SAR TEST REPORT

Equipment Under Test	Mobile Hotspot
Model Number	AirCard 754S
Mode of Operation	GPRS\EGPRS\WCDMA\HSDPA\HSUPA\LTE\WLAN802.11 b/g/n(20M) band
Company Name	Sierra Wireless
Company Address	13811 Wireless Way :: Richmond, BC, Canada, V6V 3A4
Date of Receipt	2011.04.07
Date of Test(s)	2011.04.27~2011.05.13
Date of Issue	2011.07.08

Standards:

FCC OET 65 supplement C,
IEEE /ANSI C95.1 , C95.3, IEEE 1528,

In the configuration tested, the EUT complied with the standards specified above.

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Electronic & Communication Laboratory or testing done by SGS Taiwan Electronic & Communication Laboratory in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Electronic & Communication Laboratory in writing.

Ricky Huang

Tested by : Ricky Huang **Date : 2011.07.08**
Asst. Supervisor

Nick Hsu

Approved by : Nick Hsu **Date : 2011.07.08**
Supervisor

Revision Version

Report Number	Revision	Date	Memo
ES/2011/40002	00	2011/05/25	Initial creation of test report.
ES/2011/40002	01	2011/07/07	1st modification
ES/2011/40002	02	2011/07/08	2nd modification

Contents

1. General Information

1.1 Testing Laboratory

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1.2 Details of Applicant

Name	Sierra Wireless
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Contact Person	Ying Wang
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1.3 Description of EUT

EUT Name	Mobile Hotspot
Model Number	AirCard 754S
IMEI code	001027009999990
FCC ID	N7NAC754S
Definition	Production unit
Mode of Operation	GSM\GPRS\EGPRS\WCDMA\HSDPA\HSUPA\ WLAN802.11 b/g/n(20M) band

Duty Cycle	GPRS		EGPRS		WCDMA	LTE	WLAN
	1/4 (multi class 10)		1/2 (multi class 12)		1	1	1
TX Frequency range (MHz)	GPRS 850	GPRS 1900	WCDMA Band 2	WCDMA Band 5	LTE Band 4	LTE Band 17	WLAN 802. 11 b/g/n (20M)
	824.2 - 848.8	1850.2 - 1909.8	1852.4 - 1907.6	826.4 - 846.6	1710 - 1755	704 - 716	2412 - 2462
Channel Number (ARFCN)	GPRS 850	GPRS 1900	WCDMA Band 2	WCDMA Band 5	LTE Band 4	LTE Band 17	WLAN 802. 11 b/g/n (20M)
	128-251	512-810	9262-9538	4132-4233	19950-20399	23730-23849	1-11
Max. SAR Measured (1g)	**GRPS 850**						
	1.07W/kg (At GPRS 850_ CH190_Front side)						
	GRRS 1900						
	0.772W/kg (At GPRS 1900_ CH512_Back side)						
	WCDMA Band 2						
	0.776W/kg (At WCDMA Band 2_ CH9262_ Back side)						
	WCDMA Band 5						
	1.04W/kg (At WCDMA Band 5_ CH4132_ Front side)						
	LTE Band 4						
	1.09W/kg (At LTE Band 4_ CH20000_Right side)						
	LTE Band 17						
	0.912W/kg (At LTE Band 17_ CH23780_ Front side)						
	WLAN802.11 b						
	0.151W/kg (At WLAN802.11 b_ CH11_Top side)						

1.4 Test Environment

Ambient Temperature: 22±2° C
Tissue Simulating Liquid: 22±2° C

1.5 Operation description

The EUT is controlled by using a Radio Communication Tester (R&S CMU200), and the communication between the EUT and the tester is established by air link.
WLAN part is controlled by chip-specific software to make it transmit at max power.
The test configuration tested at the low, middle and high frequency channels, and then test of set in highest power. Finally, we will test it by dividing into 6 configurations:

The testing device is a mobile hotspot product, the test separation distance is 10mm due to its dimension of testing device (96 mmx56.81 mm) is bigger than 9 x 5 cm refered as test guidance of KDB941225D06.

WWAN: Setup configuration referred as appendix of setup photograaph
Configuration 1: Front side.
Configuration 2: Back side.
Configuration 3: Top side.
Configuration 4: Bottom side.
Configuration 5: Right side.
Configuration 6: Left side. (Antenna to user distance > 25mm)
(No need SAR testing due to the distance between antenna and left of the device is bigger than 2.5 cm referred as the KDB941225 D06)

WLAN: Setup configuration referred as appendix of setup photograaph
Configuration 1: Front side.
Configuration 2: Back side.
Configuration 3: Top side.
Configuration 4: Bottom side. (Antenna to user distance > 25mm)
(No need SAR testing due to the distance between antenna and bottom side of the device is bigger than 2.5 cm referred as the KDB941225 D06)
Configuration 5: Right side.
Configuration 6: Left side. (Antenna to user distance > 25mm)
(No need SAR testing due to the distance between antenna and left side of the device is bigger than 2.5 cm referred as the KDB941225 D06)

#. The test separation distance and test positions are referred as test guidance of KDB941125 D06(SAR evakuation procedure for portable devices with wireless router capabilities)

#. Follow the test guidance of KDB941125 D05 (LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion.

#. When the maximum transmitter and antenna output power are ≦ 60/f(GHz) (mW) SAR evaluation is not required for FCC or TCB approval.

#. The highest 1-g SAR for WLAN is 0.118 W/kg(Front side) and the highest 1-g SAR for WWAN is 1.07W/kg(Front side). The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is 0.118+1.07 = 1.188 W/kg < 1.6 W/kg. The sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas, therefore SAR evaluation is not required for the simultaneous transmission conditions per KDB **KDB648474/ KDB447498 /KDB248227**.Pls see detailed analysis under item 11 on page 17."

#. According to **KDB248227**-SAR is not required for 802.11 g/HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

#. According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

1.6 LTE Related Information of Testing Device

Identifying the wireless operating configurations and parameters for submitting a laboratory testing KDB inquiry, a TCB PBA or preparing SAR reports:

1) identify the operating frequency range of each LTE transmission band used by the device

E-UTRA Operating Band	Uplink (UL) eNode B receive UE transmit			Downlink (DL) eNode B transmit UE receive			Duplex Mode
	F_{UL_low}	–	F_{UL_high}	F_{DL_low}	–	F_{DL_high}	
4	1710 MHz	–	1755 MHz	2110 MHz	–	2155 MHz	FDD
17	704 MHz	–	716 MHz	734 MHz	–	746 MHz	FDD

2) identify the channel bandwidths used in each frequency band; 1.4, 3, 5, 10, 15, 20 MHz etc

E-UTRA band / channel bandwidth						
LTE band	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz
Band 4	No	No	Yes	Yes	No	No
Band 17	No	No	Yes	Yes	No	No

3) identify the high, middle and low (H, M, L) channel numbers and frequencies in each LTE frequency band

Test frequencies for E-UTRA channel bandwidth for operating band 4

Test Frequency ID	Bandwidth [MHz]	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]
Low Range	5	19975	1712.5	1975	2112.5
	10	20000	1715	2000	2115
Mid Range	5/10	20175	1732.5	2175	2132.5
High Range	5	20375	1752.5	2375	2152.5
	10	20350	1750	2350	2150

Test frequencies for E-UTRA channel bandwidth for operating band 17

Test Frequency ID	Bandwidth [MHz]	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]
Low Range	5	23755	706.5	5755	736.5
	10	23780	709	5780	739
Mid Range	5/10	23790	710	5790	740
High Range	5	23825	713.5	5825	743.5
	10	23800	711	5800	741

4) specify the UE category and uplink modulations used

UE LTE Category 3, UL Modulations: QPSK and 16QAM

5) include descriptions of the LTE transmitter and antenna implementation; and also identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware components and/or antenna(s) with other transmitters etc

The EUT has two LTE transmitters, one for band-4 and the other for band-17. The front-end and antenna are shared between LTE, GSM and UMTS RF paths. The WWAN radios may co-transmit with the embedded WiFi radio.

6) identify the LTE voice/data requirements in each operating mode and exposure condition with respect to head and body test configurations, antenna locations, handset flip-cover or slide positions, antenna diversity conditions etc

The EUT supports data only, and not support simultaneously voice/data transmission scenario.

Antenna location/separation diagram:

Please refer to the attached of SAR test setup photographs.

7) identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design:
   a) only mandatory MPR may be considered during SAR testing, when the maximum output power is permanently limited by the MPR implemented within

the UE; and only for the applicable RB (resource block) configurations specified in LTE standards.

MPR is mandatory, and been implemented permanently.

b) A-MPR (additional MPR) must be disabled

A-MPR is disabled by hard-coded in the software and is not available to the device.

MPR Target Value of Testing Device

Modulation	Channel bandwidth / Transmission bandwidth configuration [RB]		MPR (dB)
	5 MHz	10 MHz	
QPSK	> 8	> 12	≤ 1
16 QAM	≤ 8	≤ 12	≤ 1
16 QAM	> 8	> 12	≤ 2

8) include the maximum average conducted output power measured on the required test channels for each channel bandwidth and UL modulation used in each frequency band:
   a) with 1 RB allocated at the upper edge of a channel
   b) with 1 RB allocated at the lower edge of a channel
   c) using 50% RB allocation centered within a channel
   d) using 100% RB allocation

LTE Band 17

BW (MHz)	Modulation	Channel	Frequency (MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)
10	QPSK	23780	709	1	49	23.34	23.5	0
				1	0	23.75	23.5	0
				25	12	22.26	23.5	1
				50	0	22.29	23.5	1
		23790	710	1	49	23.25	23.5	0
				1	0	23.30	23.5	0
				25	12	22.21	23.5	1
				50	0	22.19	23.5	1
		23800	711	1	49	23.31	23.5	0
				1	0	23.38	23.5	0
				25	12	22.19	23.5	1
				50	0	22.35	23.5	1
10	16 QAM	23780	709	1	49	22.78	23.5	1
				1	0	22.63	23.5	1
				25	12	21.11	23.5	2
				50	0	21.18	23.5	2
		23790	710	1	49	22.77	23.5	1
				1	0	22.68	23.5	1
				25	12	21.07	23.5	2
				50	0	21.14	23.5	2
		23800	711	1	49	23.07	23.5	1
				1	0	23.04	23.5	1
				25	12	21.21	23.5	2
				50	0	21.23	23.5	2

LTE Band 17

BW (MHz)	Modulation	Channel	Frequency (MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)
5	QPSK	23755	706.5	1	24	23.23	23.5	0
				1	0	23.21	23.5	0
				12	6	22.10	23.5	1
				25	0	22.15	23.5	1
		23790	710	1	24	23.24	23.5	0
				1	0	23.25	23.5	0
				12	6	22.04	23.5	1
				25	0	22.17	23.5	1
		23825	713.5	1	24	23.25	23.5	0
				1	0	23.36	23.5	0
				12	6	22.06	23.5	1
				25	0	22.27	23.5	1
5	16 QAM	23755	706.5	1	24	22.77	23.5	1
				1	0	22.53	23.5	1
				12	6	21.04	23.5	2
				25	0	20.90	23.5	2
		23790	710	1	24	22.67	23.5	1
				1	0	22.55	23.5	1
				12	6	21.03	23.5	2
				25	0	21.10	23.5	2
		23825	713.5	1	24	22.99	23.5	1
				1	0	22.92	23.5	1
				12	6	21.15	23.5	2
				25	0	21.01	23.5	2

LTE Band 4

BW (MHz)	Modulation	Channel	Frequency (MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)
10	QPSK	20000	1715	1	49	23.53	23.5	0
				1	0	23.75	23.5	0
				25	12	22.33	23.5	1
				50	0	22.21	23.5	1
		20175	1732.5	1	49	23.45	23.5	0
				1	0	23.37	23.5	0
				25	12	22.17	23.5	1
				50	0	22.05	23.5	1
		20350	1750	1	49	23.35	23.5	0
				1	0	23.49	23.5	0
				25	12	22.11	23.5	1
				50	0	22.08	23.5	1
10	16 QAM	20000	1715	1	49	22.83	23.5	1
				1	0	22.76	23.5	1
				25	12	21.16	23.5	2
				50	0	21.38	23.5	2
		20175	1732.5	1	49	23.10	23.5	1
				1	0	22.99	23.5	1
				25	12	21.17	23.5	2
				50	0	21.15	23.5	2
		20350	1750	1	49	22.72	23.5	1
				1	0	22.91	23.5	1
				25	12	21.15	23.5	2
				50	0	21.14	23.5	2

LTE Band 4

BW (MHz)	Modulation	Channel	Frequency (MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)
5	QPSK	19975	1712.5	1	24	23.52	23.5	0
				1	0	23.74	23.5	0
				12	6	22.29	23.5	1
				25	0	22.20	23.5	1
		20175	1732.5	1	24	23.41	23.5	0
				1	0	23.36	23.5	0
				12	6	22.09	23.5	1
				25	0	22.01	23.5	1
		20375	1752.5	1	24	23.33	23.5	0
				1	0	23.48	23.5	0
				12	6	22.06	23.5	1
				25	0	22.04	23.5	1
5	16 QAM	19975	1712.5	1	24	22.76	23.5	1
				1	0	22.75	23.5	1
				12	6	21.11	23.5	2
				25	0	21.21	23.5	2
		20175	1732.5	1	24	22.80	23.5	1
				1	0	22.95	23.5	1
				12	6	21.03	23.5	2
				25	0	20.86	23.5	2
		20375	1752.5	1	24	22.65	23.5	1
				1	0	22.91	23.5	1
				12	6	21.04	23.5	2
				25	0	20.94	23.5	2

9) include the maximum average conducted output power measured for the other wireless modes and frequency bands:

Conducted power table_ Edge/GPRS:

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Avg. Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Avg. Power (1DN 2UP) (dBm)
GPRS 850 (Class 10)	824.2	128	32.30	32.00	28.60	28.50
	836.6	190	32.70	32.40	28.70	28.60
	848.8	251	33.00	32.60	28.60	28.50

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Avg. Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Avg. Power (1DN 2UP) (dBm)
GPRS 1900 (Class 10)	1850.2	512	29.60	29.50	29.00	28.80
	1880.0	661	30.00	29.90	28.80	28.60
	1909.8	810	29.90	29.80	28.90	28.70

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Avg. Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Avg. Power (1DN 2UP) (dBm)	Peak Power (1DN 3UP) (dBm)	Avg. Power (1DN 3UP) (dBm)	Peak Power (1DN 4UP) (dBm)	Avg. Power (1DN 4UP) (dBm)
EDGE 850 (Class 12)	824.2	128	28.90	25.50	28.70	25.40	28.50	25.20	28.40	25.10
	836.6	190	29.00	25.60	28.70	25.40	28.50	25.20	28.30	25.00
	848.8	251	29.00	25.60	28.70	25.40	28.50	25.20	28.30	25.00

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Avg. Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Avg. Power (1DN 2UP) (dBm)	Peak Power (1DN 3UP) (dBm)	Avg. Power (1DN 3UP) (dBm)	Peak Power (1DN 4UP) (dBm)	Avg. Power (1DN 4UP) (dBm)
EDGE 1900 (Class 12)	1850.2	512	28.50	25.20	28.10	25.00	27.60	24.40	27.60	24.30
	1880.0	661	28.80	25.60	28.50	25.20	28.00	24.70	28.00	24.70
	1909.8	810	28.90	25.60	28.60	25.40	28.10	24.80	28.00	24.80

Conducted power table_ WCDMA/HSDPA/HSUPA:

		WCDMA Band II Channel			WCDMA Band V Channel		
Mode	Subtest	9262	9400	9538	4132	4183	4233
Rel99	R99	23.1	22.46	22.91	22.90	23.06	23.01
Rel6 HSDPA	1	23.27	22.35	22.77	22.69	22.92	23.13
	2	22.98	22.32	22.76	22.83	22.95	22.88
	3	22.79	21.9	22.24	22.23	22.44	22.64
	4	22.86	21.91	22.36	22.28	22.48	22.7
Rel6 HSUPA	1	23.02	22.44	22.85	22.86	22.99	22.93
	2	21.07	20.51	20.89	20.92	21.07	20.97
	3	22.08	21.46	21.93	21.9	22.05	22.01
	4	21.2	20.56	20.93	20.97	21.13	21.05
	5	22.91	22.3	22.76	22.72	22.82	22.82

Conducted power table_ WLAN802.11 b:

	11b	11g	11n
Fre.(MHz)	Average	Average	Average
2412	15.3	12.1	11.9
2437	15.6	12.6	12.2
2462	16.2	13.2	12.7

10) identify all other U.S. wireless operating modes (3G, Wi-Fi, WiMax, Bluetooth etc), device/exposure configurations (head and body, antenna and handset flip-cover or slide positions, antenna diversity conditions etc.) and frequency bands used for these modes

GSM/EDGE 850, GSM/EDGE 1900, UMTS/HSPA band II & V, and WIFI 802.11 b/g/n

11) identify the simultaneous transmission conditions for the voice and data configurations supported by all wireless modes, device configurations and frequency bands, for the head and body exposure conditions and device operating configurations (handset flip or cover positions, antenna diversity conditions etc.)

Simultaneous TX Modes	UMTS	GPRS/EDGE	LTE	802.11b/g/n
1	**ON**	OFF	OFF	**ON**
2	OFF	**ON**	OFF	**ON**
3	OFF	OFF	**ON**	**ON**

Front side Sum 1g-SAR	GPRS850	GPRS1900	WCDMA Band 2	WCDMA Band 5	LTE Band 4	LTE Band 17
WLAN802.11 b	**1.188**	0.844	0.812	1.158	0.947	1.03
Back side Sum 1g-SAR	GPRS850	GPRS1900	WCDMA Band 2	WCDMA Band 5	LTE Band 4	LTE Band 17
WLAN802.11 b	0.902	0.872	0.876	0.779	0.908	0.857
Top side Sum 1g-SAR	GPRS850	GPRS1900	WCDMA Band 2	WCDMA Band 5	LTE Band 4	LTE Band 17
WLAN802.11 b	0.533	0.38	0.355	0.486	0.273	0.347
Bottom side Sum 1g-SAR	GPRS850	GPRS1900	WCDMA Band 2	WCDMA Band 5	LTE Band 4	LTE Band 17
WLAN802.11 b	(No need SAR testing due to the distance between antenna and left of the device is bigger than 2.5 cm referred as the KDB941225 D06)_WLAN					
Right side Sum 1g-SAR	GPRS850	GPRS1900	WCDMA Band 2	WCDMA Band 5	LTE Band 4	LTE Band 17
WLAN802.11 b	0.16	0.548	0.589	0.126	1.129	0.101
Left side Sum 1g-SAR	GPRS850	GPRS1900	WCDMA Band 2	WCDMA Band 5	LTE Band 4	LTE Band 17
WLAN802.11 b	(No need SAR testing due to the distance between antenna and left of the device is bigger than 2.5 cm referred as the KDB941225 D06)_WLAN & WWAN					

12) when power reduction is applied to certain wireless modes to satisfy SAR compliance for simultaneous transmission conditions, other equipment certification or operating requirements, include the maximum average conducted output power measured in each power reduction mode applicable to the simultaneous voice/data transmission configurations for such wireless configurations and frequency bands; and also include details of the power reduction implementation and measurement setup

There is no power reduction techniques used to satisfy SAR limits.

13) include descriptions of the test equipment, test software, built-in test firmware etc. required to support testing the device when power reduction is applied to one or more transmitters/antennas for simultaneous voice/data transmission

There is no power reduction techniques used to satisfy SAR limits.

14) when appropriate, include a SAR test plan proposal with respect to the above

Follow the test guidance of KDB 941225D05(LTE SAR test consideration) to perform the LTE SAR testing and channel exclusion.

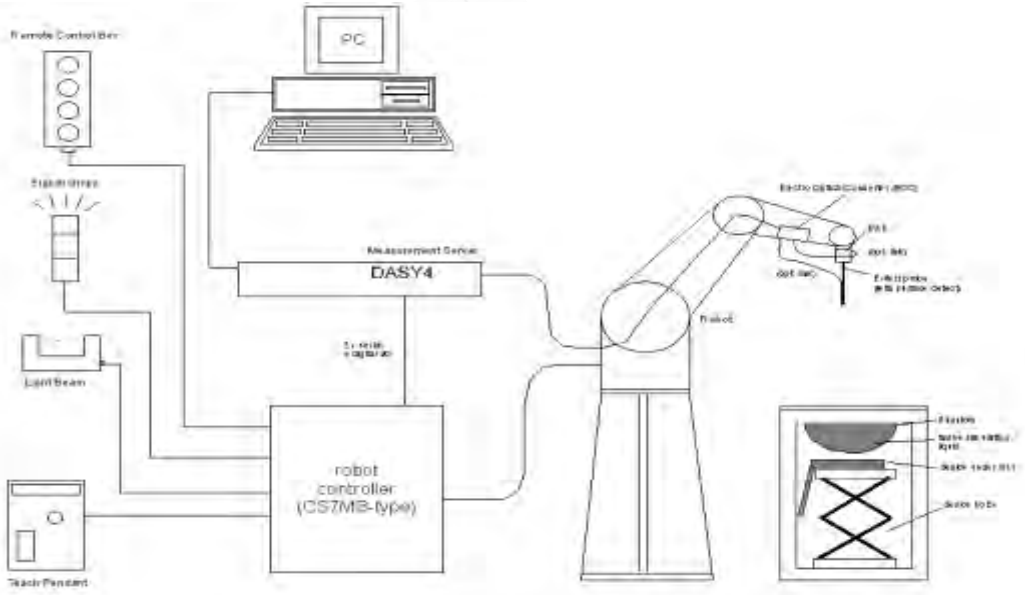
1.7 The SAR Measurement System

A photograph of the SAR measurement System is given in Diag. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 4 professional system). A Model ES3DV3/ET3DV6 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= $\sigma (|Ei|^2)/ \rho$ where σ and ρ are the conductivity and mass density of the tissue-simulant.

The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc.

The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.



Diag.a The block diagram of SAR system

- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
  - A computer operating Windows 2000 or Windows XP.
  - DASY4 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
  - The SAM twin phantom enabling testing left-hand and right-hand usage.
  - The device holder for handheld mobile phones.
  - Tissue simulating liquid mixed according to the given recipes.
  - Validation dipole kits allowing to validate the proper functioning of the system.

1.8 System Components

ES3DV3/ET3DV6 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL750/835/1900/2450 MHz Additional CF for other liquids and frequencies upon request	
Frequency	10 MHz to > 4 GHz, Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

SAM PHANTOM V4.0C

Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, 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.

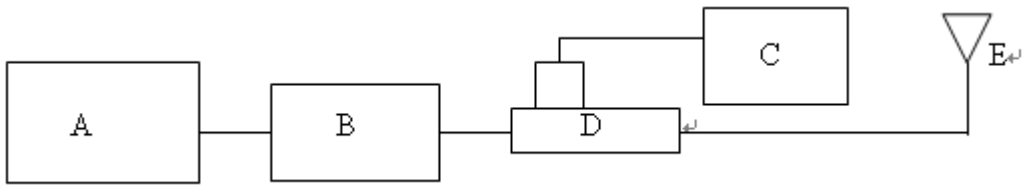
Shell Thickness	2 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Height: 251 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

Construction	The device holder (Supporter) for Notebook is made by POM (polyoxymethylene resin) , which is non-metal and non-conductive. The height can be adjusted to fit varies kind of notebooks.	 Device Holder

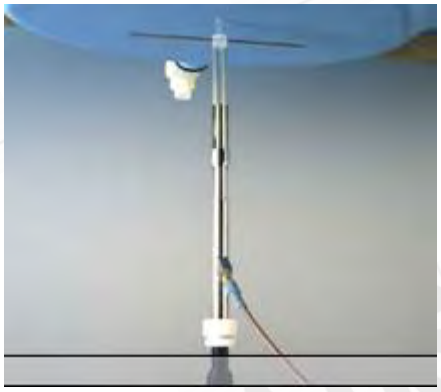
1.9 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Diag. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 5% from the target SAR values. These tests were done at 750/835/1900/2450 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was in the range 22.1°C, the relative humidity was in the range 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



Diag.b The block diagram of system verification

A. Agilent Model 8648D Signal Generator
B. Mini circuits Model ZHL-42 Amplifier
C. Agilent Model U2001B Power sensor
D. Agilent Model 778D/777D Dual directional coupling
E. Reference dipole antenna



Photograph of the dipole Antenna

Validation Kit	Frequency Hz	Target SAR (1g) (Pin=250mW)	Measured SAR (1g)	Measured Date
D750V2 S/N: 1015	750 MHz (Body)	2.06 m W/g	2.16 m W/g	2011-05-02
D835V2 S/N: 4d063	850 MHz (Body)	2.53 m W/g	2.62 m W/g	2011-04-27
D1750V2 S/N: 1008	1750 MHz (Body)	9.46m W/g	9.32m W/g	2011-05-13
D1900V2 S/N: 5d027	1900 MHz (Body)	9.93m W/g	9.98 m W/g	2011-04-27
D2450V2 S/N: 727	2450 MHz (Body)	12.7m W/g	13.1 m W/g	2011-05-03

Table 2. Results of system validation

1.10 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this body-simulant fluid were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with HP 8753D Network Analyzer (30 KHz-6000 MHz).
All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue simulant in the flat section of the phantom was 15cm±5mm during all tests. (Fig .2)

Frequency (MHz)	Tissue type	Measurement date/ Limits	Dielectric Parameters		
			ρ	σ (S/m)	Simulated Tissue Temperature(° C)
750	Body	Measured, 2011.05.02	53.2	0.931	21.7
		Recommended Limits	52.44-57.96	0.92-1.02	20-24
850	Body	Measured, 2011.04.27	53.3	1	21.7
		Recommended Limits	51.49-56.91	0.93-1.03	20-24
1750	Body	Measured, 2011.05.13	53	1.45	21.7
		Recommended Limits	51.40-56.81	1.36-1.50	20-24
1900	Body	Measured, 2011.04.27	52.5	1.59	21.7
		Recommended Limits	48.55-53.66	1.44-1.60	20-24
2450	Body	Measured, 2011.05.03	52.8	1.97	21.7
		Recommended Limits	48.07-53.13	1.81-2.01	20-24

Table 3. Dielectric Parameters of Tissue Simulant Fluid

The composition of the body tissue simulating liquid is:

Ingredient	750MHz (Body)	850MHz (Body)	1750MHz (Body)	1900MHz (Body)	2450MHz (Body)
DGMBE	X	X	300.67g	300.67g	301.7ml
Water	631.68 g	631.68 g	716.56 g	716.56 g	698.3ml
Salt	11.72 g	11.72 g	4.0 g	4.0 g	X
Preventol D-7	1.2 g	1.2 g	X	X	X
Cellulose	X	X	X	X	X
Sugar	600 g	600 g	X	X	X
Total amount	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)

Table 3. Recipes for tissue simulating liquid

1.11 EVALUATION PROCEDURES

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 1 g and 10 g 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 –2 dB 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 1 g and 10 g 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 7x7x7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm 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 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.

1.12 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (“SAR”) in Section 4.2 of “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” ANSI/IEEE C95.1–1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in “Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields,” NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814.
SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and

shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

(1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).

(2) Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.

(3) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .4)

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR (Brain)	1.60 m W/g	8.00 m W/g
Spatial Average SAR (Whole Body)	0.08 m W/g	0.40 m W/g
Spatial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

Table .4 RF exposure limits

Notes:

1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

2. Summary of Results

GPRS850 (multi class 10_2 up 1 down)

Front side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	128	824.2	28.50 dBm	0.872	22.1	21.7
	190	836.6	28.60 dBm	0.966	22.1	21.7
	251	848.8	28.50 dBm	0.872	22.1	21.7
Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	128	824.2	28.50 dBm	0.687	22.1	21.7
	190	836.6	28.60 dBm	0.802	22.1	21.7
	251	848.8	28.50 dBm	0.679	22.1	21.7
Top side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	190	836.6	28.60 dBm	0.380	22.1	21.7
Bottom side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	190	836.6	28.60 dBm	0.681	22.1	21.7
Right side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	190	836.6	28.60 dBm	0.074	22.1	21.7

#. Using KDB941225 D03 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode

#. According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

GPRS850 (multi class 8_1 up 1 down)

Front side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	128	824.2	32.00 dBm	1.06	22.1	21.7
	190	836.6	32.40 dBm	1.07	22.1	21.7
	251	848.8	32.60 dBm	1.04	22.1	21.7
Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	190	836.6	32.40 dBm	0.797	22.1	21.7
Top side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	190	836.6	32.40 dBm	0.382	22.1	21.7
Bottom side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	190	836.6	32.40 dBm	0.693	22.1	21.7
Right side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	190	836.6	32.40 dBm	0.121	22.1	21.7

#. Using KDB941225 D03 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode.

#. According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

GPRS1900 (multi class 10_2 up 1 down)

Front side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	512	1850.2	28.8 dBm	0.726	22.1	21.7
Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	512	1850.2	28.8 dBm	0.772	22.1	21.7
Top side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	512	1850.2	28.8 dBm	0.229	22.1	21.7
Bottom side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	512	1850.2	28.8 dBm	0.614	22.1	21.7
Right side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	512	1850.2	28.8 dBm	0.509	22.1	21.7

GPRS1900 (multi class 8_1 up 1 down)

Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	661	1850.2	29.9dBm	0.661	22.1	21.7

#. Using KDB941225 D03 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode

#. According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

WCDMA B2

Front side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	9262	1852.4	23.1dBm	0.694	22.1	21.7
Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	9262	1852.4	23.1dBm	0.776	22.1	21.7
Top side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	9262	1852.4	23.1dBm	0.204	22.1	21.7
Bottom side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	9262	1852.4	23.1dBm	0.505	22.1	21.7
Right side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900MHz	9262	1852.4	23.1dBm	0.550	22.1	21.7

#. Using KDB941225 D01 to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC

#. According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

WCDMA B5

Front side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	4132	826.4	22.90 dBm	1.04	22.1	21.7
	4183	836.6	23.06 dBm	0.896	22.1	21.7
	4233	846.6	23.01 dBm	0.743	22.1	21.7
Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	4183	836.6	23.06 dBm	0.679	22.1	21.7
Top side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	4183	836.6	23.06 dBm	0.335	22.1	21.7
Bottom side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	4183	836.6	23.06 dBm	0.651	22.1	21.7
Right side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850MHz	4183	836.6	23.06 dBm	0.087	22.1	21.7

#. Using KDB941225 D01 to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC

#. According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

LTE Band 4_Front side

LTE Band 4_Uplink frequency band : 1710 to 1755MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	20000	1715	1	49	23.53	23.5	0	0.789	3
				1	0	23.75	23.5	0	0.829	4
				25	12	22.33	23.5	1	No need test	1
				50	0	22.21	23.5	1	No need test	2
		20175	1732.5	1	49	23.45	23.5	0	No need test	3
				1	0	23.37	23.5	0	No need test	4
				25	12	22.17	23.5	1	0.516	1
				50	0	22.05	23.5	1	No need test	2
		20350	1750	1	49	23.35	23.5	0	No need test	3
				1	0	23.49	23.5	0	No need test	4
				25	12	22.11	23.5	1	No need test	1
				50	0	22.08	23.5	1	No need test	2
10	16 QAM	20000	1715	1	49	22.83	23.5	1	No need test	7
				1	0	22.76	23.5	1	No need test	8
				25	12	21.16	23.5	2	No need test	5
				50	0	21.38	23.5	2	No need test	6
		20175	1732.5	1	49	23.1	23.5	1	0.526	7
				1	0	22.99	23.5	1	0.439	8
				25	12	21.17	23.5	2	0.363	5
				50	0	21.15	23.5	2	No need test	6
		20350	1750	1	49	22.72	23.5	1	No need test	7
				1	0	22.91	23.5	1	No need test	8
				25	12	21.15	23.5	2	No need test	5
				50	0	21.14	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion.

#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 4_Back side

LTE Band 4_Uplink frequency band : 1710 to 1755MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	20000	1715	1	49	23.53	23.5	0	0.678	3
				1	0	23.75	23.5	0	0.808	4
				25	12	22.33	23.5	1	No need test	1
				50	0	22.21	23.5	1	No need test	2
		20175	1732.5	1	49	23.45	23.5	0	No need test	3
				1	0	23.37	23.5	0	No need test	4
				25	12	22.17	23.5	1	0.433	1
				50	0	22.05	23.5	1	No need test	2
		20350	1750	1	49	23.35	23.5	0	No need test	3
				1	0	23.49	23.5	0	No need test	4
				25	12	22.11	23.5	1	No need test	1
				50	0	22.08	23.5	1	No need test	2
10	16 QAM	20000	1715	1	49	22.83	23.5	1	No need test	7
				1	0	22.76	23.5	1	No need test	8
				25	12	21.16	23.5	2	No need test	5
				50	0	21.38	23.5	2	No need test	6
		20175	1732.5	1	49	23.1	23.5	1	0.488	7
				1	0	22.99	23.5	1	0.483	8
				25	12	21.17	23.5	2	0.377	5
				50	0	21.15	23.5	2	No need test	6
		20350	1750	1	49	22.72	23.5	1	No need test	7
				1	0	22.91	23.5	1	No need test	8
				25	12	21.15	23.5	2	No need test	5
				50	0	21.14	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion.

#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 4_Top side

LTE Band 4_Uplink frequency band : 1710 to 1755MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	20000	1715	1	49	23.53	23.5	0	0.03	3
				1	0	23.75	23.5	0	0.122	4
				25	12	22.33	23.5	1	No need test	1
				50	0	22.21	23.5	1	No need test	2
		20175	1732.5	1	49	23.45	23.5	0	No need test	3
				1	0	23.37	23.5	0	No need test	4
				25	12	22.17	23.5	1	0.00937	1
				50	0	22.05	23.5	1	No need test	2
		20350	1750	1	49	23.35	23.5	0	No need test	3
				1	0	23.49	23.5	0	No need test	4
				25	12	22.11	23.5	1	No need test	1
				50	0	22.08	23.5	1	No need test	2
10	16 QAM	20000	1715	1	49	22.83	23.5	1	No need test	7
				1	0	22.76	23.5	1	No need test	8
				25	12	21.16	23.5	2	No need test	5
				50	0	21.38	23.5	2	No need test	6
		20175	1732.5	1	49	23.1	23.5	1	0.025	7
				1	0	22.99	23.5	1	0.102	8
				25	12	21.17	23.5	2	0.00919	5
				50	0	21.15	23.5	2	No need test	6
		20350	1750	1	49	22.72	23.5	1	No need test	7
				1	0	22.91	23.5	1	No need test	8
				25	12	21.15	23.5	2	No need test	5
				50	0	21.14	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion.

#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 4_Bottom side

LTE Band 4_Uplink frequency band : 1710 to 1755MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	20000	1715	1	49	23.53	23.5	0	0.746	3
				1	0	23.75	23.5	0	0.639	4
				25	12	22.33	23.5	1	No need test	1
				50	0	22.21	23.5	1	No need test	2
		20175	1732.5	1	49	23.45	23.5	0	No need test	3
				1	0	23.37	23.5	0	No need test	4
				25	12	22.17	23.5	1	0.424	1
				50	0	22.05	23.5	1	No need test	2
		20350	1750	1	49	23.35	23.5	0	No need test	3
				1	0	23.49	23.5	0	No need test	4
				25	12	22.11	23.5	1	No need test	1
				50	0	22.08	23.5	1	No need test	2
10	16 QAM	20000	1715	1	49	22.83	23.5	1	No need test	7
				1	0	22.76	23.5	1	No need test	8
				25	12	21.16	23.5	2	No need test	5
				50	0	21.38	23.5	2	No need test	6
		20175	1732.5	1	49	23.1	23.5	1	0.528	7
				1	0	22.99	23.5	1	0.377	8
				25	12	21.17	23.5	2	0.401	5
				50	0	21.15	23.5	2	No need test	6
		20350	1750	1	49	22.72	23.5	1	No need test	7
				1	0	22.91	23.5	1	No need test	8
				25	12	21.15	23.5	2	No need test	5
				50	0	21.14	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion.

#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 4_Right side

LTE Band 4_Uplink frequency band : 1710 to 1755MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	20000	1715	1	49	23.53	23.5	0	1.04	3
				1	0	23.75	23.5	0	1.09	4
				25	12	22.33	23.5	1	No need test	1
				50	0	22.21	23.5	1	No need test	2
		20175	1732.5	1	49	23.45	23.5	0	No need test	3
				1	0	23.37	23.5	0	No need test	4
				25	12	22.17	23.5	1	0.710	1
				50	0	22.05	23.5	1	No need test	2
		20350	1750	1	49	23.35	23.5	0	No need test	3
				1	0	23.49	23.5	0	No need test	4
				25	12	22.11	23.5	1	No need test	1
				50	0	22.08	23.5	1	No need test	2
10	16 QAM	20000	1715	1	49	22.83	23.5	1	No need test	7
				1	0	22.76	23.5	1	No need test	8
				25	12	21.16	23.5	2	No need test	5
				50	0	21.38	23.5	2	No need test	6
		20175	1732.5	1	49	23.1	23.5	1	0.755	7
				1	0	22.99	23.5	1	0.736	8
				25	12	21.17	23.5	2	0.593	5
				50	0	21.15	23.5	2	No need test	6
		20350	1750	1	49	22.72	23.5	1	No need test	7
				1	0	22.91	23.5	1	No need test	8
				25	12	21.15	23.5	2	No need test	5
				50	0	21.14	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion.

#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 17_Front side

LTE Band 17_Uplink frequency band : 704 to 716MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	23780	709	1	49	23.34	23.5	0	0.896	3
				1	0	23.75	23.5	0	0.912	4
				25	12	22.26	23.5	1	No need test	1
				50	0	22.29	23.5	1	No need test	2
		23790	710	1	49	23.25	23.5	0	No need test	3
				1	0	23.3	23.5	0	No need test	4
				25	12	22.21	23.5	1	0.772	1
				50	0	22.19	23.5	1	No need test	2
		23800	711	1	49	23.31	23.5	0	No need test	3
				1	0	23.38	23.5	0	No need test	4
				25	12	22.19	23.5	1	No need test	1
				50	0	22.35	23.5	1	No need test	2
10	16 QAM	23780	709	1	49	22.78	23.5	1	No need test	7
				1	0	22.63	23.5	1	0.796	8
				25	12	21.11	23.5	2	No need test	5
				50	0	21.18	23.5	2	No need test	6
		23790	710	1	49	22.77	23.5	1	No need test	7
				1	0	22.68	23.5	1	No need test	8
				25	12	21.07	23.5	2	0.650	5
				50	0	21.14	23.5	2	No need test	6
		23800	711	1	49	23.07	23.5	1	0.759	7
				1	0	23.04	23.5	1	No need test	8
				25	12	21.21	23.5	2	No need test	5
				50	0	21.23	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion except one(RB size = 1; RB offset =0) of the RB allocations for the LTE band 17 with 16QAM due to wrong channel selection. However, The FCC Lab has concluded upon review of the SAR results that re-testing of 16 QAM for Band 17 will not be required. This is a one time exemption from FCC lab.
#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 17_Back side

LTE Band 17_Uplink frequency band : 704 to 716MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	23780	709	1	49	23.34	23.5	0	0.663	3
				1	0	23.75	23.5	0	0.757	4
				25	12	22.26	23.5	1	No need test	1
				50	0	22.29	23.5	1	No need test	2
		23790	710	1	49	23.25	23.5	0	No need test	3
				1	0	23.3	23.5	0	No need test	4
				25	12	22.21	23.5	1	0.638	1
				50	0	22.19	23.5	1	No need test	2
		23800	711	1	49	23.31	23.5	0	No need test	3
				1	0	23.38	23.5	0	No need test	4
				25	12	22.19	23.5	1	No need test	1
				50	0	22.35	23.5	1	No need test	2
10	16 QAM	23780	709	1	49	22.78	23.5	1	No need test	7
				1	0	22.63	23.5	1	0.625	8
				25	12	21.11	23.5	2	No need test	5
				50	0	21.18	23.5	2	No need test	6
		23790	710	1	49	22.77	23.5	1	No need test	7
				1	0	22.68	23.5	1	No need test	8
				25	12	21.07	23.5	2	0.495	5
				50	0	21.14	23.5	2	No need test	6
		23800	711	1	49	23.07	23.5	1	0.637	7
				1	0	23.04	23.5	1	No need test	8
				25	12	21.21	23.5	2	No need test	5
				50	0	21.23	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion except one(RB size = 1; RB offset =0) of the RB allocations for the LTE band 17 with 16QAM due to wrong channel selection. However, The FCC Lab has concluded upon review of the SAR results that re-testing of 16 QAM for Band 17 will not be required. This is a one time exemption from FCC lab.
#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 17_Top side

LTE Band 17_Uplink frequency band : 704 to 716MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	23780	709	1	49	23.34	23.5	0	0.196	3
				1	0	23.75	23.5	0	0.153	4
				25	12	22.26	23.5	1	No need test	1
				50	0	22.29	23.5	1	No need test	2
		23790	710	1	49	23.25	23.5	0	No need test	3
				1	0	23.3	23.5	0	No need test	4
				25	12	22.21	23.5	1	0.134	1
				50	0	22.19	23.5	1	No need test	2
		23800	711	1	49	23.31	23.5	0	No need test	3
				1	0	23.38	23.5	0	No need test	4
				25	12	22.19	23.5	1	No need test	1
				50	0	22.35	23.5	1	No need test	2
10	16 QAM	23780	709	1	49	22.78	23.5	1	No need test	7
				1	0	22.63	23.5	1	0.171	8
				25	12	21.11	23.5	2	No need test	5
				50	0	21.18	23.5	2	No need test	6
		23790	710	1	49	22.77	23.5	1	No need test	7
				1	0	22.68	23.5	1	No need test	8
				25	12	21.07	23.5	2	0.147	5
				50	0	21.14	23.5	2	No need test	6
		23800	711	1	49	23.07	23.5	1	0.107	7
				1	0	23.04	23.5	1	No need test	8
				25	12	21.21	23.5	2	No need test	5
				50	0	21.23	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion except one(RB size = 1; RB offset =0) of the RB allocations for the LTE band 17 with 16QAM due to wrong channel selection. However, The FCC Lab has concluded upon review of the SAR results that re-testing of 16 QAM for Band 17 will not be required. This is a one time exemption from FCC lab.
#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 17_Bottom side

LTE Band 17_Uplink frequency band : 704 to 716MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	23780	709	1	49	23.34	23.5	0	0.529	3
				1	0	23.75	23.5	0	0.491	4
				25	12	22.26	23.5	1	No need test	1
				50	0	22.29	23.5	1	No need test	2
		23790	710	1	49	23.25	23.5	0	No need test	3
				1	0	23.3	23.5	0	No need test	4
				25	12	22.21	23.5	1	0.514	1
				50	0	22.19	23.5	1	No need test	2
		23800	711	1	49	23.31	23.5	0	No need test	3
				1	0	23.38	23.5	0	No need test	4
				25	12	22.19	23.5	1	No need test	1
				50	0	22.35	23.5	1	No need test	2
10	16 QAM	23780	709	1	49	22.78	23.5	1	No need test	7
				1	0	22.63	23.5	1	0.348	8
				25	12	21.11	23.5	2	No need test	5
				50	0	21.18	23.5	2	No need test	6
		23790	710	1	49	22.77	23.5	1	No need test	7
				1	0	22.68	23.5	1	No need test	8
				25	12	21.07	23.5	2	0.407	5
				50	0	21.14	23.5	2	No need test	6
		23800	711	1	49	23.07	23.5	1	0.491	7
				1	0	23.04	23.5	1	No need test	8
				25	12	21.21	23.5	2	No need test	5
				50	0	21.23	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion except one(RB size = 1; RB offset =0) of the RB allocations for the LTE band 17 with 16QAM due to wrong channel selection. However, The FCC Lab has concluded upon review of the SAR results that re-testing of 16 QAM for Band 17 will not be required. This is a one time exemption from FCC lab.
#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

LTE Band 17_Right side

LTE Band 17_Uplink frequency band : 704 to 716MHz										
BW (MHz)	Modulation	Channel	Frequency(MHz)	RB Size	RB Offset	Conducted power(dBm)	Target Power(dBm)	MPR Target(dB)	Max SAR value(W/kg)	Test case
10	QPSK	23780	709	1	49	23.34	23.5	0	0.039	3
				1	0	23.75	23.5	0	0.062	4
				25	12	22.26	23.5	1	No need test	1
				50	0	22.29	23.5	1	No need test	2
		23790	710	1	49	23.25	23.5	0	No need test	3
				1	0	23.3	23.5	0	No need test	4
				25	12	22.21	23.5	1	0.061	1
				50	0	22.19	23.5	1	No need test	2
		23800	711	1	49	23.31	23.5	0	No need test	3
				1	0	23.38	23.5	0	No need test	4
				25	12	22.19	23.5	1	No need test	1
				50	0	22.35	23.5	1	No need test	2
10	16 QAM	23780	709	1	49	22.78	23.5	1	No need test	7
				1	0	22.63	23.5	1	0.021	8
				25	12	21.11	23.5	2	No need test	5
				50	0	21.18	23.5	2	No need test	6
		23790	710	1	49	22.77	23.5	1	No need test	7
				1	0	22.68	23.5	1	No need test	8
				25	12	21.07	23.5	2	0.054	5
				50	0	21.14	23.5	2	No need test	6
		23800	711	1	49	23.07	23.5	1	0.034	7
				1	0	23.04	23.5	1	No need test	8
				25	12	21.21	23.5	2	No need test	5
				50	0	21.23	23.5	2	No need test	6

#. Follow the test guidance of KDB941125 D05(LTE SAR test considerations) to perform the LTE SAR testing and channel exclusion except one(RB size = 1; RB offset =0) of the RB allocations for the LTE band 17 with 16QAM due to wrong channel selection. However, The FCC Lab has concluded upon review of the SAR results that re-testing of 16 QAM for Band 17 will not be required. This is a one time exemption from FCC lab.
#. No need SAR testing with 5MHz channel bandwidth due to the max conductive power of 5 MHz with different RB allocations compared to 10 MHz channel bandwidth are all within 0.5dB, and the SAR value of 10 MHz with different RB allocations are all below 1.45w/kg based on KDB 941225 D05 guidance.

WLAN802.11 b

Front side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450MHz	11	2462	16.2dBm	0.118	22.1	21.7
Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450MHz	11	2462	16.2dBm	0.10	22.1	21.7
Top side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450MHz	11	2462	16.2dBm	0.151	22.1	21.7
Right side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450MHz	11	2462	16.2dBm	0.039	22.1	21.7

#. According to **KDB248227**-SAR is not required for 802.11 g/HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

#. According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

3. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	ES3DV3	3172	May.21.2010
		ET3DV6	1760	Sep.21.2010
Schmid & Partner Engineering AG	750/835/1750/1900/2450 MHz System Validation Dipole	D750V3	1015	Aug.23.2010
		D835V2	4d063	May.21.2010
		D1750V2	1008	May.26.2010
		D1900V2	5d027	Apr.19.2011
		D2450V2	727	Apr.19.2011
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	547	Aug.18.2010
Schmid & Partner Engineering AG	Software	DASY 4 V4.7 Build 80	N/A	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required
HP	Network Analyzer	8753D	3410A05547	Mar.16.2011
HP	Dielectric Probe Kit	85070D	US01440168	Calibration not required
Agilent	Dual-directional coupler	777D 778D	50114 50313	Aug.25.2010 Aug.25.2010
Agilent	RF Signal Generator	8648D	3847M00432	Jun.04.2010
Agilent	Power Sensor	U2001B	MY48100169	Apr.28.2011
R&S	Radio Communication Test	CMU200	109326	Apr.01.2011

4. Measurements

Date: 2011/4/27

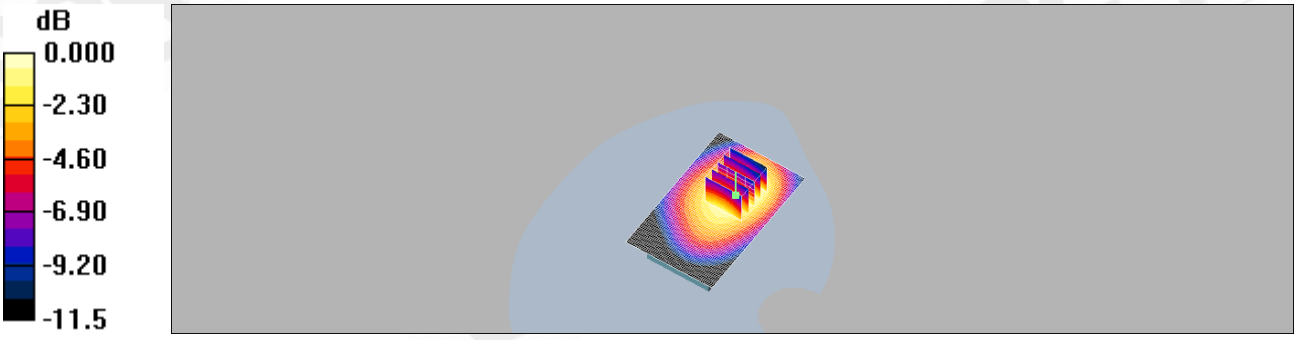
Front side_GPRS850_CH128

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.987 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.927 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.872 mW/g; SAR(10 g) = 0.606 mW/g
Maximum value of SAR (measured) = 0.920 mW/g



0 dB = 0.920mW/g

Front side_GPRS850_CH190

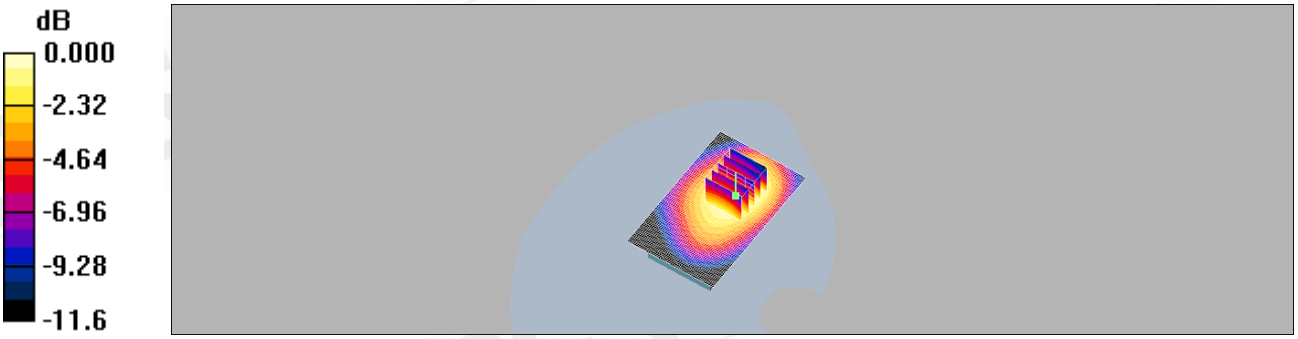
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = -0.131 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.966 mW/g; SAR(10 g) = 0.676 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

Front side_GPRS850_CH251

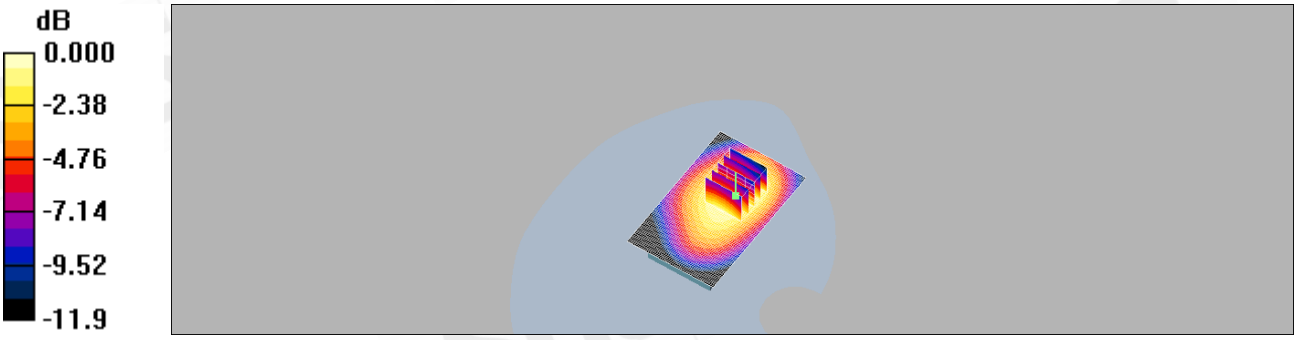
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.922 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.872 mW/g; SAR(10 g) = 0.610 mW/g
Maximum value of SAR (measured) = 0.918 mW/g



0 dB = 0.918mW/g

Back Side_GPRS850_CH128

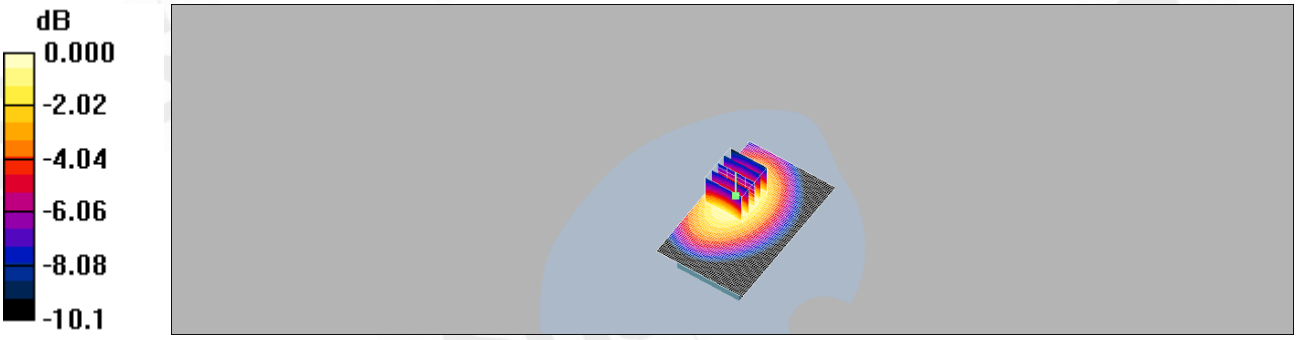
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.987 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.736 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 0.906 W/kg
SAR(1 g) = 0.687 mW/g; SAR(10 g) = 0.490 mW/g
Maximum value of SAR (measured) = 0.724 mW/g



0 dB = 0.724mW/g

Back Side_GPRS850_CH190

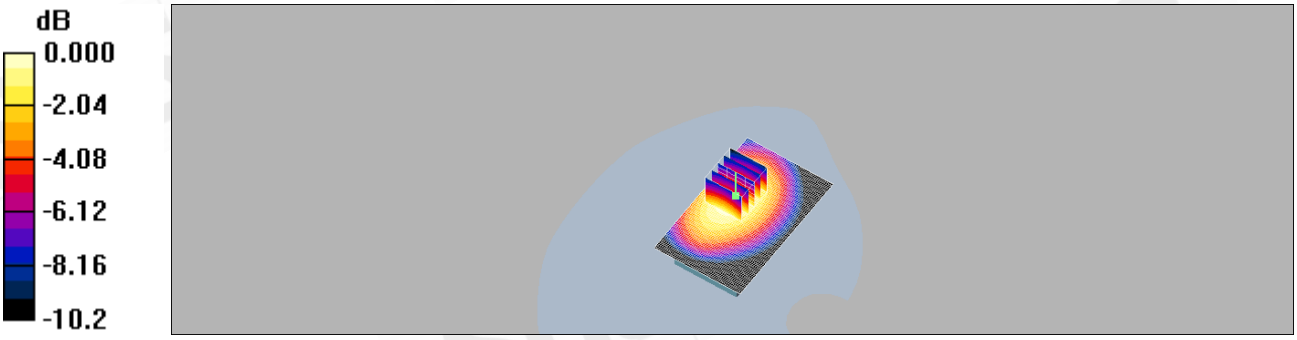
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.863 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.802 mW/g; SAR(10 g) = 0.573 mW/g
Maximum value of SAR (measured) = 0.848 mW/g



0 dB = 0.848mW/g

Back Side_GPRS850_CH251

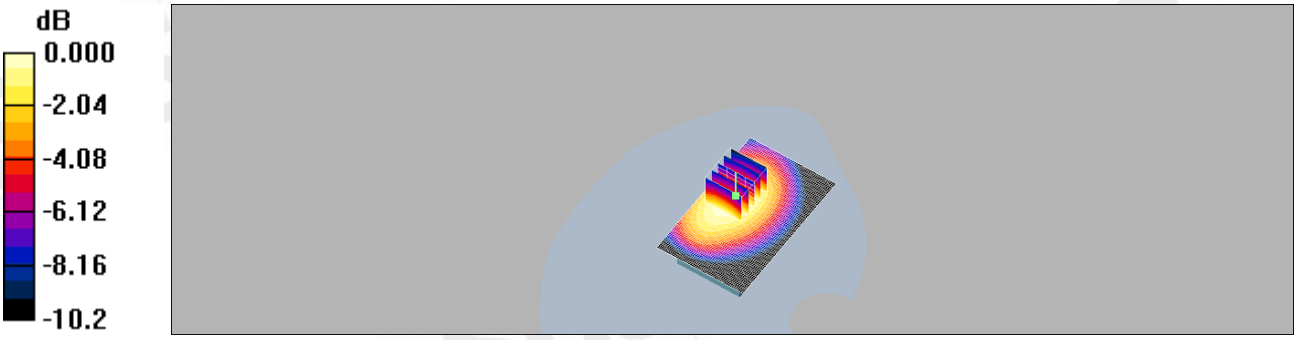
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.729 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.3 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 0.887 W/kg
SAR(1 g) = 0.679 mW/g; SAR(10 g) = 0.486 mW/g
Maximum value of SAR (measured) = 0.719 mW/g



0 dB = 0.719mW/g

Top side_GPRS850_CH190

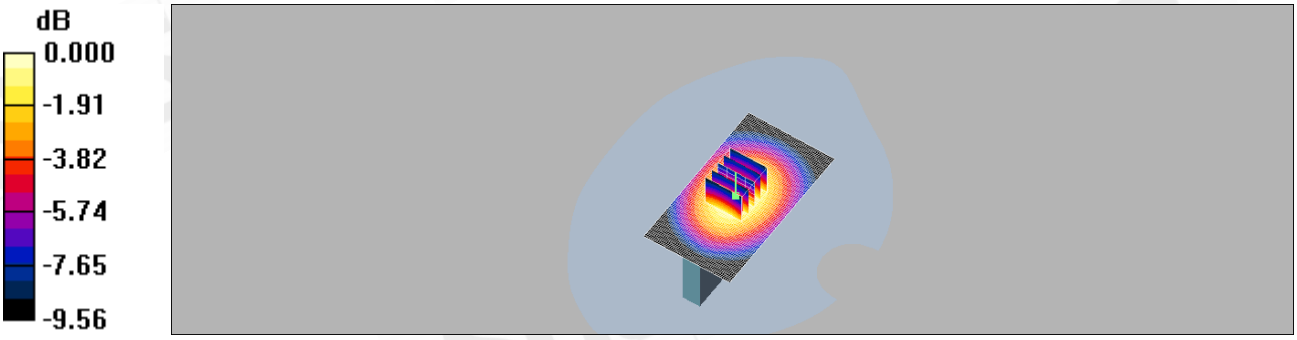
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.413 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.9 V/m; Power Drift = -0.066 dB
Peak SAR (extrapolated) = 0.523 W/kg
SAR(1 g) = 0.380 mW/g; SAR(10 g) = 0.266 mW/g
Maximum value of SAR (measured) = 0.405 mW/g



0 dB = 0.405mW/g

Bottom side_GPRS850_CH190

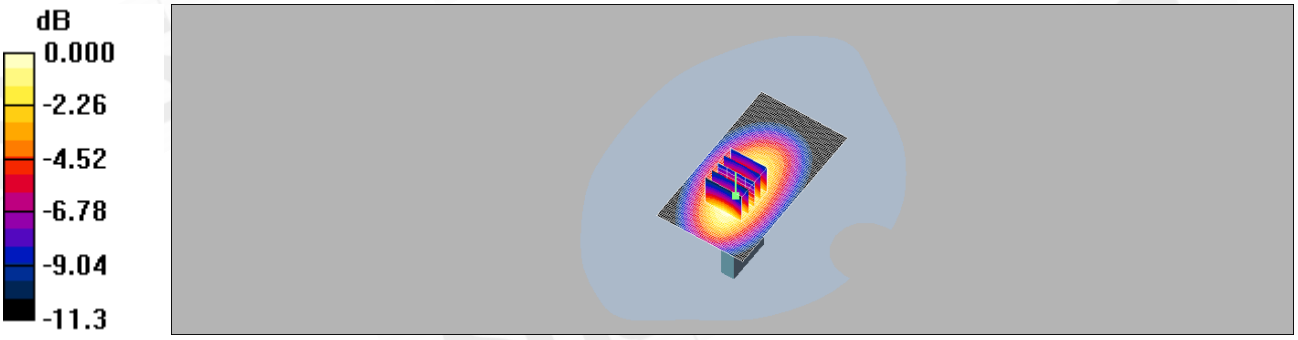
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.759 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.6 V/m; Power Drift = -0.179 dB
Peak SAR (extrapolated) = 0.993 W/kg
SAR(1 g) = 0.681 mW/g; SAR(10 g) = 0.454 mW/g
Maximum value of SAR (measured) = 0.735 mW/g



0 dB = 0.735mW/g

Right side_GPRS850_CH190

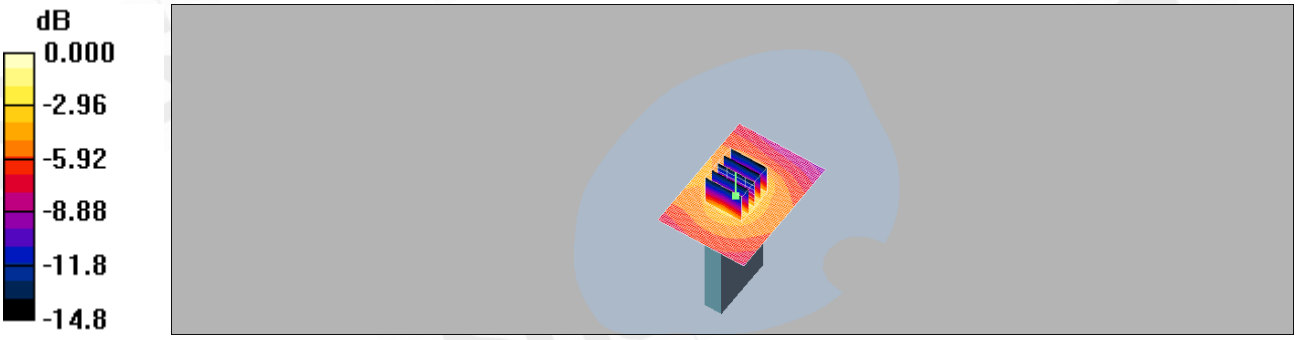
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.074 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.04 V/m; Power Drift = -0.148 dB
Peak SAR (extrapolated) = 0.157 W/kg
SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.084 mW/g



0 dB = 0.084mW/g

Front side_GPRS850_CH128

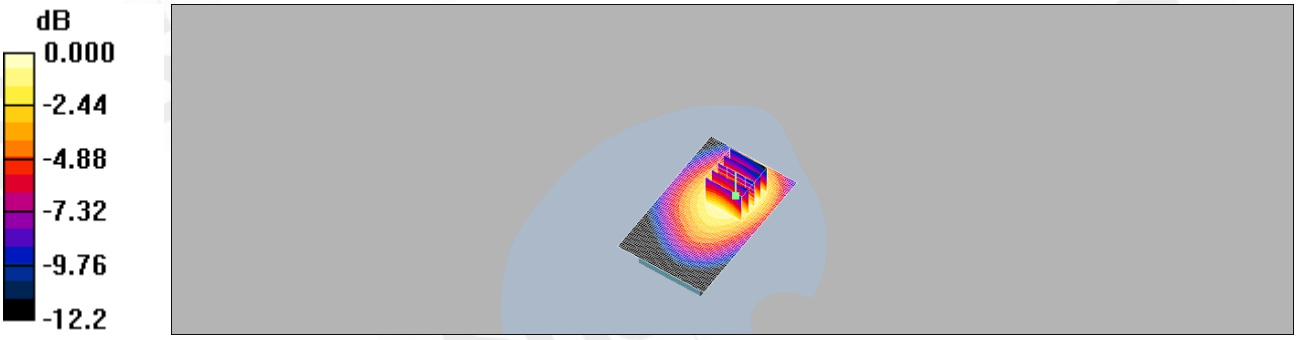
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.987 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.12 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.734 mW/g
Maximum value of SAR (measured) = 1.14 mW/g



0 dB = 1.14mW/g

Front side_GPRS850_CH190

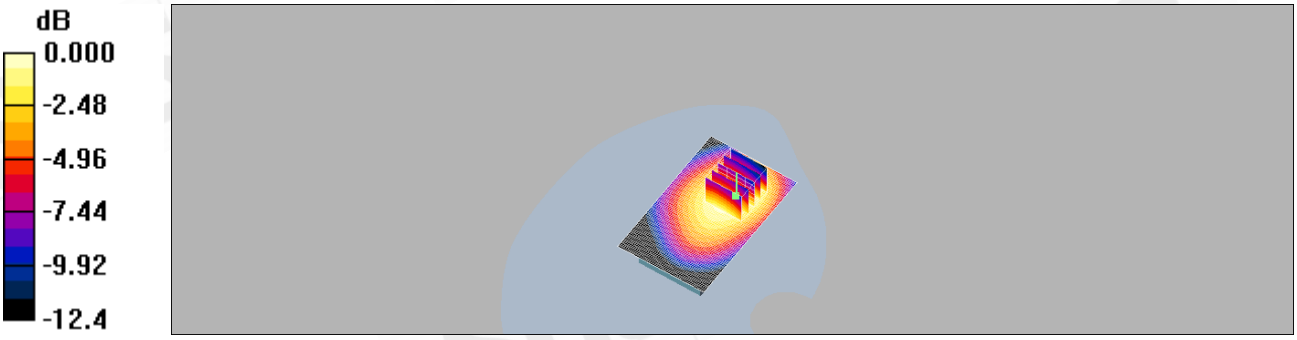
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.12 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.742 mW/g
Maximum value of SAR (measured) = 1.13 mW/g



0 dB = 1.13mW/g

Front side_GPRS850_CH251

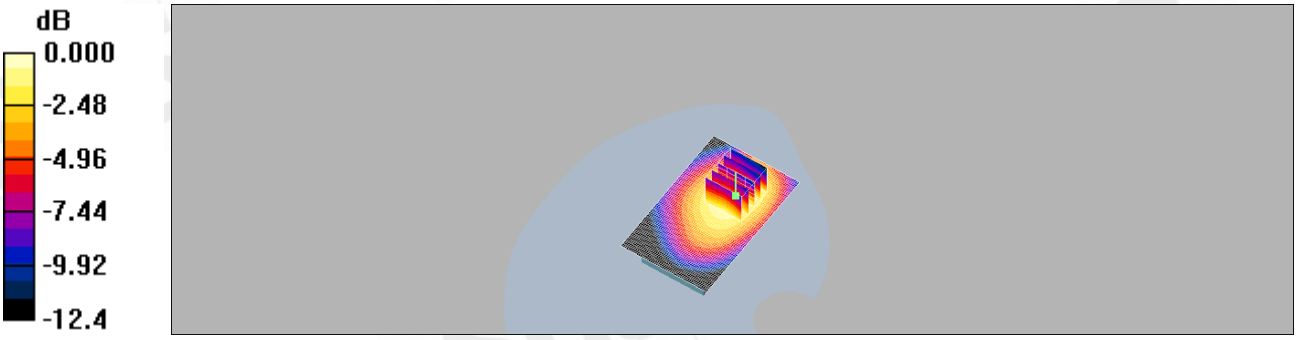
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = 0.152 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.710 mW/g
Maximum value of SAR (measured) = 1.13 mW/g



0 dB = 1.13mW/g

Back Side_GPRS850_CH190

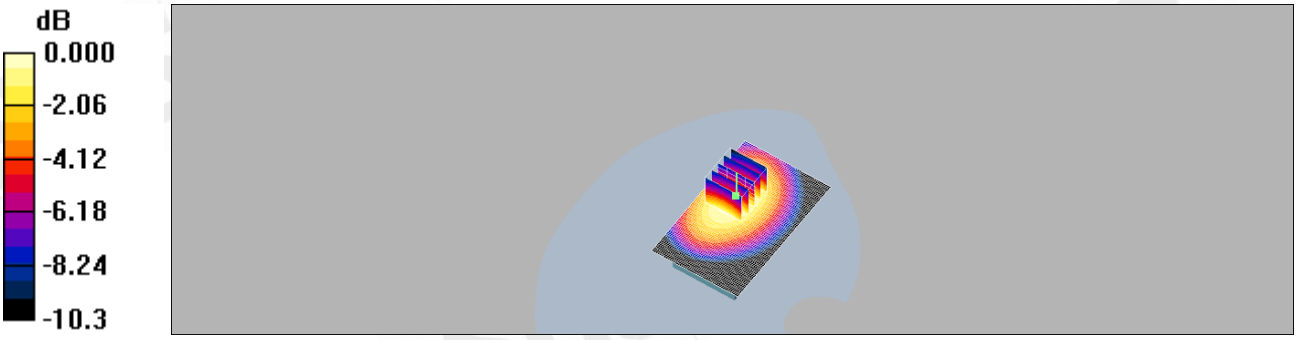
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.919 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = 0.043 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.797 mW/g; SAR(10 g) = 0.611 mW/g
Maximum value of SAR (measured) = 0.916 mW/g



0 dB = 0.916mW/g

Top side_GPRS850_CH190

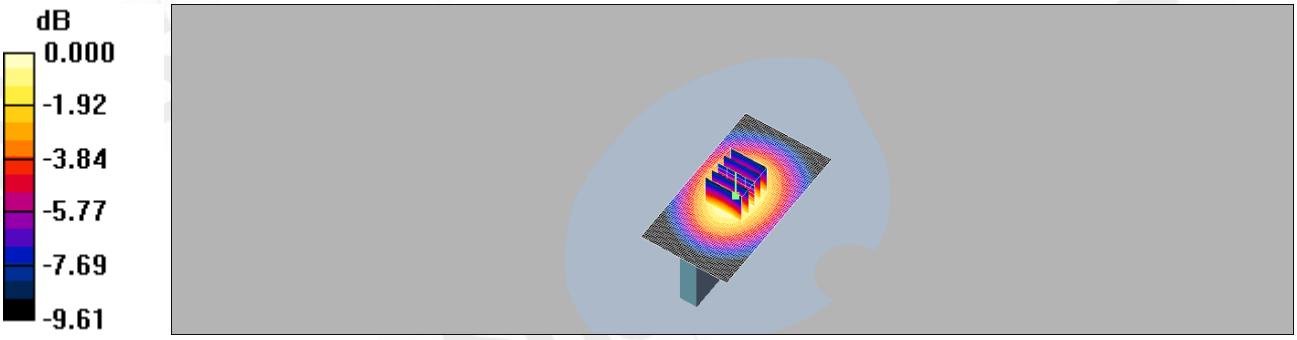
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.409 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.9 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.521 W/kg
SAR(1 g) = 0.382 mW/g; SAR(10 g) = 0.268 mW/g
Maximum value of SAR (measured) = 0.408 mW/g



0 dB = 0.408mW/g

Bottom side_GPRS850_CH190

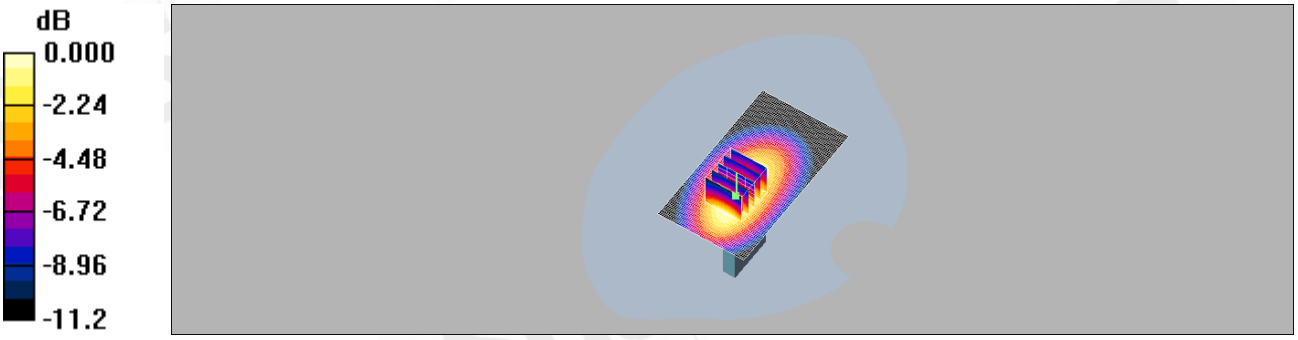
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.755 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.3 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.693 mW/g; SAR(10 g) = 0.462 mW/g
Maximum value of SAR (measured) = 0.743 mW/g



0 dB = 0.743mW/g

Right side_GPRS850_190

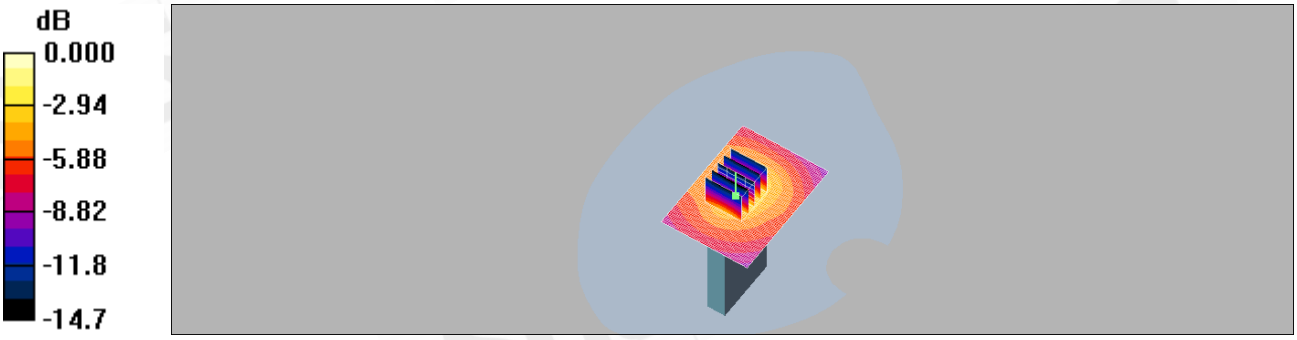
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.129 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 0.260 W/kg
SAR(1 g) = 0.121 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.138 mW/g



0 dB = 0.138mW/g

Front side_GPRS1900_CH512

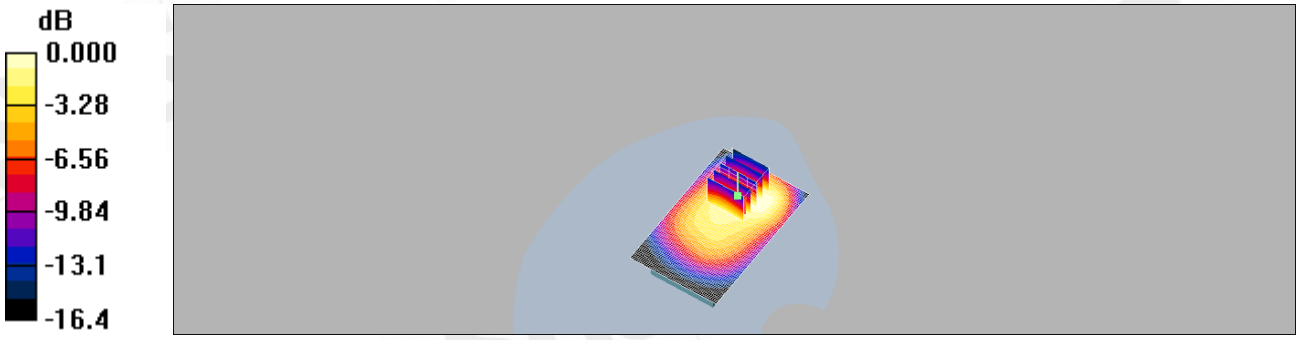
Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.56 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.800 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.88 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.726 mW/g; SAR(10 g) = 0.443 mW/g
Maximum value of SAR (measured) = 0.784 mW/g



0 dB = 0.784mW/g

Back Side_GPRS1900_CH512

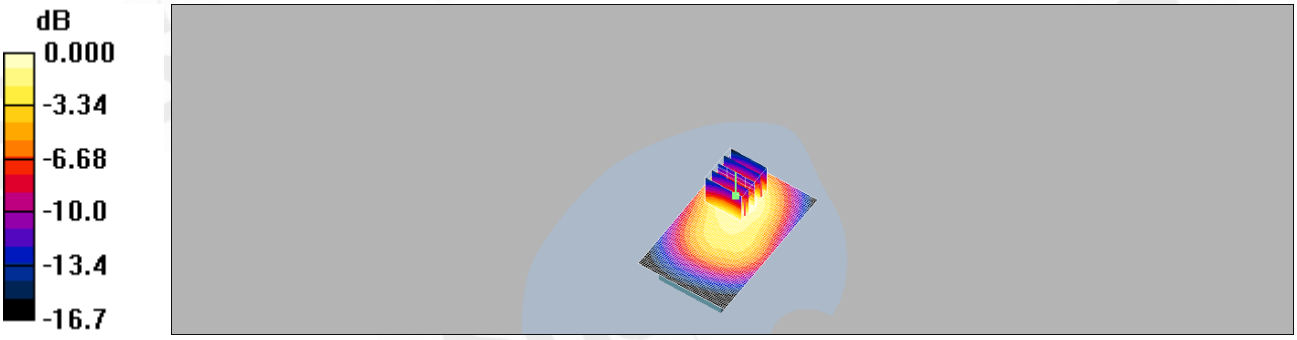
Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.56 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.825 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.12 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.772 mW/g; SAR(10 g) = 0.468 mW/g
Maximum value of SAR (measured) = 0.825 mW/g



0 dB = 0.825mW/g

Top side_GPRS1900_CH512

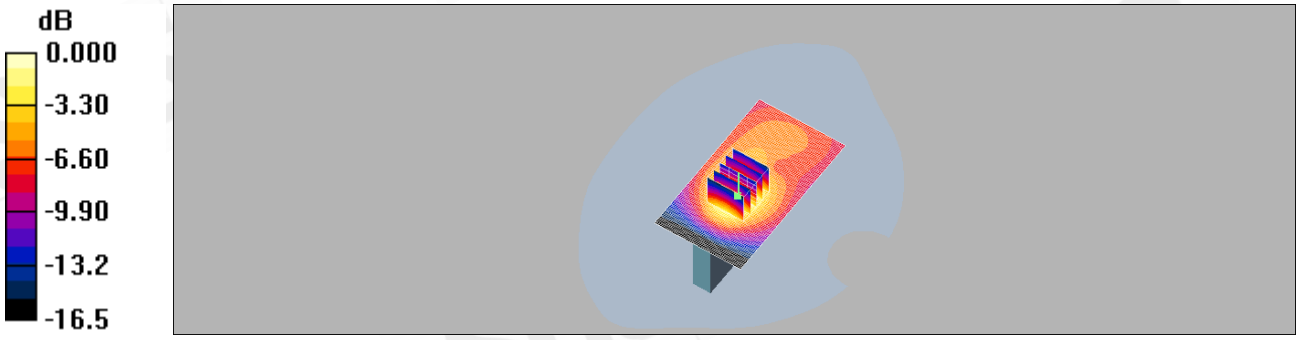
Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.56 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.262 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 0.361 W/kg
SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.136 mW/g
Maximum value of SAR (measured) = 0.246 mW/g

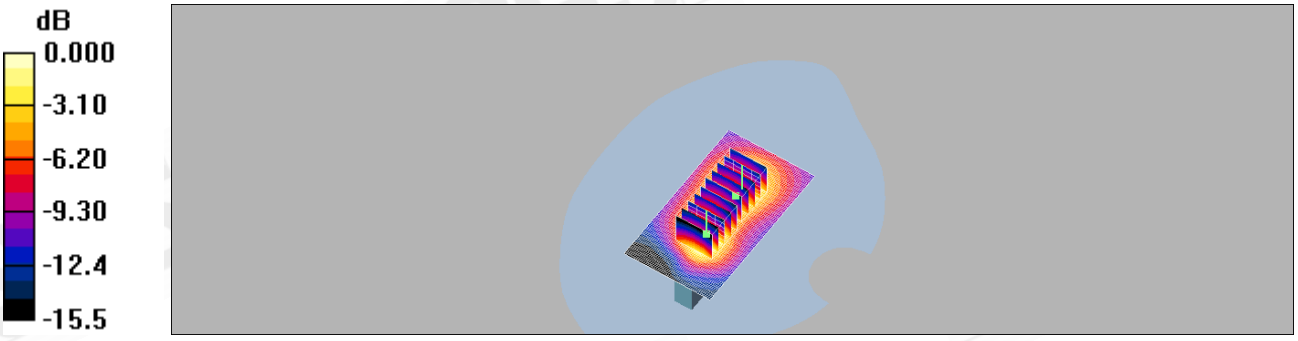


0 dB = 0.246mW/g

Bottom side_GPRS1900_CH512

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.56 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.755 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = 0.167 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.614 mW/g; SAR(10 g) = 0.337 mW/g
Maximum value of SAR (measured) = 0.680 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = 0.167 dB
Peak SAR (extrapolated) = 0.725 W/kg
SAR(1 g) = 0.463 mW/g; SAR(10 g) = 0.277 mW/g
Maximum value of SAR (measured) = 0.490 mW/g



0 dB = 0.490mW/g

Right side_GPRS1900_CH512

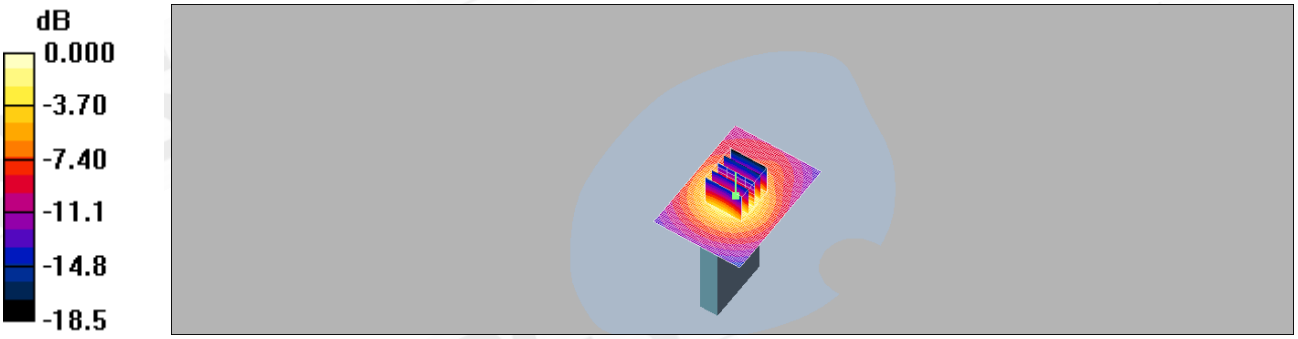
Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.56 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.580 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.2 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.905 W/kg
SAR(1 g) = 0.509 mW/g; SAR(10 g) = 0.274 mW/g
Maximum value of SAR (measured) = 0.566 mW/g

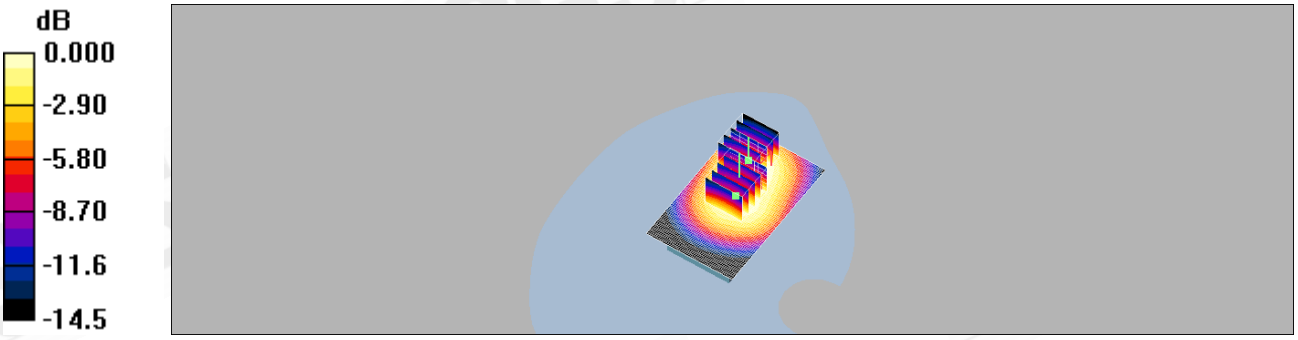


0 dB = 0.566mW/g

Back Side_GPRS1900_CH661

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.59 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.712 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.17 V/m; Power Drift = -0.059 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.661 mW/g; SAR(10 g) = 0.410 mW/g
Maximum value of SAR (measured) = 0.711 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.17 V/m; Power Drift = -0.059 dB
Peak SAR (extrapolated) = 0.849 W/kg
SAR(1 g) = 0.550 mW/g; SAR(10 g) = 0.356 mW/g
Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.605mW/g

Front side_WCDMA B2_CH9262

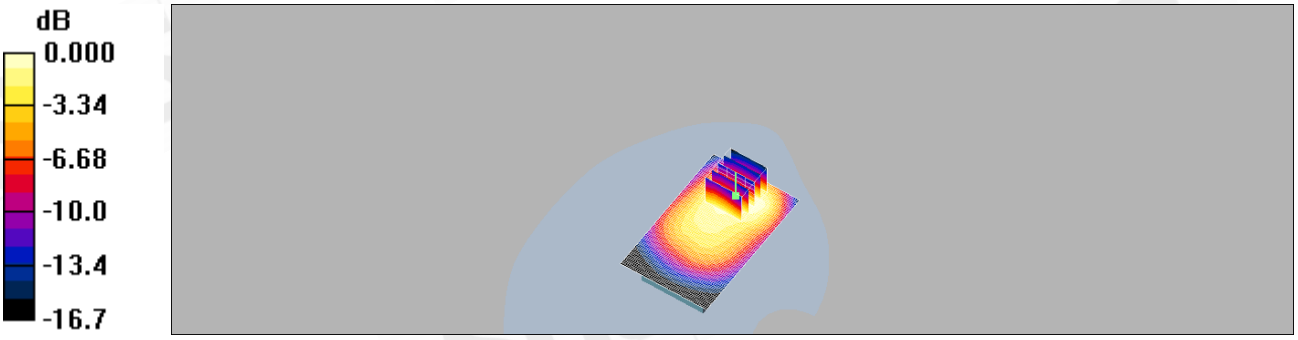
Communication System: WCDMA BAND2; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.57 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.760 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.17 V/m; Power Drift = 0.065 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.694 mW/g; SAR(10 g) = 0.429 mW/g
Maximum value of SAR (measured) = 0.751 mW/g



0 dB = 0.751mW/g

Back Side_WCDMA B2_CH9262

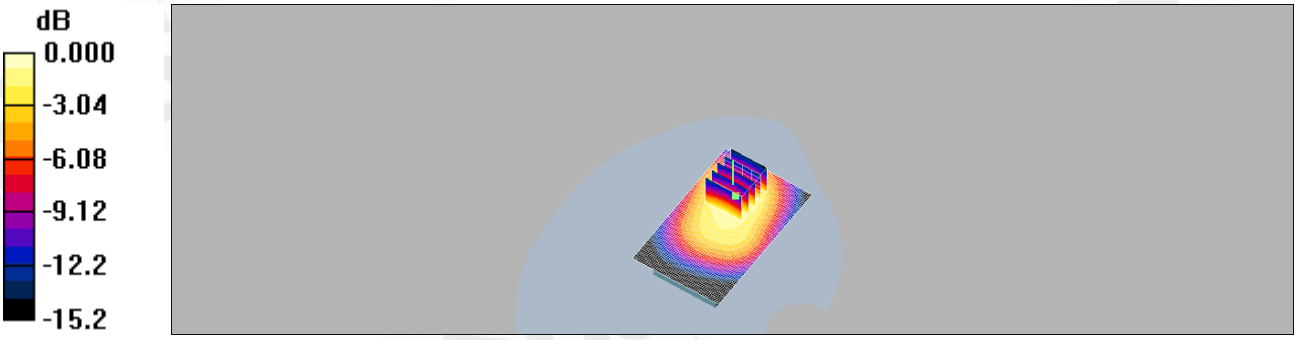
Communication System: WCDMA BAND2; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.57 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.836 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.57 V/m; Power Drift = 0.086 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.776 mW/g; SAR(10 g) = 0.474 mW/g
Maximum value of SAR (measured) = 0.823 mW/g



0 dB = 0.823mW/g

Top side_WCDMA B2_CH9262

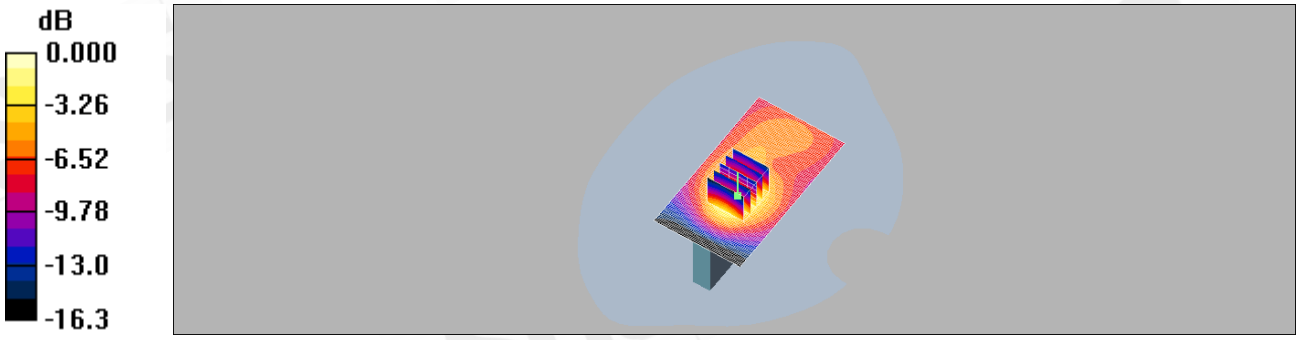
Communication System: WCDMA BAND2; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.57 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.232 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 0.319 W/kg
SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.223 mW/g

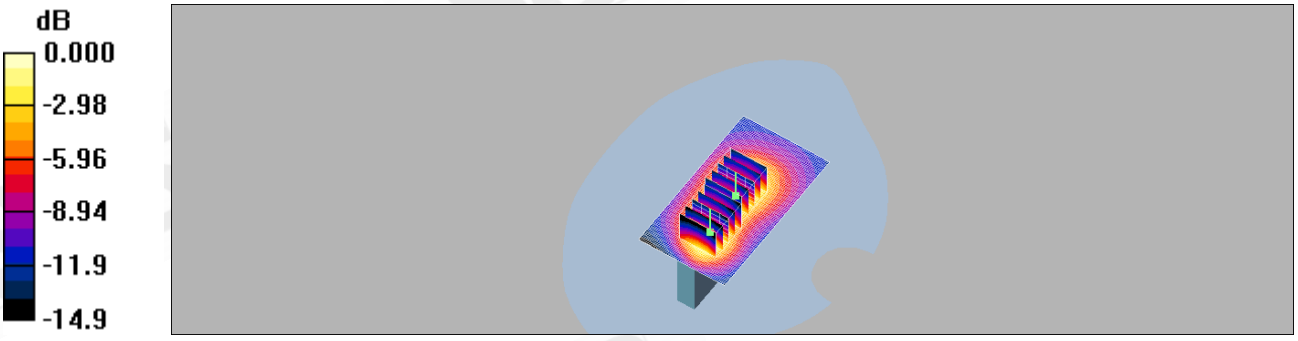


0 dB = 0.223mW/g

Bottom sid_WCDMA B2_CH9262

Communication System: WCDMA BAND2; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.57 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.647 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.869 W/kg
SAR(1 g) = 0.505 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.562 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.673 W/kg
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.256 mW/g
Maximum value of SAR (measured) = 0.466 mW/g



0 dB = 0.466mW/g

Right side_WCDMA B2_CH9262

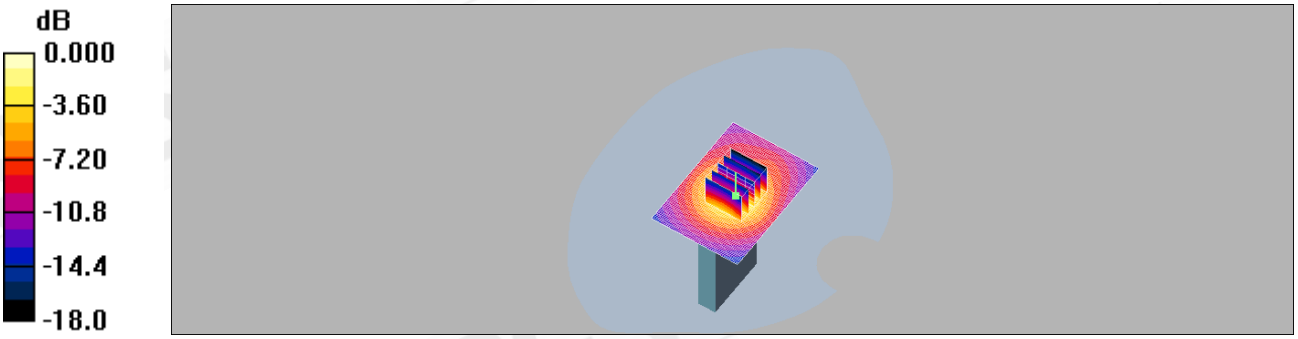
Communication System: WCDMA BAND2; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.57 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.627 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.4 V/m; Power Drift = -0.087 dB
Peak SAR (extrapolated) = 0.990 W/kg
SAR(1 g) = 0.550 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.611 mW/g



0 dB = 0.611mW/g

Front side_WCDMA B5_CH4132

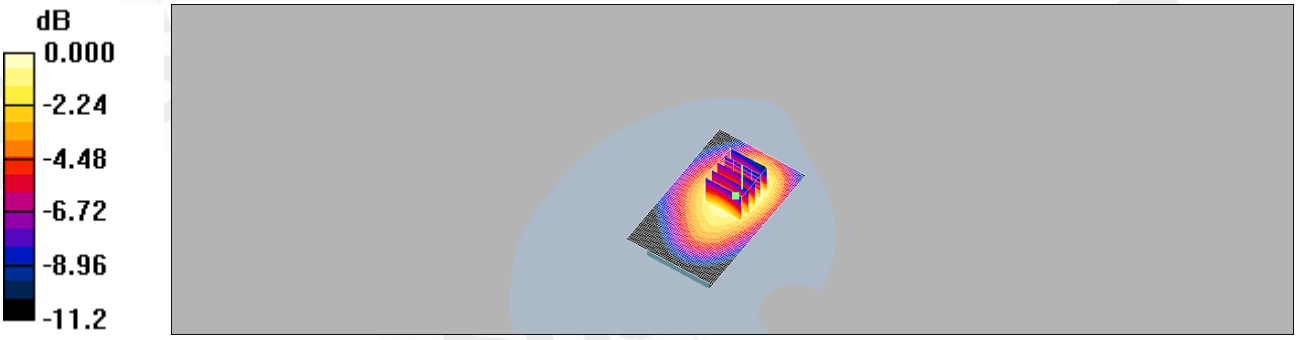
Communication System: WCDMA BAND5; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.99 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.09 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.0 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.734 mW/g
Maximum value of SAR (measured) = 1.10 mW/g



0 dB = 1.10mW/g

Front side_WCDMA B5_CH4183

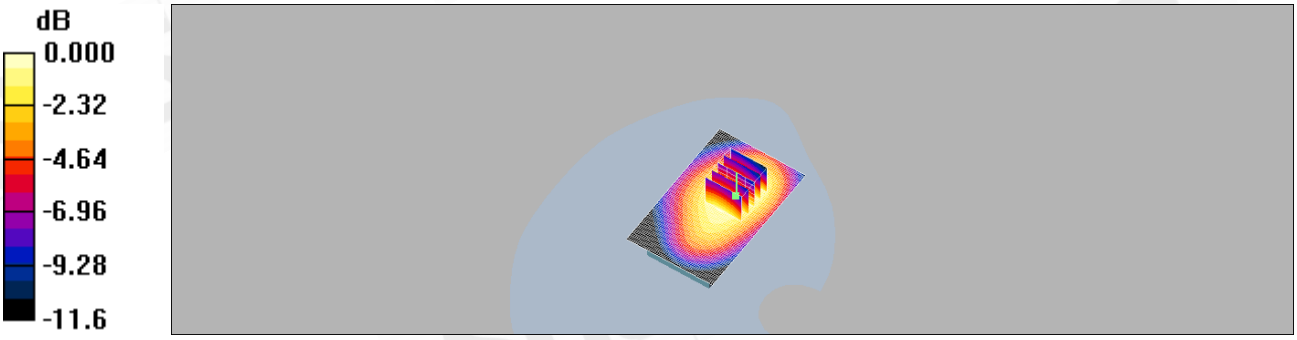
Communication System: WCDMA BAND5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.963 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = 0.036 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.896 mW/g; SAR(10 g) = 0.633 mW/g
Maximum value of SAR (measured) = 0.942 mW/g



0 dB = 0.942mW/g

Front side_WCDMA B5_CH4233

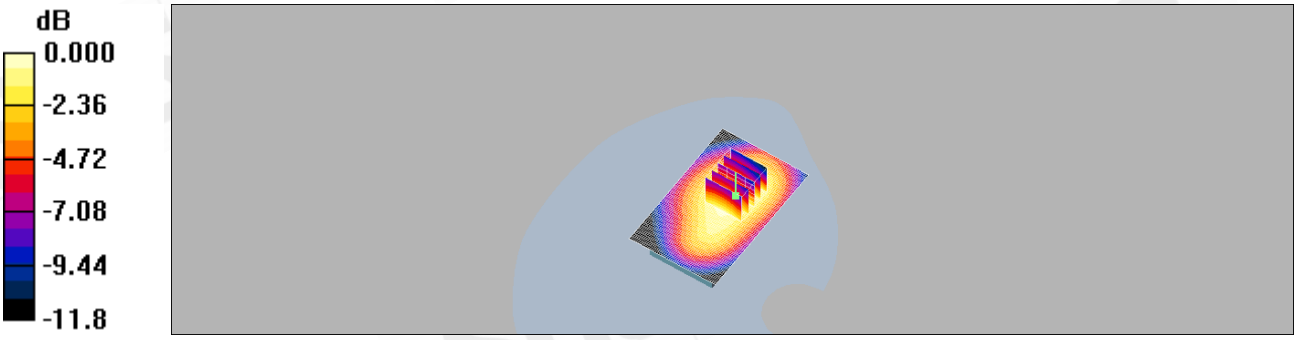
Communication System: WCDMA BAND5; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.796 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.5 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 1.000 W/kg
SAR(1 g) = 0.743 mW/g; SAR(10 g) = 0.527 mW/g
Maximum value of SAR (measured) = 0.777 mW/g



0 dB = 0.777mW/g

Back Side_WCDMA B5_CH4183

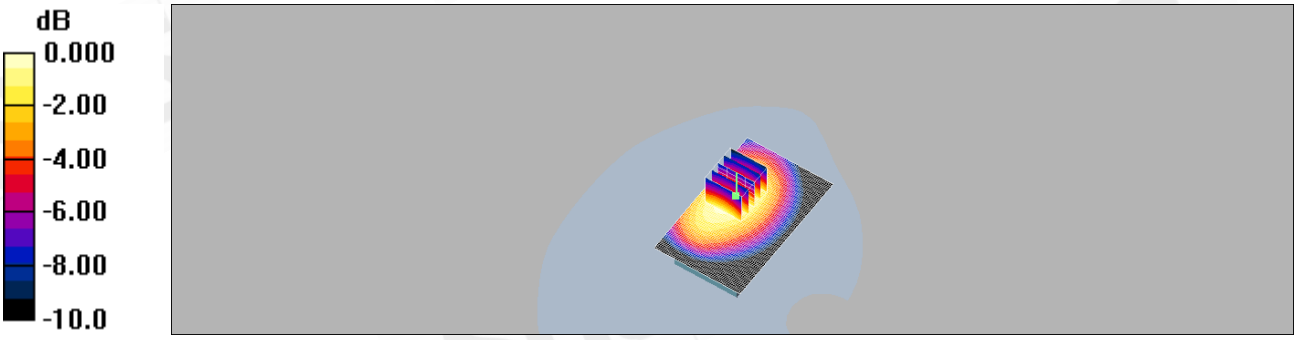
Communication System: WCDMA BAND5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.716 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 0.891 W/kg
SAR(1 g) = 0.679 mW/g; SAR(10 g) = 0.484 mW/g
Maximum value of SAR (measured) = 0.715 mW/g



0 dB = 0.715mW/g

Top side_WCDMA B5_CH4183

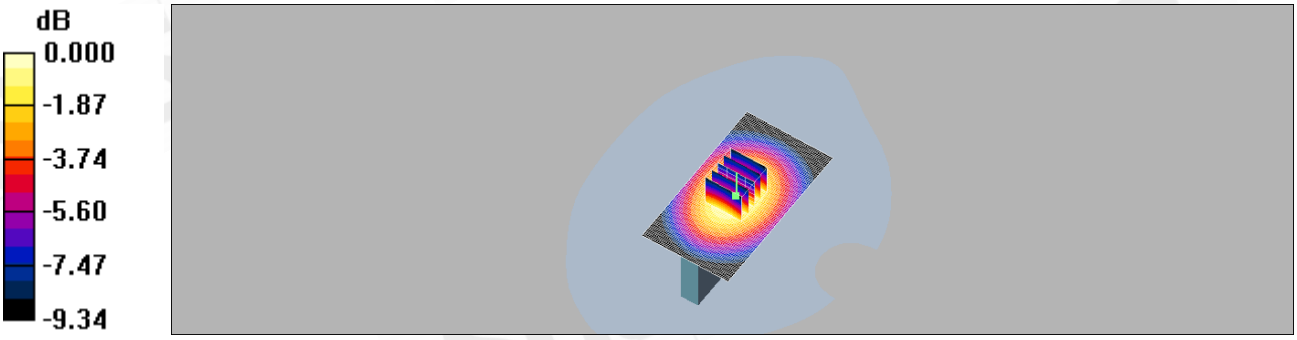
Communication System: WCDMA BAND5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.354 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.6 V/m; Power Drift = 0.120 dB
Peak SAR (extrapolated) = 0.459 W/kg
SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.235 mW/g
Maximum value of SAR (measured) = 0.358 mW/g



0 dB = 0.358mW/g

Bottom side_WCDMA B5_CH4183

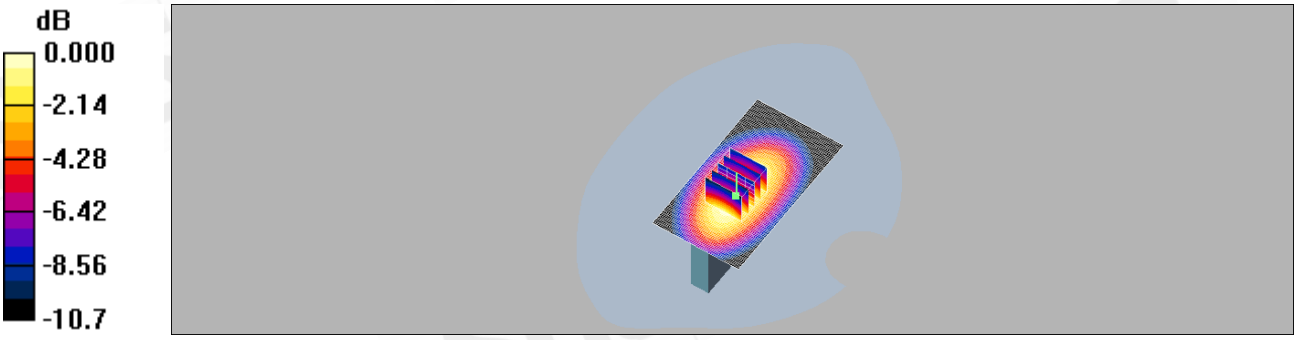
Communication System: WCDMA BAND5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.688 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.3 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 0.918 W/kg
SAR(1 g) = 0.651 mW/g; SAR(10 g) = 0.443 mW/g
Maximum value of SAR (measured) = 0.696 mW/g



0 dB = 0.696mW/g

Right side_WCDMA B5_CH4183

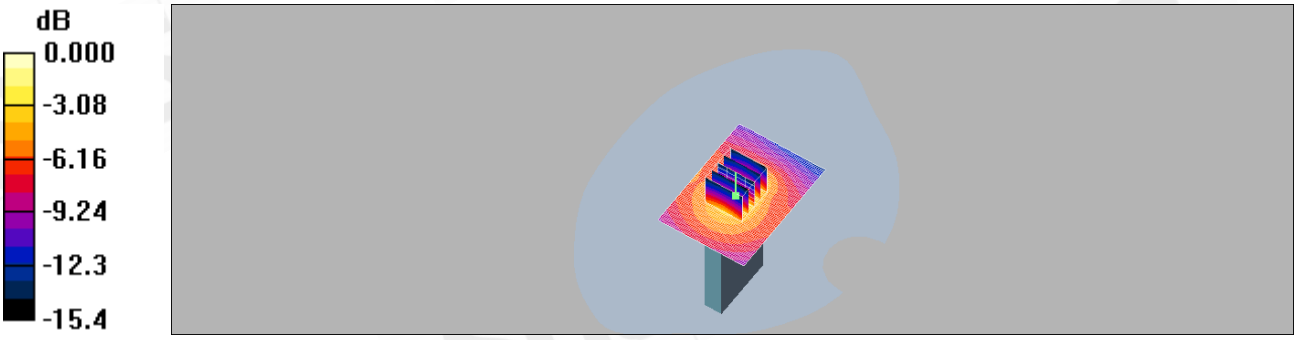
Communication System: WCDMA BAND5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.090 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.33 V/m; Power Drift = 0.197 dB
Peak SAR (extrapolated) = 0.187 W/kg
SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.100 mW/g



0 dB = 0.100mW/g

Front side_LTE Band 4_CH20175_10MHz_QPSK_Test case 1

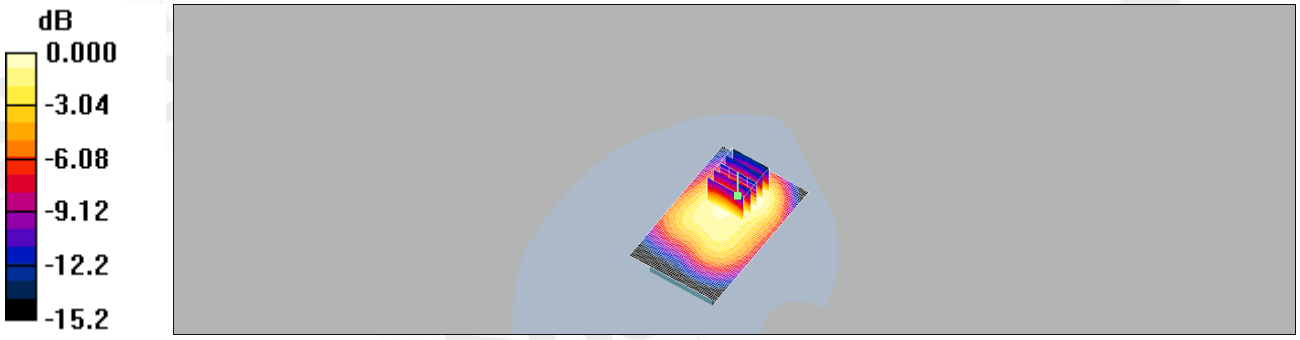
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.571 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.53 V/m; Power Drift = -0.152 dB
Peak SAR (extrapolated) = 0.810 W/kg
SAR(1 g) = 0.516 mW/g; SAR(10 g) = 0.324 mW/g
Maximum value of SAR (measured) = 0.553 mW/g



0 dB = 0.553mW/g

Back side_LTE Band 4_CH20175_10MHz_QPSK_Test case 1

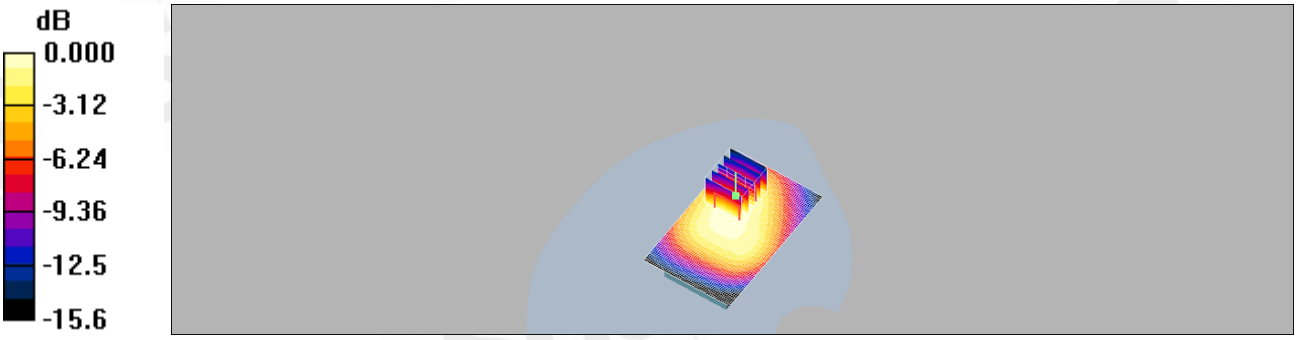
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.476 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.02 V/m; Power Drift = 0.047 dB
Peak SAR (extrapolated) = 0.677 W/kg
SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.279 mW/g
Maximum value of SAR (measured) = 0.466 mW/g



0 dB = 0.466mW/g

Top side_LTE Band 4_CH20175_10MHz_QPSK_Test case 1

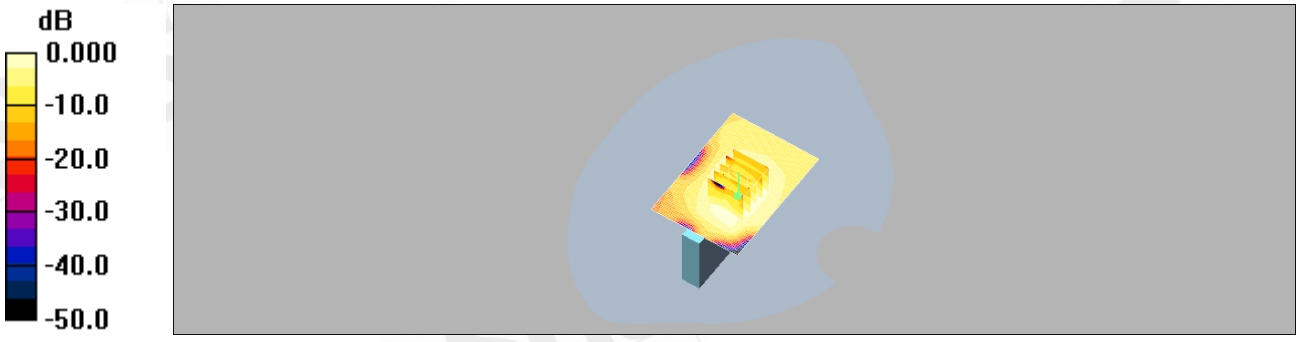
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.010 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.61 V/m; Power Drift = 0.118 dB
Peak SAR (extrapolated) = 0.014 W/kg
SAR(1 g) = 0.00937 mW/g; SAR(10 g) = 0.00557 mW/g
Maximum value of SAR (measured) = 0.010 mW/g

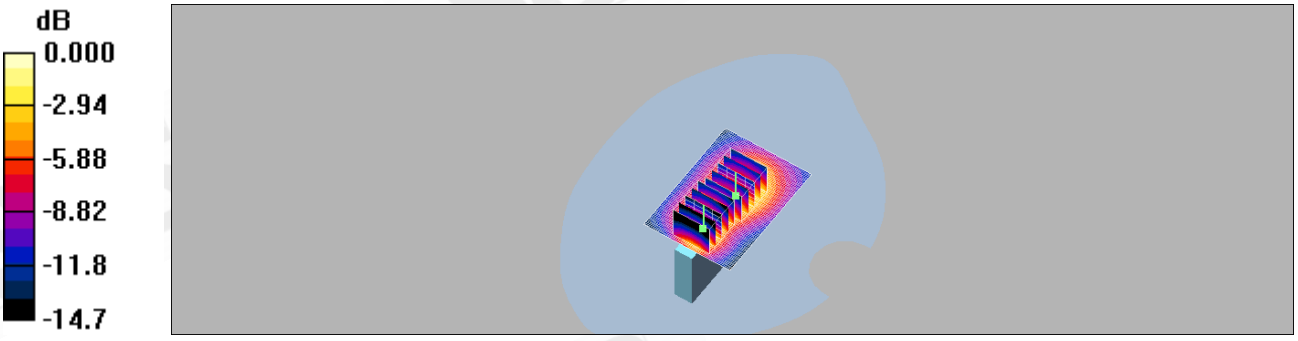


0 dB = 0.010mW/g

Bottom side_LTE Band 4_CH20175_10MHz_QPSK_Test case 1

Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.529 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = 0.150 dB
Peak SAR (extrapolated) = 0.739 W/kg
SAR(1 g) = 0.424 mW/g; SAR(10 g) = 0.237 mW/g
Maximum value of SAR (measured) = 0.463 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = 0.150 dB
Peak SAR (extrapolated) = 0.670 W/kg
SAR(1 g) = 0.421 mW/g; SAR(10 g) = 0.252 mW/g
Maximum value of SAR (measured) = 0.459 mW/g



0 dB = 0.459mW/g

Right side_LTE Band 4_CH20175_10MHz_QPSK_Test case 1

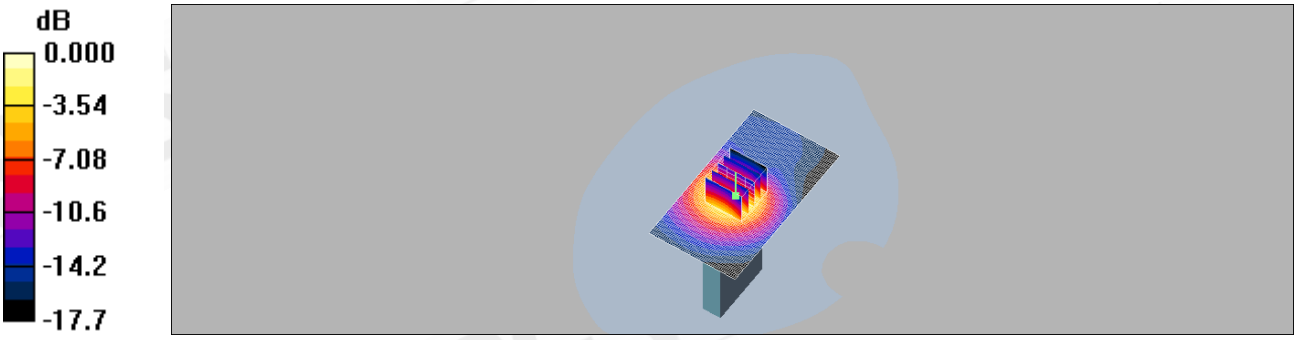
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.777 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.0 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.390 mW/g
Maximum value of SAR (measured) = 0.782 mW/g



0 dB = 0.782mW/g

Front side_LTE Band 4_CH20000_10MHz_QPSK_Test case 3

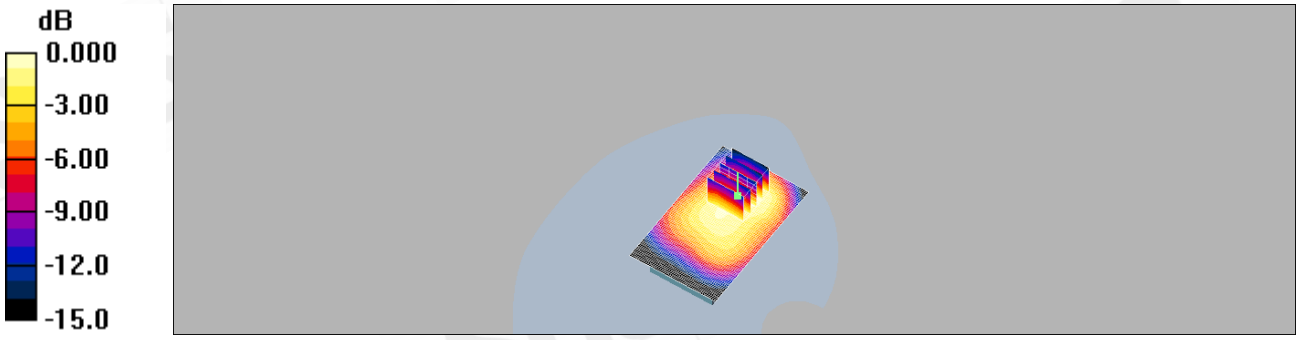
Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.833 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.92 V/m; Power Drift = 0.180 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.789 mW/g; SAR(10 g) = 0.488 mW/g
Maximum value of SAR (measured) = 0.846 mW/g

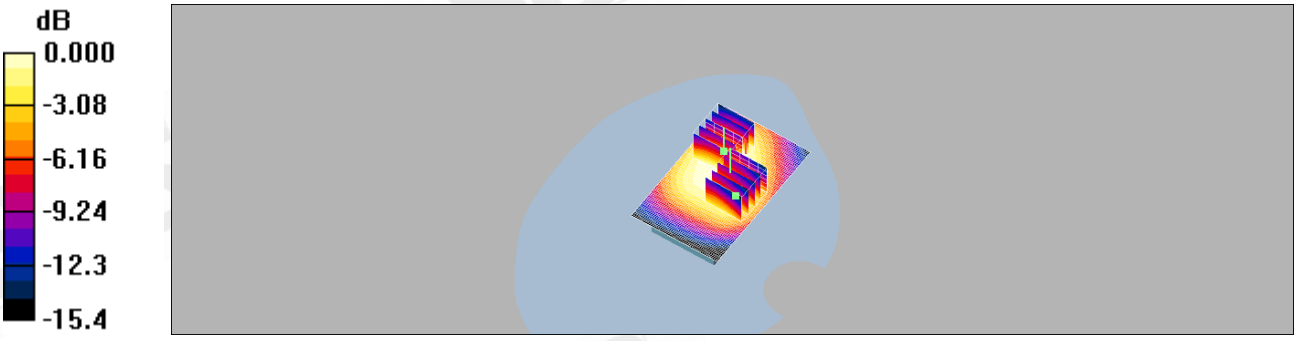


0 dB = 0.846mW/g

Back side_LTE Band 4_CH20000_10MHz_QPSK_Test case 3

Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.745 mW/g
body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.96 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.678 mW/g; SAR(10 g) = 0.435 mW/g
Maximum value of SAR (measured) = 0.725 mW/g
body/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.96 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 0.906 W/kg
SAR(1 g) = 0.527 mW/g; SAR(10 g) = 0.342 mW/g
Maximum value of SAR (measured) = 0.631 mW/g



0 dB = 0.631mW/g

Top side_LTE Band 4_CH20000_10MHz_QPSK_Test case 3

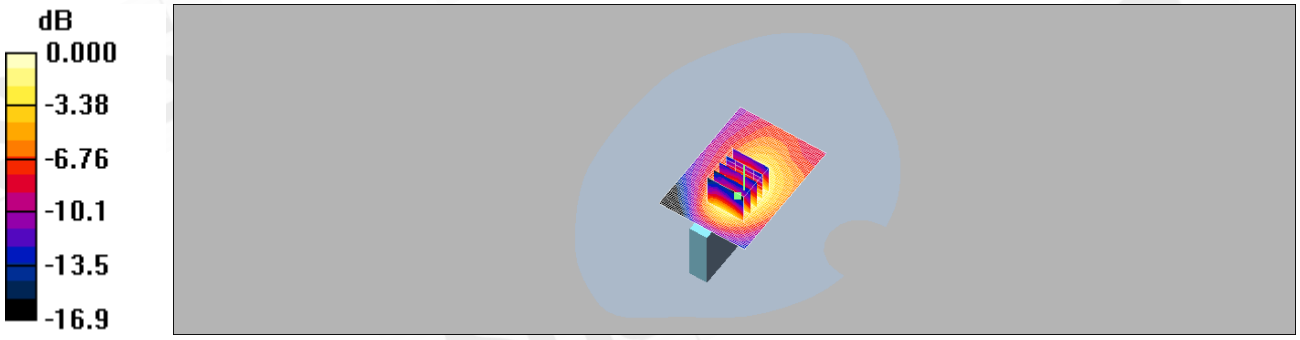
Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.034 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.71 V/m; Power Drift = -0.181 dB
Peak SAR (extrapolated) = 0.049 W/kg
SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.018 mW/g
Maximum value of SAR (measured) = 0.032 mW/g

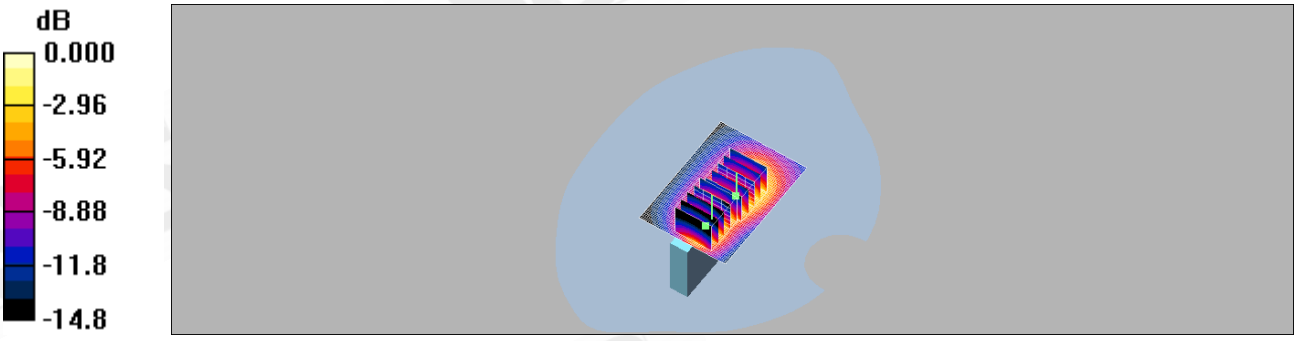


0 dB = 0.032mW/g

Bottom side_LTE Band 4_CH20000_10MHz_QPSK_Test case 3

Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.881 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.0 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.737 mW/g; SAR(10 g) = 0.415 mW/g
Maximum value of SAR (measured) = 0.792 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.0 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.746 mW/g; SAR(10 g) = 0.444 mW/g
Maximum value of SAR (measured) = 0.824 mW/g



0 dB = 0.824mW/g

Right side_LTE Band 4_CH20000_10MHz_QPSK_Test case 3

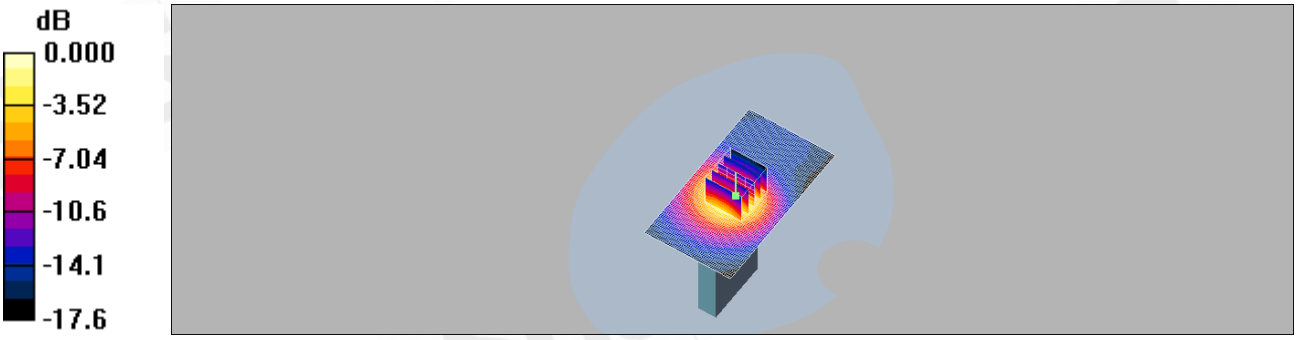
Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.26 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.4 V/m; Power Drift = -0.174 dB
Peak SAR (extrapolated) = 1.81 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.570 mW/g
Maximum value of SAR (measured) = 1.12 mW/g



0 dB = 1.12mW/g

Front side_LTE Band 4_CH20000_10MHz_QPSK_Test case 4

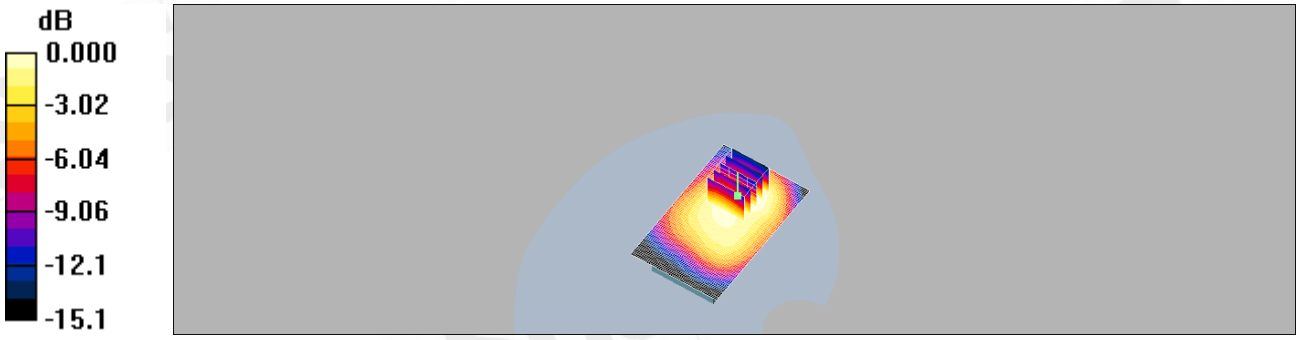
Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.953 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.62 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.829 mW/g; SAR(10 g) = 0.533 mW/g
Maximum value of SAR (measured) = 0.888 mW/g

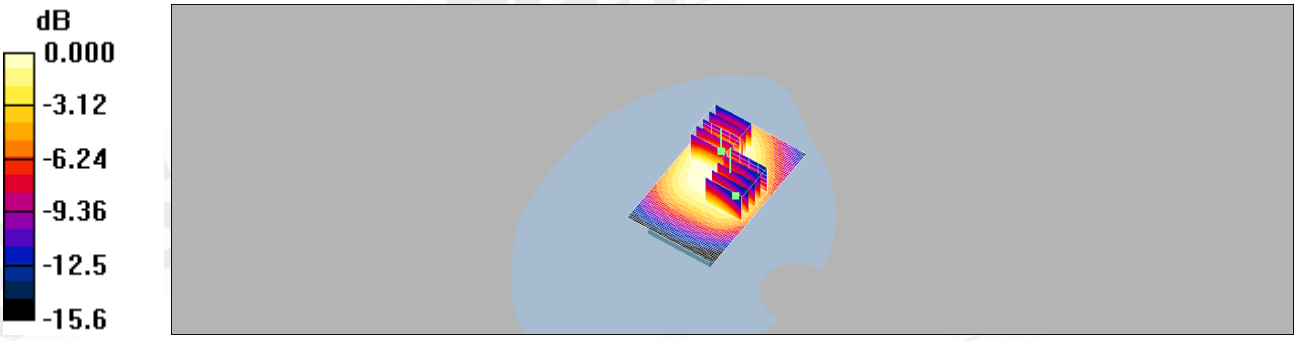


0 dB = 0.888mW/g

Back Side_LTE Band 4_CH20000_10MHz_QPSK_Test case 4

Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.870 mW/g
body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.97 V/m; Power Drift = -0.117 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.808 mW/g; SAR(10 g) = 0.512 mW/g
Maximum value of SAR (measured) = 0.870 mW/g
body/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.97 V/m; Power Drift = -0.117 dB
Peak SAR (extrapolated) = 0.890 W/kg
SAR(1 g) = 0.553 mW/g; SAR(10 g) = 0.351 mW/g
Maximum value of SAR (measured) = 0.653 mW/g



0 dB = 0.653mW/g

Top side_LTE Band 4_CH20000_10MHz_QPSK_Test case 4

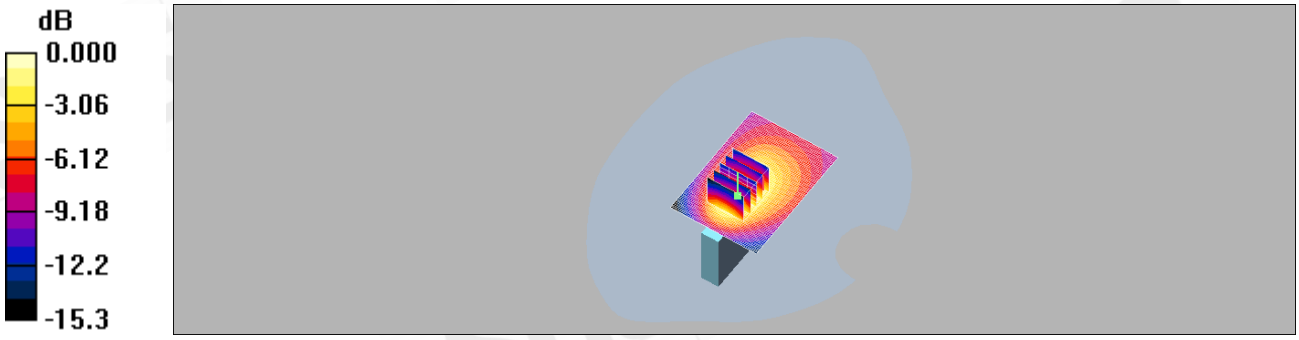
Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.143 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.37 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.200 W/kg
SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.074 mW/g
Maximum value of SAR (measured) = 0.130 mW/g

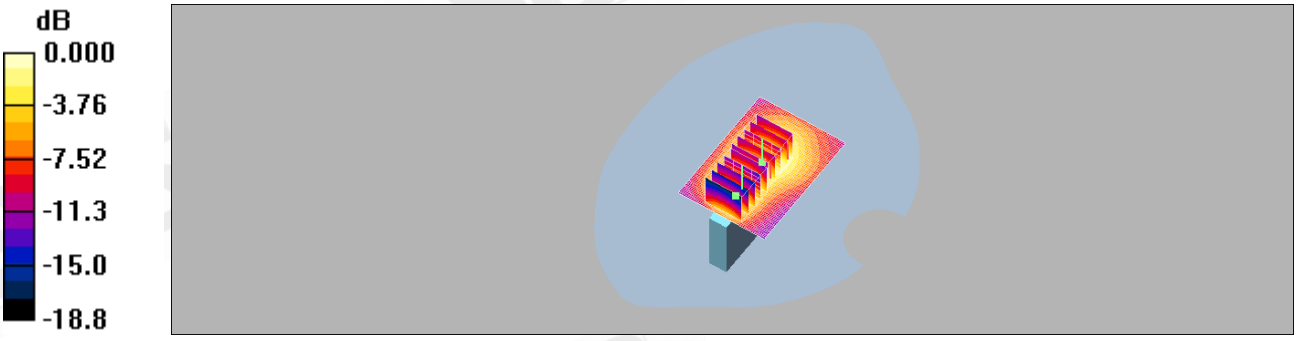


0 dB = 0.130mW/g

Bottom side_LTE Band 4_CH20000_10MHz_QPSK_Test case 4

Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.660 mW/g
body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.2 V/m; Power Drift = 0.197 dB
Peak SAR (extrapolated) = 0.992 W/kg
SAR(1 g) = 0.639 mW/g; SAR(10 g) = 0.393 mW/g
Maximum value of SAR (measured) = 0.700 mW/g
body/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.2 V/m; Power Drift = 0.197 dB
Peak SAR (extrapolated) = 0.922 W/kg
SAR(1 g) = 0.557 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 0.585 mW/g



0 dB = 0.585mW/g

Right side_LTE Band 4_CH20000_10MHz_QPSK_Test case 4

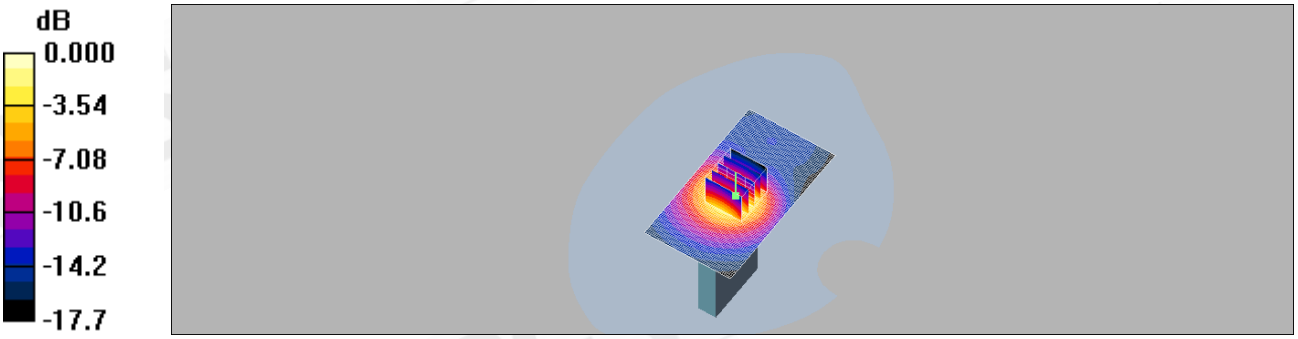
Communication System: LTE Band 4_10MHz; Frequency: 1715 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1715 MHz; σ = 1.43 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.35 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.9 V/m; Power Drift = -0.167 dB
Peak SAR (extrapolated) = 1.89 W/kg
SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.599 mW/g
Maximum value of SAR (measured) = 1.20 mW/g



0 dB = 1.20mW/g

Front side_LTE Band 4_CH20175_10MHz_16QAM_Test case 5

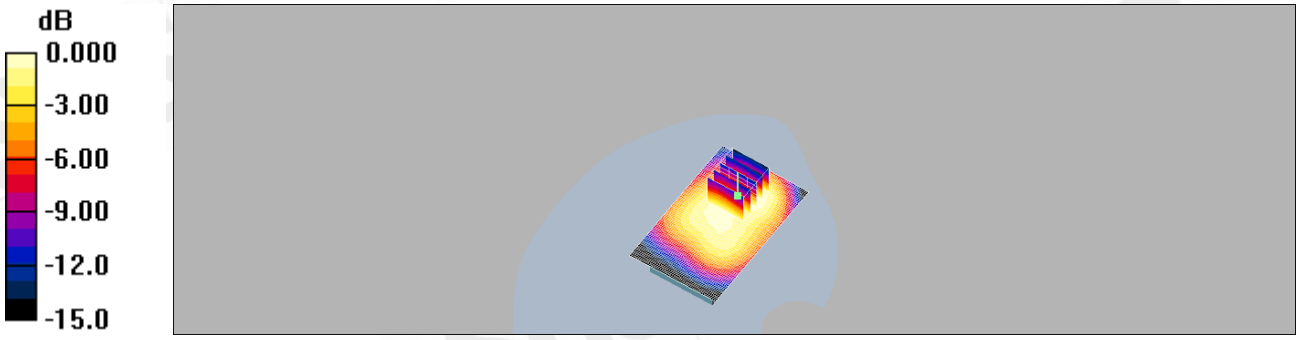
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.398 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.65 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 0.572 W/kg
SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.230 mW/g
Maximum value of SAR (measured) = 0.384 mW/g



0 dB = 0.384mW/g

Back side_LTE Band 4_CH20175_10MHz_16QAM_Test case 5

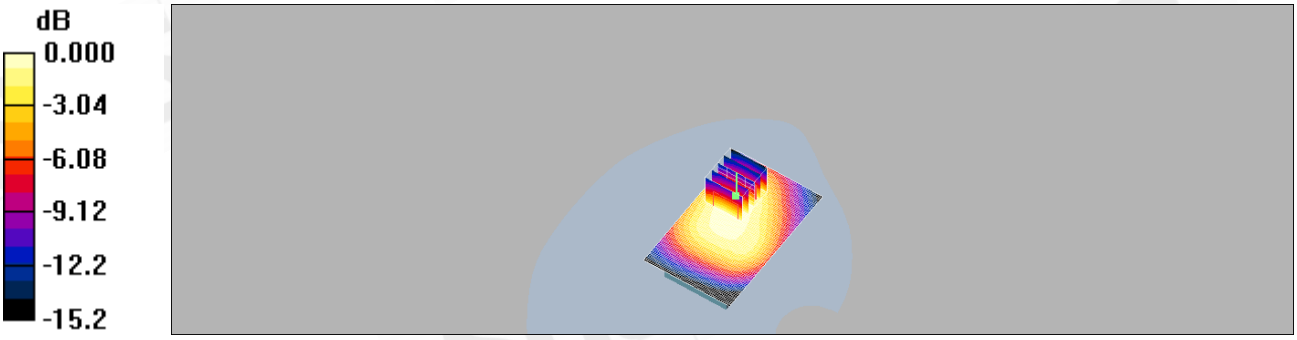
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.412 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.71 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 0.583 W/kg
SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.242 mW/g
Maximum value of SAR (measured) = 0.406 mW/g



0 dB = 0.406mW/g

Top side_LTE Band 4_CH20175_10MHz_16QAM_Test case 5

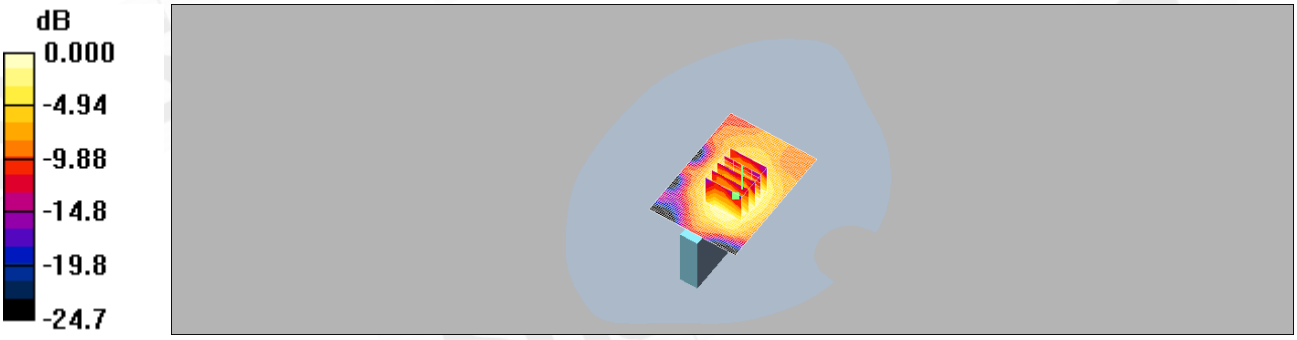
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.010 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.59 V/m; Power Drift = 0.190 dB
Peak SAR (extrapolated) = 0.014 W/kg
SAR(1 g) = 0.00919 mW/g; SAR(10 g) = 0.00557 mW/g
Maximum value of SAR (measured) = 0.010 mW/g

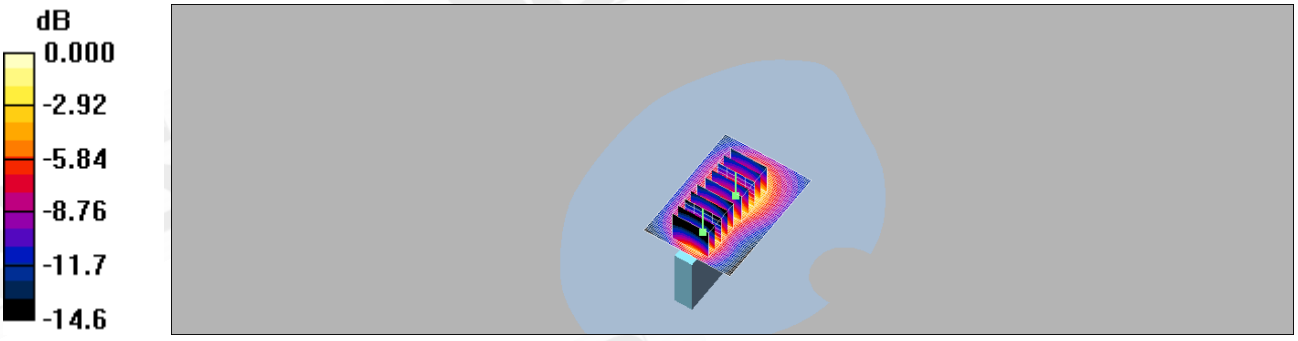


0 dB = 0.010mW/g

Bottom side_LTE Band 4_CH20175_10MHz_16QAM_Test case 5

Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.473 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.7 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.379 mW/g; SAR(10 g) = 0.212 mW/g
Maximum value of SAR (measured) = 0.416 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.7 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 0.641 W/kg
SAR(1 g) = 0.401 mW/g; SAR(10 g) = 0.239 mW/g
Maximum value of SAR (measured) = 0.439 mW/g



0 dB = 0.439mW/g

Right side_LTE Band 4_CH20175_10MHz_16QAM_Test case 5

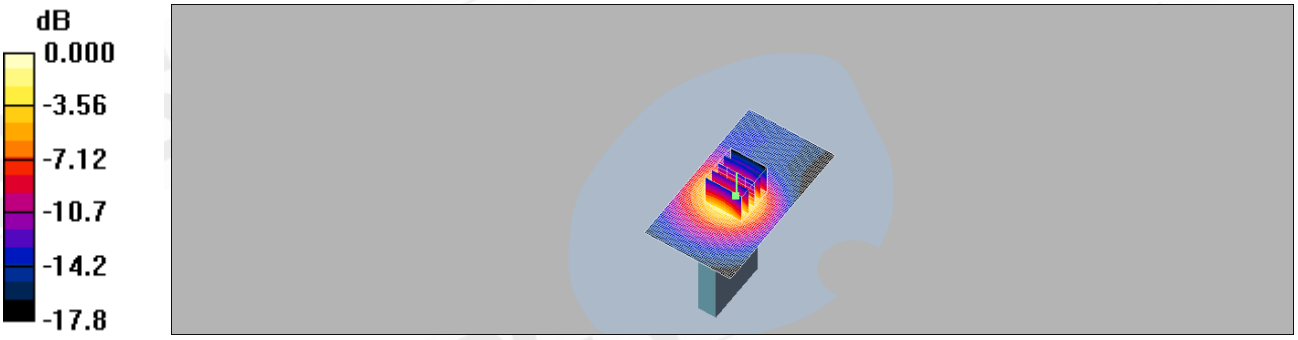
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.685 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.593 mW/g; SAR(10 g) = 0.326 mW/g
Maximum value of SAR (measured) = 0.647 mW/g

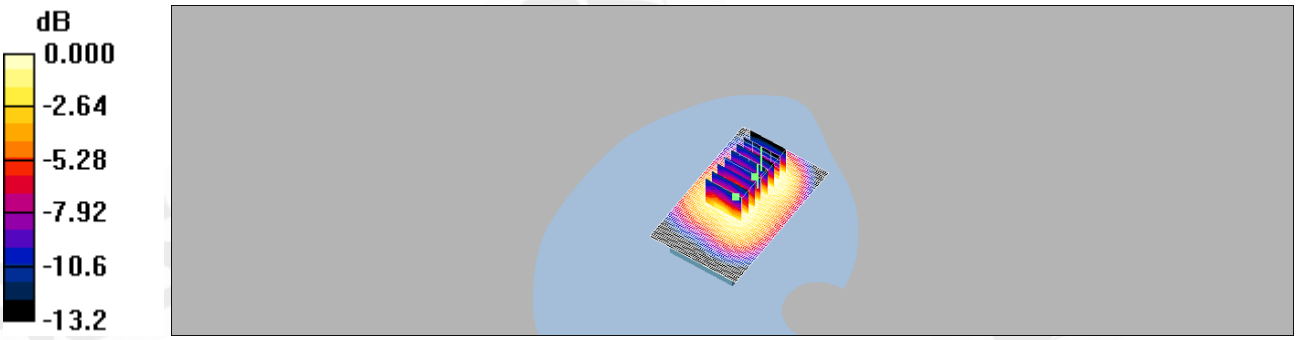


0 dB = 0.647mW/g

Front side_LTE Band 4_CH20175_10MHz_16QAM_Test case 7

Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.596 mW/g
body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.98 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.881 W/kg
SAR(1 g) = 0.526 mW/g; SAR(10 g) = 0.323 mW/g
Maximum value of SAR (measured) = 0.619 mW/g
body/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.98 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.947 W/kg
SAR(1 g) = 0.454 mW/g; SAR(10 g) = 0.307 mW/g
Maximum value of SAR (measured) = 0.565 mW/g



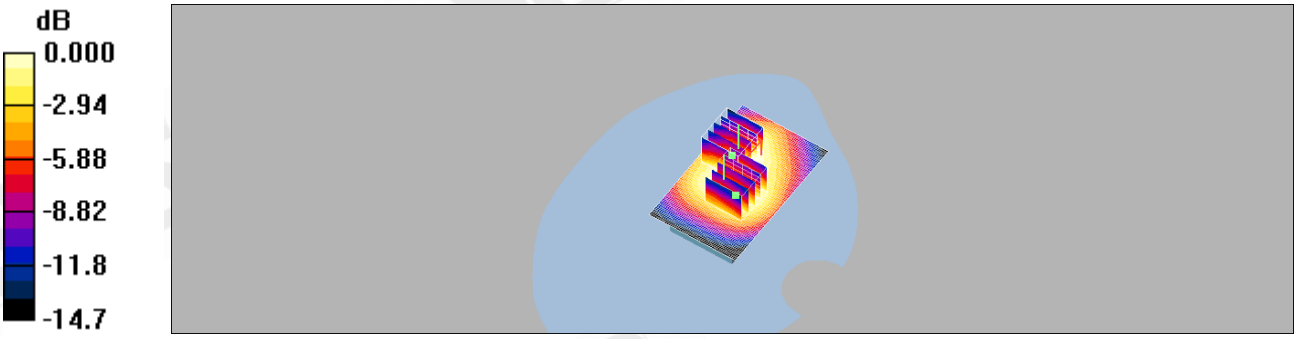
0 dB = 0.565mW/g

Back side_LTE Band 4_CH20175_10MHz_16QAM_Test case 7

Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.559 mW/g
body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.61 V/m; Power Drift = -0.108 dB
Peak SAR (extrapolated) = 0.805 W/kg
SAR(1 g) = 0.488 mW/g; SAR(10 g) = 0.314 mW/g
Maximum value of SAR (measured) = 0.531 mW/g

body/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.61 V/m; Power Drift = -0.108 dB
Peak SAR (extrapolated) = 0.680 W/kg
SAR(1 g) = 0.426 mW/g; SAR(10 g) = 0.282 mW/g
Maximum value of SAR (measured) = 0.458 mW/g



0 dB = 0.458mW/g

Top side_LTE Band 4_CH20175_10MHz_16QAM_Test case 7

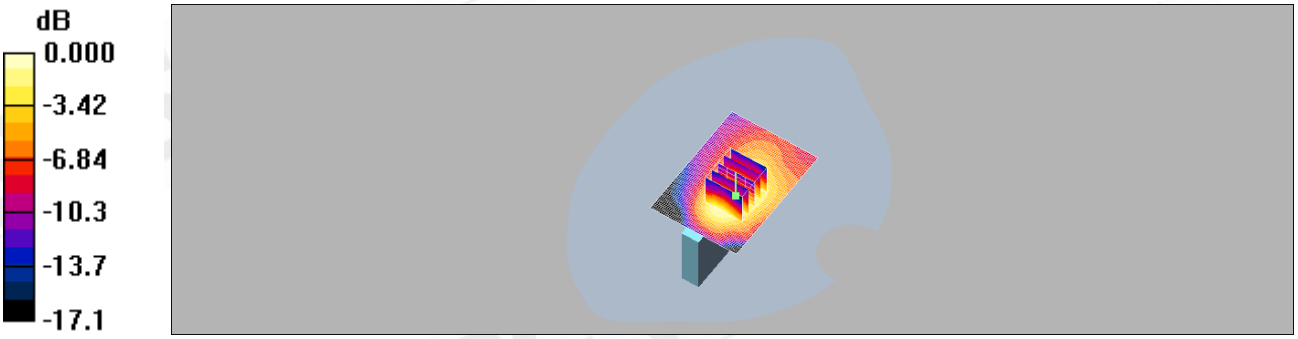
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.027 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.29 V/m; Power Drift = -0.163 dB
Peak SAR (extrapolated) = 0.039 W/kg
SAR(1 g) = 0.025 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.026 mW/g

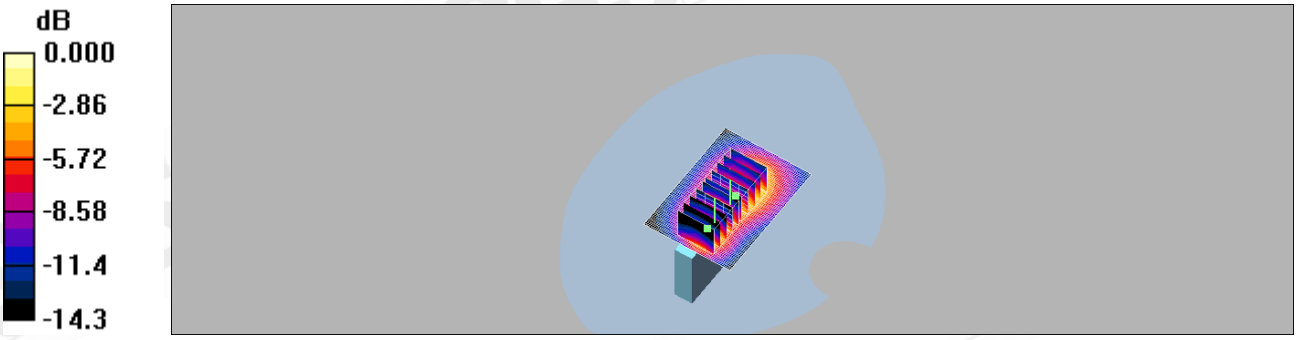


0 dB = 0.026mW/g

Bottom side_LTE Band 4_CH20175_10MHz_16QAM_Test case 7

Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.573 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.9 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.528 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.634 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.9 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.877 W/kg
SAR(1 g) = 0.526 mW/g; SAR(10 g) = 0.323 mW/g
Maximum value of SAR (measured) = 0.607 mW/g



0 dB = 0.607mW/g

Right side_LTE Band 4_CH20175_10MHz_16QAM_Test case 7

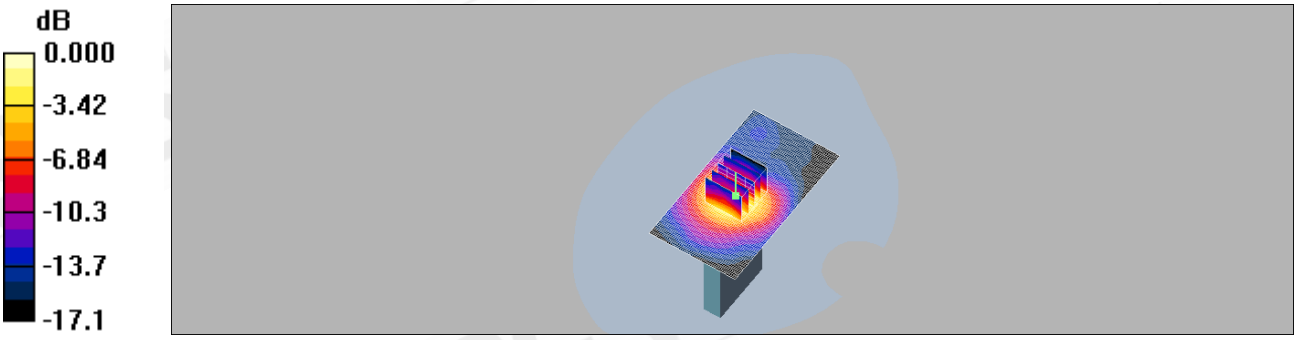
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.964 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.7 V/m; Power Drift = 0.106 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.755 mW/g; SAR(10 g) = 0.416 mW/g
Maximum value of SAR (measured) = 0.856 mW/g

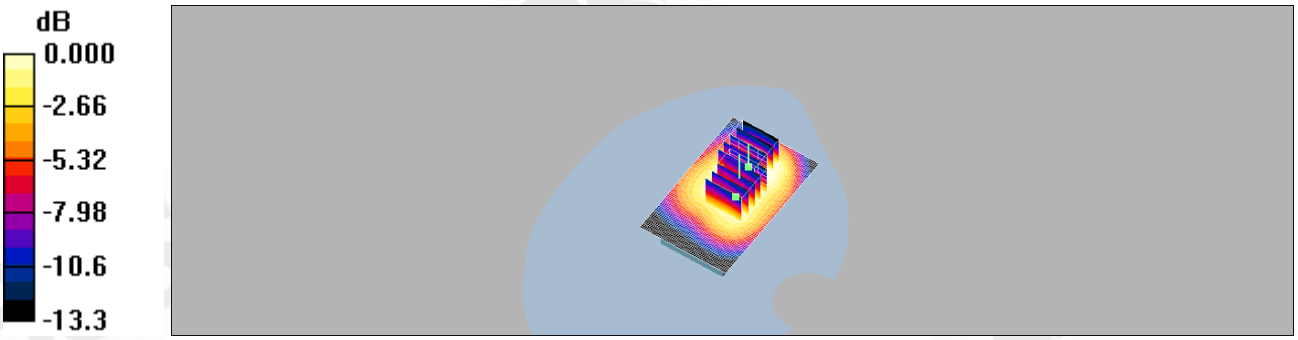


0 dB = 0.856mW/g

Front side_LTE Band 4_CH20175_10MHz_16QAM_Test case 8

Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.488 mW/g
body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.14 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 0.681 W/kg
SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.282 mW/g
Maximum value of SAR (measured) = 0.471 mW/g
body/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.14 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.401 mW/g; SAR(10 g) = 0.262 mW/g
Maximum value of SAR (measured) = 0.433 mW/g

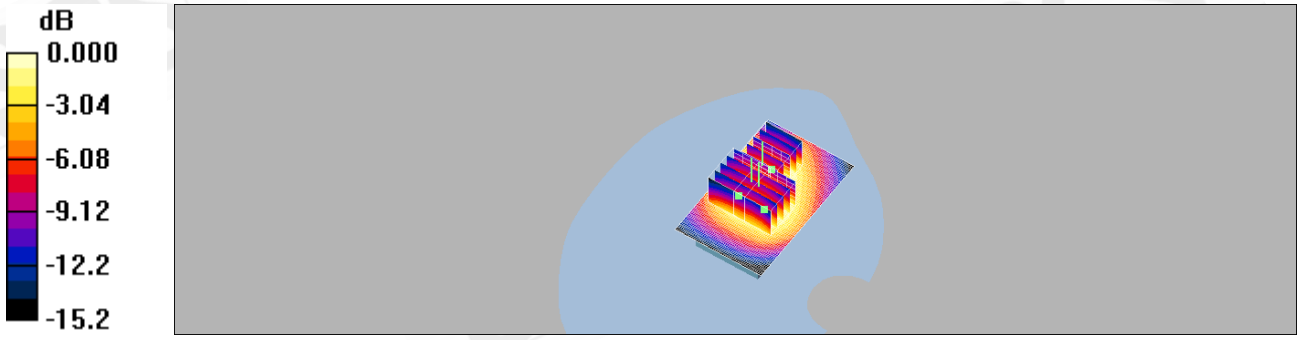


0 dB = 0.433mW/g

Back Side_LTE Band 4_CH20175_10MHz_16QAM_Test case 8

Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.563 mW/g
body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.71 V/m; Power Drift = 0.131 dB
Peak SAR (extrapolated) = 0.730 W/kg
SAR(1 g) = 0.483 mW/g; SAR(10 g) = 0.310 mW/g
Maximum value of SAR (measured) = 0.523 mW/g
body/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.71 V/m; Power Drift = 0.131 dB
Peak SAR (extrapolated) = 0.653 W/kg
SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.272 mW/g
Maximum value of SAR (measured) = 0.459 mW/g
body/Zoom Scan (5x5x7)/Cube 2: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.71 V/m; Power Drift = 0.131 dB
Peak SAR (extrapolated) = 0.657 W/kg
SAR(1 g) = 0.429 mW/g; SAR(10 g) = 0.278 mW/g
Maximum value of SAR (measured) = 0.465 mW/g



0 dB = 0.465mW/g

Top side_LTE Band 4_CH20175_10MHz_16QAM_Test case 8

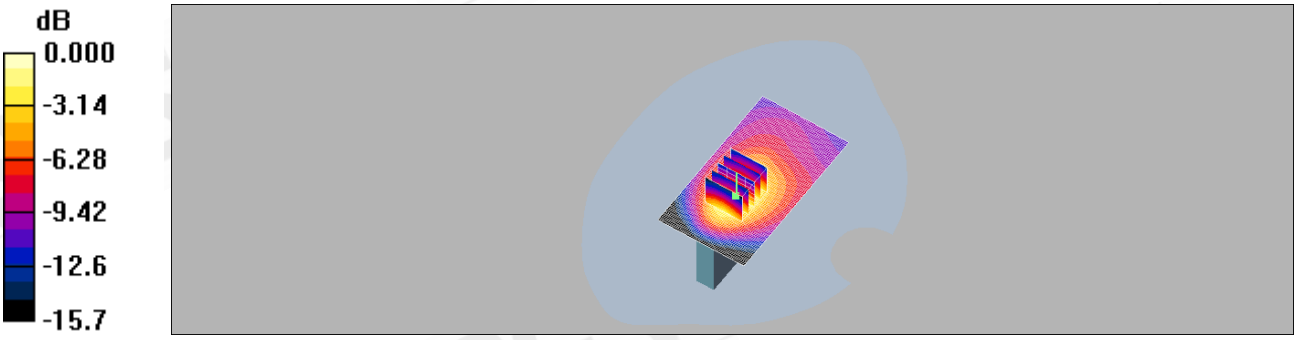
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.100 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.86 V/m; Power Drift = 0.165 dB
Peak SAR (extrapolated) = 0.162 W/kg
SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.061 mW/g
Maximum value of SAR (measured) = 0.111 mW/g

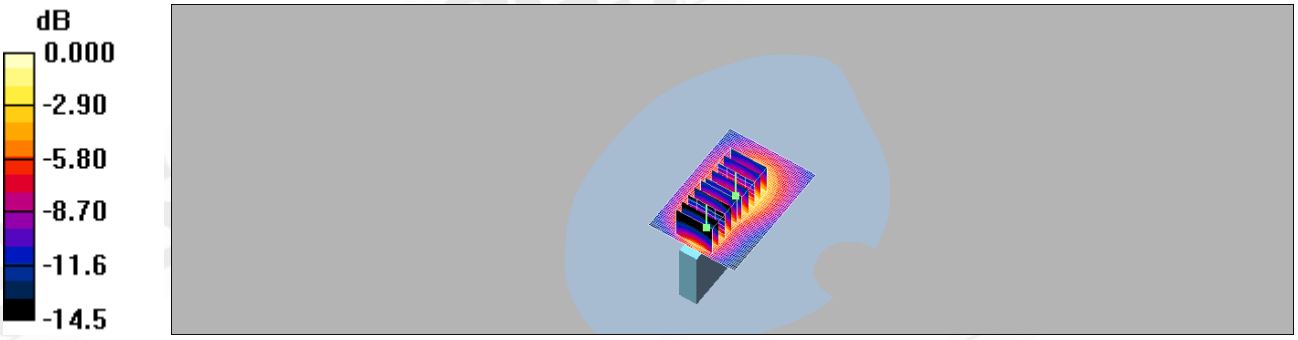


0 dB = 0.111mW/g

Bottom side_LTE Band 4_CH20175_10MHz_16QAM_Test case 8

Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.437 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.5 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 0.603 W/kg
SAR(1 g) = 0.354 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.375 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.5 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.228 mW/g
Maximum value of SAR (measured) = 0.414 mW/g



0 dB = 0.414mW/g

Right side_LTE Band 4_CH20175_10MHz_16QAM_Test case 8

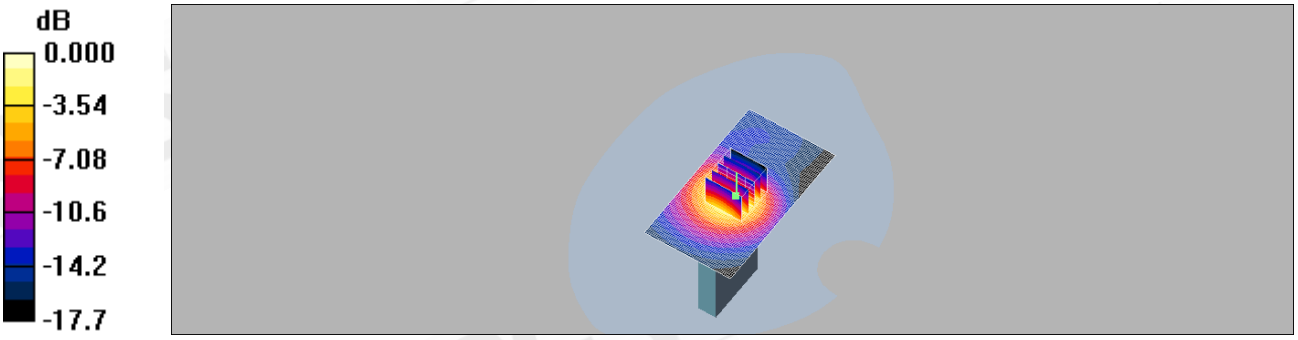
Communication System: LTE Band 4_10MHz; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.867 mW/g

body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.6 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.736 mW/g; SAR(10 g) = 0.406 mW/g
Maximum value of SAR (measured) = 0.811 mW/g



0 dB = 0.811mW/g

Front side_LTE Band 17_CH23790_10MHz_QPSK_Test case 1

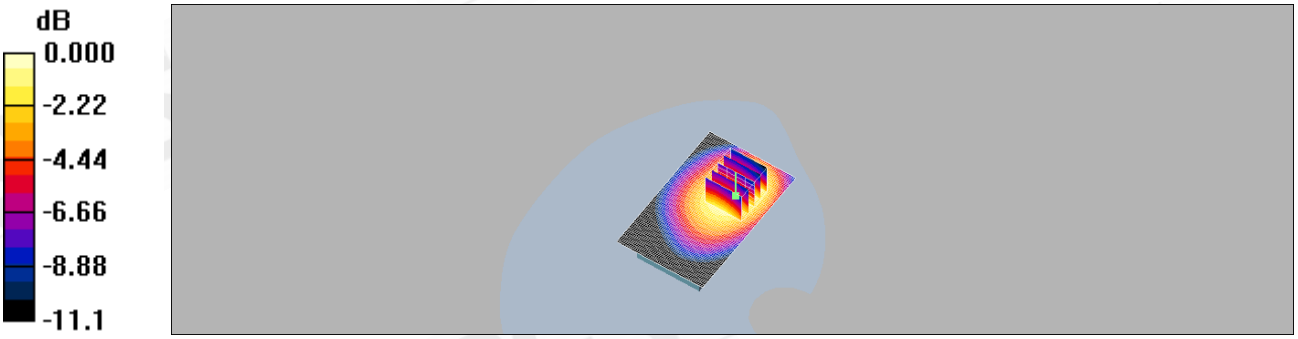
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.813 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.06 V/m; Power Drift = -0.166 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.772 mW/g; SAR(10 g) = 0.535 mW/g
Maximum value of SAR (measured) = 0.822 mW/g



0 dB = 0.822mW/g

Back side_LTE Band 17_CH23790_10MHz_QPSK_Test case 1

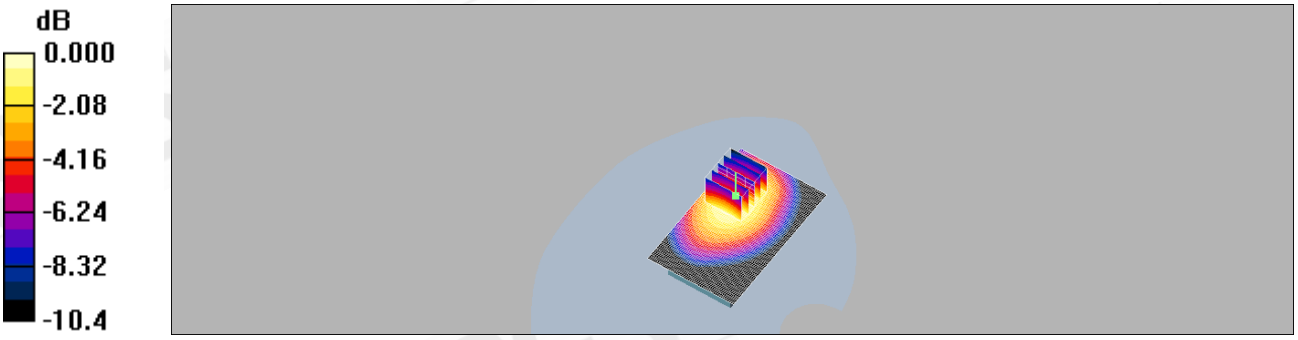
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.681 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.37 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.860 W/kg
SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.452 mW/g
Maximum value of SAR (measured) = 0.679 mW/g



0 dB = 0.679mW/g

Top side_LTE Band 17_CH23790_10MHz_QPSK_Test case 1

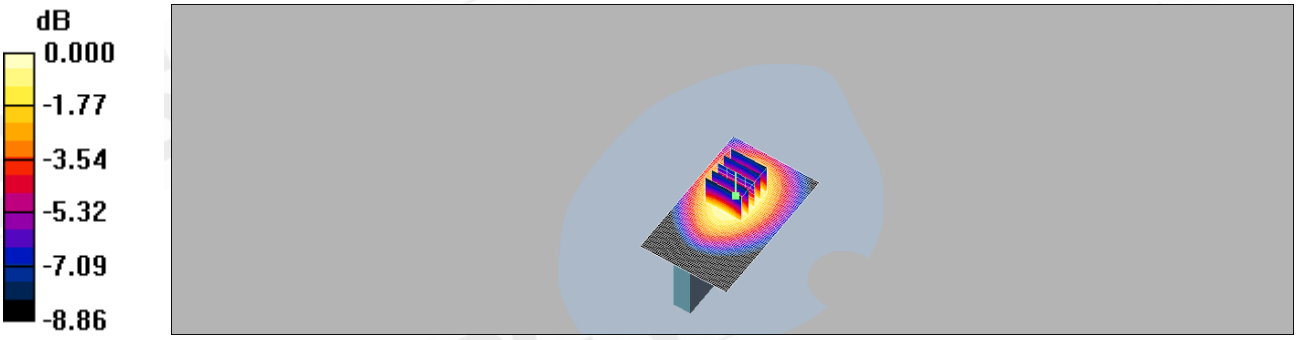
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.148 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.184 dB
Peak SAR (extrapolated) = 0.181 W/kg
SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.095 mW/g
Maximum value of SAR (measured) = 0.142 mW/g



0 dB = 0.142mW/g

Bottom side_LTE Band 17_CH23790_10MHz_QPSK_Test case 1

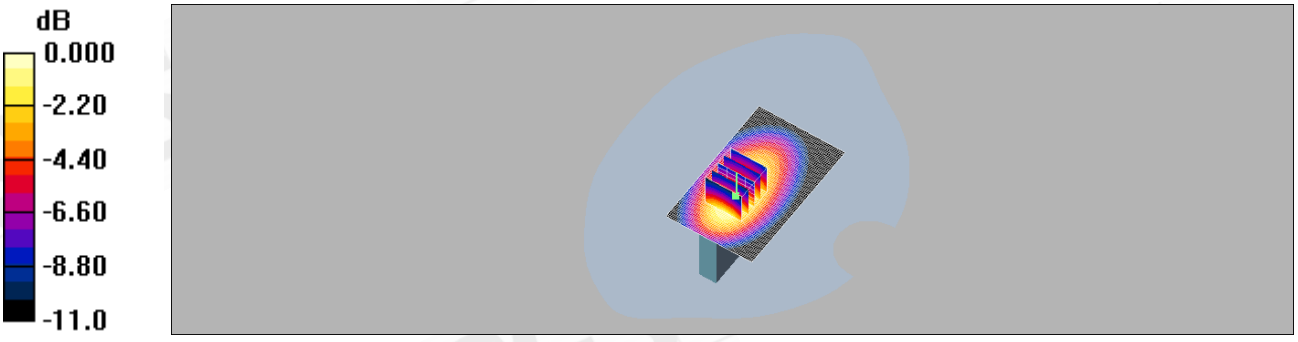
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.556 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.0 V/m; Power Drift = -0.050 dB
Peak SAR (extrapolated) = 0.750 W/kg
SAR(1 g) = 0.514 mW/g; SAR(10 g) = 0.342 mW/g
Maximum value of SAR (measured) = 0.554 mW/g



0 dB = 0.554mW/g

Right side_LTE Band 17_CH23790_10MHz_QPSK_Test case 1

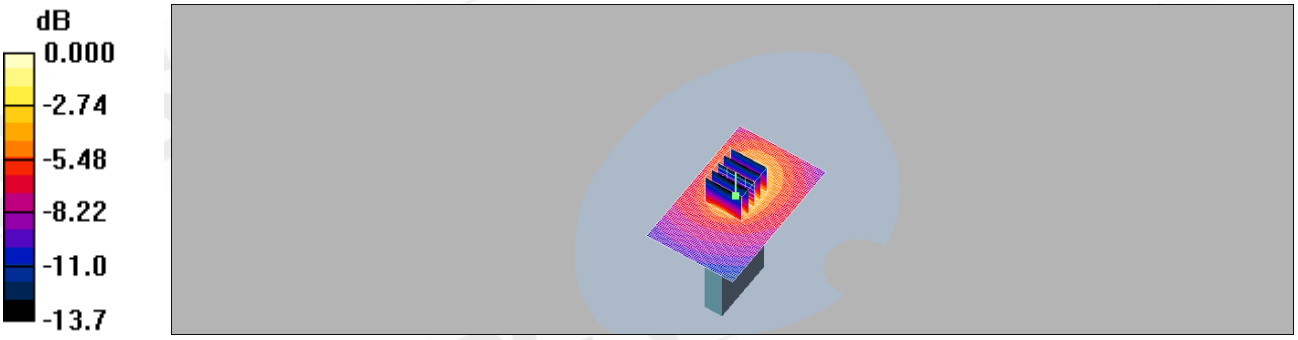
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.063 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.62 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 0.172 W/kg
SAR(1 g) = 0.061 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.065 mW/g



0 dB = 0.065mW/g

Front side_LTE Band 17_CH23780_10MHz_QPSK_Test case 3

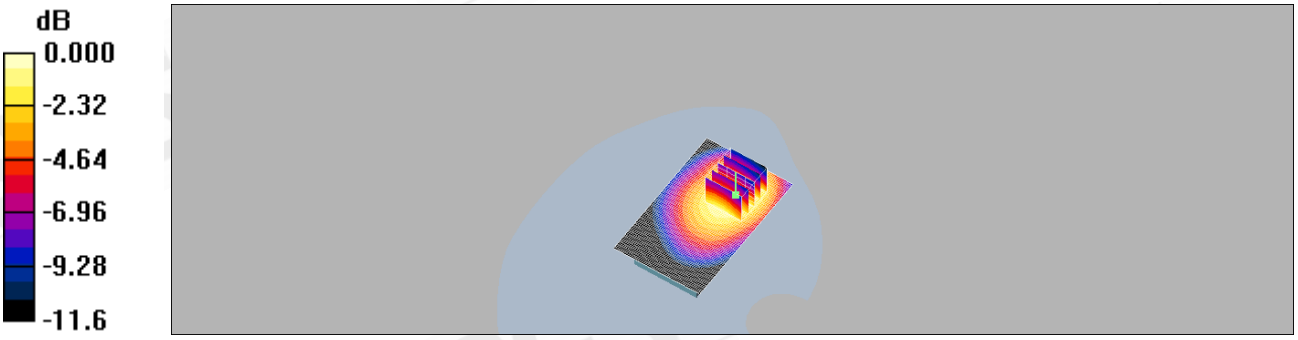
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.944 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.00 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.896 mW/g; SAR(10 g) = 0.621 mW/g
Maximum value of SAR (measured) = 0.967 mW/g



0 dB = 0.967mW/g

Back side_LTE Band 17_CH23780_10MHz_QPSK_Test case 3

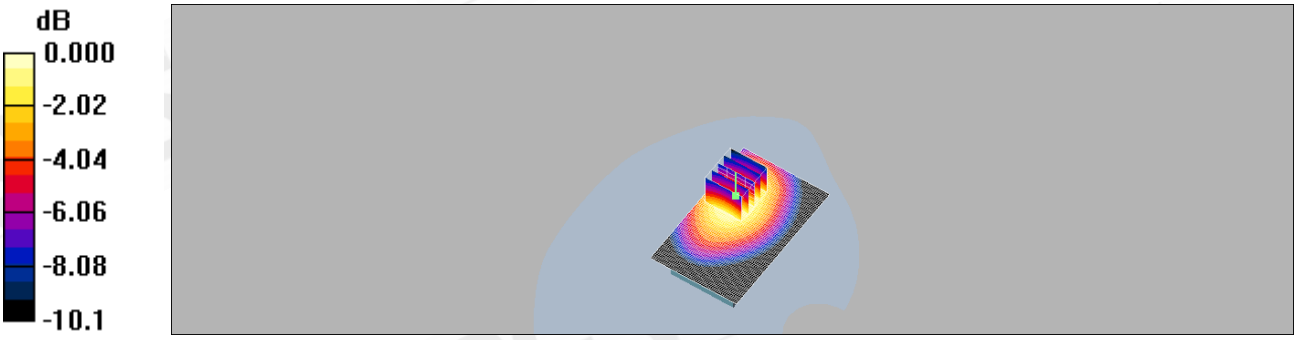
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.704 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.86 V/m; Power Drift = 0.040 dB
Peak SAR (extrapolated) = 0.885 W/kg
SAR(1 g) = 0.663 mW/g; SAR(10 g) = 0.472 mW/g
Maximum value of SAR (measured) = 0.705 mW/g



0 dB = 0.705mW/g

Top side_LTE Band 17_CH23780_10MHz_QPSK_Test case 3

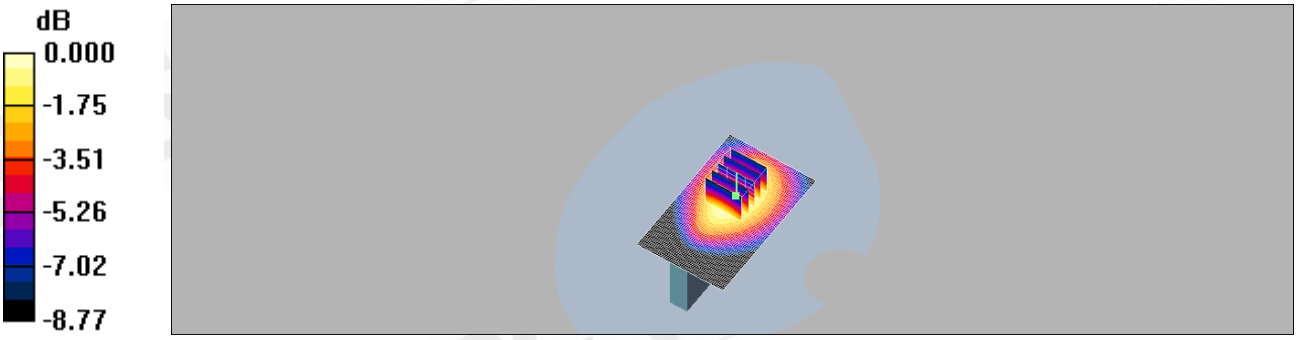
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.212 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.1 V/m; Power Drift = 0.172 dB
Peak SAR (extrapolated) = 0.261 W/kg
SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.141 mW/g
Maximum value of SAR (measured) = 0.207 mW/g



0 dB = 0.207mW/g

Bottom side_LTE Band 17_CH23780_10MHz_QPSK_Test case 3

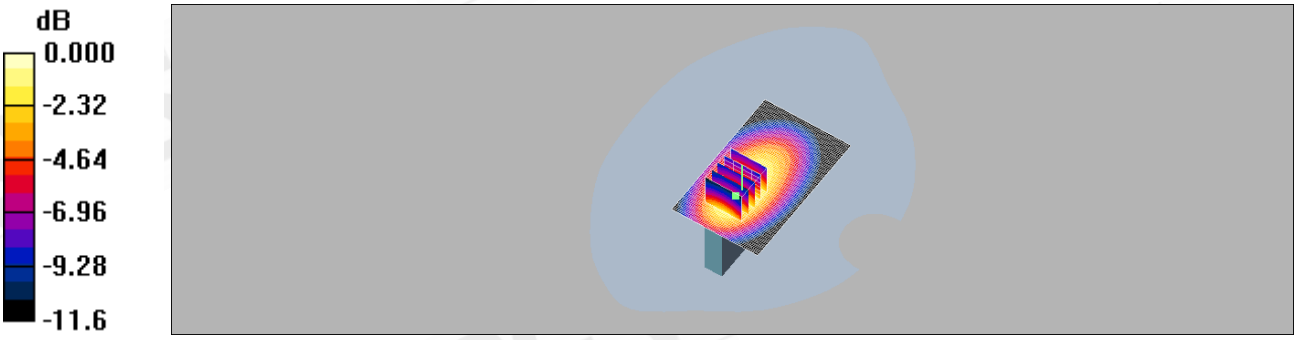
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.579 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.3 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.766 W/kg
SAR(1 g) = 0.529 mW/g; SAR(10 g) = 0.354 mW/g
Maximum value of SAR (measured) = 0.567 mW/g



0 dB = 0.567mW/g

Right side_LTE Band 17_CH23780_10MHz_QPSK_Test case 3

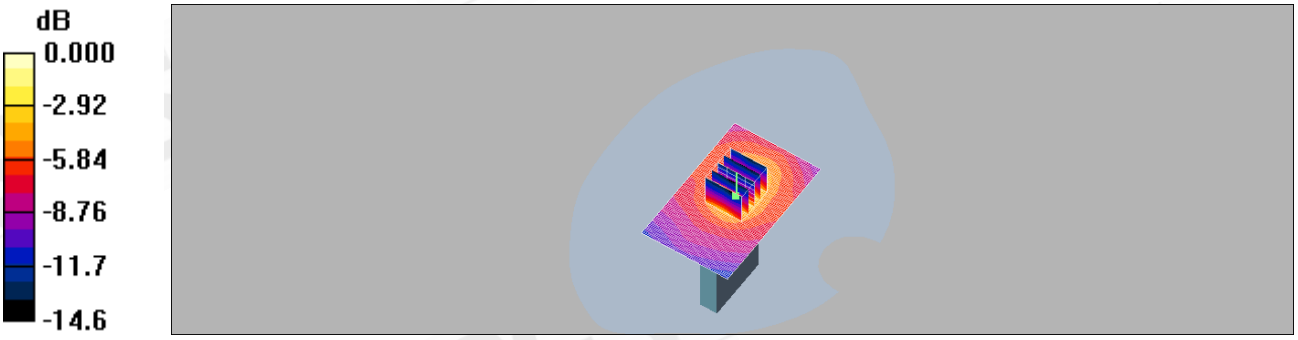
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.037 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.54 V/m; Power Drift = 0.124 dB
Peak SAR (extrapolated) = 0.109 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.041 mW/g



0 dB = 0.041mW/g

Front side_LTE Band 17_CH23780_10MHz_QPSK_Test case 4

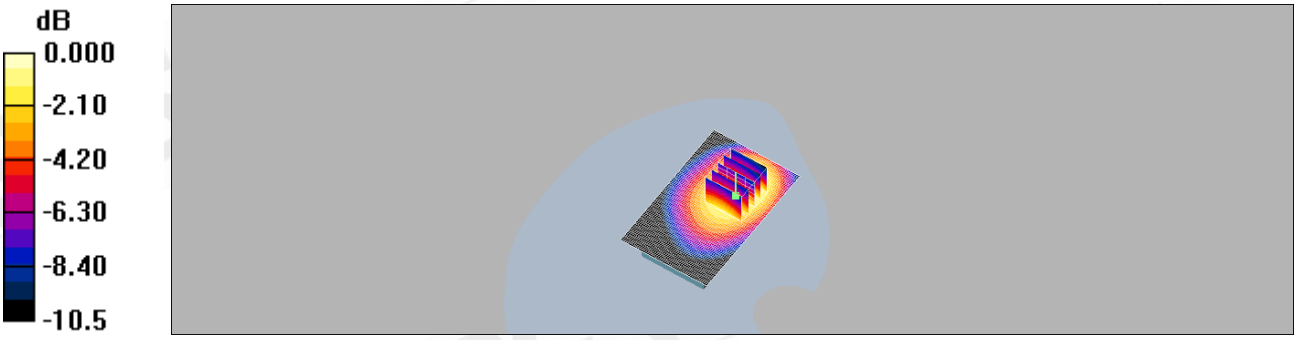
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.945 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.83 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.912 mW/g; SAR(10 g) = 0.633 mW/g
Maximum value of SAR (measured) = 0.967 mW/g



0 dB = 0.967mW/g

Back side_LTE Band 17_CH23780_10MHz_QPSK_Test case 4

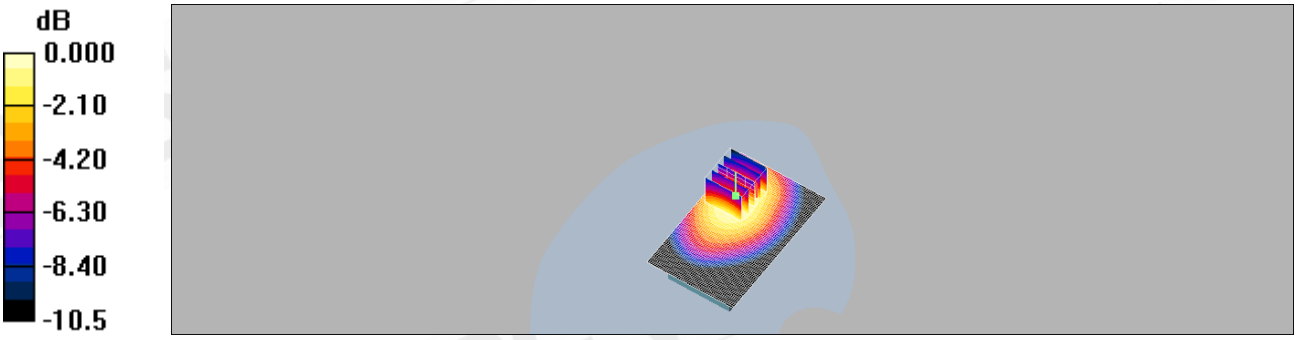
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.809 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.77 V/m; Power Drift = 0.070 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.757 mW/g; SAR(10 g) = 0.537 mW/g
Maximum value of SAR (measured) = 0.805 mW/g



0 dB = 0.805mW/g

Top side_LTE Band 17_CH23780_10MHz_QPSK_Test case 4

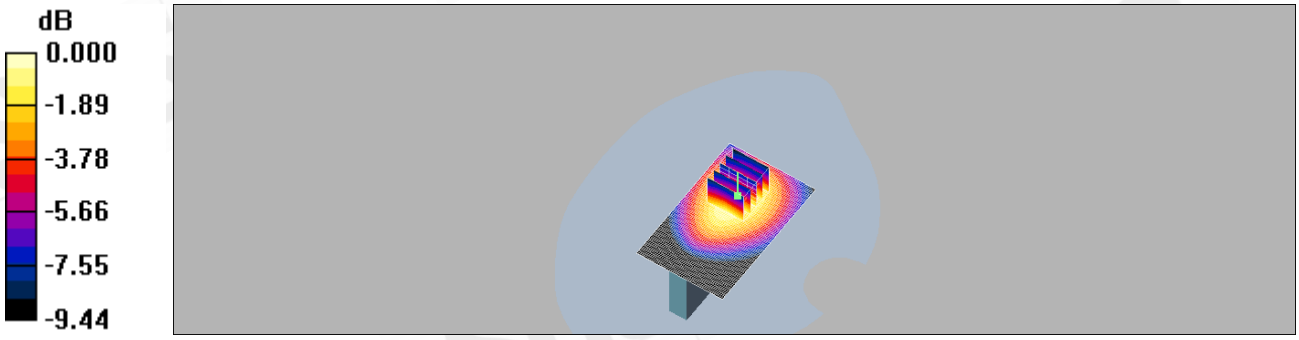
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.154 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 0.204 W/kg
SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.107 mW/g
Maximum value of SAR (measured) = 0.165 mW/g



0 dB = 0.165mW/g

Bottom side_LTE Band 17_CH23780_10MHz_QPSK_Test case 4

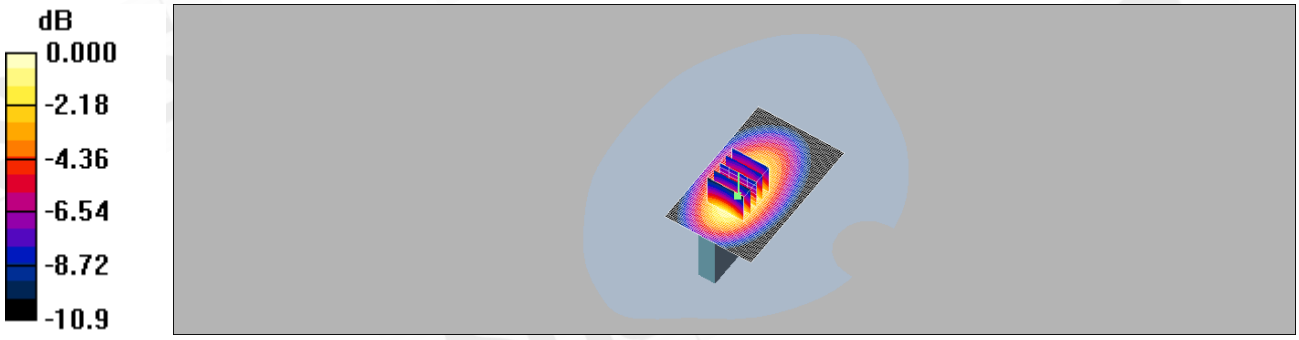
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.530 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.9 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 0.701 W/kg
SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.328 mW/g
Maximum value of SAR (measured) = 0.530 mW/g



0 dB = 0.530mW/g

Right side_LTE Band 17_CH23780_10MHz_QPSK_Test case 4

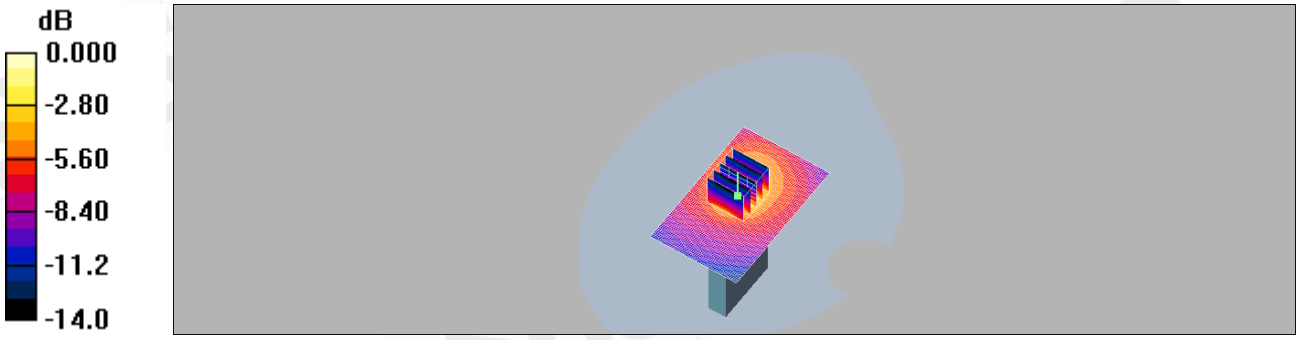
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.063 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.33 V/m; Power Drift = -0.079 dB
Peak SAR (extrapolated) = 0.177 W/kg
SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.065 mW/g



0 dB = 0.065mW/g

Front side_LTE Band 17_CH23790_10MHz_16QAM_Test case 5

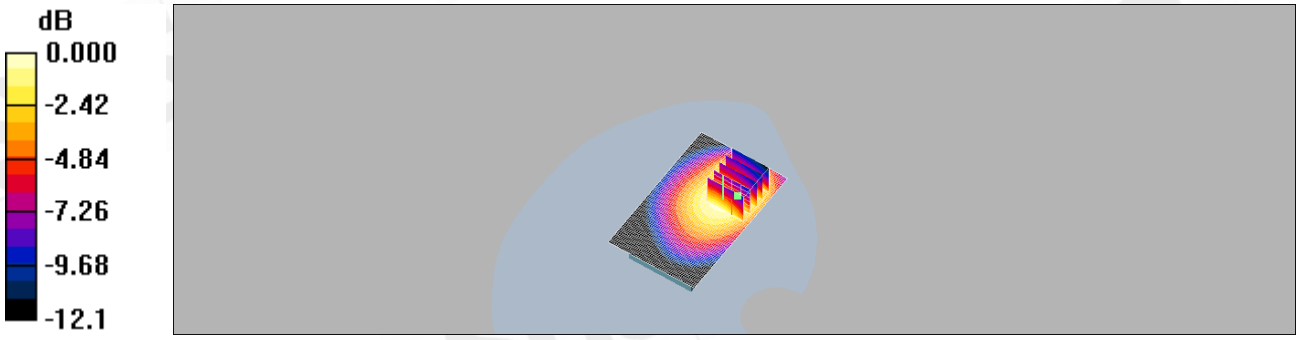
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.681 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.12 V/m; Power Drift = -0.111 dB
Peak SAR (extrapolated) = 0.902 W/kg
SAR(1 g) = 0.650 mW/g; SAR(10 g) = 0.451 mW/g
Maximum value of SAR (measured) = 0.683 mW/g



0 dB = 0.683mW/g

Back side_LTE Band 17_CH23790_10MHz_16QAM_Test case 5

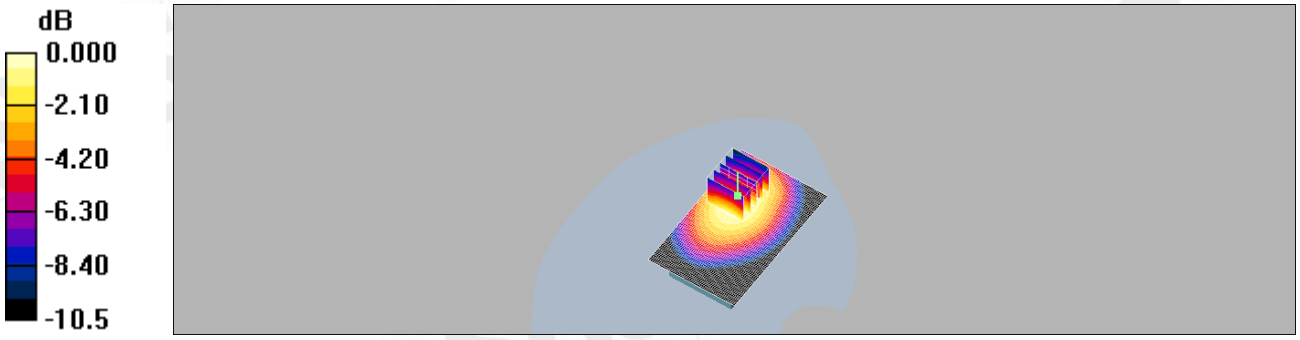
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.528 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.17 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 0.667 W/kg
SAR(1 g) = 0.495 mW/g; SAR(10 g) = 0.351 mW/g
Maximum value of SAR (measured) = 0.526 mW/g



0 dB = 0.526mW/g

Top side_LTE Band 17_CH23790_10MHz_16QAM_Test case 5

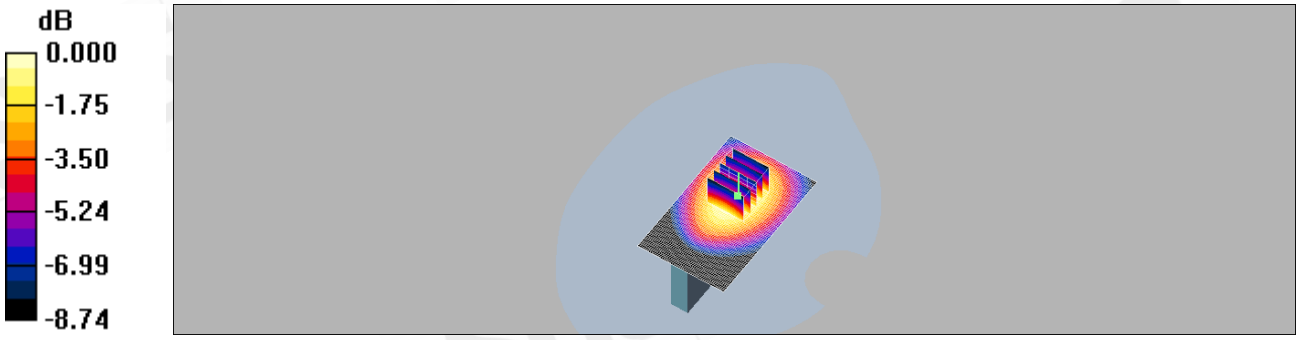
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.161 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.180 dB
Peak SAR (extrapolated) = 0.195 W/kg
SAR(1 g) = 0.147 mW/g; SAR(10 g) = 0.105 mW/g
Maximum value of SAR (measured) = 0.156 mW/g



0 dB = 0.156mW/g

Bottom side_LTE Band 17_CH23790_10MHz_16QAM_Test case 5

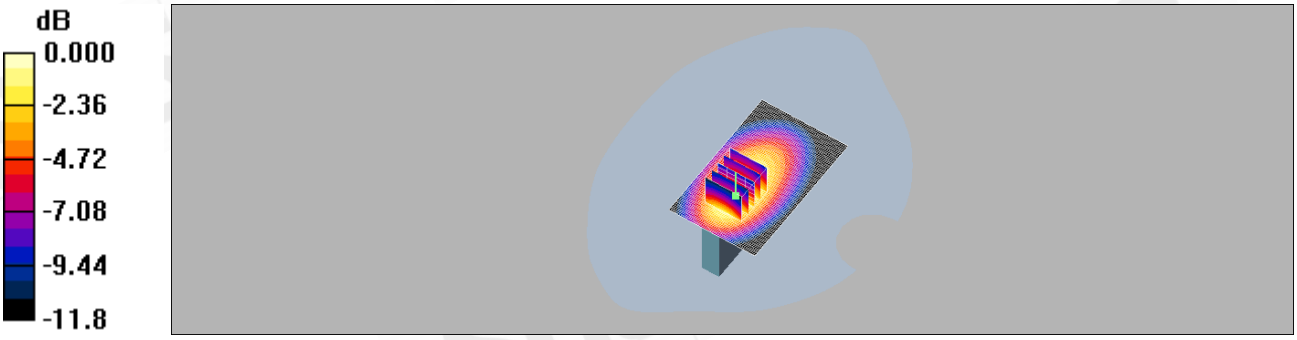
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.448 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.2 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 0.597 W/kg
SAR(1 g) = 0.407 mW/g; SAR(10 g) = 0.270 mW/g
Maximum value of SAR (measured) = 0.437 mW/g



0 dB = 0.437mW/g

Right side_LTE Band 17_CH23790_10MHz_16QAM_Test case 5

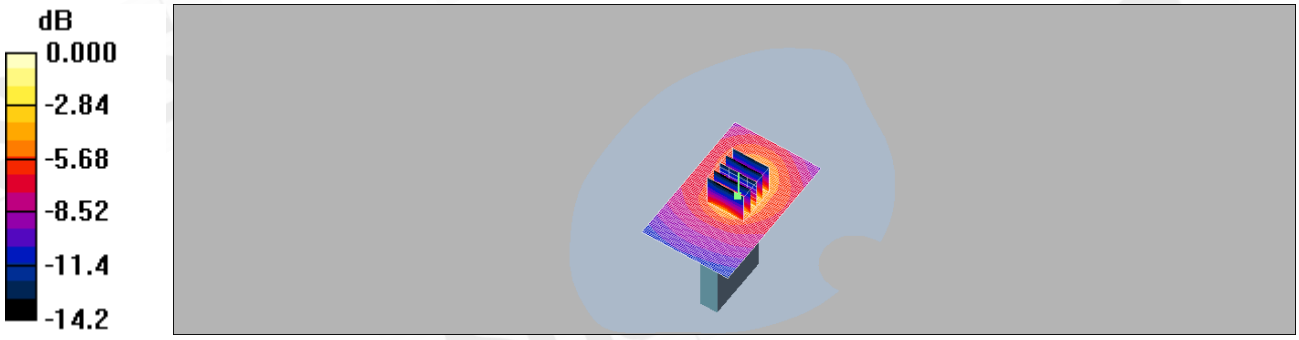
Communication System: LTE Band 17_10MHz; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used: f = 710 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.052 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.85 V/m; Power Drift = 0.187 dB
Peak SAR (extrapolated) = 0.156 W/kg
SAR(1 g) = 0.054 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.056 mW/g



0 dB = 0.056mW/g

Front side_LTE Band 17_CH23800_10MHz_16QAM_Test case 7

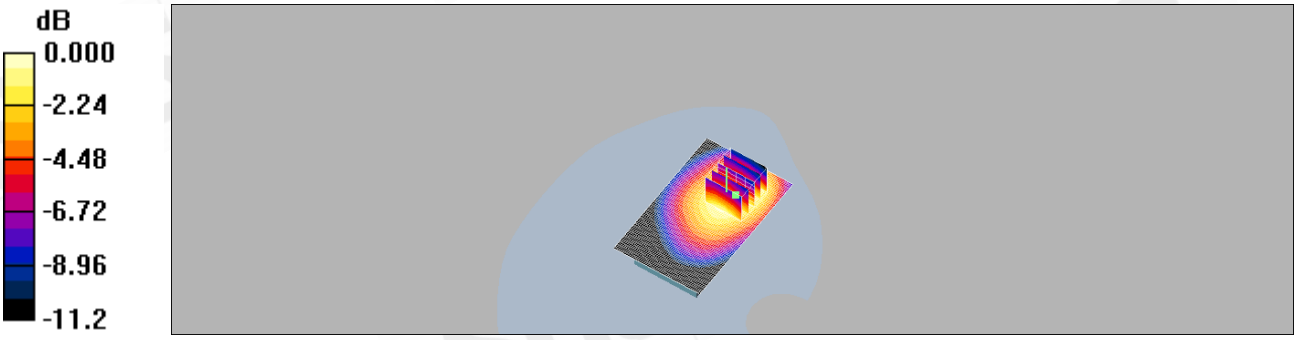
Communication System: LTE Band 17_10MHz; Frequency: 711 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 711 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.815 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.02 V/m; Power Drift = 0.129 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.759 mW/g; SAR(10 g) = 0.532 mW/g
Maximum value of SAR (measured) = 0.811 mW/g



0 dB = 0.811mW/g

Back side_LTE Band 17_CH23800_10MHz_16QAM_Test case 7

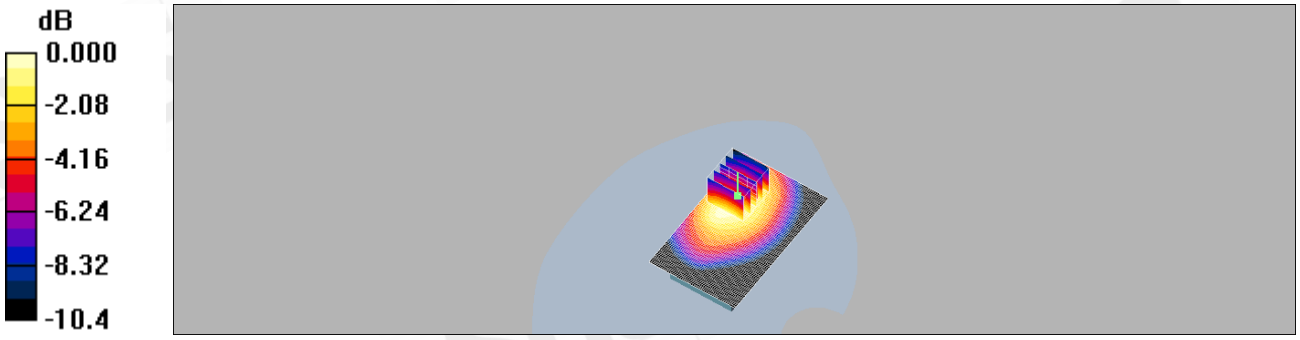
Communication System: LTE Band 17_10MHz; Frequency: 711 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 711 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.657 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.84 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 0.831 W/kg
SAR(1 g) = 0.637 mW/g; SAR(10 g) = 0.451 mW/g
Maximum value of SAR (measured) = 0.682 mW/g



0 dB = 0.682mW/g

Top side_LTE Band 17_CH23800_10MHz_16QAM_Test case 7

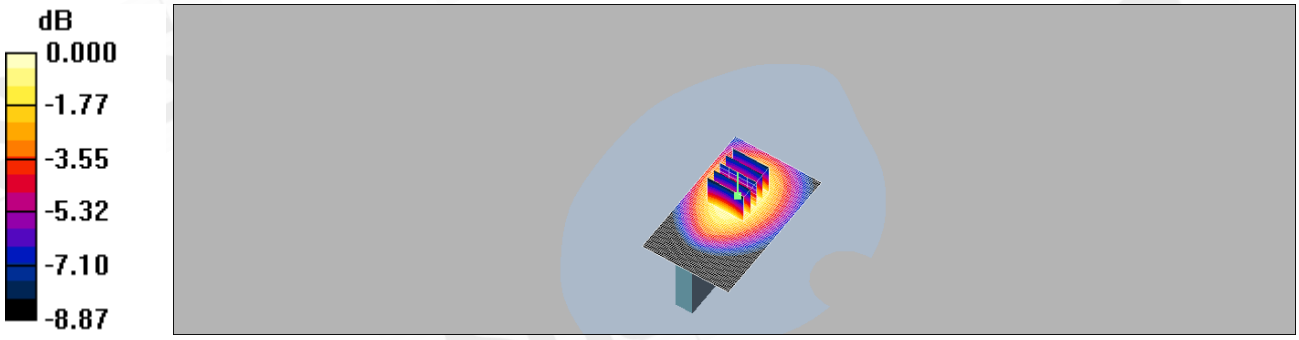
Communication System: LTE Band 17_10MHz; Frequency: 711 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 711 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.116 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 0.144 W/kg
SAR(1 g) = 0.107 mW/g; SAR(10 g) = 0.077 mW/g
Maximum value of SAR (measured) = 0.114 mW/g



0 dB = 0.114mW/g

Bottom side_LTE Band 17_CH23800_10MHz_16QAM_Test case 7

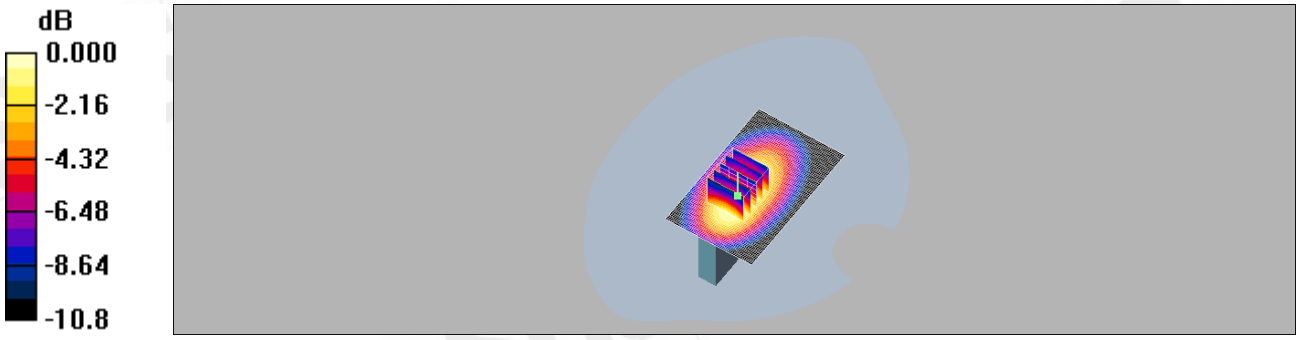
Communication System: LTE Band 17_10MHz; Frequency: 711 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 711 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.521 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.9 V/m; Power Drift = -0.137 dB
Peak SAR (extrapolated) = 0.727 W/kg
SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.328 mW/g
Maximum value of SAR (measured) = 0.517 mW/g



0 dB = 0.517mW/g

Right side_LTE Band 17_CH23800_10MHz_16QAM_Test case 7

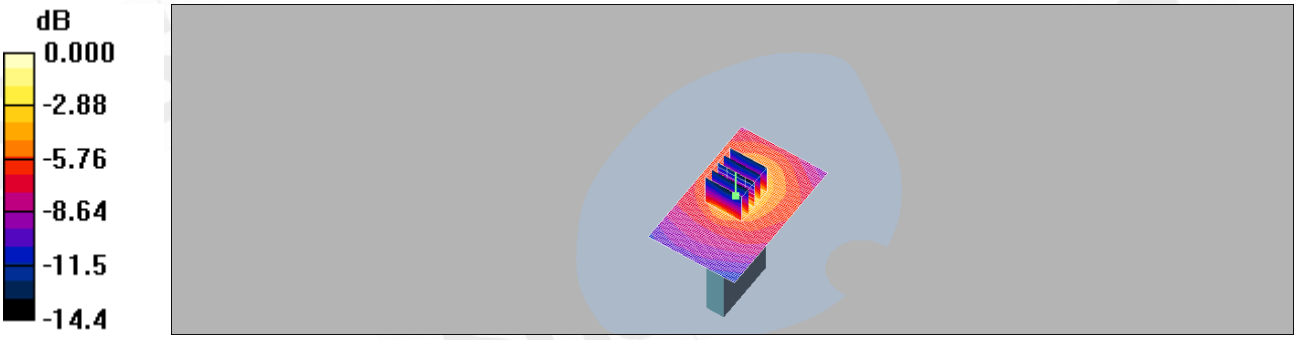
Communication System: LTE Band 17_10MHz; Frequency: 711 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 711 MHz; σ = 0.922 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.033 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.15 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 0.097 W/kg
SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.035 mW/g



0 dB = 0.035mW/g

Front side_LTE Band 17_CH23780_10MHz_16QAM_Test case 8

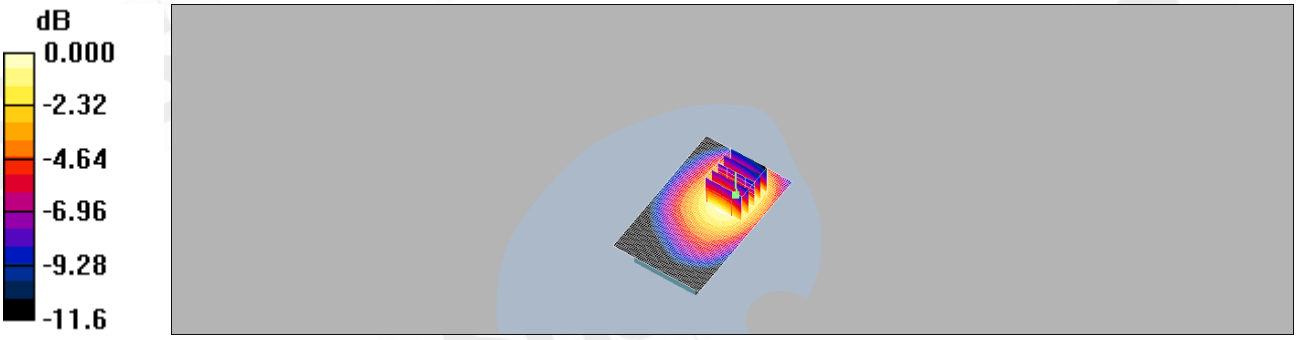
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.856 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.95 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.796 mW/g; SAR(10 g) = 0.553 mW/g
Maximum value of SAR (measured) = 0.848 mW/g



0 dB = 0.848mW/g

Back side_LTE Band 17_CH23780_10MHz_16QAM_Test case 8

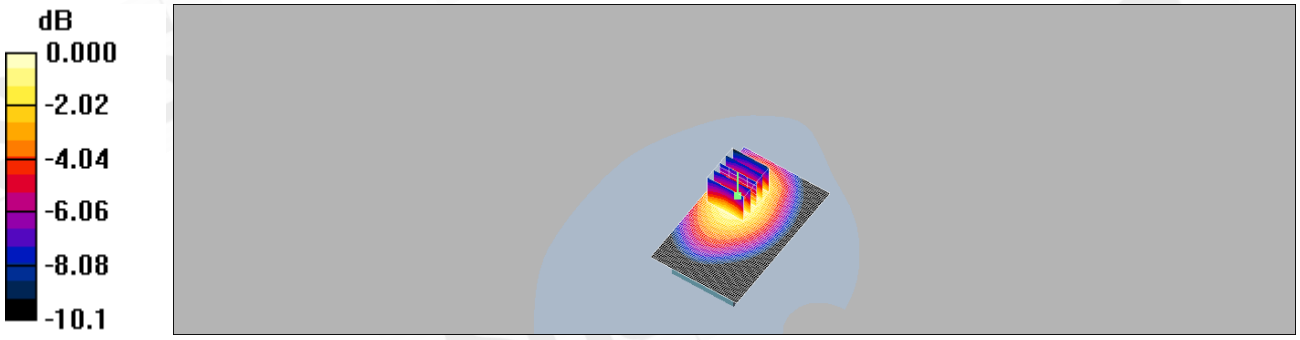
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.646 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.36 V/m; Power Drift = -0.182 dB
Peak SAR (extrapolated) = 0.821 W/kg
SAR(1 g) = 0.625 mW/g; SAR(10 g) = 0.443 mW/g
Maximum value of SAR (measured) = 0.672 mW/g



0 dB = 0.672mW/g

Top side_LTE Band 17_CH23780_10MHz_16QAM_Test case 8

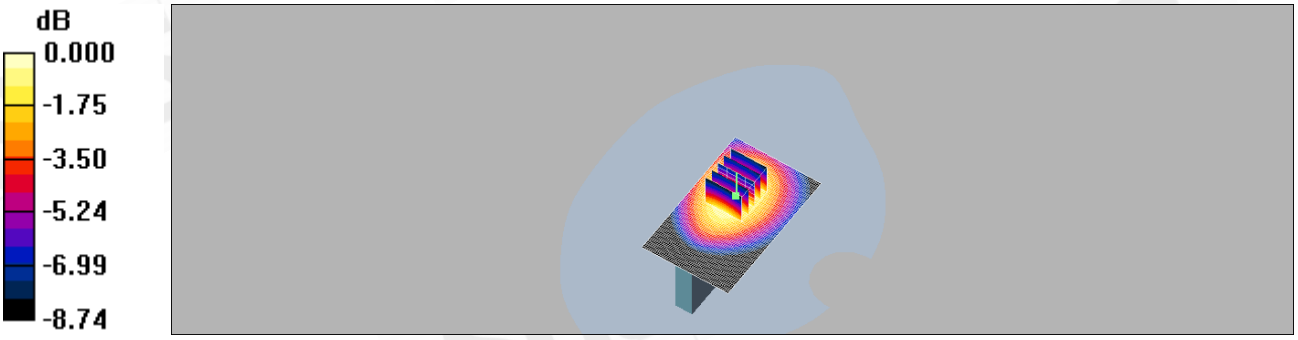
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.186 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m; Power Drift = 0.084 dB
Peak SAR (extrapolated) = 0.229 W/kg
SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.123 mW/g
Maximum value of SAR (measured) = 0.183 mW/g



0 dB = 0.183mW/g

Bottom side_LTE Band 17_CH23780_10MHz_16QAM_Test case 8

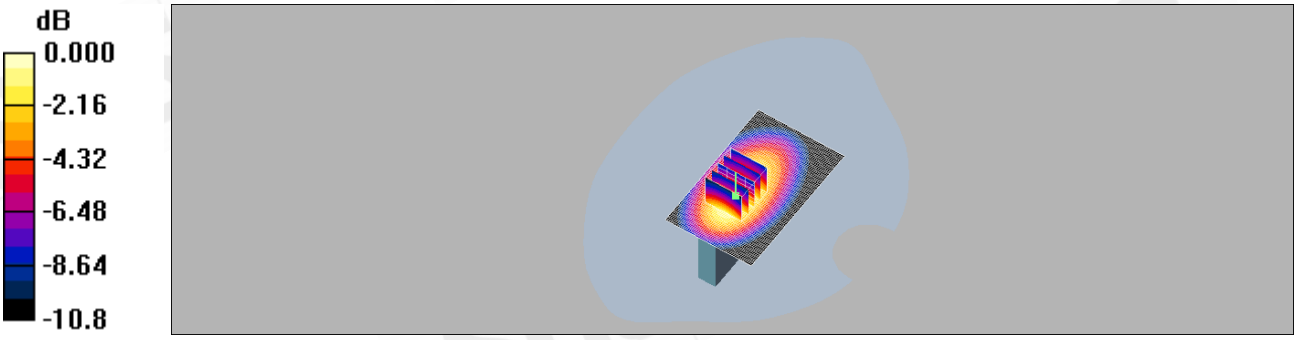
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.381 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.1 V/m; Power Drift = 0.088 dB
Peak SAR (extrapolated) = 0.493 W/kg
SAR(1 g) = 0.348 mW/g; SAR(10 g) = 0.234 mW/g
Maximum value of SAR (measured) = 0.372 mW/g



0 dB = 0.372mW/g

Right side_LTE Band 17_CH23780_10MHz_16QAM_Test case 8

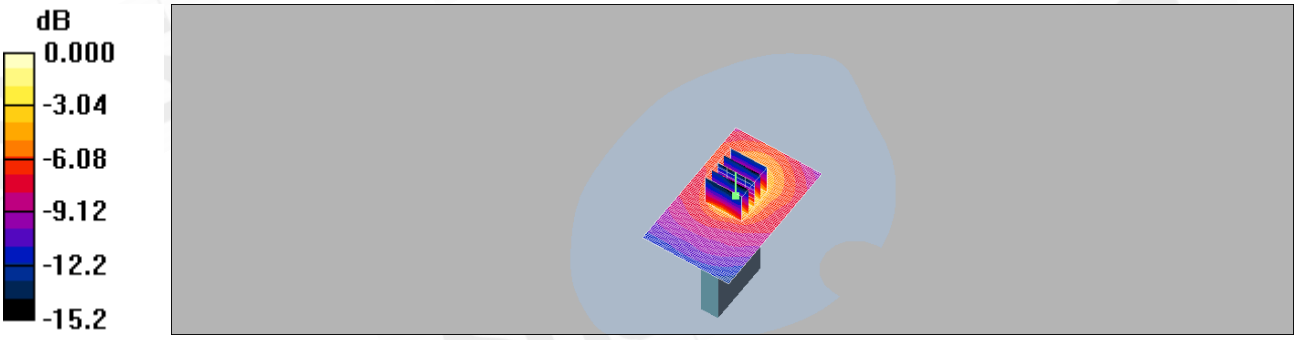
Communication System: LTE Band 17_10MHz; Frequency: 709 MHz;Duty Cycle: 1:1
Medium: Muscle 750 MHz Medium parameters used (interpolated): f = 709 MHz; σ = 0.921 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.019 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.58 V/m; Power Drift = 0.100 dB
Peak SAR (extrapolated) = 0.059 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.010 mW/g
Maximum value of SAR (measured) = 0.023 mW/g

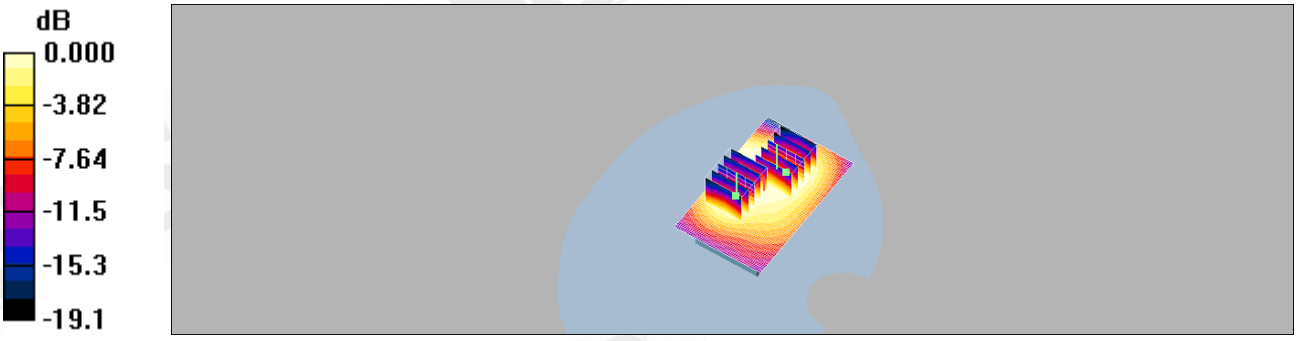


0 dB = 0.023mW/g

Front Side_WLAN802.11 b_CH11

Communication System: Wireless LAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2462 MHz; σ = 1.99 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.132 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.77 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 0.221 W/kg
SAR(1 g) = 0.118 mW/g; SAR(10 g) = 0.066 mW/g
Maximum value of SAR (measured) = 0.126 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.77 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 0.148 W/kg
SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.086 mW/g



0 dB = 0.086mW/g

Back Side_WLAN802.11 b_CH11

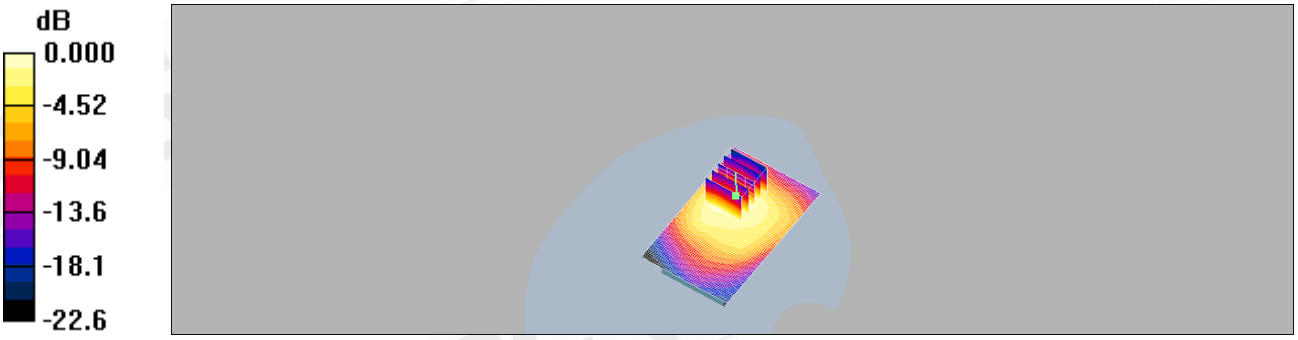
Communication System: Wireless LAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2462 MHz; σ = 1.99 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.11, 4.11, 4.11); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.110 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.91 V/m; Power Drift = 0.128 dB
Peak SAR (extrapolated) = 0.185 W/kg
SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.055 mW/g
Maximum value of SAR (measured) = 0.108 mW/g

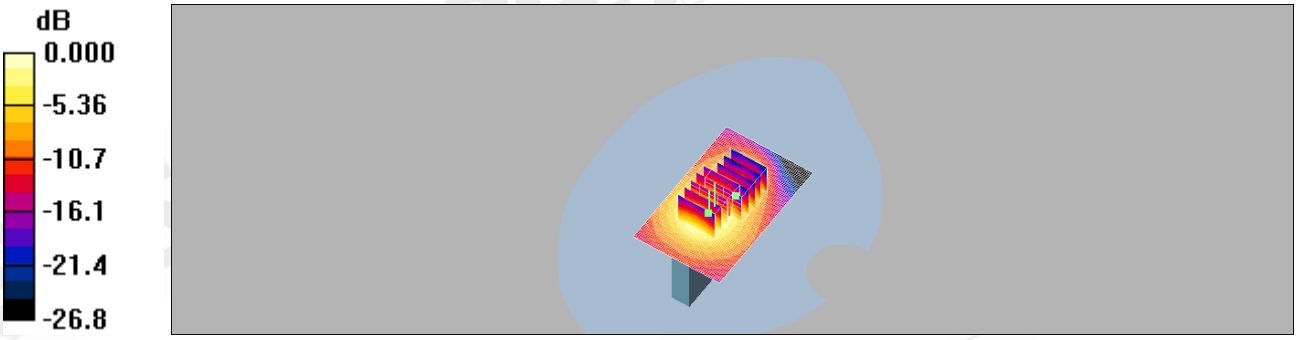


0 dB = 0.108mW/g

Top Side_WLAN802.11 b_CH11

Communication System: Wireless LAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2462 MHz; σ = 1.99 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.166 mW/g
body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.55 V/m; Power Drift = 0.135 dB
Peak SAR (extrapolated) = 0.291 W/kg
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.162 mW/g
body/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.55 V/m; Power Drift = 0.135 dB
Peak SAR (extrapolated) = 0.271 W/kg
SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.061 mW/g
Maximum value of SAR (measured) = 0.153 mW/g



0 dB = 0.153mW/g

Right Side_WLAN802.11 b_CH11

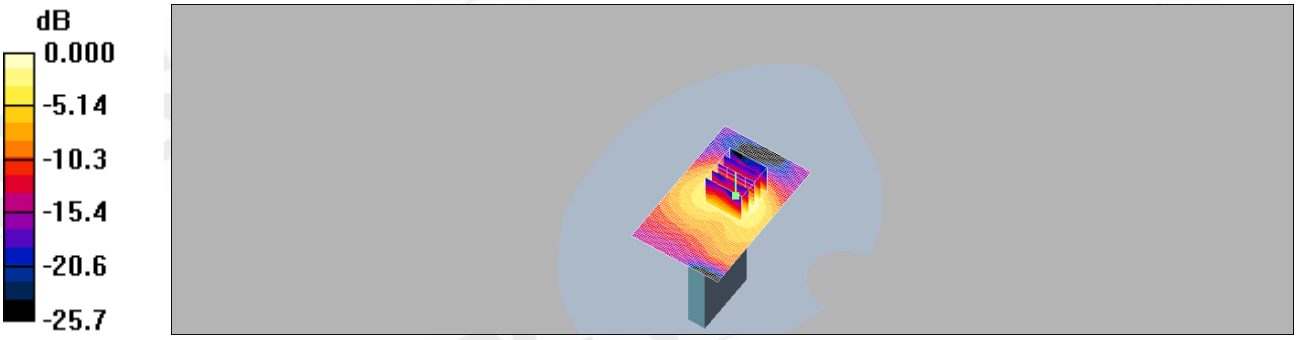
Communication System: Wireless LAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2462 MHz; σ = 1.99 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.11, 4.11, 4.11); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

body/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.045 mW/g

body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.52 V/m; Power Drift = 0.191 dB
Peak SAR (extrapolated) = 0.084 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.043 mW/g



0 dB = 0.043mW/g

5. SAR System Performance Verification

Date: 2011/5/2

DUT: Dipole 750 MHz ;

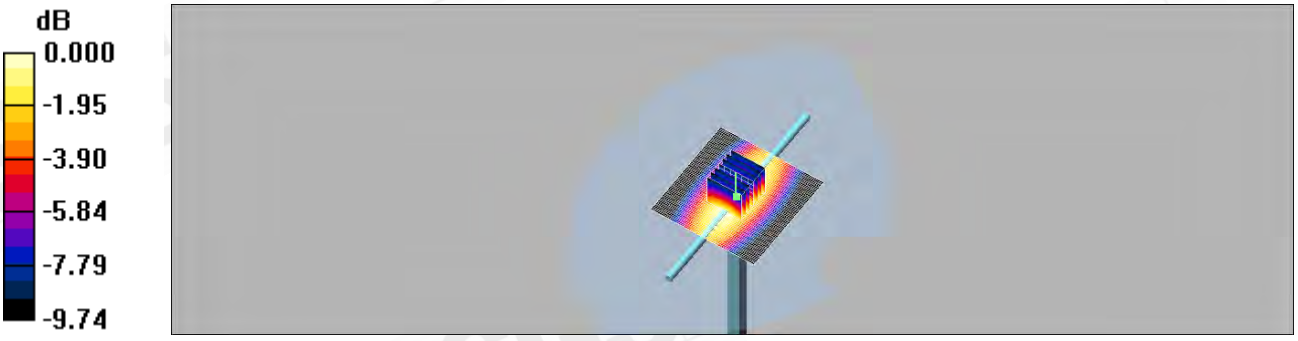
Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: Body 750 MHz Medium parameters used: f = 750 MHz; σ = 0.931 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1760; ConvF(6.33, 6.33, 6.33); Calibrated: 2010/9/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.33 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.2 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 3.12 W/kg
SAR(1 g) = 2.16 mW/g; SAR(10 g) = 1.44 mW/g
Maximum value of SAR (measured) = 2.33 mW/g



0 dB = 2.33mW/g

DUT: Dipole 835 MHz;

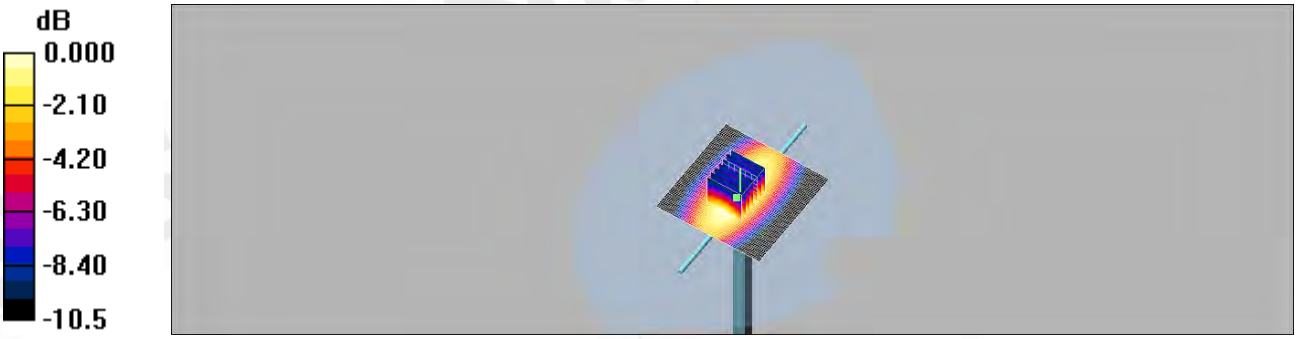
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: Body 850 MHz Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.84, 5.84, 5.84); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.82 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.4 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 3.88 W/kg
SAR(1 g) = 2.62 mW/g; SAR(10 g) = 1.72 mW/g
Maximum value of SAR (measured) = 2.83 mW/g



0 dB = 2.83mW/g

DUT: Dipole 1750 MHz;

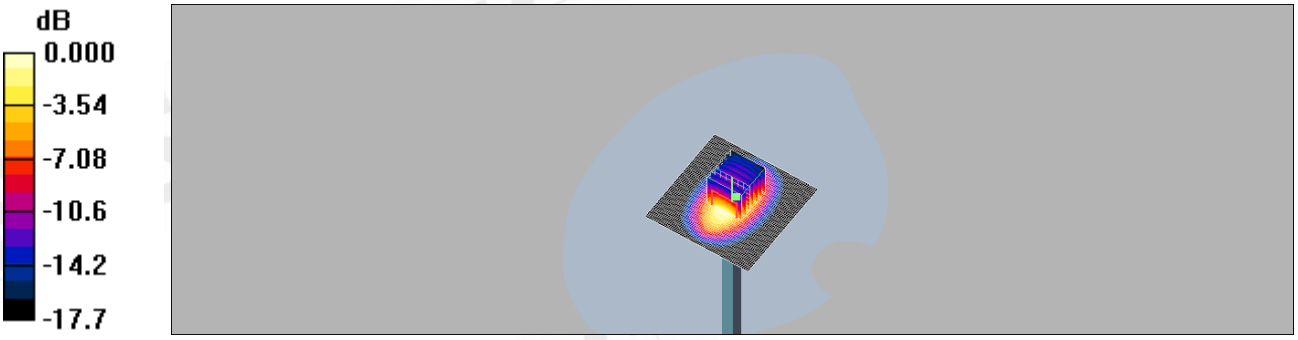
Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: Body 1750 Medium parameters used: f = 1750 MHz; σ = 1.45 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.63, 4.63, 4.63); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 10.9 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.4 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 17.0 W/kg
SAR(1 g) = 9.32 mW/g; SAR(10 g) = 4.88 mW/g
Maximum value of SAR (measured) = 10.6 mW/g



0 dB = 10.6mW/g

DUT: Dipole 1900 MHz;

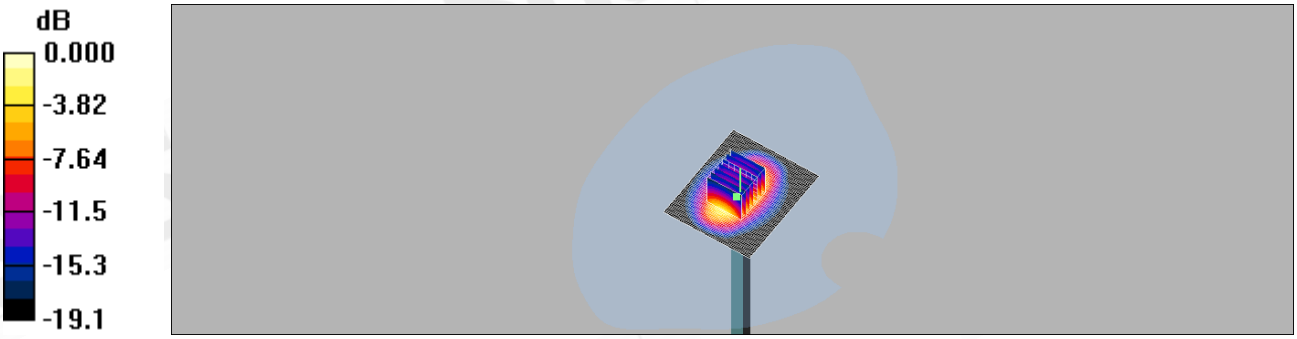
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: Body 1900 Medium parameters used: f = 1900 MHz; σ = 1.59 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.45, 4.45, 4.45); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (51x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.2 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.8 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 9.98 mW/g; SAR(10 g) = 5.12 mW/g
Maximum value of SAR (measured) = 11.5 mW/g



0 dB = 11.5mW/g

DUT: Dipole 2450 MHz;

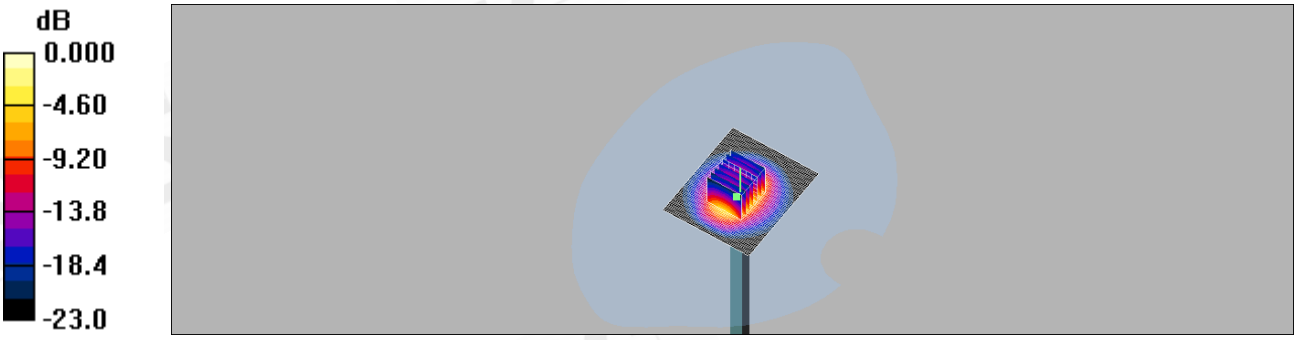
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: Body 2450 Medium parameters used: f = 2450 MHz; σ = 1.97 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.11, 4.11, 4.11); Calibrated: 2010/5/21
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2010/8/18
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (51x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 19.3 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.1 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 29.7 W/kg
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.12 mW/g
Maximum value of SAR (measured) = 15.6 mW/g



0 dB = 15.6mW/g

6. DAE & Probe Calibration certificate

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

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C Service suisse d'étalonnage
S Servizio svizzero di taratura
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Accredited by the Swiss Accreditation Service (SAS)
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Accreditation No.: SCS 108

Client SGS-TW

Certificate No: DAE4-547_Aug10

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 547
Calibration procedure(s)	QA CAL-06.v22 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	August 18, 2010

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 (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	1-Oct-09 (No: 9055)	Oct-10
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	07-Jun-10 (in house check)	In house check: Jun-11

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	R&D Director	i.V.

Issued: August 18, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: DAE4-547_Aug10 Page 1 of 5

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

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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: ES3-3172_May10

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3172

Calibration procedure(s) QA CAL-01.v6, QA CAL-14.v3, QA CAL-23.v3 and QA CAL-25.v2
Calibration procedure for dosimetric E-field probes

Calibration date: May 21, 2010

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 (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct10

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

Issued: May 22, 2010

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

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
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., ϑ = 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 ϑ = 0 (f ≤ 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z*: *A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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 ES3DV3

SN:3172

Manufactured:	January 23, 2008
Last calibrated:	May 27, 2009
Recalibrated:	May 21, 2010

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

ES3DV3 SN:3172 May 21, 2010

DASY/EASY - Parameters of Probe: ES3DV3 SN:3172

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.37	1.19	0.97	± 10.1%
DCP (mV)[B]	93.9	92.5	93.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	300.0	± 1.5%
			Y	0.00	0.00	1.00	300.0	
			Z	0.00	0.00	1.00	300.0	

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 Pages 5 and 6).

[B] Numerical linearization parameter: uncertainty not required.

[E] Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

ES3DV3 SN:3172 May 21, 2010

DASY/EASY - Parameters of Probe: ES3DV3 SN:3172

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	5.85	5.85	5.85	0.76	1.14 ± 11.0%
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	5.75	5.75	5.75	0.87	1.08 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	5.04	5.04	5.04	0.31	1.82 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.89	4.89	4.89	0.50	1.46 ± 11.0%
2000	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.73	4.73	4.73	0.49	1.44 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.32	4.32	4.32	0.42	1.70 ± 11.0%

[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.

ES3DV3 SN:3172 May 21, 2010

DASY/EASY - Parameters of Probe: ES3DV3 SN:3172

Calibration Parameter Determined in Body Tissue Simulating Media

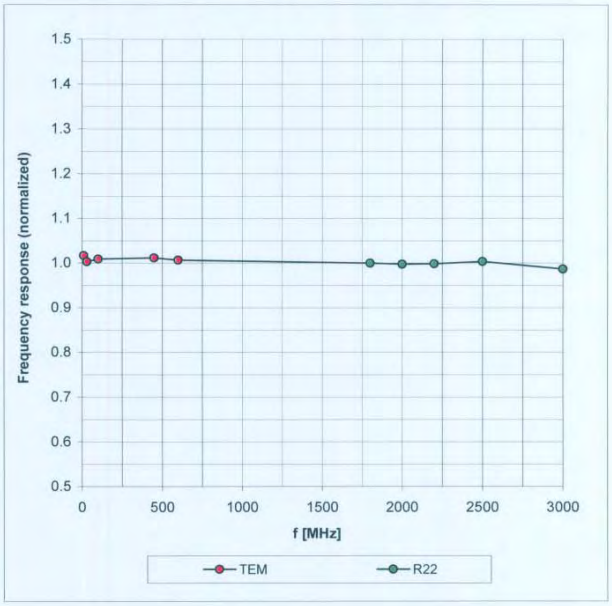
f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	5.84	5.84	5.84	0.81	1.19 ± 11.0%
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	5.75	5.75	5.75	0.73	1.24 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	4.63	4.63	4.63	0.39	1.75 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.45	4.45	4.45	0.32	2.36 ± 11.0%
2000	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.47	4.47	4.47	0.32	2.44 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	4.11	4.11	4.11	0.82	1.17 ± 11.0%
2600	± 50 / ± 100	52.5 ± 5%	2.16 ± 5%	3.99	3.99	3.99	0.95	1.09 ± 11.0%
3500	± 50 / ± 100	51.3 ± 5%	3.31 ± 5%	3.28	3.28	3.28	1.00	1.28 ± 13.1%

[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.

ES3DV3 SN:3172 May 21, 2010

Frequency Response of E-Field

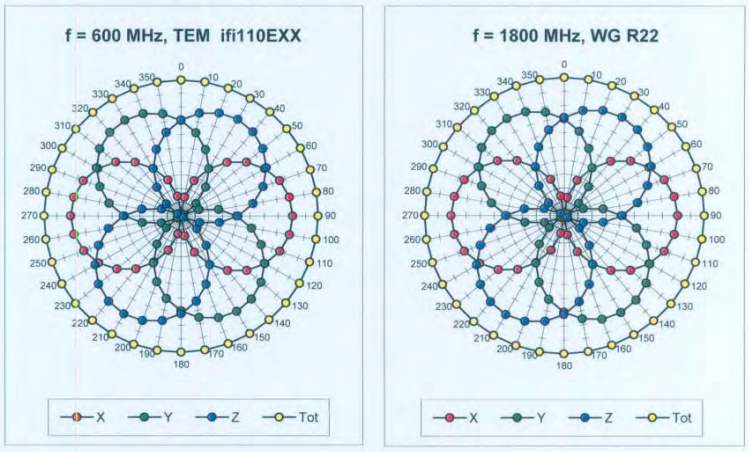
(TEM-Cell:ifi110 EXX, Waveguide: R22)

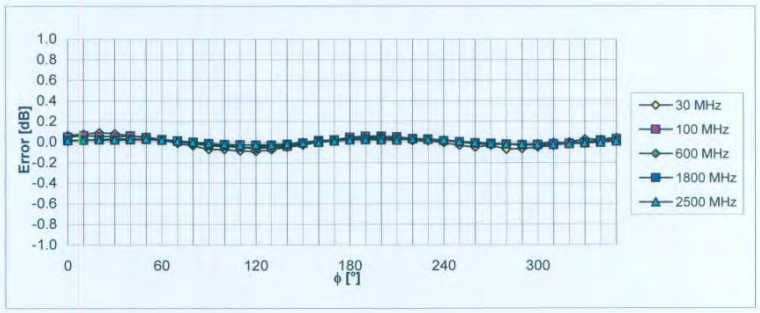


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ES3DV3 SN:3172 May 21, 2010

Receiving Pattern (ϕ), ϑ = 0°





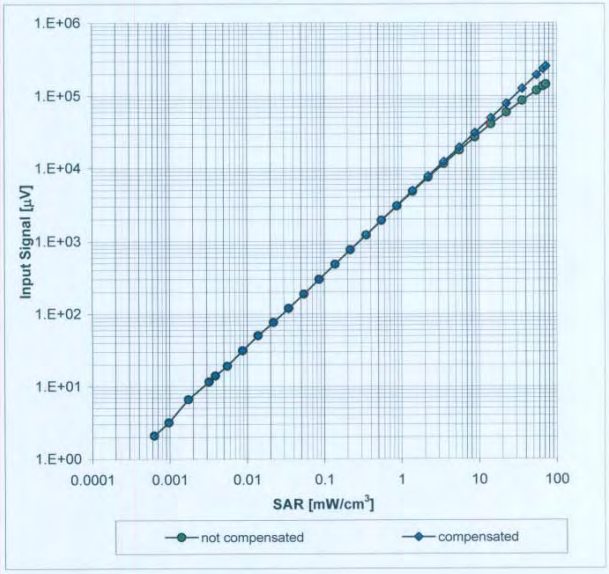
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

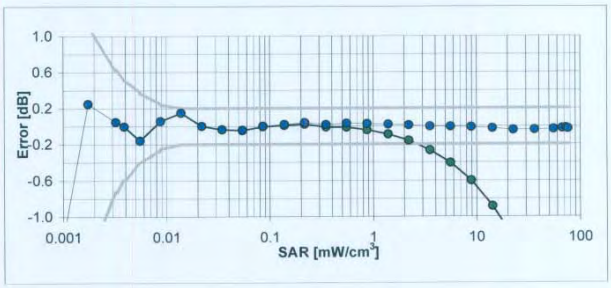
Certificate No: ES3-3172_May10 Page 8 of 11

ES3DV3 SN:3172 May 21, 2010

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)



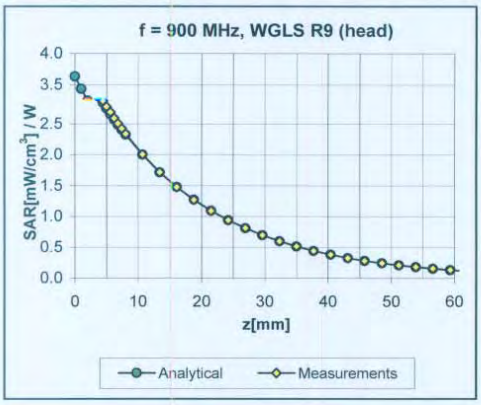


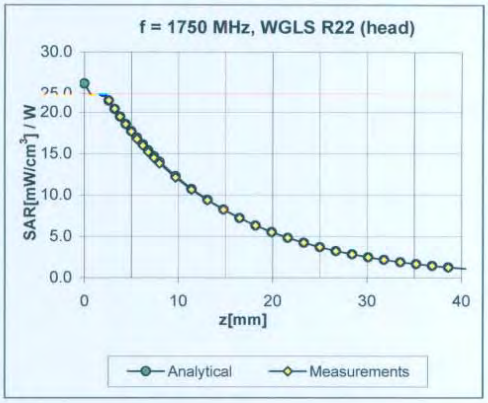
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: ES3-3172_May10 Page 9 of 11

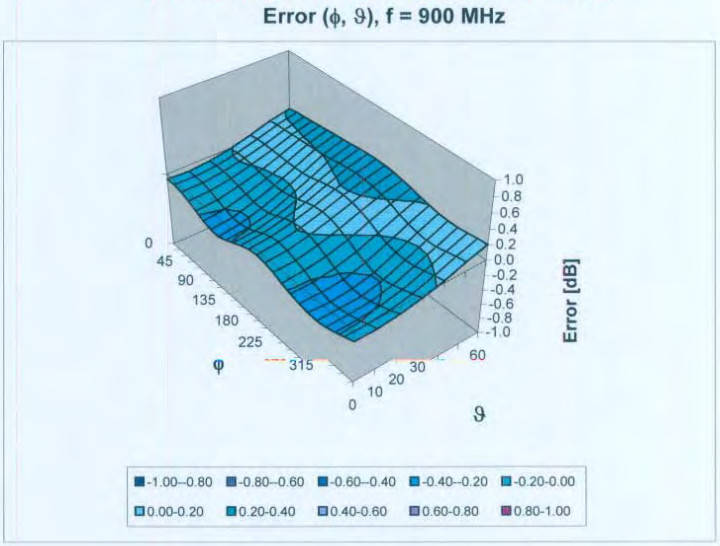
ES3DV3 SN:3172 May 21, 2010

Conversion Factor Assessment





Deviation from Isotropy in HSL



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

Certificate No: ES3-3172_May10 Page 10 of 11

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4.0 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

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S Swiss Calibration Service

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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: ET3-1760_Sep10

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1760
Calibration procedure(s)	QA CAL-01.v6, QA CAL-23.v3 and QA CAL-25.v2 Calibration procedure for dosimetric E-field probes
Calibration date:	September 21, 2010

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 (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct10

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 22, 2010

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
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., ϑ = 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 ϑ = 0 (f ≤ 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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 ET3DV6

SN:1760

Manufactured:	November 12, 2002
Last calibrated:	February 17, 2004
Recalibrated:	September 21, 2010

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

ET3DV6 SN:1760 September 21, 2010

DASY/EASY - Parameters of Probe: ET3DV6 SN:1760

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.73	1.80	1.74	± 10.1%
DCP (mV)[B]	90.7	93.0	93.0	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	300.0	± 1.5%
			Y	0.00	0.00	1.00	300.0	
			Z	0.00	0.00	1.00	300.0	

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 Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ET3DV6 SN:1760

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
750	± 50 / ± 100	41.9 ± 5%	0.89 ± 5%	6.58	6.58	6.58	0.54	1.96 ± 11.0%

[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.

ET3DV6 SN:1760 September 21, 2010

DASY/EASY - Parameters of Probe: ET3DV6 SN:1760

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
750	± 50 / ± 100	55.5 ± 5%	0.96 ± 5%	6.33	6.33	6.33	0.48	2.14 ± 11.0%

[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.

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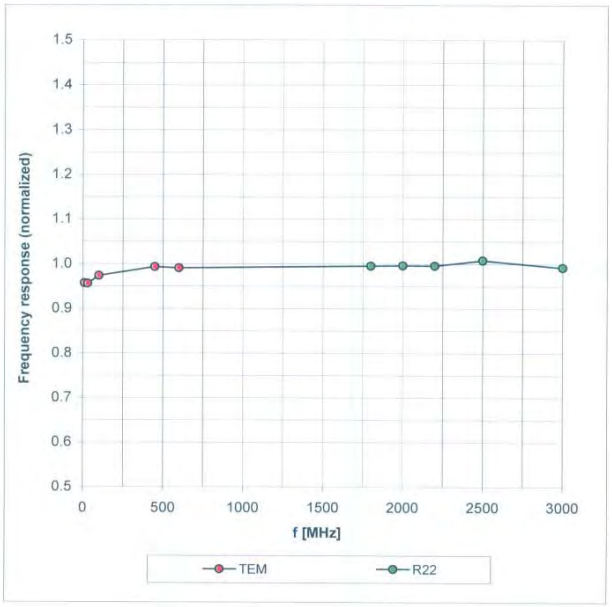
Member of SGS Group

ET3DV6 SN:1760 September 21, 2010

Frequency Response of E-Field

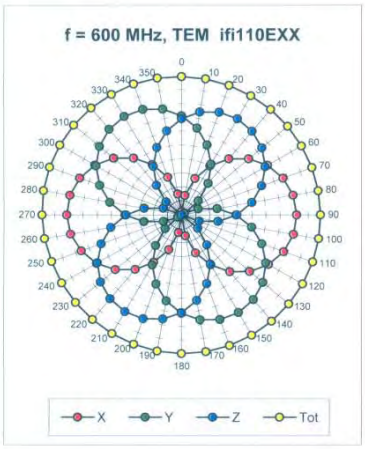
(TEM-Cell:ifi110 EXX, Waveguide: R22)

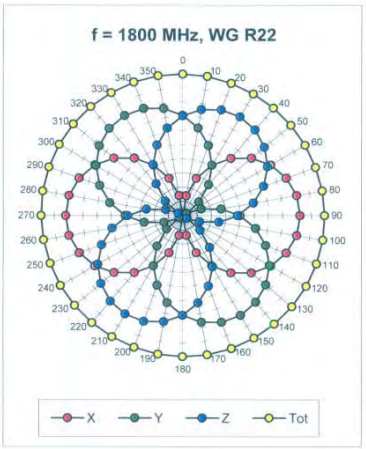


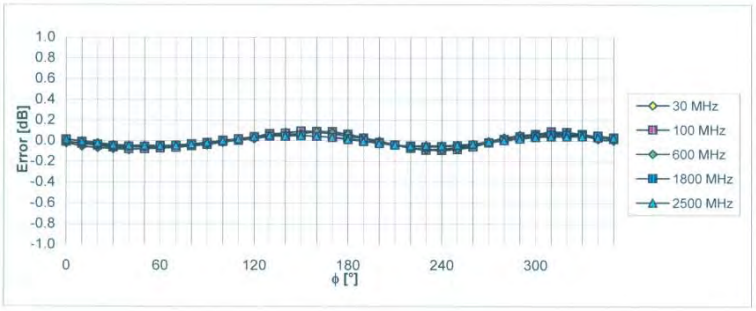
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ET3DV6 SN:1760 September 21, 2010

Receiving Pattern (ϕ), ϑ = 0°





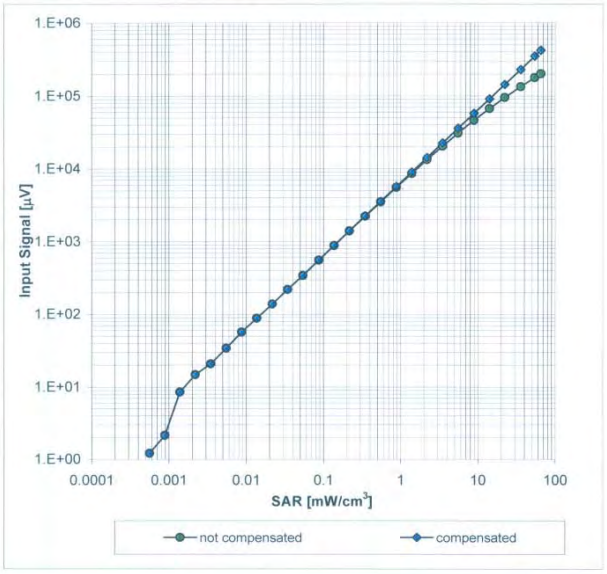


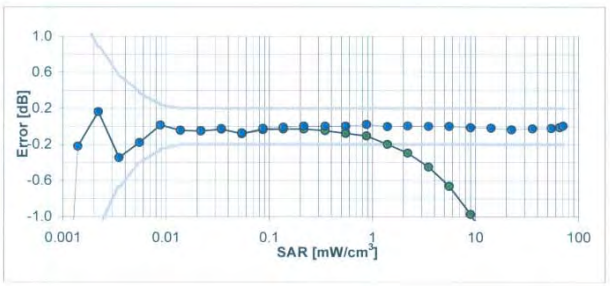
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ET3DV6 SN:1760 September 21, 2010

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)

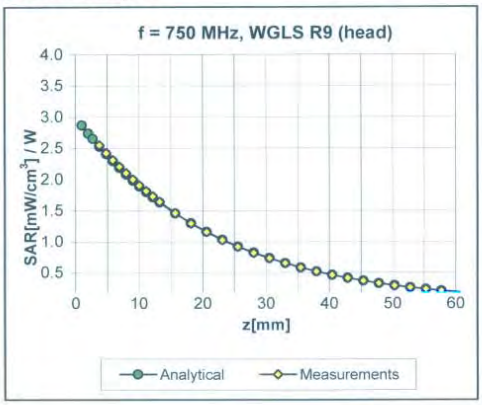


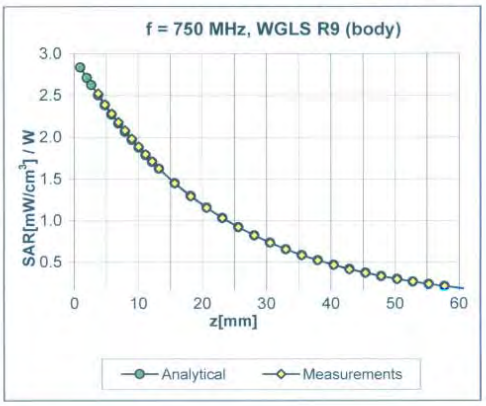


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: ET3-1760_Sep10 Page 9 of 11

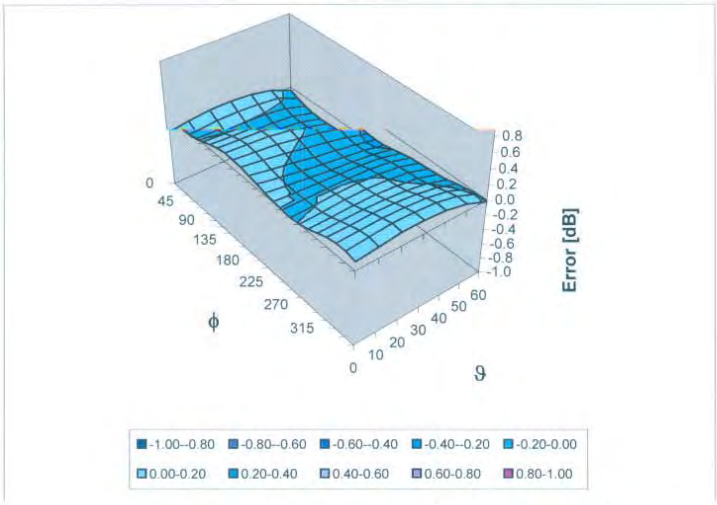
ET3DV6 SN:1760 September 21, 2010





Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

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Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	enabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

7. Uncertainty Budget

DASY4 Uncertainty Budget
According to IEEE P1528 [1]

Error Description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±4.8%	N	1	1	1	±4.8%	±4.8%	∞
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Readout Electronics	±1.0%	N	1	1	1	±1.0%	±1.0%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Conditions	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	875
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	$\sqrt{3}$	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	$\sqrt{3}$	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±10.3%	±10.0%	331
Expanded STD Uncertainty						**±20.6%**	**±20.1%**	

8. Phantom Description

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info@speag.com, http://www.speag.com

s p e a g

Certificate of Conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 C
Series No	TP-1150 and higher
Manufacturer	SPEAG Zeughausstrasse 43 CH-8004 Zürich 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-1005. Certain parameters have been retested using further series items (called samples) or are tested at each item.

Test	Requirement	Details	Units tested
Dimensions	Compliant with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness of shell	Compliant with the requirements according to the standards	2mm +/- 0.2mm in flat and specific areas of head section	First article, Samples, TP-1314 ff.
Material thickness at ERP	Compliant with the requirements according to the standards	6mm +/- 0.2mm at ERP	First article, All items
Material parameters	Dielectric parameters for required frequencies	300 MHz – 6 GHz: Relative permittivity < 5, Loss tangent < 0.05	Material samples
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards if handled and cleaned according to the instructions. Observe technical Note for material compatibility.	DEGMBE based simulating liquids	Pre-series, First article, Material samples
Sagging	Compliant with the requirements according to the standards. Sagging of the flat section when filled with tissue simulating liquid.	< 1% typical < 0.8% if filled with 155mm of HSL900 and without DUT below	Prototypes, Sample testing

Standards
[1] CENELEC EN 50361
[2] IEEE Std 1528-2003
[3] IEC 62209 Part I
[4] FCC OET Bulletin 65, Supplement C, Edition 01-01
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of the other documents.

Conformity
Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standards [1] to [4].

Date 07.07.2005

Signature / Stamp

s p e a g
Schmid & Partner Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

9. System Validation from Original equipment supplier

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: D750V3-1015_Aug10

CALIBRATION CERTIFICATE

Object	D750V3 - SN: 1015
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	August 23, 2010

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 (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 24, 2010

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Certificate No: D750V3-1015_Aug10 Page 1 of 9

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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) 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
c) 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:

d) DASY4/5 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	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.0 ± 6 %	0.86 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.06 mW / g
SAR normalized	normalized to 1W	8.24 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**8.46 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.37 mW / g
SAR normalized	normalized to 1W	5.48 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**5.59 mW /g ± 16.5 % (k=2)**

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Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.2 ± 6 %	0.97 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.27 mW / g
SAR normalized	normalized to 1W	9.08 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.00 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.51 mW / g
SAR normalized	normalized to 1W	6.04 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.00 mW / g ± 16.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.4 Ω - 1.4 jΩ
Return Loss	- 29.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.8 Ω - 2.8 jΩ
Return Loss	- 31.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.040 ns

After long term use with 100W 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	March 22, 2010

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DASY5 Validation Report for Head TSL

Date/Time: 23.08.2010 14:38:13

Test Laboratory: SPEAG, Zurich, Switzerland

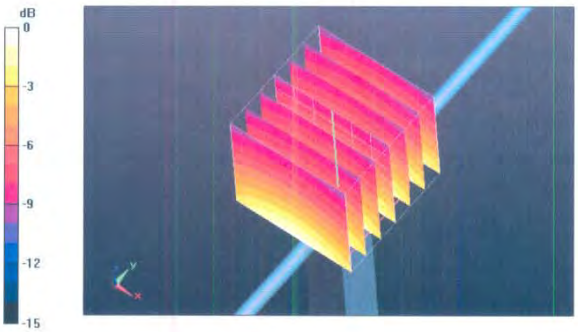
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1015

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 750 MHz; σ = 0.86 mho/m; ε_r = 42; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

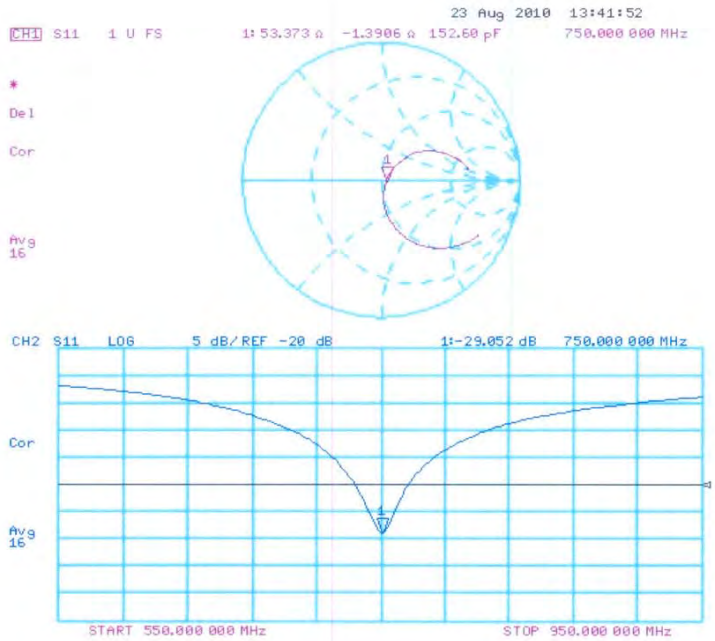
- Probe: ES3DV3 - SN3205; ConvF(6.37, 6.37, 6.37); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250mW; dip=15mm; dist=3.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.2 V/m; Power Drift = -0.00601 dB
Peak SAR (extrapolated) = 3.06 W/kg
SAR(1 g) = 2.06 mW/g; SAR(10 g) = 1.37 mW/g
Maximum value of SAR (measured) = 2.4 mW/g



0 dB = 2.4mW/g

Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date/Time: 19.08.2010 14:46:19

Test Laboratory: SPEAG, Zurich, Switzerland

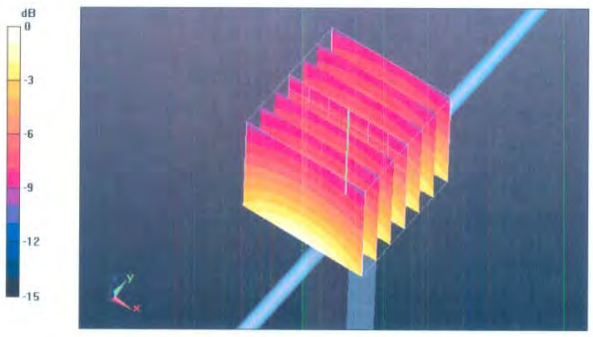
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1015

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: MSL U11 BB
Medium parameters used: f = 750 MHz; σ = 0.97 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

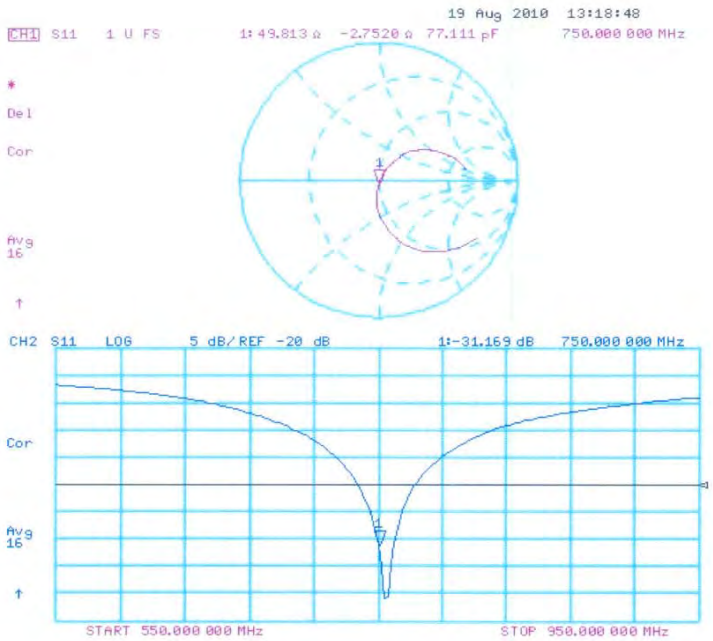
- Probe: ES3DV3 - SN3205; ConvF(6.08, 6.08, 6.08); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250mW; dip=15mm; dist=3.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 54 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 3.29 W/kg
SAR(1 g) = 2.27 mW/g; SAR(10 g) = 1.51 mW/g
Maximum value of SAR (measured) = 2.63 mW/g



0 dB = 2.63mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: D835V2-4d063_May10

CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d063

Calibration procedure(s) QA CAL-05.v7
Calibration procedure for dipole validation kits

Calibration date: May 21, 2010

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 (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 26, 2010

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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) 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
c) 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:

d) DASY4/5 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	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.7 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature during test	(22.5 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.42 mW / g
SAR normalized	normalized to 1W	9.68 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.62 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.58 mW / g
SAR normalized	normalized to 1W	6.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.29 mW /g ± 16.5 % (k=2)**

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Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.2 ± 6 %	0.98 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.53 mW / g
SAR normalized	normalized to 1W	10.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**10.0 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.66 mW / g
SAR normalized	normalized to 1W	6.64 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.59 mW / g ± 16.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.6 Ω - 0.6 jΩ
Return Loss	- 31.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.9 Ω - 2.8 jΩ
Return Loss	- 28.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.392 ns

After long term use with 100W 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	November 27, 2006

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DASY5 Validation Report for Head TSL

Date/Time: 21.05.2010 11:22:13

Test Laboratory: SPEAG, Zurich, Switzerland

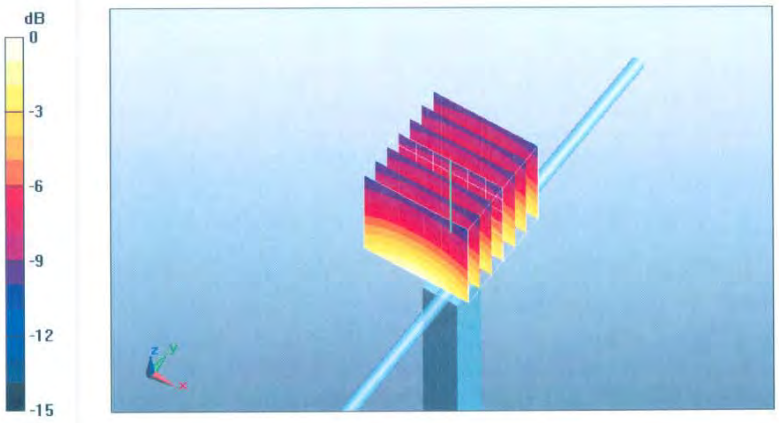
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

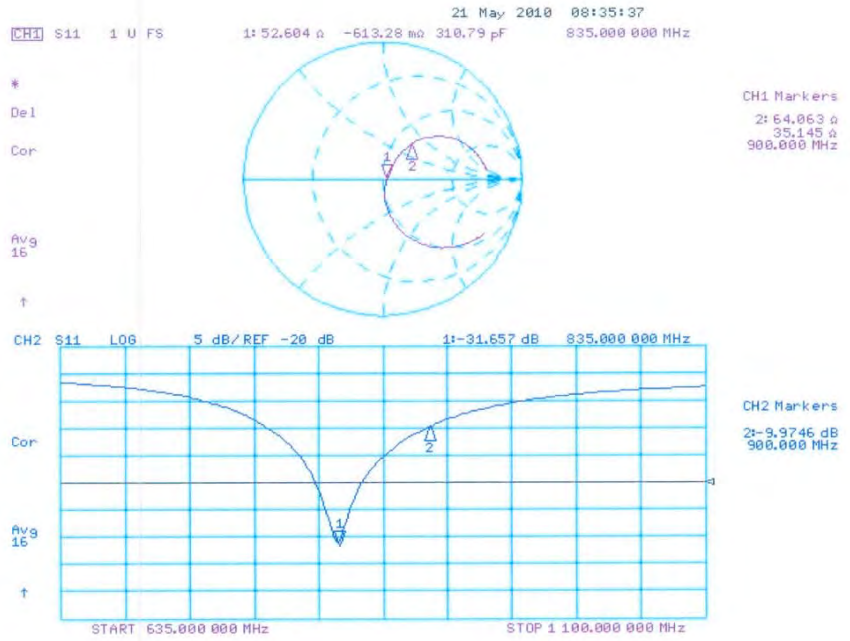
- Probe: ES3DV3 - SN3205; ConvF(6.03, 6.03, 6.03); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.5 V/m; Power Drift = 0.00219 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.58 mW/g
Maximum value of SAR (measured) = 2.83 mW/g



0 dB = 2.83mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 20.05.2010 10:45:06

Test Laboratory: SPEAG, Zurich, Switzerland

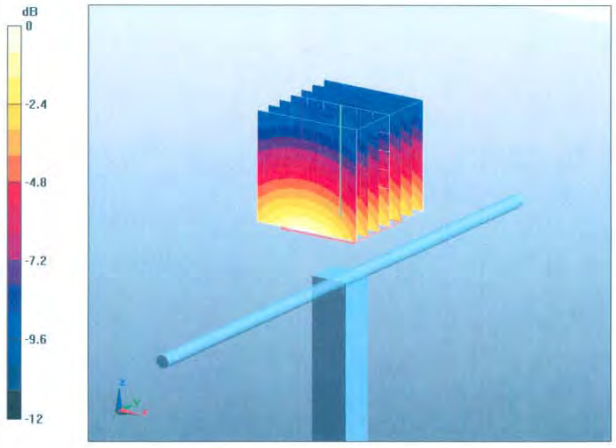
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 0.98 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.86, 5.86, 5.86); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Pin250 mW/d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.5 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 3.71 W/kg
SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.66 mW/g
Maximum value of SAR (measured) = 2.94 mW/g



0 dB = 2.94mW/g