CETECOM ICT Services
consulting - testing - certification

TEST REPORT

Test Report No.: 1-6965/13-20-02-D

DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

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The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01

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Manufacturer

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Test Standard/s

IEEE 1528-2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR)in the Human Head from Wireless Communications Devices: Measurement Techniques
RSS-102 Issue 4	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	Smart Phone
Device type:	portable device
S/N serial number:	CB5A1Z1Y8L / CB5A1Z1Y6X / CB5A1Z1Y51 / CB5A1Z1Y50/ CB5A1Z1Y0Y / CB5A1Z1Y49 / CB5A1Z1Y7G / CB5A1Z1Y2Y
FCC-ID:	PY7PM-0742
IMEI-Number:	00440245 2668 589 / 004402452668456 / 004402452668373 / 004402452668365 / 004402452668324 / 004402452668803
Hardware status:	AP1.0
Software status:	23.0.E0.81
Frequency:	see technical details
Antenna:	integrated antenna
Battery option:	Integrated Li-polymer battery 3.7V
Accessories:	---
Test sample status:	identical prototype
Exposure category:	general population / uncontrolled environment

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Test Report authorised:

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2 General information

2.1 Notes and disclaimer

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2.2 Application details

Date of receipt of order:	2014-05-19
Date of receipt of test item:	2014-05-21
Start of test:	2014-05-27
End of test:	2014-06-30
Person(s) present during the test:	

2.3 Statement of compliance

The SAR values found for the Smart Phone PY7PM-0742 are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1 g tissue according to the FCC rule §2.1093, the ANSI/IEEE C 95.1:1992, the NCRP Report Number 86 for uncontrolled environment, according to the Health Canada's Safety Code 6 and the Industry Canada Radio Standards Specification RSS-102 for General Population/Uncontrolled exposure.
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 that positions the handset a minimum of 15 mm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.
According to KDB pub 941225 D06 this device has been tested with 10 mm distance to the phantom for operation in WLAN hot spot mode.
According to KDB pub 648474 D04 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg.

2.4 Technical details

Band tested for this test report	Technology	Lowest transmit frequency/MHz	Highest transmit frequency/MHz	Lowest receive Frequency/MHz	Highest receive Frequency/MHz	Kind of modulation	Power Class	Tested power control level	GPRS/EGPRS mobile station class	GPRS/EGPRS multislot class	(E)GPRS voice mode or DTM	Test channel low	Test channel middle	Test channel high	Maximum output power/dBm)*
☐	GSM	880.2	914.8	925.2	959.8	GMSK 8-PSK	4 E2	5	A	33	11	975	37	124	30.0
☐	GSM DCS	1710.2	1784.8	1805.2	1879.8	GMSK 8-PSK	1 E2	0	A	33	11	512	698	885	26.8
☒	GSM cellular	824.2	848.8	869.2	893.8	GMSK 8-PSK	4 E2	5	A	33	11	128	190	251	31.0
☒	GSM PCS	1850.2	1909.8	1930.2	1989.8	GMSK 8-PSK	1 E2	0	A	33	11	512	661	810	25.5
☒	CDMA BC0	815	849	860	894	QPSK	3	max	--	--	--	1013	384	777	24.6
☒	CDMA BC1	1850	1910	1930	1990	QPSK	3	max	--	--	--	25	600	1175	23.5
☒	UMTS FDD I	1922.4	1977.6	2112.4	2167.6	QPSK	3	max	--	--	--	9612	9750	9888	24.5
☒	UMTS FDD II	1852.4	1907.6	1932.4	1987.6	QPSK	3	max	--	--	--	9262	9400	9538	23.5
☒	UMTS FDD V	826.4	846.6	871.4	891.6	QPSK	3	max	--	--	--	4132	4182	4233	24.5
☒	UMTS FDD VIII	882.4	912.6	927.4	957.6	QPSK	3	max	--	--	--	2712	2788	2863	24.5
☒	LTE FDD 2	1850	1910	1930	1990	QPSK	3	max	--	--	--	18700	18900	19100	23.3
☐	LTE FDD 3	1710	1785	1805	1880	QPSK	3	max	--	--	--	19300	19575	19850	23.6
☒	LTE FDD 4	1710	1755	2110	2155	QPSK	3	max	--	--	--	20050	20175	20300	23.5
☒	LTE FDD 7	2500	2570	2620	2690	QPSK	3	max	--	--	--	20850	21100	21350	17.3
☒	LTE FDD 13	777	787	746	756	QPSK	3	max	--	--	--	23205	23230	23255	23.7
☐	WLAN	2412	2472	2412	2472	CCK OFDM	--	max	--	--	--	1	7	13	15.6
☒	WLAN US	2412	2462	2412	2462	CCK OFDM	--	max	--	--	--	1	6	11	15.5
☒	WLAN	5180	5240	5180	5240	OFDM	--	max	--	--	--	--	--	48	15.5
☒	WLAN	5260	5320	5260	5320	OFDM	--	max	--	--	--	--	56	--	12.0
☒	WLAN	5500	5700	5500	5700	OFDM	--	max	--	--	--	--	--	140	11.9
☒	WLAN	5745	5825	5745	5825	OFDM	--	max	--	--	--	--	--	161	13.8
☐	BT	2402	2480	2402	2480	GFSK	3	max	--	--	--	0	39	78	9.2

)*: measured slotted peak power for GSM, averaged max. RMS power for UMTS, LTE, WLAN and BT.

Features:

GSM bands 2.5	(GPRS, EDGE) class A, Multislot class 33 (max 4 TS Uplink, max 5 TS downlink, max. 6 TS active) DTM class 11 (max 3 TS uplink, max 4 TS downlink, max 5 TS active)
Rel 9 HSDPA UE	cat 24 bands 2, 5 (QPSK, 16QAM, 64QAM, no MIMO, dual cell, 42.2 Mbps)
Rel 9 HSPA UE	cat: 6 bands 2, 5 (QPSK, no 16QAM, 5.76 Mbps)
Rel 10 LTE UE	cat: 4 bands 2, 4, 5, 7, 13 (QPSK, 16QAM, no MIMO, 50Mbps uplink) Maximum TTI bundling: 4 Downlink LTE Carrier aggregation(Up to 20MHz).
BT BR / BT LE	
ANT+	
RFID 13.56 MHz	

2.5 Transmitter and Antenna Operating Configurations

Simultaneous transmission conditions		
GSM / GPRS / EDGE / DTM	+	BT/BLE[1]
GSM / GPRS / EDGE / DTM	+	WLAN 2.4GHz
GSM / GPRS / EDGE / DTM	+	WLAN 5GHz
UMTS / HSPA	+	BT/BLE
UMTS / HSPA	+	WLAN 2.4GHz
UMTS / HSPA	+	WLAN 5GHz
CDMA	+	BT/BLE
CDMA	+	WLAN 2.4GHz
CDMA	+	WLAN 5GHz
LTE	+	BT/BLE
LTE	+	WLAN 2.4GHz
LTE	+	WLAN 5GHz

Table 1: Simultaneous transmission conditions

Note: BT and WLAN can be active at the same time, but only with interleaving of packages switched on board level. That means that they don't transmit at the same time.

BLE[1] - Bluetooth low energy

3 Test standards/ procedures references

Test Standard	Version	Test Standard Description
IEEE 1528-2003	2003-04	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
IEEE 1528-2013	2014-06	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
RSS-102 Issue 4	2010-03	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
IEEE Std. C95-3	2002	IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave
IEEE Std. C95-1	1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
IEC 62209-2	2010	Human exposure to radio frequency fields from hand-held and bodymounted wireless communication devices. Human models, instrumentation, and procedures. Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)

FCC KDBs:

KDB 865664D01v01	February 7, 2014	FCC OET SAR measurement requirements 100 MHz to 6 GHz
KDB 865664D02v01	May 28, 2013	RF Exposure Compliance Reporting and Documentation Considerations
KDB 447498D01v05	February 7, 2014	Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
KDB 648474D04v01	May 28, 2013	SAR Evaluation Considerations for Wireless Handsets
KDB 941225D01v02	Octpber, 2007	SAR Measurements Procedures for 3G Devices
KDB 941225D02v01	December 14, 2009	3GPP R6 HSPA and R7 HSPA+ SAR Guidance
KDB 941225D02v02	May 28, 2013	SAR Guidance for HSPA, HSPA+, DC-HSDPA and 1x-Advanced
KDB 941225D04v01	January 27, 2010	Evaluating SAR for GSM/(E)GPRS Dual Transfer Mode
KDB 941225D05v02	December 5, 2013	SAR for LTE Devices
KDB 941225D05Av01	February 7, 2014	LTE Rel. 10 KDB Inquiry Sheet
KDB 941225D03v01	December, 2008	SAR Test Reduction Procedure for GSM/GPRS/EDGE
KDB 941225D06v01	May 28, 2013	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
KDB 941225D07v01	May 28, 2013	UMPS Mini Tablet
KDB 248227D01v01	February, 2008	SAR Measurement Procedures for 802.11 a/b/g Transmitters
KDB 450824D01v01	January, 2007	SAR Probe Calibration and System Verification considerations for measurements from 150 MHz to 3 GHz
KDB 450824D01v01	March 4, 2012	Dipole Requirements for SAR System Validation and Verification

3.1 RF exposure limits

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

Table 2: RF exposure limits

The limit applied in this test report is shown in bold letters

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

** The Spatial Average value of the SAR averaged over the whole body.

*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

4 Summary of Measurement Results

☒	**No deviations from the technical specifications ascertained**
☐	Deviations from the technical specifications ascertained

Maximum SAR_{1g} value reported (W/kg)				
		PCE	**DTS**	**NII**
head		**0.653**	**0.281**	**0.131**
body worn 15 mm distance		**0.670**	**0.098**	**0.328**
hotspot operation 10 mm distance[1]		**1.194**	**0.284**	---
collocated situations	**ΣSAR evaluation**	**1.478**		
	$SPLSR_i \leq 0.040$	**---**		

4.1 Maximum measured and reported SAR values for Head configuration

HEAD	SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)	
	Measured	Extrapolated	Meas.	Extrap.
GSM 850	0.604	0.604	0.466	0.466
GSM 1900	0.254	0.266	0.156	0.163
UMTS FDD II	0.417	0.417	0.255	0.255
UMTS FDD V	0.494	0.494	0.385	0.385
BC0	0.609	0.653	0.472	0.506
BC1	0.386	0.404	0.230	0.241
LTE FDD 2	0.319	0.391	0.200	0.240
LTE FDD 4	0.355	0.408	0.219	0.251
LTE FDD 7	0.177	0.274	0.087	0.135
LTE FDD 13	0.373	0.400	0.281	0.301
WLAN 2450	0.228	0.281	0.119	0.146
WLAN 5 GHz	0.115	0.131	0.033	0.037

[1] 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg.

4.2 Maximum measured and reported SAR values for body worn configuration

body worn	SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)	
	Measured	Extrapolated	Meas.	Extrap.
GSM 850	0.552	0.552	0.429	0.429
GSM 1900	0.465	0.505	0.271	0.297
UMTS FDD II	0.655	0.670	0.377	0.381
UMTS FDD V	0.367	0.376	0.285	0.292
BC0	0.555	0.595	0.431	0.462
BC1	0.594	0.636	0.343	0.368
LTE FDD 2	0.509	0.626	0.295	0.363
LTE FDD 4	0.445	0.499	0.277	0.311
LTE FDD 7	0.283	0.419	0.130	0.192
LTE FDD 13	0.355	0.380	0.270	0.289
WLAN 2450	0.080	0.098	0.041	0.051
WLAN 5 GHz	0.279	0.328	0.096	0.113

4.3 Maximum measured and reported SAR values for hotspot mode configuration

hotspot	SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)	
	Measured	Extrapolated	Meas.	Extrap.
GSM 850	0.867	0.867	0.596	0.596
GSM 1900	0.986	1.050	0.530	0.570
UMTS FDD II	0.882	1.085	0.475	0.584
UMTS FDD V	0.507	0.507	0.319	0.319
BC0	0.577	0.618	0.454	0.486
BC1	0.714	0.748	0.378	0.396
LTE FDD 2	0.706	0.786	0.380	0.425
LTE FDD 4	1.040	1.194	0.580	0.666
LTE FDD 7	0.693	1.050	0.312	0.472
LTE FDD 13	0.489	0.524	0.334	0.358
WLAN 2450	0.231	0.284	0.106	0.130

4.4 SAR measurement variability and measurement uncertainty analysis

This analysis is required for worst case results larger than 0.8 W/kg.

frequency band	highest original measurement result at worst case position (W/kg)	repeated measurement result at worst case position (W/kg)	ratio <1.2
GSM 850	0.867	0.864	1.00
GSM 1900	0.958	0.956	1.00
UMTS FDD II	0.882	0.882	1.00
LTE FDD 4	0.876	1.040	1.19

5 Test Environment

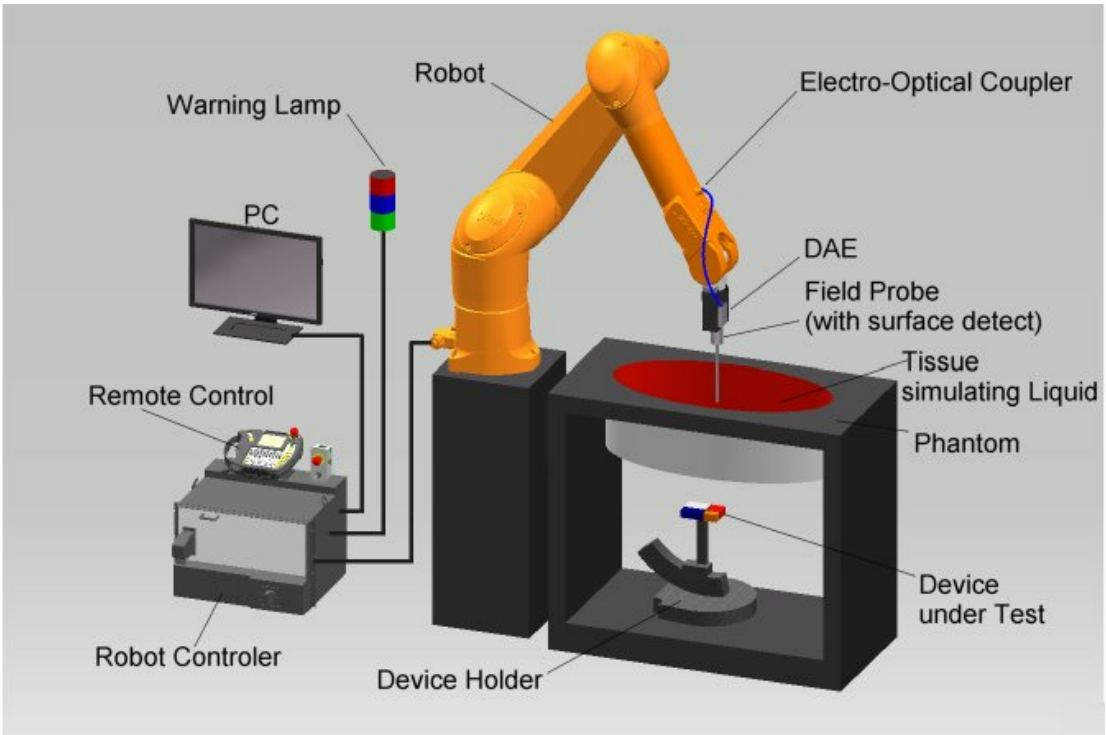
Ambient temperature:	20 – 24 °C
Tissue Simulating liquid:	20 – 24 °C
Relative humidity content:	40 – 50 %
Air pressure:	not relevant for this kind of testing
Power supply:	230 V / 50 Hz

Exact temperature values for each test are shown in the table(s) under 7.1 and/or on the measurement plots.

6 Test Set-up

6.1 Measurement system

6.1.1 System Description



- The DASY system for performing compliance tests consists of the following items:
- A standard high precision 6-axis robot (Stäubli RX/TX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid.
- A data acquisition electronic (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 Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY measurement server.
- The DASY measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 7.
- DASY software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The triple flat and eli phantom for the testing of handheld and body-mounted wireless devices.
- The device holder for handheld mobile phones and mounting device adaptor for laptops
- Tissue simulating liquid mixed according to the given recipes.
- System check dipoles allowing to validate the proper functioning of the system.

6.1.2 Test environment

The DASY measurement system is placed in a laboratory room within an environment which avoids influence on SAR measurements by ambient electromagnetic fields and any reflection from the environment. The pictures at the beginning of the photo documentation show a complete view of the test environment. The system allows the measurement of SAR values larger than 0.005 mW/g.

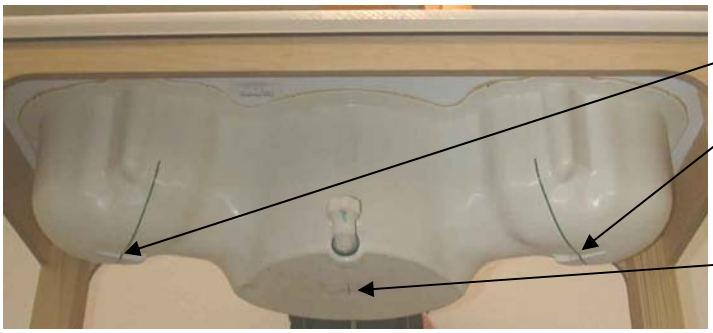
6.1.3 Probe description

Isotropic E-Field Probe ET3DV6 for Dosimetric Measurements

Technical data according to manufacturer information	
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	In air from 10 MHz to 2.5 GHz In head tissue simulating liquid (HSL) at 900 (800-1000) MHz and 1.8 GHz (1700-1910 MHz) (accuracy ± 9.5%; k=2) Calibration for other liquids and frequencies upon request
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces (ET3DV6 only)
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (ET3DV6)

6.1.4 Phantom description

The used SAM Phantom meets the requirements specified in FCC KDB865664 D01 for Specific Absorption Rate (SAR) measurements.
The phantom consists of a fibreglass shell integrated in a wooden table. It allows left-hand and right-hand head as well as body-worn measurements with a maximum liquid depth of 18 cm in head position and 22 cm in planar position (body measurements). The thickness of the Phantom shell is 2 mm +/- 0.1 mm.



Triple Modular Phantom consists of three identical modules which can be installed and removed separately without emptying the liquid. It includes three reference points for phantom installation. Covers prevent evaporation of the liquid. Phantom material is resistant to DGBE based tissue simulating liquids.

6.1.5 Device holder description

The DASY device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. 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. This device holder is used for standard mobile phones or PDA's only. If necessary an additional support of polystyrene material is used.

Larger DUT's (e.g. notebooks) cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values.
Therefore those devices are normally only tested at the flat part of the SAM.

6.1.6 Scanning procedure

- The DASY installation includes predefined files with recommended procedures for measurements and system check. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The „reference“ and „drift“ measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max. +/- 5 %.

- The highest integrated SAR value is the main concern in compliance test applications. These values can mostly be found at the inner surface of the phantom and cannot be measured directly due to the sensor offset in the probe. To extrapolate the surface values, the measurement distances to the surface must be known accurately. A distance error of 0.5mm could produce SAR errors of 6% at 1800 MHz. Using predefined locations for measurements is not accurate enough. Any shift of the phantom (e.g., slight deformations after filling it with liquid) would produce high uncertainties. For an automatic and accurate detection of the phantom surface, the DASY5 system uses the mechanical surface detection. The detection is always at touch, but the probe will move backward from the surface the indicated distance before starting the measurement.

- The „area scan“ measures the SAR above the DUT or verification dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The robot performs a stepped movement along one grid axis while the local electrical field strength is measured by the probe. The probe is touching the surface of the SAM during acquisition of measurement values. The scan uses different grid spacings for different frequency measurements. Standard grid spacing for head measurements in frequency ranges ≤ 2GHz is 15 mm in x- and y-dimension. For higher frequencies a finer resolution is needed, thus for the grid spacing is reduced according the following table:

Area scan grid spacing for different frequency ranges	
Frequency range	Grid spacing
≤ 2 GHz	≤ 15 mm
2 – 4 GHz	≤ 12 mm
4 – 6 GHz	≤ 10 mm

Grid spacing and orientation have no influence on the SAR result. For special applications where the standard scan method does not find the peak SAR within the grid, e.g. mobile phones with flip cover, the grid can be adapted in orientation. Results of this coarse scan are shown in annex B.

- A „zoom scan” measures the field in a volume around the 2D peak SAR value acquired in the previous „coarse“ scan. It uses a fine meshed grid where the robot moves the probe in steps along all the 3 axis (x,y and z-axis) starting at the bottom of the Phantom. The grid spacing for the cube measurement is varied according to the measured frequency range, the dimensions are given in the following table:

Zoom scan grid spacing and volume for different frequency ranges			
Frequency range	Grid spacing for x, y axis	Grid spacing for z axis	Minimum zoom scan volume
≤ 2 GHz	≤ 8 mm	≤ 5 mm	≥ 30 mm
2 – 3 GHz	≤ 5 mm	≤ 5 mm	≥ 28 mm
3 – 4 GHz	≤ 5 mm	≤ 4 mm	≥ 28 mm
4 – 5 GHz	≤ 4 mm	≤ 3 mm	≥ 25 mm
5 – 6 GHz	≤ 4 mm	≤ 2 mm	≥ 22 mm

DASY is also able to perform repeated zoom scans if more than 1 peak is found during area scan. In this document, the evaluated peak 1g and 10g averaged SAR values are shown in the 2D-graphics in annex B. Test results relevant for the specified standard (see section 3) are shown in table form in section 7.

6.1.7 Spatial Peak SAR Evaluation

The spatial peak SAR - value for 1 and 10 g is evaluated after the Cube measurements have been done. The basis of the evaluation are the SAR values measured at the points of the fine cube grid consisting of all points in the three directions x, y and z. The algorithm that finds the maximal averaged volume is separated into three different stages.

- The data between the dipole center of the probe and the surface of the phantom are extrapolated. This data cannot be measured since the center of the dipole is 1 to 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is about 1 mm (see probe calibration sheet). The extrapolated data from a cube measurement can be visualized by selecting 'Graph Evaluated'.

- The maximum interpolated value is searched with a straight-forward algorithm. Around this maximum the SAR - values averaged over the spatial volumes (1g or 10 g) are computed using the 3d-spline interpolation algorithm. If the volume cannot be evaluated (i.e., if a part of the grid was cut off by the boundary of the measurement area) the evaluation will be started on the corners of the bottom plane of the cube.

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

Extrapolation

The extrapolation is based on a least square algorithm [W. Gander, Computermathematik, p.168-180]. Through the points in the first 3 cm along the z-axis, polynomials of order four are calculated. These polynomials are then used to evaluate the points between the surface and the probe tip. The points, calculated from the surface, have a distance of 1 mm from each other.

Interpolation

The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three one-dimensional splines with the "Not a knot"-condition [W. Gander, Computermathematik, p.141-150] (x, y and z -direction) [Numerical Recipes in C, Second Edition, p.123ff].

Volume Averaging

At First the size of the cube is calculated. Then the volume is integrated with the trapezoidal algorithm. 8000 points (20x20x20) are interpolated to calculate the average.

Advanced Extrapolation

DASY uses the advanced extrapolation option which is able to compensate boundary effects on E-field probes.

6.1.8 Data Storage and Evaluation

Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4", ".DA5x". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

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

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf/dcp_i$$

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

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

E-field probes: $$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

H-field probes: $$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1}f + a_{i2}f^2)/f$$

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

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

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

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

$$SAR = (E_{tot}^2 \cdot \sigma) / (\rho \cdot 1000)$$

with	SAR	= local specific absorption rate in mW/g
	E_{tot}	= total field strength in V/m
	σ	= conductivity in [mho/m] or [Siemens/m]
	ρ	= equivalent tissue density in g/cm^3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid.The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \qquad \text{or} \qquad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with	P_{pwe}	= equivalent power density of a plane wave in mW/cm^2
	E_{tot}	= total electric field strength in V/m
	H_{tot}	= total magnetic field strength in A/m

6.1.9 Tissue simulating liquids: dielectric properties

The following materials are used for producing the tissue-equivalent materials.

(Liquids used for tests described in section 7. are marked with ☒) :

Ingredients (% of weight)	**Frequency (MHz)**								
frequency band	☐ 450	☒ 750	☒ 835	☐ 900	☐ 1450	☒ 1750	☒ 1900	☒ 2450	☒ 5000
Tissue Type	Head	Head	Head	Head	Head	Head	Head	Head	Head
Water	38.56	41.1	41.45	40.92	52.64	52.64	54.9	62.7	64 - 78
Salt (NaCl)	3.95	1.4	1.45	1.48	0.61	0.36	0.18	0.5	2 - 3
Sugar	56.32	57.0	56.0	56.5	0.0	0.0	0.0	0.0	0.0
HEC	0.98	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Bactericide	0.19	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	46.75	47.0	44.92	0.0	0.0
Emulsifiers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9 - 15
Mineral Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11 - 18

Table 3: Head tissue dielectric properties

Ingredients (% of weight)	**Frequency (MHz)**								
frequency band	☐ 450	☒ 750	☒ 835	☐ 900	☐ 1450	☒ 1750	☒ 1900	☒ 2450	☒ 5000
Tissue Type	Body	Body	Body	Body	Body	Body	Body	Body	Body
Water	51.16	51.7	52.4	56.0	70.97	69.91	69.91	73.2	64 - 78
Salt (NaCl)	1.49	0.9	1.40	0.76	0.43	0.13	0.13	0.04	2 - 3
Sugar	46.78	47.2	45.0	41.76	0.0	0.0	0.0	0.0	0.0
HEC	0.52	0.0	1.0	1.21	0.0	0.0	0.0	0.0	0.0
Bactericide	0.05	0.1	0.1	0.27	0.0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	0.0	0.0	28.60	29.96	29.96	26.7	0.0
Emulsifiers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9 - 15
Mineral Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11 - 18

Table 4: Body tissue dielectric properties

Salt: 99+% Pure Sodium Chloride
Water: De-ionized, 16MΩ+ resistivity
Sugar: 98+% Pure Sucrose
HEC: Hydroxyethyl Cellulose
DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]
Triton X-100(ultra pure): Polyethylene glycol mono [4-(1,1,3,3-tetramethylbutyl)phenyl]ether

6.1.10 Tissue simulating liquids: parameters

Liquid **HSL**	Freq. (MHz)	Target head tissue		Measurement **head** tissue					Measurement date
		Permittivity	Conductivity [S/m]	Permittivity	Dev. %	Conductivity ε"	Conductivity [S/m]	Dev. %	
750	750	41.94	0.89	41.7	-0.6%	21.50	0.90	0.4%	2014-05-27
	782	41.78	0.90	41.1	-1.6%	21.30	0.93	3.4%	
850/900	824	41.56	0.90	42.0	1.1%	20.24	0.93	3.2%	2014-06-02
	825	41.55	0.90	42.0	1.1%	20.24	0.93	3.3%	
	835	41.50	0.90	41.9	0.9%	20.18	0.94	4.1%	
	837	41.50	0.90	41.8	0.8%	20.19	0.94	4.2%	
	847	41.50	0.91	41.7	0.4%	20.13	0.95	3.9%	
	849	41.50	0.92	41.7	0.4%	20.11	0.95	3.8%	
1750	1720	40.11	1.35	40.5	1.1%	13.80	1.32	-2.5%	2014-05-27
	1732	40.10	1.36	40.6	1.2%	13.78	1.33	-2.5%	
	1745	40.08	1.37	40.6	1.2%	13.98	1.36	-0.9%	
	1750	40.07	1.37	40.5	1.0%	14.06	1.37	-0.2%	
1900	1850	40.00	1.40	40.1	0.1%	12.97	1.33	-4.6%	2014-06-04
	1852	40.00	1.40	40.1	0.1%	12.97	1.34	-4.6%	
	1860	40.00	1.40	40.0	0.0%	13.02	1.35	-3.8%	
	1880	40.00	1.40	39.9	-0.2%	13.13	1.37	-1.9%	
	1900	40.00	1.40	39.9	-0.3%	13.21	1.40	-0.3%	
	1908	40.00	1.40	39.9	-0.4%	13.24	1.41	0.4%	
	1910	40.00	1.40	39.9	-0.3%	13.24	1.41	0.5%	
2450	2412	39.27	1.77	39.2	-0.1%	13.10	1.76	-0.5%	2014-06-04
	2437	39.22	1.79	39.0	-0.5%	13.23	1.79	0.3%	
	2450	39.20	1.80	39.0	-0.6%	13.25	1.81	0.3%	
	2462	39.18	1.81	39.0	-0.6%	13.29	1.82	0.4%	
2600	2510	39.12	1.87	38.8	-0.8%	13.43	1.88	0.5%	
	2535	39.09	1.89	38.7	-1.1%	13.48	1.90	0.5%	
	2560	39.06	1.92	38.6	-1.2%	13.49	1.92	0.1%	
	2600	39.01	1.96	38.3	-1.7%	13.64	1.97	0.5%	
5GHz	5200	35.99	4.66	36.3	1.0%	15.46	4.47	-3.9%	2014-06-05
	5240	35.94	4.70	36.3	0.9%	15.34	4.47	-4.8%	
	5260	35.92	4.72	36.1	0.5%	15.52	4.54	-3.7%	
	5500	35.64	4.96	35.8	0.4%	15.76	4.82	-2.9%	
	5700	35.41	5.17	35.6	0.5%	15.77	5.00	-3.2%	
	5800	35.30	5.27	35.4	0.2%	15.85	5.11	-3.0%	
	5805	35.29	5.28	35.4	0.2%	15.77	5.09	-3.5%	

Table 5: Parameter of the head tissue simulating liquid

Liquid **MSL**	Freq. (MHz)	Target **body** tissue		Measurement **body** tissue					Measurement date
		Permittivity	Conductivity [S/m]	Permittivity	Dev. %	Conductivity ε"	Conductivity [S/m]	Dev. %	
750	750	55.53	0.96	55.2	-0.6%	23.37	0.97	1.2%	2014-05-28
	782	55.41	0.97	54.6	-1.4%	23.11	1.01	4.1%	
850/900	824	55.24	0.97	54.1	-2.0%	21.93	1.01	3.7%	2014-06-10
	825	55.24	0.97	54.1	-2.1%	21.93	1.01	3.8%	
	835	55.20	0.97	54.0	-2.2%	21.85	1.01	4.6%	
	837	55.19	0.97	53.9	-2.3%	21.85	1.02	4.6%	
	847	55.16	0.98	53.8	-2.4%	21.78	1.03	4.2%	
	849	55.16	0.99	53.8	-2.5%	21.73	1.03	3.9%	
1750	1720	53.51	1.47	52.3	-2.2%	15.48	1.48	0.8%	2014-05-28
	1732	53.48	1.48	52.4	-2.0%	15.51	1.49	1.2%	
	1745	53.44	1.49	52.4	-1.9%	15.75	1.53	2.9%	
	1750	53.43	1.49	52.3	-2.1%	15.83	1.54	3.5%	
1900	1850	53.30	1.52	52.7	-1.1%	14.30	1.47	-3.2%	2014-05-30
	1852	53.30	1.52	52.7	-1.2%	14.31	1.47	-3.0%	
	1860	53.30	1.52	52.6	-1.3%	14.26	1.48	-2.9%	
	1880	53.30	1.52	52.8	-1.0%	14.33	1.50	-1.4%	
	1900	53.30	1.52	52.6	-1.4%	14.46	1.53	0.6%	
	1908	53.30	1.52	52.5	-1.5%	14.30	1.52	-0.2%	
	1910	53.30	1.52	52.5	-1.6%	14.27	1.52	-0.2%	
2450	2412	52.75	1.91	52.0	-1.5%	14.28	1.92	0.1%	2014-06-05
	2437	52.72	1.94	52.0	-1.3%	14.34	1.94	0.3%	
	2450	52.70	1.95	52.1	-1.2%	14.38	1.96	0.5%	
	2462	52.68	1.97	52.1	-1.2%	14.45	1.98	0.6%	
2600	2510	52.62	2.04	51.9	-1.3%	14.60	2.04	0.1%	
	2535	52.59	2.07	51.9	-1.4%	14.67	2.07	-0.1%	
	2560	52.56	2.11	51.9	-1.3%	14.75	2.10	-0.3%	
	2600	52.51	2.16	51.8	-1.3%	14.87	2.15	-0.5%	
5GHz	5200	49.01	5.30	48.4	-1.3%	18.04	5.22	-1.5%	2014-06-03
	5240	48.96	5.35	48.1	-1.7%	18.05	5.26	-1.6%	
	5260	48.93	5.37	48.0	-2.0%	18.06	5.28	-1.6%	
	5500	48.61	5.65	47.6	-2.0%	18.32	5.60	-0.8%	
	5700	48.34	5.88	47.4	-2.0%	18.36	5.82	-1.1%	
	5800	48.20	6.00	47.1	-2.4%	18.48	5.96	-0.6%	
	5805	48.20	6.00	47.1	-2.3%	18.47	5.96	-0.6%	

Table 6: Parameter of the body tissue simulating liquid
Note: The dielectric properties have been measured using the contact probe method at 22°C.

6.1.11 Measurement uncertainty evaluation for SAR test

Relative DASY5 Uncertainty Budget for SAR Tests								
According to IEEE 1528/2011 and IEC62209-1/2011 (0.3-3GHz range)								
Error Description	Uncertainty Value	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	Standard Uncertainty ± %, (1g)	Standard Uncertainty ± %, (10g)	v_i^2 or v_{eff}
Measurement System								
Probe calibration	± 6.0 %	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Axial isotropy	± 4.7 %	Rectangular	√ 3	0.7	0.7	± 1.9 %	± 1.9 %	∞
Hemispherical isotropy	± 9.6 %	Rectangular	√ 3	0.7	0.7	± 3.9 %	± 3.9 %	∞
Boundary effects	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Probe linearity	± 4.7 %	Rectangular	√ 3	1	1	± 2.7 %	± 2.7 %	∞
System detection limits	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Modulation Response	± 2.4 %	Rectangular	√ 3	1	1	± 1.4 %	± 1.4 %	∞
Readout electronics	± 0.3 %	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Integration time	± 2.6 %	Rectangular	√ 3	1	1	± 1.5 %	± 1.5 %	∞
RF ambient noise	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
RF ambient reflections	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
Probe positioner	± 0.4 %	Rectangular	√ 3	1	1	± 0.2 %	± 0.2 %	∞
Probe positioning	± 2.9 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
Max. SAR evaluation	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Test Sample Related								
Device positioning	± 2.9 %	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device holder uncertainty	± 3.6 %	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power drift	± 5.0 %	Rectangular	√ 3	1	1	± 2.9 %	± 2.9 %	∞
Phantom and Set-up								
Phantom uncertainty	± 6.1 %	Rectangular	√ 3	1	1	± 3.5 %	± 3.5 %	∞
SAR correction	± 1.9 %	Rectangular	√ 3	1	0.84	± 1.1 %	± 0.9 %	∞
Liquid conductivity (meas.)	± 5.0 %	Rectangular	√ 3	0.78	0.71	± 2.3 %	± 2.0 %	∞
Liquid permittivity (meas.)	± 5.0 %	Rectangular	√ 3	0.26	0.26	± 0.8 %	± 0.8 %	∞
Temp. Unc. - Conductivity	± 3.4 %	Rectangular	√ 3	0.78	0.71	± 1.5 %	± 1.4 %	∞
Temp. Unc. - Permittivity	± 0.4 %	Rectangular	√ 3	0.23	0.26	± 0.1 %	± 0.1 %	∞
Combined Uncertainty						± 11.3 %	± 11.3 %	330
Expanded Std. Uncertainty						± **22.7** %	± **22.5** %	

Table 7: Measurement uncertainties
Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528/2011 and IEC 62209-1/2011 draft standards. The budget is valid for the frequency range 300MHz -3 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller.

Relative DASY5 Uncertainty Budget for SAR Tests								
According to IEC62209-2/2010 (30 MHz - 6 GHz range)								
Error Description	Uncertainty Value	Probability Distribution	Divisor	c_i	c_i	Standard Uncertainty		v_i^2 or v_{eff}
				(1g)	(10g)	± %, (1g)	± %, (10g)	
Measurement System								
Probe calibration	± 6.6 %	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Axial isotropy	± 4.7 %	Rectangular	√ 3	0.7	0.7	± 1.9 %	± 1.9 %	∞
Hemispherical isotropy	± 9.6 %	Rectangular	√ 3	0.7	0.7	± 3.9 %	± 3.9 %	∞
Boundary effects	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Probe linearity	± 4.7 %	Rectangular	√ 3	1	1	± 2.7 %	± 2.7 %	∞
System detection limits	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Modulation Response	± 2.4 %	Rectangular	√ 3	1	1	± 1.4 %	± 1.4 %	∞
Readout electronics	± 0.3 %	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Integration time	± 2.6 %	Rectangular	√ 3	1	1	± 1.5 %	± 1.5 %	∞
RF ambient noise	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
RF ambient reflections	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
Probe positioner	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Probe positioning	± 6.7 %	Rectangular	√ 3	1	1	± 3.9 %	± 3.9 %	∞
Post-processing	± 4.0 %	Rectangular	√ 3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device positioning	± 2.9 %	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device holder uncertainty	± 3.6 %	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power drift	± 5.0 %	Rectangular	√ 3	1	1	± 2.9 %	± 2.9 %	∞
Phantom and Set-up								
Phantom uncertainty	± 7.9 %	Rectangular	√ 3	1	1	± 4.6 %	± 4.6 %	∞
SAR correction	± 1.9 %	Rectangular	√ 3	1	0.84	± 1.1 %	± 0.9 %	∞
Liquid conductivity (meas.)	± 5.0 %	Rectangular	√ 3	0.78	0.71	± 2.3 %	± 2.0 %	∞
Liquid permittivity (meas.)	± 5.0 %	Rectangular	√ 3	0.26	0.26	± 0.8 %	± 0.8 %	∞
Temp. Unc. - Conductivity	± 3.4 %	Rectangular	√ 3	0.78	0.71	± 1.5 %	± 1.4 %	∞
Temp. Unc. - Permittivity	± 0.4 %	Rectangular	√ 3	0.23	0.26	± 0.1 %	± 0.1 %	∞
Combined Uncertainty						± 12.7 %	± 12.6 %	330
Expanded Std. Uncertainty						± **25.4** %	± **25.3** %	

Table 8: Measurement uncertainties. Worst-Case uncertainty budget for DASY5 assessed according to according to IEC 62209-2/2010 standard. The budget is valid for the frequency range 30MHz - 6 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller.

Relative DASY5 Uncertainty Budget for SAR Tests								
According to IEEE 1528-2003, IEC 62209-1 for the 3-6 GHz range								
Error Description	Uncertainty Value	Probability Distribution	Divisor	c_i	c_i	Standard Uncertainty		v_i^2 or v_{eff}
				(1g)	(10g)	± %, (1g)	± %, (10g)	
Measurement System								
Probe calibration	± 6.6 %	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Axial isotropy	± 4.7 %	Rectangular	√ 3	0.7	0.7	± 1.9 %	± 1.9 %	∞
Hemispherical isotropy	± 9.6 %	Rectangular	√ 3	0.7	0.7	± 3.9 %	± 3.9 %	∞
Boundary effects	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Probe linearity	± 4.7 %	Rectangular	√ 3	1	1	± 2.7 %	± 2.7 %	∞
System detection limits	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Readout electronics	± 0.3 %	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Integration time	± 2.6 %	Rectangular	√ 3	1	1	± 1.5 %	± 1.5 %	∞
RF ambient noise	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
RF ambient reflections	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
Probe positioner	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Probe positioning	± 6.7 %	Rectangular	√ 3	1	1	± 3.9 %	± 3.9 %	∞
Max. SAR evaluation	± 4.0 %	Rectangular	√ 3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device positioning	± 2.9 %	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device holder uncertainty	± 3.6 %	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power drift	± 5.0 %	Rectangular	√ 3	1	1	± 2.9 %	± 2.9 %	∞
Phantom and Set-up								
Phantom uncertainty	± 4.0 %	Rectangular	√ 3	1	1	± 2.3 %	± 2.3 %	∞
Liquid conductivity (target)	± 5.0 %	Rectangular	√ 3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (meas.)	± 5.0 %	Rectangular	√ 3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid permittivity (target)	± 5.0 %	Rectangular	√ 3	0.6	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (meas.)	± 5.0 %	Rectangular	√ 3	0.6	0.49	± 1.7 %	± 1.4 %	∞
Combined Uncertainty						± 12.1 %	± 11.9 %	330
Expanded Std. Uncertainty						± **24.3** %	± **23.8** %	

Table 9: Measurement uncertainties
Worst-Case uncertainty budget for DASY5 valid for 3G communication signals and frequency range 3 - 6 GHz. Probe calibration error reflects uncertainty of the EX3D probe. For specific tests and configurations, the uncertainty could be considerable smaller.

Relative DASY5 Uncertainty Budget for SAR Tests								
According to IEEE 1528/2011 and IEC62209-1/2011 (3-6GHz range)								
Error Description	Uncertainty Value	Probability Distribution	Divisor	c_i	c_i	Standard Uncertainty		v_i^2 or v_{eff}
				(1g)	(10g)	± %, (1g)	± %, (10g)	
Measurement System								
Probe calibration	± 6.6 %	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Axial isotropy	± 4.7 %	Rectangular	√ 3	0.7	0.7	± 1.9 %	± 1.9 %	∞
Hemispherical isotropy	± 9.6 %	Rectangular	√ 3	0.7	0.7	± 3.9 %	± 3.9 %	∞
Boundary effects	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Probe linearity	± 4.7 %	Rectangular	√ 3	1	1	± 2.7 %	± 2.7 %	∞
System detection limits	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Modulation Response	± 2.4 %	Rectangular	√ 3	1	1	± 1.4 %	± 1.4 %	∞
Readout electronics	± 0.3 %	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Integration time	± 2.6 %	Rectangular	√ 3	1	1	± 1.5 %	± 1.5 %	∞
RF ambient noise	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
RF ambient reflections	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
Probe positioner	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Probe positioning	± 6.7 %	Rectangular	√ 3	1	1	± 3.9 %	± 3.9 %	∞
Max. SAR evaluation	± 4.0 %	Rectangular	√ 3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device positioning	± 2.9 %	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device holder uncertainty	± 3.6 %	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power drift	± 5.0 %	Rectangular	√ 3	1	1	± 2.9 %	± 2.9 %	∞
Phantom and Set-up								
Phantom uncertainty	± 6.6 %	Rectangular	√ 3	1	1	± 3.8 %	± 3.8 %	∞
SAR correction	± 1.9 %	Rectangular	√ 3	1	0.84	± 1.1 %	± 0.9 %	∞
Liquid conductivity (meas.)	± 5.0 %	Rectangular	√ 3	0.78	0.71	± 2.3 %	± 2.0 %	∞
Liquid permittivity (meas.)	± 5.0 %	Rectangular	√ 3	0.26	0.26	± 0.8 %	± 0.8 %	∞
Temp. Unc. - Conductivity	± 3.4 %	Rectangular	√ 3	0.78	0.71	± 1.5 %	± 1.4 %	∞
Temp. Unc. - Permittivity	± 0.4 %	Rectangular	√ 3	0.23	0.26	± 0.1 %	± 0.1 %	∞
Combined Uncertainty						± 12.4 %	± 12.4 %	330
Expanded Std. Uncertainty						± **24.9** %	± **24.8** %	

Table 10: Measurement uncertainties
Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528/2011 and IEC 62209-1/2011 draft standards. The budget is valid for the frequency range 3GHz -6GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller.

6.1.12 Measurement uncertainty evaluation for System Check

Uncertainty of a System Performance Check with DASY5 System for the 0.3 - 3 GHz range								
Source of uncertainty	Uncertainty Value	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	Standard Uncertainty ± %, (1g)	Standard Uncertainty ± %, (10g)	v_i^2 or v_{eff}
Measurement System								
Probe calibration	± 6.0 %	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Axial isotropy	± 4.7 %	Rectangular	√ 3	0.7	0.7	± 1.9 %	± 1.9 %	∞
Hemispherical isotropy	± 0.0 %	Rectangular	√ 3	0.7	0.7	± 0.0 %	± 0.0 %	∞
Boundary effects	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Probe linearity	± 4.7 %	Rectangular	√ 3	1	1	± 2.7 %	± 2.7 %	∞
System detection limits	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Readout electronics	± 0.3 %	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
Integration time	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
RF ambient conditions	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
Probe positioner	± 0.4 %	Rectangular	√ 3	1	1	± 0.2 %	± 0.2 %	∞
Probe positioning	± 2.9 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
Max. SAR evaluation	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Test Sample Related								
Dev. of experimental dipole	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
Source to liquid distance	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Power drift	± 3.4 %	Rectangular	√ 3	1	1	± 2.0 %	± 2.0 %	∞
Phantom and Set-up								
Phantom uncertainty	± 4.0 %	Rectangular	√ 3	1	1	± 2.3 %	± 2.3 %	∞
SAR correction	± 1.9 %	Rectangular	√ 3	1	0.84	± 1.1 %	± 0.9 %	∞
Liquid conductivity (meas.)	± 5.0 %	Normal	1	0.78	0.71	± 3.9 %	± 3.6 %	∞
Liquid permittivity (meas.)	± 5.0 %	Normal	1	0.26	0.26	± 1.3 %	± 1.3 %	∞
Temp. unc. - Conductivity	± 1.7 %	Rectangular	√ 3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 0.3 %	Rectangular	√ 3	0.23	0.26	± 0.0 %	± 0.0 %	∞
Combined Uncertainty						± 9.1 %	± 8.9 %	330
Expanded Std. Uncertainty						± **18.2** %	± **17.9** %	

Table 11: Measurement uncertainties of the System Check with DASY5 (0.3-3GHz)

Uncertainty of a System Performance Check with DASY5 System for the 3 - 6 GHz range								
Source of uncertainty	Uncertainty Value	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	Standard Uncertainty ± %, (1g)	Standard Uncertainty ± %, (10g)	v_i^2 or v_{eff}
Measurement System								
Probe calibration	± 6.6 %	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Axial isotropy	± 4.7 %	Rectangular	√ 3	0.7	0.7	± 1.9 %	± 1.9 %	∞
Hemispherical isotropy	± 0.0 %	Rectangular	√ 3	0.7	0.7	± 0.0 %	± 0.0 %	∞
Boundary effects	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Probe linearity	± 4.7 %	Rectangular	√ 3	1	1	± 2.7 %	± 2.7 %	∞
System detection limits	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Readout electronics	± 0.3 %	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
Integration time	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
RF ambient conditions	± 3.0 %	Rectangular	√ 3	1	1	± 1.7 %	± 1.7 %	∞
Probe positioner	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Probe positioning	± 6.7 %	Rectangular	√ 3	1	1	± 3.9 %	± 3.9 %	∞
Max. SAR evaluation	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Test Sample Related								
Dev. of experimental dipole	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
Source to liquid distance	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Power drift	± 3.4 %	Rectangular	√ 3	1	1	± 2.0 %	± 2.0 %	∞
Phantom and Set-up								
Phantom uncertainty	± 4.0 %	Rectangular	√ 3	1	1	± 2.3 %	± 2.3 %	∞
SAR correction	± 1.9 %	Rectangular	√ 3	1	0.84	± 1.1 %	± 0.9 %	∞
Liquid conductivity (meas.)	± 5.0 %	Normal	1	0.78	0.71	± 3.9 %	± 3.6 %	∞
Liquid permittivity (meas.)	± 5.0 %	Normal	1	0.26	0.26	± 1.3 %	± 1.3 %	∞
Temp. unc. - Conductivity	± 1.7 %	Rectangular	√ 3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 0.3 %	Rectangular	√ 3	0.23	0.26	± 0.0 %	± 0.0 %	∞
Combined Uncertainty						± 10.1 %	± 10.0 %	330
Expanded Std. Uncertainty						± **20.2** %	± **19.9** %	

Table 12: Measurement uncertainties of the System Check with DASY5 (3-6GHz)

Note: Worst case probe calibration uncertainty has been applied for all probes used during the measurements.

6.1.13 System check

The system check is performed for verifying the accuracy of the complete measurement system and performance of the software. The system check is performed with tissue equivalent material according to IEEE 1528. The following table shows system check results for all frequency bands and tissue liquids used during the tests (plot(s) see annex A).

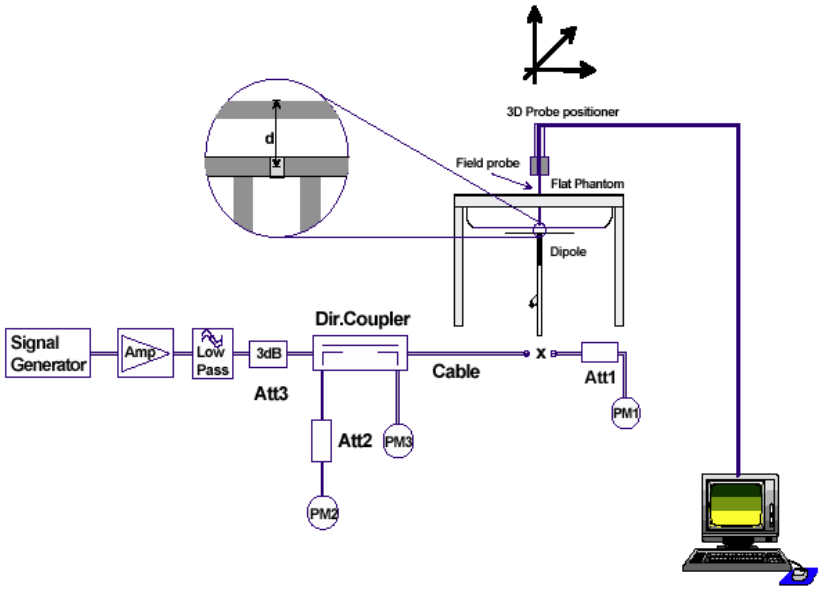
System performence check (1000 mW)								
System validation Kit	Frequency	Target SAR_{1g} /mW/g (+/- 10%)	Target SAR_{10g} /mW/g (+/- 10%)	Measured SAR_{1g} mW/g	SAR_{1g} dev. %	Measured SAR_{10g} mW/g	SAR_{10g} dev. %	Measured date
D750V3 S/N: 1041	750 MHz head	8.52	5.56	8.10	-4.9%	5.28	-5.0%	2014-05-27
D750V3 S/N: 1041	750 MHz body	8.75	5.79	8.97	2.5%	5.93	2.4%	2014-05-28
D750V3 S/N: 1041	750 MHz body	8.75	5.79	9.26	5.8%	6.14	6.0%	2014-05-30
D835V2 S/N: 4d153	835 MHz head	9.58	6.21	9.60	0.2%	6.33	1.9%	2014-06-02
D835V2 S/N: 4d153	835 MHz head	9.58	6.21	9.68	1.0%	6.38	2.7%	2014-06-04
D835V2 S/N: 4d153	835 MHz body	9.40	6.12	9.81	4.4%	6.53	6.7%	2014-06-06
D835V2 S/N: 4d153	835 MHz body	9.40	6.12	9.33	-0.7%	6.22	1.6%	2014-06-09
D835V2 S/N: 4d153	835 MHz body	9.40	6.12	9.93	5.6%	6.64	8.5%	2014-06-10
D1750V2 S/N: 1093	1750 MHz head	36.60	19.30	35.80	-2.2%	19.70	2.1%	2014-05-27
D1750V2 S/N: 1093	1750 MHz body	37.90	20.30	35.00	-7.7%	19.50	-3.9%	2014-05-28
D1900V2 S/N: 5d009	1900 MHz head	40.10	21.00	41.10	2.5%	22.20	5.7%	2014-06-04
D1900V2 S/N: 5d009	1900 MHz head	40.10	21.00	39.40	-1.7%	21.30	1.4%	2014-06-05
D1900V2 S/N: 5d009	1900 MHz body	40.90	21.70	40.00	-2.2%	21.70	0.0%	2014-05-30
D1900V2 S/N: 5d009	1900 MHz body	40.90	21.70	39.40	-3.7%	21.40	-1.4%	2014-06-02
D1900V2 S/N: 5d009	1900 MHz body	40.90	21.70	39.60	-3.2%	21.40	-1.4%	2014-06-03
D1900V2 S/N: 5d009	1900 MHz body	40.90	21.70	39.60	-3.2%	21.50	-0.9%	2014-06-05
D1900V2 S/N: 5d009	1900 MHz body	40.90	21.70	39.40	-3.7%	21.40	-1.4%	2014-06-29

System performence check (1000 mW)								
System validation Kit	Frequency	Target SAR_{1g} /mW/g (+/- 10%)	Target SAR_{10g} /mW/g (+/- 10%)	Measured SAR_{1g} mW/g	SAR_{1g} dev. %	Measured SAR_{10g} mW/g	SAR_{10g} dev. %	Measured date
D2450V2 S/N: 710	2450 MHz head	51.50	24.00	51.70	0.4%	24.30	1.3%	2014-06-04
D2450V2 S/N: 710	2450 MHz body	51.20	23.90	51.20	0.0%	23.60	-1.3%	2014-06-05
D2600V2 S/N: 1040	2600 MHz head	58.00	26.10	57.30	-1.2%	25.70	-1.5%	2014-06-06
D2600V2 S/N: 1040	2600 MHz head	58.00	26.10	59.30	2.2%	26.90	3.1%	2014-06-10
D2600V2 S/N: 1040	2600 MHz body	56.80	25.40	57.60	1.4%	25.80	1.6%	2014-06-10
D2600V2 S/N: 1040	2600 MHz body	56.80	25.40	55.10	-3.0%	24.80	-2.4%	2014-06-11
D2600V2 S/N: 1040	2600 MHz body	56.80	25.40	57.10	0.5%	25.50	0.4%	2014-06-26
D5GHzV2 S/N: 1055	5200 MHz head	80.40	23.00	77.80	-3.2%	22.40	-2.6%	2014-06-05
D5GHzV2 S/N: 1055	5500 MHz head	84.90	24.30	88.80	4.6%	25.00	2.9%	2014-06-05
D5GHzV2 S/N: 1055	5800 MHz head	80.10	22.70	76.50	-4.5%	21.40	-5.7%	2014-06-05
D5GHzV2 S/N: 1055	5200 MHz body	74.20	20.80	69.70	-6.1%	19.90	-4.3%	2014-06-03
D5GHzV2 S/N: 1055	5800 MHz body	73.30	20.20	76.80	4.8%	21.40	5.9%	2014-06-03

Table 13: Results system check

6.1.14 System check procedure

The system check is performed by using a validation dipole which is positioned parallel to the planar part of the SAM phantom at the reference point. The distance of the dipole to the SAM phantom is determined by a plexiglass spacer. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 1000 mW for frequencies below 2 GHz or 100 mW for frequencies above 2 GHz. To adjust this power a power meter is used. The power sensor is connected to the cable before the system check to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the validation to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test (result on plot).
System check results have to be equal or near the values determined during dipole calibration (target SAR in table above) with the relevant liquids and test system.



6.1.15 System validation

The system validation is performed in a similar way as a system check. It needs to be performed once a SAR measurement system has been established and allows an evaluation of the system accuracy with all components used together with the specified system. It has to be repeated at least once a year or when new system components are used (DAE, probe, phantom, dipole, liquid type).
In addition to the procedure used during system check a system validation also includes checks of probe isotropy, probe modulation factor and RF signal.

The following table lists the system validations relevant for this test report:

Probe Calibration Point	Test	DASY	Dipole	Probe	Calibrated signal type(s)	DAE unit	Validation done	
f / MHz	System	SW	Type / SN	Type / SN		Type / SN	Head tissue simulant	Body tissue simulant
750	Saarbrücken / SAR-1	V52.8.7	D750V2 / 1041	ES3DV3 / 3320	CW	DAE3 / 413	2014-05	2014-05
835	Saarbrücken / SAR-1	V52.8.7	D835V2 / 4d153	ES3DV3 / 3320	CW	DAE3 / 413	2014-05	2014-05
2600	Saarbrücken / SAR-1	V52.8.7	D2600V2 / 1040	ES3DV3 / 3944	CW	DAE3 / 413	2014-06	2014-06
835	Saarbrücken / SAR-2	V52.8.7	D835V2 / 4d153	ET3DV6 / 1558	CW	DAE3/ 477	2014-05	2014-05
1750	Saarbrücken / SAR-2	V52.8.7	D1750V2 / 1093	ET3DV6 / 1558	CW	DAE3/ 477	2014-05	2014-05
1900	Saarbrücken / SAR-2	V52.8.7	D1900V2 / 5d009	ET3DV6 / 1558	CW	DAE3/ 477	2014-05	2014-05
5200-5800	Saarbrücken / SAR-2	V52.8.7	D5GHzV2 / 1055	EX3DV4 / 3944	CW	DAE3/ 477	2014-06	2014-06
750	Saarbrücken / SAR-3	V52.8.7	D750V2 / 1041	ES3DV3 / 3326	CW	DAE4/ 1387	2014-05	2014-05
2450	Saarbrücken / SAR-3	V52.8.7	D2450V2 / 710	ES3DV3 / 3326	CW	DAE4/ 1387	2014-05	2014-05
2600	Saarbrücken / SAR-3	V52.8.7	D2600V2 / 1040	ES3DV3 / 3944	CW	DAE4/ 1387	2014-06	2014-06
5200-5800	Saarbrücken / SAR-3	V52.8.7	D5GHzV2 / 1055	EX3DV4 / 3944	CW	DAE4/ 1387	2014-06	2014-06

7 Detailed Test Results

7.1 Conducted power measurements

For the measurements a Rohde & Schwarz Radio Communication Tester CMU 200 was used.
The output power was measured using an integrated RF connector and attached RF cable.
The conducted output power was also checked before and after each SAR measurement. The resulting power values were within a 0.2 dB tolerance of the values shown below.

Note: CMU200 measures GSM peak and average output power for active timeslots.
For SAR the time based average power is relevant. The difference in-between depends on the duty cycle of the TDMA signal:

No. of timeslots	***1***	***2***	***3***	***4***
Duty Cycle	1 : 8	1: 4	1 : 2.66	1 : 2
time based avg. power compared to slotted avg. power	- 9 dB	- 6 dB	- 4.25 dB	- 3 dB

The signalling modes differ as follows :

mode	***coding scheme***	***modulation***
GPRS	CS1 to CS4	GMSK
EGPRS (EDGE)	MCS1 to MCS4	GMSK
EGPRS (EDGE)	MCS5 to MCS9	8PSK

Apart from modulation change (GMSK/8PSK) coding schemes differ in code rate without influence on the RF signal. Therefore one coding scheme per mode was selected for conducted power measurements.

7.1.1 Conducted power measurements GSM 850 MHz

Channel / frequency	modulation	timeslots	slotted avg. power	time based avg. Power (calculated)
128 / 824.2 MHz	GMSK	1	32.6 dBm	23.6 dBm
190 / 836.6 MHz	GMSK	1	32.7 dBm	23.7 dBm
251 / 848.8 MHz	GMSK	1	32.9 dBm	23.9 dBm
128 / 824.2 MHz	GMSK	**2**	**31.0 dBm**	**25.0 dBm**
190 / 836.6 MHz	GMSK	**2**	**31.0 dBm**	**25.0 dBm**
251 / 848.8 MHz	GMSK	**2**	**31.0 dBm**	**25.0 dBm**
128 / 824.2 MHz	GMSK	3	29.0 dBm	24.8 dBm
190 / 836.6 MHz	GMSK	3	29.0 dBm	24.8 dBm
251 / 848.8 MHz	GMSK	3	28.9 dBm	24.7 dBm
128 / 824.2 MHz	GMSK	4	27.9 dBm	24.9 dBm
190 / 836.6 MHz	GMSK	4	27.8 dBm	24.8 dBm
251 / 848.8 MHz	GMSK	4	27.7 dBm	24.7 dBm
128 / 824.2 MHz	8PSK	1	27.5 dBm	18.5 dBm
190 / 836.6 MHz	8PSK	1	27.5 dBm	18.5 dBm
251 / 848.8 MHz	8PSK	1	27.4 dBm	18.4 dBm
128 / 824.2 MHz	8PSK	2	25.9 dBm	19.9 dBm
190 / 836.6 MHz	8PSK	2	25.9 dBm	19.9 dBm
251 / 848.8 MHz	8PSK	2	25.8 dBm	19.8 dBm
128 / 824.2 MHz	8PSK	3	25.0 dBm	20.8 dBm
190 / 836.6 MHz	8PSK	3	25.0 dBm	20.8 dBm
251 / 848.8 MHz	8PSK	3	25.0 dBm	20.8 dBm
128 / 824.2 MHz	8PSK	4	22.8 dBm	19.8 dBm
190 / 836.6 MHz	8PSK	4	22.8 dBm	19.8 dBm
251 / 848.8 MHz	8PSK	4	22.7 dBm	19.7 dBm

GSM 850MHz DTM			
Channel / frequency	modulation	slotted avg. power	time based avg. Power (calculated)
128 / 824.2 MHz	GMSK + 1 GMSK	30.6 dBm	24.6 dBm
190 / 836.6 MHz	GMSK + 1 GMSK	30.7 dBm	24.7 dBm
251 / 848.8 MHz	GMSK + 1 GMSK	30.7 dBm	24.7 dBm
128 / 824.2 MHz	**GMSK + 2 GMSK**	**29.0 dBm**	**24.8 dBm**
190 / 836.6 MHz	**GMSK + 2 GMSK**	**29.0 dBm**	**24.8 dBm**
251 / 848.8 MHz	**GMSK + 2 GMSK**	**29.0 dBm**	**24.8 dBm**
128 / 824.2 MHz	GMSK + 1 8PSK	25.9 dBm	19.9 dBm
190 / 836.6 MHz	GMSK + 1 8PSK	26.0 dBm	20.0 dBm
251 / 848.8 MHz	GMSK + 1 8PSK	25.9 dBm	19.9 dBm
128 / 824.2 MHz	GMSK + 2 8PSK	25.0 dBm	20.8 dBm
190 / 836.6 MHz	GMSK + 2 8PSK	25.0 dBm	20.8 dBm
251 / 848.8 MHz	GMSK + 2 8PSK	25.0 dBm	20.8 dBm

Table 14: Test results conducted power measurement GSM 850 MHz

7.1.2 Conducted power measurements GSM 1900 MHz

Channel / frequency	modulation	timeslots	slotted avg. power	time based avg. Power (calculated)
128 / 824.2 MHz	GMSK	1	32.6 dBm	23.6 dBm
190 / 836.6 MHz	GMSK	1	32.7 dBm	23.7 dBm
251 / 848.8 MHz	GMSK	1	32.9 dBm	23.9 dBm
128 / 824.2 MHz	GMSK	**2**	**31.0 dBm**	**25.0 dBm**
190 / 836.6 MHz	GMSK	**2**	**31.0 dBm**	**25.0 dBm**
251 / 848.8 MHz	GMSK	**2**	**31.0 dBm**	**25.0 dBm**
128 / 824.2 MHz	GMSK	3	29.0 dBm	24.8 dBm
190 / 836.6 MHz	GMSK	3	29.0 dBm	24.8 dBm
251 / 848.8 MHz	GMSK	3	28.9 dBm	24.7 dBm
128 / 824.2 MHz	GMSK	4	27.9 dBm	24.9 dBm
190 / 836.6 MHz	GMSK	4	27.8 dBm	24.8 dBm
251 / 848.8 MHz	GMSK	4	27.7 dBm	24.7 dBm
128 / 824.2 MHz	8PSK	1	27.5 dBm	18.5 dBm
190 / 836.6 MHz	8PSK	1	27.5 dBm	18.5 dBm
251 / 848.8 MHz	8PSK	1	27.4 dBm	18.4 dBm
128 / 824.2 MHz	8PSK	2	25.9 dBm	19.9 dBm
190 / 836.6 MHz	8PSK	2	25.9 dBm	19.9 dBm
251 / 848.8 MHz	8PSK	2	25.8 dBm	19.8 dBm
128 / 824.2 MHz	8PSK	3	25.0 dBm	20.8 dBm
190 / 836.6 MHz	8PSK	3	25.0 dBm	20.8 dBm
251 / 848.8 MHz	8PSK	3	25.0 dBm	20.8 dBm
128 / 824.2 MHz	8PSK	4	22.8 dBm	19.8 dBm
190 / 836.6 MHz	8PSK	4	22.8 dBm	19.8 dBm
251 / 848.8 MHz	8PSK	4	22.7 dBm	19.7 dBm

GSM 1900MHz DTM			
Channel / frequency	modulation	slotted avg.	time based avg.
512 / 1850.2 MHz	GMSK + 1 GMSK	28.0 dBm	22.0 dBm
661 / 1880.0 MHz	GMSK + 1 GMSK	28.0 dBm	22.0 dBm
810 / 1909.8 MHz	GMSK + 1 GMSK	27.9 dBm	21.9 dBm
512 / 1850.2 MHz	**GMSK + 2 GMSK**	**26.6 dBm**	**22.35 dBm**
661 / 1880.0 MHz	**GMSK + 2 GMSK**	**26.6 dBm**	**22.35 dBm**
810 / 1909.8 MHz	**GMSK + 2 GMSK**	**26.5 dBm**	**22.25 dBm**
512 / 1850.2 MHz	GMSK + 1 8PSK	24.9 dBm	18.9 dBm
661 / 1880.0 MHz	GMSK + 1 8PSK	25.0 dBm	19.0 dBm
810 / 1909.8 MHz	GMSK + 1 8PSK	24.9 dBm	18.9 dBm
512 / 1850.2 MHz	GMSK + 2 8PSK	24.6 dBm	20.35 dBm
661 / 1880.0 MHz	GMSK + 2 8PSK	24.7 dBm	20.45 dBm
810 / 1909.8 MHz	GMSK + 2 8PSK	24.6 dBm	20.35 dBm

Table 15: Test results conducted power measurement GSM 1900 MHz

7.1.3 Justification of SAR measurements in GSM mode

SAR measurements were performed in the configuration with highest calculated time based averaged output power.

7.1.4 Conducted power measurements WCDMA FDD V (850 MHz)

Max. RMS output power 850 MHz (FDD V) / dBm			
	Channel / frequency		
mode	4132 / 826.4 MHz	4182 / 836.6 MHz	4233 / 846.6 MHz
RMC 12.2 kbit/s	**24.5**	**24.5**	**24.4**
RMC 64 kbit/s	24.5	24.5	24.3
RMC 144 kbit/s	24.4	24.5	24.3
RMC 384 kbit/s	24.4	24.5	24.4
AMR 4.75 kbit/s	24.5	24.5	24.3
AMR 5.15 kbit/s	24.4	24.4	24.2
AMR 5.9 kbit/s	24.4	24.5	24.3
AMR 6.7 kbit/s	24.5	24.5	24.3
AMR 7.4 kbit/s	24.5	24.5	24.3
AMR 7.95 kbit/s	24.4	24.5	24.3
AMR 10.2 kbit/s	24.5	24.5	24.3
AMR 12.2 kbit/s	24.5	24.5	24.3
HSDPA Sub test 1	**23.9**	**24.0**	**23.8**
HSDPA Sub test 2	24.5	24.5	24.4
HSDPA Sub test 3	21.9	22.0	21.9
HSDPA Sub test 4	24.5	24.5	24.4
DC-HSDPA Sub test 1	**23.8**	**23.9**	**23.8**
DC-HSDPA Sub test 2	23.8	23.8	23.8
DC-HSDPA Sub test 3	23.2	23.2	23.2
DC-HSDPA Sub test 4	23.1	23.1	23.1
HSUPA Sub test 1	23.5	24.1	23.9
HSUPA Sub test 2	22.0	23.1	22.9
HSUPA Sub test 3	22.9	23.4	23.2
HSUPA Sub test 4	22.5	22.9	22.8
HSUPA Sub test 5	**23.5**	**23.7**	**23.4**

Table 16: Test results conducted power measurement UMTS FDD V 850MHz

7.1.5 Conducted power measurements WCDMA FDD II (1900 MHz)

Max. RMS output power FDD II (1900MHz) / dBm									
	Channel / frequency								
	9262 / 1852.4 MHz			9400 / 1880.0 MHz			9538 / 1907.6 MHz		
mode	full	**back off *)**	**diff.**	full	**back off *)**	**diff.**	full	**back off *)**	**diff.**
RMC 12.2 kbit/s	**23.5**	**21.1**	**2.4**	**23.5**	**21.2**	**2.3**	**23.4**	**21.1**	**2.3**
RMC 64 kbit/s	23.5	21.1	2.4	23.5	21.2	2.3	23.4	21.1	2.3
RMC 144 kbit/s	23.5	21.1	2.4	23.5	21.1	2.4	23.4	21.1	2.3
RMC 384 kbit/s	23.5	21.0	2.5	23.5	21.1	2.4	23.4	21.1	2.3
AMR 4.75 kbit/s	23.5	21.1	2.4	23.5	21.2	2.3	23.4	21.1	2.3
AMR 5.15 kbit/s	23.5	21.1	2.4	23.5	21.2	2.3	23.4	21.1	2.3
AMR 5.9 kbit/s	23.5	21.1	2.4	23.5	21.1	2.4	23.3	21.0	2.3
AMR 6.7 kbit/s	23.4	21.0	2.4	23.4	21.0	2.4	23.4	21.1	2.3
AMR 7.4 kbit/s	23.5	21.1	2.4	23.5	21.2	2.3	23.4	21.1	2.3
AMR 7.95 kbit/s	23.4	21.1	2.3	23.4	21.1	2.3	23.3	21.0	2.3
AMR 10.2 kbit/s	23.5	21.1	2.4	23.5	21.1	2.4	23.4	21.1	2.3
AMR 12.2 kbit/s	23.5	21.0	2.5	23.5	21.1	2.4	23.4	21.1	2.3
HSDPA Sub test 1	**23.3**	**20.9**	**2.4**	**23.3**	**21.0**	**2.3**	**23.3**	**21.0**	**2.3**
HSDPA Sub test 2	23.3	20.8	2.5	23.3	21.0	2.3	23.2	20.9	2.3
HSDPA Sub test 3	21.0	18.7	2.3	21.0	18.6	2.4	20.9	18.6	2.3
HSDPA Sub test 4	23.3	20.8	2.5	23.3	20.9	2.4	23.1	20.8	2.3
DC-HSDPA Sub test 1	**23.2**	**20.8**	**2.4**	**23.2**	**20.8**	**2.4**	**23.2**	**20.8**	**2.4**
DC-HSDPA Sub test 2	23.2	20.8	2.4	23.2	20.8	2.4	23.1	20.8	2.3
DC-HSDPA Sub test 3	22.6	20.3	2.3	22.6	20.2	2.4	22.6	20.3	2.3
DC-HSDPA Sub test 4	22.6	20.2	2.4	22.6	20.2	2.4	22.6	20.3	2.3
HSUPA Sub test 1	23.1	20.7	2.4	23.1	20.8	2.3	23.0	20.7	2.3
HSUPA Sub test 2	22.0	19.6	2.4	22.0	19.7	2.3	21.9	19.6	2.3
HSUPA Sub test 3	22.6	20.1	2.5	22.6	20.2	2.4	22.4	20.1	2.3
HSUPA Sub test 4	22.1	19.5	2.6	22.1	19.7	2.4	22.4	20.1	2.3
HSUPA Sub test 5	**23.2**	**20.8**	**2.4**	**23.2**	**20.9**	**2.3**	**23.2**	**20.9**	**2.3**

Table 17: Test results conducted power measurement UMTS FDD II 1900MHz

Remark: None of the HSDPA/HSUPA settings leads to conducted power values exceeding the conducted power in RMC mode by more than 0.25 dB.
Therefore no additional SAR measurements were performed in HSDPA/HSUPA mode.

*) Power for UMTS FDD II is reduced while the device is operating in hotspot mode.

7.1.6 Test-set-up information for WCDMA / HSPDA / HSUPA

a) WCDMA RMC

In RMC (reference measurement channel) mode the conducted power at 4 different bit rates was measured. They correspond with the used spreading factors as follows:

Bit rate	***12.2 kbit/s***	***64 kbit/s***	***144 kbit/s***	***384 kbit/s***
Spreading factor (SF)	64	16	8	4

In RMC mode only DPCCH and DPDCH are active. As bit rate changes do not influence the relative power of any code channel the measured RMS output power remains on the same level which is set to maximum by TPC (Transmit power control) pattern type 'All 1'.

b) HSDPA

HSDPA adds the HS-DPCCH in uplink as a control channel for high speed data transfer in downlink.
In HSDPA mode 4 sub-tests are defined by 3GPP 34.121 according to the following table:

Sub-test	β_c	β_d	β_d **(SF)**	β_c/β_d	β_{hs} (1)	**CM(dB)** (2)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 (3)	15/15 (3)	64	12/15 (3)	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5
Note 1: Δ_{ACK}, Δ_{NACK}, Δ_{CQI} = 8 $\Longleftrightarrow$ $A_{hs} = \beta_{hs}/\beta_c = 30/15 \Longleftrightarrow \beta_{hs} = 30/15 * \beta_c$ Note 2 : CM = 1 for β_c/β_d = 12/15, β_{hs}/β_c = 24/15 Note 3 : For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to β_c = 11/15 and β_d = 15/15						

Table 18: Sub-tests for UMTS Release 5 HSDPA

The β_c and β_d gain factors for DPCCH and DPDCH were set according to the values in the above table, β_{hs} for HS-DPCCH is set automatically to the correct value when Δ_{ACK}, Δ_{NACK}, Δ_{CQI} = 8. The variation of the β_c/β_d ratio causes a power reduction at sub-tests 2 - 4.
The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	***Value***
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI's
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 19: settings of required H-Set 1 QPSK acc. to 3GPP 34.121

c) DC-HSDPA (3GPP Release 8)

Dual Cell – HSDPA has been signalized using the following settings for connection setup:

Parameter During Connection Setup	Value
P-CPICH_Ec/Ior	-10 dB
P-CCPCH	-12
SCH_Ec/Ior	-12
PICH_Ec/Ior	-15
HS-PDSCH	off
HS-SCCH_1	off
DPCH_Ec/Ior	-5
OCNS_Ec/Ior	-3.1

Table 20: Downlink Physical Channels according to 3GPP 34.121 Table E.5.0

The fixed reference channel has been set to H-set 12 according to 3GPP TS 34.121 Table C.8.1.12:

Parameter	Unit	Value
Nominal Average Inf. Bit Rate	kbit/s	60
Inter-TTI Distance	TTI's	1
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Process	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codecs	Codecs	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

Table 21: H-Set 12 QPSK configuration

The same Sub-test settings as for Release 5 HSDPA were used for the tests.

d) HSUPA

In HSUPA mode additional code channels (E-DPCCH, E-DPDCHn) are added for data transfer in uplink at higher bit rates.

5 sub-tests are defined by 3GPP 34.121 according to the following table :

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	β_{ec}	β_{ed}	β_{ec} (SF)	β_{ed} (code)	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}, Δ_{CQI} = 8 $\Longleftrightarrow$ $A_{hs} = \beta_{hs}/\beta_c = 30/15 \Longleftrightarrow \beta_{hs} = 30/15 * \beta_c$
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 signalled 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 signalled 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

Table 22: Subtests for UMTS Release 6 HSUPA

To achieve the settings above some additional procedures were defined by 3GPP 34.121. Those have been included in an application note for the CMU200 and were exactly followed :

- Test mode connection (BS signal tab) :
RMC 12.2 kbit/s + HSPA 34.108 with loop mode 1
- HS-DSCH settings (BS signal tab):
- FRC with H-set 1 QPSK
- ACK-NACK repetition factor = 3
- CQI feedback cycle = 4ms
- CQI repetition factor = 2
- HSUPA-specific signalling settings (UE signal tab) :
- E-TFCI table index = 0
- E-DCH minimum set E-TFCI = 9
- Puncturing limit non-max = 0.84
- max. number of channelisation codes = 2x SF4
- Initial Serving Grant Value = Off
- HSDPA and HSUPA Gain factors (UE signal tab)

Sub-test	β_c	β_d	Δ_{ACK}, Δ_{NACK}, Δ_{CQI}	ΔE–DPCCH)*
1	10	15	8	6
2	6	15	8	8
3	15	9	8	8
4	2	15	8	5
5	14	15	8	7

)* : β_{ec} and β_{ed} ratios (relative to β_c and β_d) are set by ΔE–DPCCH

- HSUPA Reference E-TFCIs (UE signal tab > HSUPA gain factors) :

Sub-test	**1, 2, 4, 5**				
Number of E-TFCIs	5				
Reference E-TFCI	11	67	71	75	81
Reference E-TFCI power offset	4	18	23	26	27

Sub-test	**3**	
Number of E-TFCIs	2	
Reference E-TFCI	11	92
Reference E-TFCI power offset	4	18

- HSUPA-specific generator parameters (BS Signal tab > HSUPA > E-AGCH > AG Pattern)

Sub-test	***Absolute Grant Value (AG Index)***
1	20
2	12
3	15
4	17
5	21

- Power Level settings (BS Signal tab > Node B-settings):
- Level reference : Output Channel Power (Ior)
- Output Channel Power (Ior) : -86 dBm

- Downlink Physical Channel Settings (BS signal tab)
- P-CPICH : -10 dB
- S-CPICH : Off
- P-SCH : -15 dB
- S-SCH : -15 dB
- P-CCPCH : -12 dB
- S-CCPCH : -12 dB
- PICH : -15 dB
- AICH : -12 dB
- DPDCH : -10 dB
- HS-SCCH : -8 dB
- HS-PDSCH : -3 dB
- E-AGCH : -20 dB
- E-RGCH/E-HICH - 20 dB
- E-RGCH Active : Off

The settings above were stored once for each sub-test and recalled before the measurement.

HSUPA test procedure :

To reach maximum output power in HSUPA mode the following procedures were followed:

3 different TPC patterns were defined :
Set 1 : Closed loop with target power 10 dBm
Set 2 : Single Pattern+Alternating with binary pattern '11111' for 1 dB steps 'up'
Set 3 : Single Pattern+Alternating with binary pattern '00000' for 1 dB steps 'down'

After recalling a certain HSUPA sub-test the HSUPA E-AGCH graph with E-TFCI event counter is displayed. After starting with the closed loop command the power is increased in 1 dB steps by activating pattern set 2 until the UE decreases the transmitted E-TFCI.
At this point set 3 is activated once to reduce the output power to the value at which the original E-TFCI, which is required for the sub-test, appears again.

For conducted power measurements the same steps are repeated in the power menu to read out the corresponding maximum RMS output power with the target E-TFCI.
For SAR measurements it is useful to switch to Code Domain Power vs. Time display.
Here the CMU200 shows relative power values (max. and min.) of each code channel which should roughly correspond to the numerators of the gain factors e.g. :

Sub-test	β_c	β_d	β_{hs}	β_{ec}	β_{ed}
5	15	15	30	24	134

By this way a surveillance of signalling conditions is possible to make sure that HSUPA code channels are active during the complete SAR measurement.

7.1.7 Conducted average power measurements CDMA

Band	Channel	Frequency (MHz)	Average power (dBm)			
			RC1/1, SO55	RC3/3, SO55	SO32, SCH0 disabled	SO32, SCH0 enabled
BC0	1013	824.70	24.3	24.4	24.4	24.4
	384	836.60	24.3	24.4	24.4	24.4
	777	848.31	24.5	24.6	24.6	24.6
BC1	25	1851.25	23.5	23.4	23.4	23.4
	600	1880.00	23.3	23.3	23.2	23.2
	1175	1908.75	23.2	23.3	23.2	23.3
BC1 *) (back off)	25	1851.25	21.8	21.8	21.8	21.8
	600	1880.00	21.8	21.9	21.7	21.6
	1175	1908.75	21.7	21.8	21.7	21.8

Table 23: Test results conducted average power measurement **CDMA**

Band	Channel	Frequency (MHz)	Average power (dBm)	
			Rev 0	Rev A
BC0	1013	824.70	24.4	24.4
	384	836.60	24.5	24.4
	777	848.31	24.5	24.6
BC1	25	1851.25	23.4	23.4
	600	1880.00	23.3	23.4
	1175	1908.75	23.2	23.2
BC1 *) (back off)	25	1851.25	21.8	21.8
	600	1880.00	21.8	21.9
	1175	1908.75	21.7	21.7

Table 24: Test results conducted average power measurement **EVDO CDMA**

*) Power for CDMA BC1 is reduced while the device is operating in hotspot mode.

7.1.8 Conducted power measurements LTE FDD 2 1900 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm) QPSK	$P_{avg\ max.}$ tolerace (dBm) QPSK	MPR 3GPP (dB)	P_{avg} measured (dBm) 16-QAM	$P_{avg\ max.}$ tolerace (dBm) 16-QAM	MPR 3GPP (dB)
1.4	18607 / 1850.7	1 RB low	23.2	23.5	0	22.5	22.5	0-1
		1 RB mid	23.2	23.5	0	22.4	22.5	0-1
		1 RB high	23.2	23.5	0	22.4	22.5	0-1
		50% RB	23.3	23.5	0	22.2	22.5	0-1
		50% RB	23.2	23.5	0	22.2	22.5	0-1
		50% RB	23.2	23.5	0	22.2	22.5	0-1
		100% RB	22.2	22.5	0-1	21.0	21.5	0-2
	18900 / 1880.0	1 RB low	23.2	23.5	0	22.0	22.5	0-1
		1 RB mid	23.2	23.5	0	22.0	22.5	0-1
		1 RB high	23.2	23.5	0	22.1	22.5	0-1
		50% RB	23.2	23.5	0	22.3	22.5	0-1
		50% RB	23.1	23.5	0	22.3	22.5	0-1
		50% RB	23.2	23.5	0	22.4	22.5	0-1
		100% RB	22.2	22.5	0-1	21.3	21.5	0-2
	19193 / 1909.3	1 RB low	23.2	23.5	0	22.2	22.5	0-1
		1 RB mid	23.1	23.5	0	22.2	22.5	0-1
		1 RB high	23.2	23.5	0	22.2	22.5	0-1
		50% RB	23.2	23.5	0	22.1	22.5	0-1
		50% RB	23.2	23.5	0	22.1	22.5	0-1
		50% RB	23.2	23.5	0	22.1	22.5	0-1
		100% RB	22.2	22.5	0-1	21.3	21.5	0-2
3.0	18615 / 1851.5	1 RB low	23.3	23.5	0	22.3	22.5	0-1
		1 RB mid	23.2	23.5	0	22.4	22.5	0-1
		1 RB high	23.3	23.5	0	22.4	22.5	0-1
		50% RB	22.2	22.5	0-1	21.0	21.5	0-2
		50% RB	22.2	22.5	0-1	21.0	21.5	0-2
		50% RB	22.3	22.5	0-1	20.9	21.5	0-2
		100% RB	22.2	22.5	0-1	21.2	21.5	0-2
	18900 / 1880.0	1 RB low	23.2	23.5	0	22.0	22.5	0-1
		1 RB mid	23.2	23.5	0	22.0	22.5	0-1
		1 RB high	23.2	23.5	0	21.9	22.5	0-1
		50% RB	22.2	22.5	0-1	21.3	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		100% RB	22.2	22.5	0-1	21.1	21.5	0-2
	19185 / 1908.5	1 RB low	23.3	23.5	0	21.9	22.5	0-1
		1 RB mid	23.2	23.5	0	21.9	22.5	0-1
		1 RB high	23.3	23.5	0	22.0	22.5	0-1
		50% RB	22.1	22.5	0-1	21.2	21.5	0-2
		50% RB	22.1	22.5	0-1	21.1	21.5	0-2
		50% RB	22.1	22.5	0-1	21.2	21.5	0-2
		100% RB	22.1	22.5	0-1	21.2	21.5	0-2

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm) QPSK	$P_{avg\ max.}$ tolerace (dBm) QPSK	MPR 3GPP (dB)	P_{avg} measured (dBm) 16-QAM	$P_{avg\ max.}$ tolerace (dBm) 16-QAM	MPR 3GPP (dB)
5.0	18625 / 1852.5	1 RB low	23.2	23.5	0	22.2	22.5	0-1
		1 RB mid	23.2	23.5	0	22.2	22.5	0-1
		1 RB high	23.3	23.5	0	22.2	22.5	0-1
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		100% RB	22.2	22.5	0-1	21.1	21.5	0-2
	18900 / 1880.0	1 RB low	23.2	23.5	0	22.5	22.5	0-1
		1 RB mid	23.1	23.5	0	22.5	22.5	0-1
		1 RB high	23.2	23.5	0	22.5	22.5	0-1
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.2	22.5	0-1	21.1	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		100% RB	22.2	22.5	0-1	21.1	21.5	0-2
	19175 / 1907.5	1 RB low	23.2	23.5	0	22.0	22.5	0-1
		1 RB mid	23.2	23.5	0	21.9	22.5	0-1
		1 RB high	23.2	23.5	0	22.0	22.5	0-1
		50% RB	22.1	22.5	0-1	21.2	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		100% RB	22.2	22.5	0-1	21.3	21.5	0-2
10.0	18650 / 1855	1 RB low	23.2	23.5	0	22.3	22.5	0-1
		1 RB mid	23.2	23.5	0	22.4	22.5	0-1
		1 RB high	23.3	23.5	0	22.5	22.5	0-1
		50% RB	22.3	22.5	0-1	21.2	21.5	0-2
		50% RB	22.3	22.5	0-1	21.2	21.5	0-2
		50% RB	22.3	22.5	0-1	21.3	21.5	0-2
		100% RB	22.3	22.5	0-1	21.2	21.5	0-2
	18900 / 1880	1 RB low	23.2	23.5	0	22.0	22.5	0-1
		1 RB mid	23.2	23.5	0	22.0	22.5	0-1
		1 RB high	23.2	23.5	0	22.0	22.5	0-1
		50% RB	22.2	22.5	0-1	21.3	21.5	0-2
		50% RB	22.2	22.5	0-1	21.3	21.5	0-2
		50% RB	22.2	22.5	0-1	21.3	21.5	0-2
		100% RB	22.2	22.5	0-1	21.2	21.5	0-2
	19150 / 1905	1 RB low	23.3	23.5	0	22.0	22.5	0-1
		1 RB mid	23.3	23.5	0	22.0	22.5	0-1
		1 RB high	23.3	23.5	0	21.9	22.5	0-1
		50% RB	22.2	22.5	0-1	21.1	21.5	0-2
		50% RB	22.0	22.5	0-1	21.1	21.5	0-2
		50% RB	22.2	22.5	0-1	21.1	21.5	0-2
		100% RB	22.1	22.5	0-1	21.1	21.5	0-2

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm) QPSK	P_{avg} max. tolerace (dBm) QPSK	MPR 3GPP (dB)	P_{avg} measured (dBm) 16-QAM	P_{avg} max. tolerace (dBm) 16-QAM	MPR 3GPP (dB)
15.0	18675 / 1857.5	1 RB low	23.1	23.5	0	22.4	22.5	0-1
		1 RB mid	23.2	23.5	0	22.4	22.5	0-1
		1 RB high	23.2	23.5	0	22.4	22.5	0-1
		50% RB	22.2	22.5	0-1	21.3	21.5	0-2
		50% RB	22.3	22.5	0-1	21.3	21.5	0-2
		50% RB	22.2	22.5	0-1	21.3	21.5	0-2
		100% RB	22.4	22.5	0-1	21.3	21.5	0-2
	18900 / 1880.0	1 RB low	23.2	23.5	0	22.6	22.5	0-1
		1 RB mid	23.1	23.5	0	22.5	22.5	0-1
		1 RB high	23.1	23.5	0	22.6	22.5	0-1
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.2	22.5	0-1	21.1	21.5	0-2
		50% RB	22.1	22.5	0-1	21.1	21.5	0-2
		100% RB	22.3	22.5	0-1	21.2	21.5	0-2
	19125 / 1902.5	1 RB low	23.3	23.5	0	22.1	22.5	0-1
		1 RB mid	23.2	23.5	0	21.9	22.5	0-1
		1 RB high	23.2	23.5	0	21.9	22.5	0-1
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.1	22.5	0-1	21.1	21.5	0-2
		50% RB	22.1	22.5	0-1	21.1	21.5	0-2
		100% RB	22.3	22.5	0-1	21.2	21.5	0-2
20.0	18700 / 1860	1 RB low	23.2	23.5	0	22.2	22.5	0-1
		1 RB mid	**23.3**	23.5	0	22.3	22.5	0-1
		1 RB high	23.2	23.5	0	22.2	22.5	0-1
		50% RB	**22.3**	22.5	0-1	21.2	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.3	22.5	0-1	21.3	21.5	0-2
		100% RB	22.3	22.5	0-1	21.2	21.5	0-2
	18900 / 1880	1 RB low	**23.1**	23.5	0	22.3	22.5	0-1
		1 RB mid	23.0	23.5	0	22.2	22.5	0-1
		1 RB high	23.1	23.5	0	22.4	22.5	0-1
		50% RB	22.2	22.5	0-1	21.1	21.5	0-2
		50% RB	22.2	22.5	0-1	21.1	21.5	0-2
		50% RB	22.1	22.5	0-1	21.1	21.5	0-2
		100% RB	22.2	22.5	0-1	21.2	21.5	0-2
	19100 / 1900	1 RB low	**23.1**	23.5	0	22.3	22.5	0-1
		1 RB mid	23.1	23.5	0	22.3	22.5	0-1
		1 RB high	23.1	23.5	0	22.3	22.5	0-1
		50% RB	22.3	22.5	0-1	21.3	21.5	0-2
		50% RB	22.2	22.5	0-1	21.2	21.5	0-2
		50% RB	22.1	22.5	0-1	21.3	21.5	0-2
		100% RB	22.2	22.5	0-1	21.3	21.5	0-2

Table 25: Test results conducted power measurement LTE FDD 2 1900 MHz.

7.1.9 Conducted power measurements LTE FDD 2 1900 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm)	P_{avg} (dBm) back off *)	Hotspot PR (dB)	P_{avg} (dBm)	P_{avg} (dBm) back off *)	Hotspot PR (dB)
			QPSK	QPSK		16-QAM	16-QAM	
1.4	18607 / 1850.7	1 RB low	23.2	21.5	1.7	22.5	21.8	0.7
		1 RB mid	23.2	21.5	1.7	22.4	21.7	0.7
		1 RB high	23.2	21.6	1.6	22.4	21.8	0.6
		50% RB	23.3	21.6	1.7	22.2	21.6	0.6
		50% RB	23.2	21.6	1.6	22.2	21.5	0.7
		50% RB	23.2	21.6	1.6	22.2	21.5	0.7
		100% RB	22.2	21.6	0.6	21.0	20.9	0.1
	18900 / 1880.0	1 RB low	23.2	21.6	1.6	22.0	21.4	0.6
		1 RB mid	23.2	21.6	1.6	22.0	21.4	0.6
		1 RB high	23.2	21.6	1.6	22.1	21.5	0.6
		50% RB	23.2	21.5	1.7	22.3	21.7	0.6
		50% RB	23.1	21.5	1.6	22.3	21.7	0.6
		50% RB	23.2	21.6	1.6	22.4	21.7	0.7
		100% RB	22.2	21.6	0.6	21.3	21.2	0.1
	19193 / 1909.3	1 RB low	23.2	21.6	1.6	22.2	21.6	0.6
		1 RB mid	23.1	21.5	1.6	22.2	21.7	0.5
		1 RB high	23.2	21.6	1.6	22.2	21.7	0.5
		50% RB	23.2	21.6	1.6	22.1	21.5	0.6
		50% RB	23.2	21.6	1.6	22.1	21.5	0.6
		50% RB	23.2	21.6	1.6	22.1	21.5	0.6
		100% RB	22.2	21.6	0.6	21.3	21.2	0.1
3.0	18615 / 1851.5	1 RB low	23.3	21.6	1.7	22.3	21.7	0.6
		1 RB mid	23.2	21.6	1.6	22.4	21.7	0.7
		1 RB high	23.3	21.6	1.7	22.4	21.8	0.6
		50% RB	22.2	21.6	0.6	21.0	20.9	0.1
		50% RB	22.2	21.5	0.7	21.0	20.9	0.1
		50% RB	22.3	21.6	0.7	20.9	20.9	0.0
		100% RB	22.2	21.6	0.6	21.2	21.2	0.0
	18900 / 1880.0	1 RB low	23.2	21.6	1.6	22.0	21.4	0.6
		1 RB mid	23.2	21.6	1.6	22.0	21.4	0.6
		1 RB high	23.2	21.6	1.6	21.9	21.5	0.4
		50% RB	22.2	21.5	0.7	21.3	21.2	0.1
		50% RB	22.2	21.6	0.6	21.2	21.2	0.0
		50% RB	22.2	21.6	0.6	21.2	21.2	0.0
		100% RB	22.2	21.6	0.6	21.1	21.1	0.0
	19185 / 1908.5	1 RB low	23.3	21.7	1.6	21.9	21.4	0.5
		1 RB mid	23.2	21.6	1.6	21.9	21.3	0.6
		1 RB high	23.3	21.7	1.6	22.0	21.4	0.6
		50% RB	22.1	21.6	0.5	21.2	21.1	0.1
		50% RB	22.1	21.6	0.5	21.1	21.1	0.0
		50% RB	22.1	21.6	0.5	21.2	21.1	0.1
		100% RB	22.1	21.6	0.5	21.2	21.2	0.0

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm) QPSK	P_{avg} (dBm) back off *) QPSK	Hotspot PR (dB)	P_{avg} (dBm) 16-QAM	P_{avg} (dBm) back off *) 16-QAM	Hotspot PR (dB)
5.0	18625 / 1852.5	1 RB low	23.2	21.7	1.5	22.2	21.6	0.6
		1 RB mid	23.2	21.7	1.5	22.2	21.7	0.5
		1 RB high	23.3	21.7	1.6	22.2	21.6	0.6
		50% RB	22.2	21.6	0.6	21.2	21.1	0.1
		50% RB	22.2	21.6	0.6	21.2	21.1	0.1
		50% RB	22.2	21.6	0.6	21.2	21.2	0.0
		100% RB	22.2	21.6	0.6	21.1	21.1	0.0
	18900 / 1880.0	1 RB low	23.2	21.5	1.7	22.5	21.9	0.6
		1 RB mid	23.1	21.5	1.6	22.5	21.9	0.6
		1 RB high	23.2	21.6	1.6	22.5	21.9	0.6
		50% RB	22.2	21.5	0.7	21.2	21.1	0.1
		50% RB	22.2	21.5	0.7	21.1	21.1	0.0
		50% RB	22.2	21.6	0.6	21.2	21.1	0.1
		100% RB	22.2	21.6	0.6	21.1	21.1	0.0
	19175 / 1907.5	1 RB low	23.2	21.7	1.5	22.0	21.4	0.6
		1 RB mid	23.2	21.6	1.6	21.9	21.4	0.5
		1 RB high	23.2	21.6	1.6	22.0	21.5	0.5
		50% RB	22.1	21.6	0.5	21.2	21.1	0.1
		50% RB	22.2	21.6	0.6	21.2	21.2	0.0
		50% RB	22.2	21.6	0.6	21.2	21.2	0.0
		100% RB	22.2	21.6	0.6	21.3	21.3	0.0
10.0	18650 / 1855	1 RB low	23.2	21.6	1.6	22.3	21.7	0.6
		1 RB mid	23.2	21.6	1.6	22.4	21.8	0.6
		1 RB high	23.3	21.8	1.5	22.5	21.9	0.6
		50% RB	22.3	21.7	0.6	21.2	21.2	0.0
		50% RB	22.3	21.6	0.7	21.2	21.2	0.0
		50% RB	22.3	21.7	0.6	21.3	21.2	0.1
		100% RB	22.3	21.7	0.6	21.2	21.2	0.0
	18900 / 1880	1 RB low	23.2	21.6	1.6	22.0	21.4	0.6
		1 RB mid	23.2	21.6	1.6	22.0	21.4	0.6
		1 RB high	23.2	21.6	1.6	22.0	21.4	0.6
		50% RB	22.2	21.6	0.6	21.3	21.2	0.1
		50% RB	22.2	21.6	0.6	21.3	21.2	0.1
		50% RB	22.2	21.6	0.6	21.3	21.2	0.1
		100% RB	22.2	21.6	0.6	21.2	21.1	0.1
	19150 / 1905	1 RB low	23.3	21.7	1.6	22.0	21.5	0.5
		1 RB mid	23.3	21.7	1.6	22.0	21.4	0.6
		1 RB high	23.3	21.7	1.6	21.9	21.4	0.5
		50% RB	22.2	21.6	0.6	21.1	21.1	0.0
		50% RB	22.0	21.6	0.4	21.1	21.0	0.1
		50% RB	22.2	21.6	0.6	21.1	21.2	-0.1
		100% RB	22.1	21.5	0.6	21.1	21.1	0.0

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm) QPSK	P_{avg} (dBm) back off *) QPSK	Hotspot PR (dB)	P_{avg} (dBm) 16-QAM	P_{avg} (dBm) back off *) 16-QAM	Hotspot PR (dB)
15.0	18675 / 1857.5	1 RB low	23.1	21.6	1.5	22.4	21.8	0.6
		1 RB mid	23.2	21.6	1.6	22.4	21.8	0.6
		1 RB high	23.2	21.6	1.6	22.4	21.8	0.6
		50% RB	22.2	21.6	0.6	21.3	21.1	0.2
		50% RB	22.3	21.7	0.6	21.3	21.2	0.1
		50% RB	22.2	21.6	0.6	21.3	21.2	0.1
		100% RB	22.4	21.6	0.8	21.3	21.2	0.1
	18900 / 1880.0	1 RB low	23.2	21.5	1.7	22.6	21.9	0.7
		1 RB mid	23.1	21.5	1.6	22.5	21.9	0.6
		1 RB high	23.1	21.5	1.6	22.6	21.9	0.7
		50% RB	22.2	21.5	0.7	21.2	21.0	0.2
		50% RB	22.2	21.5	0.7	21.1	21.1	0.0
		50% RB	22.1	21.5	0.6	21.1	21.0	0.1
		100% RB	22.3	21.6	0.7	21.2	21.1	0.1
	19125 / 1902.5	1 RB low	23.3	21.5	1.8	22.1	21.3	0.8
		1 RB mid	23.2	21.6	1.6	21.9	21.4	0.5
		1 RB high	23.2	21.5	1.7	21.9	21.3	0.6
		50% RB	22.2	21.5	0.7	21.2	21.0	0.2
		50% RB	22.1	21.6	0.5	21.1	21.1	0.0
		50% RB	22.1	21.5	0.6	21.1	21.0	0.1
		100% RB	22.3	21.5	0.8	21.2	21.0	0.2
20.0	18700 / 1860	1 RB low	23.2	21.5	1.7	22.2	21.6	0.6
		1 RB mid	**23.3**	**21.6**	1.7	22.3	21.7	0.6
		1 RB high	23.2	21.5	1.7	22.2	21.5	0.7
		50% RB	**22.3**	**21.5**	0.8	21.2	21.0	0.2
		50% RB	22.2	21.5	0.7	21.2	21.1	0.1
		50% RB	22.3	21.5	0.8	21.3	21.0	0.3
		100% RB	22.3	**21.6**	0.7	21.2	21.1	0.1
	18900 / 1880	1 RB low	**23.1**	**21.4**	1.7	22.3	21.7	0.6
		1 RB mid	23.0	21.4	1.6	22.2	21.6	0.6
		1 RB high	23.1	21.4	1.7	22.4	21.7	0.7
		50% RB	22.2	**21.5**	0.7	21.1	21.1	0.0
		50% RB	22.2	21.5	0.7	21.1	21.0	0.1
		50% RB	22.1	21.5	0.6	21.1	21.0	0.1
		100% RB	22.2	21.5	0.7	21.2	21.1	0.1
	19100 / 1900	1 RB low	**23.1**	21.3	1.8	22.3	21.6	0.7
		1 RB mid	23.1	21.3	1.8	22.3	21.6	0.7
		1 RB high	23.1	**21.4**	1.7	22.3	21.6	0.7
		50% RB	22.3	**21.5**	0.8	21.3	21.1	0.2
		50% RB	22.2	21.5	0.7	21.2	21.0	0.2
		50% RB	22.1	21.5	0.6	21.3	21.1	0.2
		100% RB	22.2	21.5	0.7	21.3	21.1	0.2

Table 26: Test results conducted power measurement LTE FDD 2 1900 MHz.

*) Power for LTE FDD II is reduced while the device is operating in **hotspot mode**.

7.1.10 Conducted power measurements LTE FDD 4 1750 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)
			QPSK	QPSK		16-QAM	16-QAM	
1.4	19957 / 1710.7	1 RB low	23.5	24.0	0	22.7	23.0	0-1
		1 RB mid	23.4	24.0	0	22.6	23.0	0-1
		1 RB high	23.4	24.0	0	22.6	23.0	0-1
		50% RB	23.3	24.0	0	22.3	23.0	0-1
		50% RB	23.3	24.0	0	22.3	23.0	0-1
		50% RB	23.4	24.0	0	22.3	23.0	0-1
		100% RB	22.4	23.0	0-1	21.2	22.0	0-2
	20175 / 1732.5	1 RB low	23.4	24.0	0	22.3	23.0	0-1
		1 RB mid	23.4	24.0	0	22.3	23.0	0-1
		1 RB high	23.5	24.0	0	22.4	23.0	0-1
		50% RB	23.4	24.0	0	22.6	22.0	0-1
		50% RB	23.4	24.0	0	22.6	22.0	0-1
		50% RB	23.4	24.0	0	22.6	22.0	0-1
		100% RB	22.5	23.0	0-1	21.6	22.0	0-2
	20393 / 1754.3	1 RB low	23.4	24.0	0	22.6	23.0	0-1
		1 RB mid	23.3	24.0	0	22.5	23.0	0-1
		1 RB high	23.4	24.0	0	22.5	23.0	0-1
		50% RB	23.4	24.0	0	22.4	22.0	0-1
		50% RB	23.4	24.0	0	22.4	22.0	0-1
		50% RB	23.4	24.0	0	22.4	22.0	0-1
		100% RB	22.5	23.0	0-1	21.5	22.0	0-2
3	19965 / 1711.5	1 RB low	23.4	24.0	0	22.5	23.0	0-1
		1 RB mid	23.4	24.0	0	22.5	23.0	0-1
		1 RB high	23.5	24.0	0	22.6	23.0	0-1
		50% RB	22.3	23.0	0-1	21.2	22.0	0-2
		50% RB	22.4	23.0	0-1	21.2	22.0	0-2
		50% RB	22.5	23.0	0-1	21.3	22.0	0-2
		100% RB	22.4	23.0	0-1	21.4	22.0	0-2
	20175 / 1732.5	1 RB low	23.4	24.0	0	22.3	23.0	0-1
		1 RB mid	23.4	24.0	0	22.2	23.0	0-1
		1 RB high	23.4	24.0	0	22.3	23.0	0-1
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.6	23.0	0-1	21.6	22.0	0-2
		100% RB	22.5	23.0	0-1	21.4	22.0	0-2
	20385 / 1753.5	1 RB low	23.5	24.0	0	22.3	23.0	0-1
		1 RB mid	23.4	24.0	0	22.3	23.0	0-1
		1 RB high	23.5	24.0	0	22.3	23.0	0-1
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.4	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	22.5	23.0	0-1	21.5	22.0	0-2

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)
			QPSK	QPSK		16-QAM	16-QAM	
5	19975 / 1712.5	1 RB low	23.4	24.0	0	22.3	23.0	0-1
		1 RB mid	23.5	24.0	0	22.5	23.0	0-1
		1 RB high	23.5	24.0	0	22.4	23.0	0-1
		50% RB	22.4	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	22.4	23.0	0-1	21.3	22.0	0-2
	20175 / 1732.5	1 RB low	23.3	24.0	0	22.8	23.0	0-1
		1 RB mid	23.3	24.0	0	22.8	23.0	0-1
		1 RB high	23.4	24.0	0	22.8	23.0	0-1
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	22.5	23.0	0-1	21.4	22.0	0-2
	20375 / 1752.5	1 RB low	23.4	24.0	0	22.2	23.0	0-1
		1 RB mid	23.4	24.0	0	22.2	23.0	0-1
		1 RB high	23.5	24.0	0	22.2	23.0	0-1
		50% RB	22.4	23.0	0-1	21.5	22.0	0-2
		50% RB	22.4	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	22.4	23.0	0-1	21.5	22.0	0-2
10	20000 / 1715.0	1 RB low	23.4	24.0	0	22.5	23.0	0-1
		1 RB mid	23.5	24.0	0	22.6	23.0	0-1
		1 RB high	23.4	24.0	0	22.6	23.0	0-1
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.4	23.0	0-1	21.5	22.0	0-2
		100% RB	22.5	23.0	0-1	21.4	22.0	0-2
	20175 / 1732.5	1 RB low	23.5	24.0	0	22.3	23.0	0-1
		1 RB mid	23.4	24.0	0	22.3	23.0	0-1
		1 RB high	23.5	24.0	0	22.3	23.0	0-1
		50% RB	22.5	23.0	0-1	21.6	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.6	22.0	0-2
		100% RB	22.5	23.0	0-1	21.5	22.0	0-2
	20350 / 1750.0	1 RB low	23.5	24.0	0	22.3	23.0	0-1
		1 RB mid	23.4	24.0	0	22.2	23.0	0-1
		1 RB high	23.4	24.0	0	22.2	23.0	0-1
		50% RB	22.5	23.0	0-1	21.4	22.0	0-2
		50% RB	22.4	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.4	22.0	0-2
		100% RB	22.5	23.0	0-1	21.5	22.0	0-2

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)
			QPSK	QPSK		16-QAM	16-QAM	
15	20025 / 1717.5	1 RB low	23.3	24.0	0	22.6	23.0	0-1
		1 RB mid	23.3	24.0	0	22.6	23.0	0-1
		1 RB high	23.4	24.0	0	22.6	23.0	0-1
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	22.6	23.0	0-1	21.5	22.0	0-2
	20175 / 1732.5	1 RB low	23.4	24.0	0	22.9	23.0	0-1
		1 RB mid	23.4	24.0	0	22.8	23.0	0-1
		1 RB high	23.5	24.0	0	22.9	23.0	0-1
		50% RB	22.6	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	22.7	23.0	0-1	21.6	22.0	0-2
	20325 / 1747.5	1 RB low	23.6	24.0	0	22.4	23.0	0-1
		1 RB mid	23.4	24.0	0	22.2	23.0	0-1
		1 RB high	23.4	24.0	0	22.3	23.0	0-1
		50% RB	22.5	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.4	22.0	0-2
		100% RB	22.5	23.0	0-1	21.5	22.0	0-2
20	20050 / 1720.0	1 RB low	23.3	24.0	0	22.4	23.0	0-1
		1 RB mid	23.4	24.0	0	22.5	23.0	0-1
		1 RB high	**23.5**	24.0	0	22.5	23.0	0-1
		50% RB	22.4	23.0	0-1	21.4	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.6	23.0	0-1	21.5	22.0	0-2
		100% RB	22.5	23.0	0-1	21.5	22.0	0-2
	20175 / 1732.5	1 RB low	23.3	24.0	0	22.6	23.0	0-1
		1 RB mid	23.3	24.0	0	22.6	23.0	0-1
		1 RB high	**23.4**	24.0	0	22.7	23.0	0-1
		50% RB	**22.6**	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	**22.6**	23.0	0-1	21.6	22.0	0-2
	20300 / 1745.0	1 RB low	23.3	24.0	0	22.6	23.0	0-1
		1 RB mid	**23.4**	24.0	0	22.6	23.0	0-1
		1 RB high	23.3	24.0	0	22.6	23.0	0-1
		50% RB	22.6	23.0	0-1	21.6	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	22.5	23.0	0-1	21.5	22.0	0-2

Table 27: Test results conducted power measurement LTE FDD 4 1750 MHz.

7.1.11 Conducted power measurements LTE FDD 7 2600 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)
			QPSK	QPSK		16-QAM	16-QAM	
5	20775 / 2502.5	1 RB low	17.2	19.0	0	16.9	19.0	0-1
		1 RB mid	17.1	19.0	0	16.8	19.0	0-1
		1 RB high	17.2	19.0	0	16.8	19.0	0-1
		50% RB	17.1	19.0	0-1	17.1	19.0	0-2
		50% RB	17.2	19.0	0-1	17.1	19.0	0-2
		50% RB	17.1	19.0	0-1	17.1	19.0	0-2
		100% RB	17.1	19.0	0-1	17.2	19.0	0-2
	21100 / 2535	1 RB low	16.8	19.0	0	17.2	19.0	0-1
		1 RB mid	17.1	19.0	0	17.2	19.0	0-1
		1 RB high	17.0	19.0	0	17.3	19.0	0-1
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		100% RB	17.2	19.0	0-1	17.2	19.0	0-2
	21425 / 2567.5	1 RB low	17.1	19.0	0	16.8	19.0	0-1
		1 RB mid	17.0	19.0	0	16.8	19.0	0-1
		1 RB high	17.1	19.0	0	16.8	19.0	0-1
		50% RB	17.1	19.0	0-1	17.0	19.0	0-2
		50% RB	17.1	19.0	0-1	17.0	19.0	0-2
		50% RB	17.1	19.0	0-1	17.0	19.0	0-2
		100% RB	17.1	19.0	0-1	17.1	19.0	0-2
10	20800 / 2505	1 RB low	16.9	19.0	0	17.2	19.0	0-1
		1 RB mid	17.0	19.0	0	17.3	19.0	0-1
		1 RB high	17.0	19.0	0	17.3	19.0	0-1
		50% RB	17.1	19.0	0-1	17.1	19.0	0-2
		50% RB	17.1	19.0	0-1	17.1	19.0	0-2
		50% RB	17.0	19.0	0-1	17.1	19.0	0-2
		100% RB	17.1	19.0	0-1	17.1	19.0	0-2
	21100 / 2535	1 RB low	17.1	19.0	0	17.3	19.0	0-1
		1 RB mid	17.2	19.0	0	17.0	19.0	0-1
		1 RB high	17.2	19.0	0	17.0	19.0	0-1
		50% RB	17.1	19.0	0-1	17.3	19.0	0-2
		50% RB	17.2	19.0	0-1	17.3	19.0	0-2
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		100% RB	17.1	19.0	0-1	17.0	19.0	0-2
	21400 / 2565	1 RB low	17.2	19.0	0	17.2	19.0	0-1
		1 RB mid	17.1	19.0	0	17.0	19.0	0-1
		1 RB high	17.0	19.0	0	17.0	19.0	0-1
		50% RB	17.1	19.0	0-1	17.1	19.0	0-2
		50% RB	17.1	19.0	0-1	17.2	19.0	0-2
		50% RB	17.1	19.0	0-1	17.2	19.0	0-2
		100% RB	17.1	19.0	0-1	17.1	19.0	0-2

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)	P_{avg} measured (dBm)	$P_{avg\ max.}$ tolerace (dBm)	MPR 3GPP (dB)
			QPSK	QPSK		16-QAM	16-QAM	
15	20825 / 2507.5	1 RB low	17.2	19.0	0	17.4	19.0	0-1
		1 RB mid	17.2	19.0	0	17.3	19.0	0-1
		1 RB high	17.2	19.0	0	17.4	19.0	0-1
		50% RB	17.2	19.0	0-1	17.1	19.0	0-2
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		100% RB	17.1	19.0	0-1	17.2	19.0	0-2
	21100 / 2535	1 RB low	17.2	19.0	0	17.2	19.0	0-1
		1 RB mid	17.2	19.0	0	17.2	19.0	0-1
		1 RB high	17.2	19.0	0	17.2	19.0	0-1
		50% RB	17.1	19.0	0-1	17.2	19.0	0-2
		50% RB	17.1	19.0	0-1	17.2	19.0	0-2
		50% RB	17.1	19.0	0-1	17.2	19.0	0-2
		100% RB	17.1	19.0	0-1	17.2	19.0	0-2
	21375 / 2562.5	1 RB low	17.2	19.0	0	17.4	19.0	0-1
		1 RB mid	17.1	19.0	0	17.3	19.0	0-1
		1 RB high	17.1	19.0	0	17.3	19.0	0-1
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		50% RB	17.1	19.0	0-1	17.2	19.0	0-2
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		100% RB	17.2	19.0	0-1	17.2	19.0	0-2
20	20850 / 2510	1 RB low	17.0	19.0	0	17.3	19.0	0-1
		1 RB mid	**17.1**	19.0	0	17.3	19.0	0-1
		1 RB high	17.0	19.0	0	17.3	19.0	0-1
		50% RB	17.1	19.0	0-1	17.2	19.0	0-2
		50% RB	17.0	19.0	0-1	17.1	19.0	0-2
		50% RB	17.0	19.0	0-1	17.1	19.0	0-2
		100% RB	17.0	19.0	0-1	17.1	19.0	0-2
	21100 / 2535	1 RB low	17.0	19.0	0	17.3	19.0	0-1
		1 RB mid	**17.1**	19.0	0	17.4	19.0	0-1
		1 RB high	17.1	19.0	0	17.4	19.0	0-1
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		50% RB	17.2	19.0	0-1	17.3	19.0	0-2
		50% RB	17.3	19.0	0-1	17.3	19.0	0-2
		100% RB	17.2	19.0	0-1	17.2	19.0	0-2
	21350 / 2560	1 RB low	**17.3**	19.0	0	17.2	19.0	0-1
		1 RB mid	17.3	19.0	0	17.1	19.0	0-1
		1 RB high	17.2	19.0	0	16.9	19.0	0-1
		50% RB	**17.3**	19.0	0-1	17.3	19.0	0-2
		50% RB	17.2	19.0	0-1	17.3	19.0	0-2
		50% RB	17.2	19.0	0-1	17.2	19.0	0-2
		100% RB	**17.3**	19.0	0-1	17.2	19.0	0-2

Table 28: Test results conducted power measurement LTE FDD7 2600 MHz.

7.1.12 Conducted power measurements LTE FDD 13 700 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} measured (dBm)	$P_{avg\ max.\ tolerace}$ (dBm)	MPR 3GPP (dB)	P_{avg} measured (dBm)	$P_{avg\ max.\ tolerace}$ (dBm)	MPR 3GPP (dB)
			QPSK	QPSK		16-QAM	16-QAM	
5	23205 / 779.5	1 RB low	23.6	24.0	0	22.5	23.0	0-1
		1 RB mid	23.5	24.0	0	22.5	23.0	0-1
		1 RB high	23.7	24.0	0	22.6	23.0	0-1
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.6	23.0	0-1	21.5	22.0	0-2
		100% RB	22.5	23.0	0-1	21.4	22.0	0-2
	23230 / 782	1 RB low	23.5	24.0	0	22.9	23.0	0-1
		1 RB mid	23.6	24.0	0	22.9	23.0	0-1
		1 RB high	23.6	24.0	0	22.9	23.0	0-1
		50% RB	22.6	23.0	0-1	21.5	22.0	0-2
		50% RB	22.6	23.0	0-1	21.5	22.0	0-2
		50% RB	22.6	23.0	0-1	21.6	22.0	0-2
		100% RB	22.6	23.0	0-1	21.5	22.0	0-2
	23255 / 784.5	1 RB low	23.6	24.0	0	22.3	23.0	0-1
		1 RB mid	23.6	24.0	0	22.4	23.0	0-1
		1 RB high	23.6	24.0	0	22.3	23.0	0-1
		50% RB	22.6	23.0	0-1	21.6	22.0	0-2
		50% RB	22.6	23.0	0-1	21.5	22.0	0-2
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		100% RB	22.6	23.0	0-1	21.7	22.0	0-2
10	23230 / 782	1 RB low	23.6	24.0	0	22.4	23.0	0-1
		1 RB mid	23.6	24.0	0	22.4	23.0	0-1
		1 RB high	**23.7**	24.0	0	22.4	23.0	0-1
		50% RB	22.5	23.0	0-1	21.5	22.0	0-2
		50% RB	22.6	23.0	0-1	21.6	22.0	0-2
		50% RB	**22.7**	23.0	0-1	21.6	22.0	0-2
		100% RB	**22.6**	23.0	0-1	21.5	22.0	0-2

Table 29: Test results conducted power measurement LTE FDD13 700 MHz.

7.1.13 Justification of SAR measurements in LTE mode

According to Chapter 5 'SAR test procedures for LTE devices of FCC KDB Publication 941225 D05 the following test configurations for standalone measurements of the largest channel bandwidth (chapter 5.2) had to be taken into consideration:

5.2.1. QPSK with 1 RB allocation
Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and *required test channel* combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each *required test channel*. When the *reported* SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and *required test channels* is not required for 1 RB allocation; otherwise, SAR is required for the remaining *required test channels* and only for the RB offset configuration with the highest output power for that channel.6 When the *reported* SAR of a *required test channel* is > 1.45 W/kg, SAR is required for all three RB offset configurations for that *required test channel*.

5.2.2. QPSK with 50% RB allocation
The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.

5.2.3. QPSK with 100% RB allocation
For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest *reported* SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the *reported* SAR is > 1.45 W/kg, the remaining *required test channels* must also be tested.

5.2.4. Higher order modulations
For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 5.2.1, 5.2.2 and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the *reported* SAR for the QPSK configuration is > 1.45 W/kg.

Testing of other channel bandwidths was not necessary because the output power of equivalent channel configurations was less than ½ dB larger compared to the largest channel bandwidth and reported SAR was < 1.45 W/kg.

Conducted and radiated measurements were performed with the maximum number of bundled TTIs supported by the DUT (see section 2.4 for details).

7.1.14 MPR information in LTE mode

There is a permanently applied MPR implemented by the manufacturer.
MPR is enabled for this device according to 3GPP TS36.101.

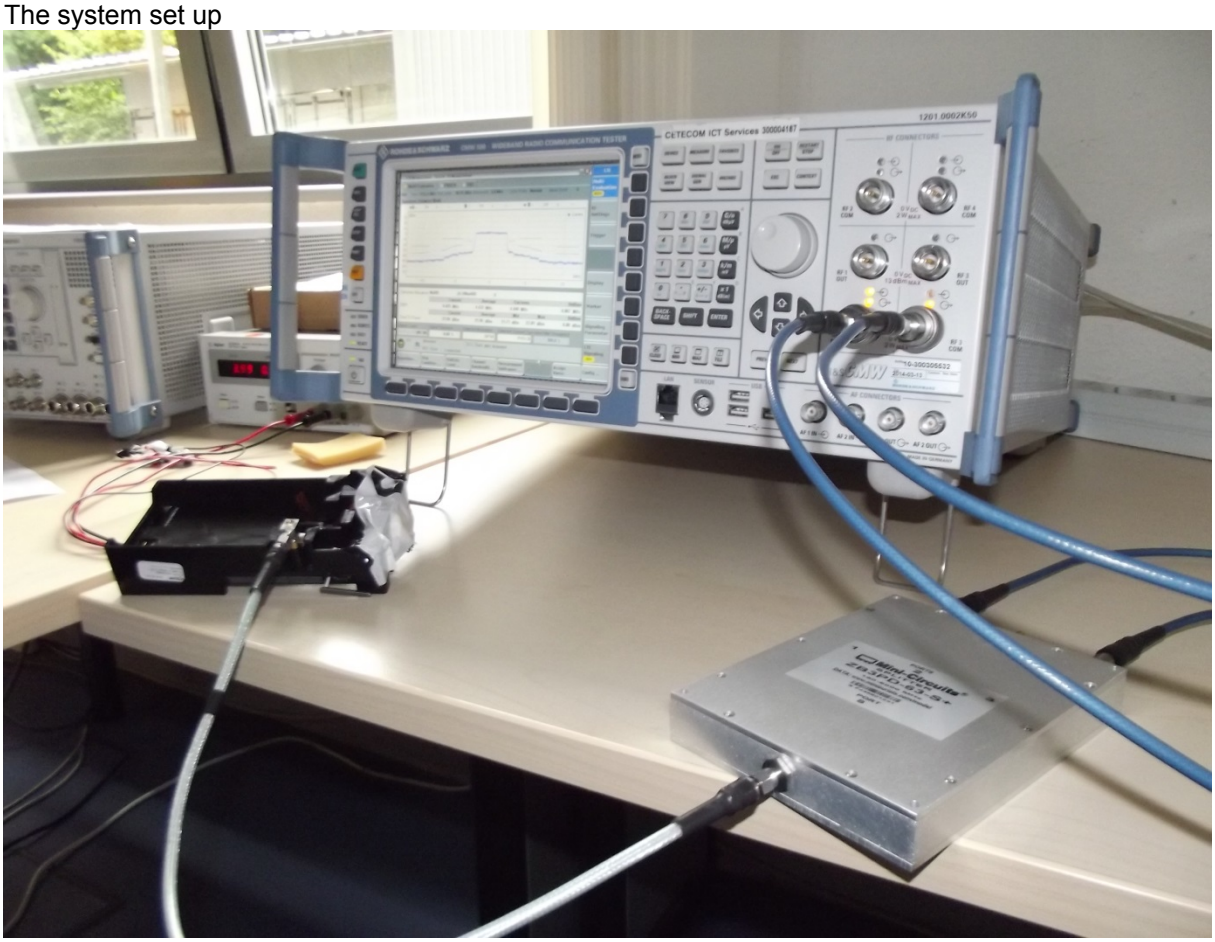
Modulation	Channel bandwidth / resource block configuration						Target MPR	3 GPP MPR
	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz		
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1	≤ 1
16QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1	≤ 1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2	≤ 2

Therefore there is no power reduction at 1.4 MHz bandwidth with 50% RB allocation (3 RBs).

Additional differences in conducted power are not caused by implemented MPR but depend on measurement uncertainty and allowable tolerances per 3GPP or tune-up.
A-MPR was disabled for all SAR tests.

7.1.15 LTE - Carrier Aggregation

The system set up



The relevant test results are given in the following paragraphs.

Remark: None of the LTE Carrier Aggregation settings leads to conducted power values exceeding the conducted power in LTE mode by more than 0.25 dB,
Therefore no additional SAR measurements were performed with LTE Carrier Aggregation.

7.1.15.1 LTE - Carrier Aggregation B2

			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviation (nonCA - CA) [dB]	
Bandwidth [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 13)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
5 MHz	18625 / 1852.5	100% RB	22.2	21.1	10 MHz BW 100% RB	22.2	21.1	0.0	0.0
	18900 / 1880	100% RB	22.2	21.0	10 MHz BW 100% RB	22.2	21.1	0.0	0.1
	19185 / 1907.5	100% RB	22.2	21.4	10 MHz BW 100% RB	22.2	21.3	0.0	-0.1
10 MHz	18650 / 1855	100% RB	22.1	21.0	10 MHz BW 100% RB	22.3	21.2	0.2	0.2
	18900 / 1880	100% RB	22.1	21.1	10 MHz BW 100% RB	22.2	21.2	0.1	0.1
	19150 / 1905	100% RB	22.0	21.0	10 MHz BW 100% RB	22.1	21.1	0.1	0.1

7.1.15.2 LTE - Carrier Aggregation B13

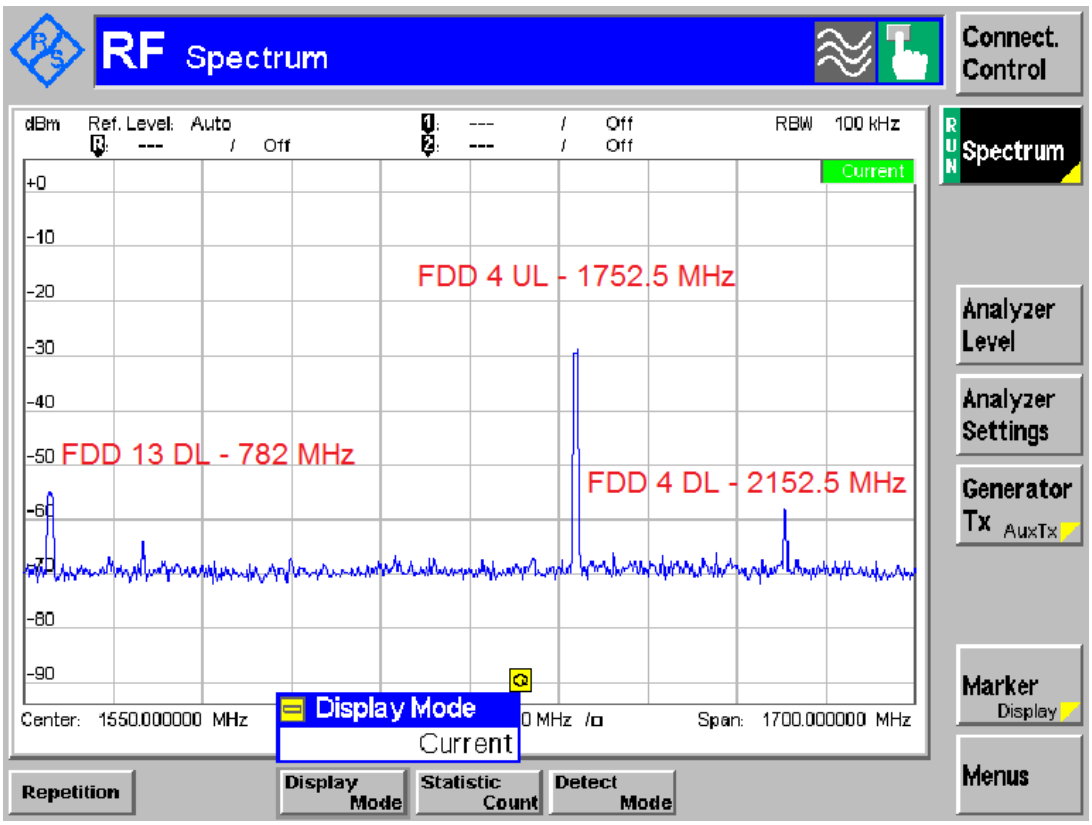
			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviation (nonCA - CA) [dB]	
Bandwidth [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 2)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
10 MHz	23230 / 782	100% RB	22.5	21.6	5 MHz BW 100% RB	22.6	21.6	0.1	0.0
10 MHz	23230 / 782	100% RB	22.5	21.6	10 MHz BW 100% RB	22.6	21.6	0.1	0.0

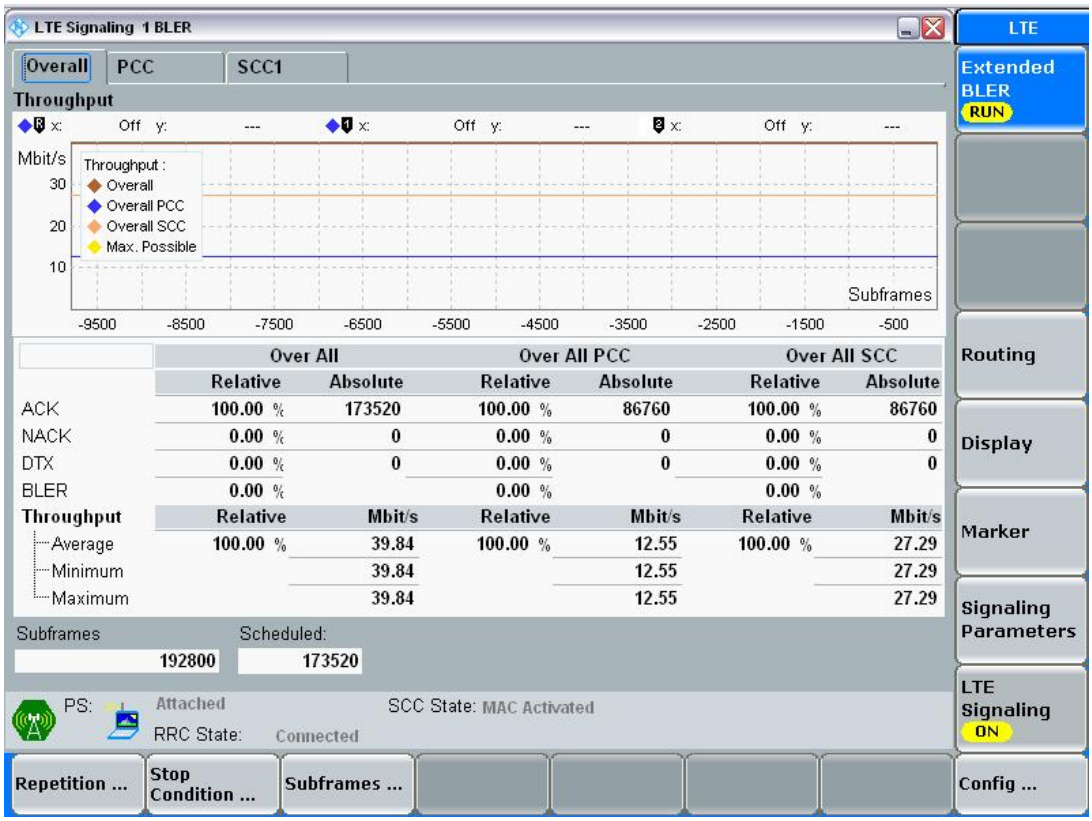
7.1.15.3 LTE - Carrier Aggregation B4

			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviation (nonCA - CA) [dB]	
Bandwidth [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 13)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
5 MHz	19975 / 1712.5	100% RB	22.3	21.3	10 MHz BW 100% RB	22.4	21.3	0.1	0.0
	20175 / 1732.5	100% RB	22.4	21.4	10 MHz BW 100% RB	22.4	21.4	0.0	0.0
	20375 / 1752.5	100% RB	22.4	21.5	10 MHz BW 100% RB	22.5	21.4	0.1	-0.1
10 MHz	20000 / 1715.0	100% RB	22.4	21.3	10 MHz BW 100% RB	22.5	21.4	0.1	0.1
	20175 / 1732.5	100% RB	22.5	21.4	10 MHz BW 100% RB	22.5	21.4	0.0	0.0
	20350 / 1750.0	100% RB	22.4	21.4	10 MHz BW 100% RB	22.5	21.4	0.1	0.0

7.1.15.4 LTE - Carrier Aggregation B13

			Output Power (conducted_CA)			Output Power (Conducted_Non-CA)		Deviation (nonCA - CA) [dB]	
Bandwidth [MHz]	Channel / Frequency [MHz]	Resource block allocation	Average Output Power [dBm]	Average Output Power [dBm]	SCC setting (band 4)	Average Output Power [dBm]	Average Output Power [dBm]		
			QPSK	16-QAM		QPSK	16-QAM	QPSK	16-QAM
10 MHz	23230 / 782	100% RB	22.4	21.4	5 MHz BW 100% RB	22.5	21.4	0.1	0.0
10 MHz	23230 / 782	100% RB	22.5	21.3	10 MHz BW 100% RB	22.5	21.4	0.0	0.1


RF Spectrum
Connect. Control
dBm Ref. Level: Auto
RBW 100 kHz
Current
Spectrum
FDD 4 UL - 1752.5 MHz
FDD 13 DL - 782 MHz
FDD 4 DL - 2152.5 MHz
Analyzer Level
Analyzer Settings
Generator Tx AuxTx
Marker Display
Menus
Center: 1550.000000 MHz
Span: 1700.000000 MHz
Display Mode
Current
Repetition
Display Mode
Statistic Count
Detect Mode


LTE Signaling 1 BLER
LTE
Overall
PCC
SCC1
Throughput
Mbit/s
Throughput :
Overall
Overall PCC
Overall SCC
Max. Possible
Subframes
Extended BLER RUN
Routing
Display
Marker
Signaling Parameters
LTE Signaling ON
Over All
Over All PCC
Over All SCC
Relative
Absolute
ACK 100.00 % 173520 100.00 % 86760 100.00 % 86760
NACK 0.00 % 0 0.00 % 0 0.00 % 0
DTX 0.00 % 0 0.00 % 0 0.00 % 0
BLER 0.00 % 0.00 % 0.00 %
Throughput Relative Mbit/s Relative Mbit/s Relative Mbit/s
Average 100.00 % 39.84 100.00 % 12.55 100.00 % 27.29
Minimum 39.84 12.55 27.29
Maximum 39.84 12.55 27.29
Subframes 192800
Scheduled: 173520
PS: Attached
RRC State: Connected
SCC State: MAC Activated
Repetition ...
Stop Condition ...
Subframes ...
Config ...

7.1.16 Conducted power measurements WLAN 2.4 GHz

802.11b		maximum average conducted output power [dBm]			
Band	Ch	1Mbps	2Mbps	5.5Mbps	11Mbps
2450MHz	1	14			
	6	**15.5**			
	11	14			

Table 30: Test results conducted power measurement 802.11b

802.11g		maximum average conducted output power [dBm]							
Band	Ch	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
2450MHz	1	13.4							
	6	**14.9**							
	11	13.4							

Table 31: Test results conducted power measurement 802.11g

802.11n HT-20		maximum average conducted output power [dBm]							
Band	Ch	MCS-0 6.5Mbps	MCS-1 13Mbps	MCS-2 19.5Mbps	MCS-3 26Mbps	MCS-4 39Mbps	MCS-5 52Mbps	MCS-6 58.5Mbps	MCS-7 65Mbps
2450MHz	1	14.7							
	6	13.2							
	11	14.5							

Table 32: Test results conducted power measurement 802.11n HT-20

7.1.17 Conducted power measurements WLAN 5 GHz

802.11a		maximum average conducted output power [dBm]							
Band	Ch	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
5200	36	15.1							
	40	15.3							
	44	15.2							
	48	**15.5**							
5300	52	11.8							
	56	**12.0**							
	60	11.7							
	64	11.5							
5600	100	11.6							
	104	11.4							
	108	11.3							
	112	11.3							
	116	11.4							
	120	11.7							
	124	11.6							
	128	11.8							
	132	11.8							
	136	11.6							
	140	**11.9**							
5800	149	13.5							
	153	13.7							
	157	13.6							
	161	**13.8**							
	165	13.8							

Table 33: Test results conducted power measurement 802.11a

802.11n HT-20 / 802.11ac VHT-20										
		maximum average conducted output power [dBm]								
Band [MHz]	Ch	MCS-0 6.5Mbps	MCS-1 13Mbps	MCS-2 19.5Mbps	MCS-3 26Mbps	MCS-4 39Mbps	MCS-5 52Mbps	MCS-6 58.5Mbps	MCS-7 65Mbps	MCS-8 78Mbps
5200	36	15.4								
	40	15.1								
	44	15.0								
	48	15.3								
5300	52	11.7								
	56	11.9								
	60	11.9								
	64	11.4								
5600	100	11.7								
	104	11.7								
	108	11.2								
	112	11.3								
	116	11.2								
	120	11.4								
	124	11.9								
	128	12.0								
	132	12.1								
	136	11.9								
	140	11.8								
5800	149	14.0								
	153	13.9								
	157	13.6								
	161	13.5								
	165	13.8								

Table 34: Test results conducted power measurement 802.11n HT-20 / 802.11ac VHT-20

802.11n HT-40 / 802.11ac VHT-40											
		maximum average conducted output power [dBm]									
Band [MHz]	Ch	MCS-0 13.5Mbps	MCS-1 27Mbps	MCS-2 40.5Mbps	MCS-3 54Mbps	MCS-4 81Mbps	MCS-5 108Mbps	MCS-6 121.5Mbps	MCS-7 135Mbps	MCS-8 162Mbps	MCS-9 180Mbps
5200	38	10.9									
	46	11.4									
5300	54	11.8									
	62	11.7									
5600	102	11.0									
	110	10.9									
	118	11.1									
	126	11.6									
	134	11.5									
5800	151	13.3									
	159	13.4									

Table 35: Test results conducted power measurement 802.11n HT-40 / 802.11ac VHT-40

802.11ac VHT-80											
maximum average conducted output power [dBm]											
Band	Ch	MCS-0 29.3Mbps	MCS-1 58.5Mbps	MCS-2 87.8Mbps	MCS-3 117Mbps	MCS-4 175.5Mbps	MCS-5 234Mbps	MCS-6 263.3Mbps	MCS-7 292.5Mbps	MCS-8 351Mbps	MCS-9 390Mbps
5200	42	10.6									
5300	58	10.5									
5600	106	10.6									
	122	11.3									
5800	155	12.8									

Table 36: Test results conducted power measurement 802.11ac VHT-80

7.1.18 Standalone SAR Test Exclusion

Standalone SAR test exclusion considerations for **Head** position					
Communication	freq. (MHz)	P_{avg}*	P_{avg}* (mW)	**threshold$_{1-g}$**	SAR test
GSM 850	835	28.0	631.0	115.3	no
GSM 1900	1880	27.0	501.2	137.4	no
UMTS FDD II	1880	23.5	223.9	61.4	no
UMTS FDD V	835	24.5	281.8	51.5	no
BC0	835	24.7	295.1	53.9	no
BC1	1880	23.5	223.9	61.4	no
LTE FDD 2	1880	24.0	251.2	68.9	no
LTE FDD 4	1750	24.0	251.2	66.5	no
LTE FDD 7	2535	24.0	251.2	80.0	no
LTE FDD 13	782	24.0	251.2	44.4	no
WLAN 2450	2450	16.4	43.7	13.7	no
WLAN 5.2 GHz	5200	16.2	41.7	19.0	no
WLAN 5.3 GHz	5300	12.7	18.6	8.6	no
WLAN 5.6 GHz	5600	12.4	17.4	8.2	no
WLAN 5.8 GHz	5800	14.4	27.5	13.3	no
Bluetooth 2450	2450	9.2	8.3	2.6	yes

Table 37: Standalone SAR test exclusion considerations in **head position**

Standalone SAR test exclusion considerations for **Hot spot mode** position						
Communication	freq. (MHz)	distance	P_{avg}*	P_{avg}* (mW)	**threshold$_{1-g}$**	SAR test
GSM 850	835	10	28.0	631.0	57.7	no
GSM 1900	1880	10	27.0	501.2	68.7	no
UMTS FDD II	1880	10	23.5	223.9	30.7	no
UMTS FDD V	835	10	24.5	281.8	25.8	no
BC0	835	10	24.7	295.1	53.9	no
BC1	1880	10	23.5	223.9	61.4	no
LTE FDD 2	1880	10	24.0	251.2	34.4	no
LTE FDD 4	1750	10	24.0	251.2	33.2	no
LTE FDD 7	2535	10	24.0	251.2	40.0	no
LTE FDD 13	782	10	24.0	251.2	22.2	no
WLAN 2450	2450	10	16.4	43.7	6.8	no
Bluetooth 2450	2450	10	9.2	8.3	1.3	yes

Table 38: Standalone SAR test exclusion considerations in **hotspot mode position**

P_{avg}* - maximum possible output power declared by manufacturer

The **1-g SAR test exclusion thresholds** 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

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

Standalone SAR test exclusion considerations for **Body worn** position						
Communication system	freq. (MHz)	distance (mm)	P_{avg}* (dBm)	P_{avg}* (mW)	**threshold$_{1-g}$ comparison value**	SAR test exclusion
GSM 850	835	15	28.0	631.0	38.4	no
GSM 1900	1880	15	27.0	501.2	45.8	no
UMTS FDD II	1880	15	23.5	223.9	20.5	no
UMTS FDD V	835	15	24.5	281.8	17.2	no
BC0	835	15	24.7	295.1	18.0	no
BC1	1880	15	23.5	223.9	20.5	no
LTE FDD 2	1880	15	24.0	251.2	23.0	no
LTE FDD 4	1750	15	24.0	251.2	22.2	no
LTE FDD 7	2535	15	24.0	251.2	26.7	no
LTE FDD 13	782	15	24.0	251.2	14.8	no
WLAN 2450	2450	15	16.4	43.7	4.6	no
WLAN 5.2 GHz	5200	15	16.2	41.7	6.3	no
WLAN 5.3 GHz	5300	15	12.7	18.6	2.9	yes
WLAN 5.6 GHz	5600	15	12.4	17.4	2.7	yes
WLAN 5.8 GHz	5800	15	14.4	27.5	4.4	no
Bluetooth 2450	2450	15	9.2	8.3	0.9	yes

Table 39: Standalone SAR test exclusion considerations in **body position**
P_{avg}* - maximum possible output power declared by manufacturer

The **1-g SAR test exclusion thresholds** 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
- When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

7.1.19 Hotspot mode SAR measurement positions

Hotspot mode SAR measurement positions						
mode	front	rear	left edge	right edge	top edge	bottom edge
GSM 850	yes	yes	yes	yes	no	yes
GSM 1900	yes	yes	yes	yes	no	yes
WCDMA FDD II	yes	yes	yes	yes	no	yes
WCDMA FDD V	yes	yes	yes	yes	no	yes
LTE FDD 2 1900	yes	yes	yes	yes	no	yes
LTE FDD 5 850	yes	yes	yes	yes	no	yes
LTE FDD 7 2600	yes	yes	yes	yes	no	yes
WLAN 2450	yes	yes	yes	yes	yes	no

The edges with less than 2.5 cm distance to the TX antennas need to be tested for hotspot SAR.

Antenna dimensions and separation distances see in photo documentation

7.2 SAR test results

7.2.1 Results overview

measured / extrapolated SAR numbers - Head - GSM 850 MHz DTM										
Ch.	Freq. (MHz)	time slots	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
				declared**	measured	measured	extrapolated	meas.	extrap.	
128	824.2	2	left cheek	31.0	31.0	**0.604**	**0.604**	**0.466**	**0.466**	22.2
190	836.6	2	left cheek	31.0	31.0	0.424	0.424	0.331	0.331	22.2
251	848.8	2	left cheek	31.0	31.0	0.374	0.374	0.290	0.290	22.2
190	836.6	2	left tilted 15°	31.0	31.0	0.214	0.214	0.167	0.167	22.2
190	836.6	2	right cheek	31.0	31.0	0.405	0.405	0.315	0.315	22.2
190	836.6	2	right tilted 15°	31.0	31.0	0.186	0.186	0.150	0.150	22.2

Table 40: Test results head SAR GSM 850MHz GMSK **2TS** in uplink (see max. SAR plot in Annex B.1: GSM 850 page 122)

Note: The device supports DTM class 11 with max. 3 timeslots in uplink. SAR measurements were performed in the configuration with highest calculated time based averaged output power (see section 7.1.1). Therefore 2 timeslots in uplink were used for test.

measured / extrapolated SAR numbers - hotspot mode - GSM 850 MHz											
Ch.	Freq. (MHz)	time slots	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
190	836.6	2	10	front	31.0	31.0	0.410	0.410	0.320	0.320	22.5
190	836.6	2	10	rear	31.0	31.0	0.415	0.415	0.252	0.252	22.5
190	836.6	2	10	left edge	31.0	31.0	0.306	0.306	0.217	0.217	22.5
128	824.2	2	10	right edge	31.0	31.0	**0.867**	**0.867**	**0.596**	**0.596**	22.5
190	836.6	2	10	right edge	31.0	31.0	0.686	0.686	0.470	0.470	22.5
251	848.8	2	10	right edge	31.0	31.0	0.471	0.471	0.324	0.324	22.5
190	836.6	2	10	bottom edge	31.0	31.0	0.243	0.243	0.158	0.158	22.5
128	824.2	2	10	right edge	31.0	31.0	0.864	0.864	0.593	0.593	22.5

Table 41: Test results hotspot mode SAR GSM 850 MHz (see max. SAR plot in Annex B.1: GSM 850)

Top edge position for hotspot mode is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Body worn - GSM 850 MHz											
Ch.	Freq. (MHz)	time slots	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
128	824.2	2	15	front	31.0	31.0	**0.552**	**0.552**	**0.429**	**0.429**	22.1
190	836.6	2	15	front	31.0	31.0	0.424	0.424	0.327	0.327	22.1
251	848.8	2	15	front	31.0	31.0	0.337	0.337	0.261	0.261	22.1
190	836.6	2	15	rear	31.0	31.0	0.350	0.350	0.269	0.269	22.1

Table 42: Test results body worn SAR GSM 850 MHz (see max. SAR plot in Annex B.1: GSM 850)

* - repeated at the highest SAR measurement according to the FCC KDB 865664
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - GSM 1900 MHz / DTM-MODE										
Ch.	Freq. (MHz)	time slots	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
				declared**	measured	measured	extrapolated	meas.	extrap.	
512	1850.2	3	left cheek	26.5	26.1	0.238	0.261	0.144	0.158	23.2
661	1880.0	3	left cheek	26.5	26.3	**0.254**	**0.266**	**0.156**	**0.163**	23.2
810	1909.8	3	left cheek	26.5	26.5	0.216	0.216	0.129	0.129	23.2
661	1880.0	3	left tilted 15°	26.5	26.3	0.061	0.064	0.039	0.041	23.2
661	1880.0	3	right cheek	26.5	26.3	0.124	0.130	0.081	0.084	23.2
661	1880.0	3	right tilted 15°	26.5	26.3	0.068	0.071	0.041	0.043	23.2

Table 43: Test results head SAR GSM 1900MHz GMSK **3TS** in uplink (see max. SAR plots in Annex B.2: GSM 1900 page 125)

Note: The device supports DTM class 11 with max. 3 timeslots in uplink. SAR measurements were performed in the configuration with highest calculated time based averaged output power (see section 7.1.2). Therefore 3 timeslots in uplink were used for test.

measured / extrapolated SAR numbers - hotspot mode - GSM 1900 MHz												
Ch.	Freq. (MHz)	time slots	dist. (mm)	modul.	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
						declared**	measured	measured	extrapolated	meas.	extrap.	
512	1850.2	4	10	GMSK	front	25.5	25.1	0.795	0.872	0.431	0.473	22.5
661	1880.0	4	10	GMSK	front	25.5	25.3	0.804	0.842	0.429	0.449	22.5
810	1909.8	4	10	GMSK	front	25.5	25.5	0.665	0.665	0.353	0.353	22.5
512	1850	4	10	GMSK	rear	25.5	25.1	0.958	**1.050**	0.520	**0.570**	22.5
661	1880.0	4	10	GMSK	rear	25.5	25.3	**0.986**	1.032	**0.530**	0.555	22.5
810	1910	4	10	GMSK	rear	25.5	25.5	0.880	0.880	0.464	0.464	22.5
661	1880.0	4	10	GMSK	left edge	25.5	25.3	0.210	0.220	0.124	0.130	22.5
661	1880.0	4	10	GMSK	right edge	25.5	25.3	0.064	0.067	0.040	0.042	22.5
661	1880.0	4	10	GMSK	bottom edge	25.5	25.3	0.716	0.750	0.384	0.402	22.5
512	1850	4	10	GMSK	rear	25.5	25.1	0.956	1.048	0.520	0.570	22.5

Table 44: Test results hotspot mode SAR GSM 1900 MHz (see max. SAR plots in Annex B.2: GSM 1900 page 125)
Top edge position for hotspot mode is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Body worn - GSM 1900 MHz												
Ch.	Freq. (MHz)	time slots	dist. (mm)	modul.	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
						declared**	measured	measured	extrapolated	meas.	extrap.	
661	1880.0	4	15	GMSK	front	25.5	25.3	0.347	0.363	0.204	0.214	22.5
512	1850.2	4	15	GMSK	rear	25.5	25.1	0.461	**0.505**	**0.271**	**0.297**	22.5
661	1880.0	4	15	GMSK	rear	25.5	25.3	**0.465**	0.487	0.271	0.284	22.5
810	1909.8	4	15	GMSK	rear	25.5	25.5	0.395	0.395	0.229	0.229	22.5

Table 45: Test results body worn SAR GSM 1900 MHz (see max. SAR plots in Annex B.2: GSM 1900 page 125)
* - repeated at the highest SAR measurement according to the FCC KDB 865664
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - UMTS FDD II 1880 MHz									
Ch.	Freq. (MHz)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid
			declared**	measured	measured	extrapolated	meas.	extrap.	(°C)
9262	1852.4	left cheek	23.5	23.5	**0.417**	**0.417**	**0.255**	**0.255**	22.5
9400	1880.0	left cheek	23.5	23.5	0.394	0.394	0.236	0.236	22.5
9538	1907.6	left cheek	23.5	23.4	0.407	0.416	0.243	0.249	22.5
9400	1880.0	left tilted 15°	23.5	23.5	0.079	0.079	0.047	0.047	22.5
9400	1880.0	right cheek	23.5	23.5	0.218	0.218	0.142	0.142	22.5
9400	1880.0	right tilted 15°	23.5	23.5	0.100	0.100	0.059	0.059	22.5

Table 46: Test results head SAR UMTS FDD II 1880 MHz (see max. SAR plots in Annex B.3: UMTS FDD II page 130)

measured / extrapolated SAR numbers - hotspot mode - UMTS FDD II 1880 MHz with power reduction											
Ch.	Freq. (MHz)	test condition	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	meas.	meas.	extrap.	meas.	extrap.	
9262	1852.4	RMC	10	front	22.0	21.1	0.754	0.928	0.412	0.507	21.7
9400	1880.0	RMC	10	front	22.0	21.2	0.765	0.920	0.414	0.498	21.7
9538	1907.6	RMC	10	front	22.0	21.1	0.744	0.915	0.401	0.493	21.7
9262	1852.4	RMC	10	rear	22.0	21.1	0.833	1.025	0.457	0.562	21.7
9400	1880.0	RMC	10	rear	22.0	21.2	0.874	1.051	0.475	0.571	21.7
9538	1907.6	RMC	10	rear	22.0	21.1	**0.882**	**1.085**	**0.475**	**0.584**	21.7
9400	1880.0	RMC	10	left edge	22.0	21.2	0.150	0.180	0.089	0.107	21.7
9400	1880.0	RMC	10	right edege	22.0	21.2	0.061	0.073	0.038	0.046	21.7
9262	1852.4	RMC	10	bottom edge	22.0	21.1	0.778	0.957	0.419	0.515	21.7
9400	1880.0	RMC	10	bottom edge	22.0	21.2	0.813	0.977	0.433	0.521	21.7
9538	1907.6	RMC	10	bottom edge	22.0	21.1	0.821	1.010	0.433	0.533	21.7
9538	1907.6	RMC	10	rear	22.0	21.1	**0.882**	**1.085**	0.473	0.582	21.7

Table 47: Test results hotspot mode SAR UMTS FDD II 1880 MHz (see max. SAR plots in Annex B.3: UMTS FDD II page 130)

Top edge position for MHS is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

* - repeated at the highest SAR measurement according to the FCC KDB 865664
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Body worn - UMTS FDD II 1880 MHz											
Ch.	Freq. (MHz)	test condition	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
9400	1880.0	RMC	15	front	23.5	23.5	0.444	0.444	0.257	0.257	22.5
9262	1852.4	RMC	15	rear	23.5	23.5	0.653	0.653	**0.377**	0.377	22.5
9400	1880.0	RMC	15	rear	23.5	23.5	0.630	0.630	0.358	0.358	22.5
9538	1907.6	RMC	15	rear	23.5	23.4	**0.655**	**0.670**	0.372	**0.381**	22.5

Table 48: Test results body worn SAR UMTS FDD II 1880 MHz (see max. SAR plots in Annex B.3: UMTS FDD II)

measured / extrapolated SAR numbers - Head - UMTS FDD V 850 MHz									
Ch.	Freq. (MHz)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid
			declared**	measured	measured	extrapolated	meas.	extrap.	(°C)
4132	826.4	right cheek	24.5	24.5	**0.494**	**0.494**	**0.385**	**0.385**	22.1
4182	836.4	right cheek	24.5	24.5	0.493	0.493	0.377	0.377	22.1
4233	846.6	right cheek	24.5	24.4	0.423	0.433	0.329	0.337	22.1
4182	836.4	left tilted 15°	24.5	24.5	0.222	0.222	0.174	0.174	22.1
4182	836.4	right cheek	24.5	24.5	0.427	0.427	0.335	0.335	22.1
4182	836.4	right tilted 15°	24.5	24.5	0.186	0.186	0.145	0.145	22.1

Table 49: Test results head SAR UMTS FDD V 850 MHz (see max. SAR plots in Annex B.4: UMTS FDD V page 133)

measured / extrapolated SAR numbers - hotspot mode - UMTS FDD V 850 MHz											
Ch.	Freq. (MHz)	test condition	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
4182	836.4	RMC	10	front	24.5	24.5	0.435	0.435	0.302	0.302	22.5
4132	826.4	RMC	10	rear	24.5	24.5	**0.507**	**0.507**	**0.319**	**0.319**	22.5
4182	836.4	RMC	10	rear	24.5	24.5	0.475	0.475	0.298	0.298	22.5
4233	846.6	RMC	10	rear	24.5	24.4	0.382	0.391	0.238	0.244	22.5
4182	836.4	RMC	10	left edge	24.5	24.5	0.152	0.152	0.110	0.110	22.5
4182	836.4	RMC	10	right edge	24.5	24.5	0.350	0.350	0.238	0.238	22.5
4182	836.4	RMC	10	bottom edge	24.5	24.5	0.203	0.203	0.129	0.129	22.5

Table 50: Test results hotspot mode SAR UMTS FDD V 850 MHz (see max. SAR plots in Annex B.4: UMTS FDD V)
Top edge position for MHS is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Body worn - UMTS FDD V 850 MHz											
Ch.	Freq. (MHz)	test condition	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
4132	826.4	RMC	15	front	24.5	24.5	0.332	0.332	0.258	0.258	22.5
4182	836.4	RMC	15	front	24.5	24.5	0.357	0.357	0.278	0.278	22.5
4233	846.6	RMC	15	front	24.5	24.4	**0.367**	**0.376**	**0.285**	**0.292**	22.5
4182	836.4	RMC	15	rear	24.5	24.5	0.307	0.307	0.240	0.240	22.5

Table 51: Test results body worn SAR UMTS FDD V 850 MHz (see max. SAR plots in Annex B.4: UMTS FDD V)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - CDMA BC0 850 MHz									
Ch.	Freq. (MHz)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
			declared**	measured	measured	extrapolated	meas.	extrap.	
1013	824.7	left cheek	24.7	24.4	**0.609**	**0.653**	**0.472**	**0.506**	22.8
384	836.6	left cheek	24.7	24.4	0.513	0.550	0.350	0.375	22.8
777	848.31	left cheek	24.7	24.6	0.479	0.490	0.370	0.379	22.8
384	836.6	left tilted 15°	24.7	24.4	0.283	0.303	0.223	0.239	22.8
384	836.6	right cheek	24.7	24.4	0.486	0.521	0.382	0.409	22.8
190	836.6	right tilted 15°	24.7	24.4	0.283	0.303	0.224	0.240	22.8

Table 52: Test results head SAR CDMA BC0 850 MHz (see max. SAR plots in Annex B.5: CDMA BC0 page 136)

measured / extrapolated SAR numbers - hotspot mode - CDMA BC0 850 MHz										
Ch.	Freq. (MHz)	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
				declared**	measured	measured	extrapolated	meas.	extrap.	
384	836.6	10	rear	24.7	24.4	0.486	0.521	0.295	0.316	
1013	824.7	10	front	24.7	**24.4**	**0.577**	**0.618**	**0.454**	**0.486**	23.4
384	836.6	10	front	24.7	24.4	0.505	0.541	0.395	0.423	23.4
777	848.31	10	front	24.7	24.6	0.422	0.432	0.280	0.287	23.4
384	836.6	10	left edge	24.7	24.4	0.233	0.250	0.168	0.180	23.4
384	836.6	10	right edge	24.7	24.4	0.320	0.343	0.220	0.236	23.4
384	836.6	10	bottom edge	24.7	24.4	0.258	0.276	0.163	0.175	23.4

Table 53: Test results hotspot mode SAR CDMA BC0 850 MHz (see max. SAR plots in Annex B.5: CDMA BC0)
Top edge position for MHS is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Body worn - CDMA BC0 850 MHz										
Ch.	Freq. (MHz)	distance (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
				declared**	measured	measured	extrapolated	meas.	extrap.	
384	836.6	15	rear	24.7	24.4	0.467	0.500	0.360	0.386	23.4
1013	824.7	15	front	**24.7**	**24.4**	**0.555**	**0.595**	**0.431**	**0.462**	23.4
384	836.6	15	front	24.7	24.4	0.477	0.511	0.370	0.396	23.4
777	848.31	15	front	24.7	24.6	0.424	0.434	0.328	0.336	23.4

Table 54: Test results body worn SAR CDMA BC0 850 MHz (see max. SAR plots in Annex B.5: CDMA BC0

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - CDMA2000 BC1 1900 MHz									
Ch.	Freq. (MHz)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
			declared**	measured	measured	extrapolated	meas.	extrap.	
25	1851.3	left cheek	23.5	23.4	0.341	0.349	0.216	0.221	23.2
600	1880.0	left cheek	23.5	23.3	**0.386**	**0.404**	**0.230**	**0.241**	23.2
1175	1908.8	left cheek	23.5	23.3	0.359	0.376	0.222	0.232	23.2
600	1880.0	left tilted 15°	23.5	23.3	0.094	0.098	0.060	0.063	23.2
600	1880.0	right cheek	23.5	23.3	0.184	0.193	0.122	0.128	23.2
600	1880.0	right tilted 15°	23.5	23.3	0.180	0.188	0.065	0.068	23.2

Table 55: Test results head SAR CDMA BC1 1900 MHz (see max. SAR plots in Annex B.6: CDMA BC1 page 139)

measured / extrapolated SAR numbers - hotspot mode - CDMA2000 BC1 1900 MHz with power reduction										
Ch.	Freq. (MHz)	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
				declared**	measured	measured	extrapolated	meas.	extrap.	
600	1880.0	10	front	22.0	21.9	0.549	0.562	0.299	0.306	21.7
600	1880.0	10	rear	22.0	21.9	0.638	0.653	0.349	0.357	21.7
600	1880.0	10	left edge	22.0	21.9	0.126	0.129	0.073	0.075	21.7
600	1880.0	10	right edge	22.0	21.9	0.047	0.049	0.030	0.030	21.7
25	1851.3	10	bottom edge	22.0	21.8	0.653	0.684	0.353	0.370	21.7
600	1880.0	10	bottom edge	22.0	21.9	0.670	0.686	0.360	0.368	21.7
1175	1908.8	10	bottom edge	22.0	21.8	**0.714**	**0.748**	**0.378**	**0.396**	21.7

Table 56: Test results hotspot mode SAR CDMA BC1 1900 MHz with power reduction (see max. SAR plots in Annex B.6: CDMA BC1)
Top edge position for MHS is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Body worn - CDMA2000 BC1 1900 MHz										
Ch.	Freq. (MHz)	distance (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
				declared**	measured	measured	extrapolated	meas.	extrap.	
600	1880.0	15	front	23.5	23.2	0.409	0.438	0.240	0.257	23.2
25	1851.3	15	rear	23.5	23.2	0.529	0.567	0.308	0.330	23.2
600	1880.0	15	rear	23.5	23.2	0.580	0.621	0.337	0.361	23.2
1175	1908.8	15	rear	23.5	23.2	**0.594**	**0.636**	**0.343**	**0.368**	23.2

Table 57: Test results body worn SAR CDMA BC1 1900 MHz (see max. SAR plots in Annex B.6: CDMA BC1)

measured / extrapolated SAR numbers - Head - LTE FDD 2 1900 MHz										
Ch.	Freq. (MHz)	RB Offset	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
				declared**	measured	measured	extrapolated	meas.	extrap.	
20MHz BW/1RB/QPSK										
18700	1860	50	left cheek	24.0	23.3	**0.319**	0.375	**0.200**	0.235	23.2
18900	1880	0	left cheek	24.0	23.1	0.318	**0.391**	0.195	**0.240**	23.2
19100	1900	0	left cheek	24.0	23.1	0.318	0.391	0.193	0.237	23.2
18700	1860	50	left tilted 15°	24.0	23.3	0.116	0.136	0.073	0.086	23.2
18700	1860	50	right cheek	24.0	23.3	0.185	0.217	0.122	0.143	23.2
18700	1860	50	right tilted 15°	24.0	23.3	0.105	0.123	0.065	0.077	23.2
20MHz BW/50RB/QPSK										
18700	1860	0	left cheek	23.0	22.3	0.319	0.375	0.199	0.234	23.2
18700	1860	0	left tilted 15°	23.0	22.3	0.089	0.105	0.057	0.067	23.2
18700	1860	0	right cheek	23.0	22.3	0.140	0.164	0.092	0.108	23.2
18700	1860	0	right tilted 15°	23.0	22.3	0.079	0.093	0.050	0.059	23.2

Table 58: Test results head SAR LTE FDD 2 1900 MHz (see max. SAR plots in Annex B.7: LTE FDD 2 page 142)

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 2 1900 MHz											
Ch.	Freq. (MHz)	RB offset	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	meas.	meas.	extrap.	meas.	extrap.	
20MHz BW/1RB/QPSK											
18700	1860	50	10	front	22.0	21.6	0.503	0.552	0.279	0.306	21.7
18700	1860	50	10	rear	22.0	21.6	**0.706**	0.774	**0.380**	0.417	21.7
18900	1880	0	10	rear	22.0	21.4	0.664	0.762	0.361	0.414	21.7
19100	1900	99	10	rear	22.0	21.4	0.685	**0.786**	0.370	**0.425**	21.7
18700	1860	50	10	left edge	22.0	21.6	0.093	0.102	0.056	0.061	21.7
18700	1860	50	10	right edge	22.0	21.6	0.052	0.057	0.032	0.036	21.7
18700	1860	50	10	bottom edge	22.0	21.6	0.629	0.690	0.336	0.368	21.7
20MHz BW/50RB/QPSK											
18700	1860	0	10	front	22.0	21.5	0.494	0.554	0.273	0.306	21.7
18700	1860	0	10	rear	22.0	21.5	0.648	0.727	0.352	0.395	21.7
18700	1860	0	10	left edge	22.0	21.5	0.092	0.103	0.055	0.062	21.7
18700	1860	0	10	right edge	22.0	21.5	0.054	0.061	0.034	0.038	21.7
18700	1860	0	10	bottom edge	22.0	21.5	0.632	0.709	0.338	0.379	21.7

Table 59: Test results hotspot mode SAR LTE FDD 2 1900 MHz with power reduction(see max. SAR plots in Annex B.7: LTE FDD 2)
Top edge position for hotspot mode is not required since the distance from the main antenna to the edge is greater than 2.5 cm.
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Body worn - LTE FDD 2 1900 MHz											
Ch.	Freq. (MHz)	RB offset	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
20MHz BW/1RB/QPSK											
18700	1860	50	15	front	24.0	23.3	0.407	0.478	0.239	0.281	22.3
18700	1860	50	15	rear	24.0	23.3	0.507	0.596	0.295	0.347	22.3
18900	1880	0	15	rear	24.0	23.1	**0.509**	**0.626**	**0.295**	**0.363**	22.3
19100	1900	0	15	rear	24.0	23.1	0.509	0.626	0.295	0.363	22.3
20MHz BW/50RB/QPSK											
18700	1860	0	15	front	23.0	22.3	0.319	0.375	0.188	0.221	22.3
18700	1860	0	15	rear	23.0	22.3	0.379	0.445	0.221	0.260	22.3

Table 60: Test results body worn SAR LTE FDD 2 1900 MHz (see max. SAR plots in Annex B.7: LTE FDD 2)

measured / extrapolated SAR numbers - Head - LTE FDD 4 1750 MHz										
Ch.	Freq. (MHz)	RB Offset	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
				declared**	meas.	measured	extrapolated	meas.	extrap.	
20MHz BW/1RB/QPSK										
20050	1720	99	left cheek	24.0	23.5	**0.355**	0.398	0.218	0.245	21.9
20175	1732.5	99	left cheek	24.0	23.4	0.342	0.393	0.212	0.243	21.9
20300	1745	49	left cheek	24.0	23.4	**0.355**	**0.408**	**0.219**	**0.251**	21.9
20050	1720	99	left tilted 15°	24.0	23.5	0.104	0.117	0.070	0.079	21.9
20050	1720	99	right cheek	24.0	23.5	0.196	0.220	0.130	0.146	21.9
20050	1720	99	right tilted 15°	24.0	23.5	0.082	0.092	0.056	0.063	21.9
20MHz BW/50RB/QPSK										
20175	1732.5	0	left cheek	23.0	22.6	0.262	0.287	0.161	0.177	21.9
20175	1732.5	0	left tilted 15°	23.0	22.6	0.085	0.093	0.057	0.063	21.9
20175	1732.5	0	right cheek	23.0	22.6	0.155	0.170	0.103	0.113	21.9
20175	1732.5	0	right tilted 15°	23.0	22.6	0.066	0.073	0.045	0.050	21.9

Table 61: Test results head SAR LTE FDD 4 1750 MHz (see max. SAR plots in Annex B.8: LTE FDD 4 page 147)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 4 1750 MHz											
Ch.	Freq. (MHz)	RB offset	distance (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	meas.	meas.	extrap.	meas.	extrap.	
20MHz BW/1RB/QPSK											
20050	1720	99	10	front	24.0	23.5	0.766	0.859	0.451	0.506	21.8
20175	1732.5	99	10	front	24.0	23.4	0.782	0.898	0.456	0.524	21.8
20300	1745	50	10	front	24.0	23.4	0.781	0.897	0.454	0.521	21.8
20050	1720	99	10	rear	24.0	23.5	0.818	0.918	0.481	0.540	21.8
20175	1732.5	99	10	rear	24.0	23.4	0.842	0.967	0.488	0.560	21.8
20300	1745	50	10	rear	24.0	23.4	0.876	1.006	0.505	0.580	21.8
20050	1720	99	10	left edge	24.0	23.5	0.115	0.129	0.071	0.079	21.8
20050	1720	99	10	right edge	24.0	23.5	0.076	0.085	0.049	0.055	21.8
20050	1720	99	10	bottom edge	24.0	23.5	0.642	0.720	0.355	0.398	21.8
20300	1745	50	10	rear	24.0	23.4	**1.040**	**1.194**	**0.580**	**0.666**	21.8
20MHz BW/50RB/QPSK											
20175	1732.5	0	10	front	23.0	22.6	0.606	0.664	0.355	0.389	21.8
20175	1732.5	0	10	rear	23.0	22.6	0.653	0.716	0.383	0.420	21.8
20175	1732.5	0	10	left edge	23.0	22.6	0.091	0.100	0.056	0.061	21.8
20175	1732.5	0	10	right edge	23.0	22.6	0.059	0.064	0.038	0.041	21.8
20175	1732.5	0	10	bottom edge	23.0	22.6	0.504	0.553	0.278	0.305	21.8
20MHz BW/100RB/QPSK											
20175	1732.5	0	10	front	23.0	22.6	0.618	0.678	0.361	0.396	21.8
20175	1732.5	0	10	rear	23.0	22.6	0.670	0.735	0.392	0.430	21.8
20175	1732.5	0	10	left edge	23.0	22.6	0.094	0.104	0.058	0.063	21.8
20175	1732.5	0	10	right edge	23.0	22.6	0.063	0.069	0.040	0.044	21.8
20175	1732.5	0	10	bottom edge	23.0	22.6	0.508	0.557	0.280	0.307	21.8

Table 62: Test results hotspot mode SAR LTE FDD 4 1750 MHz (see max. SAR plots in Annex B.8: LTE FDD 4)

Top edge position for hotspot mode is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Body worn - LTE FDD 4 1750 MHz											
Ch.	Freq. (MHz)	RB offset	distance (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	meas.	meas.	extrap.	meas.	extrap.	
20MHz BW/1RB/QPSK											
20050	1720	99	15	front	24.0	23.5	**0.445**	**0.499**	**0.277**	**0.311**	21.8
20175	1732.5	99	15	front	24.0	23.4	0.388	0.445	0.243	0.279	21.8
20300	1745	49	15	front	24.0	23.4	0.395	0.454	0.245	0.281	21.8
20050	1720	99	15	rear	24.0	23.5	0.435	0.488	0.273	0.306	21.8
20MHz BW/50RB/QPSK											
20175	1732.5	0	15	front	23.0	22.6	0.350	0.384	0.217	0.238	21.8
20175	1732.5	0	15	rear	23.0	22.6	0.348	0.382	0.218	0.239	21.8

Table 63: Test results body worn SAR LTE 4 1750 MHz (see max. SAR plots in Annex B.8: LTE FDD 4)
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - LTE FDD 7 2600 MHz										
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid
				declared**	measured	measured	extrapolated	meas.	extrap.	(°C)
20MHz BW/1RB/QPSK										
20850	2510	50	left cheek	19.0	17.1	**0.177**	**0.274**	**0.087**	**0.135**	22.2
21100	2535	50	left cheek	19.0	17.1	0.090	0.139	0.021	0.033	22.2
21350	2560	0	left cheek	19.0	17.3	0.118	0.175	0.061	0.091	22.2
21350	2560	0	left tilted 15°	19.0	17.3	0.013	0.019	0.006	0.010	22.2
21350	2560	0	right cheek	19.0	17.3	0.106	0.157	0.048	0.070	22.2
21350	2560	0	right tilted 15°	19.0	17.3	0.023	0.034	0.009	0.013	22.2
20MHz BW/50RB/QPSK										
21350	2560	0	left cheek	19.0	17.3	0.116	0.172	0.055	0.082	22.2
21350	2560	0	left tilted 15°	19.0	17.3	0.013	0.019	0.006	0.009	22.2
21350	2560	0	right cheek	19.0	17.3	0.108	0.160	0.048	0.072	22.2
21350	2560	0	right tilted 15°	19.0	17.3	0.033	0.049	0.016	0.023	22.2

Table 64: Test results head SAR LTE FDD 7 2600 MHz (see max. SAR plots in Annex B.9: LTE FDD 7 page 150)

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 7 2600 MHz											
Ch.	Freq. (MHz)	RB offset	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	meas.	meas.	extrap.	meas.	extrap.	
20MHz BW/1RB/QPSK											
21350	2560	0	10	front	19.0	17.3	0.319	0.472	0.150	0.222	22.4
20850	2510	50	10	rear	19.0	17.1	0.485	0.751	0.223	0.345	22.5
21100	2535	50	10	rear	19.0	17.1	0.444	0.688	0.206	0.319	22.5
21350	2560	0	10	rear	19.0	17.3	0.571	0.845	0.256	0.379	22.5
21350	2560	0	10	left edge	19.0	17.3	0.220	0.325	0.103	0.152	22.5
21350	2560	0	10	right edge	19.0	17.3	0.075	0.111	0.008	0.011	22.5
20850	2510	50	10	bottom edge	19.0	17.1	0.588	0.911	0.262	0.406	22.1
21100	2535	50	10	bottom edge	19.0	17.1	0.678	**1.050**	0.305	**0.472**	22.1
21350	2560	0	10	bottom edge	19.0	17.3	0.637	0.942	0.293	0.433	22.5
20MHz BW/50RB/QPSK											
21350	2560	0	10	front	19.0	17.3	0.322	0.476	0.151	0.223	22.4
20850	2510	0	10	rear	19.0	17.1	0.555	0.860	0.250	0.387	22.1
21100	2535	50	10	rear	19.0	17.3	0.511	0.756	0.230	0.340	22.1
21350	2560	0	10	rear	19.0	17.3	0.555	0.821	0.249	0.368	22.5
21350	2560	0	10	left edge	19.0	17.3	0.210	0.311	0.099	0.146	22.5
21350	2560	0	10	right edge	19.0	17.3	0.014	0.021	0.006	0.009	22.5
20850	2510	0	10	bottom edge	19.0	17.1	0.480	0.743	0.228	0.353	22.5
21100	2535	50	10	bottom edge	19.0	17.3	0.473	0.700	0.219	0.324	22.5
21350	2560	0	10	bottom edge	19.0	17.3	0.640	0.947	0.294	0.435	22.5
20MHz BW/100RB/QPSK											
21350	2560	0	10	front	19.0	17.3	0.338	0.500	0.156	0.231	22.1
21350	2560	0	10	rear	19.0	17.3	0.438	0.648	0.201	0.297	22.1
21350	2560	0	10	left edge	19.0	17.3	0.244	0.361	0.114	0.169	22.1
21350	2560	0	10	right edge	19.0	17.3	0.012	0.017	0.007	0.010	22.1
20850	2510	0	10	bottom edge	19.0	17.0	0.621	0.984	0.282	0.447	22.1
21100	2535	0	10	bottom edge	19.0	17.2	0.620	0.938	0.281	0.425	22.1
21350	2560	0	10	bottom edge	19.0	17.3	**0.693**	1.025	**0.312**	0.461	22.1

Table 65: Test results hotspot mode SAR LTE FDD 7 2600 MHz (see max. SAR plots in Annex B.9: LTE FDD 7)

Top edge position for hotspot mode is not required since the distance from the main antenna to the edge is greater than 2.5 cm.
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Body worn - LTE FDD 7 2600 MHz											
Ch.	Freq. (MHz)	RB offset	distance (mm)	Position	cond. P_{max} (dBm)		SAR1g results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	meas.	meas.	extrap.	meas.	extrap.	
20MHz BW/1RB/QPSK											
21350	2560	0	15	front	19.0	17.3	0.002	0.003	0.001	0.001	22.4
21350	2560	0	15	rear	19.0	17.3	0.266	0.393	**0.130**	**0.192**	22.5
20MHz BW/50RB/QPSK											
21350	2560	0	15	front	19.0	17.3	0.123	0.182	0.061	0.091	22.5
20850	2510	0	15	rear	19.0	17.1	0.199	0.308	0.085	0.131	22.5
21100	2535	50	15	rear	19.0	17.3	0.176	0.260	0.086	0.128	22.5
21350	2560	0	15	rear	19.0	17.3	**0.283**	**0.419**	0.112	0.166	22.5

Table 66: Test results body worn SAR LTE FDD 7 2600 MHz (see max. SAR plots in Annex B.9: LTE FDD 7)

measured / extrapolated SAR numbers - Head - LTE FDD 13 700 MHz										
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid
				declared**	measured	measured	extrapolated	meas.	extrap.	(°C)
10MHz BW/1RB/QPSK										
23230	782.0	49	left cheek	24.0	23.7	**0.373**	**0.400**	**0.281**	**0.301**	22.9
23230	782.0	49	left tilted 15°	24.0	23.7	0.169	0.181	0.123	0.132	22.9
23230	782.0	49	right cheek	24.0	23.7	0.311	0.333	0.238	0.255	22.9
23230	782.0	49	right tilted 15°	24.0	23.7	0.170	0.182	0.121	0.130	22.9
10MHz BW/25RB/QPSK										
23230	782.0	25	left cheek	23.0	22.7	0.297	0.318	0.221	0.237	22.9
23230	782.0	25	left tilted 15°	23.0	22.7	0.141	0.151	0.105	0.113	22.9
23230	782.0	25	right cheek	23.0	22.7	0.246	0.264	0.188	0.201	22.9
23230	782.0	25	right tilted 15°	23.0	22.7	0.137	0.147	0.099	0.106	22.9

Table 67: Test results head SAR LTE FDD 13 700 MHz (see max. SAR plots in Annex B.10: LTE FDD 13 page 154)
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 13 700 MHz											
Ch.	Freq. (MHz)	RB offset	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	meas.	meas.	extrap.	meas.	extrap.	
10MHz BW/1RB/QPSK											
23230	782.0	49	10	front	24.0	23.7	0.393	0.421	0.301	0.323	22.6
23230	782.0	49	10	rear	24.0	23.7	0.342	0.366	0.237	0.254	22.6
23230	782.0	49	10	left edge	24.0	23.7	0.471	0.505	0.332	0.356	22.6
23230	782.0	49	10	right edge	24.0	23.7	**0.489**	**0.524**	**0.334**	**0.358**	22.6
23230	782.0	49	10	bottom edge	24.0	23.7	0.224	0.240	0.143	0.153	22.6
10MHz BW/25RB/QPSK											
23230	782.0	25	10	front	23.0	22.7	0.324	0.347	0.249	0.267	22.6
23230	782.0	25	10	rear	23.0	22.7	0.277	0.297	0.212	0.227	22.6
23230	782.0	25	10	left edge	23.0	22.7	0.411	0.440	0.290	0.311	22.6
23230	782.0	25	10	right edge	23.0	22.7	0.424	0.454	0.289	0.310	22.6
23230	782.0	25	10	bottom edge	23.0	22.7	0.174	0.186	0.111	0.119	22.6

Table 68: Test results hotspot mode SAR LTE FDD 13 700 MHz (see max. SAR plots in Annex B.10: LTE FDD 13)

Top edge position for hotspot mode is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Body worn - LTE FDD 13 700 MHz											
Ch.	Freq. (MHz)	RB offset	distance (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	meas.	meas.	extrap.	meas.	extrap.	
10MHz BW/1RB/QPSK											
23230	782.0	49	15	front	24.0	23.7	**0.355**	**0.380**	**0.270**	**0.289**	23.2
23230	782.0	49	15	rear	24.0	23.7	0.305	0.327	0.232	0.249	23.2
10MHz BW/25RB/QPSK											
23230	782.0	25	15	front	23.0	22.7	0.293	0.314	0.223	0.239	23.2
23230	782.0	25	15	rear	23.0	22.7	0.252	0.270	0.192	0.206	23.2

Table 69: Test results body worn SAR LTE FDD 13 700 MHz (see max. SAR plots in Annex B.10: LTE FDD 13)
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - WLAN 2450 MHz									
Ch.	Freq. (MHz)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid
			declared**	measured	measured	extrapolated	meas.	extrap.	(°C)
1	2412	left cheek	14.9	14.0	0.156	0.192	0.082	0.101	23.1
6	2437	left cheek	16.4	15.5	**0.228**	**0.281**	**0.119**	**0.146**	23.1
11	2462	left cheek	14.9	14.0	0.159	0.196	0.082	0.101	23.1
6	2437	left tilted 15°	16.4	15.5	0.090	0.111	0.045	0.055	23.1
6	2437	right cheek	16.4	15.5	0.176	0.217	0.093	0.114	23.1
6	2437	right tilted 15°	16.4	15.5	0.039	0.048	0.020	0.025	23.1

Table 70: Test results head SAR WLAN 2450 MHz (see max. SAR plots in Annex B.11: WLAN 2450MHz page 157)

measured / extrapolated SAR numbers - hotspot mode - WLAN 2450 MHz											
Ch.	Freq. (MHz)	Test condition	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
6	2437	1Mbit/s	10	front	16.4	15.5	0.060	0.074	0.031	0.039	23.1
1	2412	1Mbit/s	10	rear	14.9	14.0	0.158	0.194	0.075	0.092	23.1
6	2437	1Mbit/s	10	rear	16.4	15.5	**0.231**	**0.284**	**0.106**	**0.130**	23.1
11	2462	1Mbit/s	10	rear	14.9	14.0	0.134	0.165	0.062	0.076	23.1
6	2437	1Mbit/s	10	left edge	16.4	15.5	0.004	0.005	0.002	0.002	23.1
6	2437	1Mbit/s	10	right edge	16.4	15.5	0.075	0.092	0.040	0.049	23.1
6	2437	1Mbit/s	10	top	16.4	15.5	0.034	0.042	0.015	0.019	23.1
6	2437	1Mbit/s	0	rear	16.4	15.5	**2.010**	**2.473**	**0.706**	**0.869**	23.1

Table 71: Test results hotspot mode SAR WLAN 2450 MHz (see max. SAR plots in Annex B.11: WLAN 2450MHz)
Bottom side edge positions for hotspot mode are not required since the distance from the WLAN antenna to the edge is greater than 2.5cm.

measured / extrapolated SAR numbers - Body worn - WLAN 2450 MHz											
Ch.	Freq. (MHz)	Test condition	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
6	2437	1Mbit/s	15	front	16.4	15.5	0.041	0.050	0.022	0.027	23.1
1	2412	1Mbit/s	15	rear	14.9	14.0	0.057	0.070	0.030	0.037	23.1
6	2437	1Mbit/s	15	rear	16.4	15.5	**0.080**	**0.098**	**0.041**	**0.051**	23.1
11	2462	1Mbit/s	15	rear	14.9	14.0	0.055	0.067	0.028	0.034	23.1

Table 72: Test results body worn SAR WLAN 2450 MHz (see max. SAR plots in Annex B.11: WLAN 2450MHz)
** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - WLAN 5 GHz									
Ch.	Freq. (MHz)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
			declared**	measured	measured	extrapolated	meas.	extrap.	
48	5240	left cheek	16.2	15.5	0.069	0.081	0.027	0.032	22.3
52	5260	left cheek	12.7	11.8	0.027	0.033	0.010	0.012	22.3
140	5700	left cheek	12.4	11.9	**0.115**	0.129	**0.033**	0.036	22.3
161	5805	left cheek	14.4	13.8	0.114	**0.131**	0.032	**0.037**	22.3
48	5240	left tilted 15°	16.2	15.5	0.011	0.012	0.004	0.004	22.3
52	5260	left tilted 15°	12.7	11.8	0.006	0.007	0.001	0.001	22.3
140	5700	left tilted 15°	12.4	11.9	0.013	0.015	0.004	0.005	22.3
161	5805	left tilted 15°	14.4	13.8	0.016	0.018	0.004	0.005	22.3
48	5240	right cheek	16.2	15.5	0.066	0.077	0.022	0.025	22.3
52	5260	right cheek	12.7	11.8	0.026	0.032	0.010	0.012	22.3
140	5700	right cheek	12.4	11.9	0.027	0.030	0.009	0.010	22.3
161	5805	right cheek	14.4	13.8	0.022	0.025	0.007	0.009	22.3
48	5240	right tilted 15°	16.2	15.5	0.007	0.008	0.003	0.003	22.3
52	5260	right tilted 15°	12.7	11.8	0.005	0.006	0.001	0.002	22.3
140	5700	right tilted 15°	12.4	11.9	0.010	0.011	0.004	0.004	22.3
161	5805	right tilted 15°	14.4	13.8	0.009	0.010	0.003	0.003	22.3

Table 73: Test results head SAR WLAN 5 GHz (see max. SAR plots Annex B.12: WLAN 5GHz page 160)

measured / extrapolated SAR numbers - Body worn - WLAN 5 GHz											
Ch.	Freq. (MHz)	Test condition	dist. (mm)	Position	cond. P_{max} (dBm)		SAR_{1g} results(W/kg)		SAR_{10g} (W/kg)		liquid (°C)
					declared**	measured	measured	extrapolated	meas.	extrap.	
48	5240	6Mbit/s	15	front	16.2	15.5	0.002	0.002	0.000	0.000	22.1
161	5805	6Mbit/s	15	front	14.4	13.8	0.006	0.007	0.001	0.001	22.1
48	5240	6Mbit/s	15	rear	16.2	15.5	**0.279**	**0.328**	**0.096**	**0.113**	22.1
161	5805	6Mbit/s	15	rear	14.4	13.8	0.208	0.239	0.070	0.080	22.1

Table 74: Test results body worn SAR WLAN 5 GHz (see max. SAR plots Annex B.12: WLAN 5GHz)
** - maximum possible output power declared by manufacturer

Estimated stand alone SAR.					
Communication system	freq. (GHz)	distance (mm)	P_{avg} (dBm)	P_{avg} (mW)	estimated$_{1-g}$ (W/kg)
Bluetooth 2450 head	2.45	5	9.4	8.7	0.364
Bluetooth 2450 hotspot	2.45	10	9.4	8.7	0.182
Bluetooth 2450 body worn	2.45	15	9.4	8.7	0.121

Table 75: Estimated stand alone SAR_{max} for **Bluetooth 2450MHz** hotspot mode and body worn

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:
(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.
When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

7.2.2 General description of test procedures

- The DUT is tested using CMU 200 and CMW 500 communications testers as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted peak power.
- Test positions as described in the tables above are in accordance with the specified test standard.
- Tests in body position were performed in that configuration, which generates the highest time based averaged output power (see conducted power results).
- Tests in head position with GSM were performed in voice mode with 1 timeslot unless GPRS/EGPRS/DTM function allows parallel voice and data traffic on 2 or more timeslots (see section 2.4 for details).
- UMTS was tested in RMC mode with 12.2 kbit/s and TPC bits set to 'all 1'.
- WLAN was tested in 802.11a/b mode with 1 MBit/s and 6 MBit/s. According to KDB 248227 the SAR testing for 802.11g/n is not required since the maximum power of 802.11g/n is less ¼ dB higher than maximum power of 802.11a/b.
- For 802.11ac slide 78 of 79 in the October 2012 TCB workshop slides and slide 44 of 49 in the April 2013 TCB workshop slides were referred to (RF exposure slides for both)
- Required WLAN test channels were selected according to KDB 248227
- 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 that positions the handset a minimum of 15 mm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.
- According to FCC KDB pub 941225 D06 this device has been tested with 10 mm distance to the phantom for operation in WLAN hot spot mode.
- Per FCC KDB pub 941225 D06 the edges with antennas within 2.5 cm are required to be evaluated for SAR to cover WLAN hot spot function.
- During the hotspot SAR measurements at **UMTS FDD II**, **CDMA BC1** and **LTE FDD 2** the output power was reduced (see conducted output power results)
- According to IEEE 1528 the SAR test shall be performed at middle channel. Testing of top and bottom channel is optional.
- According to KDB 447498 D01 testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
  - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
  - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
- IEEE 1528-2003 require the middle channel to be tested first. This generally applies to wireless devices that are designed to operate in technologies with tight tolerances for maximum output power variations across channels in the band. 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.
- **10-g extremity SAR** is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg according to FCC KDB 648474 D04 Handset SAR:

7.2.3 Multiple Transmitter Information

The following tables list information which is relevant for the decision if a simultaneous transmit evaluation is necessary according to FCC KDB 447498D01 General RF Exposure Guidance v05.

reported SAR WWAN and WLAN 2.4GHz, ΣSAR evaluation, SPLSRi						
Frequency band	Position	SARmax /W/kg		ΣSAR	distance	ratio
		WWAN	WLAN	<1.6W/kg	Ri, mm	≤ 0.040
GSM 850	left cheek	0.604	0.281	0.885		
	left tilted 15°	0.214	0.111	0.325		
	right cheek	0.405	0.217	0.622		
	right tilted 15°	0.186	0.048	0.234		
	front 10mm	0.410	0.074	0.484		
	rear 10mm	0.415	0.284	0.699		
	front 15mm	0.552	0.050	0.602		
	rear 15mm	0.350	0.098	0.448		
GSM 1900	left cheek	0.266	0.281	0.547		
	left tilted 15°	0.064	0.111	0.175		
	right cheek	0.130	0.217	0.347		
	right tilted 15°	0.071	0.048	0.119		
	front 10mm	0.872	0.074	0.946		
	rear 10mm	1.050	0.284	1.334		
	front 15mm	0.363	0.050	0.413		
	rear 15mm	0.505	0.098	0.603		
CDMA BC0	left cheek	0.653	0.281	0.934		
	left tilted 15°	0.303	0.111	0.414		
	right cheek	0.521	0.217	0.738		
	right tilted 15°	0.303	0.048	0.351		
	front 10mm	0.618	0.074	0.692		
	rear 10mm	0.521	0.284	0.805		
	front 15mm	0.595	0.050	0.645		
	rear 15mm	0.500	0.098	0.598		
CDMA BC1	left cheek	0.404	0.281	0.685		
	left tilted 15°	0.098	0.111	0.209		
	right cheek	0.193	0.217	0.410		
	right tilted 15°	0.188	0.048	0.236		
	front 10mm	0.562	0.074	0.636		
	rear 10mm	0.653	0.284	0.937		
	front 15mm	0.438	0.050	0.488		
	rear 15mm	0.636	0.098	0.734		

reported SAR WWAN and WLAN 2.4GHz, ΣSAR evaluation, SPLSRi						
Frequency band	Position	SARmax /W/kg		ΣSAR	distance	ratio
		WWAN	WLAN	<1.6W/kg	Ri, mm	≤ 0.040
UMTS FDD II	left cheek	0.417	0.281	0.698		
	left tilted 15°	0.079	0.111	0.190		
	right cheek	0.218	0.217	0.435		
	right tilted 15°	0.100	0.048	0.148		
	front 10mm	0.928	0.074	1.002		
	rear 10mm	1.085	0.284	1.369		
	front 15mm	0.444	0.050	0.494		
	rear 15mm	0.670	0.098	0.768		
UMTS FDD V	left cheek	0.494	0.281	0.775		
	left tilted 15°	0.222	0.111	0.333		
	right cheek	0.427	0.217	0.644		
	right tilted 15°	0.186	0.048	0.234		
	front 10mm	0.435	0.074	0.509		
	rear 10mm	0.507	0.284	0.791		
	front 15mm	0.376	0.050	0.426		
	rear 15mm	0.307	0.098	0.405		
LTE FDD 2	left cheek	0.391	0.281	0.672		
	left tilted 15°	0.136	0.111	0.247		
	right cheek	0.217	0.217	0.434		
	right tilted 15°	0.123	0.048	0.171		
	front 10mm	0.552	0.074	0.626		
	rear 10mm	0.786	0.284	1.070		
	front 15mm	0.478	0.050	0.528		
	rear 15mm	0.626	0.098	0.724		
LTE FDD 4	left cheek	0.408	0.281	0.689		
	left tilted 15°	0.117	0.111	0.228		
	right cheek	0.220	0.217	0.437		
	right tilted 15°	0.092	0.048	0.140		
	front 10mm	0.898	0.074	0.972		
	rear 10mm	1.194	0.284	1.478		
	front 15mm	0.499	0.050	0.549		
	rear 15mm	0.488	0.098	0.586		
LTE FDD 7	left cheek	0.274	0.281	0.555		
	left tilted 15°	0.019	0.111	0.130		
	right cheek	0.157	0.217	0.374		
	right tilted 15°	0.034	0.048	0.082		
	front 10mm	0.476	0.074	0.550		
	rear 10mm	0.845	0.284	1.129		
	front 15mm	0.182	0.050	0.232		
	rear 15mm	0.419	0.098	0.517		
LTE FDD 13	left cheek	0.400	0.281	0.681		
	left tilted 15°	0.181	0.111	0.292		
	right cheek	0.333	0.217	0.550		
	right tilted 15°	0.182	0.048	0.230		
	front 10mm	0.421	0.074	0.495		
	rear 10mm	0.366	0.284	0.650		
	front 15mm	0.380	0.050	0.430		
	rear 15mm	0.327	0.098	0.425		

Table 76: SAR_{max} WWAN and **WLAN 2.4GHz**, ΣSAR evaluation, **$SPLSR_i$**

reported SAR **WWAN** and **WLAN 5GHz**, **ΣSAR** evaluation, **SPLSRi**						
Frequency band	Position	SARmax /W/kg		**ΣSAR**	distance	**ratio**
		WWAN	WLAN	<1.6W/kg	**Ri**, mm	≤ 0.040
GSM 850	left cheek	0.604	0.131	0.735		
	left tilted 15°	0.214	0.018	0.232		
	right cheek	0.405	0.077	0.482		
	right tilted 15°	0.186	0.011	0.197		
	front 15mm	0.552	0.007	0.559		
	rear 15mm	0.350	0.328	0.678		
GSM 1900	left cheek	0.266	0.131	0.397		
	left tilted 15°	0.064	0.018	0.082		
	right cheek	0.130	0.077	0.207		
	right tilted 15°	0.071	0.011	0.082		
	front 15mm	0.363	0.007	0.370		
	rear 15mm	0.505	0.328	0.833		
CDMA BC0	left cheek	0.653	0.131	0.784		
	left tilted 15°	0.303	0.018	0.321		
	right cheek	0.521	0.077	0.598		
	right tilted 15°	0.303	0.011	0.314		
	front 15mm	0.595	0.007	0.602		
	rear 15mm	0.500	0.328	0.828		
CDMA BC1	left cheek	0.404	0.131	0.535		
	left tilted 15°	0.098	0.018	0.116		
	right cheek	0.193	0.077	0.270		
	right tilted 15°	0.188	0.011	0.199		
	front 15mm	0.438	0.007	0.445		
	rear 15mm	0.636	0.328	0.964		

reported SAR **WWAN** and **WLAN 5GHz**, **ΣSAR** evaluation, **SPLSRi**						
Frequency band	Position	SARmax /W/kg		**ΣSAR**	distance	**ratio**
		WWAN	WLAN	<1.6W/kg	**Ri**, mm	≤ 0.040
UMTS FDD II	left cheek	0.417	0.131	0.548		
	left tilted 15°	0.079	0.018	0.097		
	right cheek	0.218	0.077	0.295		
	right tilted 15°	0.100	0.011	0.111		
	front 15mm	0.444	0.007	0.451		
	rear 15mm	0.670	0.328	0.998		
WCDMA FDD V	left cheek	0.494	0.131	0.625		
	left tilted 15°	0.222	0.018	0.240		
	right cheek	0.427	0.077	0.504		
	right tilted 15°	0.186	0.011	0.197		
	front 15mm	0.376	0.007	0.383		
	rear 15mm	0.307	0.328	0.635		
LTE FDD 2	left cheek	0.391	0.131	0.522		
	left tilted 15°	0.136	0.018	0.154		
	right cheek	0.217	0.077	0.294		
	right tilted 15°	0.123	0.011	0.134		
	front 15mm	0.478	0.007	0.485		
	rear 15mm	0.626	0.328	0.954		
LTE FDD 4	left cheek	0.408	0.131	0.539		
	left tilted 15°	0.117	0.018	0.135		
	right cheek	0.220	0.077	0.297		
	right tilted 15°	0.092	0.011	0.103		
	front 15mm	0.499	0.007	0.506		
	rear 15mm	0.488	0.328	0.816		
LTE FDD 7	left cheek	0.274	0.131	0.405		
	left tilted 15°	0.019	0.018	0.037		
	right cheek	0.157	0.077	0.234		
	right tilted 15°	0.034	0.011	0.045		
	front 15mm	0.182	0.007	0.189		
	rear 15mm	0.419	0.328	0.747		
LTE FDD 13	left cheek	0.400	0.131	0.531		
	left tilted 15°	0.181	0.018	0.199		
	right cheek	0.333	0.077	0.410		
	right tilted 15°	0.182	0.011	0.193		
	front 15mm	0.380	0.007	0.387		
	rear 15mm	0.327	0.328	0.655		

Table 77: SAR_{max} WWAN and **WLAN 5GHz**, ΣSAR evaluation, **$SPLSR_i$**

reported SAR **WWAN** and **Bluetooth 2.4GHz**, **ΣSAR** evaluation, **SPLSRi**						
Frequency band	Position	SARmax /W/kg		**ΣSAR**	distance	**ratio**
		WWAN	Bluetooth	<1.6W/kg	**Ri**, mm	≤ 0.040
GSM 850	left cheek	0.604	0.347	0.951		
	left tilted 15°	0.214	0.347	0.561		
	right cheek	0.405	0.347	0.752		
	right tilted 15°	0.186	0.347	0.533		
	front 10mm	0.410	0.174	0.584		
	rear 10mm	0.415	0.174	0.589		
	front 15mm	0.552	0.116	0.668		
	rear 15mm	0.350	0.116	0.466		
GSM 1900	left cheek	0.266	0.347	0.613		
	left tilted 15°	0.064	0.347	0.411		
	right cheek	0.130	0.347	0.477		
	right tilted 15°	0.071	0.347	0.418		
	front 10mm	0.872	0.174	1.046		
	rear 10mm	1.050	0.174	1.224		
	front 15mm	0.363	0.116	0.479		
	rear 15mm	0.505	0.116	0.621		
CDMA BC0	left cheek	0.653	0.347	1.000		
	left tilted 15°	0.303	0.347	0.650		
	right cheek	0.521	0.347	0.868		
	right tilted 15°	0.303	0.347	0.650		
	front 10mm	0.618	0.174	0.792		
	rear 10mm	0.521	0.174	0.695		
	front 15mm	0.595	0.116	0.711		
	rear 15mm	0.500	0.116	0.616		
CDMA BC1	left cheek	0.404	0.347	0.751		
	left tilted 15°	0.098	0.347	0.445		
	right cheek	0.193	0.347	0.540		
	right tilted 15°	0.188	0.347	0.535		
	front 10mm	0.562	0.174	0.736		
	rear 10mm	0.653	0.174	0.827		
	front 15mm	0.438	0.116	0.554		
	rear 15mm	0.636	0.116	0.752		

reported SAR **WWAN** and **Bluetooth 2.4GHz**, **ΣSAR** evaluation, **SPLSRi**						
Frequency band	Position	SARmax /W/kg		**ΣSAR**	distance	**ratio**
		WWAN	Bluetooth	<1.6W/kg	**Ri**, mm	≤ 0.040
UMTS FDD II	left cheek	0.417	0.347	0.764		
	left tilted 15°	0.079	0.347	0.426		
	right cheek	0.218	0.347	0.565		
	right tilted 15°	0.100	0.347	0.447		
	front 10mm	0.928	0.174	1.102		
	rear 10mm	1.085	0.174	1.259		
	front 15mm	0.444	0.116	0.560		
	rear 15mm	0.670	0.116	0.786		
WCDMA FDD V	left cheek	0.494	0.347	0.841		
	left tilted 15°	0.222	0.347	0.569		
	right cheek	0.427	0.347	0.774		
	right tilted 15°	0.186	0.347	0.533		
	front 10mm	0.435	0.174	0.609		
	rear 10mm	0.507	0.174	0.681		
	front 15mm	0.376	0.116	0.492		
	rear 15mm	0.307	0.116	0.423		
LTE FDD 2	left cheek	0.391	0.347	0.738		
	left tilted 15°	0.136	0.347	0.483		
	right cheek	0.217	0.347	0.564		
	right tilted 15°	0.123	0.347	0.470		
	front 10mm	0.552	0.174	0.726		
	rear 10mm	0.786	0.174	0.960		
	front 15mm	0.478	0.116	0.594		
	rear 15mm	0.626	0.116	0.742		
LTE FDD 4	left cheek	0.408	0.347	0.755		
	left tilted 15°	0.117	0.347	0.464		
	right cheek	0.220	0.347	0.567		
	right tilted 15°	0.092	0.347	0.439		
	front 10mm	0.898	0.174	1.072		
	rear 10mm	1.194	0.174	1.368		
	front 15mm	0.499	0.116	0.615		
	rear 15mm	0.488	0.116	0.604		
LTE FDD 7	left cheek	0.274	0.347	0.621		
	left tilted 15°	0.019	0.347	0.366		
	right cheek	0.157	0.347	0.504		
	right tilted 15°	0.034	0.347	0.381		
	front 10mm	0.476	0.174	0.650		
	rear 10mm	0.845	0.174	1.019		
	front 15mm	0.182	0.116	0.298		
	rear 15mm	0.419	0.116	0.535		
LTE FDD 13	left cheek	0.400	0.347	0.747		
	left tilted 15°	0.181	0.347	0.528		
	right cheek	0.333	0.347	0.680		
	right tilted 15°	0.182	0.347	0.529		
	front 10mm	0.421	0.174	0.595		
	rear 10mm	0.366	0.174	0.540		
	front 15mm	0.380	0.116	0.496		
	rear 15mm	0.327	0.116	0.443		

Table 78: SAR_{max} WWAN and **Bluetooth 2450MHz**, ΣSAR evaluation

reported SAR WWAN, BT and WLAN 5GHz, ΣSAR evaluation, SPLSRi							
Frequency band	Position	SAR_{max} /W/kg			ΣSAR	distance	ratio
		WWAN	BT	WLAN	<1.6W/kg	Ri, mm	≤ 0.040
GSM 850	left cheek	0.604	0.347	0.131	1.082		
	left tilted 15°	0.214	0.347	0.018	0.579		
	right cheek	0.405	0.347	0.077	0.829		
	right tilted 15°	0.186	0.347	0.011	0.544		
	front 15mm	0.552	0.116	0.007	0.675		
	rear 15mm	0.350	0.116	0.328	0.794		
GSM 1900	left cheek	0.266	0.347	0.131	0.744		
	left tilted 15°	0.064	0.347	0.018	0.429		
	right cheek	0.130	0.347	0.077	0.554		
	right tilted 15°	0.071	0.347	0.011	0.429		
	front 15mm	0.363	0.116	0.007	0.486		
	rear 15mm	0.505	0.116	0.328	0.949		
CDMA BC0	left cheek	0.653	0.347	0.131	1.131		
	left tilted 15°	0.303	0.347	0.018	0.668		
	right cheek	0.521	0.347	0.077	0.945		
	right tilted 15°	0.303	0.347	0.011	0.661		
	front 15mm	0.595	0.116	0.007	0.718		
	rear 15mm	0.500	0.116	0.328	0.944		
CDMA BC1	left cheek	0.404	0.347	0.131	0.882		
	left tilted 15°	0.098	0.347	0.018	0.463		
	right cheek	0.193	0.347	0.077	0.617		
	right tilted 15°	0.188	0.347	0.011	0.546		
	front 15mm	0.438	0.116	0.007	0.561		
	rear 15mm	0.636	0.116	0.328	1.080		

reported SAR WWAN, BT and WLAN 5GHz, ΣSAR evaluation, SPLSRi							
Frequency band	Position	SAR_{max} /W/kg			ΣSAR	distance	ratio
		WWAN	BT	WLAN	<1.6W/kg	Ri, mm	≤ 0.040
UMTS FDD II	left cheek	0.417	0.347	0.131	0.895		
	left tilted 15°	0.079	0.347	0.018	0.444		
	right cheek	0.218	0.347	0.077	0.642		
	right tilted 15°	0.100	0.347	0.011	0.458		
	front 15mm	0.444	0.116	0.007	0.567		
	rear 15mm	0.670	0.116	0.328	1.114		
WCDMA FDD V	left cheek	0.494	0.347	0.131	0.972		
	left tilted 15°	0.222	0.347	0.018	0.587		
	right cheek	0.427	0.347	0.077	0.851		
	right tilted 15°	0.186	0.347	0.011	0.544		
	front 15mm	0.376	0.116	0.007	0.499		
	rear 15mm	0.307	0.116	0.328	0.751		
LTE FDD 2	left cheek	0.391	0.347	0.131	0.869		
	left tilted 15°	0.136	0.347	0.018	0.501		
	right cheek	0.217	0.347	0.077	0.641		
	right tilted 15°	0.123	0.347	0.011	0.481		
	front 15mm	0.478	0.116	0.007	0.601		
	rear 15mm	0.626	0.116	0.328	1.070		
LTE FDD 4	left cheek	0.408	0.347	0.131	0.886		
	left tilted 15°	0.117	0.347	0.018	0.482		
	right cheek	0.220	0.347	0.077	0.644		
	right tilted 15°	0.092	0.347	0.011	0.450		
	front 15mm	0.499	0.116	0.007	0.622		
	rear 15mm	0.488	0.116	0.328	0.932		
LTE FDD 7	left cheek	0.274	0.347	0.131	0.752		
	left tilted 15°	0.019	0.347	0.018	0.384		
	right cheek	0.157	0.347	0.077	0.581		
	right tilted 15°	0.034	0.347	0.011	0.392		
	front 15mm	0.182	0.116	0.007	0.305		
	rear 15mm	0.419	0.116	0.328	0.863		
LTE FDD 13	left cheek	0.400	0.347	0.131	0.878		
	left tilted 15°	0.181	0.347	0.018	0.546		
	right cheek	0.333	0.347	0.077	0.757		
	right tilted 15°	0.182	0.347	0.011	0.540		
	front 15mm	0.380	0.116	0.007	0.503		
	rear 15mm	0.327	0.116	0.328	0.771		

Table 79: SAR_{max} WWAN, **WLAN 5GHz** and **Bluetooth 2450MHz**, ΣSAR evaluation

Conclusion:

ΣSAR < 1.6 W/kg therefore simultaneous transmissions SAR measurement with the enlarged zoom scan measurement and volume scan post-processing procedures is **not** required.

8 Test equipment and ancillaries used for tests

To simplify the identification of the test equipment and/or ancillaries which were used, the reporting of the relevant test cases only refer to the test item number as specified in the table below.

Equipment	Type	Manufacturer	Serial No.	Last Calibration	Frequency (months)
Dosimetric E-Field Probe	ET3DV6	Schmid & Partner Engineering AG	1558	August 22, 2013	12
Dosimetric E-Field Probe	ES3DV3	Schmid & Partner Engineering AG	3320	May 09, 2014	12
Dosimetric E-Field Probe	ES3DV3	Schmid & Partner Engineering AG	3326	September 02, 2013	12
Dosimetric E-Field Probe	EX3DV4	Schmid & Partner Engineering AG	3944	August 02, 2013	12
750 MHz System Validation Dipole	D750V3	Schmid & Partner Engineering AG	1041	August 15, 2013	24
835 MHz System Validation Dipole	D835V2	Schmid & Partner Engineering AG	4d153	June 06, 2013	24
1750 MHz System Validation Dipole	D1750V2	Schmid & Partner Engineering AG	1093	June 06, 2013	24
1900 MHz System Validation Dipole	D1900V2	Schmid & Partner Engineering AG	5d009	May 15, 2013	24
2450 MHz System Validation Dipole	D2450V2	Schmid & Partner Engineering AG	710	August 13, 2012	24
2600 MHz System Validation Dipole	D2600V2	Schmid & Partner Engineering AG	1040	August 15, 2013	24
5 GHz System Validation Dipole	D5GHzV 2	Schmid & Partner Engineering AG	1055	August 19, 2013	24
Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	413	January 16, 2014	12
Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	477	May 14, 2014	12
Data acquisition electronics	DAE4	Schmid & Partner Engineering AG	1387	August 28, 2013	12
Software	DASY52 52.8.7	Schmid & Partner Engineering AG	---	N/A	--
Triple Modular Flat Phantom V5.1	QD 000 P51 C	Schmid & Partner Engineering AG	1154	N/A	--
SAM Twin Phantom V5.0	QD 000 P40 C	Schmid & Partner Engineering AG	1813	N/A	--
Universal Radio Communication Tester	CMU 200	Rohde & Schwarz	106826	January 27, 2014	24
Universal Radio Communication Tester	CMW500	Rohde & Schwarz	102375	January 16, 2013	24
Network Analyser 300 kHz to 6 GHz	8753ES	Hewlett Packard)*	US39174436	January 28, 2014	24
Dielectric Probe Kit	85070C	Hewlett Packard	US99360146	N/A	12
Signal Generator	8671B	Hewlett Packard	2823A00656	January 22, 2014	24
Amplifier	25S1G4 (25 Watt)	Amplifier Reasearch	20452	N/A	--
Power Meter	NRP	Rohde & Schwarz	101367	January 21, 2014	24
Power Meter Sensor	NRP Z22	Rohde & Schwarz	100227	January 21, 2014	12
Power Meter Sensor	NRP Z22	Rohde & Schwarz	100234	January 21, 2014	12
Directional Coupler	778D	Hewlett Packard	19171	January 21, 2014	12

)* : Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

9 Observations

No observations exceeding those reported with the single test cases have been made.

Annex A: System performance check

Date/Time: 27.05.2014 09:34:08

SystemPerformanceCheck-D750 head 2014-05-27

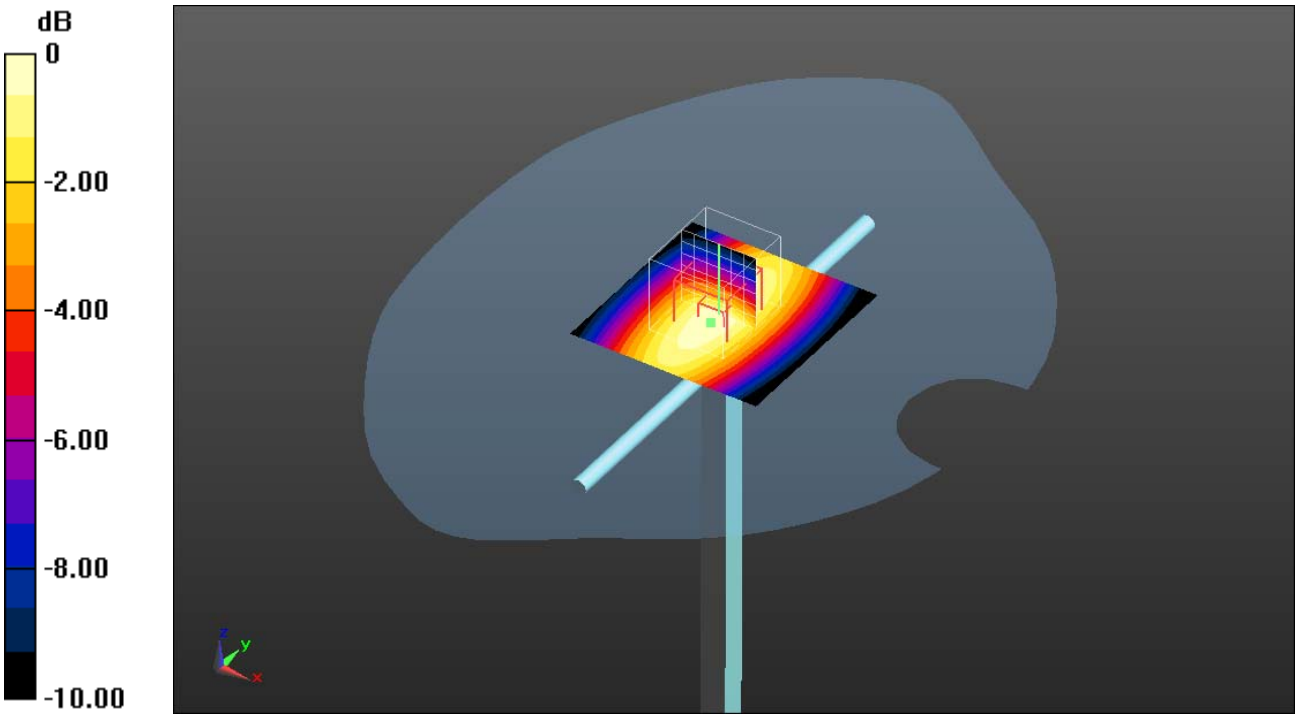
DUT: Dipole 750 MHz; Type: D750V3; Serial: 1041
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 750 MHz; σ = 0.897 S/m; ε_r = 41.695; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.39, 6.39, 6.39); Calibrated: 09.05.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL750/d=15mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 8.45 W/kg

HSL750/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x8x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.944 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 12.0 W/kg
SAR(1 g) = 8.1 W/kg; SAR(10 g) = 5.28 W/kg
Maximum value of SAR (measured) = 8.79 W/kg



0 dB = 8.79 W/kg = 9.44 dBW/kg

Additional information:
ambient temperature: 23.6°C; liquid temperature: 22.9°C

Date/Time: 5/28/2014 3:13:06 PM

SystemPerformanceCheck-D750 body 2014-05-28

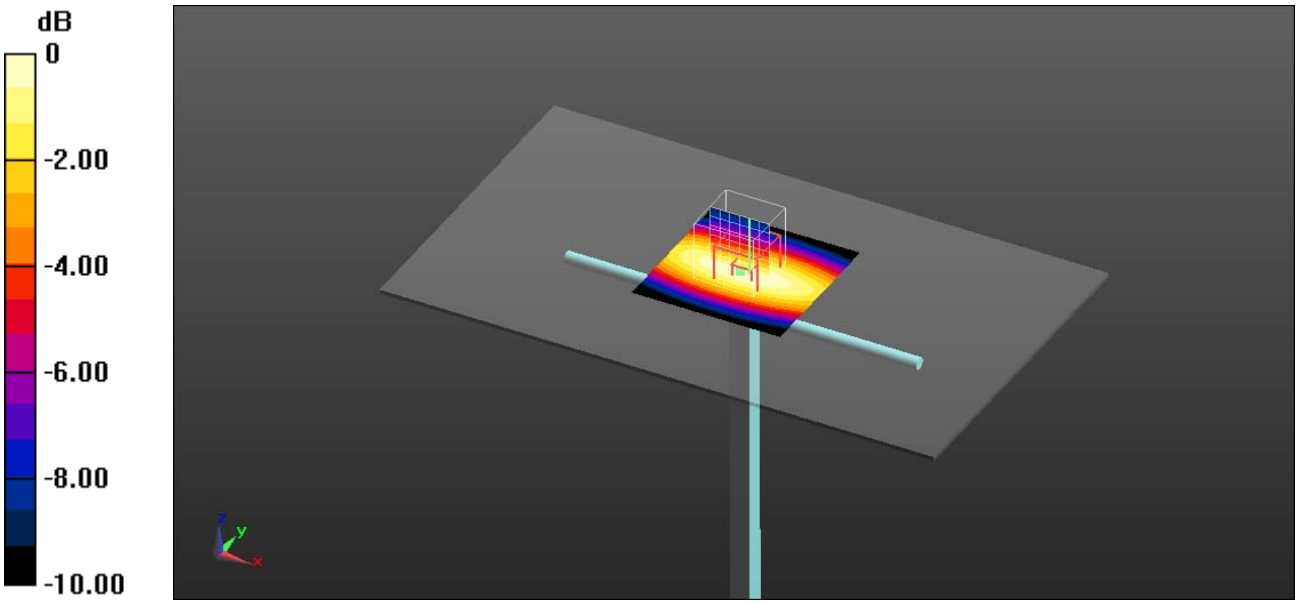
DUT: Dipole 750 MHz; Type: D750V3; Serial: 1041
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 750 MHz; σ = 0.968 S/m; ε_r = 55.669; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(6.12, 6.12, 6.12); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL750/d=15mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 9.43 W/kg

MSL750/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 13.1 W/kg
SAR(1 g) = 8.97 W/kg; SAR(10 g) = 5.93 W/kg
Maximum value of SAR (measured) = 9.71 W/kg



0 dB = 9.71 W/kg = 9.87 dBW/kg

Additional information:
ambient temperature: 23.3°C; liquid temperature: 22.6°C

Date/Time: 5/30/2014 11:42:25 AM

SystemPerformanceCheck-D750 body 2014-05-30

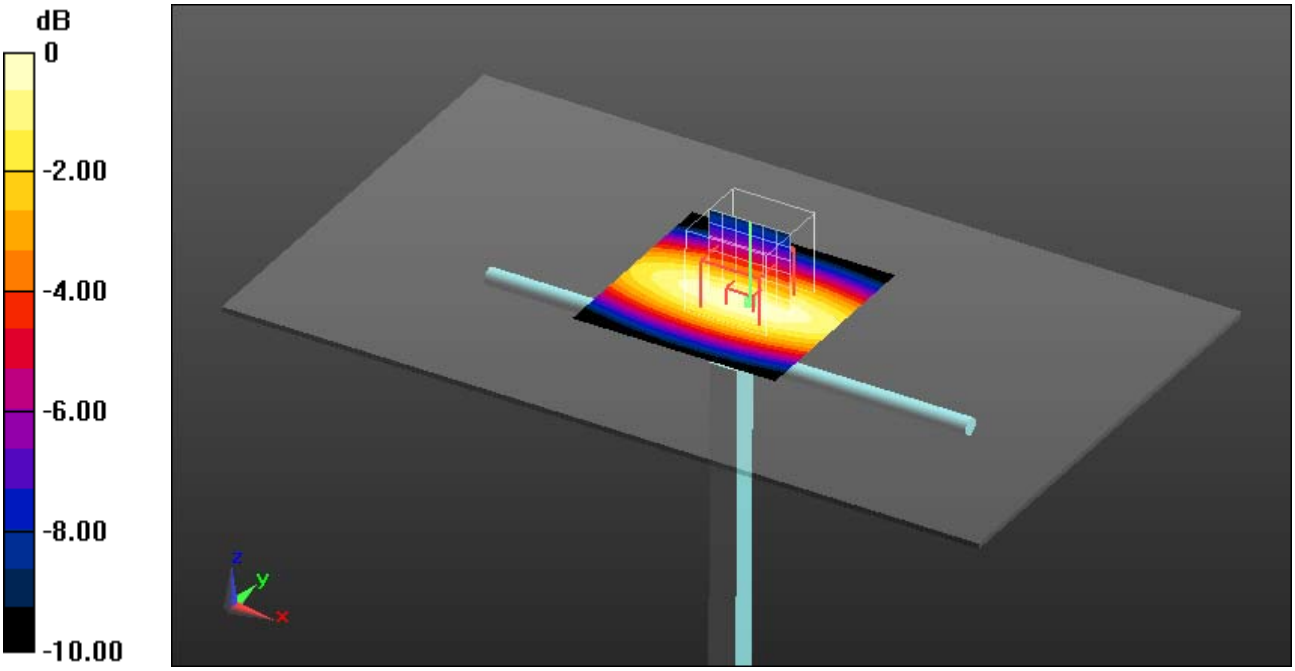
DUT: Dipole 750 MHz; Type: D750V3; Serial: 1041
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 750 MHz; σ = 0.968 S/m; ε_r = 55.669; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(6.12, 6.12, 6.12); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 5411
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL750/d=15mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 9.93 W/kg

MSL750/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 102.7 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 13.6 W/kg
SAR(1 g) = 9.26 W/kg; SAR(10 g) = 6.14 W/kg
Maximum value of SAR (measured) = 10.0 W/kg



0 dB = 10.0 W/kg = 10.00 dBW/kg

Additional information:
ambient temperature: 23.5°C; liquid temperature: 22.9°C

Date/Time: 02.06.2014 18:17:39

SystemPerformanceCheck-D835 head 2014-06-02

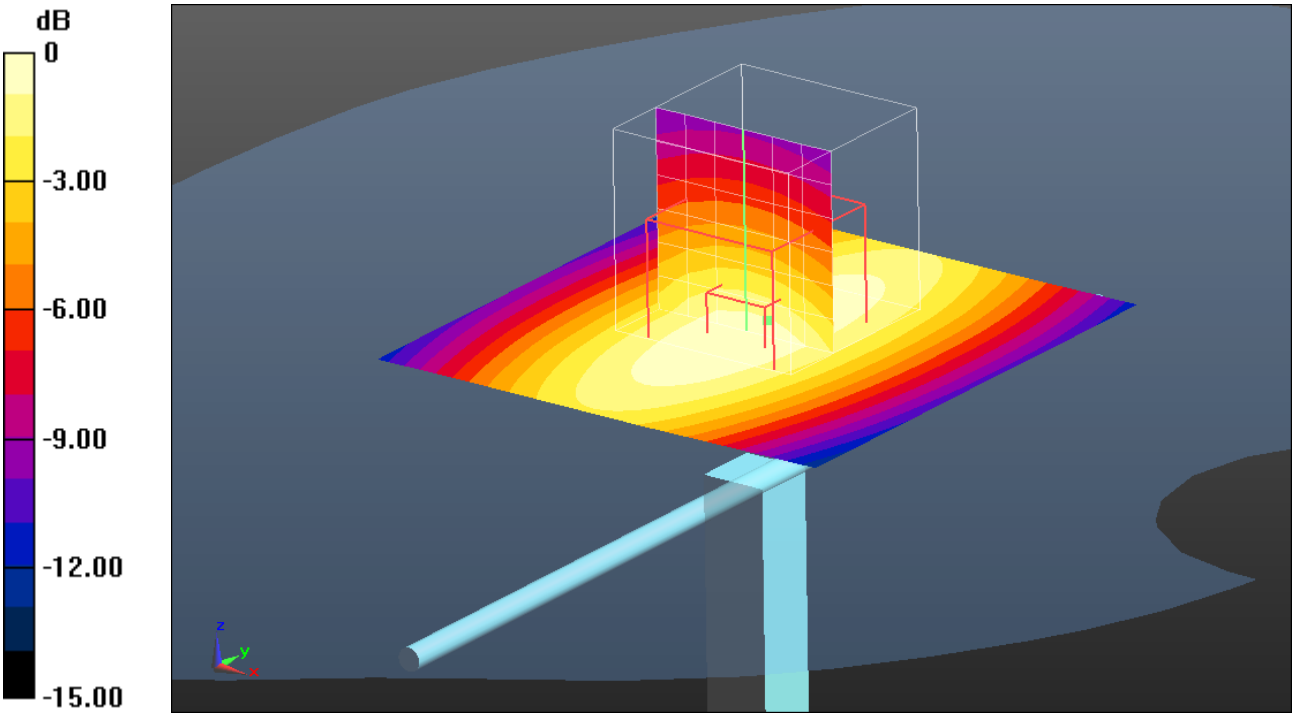
DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d153
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; σ = 0.937 S/m; ε_r = 41.86; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.15, 6.15, 6.15); Calibrated: 09.05.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL835/d=15mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 10.0 W/kg

HSL835/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.5 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 13.9 W/kg
SAR(1 g) = 9.6 W/kg; SAR(10 g) = 6.33 W/kg
Maximum value of SAR (measured) = 10.4 W/kg



0 dB = 10.4 W/kg = 10.17 dBW/kg

Additional information:
ambient temperature: 23.1°C; liquid temperature: 22.2°C

Date/Time: 04.06.2014 08:13:15

SystemPerformanceCheck-D835 head 2014-06-04

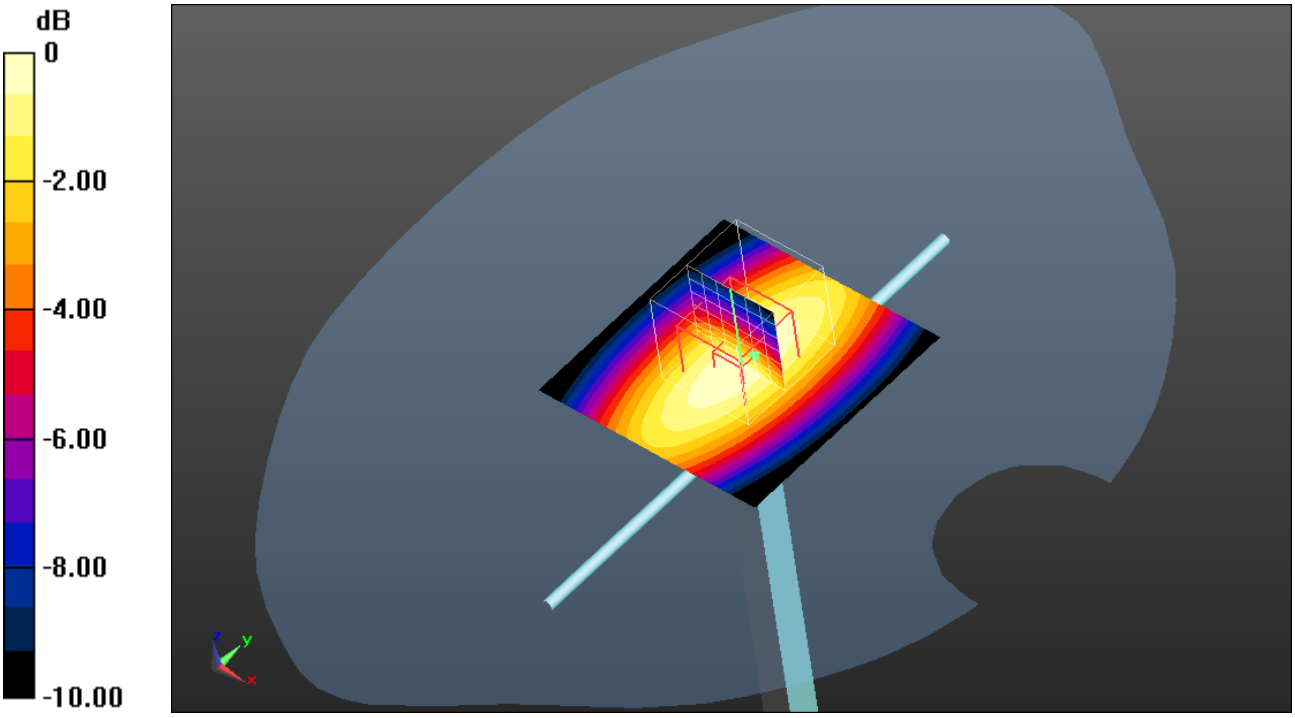
DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d153
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; σ = 0.937 S/m; ε_r = 41.86; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.15, 6.15, 6.15); Calibrated: 09.05.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL835/d=15mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 10.1 W/kg

HSL835/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x8x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.6 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 13.9 W/kg
SAR(1 g) = 9.68 W/kg; SAR(10 g) = 6.38 W/kg
Maximum value of SAR (measured) = 10.5 W/kg



0 dB = 10.5 W/kg = 10.21 dBW/kg

Additional information:
ambient temperature: 23.5°C; liquid temperature: 22.8°C

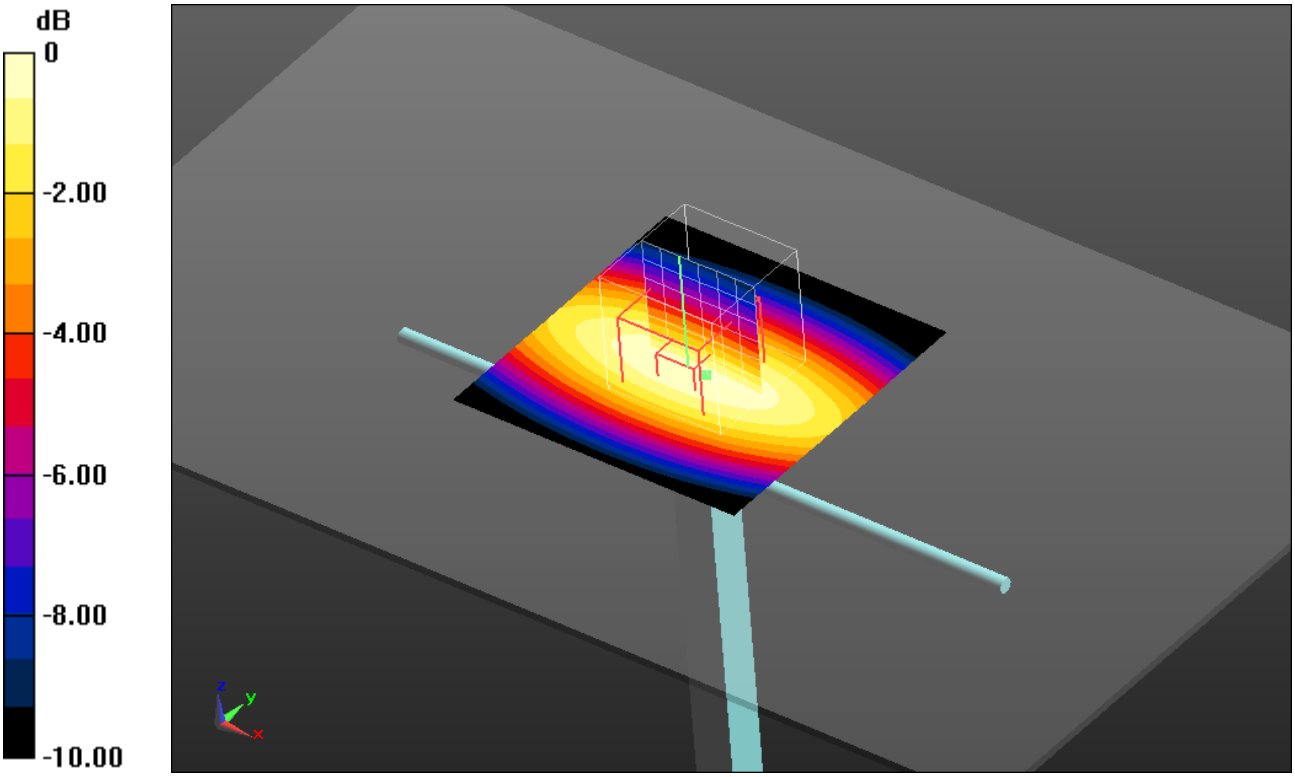
Date/Time: 06.06.2014 15:55:25

SystemPerformanceCheck-D835 head 2014-06-06

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d153
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; σ = 1.015 S/m; ε_r = 53.98; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL835/d=15mm, Pin=1000mW/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 10.4 W/kg

MSL835/d=15mm, Pin=1000mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.2 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 13.7 W/kg
SAR(1 g) = 9.81 W/kg; SAR(10 g) = 6.53 W/kg
Maximum value of SAR (measured) = 10.6 W/kg



0 dB = 10.6 W/kg = 10.25 dBW/kg

Additional information:
ambient temperature: 23.2°C; liquid temperature: 22.3°C

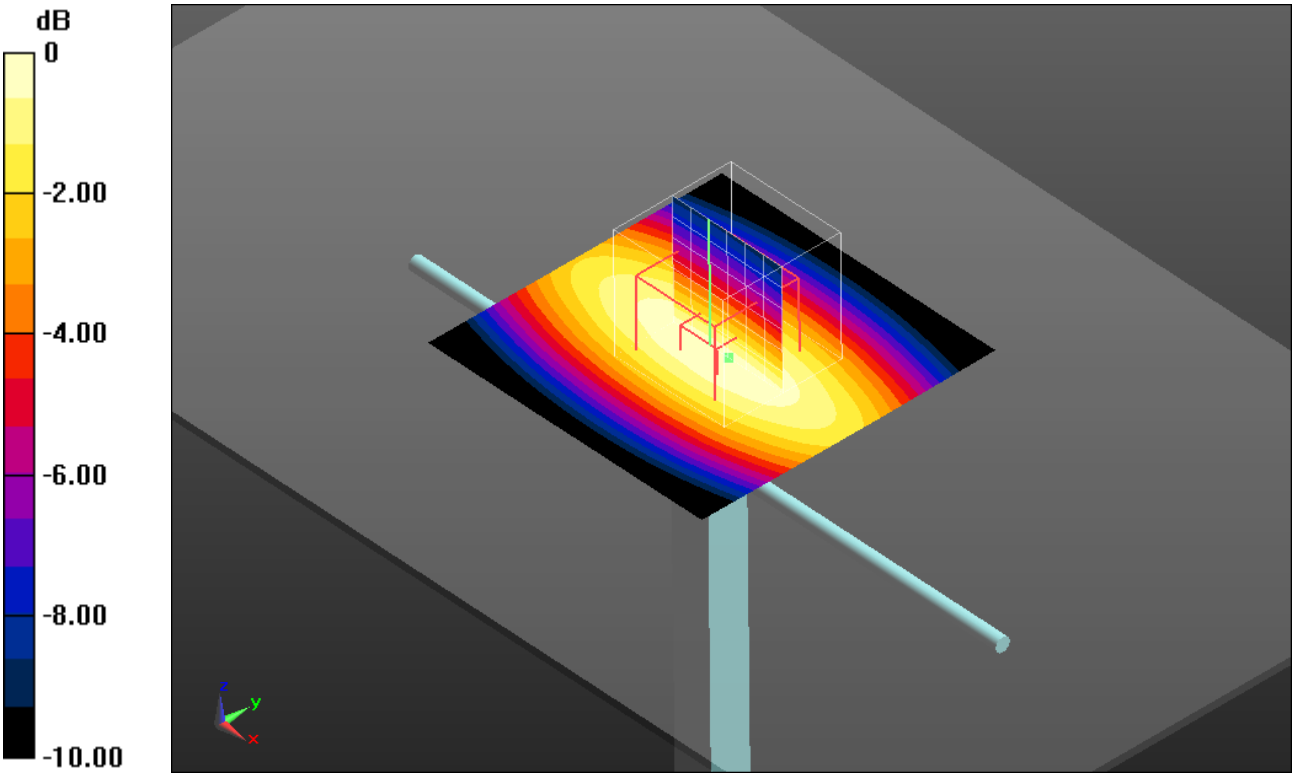
Date/Time: 09.06.2014 18:03:16

SystemPerformanceCheck-D835 head 2014-06-09

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d153
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; σ = 1.015 S/m; ε_r = 53.98; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL835/d=15mm, Pin=1000mW/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 9.84 W/kg

MSL835/d=15mm, Pin=1000mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 104.4 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 13.0 W/kg
SAR(1 g) = 9.33 W/kg; SAR(10 g) = 6.22 W/kg
Maximum value of SAR (measured) = 10.1 W/kg



0 dB = 10.1 W/kg = 10.04 dBW/kg

Additional information:
ambient temperature: 23.4°C; liquid temperature: 22.5°C

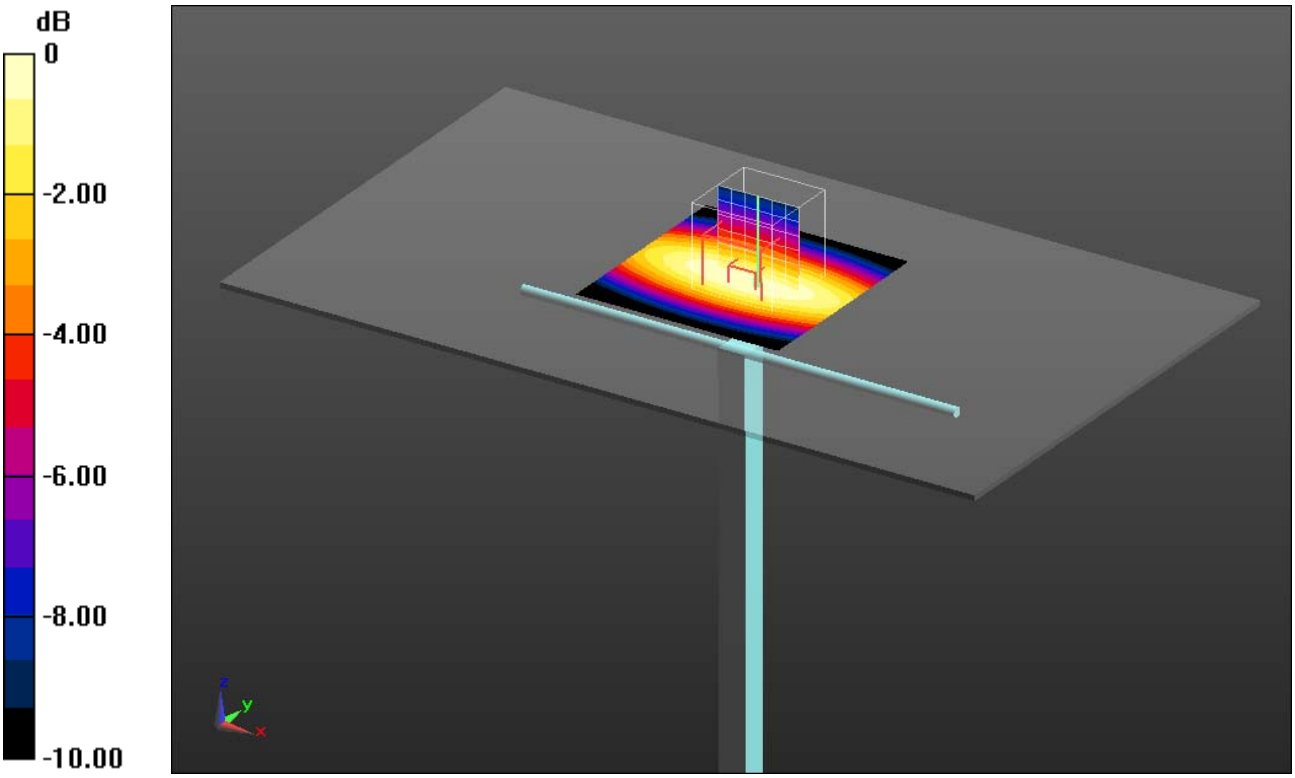
Date/Time: 10.06.2014 15:16:12

SystemPerformanceCheck-D835 body 2014-06-10

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d153
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; σ = 1.015 S/m; ε_r = 53.98; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL835/d=15mm, Pin=1000mW/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 10.8 W/kg

MSL835/d=15mm, Pin=1000mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.4 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 13.7 W/kg
SAR(1 g) = 9.93 W/kg; SAR(10 g) = 6.64 W/kg
Maximum value of SAR (measured) = 10.7 W/kg



0 dB = 10.7 W/kg = 10.29 dBW/kg

Additional information:
ambient temperature: 23.0°C; liquid temperature: 23.4°C

Date/Time: 27.05.2014 14:54:21

SystemPerformanceCheck-D1750 head 2014-05-27

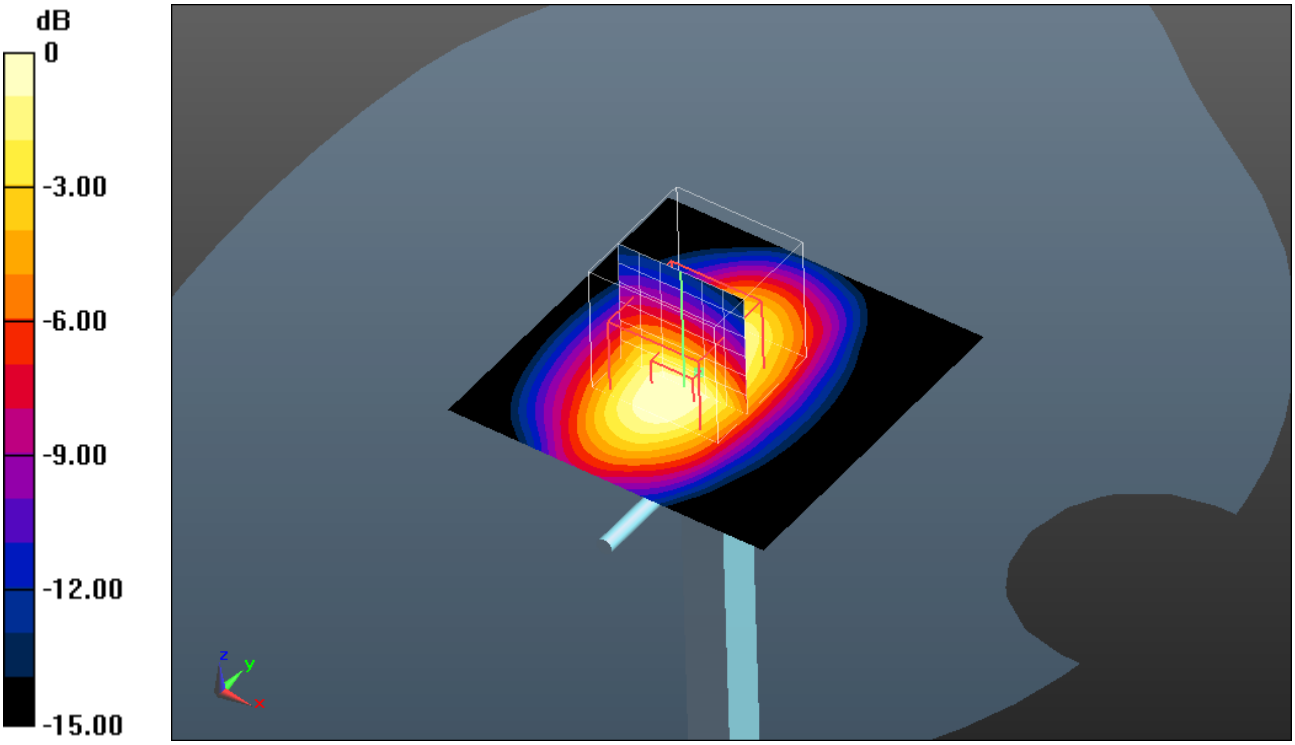
DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1093
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1750 MHz; σ = 1.369 S/m; ε_r = 40.491; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.93, 4.93, 4.93); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: SAM front; Type: QD000P40CC; Serial: TP:1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL1750/d=10mm, Pin=1000mW/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 45.3 W/kg

HSL1750/d=10mm, Pin=1000mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 175.4 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 58.6 W/kg
SAR(1 g) = 35.8 W/kg; SAR(10 g) = 19.7 W/kg
Maximum value of SAR (measured) = 40.1 W/kg



0 dB = 40.1 W/kg = 16.03 dBW/kg

Additional information:
ambient temperature: 22.5°C; liquid temperature: 21.9°C

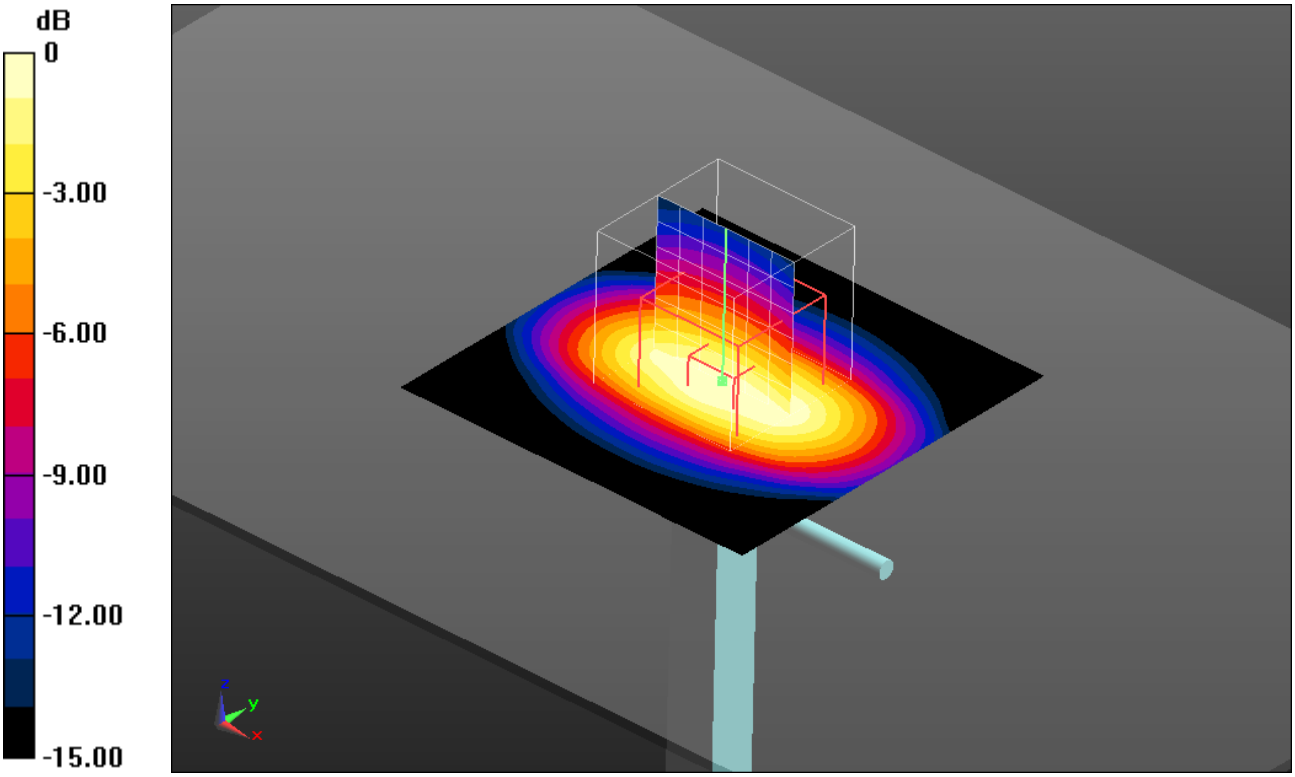
Date/Time: 28.05.2014 17:38:58

SystemPerformanceCheck-D1750 body 2014-05-28

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1093
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1750 MHz; σ = 1.541 S/m; ε_r = 52.336; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.41, 4.41, 4.41); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1750/d=10mm, Pin=1000mW/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 48.7 W/kg

MSL1750/d=10mm, Pin=1000mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 173.7 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 53.5 W/kg
SAR(1 g) = 35 W/kg; SAR(10 g) = 19.5 W/kg
Maximum value of SAR (measured) = 39.8 W/kg



0 dB = 39.8 W/kg = 16.00 dBW/kg

Additional information:
ambient temperature: 22.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2014 12:59:58

SystemPerformanceCheck-D1900 head 2014-06-04

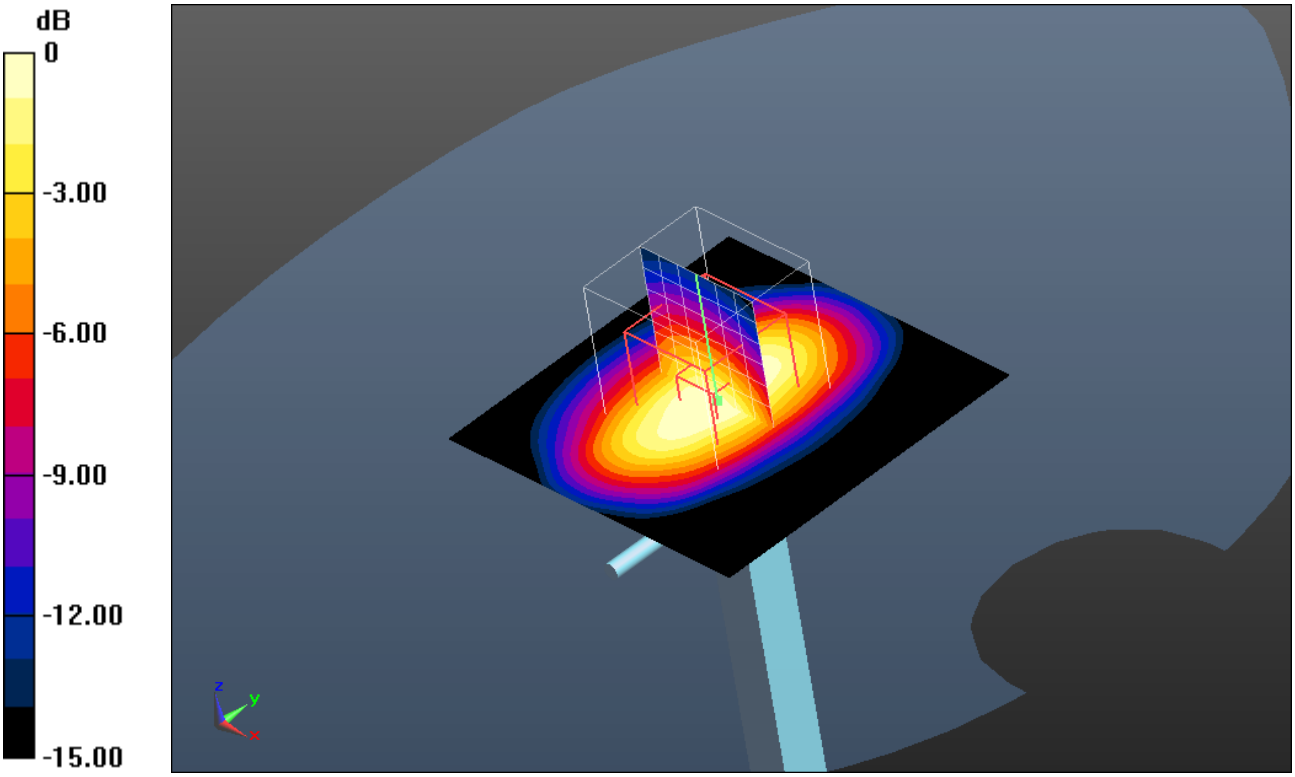
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.396 S/m; ε_r = 39.877; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.75, 4.75, 4.75); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1042
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 53.9 W/kg

HSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 185.2 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 68.5 W/kg
SAR(1 g) = 41.1 W/kg; SAR(10 g) = 22.2 W/kg
Maximum value of SAR (measured) = 46.4 W/kg



0 dB = 46.4 W/kg = 16.67 dBW/kg

Additional information:
ambient temperature: 23.7°C; liquid temperature: 23.2°C

Date/Time: 05.06.2014 13:15:23

SystemPerformanceCheck-D1900 head 2014-06-05

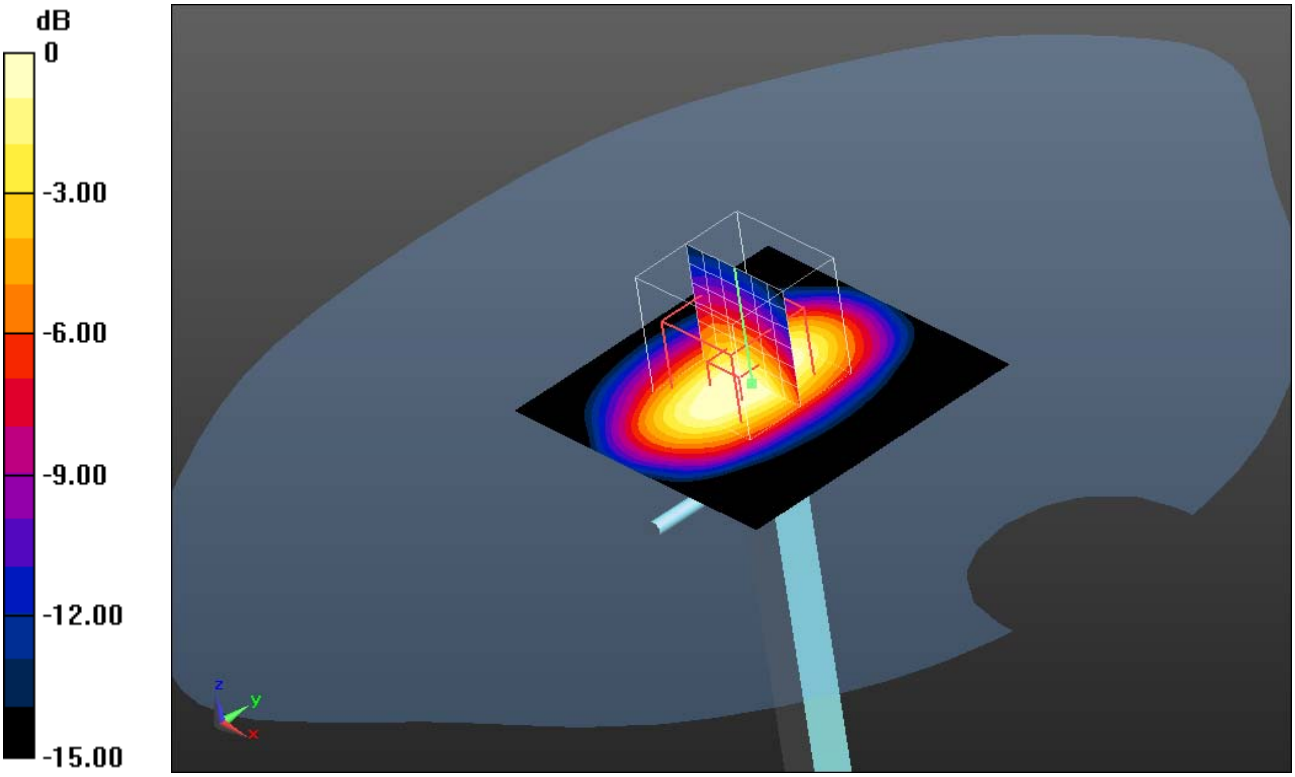
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.396 S/m; ε_r = 39.877; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.75, 4.75, 4.75); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1042
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 52.6 W/kg

HSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 183.4 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 65.5 W/kg
SAR(1 g) = 39.4 W/kg; SAR(10 g) = 21.3 W/kg
Maximum value of SAR (measured) = 44.0 W/kg



0 dB = 44.0 W/kg = 16.43 dBW/kg

Additional information:
ambient temperature: 23.9°C; liquid temperature: 23.2°C

Date/Time: 30.05.2014 14:50:26

SystemPerformanceCheck-D1900 body 2014-05-30

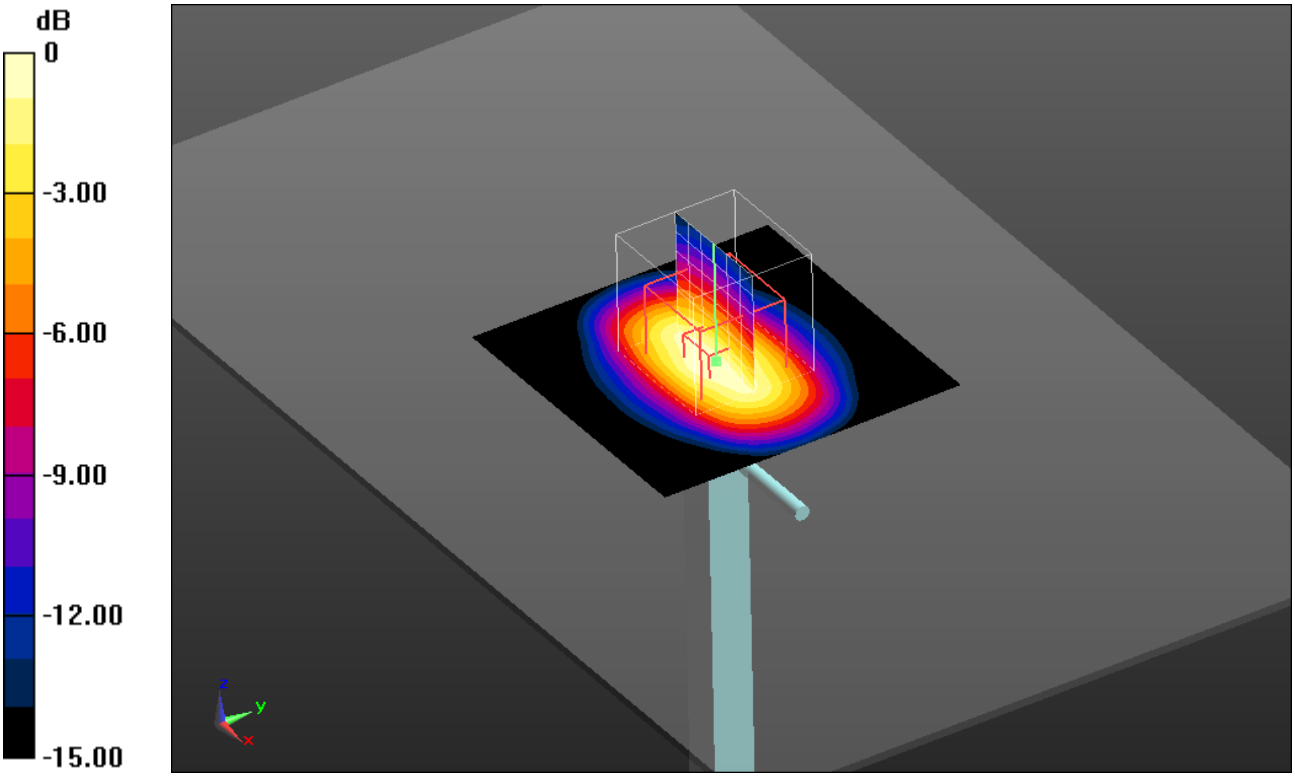
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.529 S/m; ε_r = 52.558; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 53.7 W/kg

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 178.3 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 66.0 W/kg
SAR(1 g) = 40 W/kg; SAR(10 g) = 21.7 W/kg
Maximum value of SAR (measured) = 45.4 W/kg



0 dB = 45.4 W/kg = 16.57 dBW/kg

Additional information:
ambient temperature: 22.9°C; liquid temperature: 22.4°C

Date/Time: 02.06.2014 16:35:15

SystemPerformanceCheck-D1900 body 2014-06-02

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009

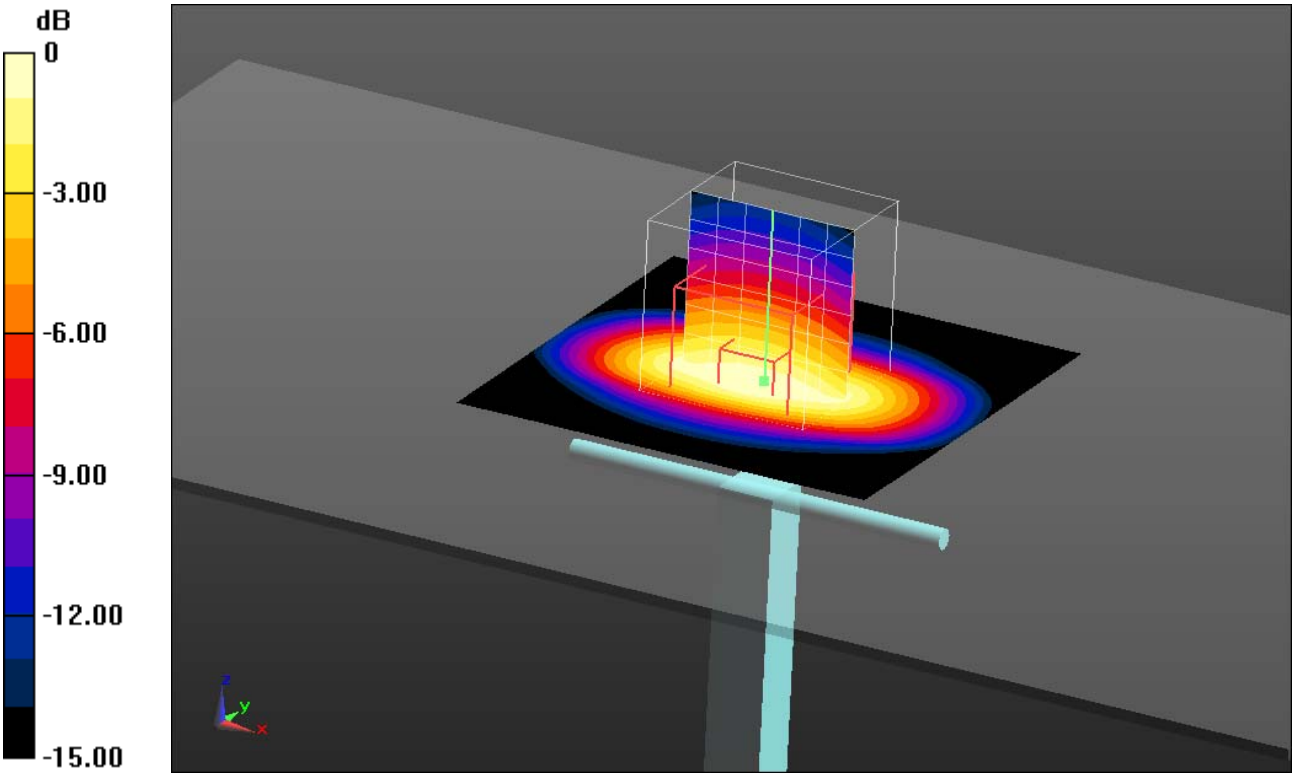
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.529 S/m; ε_r = 52.558; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 57.9 W/kg

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 187.0 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 65.3 W/kg
SAR(1 g) = 39.4 W/kg; SAR(10 g) = 21.4 W/kg
Maximum value of SAR (measured) = 44.8 W/kg



0 dB = 44.8 W/kg = 16.51 dBW/kg

Additional information:
ambient temperature: 23.2°C; liquid temperature: 22.3°C

Date/Time: 03.06.2014 18:01:42

SystemPerformanceCheck-D1900 body 2014-06-03

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009

Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: f = 1900 MHz; σ = 1.529 S/m; ε_r = 52.558; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 53.1 W/kg

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

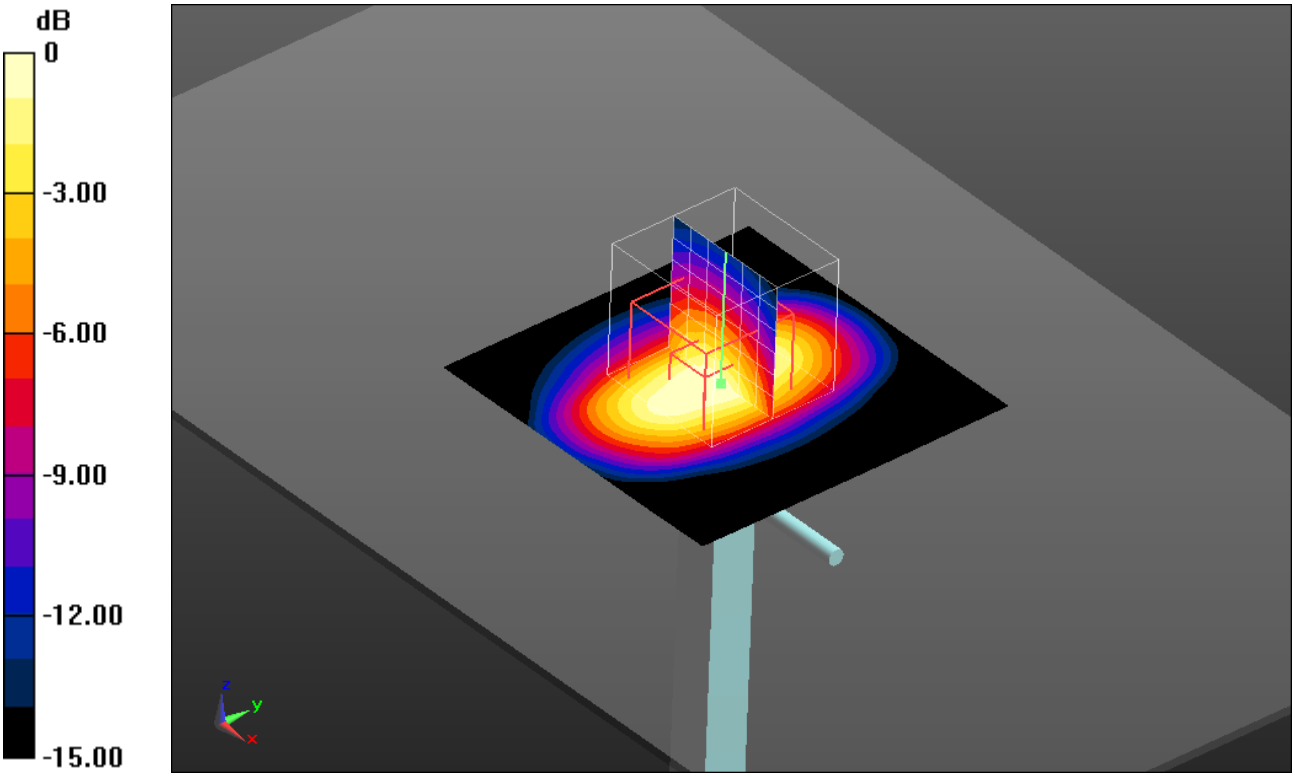
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 180.1 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 65.2 W/kg

SAR(1 g) = 39.6 W/kg; SAR(10 g) = 21.4 W/kg

Maximum value of SAR (measured) = 44.5 W/kg



0 dB = 44.5 W/kg = 16.48 dBW/kg

Additional information:

ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 05.06.2014 15:32:07

SystemPerformanceCheck-D1900 body 2014-06-05

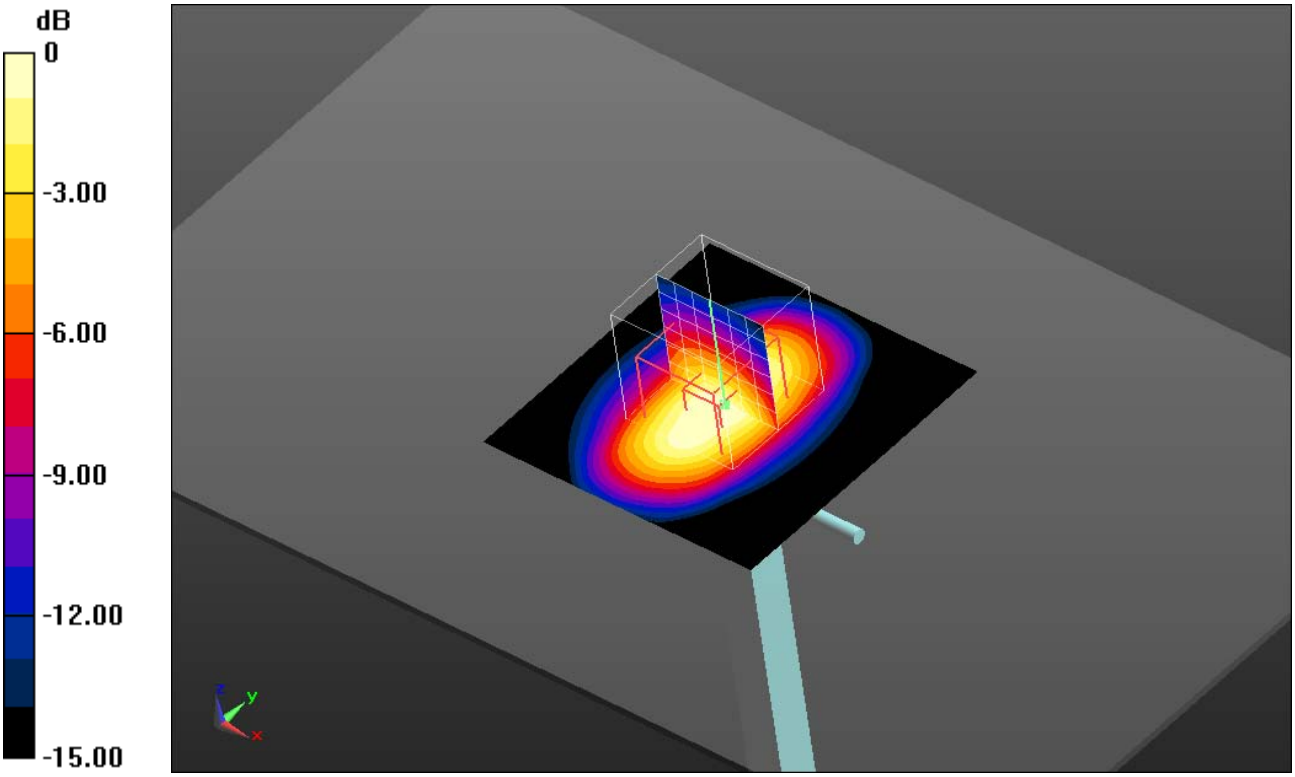
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.529 S/m; ε_r = 52.558; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 54.6 W/kg

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 183.1 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 65.1 W/kg
SAR(1 g) = 39.6 W/kg; SAR(10 g) = 21.5 W/kg
Maximum value of SAR (measured) = 44.7 W/kg



0 dB = 44.7 W/kg = 16.50 dBW/kg

Additional information:
ambient temperature: 23.9°C; liquid temperature: 23.2°C

Date/Time: 30.06.2014 07:41:24

SystemPerformanceCheck-D1900 body 2014-06-30

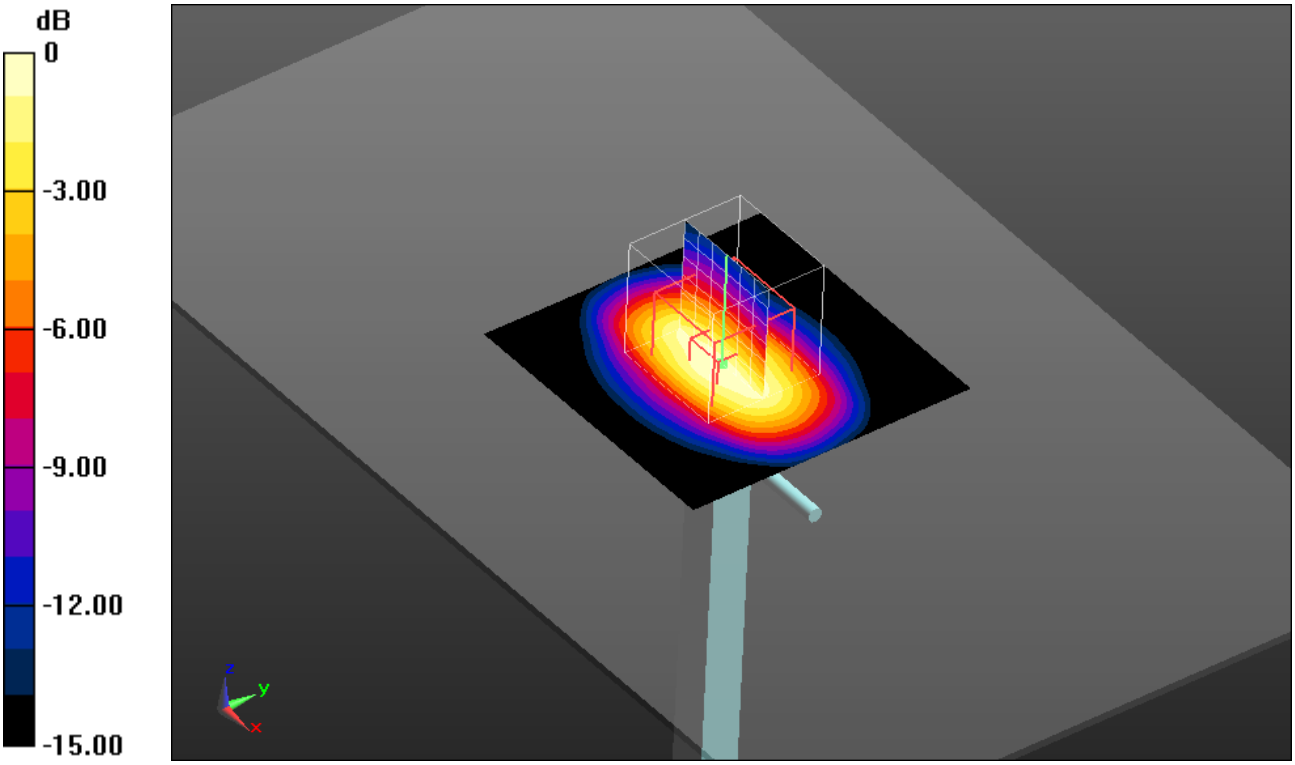
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.529 S/m; ε_r = 52.558; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Area Scan (51x51x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 53.6 W/kg

MSL1900/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 181.2 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 65.0 W/kg
SAR(1 g) = 39.4 W/kg; SAR(10 g) = 21.4 W/kg
Maximum value of SAR (measured) = 44.9 W/kg



0 dB = 44.9 W/kg = 16.52 dBW/kg

Additional information:
ambient temperature: 22.2°C; liquid temperature: 21.7°C

Date/Time: 6/4/2014 9:54:01 AM

SystemPerformanceCheck-D2450 head 2014-06-04

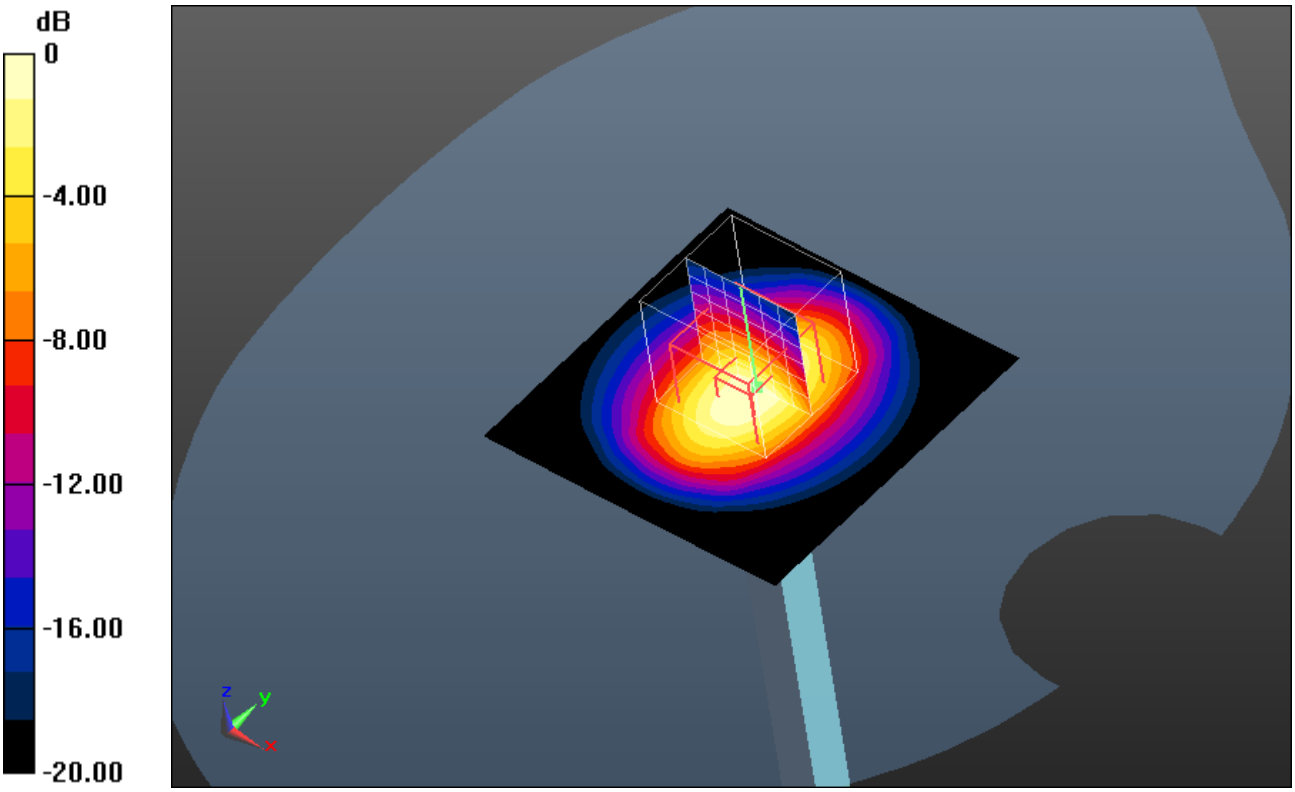
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 710
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2450 MHz; σ = 1.806 S/m; ε_r = 38.955; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(4.47, 4.47, 4.47); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: SAM front; Type: QD000P40CC; Serial: TP:1041
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

HSL2450/d=10mm, Pin=1000 mW, dist=4.0mm/Area Scan (81x81x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 59.7 W/kg

HSL2450/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 183.1 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 104 W/kg
SAR(1 g) = 51.7 W/kg; SAR(10 g) = 24.3 W/kg
Maximum value of SAR (measured) = 59.1 W/kg



0 dB = 59.1 W/kg = 17.72 dBW/kg

Additional information:
ambient temperature: 23.7°C; liquid temperature: 23.1°C

Date/Time: 6/5/2014 10:05:13 AM

SystemPerformanceCheck-D2450 body 2014-06-05

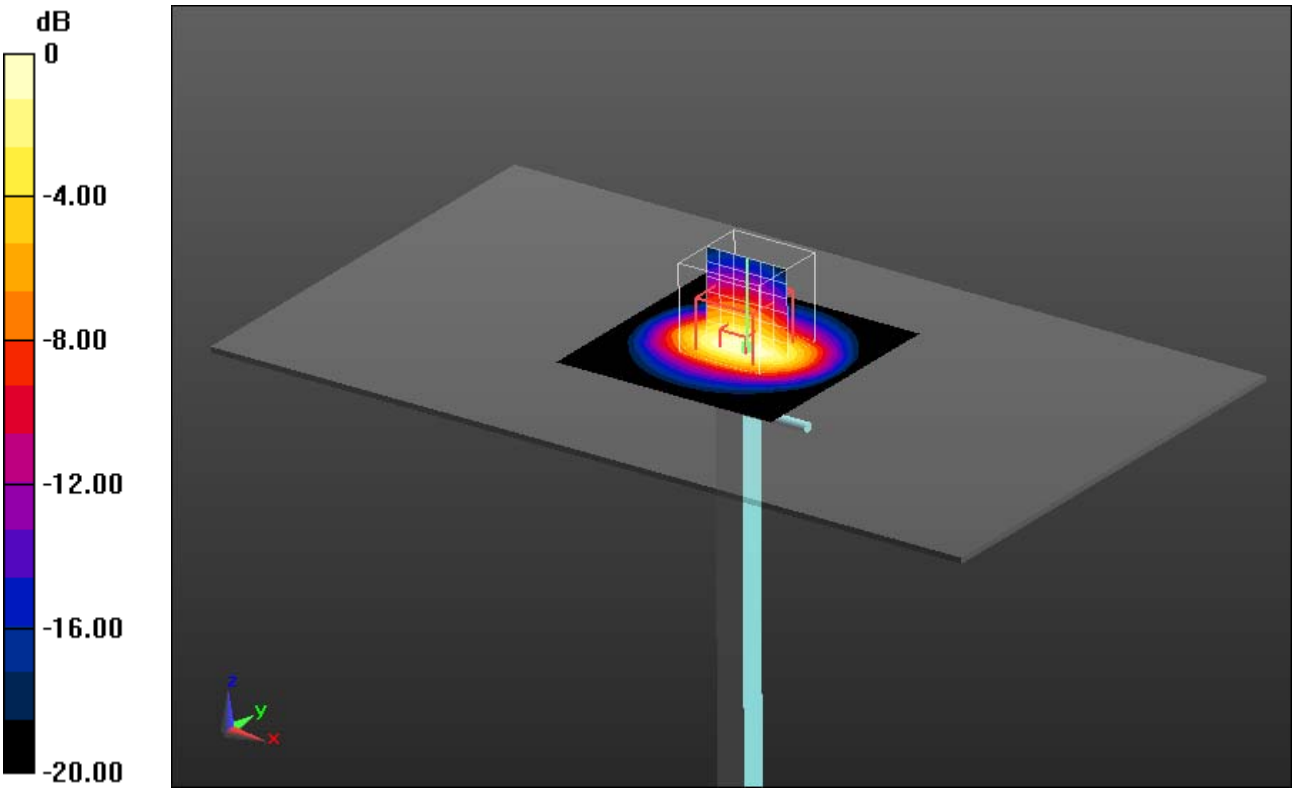
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 710
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2450 MHz; σ = 2.013 S/m; ε_r = 50.456; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(4.18, 4.18, 4.18); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL2450/d=10mm, Pin=1000 mW, dist=4.0mm 2/Area Scan (81x81x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 59.6 W/kg

MSL2450/d=10mm, Pin=1000 mW, dist=4.0mm 2/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 169.7 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 108 W/kg
SAR(1 g) = 51.2 W/kg; SAR(10 g) = 23.6 W/kg
Maximum value of SAR (measured) = 58.5 W/kg



0 dB = 58.5 W/kg = 17.67 dBW/kg

Additional information:
ambient temperature: 23.7°C; liquid temperature: 22.9°C

Date/Time: 06.06.2014 10:27:41

SystemPerformanceCheck-D2600 head 2014-06-06

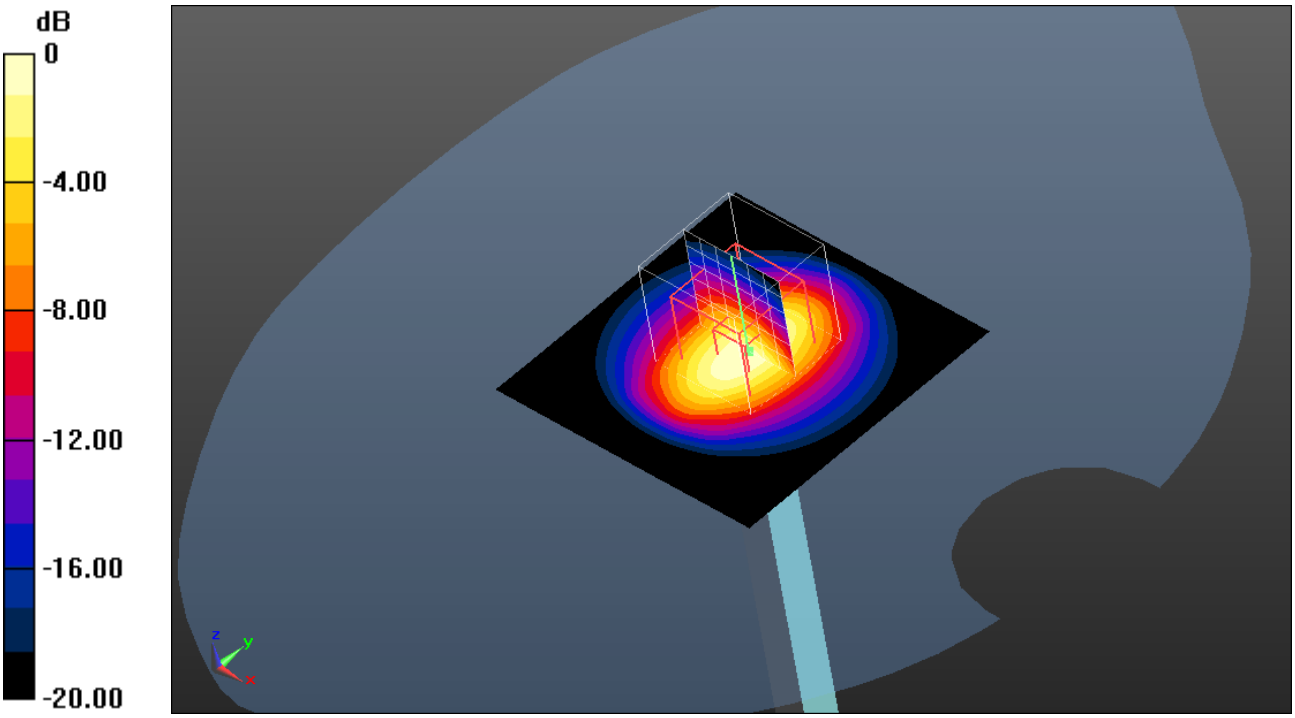
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 1.974 S/m; ε_r = 38.339; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.43, 7.43, 7.43); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL2450_2600/d=10mm, Pin=100 mW, dist=2.0mm/Area Scan (81x81x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 88.7 W/kg

HSL2450_2600/d=10mm, Pin=100 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 212.5 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 122 W/kg
SAR(1 g) = 57.3 W/kg; SAR(10 g) = 25.7 W/kg
Maximum value of SAR (measured) = 89.4 W/kg



0 dB = 89.4 W/kg = 19.51 dBW/kg

Additional information:
ambient temperature: 23.8°C; liquid temperature: 23.4°C

Date/Time: 10.06.2014 12:00:41

SystemPerformanceCheck-D2600 head 2014-06-10

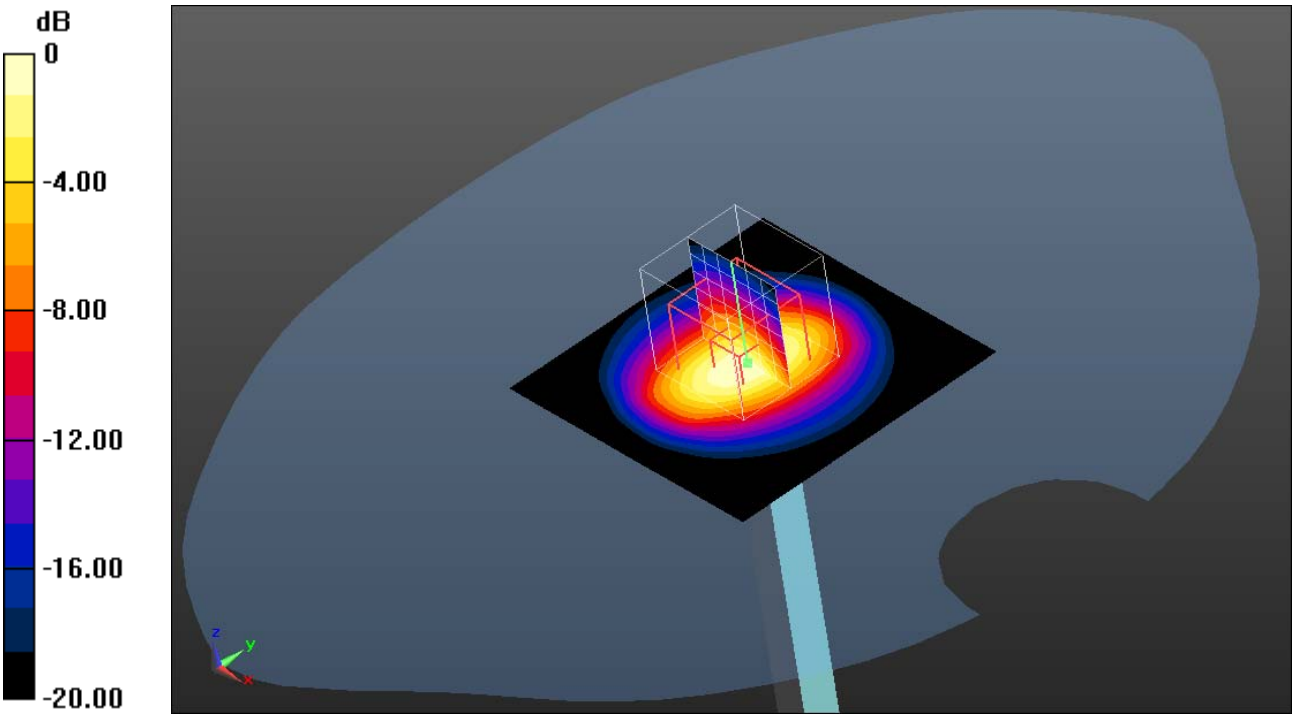
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 1.974 S/m; ε_r = 38.339; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.43, 7.43, 7.43); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL2450_2600/d=10mm, Pin=1000 mW, dist=2.0mm/Area Scan (81x81x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 91.3 W/kg

HSL2450_2600/d=10mm, Pin=1000 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 208.0 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 124 W/kg
SAR(1 g) = 59.3 W/kg; SAR(10 g) = 26.9 W/kg
Maximum value of SAR (measured) = 91.8 W/kg



0 dB = 91.8 W/kg = 19.63 dBW/kg

Additional information:
ambient temperature: 22.5°C; liquid temperature: 22.2°C

Date/Time: 6/10/2014 12:49:32 PM

SystemPerformanceCheck-D2600 body 2014-06-10

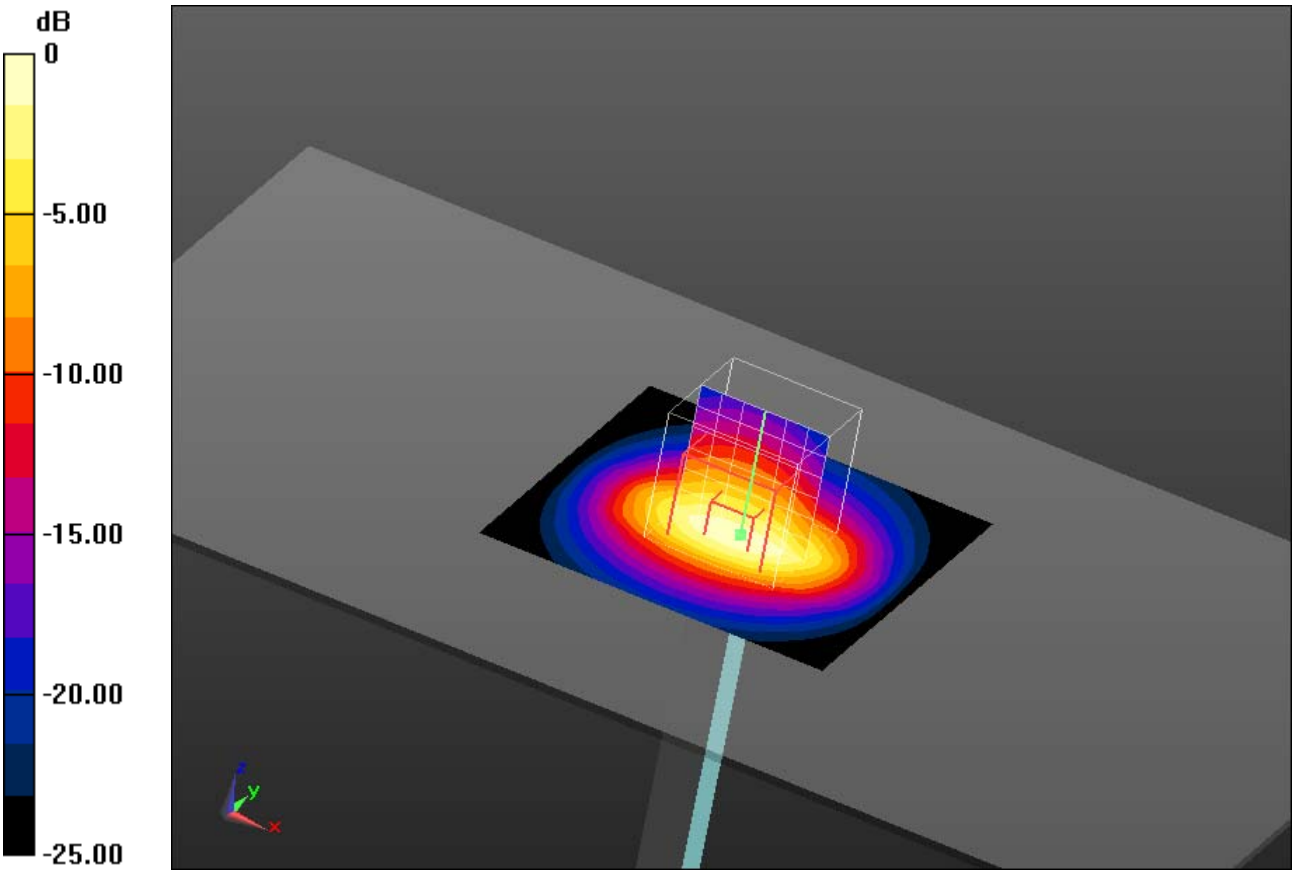
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 2.203 S/m; ε_r = 49.972; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.27, 7.27, 7.27); Calibrated: 8/2/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL2450_2600/d=10mm, Pin=1000 mW, dist=2.0mm/Area Scan (81x81x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 91.3 W/kg

MSL2450_2600/d=10mm, Pin=1000 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 202.2 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 123 W/kg
SAR(1 g) = 57.6 W/kg; SAR(10 g) = 25.8 W/kg
Maximum value of SAR (measured) = 89.7 W/kg



0 dB = 89.7 W/kg = 19.53 dBW/kg

Additional information:
ambient temperature: 23.4°C; liquid temperature: 22.4°C

Date/Time: 6/11/2014 9:08:04 AM

SystemPerformanceCheck-D2600 body 2014-06-11

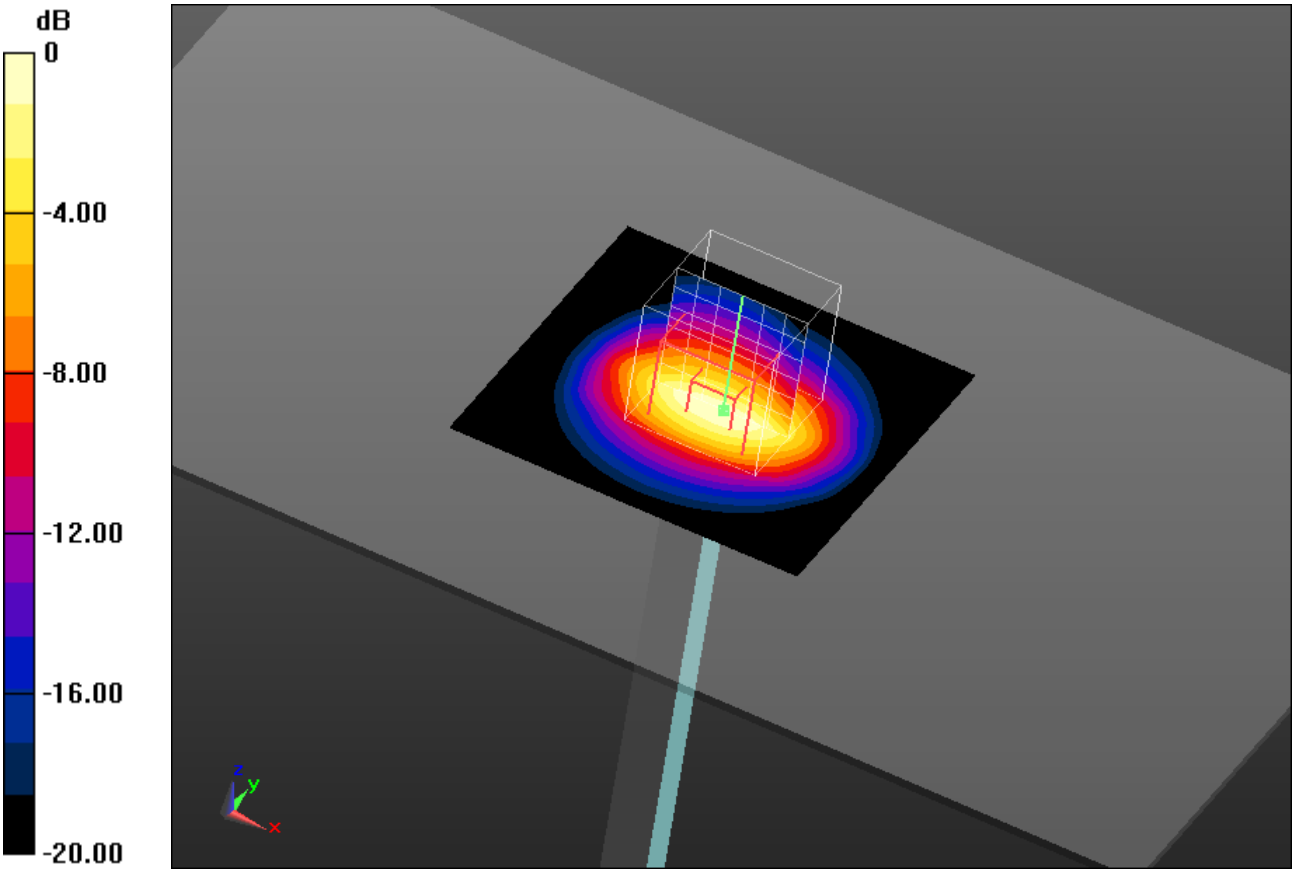
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 2.203 S/m; ε_r = 49.972; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.27, 7.27, 7.27); Calibrated: 8/2/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL2450_2600/d=10mm, Pin=1000 mW, dist=2.0mm/Area Scan (81x81x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 88.1 W/kg

MSL2450_2600/d=10mm, Pin=1000 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 199.7 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 117 W/kg
SAR(1 g) = 55.1 W/kg; SAR(10 g) = 24.8 W/kg
Maximum value of SAR (measured) = 85.6 W/kg



0 dB = 85.6 W/kg = 19.32 dBW/kg

Additional information:
ambient temperature: 23.8°C; liquid temperature: 22.5°C

Date/Time: 6/26/2014 12:39:21 PM

SystemPerformanceCheck-D2600 body 2014-06-26

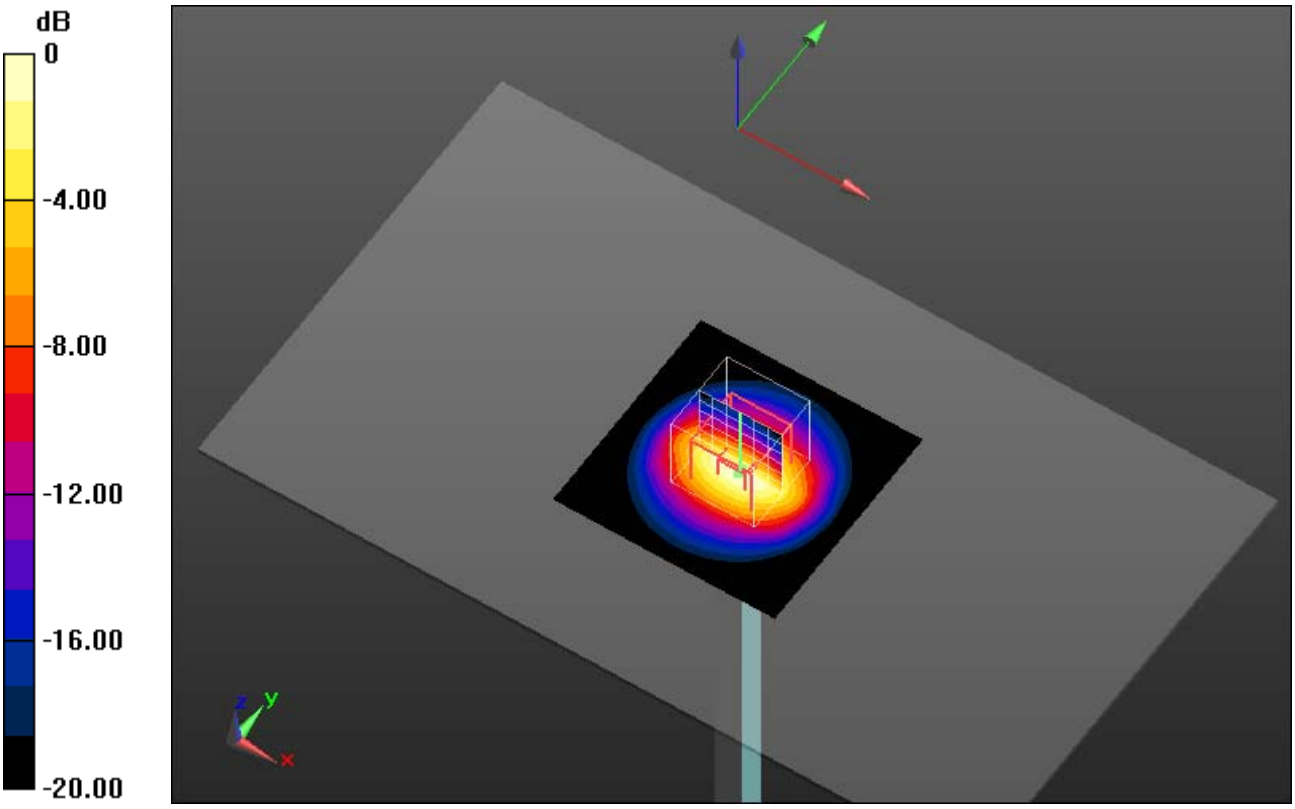
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 2.203 S/m; ε_r = 49.972; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.27, 7.27, 7.27); Calibrated: 8/2/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL2450_2600/d=10mm, Pin=100 mW, dist=2.0mm/Area Scan (81x81x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 88.9 W/kg

MSL2450_2600/d=10mm, Pin=100 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 200.8 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 122 W/kg
SAR(1 g) = 57.1 W/kg; SAR(10 g) = 25.5 W/kg
Maximum value of SAR (measured) = 88.8 W/kg



0 dB = 88.8 W/kg = 19.48 dBW/kg

Additional information:
ambient temperature: 23.3°C; liquid temperature: 22.1°C

Date/Time: 05.06.2014 19:05:56

SystemPerformanceCheck-D5GHz head 2014-06-05

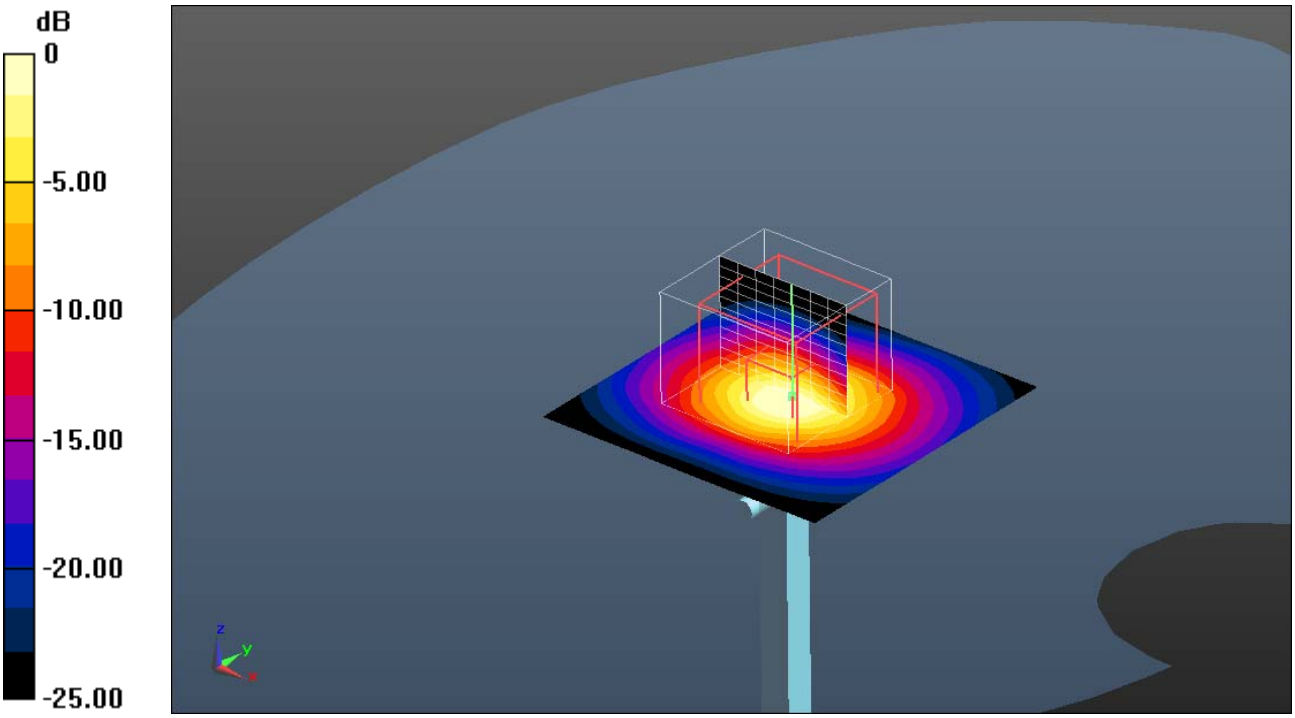
DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1055
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5200 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5200 MHz; σ = 4.473 S/m; ε_r = 36.336; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(5.37, 5.37, 5.37); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL 5GHz/d=10mm, Pin=100mW 5.2GHz/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 19.7 W/kg

HSL 5GHz/d=10mm, Pin=100mW 5.2GHz/Zoom Scan (8x8x12)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 62.412 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 32.2 W/kg
SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.24 W/kg
Maximum value of SAR (measured) = 16.0 W/kg



0 dB = 16.0 W/kg = 12.04 dBW/kg

Additional information:
ambient temperature:23.2 °C; liquid temperature: 22.3°C

Date/Time: 05.06.2014 14:31:51

SystemPerformanceCheck-D5GHz head 2014-06-05

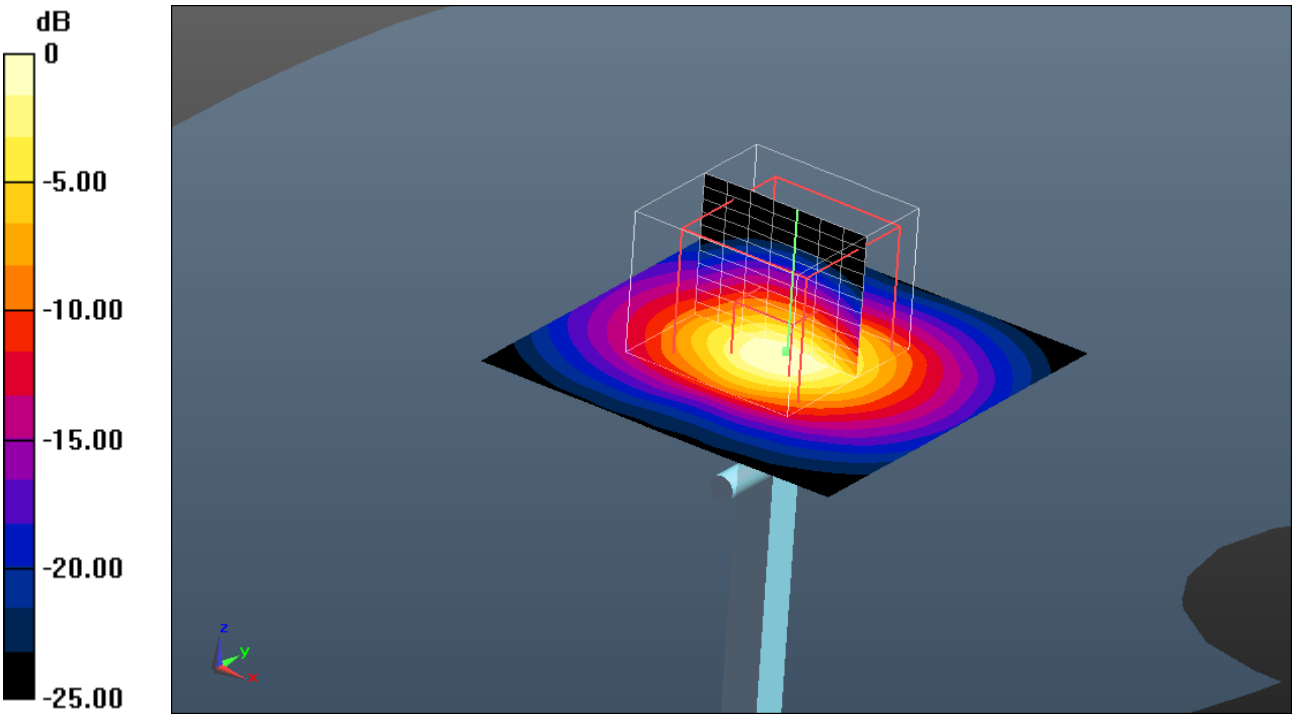
DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1055
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5500 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5500 MHz; σ = 4.822 S/m; ε_r = 35.774; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(5, 5, 5); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL 5GHz/d=10mm, Pin=100mW 5.5GHz/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 23.1 W/kg

HSL 5GHz/d=10mm, Pin=100mW 5.5GHz/Zoom Scan (8x8x12)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 64.285 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 40.2 W/kg
SAR(1 g) = 8.88 W/kg; SAR(10 g) = 2.5 W/kg
Maximum value of SAR (measured) = 18.8 W/kg



0 dB = 18.8 W/kg = 12.74 dBW/kg

Additional information:
ambient temperature:23.2 °C; liquid temperature: 22.3°C

Date/Time: 05.06.2014 14:58:19

SystemPerformanceCheck-D5GHz head 2014-06-05

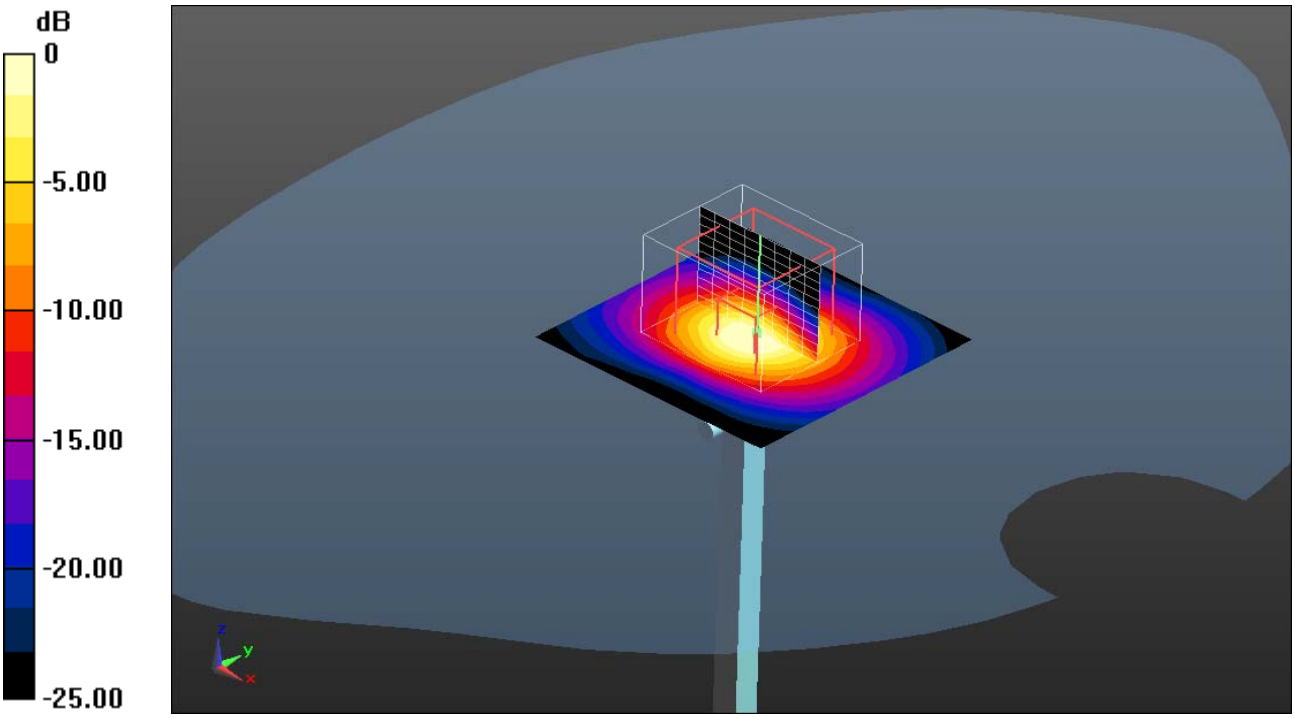
DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1055
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5800 MHz; σ = 5.114 S/m; ε_r = 35.361; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(4.75, 4.75, 4.75); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL 5GHz/d=10mm, Pin=100mW 5.8GHz/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 20.3 W/kg

HSL 5GHz/d=10mm, Pin=100mW 5.8GHz/Zoom Scan (9x8x12)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 58.998 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 34.3 W/kg
SAR(1 g) = 7.65 W/kg; SAR(10 g) = 2.14 W/kg
Maximum value of SAR (measured) = 15.7 W/kg



0 dB = 15.7 W/kg = 11.96 dBW/kg

Additional information:
ambient temperature:23.2 °C; liquid temperature: 22.3°C

Date/Time: 03.06.2014 09:33:41

SystemPerformanceCheck-D5GHz body 2014-06-03

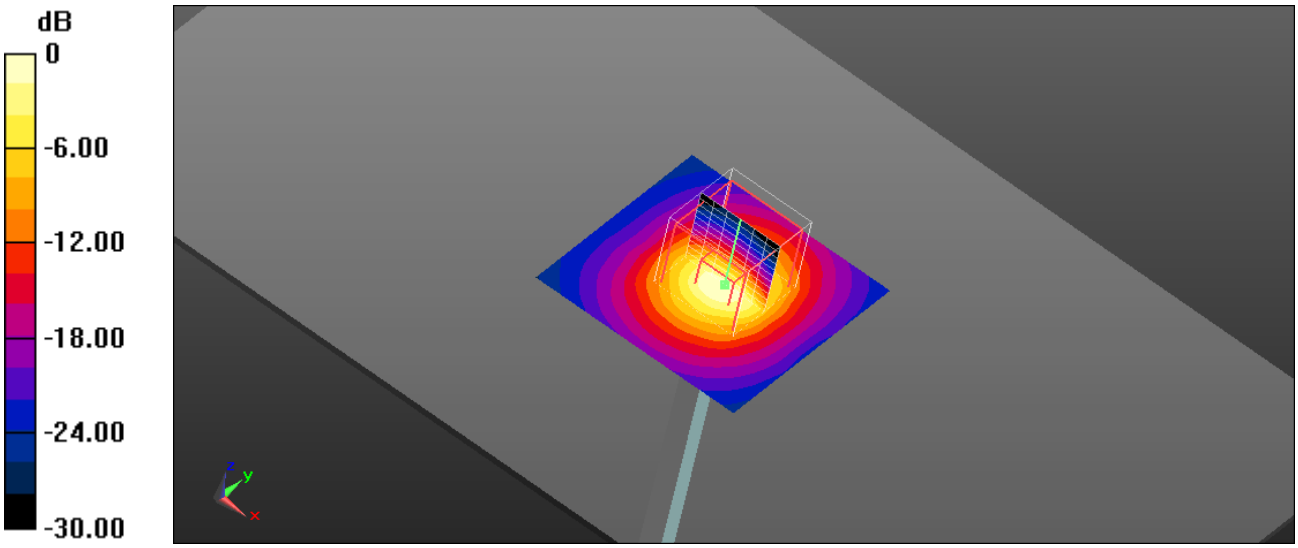
DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1055
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5200 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5200 MHz; σ = 5.217 S/m; ε_r = 48.385; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(4.47, 4.47, 4.47); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE4 Sn1387; Calibrated: 28.08.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7164)

MSL 5GHz/d=10mm, Pin=100mW 5.2GHz/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 14.4 W/kg

MSL 5GHz/d=10mm, Pin=100mW 5.2GHz/Zoom Scan (7x7x12)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 55.817 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 27.9 W/kg
SAR(1 g) = 6.97 W/kg; SAR(10 g) = 1.99 W/kg
Maximum value of SAR (measured) = 14.5 W/kg



0 dB = 14.5 W/kg = 11.61 dBW/kg

Additional information:
ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 6/3/2014 10:00:18 AM

SystemPerformanceCheck-D5GHz body 2014-06-03

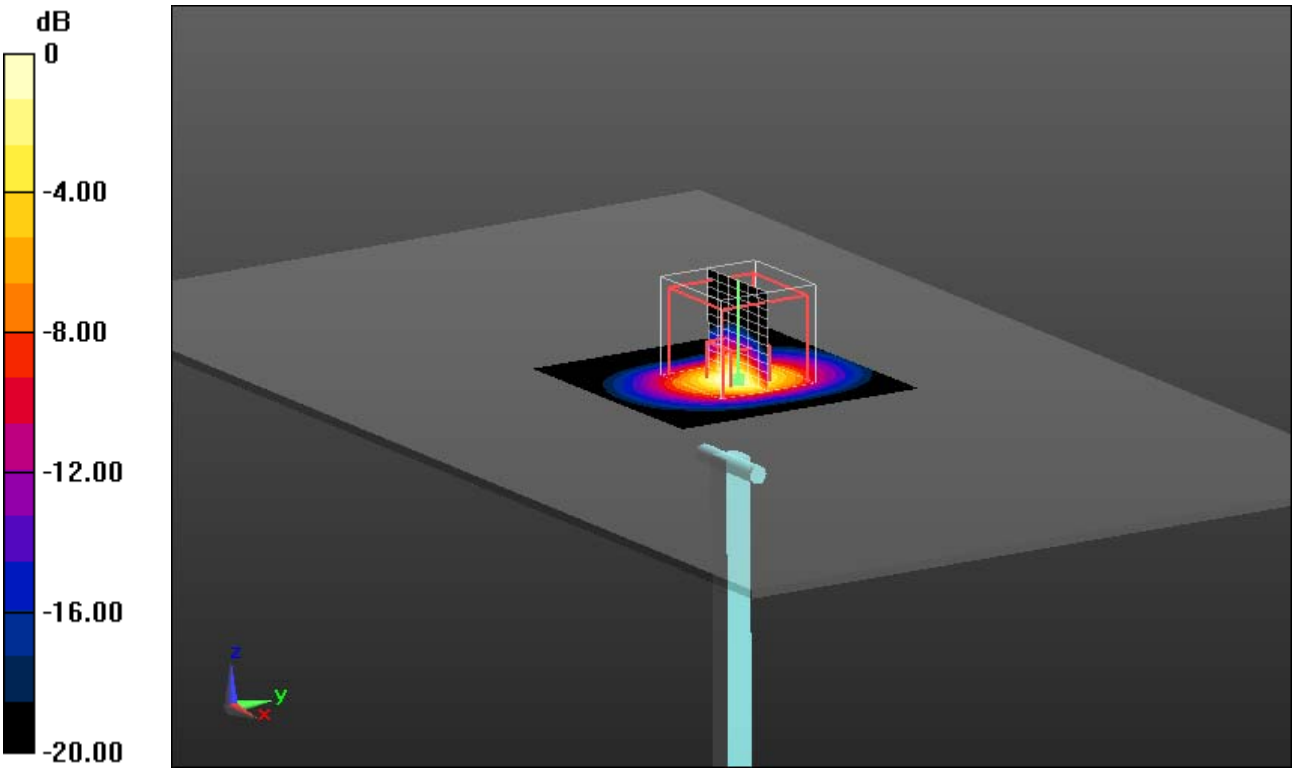
DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1055
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5800 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5800 MHz; σ = 5.962 S/m; ε_r = 47.058; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(4.2, 4.2, 4.2); Calibrated: 8/2/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 5411
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL 5GHz/d=10mm, Pin=100mW 5.8GHz/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 16.3 W/kg

MSL 5GHz/d=10mm, Pin=100mW 5.8GHz/Zoom Scan (7x7x12)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 55.89 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 34.6 W/kg
SAR(1 g) = 7.68 W/kg; SAR(10 g) = 2.14 W/kg
Maximum value of SAR (measured) = 16.6 W/kg



0 dB = 16.6 W/kg = 12.20 dBW/kg

Additional information:
ambient temperature: 23.4°C; liquid temperature: 22.9°C

Annex B: DASY5 measurement results

SAR plots for **the highest measured SAR** in each exposure configuration, wireless mode and frequency band combination according to FCC KDB 865664 D02

Annex B.1: GSM 850

Date/Time: 02.06.2014 14:47:31

IEEE1528_GSM850 head

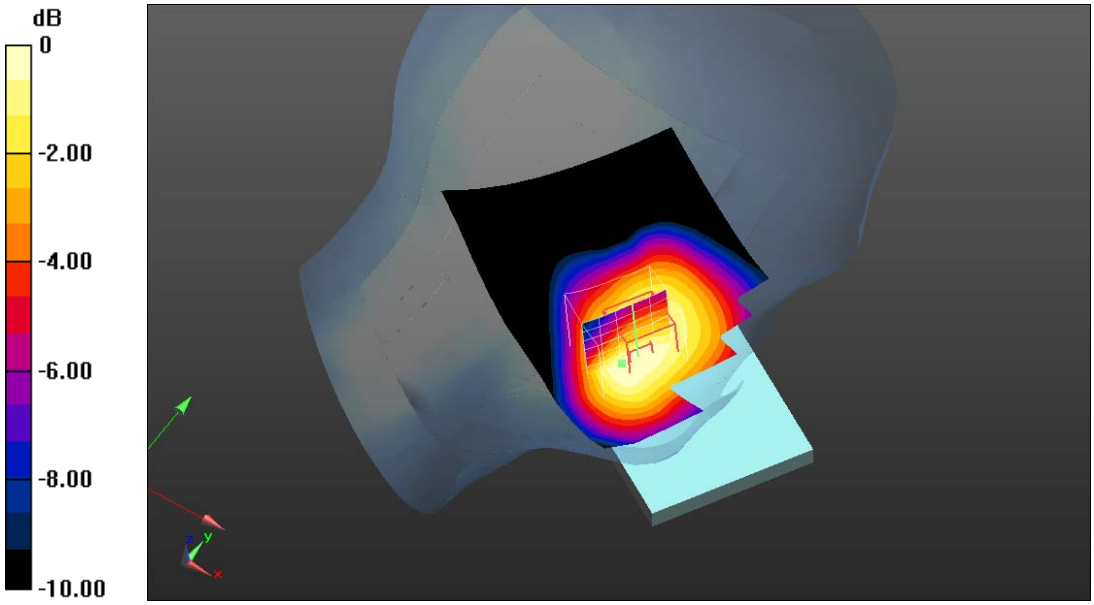
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y8L
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 850; Frequency: 824.2 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.928 S/m; ε_r = 42.019; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.15, 6.15, 6.15); Calibrated: 09.05.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.657 W/kg

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (6x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 26.667 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.746 W/kg
SAR(1 g) = 0.604 W/kg; SAR(10 g) = 0.466 W/kg
Maximum value of SAR (measured) = 0.631 W/kg



0 dB = 0.631 W/kg = -2.00 dBW/kg

Additional information:
ambient temperature: 22.9°C; liquid temperature: 22.2°C

Date/Time: 09.06.2014 14:30:48

FCC-GSM850 hotspot 2TS

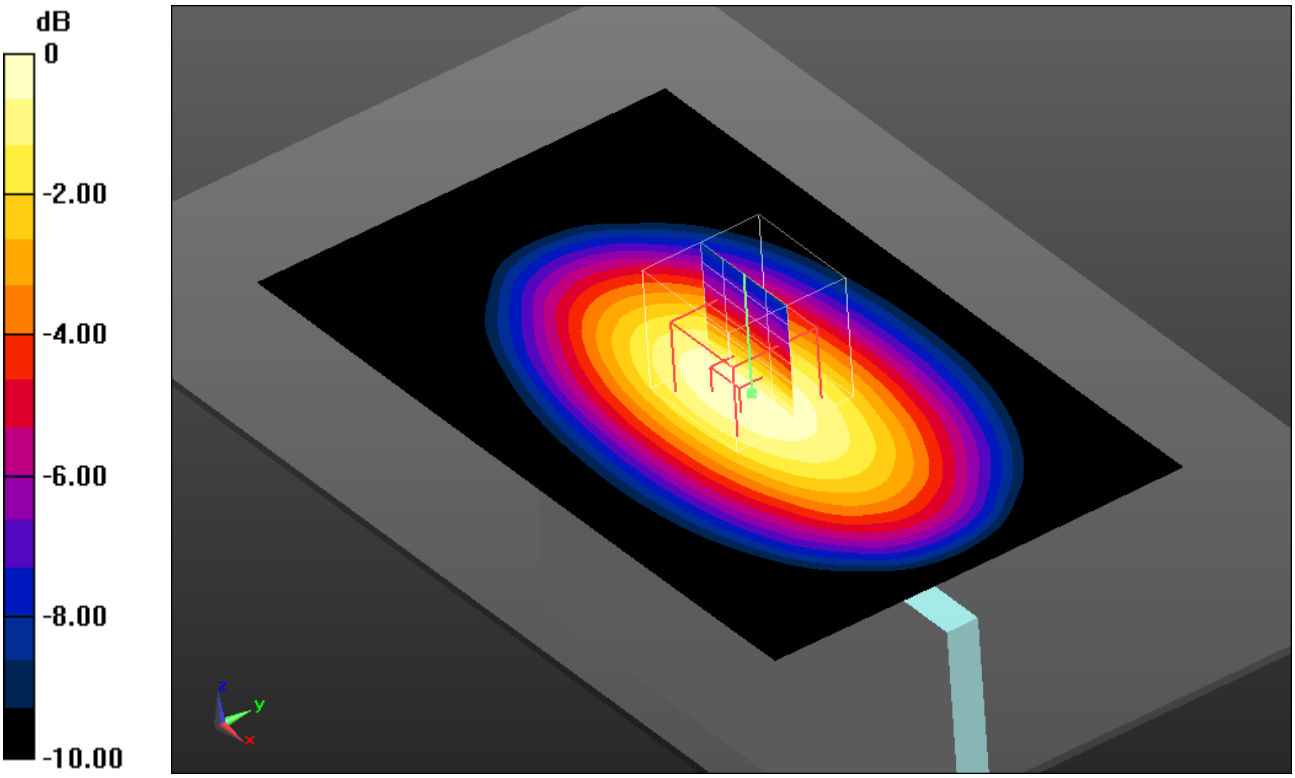
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y8L
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 850; Frequency: 824.2 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used (interpolated): f = 824.2 MHz; σ = 1.006 S/m; ε_r = 54.107; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL850-10mm/Right Side - Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.930 W/kg

MSL850-10mm/Right Side - Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 30.011 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.867 W/kg; SAR(10 g) = 0.596 W/kg
Maximum value of SAR (measured) = 0.928 W/kg



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

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.4°C; liquid temperature: 22.5°C

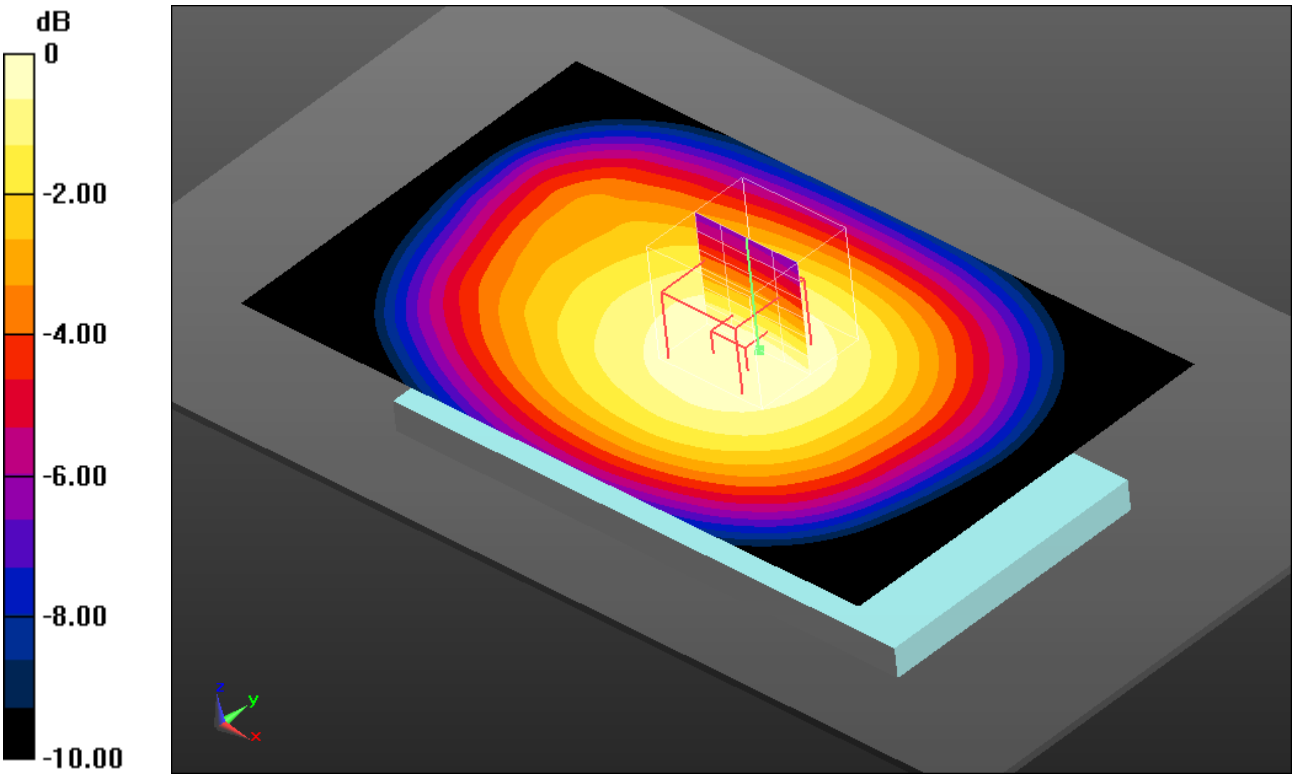
Date/Time: 06.06.2014 12:23:30

FCC-GSM850 body worn

DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y8L
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 850; Frequency: 824.2 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used (interpolated): f = 824.2 MHz; σ = 1.006 S/m; ε_r = 54.107; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL835/Front Low 15mm/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.582 W/kg

MSL835/Front Low 15mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 24.683 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.642 W/kg
SAR(1 g) = 0.552 W/kg; SAR(10 g) = 0.429 W/kg
Maximum value of SAR (measured) = 0.581 W/kg



0 dB = 0.581 W/kg = -2.36 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.2°C; liquid temperature: 22.1°C

Annex B.2: GSM 1900

Date/Time: 05.06.2014 13:49:09

IEEE1528 GSM1900 head

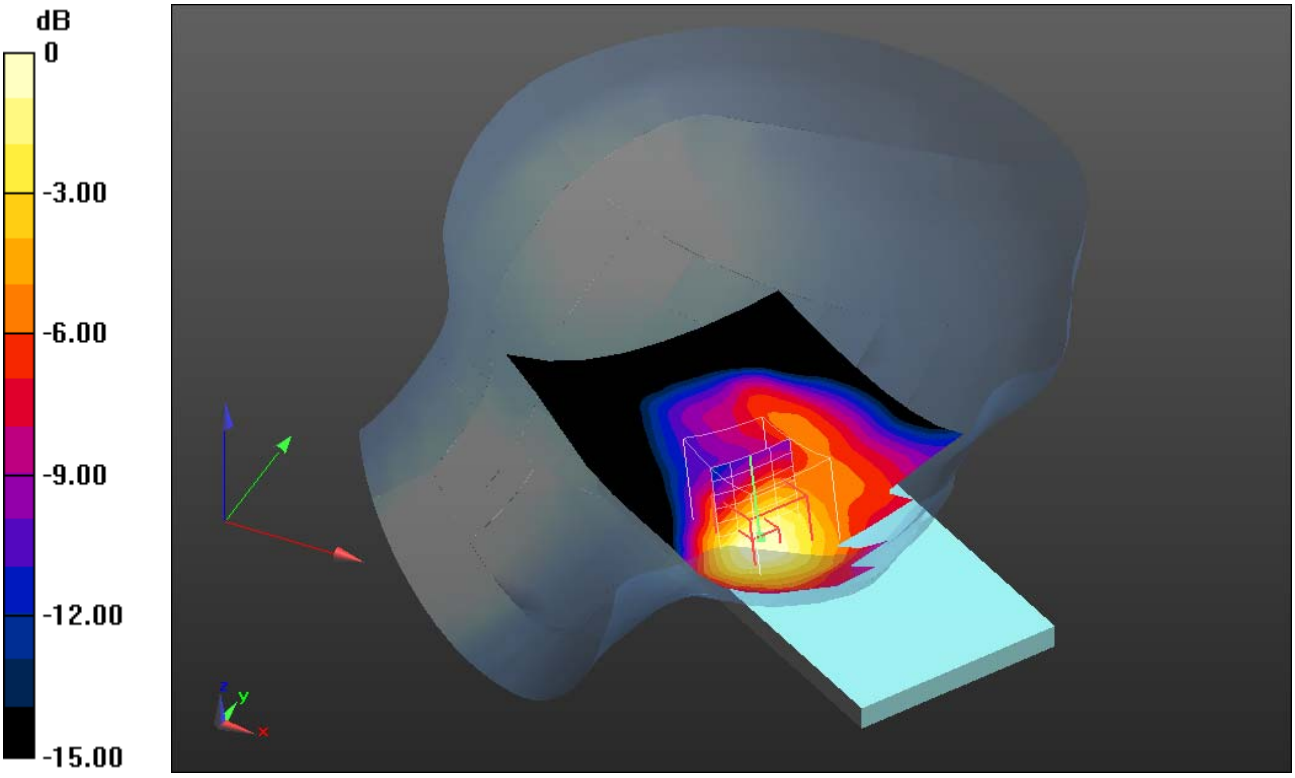
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y8L
Communication System: UID 0, GSM/GPRS 3TS (0); Communication System Band: GSM 1900; Frequency: 1880 MHz; Communication System PAR: 4.314 dB; PMF: 1.64324
Medium parameters used: f = 1880 MHz; σ = 1.373 S/m; ε_r = 39.932; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.75, 4.75, 4.75); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1042
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL 3TS/Touch Position - Mid/Area Scan (71x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.300 W/kg

Left-Hand-Side HSL 3TS/Touch Position - Mid/Zoom Scan (5x6x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 14.695 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.383 W/kg
SAR(1 g) = 0.254 W/kg; SAR(10 g) = 0.156 W/kg
Maximum value of SAR (measured) = 0.270 W/kg



0 dB = 0.270 W/kg = -5.69 dBW/kg

Additional information:
ambient temperature: 23.8°C; liquid temperature: 23.2°C

Date/Time: 03.06.2014 10:35:18

FCC_EN62209-2 GSM1900 hotspot

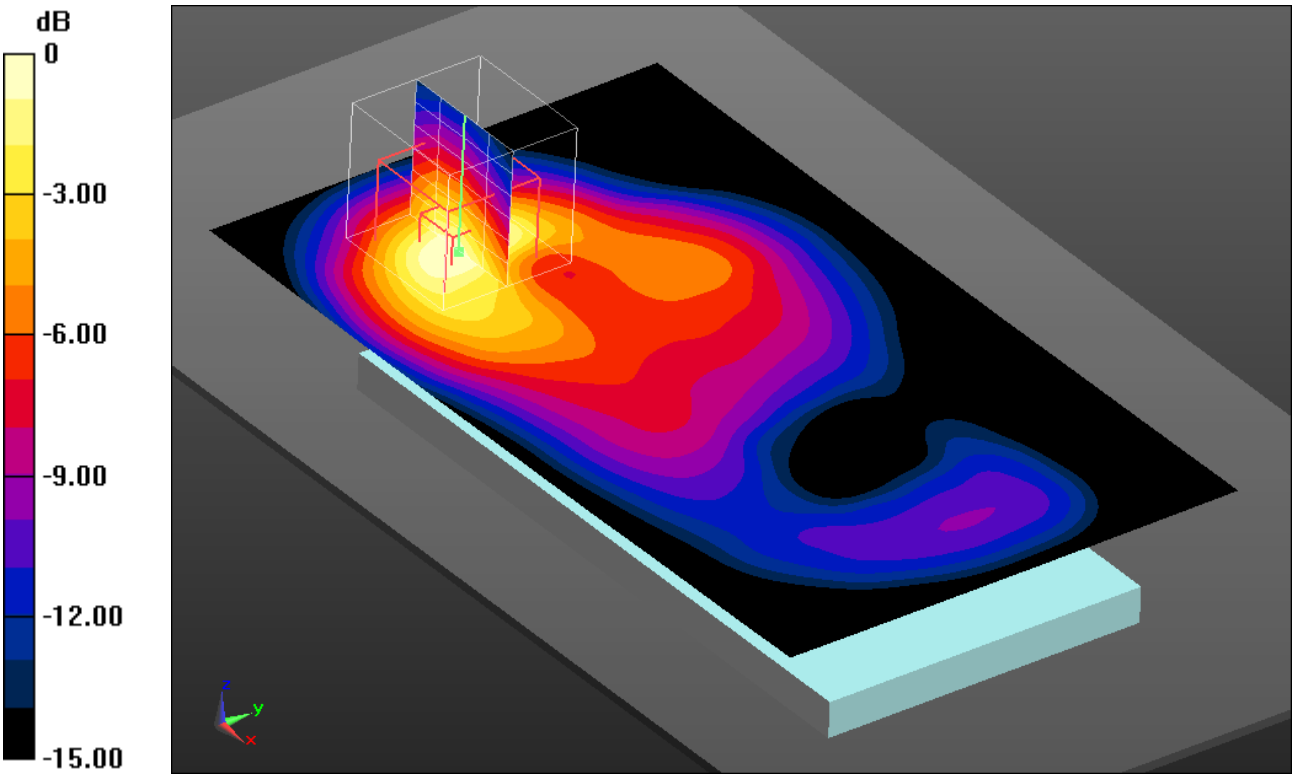
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1YA6
Communication System: UID 0, GSM/GPRS 4TS (0); Communication System Band: GSM 1900; Frequency: 1850.2 MHz; Communication System PAR: 3.01 dB; PMF: 1.41416
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.472 S/m; ε_r = 52.713; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-10mm/Rear Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.12 W/kg

MSL1900-10mm/Rear Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 28.158 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.958 W/kg; SAR(10 g) = 0.520 W/kg
Maximum value of SAR (measured) = 1.09 W/kg



0 dB = 1.09 W/kg = 0.37 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 03.06.2014 10:25:04

FCC_EN62209-2 GSM1900 hotspot

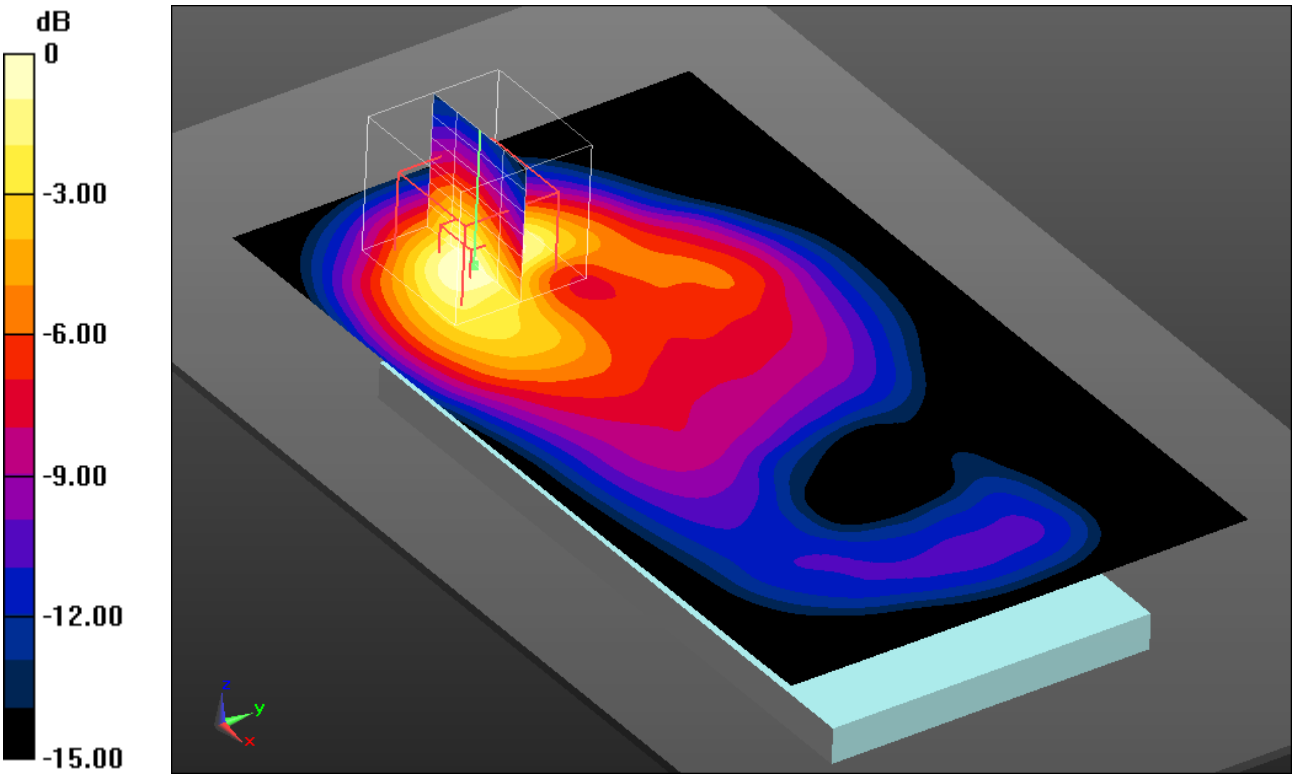
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1YA6
Communication System: UID 0, GSM/GPRS 4TS (0); Communication System Band: GSM 1900; Frequency: 1880 MHz; Communication System PAR: 3.01 dB; PMF: 1.41416
Medium parameters used: f = 1880 MHz; σ = 1.499 S/m; ε_r = 52.759; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-10mm/Rear Middle/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.15 W/kg

MSL1900-10mm/Rear Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 28.590 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 0.986 W/kg; SAR(10 g) = 0.530 W/kg
Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 03.06.2014 10:03:13

FCC_EN62209-2 GSM1900 body worn

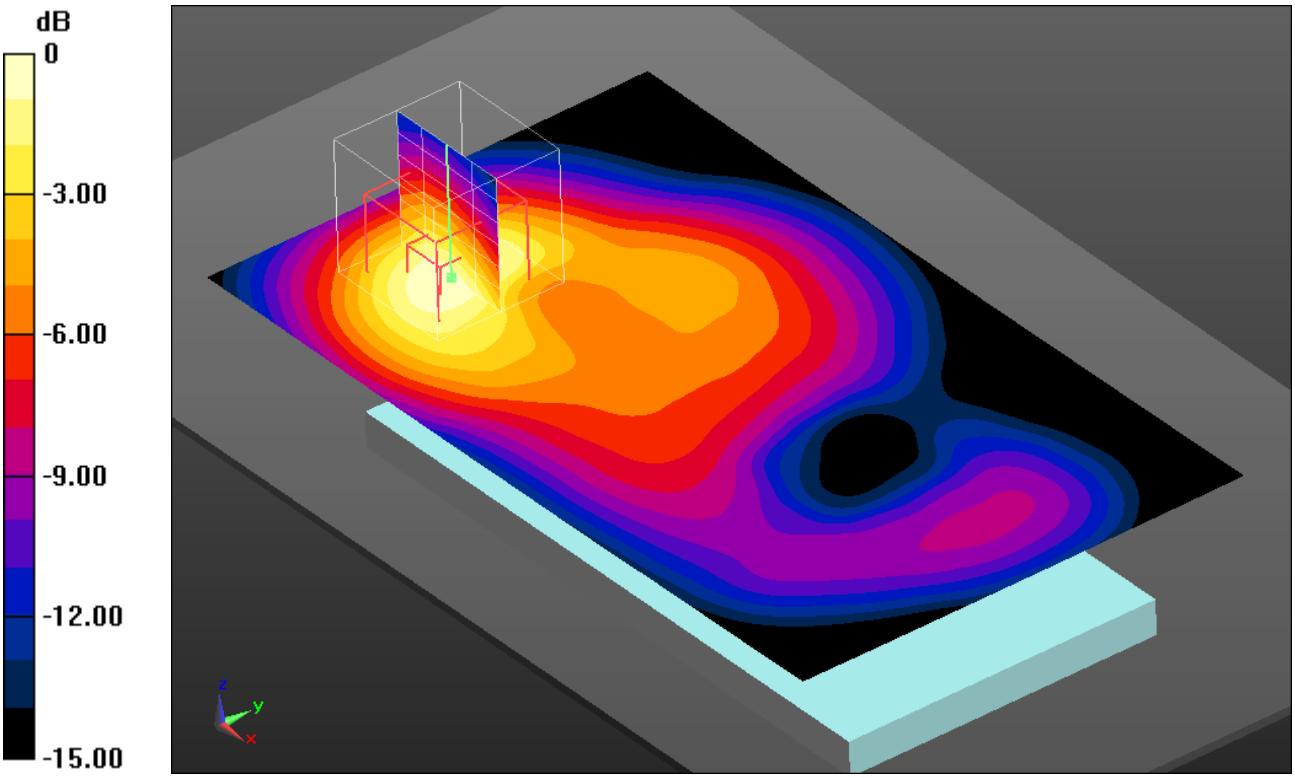
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1YA6
Communication System: UID 0, GSM/GPRS 4TS (0); Communication System Band: GSM 1900; Frequency: 1850.2 MHz; Communication System PAR: 3.01 dB; PMF: 1.41416
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.472 S/m; ε_r = 52.713; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-15mm/Rear Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.511 W/kg

MSL1900-15mm/Rear Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 19.624 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.706 W/kg
SAR(1 g) = 0.461 W/kg; SAR(10 g) = 0.271 W/kg
Maximum value of SAR (measured) = 0.507 W/kg



0 dB = 0.507 W/kg = -2.95 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 03.06.2014 09:53:15

FCC_EN62209-2 GSM1900 body worn

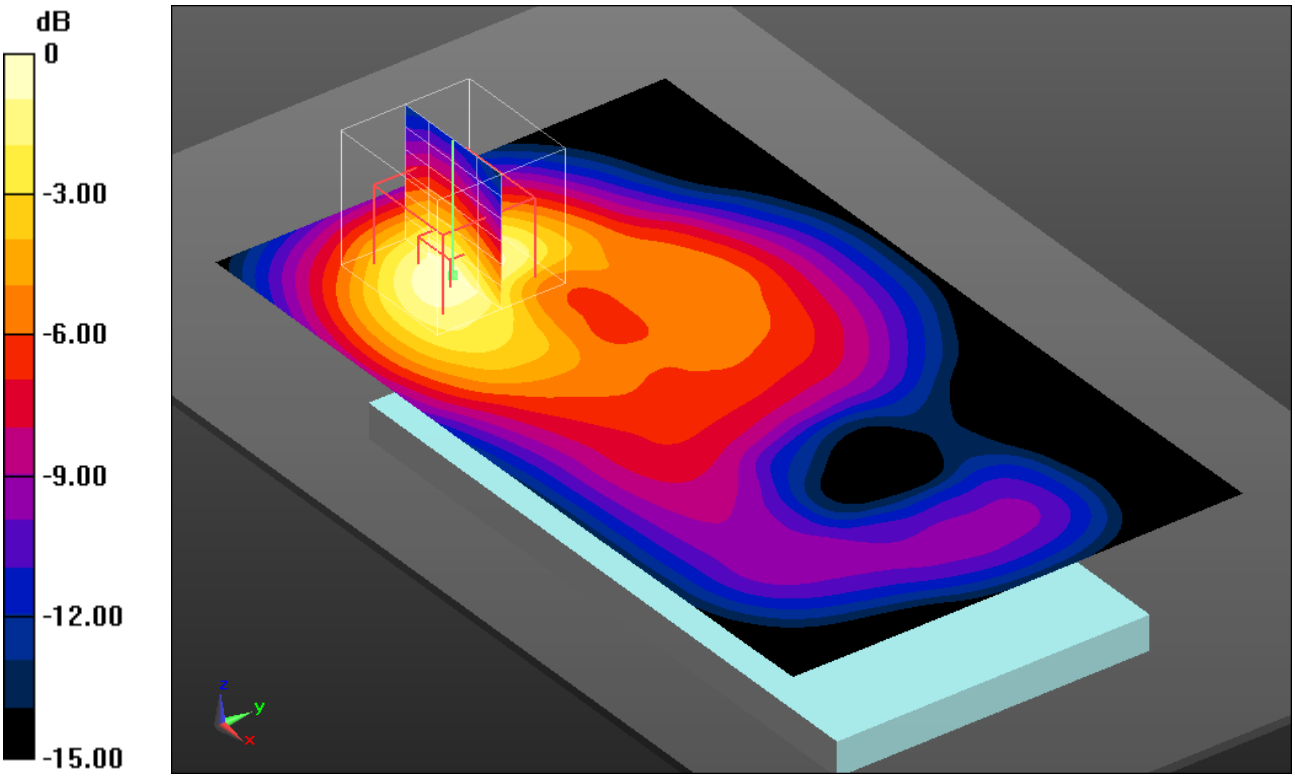
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1YA6
Communication System: UID 0, GSM/GPRS 4TS (0); Communication System Band: GSM 1900; Frequency: 1880 MHz; Communication System PAR: 3.01 dB; PMF: 1.41416
Medium parameters used: f = 1880 MHz; σ = 1.499 S/m; ε_r = 52.759; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-15mm/Rear Middle/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.517 W/kg

MSL1900-15mm/Rear Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 19.611 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.720 W/kg
SAR(1 g) = 0.465 W/kg; SAR(10 g) = 0.271 W/kg
Maximum value of SAR (measured) = 0.515 W/kg



0 dB = 0.515 W/kg = -2.88 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Annex B.3: UMTS FDD II

Date/Time: 03.06.2014 17:23:31

IEEE1528-UMTS FDD II head

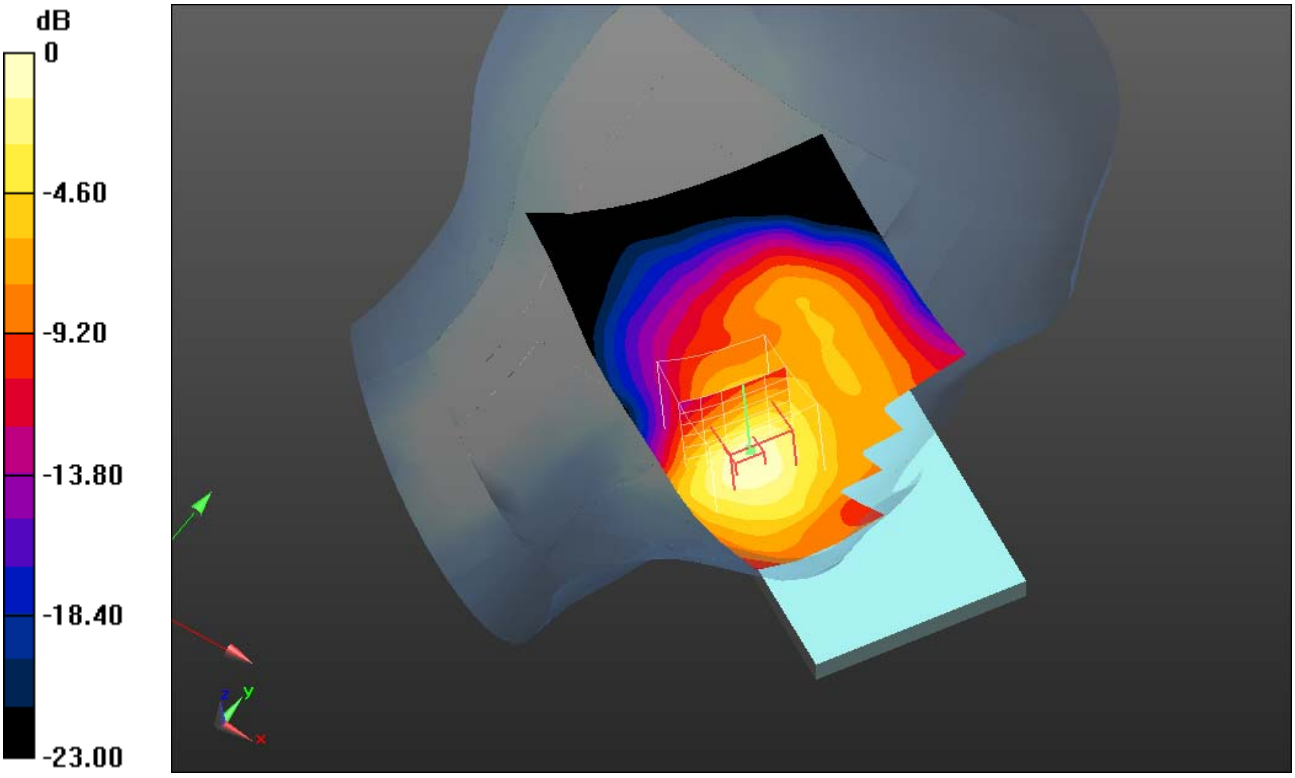
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y6X
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD II; Frequency: 1852.4 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.337 S/m; ε_r = 40.047; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.75, 4.75, 4.75); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM front; Type: QD000P40CC; Serial: TP:1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.456 W/kg

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (6x6x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 18.972 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.621 W/kg
SAR(1 g) = 0.417 W/kg; SAR(10 g) = 0.255 W/kg
Maximum value of SAR (measured) = 0.446 W/kg



0 dB = 0.446 W/kg = -3.51 dBW/kg

Additional information:
ambient temperature: 23.2°C; liquid temperature: 22.5°C

Date/Time: 30.06.2014 15:04:57

FCC_EN62209-2 UMTS FDD II hotspot (power reduction)

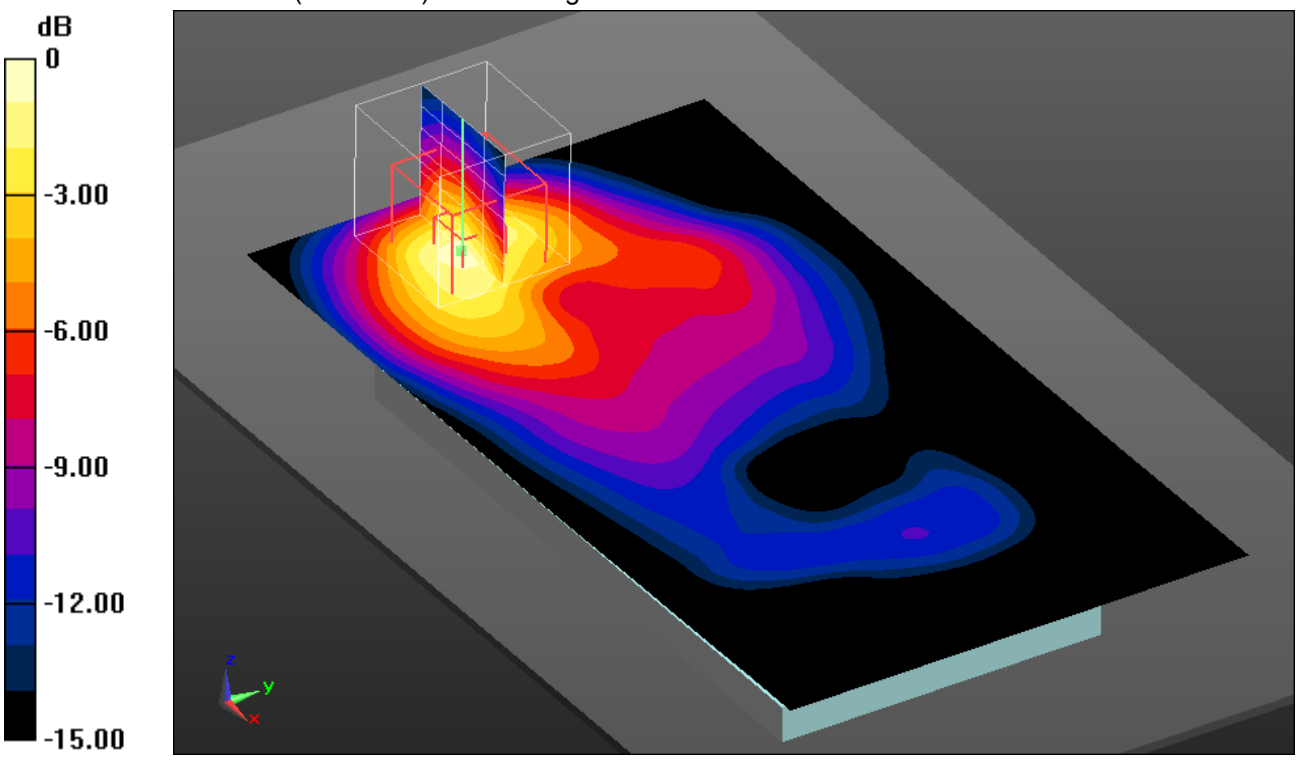
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y51
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD II; Frequency: 1907.6 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1908 MHz; σ = 1.518 S/m; ε_r = 52.487; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-10mm - QPSK - 20MHz BW - 1RB/Rear - High/Area Scan (131x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.910 W/kg

MSL1900-10mm - QPSK - 20MHz BW - 1RB/Rear - High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 23.523 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.882 W/kg; SAR(10 g) = 0.475 W/kg
Maximum value of SAR (measured) = 1.01 W/kg



0 dB = 1.01 W/kg = 0.04 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 22.2°C; liquid temperature: 21.7°C

Date/Time: 03.06.2014 13:01:27

FCC_EN62209-2 UMTS FDD II body worn

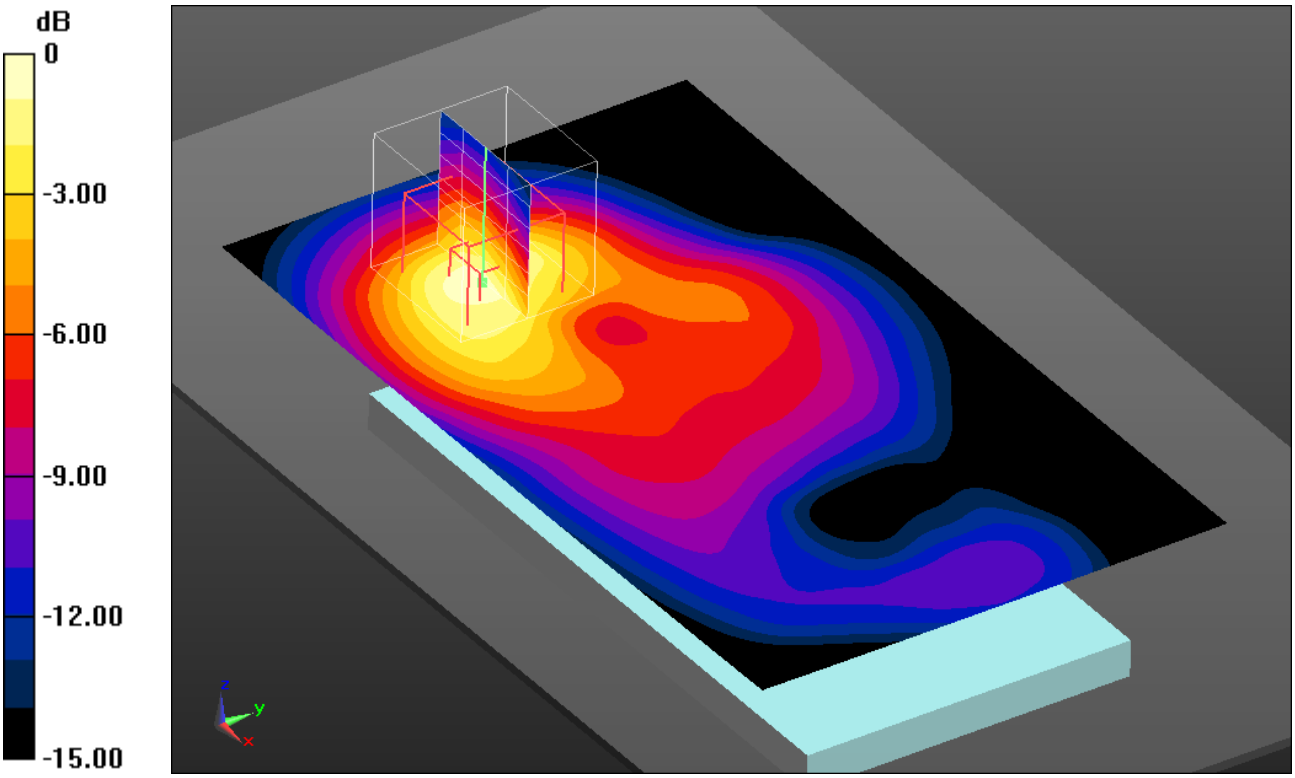
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y6X
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD II; Frequency: 1907.6 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1908 MHz; σ = 1.518 S/m; ε_r = 52.487; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-15mm/Rear High/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.712 W/kg

MSL1900-15mm/Rear High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 20.446 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.655 W/kg; SAR(10 g) = 0.372 W/kg
Maximum value of SAR (measured) = 0.741 W/kg



0 dB = 0.741 W/kg = -1.30 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Annex B.4: UMTS FDD V

Date/Time: 02.06.2014 16:53:50

IEEE1528_UMTS FDD V head

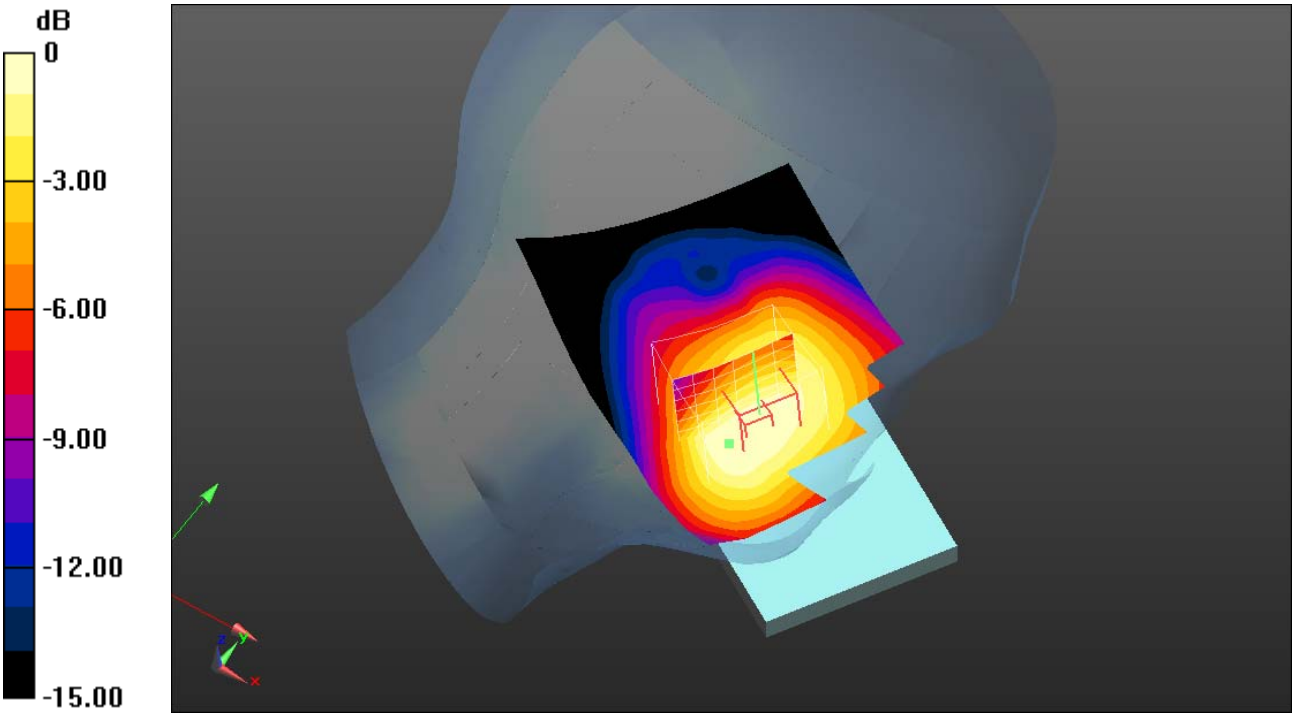
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y51
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD V; Frequency: 826.4 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.931 S/m; ε_r = 41.98; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.15, 6.15, 6.15); Calibrated: 09.05.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.530 W/kg

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x6x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 24.024 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.614 W/kg
SAR(1 g) = 0.494 W/kg; SAR(10 g) = 0.385 W/kg
Maximum value of SAR (measured) = 0.515 W/kg



0 dB = 0.515 W/kg = -2.88 dBW/kg

Additional information:
ambient temperature: 22.9°C; liquid temperature: 22.1°C

Date/Time: 09.06.2014 17:22:44

FCC-UMTS FDD V hotspot

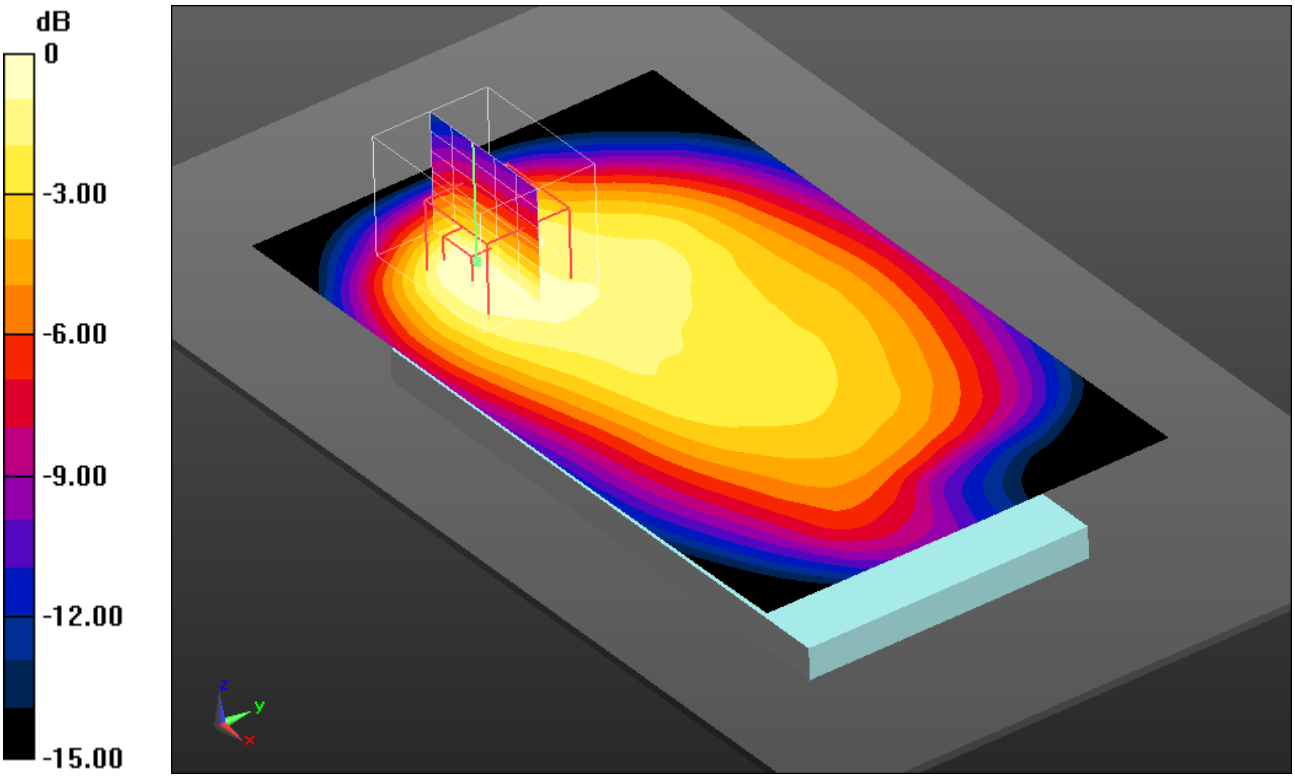
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y6X
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD V; Frequency: 826.4 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 1.008 S/m; ε_r = 54.076; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL850-10mm/Rear Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.652 W/kg

MSL850-10mm/Rear Low/Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 23.988 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.846 W/kg
SAR(1 g) = 0.507 W/kg; SAR(10 g) = 0.319 W/kg
Maximum value of SAR (measured) = 0.548 W/kg



0 dB = 0.548 W/kg = -2.61 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.4°C; liquid temperature: 22.5°C

Date/Time: 09.06.2014 16:31:43

FCC-UMTS FDD V body worn

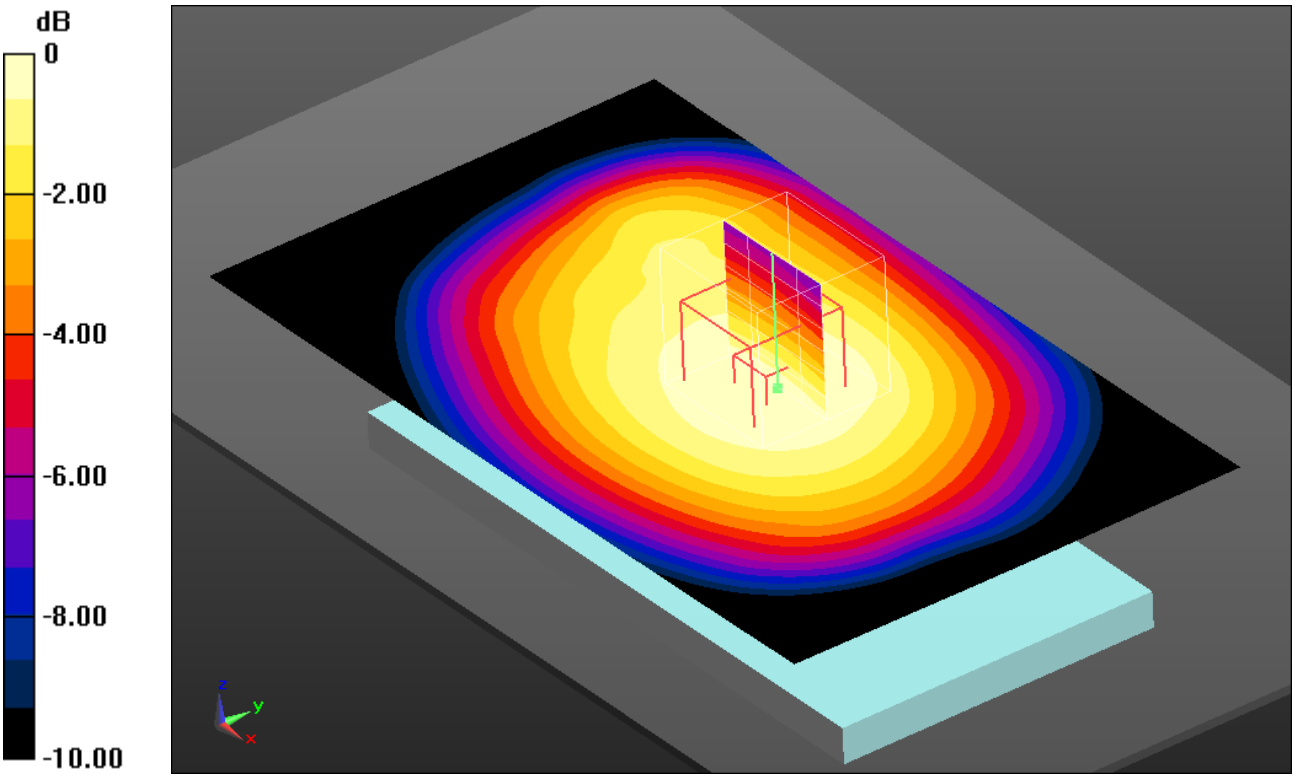
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y6X
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD V; Frequency: 846.6 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 847 MHz; σ = 1.026 S/m; ε_r = 53.817; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL850-15mm/Front High/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.389 W/kg

MSL850-15mm/Front High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 20.105 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.429 W/kg
SAR(1 g) = 0.367 W/kg; SAR(10 g) = 0.285 W/kg
Maximum value of SAR (measured) = 0.385 W/kg



0 dB = 0.385 W/kg = -4.15 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.4°C; liquid temperature: 22.5°C

Annex B.5: CDMA BC0

Date/Time: 04.06.2014 10:47:51

IEEE1528_CDMA BC0 head

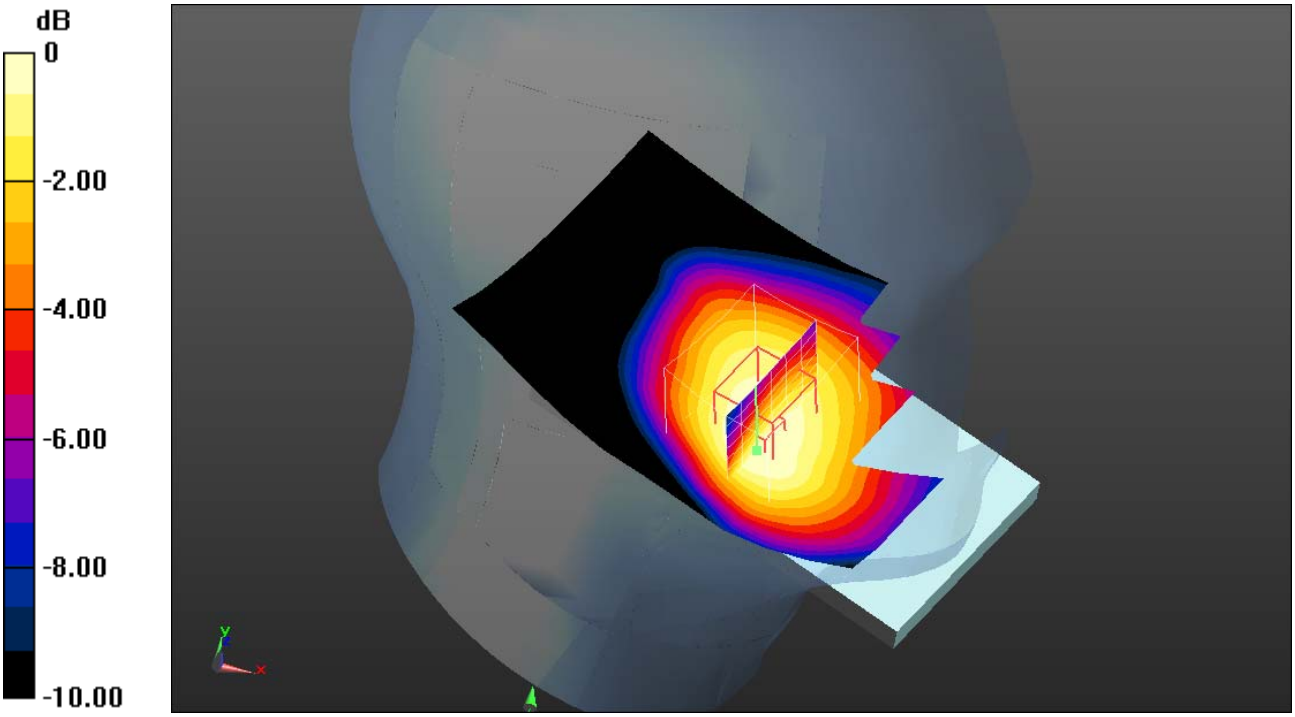
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y50
Communication System: UID 0, CDMA2000 (0); Communication System Band: BC0; Frequency: 824.7 MHz;
Communication System PAR: 0 dB; PMF: 1.12202e-005
Medium parameters used: f = 825 MHz; σ = 0.929 S/m; ε_r = 42; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.15, 6.15, 6.15); Calibrated: 09.05.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.665 W/kg

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x6x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 26.726 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.764 W/kg
SAR(1 g) = 0.609 W/kg; SAR(10 g) = 0.472 W/kg
Maximum value of SAR (measured) = 0.630 W/kg



0 dB = 0.630 W/kg = -2.01 dBW/kg

Additional information:
ambient temperature: 23.5°C; liquid temperature: 22.8°C

Date/Time: 10.06.2014 10:07:10

FCC_EN62209-2 CDMA BC0 hotspot

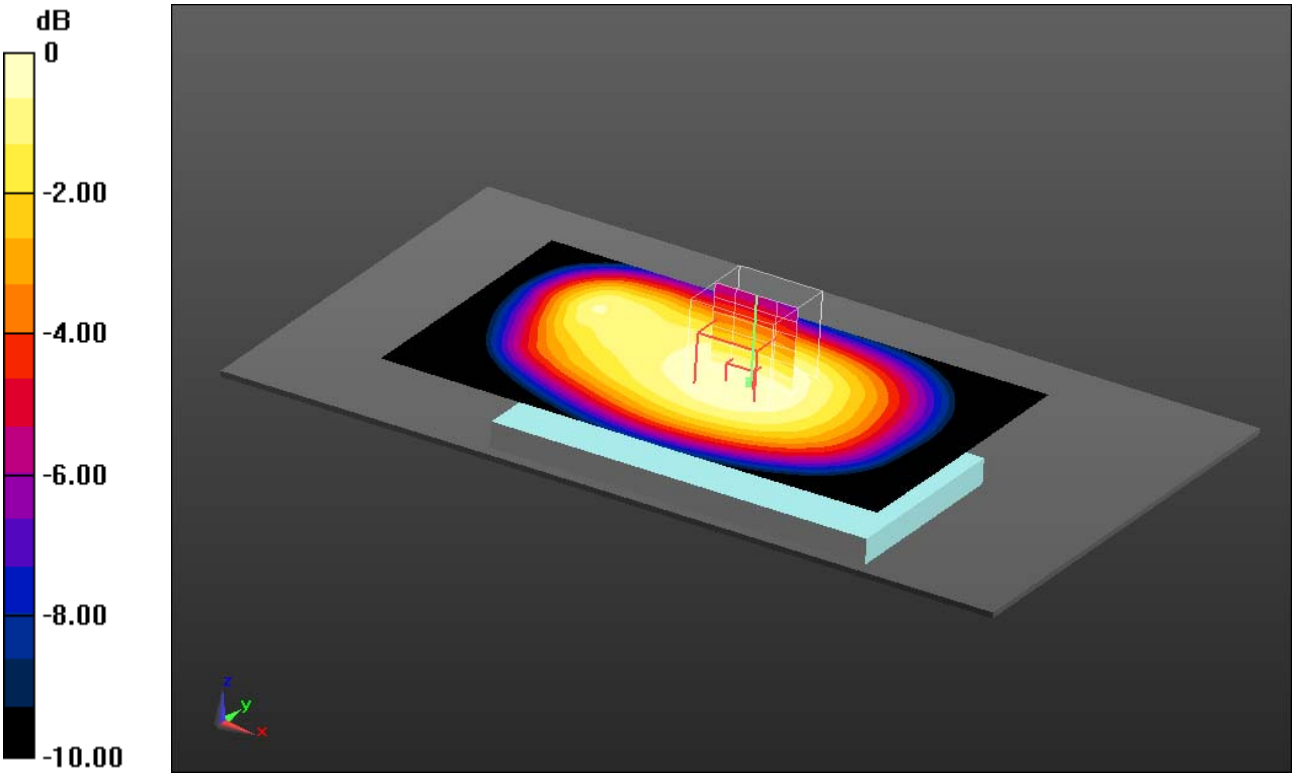
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y50
Communication System: UID 0, CDMA2000 (0); Communication System Band: BC0; Frequency: 824.7 MHz;
Communication System PAR: 0 dB; PMF: 1.12202e-005
Medium parameters used: f = 825 MHz; σ = 1.006 S/m; ε_r = 54.087; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL835-10mm/Front Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.604 W/kg

MSL835-10mm/Front Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 25.431 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.671 W/kg
SAR(1 g) = 0.577 W/kg; SAR(10 g) = 0.454 W/kg
Maximum value of SAR (measured) = 0.603 W/kg



0 dB = 0.603 W/kg = -2.20 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 23.4°C

Date/Time: 10.06.2014 09:54:55

FCC_EN62209-2 CDMA BC0 body worn

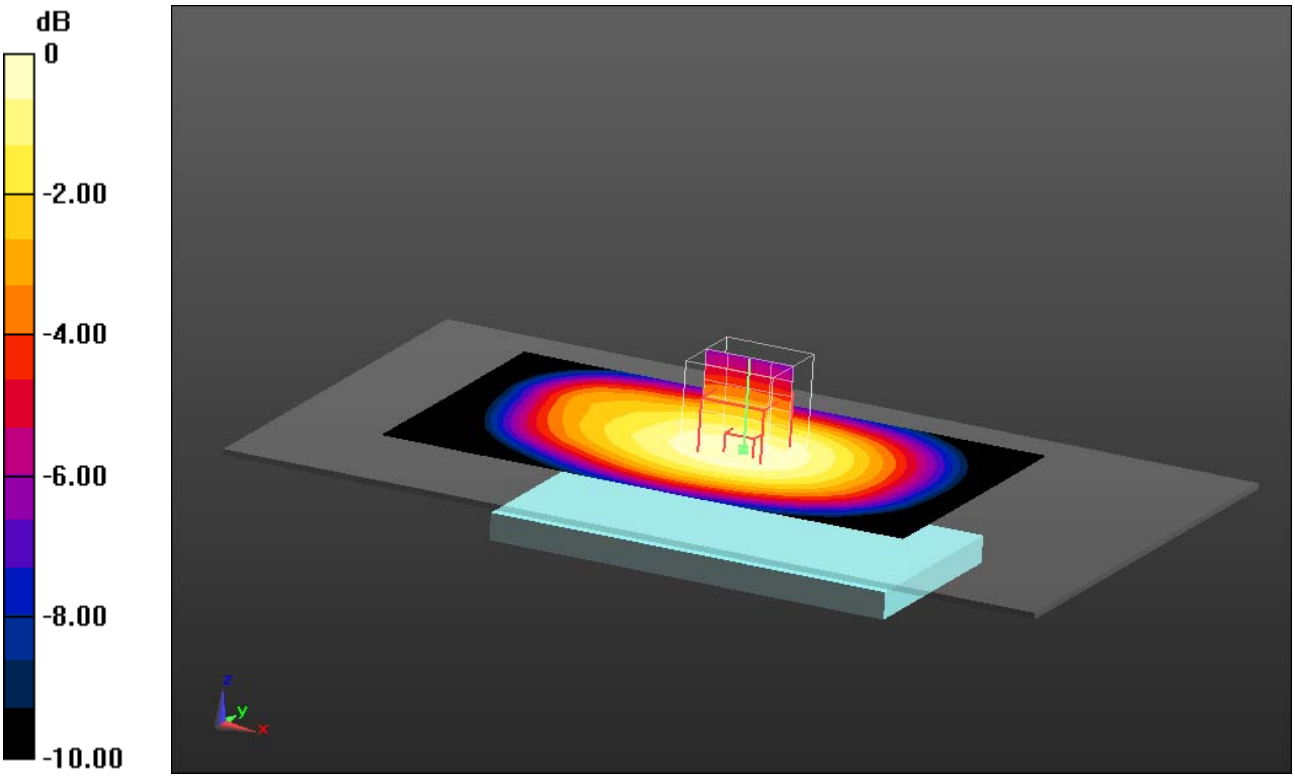
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y50
Communication System: UID 0, CDMA2000 (0); Communication System Band: BC0; Frequency: 824.7 MHz;
Communication System PAR: 0 dB; PMF: 1.12202e-005
Medium parameters used: f = 825 MHz; σ = 1.006 S/m; ε_r = 54.087; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.64, 5.64, 5.64); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL835-15mm/Front Low/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.580 W/kg

MSL835-15mm/Front Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 24.990 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.650 W/kg
SAR(1 g) = 0.555 W/kg; SAR(10 g) = 0.431 W/kg
Maximum value of SAR (measured) = 0.581 W/kg



0 dB = 0.581 W/kg = -2.36 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.0°C; liquid temperature: 23.4°C

Annex B.6: CDMA BC1

Date/Time: 04.06.2014 16:23:12

IEEE1528_CDMA BC1 head

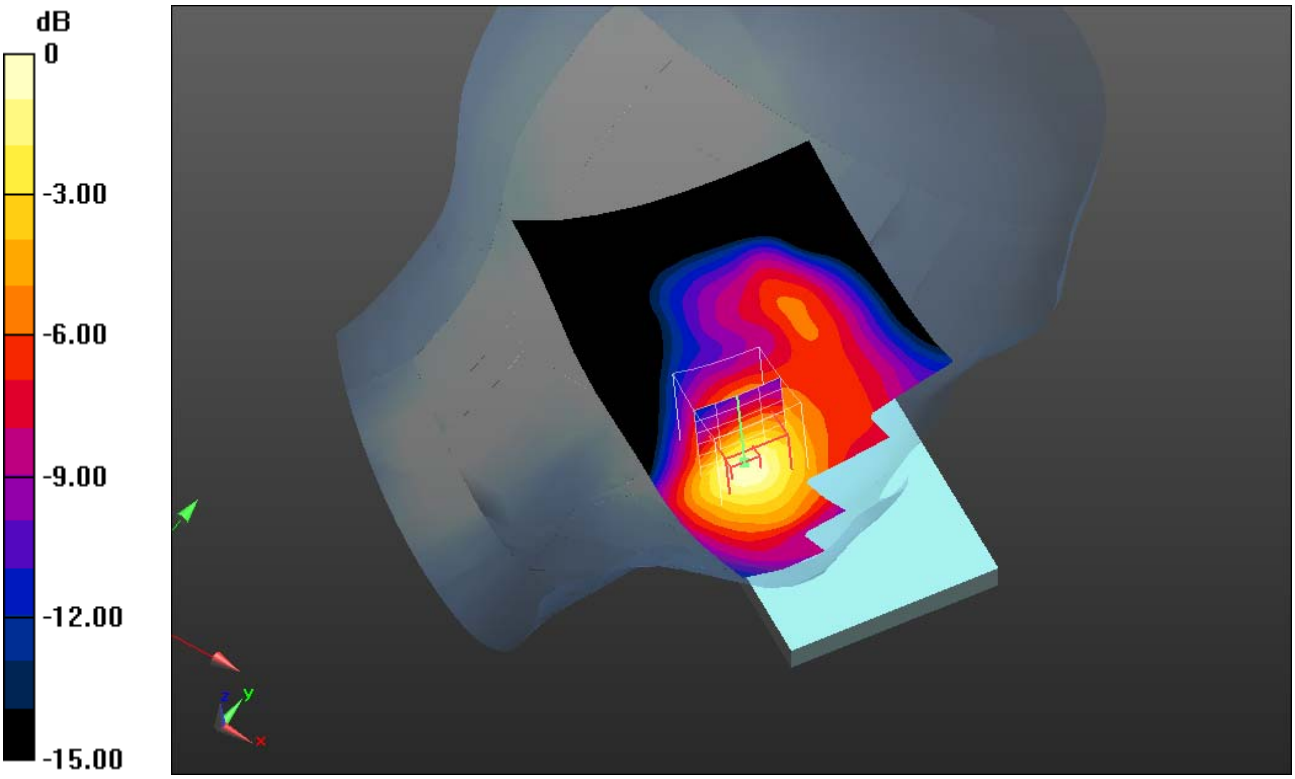
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y50
Communication System: UID 0, CDMA2000 (0); Communication System Band: MC1; Frequency: 1880 MHz;
Communication System PAR: 0 dB; PMF: 1.12202e-005
Medium parameters used: f = 1880 MHz; σ = 1.373 S/m; ε_r = 39.932; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.75, 4.75, 4.75); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1042
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL/Touch Position - Mid/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.427 W/kg

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 18.399 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.593 W/kg
SAR(1 g) = 0.386 W/kg; SAR(10 g) = 0.230 W/kg
Maximum value of SAR (measured) = 0.426 W/kg



0 dB = 0.426 W/kg = -3.71 dBW/kg

Additional information:
ambient temperature: 23.7°C; liquid temperature: 23.2°C

Date/Time: 30.06.2014 13:43:32

FCC_EN62209-2 BC1 hotspot (power reduction)

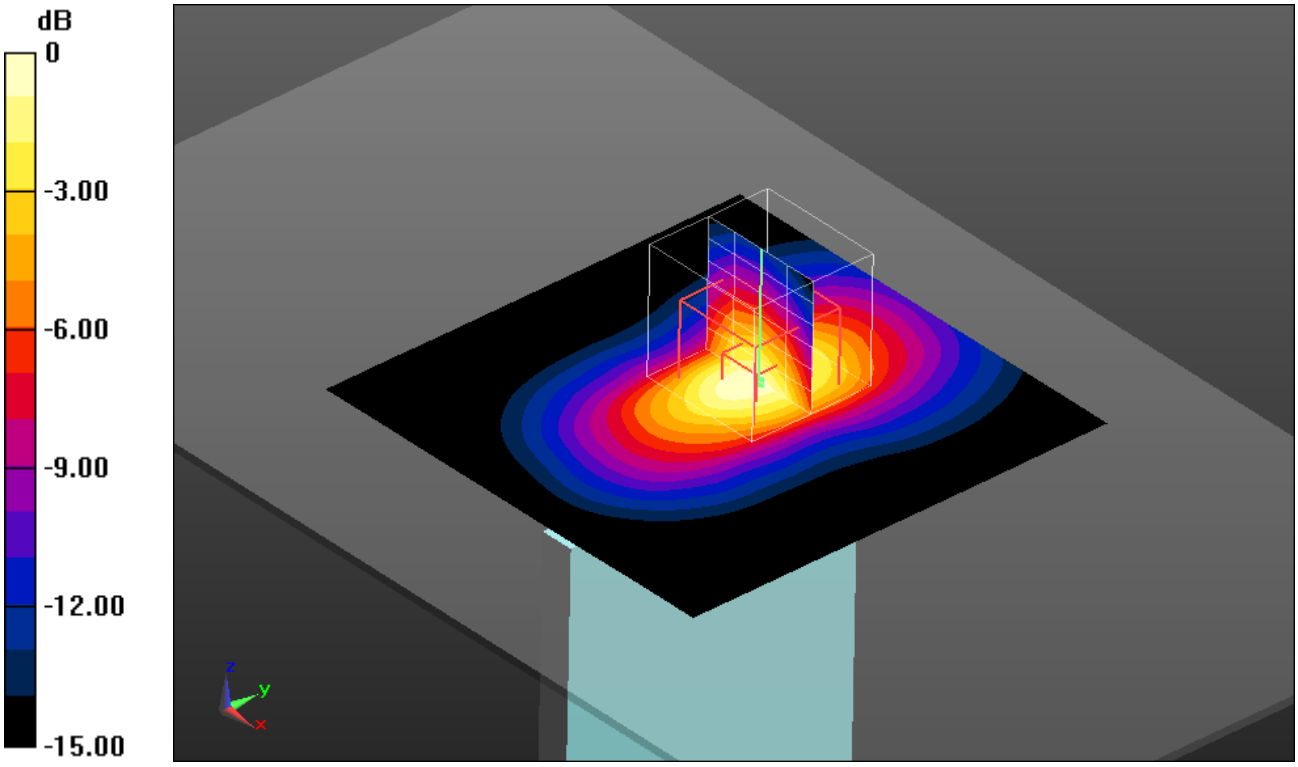
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y0Y
Communication System: UID 0, CDMA2000 (0); Communication System Band: BC1; Frequency: 1908.75 MHz; Communication System PAR: 0 dB; PMF: 1.12202e-005
Medium parameters used: f = 1909 MHz; σ = 1.516 S/m; ε_r = 52.471; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-10mm - QPSK - 20MHz BW - 1RB/Bottom - High/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.806 W/kg

MSL1900-10mm - QPSK - 20MHz BW - 1RB/Bottom - High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 21.844 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.714 W/kg; SAR(10 g) = 0.378 W/kg
Maximum value of SAR (measured) = 0.815 W/kg



0 dB = 0.815 W/kg = -0.89 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 22.2°C; liquid temperature: 21.7°C

Date/Time: 05.06.2014 17:39:17

FCC_EN62209-2 CDMA BC1 body worn

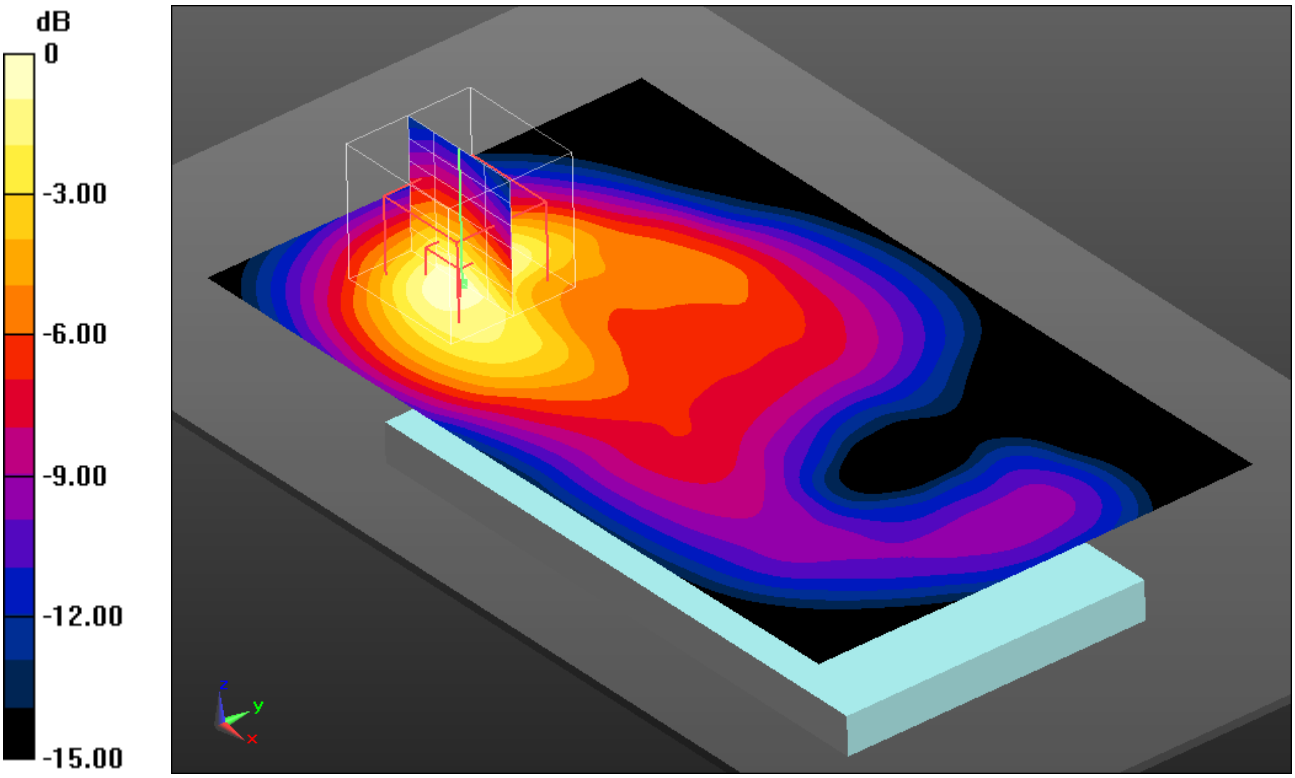
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y50
Communication System: UID 0, CDMA2000 (0); Communication System Band: BC1; Frequency: 1908.75 MHz; Communication System PAR: 0 dB; PMF: 1.12202e-005
Medium parameters used: f = 1909 MHz; σ = 1.516 S/m; ε_r = 52.471; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-15mm/Rear High/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.656 W/kg

MSL1900-15mm/Rear High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 21.168 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.927 W/kg
SAR(1 g) = 0.594 W/kg; SAR(10 g) = 0.343 W/kg
Maximum value of SAR (measured) = 0.657 W/kg



0 dB = 0.657 W/kg = -1.82 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.9°C; liquid temperature: 23.2°C

Annex B.7: LTE FDD 2

Date/Time: 04.06.2014 10:24:24

FCC_EN62209-2 LTE FDD 2 head

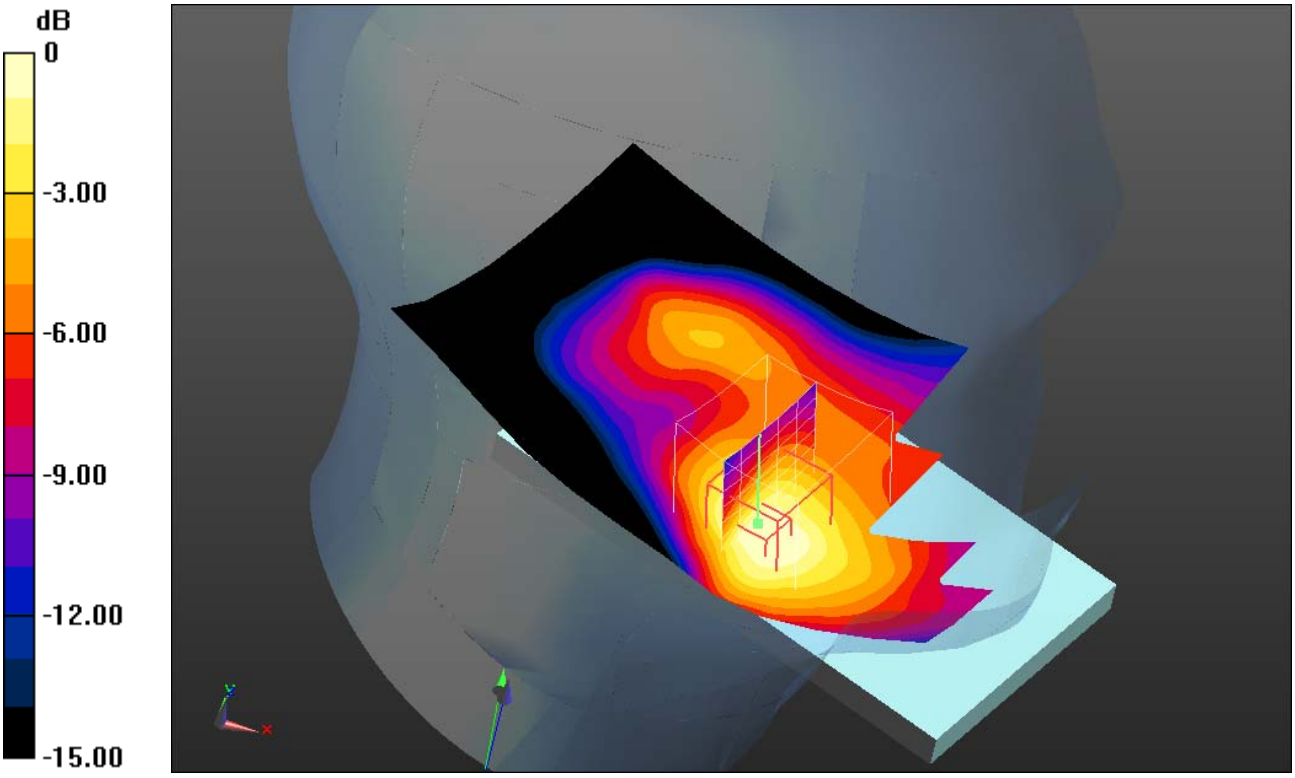
DUT: Sony LTE #2; Type: PY7PM-0742; Serial: CB5A1Z1Y7G
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 2 (1900MHz); Frequency: 1860 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1860 MHz; σ = 1.347 S/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.75, 4.75, 4.75); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1042
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL - 20MHz BW - 1RB/Touch Position - Low - 50RB offset/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.361 W/kg

Left-Hand-Side HSL - 20MHz BW - 1RB/Touch Position - Low - 50RB offset/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 16.582 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.467 W/kg
SAR(1 g) = 0.319 W/kg; SAR(10 g) = 0.200 W/kg
Maximum value of SAR (measured) = 0.333 W/kg



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

Additional information:
ambient temperature: 23.7°C; liquid temperature: 23.2°C

Date/Time: 04.06.2014 09:17:59

FCC_EN62209-2 LTE FDD 2 head

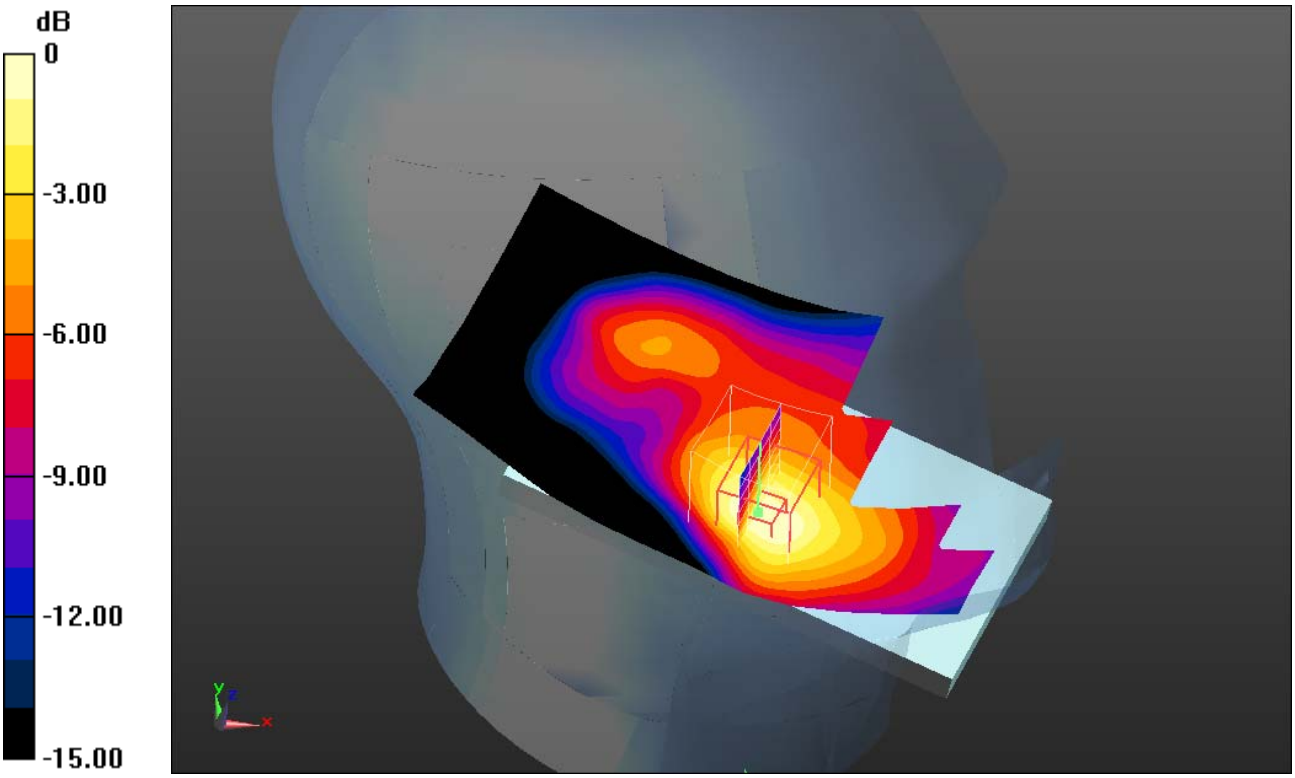
DUT: Sony LTE #2; Type: PY7PM-0742; Serial: CB5A1Z1Y7G
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 2 (1900MHz); Frequency: 1880 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1880 MHz; σ = 1.373 S/m; ε_r = 39.932; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.75, 4.75, 4.75); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1042
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL - 20MHz BW - 1RB/Touch Position - Mid - 0RB offset/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.359 W/kg

Left-Hand-Side HSL - 20MHz BW - 1RB/Touch Position - Mid - 0RB offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 16.561 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.464 W/kg
SAR(1 g) = 0.318 W/kg; SAR(10 g) = 0.195 W/kg
Maximum value of SAR (measured) = 0.349 W/kg



0 dB = 0.349 W/kg = -4.57 dBW/kg

Additional information:
ambient temperature: 23.7°C; liquid temperature: 23.2°C

Date/Time: 30.06.2014 09:42:22

FCC_EN62209-2 LTE FDD 2 hotspot (power reduction)

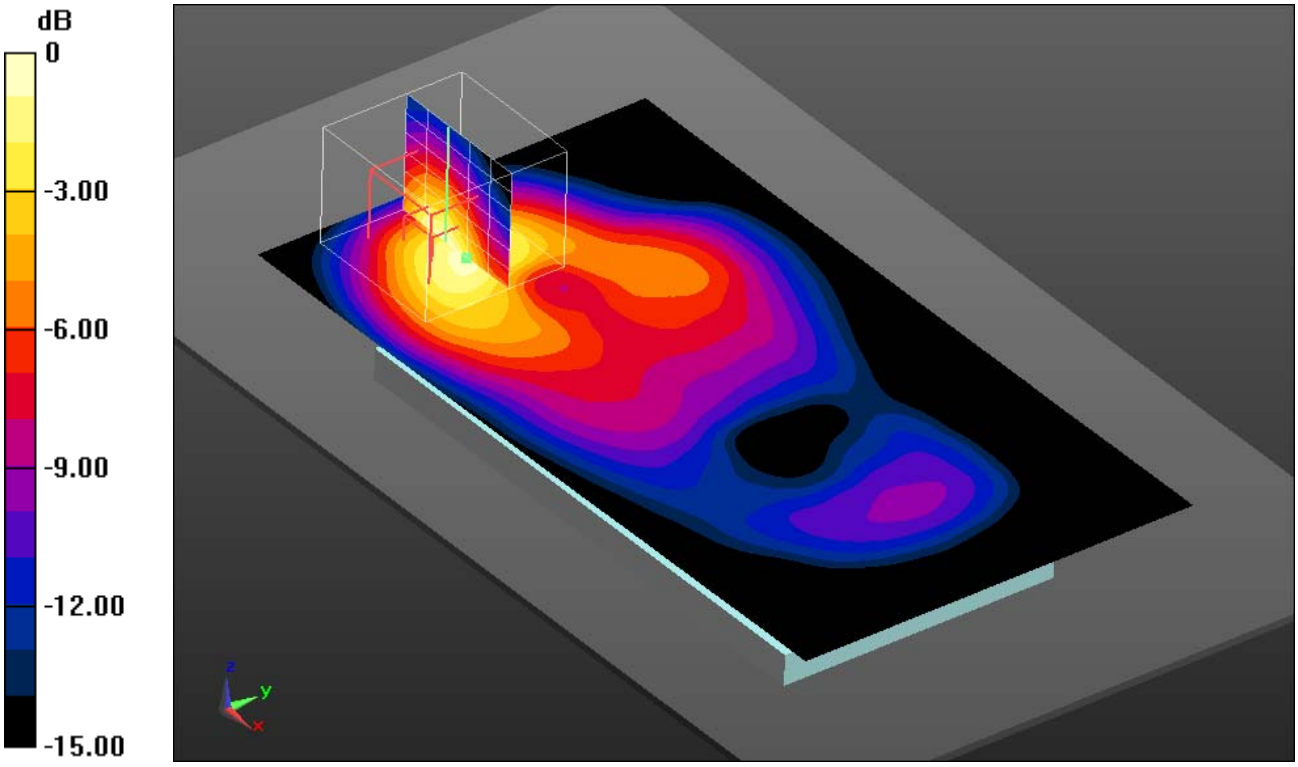
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y49
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 2 (1900MHz); Frequency: 1860 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1860 MHz; σ = 1.476 S/m; ε_r = 52.597; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-10mm - QPSK - 20MHz BW - 1RB/Rear - Low - 50RB offset/Area Scan (131x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.686 W/kg

MSL1900-10mm - QPSK - 20MHz BW - 1RB/Rear - Low - 50RB offset/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 22.172 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.706 W/kg; SAR(10 g) = 0.380 W/kg
Maximum value of SAR (measured) = 0.801 W/kg



0 dB = 0.801 W/kg = -0.96 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 22.2°C; liquid temperature: 21.7°C

Date/Time: 30.06.2014 11:32:33

FCC_EN62209-2 LTE FDD 2 hotspot (power reduction)

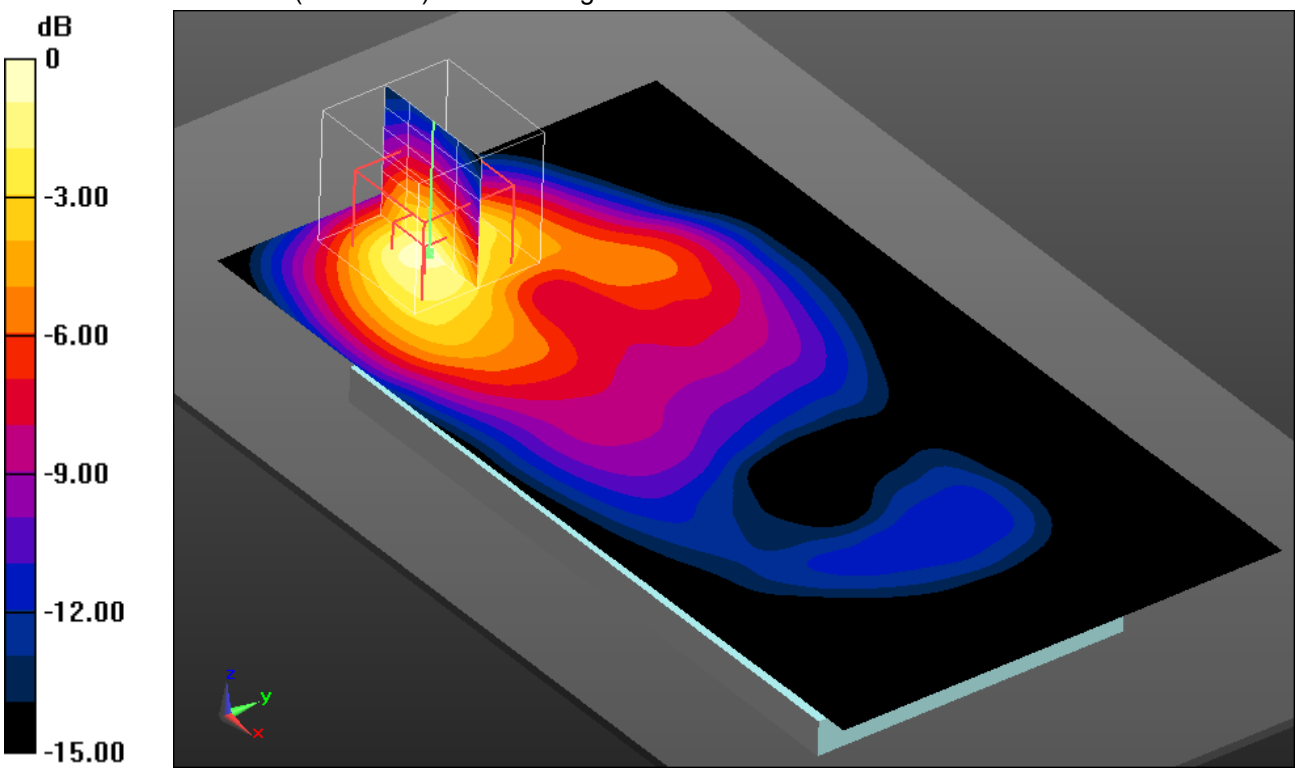
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y49
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 2 (1900MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.529 S/m; ε_r = 52.558; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-10mm - QPSK - 20MHz BW - 1RB/Rear - High - 99RB offset/Area Scan (131x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.710 W/kg

MSL1900-10mm - QPSK - 20MHz BW - 1RB/Rear - High - 99RB offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 20.388 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.685 W/kg; SAR(10 g) = 0.370 W/kg
Maximum value of SAR (measured) = 0.789 W/kg



0 dB = 0.789 W/kg = -1.03 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 22.2°C; liquid temperature: 21.7°C

Date/Time: 02.06.2014 15:31:03

FCC_EN62209-2 LTE FDD 2 body worn

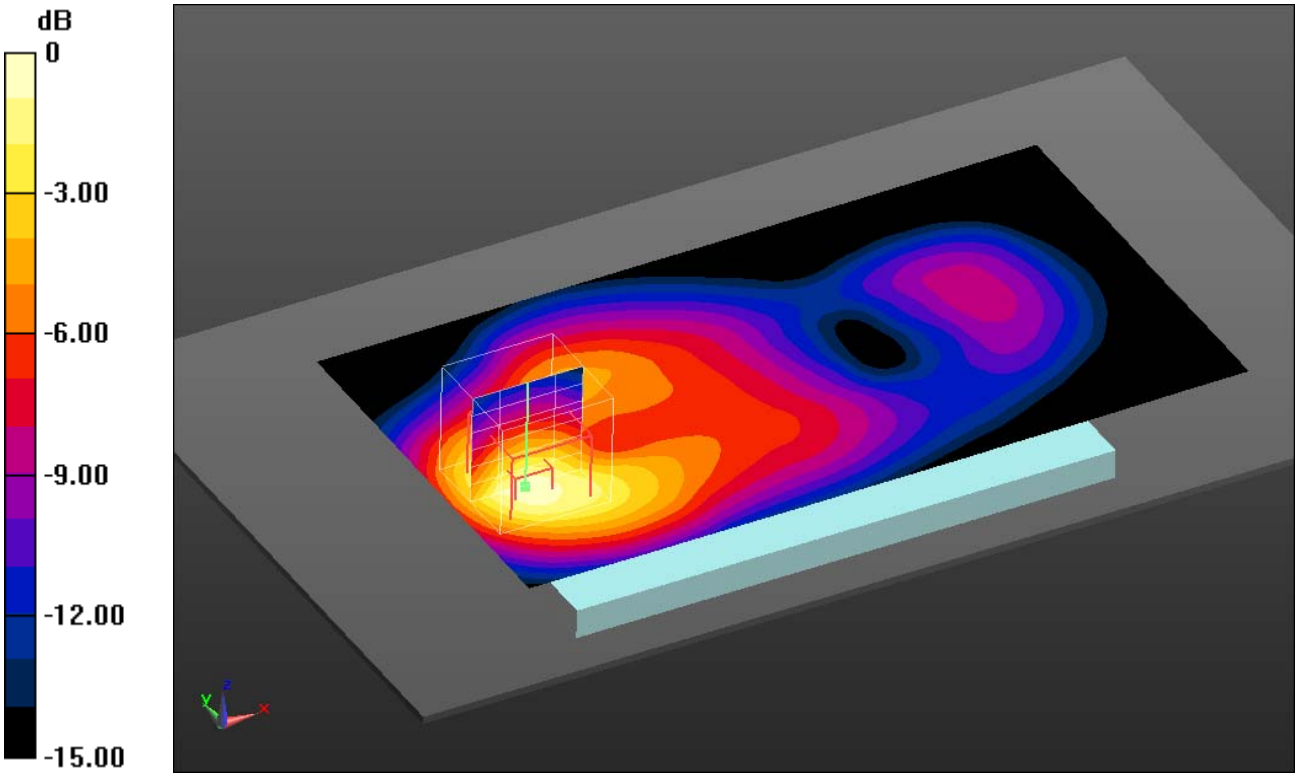
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y49
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 2 (1900MHz); Frequency: 1880 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1880 MHz; σ = 1.499 S/m; ε_r = 52.759; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.21, 4.21, 4.21); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1900-15mm - QPSK - 20MHz BW - 1RB/Rear - Middle - 0RB offset/Area Scan (131x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.541 W/kg

MSL1900-15mm - QPSK - 20MHz BW - 1RB/Rear - Middle - 0RB offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 19.030 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.782 W/kg
SAR(1 g) = 0.509 W/kg; SAR(10 g) = 0.295 W/kg
Maximum value of SAR (measured) = 0.570 W/kg



0 dB = 0.570 W/kg = -2.44 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.2°C; liquid temperature: 22.3°C

Annex B.8: LTE FDD 4

Date/Time: 27.05.2014 11:55:14

IEEE1528-LTE FDD 4 head

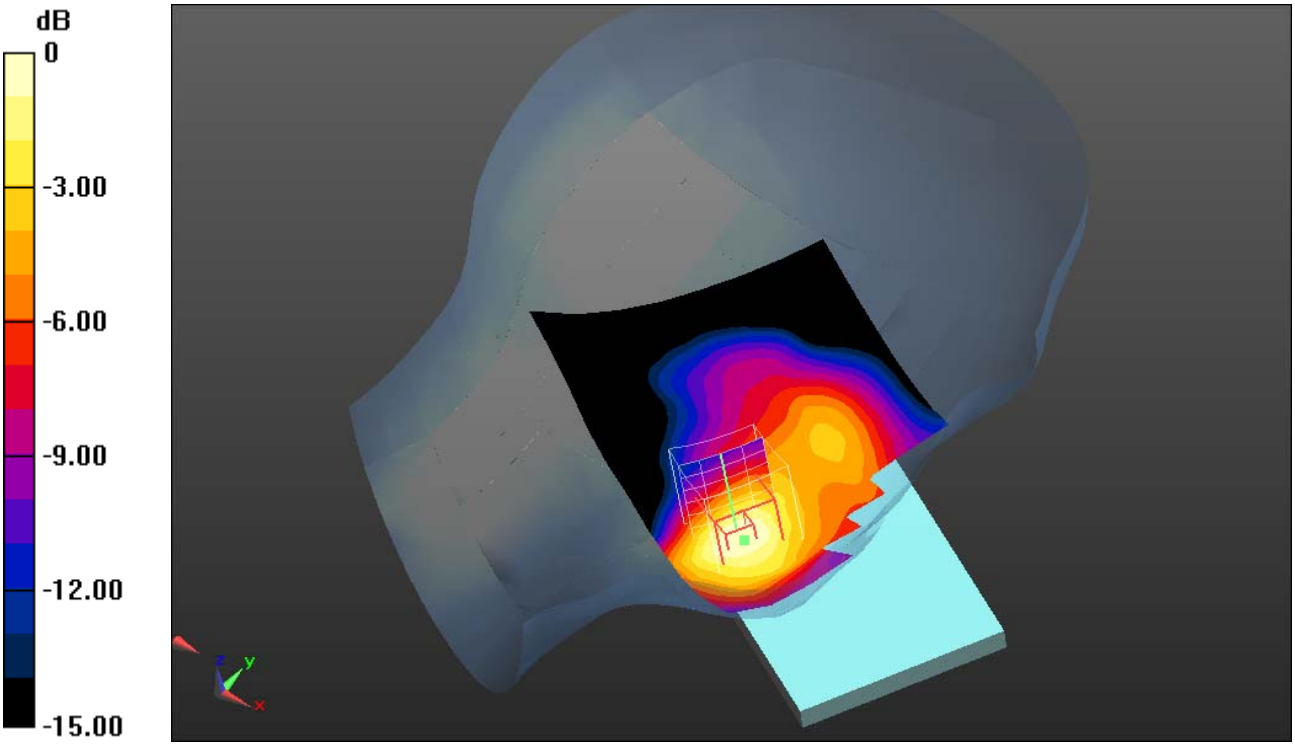
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y49
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 4 (1700MHz); Frequency: 1745 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1745 MHz; σ = 1.357 S/m; ε_r = 40.568; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.93, 4.93, 4.93); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: SAM front; Type: QD000P40CC; Serial: TP:1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL - QPSK - 20MHz BW - 1RB/Touch Position - High - 49RB offset/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.387 W/kg

Left-Hand-Side HSL - QPSK - 20MHz BW - 1RB/Touch Position - High - 49RB offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 17.722 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.518 W/kg
SAR(1 g) = 0.355 W/kg; SAR(10 g) = 0.219 W/kg
Maximum value of SAR (measured) = 0.380 W/kg



0 dB = 0.380 W/kg = -4.20 dBW/kg

Additional information:
ambient temperature: 22.5°C; liquid temperature: 21.9°C

Date/Time: 28.05.2014 17:25:45

FCC_EN62209-2 LTE FDD 4 hotspot

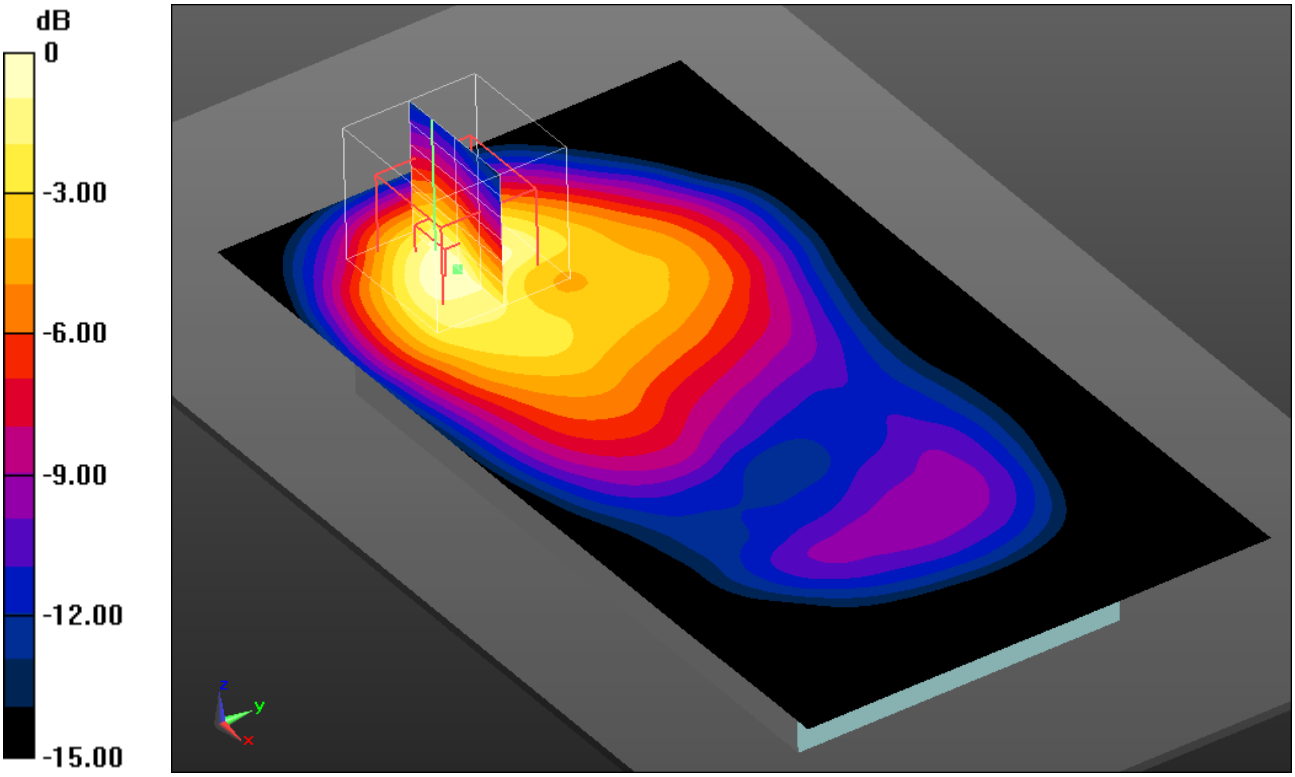
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y49
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 4 (1700MHz); Frequency: 1745 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1745 MHz; σ = 1.529 S/m; ε_r = 52.417; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.41, 4.41, 4.41); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1750-10mm - QPSK - 20MHz BW - 1RB/Rear - High - 50RB offset WC/Area Scan (131x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.17 W/kg

MSL1750-10mm - QPSK - 20MHz BW - 1RB/Rear - High - 50RB offset WC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 29.121 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.580 W/kg
Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 22.1°C; liquid temperature: 21.8°C

Date/Time: 28.05.2014 18:57:27

FCC_EN62209-2 LTE FDD 4 body worn

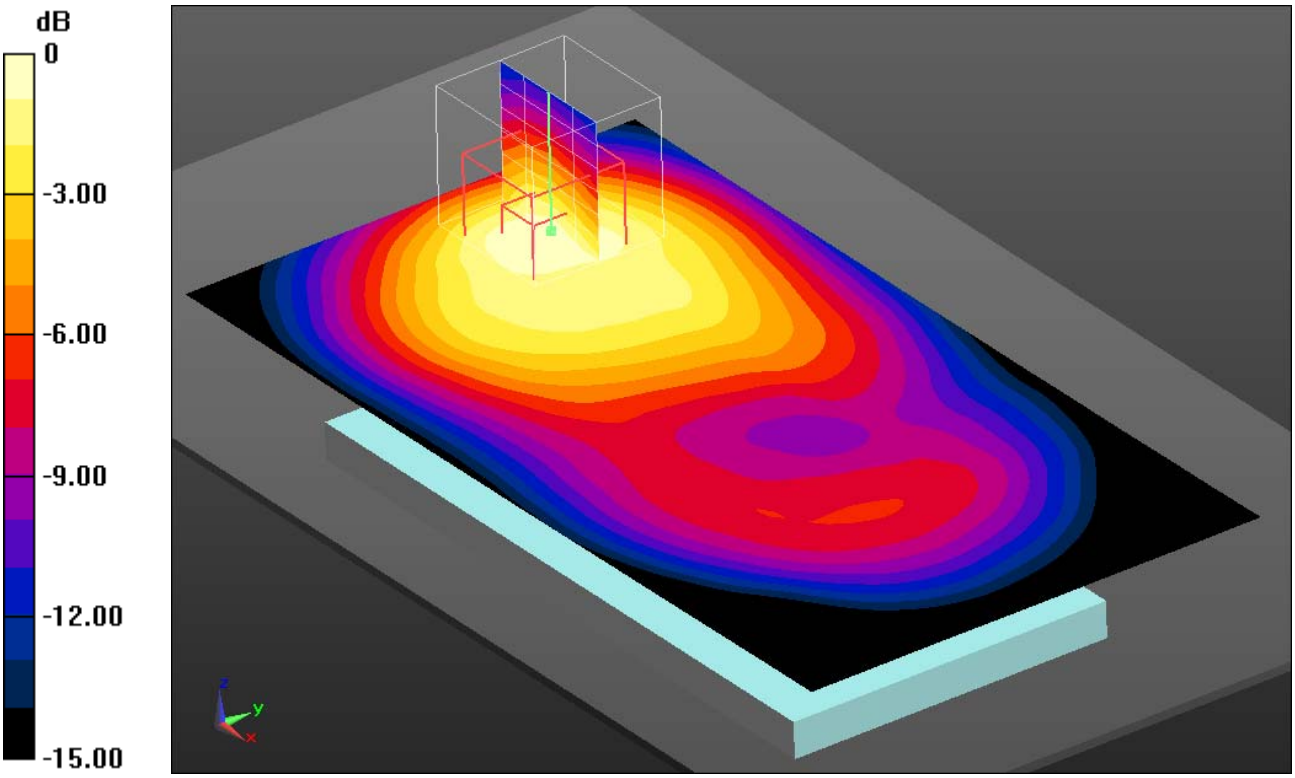
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y49
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 4 (1700MHz); Frequency: 1720 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1720 MHz; σ = 1.481 S/m; ε_r = 52.339; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.41, 4.41, 4.41); Calibrated: 22.08.2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 14.05.2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1750-15mm - QPSK - 20MHz BW - 1RB/Front - Low - 99RB offset/Area Scan (131x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.470 W/kg

MSL1750-15mm - QPSK - 20MHz BW - 1RB/Front - Low - 99RB offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 18.483 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.641 W/kg
SAR(1 g) = 0.445 W/kg; SAR(10 g) = 0.277 W/kg
Maximum value of SAR (measured) = 0.491 W/kg



0 dB = 0.491 W/kg = -3.09 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 22.1°C; liquid temperature: 21.8°C

Annex B.9: LTE FDD 7

Date/Time: 10.06.2014 10:08:29

IEEE1528_EN62209-LTE FDD 7 head

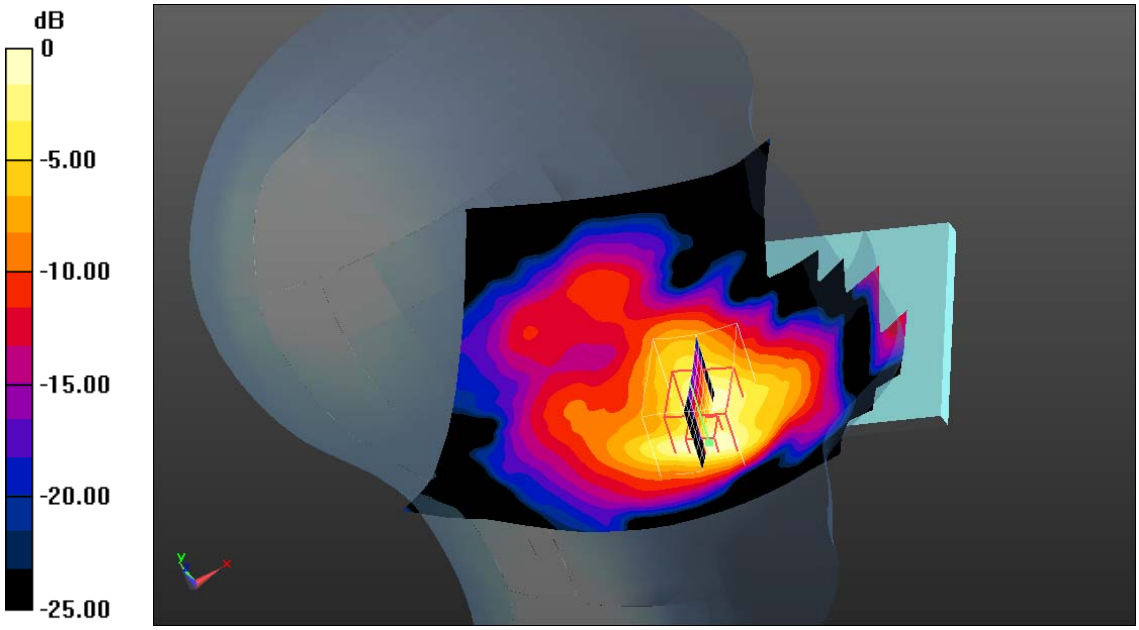
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y49
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 7 (2600MHz); Frequency: 2510 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2510 MHz; σ = 1.876 S/m; ε_r = 38.806; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.43, 7.43, 7.43); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL 20MHz BW - QPSK - 1RB/Touch Position - Low 50RB offset/Area Scan (131x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.252 W/kg

Left-Hand-Side HSL 20MHz BW - QPSK - 1RB/Touch Position - Low 50RB offset/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.478 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.444 W/kg
SAR(1 g) = 0.177 W/kg; SAR(10 g) = 0.087 W/kg
Maximum value of SAR (measured) = 0.263 W/kg



0 dB = 0.263 W/kg = -5.80 dBW/kg

Additional information:
ambient temperature: 22.5°C; liquid temperature: 22.2°C

Date/Time: 6/26/2014 11:45:11 AM

FCC_EN62209-2 LTE FDD 7 hotspot

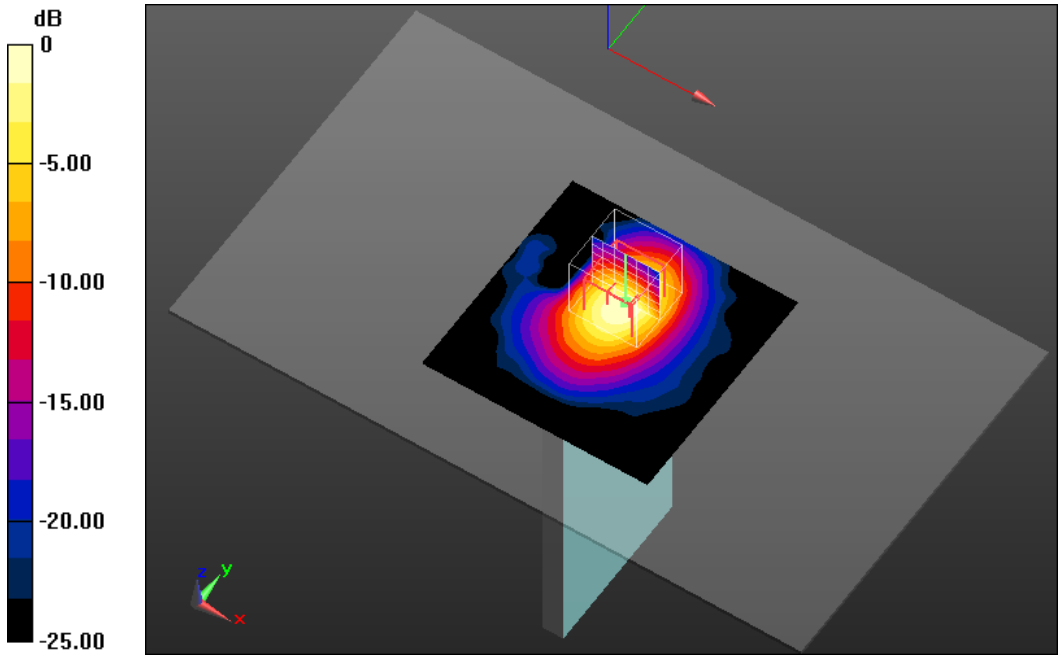
DUT: Sony LTE #2; Type: PY7PM-0742; Serial: CB5A1Z1Y7G
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 7 (2600MHz); Frequency: 2535 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2535 MHz; σ = 2.101 S/m; ε_r = 50.186; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.27, 7.27, 7.27); Calibrated: 8/2/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL2450_2600 - QPSK - 20MHz BW - 1RB - 10mm/Bottom edge - Middle - 50RB offset/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.08 W/kg

MSL2450_2600 - QPSK - 20MHz BW - 1RB - 10mm/Bottom edge - Middle - 50RB offset/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.38 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.678 W/kg; SAR(10 g) = 0.305 W/kg
Maximum value of SAR (measured) = 1.03 W/kg



0 dB = 1.03 W/kg = 0.13 dBW/kg

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 23.4°C; liquid temperature: 22.1°C

Date/Time: 6/26/2014 9:33:11 AM

FCC_EN62209-2 LTE FDD 7 hotspot

DUT: Sony LTE #2; Type: PY7PM-0742; Serial: CB5A1Z1Y7G

Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 7 (2600MHz); Frequency: 2560 MHz, Frequency: 2510 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: f = 2560 MHz; σ = 2.142 S/m; ε_r = 50.194; ρ = 1000 kg/m^3 , Medium parameters used: f = 2510 MHz; σ = 2.085 S/m; ε_r = 50.436; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: EX3DV4 - SN3944; ConvF(7.27, 7.27, 7.27); Calibrated: 8/2/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 1.0, 31.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL2450_2600 - QPSK - 20MHz BW - 100RB - 10mm/Bottom - High - 0RB offset/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.11 W/kg

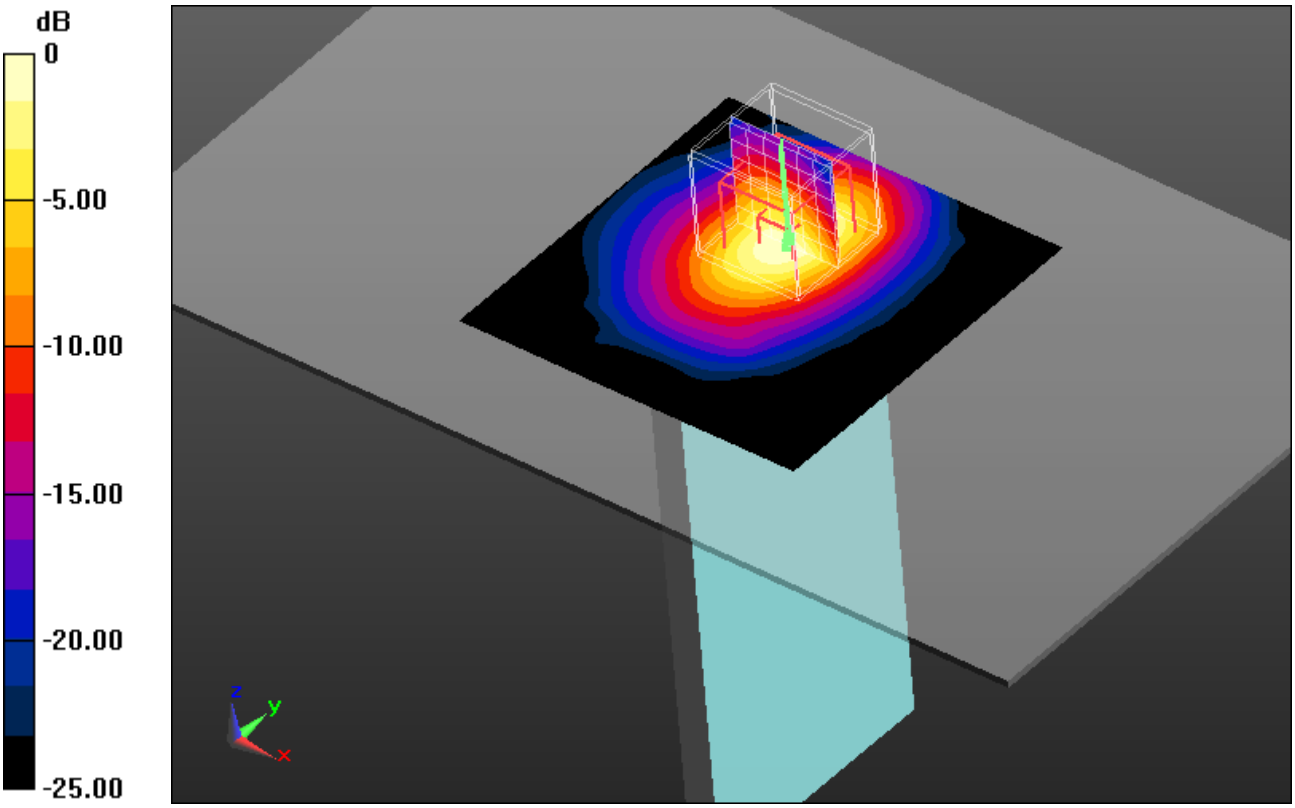
MSL2450_2600 - QPSK - 20MHz BW - 100RB - 10mm/Bottom - High - 0RB offset/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.15 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.42 W/kg

SAR(1 g) = 0.693 W/kg; SAR(10 g) = 0.312 W/kg

Maximum value of SAR (measured) = 1.03 W/kg



0 dB = 0.941 W/kg = -0.26 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 23.4°C; liquid temperature: 22.1°C

Date/Time: 6/11/2014 12:13:50 PM

FCC_EN62209-2 LTE FDD 7 body worn

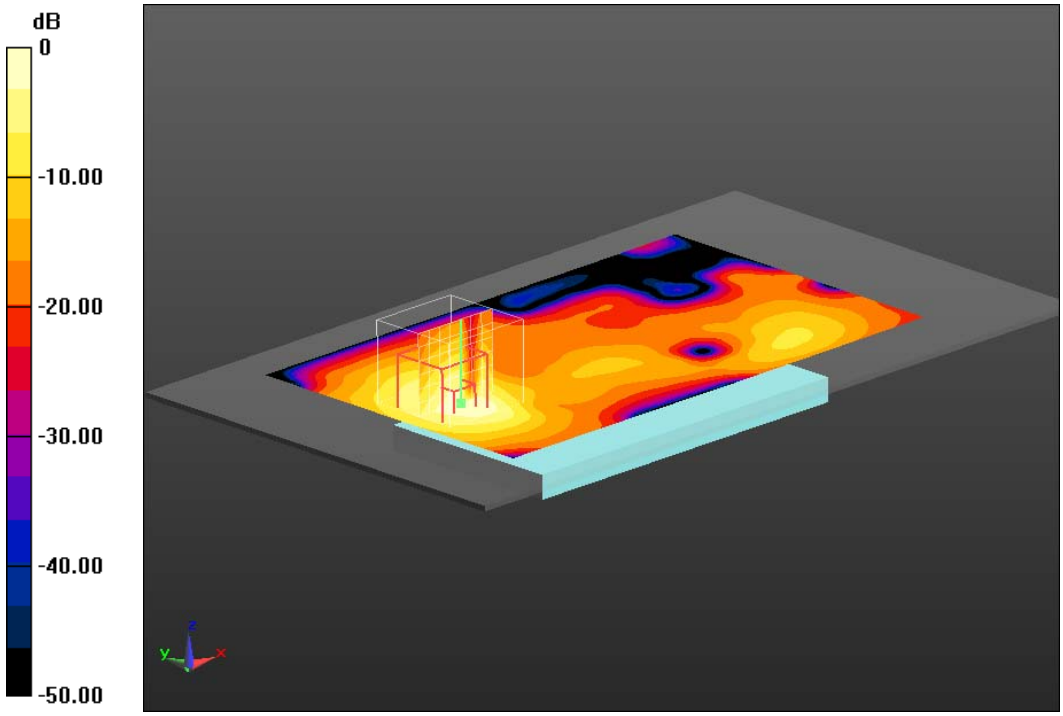
DUT: Sony LTE #2; Type: PY7PM-0742; Serial: CB5A1Z1Y7G
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 7 (2600MHz); Frequency: 2560 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2560 MHz; σ = 2.142 S/m; ε_r = 50.194; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.27, 7.27, 7.27); Calibrated: 8/2/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL-50 RB - 20MHz BW - 15mm/Rear High 0RB offset/Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.423 W/kg

MSL-50 RB - 20MHz BW - 15mm/Rear High 0RB offset/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.44 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.973 W/kg
SAR(1 g) = 0.283 W/kg; SAR(10 g) = 0.112 W/kg
Maximum value of SAR (measured) = 0.400 W/kg



0 dB = 0.400 W/kg = -3.98 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Annex B.10: LTE FDD 13

Date/Time: 27.05.2014 10:56:39

IEEE1528_EN62209-LTE FDD 13 head

DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y7G

Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 13 (700MHz); Frequency: 782 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: f = 782 MHz; σ = 0.926 S/m; ε_r = 41.096; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(6.39, 6.39, 6.39); Calibrated: 09.05.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL - QPSK - 10MHz BW - 1RB/Touch Position - Mid 49RB offset/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.409 W/kg

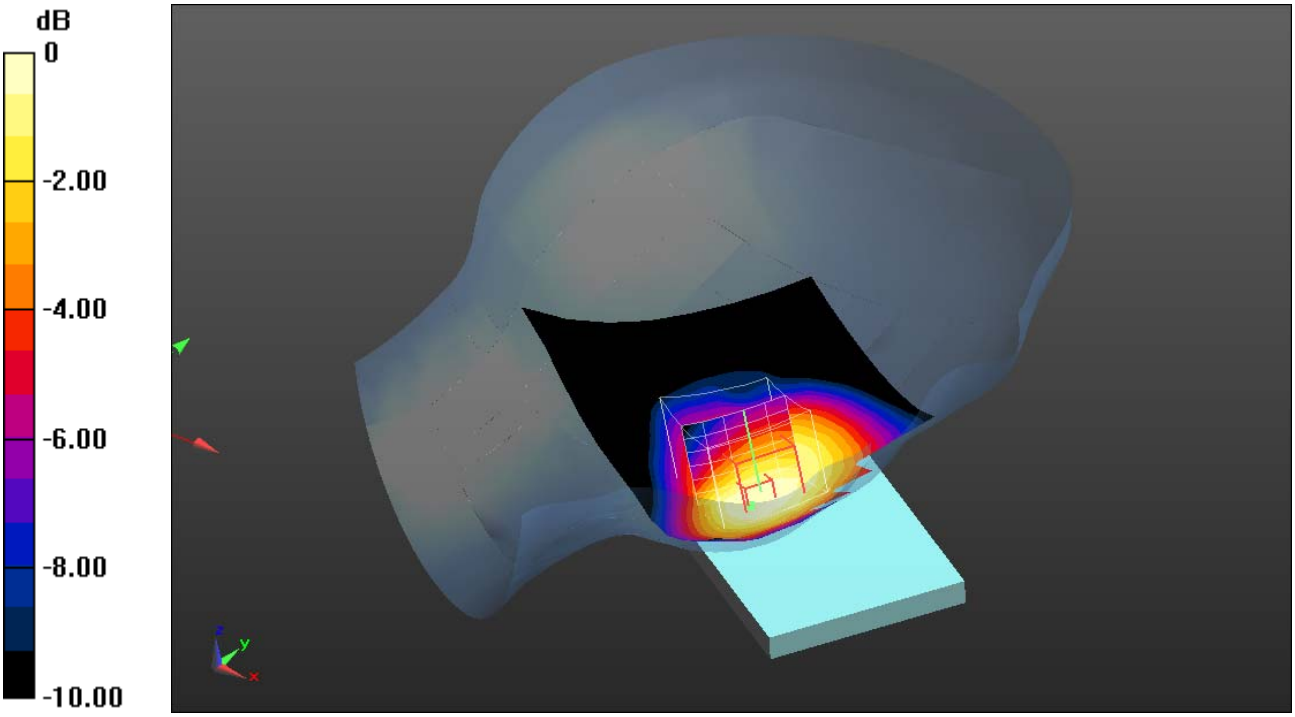
Left-Hand-Side HSL - QPSK - 10MHz BW - 1RB/Touch Position - Mid 49RB offset/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 19.735 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.486 W/kg

SAR(1 g) = 0.373 W/kg; SAR(10 g) = 0.281 W/kg

Maximum value of SAR (measured) = 0.391 W/kg



0 dB = 0.391 W/kg = -4.08 dBW/kg

Additional information:

ambient temperature: 23.6°C; liquid temperature: 22.9°C

Date/Time: 5/28/2014 1:32:33 PM

FCC_EN62209-2 LTE 13 hotspot

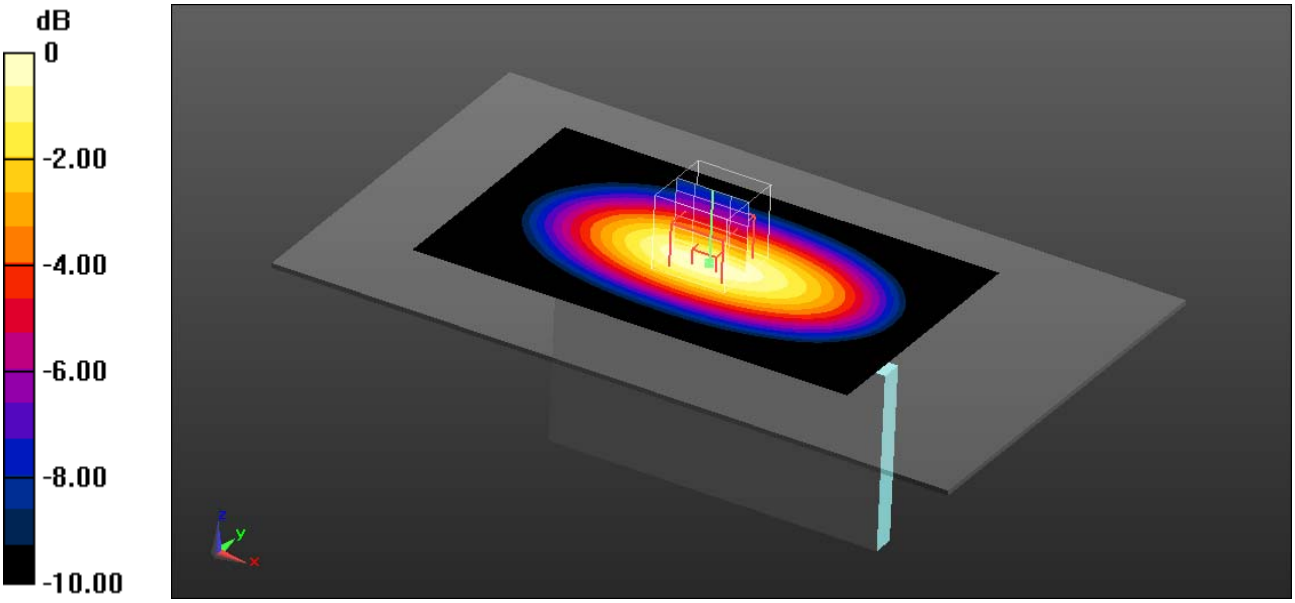
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y7G
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 13 (700MHz); Frequency: 782 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 782 MHz; σ = 0.997 S/m; ε_r = 55.312; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(6.12, 6.12, 6.12); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: TP-1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL750-10mm - QPSK - 10MHz BW - 1RB/Right Side - Middle - 49RB offset/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.520 W/kg

MSL750-10mm - QPSK - 10MHz BW - 1RB/Right Side - Middle - 49RB offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 22.151 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.691 W/kg
SAR(1 g) = 0.489 W/kg; SAR(10 g) = 0.334 W/kg
Maximum value of SAR (measured) = 0.525 W/kg



0 dB = 0.525 W/kg = -2.80 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.3°C; liquid temperature: 22.6°C

Date/Time: 5/30/2014 9:45:16 AM

FCC_EN62209-2 LTE 13 body worn

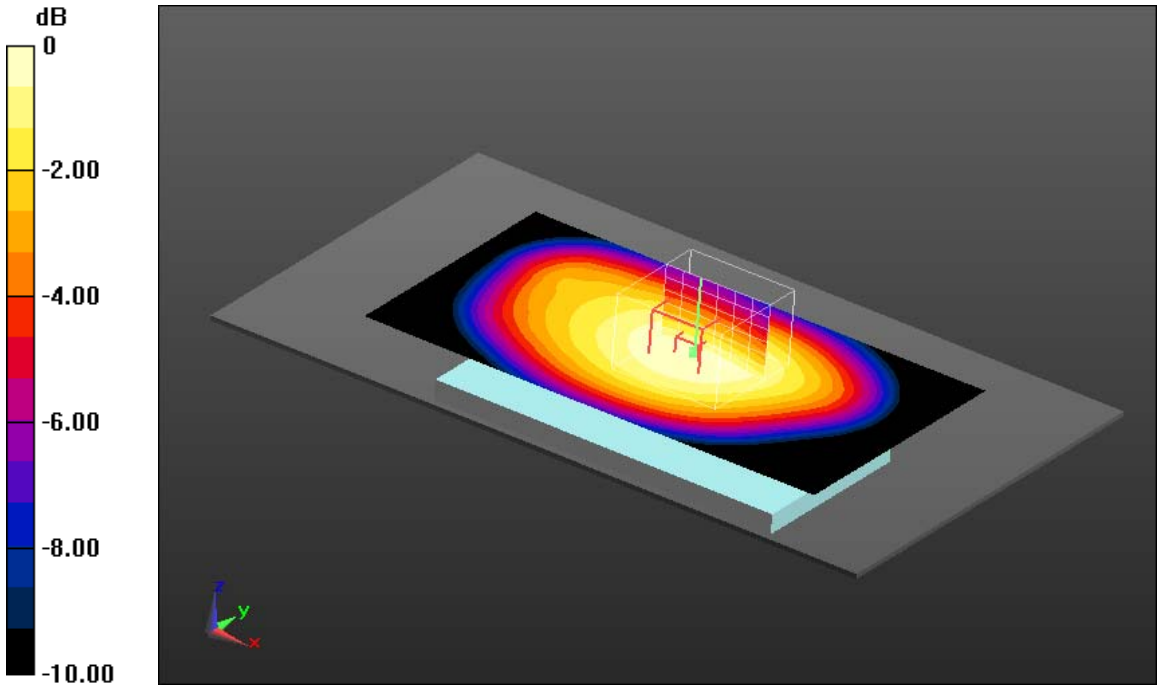
DUT: Sony; Type: PY7PM-0742; Serial: CB5A1Z1Y7G
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 13 (700MHz); Frequency: 782 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 782 MHz; σ = 0.997 S/m; ε_r = 55.312; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(6.12, 6.12, 6.12); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 5411
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL750-15mm -QPSK - 10MHz BW - 1RB/Front Middle 49RB offset/Area Scan (131x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.378 W/kg

MSL750-15mm -QPSK - 10MHz BW - 1RB/Front Middle 49RB offset/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 19.64 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.451 W/kg
SAR(1 g) = 0.355 W/kg; SAR(10 g) = 0.270 W/kg
Maximum value of SAR (measured) = 0.371 W/kg



0 dB = 0.371 W/kg = -4.31 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.9°C; liquid temperature: 23.2°C

Annex B.11: WLAN 2450MHz

Date/Time: 6/4/2014 10:45:24 AM

IEEE1528_EN62209-WLAN2450 head

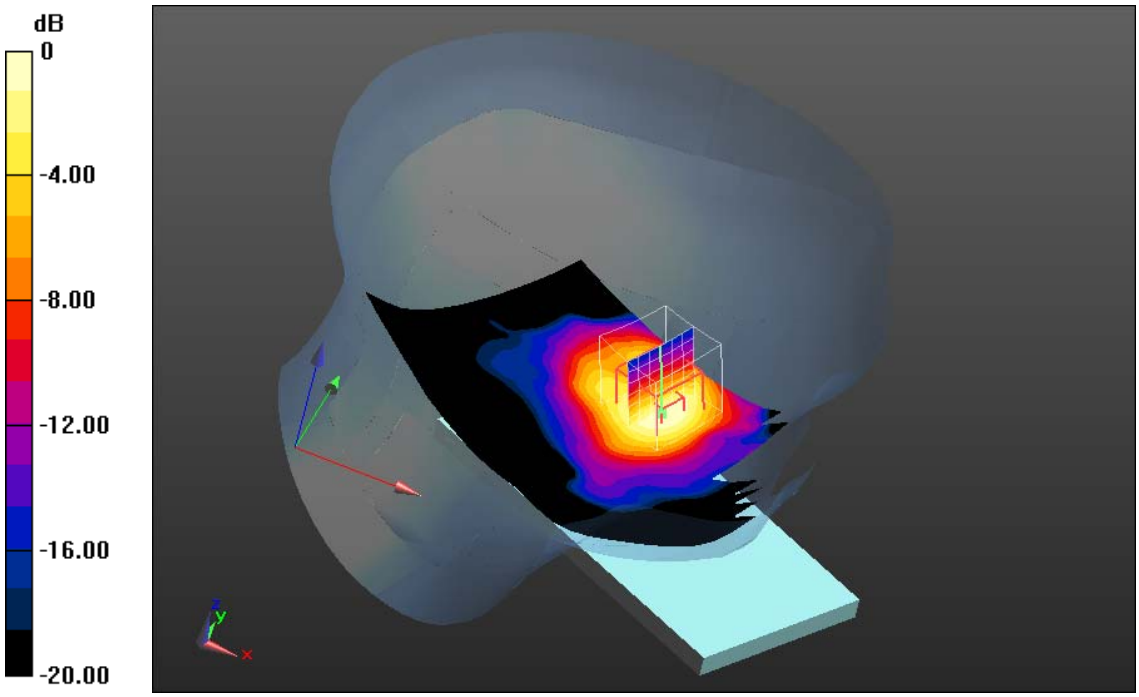
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y2Y
Communication System: UID 0, WLAN 2450 (0); Communication System Band: 2.4 GHz; Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2437 MHz; σ = 1.794 S/m; ε_r = 39.043; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(4.47, 4.47, 4.47); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: SAM front; Type: QD000P40CC; Serial: TP:1041
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Left-Hand-Side HSL/Touch Position - Mid/Area Scan (111x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.264 W/kg

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.61 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.465 W/kg
SAR(1 g) = 0.228 W/kg; SAR(10 g) = 0.119 W/kg
Maximum value of SAR (measured) = 0.249 W/kg



0 dB = 0.249 W/kg = -6.04 dBW/kg

Additional information:
ambient temperature: 23.7°C; liquid temperature: 23.1°C

Date/Time: 6/5/2014 6:39:26 PM

FCC_EN62209-2 WLAN2.4GHz hotspot

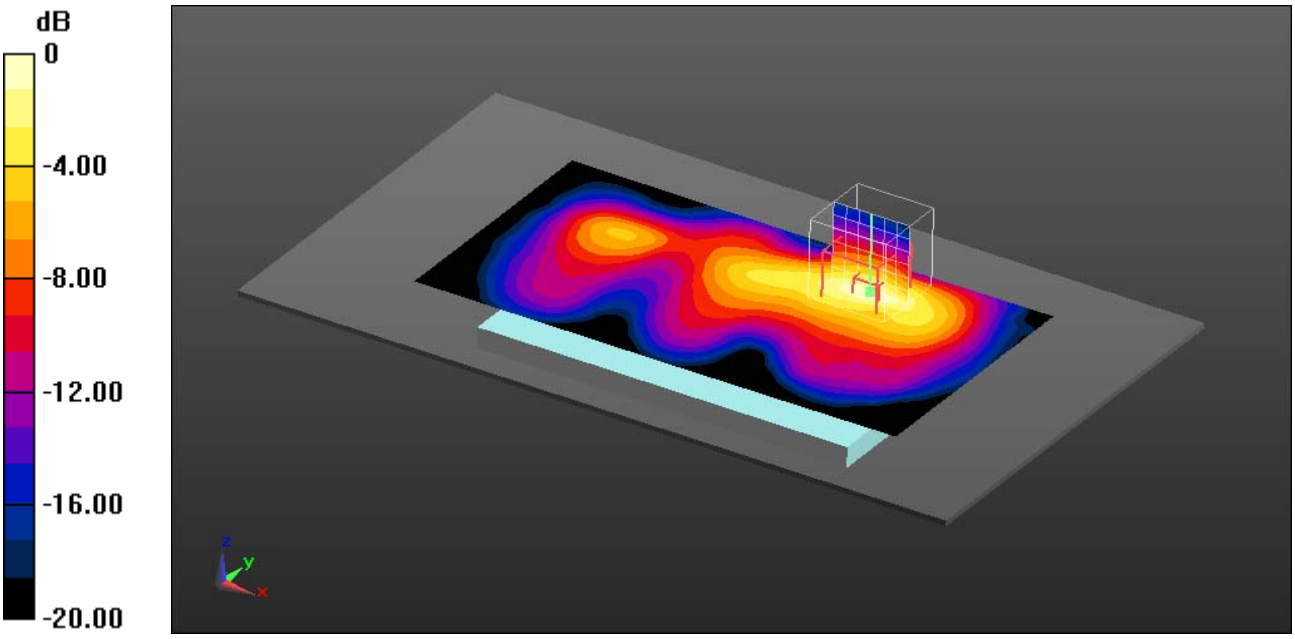
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y2Y
Communication System: UID 0, WLAN 2450 (0); Communication System Band: 2.4 GHz; Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2437 MHz; σ = 2 S/m; ε_r = 50.434; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(4.18, 4.18, 4.18); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL2450 - 10mm/Rear Middle/Area Scan (191x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.266 W/kg

MSL2450 - 10mm/Rear Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.72 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.494 W/kg
SAR(1 g) = 0.231 W/kg; SAR(10 g) = 0.106 W/kg
Maximum value of SAR (measured) = 0.265 W/kg



0 dB = 0.265 W/kg = -5.77 dBW/kg

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.8°C; liquid temperature: 23.1°C

Date/Time: 6/5/2014 6:11:20 PM

FCC_EN62209-2 WLAN2.4GHz body-worn

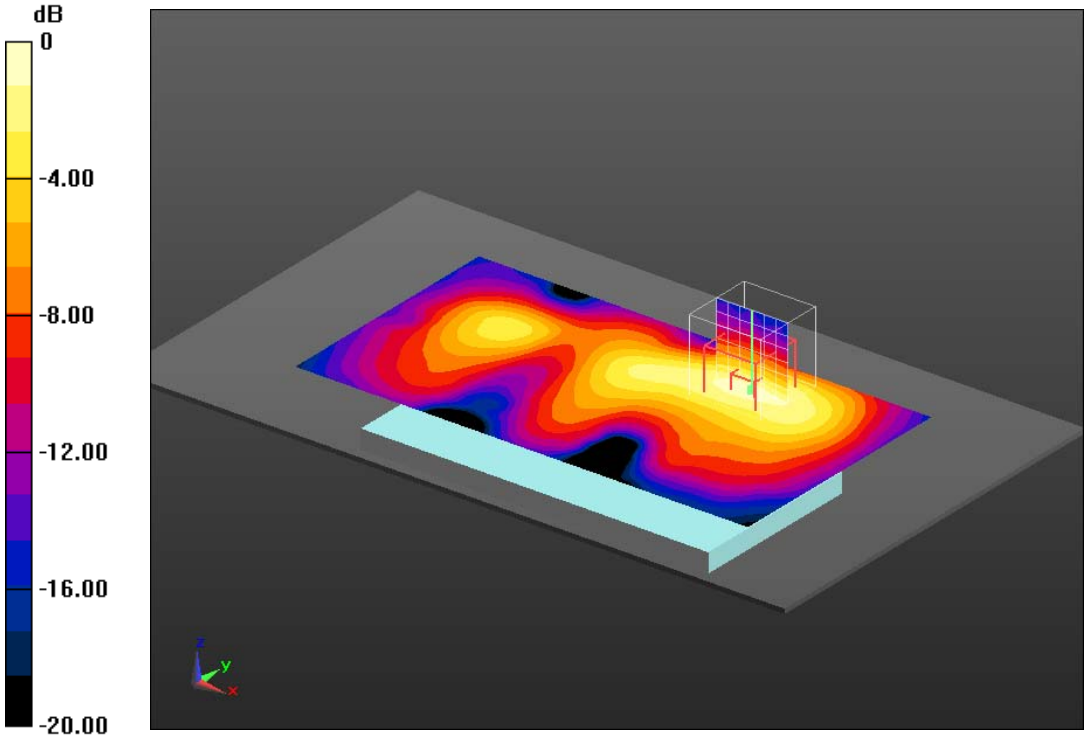
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y2Y
Communication System: UID 0, WLAN 2450 (0); Communication System Band: 2.4 GHz; Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2437 MHz; σ = 2 S/m; ε_r = 50.434; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(4.18, 4.18, 4.18); Calibrated: 9/2/2013;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL2450 - 15mm/Rear Middle/Area Scan (191x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0860 W/kg

MSL2450 - 15mm/Rear Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.749 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.152 W/kg
SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.041 W/kg
Maximum value of SAR (measured) = 0.0887 W/kg



0 dB = 0.0887 W/kg = -10.52 dBW/kg

Additional information:
position or distance of DUT to SAM: 15mm
ambient temperature: 23.8°C; liquid temperature: 23.1°C

Annex B.12: WLAN 5GHz

Date/Time: 05.06.2014 11:17:03

IEEE1528_EN62209-WLAN5GHz head

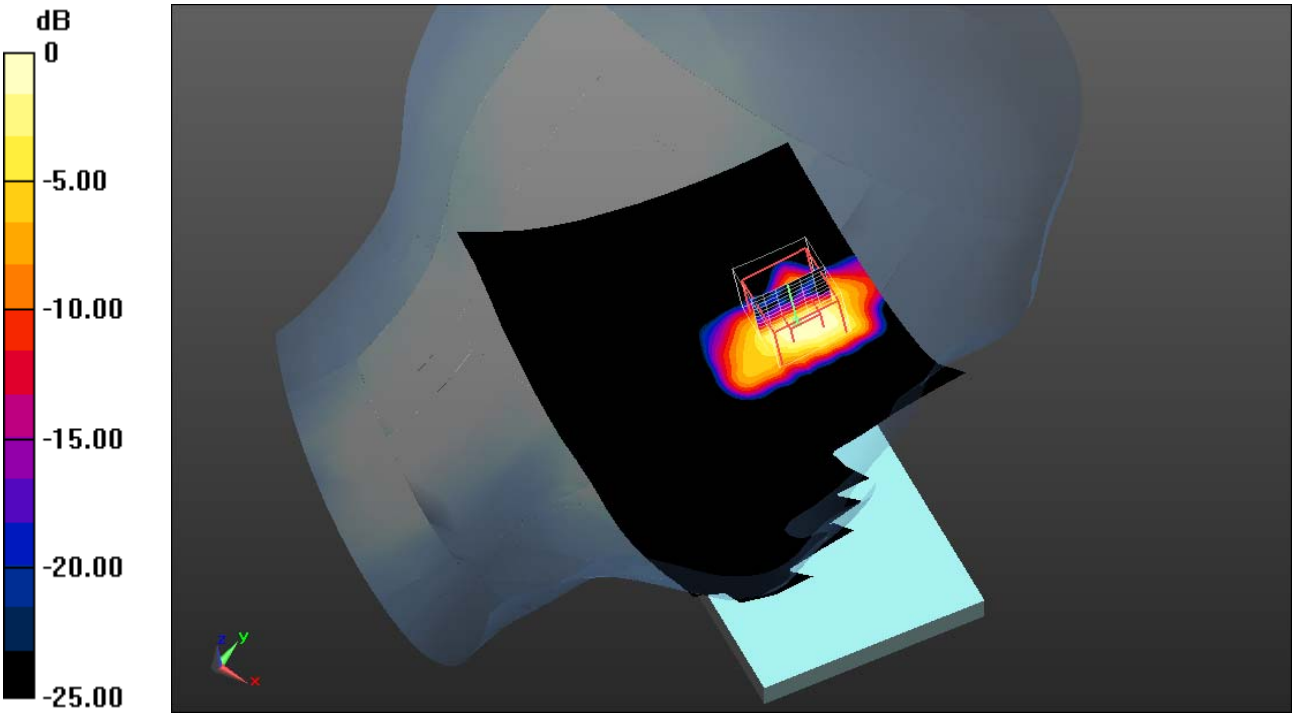
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y2Y
Communication System: UID 0, WLAN 5GHz (0); Communication System Band: 5 GHz Band; Frequency: 5700 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5700 MHz; σ = 5 S/m; ε_r = 35.595; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(4.88, 4.88, 4.88); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL/Touch Position - Ch140/Area Scan (111x171x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.281 W/kg

Left-Hand-Side HSL/Touch Position - Ch140/Zoom Scan (7x7x12)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.474 W/kg
SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.033 W/kg
Maximum value of SAR (measured) = 0.242 W/kg



0 dB = 0.242 W/kg = -6.16 dBW/kg

Additional information:
ambient temperature:23.2 °C; liquid temperature: 22.3°C

Date/Time: 05.06.2014 15:25:16

IEEE1528_EN62209-WLAN5GHz head

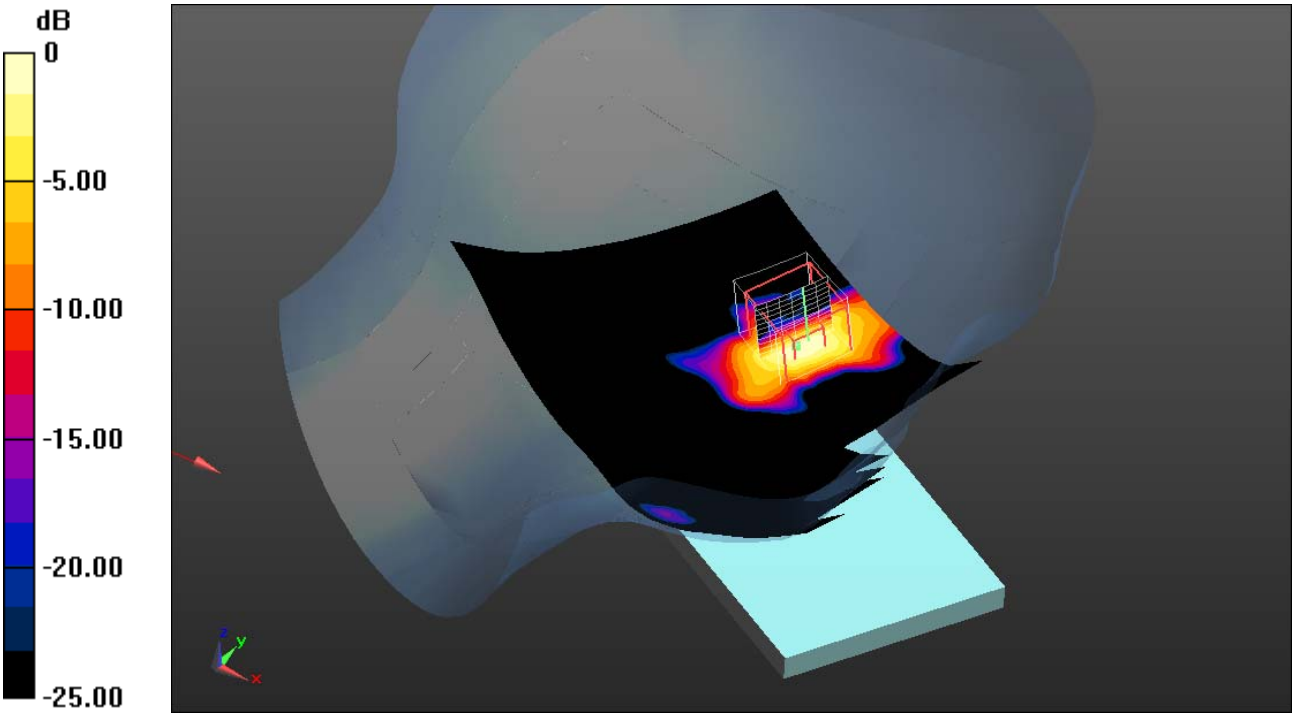
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y2Y
Communication System: UID 0, WLAN 5GHz (0); Communication System Band: 5 GHz Band; Frequency: 5805 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5805 MHz; σ = 5.093 S/m; ε_r = 35.353; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(4.75, 4.75, 4.75); Calibrated: 02.08.2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE3 Sn413; Calibrated: 22.05.2014
- Phantom: SAM; Type: QD000P40C; Serial: TP1150
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL/Touch Position - Ch161/Area Scan (111x171x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.252 W/kg

Left-Hand-Side HSL/Touch Position - Ch161/Zoom Scan (7x7x12)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.459 W/kg
SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.032 W/kg
Maximum value of SAR (measured) = 0.239 W/kg



0 dB = 0.239 W/kg = -6.22 dBW/kg

Additional information:
ambient temperature:23.2 °C; liquid temperature: 22.3°C

Date/Time: 6/3/2014 11:17:05 AM

FCC_EN62209-2 WLAN5GHz body worn

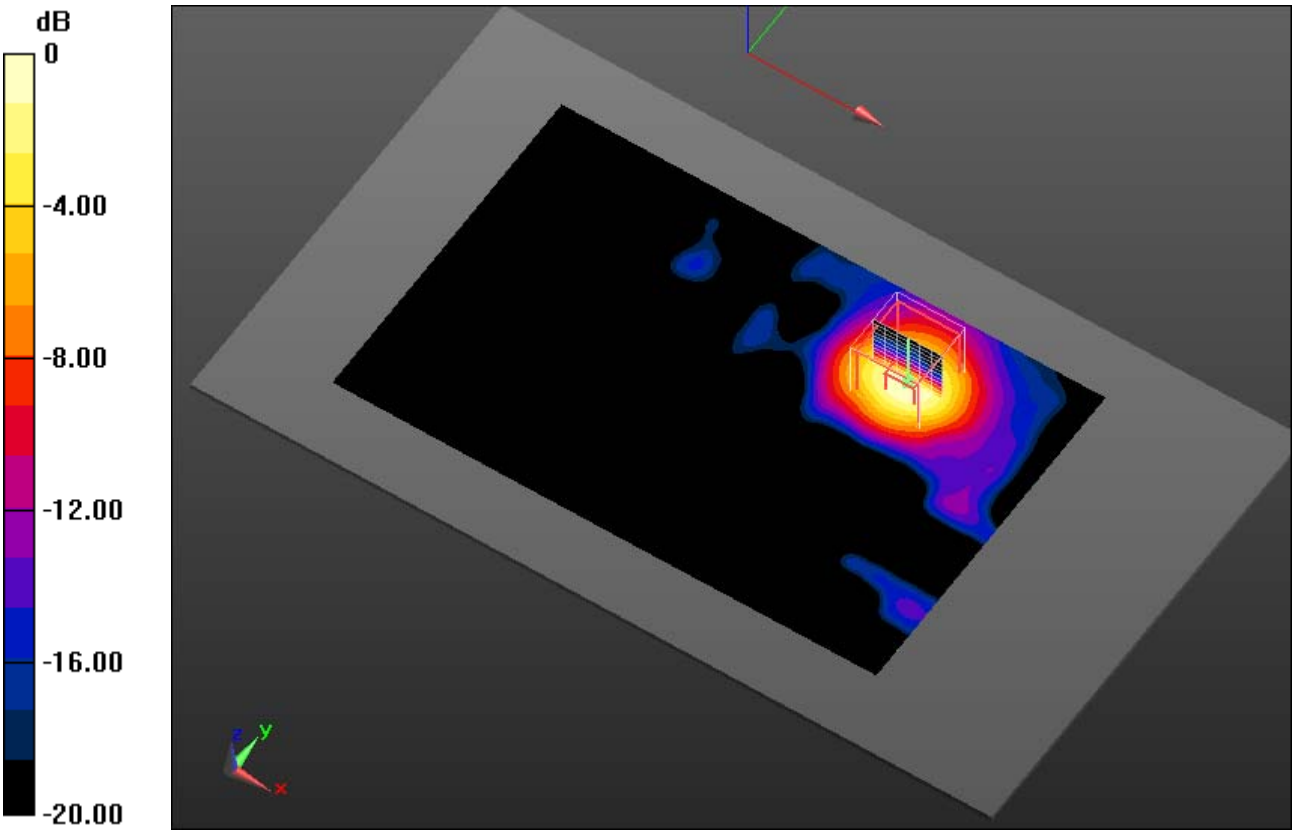
DUT: Sony; Type: PM-0742; Serial: CB5A1Z1Y2Y
Communication System: UID 0, WLAN 5GHz (0); Communication System Band: 5 GHz Band; Frequency: 5240 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5240 MHz; σ = 5.262 S/m; ε_r = 48.109; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(4.47, 4.47, 4.47); Calibrated: 8/2/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE4 Sn1387; Calibrated: 8/28/2013
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: TP-1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

MSL - 15mm/Rear Low/Area Scan (121x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.549 W/kg

MSL - 15mm/Rear Low/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.66 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.981 W/kg
SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.096 W/kg
Maximum value of SAR (measured) = 0.524 W/kg



0 dB = 0.524 W/kg = -2.81 dBW/kg

Additional information:
position or distance of DUT to SAM: 15 mm
ambient temperature: 22.9°C; liquid temperature: 22.1°C

Annex B.13: Liquid depth

Photo 1: Liquid depth 750 MHz head simulating liquid

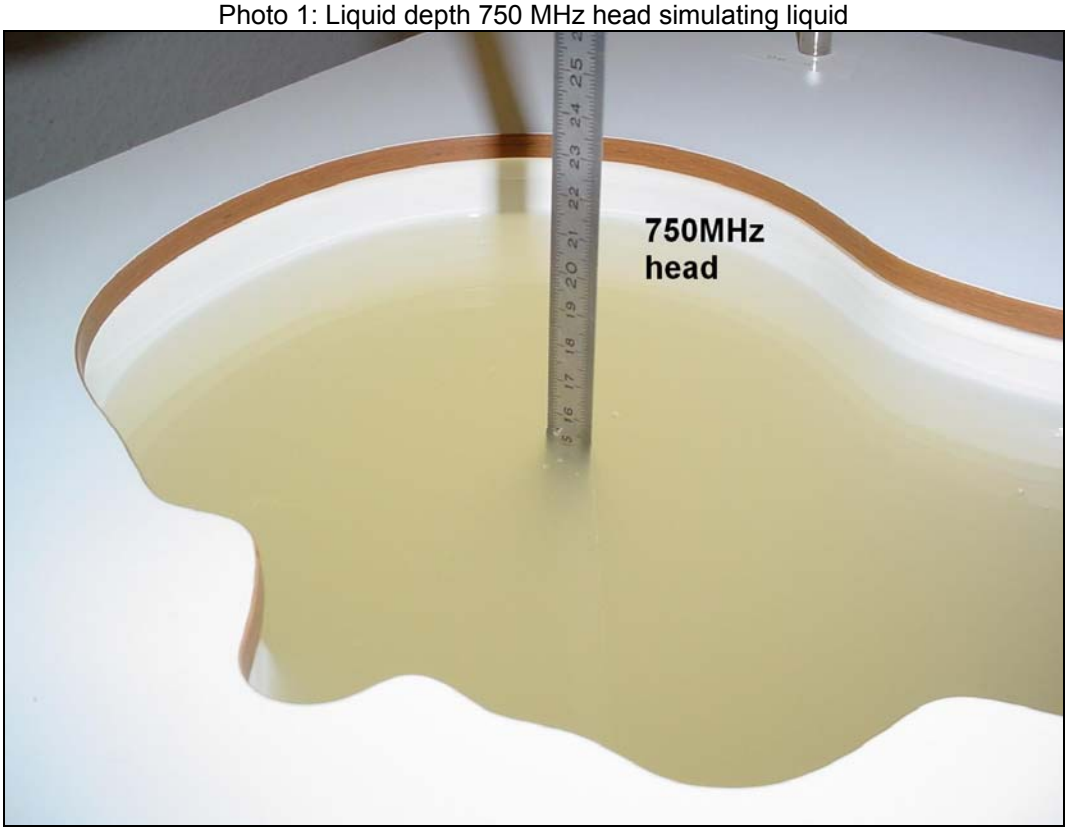


Photo 2: Liquid depth 750 MHz body simulating liquid

Photo 3: Liquid depth 850 MHz head simulating liquid

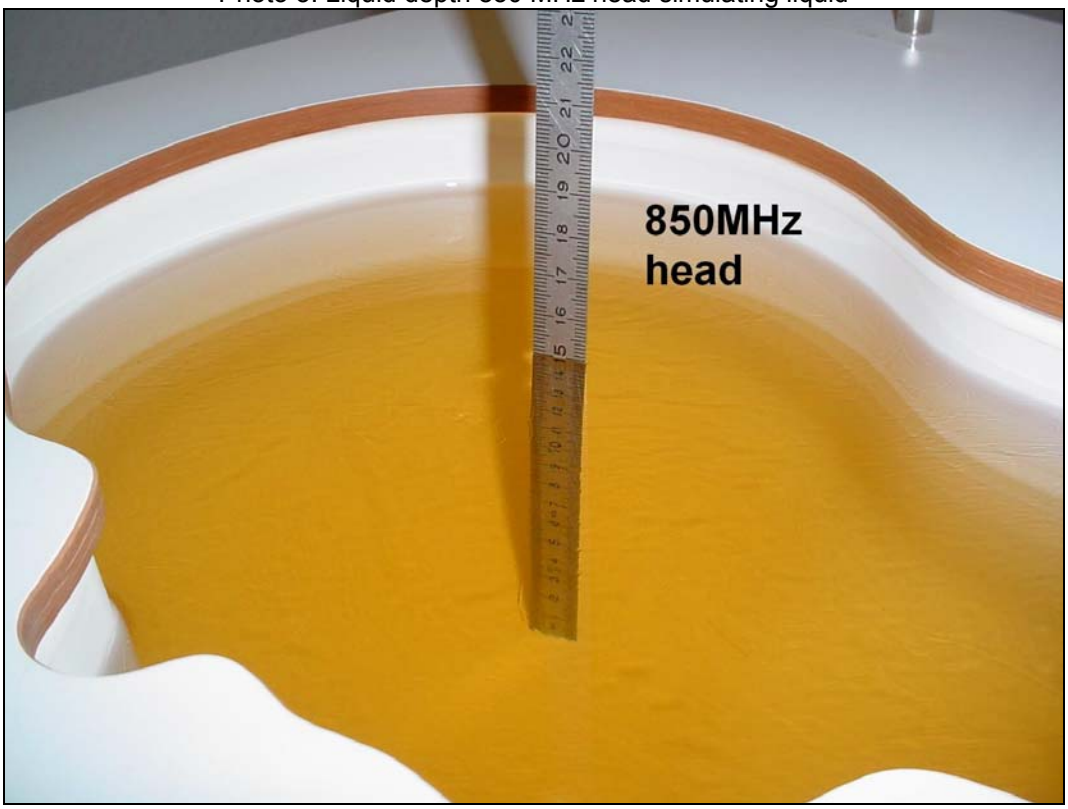


Photo 4: Liquid depth 850 MHz body simulating liquid

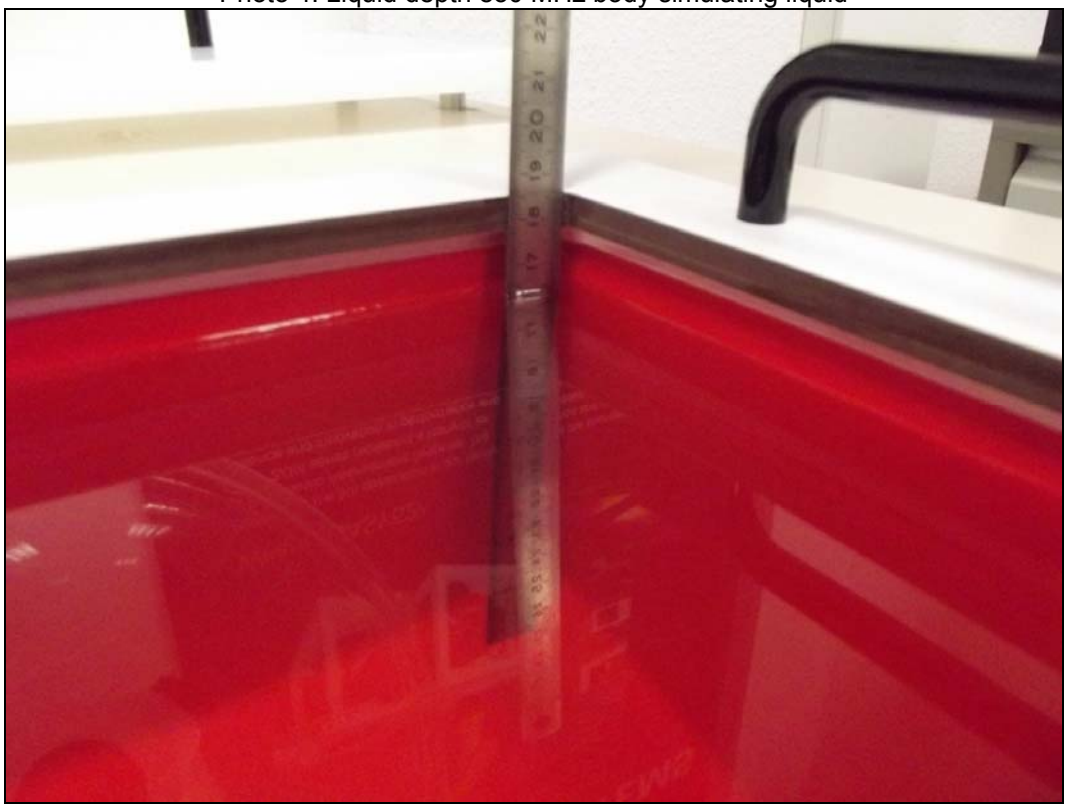


Photo 5: Liquid depth 1750MHz head simulating liquid

Photo 6: Liquid depth 1750 MHz body simulating liquid

Photo 7: Liquid depth 1900MHz head simulating liquid

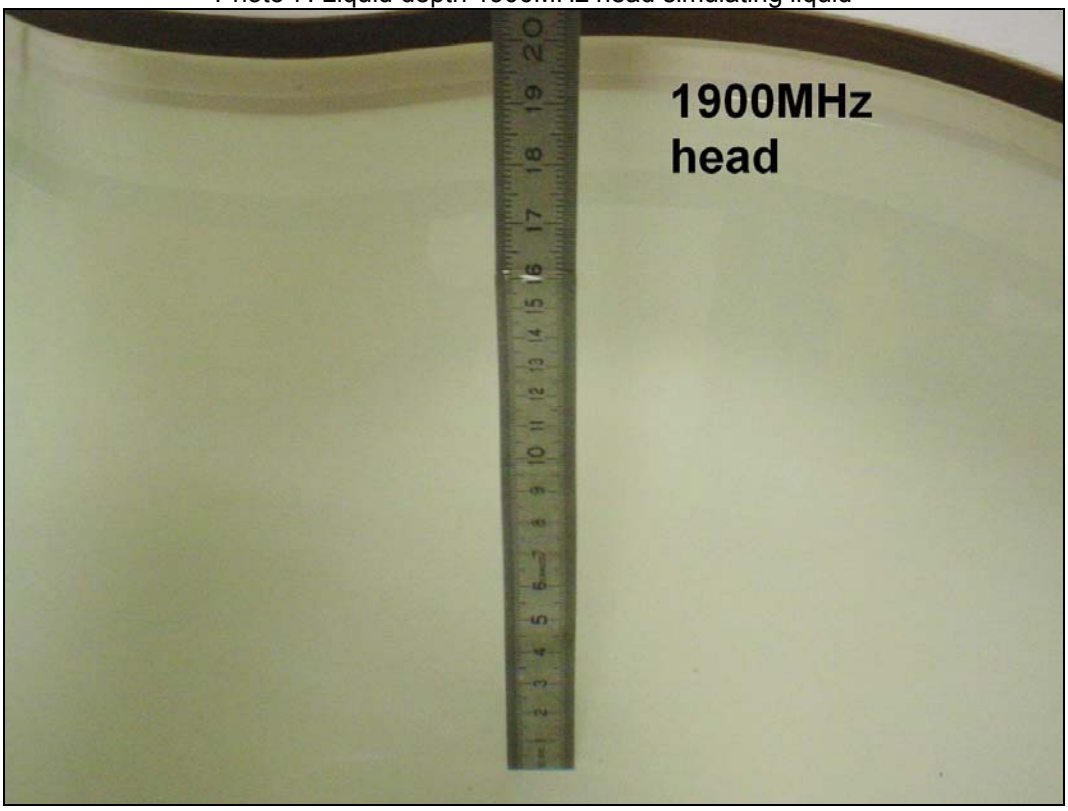


Photo 8: Liquid depth 1900 MHz body simulating liquid

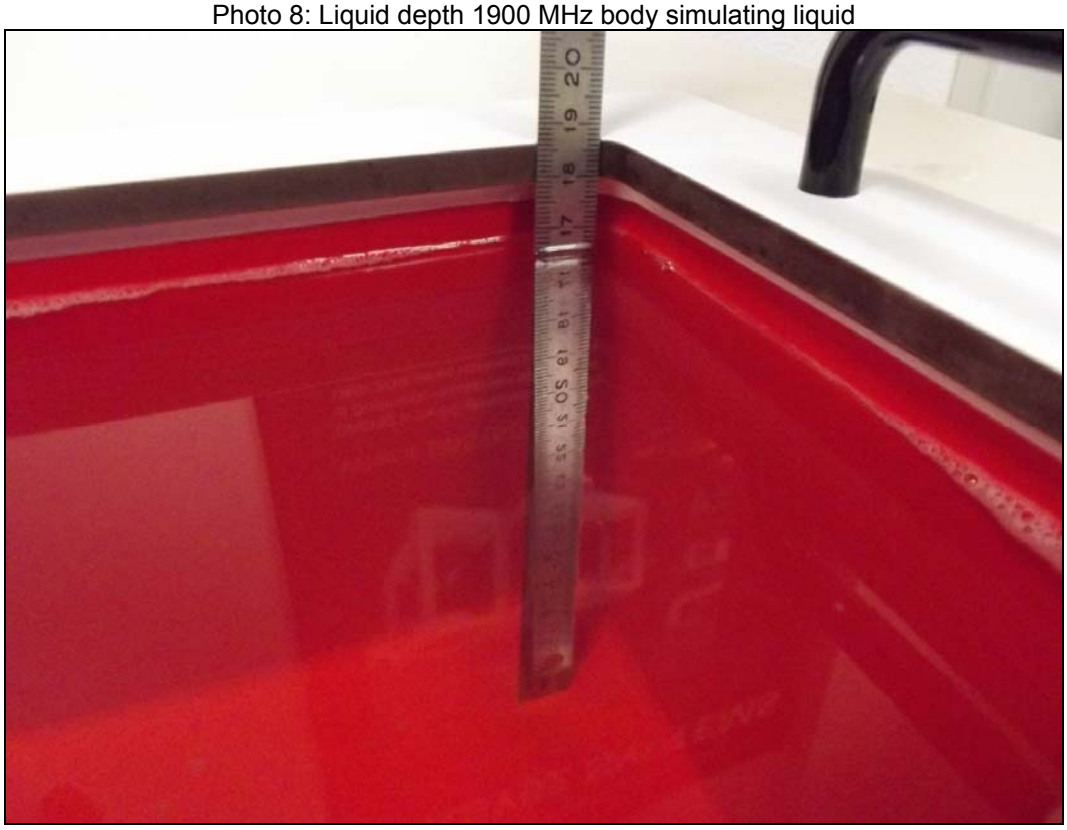


Photo 9: Liquid depth 2450MHz head simulating liquid

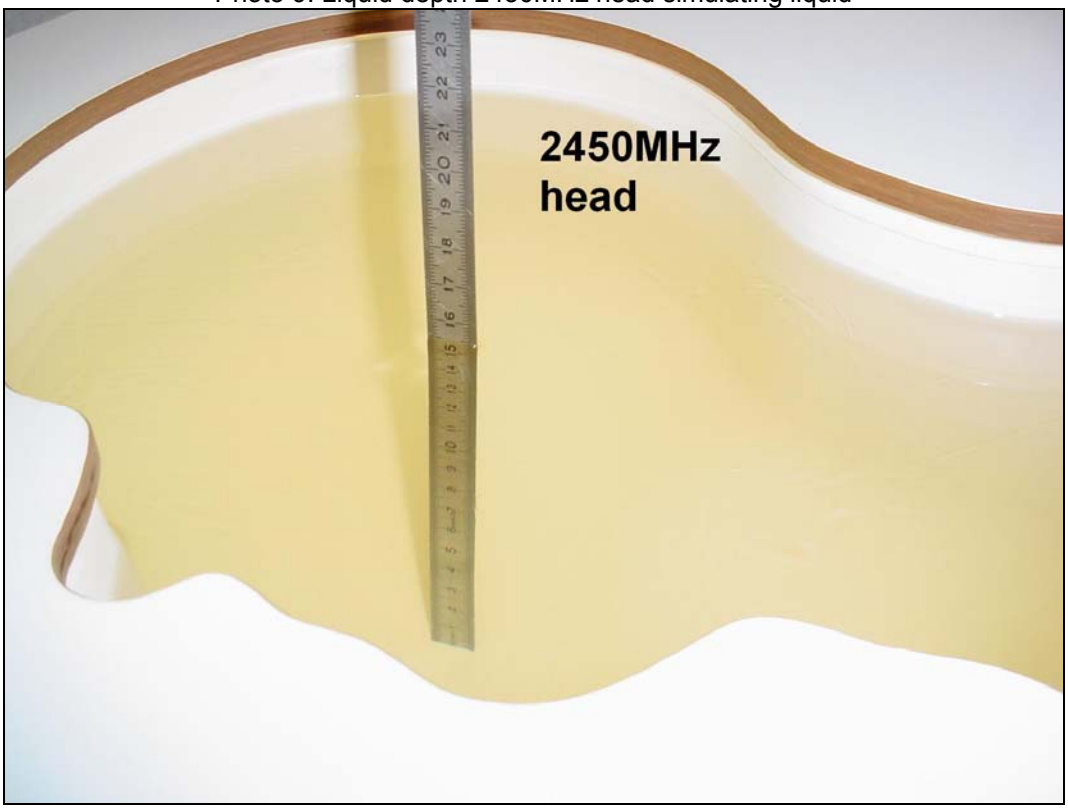


Photo 10: Liquid depth 2450 MHz body simulating liquid

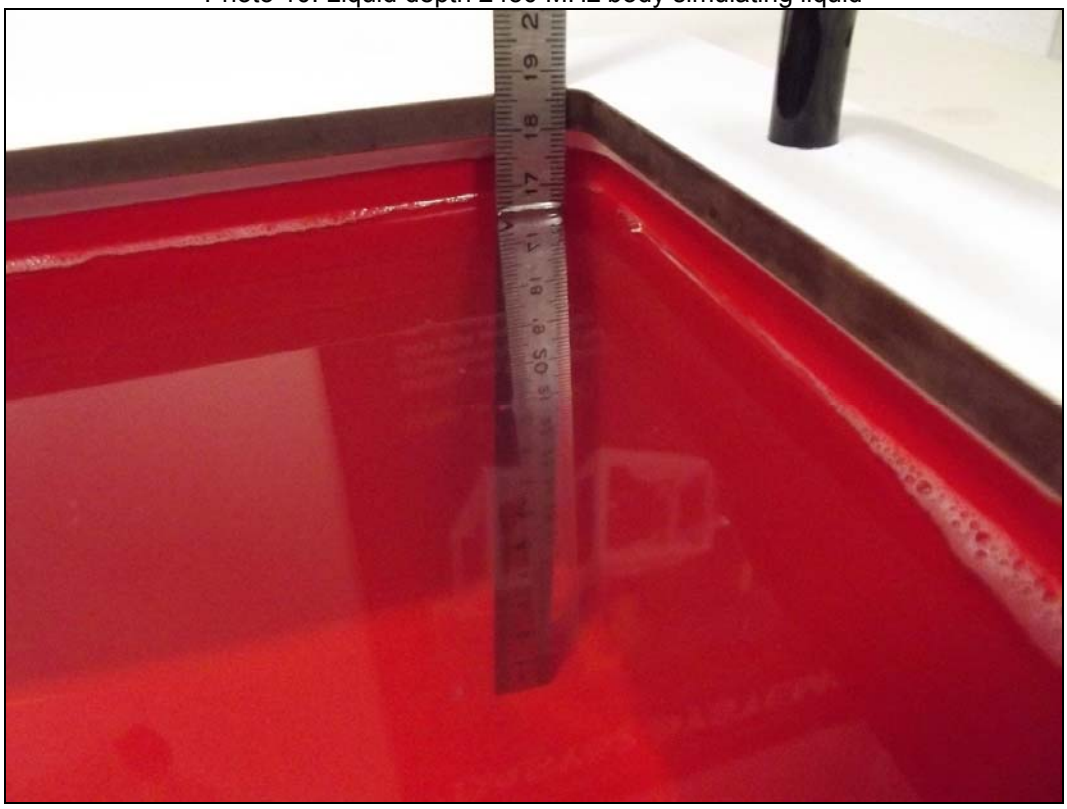
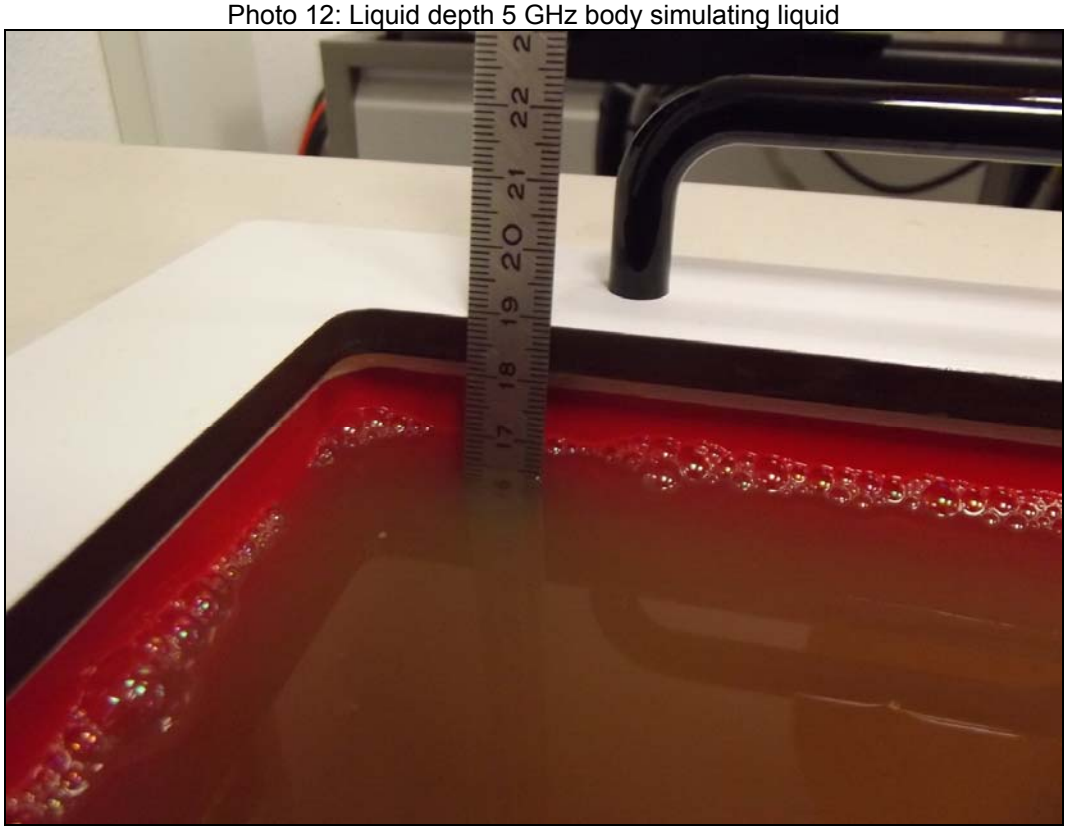


Photo 11: Liquid depth 5 GHz head simulating liquid

Photo 12: Liquid depth 5 GHz body simulating liquid



Annex C: Photo documentation

Photo documentation is described in the additional document:

Appendix to test report no. 1-6965/13-20-02-D Photo documentation

Annex D: Calibration parameters

Calibration parameters are described in the additional document:

Appendix to test report no. 1-6965/13-20-02-D
Calibration data, Phantom certificate
and detail information of the DASY5 System

Annex E: Document History

Version	Applied Changes	Date of Release
	Initial Release	2014-07-02
-A	Removed unneeded SAR results and measurements	2014-07-07
-B	Corrected Applicant and Manufacturer	2014-07-08
-C	Corrected Test standards/ procedures references	2014-07-23
-D	Removed model name; included the specified maximum power reduction (MPR) for each channel in LTE conducted tables	2014-08-06

Annex F: Further Information

Glossary

BW - Bandwidth
DTS - Distributed Transmission System
DUT - Device under Test
EUT - Equipment under Test
FCC - Federal Communication Commission
FCC ID - Company Identifier at FCC
HW - Hardware
IC - Industry Canada
Inv. No. - Inventory number
LTE - Long Term Evolution
N/A - not applicable
PCE - Personal Consumption Expenditure
OET - Office of Engineering and Technology
RB - resource block(s)
SAR - Specific Absorption Rate
S/N - Serial Number
$SPLSR_i$ - SAR-to-(peak-locations spacing) ratio
SW - Software
NII - Unlicensed National Information Infrastructure