

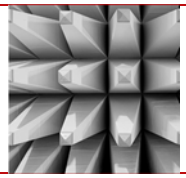

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TEST REPORT

Test Report No.: 1-0042/15-01-15-A

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-00

Testing Laboratory

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Accredited Test Laboratory:
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-12076-01-00

Applicant

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Manufacturer

Blackberry Limited
2200 University Avenue East
Waterloo, ON N2K 0A7 Canada

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 5	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:	Blackberry Smartphone
Device type:	portable device
Model name:	**RHM181LW (STV100-4)**
S/N serial number:	1161466041 / 1161466952 / 1161466951 / 1161467034 / 1161509684 / 1161509633
FCC-ID:	L6ARHM180LW
IMEI-Number:	004402243072927 / 004402243072810 / 004402243072919 / 004402243072901 / 00440224308011010 / 004402243080037
Hardware status:	CER-62543-001 Rev 2-x06-01
Software status:	AAC273
Frequency:	see technical details
Antenna:	integrated antenna
Battery option:	integrated battery
Accessories:	holster
Test sample status:	identical prototype
Exposure category:	general population / uncontrolled environment

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test Report authorised:

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Testing Manager
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1 Table of contents

2 General information

2.1 Notes and disclaimer

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2.2 Application details

Date of receipt of order:	2015-06-08
Date of receipt of test item:	2015-07-28
Start of test:	2015-07-29
End of test:	2015-09-15
Person(s) present during the test:	

2.3 Statement of compliance

The SAR values found for the RHM181LW (STV100-4) Blackberry Smartphone 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.

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	31.0
☐	GSM DCS	1710.2	1784.8	1805.2	1879.8	GMSK 8-PSK	1 E2	0	A	33	11	512	698	885	29.4
☒	GSM cellular	824.2	848.8	869.2	893.8	GMSK 8-PSK	4 E2	5	A	33	11	128	190	251	31.5
☒	GSM PCS	1850.2	1909.8	1930.2	1989.8	GMSK 8-PSK	1 E2	0	A	33	11	512	661	810	29.4
☐	UMTS FDD I	1922.4	1977.6	2112.4	2167.6	QPSK	3	max	--	--	--	9612	9750	9888	24.3
☒	UMTS FDD II	1852.4	1907.6	1932.4	1987.6	QPSK	3	max	--	--	--	9262	9400	9538	24.6
☒	UMTS FDD IV	1712.4	1752.6	2112.4	2152.6	QPSK	3	max	--	--	--	1312	1412	1513	24.1
☒	UMTS FDD V	826.4	846.6	871.4	891.6	QPSK	3	max	--	--	--	4132	4182	4233	24.1
☐	UMTS FDD VIII	882.4	912.6	927.4	957.6	QPSK	3	max	--	--	--	2712	2788	2863	24.5
☐	LTE FDD 1	1920	1980	2110	2170	QPSK	3	max	--	--	--	18100	18300	18500	23.3
☒	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	23.8
☒	LTE FDD 4	1710	1755	2110	2155	QPSK	3	max	--	--	--	20050	20175	20300	23.4
☒	LTE FDD 7	2500	2570	2620	2690	QPSK	3	max	--	--	--	20850	21100	21350	23.1
☐	LTE FDD 8	880	915	925	960	QPSK	3	max	--	--	--	21500	21625	21750	23.7
☒	LTE FDD 13	777	787	746	756	QPSK	3	max	--	--	--	23205	23230	23255	23.9
☒	LTE FDD 17	704	716	734	746	QPSK	3	max	--	--	--	23780	23790	23800	23.7
☐	LTE FDD 20	832	862	791	821	QPSK	3	max	--	--	--	24250	24300	24350	24.2
☐	LTE FDD 28	703	748	758	803	QPSK	3	max	--	--	--	27310	27435	27560	23.6
☒	LTE TDD 41	2496	2690	2496	2690	QPSK	3	max	--	--	--	---	41055	---	23.7
☐	WLAN	2412	2472	2412	2472	CCK OFDM	--	max	--	--	--	1	6	13	17.5
☒	WLAN US	2412	2462	2412	2462	CCK OFDM	--	max	--	--	--	1	6	11	17.9
☒	WLAN	5180	5240	5180	5240	OFDM	--	max	--	--	--	--	40	--	15.5
☒	WLAN	5260	5320	5260	5320	OFDM	--	max	--	--	--	--	56	--	15.8

☒	WLAN	5500	5700	5500	5700	OFDM	--	max	--	--	--	--	--	140	15.3
☒	WLAN	5745	5825	5745	5825	OFDM	--	max	--	--	--	149	--	--	15.7
☒	BT	2402	2480	2402	2480	GFSK	3	max	--	--	--	0	39	78	7.8

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

LTE and CA Release 10

2.5 Transmitter and Antenna Operating Configurations

Simultaneous transmission conditions								
	GSM	UMTS	LTE	WLAN2.4 (0)	WLAN2.4 (1)	WLAN5 (0)	WLAN5 (1)	BT/BLE[1]
GSM				x	x	x	x	x
UMTS				x	x	x	x	x
LTE				x	x	x	x	x
WLAN2.4 (0)	x	x	x		x			x
WLAN2.4 (1)	x	x	x	x				x
WLAN 5GHz (0)	x	x	x				x	x
WLAN 5GHz (1)	x	x	x			x		x
BT/BLE[1]	x	x	x	x	x	x	x	

Table 1: Simultaneous transmission conditions

(0) – primary antenna
(1) – secondary antenna
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
IEEE Std. C95-3	2002	IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave
IEEE Std. C95-1	2005	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 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	December 4, 2013	SAR Evaluation Considerations for Wireless Handsets
KDB 941225D01v03	October 16, 2014	SAR Measurements Procedures for 3G Devices
KDB 941225D05v02	December 5, 2013	SAR for LTE Devices
KDB 941225D05Av01	August 12, 2014	LTE Rel. 10 KDB Inquiry Sheet
KDB 941225D06v02	October 16, 2014	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
KDB 941225D07v01	May 28, 2013	UMPS Mini Tablet
KDB 248227D01v02	June 08, 2015	SAR Measurement Procedures for 802.11 a/b/g Transmitters
KDB 616217D04v01	May 28, 2013	SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers.

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 value reported for 1g (W/kg)

		PCE	DTS	UNII
head		**1.154**	**0.240**	**0.169**
body worn 15 mm distance		**0.934**	**0.112**	**0.379**
hotspot operation 10 mm distance		**1.165**	**0.053**	**0.180**
collocated situations	**ΣSAR evaluation**	**1.482**		

head	SAR_{1g} results(W/kg)	
	Measured	Extrapolated
GSM 850	0.133	0.184
GSM 1900	0.520	0.701
UMTS FDD II	0.557	0.667
UMTS FDD IV	**0.896**	**1.154**
UMTS FDD V	0.253	0.326
LTE FDD 2	0.629	0.810
LTE FDD 4	0.612	0.736
LTE FDD 7	0.241	0.298
LTE FDD 13	0.136	0.139
LTE FDD 17	0.071	0.079
LTE TDD 41	0.135	0.145
WLAN 2450	0.199	0.240
BT 2450	0.011	0.015
WLAN 5 GHz	0.109	0.169

hotspot	SAR_{1g} results(W/kg)	
	Measured	Extrapolated
GSM 850	0.682	0.948
GSM 1900	0.720	1.141
UMTS FDD II	0.815	0.925
UMTS FDD IV	**1.090**	**1.165**
UMTS FDD V	0.577	0.743
LTE FDD 2	0.662	0.932
LTE FDD 4	0.832	1.047
LTE FDD 7	0.779	0.946
LTE FDD 13	0.296	0.303
LTE FDD 17	0.182	0.195
LTE TDD 41	0.614	0.658
WLAN 2450	0.043	0.053
BT 2450	0.019	0.025
WLAN 5 GHz	0.133	0.180

body worn	SAR_{1g} results(W/kg)	
	Measured	Extrapolated
GSM 850	0.386	0.533
GSM 1900	0.537	0.724
UMTS FDD II	**0.725**	**0.934**
UMTS FDD IV	0.696	0.891
UMTS FDD V	0.258	0.317
LTE FDD 2	0.608	0.714
LTE FDD 4	0.619	0.744
LTE FDD 7	0.378	0.465
LTE FDD 13	0.178	0.182
LTE FDD 17	0.124	0.133
LTE TDD 41	0.369	0.369
WLAN 2450	0.093	0.112
BT 2450	0.007	0.009
WLAN 5 GHz	0.274	0.379

4.1 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
UMTS FDD II	0.815	0.778	1.05
UMTS FDD IV head	0.896	0.866	1.03
UMTS FDD IV body	1.090	1.000	1.09
LTE FDD 4	0.817	0.832	1.02

5 Test Environment

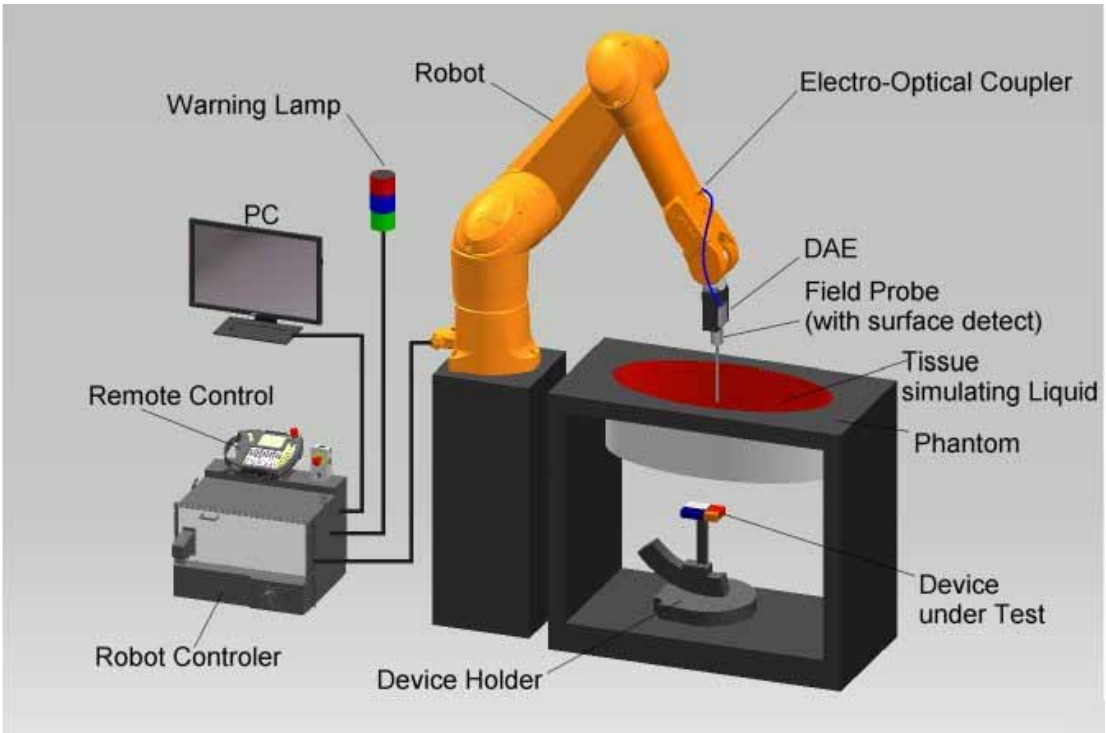
Ambient temperature:	20 – 24 °C
Tissue Simulating liquid:	20 – 24 °C
Relative humidity content:	40 – 50 %
Air pressure:	not relevant for this kind of testing
Power supply:	230 V / 50 Hz

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

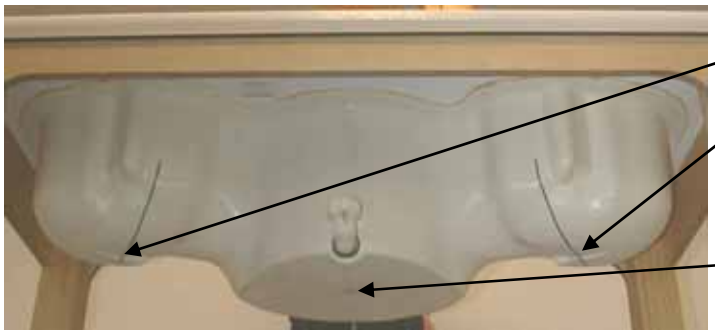
Isotropic E-Field Probe ET3DV6 for Dosimetric Measurements	
Technical data according to manufacturer information	
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic 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)

Isotropic E-Field Probe ES3DV3 for Dosimetric Measurements	
Technical data according to manufacturer information	
Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix D
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) ± 0.3 dB in HSL (rotation normal to probe axis)
Dynamic range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 20 mm Body diameter: 12 mm Tip diameter: 3.9 mm Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (ES3DV3)

Isotropic E-Field Probe EX3DV4 for Dosimetric Measurements	
Technical data according to manufacturer information	
Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to >6 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic range	10 µW/g to > 100 mW/g; Linearity: ± 0.2 dB (noise: typically<1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20mm) Tip length: 2.5 mm (Body: 12mm) Typical distance from probe tip to dipole centers: 1mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

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.

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

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
Water	38.56	41.1	41.45	40.92	54.37	55.35	55.19	54.7	64 - 78
Salt (NaCl)	3.95	1.4	1.45	1.48	0.63	0.38	0.19	0.0	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	0.1	0.1	0.1	0.1	0.0
Tween 20	0.0	0.0	0.0	0.0	44.90	44.17	44.52	45.2	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
Water	51.16	51.7	52.4	56.0	71.40	71.45	71.56	71.65	64 - 78
Salt (NaCl)	1.49	0.9	1.40	0.76	0.55	0.5	0.39	0.3	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	0.1	0.1	0.1	0.1	0.0
Tween 20	0.0	0.0	0.0	0.0	27.95	27.95	27.95	27.95	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
Tween 20: Polyoxyethylene (20) sorbitan monolaurate

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	709	42.15	0.89	41.6	-1.2%	21.93	0.86	-2.8%	2015-08-24
	725	42.07	0.89	41.5	-1.5%	21.79	0.88	-1.4%	
	750	41.94	0.89	41.1	-2.0%	21.61	0.90	0.9%	
	782	41.78	0.90	40.7	-2.6%	21.42	0.93	4.0%	
850/900	824	41.56	0.90	41.7	0.4%	19.95	0.91	1.7%	2015-08-19
	825	41.55	0.90	41.7	0.4%	19.95	0.92	1.8%	
	835	41.50	0.90	41.5	0.0%	20.03	0.93	3.4%	
	837	41.50	0.90	41.5	0.0%	20.01	0.93	3.3%	
	847	41.50	0.91	41.3	-0.4%	19.96	0.94	3.0%	
	849	41.50	0.92	41.3	-0.5%	19.94	0.94	2.9%	
1750	1712	40.13	1.35	39.1	-2.7%	13.81	1.32	-2.6%	2015-07-31
	1720	40.11	1.35	39.0	-2.8%	13.82	1.32	-2.4%	
	1732	40.10	1.36	38.9	-2.9%	13.81	1.33	-2.3%	
	1745	40.08	1.37	38.9	-2.9%	13.84	1.34	-1.8%	
	1750	40.07	1.37	38.9	-3.0%	13.85	1.35	-1.7%	
	1752	40.07	1.37	38.9	-3.0%	13.84	1.35	-1.7%	
1900	1850	40.00	1.40	40.1	0.2%	12.94	1.33	-4.9%	2015-07-29
	1852	40.00	1.40	40.1	0.2%	12.94	1.33	-4.8%	
	1860	40.00	1.40	40.0	0.1%	12.96	1.34	-4.2%	
	1880	40.00	1.40	40.0	-0.1%	13.00	1.36	-2.9%	
	1900	40.00	1.40	39.9	-0.2%	13.05	1.38	-1.5%	
	1908	40.00	1.40	39.9	-0.3%	13.06	1.39	-1.0%	
	1910	40.00	1.40	39.9	-0.3%	13.04	1.39	-1.0%	
2600	2510	39.12	1.87	38.2	-2.5%	12.88	1.80	-3.6%	2015-08-04
	2535	39.09	1.89	38.0	-2.7%	12.96	1.83	-3.4%	
	2560	39.06	1.92	38.0	-2.7%	13.03	1.86	-3.4%	
	2600	39.01	1.96	37.8	-3.0%	13.13	1.90	-3.3%	
2600	2510	39.12	1.87	38.8	-0.9%	13.30	1.86	-0.5%	2015-09-01
	2535	39.09	1.89	38.7	-1.0%	13.35	1.88	-0.5%	
	2560	39.06	1.92	38.6	-1.3%	13.31	1.90	-1.3%	
	2568	39.05	1.93	38.6	-1.2%	13.36	1.91	-1.1%	
	2593	39.02	1.96	38.5	-1.4%	13.54	1.95	-0.2%	
	2600	39.01	1.96	38.4	-1.5%	13.55	1.96	-0.2%	
	2637	38.96	2.00	38.3	-1.6%	13.58	1.99	-0.6%	
	2680	38.91	2.05	38.2	-1.8%	13.66	2.04	-0.7%	

Table 5: Parameter of the head tissue simulating liquid

Liquid MSL	Freq. (MHz)	Target head tissue		Measurement **body** tissue					Measurement date
		Permittivity	Conductivity (S/m)	Permittivity	Dev. %	Conductivity ε"	Conductivity (S/m)	Dev. %	
750	709	55.69	0.96	57.8	3.8%	23.29	0.92	-4.3%	2015-08-25
	725	55.63	0.96	57.6	3.5%	23.05	0.93	-3.3%	
	750	55.53	0.96	57.2	3.0%	22.71	0.95	-1.7%	
	782	55.41	0.97	57.0	2.9%	22.46	0.98	1.1%	
850/900	824	55.24	0.97	53.9	-2.5%	21.35	0.98	1.0%	2015-08-20
	825	55.24	0.97	53.9	-2.5%	21.35	0.98	1.1%	
	835	55.20	0.97	53.7	-2.7%	21.33	0.99	2.1%	
	837	55.19	0.97	53.7	-2.7%	21.29	0.99	1.9%	
	847	55.16	0.98	53.6	-2.9%	21.26	1.00	1.7%	
	849	55.16	0.99	53.5	-2.9%	21.22	1.00	1.5%	
1750	1712	53.53	1.46	52.1	-2.7%	15.91	1.52	3.5%	2015-07-29
	1720	53.51	1.47	52.1	-2.7%	15.91	1.52	3.6%	
	1732	53.48	1.48	52.0	-2.7%	15.90	1.53	3.7%	
	1745	53.44	1.49	52.0	-2.7%	15.89	1.54	3.8%	
	1750	53.43	1.49	52.0	-2.7%	15.91	1.55	4.1%	
	1752	53.43	1.49	52.0	-2.7%	15.89	1.55	4.0%	
1750	1712	53.53	1.46	52.3	-2.3%	15.86	1.51	3.1%	2015-08-17
	1720	53.51	1.47	52.2	-2.4%	15.84	1.52	3.1%	
	1732	53.48	1.48	52.2	-2.4%	15.81	1.52	3.1%	
	1745	53.44	1.49	52.2	-2.4%	15.81	1.53	3.3%	
	1747	53.44	1.49	52.2	-2.4%	15.81	1.54	3.4%	
	1750	53.43	1.49	52.2	-2.4%	15.82	1.54	3.5%	
	1752	53.43	1.49	52.2	-2.4%	15.82	1.54	3.5%	
1900	1850	53.30	1.52	53.8	1.0%	14.32	1.47	-3.1%	2015-08-14
	1852	53.30	1.52	53.8	0.9%	14.33	1.48	-2.9%	
	1860	53.30	1.52	53.8	0.9%	14.34	1.48	-2.4%	
	1880	53.30	1.52	53.7	0.8%	14.37	1.50	-1.1%	
	1900	53.30	1.52	53.7	0.7%	14.40	1.52	0.1%	
	1908	53.30	1.52	53.7	0.7%	14.40	1.53	0.5%	
	1910	53.30	1.52	53.7	0.7%	14.40	1.53	0.7%	
1900	1850	53.30	1.52	52.7	-1.1%	14.08	1.45	-4.7%	2015-08-29
	1852	53.30	1.52	52.7	-1.1%	14.10	1.45	-4.4%	
	1860	53.30	1.52	52.7	-1.1%	14.10	1.46	-4.0%	
	1880	53.30	1.52	52.7	-1.2%	14.06	1.47	-3.3%	
	1900	53.30	1.52	52.7	-1.1%	14.18	1.50	-1.4%	
	1908	53.30	1.52	52.7	-1.2%	14.22	1.51	-0.7%	
	1910	53.30	1.52	52.6	-1.2%	14.22	1.51	-0.6%	
2600	2510	52.62	2.04	51.3	-2.5%	15.11	2.11	3.7%	2015-09-03
	2535	52.59	2.07	51.3	-2.5%	15.21	2.14	3.6%	
	2560	52.56	2.11	51.1	-2.8%	15.13	2.15	2.3%	
	2568	52.55	2.12	51.1	-2.8%	15.11	2.16	1.9%	
	2593	52.52	2.15	51.1	-2.8%	15.22	2.20	2.0%	
	2600	52.51	2.16	51.0	-2.9%	15.27	2.21	2.1%	
	2637	52.46	2.22	50.9	-3.0%	15.45	2.27	2.3%	
	2680	52.41	2.28	50.8	-3.1%	15.40	2.30	0.9%	

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

Dielectric Parameters For Head Liquid									
Liquid HSL	Freq. (MHz)	Measured HSL			Target HSL		Devation (%)		Date Measured
		ε'_r	ε''_r	σ (S/m)	ε'_r	σ (S/m)	ε'_r	σ (S/m)	MM/DD/YY
2450	2400	37.61	13.28	1.77	39.3	1.76	-4.30	0.74	
	2425	37.53	13.34	1.80	39.2	1.78	-4.26	1.10	
	2450	37.43	13.41	1.83	39.2	1.80	-4.52	1.54	
	2480	37.31	13.49	1.86	39.2	1.83	-4.82	1.70	
	2400	38.06	13.23	1.77	39.3	1.76	-3.16	0.38	
2450	2425	37.94	13.29	1.79	39.2	1.78	-3.22	0.72	
	2450	37.92	13.37	1.82	39.2	1.80	-3.28	1.20	
	2480	37.77	13.42	1.85	39.2	1.83	-3.65	1.21	15.09.2015
	2400	37.61	13.28	1.77	39.3	1.76	-4.30	0.74	
	2425	37.53	13.34	1.80	39.2	1.78	-4.26	1.10	
5200	5180	34.39	16.29	4.70	36.0	4.63	-4.47	1.41	
	5200	34.35	16.30	4.71	36.0	4.66	-4.59	1.17	
	5240	34.25	16.35	4.77	35.9	4.70	-4.61	1.39	08.09.2015
	5280	34.18	16.36	4.81	35.9	4.74	-4.79	1.41	
	5320	34.11	16.40	4.85	35.8	4.78	-4.73	1.54	
5200	5180	34.77	16.33	4.71	36.0	4.63	-3.42	1.64	
	5200	34.71	16.35	4.73	36.0	4.66	-3.58	1.50	
	5240	34.65	16.39	4.78	35.9	4.70	-3.48	1.66	14.09.2015
	5280	34.56	16.43	4.83	35.9	4.74	-3.73	1.82	
	5320	34.50	16.47	4.87	35.8	4.78	-3.63	1.98	
5500	5500	34.14	16.64	5.09	35.6	4.96	-4.10	2.65	
	5580	33.92	16.67	5.17	35.6	5.04	-4.72	2.67	
	5640	33.87	16.74	5.25	35.5	5.11	-4.59	2.79	09.09.2015
	5720	33.64	16.76	5.33	35.4	5.19	-4.97	2.76	
5500	5500	34.21	16.62	5.09	35.6	4.96	-3.90	2.53	
	5580	34.06	16.69	5.18	35.6	5.04	-4.33	2.80	
	5640	33.98	16.72	5.25	35.5	5.11	-4.28	2.66	14.09.2015
	5720	33.82	16.81	5.35	35.4	5.19	-4.46	3.07	
5800	5745	33.85	16.91	5.40	35.4	5.21	-4.38	3.73	
	5775	33.79	16.94	5.44	35.3	5.24	-4.28	3.86	
	5800	33.72	16.94	5.47	35.3	5.27	-4.48	3.72	09.09.2015
	5825	33.65	16.97	5.50	35.3	5.30	-4.67	3.76	
5800	5745	33.76	16.80	5.37	35.4	5.21	-4.63	3.06	
	5775	33.70	16.84	5.41	35.3	5.24	-4.53	3.25	
	5800	33.66	16.87	5.44	35.3	5.27	-4.65	3.29	14.09.2015
	5825	33.63	16.88	5.47	35.3	5.30	-4.73	3.21	

Table 7: Parameter of the head tissue simulating liquid tested by applicant itself.

Dielectric Parameters For Muscle Liquid									
Liquid MSL	Freq. (MHz)	Measured MSL			Target MSL		Devation (%)		Date Measured
		ε'_r	ε''_r	σ (S/m)	ε'_r	σ (S/m)	ε'_r	σ (S/m)	MM/DD/YY
2450	2400	50.77	14.61	1.95	52.8	1.90	-3.84	2.67	
	2425	50.67	14.71	1.98	52.7	1.93	-3.85	2.82	
	2450	50.59	14.82	2.02	52.7	1.95	-4.00	3.59	
	2480	50.47	14.92	2.06	52.7	1.99	-4.23	3.44	
2450	2400	50.52	14.66	1.96	52.8	1.90	-4.33	3.05	15.09.2015
	2425	50.40	14.70	1.98	52.7	1.93	-4.36	2.76	
	2450	50.40	14.81	2.02	52.7	1.95	-4.37	3.50	
	2480	50.24	14.88	2.05	52.7	1.99	-4.66	3.16	
5200	5180	46.86	19.21	5.54	49.0	5.28	-4.37	4.84	09.09.2015
	5200	46.81	19.22	5.56	49.0	5.30	-4.47	4.91	
	5240	46.72	19.23	5.61	49.0	5.35	-4.65	4.78	
	5280	46.62	19.26	5.66	48.9	5.39	-4.66	4.96	
	5320	46.52	19.30	5.71	48.9	5.44	-4.87	4.99	
5500	5500	46.68	19.15	5.86	48.6	5.65	-3.95	3.71	09.09.2015
	5580	46.65	19.25	5.98	48.5	5.74	-3.81	4.11	
	5640	46.60	19.31	6.06	48.4	5.81	-3.72	4.28	
	5720	46.42	19.36	6.16	48.3	5.91	-3.89	4.24	
5800	5745	46.41	19.39	6.20	48.3	5.94	-3.91	4.33	09.09.2015
	5775	46.38	19.43	6.24	48.2	5.97	-3.78	4.56	
	5800	46.32	19.43	6.27	48.2	6.00	-3.90	4.49	
	5825	46.24	19.45	6.30	48.2	6.03	-4.07	4.52	

Table 8: Parameter of the body tissue simulating liquid tested by applicant itself.

6.1.11 Measurement uncertainty evaluation for SAR test

DASY5 Uncertainty Budget According to IEEE 1528/2003 and IEC 62209-1 for the 300 MHz - 3 GHz range								v_i^2 or v_{eff}
Source of uncertainty	Uncertainty Value ± %	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	Standard Uncertainty ± %, (1g)	Standard Uncertainty ± %, (10g)	
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 %	∞
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	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
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 Std.						± 11.1 %	± 10.8 %	387
Expanded Std.						± **22.1** %	± **21.6** %	

Table 9: Measurement uncertainties
Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528/2003.
The budget is valid for 2G and 3G communication signals and frequency range 300MHz - 3 GHz.
For these conditions it represents a worst-case analysis. For specifc tests and configurations, the uncertainty could be considerable smaller.

Relative DASY5 Uncertainty Budget for SAR Tests According to IEEE 1528/2013 and IEC62209/2011 for the 0.3 - 3GHz range								v_i^2 or v_{eff}
Error Description	Uncertainty Value ± %	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	Standard Uncertainty ± %, (1g)	Standard Uncertainty ± %, (10g)	
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 10: Measurement uncertainties
Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528/2013 and IEC 62209-1/2011 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.

DASY5 Uncertainty Budget According to IEC 62209-2/2010 for the 300 MHz - 6 GHz range								v_i^2 or v_{eff}
Source of uncertainty	Uncertainty Value	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	Standard Uncertainty ± %, (1g)	Standard Uncertainty ± %, (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 11: 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 300MHz - 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 and IEC 62209-1 for the 3 - 6 GHz 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	± 6.6 %	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 12: 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 1528/2013 and IEC62209-1/2011 (3-6GHz 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	± 6.6 %	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 13: Measurement uncertainties
Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528/2013 and IEC 62209-1/2011 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 14: 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 15: 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	Probe	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	ES3DV3 S/N: 3320	750 MHz head	8.52	5.56	8.41	-1.3%	5.56	0.0%	2015-08-24
D750V3 S/N: 1041	ES3DV3 S/N: 3320	750 MHz head	8.52	5.56	8.35	-2.0%	5.53	-0.5%	2015-08-25
D750V3 S/N: 1041	ET3DV6 S/N: 1554	750 MHz body	8.75	5.79	8.24	-5.8%	5.61	-3.1%	2015-08-25
D750V3 S/N: 1041	ET3DV6 S/N: 1554	750 MHz body	8.75	5.79	8.28	-5.4%	5.62	-2.9%	2015-08-26
D750V3 S/N: 1041	ET3DV6 S/N: 1554	750 MHz body	8.75	5.79	8.29	-5.3%	5.62	-2.9%	2015-08-27
D835V2 S/N: 4d153	ET3DV6 S/N: 1554	835 MHz head	9.58	6.21	9.82	2.5%	6.51	4.8%	2015-08-19
D835V2 S/N: 4d153	ET3DV6 S/N: 1554	835 MHz head	9.58	6.21	9.85	2.8%	6.54	5.3%	2015-08-21
D835V2 S/N: 4d153	ES3DV3 S/N: 3320	835 MHz body	9.40	6.12	9.80	4.3%	6.50	6.2%	2015-08-20
D835V2 S/N: 4d153	ES3DV3 S/N: 3320	835 MHz body	9.40	6.12	9.88	5.1%	6.53	6.7%	2015-08-21
D1750V2 S/N: 1093	ES3DV3 S/N: 3326	1750 MHz head	37.20	19.90	35.40	-4.8%	19.00	-4.5%	2015-07-31
D1750V2 S/N: 1093	ES3DV3 S/N: 3320	1750 MHz head	37.20	19.90	36.00	-3.2%	19.30	-3.0%	2015-08-04
D1750V2 S/N: 1093	ES3DV3 S/N: 3326	1750 MHz body	37.50	20.30	37.70	0.5%	20.10	-1.0%	2015-07-29
D1750V2 S/N: 1093	ET3DV6 S/N: 1554	1750 MHz body	37.50	20.30	35.80	-4.5%	20.00	-1.5%	2015-08-17
D1750V2 S/N: 1093	ET3DV6 S/N: 1554	1750 MHz body	37.50	20.30	35.80	-4.5%	20.00	-1.5%	2015-08-18
D1750V2 S/N: 1093	ET3DV6 S/N: 1554	1750 MHz body	37.50	20.30	34.60	-7.7%	19.30	-4.9%	2015-08-19
D1900V2 S/N: 5d009	ES3DV3 S/N: 3320	1900 MHz head	41.10	21.40	39.50	-3.9%	20.80	-2.8%	2015-07-29
D1900V2 S/N: 5d009	ES3DV3 S/N: 3320	1900 MHz head	41.10	21.40	39.20	-4.6%	20.70	-3.3%	2015-07-30
D1900V2 S/N: 5d009	ES3DV3 S/N: 3320	1900 MHz body	40.50	21.50	41.30	2.0%	22.10	2.8%	2015-08-14
D1900V2 S/N: 5d009	ES3DV3 S/N: 3320	1900 MHz body	40.50	21.50	41.20	1.7%	21.90	1.9%	2015-08-17
D1900V2 S/N: 5d009	ES3DV3 S/N: 3320	1900 MHz body	40.50	21.50	42.10	4.0%	22.30	3.7%	2015-08-18
D1900V2 S/N: 5d009	ES3DV3 S/N: 3320	1900 MHz body	40.50	21.50	42.50	4.9%	22.60	5.1%	2015-08-19
D1900V2 S/N: 5d009	EX3DV4 S/N: 3944	1900 MHz body	40.50	21.50	38.60	-4.7%	20.60	-4.2%	2015-08-29

System performence check (1000 mW)									
System validation Kit	Probe	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
D2600V2 S/N: 1040	EX3DV4 S/N: 3944	2600 MHz head	58.00	26.10	55.80	-3.8%	24.70	-5.4%	2015-08-04
D2600V2 S/N: 1040	EX3DV4 S/N: 3944	2600 MHz head	56.90	25.90	59.80	5.1%	27.10	4.6%	2015-09-01
D2600V2 S/N: 1040	EX3DV4 S/N: 3944	2600 MHz body	56.80	25.90	54.80	-3.5%	24.30	-6.2%	2015-09-03
D2600V2 S/N: 1040	EX3DV4 S/N: 3944	2600 MHz body	56.80	25.90	56.80	0.0%	25.30	-2.3%	2015-09-04
D2600V2 S/N: 1040	EX3DV4 S/N: 3944	2600 MHz body	56.80	25.90	56.70	-0.2%	25.70	-0.8%	2015-09-05

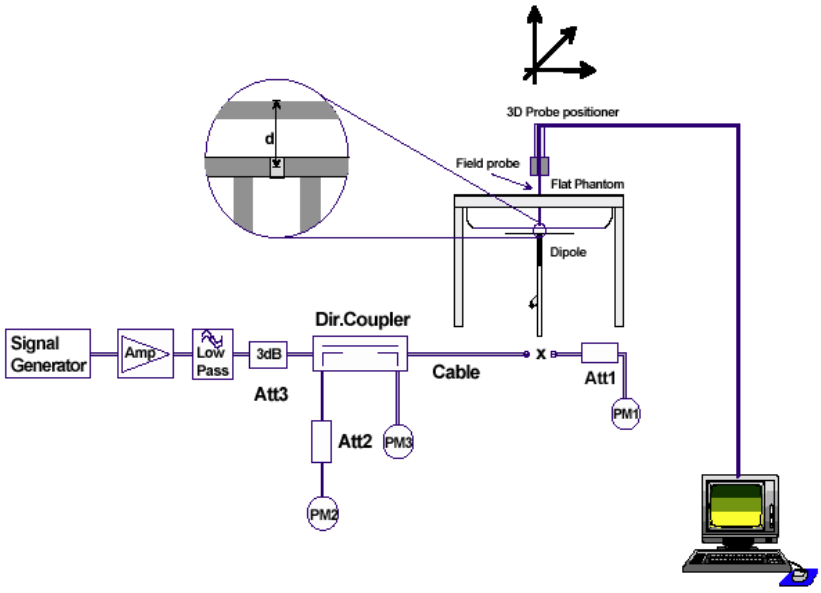
Table 16: Results system check

System check performed by the applicant itself											
			Measured			Area & Zoom Dev. (%)	Target Zoom Scan		Deviation (%)		Date Measured
Freq. (MHz)	Dipole Serial	Probe Serial	Scan Type	SAR 1g	SAR 10g		1g	10g	1g	10g	MM/DD/YY
2450	747	3225	**Area**	55.1	25.9	1.47					09.04.15
			Zoom	54.3	25.6		52.8	24.6	2.84	4.07	
2450	747	3225	**Area**	55.9	26.0	2.01					09.15.15
			Zoom	54.8	25.8		52.8	24.6	3.79	4.88	
5200	1033	3592	**Area**	78.4	22.0	-6.56					09.14.15
			Zoom	83.9	24.3		79.4	22.6	5.67	7.52	
5500	1033	3592	**Area**	85.8	23.7	-5.19					09.09.15
			Zoom	90.5	25.9		84.4	23.9	7.23	8.37	
5500	1033	3592	**Area**	85.6	23.9	-4.89					09.14.15
			Zoom	90.0	26.1		84.4	23.9	6.64	9.21	
5800	1033	3592	**Area**	82.7	23.0	-3.61					09.09.15
			Zoom	85.8	24.6		79.4	22.6	8.06	8.85	
5800	1033	3592	**Area**	83.0	22.8	-1.31					09.14.15
			Zoom	84.1	24.2		79.4	22.6	5.92	7.08	

Table 17: Results system check performed by the applicant itself

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:

Frequency (MHz)	Test System	DASY SW	Dipole Type /SN	Probe Type / SN	Calibrated signal type(s)	DAE unit Type / SN	head validation	body validation
750	Saarbrücken / SAR-1	V52.8.7	D750V2 / 1041	ES3DV3 / 1554	CW	DAE3/ 477	2015-06-17	2015-08-25
835	Saarbrücken / SAR-1	V52.8.7	D835V2 / 4d153	ES3DV3 / 1554	CW	DAE3/ 477	2015-08-19	2015-07-03
1750	Saarbrücken / SAR-1	V52.8.7	D1750V2 / 1093	ES3DV6 / 1554	CW	DAE4/ 477	2015-07-21	2015-07-24
750	Saarbrücken / SAR-2	V52.8.7	D750V2 / 1041	ES3DV3 / 3320	CW	DAE3 / 413	2015-03-04	2015-03-13
835	Saarbrücken / SAR-2	V52.8.7	D835V2 / 4d153	ES3DV3 / 3320	CW	DAE3 / 413	2015-03-13	2015-04-30
1750	Saarbrücken / SAR-2	V52.8.7	D1750V2 / 1093	ES3DV3 / 3320	CW	DAE3 / 413	2015-07-22	2015-07-23
1900	Saarbrücken / SAR-2	V52.8.7	D1900V2 / 5d009	ES3DV3 / 3320	CW	DAE3 / 413	2015-07-23	2015-08-01
1900	Saarbrücken / SAR-2	V52.8.7	D2450V2 / 710	EX3DV4 / 3944	CW	DAE3 / 413	2015-08-02	2015-08-02
2450	Saarbrücken / SAR-2	V52.8.7	D2450V2 / 710	EX3DV4 / 3944	CW	DAE3 / 413	2015-07-28	2015-06-17
2450	Saarbrücken / SAR-2	V52.8.7	D2450V2 / 710	EX3DV4 / 3944	CW	DAE3 / 413	2015-08-28	2015-09-02
1750	Saarbrücken / SAR-3	V52.8.7	D1750V2 / 1093	ES3DV3 / 3326	CW	DAE4/ 1387	2015-07-09	2015-07-08

7 Detailed Test Results

7.1 Conducted power measurements

For the measurements the Rohde & Schwarz Radio Communication Tester CMU 200 and CMW500 were 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	- 9.03 dB	- 6.02 dB	- 4.26 dB	- 3.01 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

Conducted output power GSM 850 MHz (dBm)								
			Slotted avg. power			Time based avg. power		
TS	mod.	upper limit	CH 128	CH 190	CH 251	CH 128	CH 190	CH 251
			824.2 MHz	836.6 MHz	848.8 MHz	824.2 MHz	836.6 MHz	848.8 MHz
1	GMSK	**34.5**	33.6	33.6	33.1	24.57	24.57	24.07
2	**GMSK**	**32.5**	**31.5**	**30.9**	**31.1**	**25.48**	**24.88**	**25.08**
3	GMSK	**31.0**	29.4	28.6	28.6	25.14	24.34	24.34
4	GMSK	**29.5**	27.3	27.4	27.2	24.29	24.39	24.19
1	8PSK	**28.5**	27.0	26.5	26.4	17.97	17.47	17.37
2	8PSK	**27.0**	25.3	25.0	25.0	19.28	18.98	18.98
3	8PSK	**25.5**	23.8	23.5	23.4	19.54	19.24	19.14
4	8PSK	**24.5**	22.6	22.2	22.1	19.59	19.19	19.09

Table 18: Test results conducted power measurement GSM 850 MHz

Conducted output power GSM 850 MHz (dBm) DTM-Mode								
			Slotted avg. power			Time based avg. power		
TS	mod.	upper limit	CH 128	CH 190	CH 251	CH 128	CH 190	CH 251
			824.2 MHz	836.6 MHz	848.8 MHz	824.2 MHz	836.6 MHz	848.8 MHz
2	**GMSK + 1GMSK**	**32.5**	**31.4**	**30.8**	**31.1**	**25.38**	**24.78**	**25.08**
3	GMSK + 2GMSK	**31.0**	29.6	28.8	28.7	25.34	24.54	24.44
2	GMSK + 1 8PSK	**32.5**	25.5	25.2	25.2	19.48	19.18	19.18
3	GMSK + 2 8PSK	**31.0**	25.3	25.1	25.0	21.04	20.84	20.74

Table 19: Test results conducted power measurement GSM 850 MHz DTM-Mode

7.1.2 Conducted power measurements GSM 1900 MHz

Conducted output power GSM 1900 MHz (dBm)								
			Slotted avg. power			Time based avg. power		
TS	mod.	upper limit	CH 512	CH 661	CH 810	CH 512	CH 661	CH 810
			1850.2 MHz	1880.0 MHz	1909.8 MHz	1850.2 MHz	1880.0 MHz	1909.8 MHz
1	GMSK	**31.5**	30.2	30.3	30.4	21.17	21.27	21.37
2	**GMSK**	**30.5**	**29.2**	**29.2**	**29.4**	**23.18**	**23.18**	**23.38**
3	GMSK	**28.0**	26.4	26.4	26.4	22.14	22.14	22.14
4	GMSK	**27.5**	26.0	26.0	26.0	22.99	22.99	22.99
1	8PSK	**27.5**	25.5	25.5	25.4	16.47	16.47	16.37
2	8PSK	**26.0**	24.1	24.0	23.8	18.08	17.98	17.78
3	8PSK	**25.0**	23.0	22.9	22.8	18.74	18.64	18.54
4	8PSK	**24.0**	21.7	21.6	21.6	18.69	18.59	18.59

Table 20: Test results conducted power measurement GSM 1900 MHz

Conducted output power GSM 1900 MHz (dBm) DTM-Mode								
			Slotted avg. power			Time based avg. power		
TS	mod.	upper limit	CH 512	CH 661	CH 810	CH 512	CH 661	CH 810
			1850.2 MHz	1880.0 MHz	1909.8 MHz	1850.2 MHz	1880.0 MHz	1909.8 MHz
2	**GMSK + 1GMSK**	**30.5**	**29.1**	**29.2**	**29.3**	**23.08**	**23.18**	**23.28**
3	GMSK + 2GMSK	**28.0**	26.6	26.5	26.6	22.34	22.24	22.34
2	GMSK + 1 8PSK	**30.5**	24.3	24.3	24.0	18.28	18.28	17.98
3	GMSK + 2 8PSK	**28.0**	24.2	24.2	24.0	19.94	19.94	19.74

Table 21: Test results conducted power measurement GSM 1900 MHz DTM-Mode

Conducted output power GSM 1900 MHz (dBm) with Power Reduction								
			Slotted avg. power			Time based avg. power		
TS	mod.	upper limit	CH 512	CH 661	CH 810	CH 512	CH 661	CH 810
			1850.2 MHz	1880.0 MHz	1909.8 MHz	1850.2 MHz	1880.0 MHz	1909.8 MHz
1	GMSK	**31.5**	30.3	30.4	29.9	21.27	21.37	20.87
2	**GMSK**	**29.0**	**27.0**	**27.9**	**27.1**	**20.98**	**21.88**	**21.08**
3	GMSK	**27.0**	25.5	25.6	25.5	21.24	21.34	21.24
4	GMSK	**25.5**	23.3	23.3	23.4	20.29	20.29	20.39
1	8PSK	**27.5**	25.5	25.5	25.4	16.47	16.47	16.37
2	8PSK	**26.0**	24.1	24.0	23.8	18.08	17.98	17.78
3	8PSK	**25.0**	23.0	22.9	22.8	18.74	18.64	18.54
4	8PSK	**24.0**	21.7	21.6	21.6	18.69	18.59	18.59

Table 22: Test results conducted power measurement GSM 1900 MHz with MHS back off mode active

Conducted output power GSM 1900 MHz (dBm) DTM-Mode with Power Reduction								
			Slotted avg. power			Time based avg. power		
TS	mod.	upper limit	CH 512	CH 661	CH 810	CH 512	CH 661	CH 810
			1850.2 MHz	1880.0 MHz	1909.8 MHz	1850.2 MHz	1880.0 MHz	1909.8 MHz
2	**GMSK + 1GMSK**	**29.0**	**27.0**	**27.8**	**27.0**	**20.98**	**21.78**	**20.98**
3	GMSK + 2GMSK	**27.0**	25.6	25.7	25.6	21.34	21.44	21.34
2	GMSK + 1 8PSK	**29.0**	24.4	24.3	24.2	18.38	18.28	18.18
3	GMSK + 2 8PSK	**27.0**	24.3	24.2	24.2	20.04	19.94	19.94

Table 23: Test results conducted power measurement GSM 850 MHz DTM-Mode with MHS back off mode active

7.1.3 Conducted power measurements WCDMA FDD V (850 MHz)

Max. RMS output power 850 MHz (FDD V) / dBm			
mode	CH 4132 / 826.4 MHz	CH 4182 / 836.6 MHz	CH 4233 / 846.6 MHz
RMC 12.2 kbit/s	**24.1**	**23.9**	**23.9**
RMC 64 kbit/s	24.1	23.9	23.8
RMC 144 kbit/s	24.1	23.9	23.8
RMC 384 kbit/s	24.1	23.9	23.8
AMR 4.75 kbit/s	24.1	23.9	23.8
AMR 5.15 kbit/s	24.1	23.9	23.9
AMR 5.9 kbit/s	24.1	23.9	23.9
AMR 6.7 kbit/s	24.1	23.9	23.9
AMR 7.4 kbit/s	24.1	23.9	23.9
AMR 7.95 kbit/s	24.1	23.9	23.9
AMR 10.2 kbit/s	24.1	23.9	23.9
AMR 12.2 kbit/s	24.1	23.9	23.9
HSDPA Sub test 1	**23.0**	**22.8**	**22.8**
HSDPA Sub test 2	21.5	21.4	21.4
HSDPA Sub test 3	20.5	20.3	20.1
HSDPA Sub test 4	20.2	19.8	19.8
DC-HSDPA Sub test 1	**22.8**	22.7	**22.7**
DC-HSDPA Sub test 2	22.7	22.7	22.6
DC-HSDPA Sub test 3	22.1	22.1	22.0
DC-HSDPA Sub test 4	22.1	22.2	21.9
HSUPA Sub test 1	22.4	22.2	22.3
HSUPA Sub test 2	20.1	19.9	19.8
HSUPA Sub test 3	21.0	20.9	20.8
HSUPA Sub test 4	20.3	20.1	20.2
HSUPA Sub test 5	**22.9**	**22.6**	**22.7**

Table 24: Test results conducted power measurement UMTS FDD V 850MHz

7.1.4 Conducted power measurements WCDMA FDD IV (1700 MHz)

Max. RMS output power FDD IV (1700MHz) / dBm									
mode	Channel / frequency								
	1312 / 1712.4 MHz			1412 / 1732.4 MHz			1513 / 1752.6 MHz		
	full	**back off**	**diff.**	full	**back off**	**diff.**	full	**back off**	**diff.**
RMC 12.2 kbit/s	**24.1**	**21.5**	**2.6**	**23.9**	**21.3**	**2.6**	**23.7**	**21.1**	**2.6**
RMC 64 kbit/s	24.1	21.4	2.7	23.9	21.2	2.7	23.7	21.0	2.7
RMC 144 kbit/s	24.0	21.4	2.6	23.9	21.3	2.6	23.7	21.1	2.6
RMC 384 kbit/s	24.1	21.4	2.7	23.8	21.1	2.7	23.6	20.9	2.7
AMR 4.75 kbit/s	24.0	21.4	2.6	23.9	21.3	2.6	23.7	21.1	2.6
AMR 5.15 kbit/s	24.1	21.5	2.6	23.8	21.2	2.6	23.6	21.0	2.6
AMR 5.9 kbit/s	24.0	21.2	2.8	23.8	21.0	2.8	23.6	20.8	2.8
AMR 6.7 kbit/s	24.0	21.4	2.6	23.8	21.2	2.6	23.6	21.0	2.6
AMR 7.4 kbit/s	24.0	21.4	2.6	23.9	21.3	2.6	23.7	21.1	2.6
AMR 7.95 kbit/s	24.1	21.4	2.7	23.8	21.1	2.7	23.6	20.9	2.7
AMR 10.2 kbit/s	24.0	21.4	2.6	23.7	21.1	2.6	23.6	21.0	2.6
AMR 12.2 kbit/s	24.1	21.5	2.6	23.7	21.1	2.6	23.7	21.1	2.6
HSDPA Sub test 1	**22.9**	**20.4**	**2.5**	**22.6**	**20.0**	**2.6**	**22.5**	**20.0**	**2.5**
HSDPA Sub test 2	21.4	18.7	2.7	21.3	18.8	2.5	21.1	18.6	2.5
HSDPA Sub test 3	21.0	18.4	2.6	20.7	18.1	2.6	20.6	17.9	2.7
HSDPA Sub test 4	19.8	17.2	2.6	19.6	17.0	2.6	19.5	16.7	2.8
DC-HSDPA Sub test 1	**22.8**	**20.3**	**2.5**	**22.3**	**19.9**	**2.4**	**22.4**	**19.9**	**2.5**
DC-HSDPA Sub test 2	22.8	20.3	2.5	22.2	19.9	2.3	22.3	19.8	2.5
DC-HSDPA Sub test 3	22.1	19.7	2.4	19.7	19.2	0.5	19.8	19.1	0.7
DC-HSDPA Sub test 4	22.2	19.8	2.4	19.7	19.2	0.5	19.7	19.2	0.5
HSUPA Sub test 1	22.4	19.9	2.5	22.3	19.7	2.6	21.4	18.8	2.6
HSUPA Sub test 2	20.8	18.1	2.7	20.7	18.1	2.6	20.6	17.8	2.8
HSUPA Sub test 3	22.0	19.4	2.6	21.7	19.0	2.7	21.4	19.3	2.1
HSUPA Sub test 4	20.3	17.5	2.8	21.1	18.4	2.7	20.9	18.3	2.6
HSUPA Sub test 5	**23.0**	**20.2**	**2.8**	**22.4**	**19.7**	**2.7**	**22.5**	**19.8**	**2.7**

Table 25: Test results conducted power measurement UMTS FDD IV 1700MHz measured with MHS back off mode active / inactive

7.1.5 Conducted power measurements WCDMA FDD II (1900 MHz)

Max. RMS output power FDD II (1900MHz) / dBm									
mode	Channel / frequency								
	9262 / 1852.4 MHz			9400 / 1880.0 MHz			9538 / 1907.6 MHz		
	full	**back off**	**diff.**	full	**back off**	**diff.**	full	**back off**	**diff.**
RMC 12.2 kbit/s	**23.9**	**21.8**	**2.1**	**24.6**	**21.5**	**3.1**	**23.9**	**21.2**	**2.7**
RMC 64 kbit/s	23.8	21.7	2.1	24.6	21.4	3.2	23.9	21.2	2.7
RMC 144 kbit/s	23.8	21.7	2.1	24.6	21.4	3.2	23.9	21.2	2.7
RMC 384 kbit/s	23.7	21.7	2.0	24.6	21.4	3.2	23.9	21.2	2.7
AMR 4.75 kbit/s	23.7	21.7	2.0	24.5	21.4	3.1	23.8	21.2	2.6
AMR 5.15 kbit/s	23.8	21.7	2.1	24.6	21.5	3.1	23.9	21.2	2.7
AMR 5.9 kbit/s	23.8	21.7	2.1	24.6	21.5	3.1	23.9	21.2	2.7
AMR 6.7 kbit/s	23.7	21.7	2.0	24.5	21.5	3.0	23.8	21.2	2.6
AMR 7.4 kbit/s	23.8	21.7	2.1	24.6	21.5	3.1	23.8	21.2	2.6
AMR 7.95 kbit/s	23.8	21.8	2.0	24.6	21.5	3.1	23.8	21.2	2.6
AMR 10.2 kbit/s	23.8	21.8	2.0	24.6	21.4	3.2	23.9	21.2	2.7
AMR 12.2 kbit/s	23.8	21.8	2.0	24.6	21.5	3.1	23.9	21.2	2.7
HSDPA Sub test 1	**22.8**	**20.7**	2.1	**23.0**	**21.5**	1.5	**22.9**	**21.0**	1.9
HSDPA Sub test 2	21.8	19.8	2.0	22.0	20.1	1.9	21.6	19.7	1.9
HSDPA Sub test 3	20.3	18.2	2.1	20.4	18.3	2.1	20.4	18.4	2.0
HSDPA Sub test 4	20.1	18.0	2.1	20.3	18.2	2.1	20.4	18.3	2.1
DC-HSDPA Sub test 1	**23.0**	**21.0**	2.0	**23.1**	**21.0**	2.1	**22.8**	**20.7**	2.1
DC-HSDPA Sub test 2	22.9	21.0	1.9	23.0	20.9	2.1	22.7	20.6	2.1
DC-HSDPA Sub test 3	22.3	20.4	1.9	22.4	20.5	1.9	22.1	20.1	2.0
DC-HSDPA Sub test 4	22.4	20.5	1.9	22.4	20.4	2.0	22.2	20.0	2.2
HSUPA Sub test 1	23.0	21.0	2.0	23.1	21.0	2.1	22.5	20.5	2.0
HSUPA Sub test 2	20.4	18.5	1.9	20.6	18.6	2.0	20.6	18.5	2.1
HSUPA Sub test 3	21.5	19.4	2.1	21.5	19.3	2.2	21.6	19.5	2.1
HSUPA Sub test 4	21.2	18.8	2.4	21.2	18.9	2.3	21.0	19.0	2.0
HSUPA Sub test 5	**23.0**	**20.9**	2.1	**23.0**	**21.0**	2.0	**23.0**	**20.9**	2.1

Table 26: Test results conducted power measurement UMTS FDD II 1900MHz measured with MHS back off mode active / inactive

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.

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 $\Leftarrow\Rightarrow$ A_{hs} = β_{hs}/β_c = 30/15 $\Leftarrow\Rightarrow$ β_{hs} = 30/15 * β_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 27: 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 28: 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 29: 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 30: 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 $\Leftrightarrow$ A_{hs} = β_{hs}/β_c = 30/15 $\Leftrightarrow$ β_{hs} = 30/15 * β_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 31: 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 power measurements LTE FDD 2 1900 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
1.4	18607 / 1850.7	1 RB low	22.9	19.7	3.2	22.3	20.1	2.2
		1 RB mid	23.0	19.8	3.2	22.4	20.3	2.1
		1 RB high	23.0	20.0	3.0	22.3	20.1	2.2
		50% RB low	22.9	19.8	3.1	22.1	19.9	2.2
		50% RB mid	22.9	19.8	3.1	22.1	19.9	2.2
		50% RB high	22.9	19.7	3.2	22.1	19.9	2.2
		100% RB	21.9	19.7	2.2	20.8	19.7	1.1
	18900 / 1880.0	1 RB low	23.1	19.5	3.6	22.0	19.4	2.6
		1 RB mid	23.0	19.5	3.5	22.3	19.6	2.7
		1 RB high	23.1	19.4	3.7	22.1	19.4	2.7
		50% RB low	22.7	19.3	3.4	22.0	19.6	2.4
		50% RB mid	23.0	19.4	3.6	22.1	19.6	2.5
		50% RB high	22.8	19.2	3.6	22.1	19.5	2.6
		100% RB	21.9	19.3	2.6	21.1	19.5	1.6
	19193 / 1909.3	1 RB low	22.4	18.9	3.5	21.4	19.0	2.4
		1 RB mid	22.5	18.9	3.6	21.4	19.1	2.3
		1 RB high	22.4	18.9	3.5	21.5	19.0	2.5
		50% RB low	22.2	18.7	3.5	21.3	18.8	2.5
		50% RB mid	22.2	18.7	3.5	21.4	18.9	2.5
		50% RB high	22.2	18.7	3.5	21.3	18.8	2.5
		100% RB	21.2	18.7	2.5	20.3	18.8	1.5
3.0	18615 / 1851.5	1 RB low	22.9	20.3	2.6	22.3	20.4	1.9
		1 RB mid	23.1	19.9	3.2	22.4	20.2	2.2
		1 RB high	23.0	20.2	2.8	22.4	20.4	2.0
		50% RB low	21.9	19.8	2.1	20.8	19.7	1.1
		50% RB mid	22.0	19.8	2.2	20.9	19.8	1.1
		50% RB high	22.0	19.8	2.2	20.9	19.7	1.2
		100% RB	22.0	19.8	2.2	21.0	19.9	1.1
	18900 / 1880.0	1 RB low	23.0	19.5	3.5	22.0	19.6	2.4
		1 RB mid	23.1	19.4	3.7	22.1	19.6	2.5
		1 RB high	23.0	19.4	3.6	21.9	19.5	2.4
		50% RB low	21.9	19.4	2.5	21.1	19.7	1.4
		50% RB mid	21.9	19.4	2.5	21.1	19.6	1.5
		50% RB high	21.8	19.4	2.4	21.0	19.6	1.4
		100% RB	22.0	19.4	2.6	20.9	19.4	1.5
	19185 / 1908.5	1 RB low	22.1	18.8	3.3	21.2	18.9	2.3
		1 RB mid	22.1	18.8	3.3	21.3	18.8	2.5
		1 RB high	22.2	18.7	3.5	21.4	19.0	2.4
		50% RB low	21.2	18.8	2.4	20.3	18.9	1.4
		50% RB mid	21.2	18.8	2.4	20.3	19.0	1.3
		50% RB high	21.3	18.8	2.5	20.4	19.0	1.4
		100% RB	21.2	18.8	2.4	20.3	18.9	1.4

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
5.0	18625 / 1852.5	1 RB low	22.8	19.9	2.9	22.4	20.5	1.9
		1 RB mid	23.0	19.8	3.2	22.6	20.4	2.2
		1 RB high	23.1	20.0	3.1	22.7	20.5	2.2
		50% RB low	22.0	19.8	2.2	21.1	20.0	1.1
		50% RB mid	22.1	19.8	2.3	21.2	20.0	1.2
		50% RB high	22.1	19.8	2.3	21.3	20.0	1.3
		100% RB	22.0	19.8	2.2	21.1	19.9	1.2
	18900 / 1880.0	1 RB low	23.4	19.6	3.8	22.2	19.6	2.6
		1 RB mid	22.9	19.4	3.5	21.9	19.6	2.3
		1 RB high	23.0	19.6	3.4	22.0	19.6	2.4
		50% RB low	22.0	19.4	2.6	21.0	19.4	1.6
		50% RB mid	22.0	19.5	2.5	21.0	19.5	1.5
		50% RB high	21.9	19.3	2.6	21.0	19.4	1.6
		100% RB	21.9	19.4	2.5	20.9	19.4	1.5
	19175 / 1907.5	1 RB low	22.6	19.1	3.5	21.7	19.2	2.5
		1 RB mid	22.3	18.9	3.4	22.3	21.6	0.7
		1 RB high	22.4	18.9	3.5	21.5	19.2	2.3
		50% RB low	21.2	18.9	2.3	20.4	19.0	1.4
		50% RB mid	21.1	18.8	2.3	20.2	19.0	1.2
		50% RB high	21.1	18.8	2.3	20.4	19.0	1.4
		100% RB	21.3	18.9	2.4	20.2	19.0	1.2
10.0	18650 / 1855	1 RB low	22.8	20.3	2.5	22.1	20.2	1.9
		1 RB mid	23.2	20.0	3.2	22.5	20.4	2.1
		1 RB high	23.3	20.0	3.3	22.4	20.2	2.2
		50% RB low	22.0	19.7	2.3	21.0	19.7	1.3
		50% RB mid	22.1	19.8	2.3	21.2	19.9	1.3
		50% RB high	22.2	19.8	2.4	21.3	19.8	1.5
		100% RB	22.1	19.7	2.4	21.1	19.8	1.3
	18900 / 1880	1 RB low	23.0	19.5	3.5	22.4	20.0	2.4
		1 RB mid	22.9	19.5	3.4	21.9	19.4	2.5
		1 RB high	22.8	19.4	3.4	22.1	19.5	2.6
		50% RB low	21.9	19.4	2.5	21.0	19.6	1.4
		50% RB mid	21.9	19.5	2.4	21.0	19.6	1.4
		50% RB high	21.8	19.4	2.4	20.9	19.5	1.4
		100% RB	21.8	19.4	2.4	20.8	19.5	1.3
	19150 / 1905	1 RB low	22.5	19.0	3.5	22.0	19.4	2.6
		1 RB mid	22.3	18.9	3.4	21.5	18.8	2.7
		1 RB high	22.4	18.8	3.6	21.6	19.0	2.6
		50% RB low	21.4	18.9	2.5	20.4	18.9	1.5
		50% RB mid	21.5	18.9	2.6	20.5	19.0	1.5
		50% RB high	21.3	18.9	2.4	20.3	18.9	1.4
		100% RB	21.5	19.0	2.5	20.3	19.0	1.3

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
15.0	18675 / 1857.5	1 RB low	23.0	20.2	2.8	22.3	20.3	2.0
		1 RB mid	23.2	20.0	3.2	22.5	20.3	2.2
		1 RB high	23.5	19.9	3.6	22.7	20.0	2.7
		50% RB low	22.1	20.0	2.1	21.2	20.0	1.2
		50% RB mid	22.2	19.9	2.3	21.3	19.9	1.4
		50% RB high	22.2	19.9	2.3	21.2	19.9	1.3
		100% RB	22.2	20.0	2.2	21.2	20.0	1.2
	18900 / 1880.0	1 RB low	23.2	19.5	3.7	22.3	19.9	2.4
		1 RB mid	23.1	19.6	3.5	22.2	19.8	2.4
		1 RB high	23.1	19.5	3.6	22.2	19.8	2.4
		50% RB low	22.1	19.5	2.6	21.0	19.5	1.5
		50% RB mid	22.1	19.6	2.5	21.1	19.5	1.6
		50% RB high	22.1	19.5	2.6	21.1	19.5	1.6
		100% RB	22.0	19.6	2.4	21.0	19.6	1.4
	19125 / 1902.5	1 RB low	22.9	19.6	3.3	21.6	19.2	2.4
		1 RB mid	22.7	19.4	3.3	21.4	18.9	2.5
		1 RB high	22.7	18.9	3.8	21.3	18.8	2.5
		50% RB low	21.6	19.2	2.4	20.6	19.2	1.4
		50% RB mid	21.6	19.1	2.5	20.6	19.1	1.5
		50% RB high	21.5	19.0	2.5	20.5	19.0	1.5
		100% RB	21.6	19.1	2.5	20.6	19.1	1.5
20.0	18700 / 1860	1 RB low	22.9	**19.9**	3.0	22.3	20.5	1.8
		1 RB mid	**23.2**	19.8	3.4	22.7	20.2	2.5
		1 RB high	23.2	19.5	3.7	23.0	20.6	2.4
		50% RB low	22.1	**19.9**	2.2	21.2	19.9	1.3
		50% RB mid	22.3	19.9	2.4	21.2	19.9	1.3
		50% RB high	22.3	19.7	2.6	21.3	19.7	1.6
		100% RB	22.3	**19.9**	2.4	21.2	19.9	1.3
	18900 / 1880	1 RB low	**23.3**	**19.6**	3.7	22.6	19.9	2.7
		1 RB mid	23.1	19.5	3.6	22.5	19.8	2.7
		1 RB high	22.9	19.4	3.5	22.3	19.9	2.4
		50% RB low	22.2	**19.6**	2.6	21.0	19.4	1.6
		50% RB mid	22.2	19.4	2.8	21.1	19.4	1.7
		50% RB high	22.1	19.5	2.6	21.1	19.5	1.6
		100% RB	22.0	19.5	2.5	21.1	19.5	1.6
	19100 / 1900	1 RB low	**22.9**	**19.4**	3.5	22.5	20.0	2.5
		1 RB mid	22.6	19.2	3.4	22.8	19.9	2.9
		1 RB high	22.5	19.0	3.5	22.2	19.7	2.5
		50% RB low	21.7	**19.2**	2.5	20.6	19.2	1.4
		50% RB mid	21.6	19.1	2.5	20.5	19.1	1.4
		50% RB high	21.6	19.1	2.5	20.7	19.2	1.5
		100% RB	21.7	19.2	2.5	20.7	19.3	1.4

Table 32: Test results conducted power measurement LTE FDD 2 1900 MHz.

7.1.8 Conducted power measurements LTE FDD 4 1700 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm) QPSK	P_{avg} (dBm) back off QPSK	dev. dB	P_{avg} (dBm) 16-QAM	P_{avg} (dBm) back off 16-QAM	dev. dB
1.4	19957 / 1710.7	1 RB low	23.3	20.0	3.3	22.6	20.2	2.4
		1 RB mid	23.4	20.2	3.2	22.6	20.5	2.1
		1 RB high	23.4	20.1	3.3	22.7	20.3	2.4
		50% RB low	23.2	19.9	3.3	22.4	20.1	2.3
		50% RB mid	23.2	20.0	3.2	22.4	20.2	2.2
		50% RB high	23.2	19.9	3.3	22.5	20.1	2.4
		100% RB	22.1	19.8	2.3	20.9	19.7	1.2
	20175 / 1732.5	1 RB low	23.1	19.9	3.2	22.0	19.9	2.1
		1 RB mid	23.0	19.9	3.1	22.2	20.0	2.2
		1 RB high	23.0	19.9	3.1	21.9	19.9	2.0
		50% RB low	22.9	19.7	3.2	22.1	19.9	2.2
		50% RB mid	22.9	19.7	3.2	22.1	19.9	2.2
		50% RB high	22.8	19.7	3.1	22.1	19.9	2.2
		100% RB	21.8	19.7	2.1	21.0	19.9	1.1
	20393 / 1754.3	1 RB low	22.7	19.8	2.9	21.8	19.9	1.9
		1 RB mid	22.7	19.6	3.1	21.9	20.0	1.9
		1 RB high	22.8	19.7	3.1	21.9	19.9	2.0
		50% RB low	22.6	19.6	3.0	21.6	19.6	2.0
		50% RB mid	22.6	19.5	3.1	21.7	19.6	2.1
		50% RB high	22.7	19.5	3.2	21.7	19.6	2.1
		100% RB	21.5	19.5	2.0	20.6	19.6	1.0
3	19965 / 1711.5	1 RB low	23.3	19.9	3.4	22.6	20.4	2.2
		1 RB mid	23.4	20.0	3.4	22.7	20.5	2.2
		1 RB high	23.4	20.2	3.2	22.8	20.6	2.2
		50% RB low	22.1	19.9	2.2	21.0	19.7	1.3
		50% RB mid	22.1	19.9	2.2	21.0	19.8	1.2
		50% RB high	22.2	20.0	2.2	21.0	19.8	1.2
		100% RB	22.2	20.0	2.2	21.2	20.0	1.2
	20175 / 1732.5	1 RB low	23.0	19.8	3.2	22.0	19.9	2.1
		1 RB mid	22.8	19.9	2.9	22.1	19.9	2.2
		1 RB high	23.0	19.8	3.2	22.0	19.8	2.2
		50% RB low	21.9	19.8	2.1	21.1	20.0	1.1
		50% RB mid	21.9	19.8	2.1	21.0	20.0	1.0
		50% RB high	21.9	19.7	2.2	21.0	19.9	1.1
		100% RB	21.9	19.8	2.1	20.8	19.7	1.1
	20385 / 1753.5	1 RB low	22.7	19.8	2.9	21.6	19.7	1.9
		1 RB mid	22.6	19.6	3.0	21.6	19.4	2.2
		1 RB high	22.7	19.7	3.0	21.7	19.6	2.1
		50% RB low	21.6	19.7	1.9	20.7	19.7	1.0
		50% RB mid	21.6	19.6	2.0	20.6	19.7	0.9
		50% RB high	21.6	19.7	1.9	20.6	19.8	0.8
		100% RB	21.6	19.7	1.9	20.5	19.7	0.8

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
5	19975 / 1712.5	1 RB low	23.3	20.0	3.3	23.2	20.9	2.3
		1 RB mid	23.0	19.9	3.1	22.8	20.5	2.3
		1 RB high	23.3	20.1	3.2	22.9	20.7	2.2
		50% RB low	22.1	20.0	2.1	21.2	20.2	1.0
		50% RB mid	22.2	20.0	2.2	21.2	20.2	1.0
		50% RB high	22.2	19.9	2.3	21.3	20.1	1.2
		100% RB	22.1	20.0	2.1	21.2	20.1	1.1
	20175 / 1732.5	1 RB low	23.3	20.0	3.3	22.2	20.1	2.1
		1 RB mid	22.8	19.7	3.1	21.6	19.8	1.8
		1 RB high	23.2	19.9	3.3	22.2	19.9	2.3
		50% RB low	21.9	19.8	2.1	21.0	19.8	1.2
		50% RB mid	21.9	19.8	2.1	20.9	19.8	1.1
		50% RB high	21.9	19.7	2.2	20.9	19.8	1.1
		100% RB	21.8	19.7	2.1	20.8	19.7	1.1
	20375 / 1752.5	1 RB low	22.9	20.0	2.9	21.9	19.9	2.0
		1 RB mid	22.8	19.7	3.1	23.0	22.2	0.8
		1 RB high	22.9	19.8	3.1	21.9	19.7	2.2
		50% RB low	21.6	19.6	2.0	20.7	19.7	1.0
		50% RB mid	21.6	19.7	1.9	20.7	19.7	1.0
		50% RB high	21.5	19.6	1.9	20.6	19.7	0.9
		100% RB	21.6	19.7	1.9	20.6	19.7	0.9
10	20000 / 1715.0	1 RB low	23.7	20.1	3.6	22.6	20.4	2.2
		1 RB mid	23.4	20.2	3.2	22.6	20.4	2.2
		1 RB high	23.5	20.1	3.4	22.6	20.3	2.3
		50% RB low	22.2	20.0	2.2	21.2	20.1	1.1
		50% RB mid	22.2	20.0	2.2	21.2	20.1	1.1
		50% RB high	22.2	19.9	2.3	21.2	20.0	1.2
		100% RB	22.2	20.0	2.2	21.2	20.0	1.2
	20175 / 1732.5	1 RB low	23.1	20.0	3.1	22.3	20.5	1.8
		1 RB mid	22.9	19.8	3.1	22.1	19.7	2.4
		1 RB high	22.9	19.7	3.2	22.2	20.1	2.1
		50% RB low	21.9	19.8	2.1	21.0	19.9	1.1
		50% RB mid	22.0	19.8	2.2	21.1	19.9	1.2
		50% RB high	22.0	19.7	2.3	21.0	19.8	1.2
		100% RB	21.8	19.7	2.1	20.9	19.8	1.1
	20350 / 1750.0	1 RB low	23.1	19.9	3.2	22.3	20.2	2.1
		1 RB mid	22.9	19.9	3.0	21.7	19.7	2.0
		1 RB high	22.8	19.8	3.0	22.0	19.9	2.1
		50% RB low	21.6	19.6	2.0	20.6	19.6	1.0
		50% RB mid	21.7	19.7	2.0	20.6	19.7	0.9
		50% RB high	21.6	19.6	2.0	20.6	19.6	1.0
		100% RB	21.6	19.7	1.9	20.6	19.6	1.0

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
15	20025 / 1717.5	1 RB low	23.3	20.1	3.2	22.6	20.4	2.2
		1 RB mid	23.5	20.0	3.5	22.7	20.3	2.4
		1 RB high	23.4	20.1	3.3	22.6	20.4	2.2
		50% RB low	22.2	19.9	2.3	21.3	20.0	1.3
		50% RB mid	22.3	19.9	2.4	21.3	20.0	1.3
		50% RB high	22.3	19.9	2.4	21.3	19.9	1.4
		100% RB	22.2	19.9	2.3	21.2	20.0	1.2
	20175 / 1732.5	1 RB low	23.3	19.9	3.4	22.6	20.3	2.3
		1 RB mid	22.8	19.7	3.1	22.3	20.0	2.3
		1 RB high	22.8	19.7	3.1	22.2	19.9	2.3
		50% RB low	21.9	19.9	2.0	20.8	19.8	1.0
		50% RB mid	21.9	19.8	2.1	21.0	19.8	1.2
		50% RB high	21.9	19.7	2.2	20.9	19.7	1.2
		100% RB	21.9	19.7	2.2	20.9	19.8	1.1
	20325 / 1747.5	1 RB low	23.1	20.0	3.1	21.7	19.7	2.0
		1 RB mid	22.9	19.7	3.2	21.7	19.6	2.1
		1 RB high	23.1	19.8	3.3	21.7	19.5	2.2
		50% RB low	21.8	19.7	2.1	20.7	19.7	1.0
		50% RB mid	21.8	19.8	2.0	20.8	19.7	1.1
		50% RB high	21.8	19.7	2.1	20.7	19.7	1.0
		100% RB	21.7	19.7	2.0	20.7	19.7	1.0
20	20050 / 1720.0	1 RB low	23.3	**20.0**	3.3	23.2	20.6	2.6
		1 RB mid	**23.4**	20.0	3.4	22.9	20.3	2.6
		1 RB high	23.1	19.9	3.2	22.7	20.4	2.3
		50% RB low	22.2	19.9	2.3	21.2	20.0	1.2
		50% RB mid	**22.3**	19.9	2.4	21.2	19.9	1.3
		50% RB high	22.1	**20.0**	2.1	21.1	20.0	1.1
		100% RB	22.2	**20.0**	2.2	21.2	20.0	1.2
	20175 / 1732.5	1 RB low	23.1	**20.0**	3.1	22.4	20.5	1.9
		1 RB mid	22.9	19.7	3.2	22.1	20.1	2.0
		1 RB high	22.6	19.6	3.0	22.0	20.1	1.9
		50% RB low	21.9	19.9	2.0	20.9	19.9	1.0
		50% RB mid	21.8	19.8	2.0	20.8	19.7	1.1
		50% RB high	21.8	19.7	2.1	20.7	19.7	1.0
		100% RB	21.8	19.8	2.0	20.9	19.8	1.1
	20300 / 1745.0	1 RB low	23.2	19.7	3.5	22.6	20.5	2.1
		1 RB mid	22.9	19.6	3.3	22.4	20.2	2.2
		1 RB high	22.9	19.5	3.4	22.5	20.2	2.3
		50% RB low	21.8	19.7	2.1	20.8	19.7	1.1
		50% RB mid	21.9	19.7	2.2	20.8	19.7	1.1
		50% RB high	21.9	19.7	2.2	20.9	19.7	1.2
		100% RB	21.9	19.7	2.2	20.9	19.7	1.2

Table 33: Test results conducted power measurement LTE FDD 4 1700 MHz.

7.1.9 Conducted power measurements LTE FDD 7 2600 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
5.0	20775 / 2502.5	1 RB low	23.1	20.0	3.1	22.6	20.6	2.0
		1 RB mid	23.0	20.0	3.0	22.6	20.6	2.0
		1 RB high	23.1	20.1	3.0	22.6	20.6	2.0
		50% RB low	22.0	20.0	2.0	21.1	20.1	1.0
		50% RB mid	22.0	20.0	2.0	21.1	20.1	1.0
		50% RB high	22.0	19.9	2.1	21.1	20.0	1.1
		100% RB	22.0	19.9	2.1	21.0	20.0	1.0
	21100 / 2535	1 RB low	23.0	19.9	3.1	22.0	19.9	2.1
		1 RB mid	22.9	19.8	3.1	21.8	19.7	2.1
		1 RB high	23.0	19.8	3.2	21.9	19.9	2.0
		50% RB low	21.8	19.7	2.1	20.9	19.8	1.1
		50% RB mid	21.9	19.8	2.1	20.9	19.9	1.0
		50% RB high	21.8	19.7	2.1	20.9	19.8	1.1
		100% RB	21.8	19.7	2.1	20.8	19.7	1.1
	21425 / 2567.5	1 RB low	22.6	19.5	3.1	21.7	19.5	2.2
		1 RB mid	22.7	19.6	3.1	22.3	21.8	0.5
		1 RB high	22.7	19.6	3.1	21.8	19.5	2.3
		50% RB low	21.5	19.3	2.2	20.5	19.4	1.1
		50% RB mid	21.5	19.4	2.1	20.5	19.4	1.1
		50% RB high	21.5	19.4	2.1	20.6	19.5	1.1
		100% RB	21.5	19.4	2.1	20.5	19.4	1.1
10.0	20800 / 2505	1 RB low	23.3	20.2	3.1	22.4	20.4	2.0
		1 RB mid	23.2	20.3	2.9	22.3	20.4	1.9
		1 RB high	23.1	20.0	3.1	22.4	20.3	2.1
		50% RB low	22.0	19.9	2.1	21.0	20.0	1.0
		50% RB mid	22.1	20.1	2.0	21.1	20.1	1.0
		50% RB high	22.0	20.0	2.0	21.0	20.1	0.9
		100% RB	22.1	20.0	2.1	21.0	20.0	1.0
	21100 / 2535	1 RB low	22.9	19.9	3.0	22.3	20.2	2.1
		1 RB mid	22.9	19.8	3.1	22.0	20.0	2.0
		1 RB high	22.9	19.9	3.0	22.4	20.3	2.1
		50% RB low	21.8	19.8	2.0	21.0	19.9	1.1
		50% RB mid	21.9	19.8	2.1	21.0	19.9	1.1
		50% RB high	21.8	19.7	2.1	20.9	19.9	1.0
		100% RB	21.8	19.8	2.0	20.9	19.8	1.1
	21400 / 2565	1 RB low	22.7	19.6	3.1	21.9	19.8	2.1
		1 RB mid	22.6	19.4	3.2	21.6	19.6	2.0
		1 RB high	22.6	19.7	2.9	21.8	19.8	2.0
		50% RB low	21.6	19.5	2.1	20.6	19.5	1.1
		50% RB mid	21.5	19.4	2.1	20.5	19.4	1.1
		50% RB high	21.5	19.3	2.2	20.5	19.4	1.1
		100% RB	21.6	19.4	2.2	20.5	19.5	1.0

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	Pavg (dBm) QPSK	Pavg (dBm) back off QPSK	dev. dB	Pavg (dBm) 16-QAM	Pavg (dBm) back off 16-QAM	dev. dB
15.0	20825 / 2507.5	1 RB low	23.2	20.2	3.0	22.4	20.5	1.9
		1 RB mid	23.2	20.2	3.0	22.4	20.4	2.0
		1 RB high	23.0	20.0	3.0	22.2	20.3	1.9
		50% RB low	21.9	19.9	2.0	21.0	20.0	1.0
		50% RB mid	22.0	20.0	2.0	21.0	20.0	1.0
		50% RB high	21.9	20.0	1.9	21.0	20.0	1.0
		100% RB	21.9	19.9	2.0	21.0	20.0	1.0
	21100 / 2535	1 RB low	22.8	19.9	2.9	22.2	20.2	2.0
		1 RB mid	22.8	19.8	3.0	22.3	20.3	2.0
		1 RB high	22.8	19.8	3.0	22.1	20.4	1.7
		50% RB low	21.8	19.8	2.0	20.9	19.8	1.1
		50% RB mid	21.9	19.9	2.0	20.9	19.8	1.1
		50% RB high	21.9	19.9	2.0	20.9	19.9	1.0
		100% RB	21.8	19.8	2.0	20.8	19.9	0.9
	21375 / 2562.5	1 RB low	22.6	19.7	2.9	21.5	19.4	2.1
		1 RB mid	22.5	19.6	2.9	21.3	19.2	2.1
		1 RB high	22.7	19.7	3.0	21.3	19.2	2.1
		50% RB low	21.5	19.4	2.1	20.5	19.4	1.1
		50% RB mid	21.5	19.4	2.1	20.4	19.4	1.0
		50% RB high	21.3	19.3	2.0	20.3	19.2	1.1
		100% RB	21.4	19.3	2.1	20.4	19.4	1.0
20.0	20850 / 2510	1 RB low	**23.1**	20.0	3.1	22.5	20.5	2.0
		1 RB mid	23.1	19.9	3.2	22.5	20.5	2.0
		1 RB high	22.9	19.7	3.2	22.3	20.4	1.9
		50% RB low	22.0	20.0	2.0	21.0	20.0	1.0
		50% RB mid	**22.1**	20.0	2.1	21.0	20.1	0.9
		50% RB high	21.9	19.9	2.0	20.9	19.9	1.0
		100% RB	21.9	19.9	2.0	20.9	19.9	1.0
	21100 / 2535	1 RB low	**22.9**	19.8	3.1	22.2	20.3	1.9
		1 RB mid	22.9	19.9	3.0	22.3	20.3	2.0
		1 RB high	22.8	20.0	2.8	22.3	20.3	2.0
		50% RB low	21.9	19.8	2.1	20.9	19.8	1.1
		50% RB mid	21.9	19.8	2.1	20.9	19.8	1.1
		50% RB high	21.9	19.8	2.1	20.9	19.8	1.1
		100% RB	21.8	19.8	2.0	20.9	19.8	1.1
	21350 / 2560	1 RB low	**22.7**	19.6	3.1	22.4	20.4	2.0
		1 RB mid	22.6	19.4	3.2	22.1	19.9	2.2
		1 RB high	22.4	19.2	3.2	22.0	19.8	2.2
		50% RB low	21.6	19.5	2.1	20.6	19.5	1.1
		50% RB mid	21.5	19.4	2.1	20.5	19.4	1.1
		50% RB high	21.4	19.3	2.1	20.4	19.3	1.1
		100% RB	21.4	19.4	2.0	20.6	19.5	1.1

Table 34: Test results conducted power measurement LTE FDD 7 2600 MHz.

7.1.10 Conducted power measurements LTE FDD 13 700 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	Pavg (dBm) QPSK	Pavg (dBm) 16-QAM
5	23205 / 779.5	1 RB low	23.4	23
		1 RB mid	23.4	22.9
		1 RB high	23.6	23.3
		50% RB low	22.3	21.4
		50% RB mid	22.5	21.6
		50% RB high	22.4	21.6
		100% RB	22.4	21.5
	23230 / 782	1 RB low	23.6	22.7
		1 RB mid	23.8	22.7
		1 RB high	23.8	22.8
		50% RB low	22.6	21.7
		50% RB mid	22.7	21.8
		50% RB high	22.6	21.7
		100% RB	22.7	21.6
	23255 / 784.5	1 RB low	24.0	22.9
		1 RB mid	23.7	24.3
		1 RB high	23.8	22.9
		50% RB low	22.6	21.6
		50% RB mid	22.6	21.6
		50% RB high	22.6	21.7
		100% RB	22.6	21.6
10	23230 / 782	1 RB low	**23.9**	22.8
		1 RB mid	23.8	22.8
		1 RB high	23.8	23
		50% RB low	22.5	21.5
		50% RB mid	22.7	21.8
		50% RB high	22.7	21.6
		100% RB	22.8	21.7

Table 35: Test results conducted power measurement LTE FDD13 700 MHz.

7.1.11 Conducted power measurements LTE FDD 17 700 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	Pavg (dBm) QPSK	Pavg (dBm) 16-QAM
5	23755 / 706.5	1 RB low	23.6	23.2
		1 RB mid	23.4	23.1
		1 RB high	23.6	23.3
		50% RB low	22.4	21.5
		50% RB mid	22.5	21.6
		50% RB high	22.4	21.6
		100% RB	22.4	21.5
	23780 / 710.0	1 RB low	23.6	22.5
		1 RB mid	23.4	22.5
		1 RB high	23.7	22.7
		50% RB low	22.4	21.5
		50% RB mid	22.5	21.5
		50% RB high	22.5	21.5
		100% RB	22.4	21.4
	23825 / 713.5	1 RB low	23.5	22.7
		1 RB mid	23.6	24.4
		1 RB high	23.8	22.9
		50% RB low	22.4	21.5
		50% RB mid	22.6	21.6
		50% RB high	22.5	21.5
		100% RB	22.5	21.5
10	23780 / 709.0	1 RB low	**23.6**	22.8
		1 RB mid	23.5	22.8
		1 RB high	23.7	22.9
		50% RB low	22.4	21.5
		50% RB mid	22.5	21.5
		50% RB high	22.5	21.5
		100% RB	22.5	21.5
	23780 / 710.0	1 RB low	23.4	22.9
		1 RB mid	23.4	22.5
		1 RB high	23.6	23
		50% RB low	22.4	21.5
		50% RB mid	22.5	21.6
		50% RB high	22.5	21.6
		100% RB	22.4	21.5
	23800 / 711.0	1 RB low	23.6	22.6
		1 RB mid	23.4	22.4
		1 RB high	23.6	22.6
		50% RB low	22.4	21.4
		50% RB mid	22.4	21.5
		50% RB high	22.5	21.5
		100% RB	22.5	21.5

Table 36: Test results conducted power measurement LTE FDD 17 700 MHz.

7.1.12 Conducted power measurements LTE TDD 41 2600 MHz

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
5	39675 / 2498.5	1 RB low	22.0	18.5	3.5	21.3	19.1	2.2
		1 RB mid	22.5	19.0	3.5	21.8	19.8	2.0
		1 RB high	22.9	19.5	3.4	22.1	20.2	1.9
		50% RB low	21.4	18.9	2.5	20.3	19.1	1.2
		50% RB mid	21.7	19.2	2.5	20.6	19.4	1.2
		50% RB high	21.9	19.4	2.5	20.8	19.6	1.2
		100% RB	21.7	19.2	2.5	20.6	19.5	1.1
	40185 / 2549.5	1 RB low	22.8	19.4	3.4	22.3	19.6	2.7
		1 RB mid	22.8	19.3	3.5	22.2	19.6	2.6
		1 RB high	22.7	19.1	3.6	22.0	19.5	2.5
		50% RB low	21.9	19.5	2.4	20.9	19.5	1.4
		50% RB mid	21.9	19.4	2.5	21.0	19.5	1.5
		50% RB high	21.9	19.4	2.5	20.9	19.4	1.5
		100% RB	21.9	19.4	2.5	20.9	19.4	1.5
	40620 / 2593.0	1 RB low	22.8	19.4	3.4	22.3	20.2	2.1
		1 RB mid	22.8	19.7	3.1	22.3	20.2	2.1
		1 RB high	22.7	19.7	3.0	22.2	20.2	2.0
		50% RB low	21.7	19.6	2.1	20.7	19.6	1.1
		50% RB mid	21.8	19.6	2.2	20.9	19.6	1.3
		50% RB high	21.8	19.6	2.2	20.8	19.6	1.2
		100% RB	21.8	19.6	2.2	20.8	19.5	1.3
	41055 / 2636.5	1 RB low	23.3	20.3	3.0	22.6	20.5	2.1
		1 RB mid	23.2	20.1	3.1	22.5	20.5	2.0
		1 RB high	23.2	20.1	3.1	22.4	20.4	2.0
		50% RB low	22.4	20.4	2.0	21.4	20.3	1.1
		50% RB mid	22.4	20.3	2.1	21.3	20.3	1.0
		50% RB high	22.4	20.3	2.1	21.3	20.3	1.0
		100% RB	22.4	20.3	2.1	21.4	20.3	1.1
	41565 / 2687.5	1 RB low	22.5	19.6	2.9	21.8	19.8	2.0
		1 RB mid	22.2	19.4	2.8	21.5	19.5	2.0
		1 RB high	21.8	18.9	2.9	21.1	19.1	2.0
		50% RB low	21.6	19.7	1.9	20.7	19.6	1.1
		50% RB mid	21.4	19.6	1.8	20.4	19.4	1.0
		50% RB high	21.2	19.3	1.9	20.2	19.2	1.0
		100% RB	21.4	19.6	1.8	20.4	19.4	1.0

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
10	39700 / 2501.0	1 RB low	22.2	18.5	3.7	21.4	19.1	2.3
		1 RB mid	23.4	19.6	3.8	22.5	20.3	2.2
		1 RB high	23.1	19.7	3.4	22.2	19.8	2.4
		50% RB low	21.7	19.2	2.5	20.7	19.5	1.2
		50% RB mid	22.3	19.9	2.4	21.3	20.1	1.2
		50% RB high	22.1	19.8	2.3	21.1	19.9	1.2
		100% RB	22.0	19.7	2.3	21.0	20.0	1.0
	40185 / 2549.5	1 RB low	22.8	19.3	3.5	21.8	19.3	2.5
		1 RB mid	22.9	19.3	3.6	21.8	19.3	2.5
		1 RB high	22.5	18.9	3.6	21.5	19.1	2.4
		50% RB low	21.9	19.5	2.4	20.9	19.5	1.4
		50% RB mid	22.0	19.5	2.5	21.0	19.5	1.5
		50% RB high	21.8	19.3	2.5	20.8	19.3	1.5
		100% RB	21.9	19.5	2.4	20.9	19.5	1.4
	40620 / 2593.0	1 RB low	22.6	19.3	3.3	22.1	19.9	2.2
		1 RB mid	22.7	19.4	3.3	22.1	20.2	1.9
		1 RB high	22.5	19.6	2.9	22.0	20.0	2.0
		50% RB low	21.7	19.6	2.1	20.8	19.6	1.2
		50% RB mid	21.7	19.7	2.0	20.9	19.7	1.2
		50% RB high	21.6	19.6	2.0	20.7	19.6	1.1
		100% RB	21.6	19.6	2.0	20.8	19.6	1.2
	41055 / 2636.5	1 RB low	23.1	20.2	2.9	22.3	20.5	1.8
		1 RB mid	23.2	20.2	3.0	22.4	20.3	2.1
		1 RB high	23.0	19.9	3.1	22.1	20.0	2.1
		50% RB low	22.3	20.3	2.0	21.4	20.4	1.0
		50% RB mid	22.4	20.4	2.0	21.4	20.4	1.0
		50% RB high	22.2	20.2	2.0	21.3	20.3	1.0
		100% RB	22.3	20.3	2.0	21.4	20.3	1.1
	41540 / 2685.0	1 RB low	22.4	19.7	2.7	21.4	19.7	1.7
		1 RB mid	22.5	19.7	2.8	21.4	19.6	1.8
		1 RB high	21.6	18.8	2.8	20.6	18.5	2.1
		50% RB low	21.7	19.9	1.8	20.7	19.8	0.9
		50% RB mid	21.7	19.8	1.9	20.7	19.7	1.0
		50% RB high	21.3	19.4	1.9	20.3	19.3	1.0
		100% RB	21.6	19.7	1.9	20.6	19.6	1.0

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
15	39725 / 2503.5	1 RB low	23.1	19.3	3.8	22.2	19.9	2.3
		1 RB mid	23.3	19.8	3.5	22.4	20.0	2.4
		1 RB high	23.8	20.4	3.4	22.9	20.6	2.3
		50% RB low	22.1	19.7	2.4	21.2	20.1	1.1
		50% RB mid	22.3	20.0	2.3	21.4	20.1	1.3
		50% RB high	22.5	20.1	2.4	21.5	20.2	1.3
		100% RB	22.3	19.9	2.4	21.3	19.9	1.4
	40185 / 2549.5	1 RB low	23.5	19.9	3.6	22.8	20.2	2.6
		1 RB mid	22.8	19.3	3.5	22.1	19.6	2.5
		1 RB high	23.1	19.4	3.7	22.4	20.2	2.2
		50% RB low	22.1	19.7	2.4	21.1	19.7	1.4
		50% RB mid	22.0	19.6	2.4	21.0	19.6	1.4
		50% RB high	21.9	19.5	2.4	20.9	19.6	1.3
		100% RB	21.9	19.6	2.3	21.0	19.6	1.4
	40620 / 2593.0	1 RB low	23.3	19.8	3.5	22.8	20.6	2.2
		1 RB mid	22.7	19.7	3.0	22.2	20.2	2.0
		1 RB high	23.2	19.8	3.4	22.6	20.6	2.0
		50% RB low	21.8	19.7	2.1	20.9	19.8	1.1
		50% RB mid	21.8	19.7	2.1	20.9	19.8	1.1
		50% RB high	21.8	19.7	2.1	20.9	19.8	1.1
		100% RB	21.8	19.7	2.1	20.8	19.7	1.1
	41055 / 2636.5	1 RB low	23.8	20.6	3.2	23.0	21.0	2.0
		1 RB mid	23.2	20.2	3.0	22.4	20.3	2.1
		1 RB high	23.5	20.5	3.0	22.7	20.4	2.3
		50% RB low	22.4	20.4	2.0	21.5	20.5	1.0
		50% RB mid	22.4	20.4	2.0	21.5	20.5	1.0
		50% RB high	22.4	20.4	2.0	21.5	20.5	1.0
		100% RB	22.3	20.4	1.9	21.4	20.4	1.0
	41515 / 2682.5	1 RB low	23.0	20.1	2.9	22.3	20.4	1.9
		1 RB mid	22.5	19.7	2.8	21.8	20.0	1.8
		1 RB high	22.2	19.3	2.9	21.5	19.3	2.2
		50% RB low	21.8	20.1	1.7	20.8	20.1	0.7
		50% RB mid	21.8	19.9	1.9	20.8	19.9	0.9
		50% RB high	21.6	19.7	1.9	20.6	19.6	1.0
		100% RB	21.7	19.8	1.9	20.8	19.9	0.9

Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB	P_{avg} (dBm)	P_{avg} (dBm) back off	dev. dB
			QPSK	QPSK		16-QAM	16-QAM	
20	39750 / 2506.0	1 RB low	23.10	19.4	3.7	22.4	20.2	2.2
		1 RB mid	23.50	20.0	3.5	22.7	20.3	2.4
		1 RB high	**23.70**	20.1	3.6	23.0	20.5	2.5
		50% RB low	**22.60**	20.3	2.3	21.6	20.6	1.0
		50% RB mid	22.50	20.2	2.3	21.5	20.2	1.3
		50% RB high	22.50	20.4	2.1	21.5	20.5	1.0
		100% RB	22.80	20.4	2.4	21.8	20.4	1.4
	40185 / 2549.5	1 RB low	**23.40**	20.0	3.4	22.6	20.3	2.3
		1 RB mid	22.80	19.4	3.4	22.1	19.6	2.5
		1 RB high	23.10	19.3	3.8	22.3	20.1	2.2
		50% RB low	**22.50**	19.9	2.6	21.6	20.0	1.6
		50% RB mid	22.00	19.6	2.4	21.1	19.6	1.5
		50% RB high	22.20	19.6	2.6	21.3	20.0	1.3
		100% RB	22.40	19.8	2.6	21.5	19.9	1.6
	40620 / 2593.0	1 RB low	**23.30**	19.8	3.5	22.6	20.4	2.2
		1 RB mid	22.70	19.7	3.0	21.9	19.9	2.0
		1 RB high	23.20	19.9	3.3	22.4	20.5	1.9
		50% RB low	**22.20**	20.0	2.2	21.3	20.1	1.2
		50% RB mid	21.70	19.7	2.0	20.9	19.8	1.1
		50% RB high	22.20	20.1	2.1	21.3	20.2	1.1
		100% RB	22.20	20.0	2.2	21.2	20.1	1.1
	41055 / 2636.5	1 RB low	**23.70**	**20.7**	3.0	23.0	21.2	1.8
		1 RB mid	23.10	20.1	3.0	22.4	20.4	2.0
		1 RB high	23.30	20.4	2.9	22.6	20.5	2.1
		50% RB low	**22.80**	**20.6**	2.3	21.8	20.6	1.2
		50% RB mid	22.40	20.4	2.0	21.4	20.4	1.0
		50% RB high	22.70	20.4	2.3	21.7	20.5	1.2
		100% RB	22.70	20.5	2.3	21.8	20.5	1.3
	41490 / 2680.0	1 RB low	**22.70**	20.0	2.7	21.9	20.2	1.7
		1 RB mid	22.40	19.7	2.7	21.7	19.9	1.8
		1 RB high	22.40	19.3	3.1	21.6	19.4	2.2
		50% RB low	**21.80**	20.1	1.7	20.9	20.2	0.7
		50% RB mid	21.80	20.0	1.8	20.8	20.0	0.8
		50% RB high	21.80	20.0	1.8	20.8	19.8	1.0
		100% RB	21.70	20.1	1.6	20.8	20.1	0.7

Table 37: Test results conducted power measurement LTE FDD 41 2600 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 TDD test configuration

LTE Devices using Time-Division Duplex (TDD) Systems must be tested using a fixed periodic duty factor according the highest transmission duty factor implemented for the device and supported by the Defined 3GPP LTE TDD configurations. (FCC KDB 941225 D05 SAR for LTE Devices v02r03)

TDD LTE Band 38 and 41 support Type 2 Frame Structure as described in the following tables from the 3GPP TS 36.211 section 4.2.

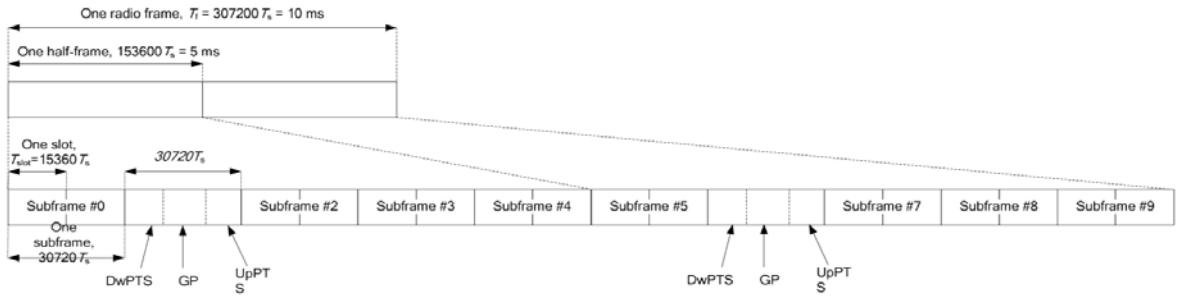


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity)

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Table 4.2-2: Uplink-downlink configurations

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Figure 4.2-1 shows that a radio frame is divided in ten subframes that consist of Uplink- / Downlink- and Special-subframes. The Duty Cycle for LTE TDD should be calculated on Uplink-subframes and Special-subframes as both contain Uplink transmissions. The following formula is used for the calculation of the Duty Cycle. (With Uplink-subframes counted according the table 4.2-2)

Duty Cycle = (30720TS×Ups+Uplink Component×Specials)/(307200Ts)

According to table 4.2-1 the Uplink component of the Special-subframes is:

Uplink Component=UpPTS

This results in the following formula:

Duty Cycle = [30720TS×Ups+UpPTS×Specials]/(307200Ts)

The measured configuration of the device, which results in the highest output, was derived from the following table:

Uplink-downlink configuration	Subframe number			Configuration of special subframe							
				Normal cyclic prefix in downlink				Extended cyclic prefix in downlink			
				Normal cyclic prefix in uplink		Extended cyclic prefix in uplink		Normal cyclic prefix in uplink		Extended cyclic prefix in uplink	
	D	S	U	configuration 0 ~ 4	configuration 5 ~ 9	configuration 0 ~ 4	configuration 5 ~ 9	configuration 0 ~ 3	configuration 4 ~ 7	configuration 0 ~ 3	configuration 4 ~ 7
0	2	2	6	61.43%	62.85%	61.67%	63.33%	61.43%	62.85%	61.67%	**63.33%**
1	4	2	4	41.43%	42.85%	41.67%	43.33%	41.43%	42.85%	41.67%	43.33%
2	6	2	2	21.43%	22.85%	21.67%	23.33%	21.43%	22.85%	21.67%	23.33%
3	6	1	3	30.71%	31.43%	30.83%	31.67%	30.71%	31.43%	30.83%	31.67%
4	7	1	2	20.71%	21.43%	20.83%	21.67%	20.71%	21.43%	20.83%	21.67%
5	8	1	1	10.71%	11.43%	10.83%	11.67%	10.71%	11.43%	10.83%	11.67%
6	3	2	1	51.43%	52.85%	51.67%	53.33%	51.43%	52%.85	51.67%	53.33%

Therefore SAR for LTE TDD should be tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special-subframe configuration 7 (Frame structure type 2).

7.1.16 Carrier Aggregation LTE FDD 7 (Intra Band)

CA - Conducted Output Power LTE FDD 7 - Intra-Band						
PCC				with activated SCC		
Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	Average Output Power (dBm)	3300 / 2675 MHZ DL BW 20 MHz	3300 / 2675 MHZ DL BW 15 MHz	3300 / 2675 MHZ DL BW 10 MHz
			QPSK	(dBm)	(dBm)	(dBm)
10	**UL: 20800 / 2505.0 DL: 2800 / 2625.0**	1 RB low	**23.3**	23.2	23.2	**23.3**
15	**UL: 20825 / 2507.5 DL: 2825 / 2627.5**	1 RB low	23.2	23.1	23.1	23.1
20	**UL: 20850 / 2510.0 DL: 2850 / 2630.0**	1 RB low	23.1	23.1	23.1	23.1

Table 38: Test results conducted power measurement LTE FDD 7 2600 MHz – CA – Intra Band.

CA - Conducted Output Power LTE FDD 7 - Intra-Band with MHS mode activated / power back off						
PCC				with activated SCC		
Bandwidth (MHz)	Channel / Frequency (MHz)	Resource block allocation	Average Output Power (dBm)	3300 / 2675 MHZ DL BW 20 MHz	3300 / 2675 MHZ DL BW 15 MHz	3300 / 2675 MHZ DL BW 10 MHz
			QPSK	(dBm)	(dBm)	(dBm)
10	**UL: 20800 / 2505.0 DL: 2800 / 2625.0**	1 RB low	1 RB mid	**20.3**	**20.3**	**20.3**
15	**UL: 20825 / 2507.5 DL: 2825 / 2627.5**	1 RB low	1 RB low	20.2	20.2	20.2
20	**UL: 20850 / 2510.0 DL: 2850 / 2630.0**	1 RB low	1 RB low	20.0	20.0	20.0

Table 39: Test results conducted power measurement LTE FDD 7 2600 MHz – CA – Intra Band with MHS mode activated / power back off.

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

7.1.17 Conducted power measurements WLAN 5 GHz

Primary Antenna:

802.11b			maximum average conducted output power [dBm]				
Band [MHz]	Ch	MHS / Back off	1Mbps	2Mbps	5.5Mbps	11Mbps	22Mbps
2450	1	Off	16.8	--	--	--	--
		On	10.1	--	10.2	--	10.2
	6	Off	17.3	--	--	--	--
		On	10.2	--	10.4	--	10.4
	11	Off	17.9	18.1	18.0	18.0	--
		On	10.8	--	10.9	--	11.0

Table 40: Test results conducted power measurement 802.11b

802.11g			maximum average conducted output power [dBm]							
Band [MHz]	Ch	MHS / Back off	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
2450	1	Off	16.0	--	--	--	--	--	--	--
		On	10.7	--	--	--	10.8	--	--	10.7
	6	Off	16.2	--	--	--	--	--	--	--
		On	11.0	--	--	--	11.0	--	--	11.2
	11	Off	16.8	16.8	16.8	16.8	--	16.1	--	15.6
		On	11.3	--	--	--	11.5	--	--	11.6

Table 41: Test results conducted power measurement 802.11g

802.11n HT-20			maximum average conducted output power [dBm]							
Band	Ch	MHS / Back off	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
2450	1	Off	15.7	--	--	--	--	--	--	--
		On	10.5	--	--	--	10.8	--	--	10.5
	6	Off	16.3	--	--	--	--	--	--	--
		On	11.0	--	--	--	11.3	--	--	11.0
	11	Off	16.8	16.7	16.6	--	--	15.7	--	14.3
		On	11.2	--	--	--	11.2	--	--	11.3

Table 42: Test results conducted power measurement 802.11n HT-20

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Secondary Antenna:

802.11b			maximum average conducted output power [dBm]				
Band [MHz]	Ch	MHS / Back off	1Mbps	2Mbps	5.5Mbps	11Mbps	22Mbps
2450	1	Off	17.5	17.5	17.5	17.5	--
		On	10.4	--	--	--	--
	6	Off	17.3	--	--	--	--
		On	10.2	--	--	--	--
	11	Off	17.3	--	--	--	--
		On	10.5	10.6	10.5	10.6	--

Table 43: Test results conducted power measurement 802.11b

802.11g			maximum average conducted output power [dBm]							
Band [MHz]	Ch	MHS / Back off	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
2450	1	Off	16.3	--	--	--	--	--	--	--
		On	10.0	10.0	--	10.0	--	10.2	--	10.3
	6	Off	16.4	16.4	16.4	16.4	--	15.5	--	15.0
		On	10.0	--	--	--	--	--	--	--
	11	Off	16.2	--	--	--	--	--	--	--
		On	9.9	--	--	--	--	--	--	--

Table 44: Test results conducted power measurement 802.11g

802.11n HT-20			maximum average conducted output power [dBm]							
Band	Ch	MHS / Back off	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
2450	1	Off	16.3	--	--	--	--	--	--	--
		On	9.9	--	--	--	--	--	--	--
	6	Off	16.4	16.3	16.2	--	--	15.3	--	13.9
		On	10.3	10.3	--	10.4	--	10.4	--	10.0
	11	Off	16.2	--	--	--	--	--	--	--
		On	10.2	--	--	--	--	--	--	--

Table 45: Test results conducted power measurement 802.11n HT-20

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

7.1.18 Conducted power measurements WLAN 5 GHz

Primary Antenna:

802.11a		maximum average conducted output power [dBm]							
Band	Ch	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
5200	36	15.0	---	---	---	---	---	---	---
	40	15.1	---	---	---	---	---	---	---
	44	15.0	---	---	---	---	---	---	---
	48	15.3	15.3	15.2	15.2	14.0	---	---	14.0
5300	52	15.1	---	---	---	---	---	---	---
	56	15.0	---	---	---	---	---	---	---
	60	15.0	---	---	---	---	---	---	---
	64	15.3	15.2	15.0	15.0	14.1	---	---	14.0
5600	100	14.9	---	---	---	---	---	---	---
	104	15.0	---	---	---	---	---	---	---
	108	15.1	---	---	---	---	---	---	---
	112	15.1	---	---	---	---	---	---	---
	116	15.2	---	---	---	---	---	---	---
	120	15.2	---	---	---	---	---	---	---
	124	15.2	---	---	---	---	---	---	---
	128	15.4	15.3	15.2	15.2	14.0	---	---	14.1
	132	15.3	---	---	---	---	---	---	---
	136	15.3	---	---	---	---	---	---	---
	140	15.1	---	---	---	---	---	---	---
5800	149	15.8	---	---	---	---	---	---	---
	153	15.9	15.7	15.7	15.7	14.4	---	---	14.3
	157	15.6	---	---	---	---	---	---	---
	161	15.4	---	---	---	---	---	---	---
	165	15.3	---	---	---	---	---	---	---

Table 46: Test results conducted power measurement 802.11a

802.11a		maximum average conducted output power [dBm]							
		MHS / Power back off active							
Band	Ch	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
5200	36	10.0	---	---	---	10.0	---	---	10.0
	40	10.3	---	---	---	10.3	---	---	9.9
	44	10.3	---	---	---	10.2	---	---	10.3
	48	10.4	---	---	---	10.3	---	---	10.4
5800	149	10.7	---	---	---	10.7	---	---	10.7
	153	10.7	---	---	---	10.7	---	---	10.5
	157	10.6	---	---	---	10.6	---	---	10.6
	161	10.5	---	---	---	10.5	---	---	10.4
	165	10.3	---	---	---	10.3	---	---	10.3

Table 47: Test results conducted power measurement 802.11a – MHS /Power back off active

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

802.11n HT-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	48	15.1	15.0	15.1	14.1	---	13.9	---	13.3	---
5300	64	15.0	14.9	14.9	14.1	---	14.0	---	13.0	---
5600	128	15.3	15.3	15.3	14.1	---	13.7	---	13.0	---
5800	153	15.5	15.5	15.5	14.5	---	14.0	---	13.4	---

Table 48: Test results conducted power measurement 802.11n HT-20

802.11n HT-20 maximum average conducted output power [dBm]										
MHS / Power back off active										
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	48	10.5	---	---	---	10.5	---	---	10.2	---
5800	149	10.6	---	---	---	10.6	---	---	10.8	---

Table 49: Test results conducted power measurement 802.11n HT-20 – MHS /Power back off active

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	MCS-9
5200	36	14.8	---	---	---	---	---	---	---	---	---
	40	15.0	---	---	---	---	---	---	---	---	---
	44	15.0	---	---	---	---	---	---	---	---	---
	48	15.1	15.1	15.1	14.1	---	13.9	---	13.3	---	6.4
5300	52	14.8	---	---	---	---	---	---	---	---	---
	56	14.9	---	---	---	---	---	---	---	---	---
	60	14.9	---	---	---	---	---	---	---	---	---
	64	15.1	15.1	15.0	14.1	---	14.1	---	13.1	---	4.7
5600	100	14.7	---	---	---	---	---	---	---	---	---
	104	14.9	---	---	---	---	---	---	---	---	---
	108	15.0	---	---	---	---	---	---	---	---	---
	112	14.9	---	---	---	---	---	---	---	---	---
	116	15.0	---	---	---	---	---	---	---	---	---
	120	15.1	---	---	---	---	---	---	---	---	---
	124	15.2	15.2	15.2	14.0	---	13.9	---	13.1	---	4.9
	128	15.2	---	---	---	---	---	---	---	---	---
	132	15.2	---	---	---	---	---	---	---	---	---
	136	15.2	---	---	---	---	---	---	---	---	---
	140	15.1	---	---	---	---	---	---	---	---	---
5800	149	15.8	15.8	15.8	14.8	---	14.5	---	13.5	---	5.4
	153	15.8	---	---	---	---	---	---	---	---	---
	157	15.5	---	---	---	---	---	---	---	---	---
	161	15.3	---	---	---	---	---	---	---	---	---
	165	15.2	---	---	---	---	---	---	---	---	---

Table 50: Test results conducted power measurement 802.11ac VHT-20

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

802.11n HT-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	15.4	---	---	---	---	---	---	---	---	---
	46	15.6	15.6	15.7	14.2	---	14.3	---	13.6	---	---
5300	54	15.3	---	---	---	---	---	---	---	---	---
	62	15.8	15.7	15.7	14.5	---	14.4	---	13.3	---	---
5600	102	15.4	---	---	---	---	---	---	---	---	---
	110	15.4	---	---	---	---	---	---	---	---	---
	118	15.6	---	---	---	---	---	---	---	---	---
	126	16.0	15.9	16.0	14.4	---	14.3	---	13.4	---	---
	134	15.7	---	---	---	---	---	---	---	---	---
5710	142	15.8	---	---	---	---	---	---	---	---	---
5800	151	16.2	16.2	16.4	15.0	---	14.7	---	13.9	---	---
	159	16.1	---	---	---	---	---	---	---	---	---

Table 51: Test results conducted power measurement 802.11n HT-40

802.11n HT-40 maximum average conducted output power [dBm]											
MHS / Power back off active											
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	10.4	---	---	---	10.3	---	---	10.4	---	---
	46	10.6	---	---	---	10.6	---	---	10.5	---	---
5800	151	11.0	---	---	---	10.9	---	---	11.0	---	---
	159	10.8	---	---	---	10.8	---	---	10.8	---	---

Table 52: Test results conducted power measurement 802.11n HT-40 – MHS /Power back off active

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	15.4	---	---	---	---	---	---	---	---	---
	46	15.7	15.6	15.6	14.2	---	14.3	---	13.6	---	12.7
5300	54	15.5	---	---	---	---	---	---	---	---	---
	62	15.7	15.7	15.7	14.4	---	14.4	---	13.4	---	12.5
5600	102	15.4	---	---	---	---	---	---	---	---	---
	110	15.5	---	---	---	---	---	---	---	---	---
	118	15.9	15.8	15.8	14.4	---	14.3	---	13.4	---	12.5
	126	15.7	---	---	---	---	---	---	---	---	---
	134	15.9	---	---	---	---	---	---	---	---	---
5710	142	15.8	---	---	---	---	---	---	---	---	---
5800	151	16.3	16.3	16.3	14.8	---	14.8	---	14.0	---	13.0
	159	16.3	---	---	---	---	---	---	---	---	---

Table 53: Test results conducted power measurement 802.11ac VHT-40

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

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	14.0	14.0	14.0	13.8	---	13.8	---	13.0	---	11.4
5300	58	14.0	14.0	13.9	13.7	---	13.7	---	12.8	---	10.9
5600	106	13.8	---	---	---	---	---	---	---	---	---
	122	14.1	14.0	14.0	13.7	---	13.7	---	12.8	---	10.4
	138	14.0	---	---	---	---	---	---	---	---	---
5800	155	14.5	14.5	14.5	14.1	---	14.1	---	13.3	---	10.9

Table 54: Test results conducted power measurement 802.11ac VHT-80

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Secondary Antenna:

802.11a		maximum average conducted output power [dBm]							
Band	Ch	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
5200	36	16.6	16.6	16.6	16.6	15.5	---	---	15.5
	40	16.5	---	---	---	---	---	---	---
	44	16.4	---	---	---	---	---	---	---
	48	16.3	---	---	---	---	---	---	---
5300	52	15.4	---	---	---	---	---	---	---
	56	15.3	---	---	---	---	---	---	---
	60	15.4	---	---	---	---	---	---	---
	64	15.5	15.5	15.5	15.5	14.5	---	---	14.5
5600	100	15.8	15.8	15.8	15.8	14.7	---	---	14.7
	104	15.7	---	---	---	---	---	---	---
	108	15.7	---	---	---	---	---	---	---
	112	15.4	---	---	---	---	---	---	---
	116	15.5	---	---	---	---	---	---	---
	120	15.2	---	---	---	---	---	---	---
	124	15.1	---	---	---	---	---	---	---
	128	14.8	---	---	---	---	---	---	---
	132	14.8	---	---	---	---	---	---	---
	136	14.5	---	---	---	---	---	---	---
	140	14.2	---	---	---	---	---	---	---
5800	149	15.2	15.2	15.2	15.2	13.9	---	---	13.9
	153	15.0	---	---	---	---	---	---	---
	157	15.0	---	---	---	---	---	---	---
	161	15.0	---	---	---	---	---	---	---
	165	14.9	---	---	---	---	---	---	---

Table 55: Test results conducted power measurement 802.11a

802.11a		maximum average conducted output power [dBm]							
		MHS / Power back off active							
Band	Ch	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
5200	36	11.2	---	---	---	11.2	---	---	11.2
	40	11.1	---	---	---	11.1	---	---	11.1
	44	10.8	---	---	---	10.7	---	---	10.8
	48	10.7	---	---	---	10.6	---	---	10.7
5800	149	9.8	---	---	---	9.8	---	---	9.6
	153	9.7	---	---	---	9.5	---	---	9.7
	157	9.5	---	---	---	9.5	---	---	9.4
	161	9.6	---	---	---	9.6	---	---	9.3
	165	9.4	---	---	---	9.3	---	---	9.4

Table 56: Test results conducted power measurement 802.11a – MHS /Power back off active

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

802.11n HT-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	16.6	16.6	16.6	15.5	---	15.5	---	14.5	---
5300	64	15.5	15.5	15.5	14.4	---	14.3	---	13.5	---
5600	100	15.8	15.8	15.8	14.8	---	14.8	---	13.5	---
5800	149	15.2	15.2	15.2	14.1	---	14.1	---	13.0	---

Table 57: Test results conducted power measurement 802.11n HT-20

802.11n HT-20 maximum average conducted output power [dBm]										
MHS / Power back off active										
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	11.3	---	---	---	11.3	---	---	11.1	---
5800	149	9.9	---	---	---	9.9	---	---	9.6	---

Table 58: Test results conducted power measurement 802.11n HT-20 – MHS /Power back off active

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	MCS-9
5200	36	16.6	16.5	16.5	15.5	---	15.5	---	14.6	---	7.9
	40	16.4	---	---	---	---	---	---	---	---	---
	44	16.2	---	---	---	---	---	---	---	---	---
	48	16.1	---	---	---	---	---	---	---	---	---
5300	52	15.4	---	---	---	---	---	---	---	---	---
	56	15.4	---	---	---	---	---	---	---	---	---
	60	15.3	---	---	---	---	---	---	---	---	---
	64	15.5	15.5	15.5	14.5	---	14.5	---	13.5	---	5.3
5600	100	15.9	15.9	15.9	14.5	---	14.5	---	13.6	---	5.5
	104	15.6	---	---	---	---	---	---	---	---	---
	108	15.5	---	---	---	---	---	---	---	---	---
	112	15.3	---	---	---	---	---	---	---	---	---
	116	15.3	---	---	---	---	---	---	---	---	---
	120	15.1	---	---	---	---	---	---	---	---	---
	124	15.1	---	---	---	---	---	---	---	---	---
	128	14.6	---	---	---	---	---	---	---	---	---
	132	14.7	---	---	---	---	---	---	---	---	---
	136	14.4	---	---	---	---	---	---	---	---	---
	140	14.3	---	---	---	---	---	---	---	---	---
5800	149	15.2	15.2	15.2	14.0	---	14.1	---	13.0	---	5.0
	153	15.0	---	---	---	---	---	---	---	---	---
	157	14.7	---	---	---	---	---	---	---	---	---
	161	14.6	---	---	---	---	---	---	---	---	---
	165	14.6	---	---	---	---	---	---	---	---	---

Table 59: Test results conducted power measurement 802.11ac VHT-20

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

802.11n HT-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	17.0	17.0	17.0	15.8	---	15.8	---	14.8	---	---
	46	17.0	17.0	17.0	15.5	---	15.7	---	14.6	---	---
5300	54	16.1	16.1	16.1	15.0	---	15.0	---	13.8	---	---
	62	16.0	---	---	---	---	---	---	---	---	---
5600	102	16.5	16.5	16.5	15.0	---	15.0	---	13.9	---	---
	110	16.3	---	---	---	---	---	---	---	---	---
	118	16.0	---	---	---	---	---	---	---	---	---
	126	15.6	15.6	15.6	14.3	---	14.3	---	13.4	---	---
	134	15.2	---	---	---	---	---	---	---	---	---
5800	151	15.8	15.8	15.7	14.3	---	14.3	---	13.3	---	---
	159	15.4	---	---	---	---	---	---	---	---	---

Table 60: Test results conducted power measurement 802.11n HT-40

802.11n HT-40 maximum average conducted output power [dBm]											
MHS / Power back off active											
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	11.3	---	---	---	11.0	---	---	11.2	---	---
	46	11.1	---	---	---	11.0	---	---	11.1	---	---
5800	151	10.2	---	---	---	10.2	---	---	10.1	---	---
	159	10.0	---	---	---	9.9	---	---	9.6	---	---

Table 61: Test results conducted power measurement 802.11n HT-40 – MHS /Power back off active

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	17.3	17.3	17.2	16.0	---	15.7	---	15.0	---	14.0
	46	17.0	---	---	---	---	---	---	---	---	---
5300	54	16.0	---	---	---	---	---	---	---	---	---
	62	16.1	16.1	16.1	14.9	---	14.9	---	13.8	---	12.9
5600	102	16.4	16.4	16.5	15.0	---	15.0	---	13.8	---	13.0
	110	16.2	---	---	---	---	---	---	---	---	---
	118	15.8	---	---	---	---	---	---	---	---	---
	126	15.5	---	---	---	---	---	---	---	---	---
	134	15.1	---	---	---	---	---	---	---	---	---
5800	151	15.9	15.8	15.8	14.3	---	14.3	---	13.4	---	12.6
	159	15.8	---	---	---	---	---	---	---	---	---

Table 62: Test results conducted power measurement 802.11ac VHT-40

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

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	15.3	15.3	15.2	15.2	15.1	15.2	15.2	14.2	12.8	12.9
5300	58	14.2	14.2	---	14.2	---	14.2	---	13.2	11.4	11.3
5600	106	14.6	14.6	---	14.2	---	14.3	---	13.2	---	10.9
	122	14.0	---	---	---	---	---	---	---	---	---
	138	13.3	---	---	---	---	---	---	---	---	---
5800	155	14.0	13.9	---	13.7	---	13.7	---	12.7	---	10.6

Table 63: Test results conducted power measurement 802.11ac VHT-80

THE TESTS FOR BLUETOOTH WERE PERFORMED BY THE APPLICANT ITSELF.

7.1.1 Conducted average power measurements Bluetooth 2.4 GHz

Channel	Frequency (MHz)	Average power (dBm)		
		GFSK	π/4 DQPSK	8-DPSK
0	2402	5.5	3.0	3.1
39	2441	**7.8**	4.4	4.6
78	2480	5.4	1.6	1.6

Table 64: Test results conducted average power measurement Bluetooth 2.4 GHz

7.2 SAR test results

7.2.1 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 by the Applicant itself.
- 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.
- For SAR measurements test samples with fixed **power back off** have been used in **GSM 1900**, **UMTS FDD II/IV** and **LTE FDD 2/4/7/41** mode for all configurations that require power back off during normal operation **in hot spot mode**.
- 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 requires 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.

7.2.2 Results overview

measured / extrapolated SAR numbers - Head - GSM 850 MHz											
Ch.	Freq. (MHz)	time slots	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	measured	meas.	extrap.	meas.	extrap.		
128	824.2	2	left cheek	32.5	31.5	0.101	0.127	0.075	0.095	-0.02	22.5
128	824.2	2	left tilted 15°	32.5	31.5	0.067	0.085	0.051	0.064	-0.05	22.5
128	824.2	2	right cheek	32.5	31.5	0.115	0.145	0.090	0.114	0.10	22.5
190	836.6	2	right cheek	32.5	30.9	0.111	0.160	0.088	0.127	0.06	22.5
251	848.8	2	right cheek	32.5	31.1	**0.133**	**0.184**	0.105	0.145	0.00	22.5
128	824.2	2	right tilted 15°	32.5	31.5	0.073	0.092	0.056	0.071	0.04	22.5
slider open											
128	824.2	2	left cheek	32.5	31.5	0.070	0.088	0.053	0.067	0.03	22.5
128	824.2	2	left tilted 15°	32.5	31.5	0.042	0.053	0.032	0.041	-0.04	22.5
128	824.2	2	right cheek	32.5	31.5	0.079	0.099	0.061	0.077	-0.04	22.5
128	824.2	2	right tilted 15°	32.5	31.5	0.050	0.063	0.039	0.049	0.01	22.5

Table 65: Test results head SAR GSM 850MHz GMSK **2TS** in uplink (see max. SAR plot in Annex B.2: GSM 835MHz page 163)

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	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
128	824.2	2	front	32.5	31.5	0.301	0.379	0.236	0.297	0.05	22.8	10
128	824.2	2	rear	32.5	31.5	0.390	0.491	0.220	0.277	0.03	22.8	10
128	824.2	2	left edge	32.5	31.5	0.156	0.196	0.108	0.136	0.03	22.8	10
128	824.2	2	right edge	32.5	31.5	0.309	0.389	0.217	0.273	0.01	22.8	10
128	824.2	2	bottom edge	32.5	31.5	0.340	0.428	0.186	0.234	0.01	22.8	10
128	824.2	2	top edge	32.5	31.5	0.013	0.016	0.009	0.011	0.00	22.8	10
slider open												
128	824.2	2	front	32.5	31.5	0.270	0.340	0.167	0.210	-0.01	22.8	10
128	824.2	2	rear	32.5	31.5	0.512	0.645	0.290	0.365	0.04	22.8	10
190	836.6	2	rear	32.5	30.9	0.656	**0.948**	0.373	0.539	-0.02	22.8	10
251	848.8	2	rear	32.5	31.1	**0.682**	0.941	0.407	0.562	0.01	22.8	10
128	824.2	2	left edge	32.5	31.5	0.132	0.166	0.092	0.115	0.06	22.8	10
128	824.2	2	right edge	32.5	31.5	0.250	0.315	0.172	0.217	-0.02	22.8	10
128	824.2	2	bottom edge	32.5	31.5	0.322	0.405	0.180	0.227	0.10	22.8	10
128	824.2	2	top edge	32.5	31.5	0.013	0.016	0.009	0.011	0.08	22.8	10

Table 66: Test results hotspot mode SAR GSM 850 MHz (see max. SAR plot in Annex B.2: GSM 835MHz)

measured / extrapolated SAR numbers - Body worn - GSM 850 MHz											
Ch.	Freq. (MHz)	time slots	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
128	824.2	2	front	32.5	31.5	0.323	0.407	0.247	0.311	0.01	22.8	15
190	836.6	2	front	32.5	30.9	0.341	0.493	0.263	0.380	0.03	22.8	15
251	848.8	2	front	32.5	31.1	**0.386**	**0.533**	0.299	0.413	0.09	22.8	15
128	824.2	2	rear	32.5	31.5	0.313	0.394	0.242	0.305	-0.01	22.8	15
251	848.8	2	front+holster	32.5	31.1	0.321	0.443	0.243	0.335	-0.02	22.8	0

Table 67: Test results body worn SAR GSM 850 MHz (see max. SAR plot in Annex B.2: GSM 835MHz)

** - maximum possible output power declared by manufacturer.

measured / extrapolated SAR numbers - Head - GSM 1900 MHz											
Ch.	Freq. (MHz)	time slots	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	measured	meas.	extrap.	meas.	extrap.		
661	1880.0	2	left cheek	30.5	29.2	0.434	0.585	0.279	0.376	0.02	22.2
661	1880.0	2	left tilted 15°	30.5	29.2	0.248	0.335	0.151	0.204	-0.12	22.2
661	1880.0	2	right cheek	30.5	29.2	0.218	0.294	0.145	0.196	0.01	22.2
661	1880.0	2	right tilted 15°	30.5	29.2	0.232	0.313	0.140	0.189	-0.11	22.2
slider open											
512	1850.2	2	left cheek	30.5	29.2	0.469	0.633	0.305	0.411	0.17	22.2
661	1880.0	2	left cheek	30.5	29.2	**0.520**	**0.701**	0.326	0.440	0.04	22.2
810	1909.8	2	left cheek	30.5	29.4	0.383	0.493	0.245	0.316	0.10	22.2
661	1880.0	2	left tilted 15°	30.5	29.2	0.260	0.351	0.173	0.233	0.02	22.2
661	1880.0	2	right cheek	30.5	29.2	0.242	0.326	0.159	0.214	0.07	22.2
661	1880.0	2	right tilted 15°	30.5	29.2	0.259	0.349	0.161	0.217	0.03	22.2

Table 68: Test results head SAR GSM 1900MHz GMSK **2TS** in uplink (see max. SAR plot in Annex B.3: GSM 1900MHz page 167)

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 2 timeslots in uplink were used for test.

measured / extrapolated SAR numbers - hotspot mode - GSM 1900 MHz												
Ch.	Freq. (MHz)	time slots	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
661	1880.0	2	front	29.0	27.9	0.289	0.372	0.162	0.209	0.08	22.4	10
661	1880.0	2	rear	29.0	27.9	0.515	0.663	0.314	0.405	-0.02	22.4	10
661	1880.0	2	left edge	29.0	27.9	0.322	0.415	0.195	0.251	0.01	22.4	10
661	1880.0	2	right edge	29.0	27.9	0.057	0.073	0.035	0.045	-0.10	22.4	10
661	1880.0	2	top edge	29.0	27.9	0.043	0.055	0.028	0.036	0.04	22.4	10
661	1880.0	2	bottom edge	29.0	27.9	0.220	0.283	0.122	0.157	0.04	22.4	10
slider open												
661	1880.0	2	front	29.0	27.9	0.375	0.483	0.236	0.304	-0.01	22.4	10
512	1850.2	2	rear	29.0	27.0	**0.720**	**1.141**	0.441	0.699	-0.04	22.4	10
661	1880.0	2	rear	29.0	27.9	0.626	0.806	0.379	0.488	-0.04	22.4	10
810	1909.8	2	rear	29.0	27.1	0.556	0.861	0.335	0.519	-0.02	22.4	10
661	1880.0	2	left edge	29.0	27.9	0.248	0.319	0.154	0.198	-0.01	22.4	10
661	1880.0	2	right edge	29.0	27.9	0.058	0.074	0.035	0.045	0.03	22.4	10
661	1880.0	2	top edge	29.0	27.9	0.083	0.106	0.050	0.065	0.54	22.4	10
661	1880.0	2	bottom edge	29.0	27.9	0.118	0.152	0.073	0.094	-0.54	22.4	10

Table 69: Test results hotspot mode SAR GSM 1900 (see max. SAR plot in Annex B.3: GSM 1900MHz)

measured / extrapolated SAR numbers - Body worn - GSM 1900 MHz											
Ch.	Freq. (MHz)	time slots	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
661	1880.0	2	front	30.5	29.2	0.166	0.224	0.097	0.131	0.07	21.3	15
512	1850.2	2	rear	30.5	29.2	**0.537**	**0.724**	0.354	0.478	0.01	21.3	15
661	1880.0	2	rear	30.5	29.2	0.445	0.600	0.290	0.391	0.02	21.3	15
810	1909.8	2	rear	30.5	29.4	0.367	0.473	0.235	0.303	-0.04	21.3	15
512	1850	2	rear + holster	30.5	29.2	0.254	0.343	0.169	0.228	-0.03	21.3	0

Table 70: Test results body worn SAR GSM 1900 (see max. SAR plot in Annex B.3: GSM 1900MHz)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - UMTS FDD II 1880 MHz											
Ch.	Freq. (MHz)	test cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift(dB)	liquid (°C)
				declared**	measured	meas.	extrap.	meas.	extrap.		
9400	1880.0	RMC	left cheek	25.0	24.6	0.507	0.556	0.329	0.361	0.12	22.2
9400	1880.0	RMC	left tilted 15°	25.0	24.6	0.243	0.266	0.153	0.168	-0.05	22.2
9400	1880.0	RMC	right cheek	25.0	24.6	0.284	0.311	0.191	0.209	0.03	22.2
9400	1880.0	RMC	right tilted 15°	25.0	24.6	0.255	0.280	0.155	0.170	-0.06	22.2
slider open											
9262	1852.4	RMC	left cheek	25.0	23.9	0.518	**0.667**	0.341	0.439	0.05	22.2
9400	1880.0	RMC	left cheek	25.0	24.6	**0.557**	0.611	0.365	0.400	0.10	22.2
9538	1907.6	RMC	left cheek	25.0	23.9	0.505	0.651	0.327	0.421	0.04	22.2
9400	1880.0	RMC	left tilted 15°	25.0	24.6	0.383	0.420	0.253	0.277	0.01	22.2
9400	1880.0	RMC	right cheek	25.0	24.6	0.319	0.350	0.212	0.232	0.02	22.2
9400	1880.0	RMC	right tilted 15°	25.0	24.6	0.384	0.421	0.240	0.263	-0.02	22.2

Table 71: Test results head SAR UMTS FDD II 1880 MHz (see max. SAR plot in Annex B.4: UMTS FDD II page 170)

measured / extrapolated SAR numbers - hotspot mode - UMTS FDD II 1880 MHz												
Ch.	Freq. (MHz)	test cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift(dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
9400	1880.0	RMC	front	22.0	21.5	0.234	0.263	0.129	0.145	0.00	21.3	10
9262	1852.4	RMC	rear	22.0	21.8	0.778	0.815	0.486	0.509	0.01	21.3	10
9400	1880.0	RMC	rear	22.0	21.5	0.719	0.807	0.441	0.495	0.08	21.3	10
9538	1907.6	RMC	rear	22.0	21.2	0.644	0.774	0.387	0.465	0.02	21.3	10
9400	1880.0	RMC	left edge	22.0	21.5	0.435	0.488	0.257	0.288	-0.01	21.3	10
9400	1880.0	RMC	right edge	22.0	21.5	0.054	0.060	0.033	0.037	0.11	21.3	10
9400	1880.0	RMC	top edge	22.0	21.5	0.083	0.093	0.056	0.063	0.03	21.3	10
9400	1880.0	RMC	bottom edge	22.0	21.5	0.387	0.434	0.211	0.237	-0.01	21.3	10
slider open												
9400	1880.0	RMC	front	22.0	21.5	0.577	0.647	0.362	0.406	0.00	21.3	10
9262	1852.4	RMC	rear	22.0	21.8	0.809	0.847	0.501	0.525	-0.01	21.3	10
9400	1880.0	RMC	rear	22.0	21.5	**0.815**	0.914	0.501	0.562	0.01	21.3	10
9538	1907.6	RMC	rear	22.0	21.2	0.769	**0.925**	0.469	0.564	0.11	21.3	10
9400	1880.0	RMC	left edge	22.0	21.5	0.325	0.365	0.201	0.226	0.00	21.3	10
9400	1880.0	RMC	right edge	22.0	21.5	0.106	0.119	0.063	0.071	-0.02	21.3	10
9400	1880.0	RMC	top edge	22.0	21.5	0.074	0.083	0.047	0.052	-0.09	21.3	10
9400	1880.0	RMC	bottom edge	22.0	21.5	0.213	0.239	0.129	0.145	0.01	21.3	10
9400	1880.0	RMC	rear*	22.0	21.5	0.778	0.873	0.486	0.545	0.00	21.3	10

Table 72: Test results hotspot mode SAR UMTS FDD II 1880 MHz (see max. SAR plot in Annex B.4: UMTS FDD II)

* - 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 cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift(dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
9400	1880.0	RMC	front	25.0	24.6	0.231	0.253	0.135	0.148	0.01	21.3	15
9262	1852.4	RMC	rear	25.0	23.9	**0.725**	**0.934**	0.473	0.609	0.02	21.3	15
9400	1880.0	RMC	rear	25.0	24.6	0.678	0.743	0.440	0.482	0.01	21.3	15
9538	1907.6	RMC	rear	25.0	23.9	0.537	0.692	0.344	0.443	0.03	21.3	15
9262	1852.4	RMC	rear+holster	25.0	24.6	0.346	0.379	0.226	0.248	0.00	21.3	0

Table 73: Test results body worn SAR UMTS FDD II 1880 MHz (see max. SAR plot in Annex B.4: UMTS FDD II)

measured / extrapolated SAR numbers - Head - UMTS FDD IV 1700 MHz											
Ch.	Freq. (MHz)	test cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	measured	meas.	extrap.	meas.	extrap.		
1312	1712	RMC	left cheek	25.0	24.1	0.866	1.065	0.561	0.690	-0.07	22.5
1413	1732	RMC	left cheek	25.0	23.9	**0.896**	**1.154**	0.568	0.732	0.03	22.5
1513	1753	RMC	left cheek	25.0	23.7	0.844	1.139	0.538	0.726	0.01	22.5
1413	1732	RMC	left tilted 15°	25.0	23.9	0.406	0.523	0.258	0.332	-0.04	22.5
1413	1732.4	RMC	right cheek	25.0	23.9	0.365	0.470	0.240	0.309	0.03	22.5
1413	1732.4	RMC	right tilted 15°	25.0	23.9	0.416	0.536	0.247	0.318	0.00	22.5
1413	1732	RMC	left cheek*	25.0	23.9	0.866	1.116	0.557	0.718	-0.06	22.5
slider open											
1413	1732	RMC	left cheek	25.0	23.9	0.574	0.739	0.373	0.481	-0.03	22.5
1413	1732	RMC	left tilted 15°	25.0	23.9	0.413	0.532	0.275	0.354	-0.02	22.5
1413	1732	RMC	right cheek	25.0	23.9	0.314	0.405	0.210	0.271	0.03	22.5
1413	1732	RMC	right tilted 15°	25.0	23.9	0.399	0.514	0.251	0.323	0.01	22.5

Table 74: Test results head SAR UMTS FDD IV 1700 MHz (see max. SAR plot in Annex B.5: UMTS FDD IV page 175)

measured / extrapolated SAR numbers - hotspot mode - UMTS FDD IV 1700 MHz												
Ch.	Freq. (MHz)	test cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
1413	1732	RMC	front	22.0	21.3	0.498	0.585	0.327	0.384	-0.04	21.9	10
1312	1712	RMC	rear	22.0	21.5	0.720	0.808	0.428	0.480	-0.04	21.9	10
1413	1732	RMC	rear	22.0	21.3	0.670	0.787	0.384	0.451	-0.01	21.9	10
1513	1753	RMC	rear	22.0	21.1	0.651	0.801	0.373	0.459	-0.03	21.9	10
1413	1732	RMC	left edge	22.0	21.3	0.316	0.371	0.201	0.236	-0.04	21.9	10
1413	1732	RMC	right edge	22.0	21.3	0.082	0.096	0.051	0.060	0.03	21.9	10
1413	1732	RMC	bottom edge	22.0	21.3	0.271	0.318	0.162	0.190	-0.02	21.9	10
1413	1732	RMC	top	22.0	21.3	0.117	0.137	0.072	0.084	-0.03	21.9	10
slider open												
1413	1732	RMC	front	22.0	21.3	0.531	0.624	0.338	0.397	-0.01	21.9	10
1312	1712	RMC	rear	22.0	21.8	**1.090**	1.141	0.663	0.694	-0.05	21.9	10
1413	1732	RMC	rear	22.0	21.3	0.992	**1.165**	0.607	0.713	-0.03	21.9	10
1513	1753	RMC	rear	22.0	21.1	0.921	1.133	0.570	0.701	0.00	21.9	10
1413	1732	RMC	left edge	22.0	21.3	0.335	0.394	0.215	0.253	-0.01	21.9	10
1413	1732	RMC	right edge	22.0	21.3	0.101	0.119	0.063	0.074	0.04	21.9	10
1413	1732	RMC	top edge	22.0	21.3	0.075	0.088	0.049	0.058	0.00	21.9	10
1413	1732	RMC	bottom edge	22.0	21.3	0.200	0.235	0.125	0.147	-0.04	21.9	10
1312	1712.4	RMC	rear*	22.0	21.8	1.000	1.047	0.598	0.626	-0.02	21.9	10

Table 75: Test results hotspot mode SAR UMTS FDD IV 1700 MHz (see max. SAR plot in Annex B.5: UMTS FDD IV)

* - 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 IV 1700 MHz												
Ch.	Freq. (MHz)	test cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
1312	1712	RMC	front	25.0	24.1	**0.696**	0.856	0.464	0.571	-0.07	22.6	15
1413	1732	RMC	front	25.0	23.9	0.692	**0.891**	0.461	0.594	-0.10	22.6	15
1513	1753	RMC	front	25.0	23.7	0.623	0.840	0.416	0.561	0.02	22.6	15
1312	1712	RMC	rear	25.0	24.1	0.662	0.871	0.432	0.522	-0.12	21.9	15
1413	1732	RMC	rear	25.0	23.9	0.631	0.871	0.378	0.522	-0.10	22.6	15
1513	1753	RMC	rear	25.0	23.7	0.626	0.844	0.378	0.510	-0.06	21.9	15
1413	1732	RMC	front+holster	25.0	23.9	0.345	0.444	0.238	0.307	-0.05	22.6	0

Table 76: Test results body worn SAR UMTS FDD IV 1700 MHz (see max. SAR plot in Annex B.5: UMTS FDD IV)

measured / extrapolated SAR numbers - Head - UMTS FDD V 850 MHz											
Ch.	Freq. (MHz)	test cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	measured	meas.	extrap.	meas.	extrap.		
4182	836.4	RMC	left cheek	25.0	23.9	0.241	0.310	0.185	0.238	-0.01	21.0
4182	836.4	RMC	left tilted 15°	25.0	23.9	0.162	0.209	0.126	0.162	-0.01	21.0
4132	826.4	RMC	right cheek	25.0	24.1	0.246	0.303	0.194	0.239	-0.04	21.0
4182	836.4	RMC	right cheek	25.0	23.9	0.242	0.312	0.190	0.245	-0.02	21.0
4233	846.6	RMC	right cheek	25.0	23.9	**0.253**	**0.326**	0.199	0.256	-0.01	21.0
4182	836.4	RMC	right tilted 15°	25.0	23.9	0.156	0.201	0.122	0.157	0.00	21.0
slider open											
4182	836.4	RMC	left cheek	25.0	23.9	0.150	0.193	0.116	0.149	0.01	21.0
4182	836.4	RMC	left tilted 15°	25.0	23.9	0.094	0.121	0.073	0.094	0.03	21.0
4182	836.4	RMC	right cheek	25.0	23.9	0.189	0.243	0.149	0.192	0.01	21.0
4182	836.4	RMC	right tilted 15°	25.0	23.9	0.104	0.134	0.083	0.106	0.00	21.0

Table 77: Test results head SAR UMTS FDD V 850 MHz (see max. SAR plot in Annex B.6: UMTS FDD V page 180)

measured / extrapolated SAR numbers - hotspot mode - UMTS FDD V 850 MHz												
Ch.	Freq. (MHz)	test cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
4182	836.4	RMC	front	25.0	23.9	0.247	0.318	0.192	0.247	-0.04	22.5	10
4182	836.4	RMC	rear	25.0	23.9	0.390	0.502	0.220	0.283	-0.02	22.5	10
4182	836.4	RMC	left edge	25.0	23.9	0.204	0.263	0.141	0.182	0.00	22.5	10
4182	836.4	RMC	right edge	25.0	23.9	0.456	0.587	0.315	0.406	-0.01	22.5	10
4182	836.4	RMC	top edge	25.0	23.9	0.014	0.018	0.010	0.013	0.03	22.5	10
4182	836.4	RMC	bottom edge	25.0	23.9	0.422	0.544	0.229	0.295	-0.03	22.5	10
slider open												
4182	836.4	RMC	front	25.0	23.9	0.294	0.379	0.181	0.233	0.00	22.5	10
4132	826.4	RMC	rear	25.0	24.1	0.548	0.674	0.313	0.385	0.01	22.5	10
4182	836.4	RMC	rear	25.0	23.9	0.558	0.719	0.316	0.407	-0.09	22.5	10
4233	846.6	RMC	rear	25.0	23.9	**0.577**	**0.743**	0.329	0.424	-0.01	22.5	10
4182	836.4	RMC	left edge	25.0	23.9	0.131	0.169	0.091	0.117	-0.03	22.5	10
4182	836.4	RMC	right edge	25.0	23.9	0.275	0.354	0.191	0.246	0.02	22.5	10
4182	836.4	RMC	top edge	25.0	23.9	0.016	0.021	0.011	0.015	0.06	22.5	10
4182	836.4	RMC	bottom edge	25.0	23.9	0.390	0.502	0.212	0.273	0.01	22.5	10

Table 78: Test results hotspot mode SAR UMTS FDD V 850 MHz (see max. SAR plot in Annex B.6: UMTS FDD V)

measured / extrapolated SAR numbers - Body worn - UMTS FDD V 850 MHz												
Ch.	Freq. (MHz)	test cond.	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
4132	826.4	RMC	front	25.0	24.1	**0.258**	**0.317**	0.199	0.245	0.02	22.5	15
4182	836.4	RMC	front	25.0	23.9	0.238	0.307	0.183	0.236	-0.01	22.5	15
4233	846.6	RMC	front	25.0	23.9	0.239	0.308	0.183	0.236	0.00	22.5	15
4182	836.4	RMC	rear	25.0	23.9	0.195	0.251	0.150	0.193	0.02	22.5	15
4132	826.4	RMC	front+holster	25.0	24.1	0.216	0.266	0.164	0.202	0.00	22.5	0

Table 79: Test results body worn SAR UMTS FDD V 850 MHz (see max. SAR plot in Annex B.6: UMTS FDD V)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - LTE FDD 2 1900 MHz											
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	meas.	meas.	extrap.	meas.	extrap.		
20MHz BW/1RB/QPSK											
18900	1880.0	0	left cheek	24.0	23.3	0.531	0.624	0.336	0.395	0.17	22.2
18900	1880.0	0	left tilted 15°	24.0	23.3	0.270	0.317	0.166	0.195	-0.06	22.2
18900	1880.0	0	right cheek	24.0	23.3	0.285	0.335	0.188	0.221	0.08	22.2
18900	1880.0	0	right tilted 15°	24.0	23.3	0.277	0.325	0.168	0.197	-0.01	22.2
20MHz BW/50RB/QPSK											
18700	1860.0	25	left cheek	23.0	22.3	0.387	0.455	0.248	0.291	0.06	22.2
18700	1860.0	25	left tilted 15°	23.0	22.3	0.192	0.226	0.118	0.139	0.03	22.2
18700	1860.0	25	right cheek	23.0	22.3	0.183	0.215	0.121	0.142	0.06	22.2
18700	1860.0	25	right tilted 15°	23.0	22.3	0.191	0.224	0.115	0.135	0.04	22.2
slider open											
20MHz BW/1RB/QPSK											
18700	1860.0	50	left cheek	24.0	23.2	0.622	0.748	0.393	0.472	0.10	22.2
18900	1880.0	0	left cheek	24.0	23.3	0.604	0.710	0.387	0.455	0.11	22.2
19100	1900.0	0	left cheek	24.0	22.9	**0.629**	**0.810**	0.399	0.514	0.11	22.2
18900	1880.0	0	left tilted 15°	24.0	23.3	0.350	0.411	0.233	0.274	0.01	22.2
18900	1880.0	0	right cheek	24.0	23.3	0.322	0.378	0.210	0.247	0.07	22.2
18900	1880.0	0	right tilted 15°	24.0	23.3	0.335	0.394	0.215	0.253	0.04	22.2
20MHz BW/50RB/QPSK											
18700	1860.0	25	left cheek	23.0	22.3	0.432	0.508	0.276	0.324	0.04	22.2
18700	1860.0	25	left tilted 15°	23.0	22.3	0.262	0.308	0.173	0.203	0.10	22.2
18700	1860.0	25	right cheek	23.0	22.3	0.230	0.270	0.150	0.176	0.10	22.2
18700	1860.0	25	right tilted 15°	23.0	22.3	0.244	0.287	0.155	0.182	-0.03	22.2

Table 80: Test results head SAR LTE FDD 2 1900 MHz (see max. SAR plot in Annex B.7: LTE FDD 2 page 183)

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 2 1900 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
20MHz BW/1RB/QPSK												
18700	1860.0	0	front	21.0	19.9	0.364	0.469	0.231	0.298	0.00	21.3	10
18700	1860.0	0	rear	21.0	19.9	0.471	0.607	0.266	0.343	-0.04	21.3	10
18900	1880.0	0	left edge	21.0	19.9	0.526	0.678	0.322	0.415	0.11	21.3	10
18900	1880.0	0	right edge	21.0	19.9	0.134	0.173	0.075	0.096	-0.05	21.3	10
18900	1880.0	0	top edge	21.0	19.9	0.071	0.092	0.043	0.055	0.10	21.3	10
18900	1880.0	0	bottom edge	21.0	19.9	0.326	0.420	0.184	0.237	-0.04	21.3	10
20MHz BW/50RB/QPSK												
18700	1860.0	0	front	20.0	19.9	0.282	0.289	0.177	0.181	-0.01	21.3	10
18700	1860.0	0	rear	20.0	19.9	0.471	0.482	0.272	0.278	-0.02	21.3	10
18900	1880.0	0	left edge	20.0	19.9	0.411	0.421	0.251	0.257	0.00	21.3	10
18900	1880.0	0	right edge	20.0	19.9	0.096	0.099	0.055	0.056	-1.16	21.3	10
18900	1880.0	0	top edge	20.0	19.9	0.056	0.057	0.034	0.035	0.01	21.3	10
18900	1880.0	0	bottom edge	20.0	19.9	0.240	0.246	0.136	0.139	-0.01	21.3	10
slider open												
20MHz BW/1RB/QPSK												
18700	1860	0	front	21.0	19.9	0.395	0.509	0.251	0.323	-0.02	21.3	10
18700	1860	0	rear	21.0	19.9	0.595	0.767	0.369	0.475	0.02	21.3	10
18900	1880.0	0	rear	21.0	19.6	**0.662**	0.914	0.410	0.566	-0.04	21.3	10
19100	1900.0	0	rear	21.0	19.4	0.645	**0.932**	0.394	0.570	0.00	21.3	10
18700	1860	0	left edge	21.0	19.9	0.252	0.325	0.156	0.201	-0.03	21.3	10
18700	1860	0	right edge	21.0	19.9	0.070	0.090	0.042	0.054	-0.02	21.3	10
18700	1860	0	top edge	21.0	19.9	0.073	0.094	0.045	0.058	0.01	21.3	10
18700	1860	0	bottom edge	21.0	19.9	0.176	0.227	0.106	0.137	0.03	21.3	10
20MHz BW/50RB/QPSK												
18700	1860	0	front	20.0	19.9	0.399	0.408	0.252	0.258	0.00	21.3	10
18700	1860	0	rear	20.0	19.9	0.605	0.619	0.374	0.383	0.01	21.3	10
18700	1860	0	left edge	20.0	19.9	0.253	0.259	0.157	0.161	0.03	21.3	10
18700	1860	0	right edge	20.0	19.9	0.071	0.072	0.043	0.044	-0.04	21.3	10
18700	1860	0	top edge	20.0	19.9	0.074	0.076	0.045	0.046	0.00	21.3	10
18700	1860	0	bottom edge	20.0	19.9	0.172	0.176	0.104	0.106	0.02	21.3	10

Table 81: Test results hotspot mode SAR LTE FDD 2 1900 MHz (see max. SAR plot in Annex B.7: LTE FDD 2)

measured / extrapolated SAR numbers - Body worn - LTE FDD 2 1900 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
20MHz BW/1RB/QPSK												
18900	1880.0	0	front	24.0	23.3	0.214	0.251	0.124	0.146	0.03	21.7	15
18700	1860.0	50	rear	24.0	23.2	0.501	0.602	0.325	0.391	-0.01	21.7	15
18900	1880.0	0	rear	24.0	23.3	**0.608**	**0.714**	0.394	0.463	0.02	21.7	15
19100	1900.0	0	rear	24.0	22.9	0.519	0.669	0.335	0.432	-0.02	21.7	15
18900	1880.0	0	rear+holster	24.0	23.3	0.267	0.314	0.173	0.203	-0.03	21.7	0
20MHz BW/50RB/QPSK												
18700	1860.0	25	front	23.0	22.3	0.155	0.182	0.090	0.106	-0.04	21.7	15
18700	1860.0	25	rear	23.0	22.3	0.397	0.466	0.258	0.303	0.01	21.7	15

Table 82: Test results body worn SAR LTE FDD 2 1900 MHz (see max. SAR plot in Annex B.7: LTE FDD 2)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Head - LTE FDD 4 1750 MHz											
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	meas.	meas.	extrap.	meas.	extrap.		
20MHz BW/1RB/QPSK											
20050	1720.0	50	left cheek	24.0	23.4	0.540	0.620	0.351	0.403	0.05	22.9
20050	1720.0	50	left tilted 15°	24.0	23.4	0.324	0.372	0.197	0.226	0.01	22.9
20050	1720.0	50	right cheek	24.0	23.4	0.297	0.341	0.195	0.224	-0.06	22.9
20050	1720.0	50	right tilted 15°	24.0	23.4	0.328	0.377	0.199	0.228	0.00	22.9
20MHz BW/50RB/QPSK											
20050	1720.0	25	left cheek	23.0	22.3	0.430	0.505	0.278	0.327	0.05	22.9
20050	1720.0	25	left tilted 15°	23.0	22.3	0.252	0.296	0.154	0.181	-0.01	22.9
20050	1720.0	25	right cheek	23.0	22.3	0.259	0.304	0.170	0.200	0.01	22.9
20050	1720.0	25	right tilted 15°	23.0	22.3	0.262	0.308	0.159	0.187	0.05	22.9
slider open											
20MHz BW/1RB/QPSK											
20050	1720.0	50	left cheek	24.0	23.4	0.541	0.621	0.349	0.401	-0.04	22.9
20175	1732.5	0	left cheek	24.0	23.1	0.577	0.710	0.384	0.472	0.10	22.9
20300	1745.0	0	left cheek	24.0	23.2	**0.612**	**0.736**	0.403	0.485	0.02	22.9
20050	1720.0	50	left tilted 15°	24.0	23.4	0.333	0.382	0.226	0.259	-0.05	22.9
20050	1720.0	50	right cheek	24.0	23.4	0.287	0.330	0.195	0.224	-0.09	22.9
20050	1720.0	50	right tilted 15°	24.0	23.4	0.325	0.373	0.213	0.245	0.01	22.9
20MHz BW/50RB/QPSK											
20050	1720.0	25	left cheek	23.0	22.3	0.428	0.503	0.277	0.325	0.00	22.9
20050	1720.0	25	left tilted 15°	23.0	22.3	0.265	0.311	0.179	0.210	0.04	22.9
20050	1720.0	25	right cheek	23.0	22.3	0.226	0.266	0.154	0.181	0.05	22.9
20050	1720.0	25	right tilted 15°	23.0	22.3	0.253	0.297	0.167	0.196	0.02	22.9

Table 83: Test results head SAR LTE FDD 4 1750 MHz (see max. SAR plot in Annex B.8: LTE FDD 4 page 186)

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 4 1750 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
20MHz BW/1RB/QPSK												
20050	1720.0	0	front	21.0	20.0	0.370	0.466	0.243	0.306	-0.14	21.0	10
20050	1720.0	0	rear	21.0	20.0	0.537	0.676	0.342	0.431	-0.03	21.0	10
20050	1720.0	0	left edge	21.0	20.0	0.260	0.327	0.166	0.209	0.14	21.0	10
20050	1720.0	0	right edge	21.0	20.0	0.052	0.066	0.032	0.041	-0.04	21.0	10
20050	1720.0	0	top edge	21.0	20.0	0.201	0.253	0.123	0.155	-0.07	21.0	10
20050	1720.0	0	bottom edge	21.0	20.0	0.198	0.249	0.115	0.145	-0.02	21.0	10
20MHz BW/50RB/QPSK												
20050	1720.0	50	front	20.0	20.0	0.306	0.306	0.200	0.200	0.00	21.0	10
20050	1720.0	50	rear	20.0	20.0	0.491	0.491	0.312	0.312	0.00	21.0	10
20050	1720.0	50	left edge	20.0	20.0	0.235	0.235	0.150	0.150	-0.04	21.0	10
20050	1720.0	50	right edge	20.0	20.0	0.029	0.029	0.018	0.018	-0.04	21.0	10
20050	1720.0	50	top edge	20.0	20.0	0.132	0.132	0.080	0.080	0.01	21.0	10
20050	1720.0	50	bottom edge	20.0	20.0	0.156	0.156	0.092	0.092	0.03	21.0	10
slider open												
20MHz BW/1RB/QPSK												
20050	1720.0	0	front	21.0	20.0	0.425	0.535	0.271	0.341	0.01	21.0	10
20050	1720.0	0	rear	21.0	20.0	0.817	1.029	0.500	0.629	0.10	21.0	10
20175	1732.5	0	rear	21.0	20.0	0.786	0.990	0.477	0.601	-0.02	21.0	10
20300	1745.0	0	rear	21.0	19.7	0.741	1.000	0.451	0.608	-0.09	21.0	10
20050	1720.0	0	left edge	21.0	20.0	0.563	0.709	0.365	0.460	-0.10	21.0	10
20050	1720.0	0	right edge	21.0	20.0	0.168	0.211	0.104	0.131	-0.05	21.0	10
20050	1720.0	0	top edge	21.0	20.0	0.055	0.069	0.036	0.045	0.18	21.0	10
20050	1720.0	0	bottom edge	21.0	20.0	0.578	0.728	0.348	0.438	0.10	21.0	10
20050	1720	0	rear*	21.0	20.0	**0.832**	**1.047**	0.513	0.646	-0.02	21.0	10
20MHz BW/50RB/QPSK												
20050	1720.0	50	front	20.0	20.0	0.403	0.403	0.256	0.256	-0.01	21.0	10
20050	1720.0	50	rear	20.0	20.0	0.779	0.779	0.473	0.473	-0.03	21.0	10
20050	1720.0	50	left edge	20.0	20.0	0.430	0.430	0.277	0.277	-0.02	21.0	10
20050	1720.0	50	right edge	20.0	20.0	0.121	0.121	0.075	0.075	-0.01	21.0	10
20050	1720.0	50	top edge	20.0	20.0	0.056	0.056	0.035	0.035	-0.04	21.0	10
20050	1720.0	50	bottom edge	20.0	20.0	0.354	0.354	0.217	0.217	-0.07	21.0	10
20MHz BW/100RB/QPSK												
20050	1720.0	0	front	20.0	20.0	0.402	0.402	0.256	0.256	-0.03	21.0	10
20050	1720.0	0	rear	20.0	20.0	0.796	0.796	0.483	0.483	0.03	21.0	10
20050	1720.0	0	left edge	20.0	20.0	0.290	0.290	0.187	0.187	-0.04	21.0	10
20050	1720.0	0	right edge	20.0	20.0	0.070	0.070	0.043	0.043	0.00	21.0	10
20050	1720.0	0	top edge	20.0	20.0	0.076	0.076	0.049	0.049	-0.03	21.0	10
20050	1720.0	0	bottom edge	20.0	20.0	0.227	0.227	0.140	0.140	0.01	21.0	10

Table 84: Test results hotspot mode SAR LTE FDD 4 1750 MHz (see max. SAR plot in Annex B.8: LTE FDD 4)

* - 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 - LTE FDD 4 1750 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
20MHz BW/1RB/QPSK												
20050	1720.0	50	front	24.0	23.4	0.458	0.526	0.315	0.362	-0.02	21.4	15
20050	1720.0	50	rear	24.0	23.4	0.597	0.685	0.391	0.449	-0.06	21.4	15
20175	1732.5	0	rear	24.0	23.1	0.555	0.683	0.366	0.450	-0.05	21.4	15
20300	1745.0	0	rear	24.0	23.2	**0.619**	**0.744**	0.404	0.486	0.20	21.4	15
20300	1745.0	0	rear + holster	24.0	23.2	0.260	0.313	0.176	0.212	-0.03	21.4	0
20MHz BW/50RB/QPSK												
20050	1720.0	25	front	23.0	22.3	0.316	0.371	0.217	0.255	0.00	21.4	15
20050	1720.0	25	rear	23.0	22.3	0.475	0.558	0.311	0.365	0.00	21.4	15

Table 85: Test results body worn SAR LTE FDD 4 1750 MHz (see max. SAR plot in Annex B.8: LTE FDD 4)

measured / extrapolated SAR numbers - Head - LTE FDD 7 2600 MHz											
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	meas.	meas.	extrap.	meas.	extrap.		
20MHz BW/1RB/QPSK											
20850	2510	0	left cheek	24.0	23.1	0.077	0.095	0.041	0.050	-0.06	21.0
20850	2510	0	left tilted 15°	24.0	23.1	0.076	0.093	0.037	0.046	0.15	21.0
20850	2510	0	right cheek	24.0	23.1	0.170	0.209	0.090	0.111	0.11	21.0
20850	2510	0	right tilted 15°	24.0	23.1	0.054	0.066	0.027	0.033	0.08	21.0
20MHz BW/50RB/QPSK											
20850	2510	25	left cheek	23.0	22.1	0.057	0.070	0.030	0.037	0.18	21.0
20850	2510	25	left tilted 15°	23.0	22.1	0.064	0.078	0.031	0.038	0.07	21.0
20850	2510	25	right cheek	23.0	22.1	0.131	0.161	0.070	0.086	0.11	21.0
20850	2510	25	right tilted 15°	23.0	22.1	0.045	0.055	0.022	0.028	0.04	21.0
slider open											
20MHz BW/1RB/QPSK											
20850	2510	0	left cheek	24.0	23.1	0.107	0.132	0.060	0.074	-0.02	21.0
20850	2510	0	left tilted 15°	24.0	23.1	0.105	0.129	0.054	0.067	0.08	21.0
20850	2510	0	right cheek	24.0	23.1	**0.241**	0.296	0.130	0.160	-0.12	21.0
21100	2535	0	right cheek	24.0	22.9	0.231	**0.298**	0.124	0.160	0.12	21.0
21350	2560	0	right cheek	24.0	22.7	0.197	0.266	0.104	0.140	0.08	21.0
20850	2510	0	right tilted 15°	24.0	23.1	0.081	0.099	0.042	0.052	0.01	21.0
20MHz BW/50RB/QPSK											
20850	2510	25	left cheek	23.0	22.1	0.077	0.095	0.044	0.054	0.13	21.0
20850	2510	25	left tilted 15°	23.0	22.1	0.077	0.094	0.038	0.047	0.06	21.0
20850	2510	25	right cheek	23.0	22.1	0.190	0.234	0.101	0.124	0.00	21.0
20850	2510	25	right tilted 15°	23.0	22.1	0.064	0.079	0.033	0.041	0.03	21.0

Table 86: Test results head SAR LTE FDD 7 2600 MHz (see max. SAR plot in Annex B.9: LTE FDD 7 page 189)

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 7 2600 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	measured	meas.	extrap.	meas.	extrap.			
20MHz BW/1RB/QPSK												
20850	2510	0	front	20.5	20.0	0.312	0.350	0.150	0.168	-0.08	22.6	10
20850	2510	0	rear	20.5	20.0	0.385	0.432	0.184	0.206	-0.01	22.6	10
21100	2535	0	left edge	20.5	20.0	0.025	0.028	0.017	0.019	0.17	22.6	10
21100	2535	0	right edge	20.5	20.0	0.278	0.312	0.143	0.160	0.01	22.6	10
21100	2535	0	top edge	20.5	20.0	0.020	0.022	0.011	0.012	0.09	22.6	10
21100	2535	0	bottom edge	20.5	20.0	0.580	0.651	0.270	0.303	0.08	22.6	10
20MHz BW/50RB/QPSK												
20850	2510	0	front	20.5	20.0	0.319	0.358	0.153	0.172	0.00	22.6	10
20850	2510	0	rear	20.5	20.0	0.395	0.443	0.187	0.210	-0.01	22.6	10
20850	2510	0	left edge	20.5	20.0	0.025	0.027	0.017	0.019	-0.07	22.6	10
20850	2510	0	right edge	20.5	20.0	0.288	0.323	0.148	0.166	-0.03	22.6	10
20850	2510	0	top edge	20.5	20.0	0.022	0.025	0.012	0.014	-0.02	22.6	10
20850	2510	0	bottom edge	20.5	20.0	0.619	0.695	0.287	0.322	-0.05	22.6	10
slider open												
20MHz BW/1RB/QPSK												
20850	2510	0	front	20.5	20.0	0.462	0.518	0.225	0.253	0.06	22.6	10
20850	2510	0	rear	20.5	20.0	0.472	0.530	0.231	0.259	-0.01	22.6	10
20850	2510	0	left edge	20.5	20.0	0.081	0.090	0.045	0.050	0.01	22.6	10
20850	2510	0	right edge	20.5	20.0	0.228	0.256	0.118	0.132	-0.04	22.6	10
20850	2510	0	top edge	20.5	20.0	0.021	0.023	0.011	0.012	-0.06	22.6	10
20850	2510	0	bottom edge	20.5	20.0	0.740	0.830	0.352	0.395	0.13	22.6	10
21100	2535	99	bottom edge	20.5	20.0	**0.779**	0.874	0.371	0.416	0.02	22.6	10
21350	2560	0	bottom edge	20.5	19.6	0.769	**0.946**	0.364	0.448	0.02	22.6	10
20MHz BW/50RB/QPSK												
20850	2510	0	front	20.5	20.0	0.457	0.513	0.225	0.252	-0.01	22.6	10
20850	2510	0	rear	20.5	20.0	0.076	0.085	0.042	0.047	0.04	22.6	10
20850	2510	0	left edge	20.5	20.0	0.076	0.085	0.042	0.047	0.04	22.6	10
20850	2510	0	right edge	20.5	20.0	0.230	0.258	0.118	0.132	-0.04	22.6	10
20850	2510	0	top edge	20.5	20.0	0.020	0.022	0.011	0.012	0.32	22.6	10
20850	2510	0	bottom edge	20.5	20.0	0.744	0.835	0.352	0.395	-0.01	22.6	10

Table 87: Test results hotspot mode SAR LTE FDD 7 2600 MHz (see max. SAR plot in Annex B.9: LTE FDD 7)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Body worn - LTE FDD 7 2600 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	measured	meas.	extrap.	meas.	extrap.			
20MHz BW/1RB/QPSK												
20850	2510	0	front	24.0	23.1	0.318	0.391	0.167	0.205	0.12	22.6	15
20850	2510	0	rear	24.0	23.1	**0.378**	**0.465**	0.196	0.241	0.12	22.6	15
20850	2510	0	rear + holster	24.0	23.1	0.275	0.338	0.150	0.185	-0.13	22.6	0
20MHz BW/50RB/QPSK												
20850	2510	25	front	23.0	22.1	0.260	0.320	0.137	0.169	0.01	22.6	15
20850	2510	25	rear	23.0	22.1	0.308	0.379	0.160	0.197	0.02	22.6	15

Table 88: Test results body worn SAR LTE FDD 7 2600 MHz (see max. SAR plot 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} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	meas.	meas.	extrap.	meas.	extrap.		
10MHz BW/1RB/QPSK											
23230	782.0	0	left cheek	24.0	23.9	0.098	0.100	0.075	0.077	0.07	23.3
23230	782.0	0	left tilted 15°	24.0	23.9	0.074	0.076	0.057	0.059	0.04	23.3
23230	782.0	0	right cheek	24.0	23.9	**0.136**	**0.139**	0.103	0.105	0.00	23.3
23230	782.0	0	right tilted 15°	24.0	23.9	0.076	0.077	0.059	0.060	0.04	23.3
10MHz BW/25RB/QPSK											
23230	782.0	12	left cheek	23.0	22.7	0.090	0.096	0.069	0.074	0.09	23.3
23230	782.0	12	left tilted 15°	23.0	22.7	0.067	0.072	0.052	0.056	0.04	23.3
23230	782.0	12	right cheek	23.0	22.7	0.126	0.135	0.095	0.102	0.07	23.3
23230	782.0	12	right tilted 15°	23.0	22.7	0.070	0.075	0.054	0.058	0.06	23.3
slider open											
10MHz BW/1RB/QPSK											
23230	782.0	0	left cheek	24.0	23.9	0.085	0.087	0.065	0.067	0.01	23.3
23230	782.0	0	left tilted 15°	24.0	23.9	0.055	0.056	0.043	0.044	0.02	23.3
23230	782.0	0	right cheek	24.0	23.9	0.104	0.106	0.079	0.081	0.03	23.3
23230	782.0	0	right tilted 15°	24.0	23.9	0.055	0.056	0.043	0.044	0.00	23.3
10MHz BW/25RB/QPSK											
23230	782.0	12	left cheek	23.0	22.7	0.075	0.080	0.058	0.062	0.04	23.3
23230	782.0	12	left tilted 15°	23.0	22.7	0.048	0.052	0.037	0.040	0.03	23.3
23230	782.0	12	right cheek	23.0	22.7	0.097	0.104	0.074	0.079	0.07	23.3
23230	782.0	12	right tilted 15°	23.0	22.7	0.051	0.055	0.040	0.042	0.08	23.3

Table 89: Test results head SAR LTE FDD 13 700 MHz (see max. SAR plot in Annex B.10: LTE FDD 13 page 192)

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 13 700 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
10MHz BW/1RB/QPSK												
23230	782.0	0	front	24.0	23.9	0.166	0.170	0.131	0.134	0.04	21.0	10
23230	782.0	0	rear	24.0	23.9	**0.296**	**0.303**	0.170	0.174	-0.03	21.0	10
23230	782.0	0	left edge	24.0	23.9	0.090	0.092	0.064	0.065	-0.02	21.0	10
23230	782.0	0	right edge	24.0	23.9	0.244	0.250	0.172	0.176	-0.02	21.0	10
23230	782	0	top edge	24.0	23.9	0.008	0.008	0.005	0.005	0.08	21.0	10
23230	782.0	0	bottom edge	24.0	23.9	0.240	0.246	0.139	0.142	0.01	21.0	10
10MHz BW/25RB/QPSK												
23230	782.0	12	front	23.0	22.7	0.141	0.151	0.112	0.120	-0.01	21.0	10
23230	782.0	12	rear	23.0	22.7	0.228	0.244	0.131	0.140	0.01	21.0	10
23230	782.0	12	left edge	23.0	22.7	0.080	0.086	0.057	0.061	-0.03	21.0	10
23230	782.0	12	right edge	23.0	22.7	0.203	0.218	0.143	0.153	-0.01	21.0	10
23230	782.0	12	top edge	23.0	22.7	0.006	0.007	0.004	0.005	0.12	21.0	10
23230	782.0	12	bottom edge	23.0	22.7	0.184	0.197	0.105	0.113	0.07	21.0	10
slider open												
10MHz BW/1RB/QPSK												
23230	782	0	front	24.0	23.9	0.157	0.161	0.099	0.101	0.00	21.0	10
23230	782	0	rear	24.0	23.9	0.293	0.300	0.169	0.173	-0.05	21.0	10
23230	782	0	left edge	24.0	23.9	0.043	0.044	0.030	0.031	0.06	21.0	10
23230	782	0	right edge	24.0	23.9	0.209	0.214	0.148	0.151	-0.02	21.0	10
23230	782	0	top edge	24.0	23.9	0.008	0.008	0.006	0.006	-0.06	21.0	10
23230	782	0	bottom edge	24.0	23.9	0.250	0.256	0.147	0.150	-0.03	21.0	10
10MHz BW/25RB/QPSK												
23230	782	12	front	23.0	22.7	0.135	0.145	0.107	0.115	-0.01	21.0	10
23230	782	12	rear	23.0	22.7	0.193	0.207	0.136	0.146	-0.04	21.0	10
23230	782	12	left edge	23.0	22.7	0.038	0.041	0.027	0.029	0.04	21.0	10
23230	782	12	right edge	23.0	22.7	0.193	0.207	0.136	0.146	-0.04	21.0	10
23230	782.0	12	top edge	23.0	22.7	0.007	0.007	0.005	0.005	0.02	21.0	10
23230	782	12	bottom edge	23.0	22.7	0.190	0.204	0.110	0.118	0.00	21.0	10

Table 90: Test results hotspot mode SAR LTE FDD 13 700 MHz (see max. SAR plot in Annex B.10: LTE FDD 13)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Body worn - LTE FDD 13 700 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
10MHz BW/1RB/QPSK												
23230	782.0	0	front	24.0	23.9	0.160	0.164	0.126	0.129	-0.01	21.0	15
23230	782.0	0	rear	24.0	23.9	**0.178**	**0.182**	0.139	0.142	0.00	21.0	15
23230	782	0	rear+holster	24.0	23.9	0.166	0.170	0.129	0.132	-0.02	21.0	0
10MHz BW/25RB/QPSK												
23230	782.0	12	front	23.0	22.7	0.140	0.150	0.110	0.118	-0.01	21.0	15
23230	782.0	12	rear	23.0	22.7	0.152	0.163	0.119	0.128	-0.01	21.0	15

Table 91: Test results body worn SAR LTE FDD 13 700 MHz (see max. SAR plot in Annex B.10: LTE FDD 13)

measured / extrapolated SAR numbers - Head - LTE FDD 17 700 MHz											
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	meas.	meas.	extrap.	meas.	extrap.		
10MHz BW/1RB/QPSK											
23780	709	50	left cheek	24.0	23.7	0.071	0.076	0.056	0.060	0.02	21.7
23780	709	50	left tilted 15°	24.0	23.7	0.038	0.041	0.031	0.033	-0.05	21.7
23780	709	50	right cheek	24.0	23.7	0.071	0.076	0.056	0.060	0.00	21.7
23780	709	50	right tilted 15°	24.0	23.7	0.040	0.043	0.032	0.035	0.01	21.7
10MHz BW/25RB/QPSK											
23780	709	25	left cheek	23.0	22.5	0.060	0.068	0.048	0.053	0.06	21.7
23780	709	25	left tilted 15°	23.0	22.5	0.037	0.041	0.030	0.033	0.03	21.7
23780	709	25	right cheek	23.0	22.5	**0.071**	**0.079**	0.056	0.063	0.17	21.7
23780	709	25	right tilted 15°	23.0	22.5	0.040	0.044	0.032	0.036	0.11	21.7
slider open											
10MHz BW/1RB/QPSK											
23780	709.0	50	left cheek	24.0	23.7	0.042	0.045	0.033	0.036	0.01	21.7
23780	709.0	50	left tilted 15°	24.0	23.7	0.021	0.023	0.017	0.019	-0.03	21.7
23780	709.0	50	right cheek	24.0	23.7	0.047	0.050	0.037	0.040	0.12	21.7
23780	709.0	50	right tilted 15°	24.0	23.7	0.023	0.025	0.018	0.020	0.17	21.7
10MHz BW/25RB/QPSK											
23780	709.0	25	left cheek	23.0	22.5	0.041	0.046	0.032	0.036	0.04	21.7
23780	709.0	25	left tilted 15°	23.0	22.5	0.015	0.017	0.011	0.012	-0.02	21.7
23780	709.0	25	right cheek	23.0	22.5	0.048	0.054	0.038	0.043	-0.20	21.7
23780	709.0	25	right tilted 15°	23.0	22.5	0.023	0.026	0.019	0.021	0.06	21.7

Table 92: Test results head SAR LTE FDD 17 700 MHz (see max. SAR plot in Annex B.11: LTE FDD 17 195)

measured / extrapolated SAR numbers - hotspot mode - LTE FDD 17 700 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
10MHz BW/1RB/QPSK												
23780	709	50	front	24.0	23.7	0.113	0.121	0.092	0.098	-0.05	21.0	10
23780	709	50	rear	24.0	23.7	0.142	0.152	0.112	0.120	-0.01	21.0	10
23780	709.0	50	left edge	24.0	23.7	0.100	0.107	0.072	0.077	0.03	21.0	10
23780	709.0	50	right edge	24.0	23.7	**0.182**	**0.195**	0.131	0.140	-0.03	21.0	10
23780	709.0	50	top edge	24.0	23.7	0.004	0.004	0.003	0.003	-0.07	21.0	10
23780	709.0	50	bottom edge	24.0	23.7	0.122	0.131	0.072	0.077	-0.03	21.0	10
10MHz BW/25RB/QPSK												
23780	709	25	front	23.0	22.5	0.104	0.117	0.084	0.094	0.04	21.0	10
23780	709	25	rear	23.0	22.5	0.134	0.150	0.105	0.118	0.05	21.0	10
23780	709	25	left edge	23.0	22.5	0.095	0.107	0.068	0.077	-0.07	21.0	10
23780	709	25	right edge	23.0	22.5	0.168	0.188	0.121	0.136	-0.01	21.0	10
23780	709	25	top edge	23.0	22.5	0.004	0.004	0.003	0.003	0.02	21.0	10
23780	709	25	bottom edge	23.0	22.5	0.112	0.126	0.066	0.074	-0.05	21.0	10
slider open												
10MHz BW/1RB/QPSK												
23780	709	50	front	24.0	23.7	0.080	0.085	0.050	0.053	0.01	21.0	10
23780	709	50	rear	24.0	23.7	0.112	0.120	0.066	0.071	0.00	21.0	10
23780	709	50	left edge	24.0	23.7	0.017	0.018	0.012	0.013	-0.03	21.0	10
23780	709	50	right edge	24.0	23.7	0.063	0.067	0.045	0.049	-0.04	21.0	10
23780	709.0	50	top edge	24.0	23.7	0.002	0.002	0.001	0.001	-0.03	21.0	10
23780	709	50	bottom edge	24.0	23.7	0.111	0.119	0.067	0.071	0.03	21.0	10
10MHz BW/25RB/QPSK												
23780	709	25	front	23.0	22.5	0.076	0.085	0.047	0.053	0.02	21.0	10
23780	709	25	rear	23.0	22.5	0.105	0.118	0.062	0.070	0.00	21.0	10
23780	709	25	left edge	23.0	22.5	0.016	0.017	0.011	0.013	0.07	21.0	10
23780	709	25	right edge	23.0	22.5	0.070	0.078	0.050	0.056	-0.01	21.0	10
23780	709	25	top edge	23.0	22.5	0.002	0.003	0.001	0.002	0.01	21.0	10
23780	709	25	bottom edge	23.0	22.5	0.101	0.113	0.061	0.068	0.03	21.0	10

Table 93: Test results hotspot mode SAR LTE FDD 17 700 MHz (see max. SAR plot in Annex B.11: LTE FDD 17)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Body worn - LTE FDD 17 700 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
10MHz BW/1RB/QPSK												
23780	709	50	front	24.0	23.7	0.107	0.115	0.085	0.091	0.04	21.0	15
23780	709	50	rear	24.0	23.7	**0.124**	**0.133**	0.098	0.105	-0.01	21.0	15
23780	709	50	rear+holster	24.0	23.7	0.120	0.129	0.095	0.101	-0.05	21.0	0
10MHz BW/25RB/QPSK												
23780	709	25	front	23.0	22.5	0.099	0.112	0.079	0.089	0.01	21.0	15
23780	709	25	rear	23.0	22.5	0.114	0.128	0.090	0.101	-0.01	21.0	15

Table 94: Test results body worn SAR LTE FDD 17 700 MHz (see max. SAR plot in Annex B.11: LTE FDD 17)

measured / extrapolated SAR numbers - Head - LTE TDD 41 2600 MHz											
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)
				declared**	meas.	meas.	extrap.	meas.	extrap.		
20MHz BW - QPSK - 1RB											
41055	2636.5	0	left cheek	24.0	23.7	0.039	0.042	0.022	0.023	-0.04	22.6
41055	2636.5	0	left tilted 15°	24.0	23.7	0.063	0.068	0.031	0.033	0.03	22.6
41055	2636.5	0	right cheek	24.0	23.7	**0.135**	**0.145**	**0.074**	**0.079**	0.04	22.6
41055	2636.5	0	right tilted 15°	24.0	23.7	0.049	0.053	0.023	0.025	0.05	22.6
20MHz BW - QPSK - 50RB											
41055	2636.5	0	left cheek	23.0	22.8	0.030	0.031	0.016	0.017	0.10	22.6
41055	2636.5	0	left tilted 15°	23.0	22.8	0.049	0.051	0.024	0.025	0.29	22.6
41055	2636.5	0	right cheek	23.0	22.8	0.109	0.114	0.060	0.063	0.04	22.6
41055	2636.5	0	right tilted 15°	23.0	22.8	0.037	0.039	0.018	0.018	0.08	22.6
slider open											
41055	2636.5	0	left cheek	24.0	23.7	0.056	0.060	0.029	0.032	-0.08	22.6
41055	2636.5	0	left tilted 15°	24.0	23.7	0.071	0.076	0.036	0.038	0.12	22.6
41055	2636.5	0	right cheek	24.0	23.7	0.109	0.117	0.057	0.061	0.11	22.6
41055	2636.5	0	right tilted 15°	24.0	23.7	0.043	0.046	0.021	0.023	0.18	22.6
41055	2636.5	0	left cheek	23.0	22.8	0.047	0.049	0.025	0.026	0.08	22.6
41055	2636.5	0	left tilted 15°	23.0	22.8	0.055	0.058	0.027	0.028	-0.05	22.6
41055	2636.5	0	right cheek	23.0	22.8	0.091	0.095	0.048	0.050	-0.03	22.6
41055	2636.5	0	right tilted 15°	23.0	22.8	0.034	0.036	0.016	0.017	0.12	22.6

Table 95: Test results head SAR LTE TDD 41 2600 MHz (see max. SAR plot in Annex B.12: LTE TDD 41 page 198)

measured / extrapolated SAR numbers - hotspot mode - LTE TDD 41 2600 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
20MHz BW - QPSK - 1RB												
41055	2636.5	0	front	21.0	20.7	0.318	0.341	0.148	0.159	-0.01	22.6	10
41055	2636.5	0	rear	21.0	20.7	0.514	0.551	0.235	0.252	-0.01	22.6	10
41055	2636.5	0	left edge	21.0	20.7	0.027	0.029	0.016	0.017	0.18	22.6	10
41055	2636.5	0	right edge	21.0	20.7	0.182	0.195	0.091	0.098	-0.02	22.6	10
41055	2636.5	0	top edge	21.0	20.7	0.027	0.029	0.014	0.015	-0.01	22.6	10
41055	2636.5	0	bottom edge	21.0	20.7	0.598	0.641	0.262	0.281	-0.01	22.6	10
20MHz BW - QPSK - 50RB												
41055	2636.5	0	front	21.0	20.6	0.311	0.341	0.145	0.159	0.02	22.6	10
41055	2636.5	0	rear	21.0	20.6	0.513	0.562	0.234	0.257	0.00	22.6	10
41055	2636.5	0	left edge	21.0	20.6	0.028	0.030	0.016	0.018	0.04	22.6	10
41055	2636.5	0	right edge	21.0	20.6	0.172	0.189	0.086	0.094	-0.03	22.6	10
41055	2636.5	0	top edge	21.0	20.6	0.024	0.026	0.012	0.013	-0.05	22.6	10
41055	2636.5	0	bottom edge	21.0	20.6	0.561	0.615	0.245	0.269	-0.01	22.6	10
slider open												
20MHz BW - QPSK - 1RB												
41055	2636.5	0	front	21.0	20.7	0.266	0.285	0.126	0.135	-0.02	22.6	10
41055	2636.5	0	rear	21.0	20.7	0.397	0.425	0.183	0.196	0.00	22.6	10
41055	2636.5	0	left edge	21.0	20.7	0.022	0.023	0.013	0.014	0.04	22.6	10
41055	2636.5	0	right edge	21.0	20.7	0.159	0.170	0.081	0.087	0.13	22.6	10
41055	2636.5	0	top edge	21.0	20.7	0.002	0.003	0.001	0.001	-0.07	22.6	10
41055	2636.5	0	bottom edge	21.0	20.7	**0.614**	**0.658**	0.270	0.289	-0.01	22.6	10
20MHz BW - QPSK - 50RB												
41055	2636.5	0	front	21.0	20.6	0.261	0.286	0.123	0.135	0.09	22.6	10
41055	2636.5	0	rear	21.0	20.6	0.386	0.423	0.180	0.197	-0.12	22.6	10
41055	2636.5	0	left edge	21.0	20.6	0.022	0.024	0.013	0.014	-0.05	22.6	10
41055	2636.5	0	right edge	21.0	20.6	0.155	0.170	0.079	0.086	-0.06	22.6	10
41055	2636.5	0	top edge	21.0	20.6	0.008	0.009	0.004	0.004	0.17	22.6	10
41055	2636.5	0	bottom edge	21.0	20.6	0.591	0.648	0.260	0.285	0.07	22.6	10

Table 96: Test results hotspot mode SAR LTE TDD 41 2600 MHz (see max. SAR plot in Annex B.12: LTE TDD 41)

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Body worn - LTE TDD 41 2600 MHz												
Ch.	Freq. (MHz)	RB offset	Position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		SAR_{10g} (W/kg)		power drift (dB)	liquid (°C)	dist. (mm)
				declared**	meas.	meas.	extrap.	meas.	extrap.			
20MHz BW - QPSK - 1RB												
41055	2636.5	0	front	24.0	23.7	0.276	0.296	0.139	0.149	-0.02	22.6	15
41055	2636.5	0	rear	24.0	24.0	**0.369**	**0.369**	**0.186**	**0.186**	0.00	22.6	15
41055	2636.5	0	rear +holster	24.0	24.0	0.219	0.219	0.115	0.115	-0.10	22.6	0
20MHz BW - QPSK - 50RB												
41055	2636.5	0	front	23.0	22.8	0.214	0.224	0.108	0.113	0.03	22.6	15
41055	2636.5	0	rear	23.0	22.8	0.284	0.297	0.143	0.150	-0.01	22.6	15

Table 97: Test results body worn SAR LTE TDD 41 2600 MHz (see max. SAR plot in Annex B.12: LTE TDD 41)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Head - 802.11b DSSS 2450 MHz (Primary Antenna)												
Position	Data Rate (Mbps)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)	1g SAR (W/Kg)					Extrapolated SAR Averaged over 10g (W/Kg)
							Extrapolated		Reported		FULL SAR at 100% DF	
				Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR		
Slider Closed												
Right Cheek	**1**	1	2412.0	18.5	16.8	95.0	0.083	0.080	0.122	0.118	0.124	0.038
		6	2437.0	18.5	17.3	95.0	0.108	0.114	0.142	0.150	0.158	0.056
		11	**2462.0**	**18.5**	**17.9**	**95.0**	**0.184**	**0.199**	**0.211**	**0.228**	**0.240**	**0.097**
Right 15° Tilt	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.142	0.154	0.163	0.177	0.186	0.071
Left Cheek	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.087	0.085	0.099	0.097	0.102	0.046
Left 15° Tilt	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.072	0.071	0.082	0.082	0.086	0.037
Slider Open												
Right Cheek	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.174	0.182	0.200	0.209	0.219	0.094
Right 15° Tilt	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.062	0.066	0.071	0.076	0.080	0.036
Left Cheek	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.178	0.172	0.204	0.197	0.207	0.090
Left 15° Tilt	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.077	0.078	0.088	0.090	0.095	0.038

Table 98: Test results head SAR WLAN 2450 MHz Primary Antenna (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Hotspot (10mm Spacing) - 802.11b DSSS 2450 MHz (Primary Antenna)												
Position	Data Rate (Mbps)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)	1g SAR (W/Kg)					Extrapolated SAR Averaged over 10g (W/Kg)
							Extrapolated		Reported		FULL SAR at 100% DF	
				Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR		
Slider Closed												
10mm Back	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0	0.032	0.033	0.038	0.038	0.040	
10mm Front	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0	0.007	0.007	0.008	0.008	0.009	
10mm Left	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0	0.014	0.014	0.017	0.016	0.017	
10mm Right	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0						
10mm Top	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0						
10mm + Headset	1	1	2412.0									
		6	2437.0									
		11	2462.0									
Slider Open												
10mm Back	**1**	1	2412.0	11.5	10.1	95.0	0.027	0.028	0.037	0.038	0.040	
		6	2437.0	11.5	10.2	95.0	0.034	0.034	0.046	0.046	0.049	
		11	**2462.0**	**11.5**	**10.8**	**95.0**	**0.042**	**0.043**	**0.050**	**0.051**	**0.053**	
10mm Front	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0	0.009	0.009	0.011	0.011	0.011	
10mm Left	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0	0.026		0.031			
10mm Right	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0	0.000		0.001			
10mm Top	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.8	95.0	0.010		0.012			

Table 99: Test results hotspot mode SAR WLAN 2450 MHz Primary Antenna (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

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.

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Body-Worn (15mm Spacing) - 802.11b DSSS 2450 MHz (Primary Antenna)													
Position	Data Rate (Mbps)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)	1g SAR (W/Kg)					Extrapolated SAR Averaged over 10g (W/Kg)
							Extrapolated		Reported		FULL SAR at 100% DF	
				Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR		
Slider Closed												
15mm Back	**1**	1	2412.0	18.5	16.8	95.0	0.035	0.035	0.051	0.051	0.054	0.017
		6	2437.0	18.5	17.3	95.0	0.065	0.062	0.085	0.082	0.086	0.031
		11	**2462.0**	**18.5**	**17.9**	**95.0**	**0.091**	**0.093**	**0.105**	**0.106**	**0.112**	**0.045**
15mm Front	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.021	0.022	0.024	0.025	0.026	0.012
Holster Back	1	1	2412.0									
		6	2437.0									
		11	2462.0	18.5	17.9	95.0	0.050	0.049	0.057	0.056	0.059	0.026

Table 100: Test results body worn SAR WLAN 2450 MHz Primary Antenna (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Head - 802.11b DSSS 2450 MHz (Secondary Antenna)												
Position	Data Rate (Mbps)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)	1g SAR (W/Kg)					Extrapolated SAR Averaged over 10g (W/Kg)
							Extrapolated		Reported		FULL SAR at 100% DF	
				Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR		
Slider Closed												
Right Cheek	1	1	2412.0	18.5	17.5	95.0	0.028	0.029	0.035	0.037	0.038	0.017
		6	2437.0									
		11	2462.0									
Right 15^0 Tilt	1	1	2412.0	18.5	17.5	95.0	0.035	0.035	0.044	0.044	0.046	0.018
		6	2437.0									
		11	2462.0									
Left Cheek	1	1	2412.0	18.5	17.5	95.0	0.046	0.055	0.058	0.069	0.073	0.027
		6	2437.0	18.5	17.3	95.0	0.068	0.074	0.089	0.097	0.102	**0.040**
		11	2462.0	18.5	17.3	95.0	0.063	0.070	0.082	0.092	0.096	0.038
Left 15^0 Tilt	**1**	1	2412.0	18.5	17.5	95.0	0.063	0.070	0.079	0.087	0.092	0.033
		6	**2437.0**	**18.5**	**17.3**	**95.0**	**0.070**	**0.080**	**0.093**	**0.105**	**0.111**	0.038
		11	2462.0	18.5	17.3	95.0	0.062	0.071	0.082	0.093	0.098	0.330
Slider Open												
Right Cheek	1	1	2412.0	18.5	17.5	95.0	0.022	0.022	0.028	0.028	0.029	0.012
		6	2437.0									
		11	2462.0									
Right 15^0 Tilt	1	1	2412.0	18.5	17.5	95.0	0.017	0.018	0.022	0.022	0.023	0.008
		6	2437.0									
		11	2462.0									
Left Cheek	1	1	2412.0	18.5	17.5	95.0	0.025	0.025	0.032	0.031	0.033	0.013
		6	2437.0									
		11	2462.0									
Left 15^0 Tilt	1	1	2412.0	18.5	17.5	95.0	0.015	0.016	0.019	0.020	0.021	0.008
		6	2437.0									
		11	2462.0									

Table 101: Test results head SAR WLAN 2450 Secondary Antenna (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Hotspot (10mm Spacing) - 802.11b DSSS 2450 MHz (Secondary Antenna)												
Position	Data Rate (Mbps)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)	1g SAR (W/Kg)					FAST SAR at 100% DF
							Extrapolated		Reported		FULL SAR at 100% DF	
				Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR		
Slider Closed												
10mm Back	1	1	2412.0	11.5	10.4	95.0						
		6	2437.0	11.5	10.2	95.0						
		11	2462.0	11.5	10.5	95.0	0.020		0.025			
10mm Front	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0	0.003		0.004			
10mm Left	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0						
10mm Right	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0						
10mm Top	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0						
10mm + Headset	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0						
Slider Open												
10mm Back	**1**	1	2412.0	11.5	10.4	95.0	0.025		0.032			
		6	2437.0	11.5	10.2	95.0	0.030		0.040			
		11	**2462.0**	**11.5**	**10.5**	**95.0**	**0.033**	**0.035**	**0.041**	**0.044**	**0.046**	
10mm Front	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0	0.003		0.004			
10mm Left	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0	0.000		0.000			
10mm Right	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0	0.009		0.011			
10mm Top	1	1	2412.0									
		6	2437.0									
		11	2462.0	11.5	10.5	95.0	0.002		0.002			

Table 102: Test results hotspot mode SAR WLAN 2450 MHz Secondary Antenna (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

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.

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Body-Worn (15mm Spacing) - 802.11b DSSS 2450 MHz (Secondary Antenna)													
Position	Data Rate (Mbps)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)	1g SAR (W/Kg)					Extrapolated SAR Averaged over 10g (W/Kg)
							Extrapolated		Reported		FULL SAR at 100% DF	
				Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR		
Slider Closed												
15mm Back	1	1	2412.0	18.5	17.5	95.0	0.033	0.035	0.042	0.044	0.046	0.017
		6	2437.0	18.5	17.3	95.0	0.038	0.036	0.050	0.048	0.050	0.018
		11	2462.0	18.5	17.3	95.0	**0.040**	**0.038**	**0.053**	**0.051**	**0.053**	**0.019**
15mm Front	**1**	1	2412.0	18.5	17.5	95.0	0.006	0.006	0.008	0.008	0.008	0.003
		6	2437.0									
		11	2462.0									
Holster Back	1	1	2412.0	18.5	17.5	95.0	0.018	0.017	0.023	0.022	0.023	0.009
		6	2437.0									
		11	2462.0									

Table 103: Test results body worn SAR WLAN 2450 MHz Secondary Antenna (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Head - 802.11 5000 MHz (Primary Antenna)														
Pos.	U-NII	802.11 Mode	Data Rate (Mbps)	BW (MHz)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)				Extrapolated SAR Averaged over 10g (W/Kg)
							Decl.	Meas.		FULL SAR	FULL SAR	FULL SAR at 100% DF	
Slider Closed													
Right Cheek	1	N		40	38	5190							
					46	5230							
	2A	N	MCS0	40	54	5270	17.0	15.3	95.0	0.079	0.117	0.123	0.032
					62	**5310**	**17.0**	**15.8**	95.0	0.076	0.100	0.105	0.030
	2C	N	MCS0	40	102	5510	17.0	15.4	95.0				
					118	5590	17.0	15.6	95.0				
					134	**5670**	**17.0**	**15.7**	95.0	0.050	0.067	0.071	0.019
	3	N	MCS0	40	**151**	**5755**	**17.0**	**16.2**	95.0	0.065	0.078	0.082	0.024
					159	5795	17.0	16.1	95.0				
Right 15^0 Tilt	1	N		40									
	2A	N	MCS0	40	54	5270	17.0	15.3	95.0	0.095	0.140	0.147	0.036
	2C	N	MCS0	40									
	3	N	MCS0	40									
Left Cheek	1	N		40	38	5190							
					46	5230							
	2A	N	MCS0	40	54	5270	17.0	15.3	95.0	0.087	0.129	0.136	0.035
					62	**5310**	**17.0**	**15.8**	95.0				
	2C	N	MCS0	40	102	5510	17.0	15.4	95.0				
					118	5590	17.0	15.6	95.0				
					134	**5670**	**17.0**	**15.7**	95.0	0.048	0.064	0.068	0.020
	3	N	MCS0	40	**151**	**5755**	**17.0**	**16.2**	95.0	0.073	0.088	0.092	0.028
					159	5795	17.0	16.1	95.0				
Left 15^0 Tilt	1	N		40									
	2A	**N**	**MCS0**	**40**	**54**	**5270**	**17.0**	**15.3**	**95.0**	**0.109**	**0.161**	**0.169**	**0.041**
	2C	N	MCS0	40									
	3	N	MCS0	40									
Slider Open													
Right Cheek	1	N		40									
	2A	N	MCS0	40	54	5270	17.0	15.3	95.0	0.104	0.154	0.162	0.033
	2C	N	MCS0	40									
	3	N	MCS0	40									
Right 15^0 Tilt	1	N		40									
	2A	N	MCS0	40	54	5270	17.0	15.3	95.0	0.083	0.123	0.129	0.028
	2C	N	MCS0	40									
	3	N	MCS0	40									
Left Cheek	1	N		40									
	2A	N	MCS0	40	54	5270	17.0	15.3	95.0	0.032	0.047	0.049	0.011
	2C	N	MCS0	40									
	3	N	MCS0	40									
Left 15^0 Tilt	1	N		40									
	2A	N	MCS0	40	54	5270	17.0	15.3	95.0	0.053	0.079	0.082	0.020
	2C	N	MCS0	40									
	3	N	MCS0	40									

Table 104: Test results head SAR WLAN 5 GHz (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Hotspot (10mm Spacing) - 802.11 5000 MHz (Primary Antenna)														
Pos.	**U-NII**	**802.11 Mode**	**Data Rate (Mbps)**	**BW (MHz)**	**Ch.**	**Freq. (MHz)**	**Cond. Output Power (dBm)**		**Duty Factor (%)**				**Extrapolated SAR Averaged over 10g (W/Kg)**
							Decl.	**Meas.**		**FULL SAR**	**FULL SAR**	**FULL SAR at 100% DF**	
Slider Closed													
10mm Back	1	N	MCS0	40	38	5190	11.5	10.4	95.0				
					46	5230	11.5	10.6	95.0	0.107	0.132	0.138	
	2A	N	MCS0	40	54	5270							
					62	5310							
	2C	N	MCS0	40	102	5510							
					118	5590							
					134	5670							
	3	N	MCS0	40	151	5755	11.5	11.0	95.0	0.089	0.100	0.105	
					159	5795							
Slider Open													
10mm Back	**1**	**N**	**MCS0**	**40**	**38**	**5190**	**11.5**	**10.4**	**95.0**	**0.133**	**0.171**	**0.180**	
					46	5230	11.5	10.6	95.0	0.125	0.154	0.161	
	2A	N	MCS0	40	54	5270							
					62	5310							
	2C	N	MCS0	40	102	5510							
					118	5590							
					134	5670							
	3	N	MCS0	40	151	5755	11.5	11.0	95.0	0.116	0.130	0.137	
					159	5795							
10mm Front	1	N	MCS0	40	46	5230	11.5	10.6	95.0	0.011	0.013	0.014	
	2A	N	MCS0										
	2C	N	MCS0										
	3	N	MCS0										
10mm Left	1	N	MCS0	40	46	5230	11.5	10.6	95.0	0.108	0.133	0.140	
	2A	N	MCS0										
	2C	N	MCS0										
	3	N	MCS0										
10mm Right	1	N	MCS0										
	2A	N	MCS0										
	2C	N	MCS0										
	3	N	MCS0										
10mm Top	1	N	MCS0	40	46	5230	11.5	10.6	95.0	0.016	0.020	0.021	
	2A	N	MCS0										
	2C	N	MCS0										
	3	N	MCS0										

Table 105: Test results hotspot mode SAR WLAN 5 GHz (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Body-Worn (15mm Spacing) - 802.11an 5000 MHz (Primary Antenna)														
Pos.	**U-NII**	**802.11 Mode**	**Data Rate (Mbps)**	**BW (MHz)**	**Ch.**	**Freq. (MHz)**	**Cond. Output Power (dBm)**		**Duty Factor (%)**				**Extrapolated SAR Averaged over 10g (W/Kg)**
							Decl.	**Meas.**		**FULL SAR**	**FULL SAR**	**FULL SAR at 100% DF**	
Slider Closed													
15mm Back	1	N	MCS0	40	38	5190							
					46	5230							
	2A	**N**	**MCS0**	**40**	54	5270	17.0	15.3	95.0	0.219	0.324	0.340	0.087
					62	**5310**	**17.0**	**15.8**	**95.0**	**0.274**	**0.361**	**0.379**	**0.106**
	2C	N	MCS0	40	102	5510	17.0	15.4	95.0				
					118	5590	17.0	15.6	95.0				
					134	**5670**	**17.0**	**15.7**	95.0	0.141	0.190	0.200	0.059
	3	N	MCS0	40	**151**	**5755**	**17.0**	**16.2**	95.0	0.232	0.279	0.293	0.085
					159	5795	17.0	16.1	95.0				
15mm Front	1	N	MCS0	40									
	2A	N	MCS0	40	62	5310	17.0	15.8	95.0	0.030	0.040	0.042	0.017
	2C	N	MCS0	40									
	3	N	MCS0	40									
Holster Back	1	N	MCS0	40									
	2A	N	MCS0	40	62	5310	17.0	15.8	95.0	0.264	0.348	0.365	0.108
	2C	N	MCS0	40									
	3	N	MCS0	40									

Table 106: Test results body worn SAR WLAN 5 GHz (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Head - 802.11 5000 MHz (Secondary Antenna)														
Pos.	U-NII	802.11 Mode	Data Rate (Mbps)	BW (MHz)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)				Extrapolated SAR Averaged over 10g (W/Kg)
							Decl.	Meas.		FULL SAR	FULL SAR	FULL SAR at 100% DF	
Slider Closed													
Right Cheek	1	N		40	38	5190							
					46	5230							
	2A	N	MCS 0	40	**54**	**5270**	**17.0**	**16.1**	95.0	0.007	0.008	0.009	0.001
					62	5310	17.0	16.0	95.0				
	2C	N	MCS 0	40	**102**	**5510**	**17.0**	**16.5**	95.0	0.009	0.010	0.011	0.007
					118	5590	17.0	16.0	95.0				
					134	5670	17.0	15.2	95.0				
	3	N	MCS 0	40	**151**	**5755**	**17.0**	**15.8**	95.0	0.018	0.024	0.025	0.009
					159	5795	17.0	15.4	95.0				
Right 15^0 Tilt	1	A	MCS 0	40									
	2A	N	MCS 0	40									
	2C	N	MCS 0	40									
	3	N	MCS 0	40	**151**	**5755**	**17.0**	**15.8**	95.0	0.018	0.024	0.025	0.010
Left Cheek	1	N	MCS 0	40	38	5190							
					46	5230							
	2A	N	MCS 0	40	**54**	**5270**	**17.0**	**16.1**	95.0	0.015	0.018	0.019	0.005
					62	5310	17.0	16.0	95.0				
	2C	N	MCS 0	40	**102**	**5510**	**17.0**	**16.5**	95.0	0.002	0.002	0.002	0.000
					118	5590	17.0	16.0	95.0				
					134	5670	17.0	15.2	95.0				
	3	**N**	**MCS 0**	**40**	**151**	**5755**	**17.0**	**15.8**	**95.0**	**0.029**	**0.038**	**0.040**	**0.011**
					159	5795	17.0	15.4	95.0				
Left 15^0 Tilt	1	N	MCS 0	40									
	2A	N	MCS 0	40									
	2C	N	MCS 0	40									
	3	N	MCS 0	40	**151**	**5755**	**17.0**	**15.8**	95.0	0.026	0.034	0.036	0.009
Slider Open													
Right Cheek	1	N	MCS 0	40									
	2A	N	MCS 0	40									
	2C	N	MCS 0	40									
	3	N	MCS 0	40	**151**	**5755**	**17.0**	**15.8**	95.0	0.028	0.037	0.039	0.012
Right 15^0 Tilt	1	N	MCS 0	40									
	2A	N	MCS 0	40									
	2C	N	MCS 0	40									
	3	N	MCS 0	40	**151**	**5755**	**17.0**	**15.8**	0.1	0.014	0.019	0.037	0.008
Left Cheek	1	N	MCS 0	40									
	2A	N	MCS 0	40									
	2C	N	MCS 0	40									
	3	N	MCS 0	40	**151**	**5755**	**17.0**	**15.8**	95.0	0.003	0.004	0.004	0.001
Left 15^0 Tilt	1	N	MCS 0	40									
	2A	N	MCS 0	40									
	2C	N	MCS 0	40									
	3	N	MCS 0	40	**151**	**5755**	**17.0**	**15.8**	95.0	0.010	0.013	0.014	0.006

Table 107: Test results head SAR WLAN 5 GHz (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Hotspot (10mm Spacing) - 802.11 5000 MHz (Secondary Antenna)														
Pos.	U-NII	802.11 Mode	Data Rate (Mbps)	BW (MHz)	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Duty Factor (%)				Extrapolated SAR Averaged over 10g (W/Kg)
							Decl.	Meas.		FULL SAR	FULL SAR	FULL SAR at 100% DF	
Slider Closed													
10mm Back	1	N	MCS0	40	38	5190	11.5	11.3	95.0	0.047	0.050	0.052	
					46	5230	11.5	11.1	95.0				
	2A	N	MCS0	40	54	5270							
					62	5310							
	2C	N	MCS0	40	102	5510							
					118	5590							
					134	5670							
	3	N	MCS0	40	151	5755	11.5	10.2	95.0	0.066	0.089	0.094	
					159	5795	11.5	10.0	95.0				
Slider Open													
10mm Back	1	N	MCS0	40	38	5190	11.5	11.3	95.0	0.065	0.068	0.072	
					46	5230	11.5	11.1	95.0				
	2A	N	MCS0	40	54	5270							
					62	5310							
	2C	N	MCS0	40	102	5510							
					118	5590							
					134	5670							
	3	**N**	**MCS0**	**40**	151	5755	11.5	10.2	95.0	0.065	0.088	0.092	
					159	**5795**	**11.5**	**10.0**	**95.0**	**0.075**	**0.106**	**0.112**	
10mm Front	1	N	MCS0	40									
	2A	N	MCS0	40									
	2C	N	MCS0	40									
	3	N	MCS0	40	159	5795	11.5	10.0	95.0	0.014	0.019	0.020	
10mm Left	1	N	MCS0	40									
	2A	N	MCS0	40									
	2C	N	MCS0	40									
	3	N	MCS0	40									
10mm Right	1	N	MCS0	40									
	2A	N	MCS0	40									
	2C	N	MCS0	40									
	3	N	MCS0	40	159	5795	11.5	10.0	95.0	0.032	0.044	0.047	
10mm Top	1	N	MCS0	40									
	2A	N	MCS0	40									
	2C	N	MCS0	40									
	3	N	MCS0	40	159	5795	11.5	10.0	95.0	0.013	0.019	0.020	

Table 108: Test results hotspot mode SAR WLAN 5 GHz (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR WLAN WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Body-Worn (15mm Spacing) - 802.11an 5000 MHz (Primary Antenna)														
Pos.	**U-NII**	**802.11 Mode**	**Data Rate (Mbps)**	**BW (MHz)**	**Ch.**	**Freq. (MHz)**	**Cond. Output Power (dBm)**		**Duty Factor (%)**				**Extrapolated SAR Averaged over 10g (W/Kg)**
							Decl.	**Meas.**		**FULL SAR**	**FULL SAR**	**FULL SAR at 100% DF**	
Slider Closed													
15mm Back	1	N	MCS0	40	38	5190							
					46	5230							
	2A	**N**	**MCS0**	**40**	**54**	**5270**	**17.0**	**16.1**	**95.0**	**0.087**	**0.108**	**0.113**	**0.041**
					62	5310	17.0	16.0	95.0	0.063	0.079	0.083	0.031
	2C	N	MCS0	40	**102**	**5510**	**17.0**	**16.5**	95.0	0.065	0.073	0.077	0.021
					118	5590	17.0	16.0	95.0				
					134	5670	17.0	15.2	95.0				
	3	N	MCS0	40	**151**	**5755**	**17.0**	**15.8**	95.0	0.028	0.037	0.039	0.014
					159	5795	17.0	15.4	95.0				
15mm Front	1	N	MCS0	40									
	2A	N	MCS0	40	54	5270	17.0	16.1	95.0	0.011	0.013	0.014	0.006
	2C	N	MCS0	40									
	3	N	MCS0	40									
Holster Back	1	N	MCS0	40									
	2A	N	MCS0	40	54	5270	17.0	16.1	95.0	0.076	0.094	0.098	0.035
	2C	N	MCS0	40									
	3	N	MCS0	40									

Table 109: Test results body worn SAR WLAN 5 (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR BLUETOOTH WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Head - Bluetooth 2450 MHz										
Position	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Power Drift (dB)	1g SAR (W/Kg)				Extrapolated SAR Averaged over 10g (W/Kg)
						Extrapolated		Reported		
			Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR	
Slider Closed										
Right Cheek	0	2402.0	6.0	5.5						
	39	**2441.0**	**9.0**	**7.8**	**0.03**	**0.012**	**0.011**	**0.015**	**0.015**	**0.005**
	78	2480.0	7.0	5.4						
Right 15° Tilt	0	2402.0								
	39	2441.0	9.0	7.8	-0.10	0.004	0.004	0.005	0.005	0.002
	78	2480.0								
Left Cheek	0	2402.0								
	39	2441.0	9.0	7.8	0.09	0.005	0.004	0.006	0.006	0.002
	78	2480.0								
Left 15° Tilt	0	2402.0								
	39	2441.0								
	78	2480.0								
Slider Open										
Right Cheek	0	2402.0								
	39	2441.0	9.0	7.8	-0.06	0.009	0.009	0.011	0.012	0.004
	78	2480.0								
Right 15° Tilt	0	2402.0								
	39	2441.0								
	78	2480.0								
Left Cheek	0	2402.0								
	39	2441.0								
	78	2480.0								
Left 15° Tilt	0	2402.0								
	39	2441.0								
	78	2480.0								

Table 110: Test results head SAR Bluetooth 2450 MHz (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR BLUETOOTH WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Hotspot (10mm Spacing) - Bluetooth 2450 MHz										
Position	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Power Drift (dB)	1g SAR (W/Kg)				Extrapolated SAR Averaged over 10g (W/Kg)
						Extrapolated		Reported		
			Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR	
Slider Closed										
10mm Back	0	2402.0								
	39	2441.0	9.0	7.8	-0.15	0.017		0.023		
	78	2480.0								
Slider Open										
10mm Back	0	2402.0								
	39	**2441.0**	**9.0**	**7.8**	**0.23**	**0.017**	**0.019**	**0.023**	**0.025**	**0.009**
	78	2480.0								

Table 111: Test results hotspot mode SAR Bluetooth 2450 MHz (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

THE TESTS FOR BLUETOOTH WERE PERFORMED BY THE APPLICANT ITSELF.

Measured/Extrapolated SAR Values - Body-Worn (15mm Spacing) - Bluetooth 2450 MHz										
Position	Ch.	Freq. (MHz)	Cond. Output Power (dBm)		Power Drift (dB)	1g SAR (W/Kg)				Extrapolated SAR Averaged over 10g (W/Kg)
						Extrapolated		Reported		
			Declared	Measured		FAST SAR	FULL SAR	FAST SAR	FULL SAR	
Slider Closed										
15mm Back	0	2402.0								
	39	**2441.0**	**9.0**	**7.8**	**0.17**	**0.009**	**0.007**	**0.012**	**0.009**	**0.003**
	78	2480.0								
15mm Front	0	2402.0								
	39	2441.0								
	78	2480.0								
Holster Back	0	2402.0								
	39	2441.0								
	78	2480.0								

Table 112: Test results body worn SAR Bluetooth 2450 MHz (see max. SAR plot in Annex B.13:WLAN2.4/5GHz and Bluetooth2.4GHz)

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, BT and WLAN2.4GHz, ΣSAR evaluation slider closed						
Frequency band	Position	SAR_{max} /W/kg				ΣSAR
		WWAN	BT	WLAN2.4 (0)	WLAN2.4 (1)	<1.6W/kg
GSM 850	left cheek	0.127	0.006	0.102	0.102	0.337
	left tilted 15°	0.085	0.006	0.086	0.111	0.288
	right cheek	0.184	0.015	0.240	0.038	0.477
	right tilted 15°	0.092	0.005	0.186	0.046	0.329
	front 10mm	0.379	0.025	0.009	0.004	0.417
	rear 10mm	0.491	0.025	0.040	0.025	0.581
	front 15mm	0.533	0.009	0.026	0.008	0.576
	rear 15mm	0.394	0.009	0.112	0.053	0.568
GSM 1900	left cheek	0.585	0.006	0.102	0.102	0.795
	left tilted 15°	0.335	0.006	0.086	0.111	0.538
	right cheek	0.294	0.015	0.240	0.038	0.587
	right tilted 15°	0.313	0.005	0.186	0.046	0.550
	front 10mm	0.372	0.025	0.009	0.004	0.410
	rear 10mm	0.663	0.025	0.040	0.025	0.753
	front 15mm	0.224	0.009	0.026	0.008	0.267
	rear 15mm	0.724	0.009	0.112	0.053	0.898
UMTS FDD II	left cheek	0.556	0.006	0.102	0.102	0.766
	left tilted 15°	0.266	0.006	0.086	0.111	0.469
	right cheek	0.311	0.015	0.240	0.038	0.604
	right tilted 15°	0.280	0.005	0.186	0.046	0.517
	front 10mm	0.263	0.025	0.009	0.004	0.301
	rear 10mm	0.815	0.025	0.040	0.025	0.905
	front 15mm	0.253	0.009	0.026	0.008	0.296
	rear 15mm	0.934	0.009	0.112	0.053	1.108
WCDMA FDD IV	left cheek	1.154	0.006	0.102	0.102	1.364
	left tilted 15°	0.523	0.006	0.086	0.111	0.726
	right cheek	0.470	0.015	0.240	0.038	0.763
	right tilted 15°	0.536	0.005	0.186	0.046	0.773
	front 10mm	0.585	0.025	0.009	0.004	0.623
	rear 10mm	0.808	0.025	0.040	0.025	0.898
	front 15mm	0.891	0.009	0.026	0.008	0.934
	rear 15mm	0.871	0.009	0.112	0.053	1.045
WCDMA FDD V	left cheek	0.310	0.006	0.102	0.102	0.520
	left tilted 15°	0.209	0.006	0.086	0.111	0.412
	right cheek	0.326	0.015	0.240	0.038	0.619
	right tilted 15°	0.201	0.005	0.186	0.046	0.438
	front 10mm	0.318	0.025	0.009	0.004	0.356
	rear 10mm	0.502	0.025	0.040	0.025	0.592
	front 15mm	0.317	0.009	0.026	0.008	0.360
	rear 15mm	0.251	0.009	0.112	0.053	0.425

reported SAR WWAN, BT and WLAN2.4GHz, ΣSAR evaluation slider closed						
Frequency band	Position	SAR_{max} /W/kg				ΣSAR
		WWAN	BT	WLAN2.4 (0)	WLAN2.4 (1)	<1.6W/kg
LTE FDD 2	left cheek	0.624	0.006	0.102	0.102	0.834
	left tilted 15°	0.317	0.006	0.086	0.111	0.520
	right cheek	0.335	0.015	0.240	0.038	0.628
	right tilted 15°	0.325	0.005	0.186	0.046	0.562
	front 10mm	0.469	0.025	0.009	0.004	0.507
	rear 10mm	0.607	0.025	0.040	0.025	0.697
	front 15mm	0.251	0.009	0.026	0.008	0.294
	rear 15mm	0.714	0.009	0.112	0.053	0.888
LTE FDD 4	left cheek	0.620	0.006	0.102	0.102	0.830
	left tilted 15°	0.372	0.006	0.086	0.111	0.575
	right cheek	0.341	0.015	0.240	0.038	0.634
	right tilted 15°	0.377	0.005	0.186	0.046	0.614
	front 10mm	0.466	0.025	0.009	0.004	0.504
	rear 10mm	0.676	0.025	0.040	0.025	0.766
	front 15mm	0.526	0.009	0.026	0.008	0.569
	rear 15mm	0.744	0.009	0.112	0.053	0.918
LTE FDD 7	left cheek	0.095	0.006	0.102	0.102	0.305
	left tilted 15°	0.093	0.006	0.086	0.111	0.296
	right cheek	0.209	0.015	0.240	0.038	0.502
	right tilted 15°	0.066	0.005	0.186	0.046	0.303
	front 10mm	0.350	0.025	0.009	0.004	0.388
	rear 10mm	0.432	0.025	0.040	0.025	0.522
	front 15mm	0.391	0.009	0.026	0.008	0.434
	rear 15mm	0.465	0.009	0.112	0.053	0.639
LTE FDD 13	left cheek	0.100	0.006	0.102	0.102	0.310
	left tilted 15°	0.076	0.006	0.086	0.111	0.279
	right cheek	0.139	0.015	0.240	0.038	0.432
	right tilted 15°	0.077	0.005	0.186	0.046	0.314
	front 10mm	0.170	0.025	0.009	0.004	0.208
	rear 10mm	0.303	0.025	0.040	0.025	0.393
	front 15mm	0.164	0.009	0.026	0.008	0.207
	rear 15mm	0.182	0.009	0.112	0.053	0.356
LTE FDD 17	left cheek	0.076	0.006	0.102	0.102	0.286
	left tilted 15°	0.041	0.006	0.086	0.111	0.244
	right cheek	0.079	0.015	0.240	0.038	0.372
	right tilted 15°	0.044	0.005	0.186	0.046	0.281
	front 10mm	0.121	0.025	0.009	0.004	0.159
	rear 10mm	0.152	0.025	0.040	0.025	0.242
	front 15mm	0.115	0.009	0.026	0.008	0.158
	rear 15mm	0.133	0.009	0.112	0.053	0.307
LTE TDD 41	left cheek	0.042	0.006	0.102	0.102	0.252
	left tilted 15°	0.068	0.006	0.086	0.111	0.271
	right cheek	0.145	0.015	0.240	0.038	0.438
	right tilted 15°	0.053	0.005	0.186	0.046	0.290
	front 10mm	0.341	0.025	0.009	0.004	0.379
	rear 10mm	0.562	0.025	0.040	0.025	0.652
	front 15mm	0.296	0.009	0.026	0.008	0.339
	rear 15mm	0.369	0.009	0.112	0.053	0.543

reported SAR WWAN, BT and WLAN2.4GHz, ΣSAR evaluation slider open						
Frequency band	Position	SAR_{max} /W/kg				ΣSAR
		WWAN	BT	WLAN2.4 (0)	WLAN2.4 (1)	<1.6W/kg
GSM 850	left cheek	0.088	0.012	0.207	0.033	0.340
	left tilted 15°	0.053	0.012	0.095	0.021	0.181
	right cheek	0.099	0.012	0.219	0.029	0.359
	right tilted 15°	0.063	0.012	0.080	0.023	0.178
	front 10mm	0.340	0.025	0.011	0.046	0.422
	rear 10mm	0.948	0.025	0.053	0.046	1.072
GSM 1900	left cheek	0.701	0.012	0.207	0.033	0.953
	left tilted 15°	0.351	0.012	0.095	0.021	0.479
	right cheek	0.326	0.012	0.219	0.029	0.586
	right tilted 15°	0.349	0.012	0.080	0.023	0.464
	front 10mm	0.483	0.025	0.011	0.046	0.565
	rear 10mm	1.141	0.025	0.053	0.046	1.265
UMTS FDD II	left cheek	0.667	0.012	0.207	0.033	0.919
	left tilted 15°	0.420	0.012	0.095	0.021	0.548
	right cheek	0.350	0.012	0.219	0.029	0.610
	right tilted 15°	0.421	0.012	0.080	0.023	0.536
	front 10mm	0.647	0.025	0.011	0.046	0.729
	rear 10mm	0.925	0.025	0.053	0.046	1.049
WCDMA FDD IV	left cheek	0.739	0.012	0.207	0.033	0.991
	left tilted 15°	0.532	0.012	0.095	0.021	0.660
	right cheek	0.405	0.012	0.219	0.029	0.665
	right tilted 15°	0.514	0.012	0.080	0.023	0.629
	front 10mm	0.624	0.025	0.011	0.046	0.706
	rear 10mm	1.165	0.025	0.053	0.046	1.289
WCDMA FDD V	left cheek	0.193	0.012	0.207	0.033	0.445
	left tilted 15°	0.121	0.012	0.095	0.021	0.249
	right cheek	0.243	0.012	0.219	0.029	0.503
	right tilted 15°	0.134	0.012	0.080	0.023	0.249
	front 10mm	0.379	0.025	0.011	0.046	0.461
	rear 10mm	0.743	0.025	0.053	0.046	0.867
LTE FDD 2	left cheek	0.810	0.012	0.207	0.033	1.062
	left tilted 15°	0.411	0.012	0.095	0.021	0.539
	right cheek	0.378	0.012	0.219	0.029	0.638
	right tilted 15°	0.394	0.012	0.080	0.023	0.509
	front 10mm	0.509	0.025	0.011	0.046	0.591
	rear 10mm	0.932	0.025	0.053	0.046	1.056
LTE FDD 4	left cheek	0.736	0.012	0.207	0.033	0.988
	left tilted 15°	0.382	0.012	0.095	0.021	0.510
	right cheek	0.330	0.012	0.219	0.029	0.590
	right tilted 15°	0.373	0.012	0.080	0.023	0.488
	front 10mm	0.535	0.025	0.011	0.046	0.617
	rear 10mm	1.047	0.025	0.053	0.046	1.171

reported SAR WWAN, BT and WLAN2.4GHz, ΣSAR evaluation slider open						
Frequency band	Position	SAR_{max} /W/kg				ΣSAR
		WWAN	BT	WLAN2.4 (0)	WLAN2.4 (1)	<1.6W/kg
LTE FDD 7	left cheek	0.132	0.012	0.207	0.033	0.384
	left tilted 15°	0.129	0.012	0.095	0.021	0.257
	right cheek	0.298	0.012	0.219	0.029	0.558
	right tilted 15°	0.099	0.012	0.080	0.023	0.214
	front 10mm	0.518	0.025	0.011	0.046	0.600
	rear 10mm	0.530	0.025	0.053	0.046	0.654
LTE FDD 13	left cheek	0.087	0.012	0.207	0.033	0.339
	left tilted 15°	0.056	0.012	0.095	0.021	0.184
	right cheek	0.106	0.012	0.219	0.029	0.366
	right tilted 15°	0.056	0.012	0.080	0.023	0.171
	front 10mm	0.161	0.025	0.011	0.046	0.243
	rear 10mm	0.300	0.025	0.053	0.046	0.424
LTE FDD 17	left cheek	0.046	0.012	0.207	0.033	0.298
	left tilted 15°	0.023	0.012	0.095	0.021	0.151
	right cheek	0.054	0.012	0.219	0.029	0.314
	right tilted 15°	0.026	0.012	0.080	0.023	0.141
	front 10mm	0.085	0.025	0.011	0.046	0.167
	rear 10mm	0.120	0.025	0.053	0.046	0.244
LTE TDD 41	left cheek	0.060	0.012	0.207	0.033	0.312
	left tilted 15°	0.076	0.012	0.095	0.021	0.204
	right cheek	0.117	0.012	0.219	0.029	0.377
	right tilted 15°	0.046	0.012	0.080	0.023	0.161
	front 10mm	0.286	0.025	0.011	0.046	0.368
	rear 10mm	0.425	0.025	0.053	0.046	0.549

Table 113: SAR_{max}, ΣSAR evaluation.

reported SAR WWAN, BT and WLAN 5GHz, ΣSAR evaluation slider closed						
Frequency band	Position	SAR_{max} /W/kg				ΣSAR
		WWAN	BT	WLAN5 (0)	WLAN5 (1)	<1.6W/kg
GSM 850	left cheek	0.127	0.006	0.136	0.040	0.309
	left tilted 15°	0.085	0.006	0.169	0.036	0.296
	right cheek	0.184	0.015	0.123	0.025	0.347
	right tilted 15°	0.092	0.005	0.147	0.025	0.269
	front 10mm	0.379	0.025	0.138	0.094	0.636
	rear 10mm	0.491	0.025	0.138	0.094	0.748
	front 15mm	0.533	0.009	0.042	0.014	0.598
	rear 15mm	0.394	0.009	0.379	0.113	0.895
GSM 1900	left cheek	0.585	0.006	0.136	0.040	0.767
	left tilted 15°	0.335	0.006	0.169	0.036	0.546
	right cheek	0.294	0.015	0.123	0.025	0.457
	right tilted 15°	0.313	0.005	0.147	0.025	0.490
	front 10mm	0.372	0.025	0.138	0.094	0.629
	rear 10mm	0.663	0.025	0.138	0.094	0.920
	front 15mm	0.224	0.009	0.042	0.014	0.289
	rear 15mm	0.724	0.009	0.379	0.113	1.225
UMTS FDD II	left cheek	0.556	0.006	0.136	0.040	0.738
	left tilted 15°	0.266	0.006	0.169	0.036	0.477
	right cheek	0.311	0.015	0.123	0.025	0.474
	right tilted 15°	0.280	0.005	0.147	0.025	0.457
	front 10mm	0.263	0.025	0.138	0.094	0.520
	rear 10mm	0.815	0.025	0.138	0.094	1.072
	front 15mm	0.253	0.009	0.042	0.014	0.318
	rear 15mm	0.934	0.009	0.379	0.113	1.435
WCDMA FDD IV	left cheek	1.154	0.006	0.136	0.040	1.336
	left tilted 15°	0.523	0.006	0.169	0.036	0.734
	right cheek	0.470	0.015	0.123	0.025	0.633
	right tilted 15°	0.536	0.005	0.147	0.025	0.713
	front 10mm	0.585	0.025	0.138	0.094	0.842
	rear 10mm	0.808	0.025	0.138	0.094	1.065
	front 15mm	0.891	0.009	0.042	0.014	0.956
	rear 15mm	0.871	0.009	0.379	0.113	1.372
WCDMA FDD V	left cheek	0.310	0.006	0.136	0.040	0.492
	left tilted 15°	0.209	0.006	0.169	0.036	0.420
	right cheek	0.326	0.015	0.123	0.025	0.489
	right tilted 15°	0.201	0.005	0.147	0.025	0.378
	front 10mm	0.318	0.025	0.138	0.094	0.575
	rear 10mm	0.502	0.025	0.138	0.094	0.759
	front 15mm	0.317	0.009	0.042	0.014	0.382
	rear 15mm	0.251	0.009	0.379	0.113	0.752
LTE FDD 2	left cheek	0.624	0.006	0.136	0.040	0.806
	left tilted 15°	0.317	0.006	0.169	0.036	0.528
	right cheek	0.335	0.015	0.123	0.025	0.498
	right tilted 15°	0.325	0.005	0.147	0.025	0.502
	front 10mm	0.469	0.025	0.138	0.094	0.726
	rear 10mm	0.607	0.025	0.138	0.094	0.864
	front 15mm	0.251	0.009	0.042	0.014	0.316
	rear 15mm	0.714	0.009	0.379	0.113	1.215

reported SAR WWAN, BT and WLAN 5GHz, ΣSAR evaluation slider closed						
Frequency band	Position	SAR_{max} /W/kg				ΣSAR
		WWAN	BT	WLAN5 (0)	WLAN5 (1)	<1.6W/kg
LTE FDD 4	left cheek	0.620	0.006	0.136	0.040	0.802
	left tilted 15°	0.372	0.006	0.169	0.036	0.583
	right cheek	0.341	0.015	0.123	0.025	0.504
	right tilted 15°	0.377	0.005	0.147	0.025	0.554
	front 10mm	0.466	0.025	0.138	0.094	0.723
	rear 10mm	0.676	0.025	0.138	0.094	0.933
	front 15mm	0.526	0.009	0.042	0.014	0.591
	rear 15mm	0.744	0.009	0.379	0.113	1.245
LTE FDD 7	left cheek	0.095	0.006	0.136	0.040	0.277
	left tilted 15°	0.093	0.006	0.169	0.036	0.304
	right cheek	0.209	0.015	0.123	0.025	0.372
	right tilted 15°	0.066	0.005	0.147	0.025	0.243
	front 10mm	0.350	0.025	0.138	0.094	0.607
	rear 10mm	0.432	0.025	0.138	0.094	0.689
	front 15mm	0.391	0.009	0.042	0.014	0.456
	rear 15mm	0.465	0.009	0.379	0.113	0.966
LTE FDD 13	left cheek	0.100	0.006	0.136	0.040	0.282
	left tilted 15°	0.076	0.006	0.169	0.036	0.287
	right cheek	0.139	0.015	0.123	0.025	0.302
	right tilted 15°	0.077	0.005	0.147	0.025	0.254
	front 10mm	0.170	0.025	0.138	0.094	0.427
	rear 10mm	0.303	0.025	0.138	0.094	0.560
	front 15mm	0.164	0.009	0.042	0.014	0.229
	rear 15mm	0.182	0.009	0.379	0.113	0.683
LTE FDD 17	left cheek	0.076	0.006	0.136	0.040	0.258
	left tilted 15°	0.041	0.006	0.169	0.036	0.252
	right cheek	0.079	0.015	0.123	0.025	0.242
	right tilted 15°	0.044	0.005	0.147	0.025	0.221
	front 10mm	0.121	0.025	0.138	0.094	0.378
	rear 10mm	0.152	0.025	0.138	0.094	0.409
	front 15mm	0.115	0.009	0.042	0.014	0.180
	rear 15mm	0.133	0.009	0.379	0.113	0.634
LTE TDD 41	left cheek	0.042	0.006	0.136	0.040	0.224
	left tilted 15°	0.068	0.006	0.169	0.036	0.279
	right cheek	0.145	0.015	0.123	0.025	0.308
	right tilted 15°	0.053	0.005	0.147	0.025	0.230
	front 10mm	0.341	0.025	0.138	0.094	0.598
	rear 10mm	0.562	0.025	0.138	0.094	0.819
	front 15mm	0.296	0.009	0.042	0.014	0.361
	rear 15mm	0.369	0.009	0.379	0.113	0.870

reported SAR WWAN, BT and WLAN 5GHz, ΣSAR evaluation slider open						
Frequency band	Position	SAR_{max} /W/kg				ΣSAR
		WWAN	BT	WLAN5 (0)	WLAN5 (1)	<1.6W/kg
GSM 850	left cheek	0.088	0.012	0.049	0.004	0.153
	left tilted 15°	0.053	0.012	0.082	0.014	0.161
	right cheek	0.099	0.012	0.162	0.039	0.312
	right tilted 15°	0.063	0.012	0.129	0.037	0.241
	front 10mm	0.340	0.025	0.014	0.020	0.399
	rear 10mm	0.948	0.025	0.180	0.112	1.265
GSM 1900	left cheek	0.701	0.012	0.049	0.004	0.766
	left tilted 15°	0.351	0.012	0.082	0.014	0.459
	right cheek	0.326	0.012	0.162	0.039	0.539
	right tilted 15°	0.349	0.012	0.129	0.037	0.527
	front 10mm	0.483	0.025	0.014	0.020	0.542
	rear 10mm	1.141	0.025	0.180	0.112	1.458
UMTS FDD II	left cheek	0.667	0.012	0.049	0.004	0.732
	left tilted 15°	0.420	0.012	0.082	0.014	0.528
	right cheek	0.350	0.012	0.162	0.039	0.563
	right tilted 15°	0.421	0.012	0.129	0.037	0.599
	front 10mm	0.647	0.025	0.014	0.020	0.706
	rear 10mm	0.925	0.025	0.180	0.112	1.242
WCDMA FDD IV	left cheek	0.739	0.012	0.049	0.004	0.804
	left tilted 15°	0.532	0.012	0.082	0.014	0.640
	right cheek	0.405	0.012	0.162	0.039	0.618
	right tilted 15°	0.514	0.012	0.129	0.037	0.692
	front 10mm	0.624	0.025	0.014	0.020	0.683
	rear 10mm	1.165	0.025	0.180	0.112	**1.482**
WCDMA FDD V	left cheek	0.193	0.012	0.049	0.004	0.258
	left tilted 15°	0.121	0.012	0.082	0.014	0.229
	right cheek	0.243	0.012	0.162	0.039	0.456
	right tilted 15°	0.134	0.012	0.129	0.037	0.312
	front 10mm	0.379	0.025	0.014	0.020	0.438
	rear 10mm	0.743	0.025	0.180	0.112	1.060
LTE FDD 2	left cheek	0.810	0.012	0.049	0.004	0.875
	left tilted 15°	0.411	0.012	0.082	0.014	0.519
	right cheek	0.378	0.012	0.162	0.039	0.591
	right tilted 15°	0.394	0.012	0.129	0.037	0.572
	front 10mm	0.509	0.025	0.014	0.020	0.568
	rear 10mm	0.932	0.025	0.180	0.112	1.249
LTE FDD 4	left cheek	0.736	0.012	0.049	0.004	0.801
	left tilted 15°	0.382	0.012	0.082	0.014	0.490
	right cheek	0.330	0.012	0.162	0.039	0.543
	right tilted 15°	0.373	0.012	0.129	0.037	0.551
	front 10mm	0.535	0.025	0.014	0.020	0.594
	rear 10mm	1.047	0.025	0.180	0.112	1.364
LTE FDD 7	left cheek	0.132	0.012	0.049	0.004	0.197
	left tilted 15°	0.129	0.012	0.082	0.014	0.237
	right cheek	0.298	0.012	0.162	0.039	0.511
	right tilted 15°	0.099	0.012	0.129	0.037	0.277
	front 10mm	0.518	0.025	0.014	0.020	0.577
	rear 10mm	0.530	0.025	0.180	0.112	0.847

reported SAR WWAN, BT and WLAN 5GHz, ΣSAR evaluation slider open						
Frequency band	Position	SAR_{max} /W/kg				ΣSAR
		WWAN	BT	WLAN5 (0)	WLAN5 (1)	<1.6W/kg
LTE FDD 13	left cheek	0.087	0.012	0.049	0.004	0.152
	left tilted 15°	0.056	0.012	0.082	0.014	0.164
	right cheek	0.106	0.012	0.162	0.039	0.319
	right tilted 15°	0.056	0.012	0.129	0.037	0.234
	front 10mm	0.161	0.025	0.014	0.020	0.220
	rear 10mm	0.300	0.025	0.180	0.112	0.617
LTE FDD 17	left cheek	0.046	0.012	0.049	0.004	0.111
	left tilted 15°	0.023	0.012	0.082	0.014	0.131
	right cheek	0.054	0.012	0.162	0.039	0.267
	right tilted 15°	0.026	0.012	0.129	0.037	0.204
	front 10mm	0.085	0.025	0.014	0.020	0.144
	rear 10mm	0.120	0.025	0.180	0.112	0.437
LTE TDD 41	left cheek	0.060	0.012	0.049	0.004	0.125
	left tilted 15°	0.076	0.012	0.082	0.014	0.184
	right cheek	0.117	0.012	0.162	0.039	0.330
	right tilted 15°	0.046	0.012	0.129	0.037	0.224
	front 10mm	0.286	0.025	0.014	0.020	0.345
	rear 10mm	0.425	0.025	0.180	0.112	0.742

Table 114: SAR_{max}, ΣSAR evaluation slider open

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.
Minimum antenna separation distance between MAIN antenna and WLAN/Bluetooth antenna – **104 mm**
Antennas diagram see in Annex: Photo documentation

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	1554	May 19, 2015	12
Dosimetric E-Field Probe	ES3DV3	Schmid & Partner Engineering AG	3320	February 25, 2015	12
Dosimetric E-Field Probe	ES3DV3	Schmid & Partner Engineering AG	3326	August 18, 2014	12
Dosimetric E-Field Probe	ES3DV3	Schmid & Partner Engineering AG	3326	August 12, 2015	12
Dosimetric E-Field Probe	EX3DV4	Schmid & Partner Engineering AG	3944	August 19, 2014	12
Dosimetric E-Field Probe	EX3DV4	Schmid & Partner Engineering AG	3944	August 14, 2015	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	May 12, 2015	24
1750 MHz System Validation Dipole	D1750V2	Schmid & Partner Engineering AG	1093	May 13, 2015	24
1900 MHz System Validation Dipole	D1900V2	Schmid & Partner Engineering AG	5d009	May 13, 2015	24
2600 MHz System Validation Dipole	D2600V2	Schmid & Partner Engineering AG	1040	August 15, 2013	24
Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	413	January 15, 2015	12
Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	477	May 22, 2015	12
Data acquisition electronics	DAE4	Schmid & Partner Engineering AG	1387	August 12, 2014	12
Data acquisition electronics	DAE4	Schmid & Partner Engineering AG	1387	August 12, 2015	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	February 11, 2015	24
Universal Radio Communication Tester	CMW500	Rohde & Schwarz	102375	January 28, 2015	24
Network Analyser 300 kHz to 6 GHz	8753ES	Hewlett Packard)*	US39174436	January 29, 2015	24
Dielectric Probe Kit	85070C	Hewlett Packard	US99360146	N/A	12
Signal Generator	8671B	Hewlett Packard	2823A00656	January 29, 2015	24
Amplifier	25S1G4 (25 Watt)	Amplifier Reasearch	20452	N/A	--
Power Meter	NRP	Rohde & Schwarz	101367	January 21, 2015	24
Power Meter Sensor	NRP Z22	Rohde & Schwarz	100227	January 21, 2015	12
Power Meter Sensor	NRP Z22	Rohde & Schwarz	100234	January 21, 2015	12
Directional Coupler	778D	Hewlett Packard	19171	January 21, 2015	12

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

The test equipment used by the applicant:

Manufacturer	Test Equipment	Model Number	Serial Number	Cal. Due Date (MM/DD/YY)
SCHMID & Partner Engineering AG	E-field probe	EX3DV4	3592	11/10/2015
SCHMID & Partner Engineering AG	E-field probe	ES3DV3	3225	02/25/2016
SCHMID & Partner Engineering AG	Data Acquisition Electronics (DAE4)	DAE4	881	01/13/2016
SCHMID & Partner Engineering AG	Dipole Validation Kit	D2450V2	747	11/14/2015
SCHMID & Partner Engineering AG	Dipole Validation Kit	D5000V2	1033	11/08/2015
Agilent Technologies	Signal generator	8648C	4037U03155	09/25/2015
Agilent Technologies	Power meter	E4419B	GB40202821	09/25/2015
Agilent Technologies	Power sensor	8481A	MY41095233	10/06/2015
Agilent Technologies	Power sensor	8481A	MY41095417	10/06/2015
Amplifier Research	Amplifier	5S1G4M3	300986	CNR
Amplifier Research	Coupler	DC7144	300993	CNR
Agilent Technologies	Network analyzer	8753ES	US39174857	10/24/2015
Agilent Technologies	Power meter	N1911A	MY45100905	06/09/2017
Agilent Technologies	Power sensor	N1921A	SG45240281	02/04/2016
Rohde & Schwarz	Signal generator	SMA 100	102106	11/28/2015
CPI Wireless Solutions	Amplifier	VZC-6961K4	SK4310E5	CNR
Rohde & Schwarz	Bluetooth Tester	CBT	100370	11/25/2015
Weinschel Corp	20dB Attenuator	33-20-34	BMO697	CNR

9 Observations

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

Annex A: System performance check

Date/Time: 24.08.2015 15:31:28

SystemPerformanceCheck-D750 HSL 2015-08-24

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1041

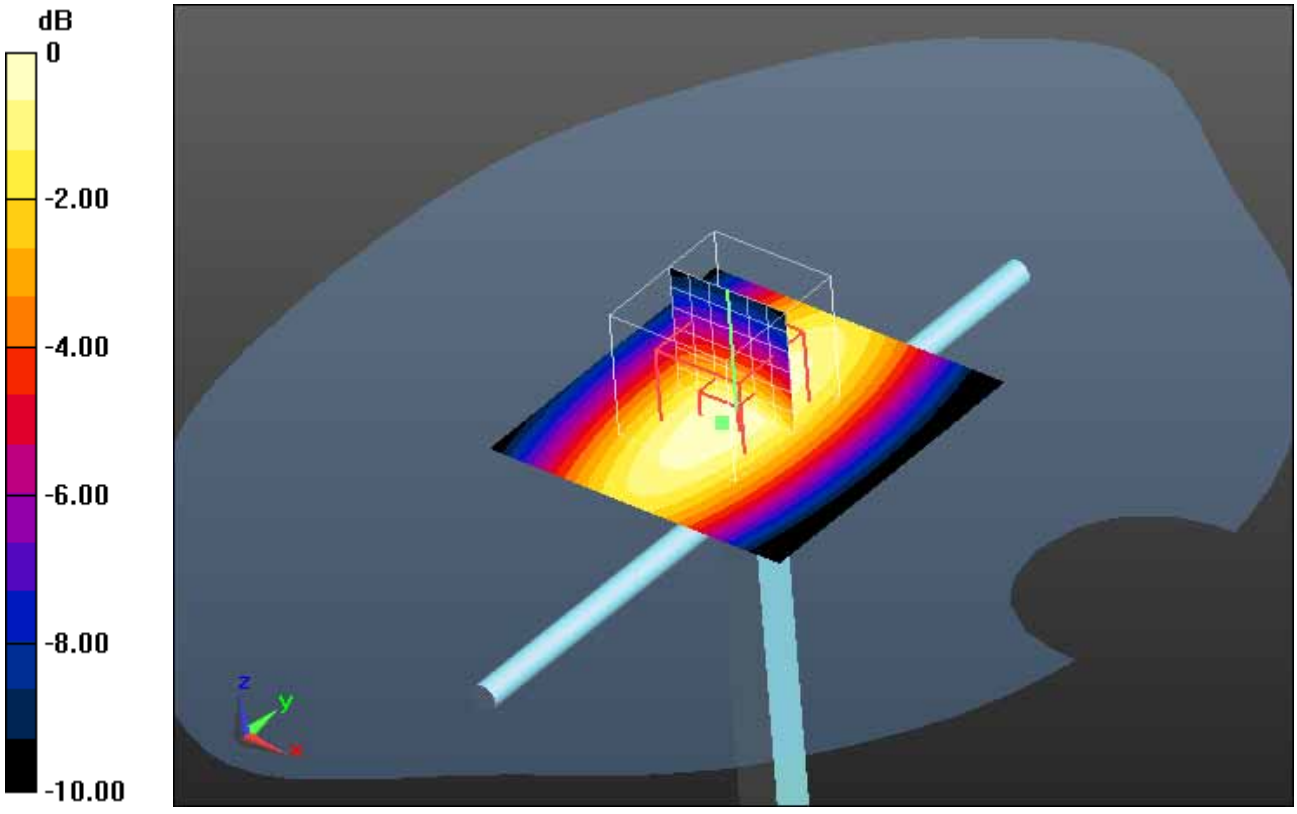
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 750 MHz; σ = 0.902 S/m; ε_r = 41.12; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.32, 6.32, 6.32); Calibrated: 25.02.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL750/d=15mm, Pin=1000 mW, dist=3.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 8.91 W/kg

HSL750/d=15mm, Pin=1000 mW, dist=3.0mm/Zoom Scan (7x8x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.9 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 12.2 W/kg
SAR(1 g) = 8.41 W/kg; SAR(10 g) = 5.56 W/kg
Maximum value of SAR (measured) = 9.04 W/kg



0 dB = 9.04 W/kg = 9.56 dBW/kg

Additional information:
ambient temperature: 23.7°C; liquid temperature: 23.3°C

Date/Time: 25.08.2015 13:37:02

SystemPerformanceCheck-D750 HSL 2015-08-25

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 = 0.902 S/m; ε_r = 41.12; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(6.32, 6.32, 6.32); Calibrated: 25.02.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL750/d=15mm, Pin=1000 mW, dist=3.0mm/Area Scan (51x51x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 9.04 W/kg

HSL750/d=15mm, Pin=1000 mW, dist=3.0mm/Zoom Scan (7x7x7)/Cube 0:

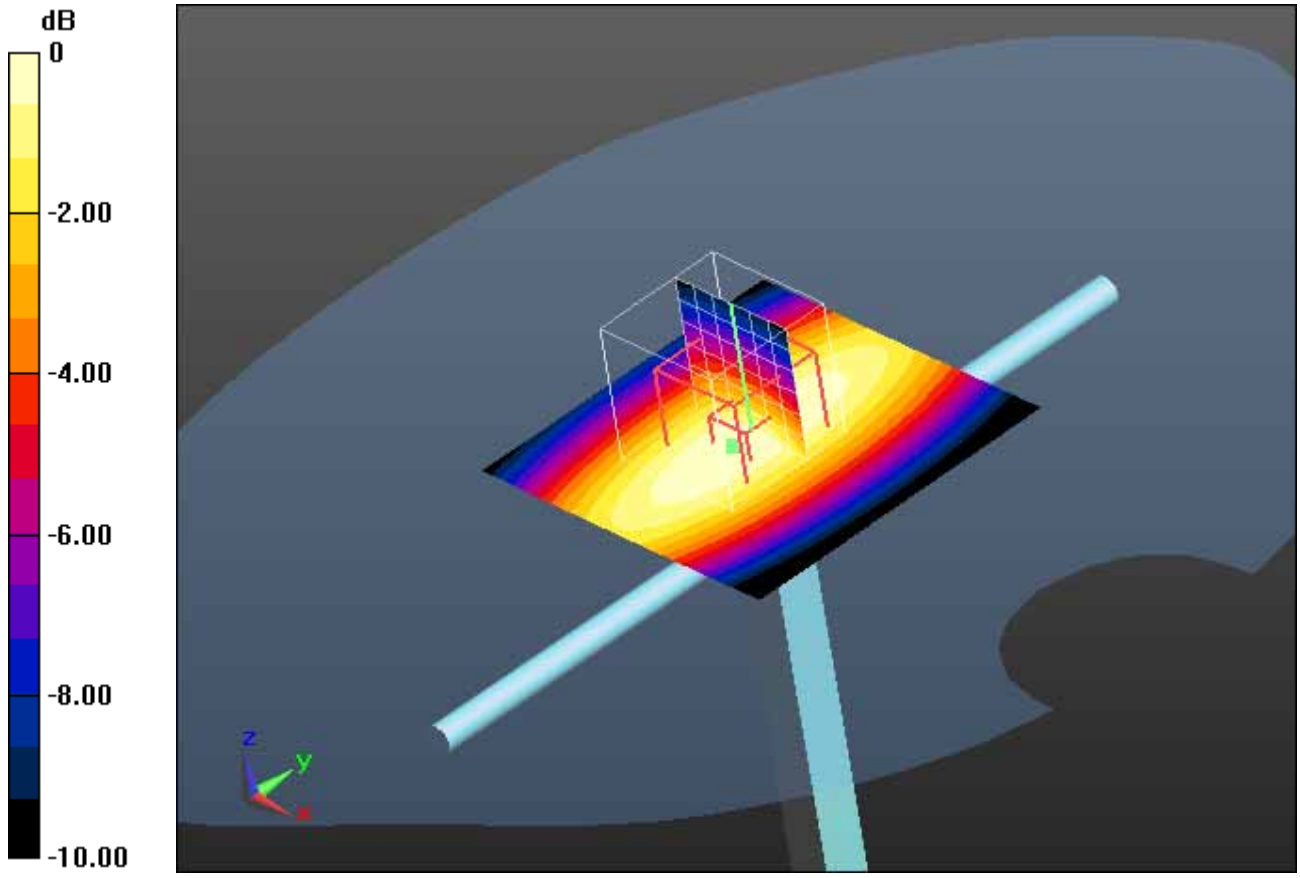
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 103.4 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 12.2 W/kg

SAR(1 g) = 8.35 W/kg; SAR(10 g) = 5.53 W/kg

Maximum value of SAR (measured) = 9.01 W/kg



0 dB = 9.01 W/kg = 9.55 dBW/kg

Additional information:

ambient temperature: 23.0°C; liquid temperature: 21.7°C

Date/Time: 25.08.2015 10:07:06

SystemPerformanceCheck-D750 body 2015-08-25

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 = 0.948 S/m; ε_r = 57.225; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.77, 6.77, 6.77); Calibrated: 19.05.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- 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) = 8.74 W/kg

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

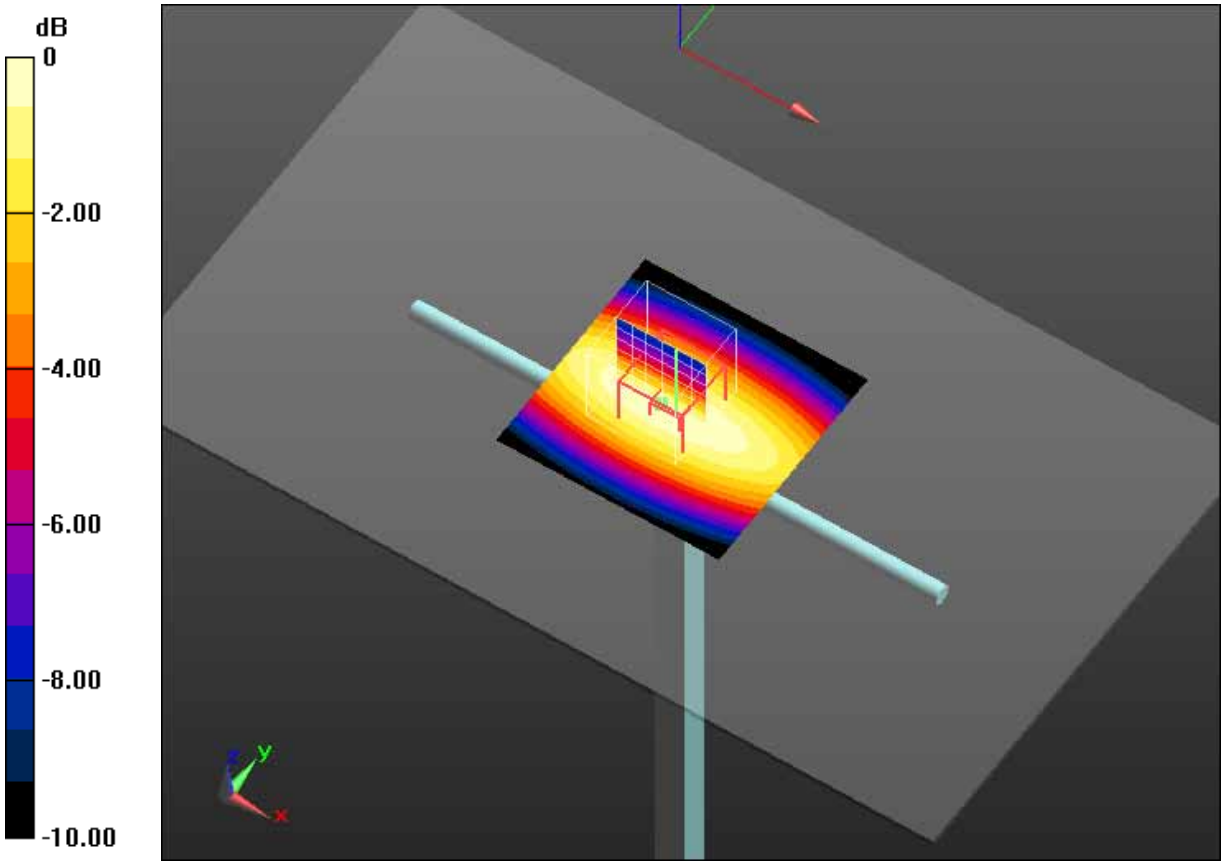
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.4 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 11.3 W/kg

SAR(1 g) = 8.24 W/kg; SAR(10 g) = 5.61 W/kg

Maximum value of SAR (measured) = 8.88 W/kg



0 dB = 8.88 W/kg = 9.48 dBW/kg

Additional information:

ambient temperature: 22.0°C; liquid temperature: 21.0°C

Date/Time: 26.08.2015 15:37:15

SystemPerformanceCheck-D750 body 2015-08-26

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1041

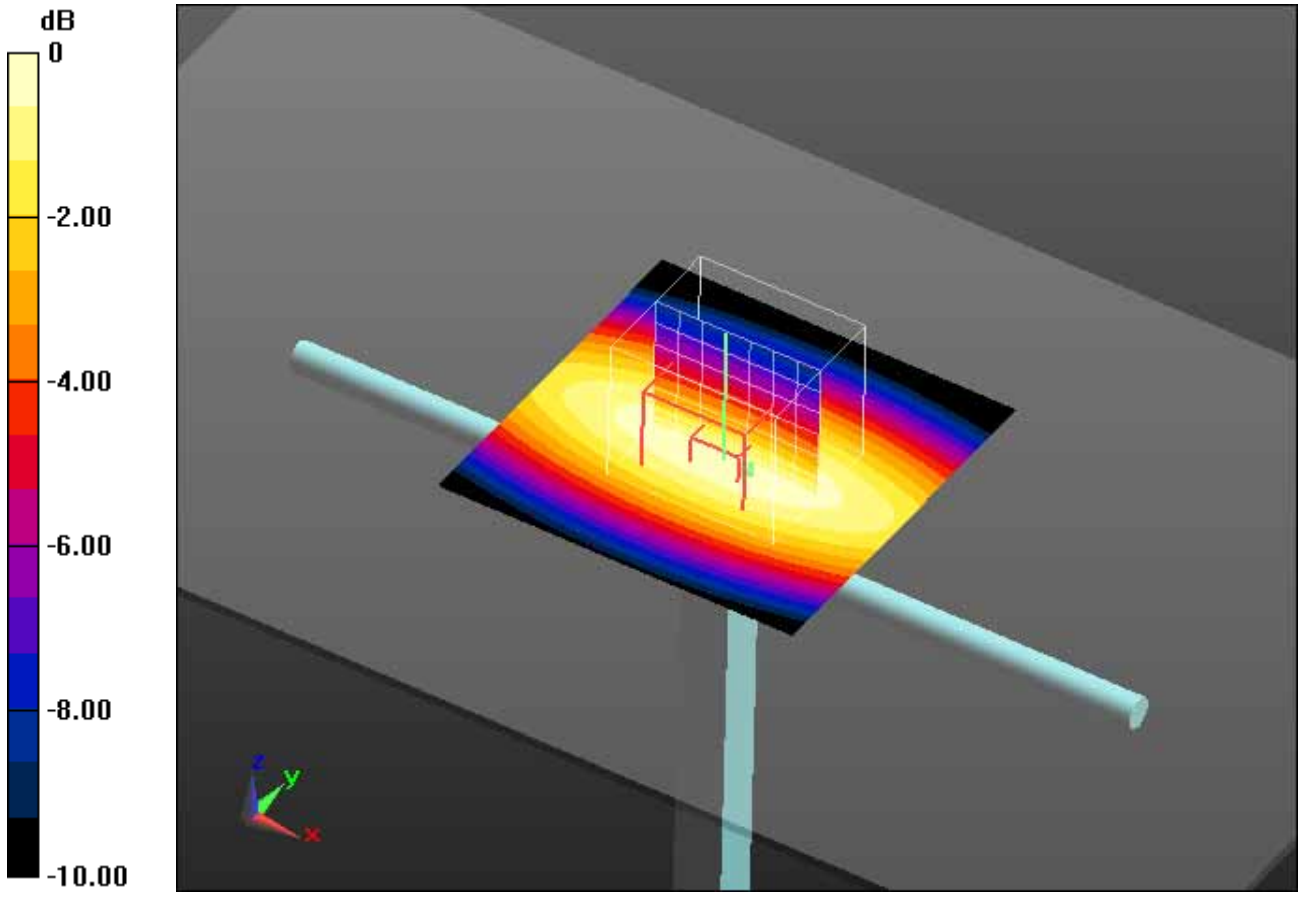
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 750 MHz; σ = 0.948 S/m; ε_r = 57.225; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1554; ConvF(6.77, 6.77, 6.77); Calibrated: 19.05.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- 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) = 8.75 W/kg

MSL750/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (8x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.2 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 11.4 W/kg
SAR(1 g) = 8.28 W/kg; SAR(10 g) = 5.62 W/kg
Maximum value of SAR (measured) = 8.93 W/kg



0 dB = 8.93 W/kg = 9.51 dBW/kg

Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 23.3°C; liquid temperature: 22.8°C

Date/Time: 27.08.2015 12:44:06

SystemPerformanceCheck-D750 body 2015-08-27

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 = 0.948 S/m; ε_r = 57.225; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.77, 6.77, 6.77); Calibrated: 19.05.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- 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) = 8.80 W/kg

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

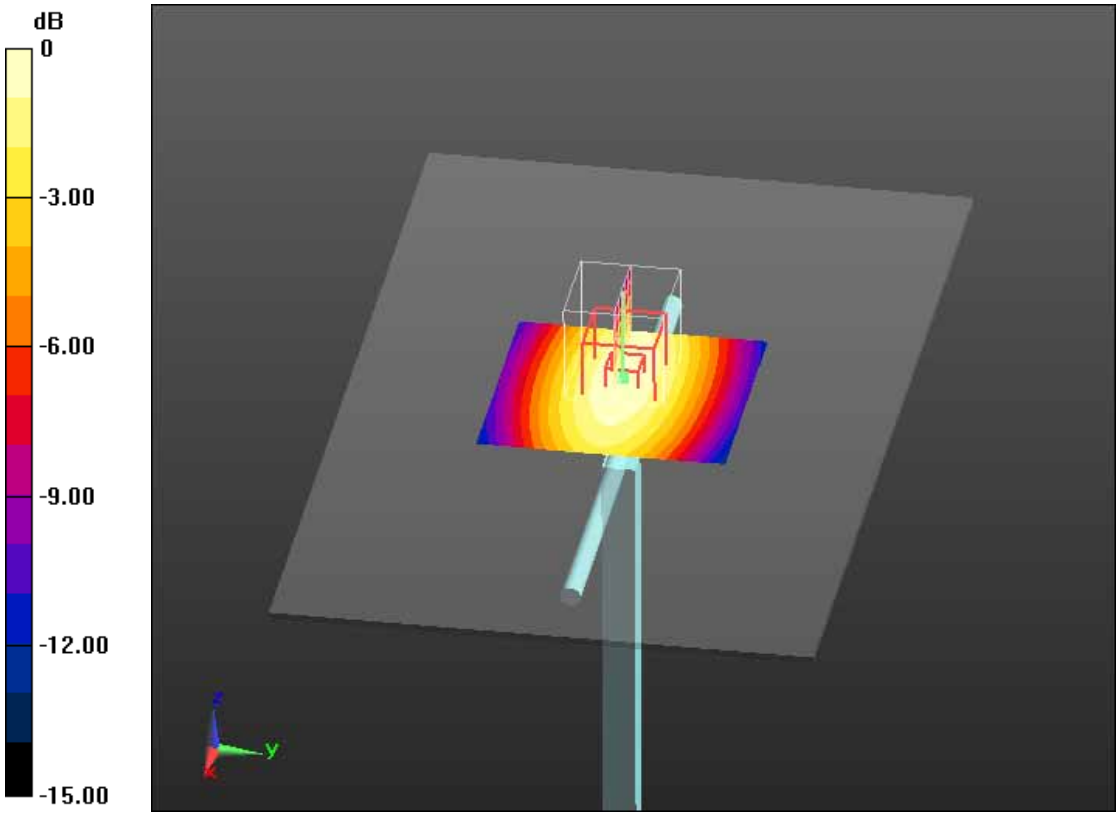
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.022 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 11.5 W/kg

SAR(1 g) = 8.29 W/kg; SAR(10 g) = 5.62 W/kg

Maximum value of SAR (measured) = 8.98 W/kg



0 dB = 8.98 W/kg = 9.53 dBW/kg

Additional information:

ambient temperature: 22.4°C; liquid temperature: 21.4°C

Date/Time: 19.08.2015 17:51:02

SystemPerformanceCheck-D835 head 2015-08-19

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 = 0.931 S/m; ε_r = 41.524; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.86, 6.86, 6.86); Calibrated: 19.05.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL835/d=15mm, Pin=100 mW, dist=4.0mm/Area Scan (51x51x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

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

HSL835/d=15mm, Pin=100 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

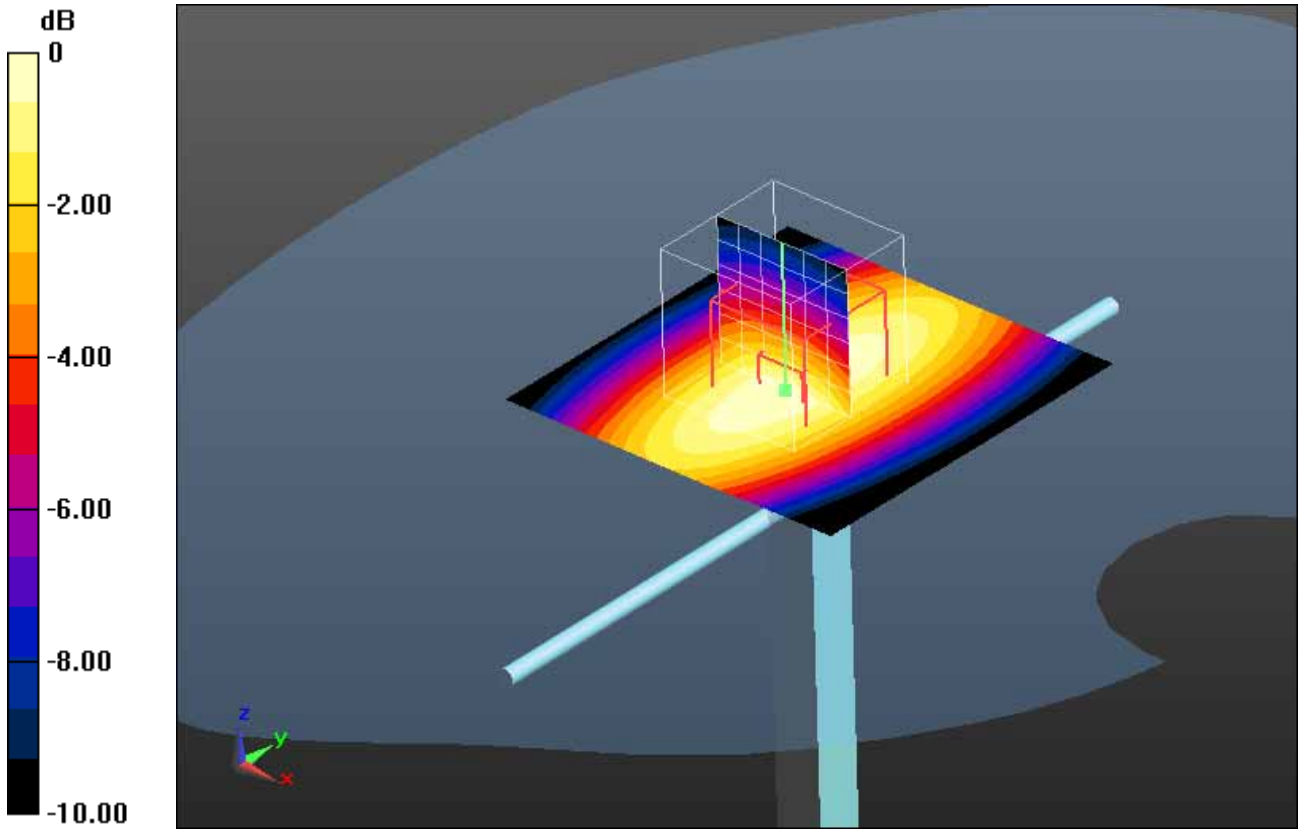
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.730 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 0.982 W/kg; SAR(10 g) = 0.651 W/kg

Maximum value of SAR (measured) = 1.06 W/kg



0 dB = 1.06 W/kg = 0.25 dBW/kg

Additional information:

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

Date/Time: 21.08.2015 11:08:02

SystemPerformanceCheck-D835 head 2015-08-21

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 = 0.931 S/m; ε_r = 41.524; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.86, 6.86, 6.86); Calibrated: 19.05.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL835/d=15mm, Pin=100 mW, dist=4.0mm/Area Scan (51x51x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.04 W/kg

HSL835/d=15mm, Pin=100 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

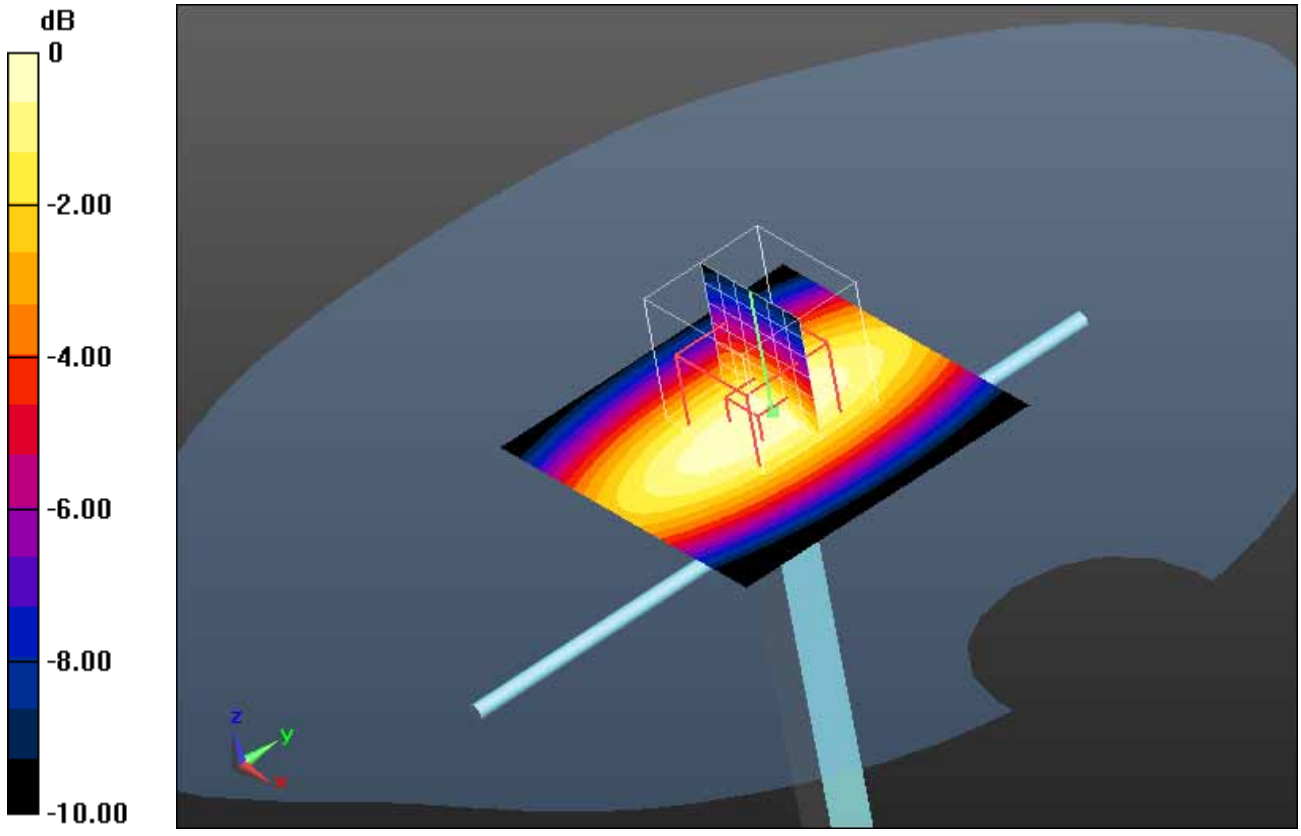
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.766 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.985 W/kg; SAR(10 g) = 0.654 W/kg

Maximum value of SAR (measured) = 1.06 W/kg



0 dB = 1.06 W/kg = 0.25 dBW/kg

Additional information:

ambient temperature: 23.2°C; liquid temperature: 21.0°C

Date/Time: 20.08.2015 17:26:02

SystemPerformanceCheck-D835 MSL 2015-08-20

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 = 0.991 S/m; ε_r = 53.694; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(6.11, 6.11, 6.11); Calibrated: 25.02.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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=1000 mW, dist=4.0mm/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=1000 mW, dist=4.0mm/Zoom Scan (7x7x7)/Cube 0:

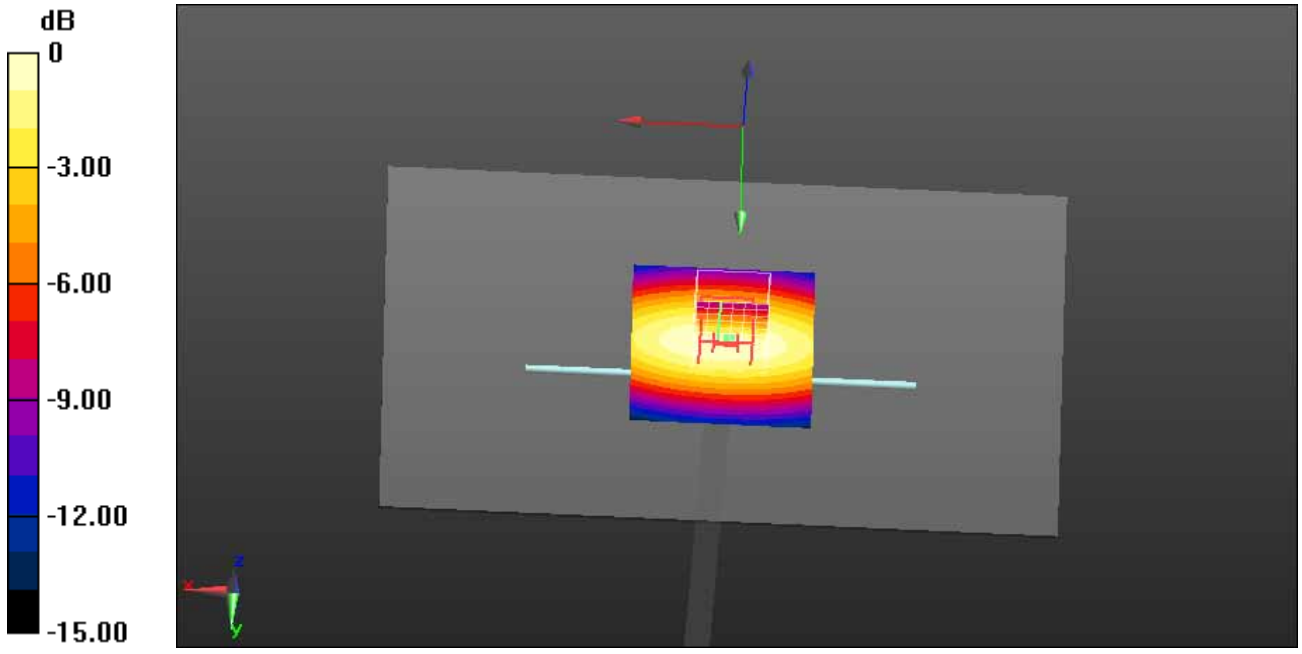
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 104.4 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 14.2 W/kg

SAR(1 g) = 9.8 W/kg; SAR(10 g) = 6.5 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: 24.3°C; liquid temperature: 22.5 °C

Date/Time: 21.08.2015 09:30:06

SystemPerformanceCheck-D835 MSL 2015-08-21

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d153

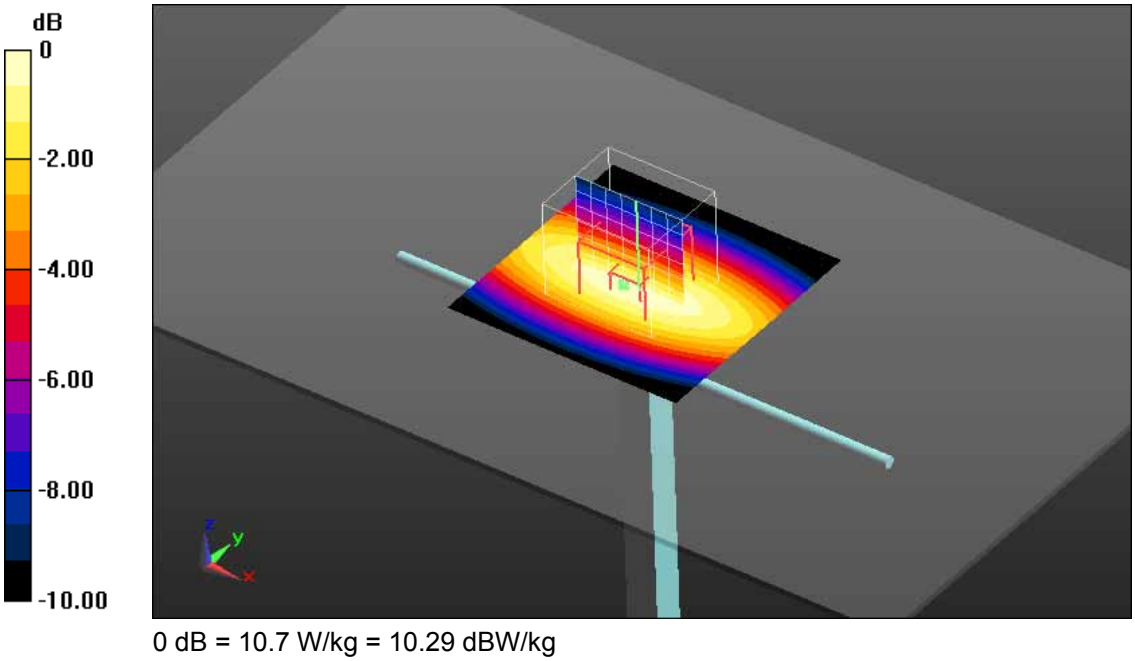
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; σ = 0.991 S/m; ε_r = 53.694; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.11, 6.11, 6.11); Calibrated: 25.02.2015;
- 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: 15.01.2015
- 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=1000 mW, dist=4.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 10.3 W/kg

MSL835/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom Scan (8x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 105.1 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 14.4 W/kg
SAR(1 g) = 9.88 W/kg; SAR(10 g) = 6.53 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: 23.3°C; liquid temperature: 22.5 °C

Date/Time: 7/31/2015 11:26:22 AM

SystemPerformanceCheck-D1750 head 2015-07-31

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 = 1.349 S/m; ε_r = 38.864; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3326; ConvF(5.26, 5.26, 5.26); Calibrated: 8/18/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/12/2014
- Phantom: SAM front; Type: QD000P40CC; Serial: TP:1041
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

HSL1750/d=10mm, Pin=1000mW/Area Scan (51x51x1):

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

Maximum value of SAR (interpolated) = 44.0 W/kg

HSL1750/d=10mm, Pin=1000mW/Zoom Scan (7x7x7)/Cube 0:

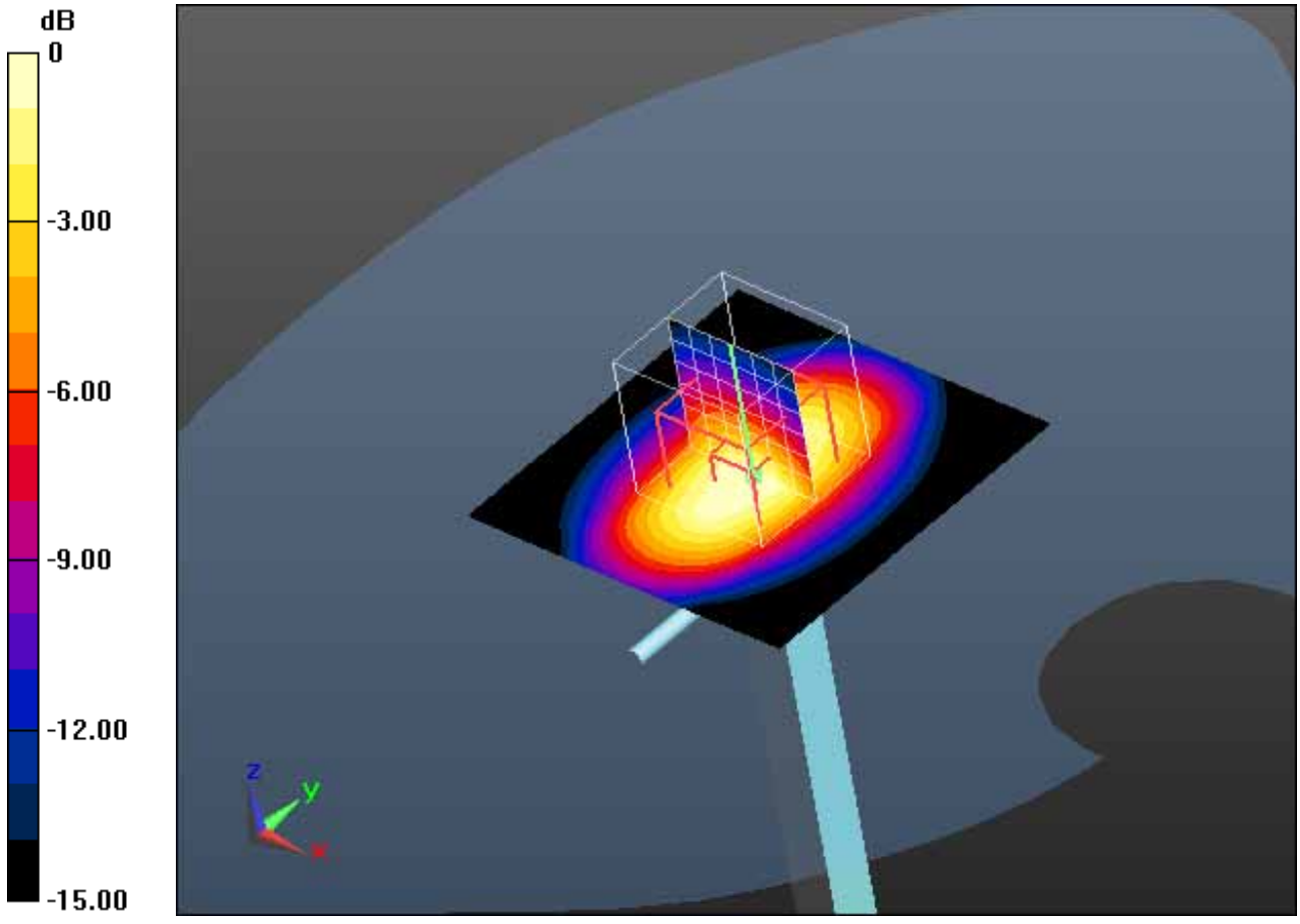
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 174.6 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 62.9 W/kg

SAR(1 g) = 35.4 W/kg; SAR(10 g) = 19 W/kg

Maximum value of SAR (measured) = 39.9 W/kg



0 dB = 39.9 W/kg = 16.01 dBW/kg

Additional information:

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

Date/Time: 04.08.2015 11:37:46

SystemPerformanceCheck-D1750 HSL 2015-08-04

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 = 1.349 S/m; ε_r = 38.864; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(5.19, 5.19, 5.19); Calibrated: 25.02.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL1750/d=10mm, Pin=1000 mW, dist=3.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 46.4 W/kg

HSL1750/d=10mm, Pin=1000 mW, dist=3.0mm/Zoom Scan (7x7x7)/Cube 0:

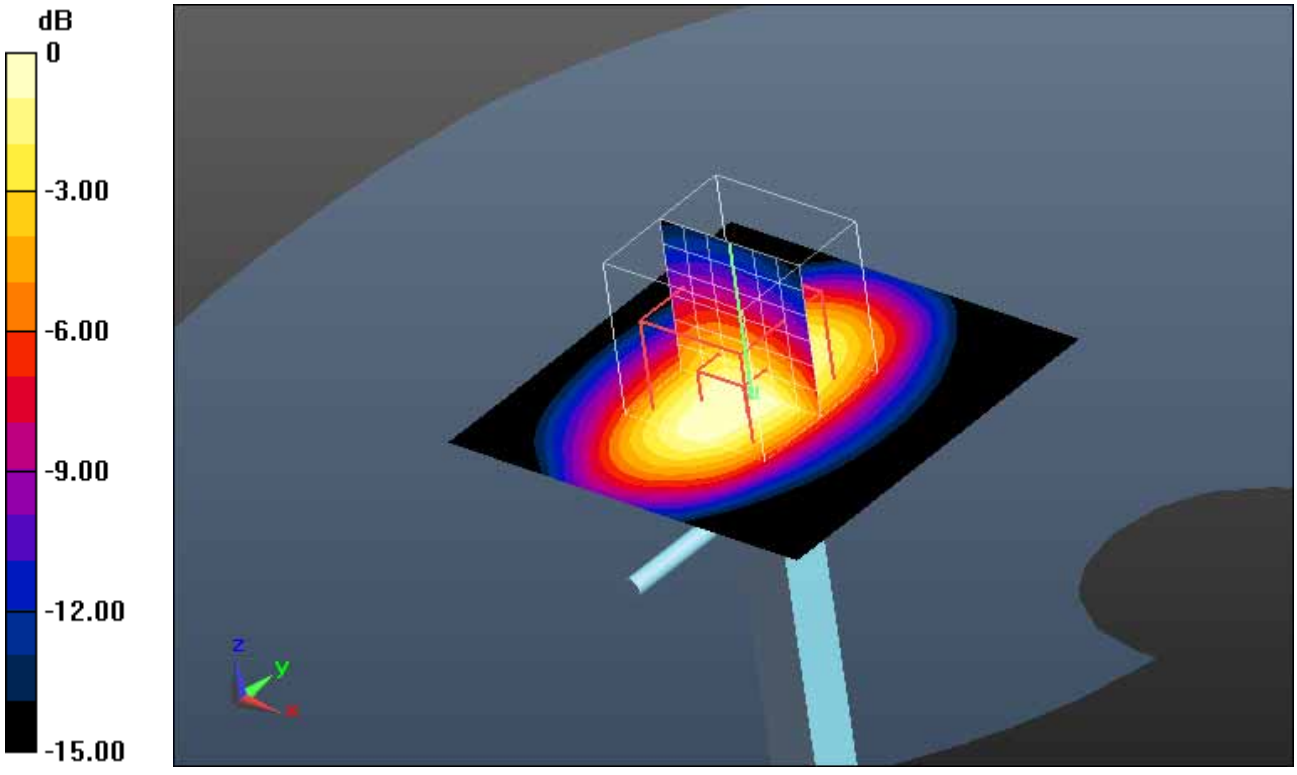
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 174.5 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 64.9 W/kg

SAR(1 g) = 36 W/kg; SAR(10 g) = 19.3 W/kg

Maximum value of SAR (measured) = 40.2 W/kg



0 dB = 40.2 W/kg = 16.04 dBW/kg

Additional information:

ambient temperature: 23.8°C; liquid temperature: 22.9°C

Date/Time: 7/29/2015 2:49:20 PM

SystemPerformanceCheck-D1750 MSL 2015-07-29

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 = 1.549 S/m; ε_r = 52.011; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3326; ConvF(4.88, 4.88, 4.88); Calibrated: 8/18/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/12/2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

HSL1750/d=10mm, Pin=1000mW/Area Scan (51x51x1):

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

Maximum value of SAR (interpolated) = 49.8 W/kg

HSL1750/d=10mm, Pin=1000mW/Zoom Scan (7x7x7)/Cube 0:

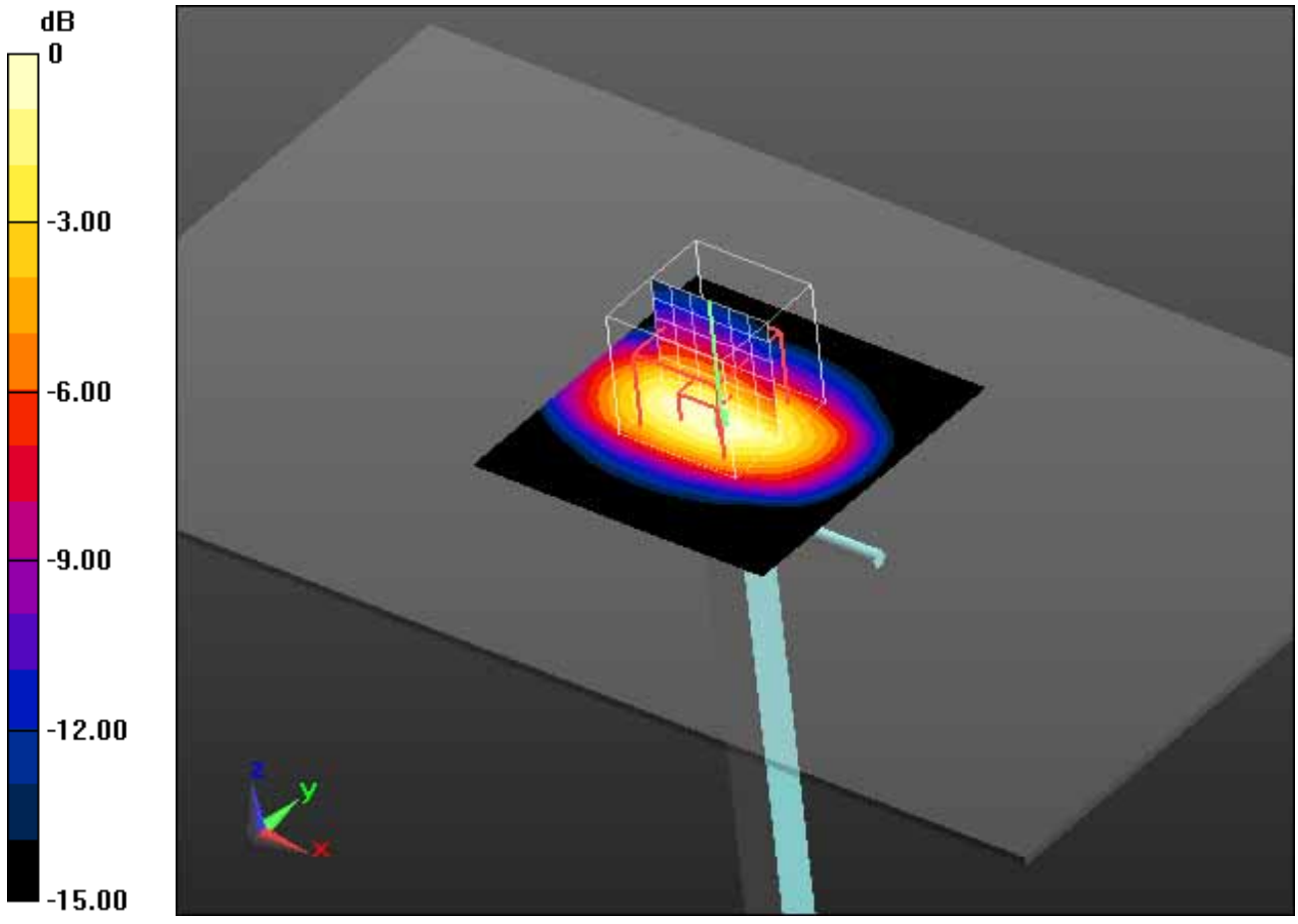
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 176.1 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 66.5 W/kg

SAR(1 g) = 37.7 W/kg; SAR(10 g) = 20.1 W/kg

Maximum value of SAR (measured) = 47.4 W/kg



0 dB = 47.4 W/kg = 16.76 dBW/kg

Additional information:

ambient temperature: 23.5°C; liquid temperature: 22.6°C

Date/Time: 17.08.2015 07:50:32

SystemPerformanceCheck-D1750 body 2015-08-17

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 = 1.54 S/m; ε_r = 52.171; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.81, 4.81, 4.81); Calibrated: 19.05.2015;
- 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: 22.05.2015
- 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=100mW/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 4.98 W/kg

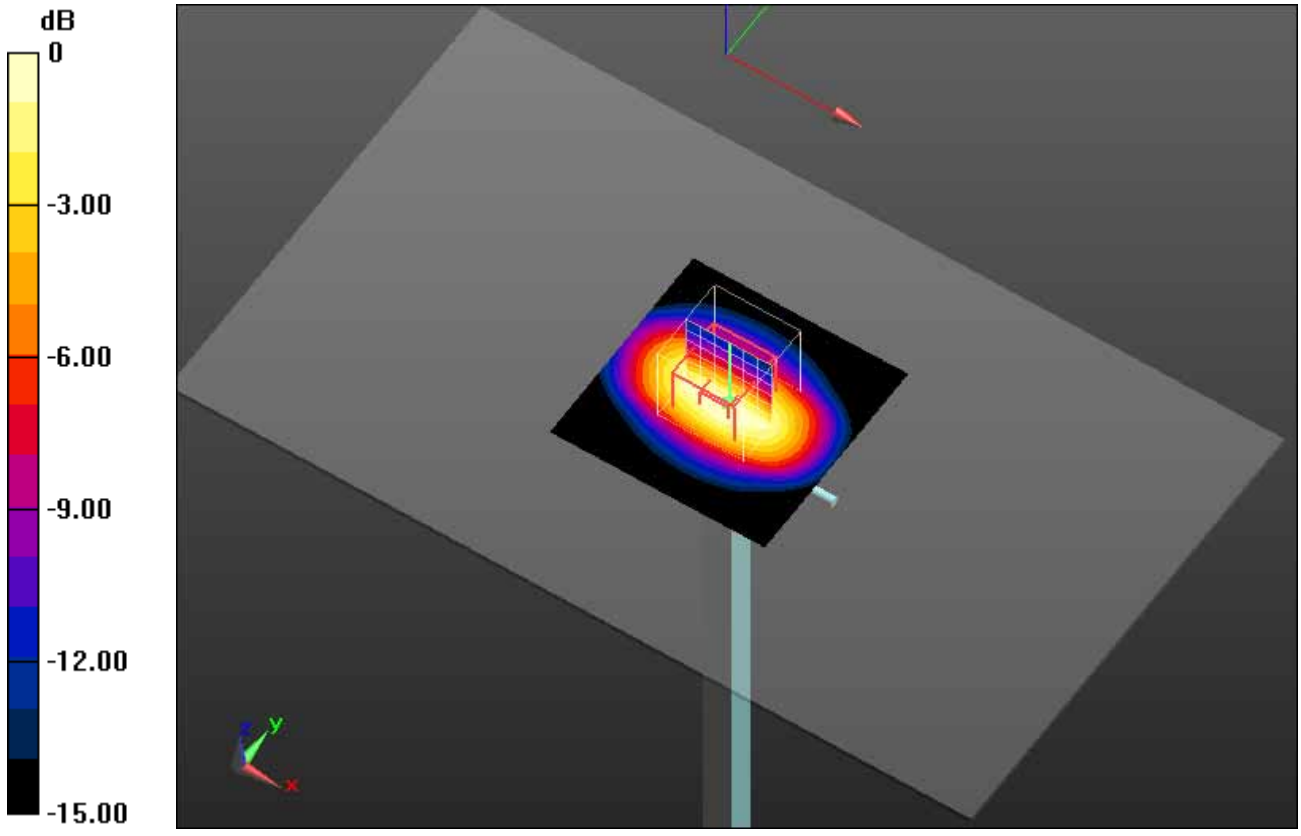
MSL1750/d=10mm, Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.043 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 5.22 W/kg

SAR(1 g) = 3.58 W/kg; SAR(10 g) = 2 W/kg

Maximum value of SAR (measured) = 4.07 W/kg



0 dB = 4.07 W/kg = 6.10 dBW/kg

Additional information:

ambient temperature: 21.9°C; liquid temperature: 21.4°C

Date/Time: 18.08.2015 10:03:41

SystemPerformanceCheck-D1750 body 2015-08-18

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 = 1.54 S/m; ε_r = 52.171; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.81, 4.81, 4.81); Calibrated: 19.05.2015;
- 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: 22.05.2015
- 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=100mW/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 4.97 W/kg

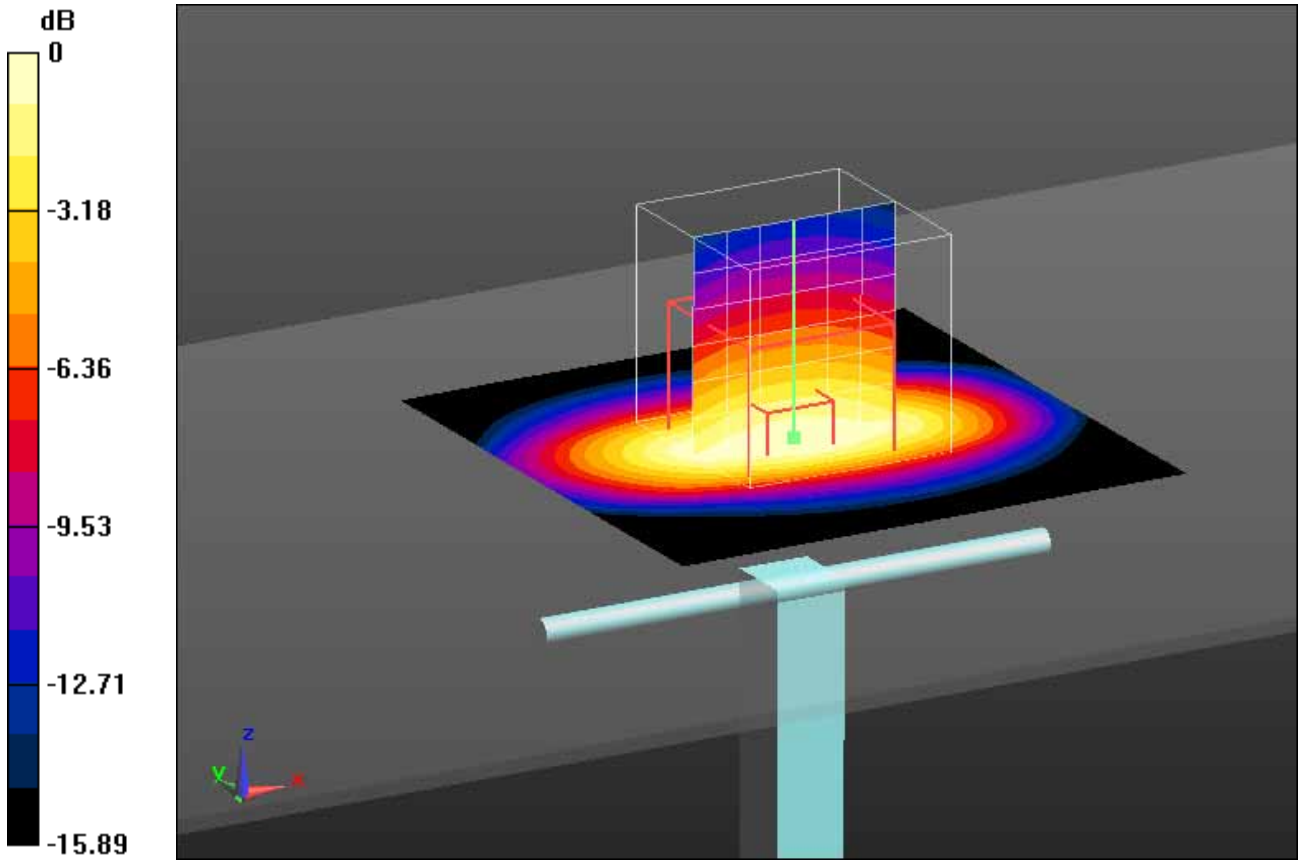
MSL1750/d=10mm, Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.031 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 5.21 W/kg

SAR(1 g) = 3.58 W/kg; SAR(10 g) = 2 W/kg

Maximum value of SAR (measured) = 4.06 W/kg



0 dB = 4.06 W/kg = 6.09 dBW/kg

Additional information:

position or distance of DUT to SAM: 0 mm

ambient temperature: °C; liquid temperature: °C

Date/Time: 19.08.2015 15:32:52

SystemPerformanceCheck-D1750 body 2015-08-19

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 = 1.54 S/m; ε_r = 52.171; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.81, 4.81, 4.81); Calibrated: 19.05.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- 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=100mW/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 4.65 W/kg

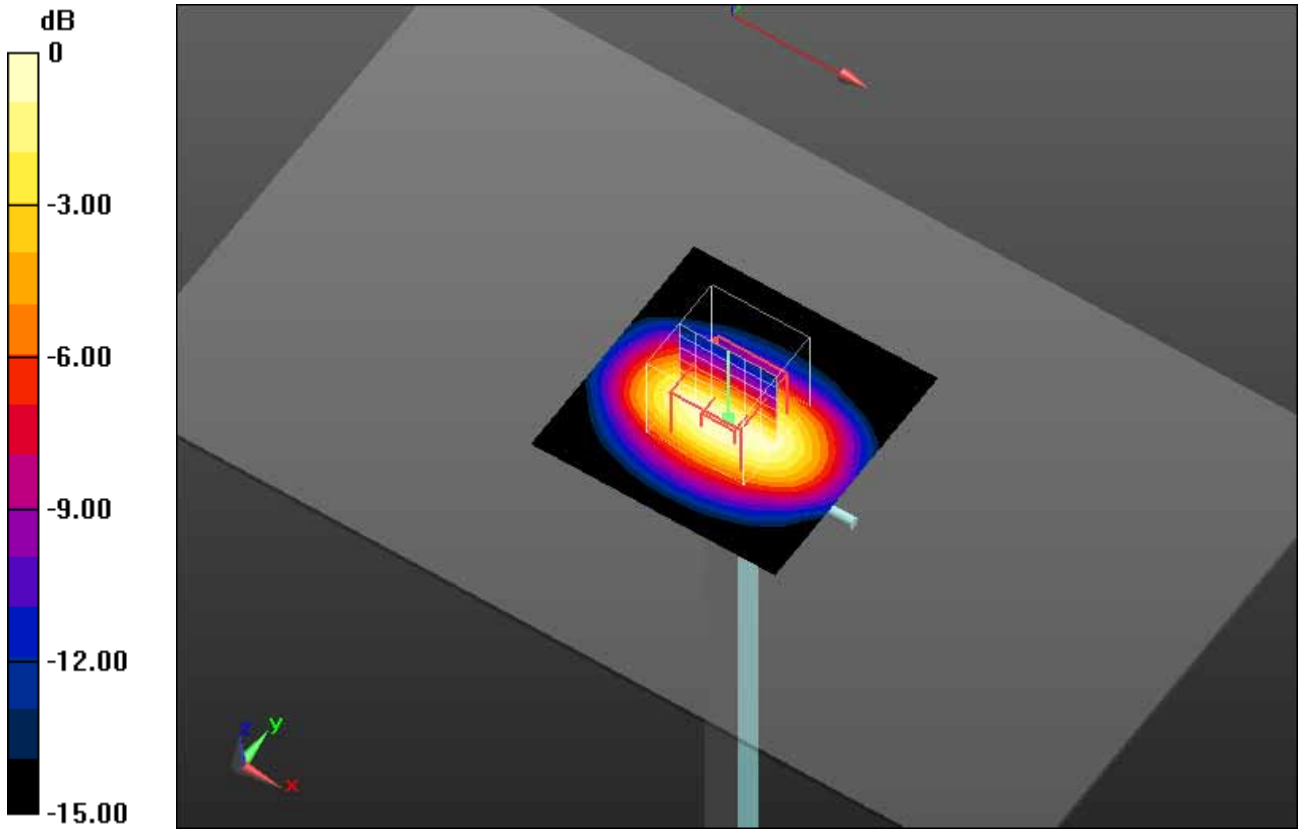
MSL1750/d=10mm, Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.631 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 5.04 W/kg

SAR(1 g) = 3.46 W/kg; SAR(10 g) = 1.93 W/kg

Maximum value of SAR (measured) = 3.93 W/kg



0 dB = 3.93 W/kg = 5.94 dBW/kg

Additional information:

ambient temperature: 23.1°C; liquid temperature: 21.0°C

Date/Time: 29.07.2015 13:25:19

SystemPerformanceCheck-D1900 HSL 2015-07-29

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 = 1.381 S/m; ε_r = 39.929; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(5.04, 5.04, 5.04); Calibrated: 25.02.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL1900/d=10mm, Pin=1000 mW, dist=3.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 52.2 W/kg

HSL1900/d=10mm, Pin=1000 mW, dist=3.0mm/Zoom Scan (7x7x7)/Cube 0:

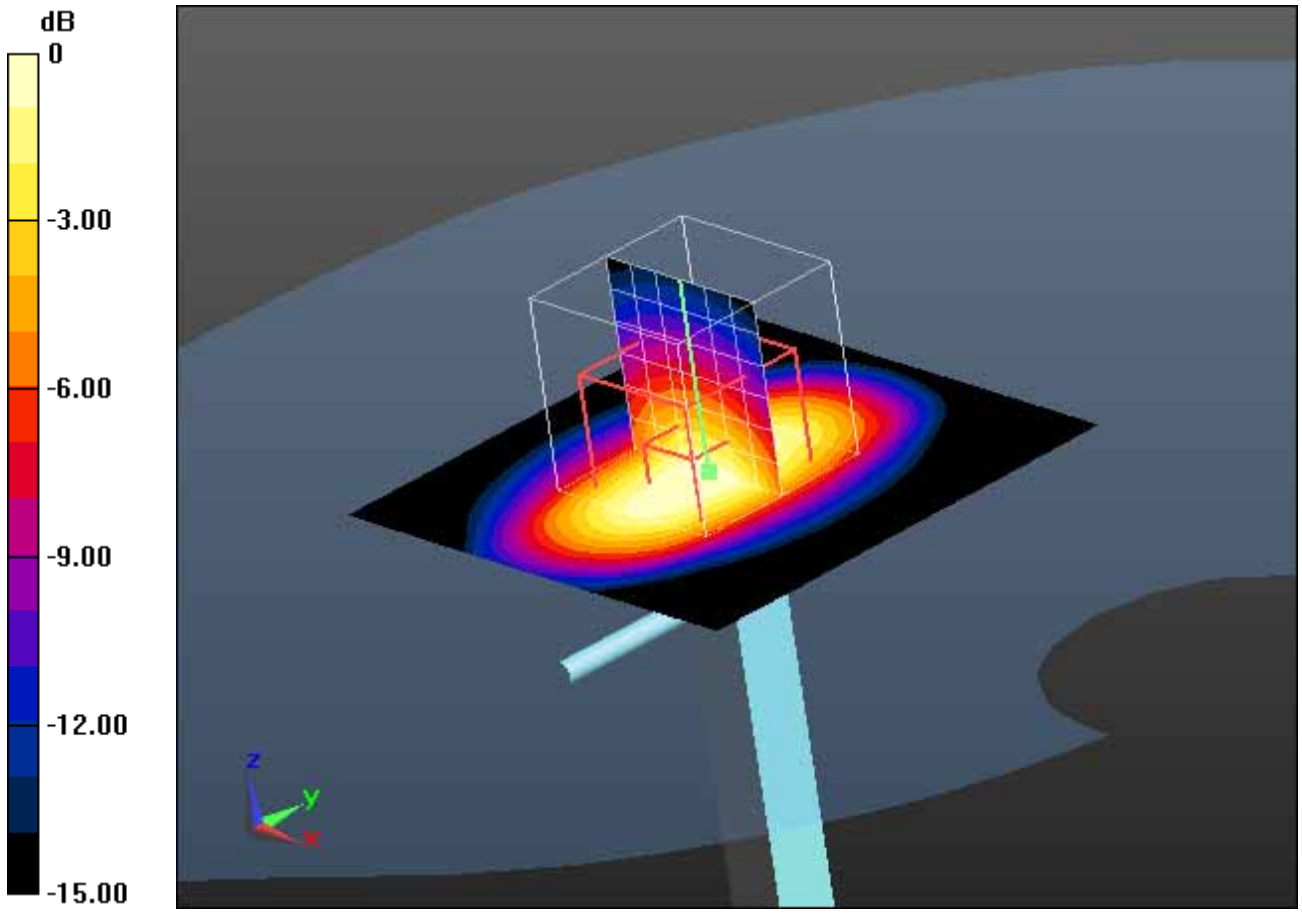
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 181.1 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 71.5 W/kg

SAR(1 g) = 39.5 W/kg; SAR(10 g) = 20.8 W/kg

Maximum value of SAR (measured) = 44.6 W/kg



0 dB = 44.6 W/kg = 16.49 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.2°C

Date/Time: 30.07.2015 08:54:08

SystemPerformanceCheck-D1900 HSL 2015-07-30

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 = 1.381 S/m; ε_r = 39.929; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(5.04, 5.04, 5.04); Calibrated: 25.02.2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL1900/d=10mm, Pin=1000 mW, dist=3.0mm/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=3.0mm/Zoom Scan (7x7x7)/Cube 0:

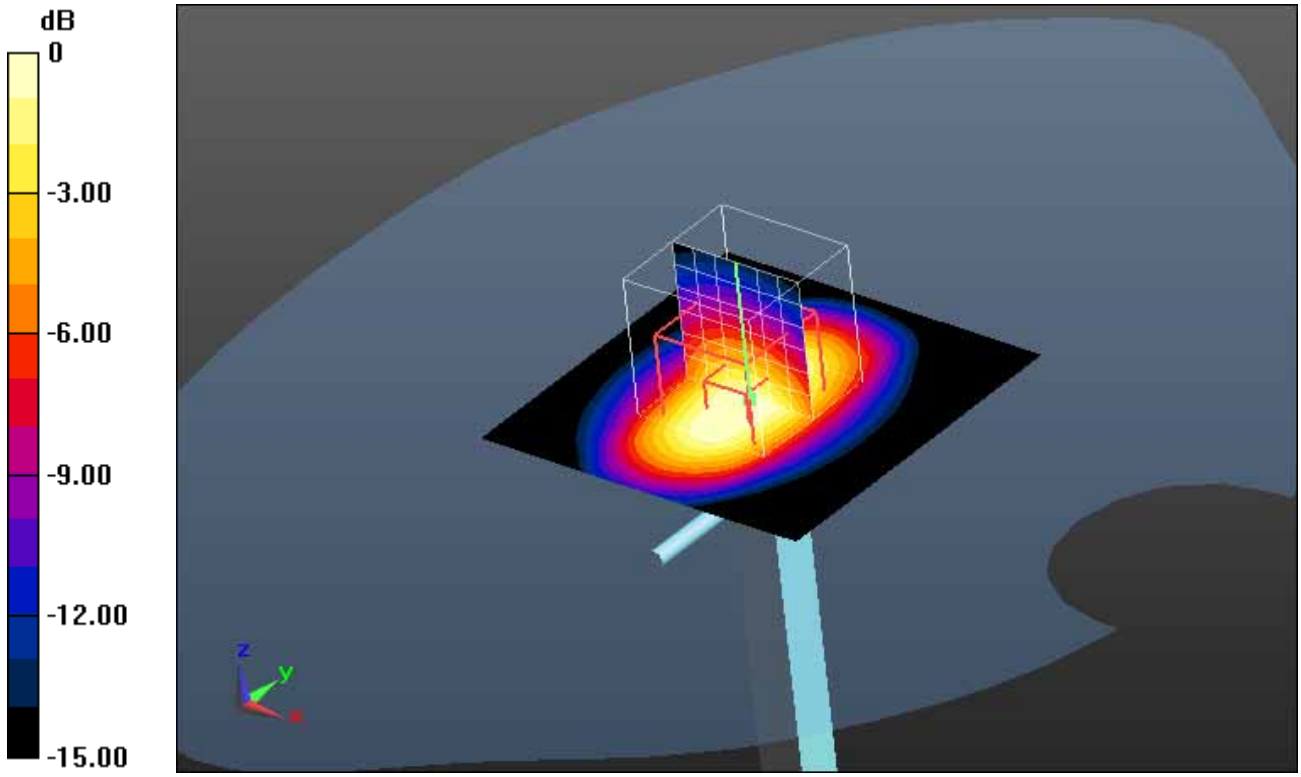
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 180.3 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 70.6 W/kg

SAR(1 g) = 39.2 W/kg; SAR(10 g) = 20.7 W/kg

Maximum value of SAR (measured) = 44.1 W/kg



0 dB = 44.1 W/kg = 16.44 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.2°C

Date/Time: 14.08.2015 13:44:27

SystemPerformanceCheck-D1900 MSL 2015-08-14

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

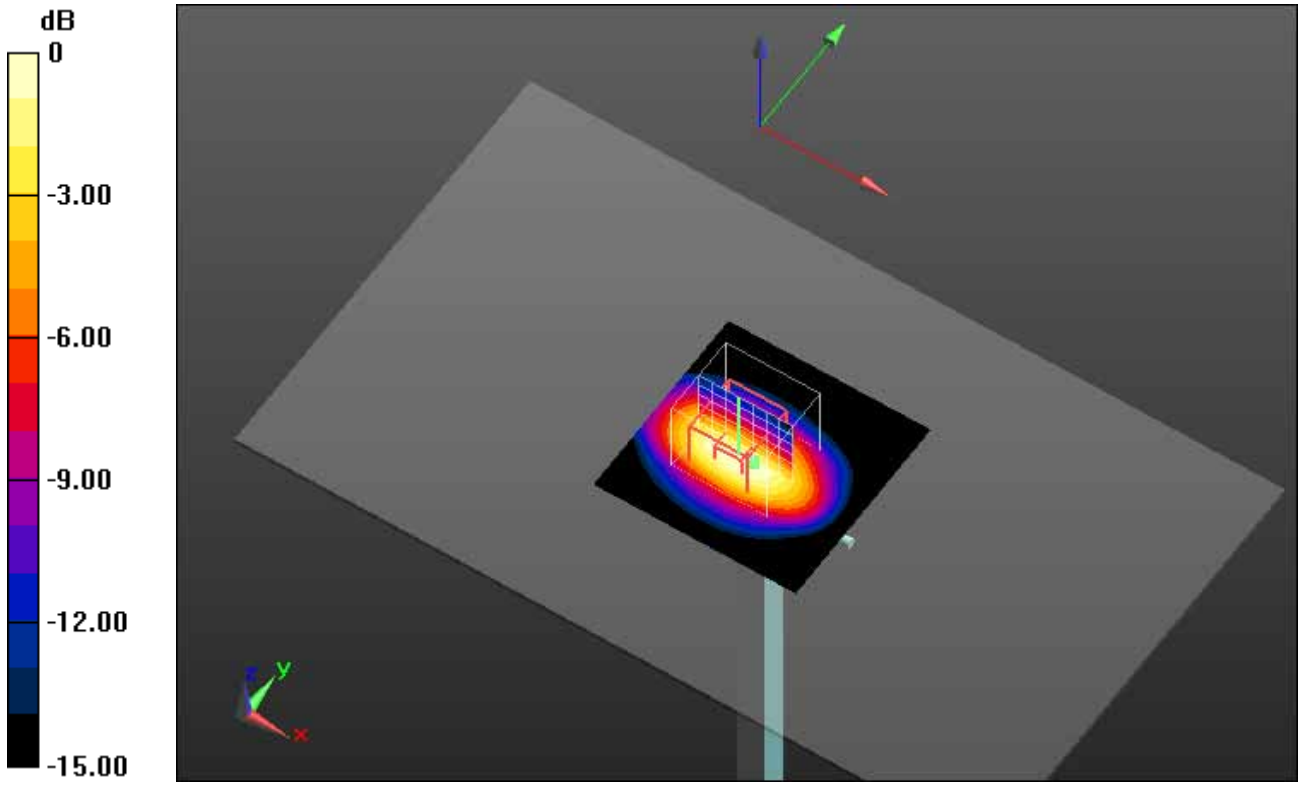
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.522 S/m; ε_r = 53.659; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL1900/d=10mm, Pin=1000 mW, dist=3.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 56.7 W/kg

HSL1900/d=10mm, Pin=1000 mW, dist=3.0mm/Zoom Scan (8x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 180.8 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 70.6 W/kg
SAR(1 g) = 41.3 W/kg; SAR(10 g) = 22.1 W/kg
Maximum value of SAR (measured) = 52.0 W/kg



0 dB = 52.0 W/kg = 17.16 dBW/kg

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

Date/Time: 17.08.2015 12:32:39

SystemPerformanceCheck-D1900 MSL 2015-08-17

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 = 1.522 S/m; ε_r = 53.659; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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=3.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 60.9 W/kg

MSL1900/d=10mm, Pin=1000 mW, dist=3.0mm/Zoom Scan (8x7x7)/Cube 0:

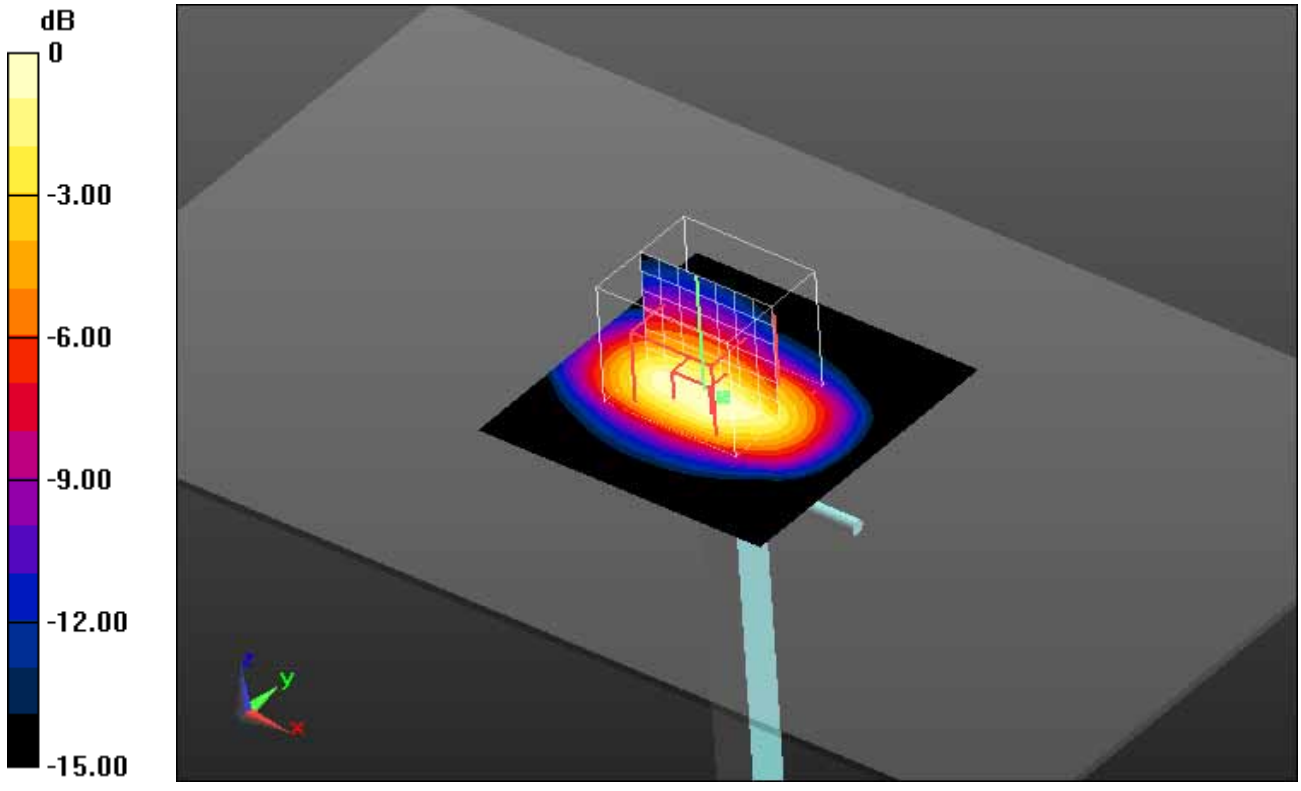
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 188.5 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 71.6 W/kg

SAR(1 g) = 41.2 W/kg; SAR(10 g) = 21.9 W/kg

Maximum value of SAR (measured) = 51.8 W/kg



0 dB = 51.8 W/kg = 17.14 dBW/kg

Additional information:

ambient temperature: 21.3°C; liquid temperature: 21.3°C

Date/Time: 18.08.2015 11:17:16

SystemPerformanceCheck-D1900 MSL 2015-08-18

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 = 1.522 S/m; ε_r = 53.659; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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=3.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 62.5 W/kg

MSL1900/d=10mm, Pin=1000 mW, dist=3.0mm/Zoom Scan (7x7x7)/Cube 0:

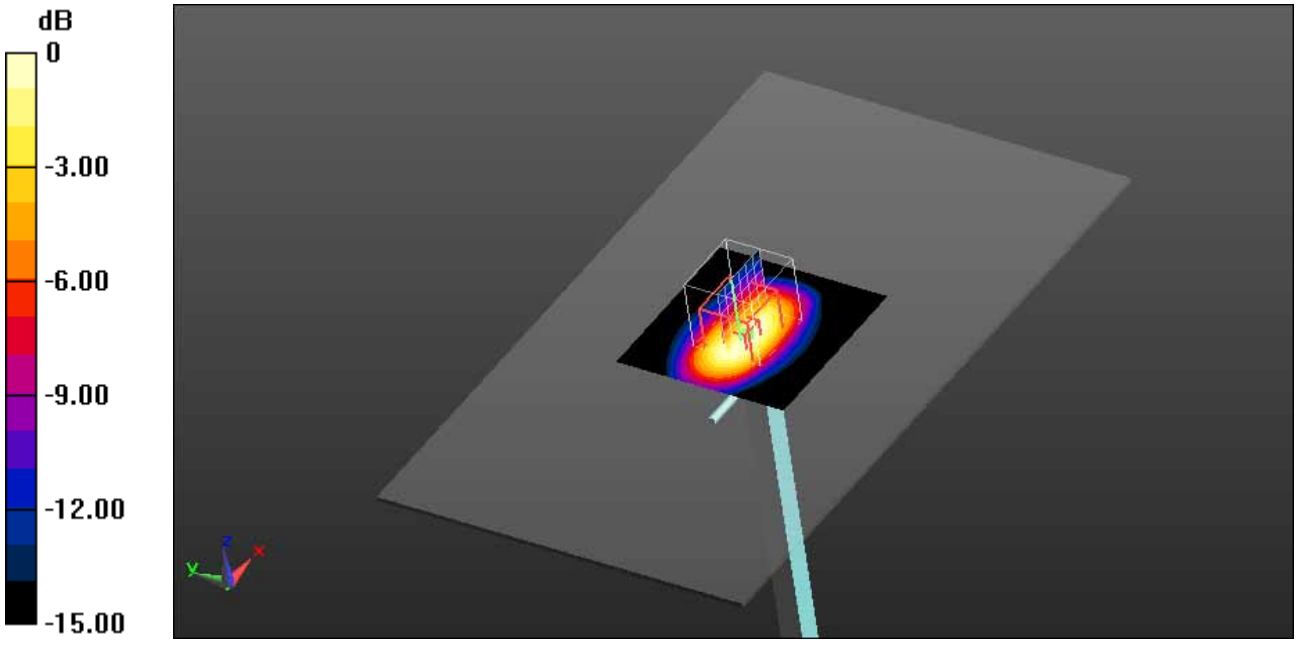
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 191.0 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 73.0 W/kg

SAR(1 g) = 42.1 W/kg; SAR(10 g) = 22.3 W/kg

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



0 dB = 53.1 W/kg = 17.25 dBW/kg

Additional information:

ambient temperature: 22.2°C; liquid temperature: 22.4°C

Date/Time: 19.08.2015 10:31:31

SystemPerformanceCheck-D1900 MSL 2015-08-19

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 = 1.522 S/m; ε_r = 53.659; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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=3.0mm/Area Scan (51x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 64.8 W/kg

MSL1900/d=10mm, Pin=1000 mW, dist=3.0mm/Zoom Scan (7x7x7)/Cube 0:

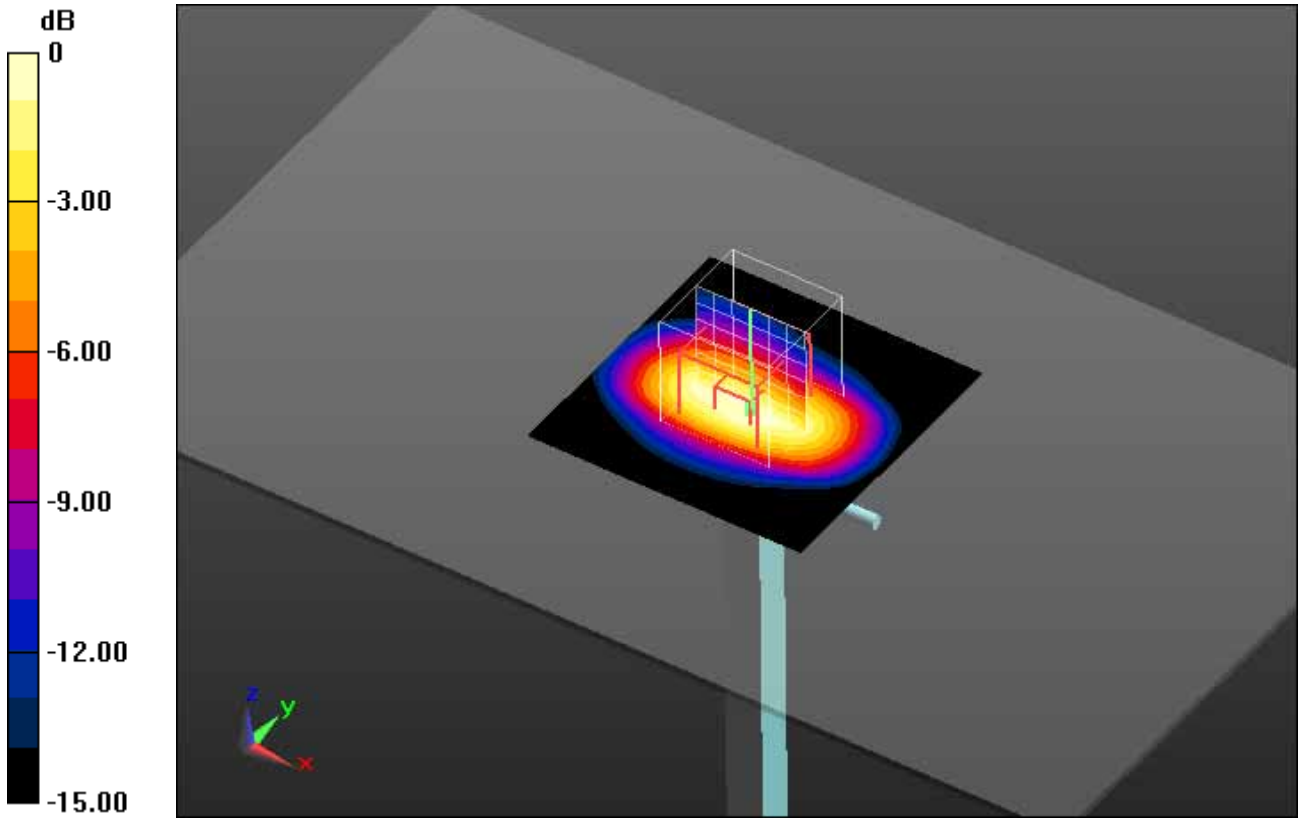
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 193.9 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 73.5 W/kg

SAR(1 g) = 42.5 W/kg; SAR(10 g) = 22.6 W/kg

Maximum value of SAR (measured) = 53.6 W/kg



0 dB = 53.6 W/kg = 17.29 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 22.3°C

Date/Time: 29.08.2015 12:29:53

SystemPerformanceCheck-D1900 MSL 2015-08-29

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

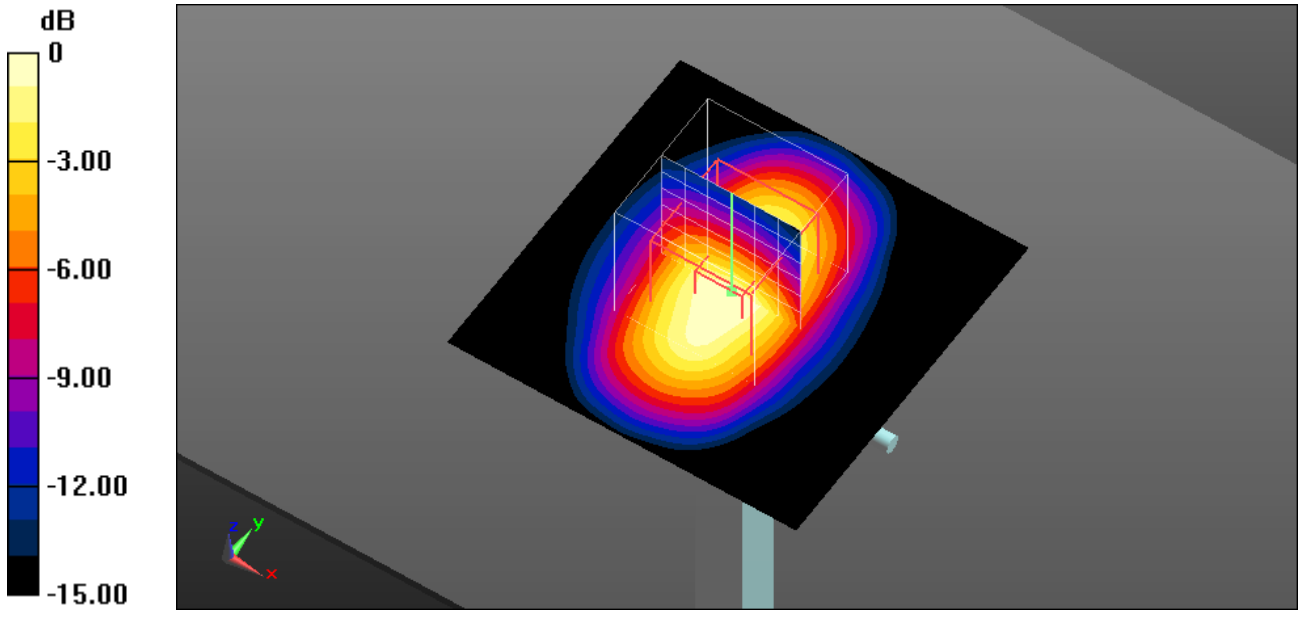
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.499 S/m; ε_r = 52.727; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.91, 7.91, 7.91); Calibrated: 14.08.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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=3.0mm/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=3.0mm/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) = 68.1 W/kg
SAR(1 g) = 38.6 W/kg; SAR(10 g) = 20.6 W/kg
Maximum value of SAR (measured) = 48.8 W/kg



0 dB = 48.8 W/kg = 16.88 dBW/kg

Additional information:
ambient temperature: 23.8°C; liquid temperature: 22.4°C

Date/Time: 04.08.2015 11:52:36

SystemPerformanceCheck-D2600 head 2015-08-04

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040

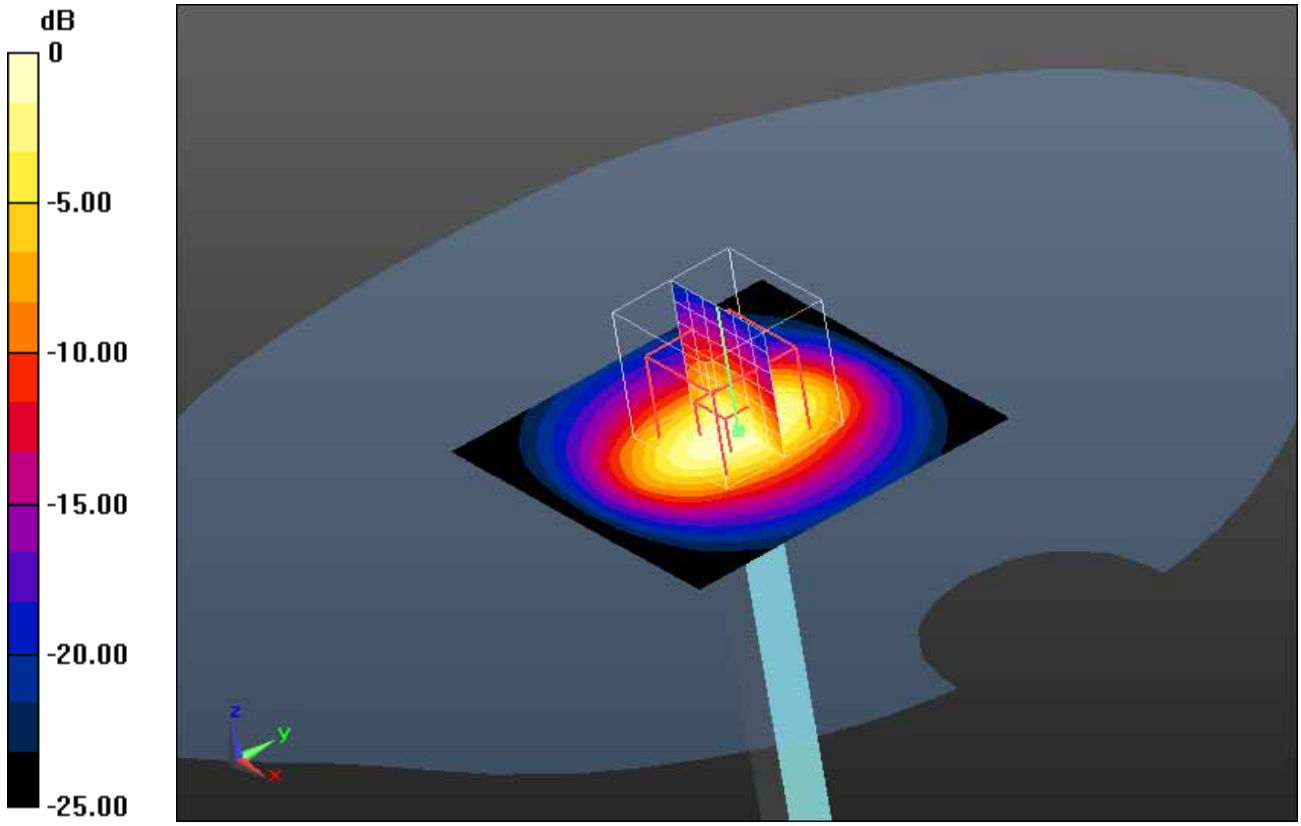
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 1.899 S/m; ε_r = 37.827; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.33, 7.33, 7.33); Calibrated: 19.08.2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: SAM; Type: SAM; Serial: 1043
- 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) = 8.83 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 = 69.139 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 12.1 W/kg
SAR(1 g) = 5.58 W/kg; SAR(10 g) = 2.47 W/kg
Maximum value of SAR (measured) = 8.76 W/kg



0 dB = 8.76 W/kg = 9.43 dBW/kg

Additional information:
ambient temperature: 22.8°C; liquid temperature: 21.4°C

Date/Time: 01.09.2015 09:18:49

SystemPerformanceCheck-D2600 HSL 2015-09-01

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040

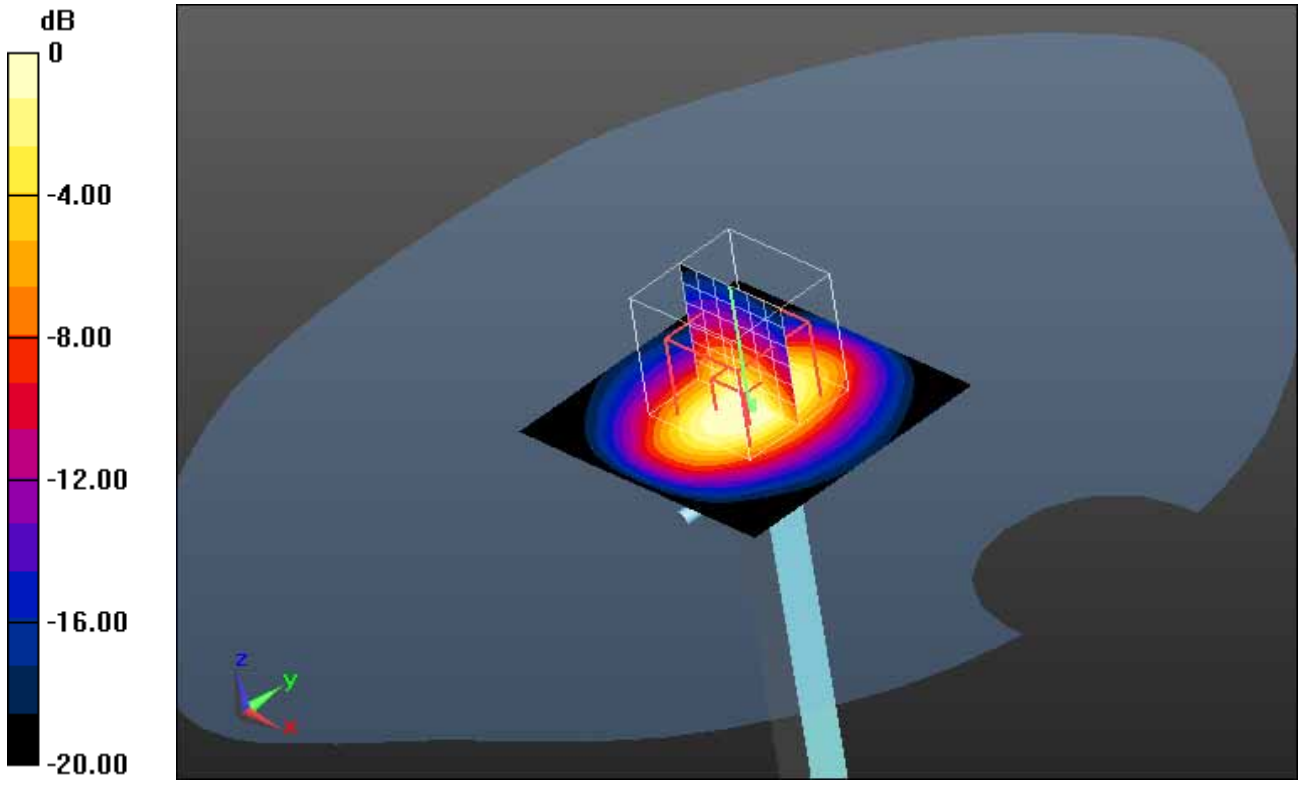
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 1.959 S/m; ε_r = 38.434; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.15, 7.15, 7.15); Calibrated: 14.08.2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

HSL2600/d=10mm, Pin=1000 mW, dist=2.0mm/Area Scan (71x61x1): Interpolated grid: dx=1.000 mm, dy=1.100 mm

Maximum value of SAR (interpolated) = 92.7 W/kg

HSL2600/d=10mm, Pin=1000 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 202.6 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 126 W/kg
SAR(1 g) = 59.8 W/kg; SAR(10 g) = 27.1 W/kg
Maximum value of SAR (measured) = 80.2 W/kg



0 dB = 80.2 W/kg = 19.04 dBW/kg

Additional information:
ambient temperature: 23.8°C; liquid temperature: 23.3°C

Date/Time: 03.09.2015 14:03:04

SystemPerformanceCheck-D2600 MSL 2015-09-03

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040

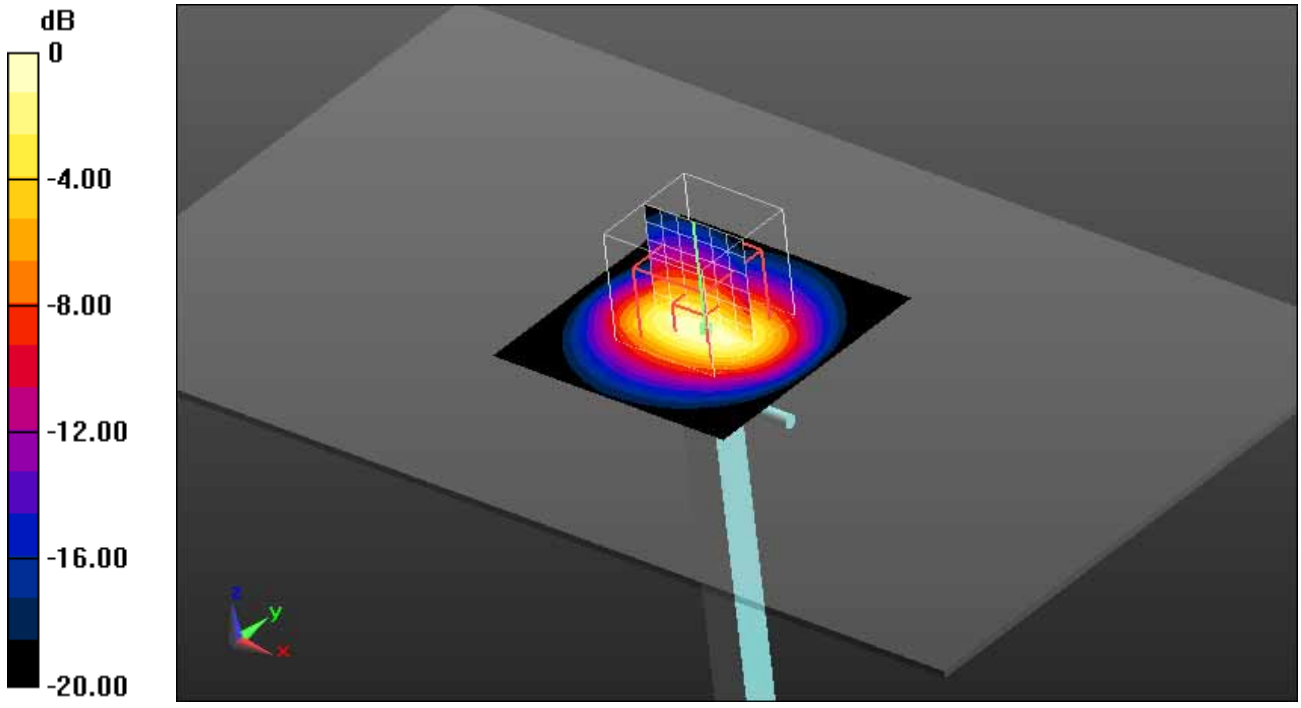
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 2.208 S/m; ε_r = 51; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.37, 7.37, 7.37); Calibrated: 14.08.2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL2600/d=10mm, Pin=1000 mW, dist=2.0mm/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 86.5 W/kg

MSL2600/d=10mm, Pin=1000 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 197.6 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 116 W/kg
SAR(1 g) = 54.8 W/kg; SAR(10 g) = 24.3 W/kg
Maximum value of SAR (measured) = 85.7 W/kg



0 dB = 85.7 W/kg = 19.33 dBW/kg

Additional information:
ambient temperature: 23.8 °C; liquid temperature: 22.6 °C

Date/Time: 04.09.2015 11:42:47

SystemPerformanceCheck-D2600 MSL 2015-09-04

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040

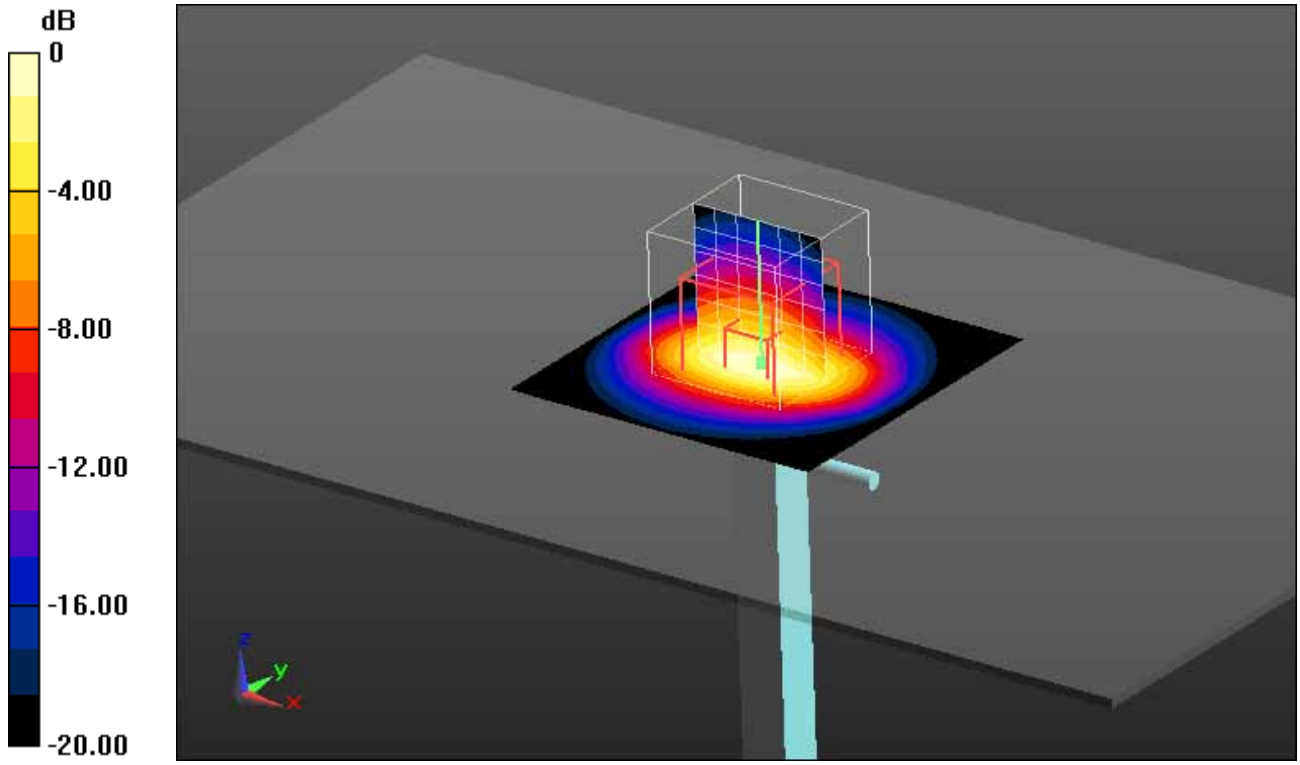
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 2.208 S/m; ε_r = 51; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.37, 7.37, 7.37); Calibrated: 14.08.2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL2600/d=10mm, Pin=1000 mW, dist=2.0mm/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 88.3 W/kg

MSL2600/d=10mm, Pin=1000 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 200.0 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 120 W/kg
SAR(1 g) = 56.8 W/kg; SAR(10 g) = 25.3 W/kg
Maximum value of SAR (measured) = 88.7 W/kg



0 dB = 88.7 W/kg = 19.48 dBW/kg

Additional information:
ambient temperature: 23.0°C; liquid temperature: 22.6°C

Date/Time: 05.09.2015 19:02:52

SystemPerformanceCheck-D2600 MSL 2015-09-05

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1040

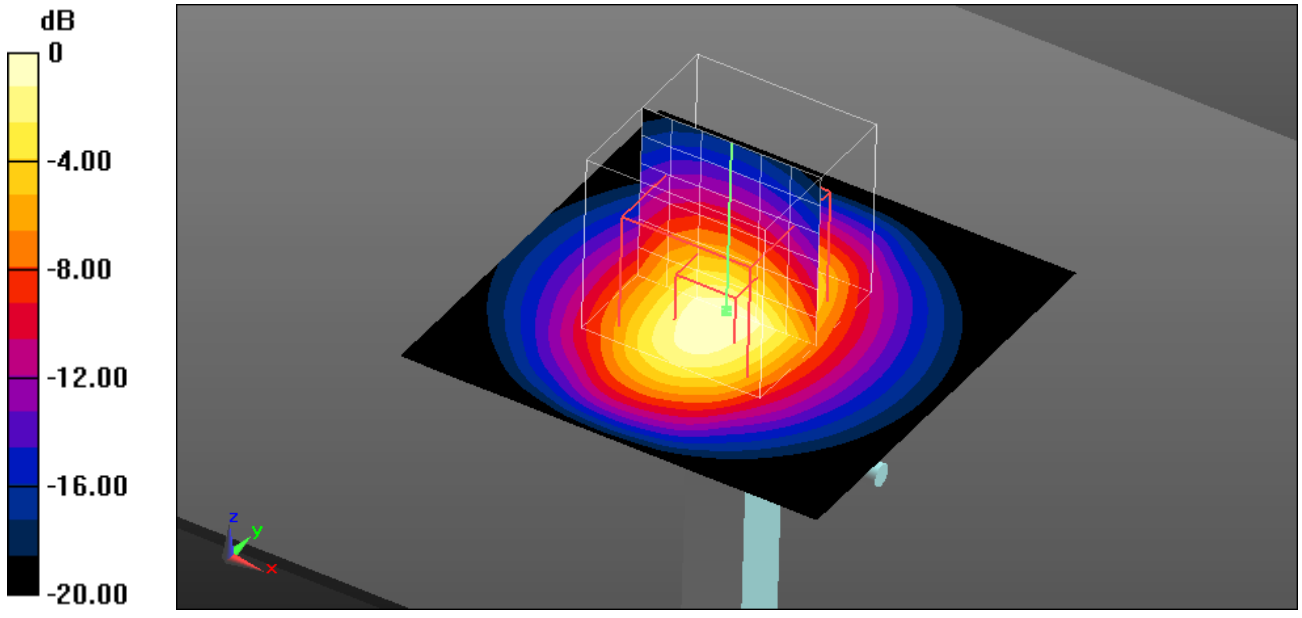
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 2.208 S/m; ε_r = 51; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.37, 7.37, 7.37); Calibrated: 14.08.2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL2600/d=10mm, Pin=1000 mW, dist=2.0mm/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 87.3 W/kg

MSL2600/d=10mm, Pin=1000 mW, dist=2.0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 196.9 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 117 W/kg
SAR(1 g) = 56.7 W/kg; SAR(10 g) = 25.7 W/kg
Maximum value of SAR (measured) = 86.9 W/kg



0 dB = 86.9 W/kg = 19.39 dBW/kg

Additional information:
ambient temperature: 23.0°C; liquid temperature: 22.6°C

Annex A.1: System performance check 2.4 and 5 GHz

The following tests were performed by the customer.

2450 MHz

Date/Time: 9/4/2015 4:06:49 PM

Test Laboratory: BlackBerry RTS

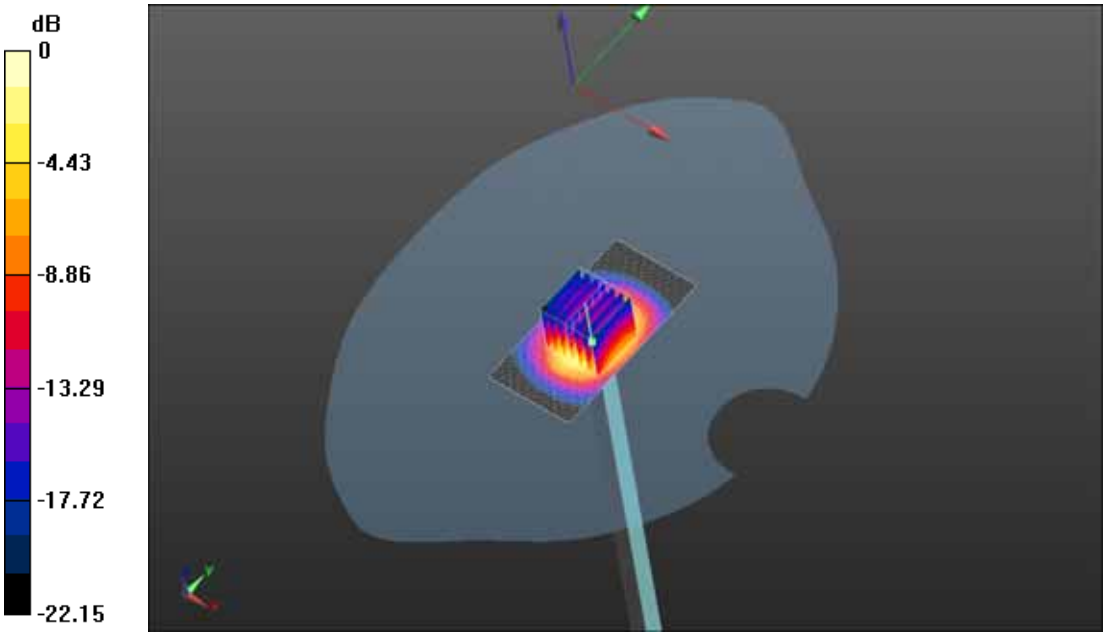
DipoleValidation_2450MHz_09_04_15_Amb_Tem_23.8C_Liq_Tem_23.0C
DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:747

Communication System: UID 0, CW (0); Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.828 S/m; ε_r = 37.433; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(4.6, 4.6, 4.6); Calibrated: 2/25/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequencies between 2 GHz - 3 GHz/d=10mm, Pin=1000mW, dist=3.0mm (ES-Probe)/Area Scan (41x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 191.3 V/m; Power Drift = 0.00 dB
Fast SAR: SAR(1 g) = 55.1 W/kg; SAR(10 g) = 25.9 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 73.8 W/kg

System Performance Check at Frequencies between 2 GHz - 3 GHz/d=10mm, Pin=1000mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 191.3 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 110 W/kg
SAR(1 g) = 54.3 W/kg; SAR(10 g) = 25.6 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 70.8 W/kg



0 dB = 70.8 W/kg = 18.50 dBW/kg

Date/Time: 9/15/2015 7:35:47 PM

Test Laboratory: BlackBerry RTS

DipoleValidation_2450MHz_09_15_15_Amb_Tem_23.9C_Liq_Tem_22.9C

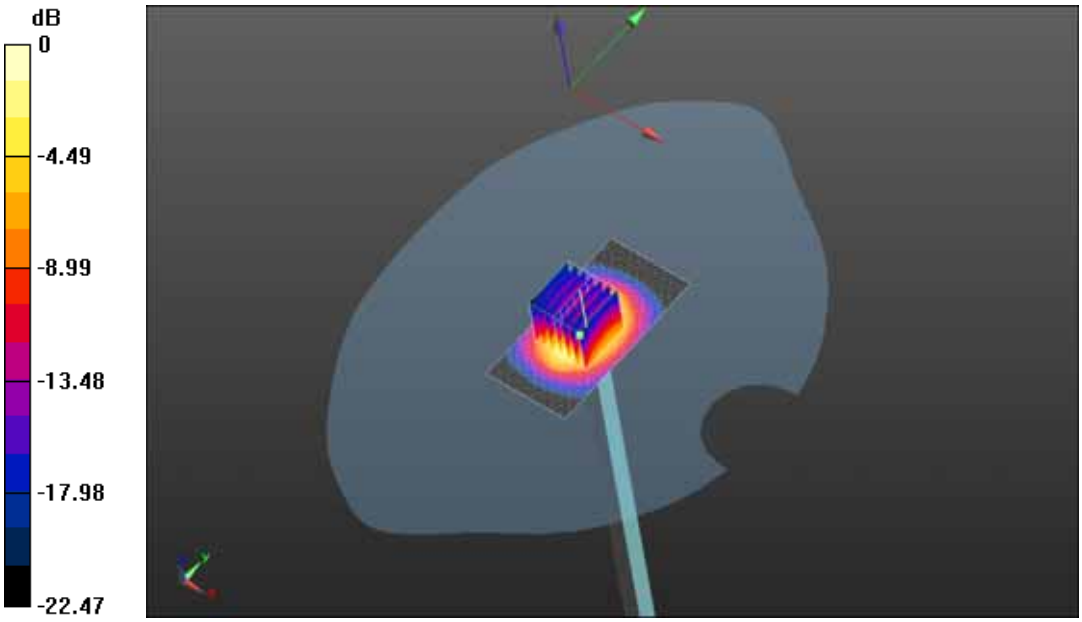
DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:747

Communication System: UID 0, CW (0); Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.822 S/m; ε_r = 37.915; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(4.6, 4.6, 4.6); Calibrated: 2/25/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequencies between 2 GHz - 3 GHz/d=10mm, Pin=1000mW, dist=3.0mm (ES-Probe) 2/Area Scan (41x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 206.4 V/m; Power Drift = 0.00 dB
Fast SAR: SAR(1 g) = 55.9 W/kg; SAR(10 g) = 26 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 74.0 W/kg

System Performance Check at Frequencies between 2 GHz - 3 GHz/d=10mm, Pin=1000mW, dist=3.0mm (ES-Probe) 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 206.4 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 110 W/kg
SAR(1 g) = 54.8 W/kg; SAR(10 g) = 25.8 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 71.3 W/kg



0 dB = 71.3 W/kg = 18.53 dBW/kg

5000-6000 MHz

Date/Time: 9/9/2015 5:14:20 AM

Test Laboratory: BlackBerry RTS

DipoleValidation_5000MHz_09_09_15_Amb_Tem_23.7C_Liq_Tem_22.6C

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN 1033

Communication System: UID 0, CW; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 4.715 S/m; ε_r = 34.347; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF(4.63, 4.63, 4.63); Calibrated: 11/10/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequency 5200 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 204.2 V/m; Power Drift = 0.01 dB
Fast SAR: SAR(1 g) = 81.6 W/kg; SAR(10 g) = 22.8 W/kg
Maximum value of SAR (interpolated) = 178 W/kg

System Performance Check at Frequency 5200 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x12) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 204.2 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 340 W/kg
SAR(1 g) = 85.5 W/kg; SAR(10 g) = 24.7 W/kg
Maximum value of SAR (measured) = 173 W/kg

Date/Time: 9/9/2015 7:17:50 AM

Test Laboratory: BlackBerry RTS

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1033

Communication System: UID 0, CW (0); Frequency: 5500 MHz
Medium parameters used: f = 5500 MHz; σ = 5.093 S/m; ε_r = 34.139; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF(4.2, 4.2, 4.2); Calibrated: 11/10/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequency 5500 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 203.3 V/m; Power Drift = -0.07 dB
Fast SAR: SAR(1 g) = 85.8 W/kg; SAR(10 g) = 23.7 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 191 W/kg

System Performance Check at Frequency 5500 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 203.3 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 385 W/kg
SAR(1 g) = 90.5 W/kg; SAR(10 g) = 25.9 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 192 W/kg

Date/Time: 9/9/2015 9:38:51 AM

Test Laboratory: BlackBerry RTS
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1033

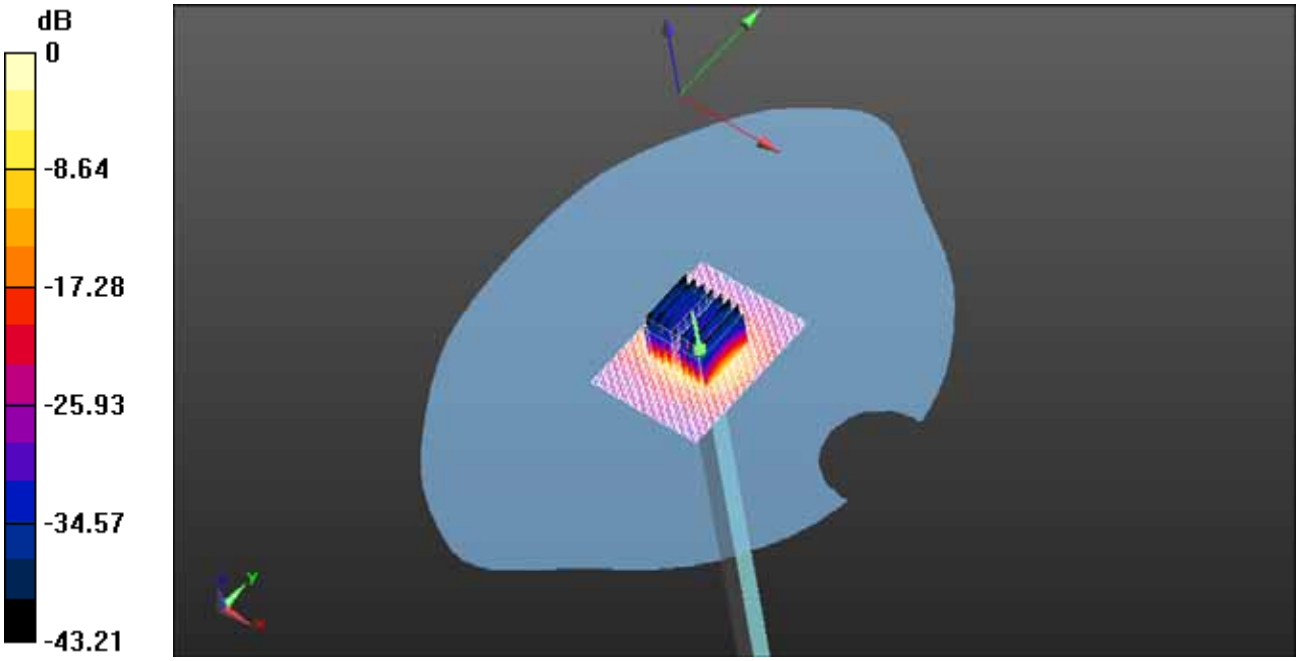
Communication System: UID 0, CW (0); Frequency: 5800 MHz
Medium parameters used: f = 5800 MHz; σ = 5.464 S/m; ε_r = 33.717; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF(4.34, 4.34, 4.34); Calibrated: 11/10/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequency 5800 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 194.6 V/m; Power Drift = 0.03 dB
Fast SAR: SAR(1 g) = 82.7 W/kg; SAR(10 g) = 23 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 185 W/kg

System Performance Check at Frequency 5800 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x12) (9x9x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 194.6 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 371 W/kg
SAR(1 g) = 85.8 W/kg; SAR(10 g) = 24.6 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 182 W/kg



0 dB = 182 W/kg = 22.60 dBW/kg

Date/Time: 9/14/2015 3:59:35 AM

Test Laboratory: BlackBerry RTS

DipoleValidation_5000MHz_09_14_15_Amb_Tem_23.9C_Liq_Tem_22.8C

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN 1033

Communication System: UID 0, CW; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 4.73 S/m; ε_r = 34.714; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF(4.63, 4.63, 4.63); Calibrated: 11/10/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequency 5200 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 200.5 V/m; Power Drift = 0.04 dB
Fast SAR: SAR(1 g) = 78.4 W/kg; SAR(10 g) = 22 W/kg
Maximum value of SAR (interpolated) = 169 W/kg

System Performance Check at Frequency 5200 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x12) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 200.5 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 333 W/kg
SAR(1 g) = 83.9 W/kg; SAR(10 g) = 24.3 W/kg
Maximum value of SAR (measured) = 170 W/kg

Date/Time: 9/14/2015 4:19:20 AM

Test Laboratory: BlackBerry RTS

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1033

Communication System: UID 0, CW (0); Frequency: 5500 MHz
Medium parameters used: f = 5500 MHz; σ = 5.086 S/m; ε_r = 34.207; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF(4.2, 4.2, 4.2); Calibrated: 11/10/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequency 5500 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 205.8 V/m; Power Drift = -0.04 dB
Fast SAR: SAR(1 g) = 85.6 W/kg; SAR(10 g) = 23.9 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 188 W/kg

System Performance Check at Frequency 5500 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 205.8 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 371 W/kg
SAR(1 g) = 90 W/kg; SAR(10 g) = 26.1 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 186 W/kg

Date/Time: 9/14/2015 6:03:23 AM

Test Laboratory: BlackBerry RTS

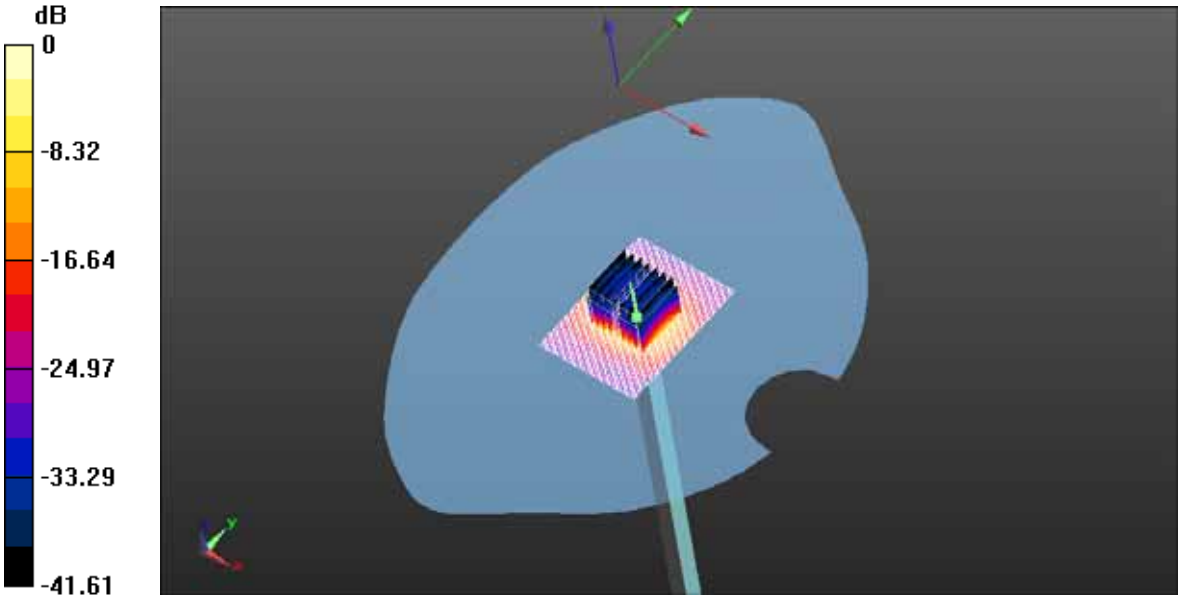
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1033

Communication System: UID 0, CW (0); Frequency: 5800 MHz
Medium parameters used: f = 5800 MHz; σ = 5.442 S/m; ε_r = 33.66; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF(4.34, 4.34, 4.34); Calibrated: 11/10/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequency 5800 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 192.3 V/m; Power Drift = 0.08 dB
Fast SAR: SAR(1 g) = 83 W/kg; SAR(10 g) = 22.8 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 186 W/kg

System Performance Check at Frequency 5800 MHz/d=10mm, Pin=1000mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x12) (9x9x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 192.3 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 366 W/kg
SAR(1 g) = 84.1 W/kg; SAR(10 g) = 24.2 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 179 W/kg



0 dB = 179 W/kg = 22.53 dBW/kg

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.2: GSM 835MHz

Date/Time: 19.08.2015 21:42:43

IEEE1528-GSM835 head

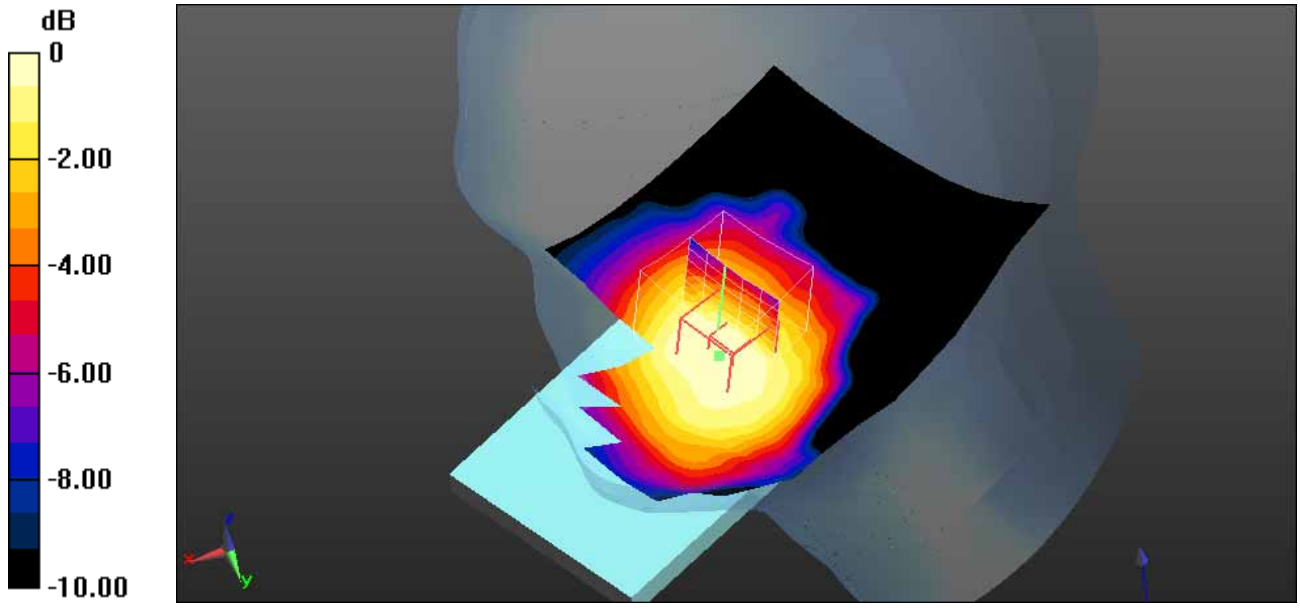
DUT: Blackberry; Type: RHM181LW; Serial: 1161509633
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 850; Frequency: 848.8 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used: f = 849 MHz; σ = 0.942 S/m; ε_r = 41.303; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1554; ConvF(6.86, 6.86, 6.86); Calibrated: 19.05.2015;
- 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: 22.05.2015
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Right-Hand-Side HSL 835/Touch Position - High/Area Scan (81x131x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.149 W/kg

Right-Hand-Side HSL 835/Touch Position - High/Zoom Scan (6x6x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 12.544 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.162 W/kg
SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.105 W/kg
Maximum value of SAR (measured) = 0.141 W/kg



0 dB = 0.141 W/kg = -8.51 dBW/kg

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

Date/Time: 20.08.2015 16:48:47

FCC_EN62209-2 GSM850 hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161509684

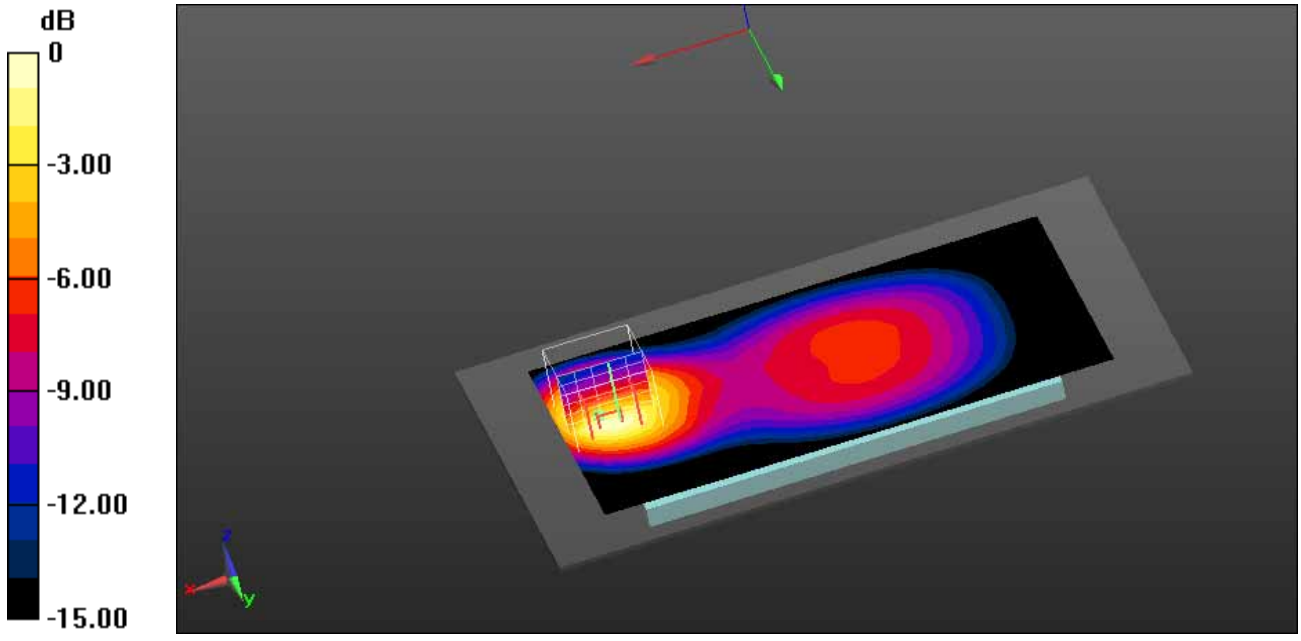
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 850; Frequency: 836.6 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used: f = 837 MHz; σ = 0.991 S/m; ε_r = 53.685; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.11, 6.11, 6.11); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 slider open/Rear Middle/Area Scan (81x151x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.794 W/kg

MSL850-10mm slider open/Rear Middle/Zoom Scan (6x6x7)/Cube 0: Measurement

grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 28.693 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.656 W/kg; SAR(10 g) = 0.373 W/kg
Maximum value of SAR (measured) = 0.790 W/kg



0 dB = 0.790 W/kg = -1.02 dBW/kg

Additional information:
position or distance of DUT to the phantom: 10 mm
ambient temperature: 24.3°C; liquid temperature: 22.5 °C

Date/Time: 20.08.2015 17:07:37

FCC_EN62209-2 GSM850 hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161509684

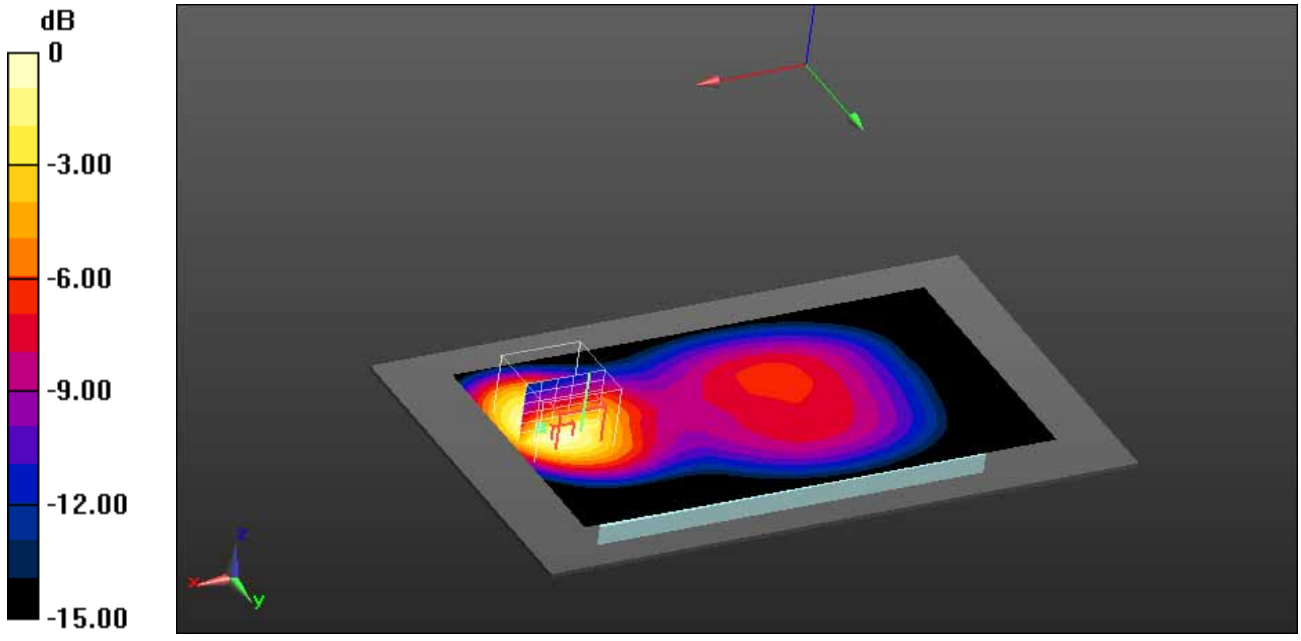
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 850; Frequency: 848.8 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used: f = 849 MHz; σ = 1.002 S/m; ε_r = 53.542; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.11, 6.11, 6.11); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 slider open/Rear High/Area Scan (81x151x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.877 W/kg

MSL850-10mm slider open/Rear High/Zoom Scan (6x6x7)/Cube 0: Measurement

grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 28.737 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.682 W/kg; SAR(10 g) = 0.407 W/kg
Maximum value of SAR (measured) = 0.816 W/kg



0 dB = 0.816 W/kg = -0.88 dBW/kg

Additional information:
position or distance of DUT to the phantom: 10 mm
ambient temperature: 24.3°C; liquid temperature: 22.5 °C

Date/Time: 20.08.2015 12:18:17

FCC_EN62209-2 GSM850 body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161509684

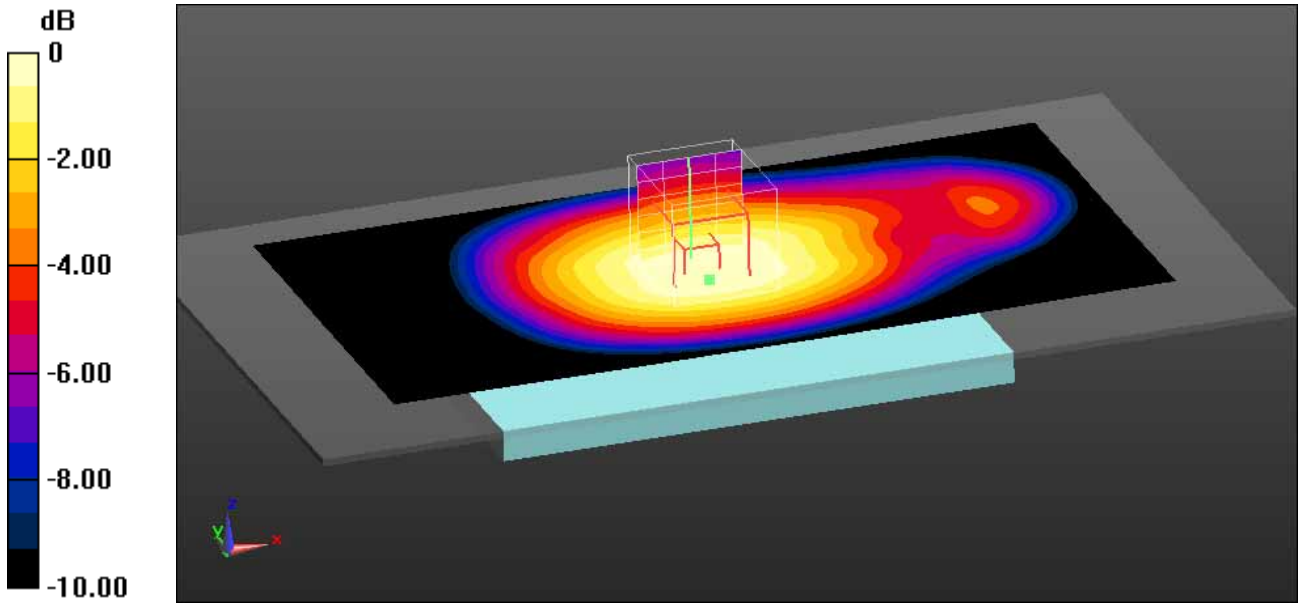
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 850; Frequency: 848.8 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used: f = 849 MHz; σ = 1.002 S/m; ε_r = 53.542; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.11, 6.11, 6.11); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.419 W/kg

MSL850-15mm/Front High/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 21.186 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.479 W/kg
SAR(1 g) = 0.386 W/kg; SAR(10 g) = 0.299 W/kg
Maximum value of SAR (measured) = 0.421 W/kg



0 dB = 0.421 W/kg = -3.76 dBW/kg

Additional information:
position or distance of DUT to the phantom: 15 mm
ambient temperature: 23.6°C; liquid temperature: 22.8°C

Annex B.3: GSM 1900MHz

Date/Time: 29.07.2015 19:13:35

IEEE1528-GSM1900 head

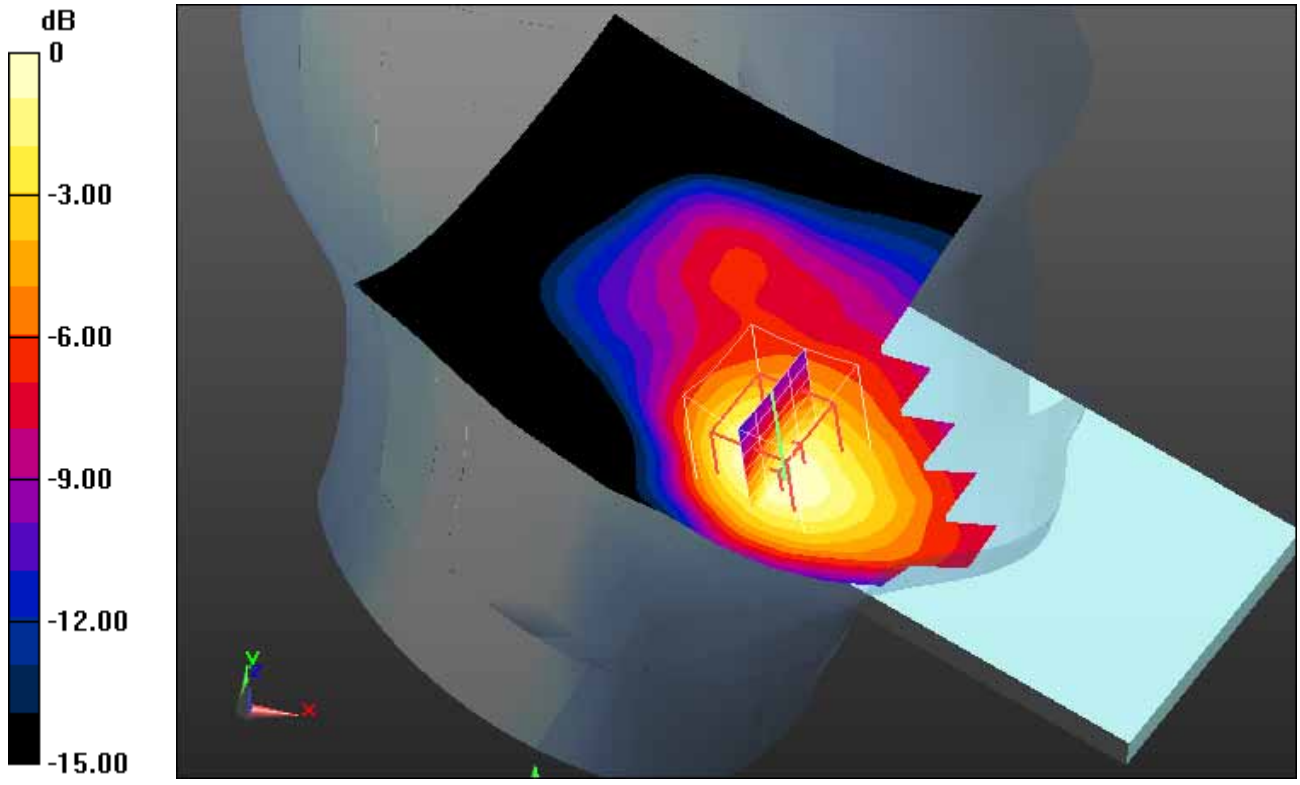
DUT: Blackberry; Type: RHM181LW; Serial: 1161466952
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 1900; Frequency: 1880 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used: f = 1880 MHz; σ = 1.359 S/m; ε_r = 39.968; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(5.04, 5.04, 5.04); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL slider open/Touch Position - Mid/Area Scan (81x131x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.624 W/kg

Left-Hand-Side HSL slider open/Touch Position - Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 21.773 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.775 W/kg
SAR(1 g) = 0.520 W/kg; SAR(10 g) = 0.326 W/kg
Maximum value of SAR (measured) = 0.603 W/kg



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

Additional information:
ambient temperature: 23.4°C; liquid temperature: 22.2°C

Date/Time: 29.08.2015 10:33:52

FCC_EN62209-2 GSM1900 hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161466951

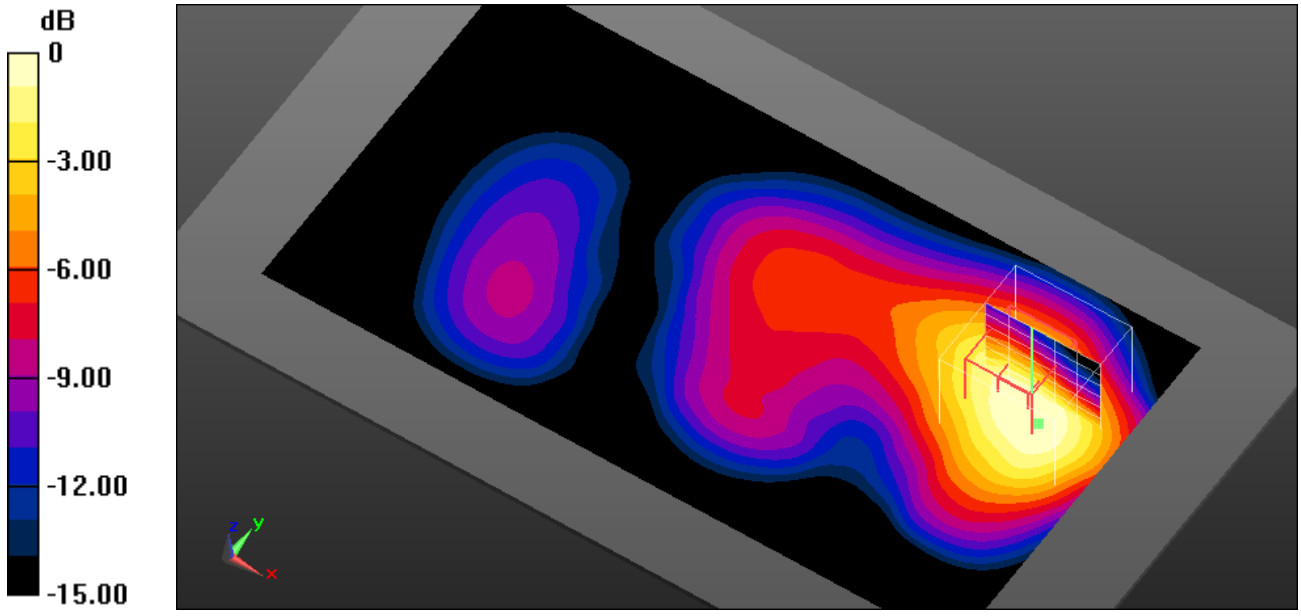
Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 1900; Frequency: 1850.2 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.45 S/m; ε_r = 52.736; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.91, 7.91, 7.91); Calibrated: 14.08.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 slider open/Rear Low/Area Scan (81x151x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.879 W/kg

MSL1900-10mm slider open/Rear Low/Zoom Scan (6x6x7)/Cube 0: Measurement

grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 23.716 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.720 W/kg; SAR(10 g) = 0.441 W/kg
Maximum value of SAR (measured) = 0.853 W/kg



0 dB = 0.853 W/kg = -0.69 dBW/kg

Additional information:
position or distance of DUT to the phantom: 10 mm
ambient temperature: 23.8°C; liquid temperature: 22.4°C

Date/Time: 17.08.2015 10:35:16

FCC_EN62209-2 GSM1900 body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161466041

Communication System: UID 0, GSM/GPRS 2TS (0); Communication System Band: GSM 1900; Frequency: 1850.2 MHz; Communication System PAR: 6.021 dB; PMF: 2.00009

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.474 S/m; ε_r = 53.815; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.617 W/kg

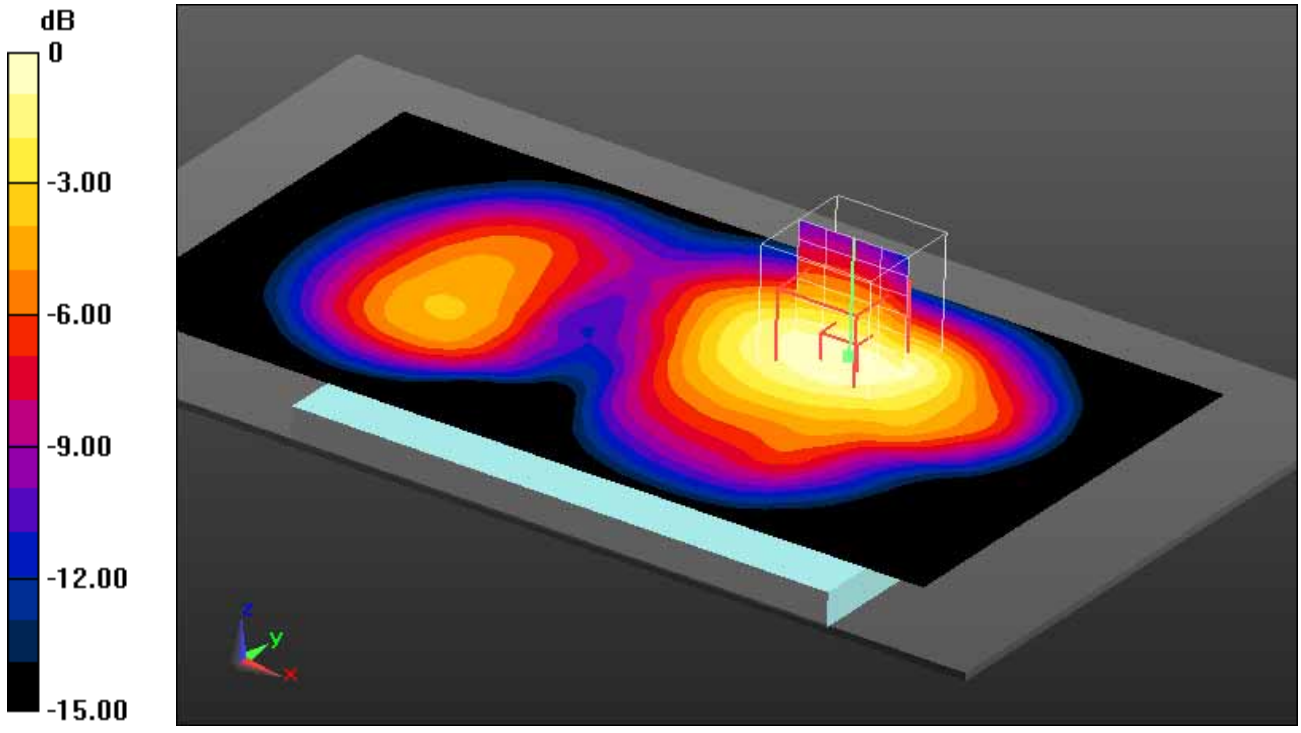
MSL1900-15mm/Rear Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 20.173 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.762 W/kg

SAR(1 g) = 0.537 W/kg; SAR(10 g) = 0.354 W/kg

Maximum value of SAR (measured) = 0.620 W/kg



0 dB = 0.620 W/kg = -2.08 dBW/kg

Additional information:

position or distance of DUT to the phantom: 15 mm

ambient temperature: 21.3°C; liquid temperature: 21.3°C

Annex B.4: UMTS FDD II

Date/Time: 29.07.2015 11:40:26

IEEE1528-UMTS FDD II head

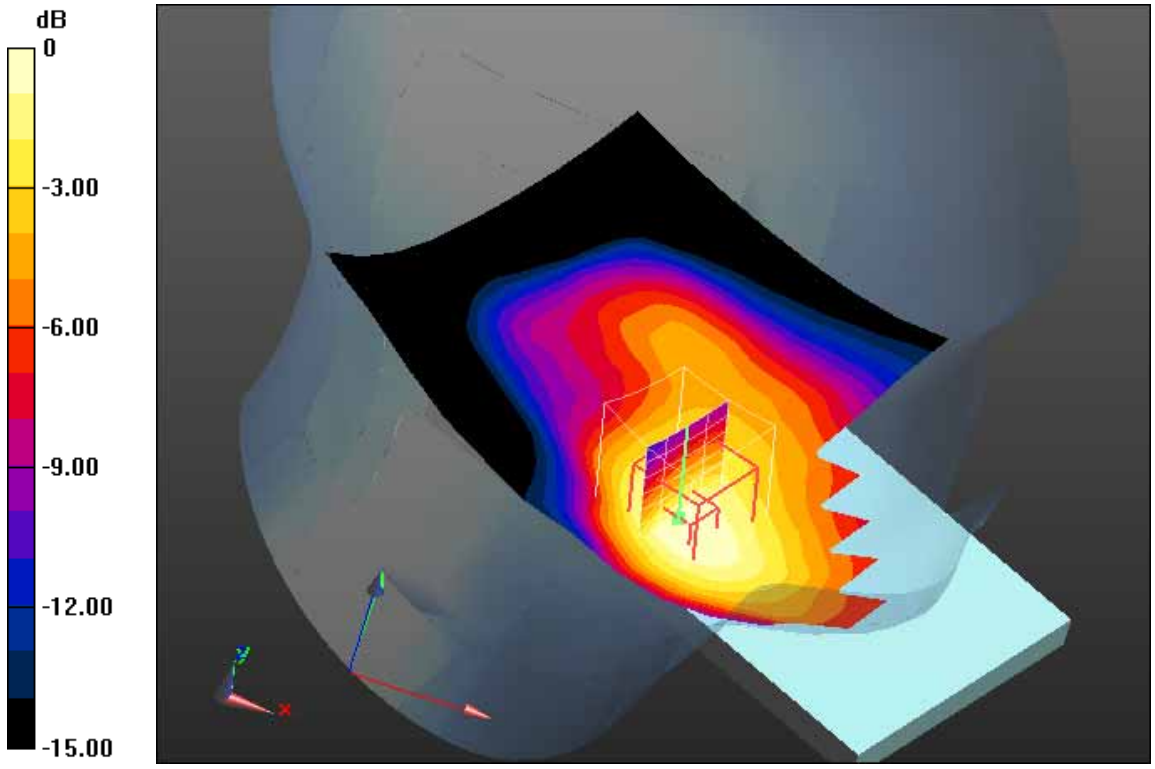
DUT: Blackberry; Type: RHM181LW; Serial: 1161466041
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD II; Frequency: 1852.4 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.333 S/m; ε_r = 40.066; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(5.04, 5.04, 5.04); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL slider open/Touch Position - Low/Area Scan (81x131x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.632 W/kg

Left-Hand-Side HSL slider open/Touch Position - Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 21.788 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.754 W/kg
SAR(1 g) = 0.518 W/kg; SAR(10 g) = 0.341 W/kg
Maximum value of SAR (measured) = 0.591 W/kg



0 dB = 0.591 W/kg = -2.28 dBW/kg

Additional information:
ambient temperature: 23.4°C; liquid temperature: 22.2°C

Date/Time: 29.07.2015 11:25:39

IEEE1528-UMTS FDD II head

DUT: Blackberry; Type: RHM181LW; Serial: 1161466041

Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD II; Frequency: 1880 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: f = 1880 MHz; σ = 1.359 S/m; ε_r = 39.968; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(5.04, 5.04, 5.04); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL slider open/Touch Position - Mid/Area Scan (81x131x1):

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

Maximum value of SAR (interpolated) = 0.691 W/kg

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

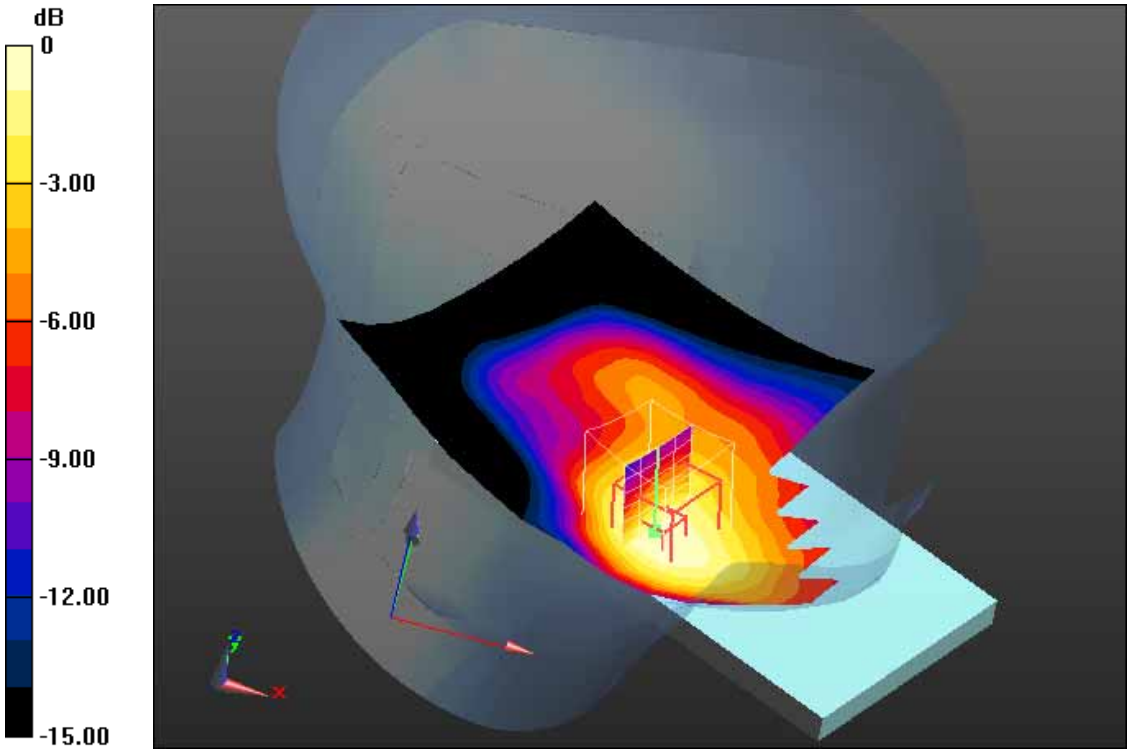
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 22.337 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.811 W/kg

SAR(1 g) = 0.557 W/kg; SAR(10 g) = 0.365 W/kg

Maximum value of SAR (measured) = 0.638 W/kg



0 dB = 0.638 W/kg = -1.95 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.2°C

Date/Time: 17.08.2015 15:38:06

FCC_EN62209-2 UMTS FDD II hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161467034

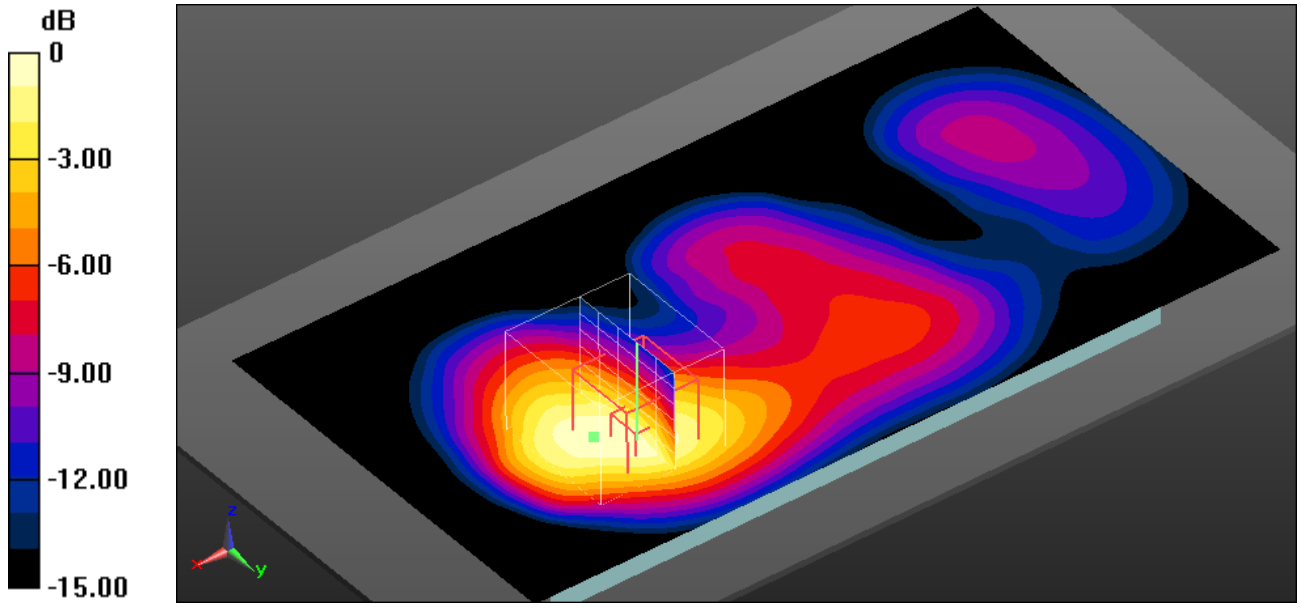
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD II; Frequency: 1880 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1880 MHz; σ = 1.503 S/m; ε_r = 53.728; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 open/Rear Middle/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.958 W/kg

MSL1900-10mm open/Rear Middle/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 25.434 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.815 W/kg; SAR(10 g) = 0.501 W/kg
Maximum value of SAR (measured) = 0.974 W/kg



0 dB = 0.974 W/kg = -0.11 dBW/kg

Additional information:
position or distance of DUT to the phantom: 10 mm
ambient temperature: 23.5°C; liquid temperature: 21.3°C

Date/Time: 17.08.2015 16:07:47

FCC_EN62209-2 UMTS FDD II hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161467034

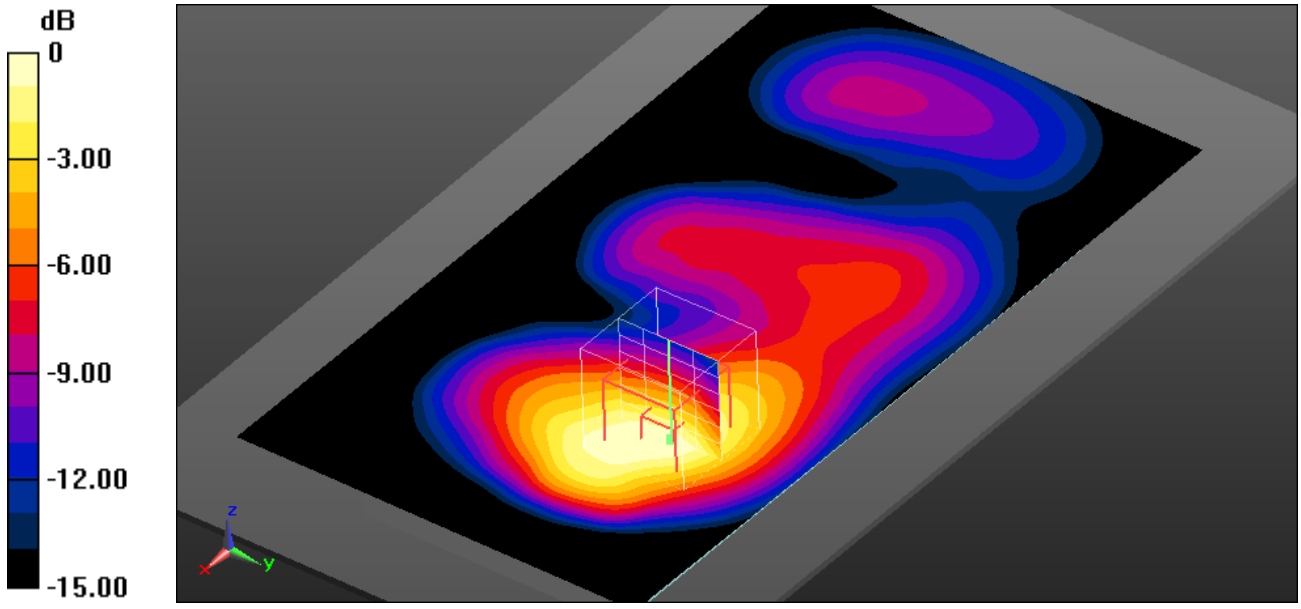
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD II; Frequency: 1907.6 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1908 MHz; σ = 1.529 S/m; ε_r = 53.666; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 open/Rear High/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.931 W/kg

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

Reference Value = 24.540 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.769 W/kg; SAR(10 g) = 0.469 W/kg
Maximum value of SAR (measured) = 0.924 W/kg



0 dB = 0.924 W/kg = -0.34 dBW/kg

Additional information:
position or distance of DUT to the phantom: 10 mm
ambient temperature: 23.5°C; liquid temperature: 21.3°C

Date/Time: 17.08.2015 11:47:52

FCC_EN62209-2 UMTS FDD II body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161466041

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 = 1.476 S/m; ε_r = 53.795; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 (81x151x1):

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

Maximum value of SAR (interpolated) = 0.829 W/kg

MSL1900-15mm/Rear Low/Zoom Scan (6x6x7)/Cube 0:

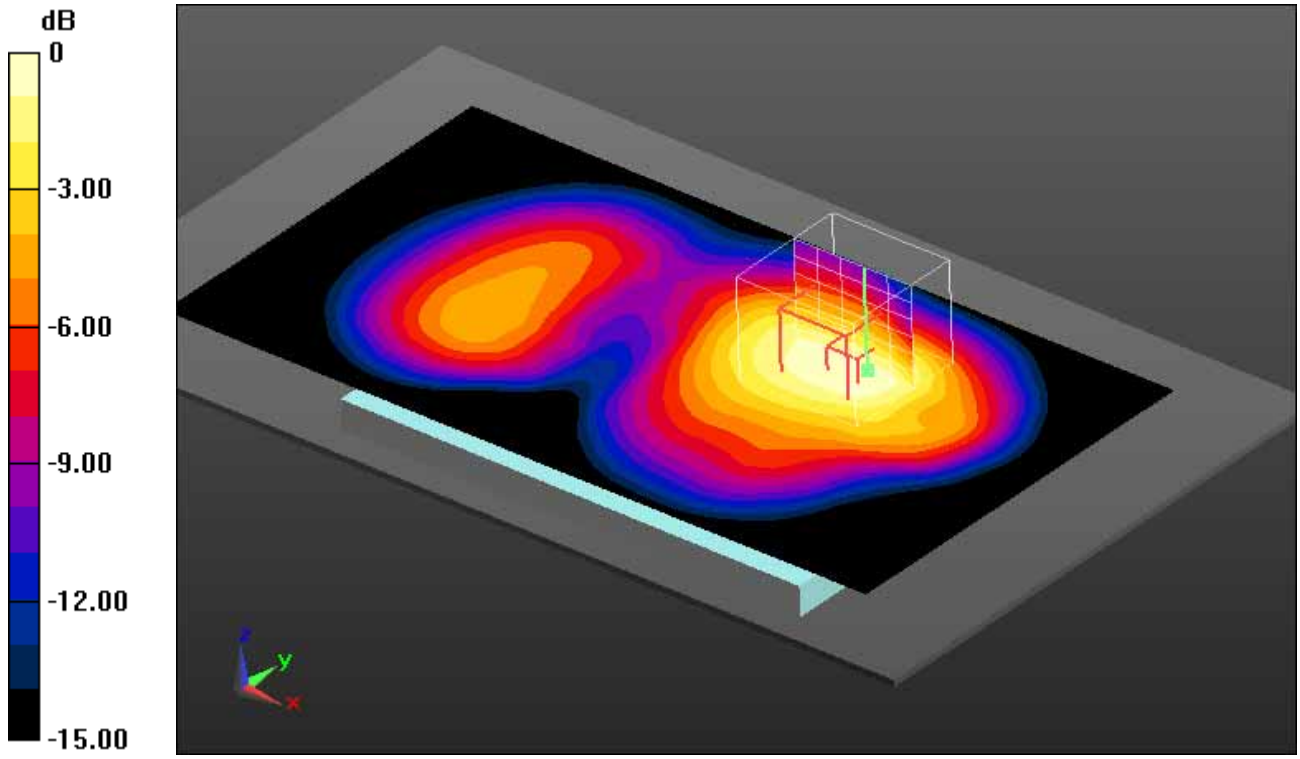
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 23.752 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.725 W/kg; SAR(10 g) = 0.473 W/kg

Maximum value of SAR (measured) = 0.834 W/kg



0 dB = 0.834 W/kg = -0.79 dBW/kg

Additional information:

position or distance of DUT to the phantom: 15 mm

ambient temperature: 21.3°C; liquid temperature: 21.3°C

Annex B.5: UMTS FDD IV

Date/Time: 7/31/2015 11:58:03 AM

IEEE1528-UMTS FDD IV head

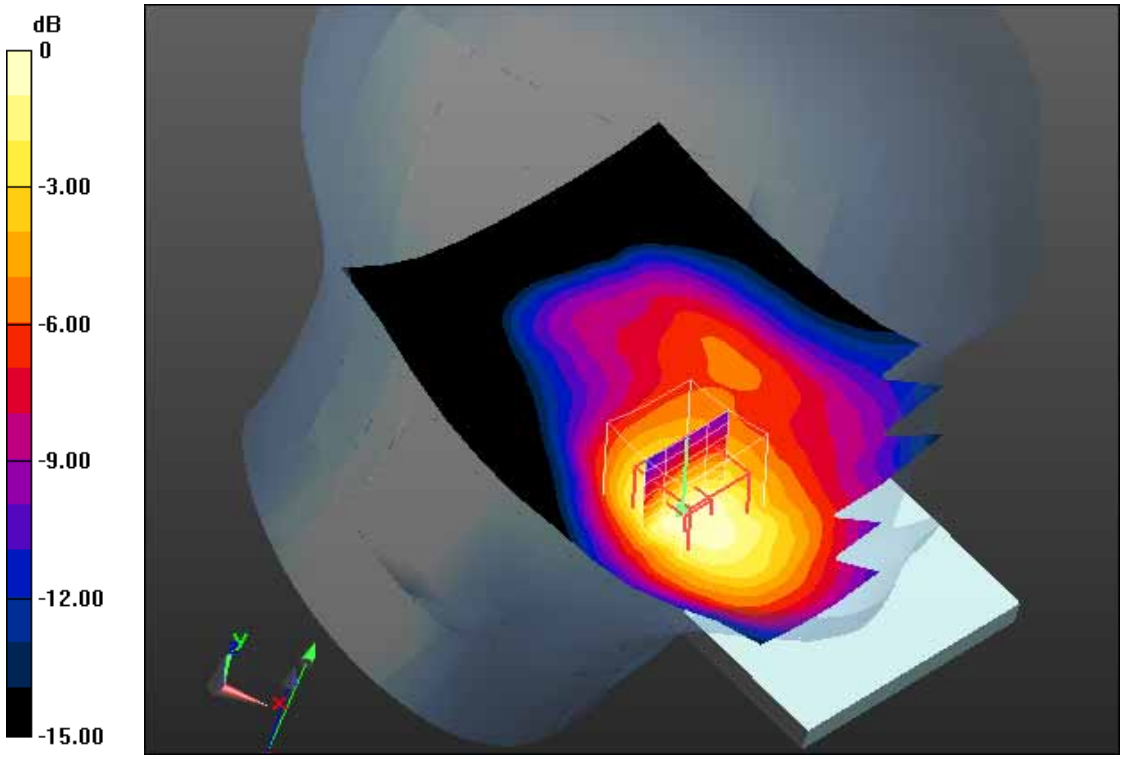
DUT: Blackberry; Type: RHM181LW; Serial: 1161466952
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD IV; Frequency: 1732.4 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.331 S/m; ε_r = 38.946; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3326; ConvF(5.26, 5.26, 5.26); Calibrated: 8/18/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/12/2014
- 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 (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.08 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 = 26.52 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.896 W/kg; SAR(10 g) = 0.568 W/kg
Maximum value of SAR (measured) = 1.04 W/kg



0 dB = 1.04 W/kg = 0.17 dBW/kg

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

Date/Time: 17.08.2015 15:39:23

FCC_EN62209-2 UMTS FDD IV hotspot_PR

DUT: Blackberry; Type: RHM181LW; Serial: 1161466951

Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD IV; Frequency: 1712.4 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.511 S/m; ε_r = 52.287; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.81, 4.81, 4.81); Calibrated: 19.05.2015;
- 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: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1750-10mm slider open/Rear Low/Area Scan (81x151x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.18 W/kg

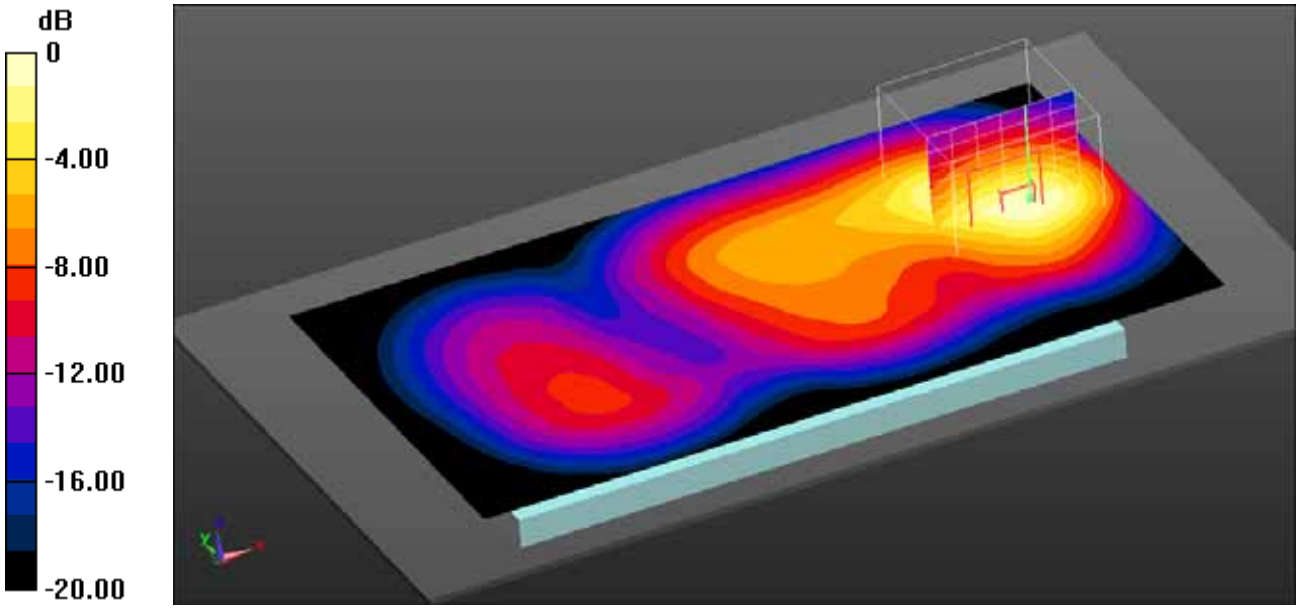
MSL1750-10mm slider open/Rear Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 29.871 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.66 W/kg

SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.663 W/kg

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



0 dB = 1.17 W/kg = 0.68 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.4°C; liquid temperature: 22.2°C

Date/Time: 17.08.2015 15:24:47

FCC_EN62209-2 UMTS FDD IV hotspot_PR

DUT: Blackberry; Type: RHM181LW; Serial: 1161466951

Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD IV; Frequency: 1732.4 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.523 S/m; ε_r = 52.196; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.81, 4.81, 4.81); Calibrated: 19.05.2015;
- 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: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1750-10mm slider open/Rear Middle/Area Scan (81x151x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

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

MSL1750-10mm slider open/Rear Middle/Zoom Scan (6x6x7)/Cube 0:

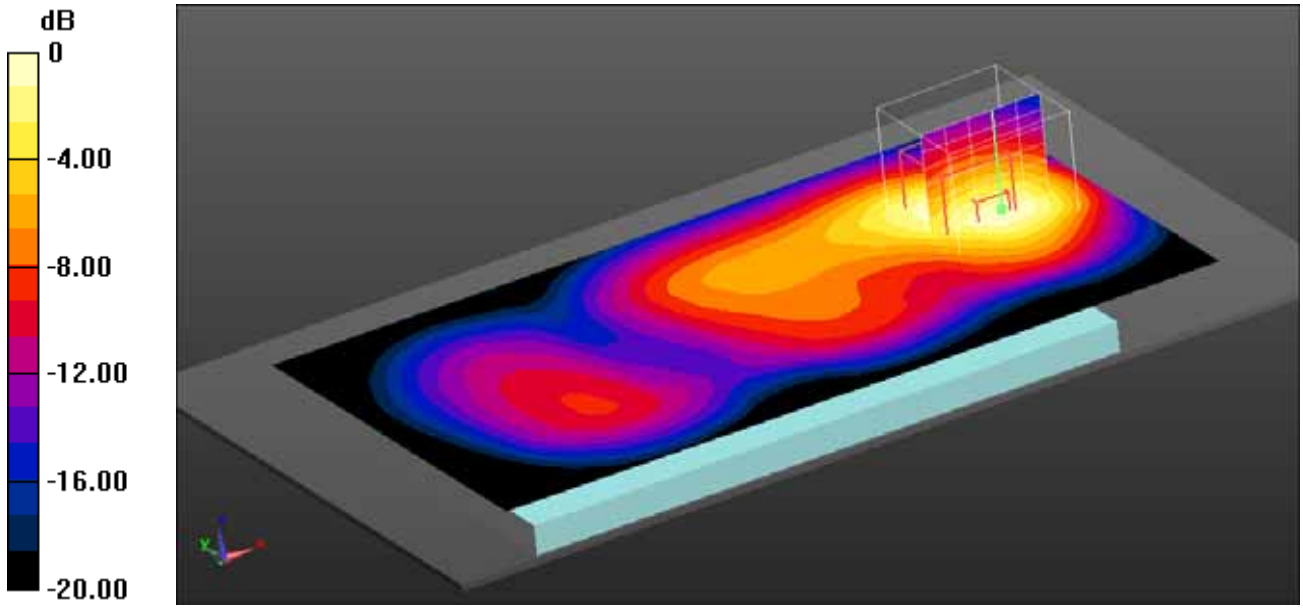
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 28.397 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 0.992 W/kg; SAR(10 g) = 0.607 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: 10 mm

ambient temperature: 22.4°C; liquid temperature: 22.2°CC

Date/Time: 7/29/2015 12:14:24 PM

FCC_EN62209-2 UMTS FDD IV body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161466952

Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD IV; Frequency: 1712.4 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.515 S/m; ε_r = 52.093; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3326; ConvF(4.88, 4.88, 4.88); Calibrated: 8/18/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/12/2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7164)

MSL1750-15mm/Front Low/Area Scan (81x151x1):

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

Maximum value of SAR (interpolated) = 0.861 W/kg

MSL1750-15mm/Front Low/Zoom Scan (6x6x7)/Cube 0:

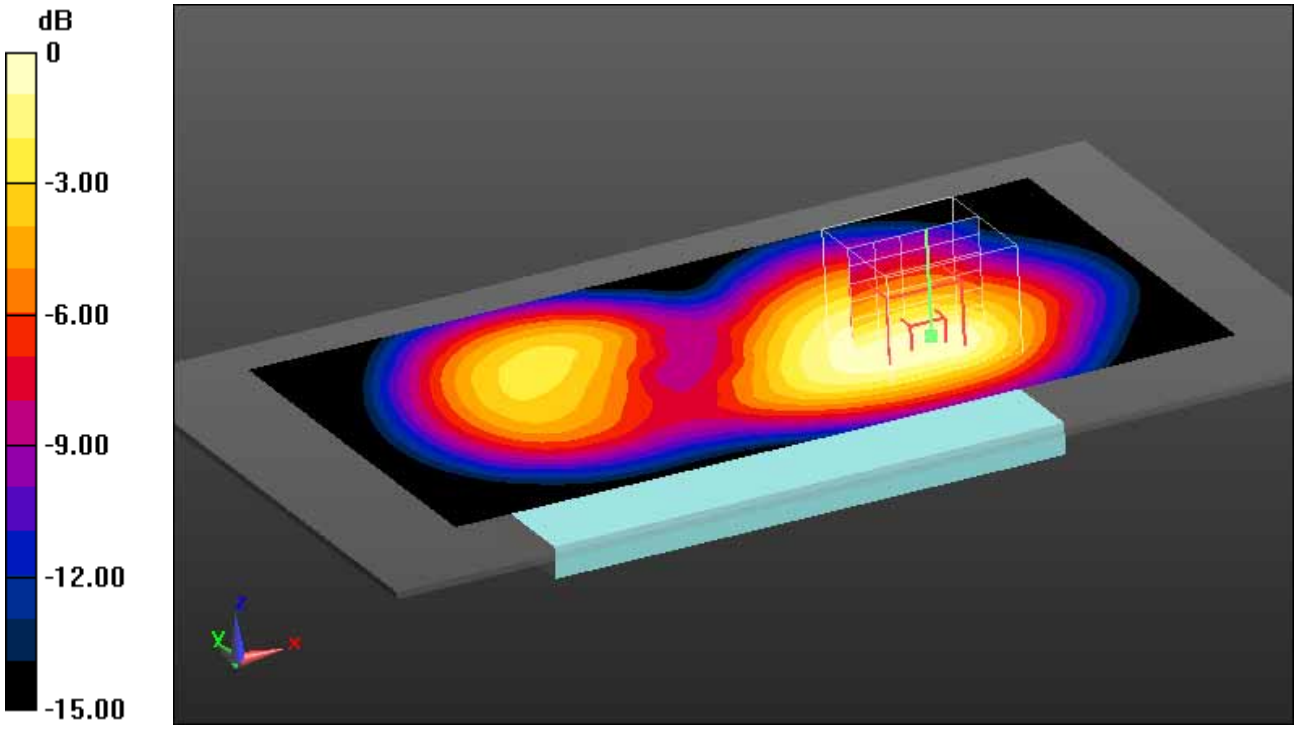
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 23.811 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.696 W/kg; SAR(10 g) = 0.464 W/kg

Maximum value of SAR (measured) = 0.797 W/kg



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

Additional information:

position or distance of DUT to the phantom: 15 mm

ambient temperature: 23.5°C; liquid temperature: 22.6°C

Date/Time: 7/29/2015 11:54:37 AM

FCC_EN62209-2 UMTS FDD IV body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161466952

Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD IV; Frequency: 1732.4 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.532 S/m; ε_r = 52.043; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3326; ConvF(4.88, 4.88, 4.88); Calibrated: 8/18/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn1387; Calibrated: 8/12/2014
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7164)

MSL1750-15mm/Front Middle/Area Scan (81x151x1):

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

Maximum value of SAR (interpolated) = 0.840 W/kg

MSL1750-15mm/Front Middle/Zoom Scan (6x6x7)/Cube 0:

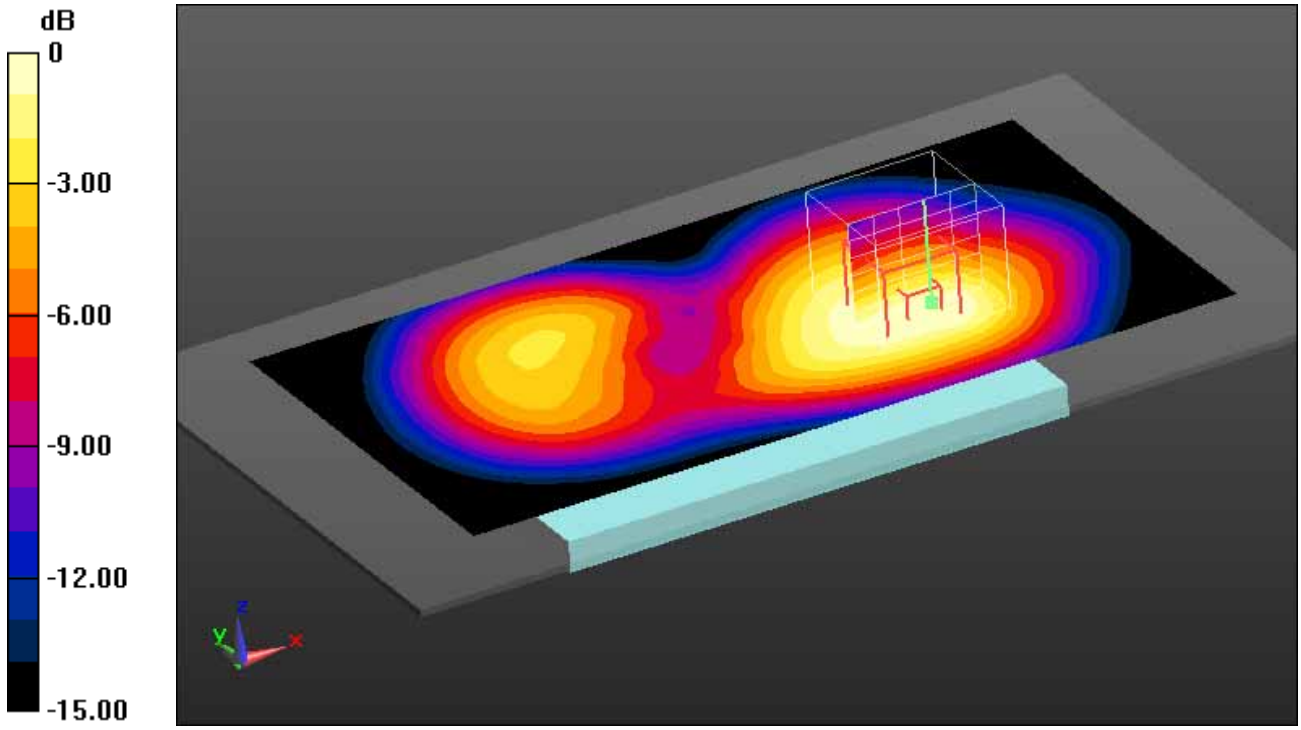
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 23.631 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.692 W/kg; SAR(10 g) = 0.461 W/kg

Maximum value of SAR (measured) = 0.793 W/kg



0 dB = 0.793 W/kg = -1.01 dBW/kg

Additional information:

position or distance of DUT to the phantom: 15 mm

ambient temperature: 23.5°C; liquid temperature: 22.6°C

Annex B.6: UMTS FDD V

Date/Time: 21.08.2015 15:26:03

IEEE1528-UMTS FDD V head

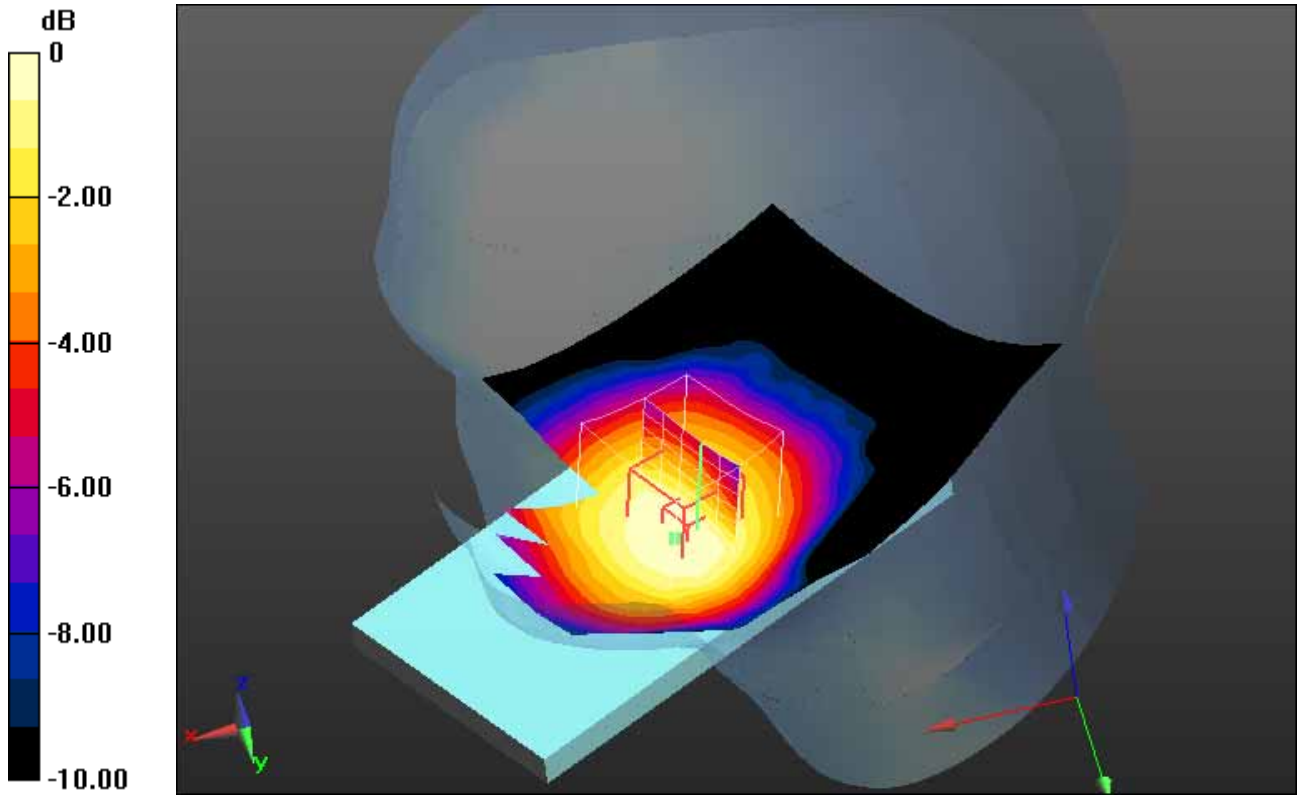
DUT: Blackberry; Type: RHM181LW; Serial: 1161509633
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD V; Frequency: 846.6 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 847 MHz; σ = 0.94 S/m; ε_r = 41.318; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1554; ConvF(6.86, 6.86, 6.86); Calibrated: 19.05.2015;
- 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: 22.05.2015
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Right-Hand-Side HSL 835/Touch Position - High/Area Scan (81x131x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.263 W/kg

Right-Hand-Side HSL 835/Touch Position - High/Zoom Scan (6x6x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 16.235 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.300 W/kg
SAR(1 g) = 0.253 W/kg; SAR(10 g) = 0.199 W/kg
Maximum value of SAR (measured) = 0.265 W/kg



0 dB = 0.265 W/kg = -5.77 dBW/kg

Additional information:
ambient temperature: 22.5°C; liquid temperature: 21.0°C

Date/Time: 21.08.2015 15:03:54

FCC_EN62209-2 UMTS FDD V hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161509684

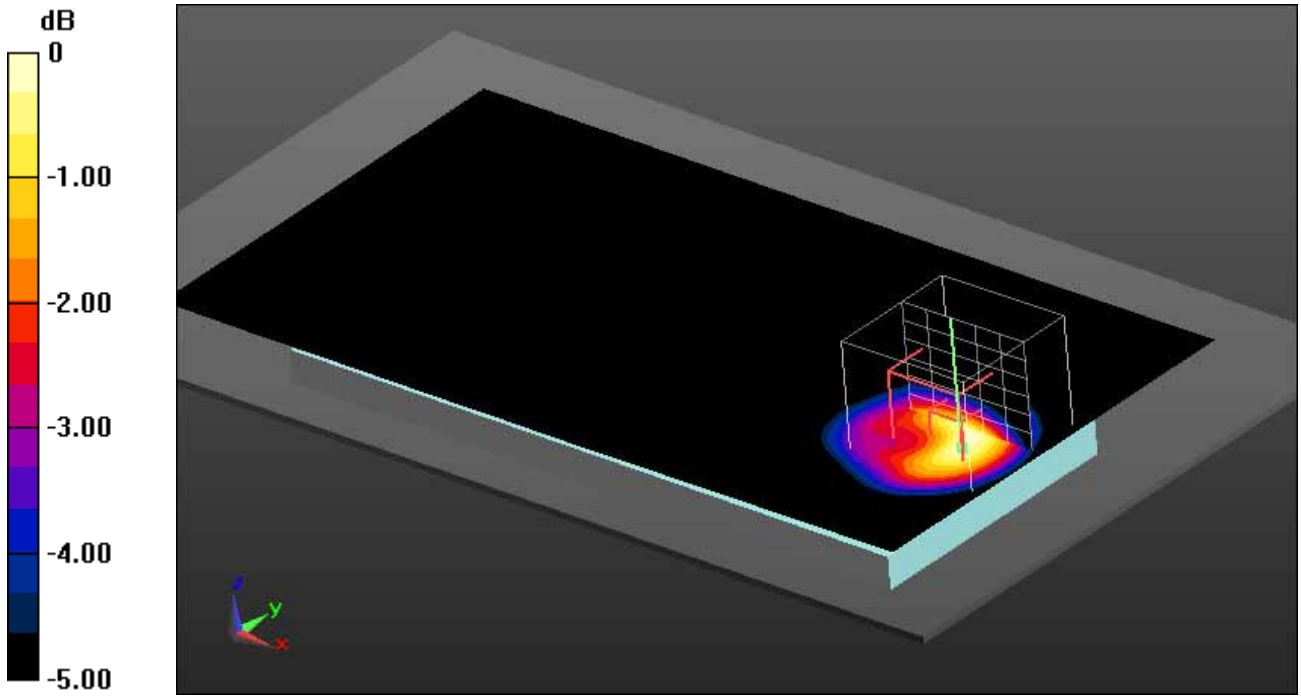
Communication System: UID 0, UMTS FDD (0); Communication System Band: UMTS FDD V; Frequency: 846.6 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 847 MHz; σ = 1.002 S/m; ε_r = 53.551; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(6.11, 6.11, 6.11); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 slider open/Rear High/Area Scan (81x151x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.673 W/kg

MSL850-10mm slider open/Rear High/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 25.785 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.577 W/kg; SAR(10 g) = 0.329 W/kg
Maximum value of SAR (measured) = 0.708 W/kg



0 dB = 0.708 W/kg = -1.50 dBW/kg

Additional information:
position or distance of DUT to the phantom: 10 mm
ambient temperature: 23.3°C; liquid temperature: 22.5 °C

Date/Time: 21.08.2015 11:21:27

FCC_EN62209-2 UMTS FDD V body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161509684

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 = 0.982 S/m; ε_r = 53.829; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(6.11, 6.11, 6.11); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 Low/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.282 W/kg

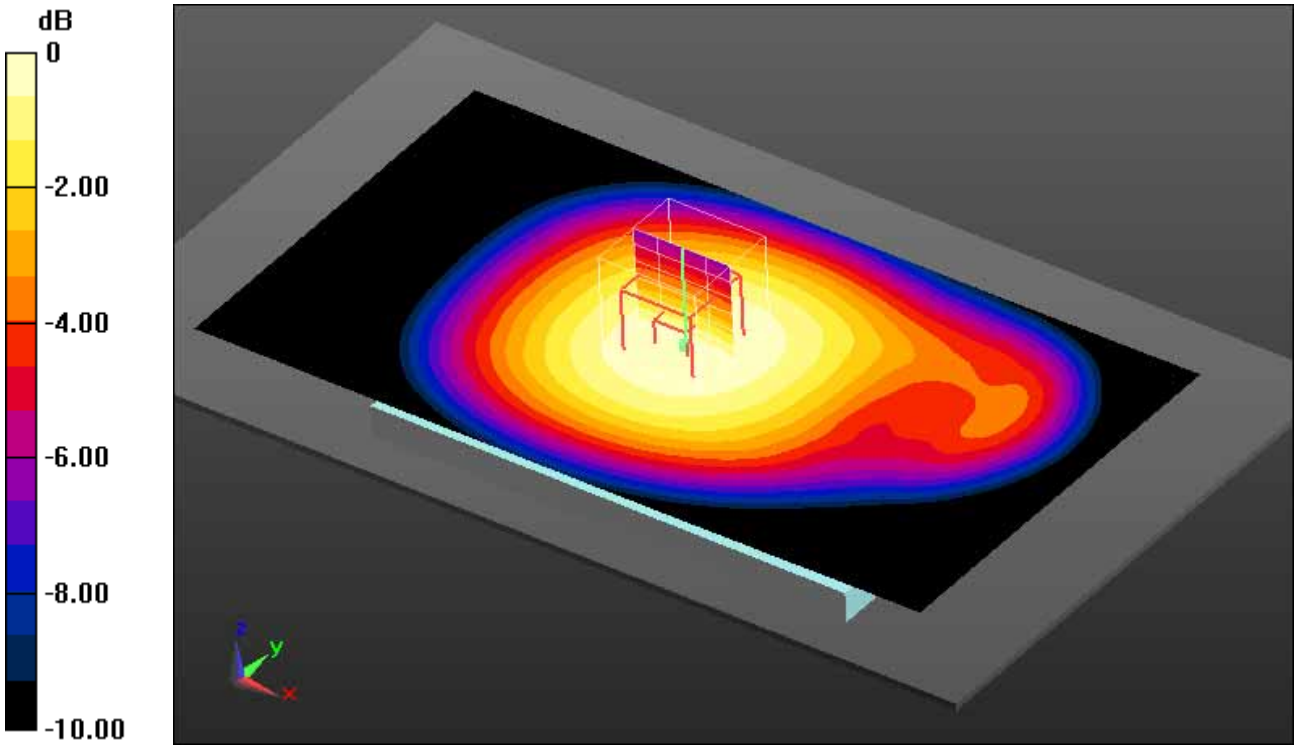
MSL850-15mm/Front Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 17.496 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.318 W/kg

SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.199 W/kg

Maximum value of SAR (measured) = 0.280 W/kg



0 dB = 0.280 W/kg = -5.53 dBW/kg

Additional information:

position or distance of DUT to the phantom: 15 mm

ambient temperature: 23.3°C; liquid temperature: 22.5 °C

Annex B.7: LTE FDD 2

Date/Time: 30.07.2015 09:57:37

IEEE1528-LTE FDD 2 head

DUT: Blackberry; Type: RHM181LW; Serial: 1161466041

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 = 1.381 S/m; ε_r = 39.929; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(5.04, 5.04, 5.04); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL slider open - 20MHz BW - QPSK/Touch Position - High 1 RB - 0RB offset/Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.756 W/kg

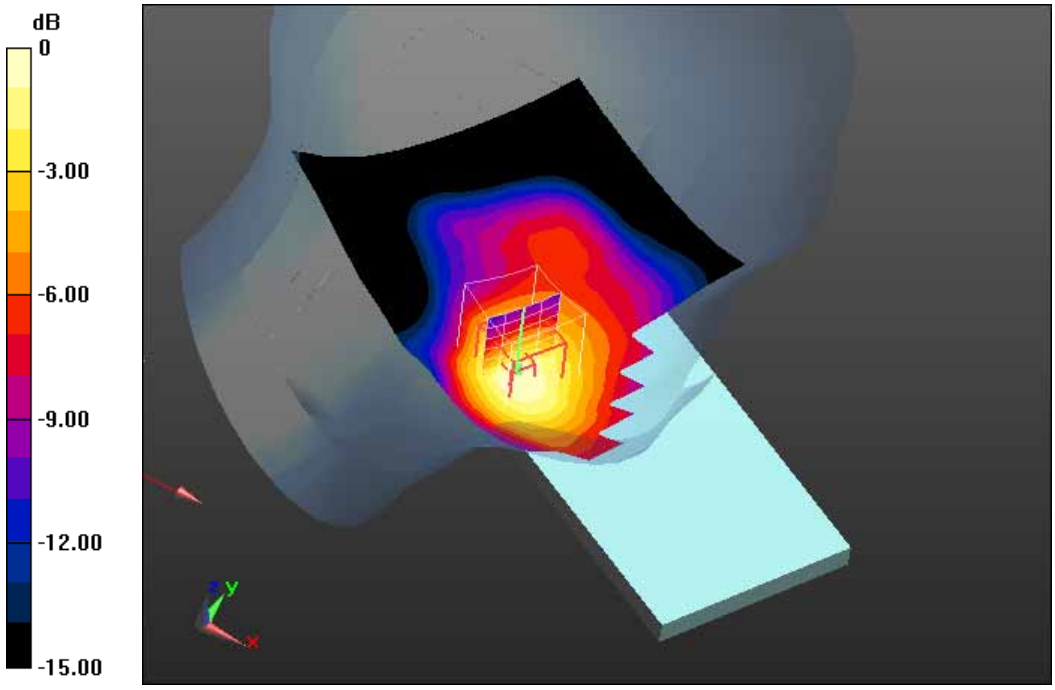
Left-Hand-Side HSL slider open - 20MHz BW - QPSK/Touch Position - High 1 RB - 0RB offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 22.993 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.932 W/kg

SAR(1 g) = 0.629 W/kg; SAR(10 g) = 0.399 W/kg

Maximum value of SAR (measured) = 0.731 W/kg



0 dB = 0.731 W/kg = -1.36 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.2°C

Date/Time: 19.08.2015 13:26:33

FCC_EN62209-2 LTE FDD 2 hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161467034

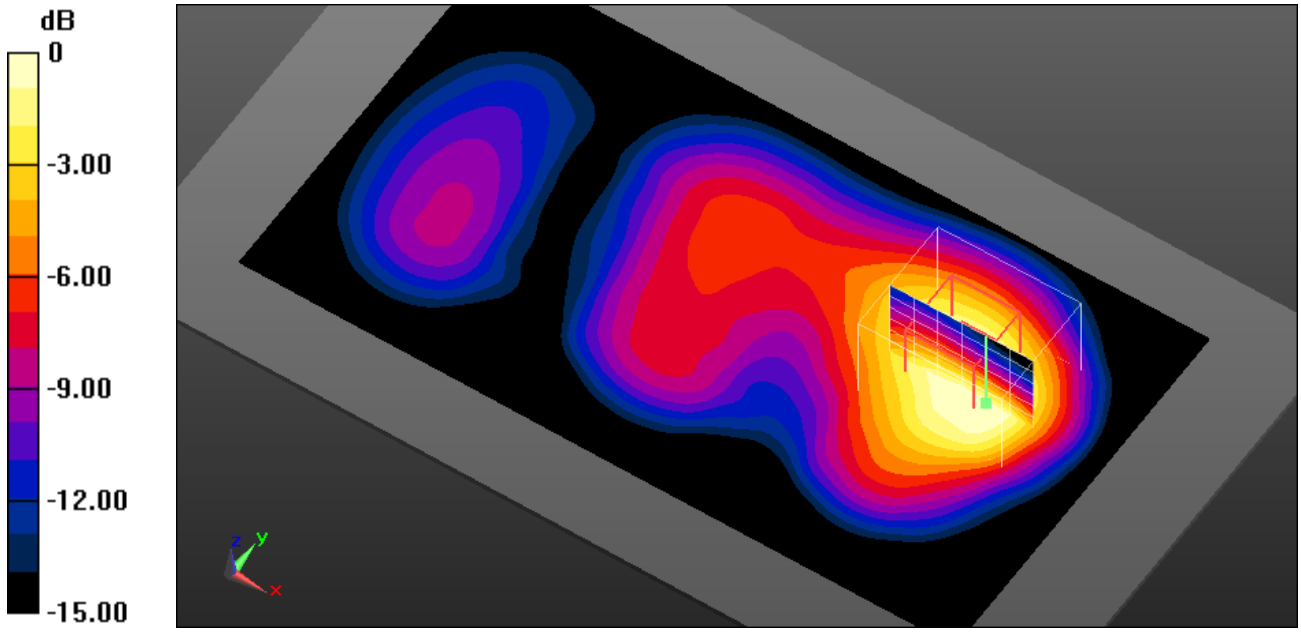
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 2 (1900MHz); Frequency: 1880 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1880 MHz; σ = 1.503 S/m; ε_r = 53.728; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 open - 20MHz BW - QPSK - 1RB - 0RB offset/Rear Middle/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.841 W/kg

MSL1900-10mm open - 20MHz BW - QPSK - 1RB - 0RB offset/Rear Middle/Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 23.543 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.662 W/kg; SAR(10 g) = 0.410 W/kg
Maximum value of SAR (measured) = 0.781 W/kg



0 dB = 0.781 W/kg = -1.07 dBW/kg

Additional information:
position or distance of DUT to the phantom: 10 mm
ambient temperature: 23.0°C; liquid temperature: 21.3°C

Date/Time: 18.08.2015 10:05:17

FCC_EN62209-2 LTE FDD 2 body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161466041

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 = 1.503 S/m; ε_r = 53.728; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(4.54, 4.54, 4.54); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- 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 (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.641 W/kg

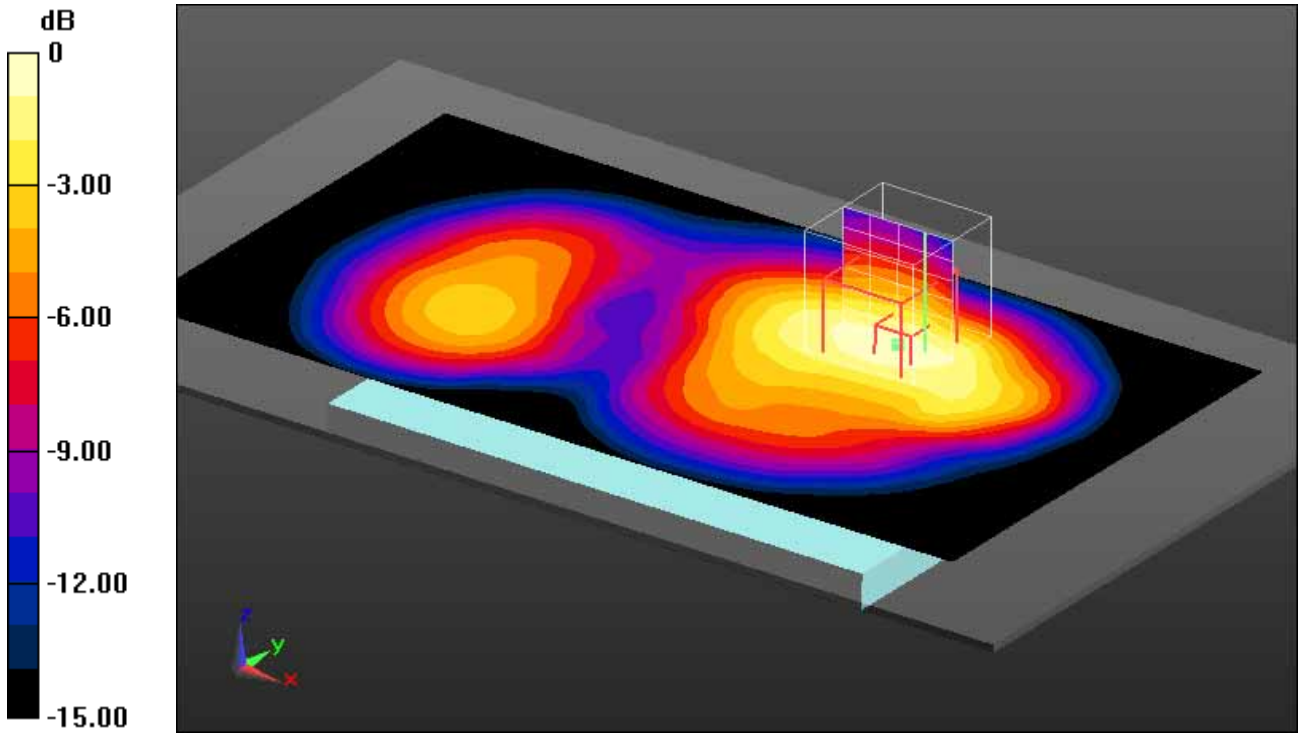
MSL1900-15mm - QPSK - 20MHz BW - 1RB/Rear Middle - 0RB offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 20.579 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.878 W/kg

SAR(1 g) = 0.608 W/kg; SAR(10 g) = 0.394 W/kg

Maximum value of SAR (measured) = 0.699 W/kg



0 dB = 0.699 W/kg = -1.56 dBW/kg

Additional information:

position or distance of DUT to the phantom: 15 mm

ambient temperature: 21.3°C; liquid temperature: 21.3°C

Annex B.8: LTE FDD 4

Date/Time: 04.08.2015 22:13:12

IEEE1528-LTE FDD 4 head

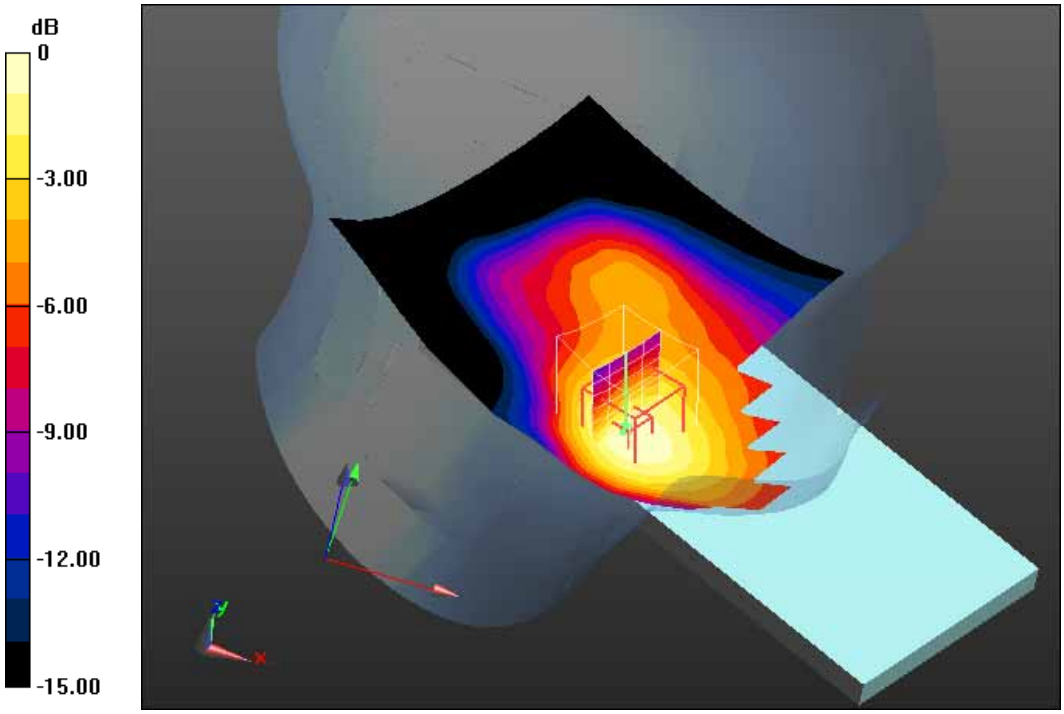
DUT: Blackberry; Type: RHM181LW; Serial: 1161466041
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 4 (1700MHz); Frequency: 1745 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1745 MHz; σ = 1.343 S/m; ε_r = 38.899; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ES3DV3 - SN3320; ConvF(5.19, 5.19, 5.19); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Left-Hand-Side HSL - 20MHz BW - QPSK slider open/Touch Position - High - 1RB - 0RB offset/Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.728 W/kg

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

Reference Value = 23.561 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.878 W/kg
SAR(1 g) = 0.612 W/kg; SAR(10 g) = 0.403 W/kg
Maximum value of SAR (measured) = 0.704 W/kg



0 dB = 0.704 W/kg = -1.52 dBW/kg

Additional information:
ambient temperature: 23.8°C; liquid temperature: 22.9°C

Date/Time: 19.08.2015 14:35:16

FCC_EN62209-2 LTE FDD 4 hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161466951

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 = 1.515 S/m; ε_r = 52.237; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.81, 4.81, 4.81); Calibrated: 19.05.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1750-10mm slider open - QPSK - 20MHz BW - 1RB/Rear Low - 0RB offset wc/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.999 W/kg

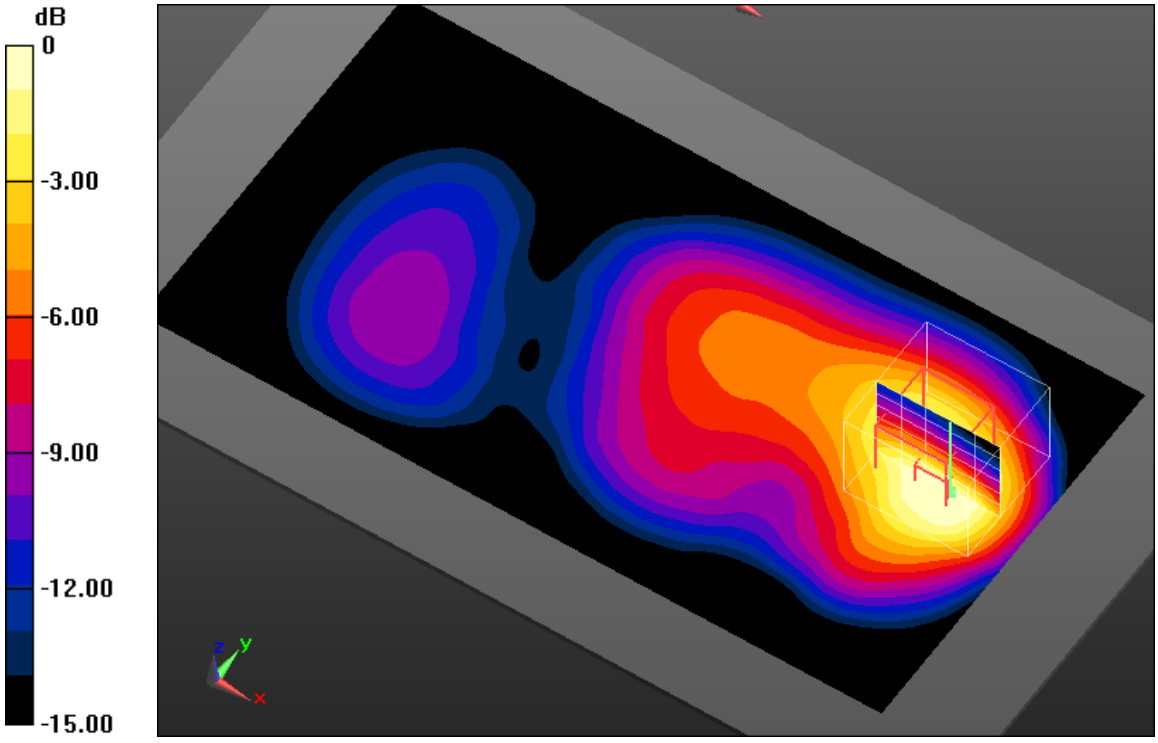
MSL1750-10mm slider open - QPSK - 20MHz BW - 1RB/Rear Low - 0RB offset wc/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 26.387 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.832 W/kg; SAR(10 g) = 0.513 W/kg

Maximum value of SAR (measured) = 0.904 W/kg



0 dB = 0.904 W/kg = -0.44 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.4°C

Date/Time: 18.08.2015 16:00:08

FCC_EN62209-2 LTE FDD 4 body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161466041

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 = 1.534 S/m; ε_r = 52.175; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.81, 4.81, 4.81); Calibrated: 19.05.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL1750-15mm - QPSK - 20MHz BW - 1RB/Rear High - 0RB offset/Area Scan (81x151x1):

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

Maximum value of SAR (interpolated) = 0.666 W/kg

MSL1750-15mm - QPSK - 20MHz BW - 1RB/Rear High - 0RB offset/Zoom Scan (5x5x7)/Cube 0:

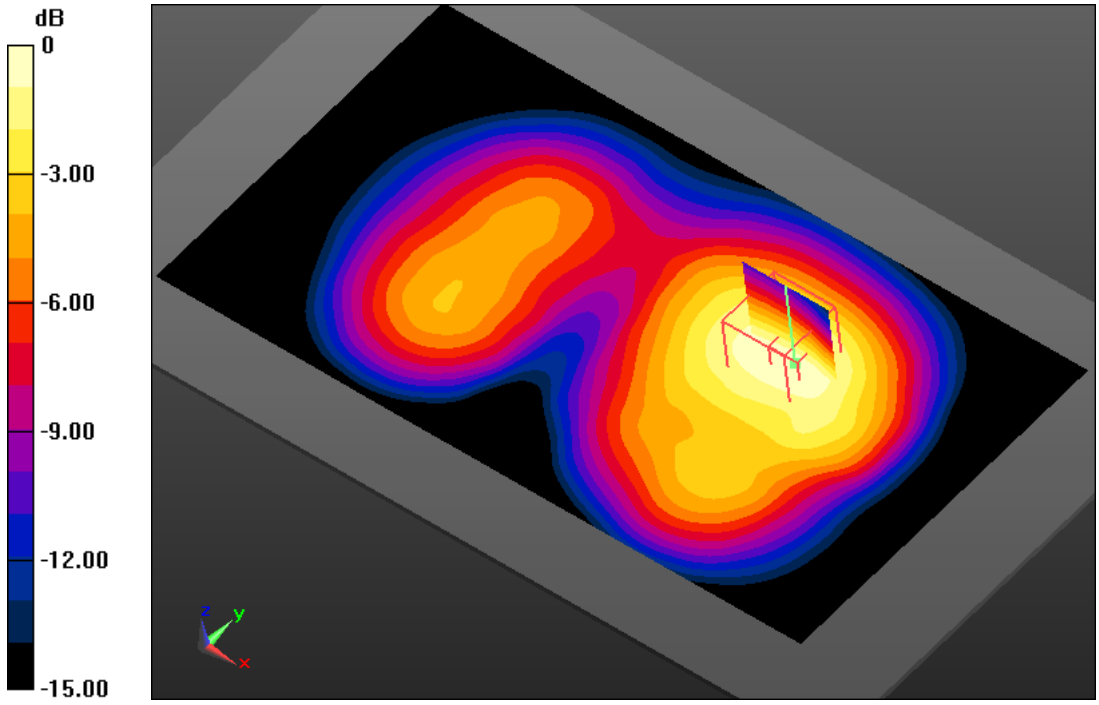
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 21.827 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 0.803 W/kg

SAR(1 g) = 0.619 W/kg; SAR(10 g) = 0.404 W/kg

Maximum value of SAR (measured) = 0.675 W/kg



0 dB = 0.675 W/kg = -1.71 dBW/kg

Additional information:

position or distance of DUT to SAM: 15 mm

ambient temperature: 21.9°C; liquid temperature: 21.4°C

Annex B.9: LTE FDD 7

Date/Time: 04.08.2015 10:27:16

IEEE1528_EN62209-LTE FDD 7 head

DUT: Blackberry; Type: RHM181LW; Serial: 1161466952

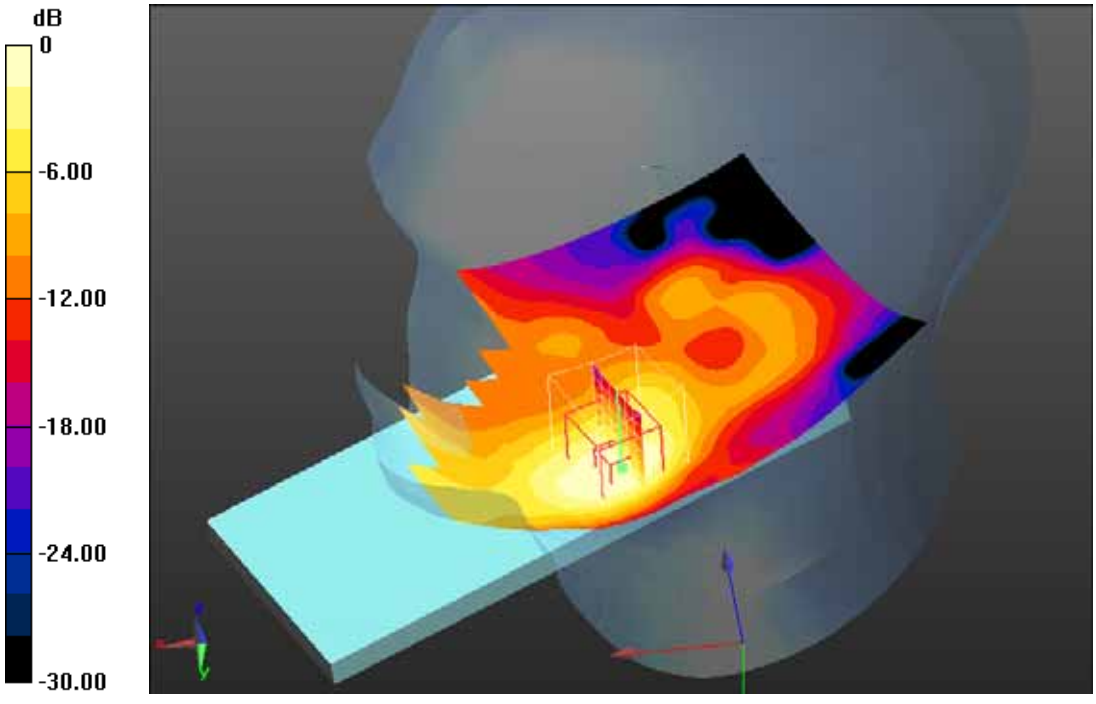
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 7 (2600MHz); Frequency: 2510 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2510 MHz; σ = 1.798 S/m; ε_r = 38.156; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.33, 7.33, 7.33); Calibrated: 19.08.2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn477; Calibrated: 22.05.2015
- Phantom: SAM; Type: SAM; Serial: 1043
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Right-Hand-Side HSL - 20MHz BW - QPSK - slider open/Touch Position - Low 1RB - 0RB offset/Area Scan (121x191x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.355 W/kg

Right-Hand-Side HSL - 20MHz BW - QPSK - slider open/Touch Position - Low 1RB - 0RB offset/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.924 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.130 W/kg
Maximum value of SAR (measured) = 0.335 W/kg



0 dB = 0.335 W/kg = -4.75 dBW/kg

Additional information:
ambient temperature: 22.8°C; liquid temperature: 21.4°C

Date/Time: 05.09.2015 22:38:18

FCC_EN62209-2 LTE FDD 7 hotspot

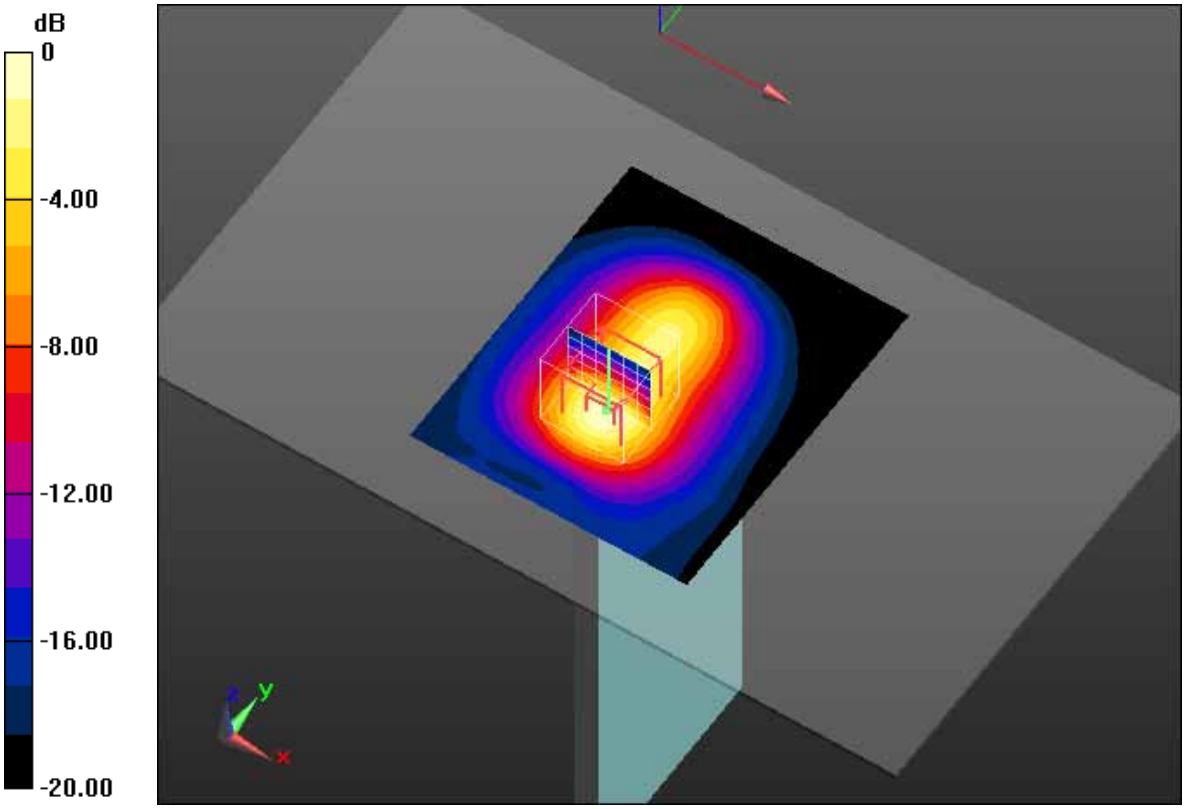
DUT: Blackberry; Type: RHM181LW; Serial: 1161466951
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 7 (2600MHz); Frequency: 2560 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2560 MHz; σ = 2.155 S/m; ε_r = 51.096; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.37, 7.37, 7.37); Calibrated: 14.08.2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL-10mm - 20MHz BW - QPSK - 1RB slider open/Bottom 0RB offset High/Area Scan (101x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.16 W/kg

MSL-10mm - 20MHz BW - QPSK - 1RB slider open/Bottom 0RB offset High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.102 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.769 W/kg; SAR(10 g) = 0.364 W/kg
Maximum value of SAR (measured) = 1.15 W/kg



0 dB = 1.15 W/kg = 0.61 dBW/kg

Additional information:
position or distance of DUT to the phantom: 10 mm
ambient temperature: 23.0°C; liquid temperature: 22.6°C

Date/Time: 04.09.2015 10:39:04

FCC_EN62209-2 LTE FDD 7 body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161466951

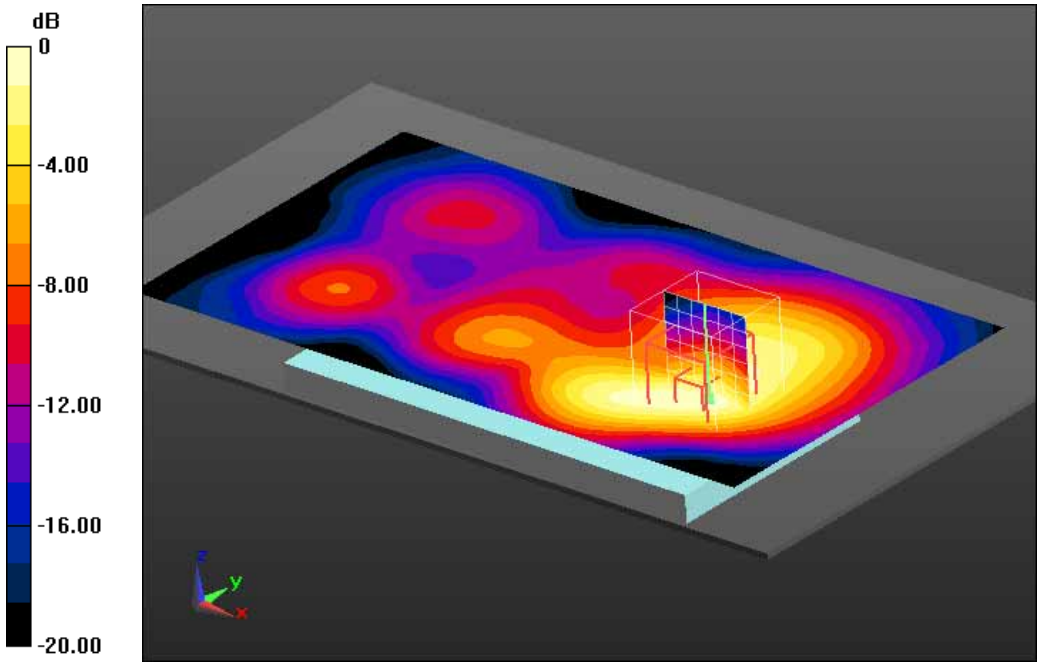
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 7 (2600MHz); Frequency: 2510 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2510 MHz; σ = 2.11 S/m; ε_r = 51.299; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: EX3DV4 - SN3944; ConvF(7.37, 7.37, 7.37); Calibrated: 14.08.2015;
- 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: 15.01.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL-15mm - 20MHz BW - QPSK - 1RB/Rear 0RB offset Low/Area Scan (121x221x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.523 W/kg

MSL-15mm - 20MHz BW - QPSK - 1RB/Rear 0RB offset Low/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.192 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.715 W/kg
SAR(1 g) = 0.378 W/kg; SAR(10 g) = 0.196 W/kg
Maximum value of SAR (measured) = 0.538 W/kg



0 dB = 0.538 W/kg = -2.69 dBW/kg

Additional information:
position or distance of DUT to the phantom: 15 mm
ambient temperature: 23.0°C; liquid temperature: 22.6°C

Annex B.10: LTE FDD 13

Date/Time: 24.08.2015 13:54:04

IEEE1528-LTE FDD 13 head

DUT: Blackberry; Type: RHM181LW; Serial: 1161509684

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 = 0.932 S/m; ε_r = 40.676; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(6.32, 6.32, 6.32); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Right-Hand-Side HSL - QPSK - 10MHz BW - 1RB - 0RB offset/Touch Position - Mid/Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.154 W/kg

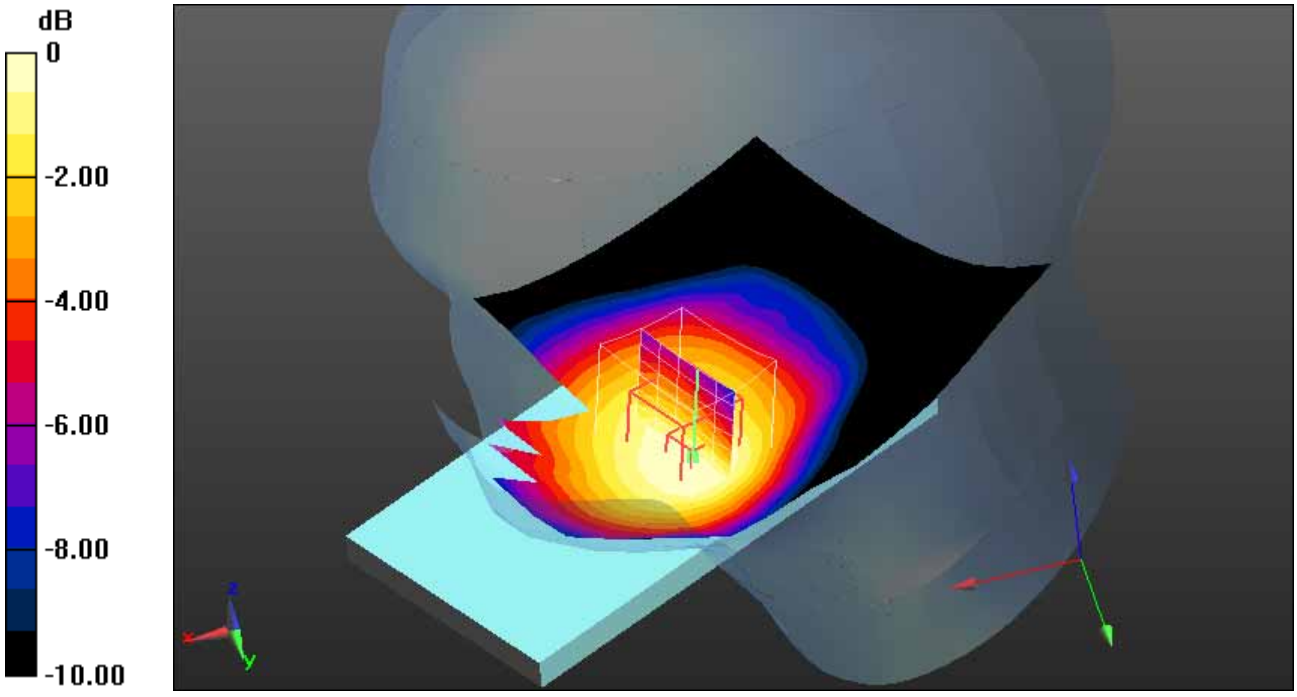
Right-Hand-Side HSL - QPSK - 10MHz BW - 1RB - 0RB offset/Touch Position - Mid/Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 13.074 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.177 W/kg

SAR(1 g) = 0.136 W/kg; SAR(10 g) = 0.103 W/kg

Maximum value of SAR (measured) = 0.150 W/kg



0 dB = 0.150 W/kg = -8.24 dBW/kg

Additional information:

ambient temperature: 23.7°C; liquid temperature: 23.3°C

Date/Time: 25.08.2015 12:45:44

FCC_EN62209-2 LTE FDD 13 hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161509633

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 = 0.977 S/m; ε_r = 57.017; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.77, 6.77, 6.77); Calibrated: 19.05.2015;
- 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: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL750-10mm - QPSK - 10MHz BW - 1RB - 0RB offset/Rear Middle/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.293 W/kg

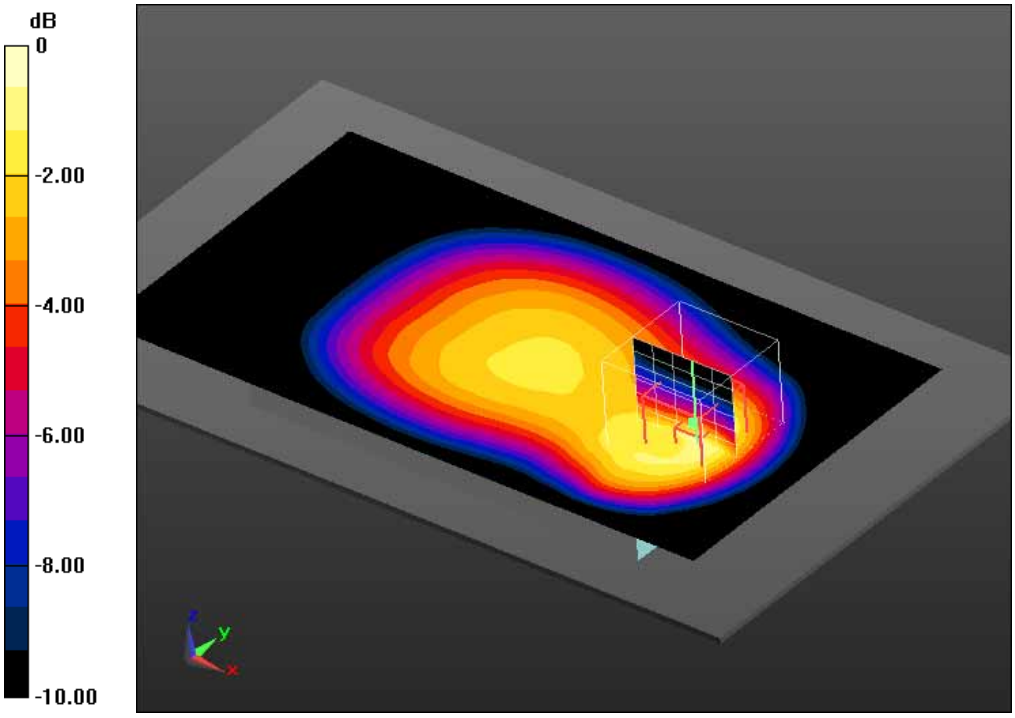
MSL750-10mm - QPSK - 10MHz BW - 1RB - 0RB offset/Rear Middle/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 16.910 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.534 W/kg

SAR(1 g) = 0.296 W/kg; SAR(10 g) = 0.170 W/kg

Maximum value of SAR (measured) = 0.332 W/kg



0 dB = 0.332 W/kg = -4.79 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.0°C; liquid temperature: 21.0°C

Date/Time: 25.08.2015 12:03:38

FCC_EN62209-2 LTE FDD 13 body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161509633

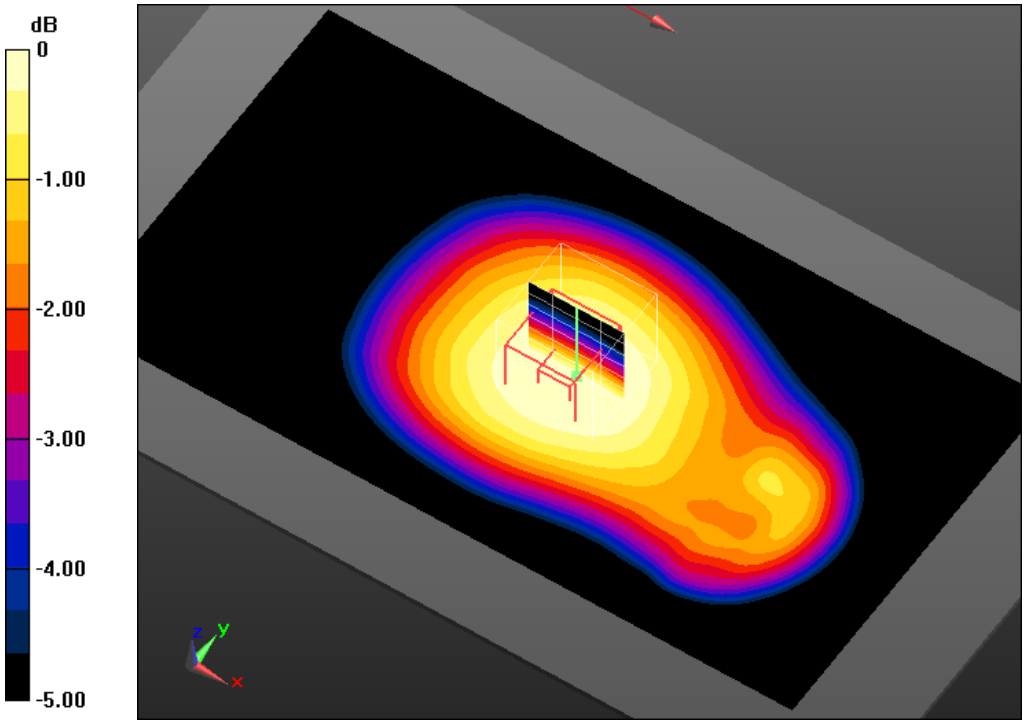
Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 13 (700MHz); Frequency: 782 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 782 MHz; σ = 0.977 S/m; ε_r = 57.017; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5
DASY5 Configuration:
- Probe: ET3DV6 - SN1554; ConvF(6.77, 6.77, 6.77); Calibrated: 19.05.2015;
- 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: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL750-15mm - QPSK - 10MHz BW - 1RB - 0RB offset/Rear Middle/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.194 W/kg

MSL750-15mm - QPSK - 10MHz BW - 1RB - 0RB offset/Rear Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 14.190 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.210 W/kg
SAR(1 g) = 0.178 W/kg; SAR(10 g) = 0.139 W/kg
Maximum value of SAR (measured) = 0.186 W/kg



0 dB = 0.186 W/kg = -7.30 dBW/kg

Additional information:
position or distance of DUT to SAM: 15 mm
ambient temperature: 22.0°C; liquid temperature: 21.0°C

Annex B.11: LTE FDD 17

Date/Time: 25.08.2015 11:41:20

IEEE1528-LTE FDD 17 head

DUT: Blackberry; Type: RHM181LW; Serial: 1161509684

Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 17 (700MHz); Frequency: 709 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: f = 709 MHz; σ = 0.865 S/m; ε_r = 41.64; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ES3DV3 - SN3320; ConvF(6.32, 6.32, 6.32); Calibrated: 25.02.2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Right-Hand-Side HSL - QPSK - 10MHz BW - 25RB - 25RB offset/Touch Position - Low/Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0793 W/kg

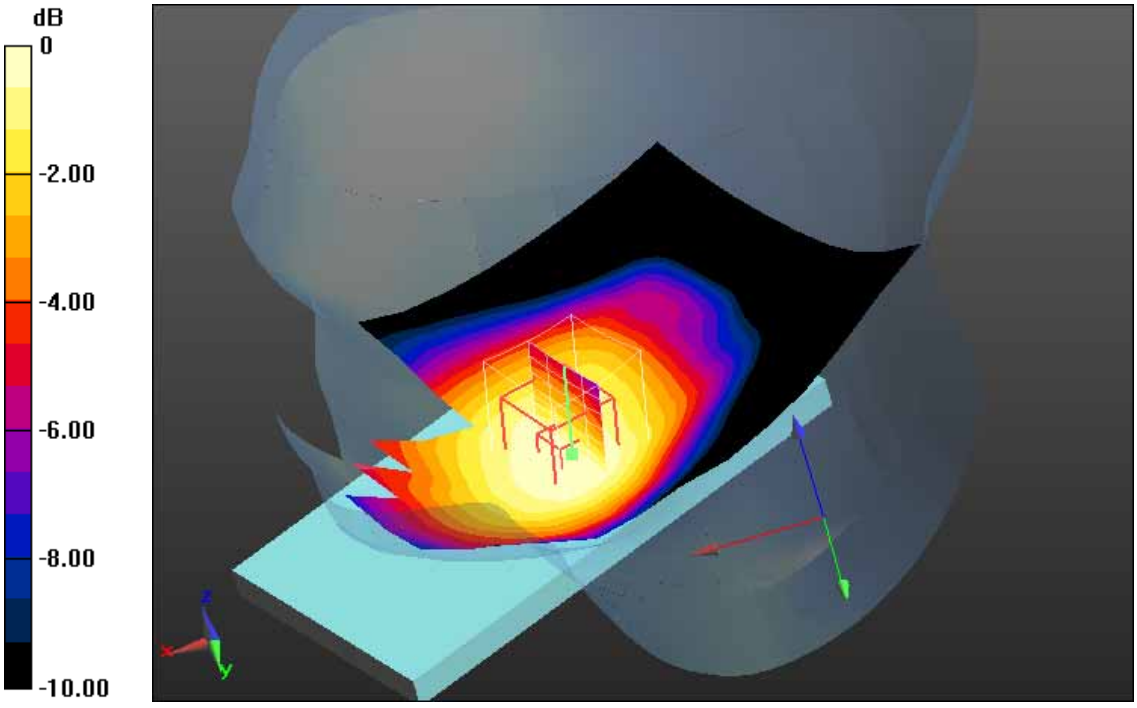
Right-Hand-Side HSL - QPSK - 10MHz BW - 25RB - 25RB offset/Touch Position - Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.621 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.0860 W/kg

SAR(1 g) = 0.071 W/kg; SAR(10 g) = 0.056 W/kg

Maximum value of SAR (measured) = 0.0767 W/kg



0 dB = 0.0767 W/kg = -11.15 dBW/kg

Additional information:

ambient temperature: 23.0°C; liquid temperature: 21.7°C

Date/Time: 26.08.2015 11:18:14

FCC_EN62209-2 LTE FDD 17 hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161509633

Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 17 (700MHz); Frequency: 709 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: f = 709 MHz; σ = 0.919 S/m; ε_r = 57.818; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.77, 6.77, 6.77); Calibrated: 19.05.2015;
- 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: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL750-10mm - QPSK - 10MHz BW - 1RB - 50RB offset/Right Edge Low/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.199 W/kg

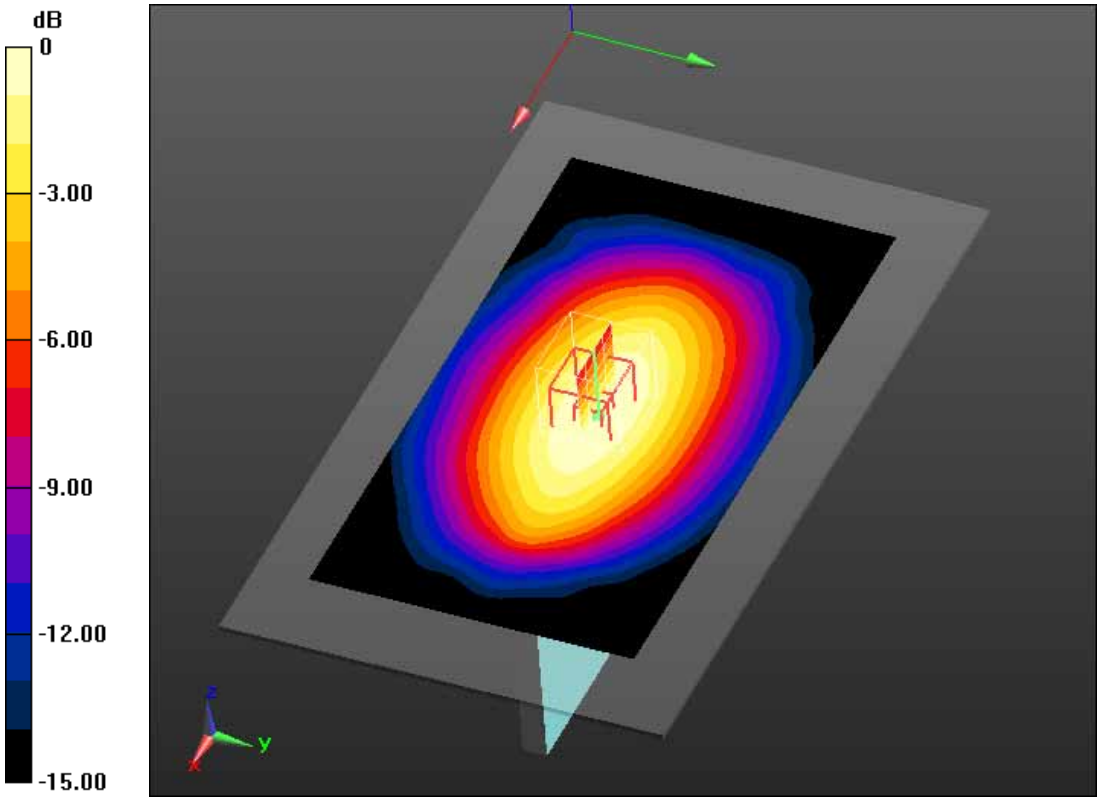
MSL750-10mm - QPSK - 10MHz BW - 1RB - 50RB offset/Right Edge Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 14.977 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.246 W/kg

SAR(1 g) = 0.182 W/kg; SAR(10 g) = 0.131 W/kg

Maximum value of SAR (measured) = 0.192 W/kg



0 dB = 0.192 W/kg = -7.17 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 23.4°C; liquid temperature: 21.4°C

Date/Time: 26.08.2015 09:21:07

FCC_EN62209-2 LTE FDD 17 body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161509633

Communication System: UID 0, LTE FDD (0); Communication System Band: LTE 17 (700MHz); Frequency: 709 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: f = 709 MHz; σ = 0.919 S/m; ε_r = 57.818; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.77, 6.77, 6.77); Calibrated: 19.05.2015;
- 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: 22.05.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: xxxx
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL750-15mm - QPSK - 10MHz BW - 1RB - 50RB offset/Rear Low/Area Scan (81x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.134 W/kg

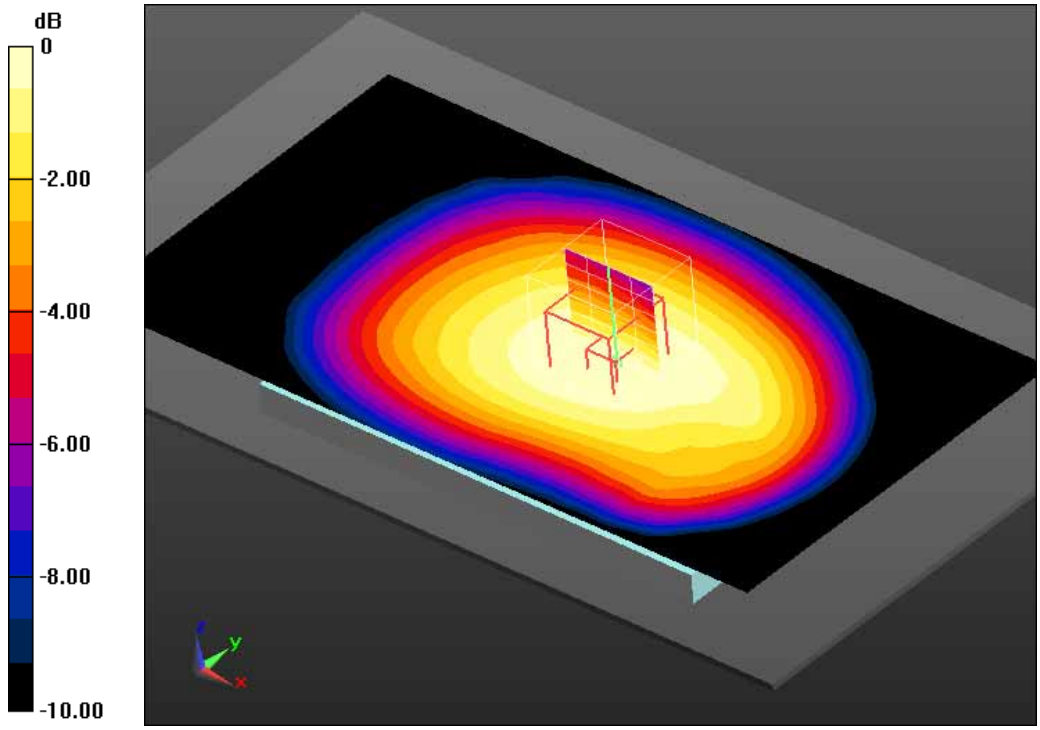
MSL750-15mm - QPSK - 10MHz BW - 1RB - 50RB offset/Rear Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.268 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.147 W/kg

SAR(1 g) = 0.124 W/kg; SAR(10 g) = 0.098 W/kg

Maximum value of SAR (measured) = 0.129 W/kg



0 dB = 0.129 W/kg = -8.89 dBW/kg

Additional information:

position or distance of DUT to SAM: 15 mm

ambient temperature: 22.0°C; liquid temperature: 21.0°C

Annex B.12: LTE TDD 41

Date/Time: 01.09.2015 14:53:14

IEEE1528-LTE TDD 41 head

DUT: Blackberry; Type: RHM181LW; Serial: 1161466951

Communication System: UID 0, LTE TDD (0); Communication System Band: LTE TDD 41; Frequency: 2636.5 MHz; Communication System PAR: 1.984 dB; PMF: 1

Medium parameters used (interpolated): f = 2636.5 MHz; σ = 1.991 S/m; ε_r = 38.341; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: EX3DV4 - SN3944; ConvF(7.15, 7.15, 7.15); Calibrated: 14.08.2015;
- 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: 15.01.2015
- Phantom: SAM front; Type: QD000P40CC; Serial: TP-1041
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Right-Hand-Side HSL - 20MHz BW - QPSK - 1RB/Touch Position - Ch 41055 - 0 RB offset/Area Scan (121x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.198 W/kg

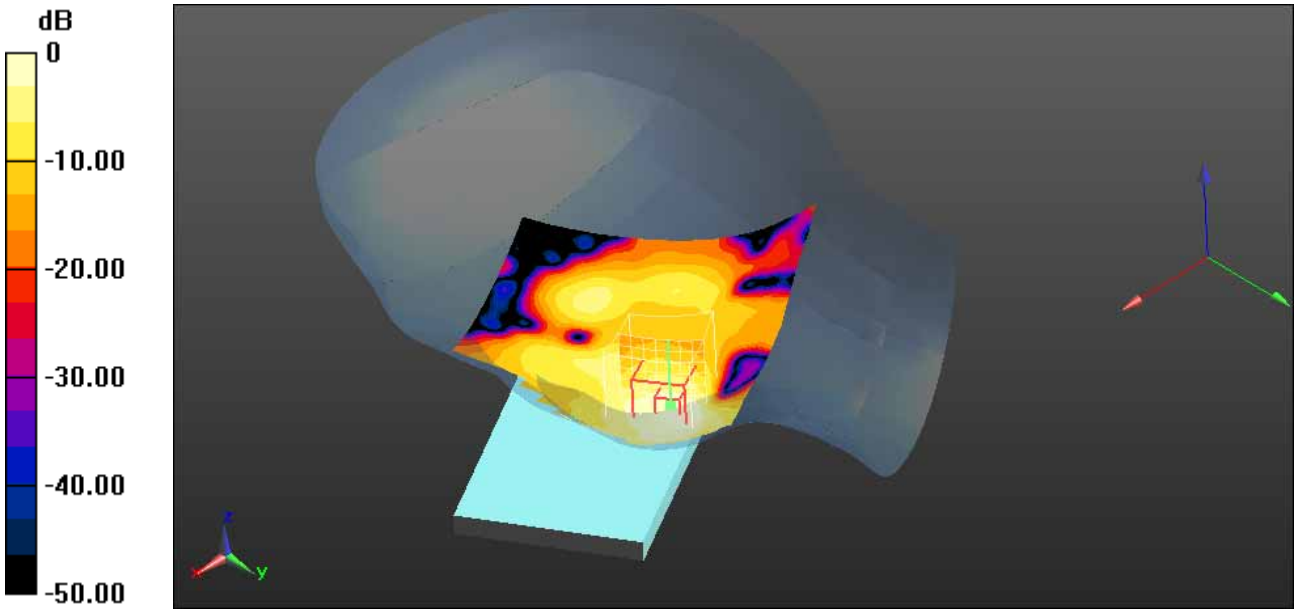
Right-Hand-Side HSL - 20MHz BW - QPSK - 1RB/Touch Position - Ch 41055 - 0 RB offset/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.801 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.135 W/kg; SAR(10 g) = 0.074 W/kg

Maximum value of SAR (measured) = 0.186 W/kg



0 dB = 0.186 W/kg = -7.30 dBW/kg

Additional information:

ambient temperature: 23.8 °C; liquid temperature: 22.6 °C

Date/Time: 03.09.2015 17:11:42

FCC_EN62209-2 LTE TDD 41 hotspot

DUT: Blackberry; Type: RHM181LW; Serial: 1161466951

Communication System: UID 0, LTE TDD (0); Communication System Band: LTE TDD 41; Frequency: 2636.5 MHz; Communication System PAR: 1.984 dB; PMF: 1

Medium parameters used (interpolated): f = 2636.5 MHz; σ = 2.265 S/m; ε_r = 50.874; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: EX3DV4 - SN3944; ConvF(7.37, 7.37, 7.37); Calibrated: 14.08.2015;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 26.0
- Electronics: DAE3 Sn413; Calibrated: 15.01.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL-10mm - 20MHz BW - QPSK - 1RB slider open/Bottom 0RB offset Ch 41055/Area Scan (101x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.949 W/kg

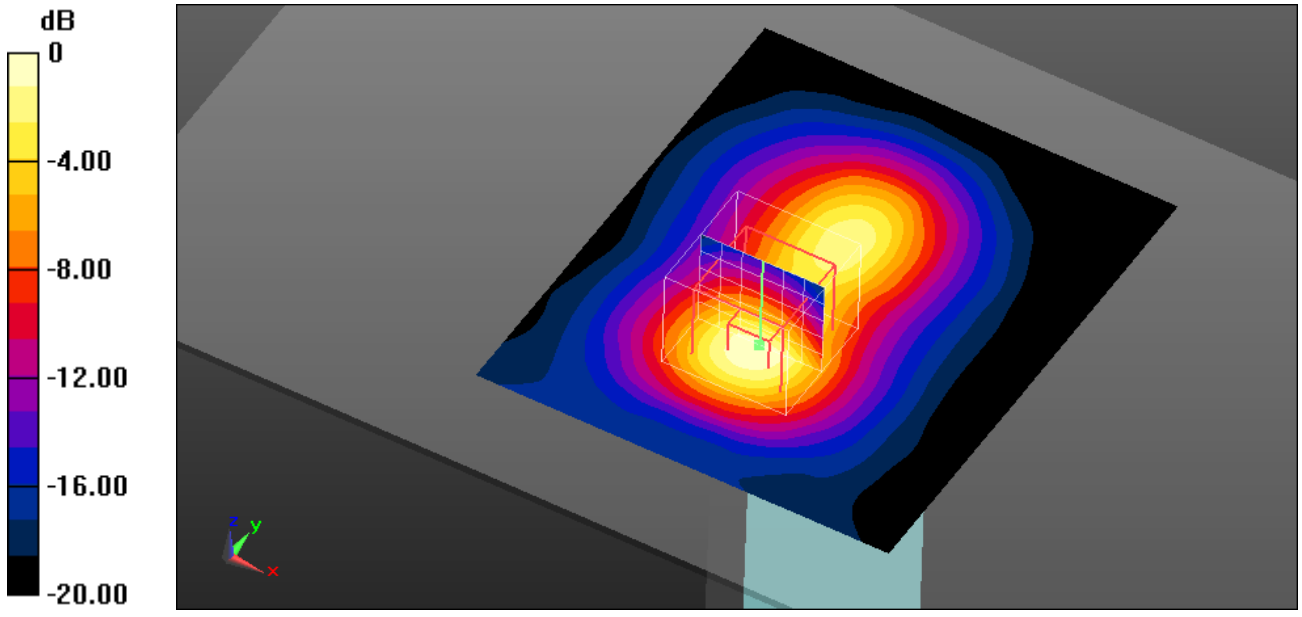
MSL-10mm - 20MHz BW - QPSK - 1RB slider open/Bottom 0RB offset Ch 41055/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.424 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.614 W/kg; SAR(10 g) = 0.270 W/kg

Maximum value of SAR (measured) = 0.950 W/kg



0 dB = 0.950 W/kg = -0.22 dBW/kg

Additional information:

position or distance of DUT to the phantom: 10 mm

ambient temperature: 23.0°C; liquid temperature: 22.6°C

Date/Time: 03.09.2015 20:19:28

FCC_EN62209-2 LTE TDD 41 body worn

DUT: Blackberry; Type: RHM181LW; Serial: 1161466951

Communication System: UID 0, LTE TDD (0); Communication System Band: LTE TDD 41; Frequency: 2636.5 MHz; Communication System PAR: 1.984 dB; PMF: 1

Medium parameters used (interpolated): f = 2636.5 MHz; σ = 2.265 S/m; ε_r = 50.874; ρ = 1000 kg/m^3

Phantom section: Center Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: EX3DV4 - SN3944; ConvF(7.37, 7.37, 7.37); Calibrated: 14.08.2015;
- 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: 15.01.2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1154
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

MSL-15mm - 20MHz BW - QPSK - 1RB/Rear 0RB offset Ch 41055/Area Scan (121x221x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.536 W/kg

MSL-15mm - 20MHz BW - QPSK - 1RB/Rear 0RB offset Ch 41055/Zoom Scan (7x7x7)/Cube 0:

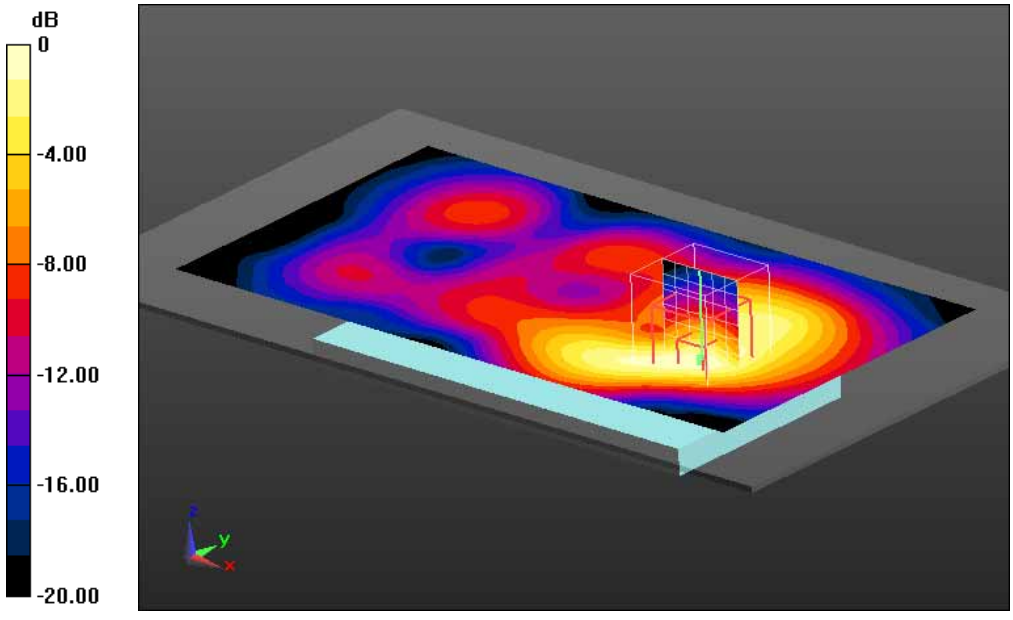
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.541 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.720 W/kg

SAR(1 g) = 0.369 W/kg; SAR(10 g) = 0.186 W/kg

Maximum value of SAR (measured) = 0.532 W/kg



0 dB = 0.532 W/kg = -2.74 dBW/kg

Additional information:

position or distance of DUT to the phantom: 15 mm

ambient temperature: 23.0°C; liquid temperature: 22.6°C

Annex B.13: WLAN2.4/5GHz and Bluetooth2.4GHz

802.11b (Primary Antenna_Core 0)

Date: 9/4/2015

Test Lab: BlackBerry RTS

DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

Configuration: Right-Hand-Side HSL - 802.11b_Slider Closed

Communication System: 802.11 b/g (2450) (0); Communication System Band: 802.11 b/g; Frequency: 2412 MHz

Medium Parameters used: f=2412 MHz; σ = 1.786 S/m; ε_r = 37.574; ρ = 1.000 g/cm^3

Phantom section: Right Section

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.6,4.6,4.6); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Right-Hand-Side HSL - 802.11b_Slider Closed/Touch Position - 802.11b_chan11_amb_temp_23.7C_liq_temp_23.1C/Area Scan (131x181x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 5.118 V/m; **Power Drift = 0.094 dB**

Fast SAR: SAR(1g) = 0.184 W/kg; SAR(10g) = 0.0939 W/kg

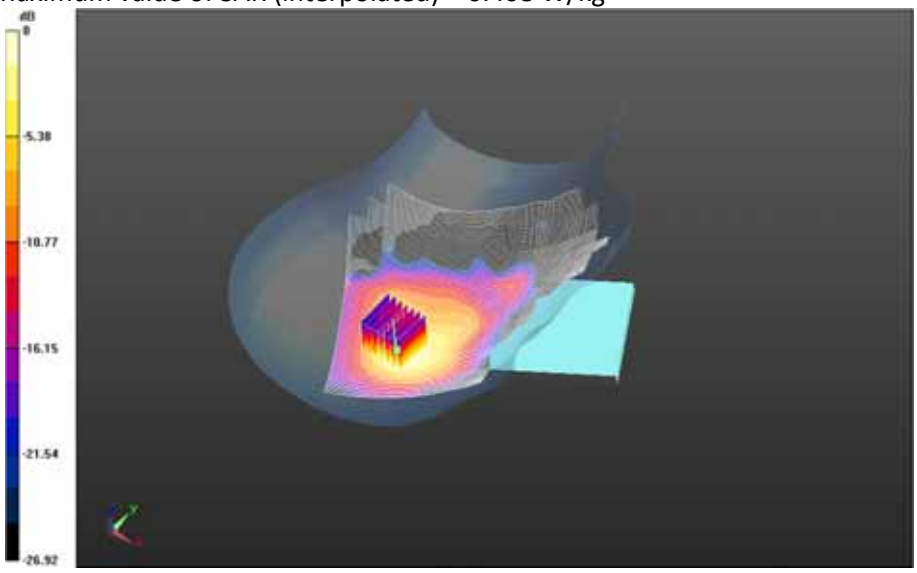
Maximum value of SAR (interpolated) = 0.243 W/kg

Right-Hand-Side HSL - 802.11b_Slider Closed/Touch Position - 802.11b_chan11_amb_temp_23.7C_liq_temp_23.1C/Zoom Scan (31x31x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm

Reference Value = 5.118 V/m; **Power Drift = 0.094 dB**

Averaged SAR: SAR(1g) = 0.199 W/kg; SAR(10g) = 0.0967 W/kg

Maximum value of SAR (interpolated) = 0.408 W/kg



0 dB = 0.222 W/kg = -6.54 dBW/kg

Test Lab: BlackBerry RTS

DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161462755

Configuration: Mobile Hot Spot MSL - 802.11b_Slider Open

Communication System: 802.11 b/g (2450) (0); Communication System Band: 802.11 b/g; Frequency: 2412 MHz

Medium Parameters used: f=2412 MHz; σ = 1.975 S/m; ε_r = 50.453; ρ = 1.000 g/cm^3

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.34,4.34,4.34); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Mobile Hot Spot MSL - 802.11b_Slider Open/10mm Device Back - 802.11b_chan11_amb_temp_24.0C_liq_temp_22.8C/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 2.621 V/m; **Power Drift = -0.00644 dB**

Fast SAR: SAR(1g) = 0.0422 W/kg; SAR(10g) = 0.0203 W/kg

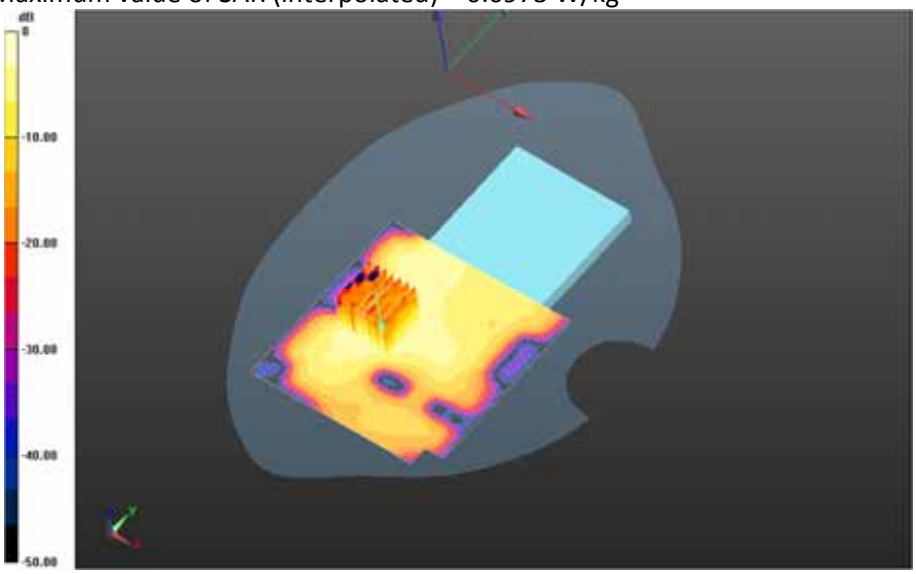
Maximum value of SAR (interpolated) = 0.0570 W/kg

Mobile Hot Spot MSL - 802.11b_Slider Open/10mm Device Back - 802.11b_chan11_amb_temp_24.0C_liq_temp_22.8C/Zoom Scan (31x31x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm

Reference Value = 2.621 V/m; **Power Drift = -0.00644 dB**

Averaged SAR: SAR(1g) = 0.0432 W/kg; SAR(10g) = 0.0198 W/kg

Maximum value of SAR (interpolated) = 0.0973 W/kg



0 dB = 0.0571 W/kg = -12.43 dBW/kg

Test Lab: BlackBerry RTS

DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

Configuration: Body Worn MSL - 802.11b

Communication System: 802.11 b/g (2450) (0); Communication System Band: 802.11 b/g; Frequency: 2412 MHz

Medium Parameters used: f=2412 MHz; σ = 1.967 S/m; ε_r = 50.713; ρ = 1.000 g/cm^3

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.34,4.34,4.34); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Body Worn MSL - 802.11b/15mm Device Back - 802.11b_chan11_amb_temp_23.7C_liq_temp_23.7C/Area Scan (81x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 3.479 V/m; **Power Drift = 0.265 dB**

Fast SAR: SAR(1g) = 0.0914 W/kg; SAR(10g) = 0.0445 W/kg

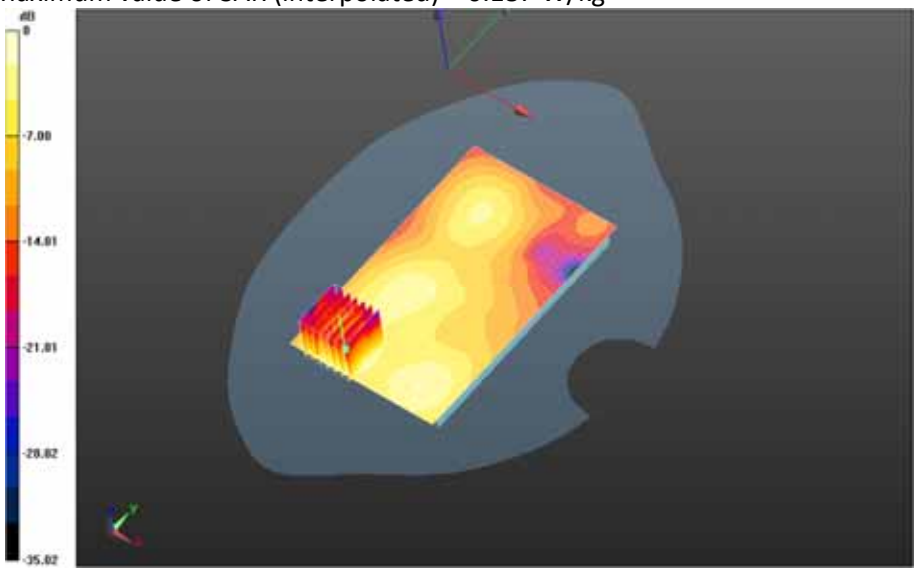
Maximum value of SAR (interpolated) = 0.121 W/kg

Body Worn MSL - 802.11b/15mm Device Back - 802.11b_chan11_amb_temp_23.7C_liq_temp_23.7C/Zoom Scan (31x31x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm

Reference Value = 3.479 V/m; **Power Drift = 0.265 dB**

Averaged SAR: SAR(1g) = 0.0927 W/kg; SAR(10g) = 0.0453 W/kg

Maximum value of SAR (interpolated) = 0.187 W/kg



0 dB = 0.118 W/kg = -9.28 dBW/kg

(Secondary Antenna_Core 1)

Date: 9/7/2015

Test Lab: BlackBerry RTS

DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

Configuration: Right-Hand-Side HSL - 802.11b_Slider Closed

Communication System: 802.11 b/g (2450) (0); Communication System Band: 802.11 b/g; Frequency: 2412 MHz

Medium Parameters used: f=2412 MHz; σ = 1.786 S/m; ε_r = 37.574; ρ = 1.000 g/cm^3

Phantom section: Right Section

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.6,4.6,4.6); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Left-Hand-Side HSL - 802.11b_Slider Closed/Tilt Position - 802.11b_chan6_amb_temp_23.7C_liq_temp_22.9C/Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 3.768 V/m; **Power Drift = 0.353 dB**

Fast SAR: SAR(1g) = 0.0704 W/kg; SAR(10g) = 0.0356 W/kg

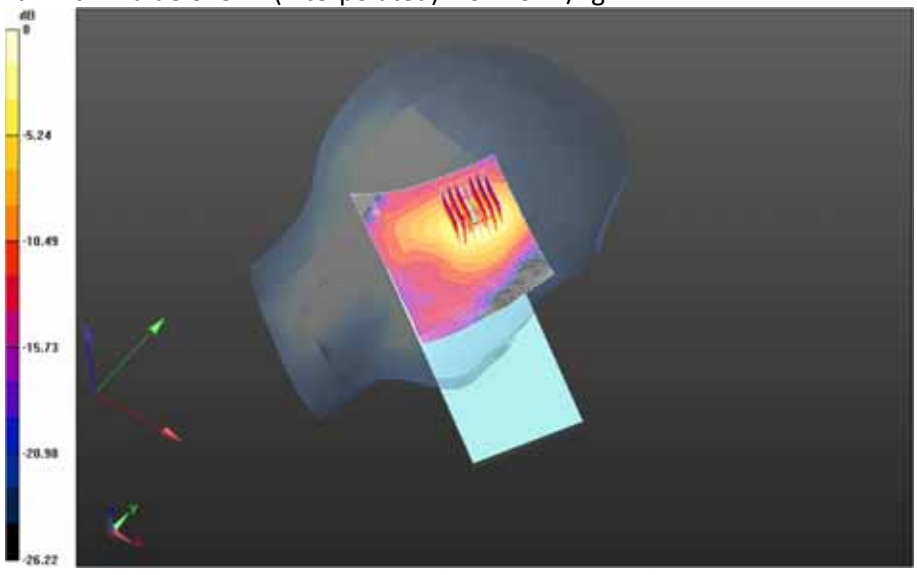
Maximum value of SAR (interpolated) = 0.0924 W/kg

Left-Hand-Side HSL - 802.11b_Slider Closed/Tilt Position - 802.11b_chan6_amb_temp_23.7C_liq_temp_22.9C/Zoom Scan (31x31x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm

Reference Value = 3.768 V/m; **Power Drift = 0.353 dB**

Averaged SAR: SAR(1g) = 0.0799 W/kg; SAR(10g) = 0.0378 W/kg

Maximum value of SAR (interpolated) = 0.179 W/kg



0 dB = 0.0923 W/kg = -10.35 dBW/kg

Test Lab: BlackBerry RTS
DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

Configuration: Mobile Hot Spot MSL - 802.11b_Slider Closed

Communication System: 802.11 b/g (2450) (0); Communication System Band: 802.11 b/g; Frequency: 2462 MHz
Medium Parameters used: f=2462 MHz; σ = 2.034 S/m; ε_r = 50.309; ρ = 1.000 g/cm^3
Phantom section: Flat Section

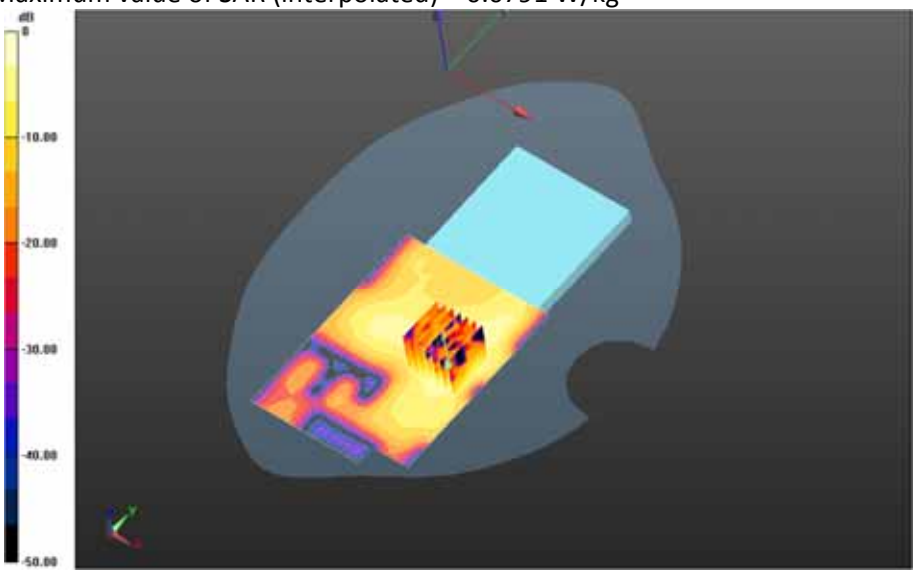
DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.34,4.34,4.34); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Mobile Hot Spot MSL - 802.11b_Slider Open/10mm Device Back - 802.11b_chan11_amb_temp_24.1C_liq_temp_23.0C/Area Scan (81x111x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 1.425 V/m; **Power Drift = -0.142 dB**

Fast SAR: SAR(1g) = 0.0327 W/kg; SAR(10g) = 0.0157 W/kg
Maximum value of SAR (interpolated) = 0.0440 W/kg
Mobile Hot Spot MSL - 802.11b_Slider Open/10mm Device Back - 802.11b_chan11_amb_temp_24.1C_liq_temp_23.0C/Zoom Scan (31x31x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm
Reference Value = 1.425 V/m; **Power Drift = -0.142 dB**

Averaged SAR: SAR(1g) = 0.0350 W/kg; SAR(10g) = 0.0156 W/kg
Maximum value of SAR (interpolated) = 0.0791 W/kg



0 dB = 0.0456 W/kg = -13.41 dBW/kg

Test Lab: BlackBerry RTS

DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161462755

Configuration: Body Worn MSL - 802.11b

Communication System: 802.11 b/g (2450) (0); Communication System Band: 802.11 b/g; Frequency: 2412 MHz

Medium Parameters used: f=2412 MHz; σ = 1.967 S/m; ε_r = 50.713; ρ = 1.000 g/cm^3

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.34,4.34,4.34); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Body Worn MSL - 802.11b/15mm Device Back - 802.11b_chan11_amb_temp_23.7C_liq_temp_23.7C/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 1.488 V/m; **Power Drift = 0.061 dB**

Fast SAR: SAR(1g) = 0.0404 W/kg; SAR(10g) = 0.0200 W/kg

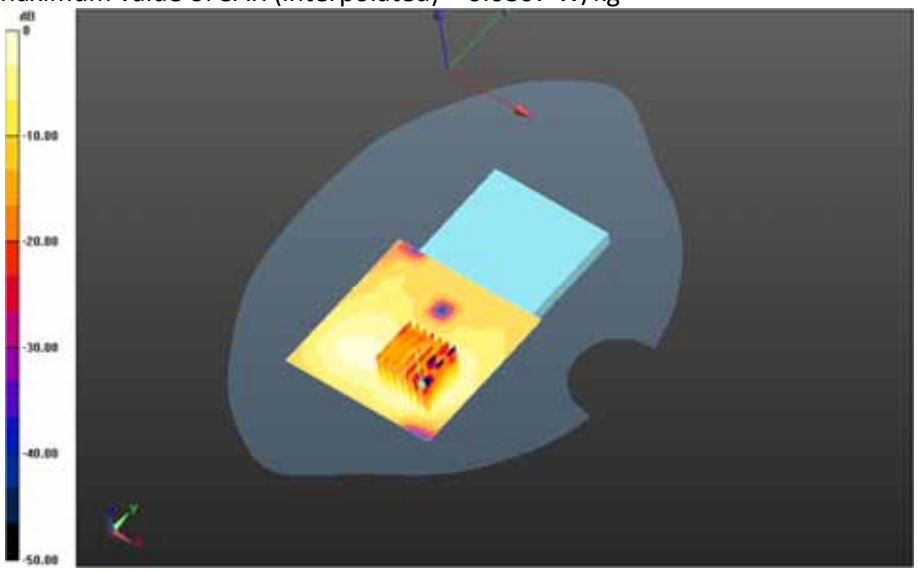
Maximum value of SAR (interpolated) = 0.0533 W/kg

Body Worn MSL - 802.11b/15mm Device Back - 802.11b_chan11_amb_temp_23.7C_liq_temp_23.7C/Zoom Scan (31x31x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm

Reference Value = 1.488 V/m; **Power Drift = 0.061 dB**

Averaged SAR: SAR(1g) = 0.0384 W/kg; SAR(10g) = 0.0189 W/kg

Maximum value of SAR (interpolated) = 0.0807 W/kg



0 dB = 0.0489 W/kg = -13.11 dBW/kg

Bluetooth

Date: 9/8/2015

Test Lab: BlackBerry RTS
DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

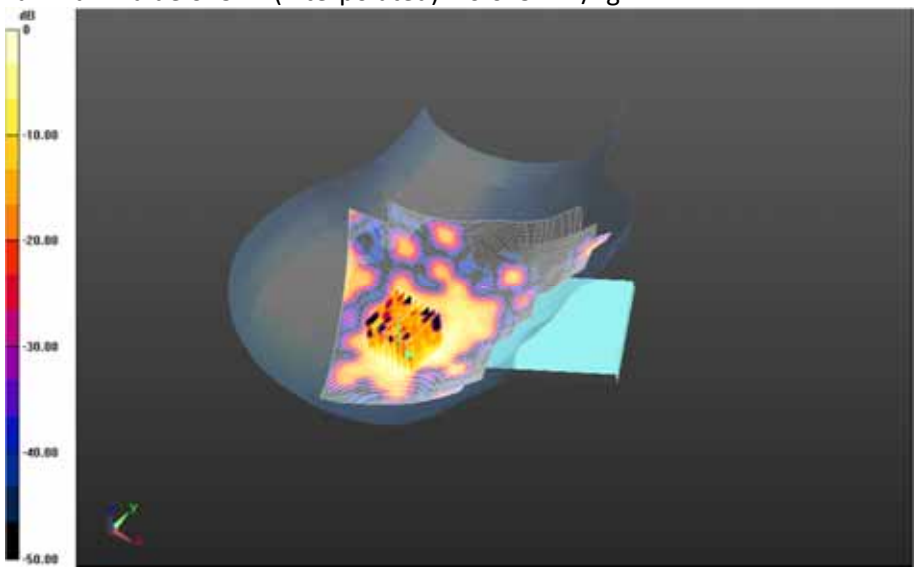
Configuration: Right-Hand-Side HSL - Bluetooth - Slider Closed

Communication System: Bluetooth (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 2441 MHz
Medium Parameters used: f=2441 MHz; σ = 1.818 S/m; ε_r = 37.458; ρ = 1.000 g/cm^3
Phantom section: Right Section

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.6,4.6,4.6); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Right-Hand-Side HSL - Bluetooth - Slider Closed/Touch Position - Bluetooth_chan39_amb_temp_22.7C_liq_temp_23.9C/Area Scan (131x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 1.340 V/m; **Power Drift = 0.029 dB**
Fast SAR: SAR(1g) = 0.0116 W/kg; SAR(10g) = 0.00618 W/kg
Maximum value of SAR (interpolated) = 0.0149 W/kg
Right-Hand-Side HSL - Bluetooth - Slider Closed/Touch Position - Bluetooth_chan39_amb_temp_22.7C_liq_temp_23.9C/Zoom Scan (36x36x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm
Reference Value = 1.340 V/m; **Power Drift = 0.029 dB**
Averaged SAR: SAR(1g) = 0.0110 W/kg; SAR(10g) = 0.00523 W/kg
Maximum value of SAR (interpolated) = 0.0197 W/kg



0 dB = 0.0126 W/kg = -19.00 dBW/kg

Test Lab: BlackBerry RTS

DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

Configuration: Mobile Hot Spot MSL - Bluetooth - Slider Open

Communication System: Bluetooth (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 2441 MHz

Medium Parameters used: f=2441 MHz; σ = 2.007 S/m; ε_r = 50.608; ρ = 1.000 g/cm^3

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.34,4.34,4.34); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Mobile Hot Spot MSL - Bluetooth - Slider Open/10mm Device Back - Bluetooth_chan39_amb_temp_24.0C_liq_temp_22.5C/Area Scan (151x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 1.175 V/m; **Power Drift = 0.228 dB**

Fast SAR: SAR(1g) = 0.0174 W/kg; SAR(10g) = 0.00885 W/kg

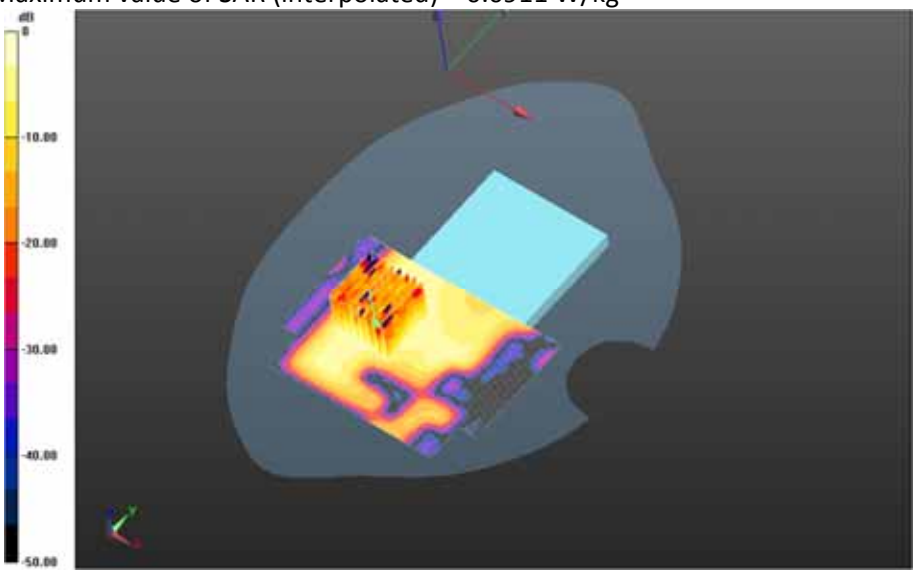
Maximum value of SAR (interpolated) = 0.0232 W/kg

Mobile Hot Spot MSL - Bluetooth - Slider Open/10mm Device Back - Bluetooth_chan39_amb_temp_24.0C_liq_temp_22.5C/Zoom Scan (36x36x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm

Reference Value = 1.175 V/m; **Power Drift = 0.228 dB**

Averaged SAR: SAR(1g) = 0.0187 W/kg; SAR(10g) = 0.00865 W/kg

Maximum value of SAR (interpolated) = 0.0911 W/kg



0 dB = 0.0251 W/kg = -16.00 dBW/kg

Test Lab: BlackBerry RTS

DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

Configuration: Body Worn MSL - Bluetooth - Slider Closed

Communication System: Bluetooth (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 2441 MHz

Medium Parameters used: f=2441 MHz; σ = 2.007 S/m; ε_r = 50.608; ρ = 1.000 g/cm^3

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF: (4.34,4.34,4.34); Calibrated: 2/25/2015;
- Sensor-Surface: 3 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Body Worn MSL - Bluetooth - Slider Closed/15mm Device Back - Bluetooth_chan39_amb_temp_24.0C_liq_temp_22.4C/Area Scan (151x201x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 0.575 V/m; **Power Drift = 0.168 dB**

Fast SAR: SAR(1g) = 0.00885 W/kg; SAR(10g) = 0.00369 W/kg

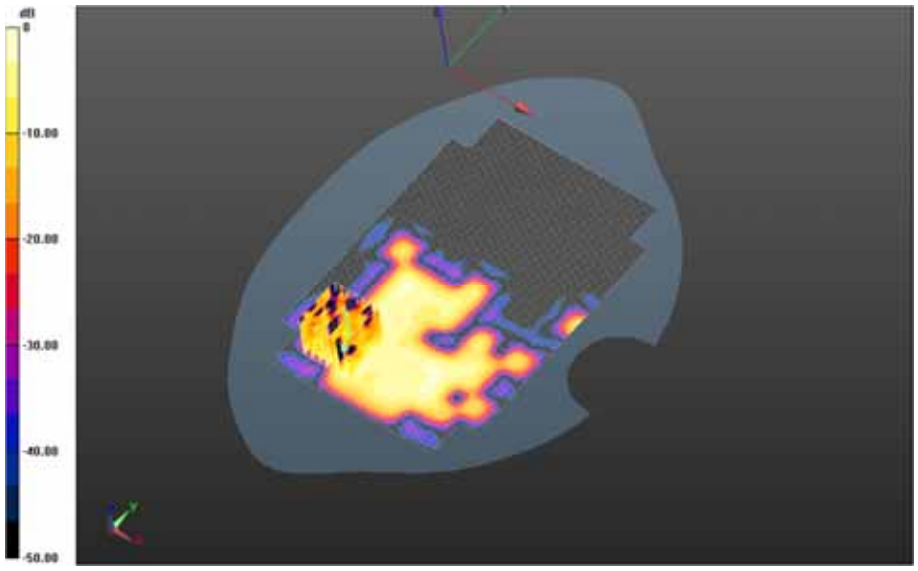
Maximum value of SAR (interpolated) = 0.0150 W/kg

Body Worn MSL - Bluetooth - Slider Closed/15mm Device Back - Bluetooth_chan39_amb_temp_24.0C_liq_temp_22.4C/Zoom Scan (31x31x36)/Cube 0: Interpolated grid: dx=1.000 mm, dy=1.000 mm, dz=1.000 mm

Reference Value = 0.575 V/m; **Power Drift = 0.168 dB**

Averaged SAR: SAR(1g) = 0.00652 W/kg; SAR(10g) = 0.00288 W/kg

Maximum value of SAR (interpolated) = 0.0171 W/kg



0 dB = 0.00874 W/kg = -20.58 dBW/kg

802.11a/n

Date: 9/12/2015

Test Lab: BlackBerry RTS
DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

Configuration: Right-Hand-Side HSL - 802.11a_n 5200 MHz

Communication System: 802.11a/n (0); Communication System Band: UNII 1/2A/2C/3; Frequency: 5270 MHz, Communication System PAR: 0 dB; PMF: 1.12202e-005; Duty Cycle: 1:1
Medium Parameters used: f=5270 MHz; σ = 4.798 S/m; ε_r = 34.187; ρ = 1.000 g/cm^3
Phantom section: Right Section

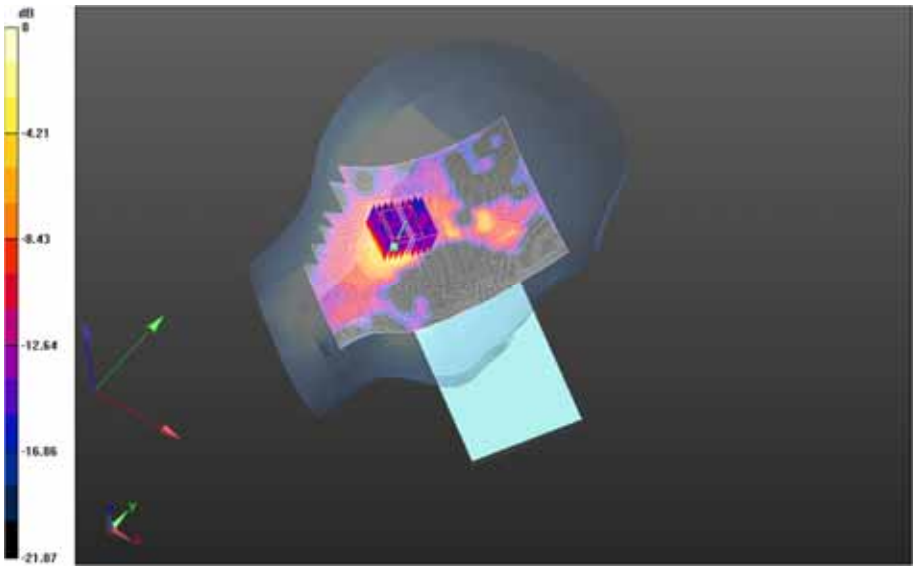
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF: (4.63,4.63,4.63); Calibrated: 11/10/2014;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Left-Hand-Side HSL - 802.11a_n 5200 MHz/Tilt Position -802.11a-n_U-NII-2A_chan54_amb_temp_23.9C_liq_temp_23.3C/Area Scan (161x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.198 W/kg

Left-Hand-Side HSL - 802.11a_n 5200 MHz/Tilt Position -802.11a-n_U-NII-2A_chan54_amb_temp_23.9C_liq_temp_23.3C/Zoom Scan (41x41x61)/Cube 0: Interpolated grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm
Reference Value = 2.244 V/m; Power Drift = -0.091 dB

Averaged SAR: **SAR(1g) = 0.109 W/kg; SAR(10g) = 0.0411 W/kg**
Maximum value of SAR (interpolated) = 0.403 W/kg



0 dB = 0.204 W/kg = -6.90 dBW/kg

Date: 9/11/2015

Test Lab: BlackBerry RTS
DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161462755

Configuration: Mobile Hot Spot MSL - 802.11a_n 5200 MHz - Slider Open

Communication System: 802.11a/n (0); Communication System Band: UNII 1/2A/2C/3; Frequency: 5190 MHz, Communication System PAR: 0 dB; PMF: 1.12202e-005; Duty Cycle: 1:1
Medium Parameters used: f=5190 MHz; σ = 5.552 S/m; ε_r = 46.851; ρ = 1.000 g/cm^3
Phantom section: Flat Section

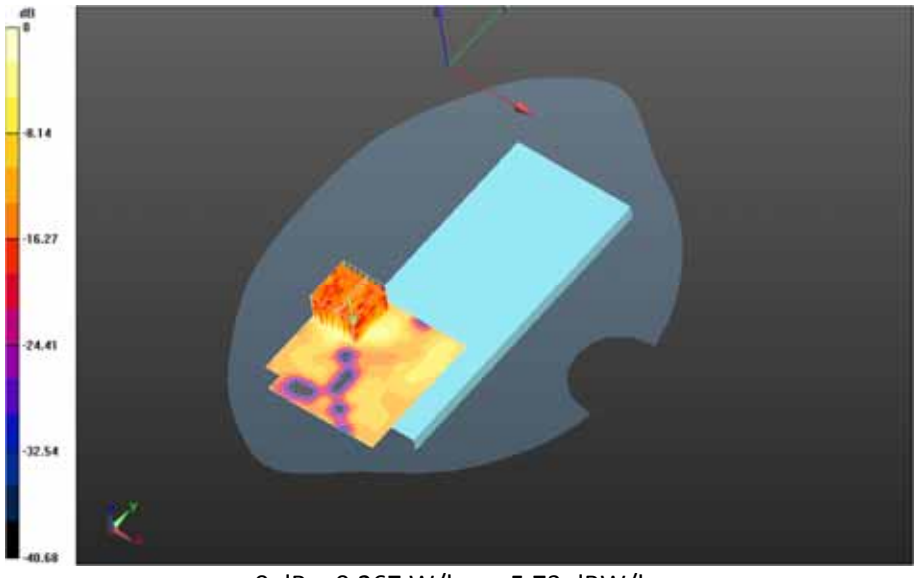
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF: (4.06,4.06,4.06); Calibrated: 11/10/2014;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Mobile Hot Spot MSL - 802.11a_n 5200 MHz - Slider Open/10mm Device Back - 802.11a-n_U-NII-1_chan38_Amb_Temp_23.4C_Liquid_Temp_22.3C/Area Scan (81x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.270 W/kg

Mobile Hot Spot MSL - 802.11a_n 5200 MHz - Slider Open/10mm Device Back - 802.11a-n_U-NII-1_chan38_Amb_Temp_23.4C_Liquid_Temp_22.3C/Zoom Scan (36x36x61)/Cube 0: Interpolated grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm
Reference Value = 1.784 V/m; Power Drift = 0.00182 dB

Averaged SAR: **SAR(1g) = 0.133 W/kg; SAR(10g) = 0.0456 W/kg**
Maximum value of SAR (interpolated) = 0.473 W/kg



0 dB = 0.267 W/kg = -5.73 dBW/kg

Date: 9/10/2015

Test Lab: BlackBerry RTS
DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161462755

Configuration: Body Worn MSL - 802.11a_n 5200 MHz

Communication System: 802.11a/n (0); Communication System Band: UNII 1/2A/2C/3; Frequency: 5270 MHz, Communication System PAR: 0 dB; PMF: 1.12202e-005; Duty Cycle: 1:1
Medium Parameters used: f=5270 MHz; σ = 5.645 S/m; ε_r = 46.642; ρ = 1.000 g/cm^3
Phantom section: Flat Section

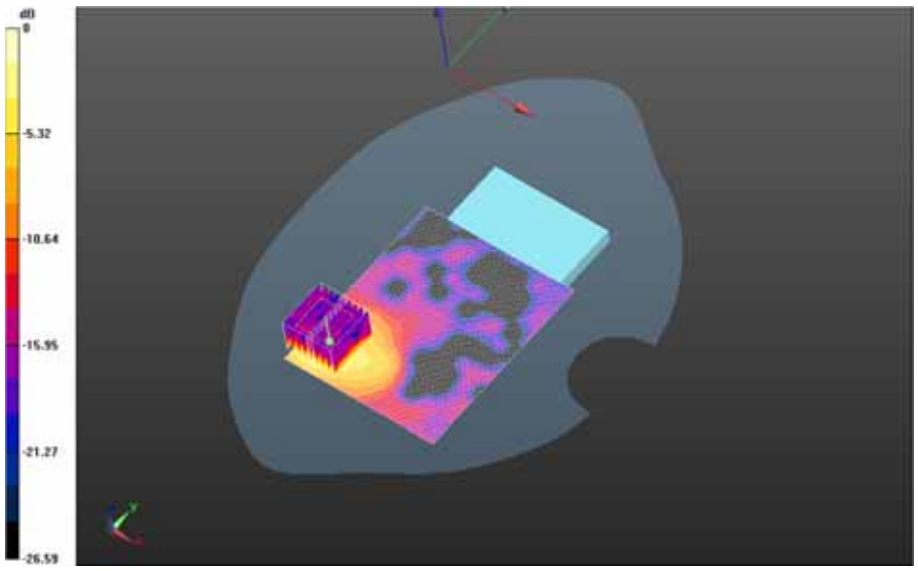
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF: (4.06,4.06,4.06); Calibrated: 11/10/2014;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Body Worn MSL - 802.11a_n 5200 MHz/15mm Device Back - 802.11a-n_U-NII-2A_chan62_Amb_Temp_23.6C_Liquid_Temp_22.2C/Area Scan (101x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.499 W/kg

Body Worn MSL - 802.11a_n 5200 MHz/15mm Device Back - 802.11a-n_U-NII-2A_chan62_Amb_Temp_23.6C_Liquid_Temp_22.2C/Zoom Scan (41x41x61)/Cube 0: Interpolated grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm
Reference Value = 2.259 V/m; Power Drift = -0.050 dB

Averaged SAR: **SAR(1g) = 0.274 W/kg; SAR(10g) = 0.106 W/kg**
Maximum value of SAR (interpolated) = 0.999 W/kg



0 dB = 0.509 W/kg = -2.93 dBW/kg

Date: 9/15/2015

Test Lab: BlackBerry RTS
DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161463503

Configuration: Left-Hand-Side HSL - 802.11a_n 5800 MHz - Slider Closed

Communication System: 802.11a/n (0); Communication System Band: UNII 1/2A/2C/3; Frequency: 5755 MHz, Communication System PAR: 0 dB; PMF: 1.12202e-005; Duty Cycle: 1:1
Medium Parameters used: f=5755 MHz; σ = 5.381 S/m; ε_r = 33.753; ρ = 1.000 g/cm^3
Phantom section: Left Section

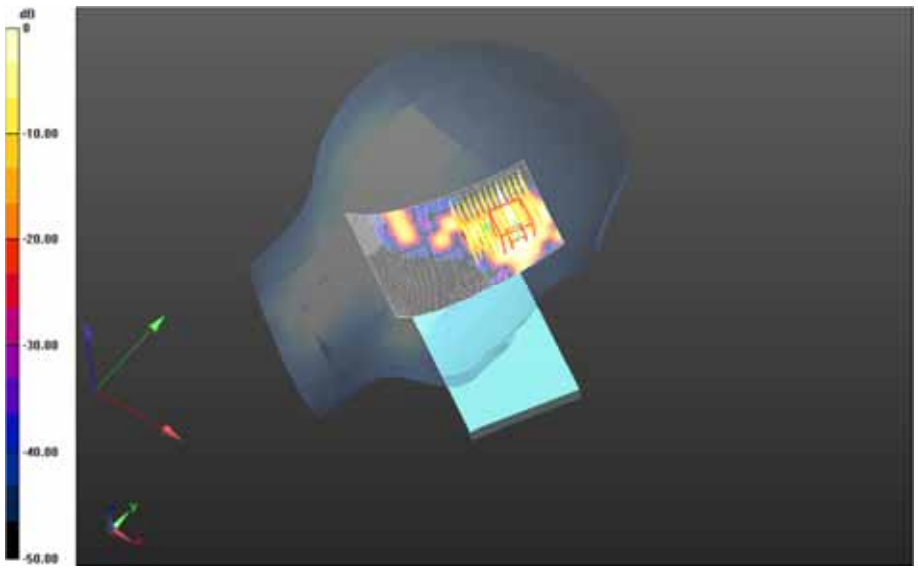
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF: (4.34,4.34,4.34); Calibrated: 11/10/2014;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Left-Hand-Side HSL - 802.11a_n 5800 MHz - Slider Closed/Touch Position - 802.11a-n_U-NII-3_chan151_amb_temp_24.1C_liq_temp_21.8C/Area Scan (121x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0885 W/kg

Left-Hand-Side HSL - 802.11a_n 5800 MHz - Slider Closed/Touch Position - 802.11a-n_U-NII-3_chan151_amb_temp_24.1C_liq_temp_21.8C/Zoom Scan (61x56x61)/Cube 0: Interpolated grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm
Reference Value = 1.771 V/m; Power Drift = 0.323 dB

Averaged SAR: **SAR(1g) = 0.0289 W/kg; SAR(10g) = 0.0110 W/kg**
Maximum value of SAR (interpolated) = 0.202 W/kg



0 dB = 0.0521 W/kg = -12.83 dBW/kg

Date: 9/11/2015

Test Lab: BlackBerry RTS
DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161462755

Configuration: Mobile Hot Spot MSL - 802.11a_n 5800 MHz - Slider Open

Communication System: 802.11a/n (0); Communication System Band: UNII 1/2A/2C/3; Frequency: 5755 MHz, Communication System PAR: 0 dB; PMF: 1.12202e-005; Duty Cycle: 1:1
Medium Parameters used: f=5755 MHz; σ = 6.216 S/m; ε_r = 46.419; ρ = 1.000 g/cm^3
Phantom section: Flat Section

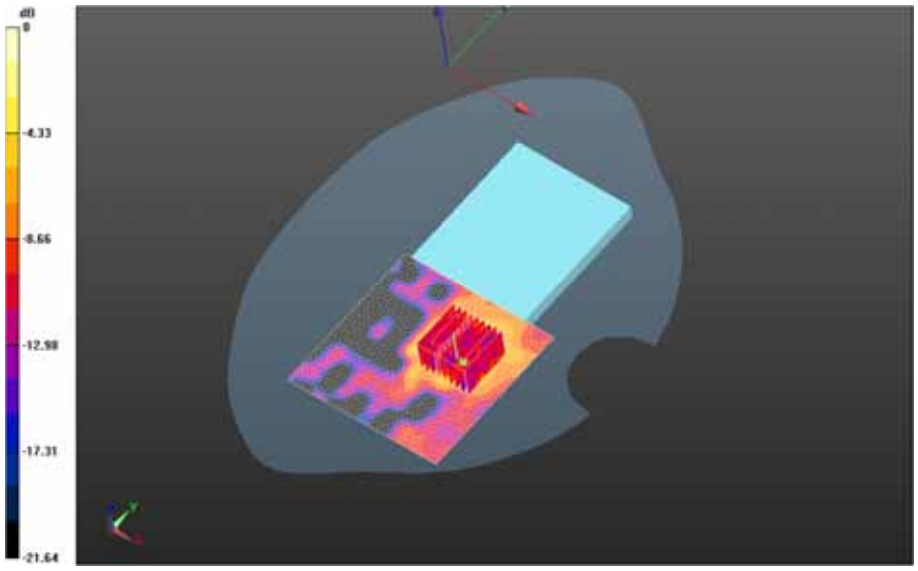
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF: (3.81,3.81,3.81); Calibrated: 11/10/2014;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Mobile Hot Spot MSL - 802.11a_n 5800 MHz - Slider Open/10mm Device Back - 802.11a-n_U-NII-3_chan159_Amb_Temp_23.7C_Liquid_Temp_22.5C/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.135 W/kg

Mobile Hot Spot MSL - 802.11a_n 5800 MHz - Slider Open/10mm Device Back - 802.11a-n_U-NII-3_chan159_Amb_Temp_23.7C_Liquid_Temp_22.5C/Zoom Scan (41x41x61)/Cube 0: Interpolated grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm
Reference Value = 1.987 V/m; Power Drift = 0.288 dB

Averaged SAR: **SAR(1g) = 0.0752 W/kg; SAR(10g) = 0.0293 W/kg**
Maximum value of SAR (interpolated) = 0.285 W/kg



0 dB = 0.149 W/kg = -8.27 dBW/kg

Date: 9/11/2015

Test Lab: BlackBerry RTS
DUT Name: BlackBerry Smartphone, Type: Sample, Serial: 1161462755

Configuration: Body Worn MSL - 802.11a_n 5200 MHz

Communication System: 802.11a/n (0); Communication System Band: UNII 1/2A/2C/3; Frequency: 5270 MHz, Communication System PAR: 0 dB; PMF: 1.12202e-005; Duty Cycle: 1:1
Medium Parameters used: f=5270 MHz; σ = 5.645 S/m; ε_r = 46.642; ρ = 1.000 g/cm^3
Phantom section: Flat Section

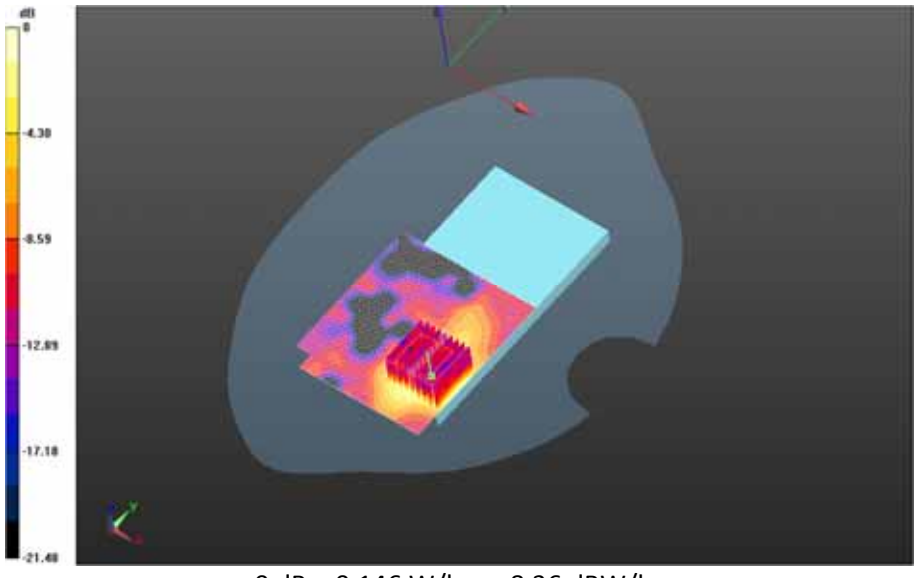
DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF: (4.06,4.06,4.06); Calibrated: 11/10/2014;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/13/2015
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- DASY52 52.8.8(1222); SEMCAD X Version 14.6.10 (7331)

Body Worn MSL - 802.11a_n 5200 MHz/15mm Device Back - 802.11a-n_U-NII-2A_chan54_Amb_Temp_23.5C_Liquid_Temp_21.0C/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.141 W/kg

Body Worn MSL - 802.11a_n 5200 MHz/15mm Device Back - 802.11a-n_U-NII-2A_chan54_Amb_Temp_23.5C_Liquid_Temp_21.0C/Zoom Scan (41x41x61)/Cube 0: Interpolated grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm
Reference Value = 1.754 V/m; Power Drift = 0.225 dB

Averaged SAR: **SAR(1g) = 0.0874 W/kg; SAR(10g) = 0.0407 W/kg**
Maximum value of SAR (interpolated) = 0.359 W/kg



0 dB = 0.146 W/kg = -8.36 dBW/kg

Annex B.14: Liquid depth

Photo 1: Liquid depth 750 MHz head simulating liquid

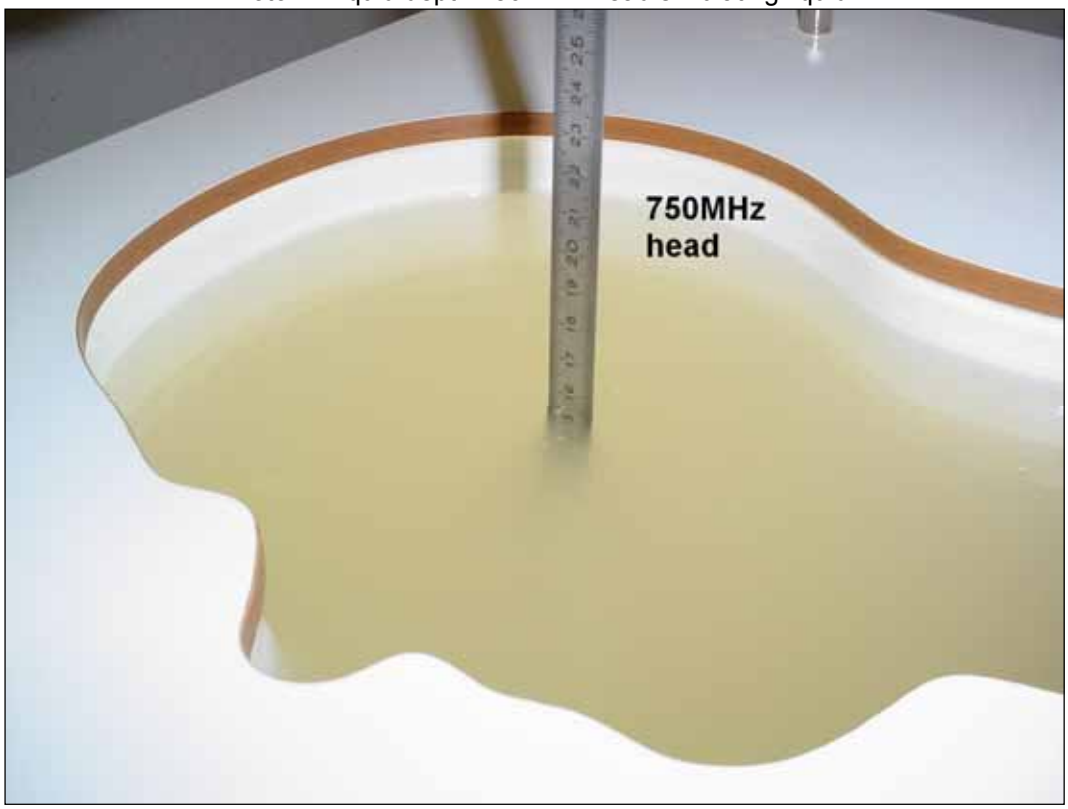


Photo 2: Liquid depth 750 MHz body simulating liquid

Photo 3: Liquid depth 850 MHz head simulating liquid

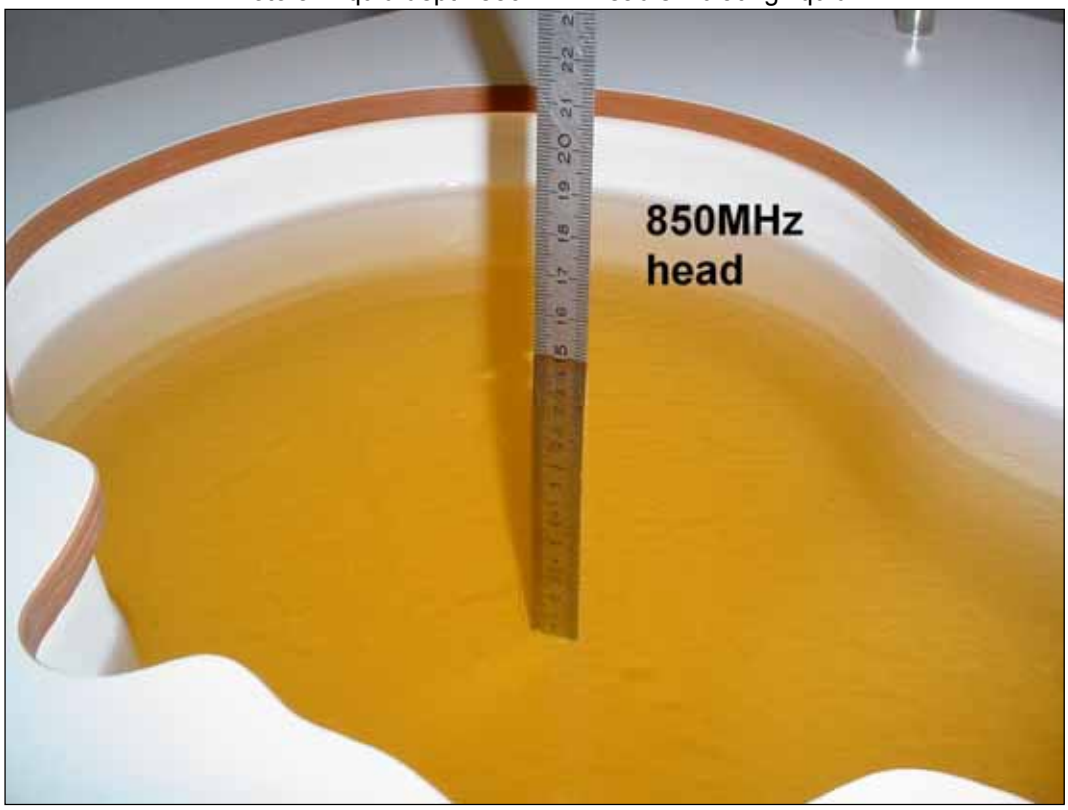


Photo 4: Liquid depth 850 MHz body simulating liquid

Photo 5: Liquid depth 1750MHz head simulating liquid

Photo 6: Liquid depth 1750 MHz body simulating liquid

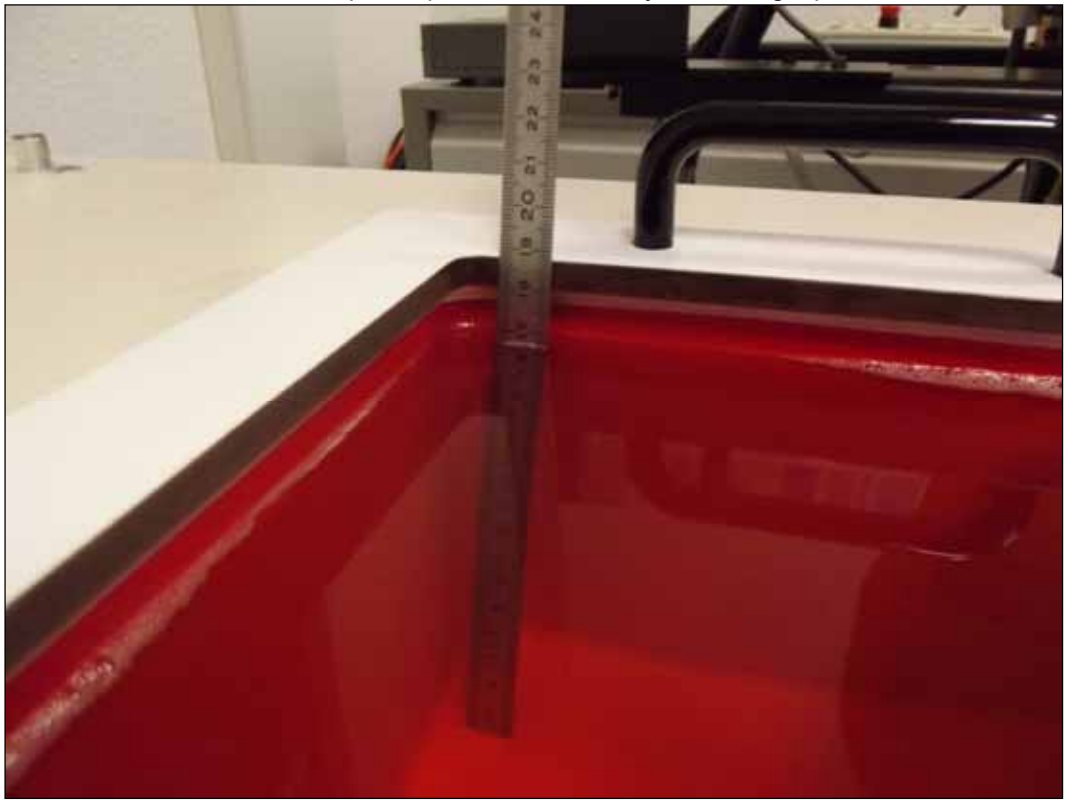


Photo 7: Liquid depth 1900MHz head simulating liquid

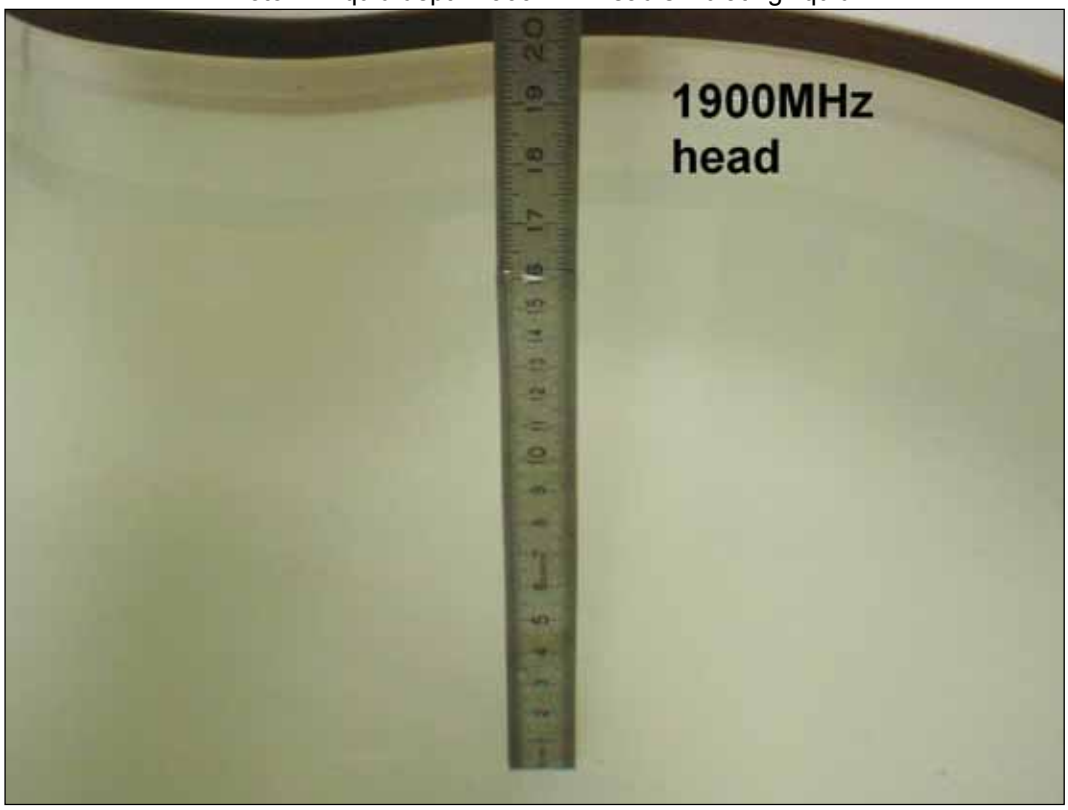


Photo 8: Liquid depth 1900 MHz body simulating liquid

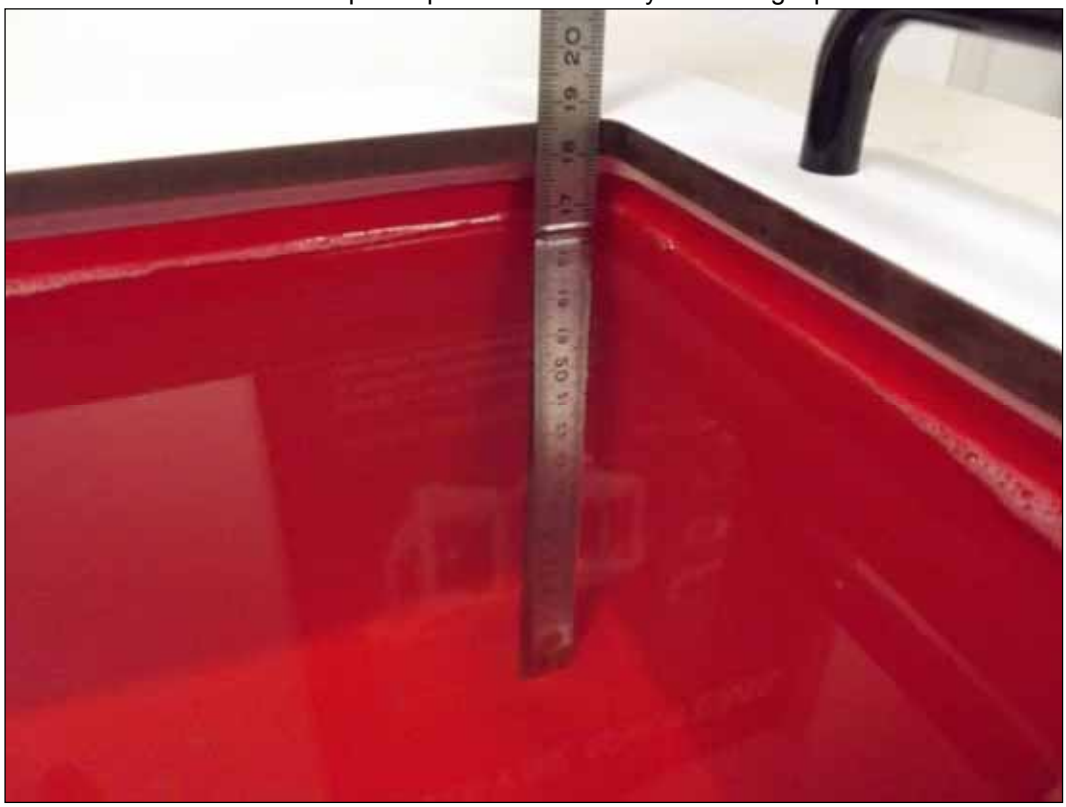


Photo 9: Liquid depth 2450MHz head simulating liquid

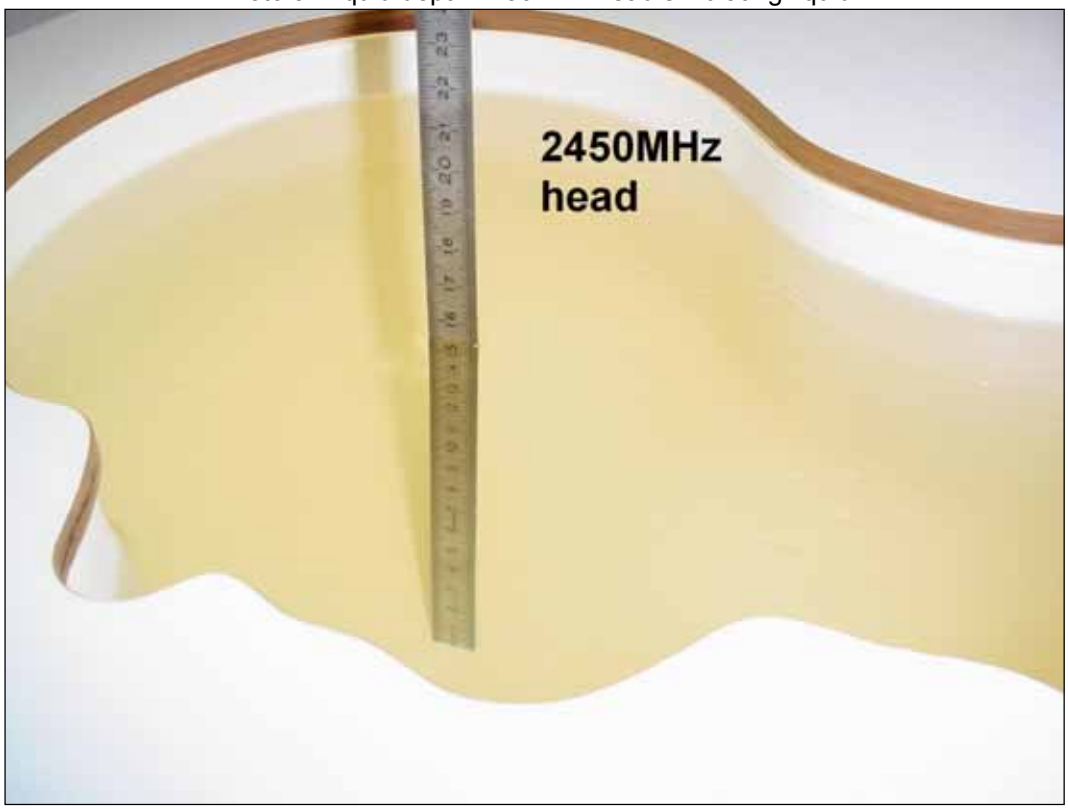


Photo 10: Liquid depth 2450 MHz body simulating liquid

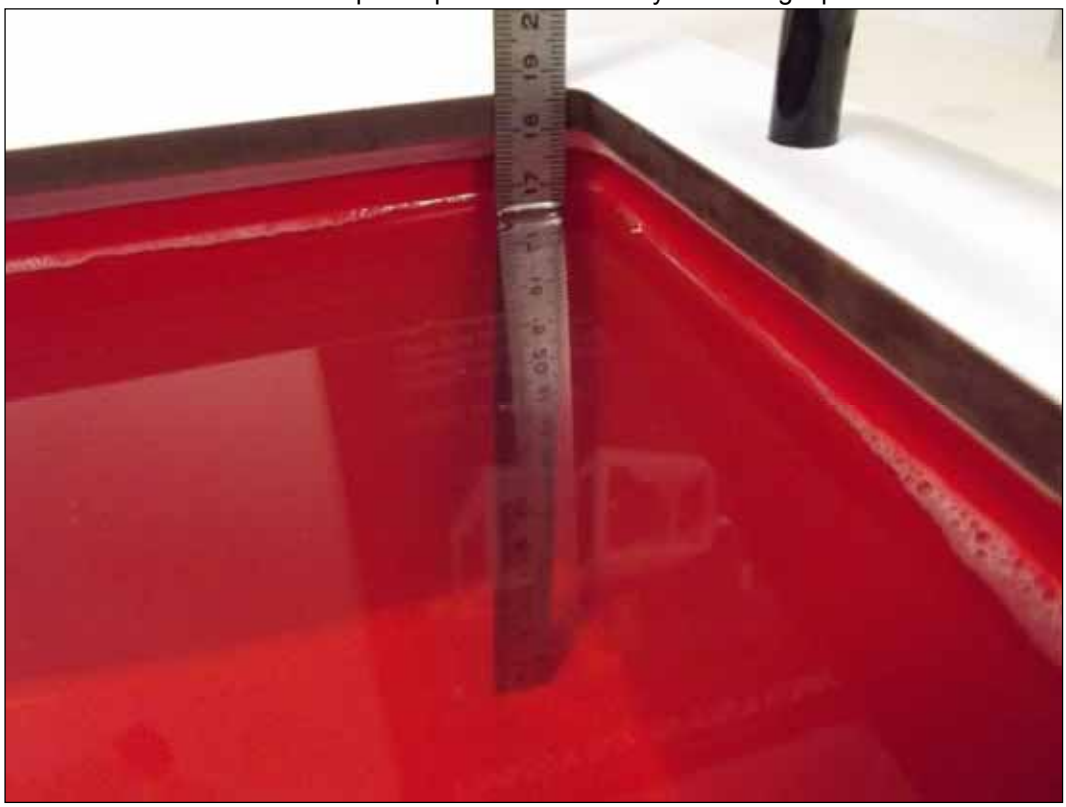
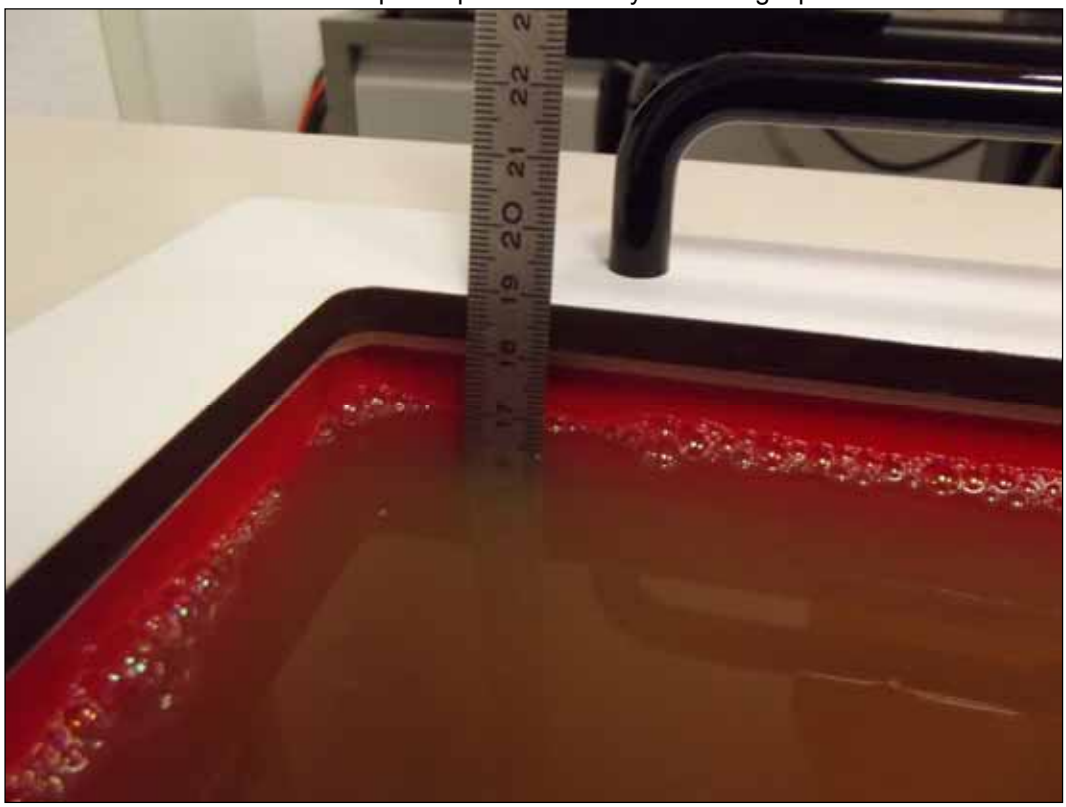


Photo 11: Liquid depth 5 GHz head simulating liquid

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. 1-0042/15-01-15-A-A Photo documentation

Annex D: Calibration parameters

Calibration parameters are described in the additional document:

Appendix to test report no. 1-0042/15-01-15-A-A
Calibration data, Phantom certificate
and detail information of the DASY5 System

Annex E: Document History

Version	Applied Changes	Date of Release
	Initial Release	2015-09-29
-A	Compressed file size to 6Mb	2015-10-16

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
UNII	-	Unlicensed National Information Infrastructure