SAR TEST REPORT

No. I14N00603-SAR

For

ZTE Corporation

WCDMA/GSM digital mobile phone

Model name: ZTE V815W

With

Hardware Version: TMBI

Software Version: ZTE-CN-QB18S-P172R10V1.0.0

FCC ID: SRQ-ZTEV815W

Issued Date: 2014-06-24

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

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Revision Version

Report Number	Revision	Date	Memo
I14N00603-SAR	00	2014-06-24	Initial creation of test report

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1 Test Laboratory

1.1 Testing Location

Company Name:	TMC Shenzhen, Telecommunication Metrology Center of MIIT
Address:	No. 12building, Shangsha Innovation and Technology Park, Futian District, Shenzhen, P. R. China
Postal Code:	518048
Telephone:	+86-755-33322000
Fax:	+86-755-33322001

1.2 Testing Environment

Temperature:	18°C~25 °C,
Relative humidity:	30%~ 70%
Ground system resistance:	< 0.5 Ω
Ambient noise & Reflection:	< 0.012 W/kg

1.3 Project Data

Project Leader:	Zhang Bojun
Test Engineer:	Cao Junfei
Testing Start Date:	June 11th, 2014
Testing End Date:	June 24th, 2014

1.4 Signature

Cao Junfei

(Prepared this test report)

Zhang Bojun

(Reviewed this test report)

Lu Minniu

Director of the laboratory

(Approved this test report)

2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for ZTE Corporation WCDMA/GSM digital mobile phone ZTE V815W are as follows:

Table 2.1: Max. Reported SAR (1g)

Band	Configuration	Position	Reported SAR 1g (W/Kg)
GSM 850	Head	Left、Touch	0.600
	Body worn	Rear Side	1.005
	Hotspot	Rear Side	1.076
GSM 1900	Head	Left、Touch	0.439
	Body worn	Front Side	0.891
	Hotspot	Bottom Side	1.051
WCDMA 850	Head	Left、Touch	0.543
	Body worn	Rear Side	0.773
	Hotspot	Rear Side	0.773
WCDMA 1900	Head	Left、Touch	0.857
	Body worn	Rear Side	0.942
	Hotspot	Bottom Side	**1.203**
Wi-Fi	Head	Left、Touch	0.338
	Body worn	Rear Side	0.074
	Hotspot	Rear Side	0.074

All the tests are carried out with a fully charged battery.

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1g tissue according to the ANSI C95.1-1999.

For body worn operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and which provides a minimum separation distance of 10 mm between this device and the body of the user. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

It is determined by user manual for the distance between the EUT and the phantom bottom.

The distance is 10mm and just applied to the condition of body worn accessory

The measurement together with the test system set-up is described in annex C of this test report. A detailed description of the equipment under test can be found in chapter 4 of this test report.

The maximum reported SAR value is obtained at the case of **(Table 2.1),** and the values are**: 1.203W/kg (1g).**

Table 2.2:The sum of reported SAR values

	Position	**GSM/WCDMA**	**WiFi**	**BT**	**Sum**
Maximum reported value for Head	Left hand, Touch cheek	0.857	0.338	0.133	**1.328**
Maximum reported SAR value for Body	Rear Side	1.076	0.074	0.066	**1.216**
	Bottom side	1.203	0.014	0.066	**1.283**

According to the above table, the maximum sum of reported SAR values for GSM/WCDMA, WiFi and BT is**1.328W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13

3 Client Information

3.1 Applicant Information

Company Name:	ZTE Corporation
Address /Post:	ZTE Plaza, Keji Road South , Shenzhen,China
Contact:	Min Zhang
Email:	/
Telephone:	/
Fax:	/

3.2 Manufacturer Information

Company Name:	ZTE Corporation
Address /Post:	ZTE R&D Center(Nanjing),No.6 Huasheng Avenue, Yuhua District,Nanjing,China
Contact:	Yang Man
Email:	yang.man@zte.com.cn
Telephone:	+86 18951808033
Fax:	/

4 Equipment Under Test (EUT) and Ancillary Equipment (AE)

4.1 About EUT

Description:	WCDMA/GSM digital mobile phone
Model name:	ZTE V815W
Operating mode(s):	GSM 850/1900,WCDMA 850/1900 , BT, WiFi
Tested Tx Frequency:	824.2 – 848.8 MHz (GSM 850)
	1850.2 – 1909.8 MHz (GSM 1900)
	826.4-846.6MHz(WCDMA 850)
	1852.4-1908MHz(WCDMA 1900)
	2412 – 2462 MHz (Wi-Fi)
Test Modulation	(GSM)GMSK; (WCDMA)QPSK
GPRS class	12
GPRS capability Class:	B
EGPRS Multislot Class:	12（Downlink only）
Power class:	GSM850: tested with power level 5
	GSM1900: tested with power level 0
	WCDMA: class 3, tested with power control all up bits
Test device Production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Accessories/Body-worn configurations:	/
Hotspot mode:	support
Form factor:	13.4cm × 6.5cm

4.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	865446020002852	TMBI	ZTE-CN-QB18S-P172R10V1.0.0

*EUT ID: is used to identify the test sample in the lab internally.

4.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Capacity	Nominal Voltage	Manufacturer
AE1	Battery	Li3712T4 2P3h634 445	/	1200mAh	3.7V	ZTE CORPORATION

5 TEST METHODOLOGY

5.1 Applicable Limit Regulations

ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

5.2 Applicable Measurement Standards

IEEE 1528–2013: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

OET Bulletin 65 (Edition 97-01) and Supplement C(Edition 01-01): Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits.

KDB447498 D01: General RF Exposure Guidance v05: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

KDB 648474 D04 Handset SAR v01: SAR Evaluation Considerations for Wireless Handsets.

865664 D01 SAR measurement 100 MHz to 6 GHz v01: SAR Measurement Requirements for 100 MHz to 6 GHz

KDB248227 D01: SAR Measurement Procedures for 802.11a/b/g transmitters.

KDB941225 D06: SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities.

865664 D02 SAR Reporting v01: RF Exposure Compliance Reporting and Documentation Considerations

6 Specific Absorption Rate (SAR)

6.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

6.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt}\left(\frac{dW}{dm}\right) = \frac{d}{dt}\left(\frac{dW}{\rho dv}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = c\left(\frac{\delta T}{\delta t}\right)$$

Where: C is the specific head capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

7 Tissue Simulating Liquids

7.1 Targets for tissue simulating liquid

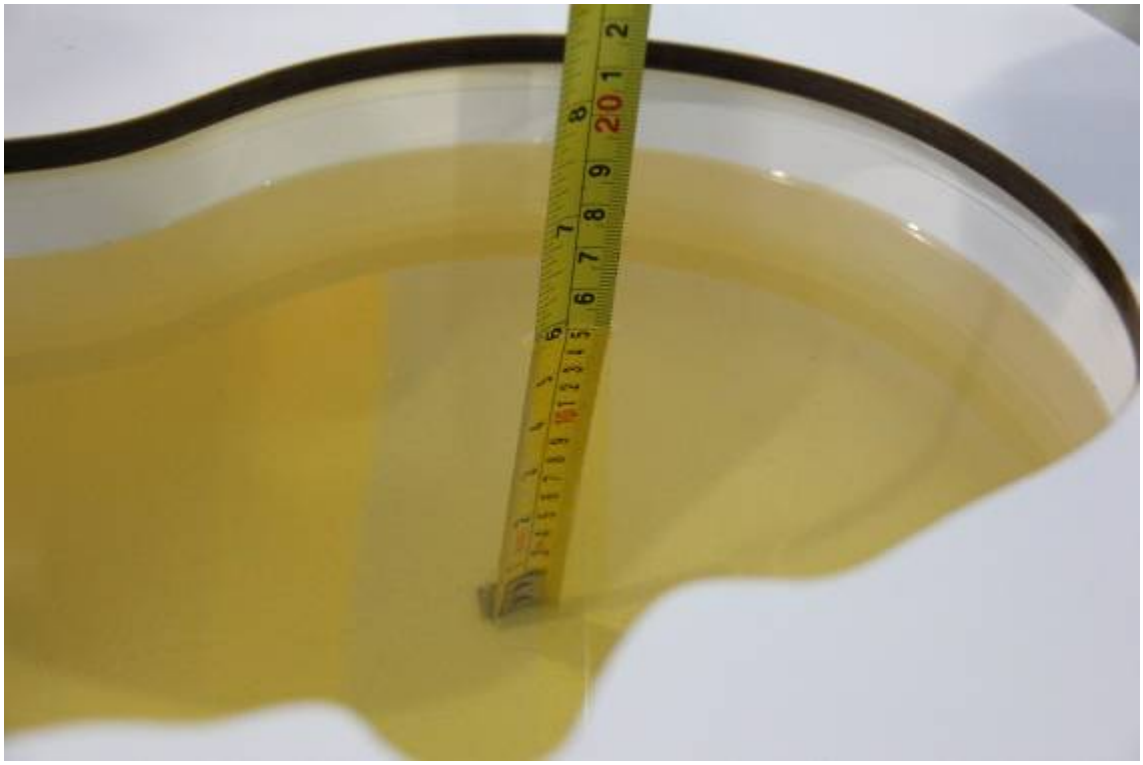
Table 7.1: Targets for tissue simulating liquid

Frequency (MHz)	Liquid Type	Conductivity (σ)	± 5% Range	Permittivity (ε)	± 5% Range
835	Head	0.90	0.86～0.95	41.5	39.4～43.6
835	Body	0.97	0.92～1.02	55.2	52.4～58.0
1900	Head	1.40	1.33～1.47	40.0	38.0～42.0
1900	Body	1.52	1.44～1.60	53.3	50.6～56.0
2450	Head	1.80	1.71～1.89	39.2	37.2～41.2
2450	Body	1.95	1.85～2.05	52.7	50.1～55.3

7.2 Dielectric Performance

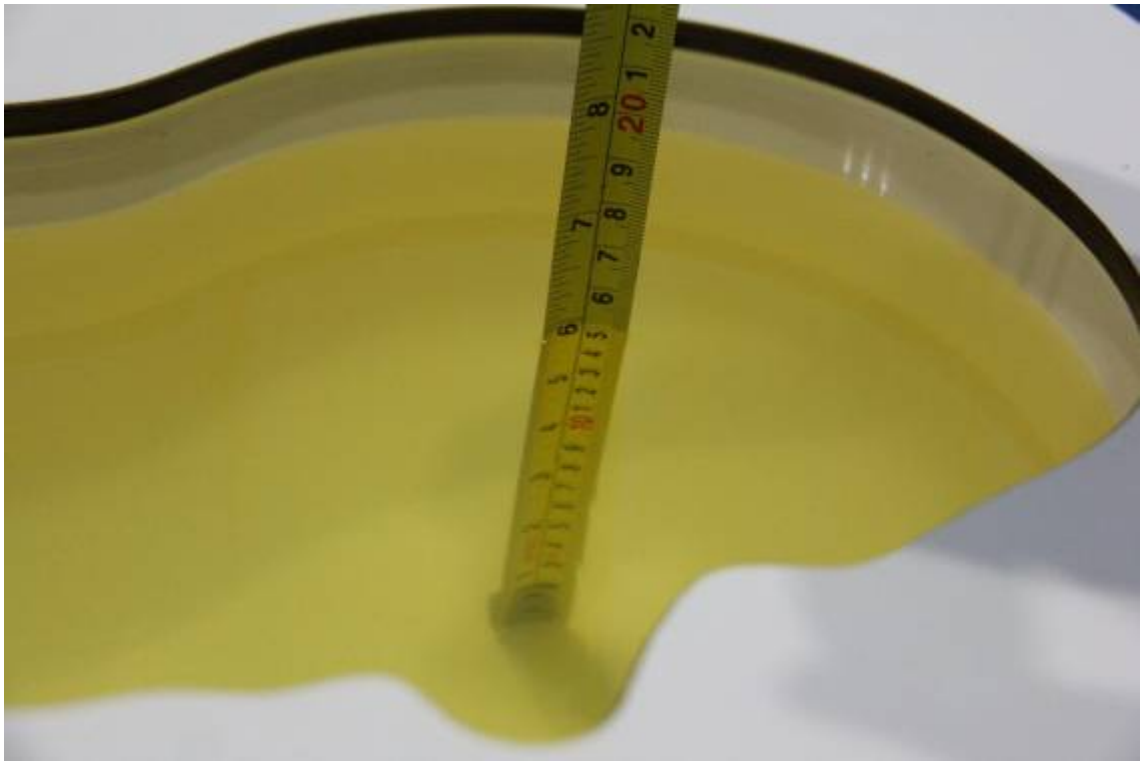
Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Type	Frequency	Permittivity ε	Drift	Conductivity σ (S/m)	Drift
2014-06-12	Head	835 MHz	41.87	0.89%	0.90	0.00%
2014-06-13	Body	835 MHz	55.71	0.92%	0.99	2.06%
2014-06-11	Head	1900 MHz	38.68	-3.30%	1.46	4.29%
2014-06-19	Body	1900 MHz	52.61	-1.29%	1.51	-0.66%
2014-06-24	Head	2450 MHz	39.27	0.18%	1.82	1.11%
2014-06-24	Body	2450 MHz	52.24	-0.87%	1.94	-0.51%

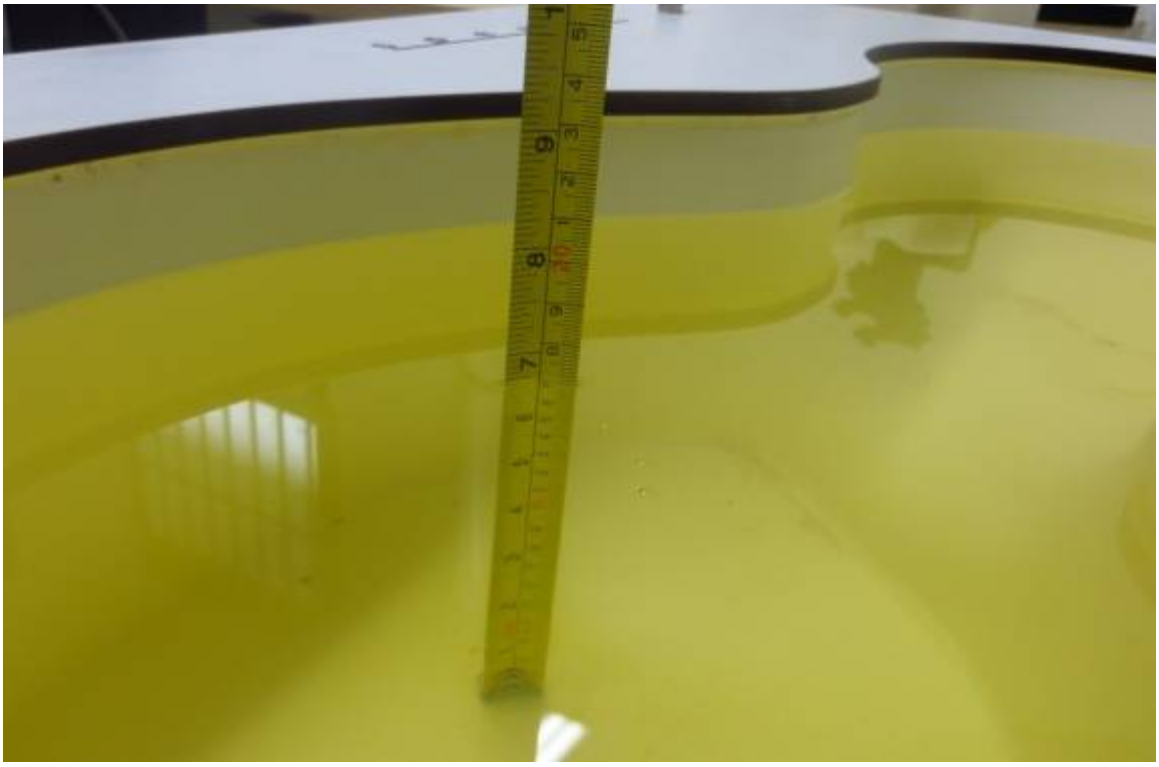


Picture 7-1: Liquid depth in the Head Phantom (835 MHz)（depth=15.6cm）

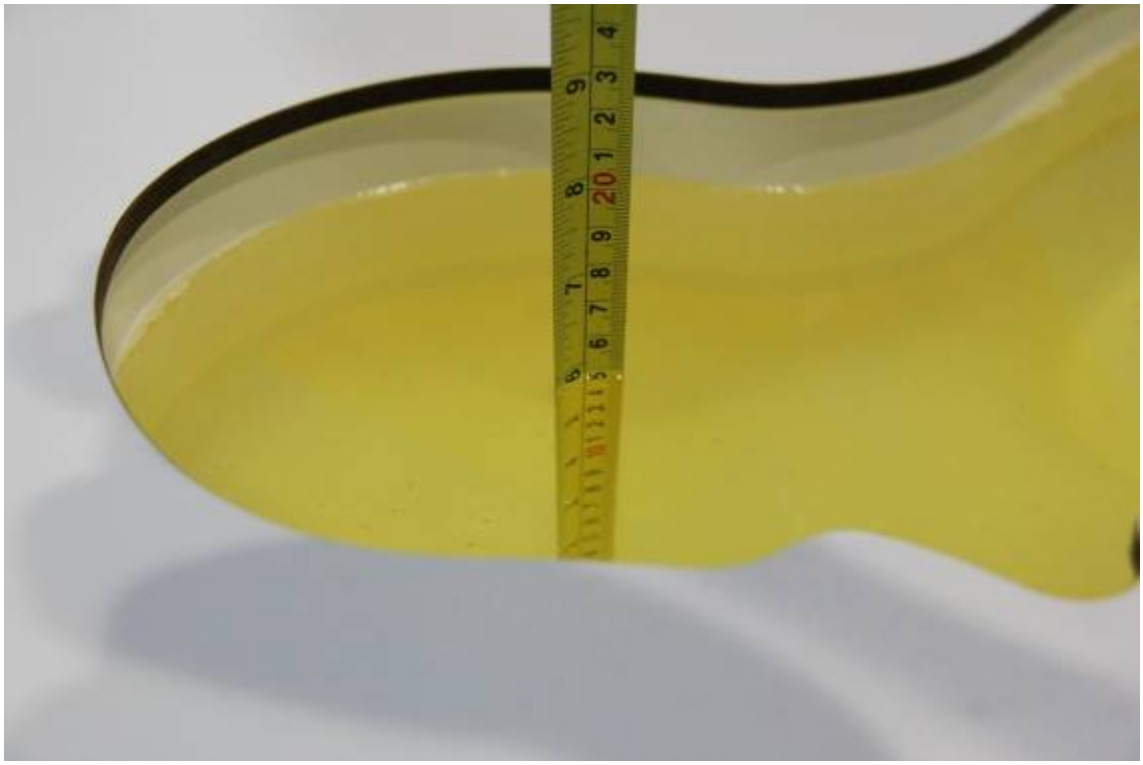
Picture 7-2: Liquid depth in the Flat Phantom (835 MHz) （depth=17.6cm）



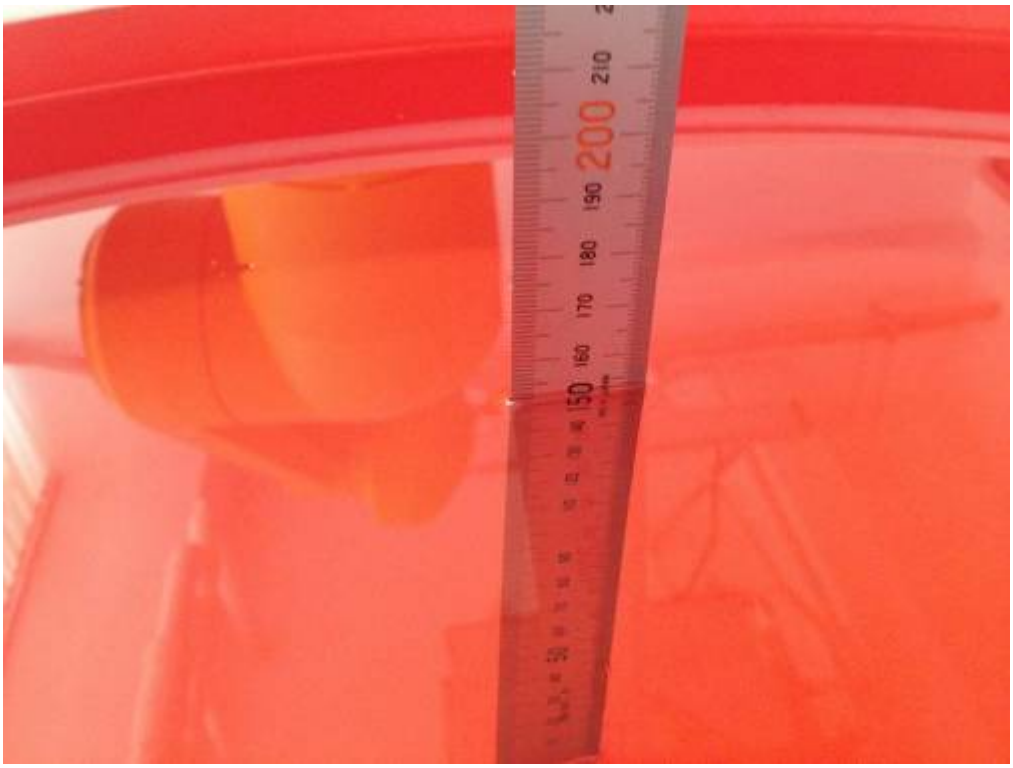
Picture 7-3: Liquid depth in the Head Phantom (1900 MHz) （depth=15.3cm）



Picture 7-4 Liquid depth in the Flat Phantom (1900MHz) （depth=17.4cm）



Picture 7-5 Liquid depth in the Head Phantom (2450MHz) （depth=15.2cm）

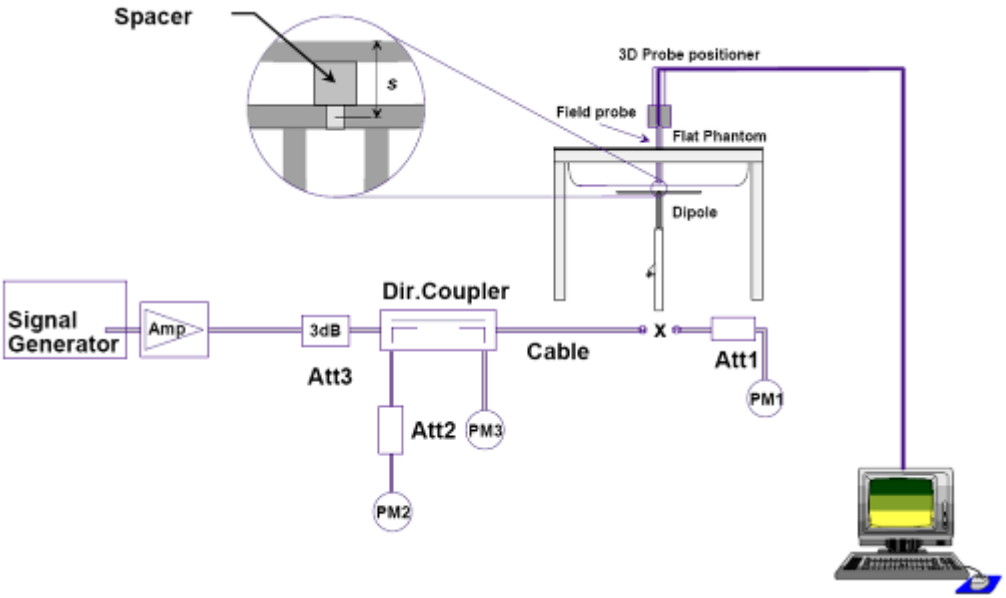


Picture 7-6 Liquid depth in the Flat Phantom (2450MHz) （depth=15.2cm）

8 System verification

8.1 System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



Picture 8.1 System Setup for System Evaluation

Picture 8.2 Photo of Dipole Setup

8.2 System Verification

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device.

The system verification results are required that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR. The details are presented in annex B. The measured value of annex B is tested with the output power of 250mW，so the measured value of Table 8.1&8.2 is 4 times as big as annex B。

Table 8.1: System Verification of Head（1W）

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value (W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2014-06-12	835 MHz	6.32	9.62	6.44	9.92	1.90%	3.12%
2014-06-11	1900 MHz	20.9	40.0	20.12	39.36	-3.73%	-1.60%
2014-06-24	2450 MHz	24.3	51.9	25.16	54.4	3.54%	4.82%

Table 8.2: System Verification of Body（1W）

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value (W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2014-06-13	835 MHz	6.26	9.52	6.48	9.84	3.51%	3.36%
2014-06-19	1900 MHz	21.4	40.3	21.92	41.6	2.43%	3.23%
2014-06-24	2450 MHz	23.7	50.8	24.04	51.2	1.43%	0.79%

8.3 Justification for Extended SAR Dipole Calibrations

Usage of SAR dipoles calibrated less than 2 years ago but more than 1 year ago were confirmed in maintaining return loss (< - 20 dB, within 20% of prior calibration) and impedance (within 5 ohm from prior calibration) requirements per extended calibrations in KDB 865664 D01:

Dipole D835V2 SN: 4d057				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
10/24/2012	-29.5	/	52.1	/
10/23/2013	-28.4	3.7	50.3	1.8
Body Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
10/24/2012	-26.2	/	48.1	/
10/23/2013	-25.8	1.5	46.7	1.4Ω

Dipole D1900V2 SN: 5d088				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
10/17/2012	-24.3	/	52.0	/
10/16/2013	-23.3	4.1	50.3	1.7
Body Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
10/17/2012	-24.0	/	48.9	/
10/16/2013	-23.2	3.3	47.6	1.3

Dipole D2450V2 SN: 873				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
10/18/2012	-29.3	/	53.2	/
10/17/2013	-28.6	2.4	52.1	1.1
Body Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
10/18/2012	-29.1	/	49.9	/
10/17/2013	-27.9	4.1	48.6	1.3

9 Measurement Procedures

9.1 Tests to be performed

In order to determine the highest value of the peak spatial-average SAR of a handset, all device positions, configurations and operational modes shall be tested for each frequency band according to steps 1 to 3 below. A flowchart of the test process is shown in Picture 11.1.

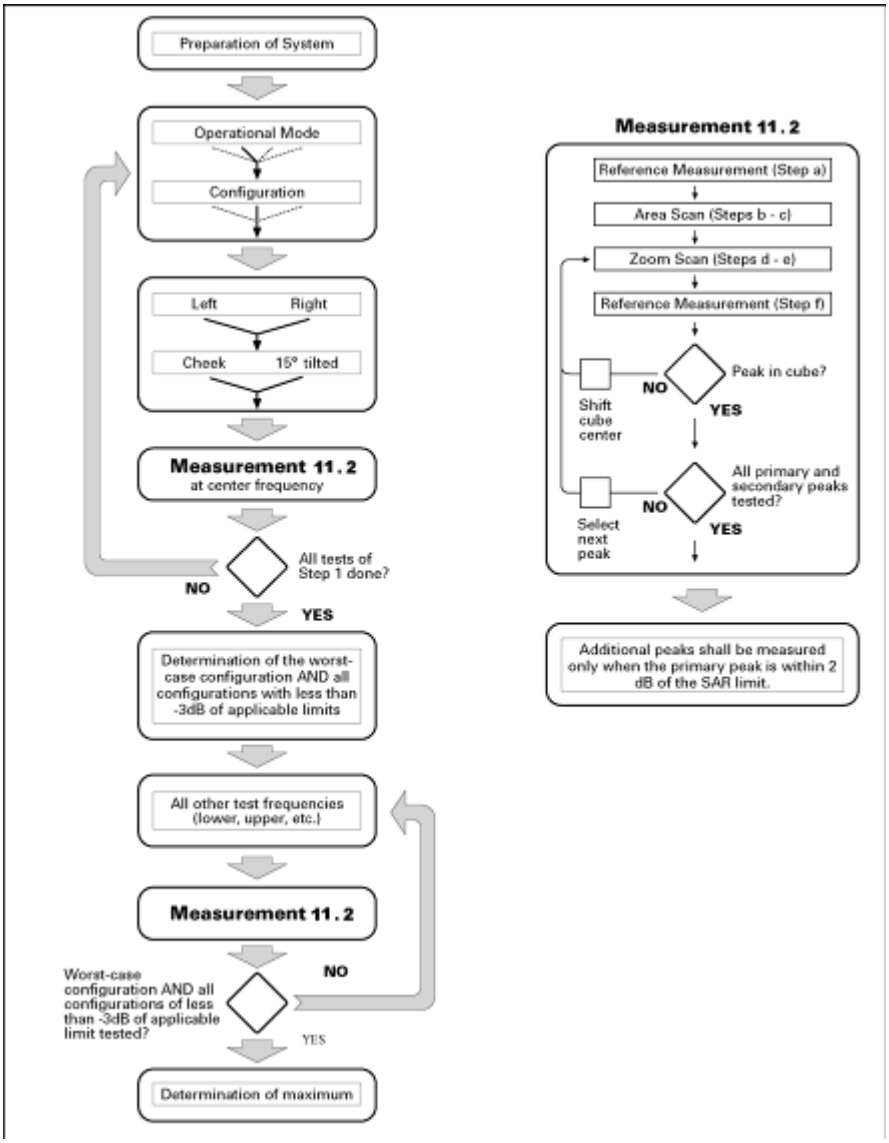
Step 1: The tests described in 11.2 shall be performed at the channel that is closest to the centre of the transmit frequency band (f_c) for:

a) all device positions (cheek and tilt, for both left and right sides of the SAM phantom, as described in Chapter 8),
b) all configurations for each device position in a), e.g., antenna extended and retracted, and
c) all operational modes, e.g., analogue and digital, for each device position in a) and configuration in b) in each frequency band.

If more than three frequencies need to be tested according to 11.1 (i.e., N_c > 3), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

Step 2: For the condition providing highest peak spatial-average SAR determined in Step 1, perform all tests described in 11.2 at all other test frequencies, i.e., lowest and highest frequencies. In addition, for all other conditions (device position, configuration and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

Step 3: Examine all data to determine the highest value of the peak spatial-average SAR found in Steps 1 to 2.



Picture 9.1 Block diagram of the tests to be performed

9.2 General Measurement Procedure

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2003. The results should be documented as part of the system validation records and may be requested to support test results when all the measurement parameters in the following table are not satisfied.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the area scan based *1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.3 Bluetooth & Wi-Fi Measurement Procedures for SAR

Normal network operating configurations are not suitable for measuring the SAR of 802.11 transmitters in general. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure that the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in a test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

9.4 Power Drift

To control the output power stability during the SAR test, DASY5 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in Table 14.1 to Table 14.11 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

10 Conducted Output Power

10.1 Manufacturing tolerance

Table 10.1: GSM Speech

GSM 850			
Channel	Channel 251	Channel 190	Channel 128
Target (dBm)	32	32	32
Tolerance ±(dB)	1	1	1
GSM 1900			
Channel	Channel 810	Channel 661	Channel 512
Target (dBm)	29	29	29
Tolerance ±(dB)	1	1	1

Table 10.2: GPRS(GMSK Modulation)

GSM 850 GPRS				
Channel		**251**	**190**	**128**
1 Txslot	Target (dBm)	32	32	32
	Tolerance ±(dB)	1	1	1
2 Txslots	Target (dBm)	32	32	32
	Tolerance ±(dB)	1	1	1
3Txslots	Target (dBm)	30	30	30
	Tolerance ±(dB)	1	1	1
4 Txslots	Target (dBm)	29	29	29
	Tolerance ±(dB)	1	1	1
GSM 1900 GPRS				
Channel		**810**	**661**	**512**
1 Txslot	Target (dBm)	29	29	29
	Tolerance ±(dB)	1	1	1
2 Txslots	Target (dBm)	28	28	28
	Tolerance ±(dB)	1	1	1
3Txslots	Target (dBm)	27	27	27
	Tolerance ±(dB)	1	1	1
4 Txslots	Target (dBm)	26	26	26
	Tolerance ±(dB)	1	1	1

Table 10.3: WCDMA

WCDMA Band 2			
Channel	Channel 9262	Channel 9400	Channel 9538
Target (dBm)	22	22	22
Tolerance ±(dB)	+1/-3	+1/-3	+1/-3
HSDPA			
Channel	Channel 9262	Channel 9400	Channel 9538
Target (dBm)	21	21	21
Tolerance ±(dB)	+1/-3	+1/-3	+1/-3
HSUPA			
Channe	Channel 9262	Channel 9400	Channel 9538
Target (dBm)	21	21	21
Tolerance ±(dB)	+1/-3	+1/-3	+1/-3

WCDMA Band 5			
Channel	Channel 4132	Channel 4183	Channel 4233
Target (dBm)	22	22	22
Tolerance ±(dB)	+1/-3	+1/-3	+1/-3
HSDPA			
Channel	Channel 4132	Channel 4183	Channel 4233
Target (dBm)	22	22	22
Tolerance ±(dB)	+1/-3	+1/-3	+1/-3
HSUPA			
Channe	Channel 4132	Channel 4183	Channel 4233
Target (dBm)	21	21	21
Tolerance ±(dB)	+1/-3	+1/-3	+1/-3

Table 10.4: WiFi

WiFi 802.11b			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	9	9	9
Tolerance ±(dB)	2	2	2
WiFi 802.11g			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	9	9	9
Tolerance ±(dB)	2	2	2
WiFi 802.11n			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	8	8	8
Tolerance ±(dB)	2	2	2

Table 10.5: BT

Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	5	5	5
Tolerance ±(dB)	1	1	1

10.2 GSM Measurement result

During the process of testing, the EUT was controlled via Agilent Digital Radio Communication tester (E5515C) to ensure the maximum power transmission and proper modulation. This result contains conducted output power for the EUT. In all cases, the measured peak output power should be greater and within 5% than EMI measurement.

For this device, EGPRS support downlink only, does not support uplink.

Table 10.6: The conducted power measurement results for GSM850/1900

GSM 850MHz	Conducted Power (dBm)		
	Channel 251(848.8MHz)	Channel 190(836.6MHz)	Channel 128(824.2MHz)
	32.3	32.3	32.3
GSM 1900MHz	Conducted Power (dBm)		
	Channel 810(1909.8MHz)	Channel 661(1880MHz)	Channel 512(1850.2MHz)
	29.4	29.2	28.9

Table 10.7: The conducted power measurement results for GPRS（Hotspot on）

GSM 850 GPRS (GMSK)	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	251	**190**	**128**		**251**	**190**	**128**
1 Txslot	32.0	32.1	32.1	-9.03dB	22.97	23.07	23.07
2 Txslots	32.1	31.9	31.9	-6.02dB	26.08	25.88	25.88
3Txslots	30.1	30.0	30.0	-4.26dB	25.84	25.74	25.74
4 Txslots	29.1	29.1	29.0	-3.01dB	26.09	26.09	25.99
PCS1900 GPRS (GMSK)	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	810	**661**	**512**		**810**	**661**	**512**
1 Txslot	29.6	29.5	29.1	-9.03dB	20.57	20.47	20.07
2 Txslots	28.9	28.7	28.7	-6.02dB	22.88	22.68	22.68
3Txslots	27.0	26.7	26.7	-4.26dB	22.74	22.44	22.44
4 Txslots	26.0	25.8	25.8	-3.01dB	22.99	22.79	22.79

Table 10.8: The conducted power measurement results for GPRS（Hotspot off）

GSM 850 GPRS (GMSK)	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	251	**190**	**128**		**251**	**190**	**128**
1 Txslot	32.0	32.1	32.1	-9.03dB	22.97	23.07	23.07
2 Txslots	32.1	31.9	31.9	-6.02dB	26.08	25.88	25.88
3Txslots	30.1	30.0	30.0	-4.26dB	25.84	25.74	25.74
4 Txslots	29.1	29.1	29.0	-3.01dB	26.09	26.09	25.99
PCS1900 GPRS (GMSK)	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	810	**661**	**512**		**810**	**661**	**512**
1 Txslot	29.6	29.5	29.1	-9.03dB	20.57	20.47	20.07
2 Txslots	28.9	28.7	28.7	-6.02dB	22.88	22.68	22.68

3Txslots	27.0	26.7	26.7	-4.26dB	22.74	22.44	22.44
4 Txslots	26.0	25.8	25.8	-3.01dB	22.99	22.79	22.79

NOTES:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 4Txslots for GSM850/1900.

10.3 WCDMA conducted power Measurement result

Table 10.9: The conducted power measurement results for WCDMA（Hotspot on）

Item	band	FDDII result			FDDV result		
	ARFCN	9262	9400	9538	4132	4183	4233
5.2(WCDMA)	CS	22.69	22.49	22.65	22.95	22.84	22.63
5.2AA (HSDPA)	1	21.90	21.58	21.63	22.05	22.14	22.21
	2	21.86	21.60	21.64	22.01	22.15	22.29
	3	21.91	21.63	21.64	21.99	22.10	22.20
	4	21.95	21.68	21.70	22.05	22.10	22.22
5.2B (HSUPA)	1	19.63	19.37	19.34	19.49	19.50	19.64
	2	19.64	19.36	19.37	19.45	19.52	19.61
	3	20.65	20.34	20.35	20.47	20.55	20.63
	4	19.02	18.84	18.78	18.92	18.98	19.05
	5	21.58	21.36	21.32	21.51	21.54	21.60

Table 10.10: The conducted power measurement results for WCDMA（Hotspot off）

Item	band	FDDII result			FDDV result		
	ARFCN	9262	9400	9538	4132	4183	4233
5.2(WCDMA)	CS	22.69	22.49	22.65	22.95	22.84	22.63
5.2AA (HSDPA)	1	21.90	21.58	21.63	22.05	22.14	22.21
	2	21.86	21.60	21.64	22.01	22.15	22.29
	3	21.91	21.63	21.64	21.99	22.10	22.20
	4	21.95	21.68	21.70	22.05	22.10	22.22
5.2B (HSUPA)	1	19.63	19.37	19.34	19.49	19.50	19.64
	2	19.64	19.36	19.37	19.45	19.52	19.61
	3	20.65	20.34	20.35	20.47	20.55	20.63
	4	19.02	18.84	18.78	18.92	18.98	19.05
	5	21.58	21.36	21.32	21.51	21.54	21.60

. 10.4 Wi-Fi and BT Measurement result

The conducted Power for BT

	Measured Power (dBm)		
model\Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz
GFSK	4.90	4.95	5.01
π/4 DQPSK	4.18	4.20	4.17
8DPSK	4.21	4.24	4.19

The conducted power for Wi-Fi is as following:

802.11b/g mode

Mode	**Data Rate (Mbps)**	**Test Result (dBm)**		
		2412MHz (Ch1)	**2437MHz (Ch6)**	**2462 MHz (Ch11)**
802.11b	1	10.11	10.38	10.29
	2	9.91	10.37	10.33
	5.5	9.23	9.98	10.08
	11	8.46	9.68	9.61
802.11g	6	10.60	10.33	10.18
	9	9.67	10.14	10.05
	12	9.48	9.94	9.67
	18	9.18	9.65	9.32
	24	8.86	9.28	8.99
	36	8.36	8.34	8.48
	48	9.66	7.84	8.01
	54	7.42	7.67	7.87

802.11n mode

Mode	**Data Rate (MCS Index)**	**Test Result (dBm)**		
		2412MHz (Ch1)	**2437MHz (Ch6)**	**2462 MHz (Ch11)**
802.11n（20MHz）	MCS0	9.88	10.31	10.27
	MCS1	9.50	9.94	9.68
	MCS2	9.17	9.58	9.33
	MCS3	8.79	8.85	9.02
	MCS4	8.36	8.34	8.53
	MCS5	7.66	7.91	8.11
	MCS6	7.52	7.73	7.94
	MCS7	7.30	7.53	7.78

Mode	Data Rate (MCS Index)	Test Result (dBm)		
		2422MHz (Ch3)	2437MHz (Ch6)	2452 MHz (Ch9)
802.11n (40MHz BW)	MCS0	9.78	9.49	9.77
	MCS1	8.70	8.82	8.91
	MCS2	8.30	8.29	8.38
	MCS3	7.79	7.91	7.94
	MCS4	7.17	7.04	7.28
	MCS5	6.45	6.58	6.82
	MCS6	6.23	6.36	6.60
	MCS7	6.16	6.28	6.48

SAR is not required for 802.11g/n channels if the output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels, and for each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 0.25dB higher than those measured at the lowest data rate. According to the above conducted power, the EUT should be tested for “802.11b, 1Mbps, and channel 6”.

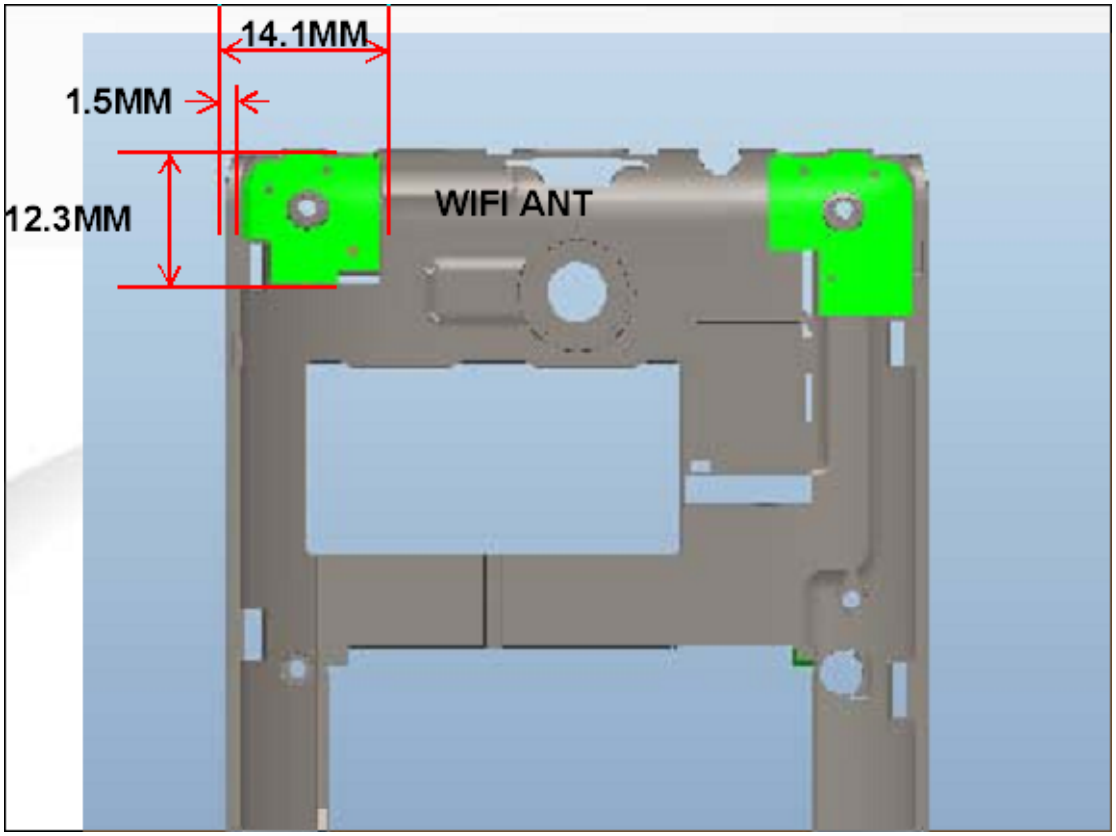
11 Simultaneous TX SAR Considerations

11.1 Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as 802.11 a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.
For this device, the BT and Wi-Fi can transmit simultaneous with other transmitters, BT and WiFi could not transmit simultaneously since they share an antenna.
This EUT really supports GPS Tx function.

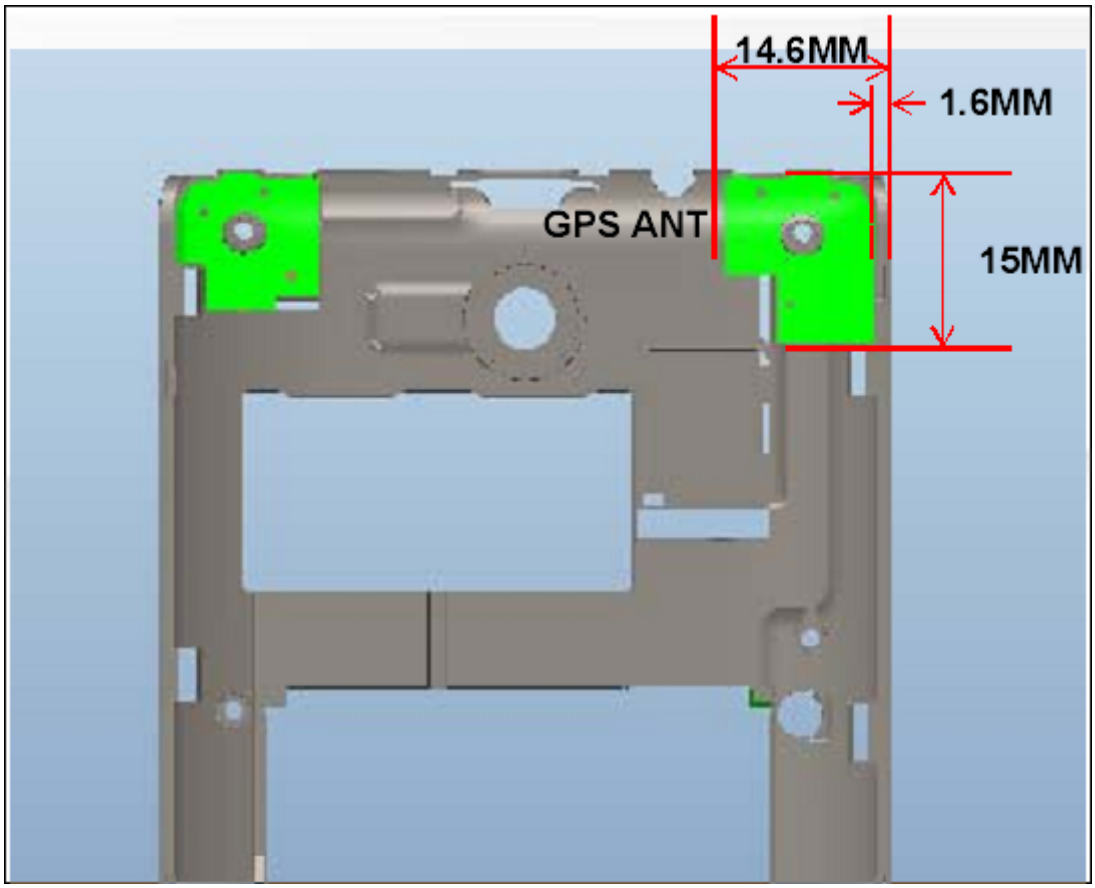
11.2 Transmit Antenna Separation Distances

WIFI&BT antenna :IFA
BAND : 2401---2483MHz
Gain:-3.87dBi average
1.65dBi peak



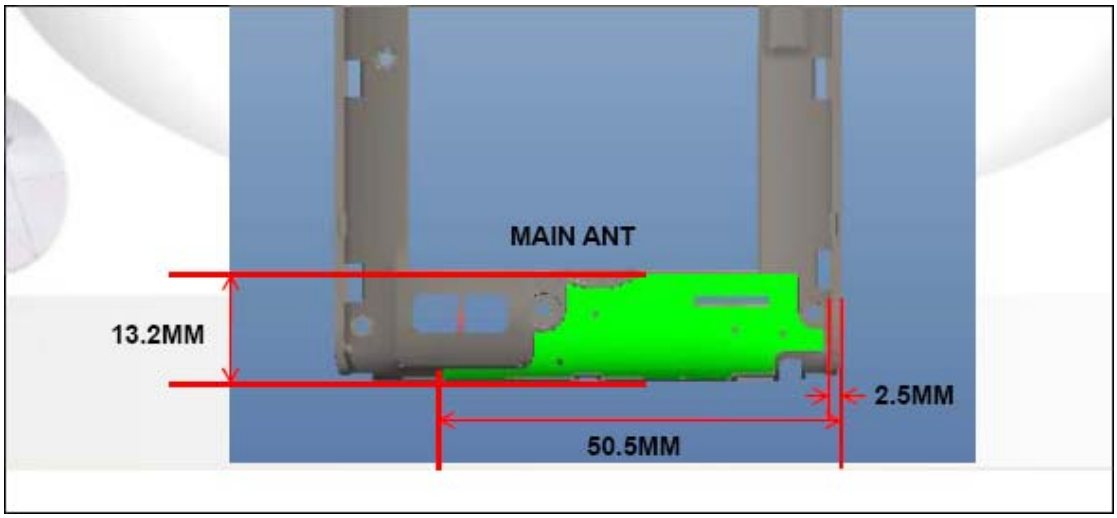
Picture 11.1 WIFI/BT Antenna Locations

GPS antenna IFA
Band:1575.42MHz
Gain:-2.65dBi average
2dBi peak



Picture 11.2 GPS Antenna Locations

Main antenna MONOPOLE
Band:G850\ \PCS\W850\W1900
Gain:-1.21dBi average
0.44dBi peak



Picture 11.3 Main Antenna Locations

11.3 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

According to the KDB447498 appendix A, the SAR test exclusion threshold for 2450MHz at 10m test separation distances is 19mW.

Appendix A

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

Picture 11.3 Power Thresholds

12 Evaluation of Simultaneous

Table 12.1: Summary of Transmitters

Band/Mode	F(GHz)	SAR test exclusion threshold (mW)	RF output power (mW)
Bluetooth	2.480	10	3.167
2.4GHz WLAN 802.11 b	2.45	10	10.91

According to the conducted power measurement result, we can draw the conclusion that: stand-alone SAR for WiFi should be performed. Then, simultaneous transmission SAR for WiFi is considered with measurement results of GSM and WiFi. Stand-alone SAR and simultaneous transmission SAR for Bluetooth should not be performed. Stand-alone SAR for BT must be estimated according to following to determine simultaneous transmission SAR, and the result is **0.133**W/kg (1g average) for head SAR, **0.066**W/kg (1g average) for body SAR.

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for *test separation distances* ≤ 50 mm;
where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.

Table 12.2: The sum of reported SAR values

	Position	GSM/WCDMA	WiFi	BT	Sum
Maximum reported value for Head	Left hand, Touch cheek	0.857	0.338	0.133	**1.328**
Maximum reported SAR value for Body	Rear Side	1.076	0.074	0.066	**1.216**
	Bottom side	1.203	0.014	0.066	**1.283**

According to the above table, the sum of reported SAR values for GSM/WCDMA ,WiFi and BT ＜ 1.6W/kg. So the simultaneous transmission SAR is not required for WiFi transmitter.

13 SAR Test Result

It is determined by user manual for the distance between the EUT and the phantom bottom.
The distance is 10mm and just applied to the condition of body worn accessory.
It is performed for all SAR measurements with area scan and zoom scan based 1-g SAR estimation.
In this report, measured SAR results are scaled to the maximum tune-up tolerance limit according the power applied to the individual channels, and the results are shown in the column “reported SAR”.

13.1 SAR Test Result

Table 13.1: Duty Cycle

	Duty Cycle
Speech for GSM850/1900	1:8.3
GPRS for GSM850/1900	1:2
WCDMA 850/1900	1:1
WiFi 2450	1:1

Table 13.2: SAR Values (GSM 850 MHz Band - Head)

Frequency		Side	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
836.6	190	Left	Touch	32.3	33	0.472	0.555	0.07
836.6	190	Left	Tilt	32.3	33	0.288	0.338	0.00
836.6	190	Right	Touch	32.3	33	0.462	0.543	-0.12
836.6	190	Right	Tilt	32.3	33	0.287	0.337	0.06
848.8	251	Left	Touch	32.3	33	0.511	0.600	-0.13
824.2	128	Left	Touch	32.3	33	0.413	0.485	0.14

Table 13.3: SAR Values (GSM 850 MHz Band – Body Worn)

Frequency		Mode (number of time slots)	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
836.6	190	GPRS (4)	Front	29.1	30	0.666	0.819	-0.03
836.6	190	GPRS (4)	Rear	29.1	30	0.817	1.005	0.11

Table 13.4: SAR Values (GSM 850 MHz Band - Hotspot)

Frequency		Mode (number of timeslots)	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
836.6	190	GPRS (4)	Front	29.1	30	0.666	0.819	-0.03
836.6	190	GPRS (4)	Rear	29.1	30	0.817	1.005	0.11
836.6	190	GPRS (4)	Left	29.1	30	0.552	0.679	0.03
836.6	190	GPRS (4)	Right	29.1	30	0.457	0.562	0.03
836.6	190	GPRS (4)	Top	29.1	30	0.019	0.023	0.12
836.6	190	GPRS (4)	Bottom	29.1	30	0.120	0.148	0.08
848.8	251	GPRS (4)	Rear	29.1	30	0.752	0.925	0.13
824.2	128	GPRS (4)	Rear	29.0	30	0.855	1.076	0.10
824.2	128	Speech	Rear	32.3	33	0.458	0.538	-0.02
Worst Case Position of Body (1st Repeated SAR)								
824.2	128	GPRS (4)	Rear	29.0	30	0.843	1.061	0.10

Note: The distance between the EUT and the phantom bottom is 10mm.

Table 13.5: SAR Values (GSM 1900 MHz Band - Head)

Frequency		Side	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
1880	661	Left	Touch	29.2	30	0.359	0.432	0.19
1880	661	Left	Tilt	29.2	30	0.141	0.170	-0.11
1880	661	Right	Touch	29.2	30	0.291	0.350	0.01
1880	661	Right	Tilt	29.2	30	0.129	0.155	0.01
1909.8	810	Left	Touch	29.4	30	0.349	0.401	0.01
1850.2	512	Left	Touch	28.9	30	0.341	0.439	0.12

Table 13.6: SAR Values (GSM 1900 MHz Band – Body worn)

Frequency		Mode (number of timeslots)	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
1880	661	GPRS (4)	Front	25.8	27	0.676	0.891	0.01
1880	661	GPRS (4)	Rear	25.8	27	0.635	0.837	0.06

Table 13.7: SAR Values (GSM 1900 MHz Band - Hotspot)

Frequency		Mode (number of timeslots)	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
1880	661	GPRS (4)	Front	25.8	27	0.676	0.891	0.01
1880	661	GPRS (4)	Rear	25.8	27	0.635	0.837	0.06
1880	661	GPRS (4)	Left	25.8	27	0.165	0.218	0.01
1880	661	GPRS (4)	Right	25.8	27	0.176	0.232	0.08
1880	661	GPRS (4)	Top	25.8	27	0.107	0.141	0.13
1880	661	GPRS (4)	Bottom	25.8	27	0.797	1.051	0.04
1909.8	810	GPRS (4)	Bottom	26.0	27	0.820	1.032	0.07
1850.2	512	GPRS (4)	Bottom	25.8	27	0.792	1.044	0.05
1909.8	810	Speech	Bottom	29.4	30	0.578	0.664	0.20
Worst Case Position of Body (1st Repeated SAR)								
1909.8	810	GPRS (4)	Bottom	26.0	27	0.811	1.021	0.11

Note: The distance between the EUT and the phantom bottom is 10mm.

Table 13.8: SAR Values (WCDMA 850 MHz Band - Head)

Frequency		Side	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
836.6	4183	Left	Touch	22.84	23	0.509	0.528	-0.12
836.6	4183	Left	Tilt	22.84	23	0.312	0.324	-0.02
836.6	4183	Right	Touch	22.84	23	0.450	0.467	-0.11
836.6	4183	Right	Tilt	22.84	23	0.318	0.330	0.06
846.6	4233	Left	Touch	22.63	23	0.499	0.543	-0.12
826.4	4132	Left	Touch	22.95	23	0.478	0.484	-0.03

Table 13.9: SAR Values (WCDMA 850 MHz Band – Body Worn)

Frequency		Mode (number of time slots)	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
836.6	4183	RMC	Front	22.84	23	0.607	0.630	0.03
836.6	4183	RMC	Rear	22.84	23	0.745	0.773	0.03

Table 13.10: SAR Values (WCDMA 850 MHz Band - Hotspot)

Frequency		Mode (number of timeslots)	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
836.6	4183	RMC	Front	22.84	23	0.607	0.630	0.03
836.6	4183	RMC	Rear	22.84	23	0.745	0.773	0.03
836.6	4183	RMC	Left	22.84	23	0.552	0.573	0.08

836.6	4183	RMC	Right	22.84	23	0.482	0.500	0.05
836.6	4183	RMC	Top	22.84	23	0.016	0.017	0.11
836.6	4183	RMC	Bottom	22.84	23	0.105	0.109	0.14
846.6	4233	RMC	Rear	22.63	23	0.647	0.705	0.01
826.4	4132	RMC	Rear	22.95	23	0.711	0.719	-0.01
836.6	4183	Speech	Rear	22.84	23	0.564	0.585	0.02

Note: The distance between the EUT and the phantom bottom is 10mm.

Table 13.11: SAR Values (WCDMA 1900 MHz Band - Head)

Frequency		Side	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
1880	9400	Left	Touch	22.49	23	0.634	0.713	0.14
1880	9400	Left	Tilt	22.49	23	0.294	0.331	0.08
1880	9400	Right	Touch	22.49	23	0.547	0.615	-0.15
1880	9400	Right	Tilt	22.49	23	0.255	0.287	-0.03
1908	9538	Left	Touch	22.65	23	0.703	0.762	0.16
1852.4	9262	Left	Touch	22.69	23	0.798	0.857	0.11

Table 13.12: SAR Values (WCDMA 1900 MHz Band – Body Worn)

Frequency		Mode (number of time slots)	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
1880	9400	RMC	Front	22.49	23	0.727	0.818	-0.10
1880	9400	RMC	Rear	22.49	23	0.838	0.942	0.06

Table 13.13: SAR Values (WCDMA 1900 MHz Band - Hotspot)

Frequency		Mode (number of timeslots)	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
1880	9400	RMC	Front	22.49	23	0.727	0.818	-0.10
1880	9400	RMC	Rear	22.49	23	0.838	0.942	0.06
1880	9400	RMC	Left	22.49	23	0.172	0.193	-0.02
1880	9400	RMC	Right	22.49	23	0.185	0.208	0.05
1880	9400	RMC	Top	22.49	23	0.133	0.150	0.05
1880	9400	RMC	Bottom	22.49	23	1.020	1.147	-0.05
1908	9538	RMC	Rear	22.65	23	0.873	0.946	0.03
1852.4	9262	RMC	Rear	22.69	23	0.770	0.827	0.07
1908	9538	RMC	Bottom	22.65	23	1.090	1.181	-0.07
1852.4	9262	RMC	Bottom	22.69	23	1.030	1.106	-0.03
1908	9538	Speech	Bottom	22.65	23	1.060	1.149	-0.19
Worst Case Position of Body (1st Repeated SAR)								
1908	9538	RMC	Bottom	22.65	23	1.110	1.203	-0.17

Note: The distance between the EUT and the phantom bottom is 10mm.

Table 13.14: SAR Values (Wi-Fi 802.11 - Head)

Frequency		Side	mode	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.								
2437	6	Left	802.11b（1M）	Touch	10.38	11	0.259	0.299	0.11
2437	6	Left	802.11b（1M）	Tilt	10.38	11	0.247	0.285	0.14
2437	6	Right	802.11b（1M）	Touch	10.38	11	0.145	0.167	-0.17
2437	6	Right	802.11b（1M）	Tilt	10.38	11	0.133	0.153	0.07
2462	11	Left	802.11b（1M）	Touch	10.29	11	0.250	0.294	0.14
2412	1	Left	802.11b（1M）	Touch	10.11	11	0.275	0.338	0.07

Table 13.15: SAR Values (Wi-Fi 802.11 – Body worn)

Frequency		Mode	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
2437	6	802.11b（1M）	Front	10.38	11	0.056	0.065	0.00
2437	6	802.11b（1M）	Rear	10.38	11	0.064	0.074	0.15

Table 13.16: SAR Values (Wi-Fi 802.11 - Hotspot)

Frequency		Mode	Test Position	Conducted Power (dBm)	Max Power (dBm)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.							
2437	6	802.11b（1M）	Front	10.38	11	0.056	0.065	0.00
2437	6	802.11b（1M）	Rear	10.38	11	0.064	0.074	0.15
2437	6	802.11b（1M）	Left	10.38	11	0.021	0.024	0.09
2437	6	802.11b（1M）	Right	10.38	11	0.062	0.072	-0.08
2437	6	802.11b（1M）	Top	10.38	11	0.061	0.070	0.11
2437	6	802.11b（1M）	Bottom	10.38	11	0.012	0.014	0.05
2462	11	802.11b（1M）	Rear	10.29	11	0.059	0.069	0.16
2412	1	802.11b（1M）	Rear	10.11	11	0.056	0.069	0.11

Note: The distance between the EUT and the phantom bottom is 10mm.

14 SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Table 14.1: SAR Measurement Variability for Body GSM 850 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
MHz	Ch.						
824.2	128	Rear	10	0.855	0.843	1.01	/

Table 14.2: SAR Measurement Variability for Body GSM 1900 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
MHz	Ch.						
1909.8	810	Bottom	10	0.820	0.811	1.01	/

Table 14.3: SAR Measurement Variability for Body WCDMA 1900 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
MHz	Ch.						
1908	9538	Bottom	10	1.090	1.110	1	/

15 Measurement Uncertainty

15.1 Measurement Uncertainty for Normal SAR Tests（300MHz-3000MHz）

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	5.5	N	1	1	1	5.5	5.5	∞
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	N	1	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RF ambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521

Combined standard uncertainty	$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					9.25	9.12	257
Expanded uncertainty (confidence interval of 95 %)	$u_e = 2u_c$					18.5	18.2	

16 MAIN TEST INSTRUMENTS

Table 16.1: List of Main Instruments

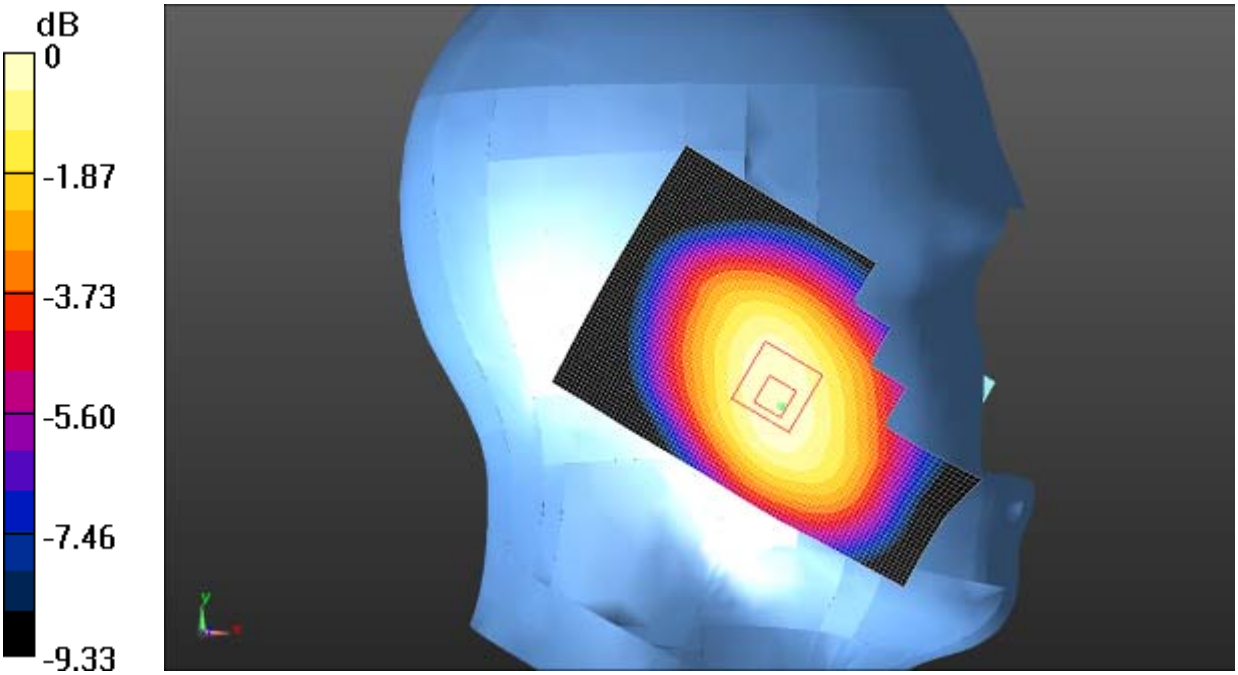
No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent E5071C	MY46103759	December 27,2013	One year
02	Power meter	NRVD	101253	March 6,2014	One year
03	Power sensor	NRV-Z5	100333		
04	Signal Generator	E4438C	MY45095825	January 14, 2014	One year
05	Amplifier	VTL5400	0404	No Calibration Requested	
06	BTS	E5515C	GB47460133	September 5, 2013	One year
07	E-field Probe	SPEAG ES3DV3	3151	July 31, 2013	One year
08	DAE	SPEAG DAE4	786	November 25, 2013	One year
09	Dipole Validation Kit	SPEAG D835V2	4d057	October 24,2012	Two year
10	Dipole Validation Kit	SPEAG D1900V2	5d088	October 17,2012	Two year
11	Dipole Validation Kit	SPEAG D2450V2	873	October 18,2012	Two year

END OF REPORT BODY

ANNEX A GRAPH RESULTS

GSM850 Head

Date/Time: 6/12/2014 2:33:15 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.899 S/m; ε_r = 41.868; ρ = 1000 kg/m^3
Ambient Temperature:23.4^{o}C Liquid Temperature:22.9^{o}C
Communication System: GSM Frequency: 836.6 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Left Cheek Middle/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 8.983 V/m; Power Drift = 0.07 dB
Maximum value of SAR (interpolated) = 0.492 W/kg
Left Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.983 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.613 W/kg
SAR(1 g) = 0.472 W/kg; SAR(10 g) = 0.354 W/kg
Maximum value of SAR (measured) = 0.492 W/kg

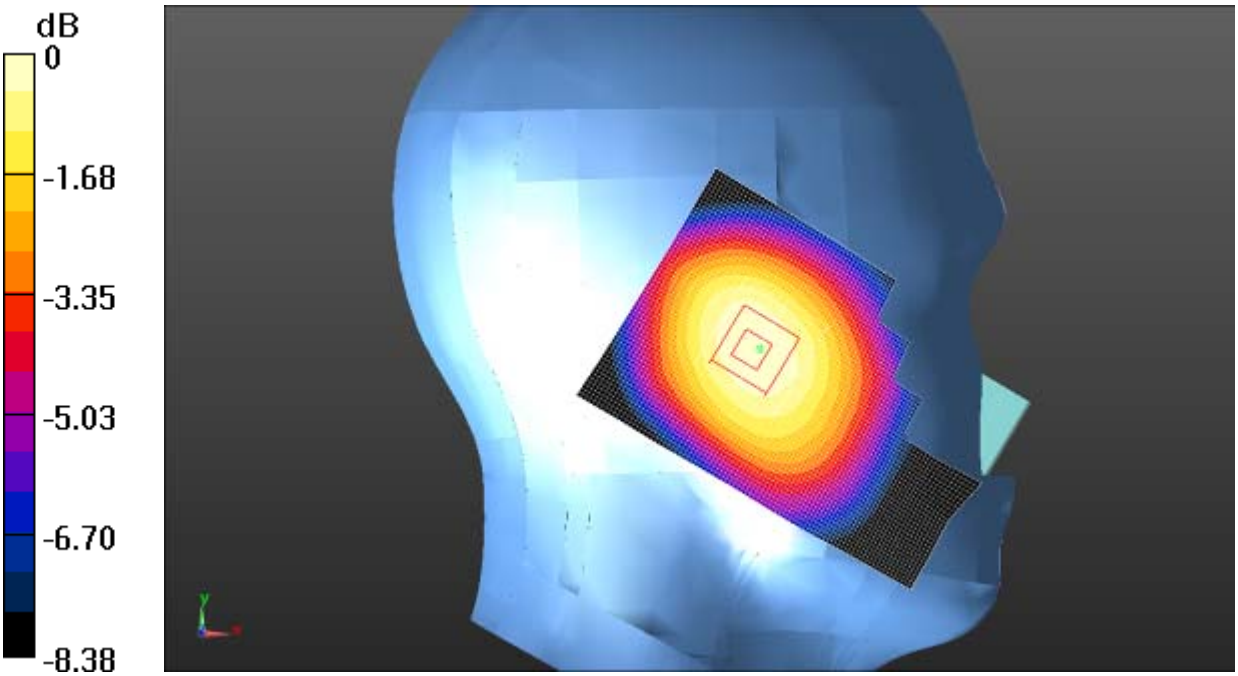


0 dB = 0.492 W/kg = -3.08 dBW/kg

Fig. 1 GSM 850MHz CH190

GSM850 Head

Date/Time: 6/12/2014 2:48:13 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.899 S/m; ε_r = 41.868; ρ = 1000 kg/m^3
Ambient Temperature:23.4^{o}C Liquid Temperature:22.9^{o}C
Communication System: GSM Frequency: 836.6 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Left Tilt Middle/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 13.638 V/m; Power Drift = 0.00 dB
Maximum value of SAR (interpolated) = 0.295 W/kg
Left Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.638 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.288 W/kg; SAR(10 g) = 0.221 W/kg
Maximum value of SAR (measured) = 0.301 W/kg

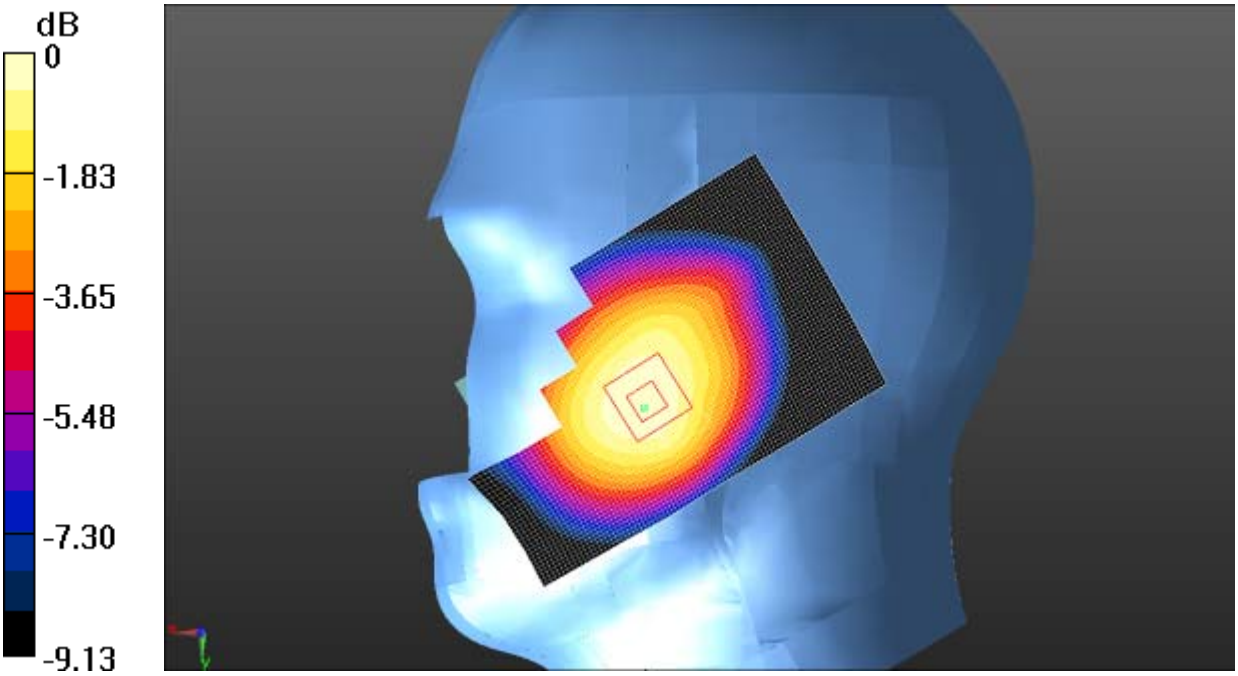


0 dB = 0.301 W/kg = -5.21 dBW/kg

Fig. 2 GSM 850MHz CH190

GSM850 Head

Date/Time: 6/12/2014 3:04:22 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.899 S/m; ε_r = 41.868; ρ = 1000 kg/m^3
Ambient Temperature:23.4^{o}C Liquid Temperature:22.9^{o}C
Communication System: GSM Frequency: 836.6 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Right Cheek Middle/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 7.331 V/m; Power Drift = -0.12 dB
Maximum value of SAR (interpolated) = 0.492 W/kg
Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.331 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.561 W/kg
SAR(1 g) = 0.462 W/kg; SAR(10 g) = 0.354 W/kg
Maximum value of SAR (measured) = 0.485 W/kg

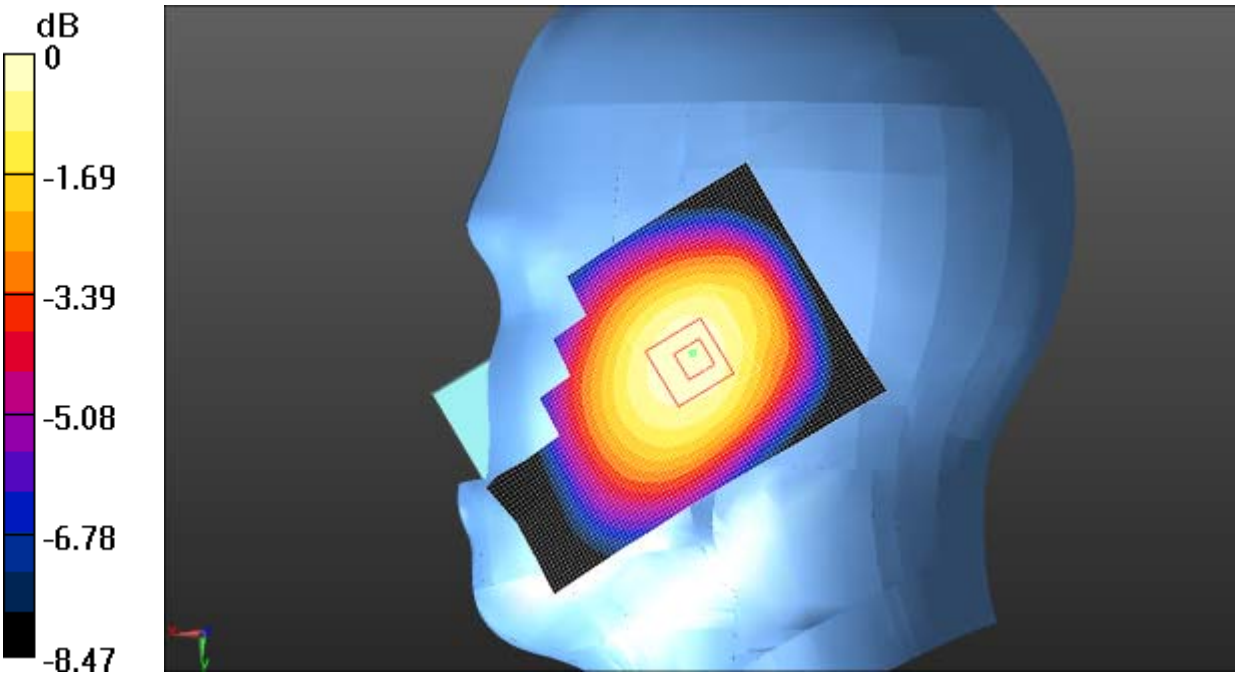


0 dB = 0.485 W/kg = -3.14 dBW/kg

Fig. 3 GSM 850MHz CH190

GSM850 Head

Date/Time: 6/12/2014 3:19:22 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.899 S/m; ε_r = 41.868; ρ = 1000 kg/m^3
Ambient Temperature:23.4^{o}C Liquid Temperature:22.9^{o}C
Communication System: GSM Frequency: 836.6 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Right Tilt Middle/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 12.293 V/m; Power Drift = 0.06 dB
Maximum value of SAR (interpolated) = 0.302 W/kg
Right Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.293 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.348 W/kg
SAR(1 g) = 0.287 W/kg; SAR(10 g) = 0.222 W/kg
Maximum value of SAR (measured) = 0.300 W/kg

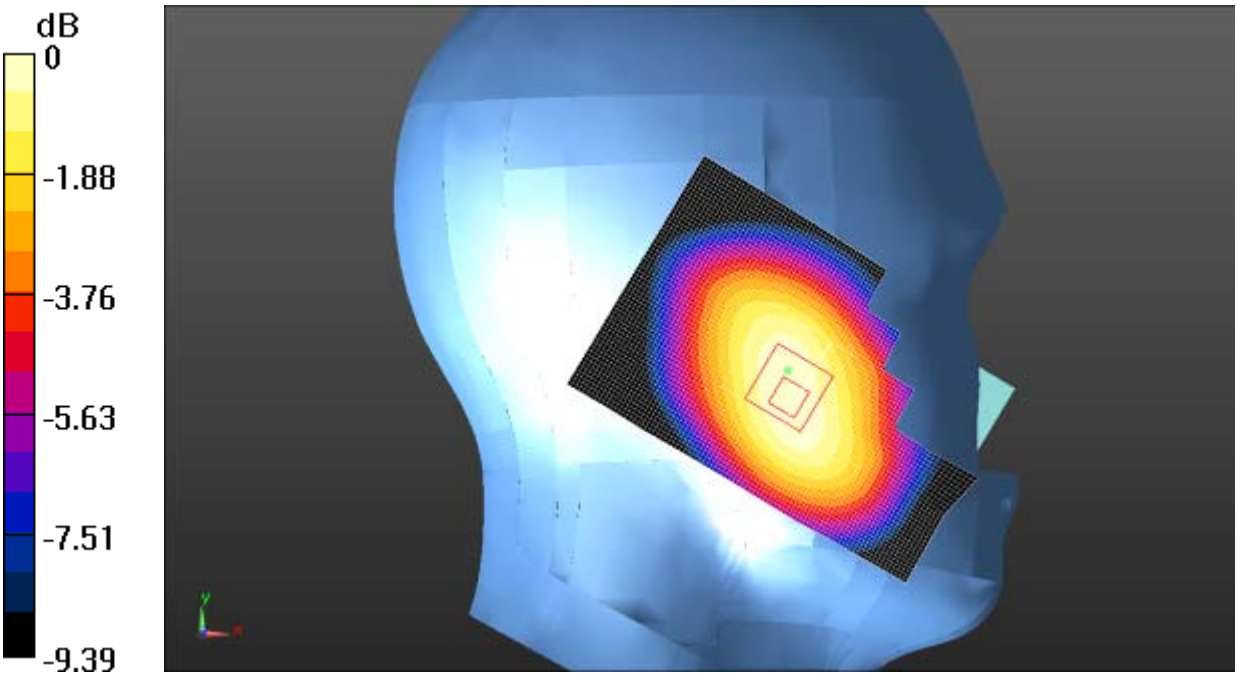


0 dB = 0.300 W/kg = -5.23 dBW/kg

Fig. 4 GSM 850MHz CH190

GSM850 Head

Date/Time: 6/12/2014 3:36:33 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.917 S/m; ε_r = 41.765; ρ = 1000 kg/m^3
Ambient Temperature:23.4^{o}C Liquid Temperature:22.9^{o}C
Communication System: GSM Frequency: 848.8 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Left Cheek High/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.679 V/m; Power Drift = -0.13 dB
Maximum value of SAR (interpolated) = 0.528 W/kg
Left Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.679 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.654 W/kg
SAR(1 g) = 0.511 W/kg; SAR(10 g) = 0.385 W/kg
Maximum value of SAR (measured) = 0.534 W/kg



0 dB = 0.534 W/kg = -2.72 dBW/kg

Fig. 5 GSM 850MHz CH251

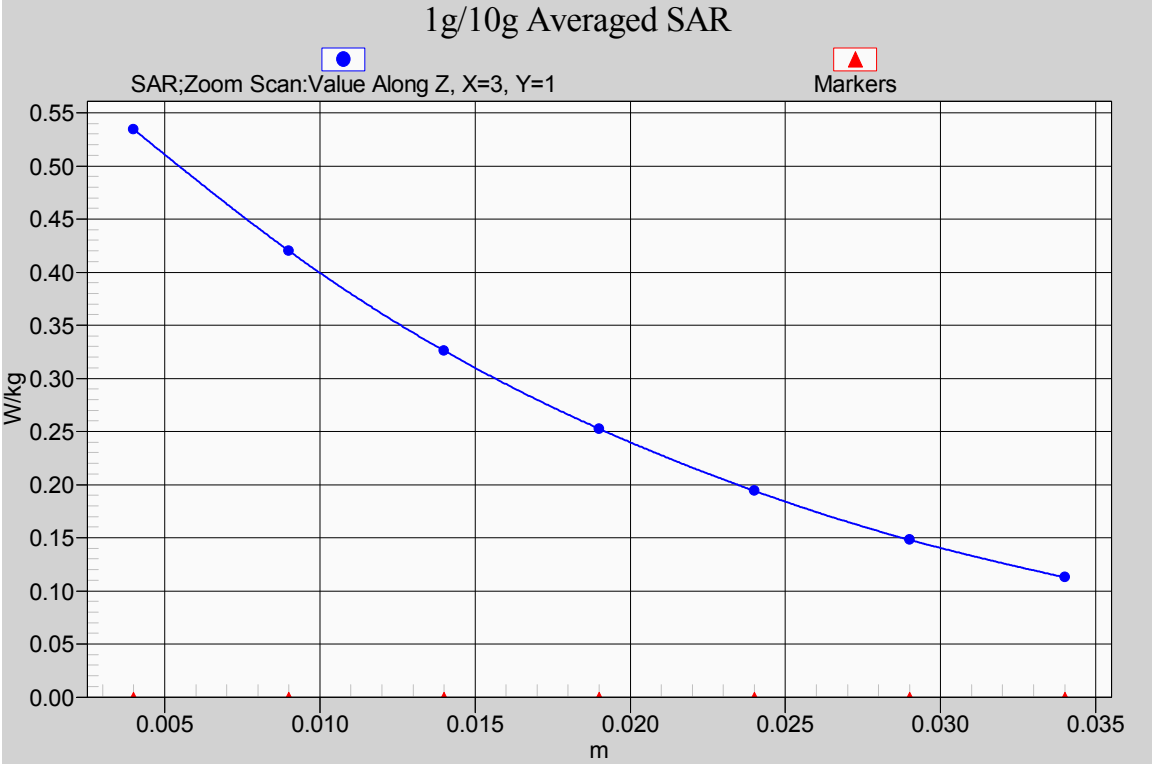
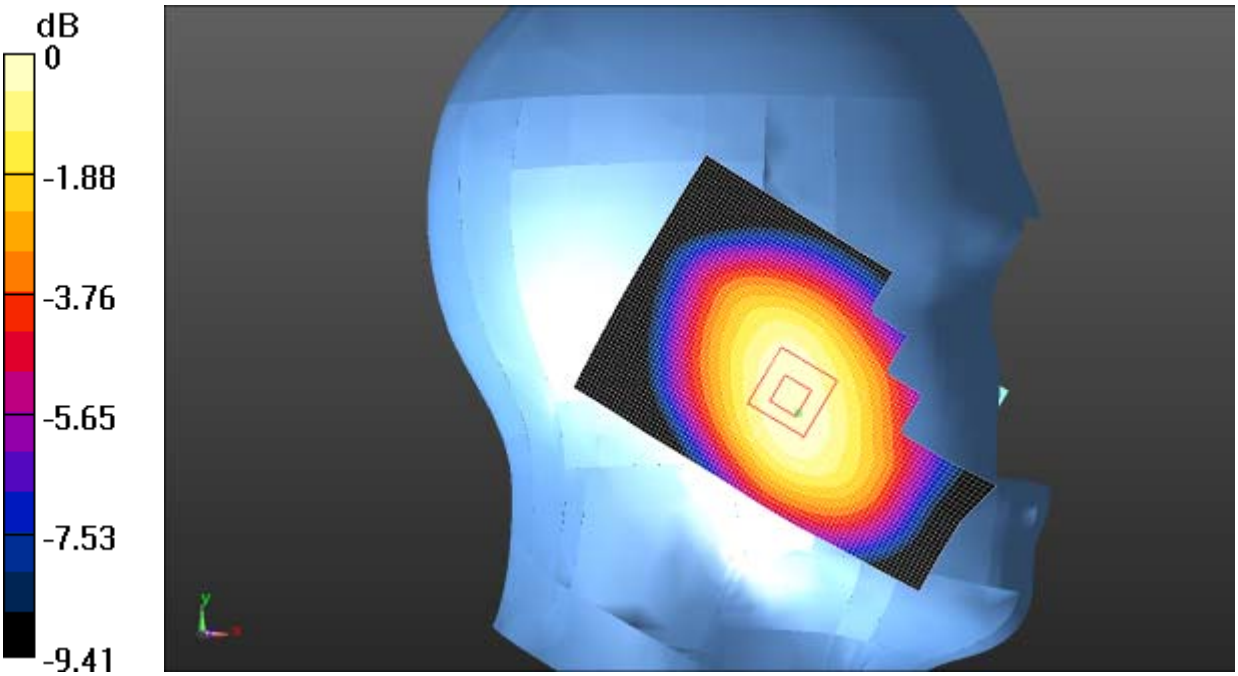


Fig. 5-1 Z-Scan at power reference point (850MHz CH251)

GSM850 Head

Date/Time: 6/12/2014 3:51:14 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.88 S/m; ε_r = 41.97; ρ = 1000 kg/m^3
Ambient Temperature:23.4^{o}C Liquid Temperature:22.9^{o}C
Communication System: GSM Frequency: 824.2 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Left Cheek Low/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 8.428 V/m; Power Drift = 0.14 dB
Maximum value of SAR (interpolated) = 0.429 W/kg
Left Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.428 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.528 W/kg
SAR(1 g) = 0.413 W/kg; SAR(10 g) = 0.312 W/kg
Maximum value of SAR (measured) = 0.428 W/kg

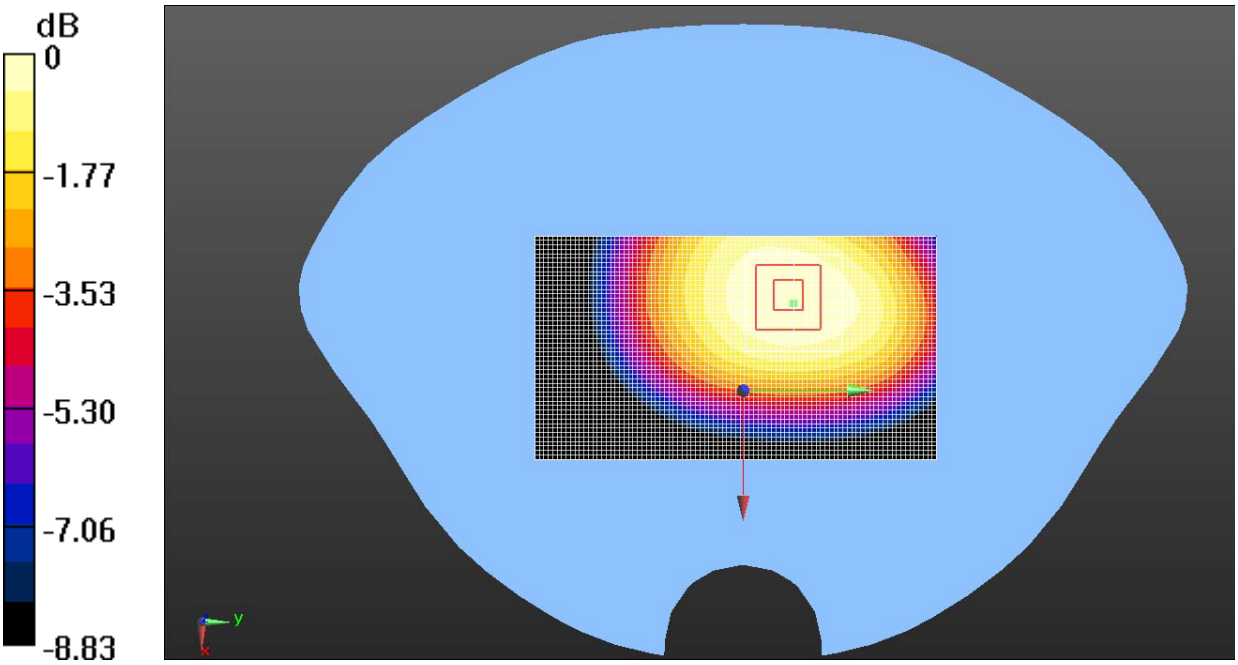


0 dB = 0.428 W/kg = -3.69 dBW/kg

Fig. 6 GSM 850MHz CH128

GSM850 Body

Date/Time: 6/13/2014 7:59:14 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 836.6 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Front side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 24.767 V/m; Power Drift = -0.03 dB
Maximum value of SAR (interpolated) = 0.710 W/kg
Front side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.767 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.811 W/kg
SAR(1 g) = 0.666 W/kg; SAR(10 g) = 0.511 W/kg
Maximum value of SAR (measured) = 0.694 W/kg

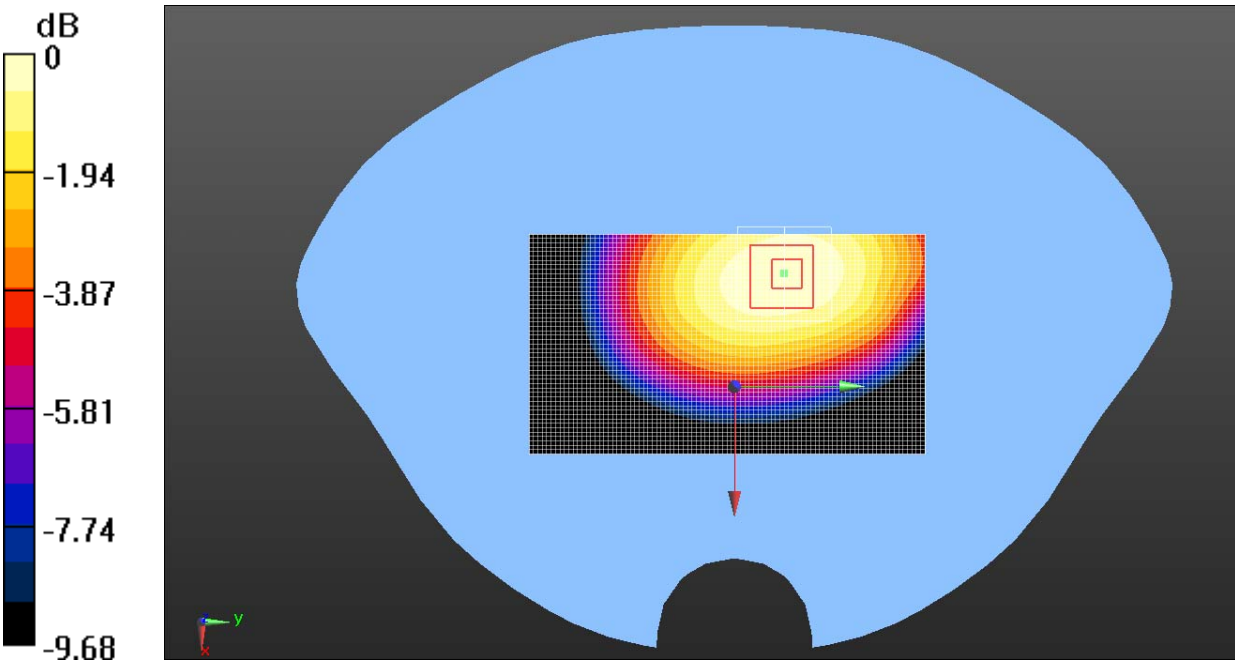


0 dB = 0.694 W/kg = -1.59 dBW/kg

Fig. 7 GSM 850MHz CH190

GSM850 Body

Date/Time: 6/13/2014 8:13:48 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 836.6 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Rear side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 24.879 V/m; Power Drift = 0.11 dB
Maximum value of SAR (interpolated) = 0.860 W/kg
Rear side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.879 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.817 W/kg; SAR(10 g) = 0.614 W/kg
Maximum value of SAR (measured) = 0.862 W/kg

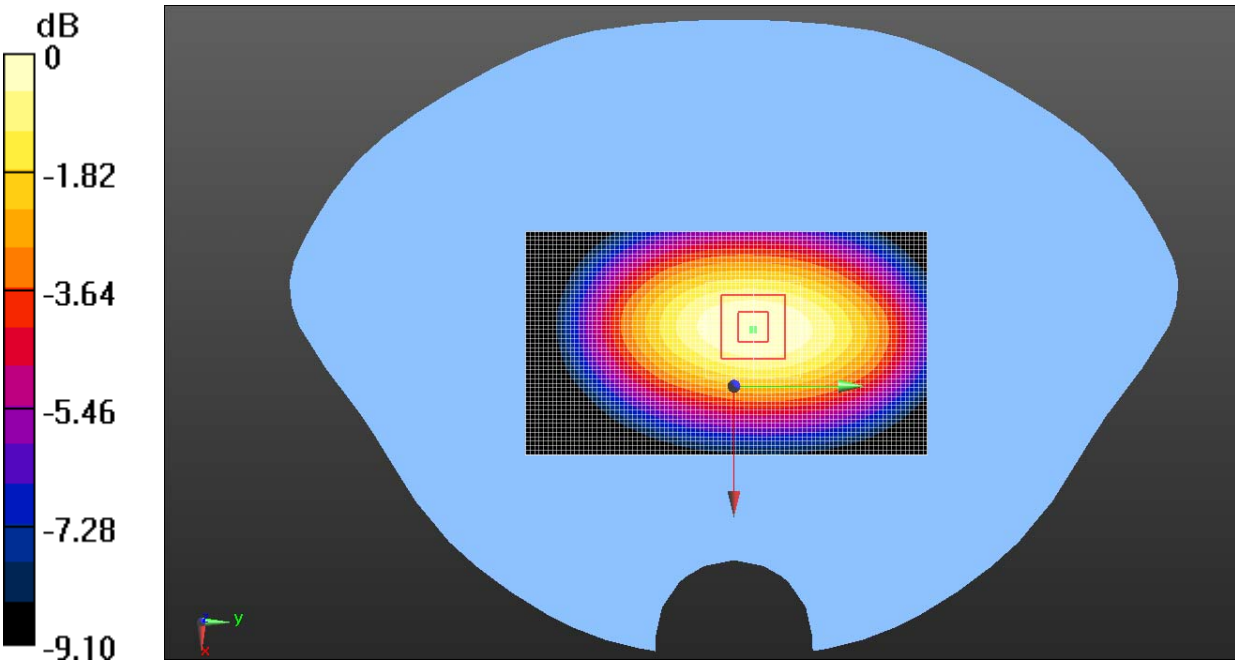


0 dB = 0.862 W/kg = -0.64 dBW/kg

Fig. 8 GSM 850MHz CH190

GSM850 Body

Date/Time: 6/13/2014 9:29:29 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 836.6 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Left side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 24.325 V/m; Power Drift = 0.03 dB
Maximum value of SAR (interpolated) = 0.598 W/kg
Left side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.325 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.746 W/kg
SAR(1 g) = 0.552 W/kg; SAR(10 g) = 0.388 W/kg
Maximum value of SAR (measured) = 0.588 W/kg

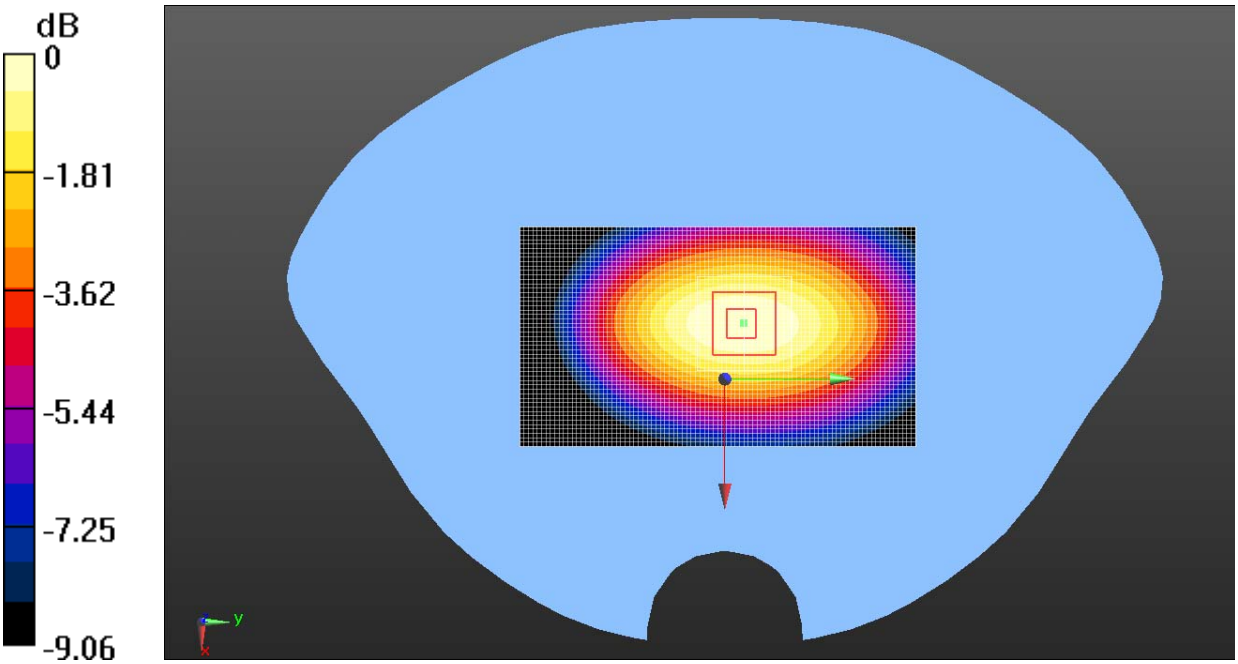


0 dB = 0.588 W/kg = -2.31 dBW/kg

Fig. 9 GSM 850MHz CH190

GSM850 Body

Date/Time: 6/13/2014 9:44:28 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 836.6 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Right side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 22.241 V/m; Power Drift = 0.03 dB
Maximum value of SAR (interpolated) = 0.487 W/kg
Right side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.241 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.612 W/kg
SAR(1 g) = 0.457 W/kg; SAR(10 g) = 0.323 W/kg
Maximum value of SAR (measured) = 0.485 W/kg

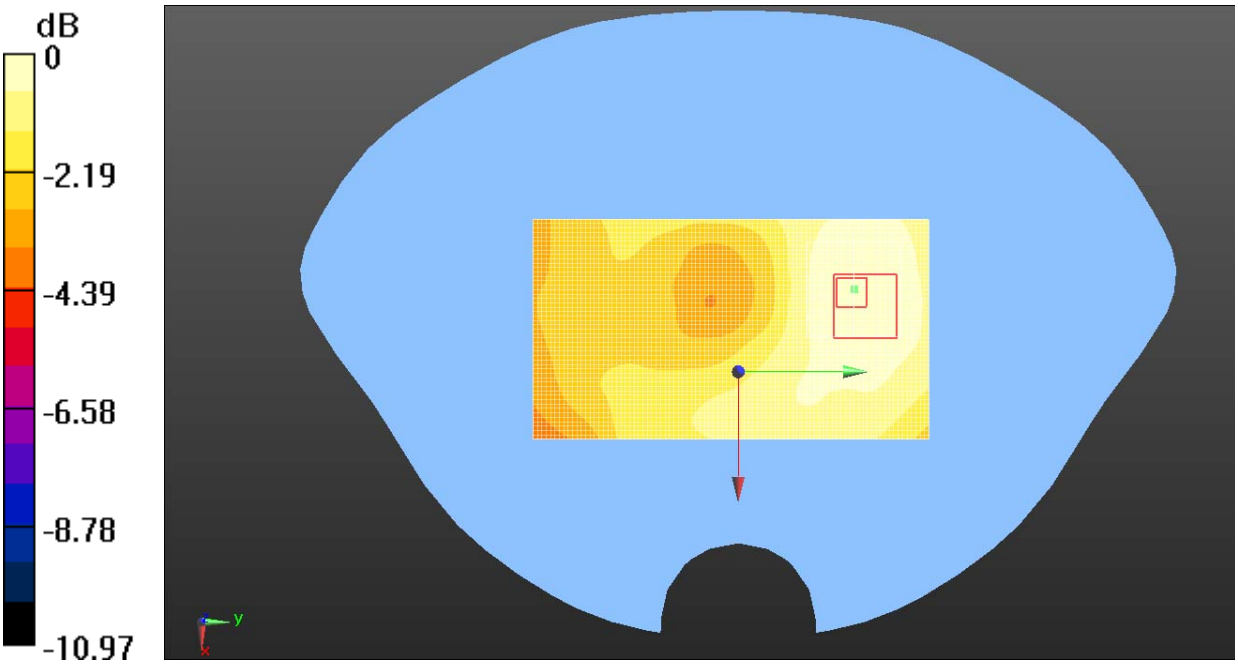


0 dB = 0.485 W/kg = -3.14 dBW/kg

Fig. 10 GSM 850MHz CH190

GSM850 Body

Date/Time: 6/13/2014 5:38:09 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 836.6 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Top side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 3.225 V/m; Power Drift = 0.12 dB
Maximum value of SAR (interpolated) = 0.0202 W/kg
Top side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.225 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0250 W/kg
SAR(1 g) = 0.019 W/kg; SAR(10 g) = 0.014 W/kg
Maximum value of SAR (measured) = 0.0199 W/kg

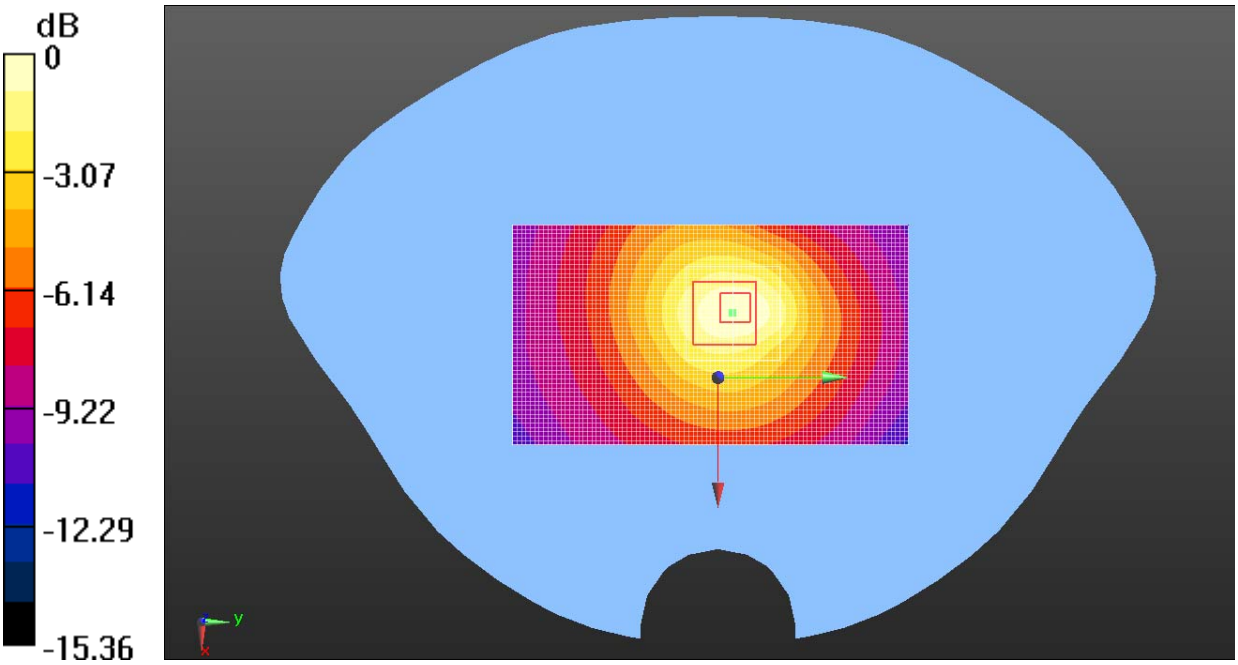


0 dB = 0.0199 W/kg = -17.01 dBW/kg

Fig. 11 GSM 850MHz CH190

GSM850 Body

Date/Time: 6/13/2014 5:53:57 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 836.6 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Bottom side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 10.805 V/m; Power Drift = 0.08 dB
Maximum value of SAR (interpolated) = 0.131 W/kg
Bottom side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.805 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.120 W/kg; SAR(10 g) = 0.069 W/kg
Maximum value of SAR (measured) = 0.131 W/kg

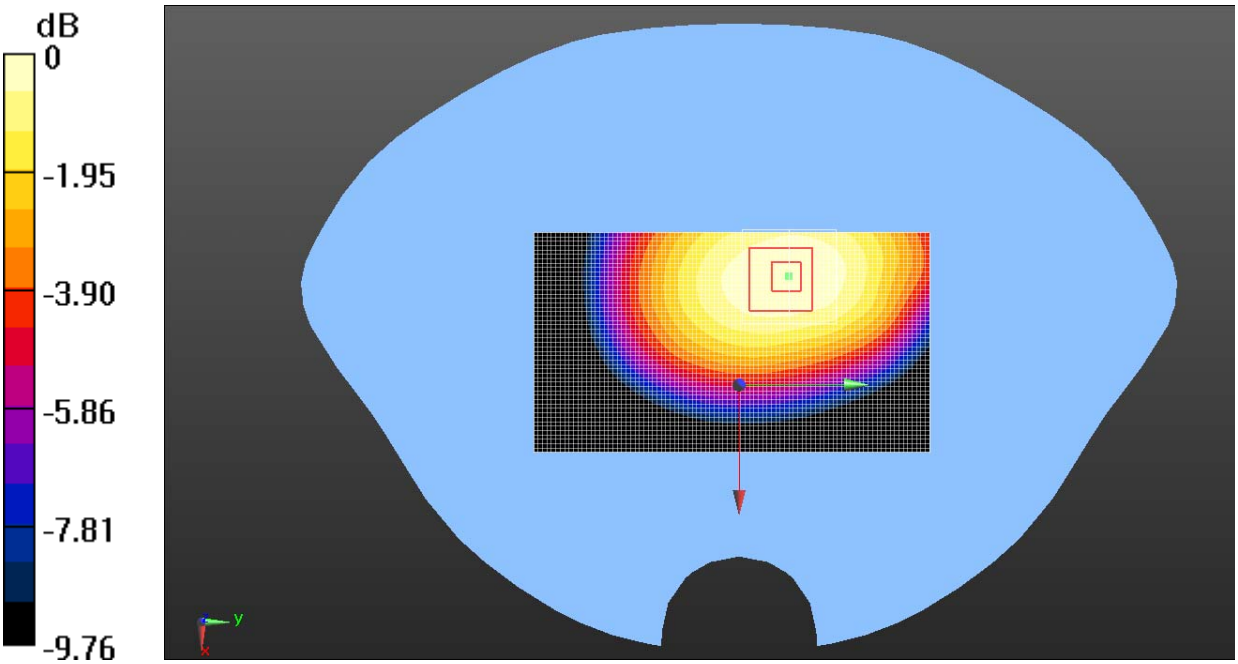


0 dB = 0.131 W/kg = -8.81 dBW/kg

Fig. 12 GSM 850MHz CH190

GSM850 Body

Date/Time: 6/13/2014 8:28:53 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 848.8 MHz; σ = 1.01 S/m; ε_r = 55.686; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 848.8 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Rear side High/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 24.214 V/m; Power Drift = 0.13 dB
Maximum value of SAR (interpolated) = 0.796 W/kg
Rear side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.214 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.930 W/kg
SAR(1 g) = 0.752 W/kg; SAR(10 g) = 0.565 W/kg
Maximum value of SAR (measured) = 0.794 W/kg

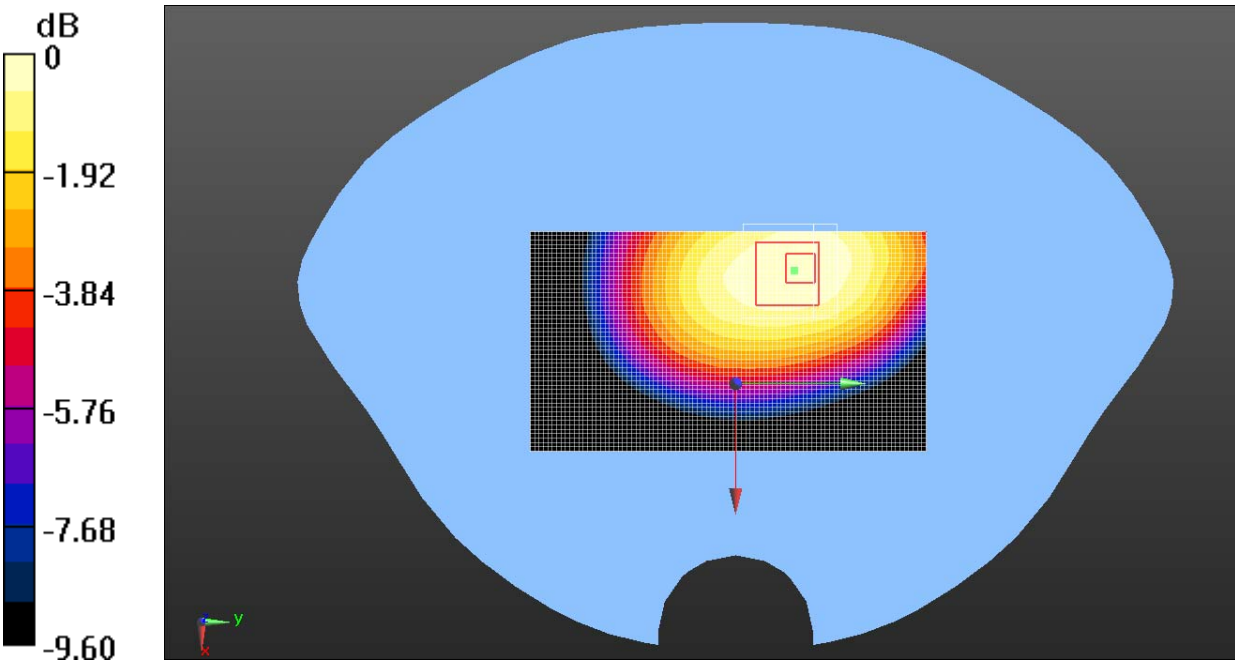


0 dB = 0.794 W/kg = -1.00 dBW/kg

Fig. 13 GSM 850MHz CH251

GSM850 Body

Date/Time: 6/13/2014 9:12:59 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.977 S/m; ε_r = 55.768; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 824.2 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Rear side Low /Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 25.511 V/m; Power Drift = 0.10 dB
Maximum value of SAR (interpolated) = 0.897 W/kg
Rear side Low /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.511 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.855 W/kg; SAR(10 g) = 0.643 W/kg
Maximum value of SAR (measured) = 0.896 W/kg



0 dB = 0.896 W/kg = -0.48 dBW/kg

Fig. 14 GSM 850MHz CH128

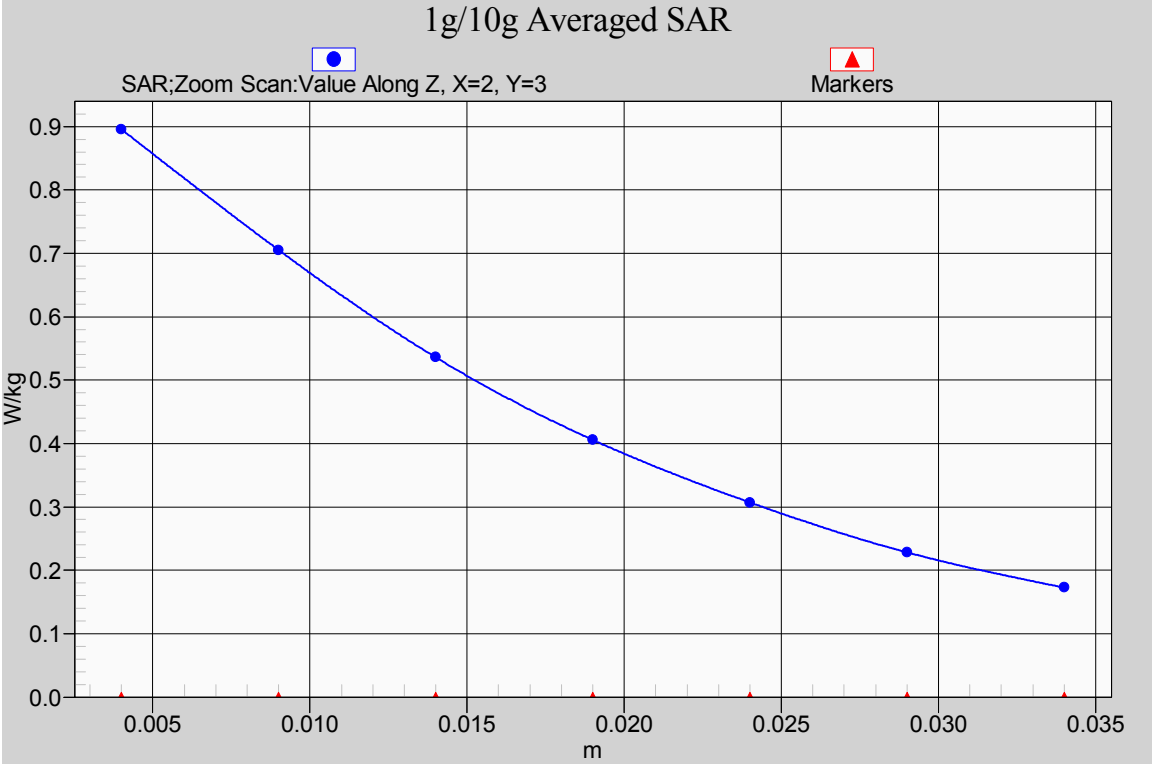
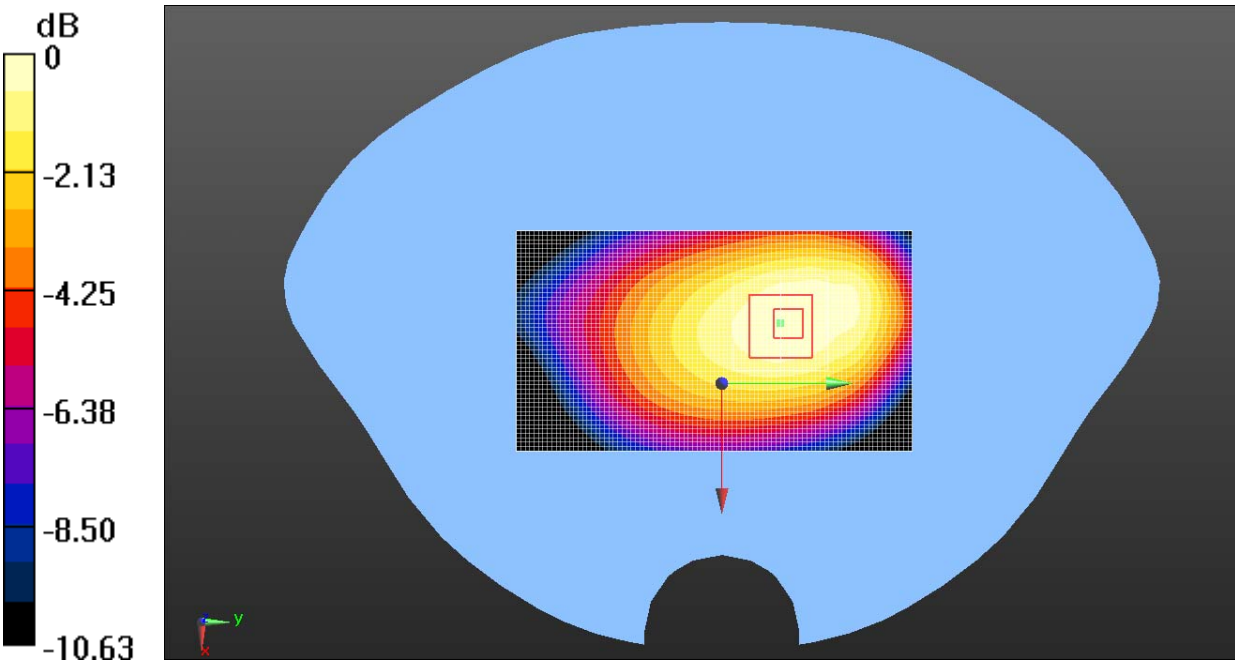


Fig. 14-1 Z-Scan at power reference point (850MHz CH128)

GSM850 Body

Date/Time: 6/13/2014 9:21:51 AM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.977 S/m; ε_r = 55.768; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: GSM Frequency: 824.2 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Rear side Low Speech/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 20.497 V/m; Power Drift = -0.02 dB
Maximum value of SAR (interpolated) = 0.483 W/kg
Rear side Low Speech/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.497 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.604 W/kg
SAR(1 g) = 0.458 W/kg; SAR(10 g) = 0.332 W/kg
Maximum value of SAR (measured) = 0.483 W/kg

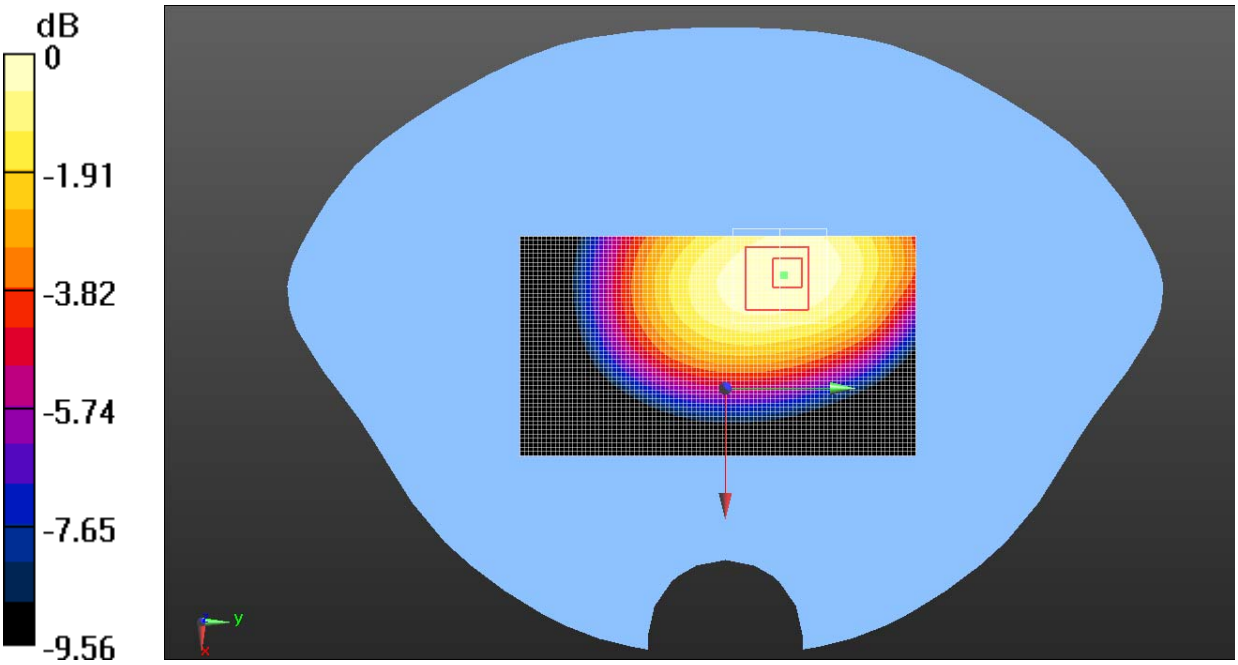


0 dB = 0.483 W/kg = -3.16 dBW/kg

Fig. 15 GSM 850MHz CH128

GSM850 Body

Date/Time: 6/13/2014 8:43:05 PM
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.977 S/m; ε_r = 55.768; ρ = 1000 kg/m^3
Ambient Temperature:23.8^{o}C Liquid Temperature:23.3^{o}C
Communication System: 4 slot GPRS Frequency: 824.2 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
Rear side Low Repeat /Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 25.218 V/m; Power Drift = 0.16 dB
Maximum value of SAR (interpolated) = 0.882 W/kg
Rear side Low Repeat /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.218 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.843 W/kg; SAR(10 g) = 0.632 W/kg
Maximum value of SAR (measured) = 0.884 W/kg

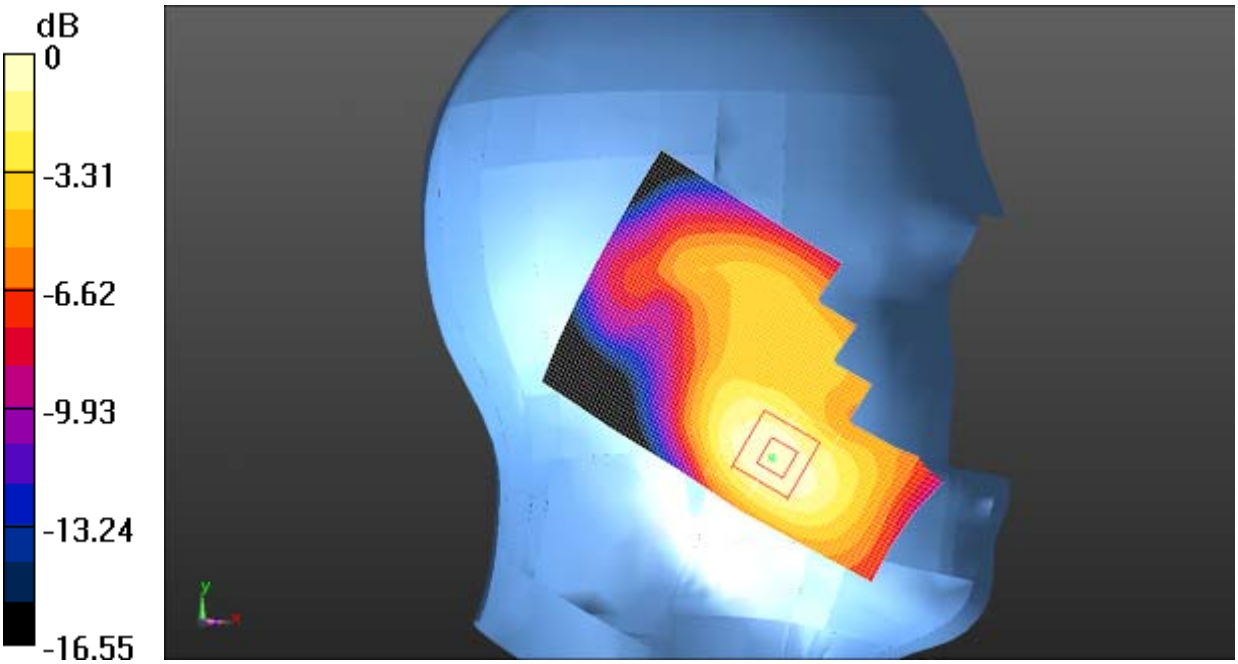


0 dB = 0.884 W/kg = -0.54 dBW/kg

Fig. 16 GSM 850MHz CH128

GSM1900 Head

Date/Time: 6/11/2014 10:18:29 AM
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1880 MHz; σ = 1.454 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Ambient Temperature:23.1°C Liquid Temperature:22.6°C
Communication System: GSM Frequency: 1880 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013
left/Cheek Middle/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 6.857 V/m; Power Drift = 0.19 dB
Maximum value of SAR (interpolated) = 0.389 W/kg
left/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.857 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.542 W/kg
SAR(1 g) = 0.359 W/kg; SAR(10 g) = 0.217 W/kg
Maximum value of SAR (measured) = 0.394 W/kg



0 dB = 0.394 W/kg = -4.05 dBW/kg

Fig. 17 GSM 1900MHz CH661

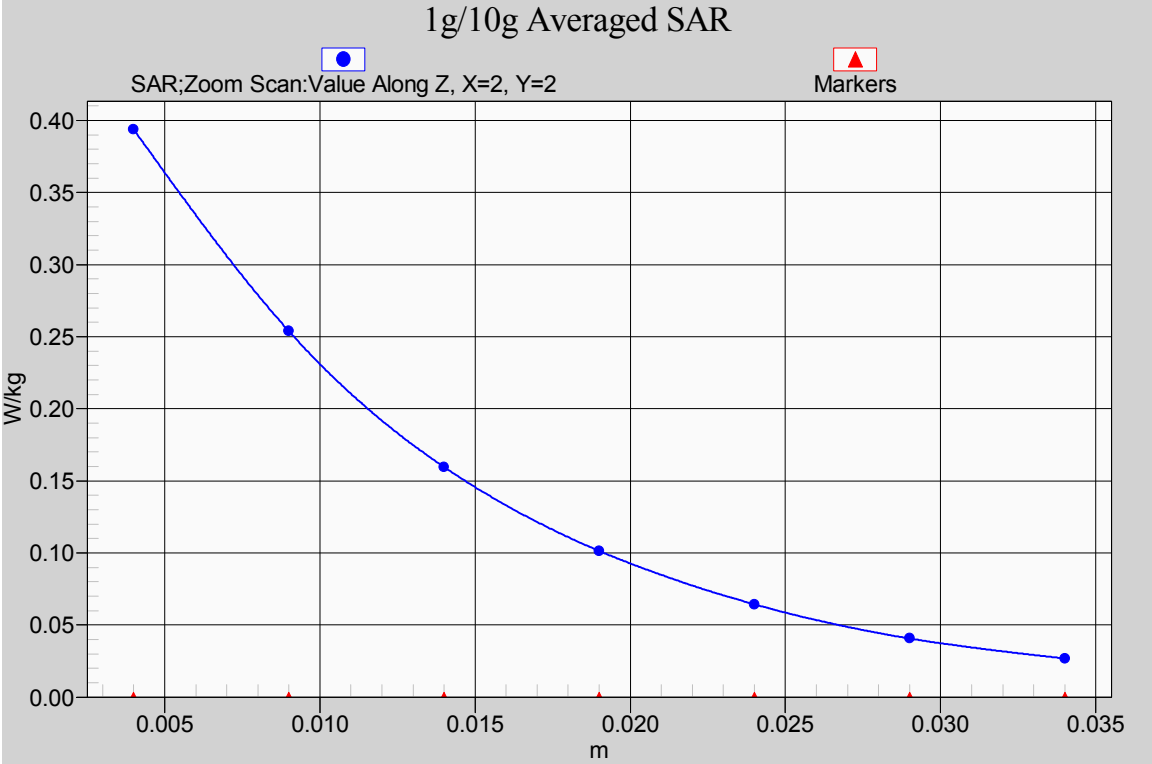
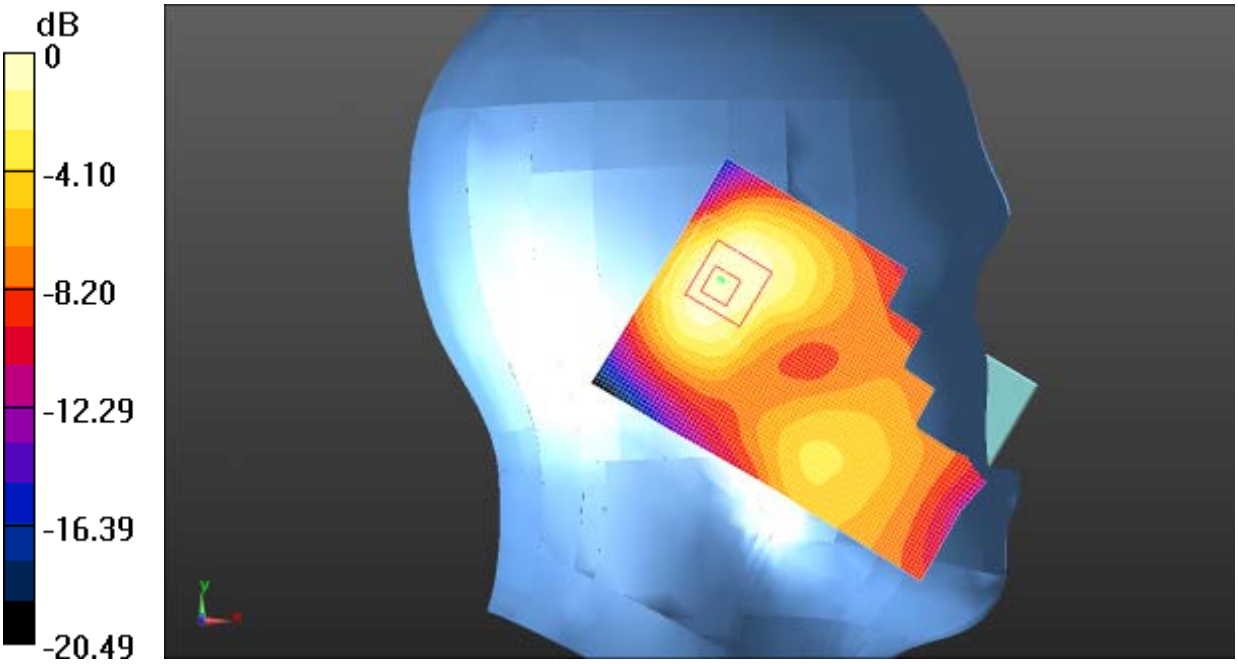


Fig. 17-1 Z-Scan at power reference point (1900MHz CH661)

GSM1900 Head

Date/Time: 6/11/2014 11:04:26 AM
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1880 MHz; σ = 1.454 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Ambient Temperature:23.1°C Liquid Temperature:22.6°C
Communication System: GSM Frequency: 1880 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013
left/Tilt Middle/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.725 V/m; Power Drift = -0.11 dB
Maximum value of SAR (interpolated) = 0.173 W/kg
left/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.725 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.215 W/kg
SAR(1 g) = 0.141 W/kg; SAR(10 g) = 0.085 W/kg
Maximum value of SAR (measured) = 0.153 W/kg



0 dB = 0.153 W/kg = -8.15 dBW/kg

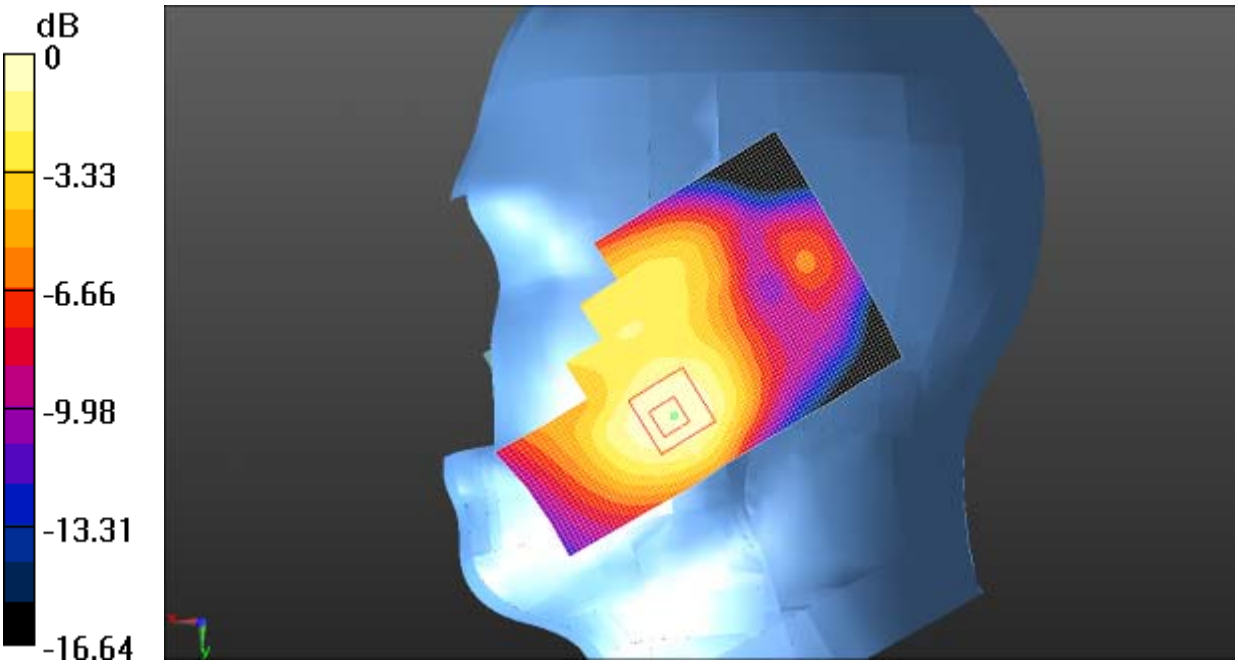
Fig. 18 GSM 1900MHz CH661

GSM1900 Head

Date/Time: 6/11/2014 9:47:12 AM
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1880 MHz; σ = 1.454 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Ambient Temperature:23.1°C Liquid Temperature:22.6°C
Communication System: GSM Frequency: 1880 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013

right/Cheek Middle/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 7.215 V/m; Power Drift = 0.01 dB
Maximum value of SAR (interpolated) = 0.324 W/kg

right/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.215 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.412 W/kg
SAR(1 g) = 0.291 W/kg; SAR(10 g) = 0.185 W/kg
Maximum value of SAR (measured) = 0.316 W/kg

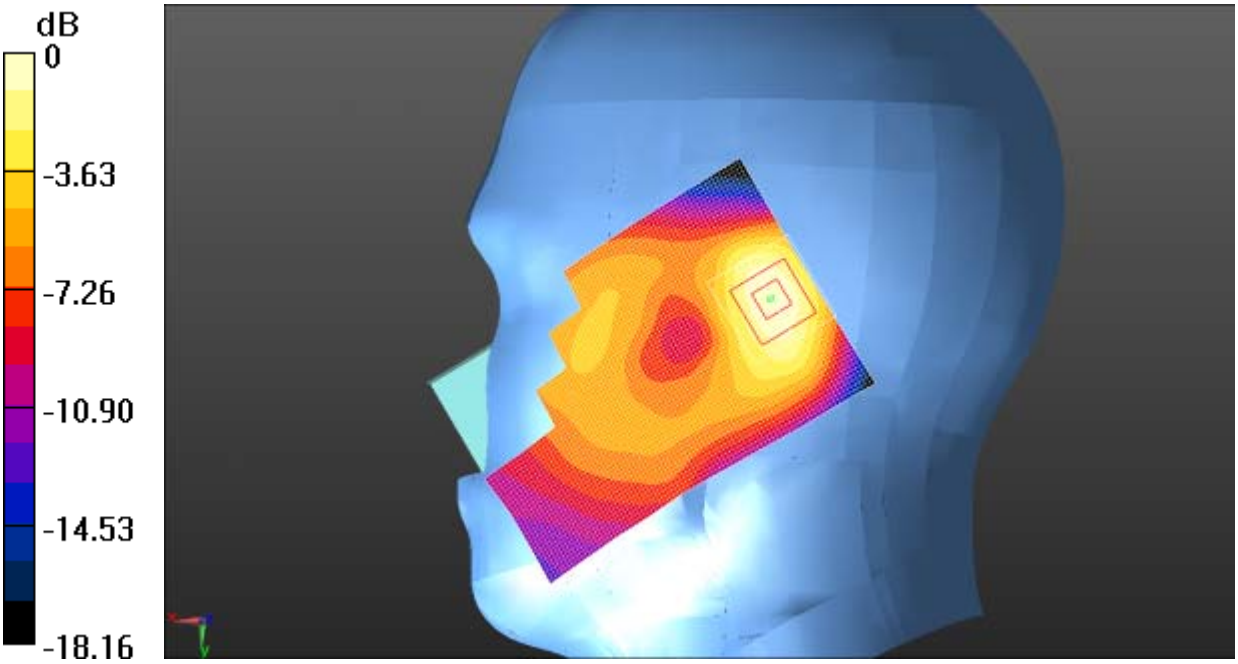


0 dB = 0.316 W/kg = -5.00 dBW/kg

Fig. 19 GSM 1900MHz CH661

GSM1900 Head

Date/Time: 6/11/2014 10:02:52 AM
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1880 MHz; σ = 1.454 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Ambient Temperature:23.1°C Liquid Temperature:22.6°C
Communication System: GSM Frequency: 1880 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013
right/Tilt Middle/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.853 V/m; Power Drift = 0.01 dB
Maximum value of SAR (interpolated) = 0.149 W/kg
right/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.853 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.201 W/kg
SAR(1 g) = 0.129 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.144 W/kg

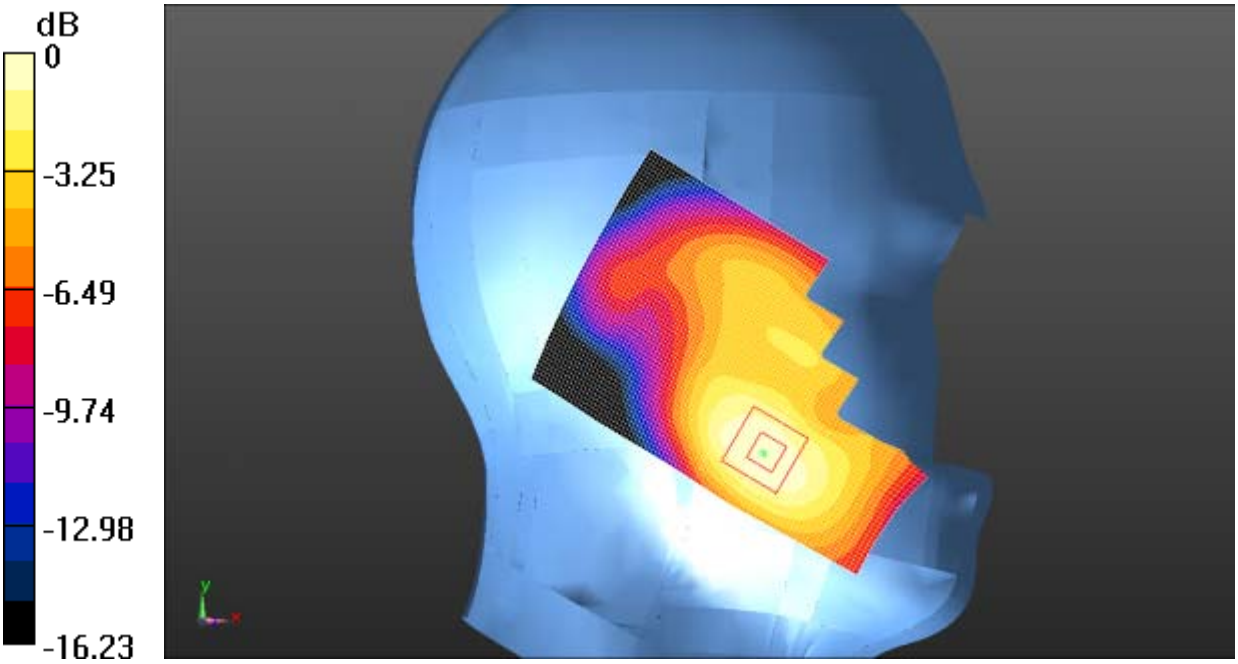


0 dB = 0.144 W/kg = -8.42 dBW/kg

Fig. 20 GSM 1900MHz CH661

GSM1900 Head

Date/Time: 6/11/2014 10:33:59 AM
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1910 MHz; σ = 1.471 S/m; ε_r = 38.632; ρ = 1000 kg/m^3
Ambient Temperature:23.1°C Liquid Temperature:22.6°C
Communication System: GSM Frequency: 1910 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013
left/Cheek High/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 7.264 V/m; Power Drift = 0.01 dB
Maximum value of SAR (interpolated) = 0.387 W/kg
left/Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.264 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.531 W/kg
SAR(1 g) = 0.349 W/kg; SAR(10 g) = 0.210 W/kg
Maximum value of SAR (measured) = 0.382 W/kg

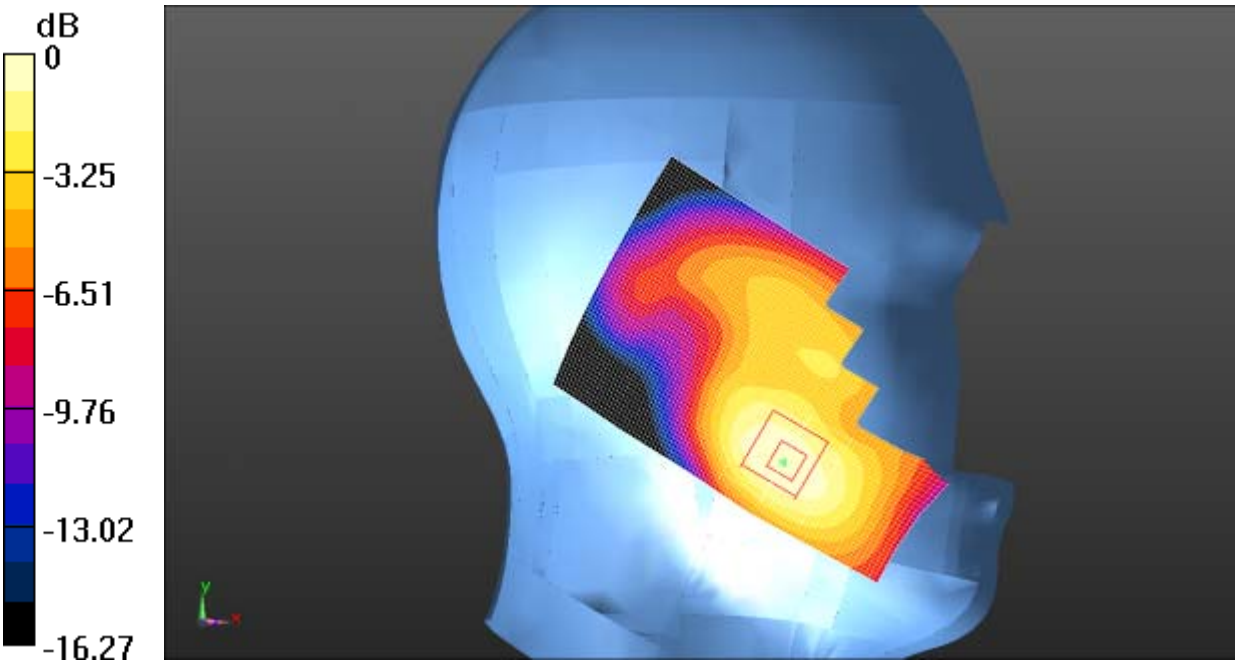


0 dB = 0.382 W/kg = -4.18 dBW/kg

Fig. 21 GSM 1900MHz CH810

GSM1900 Head

Date/Time: 6/11/2014 10:48:37 AM
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.427 S/m; ε_r = 38.844; ρ = 1000 kg/m^3
Ambient Temperature:23.1^{o}C Liquid Temperature:22.6^{o}C
Communication System: GSM Frequency: 1850.2 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(5.21, 5.21, 5.21); Calibrated: 7/31/2013
left/Cheek Low/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 7.084 V/m; Power Drift = 0.12 dB
Maximum value of SAR (interpolated) = 0.377 W/kg
left/Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.084 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.507 W/kg
SAR(1 g) = 0.341 W/kg; SAR(10 g) = 0.209 W/kg
Maximum value of SAR (measured) = 0.373 W/kg



0 dB = 0.373 W/kg = -4.28 dBW/kg

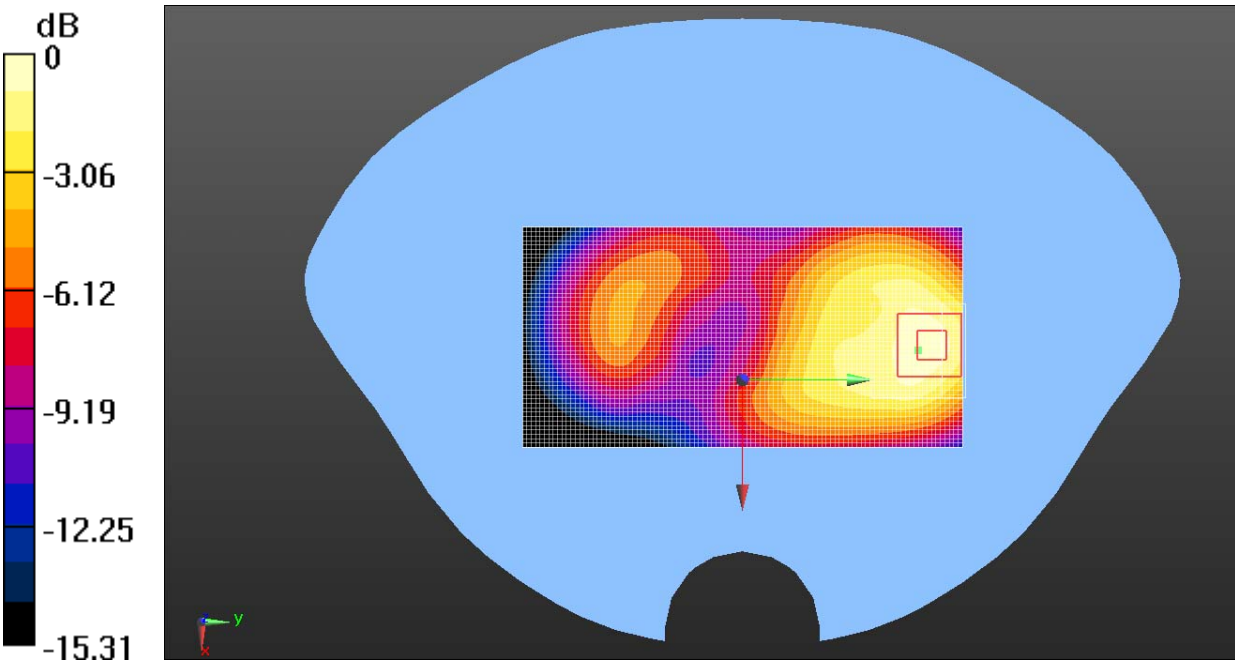
Fig. 22 GSM 1900MHz CH512

GSM1900 Body

Date/Time: 6/19/2014 7:10:39 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5^{o}C Liquid Temperature:22.0^{o}C
Communication System: 4 slot GPRS Frequency: 1880 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013

BODY/Front side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 7.695 V/m; Power Drift = 0.01 dB
Maximum value of SAR (interpolated) = 0.693 W/kg

BODY/Front side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.695 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.676 W/kg; SAR(10 g) = 0.391 W/kg
Maximum value of SAR (measured) = 0.724 W/kg



0 dB = 0.724 W/kg = -1.40 dBW/kg

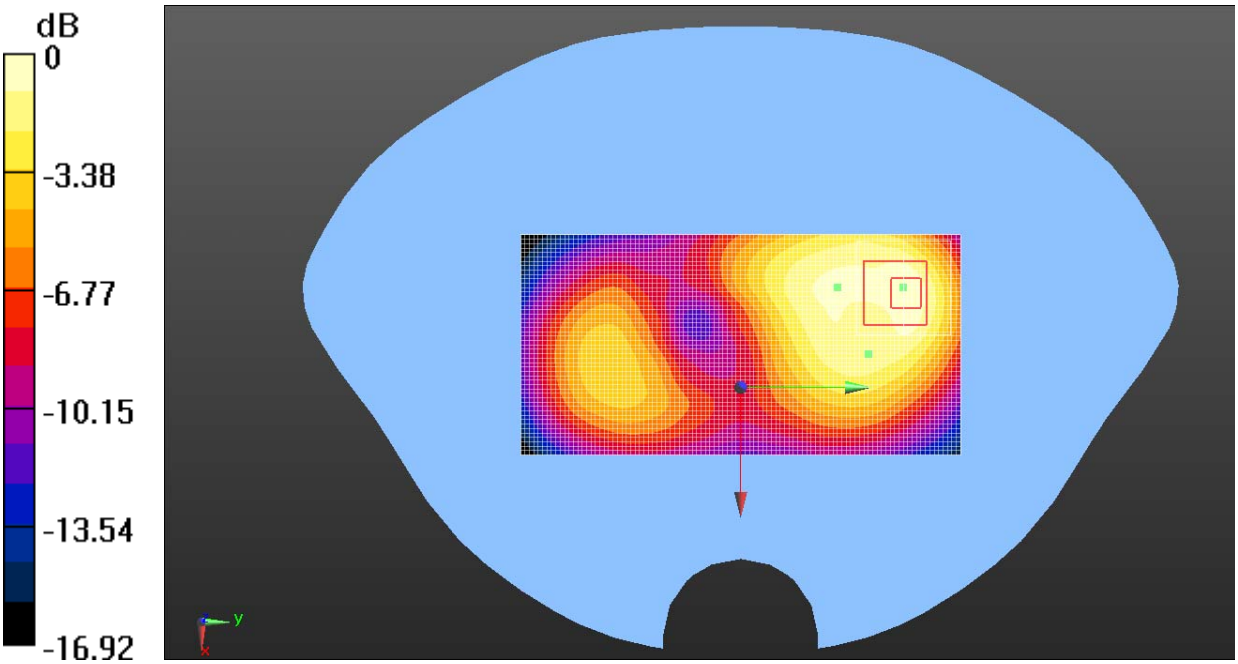
Fig. 23 GSM 1900MHz CH661

GSM1900 Body

Date/Time: 6/19/2014 7:28:45 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5^{o}C Liquid Temperature:22.0^{o}C
Communication System: 4 slot GPRS Frequency: 1880 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013

BODY/Rear side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 8.331 V/m; Power Drift = 0.06 dB
Maximum value of SAR (interpolated) = 0.752 W/kg

BODY/Rear side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.331 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.635 W/kg; SAR(10 g) = 0.376 W/kg
Maximum value of SAR (measured) = 0.711 W/kg

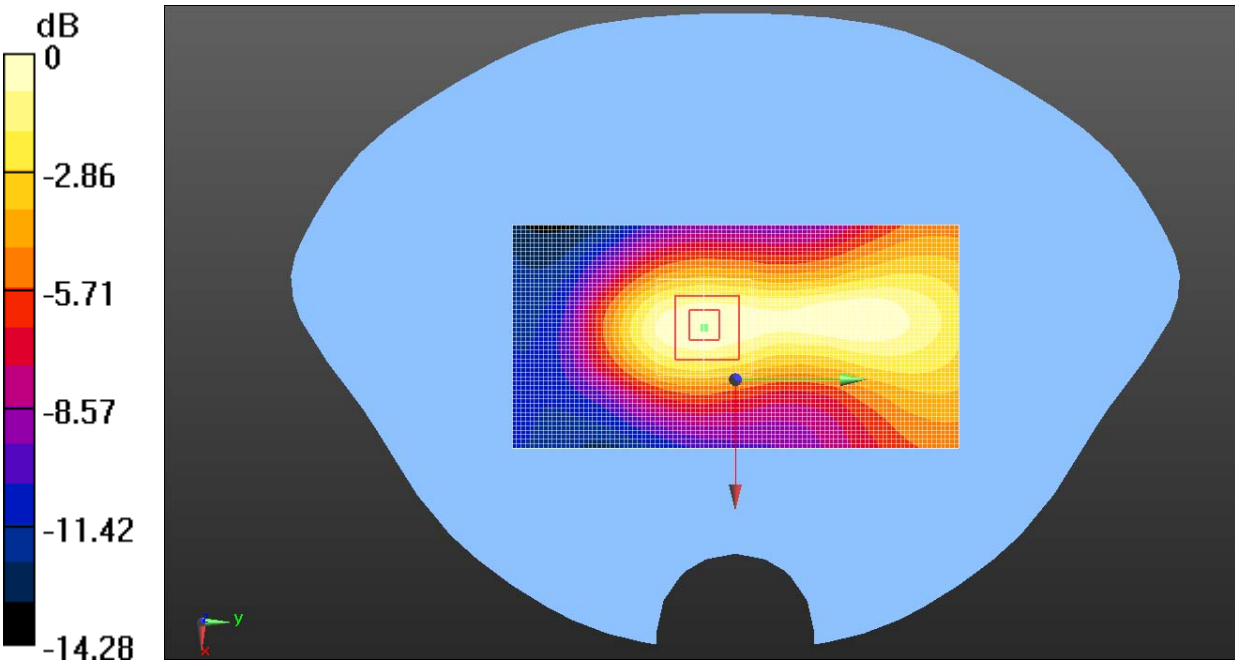


0 dB = 0.711 W/kg = -1.48 dBW/kg

Fig. 24 GSM 1900MHz CH661

GSM1900 Body

Date/Time: 6/19/2014 7:45:43 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.0°C
Communication System: 4 slot GPRS Frequency: 1880 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013
BODY/Left side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 10.979 V/m; Power Drift = 0.01 dB
Maximum value of SAR (interpolated) = 0.186 W/kg
BODY/Left side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.979 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.165 W/kg; SAR(10 g) = 0.100 W/kg
Maximum value of SAR (measured) = 0.181 W/kg



0 dB = 0.181 W/kg = -7.42 dBW/kg

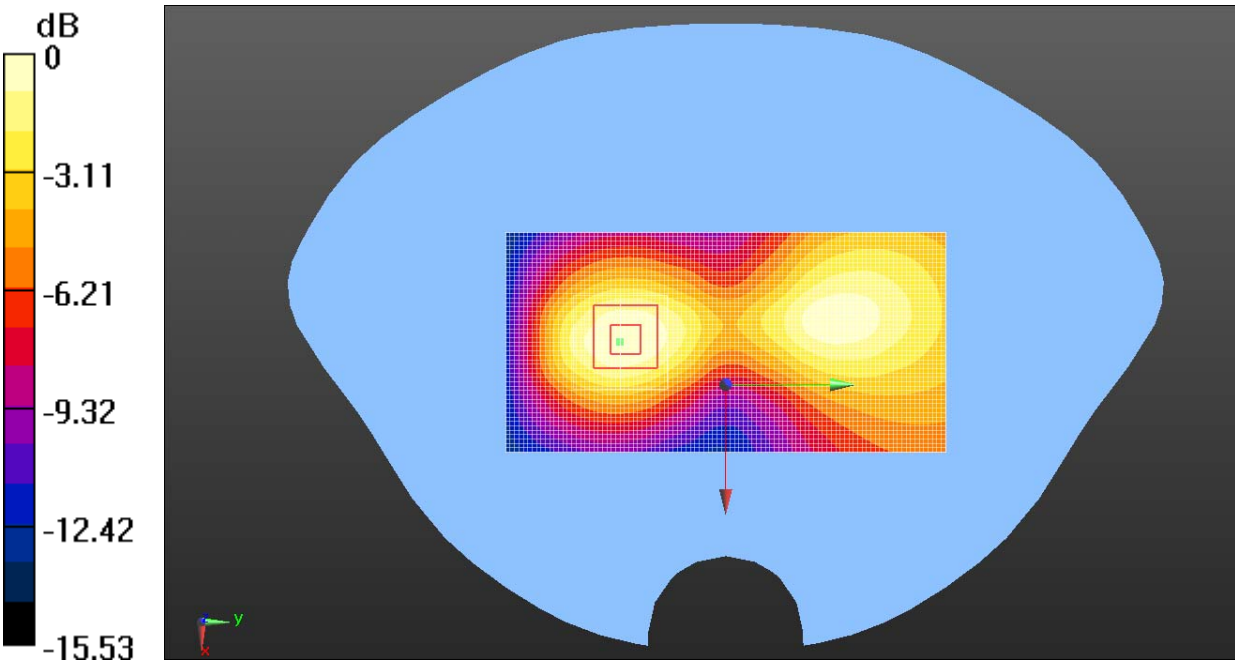
Fig. 25 GSM 1900MHz CH661

GSM1900 Body

Date/Time: 6/19/2014 8:02:07 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.0°C
Communication System: 4 slot GPRS Frequency: 1880 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013

BODY/Right side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 7.149 V/m; Power Drift = 0.08 dB
Maximum value of SAR (interpolated) = 0.202 W/kg

BODY/Right side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.149 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.271 W/kg
SAR(1 g) = 0.176 W/kg; SAR(10 g) = 0.106 W/kg
Maximum value of SAR (measured) = 0.191 W/kg



0 dB = 0.191 W/kg = -7.19 dBW/kg

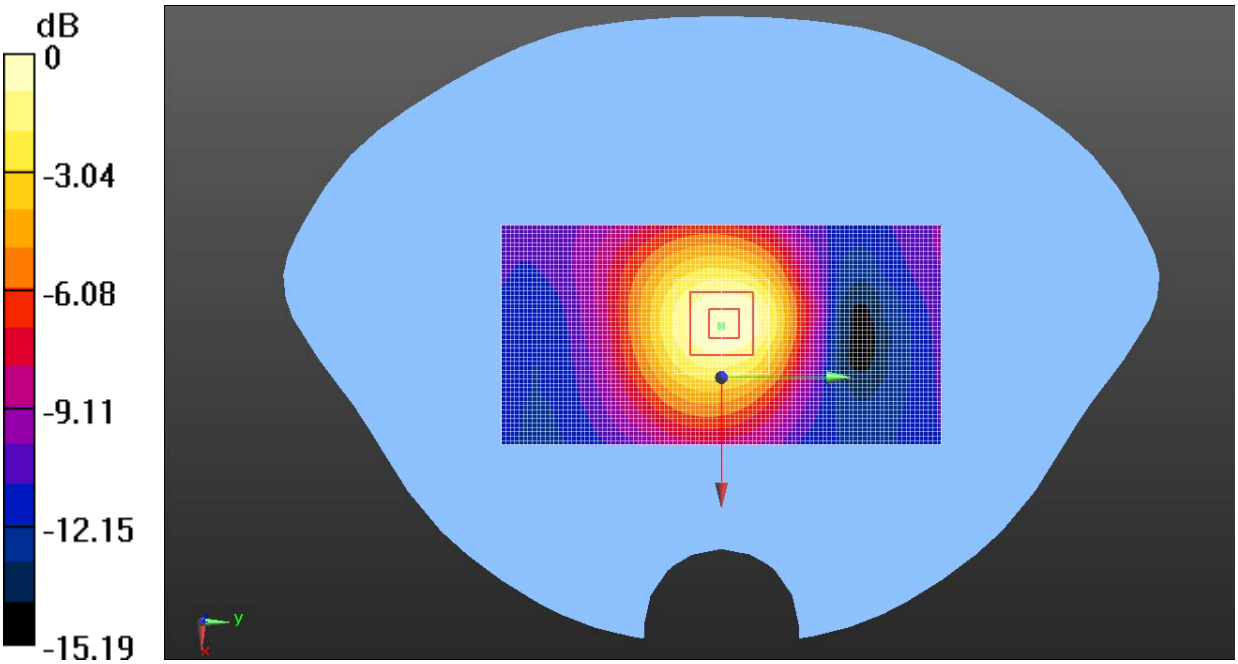
Fig. 26 GSM 1900MHz CH661

GSM1900 Body

Date/Time: 6/19/2014 8:18:53 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.0°C
Communication System: 4 slot GPRS Frequency: 1880 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013

BODY/Top side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.038 V/m; Power Drift = 0.13 dB
Maximum value of SAR (interpolated) = 0.118 W/kg

BODY/Top side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.038 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.162 W/kg
SAR(1 g) = 0.107 W/kg; SAR(10 g) = 0.065 W/kg
Maximum value of SAR (measured) = 0.117 W/kg



0 dB = 0.117 W/kg = -9.32 dBW/kg

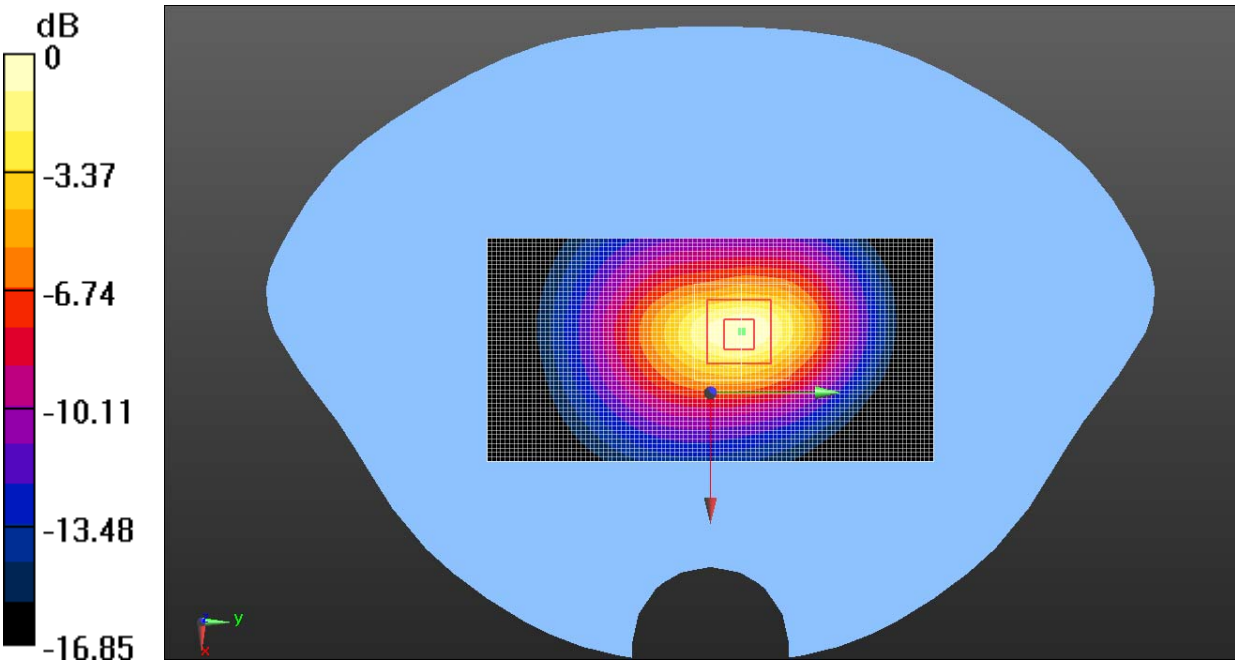
Fig. 27 GSM 1900MHz CH661

GSM1900 Body

Date/Time: 6/19/2014 8:54:39 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5^{o}C Liquid Temperature:22.0^{o}C
Communication System: 4 slot GPRS Frequency: 1880 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013

BODY/Bottom side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 22.743 V/m; Power Drift = 0.04 dB
Maximum value of SAR (interpolated) = 0.909 W/kg

BODY/Bottom side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.743 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.797 W/kg; SAR(10 g) = 0.430 W/kg
Maximum value of SAR (measured) = 0.908 W/kg

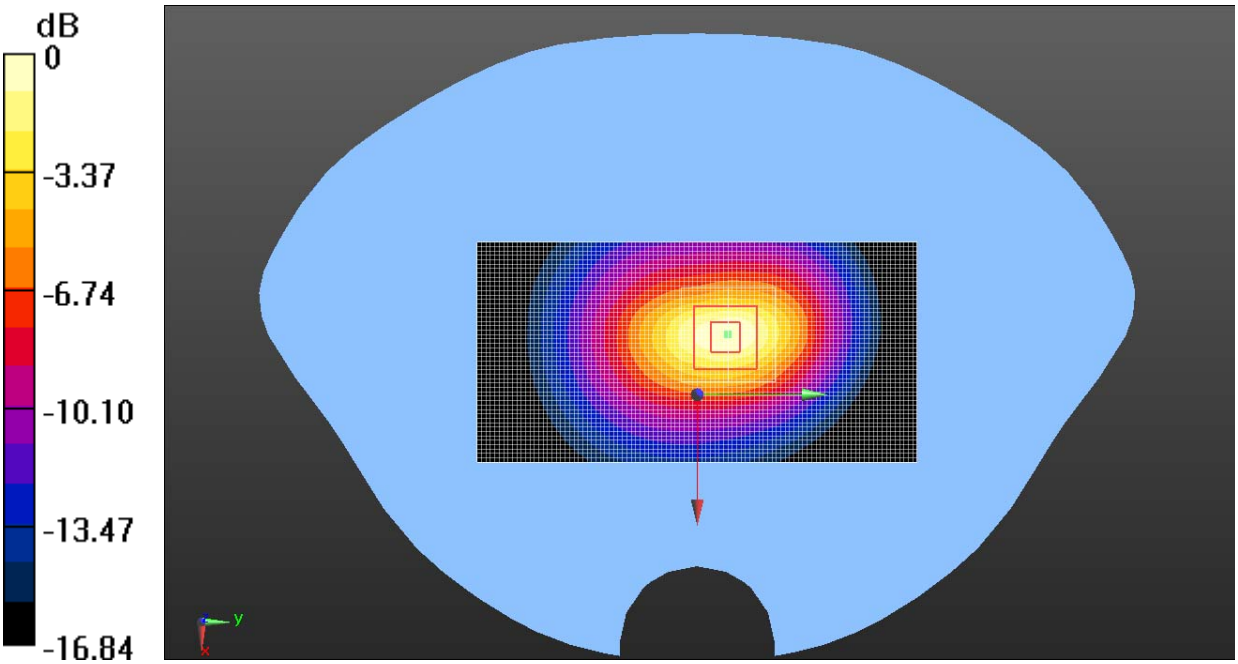


0 dB = 0.908 W/kg = -0.42 dBW/kg

Fig. 28 GSM 1900MHz CH661

GSM1900 Body

Date/Time: 6/19/2014 9:44:42 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1910 MHz; σ = 1.522 S/m; ε_r = 52.593; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.0°C
Communication System: 4 slot GPRS Frequency: 1909.8 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013
BODY/Bottom side High /Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 22.908 V/m; Power Drift = 0.07 dB
Maximum value of SAR (interpolated) = 0.930 W/kg
BODY/Bottom side High /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.908 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.820 W/kg; SAR(10 g) = 0.444 W/kg
Maximum value of SAR (measured) = 0.937 W/kg



0 dB = 0.937 W/kg = -0.28 dBW/kg

Fig. 29 GSM 1900MHz CH810

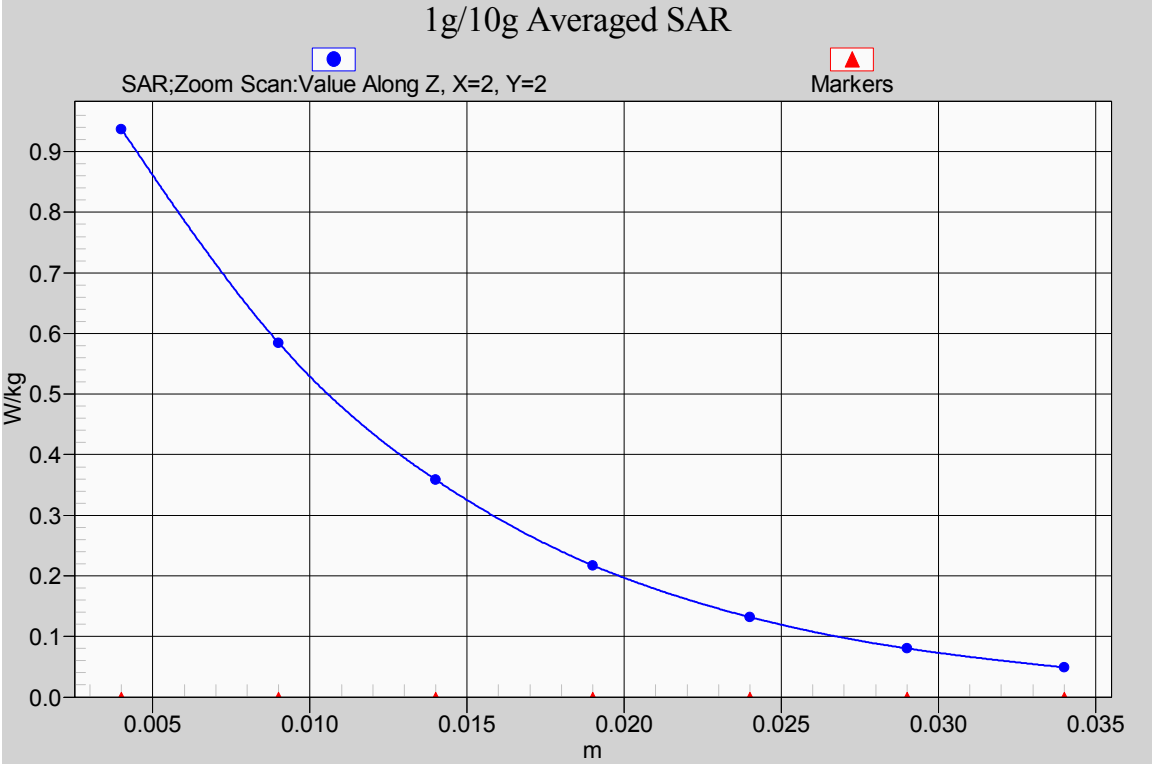
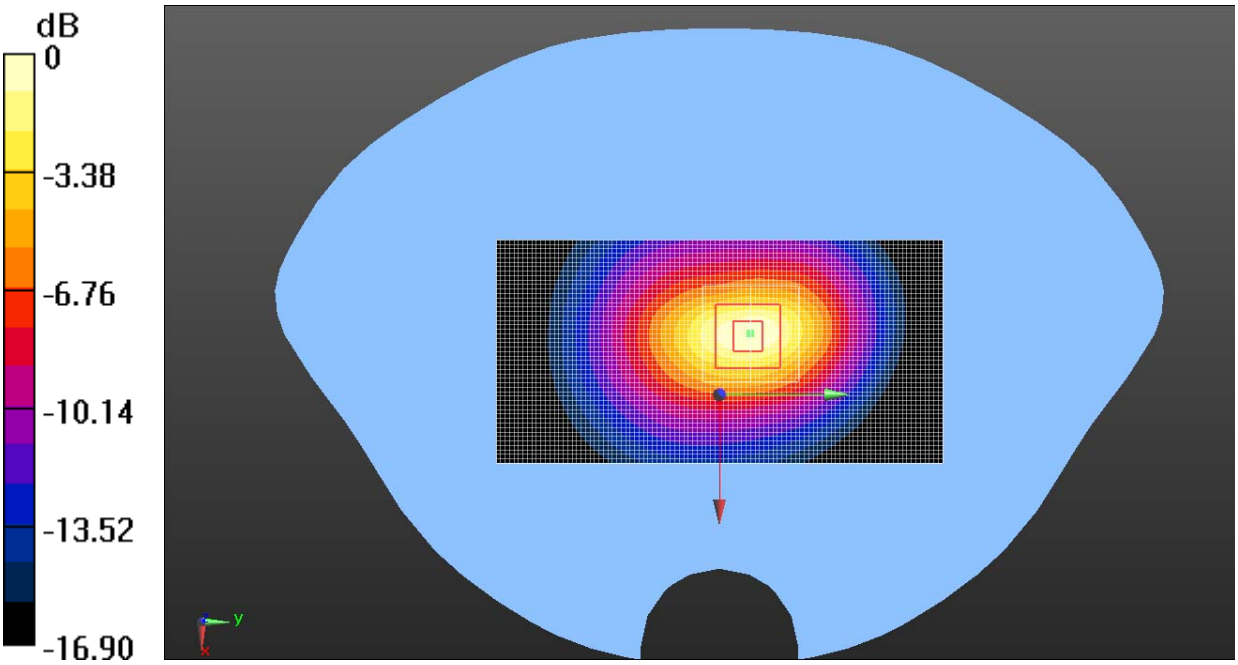


Fig. 29-1 Z-Scan at power reference point (1900 MHz CH810)

GSM1900 Body

Date/Time: 6/19/2014 9:27:57 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.47 S/m; ε_r = 52.741; ρ = 1000 kg/m^3
Ambient Temperature:22.5^{o}C Liquid Temperature:22.0^{o}C
Communication System: 4 slot GPRS Frequency: 1850.2 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.96, 4.96, 4.96); Calibrated: 7/31/2013
BODY/Bottom side Low/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 22.758 V/m; Power Drift = 0.05 dB
Maximum value of SAR (interpolated) = 0.896 W/kg
BODY/Bottom side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.758 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.792 W/kg; SAR(10 g) = 0.427 W/kg
Maximum value of SAR (measured) = 0.901 W/kg

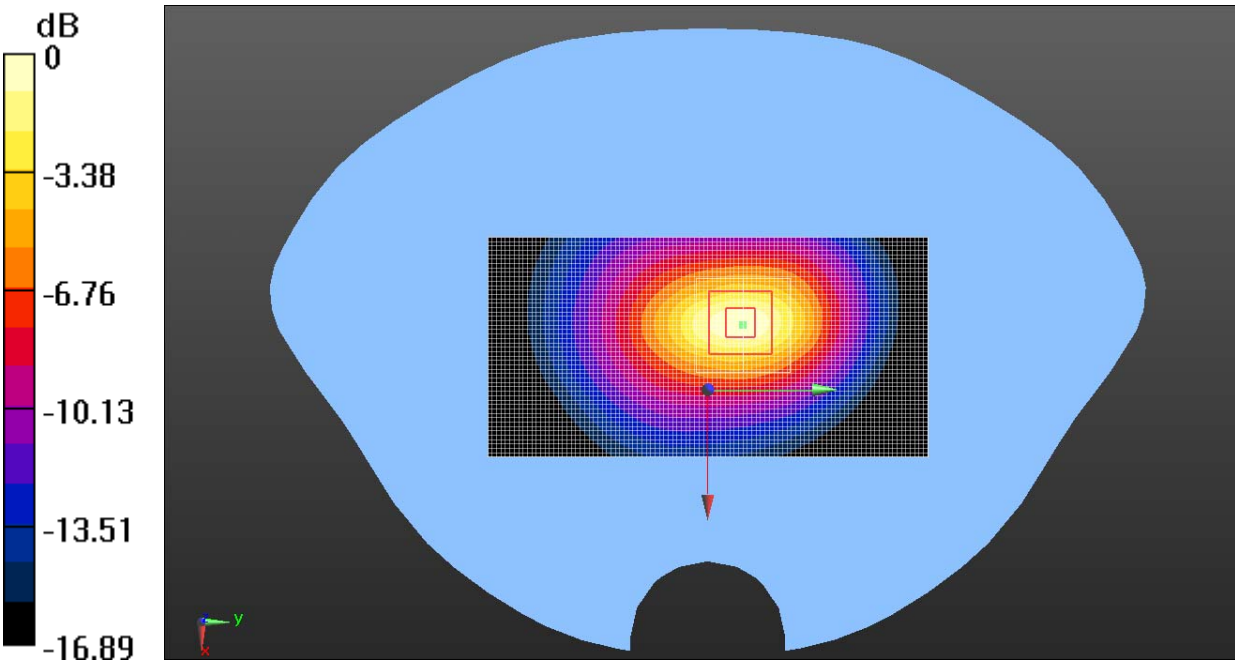


0 dB = 0.901 W/kg = -0.45 dBW/kg

Fig. 30 GSM 1900MHz CH512

GSM1900 Body

Date/Time: 6/19/2014 2:58:03 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1910 MHz; σ = 1.522 S/m; ε_r = 52.593; ρ = 1000 kg/m^3
Ambient Temperature:22.5^{o}C Liquid Temperature:22.0^{o}C
Communication System: GSM Frequency: 1910 MHz Duty Cycle: 1:8.30042
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013
BODY/Bottom side High Speech/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 17.321 V/m; Power Drift = 0.20 dB
Maximum value of SAR (interpolated) = 0.646 W/kg
BODY/Bottom side High Speech/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.321 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.935 W/kg
SAR(1 g) = 0.578 W/kg; SAR(10 g) = 0.311 W/kg
Maximum value of SAR (measured) = 0.660 W/kg



0 dB = 0.660 W/kg = -1.80 dBW/kg

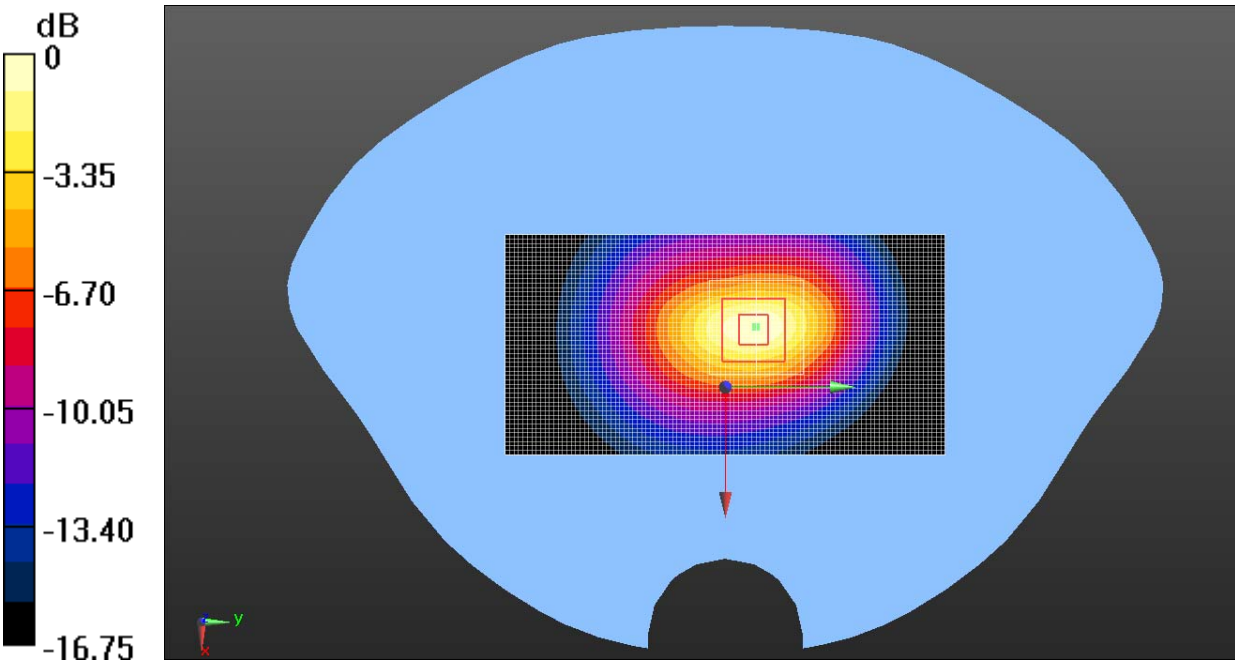
Fig. 31 GSM 1900MHz CH810

GSM1900 Body

Date/Time: 6/19/2014 9:11:57 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1910 MHz; σ = 1.522 S/m; ε_r = 52.593; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.0°C
Communication System: 4 slot GPRS Frequency: 1909.8 MHz Duty Cycle: 1:2.08018
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013

BODY/Bottom side High Repeat/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 22.685 V/m; Power Drift = 0.11 dB
Maximum value of SAR (interpolated) = 0.906 W/kg

BODY/Bottom side High Repeat/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.685 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 0.811 W/kg; SAR(10 g) = 0.439 W/kg
Maximum value of SAR (measured) = 0.928 W/kg

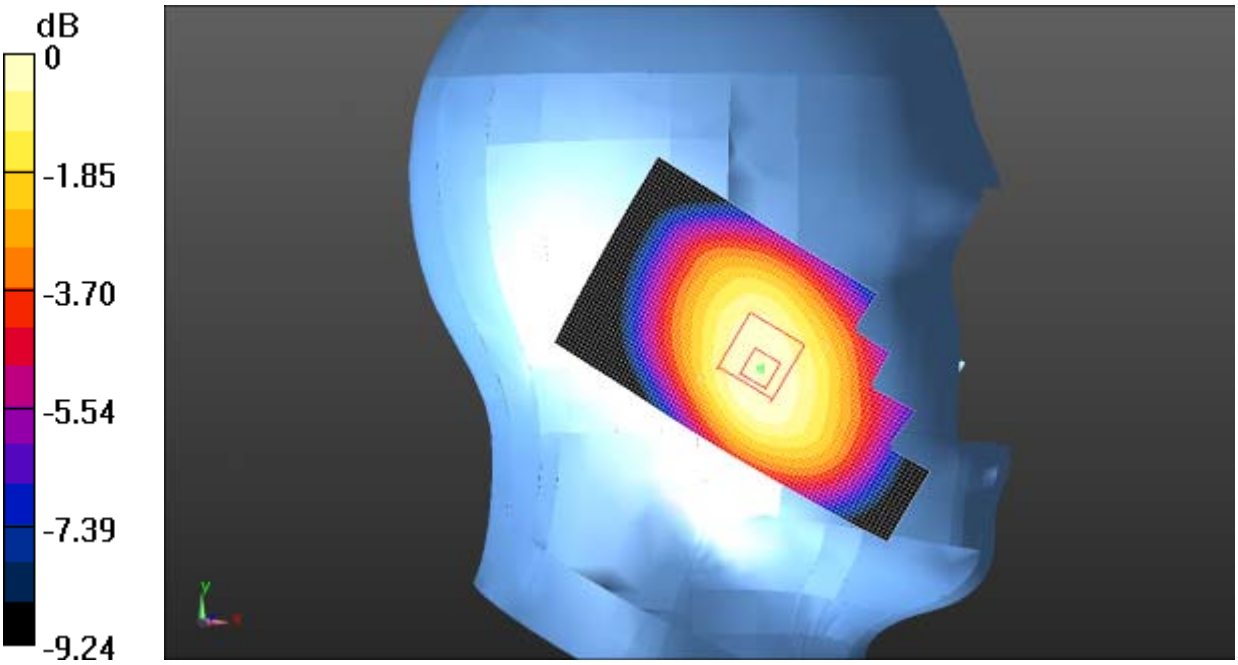


0 dB = 0.928 W/kg = -0.32 dBW/kg

Fig. 32 GSM 1900MHz CH810

WCDMA850 Head

Date/Time: 6/12/2014 4:52:10 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.899 S/m; ε_r = 41.868; ρ = 1000 kg/m^3
Ambient Temperature:23.5°C Liquid Temperature:23.0°C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Left Cheek Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.400 V/m; Power Drift = -0.12 dB
Maximum value of SAR (interpolated) = 0.542 W/kg
Left Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.400 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.662 W/kg
SAR(1 g) = 0.509 W/kg; SAR(10 g) = 0.381 W/kg
Maximum value of SAR (measured) = 0.535 W/kg



0 dB = 0.535 W/kg = -2.72 dBW/kg

Fig. 33 WCDMA 850MHz CH4183

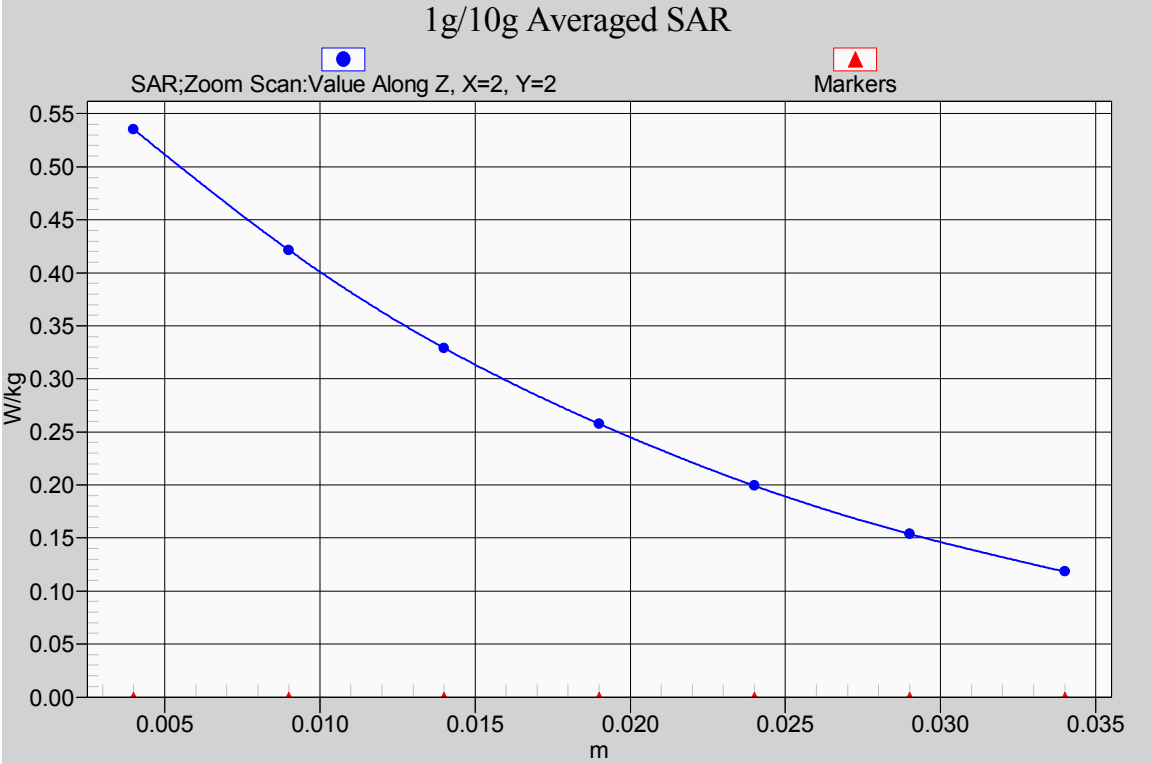
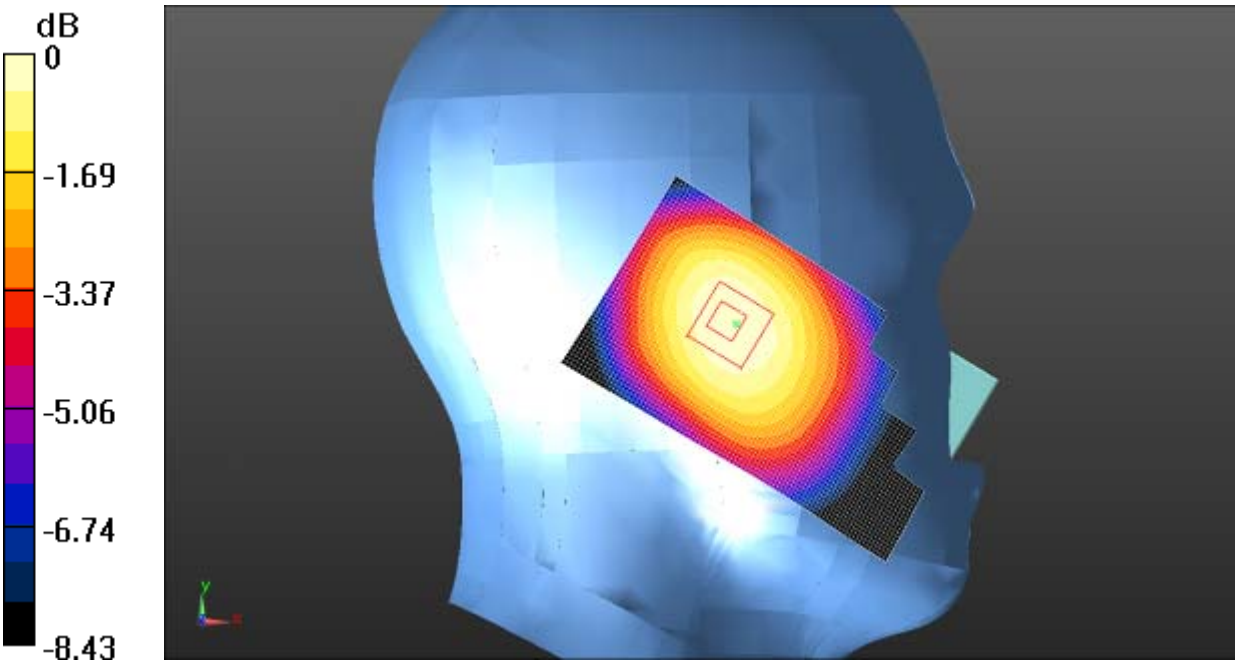


Fig. 33-1 Z-Scan at power reference point (850 MHz CH4183)

WCDMA850 Head

Date/Time: 6/12/2014 5:06:01 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.899 S/m; ε_r = 41.868; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Left Tilt Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 14.022 V/m; Power Drift = -0.02 dB
Maximum value of SAR (interpolated) = 0.327 W/kg
Left Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.022 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.379 W/kg
SAR(1 g) = 0.312 W/kg; SAR(10 g) = 0.241 W/kg
Maximum value of SAR (measured) = 0.326 W/kg

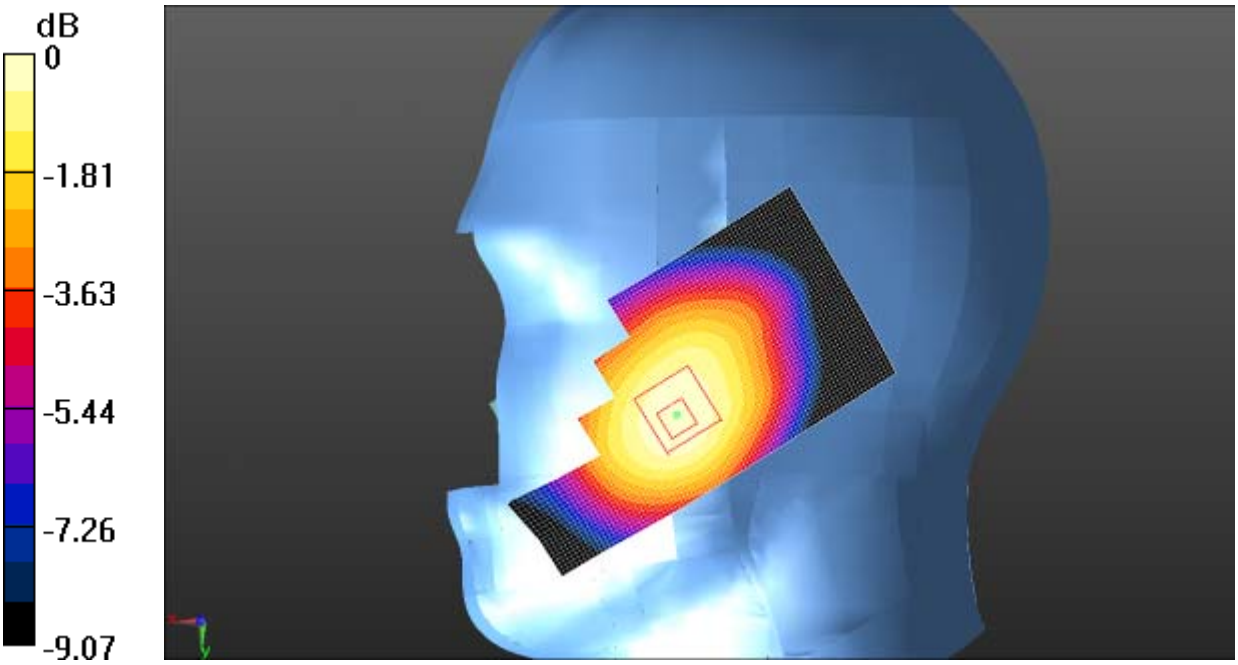


0 dB = 0.326 W/kg = -4.87 dBW/kg

Fig. 34 WCDMA 850MHz CH4183

WCDMA850 Head

Date/Time: 6/12/2014 5:20:49 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.899 S/m; ε_r = 41.868; ρ = 1000 kg/m^3
Ambient Temperature:23.5°C Liquid Temperature:23.0°C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Right Cheek Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 7.969 V/m; Power Drift = -0.11 dB
Maximum value of SAR (interpolated) = 0.473 W/kg
Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.969 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.547 W/kg
SAR(1 g) = 0.450 W/kg; SAR(10 g) = 0.344 W/kg
Maximum value of SAR (measured) = 0.475 W/kg

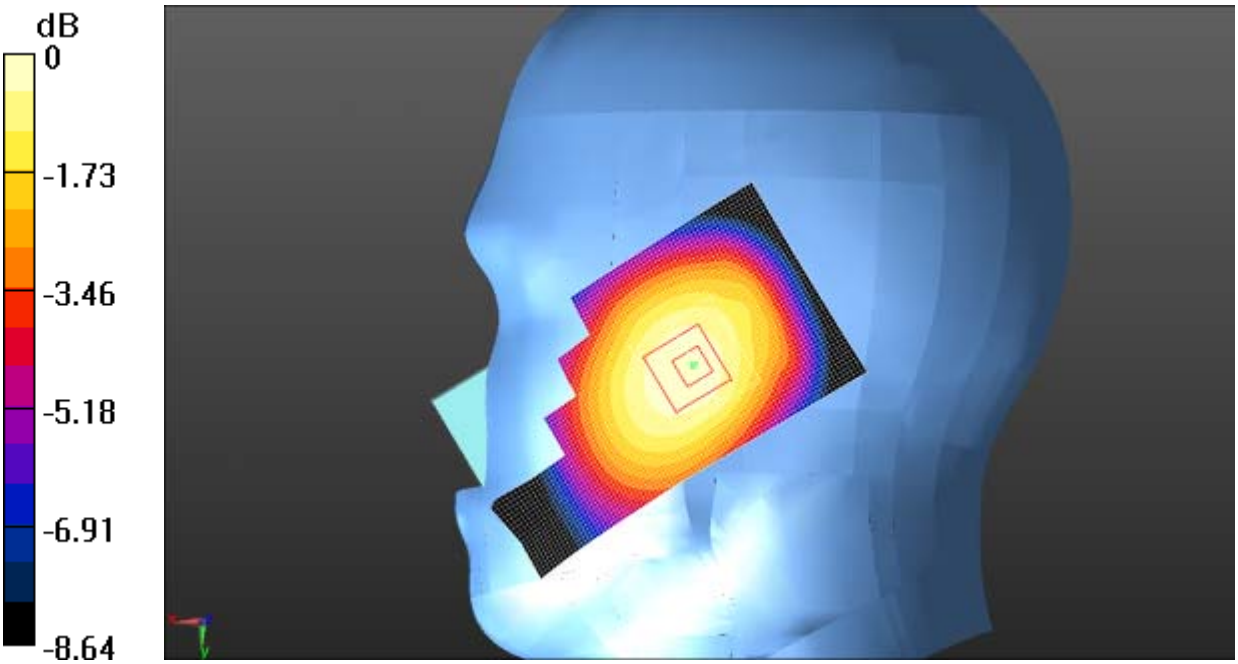


0 dB = 0.475 W/kg = -3.23 dBW/kg

Fig. 35 WCDMA 850MHz CH4183

WCDMA850 Head

Date/Time: 6/12/2014 5:35:26 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.899 S/m; ε_r = 41.868; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Right Tilt Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 12.838 V/m; Power Drift = 0.06 dB
Maximum value of SAR (interpolated) = 0.332 W/kg
Right Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.838 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.388 W/kg
SAR(1 g) = 0.318 W/kg; SAR(10 g) = 0.246 W/kg
Maximum value of SAR (measured) = 0.333 W/kg

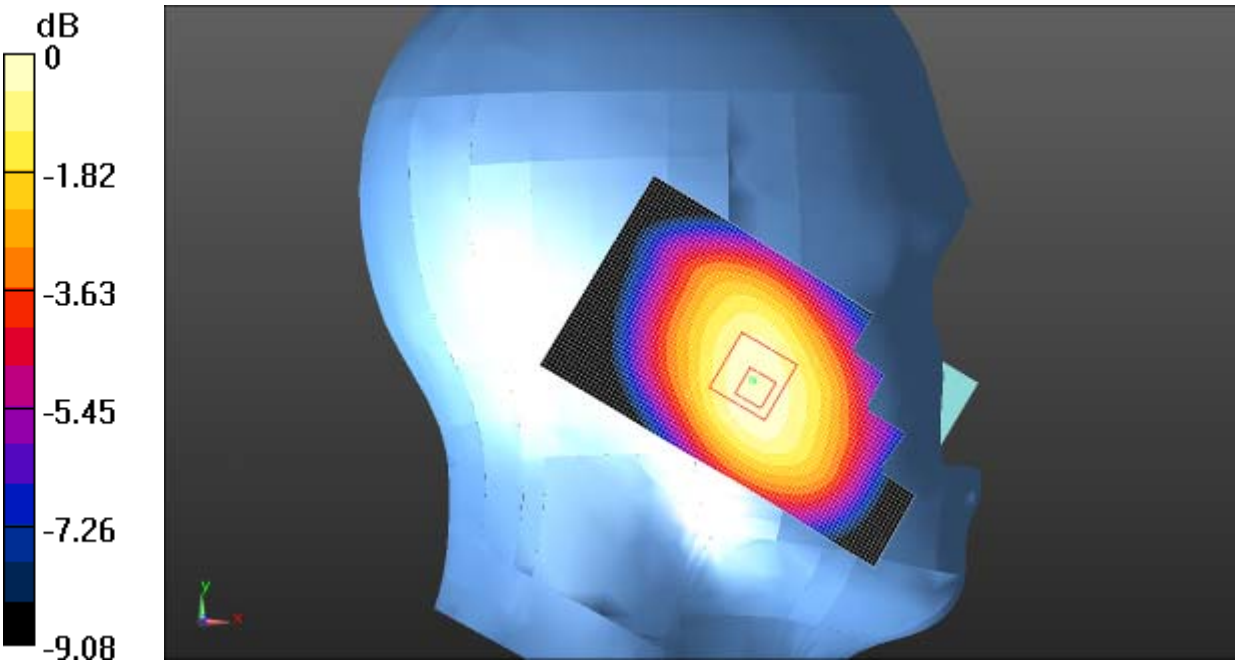


0 dB = 0.333 W/kg = -4.78 dBW/kg

Fig. 36 WCDMA 850MHz CH4183

WCDMA850 Head

Date/Time: 6/12/2014 5:50:49 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.914 S/m; ε_r = 41.782; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Left Cheek High/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.714 V/m; Power Drift = -0.12 dB
Maximum value of SAR (interpolated) = 0.521 W/kg
Left Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.714 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.634 W/kg
SAR(1 g) = 0.499 W/kg; SAR(10 g) = 0.373 W/kg
Maximum value of SAR (measured) = 0.529 W/kg

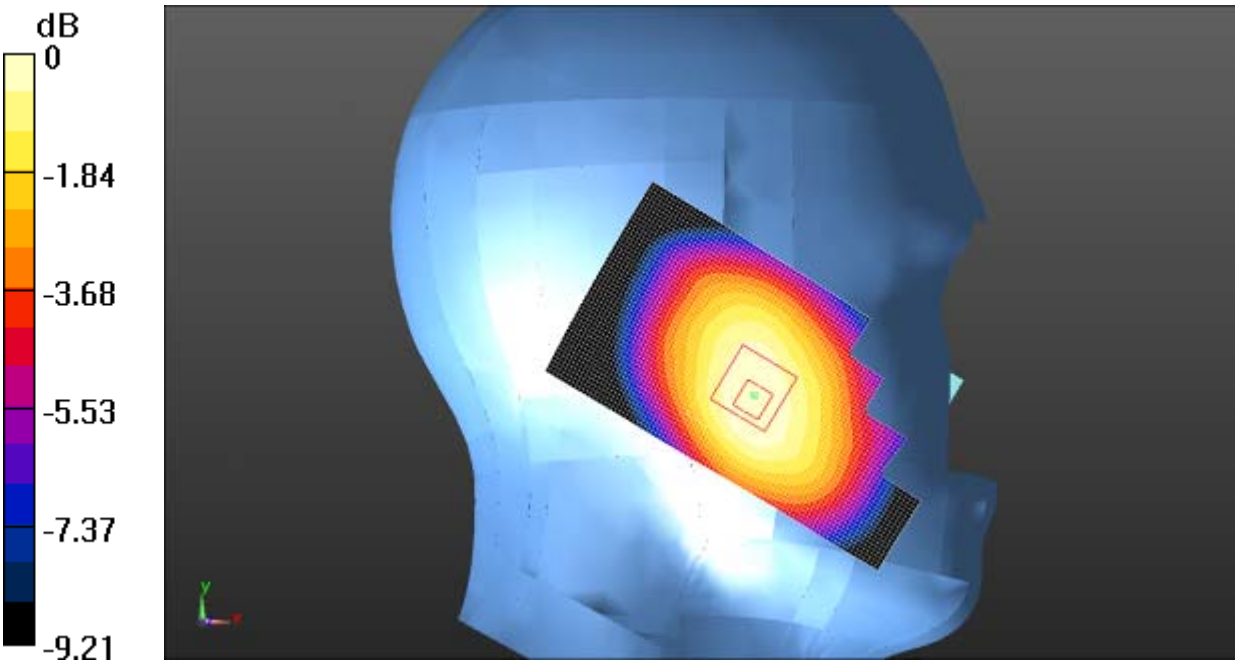


0 dB = 0.529 W/kg = -2.77 dBW/kg

Fig. 37 WCDMA 850MHz CH4233

WCDMA850 Head

Date/Time: 6/12/2014 6:45:49 PM
Electronics: DAE4 Sn786
Medium: Head 900MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.883 S/m; ε_r = 41.951; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.13, 6.13, 6.13); Calibrated: 7/31/2013
Left Cheek Low/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 8.651 V/m; Power Drift = -0.03 dB
Maximum value of SAR (interpolated) = 0.499 W/kg
Left Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.651 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.616 W/kg
SAR(1 g) = 0.478 W/kg; SAR(10 g) = 0.362 W/kg
Maximum value of SAR (measured) = 0.501 W/kg

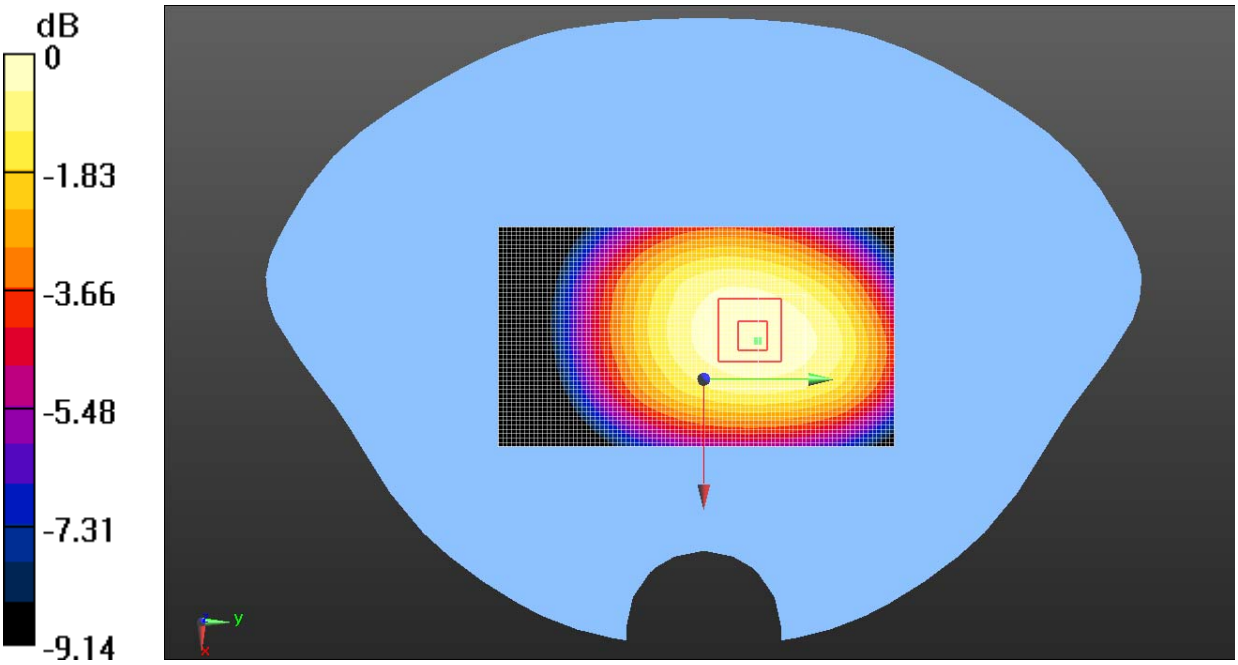


0 dB = 0.501 W/kg = -3.00 dBW/kg

Fig. 38 WCDMA 850MHz CH4132

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature:22.5^{o}C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Front side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 24.566 V/m; Power Drift = 0.03 dB
Maximum value of SAR (interpolated) = 0.632 W/kg
BODY/Front side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.566 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.748 W/kg
SAR(1 g) = 0.607 W/kg; SAR(10 g) = 0.463 W/kg
Maximum value of SAR (measured) = 0.635 W/kg

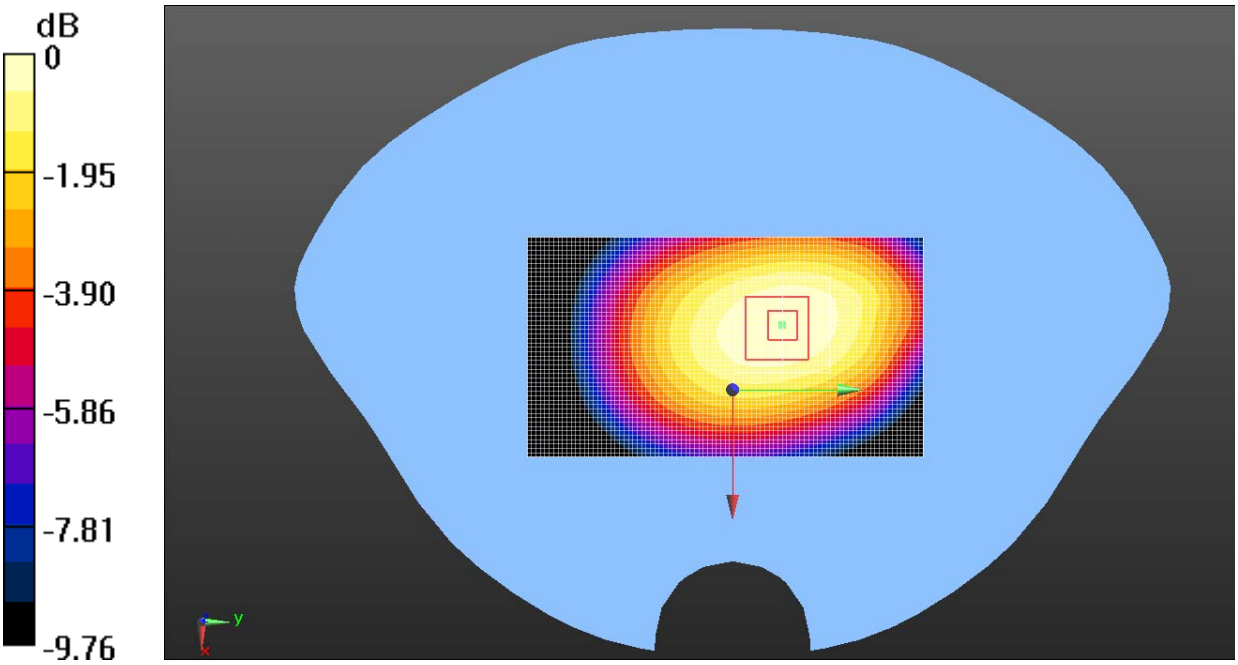


0 dB = 0.635 W/kg = -1.97 dBW/kg

Fig. 39 WCDMA 850MHz CH4183

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature:22.5^{o}C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Rear side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 27.285 V/m; Power Drift = 0.03 dB
Maximum value of SAR (interpolated) = 0.784 W/kg
BODY/Rear side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.285 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.932 W/kg
SAR(1 g) = 0.745 W/kg; SAR(10 g) = 0.559 W/kg
Maximum value of SAR (measured) = 0.785 W/kg



0 dB = 0.785 W/kg = -1.05 dBW/kg

Fig. 40 WCDMA 850MHz CH4183

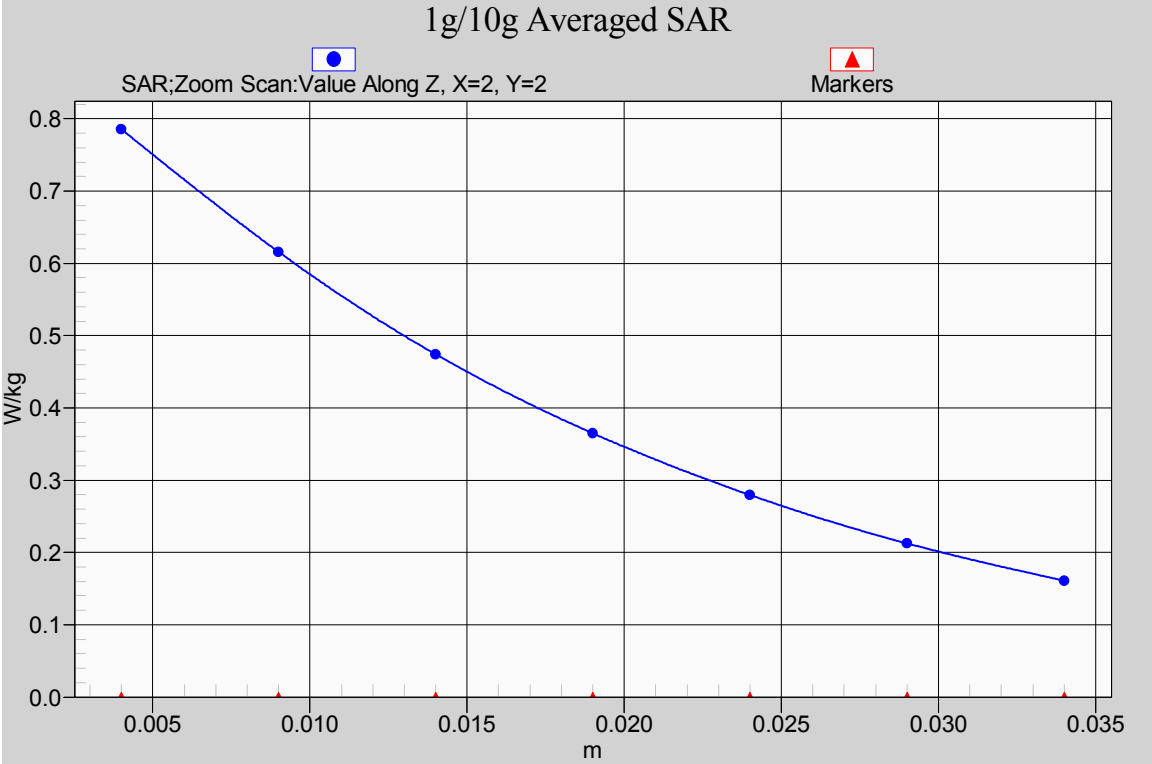
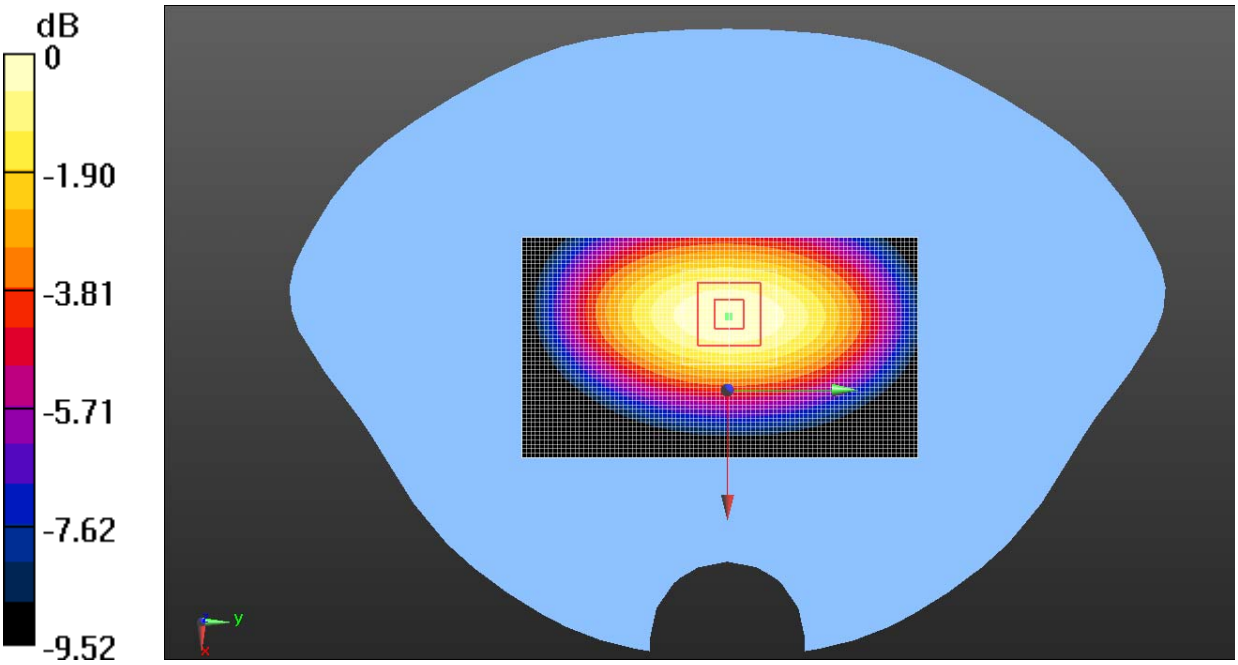


Fig. 40-1 Z-Scan at power reference point (850 MHz CH4183)

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature:22.5^{o}C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Left side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 23.232 V/m; Power Drift = 0.08 dB
Maximum value of SAR (interpolated) = 0.590 W/kg
BODY/Left side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.232 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.752 W/kg
SAR(1 g) = 0.552 W/kg; SAR(10 g) = 0.385 W/kg
Maximum value of SAR (measured) = 0.592 W/kg

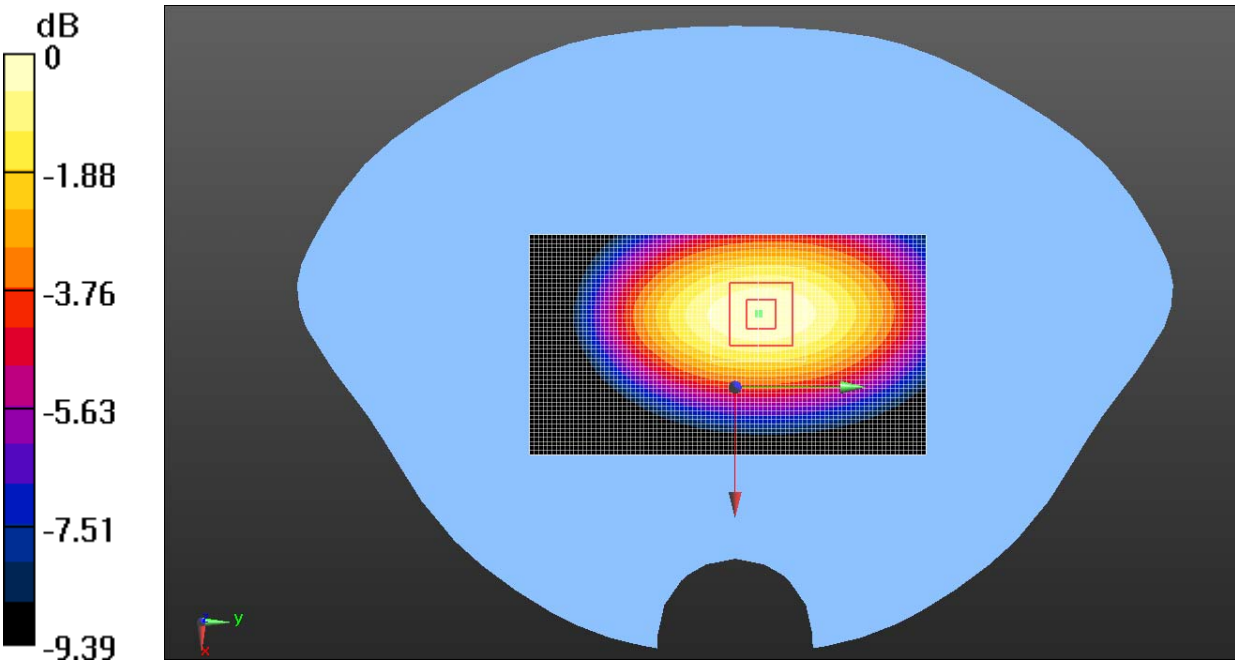


0 dB = 0.592 W/kg = -2.28 dBW/kg

Fig. 41 WCDMA 850MHz CH4183

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature:22.5^{o}C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Right side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 21.611 V/m; Power Drift = 0.05 dB
Maximum value of SAR (interpolated) = 0.514 W/kg
BODY/Right side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.611 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.655 W/kg
SAR(1 g) = 0.482 W/kg; SAR(10 g) = 0.336 W/kg
Maximum value of SAR (measured) = 0.516 W/kg

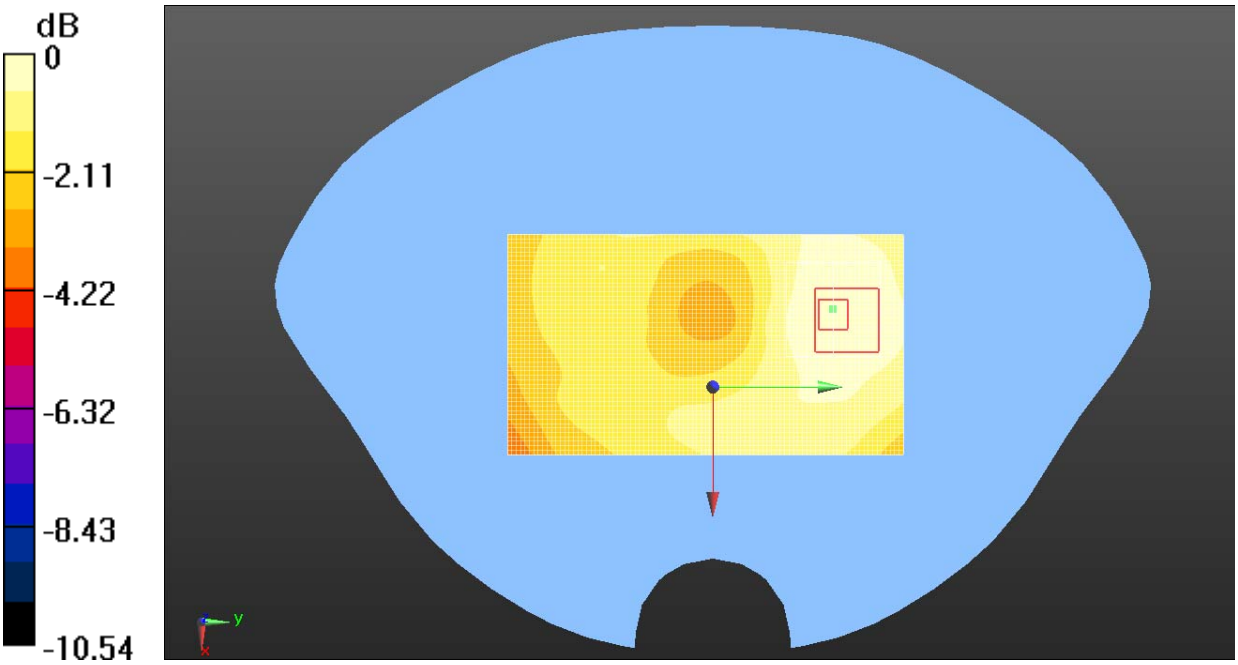


0 dB = 0.516 W/kg = -2.87 dBW/kg

Fig. 42 WCDMA 850MHz CH4183

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature:22.5^{o}C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Top side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 3.043 V/m; Power Drift = 0.11 dB
Maximum value of SAR (interpolated) = 0.0175 W/kg
BODY/Top side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.043 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.0220 W/kg
SAR(1 g) = 0.016 W/kg; SAR(10 g) = 0.012 W/kg
Maximum value of SAR (measured) = 0.0173 W/kg

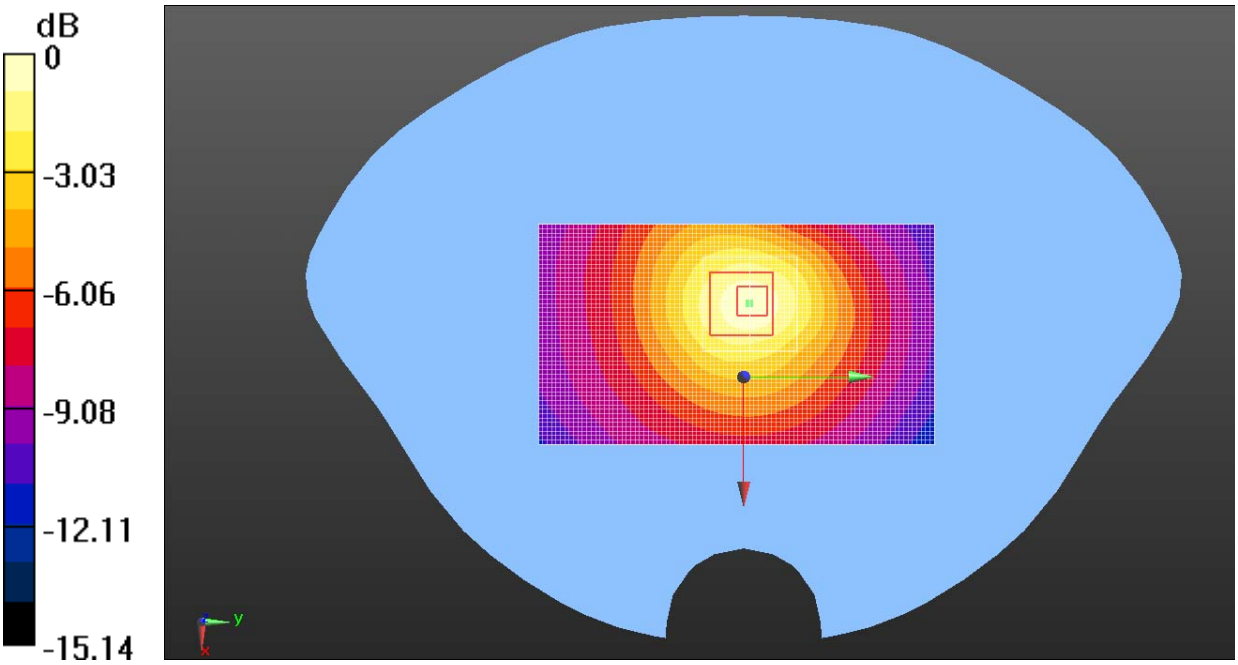


0 dB = 0.0173 W/kg = -17.62 dBW/kg

Fig. 43 WCDMA 850MHz CH4183

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature:22.5^{o}C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Bottom side Middle/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.646 V/m; Power Drift = 0.14 dB
Maximum value of SAR (interpolated) = 0.110 W/kg
BODY/Bottom side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.646 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.206 W/kg
SAR(1 g) = 0.105 W/kg; SAR(10 g) = 0.060 W/kg
Maximum value of SAR (measured) = 0.117 W/kg

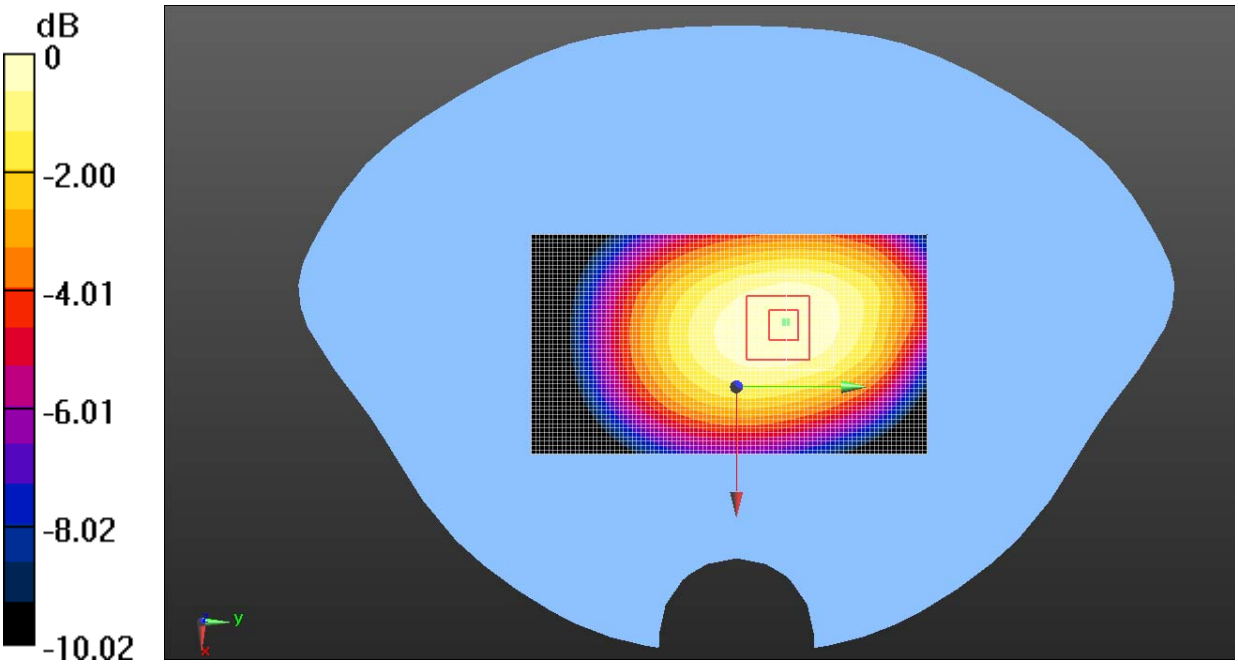


0 dB = 0.117 W/kg = -9.32 dBW/kg

Fig. 44 WCDMA 850MHz CH4183

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.008 S/m; ε_r = 55.686; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature:22.5°C
Communication System: WCDMA Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Rear side High/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 25.501 V/m; Power Drift = 0.01 dB
Maximum value of SAR (interpolated) = 0.684 W/kg
BODY/Rear side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.501 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.807 W/kg
SAR(1 g) = 0.647 W/kg; SAR(10 g) = 0.486 W/kg
Maximum value of SAR (measured) = 0.681 W/kg

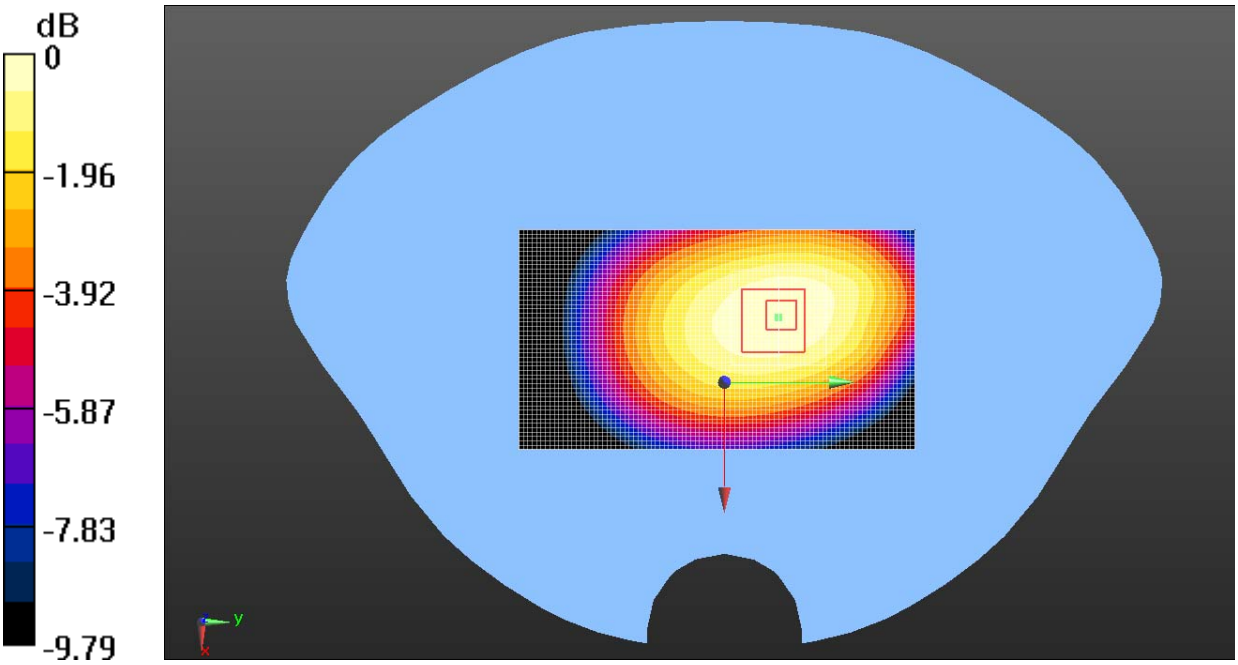


0 dB = 0.681 W/kg = -1.67 dBW/kg

Fig. 45 WCDMA 850MHz CH4233

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.98 S/m; ε_r = 55.755; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature:22.5^{o}C
Communication System: WCDMA Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Rear side Low/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 26.700 V/m; Power Drift = -0.01 dB
Maximum value of SAR (interpolated) = 0.748 W/kg
BODY/Rear side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.700 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.895 W/kg
SAR(1 g) = 0.711 W/kg; SAR(10 g) = 0.532 W/kg
Maximum value of SAR (measured) = 0.747 W/kg

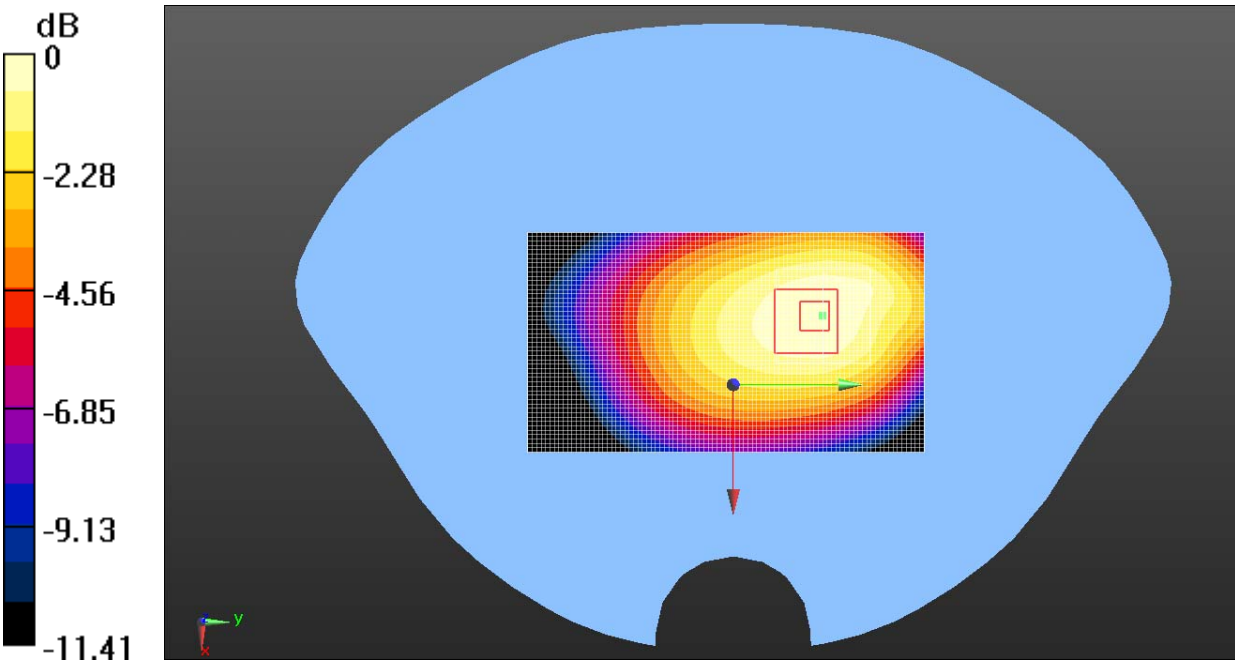


0 dB = 0.747 W/kg = -1.27 dBW/kg

Fig. 46 WCDMA 850MHz CH4132

WCDMA850 Body

Date: 6/13/2014
Electronics: DAE4 Sn786
Medium: Body 900
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.995 S/m; ε_r = 55.704; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature:22.5°C
Communication System: WCDMA Frequency: 836.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(6.1, 6.1, 6.1); Calibrated: 7/31/2013
BODY/Rear side Middle Speech/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 21.825 V/m; Power Drift = 0.02 dB
Maximum value of SAR (interpolated) = 0.591 W/kg
BODY/Rear side Middle Speech/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.825 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.745 W/kg
SAR(1 g) = 0.564 W/kg; SAR(10 g) = 0.411 W/kg
Maximum value of SAR (measured) = 0.596 W/kg

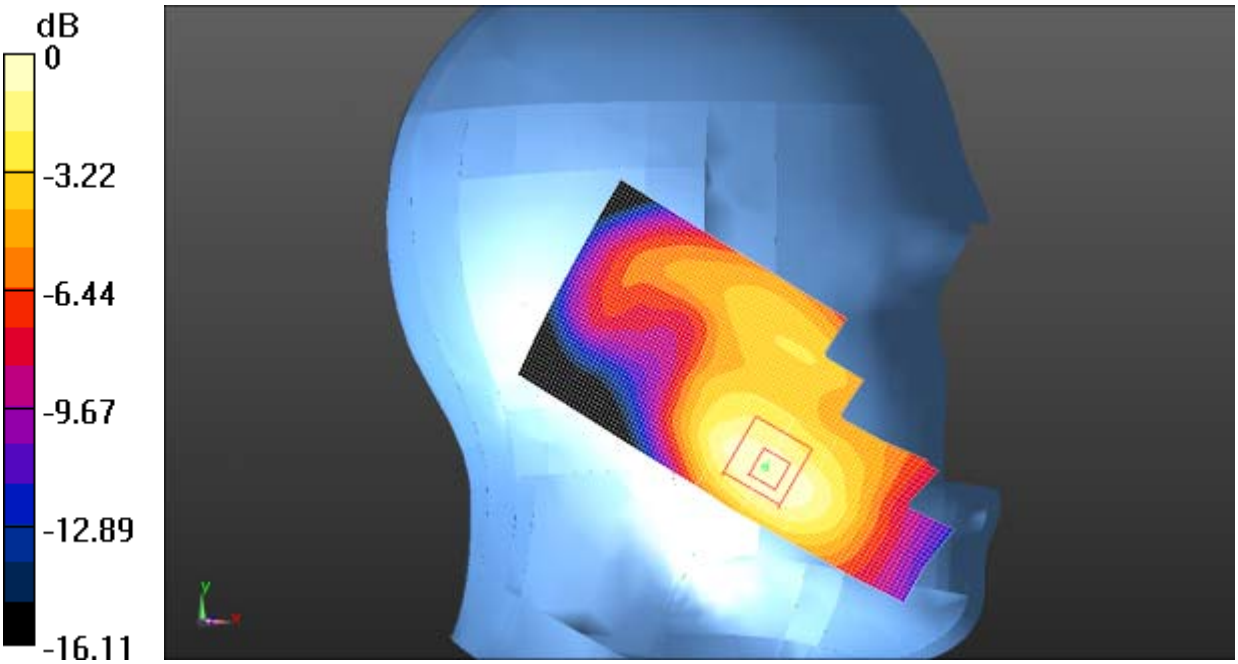


0 dB = 0.596 W/kg = -2.25 dBW/kg

Fig. 47 WCDMA 850MHz CH4183

WCDMA1900 Head

Date: 6/11/2014
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1880 MHz; σ = 1.454 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013
left/Cheek Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 10.525 V/m; Power Drift = 0.14 dB
Maximum value of SAR (interpolated) = 0.710 W/kg
left/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.525 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.954 W/kg
SAR(1 g) = 0.634 W/kg; SAR(10 g) = 0.377 W/kg
Maximum value of SAR (measured) = 0.698 W/kg

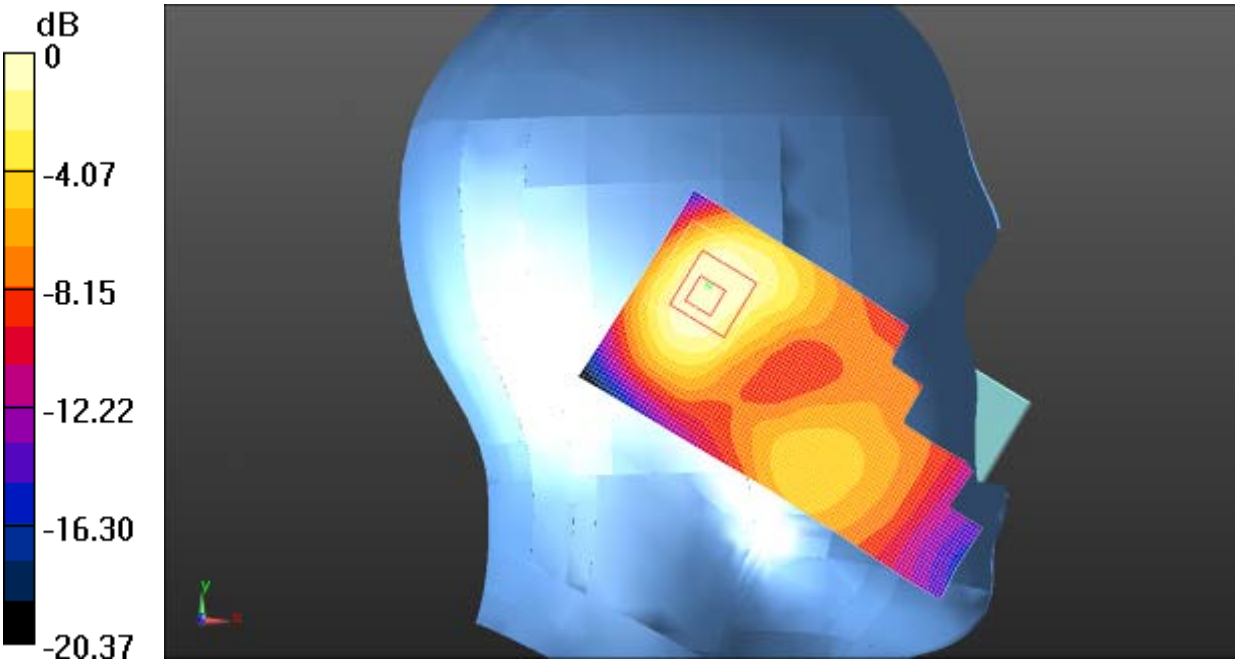


0 dB = 0.698 W/kg = -1.56 dBW/kg

Fig. 48 WCDMA 1900MHz CH9400

WCDMA1900 Head

Date: 6/11/2014
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1880 MHz; σ = 1.454 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013
left/Tilt Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 14.733 V/m; Power Drift = 0.08 dB
Maximum value of SAR (interpolated) = 0.362 W/kg
left/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.733 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.447 W/kg
SAR(1 g) = 0.294 W/kg; SAR(10 g) = 0.176 W/kg
Maximum value of SAR (measured) = 0.321 W/kg

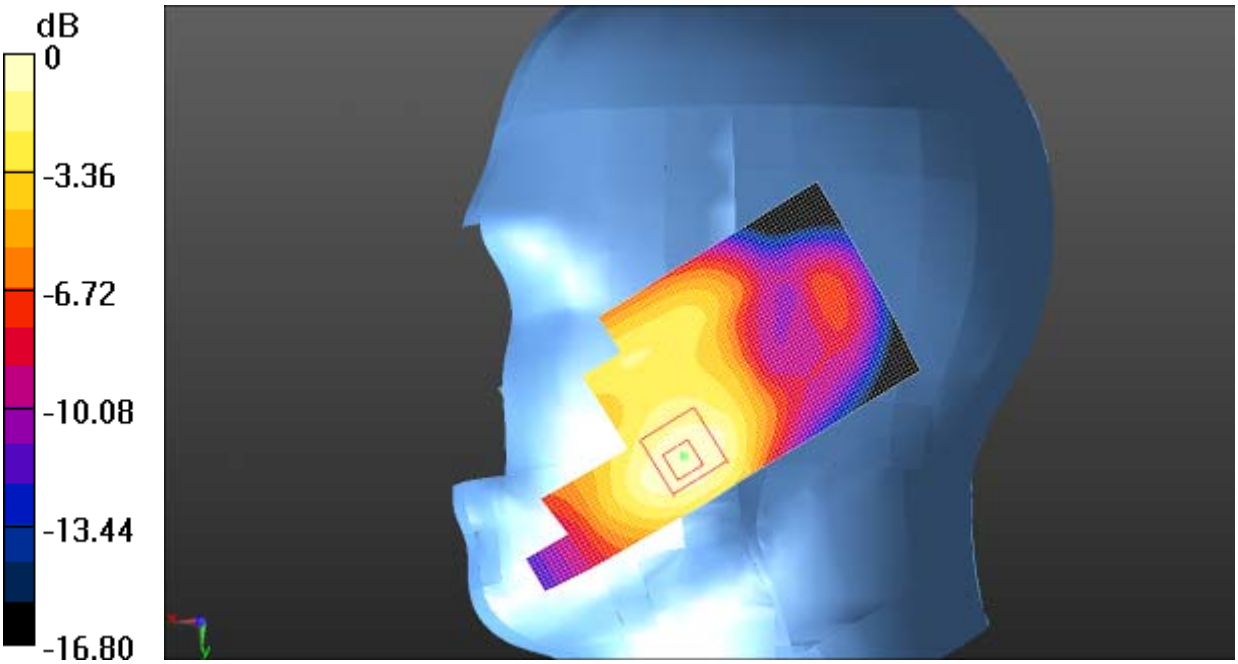


0 dB = 0.321 W/kg = -4.93 dBW/kg

Fig. 49 WCDMA 1900MHz CH9400

WCDMA1900 Head

Date: 6/11/2014
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1880 MHz; σ = 1.454 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013
right/Cheek Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.367 V/m; Power Drift = -0.15 dB
Maximum value of SAR (interpolated) = 0.612 W/kg
right/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.367 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.776 W/kg
SAR(1 g) = 0.547 W/kg; SAR(10 g) = 0.343 W/kg
Maximum value of SAR (measured) = 0.598 W/kg



0 dB = 0.598 W/kg = -2.23 dBW/kg

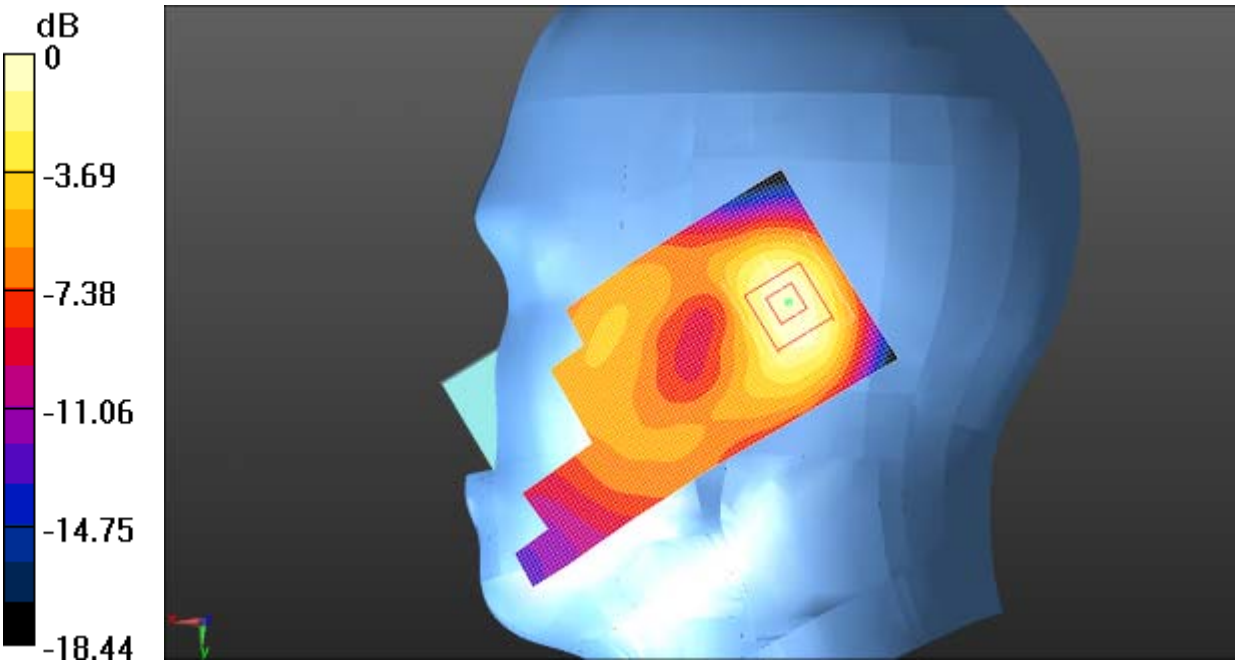
Fig. 50 WCDMA 1900MHz CH9400

WCDMA1900 Head

Date: 6/11/2014
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1880 MHz; σ = 1.454 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013

right/Tilt Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 12.978 V/m; Power Drift = -0.03 dB
Maximum value of SAR (interpolated) = 0.285 W/kg

right/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.978 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.397 W/kg
SAR(1 g) = 0.255 W/kg; SAR(10 g) = 0.145 W/kg
Maximum value of SAR (measured) = 0.285 W/kg

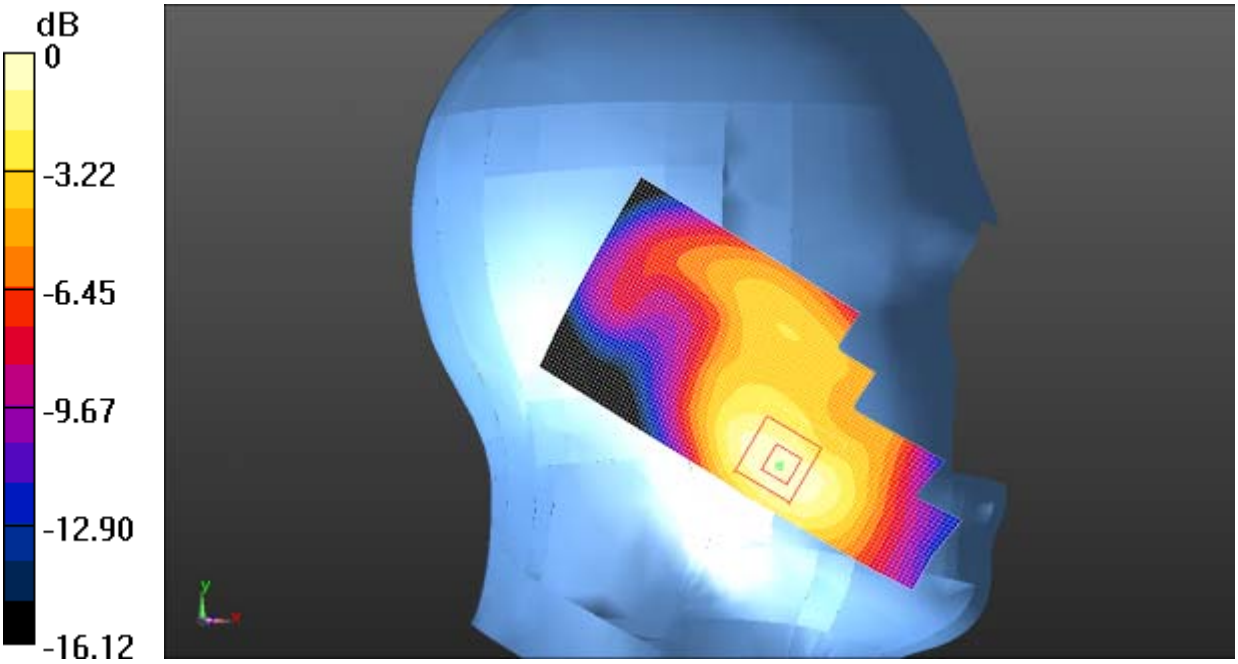


0 dB = 0.285 W/kg = -5.45 dBW/kg

Fig. 51 WCDMA 1900MHz CH9400

WCDMA1900 Head

Date: 6/11/2014
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used: f = 1908 MHz; σ = 1.47 S/m; ε_r = 38.642; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 1908 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(4.99, 4.99, 4.99); Calibrated: 7/31/2013
left/Cheek High/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 9.476 V/m; Power Drift = 0.16 dB
Maximum value of SAR (interpolated) = 0.774 W/kg
left/Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.476 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.703 W/kg; SAR(10 g) = 0.416 W/kg
Maximum value of SAR (measured) = 0.779 W/kg

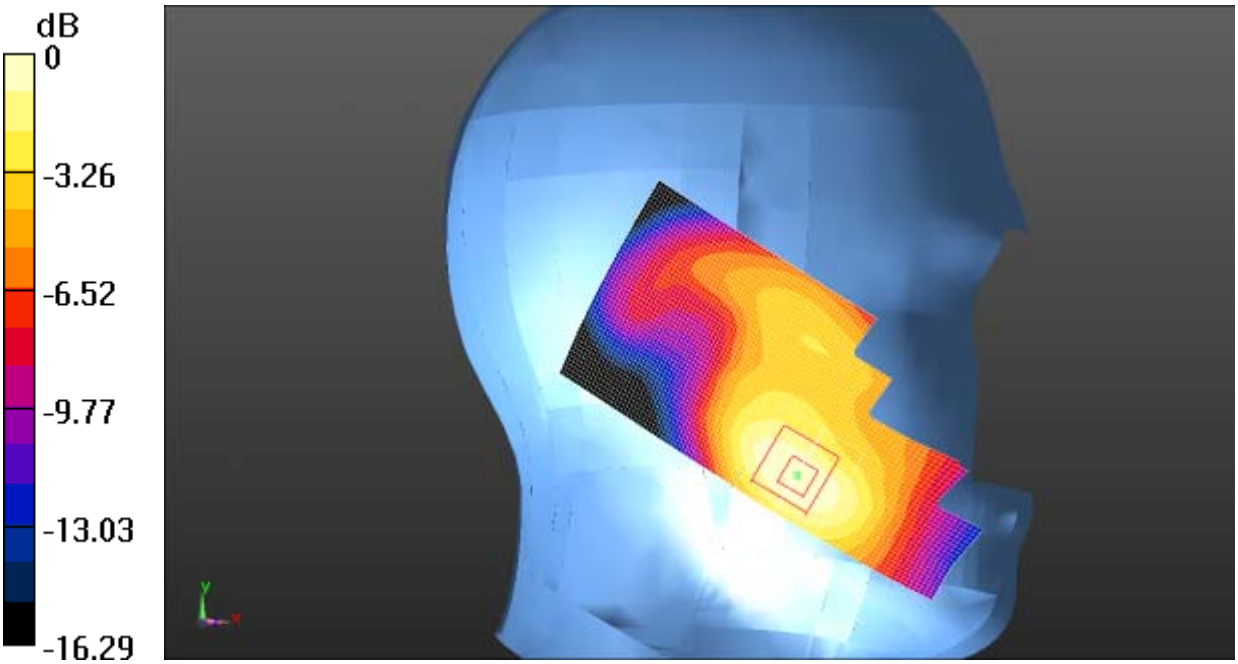


0 dB = 0.779 W/kg = -1.08 dBW/kg

Fig. 52 WCDMA 1900MHz CH9538

WCDMA1900 Head

Date/Time: 6/12/2014 8:25:23 PM
Electronics: DAE4 Sn786
Medium: Head 1900
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.43 S/m; ε_r = 38.838; ρ = 1000 kg/m^3
Ambient Temperature:23.5^{o}C Liquid Temperature:23.0^{o}C
Communication System: WCDMA Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(5.21, 5.21, 5.21); Calibrated: 7/31/2013
left/Cheek Low/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 10.625 V/m; Power Drift = 0.11 dB
Maximum value of SAR (interpolated) = 0.885 W/kg
left/Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.625 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.798 W/kg; SAR(10 g) = 0.481 W/kg
Maximum value of SAR (measured) = 0.879 W/kg



0 dB = 0.879 W/kg = -0.56 dBW/kg

Fig. 53 WCDMA 1900MHz CH9262

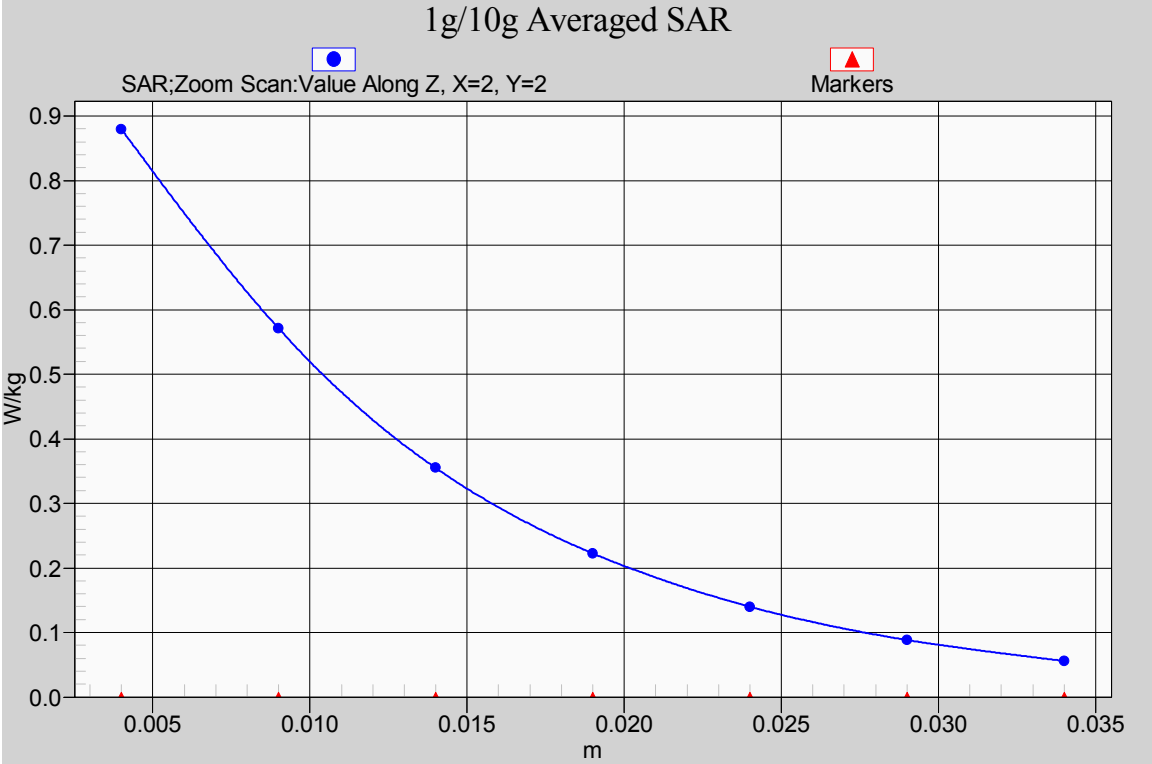
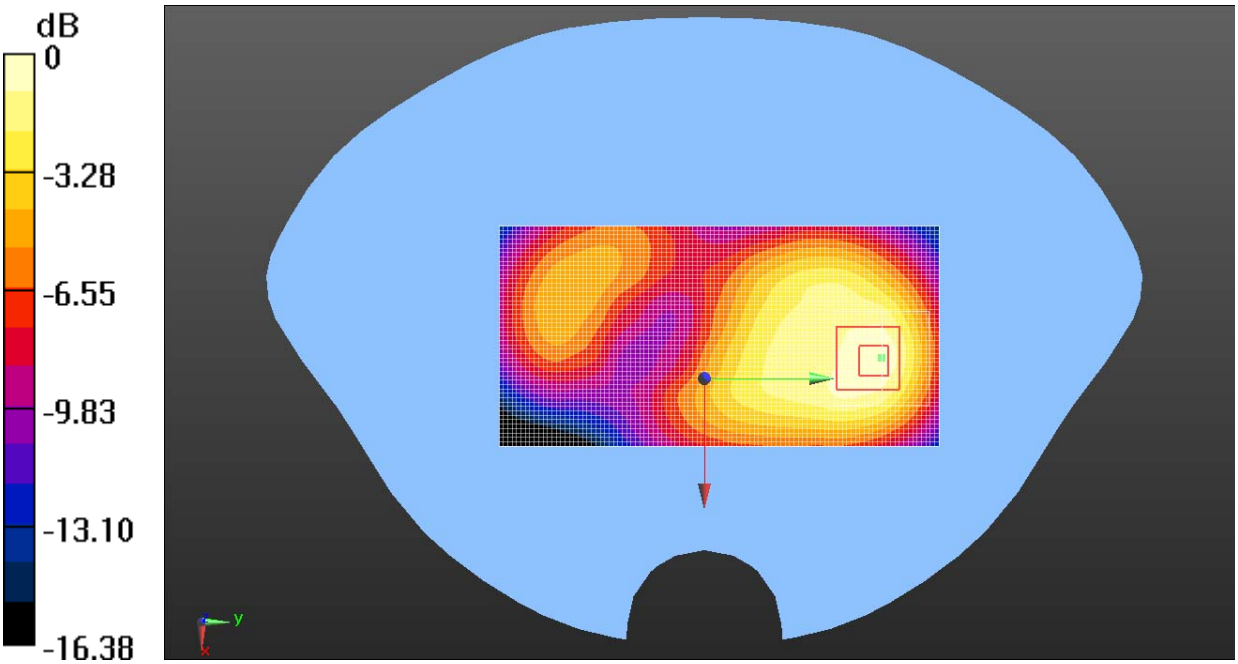


Fig. 53-1 Z-Scan at power reference point (1900 MHz CH6)

WCDMA1900 Body

Date/Time: 6/19/2014 3:15:20 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.0°C
Communication System: WCDMA Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013
BODY/Front side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 10.483 V/m; Power Drift = -0.10 dB
Maximum value of SAR (interpolated) = 0.774 W/kg
BODY/Front side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.483 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.727 W/kg; SAR(10 g) = 0.427 W/kg
Maximum value of SAR (measured) = 0.797 W/kg

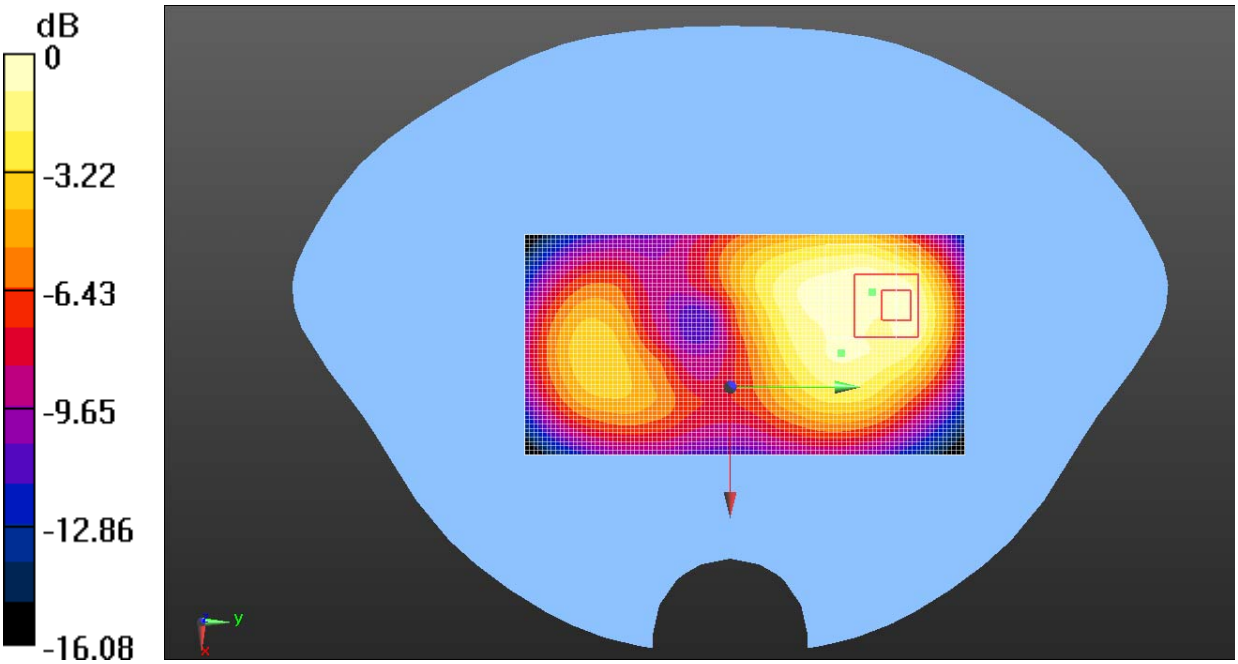


0 dB = 0.797 W/kg = -0.99 dBW/kg

Fig. 54 WCDMA 1900MHz CH9400

WCDMA1900 Body

Date/Time: 6/19/2014 3:31:52 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5^{o}C Liquid Temperature:22.0^{o}C
Communication System: WCDMA Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013
BODY/Rear side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 10.125 V/m; Power Drift = 0.06 dB
Maximum value of SAR (interpolated) = 0.918 W/kg
BODY/Rear side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.125 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.838 W/kg; SAR(10 g) = 0.498 W/kg
Maximum value of SAR (measured) = 0.917 W/kg

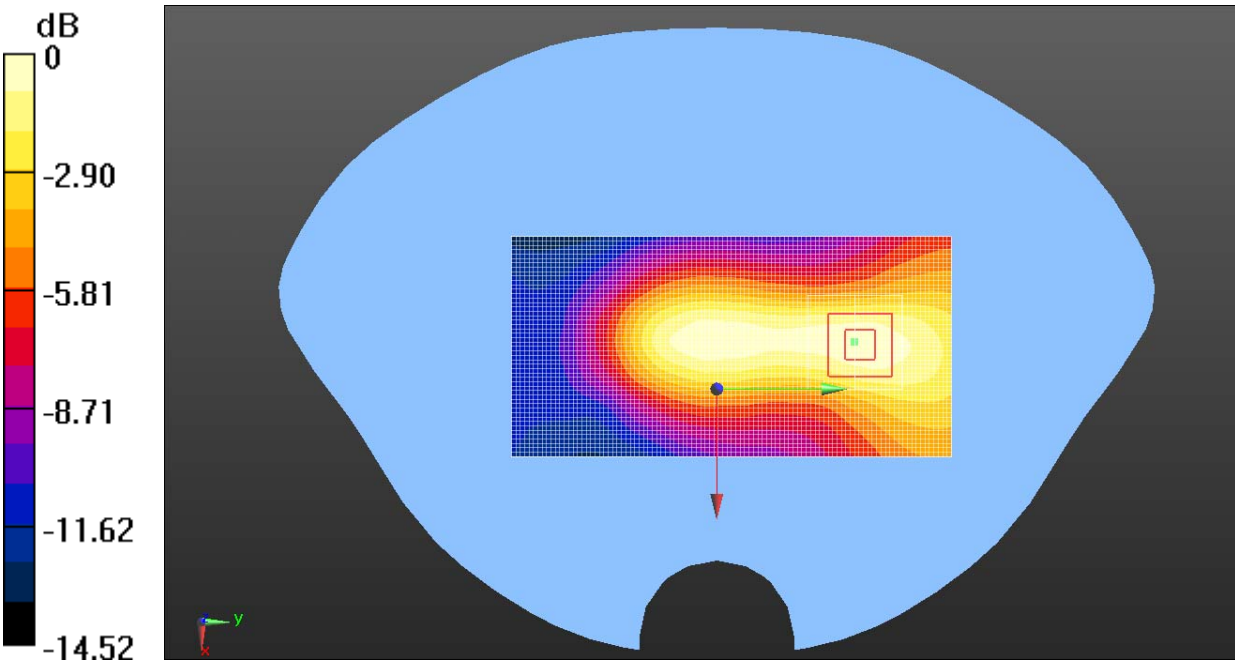


0 dB = 0.917 W/kg = -0.38 dBW/kg

Fig. 55 WCDMA 1900MHz CH9400

WCDMA1900 Body

Date/Time: 6/19/2014 3:49:25 PM
Electronics: DAE4 Sn786
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 S/m; ε_r = 52.663; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.0°C
Communication System: WCDMA Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3151 ConvF(4.83, 4.83, 4.83); Calibrated: 7/31/2013
BODY/Left side Middle/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 11.334 V/m; Power Drift = -0.02 dB
Maximum value of SAR (interpolated) = 0.188 W/kg
BODY/Left side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.334 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.172 W/kg; SAR(10 g) = 0.102 W/kg
Maximum value of SAR (measured) = 0.191 W/kg



0 dB = 0.191 W/kg = -7.19 dBW/kg

Fig. 56 WCDMA 1900MHz CH9400