SAR Test Report

Product Name : Mobile POS Kiosk

Model No. : PA02

FCC ID : 2AAIUPA0200014201U1

Applicant : OFFICIAL RECHARGE

Address : 4800 Sugar Grove Boulevard, Suite 450 Stafford, TX 77477

Date of Receipt : 14/06/2013

Date of Test : 17/06/2013

Issued Date : 06/07/2013

Report No. : 136S018R-HP-US-P03V01

Report Version : V2.2

Test Report Certification

Issued Date: 06/07/2013
Report No.: 136S018R-HP-US-P03V01

Product Name	:	Mobile POS Kiosk
Applicant	:	OFFICIAL RECHARGE
Address	:	4800 Sugar Grove Boulevard, Suite 450 Stafford, TX 77477
Manufacturer	:	CYNOVO, Inc
Address	:	4th Floor, B Section, Sagittair Building, Wuxi National Software Park, No.18 Zhenze Road, Wuxi City ,Jiangsu Province, P.R.C.
Model No.	:	PA02
FCC ID	:	2AAIUPA0200014201U1
Brand Name	:	OR
EUT Voltage	:	DC 12V
Applicable Standard	:	FCC Oet65 Supplement C June 2001 IEEE Std. 1528-2003,47CFR § 2.1093
Test Result	:	Max. Body SAR Measurement (1g) 1.292 W/kg
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392
Documented By	:	Alice Ni (Alice Ni)
Reviewed By	:	Jame Yuan (Jame Yuan)
Approved By	:	Robin Wu (Robin Wu)

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	Mobile POS Kiosk
Brand Name	OR
Model No.	PA02
EUT Voltage	12V
2G	
Support Band	GSM850/PCS1900
GPRS Class	Class 12
Uplink	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
Downlink	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
Release Version	R99
Type of modulation	GMSK for GPRS; 8PSK for EDGE
Antenna Gain	GSM 850: -0.5dBi PCS1900: -0.2dBi
Max. Output Power (Conducted)	GSM 850: 32.24dBm PCS1900: 29.59dBm
Max. Output Power (Radiated)	GSM 850: 31.48dBi PCS1900: 29.43dBi
3G	
Support Band	WCDMA Band II/WCDMA Band V
Uplink	WCDMA Band II: 1850~1910MHz WCDMA Band V: 824~849MHz
Downlink	WCDMA Band II: 1930~1990MHz WCDMA Band V: 869~894MHz
Release Version	Rel-6
Type of modulation	QPSK
Antenna Gain	WCDMA Band II: -1.0dBi WCDMA Band V: -0.5dBi
Max. Output Power (Conducted)	WCDMA Band II: 23.65dBm WCDMA Band V: 23.16dBm
Max. Output Power (Radiated)	WCDMA Band II: 22.15dBm WCDMA Band V: 22.69dBm
Wi-Fi	
Wi-Fi Frequency	802.11b/g/n(20MHz): 2412 ~ 2462 MHz

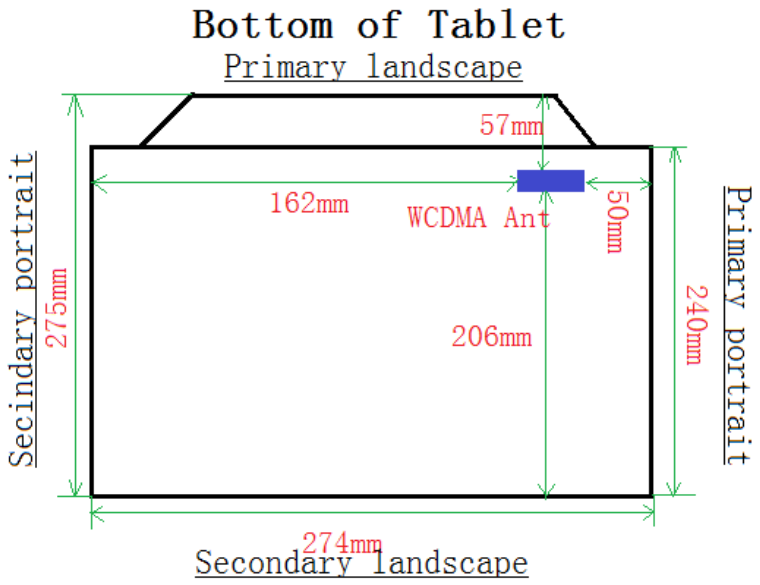
	802.11n(40MHz): 2422 ~ 2452 MHz
Type of modulation	802.11b: DSSS; 802.11g/n: OFDM
Data Rate	802.11b: 1/2/5.5/11 Mbps
	802.11g: 6/9/12/18/24/36/48/54 Mbps
	802.11n: up to 135 Mbps
Channel Control	Auto
Antenna Delivery	1Tx + 1Rx
Antenna Type	PCB Antenna
Peak Antenna Gain	-3.4dBi
Components	
Adapter	M/N: P36-120300 Input: 100-240V~50/60Hz 1.5A Output: 12.0V, 3.0A

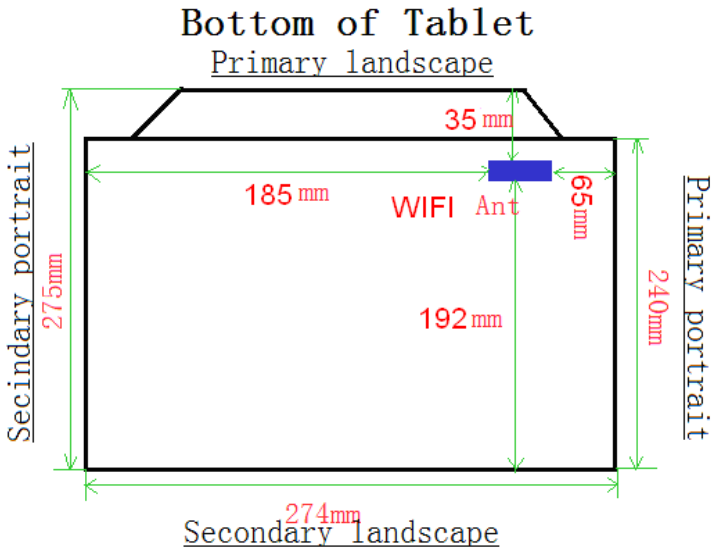
1.2. Test Environment

Ambient conditions in the laboratory:

Items	Required	Actual
Temperature (°C)	18-25	21.5± 2
Humidity (%RH)	30-70	52

1.3. EUT Antenna Locations





1.4. Simultaneous Transmission Configurations

According to FCC KDB Publication 447498 D05v01, transmitter are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneously transmission analysis according to FCC KDB Publication 447498 D01v05 3) procedures.

Table 1-1

Simultaneous Transmission Scenarios

Ref.	Simultaneous Transmit Configurations	Body	Note
		FCC KDB616217	
1	GPRS850 + 2.4GHz Wi-Fi	Yes	Wi-Fi Direct
2	GPRS1900 + 2.4GHz Wi-Fi	Yes	Wi-Fi Direct
3	WCDMA Band II Data + 2.4GHz Wi-Fi	Yes	Wi-Fi Direct
4	WCDMA Band V Data + 2.4GHz Wi-Fi	Yes	Wi-Fi Direct

1.5. SAR Test Exclusions Applied

(A) Wi-Fi

The device supports 20MHz and 40MHz Bandwidths for IEEE 802.11n. 802.11g/n was not evaluated for SAR since the average output power was not more than 0.25dB higher than the average output power of 802.11b.

(B) Licensed Transmitter(s)

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v02.

1.6. Power Reduction for SAR

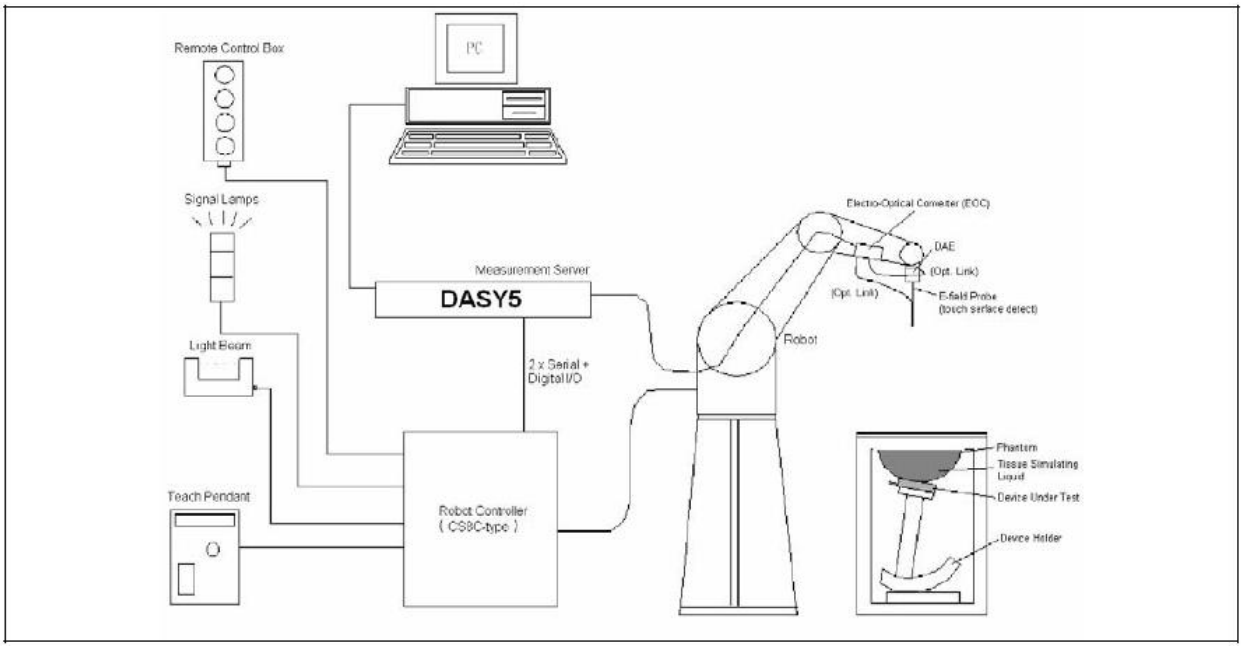
There is no power reduction used for any band/mode implemented in this device for SAR purposes.

1.7. Guidance Documents

1) FCC KDB Publication 941225 D01-D06 (2G/3G and Hotspot)
2) FCC KDB Publication 248227 D01v01r02 (SAR Considerations for 802.11 Devices)
3) FCC KDB Publication 447498 D01v05(General SAR Guidance)
4) FCC KDB Publication 865664 D01v01(SAR measurement 100 MHz to 6 GHz)
5) FCC KDB Publication 616217 D04v01 (SAR for Laptop and Tablets)

2. SAR Measurement System

2.1. DASY5 System Description



The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

2.1.1. Applications

Predefined procedures and evaluations for automated compliance testing with all worldwide standards, e.g., IEEE 1528, OET 65, IEC 62209-1, IEC 62209-2, EN 50360, EN 50383 and others.

2.1.2. Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a 10mm² step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

When an Area Scan has measured all reachable points, it computes the field maxima found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE 1528-2003 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan).

2.1.3. Zoom Scan (Cube Scan Averaging)

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. A density of 1000 kg/m³ is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1 g cube is 10mm, with the side length of the 10 g cube 21,5mm.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications utilize a physical step of 7x7x7 (5mmx5mmx5mm) providing a volume of 30mm in the X & Y axis, and 30mm in the Z axis.

2.1.4. Uncertainty of Inter-/Extrapolation and Averaging

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASY5 allows the generation of measurement grids which are artificially predefined by analytically based test functions. Therefore, the grids of area scans and zoom scans can be filled with uncertainty test data, according to the SAR benchmark functions of IEEE 1528.The three analytical functions shown in equations as below are used to describe the possible range of the expected SAR distributions for the tested handsets. The field gradients are covered by the spatially flat distribution f1, the spatially steep distribution f3 and f2 accounts for H-field cancellation on the phantom/tissue surface.

$$f_1(x,y,z) = Ae^{-\frac{z}{2a}}\cos^2\left(\frac{\pi}{2}\frac{\sqrt{x'^2+y'^2}}{5a}\right)$$

$$f_2(x,y,z) = Ae^{-\frac{z}{a}}\frac{a^2}{a^2+x'^2}\left(3-e^{-\frac{2z}{a}}\right)\cos^2\left(\frac{\pi}{2}\frac{y'}{3a}\right)$$

$$f_3(x,y,z) = A\frac{a^2}{\frac{a^2}{4}+x'^2+y'^2}\left(e^{-\frac{2z}{a}}+\frac{a^2}{2(a+2z)^2}\right)$$

2.2. DASY5 E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO 17025. The calibration data are in Appendix D.

2.2.1. Isotropic E-Field Probe Specification

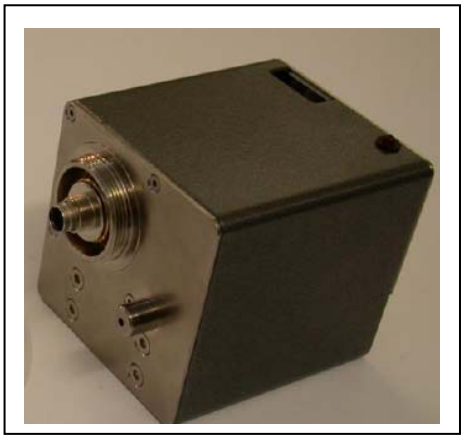
Model	EX3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

2.3. Boundary Detection Unit and Probe Mounting Device

The DASY5 probes use a precise connector and an additional holder for the probe, consisting of a plastic tube and a flexible silicon ring to center the probe. The connector at the DAE is flexibly mounted and held in the default position with magnets and springs. Two switching systems in the connector mount detect frontal and lateral probe collisions and trigger the necessary software response.

2.4. DATA Acquisition Electronics (DAE) and Measurement Server

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit.
Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.
The input impedance of the DAE4 is 200M Ohm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.



The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with the DAE electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

2.5. Robot

The DASY5 system uses the high precision robots TX90 XL type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY5 system, the CS8C robot controller version from Stäubli is used.
The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller

2.6. Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.
The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

2.7. Device Holder

The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).
Thus the device needs no repositioning when changing the angles.
The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

2.8. SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

- Left head
- Right head
- Flat phantom

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

3. Tissue Simulating Liquid

3.1. The composition of the tissue simulating liquid

INGREDIENT (% Weight)	835MHz Body	1900MHz Body	2450MHz Body
Water	52.4	40.5	73.2
Salt	1.40	0.50	0.04
Sugar	45.0	58.0	0.00
HEC	1.00	0.50	0.00
Preventol	0.20	0.50	0.00
DGBE	0.00	0.00	26.7

3.2. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using DASY5 Dielectric Probe Kit and Agilent Vector Network Analyzer E5071C

Body Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
835 MHz	Reference result ± 5% window	55.2 52.44 to 57.96	0.97 0.92 to 1.02	N/A
	17-06-2013	52.89	0.97	21.0
1900 MHz	Reference result ± 5% window	53.3 50.64 to 55.97	1.52 1.44 to 1.60	N/A
	17-06-2013	52.93	1.53	21.0
2450MHz	Reference result ± 5% window	52.7 50.07 to 55.34	1.95 1.85 to 2.05	N/A
	17-06-2013	52.25	1.99	21.0

3.3. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

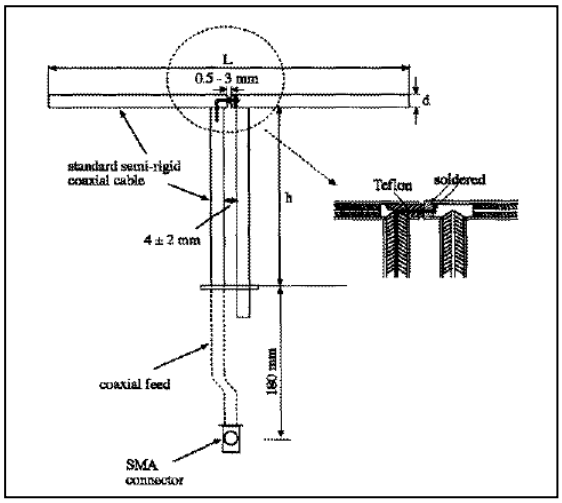
Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	**55.2**	**0.97**
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	**53.3**	**1.52**
2450	39.2	1.80	**52.7**	**1.95**
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

4. SAR Measurement Procedure

4.1. SAR System Validation

4.1.1. Validation Dipoles



The dipoles used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. the table below provides details for the mechanical and electrical specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
835MHz	161.0	89.8	3.6
1900MHz	68.0	39.5	3.6
2450MHz	51.5	30.4	3.6

4.1.2. Validation Result

System Performance Check at 835MHz, 1900MHz, 2450MHz for Body

Validation Kit: D835V2-SN 4d094

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
835 MHz	Reference result ± 10% window	9.57 8.61 to 10.53	6.33 5.70 to 6.96	N/A
	17-06-2013	9.68	6.32	21.0

Validation Kit: D1900V2-SN 5d121

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
1900 MHz	Reference result ± 10% window	38.7 34.83 to 42.57	20.4 18.36 to 22.44	N/A
	17-06-2013	40.40	20.72	21.0

Validation Dipole: D2450V2-SN 839

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
2450 MHz	Reference result ± 10% window	48.7 43.83 to 53.57	22.8 20.52 to 25.08	N/A
	17-06-2013	48.0	21.8	21.0

Note: All SAR values are normalized to 1W forward power.

4.2. SAR Measurement Procedure

The DASY5 calculates SAR using the following equation,

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

σ: represents the simulated tissue conductivity

ρ: represents the tissue density

The EUT is set to transmit at the required power in line with product specification, at each frequency relating to the LOW, MID, and HIGH channel settings.

Pre-scans are made on the device to establish the location for the transmitting antenna, using a large area scan in either air or tissue simulation fluid.

The EUT is placed against the Universal Phantom where the maximum area scan dimensions are larger than the physical size of the resonating antenna. When the scan size is not large enough to cover the peak SAR distribution, it is modified by either extending the area scan size in both the X and Y directions, or the device is shifted within the predefined area.

The area scan is then run to establish the peak SAR location (interpolated resolution set at 1mm²) which is then used to orient the center of the zoom scan. The zoom scan is then executed and the 1g and 10g averages are derived from the zoom scan volume (interpolated resolution set at 1mm³).

4.3. SAR Measurement Conditions for UMTS

4.3.1. Output Power Verification

Maximum output power is measured on the High, Middle and Low channels for each applicable transmission band according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1s".

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121 (release 5), using the appropriate RMC with TPC (transmit power control) set to all "1s" or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

4.3.2. Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all "1s".

4.3.3. SAR Measurements for Handsets with Rel 5 HSDPA

Body SAR for HSDPA is not required for handsets with HSDPA capabilities when the maximum average output power of each RF channel with HSDPA active is less than 0.25 dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75% of the SAR limit. Otherwise, SAR is measured for HSDPA, using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration measured in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that resulted in the highest SAR in 12.2 kbps RMC mode for that RF channel.
The H-set used in FRC for HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HSPDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the applicable H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the FRC for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 2 ms to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors of βc=9 and βd=15, and power offset parameters of ΔACK= ΔNACK =5 and ΔCQI=2 is used. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the FRC.

4.3.4. SAR Measurements for Handsets with Rel 6 HSUPA

Body SAR for HSUPA is not required when the maximum average output of each RF channel with HSUPA/HSDPA active is less than 0.25 dB higher than as measured without HSUPA/HSDPA using 12.2 kbps RMC and maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Otherwise SAR is measured on the maximum output channel for the body exposure configuration produced highest SAR in 12.2 kbps RMC for that RF channel, using the additional procedures under "Release 6 HSPA data devices"

Head SAR for VOIP operations under HSPA is not required when maximum average output of each RF channel with HSPA is less than 0.25 dB higher than as measured using 12.2 kbps RMC. Otherwise SAR is measured using same HSPA configuration as used for body SAR.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM (2) (dB)	MPR (dB)	AG (4) Index	E-TFCI
1	11/15 (3)	15/15 (3)	64	11/15 (3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}: 47/15 β_{ed2}: 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (4)	15/15 (4)	64	15/15 (4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

4.3.5. SAR Testing for Tablet per KDB Publication 616217 D04v01

Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Exclusion Threshold in KDB 447498 D01v05 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

Based on the location and output power of the GSM/WCDMA antenna, only bottom was required to be evaluated for SAR. Bottom was required to be evaluated for the WLAN Antenna.

5. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE-1528, FCC Supplement C, and comply with ANSI/IEEE C95.1-1992 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

Limits for General Population/Uncontrolled Exposure (W/kg)

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (1g cube tissue for brain or body)	1.60 W/kg
Spatial Average SAR (whole body)	0.08 W/kg
Spatial Peak SAR (10g for hands, feet, ankles and wrist)	4.00 W/kg

6. Test Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Cali. Due Date
Stäubli Robot TX60L	Stäubli	TX60L	F10/5C90A1/A/01	only once
Controller	Stäubli	SP1	S-0034	only once
Dipole Validation Kits	Speag	D835V2	4d094	2014.02.17
Dipole Validation Kits	Speag	D1900V2	5d121	2014.02.22
Dipole Validation Kits	Speag	D2450V2	839	2014.02.23
SAM Twin Phantom	Speag	SAM	TP-1561/1562	N/A
Device Holder	Speag	SD 000 H01 HA	N/A	N/A
Data Acquisition Electronic	Speag	DAE4	Sn1220	2014.01.24
E-Field Probe	Speag	EX3DV4	3710	2014.03.17
SAR Software	Speag	DASY5	V5.2 Build 162	N/A
Power Amplifier	Mini-Circuit	ZVA-183-S+	N657400950	N/A
Directional Coupler	Agilent	778D	20160	N/A
Universal Radio Communication Tester	R&S	CMU 200	117088	2014.04.18
Vector Network	Agilent	E5071C	MY48367267	2014.04.10
Signal Generator	Agilent	E4438C	MY49070163	2014.04.18
Power Meter	Anritsu	ML2495A	0905006	2014.11.10
Wide Bandwidth Sensor	Anritsu	MA2411B	0846014	2014.11.10

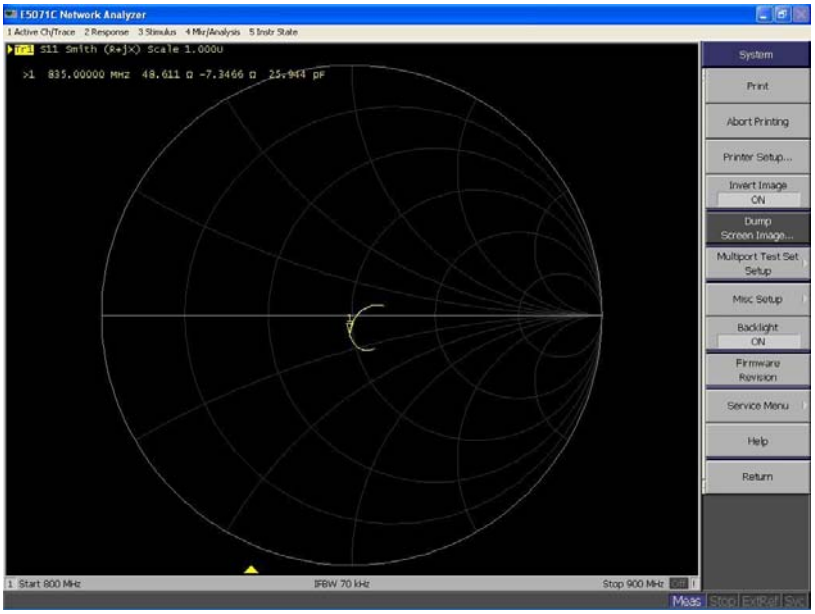
Note: Per KDB 450824 D02 requirements for dipole calibration, QuieTek Lab has adopted two years calibration intervals. On annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss is within 20% of calibrated measurement (Show below);
4. Impedance is within 5Ω of calibrated measurement (Show below).

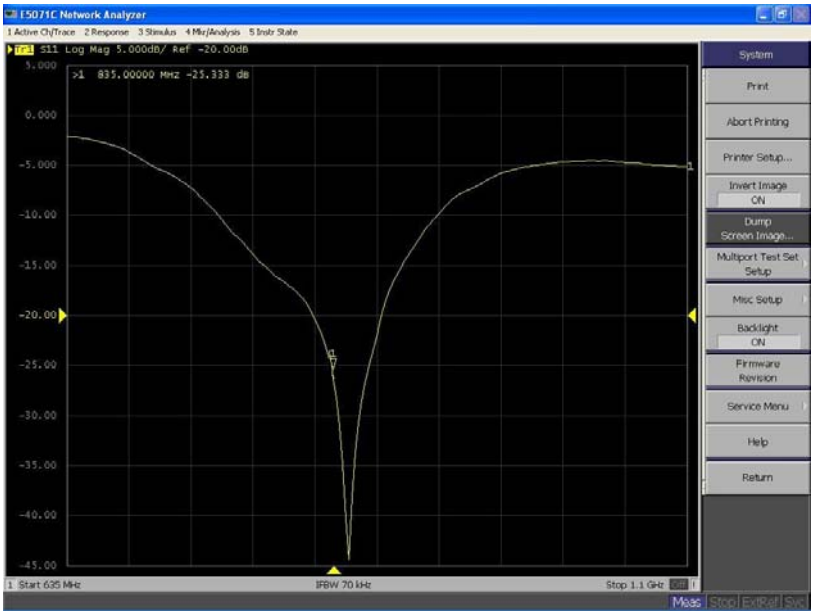
Impedance Plot for D835V2

835 Body

Calibrated impedance: 47.7 Ω; Measured impedance: 48.611 Ω (within 5Ω)



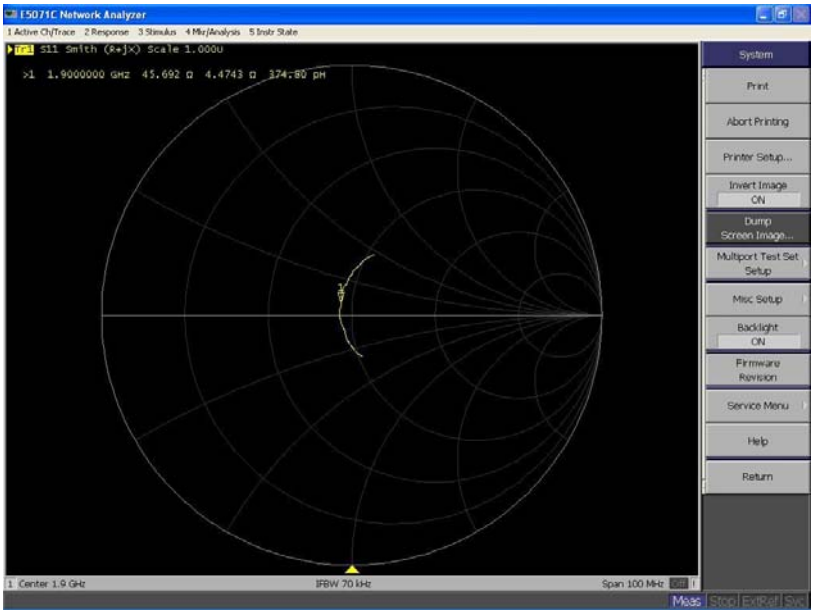
Calibrated return loss: -24.5 dB; Measured impedance: -25.333 dB (within 20%)



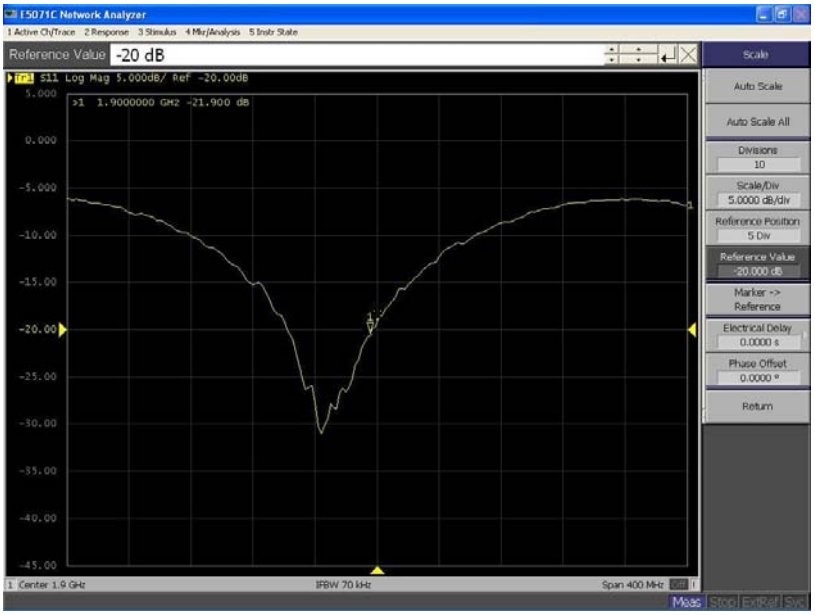
Impedance Plot for D1900V2

1900 Body

Calibrated impedance: 47.4 Ω; Measured impedance: 45.692 Ω (within 5Ω)

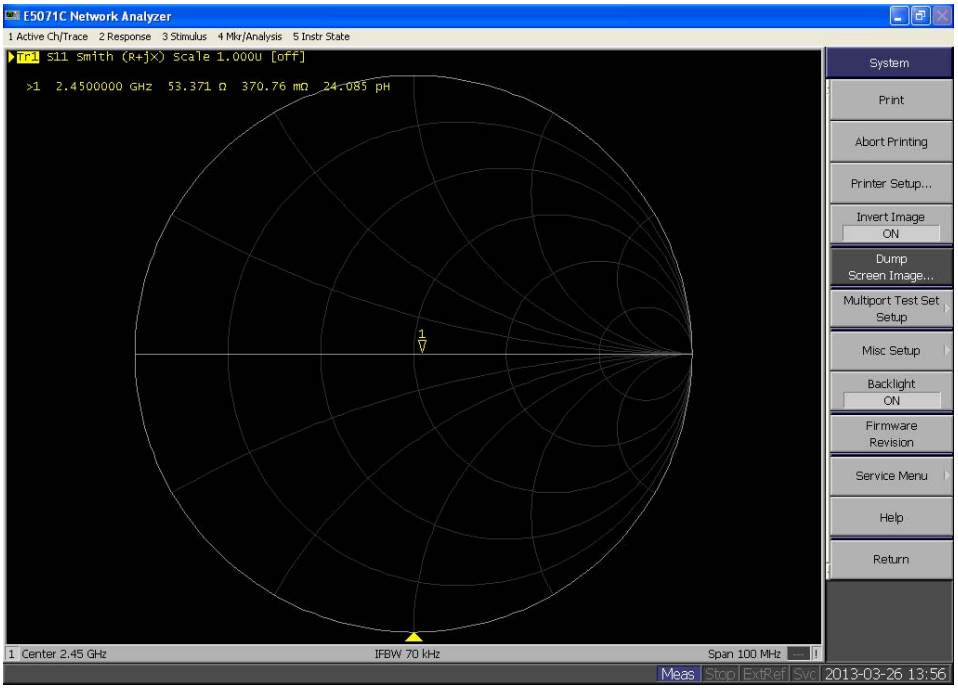


Calibrated return loss: -21.9 dB; Measured impedance: -21.900 dB (within 20%)

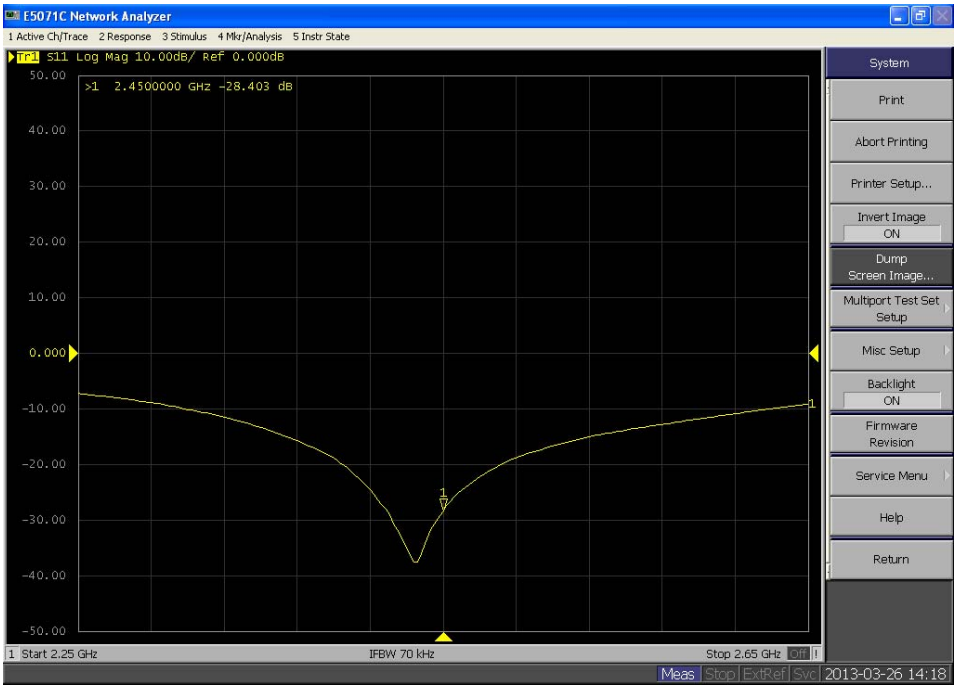


2450 Body

Calibrated impedance: 52.1 Ω; Measured impedance: 53.4 Ω (within 5Ω)



Calibrated return loss: -32.9 dB; Measured impedance: -28.4 dB (within 20%)



7. Measurement Uncertainty

DASY5 Uncertainty Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram / 10 gram.								
Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std.Unc. (1g)	Std. nc. (10g)	(vi) veff
Measurement System								
Probe Calibration	±6.0%	N	1	1	1	±6.0%	±6.0%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	√3	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	√3	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	√3	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	√3	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±11.0%	±10.8%	387
Expanded STD Uncertainty						±22.0%	±21.5%	

8. Conducted Power Measurement

Mode	Frequency (MHz)	Avg. Burst Power (dBm)	Duty Cycle Factor (dB)	Frame Power (dBm)	Max. Power (dBm)	Scaling Factor
GPRS(1 Slot)	824.2	32.24	-9	23.24	32.50	1.062
	836.4	32.13	-9	23.13	32.50	1.089
	848.8	32.00	-9	23.00	32.50	1.122
GPRS(2 Slot)	**824.2**	**29.80**	**-6**	**23.80**	**30.00**	**1.047**
	836.4	**29.64**	**-6**	**23.64**	**30.00**	**1.086**
	848.8	**29.53**	**-6**	**23.53**	**30.00**	**1.114**
GPRS(3 Slot)	824.2	27.89	-4.25	23.64	28.00	1.026
	836.4	27.72	-4.25	23.47	28.00	1.067
	848.8	27.60	-4.25	23.35	28.00	1.096
GPRS(4 Slot)	824.2	26.71	-3	23.71	27.00	1.069
	836.4	26.57	-3	23.57	27.00	1.104
	848.8	26.46	-3	23.46	27.00	1.132
EDGE850 GMSK (1 Slot)	824.2	31.95	-9	22.95	32.00	1.012
	836.4	31.89	-9	22.89	32.00	1.026
	848.8	31.73	-9	22.73	32.00	1.064
EDGE850 GMSK (2 Slot)	824.2	29.78	-6	23.78	30.00	1.052
	836.4	29.62	-6	23.62	30.00	1.091
	848.8	29.50	-6	23.50	30.00	1.122
EDGE850 GMSK (3 Slot)	824.2	27.85	-4.25	23.60	28.00	1.035
	836.4	27.64	-4.25	23.39	28.00	1.086
	848.8	27.54	-4.25	23.29	28.00	1.112
EDGE850 GMSK (4 Slot)	824.2	26.63	-3	23.63	27.00	1.089
	836.4	26.53	-3	23.53	27.00	1.114
	848.8	26.42	-3	23.43	27.00	1.143
EDGE850 8PSK (1 Slot)	824.2	26.66	-9	17.66	27.00	1.081
	836.4	26.47	-9	17.47	27.00	1.130
	848.8	26.34	-9	17.34	27.00	1.164
EDGE850 8PSK (2 Slot)	824.2	24.42	-6	18.42	25.00	1.143
	836.4	24.30	-6	18.30	25.00	1.175
	848.8	24.12	-6	18.12	25.00	1.225
EDGE850 8PSK (3 Slot)	824.2	22.62	-4.25	18.37	23.00	1.091
	836.4	22.45	-4.25	18.20	23.00	1.135
	848.8	22.34	-4.25	18.09	23.00	1.164
EDGE850 8PSK	824.2	21.26	-3	18.26	21.50	1.057

(4 Slot)	836.4	21.09	-3	18.09	21.50	1.099
	848.8	21.00	-3	18.00	21.50	1.122
GPRS1900(1 Slot)	1850.2	29.59	-9	20.57	30.00	1.099
	1880.0	29.58	-9	20.58	30.00	1.099
	1909.8	29.43	-9	20.43	30.00	1.140
GPRS1900(2 Slot)	**1850.2**	**27.94**	**-6**	**21.94**	**28.50**	**1.138**
	1880.0	**28.08**	**-6**	**22.08**	**28.50**	**1.102**
	1909.8	**28.28**	**-6**	**22.28**	**28.50**	**1.052**
GPRS1900(3 Slot)	1850.2	26.06	-4.25	21.81	26.50	1.107
	1880.0	26.24	-4.25	21.99	26.50	1.062
	1909.8	26.45	-4.25	22.20	26.50	1.012
GPRS1900(4 Slot)	1850.2	24.89	-3	21.89	25.50	1.151
	1880.0	25.08	-3	22.08	25.50	1.102
	1909.8	25.28	-3	22.28	25.50	1.052
EDGE1900 GMSK (1 Slot)	1850.2	29.42	-9	29.42	30.00	1.143
	1880.0	29.32	-9	29.32	30.00	1.169
	1909.8	29.40	-9	29.40	30.00	1.148
EDGE1900 GMSK (2 Slot)	1850.2	27.91	-6	27.91	28.50	1.146
	1880.0	28.04	-6	28.04	28.50	1.112
	1909.8	28.20	-6	28.20	28.50	1.072
EDGE1900 GMSK (3 Slot)	1850.2	25.86	-4.25	25.86	26.50	1.159
	1880.0	26.01	-4.25	26.01	26.50	1.119
	1909.8	26.12	-4.25	26.12	26.50	1.091
EDGE1900 GMSK (4 Slot)	1850.2	24.82	-3	29.42	25.50	1.169
	1880.0	24.85	-3	29.32	25.50	1.161
	1909.8	25.02	-3	29.40	25.50	1.117
EDGE1900 8PSK (1 Slot)	1850.2	25.55	-9	16.55	26.00	1.109
	1880.0	25.39	-9	16.39	26.00	1.151
	1909.8	25.28	-9	16.28	26.00	1.180
EDGE1900 8PSK (2 Slot)	1850.2	24.62	-6	18.62	25.00	1.091
	1880.0	24.70	-6	18.70	25.00	1.072
	1909.8	24.79	-6	18.79	25.00	1.050
EDGE1900 8PSK (3 Slot)	1850.2	22.73	-4.25	18.48	23.00	1.064
	1880.0	22.76	-4.25	18.51	23.00	1.057
	1909.8	22.88	-4.25	18.63	23.00	1.028
EDGE1900 8PSK (4 Slot)	1850.2	21.50	-3	18.50	22.00	1.122
	1880.0	21.57	-3	18.57	22.00	1.104

	1909.8	21.69	-3	18.69	22.00	1.074

Note 1: Scaling Factor = Max. Power (mW) / Avg. Burst Power (mW)

2: This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v05.

3: Both burst-averaged and calculated frame-averaged powers are included. Frame-averaged powers were calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 8 timeslots.

4: The bolded GPRS modes were selected for SAR testing according to the highest frame-averaged output power table per KDB 941225 D03v01.

5: GPRS/EDGE (GMSK) output powers were measured with coding scheme setting of 1 (CS1) on the base station simulator. CS1 was configured to measure GPRS output power measurements and SAR to ensure GMSK modulation in the signal. Our Investigation has shown that CS1 - CS4 settings do not have any impact on the output levels or modulation in the GPRS modes.

6: EDGE (8-PSK) output powers were measured with MCS7 on the base station simulator. MCS7 coding scheme was used to measure the output powers for EDGE since investigation has shown that choosing MCS7 coding scheme will ensure 8-PSK modulation. It has been shown that MCS levels that produce 8PSK modulation do not have an impact on output power.

WCDMA/HSDPA/HSUPA

Mode	3GPP Subtest	Band II (1900MHz) Channel			Band V (850MHz) Channel			MPR
		Conducted Power (dBm)			Conducted Power (dBm)			
		9262	9400	9538	4132	4182	4233	
WCDMA R99	**1**	23.65	23.41	23.24	22.86	23.16	22.87	**N/A**
Rel5 HSDPA	**1**	23.55	23.33	23.11	22.61	22.96	22.82	**0**
	2	23.41	23.25	23.09	22.59	22.87	22.81	**0**
	3	23.04	22.88	22.60	22.12	22.44	22.39	**0.5**
	4	23.01	22.79	22.59	22.10	22.43	22.37	**0.5**
Rel6 HSUPA	**1**	23.18	23.09	23.01	22.55	22.83	22.79	**0.0**
	2	21.17	21.60	21.01	20.51	20.81	20.74	**2.0**
	3	22.18	22.07	21.99	21.53	21.79	21.69	**1.0**
	4	21.16	21.08	21.01	20.52	20.79	20.73	**2.0**
	5	23.17	23.04	22.97	22.49	22.77	22.70	**0.0**

Note: UMTS SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v02. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.

Mode	Band II (1900MHz) Channel	Normal Power (dBm)	Max. Power (dBm)	Scaling Factor
WCDMA R99	9262	23.65	24.00	1.084
	9400	23.41	24.00	1.146
	9538	23.24	24.00	1.191
Rel5 HSDPA	9262	23.55	24.00	1.109
	9400	23.33	24.00	1.167
	9538	23.11	24.00	1.227
Rel6 HSUPA	9262	23.18	24.00	1.208
	9400	23.09	24.00	1.233
	9538	23.01	24.00	1.256
Mode	Band V (850MHz) Channel	Normal Power (dBm)	Max. Power (dBm)	Scaling Factor
WCDMA R99	4132	22.86	23.50	1.159
	4182	23.16	23.50	1.081
	4233	22.87	23.50	1.156
Rel5 HSDPA	4132	22.61	23.50	1.227
	4182	22.96	23.50	1.132
	4233	22.82	23.50	1.169

Rel6 HSUPA	4132	22.55	23.50	1.245
	4182	22.83	23.50	1.167
	4233	22.79	23.50	1.178

Note: Scaling Factor = Max. Power (mW) / Avg. Burst Power (mW)

WLAN output power

Test Mode	Channel No.	Frequency (MHz)	Average Power (dBm)	Max. Power (dBm)	Scaling Factor
802.11b	01	2412	13.60	14.00	1.096
	06	2437	13.77	14.00	1.054
	11	**2462**	**13.80**	**14.00**	**1.047**
802.11g	01	2412	12.90	13.00	1.023
	06	2437	12.77	13.00	1.054
	11	2462	12.42	13.00	1.143
802.11n (20MHz)	01	2412	12.66	13.00	1.081
	06	2437	12.38	13.00	1.153
	11	2462	12.42	13.00	1.143
802.11n (40MHz)	03	2422	12.13	12.50	1.089
	06	2437	12.21	12.50	1.069
	09	2452	11.87	12.50	1.156

Note 1: Justification for reduced test configurations for Wi-Fi channels per KDB Publication 248227 D01v01r02.

2: For 2.4 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11b were selected for SAR evaluation. Other IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.

3: When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the reported 1g averaged SAR is <0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.

4: The bolded channel above was tested for SAR.

9. Test Results

9.1. SAR Test Results Summary

SAR MEASUREMENT									
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 55					
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15					
Product: Mobile POS Kiosk									
Test Mode: Laptop mode for GPRS850-2slot									
Test Position Body (0mm gap)	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	128	824.2	23.80	0.13	0.881	1.047	0.922	1.6
Bottom	Fixed	189	836.4	23.64	-0.18	0.937	1.086	1.018	1.6
Bottom	Fixed	251	848.6	23.53	-0.12	1.03	1.114	1.147	1.6
Test Mode: Tablet mode for GPRS850-2slot									
Test Position Body (0mm gap)	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	128	824.2	23.80	-0.12	0.955	1.047	1.000	1.6
Bottom	Fixed	189	836.4	23.64	0.07	1.17	1.086	1.270	1.6
Bottom*	Fixed	189	836.4	23.64	0.17	1.14	1.086	1.241	1.6
Bottom	Fixed	251	848.6	23.53	-0.07	1.16	1.114	1.292	1.6
Note 1: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional, refer to KDB 447498. 2: * - repeated at the highest SAR measurement according to the FCC KDB 865664									

SAR MEASUREMENT									
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 55					
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15					
Product: Mobile POS Kiosk									
Test Mode: Laptop mode for GPRS1900-2slot									
Test Position Body (0mm gap)	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	512	1850.2	21.94	--	--	1.138	--	1.6
Bottom	Fixed	661	1880.0	22.08	0.04	0.360	1.102	0.397	1.6
Bottom	Fixed	810	1909.8	22.28	--	--	1.052	--	1.6
Test Mode: Tablet mode for GPRS1900-2slot									
Test Position Body (0mm gap)	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	512	1850.2	21.94	--	--	1.138	--	1.6
Bottom	Fixed	661	1880.0	22.08	0.01	0.245	1.102	0.270	1.6
Bottom	Fixed	810	1909.8	22.28	--	--	1.052	--	1.6
Note: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional, refer to KDB 447498.									

SAR MEASUREMENT									
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 55					
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15					
Product: Mobile POS Kiosk									
Test Mode: Laptop mode for WCDMA Band II									
Test Position Body (0mm gap)	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	9262	1852.4	23.65	--	--	1.084	--	1.6
Bottom	Fixed	9400	1880.0	23.41	0.05	0.378	1.146	0.433	1.6
Bottom	Fixed	9538	1907.6	23.24	--	--	1.191	--	1.6
Test Mode: Tablet mode for WCDMA Band II									
Test Position Body (0mm gap)	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	9262	1852.4	23.65	--	--	1.084	--	1.6
Bottom	Fixed	9400	1880.0	23.41	-0.08	0.344	1.146	0.394	1.6
Bottom	Fixed	9538	1907.6	23.24	--	--	1.191	--	1.6
Note: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional, refer to KDB 447498.									

SAR MEASUREMENT									
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 55					
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15					
Product: Mobile POS Kiosk									
Test Mode: Laptop mode for WCDMA Band V									
Test Position Body (0mm gap)	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	4132	826.4	22.86	-0.12	0.700	1.159	0.811	1.6
Bottom	Fixed	4182	836.4	23.16	0.15	0.927	1.081	1.00	1.6
Bottom	Fixed	4233	846.6	22.87	0.04	0.869	1.156	1.00	1.6
Test Mode: Tablet mode for WCDMA Band V									
Test Position Body (0mm gap)	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	4132	826.4	22.86	0.08	0.762	1.159	0.883	1.6
Bottom	Fixed	4182	836.4	23.16	0.19	**1.09**	1.081	**1.178**	1.6
Bottom*	Fixed	4182	836.4	23.16	0.14	0.956	1.081	1.033	1.6
Bottom	Fixed	4233	846.6	22.87	0.14	0.870	1.156	1.006	1.6
Note 1: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional, refer to KDB 447498. 2: * - repeated at the highest SAR measurement according to the FCC KDB 865664									

SAR MEASUREMENT									
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 55					
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15					
Product: Mobile POS Kiosk									
Test Mode: Tablet mode for 802.11b									
Test Position Body (0mm gap)	Antenna Position	Frequency		Avg. Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Scaling Factor	Scaled SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz						
Bottom	Fixed	1	2412	13.60	--	--	1.096	--	1.6
Bottom	Fixed	6	2437	13.77	--	--	1.054	--	1.6
Bottom	Fixed	11	2462	13.80	0.06	0.028	1.047	0.029	1.6
Note: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and mid channel is optional, refer to KDB 447498.									

9.2. SAR Test Notes

General Notes:

1. Batteries are fully charged at the beginning of the SAR measurements.
2. Liquid tissue depth was at least 15.0 cm for all frequencies.
3. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units
4. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v05.
5. Per FCC KDB 616217 D04 Section 4.3, SAR tests are required for the back surface and edges of the tablet with the tablet touching the phantom. The SAR Exclusion Threshold in FCC KDB 447498 D01v05 was applied to determine SAR test exclusion for adjacent edge configurations. SAR tests were required for bottom for the GSM/WCDMA antenna and WLAN Antenna.

GSM Test Notes:

1. Justification for reduced test configurations per KDB Publication 941225 D03v01: The source based time-averaged output power was evaluated for all multi-slot operations. The multi-slot configuration with the highest frame averaged output power was evaluated for SAR.
2. Per FCC KDB Publication 447498 D01v05, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

UMTS Notes:

1. UMTS mode in Body SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v02. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.
2. Per FCC KDB Publication 447498 D01v05, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

WLAN Notes:

1. Justification for reduced test configurations for Wi-Fi channels per KDB Publication 248227 D01v01r02 and April 2010 FCC/TCB Meeting Notes for 2.4 GHz Wi-Fi: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11b. Other IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
2. Wi-Fi transmission was verified using an uncalibrated spectrum analyzer.

3. When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the reported 1g averaged SAR is <0.8 W/kg, SAR testing on other default channels is not required.

9.3. Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v05 IV.C.1.iii, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is≤1.6W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v05 4.3.2 2, the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{7.5} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

9.3.1. Simultaneous Transmission Analysis

Simultaneous Transmission Scenario with Wi-Fi (Body at 0mm)

Simult Tx	Configuration	GSM850 SAR (W/kg)	Wi-Fi SAR (W/kg)	∑ SAR (W/kg)
Body of Laptop	Bottom	1.147	--	1.147
Body of Tablet	Bottom	1.292	0.029	1.321
Simult Tx	Configuration	GPRS1900 SAR (W/kg)	Wi-Fi SAR (W/kg)	∑ SAR (W/kg)
Body of Laptop	Bottom	0.397	--	0.397
Body of Tablet	Bottom	0.270	0.029	0.299
Simult Tx	Configuration	UMTS1900 SAR (W/kg)	Wi-Fi SAR (W/kg)	∑ SAR (W/kg)
Body of Laptop	Bottom	0.468	--	0.468
Body of Tablet	Bottom	0.426	0.029	0.455
Simult Tx	Configuration	UMTS850 SAR (W/kg)	Wi-Fi SAR (W/kg)	∑ SAR (W/kg)
Body of Laptop	Bottom	1.016	--	1.016
Body of Tablet	Bottom	1.195	0.029	1.224

9.3.2. Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v05.

Appendix A. SAR System Validation Data

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

System Check Body 835MHz

DUT: Dipole 835 MHz D835V2; Type: D835V2

Communication System: CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1;

Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; εr = 52.89; ρ = 1000 kg/m^3 ;

Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

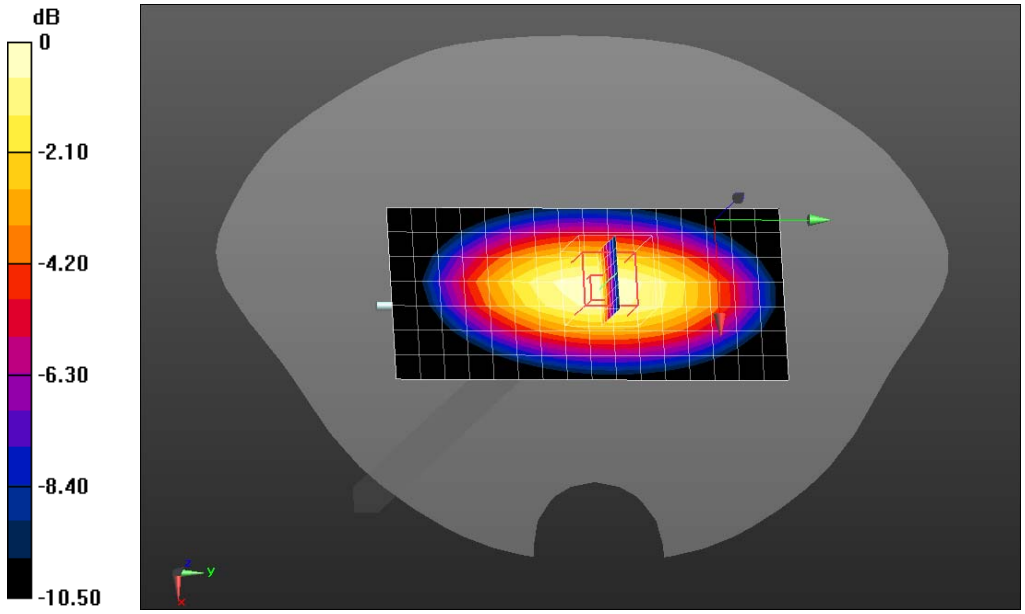
- Probe: EX3DV4 - SN3710; ConvF(9.41, 9.41, 9.41); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/System Check Body 835MHz/Area Scan (8x17x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 2.51 mW/g

Configuration/System Check Body 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 51.529 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.654 mW/g

SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.58 mW/g Maximum value of SAR (measured) = 2.62 mW/g



0 dB = 2.62 mW/g = 8.37 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

System Check Body 1900MHz

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle: 1:1; Frequency: 1900 MHz; Medium parameters used: f = 1900 MHz; σ = 1.53 mho/m; εr = 52.93; ρ = 1000 kg/m³ ; Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

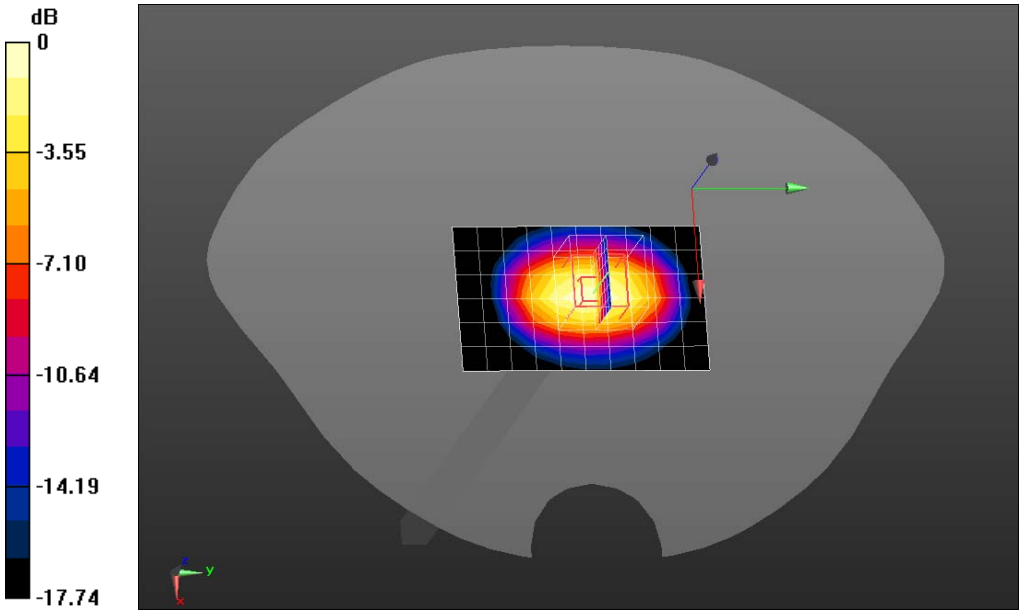
- Probe: EX3DV4 - SN3710; ConvF(7.6, 7.6, 7.6); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/System Check Body 1900MHz/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 10.9 mW/g

Configuration/System Check Body 1900MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 84.553 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 18.880 mW/g

SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.18 mW/g Maximum value of SAR (measured) = 11.4 mW/g



0 dB = 11.4 mW/g = 21.14 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

System Check Body 2450MHz

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

Communication System: CW; Communication System Band: D2450(2450MHz); Duty Cycle: 1:1; Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ = 1.99 mho/m; εr = 52.25; ρ = 1000 kg/m³ ; Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

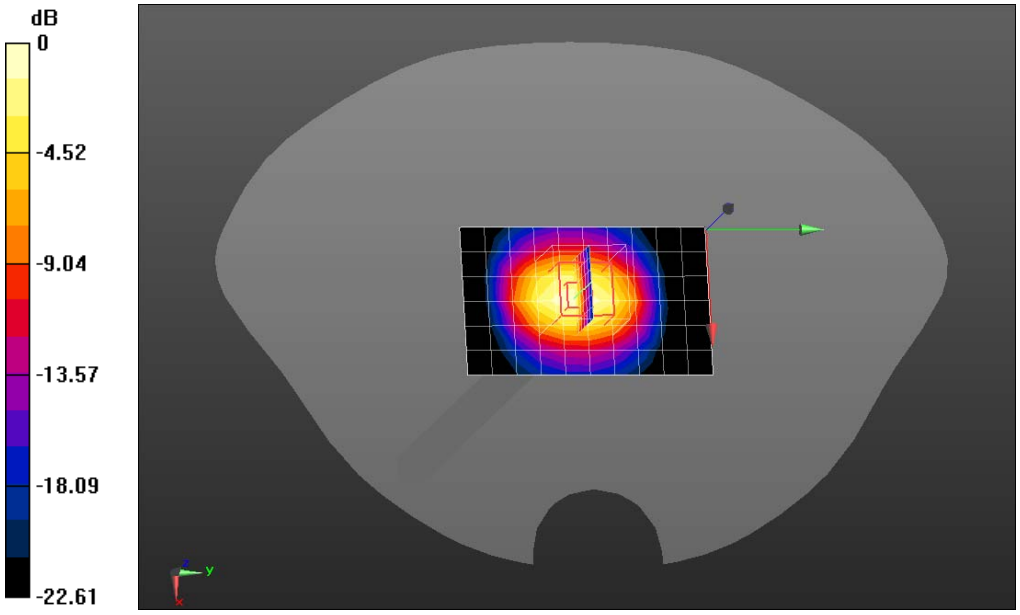
- Probe: EX3DV4 - SN3710; ConvF(7.08, 7.08, 7.08); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/System Check Body 2450MHz/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 12.9 mW/g

Configuration/System Check Body 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 80.669 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 25.360 mW/g

SAR(1 g) = 12 mW/g; SAR(10 g) = 5.45 mW/g Maximum value of SAR (measured) = 13.8 mW/g



0 dB = 13.8 mW/g = 22.80 dB mW/g

Appendix B. SAR measurement Data

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS850-2slot Low Bottom for laptop

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: GSM850; Duty Cycle: 1:4.2 ; Frequency: 824.2 MHz; Medium parameters used: f = 824.2 MHz; σ = 0.96 mho/m; εr = 52.97; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

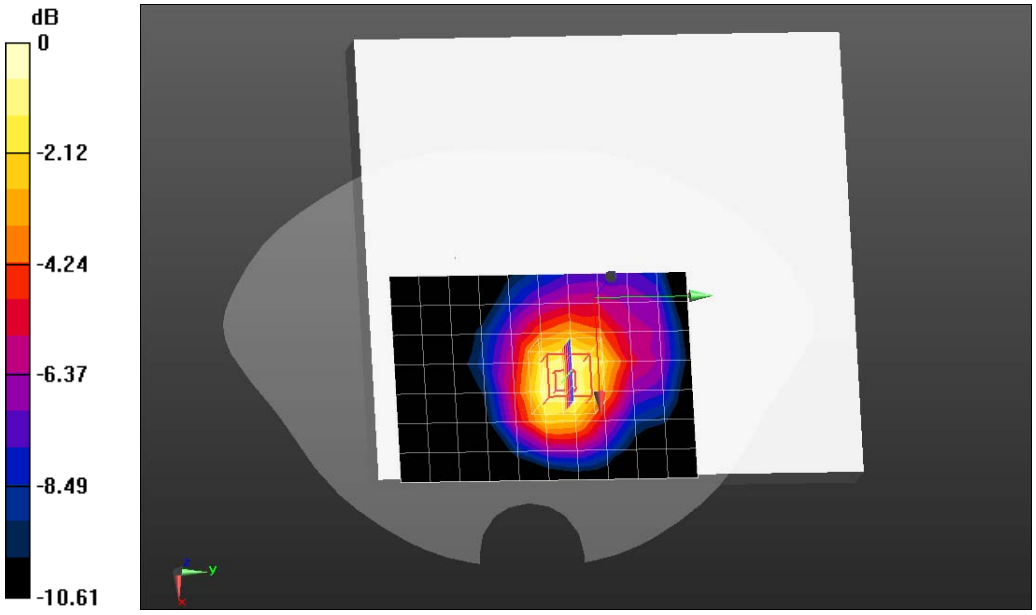
- Probe: EX3DV4 - SN3710; ConvF(9.41, 9.41, 9.41); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/GPRS850 Low Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.866 mW/g

Configuration/GPRS850 Low Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 18.352 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.283 mW/g

SAR(1 g) = 0.881 mW/g; SAR(10 g) = 0.588 mW/g Maximum value of SAR (measured) = 0.945 mW/g



0 dB = 0.945 mW/g = -0.49 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS850-2slot Mid Bottom for laptop

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: GSM850; Duty Cycle: 1:4.2 ; Frequency: 836.4 MHz; Medium parameters used: f = 836.4 MHz; σ = 0.97 mho/m; εr = 52.88; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(9.41, 9.41, 9.41); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

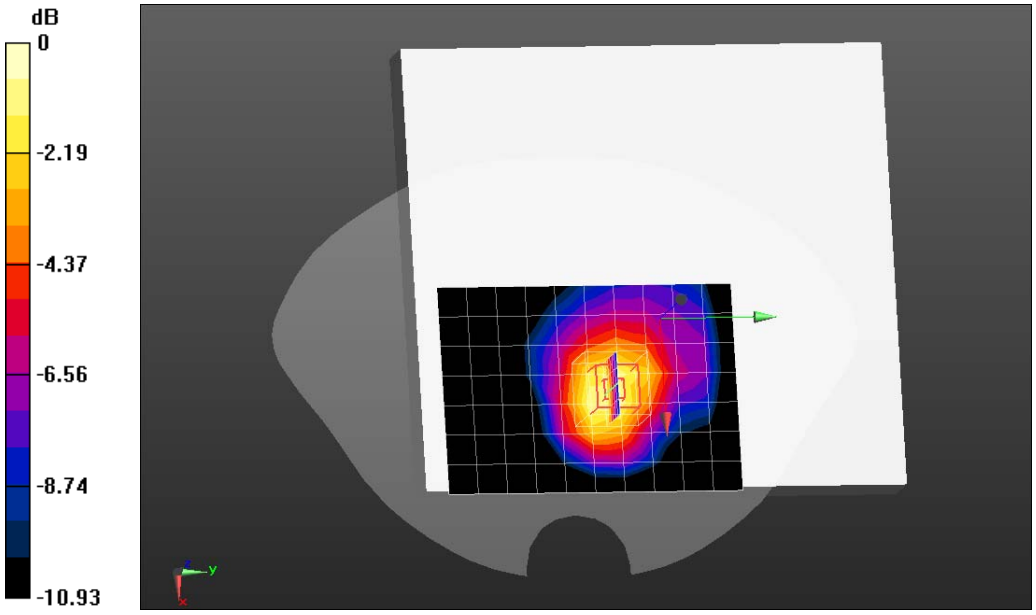
Configuration/GPRS850 Mid Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.834 mW/g

Configuration/GPRS850 Mid Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 19.455 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 1.315 mW/g

SAR(1 g) = 0.937 mW/g; SAR(10 g) = 0.623 mW/g Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01 mW/g = 0.09 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS850-2slot High Bottom for laptop

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: GSM850; Duty Cycle: 1:4.2 ; Frequency: 848.8 MHz; Medium parameters used: f = 848.8 MHz; σ = 0.98 mho/m; εr = 52.68; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(9.41, 9.41, 9.41); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

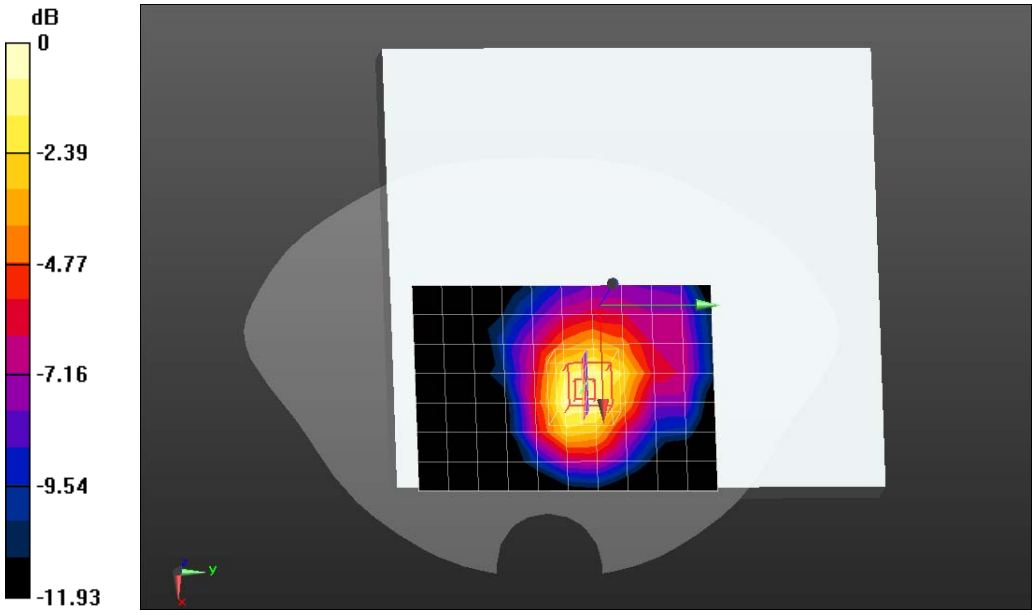
Configuration/GPRS850 High Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.955 mW/g

Configuration/GPRS850 High Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 19.375 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.504 mW/g

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.674 mW/g Maximum value of SAR (measured) = 1.11 mW/g



0 dB = 1.11 mW/g = 0.91 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS850-2slot Low Bottom for Tablet

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: GSM850; Duty Cycle: 1:4.2 ; Frequency: 824.2 MHz; Medium parameters used: f = 824.2 MHz; σ = 0.96 mho/m; εr = 52.97; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

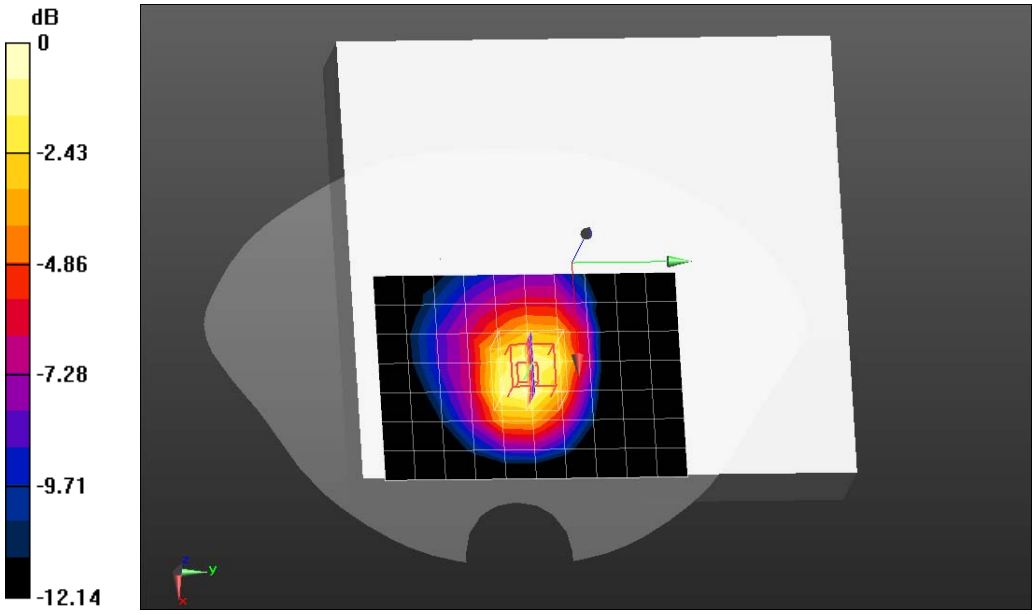
- Probe: EX3DV4 - SN3710; ConvF(9.41, 9.41, 9.41); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/GPRS850 Low Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.887 mW/g

Configuration/GPRS850 Low Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 27.451 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.344 mW/g

SAR(1 g) = 0.955 mW/g; SAR(10 g) = 0.637 mW/g Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01 mW/g = 0.09 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS850-2slot Mid Bottom for Tablet

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: GSM850; Duty Cycle: 1:4.2 ; Frequency: 836.4 MHz; Medium parameters used: f = 836.4 MHz; σ = 0.97 mho/m; εr = 52.88; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(9.41, 9.41, 9.41); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

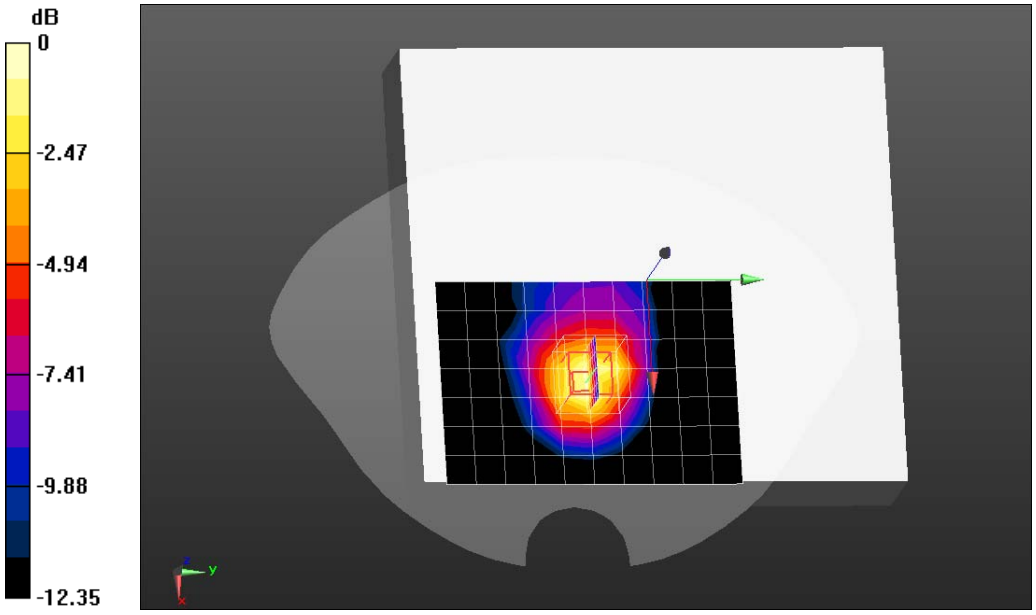
Configuration/GPRS850 Mid Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.14 mW/g

Configuration/GPRS850 Mid Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 26.502 V/m; Power Drift = 0.07 dB

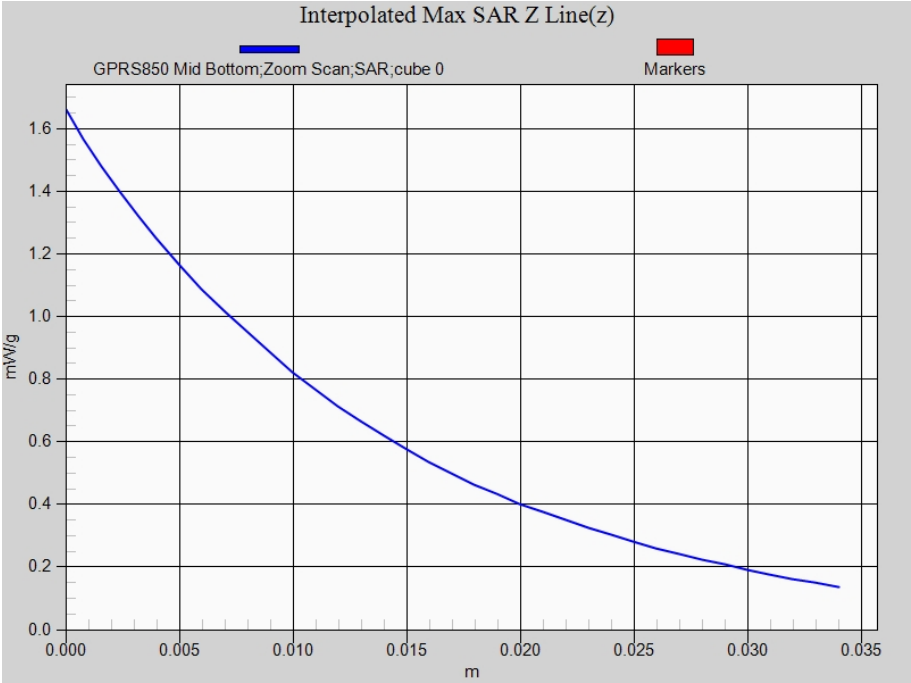
Peak SAR (extrapolated) = 1.660 mW/g

SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.761 mW/g Maximum value of SAR (measured) = 1.24 mW/g



0 dB = 1.24 mW/g = 1.87 dB mW/g

Z-Axis Plot


Interpolated Max SAR Z Line(z)
GPRS850 Mid Bottom;Zoom Scan;SAR;cube 0
Markers
mW/g
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS850-2slot Mid Bottom for Tablet-1

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: GSM850; Duty Cycle: 1:4.2 ; Frequency: 836.4 MHz; Medium parameters used: f = 836.4 MHz; σ = 0.97 mho/m; εr = 52.88; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(9.41, 9.41, 9.41); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

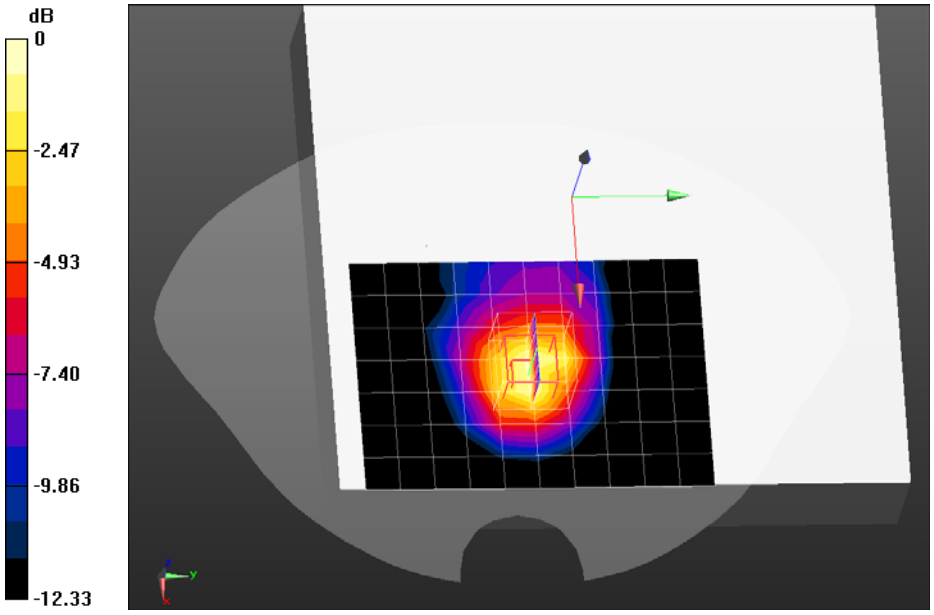
Configuration/GPRS850 Mid Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.12 mW/g

Configuration/GPRS850 Mid Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 26.502 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.625 mW/g

SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.746 mW/g Maximum value of SAR (measured) = 1.21 mW/g



0 dB = 1.21 mW/g = 1.66 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS850-2slot High Bottom for Tablet

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: GSM850; Duty Cycle: 1:4.2 ; Frequency: 848.8 MHz; Medium parameters used: f = 848.8 MHz; σ = 0.98 mho/m; εr = 52.68; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(9.41, 9.41, 9.41); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

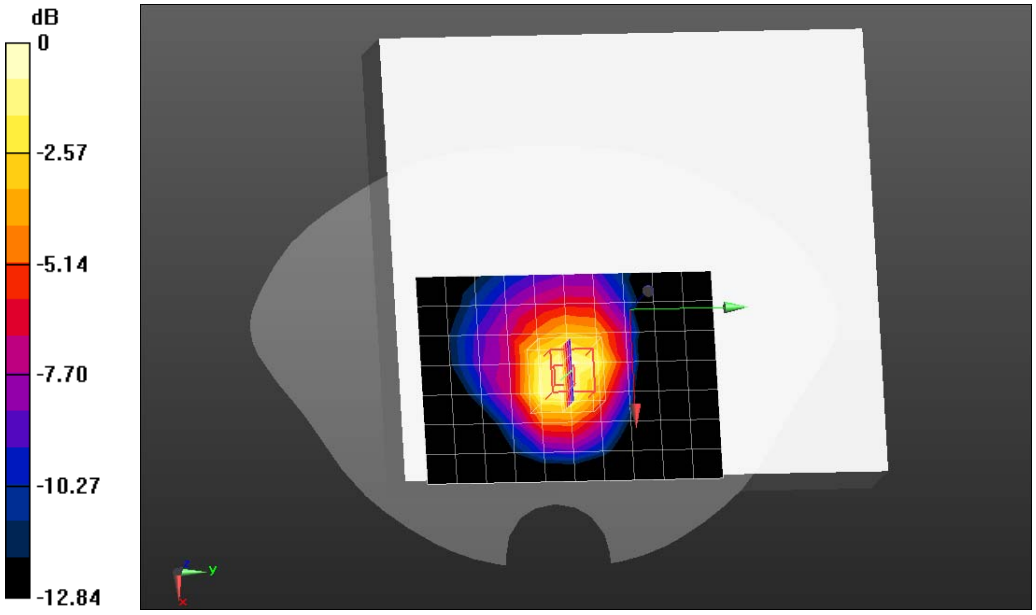
Configuration/GPRS850 High Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.14 mW/g

Configuration/GPRS850 High Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 28.734 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.676 mW/g

SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.757 mW/g Maximum value of SAR (measured) = 1.24 mW/g



0 dB = 1.24 mW/g = 1.87 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS1900-2slot Mid Bottom for laptop

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: PCS1900; Duty Cycle: 1:4.2 ; Frequency: 1880 MHz; Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; εr = 53.01; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(7.6, 7.6, 7.6); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

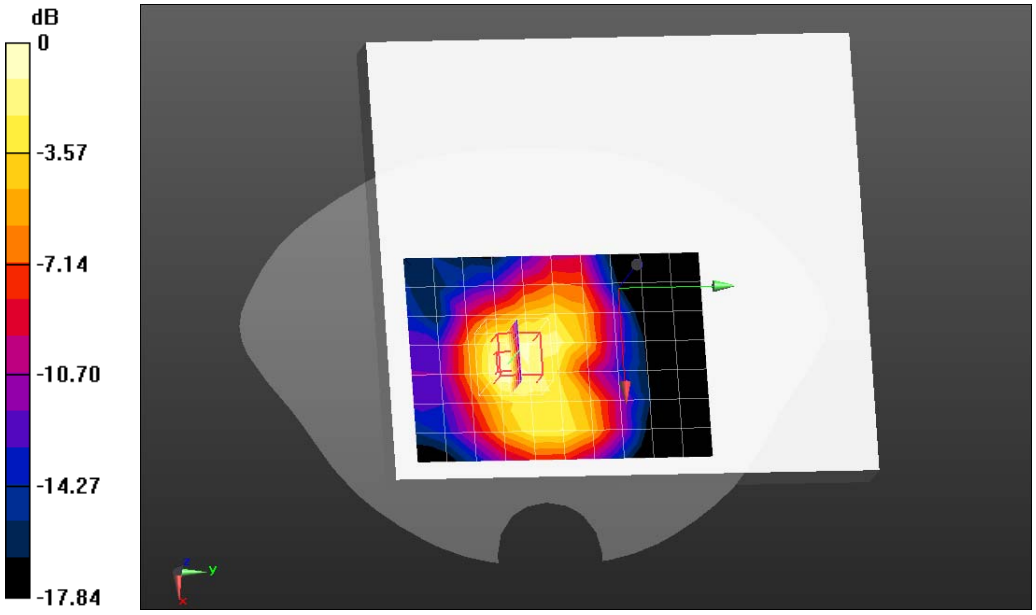
Configuration/GPRS1900 Mid Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.368 mW/g

Configuration/GPRS1900 Mid Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 14.823 V/m; Power Drift = 0.04 dB

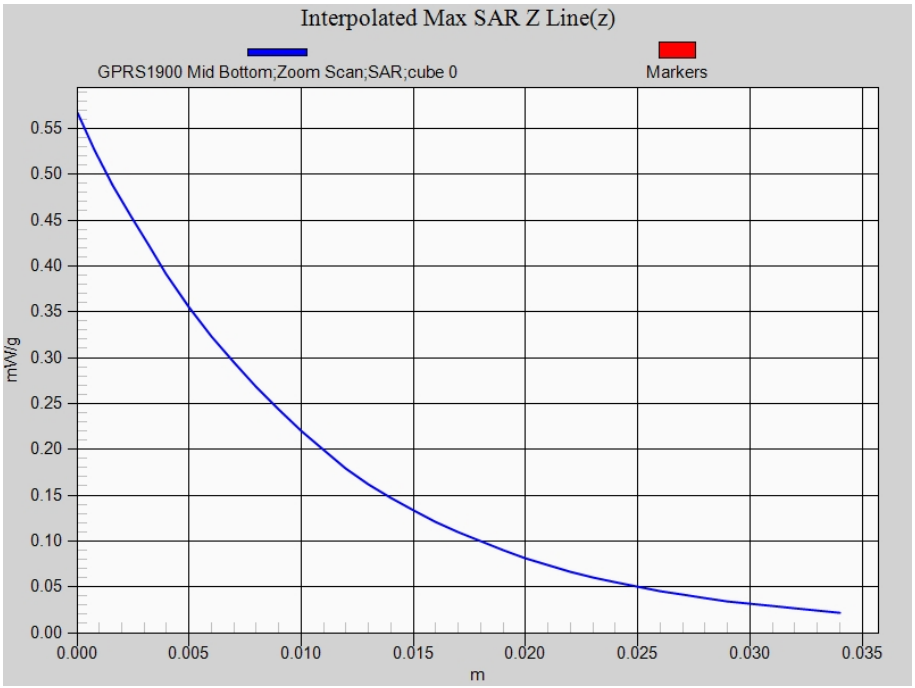
Peak SAR (extrapolated) = 0.567 mW/g

SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.219 mW/g Maximum value of SAR (measured) = 0.390 mW/g



0 dB = 0.390 mW/g = -8.18 dB mW/g

Z-Axis Plot


Interpolated Max SAR Z Line(z)
GPRS1900 Mid Bottom;Zoom Scan;SAR;cube 0
Markers
mW/g
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

GPRS1900-2slot Mid Bottom for Tablet

DUT: Mobile POS Kiosk; Type: PA02

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: PCS1900; Duty Cycle: 1:4.2 ; Frequency: 1880 MHz; Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; εr = 53.01; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

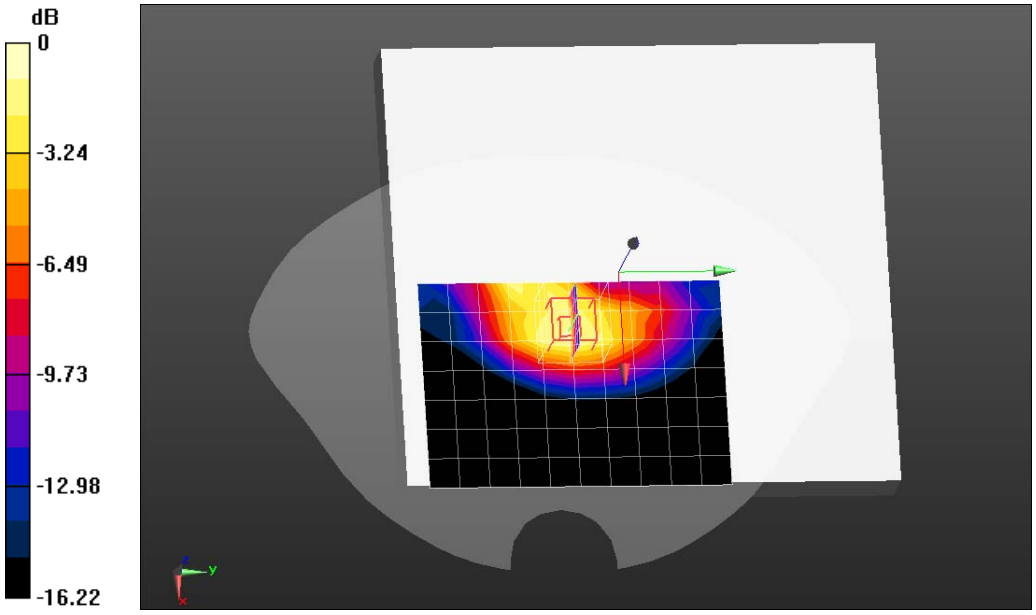
- Probe: EX3DV4 - SN3710; ConvF(7.6, 7.6, 7.6); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/WCDMA Band II Mid Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.235 mW/g

Configuration/WCDMA Band II Mid Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 7.726 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.392 mW/g

SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.141 mW/g Maximum value of SAR (measured) = 0.272 mW/g



0 dB = 0.272 mW/g = -11.31 dB mW/g

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

WCDMA Band II Mid Bottom for laptop

DUT: Mobile POS Kiosk; Type: PA02

Communication System: UMTS; Communication System Band: Band II UTRA/FDD; Duty Cycle: 1:1; Frequency: 1880 MHz; Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; εr = 53.01; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

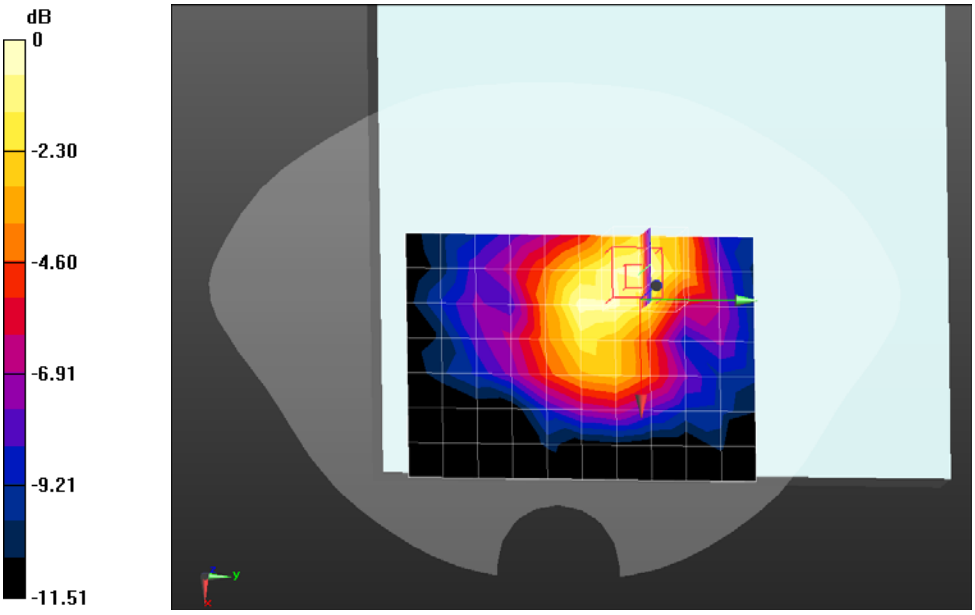
- Probe: EX3DV4 - SN3710; ConvF(7.6, 7.6, 7.6); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/WCDMA Band II Mid Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm,Maximum value of SAR (measured) = 0.384 mW/g

Configuration/WCDMA Band II Mid Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm,Reference Value = 12.750 V/m; Power Drift = 0.05 dB

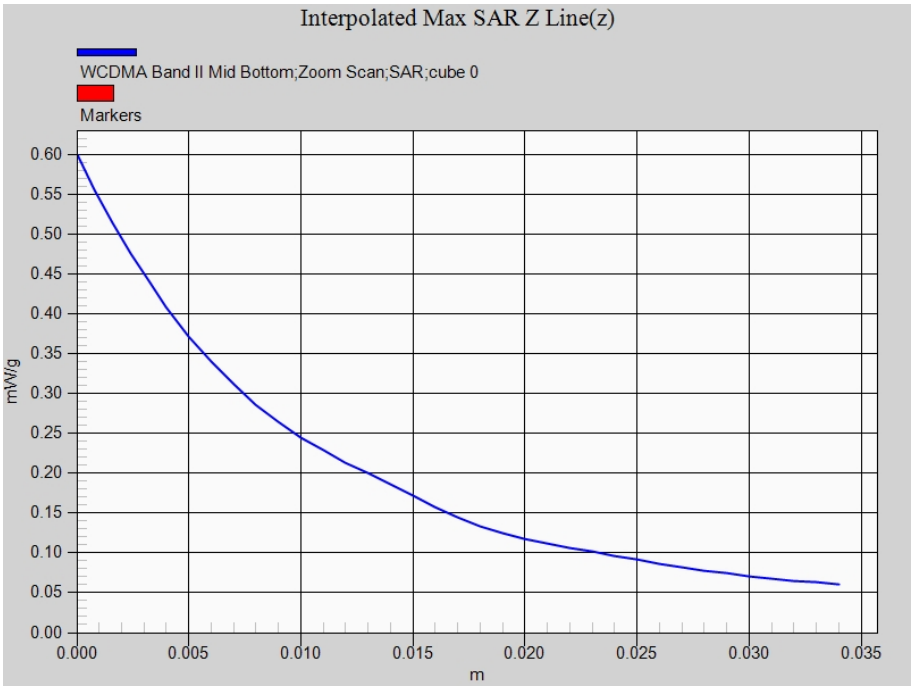
Peak SAR (extrapolated) = 0.600 mW/g

SAR(1 g) = 0.378 mW/g; SAR(10 g) = 0.242 mW/g Maximum value of SAR (measured) = 0.406 mW/g



0 dB = 0.406 mW/g = -7.83 dB mW/g

Z-Axis Plot


Interpolated Max SAR Z Line(z)
WCDMA Band II Mid Bottom;Zoom Scan;SAR;cube 0
Markers
mW/g
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 17-06-2013

Test Laboratory: QuieTek Lab

WCDMA Band II Mid Bottom for Tablet

DUT: Mobile POS Kiosk; Type: PA02

Communication System: UMTS; Communication System Band: Band II UTRA/FDD; Duty Cycle: 1:1; Frequency: 1880 MHz; Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; εr = 53.01; ρ = 1000 kg/m³ ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

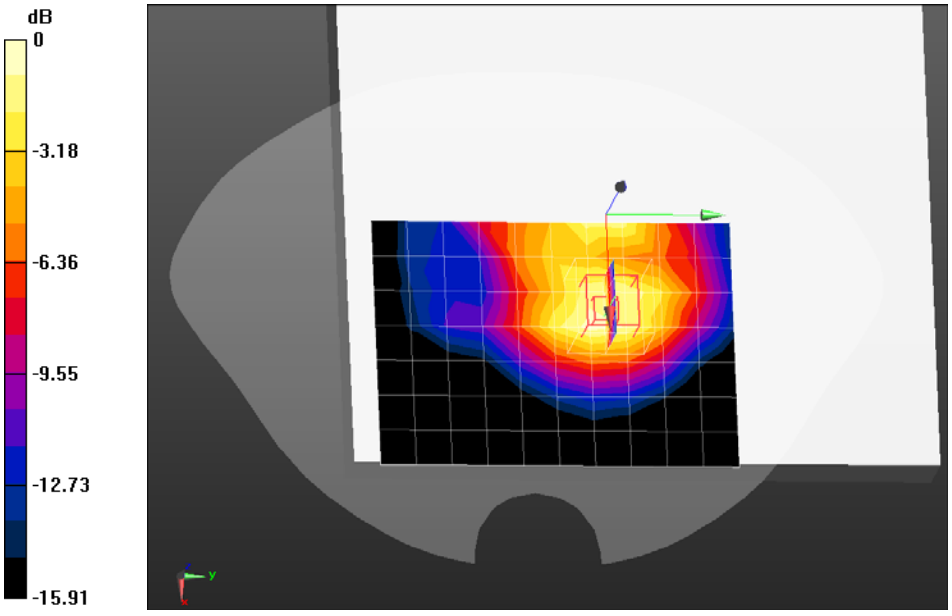
- Probe: EX3DV4 - SN3710; ConvF(7.6, 7.6, 7.6); Calibrated: 27/03/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 24/01/2013
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/WCDMA Band II Mid Bottom/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm,Maximum value of SAR (measured) = 0.330 mW/g

Configuration/WCDMA Band II Mid Bottom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm,Reference Value = 8.800 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.561 mW/g

SAR(1 g) = 0.344 mW/g; SAR(10 g) = 0.201 mW/g Maximum value of SAR (measured) = 0.375 mW/g



0 dB = 0.375 mW/g = -8.52 dB mW/g