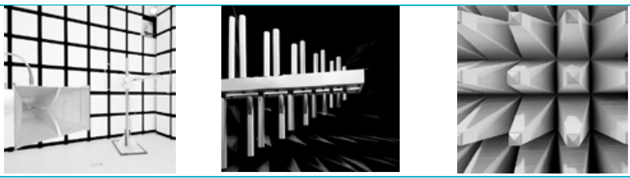

Bundesnetzagentur

BNetzA-CAB-02/21-102

TEST REPORT

Test Report No.: 1-7799-24-01-04_TR1-R01

Deutsche Akkreditierungsstelle
D-PL-12047-01-00

Testing Laboratory

cetecom advanced GmbH
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Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018-03) 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-12047-01-00.
ISED Testing Laboratory Recognized Listing Number: DE0001
FCC designation number: DE0002

Applicant

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Manufacturer

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Test Standards

IEC/IEEE 62209-1528-2020	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
RSS-102 Issue 6	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:	Payment Terminal
Device type:	portable device
Model name:	**Move/5000**
S/N serial number:	240657303201380555210494
FCC-ID:	XKB-M5CL4GWBTV2
ISED Number:	2586D-M5CL4GWBTV2
Product Marketing Name (PMN):	Move/5000
Hardware Version Identification No. (HVIN):	Move/5000 CL/4G/WiFi/BT V2
IMEI-Number:	353781581129176
Hardware status:	MOVE RC7611
Software status:	Tetra OS RC7611
Frequency:	see technical details
Antenna:	integrated antenna
Battery option:	Rechargeable Li-ion Battery 3.6V / 2980mAh
Module information:	Sierra Wireless RC7611
Test sample status:	identical prototype
Exposure category:	general population / uncontrolled environment

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

Test Report authorised:

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Eric Tuettmann
Testing Manager
Radio Labs

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:	2024-05-06
Date of receipt of test item:	2024-07-29
Start of test:	2024-07-30
End of test:	2024-08-13

2.3 Statement of compliance

The SAR values found for the Move/5000 Payment Terminal are below the maximum recommended levels of 4 W/Kg as averaged over any 10 g tissue according to the FCC rule §2.1093, the Health Canada's Safety Code 6 and the Industry Canada Radio Standards Specification RSS-102 for General Population/Uncontrolled exposure.

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 P_{avg}/dBm
☒	LTE FDD 2	1850	1910	1930	1990	QPSK	3	max	--	--	--	18700	18900	19100	24.4
☒	LTE FDD 4	1710	1755	2110	2155	QPSK	3	max	--	--	--	20050	20175	20300	24.2
☒	LTE FDD 5	824	849	869	894	QPSK	3	max	--	--	--	20450	20525	20600	23.7
☒	LTE FDD 12	704	711	734	741	QPSK	3	max	--	--	--	23060	23095	23130	23.9
☒	LTE FDD 13	777	787	746	756	QPSK	3	max	--	--	--	23205	23230	23255	23.5
☒	LTE FDD 14	788	798	758	768	QPSK	3	max	--	--	--	23305	23330	23355	23.6
☒	LTE FDD 25	1850	1915	1930	1995	QPSK	3	max	--	--	--	26140	26340	26590	24.0
☒	LTE FDD 26	814	849	859	894	QPSK	3	max	--	--	--	26765	26865	26965	23.8
☒	LTE FDD 71	663	698	617	652	QPSK	3	max	--	--	--	133222	133297	133372	23.8

Module: Sierra Wireless RC7611
Release 10 mandatory LTE features
• RC76xx Data rates:
· Cat 1 FDD (up to 10 Mbps downlink, 5 Mbps uplink)
· Cat 4 FDD (up to 150 Mbps downlink, 50 Mbps uplink)
• 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz and 20 MHz RF bandwidth

3 Test standards/ procedures references

Test Standard	Version	Test Standard Description
RSS-102 Issue 6	2023-12	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
RSS-102 Supplementary Procedures SPR-002	2022-10	SPR-002 — Supplementary Procedure for Assessing Compliance of Equipment Operating from 3 kHz to 10 MHz with RSS-102
Canada's Safety Code No. 6	2015-06	Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz
IEEE Std. C95-3	2002	IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave
IEC/IEEE 62209-1528-2020	2020-10-19	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)

FCC KDBs:

KDB 865664D01v01	August 7, 2015	FCC OET SAR measurement requirements 100 MHz to 6 GHz
KDB 865664D02v01	October 23, 2015	RF Exposure Compliance Reporting and Documentation Considerations
KDB 447498D01v06	October 23, 2015	Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
KDB 648474D04v01	October 23, 2015	SAR Evaluation Considerations for Wireless Handsets
KDB 941225D05v02	October 23, 2015	SAR for LTE Devices
KDB 941225D05Av01	October 23, 2015	LTE Rel. 10 KDB Inquiry Sheet

3.1 RF exposure limits

RF Exposure levels according CFR 47 – Part 1, §1.1310 / RSS 102 Issue 06 / safety Code 6:

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

Table 1: RF exposure limits (100 kHz to 6 GHz)

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.

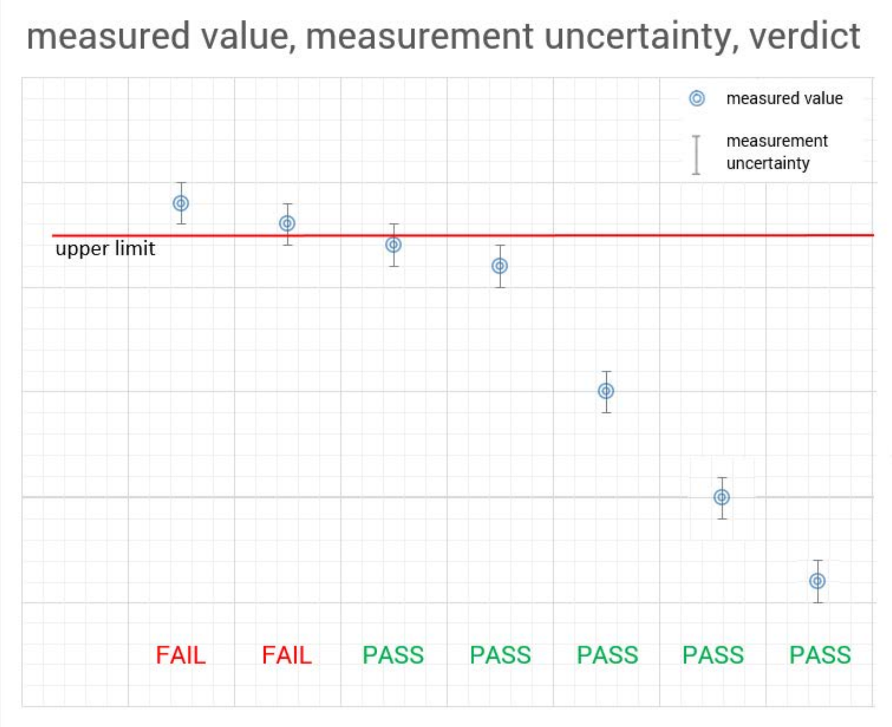
*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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 Reporting statements of conformity – decision rule

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed in chapter 3.
The measurement uncertainty is mentioned in this test report, see chapter 9, but is not taken into account - neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 20% that the decision might be wrong."



5 Summary of Measurement Results

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

Maximum SAR value (W/kg)		
	PCB	**limit**
extremity 0 mm distance for 10g	**1.505**	**4.0**

6 Test Environment

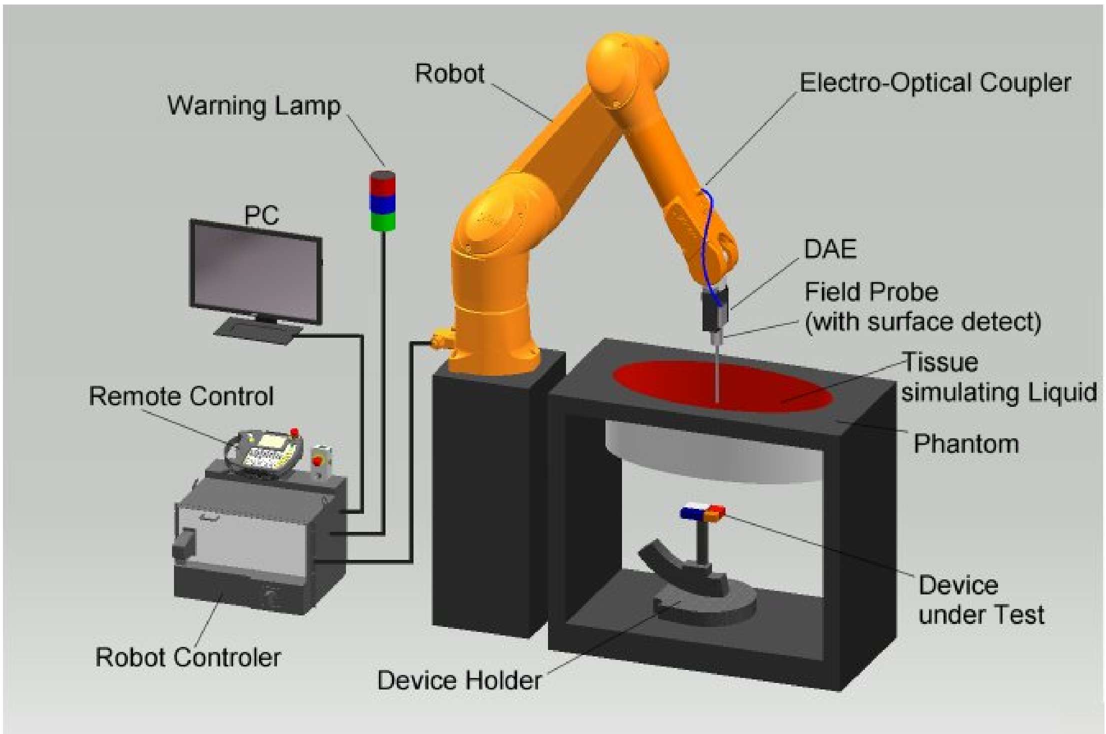
Ambient temperature:	20 – 24 °C
Tissue Simulating liquid:	20 – 24 °C
Relative humidity content:	40 – 50 %
Air pressure:	not relevant for this kind of testing
Power supply:	230 V / 50 Hz

NOTE: For the SAR measurements the exact temperature values for each test are shown in the SAR result tables and are also at the bottom of each measurement plot.

7 Test Set-up

7.1 Measurement system

7.1.1 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.
- 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.

7.1.2 Test environment

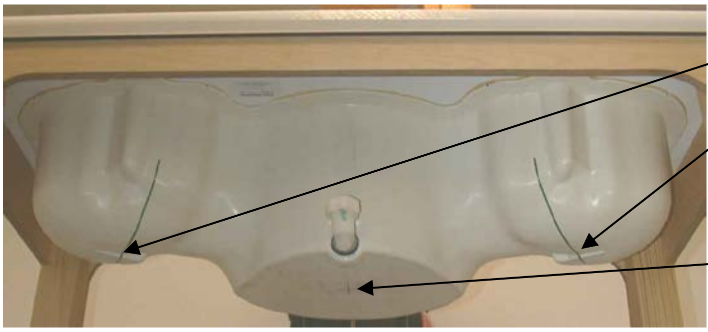
The DASY measurement system is placed in a laboratory room within an environment which avoids influence on SAR measurements by ambient electromagnetic fields and any reflection from the environment. The pictures at the beginning of the photo documentation show a complete view of the test environment.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

7.1.3 Probe description

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 W/kg; 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%.

7.1.4 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.

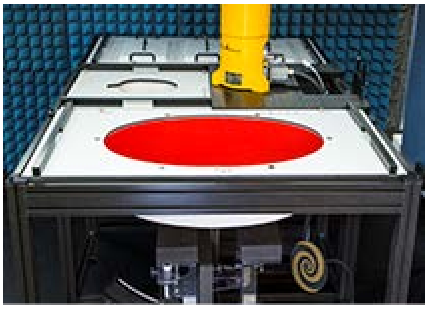


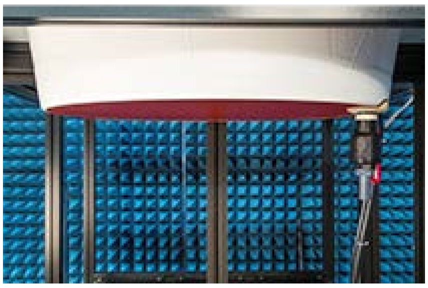
ear reference point right hand side

ear reference point left hand side

reference point flat position

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.





The used ELI Phantom is fully compatible with the IEC/IEEE 62209-1528 and all known tissue stimulating liquids. It meets the requirements specified in KDB865664 D01 for Specific Absorption Rate (SAR) measurements and is fully compatible with the standard IEC 62209-2. The phantom consists of a fibreglass shell integrated in a wooden table. The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 4MHz to 10 GHz.

7.1.5 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.

7.1.6 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. Measurements can be performed in a fixed plane or by following an arbitrary surface.
- For an automatic and accurate detection of the phantom surface, the DASY system uses Mechanical Surface Detection:

  Mechanical Surface Detection
  Mechanical surface detection uses the probe collision detector built into the DAE. It is extremely accurate if the probe is normal to the surface (0.05 mm). For angled probes, the distance increases, because the detection is at the edge of the probe tip. It can be used in any liquid with any kind of probe. If the surface is strongly angled with respect to the probe, the probe slides along the surface and is defected sideways. The second switch system in the DAE will detect this situation and the probe will move backward until the touch condition is cleared. However, there will be some remaining uncertainty in the final probe position. In the job description, the desired distance from the probe sensors to the phantom surface can be entered. The detection is always at touch, but the probe will move backward from the surface the indicated distance before starting the measurement.

  Mother Scan in cDASY6/DASY8 Module SAR
  While the DASY5 V5.2 SAR system uses the mechanical surface detection at each point of the Area Scan / Zoom Scan, the cDASY6/DASY8 Module SAR provides the possibility to do a Mother Scan in which a high resolution Area Scan is done in the phantom filled with liquid to a fixed level using a special teaching probe. This mother scan data is used to recreate the phantom inner surface in software, and all future area and/or zoom scans, and a surface detection check is no longer required.

- 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

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

- DASY provides an auto-extending feature to expand the size of the measurement area of the zoom scan as long as the maximum is found too close to the edge of the measured range, which eliminates the need to re-measure cubes whose maximum is found on the boundary of the defined measurement cube.

- To meet the requirements of **IEC 62209-2 AMD1 from 2019** it is necessary to perform graded grid measurements to avoid measurement mistakes.

  Below 3 GHz it defines:
  Horizontal grid step ≤ 8mm
  Vertical grid step ≤ 5mm for uniform spacing

  For variable spacing in vertical direction the maximum distance between the two closest measured points to the phantom shell (M1 and M2) shall be ≤ 4 mm and the spacing between farther points shall increase by a factor ≤ 1.5. Zoom Scan size ≤ 30 mm by 30 mm by 30 mm.

  Above 3 GHz it defines:
  Horizontal grid step ≤ (24/*f* [GHz]) mm
  Vertical grid step ≤ (10/(*f* [GHz] − 1)) mm for uniform spacing

  For variable spacing in vertical direction the maximum distance between the two closest measured points to the phantom shell (M1 and M2) shall be ≤ (12/*f* [GHz]) mm and the spacing between farther points shall increase by a factor ≤ 1.5. Zoom Scan size ≤ 22 mm by 22 mm by 22 mm.

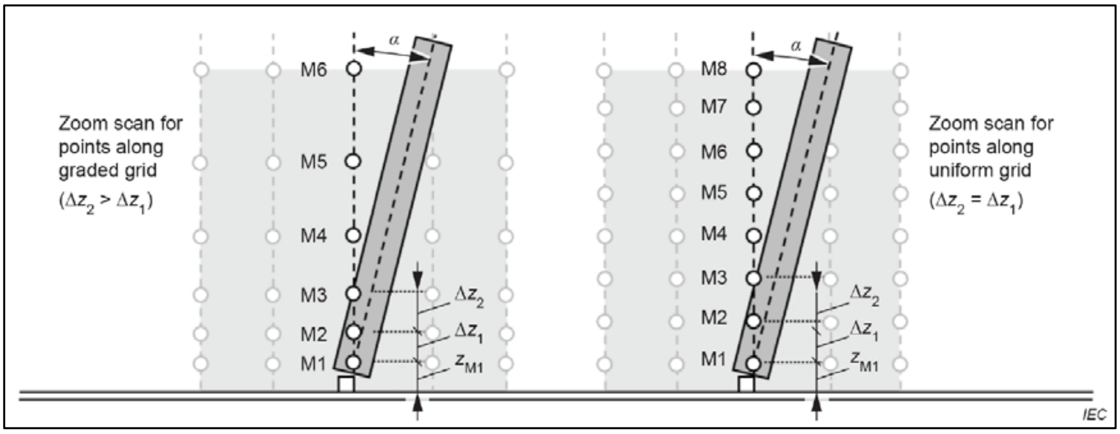
  <u>If the zoom scan measured as defined above complies with both of the following criteria, or if the peak spatial-average SAR is below 0.1 W/kg, no additional measurements are needed:</u>

  1) the smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both *x* and y directions (Δx, Δy). This shall be checked for the measured zoom scan plane conformal to the phantom at the distance z_{M1}. The minimum distance shall be recorded in the SAR test report;
  2) the ratio of the SAR at the second measured point (M2) to the SAR at the closest measured point (M1) at the *x*-*y* location of the measured maximum SAR value shall be at least 30 %. This ratio (in %) shall be recorded in the SAR test report.

If one or both of the above criteria are not met, the zoom scan measurement shall be repeated using a finer resolution while keeping the other zoom scan parameters compatible with the basic requirements for zoom scans.

New horizontal and vertical grid steps shall be determined from the measured SAR distribution so that the above criteria are met. Compliance with the above two criteria shall be demonstrated for the new measured zoom scan. The size of the higher resolution zoom scan and all other parameters shall apply. The closest point to the phantom shell shall be 2 mm or less for graded grids and the grading factor shall be 1.5 or less. Uncertainties due to field distortion between the media boundary and the dielectric enclosure of the probe should also be minimized, which is achieved if the distance between the phantom surface and physical tip of the probe is larger than the probe tip diameter. Other methods may utilize correction procedures to compensate for boundary effects that enable high precision measurements closer than half the probe tip diameter. For all measurement points, the angle of the probe normal to the flat phantom surface shall be less than 5°. If this cannot be achieved, an additional uncertainty evaluation is required.

Orientation of the probe with respect to the line normal to the phantom surface, shown at two different locations:



NOTE M1 to M8 are example measurement points used for extrapolation to the surface. The maximum of the angle α between the evaluation axis and the surface normal line is called the probe angle. The distance z_{M1} is from the phantom shell to the first measurement point M1, and its maximum value is 1.4mm fixed for the DASY system equipped with an EX-Probe. The distances Δz_i (i = 1, 2, 3, ...) are the distances from measurement points M_i to M_{i-1}. For uniform grids, Δz_i are equal. For graded grids, $\Delta z_{i+1} > \Delta z_i$. $R_z = \Delta z_{i+1}/\Delta z_i$ is a ratio with a maximum value (defined in the table below). The z direction corresponds to the vertical direction, the x direction is horizontal and the y direction is horizontal into the page.

NOTE 1: The evaluation of the zoom scan is typically done by the post-processor by interpolation and extrapolation and without reconstruction of the field. More focused induced SAR distributions (e.g., for more localized sources such as capacitively coupled sources) require a more dense grid such that the same integration and extrapolation algorithms can be used for the same assessment uncertainty.

NOTE 2: The minimum ratio of 30 % is derived from the plane wave penetration depth at 6 GHz.

Detailed parameters can be seen in the following table:

Table 8 – Zoom scan parameters

Parameter	DUT transmit frequency being tested	
	$f \leq 3$ GHz	3 GHz < $f \leq 6$ GHz
Maximum distance between the closest measured points and the phantom surface (z_{M1} in Figure 14 and Table 2, in mm)	5	δ ln(2)/2 [a]
Maximum angle between the probe axis and the flat phantom surface normal (α in Figure 14)	5°	5°
Maximum spacing between measured points in the x- and y-directions (Δx and Δy, in mm)	8	$24/f$ [b,c]
For uniform grids: Maximum spacing between measured points in the direction normal to the phantom shell (Δz_1 in Figure 14, in mm)	5	$10/(f - 1)$
For graded grids: Maximum spacing between the two closest measured points in the direction normal to the phantom shell (Δz_1 in Figure 14, in mm)	4	$12/f$
For graded grids: Maximum incremental increase in the spacing between measured points in the direction normal to the phantom shell ($R_z = \Delta z_2/\Delta z_1$ in Figure 14)	1,5	1,5
Minimum edge length of the zoom scan volume in the x- and y-directions (L_z in 7.2.5.3, in mm)	30	22
Minimum edge length of the zoom scan volume in the direction normal to the phantom shell (L_h in 7.2.5.3, in mm)	30	22
Tolerance in the probe angle	1°	1°

[a] δ is the penetration depth for a plane-wave incident normally on a planar half-space.

[b] This is the maximum spacing allowed, which may not work for all circumstances.

[c] f is the frequency in GHz.

Table M.1 – Minimum probe requirements as a function of frequency and parameters of the tissue equivalent liquid

1	2	3	4	5	6	7	8
Frequency MHz	Relative permittivity	Conduc-tivity S/m	Wavelength in the medium (λ) mm	Plane wave Skin Depth (δ) mm	Maximum Diameter mm	50 % Distance for M1 ($z_{50\,\%} = \delta\, ln(2)/2$) mm	Min. distance for M1 (z_{M1}) mm
300	45,3	0,87	148,6	46,1	8,0	16,0	5,0
450	43,5	0,87	101,1	42,9	8,0	14,9	5,0
750	41,9	0,89	61,8	39,8	8,0	13,8	5,0
835	41,5	0,9	55,8	38,9	8,0	13,5	5,0
900	41,5	0,97	51,7	36,1	8,0	12,5	5,0
1 450	40,5	1,20	32,5	28,6	8,0	9,9	5,0
1 800	40,0	1,40	26,4	24,3	8,0	8,4	5,0
2 000	40,0	1,40	23,7	24,2	8,0	8,4	5,0
2 450	39,2	1,80	19,6	18,7	6,5	6,5	5,0
2 600	39,0	1,96	18,5	17,2	6,2	5,9	5,0
3 000	38,5	2,40	16,1	13,9	5,4	4,8	5,0
4 000	37,4	3,43	12,3	9,6	4,1	3,3	3,3
5 000	36,2	4,45	10,0	7,3	3,3	2,5	2,5
5 200	36,0	4,66	9,6	7,0	3,2	2,4	2,4
5 400	35,8	4,86	9,3	6,7	3,1	2,3	2,3
5 600	35,5	5,07	9,0	6,4	3,0	2,2	2,2
5 800	35,3	5,27	8,7	6,1	2,9	2,1	2,1
6 000	35,1	5,48	8,4	5,9	2,8	2,0	2,0

Further probe parameters can be seen in Annex M of IEC 62209-2.

7.1.7 Comparison of DASY 52 NEO and cDASY6/DASY8

CTC advanced actually uses both systems side by side and the main differences of the DASY52 NEO and cDASY6/DASY8 system are system operation, reporting tools and measurement speed. DASY 52 still uses the DASY measurement software which has further in-depth options to adapt measurements to sophisticated test setups. For the reporting of the measurement results the companion software SEMCAD X is used. cDASY6/DASY8 is a different measurement system that is especially aimed to speed up standardized compliant measurements with high repeatability and less freedom of usability. It makes it possible to handle and rate compliance tests for a standardized product like a mobile phone in one place and it provides its own backend for reporting. The higher measurement speed is bought for the cost of less flexibility in the measurement setup and adding further sophisticated maintenance as it is necessary to perform regular mother scans.

Feature comparison:		
	DASY 52 (NEO)	cDASY6/DASY8
Warning feature for Zoom Scan according IEC 62209-2 AMD1 (graded Grid conditions)*	yes**	yes
Graded Grids for Area and Zoom Scan supported	yes**	yes
Measurement software	DASY 52 NEO	cDASY6/DASY8
Reporting tool	SEMCAD X post processor	cDASY6/DASY8 integrated post processor
Collusion detection to set probe to surface distance	yes	yes
Mother scans	no	yes

*) A warning appears if the stricter zoom scan criteria as defined in IEC 62209-2 AMD1 are violated using the actual zoom scan settings. In these cases a re-measurement with graded grid is performed and the result plot is updated with the information about the graded grid. This approach guarantees that the difference between the positions with maximum SAR to any adjacent point both horizontally and vertically is below the defined thresholds and that the SAR evaluation is correct.
(respecting both the 3 dB and the 30% criteria from section 6.3.1 d) of IEC 62209-2 AMD1.)

**) features were added with version: DASY52 - 52.10.2(1504) to satisfy IEC 62209-2 AMD1.

7.1.8 Spatial Peak SAR Evaluation

Both DASY5 V5.2 and cDASY6/DASY8 Module SAR software include all numerical procedures necessary to evaluate the spatial peak SAR values. Based on the IEEE 1528 standard, a new algorithm has been implemented. The spatial-peak SAR can be computed over any required mass.
The base for the evaluation is a "cube" measurement in a volume of $30mm^3$ below 3GHz or $22mm^3$ above 3GHz. The measured volume must include the 1 g and 10 g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan. If the 10g cube or both cubes are not entirely inside the measured volumes, the system issues a warning regarding the evaluated spatial peak values within the post-processing engine. This means that if the measured volume is shifted, higher values might be possible. To get the correct values a finer measurement grid for the area scan is used. In complicated field distributions, a large grid spacing for the area scan might miss some details and give an incorrectly interpolated peak location. Both DASY5 V5.2 and cDASY6/DASY8 Module SAR allow to automatically extend the grid to make sure that both cubes are inside the measured volume.

The entire evaluation of the spatial peak values is performed within the application in case of cDASY6/DASY8 Module SAR software or within Post-processing engine (SEMCAD X) for DASY5 V5.2. The system always gives the maximum values for the 1 g and 10 g cubes. The cDASY6/DASY8 software allow to automatically extend the grid to make sure that both cubes are inside the measured volume. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. extraction of the measured data (grid and values) from the Zoom Scan
2. calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. generation of a high-resolution mesh within the measured volume
4. interpolation of all measured values from the measurement grid to the high-resolution grid
5. extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. calculation of the averaged SAR within masses of 1 g and 10 g The significant parts are outlined in more detail within the following sections.

Interpolation, Extrapolation and Detection of Maxima

The probe is calibrated at the center of the dipole sensors which is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated.

The choice of the coordinate system defining the location of the measurement points has no influence on the uncertainty of the interpolation, Maxima Search and extrapolation routines. The interpolation, extrapolation and maximum search routines are all based on the modified Quadratic Shepard's method [Robert J. Renka, "Multivariate Interpolation Of Large Sets Of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148.].

Thereby, the interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation. The cDASY6/DASY8 routines construct a once-continuously differentiable function that interpolates the measurement values as follows:

- For each measurement point a trivariate (3-D) / bivariate (2-D) quadratic is computed. It interpolates the measurement values at the data point and forms a least-square fit to neighbouring measurement values.
- the spatial location of the quadratic with respect to the measurement values is attenuated by an inverse distance weighting. This is performed since the calculated quadratic will fit measurement values at nearby points more accurate than at points located further away.
- After the quadratics are calculated at all measurement points, the interpolating function is calculated as a weighted average of the quadratics.

There are two control parameters that govern the behavior of the interpolation method.

One specifies the number of measurement points to be used in computing the least-square fits for the local quadratics. These measurement points are the ones nearest the input point for which the quadratic is being computed.

The second parameter specifies the number of measurement points that will be used in calculating the weights for the quadratics to produce the final function. The input data points used there are the ones nearest the point at which the interpolation is desired. Appropriate defaults are chosen for each of the control parameters.

The trivariate quadratics that have been previously computed for the 3-D interpolation and whose input data are at the closest distance from the phantom surface, are used in order to extrapolate the fields to the surface of the phantom.

In order to determine all the field maxima in 2-D (Area Scan) and 3-D (Zoom Scan), the measurement grid is refined by a default factor of 10 (area) and 5 (zoom), respectively, and the interpolation function is used to evaluate all field values between corresponding measurement points. Subsequently, a linear search is applied to find all the candidate maxima. In a last step, non physical maxima are removed and only those maxima which are within 2 dB of the global maximum value are retained.

Important: To be processable by the interpolation/extrapolation scheme, the Area Scan requires at least6 measurement points. The Zoom Scan requires at least 10 measurement points to allow the application of these algorithms.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extrema of the SAR distribution. The uncertainty on the locations of the extrema is less than 1/20 of the grid size. Only local maxima within 2 dB of the global maximum are searched and passed for the Zoom Scan measurement.

In the Zoom Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

Averaging and Determination of spatial Peak SAR

Within DASY5 V5.2 software, the interpolated data is used to average the SAR over the 1g and 10g cubes by spatially discretizing the entire measured volume. The resolution of this spatial grid is around 1mm and chosen such that the cube side length is a multiple of the resolution. The resulting volumes are defined as cubical volumes containing the appropriate tissue parameters that are centered at the location. The location is defined as the center of the incremental volume.

The spatial-peak SAR must be evaluated in cubical volumes containing a mass that is within 5% of the required mass. The cubical volume centered at each location, as defined above, should be expanded in all directions until the desired value for the mass is reached, with no surface boundaries of the averaging volume extending beyond the outermost surface of the considered region. In addition, the cubical volume should not consist of more than 10% of non-liquid volume. If these conditions are not satisfied, then the center of the averaging volume is moved to the next location.

Reference is kept of all locations used and those not used for averaging the SAR. All average SAR values are finally assigned to the centered location in each valid averaging volume. All locations included in an averaging volume are marked as used to indicate that they have been used at least once. If a location has been marked as used, but has never been the center of a cube, the highest averaged SAR value of all other cubical volumes which have used this location for averaging is assigned to this location. For the case of an unused location, a new averaging volume must be constructed which will have the unused location centered at one surface of the cube. The remaining five surfaces are expanded evenly in all directions until the required mass is enclosed, regardless of the amount of included air. Of the six possible cubes with one surface centered on the unused location, the smallest cube is used, which still contains the required mass.

If the final cube containing the highest averaged SAR touches the surface of the measured volume, an appropriate warning is issued within the Post-processing engine.

Within cDASY6/DASY8 Module SAR software, the measured grid is interpolated to a high resolution grid, where the resolution is around 1mm and chosen such that the cube volume is a multiple of the resolution. Points which are outside of the measured grid are masked out and set to zero. Then, the antiderivative of the interpolated grid is computed by using a Gaussian quadrature consecutively for all spatial dimensions.

The antiderivative is used to compute all cube averages of the volume with the same resolution as the interpolated grid. The maximum of these SAR averages is reported. If the cube containing the maximum averaged SAR touches the surface of the measured volume, an appropriate warning is issued within the Post-processing engine.

7.1.9 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], [W/kg], [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 W/kg
	E_{tot}	= total field strength in V/m
	σ	= conductivity in [mho/m] or [Siemens/m]
	ρ	= equivalent tissue density in g/cm^3

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

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

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

Data Evaluation in cDASY6/DASY8

cDASY6/DASY8 features basic evaluation capabilities comparable to the above described SEMCAD evaluation. The main difference is that cDASY6/DASY8 is a stand-alone all-in-one solution whilst SEMCAD is only used to add these features to the DASY5.2 (NEO) platform. The final results are fully comparable no matter if they were generated by DASY5.2(NEO) + SEMCAD or in cDASY6/DASY8 directly.

7.1.10 Tissue simulating liquids: dielectric properties

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

HBBL600-10000MHz Simulating Liquid, Manufactured by SPEAG:

Ingredients	(% by weight)
Water	50-65%
Mineral oil	10-30%
Emulsifiers	8-25%
Sodium salt	0-1.5%

Table 2: Head tissue dielectric properties

7.1.11 Tissue simulating liquids: parameters

Freq. (MHz)	Target tissue		Measurement tissue					Measurement date
	Permittivity	Conductivity [S/m]	Permittivity	Dev. %	Conductivity ε"	Conductivity [S/m]	Dev. %	
662	42.37	0.88	41.6	-1.8	24.84	0.91	3.5	2024-08-12
698	42.18	0.89	41.5	-1.6	23.87	0.93	4.6	
704	42.15	0.89	41.5	-1.6	23.73	0.93	4.8	
707	42.13	0.89	41.4	-1.6	23.66	0.93	4.9	
709	42.12	0.89	41.4	-1.6	23.61	0.93	5.0	
710	42.11	0.89	41.4	-1.6	23.59	0.93	5.0	
713	42.10	0.89	41.4	-1.6	23.52	0.93	5.1	
725	42.03	0.89	41.4	-1.5	23.24	0.94	5.5	
728	42.02	0.89	41.4	-1.5	23.17	0.94	5.6	
738	41.96	0.89	41.3	-1.5	22.94	0.94	5.9	
750	41.90	0.89	41.3	-1.5	22.67	0.95	6.3	
779	41.76	0.89	41.2	-1.4	22.09	0.96	7.2	
782	41.75	0.89	41.2	-1.3	22.03	0.96	7.2	
784	41.74	0.89	41.2	-1.3	21.99	0.96	7.3	
790	41.71	0.89	41.2	-1.3	21.87	0.96	7.4	
793	41.70	0.90	41.2	-1.3	21.81	0.96	7.5	
795	41.69	0.90	41.1	-1.3	21.77	0.96	7.6	
820	41.57	0.90	41.1	-1.2	21.32	0.97	8.3	
832	41.51	0.90	41.0	-1.2	21.11	0.98	8.6	
835	41.50	0.90	41.0	-1.2	21.06	0.98	8.7	
840	41.50	0.91	41.0	-1.2	20.97	0.98	8.2	
842	41.50	0.91	41.0	-1.2	20.93	0.98	8.0	
844	41.50	0.91	41.0	-1.3	20.90	0.98	7.9	

Freq. (MHz)	Target tissue		Measurement tissue					Measurement date
	Permittivity	Conductivity [S/m]	Permittivity	Dev. %	Conductivity		Dev. %	
					ε"	[S/m]		
1712	40.13	1.35	39.2	-2.3	14.18	1.35	0.1	2024-07-30
1720	40.11	1.35	39.2	-2.3	14.16	1.35	0.0	
1732	40.10	1.36	39.2	-2.3	14.13	1.36	0.0	
1745	40.08	1.37	39.2	-2.3	14.09	1.37	-0.1	
1747	40.08	1.37	39.2	-2.3	14.08	1.37	-0.1	
1750	40.07	1.37	39.2	-2.3	14.07	1.37	-0.1	
1752	40.07	1.37	39.2	-2.3	14.07	1.37	-0.1	
1760	40.06	1.38	39.2	-2.3	14.05	1.38	-0.1	
1767	40.05	1.38	39.1	-2.3	14.03	1.38	-0.1	
1775	40.04	1.39	39.1	-2.2	14.01	1.38	-0.2	
1783	40.02	1.39	39.1	-2.2	13.99	1.39	-0.2	
1785	40.02	1.39	39.1	-2.2	13.99	1.39	-0.2	
1795	40.01	1.40	39.1	-2.2	13.96	1.39	-0.2	
1800	40.00	1.40	39.1	-2.2	13.95	1.40	-0.2	
1850	40.00	1.40	39.0	-2.4	13.83	1.42	1.7	
1852	40.00	1.40	39.0	-2.4	13.83	1.42	1.8	
1860	40.00	1.40	39.0	-2.4	13.81	1.43	2.1	
1880	40.00	1.40	39.0	-2.5	13.77	1.44	2.8	
1900	40.00	1.40	39.0	-2.6	13.72	1.45	3.6	
1905	40.00	1.40	39.0	-2.6	13.71	1.45	3.8	

Table 3: Parameter of the tissue simulating liquid
Note: The dielectric properties have been measured using the contact probe method at 22°C.

*) as the liquid parameters deviation is ≥ ± 5% an extrapolation according IEC / IEEE 62209-1528 chapter 7.8.2 approach 3 is necessary. The DASY software is capable to perform the necessary corrections directly from the tissue and measurement data. The uncertainties in this document have been adjusted accordingly.

For detailed information see chapter 8.2.7 SAR correction for deviations of complex permittivity from targetson page 77.

7.1.12 Measurement uncertainty evaluation for SAR test

DASY6/8 Uncertainty Budget According to IEC/IEEE 62209-1528 (Frequency band: 300 MHz - 3 GHz range)								
Symbol	Error Description	Uncertainty Value	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	Standard Uncertainty ± %, (1g)	Standard Uncertainty ± %, (10g)
Measurement System Errors								
CF	Probe Calibration Repeat.	± 12.0 %	Normal	2	1	1	± 6.0 %	± 6.0 %
CFdrift	Probe Calibration Drift	± 1.7 %	Rectangular	√3	1	1	± 1.0 %	± 1.0 %
LIN	Probe linearity	± 4.7 %	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
BBS	Broadband Signal	± 3.0 %	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
ISO	Probe Isotropy (axial)	± 7.6 %	Rectangular	√3	1	1	± 4.4 %	± 4.4 %
DAE	Data Acquisition	± 0.3 %	Normal	1	1	1	± 0.3 %	± 0.3 %
AMB	RF Ambient	± 1.8 %	Normal	1	1	1	± 1.8 %	± 1.8 %
Δ_{sys}	Probe Positioning	± 0.006 mm	Normal	1	0.14	0.14	± 0.1 %	± 0.1 %
DAT	Data Processing	± 1.2 %	Normal	1	1	1	± 1.2 %	± 1.2 %
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)[DAK]	± 2.5 %	Normal	1	0.78	0.71	± 2.0 %	± 1.8 %
LIQ(Tσ)	Conductivity (temp.)[BB]	± 3.3 %	Rectangular	√3	0.78	0.71	± 1.5 %	± 1.4 %
EPS	Phantom Permittivity	± 14.0 %	Rectangular	√3	0	0	± 0.0 %	± 0.0 %
DIS	Distance DUT - TSL	± 2.0 %	Normal	1	2	2	± 4.0 %	± 4.0 %
D_{xyz}	Device Positioning	± 1.0 %	Normal	1	1	1	± 1.0 %	± 1.0 %
H	Device Holder	± 3.6 %	Normal	1	1	1	± 3.6 %	± 3.6 %
MOD	DUT Modulation[m]	± 2.4 %	Rectangular	√3	1	1	± 1.4 %	± 1.4 %
TAS	Time-average SAR	± 1.7 %	Rectangular	√3	1	1	± 1.0 %	± 1.0 %
RF_{drift}	DUT drift	± 2.5 %	Normal	1	1	1	± 2.5 %	± 2.5 %
VAL	Val Antenna Unc.[val]	± 0.0 %	Normal	1	1	1	± 0.0 %	± 0.0 %
RF_{in}	Unc. Input Power[val]	± 0.0 %	Normal	1	1	1	± 0.0 %	± 0.0 %
Correction to the SAR results								
C(ε, σ)	Deviation to Target	± 1.9 %	Normal	1	1	0.84	± 1.9 %	± 1.6 %
C(R)	SAR scaling[p]	± 0.0 %	Rectangular	√3	1	1	± 0.0 %	± 0.0 %
u(ΔSAR)	**Combined Uncertainty**						± 11.0 %	± 10.9 %
U	**Expanded Uncertainty**						± **21.9** %	± **21.7** %

Table 4: Measurement uncertainties

Worst-Case uncertainty budget for DASY6/8 assessed according to IEC/IEEE 62209-1528 [4]. 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. All listed error components have v_{eff} equal to ∞.

Footnote details:

[m] SMC calibration is a new method for determining the total deviation from linearity. The uncertainty is ≤ 2.4% for psSAR ≤ 2 W/kg, ≤ 4.8% for psSAR1g/10g ≤ 4 W/kg and ≤ 9.6% for psSAR1g/10g ≤ 10 W/kg (see modulation calibration parameter uncertainty in the probe calibration certificate);
[BB] if SPEAG's broad-band liquids (BBL) are used that have low temperature coefficients;
[DAK] if SPEAG's high precision dielectric probe kit (DAK) is applied;
[p] if power scaling is used, error item "SAR Scaling" must be adjusted accordingly;
[val] only applies in case of validation measurements.

7.1.13 Measurement uncertainty evaluation for System Check

Repeatability Budget for System Check (Frequency band: 300MHz - 6GHz range) with DASY6/8 System								
Symbol	Error Description	Uncertainty Value	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	Standard Uncertainty ± %, (1g)	± %, (10g)
Measurement System Errors								
CF	Probe Calibration Repeat.	± 3.6 %	Normal	2	2	1	± 5.1 %	± 2.5 %
CFdrift	Probe Calibration Drift	± 1.7 %	Rectangular	√3	1	1	± 1.0 %	± 1.0 %
LIN	Probe linearity	± 4.7 %	Rectangular	√3	0	0	± 0.0 %	± 0.0 %
BBS	Broadband Signal	± 0.0 %	Rectangular	√3	0	0	± 0.0 %	± 0.0 %
ISO	Probe Isotropy (axial)	± 4.7 %	Rectangular	√3	0	0	± 0.0 %	± 0.0 %
DAE	Data Acquisition	± 0.3 %	Normal	1	0	0	± 0.0 %	± 0.0 %
AMB	RF Ambient	± 0.6 %	Normal	1	0	0	± 0.0 %	± 0.0 %
Δ_{sys}	Probe Positioning	± 0.2 %	Normal	1	0.33	0.33	± 0.1 %	± 0.1 %
DAT	Data Processing	± 0.0 %	Normal	1	1	1	± 0.0 %	± 0.0 %
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)[DAK]	± 2.5 %	Normal	1	0.78	0.71	± 2.0 %	± 1.8 %
LIQ(Tσ)	Conductivity (temp.)[BB]	± 3.4 %	Rectangular	√3	0.78	0.71	± 1.5 %	± 1.4 %
EPS	Phantom Permittivity	± 14.0 %	Rectangular	√3	0	0	± 0.0 %	± 0.0 %
DIS	Distance Phantom - DUT	± 1.0 %	Normal	1	2	2	± 2.0 %	± 2.0 %
MOD	DUT Modulation[m]	± 0.0 %	Rectangular	√3	1	1	± 0.0 %	± 0.0 %
TAS	Time-average SAR	± 0.0 %	Rectangular	√3	1	1	± 0.0 %	± 0.0 %
VAL	Validation antenna	± 0.0 %	Normal	1	1	1	± 0.0 %	± 0.0 %
P_{in}	Accepted power	± 1.2 %	Normal	1	1	1	± 1.2 %	± 1.2 %
Correction to the SAR results								
C(ε, σ)	Deviation to Target	± 1.9 %	Normal	1	1	0.84	± 1.9 %	± 1.6 %
u(ΔSAR)	**Combined Uncertainty**						± 6.5 %	± 4.5 %
U	**Expanded Uncertainty**						± **13.0** %	± **9.1** %

Table 5: Repeatability of the system check (300MHz - 6 GHz).

All listed error components have v_{eff} equal to ∞.

Footnote details:

[BB] if SPEAG's broad-band liquids (BBL) are used that have low temperature coefficients;
[DAK] if SPEAG's high precision dielectric probe kit (DAK) is applied.

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

7.1.14 System check

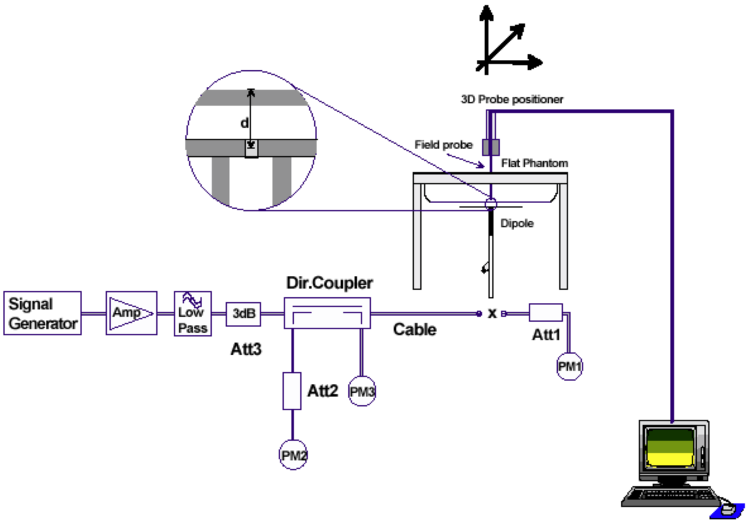
The system check is performed for verifying the accuracy of the complete measurement system and performance of the software. The following table shows system check results for all frequency bands and tissue liquids used during the tests (plot(s) see annex A).

System performence check (1000 mW)									
System validation Kit	Probe	Frequency	Target SAR_{1g}	Target SAR_{10g}	Measured SAR_{1g}	SAR_{1g}	Measured SAR_{10g}	SAR_{10g}	Measured date
		MHz	W/kg (+/- 10%)		W/kg	dev.	W/kg	dev.	
D750V3 S/N: 1041	EX3DV4 S/N: 7852	750	8.52	5.60	8.34	-2.1%	5.40	-3.6%	2024-08-12
D835V2 S/N: 4d153	EX3DV4 S/N: 7852	835	9.63	6.27	9.60	-0.3%	6.14	-2.1%	2024-08-13
D1800V2 S/N: 291	EX3DV4 S/N: 7635	1800	37.80	19.70	34.40	-9.0%	18.12	-8.0%	2024-07-31
D1900V2 S/N: 5d009	EX3DV4 S/N: 7635	1900	39.10	20.60	38.80	-0.8%	19.90	-3.4%	2024-07-30

Table 6: Results system check

7.1.15 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 100 mW or 50 mW if used Powersource1. 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.



7.1.16 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.

8 Detailed Test Results

8.1 Conducted power measurements

The output power was measured using an integrated RF connector and attached RF cable.

8.1.1 Conducted power measurements LTE

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	1850.7	18607	1.4	RB_1_low	QPSK	22.97
low	1850.7	18607	1.4	RB_1_low	16QAM	22.40
low	1850.7	18607	1.4	RB_1_mid	QPSK	23.45
low	1850.7	18607	1.4	RB_1_mid	16QAM	22.41
low	1850.7	18607	1.4	RB_1_high	QPSK	23.26
low	1850.7	18607	1.4	RB_1_high	16QAM	21.96
low	1850.7	18607	1.4	RB_50%_low	QPSK	23.19
low	1850.7	18607	1.4	RB_50%_low	16QAM	22.43
low	1850.7	18607	1.4	RB_50%_mid	QPSK	23.21
low	1850.7	18607	1.4	RB_50%_mid	16QAM	22.50
low	1850.7	18607	1.4	RB_50%_high	QPSK	23.29
low	1850.7	18607	1.4	RB_50%_high	16QAM	22.34
low	1850.7	18607	1.4	RB_100%	QPSK	22.29
low	1850.7	18607	1.4	RB_100%	16QAM	21.50
low	1850.7	18607	1.4	RB_25%_low	QPSK	23.04
low	1850.7	18607	1.4	RB_25%_low	16QAM	22.39
mid	1880	18900	1.4	RB_1_low	QPSK	22.95
mid	1880	18900	1.4	RB_1_low	16QAM	21.66
mid	1880	18900	1.4	RB_1_mid	QPSK	22.89
mid	1880	18900	1.4	RB_1_mid	16QAM	21.95
mid	1880	18900	1.4	RB_1_high	QPSK	22.75
mid	1880	18900	1.4	RB_1_high	16QAM	21.55
mid	1880	18900	1.4	RB_50%_low	QPSK	22.73
mid	1880	18900	1.4	RB_50%_low	16QAM	22.31
mid	1880	18900	1.4	RB_50%_mid	QPSK	22.87
mid	1880	18900	1.4	RB_50%_mid	16QAM	22.26
mid	1880	18900	1.4	RB_50%_high	QPSK	22.78
mid	1880	18900	1.4	RB_50%_high	16QAM	22.22
mid	1880	18900	1.4	RB_100%	QPSK	21.91
mid	1880	18900	1.4	RB_100%	16QAM	21.02
mid	1880	18900	1.4	RB_25%_low	QPSK	22.83
mid	1880	18900	1.4	RB_25%_low	16QAM	21.74
high	1909.3	19193	1.4	RB_1_low	QPSK	23.35
high	1909.3	19193	1.4	RB_1_low	16QAM	22.36
high	1909.3	19193	1.4	RB_1_mid	QPSK	23.22
high	1909.3	19193	1.4	RB_1_mid	16QAM	22.35
high	1909.3	19193	1.4	RB_1_high	QPSK	23.26
high	1909.3	19193	1.4	RB_1_high	16QAM	22.50
high	1909.3	19193	1.4	RB_50%_low	QPSK	23.34
high	1909.3	19193	1.4	RB_50%_low	16QAM	22.76
high	1909.3	19193	1.4	RB_50%_mid	QPSK	23.30
high	1909.3	19193	1.4	RB_50%_mid	16QAM	22.56

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	Pavg [dBm]
high	1909.3	19193	1.4	RB_50%_high	QPSK	23.26
high	1909.3	19193	1.4	RB_50%_high	16QAM	22.45
high	1909.3	19193	1.4	RB_100%	QPSK	22.32
high	1909.3	19193	1.4	RB_100%	16QAM	21.39
high	1909.3	19193	1.4	RB_25%_low	QPSK	22.99
high	1909.3	19193	1.4	RB_25%_low	16QAM	22.30
low	1851.5	18615	3	RB_1_low	QPSK	22.93
low	1851.5	18615	3	RB_1_low	16QAM	22.11
low	1851.5	18615	3	RB_1_mid	QPSK	23.02
low	1851.5	18615	3	RB_1_mid	16QAM	22.73
low	1851.5	18615	3	RB_1_high	QPSK	23.41
low	1851.5	18615	3	RB_1_high	16QAM	22.24
low	1851.5	18615	3	RB_50%_low	QPSK	22.06
low	1851.5	18615	3	RB_50%_low	16QAM	21.06
low	1851.5	18615	3	RB_50%_mid	QPSK	22.18
low	1851.5	18615	3	RB_50%_mid	16QAM	21.21
low	1851.5	18615	3	RB_50%_high	QPSK	22.12
low	1851.5	18615	3	RB_50%_high	16QAM	21.24
low	1851.5	18615	3	RB_100%	QPSK	22.23
low	1851.5	18615	3	RB_100%	16QAM	21.36
low	1851.5	18615	3	RB_25%_low	QPSK	23.22
low	1851.5	18615	3	RB_25%_low	16QAM	22.35
mid	1880	18900	3	RB_1_low	QPSK	22.73
mid	1880	18900	3	RB_1_low	16QAM	21.68
mid	1880	18900	3	RB_1_mid	QPSK	22.96
mid	1880	18900	3	RB_1_mid	16QAM	21.69
mid	1880	18900	3	RB_1_high	QPSK	22.60
mid	1880	18900	3	RB_1_high	16QAM	21.62
mid	1880	18900	3	RB_50%_low	QPSK	21.73
mid	1880	18900	3	RB_50%_low	16QAM	20.76
mid	1880	18900	3	RB_50%_mid	QPSK	21.68
mid	1880	18900	3	RB_50%_mid	16QAM	20.82
mid	1880	18900	3	RB_50%_high	QPSK	21.77
mid	1880	18900	3	RB_50%_high	16QAM	20.81
mid	1880	18900	3	RB_100%	QPSK	21.76
mid	1880	18900	3	RB_100%	16QAM	20.66
mid	1880	18900	3	RB_25%_low	QPSK	22.66
mid	1880	18900	3	RB_25%_low	16QAM	22.01
high	1908.5	19185	3	RB_1_low	QPSK	23.24
high	1908.5	19185	3	RB_1_low	16QAM	21.98
high	1908.5	19185	3	RB_1_mid	QPSK	23.22
high	1908.5	19185	3	RB_1_mid	16QAM	22.25

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	Pavg [dBm]
high	1908.5	19185	3	RB_1_high	QPSK	23.18
high	1908.5	19185	3	RB_1_high	16QAM	22.33
high	1908.5	19185	3	RB_50%_low	QPSK	22.15
high	1908.5	19185	3	RB_50%_low	16QAM	21.21
high	1908.5	19185	3	RB_50%_mid	QPSK	22.32
high	1908.5	19185	3	RB_50%_mid	16QAM	21.18
high	1908.5	19185	3	RB_50%_high	QPSK	22.21
high	1908.5	19185	3	RB_50%_high	16QAM	21.03
high	1908.5	19185	3	RB_100%	QPSK	22.25
high	1908.5	19185	3	RB_100%	16QAM	21.31
high	1908.5	19185	3	RB_25%_low	QPSK	23.26
high	1908.5	19185	3	RB_25%_low	16QAM	22.33
low	1852.5	18625	5	RB_1_low	QPSK	22.65
low	1852.5	18625	5	RB_1_low	16QAM	22.06
low	1852.5	18625	5	RB_1_mid	QPSK	23.12
low	1852.5	18625	5	RB_1_mid	16QAM	22.19
low	1852.5	18625	5	RB_1_high	QPSK	22.97
low	1852.5	18625	5	RB_1_high	16QAM	21.85
low	1852.5	18625	5	RB_50%_low	QPSK	21.97
low	1852.5	18625	5	RB_50%_low	16QAM	21.30
low	1852.5	18625	5	RB_50%_mid	QPSK	22.17
low	1852.5	18625	5	RB_50%_mid	16QAM	21.33
low	1852.5	18625	5	RB_50%_high	QPSK	22.15
low	1852.5	18625	5	RB_50%_high	16QAM	21.40
low	1852.5	18625	5	RB_100%	QPSK	22.13
low	1852.5	18625	5	RB_100%	16QAM	21.12
low	1852.5	18625	5	RB_25%_low	QPSK	22.78
low	1852.5	18625	5	RB_25%_low	16QAM	21.97
mid	1880	18900	5	RB_1_low	QPSK	22.76
mid	1880	18900	5	RB_1_low	16QAM	21.91
mid	1880	18900	5	RB_1_mid	QPSK	22.51
mid	1880	18900	5	RB_1_mid	16QAM	21.58
mid	1880	18900	5	RB_1_high	QPSK	22.71
mid	1880	18900	5	RB_1_high	16QAM	21.89
mid	1880	18900	5	RB_50%_low	QPSK	21.77
mid	1880	18900	5	RB_50%_low	16QAM	20.87
mid	1880	18900	5	RB_50%_mid	QPSK	21.65
mid	1880	18900	5	RB_50%_mid	16QAM	20.85
mid	1880	18900	5	RB_50%_high	QPSK	21.75
mid	1880	18900	5	RB_50%_high	16QAM	20.66
mid	1880	18900	5	RB_100%	QPSK	21.71
mid	1880	18900	5	RB_100%	16QAM	20.86

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	Pavg [dBm]
mid	1880	18900	5	RB_25%_low	QPSK	22.67
mid	1880	18900	5	RB_25%_low	16QAM	21.51
high	1907.5	19175	5	RB_1_low	QPSK	23.10
high	1907.5	19175	5	RB_1_low	16QAM	22.24
high	1907.5	19175	5	RB_1_mid	QPSK	22.75
high	1907.5	19175	5	RB_1_mid	16QAM	22.06
high	1907.5	19175	5	RB_1_high	QPSK	23.04
high	1907.5	19175	5	RB_1_high	16QAM	22.00
high	1907.5	19175	5	RB_50%_low	QPSK	22.25
high	1907.5	19175	5	RB_50%_low	16QAM	21.16
high	1907.5	19175	5	RB_50%_mid	QPSK	22.05
high	1907.5	19175	5	RB_50%_mid	16QAM	21.47
high	1907.5	19175	5	RB_50%_high	QPSK	22.18
high	1907.5	19175	5	RB_50%_high	16QAM	21.16
high	1907.5	19175	5	RB_100%	QPSK	22.11
high	1907.5	19175	5	RB_100%	16QAM	21.34
high	1907.5	19175	5	RB_25%_low	QPSK	23.08
high	1907.5	19175	5	RB_25%_low	16QAM	22.07
low	1855	18650	10	RB_1_low	QPSK	23.25
low	1855	18650	10	RB_1_mid	QPSK	23.75
low	1855	18650	10	RB_1_high	QPSK	23.51
low	1855	18650	10	RB_50%_low	QPSK	22.51
low	1855	18650	10	RB_50%_mid	QPSK	22.49
low	1855	18650	10	RB_50%_high	QPSK	22.45
low	1855	18650	10	RB_100%	QPSK	22.57
low	1855	18650	10	RB_25%_low	QPSK	23.45
mid	1880	18900	10	RB_1_low	QPSK	23.12
mid	1880	18900	10	RB_1_mid	QPSK	23.26
mid	1880	18900	10	RB_1_high	QPSK	22.94
mid	1880	18900	10	RB_50%_low	QPSK	22.06
mid	1880	18900	10	RB_50%_mid	QPSK	22.13
mid	1880	18900	10	RB_50%_high	QPSK	22.09
mid	1880	18900	10	RB_100%	QPSK	22.23
mid	1880	18900	10	RB_25%_low	QPSK	23.11
high	1905	19150	10	RB_1_low	QPSK	23.59
high	1905	19150	10	RB_1_mid	QPSK	23.45
high	1905	19150	10	RB_1_high	QPSK	23.46
high	1905	19150	10	RB_50%_low	QPSK	22.89
high	1905	19150	10	RB_50%_mid	QPSK	22.70
high	1905	19150	10	RB_50%_high	QPSK	22.62
high	1905	19150	10	RB_100%	QPSK	22.76
high	1905	19150	10	RB_25%_low	QPSK	23.68

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	Pavg [dBm]
high	1908.5	19185	3	RB_50%_low	QPSK	22.15
high	1908.5	19185	3	RB_50%_low	16QAM	21.21
high	1908.5	19185	3	RB_50%_mid	QPSK	22.32
high	1908.5	19185	3	RB_50%_mid	16QAM	21.18
high	1908.5	19185	3	RB_50%_high	QPSK	22.21
high	1908.5	19185	3	RB_50%_high	16QAM	21.03
high	1908.5	19185	3	RB_100%	QPSK	22.25
high	1908.5	19185	3	RB_100%	16QAM	21.31
high	1908.5	19185	3	RB_25%_low	QPSK	23.26
high	1908.5	19185	3	RB_25%_low	16QAM	22.33
low	1852.5	18625	5	RB_1_low	QPSK	22.65
low	1852.5	18625	5	RB_1_low	16QAM	22.06
low	1852.5	18625	5	RB_1_mid	QPSK	23.12
low	1852.5	18625	5	RB_1_mid	16QAM	22.19
low	1852.5	18625	5	RB_1_high	QPSK	22.97
low	1852.5	18625	5	RB_1_high	16QAM	21.85
low	1852.5	18625	5	RB_50%_low	QPSK	21.97
low	1852.5	18625	5	RB_50%_low	16QAM	21.30
low	1852.5	18625	5	RB_50%_mid	QPSK	22.17
low	1852.5	18625	5	RB_50%_mid	16QAM	21.33
low	1852.5	18625	5	RB_50%_high	QPSK	22.15
low	1852.5	18625	5	RB_50%_high	16QAM	21.40
low	1852.5	18625	5	RB_100%	QPSK	22.13
low	1852.5	18625	5	RB_100%	16QAM	21.12
low	1852.5	18625	5	RB_25%_low	QPSK	22.78
low	1852.5	18625	5	RB_25%_low	16QAM	21.97
mid	1880	18900	5	RB_1_low	QPSK	22.76
mid	1880	18900	5	RB_1_low	16QAM	21.91
mid	1880	18900	5	RB_1_mid	QPSK	22.51
mid	1880	18900	5	RB_1_mid	16QAM	21.58
mid	1880	18900	5	RB_1_high	QPSK	22.71
mid	1880	18900	5	RB_1_high	16QAM	21.89
mid	1880	18900	5	RB_50%_low	QPSK	21.77
mid	1880	18900	5	RB_50%_low	16QAM	20.87
mid	1880	18900	5	RB_50%_mid	QPSK	21.65
mid	1880	18900	5	RB_50%_mid	16QAM	20.85
mid	1880	18900	5	RB_50%_high	QPSK	21.75
mid	1880	18900	5	RB_50%_high	16QAM	20.66
mid	1880	18900	5	RB_100%	QPSK	21.71
mid	1880	18900	5	RB_100%	16QAM	20.86
mid	1880	18900	5	RB_25%_low	QPSK	22.67
mid	1880	18900	5	RB_25%_low	16QAM	21.51

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	Pavg [dBm]
high	1905	19150	10	RB_1_low	QPSK	23.59
high	1905	19150	10	RB_1_mid	QPSK	23.45
high	1905	19150	10	RB_1_high	QPSK	23.46
high	1905	19150	10	RB_50%_low	QPSK	22.89
high	1905	19150	10	RB_50%_mid	QPSK	22.70
high	1905	19150	10	RB_50%_high	QPSK	22.62
high	1905	19150	10	RB_100%	QPSK	22.76
high	1905	19150	10	RB_25%_low	QPSK	23.68
low	1855	18650	10	RB_1_low	QPSK	23.50
low	1855	18650	10	RB_1_low	16QAM	22.45
low	1855	18650	10	RB_1_mid	QPSK	23.59
low	1855	18650	10	RB_1_mid	16QAM	22.51
low	1855	18650	10	RB_1_high	QPSK	23.35
low	1855	18650	10	RB_1_high	16QAM	22.54
low	1855	18650	10	RB_50%_low	QPSK	22.50
low	1855	18650	10	RB_50%_low	16QAM	21.62
low	1855	18650	10	RB_50%_mid	QPSK	22.49
low	1855	18650	10	RB_50%_mid	16QAM	21.58
low	1855	18650	10	RB_50%_high	QPSK	22.54
low	1855	18650	10	RB_50%_high	16QAM	21.65
low	1855	18650	10	RB_100%	QPSK	22.49
low	1855	18650	10	RB_1_low	QPSK	22.90
low	1855	18650	10	RB_1_low	16QAM	21.98
low	1855	18650	10	RB_1_mid	QPSK	23.21
low	1855	18650	10	RB_1_mid	16QAM	22.31
low	1855	18650	10	RB_1_high	QPSK	22.84
low	1855	18650	10	RB_1_high	16QAM	22.02
low	1855	18650	10	RB_50%_low	QPSK	22.03
low	1855	18650	10	RB_50%_low	16QAM	21.15
low	1855	18650	10	RB_50%_mid	QPSK	22.19
low	1855	18650	10	RB_50%_mid	16QAM	21.23
low	1855	18650	10	RB_50%_high	QPSK	22.19
low	1855	18650	10	RB_50%_high	16QAM	21.33
low	1855	18650	10	RB_100%	QPSK	22.05
mid	1880	18900	10	RB_100%	QPSK	21.07
low	1857.5	18675	15	RB_1_low	16QAM	21.95
low	1857.5	18675	15	RB_1_mid	16QAM	22.76
low	1857.5	18675	15	RB_1_high	16QAM	22.34
low	1857.5	18675	15	RB_1_low	QPSK	22.83
low	1857.5	18675	15	RB_1_mid	QPSK	23.38
low	1857.5	18675	15	RB_1_high	QPSK	22.95
low	1857.5	18675	15	RB_50%_low	QPSK	22.15

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	Pavg [dBm]
low	1857.5	18675	15	RB_50%_mid	QPSK	22.27
low	1857.5	18675	15	RB_50%_high	QPSK	22.22
low	1857.5	18675	15	RB_100%	QPSK	22.27
mid	1880	18900	15	RB_1_low	QPSK	22.69
mid	1880	18900	15	RB_1_mid	QPSK	22.58
mid	1880	18900	15	RB_1_high	QPSK	22.48
mid	1880	18900	15	RB_50%_low	QPSK	22.10
mid	1880	18900	15	RB_50%_mid	QPSK	21.81
mid	1880	18900	15	RB_50%_high	QPSK	21.79
mid	1880	18900	15	RB_100%	QPSK	21.90
high	1902.5	19125	15	RB_1_low	QPSK	23.19
high	1902.5	19125	15	RB_1_mid	QPSK	24.29
high	1902.5	19125	15	RB_1_high	QPSK	23.25
high	1902.5	19125	15	RB_50%_low	QPSK	22.61
high	1902.5	19125	15	RB_50%_mid	QPSK	22.59
high	1902.5	19125	15	RB_50%_high	QPSK	22.25
high	1902.5	19125	15	RB_100%	QPSK	22.47
low	1857.5	18675	15	RB_1_low	QPSK	23.84
low	1857.5	18675	15	RB_1_mid	QPSK	24.36
low	1857.5	18675	15	RB_1_high	QPSK	23.92
low	1857.5	18675	15	RB_50%_low	QPSK	22.98
low	1857.5	18675	15	RB_50%_mid	QPSK	23.09
low	1857.5	18675	15	RB_50%_high	QPSK	22.92
low	1857.5	18675	15	RB_1_low	QPSK	23.30
low	1857.5	18675	15	RB_1_mid	QPSK	23.81
low	1857.5	18675	15	RB_1_high	QPSK	23.03
low	1857.5	18675	15	RB_50%_low	QPSK	22.44
low	1857.5	18675	15	RB_50%_mid	QPSK	22.49
low	1857.5	18675	15	RB_50%_high	QPSK	22.39
low	1857.5	18675	15	RB_1_low	QPSK	23.40
low	1857.5	18675	15	RB_1_mid	QPSK	23.88
low	1857.5	18675	15	RB_1_high	QPSK	23.26
low	1857.5	18675	15	RB_50%_low	QPSK	22.56
low	1857.5	18675	15	RB_50%_mid	QPSK	22.64
low	1857.5	18675	15	RB_50%_high	QPSK	22.58
low	1860	18700	20	RB_1_low	QPSK	23.10
low	1860	18700	20	RB_1_mid	QPSK	23.28
low	1860	18700	20	RB_1_high	QPSK	22.82
low	1860	18700	20	RB_50%_low	QPSK	22.35
low	1860	18700	20	RB_50%_mid	QPSK	22.29
low	1860	18700	20	RB_50%_high	QPSK	22.22
low	1860	18700	20	RB_100%	QPSK	22.25

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	Pavg [dBm]
mid	1880	18900	20	RB_1_low	QPSK	22.79
mid	1880	18900	20	RB_1_mid	QPSK	22.67
mid	1880	18900	20	RB_1_high	QPSK	22.69
mid	1880	18900	20	RB_50%_low	QPSK	22.04
mid	1880	18900	20	RB_50%_mid	QPSK	21.82
mid	1880	18900	20	RB_50%_high	QPSK	21.86
mid	1880	18900	20	RB_100%	QPSK	22.01
high	1900	19100	20	RB_1_low	QPSK	22.73
high	1900	19100	20	RB_1_mid	QPSK	23.68
high	1900	19100	20	RB_1_high	QPSK	23.10
high	1900	19100	20	RB_50%_low	QPSK	22.45
high	1900	19100	20	RB_50%_mid	QPSK	22.55
high	1900	19100	20	RB_50%_high	QPSK	22.42
high	1900	19100	20	RB_100%	QPSK	22.41

Table 7: Test results conducted power measurement LTE FDD 2 1900 MHz.

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	1717.5	20025	15	RB_1_low	QPSK	23.2
low	1717.5	20025	15	RB_1_mid	QPSK	23.78
low	1717.5	20025	15	RB_1_high	QPSK	23.11
low	1717.5	20025	15	RB_50%_low	QPSK	22.4
low	1717.5	20025	15	RB_50%_mid	QPSK	22.42
low	1717.5	20025	15	RB_50%_high	QPSK	22.24
low	1717.5	20025	15	RB_100%	QPSK	22.3
mid	1732.5	20175	15	RB_1_low	QPSK	23.17
mid	1732.5	20175	15	RB_1_mid	QPSK	23.91
mid	1732.5	20175	15	RB_1_high	QPSK	23.17
mid	1732.5	20175	15	RB_50%_low	QPSK	22.43
mid	1732.5	20175	15	RB_50%_mid	QPSK	22.41
mid	1732.5	20175	15	RB_50%_high	QPSK	22.41
mid	1732.5	20175	15	RB_100%	QPSK	22.42
high	1747.5	20325	15	RB_1_low	QPSK	23.41
high	1747.5	20325	15	RB_1_mid	QPSK	24.2
high	1747.5	20325	15	RB_1_high	QPSK	23.48
high	1747.5	20325	15	RB_50%_low	QPSK	22.3
high	1747.5	20325	15	RB_50%_mid	QPSK	22.36
high	1747.5	20325	15	RB_50%_high	QPSK	22.15
high	1747.5	20325	15	RB_100%	QPSK	22.25
low	1720	20050	20	RB_1_low	QPSK	23.37
low	1720	20050	20	RB_1_mid	QPSK	23.4
low	1720	20050	20	RB_1_high	QPSK	23.29
low	1720	20050	20	RB_50%_low	QPSK	22.44
low	1720	20050	20	RB_50%_mid	QPSK	22.43
low	1720	20050	20	RB_50%_high	QPSK	22.37
low	1720	20050	20	RB_100%	QPSK	22.4
mid	1732.5	20175	20	RB_1_low	QPSK	23.28
mid	1732.5	20175	20	RB_1_mid	QPSK	23.66
mid	1732.5	20175	20	RB_1_high	QPSK	23.17
mid	1732.5	20175	20	RB_50%_low	QPSK	22.36
mid	1732.5	20175	20	RB_50%_mid	QPSK	22.42
mid	1732.5	20175	20	RB_50%_high	QPSK	22.35
mid	1732.5	20175	20	RB_100%	QPSK	22.34
high	1745	20300	20	RB_1_low	QPSK	23.49
high	1745	20300	20	RB_1_mid	QPSK	23.75
high	1745	20300	20	RB_1_high	QPSK	23.18
high	1745	20300	20	RB_50%_low	QPSK	22.55
high	1745	20300	20	RB_50%_mid	QPSK	22.42
high	1745	20300	20	RB_50%_high	QPSK	22.17
high	1745	20300	20	RB_100%	QPSK	22.25

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	1717.5	20025	15	RB_1_low	QPSK	23.4
low	1717.5	20025	15	RB_1_mid	QPSK	23.67
low	1717.5	20025	15	RB_1_high	QPSK	23.22
low	1717.5	20025	15	RB_50%_low	QPSK	22.53
low	1717.5	20025	15	RB_50%_mid	QPSK	22.45
low	1717.5	20025	15	RB_50%_high	QPSK	22.43
low	1715	20000	10	RB_1_low	QPSK	23.38
low	1715	20000	10	RB_1_low	16QAM	22.41
low	1715	20000	10	RB_1_mid	QPSK	23.55
low	1715	20000	10	RB_1_mid	16QAM	22.46
low	1715	20000	10	RB_1_high	QPSK	23.29
low	1715	20000	10	RB_1_high	16QAM	22.47
low	1715	20000	10	RB_50%_low	QPSK	22.47
low	1715	20000	10	RB_50%_low	16QAM	21.56
low	1715	20000	10	RB_50%_mid	QPSK	22.55
low	1715	20000	10	RB_50%_mid	16QAM	21.38
low	1715	20000	10	RB_50%_high	QPSK	22.41
low	1715	20000	10	RB_50%_high	16QAM	21.43
low	1715	20000	10	RB_100%	QPSK	22.41
low	1710.7	19957	1.4	RB_1_low	QPSK	23.15
low	1710.7	19957	1.4	RB_1_low	16QAM	22.1
low	1710.7	19957	1.4	RB_1_mid	QPSK	23.09
low	1710.7	19957	1.4	RB_1_mid	16QAM	22.09
low	1710.7	19957	1.4	RB_1_high	QPSK	23.19
low	1710.7	19957	1.4	RB_1_high	16QAM	22.18
low	1710.7	19957	1.4	RB_50%_low	QPSK	23.13
low	1710.7	19957	1.4	RB_50%_low	16QAM	22.69
low	1710.7	19957	1.4	RB_50%_mid	QPSK	23.1
low	1710.7	19957	1.4	RB_50%_mid	16QAM	22.48
low	1710.7	19957	1.4	RB_50%_high	QPSK	23.08
low	1710.7	19957	1.4	RB_50%_high	16QAM	21.85
low	1710.7	19957	1.4	RB_100%	QPSK	22.08
low	1710.7	19957	1.4	RB_100%	16QAM	21.09
low	1710.7	19957	1.4	RB_25%_low	QPSK	22.98
low	1710.7	19957	1.4	RB_25%_low	16QAM	21.98
mid	1732.5	20175	1.4	RB_1_low	QPSK	23.1
mid	1732.5	20175	1.4	RB_1_low	16QAM	22.59
mid	1732.5	20175	1.4	RB_1_mid	QPSK	23.16
mid	1732.5	20175	1.4	RB_1_mid	16QAM	22.27
mid	1732.5	20175	1.4	RB_1_high	QPSK	23.14
mid	1732.5	20175	1.4	RB_1_high	16QAM	22.45
mid	1732.5	20175	1.4	RB_50%_low	QPSK	23.18

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	1732.5	20175	1.4	RB_50%_low	16QAM	22.36
mid	1732.5	20175	1.4	RB_50%_mid	QPSK	23.2
mid	1732.5	20175	1.4	RB_50%_mid	16QAM	22.38
mid	1732.5	20175	1.4	RB_50%_high	QPSK	23.17
mid	1732.5	20175	1.4	RB_50%_high	16QAM	21.98
mid	1732.5	20175	1.4	RB_100%	QPSK	22.18
mid	1732.5	20175	1.4	RB_100%	16QAM	20.99
mid	1732.5	20175	1.4	RB_25%_low	QPSK	23.03
mid	1732.5	20175	1.4	RB_25%_low	16QAM	22.37
high	1754.3	20393	1.4	RB_1_low	QPSK	23.34
high	1754.3	20393	1.4	RB_1_low	16QAM	22.22
high	1754.3	20393	1.4	RB_1_mid	QPSK	23.33
high	1754.3	20393	1.4	RB_1_mid	16QAM	22.18
high	1754.3	20393	1.4	RB_1_high	QPSK	23.06
high	1754.3	20393	1.4	RB_1_high	16QAM	22.16
high	1754.3	20393	1.4	RB_50%_low	QPSK	23.06
high	1754.3	20393	1.4	RB_50%_low	16QAM	22.31
high	1754.3	20393	1.4	RB_50%_mid	QPSK	23.23
high	1754.3	20393	1.4	RB_50%_mid	16QAM	22.61
high	1754.3	20393	1.4	RB_50%_high	QPSK	23.21
high	1754.3	20393	1.4	RB_50%_high	16QAM	22.45
high	1754.3	20393	1.4	RB_100%	QPSK	22.08
high	1754.3	20393	1.4	RB_100%	16QAM	21.13
high	1754.3	20393	1.4	RB_25%_low	QPSK	23.02
high	1754.3	20393	1.4	RB_25%_low	16QAM	21.78
low	1711.5	19965	3	RB_1_low	QPSK	23.21
low	1711.5	19965	3	RB_1_low	16QAM	21.93
low	1711.5	19965	3	RB_1_mid	QPSK	23.07
low	1711.5	19965	3	RB_1_mid	16QAM	22.7
low	1711.5	19965	3	RB_1_high	QPSK	23.31
low	1711.5	19965	3	RB_1_high	16QAM	21.84
low	1711.5	19965	3	RB_50%_low	QPSK	22.08
low	1711.5	19965	3	RB_50%_low	16QAM	21.11
low	1711.5	19965	3	RB_50%_mid	QPSK	22.06
low	1711.5	19965	3	RB_50%_mid	16QAM	20.83
low	1711.5	19965	3	RB_50%_high	QPSK	22.1
low	1711.5	19965	3	RB_50%_high	16QAM	21.06
low	1711.5	19965	3	RB_100%	QPSK	22.16
low	1711.5	19965	3	RB_100%	16QAM	21.29
low	1711.5	19965	3	RB_25%_low	QPSK	23.17
low	1711.5	19965	3	RB_25%_low	16QAM	22.29
mid	1732.5	20175	3	RB_1_low	QPSK	23.05

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	1732.5	20175	3	RB_1_low	16QAM	22.03
mid	1732.5	20175	3	RB_1_mid	QPSK	23.02
mid	1732.5	20175	3	RB_1_mid	16QAM	22.16
mid	1732.5	20175	3	RB_1_high	QPSK	23.26
mid	1732.5	20175	3	RB_1_high	16QAM	22.22
mid	1732.5	20175	3	RB_50%_low	QPSK	22.22
mid	1732.5	20175	3	RB_50%_low	16QAM	21.29
mid	1732.5	20175	3	RB_50%_mid	QPSK	22.19
mid	1732.5	20175	3	RB_50%_mid	16QAM	21.36
mid	1732.5	20175	3	RB_50%_high	QPSK	22.15
mid	1732.5	20175	3	RB_50%_high	16QAM	21.32
mid	1732.5	20175	3	RB_100%	QPSK	22.2
mid	1732.5	20175	3	RB_100%	16QAM	21.17
mid	1732.5	20175	3	RB_25%_low	QPSK	23.3
mid	1732.5	20175	3	RB_25%_low	16QAM	22.25
high	1753.5	20385	3	RB_1_low	QPSK	23.02
high	1753.5	20385	3	RB_1_low	16QAM	22.04
high	1753.5	20385	3	RB_1_mid	QPSK	23.23
high	1753.5	20385	3	RB_1_mid	16QAM	22.1
high	1753.5	20385	3	RB_1_high	QPSK	23.2
high	1753.5	20385	3	RB_1_high	16QAM	22.32
high	1753.5	20385	3	RB_50%_low	QPSK	22.14
high	1753.5	20385	3	RB_50%_low	16QAM	21.15
high	1753.5	20385	3	RB_50%_mid	QPSK	22.09
high	1753.5	20385	3	RB_50%_mid	16QAM	21.01
high	1753.5	20385	3	RB_50%_high	QPSK	22.11
high	1753.5	20385	3	RB_50%_high	16QAM	21.18
high	1753.5	20385	3	RB_100%	QPSK	22.17
high	1753.5	20385	3	RB_100%	16QAM	21.22
high	1753.5	20385	3	RB_25%_low	QPSK	23.06
high	1753.5	20385	3	RB_25%_low	16QAM	22.29
low	1712.5	19975	5	RB_1_low	QPSK	22.73
low	1712.5	19975	5	RB_1_low	16QAM	22.02
low	1712.5	19975	5	RB_1_mid	QPSK	23.13
low	1712.5	19975	5	RB_1_mid	16QAM	22.39
low	1712.5	19975	5	RB_1_high	QPSK	23.08
low	1712.5	19975	5	RB_1_high	16QAM	21.94
low	1712.5	19975	5	RB_50%_low	QPSK	22.08
low	1712.5	19975	5	RB_50%_low	16QAM	21.2
low	1712.5	19975	5	RB_50%_mid	QPSK	22.19
low	1712.5	19975	5	RB_50%_mid	16QAM	21.27
low	1712.5	19975	5	RB_50%_high	QPSK	22.29

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	1712.5	19975	5	RB_50%_high	16QAM	21.34
low	1712.5	19975	5	RB_100%	QPSK	22.15
low	1712.5	19975	5	RB_100%	16QAM	21.24
low	1712.5	19975	5	RB_25%_low	QPSK	23.08
low	1712.5	19975	5	RB_25%_low	16QAM	22.15
mid	1732.5	20175	5	RB_1_low	QPSK	23.11
mid	1732.5	20175	5	RB_1_low	16QAM	22.3
mid	1732.5	20175	5	RB_1_mid	QPSK	23.14
mid	1732.5	20175	5	RB_1_mid	16QAM	22.35
mid	1732.5	20175	5	RB_1_high	QPSK	23.13
mid	1732.5	20175	5	RB_1_high	16QAM	21.81
mid	1732.5	20175	5	RB_50%_low	QPSK	22.2
mid	1732.5	20175	5	RB_50%_low	16QAM	21.33
mid	1732.5	20175	5	RB_50%_mid	QPSK	22.3
mid	1732.5	20175	5	RB_50%_mid	16QAM	21.35
mid	1732.5	20175	5	RB_50%_high	QPSK	22.26
mid	1732.5	20175	5	RB_50%_high	16QAM	21.31
mid	1732.5	20175	5	RB_100%	QPSK	22.28
mid	1732.5	20175	5	RB_100%	16QAM	21.27
mid	1732.5	20175	5	RB_25%_low	QPSK	23.24
mid	1732.5	20175	5	RB_25%_low	16QAM	22.39
high	1752.5	20375	5	RB_1_low	QPSK	23
high	1752.5	20375	5	RB_1_low	16QAM	21.9
high	1752.5	20375	5	RB_1_mid	QPSK	22.94
high	1752.5	20375	5	RB_1_mid	16QAM	22.17
high	1752.5	20375	5	RB_1_high	QPSK	23.35
high	1752.5	20375	5	RB_1_high	16QAM	22.46
high	1752.5	20375	5	RB_50%_low	QPSK	22.08
high	1752.5	20375	5	RB_50%_low	16QAM	21.26
high	1752.5	20375	5	RB_50%_mid	QPSK	22.12
high	1752.5	20375	5	RB_50%_mid	16QAM	21.34
high	1752.5	20375	5	RB_50%_high	QPSK	22.31
high	1752.5	20375	5	RB_50%_high	16QAM	21.3
high	1752.5	20375	5	RB_100%	QPSK	22.11
high	1752.5	20375	5	RB_100%	16QAM	21.1
high	1752.5	20375	5	RB_25%_low	QPSK	23.07
high	1752.5	20375	5	RB_25%_low	16QAM	21.95
low	1715	20000	10	RB_1_low	QPSK	23.31
low	1715	20000	10	RB_1_low	16QAM	21.94
low	1715	20000	10	RB_1_mid	QPSK	23.39
low	1715	20000	10	RB_1_mid	16QAM	22.39
low	1715	20000	10	RB_1_high	QPSK	23.41

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	1715	20000	10	RB_1_high	16QAM	22.4
low	1715	20000	10	RB_50%_low	QPSK	22.26
low	1715	20000	10	RB_50%_low	16QAM	21.28
low	1715	20000	10	RB_50%_mid	QPSK	22.44
low	1715	20000	10	RB_50%_mid	16QAM	21.47
low	1715	20000	10	RB_50%_high	QPSK	22.31
low	1715	20000	10	RB_50%_high	16QAM	21.6
low	1715	20000	10	RB_100%	QPSK	22.4
mid	1732.5	20175	10	RB_100%	QPSK	21.29

Table 8: Test results conducted power measurement LTE FDD 4 1700 MHz.

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	836.5	20525	10	RB_100%	QPSK	22.49
mid	836.5	20525	10	RB_100%	QPSK	22.57
mid	836.5	20525	10	RB_100%	QPSK	22.57
low	829	20450	10	RB_100%	QPSK	22.53
low	829	20450	10	RB_100%	QPSK	22.53
low	829	20450	10	RB_1_low	QPSK	23.29
low	829	20450	10	RB_1_low	16QAM	22.21
low	829	20450	10	RB_1_mid	QPSK	23.29
low	829	20450	10	RB_1_mid	16QAM	22.55
low	829	20450	10	RB_1_high	QPSK	23.46
low	829	20450	10	RB_1_high	16QAM	21.98
low	829	20450	10	RB_50%_low	QPSK	22.46
low	829	20450	10	RB_50%_low	16QAM	21.6
low	829	20450	10	RB_50%_mid	QPSK	22.42
low	829	20450	10	RB_50%_mid	16QAM	21.54
low	829	20450	10	RB_50%_high	QPSK	22.41
low	829	20450	10	RB_50%_high	16QAM	21.53
low	829	20450	10	RB_100%	QPSK	22.51
low	824.7	20407	1.4	RB_1_low	QPSK	23.59
low	824.7	20407	1.4	RB_1_low	16QAM	22.25
low	824.7	20407	1.4	RB_1_mid	QPSK	23.3
low	824.7	20407	1.4	RB_1_mid	16QAM	22.55
low	824.7	20407	1.4	RB_1_high	QPSK	23.69
low	824.7	20407	1.4	RB_1_high	16QAM	22.62
low	824.7	20407	1.4	RB_50%_low	QPSK	23.64
low	824.7	20407	1.4	RB_50%_low	16QAM	22.82
low	824.7	20407	1.4	RB_50%_mid	QPSK	23.26
low	824.7	20407	1.4	RB_50%_mid	16QAM	22.83
low	824.7	20407	1.4	RB_50%_high	QPSK	23.3
low	824.7	20407	1.4	RB_50%_high	16QAM	22.99
low	824.7	20407	1.4	RB_100%	QPSK	22.37
low	824.7	20407	1.4	RB_100%	16QAM	21.34
mid	836.5	20525	1.4	RB_1_low	QPSK	23.73
mid	836.5	20525	1.4	RB_1_low	16QAM	22.65
mid	836.5	20525	1.4	RB_1_mid	QPSK	23.58
mid	836.5	20525	1.4	RB_1_mid	16QAM	22.62
mid	836.5	20525	1.4	RB_1_high	QPSK	23.54
mid	836.5	20525	1.4	RB_1_high	16QAM	22.56
mid	836.5	20525	1.4	RB_50%_low	QPSK	23.66
mid	836.5	20525	1.4	RB_50%_low	16QAM	22.41
mid	836.5	20525	1.4	RB_50%_mid	QPSK	23.62
mid	836.5	20525	1.4	RB_50%_mid	16QAM	22.92

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	836.5	20525	1.4	RB_50%_high	QPSK	23.54
mid	836.5	20525	1.4	RB_50%_high	16QAM	22.88
mid	836.5	20525	1.4	RB_100%	QPSK	22.4
mid	836.5	20525	1.4	RB_100%	16QAM	21.64
high	848.3	20643	1.4	RB_1_low	QPSK	23.28
high	848.3	20643	1.4	RB_1_low	16QAM	22.28
high	848.3	20643	1.4	RB_1_mid	QPSK	23.26
high	848.3	20643	1.4	RB_1_mid	16QAM	22.45
high	848.3	20643	1.4	RB_1_high	QPSK	23.28
high	848.3	20643	1.4	RB_1_high	16QAM	22.08
high	848.3	20643	1.4	RB_50%_low	QPSK	23.35
high	848.3	20643	1.4	RB_50%_low	16QAM	22.61
high	848.3	20643	1.4	RB_50%_mid	QPSK	23.19
high	848.3	20643	1.4	RB_50%_mid	16QAM	22.6
high	848.3	20643	1.4	RB_50%_high	QPSK	23.33
high	848.3	20643	1.4	RB_50%_high	16QAM	22.4
high	848.3	20643	1.4	RB_100%	QPSK	22.24
high	848.3	20643	1.4	RB_100%	16QAM	21.42
low	825.5	20415	3	RB_1_low	QPSK	23.35
low	825.5	20415	3	RB_1_low	16QAM	22.69
low	825.5	20415	3	RB_1_mid	QPSK	23.4
low	825.5	20415	3	RB_1_mid	16QAM	22.67
low	825.5	20415	3	RB_1_high	QPSK	23.6
low	825.5	20415	3	RB_1_high	16QAM	22.56
low	825.5	20415	3	RB_50%_low	QPSK	22.29
low	825.5	20415	3	RB_50%_low	16QAM	21.36
low	825.5	20415	3	RB_50%_mid	QPSK	22.29
low	825.5	20415	3	RB_50%_mid	16QAM	21.19
low	825.5	20415	3	RB_50%_high	QPSK	22.38
low	825.5	20415	3	RB_50%_high	16QAM	21.63
low	825.5	20415	3	RB_100%	QPSK	22.44
low	825.5	20415	3	RB_100%	16QAM	21.51
mid	836.5	20525	3	RB_1_low	QPSK	23.32
mid	836.5	20525	3	RB_1_low	16QAM	22.55
mid	836.5	20525	3	RB_1_mid	QPSK	23.68
mid	836.5	20525	3	RB_1_mid	16QAM	23.09
mid	836.5	20525	3	RB_1_high	QPSK	23.39
mid	836.5	20525	3	RB_1_high	16QAM	22.57
mid	836.5	20525	3	RB_50%_low	QPSK	22.42
mid	836.5	20525	3	RB_50%_low	16QAM	21.08
mid	836.5	20525	3	RB_50%_mid	QPSK	22.43
mid	836.5	20525	3	RB_50%_mid	16QAM	21.3

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	836.5	20525	3	RB_50%_high	QPSK	22.55
mid	836.5	20525	3	RB_50%_high	16QAM	21.47
mid	836.5	20525	3	RB_100%	QPSK	22.46
mid	836.5	20525	3	RB_100%	16QAM	21.56
high	847.5	20635	3	RB_1_low	QPSK	23.3
high	847.5	20635	3	RB_1_low	16QAM	22.55
high	847.5	20635	3	RB_1_mid	QPSK	23.38
high	847.5	20635	3	RB_1_mid	16QAM	22.53
high	847.5	20635	3	RB_1_high	QPSK	23.16
high	847.5	20635	3	RB_1_high	16QAM	22.34
high	847.5	20635	3	RB_50%_low	QPSK	22.37
high	847.5	20635	3	RB_50%_low	16QAM	21.07
high	847.5	20635	3	RB_50%_mid	QPSK	22.42
high	847.5	20635	3	RB_50%_mid	16QAM	21.41
high	847.5	20635	3	RB_50%_high	QPSK	22.23
high	847.5	20635	3	RB_50%_high	16QAM	21.24
high	847.5	20635	3	RB_100%	QPSK	22.31
high	847.5	20635	3	RB_100%	16QAM	21.52
low	826.5	20425	5	RB_1_low	QPSK	23.01
low	826.5	20425	5	RB_1_low	16QAM	22.13
low	826.5	20425	5	RB_1_mid	QPSK	23.25
low	826.5	20425	5	RB_1_mid	16QAM	22.24
low	826.5	20425	5	RB_1_high	QPSK	23.61
low	826.5	20425	5	RB_1_high	16QAM	22.24
low	826.5	20425	5	RB_50%_low	QPSK	22.37
low	826.5	20425	5	RB_50%_low	16QAM	21.7
low	826.5	20425	5	RB_50%_mid	QPSK	22.5
low	826.5	20425	5	RB_50%_mid	16QAM	21.59
low	826.5	20425	5	RB_50%_high	QPSK	22.6
low	826.5	20425	5	RB_50%_high	16QAM	21.68
low	826.5	20425	5	RB_100%	QPSK	22.45
low	826.5	20425	5	RB_100%	16QAM	21.3
mid	836.5	20525	5	RB_1_low	QPSK	23.02
low	829	20450	10	RB_1_low	QPSK	23.4
low	829	20450	10	RB_1_mid	QPSK	23.34
low	829	20450	10	RB_1_high	QPSK	23.04
low	829	20450	10	RB_50%_low	QPSK	22.51
low	829	20450	10	RB_50%_mid	QPSK	22.57
low	829	20450	10	RB_50%_high	QPSK	22.45
low	829	20450	10	RB_100%	QPSK	22.56
mid	836.5	20525	10	RB_1_low	QPSK	23.45
mid	836.5	20525	10	RB_1_mid	QPSK	23.69

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	836.5	20525	10	RB_1_high	QPSK	23.1
mid	836.5	20525	10	RB_50%_low	QPSK	22.51
mid	836.5	20525	10	RB_50%_mid	QPSK	22.56
mid	836.5	20525	10	RB_50%_high	QPSK	22.43
mid	836.5	20525	10	RB_100%	QPSK	22.5
high	844	20600	10	RB_1_low	QPSK	23.31
high	844	20600	10	RB_1_mid	QPSK	23.2
high	844	20600	10	RB_1_high	QPSK	23.13
high	844	20600	10	RB_50%_low	QPSK	22.37
high	844	20600	10	RB_50%_mid	QPSK	22.46
high	844	20600	10	RB_50%_high	QPSK	22.38
high	844	20600	10	RB_100%	QPSK	22.43
low	824.7	20407	1.4	RB_1_low	QPSK	23.14
low	824.7	20407	1.4	RB_1_low	16QAM	22.13
low	824.7	20407	1.4	RB_1_mid	QPSK	23.31
low	824.7	20407	1.4	RB_1_mid	16QAM	22.21
low	824.7	20407	1.4	RB_1_high	QPSK	23.27
low	824.7	20407	1.4	RB_1_high	16QAM	22.38
low	824.7	20407	1.4	RB_50%_low	QPSK	23.32
low	824.7	20407	1.4	RB_50%_low	16QAM	22.67
low	824.7	20407	1.4	RB_50%_mid	QPSK	23.36
low	824.7	20407	1.4	RB_50%_mid	16QAM	22.59
low	824.7	20407	1.4	RB_50%_high	QPSK	23.24
low	824.7	20407	1.4	RB_50%_high	16QAM	22.35
low	824.7	20407	1.4	RB_100%	QPSK	22.18
low	824.7	20407	1.4	RB_100%	16QAM	21.3
low	824.7	20407	1.4	RB_25%_low	QPSK	23.09
low	824.7	20407	1.4	RB_25%_low	16QAM	22.4
mid	836.5	20525	1.4	RB_1_low	QPSK	23.43
mid	836.5	20525	1.4	RB_1_low	16QAM	22.69
mid	836.5	20525	1.4	RB_1_mid	QPSK	23.47
mid	836.5	20525	1.4	RB_1_mid	16QAM	22.7
mid	836.5	20525	1.4	RB_1_high	QPSK	23.3
mid	836.5	20525	1.4	RB_1_high	16QAM	22.46
mid	836.5	20525	1.4	RB_50%_low	QPSK	23.44
mid	836.5	20525	1.4	RB_50%_low	16QAM	22.43
mid	836.5	20525	1.4	RB_50%_mid	QPSK	23.48
mid	836.5	20525	1.4	RB_50%_mid	16QAM	22.48
mid	836.5	20525	1.4	RB_50%_high	QPSK	23.36
mid	836.5	20525	1.4	RB_50%_high	16QAM	22.43
mid	836.5	20525	1.4	RB_100%	QPSK	22.3
mid	836.5	20525	1.4	RB_100%	16QAM	21.23

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	836.5	20525	1.4	RB_25%_low	QPSK	23.34
mid	836.5	20525	1.4	RB_25%_low	16QAM	22.69
high	848.3	20643	1.4	RB_1_low	QPSK	23.32
high	848.3	20643	1.4	RB_1_low	16QAM	22.48
high	848.3	20643	1.4	RB_1_mid	QPSK	23.19
high	848.3	20643	1.4	RB_1_mid	16QAM	22.22
high	848.3	20643	1.4	RB_1_high	QPSK	22.99
high	848.3	20643	1.4	RB_1_high	16QAM	22.07
high	848.3	20643	1.4	RB_50%_low	QPSK	23.06
high	848.3	20643	1.4	RB_50%_low	16QAM	22.23
high	848.3	20643	1.4	RB_50%_mid	QPSK	23.2
high	848.3	20643	1.4	RB_50%_mid	16QAM	22.58
high	848.3	20643	1.4	RB_50%_high	QPSK	23.17
high	848.3	20643	1.4	RB_50%_high	16QAM	22.2
high	848.3	20643	1.4	RB_100%	QPSK	22.19
high	848.3	20643	1.4	RB_100%	16QAM	21.31
high	848.3	20643	1.4	RB_25%_low	QPSK	23.24
high	848.3	20643	1.4	RB_25%_low	16QAM	22.12
low	825.5	20415	3	RB_1_low	QPSK	23.32
low	825.5	20415	3	RB_1_low	16QAM	22.65
low	825.5	20415	3	RB_1_mid	QPSK	23.3
low	825.5	20415	3	RB_1_mid	16QAM	22.92
low	825.5	20415	3	RB_1_high	QPSK	23.58
low	825.5	20415	3	RB_1_high	16QAM	22.29
low	825.5	20415	3	RB_50%_low	QPSK	22.15
low	825.5	20415	3	RB_50%_low	16QAM	21.31
low	825.5	20415	3	RB_50%_mid	QPSK	22.21
low	825.5	20415	3	RB_50%_mid	16QAM	21.13
low	825.5	20415	3	RB_50%_high	QPSK	22.31
low	825.5	20415	3	RB_50%_high	16QAM	21.39
low	825.5	20415	3	RB_100%	QPSK	22.28
low	825.5	20415	3	RB_100%	16QAM	21.45
low	825.5	20415	3	RB_25%_low	QPSK	23.4
low	825.5	20415	3	RB_25%_low	16QAM	22.4
mid	836.5	20525	3	RB_1_low	QPSK	23.44
mid	836.5	20525	3	RB_1_low	16QAM	22.47
mid	836.5	20525	3	RB_1_mid	QPSK	23.52
mid	836.5	20525	3	RB_1_mid	16QAM	22.62
mid	836.5	20525	3	RB_1_high	QPSK	23.41
mid	836.5	20525	3	RB_1_high	16QAM	22.16
mid	836.5	20525	3	RB_50%_low	QPSK	22.3
mid	836.5	20525	3	RB_50%_low	16QAM	21.27

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	836.5	20525	3	RB_50%_mid	QPSK	22.26
mid	836.5	20525	3	RB_50%_mid	16QAM	21.63
mid	836.5	20525	3	RB_50%_high	QPSK	22.33
mid	836.5	20525	3	RB_50%_high	16QAM	21.44
mid	836.5	20525	3	RB_100%	QPSK	22.38
mid	836.5	20525	3	RB_100%	16QAM	21.55
mid	836.5	20525	3	RB_25%_low	QPSK	23.41
mid	836.5	20525	3	RB_25%_low	16QAM	22.83
high	847.5	20635	3	RB_1_low	QPSK	23.56
high	847.5	20635	3	RB_1_low	16QAM	22.18
high	847.5	20635	3	RB_1_mid	QPSK	23.18
high	847.5	20635	3	RB_1_mid	16QAM	22.28
high	847.5	20635	3	RB_1_high	QPSK	23.15
high	847.5	20635	3	RB_1_high	16QAM	22.26
high	847.5	20635	3	RB_50%_low	QPSK	22.27
high	847.5	20635	3	RB_50%_low	16QAM	21.32
high	847.5	20635	3	RB_50%_mid	QPSK	22.21
high	847.5	20635	3	RB_50%_mid	16QAM	21.25
high	847.5	20635	3	RB_50%_high	QPSK	22.1
high	847.5	20635	3	RB_50%_high	16QAM	21.14
high	847.5	20635	3	RB_100%	QPSK	22.21
high	847.5	20635	3	RB_100%	16QAM	21.31
high	847.5	20635	3	RB_25%_low	QPSK	23.42
high	847.5	20635	3	RB_25%_low	16QAM	22.3
low	826.5	20425	5	RB_1_low	QPSK	22.88
low	826.5	20425	5	RB_1_low	16QAM	21.72
low	826.5	20425	5	RB_1_mid	QPSK	23.21
low	826.5	20425	5	RB_1_mid	16QAM	22.04
low	826.5	20425	5	RB_1_high	QPSK	23.49
low	826.5	20425	5	RB_1_high	16QAM	22.61
low	826.5	20425	5	RB_50%_low	QPSK	22.27
low	826.5	20425	5	RB_50%_low	16QAM	21.5
low	826.5	20425	5	RB_50%_mid	QPSK	22.29
low	826.5	20425	5	RB_50%_mid	16QAM	21.39
low	826.5	20425	5	RB_50%_high	QPSK	22.31
low	826.5	20425	5	RB_50%_high	16QAM	21.65
low	826.5	20425	5	RB_100%	QPSK	22.34
low	826.5	20425	5	RB_100%	16QAM	21.28
low	826.5	20425	5	RB_25%_low	QPSK	23.28
low	826.5	20425	5	RB_25%_low	16QAM	22.2
mid	836.5	20525	5	RB_1_low	QPSK	23.48
mid	836.5	20525	5	RB_1_low	16QAM	22.29

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	836.5	20525	5	RB_1_mid	QPSK	23.31
mid	836.5	20525	5	RB_1_mid	16QAM	22.06
mid	836.5	20525	5	RB_1_high	QPSK	23.28
mid	836.5	20525	5	RB_1_high	16QAM	22.45
mid	836.5	20525	5	RB_50%_low	QPSK	22.36
mid	836.5	20525	5	RB_50%_low	16QAM	21.49
mid	836.5	20525	5	RB_50%_mid	QPSK	22.35
mid	836.5	20525	5	RB_50%_mid	16QAM	21.45
mid	836.5	20525	5	RB_50%_high	QPSK	22.27
mid	836.5	20525	5	RB_50%_high	16QAM	21.45
mid	836.5	20525	5	RB_100%	QPSK	22.24
mid	836.5	20525	5	RB_100%	16QAM	21.46
mid	836.5	20525	5	RB_25%_low	QPSK	23.46
mid	836.5	20525	5	RB_25%_low	16QAM	22.57
high	846.5	20625	5	RB_1_low	QPSK	22.88
high	846.5	20625	5	RB_1_low	16QAM	22.22
high	846.5	20625	5	RB_1_mid	QPSK	22.89
high	846.5	20625	5	RB_1_mid	16QAM	21.96
high	846.5	20625	5	RB_1_high	QPSK	23.21
high	846.5	20625	5	RB_1_high	16QAM	22.38
high	846.5	20625	5	RB_50%_low	QPSK	22.18
high	846.5	20625	5	RB_50%_low	16QAM	21.43
high	846.5	20625	5	RB_50%_mid	QPSK	22.18
high	846.5	20625	5	RB_50%_mid	16QAM	21.51
high	846.5	20625	5	RB_50%_high	QPSK	22.2
high	846.5	20625	5	RB_50%_high	16QAM	21.3
high	846.5	20625	5	RB_100%	QPSK	22.28
high	846.5	20625	5	RB_100%	16QAM	21.31
high	846.5	20625	5	RB_25%_low	QPSK	23.14
high	846.5	20625	5	RB_25%_low	16QAM	22.09
low	829	20450	10	RB_1_low	QPSK	23.19
low	829	20450	10	RB_1_low	16QAM	22.1
low	829	20450	10	RB_1_mid	QPSK	23.25
low	829	20450	10	RB_1_mid	16QAM	22.51
low	829	20450	10	RB_1_high	QPSK	23.46
low	829	20450	10	RB_1_high	16QAM	22.25
low	829	20450	10	RB_50%_low	QPSK	22.35
low	829	20450	10	RB_50%_low	16QAM	21.4
low	829	20450	10	RB_50%_mid	QPSK	22.46
low	829	20450	10	RB_50%_mid	16QAM	21.59
low	829	20450	10	RB_50%_high	QPSK	22.27
low	829	20450	10	RB_50%_high	16QAM	21.48
low	829	20450	10	RB_100%	QPSK	22.4
mid	836.5	20525	10	RB_100%	QPSK	21.26

Table 9: Test results conducted power measurement LTE FDD 5 850 MHz.

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	704	23060	10	RB_1_low	QPSK	23.6
low	704	23060	10	RB_1_mid	QPSK	23.4
low	704	23060	10	RB_1_high	QPSK	22.9
low	704	23060	10	RB_50%_low	QPSK	22.6
low	704	23060	10	RB_50%_mid	QPSK	22.46
low	704	23060	10	RB_50%_high	QPSK	22.32
low	704	23060	10	RB_100%	QPSK	22.52
low	704	23060	10	RB_25%_low	QPSK	23.45
mid	707.5	23095	10	RB_1_low	QPSK	23.14
mid	707.5	23095	10	RB_1_mid	QPSK	23.46
mid	707.5	23095	10	RB_1_high	QPSK	22.98
mid	707.5	23095	10	RB_50%_low	QPSK	22.4
mid	707.5	23095	10	RB_50%_mid	QPSK	22.38
mid	707.5	23095	10	RB_50%_high	QPSK	22.24
mid	707.5	23095	10	RB_100%	QPSK	22.27
mid	707.5	23095	10	RB_25%_low	QPSK	23.35
high	711	23130	10	RB_1_low	QPSK	23.24
high	711	23130	10	RB_1_mid	QPSK	23.07
high	711	23130	10	RB_1_high	QPSK	22.99
high	711	23130	10	RB_50%_low	QPSK	22.24
high	711	23130	10	RB_50%_mid	QPSK	22.37
high	711	23130	10	RB_50%_high	QPSK	22.24
high	711	23130	10	RB_100%	QPSK	22.25
high	711	23130	10	RB_25%_low	QPSK	23.18
low	699.7	23017	1.4	RB_1_low	QPSK	23.27
low	699.7	23017	1.4	RB_1_low	16QAM	22.23
low	699.7	23017	1.4	RB_1_mid	QPSK	23.65
low	699.7	23017	1.4	RB_1_mid	16QAM	22.75
low	699.7	23017	1.4	RB_1_high	QPSK	23.47
low	699.7	23017	1.4	RB_1_high	16QAM	22.63
low	699.7	23017	1.4	RB_50%_low	QPSK	23.4
low	699.7	23017	1.4	RB_50%_low	16QAM	23.2
low	699.7	23017	1.4	RB_50%_mid	QPSK	23.55
low	699.7	23017	1.4	RB_50%_mid	16QAM	23.25
low	699.7	23017	1.4	RB_50%_high	QPSK	23.42
low	699.7	23017	1.4	RB_50%_high	16QAM	22.65
low	699.7	23017	1.4	RB_100%	QPSK	22.41
low	699.7	23017	1.4	RB_100%	16QAM	21.48
low	699.7	23017	1.4	RB_25%_low	QPSK	23.18
low	699.7	23017	1.4	RB_25%_low	16QAM	22.56
mid	707.5	23095	1.4	RB_1_low	QPSK	23.01
mid	707.5	23095	1.4	RB_1_low	16QAM	22.45

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	707.5	23095	1.4	RB_1_mid	QPSK	23.19
mid	707.5	23095	1.4	RB_1_mid	16QAM	22.4
mid	707.5	23095	1.4	RB_1_high	QPSK	23.09
mid	707.5	23095	1.4	RB_1_high	16QAM	22.53
mid	707.5	23095	1.4	RB_50%_low	QPSK	23.32
mid	707.5	23095	1.4	RB_50%_low	16QAM	22.04
mid	707.5	23095	1.4	RB_50%_mid	QPSK	23.16
mid	707.5	23095	1.4	RB_50%_mid	16QAM	22.35
mid	707.5	23095	1.4	RB_50%_high	QPSK	23.25
mid	707.5	23095	1.4	RB_50%_high	16QAM	22.4
mid	707.5	23095	1.4	RB_100%	QPSK	22.22
mid	707.5	23095	1.4	RB_100%	16QAM	21.11
mid	707.5	23095	1.4	RB_25%_low	QPSK	22.94
mid	707.5	23095	1.4	RB_25%_low	16QAM	22.37
high	715.3	23173	1.4	RB_1_low	QPSK	23.39
high	715.3	23173	1.4	RB_1_low	16QAM	22.56
high	715.3	23173	1.4	RB_1_mid	QPSK	23.33
high	715.3	23173	1.4	RB_1_mid	16QAM	22.34
high	715.3	23173	1.4	RB_1_high	QPSK	23.15
high	715.3	23173	1.4	RB_1_high	16QAM	22.24
high	715.3	23173	1.4	RB_50%_low	QPSK	23.11
high	715.3	23173	1.4	RB_50%_low	16QAM	22.48
high	715.3	23173	1.4	RB_50%_mid	QPSK	23.25
high	715.3	23173	1.4	RB_50%_mid	16QAM	22.71
high	715.3	23173	1.4	RB_50%_high	QPSK	23.32
high	715.3	23173	1.4	RB_50%_high	16QAM	22.5
high	715.3	23173	1.4	RB_100%	QPSK	22.31
high	715.3	23173	1.4	RB_100%	16QAM	21.34
high	715.3	23173	1.4	RB_25%_low	QPSK	23.29
high	715.3	23173	1.4	RB_25%_low	16QAM	22.25
low	700.5	23025	3	RB_1_low	QPSK	23.61
low	700.5	23025	3	RB_1_low	16QAM	22.56
low	700.5	23025	3	RB_1_mid	QPSK	23.9
low	700.5	23025	3	RB_1_mid	16QAM	23.05
low	700.5	23025	3	RB_1_high	QPSK	23.6
low	700.5	23025	3	RB_1_high	16QAM	22.32
low	700.5	23025	3	RB_50%_low	QPSK	22.52
low	700.5	23025	3	RB_50%_low	16QAM	21.52
low	700.5	23025	3	RB_50%_mid	QPSK	22.34
low	700.5	23025	3	RB_50%_mid	16QAM	21.16
low	700.5	23025	3	RB_50%_high	QPSK	22.56
low	700.5	23025	3	RB_50%_high	16QAM	21.77

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	700.5	23025	3	RB_100%	QPSK	22.45
low	700.5	23025	3	RB_100%	16QAM	21.46
low	700.5	23025	3	RB_25%_low	QPSK	23.7
low	700.5	23025	3	RB_25%_low	16QAM	22.38
mid	707.5	23095	3	RB_1_low	QPSK	23.13
mid	707.5	23095	3	RB_1_low	16QAM	22.15
mid	707.5	23095	3	RB_1_mid	QPSK	23.45
mid	707.5	23095	3	RB_1_mid	16QAM	22.45
mid	707.5	23095	3	RB_1_high	QPSK	22.94
mid	707.5	23095	3	RB_1_high	16QAM	21.91
mid	707.5	23095	3	RB_50%_low	QPSK	22.19
mid	707.5	23095	3	RB_50%_low	16QAM	21.23
mid	707.5	23095	3	RB_50%_mid	QPSK	22.25
mid	707.5	23095	3	RB_50%_mid	16QAM	21.23
mid	707.5	23095	3	RB_50%_high	QPSK	22.21
mid	707.5	23095	3	RB_50%_high	16QAM	21.47
mid	707.5	23095	3	RB_100%	QPSK	22.37
mid	707.5	23095	3	RB_100%	16QAM	21.42
mid	707.5	23095	3	RB_25%_low	QPSK	23.08
mid	707.5	23095	3	RB_25%_low	16QAM	22.48
high	714.5	23165	3	RB_1_low	QPSK	23.54
high	714.5	23165	3	RB_1_low	16QAM	22.4
high	714.5	23165	3	RB_1_mid	QPSK	23.37
high	714.5	23165	3	RB_1_mid	16QAM	22.64
high	714.5	23165	3	RB_1_high	QPSK	23.28
high	714.5	23165	3	RB_1_high	16QAM	22.5
high	714.5	23165	3	RB_50%_low	QPSK	22.25
high	714.5	23165	3	RB_50%_low	16QAM	21.53
high	714.5	23165	3	RB_50%_mid	QPSK	22.36
high	714.5	23165	3	RB_50%_mid	16QAM	21.45
high	714.5	23165	3	RB_50%_high	QPSK	22.28
high	714.5	23165	3	RB_50%_high	16QAM	21.2
high	714.5	23165	3	RB_100%	QPSK	22.4
high	714.5	23165	3	RB_100%	16QAM	21.47
high	714.5	23165	3	RB_25%_low	QPSK	23.24
high	714.5	23165	3	RB_25%_low	16QAM	22.57
low	701.5	23035	5	RB_1_low	QPSK	22.98
low	701.5	23035	5	RB_1_low	16QAM	22.36
low	701.5	23035	5	RB_1_mid	QPSK	23.24
low	701.5	23035	5	RB_1_mid	16QAM	22.48
low	701.5	23035	5	RB_1_high	QPSK	23.08
low	701.5	23035	5	RB_1_high	16QAM	22.37

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	701.5	23035	5	RB_50%_low	QPSK	22.41
low	701.5	23035	5	RB_50%_low	16QAM	21.49
low	701.5	23035	5	RB_50%_mid	QPSK	22.36
low	701.5	23035	5	RB_50%_mid	16QAM	21.5
low	701.5	23035	5	RB_50%_high	QPSK	22.55
low	701.5	23035	5	RB_50%_high	16QAM	21.62
low	701.5	23035	5	RB_100%	QPSK	22.45
low	701.5	23035	5	RB_100%	16QAM	21.21
low	701.5	23035	5	RB_25%_low	QPSK	23.4
low	701.5	23035	5	RB_25%_low	16QAM	22.57
mid	707.5	23095	5	RB_1_low	QPSK	22.97
mid	707.5	23095	5	RB_1_low	16QAM	22.3
mid	707.5	23095	5	RB_1_mid	QPSK	23.1
mid	707.5	23095	5	RB_1_mid	16QAM	22.23
mid	707.5	23095	5	RB_1_high	QPSK	22.92
mid	707.5	23095	5	RB_1_high	16QAM	22.23
mid	707.5	23095	5	RB_50%_low	QPSK	22.33
mid	707.5	23095	5	RB_50%_low	16QAM	21.49
mid	707.5	23095	5	RB_50%_mid	QPSK	22.2
mid	707.5	23095	5	RB_50%_mid	16QAM	21.34
mid	707.5	23095	5	RB_50%_high	QPSK	22.17
mid	707.5	23095	5	RB_50%_high	16QAM	21.31
mid	707.5	23095	5	RB_100%	QPSK	22.2
mid	707.5	23095	5	RB_100%	16QAM	21.3
mid	707.5	23095	5	RB_25%_low	QPSK	23.17
mid	707.5	23095	5	RB_25%_low	16QAM	22.27
high	713.5	23155	5	RB_1_low	QPSK	23.17
high	713.5	23155	5	RB_1_low	16QAM	22.3
high	713.5	23155	5	RB_1_mid	QPSK	22.91
high	713.5	23155	5	RB_1_mid	16QAM	22.05
high	713.5	23155	5	RB_1_high	QPSK	23.19
high	713.5	23155	5	RB_1_high	16QAM	22.37
high	713.5	23155	5	RB_50%_low	QPSK	22.15
high	713.5	23155	5	RB_50%_low	16QAM	21.14
high	713.5	23155	5	RB_50%_mid	QPSK	22.31
high	713.5	23155	5	RB_50%_mid	16QAM	21.27
high	713.5	23155	5	RB_50%_high	QPSK	22.31
high	713.5	23155	5	RB_50%_high	16QAM	21.37
high	713.5	23155	5	RB_100%	QPSK	22.26
high	713.5	23155	5	RB_100%	16QAM	21.27
high	713.5	23155	5	RB_25%_low	QPSK	23.11
high	713.5	23155	5	RB_25%_low	16QAM	21.94

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	704	23060	10	RB_1_low	QPSK	23.39
low	704	23060	10	RB_1_low	16QAM	22.27
low	704	23060	10	RB_1_mid	QPSK	23.45
low	704	23060	10	RB_1_mid	16QAM	22.52
low	704	23060	10	RB_1_high	QPSK	22.93
low	704	23060	10	RB_1_high	16QAM	21.82
low	704	23060	10	RB_50%_low	QPSK	22.36
low	704	23060	10	RB_50%_low	16QAM	21.38
low	704	23060	10	RB_50%_mid	QPSK	22.4
low	704	23060	10	RB_50%_mid	16QAM	21.35
low	704	23060	10	RB_50%_high	QPSK	22.24
low	704	23060	10	RB_50%_high	16QAM	21.42
low	704	23060	10	RB_100%	QPSK	22.27
mid	707.5	23095	10	RB_100%	QPSK	21.07

Table 10: Test results conducted power measurement LTE FDD12 700 MHz.

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	779.5	23205	5	RB_1_low	QPSK	22.98
low	779.5	23205	5	RB_1_low	16QAM	21.99
low	779.5	23205	5	RB_1_mid	QPSK	23.31
low	779.5	23205	5	RB_1_mid	16QAM	22.61
low	779.5	23205	5	RB_1_high	QPSK	23.11
low	779.5	23205	5	RB_1_high	16QAM	22.32
low	779.5	23205	5	RB_50%_low	QPSK	22.28
low	779.5	23205	5	RB_50%_low	16QAM	21.42
low	779.5	23205	5	RB_50%_mid	QPSK	22.38
low	779.5	23205	5	RB_50%_mid	16QAM	21.47
low	779.5	23205	5	RB_50%_high	QPSK	22.34
low	779.5	23205	5	RB_50%_high	16QAM	21.5
low	779.5	23205	5	RB_100%	QPSK	22.33
low	779.5	23205	5	RB_100%	16QAM	21.32
low	779.5	23205	5	RB_25%_low	QPSK	23.27
low	779.5	23205	5	RB_25%_low	16QAM	22.15
mid	782	23230	5	RB_1_low	QPSK	23.11
mid	782	23230	5	RB_1_low	16QAM	22.34
mid	782	23230	5	RB_1_mid	QPSK	23.2
mid	782	23230	5	RB_1_mid	16QAM	22.29
mid	782	23230	5	RB_1_high	QPSK	23.23
mid	782	23230	5	RB_1_high	16QAM	22.43
mid	782	23230	5	RB_50%_low	QPSK	22.26
mid	782	23230	5	RB_50%_low	16QAM	21.48
mid	782	23230	5	RB_50%_mid	QPSK	22.24
mid	782	23230	5	RB_50%_mid	16QAM	21.53
mid	782	23230	5	RB_50%_high	QPSK	22.37
mid	782	23230	5	RB_50%_high	16QAM	21.57
mid	782	23230	5	RB_100%	QPSK	22.26
mid	782	23230	5	RB_100%	16QAM	21.3
mid	782	23230	5	RB_25%_low	QPSK	23.27
mid	782	23230	5	RB_25%_low	16QAM	22.07

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
high	784.5	23255	5	RB_1_low	QPSK	23.08
high	784.5	23255	5	RB_1_low	16QAM	22.27
high	784.5	23255	5	RB_1_mid	QPSK	23
high	784.5	23255	5	RB_1_mid	16QAM	22.11
high	784.5	23255	5	RB_1_high	QPSK	22.99
high	784.5	23255	5	RB_1_high	16QAM	22.39
high	784.5	23255	5	RB_50%_low	QPSK	22.37
high	784.5	23255	5	RB_50%_low	16QAM	21.35
high	784.5	23255	5	RB_50%_mid	QPSK	22.47
high	784.5	23255	5	RB_50%_mid	16QAM	21.69
high	784.5	23255	5	RB_50%_high	QPSK	22.4
high	784.5	23255	5	RB_50%_high	16QAM	21.48
high	784.5	23255	5	RB_100%	QPSK	22.44
high	784.5	23255	5	RB_100%	16QAM	21.46
high	784.5	23255	5	RB_25%_low	QPSK	23.27
high	784.5	23255	5	RB_25%_low	16QAM	22.35
low	782	23230	10	RB_1_low	QPSK	23.48
low	782	23230	10	RB_1_low	16QAM	22.32
low	782	23230	10	RB_1_mid	QPSK	23.45
low	782	23230	10	RB_1_mid	16QAM	22.26
low	782	23230	10	RB_1_high	QPSK	23.34
low	782	23230	10	RB_1_high	16QAM	22.24
low	782	23230	10	RB_50%_low	QPSK	22.18
low	782	23230	10	RB_50%_low	16QAM	21.38
low	782	23230	10	RB_50%_mid	QPSK	22.38
low	782	23230	10	RB_50%_mid	16QAM	21.47
low	782	23230	10	RB_50%_high	QPSK	22.16
low	782	23230	10	RB_50%_high	16QAM	21.27
low	782	23230	10	RB_100%	QPSK	22.24
mid	782	23230	10	RB_100%	QPSK	21.24

Table 11: Test results conducted power measurement LTE FDD13 700 MHz.

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	793	23330	10	RB_1_low	16QAM	22.43
low	793	23330	10	RB_1_mid	16QAM	22.63
low	793	23330	10	RB_1_high	16QAM	22.02
low	793	23330	10	RB_50%_low	16QAM	21.7
low	793	23330	10	RB_50%_mid	16QAM	21.49
low	793	23330	10	RB_50%_high	16QAM	21.29
low	793	23330	10	RB_1_low	QPSK	23.26
low	793	23330	10	RB_1_mid	QPSK	23.64
low	793	23330	10	RB_1_high	QPSK	23.36
low	793	23330	10	RB_50%_low	QPSK	22.25
low	793	23330	10	RB_50%_mid	QPSK	22.39
low	793	23330	10	RB_50%_high	QPSK	22.34
low	793	23330	10	RB_100%	QPSK	22.36
mid	793	23330	10	RB_1_low	QPSK	23.13
mid	793	23330	10	RB_1_mid	QPSK	23.31
mid	793	23330	10	RB_1_high	QPSK	23.16
mid	793	23330	10	RB_50%_low	QPSK	22.37
mid	793	23330	10	RB_50%_mid	QPSK	22.51
mid	793	23330	10	RB_50%_high	QPSK	22.37
mid	793	23330	10	RB_100%	QPSK	22.36
high	793	23330	10	RB_1_low	QPSK	23.28
high	793	23330	10	RB_1_mid	QPSK	23.37
high	793	23330	10	RB_1_high	QPSK	23.22
high	793	23330	10	RB_50%_low	QPSK	22.46
high	793	23330	10	RB_50%_mid	QPSK	22.38
high	793	23330	10	RB_50%_high	QPSK	22.22
high	793	23330	10	RB_100%	QPSK	22.32
low	790.5	23305	5	RB_1_low	QPSK	22.91
low	790.5	23305	5	RB_1_low	16QAM	21.84
low	790.5	23305	5	RB_1_mid	QPSK	22.92
low	790.5	23305	5	RB_1_mid	16QAM	21.9
low	790.5	23305	5	RB_1_high	QPSK	23.27
low	790.5	23305	5	RB_1_high	16QAM	22.38
low	790.5	23305	5	RB_50%_low	QPSK	22.14
low	790.5	23305	5	RB_50%_low	16QAM	21.35
low	790.5	23305	5	RB_50%_mid	QPSK	22.38
low	790.5	23305	5	RB_50%_mid	16QAM	21.36
low	790.5	23305	5	RB_50%_high	QPSK	22.37
low	790.5	23305	5	RB_50%_high	16QAM	21.43
low	790.5	23305	5	RB_100%	QPSK	22.17
low	790.5	23305	5	RB_100%	16QAM	21.18
low	790.5	23305	5	RB_25%_low	QPSK	23.21
low	790.5	23305	5	RB_25%_low	16QAM	22.37

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	793	23330	5	RB_1_low	QPSK	22.98
mid	793	23330	5	RB_1_low	16QAM	22.09
mid	793	23330	5	RB_1_mid	QPSK	23.07
mid	793	23330	5	RB_1_mid	16QAM	22.08
mid	793	23330	5	RB_1_high	QPSK	23.41
mid	793	23330	5	RB_1_high	16QAM	22.57
mid	793	23330	5	RB_50%_low	QPSK	22.29
mid	793	23330	5	RB_50%_low	16QAM	21.49
mid	793	23330	5	RB_50%_mid	QPSK	22.3
mid	793	23330	5	RB_50%_mid	16QAM	21.51
mid	793	23330	5	RB_50%_high	QPSK	22.28
mid	793	23330	5	RB_50%_high	16QAM	21.41
mid	793	23330	5	RB_100%	QPSK	22.33
mid	793	23330	5	RB_100%	16QAM	21.41
mid	793	23330	5	RB_25%_low	QPSK	23.18
mid	793	23330	5	RB_25%_low	16QAM	22.22
high	795.5	23355	5	RB_1_low	QPSK	23.19
high	795.5	23355	5	RB_1_low	16QAM	22.02
high	795.5	23355	5	RB_1_mid	QPSK	22.94
high	795.5	23355	5	RB_1_mid	16QAM	22.17
high	795.5	23355	5	RB_1_high	QPSK	23.07
high	795.5	23355	5	RB_1_high	16QAM	22.09
high	795.5	23355	5	RB_50%_low	QPSK	22.41
high	795.5	23355	5	RB_50%_low	16QAM	21.51
high	795.5	23355	5	RB_50%_mid	QPSK	22.31
high	795.5	23355	5	RB_50%_mid	16QAM	21.64
high	795.5	23355	5	RB_50%_high	QPSK	22.22
high	795.5	23355	5	RB_50%_high	16QAM	21.43
high	795.5	23355	5	RB_100%	QPSK	22.39
high	795.5	23355	5	RB_100%	16QAM	21.52
high	795.5	23355	5	RB_25%_low	QPSK	23.2
high	795.5	23355	5	RB_25%_low	16QAM	22.15
low	793	23330	10	RB_1_low	QPSK	23.17
low	793	23330	10	RB_1_low	16QAM	22.04
low	793	23330	10	RB_1_mid	QPSK	23.48
low	793	23330	10	RB_1_mid	16QAM	22.36
low	793	23330	10	RB_1_high	QPSK	23.2
low	793	23330	10	RB_1_high	16QAM	22.29
low	793	23330	10	RB_50%_low	QPSK	22.2
low	793	23330	10	RB_50%_low	16QAM	21.21
low	793	23330	10	RB_50%_mid	QPSK	22.26
low	793	23330	10	RB_50%_mid	16QAM	21.38
low	793	23330	10	RB_50%_high	QPSK	22.1
low	793	23330	10	RB_50%_high	16QAM	21.22
low	793	23330	10	RB_100%	QPSK	22.18
mid	793	23330	10	RB_100%	QPSK	21.23

Table 12: Test results conducted power measurement LTE FDD14 700 MHz.

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	1857.5	26115	15	RB_1_low	QPSK	23.41
low	1857.5	26115	15	RB_1_mid	QPSK	24.04
low	1857.5	26115	15	RB_1_high	QPSK	23.31
low	1857.5	26115	15	RB_50%_low	QPSK	22.4
low	1857.5	26115	15	RB_50%_mid	QPSK	22.6
low	1857.5	26115	15	RB_50%_high	QPSK	22.44
low	1857.5	26115	15	RB_100%	QPSK	22.39
mid	1882.5	26365	15	RB_1_low	QPSK	22.74
mid	1882.5	26365	15	RB_1_mid	QPSK	22.74
mid	1882.5	26365	15	RB_1_high	QPSK	22.76
mid	1882.5	26365	15	RB_50%_low	QPSK	22.11
mid	1882.5	26365	15	RB_50%_mid	QPSK	21.99
mid	1882.5	26365	15	RB_50%_high	QPSK	21.94
mid	1882.5	26365	15	RB_100%	QPSK	22.19
high	1907.5	26615	15	RB_1_low	QPSK	23.47
high	1907.5	26615	15	RB_1_mid	QPSK	23.28
high	1907.5	26615	15	RB_1_high	QPSK	23.59
high	1907.5	26615	15	RB_50%_low	QPSK	22.53
high	1907.5	26615	15	RB_50%_mid	QPSK	22.37
high	1907.5	26615	15	RB_50%_high	QPSK	22.32
high	1907.5	26615	15	RB_100%	QPSK	22.39
low	1860	26140	20	RB_1_low	QPSK	23.08
low	1860	26140	20	RB_1_mid	QPSK	23.73
low	1860	26140	20	RB_1_high	QPSK	22.83
low	1860	26140	20	RB_50%_low	QPSK	22.36
low	1860	26140	20	RB_50%_mid	QPSK	22.36
low	1860	26140	20	RB_50%_high	QPSK	22.26
low	1860	26140	20	RB_100%	QPSK	22.39
mid	1882.5	26365	20	RB_1_low	QPSK	22.73
mid	1882.5	26365	20	RB_1_mid	QPSK	22.68
mid	1882.5	26365	20	RB_1_high	QPSK	22.7
mid	1882.5	26365	20	RB_50%_low	QPSK	22.17
mid	1882.5	26365	20	RB_50%_mid	QPSK	22.02
mid	1882.5	26365	20	RB_50%_high	QPSK	21.96
mid	1882.5	26365	20	RB_100%	QPSK	21.98
high	1905	26590	20	RB_1_low	QPSK	23.15
high	1905	26590	20	RB_1_mid	QPSK	23.7
high	1905	26590	20	RB_1_high	QPSK	23.28
high	1905	26590	20	RB_50%_low	QPSK	22.47
high	1905	26590	20	RB_50%_mid	QPSK	22.37
high	1905	26590	20	RB_50%_high	QPSK	22.2
high	1905	26590	20	RB_100%	QPSK	22.37

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	1850.7	26047	1.4	RB_1_low	QPSK	23.13
low	1850.7	26047	1.4	RB_1_low	16QAM	22.27
low	1850.7	26047	1.4	RB_1_mid	QPSK	23.33
low	1850.7	26047	1.4	RB_1_mid	16QAM	22.12
low	1850.7	26047	1.4	RB_1_high	QPSK	23.27
low	1850.7	26047	1.4	RB_1_high	16QAM	22.4
low	1850.7	26047	1.4	RB_50%_low	QPSK	23.3
low	1850.7	26047	1.4	RB_50%_low	16QAM	22.8
low	1850.7	26047	1.4	RB_50%_mid	QPSK	23.37
low	1850.7	26047	1.4	RB_50%_mid	16QAM	22.66
low	1850.7	26047	1.4	RB_50%_high	QPSK	23.32
low	1850.7	26047	1.4	RB_50%_high	16QAM	22.04
low	1850.7	26047	1.4	RB_100%	QPSK	22.28
low	1850.7	26047	1.4	RB_100%	16QAM	21.47
low	1850.7	26047	1.4	RB_25%_low	QPSK	23.02
low	1850.7	26047	1.4	RB_25%_low	16QAM	22.4
mid	1882.5	26365	1.4	RB_1_low	QPSK	22.5
mid	1882.5	26365	1.4	RB_1_low	16QAM	21.89
mid	1882.5	26365	1.4	RB_1_mid	QPSK	22.52
mid	1882.5	26365	1.4	RB_1_mid	16QAM	21.78
mid	1882.5	26365	1.4	RB_1_high	QPSK	22.54
mid	1882.5	26365	1.4	RB_1_high	16QAM	21.92
mid	1882.5	26365	1.4	RB_50%_low	QPSK	22.61
mid	1882.5	26365	1.4	RB_50%_low	16QAM	21.73
mid	1882.5	26365	1.4	RB_50%_mid	QPSK	22.51
mid	1882.5	26365	1.4	RB_50%_mid	16QAM	21.56
mid	1882.5	26365	1.4	RB_50%_high	QPSK	22.72
mid	1882.5	26365	1.4	RB_50%_high	16QAM	21.86
mid	1882.5	26365	1.4	RB_100%	QPSK	21.66
mid	1882.5	26365	1.4	RB_100%	16QAM	20.59
mid	1882.5	26365	1.4	RB_25%_low	QPSK	22.49
mid	1882.5	26365	1.4	RB_25%_low	16QAM	21.9

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
high	1914.3	26683	1.4	RB_1_low	QPSK	23.21
high	1914.3	26683	1.4	RB_1_low	16QAM	22.44
high	1914.3	26683	1.4	RB_1_mid	QPSK	23.25
high	1914.3	26683	1.4	RB_1_mid	16QAM	22.28
high	1914.3	26683	1.4	RB_1_high	QPSK	23.05
high	1914.3	26683	1.4	RB_1_high	16QAM	22.11
high	1914.3	26683	1.4	RB_50%_low	QPSK	23.05
high	1914.3	26683	1.4	RB_50%_low	16QAM	22.29
high	1914.3	26683	1.4	RB_50%_mid	QPSK	23.21
high	1914.3	26683	1.4	RB_50%_mid	16QAM	22.88
high	1914.3	26683	1.4	RB_50%_high	QPSK	23.27
high	1914.3	26683	1.4	RB_50%_high	16QAM	22.66
high	1914.3	26683	1.4	RB_100%	QPSK	22.28
high	1914.3	26683	1.4	RB_100%	16QAM	21.26
high	1914.3	26683	1.4	RB_25%_low	QPSK	22.99
high	1914.3	26683	1.4	RB_25%_low	16QAM	22.01
low	1851.5	26055	3	RB_1_low	QPSK	23
low	1851.5	26055	3	RB_1_low	16QAM	22.09
low	1851.5	26055	3	RB_1_mid	QPSK	23.39
low	1851.5	26055	3	RB_1_mid	16QAM	22.35
low	1851.5	26055	3	RB_1_high	QPSK	23.21
low	1851.5	26055	3	RB_1_high	16QAM	22.11
low	1851.5	26055	3	RB_50%_low	QPSK	22.24
low	1851.5	26055	3	RB_50%_low	16QAM	21.09
low	1851.5	26055	3	RB_50%_mid	QPSK	22.12
low	1851.5	26055	3	RB_50%_mid	16QAM	21.05
low	1851.5	26055	3	RB_50%_high	QPSK	22.2
low	1851.5	26055	3	RB_50%_high	16QAM	21.31
low	1851.5	26055	3	RB_100%	QPSK	22.23
low	1851.5	26055	3	RB_100%	16QAM	21.22
low	1851.5	26055	3	RB_25%_low	QPSK	22.99
low	1851.5	26055	3	RB_25%_low	16QAM	22.06
mid	1882.5	26365	3	RB_1_low	QPSK	22.78
mid	1882.5	26365	3	RB_1_low	16QAM	21.72
mid	1882.5	26365	3	RB_1_mid	QPSK	22.8
mid	1882.5	26365	3	RB_1_mid	16QAM	21.6
mid	1882.5	26365	3	RB_1_high	QPSK	22.68
mid	1882.5	26365	3	RB_1_high	16QAM	21.44
mid	1882.5	26365	3	RB_50%_low	QPSK	21.71
mid	1882.5	26365	3	RB_50%_low	16QAM	20.73
mid	1882.5	26365	3	RB_50%_mid	QPSK	21.61
mid	1882.5	26365	3	RB_50%_mid	16QAM	20.75
mid	1882.5	26365	3	RB_50%_high	QPSK	21.66
mid	1882.5	26365	3	RB_50%_high	16QAM	20.77
mid	1882.5	26365	3	RB_100%	QPSK	21.78
mid	1882.5	26365	3	RB_100%	16QAM	20.67
mid	1882.5	26365	3	RB_25%_low	QPSK	22.71
mid	1882.5	26365	3	RB_25%_low	16QAM	22.16

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
high	1913.5	26675	3	RB_1_low	QPSK	23.26
high	1913.5	26675	3	RB_1_low	16QAM	22.13
high	1913.5	26675	3	RB_1_mid	QPSK	23.47
high	1913.5	26675	3	RB_1_mid	16QAM	22.68
high	1913.5	26675	3	RB_1_high	QPSK	23.22
high	1913.5	26675	3	RB_1_high	16QAM	22.3
high	1913.5	26675	3	RB_50%_low	QPSK	22.16
high	1913.5	26675	3	RB_50%_low	16QAM	21.3
high	1913.5	26675	3	RB_50%_mid	QPSK	22.4
high	1913.5	26675	3	RB_50%_mid	16QAM	21.55
high	1913.5	26675	3	RB_50%_high	QPSK	22.42
high	1913.5	26675	3	RB_50%_high	16QAM	21.32
high	1913.5	26675	3	RB_100%	QPSK	22.37
high	1913.5	26675	3	RB_100%	16QAM	21.24
high	1913.5	26675	3	RB_25%_low	QPSK	23.23
high	1913.5	26675	3	RB_25%_low	16QAM	22.57
low	1852.5	26065	5	RB_1_low	QPSK	22.7
low	1852.5	26065	5	RB_1_low	16QAM	21.62
low	1852.5	26065	5	RB_1_mid	QPSK	23.01
low	1852.5	26065	5	RB_1_mid	16QAM	22.24
low	1852.5	26065	5	RB_1_high	QPSK	22.99
low	1852.5	26065	5	RB_1_high	16QAM	22.02
low	1852.5	26065	5	RB_50%_low	QPSK	22.21
low	1852.5	26065	5	RB_50%_low	16QAM	21.28
low	1852.5	26065	5	RB_50%_mid	QPSK	22.21
low	1852.5	26065	5	RB_50%_mid	16QAM	21.23
low	1852.5	26065	5	RB_50%_high	QPSK	22.3
low	1852.5	26065	5	RB_50%_high	16QAM	21.42
low	1852.5	26065	5	RB_100%	QPSK	22.18
low	1852.5	26065	5	RB_100%	16QAM	21.24
low	1852.5	26065	5	RB_25%_low	QPSK	23.18
low	1852.5	26065	5	RB_25%_low	16QAM	22.03
mid	1882.5	26365	5	RB_1_low	QPSK	22.81
mid	1882.5	26365	5	RB_1_low	16QAM	21.75
mid	1882.5	26365	5	RB_1_mid	QPSK	22.38
mid	1882.5	26365	5	RB_1_mid	16QAM	21.65
mid	1882.5	26365	5	RB_1_high	QPSK	22.48
mid	1882.5	26365	5	RB_1_high	16QAM	21.75
mid	1882.5	26365	5	RB_50%_low	QPSK	21.76
mid	1882.5	26365	5	RB_50%_low	16QAM	20.85
mid	1882.5	26365	5	RB_50%_mid	QPSK	21.63
mid	1882.5	26365	5	RB_50%_mid	16QAM	20.83

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	1882.5	26365	5	RB_50%_high	QPSK	21.66
mid	1882.5	26365	5	RB_50%_high	16QAM	20.86
mid	1882.5	26365	5	RB_100%	QPSK	21.71
mid	1882.5	26365	5	RB_100%	16QAM	20.76
mid	1882.5	26365	5	RB_25%_low	QPSK	22.77
mid	1882.5	26365	5	RB_25%_low	16QAM	21.88
high	1912.5	26665	5	RB_1_low	QPSK	23.03
high	1912.5	26665	5	RB_1_low	16QAM	22.01
high	1912.5	26665	5	RB_1_mid	QPSK	22.91
high	1912.5	26665	5	RB_1_mid	16QAM	22.13
high	1912.5	26665	5	RB_1_high	QPSK	23.23
high	1912.5	26665	5	RB_1_high	16QAM	22.4
high	1912.5	26665	5	RB_50%_low	QPSK	22.16
high	1912.5	26665	5	RB_50%_low	16QAM	21.14
high	1912.5	26665	5	RB_50%_mid	QPSK	22.16
high	1912.5	26665	5	RB_50%_mid	16QAM	21.31
high	1912.5	26665	5	RB_50%_high	QPSK	22.17
high	1912.5	26665	5	RB_50%_high	16QAM	21.25
high	1912.5	26665	5	RB_100%	QPSK	22.14
high	1912.5	26665	5	RB_100%	16QAM	21.07
high	1912.5	26665	5	RB_25%_low	QPSK	23.02
high	1912.5	26665	5	RB_25%_low	16QAM	21.98
low	1855	26090	10	RB_1_low	QPSK	22.98
low	1855	26090	10	RB_1_low	16QAM	22
low	1855	26090	10	RB_1_mid	QPSK	23.13
low	1855	26090	10	RB_1_mid	16QAM	22.29
low	1855	26090	10	RB_1_high	QPSK	23.22
low	1855	26090	10	RB_1_high	16QAM	22.14
low	1855	26090	10	RB_50%_low	QPSK	22.19
low	1855	26090	10	RB_50%_low	16QAM	21.29
low	1855	26090	10	RB_50%_mid	QPSK	22.21
low	1855	26090	10	RB_50%_mid	16QAM	21.12
low	1855	26090	10	RB_50%_high	QPSK	22.22
low	1855	26090	10	RB_50%_high	16QAM	21.41
low	1855	26090	10	RB_100%	QPSK	22.23
mid	1882.5	26365	10	RB_100%	QPSK	21.06

Table 13: Test results conducted power measurement LTE FDD 25 1900 MHz.

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	821.5	26765	15	RB_1_low	QPSK	23.07
low	821.5	26765	15	RB_1_mid	QPSK	23.46
low	821.5	26765	15	RB_1_high	QPSK	23.18
low	821.5	26765	15	RB_50%_low	QPSK	21.89
low	821.5	26765	15	RB_50%_mid	QPSK	22.34
low	821.5	26765	15	RB_50%_high	QPSK	22.26
low	821.5	26765	15	RB_100%	QPSK	22.24
mid	831.5	26865	15	RB_1_low	QPSK	23.08
mid	831.5	26865	15	RB_1_mid	QPSK	23.59
mid	831.5	26865	15	RB_1_high	QPSK	23.08
mid	831.5	26865	15	RB_50%_low	QPSK	22.18
mid	831.5	26865	15	RB_50%_mid	QPSK	22.39
mid	831.5	26865	15	RB_50%_high	QPSK	22.24
mid	831.5	26865	15	RB_100%	QPSK	22.23
high	841.5	26965	15	RB_1_low	QPSK	23.17
high	841.5	26965	15	RB_1_mid	QPSK	23.36
high	841.5	26965	15	RB_1_high	QPSK	23.2
high	841.5	26965	15	RB_50%_low	QPSK	22.4
high	841.5	26965	15	RB_50%_mid	QPSK	22.38
high	841.5	26965	15	RB_50%_high	QPSK	22.53
high	841.5	26965	15	RB_100%	QPSK	22.24
low	821.5	26765	15	RB_1_low	QPSK	23.06
low	821.5	26765	15	RB_1_mid	QPSK	23.44
low	821.5	26765	15	RB_1_high	QPSK	23.08
low	821.5	26765	15	RB_50%_low	QPSK	22.38
low	821.5	26765	15	RB_50%_mid	QPSK	22.32
low	821.5	26765	15	RB_50%_high	QPSK	22.33
low	821.5	26765	15	RB_100%	QPSK	22.22
mid	831.5	26865	15	RB_1_low	QPSK	22.98
mid	831.5	26865	15	RB_1_mid	QPSK	23.49
mid	831.5	26865	15	RB_1_high	QPSK	23.04
mid	831.5	26865	15	RB_50%_low	QPSK	22.67
mid	831.5	26865	15	RB_50%_mid	QPSK	22.38
mid	831.5	26865	15	RB_50%_high	QPSK	22.72
mid	831.5	26865	15	RB_100%	QPSK	22.18
high	841.5	26965	15	RB_1_low	QPSK	23.28
high	841.5	26965	15	RB_1_mid	QPSK	23.5
high	841.5	26965	15	RB_1_high	QPSK	23.29
high	841.5	26965	15	RB_50%_low	QPSK	22.53
high	841.5	26965	15	RB_50%_mid	QPSK	22.35
high	841.5	26965	15	RB_50%_high	QPSK	22
high	841.5	26965	15	RB_100%	QPSK	22.32

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	821.5	26765	15	RB_1_low	QPSK	23
low	821.5	26765	15	RB_1_mid	QPSK	23.47
low	821.5	26765	15	RB_1_high	QPSK	23.02
low	821.5	26765	15	RB_50%_low	QPSK	21.91
low	821.5	26765	15	RB_50%_mid	QPSK	22.26
low	821.5	26765	15	RB_50%_high	QPSK	22.17
low	821.5	26765	15	RB_100%	QPSK	22.33
mid	831.5	26865	15	RB_1_low	QPSK	23.07
mid	831.5	26865	15	RB_1_mid	QPSK	23.45
mid	831.5	26865	15	RB_1_high	QPSK	22.99
mid	831.5	26865	15	RB_50%_low	QPSK	22.17
mid	831.5	26865	15	RB_50%_mid	QPSK	22.41
mid	831.5	26865	15	RB_50%_high	QPSK	22.26
mid	831.5	26865	15	RB_100%	QPSK	22.2
high	841.5	26965	15	RB_1_low	QPSK	23.24
high	841.5	26965	15	RB_1_mid	QPSK	23.49
high	841.5	26965	15	RB_1_high	QPSK	23.16
high	841.5	26965	15	RB_50%_low	QPSK	22.46
high	841.5	26965	15	RB_50%_mid	QPSK	22.44
high	841.5	26965	15	RB_50%_high	QPSK	22.5
high	841.5	26965	15	RB_100%	QPSK	22.23
low	821.5	26765	15	RB_1_low	QPSK	23.14
low	821.5	26765	15	RB_1_mid	QPSK	23.45
low	821.5	26765	15	RB_1_high	QPSK	23.17
low	821.5	26765	15	RB_50%_low	QPSK	22.41
low	821.5	26765	15	RB_50%_mid	QPSK	22.25
low	821.5	26765	15	RB_50%_high	QPSK	22.15
low	821.5	26765	15	RB_100%	QPSK	22.35
mid	831.5	26865	15	RB_1_low	QPSK	22.98
mid	831.5	26865	15	RB_1_mid	QPSK	23.56
mid	831.5	26865	15	RB_1_high	QPSK	23.01
mid	831.5	26865	15	RB_50%_low	QPSK	22.18
mid	831.5	26865	15	RB_50%_mid	QPSK	22.41
mid	831.5	26865	15	RB_50%_high	QPSK	22.27
mid	831.5	26865	15	RB_100%	QPSK	22.26
high	841.5	26965	15	RB_1_low	QPSK	23.21
high	841.5	26965	15	RB_1_mid	QPSK	23.34
high	841.5	26965	15	RB_1_high	QPSK	23.21
high	841.5	26965	15	RB_50%_low	QPSK	22.49
high	841.5	26965	15	RB_50%_mid	QPSK	22.37
high	841.5	26965	15	RB_50%_high	QPSK	22.54
high	841.5	26965	15	RB_100%	QPSK	22.26

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	814.7	26697	1.4	RB_1_low	QPSK	22.24
low	814.7	26697	1.4	RB_1_low	16QAM	22.26
low	814.7	26697	1.4	RB_1_mid	QPSK	22.25
low	814.7	26697	1.4	RB_1_mid	16QAM	22.23
low	814.7	26697	1.4	RB_1_high	QPSK	21.7
low	814.7	26697	1.4	RB_1_high	16QAM	22.24
low	814.7	26697	1.4	RB_50%_low	QPSK	22.21
low	814.7	26697	1.4	RB_50%_low	16QAM	22.24
low	814.7	26697	1.4	RB_50%_mid	QPSK	22.23
low	814.7	26697	1.4	RB_50%_mid	16QAM	22.2
low	814.7	26697	1.4	RB_50%_high	QPSK	22.23
low	814.7	26697	1.4	RB_50%_high	16QAM	22.22
low	814.7	26697	1.4	RB_100%	QPSK	22.2
low	814.7	26697	1.4	RB_100%	16QAM	22.23
low	814.7	26697	1.4	RB_25%_low	QPSK	22.22
low	814.7	26697	1.4	RB_25%_low	16QAM	22.19
mid	831.5	26865	1.4	RB_1_low	QPSK	22.38
mid	831.5	26865	1.4	RB_1_low	16QAM	22.38
mid	831.5	26865	1.4	RB_1_mid	QPSK	22.38
mid	831.5	26865	1.4	RB_1_mid	16QAM	22.38
mid	831.5	26865	1.4	RB_1_high	QPSK	22.38
mid	831.5	26865	1.4	RB_1_high	16QAM	22.38
mid	831.5	26865	1.4	RB_50%_low	QPSK	22.38
mid	831.5	26865	1.4	RB_50%_low	16QAM	22.38
mid	831.5	26865	1.4	RB_50%_mid	QPSK	22.37
mid	831.5	26865	1.4	RB_50%_mid	16QAM	22.38
mid	831.5	26865	1.4	RB_50%_high	QPSK	23.36
mid	831.5	26865	1.4	RB_50%_high	16QAM	22.77
mid	831.5	26865	1.4	RB_100%	QPSK	22.43
mid	831.5	26865	1.4	RB_100%	16QAM	21.41
mid	831.5	26865	1.4	RB_25%_low	QPSK	23.42
mid	831.5	26865	1.4	RB_25%_low	16QAM	22.37
high	848.3	27033	1.4	RB_1_low	QPSK	23.17
high	848.3	27033	1.4	RB_1_low	16QAM	22.23
high	848.3	27033	1.4	RB_1_mid	QPSK	23.45
high	848.3	27033	1.4	RB_1_mid	16QAM	21.99
high	848.3	27033	1.4	RB_1_high	QPSK	23.25
high	848.3	27033	1.4	RB_1_high	16QAM	22.3
high	848.3	27033	1.4	RB_50%_low	QPSK	23.15
high	848.3	27033	1.4	RB_50%_low	16QAM	22.67
high	848.3	27033	1.4	RB_50%_mid	QPSK	22.98
high	848.3	27033	1.4	RB_50%_mid	16QAM	22.58
high	848.3	27033	1.4	RB_50%_high	QPSK	23.31
high	848.3	27033	1.4	RB_50%_high	16QAM	22.32
high	848.3	27033	1.4	RB_100%	QPSK	22.1
high	848.3	27033	1.4	RB_100%	16QAM	21.14
high	848.3	27033	1.4	RB_25%_low	QPSK	23.09
high	848.3	27033	1.4	RB_25%_low	16QAM	21.95

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	815.5	26705	3	RB_1_low	QPSK	23.16
low	815.5	26705	3	RB_1_low	16QAM	21.9
low	815.5	26705	3	RB_1_mid	QPSK	23.23
low	815.5	26705	3	RB_1_mid	16QAM	22.56
low	815.5	26705	3	RB_1_high	QPSK	23.33
low	815.5	26705	3	RB_1_high	16QAM	21.96
low	815.5	26705	3	RB_50%_low	QPSK	22.16
low	815.5	26705	3	RB_50%_low	16QAM	21.28
low	815.5	26705	3	RB_50%_mid	QPSK	21.86
low	815.5	26705	3	RB_50%_mid	16QAM	20.82
low	815.5	26705	3	RB_50%_high	QPSK	22.07
low	815.5	26705	3	RB_50%_high	16QAM	21.21
low	815.5	26705	3	RB_100%	QPSK	22.47
low	815.5	26705	3	RB_100%	16QAM	21.05
low	815.5	26705	3	RB_25%_low	QPSK	23.12
low	815.5	26705	3	RB_25%_low	16QAM	22.07
mid	831.5	26865	3	RB_1_low	QPSK	23.44
mid	831.5	26865	3	RB_1_low	16QAM	22.36
mid	831.5	26865	3	RB_1_mid	QPSK	23.77
mid	831.5	26865	3	RB_1_mid	16QAM	22.77
mid	831.5	26865	3	RB_1_high	QPSK	23.5
mid	831.5	26865	3	RB_1_high	16QAM	22.46
mid	831.5	26865	3	RB_50%_low	QPSK	22.47
mid	831.5	26865	3	RB_50%_low	16QAM	21.48
mid	831.5	26865	3	RB_50%_mid	QPSK	22.37
mid	831.5	26865	3	RB_50%_mid	16QAM	21.56
mid	831.5	26865	3	RB_50%_high	QPSK	22.4
mid	831.5	26865	3	RB_50%_high	16QAM	21.66
mid	831.5	26865	3	RB_100%	QPSK	22.43
mid	831.5	26865	3	RB_100%	16QAM	21.65
mid	831.5	26865	3	RB_25%_low	QPSK	23.53
mid	831.5	26865	3	RB_25%_low	16QAM	23.18

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
high	847.5	27025	3	RB_1_low	QPSK	23.43
high	847.5	27025	3	RB_1_low	16QAM	22.38
high	847.5	27025	3	RB_1_mid	QPSK	23.15
high	847.5	27025	3	RB_1_mid	16QAM	22.32
high	847.5	27025	3	RB_1_high	QPSK	23.2
high	847.5	27025	3	RB_1_high	16QAM	22.31
high	847.5	27025	3	RB_50%_low	QPSK	22.16
high	847.5	27025	3	RB_50%_low	16QAM	21.26
high	847.5	27025	3	RB_50%_mid	QPSK	22.37
high	847.5	27025	3	RB_50%_mid	16QAM	21.05
high	847.5	27025	3	RB_50%_high	QPSK	22.09
high	847.5	27025	3	RB_50%_high	16QAM	20.96
high	847.5	27025	3	RB_100%	QPSK	22.19
high	847.5	27025	3	RB_100%	16QAM	21.44
high	847.5	27025	3	RB_25%_low	QPSK	23.25
high	847.5	27025	3	RB_25%_low	16QAM	22.34
low	816.5	26715	5	RB_1_low	QPSK	22.87
low	816.5	26715	5	RB_1_low	16QAM	21.78
low	816.5	26715	5	RB_1_mid	QPSK	23.1
low	816.5	26715	5	RB_1_mid	16QAM	22.23
low	816.5	26715	5	RB_1_high	QPSK	23.03
low	816.5	26715	5	RB_1_high	16QAM	22.17
low	816.5	26715	5	RB_50%_low	QPSK	22.3
low	816.5	26715	5	RB_50%_low	16QAM	21.5
low	816.5	26715	5	RB_50%_mid	QPSK	22.09
low	816.5	26715	5	RB_50%_mid	16QAM	21.27
low	816.5	26715	5	RB_50%_high	QPSK	22.06
low	816.5	26715	5	RB_50%_high	16QAM	21.31
low	816.5	26715	5	RB_100%	QPSK	21.96
low	816.5	26715	5	RB_100%	16QAM	21
low	816.5	26715	5	RB_25%_low	QPSK	23.09
low	816.5	26715	5	RB_25%_low	16QAM	22.24
mid	831.5	26865	5	RB_1_low	QPSK	23.12
mid	831.5	26865	5	RB_1_low	16QAM	22.41
mid	831.5	26865	5	RB_1_mid	QPSK	23.18
mid	831.5	26865	5	RB_1_mid	16QAM	22.49
mid	831.5	26865	5	RB_1_high	QPSK	23.2
mid	831.5	26865	5	RB_1_high	16QAM	22.5
mid	831.5	26865	5	RB_50%_low	QPSK	22.51
mid	831.5	26865	5	RB_50%_low	16QAM	21.72
mid	831.5	26865	5	RB_50%_mid	QPSK	22.42
mid	831.5	26865	5	RB_50%_mid	16QAM	21.72
mid	831.5	26865	5	RB_50%_high	QPSK	22.38
mid	831.5	26865	5	RB_50%_high	16QAM	21.68
mid	831.5	26865	5	RB_100%	QPSK	22.43
mid	831.5	26865	5	RB_100%	16QAM	21.36
mid	831.5	26865	5	RB_25%_low	QPSK	23.3
mid	831.5	26865	5	RB_25%_low	16QAM	22.17

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
high	846.5	27015	5	RB_1_low	QPSK	22.89
high	846.5	27015	5	RB_1_low	16QAM	21.46
high	846.5	27015	5	RB_1_mid	QPSK	23.19
high	846.5	27015	5	RB_1_mid	16QAM	22.01
high	846.5	27015	5	RB_1_high	QPSK	22.92
high	846.5	27015	5	RB_1_high	16QAM	21.98
high	846.5	27015	5	RB_50%_low	QPSK	22.25
high	846.5	27015	5	RB_50%_low	16QAM	21.48
high	846.5	27015	5	RB_50%_mid	QPSK	22.2
high	846.5	27015	5	RB_50%_mid	16QAM	21.31
high	846.5	27015	5	RB_50%_high	QPSK	22.15
high	846.5	27015	5	RB_50%_high	16QAM	21.27
high	846.5	27015	5	RB_100%	QPSK	22.18
high	846.5	27015	5	RB_100%	16QAM	21.21
high	846.5	27015	5	RB_25%_low	QPSK	23.12
high	846.5	27015	5	RB_25%_low	16QAM	22.03
low	819	26740	10	RB_1_low	QPSK	23.07
low	819	26740	10	RB_1_low	16QAM	22.07
low	819	26740	10	RB_1_mid	QPSK	23.35
low	819	26740	10	RB_1_mid	16QAM	22.31
low	819	26740	10	RB_1_high	QPSK	23.37
low	819	26740	10	RB_1_high	16QAM	22.27
low	819	26740	10	RB_50%_low	QPSK	21.86
low	819	26740	10	RB_50%_low	16QAM	21.01
low	819	26740	10	RB_50%_mid	QPSK	22.02
low	819	26740	10	RB_50%_mid	16QAM	21.16
low	819	26740	10	RB_50%_high	QPSK	21.99
low	819	26740	10	RB_50%_high	16QAM	21.29
low	819	26740	10	RB_100%	QPSK	22.24
mid	831.5	26865	10	RB_100%	QPSK	21.24

Table 14: Test results conducted power measurement LTE FDD 26 850 MHz.

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	670.5	133197	15	RB_1_low	QPSK	23.25
low	670.5	133197	15	RB_1_mid	QPSK	23.81
low	670.5	133197	15	RB_1_high	QPSK	22.89
low	670.5	133197	15	RB_50%_low	QPSK	22.26
low	670.5	133197	15	RB_50%_mid	QPSK	22.34
low	670.5	133197	15	RB_50%_high	QPSK	22.37
low	670.5	133197	15	RB_100%	QPSK	22.18
mid	680.5	133297	15	RB_1_low	QPSK	23.44
mid	680.5	133297	15	RB_1_mid	QPSK	23.59
mid	680.5	133297	15	RB_1_high	QPSK	23.15
mid	680.5	133297	15	RB_50%_low	QPSK	22.2
mid	680.5	133297	15	RB_50%_mid	QPSK	22.22
mid	680.5	133297	15	RB_50%_high	QPSK	22.08
mid	680.5	133297	15	RB_100%	QPSK	22.1
high	690.5	133397	15	RB_1_low	QPSK	22.85
high	690.5	133397	15	RB_1_mid	QPSK	23.34
high	690.5	133397	15	RB_1_high	QPSK	23.2
high	690.5	133397	15	RB_50%_low	QPSK	22.15
high	690.5	133397	15	RB_50%_mid	QPSK	22.24
high	690.5	133397	15	RB_50%_high	QPSK	22.26
high	690.5	133397	15	RB_100%	QPSK	22.03
low	673	133222	20	RB_1_low	QPSK	23.1
low	673	133222	20	RB_1_mid	QPSK	23.25
low	673	133222	20	RB_1_high	QPSK	22.77
low	673	133222	20	RB_50%_low	QPSK	22.3
low	673	133222	20	RB_50%_mid	QPSK	22.37
low	673	133222	20	RB_50%_high	QPSK	22.17
low	673	133222	20	RB_100%	QPSK	22.23
mid	680.5	133297	20	RB_1_low	QPSK	23.03
mid	680.5	133297	20	RB_1_mid	QPSK	23.09
mid	680.5	133297	20	RB_1_high	QPSK	22.56
mid	680.5	133297	20	RB_50%_low	QPSK	22.21
mid	680.5	133297	20	RB_50%_mid	QPSK	22.2
mid	680.5	133297	20	RB_50%_high	QPSK	21.93
mid	680.5	133297	20	RB_100%	QPSK	22.25
high	688	133372	20	RB_1_low	QPSK	22.98
high	688	133372	20	RB_1_mid	QPSK	23.58
high	688	133372	20	RB_1_high	QPSK	22.69
high	688	133372	20	RB_50%_low	QPSK	22.16
high	688	133372	20	RB_50%_mid	QPSK	22.25
high	688	133372	20	RB_50%_high	QPSK	22
high	688	133372	20	RB_100%	QPSK	22.23

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
low	670.5	133197	15	RB_1_low	QPSK	23.15
low	670.5	133197	15	RB_1_mid	QPSK	23.73
low	670.5	133197	15	RB_1_high	QPSK	23.05
low	670.5	133197	15	RB_50%_low	QPSK	22.27
low	670.5	133197	15	RB_50%_mid	QPSK	22.34
low	670.5	133197	15	RB_50%_high	QPSK	22.29
low	668	133172	10	RB_1_low	QPSK	23.02
low	668	133172	10	RB_1_mid	QPSK	23.35
low	668	133172	10	RB_1_high	QPSK	23.13
low	668	133172	10	RB_50%_low	QPSK	22.22
low	668	133172	10	RB_50%_mid	QPSK	22.27
low	668	133172	10	RB_50%_high	QPSK	22.18
low	668	133172	10	RB_100%	QPSK	22.2
mid	680.5	133297	10	RB_1_low	QPSK	23.15
mid	680.5	133297	10	RB_1_mid	QPSK	23.38
mid	680.5	133297	10	RB_1_high	QPSK	22.94
mid	680.5	133297	10	RB_50%_low	QPSK	22.36
mid	680.5	133297	10	RB_50%_mid	QPSK	22.27
mid	680.5	133297	10	RB_50%_high	QPSK	22.07
mid	680.5	133297	10	RB_100%	QPSK	22.11
high	693	133422	10	RB_1_low	QPSK	23.05
high	693	133422	10	RB_1_mid	QPSK	23.32
high	693	133422	10	RB_1_high	QPSK	23.39
high	693	133422	10	RB_50%_low	QPSK	22.15
high	693	133422	10	RB_50%_mid	QPSK	22.28
high	693	133422	10	RB_50%_high	QPSK	22.25
high	693	133422	10	RB_100%	QPSK	22.18
low	665.5	133147	5	RB_1_low	QPSK	22.81
low	665.5	133147	5	RB_1_low	16QAM	21.71
low	665.5	133147	5	RB_1_mid	QPSK	22.95
low	665.5	133147	5	RB_1_mid	16QAM	22.26
low	665.5	133147	5	RB_1_high	QPSK	23.15
low	665.5	133147	5	RB_1_high	16QAM	22.19
low	665.5	133147	5	RB_50%_low	QPSK	22.08
low	665.5	133147	5	RB_50%_low	16QAM	21.27
low	665.5	133147	5	RB_50%_mid	QPSK	22.21
low	665.5	133147	5	RB_50%_mid	16QAM	21.25
low	665.5	133147	5	RB_50%_high	QPSK	22.21
low	665.5	133147	5	RB_50%_high	16QAM	21.41
low	665.5	133147	5	RB_100%	QPSK	22.14
low	665.5	133147	5	RB_100%	16QAM	21.12
low	665.5	133147	5	RB_25%_low	QPSK	23.06
low	665.5	133147	5	RB_25%_low	16QAM	21.88

Channel	Frequency [MHz]	Channel	Bandwidth [MHz]	Resource block allocation	Modulatio	P_{avg} [dBm]
mid	680.5	133297	5	RB_1_low	QPSK	22.83
mid	680.5	133297	5	RB_1_low	16QAM	22.18
mid	680.5	133297	5	RB_1_mid	QPSK	22.93
mid	680.5	133297	5	RB_1_mid	16QAM	22.22
mid	680.5	133297	5	RB_1_high	QPSK	22.96
mid	680.5	133297	5	RB_1_high	16QAM	22.22
mid	680.5	133297	5	RB_50%_low	QPSK	22.18
mid	680.5	133297	5	RB_50%_low	16QAM	21.39
mid	680.5	133297	5	RB_50%_mid	QPSK	22.19
mid	680.5	133297	5	RB_50%_mid	16QAM	21.19
mid	680.5	133297	5	RB_50%_high	QPSK	22.17
mid	680.5	133297	5	RB_50%_high	16QAM	21.18
mid	680.5	133297	5	RB_100%	QPSK	22.14
mid	680.5	133297	5	RB_100%	16QAM	21.19
mid	680.5	133297	5	RB_25%_low	QPSK	23.02
mid	680.5	133297	5	RB_25%_low	16QAM	21.84
high	695.5	133447	5	RB_1_low	QPSK	22.85
high	695.5	133447	5	RB_1_low	16QAM	22.16
high	695.5	133447	5	RB_1_mid	QPSK	22.92
high	695.5	133447	5	RB_1_mid	16QAM	22.22
high	695.5	133447	5	RB_1_high	QPSK	23.07
high	695.5	133447	5	RB_1_high	16QAM	22.29
high	695.5	133447	5	RB_50%_low	QPSK	22.14
high	695.5	133447	5	RB_50%_low	16QAM	21.36
high	695.5	133447	5	RB_50%_mid	QPSK	22.26
high	695.5	133447	5	RB_50%_mid	16QAM	21.56
high	695.5	133447	5	RB_50%_high	QPSK	22.23
high	695.5	133447	5	RB_50%_high	16QAM	21.47
high	695.5	133447	5	RB_100%	QPSK	22.27
high	695.5	133447	5	RB_100%	16QAM	21.32
high	695.5	133447	5	RB_25%_low	QPSK	23.13
high	695.5	133447	5	RB_25%_low	16QAM	22.03
low	668	133172	10	RB_1_low	QPSK	23.18
low	668	133172	10	RB_1_low	16QAM	22.15
low	668	133172	10	RB_1_mid	QPSK	23.34
low	668	133172	10	RB_1_mid	16QAM	22.27
low	668	133172	10	RB_1_high	QPSK	23.5
low	668	133172	10	RB_1_high	16QAM	22.23
low	668	133172	10	RB_50%_low	QPSK	22.24
low	668	133172	10	RB_50%_low	16QAM	21.37
low	668	133172	10	RB_50%_mid	QPSK	22.21
low	668	133172	10	RB_50%_mid	16QAM	21.23
low	668	133172	10	RB_50%_high	QPSK	22.11
low	668	133172	10	RB_50%_high	16QAM	21.39
low	668	133172	10	RB_100%	QPSK	22.18
mid	680.5	133297	10	RB_100%	QPSK	21.03

Table 15: Test results conducted power measurement LTE FDD 71 600 MHz.

8.1.2 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).

8.1.3 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.

8.2 SAR test results

8.2.1 General description of test procedures

- The DUT is tested using 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 below are in accordance with the specified test standard.
- According to IEC/IEEE 62209-1528 the SAR test shall be performed at the channel producing the highest rated output power.
  - o When the width of the transmit frequency band ($\Delta f = f_{high} - f_{low}$) exceeds 1 % of its centre frequency fc, the channels at the lowest and highest frequencies of the transmit band shall also be tested.
  - o When the width of the transmit frequency band exceeds 10 % of its centre frequency. The following formula shall be used to determine the number of channels, N_c, to be tested:

$$\mathrm{Nc} = 2 \times roundup\,[\frac{10 * (fhigh - flow)}{fc}] + 1$$

    where
    f_c is the centre frequency channel of the transmission band in Hz;
    f_{high} is the highest frequency channel of the transmission band in Hz;
    f_{low} is the lowest frequency channel of the transmission band in Hz;
    N_c is the number of channels
- 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

8.2.2 Results overview

LTE	BW (MHz)	Freq. (MHz)	Ch.	test cond.	position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		**SAR_{10g} (W/kg)**		liquid (°C)
						declared*	meas.	meas.	extrap.	meas.	extrap.	
2	15	1857.5	18675	1RB, mid	front	25.0	24.4	0.319	0.370	0.176	0.204	22.1
	15	1857.5	18675	1RB, mid	back	25.0	24.4	1.110	1.286	0.556	0.644	22.1
	15	1857.5	18675	1RB, mid	left	25.0	24.4	1.310	1.518	0.757	0.877	22.1
	15	1857.5	18675	1RB, mid	right	25.0	24.4	0.295	0.342	0.173	0.200	22.1
	15	1857.5	18675	1RB, mid	top	25.0	24.4	0.054	0.063	0.033	0.038	22.1
	15	1857.5	18675	1RB, mid	bottom	25.0	24.4	0.186	0.216	0.105	0.122	22.1
	15	1857.5	18675	50%RB, mid	front	24.0	23.1	0.248	0.306	0.142	0.175	22.1
	15	1857.5	18675	50%RB, mid	back	24.0	23.1	0.998	1.231	0.475	0.586	22.1
	15	1857.5	18675	50%RB, mid	left	24.0	23.1	1.150	1.418	0.644	0.794	22.1
	15	1857.5	18675	50%RB, mid	right	24.0	23.1	0.265	0.327	0.151	0.186	22.1
	15	1857.5	18675	50%RB, mid	top	24.0	23.1	0.043	0.053	0.027	0.033	22.1
	15	1857.5	18675	50%RB, mid	bottom	24.0	23.1	0.129	0.159	0.078	0.096	22.1
	20	1880	18900	1RB, low	left	24.0	22.8	1.520	2.008	**0.885**	**1.169**	22.1
	15	1902.5	19125	1RB, mid	left	25.0	24.3	1.230	1.448	0.712	0.838	22.1
4	15	1747.5	20325	1RB, mid	front	25.0	24.2	0.352	0.423	0.201	0.242	21.9
	15	1747.5	20325	1RB, mid	back	25.0	24.2	0.690	0.830	0.392	0.471	21.9
	15	1747.5	20325	1RB, mid	left	25.0	24.2	1.700	2.044	**0.956**	1.149	21.9
	15	1747.5	20325	1RB, mid	right	25.0	24.2	0.336	0.404	0.189	0.227	21.9
	15	1747.5	20325	1RB, mid	top	25.0	24.2	0.058	0.070	0.035	0.042	21.9
	15	1747.5	20325	1RB, mid	bottom	25.0	24.2	0.222	0.267	0.134	0.161	21.9
	20	1745	20300	50%RB, low	front	24.0	22.6	0.240	0.335	0.142	0.198	21.9
	20	1745	20300	50%RB, low	back	24.0	22.6	0.491	0.686	0.284	0.397	21.9
	20	1745	20300	50%RB, low	left	24.0	22.6	1.380	1.927	0.779	1.088	21.9
	20	1745	20300	50%RB, low	right	24.0	22.6	0.285	0.398	0.161	0.225	21.9
	20	1745	20300	50%RB, low	top	24.0	22.6	0.049	0.068	0.030	0.042	21.9
	20	1745	20300	50%RB, low	bottom	24.0	22.6	0.168	0.235	0.100	0.140	21.9
	15	1717.5	20025	1RB, mid	left	25.0	23.8	1.630	2.159	0.921	**1.220**	21.9
	15	1732.5	20175	1RB, mid	left	25.0	23.9	1.620	2.087	0.942	1.214	21.9
5	10	836.5	20525	1RB, mid	front	25.0	23.7	0.314	0.425	0.203	0.274	23.6
	10	836.5	20525	1RB, mid	back	25.0	23.7	0.604	0.817	0.370	0.500	23.6
	10	836.5	20525	1RB, mid	left	25.0	23.7	2.330	3.150	**1.060**	1.433	23.6
	10	836.5	20525	1RB, mid	right	25.0	23.7	0.176	0.238	0.111	0.150	23.6
	10	836.5	20525	1RB, mid	top	25.0	23.7	0.061	0.082	0.042	0.057	23.6
	10	836.5	20525	1RB, mid	bottom	25.0	23.7	0.015	0.020	0.011	0.015	23.6
	10	836.5	20525	50%RB, low	front	24.0	22.6	0.210	0.293	0.136	0.189	23.6
	10	836.5	20525	50%RB, low	back	24.0	22.6	0.464	0.646	0.285	0.397	23.6
	10	836.5	20525	50%RB, low	left	24.0	22.6	1.480	2.062	0.839	1.169	23.6
	10	836.5	20525	50%RB, low	right	24.0	22.6	0.138	0.192	0.088	0.123	23.6
	10	836.5	20525	50%RB, low	top	24.0	22.6	0.048	0.067	0.033	0.046	23.6
	10	836.5	20525	50%RB, low	bottom	24.0	22.6	0.013	0.018	0.009	0.013	23.6
	10	829	20450	1RB, high	left	25.0	23.5	1.780	2.538	1.010	1.440	23.6
	10	844	20600	1RB, low	left	25.0	23.3	2.230	3.291	1.020	**1.505**	23.6

Table 16: Test results limb worn with 0 mm distance (see max. SAR plot in Annex B:DASY measurement results)

* - maximum possible output power declared by manufacturer.

LTE	BW (MHz)	Freq. (MHz)	Ch.	test cond.	position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		**SAR_{10g} (W/kg)**		liquid (°C)
						declared*	meas.	meas.	extrap.	meas.	extrap.	
12	10	704	23060	1RB, mid	front	25.0	23.6	0.181	0.250	0.122	0.168	22.1
	10	704	23060	1RB, mid	back	25.0	23.6	0.370	0.511	0.244	0.337	22.1
	10	704	23060	1RB, mid	left	25.0	23.6	1.120	1.546	**0.565**	0.780	22.1
	10	704	23060	1RB, mid	right	25.0	23.6	0.198	0.273	0.139	0.192	22.1
	10	704	23060	1RB, mid	top	25.0	23.6	0.039	0.054	0.027	0.037	22.1
	10	704	23060	1RB, mid	bottom	25.0	23.6	0.033	0.046	0.023	0.032	22.1
	10	704	23060	50%RB, low	front	24.0	22.6	0.131	0.183	0.088	0.123	22.1
	10	704	23060	50%RB, low	back	24.0	22.6	0.281	0.391	0.181	0.252	22.1
	10	704	23060	50%RB, low	left	24.0	22.6	0.731	1.018	0.444	0.619	22.1
	10	704	23060	50%RB, low	right	24.0	22.6	0.150	0.209	0.105	0.146	22.1
	10	704	23060	50%RB, low	top	24.0	22.6	0.029	0.040	0.020	0.028	22.1
	10	704	23060	50%RB, low	bottom	24.0	22.6	0.024	0.033	0.016	0.022	22.1
	10	707.5	23095	1RB, mid	left	25.0	23.5	1.010	1.440	0.515	0.734	22.1
	10	711	23130	1RB, high	left	25.0	23.2	1.060	1.590	0.532	**0.798**	22.1
13	10	782	23230	1RB, low	front	25.0	23.5	0.213	0.302	0.141	0.200	22.1
	10	782	23230	1RB, low	back	25.0	23.5	0.570	0.809	0.338	0.480	22.1
	10	782	23230	1RB, low	left	25.0	23.5	1.390	1.972	0.655	0.929	22.1
	10	782	23230	1RB, low	right	25.0	23.5	0.162	0.230	0.111	0.158	22.1
	10	782	23230	1RB, low	top	25.0	23.5	0.054	0.077	0.037	0.053	22.1
	10	782	23230	1RB, low	bottom	25.0	23.5	0.025	0.035	0.016	0.023	22.1
	10	782	23230	50%RB, mid	front	24.0	22.4	0.178	0.258	0.119	0.173	22.1
	10	782	23230	50%RB, mid	back	24.0	22.4	0.496	0.720	0.292	0.424	22.1
	10	782	23230	50%RB, mid	left	24.0	22.4	0.942	1.368	0.567	0.823	22.1
	10	782	23230	50%RB, mid	right	24.0	22.4	0.126	0.183	0.086	0.125	22.1
	10	782	23230	50%RB, mid	top	24.0	22.4	0.045	0.065	0.030	0.044	22.1
	10	782	23230	50%RB, mid	bottom	24.0	22.4	0.020	0.029	0.014	0.020	22.1
	5	779.5	23205	1RB, mid	left	25.0	23.3	1.400	2.066	0.659	0.972	22.1
	5	784.5	23255	1RB, low	left	25.0	23.1	1.490	2.318	**0.701**	**1.091**	22.1
14	10	793	23330	1RB, mid	front	25.0	23.6	0.318	0.435	0.199	0.272	22.1
	10	793	23330	1RB, mid	back	25.0	23.6	0.758	1.037	0.463	0.633	22.1
	10	793	23330	1RB, mid	left	25.0	23.6	1.980	2.708	0.918	1.256	22.1
	10	793	23330	1RB, mid	right	25.0	23.6	0.132	0.181	0.091	0.124	22.1
	10	793	23330	1RB, mid	top	25.0	23.6	0.076	0.104	0.051	0.070	22.1
	10	793	23330	1RB, mid	bottom	25.0	23.6	0.036	0.049	0.023	0.031	22.1
	10	793	23330	50%RB, mid	front	24.0	22.4	0.224	0.325	0.139	0.201	22.1
	10	793	23330	50%RB, mid	back	24.0	22.4	0.588	0.852	0.333	0.482	22.1
	10	793	23330	50%RB, mid	left	24.0	22.4	1.260	1.825	0.771	1.117	22.1
	10	793	23330	50%RB, mid	right	24.0	22.4	0.097	0.141	0.066	0.096	22.1
	10	793	23330	50%RB, mid	top	24.0	22.4	0.054	0.078	0.037	0.054	22.1
	10	793	23330	50%RB, mid	bottom	24.0	22.4	0.026	0.038	0.016	0.023	22.1
	5	790.5	23305	1RB, high	left	25.0	23.3	2.050	3.053	**0.945**	**1.407**	22.1
	5	795.5	23355	1RB, low	left	25.0	23.2	1.990	3.019	0.926	1.405	22.1

Table 17: Test results limb worn with 0 mm distance (see max. SAR plot in Annex B:DASY measurement results)
* - maximum possible output power declared by manufacturer.

LTE	BW (MHz)	Freq. (MHz)	Ch.	test cond.	position	cond. P_{max} (dBm)		SAR_{1g} (W/kg)		**SAR_{10g} (W/kg)**		liquid (°C)
						declared*	meas.	meas.	extrap.	meas.	extrap.	
25	20	1860	26140	1RB, mid	front	25.0	23.7	0.321	0.430	0.184	0.247	22.1
	20	1860	26140	1RB, mid	back	25.0	23.7	1.550	2.076	0.766	1.026	22.1
	20	1860	26140	1RB, mid	left	25.0	23.7	1.530	2.050	**0.893**	**1.196**	22.1
	20	1860	26140	1RB, mid	right	25.0	23.7	0.333	0.446	0.186	0.249	22.1
	20	1860	26140	1RB, mid	top	25.0	23.7	0.067	0.090	0.042	0.056	22.1
	20	1860	26140	1RB, mid	bottom	25.0	23.7	0.213	0.285	0.130	0.174	22.1
	20	1905	26590	50%RB, low	front	24.0	22.5	0.242	0.344	0.140	0.199	22.1
	20	1905	26590	50%RB, low	back	24.0	22.5	1.310	1.863	0.624	0.888	22.1
	20	1905	26590	50%RB, low	left	24.0	22.5	0.892	1.269	0.529	0.752	22.1
	20	1905	26590	50%RB, low	right	24.0	22.5	0.185	0.263	0.103	0.146	22.1
	20	1905	26590	50%RB, low	top	24.0	22.5	0.045	0.064	0.026	0.037	22.1
	20	1905	26590	50%RB, low	bottom	24.0	22.5	0.164	0.233	0.095	0.135	22.1
	20	1882.5	26365	1RB, low	left	24.0	22.7	1.230	1.648	0.698	0.935	22.1
	20	1905	26590	1RB, mid	left	25.0	23.7	1.060	1.430	0.607	0.819	22.1
26	15	831.5	26865	1RB, mid	front	25.0	23.6	0.366	0.506	0.227	0.314	23.6
	15	831.5	26865	1RB, mid	back	25.0	23.6	0.499	0.690	0.325	0.450	23.6
	15	831.5	26865	1RB, mid	left	25.0	23.6	2.340	3.238	**1.070**	**1.480**	23.6
	15	831.5	26865	1RB, mid	right	25.0	23.6	0.153	0.212	0.104	0.144	23.6
	15	831.5	26865	1RB, mid	top	25.0	23.6	0.067	0.093	0.046	0.064	23.6
	15	831.5	26865	1RB, mid	bottom	25.0	23.6	0.018	0.025	0.012	0.017	23.6
	15	841.5	26965	50%RB, high	front	24.0	22.5	0.289	0.405	0.183	0.257	23.6
	15	841.5	26965	50%RB, high	back	24.0	22.5	0.361	0.506	0.183	0.257	23.6
	15	841.5	26965	50%RB, high	left	24.0	22.5	1.370	1.922	0.840	1.178	23.6
	15	841.5	26965	50%RB, high	right	24.0	22.5	0.120	0.168	0.080	0.112	23.6
	15	841.5	26965	50%RB, high	top	24.0	22.5	0.051	0.072	0.035	0.049	23.6
	15	841.5	26965	50%RB, high	bottom	24.0	22.5	0.014	0.020	0.009	0.013	23.6
	15	821.5	26765	1RB, mid	left	25.0	23.5	1.820	2.595	1.030	1.468	23.6
	15	841.5	26965	1RB, mid	left	25.0	23.4	1.730	2.524	0.985	1.437	23.6
71	15	670.5	133197	1RB, mid	front	25.0	23.8	0.162	0.213	0.105	0.138	22.1
	15	670.5	133197	1RB, mid	back	25.0	23.8	0.346	0.455	0.227	0.299	22.1
	15	670.5	133197	1RB, mid	left	25.0	23.8	0.752	0.989	0.478	0.629	22.1
	15	670.5	133197	1RB, mid	right	25.0	23.8	0.216	0.284	0.148	0.195	22.1
	15	670.5	133197	1RB, mid	top	25.0	23.8	0.033	0.043	0.023	0.030	22.1
	15	670.5	133197	1RB, mid	bottom	25.0	23.8	0.029	0.038	0.019	0.025	22.1
	20	673	133222	50%RB, mid	front	24.0	22.4	0.155	0.226	0.098	0.143	22.1
	20	673	133222	50%RB, mid	back	24.0	22.4	0.266	0.387	0.178	0.259	22.1
	20	673	133222	50%RB, mid	left	24.0	22.4	0.595	0.866	0.367	0.534	22.1
	20	673	133222	50%RB, mid	right	24.0	22.4	0.153	0.223	0.105	0.153	22.1
	20	673	133222	50%RB, mid	top	24.0	22.4	0.022	0.032	0.016	0.023	22.1
	20	673	133222	50%RB, mid	bottom	24.0	22.4	0.017	0.025	0.012	0.017	22.1
	15	680.5	133297	1RB, mid	left	25.0	23.6	0.823	1.139	0.503	0.696	22.1
	20	688	133372	1RB, mid	left	25.0	23.6	1.070	1.484	**0.537**	**0.745**	22.1

Table 18: Test results limb worn with 0 mm distance (see max. SAR plot in Annex B:DASY measurement results)

* - maximum possible output power declared by manufacturer.

8.2.3 SAR correction for deviations of complex permittivity from targets

The max reported SAR values are once more corrected wherever the deviation of the liquid parameters is larger than ± 5%.

According IEC / IEEE 62209-1528 chapter 7.8.2 SAR correction formula
there is a linear relationship between the percentage change in SAR (denoted ΔSAR) and the percentage change in the permittivity and conductivity from the target values (denoted $\Delta\varepsilon_r$ and $\Delta\sigma$, respectively).
The relationship is given by:

$$\Delta SAR = c_\varepsilon \Delta\varepsilon_r + c_\sigma \Delta\sigma$$

where
$c_\varepsilon = \partial(\Delta SAR)\ \partial(\Delta\varepsilon)$ is the coefficient representing the sensitivity of SAR to permittivity where SAR is normalized to output power;
$c_\sigma = \partial(\Delta SAR)\ \partial(\Delta\sigma)$ is the coefficient representing the sensitivity of SAR to conductivity, where SAR is normalized to output power.

The values of c_ε and c_σ have a simple relationship with frequency that can be described using polynomial equations. For dipole antennas at frequencies from 4 MHz to 6 GHz, the **1 g averaged SAR** c_ε and c_σ are given by

$$c_\varepsilon = -7.854\times10^{-4} \times f^3 + 9.402\times10^{-3} \times f^2 - 2.742\times10^{-2} \times f - 0.2026$$
$$c_\sigma = 9.804\times10^{-3} \times f^3 - 8.661\times10^{-2} \times f^2 + 2.981\times10^{-2} \times f + 0.7829$$

where f is the frequency in GHz. Above 6 GHz, the sensitivity is non-varying with frequency due to the small penetration depth; the values of $c_\varepsilon = -0{,}198$ and $c_\sigma = 0$ shall be used.

For frequencies from 4 MHz to 6 GHz, the **10 g averaged SAR** c_ε and c_σ are given by:

$$c_\varepsilon = 3.456\times10^{-3} \times f^3 - 3.531\times10^{-2} \times f^2 + 7.675\times10^{-2} \times f - 0.1860$$
$$c_\sigma = 4.479\times10^{-3} \times f^3 - 1.586\times10^{-2} \times f^2 - 0.197\ 2 \times f + 0.7717$$

where f is the frequency in GHz. Above 6 GHz, the sensitivity is non-varying with frequency due to the small penetration depth; the values of $c_\varepsilon = -0{,}250$ and $c_\sigma = 0$ shall be used.

NOTE:
The Tables in the uncertainties of this report are updated accordingly with the values from table 6 – Root-mean-squared error SAR correction formula as a function of the maximum change in permittivity or conductivity:

Max. change in ε_r or σ	RMS uncertainty for SAR_{1g} %	RMS uncertainty for SAR_{10g} %
±5 %	1,2	0,97
±10 %	1,9	1,6

NOTE:
The DASY software is capable of directly correcting the measured values according to the above-described procedure, fully compliant to IEC / IEEE 62209-1528, so that no further evaluation is necessary.

9 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	EX3DV4	Schmid & Partner Engineering AG	7635	January 15, 2024	12
Dosimetric E-Field Probe	EX3DV4	Schmid & Partner Engineering AG	7852	November 08, 2023	12
750 MHz System Validation Dipole	D750V3	Schmid & Partner Engineering AG	1041	May 11, 2023	36
835 MHz System Validation Dipole	D835V2	Schmid & Partner Engineering AG	4d153	May 11, 2023	36
1800 MHz System Validation Dipole	D1800V2	Schmid & Partner Engineering AG	291	May 10, 2022	36
1900 MHz System Validation Dipole	D1900V2	Schmid & Partner Engineering AG	5d009	May 12, 2023	36
Data acquisition electronics	DAE3	Schmid & Partner Engineering AG	413	January 15, 2024	12
Data acquisition electronics	DAE4ip	Schmid & Partner Engineering AG	1842	November 02, 2023	12
Software	V16.4.0.5005	Schmid & Partner Engineering AG	---	N/A	--
SAM Twin Phantom V8.0	QD 000 P41 AA	Schmid & Partner Engineering AG	2163	N/A	--
Phantom ELI 8.0	QD OVA 004 AA	Schmid & Partner Engineering AG	2214	N/A	--
Universal Radio Communication Tester	CMW500	Rohde & Schwarz	166977	December 13, 2023	24
Network Analyser 300 kHz to 6 GHz	8753ES	Agilent Technologies)*	US39174 436	December 14, 2023	24
Dielectric Assessment Kit (DAK)	DAK 200MHz – 20GHz Package	Schmid & Partner Engineering AG	1127	N/A	--
Powersource1	SE UMS 160 CC	Schmid & Partner Engineering AG	4342	May 15, 2024	24
Signal Generator	SML03	Rohde & Schwarz	102519	December 05, 2023	24
RF Power Amplifier	BLMA 0760-6 (6 Watt)	BONN Elektronik	1510273	N/A	--
Power Meter	NRP	Rohde & Schwarz	101367	December 05, 2023	12
Power Meter Sensor	NRP Z22	Rohde & Schwarz	100227	December 05, 2023	12
Power Meter Sensor	NRP Z22	Rohde & Schwarz	100234	December 05, 2023	12
Directional Coupler	778D	Hewlett Packard	19171	December 05, 2023	12

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

10 Observations

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

Annex A: System performance check

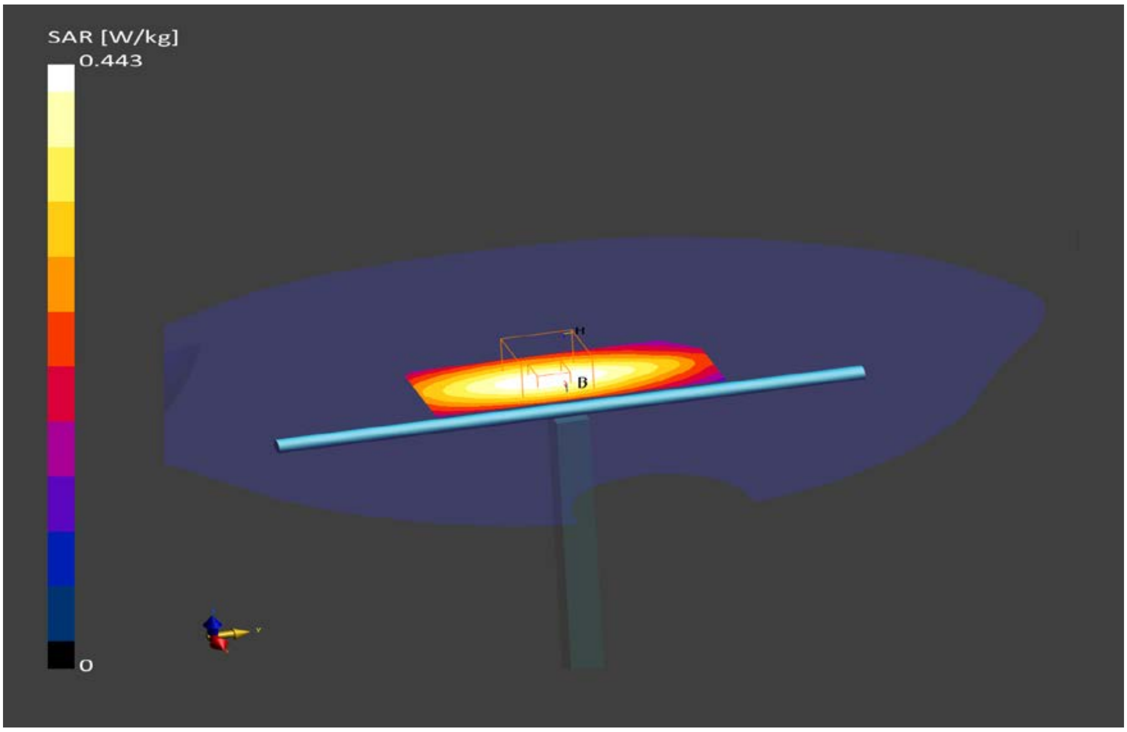
Date/Time: 2024-08-12, 11:31 2024-08-12, 11:37

SystemPerformanceCheck-D750

DUT: Dipole; Type: D750V3; Serial: SN1041
Communication System: CW; Communication System Frequency: 750.0 MHz
Medium parameters used: f = 750.0 MHz, σ = 0.946 S/m; ε_r=41.3; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.41, 9.41, 9.41); Calibrated: 2023-11-08
- Sensor-Surface: 1.4 mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/750.0MHz/Area Scan (10.0 x 15.0 x 1.0) :
Grid Extents [mm]: 40.0 x 90.0
Maximum value of SAR (interpolated) - SAR(1 g) = 0.421 W/kg; SAR(10 g) = 0.281 W/kg

HBBL-600-10000/750.0MHz/Zoom Scan (6.0 x 6.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
SPC Power = 17.0 dBm
Power Drift = -0.12 dB
SAR(1 g) = 0.417 W/kg; SAR(10 g) = 0.270 W/kg



Additional information:
ambient temperature: 22.8°C; liquid temperature: 23.3°C;

Date/Time: 2024-08-13, 11:46 2024-08-13, 11:51

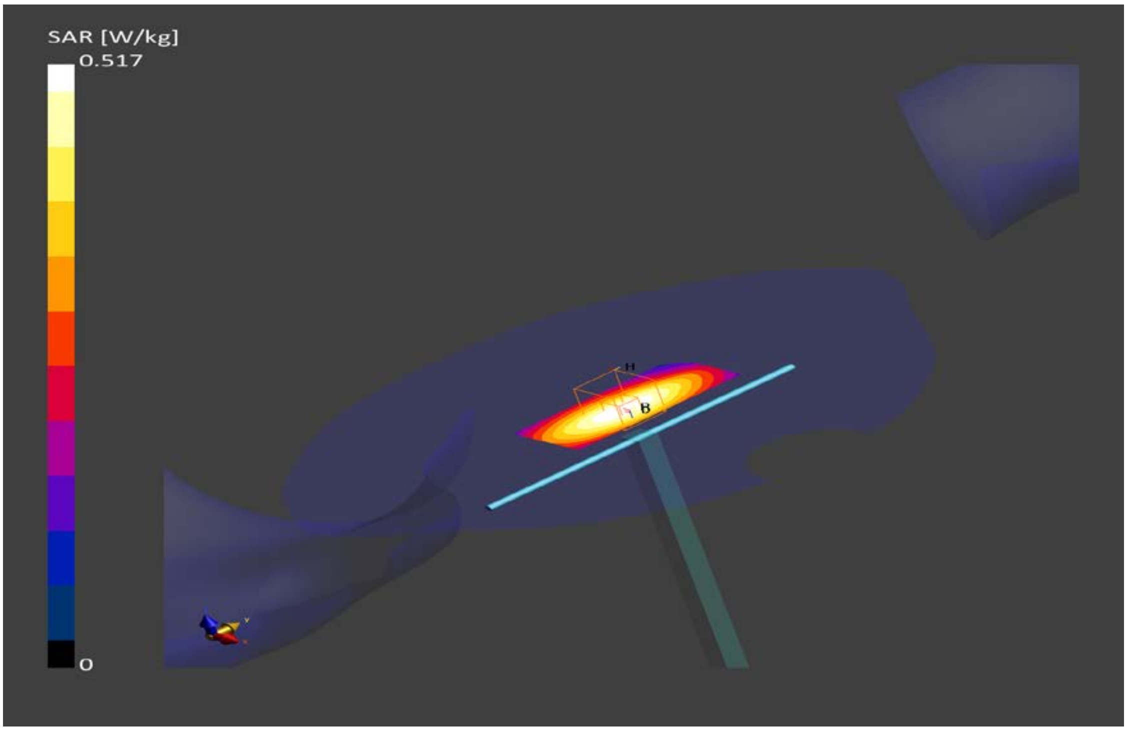
SystemPerformanceCheck-D835

DUT: Dipole; Type: D835V2; Serial: SN4d153

Communication System: CW; Communication System Frequency: 835.0 MHz
Medium parameters used: f = 835.0 MHz, σ = 0.978 S/m; ε_r=41.0; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.14, 9.14, 9.14); Calibrated: 2023-11-08
- Sensor-Surface: 1.4 mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/835.0MHz/Area Scan (10.0 x 15.0 x 1.0) :
Grid Extents [mm]: 40.0 x 90.0
Maximum value of SAR (interpolated) - SAR(1 g) = 0.486 W/kg; SAR(10 g) = 0.321 W/kg

HBBL-600-10000/835.0MHz/Zoom Scan (6.0 x 6.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
SPC Power = 17.0 dBm
Power Drift = -0.03 dB
SAR(1 g) = 0.480 W/kg; SAR(10 g) = 0.307 W/kg



Additional information:
ambient temperature: 22.0°C; liquid temperature: 23.6°C;

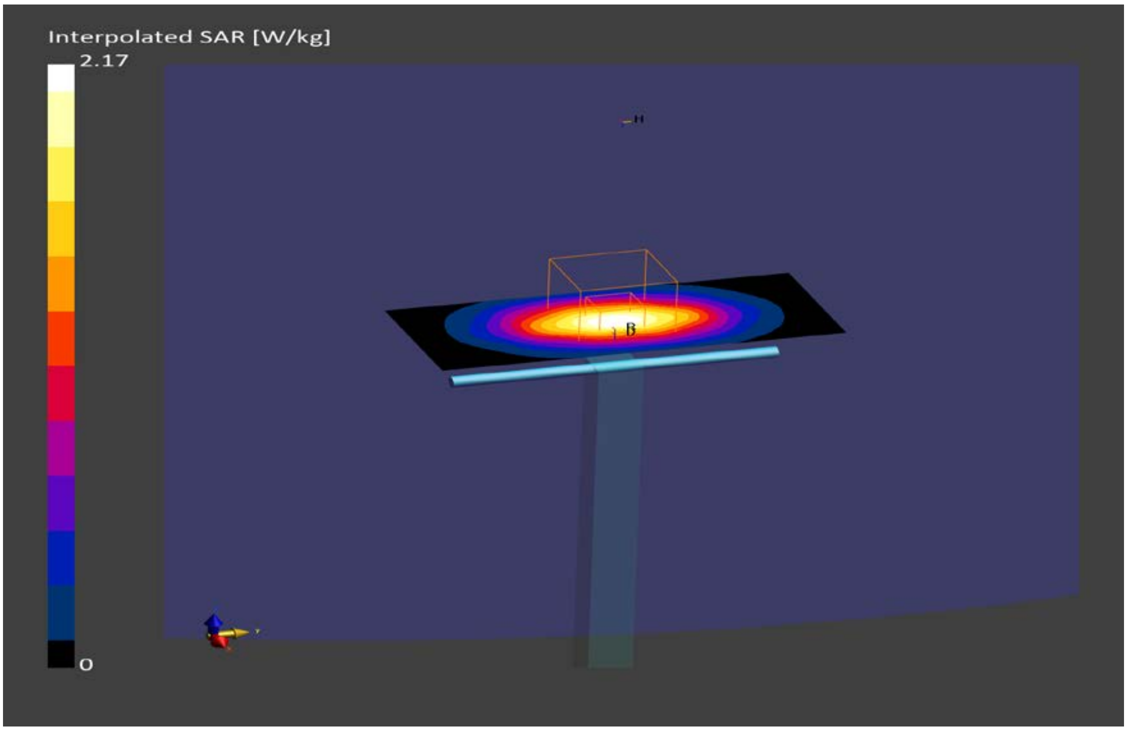
Date/Time: 2024-07-31, 10:23 2024-07-31, 10:29

SystemPerformanceCheck-D1800

DUT: Dipole; Type: D1800V2; Serial: 291
Communication System: CW; Communication System Frequency: 1800.0 MHz
Medium parameters used: f = 1800.0 MHz, σ = 1.40 S/m; ε_r=39.1; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7635; ConvF(8.63, 8.59, 8.73); Calibrated: 2024-01-15
- Sensor-Surface: 1.4 mm
- DAE: DAE3 Sn413; Calibrated: 2024-01-15
- Phantom: ELI V8.0 (20deg probe tilt); Serial: 2214;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/1800.0MHz/Area Scan (10.0 x 15.0 x 1.0) :
Grid Extents [mm]: 40.0 x 90.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.73 W/kg; SAR(10 g) = 0.915 W/kg

HBBL-600-10000/1800.0MHz/Zoom Scan (6.0 x 6.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
SPCPower = 17.0 dBm
Power Drift = 0.01 dB
SAR(1 g) = 1.72 W/kg; SAR(10 g) = 0.906 W/kg



Additional information:
ambient temperature: 22.1°C; liquid temperature: 21.9°C;

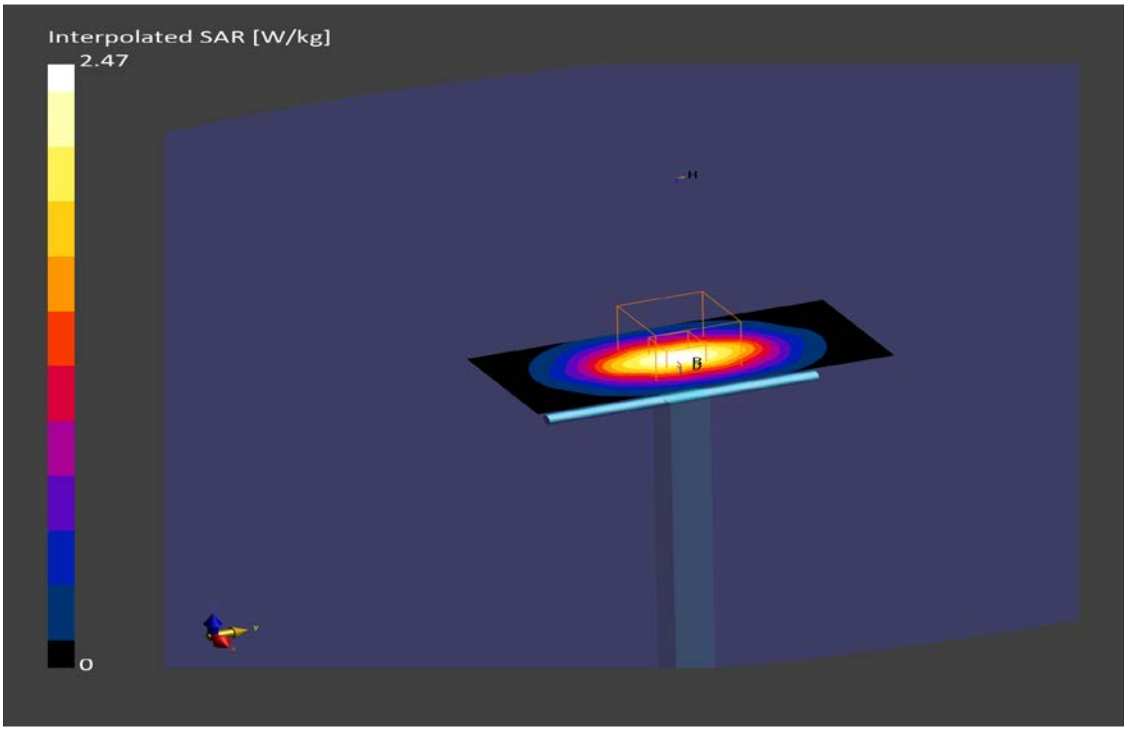
Date/Time: 2024-07-30, 14:31 2024-07-30, 14:36

SystemPerformanceCheck-D1900

DUT: Dipole; Type: D1900V2; Serial: SN5d009
Communication System: CW; Communication System Frequency: 1900.0 MHz
Medium parameters used: f = 1900.0 MHz, σ = 1.45 S/m; ε_r=39.0; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7635; ConvF(8.55, 8.49, 8.64); Calibrated: 2024-01-15
- Sensor-Surface: 1.4 mm
- DAE: DAE3 Sn413; Calibrated: 2024-01-15
- Phantom: ELI V8.0 (20deg probe tilt); Serial: 2214;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/1900.0MHz/Area Scan (10.0 x 15.0 x 1.0) :
Grid Extents [mm]: 40.0 x 90.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.95 W/kg; SAR(10 g) = 1.00 W/kg

HBBL-600-10000/1900.0MHz/Zoom Scan (6.0 x 6.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
SPCPower = 17.0 dBm
Power Drift = 0.00 dB
SAR(1 g) = 1.94 W/kg; SAR(10 g) = 0.995 W/kg



Additional information:
ambient temperature: 22.4°C; liquid temperature: 22.1°C;

Annex B: DASY 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

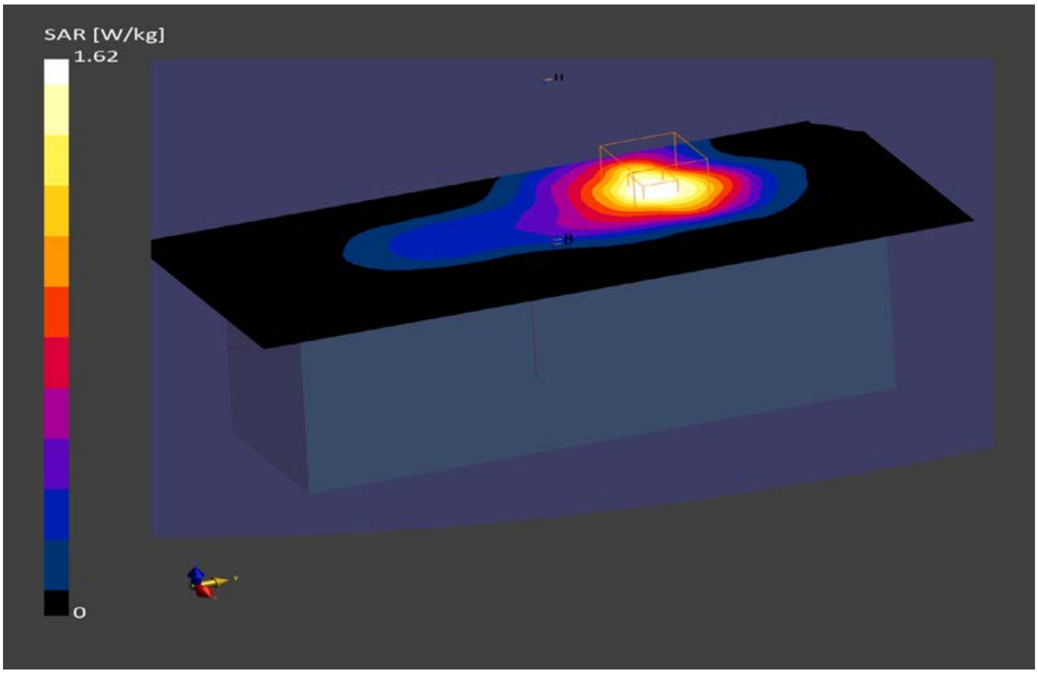
Date/Time: 2024-07-30, 18:51 2024-07-30, 18:57

IEC-IEEE 62209-1528 - LTE 2

DUT: Ingenico; Type: Move/5000; Serial: 24065730320138055521049 4

Communication System: LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) RBPosition:Low AntennaCfg:SISO;
Communication System Band: Band 2; Communication System Frequency: 1880.0 MHz
Medium parameters used: f = 1880.0 MHz, σ = 1.44 S/m; ε_r=39.0; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7635; ConvF(8.55, 8.49, 8.64); Calibrated: 2024-01-15
- Sensor-Surface: 1.4mm
- DAE: DAE3 Sn413; Calibrated: 2024-01-15
- Phantom: ELI V8.0 (20deg probe tilt); Serial: 2214;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 18900/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.42 W/kg; SAR(10 g) = 0.816 W/kg
HBBL-600-10000/EDGE LEFT, 0 mm - Channel 18900/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = 0.01 dB
SAR(1 g) = 1.52 W/kg; SAR(10 g) = 0.885 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 13.0
M2/M1 [%]: 89.3



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 22.1°C;

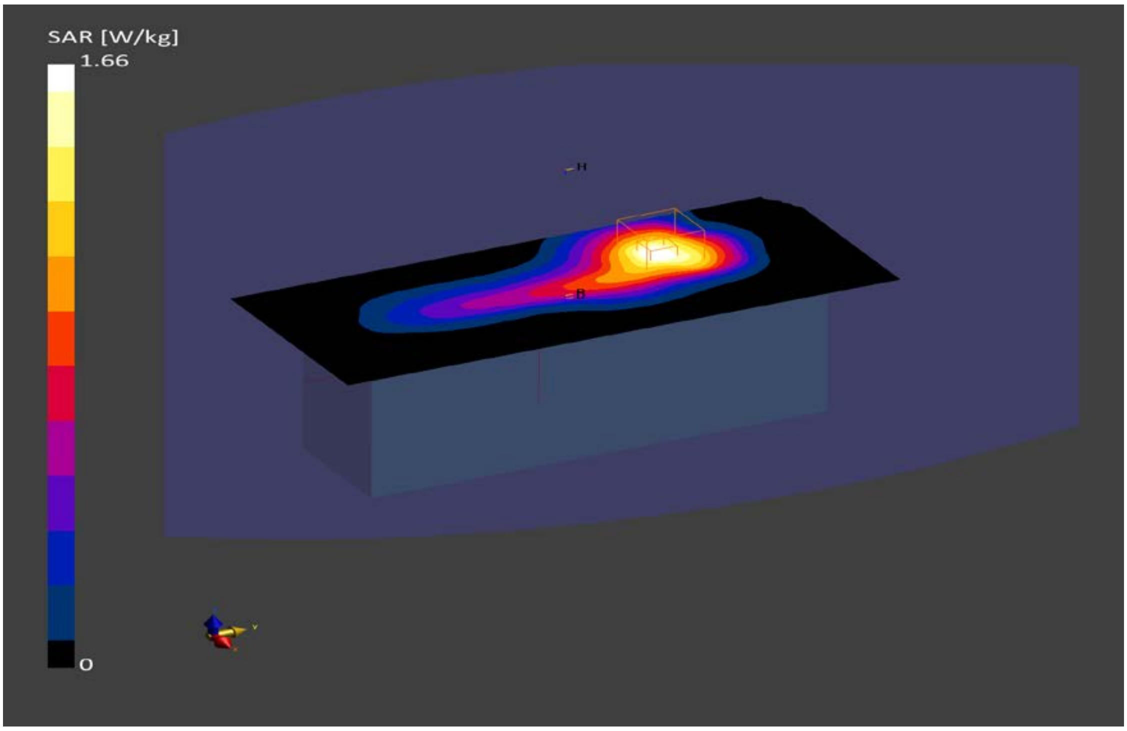
Date/Time: 2024-07-31, 14:20 2024-07-31, 14:26

IEC-IEEE 62209-1528 LTE 4

DUT: Ingenico; Type: Move/5000; Serial: 24065730320138055521049
Communication System: LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO;
Communication System Band: Band 4; Communication System Frequency: 1747.5 MHz
Medium parameters used: f = 1747.5 MHz, σ = 1.37 S/m; ε_r=39.2; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7635; ConvF(8.63, 8.59, 8.73); Calibrated: 2024-01-15
- Sensor-Surface: 1.4mm
- DAE: DAE3 Sn413; Calibrated: 2024-01-15
- Phantom: ELI V8.0 (20deg probe tilt); Serial: 2214;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 20325/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.55 W/kg; SAR(10 g) = 0.918 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 20325/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = -0.14 dB
SAR(1 g) = 1.70 W/kg; SAR(10 g) = 0.956 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 8.3
M2/M1 [%]: 76.7



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.1°C; liquid temperature: 21.9°C;

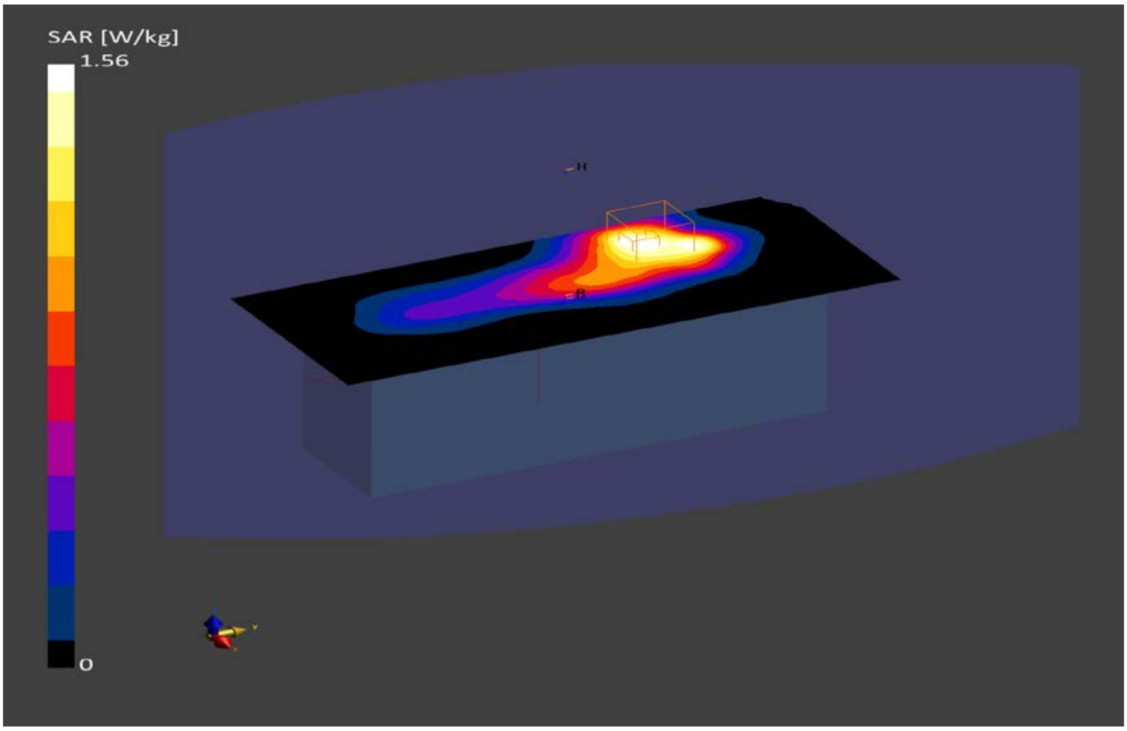
Date/Time: 2024-07-31, 15:20 2024-07-31, 15:47

IEC-IEEE 62209-1528 LTE 4

DUT: Ingenico; Type: Move/5000; Serial: 240657303201380555210494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO;
Communication System Band: Band 4; Communication System Frequency: 1717.5 MHz
Medium parameters used: f = 1717.5 MHz, σ = 1.35 S/m; ε_r=39.2; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7635; ConvF(8.63, 8.59, 8.73); Calibrated: 2024-01-15
- Sensor-Surface: 1.4mm
- DAE: DAE3 Sn413; Calibrated: 2024-01-15
- Phantom: ELI V8.0 (20deg probe tilt); Serial: 2214;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 20025/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.57 W/kg; SAR(10 g) = 0.920 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 20025/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = 0.04 dB
SAR(1 g) = 1.63 W/kg; SAR(10 g) = 0.921 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 7.9
M2/M1 [%]: 78.6



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.1°C; liquid temperature: 21.9°C;

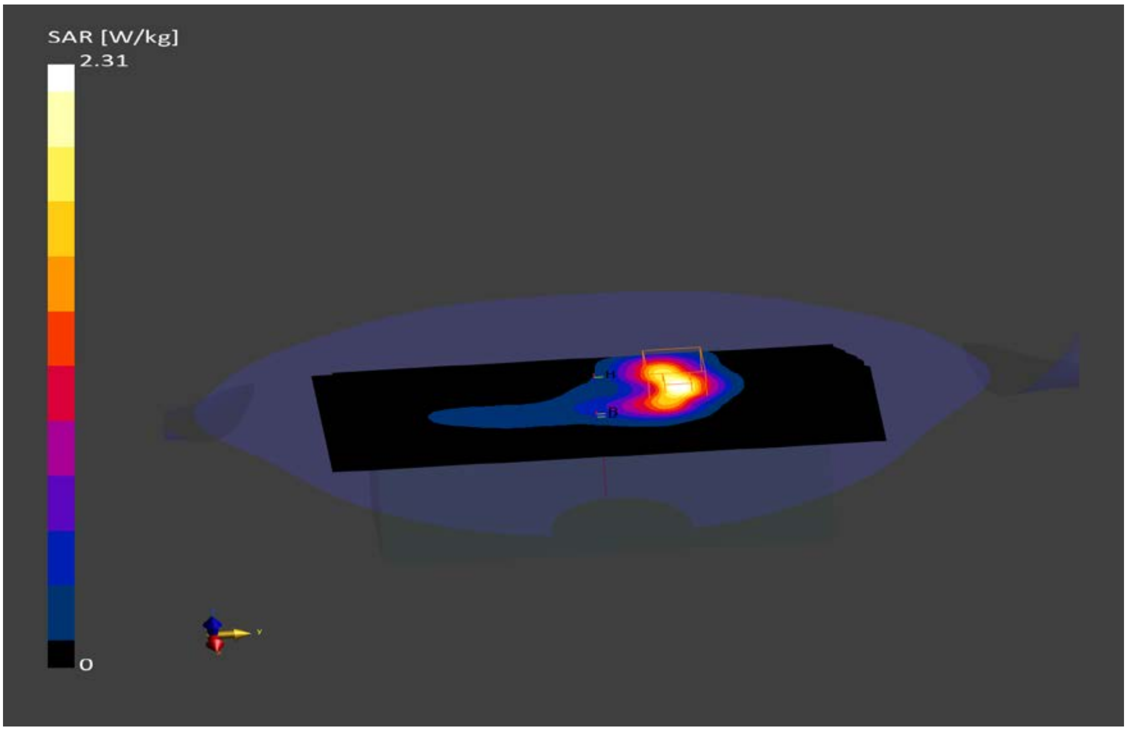
Date/Time: 2024-08-13, 13:03 2024-08-13, 13:09

IEC-IEEE 62209-1528 LTE 5

DUT: Ingenico; Type: Move/5000; Serial: 24065730320138055210494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO;
Communication System Band: Band 5; Communication System Frequency: 836.5 MHz
Medium parameters used: f = 836.5 MHz, σ = 0.978 S/m; ε_r=41.0; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.14, 9.14, 9.14); Calibrated: 2023-11-08
- Sensor-Surface: 1.4mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 20525/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.16 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 20525/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = 0.08 dB
SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.06 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 7.0
M2/M1 [%]: 69.8



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 23.6°C;

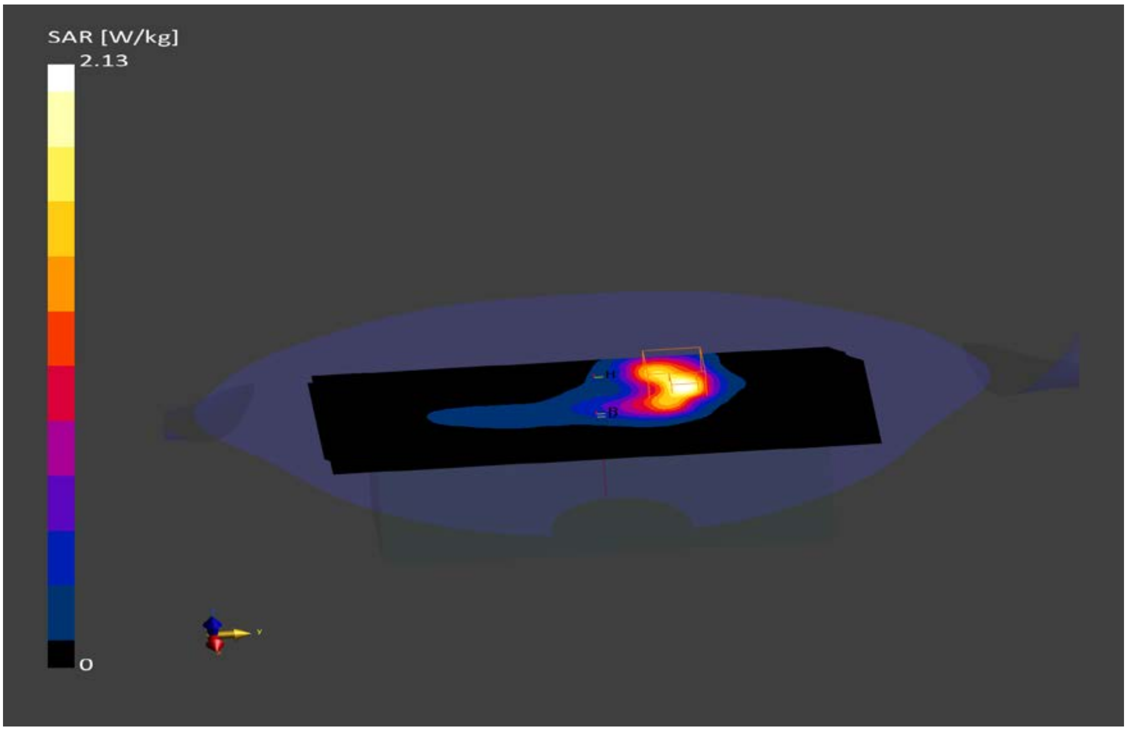
Date/Time: 2024-08-13, 13:17 2024-08-13, 13:22

IEC-IEEE 62209-1528 LTE 5

DUT: Ingenico; Type: Move/5000; Serial: 240657303201380555210494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) RBPosition:Low AntennaCfg:SISO;
Communication System Band: Band 5; Communication System Frequency: 844.0 MHz
Medium parameters used: f = 844.0 MHz, σ = 0.981 S/m; ε_r=41.0; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.14, 9.14, 9.14); Calibrated: 2023-11-08
- Sensor-Surface: 1.4mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 20600/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 2.15 W/kg; SAR(10 g) = 1.25 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 20600/Zoom Scan (6.0 x 6.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = 0.00 dB
SAR(1 g) = 2.23 W/kg; SAR(10 g) = 1.02 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 7.0
M2/M1 [%]: 69.8



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 23.6°C;

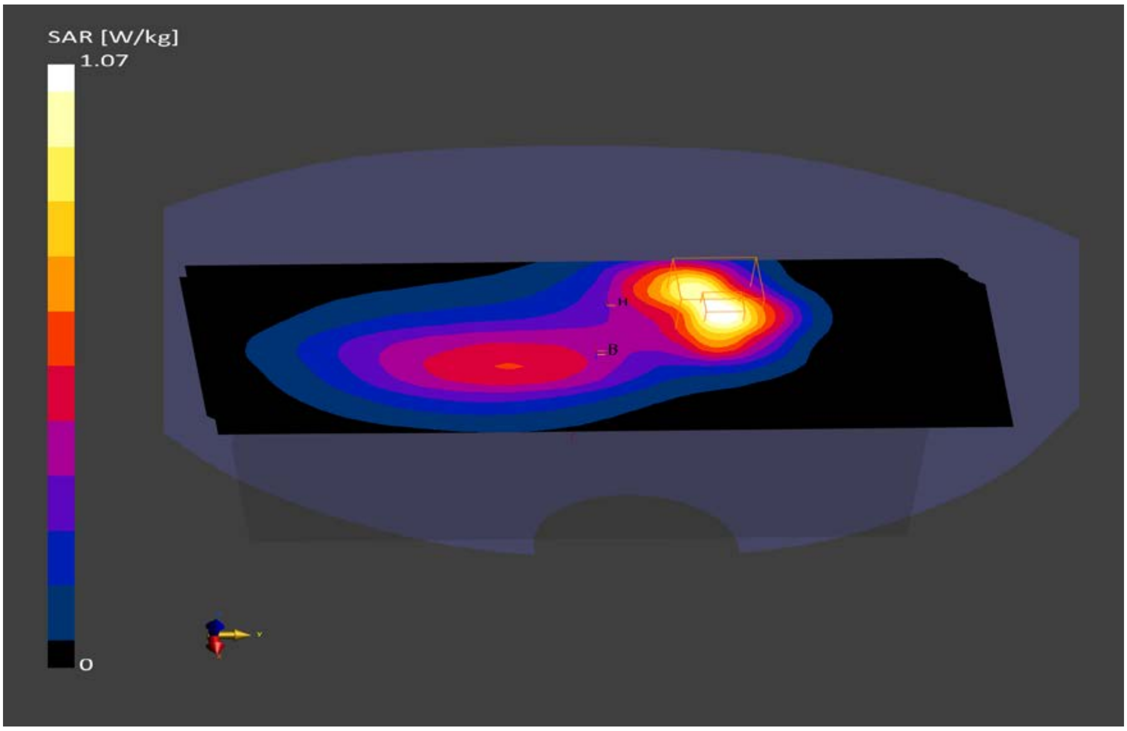
Date/Time: 2024-08-12, 12:51 2024-08-12, 12:59

IEC-IEEE 62209-1528 LTE 12

DUT: Ingenico; Type: Move/5000; Serial: 240657303201380555210494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO;
Communication System Band: Band 12; Communication System Frequency: 704.0 MHz
Medium parameters used: f = 704.0 MHz, σ = 0.929 S/m; ε_r=41.5; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.41, 9.41, 9.41); Calibrated: 2023-11-08
- Sensor-Surface: 1.4mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 23060/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.642 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 23060/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = 0.05 dB
SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.565 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 7.7
M2/M1 [%]: 70.0



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 22.1°C;

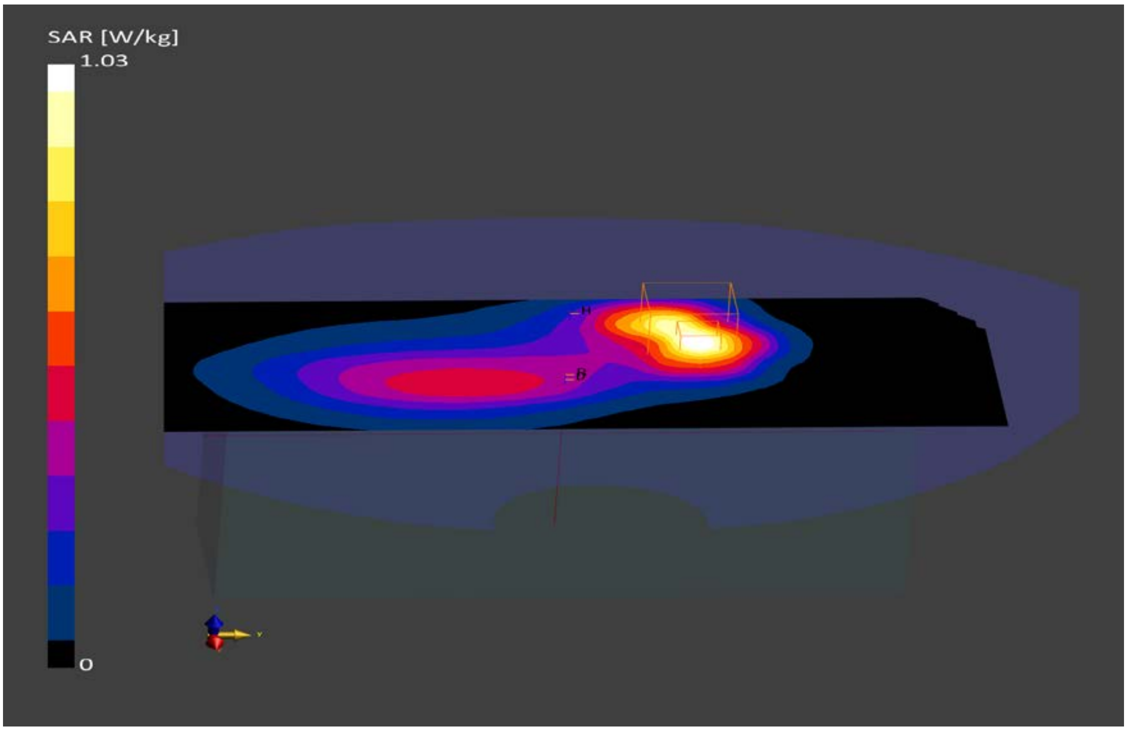
Date/Time: 2024-08-12, 13:05 2024-08-12, 13:12

IEC-IEEE 62209-1528 LTE 12

DUT: Ingenico; Type: Move/5000; Serial: 240657303201380555210494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) RBPosition:High AntennaCfg:SISO;
Communication System Band: Band 12; Communication System Frequency: 711.0 MHz
Medium parameters used: f = 711.0 MHz, σ = 0.932 S/m; ε_r=41.4; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.41, 9.41, 9.41); Calibrated: 2023-11-08
- Sensor-Surface: 1.4mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 23130/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.612 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 23130/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = 0.10 dB
SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.532 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 7.7
M2/M1 [%]: 70.2



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 22.1°C;

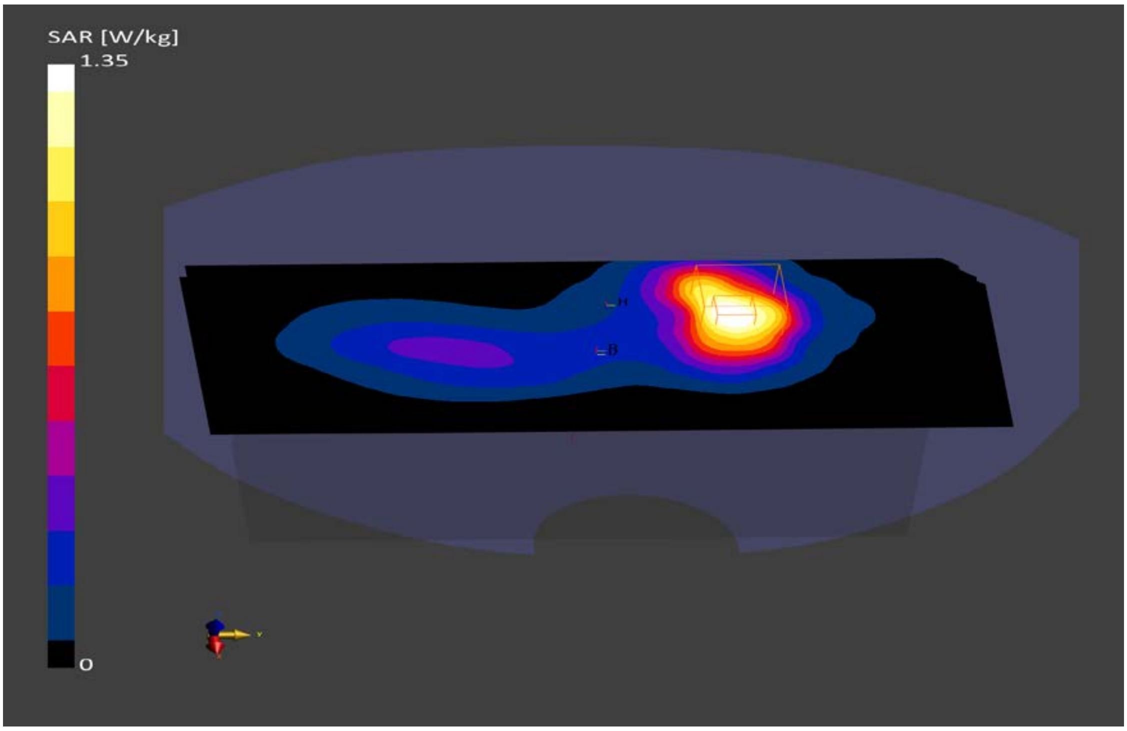
Date/Time: 2024-08-12, 14:20 2024-08-12, 14:27

IEC-IEEE 62209-1528 LTE 13

DUT: Ingenico; Type: Move/5000; Serial: 24065730320138055521O494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK) RBPosition:Low AntennaCfg:SISO;
Communication System Band: Band 13; Communication System Frequency: 784.5 MHz
Medium parameters used: f = 784.5 MHz, σ = 0.959 S/m; ε_r=41.2; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.41, 9.41, 9.41); Calibrated: 2023-11-08
- Sensor-Surface: 1.4mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 23255/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.62 W/kg; SAR(10 g) = 0.900 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 23255/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = -0.06 dB
SAR(1 g) = 1.49 W/kg; SAR(10 g) = 0.701 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 7.3
M2/M1 [%]: 71.6



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 22.1°C;

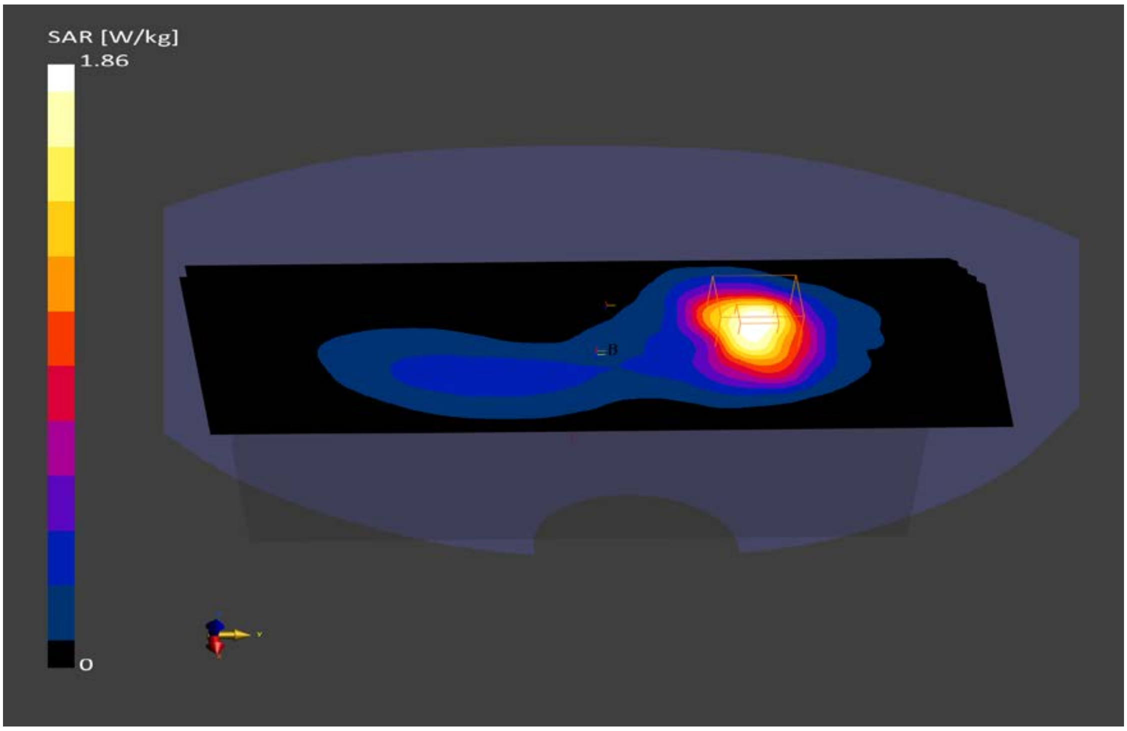
Date/Time: 2024-08-12, 16:03 2024-08-12, 16:14

IEC-IEEE 62209-1528 LTE 14

DUT: Ingenico; Type: Move/5000; Serial: 240657303201380555210494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK) RBPosition:High AntennaCfg:SISO;
Communication System Band: Band 14; Communication System Frequency: 790.5 MHz
Medium parameters used: f = 790.5 MHz, σ = 0.961 S/m; ε_r=41.2; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.41, 9.41, 9.41); Calibrated: 2023-11-08
- Sensor-Surface: 1.4mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 23305/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.95 W/kg; SAR(10 g) = 1.09 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 23305/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = -0.15 dB
SAR(1 g) = 2.05 W/kg; SAR(10 g) = 0.945 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 6.8
M2/M1 [%]: 69.7



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 22.1°C;

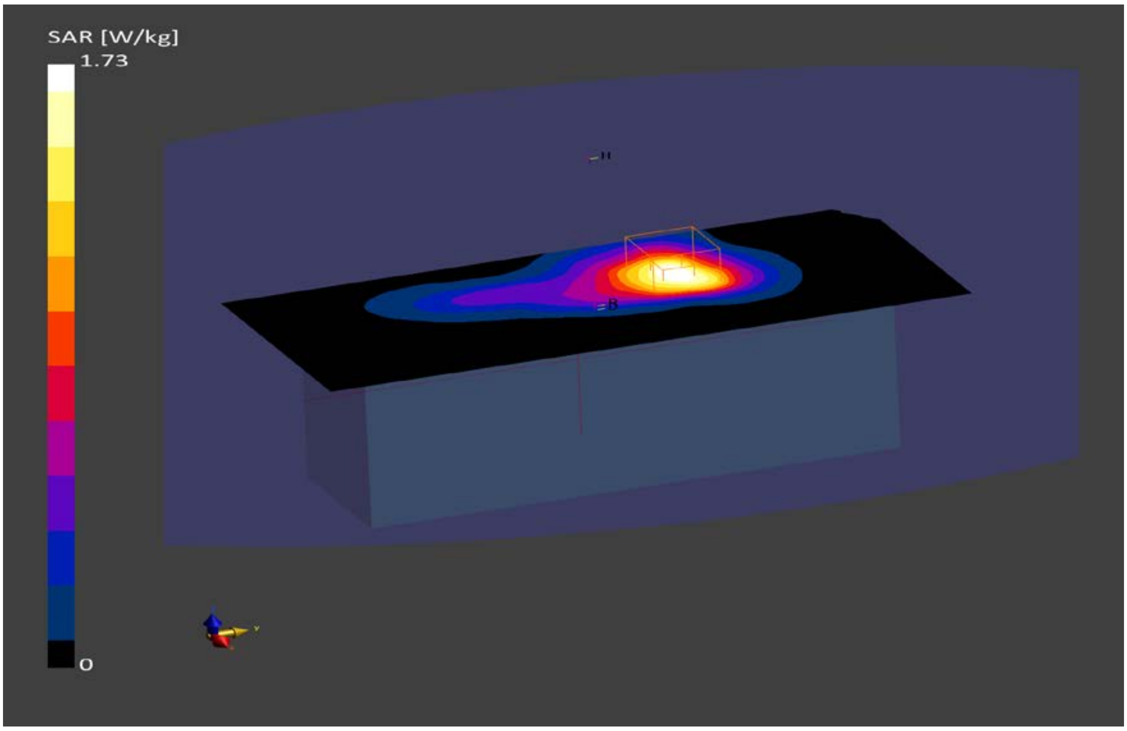
Date/Time: 2024-07-30, 21:22 2024-07-30, 21:29

IEC-IEEE 62209-1528 LTE 25

DUT: Ingenico; Type: Move/5000; Serial: 24065730320138055521 0494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO;
Communication System Band: Band 25; Communication System Frequency: 1860.0 MHz
Medium parameters used: f = 1860.0 MHz, σ = 1.43 S/m; ε_r=39.0; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7635; ConvF(8.55, 8.49, 8.64); Calibrated: 2024-01-15
- Sensor-Surface: 1.4mm
- DAE: DAE3 Sn413; Calibrated: 2024-01-15
- Phantom: ELI V8.0 (20deg probe tilt); Serial: 2214;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 26140/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.56 W/kg; SAR(10 g) = 0.882 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 26140/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = -0.06 dB
SAR(1 g) = 1.53 W/kg; SAR(10 g) = 0.893 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 13.0
M2/M1 [%]: 75.3



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 22.1°C;

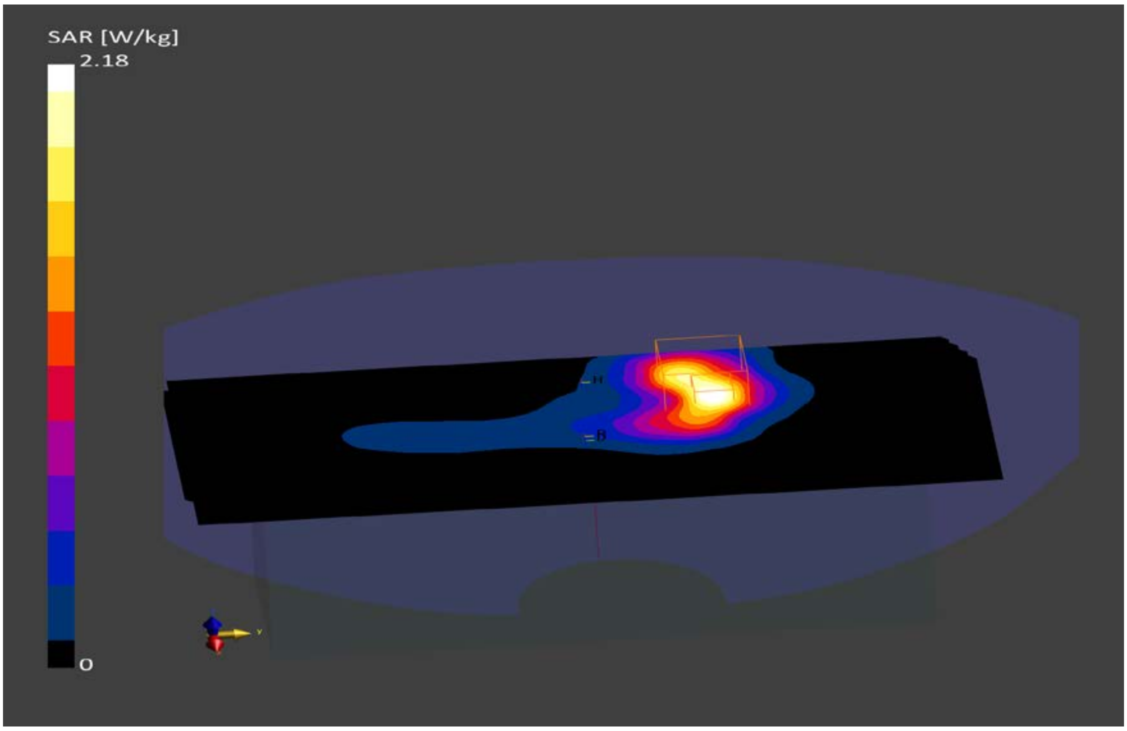
Date/Time: 2024-08-13, 14:24 2024-08-13, 14:32

IEC-IEEE 62209-1528 LTE 26

DUT: Ingenico; Type: Move/5000; Serial: 240657303201380555210494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO;
Communication System Band: Band 26; Communication System Frequency: 831.5 MHz
Medium parameters used: f = 831.5 MHz, σ = 0.976 S/m; ε_r=41.0; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.14, 9.14, 9.14); Calibrated: 2023-11-08
- Sensor-Surface: 1.4mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 26865/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 2.25 W/kg; SAR(10 g) = 1.22 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 26865/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = 0.08 dB
SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.07 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 7.1
M2/M1 [%]: 70.2



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 23.6°C;

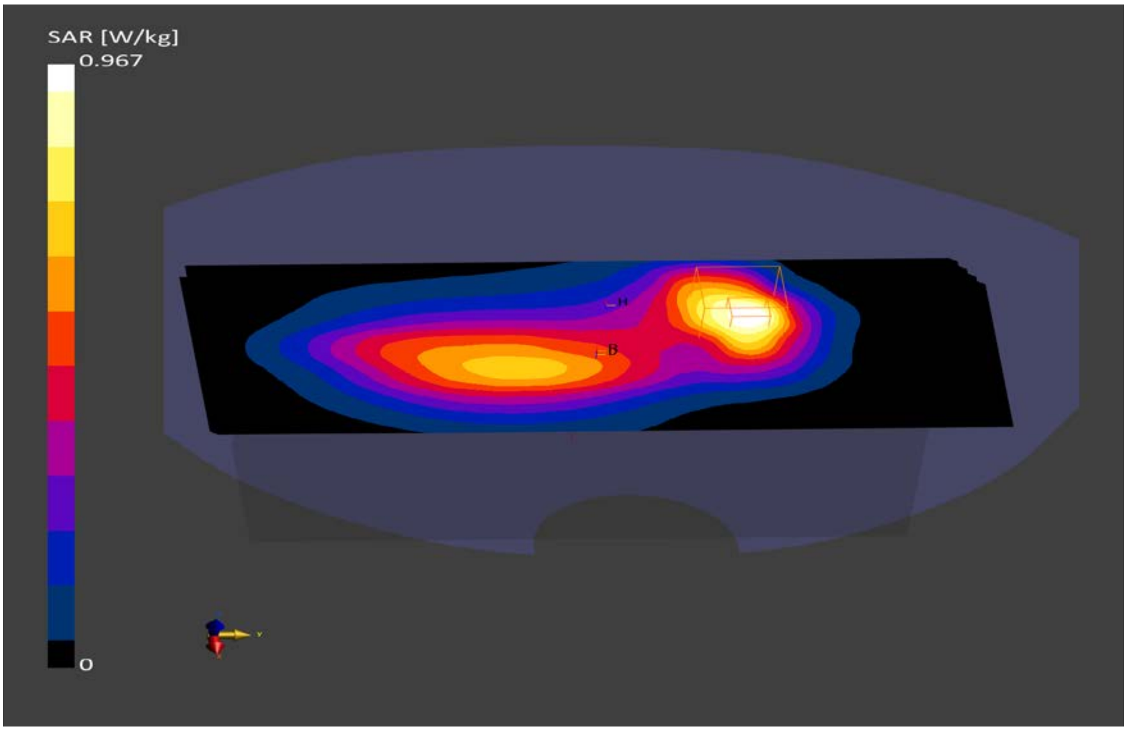
Date/Time: 2024-08-12, 18:08 2024-08-12, 18:15

IEC-IEEE 62209-1528 LTE FDD 71

DUT: Ingenico; Type: Move/5000; Serial: 240657303201380555210494
Communication System: LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO;
Communication System Band: Band 71; Communication System Frequency: 688.0 MHz
Medium parameters used: f = 688.0 MHz, σ = 0.923 S/m; ε_r=41.5; ρ= 1000 kg/m3
Phantom Section: Flat
Measurement Standard: DASY 8
DASY Configuration:
- Probe: EX3DV4 - SN7852; ConvF(9.41, 9.41, 9.41); Calibrated: 2023-11-08
- Sensor-Surface: 1.4mm
- DAE: DAE4ip Sn1842; Calibrated: 2023-11-02
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2163;
- Software: DASY8 Module SAR V16.4.0.5005

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 133372/Area Scan (15.0 x 15.0 x 1.0) :
Grid Extents [mm]: 60.0 x 60.0
Maximum value of SAR (interpolated) - SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.602 W/kg

HBBL-600-10000/EDGE LEFT, 0 mm - Channel 133372/Zoom Scan (5.0 x 5.0 x 1.5) :
Grid Extents [mm]: 30.0 x 30.0 x 30.0
Graded Grid: Ratio 1.5 - Distance Sensor to Surface 1.4 mm
Power Drift = 0.03 dB
SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.537 W/kg
Additional Info for IEC 62209-2 AMD1:
TDist 3dB Peak [mm]: 7.7
M2/M1 [%]: 65.9



Additional information:
position or distance of DUT to SAM: 0 mm
ambient temperature: 22.4°C; liquid temperature: 22.1°C;

Annex B.1: Liquid depth

Photo 1: Liquid depth HBBL600-10000MHz Simulating Liquid

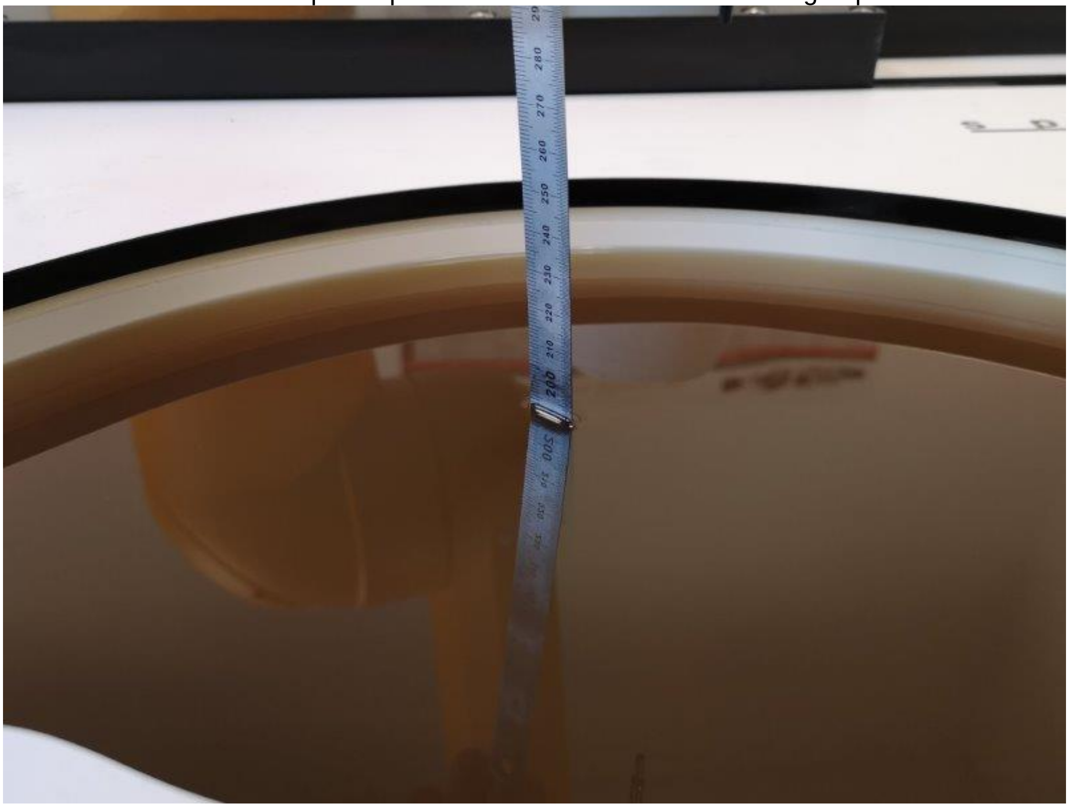
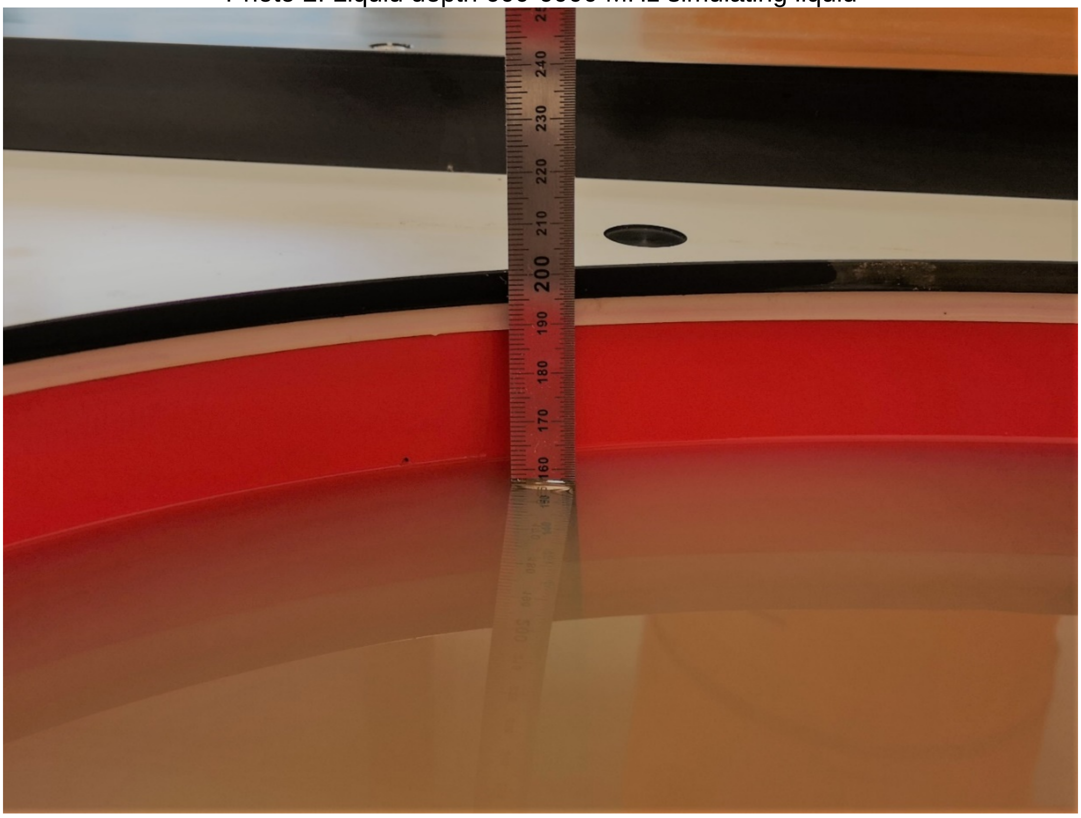


Photo 2: Liquid depth 600-6000 MHz simulating liquid



Annex C: Photo documentation

Photo documentation is described in the additional document:
1-7799-24-01-04_TR1-A101-R01_Photos

Annex D: Calibration parameters

Calibration parameters are described in the additional document:
1-7799-24-01-04_TR1-A201-R01_Caldata

Annex E: RSS-102 Annex A

ISEDRF documents are described in the additional document:
1-7799-24-01-04_TR1-A301-R01_ISED - RSS-102 Annex A

Annex F: Document History

Version	Applied Changes	Date of Release
	Initial Release	2024-08-19

Annex G: 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
Inv. No.	-	Inventory number
ISED	-	Innovation, Science and Economic Development Canada
LTE	-	Long Term Evolution
N/A	-	not applicable
PCB	-	PCS Licensed Transmitter
PCS	-	Personal Consumption Services
OET	-	Office of Engineering and Technology
RB	-	resource block(s)
SAR	-	Specific Absorption Rate
S/N	-	Serial Number
SW	-	Software