SAR TEST REPORT (15.407)

REPORT NO.: SA970123L04-3

MODEL NO.: MC7596

RECEIVED: Jan. 23, 2008

TESTED: Feb. 07, ~ Feb. 09, 2008

ISSUED: Feb. 29, 2008

APPLICANT: Symbol Technologies, Inc.

ADDRESS: One Symbol Plaza, Holtsville, NY 11742-1300 USA

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: 47 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

TABLE OF CONTENTS

1. CERTIFICATION

PRODUCT:	EDA (Enterprise Digital Assistant)
MODEL:	MC7596
BRAND:	Symbol
APPLICANT:	Symbol Technologies, Inc.
TESTED :	Feb. 07, ~ Feb. 09, 2008
TEST SAMPLE:	PROTOTYPE
STANDARDS:	**FCC Part 2 (Section 2.1093)** **FCC OET Bulletin 65, Supplement C (01-01)** **RSS-102** **IEEE 1528-2003**

The above equipment (model: MC7596) have been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , **DATE:** Mar. 03, 2008
Joanna Wang / Senior Specialist

TECHNICAL ACCEPTANCE : _____ , **DATE:** Mar. 03, 2008
Responsible for RF James Fan / Engineer

APPROVED BY : _____ , **DATE:** Mar. 03, 2008
Gary Chang / Assistant Manager

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	EDA (Enterprise Digital Assistant)
MODEL NO.	MC7596
FCC ID	H9PMC7596
POWER SUPPLY	3.7Vdc from rechargeable lithium battery 5.4Vdc from power adapter
CLASSIFICATION	Portable device, production unit
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
RADIO TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	54, 48, 36, 24, 18, 12, 9, 6Mbps
FREQUENCY RANGE	5150 ~ 5350MHz & 5470 ~ 5725MHz
NUMBER OF CHANNEL	5150 ~ 5350MHz: 8 5470 ~ 5725MHz: 11
CHANNEL FREQUENCIES UNDER TEST AND ITS CONDUCTED OUTPUT POWER	12.79mW / Ch36: 5180MHz 12.94mW / Ch40: 5200MHz 12.71mW / Ch48: 5240MHz 13.18mW / Ch52: 5260MHz 15.24mW / Ch60: 5300MHz 16.75mW / Ch64: 5320MHz 18.37mW / Ch100: 5500MHz 27.13mW / Ch104: 5520MHz 26.55mW / Ch116: 5580MHz 26.79mW / Ch120: 5600MHz 26.92mW / Ch124: 5620MHz 26.73mW / Ch136: 5680MHz 8.49mW / Ch140: 5700MHz
AVERAGE SAR (1g)	**Head:** 1.150W/kg **Body:** 0.113W/kg
ANTENNA TYPE(S)	Inverted F antenna Planar inverted antenna
MAX. ANTENNA GAIN	3.5dBi
DATA CABLE	Refer to NOTE
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Battery
EUT EXTREME VOL. RANGE	3.7Vdc to 4.2Vdc

NOTE:

1. The applicant defined the normal working voltage of the battery is from 3.7Vdc to 4.2Vdc.
2. The models as identified below are identical to each other except of the following options:
   - Keypad: Numeric / QWERTY
   - Barcode reader: 1D laser scanner / 2D Imager

BRAND	MODEL	DESCRIPTION
Symbol	MC7596	HSDPA 1D Numeric
Symbol	**MC7596**	**HSDPA 2D QWERTY**
**the worst case had been marked by boldface.		

3. The EUT is an EDA (Enterprise Digital Assistant). The functions of EUT listed as below:

	REFERENCE REPORT
WLAN 802.11a/b/g (15.247) + Bluetooth	SA970123L04-2
WLAN 802.11a (15.407)	SA970123L04-3
GSM850 / WCDMA850	SA970123L04
PCS1900 / WCDMA1900	
Mobile + WLAN + Bluetooth (Co-located)	SA970123L04-1

4. The communicated functions of EUT listed as below:

		GSM850MHz	PCS1900MHz	WCDMA850MHz	WCDMA1900MHz	
2G	GSM	√	√			With 802.11a/b/g + Bluetooth + GPS functions
	GPRS	√	√			
	EDGE	√	√			
3G	WCDMA			√	√	
	Release 5 HSDPA			√	√	

5. The EUT has one lithium battery listed as below:

LI-LON BATTERY	
BRAND:	MOTOROLA
MODEL:	82-71364-05 Rev A
RATING:	3.7Vdc, 3600mAh

6. The following accessories are for support units only.

PRODUCT	BRAND	MODEL	DESCRIPTION
RS232 charging cable	Motorola	25-102776-01R	1.2m non-shielded cable with one core
USB charging cable	Motorola	25-102775-01R	1.5m shielded cable with one core
Headset	Motorola	50-11300-050R	VR10 headset 0.8m non-shielded cable with one core
Power Supply Adaptor	Motorola	EADP-16BB A	I/P: 100-240Vac, 50-60Hz, 0.4A O/P: 5.4Vdc, 3A 1.8m non-shielded cable without core
Holster	Motorola	SG-MC7011110-01R	Ridged holster

7. Hardware version: 1c.
8. Software version: BSP16.
9. IMEI Code: 00440168000 000 ~ 00440168000 999.
10. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.
11. Output power of aux path is lower than main path ,we test max power channel of 5GHz to confirm sar value of aux antenna comply with limit.

2.2 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to the specifications of the manufacturer, this product must comply with the requirements of the following standards:

FCC Part 2 (2.1093)

FCC OET Bulletin 65, Supplement C (01- 01)

RSS-102

IEEE 1528-2003

All test items have been performed and recorded as per the above standards.

2.3 GENERAL INOFRMATION OF THE SAR SYSTEM

DASY4 (software 4.7 Build 53) consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY4 software defined. The DASY4 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.

EX3DV3 ISOTROPIC E-FIELD PROBE (FREQUENCY BAND 5 ~ 6GHz)

DIMENSIONS	Overall length: 330 mm (Tip Length: 20 mm) Tip diameter: 2.5 mm (Body diameter: 12 mm) Distance from probe tip to dipole centers: 1.0 mm
APPLICATION	General dosimetric measurements range 5 ~ 6 GHz. Fast automatic scanning in arbitrary phantoms (EX3DV3)

NOTE

1. The Probe parameters have been calibrated by the SPEAG. Please reference “APPENDIX D” for the Calibration Certification Report.
2. For frequencies above 800 MHz, calibration in a rectangular wave-guide is used, because wave-guide size is manageable.
3. For frequencies below 800 MHz, temperature transfer calibration is used because the wave-guide size becomes relatively large.

TWIN SAM V4.0

CONSTRUCTION	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, CENELEC 50361 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.
SHELL THICKNESS	2 ± 0.2mm
FILLING VOLUME	Approx. 25liters
DIMENSIONS	Height: 810mm; Length: 1000mm; Width: 500mm

SYSTEM VALIDATION KITS:

CONSTRUCTION	Symmetrical dipole with l/4 balun enables measurement of feedpoint impedance with NWA matched for use near flat phantoms filled with brain simulating solutions. Includes distance holder and tripod adaptor
CALIBRATION	Calibrated SAR value for specified position and input power at the flat phantom in brain simulating solutions
FREQUENCY	5200, 5500, 5800MHz
RETURN LOSS	> 20dB at specified validation position
POWER CAPABILITY	> 100W (f < 1GHz); > 40W (f > 1GHz)
OPTIONS	Dipoles for other frequencies or solutions and other calibration conditions upon request

DEVICE HOLDER FOR SAM TWIN PHANTOM

CONSTRUCTION

The device holder for the mobile phone device is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε =3 and loss tangent δ =0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered. The device holder for the portable device makes up of the polyethylene foam. The dielectric parameters of material close to the dielectric parameters of the air.

DATA ACQUISITION ELECTRONICS

CONSTRUCTION

The data acquisition electronics (DAE3) consists of a highly sensitive electrometer grade preamplifier with auto-zeroing, a channel and gain-switching multiplex, a fast 16 bit AD converter and a command decoder and control logic unit. Transmission to the measurement server 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 is mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

2.4 GENERAL DESCRIPTION OF THE SPATIAL PEAK SAR EVALUATION

The DASY4 post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the micro-volt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters:	- Frequency	F
	- Crest factor	Cf
Media parameters:	- Conductivity	σ
	- Density	ρ

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \bullet \frac{cf}{dcp_i}$$

V_i	=compensated signal of channel i	(i = x, y, z)
U_i	=input signal of channel I	(i = x, y, z)
Cf	=crest factor of exciting field	(DASY parameter)
dcp_i	=diode compression point	(DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

$$\text{E-fieldprobes: } E_i = \sqrt{\frac{V_1}{Norm_i \cdot ConvF}}$$

$$\text{H-fieldprobes: } H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1} f + a_{i2} f^2}{f}$$

V_i	=compensated signal of channel I	(i = x, y, z)
$Norm_i$	=sensor sensitivity of channel i μV/(V/m)2 for E-field Probes	(i = x, y, z)
ConvF	= sensitivity enhancement in solution	
a_{ij}	= sensor sensitivity factors for H-field probes	
F	= carrier frequency [GHz]	
E_i	= electric field strength of channel i in V/m	
H_i	= magnetic field strength of channel i in A/m	

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{S}{r \cdot 1'000}$$

SAR	= local specific absorption rate in mW/g
E_{tot}	= total field strength in V/m
σ	= conductivity in [mho/m] or [Siemens/m]
ρ	= equivalent tissue density in g/cm3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid. The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. The extraction of the measured data (grid and values) from the Zoom Scan
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1g and 10g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within -2dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1g and 10g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7 x 7 x 7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30 x 30 x 30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume in a 1mm grid (42875 points). In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

3. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

4. DESCRIPTION OF TEST MODES AND CONFIGURATIONS

4.1. DESCRIPTION OF TEST MODE

TEST MODE	COMMUNICATION MODE	MODULATION TYPE	ASSESSMENT POSTITION	TESTED CHANNEL	REMARK
1	802.11a	BPSK	A / Cheek	36, 40, 48, 52, 60, 64, 100, 104, 116, 120, 124, 136, 140	For model: HSDPA 2D QWERTY with Main antenna
2		BPSK	A / Tilt		
3		BPSK	B / Cheek		
4		BPSK	B / Tilt		
5		BPSK	C : Body / Front		
6		BPSK	A / Tilt	36, 52, 136	For model: HSDPA 1D Numeric with Main
7		BPSK	A / Cheek	120	For model: HSDPA 2D QWERTY with Aux. antenna
8		BPSK	B / Cheek	120	

NOTE: Assessment position A: Right head position, B: Left head position, C: Body position, please refer to appendix E for the photo.

4.2. SUMMARY OF TEST RESULTS

THE EUT OF THIS MODE IS WITH MODEL HSDPA 2D QWERTY, MAIN ANTENNA:

ITEM		1	2	3	4	5
PART OF ASSESSMENT		HEAD POSITION				BODY POSITION
TEST MODE		802.11a				
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)				
36	5180	1.100	**1.150**	1.070	1.040	0.087
40	5200	0.990	1.090	1.050	1.030	0.095
48	5240	0.943	0.962	0.974	0.897	0.105
52	5260	0.944	0.991	0.909	0.889	**0.113**
60	5300	0.918	0.816	0.856	0.856	0.104
64	5320	0.858	0.817	0.844	0.815	0.093
100	5500	0.495	0.435	0.412	0.413	0.065
104	5520	0.766	0.619	0.601	0.606	0.078
116	5580	0.695	0.606	0.590	0.624	0.085
120	5600	0.683	0.698	0.466	0.565	0.093
124	5620	0.693	0.720	0.626	0.629	0.093
136	5680	0.853	0.857	0.802	0.771	0.081
140	5700	0.300	0.210	0.239	0.205	0.035

THE EUT OF THIS MODE IS WITH MODEL HSDPA 1D Numeric, MAIN ANTENNA:

ITEM		6
PART OF ASSESSMENT		HEAD POSITION
TEST MODE		802.11a
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)
36	1580	0.958
52	5260	0.875
136	5680	0.744

NOTE: The worst value has been marked by boldface.

THE EUT OF THIS MODE IS WITH MODEL HSDPA 2D QWERTY, AUX. ANTENNA:

ITEM		7	8
PART OF ASSESSMENT		HEAD POSITION	
TEST MODE		802.11a	
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)	
120	5600	0.109	0.119

NOTE: The worst value has been marked by boldface.

5. TEST RESULTS

5.1 TEST PROCEDURES

Use the software to control the EUT channel and transmission power. Then record the conducted power before the testing. Place the EUT to the specific test location. After the testing, must writing down the conducted power of the EUT into the report. The SAR value was calculated via the 3D spline interpolation algorithm that has been implemented in the software of DASY4 SAR measurement system manufactured and calibrated by SPEAG. According to the IEEE 1528 standards, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- Power reference measurement
- Verification of the power reference measurement
- Area scan
- Zoom scan
- Power reference measurement

The area scan was performed for the highest spatial SAR location. The zoom scan with 30mm x 30mm x 30mm volume was performed for SAR value averaged over 1g and 10g spatial volumes.

In the zoom scan, the distance between the measurement point at the probe sensor location (geometric center behind the probe tip) and the phantom surface is 4.0mm and maintained at a constant distance of ±1.0mm during a zoom scan to determine peak SAR locations. The distance is 4mm between the first measurement point and the bottom surface of the phantom. The secondary measurement point to the bottom surface of the phantom is with 9mm separation distance. The cube size is 7 x 7 x 7 points consist of 343 points and the grid space is 5mm.

The measurement time is 0.5s at each point of the zoom scan. The probe boundary effect compensation shall be applied during the SAR test. Because of the tip of the probe to the Phantom surface separated distances are longer than half a tip probe diameter.

In the area scan, the separation distance is 4mm between the each measurement point and the phantom surface. The scan size shall be included the transmission portion of the EUT. The measurement time is the same as the zoom scan. At last the reference power drift shall be less than ±5%.

5.2 MEASURED SAR RESULTS

RIGHT / CHEEK HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：22.5°C, Liquid Temperature：21.4°C Humidity：58%RH		
TESTED BY	Sam Onn	DATE	Feb. 07, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	5180	802.11a	12.79	12.71	-0.63	1	1.100
40	5200	802.11a	12.94	12.84	-0.77	1	0.990
48	5240	802.11a	12.71	12.61	-0.79	1	0.943
52	5260	802.11a	13.18	13.06	-0.91	1	0.944
60	5300	802.11a	15.24	15.08	-1.05	1	0.918
64	5320	802.11a	16.75	16.56	-1.13	1	0.858
100	5500	802.11a	18.37	18.13	-1.31	1	0.495
104	5520	802.11a	27.13	26.76	-1.36	1	0.766
116	5580	802.11a	26.55	26.17	-1.43	1	0.695
120	5600	802.11a	26.79	26.37	-1.57	1	0.683
124	5620	802.11a	26.92	26.47	-1.67	1	0.693
136	5680	802.11a	26.73	26.27	-1.72	1	0.853
140	5700	802.11a	8.49	8.33	-1.88	1	0.300

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

RIGHT / TILT HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：22.5°C, Liquid Temperature：21.4°C Humidity：58%RH		
TESTED BY	Sam Onn	DATE	Feb. 07, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	**5180**	**802.11a**	12.79	12.71	-0.63	2	**1.150**
40	**5200**	**802.11a**	12.94	12.85	-0.70	2	1.090
48	**5240**	**802.11a**	12.71	12.60	-0.87	2	0.962
52	**5260**	**802.11a**	13.18	13.06	-0.91	2	0.991
60	**5300**	**802.11a**	15.24	15.08	-1.05	2	0.816
64	**5320**	**802.11a**	16.75	16.57	-1.07	2	0.817
100	**5500**	**802.11a**	18.37	18.16	-1.14	2	0.435
104	**5520**	**802.11a**	27.13	26.78	-1.29	2	0.619
116	**5580**	**802.11a**	26.55	26.20	-1.32	2	0.606
120	**5600**	**802.11a**	26.79	26.40	-1.46	2	0.698
124	**5620**	**802.11a**	26.92	26.50	-1.56	2	0.720
136	**5680**	**802.11a**	26.73	26.29	-1.65	2	0.857
140	**5700**	**802.11a**	8.49	8.34	-1.77	2	0.210

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

LEFT / CHEEK HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：22.1°C, Liquid Temperature：21.1°C Humidity：55%RH		
TESTED BY	Sam Onn	DATE	Feb. 08, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	5180	802.11a	12.79	12.65	-1.09	3	1.07
40	5200	802.11a	12.94	12.79	-1.16	3	1.05
48	5240	802.11a	12.71	12.55	-1.26	3	0.974
52	5260	802.11a	13.18	13.00	-1.37	3	0.909
60	5300	802.11a	15.24	15.02	-1.44	3	0.856
64	5320	802.11a	16.75	16.49	-1.55	3	0.844
100	5500	802.11a	18.37	18.06	-1.69	3	0.412
104	5520	802.11a	27.13	26.66	-1.73	3	0.601
116	5580	802.11a	26.55	26.06	-1.77	3	0.590
120	5600	802.11a	26.79	26.28	-1.90	3	0.466
124	5620	802.11a	26.92	26.36	-2.08	3	0.626
136	5680	802.11a	26.73	26.14	-2.21	3	0.802
140	5700	802.11a	8.49	8.30	-2.24	3	0.239

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

LEFT / TILT HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：22.1°C, Liquid Temperature：21.1°C Humidity：55%RH		
TESTED BY	Sam Onn	DATE	Feb. 08, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	5180	802.11a	12.79	12.68	-0.86	4	1.040
40	5200	802.11a	12.94	12.82	-0.93	4	1.030
48	5240	802.11a	12.71	12.58	-1.02	4	0.897
52	5260	802.11a	13.18	13.04	-1.06	4	0.889
60	5300	802.11a	15.24	15.07	-1.12	4	0.856
64	5320	802.11a	16.75	16.54	-1.25	4	0.815
100	5500	802.11a	18.37	18.14	-1.25	4	0.413
104	5520	802.11a	27.13	26.77	-1.33	4	0.606
116	5580	802.11a	26.55	26.18	-1.39	4	0.624
120	5600	802.11a	26.79	26.41	-1.42	4	0.565
124	5620	802.11a	26.92	26.52	-1.49	4	0.629
136	5680	802.11a	26.73	26.32	-1.53	4	0.771
140	5700	802.11a	8.49	8.35	-1.65	4	0.205

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

BODY POSITION

ENVIRONMENTAL CONDITION	Air Temperature：22.3°C, Liquid Temperature：21.4°C Humidity：56%RH		
TESTED BY	Sam Onn	DATE	Feb. 09, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	**5180**	**802.11a**	12.79	12.73	-0.47	5	0.087
40	**5200**	**802.11a**	12.94	12.87	-0.54	5	0.095
48	**5240**	**802.11a**	12.71	12.63	-0.63	5	0.105
52	**5260**	**802.11a**	13.18	13.09	-0.68	5	**0.113**
60	**5300**	**802.11a**	15.24	15.11	-0.85	5	0.104
64	**5320**	**802.11a**	16.75	16.60	-0.90	5	0.093
100	**5500**	**802.11a**	18.37	18.18	-1.03	5	0.065
104	**5520**	**802.11a**	27.13	26.82	-1.14	5	0.078
116	**5580**	**802.11a**	26.55	26.22	-1.24	5	0.085
120	**5600**	**802.11a**	26.79	26.43	-1.34	5	0.093
124	**5620**	**802.11a**	26.92	26.54	-1.41	5	0.093
136	**5680**	**802.11a**	26.73	26.33	-1.50	5	0.081
140	**5700**	**802.11a**	8.49	8.36	-1.53	5	0.035

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

RIGHT / TILT HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：22.5°C, Liquid Temperature：21.4°C Humidity：58%RH		
TESTED BY	Sam Onn	DATE	Feb. 07, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	**5180**	**802.11a**	12.79	12.65	-1.09	6	0.958
52	**5260**	**802.11a**	13.18	13.03	-1.14	6	0.875
136	**5680**	**802.11a**	26.73	26.40	-1.23	6	0.744

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

RIGHT / CHEEK HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：22.1°C, Liquid Temperature：21.1°C Humidity：55%RH		
TESTED BY	Sam Onn	DATE	Feb. 08, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
120	**5600**	**802.11a**	24.27	23.93	-1.40	7	0.109

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

LEFT / CHEEK HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：22.1°C, Liquid Temperature：21.1°C Humidity：55%RH		
TESTED BY	Sam Onn	DATE	Feb. 08, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
120	**5600**	**802.11a**	24.27	23.88	-1.61	8	0.119

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

5.3 SAR LIMITS

HUMAN EXPOSURE	SAR (W/kg)	
	(GENERAL POPULATION / UNCONTROLLED EXPOSURE ENVIRONMENT)	(OCCUPATIONAL / CONTROLLED EXPOSURE ENVIRONMENT)
Spatial Average (whole body)	0.08	0.4
Spatial Peak (averaged over 1 g)	**1.6**	8.0
Spatial Peak (hands / wrists / feet / ankles averaged over 10 g)	4.0	20.0

NOTE:

1. This limits accord to 47 CFR 2.1093 – Safety Limit.
2. The EUT property been complied with the partial body exposure limit under the general population environment.

5.4 RECIPES FOR TISSUE SIMULATING LIQUIDS

For the measurement of the field distribution inside the SAM phantom, the phantom must be filled with 25 litters of tissue simulation liquid.

The following ingredients are used：

- **WATER-** Deionized water (pure H20), resistivity _16 M - as basis for the liquid
- **SUGAR-** Refined sugar in crystals, as available in food shops - to reduce relative permittivity
- **SALT-** Pure NaCl - to increase conductivity
- **CELLULOSE-** Hydroxyethyl-cellulose, medium viscosity (75-125mPa.s, 2% in water, 20_C),
  CAS # 54290 - to increase viscosity and to keep sugar in solution
- **PRESERVATIVE-** Preventol D-7 Bayer AG, D-51368 Leverkusen, CAS # 55965-84-9 - to prevent the spread of bacteria and molds
- **DGMBE-** Diethylenglycol-monobuthyl ether (DGMBE), Fluka Chemie GmbH, CAS # 112-34-5 - to reduce relative permittivity

THE INFORMATION FOR 5GHz SIMULATING LIQUID

The 5GHz liquids was purchased from SPEAG.

Body liquid model: HSL 5800, P/N: SL AAH 5800 AA

Head liquid model: M 5800, P/N: SL AAM 580 AD

5GHz liquids contain the following ingredients:

Water 64 - 78%

Mineral Oil 11 - 18%

Emulsifiers 9 - 15%

Additives and Salt 2 - 3%

Testing the liquids using the Agilent Network Analyzer E8358A and Agilent Dielectric Probe Kit 85070D.The testing procedure is following as

1. Turn Network Analyzer on and allow at least 30min. warm up.
2. Mount dielectric probe kit so that interconnecting cable to Network Analyzer will not be moved during measurements or calibration.
3. Pour de-ionized water and measure water temperature (±1°).
4. Set water temperature in Agilent-Software (Calibration Setup).
5. Perform calibration.
6. Validate calibration with dielectric material of known properties (e.g. polished ceramic slab with >8mm thickness ε'=10.0, ε''=0.0). If measured parameters do not fit within tolerance, repeat calibration (±0.2 for ε': ±0.1 for ε'').
7. Conductivity can be calculated from ε'' by $\sigma = \omega \varepsilon_0 \varepsilon'' = \varepsilon'' f$ [GHz] / 18.
8. Measure liquid shortly after calibration. Repeat calibration every hour.
9. Stir the liquid to be measured. Take a sample (~ 50ml) with a syringe from the center of the liquid container.
10. Pour the liquid into a small glass flask. Hold the syringe at the bottom of the flask to avoid air bubbles.
11. Put the dielectric probe in the glass flask. Check that there are no air bubbles in front of the opening in the dielectric probe kit.
12. Perform measurements.
13. Adjust medium parameters in DASY4 for the frequencies necessary for the measurements (‘Setup Config’, select medium (e.g. Brain 900MHz) and press ‘Option’-button.
14. Select the current medium for the frequency of the validation (e.g. Setup Medium Brain 900MHz).

FOR WLAN 5GHz BAND SIMULATING LIQUID

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		21.4		21.4	
TEST DATE		Feb. 07, 2008		Feb. 09, 2008	
TESTED BY		Sam Onn		Sam Onn	
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	STANDARD VALUE	MEASUREMENT VALUE
5180	Permitivity (ε)	36.00	37.10	49.00	50.50
5200		36.00	37.10	49.00	50.50
5240		35.90	37.00	49.00	50.40
5260		35.90	37.00	48.90	50.40
5300		35.90	36.90	48.90	50.30
5320		35.80	36.90	48.90	50.30
5500		35.60	36.60	48.60	49.90
5520		35.60	36.50	48.60	49.90
5580		35.60	36.40	48.50	49.70
5600		35.50	36.40	48.50	49.70
5620		35.50	36.40	48.40	49.60
5680		35.40	36.30	48.40	49.50
5700		35.40	36.20	48.30	49.50
5800		35.30	36.10	48.20	49.30
5180	Conductivity (σ) S/m	4.63	4.64	5.28	5.26
5200		4.66	4.66	5.30	5.29
5240		4.70	4.71	5.35	5.35
5260		4.72	4.74	5.37	5.38
5300		4.76	4.78	5.42	5.41
5320		4.78	4.80	5.44	5.47
5500		4.96	5.02	5.65	5.73
5520		4.98	5.04	5.67	5.76
5580		5.04	5.11	5.74	5.85
5600		5.07	5.14	5.77	5.88
5620		5.09	5.16	5.79	5.91
5680		5.15	5.23	5.86	6.00
5700		5.17	5.26	5.88	6.04
5800		5.27	5.39	6.00	6.19
Dielectric Parameters Required at 22℃					

FOR WLAN 5GHz BAND SIMULATING LIQUID

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		21.1		NA	
TEST DATE		Feb. 08, 2008		NA	
TESTED BY		Sam Onn		NA	
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	STANDARD VALUE	MEASUREMENT VALUE
5180	Permitivity (ε)	36.00	37.40	NA	NA
5200		36.00	37.40	NA	NA
5240		35.90	37.30	NA	NA
5260		35.90	37.30	NA	NA
5300		35.90	37.20	NA	NA
5320		35.80	37.20	NA	NA
5500		35.60	36.90	NA	NA
5520		35.60	36.90	NA	NA
5580		35.60	36.70	NA	NA
5600		35.50	36.70	NA	NA
5620		35.50	36.70	NA	NA
5680		35.40	36.60	NA	NA
5700		35.40	36.50	NA	NA
5800		35.30	36.40	NA	NA
5180	Conductivity (σ) S/m	4.63	4.62	NA	NA
5200		4.66	4.64	NA	NA
5240		4.70	4.69	NA	NA
5260		4.72	4.71	NA	NA
5300		4.76	4.76	NA	NA
5320		4.78	4.78	NA	NA
5500		4.96	5.00	NA	NA
5520		4.98	5.02	NA	NA
5580		5.04	5.09	NA	NA
5600		5.07	5.12	NA	NA
5620		5.09	5.14	NA	NA
5680		5.15	5.21	NA	NA
5700		5.17	5.24	NA	NA
5800		5.27	5.37	NA	NA
Dielectric Parameters Required at 22℃					

5.5 TEST EQUIPMENT FOR TISSUE PROPERTY

ITEM	NAME	BAND	TYPE	SERIES NO.	CALIBRATED UNTIL
1	Network Analyzer	Agilent	E8358A	US41480538	Nov. 11, 2008
2	Dielectric Probe	Agilent	85070D	US01440176	NA

NOTE:

1. Before starting, all test equipment shall be warmed up for 30min.
2. The tolerance (k=1) specified by Agilent for general dielectric measurements, deriving from inaccuracies in the calibration data, analyzer drift, and random errors, are usually ±2.5% and ±5% for measured permittivity and conductivity, respectively. However, the tolerances for the conductivity is smaller for material with large loss tangents, i.e., less than ±2.5% (k=1). It can be substantially smaller if more accurate methods are applied.

6. SYSTEM VALIDATION

The system validation was performed in the flat phantom with equipment listed in the following table. Since the SAR value is calculated from the measured electric field, dielectric constant and conductivity of the body tissue, and the SAR is proportional to the square of the electric field. So, the SAR value will be also proportional to the RF power input to the system validation dipole under the same test environment. In our system validation test, 250mW RF input power was used.

6.1 TEST EQUIPMENT

ITEM	NAME	BAND	TYPE	SERIES NO.	CALIBRATED UNTIL
1	SAM Phantom	S & P	QD000 P40 CA	PT-1150	NA
2	Signal Generator	Anritsu	68247B	984703	May 18, 2008
3	E-Field Probe	Speaq	EX3DV3	3506	Mar. 19, 2008
4	DAE	S & P	DAE	579	Mar. 22, 2008
5	Robot Positioner	Staubli Unimation	NA	NA	NA
6	Validation Dipole	Speaq	D5GHzV2	1018	Apr. 18, 2008
7	Power Meter	Agilent	E4416A	GB41291763	May 27, 2008
8	Peak and Average Power Sensor	Agilent	E9327A	US40441181	May 27, 2008

NOTE: Before starting the measurement, all test equipment shall be warmed up for 30min.

6.2 TEST PROCEDURE

Before the system performance check, we need only to tell the system which components (probe, medium, and device) are used for the system performance check; the system will take care of all parameters. The dipole must be placed beneath the flat section of the SAM Twin Phantom with the correct distance holder in place. The distance holder should touch the phantom surface with a light pressure at the reference marking (little cross) and be oriented parallel to the long side of the phantom. Accurate positioning is not necessary, since the system will search for the peak SAR location, except that the dipole arms should be parallel to the surface. The device holder for mobile phones can be left in place but should be rotated away from the dipole.

The ”Power Reference Measurement” and ”Power Drift Measurement” jobs are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the amplifier output power. If it is too high (above ±0.1 dB), the system performance check should be repeated; some amplifiers have very high drift during warm-up. A stable amplifier gives drift results in the DASY system below ±0.02dB.

The ”Surface Check” job tests the optical surface detection system of the DASY system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ±0.1mm). In that case it is better to abort the system performance check and stir the liquid. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^{O}$.) However, varying breaking indices of different liquid compositions might also influence the distance. If the indicated difference varies from the actual setting, the probe parameter ”optical surface

The ”Area Scan” job measures the SAR above the dipole on a plane parallel to the surface. It is used to locate the approximate location of the peak SAR. The proposed scan uses large grid spacing for faster measurement; due to the symmetric field, the peak detection is reliable. If a finer graphic is desired, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result.

The ”Zoom Scan” job measures the field in a volume around the peak SAR value assessed in the previous ”Area Scan” job (for more information see the application note on SAR evaluation).

About the validation dipole positioning uncertainty, the constant and low loss dielectric spacer is used to establish the correct distance between the top surface of the dipole and the bottom surface of the phantom, the error component introduced by the uncertainty of the distance between the liquid (i.e., phantom shell) and the validation dipole in the DASY4 system is less than ±0.1mm.

$$SAR_{tolerance}[\%] = 100 \times (\frac{(a+d)^2}{a^2} - 1)$$

As the closest distance is 10mm, the resulting tolerance $SAR_{tolerance}$[%] is <2%.

6.3 VALIDATION RESULTS

VALIDATION TEST IN THE MUSCLE SIMULATING LIQUID					
TEST FREQUENCY (MHz)	**REQUIRED SAR (mW/g)**	**MEASURED SAR (mW/g)**	**DEVIATION (%)**	**SEPARATION DISTANCE**	**TEST DATE**
HSL5200	20.10 (1g)	19.10	-4.98	10mm	Feb. 07, 2008
HSL5500	19.20 (1g)	18.70	-2.60	10mm	Feb. 07, 2008
HSL5800	19.30 (1g)	18.60	-3.63	10mm	Feb. 07, 2008
HSL5200	20.10 (1g)	19.30	-3.98	10mm	Feb. 08, 2008
HSL5500	19.20 (1g)	18.80	-2.08	10mm	Feb. 08, 2008
HSL5800	19.30 (1g)	18.40	-4.66	10mm	Feb. 08, 2008
MSL5200	19.50 (1g)	19.10	-2.05	10mm	Feb. 09, 2008
MSL5500	19.60 (1g)	18.90	-3.57	10mm	Feb. 09, 2008
MSL5800	17.60 (1g)	17.00	-3.41	10mm	Feb. 09, 2008
TESTED BY	Sam Onn				

NOTE: Please see Appendix for the photo of system validation test.

6.4 SYSTEM VALIDATION UNCERTAINTIES

In the table below, the system validation uncertainty with respect to the analytically assessed SAR value of a dipole source as given in the IEEE 1528 standard is given. This uncertainty is smaller than the expected uncertainty for mobile phone measurements due to the simplified setup and the symmetric field distribution.

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C_i)		Standard Uncertainty (±%)		(v_i)
				(1g)	(10g)	(1g)	(10g)	
Measurement System								
Probe Calibration	4.8	Normal	1	1	1	4.8	4.8	∞
Axial Isotropy	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Hemispherical Isotropy	0	Rectangular	√3	1	1	0	0	∞
Boundary effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
System Detection Limit	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Readout Electronics	1.0	Normal	1	1	1	1.0	1.0	∞
Response Time	0	Rectangular	√3	1	1	0	0	∞
Integration Time	0	Rectangular	√3	1	1	0	0	∞
RF Ambient Conditions	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe positioning	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Algorithms for Max. SAR Evaluation	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Dipole								
Dipole Axis to Liquid Distance	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Input power and SAR drift measurement	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Phantom and Tissue Parameters								
Phantom Uncertainty	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Liquid Conductivity (target)	5.0	Rectangular	√3	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	2.5	Normal	1	0.64	0.43	1.6	1.1	∞
Liquid Permittivity (target)	5.0	Rectangular	√3	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	2.5	Normal	1	0.6	0.49	1.5	1.2	∞
Combined Standard Uncertainty						8.4	8.1	∞
Coverage Factor for 95%						kp=2		
Expanded Uncertainty (K=2)						16.8	16.2	

NOTE: About the system validation uncertainty assessment, please reference the section 7.

7. MEASUREMENT SAR PROCEDURE UNCERTAINTIES

The assessment of spatial peak SAR of the hand handheld devices is according to IEEE 1528. All testing situation shall be met below these requirements.

- The system is used by an experienced engineer who follows the manual and the guidelines taught during the training provided by SPEAG.
- The probe has been calibrated within the requested period and the stated uncertainty for the relevant frequency bands does not exceed 4.8% (k=1).
- The validation dipole has been calibrated within the requested period and the system performance check has been successful.
- The DAE unit has been calibrated within the within the requested period.
- The minimum distance between the probe sensor and inner phantom shell is selected to be between 4 and 5mm.
- The operational mode of the DUT is CW, CDMA, FDMA or TDMA (GSM, DCS, PCS, IS136 and PDC) and the measurement/integration time per point is >500 ms.
- The dielectric parameters of the liquid have been assessed using Agilent 85070D dielectric probe kit or a more accurate method.
- The dielectric parameters are within 5% of the target values.
- The DUT has been positioned as described in section 3.

7.1. PROBE CALIBRATION UNCERTAINTY

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN50361, IEC 62209, etc.) under ISO17025. The uncertainties are stated on the calibration certificate. For the most relevant frequency bands, these values do not exceed 4.8% (k=1). If evaluations of other bands are performed for which the uncertainty exceeds these values, the uncertainty tables given in the summary have to be revised accordingly.

7.2. ISOTROPY UNCERTAINTY

The axial isotropy tolerance accounts for probe rotation around its axis while the hemispherical isotropy error includes all probe orientations and field polarizations. These parameters are assessed by SPEAG during initial calibration. In 2001, SPEAG further tightened its quality controls and warrants that the maximal deviation from axial isotropy is ±0.20dB, while the maximum deviation of hemispherical isotropy is ±0.40dB, corresponding to ±4.7% and ±9.6%, respectively. A weighting factor of cp equal to 0.5 can be applied, since the axis of the probe deviates less than 30 degrees from the normal surface orientation.

7.3. BOUNDARY EFFECT UNCERTAINTY

The effect can be estimated according to the following error approximation formula

$$SAR_{tolerance}[\%] = SAR_{be}[\%] \times \frac{(d_{be} + d_{step})^2}{2d_{step}} \frac{e^{-\frac{d_{be}}{d/2}}}{d/2}$$

$$d_{be} + d_{step} < 10mm$$

The parameter d_{be} is the distance in mm between the surface and the closest measurement point used in the averaging process; d_{step} is the separation distance in mm between the first and second measurement points; δ is the minimum penetration depth in mm within the head tissue equivalent liquids (i.e., δ= 13.95mm at 3GHz); SAR_{be} is the deviation between the measured SAR value at the distance d_{be} from the boundary and the wave-guide analytical value SAR_{ref}.DASY4 applies a boundary effect compensation algorithm according to IEEE 1528, which is possible since the axis of the probe never deviates more than 30 degrees from the normal surface orientation. SAR_{be}[%] is assessed during the calibration process and SPEAG warrants that the uncertainty at distances larger than 4mm is always less than 1%.In summary, the worst case boundary effect SAR tolerance[%] for scanning distances larger than 4mm is < ± 0.8%.

7.4. PROBE LINEARITY UNCERTAINTY

Field probe linearity uncertainty includes errors from the assessment and compensation of the diode compression effects for CW and pulsed signals with known duty cycles. This error is assessed using the procedure described in IEEE 1528. For SPEAG field probes, the measured difference between CW and pulsed signals, with pulse frequencies between 10Hz and 1kHz and duty cycles between 1 and 100, is < ±0.20dB (< ±4.7%).

7.5. READOUT ELECTRONICS UNCERTAINTY

All uncertainties related to the probe readout electronics (DAE unit), including the gain and linearity of the instrumentation amplifier, its loading effect on the probe, and accuracy of the signal conversion algorithm, have been assessed accordingly to IEEE 1528.The combination (root-sum-square RSS method) of these components results in an overall maximum error of ±1.0%.

7.6. RESPONSE TIME UNCERTAINTY

The time response of the field probes is assessed by exposing the probe to a well-controlled electric field producing SAR larger than 2.0W/kg at the tissue medium surface. The signal response time is evaluated as the time required by the system to reach 90% of the expected final value after an on/of switch of the power source. Analytically, it can be expressed as:

$$SAR_{tolerance}[\%] = 100 \times \left(\frac{T_m}{T_m + te^{-T_m/t} - t} - 1\right)$$

where Tm is 500 ms, i.e., the time between measurement samples, and $_T$ the time constant. The response time $_T$ of SPEAG's probes is <5ms. In the current implementation, DASY4 waits longer than 100 ms after having reached the grid point before starting a measurement, i.e., the response time uncertainty is negligible.

7.7. INTEGRATION TIME UNCERTAINTY

If the device under test does not emit a CW signal, the integration time applied to measure the electric field at a specific point may introduce additional uncertainties due to the discretization and can be assessed as follows

$$SAR_{tolerance}[\%] = 100 \times \sum_{allsub-frames} \frac{t_{frame}}{t_{integration}} \frac{slot_{idle}}{slot_{total}}$$

The tolerances for the different systems are given in Table 7.1, whereby the worst-case $SAR_{tolerance}$ is 2.6%.

System	$SAR_{tolerance}$ %
CW	0
CDMA*	0
WCDMA*	0
FDMA	0
IS-136	2.6
PDC	2.6
GSM/DCS/PCS	1.7
DECT	1.9
Worst-Case	2.6

TABLE 7.1

7.8. PROBE POSITIONER MECHANICAL TOLERANCE

The mechanical tolerance of the field probe positioner can introduce probe positioning uncertainties. The resulting SAR uncertainty is assessed by comparing the SAR obtained according to the specifications of the probe positioner with respect to the actual position defined by the geometric enter of the probe sensors. The tolerance is determined as:

$$SAR_{tolerance}[\%] = 100 \times \frac{d_{ph}}{d/2}$$

The specified repeatability of the RX robot family used in DASY4 systems is ±25µm. The absolute accuracy for short distance movements is better than ±0.1mm, i.e., the $SAR_{tolerance}$[%] is better than 1.5% (rectangular).

7.9. PROBE POSITIONING

The probe positioning procedures affect the tolerance of the separation distance between the probe tip and the phantom surface as:

$$SAR_{tolerance}[\%] = 100 \times \frac{d_{ph}}{d/2}$$

where d_{ph} is the maximum deviation of the distance between the probe tip and the phantom surface. The optical surface detection has a precision of better than 0.2mm, resulting in an $SAR_{tolerance}$[%] of <2.9% (rectangular distribution). Since the mechanical detection provides better accuracy, 2.9% is a worst-case figure for DASY4 system.

7.10. PHANTOM UNCERTAINTY

The SAR measurement uncertainty due to SPEAG phantom shell production tolerances has been evaluated using

$$SAR_{tolerance}[\%] \cong 100 \times \frac{2d}{a}, \qquad d << a$$

For a maximum deviation d of the inner and outer shell of the phantom from that specified in the CAD file of ±0.2mm, and a 10mm spacing a between source and tissue liquid, the calculated phantom uncertainty is ±4.0%.

7.11. DASY4 UNCERTAINTY BUDGET (FOR 5 ~ 6GHz)

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C_i)		Standard Uncertainty (±%)		(v_i)
				(1g)	(10g)	(1g)	(10g)	
Measurement System								
Probe Calibration	6.8	Normal	1	1	1	6.8	6.8	∞
Axial Isotropy	4.7	Rectangular	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	$\sqrt{3}$	0.7	0.7	3.9	3.9	∞
Boundary effect	2.0	Rectangular	$\sqrt{3}$	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	$\sqrt{3}$	1	1	2.7	2.7	∞
System Detection Limit	1.0	Rectangular	$\sqrt{3}$	1	1	0.6	0.6	∞
Readout Electronics	1.0	Normal	1	1	1	1.0	1.0	∞
Response Time	0.8	Rectangular	$\sqrt{3}$	1	1	0.5	0.5	∞
Integration Time	2.6	Rectangular	$\sqrt{3}$	1	1	1.5	1.5	∞
RF Ambient Conditions	3.0	Rectangular	$\sqrt{3}$	1	1	1.7	1.7	∞
Probe Positioner	0.8	Rectangular	$\sqrt{3}$	1	1	0.5	0.5	∞
Probe positioning	5.7	Normal	1	1	1	5.7	5.7	∞
Algorithms for Max. SAR Evaluation	4.0	Rectangular	$\sqrt{3}$	1	1	2.3	2.3	∞
Test EUT Related								
Device Positioning	2.9	Normal	1	1	1	2.9	2.9	145
Device Holder	3.6	Normal	1	1	1	3.6	3.6	5
Power Drift	5.0	Rectangular	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and Tissue Parameters								
Phantom Uncertainty	4.0	Rectangular	$\sqrt{3}$	1	1	2.3	2.3	∞
Liquid Conductivity (target)	5.0	Rectangular	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	2.5	Normal	1	0.64	0.43	1.6	1.1	∞
Liquid Permittivity (target)	5.0	Rectangular	$\sqrt{3}$	0.60	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	2.5	Normal	1	0.60	0.49	1.5	1.2	∞
Combined Standard Uncertainty						12.8	12.7	330
Expanded STD Uncertainty						**25.7**	**25.3**	

TABLE 7.3

The table 7.3: Worst-Case uncertainty budget for DASY4 valid for the frequency range 5 ~ 6 GHz. Probe calibration error reflects uncertainty of the narrow-bandwidth EX3DV3 probe conversion factor (±50 MHz).

8. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, UL, A2LA
GERMANY	TUV Rheinland
JAPAN	VCCI
NORWAY	NEMKO
CANADA	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
NETHERLANDS	Telefication
SINGAPORE	GOST-ASIA (MOU)
RUSSIA	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

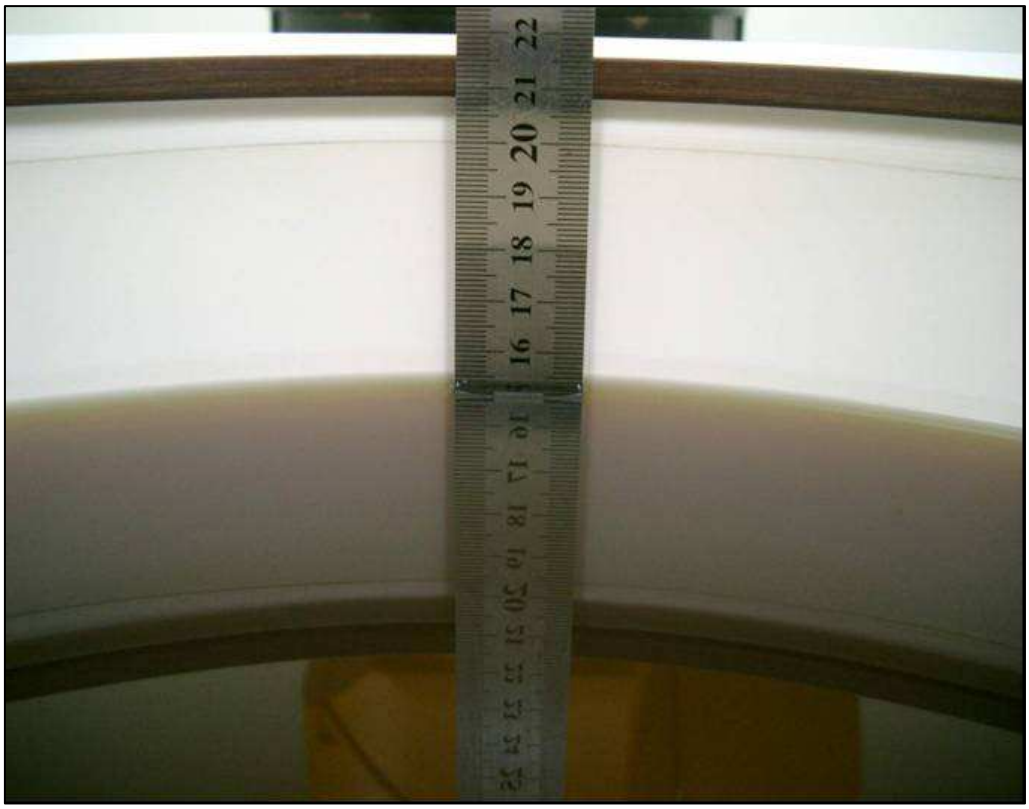
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

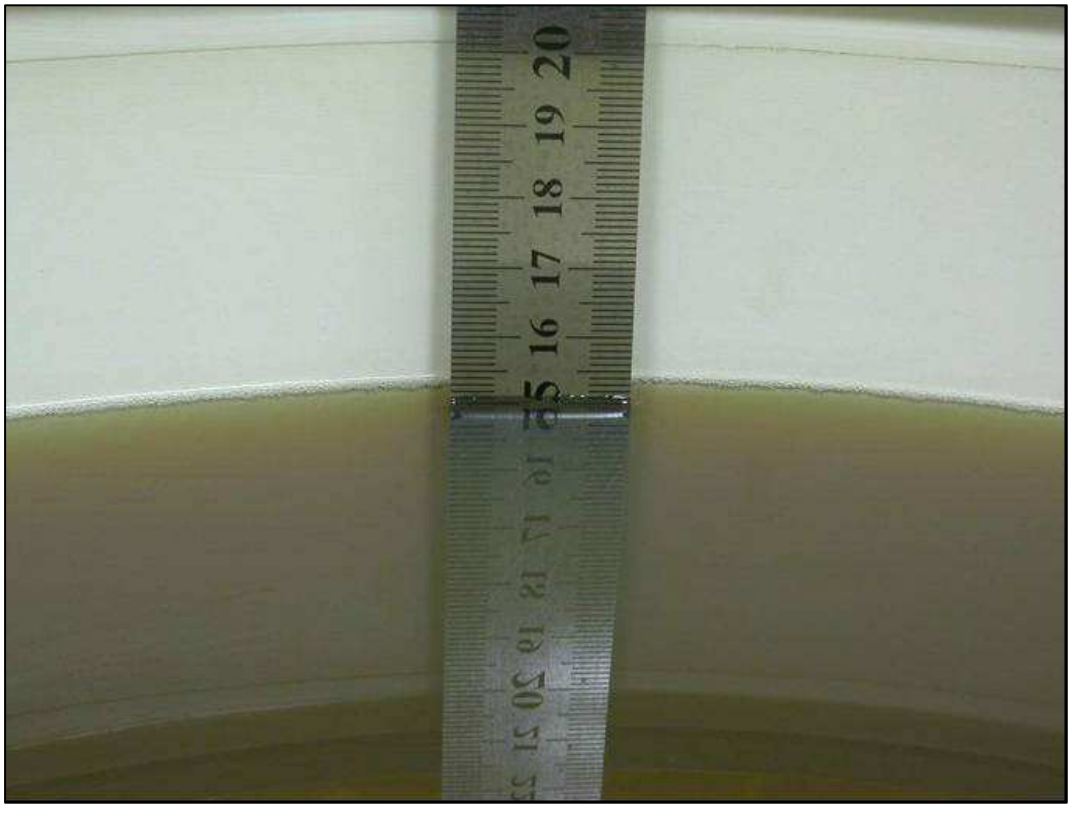
APPENDIX A: TEST DATA

Liquid Level Photo

Tissue HSL5800MHz D=154mm



Tissue MSL5800MHz D=151mm



Date/Time: 2008/2/7 02:27:15

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch36

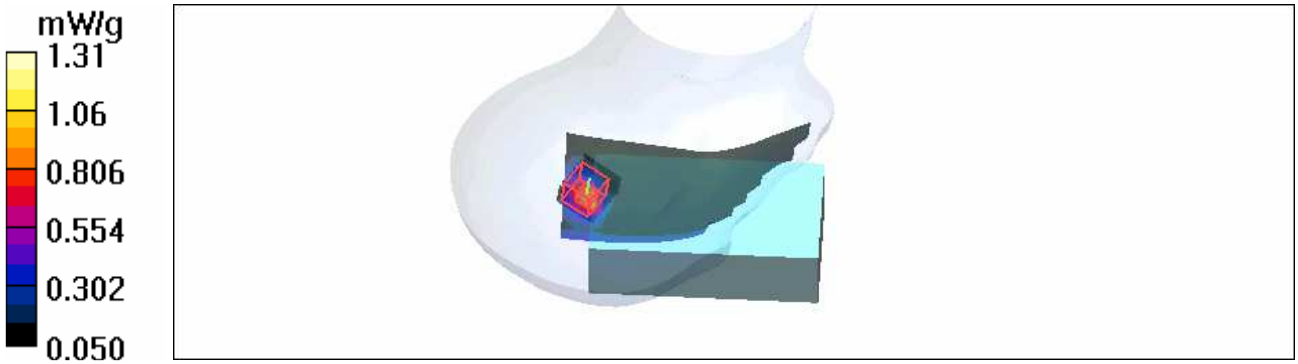
DUT: EDA ; Type: MC7596 ; Test Frequency: 5180 MHz

Communication System: 802.11a ; Frequency: 5180 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5180 MHz; σ = 4.64 mho/m; εr = 37.1; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Low Channel 36/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.19 mW/g

Touch Position - Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.46 V/m
Peak SAR (extrapolated) = 3.56 W/kg
SAR(1 g) = 1.10 mW/g; SAR(10 g) = 0.405 mW/g
Maximum value of SAR (measured) = 1.31 mW/g



Date/Time: 2008/2/7 03:02:52

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch40

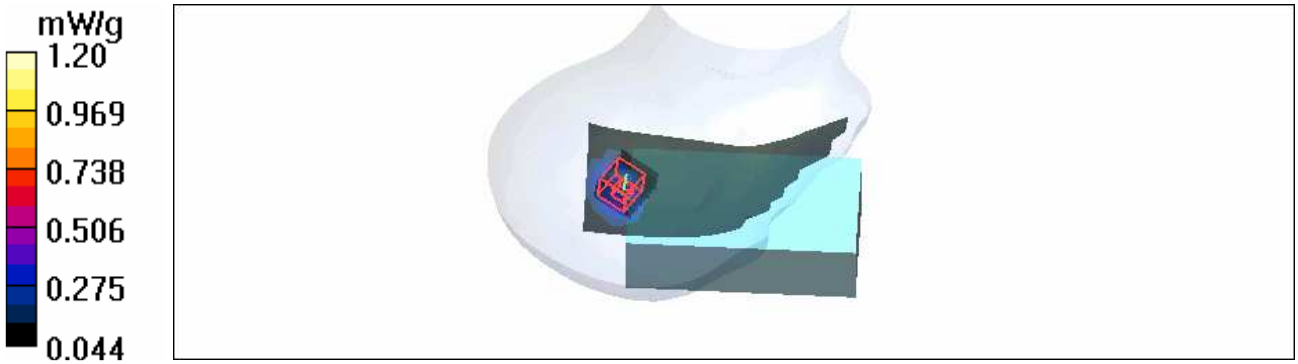
DUT: EDA ; Type: MC7596 ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5200 MHz; σ = 4.66 mho/m; εr = 37.1; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 40/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.14 mW/g

Touch Position - Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.03 V/m
Peak SAR (extrapolated) = 3.18 W/kg
SAR(1 g) = 0.99 mW/g; SAR(10 g) = 0.346 mW/g
Maximum value of SAR (measured) = 1.20 mW/g



Date/Time: 2008/2/7 03:37:29

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch48

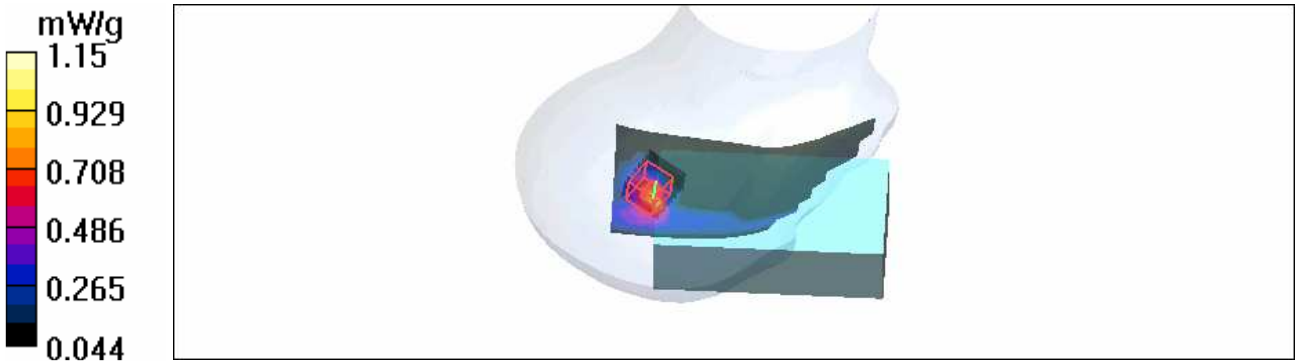
DUT: EDA ; Type: MC7596 ; Test Frequency: 5240 MHz

Communication System: 802.11a ; Frequency: 5240 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5240 MHz; σ = 4.71 mho/m; εr = 37; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 48/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.04 mW/g

Touch Position - Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.44 V/m
Peak SAR (extrapolated) = 3.18 W/kg
SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.346 mW/g
Maximum value of SAR (measured) = 1.15 mW/g



Date/Time: 2008/2/7 04:12:28

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch52

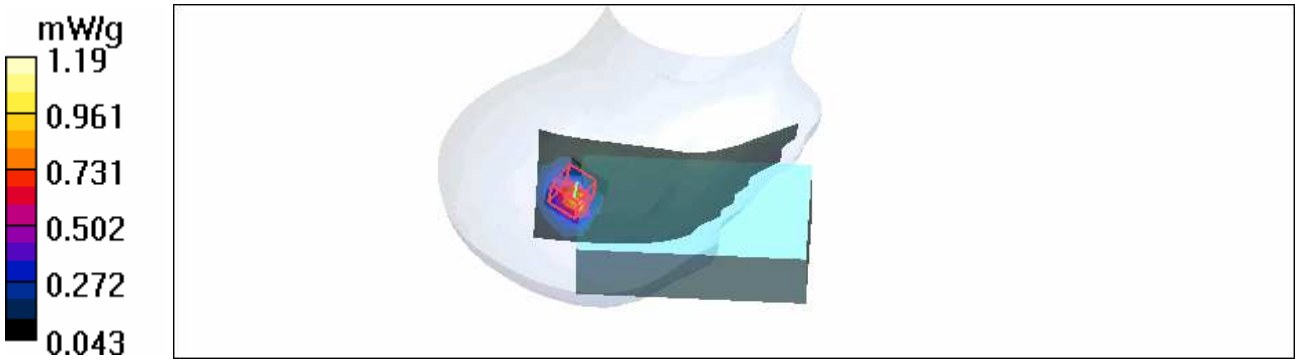
DUT: EDA ; Type: MC7596 ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5260 MHz; σ = 4.74 mho/m; εr = 37; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 52/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.06 mW/g

Touch Position - Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.30 V/m
Peak SAR (extrapolated) = 3.24 W/kg
SAR(1 g) = 0.944 mW/g; SAR(10 g) = 0.334 mW/g
Maximum value of SAR (measured) = 1.19 mW/g



Date/Time: 2008/2/7 04:47:30

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch60

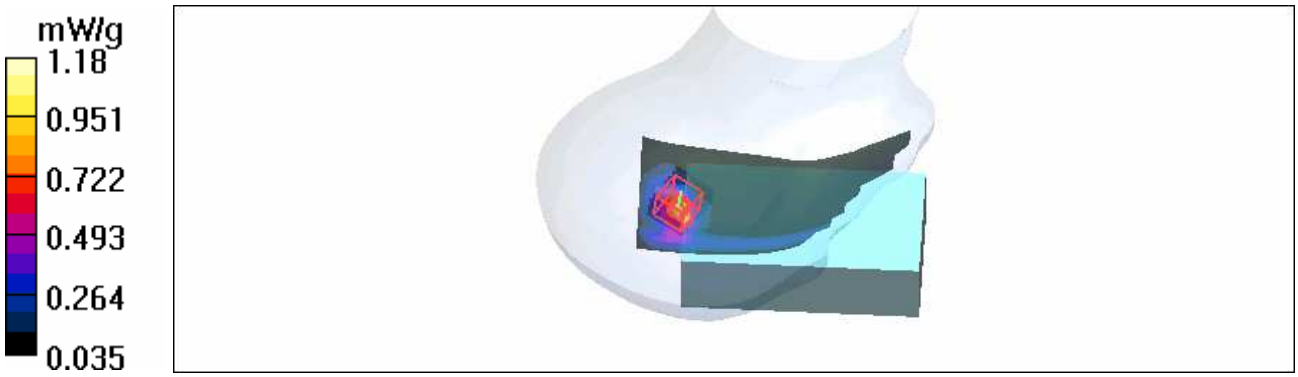
DUT: EDA ; Type: MC7596 ; Test Frequency: 5300 MHz

Communication System: 802.11a ; Frequency: 5300 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5300 MHz; σ = 4.78 mho/m; ε_r = 36.9; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 60/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.05 mW/g

Touch Position - Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.60 V/m
Peak SAR (extrapolated) = 3.06 W/kg
SAR(1 g) = 0.918 mW/g; SAR(10 g) = 0.314 mW/g
Maximum value of SAR (measured) = 1.18 mW/g



Date/Time: 2008/2/7 05:22:25

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch64

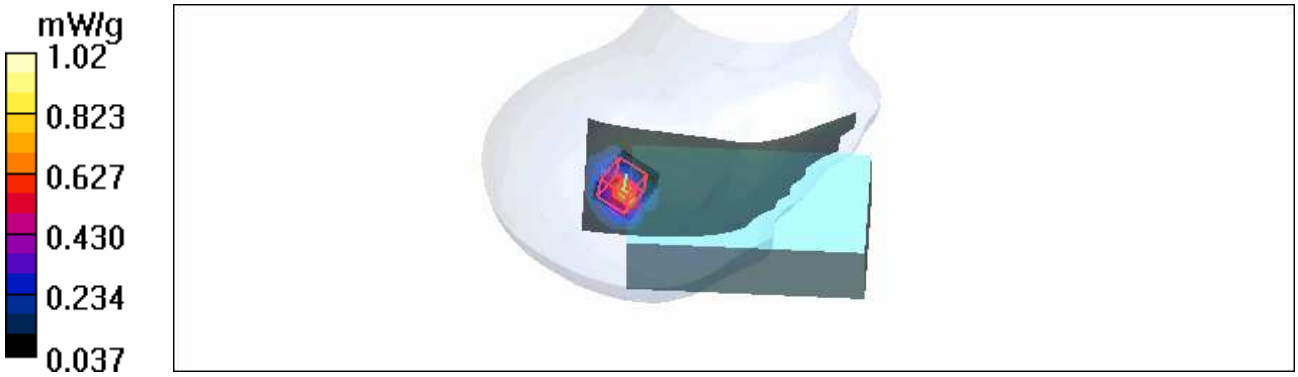
DUT: EDA ; Type: MC7596 ; Test Frequency: 5320 MHz

Communication System: 802.11a ; Frequency: 5320 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5320 MHz; σ = 4.8 mho/m; ε_r = 36.9; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 64/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.91 mW/g

Touch Position - Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.85 V/m
Peak SAR (extrapolated) = 2.88 W/kg
SAR(1 g) = 0.858 mW/g; SAR(10 g) = 0.281 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



Date/Time: 2008/2/7 05:57:51

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch100

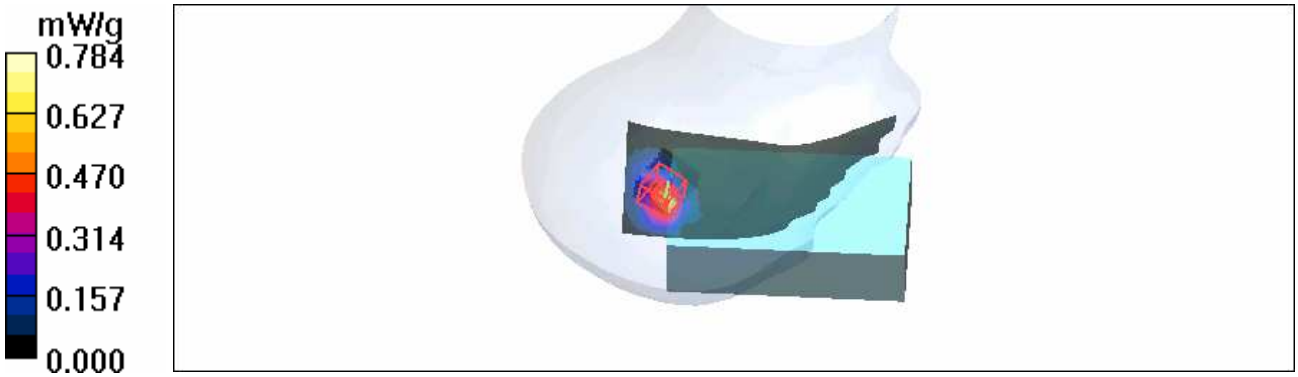
DUT: EDA ; Type: MC7596 ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5500 MHz; σ = 5.02 mho/m; ε_r = 36.6; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 100/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.712 mW/g

Touch Position - Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.42 V/m
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 0.495 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.784 mW/g



Date/Time: 2008/2/7 06:32:53

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch104

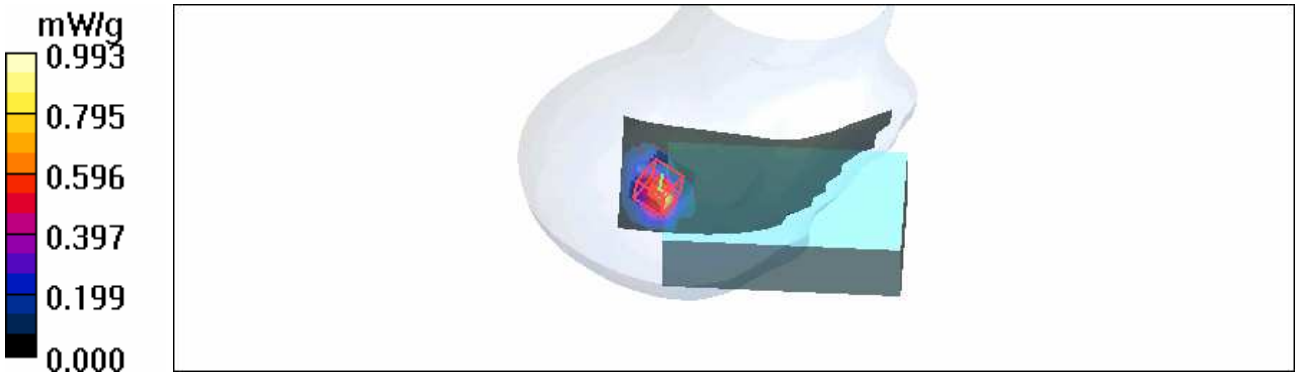
DUT: EDA ; Type: MC7596 ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5520 MHz; σ = 5.04 mho/m; ε_r = 36.5; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 104/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.923 mW/g

Touch Position - Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.76 V/m
Peak SAR (extrapolated) = 2.76 W/kg
SAR(1 g) = 0.766 mW/g; SAR(10 g) = 0.315 mW/g
Maximum value of SAR (measured) = 0.993 mW/g



Date/Time: 2008/2/7 07:07:10

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch116

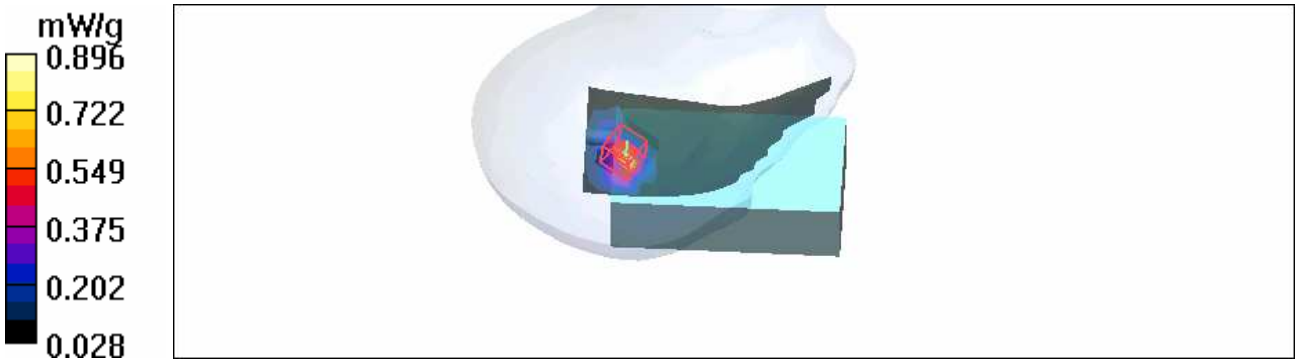
DUT: EDA ; Type: MC7596 ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5580 MHz; σ = 5.11 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 116/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.815 mW/g

Touch Position - Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.69 V/m
Peak SAR (extrapolated) = 2.51 W/kg
SAR(1 g) = 0.695 mW/g; SAR(10 g) = 0.287 mW/g
Maximum value of SAR (measured) = 0.896 mW/g



Date/Time: 2008/2/7 07:42:05

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch120

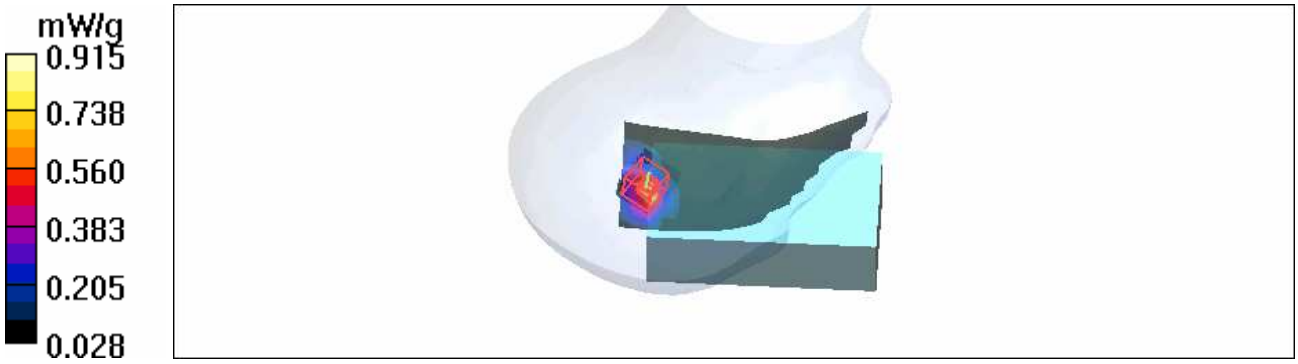
DUT: EDA ; Type: MC7596 ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5600 MHz; σ = 5.14 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 120/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.862 mW/g

Touch Position - Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.61 V/m
Peak SAR (extrapolated) = 2.75 W/kg
SAR(1 g) = 0.683 mW/g; SAR(10 g) = 0.288 mW/g
Maximum value of SAR (measured) = 0.915 mW/g



Date/Time: 2008/2/7 08:17:17

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch124

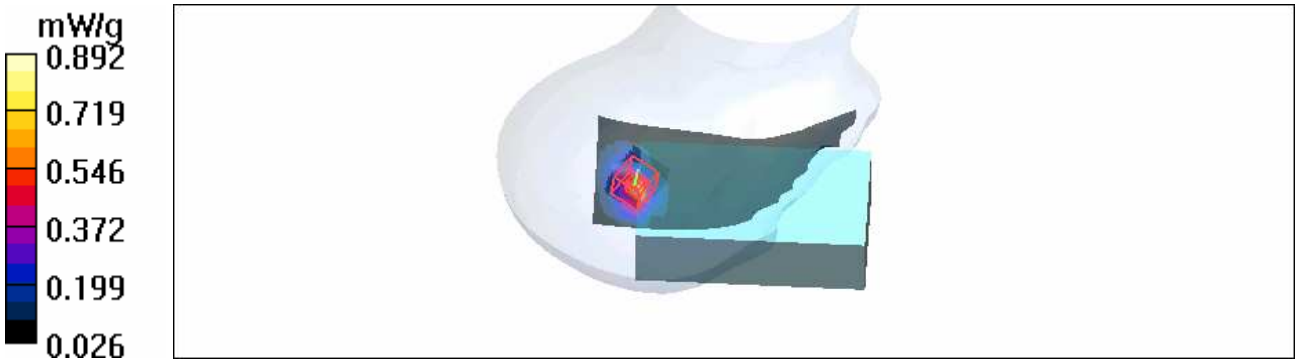
DUT: EDA ; Type: MC7596 ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5620 MHz; σ = 5.16 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 124/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.817 mW/g

Touch Position - Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.83 V/m
Peak SAR (extrapolated) = 2.64 W/kg
SAR(1 g) = 0.693 mW/g; SAR(10 g) = 0.289 mW/g
Maximum value of SAR (measured) = 0.892 mW/g



Date/Time: 2008/2/7 08:53:32

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch136

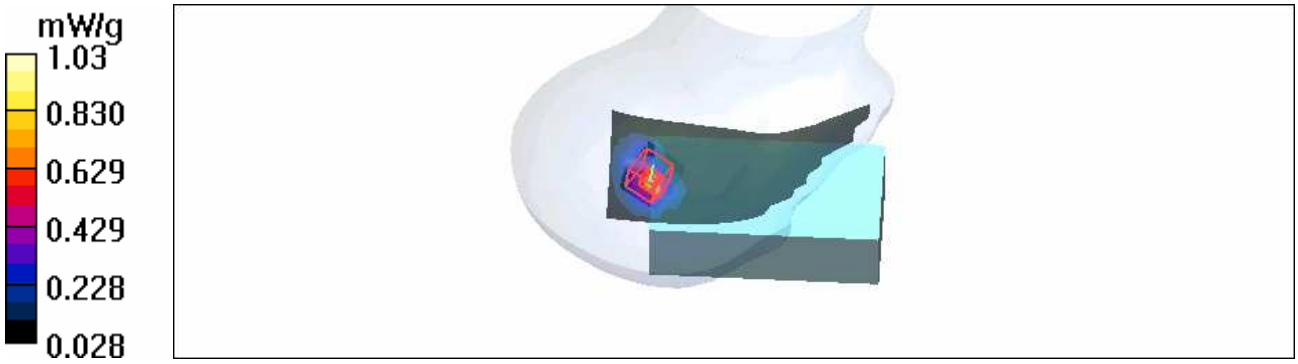
DUT: EDA ; Type: MC7596 ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5680 MHz; σ = 5.23 mho/m; ε_r = 36.3; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 136/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.912 mW/g

Touch Position - Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.14 V/m
Peak SAR (extrapolated) = 3.27 W/kg
SAR(1 g) = 0.853 mW/g; SAR(10 g) = 0.333 mW/g
Maximum value of SAR (measured) = 1.03 mW/g



Date/Time: 2008/2/7 09:26:48

Test Laboratory: Advance Data Technology

M01-Right Head-Cheek-11a-Ch140

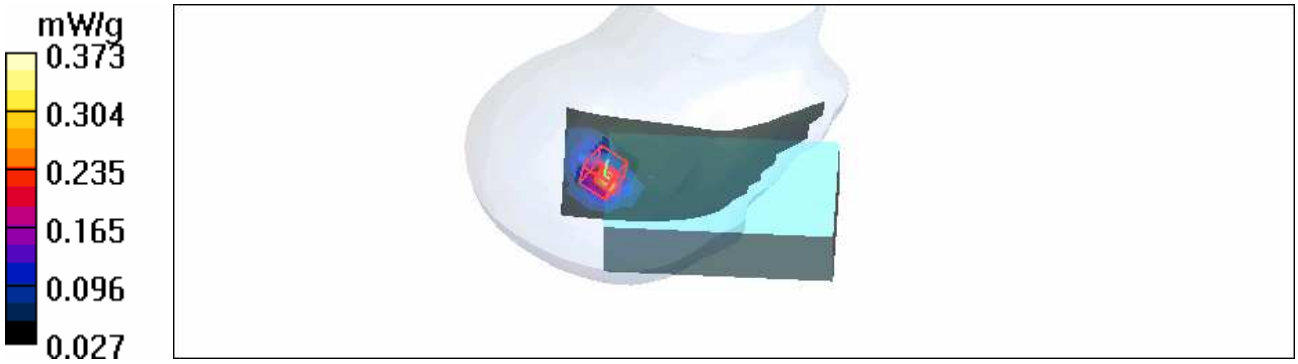
DUT: EDA ; Type: MC7596 ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5700 MHz; σ = 5.26 mho/m; ε_r = 36.2; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 140/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.364 mW/g

Touch Position - Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.50 V/m
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.300 mW/g; SAR(10 g) = 0.121 mW/g
Maximum value of SAR (measured) = 0.373 mW/g



Date/Time: 2008/2/7 11:47:31

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch36

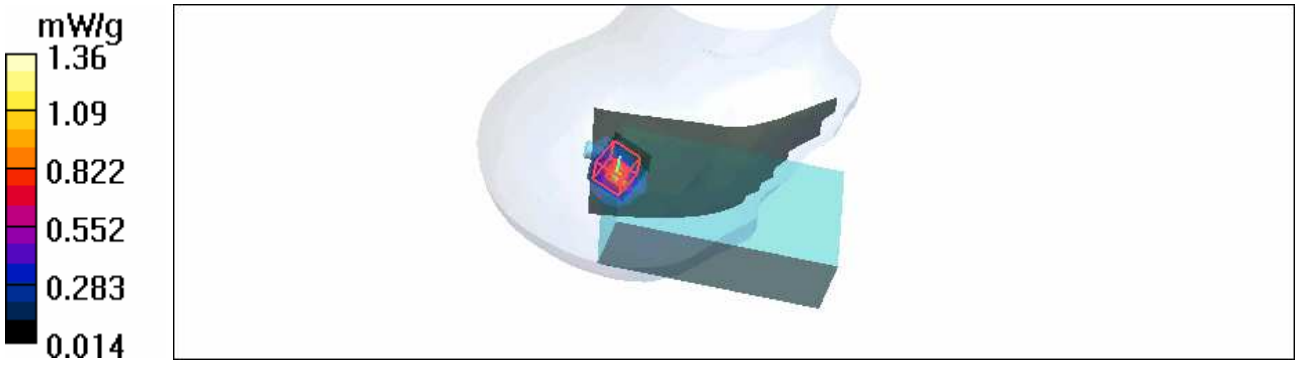
DUT: EDA ; Type: MC7596 ; Test Frequency: 5180 MHz

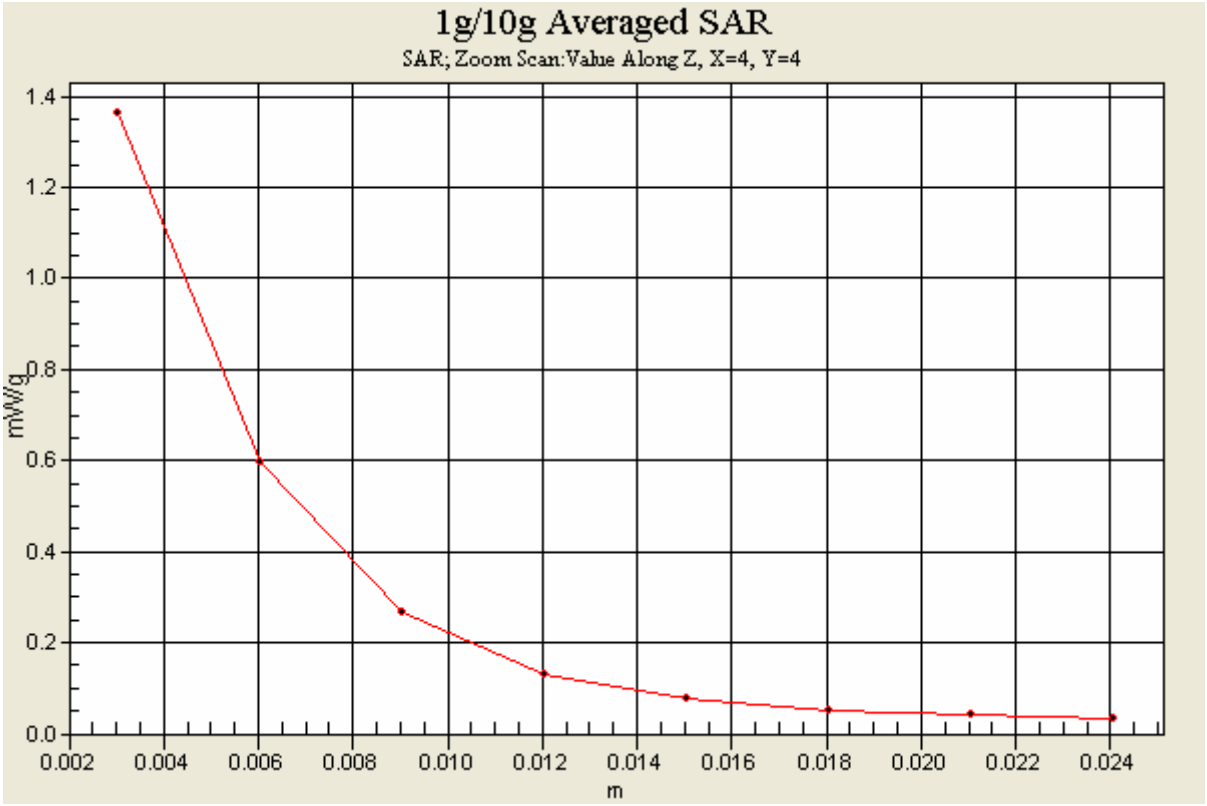
Communication System: 802.11a ; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5180 MHz; σ = 4.64 mho/m; εr = 37.1; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Low Channel 36/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.28 mW/g

Tilt Position - Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.92 V/m
Peak SAR (extrapolated) = 3.93 W/kg
SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.386 mW/g
Maximum value of SAR (measured) = 1.36 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=4, Y=4
mW/g
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024
m

Date/Time: 2008/2/7 12:22:54

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch40

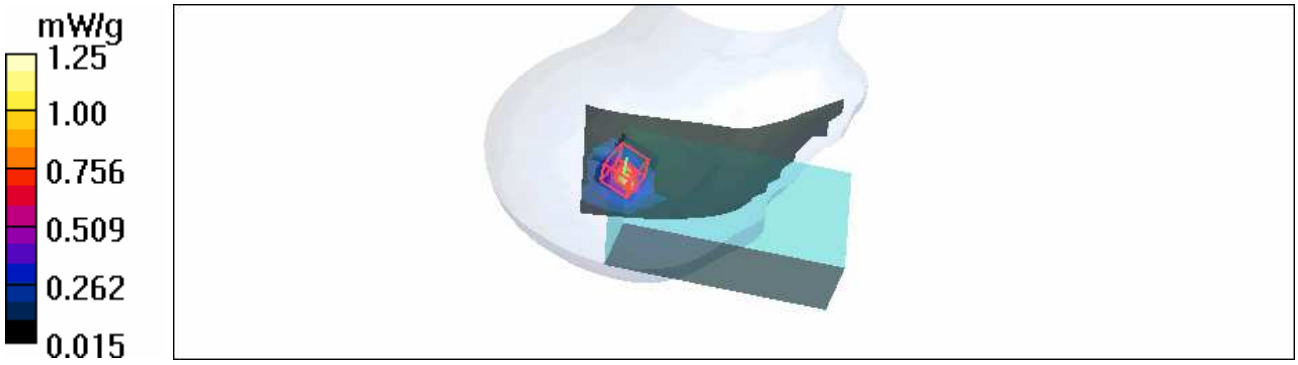
DUT: EDA ; Type: MC7596 ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5200 MHz; σ = 4.66 mho/m; εr = 37.1; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 40/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.14 mW/g

Tilt Position - Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.83 V/m
Peak SAR (extrapolated) = 3.70 W/kg
SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.351 mW/g
Maximum value of SAR (measured) = 1.25 mW/g



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Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch48

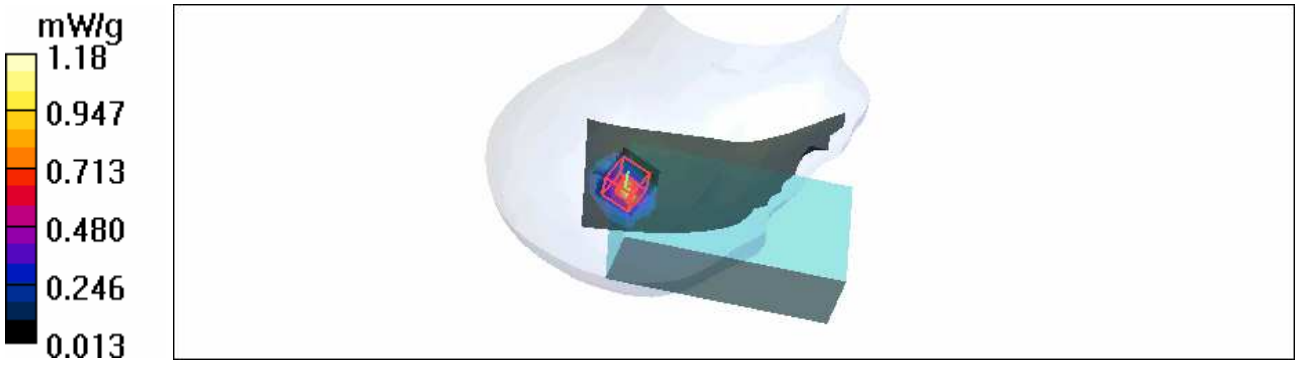
DUT: EDA ; Type: MC7596 ; Test Frequency: 5240 MHz

Communication System: 802.11a ; Frequency: 5240 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5240 MHz; σ = 4.71 mho/m; εr = 37; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 48/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.05 mW/g

Tilt Position - Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.34 V/m
Peak SAR (extrapolated) = 3.35 W/kg
SAR(1 g) = 0.962 mW/g; SAR(10 g) = 0.331 mW/g
Maximum value of SAR (measured) = 1.18 mW/g



Date/Time: 2008/2/7 13:32:09

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch52

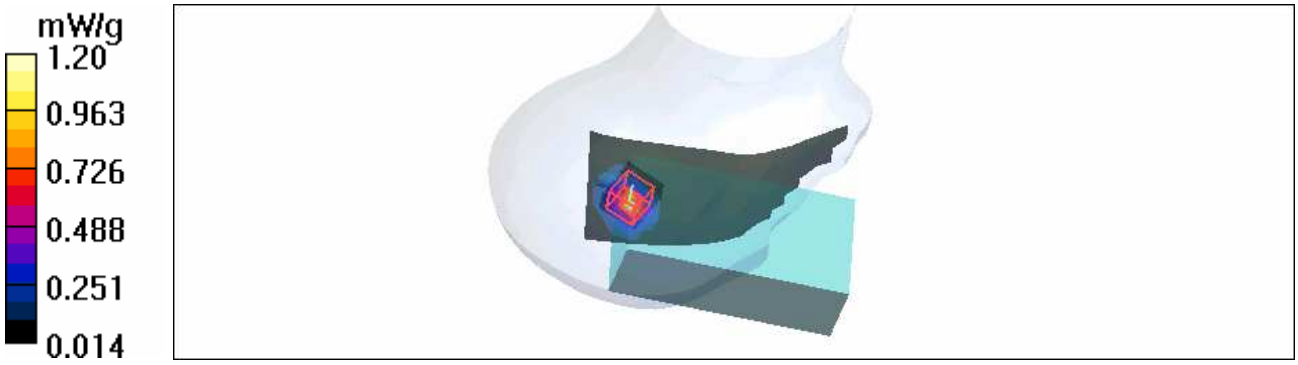
DUT: EDA ; Type: MC7596 ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5260 MHz; σ = 4.74 mho/m; εr = 37; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 52/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.13 mW/g

Tilt Position - Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.45 V/m
Peak SAR (extrapolated) = 3.37 W/kg
SAR(1 g) = 0.991 mW/g; SAR(10 g) = 0.342 mW/g
Maximum value of SAR (measured) = 1.20 mW/g



Date/Time: 2008/2/7 14:07:04

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch60

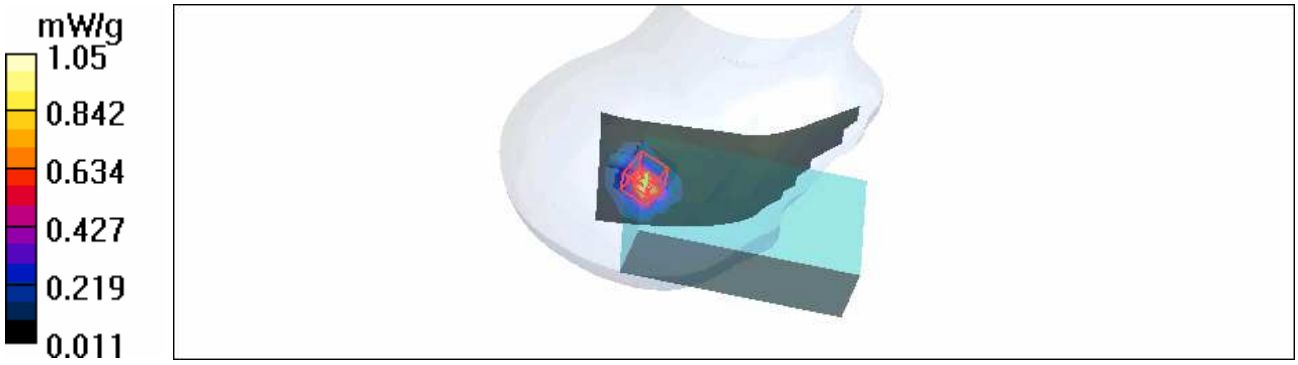
DUT: EDA ; Type: MC7596 ; Test Frequency: 5300 MHz

Communication System: 802.11a ; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5300 MHz; σ = 4.78 mho/m; ε_r = 36.9; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 60/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.92 mW/g

Tilt Position - Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.28 V/m
Peak SAR (extrapolated) = 2.87 W/kg
SAR(1 g) = 0.816 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 1.05 mW/g



Date/Time: 2008/2/7 14:42:02

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch64

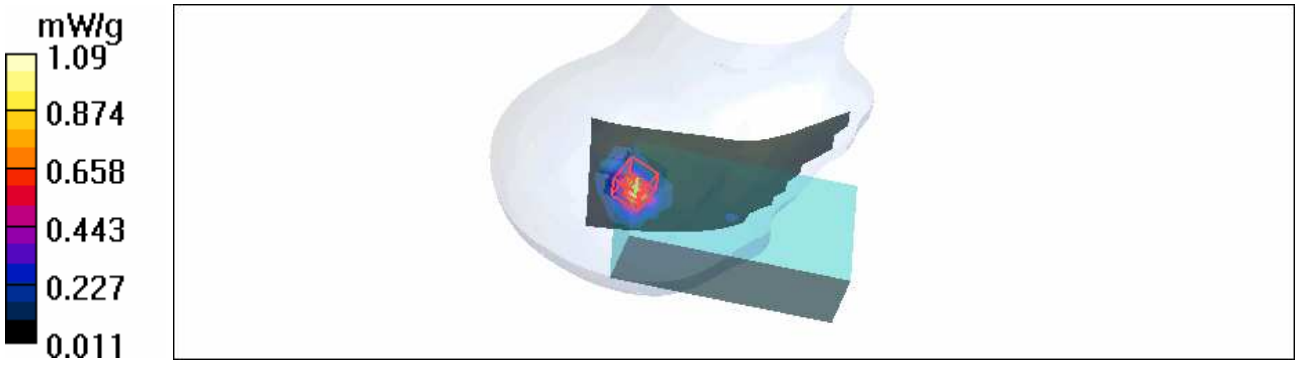
DUT: EDA ; Type: MC7596 ; Test Frequency: 5320 MHz

Communication System: 802.11a ; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5320 MHz; σ = 4.8 mho/m; ε_r = 36.9; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 64/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.94 mW/g

Tilt Position - Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.39 V/m
Peak SAR (extrapolated) = 2.77 W/kg
SAR(1 g) = 0.817 mW/g; SAR(10 g) = 0.282 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



Date/Time: 2008/2/7 15:17:07

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch100

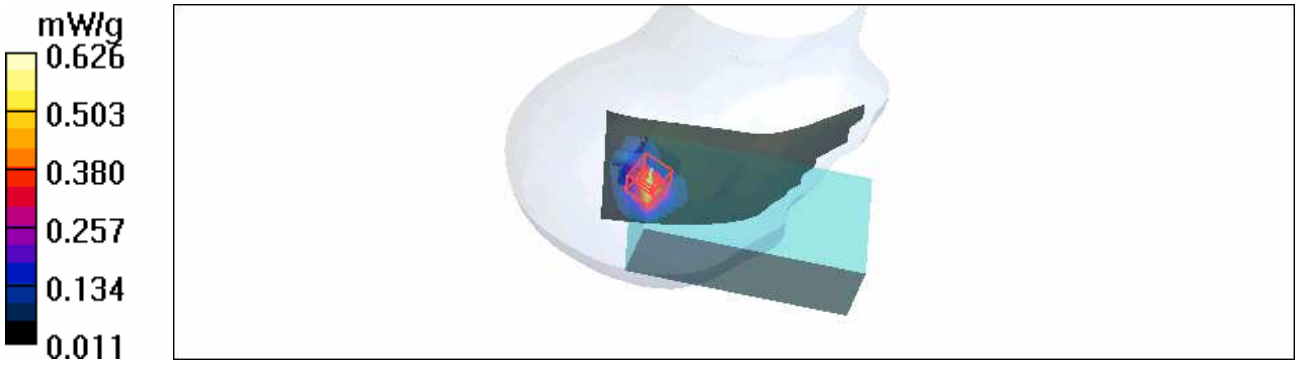
DUT: EDA ; Type: MC7596 ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5500 MHz; σ = 5.02 mho/m; ε_r = 36.6; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 100/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.553 mW/g

Tilt Position - Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 3.58 V/m
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.435 mW/g; SAR(10 g) = 0.167 mW/g
Maximum value of SAR (measured) = 0.626 mW/g



Date/Time: 2008/2/7 15:52:25

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch104

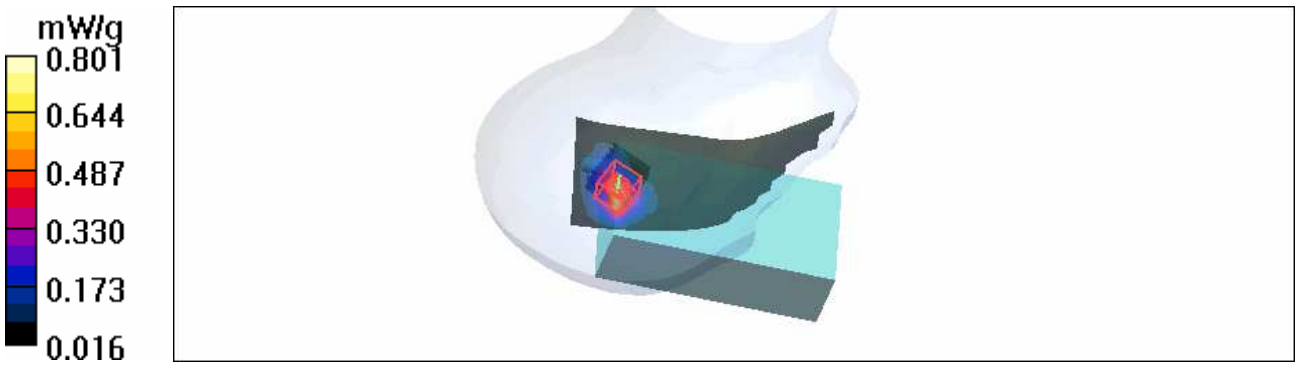
DUT: EDA ; Type: MC7596 ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5520 MHz; σ = 5.04 mho/m; ε_r = 36.5; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 104/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.736 mW/g

Tilt Position - Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.27 V/m
Peak SAR (extrapolated) = 2.26 W/kg
SAR(1 g) = 0.619 mW/g; SAR(10 g) = 0.285 mW/g
Maximum value of SAR (measured) = 0.801 mW/g



Date/Time: 2008/2/7 16:27:42

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch116

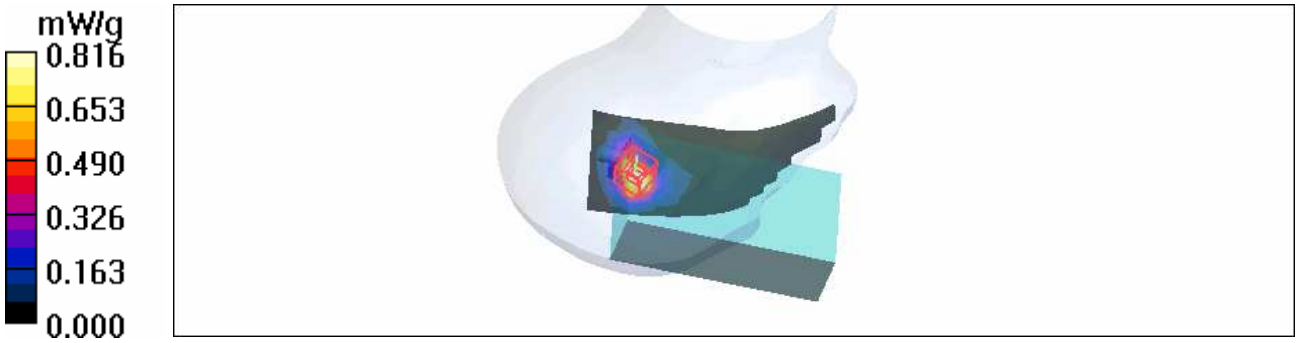
DUT: EDA ; Type: MC7596 ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5580 MHz; σ = 5.11 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 116/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.785 mW/g

Tilt Position - Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.97 V/m
Peak SAR (extrapolated) = 2.14 W/kg
SAR(1 g) = 0.606 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.816 mW/g



Date/Time: 2008/2/7 17:02:52

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch120

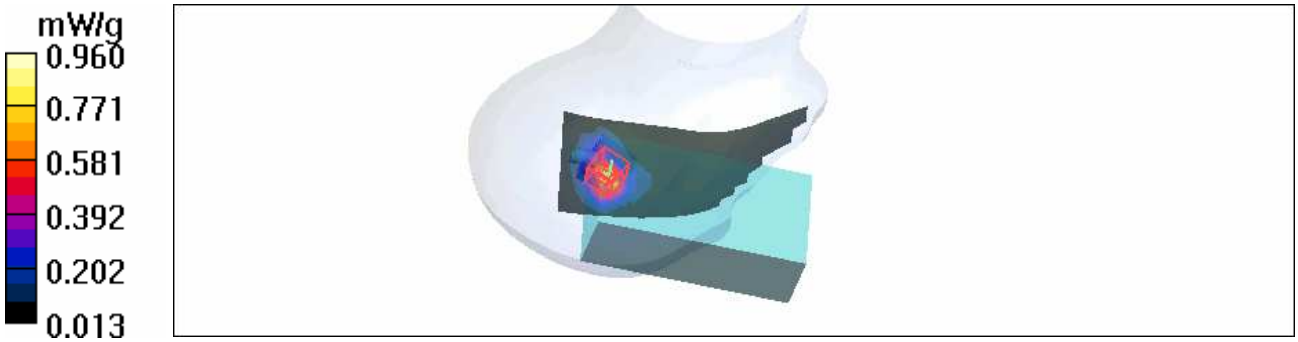
DUT: EDA ; Type: MC7596 ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5600 MHz; σ = 5.14 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 120/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.858 mW/g

Tilt Position - Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.2 V/m
Peak SAR (extrapolated) = 2.51 W/kg
SAR(1 g) = 0.698 mW/g; SAR(10 g) = 0.261 mW/g
Maximum value of SAR (measured) = 0.960 mW/g



Date/Time: 2008/2/7 17:37:34

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch124

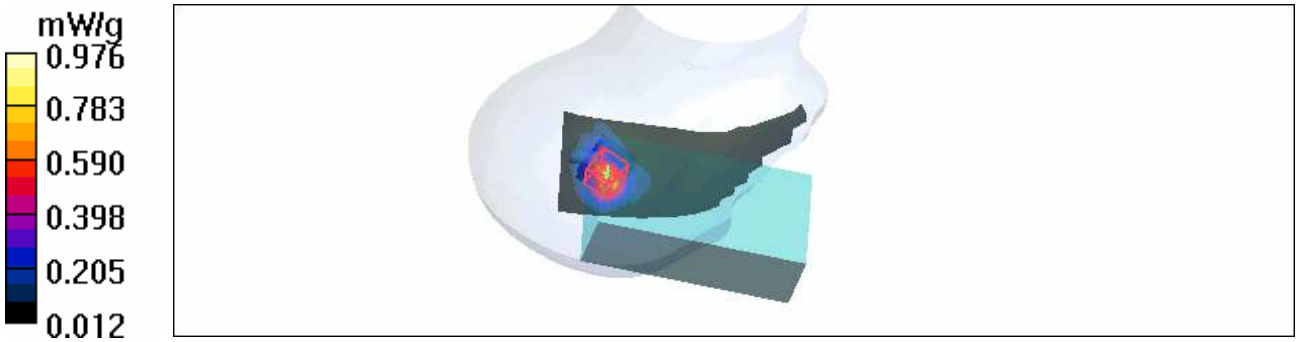
DUT: EDA ; Type: MC7596 ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5620 MHz; σ = 5.16 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 124/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.848 mW/g

Tilt Position - Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.2 V/m
Peak SAR (extrapolated) = 2.72 W/kg
SAR(1 g) = 0.720 mW/g; SAR(10 g) = 0.266 mW/g
Maximum value of SAR (measured) = 0.976 mW/g



Date/Time: 2008/2/7 18:12:06

Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch136

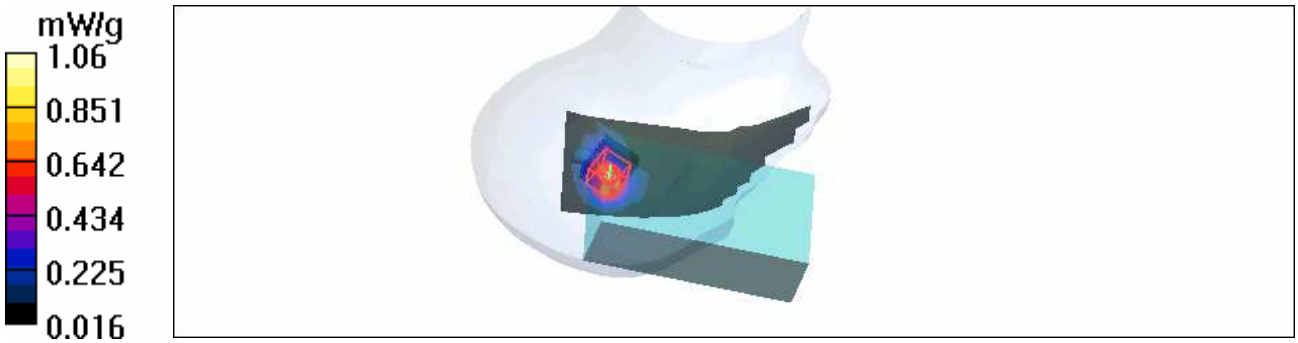
DUT: EDA ; Type: MC7596 ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5680 MHz; σ = 5.23 mho/m; ε_r = 36.3; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 136/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.94 mW/g

Tilt Position - Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.6 V/m
Peak SAR (extrapolated) = 3.19 W/kg
SAR(1 g) = 0.857 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 1.06 mW/g



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Test Laboratory: Advance Data Technology

M02-Right Head-Tilt-11a-Ch140

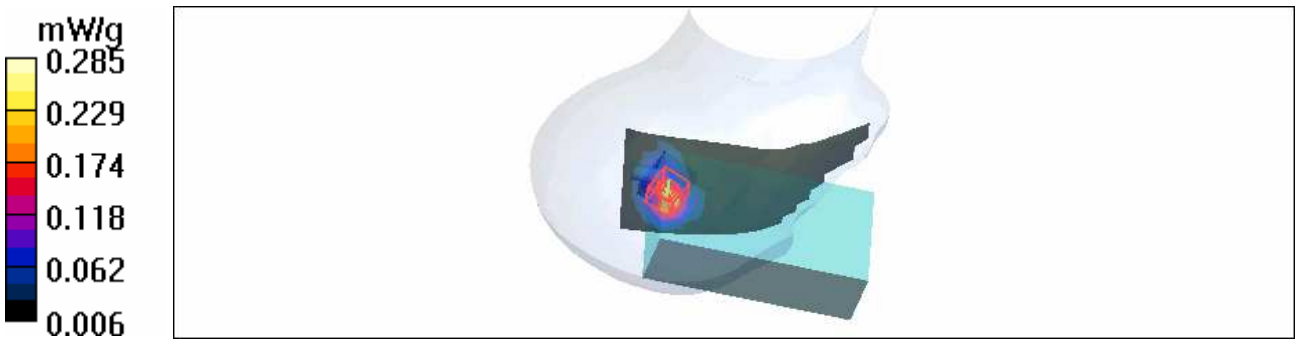
DUT: EDA ; Type: MC7596 ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5700 MHz; σ = 5.26 mho/m; ε_r = 36.2; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 140/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.250 mW/g

Tilt Position - Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.80 V/m
Peak SAR (extrapolated) = 0.826 W/kg
SAR(1 g) = 0.210 mW/g; SAR(10 g) = 0.081 mW/g
Maximum value of SAR (measured) = 0.285 mW/g



Date/Time: 2008/2/8 02:18:22

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch36

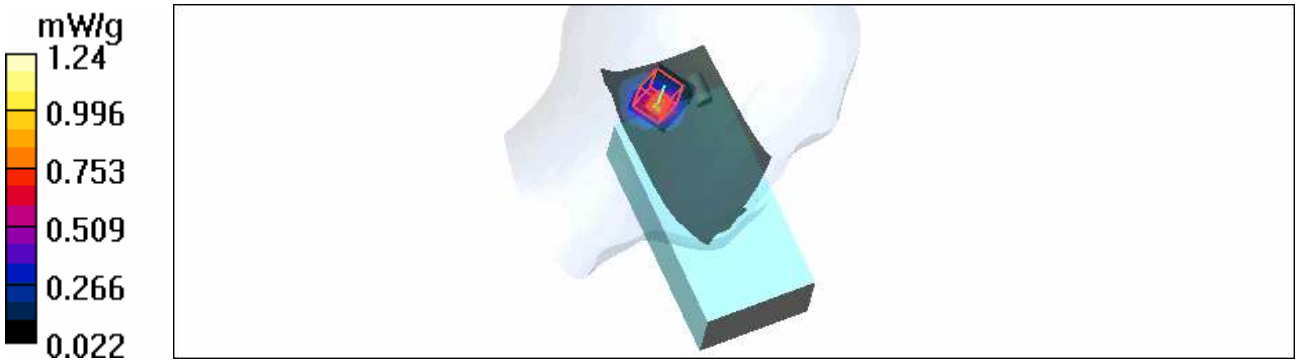
DUT: EDA ; Type: MC7596 ; Test Frequency: 5180 MHz

Communication System: 802.11a ; Frequency: 5180 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5180 MHz; σ = 4.62 mho/m; εr = 37.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Low Channel 36/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.08 mW/g

Touch Position - Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 10.2 V/m
Peak SAR (extrapolated) = 3.27 W/kg
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.356 mW/g
Maximum value of SAR (measured) = 1.24 mW/g



Date/Time: 2008/2/8 02:53:22

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch40

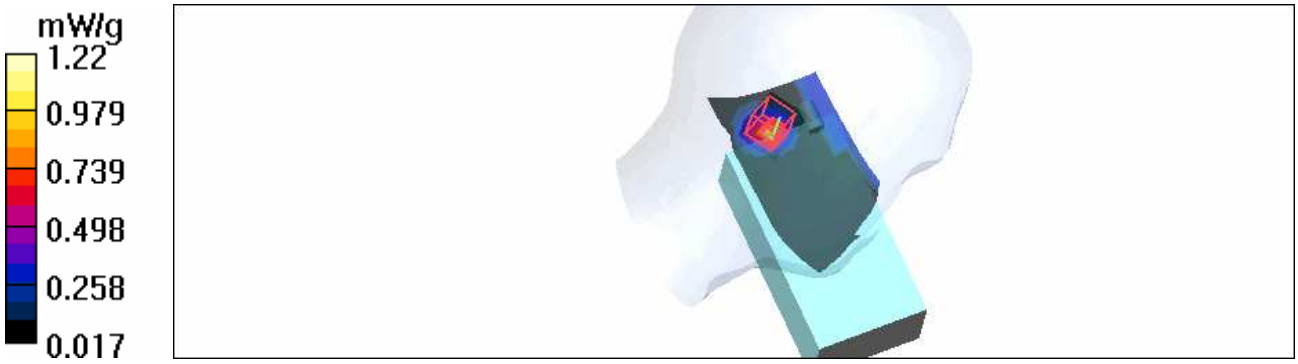
DUT: EDA ; Type: MC7596 ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5200 MHz; σ = 4.64 mho/m; εr = 37.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 40/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.15 mW/g

Touch Position - Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.69 V/m
Peak SAR (extrapolated) = 3.22 W/kg
SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.375 mW/g
Maximum value of SAR (measured) = 1.22 mW/g



Date/Time: 2008/2/8 03:28:21

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch48

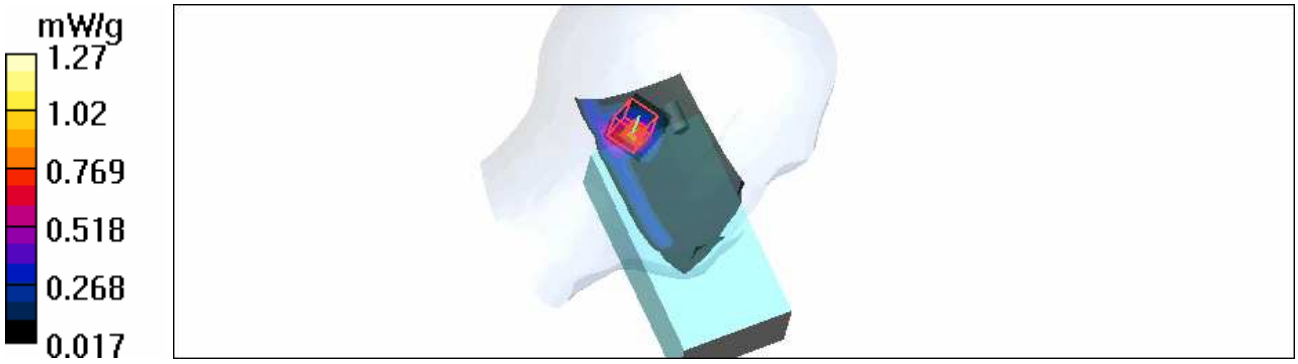
DUT: EDA ; Type: MC7596 ; Test Frequency: 5240 MHz

Communication System: 802.11a ; Frequency: 5240 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5200 MHz; σ = 4.69 mho/m; εr = 37.3; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 48/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.03 mW/g

Touch Position - Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.58 V/m
Peak SAR (extrapolated) = 3.12 W/kg
SAR(1 g) = 0.974 mW/g; SAR(10 g) = 0.365 mW/g
Maximum value of SAR (measured) = 1.27 mW/g



Date/Time: 2008/2/8 04:03:30

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch52

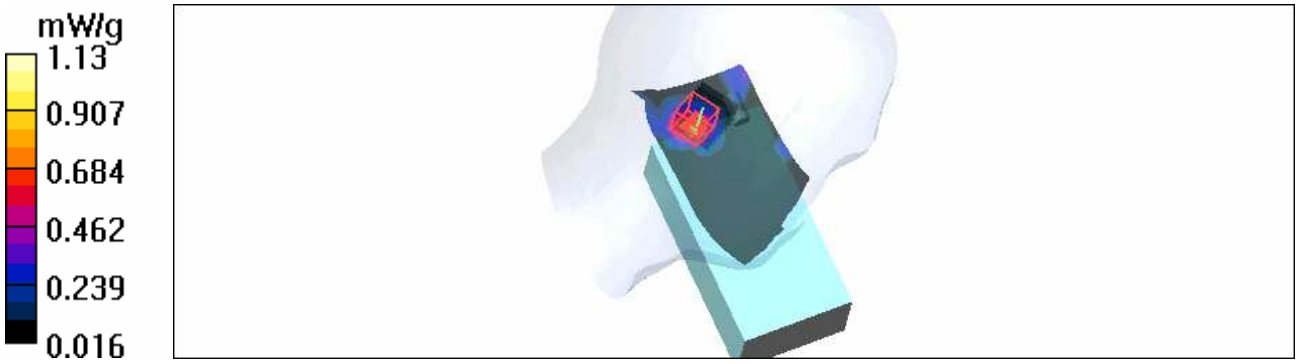
DUT: EDA ; Type: MC7596 ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5260 MHz; σ = 4.71 mho/m; εr = 37.3; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 52/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.98 mW/g

Touch Position - Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.39 V/m
Peak SAR (extrapolated) = 3.06 W/kg
SAR(1 g) = 0.909 mW/g; SAR(10 g) = 0.361 mW/g
Maximum value of SAR (measured) = 1.13 mW/g



Date/Time: 2008/2/8 04:37:03

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch60

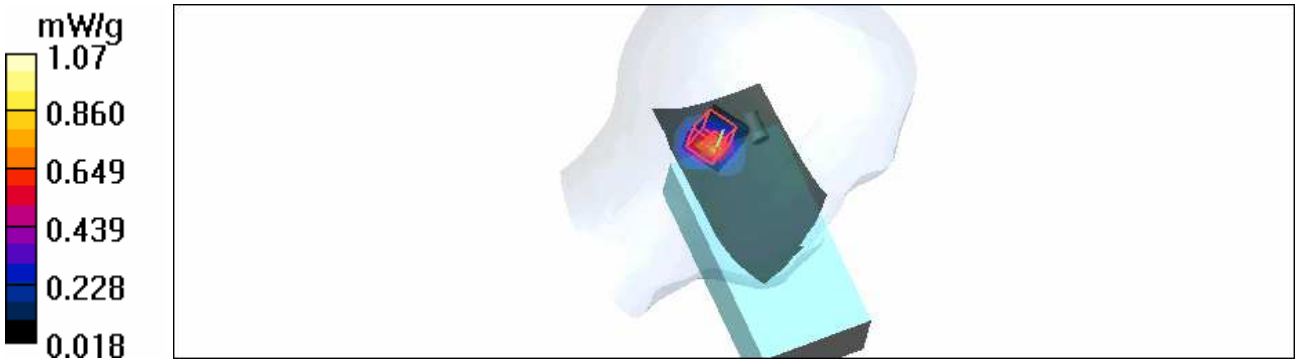
DUT: EDA ; Type: MC7596 ; Test Frequency: 5300 MHz

Communication System: 802.11a ; Frequency: 5300 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5300 MHz; σ = 4.76 mho/m; εr = 37.2; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 60/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.92 mW/g

Touch Position - Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.14 V/m
Peak SAR (extrapolated) = 2.75 W/kg
SAR(1 g) = 0.856 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 1.07 mW/g



Date/Time: 2008/2/8 05:13:37

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch64

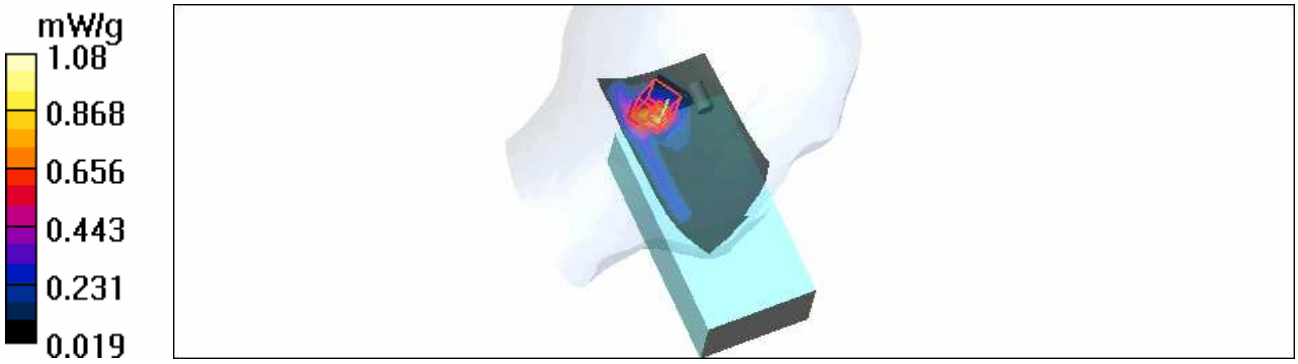
DUT: EDA ; Type: MC7596 ; Test Frequency: 5320 MHz

Communication System: 802.11a ; Frequency: 5320 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5320 MHz; σ = 4.78 mho/m; εr = 37.2; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 64/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.93 mW/g

Touch Position - Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.19 V/m
Peak SAR (extrapolated) = 2.76 W/kg
SAR(1 g) = 0.844 mW/g; SAR(10 g) = 0.329 mW/g
Maximum value of SAR (measured) = 1.08 mW/g



Date/Time: 2008/2/8 05:48:52

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch100

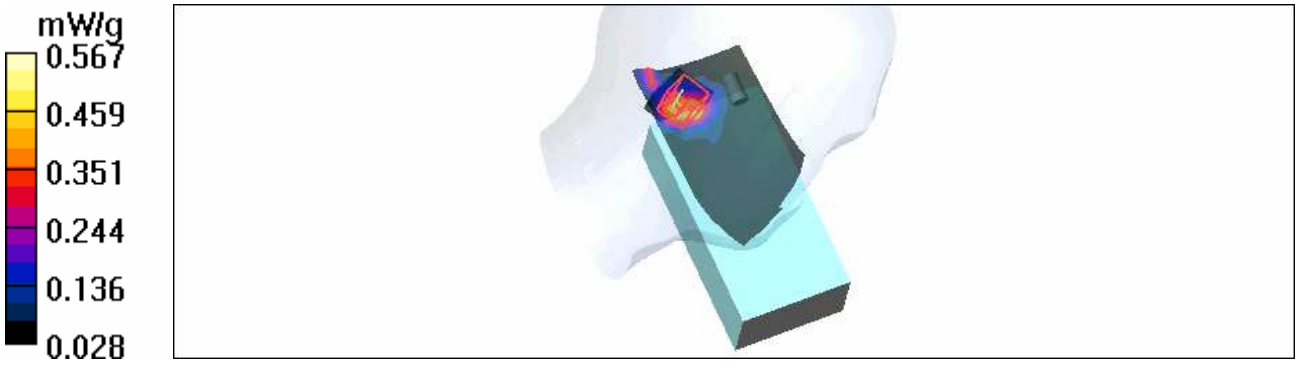
DUT: EDA ; Type: MC7596 ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5500 MHz; σ = 5.0 mho/m; εr = 36.9; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 100/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.521 mW/g

Tilt Position - Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.52 V/m
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.412 mW/g; SAR(10 g) = 0.192 mW/g
Maximum value of SAR (measured) = 0.567 mW/g



Date/Time: 2008/2/8 06:24:31

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch104

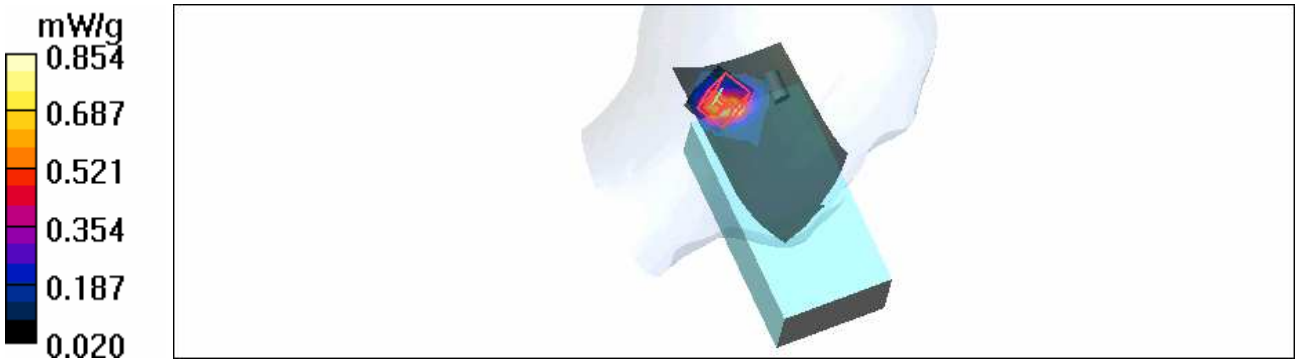
DUT: EDA ; Type: MC7596 ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5520 MHz; σ = 5.02 mho/m; εr = 36.9; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 104/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.767 mW/g

Touch Position - Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.40 V/m
Peak SAR (extrapolated) = 2.04 W/kg
SAR(1 g) = 0.601 mW/g; SAR(10 g) = 0.295 mW/g
Maximum value of SAR (measured) = 0.854 mW/g



Date/Time: 2008/2/8 06:58:12

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch116

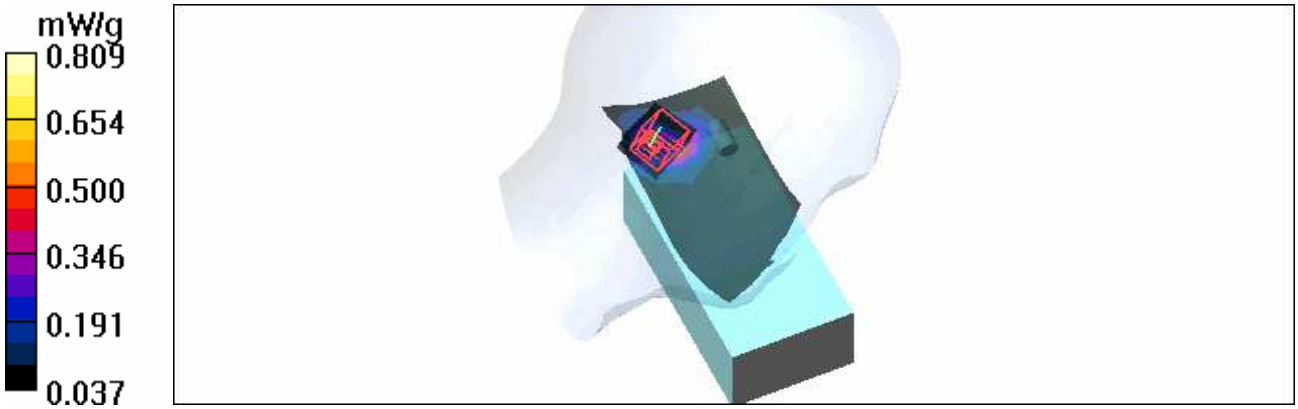
DUT: EDA ; Type: MC7596 ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5580 MHz; σ = 5.09 mho/m; εr = 36.7; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Low Channel 116/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.712 mW/g

Touch Position - Low Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.16 V/m
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 0.590 mW/g; SAR(10 g) = 0.268 mW/g
Maximum value of SAR (measured) = 0.809 mW/g



Date/Time: 2008/2/8 07:33:24

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch120

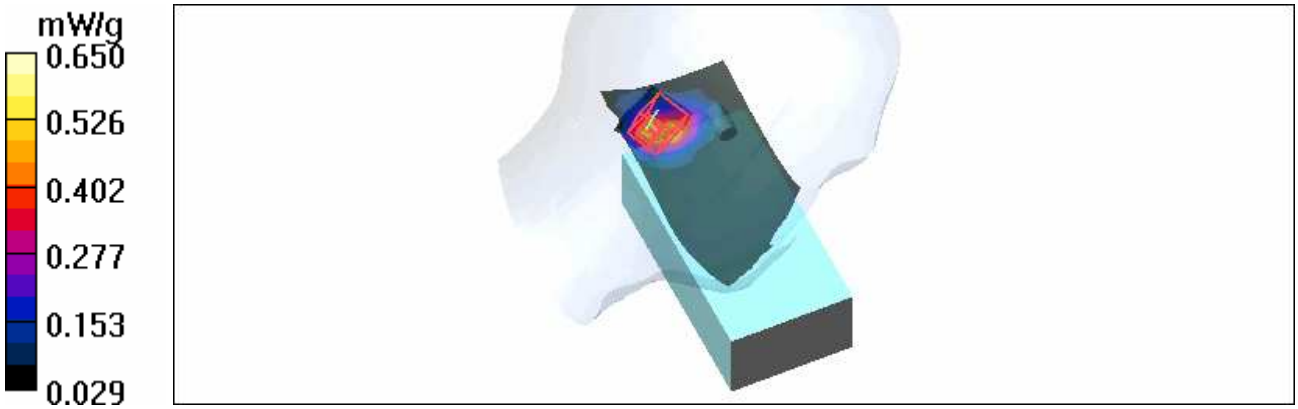
DUT: EDA ; Type: MC7596 ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5600 MHz; σ = 5.12 mho/m; εr = 36.7; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Low Channel 120/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.559 mW/g

Touch Position - Low Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.24 V/m
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.466 mW/g; SAR(10 g) = 0.253 mW/g
Maximum value of SAR (measured) = 0.650 mW/g



Date/Time: 2008/2/8 08:08:20

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch124

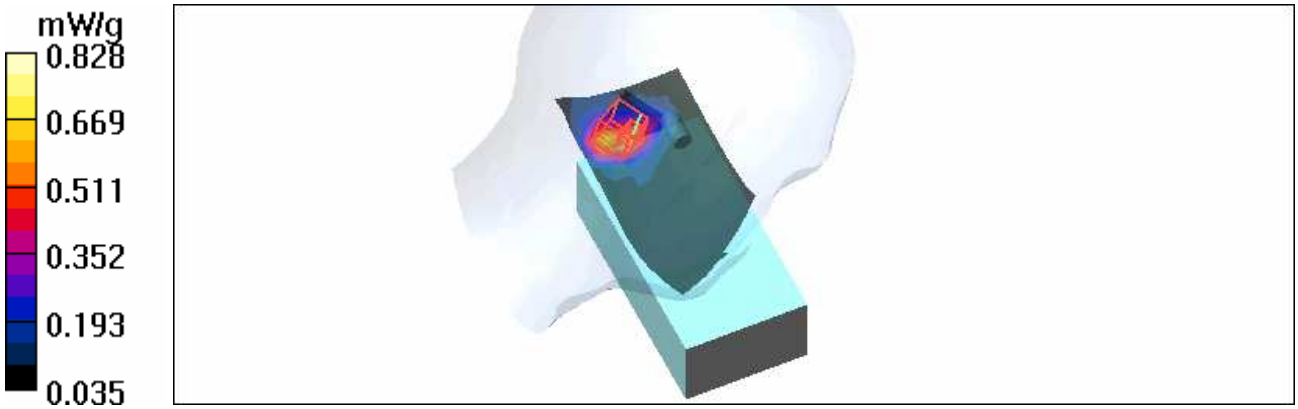
DUT: EDA ; Type: MC7596 ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5620 MHz; σ = 5.14 mho/m; εr = 36.7; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 124/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.692 mW/g

Touch Position - Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.74 V/m
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.265 mW/g
Maximum value of SAR (measured) = 0.828 mW/g



Date/Time: 2008/2/8 08:43:25

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch136

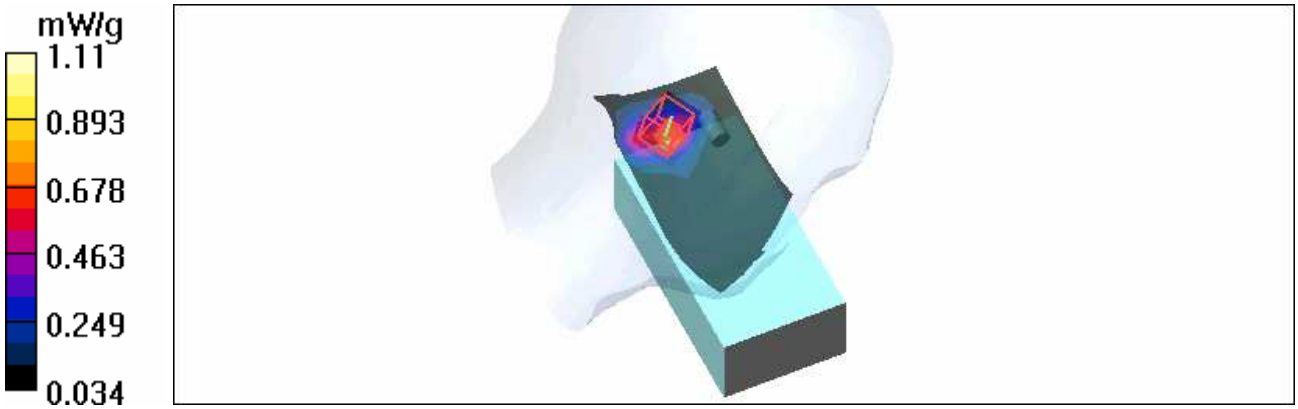
DUT: EDA ; Type: MC7596 ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5680 MHz; σ = 5.21 mho/m; εr = 36.6; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 136/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.863 mW/g

Touch Position - Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.76 V/m
Peak SAR (extrapolated) = 3.10 W/kg
SAR(1 g) = 0.802 mW/g; SAR(10 g) = 0.318 mW/g
Maximum value of SAR (measured) = 1.11 mW/g



Date/Time: 2008/2/8 09:18:33

Test Laboratory: Advance Data Technology

M03-Left Head-Cheek-11a-Ch140

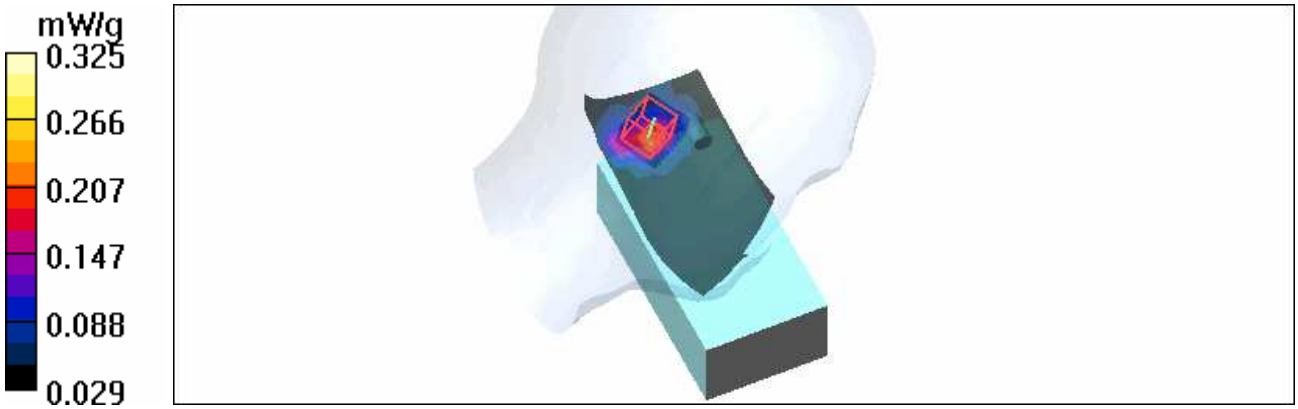
DUT: EDA ; Type: MC7596 ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5700 MHz; σ = 5.24 mho/m; εr = 36.5; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 140/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.237 mW/g

Touch Position - Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 3.62 V/m
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.325 mW/g



Date/Time: 2008/2/8 11:38:16

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch36

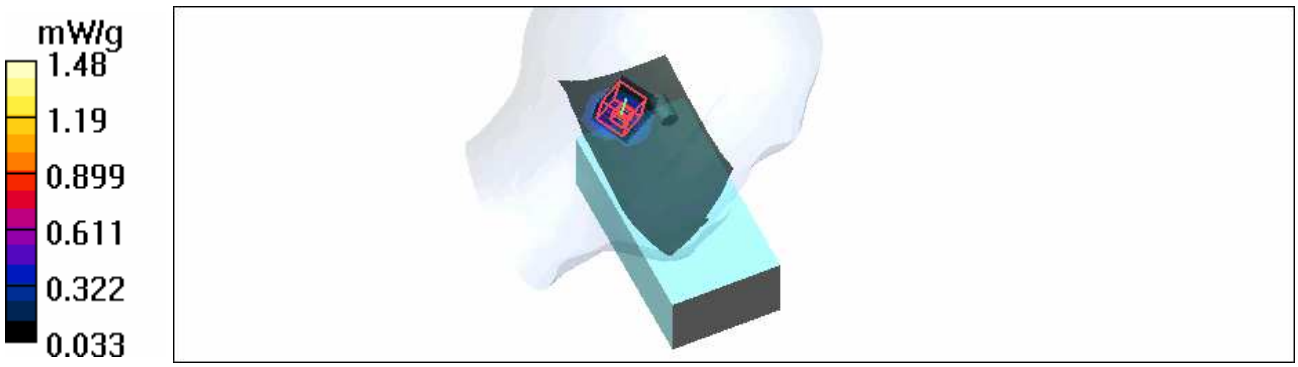
DUT: EDA ; Type: MC7596 ; Test Frequency: 5180 MHz

Communication System: 802.11a ; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5180 MHz; σ = 4.62 mho/m; εr = 37.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Low Channel 36/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.34 mW/g

Tilt Position - Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.83 V/m
Peak SAR (extrapolated) = 3.59 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.390 mW/g
Maximum value of SAR (measured) = 1.48 mW/g



Date/Time: 2008/2/8 12:13:43

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch40

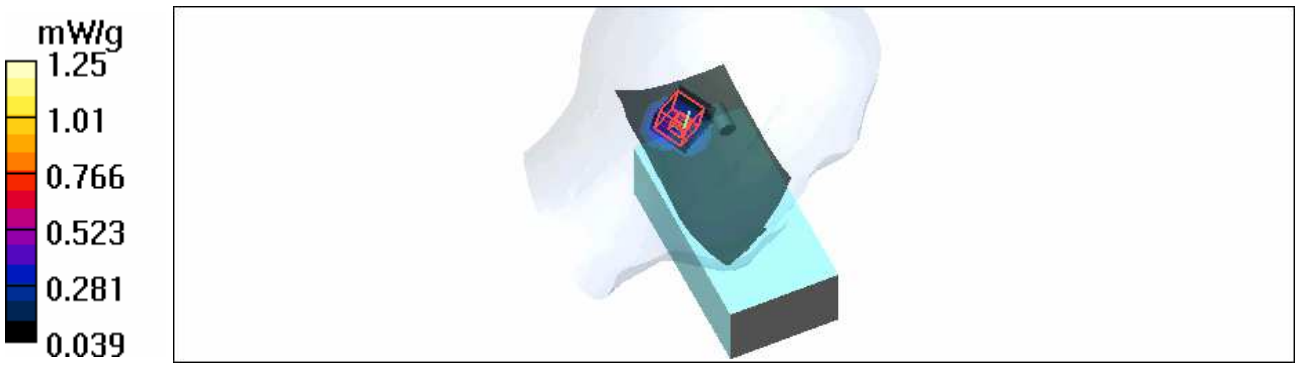
DUT: EDA ; Type: MC7596 ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5200 MHz; σ = 4.64 mho/m; εr = 37.4; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 40/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.11 mW/g

Tilt Position - Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.01 V/m
Peak SAR (extrapolated) = 3.32 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.355 mW/g
Maximum value of SAR (measured) = 1.25 mW/g



Date/Time: 2008/2/8 12:48:10

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch48

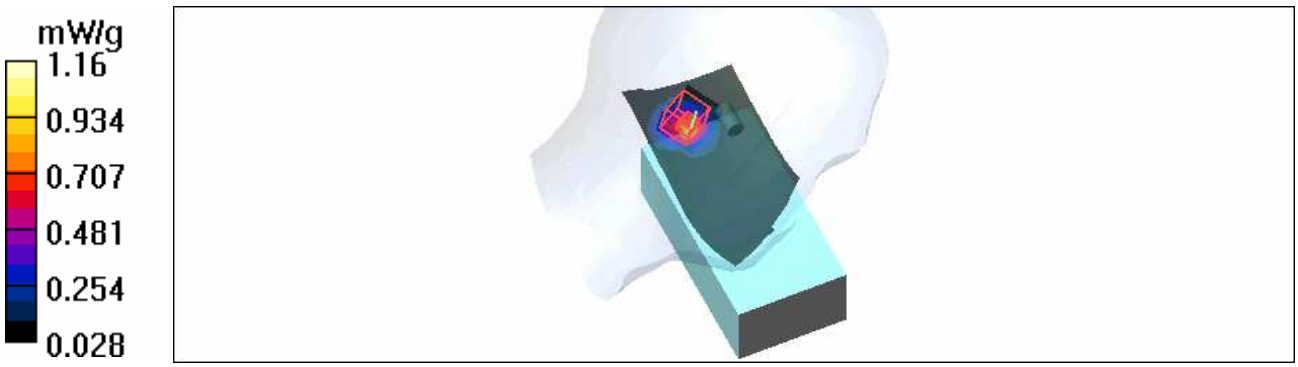
DUT: EDA ; Type: MC7596 ; Test Frequency: 5240 MHz

Communication System: 802.11a ; Frequency: 5240 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5200 MHz; σ = 4.69 mho/m; εr = 37.3; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 48/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.96 mW/g

Tilt Position - Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.52 V/m
Peak SAR (extrapolated) = 3.06 W/kg
SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 1.16 mW/g



Date/Time: 2008/2/8 13:23:21

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch52

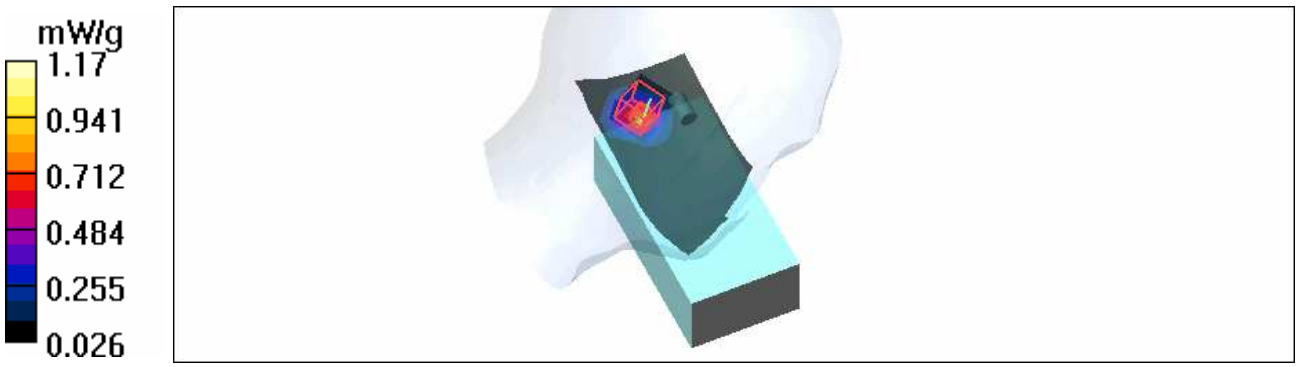
DUT: EDA ; Type: MC7596 ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5260 MHz; σ = 4.71 mho/m; εr = 37.3; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 52/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.95 mW/g

Tilt Position - Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.31 V/m
Peak SAR (extrapolated) = 2.95 W/kg
SAR(1 g) = 0.889 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 1.17 mW/g



Date/Time: 2008/2/8 13:58:00

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch60

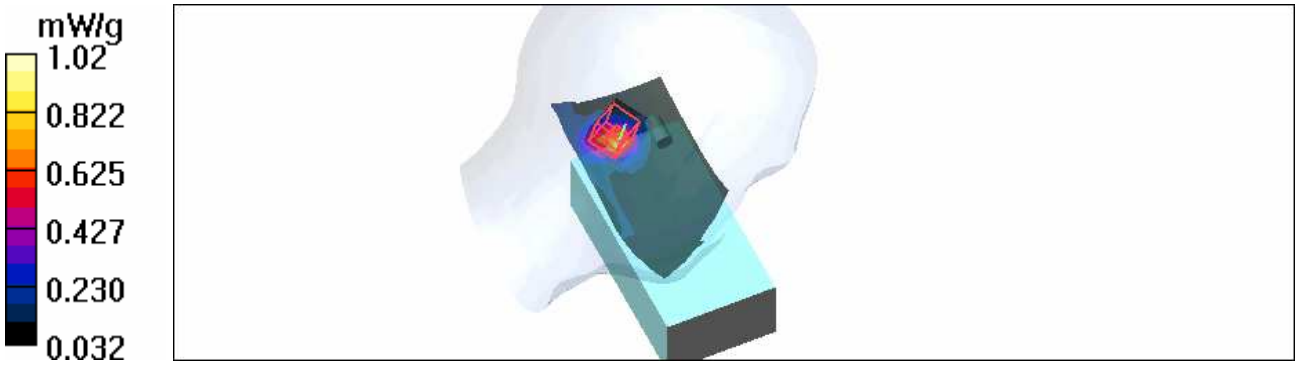
DUT: EDA ; Type: MC7596 ; Test Frequency: 5300 MHz

Communication System: 802.11a ; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5300 MHz; σ = 4.76 mho/m; εr = 37.2; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 60/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.936 mW/g

Tilt Position - Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.29 V/m
Peak SAR (extrapolated) = 2.85 W/kg
SAR(1 g) = 0.856 mW/g; SAR(10 g) = 0.289 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



Date/Time: 2008/2/8 14:33:28

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch64

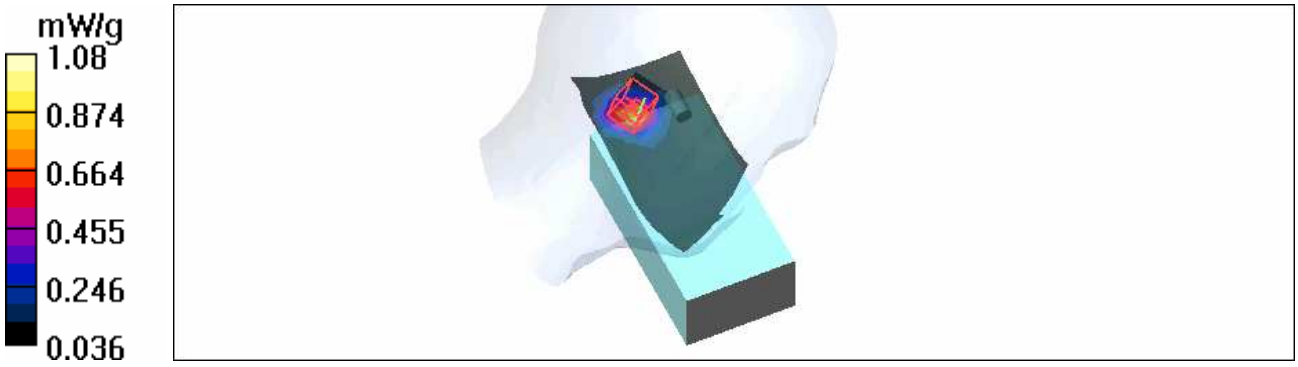
DUT: EDA ; Type: MC7596 ; Test Frequency: 5320 MHz

Communication System: 802.11a ; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5320 MHz; σ = 4.78 mho/m; εr = 37.2; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 64/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.929 mW/g

Tilt Position - Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.43 V/m
Peak SAR (extrapolated) = 2.57 W/kg
SAR(1 g) = 0.815 mW/g; SAR(10 g) = 0.310 mW/g
Maximum value of SAR (measured) = 1.08 mW/g



Date/Time: 2008/2/8 15:08:40

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch100

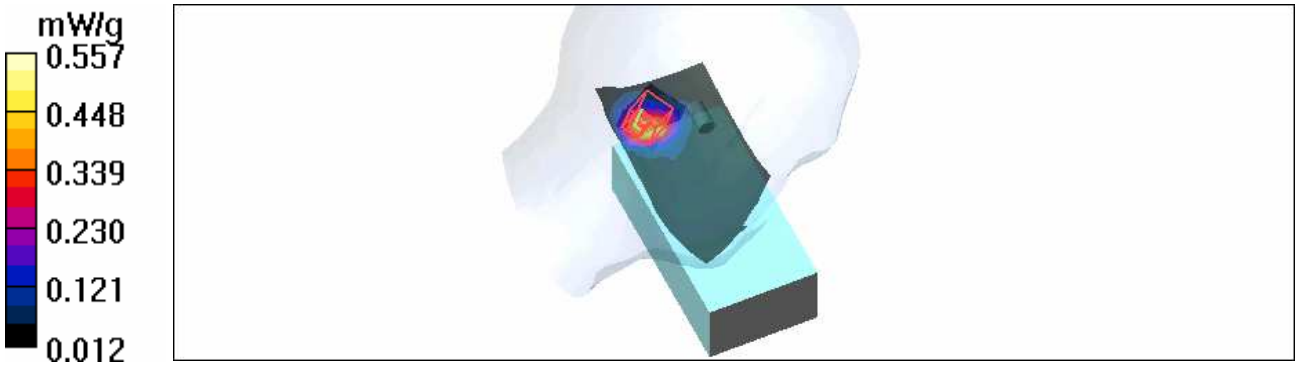
DUT: EDA ; Type: MC7596 ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5500 MHz; σ = 5.0 mho/m; εr = 36.9; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 100/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.534 mW/g

Tilt Position - Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.34 V/m
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.192 mW/g
Maximum value of SAR (measured) = 0.557 mW/g



Date/Time: 2008/2/8 15:43:44

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch104

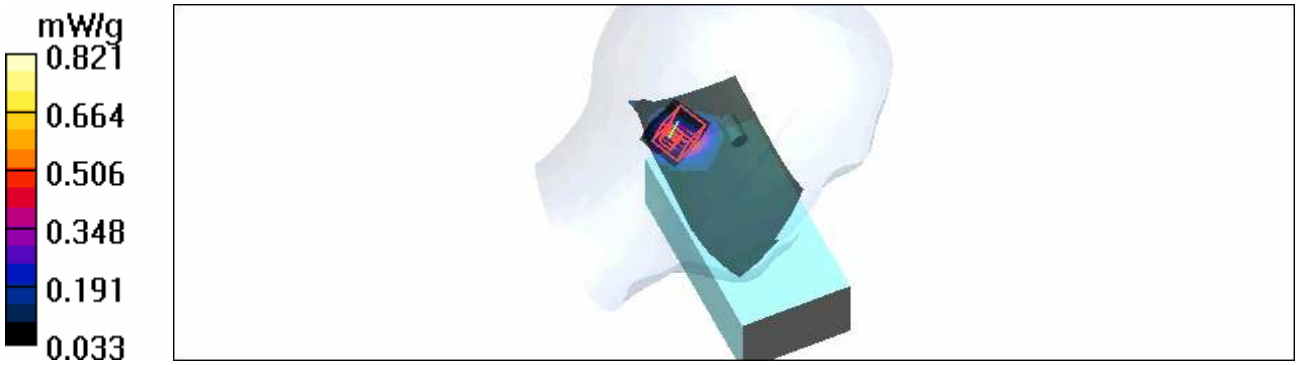
DUT: EDA ; Type: MC7596 ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5520 MHz; σ = 5.02 mho/m; εr = 36.9; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 104/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.715 mW/g

Tilt Position - Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.66 V/m
Peak SAR (extrapolated) = 2.13 W/kg
SAR(1 g) = 0.606 mW/g; SAR(10 g) = 0.302 mW/g
Maximum value of SAR (measured) = 0.821 mW/g



Date/Time: 2008/2/8 16:18:23

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch116

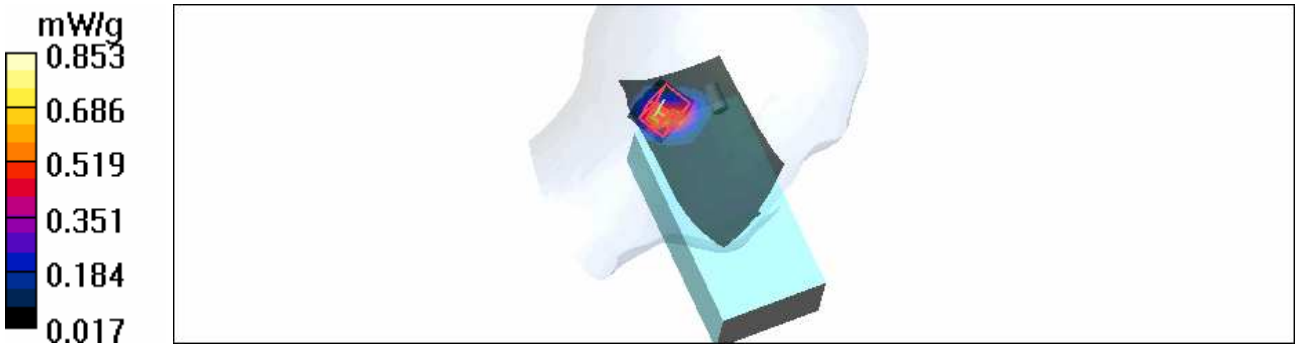
DUT: EDA ; Type: MC7596 ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5580 MHz; σ = 5.09 mho/m; εr = 36.7; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 116/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.779 mW/g

Tilt Position - Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.44 V/m
Peak SAR (extrapolated) = 2.11 W/kg
SAR(1 g) = 0.624 mW/g; SAR(10 g) = 0.272 mW/g
Maximum value of SAR (measured) = 0.893 mW/g



Date/Time: 2008/2/8 16:53:09

Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch120

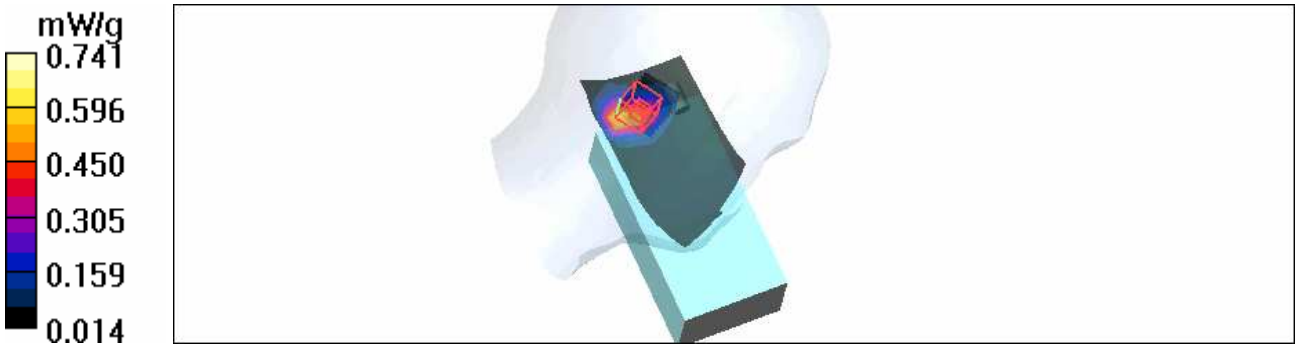
DUT: EDA ; Type: MC7596 ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5600 MHz; σ = 5.12 mho/m; εr = 36.7; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 120/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.720 mW/g

Tilt Position - Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.18 V/m
Peak SAR (extrapolated) = 1.95 W/kg
SAR(1 g) = 0.565 mW/g; SAR(10 g) = 0.234 mW/g
Maximum value of SAR (measured) = 0.841 mW/g



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Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch124

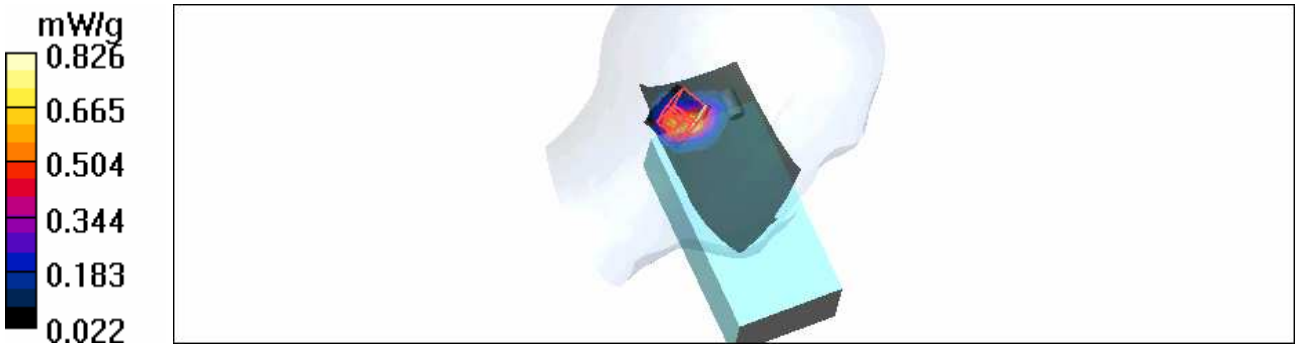
DUT: EDA ; Type: MC7596 ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5620 MHz; σ = 5.14 mho/m; εr = 36.7; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 124/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.725 mW/g

Tilt Position - Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.72 V/m
Peak SAR (extrapolated) = 2.43 W/kg
SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.256 mW/g
Maximum value of SAR (measured) = 0.886 mW/g



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Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch136

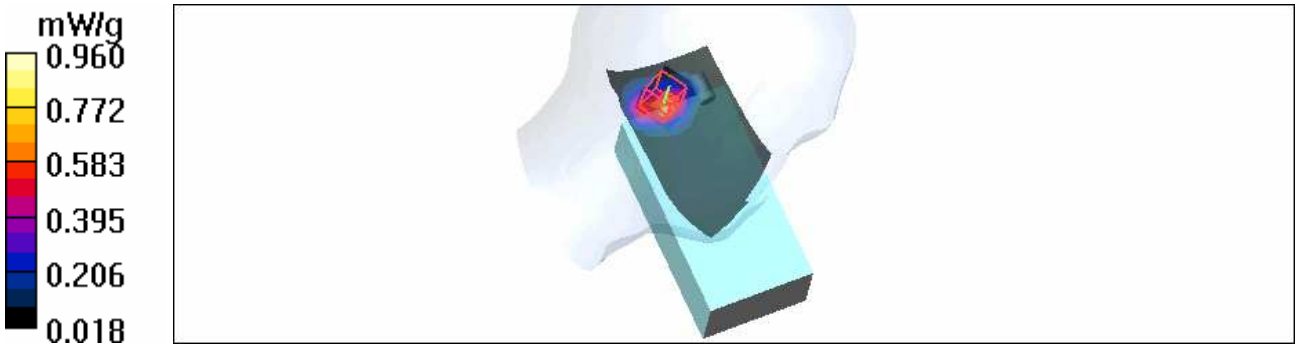
DUT: EDA ; Type: MC7596 ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5680 MHz; σ = 5.21 mho/m; εr = 36.6; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 136/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.839 mW/g

Tilt Position - Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.75 V/m
Peak SAR (extrapolated) = 3.13 W/kg
SAR(1 g) = 0.771 mW/g; SAR(10 g) = 0.259 mW/g
Maximum value of SAR (measured) = 0.96 mW/g



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Test Laboratory: Advance Data Technology

M04-Left Head-Tilt-11a-Ch140

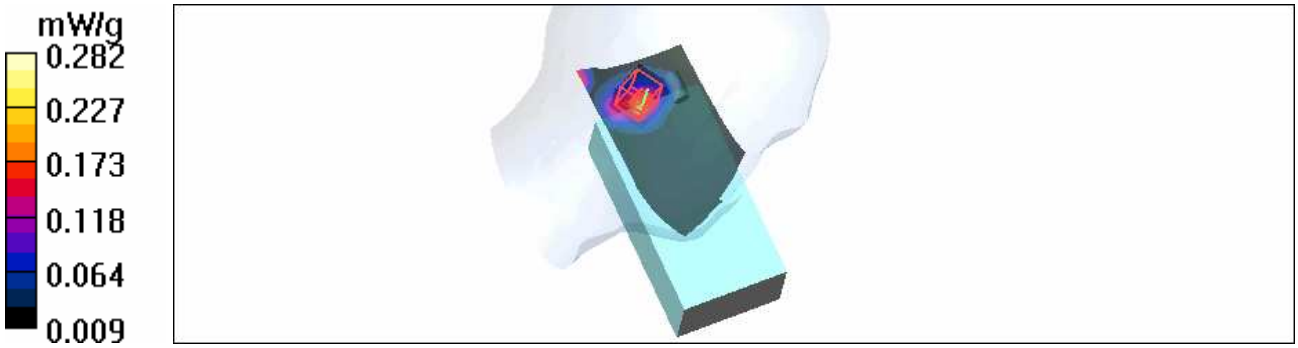
DUT: EDA ; Type: MC7596 ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5700 MHz; σ = 5.24 mho/m; εr = 36.5; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 140/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.218 mW/g

Tilt Position - Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 3.52 V/m
Peak SAR (extrapolated) = 0.867 W/kg
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.082 mW/g
Maximum value of SAR (measured) = 0.282 mW/g



Date/Time: 2008/2/9 11:26:16

Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch36

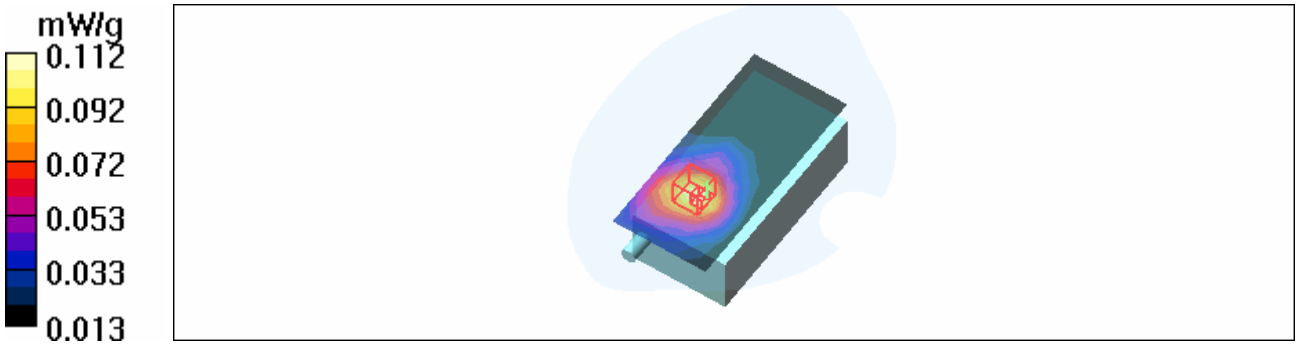
DUT: EDA ; Type: MC7596 ; Test Frequency: 5180 MHz

Communication System: 802.11a ; Frequency: 5180 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5180 MHz; σ = 5.26 mho/m; ε_r = 50.5;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.48, 4.48, 4.48) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 36/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.108 mW/g

Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.66 V/m
Peak SAR (extrapolated) = 0.260 W/kg
SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.050 mW/g
Maximum value of SAR (measured) = 0.112 mW/g



Date/Time: 2008/2/9 12:01:43

Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch40

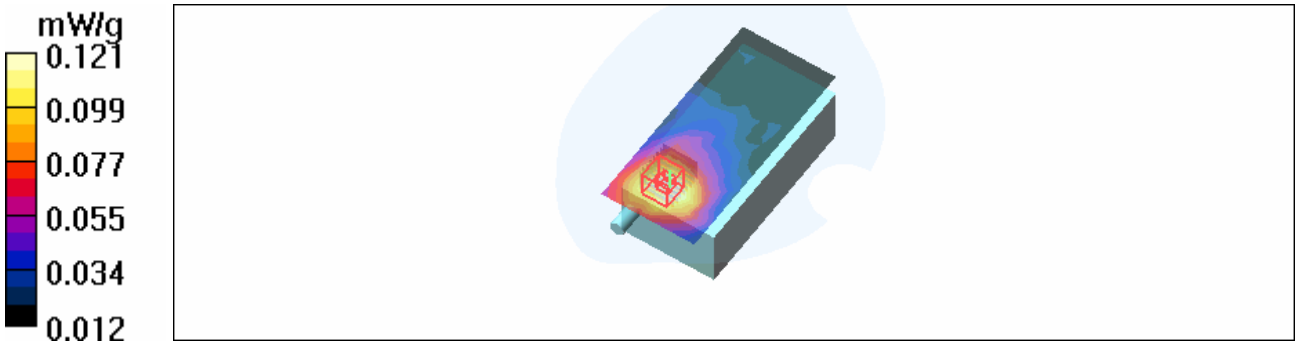
DUT: EDA ; Type: MC7596 ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5200 MHz; σ = 5.29 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.48, 4.48, 4.48) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.122 mW/g

Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.28 V/m
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.055 mW/g
Maximum value of SAR (measured) = 0.121 mW/g



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Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch48

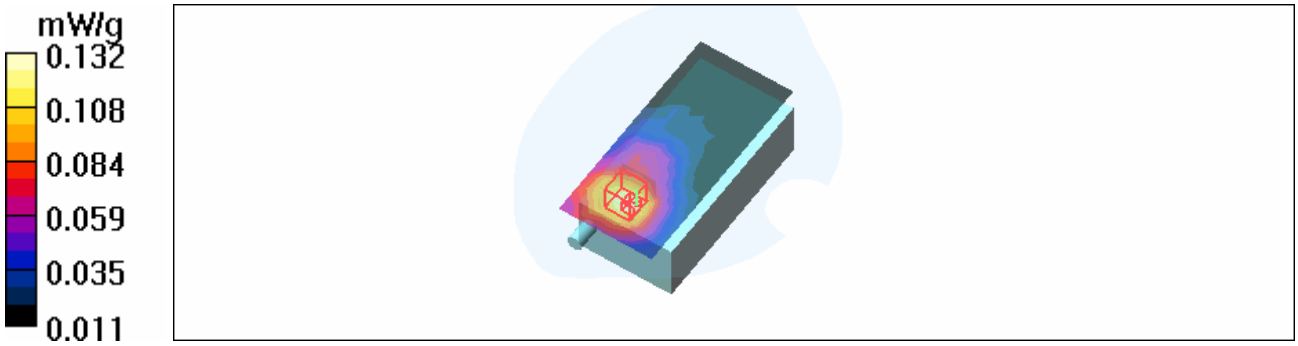
DUT: EDA ; Type: MC7596 ; Test Frequency: 5240 MHz

Communication System: 802.11a ; Frequency: 5240 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5240 MHz; σ = 5.35 mho/m; ε_r = 50.4;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.48, 4.48, 4.48) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 48/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.135 mW/g

Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.38 V/m
Peak SAR (extrapolated) = 0.335 W/kg
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.132 mW/g



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Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch52

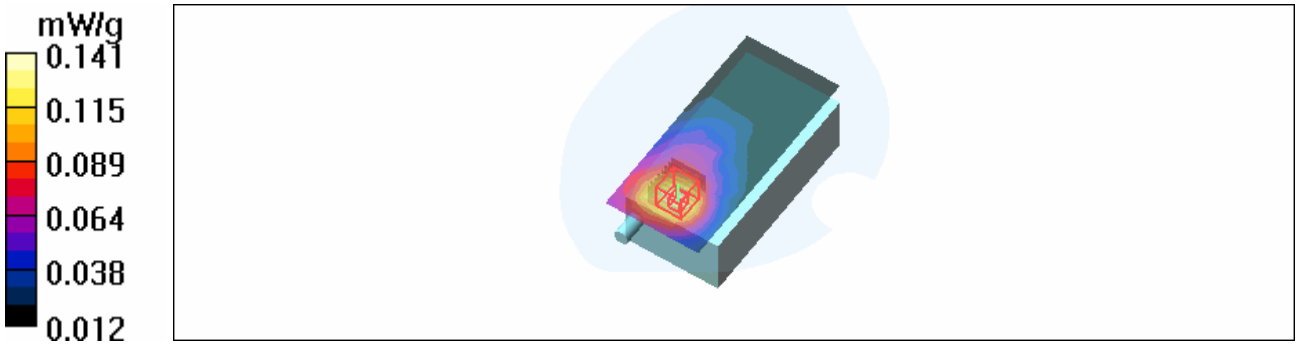
DUT: EDA ; Type: MC7596 ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5260 MHz; σ = 5.38 mho/m; ε_r = 50.4;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.14, 4.14, 4.14) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 52/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.140 mW/g

Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.65 V/m
Peak SAR (extrapolated) = 0.387 W/kg
SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.060 mW/g
Maximum value of SAR (measured) = 0.141 mW/g



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Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch60

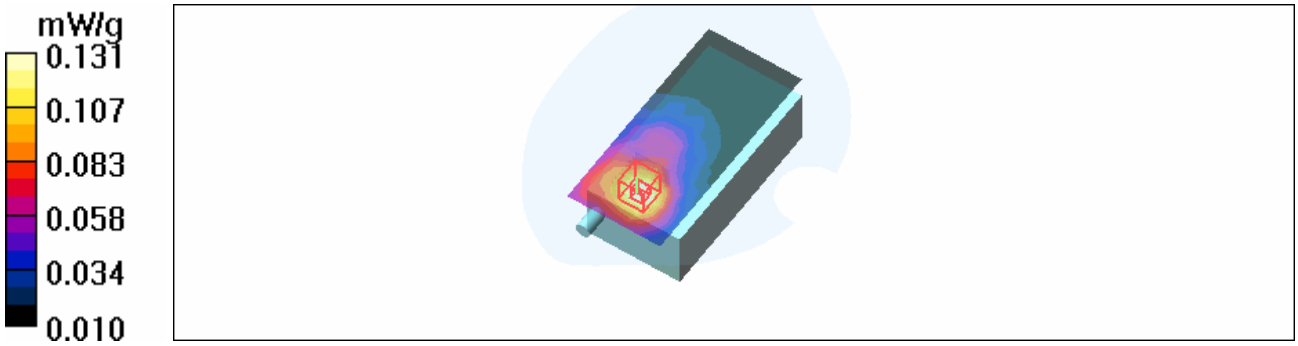
DUT: EDA ; Type: MC7596 ; Test Frequency: 5300 MHz

Communication System: 802.11a ; Frequency: 5300 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5300 MHz; σ = 5.41 mho/m; ε_r = 50.3;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.14, 4.14, 4.14) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 60/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.135 mW/g

Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.49 V/m
Peak SAR (extrapolated) = 0.344 W/kg
SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.055 mW/g
Maximum value of SAR (measured) = 0.131 mW/g



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Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch64

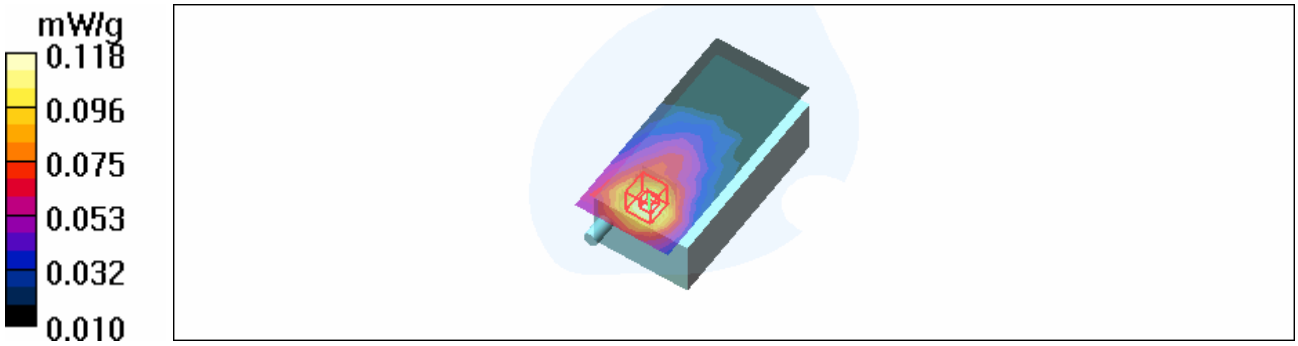
DUT: EDA ; Type: MC7596 ; Test Frequency: 5320 MHz

Communication System: 802.11a ; Frequency: 5320 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5320 MHz; σ = 5.47 mho/m; ε_r = 50.3;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.14, 4.14, 4.14) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 64/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.117 mW/g

Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.80 V/m
Peak SAR (extrapolated) = 0.292 W/kg
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.051 mW/g
Maximum value of SAR (measured) = 0.118 mW/g



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Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch100

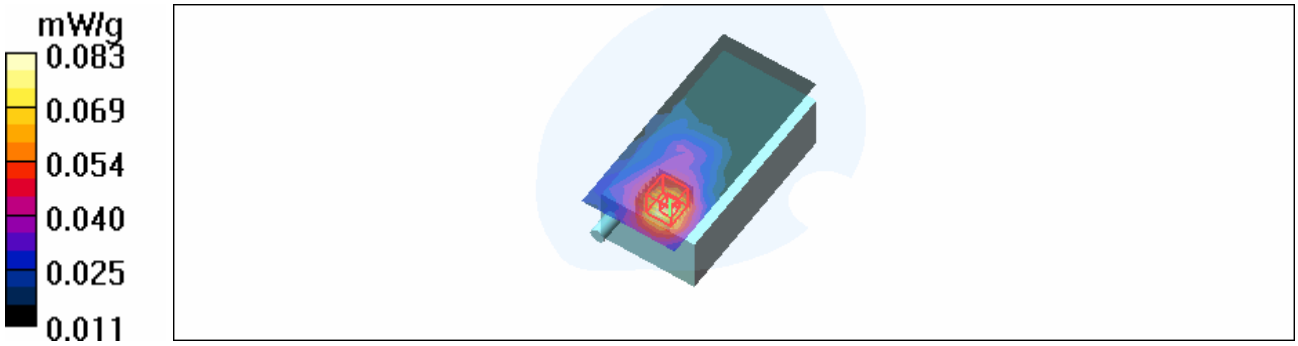
DUT: EDA ; Type: MC7596 ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5500 MHz; σ = 5.73 mho/m; ε_r = 49.9;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.11, 4.11, 4.11) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 100/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.081 mW/g

Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.87 V/m
Peak SAR (extrapolated) = 0.197 W/kg
SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.083 mW/g



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Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch104

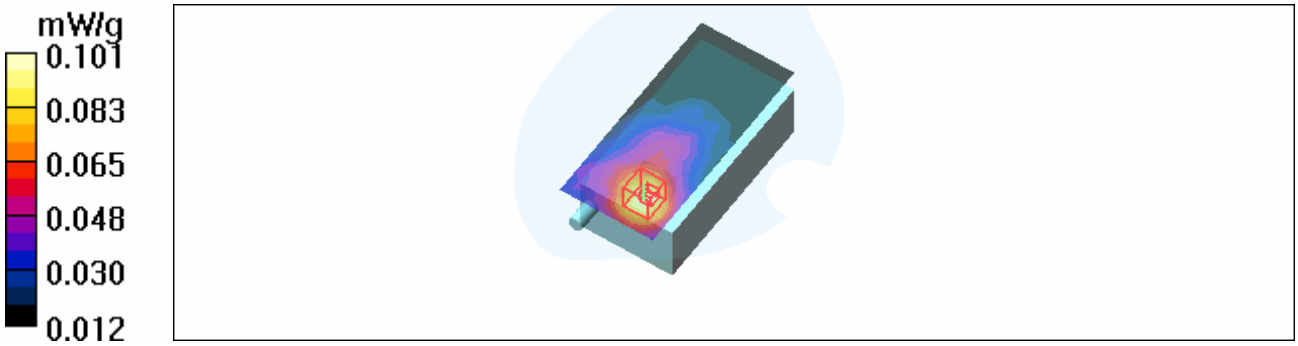
DUT: EDA ; Type: MC7596 ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5520 MHz; σ = 5.76 mho/m; ε_r = 49.9;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.11, 4.11, 4.11) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 104/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.096 mW/g

Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.37 V/m
Peak SAR (extrapolated) = 0.247 W/kg
SAR(1 g) = 0.078 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.101 mW/g



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Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch116

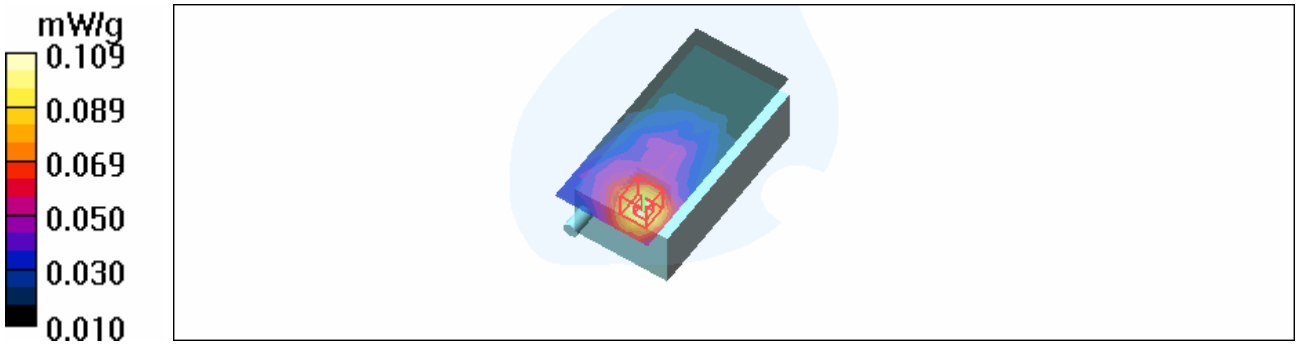
DUT: EDA ; Type: MC7596 ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5580 MHz; σ = 5.85 mho/m; ε_r = 49.7;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.11, 4.11, 4.11) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 116/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.103 mW/g

Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.37 V/m
Peak SAR (extrapolated) = 0.247 W/kg
SAR(1 g) = 0.085 mW/g; SAR(10 g) = 0.047 mW/g
Maximum value of SAR (measured) = 0.109 mW/g



Date/Time: 2008/2/9 16:41:30

Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch120

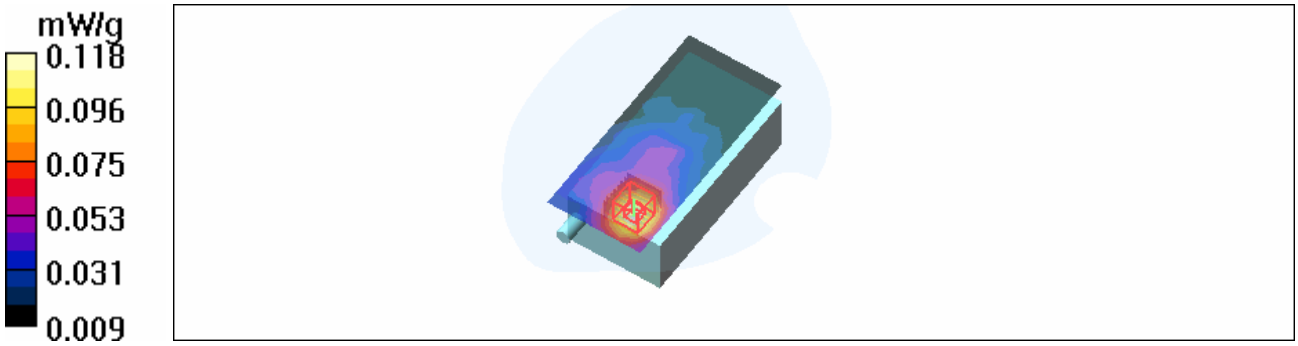
DUT: EDA ; Type: MC7596 ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5600 MHz; σ = 5.88 mho/m; ε_r = 49.7;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.11, 4.11, 4.11) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 120/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.114 mW/g

Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.46 V/m
Peak SAR (extrapolated) = 0.273 W/kg
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.050 mW/g
Maximum value of SAR (measured) = 0.118 mW/g



Date/Time: 2008/2/9 17:16:32

Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch124

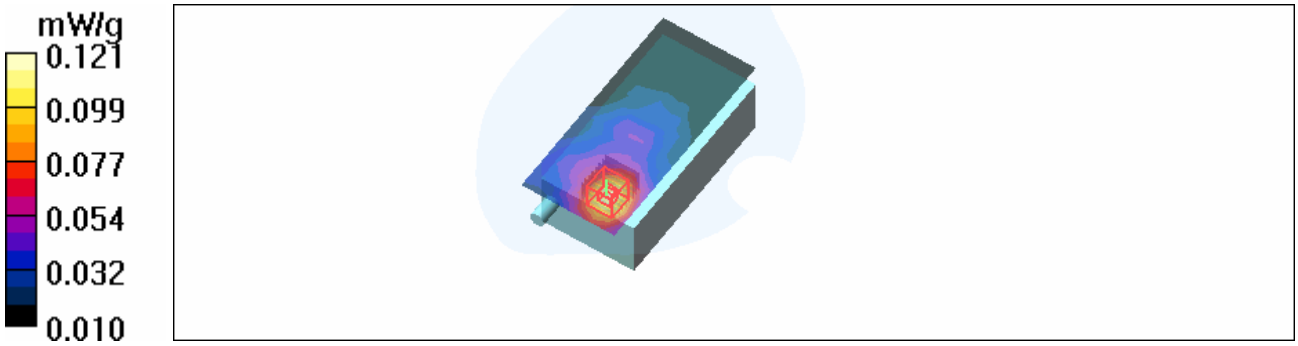
DUT: EDA ; Type: MC7596 ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5620 MHz; σ = 5.91 mho/m; ε_r = 49.6;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.11, 4.11, 4.11) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 124/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.120 mW/g

Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.49 V/m
Peak SAR (extrapolated) = 0.297 W/kg
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.050 mW/g
Maximum value of SAR (measured) = 0.121 mW/g



Date/Time: 2008/2/9 17:51:36

Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch136

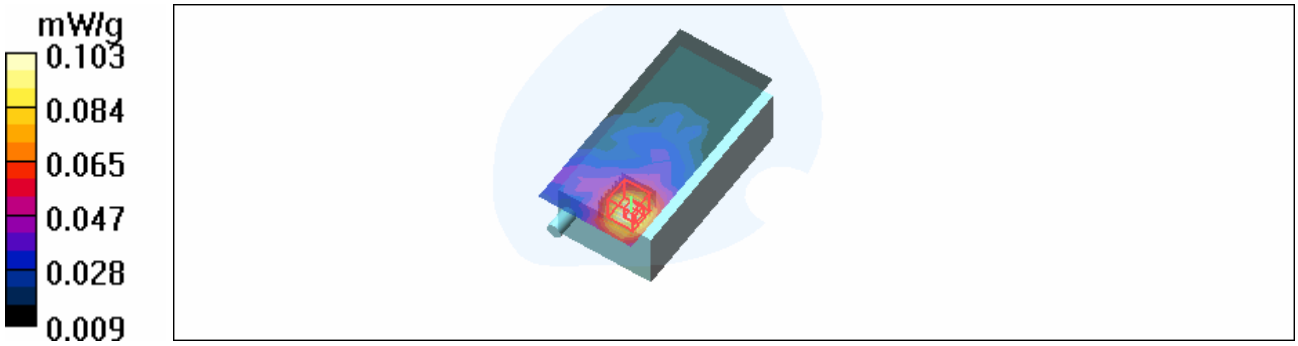
DUT: EDA ; Type: MC7596 ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5680 MHz; σ = 6.0 mho/m; ε_r = 49.5;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.20, 4.20, 4.20) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 136/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.104 mW/g

Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.91 V/m
Peak SAR (extrapolated) = 0.263 W/kg
SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.045 mW/g
Maximum value of SAR (measured) = 0.103 mW/g



Date/Time: 2008/2/9 18:26:52

Test Laboratory: Advance Data Technology

M05-BodyWorn-11a-Ch140

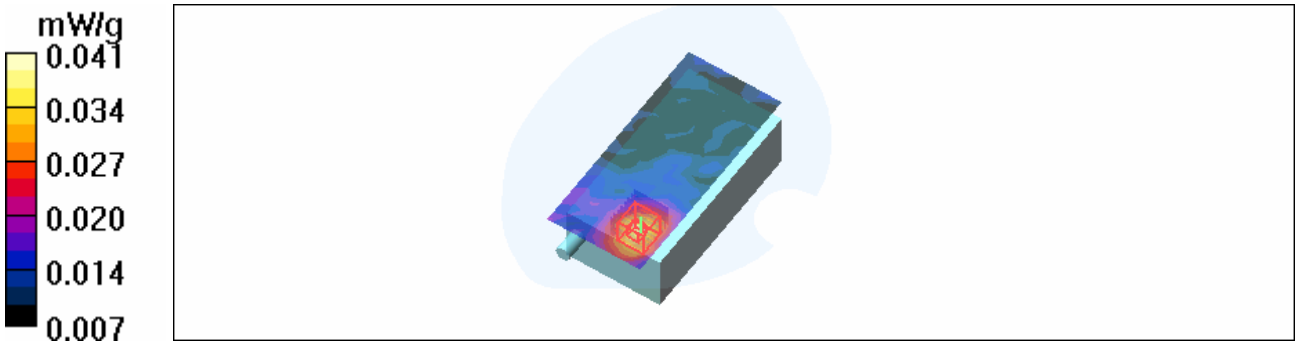
DUT: EDA ; Type: MC75 Series ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5700 MHz; σ = 6.04 mho/m; ε_r = 49.5;
ρ = 1000 kg/m^3 ; Liquid Level : 151 mm
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)
Antenna Type : PIFA Antenna ; Air Temp. : 22.3 degrees ; Liquid Temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.20, 4.20, 4.20) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 140/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.040 mW/g

Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.33 V/m
Peak SAR (extrapolated) = 0.132 W/kg
SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.041 mW/g



Date/Time: 2008/2/7 21:08:19

Test Laboratory: Advance Data Technology

M06-Right Head-Tilt-11a-Ch36 (1D)

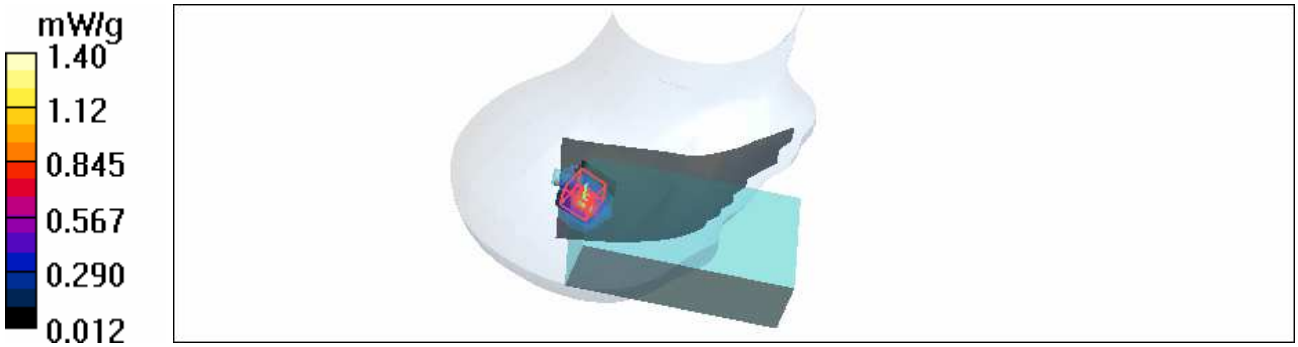
DUT: EDA ; Type: MC7596 ; Test Frequency: 5180 MHz

Communication System: 802.11a ; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5180 MHz; σ = 4.64 mho/m; εr = 37.1; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Low Channel 36/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.29 mW/g

Tilt Position - Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.95 V/m
Peak SAR (extrapolated) = 3.43 W/kg
SAR(1 g) = 0.958 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 1.40 mW/g



Date/Time: 2008/2/7 21:43:50

Test Laboratory: Advance Data Technology

M06-Right Head-Tilt-11a-Ch52 (1D)

DUT: EDA ; Type: MC7596 ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5260 MHz; σ = 4.74 mho/m; εr = 37; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.77, 4.77, 4.77) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 52/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.20 mW/g

Tilt Position - Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.23 V/m
Peak SAR (extrapolated) = 2.98 W/kg
SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.307 mW/g
Maximum value of SAR (measured) = 1.24 mW/g

Date/Time: 2008/2/7 22:20:35

Test Laboratory: Advance Data Technology

M06-Right Head-Tilt-11a-Ch136 (1D)

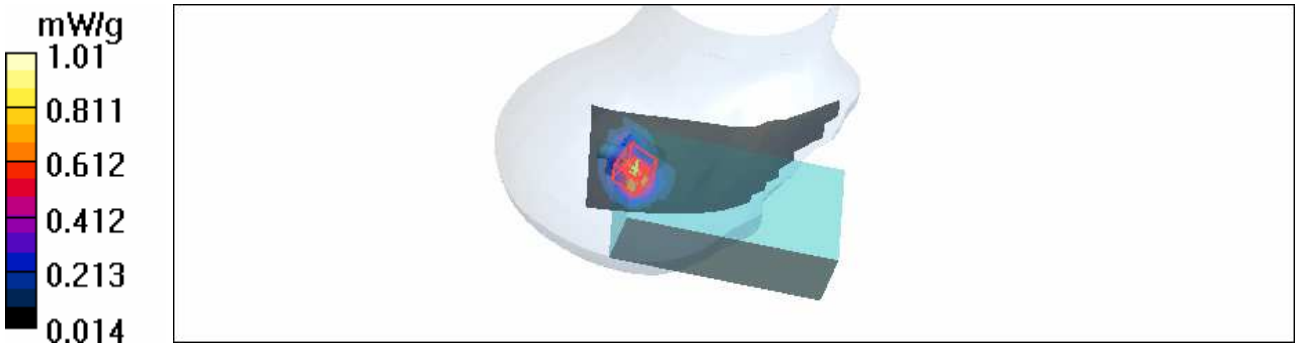
DUT: EDA ; Type: MC7596 ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5680 MHz; σ = 5.23 mho/m; ε_r = 36.3; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.4, 4.4, 4.4) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Position - Mid Channel 136/Area Scan (9x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.909 mW/g

Tilt Position - Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.2 V/m
Peak SAR (extrapolated) = 2.78 W/kg
SAR(1 g) = 0.744 mW/g; SAR(10 g) = 0.279 mW/g
Maximum value of SAR (measured) = 1.01 mW/g



Date/Time: 2008/2/8 21:08:02

Test Laboratory: Advance Data Technology

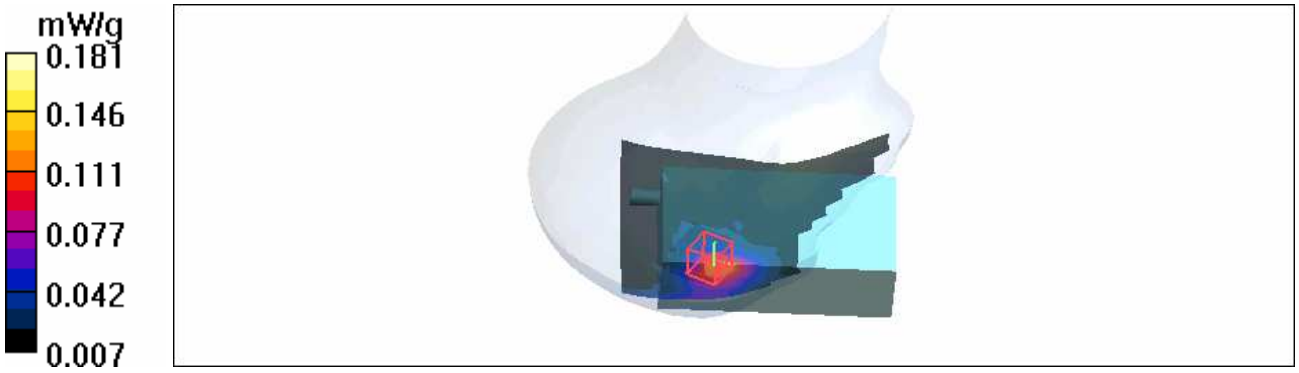
M07-Right Head- Cheek-11a-Ch120 (Aux ant)

DUT: EDA ; Type: MC7596 ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5600 MHz; σ = 5.12 mho/m; εr = 36.7; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees
DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 120/Area Scan (14x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.146 mW/g

Touch Position - Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 3.09 V/m
Peak SAR (extrapolated) = 0.713 W/kg
SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.181 mW/g



Date/Time: 2008/2/8 21:54:47

Test Laboratory: Advance Data Technology

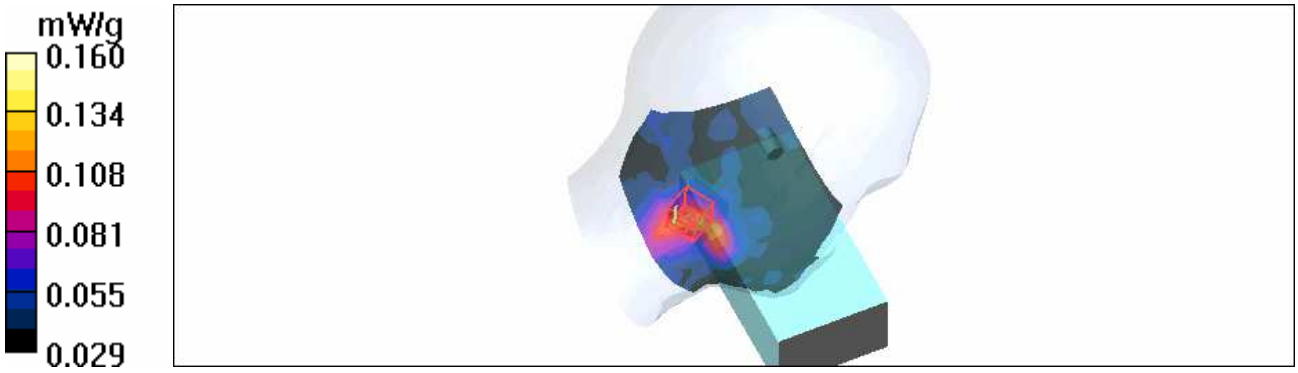
M08-Left Head-Cheek-11a-Ch120 (Aux ant)

DUT: EDA ; Type: MC7596 ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5600 MHz; σ = 5.12 mho/m; εr = 36.7; ρ = 1000 kg/m^3 ;
Liquid level: 154 mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK
Antenna type : PIFA Antenna ; Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees
DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Position - Mid Channel 120/Area Scan (14x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.125 mW/g

Touch Position - Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.79 V/m
Peak SAR (extrapolated) = 0.435 W/kg
SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.160 mW/g



Date/Time: 2008/2/7 00:47:48

Test Laboratory: Advance Data Technology

System Validation Check-HSL 5200MHz

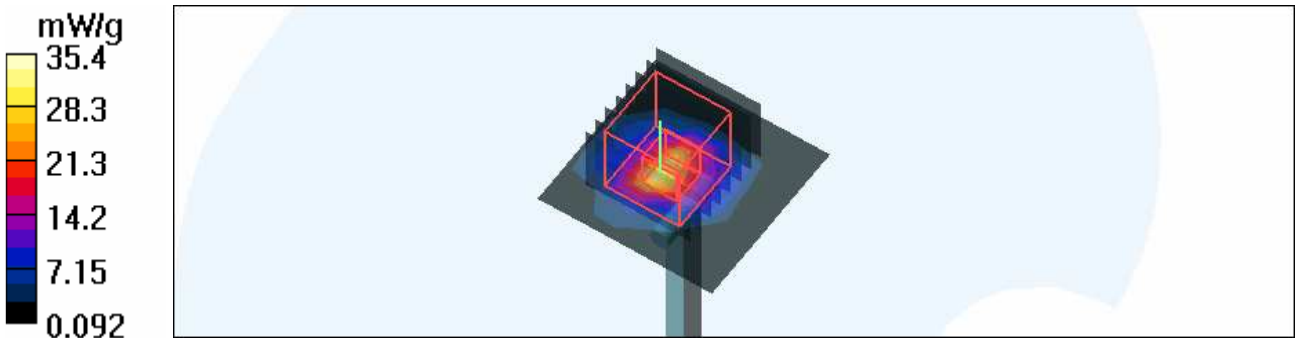
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5200 MHz

Communication System: CW ; Frequency: 5200 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5200 MHz; σ = 4.66 mho/m; ε_r = 37.1;
ρ = 1000 kg/m^3 ; Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5200, d=10mm, Pin=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 31.7 mW/g

f=5200, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 68.3 V/m; Power Drift = -0.262 dB
Peak SAR (extrapolated) = 62.3 W/kg
SAR(1 g) = 19.1 mW/g; SAR(10 g) = 5.38 mW/g
Maximum value of SAR (measured) = 35.4 mW/g



Date/Time: 2008/2/7 01:08:39

Test Laboratory: Advance Data Technology

System Validation Check-HSL 5500MHz

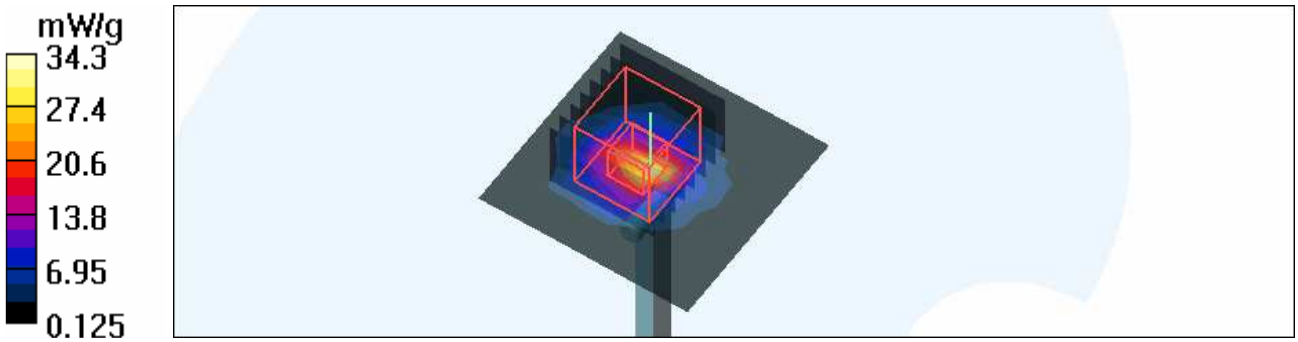
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5500 MHz

Communication System: CW ; Frequency: 5500 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5500 MHz; σ = 5.02 mho/m; ε_r = 36.6;
ρ = 1000 kg/m^3 ; Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5500, d=10mm, Pin=250mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 31.8 mW/g

f=5500, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 67.1 V/m; Power Drift = -0.250 dB
Peak SAR (extrapolated) = 66.4 W/kg
SAR(1 g) = 18.7 mW/g; SAR(10 g) = 5.26 mW/g
Maximum value of SAR (measured) = 34.3 mW/g



Date/Time: 2008/2/7 01:30:02

Test Laboratory: Advance Data Technology

System Validation Check-HSL 5800MHz

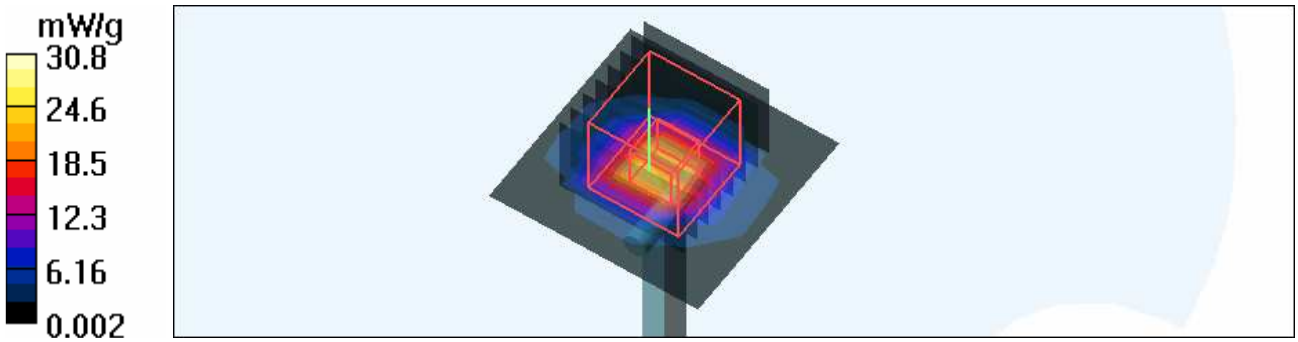
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.39 mho/m; ε_r = 36.1;
ρ = 1000 kg/m^3 ; Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.40, 4.40, 4.40) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5800, d=10mm, Pin=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 20.1 mW/g

f=5800, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 63.5 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 82.9 W/kg
SAR(1 g) = 18.6 mW/g; SAR(10 g) = 5.19 mW/g
Maximum value of SAR (measured) = 30.8 mW/g



Date/Time: 2008/2/8 00:41:48

Test Laboratory: Advance Data Technology

System Validation Check-HSL 5200MHz

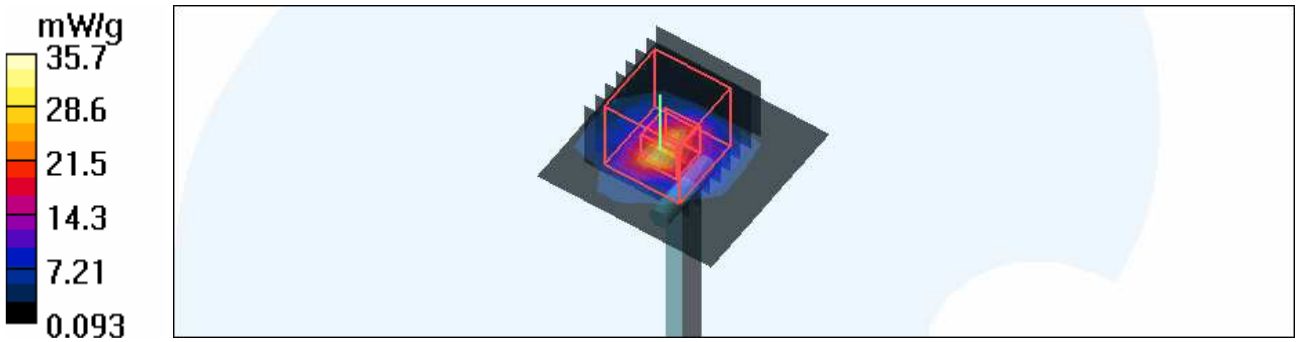
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5200 MHz

Communication System: CW ; Frequency: 5200 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5200 MHz; σ = 4.64 mho/m; ε_r = 37.4;
ρ = 1000 kg/m^3 ; Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.92, 4.92, 4.92) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5200, d=10mm, Pin=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 31.9 mW/g

f=5200, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 67.1 V/m; Power Drift = -0.376 dB
Peak SAR (extrapolated) = 62.9 W/kg
SAR(1 g) = 19.3 mW/g; SAR(10 g) = 5.41 mW/g
Maximum value of SAR (measured) = 35.7 mW/g



Date/Time: 2008/2/8 01:03:39

Test Laboratory: Advance Data Technology

System Validation Check-HSL 5500MHz

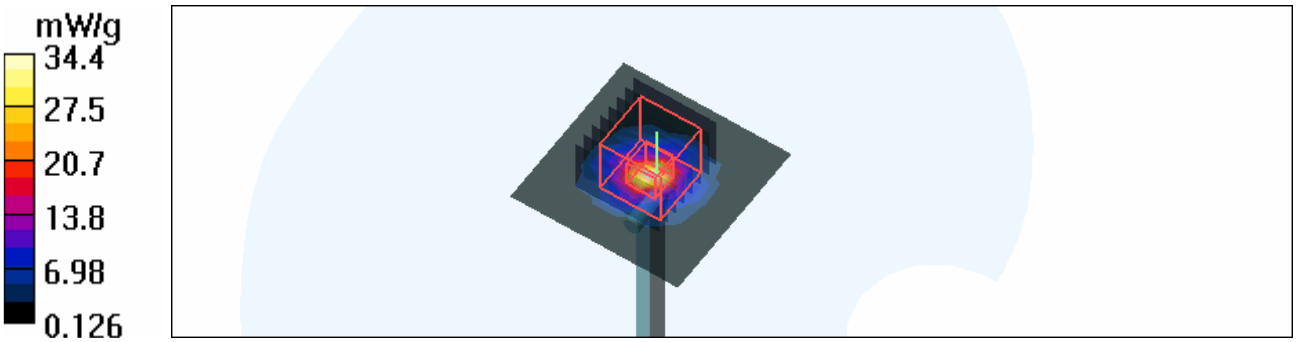
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5500 MHz

Communication System: CW ; Frequency: 5500 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5500 MHz; σ = 5.0 mho/m; ε_r = 36.9;
ρ = 1000 kg/m^3 ; Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.55, 4.55, 4.55) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5500, d=10mm, Pin=250mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 31.9 mW/g

f=5500, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 66.1 V/m; Power Drift = -0.116 dB
Peak SAR (extrapolated) = 66.7 W/kg
SAR(1 g) = 18.8 mW/g; SAR(10 g) = 5.25 mW/g
Maximum value of SAR (measured) = 34.4 mW/g



Date/Time: 2008/2/8 01:24:02

Test Laboratory: Advance Data Technology

System Validation Check-HSL 5800MHz

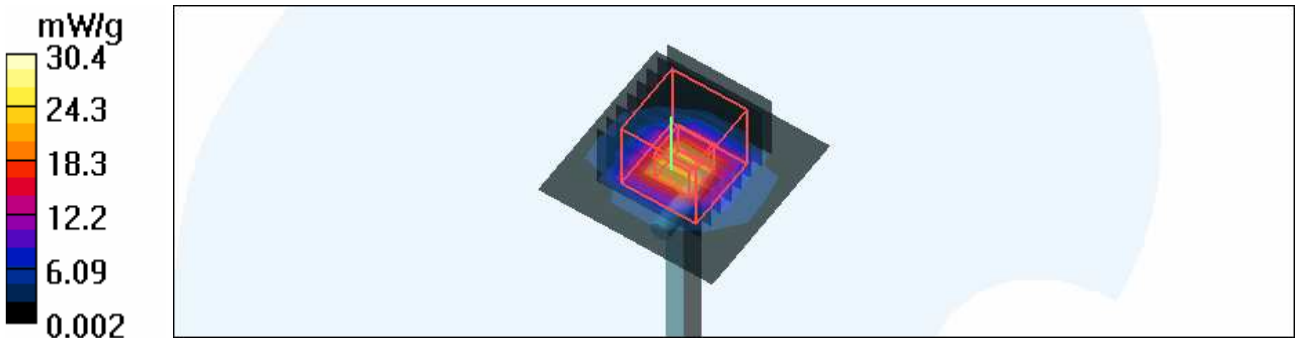
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.37 mho/m; ε_r = 36.4;
ρ = 1000 kg/m^3 ; Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.1 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.40, 4.40, 4.40) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5800, d=10mm, Pin=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 19.8 mW/g

f=5800, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 63.6 V/m; Power Drift = -0.158 dB
Peak SAR (extrapolated) = 81.9 W/kg
SAR(1 g) = 18.4 mW/g; SAR(10 g) = 5.12 mW/g
Maximum value of SAR (measured) = 30.4 mW/g



Date/Time: 2008/2/9 09:37:06

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5200MHz

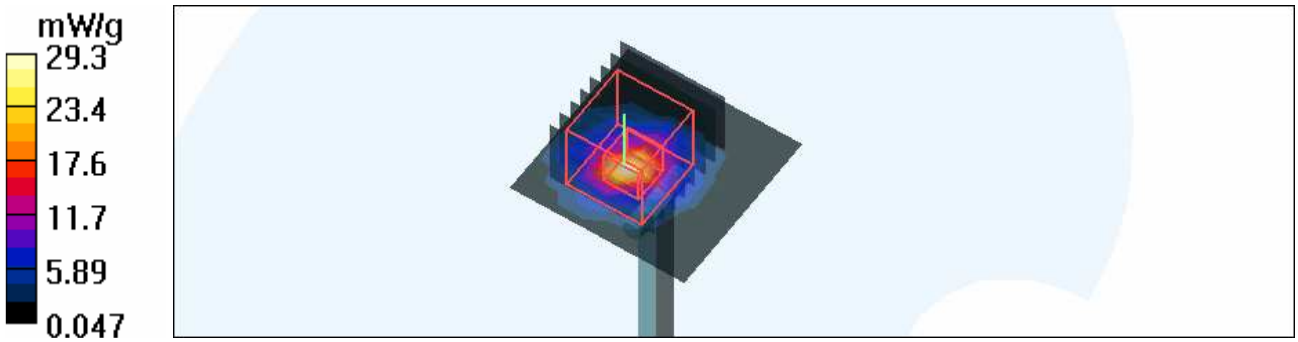
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5200 MHz

Communication System: CW ; Frequency: 5200 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5200 MHz; σ = 5.29 mho/m; ε_r = 50.5;
ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.3 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.48, 4.48, 4.48) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5200, d=10mm, Pin=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 29.4 mW/g

f=5200, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 78.4 V/m; Power Drift = -0.134 dB
Peak SAR (extrapolated) = 64.5 W/kg
SAR(1 g) = 19.1 mW/g; SAR(10 g) = 5.22 mW/g
Maximum value of SAR (measured) = 29.3 mW/g



Date/Time: 2008/2/9 10:00:52

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5500MHz

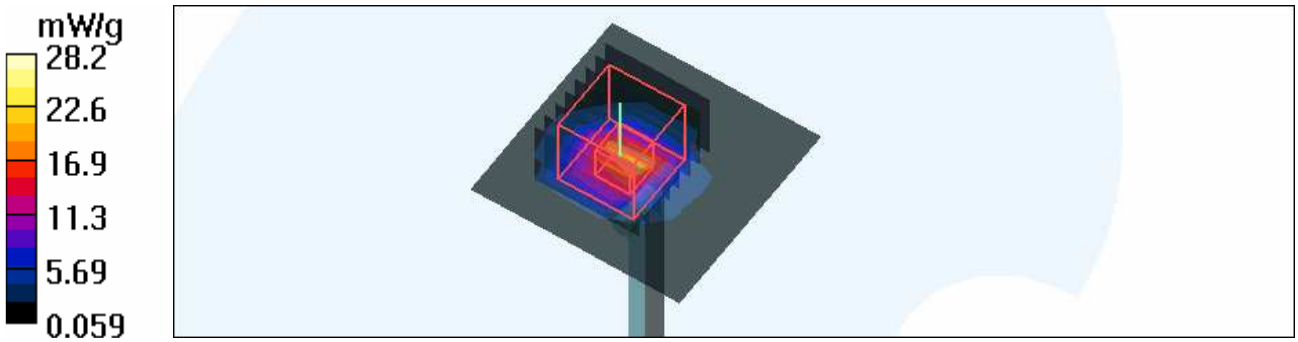
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5500 MHz

Communication System: CW ; Frequency: 5500 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5500 MHz; σ = 5.73 mho/m; ε_r = 49.9;
ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.3 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.11, 4.11, 4.11) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5500, d=10mm, Pin=250mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 20.4 mW/g

f=5500, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 76.6 V/m; Power Drift = -0.175 dB
Peak SAR (extrapolated) = 71.6 W/kg
SAR(1 g) = 18.9 mW/g; SAR(10 g) = 5.2 mW/g
Maximum value of SAR (measured) = 28.2 mW/g



Date/Time: 2008/2/9 10:22:41

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5800MHz

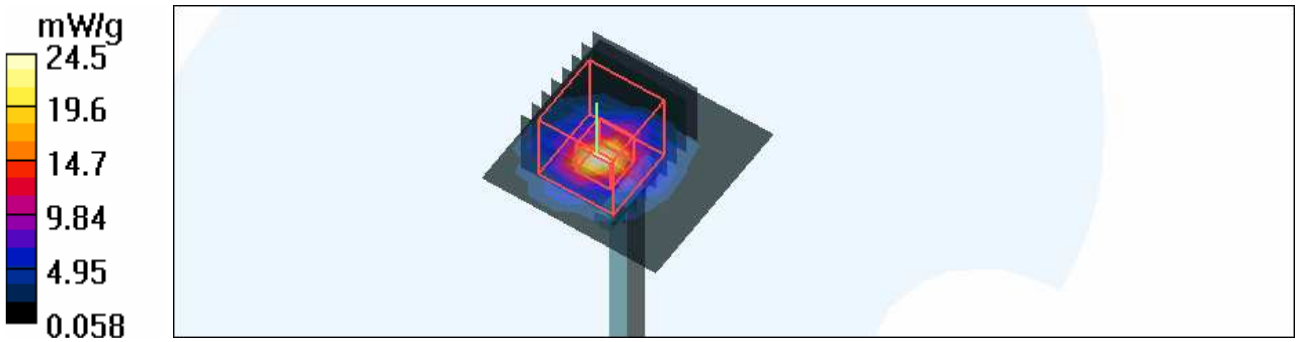
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5800 MHz; σ = 6.19 mho/m; ε_r = 49.3;
ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.3 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(4.2, 4.2, 4.2) ; Calibrated: 2007/3/20
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

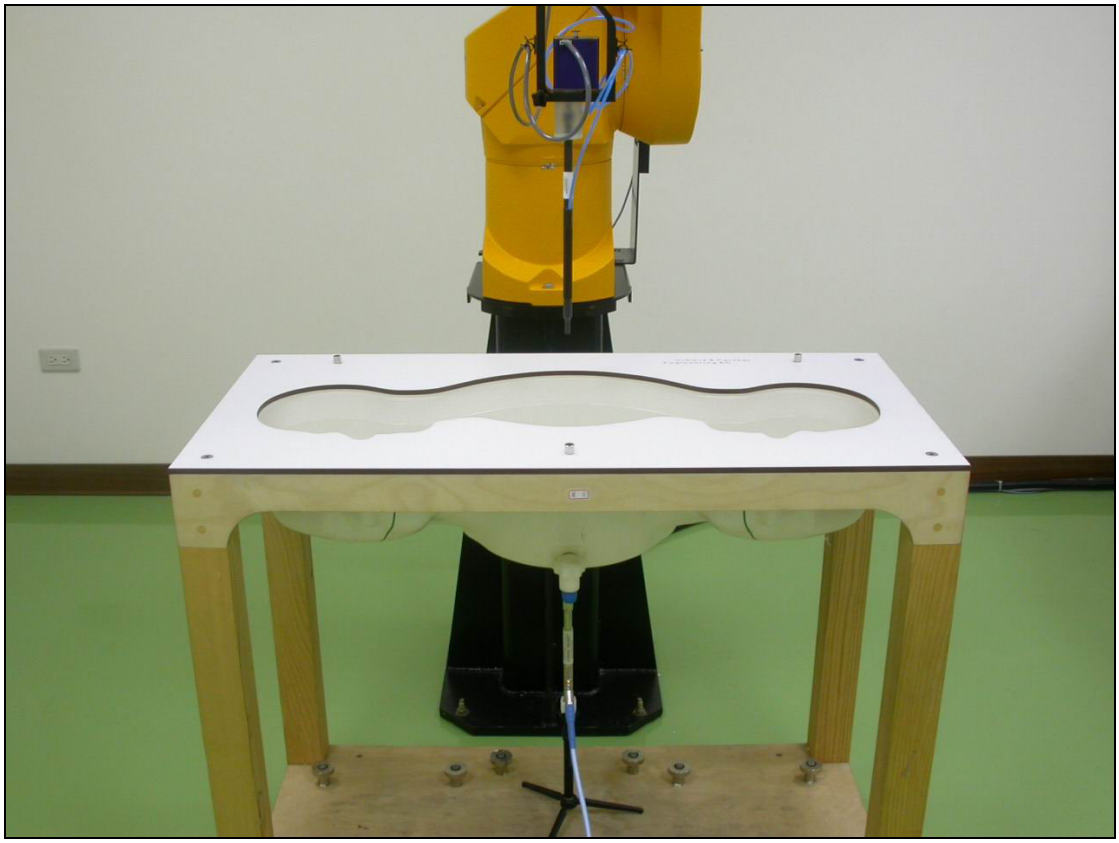
f=5800, d=10mm, Pin=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 25.6 mW/g

f=5800, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 72.3 V/m; Power Drift = -0.180 dB
Peak SAR (extrapolated) = 68.5 W/kg
SAR(1 g) = 17 mW/g; SAR(10 g) = 4.67 mW/g
Maximum value of SAR (measured) = 24.5 mW/g



APPENDIX B: ADT SAR MEASUREMENT SYSTEM

APPENDIX C: PHOTOGRAPHS OF SYSTEM VALIDATION



APPENDIX D: SYSTEM CERTIFICATE & CALIBRATION

D1: SAM PHANTOM

Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 CA
Series No	TP-1150 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen Switzerland

Tests

The series production process used allows the limitation to test of first articles.
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz – 3 GHz Relative permittivity < 5 Loss tangent < 0.05.	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

Standards

[1] CENELEC EN 50361
[2] IEEE P1528-200x draft 6.5
[3] IEC PT 62209 draft 0.9
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date 28.02.2002

Signature / Stamp

Schmid & Partner Engineering AG
Zeughausstrasse 43, CH-8004 Zurich
Tel. +41 1 245 97 00, Fax +41 1 245 97 79

D2: DOSIMETRIC E-FIELD PROBE

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 ADT (Auden)

Certificate No: EX3-3506_Mar07

CALIBRATION CERTIFICATE

Object	EX3DV3 - SN:3506
Calibration procedure(s)	QA CAL-01.v5 and QA CAL-14.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	March 20, 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	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41495277	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41498087	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	4-Apr-06 (METAS, No. 251-00558)	Apr-07
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	21-Jun-06 (SPEAG, No. DAE4-654_Jun06)	Jun-07

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:	Fin Bomholt	R&D Director	

Issued: March 21, 2007

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

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,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:

a) 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
b) 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:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,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*.
- *DCPx,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 *NORMx,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.

Probe EX3DV3

SN:3506

Manufactured:	February 18, 2004
Last calibrated:	April 20, 2006
Recalibrated:	March 20, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV3 SN:3506

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**0.810** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**97** mV
NormY	**0.880** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**94** mV
NormZ	**0.810** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**92** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	3.4	1.1
SAR_{be} [%]	With Correction Algorithm	0.0	0.1

TSL **1750 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	4.6	2.7
SAR_{be} [%]	With Correction Algorithm	0.2	0.4

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

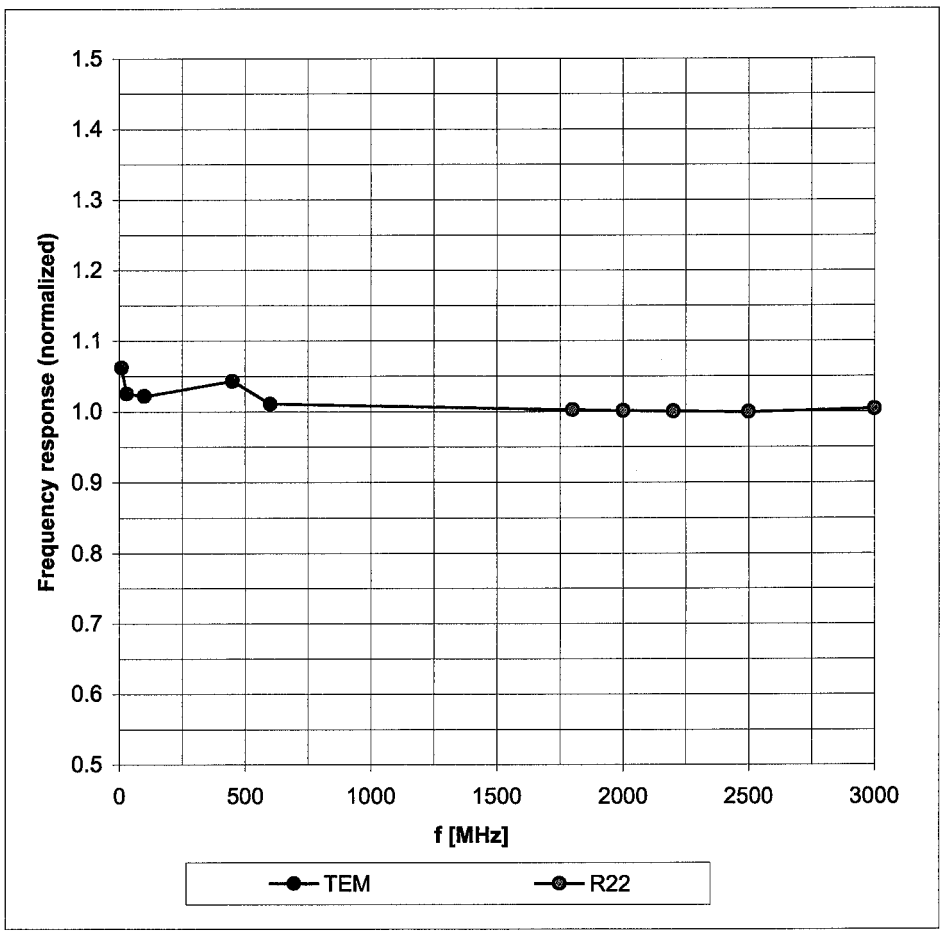
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

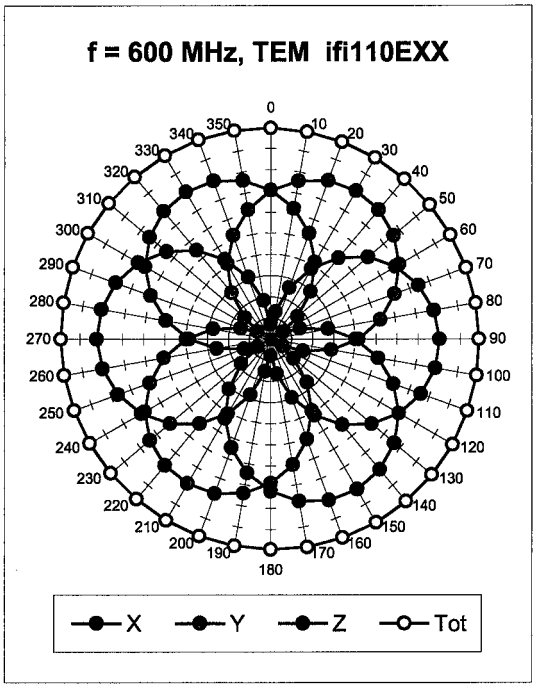
Frequency Response of E-Field

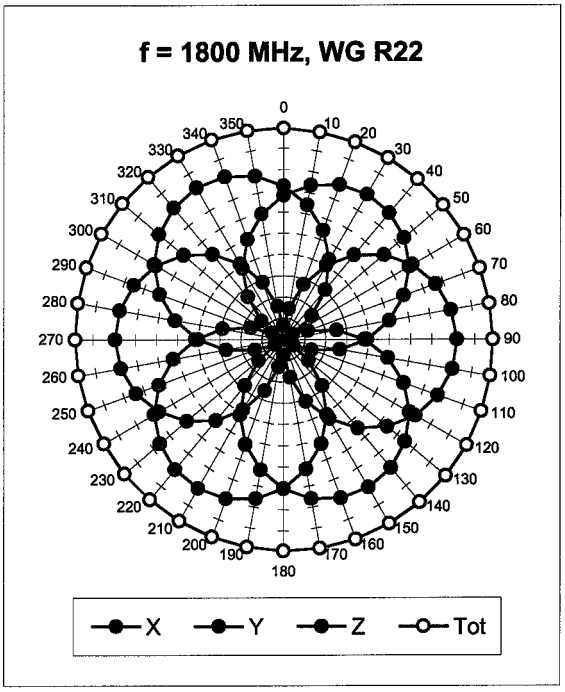
(TEM-Cell:ifi110 EXX, Waveguide: R22)

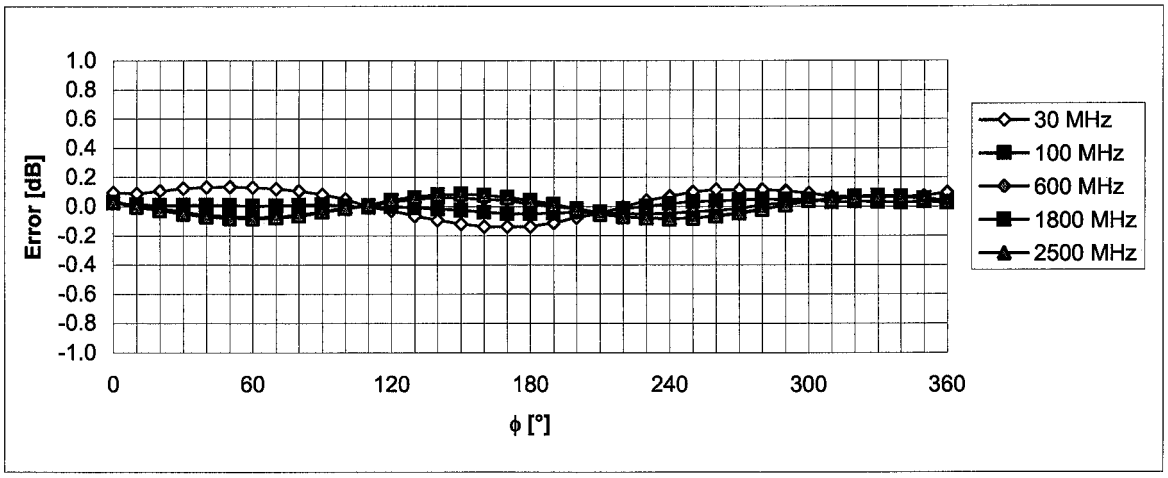


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



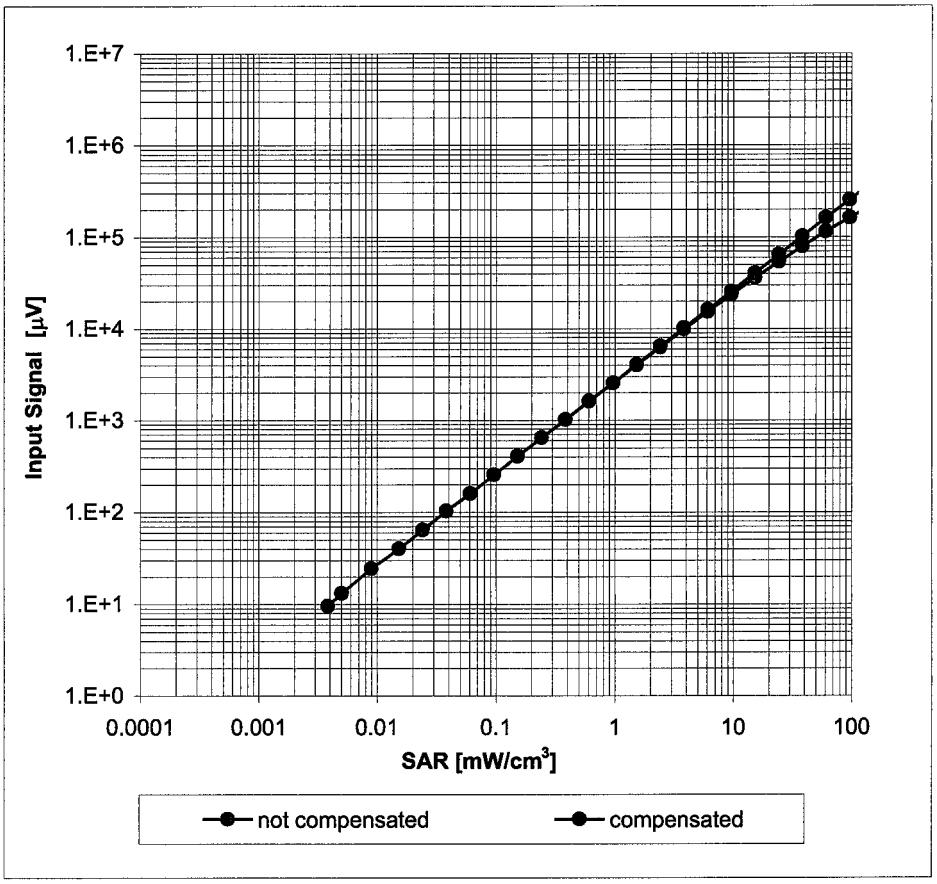


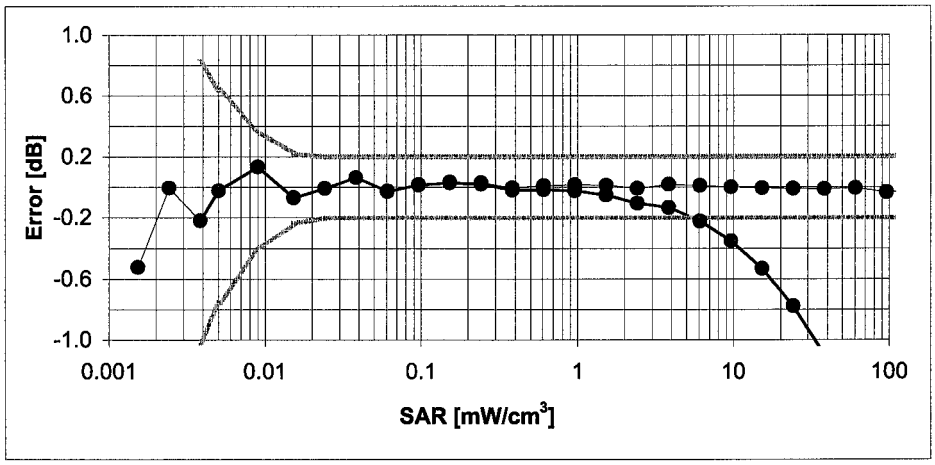


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

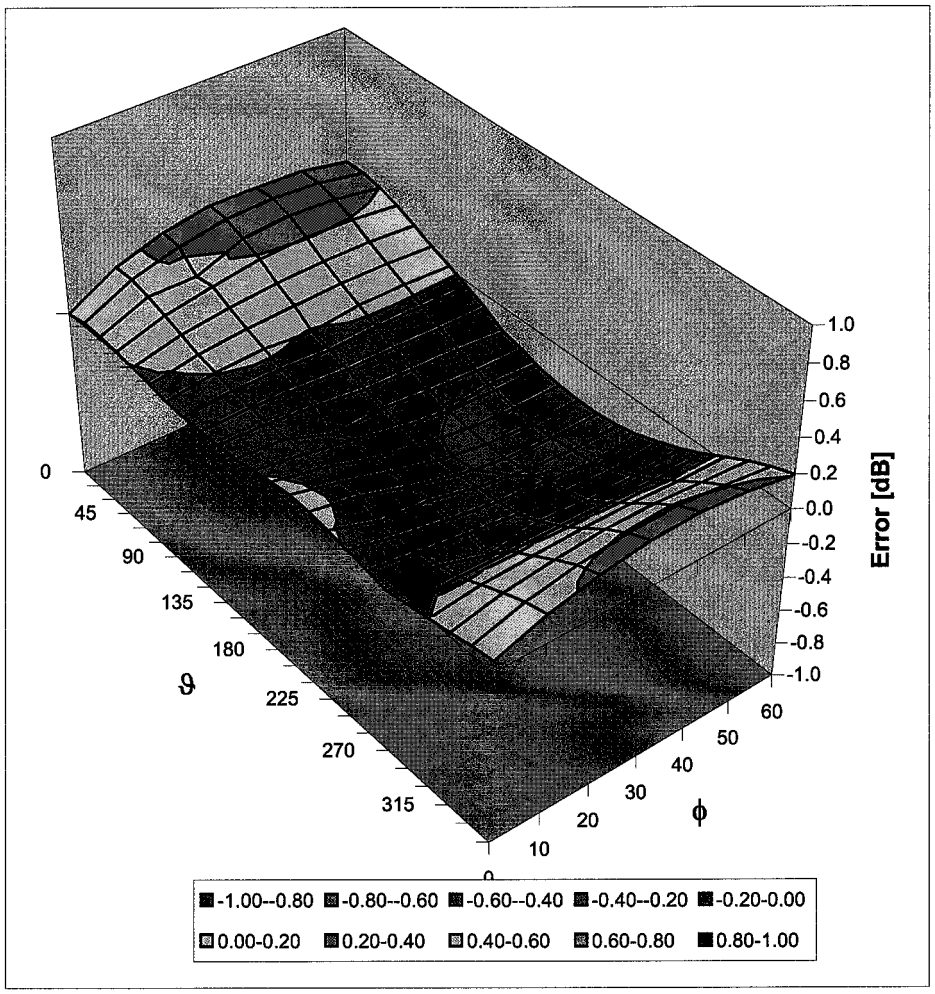
Conversion Factor Assessment

f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.45	0.80	9.77 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.19	1.20	8.48 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.18	1.29	8.12 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.39	1.00	7.80 ± 11.8% (k=2)
4950	± 50 / ± 100	Head	36.3 ± 5%	4.40 ± 5%	0.35	1.75	5.54 ± 13.1% (k=2)
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.35	1.75	4.92 ± 13.1% (k=2)
5300	± 50 / ± 100	Head	35.9 ± 5%	4.76 ± 5%	0.33	1.75	4.77 ± 13.1% (k=2)
5500	± 50 / ± 100	Head	35.6 ± 5%	4.96 ± 5%	0.35	1.75	4.55 ± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.35	1.75	4.40 ± 13.1% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.50	0.80	9.89 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.18	1.16	8.72 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.14	1.45	8.09 ± 11.0% (k=2)
2300	± 50 / ± 100	Body	52.8 ± 5%	1.85 ± 5%	0.42	1.00	7.92 ± 11.8% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.42	1.00	7.67 ± 11.8% (k=2)
2600	± 50 / ± 100	Body	52.5 ± 5%	2.16 ± 5%	0.42	1.00	7.28 ± 11.8% (k=2)
3500	± 50 / ± 100	Body	51.3 ± 5%	3.31 ± 5%	0.49	0.88	6.80 ± 13.1% (k=2)
4950	± 50 / ± 100	Body	49.4 ± 5%	5.01 ± 5%	0.37	1.80	4.66 ± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.37	1.80	4.48 ± 13.1% (k=2)
5300	± 50 / ± 100	Body	48.5 ± 5%	5.42 ± 5%	0.35	1.80	4.14 ± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.33	1.80	4.11 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.30	1.80	4.20 ± 13.1% (k=2)

[C] **The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.**

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

D3: DAE

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

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Accreditation No.: SCS 108

Client ADT (Auden)

Certificate No: DAE3-579_Mar07

CALIBRATION CERTIFICATE

Object	DAE3 - SD 000 D03 AA - SN: 579
Calibration procedure(s)	QA CAL-06.v12 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	March 23, 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
Fluke Process Calibrator Type 702	SN: 6295803	13-Oct-06 (Elcal AG, No: 5492)	Oct-07
Keithley Multimeter Type 2001	SN: 0810278	03-Oct-06 (Elcal AG, No: 5478)	Oct-07
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1002	15-Jun-06 (SPEAG, in house check)	In house check Jun-07

	Name	Function	Signature
Calibrated by:	Eric Hainfeld	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: March 23, 2007

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters contain technical information as a result from the performance test and require no uncertainty.
- *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
- *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
- *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
- *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
- *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
- *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
- *Input resistance:* DAE input resistance at the connector, during internal auto-zeroing and during measurement.
- *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
- *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.413 ± 0.1% (k=2)	404.494 ± 0.1% (k=2)	404.245 ± 0.1% (k=2)
Low Range	3.95259 ± 0.7% (k=2)	3.97903 ± 0.7% (k=2)	3.93943 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	0 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	200000	200000.1	0.00
Channel X	+ Input	20000	20006.33	0.03
Channel X	- Input	20000	-19997.11	-0.01
Channel Y	+ Input	200000	200000.5	0.00
Channel Y	+ Input	20000	20004.32	0.02
Channel Y	- Input	20000	-20000.97	0.00
Channel Z	+ Input	200000	199999.9	0.00
Channel Z	+ Input	20000	20004.59	0.02
Channel Z	- Input	20000	-19999.75	0.00

Low Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	2000	2000	0.00
Channel X	+ Input	200	199.93	-0.03
Channel X	- Input	200	-200.74	0.37
Channel Y	+ Input	2000	2000	0.00
Channel Y	+ Input	200	199.24	-0.38
Channel Y	- Input	200	-200.94	0.47
Channel Z	+ Input	2000	2000	0.00
Channel Z	+ Input	200	199.04	-0.48
Channel Z	- Input	200	-201.32	0.66

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	6.88	6.91
	- 200	-5.38	-6.84
Channel Y	200	4.74	6.33
	- 200	-2.86	-7.65
Channel Z	200	8.17	8.22
	- 200	-9.67	-10.56

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	0.28	0.44
Channel Y	200	1.03	-	2.52
Channel Z	200	-2.54	0.78	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16336	17367
Channel Y	16187	16706
Channel Z	15808	16822

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-1.09	-2.34	-0.23	0.35
Channel Y	-2.38	-3.71	-1.13	0.33
Channel Z	0.31	-1.04	1.49	0.37

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance

	Zeroing (MOhm)	Measuring (MOhm)
Channel X	0.2001	201.8
Channel Y	0.2001	204.8
Channel Z	0.2001	206.1

8. Low Battery Alarm Voltage (verified during pre test)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (verified during pre test)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.0	+6	+14
Supply (- Vcc)	–0.01	-8	-9

D4: SYSTEM VALIDATION DIPOLE

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 ADT (Auden)

Certificate No: D5GHzV2-1018_Apr07

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1018
Calibration procedure(s)	QA CAL-22.v1 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	April 19, 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 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-06 (METAS, No 217-00591)	Aug-07
Reference Probe EX3DV4	SN: 3503	9-Mar-07 (SPEAG, No. EX3-3503_Mar07)	Mar-08
DAE4	SN 601	30-Jan-07 (SPEAG, No. DAE4-601_Jan07)	Jan-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 25, 2007

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEC Std 62209 Part 2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", Draft Version 0.9, December 2004

b) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

c) DASY4 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Area Scan resolution	dx, dy = 10 mm	
Zoom Scan Resolution	dx, dy = 4. mm, dz = 2.5 mm	
Frequency	5200 MHz ± 1 MHz 5500 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.5 ± 6 %	4.57 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	20.1 mW / g
SAR normalized	normalized to 1W	80.4 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**80.1 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.68 mW / g
SAR normalized	normalized to 1W	22.7 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**22.6 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.9 ± 6 %	4.87 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	19.2 mW / g
SAR normalized	normalized to 1W	76.8 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**76.3 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.44 mW / g
SAR normalized	normalized to 1W	21.8 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**21.6 mW / g ± 19.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.4 ± 6 %	5.12 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	19.3 mW / g
SAR normalized	normalized to 1W	77.2 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**76.5 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.43 mW / g
SAR normalized	normalized to 1W	21.7 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**21.5 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.3 ± 6 %	5.31 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	19.5 mW / g
SAR normalized	normalized to 1W	78.0 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**77.1 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.48 mW / g
SAR normalized	normalized to 1W	21.9 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**21.7 mW / g ± 19.5 % (k=2)**

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.56 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.6 ± 6 %	5.68 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	19.6 mW / g
SAR normalized	normalized to 1W	78.4 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**77.4 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.47 mW / g
SAR normalized	normalized to 1W	21.9 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**21.6 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.0 ± 6 %	6.04 mho/m ± 6 %
Body TSL temperature during test	(22.0± 0.2) °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	17.6 mW / g
SAR normalized	normalized to 1W	70.4 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**69.4 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.92 mW / g
SAR normalized	normalized to 1W	19.7 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**19.4 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	51.6 Ω - 10.3 jΩ
Return Loss	-19.8 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	48.9 Ω - 2.0 jΩ
Return Loss	-32.5 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	56.4 Ω + 3.8 jΩ
Return Loss	-23.1 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	51.3 Ω - 9.0 jΩ
Return Loss	-20.9 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	49.0 Ω - 1.6 jΩ
Return Loss	-34.3 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	57.3 Ω + 5.3 jΩ
Return Loss	-21.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.201 ns

After long term use with 40 W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	February 05, 2004

DASY4 Validation Report for Head TSL

Date/Time: 19.04.2007 20:55:27

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1018

Communication System: CW-5GHz; Frequency: 5200 MHz Frequency: 5500 MHz Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: HSL 5800 MHz;
Medium parameters used: f = 5200 MHz; σ = 4.57 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3

Medium parameters used: f = 5500 MHz; σ = 4.87 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3

Medium parameters used: f = 5800 MHz; σ = 5.12 mho/m; ε_r = 34.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.56, 5.56, 5.56)ConvF(5.2, 5.2, 5.2)ConvF(4.97, 4.97, 4.97); Calibrated: 09.03.2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2007
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 63.1 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 75.3 W/kg
SAR(1 g) = 20.1 mW/g; SAR(10 g) = 5.68 mW/g
Maximum value of SAR (measured) = 41.5 mW/g

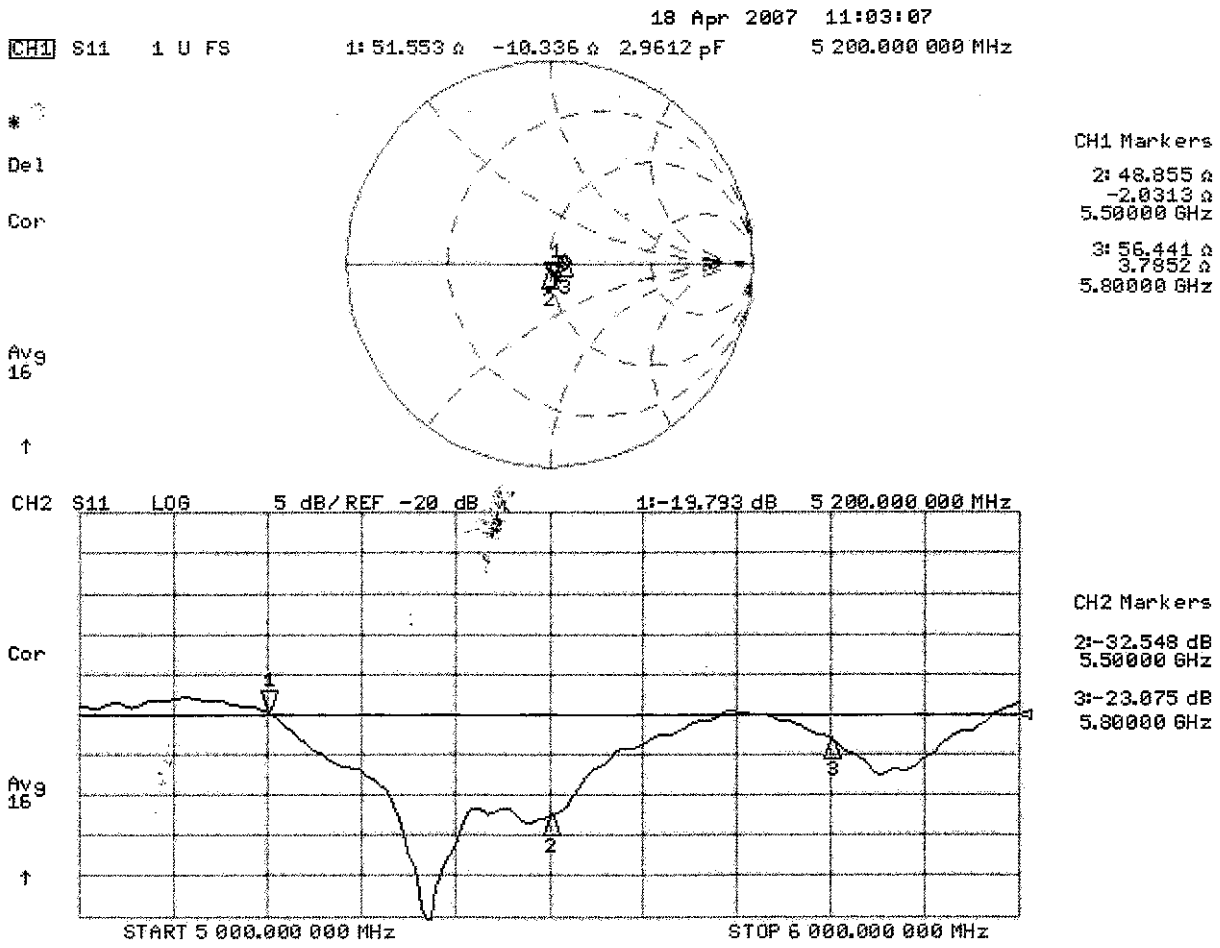
d=10mm, Pin=250mW, f=5500 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 62.5 V/m; Power Drift = 0.108 dB
Peak SAR (extrapolated) = 75.4 W/kg
SAR(1 g) = 19.2 mW/g; SAR(10 g) = 5.44 mW/g
Maximum value of SAR (measured) = 40.2 mW/g

d=10mm, Pin=250mW, f=5800 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 62.1 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 79.9 W/kg
SAR(1 g) = 19.3 mW/g; SAR(10 g) = 5.43 mW/g
Maximum value of SAR (measured) = 41.1 mW/g

Impedance Measurement Plot for Head TSL



DASY4 Validation Report for Body TSL

Date/Time: 19.04.2007 19:34:02

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1018

Communication System: CW-5GHz; Frequency: 5200 MHzFrequency: 5500 MHzFrequency: 5800 MHz;Duty Cycle: 1:1
Medium: MSL 5800 MHz;
Medium parameters used: f = 5200 MHz; σ = 5.31 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3

Medium parameters used: f = 5500 MHz; σ = 5.68 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3

Medium parameters used: f = 5800 MHz; σ = 6.04 mho/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.96, 4.96, 4.96)ConvF(4.63, 4.63, 4.63)ConvF(4.76, 4.76, 4.76); Calibrated: 09.03.2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2007
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 79.0 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 71.6 W/kg
SAR(1 g) = 19.5 mW/g; SAR(10 g) = 5.48 mW/g
Maximum value of SAR (measured) = 39.0 mW/g

d=10mm, Pin=250mW, f=5500 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 75.8 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 77.8 W/kg
SAR(1 g) = 19.6 mW/g; SAR(10 g) = 5.47 mW/g
Maximum value of SAR (measured) = 40.6 mW/g

d=10mm, Pin=250mW, f=5800 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 70.5 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 71.2 W/kg
SAR(1 g) = 17.6 mW/g; SAR(10 g) = 4.92 mW/g
Maximum value of SAR (measured) = 35.8 mW/g

Impedance Measurement Plot for Body TSL