mW/g

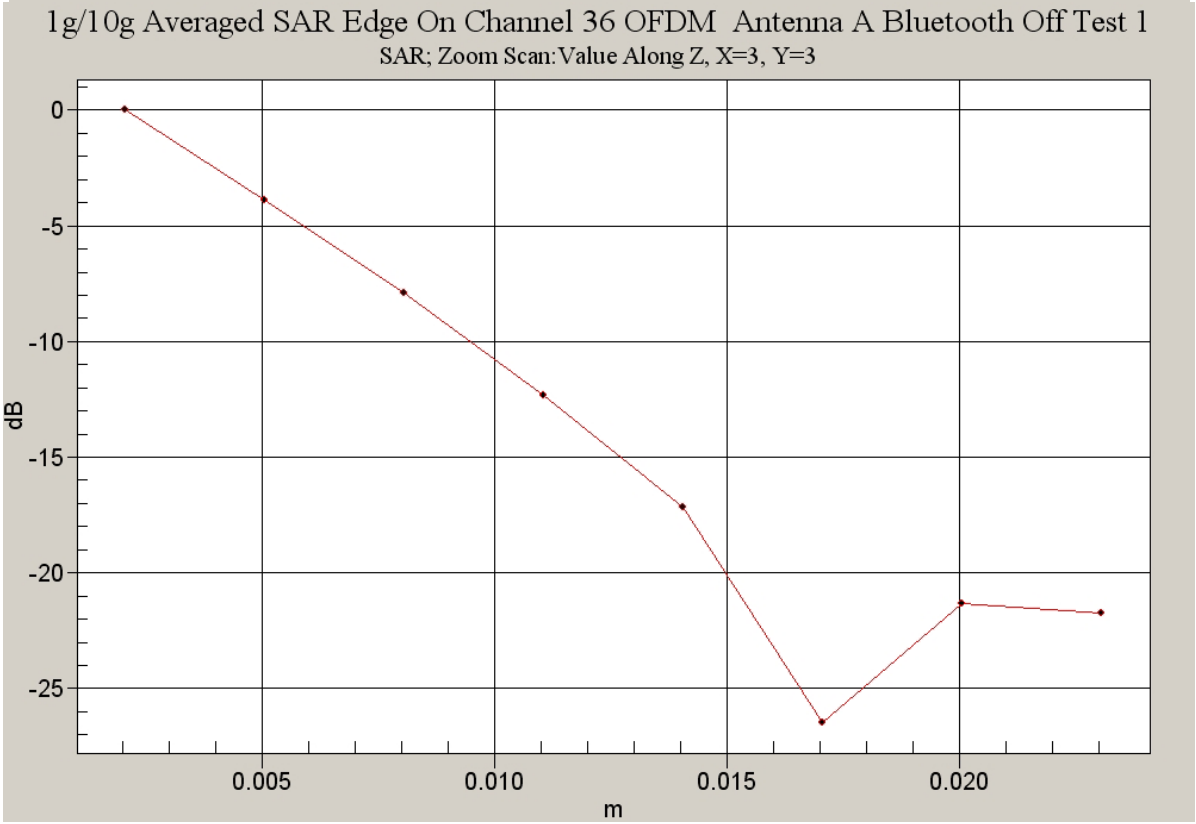


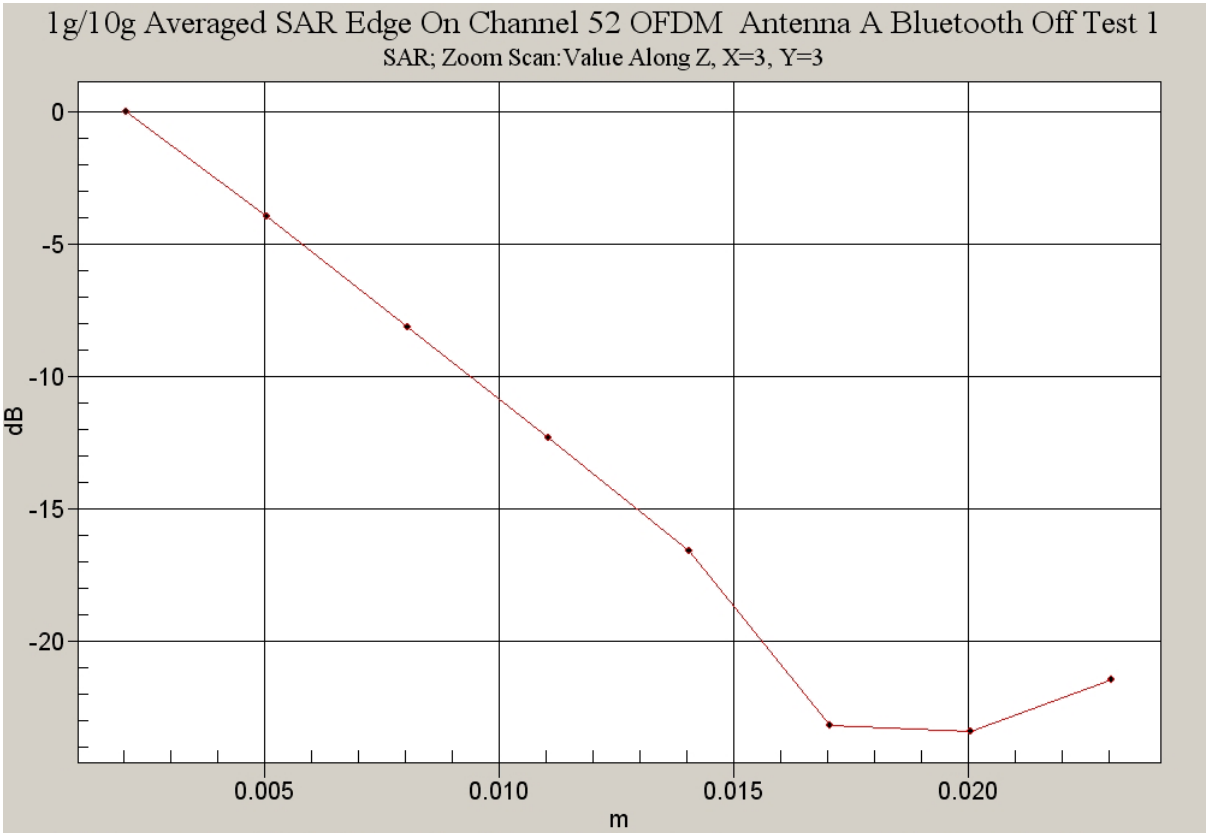
0 dB = 1.27mW/g

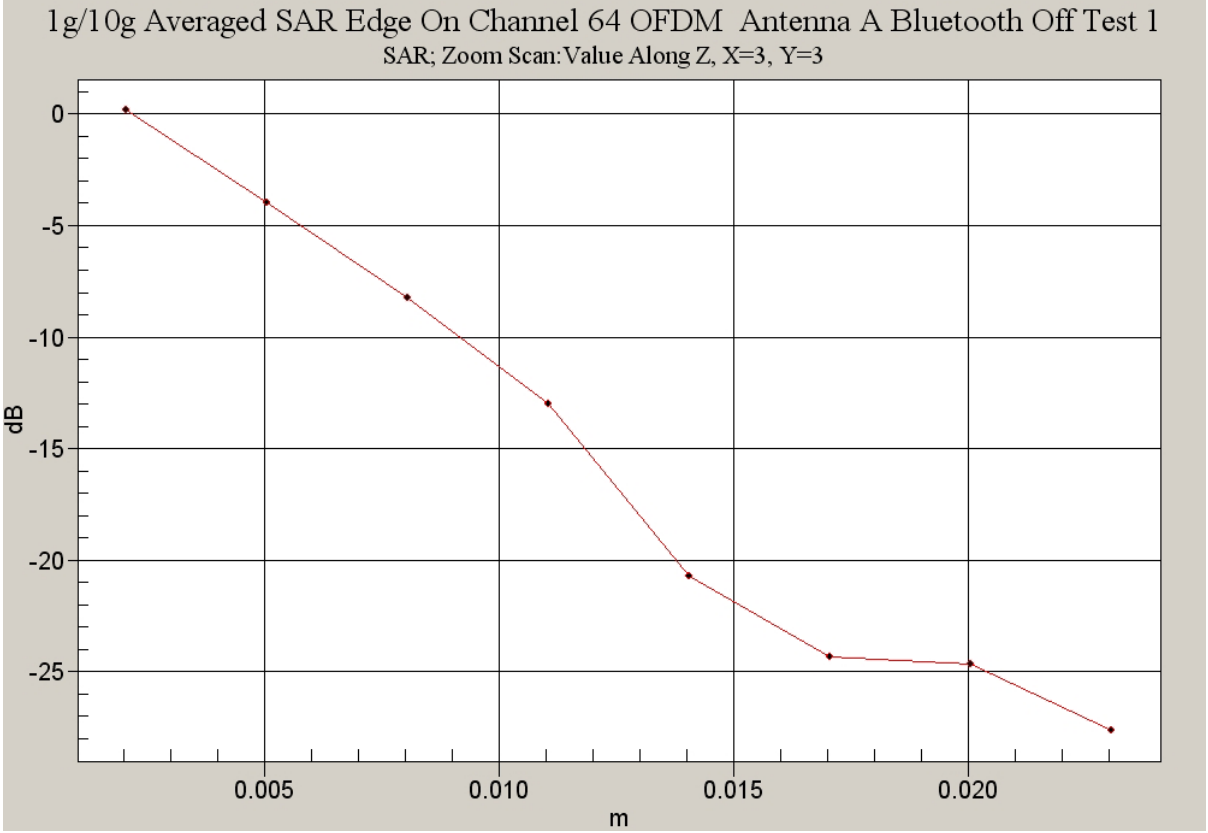
SAR MEASUREMENT PLOT 14

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.6 Degrees Celsius**
Humidity	**61.0 %**









Test Date: 23 April 2007

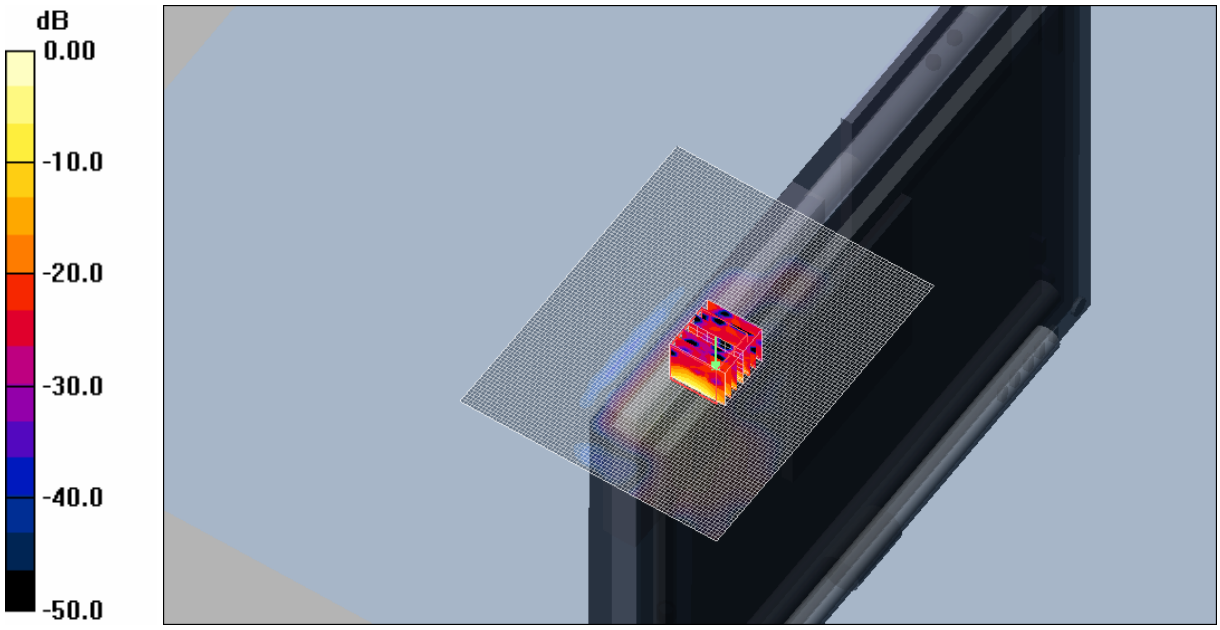
File Name: Edge On OFDM 5.2 GHz Saratoga Antenna A Bluetooth On 23-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 5250 MHz; Frequency: 5180 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 5.52686 mho/m, ε_r = 49.1475; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: EX3DV4 - SN3563; ConvF(3.84, 3.84, 3.84)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 36 Test/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.888 mW/g

Channel 36 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 14.2 V/m; Power Drift = -0.274 dB
Peak SAR (extrapolated) = 2.90 W/kg
SAR(1 g) = 0.719 mW/g; SAR(10 g) = 0.185 mW/g
Maximum value of SAR (measured) = 1.50 mW/g



0 dB = 1.50mW/g

SAR MEASUREMENT PLOT 15

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.6 Degrees Celsius**
Humidity	**61.0 %**