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Test report No:
24C0967R-RF-US-P03V01

SAR TEST REPORT

Product Name	Mobile Computer
Model and /or type reference	PM68
Trademark	N/A
FCC ID	V2X-PM68W
Applicant´s name / address	Point Mobile Co.,LTD. A-26F, Building Gasan Publik 178, Digital-ro, Geumcheon-gu Seoul, 08513 Republic of Korea
Test method requested, standard	FCC 47CFR §2.1093 IEEE Std 1528-2013 EN IEC/IEEE 62209-1528:2021 ANSI C95.1-2005
Highest Measurement 1g SAR	MAX SAR: **0.93** W/kg
Highest Measurement 10g SAR	MAX SAR: **1.34** W/kg
Highest Simultaneous Transmission SAR	MAX SAR: **1.00** W/kg
Verdict Summary	IN COMPLIANCE
Tested by (name / position & signature)	Tim Cao / Project Manager
Approved by (name / position & signature)	Frank He / Technical Manager
Date of issue	2025-04-09
Report Version	V1.0
Report template No	Template_FCC SAR-RF-V1.0

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.
In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Feb. 17, 2025
Date (start test)	Feb. 18, 2025
Date (finish test)	Mar. 20, 2025

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	18 °C – 25 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	:	Equipment Under Test
QP	:	Quasi-Peak
CAV	:	CISPR Average
AV	:	Average
CDN	:	Coupling Decoupling Network
SAC	:	Semi-Anechoic Chamber
OATS	:	Open Area Test Site
BW	:	Bandwidth
AM	:	Amplitude Modulation
PM	:	Pulse Modulation
HCP	:	Horizontal Coupling Plane
VCP	:	Vertical Coupling Plane
U_N	:	Nominal voltage
*T*x	:	Transmitter
*R*x	:	Receiver
N/A	:	Not Applicable
N/M	:	Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
24C0967R-RF-US-P03V01	V1.0	Initial issue of report.	2025-04-09

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with FCC 47CFR §2.1093, IEEE Std. 1528-2013, EN IEC/IEEE 62209-1528:2021, ANSI C95.1-2005.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
   - Chapter 1.1 General Description of the Item(s);
   - Chapter 1.2 Antenna Information.
   - Chapter 1.3 Antenna location diagram.
   - Chapter 1.4 Data Rate.
   - Chapter 1.5 Channel List.

STATEMENT OF COMPLIANCE

The maximum results of Specific Absorption Rate (SAR) found during testing for Mobile Computer, PM68, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary			
			Head (Separation 0mm)	Hotspot (Separation 10mm)	Body worn (Separation 10mm)	Handheld SAR (Separation 0mm)
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)
DTS	WLAN	2.4GHz WLAN	0.86	0.72	0.31	n/a
NII		5GHz WLAN	0.50	0.93	0.53	1.34
DSS	2.4GHz Band	Bluetooth	0.09	0.07	0.00	n/a
Simultaneous Transmission 1g SAR (W/kg)			0.59	1.00	0.53	n/a

1 General Information

1.1 General Description of the Item(s)

Product Name ..... :	Mobile Computer
Model No. ..... :	PM68
Trademark. ..... :	N/A
FCC ID..... :	V2X-PM68W
Hardware Version..... :	MP
Software Version ..... :	68.00
Manufacturer ..... :	Point Mobile Co.,LTD.
Manufacturer Address ..... :	A-26F, Building Gasan Publik 178, Digital-ro, Geumcheon-gu Seoul, 08513 Republic of Korea
Note:This report is based on FCC ID: V2X-PM68. The customer removed the GNSS and 2/3/4G related components on the new EUT. The other components are exactly the same, and the PCB layout, antenna and EUT dimensions are exactly the same. We verified the tests required by KDB 484596 D01 on the new EUT, and the test results met the requirements of KDB 484596 D01. Therefore, this report refers to the test data of FCC ID: V2X-PM68. Variant spot check data, see Section 9.1.	

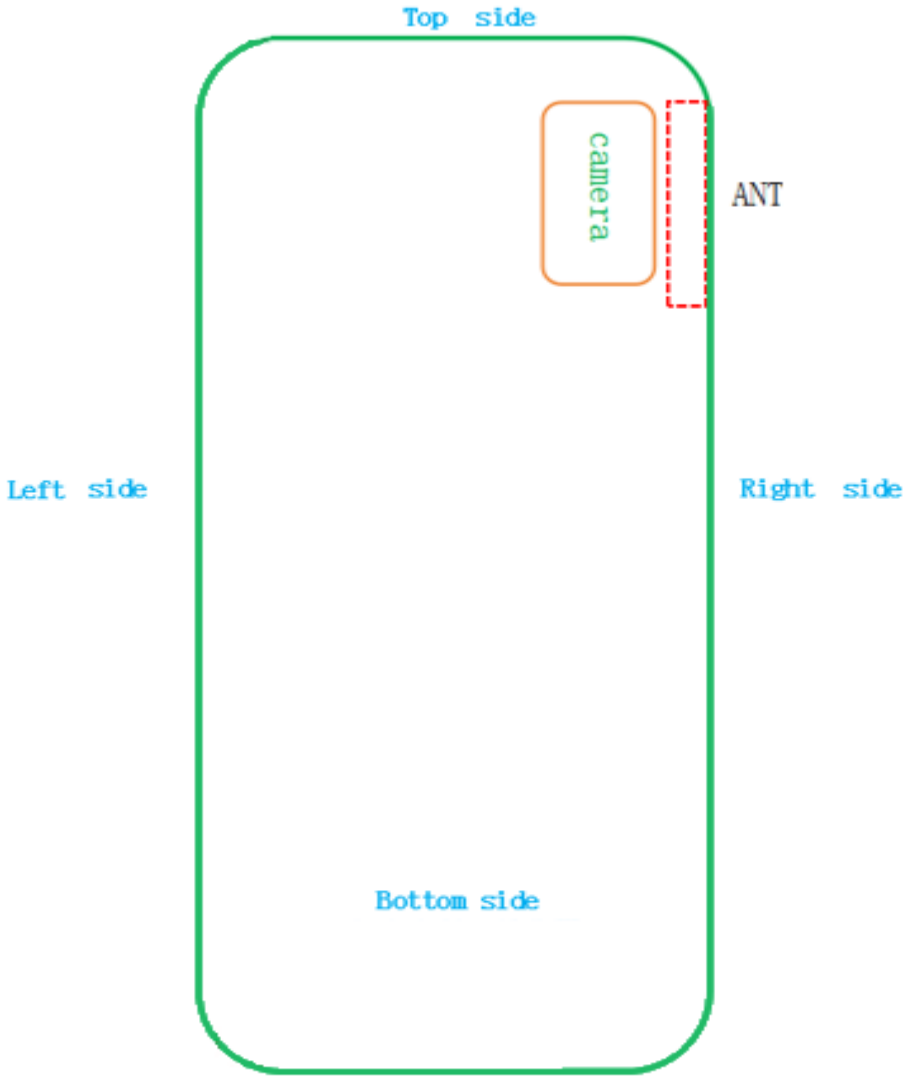
Wireless specification..... :	Bluetooth (BR/EDR&LE)
Operating frequency range(s)	2402~2480MHz
Type of Modulation ..... :	FHSS: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK) LE : 1Mbps(GFSK); 2Mbps(GFSK);
Number of channels ..... :	FHSS: 79 LE : 40
BT Channel Separation ..... :	FHSS: 1MHz LE : 2MHz

Wireless specifiction..... :	802.11b/g/n	
Operating frequency range(s) ..... :	2412~2462MHz	
Number of channels ..... :	802.11b/g/n(20MHz): 11	
Type of Modulation & Data Rate .... :	Refer to Clause 1.3	
Device category..... :	☐	Fixed point-to-point
	☐	Emit multiple directional beams, simultaneously or sequentially
	☒	Other cases
Wireless specifiction..... :	802.11a / n / ac	
Frequency Range..... :	U-NII-1: 5150 MHz to 5250 MHz	
	U-NII-2A: 5250 MHz to 5350 MHz	
	U-NII-2C: 5470 MHz to 5725 MHz	
	U-NII-3: 5725 MHz to 5850 MHz	
Channel Bandwidth ..... :	802.11a 20 MHz 802.11n 20 MHz, 40 MHz 802.11ac 20 MHz, 40 MHz, 80 MHz	
Modulation technology ..... :	OFDM	
Product Type ..... :	Mobile and Portable Client For FCC	
Type of Modulation & Data Rate .... :	Refer to Clause 1.4	

Number of channels .....:	Refer to Clause 1.3

Rated power supply.....:	Voltage and Frequency	
	☐	AC: 220 - 240 V, 50/60 Hz
	☐	AC: 110-130 V, 50/60 Hz, 13.5W
	☐	DC: 24 Vdc
	☒	Battery: 3.8V
	☒	Adapter: Input:100-240V, 50/60 Hz,0.3A; Output:5.0V,2.0A,10W
Mounting position .....:	☐	Tabletop equipment
	☐	Door mounted equipment
	☐	Floor standing equipment
	☒	Hand-held/Portable equipment
	☐	Other:

1.2 Antenna location diagram



1.3 Data Rate

IEEE 802.11b

Modulation	Data Rate(Mb/s)
DSSS	1
DSSS	2
CCK	5.5
CCK	11

IEEE 802.11g

Modulation	R	Data Rate(Mb/s)
BPSK	1/2	6
BPSK	3/4	9
QPSK	1/2	12
QPSK	3/4	18
16-QAM	1/2	24
16-QAM	3/4	36
64-QAM	2/3	48
64-QAM	3/4	54

IEEE 802.11n

Spatial streames	MCS Index	Modulation	R	Data Rate(Mb/s)			
				800ns GI		400ns GI	
				20MHz	40MHz	20MHz	40MHz
1	0	BPSK	1/2	6.5	13.5	7.2	15.0
1	1	QPSK	1/2	13.0	27.0	14.4	30.0
1	2	QPSK	3/4	19.5	40.5	21.7	45.0
1	3	16-QAM	1/2	26.0	54.0	28.9	60.0
1	4	16-QAM	3/4	39.0	81.0	43.3	90.0
1	5	64-QAM	2/3	52.0	108.0	57.8	120.0
1	6	64-QAM	3/4	58.5	121.5	65.0	135.0
1	7	64-QAM	5/6	65.0	135.0	72.2	150.0

IEEE 802.11a

Modulation	R	Data Rate(Mb/s)
BPSK	1/2	6
BPSK	3/4	9
QPSK	1/2	12
QPSK	3/4	18
16-QAM	1/2	24
16-QAM	3/4	36

64-QAM	2/3	48
64-QAM	3/4	54

IEEE 802.11n/ac

Spatial streames	MCS Index	Modulation	R	Data Rate(Mb/s)					
				400ns GI			800ns GI		
				20MHz	40MHz	80MHz	20MHz	40MHz	80MHz
1	0	BPSK	1/2	7.2	15	32.5	6.5	13.5	29.3
1	1	QPSK	1/2	14.4	30	65	13	27	58.5
1	2	QPSK	3/4	21.7	45	97.5	19.5	40.5	87.8
1	3	16-QAM	1/2	28.9	60	130	26	54	117
1	4	16-QAM	3/4	43.3	90	195	39	81	175.5
1	5	64-QAM	2/3	57.8	120	260	52	108	234
1	6	64-QAM	3/4	65	135	292.5	58.5	121.5	263.3
1	7	64-QAM	5/6	72.2	150	325	65	135	292.5
1	8	256QAM	3/4	86.7	180	390	78	162	351
1	9	256QAM	5/6	N/A	200	433.3	N/A	180	390

Note : We have evaluated low/mid/high data rate, the blue font is the highest power data rate.

1.4 Channel List

IEEE 802.11b/g & IEEE 802.11n (20MHz) Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412 MHz	2	2417 MHz	3	2422 MHz	4	2427 MHz
5	2432 MHz	6	2437 MHz	7	2442 MHz	8	2447 MHz
9	2452 MHz	10	2457 MHz	11	2462 MHz	-	-

Bluetooth Working Frequency of Each Channel: (For FHSS)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

Bluetooth Working Frequency of Each Channel: (For LE)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

802.11a/n/ac(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
52	5260 MHz	56	5280 MHz	60	5300 MHz	64	5320 MHz
100	5500 MHz	104	5520 MHz	108	5540 MHz	112	5550 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz	149	5745 MHz
153	5765 MHz	157	5785 MHz	161	5805 MHz	165	5825 MHz
802.11n/ac(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz	62	5310 MHz
102	5510 MHz	110	5550 MHz	118	5590 MHz	126	5630 MHz
134	5670 MHz	151	5755 MHz	159	5795 MHz	N/A	N/A
802.11ac(80MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz	106	5530MHz	122	5610 MHz
138	5690 MHz	155	5775 MHz	N/A	N/A	N/A	N/A

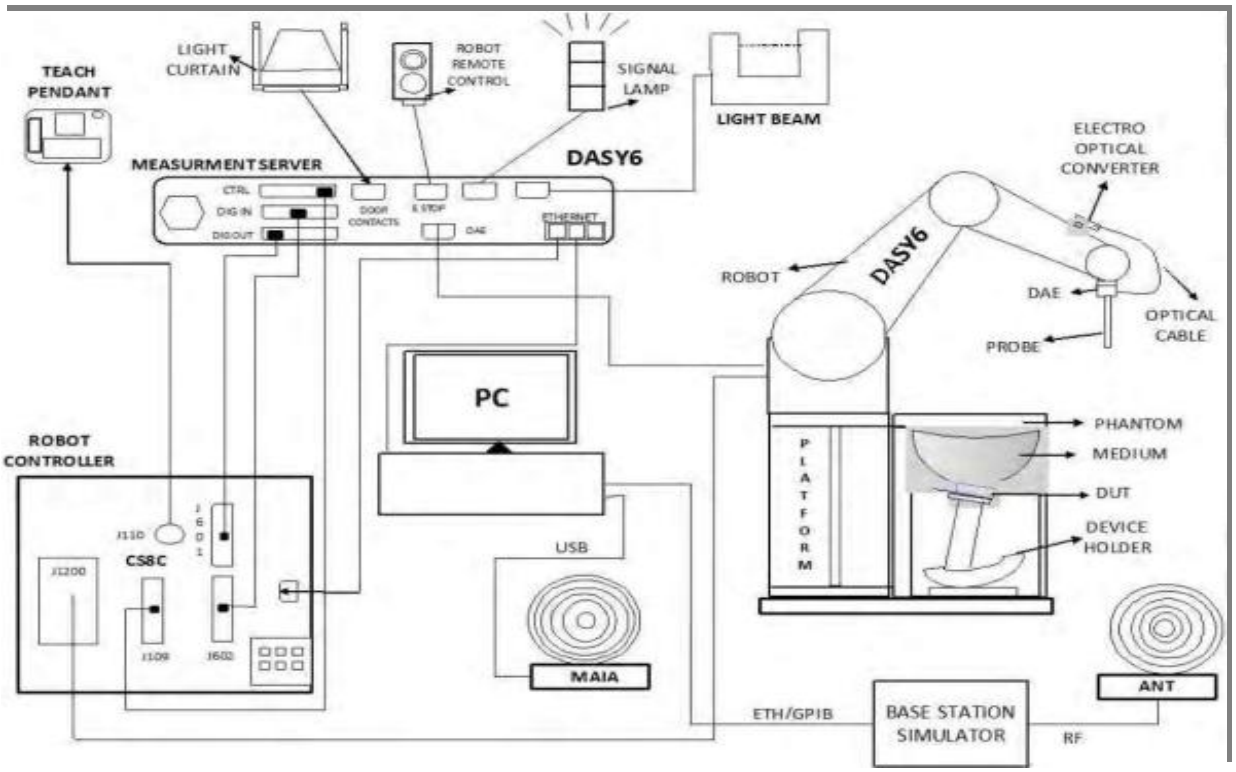
Note: The General Description of the Item, antenna information and Channel List in clause 1 are provided and confirmed by the client.

1.5 Test Facility

USA	**:**	**FCC Designation Number: CN1199**

2 SAR MEASUREMENT SYSTEM

2.1 DASY6 System Description



The DASY6 system for performing compliance tests consists of the following items:
1. A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
3. The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
4. The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
5. A computer running Windows 11 and the DASY6 software.
6. Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
7. The phantom, the device holder and other accessories according to the targeted measurement.

2.1.1. Applications

Predefined procedures and evaluations for automated compliance testing with all worldwide standards, e.g., IEC/IEEE 62209-1528, KDB 865664 and others.

2.1.2. Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures points and step size follow as below. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution. The measure settings are referred to KDB 865664 D01v01r04:

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

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.
* 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.

2.1.3. Uncertainty of Inter-/Extrapolation and Averaging

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASY6 allows the generation of measurement grids which are artificially predefined by analytically based test functions. Therefore, the grids of area scans and zoom scans can be filled with uncertainty test data, according to the SAR benchmark functions of IEC/IEEE 62209-1528.The three analytical functions shown in equations as below are used to describe the possible range of the expected SAR distributions for the tested handsets. The field gradients are covered by the spatially flat distribution f1, the spatially steep distribution f3 and f2 accounts for H-field cancellation on the phantom/tissue surface.

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

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

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

2.2 DASY6 E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.
SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEC/IEEE 62209-1528, etc.) under ISO 17025. The calibration data are in Appendix D.

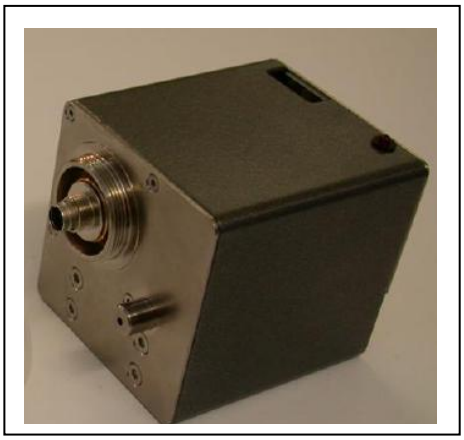
Model	EX3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ±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

2.3 Boundary Detection Unit and Probe Mounting Device

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

2.4 DATA Acquisition Electronics (DAE) and Measurement Server

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



The DASY6 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with the DAE electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY6 I/O board, which is directly connected to the PC/104 bus of the CPU board.

2.5 Robot

The DASY6 system uses the high precision robots TX90 XL type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY6 system, the CS8C robot controller version from Stäubli is used. The XL robot series have many features that are important for our application:

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

2.6 Light Beam Unit

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

2.7 Device Holder

The DASY6 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).
Thus the device needs no repositioning when changing the angles.

The DASY6 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

The DASY6 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

2.8 Phantom

SAM Twin Phantom

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

- Left head
- Right head
- Flat phantom

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

ELI Phantom

The SAM phantom is a fiberglass shell phantom with 2mm shell thickness. It has one measurement areas:

- ELI phantom

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 7.125 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

3 TISSUE SIMULATING LIQUID

3.1 The composition of the tissue simulating liquid

Simulate 600MHz~10000MHz liquid, manufactured by SPEAG

Table F.1 – Suggested recipes for achieving target dielectric properties, 30 MHz to 900 MHz

Frequency (MHz)	30	50		144		450		835	900	
Recipe source number	3	3	2	2	3	2	4	2	2	4
Ingredients (% by weight)										
De-ionized water	48,30	48,30	53,53	55,12	48,30	48,53	56	50,36	50,31	56
Tween 20			44,70	43,31		49,51		48,39	48,34	
Oxidized mineral oil							44			44
Diethylenglycol monohexylether										
Triton X-100										
Diacetin	50,00	50,00			50,00					
DGBE										
NaCl	1,60	1,60	1,77	1,57	1,60	1,96		1,25	1,35	
Additives and salt	0,10	0,10			0,10					
Measured temperature dependence										
Temp. (°C)			21	21		21	20	21	21	20
$\varepsilon_{\text{liquid temp. unc.}}$ (%)	0,8	0,1			0,1	0,1		0,04	0,04	
$\sigma_{\text{liquid temp. unc.}}$ (%)	2,8	2,8			2,6	4,2		1,6	1,6	

Table F.2 – Suggested recipes for achieving target dielectric properties, 1 800 MHz to 10 000 MHz

Frequency (MHz)	1 800		2 450	4 000	5 000	5 200	5 800	6 000	8 000	10 000
Recipe source number	2	4	4	4	4	1	1	4	5	5
Ingredients (% by weight)										
De-ionized water	54,23	56	56	56	56	65,53	65,53	56	67,8	66,0
Tween	45,27								31,1	33,0
Oxidized mineral oil		44	44	44	44			44		
Diethylenglycol monohexylether						17,24	17,24			
Triton X-100						17,24	17,24			
Diacetin										
DGBE										
NaCl	0,50									
Additives and salt										
Measured temperature dependence										
Temp. (°C)	21	20	20	20	20	22	22	20	20	20
$\varepsilon_{\text{liquid temp. unc.}}$ (%)	0,4					1,7	1,8			
$\sigma_{\text{liquid temp. unc.}}$ (%)	2,3					2,7	2,6			

NOTE 1 Multiple columns under a single frequency indicate optional recipes.

NOTE 2 Recipe source numbers: 1 verified by different labs, 2 Reference [59], 3 developed by IT'IS Foundation, 4 developed by IT'IS Foundation, 5 Reference [60].

NOTE 3 The values of $\varepsilon_{\text{liquid temp. unc.}}$ and $\sigma_{\text{liquid temp. unc.}}$ are liquid temperature uncertainties described in O.9.6, based on measurements of the applicable liquid recipes given above. These are not part of the original publications but have been subsequently developed by the project team.

NOTE 4 The recipes at 8 000 MHz and 10 000 MHz are sufficiently broadband that they cover the frequency range of 6 000 MHz to 10 000 MHz within a tolerance of ±10 % for permittivity and conductivity.

3.2 Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using DASY6 Dielectric Probe Kit and Agilent Vector Network Analyzer E5071C

Head Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
2450 MHz	Reference result ± 5% window	39.2 37.24 to 41.16	1.80 1.71 to 1.89	N/A
	18-03-2025	38.12	1.88	22.0
5300 MHz	Reference result ± 5% window	35.9 34.11 to 37.70	4.76 4.52 to 5.00	N/A
	20-03-2025	36.38	4.60	22.0
5600 MHz	Reference result ± 5% window	35.5 33.73 to 37.28	5.07 4.82 to 5.32	N/A
	20-03-2025	35.80	4.99	22.0
5800 MHz	Reference result ± 5% window	35.3 33.54 to 37.07	5.27 5.01 to 5.53	N/A
	20-03-2025	35.51	5.23	22.0

3.3 Tissue Dielectric Parameters for Head Phantoms

The head tissue dielectric parameters recommended by the IEC/IEEE 62209-1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head tissue parameters that have not been specified in IEC/IEEE 62209-1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in IEC/IEEE 62209-1528.

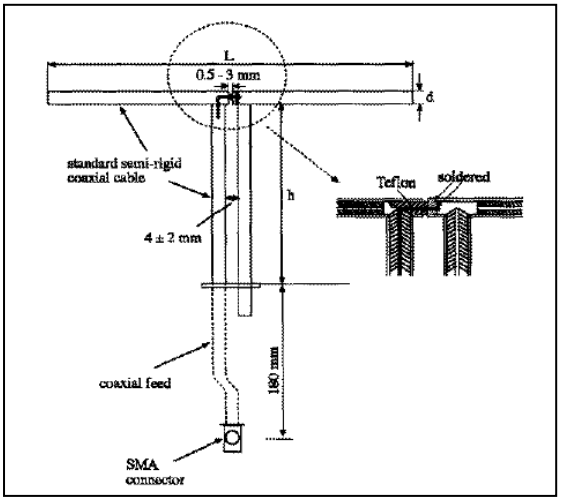
Target Frequency	Head	
(MHz)	ε_r	σ (S/m)
150	52.3	0.76
300	45.3	0.87
450	43.5	0.87
750	41.9	0.89
835	41.5	0.90
900	41.5	0.97
915	41.5	0.98
1450	40.5	1.20
1610	40.3	1.29
1800 – 2000	40.0	1.40
2450	39.2	1.80
2600	39.0	1.96
3000	38.5	2.40
5800	35.3	5.07

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

4 SAR MEASUREMENT PROCEDURE

4.1 SAR System Validation

4.1.1. Validation Dipoles



The dipoles used is based on the IEC/IEEE 62209-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. the table below provides details for the mechanical and electrical specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
750MHz	176.0	100.0	6.35
835MHz	161.0	89.8	3.6
900MHz	149.0	83.3	3.6
1800MHz	72.0	41.7	3.6
2000MHz	64.5	37.5	3.6
2600MHz	48.5	28.8	3.6
3500MHz	37.0	26.4	3.6
3700MHz	34.7	26.4	3.6
3900MHz	32.4	26.4	3.6
5000 to 6000MHz	20.6	40.3	3.6

4.1.2. Validation Result

System Performance Check at 2450MHz, 5300MHz, 5600MHz, 5800MHz				
Validation Dipole: D2450V2, SN: 869				
2450 MHz	Reference result ± 10% window	53.50 48.15 to 58.85	25.10 22.59 to 27.61	N/A
	18-03-2025	57.20	26.60	22.0
Validation Dipole: D5GHzV2, SN: 1040				
5300 MHz	Reference result ± 10% window	79.10 71.19 to 87.01	22.40 20.16 to 24.64	N/A
	20-03-2025	82.10	22.10	22.0
Validation Dipole: D5GHzV2, SN: 1040				
5600 MHz	Reference result ± 10% window	81.90 73.71 to 90.09	23.10 20.79 to 25.41	N/A
	20-03-2025	82.30	22.20	22.0
Validation Dipole: D5GHzV2, SN: 1040				
5800 MHz	Reference result ± 10% window	78.10 70.29 to 85.91	21.80 19.62 to 23.98	N/A
	20-03-2025	82.80	21.30	22.0
Note: All SAR values are normalized to 1W forward power.				

4.2 SAR Measurement Procedure

The DASY 6 calculates SAR using the following equation,

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

σ: represents the simulated tissue conductivity

ρ: represents the tissue density

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

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

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

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

5 SAR EXPOSURE LIMITS

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

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

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (1g cube tissue for brain or Body)	**1.6 W/kg**
Spatial Average SAR (whole Body)	**0.08 W/kg**
Spatial Peak SAR (10g for hands, feet, ankles and wrist)	**4.00 W/kg**

6 TEST EQUIPMENT LIST

Instrument	Manufacturer	Model No.	Serial No.	Cal.Date	Next Cal. Date	Firmware Version	Software Version
Stäubli Robot TX60L	Stäubli	TX60L	F10/5C90A1/A/01	N/A	N/A	N/A	N/A
Controller	Stäubli	SP1	S-0034	N/A	N/A	N/A	N/A
Dipole Validation Kits	Speag	D2450V2	869	2024.06.15	2025.06.14	N/A	N/A
Dipole Validation Kits	Speag	D5GHzV2	1040	2024.06.17	2025.06.16	N/A	N/A
SAM Twin Phantom	Speag	SAM	TP-1562	N/A	N/A	N/A	N/A
Device Holder	Speag	SD 000 H01 HA	N/A	N/A	N/A	N/A	N/A
Data Acquisition Electronic	Speag	DAE4	679	2024.08.08	2025.08.07	N/A	N/A
E-Field Probe	Speag	EX3DV4	7761	2024.09.19	2025.09.18	N/A	N/A
SAR Software	Speag	DASY6	V5.2 Build 162	N/A	N/A	N/A	V16.2.4.2448
Power Amplifier	MVE	MPC1018.50	C30002D	2024.07.04	2025.07.03	N/A	N/A
Dual Directional Coupler	woken	0110A05A82Z-20	CMLC66W1A1	2024.06.30	2025.06.29	N/A	N/A
Tissue fluid test probe	SPEAG	DAK 3.5	1308	N/A	N/A	N/A	N/A
Vector Network	Agilent	E5071C	MY46103316	2024.08.15	2025.08.14	A.11.31	N/A
Signal Generator	R&S	SMBV100A	263697	2024/6/14	2025.06.13	V4.15.125.49	N/A
Power Meter	Keysight	N1912A	MY60300004	2024.06.30	2025.06.29	A2.06.01	N/A
Wideband Radio Communication Tester	R&S	CMW 500	170870	2024.05.15	2025.05.14	4.0.62.11	N/A
Temperature/Humidity Meter	Rites	RTS-8S	RF06	2024.07.04	2025.07.03	N/A	N/A
Temperaturer	LKM	DTM3000	3777	2024.07.25	2025.07.24	N/A	N/A

7 MEASUREMENT UNCERTAINTY

DASY6 SAR Uncertainty Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram / 10 gram.								
Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(vi) veff
Measurement System								
Probe Calibration	±5.5%	N	1	1	1	±5.5%	±5.5%	∞
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.26	0.26	±0.6%	±0.7%	∞
Combined Std. Uncertainty						±10.6%	±10.5%	361
Expanded STD Uncertainty						±21.2%	±21.1%	

DASY6 SAR Uncertainty

Measurement uncertainty for 3 GHz to 6 GHz averaged over 1 gram / 10 gram.

Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±6.65%	N	1	1	1	±6.65%	±6.65%	∞
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±2.0%	R	$\sqrt{3}$	1	1	±1.2%	±1.2%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Probe Positioning	±6.7%	R	$\sqrt{3}$	1	1	±3.9%	±3.9%	∞
Max. SAR Eval.	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.26	0.26	±0.6%	±0.7%	∞
Combined Std. Uncertainty						±12.0%	±12.0%	784
Expanded STD Uncertainty						±24.0%	±23.9%	

8 CONDUCTED POWER MEASUREMENT

WLAN 2.4G Power

2.4GHz WLAN							
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Power Setting	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	18.53	19.50	21.00	99.41
		6	2437	18.97	19.50	21.00	
		11	2462	18.60	19.50	21.00	
	802.11g 6Mbps	1	2412	16.35	18.00	19.00	96.53
		6	2437	16.95	18.00	19.00	
		11	2462	16.53	18.00	19.00	
	802.11n-HT20 MCS0	1	2412	16.26	18.00	19.00	96.30
		6	2437	16.82	18.00	19.00	
		11	2462	16.36	18.00	19.00	

Bluetooth Power

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	9.15	8.80	8.97
	CH 39	2441	10.30	9.49	9.44
	CH 78	2480	10.39	9.65	9.61
Tune-up Limit			11	10	10
Power Setting			9	9	9
Duty cycle:			76.80	76.80	77.07

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	1.90	2.10
	CH 19	2440	3.42	3.49
	CH 39	2480	2.54	2.56
Tune-up Limit			4.7	4.7
Power Setting			4	4
Duty cycle:			84.80	56.91

WLAN 5G Power

5.2GHz WLAN							
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Power Setting	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.66	17.50	17.50	96.53
		40	5200	16.81	17.50	17.50	
		48	5240	16.41	17.50	17.50	
	802.11n-HT20 MCS0	36	5180	16.75	17.50	17.50	96.30
		40	5200	16.82	17.50	17.50	
		48	5240	16.65	17.50	17.50	
	802.11n-HT40 MCS0	38	5190	16.29	17.50	17.00	92.75
		46	5230	16.27	17.50	17.00	
	802.11ac-VHT20 MCS0	36	5180	16.87	17.50	17.50	96.32
		40	5200	16.76	17.50	17.50	
		48	5240	16.77	17.50	17.50	
	802.11ac-VHT40 MCS0	38	5190	15.38	16.00	16.00	92.86
		46	5230	15.30	16.00	16.00	
	802.11ac-VHT80 MCS0	42	5210	14.93	16.00	16.00	86.49

5.3GHz WLAN							
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Power Setting	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	16.21	17.50	17.50	96.53
		56	5280	16.40	17.50	17.50	
		64	5320	16.21	17.50	17.50	
	802.11n-HT20 MCS0	52	5260	15.88	16.50	17.50	96.30
		56	5280	16.21	17.50	17.50	
		64	5320	16.03	17.50	17.50	
	802.11n-HT40 MCS0	54	5270	16.26	17.50	17.00	92.75
		62	5310	15.65	16.50	17.00	
	802.11ac-VHT20 MCS0	52	5260	16.05	17.50	17.50	96.32
		56	5280	16.19	17.50	17.50	
		64	5320	16.11	17.50	17.50	
		54	5270	15.10	16.00	16.00	92.86

	802.11ac-VHT40 MCS0	62	5310	14.70	16.00	16.00	
	802.11ac-VHT80 MCS0	58	5290	14.84	16.00	16.00	86.49

5.5GHz WLAN							
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Power Setting	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	16.22	17.50	17.50	96.53
		116	5580	16.36	17.50	17.50	
		140	5700	16.36	17.50	17.50	
	802.11n-HT20 MCS0	100	5500	16.04	17.50	17.50	96.30
		116	5580	16.24	17.50	17.50	
		140	5700	16.70	17.50	17.50	
	802.11n-HT40 MCS0	102	5510	15.62	17.50	17.00	92.75
		118	5590	15.69	17.50	17.00	
		134	5670	15.56	17.50	17.00	
	802.11ac-VHT20 MCS0	100	5500	16.26	17.50	17.50	96.32
		116	5580	16.32	17.50	17.50	
		140	5700	16.71	17.50	17.50	
	802.11ac-VHT40 MCS0	102	5510	14.69	16.00	16.00	92.86
		118	5590	14.57	16.00	16.00	
		134	5670	14.33	16.00	16.00	
	802.11ac-VHT80 MCS0	106	5530	14.91	16.00	16.00	86.49
		122	5610	14.56	16.00	16.00	

5.8GHz WLAN							
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Power Setting	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	16.21	17.50	17.50	96.53
		157	5785	16.28	17.50	17.50	
		165	5825	16.48	17.50	17.50	
	802.11n-HT20 MCS0	149	5745	16.55	17.50	17.50	96.30
		157	5785	16.59	17.50	17.50	
		165	5825	16.62	17.50	17.50	
	802.11n-HT40 MCS0	151	5755	15.96	17.50	17.00	92.75
		159	5795	16.20	17.50	17.00	

	802.11ac-VHT20 MCS0	149	5745	16.69	17.50	17.50	96.32
		157	5785	16.66	17.50	17.50	
		165	5825	16.90	17.50	17.50	
	802.11ac-VHT40 MCS0	151	5755	14.59	16.00	16.00	92.86
		159	5795	14.57	16.00	16.00	
	802.11ac-VHT80 MCS0	155	5775	14.51	16.00	16.00	86.49

9 TEST RESULTS

9.1 SAR Test Results Summary

Head SAR														
Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Power Setting	MAX Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WLAN 2.4G	802.11b 1Mbps	Right Check	0	6	2437	21	18.97	19.50	1.130	99.41	1.006	0.11	0.341	0.388
WLAN 2.4G	802.11b 1Mbps	Right Tilted	0	6	2437	21	18.97	19.50	1.130	99.41	1.006	0.04	0.158	0.180
WLAN 2.4G	802.11b 1Mbps	Left Check	0	6	2437	21	18.97	19.50	1.130	99.41	1.006	**0.09**	**0.754**	**0.857**
WLAN 2.4G	802.11b 1Mbps (Spot Check)	Left Check	0	6	2437	21	18.97	19.50	1.130	99.41	1.006	0.01	0.697	0.792
WLAN 2.4G	802.11b 1Mbps	Left Check	0	1	2412	21	18.53	19.50	1.250	99.41	1.006	0.07	0.667	0.839
WLAN 2.4G	802.11b 1Mbps	Left Check	0	11	2462	21	18.60	19.50	1.230	99.41	1.006	-0.12	0.678	0.839
WLAN 2.4G	802.11b 1Mbps	Left Tilted	0	6	2437	21	18.97	19.50	1.130	99.41	1.006	0.09	0.510	0.580
Bluetooth	DH5 1MHz	Right Check	0	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.03	0.011	0.016
Bluetooth	DH5 1MHz	Right Tilted	0	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.07	0.008	0.012
Bluetooth	DH5 1MHz	Left Check	0	78	2480	9	10.39	11.00	1.151	76.8	1.302	**0.05**	**0.059**	**0.088**
Bluetooth	DH5 1MHz (Spot Check)	Left Check	0	78	2480	9	10.39	11.00	1.151	76.8	1.302	-0.03	0.051	0.076
Bluetooth	DH5 1MHz	Left Check	0	00	2402	9	9.15	11.00	1.531	76.8	1.302	0.13	0.041	0.082
Bluetooth	DH5 1MHz	Left Check	0	39	2441	9	10.30	11.00	1.175	76.8	1.302	0.04	0.043	0.066
Bluetooth	DH5 1MHz	Left Tilted	0	78	2480	9	10.39	11.00	1.151	76.8	1.302	-0.01	0.043	0.064
WLAN 5.2G	802.11n-HT40 MCS0	Right Check	0	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.01	0.129	0.184
WLAN 5.2G	802.11n-HT40 MCS0	Right Tilted	0	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.12	0.068	0.097
WLAN 5.2G	802.11n-HT40 MCS0	Left Check	0	38	5190	17	16.29	17.50	1.321	92.75	1.078	**0.07**	**0.159**	**0.226**
WLAN 5.2G	802.11n-HT40 MCS0	Left Check	0	46	5230	17	16.27	17.50	1.327	92.75	1.078	0.11	0.111	0.159
WLAN 5.2G	802.11n-HT40 MCS0	Left Tilted	0	38	5190	17	16.29	17.50	1.321	92.75	1.078	-0.03	0.134	0.191
WLAN 5.3G	802.11n-HT40 MCS0	Right Check	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	-0.09	0.087	0.125
WLAN 5.3G	802.11n-HT40 MCS0	Right Tilted	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	0.14	0.073	0.105
WLAN 5.3G	802.11n-HT40 MCS0	Left Check	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	**0.10**	**0.118**	**0.169**
WLAN 5.3G	802.11n-HT40 MCS0	Left Check	0	62	5310	17	16.26	17.50	1.330	92.75	1.078	0.17	0.106	0.152

WLAN 5.3G	802.11n-HT40 MCS0	Left Tilted	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	0.03	0.101	0.145
WLAN 5.6G	802.11n-HT40 MCS0	Right Check	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	-0.03	0.087	0.142
WLAN 5.6G	802.11n-HT40 MCS0	Right Tilted	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	0.05	0.080	0.131
WLAN 5.6G	802.11n-HT40 MCS0	Left Check	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	**0.02**	**0.258**	**0.422**
WLAN 5.6G	802.11n-HT40 MCS0	Left Check	0	102	5510	17	15.62	17.50	1.542	92.75	1.078	0.08	0.210	0.349
WLAN 5.6G	802.11n-HT40 MCS0	Left Tilted	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	-0.12	0.198	0.324
WLAN 5.8G	802.11n-HT40 MCS0	Right Check	0	159	5795	17	16.20	17.50	1.349	92.75	1.078	0.07	0.160	0.233
WLAN 5.8G	802.11n-HT40 MCS0	Right Tilted	0	159	5795	17	16.20	17.50	1.349	92.75	1.078	0.12	0.136	0.198
WLAN 5.8G	802.11n-HT40 MCS0	Left Check	0	159	5795	17	16.20	17.50	1.349	92.75	1.078	**0.06**	**0.346**	**0.503**
WLAN 5.8G	802.11n-HT40 MCS0 (Spot Check)	Left Check	0	159	5795	17	16.20	17.50	1.349	92.75	1.078	0.02	0.333	0.484
WLAN 5.8G	802.11n-HT40 MCS0	Left Check	0	151	5755	17	15.96	17.50	1.426	92.75	1.078	0.11	0.184	0.283
WLAN 5.8G	802.11n-HT40 MCS0	Left Tilted	0	159	5795	17	16.20	17.50	1.349	92.75	1.078	0.04	0.175	0.254

Hotspot SAR

Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Power Setting	MAX Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WLAN 2.4G	802.11b 1Mbps	Front	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	0.03	0.151	0.193
WLAN 2.4G	802.11b 1Mbps	Back	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	-0.03	0.263	0.335
WLAN 2.4G	802.11b 1Mbps	Right Side	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	**-0.02**	**0.567**	**0.723**
WLAN 2.4G	802.11b 1Mbps (Spot Check)	Right Side	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	-0.03	0.559	0.713
WLAN 2.4G	802.11b 1Mbps	Right Side	10	1	2412	21	18.53	20.00	1.403	99.41	1.006	0.04	0.468	0.660
WLAN 2.4G	802.11b 1Mbps	Right Side	10	11	2462	21	18.60	20.00	1.380	99.41	1.006	0.12	0.511	0.710
WLAN 2.4G	802.11b 1Mbps	Left Side	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	0.09	0.032	0.041
WLAN 2.4G	802.11b 1Mbps	Top Side	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	0.06	0.029	0.037
WLAN 2.4G	802.11b 1Mbps	Bottom Side	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	0.04	0.040	0.051
Bluetooth	DH5 1MHz	Front	10	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.00	0.000	0.000
Bluetooth	DH5 1MHz	Back	10	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.00	0.000	0.000
Bluetooth	DH5 1MHz	Right Side	10	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.03	0.047	0.070
Bluetooth	DH5 1MHz	Right Side	10	00	2402	9	9.15	11.00	1.531	76.8	1.302	0.09	0.032	0.064
Bluetooth	DH5 1MHz	Right Side	10	39	2441	9	10.30	11.00	1.175	76.8	1.302	**0.11**	**0.048**	**0.073**
Bluetooth	DH5 1MHz (Spot Check)	Right Side	10	39	2441	9	10.30	11.00	1.175	76.8	1.302	0.01	0.041	0.063
Bluetooth	DH5 1MHz	Left Side	10	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.01	0.034	0.051
Bluetooth	DH5 1MHz	Top Side	10	78	2480	9	10.39	11.00	1.151	76.8	1.302	-0.03	0.038	0.057
Bluetooth	DH5 1MHz	Bottom Side	10	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.04	0.029	0.043
WLAN 5.2G	802.11n-HT40 MCS0	Front	10	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.03	0.111	0.158
WLAN 5.2G	802.11n-HT40 MCS0	Back	10	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.02	0.326	0.464
WLAN 5.2G	802.11n-HT40 MCS0	Right Side	10	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.01	0.642	0.914
WLAN 5.2G	802.11n-HT40 MCS0	Right Side	10	46	5230	17	16.27	17.50	1.327	92.75	1.078	**-0.13**	**0.647**	**0.926**
WLAN 5.2G	802.11n-HT40 MCS0 (Spot Check)	Right Side	10	46	5230	17	16.27	17.50	1.327	92.75	1.078	-0.01	0.623	0.891
WLAN 5.2G	802.11n-HT40 MCS0	Left Side	10	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.09	0.081	0.115
WLAN 5.2G	802.11n-HT40 MCS0	Top Side	10	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.12	0.113	0.161
WLAN 5.2G	802.11n-HT40 MCS0	Bottom Side	10	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.04	0.125	0.178
WLAN 5.8G	802.11n-HT40 MCS0	Front	10	159	5795	17	16.20	17.50	1.349	92.75	1.078	-0.03	0.074	0.108

WLAN 5.8G	802.11n-HT40 MCS0	Back	10	159	5795	17	16.20	17.50	1.349	92.75	1.078	0.09	0.106	0.154
WLAN 5.8G	802.11n-HT40 MCS0	Right Side	10	159	5795	17	16.20	17.50	1.349	92.75	1.078	**0.09**	**0.274**	**0.398**
WLAN 5.8G	802.11n-HT40 MCS0	Right Side	10	151	5755	17	15.96	17.50	1.426	92.75	1.078	0.06	0.255	0.392
WLAN 5.8G	802.11n-HT40 MCS0	Left Side	10	159	5795	17	16.20	17.50	1.349	92.75	1.078	0.09	0.119	0.173
WLAN 5.8G	802.11n-HT40 MCS0	Top Side	10	159	5795	17	16.20	17.50	1.349	92.75	1.078	0.11	0.156	0.227
WLAN 5.8G	802.11n-HT40 MCS0	Bottom Side	10	159	5795	17	16.20	17.50	1.349	92.75	1.078	0.13	0.126	0.183

Body worn SAR

Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Power Setting	MAX Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WLAN 2.4G	802.11b 1Mbps	Front	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	0.03	0.151	0.193
WLAN 2.4G	802.11b 1Mbps	Back	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	**-0.03**	**0.263**	**0.335**
WLAN 2.4G	802.11b 1Mbps (Spot Check)	Back	10	6	2437	21	18.97	20.00	1.268	99.41	1.006	-0.13	0.255	0.325
WLAN 2.4G	802.11b 1Mbps	Back	10	1	2412	21	18.53	20.00	1.403	99.41	1.006	0.01	0.231	0.326
WLAN 2.4G	802.11b 1Mbps	Back	10	11	2462	21	18.60	20.00	1.380	99.41	1.006	0.09	0.228	0.317
Bluetooth	DH5 1MHz	Front	10	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.00	0.000	0.000
Bluetooth	DH5 1MHz	Back	10	78	2480	9	10.39	11.00	1.151	76.8	1.302	0.00	0.000	0.000
Bluetooth	DH5 1MHz	Back	10	00	2402	9	9.15	11.00	1.531	76.8	1.302	0.00	0.000	0.000
Bluetooth	DH5 1MHz	Back	10	39	2441	9	10.30	11.00	1.175	76.8	1.302	0.00	0.000	0.000
WLAN 5.2G	802.11n-HT40 MCS0	Front	10	38	5190	17	16.29	17.50	1.321	92.75	1.078	0.03	0.111	0.158
WLAN 5.2G	802.11n-HT40 MCS0	Back	10	38	5190	17	16.29	17.50	1.321	92.75	1.078	**0.02**	**0.326**	**0.464**
WLAN 5.2G	802.11n-HT40 MCS0	Back	10	46	5230	17	16.27	17.50	1.327	92.75	1.078	0.11	0.321	0.459
WLAN 5.3G	802.11n-HT40 MCS0	Front	10	54	5270	17	16.26	17.50	1.330	92.75	1.078	0.03	0.121	0.174
WLAN 5.3G	802.11n-HT40 MCS0	Back	10	54	5270	17	16.26	17.50	1.330	92.75	1.078	**0.08**	**0.368**	**0.528**
WLAN 5.3G	802.11n-HT40 MCS0 (Spot Check)	Back	10	54	5270	17	16.26	17.50	1.330	92.75	1.078	0.01	0.351	0.503
WLAN 5.3G	802.11n-HT40 MCS0	Back	10	62	5310	17	15.65	16.50	1.216	92.75	1.078	0.01	0.342	0.448
WLAN 5.6G	802.11n-HT40 MCS0	Front	10	118	5590	17	15.69	17.50	1.517	92.75	1.078	-0.03	0.095	0.155
WLAN 5.6G	802.11n-HT40 MCS0	Back	10	118	5590	17	15.69	17.50	1.517	92.75	1.078	**0.05**	**0.278**	**0.455**
WLAN 5.6G	802.11n-HT40 MCS0	Back	10	102	5510	17	15.62	17.50	1.542	92.75	1.078	0.06	0.255	0.424
WLAN 5.6G	802.11n-HT40 MCS0	Back	10	134	5670	17	15.56	17.50	1.563	92.75	1.078	0.06	0.261	0.440
WLAN 5.8G	802.11n-HT40 MCS0	Front	10	159	5795	17	16.20	17.50	1.349	92.75	1.078	-0.03	0.074	0.108
WLAN 5.8G	802.11n-HT40 MCS0	Back	10	159	5795	17	16.20	17.50	1.349	92.75	1.078	**0.09**	**0.106**	**0.154**
WLAN 5.8G	802.11n-HT40 MCS0	Back	10	151	5755	17	15.96	17.50	1.426	92.75	1.078	0.01	0.098	0.151

Handheld SAR

Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Power Setting	MAX Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
WLAN 5.3G	802.11n-HT40 MCS0	Front	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	0.11	0.174	0.250
WLAN 5.3G	802.11n-HT40 MCS0	Back	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	0.01	0.614	0.881
WLAN 5.3G	802.11n-HT40 MCS0	Right Side	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	**0.03**	**0.937**	**1.344**
WLAN 5.3G	802.11n-HT40 MCS0 (Spot Check)	Right Side	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	-0.02	0.919	1.318
WLAN 5.3G	802.11n-HT40 MCS0	Right Side	0	62	5310	17	15.65	16.50	1.216	92.75	1.078	0.01	0.897	1.176
WLAN 5.3G	802.11n-HT40 MCS0	Left Side	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	0.04	0.155	0.222
WLAN 5.3G	802.11n-HT40 MCS0	Top Side	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	0.02	0.173	0.248
WLAN 5.3G	802.11n-HT40 MCS0	Bottom Side	0	54	5270	17	16.26	17.50	1.330	92.75	1.078	-0.01	0.184	0.264
WLAN 5.6G	802.11n-HT40 MCS0	Front	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	0.03	0.120	0.196
WLAN 5.6G	802.11n-HT40 MCS0	Back	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	0.09	0.411	0.672
WLAN 5.6G	802.11n-HT40 MCS0	Right Side	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	0.11	0.654	1.070
WLAN 5.6G	802.11n-HT40 MCS0	Right Side	0	102	5510	17	15.62	17.50	1.542	92.75	1.078	**0.01**	**0.683**	**1.135**
WLAN 5.6G	802.11n-HT40 MCS0	Left Side	0	134	5670	17	15.56	17.50	1.563	92.75	1.078	0.04	0.623	1.050
WLAN 5.6G	802.11n-HT40 MCS0	Top Side	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	0.11	0.113	0.185
WLAN 5.6G	802.11n-HT40 MCS0	Bottom Side	0	118	5590	17	15.69	17.50	1.517	92.75	1.078	-0.02	0.131	0.214

SAR Test Note:

1. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band. The largest channel bandwidth, lowest or demodulation, lowest data rate and lowest order 802.11algin/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, additional output power measurements were not necessary.

2. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency

band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.

- 0.4 W/ka. SAR is repeated using the same wireless mode test configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions are tested For subsequent test position with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested. When it is unclear, all equivalent conditions must be tested.
- For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, measure the SAR for positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤1.2 W/kg or all required test channels are considered.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

3. The Bluetooth duty cycle is 77.50%, Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 100%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation.
4. The ratio is the difference in percentage between original and repeated measured SAR.
5. All measurement SAR results are scaled-up to account for tune-up tolerance and is compliant.

9.2 Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Reported SAR
1.	5GHz WLAN + Bluetooth	Yes

Head SAR	Reported SAR			Simultaneous transmission
Exposure Position	1	2	3	2+3 Summed 1g SAR (W/kg)
	2.4GHz WLAN	5GHz WLAN	Bluetooth	
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
Right Cheek at 0mm	0.388	0.233	0.016	**0.25**
Right Tilted at 0mm	0.180	0.198	0.012	**0.21**
Left Cheek at 0mm	0.857	0.503	0.088	**0.59**
Left Tilted at 0mm	0.580	0.254	0.064	**0.32**

Hotspot SAR	Reported SAR			Simultaneous transmission
Exposure Position	1	2	3	2+3 Summed 1g SAR (W/kg)
	2.4GHz WLAN	5GHz WLAN	Bluetooth	
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
Front at 10mm	0.193	0.158	0.000	**0.16**
Back at 10mm	0.311	0.464	0.000	**0.46**
Left side at 10mm	0.723	0.926	0.073	**1.00**
Right side at 10mm	0.041	0.173	0.051	**0.22**
Top side at 10mm	0.037	0.227	0.057	**0.28**
Bottom side at 10mm	0.051	0.183	0.043	**0.23**

Body worn SAR	Reported SAR			Simultaneous transmission
Exposure Position	1	2	3	2+3 Summed 1g SAR (W/kg)
	2.4GHz WLAN	5GHz WLAN	Bluetooth	
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
Front at 10mm	0.193	0.174	0.000	**0.17**
Back at 10mm	0.311	0.528	0.000	**0.53**

Note：

1. The maximum SAR summation is calculated based on the same configuration and test position.
2. If 1g-SAR scalar summation < 1.6 W/kg, simultaneous SAR measurement is not necessary.

Appendix A. SAR System Validation Data

Date: 3/18/2025

Test Laboratory: DEKRA Lab

System Check Head 2450MHz

DUT: Dipole D2450V2, SN: 869

Communication System: UID 0, CW; Communication System Band: D2450MHz; Duty Cycle: 1:1; Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ = 1.875 S/m; εr = 38.119; ρ = 1000 kg/m3 ; Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(7.03, 6.83, 6.91) ; Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

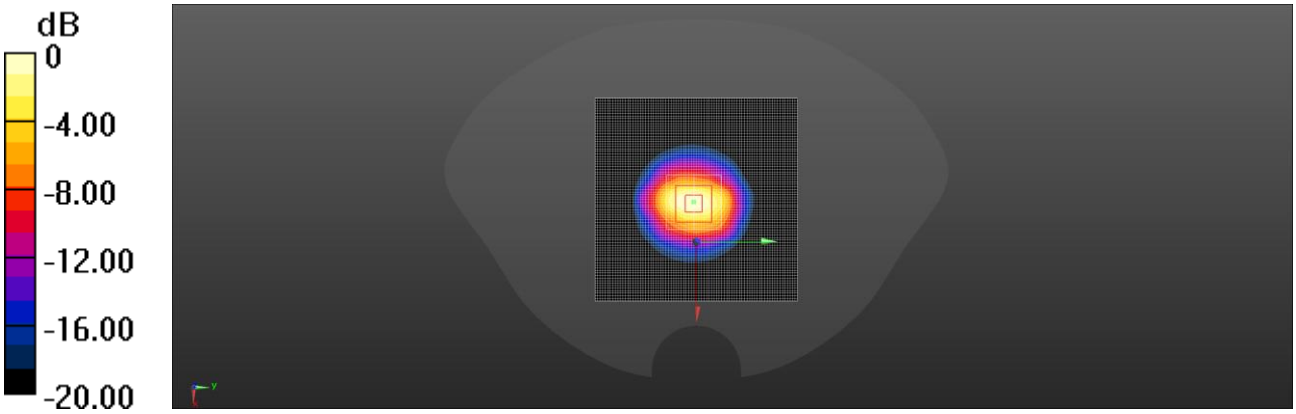
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 92.06 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 28.6 W/kg

SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.65 W/kg

Maximum value of SAR (measured) = 23.6 W/kg



0 dB = 23.6 W/kg = 13.73 dBW/kg

Date: 3/20/2025

Test Laboratory: DEKRA Lab

System Check Head 5300MHz

DUT: Dipole D5GHzV2, SN: 1040

Communication System: UID 0, CW (0); Communication System Band: 5GHz; Duty Cycle: 1:1; Frequency: 5300 MHz;

Medium parameters used: f = 5300 MHz; σ = 4.6 S/m; εr = 36.384; ρ = 1000 kg/m3 ; Phantom section: Flat Section ;

Input Power=100mW

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.42, 5.27, 5.33) ; Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 24.0 W/kg

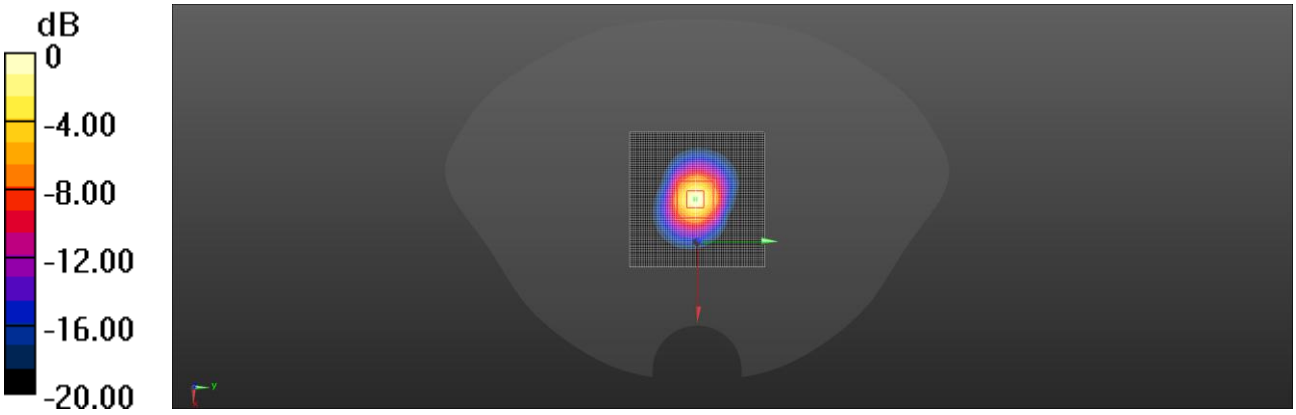
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 46.83 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 40.9 W/kg

SAR(1 g) = 8.21 W/kg; SAR(10 g) = 2.21 W/kg

Maximum value of SAR (measured) = 23.9 W/kg



0 dB = 23.9 W/kg = 13.78 dBW/kg

Date: 3/20/2025

Test Laboratory: DEKRA Lab

System Check Head 5600MHz

DUT: Dipole D5GHzV2, SN: 1040

Communication System: UID 0, CW (0); Communication System Band: D5GHz; Duty Cycle: 1:1; Frequency: 5600 MHz; Medium parameters used: f = 5600 MHz; σ = 4.99 S/m; εr = 35.802; ρ = 1000 kg/m3 ; Phantom section: Flat Section ; Input Power=100mW

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(4.64, 4.51, 4.56) ; Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 26.9 W/kg

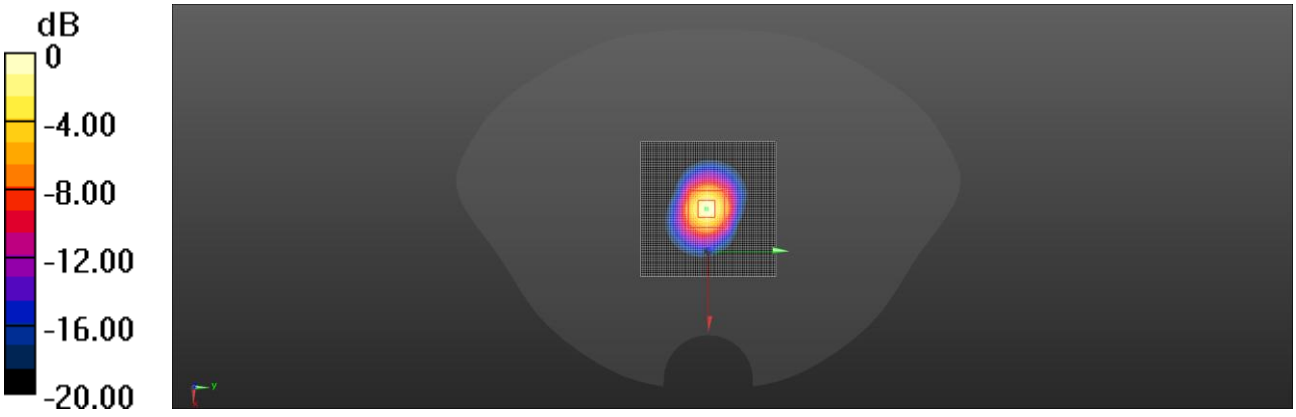
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 45.94 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 49.2 W/kg

SAR(1 g) = 8.23 W/kg; SAR(10 g) = 2.22 W/kg

Maximum value of SAR (measured) = 26.9 W/kg



0 dB = 26.9 W/kg = 14.30 dBW/kg

Date: 3/20/2025

Test Laboratory: DEKRA Lab

System Check Head 5800MHz

DUT: Dipole D5GHzV2, SN: 1040

Communication System: UID 0, CW (0); Communication System Band: D5GHz; Duty Cycle: 1:1; Frequency: 5800 MHz; Medium parameters used: f = 5800 MHz; σ = 5.231 S/m; εr = 35.512; ρ = 1000 kg/m3 ; Phantom section: Flat Section ; Input Power=100mW

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.05, 4.91, 4.97) ; Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 25.4 W/kg

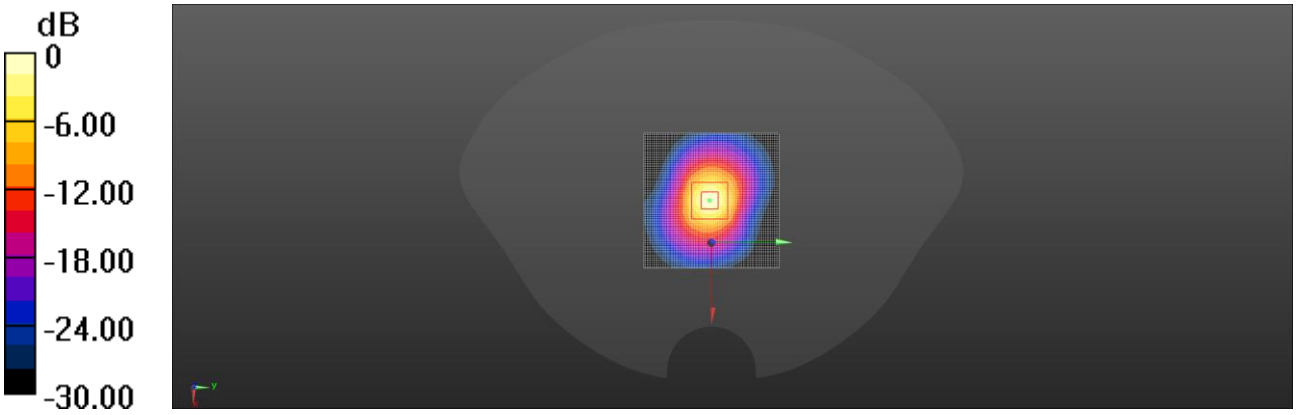
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 42.73 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 48.2 W/kg

SAR(1 g) = 8.28 W/kg; SAR(10 g) = 2.13 W/kg

Maximum value of SAR (measured) = 25.3 W/kg



0 dB = 25.3 W/kg = 14.03 dBW/kg

Appendix B. SAR measurement Data

Date: 3/18/2025

WLAN 2.4G-802.11b 1Mbps-Left Check-CH6-2437MHz

DUT: Point Mobile P68

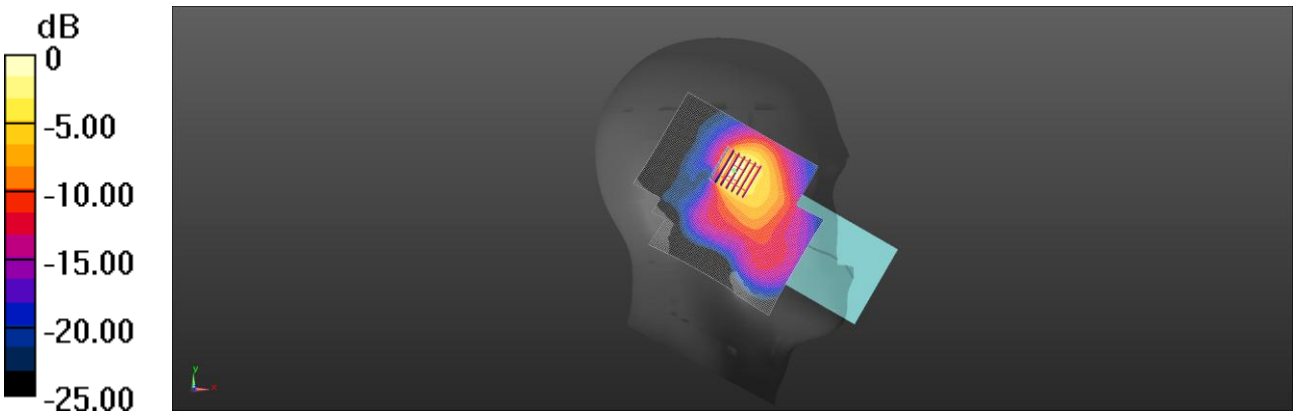
Communication System: UID 0, WIFI 2.4G (0); Communication System Band: 802.11b; Duty Cycle: 1:1.006;
Frequency: 2437 MHz; Medium parameters used: f = 2437 MHz; σ = 1.862 S/m; ε_r = 38.178; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(7.03, 6.83, 6.91); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.51 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.247 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.74 W/kg
SAR(1 g) = 0.754 W/kg; SAR(10 g) = 0.340 W/kg
Maximum value of SAR (measured) = 1.39 W/kg



0 dB = 1.39 W/kg = 1.43 dBW/kg

Date: 3/18/2025

Bluetooth-DH5 1MHz-Left Check-CH78-2480MHz

DUT: Point Mobile P68

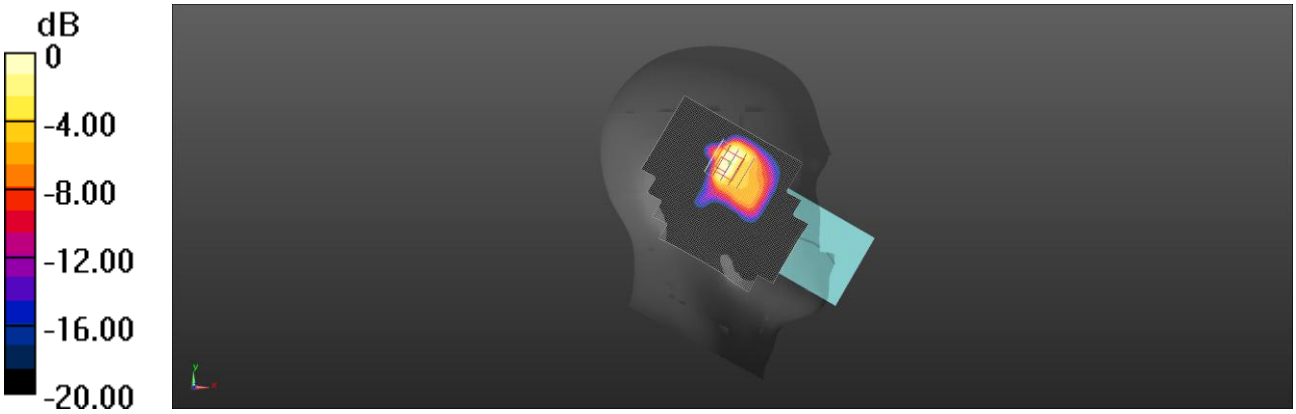
Communication System: UID 0, Bluetooth (0); Communication System Band: BDR+EDR; Duty Cycle: 1:1.302; Frequency: 2480 MHz; Medium parameters used: f = 2480 MHz; σ = 1.911 S/m; ε_r = 37.987; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(7.03, 6.83, 6.91); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.119 W/kg
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.5820 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.144 W/kg
SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.026 W/kg
Maximum value of SAR (measured) = 0.0957 W/kg



0 dB = 0.0957 W/kg = -10.19 dBW/kg

Date: 3/20/2025

WLAN 5.2G-802.11n-HT40 MCS0-Left Check-CH38-5190MHz

DUT: Point Mobile P68

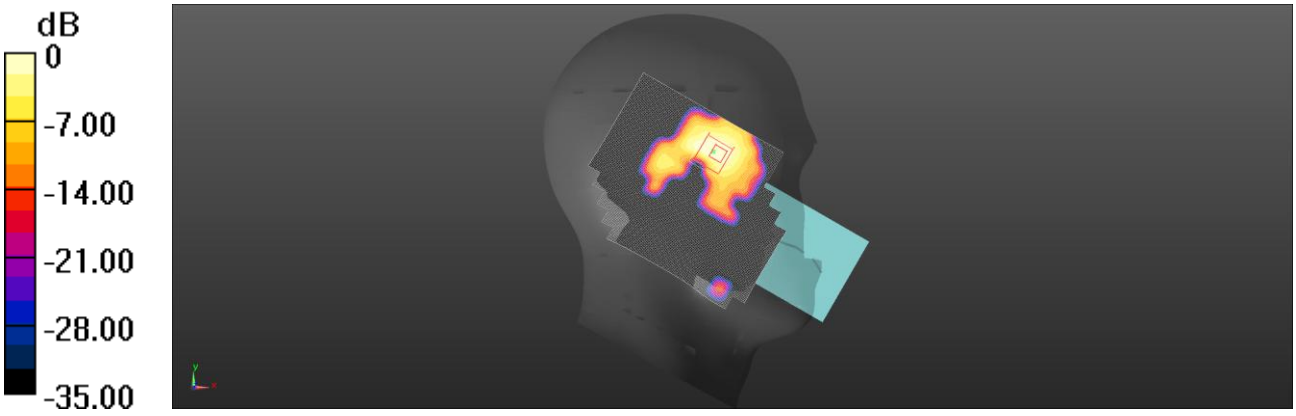
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n (40M); Duty Cycle: 1:1.078; Frequency: 5190 MHz; Medium parameters used: f = 5190 MHz; σ = 4.525 S/m; ε_r = 36.505; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.42, 5.27, 5.33) @ 5190 MHz; Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.389 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.836 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.159 W/kg; SAR(10 g) = 0.053 W/kg
Maximum value of SAR (measured) = 0.373 W/kg



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

Date: 3/20/2025

WLAN 5.3G-802.11n-HT40 MCS0-Left Check-CH54-5270MHz

DUT: Point Mobile P68

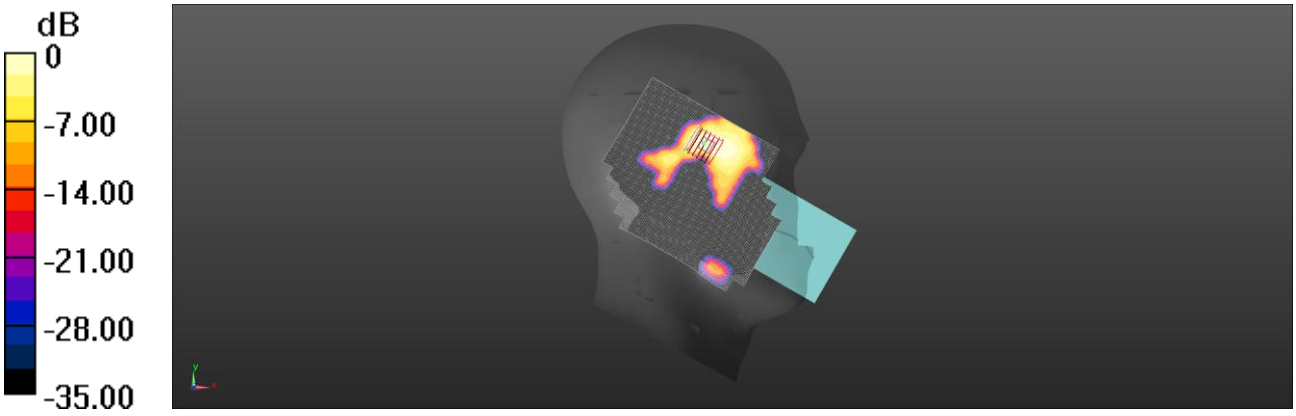
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5270 MHz; Medium parameters used: f = 5270 MHz; σ = 4.627 S/m; ε_r = 36.374; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.42, 5.27, 5.33); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.329 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.278 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.519 W/kg
SAR(1 g) = 0.118 W/kg; SAR(10 g) = 0.038 W/kg
Maximum value of SAR (measured) = 0.310 W/kg



0 dB = 0.310 W/kg = -5.09 dBW/kg

Date: 3/20/2025

WLAN 5.6G-802.11n-HT40 MCS0-Left Check-CH118-5590MHz

DUT: Point Mobile P68

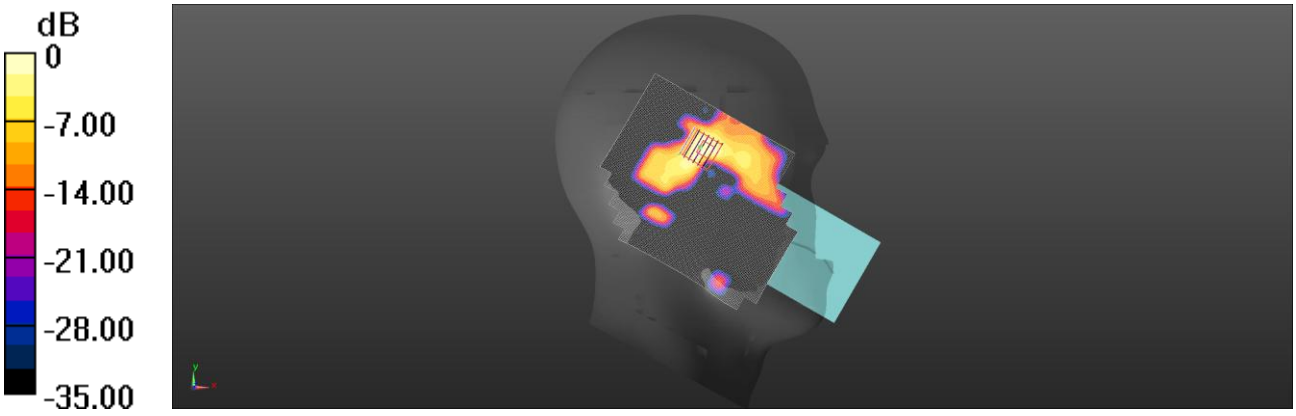
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5590 MHz; Medium parameters used: f = 5590 MHz; σ = 4.976 S/m; ε_r = 35.837; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(4.64, 4.51, 4.56); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.680 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.485 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.668 W/kg



0 dB = 0.668 W/kg = -1.75 dBW/kg

Date: 3/20/2025

WLAN 5.8G-802.11n-HT40 MCS0-Left Check-CH159-5795MHz

DUT: Point Mobile P68

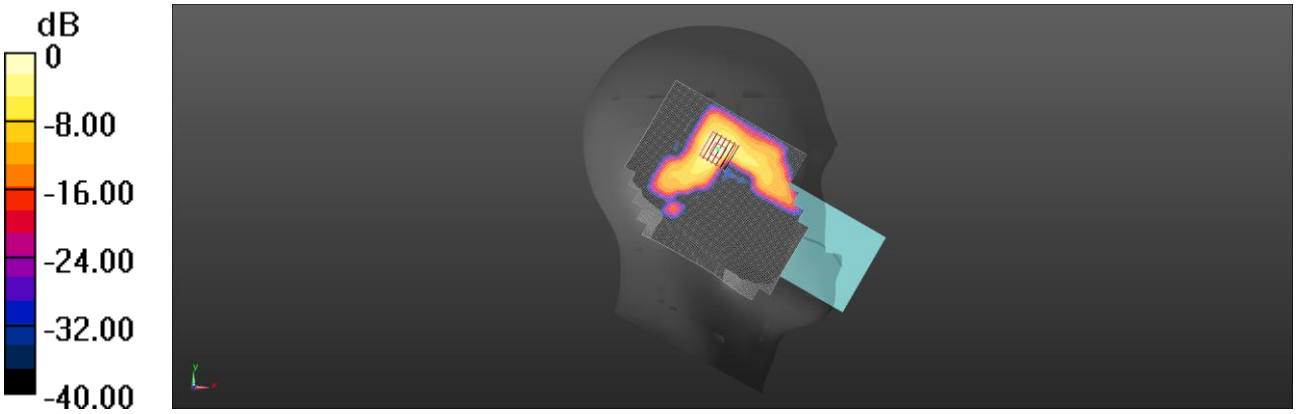
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11(40M); Duty Cycle: 1:1.078;
Frequency: 5795 MHz; Medium parameters used: f = 5795 MHz; σ = 5.213 S/m; ε_r = 35.493; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.05, 4.91, 4.97); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.02 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.536 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 2.45 W/kg
SAR(1 g) = 0.346 W/kg; SAR(10 g) = 0.095 W/kg
Maximum value of SAR (measured) = 0.936 W/kg



0 dB = 0.936 W/kg = -0.29 dBW/kg

Hotspot SAR

Date: 3/18/2025

WLAN 2.4G-802.11b 1Mbps-Right Side-CH6-2437MHz

DUT: Point Mobile P68

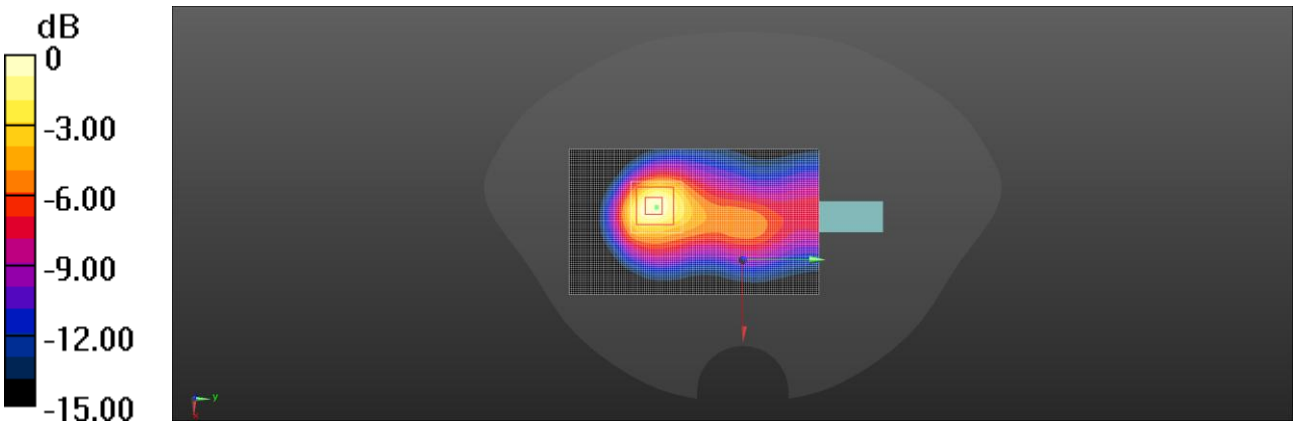
Communication System: UID 0, WIFI 2.4G (0); Communication System Band: 802.11b; Duty Cycle: 1:1.006;
Frequency: 2437 MHz; Medium parameters used: f = 2437 MHz; σ = 1.862 S/m; ε_r = 38.178; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(7.03, 6.83, 6.91); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.873 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.31 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.567 W/kg; SAR(10 g) = 0.274 W/kg
Maximum value of SAR (measured) = 0.879 W/kg



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

Date: 3/18/2025

Bluetooth-DH5 1MHz-Right Side-CH39-2441MHz-PS9

DUT: Point Mobile P68

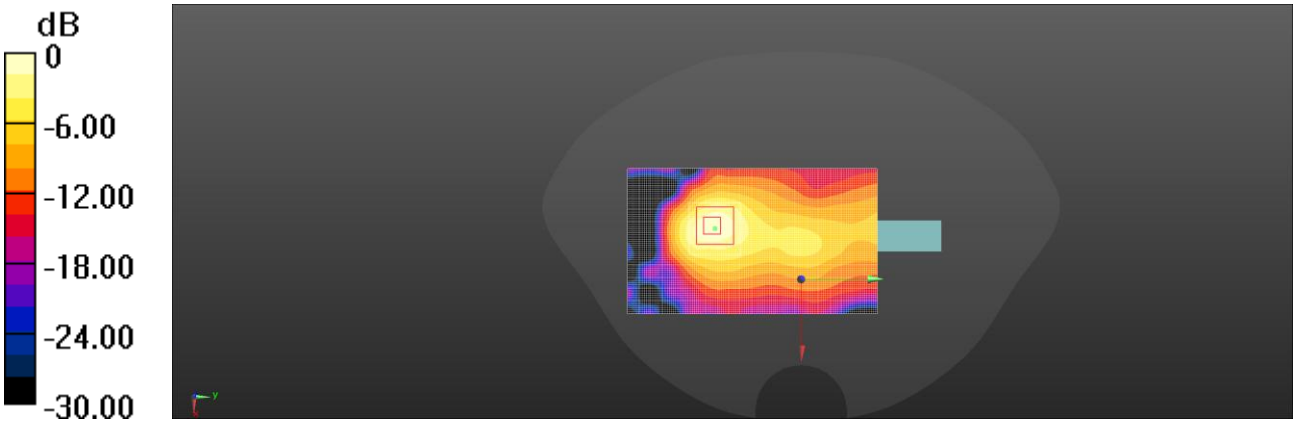
Communication System: UID 0, Bluetooth (0); Communication System Band: BDR+EDR; Duty Cycle: 1:1.302;
Frequency: 2441 MHz; Medium parameters used: f = 2441 MHz; σ = 1.866 S/m; ε_r = 38.161; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(7.03, 6.83, 6.91); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0722 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.866 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.0920 W/kg
SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.023 W/kg
Maximum value of SAR (measured) = 0.0742 W/kg



0 dB = 0.0742 W/kg = -11.30 dBW/kg

Date: 3/20/2025

WLAN 5.2G-802.11n-HT40 MCS0-Right Side-CH46-5230MHz

DUT: Point Mobile P68

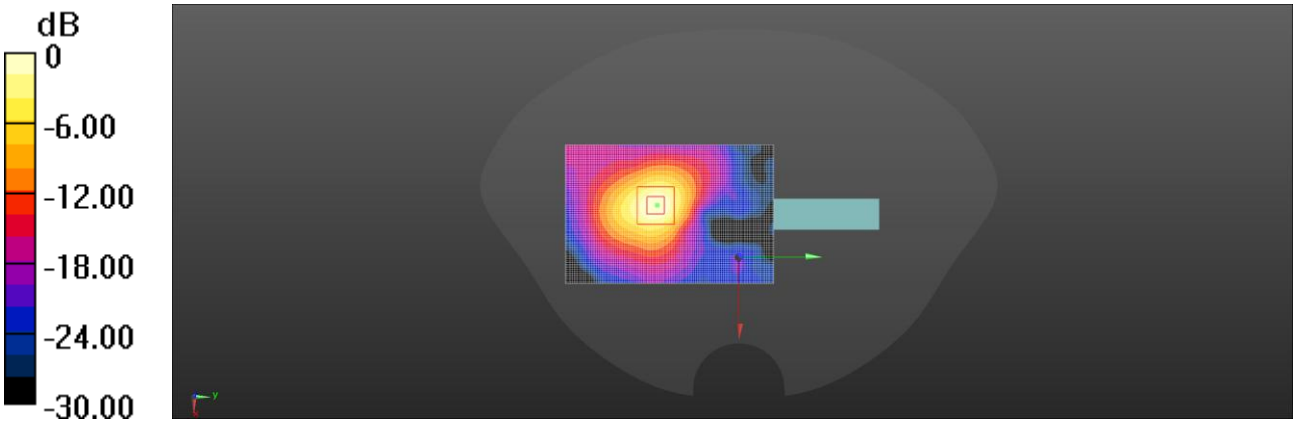
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5230 MHz; Medium parameters used: f = 5230 MHz; σ = 4.574 S/m; ε_r = 36.431; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.42, 5.27, 5.33); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.54 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.9920 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 2.47 W/kg
SAR(1 g) = 0.647 W/kg; SAR(10 g) = 0.220 W/kg
Maximum value of SAR (measured) = 1.49 W/kg



0 dB = 1.49 W/kg = 1.73 dBW/kg

Date: 3/20/2025

WLAN 5.8G-802.11n-HT40 MCS0-Right Side-CH159-5795MHz

DUT: Point Mobile P68

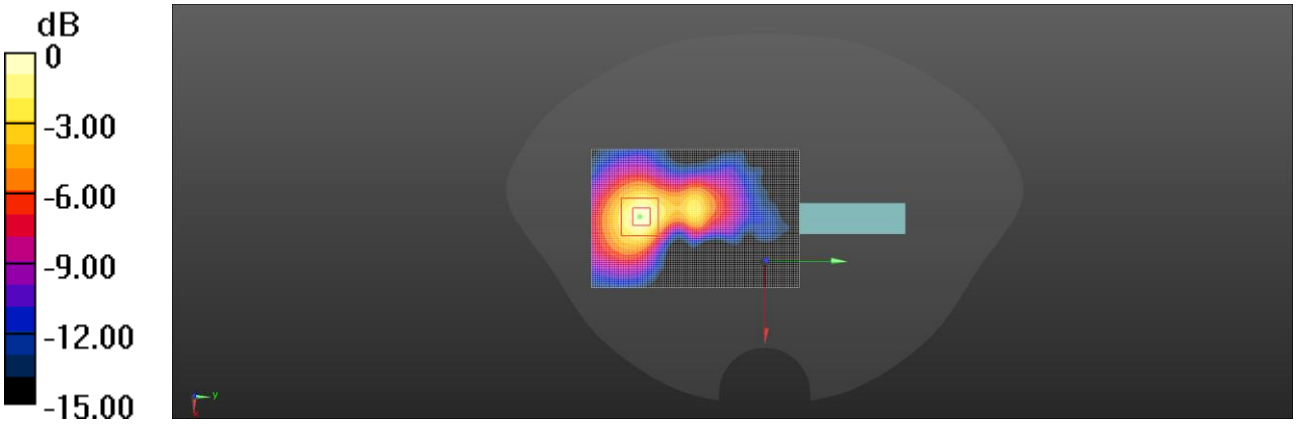
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5795 MHz; Medium parameters used: f = 5795 MHz; σ = 5.213 S/m; ε_r = 35.493; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.05, 4.91, 4.97); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.664 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.687 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.274 W/kg; SAR(10 g) = 0.101 W/kg
Maximum value of SAR (measured) = 0.652 W/kg



0 dB = 0.652 W/kg = -1.86 dBW/kg

Body worn SAR

Date: 3/18/2025

WLAN 2.4G-802.11b 1Mbps-Back-CH6-2437MHz

DUT: Point Mobile P68

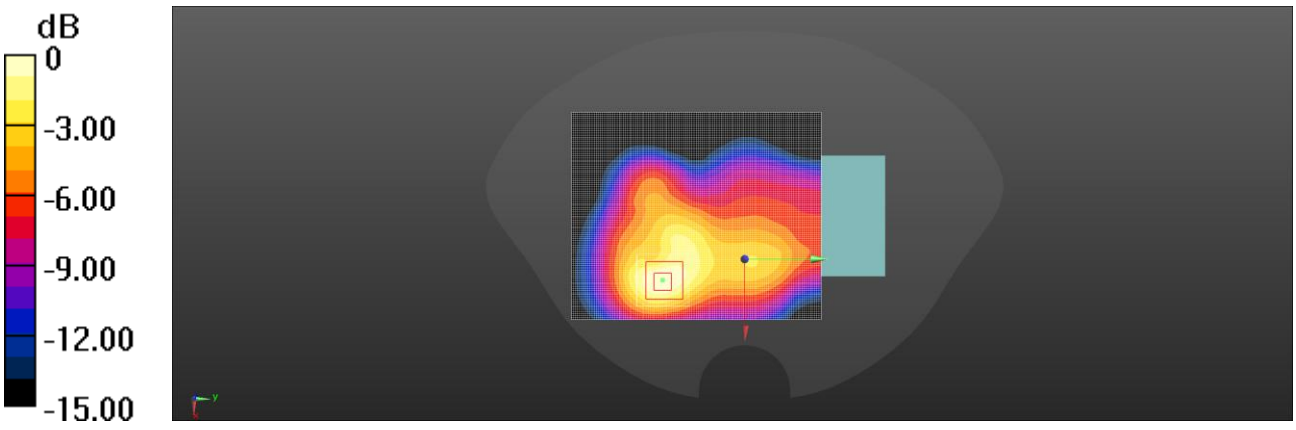
Communication System: UID 0, WIFI 2.4G (0); Communication System Band: 802.11b(20M); Duty Cycle: 1:1.006; Frequency: 2437 MHz; Medium parameters used: f = 2437 MHz; σ = 1.862 S/m; ε_r = 38.178; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(7.03, 6.83, 6.91); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.410 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.443 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.487 W/kg
SAR(1 g) = 0.263 W/kg; SAR(10 g) = 0.137 W/kg
Maximum value of SAR (measured) = 0.404 W/kg



0 dB = 0.404 W/kg = -3.94 dBW/kg

Date: 3/20/2025

WLAN 5.2G-802.11n-HT40 MCS0-Back-CH38-5190MHz

DUT: Point Mobile P68

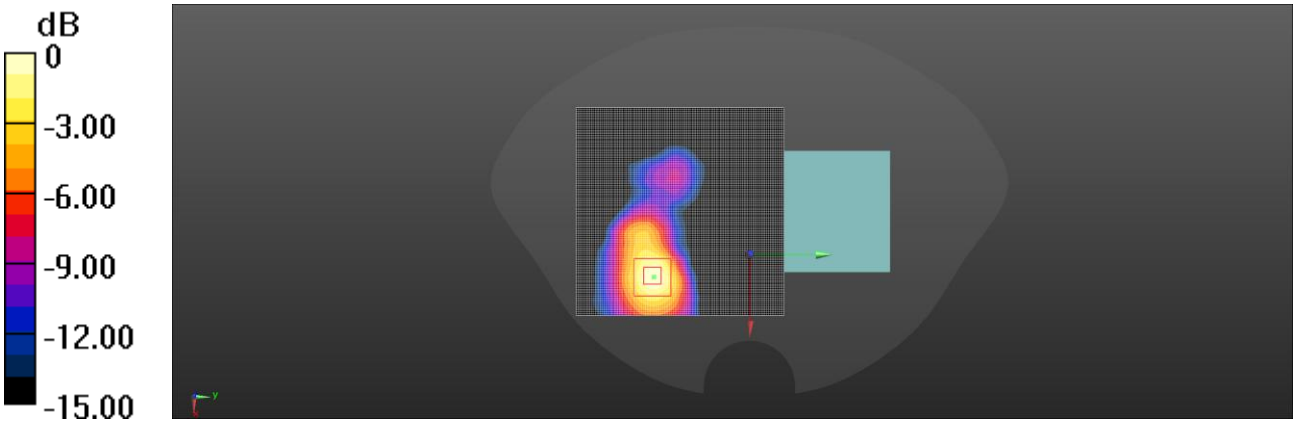
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5190 MHz; Medium parameters used: f = 5190 MHz; σ = 4.525 S/m; ε_r = 36.505; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.42, 5.27, 5.33); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.718 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.9260 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.326 W/kg; SAR(10 g) = 0.120 W/kg
Maximum value of SAR (measured) = 0.724 W/kg



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

Date: 3/20/2025

WLAN 5.3G-802.11n-HT40 MCS0-Back-CH54-5270MHz

DUT: Point Mobile P68

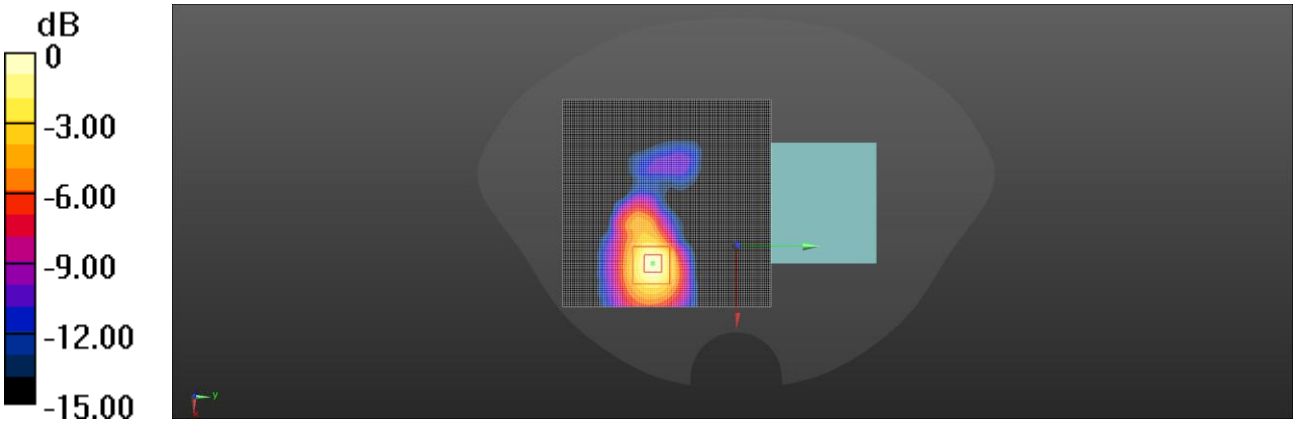
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5270 MHz; Medium parameters used: f = 5270 MHz; σ = 4.627 S/m; ε_r = 36.374; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.42, 5.27, 5.33); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.810 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.7070 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.368 W/kg; SAR(10 g) = 0.136 W/kg
Maximum value of SAR (measured) = 0.846 W/kg



0 dB = 0.846 W/kg = -0.73 dBW/kg

Date: 3/20/2025

WLAN 5.6G-802.11n-HT40 MCS0-Back-CH118-5590MHz

DUT: Point Mobile P68

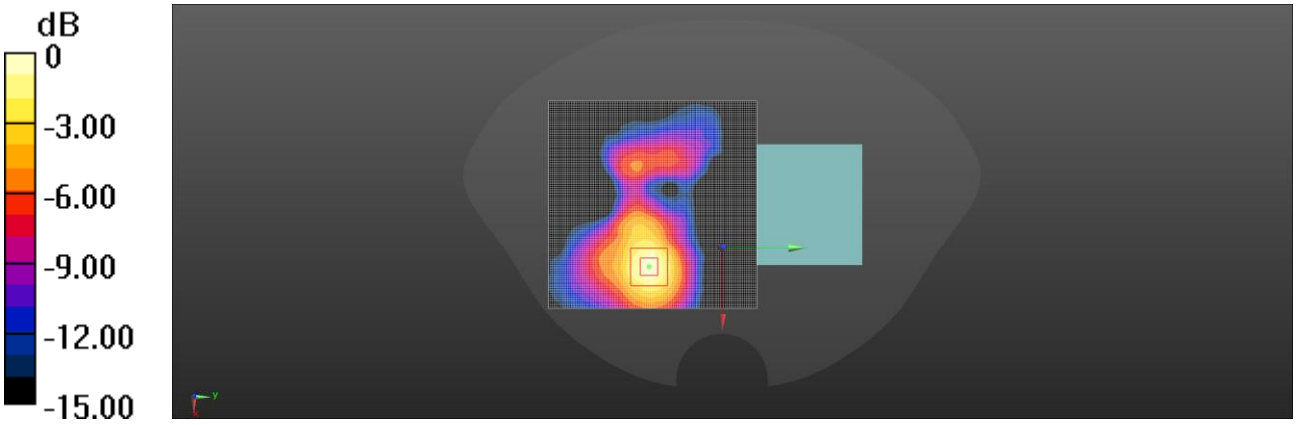
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5590 MHz; Medium parameters used: f = 5590 MHz; σ = 4.976 S/m; ε_r = 35.837; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(4.64, 4.51, 4.56); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.625 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.3160 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.278 W/kg; SAR(10 g) = 0.104 W/kg
Maximum value of SAR (measured) = 0.650 W/kg



0 dB = 0.650 W/kg = -1.87 dBW/kg

Date: 3/20/2025

WLAN 5.8G-802.11n-HT40 MCS0-Back-CH159-5795MHz

DUT: Point Mobile P68

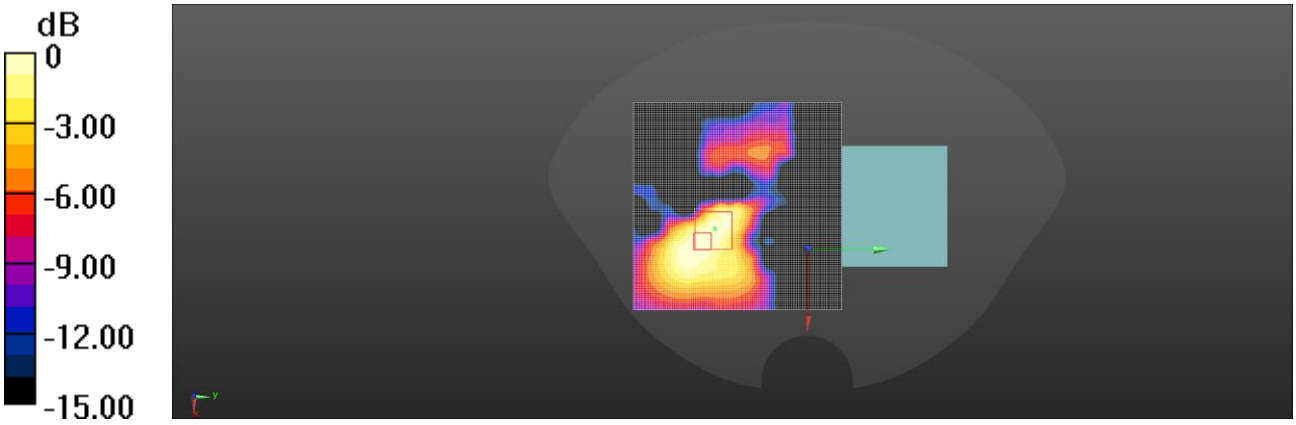
Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5795 MHz; Medium parameters used: f = 5795 MHz; σ = 5.213 S/m; ε_r = 35.493; ρ = 1000 kg/m^3

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.05, 4.91, 4.97); Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.269 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.622 W/kg
SAR(1 g) = 0.106 W/kg; SAR(10 g) = 0.040 W/kg
Maximum value of SAR (measured) = 0.267 W/kg



0 dB = 0.267 W/kg = -5.73 dBW/kg

Date: 3/20/2025

Test Laboratory: DEKRA Lab

WLAN 5.3G-802.11n-HT40 MCS0-Right Side-CH54-5270MHz

DUT: Point Mobile P68

Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078 Frequency: 5270 MHz; Medium parameters used: f = 5270 MHz; σ = 4.627 S/m; εr = 36.374; ρ = 1000 kg/m3 ; Phantom section: Flat Section

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(5.42, 5.27, 5.33) ; Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 11.3 W/kg

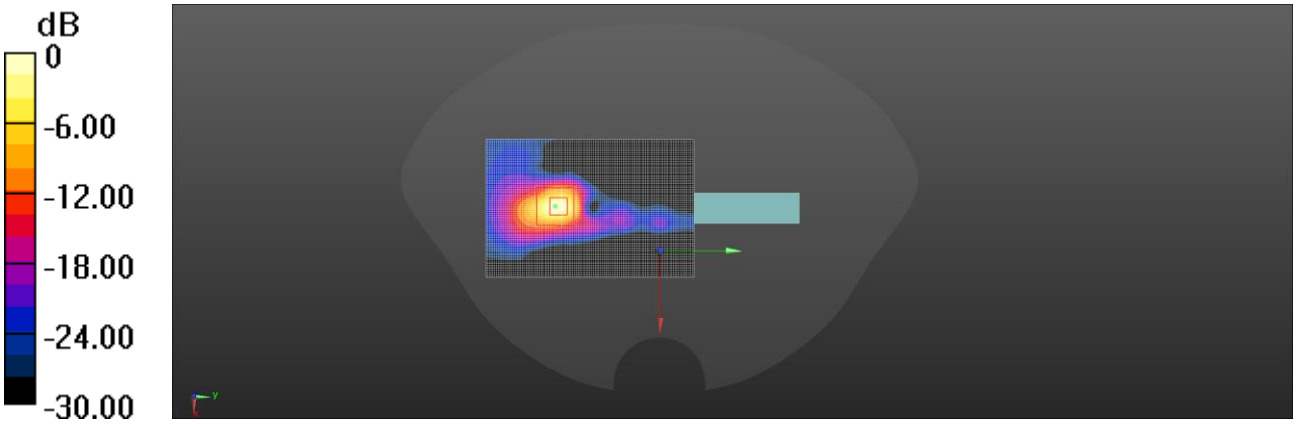
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.071 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 21.5 W/kg

SAR(1 g) = 4.09 W/kg; SAR(10 g) = 0.937 W/kg

Maximum value of SAR (measured) = 11.4 W/kg



0 dB = 11.4 W/kg = 10.57 dBW/kg

Date: 3/20/2025

Test Laboratory: DEKRA Lab

WLAN 5.6G-802.11n-HT40 MCS0-Right Side-CH102-5510MHz

DUT: Point Mobile P68

Communication System: UID 0, WIFI 5G (0); Communication System Band: 802.11n(40M); Duty Cycle: 1:1.078; Frequency: 5510 MHz; Medium parameters used: f = 5510 MHz; σ = 4.889 S/m; εr = 35.958; ρ = 1000 kg/m3 ; Phantom section: Flat Section

Ambient temperature (℃): 23.5, Liquid temperature (℃): 22.0

DASY5 Configuration:

- Probe: EX3DV4 - SN7761; ConvF(4.64, 4.51, 4.56) ; Calibrated: 9/19/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 8/8/2024
- Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP-1562
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.40 W/kg

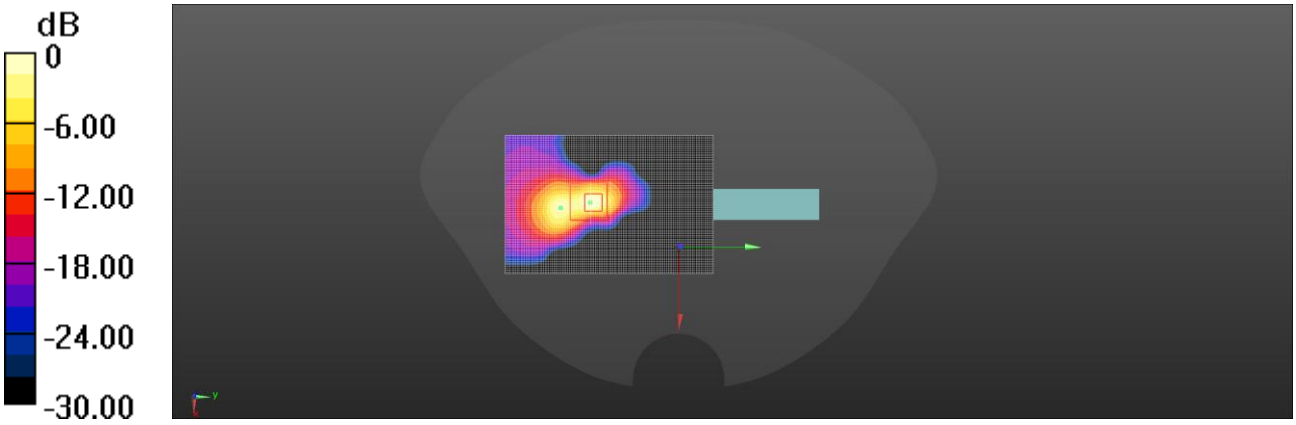
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 0 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 18.6 W/kg

SAR(1 g) = 2.94 W/kg; SAR(10 g) = 0.683 W/kg

Maximum value of SAR (measured) = 5.66 W/kg



0 dB = 5.66 W/kg = 7.53 dBW/kg

Appendix C. Probe Calibration Data

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Client	DEKRA Suzhou	Certificate No.	EX-7761_Sep24

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:7761
Calibration procedure(s)	QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6, QA CAL-25.v8 Calibration procedure for dosimetric E-field probes
Calibration date	September 19, 2024

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04036)	Mar-25
OCP DAK-3.5 (weighted)	SN: 1249	05-Oct-23 (OCP-DAK3.5-1249_Oct23)	Oct-24
OCP DAK-12	SN: 1016	05-Oct-23 (OCP-DAK12-1016_Oct23)	Oct-24
Reference 20 dB Attenuator	SN: CC2552 (20x)	26-Mar-24 (No. 217-04046)	Mar-25
DAE4	SN: 660	23-Feb-24 (No. DAE4-660_Feb24)	Feb-25
Reference Probe EX3DV4	SN: 7349	03-Jun-24 (No. EX3-7349_Jun24)	Jun-25

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-24)	In house check: Jun-26
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

	Name	Function	Signature
Calibrated by	Joanna Lleshaj	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	

Issued: September 19, 2024

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices – Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization $\vartheta = 0$ ($f \le 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \le 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ±50 MHz to ±100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Parameters of Probe: EX3DV4 - SN:7761

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc ($k = 2$)
Norm ($\mu V/(V/m)^2$) [A]	0.61	0.68	0.68	±10.1%
DCP (mV) [B]	107.6	104.0	107.1	±4.7%

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB$\sqrt{\mu V}$	C	D dB	VR mV	Max dev.	Max Unc[E] $k = 2$
0	CW	X	0.00	0.00	1.00	0.00	132.6	±3.0%	±4.7%
		Y	0.00	0.00	1.00		121.3		
		Z	0.00	0.00	1.00		144.9		
10352	Pulse Waveform (200Hz, 10%)	X	2.00	62.00	7.00	10.00	60.0	±3.3%	±9.6%
		Y	1.52	60.64	6.39		60.0		
		Z	1.66	61.30	6.81		60.0		
10353	Pulse Waveform (200Hz, 20%)	X	0.83	60.00	5.12	6.99	80.0	±2.7%	±9.6%
		Y	0.83	60.00	5.01		80.0		
		Z	0.84	60.00	5.11		80.0		
10354	Pulse Waveform (200Hz, 40%)	X	0.47	152.59	4.00	3.98	95.0	±2.8%	±9.6%
		Y	2.00	64.00	5.00		95.0		
		Z	0.46	60.00	4.03		95.0		
10355	Pulse Waveform (200Hz, 60%)	X	12.42	151.62	9.30	2.22	120.0	±1.9%	±9.6%
		Y	13.07	145.57	10.03		120.0		
		Z	13.45	148.96	5.34		120.0		
10387	QPSK Waveform, 1 MHz	X	0.57	62.02	11.22	1.00	150.0	±4.2%	±9.6%
		Y	0.65	61.93	10.74		150.0		
		Z	0.67	62.91	11.48		150.0		
10388	QPSK Waveform, 10 MHz	X	1.30	64.24	13.12	0.00	150.0	±1.6%	±9.6%
		Y	1.32	63.53	12.65		150.0		
		Z	1.39	64.52	13.25		150.0		
10396	64-QAM Waveform, 100 kHz	X	1.65	63.77	15.58	3.01	150.0	±0.9%	±9.6%
		Y	1.70	63.95	15.45		150.0		
		Z	1.75	64.49	15.75		150.0		
10399	64-QAM Waveform, 40 MHz	X	2.78	65.47	14.57	0.00	150.0	±2.1%	±9.6%
		Y	2.81	65.16	14.31		150.0		
		Z	2.88	65.70	14.65		150.0		
10414	WLAN CCDF, 64-QAM, 40 MHz	X	4.00	66.04	15.24	0.00	150.0	±3.9%	±9.6%
		Y	3.91	65.03	14.71		150.0		
		Z	3.95	65.44	14.95		150.0		

Note: For details on UID parameters see Appendix

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Linearization parameter uncertainty for maximum specified field strength.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

Parameters of Probe: EX3DV4 - SN:7761

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms\,V^{-2}$	T2 $ms\,V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
x	11.5	81.99	32.62	4.27	0.00	4.90	0.34	0.00	1.00
y	13.4	96.56	33.03	4.15	0.00	4.90	0.50	0.00	1.01
z	12.7	90.65	32.66	4.18	0.00	4.90	0.52	0.00	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	-50.5°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Note: Measurement distance from surface can be increased to 3–4 mm for an *Area Scan* job.

Parameters of Probe: EX3DV4 - SN:7761

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz)[C]	Relative Permittivity[F]	Conductivity[F] (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unc[H] ($k = 2$)
13	55.0	0.75	14.53	14.51	15.55	0.00	1.25	±13.3%
450	43.5	0.87	10.35	10.35	10.35	0.16	1.30	±13.3%
750	41.9	0.89	9.18	8.93	9.03	0.34	1.27	±11.0%
835	41.5	0.90	9.11	8.85	8.95	0.34	1.27	±11.0%
900	41.5	0.97	8.58	8.34	8.44	0.34	1.27	±11.0%
1750	40.1	1.37	7.72	7.50	7.59	0.34	1.27	±11.0%
1900	40.0	1.40	7.45	7.25	7.33	0.34	1.27	±11.0%
2100	39.8	1.49	7.53	7.32	7.40	0.35	1.27	±11.0%
2300	39.5	1.67	7.29	7.09	7.17	0.35	1.27	±11.0%
2450	39.2	1.80	7.03	6.83	6.91	0.35	1.27	±11.0%
2600	39.0	1.96	7.10	6.90	6.98	0.35	1.27	±11.0%
3300	38.2	2.71	6.30	6.13	6.20	0.35	1.27	±13.1%
3500	37.9	2.91	6.39	6.21	6.28	0.35	1.27	±13.1%
3700	37.7	3.12	6.03	5.86	5.93	0.36	1.27	±13.1%
3900	37.5	3.32	6.29	6.11	6.18	0.36	1.27	±13.1%
4100	37.2	3.53	6.00	5.83	5.90	0.36	1.27	±13.1%
4200	37.1	3.63	6.02	5.85	5.92	0.36	1.27	±13.1%
4400	36.9	3.84	5.93	5.76	5.83	0.36	1.27	±13.1%
4600	36.7	4.04	5.79	5.63	5.70	0.36	1.27	±13.1%
4800	36.4	4.25	5.94	5.77	5.84	0.36	1.27	±13.1%
4950	36.3	4.40	5.85	5.68	5.75	0.35	1.27	±13.1%
5250	35.9	4.71	5.42	5.27	5.33	0.32	1.27	±13.1%
5600	35.5	5.07	4.64	4.51	4.56	0.29	1.27	±13.1%
5750	35.4	5.22	5.05	4.91	4.97	0.27	1.27	±13.1%

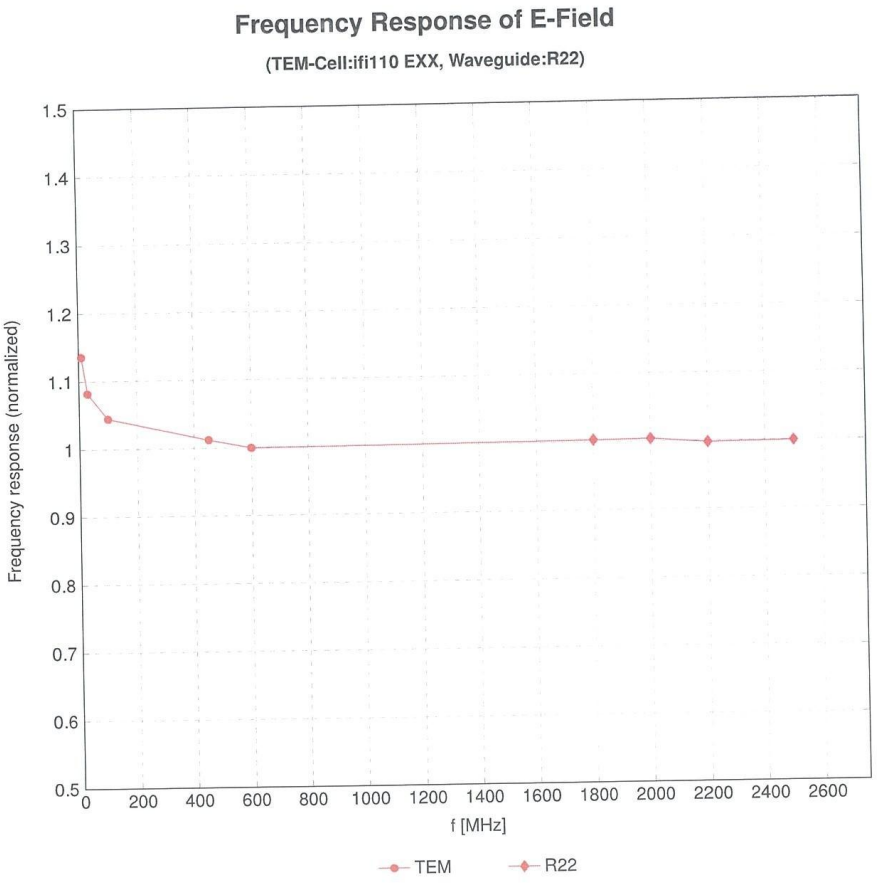
[C] Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.
[F] The probes are calibrated using tissue simulating liquids (TSL) that deviate for ε and σ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10% if SAR correction is applied.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.
[H] The stated uncertainty is the total calibration uncertainty ($k = 2$) of Norm·ConvF. This is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

Parameters of Probe: EX3DV4 - SN:7761

Calibration Parameter Determined in Head Tissue Simulating Media

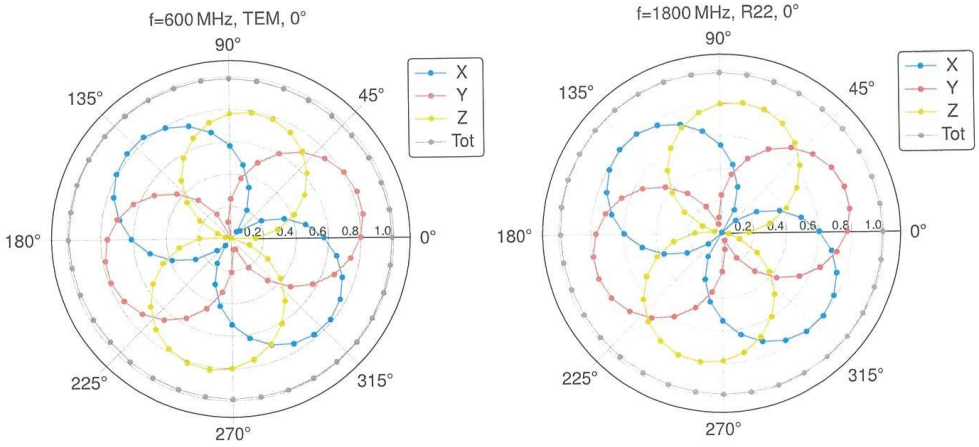
f (MHz)[C]	Relative Permittivity[F]	Conductivity[F] (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unc[H] ($k = 2$)
6500	34.5	6.07	5.22	5.08	5.13	0.20	1.27	±18.6%

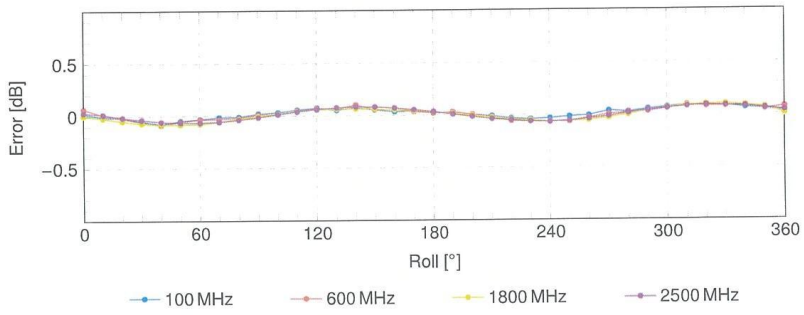
[C] Frequency validity at 6.5 GHz is −600/+700 MHz, and ±700 MHz at or above 7 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] The probes are calibrated using tissue simulating liquids (TSL) that deviate for ε and σ by less than ±10% from the target values (typically better than ±6%) and are valid for TSL with deviations of up to ±10%.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–6 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.
[H] The stated uncertainty is the total calibration uncertainty ($k = 2$) of Norm·ConvF. This is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.



Uncertainty of Frequency Response of E-field: ±6.3% (k=2)

Receiving Pattern (ϕ), $\vartheta = 0°$

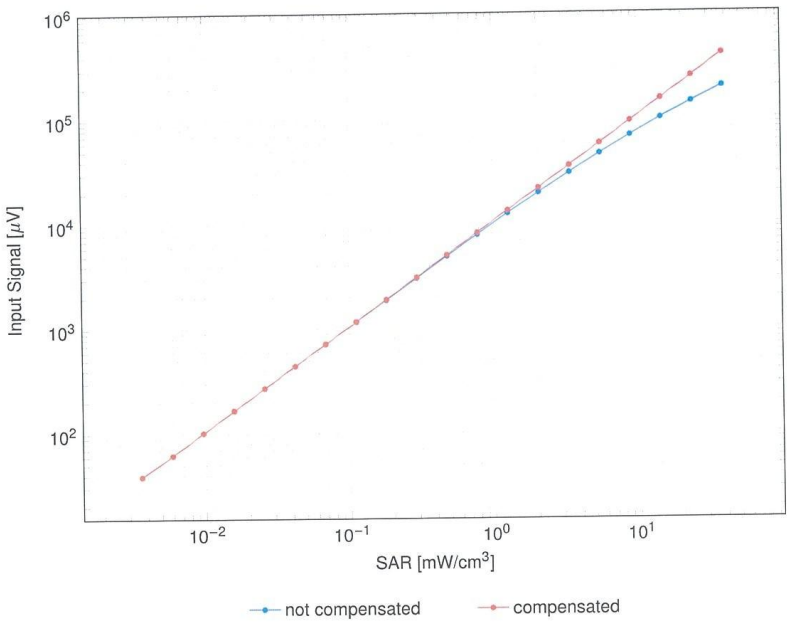


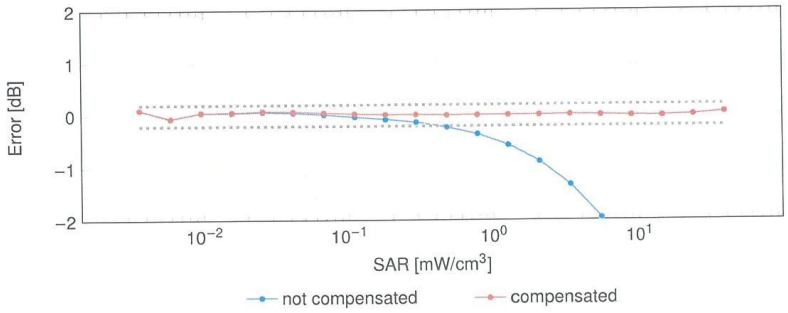


Uncertainty of Axial Isotropy Assessment: ±0.5% (k=2)

Dynamic Range f(SAR_{head})

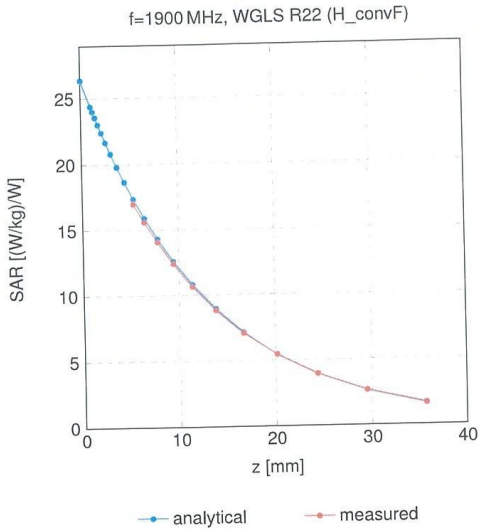
(TEM cell, f_{eval} = 1900 MHz)





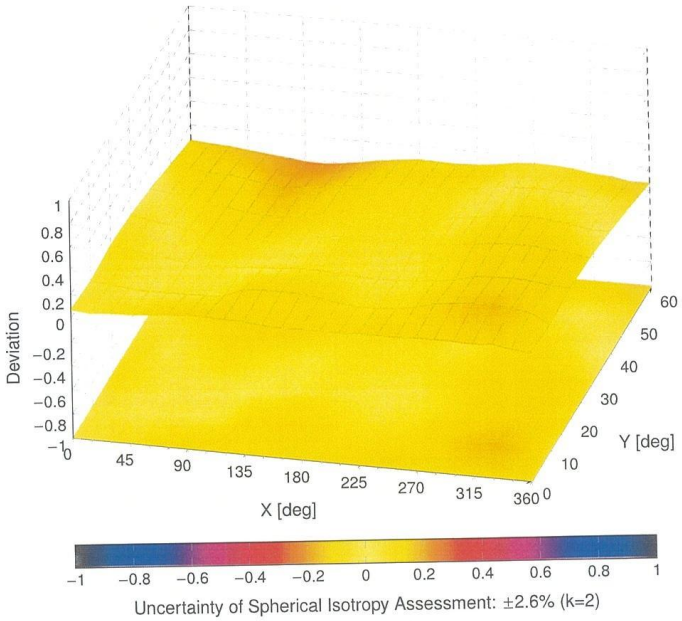
Uncertainty of Linearity Assessment: ±0.6% (k=2)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ±2.6% (k=2)

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc^E $k=2$
0		CW	CW	0.00	±4.7
10010	CAB	SAR Validation (Square, 100 ms, 10 ms)	Test	10.00	±9.6
10011	CAC	UMTS-FDD (WCDMA)	WCDMA	2.91	±9.6
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	±9.6
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	±9.6
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	±9.6
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	±9.6
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	±9.6
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	±9.6
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	±9.6
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	±9.6
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	±9.6
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	±9.6
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	±9.6
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	±9.6
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	±9.6
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	±9.6
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	±9.6
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	±9.6
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	±9.6
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	±9.6
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	±9.6
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	±9.6
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	±9.6
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	±9.6
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	±9.6
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	±9.6
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	±9.6
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	±9.6
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	±9.6
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	±9.6
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	±9.6
10062	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	±9.6
10063	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	±9.6
10064	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	±9.6
10065	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	±9.6
10066	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	±9.6
10067	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	±9.6
10068	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	±9.6
10069	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	±9.6
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	±9.6
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	±9.6
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	±9.6
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	±9.6
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	±9.6
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	±9.6
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	±9.6
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	±9.6
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	±9.6
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	±9.6
10097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.98	±9.6
10098	CAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	±9.6
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	±9.6
10100	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	±9.6
10101	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
10102	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10103	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	±9.6
10104	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	±9.6
10105	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	±9.6
10108	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	±9.6
10109	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10110	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	±9.6
10111	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	±9.6

UID	Rev	Communication System Name	Group	PAR (dB)	Unc^E $k=2$
10112	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	±9.6
10113	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	±9.6
10114	CAE	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	±9.6
10115	CAE	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	±9.6
10116	CAE	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	±9.6
10117	CAE	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	±9.6
10118	CAE	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	±9.6
10119	CAE	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	±9.6
10140	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	±9.6
10141	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	±9.6
10142	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	±9.6
10143	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	±9.6
10144	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	±9.6
10145	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	±9.6
10146	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	±9.6
10147	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	±9.6
10149	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
10150	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10151	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	±9.6
10152	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	±9.6
10153	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	±9.6
10154	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	±9.6
10155	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10156	CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	±9.6
10157	CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	±9.6
10158	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	±9.6
10159	CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	±9.6
10160	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	±9.6
10161	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10162	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	±9.6
10166	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	±9.6
10167	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	±9.6
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	±9.6
10169	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	±9.6
10170	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10171	AAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	±9.6
10172	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	±9.6
10173	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10174	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10175	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	±9.6
10176	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10177	CAJ	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	±9.6
10178	CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10179	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10180	CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10181	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	±9.6
10182	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10183	AAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10184	CAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	±9.6
10185	CAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	±9.6
10186	AAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10187	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	±9.6
10188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10189	AAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	±9.6
10194	CAE	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	±9.6
10195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	±9.6
10196	CAE	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	±9.6
10197	CAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	±9.6
10198	CAE	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	±9.6
10219	CAE	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	±9.6
10220	CAE	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	±9.6
10221	CAE	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	±9.6
10222	CAE	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	±9.6
10223	CAE	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	±9.6
10224	CAE	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	±9.6